PLANNING BOARD

Tuesday, July 11, 2023 at 4:30 PM
Room 24 (Basement Level of City Hall)
and Zoom

MEMBERS
Brandon Mazer, Chair
Justin Barker, Vice Chair
Marpheen Chann
Sean Murphy
David Silk
Austin Smith
Maggie Stanley

The Planning Board will hold a hybrid meeting in Room 24, Basement Level City Hall. The public may attend the meeting in person or Zoom pursuant to the Remote Meeting Policy adopted by the Planning Board. Prior to the meeting, please check the Agenda Center (https://portlandme.portal.civicclerk.com) to view memos and reports which will be posted by the end of the day on the Friday before the Planning Board meeting as well as start times for each item as placement on the agenda can change.

To submit written public comment on an agenda item, email planningboard@portlandmaine.gov. Submissions must be received by 12:00 pm the day before the Planning Board meeting to guarantee their inclusion in the agenda packet. All submissions must include the commenter's name and legal address. To help ensure your comment is submitted for the correct item, please include the name of the agenda item (see below).

REMOTE PARTICIPATION

Allow your computer to install the free Zoom app to get the best meeting experience. If you are not able to attend either in person or via Zoom, a recording will be available in the Agenda Center following the meeting.

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AGENDA:

WORKSHOP - 4:30 PM

i. Level III Site Plan, Subdivision and Conditional Use; 58 Fore Street; Portland Foreside Development Company, Applicant. The Planning Board will hold a hybrid workshop to consider a proposal for Phase 2 of the Portland Foreside Master Development Plan (MDP), which involves development of Blocks 4, 5 and 6 of the project. The development would include 444 residential units, 98,851 square feet of retail, service and restaurant space, 644 -off-street parking spaces, and a 128-room hotel. This application also includes a major subdivision amendment, and will trigger inclusionary zoning conditional use review. The subject property is a 10.7-acre parcel zoned B-6, R-6, and EWPZ, with a portion of the site located within the Shoreland Zone and within the Portland Company Historic District and Munjoy Hill Historic District. A project and plan summary are available for viewing on the city's CSS Portal (https://css.portlandmaine.gov/) by referencing Plan Number PL-002202-2022.

PUBLIC HEARING - 6:00 PM

1. ROLL CALL AND DECLARATION OF QUORUM

2. COMMUNICATION AND REPORTS

3. REPORT OF ATTENDANCE AT THE MEETING HELD ON JUNE 27, 2023

Attendance will be added as soon as it is finalized.

4. REPORTS OF DECISIONS AT THE MEETING HELD ON JUNE 27, 2023

i. Decisions will be added as soon as they are finalized.

5. NEW BUSINESS

i. Major Site Plan; 172 Bishop Street; University of New England, Applicant. The Planning Board will hold a hybrid public hearing to consider a proposal to redevelop an existing surface parking area located at 172 Bishop Street as an intermodal transportation facility with 344 parking spaces, 72 electric vehicle charging stations, and defined pick-up/drop-off area for the UNE shuttle. The subject property totals 19.2 acres and is zoned R-3 Residential, I-M Moderate Impact Industrial, and I-H High Impact Industrial. A project and plan summary are available for viewing on the city's CSS Portal (https://css.portlandmaine.gov/) by referencing Plan Number PL-002343-2023.A project and plan summary are available for viewing on the city's CSS Portal (https://css.portlandmaine.gov/) by referencing Plan Number ZN-002413-2023.

ii. Subdivision; 1190 Brighton Avenue; Dirigo Center Developers, LLC and Waterstone Properties Group, Inc., Applicant. The Planning Board will hold a hybrid public hearing to amend the Subdivision approvals for the North and South Campus of the Rock Row Subdivision, that was approved by the Portland and Westbrook Planning Boards in 2022. The amendment involves reconfiguration of a portion of the roadway network, reconfiguration of two lots, and the creation of 13 new lots. All of the proposed changes are occurring within the Westbrook municipal boundary and do not affect any portion of the subdivision within the City of Portland. The subdivision amendment requires approval by both the City of Portland and the City of Westbrook, with the Westbrook Planning Board having approved the subdivision amendment on May 2, 2023. The subject parcels total 16.48 acres in size and are zoned B-4 Commercial Corridor and I-L Low Impact Industrial. A project and plan summary are available for viewing on the city's CSS Portal (https://css.portlandmaine.gov/) by referencing Plan Number PL-002553-2023.

To:	Chair Mazer & Members of the Planning Board
From:	Charles Tetelman
Date:	July 7, 2023
Re:	58 Fore St. Portland Foreside Development
Project ID:	PL-002202-2022,
CBLs:	018 A003001, 018 A001001, 002 A003001
Meeting Date:	July 11, 2023

I. INTRODUCTION

Portland Foreside Development Company has submitted a Level III Site Plan and Subdivision application to facilitate a new mixed-use development at the former Portland Company property located at 58 Fore Street, which encompass blocks 4, 5 and 6 as shown on the 58 Fore Street Master Development Plan (MDP), approved by the Planning Board on December 20, 2016 (Attachment C). The development would total 966,644 total square feet of new floor area, and would include 444 residential units, 52.916 square feet of retail, service, and restaurant space, 644 off-street parking spaces, and a 128-room hotel.



Figure 1: Proposed 58 Fore St. Rendering

The Planning and Urban Development Department mailed 276 notices advertising this meeting to property owners within 500 feet of the site. A legal advertisement ran in the June 30, 2023 and July 1, 2023 editions of the *Portland Press Herald*.

The Planning Board held an initial workshop on January 10, 2023.

Applicant:	Portland Foreside Development Company
Applicant Representatives:	Woodard & Curran, Inc. Michael Boucher Landscape Architecture (MBLA) Perkins & Will Marvel Baskervill Turner Construction

II. REQUIRED REVIEWS + PROJECT DATA

Review	*Applicable Standards*
Master Development Plan	Section 14-532, Article 14.12.2
Level III Site Plan*	Section 14-526
Subdivision*	Section 14-497
Inclusionary Zoning*	Section 14-474, Section 14-487 Article 18.2.3
Site Location of Development	Technical Manual Section 14
Historic Preservation	Certificate of Appropriateness HP Advisory Review
Design Review	Section 14 (iii) MDP Standards of Review Eastern Waterfront Master Plan City of Portland Design Manual (*g*) *EWPZ Eastern Waterfront Port Zone and B-6 Eastern Waterfront Mixed Use Zone*
*Approval of Master Development Plans confer pending proceeding status upon the development with the effect of maintaining the applicability of municipal regulations in effect at the time of approval for as long as the Master Development Plan approval remains valid, including permissible extensions.	

Waiver Requests	*Applicable Standards*
Applicant received a waiver of the Stormwater Flooding Standard as part of the Master Development Plan approval in 2016.	City of Portland Technical Manual Section 5: Stormwater Management Standards Maine DEP Chapter 500 Stormwater Management Section IV.
Applicant is requesting a waiver for driveway apron grading, noting the existing Fore Street slope does not allow for a continuously graded driveway apron without pedestrian ramps.	City of Portland Technical Manual Section 1 (1.7.3): Driveway Aprons shall ramp up to the grade of sidewalk, where feasible. Driveway between roadway and pedestrian access route shall be designed to a maximum slope of 15%.

Project Data	
Existing Zoning	B-6 Eastern Waterfront Mixed Zone R-6 Residential EWPZ Eastern Waterfront Port Zone Shoreland Zone
Historic Districts	Portland Company Historic District (Block 4) Munjoy Hill Historic District (Block 6)
Property Size	438,900 sq. ft. (~10 acres)
Existing Use	Blocks 4 and 6: Vacant Block 5: Parking Lot

Proposed Use	Residential (444 units – 471,620 sq. ft.) Retail/Service/Restaurant (98,851 sq. ft.) Parking (644 spaces – 249,594 sq. ft.)

III. BACKGROUND + PREVIOUS APPROVALS

In 2016, the Planning Board approved the Portland Foreside Master Development Plan (MDP) which included a proposal to comprehensively redevelop the former Portland Company industrial site (approximately 10 acres of land area and 13.2 acres in submerged land lease). This approval would effectively create a new mixed-use neighborhood along Portland's eastern waterfront with nearly 1,000,000 sq. ft. of new residential and commercial space as well as vehicle parking, marina access, public open space, and a new walking path along the water's edge.

Approved MDP Program	
Commercial + Residential Space	~1,000,000 sq. ft.
Residential Unit Count	638
Structured Parking Spaces	736
Marina	220 Slips 2,600 sq. ft. Marina Building
Other Amenities	Public Open Spaces Waterfront Walkways

Since the approval of the MDP, the applicant has received approvals for the expansion of the Fore Points Marina on Block 7 and for Phase I of the development, which included a mixed-use building with office, retail, and parking use and reconstruction of historic building #12 on Blocks 1, 2, and 4. The *Previous Approvals* section of the January 10, 2023 Planning Board Workshop memo (Attachment A) provides a summary of the projects stemming from the MDP listed below:

Project	Project ID
Portland Foreside Master Development Plan	#2016-224 (includes TMP) (approved 12/20/16) PL-001654-2021 (approved 11/23/21)
Fore Points Marina	PL-000330-2018 (approved 1/16/19) PL-000906-2019 (approved 4/17/20) PL-001656-2021 (approved 1/13/22) PL-002289-2022 (approved 1/29/23) PL-002252-2022 **(Planning Authority review)**
Phase 1 Site Plan (Blocks 1 + 2 + 4)	PL-000924-2019 (approved 1/28/20) PL-002253-2022 **(Planning Authority review)**
Phase 2 Site Plan (Blocks 4 + 5 + 6)	PL-002202-2022 **(Planning Board review)**

IV. PROPOSED DEVELOPMENT

I. Proposed Development

Portland Foreside Development Company has submitted a Level III Site Plan application to facilitate the development of a 966,644 square foot structure across Block 4, Block 5, and Block 6; considered Phase 2 of the Portland Foreside MDP. The proposed development includes a unified foundation in the form of a parking plinth with three distinct structures built above. The applicant proposes to extend Thames Street through the interior of the site ending at the parking podium in between the three blocks.

The proposed structure includes 444 residential units (471,620 sq. ft.), 52,915 sq. ft. of retail, service, and restaurant space, a hotel with 128 units (128,309 sq. ft.), and 644 parking spaces (249,594 sq. ft.). The development includes a variety of residential units including studio, 1-bedroom, and 2-bedroom rental units as well as townhomes and condominiums, and will open up the site for public access, establishing new open spaces and enhancing existing open spaces along the waterfront. The table below provides a breakdown of programming for each proposed Block.

Proposed Use	*Block 4*	*Block 5*	*Block 6*	*Total*
Residential	247 units 200,866 sq. ft.	43 units 74,094 sq. ft.	154 units 196,660 sq. ft.	444 units 471,620 sq. ft.
Retail / Service / Restaurant	1,100 sq. ft.	42,708 sq. ft.	9,108 sq. ft.	52,916 sq. ft.
Parking	443 spaces 168,374 sq. ft.	35 spaces 13,422 sq. ft.	166 spaces 67,798 sq. ft.	644 spaces 249,594 sq. ft.
Hotel	N/A	128 rooms 128,309 sq. ft.	N/A	128 rooms 128,309 sq. ft.

II. Block 4



Figure 3: Block 4 Rendering from private driveway extending from Thames Street Extension

The approved Phase 1 level III site plan included some work Block 4, which included a five-level parking garage and townhomes along Fore Street, including 12 residential units, 1,100 sq. ft. of commercial space, and 652 parking spaces. Construction associated with the 2019 approval on Block 4 was not completed. The applicant has since submitted an amendment to the Phase I site plan which removes unconstructed features, to ensure that approved site plans are consistent with one another. The current Level III Site Plan application includes a different program for Block 4 (although still within the scope of the MDP). As proposed, the Block 4 building is nine stories, which includes a mixture of 247 residential units, 1,100 sq. ft. of retail, service, and restaurant space, and 454 parking spaces. The Block 4 parking garage connects below-grade to structured parking beneath both Block 5 and Block 6.

Block 4 has two residential components that include a row of townhomes along Fore Street in between the view corridors and apartments for rent above the parking garage. The applicant has provided a shared landing to provide adequate ADA access to the buildings. Two of the townhomes closer to Block 2 are within the Portland Company Historic District and are under review by the Historic Preservation Board.



Figure 4: Block 4 Fore Street Townhomes as seen from Fore Street

III. Block 5

Block 5 would consist of an eight-story structure extending along the waterfront which would include a 128,309 sf hotel with 128 rooms on the western side of the building, and a 43-unit residential condominium within the eastern portion of the Block 5 principal structure. The applicant is proposing 1,100 sq. ft. of retail and restaurant space on the first floor of Block 5.



Figure 5: Block 5 Rendering, looking east

IV. Block 6

The proposed development on Block 6 would consist of a ten-story building with 154 condominium units, 9,108 sq. ft. of retail, service, and restaurant space, and 166 parking spaces (249,594 sq. ft.). The building includes an interior courtyard with ground-level retail. As proposed, Block 6 also includes an area of bituminous pavement within the R-6 Residential portion of the site, which connects to the Eastern Promenade road via two existing driveways.



Figure 6: Block 6 Rendering, as seen from the marina

V. Subdivision

The applicant has submitted a subdivision amendment which divides the property into ten parcels with utility and access space held in common with reciprocal access and utility easements granted to both proposed parcels. This subdivision amendment will be subdividing Parcel 5 into Parcels 5 and 6, and

includes adjacent land area recently acquired by the applicant. City Staff are still reviewing the Subdivision Plat (Plan 5).

V. PREVIOUS WORKSHOPS

At the January 10, 2023 Planning Board workshop, City Staff provided an overview of the Portland Foreside Master Development plan, previous site plan approvals, and the proposed development associated with Blocks 4 and 6. The Planning Board discussed the scope of the MDP as it relates to the proposed site plan application. The Planning Board Memo from January (Attachment A) has been included as part of this memo package. City Staff noted that the MDP establishes general parameters to be adhered to for redevelopment of the site while providing a high-level, overall framework plan for the proposed development. City Staff confirmed that the MDP maintains the applicability of municipal regulations in effect at the time of the approval for as long as the MDP approval remains valid. City Staff have included a memo from the Director of the Planning & Urban Development Department (Attachment K) with a determination that the current Master Development Plan for 58 Fore Street has not expired.

Focusing on the site plan, the Planning Board requested additional information regarding site circulation and traffic loading, more information regarding the height of the proposed structures, clarification on right, title, and interest, and potential improvements along Fore Street. At the time of the workshop, City Staff were primarily focused on providing an overview of the project and scope of the review.

Since the Workshop, City Staff and Third-Party Reviewers have continued to review the applicant's submission while providing feedback and direction. In addition to the standard comment memos (Attachments G, H, I), Planning Staff communicated major site plan concerns and constraints via email (Attachments F + J). Over the course of the review, City Staff and Third-Party Reviewers requested clarity on the updated MDP programming, average grade calculations, maintenance of the Fore Street retaining wall, clarification on the parking plinth as a common unifying support structure, and a future Block 5 submission.

In April, the applicant updated their application to include Block 5 as part of this Level III Site Plan. This addition required the applicant to hold a second neighborhood meeting and required additional review from City Staff and Third-Party reviewers.

VI. RIGHT, TITLE, & INTEREST

The applicant has provided short form quitclaim deed with covenant as demonstration of Right, Title, and Interest (Attachments 3).

The applicant has also provided an existing easement between the City of Portland and formerly the Portland Company from 1876 which grants the City the right to build the Fore Street retaining wall and access to maintain the retaining wall (Attachments 38 + 39). As part of the proposed development, Portland Foreside is proposing to take on maintenance responsibility for the existing retaining wall once the structure is occupied. City Staff have are reviewing this request and will provide feedback at a later date.

The applicant will require an encroachment license with the City of Portland to place footings within the Fore Street right-of-way above the retaining wall. The applicant has provided a draft Revocable Encroachment License to be reviewed by Corporation Counsel, the Planning Authority, and the Department of Public Works (Attachment 12).

City Staff are still reviewing the proposed Subdivision Plat amendment (Plan 5) and may require additional draft easements.

The Portland City Council passed Order 116-22/23 which approved the sixth amendment of the land exchange agreement between CPB2 Management LLC, the Maine Department of Transportation, and the City of Portland. The proposed development and supporting documents and drawings are designed around the boundaries established as part of this land swap. The applicant will be required to provide final agreements once executed.

The applicant will need to submit all existing easements located on site including easements with or from Central Maine Power and Portland Water District.

VII. FINANCIAL & TECHNICAL CAPACITY

The applicant has provided two letters demonstrating Financial Capacity. The first from Rockland Trust Company Senior Vice President Rose M. Buckley dated September 14, 2022 and the second from Middlesex Savings Bank Senior Vice Presidents Mary Ann Devlin and Robert F. Millerick dated September 16, 2022 (Attachment 2).

The applicant has included a summary of the engineering, landscape architecture, and architecture firms and partners who are completing various aspects of design (Attachment 2). The five main consultants include Woodard & Curran, MBLA, Perkins+Will, Baskervill, and Marvel. The combined experiences and portfolios of all partners demonstrate technical capacity.

VIII. ZONING ANALYSIS

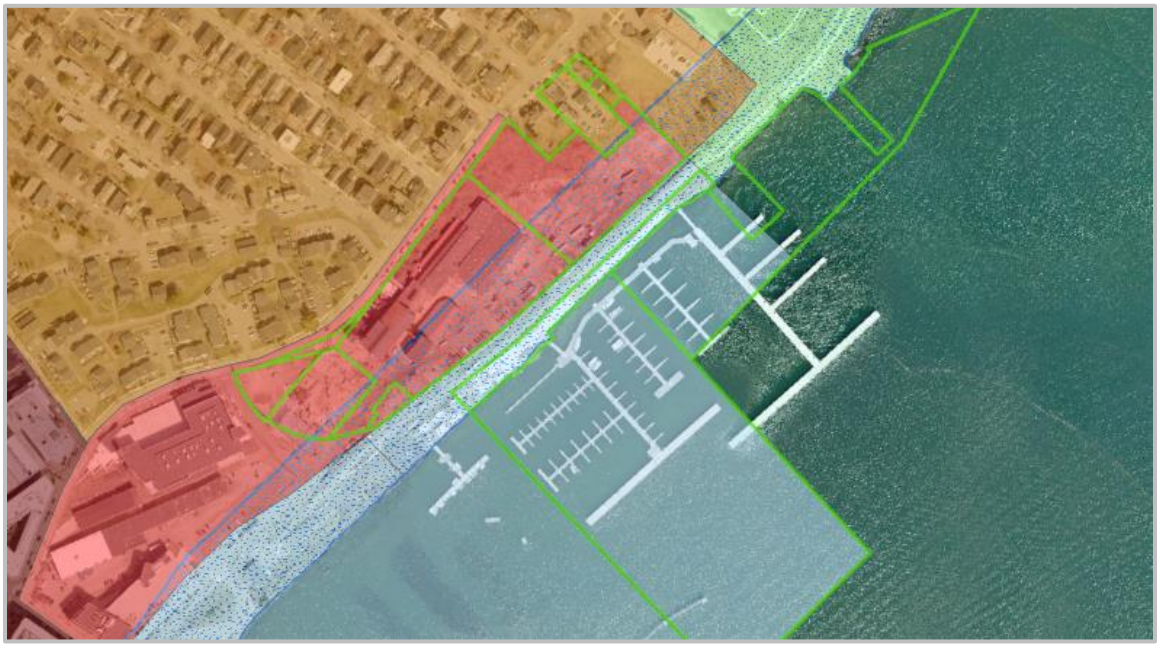


Figure 7: Zoning Context

The proposed development is located within the B-6 Eastern Waterfront zone, R-6 Residential zone, and is within the Shoreland Zone as shown in Figure 7

B-6 Eastern Waterfront (Blocks 4, 5, 6)

The proposed development is being reviewed under the B-6 Eastern Waterfront zone standards and dimensional requirements (Table 7-E) and the B-6 Height Overlay Map (Attachment L) shown below:

Dimensional Requirement	Required	Status
Maximum Front Setback from All Street Frontages	Chapter 14: *10 ft. (New structures shall build to the key building envelopes shown on the B-6 Building Height Overlay Map.)* B-6 Height Map: *...when a Building Envelope does not align with a view corridor or street extension, the boundary shall be the parcel boundary.*	Met
Maximum Structure Height	Chapter 14: *65 ft. or as otherwise governed by the B-6 Building Height Overlay Map.* B-6 Height Map: *-For buildings located East of Hancock Street... no building mass higher than 45 feet shall be wider than 70 feet measured parallel with the waterfront nor longer than 140 feet measured perpendicular with the waterfront. The 70-foot wide building extension allowed above must be at least 90 feet apart, measured parallel with the waterfront...* *-For buildings located east of [Freedom Way], no building shall exceed 35 feet in height above the adjacent Fore street grade within 100 feet of the Fore Street right-of-way, as measured perpendicular to the Fore Street right-of-way.*	**Not Met**
View Corridors	B-6 Height Map: *-In defined View Corridors, no building allowed above the corresponding Fore Street elevation.* *-View corridor limits shall be drawn from an extension of the corresponding streets where these streets meet Fore street...*	Met
Building Break Line	B-6 Height Map: *Location of Building Break Line is approximate as shown and intended to promote a break in building mass to allow for the development of blocks and site permeability. The exact location of blocks and site permeability shall be identified defined, and reviewed under a Master Development Plan or site Plan review.*	Met

The proposed development is not currently meeting the B-6 Eastern Waterfront zoning dimensional standards:

- **Block 4**: The B-6 Height Map establishes various height requirements for different geographical areas within the B-6 zone, with the Portland Foreside development site allowing a base maximum height of 45 feet, with provisions for building extensions, or towers, extending to 55 or 65 feet from

average grade, depending upon the location within the site. The area encompassed by Block 4 permits a base maximum height of 45 feet, with extensions up to 65 feet. Footnote 1 on the B-6 Height Map limits building extensions to 70 feet in width as measured parallel with the waterfront, with such extensions being further required to be separated by a minimum of 90 feet, as measured parallel with the waterfront. Building extensions above 45 feet are also limited in their depth, to no more than 140 feet as measured perpendicular with the waterfront. In reviewing the overall building elevations (Plan 10) that were provided, staff have determined that the eastern portion of Block 4 does not meet the building extension width, depth or spacing requirements, and will need to be revised in order to comply with zoning.

- Block 5: City Staff require further clarification regarding the top floors of Block 5. The western portion of Block 5 appears to show occupiable space above the 45 foot maximum height, and includes elevator overruns and mechanical areas 20 feet above the maximum height with multiple stairs and elevators for access. The eastern portion of Block 5 appears to be meeting most dimensional standards but City Staff require further clarification that no occupiable space is located above the maximum 55 foot height extension.

- Block 6: Block 6 appears to be meeting the B-6 Eastern Waterfront dimensional standards. City Staff require additional measurements and dimensions to confirm that the portions above 45 feet are more than 90 feet Apart as measured parallel with the waterfront. Additionally, City Staff require further clarification regarding the stairwell providing access to the 'Public Space Rooftop Units (RTUs)' that appears above the 45 foot height limit.

The applicant is proposing a golf cart garage within Block 6 adjacent to the eastern-most portion of the marina. The MDP shows a proposed trail crossing in between Blocks 5 and 6 to be determined as part of the Phase 1 Site Plan amendment (PL-002253-2022). The applicant notes that the golf cart would be used to deliver goods to the marina, which would likely require crossing the Eastern Promenade Trail at a non-vehicular crossing point. As the golf cart storage and delivery use would be accessory to the marina and not the residential or retail uses housed within Block 6, this use would need to be permitted as a separate stand-alone use. The City's zoning administrator has determined that the use would be considered 'Warehousing, Storage, and Distribution', which is a conditional use within the B-6 zone. In order for the applicant to proceed, they would need to submit a separate conditional use application, which would need to be approved by the Planning Board. At the July 11th workshop, staff will be seeking input from the Board on the location of this proposed use, and its potential to impact users of the Eastern Promenade Trail.

R-6 Residential (Block 6)

The proposed development is being reviewed under the R-6 Residential zone standards and dimensional requirements (Table 7-A) shown below. The applicant will need to provide City Staff with dimensional calculations for the Minimum Rear Setback, Minimum Side Setback, and Minimum Stepbacks as it relates to the portions of Block 6 within the R-6 Residential Zone. As City Staff are still reviewing the height for the entire site, there has been no determination made regarding the R-6 Maximum Structure Height dimensional requirement. The applicant will need to provide calculations to determine if the Minimum Landscaped Open Space Ratio dimensional requirement is being met.

Dimensional Requirement	Required	Proposed	Status
Minimum Lot Area	2,000 sq. ft.	20,000 sq. ft.	Met
Minimum Lot Area per Dwelling Unit	725 sq. ft. / DU	741 sq. ft. / DU	Met
Minimum Street Frontage	20 ft.	N/A	Okay
Minimum Lot Width	20 ft.	100 ft.	Met
Minimum Front Setback	5 ft.	N/A	Okay
Minimum Rear Setback	10 ft.	15 ft.	Under Review
Minimum Side Setback	10 ft.	18 ft.	Under Review
Minimum Stepbacks (above 35 ft. when property line abuts a residential zone)	10 ft. side 15 ft. rear	N/A	Under Review
Maximum Structure Height	45 ft.	45 ft.	Under Review
Maximum Lot Coverage	60%	55%	Met
Minimum Landscaped Open Space Ratio	20%	N/A	Not Met

IX. SUBDIVISION REVIEW STANDARDS (Section 15.4)

The proposed development has been reviewed by staff for conformance with the relevant review standards of Portland's Subdivision Ordinance and applicable regulations. Staff comments are listed below:

1. Will Not Result in Undue Water and Air Pollution (Section 15.4.1.A), and will not result in undue soil erosion (Section 15.4.1.D)
   The stormwater for the site flows into the City's stormwater infrastructure and ultimately into the Casco Bay. The development is required to meet permitting requirements as part of the Site Location of Development permit and Maine DEP Chapter 500 stormwater standards. The applicant has provided a Stormwater Management Plan (Attachment 35) and two Civil Grading and Drainage

Plans (C-102 + C-103 Plan 3). The applicant notes that the site has been "designed to minimize the impact of stormwater leaving the site" (Attachment 5). The site is not located within the watershed of an urban impaired stream and the applicant does not anticipate any risk of groundwater contamination during or after construction. Previous approved sitework included a variety of stormwater treatment systems in addition to the systems currently proposed.

2. Has sufficient water available and will not cause unreasonable burden on existing water supply (Section 15.4.1.B and C)
   The applicant is proposing to utilize a private water system for fire protection and domestic water services to be connected into the public water main on Fore Street. The applicant has provided a request for evidence of ability to serve (Attachment 37) and an email from Portland Water District confirming that the district has sufficient capacity to service the proposed site. The applicant will need to submit final capacity documents.

3. Will not cause unreasonable highway or public road congestion or unsafe conditions with respect to use of the highway or public roads existing or proposed (Section 15.4.1.E)
   The City of Portland approved a Traffic Movement Permit in May 2017 following the approval of the Master Development Plan. The applicant has provided updated traffic generation numbers as part of this application. Thames Street Extension runs through the interior of the site as a private way. Block 4 will be built along Fore Street with an entrance to the parking garage across from Waterville Street. The project is not expected to impede traffic or create unsafe conditions on public or private ways. City Staff and Third-Party reviewers are reviewing the updated submissions related to traffic.

4. Will provide for adequate sanitary sewer and stormwater disposal (Section 15.4.1.F) and will not cause an unreasonable burden on municipal solid waste and sewage (Section 15.4.1.G)
   The applicant is proposing a private system on site that includes combination of gravity sewer and a force main with a pump station to discharge into the sewer on the Thames Street Extension. DPW is still reviewing the applicant's updated submissions.

5. Will not have an undue adverse effect on the scenic or natural beauty of the area, aesthetics, historic sites, significant wildlife habitat (Section 15.4.1.H)
   As a former industrial site with many of the previous buildings demolished, the site contains limited landscape features and wildlife elements. The site abuts the Eastern Promenade trail and is adjacent from the waterfront. Additionally, the B-6 Eastern Waterfront zone includes three 50-foot view corridors, which are intended to permit pedestrians on Fore Street the ability to see down to the water through the development site. The proposed development will not result on an unreasonable adverse effect on the surrounding area.

6. Is in conformance with the Comprehensive Plan (Section 15.4.1.I)
   The B-6 Eastern Waterfront Zone was established and developed to align with the policy goals and objectives of the Eastern Waterfront Master Plan, which was later incorporated into Portland's Plan 2030. The development is being reviewed for conformance with the B-6 use and dimensional requirements, and will be required to comply with zoning before site plan approval may be granted. Consistency with the requirements of the B-6 zone would indicate conformance with the City's Comprehensive Plan.

7. Adequate financial and technical capacity (Section 15.4.1.J)

See sections VI and VII of this report. The applicant has demonstrated adequate financial and technical capacity.

8. Whenever situated, in whole or in part, within the watershed of any pond or lake or within 250 feet of any wetland, great pond, or river, will not adversely affect the quality of such body of water or unreasonably affect the shoreline of such body of water (Section 15.4.1.K)
   The site is not located with 250 feet of a wetland, great pond, or river.

9. Will not, adversely affect the quality and quantity of groundwater (Section 15.4.1.L)
   City Staff are still reviewing the submitted material to determine if the subdivision will adversely affect the quality and quantity of groundwater.

10. Is or is not in a flood-prone area (Section 15.4.1.M)
    The site is within a designated FEMA floodplain area. Most of the upland portion of the site is outside of the floodplain, however future site plan applications closer to the waterfront will require floodplain permits.

11. Will provide for adequate stormwater management (Section 15.4.1.N)
    The applicant has submitted a Stormwater Management Plan in accordance with their SLOD application and Chapter 500 Stormwater Standards.

12. Will not have lots with a lot depth-to-shore frontage ratio greater than 5 to 1 if any lots in the proposed subdivision have shore frontage on a river, stream brook, great pond, or coastal wetland (Section 15.4.1.O)
    The proposed subdivision does not create a lot with a depth-to-shore frontage ratio grater than 5 to 1.

13. For any proposed subdivision that crosses municipal boundaries, will not cause unreasonable traffic congestion or unsafe conditions with respect to the use of existing public ways in an adjoining municipality in which part of the subdivision is located (Section 15.4.1.P)
    The proposed subdivision does not cross municipal boundaries.

X. SITE PLAN REVIEW STANDARDS (Section 14.6)

The proposed development has been reviewed by staff for conformance with the relevant review standards of the City of Portland's Site Plan Ordinance, Section 14.6. Comments from City Staff and Third-Party reviewers were sent to the applicant on February 8, 2023 (Attachment G) and June 2, 2023 (Attachment H) which included the Design Review Memo (Attachment I). City Staff also provided comments via email on December 21, 2022 (Attachment F) and May 5, 2023 (Attachment J). The applicant submitted official responses to comments on March 2, 2023 (Attachment 26) and June 23, 2023 (Attachment 27). The applicant also provided separate topic memos in response to City Staff comments between May 12, 2023 and June 23, 2023 (Attachments 29-34).

1. Transportation Standards (Section 14.6.1)
   A. Impact on surrounding street systems
      The applicant received approval for a Traffic Movement Permit following approval of the Master Development Plan. As a condition of approval of the MDP, the applicant was required to receive

approval for a phased TMP which was approved by the Planning Board on April 25, 2017. The TMP expires on April 26, 2024. The TMP approval (Attachment D + E) and MDP requires the applicant to provide updated trip numbers alongside each site plan application. City Staff requested that the applicant provide updated trip generation numbers based off of the most current *11th Edition ITE Trip Generation Manual*. As part of the applicants June 23, 2023 resubmission, the applicant provided updated traffic numbers (Attachment 34). City Staff are still reviewing the updated materials to confirm the proposed development reflects the trip generation numbers contemplated at the time of the TMP approval.

The proposed development maintains site access along the Thames Street extension ending at a parking podium between Blocks 4, 5, and 6. Additionally, the applicant is proposing to connect Fore Street to the Block 4 parking garage. Internally, the parking plinth connects the parking areas across Blocks 4, 5, and 6. The streets are not designed to be accepted by the City of Portland and are to be maintained privately by the property owner. The applicant is providing continuous paving, sidewalks, curbing, and planting along the roads and pedestrian ways.

Along Fore Street, the applicant will be maintaining crosswalks proposed as part of the MDP layout. The most recent submission included a redesigned Fore Street wall with the townhomes out of the Fore Street right-of-way. The applicant is proposing a separate landing for the building to provide ADA accessible landings for each unit. City Staff had recommended the applicant reconfigure the street layout of Fore Street to possible include a bike lane. City Staff are still reviewing the resubmitted documents and drawings as they relate to the surrounding street systems.

B. Access and circulation

Overall access and circulation for the 58 Fore site was contemplated and reviewed as part of the MDP approval. As part of this site plan application, City Staff continue to review the proposed development for consistency with the circulation discussed previously. The applicant has added an additional connection through the site through Block 4 from Fore Street to the Thames Street extension. Although the Eastern Promenade trail and rail corridor realignment are part of a separate site plan application, the proposed development does connect and interact directly with the trail. The Design Review memo discusses separation of the trail and rail corridor with design elements including plantings and curbing. City Staff are still reviewing the updated submissions.

C. Public transit access

The site is located approximately ¼ mile away from the India Street GP METRO Route 8 stop. The site is within a ten-minute walk to a variety of other GP METRO routes throughout Munjoy Hill and along Congress Street.

D. Parking

The proposed development includes a parking plinth that connects the parking areas located under Blocks 4, 5, and 6. The applicant is proposing 644 Parking Spaces in the parking garage on Block 4 and in the parking plinth. The applicant is proposing 69 EV charging stations. The applicant is required to provide 218 bicycle parking spaces as part of this application and will be providing 243 spaces across all three Blocks.

E. Transportation demand management (TDM)

City Staff are still reviewing the revised TDM prepared by VHB (Attachment 25).

2. Environmental Quality Standards (Section 14.6.2)
   A. Preservation of significant natural features
      There are no known significant natural features on site as the site has been previously developed.

   B. Landscape preservation
      The applicant notes that the proposed development satisfies the landscape preservation standards. As most of the site was previously developed as part of the Portland Company, there is limited vegetation on site. Clearing will be limited and most of the vegetation to be removed will be replaced.

   C. Site landscaping and buffers
      The applicant has submitted a Landscape Plan and Details (Plan 4). City Staff are still reviewing the submitted landscaping plan. City Staff will provide the applicant with street tree calculations as part of the next round of comments.

   D. Water quality/storm water management/erosion control
      The proposed development is subject to the MaineDEP Chapter 500 Stormwater Standards and the Site Location of Development permit. City Staff and Third-Party reviewers continue to review the proposed propriety stormwater treatment systems and connections into City infrastructure. The applicant has included a Stormwater Management Report and Site Location of Development Report (Attachments 18, 35, 36).

3. Public Infrastructure and Community Safety Standards (Section 14.6.3)
   A. Consistency with City Master Plans
      The site falls within the scope of the Eastern Waterfront Master Plan from most recently amended in 2006. The plan informed the zoning for both the B-6 Eastern Waterfront and Eastern Waterfront Port Zone zones. The plan has since been incorporated into *Portland Plan 2030* and building's meeting the zoning is considered consistent with the Master Plan.

   B. Public safety and fire prevention
      The applicant notes the site has been designed to promote site visibility, access, and security. City Staff and Life Safety reviewed public safety and fire prevention standards at the time of MDP approval. City Staff and Life Safety continue to review the proposed development for consistency with the MDP.

   C. Availability and capacity of public utilities
      The applicant has submitted the Ability to Serve request for Water with the Portland Water District. The applicant will need to provide a final determination of ability to serve with the City of Portland for sanitary sewer service capacity, with Unitil for gas, and with CMP for electricity.

4. Site Design Standards (Section 14.6.4)
   A. Massing, ventilation, and wind impact
      The applicant is proposing to locate all mechanical equipment, HVAC systems, and elevator overruns within the buildings or fully screen to minimize disruption to abutting properties. As noted

above, City Staff are still reviewing the proposed screening and rooftop layouts related to maximum structure height.

B. Shadows

The proposed development abuts the Eastern Promenade trail – a public way that wraps around the Eastern Promenade and follows the waterfront towards downtown Portland. The buildings have been designed and located to minimize shadow impact on the trail.

C. Snow and ice loading

The applicant will be moving all snow off site and has not provided any snow storage areas on site. The buildings have been designed to prevent snow and ice from accumulating and falling onto abutting properties and public ways.

D. View corridors

The site falls within the B-6 Eastern Waterfront zone which incorporates view corridors as a dimensional standard. The applicant is not proposing any structures within the view corridors noted above.

E. Historic resources

Portions of Block 4 are within the boundaries of the Portland Company Historic District require a Certificate of Appropriateness (COA) from the Historic Preservation Board. These elements include the two westernmost townhouses, the west wrapper, and the driveway podium structure.

Portions of Block 6 are within the boundaries of the Munjoy Hill Historic District require a Certificate of Appropriateness (COA) from Historic Preservation Board. In the case of Block 6, this is only the north elevation as the inner courtyard will only be accessible from within the building, and therefore does not have significant public visibility.

F. Exterior lighting

The applicant submitted a photometric plan (Attachments 14 + 15, Plan 8). City Staff are still reviewing this submission.

G. Noise and vibration

The applicant notes that the proposed development minimizes noise impact and do not expect excessive noise nor anticipate noise to negatively impact the adjacent properties.

H. Signage and wayfinding

City Staff are still reviewing submitted materials related to signage and wayfinding. Any sign permit applications will be submitted separately.

I. Zoning-related design standards

The City's Urban Designer alongside the Historic Preservation Manager and the lead Planner on the project submitted a design review memo (Attachment I). The application is subject to the design elements of the 58 Fore Street Master Development Plan, the *Design Guidelines for Portland's Eastern Waterfront* in the Eastern Waterfront Master Plan, and the City of Portland Design Manual sections (g) *EWPZ Eastern Waterfront Port Zone and B-6 Eastern Waterfront Mixed Use Zone and*

(i) *Two-family, special needs independent living units, multiple-family, lodging houses, bed and breakfasts and emergency shelters.*

XI. SITE LOCATION OF DEVELOPMENT

The proposed development is required to receive approval for a Site Location of Development (SLOD) Permit Application. The City of Portland has delegated review authority for SLOD permits. The applicant has provided an original SLOD Report (Attachment 18) and submitted a revised SLOD Report with the addition of Block 5 (Attachment 36).

XII. NEIGHBORHOOD MEETING & PUBLIC COMMENT

The applicant is required to hold a Neighborhood Meeting as part of this application process. The applicant hosted the first neighborhood meeting on December 20, 2022 and the second neighborhood meeting was held on January 11, 2023. With the inclusion of Block 5, the Planning Department determined that the applicant would be required to host a third neighborhood meeting. The applicant hosted the third neighborhood meeting on May 2, 2023 (Attachments 22-24).

The Planning & Urban Development Department has received 20 Public Comments (PC1-20). Many of the public comments share concerns regarding the proposed development and the related Master Development Plan. Some of the public comment discussed the treatment of Fore Street and inquired about a possible bike lane on the southern side of Fore Street. Other public comments shared concerns about the height and massing of the structure.

XIII. NEXT STEPS

- Planning Board Workshop
- City Staff and Third-Party Review Comments III, Design Review Memo II
- Construction Management Plans and Phased Construction Narrative
- Applicant Resubmission and Response to Comments from City Staff and Planning Board

XIV. ATTACHMENTS

STAFF ATTACHMENTS

A. January 10, 2023 Workshop Report
B. 2016 MDP Report
C. 2016 MDP Final Plan
D. 2017 TMP Report
E. 2017 TMP Approval
F. COP Comment Review Planner Email December 2022
G. Preliminary Staff Comments
H. Second Staff Comments
I. Design Review Memo
J. COP Comment Review Planner Email May 2022
K. Pending Proceeding Memo COP Planning Director June 2023\
L. B-6 Height Map

APPLICANT SUBMITTAL

1. Summary
2. Permitting & Zoning

3. RTI
4. Transportation Standards
5. Environmental Standards
6. Infrastructure + Safety Standards
7. Site Design Standards
8. Comprehensive Plan Consistency
9. Waiver Table
10. Checklist
11. Zoning Analysis Table
12. License Agreement with City DRAFT
13. Fore Street Historic Retaining Wall Drawings
14. Block 5 Lighting
15. Block 6 Lighting
16. Block 4 Geotechnical Data Report
17. Block 4 Geotechnical Design Memo
18. SLOD Report
19. Portland Foreside CMP Logistics Plan
20. Stormwater Management Report
21. Portland Foreside CMP
22. Neighborhood Meeting 1
23. Neighborhood Meeting 2
24. Neighborhood Meeting 3
25. Phase 2 TDM Plan
26. March Response to Preliminary Comments
27. June Response to Second Comments
28. June Response to Design Review Memo
29. Traffic Summary Response
30. Wastewater Ability to Serve
31. Average Grade Memo
32. Fore Street Section Memo
33. Fore Street Frontage Design Memo
34. Traffic Study Phase 2 Block 5
35. Stormwater Management Report
36. SLOD Report Updated
37. Ability to Serve Requests water and sewer
38. 1876 Fore Street Retaining Wall Easement Scan
39. 1876 Fore Street Retaining Wall Plain Text Doc

PLANS + DRAWINGS

Plan 1. Boundary Survey 13-23 Eastern Prom
Plan 2. Boundary Survey 58 Fore
Plan 3. Phase 2 Civil Plans and Details
Plan 4. Phase 2 Landscape Plans
Plan 5. Subdivision Plat
Plan 6. Average Grade Plan
Plan 7. Parking Plinth Plan
Plan 8. Photometrics

Plan 9. Block 4 Code Plans
Plan 10. Block 4 Elevation
Plan 11. Block 4 Floor Plan
Plan 12. Block 4 Parking Plans
Plan 13. Block 4 Rendering
Plan 14. Block 5 + 6 Parking Plan
Plan 15. Block 5 Code Plan
Plan 16. Block 5 Elevation
Plan 17. Block 5 Floor Plans
Plan 18. Block 5 Material Palette
Plan 19. Block 5 Renderings
Plan 20. Block 5 Roof Plan
Plan 21. Block 6 Code plans
Plan 22. Block 6 Elevations
Plan 23. Block 6 Floor Plans
Plan 24. Block 6 Rendering
Plan 25. Fore Street Sidewalk Plans
Plan 26. Phase 2 Supplemental Architectural Plans
Plan 27. Supplemental Architectural Plans
Plan 28. Block 4 + 6 Combined Elevations

PUBLIC COMMENT

PC 1. J2 Portland Me
PC 2. Denise Preisser
PC 3. Susan Green
PC 4. Sandra Guay 1
PC 5. Jeremy Wintersteen
PC 6. PBPAC
PC 7. Kellie Whiteston
PC 8. Paul Fuller
PC 9. Zack Barowitz
PC 10. John Clark
PC 11. Winston Lumpkis
PC 12. Nat Jordan
PC 13. Karen Snyder
PC 14. Nat Jordan
PC 15. John Russel
PC 16. Sandra Guay 2
PC 17. Kelly Walker
PC 18. Martica Douglas
PC 19. Sandra Guay 3
PC 20. Lisa Martorella

Memorandum
Planning and Urban Development Department

To:	Chair Stanley & Members of the Planning Board
From:	Charles Tetelman
Date:	January 6, 2023
Re:	58 Fore Street
Project ID:	PL-002202-2022
Meeting Date:	January 10, 2023

I. INTRODUCTION

Portland Foreside Development Company has submitted a Level III Site Plan and Subdivision application to facilitate the development of two mixed-use buildings (716,836 total sq. ft.) including 401 residential units, approximately 21,000 sq. ft. of retail, service, and restaurant space, and 696 parking spaces. This application is the third site plan application associated with the Portland Foreside Master Development Plan (including parcels associated with 58 Fore Street and 1 Marina Way) which was approved by the Planning Board on December 20, 2016(Attachment 1).



Figure 1: 58 Fore Street Overall Site

This workshop is intended to guide the Planning Board through the original 2016 Master Development Plan approval as well as other site plan approvals and amendments associated with 58 Fore Street and 1 Marina Way. The background information will provide context to the Planning Board related to pending proceeding status and relevant review criteria, approved and ongoing work associated with Phase 1 development, and serve as a precursor for future Planning Board meetings focusing specifically on the proposed Phase 2 development for Blocks 4 and 6.

The Planning and Urban Development Department mailed 276 notices advertising this meeting to property owners within 500 feet of the site. A legal advertisement ran in the January 1, 2023 and January 3, 2023 editions of the *Portland Press Herald*.

Applicant: Portland Foreside Development Company
Applicant Representatives: Woodard & Curran

II. REQUIRED REVIEWS

Review	*Applicable Standards (as of 12/20/16)**
Level III Site Plan	Section 14-526
Subdivision	Section 14-497
Inclusionary Zoning	Section 14-474, Section 14-487
Site Location of Development	Technical Manual Section 14
Historic Preservation	Certificate of Appropriateness HP Advisory Review
Design Review	Section 14 (iii) MDP Standards of Review Eastern Waterfront Master Plan City of Portland Design Manual *(g) EWPZ Eastern Waterfront Port Zone and B-6 Eastern Waterfront Mixed Use Zone*
***Approval of Master Development Plans confer pending proceeding status upon the development with the effect of maintaining the applicability of municipal regulations in effect at the time of approval for as long as the Master Development Plan approval remains valid, including permissible extensions.**	

Waiver Requests	*Applicable Standards*
At the time of MDP approval, the project site received a waiver to Flooding Standards.	City of Portland Technical Manual Section 5 – Stormwater Management Standards Maine DEP Chapter 500 Stormwater Management Section IV.

III. PROJECT DATA

Existing Zoning	B-6 Eastern Waterfront Mixed Zone R-6 Residential EWPZ Eastern Waterfront Port Zone Shoreland Zone
Historic Districts	Portland Company Historic District (Block 4) Munjoy Hill Historic District (Block 6)
Property Size	438,900 sq. ft. (~10 acres)
Existing Use	Vacant
Proposed Use	Residential (401 units - 407,840 sq. ft.) Retail/Service/Restaurant (21,058 sq. ft.) Parking (696 spaces – 288,738 sq. ft.)

	Block 4	*Block 6*	*Total*
Building Footprint	47,160 sq. ft.	49,030 sq. ft.	96,190 sq. ft.
Building Floor Area	425,800 sq. ft.	291,836 sq. ft.	716,836 sq. ft.
Parking Spaces	454	242	696
Bicycle Parking Spaces	100 Internal 20 External	70 Internal 12 External	170 Internal 32 External
EV Charging Stations	-	-	78

IV. RIGHT, TITLE, AND INTEREST

The applicant has provided short form quitclaim deed with covenant as demonstration of Right, Title, and Interest (Attachment C).

V. FINANCIAL AND TECHNICAL CAPACITY

The applicant has provided two letters demonstrating Financial Capacity. The first from Rockland Trust Company Senior Vice President Rose M. Buckley dated September 14, 2022 and the second from Middlesex Savings Bank Senior Vice Presidents Mary Ann Devlin and Robert F. Millerick dated September 16, 2022 (Attachment B).

The applicant has included a summary of the engineering, landscape architecture, and architecture firms and partners who are completing various aspects of design (Attachment B). The four main consultants include Woodard & Curran, MBLA, Perkins+Will, and Baskervill. The combined experiences and portfolios of all partners demonstrate technical capacity.

VI. BACKGROUND

In 2016, the Planning Board approved the Portland Foreside Master Development Plan (MDP) which included a proposal to comprehensively redevelop the former Portland Company industrial site (approximately 10 acres of land area and 13.2 acres in submerged land lease). This approval would effectively create a new mixed-use neighborhood along Portland's eastern waterfront with nearly 1,000,000 sq. ft. of new residential and commercial space as well as vehicle parking, marina access, public open space, and a new walking path along the water's edge.

Since the approval of the MDP, the applicants have received approvals for the expansion of the Fore Points Marina on Block 7 and for Phase I of the development, which included a mixed-use building with office, retail, and parking use and reconstruction of historic building #12 on Blocks 1, 2, and 4.

VII. PREVIOUS APPROVALS

Project	Project ID
Portland Foreside Master Development Plan	#2016-224 (approved 12/20/16) PL-001654-2021 (approved 11/23/21) PL-002289-2022 **(under review)**

Fore Points Marina	PL-000330-2018 (approved 1/16/19) PL-000906-2019 (approved 4/17/20) PL-001656-2021 (approved 1/13/22) PL-002252-2022 **(under review)**
Phase 1 Site Plan (Blocks 1 + 2 + 4)	PL-000924-2019 (approved 1/28/20) PL-002253-2022 **(under review)**
Phase 2 Site Plan (Blocks 4 + 6)	PL-002202-2022 **(under review)**

I. Master Development Plan

In 2016, CPB2 LLC received approval for a Master Development Plan (MDP) known as Portland Foreside (#2016-224). The original concept included retail, office, residential, hotel, restaurant, function space, and a marina. As shown in Figure 2, the site includes seven development "blocks". The MDP development program included 958,679 sq. ft. of mixed residential and commercial uses, 435,200 sq. ft. of parking for 736 spaces, 638 residential units, a marina for 220 slip spaces for seasonal and transient vessels, and a 2,600 sq. ft. building for marina facilities.



Figure 2: Original MDP Approval

The core parcels of the site (58 Fore Street) are separated from the marina parcel (1 Marina Way) by a 50' corridor owned by the Maine Department of Transportation. This parcel contains the Maine Narrow Gauge Railway and a portion of the Eastern Promenade trail (via an easement between MDOT and the City of Portland + Portland Trails). The Eastern Promenade Trail continues to the east and west on City of Portland owned land, abutting the marina.

Approved MDP Program	
Commercial + Residential Space	~1,000,000 sq. ft.
Residential Unit Count	638
Structured Parking Spaces	736
Marina	220 Slips 2,600 sq. ft. Marina Building
Other Amenities	Public Open Spaces Waterfront Walkways

The MDP establishes the general parameters to be adhered to for redevelopment of the site and provides a high-level, overall framework plan for the proposed development, detailing for example site layout, program of uses, site-wide infrastructure improvements, concepts for open space, basic design elements, off-street parking and site circulation. Although the MDP approval does not constitute an authorization for development, it does maintain the applicability of regulations in effect at the time of the approval for as long as the MDP approval remains valid.

Following the MDP approval, the Planning Board approved a Traffic Movement Permit (TMP) (4/25/17) that included all future development as proposed in the MDP. At the time of approval, the TMP anticipated 506 AM peak hour trips and 585 PM peak hour trips at full build-out, and further required that a Transportation Demand Management (TDM) Plan be implemented and monitored at each phase of development to help reduce vehicle trips to and from the site. The TMP also established an impact fee of $650 per PM peak hour trip. As clarification, this impact fee is separate from the city-wide impact fee system, which was later adopted by the City in 2018, and for which this development is still subject as stated in Section 16.13 of the City's Land Use Code.

The Planning Board approved an MDP Amendment (PL-001654-2021) on November 23, 2021 to formalize an interim condition phase for the Fore Points Marina site located on Block 7, prior to the development of a permanent marina building as identified in the 2016 MDP. The Interim Condition Plan allowed interim structures totaling no more than 3,200 sq. ft. within the areas defined as Marina Operations Area and required for a portion of the site to be opened to the public. This plan is set to automatically expire on November 24, 2024.

II. Fore Points Marina

On January 16, 2019, the Planning Authority approved a Level II Site Plan application (PL-000330-2018) for the Fore Points Marina; a proposal to expand the existing marina from 69 slips to 141 slips, with 1,776 sq. ft. of boat wake. This increase provided a wider range of boat users with convenient waterside access to downtown amenities.

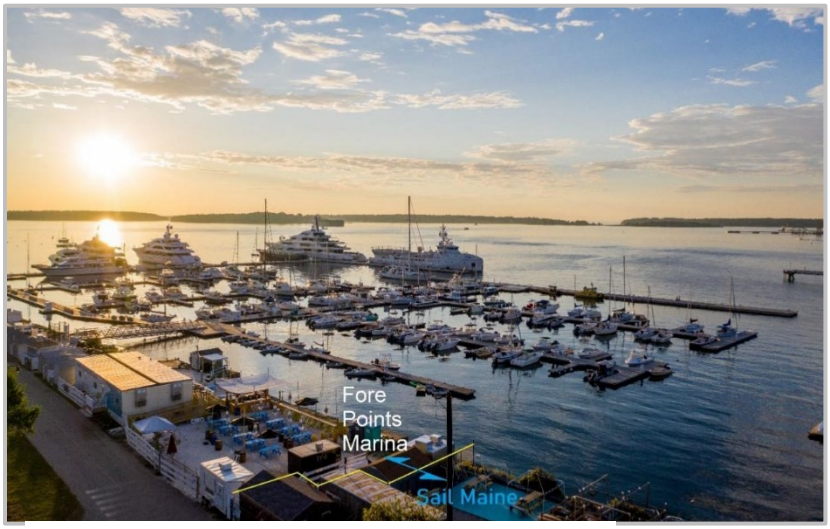


Figure 3: Fore Points Marina (rendering)

On January 13, 2022, the Planning Authority approved a Level II Site Plan amendment (PL-001656-2021) to permit thirteen interim structures, a temporary 4-inch domestic water line and 8-inch fire protection line, and a new pathway and publicly accessible open space along the central portion of the marina site. (following MDP Amendment PL-001654-2021). The approval for the temporary structures is set to automatically expire on November 24, 2024.

In December of 2022, the applicant submitted a Level II Site Plan amendment (PL-002252-2022) to facilitate seawall repairs and modify outfall locations associated with the Fore Points Marina. This application is currently under review.

III. Phase 1 Site Plan: Blocks 1 + 2 + 4

On January 28, 2020, the Planning Board approved a Level III Site Plan, Subdivision and Conditional Use application (PL-000924-2019) for the first major phase of development under the Portland Foreside MDP. The site plan application included a proposal to construct a new mixed-use building with office, retail, and structured parking on Block 1, reconstruct historic Building #12, renovate historic buildings within Block 2, develop a series of townhomes along Fore Street totaling 12 residential units within Block 4, and construct a parking structure with 722 parking spaces on Block 4. As approved, the Phase 1 development was expected to create 12 residential units, 110,000 sq. ft. of office space, 49,500 sq. ft. of retail and restaurant space, and 17,900 sq. ft. of event space. As of the writing of this memorandum, this phase is still under construction.

In December of 2022, the applicant submitted a staff-level amendment (PL-002253-2022) which includes work and modifications within the Maine Department of Transportation 50' corridor including the Maine Narrow Gauge Railroad rail reconstruction and the Eastern Promenade Trail Reconstruction. This amendment also includes waterfront improvements (grading, landscaping, and drainage) and relocation of utility infrastructure within the site to accommodate future development. This application is currently under review.

At the time of approval, the applicant anticipated future development above the Block 4 parking garage as part of a separate application. As of today, a majority of the work on Block 1 has been completed. However, the townhomes and parking structure on Block 4 were never constructed. The Phase 1 Level III Site Plan will need further amendments to remove elements of the plan that were not constructed, or that are in conflict with proposed development associated with Phase 2.

VIII. PROPOSED DEVELOPMENT: BLOCK 4 + 6

I. Proposed Development

Portland Foreside Development Company has submitted a Level III Site Plan application to facilitate the development of two mixed-use buildings on Block 4 and Block 6, considered Phase 2 of the Portland Foreside MDP. The two buildings include 401 residential units (407,840 sq. ft.), 21,058 sq. ft. of retail, service, and restaurant space, and 696 parking spaces (288,738 sq. ft.). The development includes a variety of residential units including studio, 1-bedroom, and 2-bedroom rental units as well as townhomes, and condominiums, and in addition will continue to open up the site for public access, establishing new open spaces and enhancing existing open spaces along the waterfront.

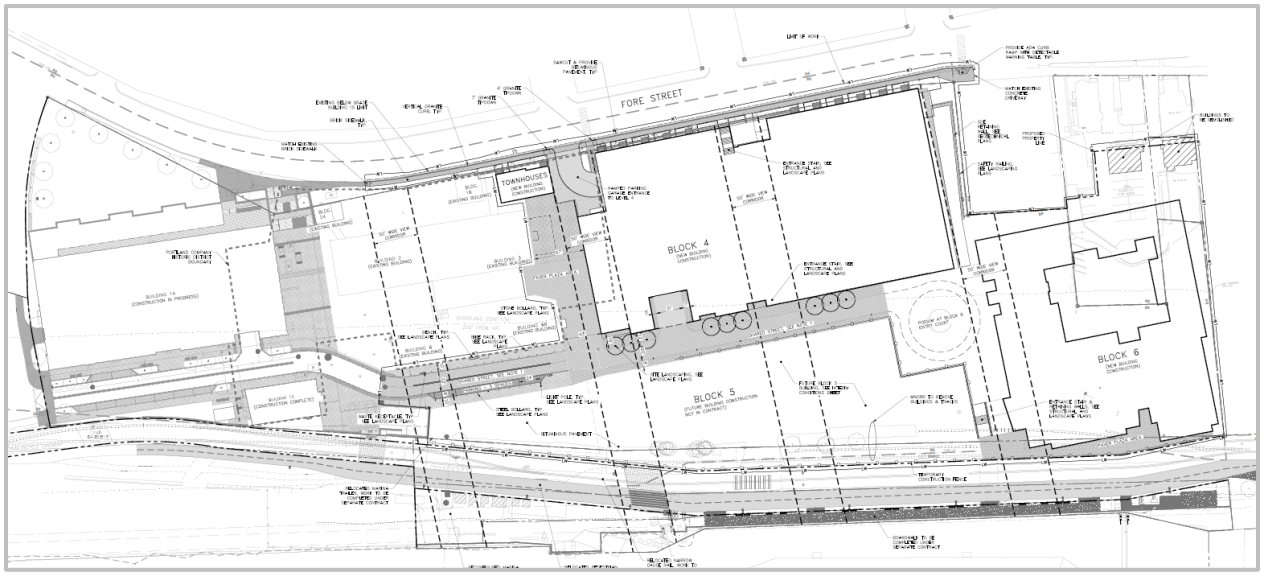


Figure 4: Phase 2 Overall Site Plan (Plan 1)

The site plan depicts important infrastructure, including utility and proposed street right-of-way being developed in the shared space between the development blocks, with reciprocal easements granted between parcels. Utility improvements for Blocks 4 and 6 will connect with existing utilities developed for the Phase 1 development (Blocks 1 and 2). The Thames Street extension (private way) will be extended along Block 4 through to Block 6.

II. Block 4

The approved 2019 Level III Site Plan included a five-level parking garage and townhomes along Fore Street, including 12 residential units, 1,100 sq. ft. of commercial space, and 652 parking spaces. Construction associated with the 2019 approval on Block 4 was not completed. The current Level III Site Plan application includes a different program for Block 4 (although still within the scope of the MDP). As proposed, the Block 4 building is nine stories, which include a mix of 247 residential units, 11,950 sq. ft. of retail, service, and restaurant space, and 454 parking spaces. The Block 4 parking garage has been reduced and will now connect below-grade to the Block 6 parking garage, and eventually to Block 5.

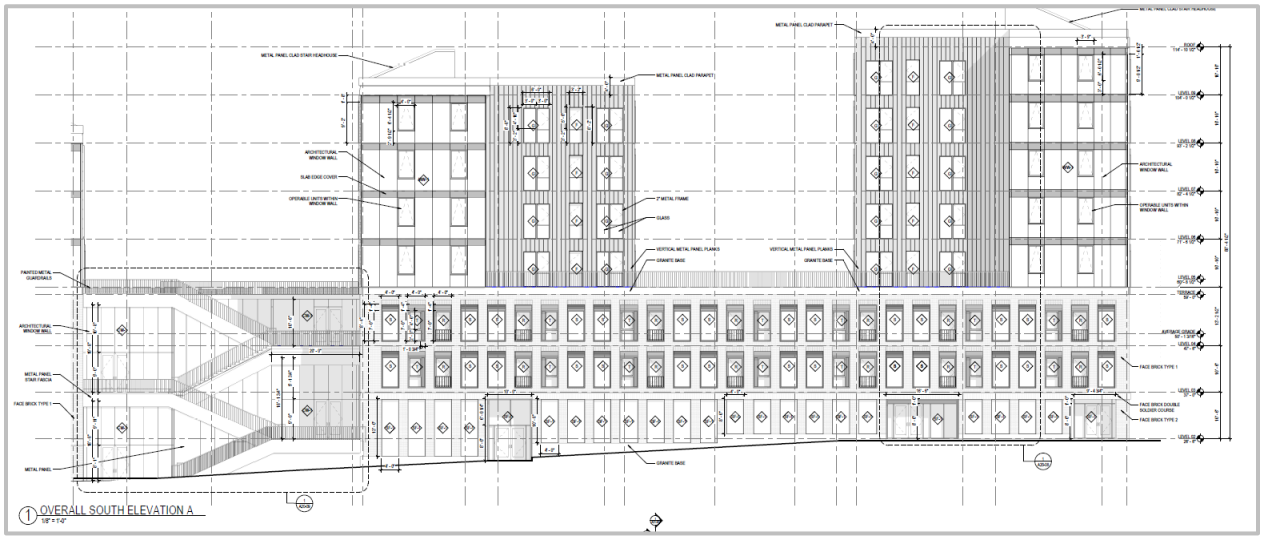


Figure 5: Block 4 South Elevation (Plan K)

III. Block 6

The proposed development on Block 6 consists of a ten-story building with 154 condominium units, 9,108 sq. ft. of retail, service, and restaurant space, and 242 parking spaces. The building includes an interior courtyard with ground-level retail. The Block 6 parking garage will connect with Block 4.



Figure 6: Block 6 Site Plan (Plan L)

IV. Subdivision Amendment

The applicant has submitted a subdivision amendment which divides the property into ten parcels with utility and access space held in common with reciprocal access and utility easements granted to both proposed parcels. This subdivision amendment will be subdividing Parcel 5 into Parcels 5 and 6, and includes adjacent land area recently acquired by the applicant.

V. Block 2 and Block 5

The application also includes minor work on Blocks 2 and 5 to facilitate future construction of this phase. The changes include minor grading and utility work on Block 2 and minor improvements to grading, stormwater management, utility work, and interim surface parking on Block 5.

IX. SITE LOCATION OF DEVELOPMENT

The City of Portland has delegated review authority from the Maine Department of Environmental Protection for larger projects that trigger Site Location of Development Act review. The Standards for Local Site Location of Development Review can be found in Section 14 of the City of Portland Technical Manual.

X. NEIGHBORHOOD MEETING & PUBLIC COMMENT

The applicant is required to hold a Neighborhood Meeting as part of this application process. The applicant hosted the first neighborhood meeting on December 20, 2022 and has scheduled a second neighborhood meeting to be held on January 11, 2023. Required documents will be submitted following the second neighborhood meeting.

The Planning & Urban Development Department has received 4 public comments regarding this Level III Site Plan application (PC 1 - 4).

XI. NEXT STEPS

- Preliminary City Staff and Third-Party Peer Review and Applicant Resubmission
- Schedule Future Planning Board Workshops
- Future City Staff and Third-Party Peer Review and Applicant Resubmission

XII. ATTACHMENTS

The full application package has not been included as part of this memo. The full plan set is available through the City of Portland CSS and will be included in full as part of future Planning Board packets.

MEMO ATTACHMENTS

1. Portland Foreside MDP Planning Board Report (12.20.16)

APPLICANT SUBMITTAL

A. Summary
B. Permitting & Zoning
C. Right, Title, & Interest
D. Waiver Table
E. Application Checklist
F. Zoning Analysis Table
G. Consistency with Comprehensive Plan

PLANS

A. Plan List
B. Overall Site Plan
C. Subdivision Plat (Draft Amendment)
D. Interim Conditions Site Plan
E. Boundary Survey 13-23 Eastern Prom
F. Boundary Survey 58 Fore Street
G. Block 4 Civil Site Plan
H. Block 4 Elevations Courtyard
I. Block 4 Elevation East & West

J. Block 4 Elevation North
K. Block 4 Elevation South
L. Block 6 Civil Site Plan
M. Block 6 Elevations East & North
N. Block 6 Elevations West & South

PUBLIC COMMENT

PC 1. J2 Portland ME 12/8/22
PC 2. Denise Preisser 12/10/22
PC 3. Susan Green 12/12/22
PC 4. Sandra Guay 12/28/22

PLANNING BOARD REPORT
PORTLAND, MAINE

58 Fore Street
Master Development Plan
Project #: 2016-224
CPB2

Submitted to: Portland Planning Board Public Hearing Date: December 20, 2016 CBLs: 018 A001, 018 A002, 018 A003	Prepared by: Christine Grimando, Senior Planner Date: December 16, 2016

I. INTRODUCTION

CPB2 LLC has submitted for review a Master Development Plan (MDP) for the (+/-) 10 acre site at 58 Fore Street known as the Portland Company Complex. The proposed development includes retail, office, residential, hotel, restaurant, function space, a marina, and residential units. The site also contains a linear parcel owned by the Maine Department of Transportation that includes the Maine Rail/Trail corridor and the Eastern Promenade Trail, which will continue to traverse the site. In addition to the approximately10 acres, the property includes a 13.2 acre submerged land lease, currently containing a marina. There are currently a variety of the uses on the developed site, including storage, office, a marina, event space and the Maine Narrow Gauge Railroad Museum.

The application is being reviewed under the MDP review standards (Section 14-524.a.3.ciii). Development proposals for the site are also subject to review under the B-6 Eastern Waterfront Mixed Use Zone, the Eastern Waterfront Port Zone, the Shoreland Zone, and flood plain standards. The following workshops have taken place to date on this application: October 12th, Planning Board and Historic Preservation Board joint workshop, October 18th, Planning Board held a site walk that included reconvening in Council Chambers for follow-up public comment and discussion. On November 15th the Planning Board held a third workshop which emphasized traffic, site layout and landscaping, stormwater management and infrastructure. The November 22nd workshop emphasized design considerations for the site.

A Master Development Plan is a regulatory option, at the discretion at the applicant, for sites with one acre or more in cumulative lot area that's designed as a cohesive and integral development program consisting of multiple buildings and associated site improvements built in phases over an extended timeframe (Sec. 14-522). An approved MDP establishes parameters to be adhered to for the full development, including total residential units, types of uses, lot coverage, open space, stormwater management, infrastructure, traffic, parking, site layout and circulation. It is a regulatory option, at the discretion of the applicant, with the intent of establishing a cohesive program for a site, while allowing the site to be built out over an extended time frame. MDPs may be developed concurrently with site plans and/or subdivisions, or independently. Approval does not constitute an authorization for development, but it does maintain the applicability of regulations in effect at the time of the approval for as long as the MDP approval remains valid (six years, with possible extensions up to a cumulative maximum ten years). Master Development Plan submission requirements are deliberately not as detailed as Site Plan and (when applicable) Subdivision requirements, which will be required before any development on the site can proceed. When reviewing and making the eventual decision of this application under the review standards of Section 14-524.a.3.ciii, Section 14-524.f.iv (*Planning Board Master Development Plan Decisions)* states that the Planning Board *shall approve, approve with conditions, or deny a Master Development Plan application based upon the applicable review standards. An approval, including an approval of waivers, establishes the general parameters to be adhered to for the development, including the supporting documentation for floor area ratio and/or residential density, general types of uses, building coverage, generalized open space plans and infrastructure systems.*

A Master Development Plan approval shall not be construed as final authorization of the development. Approval shall confer pending proceeding status upon the development with the effect of maintaining the applicability of regulations in effect at the time of approval for as long as the master Development Plan approval remains valid, including permissible extensions if granted.

All Level III site plans for each phase shall be in general conformance with the Master Development Plan.

This development is being referred to the planning board for compliance with the Master Development Standards standards of the land use code. A total of 352 notices were sent to property owners within 500 feet of the site and a legal ad ran in the *Portland Press Herald* on December 12th and December 13th.

A Neighborhood Meeting was held on October 4th, 2016 which was attended by approximately 140 people.

Applicant: CPB2 LLC, c/o Jim Brady

Consultants: David Senus/Mary McCrann, Woodard & Curran; Owen Haskell, Surveyor; Perkins+Will, Architect; Mary Costigan, Bernstein Shur

II. REQUIRED REVIEWS

Waiver Requests	***Applicable Standards***
Flooding Stormwater Standard	Technical Manual, 14.3.7

Review	***Applicable Standards***
Master Development Plan	*14-527.a.3.c*

III. PROJECT DATA

Existing Zoning	B-6 & Eastern Waterfront Port Zone, w/Shoreland & Floodplain overlays. Historic District on a portion of the site.
Existing Use	Mixed use, including full service marina, parking, warehouses, boat storage, a blacksmith facility and office space.
Proposed Use	Mixed use (including commercial, residential, office, marina)
Proposed Development Program	958,679 sf of mixed residential and commercial uses, 435,200 sf parking (736 spaces), and 638 residential units.
Property Size	+/- 10 acres

	Existing	*Proposed*	*Net Change*
Building Footprint	111,822 sf	215,306 sf	103,484
Building Floor Area	167,500 sf	958,679 sf	791,179
Impervious Surface Area	335,000 sf	409,000 sf	74,000
Parking Spaces (on site)	+/-105	736	631
Bicycle Parking Spaces	0	38 racks/78 spaces	78
Estimated Cost of Project	TBD		

IV. EXISTING CONDITIONS & SITE CONTEXT

The project is adjacent to Portland Harbor to the southeast and Fore Street to the northwest. The Eastern Promenade is adjacent to the east; bounded by the harbor on the southeast and by Fore Street on the northwest.

The property is contiguous with active waterfront uses to the west, bordered by the Ocean Gateway Terminal, and near the Maine State Pier, both serving deep water dependent large vessels, including cruise ships. To the east is the Eastern Promenade. The neighborhood to the immediate north is residential, with Waterville, St. Lawrence and Atlantic Streets perpendicular to the Fore Street-side boundary of the property, and abutted by Munjoy South apartments. Also to the north but immediately west of this residential area is the India Street neighborhood, which contains residential uses and a diverse mix of commercial uses – Shipyard Brewery, parking garages, the shops of India Street, a Marriot Residence Inn, and the Eastern Cemetery.

The majority of the site is located within the B-6 Eastern Waterfront Mixed Zone. The Eastern Waterfront Port Zone (EWPZ) has a depth of 75 feet, and encompasses approximately 1,000 feet of waterfront frontage. In addition to the two base zones, there are multiple other overlays on the property - a portion of the site is in the Shoreland Zone; a small area is partially in the A2 flood zone; and the B-6 portion of the site is included in the Building Height Overlay & Building Envelopes map. The property is a local historic district (as shown on Attachment P39). The immediately adjacent zones to 58 Fore Street are the R-6 residential zone to the east and north, ROS (Recreation and Open Space) to the east, B-6 to the west, and EWPZ to the west and south. As mentioned above, a portion of the property is a local historic district and is subject to review under Article X, Historic Preservation, in the City's Land Use Code.

58 Fore Street had been in continuous use since 1846, when it was established as the Portland Company for the manufacture of railroad equipment. An industrial site at its inception, it continued as one well into the 20th century, continuing to manufacture steel until 1978. It's now occupied by multiple tenants and uses, including a marina with associated parking and laydown areas, the Narrow Gauge Railroad, office, and storage. A 50' wide strip of Maine Department of Transportation (MDOT) land that encompasses both the Maine Narrow Gauge Railway and a public, multi-use trail that is an extension of the Eastern Promenade, maintained by Portland Trails and the City of Portland, bisect the site. Two easements run with the MDOT land.

There are significant grade changes across the site, both north to south towards the waterfront and west to east up Fore Street. Retaining walls mark much of the Fore Street edge of the property. Access is currently through a steep Fore Street drive to the west on the site.

The applicant has performed a Phase I environmental assessment of the site in 2013, and will need to meet the requirements of the Maine DEP Voluntary Response Action Program (VRAP) during redevelopment.

V. MASTER DEVELOPMENT PLAN PROGRAM

The application proposes a mixed use center that includes a marina, retail, office, restaurant, and residential space. At +/-10 acres it would constitute a new mixed-use neighborhood for the city. It includes open spaces in the forms of plazas, a public access easement, a waterfront walkway as well as integration of the existing, public mixed-use trail. Buildings include a mixture of repurposed, existing, historic structures and new construction. The application frames the development program into seven blocks, B1-B7. The majority of parking will be enclosed in a common parking pedestal that connects B4, B5, and B6.

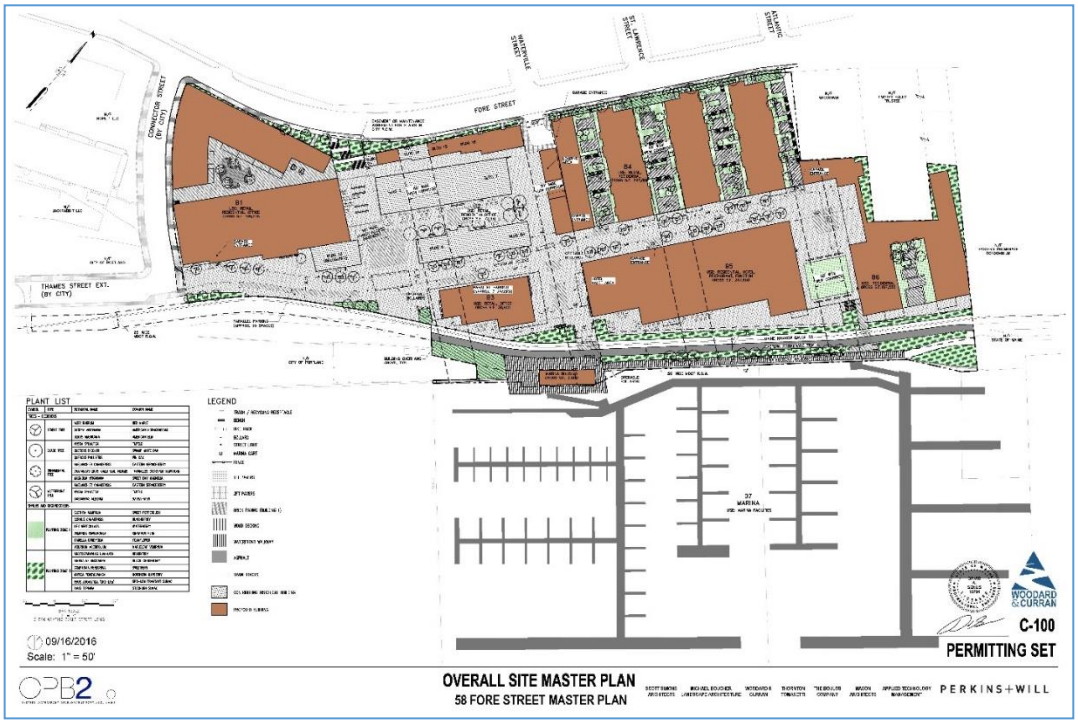


Figure 1, Revised Site Master Plan

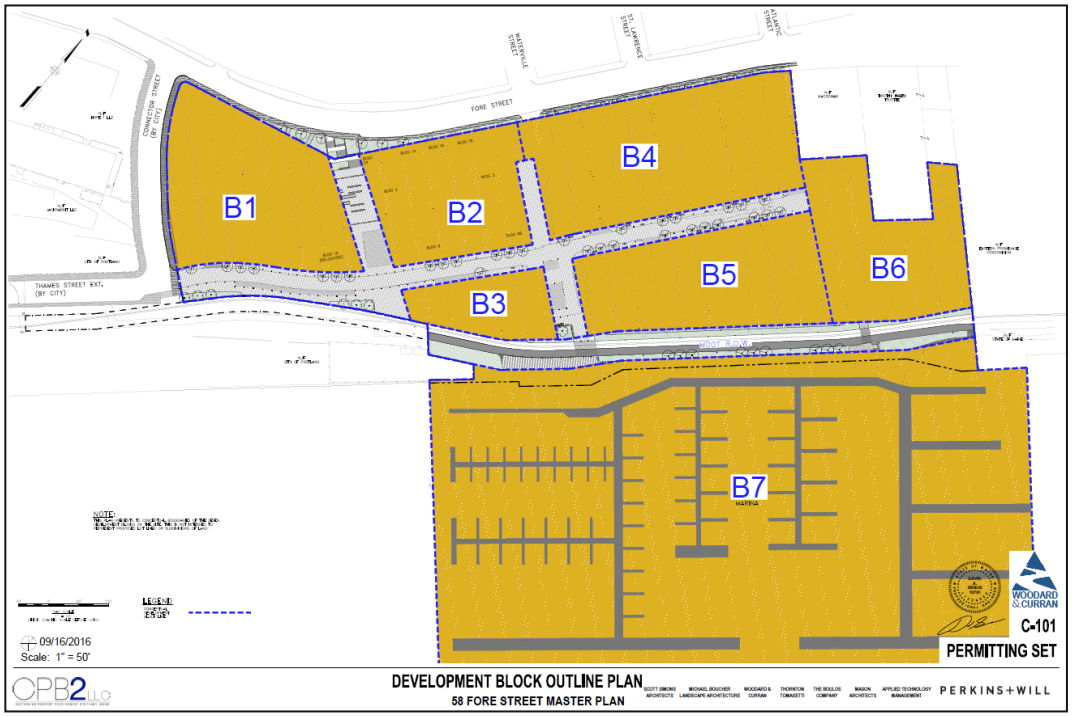


Figure 2, Development Blocks

The development program includes:

- 958,679 sf of mixed residential and commercial uses

- 435,200 sf parking to hold 736 spaces
- 638 residential units
- A marina for 220 slip spaces for seasonal and transient vessels, and a 2,600 sf building for marina facilities.
- Waterfront access that includes the Eastern Promenade Trail as well as a pedestrian walkway that runs for the length of the property. The property connects to the city-owned Amethyst lot, currently being discussed as eventual a newly designed public open space.
- Vehicular access to the site, currently from an access drive from Fore Street, will eventually be from an extension of the public Thames Street to the site, as well as a further extension of the same to Fore Street. A garage entrance to the structured parking is proposed along Fore Street. Pedestrian and bicycle access is from Fore Street, Thames Street extension, as well as via the Eastern Promenade trail.
- The project includes a proposed public access easement that runs from Fore Street to the water, on the southerly boundary of the property. The provision for the easement was made as part of the historic district designation, and final configuration will need to be determined over the course of review.
- The project includes view corridors, in accordance with the B6 Building Height & Building Envelope overlay. The view corridors, which require that no building occur above the grade of Fore Street, are 50 feet wide, and are aligned with Kellogg, Waterville, St. Lawrence, and Atlantic Streets.

The application includes a table of detailed specifications for each development block in Appendix C, Project Description.

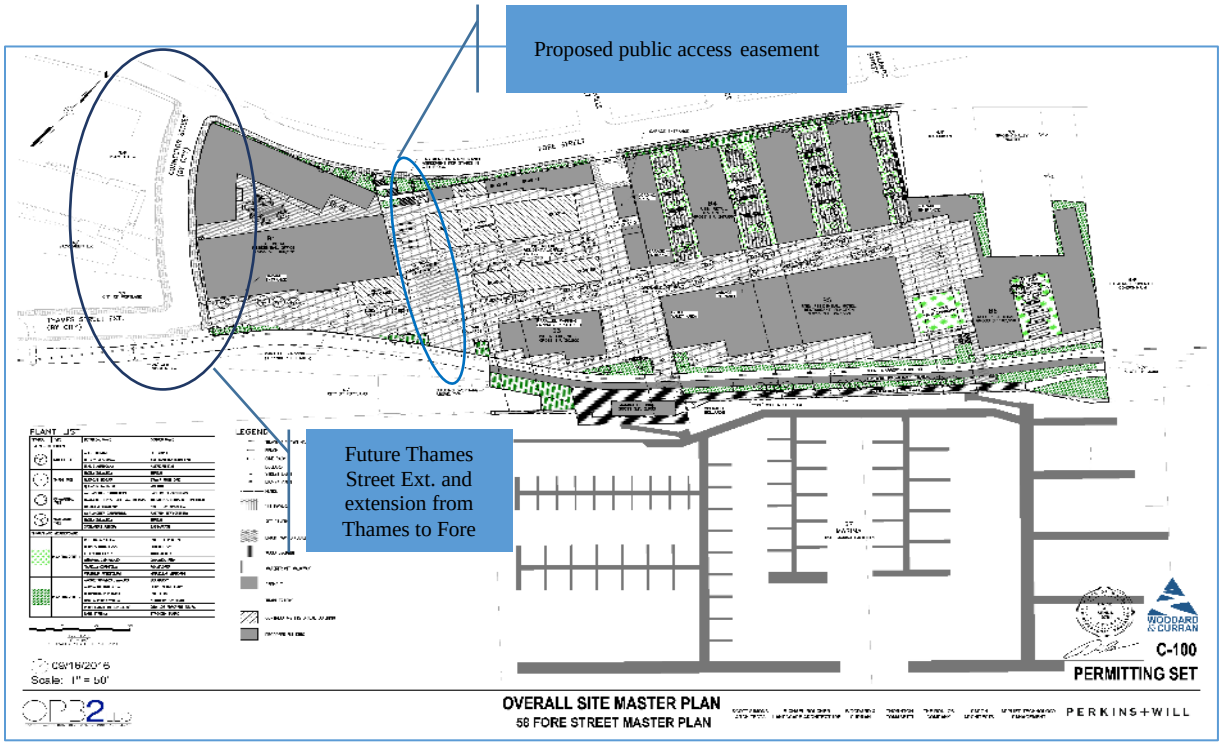


Figure 3, Overall Site Master Plan

VI. PREVIOUS REVIEWS

This MDP application is preceded in the previous three years by two significant review processes, involving the Planning Board, the Historic Preservation Board and the City Council. In February 2016, following a lengthy designation process by the Historic Preservation Board and Planning Board, the Portland City Council voted to designate a portion of the 58 Fore Street property as a local historic district subject to the provisions of Portland's historic preservation ordinance. The Portland Company Historic District as approved by the Council ensured the preservation of seven of the sixteen Portland Company structures on site. Figure 4 is a visual of the historic core of the site and the current historic district in the context of the overall site master plan.

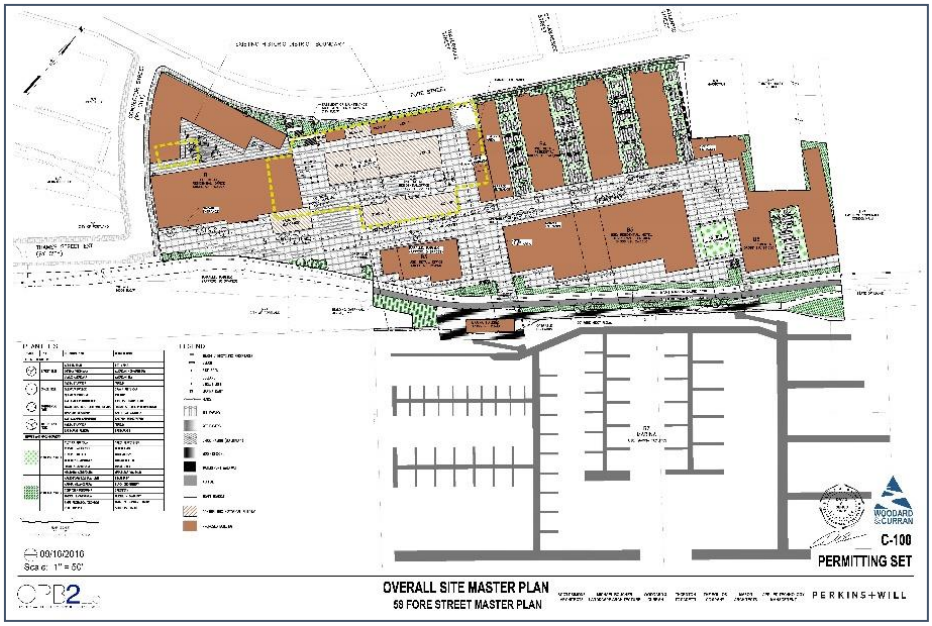


Figure 4, Historic District Boundary identified with dashed yellow line

An application for zoning map and text amendments for this site was submitted in August 2014, with the final changes adopted by the City Council on June 1, 2015. The application included a map amendment to rezone the property from the Waterfront Special Use Zone to B-6 and Eastern Waterfront Port Zone, with accompanying text amendments and amendments to the existing Building Height Overlay & Building Envelopes overlay (Figure 6). There was an extensive, detailed review of the application in 2014 and 2015 leading to a Planning Board recommendation to the City Council on February 24, 2015, and the approval of the application in June 2015.

Below is a chronology of the map and text amendments:

- August 22, 2014. Application submitted to Department of Planning & Urban Development
- September 17, 2014. Applicant's Neighborhood Meeting
- October 21, 2014. Planning Board Workshop
- November 18, 2014. Planning Board Workshop and Site Walk
- January 8, 2015. Staff-Lead Neighborhood Meeting
- February 10, 201.5 Planning Board Workshop
- February 24, 2015. Planning Board Public Hearing
- February 9, 2015, City Council Workshop
- March 30, 2015, City Council Workshop/1st Reading
- June 1, 2015, City Council Public Hearing

The property was rezoned from the now non-existent WSUZ to a combination of B-6 and EWPZ in June 2015. The rezoning application included text, map, and B-6 height overlay amendments. All three of these zoning elements were created to serve the specific needs of the Eastern Waterfront and were a direct result of the recommendations of the Eastern Waterfront Masterplan. The Eastern Waterfront Masterplan includes recommendations for zoning, height, and associated design for the entire Eastern Waterfront, including the 58 Fore Street site. The 2015 rezoning extended the existing height overlay, B-6 and EWPZ zones eastward to encompass 58 Fore Street. Previous to the rezoning of 58 Fore Street, these zones were in place on the land

immediately adjacent to the southwest, of 58 Fore Street, and in 2015 were extended eastward to encompass the property. The WSUZ was eliminated altogether.

The overlay amendment established view corridors, building envelopes with maximum heights, a massing break line, and specific restrictions on heights above Fore Street over the course of the 9-month review.

Details of the final, approved rezoning underwent numerous changes over the course of the extensive review, based on staff, Board, and public feedback on the application. The appropriate zone boundary of the EWPZ (75' in depth) to protect water dependent and maritime resources, as well as uses and dimensional standards within the zone were modified over the course of the review. Uses in the B-6 were also modified from the original proposal to insure sensitivity to the residential neighborhood on Fore Street and waterfront use compatibility within the site. Site plan standards regarding massing and permeability were included for these zones, as well, consistent with the content of the Eastern Waterfront Design Guidelines.

Both the designation of the historic district and the requirements of the B6/EWPZ/Height Overlay have directly shaped the site configuration of the current MDP proposal.

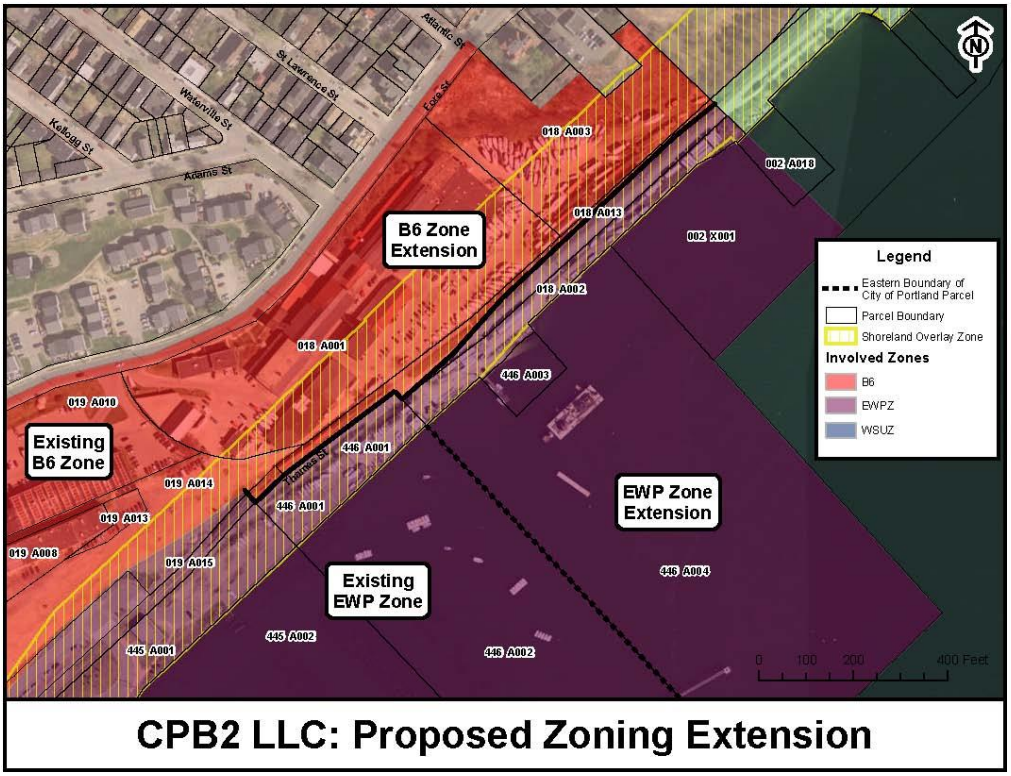


Figure 5, Area of Zoning Extensions, from Map Amendment Application

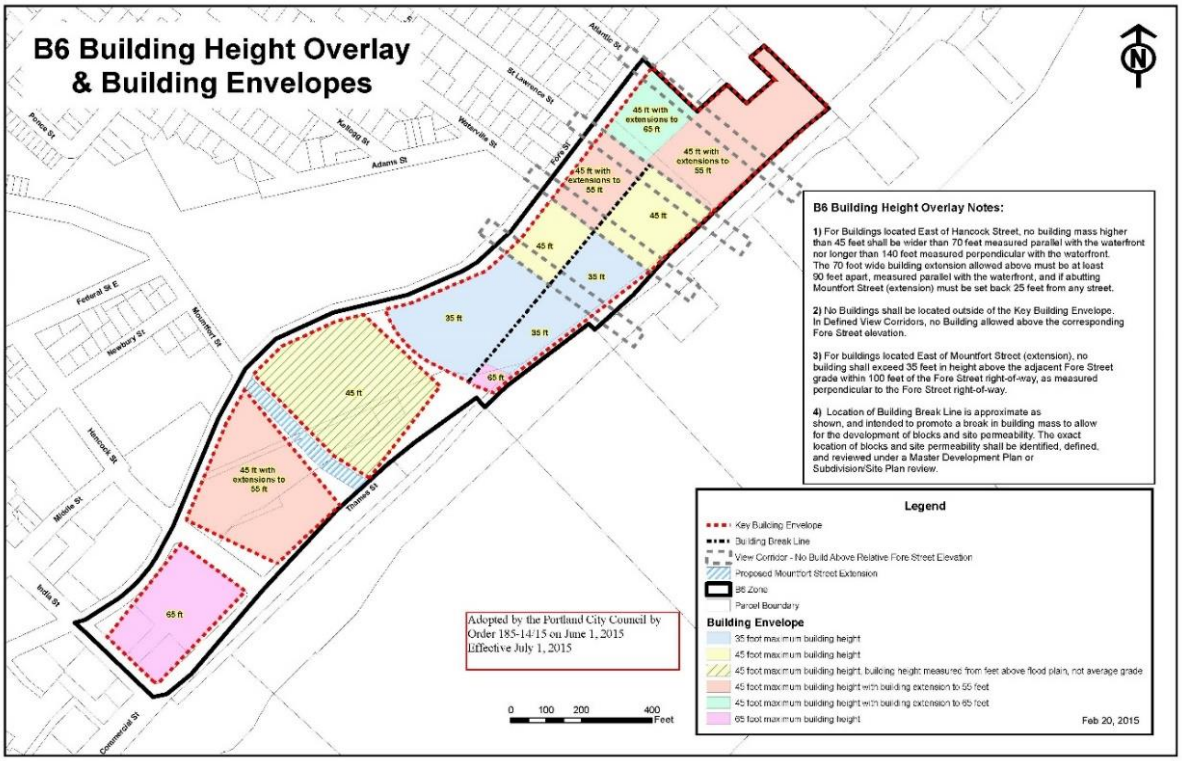


Figure 6, B-6 Building Height Overlay & Building Envelopes

VII. PUBLIC COMMENT

All public comment submitted via email has been included as attachments 1-14. These and comments made over the course of the workshops have touched on such items as the implications of the area being susceptible to flooding, height measurement methodology (addressed in section IX, below), adequacy of parking and parking management, scale and massing of the development, sensitivity of new construction to the historic core, wind impacts, questions regarding the MDP review process and scope, questions regarding road alignment, view impacts and traffic impacts. Though many of these questions have been answered during the course of the meetings, the applicant has submitted a written response to outstanding items (Attachments XXII). Other items raised for consideration were provisions to ensure that local businesses occupy the retail and commercial spaces, as well as concern for the impact of the project on overall housing affordability for the surrounding area. Many of these items will be addressed in much greater detail in the course of Level III reviews. Some, such the issue of local business tenants is not in the scope of Planning Board review to mandate. Another category of questions raised during public comment has had to do with construction management, such as how monitoring of parking, excavation, and construction-related vibrations will be managed; each of these will be specifically addressed in a required construction management plan in association with a Level III review.

A question about the Fore Street retaining wall has been raised several times – the applicant addressed ownership in their November 2, 2016 memo (Attachment I). The memo states: *The Board inquired*

about the existence of information regarding the Fore Street retaining wall. The City has a 4' wide easement along the full length of the retaining wall, which was built along the property line. The City is responsible for maintaining the wall and the purpose of the easement is for the City to be able to go onto the property in order to repair the wall if necessary. Preliminary geotechnical exploration will occur to inform the future design details related to the B2 and B4 development blocks, specifically how these foundation systems will interface with the retaining wall system. Future Level III Site Plans will identify the construction solutions for this area.

VIII. RIGHT, TITLE, & INTEREST

Evidence of Right, Title & Interest is included in Attachment E. Attachment E includes deeds, a Submerged Lands Lease and a Memorandum of Understanding with MaineDOT which establishes the ability to alter the current alignment of Maine DOTs right of way across the site. Attachment XXI includes the Purchase and Sale Agreement for the real estate transaction recently approved by the Council. This land transaction allows for site access/connectivity to the City street network through extension and connection of Thames Street. It also establishes a first phase of road extension that will be concluded by the further extension of the street network from Thames Street to Fore Street.

The Master Development Plan shows the proposed connector road to Fore Street and a building with frontage along this potential street. As shown the building encroaches upon land not at this time held by the developers. The applicant will need to confirm ownership or permission of the current landowner to proceed when a site plan application is brought forward. Suggested MDP approval conditions asks for this area to be visually clarified on the final plans, and specifies that any application for development approvals in this area require clear of Right, Title and Interest prior to review.

VIII. FINANCIAL & TECHNICAL CAPACITY

Evidence of Financial & Technical Capacity is included in Attachment J. This includes an overview of other development projects successfully completed as well as a description of the consulting design team to address technical capacity, and a letter from Holliday Fenoglio Fowler, L.P. attesting to CPB2 LLC's financial and technical capacity for the proposed project.

IX. ZONING ASSESSMENT (Sec. 14-527.c.6)

The project is encompassed by the B-6 Eastern Waterfront Mixed Zone, the Eastern Waterfront Port Zone, the B-6 height overlay, and is partially located in both a Shoreland zone and in a flood zone. The site also contains the Portland Company Historic District. As mentioned above, the zoning for this site is the result of a recent and extensive rezoning process initiated by the applicant. The Master Development Plan is consistent with zoning, including individual zone purposes, uses and dimensional standards, and the B-6 Height Overlay. The proposal is also consistent with allowed activity in the shoreland flood plain standards. Each site plan and subdivision (if applicable) will be evaluated for conformance with zoning, site plan, and subdivision standards, shoreland and flood plain requirements as well as undergoing Historic Preservation reviews for Certificates of Appropriateness.

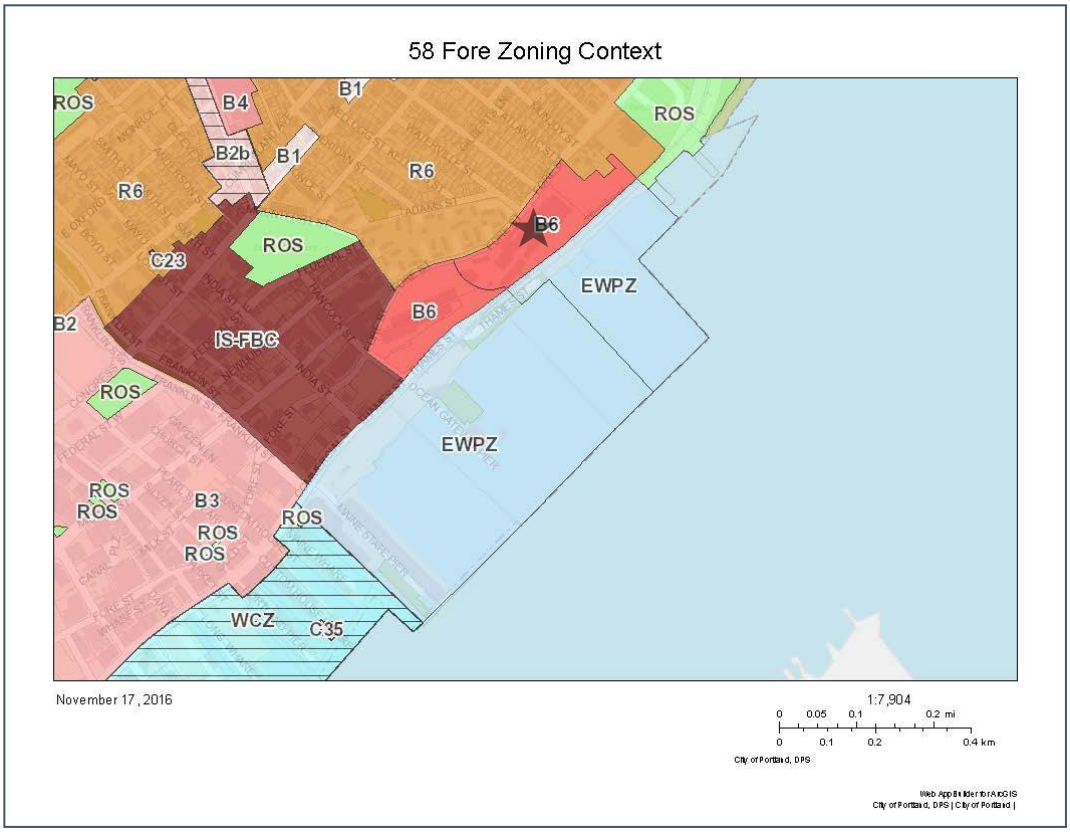


Figure 7, Zoning Context

The B-6 zone was specifically created to serve as a compatible zone for the upland portion of the Eastern Waterfront. The intent of the zoning standards for the B-6 is to provide for a mixed-use neighborhood that, according to the zone's purposes statement, *emphasizes a quality pedestrian experience, promotes public transit, and demonstrates exemplary urban design. The zone promotes a range of uses to achieve twenty-four urban vitality and shared use of parking infrastructure as recommended in the eastern waterfront master plan for redevelopment.*

The purpose of the EWPZ is to nurture a wide range of deepwater-dependent industry and commerce, particularly the marine passenger industry and upland support for the marine passenger industry. Piers, uplands, and circulation patterns consistent with the transportation needs of marine facilities are included in the purpose of the zone, as well as the encouragement of non-marine uses that support deepwater activities, provided that they do not conflict or compete for limited space with existing or anticipated deepwater-dependent needs. It's primary emphasis, however, is on the berthing and support of large vessels. A second priority is for shallow water-dependent uses. Consistent with the hierarchy of the City's other waterfront zones, specified, non-marine dependent uses are permitted provided they do not interfere with and are not incompatible with higher priority uses.

Full purposes statements for both zones are included in Attachment VI.

The B-6 zone includes a wide range of permitted uses, including each of the uses mentioned for inclusion in the MDP:

The following uses are permitted in the B-6 zone (Sec. 14-269):

(a) *Commercial:*

1. Professional, business and general offices;
2. Restaurants and other eating and drinking establishments, except that no drinking establishments as defined in section 14-47 that are located east of Waterville Street shall be permitted within fifty feet (50') of Fore Street, and provided that restaurants that are located east of Waterville Street and within fifty feet (50') of Fore Street must meet the following requirements:
   a. The hours of operation shall be limited to between 5:00 a.m. and 11:00 p.m. each day; and
   b. Food service and consumption are the primary function of the restaurant;
3. Hotels and inns limited to no more than 150 rooms;

…

5. Retail and retail service establishments, excluding those with gas pumps;

Other permitted commercial uses include but are not limited to carpentry shops; theaters; brew pubs; marine supplies and services; bakeries, coffee roasters and commercial kitchens; combined living/working spaces, including but not limited to artist residences with studio space; mixed use residential and commercial structures; studios for artists, photographers and craftspeople including but not limited to, painters, sculptors, dancers, graphic artists and musicians; health clubs; museums and art galleries; educational facilities.

(b) *Residential:*

1. Attached dwellings including row houses, two-family and multifamily dwellings;
2. Handicapped family units;
3. Combined living/working spaces, including but not limited to artist residences with studio space;
4. Mixed use residential and commercial structures.

The B-6 zone includes standards for parking that allow for surface parking while encouraging a site to ultimately incorporate mixed-use, structured parking, as this application does.

Allowed uses in the EWPZ zone are prefaced with language that no use in the zone may have an adverse impact on marine uses (Sec. 14-300.1). Permitted uses (Sec.14-301) allow for a host of marine uses, including marine passenger facilities, transient and long-term commercial berthing; boat and marine equipment storage; marine supplies and services such as fueling and bunkering of vessels; public, non-profit, or commercial marine transportation and excursion services, including captained charter services, sport fishing and water taxis. Residential is not allowed.

Pedestrian and multi-use trails are permitted in both zones.

The application also includes a zoning assessment, including allowed uses and dimensional requirements, in Attachment G.

Allowable heights are calculated, city-wide unless otherwise specified, from average finished grade. Building height is defined in Chapter 14 (Sec. 14-47) as the *vertical measurement from grade, or the predevelopment grade on the islands, to the highest point of the roof beams in flat roofs; to the highest point of the roof beams or the highest point on the deck of mansard roofs; to a level midway between the level of the eaves and highest point of pitched roofs or hip roofs; or to a level two-thirds of the distance from the level of the eaves to the highest point of*

gambrel roofs. For this purpose, the level of the eaves shall be taken to mean the highest level where the plane of the roof intersects the plane of the outside wall on a side containing the eaves.

Ann Machado, the City's Zoning Administrator has confirmed that there are two acceptable methods for establishing average grade (Attachment XIV): averaging the elevation of the proposed abutting ground surface at the building corners, or by averaging the elevation of the abutting ground surface at consistent intervals around the perimeter of the building. The applicant is proposing a single building on the eastern portion of the site that has pedestal parking at the base, with connected and architecturally varied residential uses above. Attachment G includes the applicant's calculations of average grade for each building proposed, which the Zoning Administrator has confirmed. She also states that if the parking base is built in phases, the average grade for each phase each phase will need to be evaluated for consistency with the B-6 Height Overlay. There are no final building designs in a MDP plan application, so this review addresses the feasibility of the site design concept as proposed.

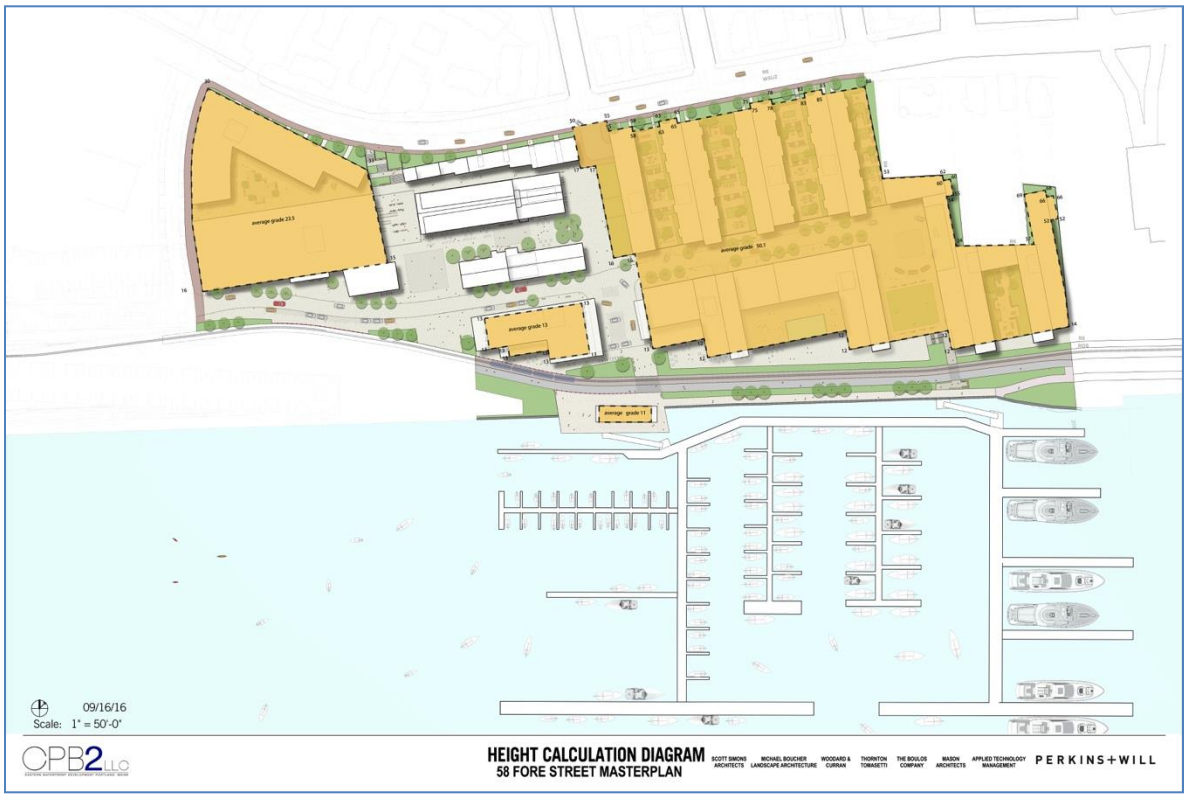


Figure 8, Average Grade Calculations

The MDP site layout and building heights have been proposed in accordance with the B-6 Height Overlay (Figure 6, and included in Attachment G), which not only determines allowable heights, but establishes the location and requirements for view corridors. Additional significant elements of the height overlay are varying allowable heights within the zone arranged in blocks ranging from base heights of 35 to 65 feet throughout the site. Many of the blocks include base heights with allowable extensions 10-20 feet above the base height. Further articulation of the permitted heights is stated in the overlay notes which set parameters for the height extensions, the view corridors, and restrictions on height at Fore Street. The overlay notes also include an explanation of the dashed building break line running east-west across the property:

1. For Buildings located East of Hancock Street, no building mass higher than 45 feet shall be wider than 70

feet measured parallel with the waterfront nor longer than 140 feet measured perpendicular with the waterfront. The 70 foot wide building extension allowed above must be at least 90 feet apart, measured parallel with the waterfront, and if abutting Mountfort Street (extension) must be set back 25 feet from any street.

2. No Buildings shall be located outside of the Key Building Envelope. In Defined View Corridors, no Building allowed above the corresponding Fore Street elevation.
3. For buildings located East of Mountfort Street (extension), no building shall exceed 35 feet in height above the adjacent Fore Street grade within 100 feet of the Fore Street right-of-way, as measured perpendicular to the Fore Street right-of-way.
4. Location of Building Break Line is approximate as shown, and intended to promote a break in building mass to allow for the development of blocks and site permeability. The exact location of blocks and site permeability shall be identified, defined, and reviewed under a Master Development Plan or Subdivision/Site Plan review.

The plan as shown in the Overall Site Masterplan and in the Height Calculation Diagram (Figures 1 & 8) is consistent with the definition of building height in Chapter 14, the allowed heights in the B6 Height Overlay, and established methodology. View corridors and the break in massing have been adhered to. All final building designs will be reviewed for compliance with the Height Overlay and other applicable sections of Chapter 14 over the course of Site Plan Review.

X. MASTER PLAN SUBMISSION REQUIREMENTS (*Section 14-527(e)*)

Section 14-527 of the city's site plan ordinance outlines master development plan submittal requirements. The applicant has met these requirements.

XI. REVIEW OF MASTER DEVELOPMENT PLAN STANDARDS (*Section 14-524(a)3.c(iii)*)

An approved MDP establishes parameters to be adhered to for the full development, including total residential units, types of uses, lot coverage, open space, stormwater management, infrastructure, traffic, parking, site layout and circulation. It is a regulatory option at the discretion of the applicant for sites of one acre or more, with the intent of establishing a cohesive program for a site, while allowing a site to be built out over an extended time frame. MDPs may be developed concurrently with site plans and/or subdivisions, or independently. Approval does not constitute an authorization for development, but it does maintain the applicability of regulations in effect at the time of the approval for as long as the MDP approval remains valid (six years, with possible extensions). All Level III site plans and subdivisions for each phase are required to be in general conformance with the approved MDP.

MDP review criteria (§14-524.a.3.C.III.) establishes standards under which MDP applications must be reviewed. Per this section, MDPs shall adhere to the following general requirements and features:

a. ***A designated tract of land consisting of a parcel or parcels of contiguous land or land on both sides of a public street, totaling one (1) acre or more.***

The property, a (+/-) 10 acre site, meets this standard.

b. ***Developed in a comprehensive, design-integrated manner, according to an overall master development plan.***

The applicant has submitted a master plan for 58 Fore Street which incorporates all major aspects of the site, including site layout, stormwater, utilities, parking, traffic, architecture and landscape design, in a comprehensive manner.

c. ***Consistent with the objectives of this ordinance.***

The application and development plan are generally consistent with the objectives of the city's ordinance, including the purposes of the B-6 and EWPZ. The B-6 exists as a mixed-use zone for the upland portion of the eastern waterfront which *…encourages a distinctly urban form through development that emphasizes a quality pedestrian experience, promotes public transit, and demonstrates exemplary urban design.*

The EWPZ exists primarily to nurture deepwater dependent activity within the context of the established waterfront, shallow water-dependent and other marine uses, and other uses that are not incompatible with either. Each of the city's waterfront zones contain this hierarchy of water dependent, marine related, and compatible non-marine uses, across the respective purposes of the eastern, central and western waterfronts. The EWPZ is also the zone for Ocean Gateway and Maine State Pier and supports passenger ships, recreational boating, and other compatible uses.

d. ***Consistent with the City's Comprehensive Plan and consistent with City Council approved master plans and facility plans for off-premise infrastructure, including but not limited to, trails, pedestrian and bicycle network, view corridors, environmental management, sewer and stormwater, streets, or other facilities (see Section 15 of the Technical Manual).***

Section 14-524.A.3.c.III.d requires that when reviewing a Master Development Plan application, the Planning find that the:

> *Consistent with the City's Comprehensive Plan and consistent with City Council approved master plans and facility plans for off-premise infrastructure, including but not limited to, trails, pedestrian and bicycle network, view corridors, environmental management, sewer and stormwater, streets, or other facilities.*

Over the course of review of the rezoning application for this site, there was an extensive review of the map and text amendments for consistency with the Comprehensive Plan. The rezoning request was required to be consistent with the Comprehensive Plan in order for the zoning amendments to be approved. Any MDP application that complies with zoning that has been found consistent with the Comprehensive Plan is therefore, by extension, also broadly consistent with the Comprehensive Plan, particularly the sections that had direct application to the rezoning. With that as a starting place the role of the board in reviewing a MDP Application is to examine the Comprehensive Plan, and thus Eastern Waterfront Masterplan (EWMP) in relation to the particular MDP application before it, including elements not addressed in the zoning ordinance. The following is an overview of how the details of the MDP align with the varied goals of the EWDP.

In addition to the EWMP, Volume 1 of the Comp Plan gives an overview of the years of waterfront planning efforts of the City, and addresses redevelopment of the Eastern Waterfront specifically. It outlines four redevelopment principles for development in this area (these four principles are restated in the EWMP): Character and Impact of Development, with particular emphasis on compatibility with surrounding areas – residential, maritime, and natural environment; Mixed-use as a component of an active, vibrant urban area; maintaining Maritime Resources; and Economically Responsible Development that benefits the city and the region.
The EWMP consists of three component parts that establish a vision for an area that includes the 58 Fore Street site (the entire Eastern Waterfront Masterplan in its 3 components can be accessed directly here: http://www.portlandmaine.gov/DocumentCenter/Home/View/3391). The three components of the document, adopted in 2002 and 2004, are *A Master Plan for Redevelopment of the Eastern Waterfront, Design Guidelines for the Eastern Waterfront, and Eastern Waterfront Building Height Study*.

Design Guidelines for the Eastern Waterfront touch on many aspects of the built environment – including but not limited to street design, open spaces, utilities, bicycle safety, parking, and building composition. The guidelines emphasize new development that respects surrounding neighborhoods while allowing for new design that furthers

the creation of a new neighborhood. These guidelines are the primary basis for the Design Review of the MDP and are addressed in Attachment XVI and XVII.

The *Eastern Waterfront Building Height Study* outlines the process and principles that informed the study's recommendations for implementation, as summarized by that study's *Illustration 33*. The document gives an overview of the process used in the study and the principles that guided it, including considerations of scale, topography, massing, the impact on adjacent neighborhoods to inform the eventual recommendations on view corridors, heights, parking structure orientation and design, setbacks, road alignments, alleyways, visual focal points, civic spaces, and others. Implementation of the Eastern Waterfront Building Height Study resulted in the adoption of the original B-6 Height Overlay, as well as the amendment of that map to include the 58 Fore Street property (Figure 6) over a 9 month public process outlined in section VI, above.

A Master Plan for Redevelopment of the Eastern Waterfront is the parent document to which the Design and Height studies were later appended, and establishes the vision for the area. It is intended to form the basis for rezoning of the Eastern Waterfront (pg. 3: *The Master Plan will provide the policy basis for future zoning amendments necessary to implement the plan)* to facilitate the redevelopment of vacant and underutilized land (*pg. 6. The area is blessed with water views, proximity to urban amenities, reasonable vehicular access, excellent port access, and integration into the City trail system. Given its location and proximate attractions, significant potential for redevelopment exists within the Eastern Waterfront…..*).

Specific mention of the Portland Company Complex includes:

> *The Portland Company complex, a mid-nineteenth century manufacturing facility, occupies the easterly end of the Eastern Waterfront. As an early manufacturing center, the site is home to several large brick and granite industrial buildings of architectural significance with potential for adaptive reuse. The Portland Company property is currently designated as eligible for inclusion in the National Register of Historic Places.*
>
> *The property is highly developed, but in need of significant structural and cosmetic repair. Importantly, the complex is the only private property in the study area with direct water access. Currently, the Portland Company houses a variety of commercial uses, including a marina, boatyard, boat repair, general office, exhibition space, and the Narrow Gauge Railroad Museum.*
>
> *Future parking enhancements and better vehicular and pedestrian access to the central redevelopment area will better integrate the Portland Company complex with the Eastern Waterfront and the Commercial Street business district, spurring the adaptive reuse and restoration of the historic structures.*
>
> *<u>Development Considerations</u>*
> - *Historic 19th Century industrial complex.*
> - *Promote the continuation of boat yard and yacht support services.*
> - *Encourage the adaptive reuse and sensitive rehabilitation of historic structures.*
> - *Increase connections to Commercial Street and promote shared parking with abutting uses.*
> - *Expand recreational boating and active public use of the water.*

Objectives for the Eastern Waterfront are grouped according to four overarching themes: Character and impact of development, Mixed Use, Maritime Resources, and Economically Responsible Development. Specific objectives addressed by this MDP application:

- *Encourage compatible architecture.*

Overall site design is being addressed in Design Review comments, and final building designs will be further reviewed with submission of site plans.

- *Encourage historic preservation and adaptive reuse of historic structures.*

A portion of the site was designated a local historic district, insuring preservation of designated buildings and review of the district under the Historic Preservation Ordinance in perpetuity.

- *Establish a new street and pedestrian network that integrates with the surrounding street and trail network.*

There are no public streets within the site, but public street extensions of Thames and the connector to Fore are proposed in conjunction with buildout of this project. Overall the site increases connectivity to the surrounding street system at Fore Street, at Thames Street, as well as maintaining trail access. Additional public access will be provided through a public easement across the site, from Fore Street to the water. Private entrances to residences and rooftops along Fore Street will connect residents to Fore Street, as well. Access to the site is also increased from the water through the expanded marina. The interior of the site includes plazas and courtyards, not publicly owned, but intended for public access to the shopping, dining, working and otherwise utilizing the new commercial and residential space.

Overall this standard has been well met, though connections are stronger on the western end of the site than the eastern. The question of adequate permeability through the site was raised at a Planning Board meeting, drawing particular attention to the ability for pedestrians to move through the site along the eastern end, particularly in regard to access from Fore Street along block 4. There are topographical challenges to the eastern end that don't exist to the same extent at the western end of the property that will require alternative solutions for enhancing connections.

- *Preserve significant public view corridors to and from water and along the waterfront.*

The view corridors recommended by the plan were implemented into the B-6 Height Overlay. View impacts from the water, and from Fore Street are still being assessed, and the applicant has responded with renderings from various vantage points to address these questions (additional renderings are included in Attachment XII).

- *Manage traffic, noise, and air and water emissions to minimize the impacts on the surrounding community and users.*

Management of traffic impacts, transportation demand management, and parking are currently being reviewed. The stormwater plan for the site promises to significantly improve water quality leaving the site. The Master Development Plan calls for an overview to the approach for managing traffic and other impacts, and future site plans will be required to address these items in full detail.

- *Improve and protect the value and quality of natural resources.*

As noted above, the stormwater plan for the site will yield water quality benefits, as there is no treatment on site currently, and the application shows water quality treatment of approximately 6 acres of land.

- *Provide opportunity for mixed-use and non-marine development and activities in locations and in ways that are compatible with the use of maritime resources.*

The recent rezoning of the property directly allows the waterfront to be developed as a marina and the upland area to be a mixed use development consisting residential, office and commercial uses. Thus the MDP addresses this goal.

- *Increase public use of the water, waterfront and shore through public access and green space development.*

Public Access to the water will be improved through trail re-alignment, an additional waterfront walkway, and the public access easement.

- *Maintain and enhance recreational trail access.*

The trail will be maintained and realigned. The MDP's proposed realignment of the trail to the water's edge is specifically supported (*The Eastern Promenade Trail and the Narrow Gauge Railroad, with their linear orientation parallel to the shore, have a tendency to divide the uplands from the water's edge. Some relocation and redesign of both of these corridors will be needed in order for the Master Plan to take advantage of the amenities provided by these features while retaining connectivity with the uplands and the functional utility of marine uses).*

- *Preserve and encourage long-term enhancement of emerging and traditional maritime and water dependent uses.*
- *Utilize the harbor's deep-water resources to serve deep draft vessels.*
- *Encourage small boat berthing where water depth does not permit deep-water berthing.*

This area is supported in the zoning for recreational boating. The area of the EWPZ to the west of 58 Fore serves deep draft vessels – provisions were made in the course of the rezoning to insure no interference with this primary purpose of the zone.

- *Encourage public physical and visual access to the water where appropriate.*

This goal is met through required view protection, increased connectivity of the site to surrounding neighborhoods, and through the proposed public easement.

- *Allow non-marine mixed uses when compatible with water dependent and marine uses.*

The B-6 is written to be compatible with the EWPZ, allowing marine support uses in the mixed use zone.

- *Encourage a positive economic return.*
- *Sustain and strengthen water-related tourism.*
- *Enhance the economic viability of the eastern waterfront's property and facilities.*
- *Assure that the public investment and development benefit the residents of the greater Portland community.*
- *Provide adaptable, flexible infrastructure that will allow the city to adjust to future technological trends.*
- *Enhance multi-modal transportation opportunities.*

Reinvestment in this site allows for retention and rehabilitation of historic resources, greater access to the water and expanded water-related tourism opportunities, and expanded economic activity.

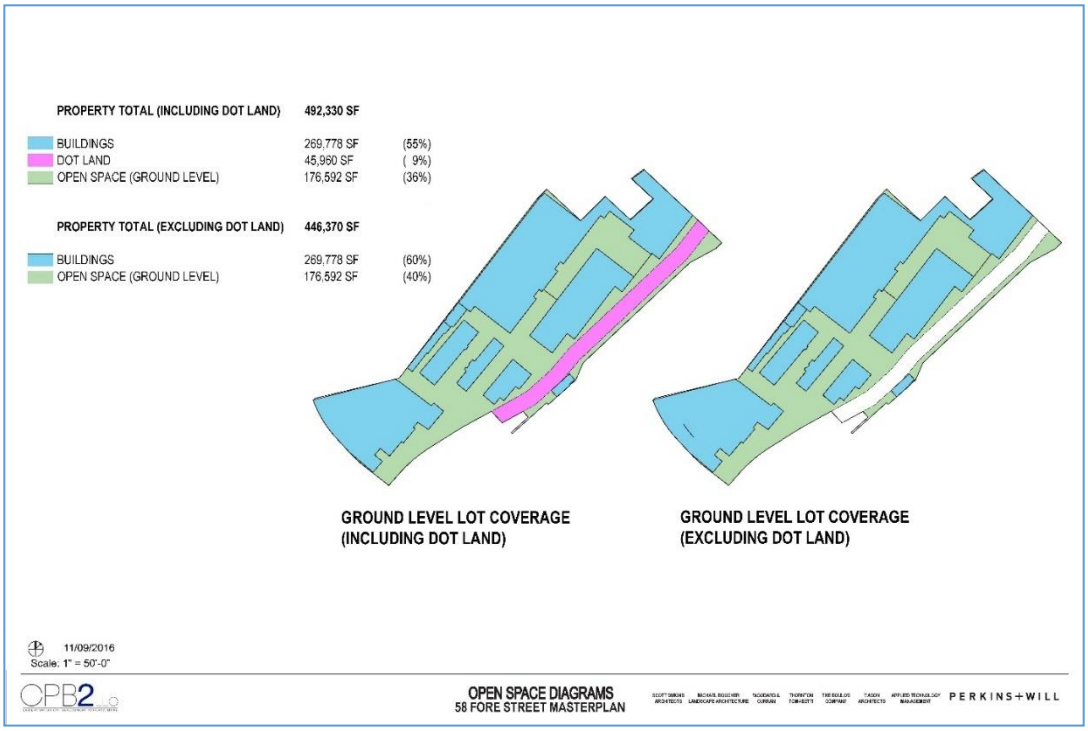
The Eastern Waterfront Masterplan is a vision for the eastern waterfront's transformation into a walkable, mixed use, connected part of the city that also supports an active waterfront. That process is underway in the eastern waterfront, and the rezoning of 58 Fore Street, and now this application, are a part of that vision. The EWMP places considerable emphasis on connectivity of the area to the water, to the trail, and to the surrounding neighborhoods, all of which are achieved by this proposal. The EWMP also places significant emphasis on minimizing negative impacts on existing and future residential neighborhoods, which is addressed through a thorough review of urban design, traffic impacts, stormwater and other performance standards required by the Land Use Code. These areas are under review for the MDP, and will continue to be scrutinized as greater levels of detail arrive with future applications. Staff analysis finds that the proposed development program advances the goals of the EWMP particularly successfully. Areas for further discussion and refinement are discussed in Ms. Cameron's design review memos and in the review of site design and optimizing connectivity of the site to surrounding areas. Accordingly, the MDP application is generally and specifically consistent the EWMP.

e. ***Developed so as to locate buildings and improvements in a manner that provides usable open space, preserves significant natural features, as defined by the site plan ordinance standards, and preserves existing trees to the maximum extent possible.***

The eastern end of the property currently includes some inaccessible vegetated area in the steepest areas of the property, but the remainder of the site has long been developed. The site is currently bisected by the Eastern Promenade trail, offering off-road travel across the property and visual access to the water. Significant natural features as defined by the site plan standards (14-526.b.1) include such things as endangered trees, plants or animals, high value bird habitat, wetlands and vernal pools. The standards also mention flood plains and the shoreland zone, portions of which are on this property – any new construction in either of these zones will be reviewed for consistency with these standards; there are no activities proposed on the MDP that would be prohibited in these overlay zones. There's an opportunity for stormwater quality improvements on the site with the inclusion of green infrastructure and Low Impact Development techniques mentioned in the Stormwater Management narrative (Attachment L).

The application proposes to formalize a significant amount more open space, public and private, than is currently on this developed, industrial site. The submission materials dated November 2nd (Attachment I) include several plan sheets that help visualize this component, with distinctions between ground level and rooftop, hardscape and planted areas. Hardscape includes plazas and courtyards for gathering spaces, as well as shared use streets that will accommodate pedestrian and vehicular circulation. The application calculates the open space for the site at 60% of total property area, including ground level hardscape and planted areas, and occupy-able roof terraces. The application estimates that 75% of that space will be accessible to the public.

In addition to ground level/rooftop, hardscape/planted, there are other categories the open space worth considering in assessing consistency with this standard. Waterfront access, for instance, is addressed in the form of the existing trail and an additional pedestrian walkway across the site, the expanded marina, and through the public easement option to the site. The trail continues to travel across the site (connecting the Eastern Promenade with the Amethyst Lot parcel), re-aligned from its current location for greater proximity to the water's edge, as well as a proposed extended walkway along the water. The proposed marina will increase transient berthing slips, offering additional possibility for accessing the site from Casco Bay. The 50' public easement option, exact location and configuration required at site plan review, includes provisions for physical and visual access across the site and to the water. Visual access is further provided through the four required view corridors in the Building Height Overlay.



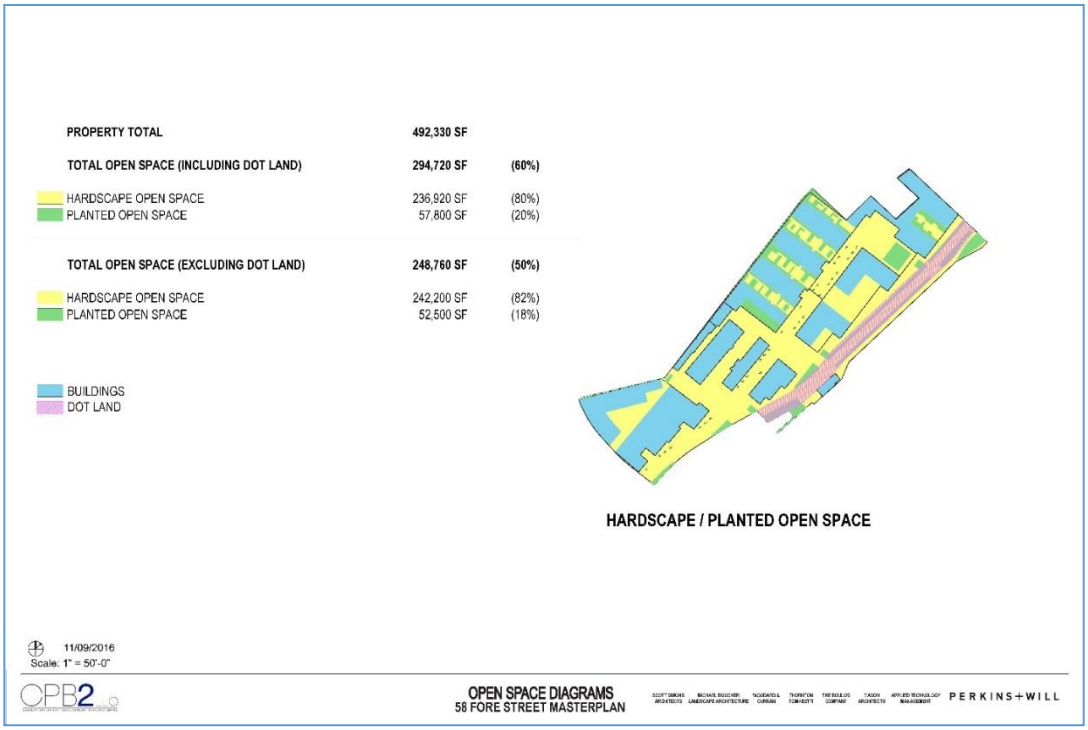


Figure 9, Open Space Diagrams

f. ***Developed so as to be in conformance with Portland's Historic Preservation Ordinance standards for designated landmarks or for properties within designated historic districts or designated historic landscapes, if applicable. When proposed adjacent to or within one hundred (100) feet of designated***

landmarks, historic districts or historic landscapes, the Master Plan shall be developed so as to be generally compatible with the major character defining elements of the landmark or portion of the district in the immediate vicinity of the proposed development.

Historic Preservation review of this aspect of the MDP criteria occurred concurrently with Planning Board review. Following the joint Historic Preservation and Planning Board workshop on October 12, the Historic Preservation Board reviewed the application at a workshop on November 16th and held a public hearing on December 7th. At the December 7th hearing the Historic Preservation Board made a determination of the MDP's consistency with this standard, determining visual compatibility of the proposal with the Portland Company Historic District Designation Report and consistency with the standards of the Historic Preservation Ordinance.

The Historic District's recommendation is included in Attachment XVIII. It contains a thorough overview of the review process, issues raised, input for future reviews, and the Board's formal finding.

The Historic Preservation Board found that the Master Development Plan is in conformance with Portland's Historic Preservation Ordinance standards, subject to the removal of the proposed rooftop addition above Building 16, the reduction in scale of proposed infill construction on the footprint on Buildings 14 and 15 to a height not to exceed existing building heights, and the provision of an offset separating Building 16 and new townhouses to the east. In addition, the Board found that the proposed development adjacent to or within one hundred feet of the Portland Company Historic District will be developed so as to be generally compatible with the major character defining elements of the landmark or portion of the district in the immediate vicinity of the proposed development.

Accordingly, a condition of approval has been recommended that any approval of the Master Development Plan include final revised plans that reflect the Historic Preservation Board's findings, so that the Planning Board can then affirm that the MDP application is consistent with review criteria **f**.

The Historic Preservation Board also detailed numerous input for future reviews (section IV, General Input for Future Reviews in Attachment XVIII), feedback that will impact future design of the site. These did not form the formal finding of the Board, but have been recorded as a record of Historic Preservation Board direction on future submissions (when new construction, additions or modifications are proposed that fall within the Historic Preservation Ordinance's purview, the applicant will be required to apply for a Certificate of Appropriateness, distinct from the advisory opinion required for the Master Development Plan).

g. ***An efficient use of land which properly considers topography and protects significant natural features including, but not limited to, waterways, wetlands, floodplains and wildlife.***

The significant natural feature of the site is the water's edge. A currently developed waterfront parcel, it has been zoned to maintain 75 feet of waterfront zoning (EWPZ) along the water's edge to maintain water dependent, marine dependent, and limited compatible other uses. All construction within shoreland and floodplains will be reviewed for conformity with those sections. The site modifies the steep elevation changes of the site to allow for safe vehicular and pedestrian entrance, and also works with topography to the extent that view corridors from Fore Street to the water have been preserved (as required by the B-6 Height Overlay) so that no new construction breaks the elevation of Fore Street.



Figure 10, Rendering, Fore Street pedestrian entrance

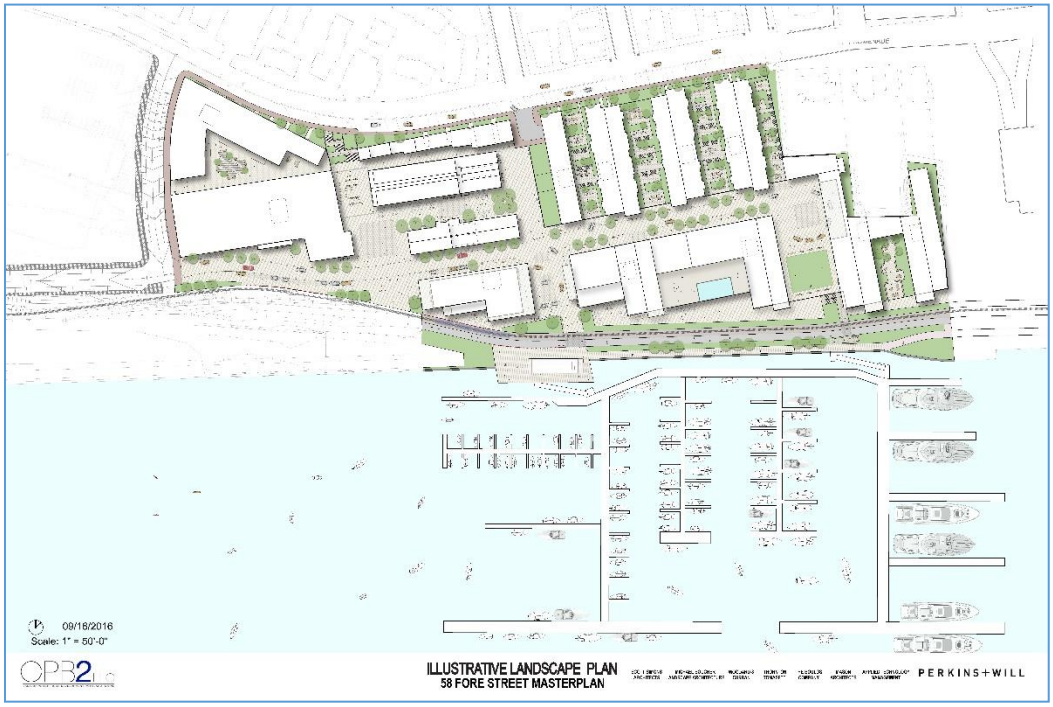


Figure 11, Illustrative Landscape Plan

The applicant has provided a conceptual drainage plan (Attachments L, P9 Stormwater) to address stormwater for the site, including water quality treatment areas, drainage infrastructure and a description of stormwater management measures. A waiver has been requested from the Flooding Standard, due to the fact that the project will discharge directly into the ocean – the stormwater review conducted by Stephen Bushey finds this waiver request justified (Attachment II). The conceptual plan indicates that existing drainage patterns will be largely maintained, with runoff from the development collected or directed to stormwater treatment systems located throughout the site. The project also proposes Best Management Practices such as tree box filters, rain gardens, green roofs, and related Low Impact Development (LID) measures.

Mr. Bushey's stormwater review found the conceptual plan to be sound in its strategy. He emphasized that the site's stormwater management will benefit from LID measures for water quality, aesthetics and visual appeal. Applicant presentations on stormwater techniques for the site indicate robust and creative inclusion of these techniques – the site at build out promises to be a gain over existing conditions for water quality leaving the site.

Mr. Bushey's review also suggested that the site design take into consideration recent research on storm surges for Maine's coast, attaching two the Maine Geological Survey Sea Lake and Overland Surges from Hurricanes (SLOSH) maps showing potential impact and inundation areas, included in Attachment II. These maps can inform discussion of site and building design – he includes such parameters as floor grades, exterior grades, waterproofing and related aspects for consideration. The maps he includes are informative for this review, but are not regulatory maps for the purposes of review and approval of the application. The application is in a flood zone (aerial w/flood overlay included below), an AE zone and a velocity zone, and this will impact design and construction in this area, but does not extend to an extensive deep into the site. Marine-related construction will need to meet the particular construction requirements for any building or structure in these zones.



Figure 12, Flood Zones Layer Over Existing Conditions

Jeff Tarling, City Arborist, has commented that landscaping for the site should incorporate native plantings, particularly those suitable to salt water environments and potential storm inundations. This is an item that will receive more specific review when Level III site plans are brought forward.

Lastly, Mr. Bushey's review noted the need for additional information regarding stormwater infrastructure phasing. The MDP does not include a phasing requirement, but each subsequent application for development will need to address how the increment relates to the whole, whether it be stormwater management, utilities, or traffic generation.

h. ***An efficient use of land demonstrating full coordination of its own site development and surrounding context including, but not limited to, the land uses and functions contemplated, architecture, open space and pedestrian networks, vehicular access and circulation, and all other infrastructure.***

The MDP proposes to retain existing buildings within the historic core of the site, adaptively reusing existing buildings and maintaining historic patterns of open space between buildings. It also proposes redesigning areas outside of the district, incorporating new construction and design. The proposal follows recommendations of the Eastern Waterfront Masterplan for redevelopment, including re-use of historic resources, new construction, a mix of uses, infrastructure improvements and additional connections to the surrounding neighborhood. Vehicular and circulation plans have been submitted, as well as supplemental pedestrian circulation materials that were included in November.

Overall, site connectivity both benefits from existing conditions, including the presence of the Eastern Promenade trail, connection to the water, the adjacency to surrounding neighborhoods, abutting open space to the east and future open space in the form of the Amethyst Lot to the west. The proposal will also improve connectivity for the site, and for the surrounding neighborhoods. Vehicular access to the site will eventually come from an extension of Thames Street, as well as plans for an eventual, further extension of the street network from Thames to Fore Street. A garage entrance to the structured parking is proposed along Fore Street. Pedestrian and bicycle access is from Fore Street, Thames Street extension, as well as via the Eastern Promenade trail.

Areas where connectivity and circulation have been identified either for improvement or further articulation are marina pick-up and drop off areas, building entrances and building relationships to the street as they impact the pedestrian experience (addressed in Attachment XVII), and the ability of pedestrians to circulate on the eastern portion of the site where grade changes make pedestrian movement, particularly from Fore Street towards the water. Future reviews will evaluate vehicular, bicycle, and pedestrian circulation in greater detail as development proposals are brought forward. As phases of development emerge, each proposal will need to be evaluated for successful circulation and safety at interim phases, prior to the full site circulation plan being realized.

The Amethyst Lot, a City-owned parcel abutting 58 Fore Street and the waterfront on the western and southern edge of the site, is slated to be designed into a newly conceived public open space. The public access easement option from Fore Street connects with the Amethyst Lot, as well, creating another interface between 58 Fore Street and this public space. Design of both 58 Fore Street and the Amethyst Lot impact each other, with implications for the particulars of trail and waterfront access across both sites. Coordination between the City and the applicant on the interaction of these properties will be important, as each project unfolds, to optimize pedestrian and bicycle connections through the city, as well as to the water.

i. ***Linked and coordinated with surrounding land uses, infrastructure and off-site public facilities, including but not limited to the public school system, where appropriate, in a manner that is safe, efficient, non-injurious to the public, and an improvement or benefit to the public where possible.***

The applicant has provided the required utilities analysis (Attachment N, Utility Plans P7 & P8). An engineering review from Stephen Bushey, consulting civil engineer is attached (Attachment II). Mr. Bushey found that the application demonstrates it can be served by sufficient infrastructure, including wastewater, water, drainage, power, natural gas, and communications. He notes that more detail and coordination will be necessary when a development proposal is brought forward:

> *Ultimately it will be necessary for the developer's design team to complete significant coordination with all utility providers to verify that adequate capacity is in place and what, if any, improvements to these systems are necessary. However, as part of the Master Plan we see no particular issues with the utilities, except that the City of Portland and Portland Water District must address the project's potential impacts on their Combined Sewer Overflow Abatement plans and the capacity of the conveyance systems.*

The Department of Public Works has provided initial feedback on the need to mitigate impacts of any input of wastewater into the City's system. A condition has been added identifying several potential strategies to address this, with final determination of the most appropriate measures to be made by Portland's Department of Public Works.

As noted above, the site's current, relative disconnection from its surrounding context will be improved by this proposal through its additional vehicular and pedestrian access points along Fore and Thames Streets. In the new uses on the site it will also create new connections, with residential uses predominating along Fore Street, mirroring the surrounding neighborhood, and mixed commercial uses predominating below Fore Street.

j. ***Designed with sizing of street and other infrastructure systems to accommodate the overall service demand of the Master Plan.***

In November there was a discussion of the still in-process traffic review. Initially the applicant submitted materials for a Traffic Movement Permit for the entire site to address traffic analysis for the project. A Traffic Movement Permit is required for developments that trigger 100 or more passenger car trips per hour, but is not required for a Master Development Plan application. For a project of this scope, there was extensive discussion and review of data and methodology for the TMP, and it became clear after the November 15th workshop that the full TMP review and approval would extend beyond the timeframe of the MDP review. Therefore, the TMP has been decoupled from the MDP, and will come before the Planning Board as a separate item in the future. The applicant was requested by staff to submit a revised traffic analysis that spoke directly to the traffic-related submission requirements for the MDP (14-527.e.xii), which read: *A traffic analysis and recommendations prepared by a registered professional engineer qualified to conduct such studies, including current traffic counts for streets surrounding the project, analysis of the existing capacity of those streets, projections of the amount of traffic that will be generated by the proposed development, and the ability of the street system to absorb the increased traffic without decreasing the level of service below an acceptable level – said level to be determined by the Planning Authority in concert with the Department of Public Works. In cases where the Master Development Plan is subject to a Traffic Movement Permit (TMP) for all phases, the TMP submissions and review shall supersede these requirements.*

The final traffic review conducted by staff, with the aid of Tom Errico, consulting traffic engineer, is for the MDP standard, with the understanding that a TMP, and an associated Traffic Demand Management plan, will be brought forward in full prior to any Level IIII Site Plan and/or Subdivision Plan reviews that would trigger TMP thresholds.

Tom Errico provided the following review comments:

A traffic analysis and recommendations prepared by a registered professional engineer qualified to conduct such studies.

The traffic study and analysis was performed by Randy Dunton, PE, PTOE and accordingly this requirement is met.

Current traffic counts for streets surrounding the project.

The applicant has collected traffic counts in the vicinity of the project and the methods and adjustments meet professional engineering methods. This requirement is met as part of the MDP, but revisions may be required as part of the Traffic Movement Permit.

Analysis of the existing capacity of those streets.

The applicant developed SimTraffic models for both the immediate study area and along Franklin Street between Commercial Street and I-295. The models are reasonably constructed for traffic mobility conclusions for the purposes of the MDP approval process. Refinement of the model and resulting existing conditions and future conditions analysis and reporting of that analysis will be required during the TMP process to account for pedestrian interaction with vehicles, calibrating the model to existing conditions (such as vehicle queue lengths, roadway geometry and traffic signal equipment) and other modeling and analysis details.

Projections of the amount of traffic that will be generated by the proposed development.

The applicant has conducted a trip generation estimate for the proposed project generally from data provided by the Institute of Transportation Engineers. Without any adjustments, the project would be expected to generate 733 AM peak hour trips and 885 PM peak hour trips. The applicant incorporated "shared use" adjustments to the ITE estimate to account for the interaction of trip activity between land uses. From national sources, the proposed project would be expected to have shared trip activity of between 12% and 18% (e.g. a resident shopping and working at 58 Fore Street). In addition, the project assumes 'other modes reductions': that 35.8% of the residential uses and 18% of the non-residential uses will be non-automobile trips and reductions. These reductions are based upon available information from American Community Survey data. Following these adjustments, the project is expected to generate 506 trips during the AM peak hour and 585 trips during the PM peak hour. City staff has reviewed the methods used to estimate traffic from the project and finds the methods to be reasonable.

I would note that a key assumption is the reduction of vehicle trips from the site due to non-motorized modes of transportation. Accordingly, the implementation and monitoring of a TDM plan and other potential mitigation that has achievable strategies linked to these assumed vehicle trip reductions of these magnitudes is critical and as such will be an important element of the TMP and Site Plan approvals.

The ability of the street system to absorb the increased traffic without decreasing the level of service below an acceptable level.

- *The MDP traffic study documents that many localized intersections/roadways will operate at acceptable levels of service with the primary exception of Franklin Street from Commercial Street to I-295/Marginal Way. Accordingly, mitigation requirements may be required along Franklin Street and those will be determined through the TMP permitting and site plan approval process.*
- *Other locations including the Commercial Street/High Street intersection and the Congress Street/Washington Avenue/India Street area will need further evaluation during the TMP and Site Plan approval process which may include additional traffic analyses and identification of potential mitigation strategies.*

MaineDOT Traffic Movement Permit

It is recommended that a phased TMP for this project be required given the location of the project in an area that is experiencing significant growth and that the project will likely be constructed over many years and with that the transportation context and infrastructure should be evaluated at a time when future conditions are better known when site-generated traffic is being added to the system.

To Mr. Errico's final two subjects on mitigation and phasing, a condition of approval is proposed to require the TMP to be phased. Regarding off-site mitigation of any impacts related to this site, in order to guide mitigation, a menu of potential traffic-related public improvements will be developed for known areas of impact, to be evaluated as development proposals are brought forward. The final list may be altered based on the phased TMP review, and supplemented according to Site Plan Review transportation standards. Based on traffic analysis to date, Planning staff has identified the following focus areas:

- The design and construction of the Fore Street Connector;
- Franklin Street, particularly at the intersections of Franklin with Marginal Way/Fox/Somerset;
- The Commercial Street Corridor, particularly at the intersection of High and Commercial;
- The development of a robust Traffic Demand Management Plan to identify trip reduction targets and implementation strategies for reducing single occupant vehicle trips to this site.

It is anticipated that if new generators of traffic or significantly different circulation patterns emerge as subsequent phases are submitted, the menu and responses will be revisited. As a rubric for evaluating traffic impacts over the course of a full multi-year buildout of the site, this allows for flexibility and proportionate implementation. This menu of items has not yet been finalized, as it may be expanded or altered in the course of the Traffic Movement Permit review, but is listed here to establish expectations for future application phases.

k. ***Designed to create a street grid pattern that reflects average city block sizes of the neighborhood for street connectivity.***

Due to historic development patterns, as well as topography, Eastern Waterfront policy direction, and the historic district, the internal circulation plan does not propose a traditional street grid. However, it does create multiple new connections to the adjacent street system. The internal, private street system both adheres to existing patterns on the site in the historic district by maintaining the linear presence and pattern of alleyways there, and connects to the street system at Fore Street and through pedestrian and vehicular entrances where currently there are none. The view corridors also align with the streets that intersect with Fore Street. These view corridors run perpendicular to the linear rhythm of the historic buildings and the spaces between them. The Eastern Waterfront masterplan anticipated this to allow for respect of the historic fabric while also allowing for greater connectivity to the surrounding residential neighborhood on the eastern portion of the property. The site also extends the existing street network from the west through the connection with Thames Street. Internally, the project proposes streets designed as shared spaces for vehicles and pedestrians.



Figure 13, Supplemental Circulation Plan

l. ***Designed as to create a cohesive identity through building scale, massing, and articulation; use of quality exterior materials, architectural detailing at pedestrian scale; consistency of design and materials for streetscape and pedestrian amenities; framing of outdoor open space and linkages; a clear conveyance of the function and significance of various buildings, entrances, and features; and to generally comply with design and development standards of the zone in which it is located.***

Caitlin Cameron, Urban Designer, addresses this standard in her initial memo for the November 22nd workshop (Attachment XVI), and an updated memo for the December 20th Public Hearing (Attachment XVII). These final comments are central to the overall review of the Master Development Plan, respond to the Comprehensive Plan and adopted Design Guidelines, and also to comments received over the course of the review of the application. A recommended condition is for the design review comments to serve as guidance for future submissions for this site.

m. ***Inclusive of provisions for the ownership and maintenance of usable open space as appropriate.***

As part of the Historic District designation, the City Council accepted a public easement option from CPB2 LLC to allow public visual and physical access across the site. The option is for a 50' wide easement, with final location and configuration to be determined over the course of site plan review, with the agreement of the applicant and approval by the Planning Board and Corporation Counsel. This application precedes site plan review, the easement details are not required to be finalized at this stage, but the MDP review offers an opportunity to envision the easement's role (as shown on Appendix P4, Overall Site Master Plan) in the context of the entire site.

The layout of the Eastern Promenade trail shifts towards to water's edge, but public access to this public resource is unchanged.

The master development plan shows courtyards, plazas, landscaped areas, all with potential to serve as gathering spaces for residents, customers, and visitors. At this stage, the application narrative has indicated that the applicant anticipates definition of open space ownership, access and maintenance to be determined over the course of Subdivision review for the site.

n. ***For areas proposed as future development phase(s), the proposed interim conditions shall be managed and maintained to ensure stable, safe and attractive site conditions.***

Phasing is not required at this stage. As site plans and/or subdivision applications are submitted, this standard will be applied to all increments of development for the site.

XIV. STAFF RECOMMENDATION

Subject to the proposed motions and conditions of approval listed below, Planning Division staff recommends that the Planning Board approve the master development plan for 58 Fore Street.

XV. PROPOSED MOTIONS – MASTER DEVELOPMENT PLAN

On the basis of the application, plans, reports and other information submitted by the applicant; findings and recommendations contained in the Planning Board Report for the public hearing on December 20, 2016 for application #2016-224 relevant to the master development plan regulations; and the testimony presented at the Planning Board hearing:

a. The Planning Board (**waives/does not waive**) the Technical Standard for flooding as provided Technical Manual III. 4. E.(2) Waiver of the flooding standard due to direct discharge into the ocean, a great pond, or major river segment.

b. The Planning Board finds that the plan **is/is not** in conformance with the master development plan standards of the land use code, subject to the following conditions of approval, which must be met prior to the submission of a Level III application unless otherwise stated.

c. The design review contained in Attachment XVII, shall serve as design guidance for this approval, and all future Site Plan submissions shall be responsive to the Areas of Focus and *Design Parameters* outlined in that December 15, 2016 document.

d. Consistent with the December 7, 2016 finding and recommendation of the Historic Preservation Board, the applicant shall provide revised plans reflecting the change to the Fore Street townhouses identified as needing to be removed from the Master Development Plan in order to have the plan be consistent with Portland's Historic Preservation Ordinance. Future design proposals or substantive changes to the Master Development Plan may be considered for additional review provided they can demonstrate consistency with the Historic Preservation Ordinance and that they do not materially diminish the visibility and integrity of the historic district.

e. The final revised Master Development Plan plan set shall label the street extension from Thames Street Extension to Fore Street as *Potential Fore Street Connector,* and strike the current label of *Connector Street (By City).*

f. The final revised Master Development Plan plan set shall clearly label current property lines, and indicate any areas of encroachment on abutting property lines.

g. All documentation of Right, Title and Interest on property pending acquisition shall be included with application materials prior to any review of Level III Site Plan and/or Subdivision plan applications.

h. Prior to review of any Level III Site Plan and/or Subdivision Plan applications, the terms of the December 5, 2016 Purchase and Sale Agreement for the Thames Street Extension, particularly with regard to section 10, *City Conditional Commitment to Construct Thames Street Extension,* shall be met.

i. The applicant shall pursue a phased Traffic Movement Permit, the approval of which is required for any qualifying Level III Site Plan and/or Subdivision Plan application.

j. The applicant shall coordinate with City regarding the design of the public access easement area and its transition to and integration with the adjacent City-owned waterfront parcel, to assure a well designed public space that enhances the public access to and the enjoyment of the waterfront.

k. Transportation review of Level III Site Plan applications to implement phases of this MDP will follow guidance provided in this document regarding specific focus areas.

l. As part of future Site Plan approvals for the site, the applicant shall do one or a combination of the following to insure the input of wastewater into the City's system from the 58 Fore Street site is offset or mitigated to avoid additional contribution to combined sewer overflows (CSO's) at the India Street CSO:

- Collect and store wastewater onsite, and regulate discharge to the City's combined sewer system during active wet-weather CSO conditions.
- Perform offsite mitigation of stormwater input into the City's combined sewer system in proportion to the estimated amount of wastewater generated for that phase.
- Make a financial contribution to a City project within the India Street CSO collection area that mitigates stormwater input into the City's combined sewer system in proportion to the estimated amount of wastewater generated for that phase.

Final wastewater impact mitigation strategies shall be approved by the City of Portland's Department of Public Works.

XVI. ATTACHMENTS

MATERIALS ADDED SINCE OCTOBER WORKSHOPS

I. Applicant Response
II. Engineering Review
III. Fire Comments
IV. Revised TIS
V. TDMF

MATERIALS ADDED SINCE NOV.15 WORKSHOP

VI. B6EWMP Purpose Statements
VII. 11/10 Letter to HP Board
VIII. 11/17 Applicant response Letter

IX. 10/28 CMP Ability to Serve Letter
X. 11/2 Unitil Ability to Serve Letter
XI. 11/17 PWD Ability to Serve Letter
XII. 11/17 Additional Renderings
XIII. 11/15 Presentation Slides
XIV. 10/11 Email from Zoning Administrator
XV. DAndrews 11_9 Memo
XVI. Design Review

MATERIALS ADDED SINCE NOV.22 WORKSHOP

XVII. Design Review 12_15
XVIII. Historic Preservation Board Findings 12_15
XIX. Wastewater Capacity Memo 12_7
XX. Traffic Review Comments
XXI. Purchase & Sale Agreement
XXII. Applicant's Public Comment Response 12_14
XXIII. Applicant's Additional Information Letter 12_2
XXIV. Applicant's Traffic Submittal 12_7

PUBLIC COMMENTS

1. Lowell 10_3
2. Sawin 10_4
3. Vestal 11_15
4. GPL 12_6
5. Millard 12_9
6. GPL 12_15
7. Adams 12_15
8. Hamill 12_15
9. Haley 12_15
10. Vestal 12_15
11. Oldham 12_16
12. Stevens 12_15
13. Murray 12_16
14. Snyder 12_16

APPLICANT'S SUBMITTAL

A. Cover letter, TOC, Application Form
B. Application Fees
C. Project Description
D. Master Development Plan Review
E. Evidence of Right, Title and Interest
F. Evidence of State, Federal Approvals
G. Assessment of Zoning

PLANS

P1. Cover Sheet
P2 Existing Conditions Plan
P3 Overall Existing Conditions Plan
P4 Overall Site Master Plan
P5 Concept Dev. Block Plan
P6 Conceptual Grading Plan
P7 Utility Plan 1
P8 Utility Plan 2
P9 Concept. SW Treat. Plan
P10 Vehicle Circulation Plan
P11 Land Transfer Proposal Plan
P12 Boundary Survey
P13 Pedestrian Circulation
P14 Illustrative Landscape
P15 Level 15
P16 Level 25
P17 Level 55
P18 Level 85
P19 Section Fore Street
P20 Section Along Waterfront
P21 Section Through Dev Block 4
P22 Section Through Dev Block 1
P23 Section Through Project Site
P24 Fore Street Section Aerial

H. Easements and Other Burdens
I. Waiver Requests
J. Evidence of Financial and Technical Capacity
K. Conceptual Site Plan
L. Stormwater Management
M. Traffic Analysis
N. Utilities Analysis
O. Boundary Survey
P. Site Law Determination Letter
Q. Neighborhood Meeting Invitation
R. Trip Generation – Bay House Supplement

Plan
P25 Rendering View Key
P26 Rendering 1
P27 Rendering 2
P28 Rendering 3
P29 Rendering 4
P30 Rendering 5
P31 Rendering 6
P32 Rendering 7
P33 Rendering 8
P34 Rendering 9
P35 Rendering 10
P36 Rendering 11
P37 Fore Street Marina
P38 Average Grade Calculations Diagram
P39 Historic District Boundary



PLANT LIST

SYMBOL	TYPE	BOTANICAL NAME	COMMON NAME
TREES – DECIDUOUS			
	STREET TREE	ACER RUBRUM	RED MAPLE
		OSTRYA VIRGINIANA	AMERICAN HOPHORNBEAM
		ULMUS AMERICANA	AMERICAN ELM
	SHADE TREE	NYSSA SYLVATICA	TUPELO
		QUERCUS BICOLOR	SWAMP WHITE OAK
		QUERCUS PALUSTRIS	PIN OAK
	ORNAMENTAL TREE	AMELANCHIER CANADENSIS	EASTERN SERVICEBERRY
		CRATAEGUS CRUS-GALLI VAR. INERMIS	THORNLESS COCKSPUR HAWTHORN
		MAGNOLIA VIRGINIANA	SWEET BAY MAGNOLIA
	WATERFRONT TREE	AMELANCHIER CANADENSIS	EASTERN SERVICEBERRY
		NYSSA SYLVATICA	TUPELO
		SASSAFRAS ALBIDUM	SASSAFRASS
SHRUBS AND GROUNDCOVERS			
	PLANTING ZONE 1	CLETHRA ALNIFOLIA	SWEET PEPPERBUSH
		CORNUS CANADENSIS	BUNCHBERRY
		ILEX VERTICILLATA	WINTERBERRY
		OSMUNDA CINNAMOMEA	CINNAMON FERN
		TIARELLA CORDIFOLIA	FOAMFLOWER
		VIBURNUM ACERIFOLIUM	MAPLELEAF VIBURNUM
	PLANTING ZONE 2	ARCTOSTAPHYLOS UVA-URSI	BEARBERRY
		ARONIA MELANOCARPA	BLACK CHOKEBERRY
		COMPTONIA PEREGRINA	SWEETFERN
		MYRICA PENSYLVANICA	NORTHERN BAYBERRY
		RHUS AROMATICA 'GRO-LOW'	GRO-LOW FRAGRANT SUMAC
		RHUS TYPHINA	STAGHORN SUMAC

50' 0 50' 100'

BAR SCALE
1" = 50'
CHECK GRAPHIC SCALE BEFORE USING

LEGEND

- TRASH / RECYCLING RECEPTACLE
- BENCH
- BIKE RACK
- BOLLARD
- STREET LIGHT
- MARINA CART
- FENCE
- 1FT PAVERS
- 2FT PAVERS
- BRICK PAVING (BUILDING 1)
- WOOD DECKING
- WATERFRONT WALKWAY
- ASPHALT
- TRAIN TRACKS
- CONTRIBUTING HISTORICAL BUILDING
- PROPOSED BUILDING

PROPERTY LINE LEGEND

- EXISTING OFFSITE PROPERTY LINE
- EXISTING 58 FORE STREET PROPERTY LINE
- PROPOSED PROPERTY LINE

09/16/2016 (REVISED 05/25/2017)

Scale: 1" = 50'

DAVID A. SENUS 10791 LICENSED PROFESSIONAL ENGINEER STATE OF MAINE

WOODARD & CURRAN

C-100

PERMITTING SET

CPB2 LLC
EASTERN WATERFRONT DEVELOPMENT PORTLAND, MAINE

OVERALL SITE MASTER PLAN
58 FORE STREET MASTER PLAN

SCOTT SIMONS ARCHITECTS | MICHAEL BOUCHER LANDSCAPE ARCHITECTURE | WOODARD & CURRAN | THORNTON TOMASETTI | THE BOULOS COMPANY | MASON ARCHITECTS | APPLIED TECHNOLOGY MANAGEMENT | PERKINS+WILL

PLANNING BOARD REPORT
PORTLAND, MAINE

58 Fore Street
Traffic Movement Permit
Project #: 2016-224
CPB2

Submitted to: Portland Planning Board Public Hearing Date: April 25, 2017 CBLs: 018 A001, 018 A002, 018 A003	Prepared by: Christine Grimando, Senior Planner Date: April 20, 2017

I. INTRODUCTION

CPB2 LLC submitted a Traffic Movement Permit (TMP) simultaneously with a Master Development Plan (MDP) application in September 2016, initially reviewed by the Planning Board beginning in October 2016. The MDP was approved on December 20, 2016. Over the course of the MDP review the TMP was given a separate timeline, as it necessitated additional review and analysis and was not a requirement of the MDP. The TMP is for a (+/-) 10 acre site at 58 Fore Street known as the Portland Company Complex. The proposed development includes retail, office, residential, hotel, restaurant, function space, a marina, and residential units. The site also contains a linear parcel owned by the Maine Department of Transportation that includes the Maine Rail/Trail corridor and the Eastern Promenade Trail, which will continue to traverse the site. In addition to the approximately10 acres, the property includes a 13.2 acre submerged land lease, currently containing a marina. There are currently a variety of the uses on the developed site, including storage, office, a marina, event space and the Maine Narrow Gauge Railroad Museum.

There have been two primary prongs of review of the TMP for 58 Fore Street: traffic analysis, and developing a framework for mitigation of the project's anticipated offsite traffic impacts. For a project of this scale, anticipated to be developed over several phases, with traffic impacts diffused over a relatively large study area, determining appropriate mitigation presented distinct challenges and opportunities. City staff and the applicant agreed to pursue a pilot impact fee methodology to account for the phased impacts of this particular site. The process of developing impact fee methodology for 58 Fore Street has the additional advantage of aiding the City's eventual implementation of a new impact fee system.

Key documents from the September submission are included as attachments, supplements through December, and updates to traffic analysis and mitigation since this was last before the Planning Board.

This development is being referred to the Planning Board for compliance with Traffic Movement Permit requirements. A total of 354 notices were sent to property owners within 500 feet of the site and a legal ad ran in the *Portland Press Herald* on April 17th and April 18th.

Applicant: CPB2 LLC, c/o Jim Brady

Consultants: David Senus/Mary McCrann, Woodard & Curran; Randy Dunton, Gorrill Palmer; Mary Costigan, Bernstein Shur; Owen Haskell, Surveyor; Perkins+Will, Architect

II. REQUIRED REVIEWS

Review	Applicable Standards
Traffic Movement Permit	14-527(e)(xii), 23 MRSA 704-A, Chapter 305 Rules and Regulations

III. PROJECT DATA

Existing Zoning	B-6 & Eastern Waterfront Port Zone, w/Shoreland & Floodplain overlays. Historic District on a portion of the site.		
Existing Use	Mixed use, including full service marina, parking, warehouses, boat storage, office, event space, blacksmithing.		
Proposed Use	Mixed use (including commercial, residential, office, marina)		
Proposed Development Program	958,679 sf of mixed residential and commercial uses, 435,200 sf parking (736 spaces), and 638 residential units.		
Property Size	+/- 10 acres		
	Existing	*Proposed*	*Net Change*
Building Footprint	111,822 sf	215,306 sf	103,484
Building Floor Area	167,500 sf	958,679 sf	791,179
Impervious Surface Area	335,000 sf	409,000 sf	74,000
Parking Spaces (on site)	+/-105	736	631
Bicycle Parking Spaces	0	38 racks/78 spaces	78
Estimated Cost of Project	TBD		

IV. EXISTING CONDITIONS & SITE CONTEXT

The project is adjacent to Portland Harbor to the southeast and Fore Street to the northwest. The Eastern Promenade is adjacent to the east; bounded by the harbor and by Fore Street. The property is contiguous with active waterfront uses, bordered by the Ocean Gateway Terminal and near the Maine State Pier, both serving deep water dependent large vessels, including cruise ships. The neighborhood to the immediate north is residential, with Waterville, St. Lawrence and Atlantic Streets perpendicular to the Fore Street-side boundary of the property, and abutted by Munjoy South apartments. Also to the north but immediately west of this residential area is the India Street neighborhood, which contains residential uses and a diverse mix of commercial uses – Shipyard Brewery, parking garages, the shops and restaurants of India Street, hotels, and the Eastern Cemetery.

The majority of the site is located within the B-6 Eastern Waterfront Mixed Zone. The Eastern Waterfront Port Zone (EWPZ) has a depth of 75 feet, and encompasses approximately 1,000 feet of waterfront frontage. In addition to the two base zones, there are multiple other overlays on the property - a portion of the site is in the Shoreland Zone; a small area is partially in the A2 flood zone; and the B-6 portion of the site is included in the Building Height Overlay & Building Envelopes map. The property is a local historic district (as shown on Attachment P39). The immediately adjacent zones to 58 Fore Street are the R-6 residential zone to the east and north, ROS (Recreation and Open Space) to the east, B-6 to the west, and EWPZ to the west and south. A portion of the property is a local historic district.

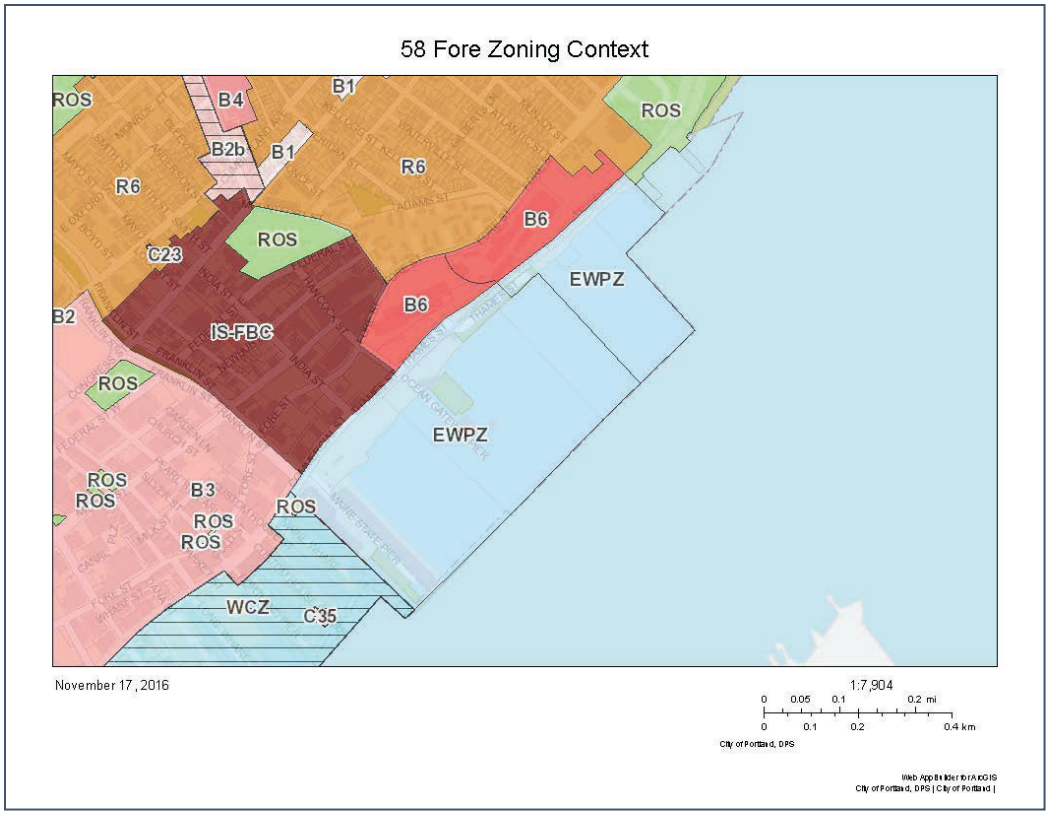


Figure 1, Zoning Context

58 Fore Street had been in continuous use since 1846, when it was established as the Portland Company for the manufacture of railroad equipment. An industrial site at its inception, it continued as one well into the 20th century, continuing to manufacture steel until 1978. It's now occupied by multiple tenants and uses, including a marina with associated parking and laydown areas, the Narrow Gauge Railroad, office, and storage. A 50' wide strip of Maine Department of Transportation (MDOT) land that encompasses both the Maine Narrow Gauge Railway and a public, shared use pathway that is an extension of the Eastern Promenade, maintained by Portland Trails and the City of Portland, bisect the site. Two easements run with the MDOT land.

V. PREVIOUS REVIEWS

A Master Development Plan was approved for the site on December 20, 2016, following three workshops and site walk. The MDP application included the initial TMP and traffic review. The MDP review process incorporated recommendations of the Historic Preservation Board.

This MDP application was preceded in the previous three years by three significant review processes, involving the Planning Board, the Historic Preservation Board and the City Council. In February 2016, following an extensive designation process by the Historic Preservation Board and Planning Board, the Portland City Council voted to designate a portion of the 58 Fore Street property as a local historic district subject to the provisions of Portland's historic preservation ordinance. The Portland Company Historic District as approved by the Council ensured the preservation of seven of the sixteen Portland Company structures on site. Figure 4 is a visual of the historic core of the site and the current historic district in the context of the overall site master plan.

An application for zoning map and text amendments for this site was submitted in August 2014, with the final changes adopted by the City Council on June 1, 2015. The application included a map amendment to rezone the property from the Waterfront Special Use Zone to B-6 and Eastern Waterfront Port Zone, with accompanying text

amendments and amendments to the existing Building Height Overlay & Building Envelopes overlay (Figure 6). There was an extensive, detailed review of the application in 2014 and 2015 leading to a Planning Board recommendation to the City Council on February 24, 2015, and the approval of the application in June 2015.

Below is a chronology of the map and text amendments:

- August 22, 2014. Application submitted to Department of Planning & Urban Development
- September 17, 2014. Applicant's Neighborhood Meeting
- October 21, 2014. Planning Board Workshop
- November 18, 2014. Planning Board Workshop and Site Walk
- January 8, 2015. Staff-Lead Neighborhood Meeting
- February 10, 201.5 Planning Board Workshop
- February 24, 2015. Planning Board Public Hearing
- February 9, 2015, City Council Workshop
- March 30, 2015, City Council Workshop/1st Reading
- June 1, 2015, City Council Public Hearing

The property was rezoned from the now non-existent WSUZ to a combination of B-6 and EWPZ in June 2015. The rezoning application included text, map, and B-6 height overlay amendments. All three of these zoning elements were created to serve the specific needs of the Eastern Waterfront and were a direct result of the recommendations of the Eastern Waterfront Masterplan. The 2015 rezoning extended the existing height overlay, B-6 and EWPZ zones eastward to encompass 58 Fore Street. Previous to the rezoning of 58 Fore Street, these zones were in place on the land immediately adjacent to the southwest, of 58 Fore Street, and in 2015 were extended eastward to encompass the property. The WSUZ was eliminated altogether.

VI. PUBLIC COMMENT

Attached is public comment regarding particular concerns with traffic conditions and impacts at the India Street and Middle Street intersection. Additional public comment regarding traffic impacts arose during the course of the MDP review. Only new comments have been included as attachments but all comments regarding traffic that were submitted when the Traffic Movement Permit was originally submitted can be viewed with the MDP Report here: http://portlandmaine.gov/AgendaCenter/ViewFile/Agenda/_12202016-1888?html=true

VII. TRAFFIC MOVEMENT PERMIT SUBMISSION REQUIREMENTS

The applicant has made submissions regarding traffic analysis and mitigation according to the requirements of 23 MRSA 704-A and Chapter 305 Rules and Regulations. Attached are pertinent items submitted in the course of the MDP review, and items submitted since the MDP approval.

a. Traffic Movement Permit (TMP) Application with Master Development Plan (MDP) – September 16, 2016. (**Attachment A**)
b. Traffic Impact Study (TIS), and Parking Study – September 16, 2016. (**Attachment B**)
c. Bay House Trip Generation and Parking Demands Memo – October 5, 2016. This was requested to help evaluate the appropriateness of the parking ratios used for the project, at the City's request. (**Attachment C**)
d. Revised TIS and Transportation Demand Management (TDM) Plan – October 31, 2016; This includes analysis updates, including revisiting the PACTS model data, trip assignment, expanding trip assignment to include additional intersections, and comparing 58 Fore trip generation with Franklin Street trip generation**. (Attachment D)**
e. Traffic Analysis and Recommendations Memo – December 6, 2016. This addresses point by point the traffic requirements of the Master Development Plan. This information was requested when the TMP

application was moved to a different timeline, so that the MDP application would include sufficient traffic analysis to meet the requirements of the Land Use Code under 14-527(e)(xii), until the TMP could be concluded. **(Attachment E)**

f. Impact Fee/Mitigation Memo – April 20, 2017. This summarizes a methodology and associated results of an impact fee calculation completed for the project. An impact fee methodology was requested by the City to identify a potential contribution as mitigation for the proposed impacts in the study area, with particular attention to short term improvements on Franklin. **(Attachment F)**

g. Supplemental Traffic Analysis Memo – April 20, 2017; This memo addresses comments to the applicant by the City in January. The key items of this memo included revised study area, revised capacity analysis, and a discussion on the Transportation Demand Management (TDM) plan. It also identifies and responds to the mitigation as required by the City. **(Attachment G)**

VIII. REVIEW OF TRAFFIC MOVEMENT PERMIT

Off-Site Mitigation

City staff has communicated extensively with the applicant over recent months to advance the traffic analysis for the project, as well as approaches to TMP-related mitigation of anticipated off-site traffic impacts. The application proposes a new model for mitigation for the City in the form of a pilot impact fee system. The fee system brought forward with this application (see Attachment F, 4-20-2017 summary memo from Gorrill Palmer) is a PM Peak Hour cost per-trip end fee ($650), for each of 585 total PM Peak Hour trip ends (approximately $380,000), to be paid as phases of the project are brought forward for consideration. This approach allows mitigation for short term improvements to proportionally and accurately track the development as it unfolds rather than a lump sum payment based on anticipated buildout and anticipated impacts. It also keeps impact fees predictable for the applicant and the City. Anticipated improvements to the Franklin Street corridor, based on Preliminary Design Report data, formed the basis of the analysis, as financial contributions to this corridor would produce significant traffic benefits for the study area. Though the analysis focused on Franklin Street, the City would have the discretion to apply impact fee contributions to other critical locations in the study area, depending on needs and priorities at the time of each phase of construction. In addition to offering an acceptable system for mitigation of traffic impacts for this particular, phased project, it also creates a helpful template as the City explores implementation of impact fee systems city-wide.

The impact fee system described in Attachment F would account for the project's off-site mitigation for the purpose of fulfilling the requirements of the Traffic Movement Permit. There may be other, related impacts the applicant would be obligated to over the course of site plan review related to sidewalk improvements, access and circulation, and associated site plan standards that are not encompassed by the TMP. TMP mitigation also does not include any costs that may be associated with the design and construction of the Fore Street Connector, as depicted in the 58 Fore Street Master Development Plan.

Transportation Demand Management

This TMP assumes robust trip reductions based on various factors, one of which is an aggressive and successful Transportation Demand Management plan for each phase. This applicant has included comments on the future TDM plan in Attachment F, and had previously supplied a narrative on TDM in October 2016. They have asked to bring forward specific TDM actions as part of each Level III Site Plan applicant, in the context of the overall framework outlined.

The proposal to develop the details of the TDM plan at such time as actual development proposals comes forward is reasonable. However, it's important that the Planning Board, applicant, and others understand what is likely to be expected in each TDM phase:

- Each Level III Site Plan will need to include a specific and realistic TDM plan that builds on the plans of earlier phases.
- The first Level III Site Plan will need to have the most details, and explain how the TDM plan is scalable to future phases.
- It is likely that financial, in-kind, and/or other contributions to METRO and other trip reduction activities will be required to achieve the anticipated trip reduction levels. Applicant will consult with METRO as part of each TDM effort.
- The proposed TDM plan for each phase will be evaluated by City staff and/or third parties with specialized experience in TDM implementation as part of the Level III Site Plan review process.
- If it does not appear that the TDM plan will achieve the anticipated trip reductions, the applicant will make adjustments to that TDM plan to improve its planned effectiveness, or the applicant will pay a per-trip impact fee based on the higher trip generation expected.
- Conversely, if the applicant's TDM plan is expected to achieve trip reductions higher than anticipated, the applicant will be eligible for a reduction in the expected trips for that phase and the resultant impact fee cost. However, it should be noted that the current trip reduction levels are already very optimistic and it may be difficult to achieve higher reductions.
- The TDM effort will include annual monitoring at the applicant's expense to determine effectiveness and inform TDM plans for subsequent phases.

Consulting Traffic Engineer Review
Thomas Errico, P.E., consulting Traffic Engineer for the City, has submitted the following comments (included as Attachment 1), based on his initial review of the September submission materials. Each item is now followed by his determination, based on the applicant's subsequent analysis and updated submittals, of resolution in the **Status** section, finding that the application meets TMP requirements.

- *The proposed project is expected to generate 424 new AM peak hour trips and 474 new PM Peak hour trips during a weekday. This level of trip generation requires a Traffic Movement Permit. The applicant submitted a Traffic Movement Permit Application and a Scoping Meeting was held on October 17, 2016. Given that the proposed project is expected to be phased over many years (market driven) and that the eastern waterfront area is experiencing significant growth, I would suggest that the Traffic Movement Permit be structured for an initial development phase. At the October 17th scoping meeting it was requested that a development phasing plan be provided and that information has not been provided. The applicant should provide details on a phasing plan with an initial phase for Traffic Movement Permit considerations.*
  Status: The applicant has provided a likely phasing plan for the project. The Traffic Movement Permit is being issued for the full build project with mitigation/monetary contributions tied to build-out phasing. The trip generation noted above has been updated to reflect staff comments. I have no further comment.

- *I have reviewed the existing base line traffic volumes and I find it to be reasonable.*
  Status: I have no further comment.

- *Based upon information provided by the Planning Department, the applicant has estimated background traffic volumes from other approved and unbuilt developments and I find the estimate to be reasonable.*
  Status: I have no further comment.

- *The applicant estimated trip generation volumes for the project according to trip generation rates from the Institute of Transportation Engineers (ITE). I find the methods used to be reasonable.*
  Status: I have no further comment.

- *The applicant incorporated adjustments to ITE traffic volumes according to inter-captured or shared trip usage and that given the location of the project, mode share adjustment is warranted. According to national research methods, the project can expect a reduction in trips levels – due shared use – of between 12 and 18% entering and exiting the site during the AM and PM peak hours. I find this estimate to be reasonable. For Mode Share adjustment (walk/bike/transit), the applicant is estimating a reduction of 35.8% for most project uses (the hotel reduction was assumed to be 10%). When considered in combination with the fact that the project is not taking credit for existing site traffic, I find the modal reduction assumption to be reasonable.*
  Status: As noted I find the adjustments to be reasonable, but would note that the reductions will be directly related to the effectiveness of the TDM plan. Accordingly, the details, monitoring and adjustment of TDM strategies will be an important part of ensuring the assumed mode share percentages are realized.

- *At the TMP Scoping meeting the applicant was requested to review information from the PACTS regional travel demand model in estimating the assignment of project traffic to the roadway network. The applicant has provided revised assignment percentages based upon conversations with the staff person managing the PACTS model. No backup information or explanation is provided and thus approval of the assumptions is outstanding. I would note the following:*
  - *No traffic is being assigned to Fore Street to the east and along Eastern Promenade. I do expect some traffic to travel in this direction.*
  - *It appears that 24% of the PM peak hour site traffic is destined to I295 southbound. Of this amount 8% appears to be via Franklin Street and 16% via Veterans Memorial Bridge. My knowledge of local traffic patterns does not support this assignment assumption.*
  - *It is not clear regarding the assumptions used to assigning I295 northbound traffic to Washington Avenue and Franklin Street.*
  - *A significant amount of traffic (17%) is destined to Preble Street during the PM peak hour. It is unclear of the routing to Preble Street Extension.*

  Status: The applicant has provided additional supporting information and based upon guidance from City staff the applicant has revised the trip generation assignment. Final capacity analyses of conditions account for these revisions and accordingly I have no further comment.

- *The general study area for assessing traffic impacts seems reasonable. I would note that at the TMP Scoping meeting, it was requested that the assignment continue to I-295 on Franklin Street and Washington Avenue. This is outstanding.*
  Status: As noted in the previous comment, the applicant has addressed this comment and I have no further comment.

- *The applicant has conducted a traffic analysis using the Synchro/SimTraffic model and I do not find the results to be acceptable. The applicant shall update the model according to the following:*
  - *The results of the capacity analysis indicate intersections currently operate at excellent levels of service. My field observations do not support this conclusion. The applicant shall create a base existing model that is calibrated to existing conditions from a delay and vehicle queue perspective.*
  - *The study area includes some of the most active pedestrian areas of the City and pedestrian movements directly impact traffic operations. The model shall be revised to include pedestrian movements and specific pedestrian signal phasing and timing.*
  - *The study shall document proposed vehicle queue lengths and the adequacy of existing turn lanes to provide adequate storage.*

  Status: The applicant has conducted a refinement of the SimTraffic model and I generally find the results to be reasonable and acceptable.

- *The applicant conducted a safety analysis and the results indicated that two locations within the study area are classified as a High Crash Location, the Franklin Street/Middle Street intersection and Fore Street between India Street and Montfort Street. The applicant has reviewed crash data and has noted winter maintenance enhancements at the Franklin Street/Middle Street intersection is suggested. In general, crash experience is somewhat low in the study area (outside of Franklin Street intersections). There are other non-High Crash Locations that I continue to review with City staff. I will continue to review crash information and suggested mitigation improvement strategies.*
  Status: The applicant has conducted a detailed review of crash reports and their analyses concluded that patterns did not warrant mitigation improvements. I find their conclusions to be reasonable and I have no further comment.

- *The traffic study* (dated October 6, 2016) *does not identify the need for off-site transportation mitigation strategies to address system infrastructure deficiencies and project impacts. I will continue to review information but would note the following:*
  - *As noted previously, the analysis needs to be updated and accordingly conclusions on transportation system adequacy may change.*
  - *The applicant should note any deficiencies in existing traffic control, including traffic signal equipment, coordination, phasing and timing adjustments.*
  - *Given that the applicant is assuming a significant portion of project trips are non-auto trips, inventory and identification of pedestrian, bicycle and transit infrastructure should be provided and discussion on system needs is suggested.*
  - *The study conducts analyses with and without future Franklin Street improvements. Given the uncertainty of implementation, an interim improvement plan may be warranted. For longer-term needs, financial contributions towards the implementation of adopted Franklin Street improvements may be a consideration.*

  Status: At the request of the City, the applicant developed a cost-sharing method associated with implementation of improvements along Franklin Street between Commercial Street and I-295. From that method a monetary contribution amount has been identified and I find this contribution to reflect project mitigation responsibilities associated with the Traffic Movement Permit.

IX. STAFF RECOMMENDATION

Subject to the proposed motions and conditions of approval listed below, Planning Division staff recommends that the Planning Board approve the proposed Traffic Movement Permit for 58 Fore Street.

X. PROPOSED MOTIONS – TRAFFIC MOVEMENT PERMIT

On the basis of the application, plans, reports and other information submitted by the applicant; findings and recommendations contained in the Planning Board Report for the public hearing on April 25, 2017 for application #2016-224 relevant to the Traffic Movement Permit; and the testimony presented at the Planning Board hearing, the Planning Board finds that the proposed plan **is/is not** in conformance with 23 MRSA 704-A and Chapter 305 Rules and Regulations pertaining to Traffic Movement Permits, subject to the following condition of approval, which must be met prior to the issuance of a building permit:

1. The applicant shall provide Traffic Movement Permit-related off-site mitigation in the form of per PM peak hour trip impact fees for each phase of development, as detailed in the April 20, 2017 Gorrill Palmer memo, *Impact Fee Calculation – 58 Fore Street Mixed Use Development*.

XI. ATTACHMENTS

Planning Board Report Attachments

1. Traffic Engineer Review (memo from Thomas Errico, 4/21/2017)

Public Comment

PC1. Shafer 4_15

Applicant's Submittal

A. Cover letter, Application Form 9-16-2016
B. Traffic Impact Study 9-16-2016
C. Trip Generation – Bay House Supplement 10-5-2016
D. Revised TIS 10-31-2016
E. MDP Traffic Analysis 12-6-2016
F. Impact Fee/Mitigation Memo 4-20-2017
G. Revised Traffic Analysis 4-20-2017

Jeff Levine, AICP
Director, Planning & Urban Development Department

Applicant:	CPB2 LLC c/o Jim Brady PO Box 7987 Portland, ME 04112
Project Location:	58 Fore Street, Portland, ME 04101 CBLs: 018 A001, 018 A002, 018 A003
Project:	58 Fore Street Master Development Plan Traffic Movement Permit
Identification #:	2016-224
Permit Category:	200 Plus PCE
Traffic Engineer:	Gorrill-Palmer Consulting Engineers, Inc. Attn: Randy Dunton, P.E., P.T.O.E. 707 Sable Oaks Drive, #30 South Portland, ME 04106

Pursuant to the provision 23 M.R.S.A Section 704-A and Chapter 305 of the MaineDOT's Regulations, the City of Portland (through its delegated review authority from the MaineDOT) has considered the application of CPB2, LLC, with supportive data, agency review and other related materials on file.

PROJECT DESCRIPTION

The project consists of a (+/-) 10 acre site at 58 Fore Street known as the Portland Company Complex. The proposed development includes retail, office, residential, hotel, restaurant, function space, a marina, and residential units. The site also contains a linear parcel owned by the Maine Department of Transportation that includes the Maine Rail/Trail corridor and the Eastern Promenade Trail/shared use pathway, which will continue to traverse and provide bicyclist and pedestrian access to the site.

Primary access is provided to the site via Thames Street, which will be extended to the project site, and via Fore Street. In addition, a new connector road between Fore Street and Thames Street may be built as a part of a future development phase, but is not required as part of this Traffic Movement Permit. The project is expected to generate 506 trip ends during the typical AM peak hour period and 585 trip ends during the typical PM

peak hour at full build-out. The project is anticipated to be phased and take up to 10 years to achieve full build-out.

The trip generation is based upon the following full build-out development program: 958,679 sf of mixed residential and commercial uses; 435,200 sf parking (736 spaces); and 638 residential units. To achieve these trip end permitted targets, the analysis makes use of trip reductions based upon Shared Use/Internal Capture and Other Modes trip reduction factors. The achievement of these permitted trip levels will rely on a Transportation Demand Management (TDM) Plan to be developed, implemented and monitored as each phase of the development program progresses to meet Site Plan Review Standards though that process.

In the event the development program results in trip levels that exceed the estimated trip generation by 100 trips, a modified Traffic Movement Permit shall be required.

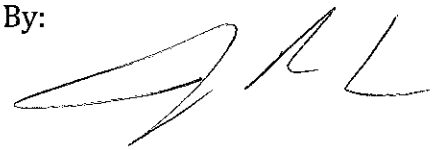
FINDINGS

Based on a review of the files and related information, the City of Portland approves the Traffic Movement Permit Application of CPB2, LLC subject to the following conditions:

MITIGATION

The off-site mitigation attributable to the requested Traffic Movement Permit is intended to ascribe a 'fair share' traffic impact fee to the 58 Fore Street Master Development Plan as detailed in the April 20, 2017 Gorrill-Palmer memo, Impact Fee Calculation – 58 Fore Street Mixed Use Development.

A per PM peak hour trip impact fee of $650 per trip is assigned which must be met prior to the issuance of a building permit based upon each phase's approved traffic analysis and approved TDM plan as part of Site Plan Review by the Planning Board. The fee may be used by the City of Portland for any transportation mitigation or improvement related to addressing the transportation impacts of the project.

By: 

Jeff Levine
Planning & Urban Development Director

Date: 5/26/17

58 Fore Update

2 messages

Charles Tetelman <ctetelman@portlandmaine.gov> Wed, Dec 21, 2022 at 8:20 AM
To: Lauren Swett <lswett@woodardcurran.com>
Cc: Darrin Stairs <DStairs@woodardcurran.com>

Hey Lauren and Darrin!

Below are some thoughts and updates on the Block 4 + Block 6 Major Site Plan (PL-002202-2022). Please let me know if you have any questions!

- **Pending Proceeding:** According to Sec 14.3.2.B of the Land Use Code, "approval [of MDPs] shall confer pending proceeding status upon the development with the effect of maintaining the applicability of regulations in effect at the time of approval..." The current Major Site Plan application will be reviewed as a Level III Site Plan according to the Code in effect at the time of MDP approval.
- **Amendment to PL-00924-2019**: The first Level III Site Plan reviewed and approved by the Board on January 28, 2020 included plans to construct Block 1, Block 2, and Block 4. In order to proceed with the new application for Blocks 4 and 6, the applicant will need to amend the previous approval to remove the original Block 4 components. This amendment is required because Block 4 was originally approved as a component of the Level III Site Plan PL-00924-2019. Now that the developer has decided to pursue a new, separate Site Plan application for Block 4 the previously approved Level III Site Plan application requires an amendment to reflect these changes. Review of both the amendment to PL-00924-2019 and the new application for blocks 4 and 6 can occur simultaneously, but the new application can't be approved prior to the amendment.
- **Historic Preservation Review**: Both Block 4 (Portland Company Historic District) and Block 6 (Munjoy Hill Historic District) fall within Historic Districts and are subject to historic preservation review. Projects within district boundaries require applications for Certificates of Appropriateness.
- **MDP Amendment**: With the changes to the site boundaries and to the trail alignment, an MDP amendment will be needed. These changes would constitute a minor amendment reviewed by staff and can be reviewed concurrently with the site plan application.
- **Review Comments and Updated Drawings**: We're striving to have city review comments to you by mid-January. Before full comments are ready, though, I wanted to note that we'll be asking for drawings that more clearly show district boundaries, and other clarifying elements that make the large scope of the application more legible.
- **Site Plan Phasing:** In addition to greater graphic clarity, the scale of the application lends itself to providing more detail on the project phasing. The previous Level III site plan was equally large and required post-approval clarifications on phasing, construction management, and site work, and we ask that this application address these issues early in the application process by submitting a phasing plan as part of the application. The construction management plan should reflect the proposed phasing, as well. The application could readily be broken into multiple smaller applications, which is an option for the applicant, but if it's advantageous to present one large integrated site plan, clarification on the sequence of construction and which site work and infrastructure associated with each is needed. Section 14.9 of the Land Use Code addresses phasing for site plans, and section. 14.11.13.E phasing implications for performance guarantees. This will assist the review for City staff and the Board, and help make the post-approval and permitting process clearer for staff and the applicant.

To further aid in a smooth review and post-approval permitting we are further requesting that the applicant include an Illustrative Overall Site Plan (in color) showing both Block 4 and 6. In addition, Phases should including the following: individual sheets that reflect distinct work for each block (i.e. development and site work associated with Block 4 and development and site work associated with Block 6). This will provide greater clarity and understanding.

Best,

Charles

--
Charles Tetelman
Planner
ctetelman@portlandmaine.gov || 207-874-8724

Planning & Urban Development Department
City Hall - 4th Floor, 389 Congress Street
Portland, Maine 04101

Charles Tetelman <ctetelman@portlandmaine.gov> Thu, Dec 22, 2022 at 3:58 PM
To: Kevin Kraft <kkraft@portlandmaine.gov>, Christine Grimando <cdg@portlandmaine.gov>, Matthew Grooms <mgrooms@portlandmaine.gov>

[Quoted text hidden]

Please provide a comment response document detailing the applicant's response to the City Staff comments provided below. Please be sure to upload the response document and new/updated documents and drawings to the project folder (PL-002202-2022) on ProjectDox (aka ePlan).

Review Criteria:

- *Reviewed under pending proceeding conferred alongside the approval of the Master Development Plan in December 2016 (Level III Site Plan)*
- *Portions of the Block 6 building will be reviewed against the current R-6 Residential site plan and design standards (Major Site Plan)*
- *Historic Preservation Certificate of Appropriateness (Munjoy Hill Historic District + Portland Company Historic District), Historic Preservation Advisory Review*
- *State Delegated Review Traffic Movement Permits*
- *State Delegated Review Site Location of Development*

GENERAL

- The applicant states that state or federal permits can be provided to the City. Please submit copies of the permits.
- A preliminary shadow analysis is required for Major Site Plan applications outside B-3, B-5, B-6, and B-7 zones. Please submit a shadow analysis as portions of the site extend into the R-6 zone.
- Please provide a description of measures taken to prevent snow and ice from falling on adjacent properties, internal streets, and accessible public areas. Include design measures taken to prevent snow and ice from loading or falling onto adjacent areas or public ways.
- Block 6 outdoor areas deviate from approved MDP. Please clarify how Block 6 and outdoor areas will interface with the rail corridor. Will the site be separated from the railroad right of way with a railing / fence?
- Overall Site Plan – Please show the limit of work as part of Phase II development and what structures are associated with other approvals (Phase 1 / Marina structures).
- Overall Site Plan – Please provide a secondary overall site plan that removes notes and references and depicts building footprints overlaid with historic district boundaries, view corridors, and other similar elements.
- Interim Conditions Plan – Will the Block 5 parking lot be operating as a pay-to-park lot?
- Subdivision Plat – Lot "Remaining Land By Developer" still needs to be a numbered lot even with Note 8 explaining intention.
- Elevations – Separate elevations for Block 4 building, and Block 6 building are required. Additionally, if Block 4 and Block 6 building are considered one building per the MDP an elevation including both buildings is required.
- If Block 4, Block 5 (currently not under review or submitted), and Block 6 are going to be considered one building, please provide City Staff with a narrative explaining the design, construction, and function of the building and three structures.
- Floor Plans – City Staff would like to work with applicant to develop a Floor Plan labeling scheme that is consistent between Block 4 and Block 6. Ideally this system would reflect the elevation of each floor rather than the floor specific to each building.

- Construction Management and Phasing Plan – Please submit a Phasing Plan that shows the extent of work completed associated with the 58 Fore Master Development Plan (including Phase 1 and the Marina), work to be completed as part of Block 4 and work to be completed as part of Block 6, work to be completed as part of other applications currently under review or recently approved, and future work on site (ex: Block 5). Please include anticipated timelines and expected length of construction (estimates are fine).

ZONING

- Please provide how height will be calculated as part of this phase of development. Height calculations and average grade points shall be provided.
- The portion of the Block 6 building within the R-6 zoned area is required to meet R-6 dimensional standards. Maximum height in the R-6 zone is 45 feet, with stepback requirements. Height calculations and average grade points taking within the R-6 portion of the building are required to be provided.

TRANSPORTATION

- Maine Department of Transportation and Third-Party Traffic Consultant noted that the applicant has until May of 2024 to complete the project associated with the previously approved Traffic Movement Permit.

  "Automatic Permit Expiration" *A permit will be considered automatically expired if construction of the project has not begun within a 5-year period or completed within a 7-year period of the date of issuance. The applicant must reapply for and receive approval prior to continuing construction or opening a facility.*

  If the construction schedule does not meet the May 2024 deadline the applicant will need to apply and receive approval for a new Traffic Movement Permit.

- The Trip Generation estimate included in the Traffic Assessment shall be based on the 11th Edition of the ITE Trip Generation publication. This was discussed and confirmed with MaineDOT's State Traffic Engineer.
- Trip reduction assumptions used in prior analysis should be revisited and documentation should be provided in support of suggested trip reduction factors given current conditions.
- The applicant must submit a snow removal plan or show snow storage areas on the site plan. Applicant noted that a third-party will be contracted to manage snow removal and storage.
- Please confirm that proposed compact parking spaces for the entire site will consist of no more than 20% of the total spaces.
- Section 1 Summary notes that the Block 4 parking structure has been reduced 198 spaces (652 to 454). Please provide additional information on how the development of Block 4 and Block 6 will maintain overall parking requirements as laid out in the MDP.

WATER QUALITY, STORMWATER, & INFRASTRUCTURE

- If construction is anticipated to occur between November 1 to April 15 for this phase of the project, consider adding winter construction guidelines to the Stormwater Management Plan for disturbed areas as required in Appendix A Section 7 of Maine DEP Chapter 500.
- Section 5.4 of the Major Site Plan Application notes that the site will have "adequate sanitary disposal of sewage as further described in Section 5 of this Report." The Applicant should provide an Ability to Serve Letter from Portland Water District or note previous arrangements in the narrative.
- Per Section 3 of the City of Portland's Technical Standards, elevators must be designed to fit an 84-inch x 24-inch stretcher inside. City Staff recommend verifying and noting elevator dimensions in the Life Safety Plan to conform to the City of Portland's Technical Standards.
- Per Section 3 of the City of Portland's Technical Standards, hydrants must have 6 feet of clearance around the circumference. Please verify this clear space is met for all hydrants shown on Sheet C-102 for Block 4.
- On Sheet C-100 there is a callout for an SOE retaining wall with reference to geotechnical plans. However, geotechnical plans were not submitted as part of this application. Please submit geotechnical plans for review.
- On Sheet C-102 for Block 4 and Block 6, there is a callout for conduits for electrical and communications with reference to MEP plans. However, MEP plans were not submitted as part of this application. Please submit MEP plans for review.
- Sheet L-1.1 for Block 4 references an architectural plan. However, architectural plans were not submitted as part of this application. Please submit architectural plans for review.
- For Block 4, the civil plans (Sheet C-100) directs the reviewer to the geotechnical plans for retaining wall details, whereas the landscape plans (Sheet L-1.1) directs reviewer to the structural plans for retaining wall details. Additionally, a Segmented Retaining Wall Detail is provided on the civil plans (Sheet C-202). Please keep the location of detail consistent and revising other references as applicable.
- Please provide Landscape Details that are referenced on Landscape Plans for Block 4.
- Sheet C-100 for Block 4 notes a detail for safety railing can be found on the Landscaping Plans, which then notes a detail for the safety railing can be found on the Architectural Plans. City Staff recommend adding a safety railing detail to the Landscaping Plans or changing the note on Sheet C-100 to direct the viewer to the Architectural Plans.
- On Block 6 Landscaping Plans, many detail callouts are missing reference numbers. Please provide callout reference numbers on the plan set.
- Overhead utilities exist on the south side of Fore Street, will those remain? The Applicant should verify that there is at least 10 feet between the proposed buildings and existing utilities.
- Coordinate location of water meters with Portland Water District (PWD).
- Show anticipated pavement restoration areas within Fore Street due to utility connections, sidewalk reconstruction and construction damage.
- Will the SOE retaining wall on the east side of Block 4 remain permanently?
- Permanent elements within the Fore Street right of way may require approval of a license with the City.
- Plans need to show and label existing and proposed curb.

- Will the applicant be reusing the existing granite curb or installing new granite curb? The applicant shall verify the condition of the existing granite curb and the plans need to be labeled to indicate what will be installed.
- The sidewalk, driveway, curb and street need to be dimensioned on the plans.
- There are existing utilities that conflict with the proposed driveway off Fore Street across from Waterville Street. None of the plan sheets show how or where they will be relocated or adjusted.
- Grading Sheets: Spot grades and slopes shall be added to plans at proposed driveways, egress locations, pedestrian ramps, accessible crossings, sidewalks and steps. The finish floor elevation for all buildings shall be shown on the plans (along Fore Street).
- Profile: Label where City ROW ends and Private property begins. Show the centerline elevation of the road. The profile (notes and labels) needs to be updated to reflect the portion of the road that has been constructed so far.
- Profile: A portion of the proposed street has a 0% slope. Any proposed street shall be designed to have a minimum grade for the centerline of the street that shall not be less than 0.5 percent.
- The block 4 grading and drainage plan indicates that Jellyfish-2 will be "as-built" prior to this project commencing. It's unclear what phase the Jellyfish unit will be installed in. The concurrent waterfront and utility enabling work phase (PL-00253-2022) calls out a future location of Jellyfish Filter, but does not indicate it will be installed as part of that project. Please clarify when Jellyfish 2 will be installed.
- The applicant should clarify how sanitary facilities associated with the Marina property will be permanently connected to the new sewer system being constructed as part of the block 4 and 6 development. The applicant should clarify the time frame for the removal of temporary sewer holding tanks on marina site. The Interim Marina Site Plan (PL-00289-2022) shows sanitary facilities connecting to an existing Eone pump station on the southside of the railroad tracks. The plan indicates that a force main routes northerly underneath the railroad tracks. It's unclear how this system will be permanently connected to the new sanitary facilities being installed as part of the block 4 and 6 development. Any temporary above ground sewage holding tanks should be eliminated as part of this next phase of development.
- An Erosion and Sedimentation Control (ESC) plan shall be added to the plan set, specific to this project, depicting compliance with all City and State ESC regulations.
- The applicant shall submit a wastewater capacity application for review and approval to the Water Resources division of DPW for this next phase of development.
- The intent of the utility extensions along the limit of block 6 work is unclear.
- The applicant is not showing any external grease traps for any of the proposed development in blocks 4 and 6. The applicant shall confirm that external grease traps are not required for any of the proposed development in these phases. If grease traps are required per City of Portland sewer use regulations, then the plans should be updated to show the configuration and location of each unit. Will grease traps be required for any of the proposed future connections associated with building 3 and 6B? If so, the applicant should show the proposed locations and configurations on the utility plans.
- DPW continues to note that Fore Street will be surface paved, curb to curb, in the early summer months of 2023 as part of final work associated with the Fore Street/Eastern Promenade Sewer Separation project.

- The stormwater management report indicates that 2 Filterra units will be installed to provide treatment for an interim parking lot as required during this phase of development. These Filterra units appear to have been factored into the required treatment for the entire redevelopment project. DPW assumes there is a plan in place to provide permanent stormwater treatment for block 5, and subsequent development to replace the Filterra units when they are removed during future phases of development. Please clarify.
- As part of the recent sewer separation project in Fore Street, the City of Portland completed a curb extension at the NE corner of the Waterville Street/Fore Street intersection. The City installed flush curbing at this location in anticipation of a crosswalk being installed as part of the next phase of the 58 Fore Street project. The City did not complete the ramp work due to safety concerns of implementing a crosswalk ramp without the receiving ramp being in place on the southerly side of the street. The developer should include the work to finish the sidewalk ramp at the NE corner of Waterville and Fore Street in order to establish a new crosswalk at this location as shown on the proposed plans.

The Planning & Urban Development Department and peer reviewers have completed the latest review of the 58 Fore Street Blocks 4, 5, and 6 Major Site Plan application, which was received on April 19, 2023 with revised and new documents submitted on May 26, 2023. Our comments are provided below.

Once all revisions are made please submit a written response to the comments below and upload the response, revised submissions, and new material to Project Dox (make sure all submissions maintain the same file naming format to allow for versioning). Once uploaded, please send an email to ctetelman@portlandmaine.gov notifying the planner of the resubmission. Please ensure that all submitted materials are submitted in a complete and consistent manner. If revised materials are received in an incorrect and inaccurate format they will be determined fatally flawed and you will be asked to resubmit before staff begins to review.

Be advised that additional comments may be forthcoming and other changes may still be required if the comments are not addressed adequately. If you have any questions, please do not hesitate to ask.

Updated 6.6.23 to include Landscaping and Preservation Comments

CRITICAL PATH ITEMS:

- ***Phase 2 Average Grade Calculation***: Point D and Point E are not acceptable for determining the average grade as currently shown. As currently proposed, the applicant is not measuring the grade from the post development grade but instead from elevated patios/walkways, sidewalks, and other artificial features, projecting from the building facades and to be constructed on top of a retaining wall, with no fill between the building and the retaining wall, leaving a void, and bearing no relation to the structural functionality of the building in these locations. As previously stated, points can be taken at regular intervals or at prominent building corners. Measurement is required to be taken where the building foundation meets the post development earth grade.
- ***Fore Street Retaining Wall + Maintenance*:** The applicant shall assess the current condition of the Fore Street retaining wall and confirm whether footings or other structural elements being proposed pose a risk to the structural integrity of this retaining wall. This study is required to be completed by a qualified professional and will need to address the following questions: *1) Can the applicant provide past and current elevation data of the Fore Street Retaining Wall for comparison; 2) Who will ultimately be responsible for maintenance once the structure is occupied; 3) How will the wall be accessed for maintenance and/or replacement once the structure/building is erected; and 4) What is the estimated lifespan of the wall?*
- ***Townhome Height (35 ft.)*:** Dimensional Standards require that buildings along Fore Street do not exceed the grade of Fore Street by more than 35 feet within 100 feet of the Fore Street ROW. This height restriction is required to be met. The applicant needs to provide updated elevations demonstrating consistency with this dimensional standard.
- ***Geotechnical Study*:** The applicant needs to provide a Geotechnical Study from a qualified professional demonstrating the proposed development is structurally sound and must demonstrate that all structures (pins, retaining walls, etc.) provide adequate support for the proposed development. From the MDP: *"Preliminary geotechnical exploration will occur to inform the future design details related to the B2 and B4 development blocks, specifically how these foundation systems will interface with the retaining wall system."*

- ***Fore Street Public Right-of-Way:*** The applicant is currently proposing a sidewalk, retaining wall, and footings associated with Block 4 and the townhomes encroaching into the City ROW along Fore Street. In order to encroach into the City ROW, a license agreement is required, which the City has not granted to the applicant at this time. The City reiterates that all privatized developed areas, including any necessary retaining walls, pathways, and patios, fronting Fore Street should be shifted outside of the public ROW and onto the property of the applicant. Any building components, except footings, that extend into the ROW are not supported by the City. The City will continue to coordinate with the applicant team to explore the possibility of entering into a license agreement to allow Block 4's footings to encroach into the City ROW, below grade, that is supported by a geotechnical study.

GENERAL

- Please provide snow storage areas on site or provide a management plan for removing snow from site.

ZONING

- Zoning will review building height and other dimensional requirements once a revised average grade based on the above comments is submitted.

TRANSPORTATION

- DPW and Planning provided a suggested cross-section for Fore Street along the proposed project frontage. City Staff understand that the final design of both the private and public elements of the project's Fore Street frontage are contingent upon the outcome of ongoing conversations between the applicant and City around the Fore Street retaining wall and required structural elements of Block 4. While the City notes that the siting of certain structural elements of Block 4 within the public ROW may be unavoidable, the City reiterates its previous comment that all privatized developed areas, including any necessary retaining walls, should be shifted outside of the public ROW and onto the applicant's property. Impacts to the right-of-way should be minimized to the greatest extent possible to allow for robust inclusion of active transportation space in order to maximize street activation and human safety.
- City staff will provide a final determination on the need for a modified or new MaineDOT Traffic Movement Permit.
- The Trip Generation estimate included in the Traffic Assessment shall be based on the 11th Edition of the ITE Trip Generation publication. This was discussed and confirmed with MaineDOT's State Traffic Engineer. Please provide updated Trip Generation estimates accordingly.
- The reduction assumptions used in prior analysis should be revisited and documentation should be provided in support of suggested trip reduction factors given current conditions. Please provide revised documentation accordingly.
- All submitted plans depicting parking shall provide dimensions according to the City of Portland Technical Manual.

- The applicant shall provide the EXCEL spreadsheet for the parking demand analysis for review and approval. Adjustments to mode share and internal capture may be necessary following the changes to methods used in the traffic study noted above.
- The proposed details are not compliant with City's standards (for example VERTICAL GRANITE CURB, BRICK SIDEWALK and CAST IRON MANHOLE COVER AND FRAME). City Staff recommends that the applicant review and revise all the proposed Site, Sewer, Storm Drain and Landscape details to meet the requirements of the technical manual. They should also state the location of the details in the installation note.
- A Driveway Apron detail was not included in the submitted plan set and should be added. The proposed driveway apron is required to be designed per the City's Technical Manual Section 1 and the City's Sidewalk and Driveway Apron Material Policy.
- According to DPW there is an existing utility valve that appears to be within the limits of the proposed driveway.



- The applicant has noted that the existing Granite Curb will be reset. The applicant will be responsible for ensuring that the existing granite is free of any defects such as but not limited to chipping and cracking. Be aware that Public Works may require the use of new granite curb upon inspection of the existing granite curb prior to installation / during construction.
- DPW understands that the applicant is coordinating the relocation of the overhead utilities and poles with Central Maine Power. The applicant is responsible for ensuring that the design / location of the proposed building maintains the required offset from existing overhead utilities if the building is constructed prior to the utility relocation. Be aware that the curb line shall not be extended into the existing pavement to accommodate future utility pole relocations if the coordination is not completed before the building is constructed. Additionally, DPW is requesting all overhead utilities and related infrastructure to be shown on all plans and elevations.

WATER QUALITY, STORMWATER, & INFRASTRUCTURE

- DPW's project manager for the Fore/Eastern Promenade Sewer Separation project is available to meet onsite to discuss coordination of the two projects including the proposed crosswalk at Waterville and Fore.
- The applicant shall clarify how the marina sanitary sewer force main will connect to the new sewage pump station being installed as part of the Phase 2 (block 4-6) work. This may require final approval for the minor site plan amendment PL-002252-2022. Applicant shall finalize plans associated with PL-002252-2022 before receiving approval for this site plan.
- The applicant shall update the project's wastewater capacity application, previously sent to DPW water resources engineering to include projected flows from block 5. The application on file does not include this information.
- The applicant had previously noted that placement of grease traps associated with block 6 were still being determined and they would appear on subsequent utility plans. This updated plan set still does not include any grease traps. Similarly, if any grease traps are required for the recently added block 5 work they should be added to the utility plan. All sizing and configurations of grease traps shall be in accordance with section 2 of the technical manual.
- An oil water separator has been designed to treat flows coming from an internal parking garage as part of the block 4 work. The applicant shall confirm oil water separators are not required for any internal parking areas associated with blocks 5 and 6.
- Several sewer service pipes are shown with a slope less than 1/8 in/ft. Based on the City of Portland Technical Manual it is stated that, "All building sewer laterals shall have a minimum diameter of four inch (4") and a minimum slope of one eight inch per foot (1/8 in/ft) installed." We recommend the slopes for sewer service pipes be revised to meet City standards or a waiver is requested if this is not achievable due to existing infrastructure grades.
- Phase 2 Civil Plans and Details Sheet C-102: There are catch basins with a rim elevation at the same elevation as adjacent spot grades provided (AD11, CB7, CB8). We would recommend additional spot grading or adjustment of adjacent grades or rim elevations to promote positive drainage towards the catch basins.
- Phase 2 Civil Plans and Details Sheet C-102: AD12 has a rim elevation of 14.80' based on Sheet C107 – Civil Pipe & Structure Tables. The linework for SMH-14 is covering the adjacent spot grade, but it appears that the adjacent spot grade is 14.7'. If this is in fact the case, we would recommend grading be revised in this area to promote positive drainage to AD12.
- Phase 2 Civil Plans and Details Sheet C-102: It is unclear how the podium area on the east side of Block 4 will drain. The provided spot grades around the podium are 23.89' with adjacent spot grades all being higher than these points making this area a low point. We would recommend considering the need for drainage infrastructure or revising proposed spot grades to drain to proposed storm drainage infrastructure.
- Phase 2 Civil Plans and Details Sheet C-104: Pipes S16, S14, S15, and S33, are assumed to be sewer service laterals for future construction. Per the City of Portland's Technical Manual, sewer service pipes which are 4" or 6" in diameter shall not be connected into a sanitary manhole and only into a sanitary sewer main. Please confirm the intent of these sewer pipes and revise as appropriate.
- Phase 2 Civil Plans and Details Sheet C-104: the label for SMH 14 is covering the label for the sewer pipe. It is unclear which sewer pipe in the pipe table (Sheet C-107) is between SMH 14 and SMH 6.

- Phase 2 Civil Plans and Details Sheet C-107: Several storm drain pipes are shown as having slopes less than 0.005 ft/ft with some drain pipes shown as being placed flat. We would recommend providing a minimum of 0.005 ft/ft slope for all storm drain pipe to ensure positive drainage. Phase 2 Civil Plans and Details Sheet C-203: There are several area drains on sheet C-107 that are proposed to be 1' diameter. We would recommend a detail be provided for the type of grate to be used for these structures.
- Phase 2 Civil Plans and Details Sheet C-204: The applicant is proposing to install a tree over the top of proposed subsurface R-Tank #2. Based on available literature of R-Tank systems, it is not recommended to place large trees over these systems. We would recommend the applicant confirm that this is acceptable with the manufacturer or remove the proposed tree.
- CB 27, SD123, CB28, SD124, CB21, and SD57 on Sheet C-102 are not seen on the Pipe & Structure Table (Sheet C-107).
- CB13 has a rim elevation of 14.40 based Sheet C-107 – Civil Pipe & Structure Tables. Sheet C-102 shows a spot elevation of 14.55 on CB13. Please confirm the correct elevation and revise as necessary.
- The Major Site Plan PFDC Phase 2 Checklist notes that "directional flows of all proposed sewer and stormwater infrastructure" are required on utility plans. Please provide flow direction arrows for all proposed sewer and stormwater infrastructure in accordance with this requirement.
- Please provide a detail showing storm drain pipe connections. For instance, SD39 is shown to connect into SD40 on Sheet C-102, with no catch basin or drain manhole.
- Several area drains on Sheet C-107 are listed with a diameter of 1' and a pipe of 10". The applicant has also provided a detail of the area drains on Sheet C-203. There is a note on the proposed detail which states that the diameter of the hole should be 3" larger than the inside diameter of flexible pipe or the outside diameter of rigid pipe. Based on the detail provided, and the proposed sizes of the area drain and storm drain pipe, it is unclear how there will be sufficient room to accommodate the pipe within these structures.
- SW Management Plan Comments:
    - Section 1.3 – Proposed Development: The Applicant indicates that Jellyfish Filter 2 will be relocated and invert elevations adjusted as part of this project. However, it is not clear on the plans where the filter will be relocated or what the adjusted elevations of the inverts are. We would recommend the Applicant clearly show where the filter is to be relocated and provide updated invert information for the filter.
    - Section 1.4 – General & Redevelopment Standards (Stormwater Quality): The Applicant indicates that they will continue to coordinate with MaineDEP to obtain approval for reduced water quality volume. It is recommended that the applicant provide documentation stating that a reduction in required water quality volume is accepted by MaineDEP prior to final approval.
    - Section 1.4 – General & Redevelopment Standards (Stormwater Quality): The Applicant states that the Jellyfish Filters are sized to meet flow from 1-inch of runoff. It is recommended that the applicant include a 1-inch storm in the HydroCAD model to ensure the Jellyfish sizing meets the flow requirements outlined in the MaineDEP proprietary BMP approval letter.

- Section 1.4 – General & Redevelopment Standards (Stormwater Quality): The Applicant indicates they are coordinating with the manufacturer on approval of the Jellyfish Filter design and can provide a manufacturer letter of approval. Please provide approval letter once received.
- HydroCAD – Pond 12P – Jellyfish 2: It appears that the applicant is modeling the bypass weir as device #3. If this is the case, the invert elevation used in HydroCAD does not match the elevation shown for the Peak Diversion Jellyfish Filter #2 Detail on Sheet C-206. Please confirm which elevation is correct and revise the other as appropriate.

LANDSCAPING & ENVIRONMENTAL QUALITY (*updated 6.6.23*)

- Ensure that a safe, ADA compliant alternative trail route is available during construction
- Existing conditions and demolition 1&2 - Show tree protection extents around existing vegetation being preserved on site, include note directing contractors to comply with section 4.3 of the technical manual for vegetation preservation and figure IV in chapter 4 of the technical manual standards for Landscaping and Landscape preservation.
- Existing conditions and demolition 1 - please ensure locations of all fuel lines, water lines and other buried utilities that are noted to be confirmed in field by contractor have their final verified locations documented in As-Built plans for city records. (Thank you)
- Existing conditions and demolition 2 - Please show existing esc protection around existing soil stockpile area, or update drawing with note to indicate MDEP compliant stockpile coverage / protection measures exist in place (and are to be maintained / not disturbed when possible)
- Existing conditions and demolition 1 - Show existing bollards in trail on existing conditions / demo plans. Clarify removals of any old, preexisting trail bollards within the project area with notes / call outs in plans.
- L.10 Sheet notes: Note 4 and other notes should be revised to reflect Maine certified arborists or other professionals involved in site construction / landscape approvals / acceptance. Note refers to California certified arborist.
- L1.0 Planting area - provide planting information on species types and locations. All proposed species should meet section 4.5.1 site landscaping design standards from chapter 4 of City technical manual. Plants with proven salt tolerance for any locations along streets, shore areas or heavily used walkways that will receive deicing salts in winter should be prioritized.
- L1.0 Planting areas - Do not plant any species with unkempt habit, or that would create site line issues for trail users between pathway types, including rail edges at any intersections in high traffic areas. Certain species that have spreading and naturalizing tendencies, such as Rhus aromatic 'gro-low' can over reach beds and require more maintenance if in pedestrian environments. Consider alternate species, like myrica gale or aronia melanocarpa ,comptonia, Gaylussacia baccata, Vacciniums or other similar species that are more contained in beds where pedestrian activity is anticipated. Other species for consideration could include. Rhus aromatica is appropriate for massing or naturalized conditions where less containment and maintenance is required.
- L 1.0 Eastern Trail Shade tree concern - The allocation of space from the trail and rail realignment with various fuel lines /other utilities along the marina edge do not create any opportunities for shade trees along the trail. This would be unfortunate for trail users and future residents alike. Would any possibility for some shade tree locations exist within the Marina enclosure, further away

from underground utilities? Assuming this is possible, shade tree locations at a consistent interval would be ideal. With overhead lines removed, larger canopy species might be a possibility. There could include swamp white oak,red oak, pitch pine, white cedar, which are some example species for coastal maine natives that could be appropriate for this application.

- L 1.0 Eastern Trail - No detail is provided for seawall in this submission. Landscape plan references "civil plan" for additional detail on wall / edge condition between proposed stonedust pathway and marina property line. Civil plans in this submission then references a note 3 as seawall plans submitted under separate cover in a different amendment submission. Include any detail or plan references on any sheet within same submittal set and ensure all discipline drawings are accurate and cross referenced appropriately.
- L1.0 Sea Wall - Ensure any walls and fences comply with 4.5.7 of chapter 4 in technical manual. Provide section and detail drawing information on bollard and chain, sea wall, and other seawall related elements.

Subject:	58 Fore Street
Zone:	B6, R6
Date of Review:	Friday, June 2, 2023
Reviewer(s):	Sean King (Urban Designer), Charles Tetelman (Planner), Evan Schueckler (Historic Preservation Program Manager)
Project ID:	PL-002202-2022

I. DESIGN REVIEW CRITERIA

The development project at 58 Fore Street is subject to the site design standards, Land Use Code section 14.6.4.I Design standards, master development plan review standards, Land Use Code section 14.7.5 Design and eastern waterfront master plan. The site plan application is subject to the policies and design standards listed below:

A. Land Use Code section 14.7.5 – *Master Development Plan for 58 Fore Street*

B. Eastern Waterfront Master Plan - *Design Guidelines for Portland's Eastern Waterfront*

C. City of Portland Design Manual –
- (*g*) *EWPZ Eastern Waterfront Port Zone and B6 Eastern Waterfront Mixed Use Zone*
- (*i*) *Two-family, special needs independent living units, multiple-family, lodging houses, bed and breakfasts and emergency shelters.*

II. REQUEST FOR ADDITIONAL APPLICANT MATERIALS

Staff is requesting additional materials to assist with the design review to include:

1. Block 5 3-dimensional and/or perspective renderings to illustrate the proposed building design with views from the water, view corridor and internal street network in context with the overall development site.
2. Block 5 building material palette with images of proposed products
3. Block 4 renderings to show existing overhead electrical lines along Fore Street.

III. HISTORIC PRESERVATION ADVISORY REVIEW

Historic resources, under Article 14.6.4.E, require when developments affect designated landmarks or lie within designated historic districts, such development shall be required to obtain a Certificate of Appropriateness under Article 17. A portion of the Block 4 development is within the Portland Company historic district and a portion of the Block 6 development is within the Munjoy Hill historic district, both are subject to Historic Preservation Board review and applicable design standards.

As the entire development is within 100 feet of a historic district, those portions not within a historic district shall be generally compatible with the major character-defining elements of the portions of the historic districts in the immediate vicinity of the proposed development. Character-defining elements of landmarks and historic districts are identified in the historic resources inventory and respective historic

district designation reports. For the purposes of this provision, "compatible" design shall be defined as design which respects the established building patterns and visual characteristics that exist in a given setting and, at the same time, is a distinct product of its own time. Historic Preservation staff has provided a written analysis of the proposed development's immediate context, identifying the major character-defining elements and any established building patterns that characterize the context.

Munjoy Hill and the Block 4 Townhouses & Block 6:

Munjoy Hill has a long history of development and features highly varied architectural expressions across buildings. Many buildings also feature historical alterations, creating varied and dynamic layers of history. Regardless, there are several unifying features within the district. Construction is primarily of wood frame over masonry foundations, with only a handful of primarily brick structures. Buildings are typically independent, but constructed densely, with tight driveways and side yards. Front yards are typically shallow. Projecting bay windows or entry porches are often used to create variety along the sidewalk. Windows are predominantly vertically oriented with regular placement on front facades and more variation on sides. The immediate vicinity of the proposed development is eclectic, reflecting the overall diversity of the district's architecture, including examples of high-style grand houses, Queen Anne multi-family buildings typical of those found throughout the district, and a few Greek Revival structures, one of which (at the corner of Atlantic and Fore Streets) is among the rare brick houses in the district.



A typical street showing examples of triple-deckers and Italianate duplexes in the Munjoy Hill Historic District (82, 84, 86, & 88 Beckett).

The proposed Block 4 will be a large multi-unit building, but the town houses fronting onto Fore Street are being studied for compatibility with a much smaller scale residential district. Most buildings are two to three stories in height, with narrow facades on tight urban lots. The proposed townhouses will be a very compatible three-stories at the north elevation, but the continuous street wall does not have a precedent in the historic context. The applicant is proposing to break-up that width by introducing the townhouse as a unit for dividing the mass; however, it is a very flat façade, with the only depth and relief being proposed at the required viewsheds at Atlantic, St. Lawrence, and Waterville Streets. Staff would encourage the Board to discuss whether there are opportunities to break-up the solid street wall by introducing shifts in wall

plane. Recessing some of the townhouses, creating breaks between townhouses, or introducing projecting bays or front porches could all provide a stronger reference to the context of Munjoy Hill.

The proposed design character of the Block 4 Townhouses is very traditionally, utilizing brick veneer construction with traditional architectural elements such as masonry sills and headers, strong cornices, and mansard roofs. Though traditional, the proposed character of these townhouses is not in keeping with the predominantly frame-construction character of the Historic District. Additionally, the traditional approach does not contribute to the building being a distinct product of its own time in the way that the rest of Block 4 does. This also results in a discordance between the townhouses and the rest of Block 4. Staff would encourage discussion of whether a change in material and a more contemporary design approach might produce a more compatible design.

Given the great architectural variety found in the Munjoy Hill Historic District, one of the challenges in producing a compatible design for the Block 4 Townhouses is striking a balance between that architectural variety and the consistency needed for the proposed development to be a comprehensive project. In earlier iterations the townhouses were proposed as a repeated design. In the current version, the applicant has introduced two forms which are alternated to introduce some variety. Staff would encourage the Board to discuss whether the current proposal is successful or whether this balance should be further studied. For instance, utilizing a consistent form with variety in cladding textures and colors could be one approach. Staff would caution against introducing too much variety in the form of the townhouses as if the townhouses become too much a pastiche of the historic district, then it may again dilute the nature of the development as a distinct product of its own time.

Block 6 should also be compatible with the Munjoy Hill Historic District; however, the north elevation is located in the district and subject to Historic Preservation review. The other three elevations will have minimal visibility from and impact on the Munjoy Hill Historic District given the location of the block primarily below Fore Street and behind a number of contributing buildings. Staff would encourage discussion about how the overall massing of the building could be simplified and made more compatible with other portions of the development; and whether there are opportunities to simplify the material palette. The proposed stone cladding material also seems generally out of scale with the mass of the building and staff would recommend consideration of a different material or larger form of stonework that might make reference to the more monumental stone materials found in the nearby context.

The Portland Company Historic District and Blocks 4 & 5

The visual character of the Historic District is that of a rambling industrial complex containing a variety of structures fulfilling specific programmatic needs. These ranged from foundries and boilers, to drafting rooms, machine shops, blacksmiths, and halls for the assembly of machinery. While all unique, the contributing buildings generally share a visual language typical of late nineteenth- or early twentieth-century industrial architecture. The structures are predominantly low-lying with long, horizontal elevations of brick on stone foundations, with only two vertically oriented structures punctuating the campus (the drawing vault at Building 24 and the stair tower at Building 6a). Roof forms include flat, gabled, and shed forms. Wood is used in a limited capacity, and metal is concentrated around structural elements at roofs or openings, and in some lean-to additions. Exteriors have little to no ornament. Building 2 is the most ornate with granite window headers and sills, and a substantial classically-inspired brick cornice and pediment. Windows and doors are typically regularly spaced with a vertical orientation and multi-light glazing.

The site is also characterized by the arrangement of buildings. The structures were located close to one another, speaking to their interrelated functions. However, spaces were left between many structures creating a modest internal network of streets and alleys that allowed for movement of staff, materials, and products. In a few locations, second-story bridges or walkways create connections between buildings and over that network of streets. In several instances, important structures such as the pattern warehouse (Building 12) were located away from the working portions of the site to protect them from the potential for fire within the complex.



2022 view of the Buildings 2 & 24. Block 1, at left, was nearing completion with sitework being completed in the foreground.

Blocks 4 and 5 are located closest to the Portland Company Historic District and therefore have the strongest visual relationship. Generally, the two blocks appear to be meeting the standard of being distinctly contemporary in their design. Block 4 incorporates two long brick facades along the Thames Street frontage, forming the base of the whole block. At four stories, this base will be somewhat taller than the adjacent one- to three-story heights of the historic structures, but is expected to have good visual compatibility. Block 5 is proposed to have a two-story base of granite cladding, with primarily GFRC and glazing above, creating a similar character to the Sun Life Building at 110 Thames Street. There may be opportunities to introduce a set-back above the base of Block 5, which also help with the compatibility of the building in relation to the Portland Company Historic District.

IV. DESIGN REVIEW COMMENTS: **bold** text denotes recent updates met, red text denotes standards not met to require resubmission.

A. Land Use Code section 14.7.5 – *Master Development Plan for 58 Fore Street*

b. Developed in a comprehensive, design-integrated manner, according to an overall master development plan,

Staff comment: Staff finds the site plan application to be generally consistent with the overall master plan development.

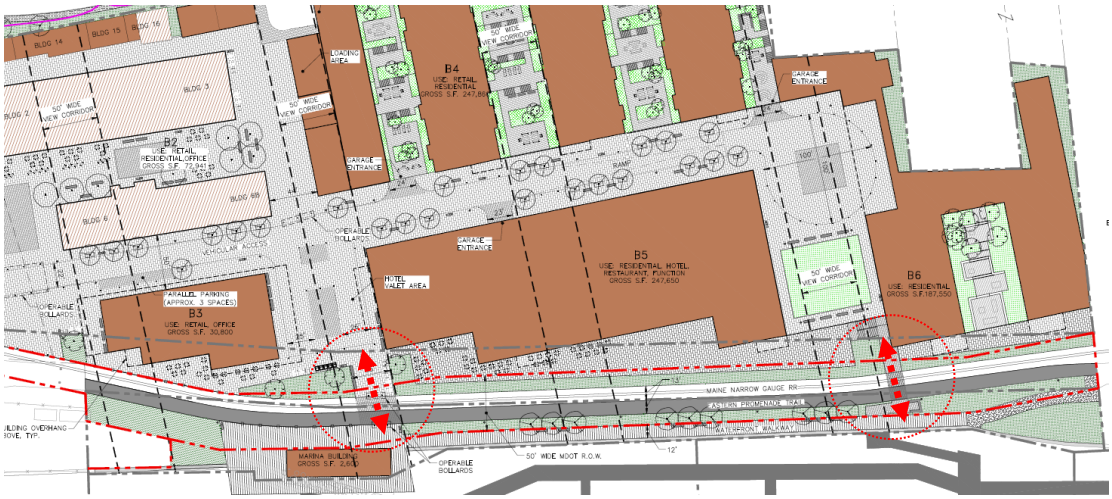
h. An efficient use of land demonstrating full coordination of its own site development and surrounding context including, but not limited to, the land uses and functions contemplated, architecture, open space and pedestrian networks, . . .

Staff comment: Staff finds the site plan application to be generally consistent with the overall master plan development.

l. Designed as to create a cohesive identity through building scale, massing, and articulation; use of quality exterior materials, architectural detailing at pedestrian scale; consistency of design and materials for streetscape and pedestrian amenities; framing of outdoor open space and linkages; a clear conveyance of the function and significance of various buildings, entrances, and features; . . .

Staff comment: The site plan application for Block 4,5 & 6 is generally consistent with the overall master plan development with the exception of the additional property located at the eastern portion where Block 6 extends into the R-6 zone and Munjoy Hill historic district. The applicant shall relate to the context of the surrounding residential neighborhood through building scale, massing and articulation. Staff is requesting the applicant provide additional material for Block 4 north outdoor open space and pedestrian linkages proposed for the new property boundary in relationship to the existing adjacent residential structures at Fore Street.

Staff finds several inconsistencies from the approved Master Development Plan regarding protection mechanism (shown as a landscape buffer) along the railroad right of way to restrict public points of access into the development.



*approved master plan development overall site plan

B. Eastern Waterfront Master Plan - *Design Guidelines for Portland's Eastern Waterfront*

Introduction: *Development will serve to integrate the working waterfront, commercial business areas, and the Munjoy Hill neighborhood. For integration to be successful, thoughtful, high quality design for all aspects of construction is imperative. With care and attention paid to details and*

quality, the design of streets, buildings, open space, parking, and changes to the water's edge will contribute to the value of public and private property and the quality of life for Portland residents. . . . that the Eastern Waterfront become a benefit to City residents. The Master Plan, along with these Guidelines, promotes development that will be an asset, not a liability, to the surrounding neighborhoods and community at large.

Streets: *The retention and expansion of pedestrian scaled street grid...*

1. **Public Streets:** The applicant proposes to maintain vehicular and pedestrian access along Fore Street, staff recommends additional crosswalks and curb ramps at St. Lawrence, Atlantic and Munjoy Street to connect the existing neighborhood across Fore Street.

2. **Appropriate Street Design:** Fore Street is a primary street that accommodates vehicles and pedestrians, the applicant continues to provide on-street parking as a buffer between pedestrians and moving traffic. The new private street through the site parallels the water and expands the street network outlined in the Eastern Waterfront master plan for internal alleys that relate to or continue the historic Portland Company pattern established through the site. The new private, shared street functions as a pedestrian-oriented streetscape with basalt pavers with pattern variation bordered by stone curbing, street trees and scaled exterior lighting that staff finds appropriate.

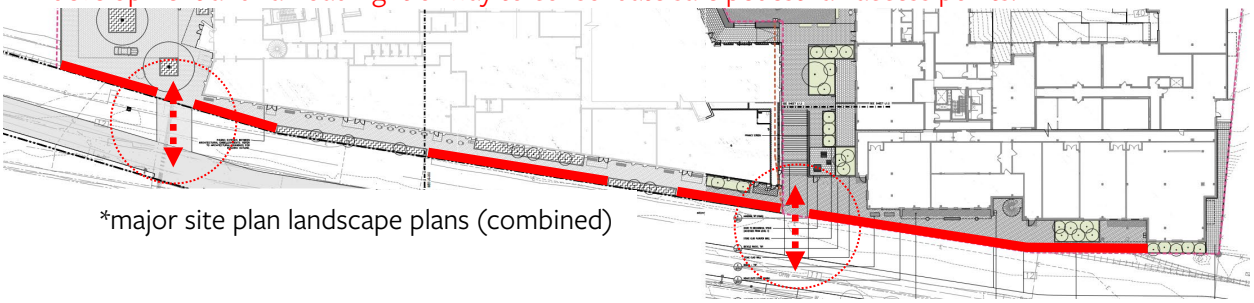
3. **Sidewalks**: The applicant proposes brick sidewalks per city standards along Fore Street. Staff observes the applicant's intent to comply with accessibility requirements and continues to support building entries of the Block 4 Townhouses at Fore Street, however, staff finds the new retaining wall encroachment to be in conflict with this standard *to accommodate visiting and residential pedestrians comfortably and safely*. In particular, staff finds that the proposed retaining wall creates several vertical elevations above 30 inches to require a guardrail that would not contribute to the value of the pedestrian experience along Fore Street. Staff recommends the applicant replace the retaining wall for stairs to transition the grade difference between the Fore Street sidewalk and paved access to new building entries. The applicant should consider additional landscape opportunities, such as planters, sloped planting areas or other that would consider the existing wall, to mitigate the grade changes between Fore Street sidewalk and new building entries.



Precedent image (courtesy of Christian Phillips Photography, KMDG, landscape architect) to illustrate grade transition along sloped sidewalk condition

4. View corridors: Staff finds the development to preserve defined view corridors at Waterville Street, St. Lawrence Street and Atlantic Street where no building is allowed above the corresponding Fore Street elevation.

5. Railroad Right of way: Staff requests the applicant provide additional detailing, including selection of materials and signage to allow for safe pedestrian access routes at key locations (shown by red arrows) across the railroad right of way. The applicant shall provide additional landscape buffering (e.g. planting areas or low transparent fencing) between the proposed development and railroad right of way to consolidate safe pedestrian access points.



*major site plan landscape plans (combined)

6. Underground Utilities: Staff supports the underground utilities proposed within the development and observes the existing overhead electrical lines and utility poles to remain along Fore Street. Staff acknowledges the existing cobrahead municipal lights fixed to existing utility poles and shall review exterior lighting during a future submission as the applicant has not provided an exterior lighting replacement.

7. Marine Passenger Terminal Circulation: Not applicable, development is not serving the proposed marine passenger terminal.

Buildings and Architecture: *Architecture that enhances the development of a mixed-use and marine inter-modal transportation center, and is compatible with the surrounding neighborhood...*

1. Contextual Design: Staff recognizes, as does the *Eastern Waterfront Master Plan*, that the 58 Fore Street site is anomalous in its location, topography, former uses, and past development pattern compared with its surrounding context. The site mediates between the residential Munjoy Hill neighborhood defined by single family, two-family, and multi-family residential buildings, and a small, pedestrian-scale street grid creates a neighborhood scale block pattern. The Eastern Waterfront context includes a mix of transportation, industrial, tourism uses and building typologies. Staff finds the proposed Block 4,5 & 6 buildings recognize the existing development pattern and characteristics with a strong organization that parallels the waterfront and Fore Street and allows for site permeability with the defined view corridors. Notable hierarchy of building typologies include the Block 4 Townhouses to reflect the height of residential buildings in the Munjoy Hill neighborhood; a cohesive building design along the Thames Street extension that identifies a strong architectural masonry base and contemporary arrangement of fenestrations and building materials; and arrangement of building elements that correspond to the primary retail uses and façade elements along the waterfront.

2. Building Composition:

a. **Placement:** Block 4,5 & 6 buildings include primary entrances oriented towards the street and continue a strong street wall.

b. **Height:** The building heights for the Block 4 Townhouses on Fore Street are compatible with the residential building of 3-4 stories located within a two-block radius. The development observes the building break line between Block 4 and Block 5 to divide the building mass into separate distinct buildings of various heights. Block 6 is located at the eastern most portion of the development with the tallest building heights. Staff finds the Block 5, 6 building heights exceed the B-6 building height overlay map with the established average grade (50'). Staff finds the increase in Block 5 heights above Block 4 does not correspond to the B-6 building overlay map's intent to stepdown the building heights towards the waterfront and will continue to review the Block 5 heights related to the City's average grade interpretation.

c. **Massing:** The buildings on the western half of the Foreside development site have a long and low massing consistent with the historic industrial complex and working waterfront building typologies. The building massing of the Block 4 West Wrapper provides height transitions that step-up towards the west of the development to create a strong relationship with Building 3 and 6B. Staff recommends Block 5 provide building height transitions by incorporating stepbacks at the southwest elevation. Block 6 is sculpted by many volumetric planes highlighted with changes in the material that staff finds to reduce the building massing.

d. **Proportion:** The Block 4,5 & 6 buildings share a similar horizontal orientation with ample window openings unique to each building. The facades along the Thames Street extension include storefront windows to create pedestrian-scaled proportions. The waterfront facades shall be pedestrian scaled and respond more to the intended retail use, staff requests additional articulation or an increased fenestration pattern to reduce the Block 6 ground-level blank facades. In addition, Staff recommends the applicant relocate the Block 6 wharf vehicle storage to promote a stronger pedestrian-activated façade facing the waterfront and discourage marine vehicles within the pedestrian plaza.

e. **Articulation:** The Block 4,5 & 6 buildings relate with similar proportions with a clear masonry base that varies in materiality for each building that staff finds is appropriate. The organization of horizontal patterns throughout the middle portion is complementary at each building. Building tops terminate with a simple parapet, while Block 5 encapsulates the elevator overrun and mechanical penthouse with a metal screen with numerous angles.

f. **Materials:** Materials shall reflect the historic character of Portland's waterfront. Each building employs a variety of exterior materials and rhythms to complement a contemporary architectural style. Staff will continue to review materials based on future historic preservation board meetings for consistency throughout the development.

- Block 4 Townhouses along Fore Street: The exterior material context of the surrounding neighborhood includes the use of brick, natural stone, and clapboard siding. Based on the architectural renderings, the brick façade, framed windows and roofline articulation separates the Block 4 Townhouse from the internal Block

4 building design. The applicant shall provide exterior material selection on elevations for staff review.

- Block 5: Staff requests exterior finish material palette imagery for Block 5. Staff is concerned with the reflective infill panel due to glare at the northwest elevation and requests the applicant provide additional narrative and materials for review.
- Block 6: Staff recommends consideration of a larger format stone to respond to a larger building scale, in addition to historic preservation staff reference to the more monumental stone material found in the nearby context. The proposed stone cladding at the west elevation seems generally out of scale with the mass of the building, staff recommends the applicant consider a horizontal rainscreen panel material above a stone cladded base.



3. <u>Pedestrian Environment:</u> Staff finds the Block 4,5 & 6 development generally fosters a walkable pedestrian environment through a unified streetscape at the Thames Street extension with unique surface paving, street trees and lighting. Staff finds the Block 4 Fore Street pedestrian environment to be insufficient and suggests the applicant minimize any encroachments into public right of way to allow for ample sidewalk widths, plantings and pedestrian amenities where possible. Staff recommends a greater concentration of street trees, the applicant should consider a street tree alternative for new trees within the view corridors of St. Lawrence Street and Atlantic Street or allow for street trees within the private property along Fore Street that would require building recessions at the street-facing Block 4 Townhouse facades.

4. <u>Primary Entrances and Service Entrances:</u> Staff supports the clearly articulated primary entrances expressed with distinct materiality at each building as a unifying building component throughout the development. Service entrances appear to be internal to the site with shared infrastructure. Staff finds the service garage doors at the shared street-facing facades reduce the pedestrian experience and recommends the Block 5 loading dock adjust away from spa and fitness entrance, if possible, to consolidate the rooftop bar entrance (see image below).



Staff finds the building entry south of the garage parking entry at the west elevation is not clearly articulated (see image below), the applicant shall provide additional architectural elements such as a canopy or additional fenestrations that correspond to the Block 4 West Wrapper.



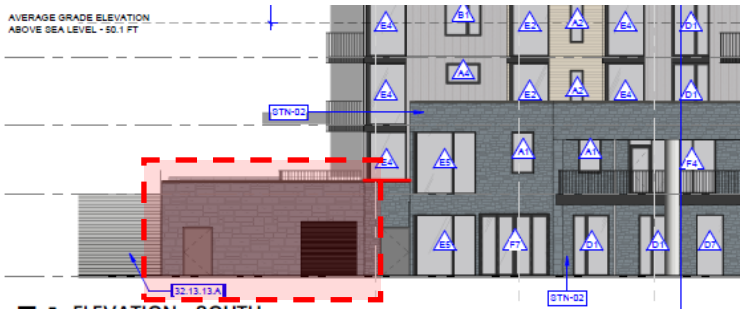
5. <u>Parking Structures:</u> The proposed parking structures are mostly concealed in the developed with minimal vehicular access points that staff supports.

6. Infill and Small Scale Development: The development along Fore Street of Block 4 creates a new street wall that is compatible with the existing residential scale of the surrounding neighborhood, along with observing view corridors.

7. Historic Structures: A portion of the Block 4 development is within the Portland Company historic district and a portion of the Block 6 development is within the Munjoy Hill historic district, both are subject to Historic Preservation Board review and applicable design standards. The applicant shall incorporate Historic Preservation board reviews that impact the design of the overall development.

8. Civic Structures: Not applicable

9. Marine Development: Staff observes the Block 6 marine support loading area, service entry and garage door located adjacent to the lower plaza between Block 5 and Block 6. Staff finds the activation of the Block 6 pedestrian-oriented plaza and associated retail uses adjacent to the railroad right of way conflicts with the location of the marine support loading area. Staff recommends the applicant relocate to avoid potential conflicts with vehicles and pedestrians. Staff will review additional railroad right of way crossings as needed as shown in the minor site plan amendment PL-002252-2022.



Open Space and the Public Realm: *The character of public streets and sidewalks is the primary determinant of the quality of the public realm...is further defined and enhanced by the incorporation of quality open spaces...*

1. Public Open Space and Plazas: Public open spaces are oriented toward the water and accessible from adjacent streets, sidewalks and the Eastern Promenade trail. Plazas within the development include durable materials and scaled outdoor amenities such as trees, plantings and furnishings. Staff supports the pedestrian access points from Fore Street at the St. Lawrence view corridor to allow pedestrians to transition the topographic changes by way of expansive exterior staircases and a publicly accessible courtyard with pedestrian amenities at Block 4.

2. Private Open Space and Plazas: Private open spaces are adjacent to Block 4,5 & 6 retail uses to allow for seating and entries. Internal private open spaces are unique to each building through shared courtyards, rooftop terraces and private balconies for residents. The applicant shall confirm if any shared private open space (e.g. balconies, terraces, etc.) is proposed for Block 5.

3. Historic Sites: The applicant shall observe the Portland Company historic district previous interpretive historic program for Block 2 to inform potential opportunities to engage signage, artwork, and/or industrial heritage of the historic site.

4. Public Art: Staff observes mural artwork in Block 4 to enhance the vitality of the development, the applicant shall investigate additional opportunities to incorporate public art into the development with an emphasis on key focal points (e.g. view corridors, streets and plazas).

5. View Protection: The Block 4,5 &6 development protects defined view corridors through the site and identifies focal point areas where plazas are proposed.

Surface Parking and Vehicle Queuing: *The areas devoted to surface parking and vehicle queuing should be minimized as much as possible and visual impact of such areas should be mitigated through buffering and landscaping…*

1. Limit impact: The project predominantly uses structured parking and does not include vehicle queuing. A small number of surface parallel parking spaces are proposed at Thames Street extension with lighting and bollards.

2. Shared Use and Partnerships: Not applicable.

Water's Edge: *The interaction of land activities with harbor activities creates the essential value and character of the Eastern Waterfront district…The successful accommodation of a diverse mixture of people and activity through quality design will best maximize the value of the water's edge.*

1. Intermodal Transportation: Not applicable.

2. Berthing and Upland Development: Not applicable.

3. Public Access to Water: The applicant shall incorporate railroad crossings appropriate to the intended use, staff finds that the conflicts between pedestrians and marine service vehicles shall be minimized to the greatest extent possible.

4. Non-Automotive Travel Opportunities: Not applicable.

5. Recreation and Excursion Integration: Not applicable.

6. Amenity Design: The development provides appropriate site amenities with relationship to the water's edge.

7. Lighting: The development provides exterior lighting appropriate at view corridors. Staff requests additional lighting plans and fixture information associated with the Block 5 & 6 buildings to include façade mounted fixtures.

8. Visual Access: Not applicable.

9. View Protection: Staff finds the development preserves views towards the water sufficiently with building massing, organization of public open space and public access points from the Eastern Promenade Trail.

10. Parking: Not applicable.

C. City of Portland Design Manual

(g) EWPZ Eastern Waterfront Port Zone and B6 Eastern Waterfront Mixed Use Zone: *Eastern Waterfront design standards: All major and minor development viewed under the provisions of the eastern waterfront zones shall be designed to support the development of this urban neighborhood as a dense, mixed-use, pedestrian friendly neighborhood.*

Staff comment: Staff finds the development generally supports a dense mixed-use development that creates a pedestrian friendly neighborhood through design elements employed with the internal streetscape design, relationship of buildings to each other and integration of publicly accessible pedestrian plazas.

(i) Two-family, special needs independent living units, multiple-family, lodging houses, bed and breakfasts and emergency shelters.

a. Proposed structures and related site improvements shall meet the following standards:

1. *The exterior design of the proposed structure, shall be designed to complement and enhance the nearest residential neighborhood.*

Staff comment: The development relates to the existing residential character along Fore Street and establishes a new architectural character with relationship to the Portland Company site and the waterfront.

2. *The proposed development shall respect the existing relationship of buildings to public streets.*

Staff comment: The development creates a strong relationship of buildings to public and private streets.

3. *Open space on the site for all multiple-family development shall be integrated into the development site.*

Staff comment: The development of Block 4 & 5 integrates open space within the building through shared courtyards, balconies and roof terraces. Staff observes a green roof in the view corridor of Block 5 along with rooftop amenities specific to the upper condo units. Staff finds that Block 5 does not address open space for each residential unit and requests the applicant provide additional open space (e.g. balconies, shared roof terrace or other outdoor space) and an architectural narrative to meet this design standard.

4. *The design of proposed dwellings shall provide ample windows to enhance opportunities for sunlight and air in each dwelling in principle living areas and shall also provide sufficient storage areas.*

Staff comment: Staff observes ample windows at each residential unit for Block 4,5 & 6 buildings to meet this standard.

5. *The scale and surface area of parking and driveways and paved areas are arranged and landscape to properly screen vehicles from adjacent properties and streets.*

Staff comment: Not applicable, no surface parking proposed adjacent to buildings.

6. *Multiple-family dwellings shall not be converted to lodging houses unless all units in building have been vacant for at least one (1) year.*

Staff comment: Not applicable.

58 Fore Follow Up: Height Calculation and Average Grade

Charles Tetelman <ctetelman@portlandmaine.gov> Fri, May 5, 2023 at 4:27 PM
To: Lauren Swett <lswett@woodardcurran.com>, Darrin Stairs <DStairs@woodardcurran.com>
Cc: Christine Grimando <cdg@portlandmaine.gov>, Kevin Kraft <kkraft@portlandmaine.gov>, Matt Grooms <mgrooms@portlandmaine.gov>
Bcc: Evan Schueckler <evans@portlandmaine.gov>

Dear Lauren and Darrin,

As Planning staff continue to review the proposed site plan application for Blocks 4, 5, + 6, we want to provide feedback on open questions about height calculations ahead of providing full review comments related to design and public right of way encroachments, which will follow next week. Back in March, Planning staff met with the applicant team to discuss elements deemed critical to the application, including MDP programming, height calculations, the parking plinth (alternately, the common foundation), phasing plan, and the potential inclusion of Block 5. The applicant team has since provided a response and updated numbers regarding MDP Programming, updated site plans and drawings to include Block 5, and submitted a Phased Construction Plan (now needing updates given the addition of Block 5). Updated documents and drawings were submitted on April 14. However, the updated submission did not clarify some key questions and Planning as well as Permitting staff continue to have concerns and questions about the methodology being used for average grade and height calculations, detailed below.

The MDP application put forth the idea that the site would included *pedestal parking forming a continuous foundation for an overall building structure, for the purposes of measuring average grade, a common foundation of parking would be measured as a single overall building structure*, and in the current application, the CPB2 team has stated that the pedestal parking formed a continuous foundation for the overall building programming composing Blocks 4, 5, + 6. As it relates to measuring average grade, this common foundation would be measured as the basis of a single overall building structure. City staff has consistently affirmed that taking measurements from a common foundation was acceptable, however, the current submission materials do not provide details that show a single continuous, common building foundation. The construction phasing documentation also shows separate foundations being laid for distinct buildings. Furthermore, Portland Foreside has chosen to use three different architecture firms for each phase lending itself to less clarity on how the proposal is a unified structure. Utilizing three different architecture firms is by no means prohibited but this, combined with the applicant's inability to clearly articulate how the three blocks are structurally one, signals a lack of unification of the design. If the applicant is not intending to show a common foundation upon which building masses rest to comprise Blocks 4, 5, + 6, the applicant is always free to present the three blocks as three distinct buildings with revised elevation measurements.

In addition to the need for clarification and documentation of a common foundation that City staff can verify, there are other methodology concerns with the submission. "Phase 2 Average Grade Plan" identifies six total points including elevation taken at four corners of the site (13 ft., 18 ft., 52 ft., and 87 ft.) as well as two taken from the retaining wall perpendicular to Fore St. along Block 4 (55 ft.) and the retaining wall adjacent to Block 6 (75 ft.). Retaining walls cannot be included as part of the average grade measurements as they do not reflect the elevation of the ground surface of the building. Please provide revised points that reflect where the building actually touches the ground surface.

Planning staff are requesting documentation that demonstrates that what has been highlighted as the plinth is serving as the single foundation for Blocks 4, 5, and 6, and by extension confirming that Blocks 4, 5, and 6 constitute one structure on top of that common foundation. Please submit an updated average grade plan that includes clarification of the foundation while also conforming to either of the average grade calculation methods that the City has confirmed as acceptable for calculating height (described as consistent and appropriate with the methods of calculating height (as memorialized in the 2016 MDP submission: *Average grade is calculated by averaging the proposed ground surface elevation at the building corners or by averaging the proposed ground surface elevation at some set interval around the perimeter of the proposed building)*.

In addition, we're still awaiting height calculations of the Block 2 townhomes. It was also brought to staff's attention during a May 3rd meeting that the applicant team has made revisions to the Block 4 townhomes which have not yet been submitted, and we look forward to reviewing them.

Determining the heights of the proposed buildings is an open, critical question of the project's compliance with Portland's zoning, and clarifying the existence of a common foundation and correcting the average grade points are fundamental to the site plan review progressing through the public review process. We will schedule the application for its next Planning Board workshop when we can confirm that it meets zoning requirements. Please submit materials that address these items as soon as you are able.

Best,

Charles
--
Charles Tetelman
Planner
ctetelman@portlandmaine.gov || 207-874-8724
Planning & Urban Development Department
City Hall - 4th Floor, 389 Congress Street
Portland, Maine 04101

Planning & Urban Development
Christine Grimando, AICP
Director

To: Brandon Mazer, Chair, and members of the Planning Board

From: Christine Grimando, Planning & Urban Development Director

Date: June 30, 2023

RE: Master Development Plan Pending Proceeding

A question was raised in the course of the review of recent site plan applications for Portland Foreside/58 Fore Street, regarding whether a Master Development Plan (MDP) approved under a previous iteration of the Land Use Code (Code) was subject to the expiration provisions of the current Code, or whether the section in the Code in place at the time of MDP approval (for 58 Fore Street, December 2016, but the question extends to all MDPs) would apply. The Planning & Urban Development Department has determined the current Code's expiration section applies to this and other previously approved MDPs. Discussion of prior and current expiration sections, how pending proceeding is determined, and how the applicable Code standard is determined follows below.

MDP Expiration Under 2016 & 2023 Versions Of The Land Use Code
The current Code states:

> *Master development plans approved under this article shall expire six years from the date of approval if no site work or building construction has commenced.* (sec. 14.12.2) and *Master development plan approvals may be extended by the Planning Authority up to two times, for up to two years from the date of expiration of the original master development plan approval.* (sec. 14.13.4).

The Code in effect in December 2016 states:

> *Master Development Plan approval may be sought separately or currently with the Phase I Final Level III site plan approval, and shall have an initial approval period of six (6) years, with potential extension periods as provided for in section 14-532(d). (14-524(f)(i))*
>
> *Prior to the expiration of the Master Development Plan, an applicant may submit a written request to the Planning Authority for an extension of a Master Development Plan approval and associated waivers. Only two (2) such extensions may be granted by the Planning Authority, and*

each such extension shall be limited to two (2) years from the date of expiration of the Master Development Plan. (14-532(d))

The expiration language currently in effect means that once site work has commenced, the MDP won't expire, whereas the 2016 MDP expiration language included a finite 10 year end, assuming two two-year extensions were granted. Under the current and 2016 versions of the Code, Individual Site Plan approvals, including those that are part of an MDP, expire in one year, with possible extensions up to a maximum of three years. Lapses in construction for a period in excess of 12 months will also result in a site plan expiration. (2016 14-532(c)(1), 2023 14.12.1; 14.13.3)

Pending Proceeding

Pending proceeding is a term that, in context of development applications, indicates that substantive review has begun, which, in turn, determines which set of regulations an application is reviewed under. For the purposes of applications that are within the jurisdiction of a land use (Historic or Planning) Board, pending proceeding status is conferred when the Board holds its first review, whether that is a workshop or public hearing. For the purposes of administrative/staff reviewed applications, this occurs when the first substantive comments are provided. For applications in-review when the City adopts, through Council action or referendum, amendments to the City Code, it is important to understand whether an application is pending in order to determine what standards they are held to. A submitted application, accepted for the purposes of beginning review, does not have pending proceeding status, but a development application that has been before the Board for an initial workshop does, and may continue in the review and approval process under the Code in effect at the time of the first workshop.

Determining when an application has pending proceeding status is not outlined in the Land Use Code, but there are two references to the term in the Land Use Code: 1) Section 14.5.1 states that voluntary, non-binding pre-application meetings do not confer pending proceeding status; and 2) Section 14.3.2 (formerly 2016 Section 14.524(f)(iv)) states MDP a*pproval shall confer pending proceeding status upon the development with the effect of maintaining the applicability of regulations in effect at the time of approval for as long as the master development plan approval remains valid, including permissible extensions if granted*.

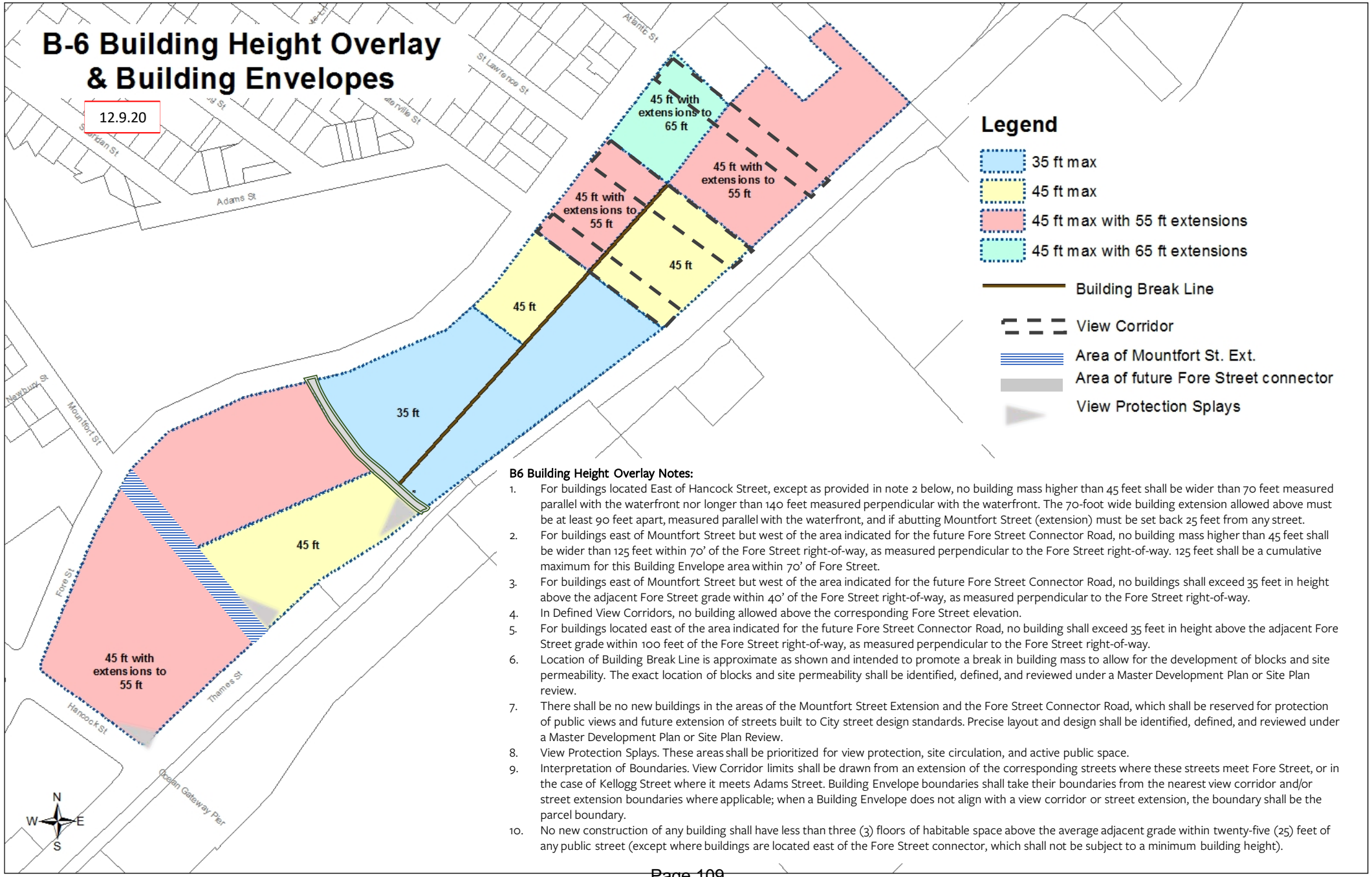
Sec. 14.3.2 is the reason a subsequent site plan application (or subdivision application where applicable) that is a component of an MDP is still reviewed under the regulations in effect at the time of the MDP approval, even if standards of the Code are amended over time. Pending proceeding status is one of the benefits of an MDP approval, and it offers a degree of regulatory predictability for both property developers and the City for these large multi-year phased projects. Without pending proceeding status, it would be difficult to predict all of the potential regulatory changes that could impact a project that is expected to be built out over years. For instance, if maximum heights were reduced, or minimum parking standards increased (to name a few examples of standards that could change over time in the City's Code), site plans that are phases of previously approved MDPs are not held to more stringent or restrictive standards that were adopted during a valid MDP approval period.

Though an MDP and its associated applications have pending proceeding status for the life of the MDP's approval, nothing *prohibits* an applicant of an MDP approved under a previous version of the Code from seeking review under the current version of the Code. Becoming more conforming with the adopted Land Use Code is generally something the standards encourage; a previous approval may proceed under the Code it was reviewed under, but it is not compelled to remain non-compliant with current standards.

In the event an applicant proposes to develop a site to meet current regulations that differ from the regulations in effect at the time of MDP approval, they may do so. However, substantive changes to an approved MDP would require an amendment, and substantive amendments related to areas of the Code that have been changed since the application was originally approved would be reviewed under the current Code. An applicant with an approved site plan who wishes to make use of a new provision in the Land Use Code is also free to apply for an amendment, and this also could subject them to new sections of the current Code if the amendment broaches sections that have since been amended. For example, a proposed change to the total housing units would be reviewed for consistency not only with residential density standards, but with other applicable Code requirements such as inclusionary zoning; or, as previously mentioned, if maximum heights were lowered since an approval was granted, and an amendment to a prior approval was submitted to alter heights of buildings, the new standards would apply.

B-6 Building Height Overlay & Building Envelopes

12.9.20



B6 Building Height Overlay Notes:

1. For buildings located East of Hancock Street, except as provided in note 2 below, no building mass higher than 45 feet shall be wider than 70 feet measured parallel with the waterfront nor longer than 140 feet measured perpendicular with the waterfront. The 70-foot wide building extension allowed above must be at least 90 feet apart, measured parallel with the waterfront, and if abutting Mountfort Street (extension) must be set back 25 feet from any street.
2. For buildings east of Mountfort Street but west of the area indicated for the future Fore Street Connector Road, no building mass higher than 45 feet shall be wider than 125 feet within 70' of the Fore Street right-of-way, as measured perpendicular to the Fore Street right-of-way. 125 feet shall be a cumulative maximum for this Building Envelope area within 70' of Fore Street.
3. For buildings east of Mountfort Street but west of the area indicated for the future Fore Street Connector Road, no buildings shall exceed 35 feet in height above the adjacent Fore Street grade within 40' of the Fore Street right-of-way, as measured perpendicular to the Fore Street right-of-way.
4. In Defined View Corridors, no building allowed above the corresponding Fore Street elevation.
5. For buildings located east of the area indicated for the future Fore Street Connector Road, no building shall exceed 35 feet in height above the adjacent Fore Street grade within 100 feet of the Fore Street right-of-way, as measured perpendicular to the Fore Street right-of-way.
6. Location of Building Break Line is approximate as shown and intended to promote a break in building mass to allow for the development of blocks and site permeability. The exact location of blocks and site permeability shall be identified, defined, and reviewed under a Master Development Plan or Site Plan review.
7. There shall be no new buildings in the areas of the Mountfort Street Extension and the Fore Street Connector Road, which shall be reserved for protection of public views and future extension of streets built to City street design standards. Precise layout and design shall be identified, defined, and reviewed under a Master Development Plan or Site Plan Review.
8. View Protection Splays. These areas shall be prioritized for view protection, site circulation, and active public space.
9. Interpretation of Boundaries. View Corridor limits shall be drawn from an extension of the corresponding streets where these streets meet Fore Street, or in the case of Kellogg Street where it meets Adams Street. Building Envelope boundaries shall take their boundaries from the nearest view corridor and/or street extension boundaries where applicable; when a Building Envelope does not align with a view corridor or street extension, the boundary shall be the parcel boundary.
10. No new construction of any building shall have less than three (3) floors of habitable space above the average adjacent grade within twenty-five (25) feet of any public street (except where buildings are located east of the Fore Street connector, which shall not be subject to a minimum building height).

jt2 portland me <joantwin2jean@gmail.com> Dec 8, 2022, 6:22:04 PM (16 hours ago)

to planningboard@portlandmaine.gov

Oh my fing god! Not more people on the prom! 700 parking spaces and fing expensive 401 condos. We have had enough! Stop it! It's bad enough you ruined 218 Washington ave with an ugly condo box. I am a senior citizen who lived at eastern prom for 30 years. You have ruined it with developers! Greedy fing bastards.

Denise Preisser <depreisser@hotmail.com> Dec 10, 2022, 9:36:22 AM (yesterday)
to planningboard@portlandmaine.gov

Greetings,
I received a card in the mail in regards to site plan submission. I am very concerned about a wall of buildings between Waterville and St. Lawrence and St. Lawrence and Atlantic.

The original design had 5 view corridors for walkers to enjoy up and down Fore Street. The new design on the white model has built a wall of dwellings with only 3 openings at the street intersections. I do think the design would be more neighborhood walking friendly for Munjoy Hill residents and visitors of the original plan of 5 openings was used, in addition to, create some mini park outcrops with benches tucked in on the Fore Street hill for pedestrians to have a relaxing view spot.

I am also concerned with that wall of dwellings causing a lack of sunlight hours on Fore Street in winter. Very steep hill and sunlight does wonders melting snow. The street with those dwellings would lose 2 hours of morning sunlight in winter.
I hope you continue to work on creating a nice Munjoy Hill neighborhood vibe, rather than a wall between the neighborhood and water. The original design, created space rather than Building the Wall.
Best Regards,
Denise Preisser

FORESIDE/

HOME OVERVIEW PORTLAND NEIGHBORHOOD BLOCKS CONTACT INVESTORS





Susan Green' via Planning Board
to planningboard, Susan

Hello:

I am a resident of The Portland House at 45 Eastern Promenade in Portland and am very interested in the proposed development of the parcel immediately adjacent to our property on the Old Port side.

I tried to find more information using the plan number referenced above, however, was unable to locate any summary or drawings of the proposal on the Citizen's Self Service Portal.

We are particularly interested in seeing elevations of the the new proposed condominium development adjacent to The Portland House. What would be helpful is an elevation showing how tall the new condominium will be in relation to the Portland House, including any structures to be located on the roof, such as antennas, HVAC structures, elevator vestibules, etc. We are very concerned about the views from our building, which has been there since about 1969, being blocked by the new condominium. That would destroy the property values of the units that lose their views.

Hoping someone in your department can help by forwarding the requested elevations and also floor plans. If the developer has not provided such elevations, they must be required to do so.

Thank you very much for any help you can provide.

Best regards,

Susan Green

45 Eastern Promenade
Apt. 6FG
Portland, ME 04101

Sandra L. Guay
Partner
sguay@archipelagolaw.com

1 Dana Street
Portland, Maine 04101
(207) 558-0102

December 28, 2022

Via Email:
Portland Planning Board
Maggie Stanley, Chair
C/O Kevin Kraft, Deputy Director
City of Portland Planning & Urban Development
389 Congress Street
Portland, ME 04101
kkraft@portlandmaine.gov

Re: Portland Foreside Development Company
58 Fore Street/Mixed Use of Blocks 4 and 6
Major Site Plan Review Application

Dear Madam Chair and Board Members:

This firm represents John Roger Trettel, the owner of property located at 5 Eastern Promenade, and a direct abutter to the 58 Fore Street Master Development Plan project. Mr. Trettel objects to the recent Portland Foreside Development Company application ("Application") for the mixed use of Blocks 4 and 6 for multiple inconsistencies with the City of Portland code. While we represent Mr. Trettel only in this matter, be advised that the undersigned has heard from others in the community who express similar concerns. In the interest of brevity, this letter focuses on several of the more egregious inconsistencies, each of which are grounds for termination of Planning review, as presented below.

I. The Master Development Plan Approval Has Expired.

First and foremost, there is at present no valid Master Development Plan ("MDP") approval for 58 Fore Street and any current applications must therefore be reviewed as non-MDP related Major Site Plan developments pursuant to the 2022 Land Use Ordinance.

On December 20, 2016, the Portland Planning Board granted approval of a Master Development Plan for a mixed-use development on approximately 10 acres of land at 58 Fore Street. As an integral part of that approval, Standard Conditions of Approval & Requirements, Section 3, "Master Development Plan Expiration" states that:

> An approved master development plan shall expire six (6) years from the date of approval unless, prior to the expiration of the master development plan, a written

> request for an extension is submitted to the Planning Authority. Only two (2) such extensions may be granted by the Planning Authority, and each such extension shall be limited to two (2) years from the date of expiration of the master development plan. The Planning Authority may grant an extension provided there have not been substantial changes to the underlying zoning or site plan standards since the date of the master plan development plan approval that would have a substantial impact on approval. The Planning Authority may condition the extension on an amendment of the master development plan to comply with such applicable ordinance or site plan standard changes per section *14-532(d)* of the city's land use ordinance. Approved major or minor amendments to a master development plan do not alter the expiration date for the master development plan.

The Section 3 MDP Condition language is also found in Section 14-532(d) of the Portland Land Use Ordinance, Expiration of Master Development Plan, effective on the date of the 2016 MDP approval.

There is no evidence that the applicant has ever submitted a written request for any extension to the 2016 MDP, and furthermore no evidence that the Planning Authority has ever made a determination in response to such a request that there have been no substantial changes to the underlying zoning or site plan standards (which would include, at a minimum the City's recent Inclusionary Zoning requirements). As such, that approval has now expired and there can be no further reviews undertaken or permits issued under the terms or conditions of that 2016 MDP approval. Any further site plan approvals must be subject to the Major Site Plan standards and requirements as found in the 2022 Land Use Ordinance.

II. The Proposed Development is Outside of the Master Development Plan Boundary.

The proposed site plan for Block 6 includes portions of three parcels of land, identified as 13-23 Eastern Promenade, which were purchased by the developer on December 28, 2021, a full 5 years after the MDP was approved and potentially adding up to 33,323 square feet to the project. Furthermore, these appended properties are not located in the B-6 zone, but rather in the R-6 zone and in the Munjoy Hill Neighborhood Conservation Overlay District and therefore subject to different and enhanced ordinance standards and regulations.

The 2016 Land Use Ordinance only provides a methodology for the Planning Authority to permit *minor* amendments to still effective Master Development Plans, and then only upon written application and explanation of the changes by the applicant. (14-532(b)(1)(a)). A minor amendment is defined as one that is generally consistent with the approved MDP layout of buildings, circulation infrastructure, and open spaces and: (i) does not propose a new general type of use: (ii) does not increase building ground coverage, floor area ratio or residential density; (iii) does not decrease any specified area regulations or enumerated parking rations; and (iv) does not

substantially change access, circulation, or infrastructure adjacent to the site. The application does not describe a minor amendment.

Neither the 2016 Land Use Ordinance, nor the 2016 MDP, provide *any* avenue for a major, substantive amendment to an MDP (such as expansion of the boundaries of the original MDP by the addition of new land located in a different zone); if permitted, presumably it would require a complete application, public hearings and Planning Board approval. Furthermore, any such consideration of a major amendment to expand the previously approved land area of a MDP must be in compliance with current zoning standards and requirements.

III. The Proposed Development Exceeds Height Restrictions on Numerous Grounds

The proposed site plan does not comply with height restrictions on numerous, interrelated and various grounds. The Code defines "height" as the "vertical measurement from grade" to the highest point of the roof or structure.[1] "Grade" is not defined, although throughout the Code, there are multiple indications that creative design and use of topography is not a permissible end run around height regulations.[2] There is nothing in the Code that codifies "average development grade" as the lawful beginning point for measuring height.[3]

No final building plans were submitted or approved as part of the MDP in 2016, and the Planning Board's review and approvals were clear that compliance with applicable height standards for the B-6 Overlay would be undertaken on an individual, envelope-by-envelope basis at the time of the final site plan application.

The B-6 Building Height Overlay imposes height restrictions of 45 feet, with extensions up to 55 or 65 feet (as in another 10 or 20 feet) across the distinct building envelope areas. The B-6 Height Overlay prohibits buildings that exceed 65 feet in height. As depicted in the Master Plan renderings, "grade" of the site (in particular development Blocks 4, 5, and 6) show the existing grade as at or around approximately 12' above sea level, with sharp increases in topography closer and up to Fore Street. The Portland Company property has long existed as a developed site and there is a defined existing, developed grade.[4] At a minimum, it is from the existing site grade that

[1] This definition is more or less consistent in the 2014 City Land Use Code (as amended 2016) and the current 2022 Code.

[2] For example, the definition of "story" states in relevant part, "A basement shall be counted as a story for the purpose of height measurement where more than one-half of its height is above the average level of the adjoining ground." Portland, Me. Code, Sec. 14-47 (2016).

[3] Assuming that the Code effective in 2016 applies, there are only a handful of references therein to "average grade," none of which apply to the B-6 Height Overlay. This strongly suggests that the drafters of the Code did not intend for "average grade" to control in analyzing the B-6 Height Overlay.

[4] The unique topography of the Eastern Prom in this area, with 88' of topography change from the shore up to Fore Street, has long been a known consideration of City planning and policy. *See, e.g.*, Design

the B-6 Overlay for height must be calculated. These are the existing conditions; the applicant (as explained further below) cannot manipulate the earth or the numbers in a manner that would render height restrictions meaningless. The proposed plans submitted depicted buildings that stand up to 115 feet, more than double the 45' height restriction (and well beyond the contemplated extensions), well beyond and clearly contrary to the height restrictions for the B-6 Overlay.

Ordinances must be interpreted with common sense to avoid absurd or inconsistent results. *See Fryeburg Tr. v. Town of Fryeburg*, 2016 ME 174, ¶ 9, 151 A.3d 933 ("[W]e may reject any construction [of an ordinance] that . . . creates absurd, illogical, unreasonable, inconsistent, or anomalous results if an alternative interpretation avoids such results." (citation and quotation marks omitted)). A Planning Board interpretation of the height restrictions and calculations that would permit buildings standing 110' in a zone where buildings over 65' are prohibited is an absurd and unreasonable result.

The City cannot allow a methodology for defining "grade" and measuring heights that renders height restrictions meaningless. Moreover, the Planning Board has no authority to amend the height restrictions through manipulation of the grade calculation in an adjudicatory role; the substantive determination for height standards and restrictions has been made by the legislative authority and can only be changed by the legislative arm of City government, the City Council.

A. The use of the "pedestal" or "podium" parking garage to elevate the development is a creative, but unlawful, end run around the clear intent of the B-6 Overlay to restrict heights and contain each building/structure within defined envelopes.

To maximize purported "average grade" of the site, the developer proposes a massive parking structure that straddles a significant footprint of the site. The parking structure is presented as a "pedestal" or "podium" parking garage that spans across multiple building envelopes as depicted on the B-6 Overlay map. This is contrary to the B-6 Overlay, which requires that each proposed building stay within each of the contemplated building envelopes. This makes sense because the height restrictions are keyed to the building envelopes, which vary across portions of the site. The proposal then assumes that the constructed garage structure will constitute one structure that already has a height of 50.1', which is then proposed as the starting point for calculating building height. This method uses purported "grade" (which is really the height of the garage structure) as a springboard to launch the heights of the buildings over 100 feet where the height restrictions would call for buildings half as tall. This is clearly contrary to the letter and intent of the Code and the B-6 Overlay.

Guidelines, Master Plan for Redevelopment of the Eastern Waterfront. The site's topography has never been considered a means to artificially remold the promenade and peninsula to suit developer ambitions contrary to height restrictions.

B. The assumed average grade of the site of ~50 feet is wrong.

The City and applicant has calculated average grade for Blocks 4, 5, and 6 at 50.1 feet. "Average finished grade" is not a lawful land use standard and is contrary to industry standards for professionals. This assumption is using a simplistic, misleading, and flawed methodology that would not be used by a licensed professional engineer or land surveyor for determining cut and fill calculations and ultimate finished grade of a building site. Even taking the unlawful "average finished grade" as an appropriate legal or professional standard for purposes of argument, the calculation of 50.1 is wrong. In fact, average elevation across the area calculates to around 36 feet, even if consolidating the grade outside the defined building envelopes rather than analyzing each building/structure as required by the Code and B-6 Overlay.

C. The Master Development Plan is inconsistent with the City's Comprehensive Plan and Other Binding Regulatory Documents

Even if the Master Development Plan approval had not expired, and the methodology for calculating grade and height is somehow lawful and preserved by the 2016 approvals, those approvals are void and invalid for inconsistency with the City's Comprehensive Plan, in particular the Eastern Waterfront Master Plan, the Eastern Waterfront Building Height Study, which called for height calculations to be measured from 2' above floodplain, not developed grade, and specifically limited the number of stories and elevations of structure to not exceed the grade of Fore Street.[5] The proposal is also not consistent with the Portland Company Historic District, for among other reasons, the proposed buildings and structures would obscure views various perspectives, including from the water, looking back towards the peninsula. The massive heights of the buildings would also obscure views to and from the Munjoy Hill Historic District. On the face of the application and plans, the proposed structures are inconsistent with the letter and intent of the Master Plan, Ordinance, and Comprehensive Plan.

IV. The Application is Not Complete.

Despite the Workflow notation on the CSS online portal showing that the Major Site Development Plan Application is complete in fact it is not and consequently, there should be no further review of the application. As just one example of incompleteness, the application notes that various easements are required for the project. At the December 20, 2022 Neighborhood Meeting, it was identified that an additional easement would be required from an abutter, the Portland House Condominium Association.

[5] The Eastern Waterfront Building Height Study (September 2004) ("Study"), adopted into the E. Waterfront Master Plan and the City's Comprehensive Plan as it existed in 2015, formed the foundation and basis for the B-6 Height Overlay. In the area of the proposed new development, any building over four stories (one story is defined as 11 feet) has "has a maximum 70' width parallel with the shore and a maximum 140' length perpendicular to the shore." Per the Study, the maximum total number of stories permitted in this area of the B-6 Overlay is 5 to 6 floors.

The 2016 MDP *requires* that "[a]ll documentation of Right, Title and Interest on property pending acquisition [including easements] *shall* be included with application materials prior to any review of Level III Site Plan and/or Subdivision plan application." Sufficient evidence of an applicant's right, title, and interest is a threshold requirement for an applicant seeking land use development approval in order to establish the legal authority to utilize the permits in the manner proposed. Clearly, the project cannot be constructed as proposed without these easements first being obtained. The easement documents are therefore critical evidence of right, title and interest as required in the MDP, in Sections 14-527(c)(4) and (d)(9) in the 2016 Ordinance and in the current Major Site Plan General Document and Drawings Checklist, and the application cannot be deemed complete without them.

Yet another example of how the application is incomplete is that the plan provides only a vague idea for a critical retaining wall along Fore Street bordering Lot 4 and on the westerly and northerly side of Block 6 of the project, while noting that "[p]roject construction may require installation of tiebacks into property on adjacent land, including City land."[6] The Applicant has submitted no easements from private property owners or the City to allow for these tiebacks and no discernable design or engineering plan for the retaining wall. There is no indication of any alternate means of anchoring, or how the retaining wall will effectively retain the steep slope behind it. There is also no discussion about how this structure, which appears to be located directly abutting the Trettel property, meets setback requirements. Again, this is critical information that could alter the Board's review and that was not provided in the Application.

Beyond the issue of an incomplete application, the Applicant is utilizing valuable Planning Board time and resources to review a project that may need to be amended or ultimately be unbuildable because agreements for these easements cannot be reached.

We appreciate the Planning Board's evaluation of these points and look forward to a robust discussion at any scheduled meeting where the Portland Foreside Development Company, 58 Fore Street/Mixed Use of Blocks 4 and 6 Major Site Plan Review Application will be discussed and we ask to be added to the list of interested parties who will receive notice of any such meetings.

Very Truly Yours,

SANDRA L. GUAY

SLG/lb
Copy to:

Roger Trettel

[6] There is also no information on how this project may impact the historic Fore Street seawall.



JEREMY WINTERSTEEN <jrwintersteen22@aol.com> 4:28 PM (1 hour ago)
to planningboard@portlandmaine.gov, Charles Tetelman

1/9/23

Dear Planning Board,

Please accept these comments in regards to the 58 Fore Street project.

I objected earlier to the size and height of some of the project. In particular, I believe the City of Portland and the previous owner made a commitment to not have new buildings go higher than the plane of Fore Street. This building height restriction obviously did not carry the day as some of the new building heights are significantly higher than Fore Street.

My concern earlier, which others in the neighborhood also expressed, was the feeling of being walled off from the water. The developer said there would be view corridors but I view this term as an oxymoron.

I have heard that there will now be fewer “view corridors” and water access points than what was originally planned. Is this true?

The 58 Fore Street development is too big, is out of character for Portland and Maine, and mimics many other large scale urban developments that wall off water views and access.

I ask that you please don’t wall off Munjoy Hill from the water and that you do all you can to maintain some of the beautiful views and access points that Portland residents, Munjoy Hill homeowners, and visitors treasure so much.

Thank you for your consideration.

Sincerely,

Jeremy Wintersteen
9 Waterville Street

portlandbikeped

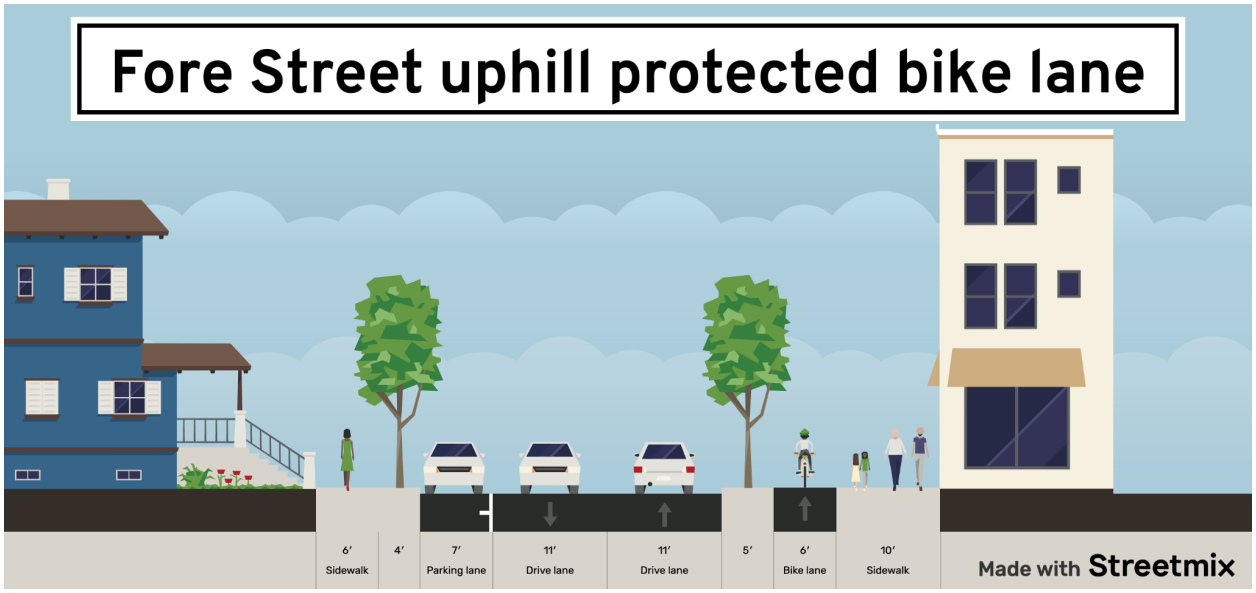
PORTLAND BICYCLE AND PEDESTRIAN ADVISORY COMMITTEE

January 9th, 2023

Dear Chair Stanley, Members of the Portland City Planning Board,

The Portland Bicycle & Pedestrian Advisory Committee requests that the Portland Company developers take the opportunity to install an uphill protected bike lane along the southern curb of Fore Street as part of their site plan approval for 58 Fore Street.

Because this project is proposing a large off-street parking garage and there's been no on-street parking on the south side of Fore Street for the past 2-3 years because of sewer construction, this would be a great opportunity to create a safer bike route – plus additional street trees with wider sidewalks – by replacing one lane of on-street parking along the southern curb of Fore Street with an uphill, protected, sidewalk-level bike lane between Munjoy South and Atlantic Street, as shown in this conceptual cross-section:



Note that placing any street trees on the outside of the bike lane would allow a small plow truck to plow the bike lane and sidewalk at once, not requiring any special snow clearing equipment.

Example from Western Ave in Cambridge MA:



Future city-led projects could potentially expand this facility all the way to and around the Eastern Prom, which has a very wide right-of-way.

Thank you for your consideration.

Sincerely,
The Portland Bicycle & Pedestrian Advisory Committee.
https://www.portlandbikeped.org

Winston Lumpkins, *Chair*
winston.lumpkins@gmail.com, 207-408-1508

Emma Scudder, *Vice Chair*
scudder.emma@gmail.com, 603-219-5190

The Portland Bicycle and Pedestrian Advisory Committee (PBPAC) is an ad-hoc group of Portland area residents who work to make the city a better place to walk, bicycle, and wheelchair. We advocate and educate on bicycle, transit, and pedestrian issues, including handicap accessibility, in collaboration with city offices and outside organizations.

Kellie Whiteston <kelliewhiteston@gmail.com> 8:31 AM (2 minutes ago)
to planningboard@portlandmaine.gov, planning@portlandmaine.gov

Dear Chair Stanley and Members of the Planning Board,

Please support the proposal that the Portland Company developers take the opportunity to install an uphill protected bike lane along the southern curb of Fore Street as part of their site plan approval for 58 Fore Street.

This would be a progressive and beneficial addition to the city we could all be proud of. It will create a safer and easier biking route connecting Eastern Prom to the Commercial Street and Old Port area as well as create a more attractive and functional space for all. There already hasn't been any parking available on that side of the street for a couple years. With the developer also proposing a large parking garage, there is potentially no conflict there. Additionally, the proposed side-walk level lane would also be easier to maintain with regards to snow removal.

Thank you for your consideration,
Kellie

Paul Fuller <pfuller91@gmail.com>
to planningboard, planning

Dear Portland Planning Board Members,

I'm writing to ask you to encourage the developers of the Portland Company project along Free Street to add a separated, protected bike lane as part of their project. Fore Street is potentially a much better access point to Munjoy Hill for cyclists, and a protected bike lane will be an extent stel towards improving the bicycle infrastructure in the city.

Thanks for your consideration.

Cheers,

Paul Fuller
6 Hemlock St
Portland, ME

Zack Barowitz

to Planning, Planning, Portland

Chair Stanley and members of the Planning Board;

Please support the proposed bike lane for Fore Street as it would be a great asset for the City of Portland to have a separated bike lane in this location. As we all know, the Eastern Prom is a spectacular amenity for our city and Fore Street presents and excellent connection to it from the Old Port. However that hill is steep so anything that can be done to make cycling up it a little less arduous would be most welcome.

Thank you,

Zack

John Clark <jmclark995@gmail.com> 8:45 AM (1 hour ago)
to planning@portlandmaine.gov, planningboard@portlandmaine.gov

Members of the Planning Board,

When reviewing the site plan this evening, please consider requiring a protected climbing bicycle lane be constructed as part of the new development at 58 Fore Street. The current lack of bicycle infrastructure at this section of Munjoy Hill creates an unsafe situation for bicyclists and motorists as it causes slow-moving bicycle traffic to compete with car traffic on the steepest part of the climb up the hill via Fore Street. The addition of a bicycle lane when the developer rebuilds the curbing would be an effective way for the city to gain vital bicycle infrastructure at little additional cost to the developer. This area is also a great fit for a climbing bike lane as there has been no parking along this corridor for the past few years due to construction. The already lack of parking combined with the developer's intentions of creating an off-street parking garage mean there is likely little-to-need for parking here, and would be better served by a bike lane.

I support the requirement of the addition of a climbing bike lane, and support the letter submitted to the Board by the Portland Bicycle and Pedestrian Advisory Committee regarding this matter. Thank you for your consideration.

Thanks,
--
John Clark (he | him | his)
225 Valley St, Portland, ME 04102
Past Chair, Portland Bicycle & Pedestrian Advisory Committee
(207) 712-0480

Winston Lumpkins <winston.lumpkins@gmail.com> 9:09 AM (24 minutes ago)

to planningboard@portlandmaine.gov, planning@portlandmaine.gov

Dear Chair Stanley, Members of the Portland Planning Board,

Last night the Portland Bicycle & Pedestrian Advisory Committee held our monthly meeting & voted to send a letter, which you've received, asking that a climbing bike lane along the Hill right before Fore Street becomes the Eastern Promenade be added to the Portland Company Site plan under review in the meeting to be held tonight. We had a large meeting last night, and there was no dissent.

Speaking as myself & not the Chair of PBPAC, just a resident of Munjoy hill who frequently cycles Fore Street on my way home from my job downtown, I'm very concerned about a potential parking garage with hundreds of parking spaces with the entrance part of the way up, if the status quo, narrow sidewalk, street parking & no bicycle facilities at all, is maintained.

It's important when considering plans for new development to ensure that, **at the very least, they don't put anyone's life in danger.** Increasing the amount of traffic on Fore street, while maintaining the current design without any bicycle facilities at all and with a very narrow sidewalk, **would be irresponsible.**

Furthermore, I'd like to request that the sidewalk remain concrete along the slope of the hill. When on foot I frequently take that side of the street in the winter because concrete is so much less slippery- turning it into bricks would be a step backwards.

I'd also like to request that in any approved plans the Portland Company is required to maintain a safe, passible, clear, not dangerous, paved connection to the eastern prom trail through its development. It's a key connection for a vast number of people who live off of Baxter Boulevard & outer Portland & cycle into work downtown- it's **not just a recreational path, and must remain intact & accessible at all times. If both Fore Street & the Eastern Prom trail are inaccessible & dangerous, downtown will essentially be blocked off for cyclists who live off the Peninsula.**

Thank you for reading my comments,

Sincerely,

~Winston

Winston Lumpkins IV (he/him/his)

Nat Jordan <natj@umich.edu> 10:47 AM (3 minutes ago)

to planningboard@portlandmaine.gov, planning@portlandmaine.gov

Dear Planning Board Members,

I'm a frequent bicyclist in and around Portland. Istrongly encourage you to work with the developers of the Portland Co. property to include a separated bike lane up Fore St. to the Eastern Prom. This would be an important step in working towards a safer bike network, would encourage car-free travel to and from the new development, and could connect to future separated bike lanes along the Prom.

Thank you for your work,

Nat Jordan

Karen Snyder <karsny@yahoo.com> 11:46 AM (1 minute ago)
to Planning Board, Christine Grimando

Dear Planning Board members,

There are many issues with this proposal submitted by the 58 Fore St developer for Phase 2. However, the primary fundamental issue with this proposal is:

- The Master Development Plan only has a 6-year shelf life which means it has expired since it was approved in 2016 and now it is 2023. So technically, this entire proposal that was submitted by the 58 Fore St developer is invalid.

With this said, there are additional issues and concerns regarding the content of the posted 58 Fore St Phase 2 proposal agenda documents. They are the following:

1. The 58 Fore St. agenda documents were only posted yesterday, Monday 1/9/2023 when they were required to post all documents this past Friday, 1/6/2023.
2. The primary parking garage entrance to the parking garage containing over 700 parking spots is at the bottom of Waterville St. The parking garage entrance at the bottom of Waterville St. is unacceptable and must be moved to either Thames St or use "Freedom Way" street that the City sold to the developer of the parking garage west of 58 Fore st.
3. The # of affordable units are using the old inclusionary 2016 guidelines of 10% which is only 29 units of the apartments. However, the developer said they will buy out the condos affordable unit. Since the master plan has expired, they should be using the new inclusionary guidelines of adding 20% of affordable housing and not do buyouts if they are so concerned about the neighborhood.
4. The developer said the heights of the buildings are 35ft above Fore St but that is only 100 feet FROM Fore St. It is unsure how much higher the developer will use the average grade trick loophole for the buildings that are farther than 100 feet from Fore St.
5. The light pollution of the multiple windows in the buildings. Just look at the shining light pollution beacon of the Covetrus building at night.
6. Implications of the damaged sea wall from the last big storm.
7. The View corridors width are not sufficiently wide enough.

   Ultimately, the City of Portland Planning Board is allowing one proposal at a time to destroy what made Portland once special which was the views of Casco Bay was for ALL residents from Fore St and not just for the wealthy.

Regards,
Karen Snyder
Waterville St.

Nat Jordan <natj@umich.edu> 10:47 AM (1 hour ago)

to planningboard@portlandmaine.gov, planning@portlandmaine.gov

Dear Planning Board Members,

I'm a frequent bicyclist in and around Portland. Istrongly encourage you to work with the developers of the Portland Co. property to include a separated bike lane up Fore St. to the Eastern Prom. This would be an important step in working towards a safer bike network, would encourage car-free travel to and from the new development, and could connect to future separated bike lanes along the Prom.

Thank you for your work,

Nat Jordan

John Russell <jtrussell13@gmail.com> 12:47 PM (2 hours ago)

to planning@portlandmaine.gov

Chair Stanley and members of the Planning Board;
Please support the proposed bike lane for Fore Street uphill protected bike lane. It would be a great asset for the City of Portland to have a separated bike lane in this location. Fore Street presents an excellent connection to the Eastern Prom from the Old Port. The proposal would make it safer for cyclists as well as pedestrians and disabled people. It would also help with maintenance.
Thank you,
J. T. Russell

Sandra L. Guay
Partner
sguay@archipelagolaw.com

1 Dana Street
Portland, Maine 04101
(207) 558-0102

March 17, 2023

Via Email:

Portland Planning Board
Maggie Stanley, Chair
City of Portland Planning & Urban Development
389 Congress Street
Portland, ME 04101
planningboard@portlandmaine.gov

Re: Portland Foreside Development Company
58 Fore Street/Mixed Use of Blocks 4 and 6
Major Site Plan Review Application

Dear Madam Chair and Board Members:

As noted in my December 28, 2022 letter, this firm represents John Roger Trettel, an abutter to 58 Fore Street and the mixed-use development project that is the subject of the Portland Foreside Development Company ("Applicant") site plan application currently pending before the Board ("Application"). As also noted in that letter, Mr. Trettel generally supports the mixed-use development project and the benefits that it will bring to the City's Munjoy Hill and waterfront area.

As an abutter to the project however, Mr. Trettel has followed the development of this site closely and is aware of its long and complex history. Although he did not own the 5 Eastern Promenade property at the time, Mr. Trettel is aware of the community conversations that took place back in 2015 when the property was rezoned to accommodate this project, and in 2016 when the Master Development Plan and Phase I site plan were reviewed and approved. Like many of his neighbors and others in the City, he is aware of the controversy that has surrounded the development since 2016 – including the after-the-fact requests for approval by the Applicant and the enforcement action taken by the City in 2021 and 2022 after repeated violations.

Given the history and context of the development of 58 Fore Street, it is critically important that the Applicant's proposal is compliant with all applicable standards and codes, and with the Planning Board and City Council's vision for the growth and development of the City of Portland. Along these lines, Mr. Trettel has significant concerns about the Application and the next phases of development and trusts that a meaningful resolution of these concerns might serve to avoid still more controversy and conflict for the City and the Munjoy Hill Neighborhood.

Attorney Keith Richard and I recently met with Kevin Kraft to discuss some of these concerns. We appreciate Kevin taking the time to meet with us and understand that the Application will be undergoing a more rigorous review process over the coming weeks and months. It is in this light that we offer the following comments and would ask that the issues raised in this letter are carefully considered and addressed by the reviewers and by the Planning Board.

I. The 2016 Master Development Plan (MDP) Approval has Expired and is Therefore Void.

On December 20, 2016, the Planning Board approved a Master Development Plan ("MDP") for the 58 Fore Street property (the "Property"). Both the City and the Applicant have since argued that the standards found in the Land Use Code in effect on December 20, 2016, apply to the current Mixed Use of Blocks 4 and 6 Major Site Plan Review Application and future development of the Property.

The 2016 MDP has only three "Standard Conditions of Approval & Requirements". The third condition, located directly above the signature of then-Planning Board Chair, Elizabeth Boepple, is captioned "Master Development Plan Expiration", and reads:

> An approved master development plan shall expire six (6) years from the date of approval unless, prior to the expiration of the master development plan, a written request for an extension is submitted to the Planning Authority. Only two (2) such extensions may be granted by the Planning Authority, and each such extension shall be limited to two (2) years from the date of expiration of the master development plan. The Planning Authority may grant an extension provided there have not been substantial changes to the underlying zoning or site plan standards since the date of the master plan development plan approval that would have a substantial impact on approval. The Planning Authority may condition the extension on an amendment of the master development plan to comply with such applicable ordinance or site plan standard changes per section *14-532(d)* of the city's land use ordinance. Approved major or minor amendments to a master development plan do not alter the expiration date for the master development plan.

This very same Section 3 MDP Condition language is also found in Section 14-532(d) of the Portland Land Use Ordinance, Expiration of Master Development Plan, effective on the date of the 2016 MDP approval.

It is without question that Section 14-532(d) is the controlling language for the 2016 MDP approval, yet at the January 10, 2023 Planning Board Workshop, this Board was informed by Planning staff that the criteria for expiration of the MDP was:

> Master development plans approved under this article shall expire six years from the date of approval if no site work or building construction has commenced.

This provision however is not from the MDP or even from the Land Use Code in effect in 2016, when the MDP was approved. Rather, this language is from Article 14.12.2 of the March 7, 2022 Land Use Code. It is therefore inapplicable to the 2016 MDP approval, and in fact in violation of the terms and conditions of that approval. It was additionally stated at the January 10 Workshop that only the standards of the 2016 Land Use Code apply to the Application, and that it is not subject to the new standards and requirements found in the 2022 Land Use Code; but, this then leads to an absurd result - the Applicant cannot reasonably argue on the one hand that the 2016 Code applies for *all* applicable regulations and standards, but that Article 14.12.2 from the 2022 Code applies with respect to expiration of the MDP. There is nothing in either the 2016 or the 2022 Code that would allow this, nothing in the 2016 MDP that allows

it, and there is no argument in law that would support this. The plain language of Section 14-532(d) in the 2016 Code, copied verbatim into the MDP approval, has no ambiguity as to its intent or meaning and it was the only mechanism available to the Applicant for obtaining a possible extension to the 2016 MDP.

The Maine Law Court has considered the finality of expiration language in land use approvals and ordinances, finding that "an Applicant must be diligent and request an extension within the [time] period for which the approval remains viable. Otherwise, the Ordinance would allow the Board to extend an approval that had become void." *George D. Ballard, Builder, Inc. v. Westbrook*, 502 A.2d 476, 480 (Me. 1985). "Moreover, to construe the extension provision otherwise would allow a developer to be protected from zoning changes for an indefinite period greater than the [time period] provided in the Ordinance." *Id.*

We have been provided with emails between Mary Costigan, Esq. on behalf of the Applicant, and Cristine Grimando, dated September 2022. On behalf of the City, Ms. Grimando opined that the MDP would not expire on December 22, 2022 because construction had commenced on the site. Ms. Grimando's interpretation was based on the inapplicable Article 14.12.2 of the March 7, 2022 Land Use Code; the legislatively adopted Section 14-532(d) in the 2016 Code is, however, non-discretionary and the Planner had no authority under the Code to ignore, waive or otherwise provide a variance from that extension requirement. Furthermore, the email exchange between Attorney Costigan and Ms. Grimando had no impact upon the expiration of the MDP pursuant to the express terms of the MDP itself and the applicable Section 14-532(d) effective in 2016. First, Attorney Costigan's email did not request an extension—it merely sought an opinion that the MDP would not expire. Second, there was no assessment by the City, as required by the Code, of whether there had "been substantial changes to the underlying zoning or site plan standards since the date of the master plan development plan approval that would have a substantial impact on approval…." Because there was no written request for an extension from the Applicant, nor the required process to determine whether to grant that extension by the City, the MDP expired.

Simply put - the Applicant failed to properly request an extension within requisite six years of the date of approval as clearly and unambiguously required by the 2016 MDP and in Section 14-532(d) of the 2016 Code. As a result, the 2016 MDP approval is void; there is no longer an approved or controlling MDP in place, and with all due respect to the Planning Board, it therefore lacks jurisdiction to continue to review the Application as though it were validly submitted.

II. Given the magnitude of this proposed project and its lasting impact on both the neighborhood and the character of Portland as viewed both to and from the water and Munjoy Hill, it is critical that the Planning Board understand the issue of grade and its relationship to building height.

A. The Project Violates Height Restrictions on Numerous Grounds.

"Average developed grade," which is being applied by the City and Applicant, is not in the height definition or in any provisions addressing vertical dimensional standards. In fact, "finished grade" or

"developed grade" as the starting measuring point for structures has no express support anywhere in the Code, past or present.[1]

Where a term, like "grade," is undefined, Maine courts construe the term "reasonably with regard to both the objects sought to be obtained and to the general structure of the ordinance as a whole.'" *Friends of Cong. Square Park v. City of Portland*, 2014 ME 63, ¶ 9, 91 A.3d 601 (citation omitted). Courts "give such terms their 'common and generally accepted meaning" and dictionaries are an established authority to identify definitions. *Id.*

Merriam-Webster Dictionary defines "grade" as "a datum or reference level . . . especially: GROUND LEVEL." Merriam-Webster Dictionary Online, "grade" https://www.merriam-webster.com/dictionary/grade. Oxford Languages defines "datum" as "a fixed starting point of a scale or operation." Dictionary definitions establish that "grade" has an objective, uniform starting point that bears a rational relationship to the conditions of the earth. The same conclusion follows applying the general rules of ordinance interpretation. *See Banks v. RSA #1*, 1998 ME 272, ¶ 4, 721 A.2d 655 ("A court's interpretation of an ordinance must not create 'absurd, inconsistent, unreasonable or illogical results.'")

The City's interpretation of "grade" will produce inconsistent, illogical, and absurd results. As a function of uniform height regulations, grade must consider the objective conditions of the site tethered to factual reality. Interpretation of "grade" as "post development grade" would mean height restrictions vary depending upon whatever a developer artificially creates or manipulates for conditions, divorced from what exists at the time of an application. For developers with the gumption, financial capacity, and engineering capability to reshape the earth, introduce creative structures, and pile fill, the sky is the limit. A developer can achieve whatever height they desire by creating a "developed grade" that games the height standard by anticipating when the City will begin measuring and adjusting their "developed grade" and proposed structures accordingly.

That is precisely the scenario here. The Applicant has artificially elevated their proposed buildings on a "pedestal" with the absurd and illogical result that buildings can exceed 110' in a zone that restricts buildings to half as tall. For those without the same resources (everyone else), the regular height standards of 45' up to 65' apply. That is the type of inconsistent result produced by a "grade" interpretation and height standard that does not have any objective regulatory limit. Measuring height from the perimeter of

[1] A review of the Code as a whole reveals that such an interpretation is foreclosed by express provisions. *See, e.g.*, Portland, Me., Code § 14-755 (amended 2016) (defining height of wind energy system as "vertical distance *as measured from the average elevation of the finished grade*" (emphasis added)); § 14-369(d) (establishing height computations for signs as "normal grade" defined as "the lower of either existing grade prior to construction or the newly established grade after construction excluding any filling, berming, mounding or excavating accomplished solely for the purpose of locating the sign"). Thus, in creating height and grade standards for wind energy systems and signs, the drafters of Portland's Code knew and understood how to clearly delineate between "existing" or "predevelopment grade" and "newly established" or "post development grade." If "grade" for purposes of structure height was intended to be broadly interpreted to mean "post development grade," this would have been stated explicitly. It was not, we must presume with intent. *See, e.g.*, *Fuhrmann v. Staples the Office Superstore E., Inc.*, 2012 ME 135, ¶ 34, 58 A.3d 1083 ("If the Legislature had intended to create individual supervisor liability it would have done so explicitly in much clearer terms.").

buildings, artificially elevated by new structures and fill, is a textbook example of stretching a definition to a logical extreme that violates core tenets of ordinance interpretation. *See, e.g.*, *Banks*, 1998 ME 272, ¶ 4, 721 A.2d 655 (rejecting illogical interpretation of ordinance to construe tower as exempt from height restrictions as rendering height restriction meaningless).

The fact that the Code distinguishes "pre-development grade" on the islands does not mean that "grade" on mainland Portland has no objective definition. It is a logical fallacy to infer that because "pre-development grade" applies on the Islands, that "grade" for purposes of Mainland Portland therefore means "*post*-development grade," with no objective definition of grade tied to a specific moment in time prior to development. Rather, "grade" must mean conditions of a site which logically, like any land use standard, would be determined *at the time of an application*. This is *not* an argument for applying the Islands standard to the Mainland because "pre-development grade" already has a specific meaning that is fixed in time: "'Pre-development grade' is defined as average grade, existing on October 1, 2000, at the corners of the foundation of the proposed structure."

What about grade on October 2, 2000; on October 2, 2022; the date an application is filed; or the present date? None of the foregoing points in time constitute "predevelopment grade" because they all post-date October 1, 2000. Not only is the City implying "post development grade" without support in the Code—but the City is also failing to consistently interpret "predevelopment grade." On the Mainland, the City appears to consider "predevelopment grade" to mean conditions of the site from the beginning of time until the moment before the developer has moved earth, built up, and filled the site. The Code definition of "predevelopment grade," fixed in time as of 2000, contradicts that interpretation.

Moreover, the City's interpretation is arbitrary. Starting tomorrow, the City could interpret "grade" on the Mainland to be the conditions at the time of an application, which would be consistent with the Code. If the City wants to adopt a standard with material regulatory consequence, that policy must be enacted by legislation, not unwritten longstanding internal deference to "the way we have always done it." Unlike state agencies, municipalities do not receive deference in their interpretations of law, including ordinances. *Compare Rudolph v. Golick*, 2010 ME 106, ¶ 8, 8 A.3d 684 ("The interpretation of a local ordinance is a question of law, and we review that determination de novo."), *with Guilford Transp. Indus. v. PUC*, 2000 ME 31, ¶ 11, 746 A.2d 910 (court defers to agency interpretations of ambiguous statute the agency administers). Regardless of whether this is a longstanding interpretation of the Code is immaterial to whether it is correct as a matter of law.[2]

[2] At the January workshop it was stated that the Maine courts have upheld the City's interpretation. This is technically true but requires some important qualification. A single Superior Court case has affirmed the City's height interpretation and site plan approval for an apartment building development in East Bayside, but that decision is currently on appeal at the Maine Supreme Court. *See Murray v. City of Portland*, AP-22-03 (Me. Sup. Ct. Aug. 5., 2022). The City's height and grade interpretation is directly at issue in the appeal as a matter of first impression. Because trial court decisions are not binding on other courts (only Supreme Court decisions are), another Superior Court justice in a subsequent appeal could lawfully reach the opposite conclusion and we believe likely would on the facts presented by this application. Until that appeal is decided, there are no *binding* Maine court decisions.

Even applying post-development grade to this application, the Portland Co. site *is* developed and has an existing post-development grade. If a site can be "developed" over and over again without limit, the standard truly has no objective meaning.

Finally, with respect to the portions of the proposed site that are within the Shoreland Overlay Zone, the City's grade interpretation and height calculation is inconsistent with and therefore preempted by the Mandatory Shoreland Zoning Act, 38 M.R.S. §§ 435-448.[3] *See Sawyer Envtl. Recovery Facilities, Inc. v. Town of Hampden*, 2000 ME 179, ¶ 27, 760 A.2d 257. For new structures in the shoreland, "height" is defined as "the vertical distance between the mean original grade at the downhill side of the structure, prior to construction, and the highest point of the structure . . . ." 38 M.R.S. § 436-A(7-A). This definition preempts the City's interpretation of "grade" on two grounds: first, the height calculation standards apply to "average grade" *before* construction, rather than post development; and second, the property owner must calculate from the downhill side of the structure. The statutory standard preempts the City's inconsistent unwritten interpretation for portions of the site subject to shoreland zoning.

B. Even if the Lawfulness Were Assumed, the City's Traditional Methodology for Determining Grade is Simplistic, Flawed, and Results in Errors and is being Improperly Employed by the Applicant here.

The City's 2015 and 2022 code utilizes a simplistic methodology for determining the average grade of a site that is easily manipulated and can generate dramatically inconsistent results. The methodology involves calculating a simple average of the grade elevation at the primary corners of the building foundation. This methodology is most applicable if the site is small and generally uniform; it is not appropriate for a large, irregularly shaped and undulating site as that proposed for the 58 Fore St. project. This methodology was utilized during the original Master Development Plan review phase when it was applied to a large parking podium that would be constructed across Blocks 4, 5, and 6. By heavily weighing the high sides of the site, the Applicant (and apparently the City) erroneously determined that the average grade of the site was 50.1 feet.

Engineering consultant, Tetra Tech, performed a more accurate assessment of the site utilizing more applicable industry standard methods (see Attachment A). This easily reproduceable analysis determines that the average grade of the Block 4, 5, and 6 area is in reality approximately 29 feet—*a difference of over 20 feet*. Given the importance of the site in terms of its impact on the overall character of Portland and surrounding Munjoy Hill historic community, it is extremely important for the City to get the issue of grade and subsequent building height correct. It is not acceptable to use and manipulate a simplistic and flawed methodology to establish an incorrect starting grade that enables buildings that far exceed the maximum heights (45 to 65 feet) and number of floors (max 4-6) envisioned in the adopted height study plans[4] and in the Code.

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[3] "In accordance with a schedule adopted by the board and acting in accordance with a local comprehensive plan, municipalities shall prepare and submit to the commissioner zoning and land use ordinances that are *consistent with or are no less stringent than the minimum guidelines adopted by the board* and, for coastal communities, that address the coastal management policies cited in section 1801." 38 M.R.S.A. § 438-A.2 (emphasis added).

[4] As noted, the Eastern Waterfront Building Height Study (September 2004) ("Study"), adopted into the E. Waterfront Master Plan and the City's Comprehensive Plan as it existed in 2015, formed foundation and basis for the B-6 Height Overlay. In the area of the proposed new development, any building over four stories (one story is defined

In the application for the individual buildings proposed on Block 4 and Block 6, this methodology has been improperly used to establish base grades far beyond the factual conditions of the site. Using the methodology as intended, the average grades for the Block 4 and Block 6 buildings are approximately 39 feet and 36 feet, respectively (see expert statement Attachment B). While not presented in the current filing as it will be a separate building, the average grade for Block 5 is approximately 14 feet.

Reviewing the numbers presented in the filing, it is easy to see how the Applicant has weighted the high side of the site by utilizing approximately three times the data points, thereby dramatically skewing the purported "average." This blatantly and inaccurately skews the average starting grade 30-40% higher than it actually is, with dramatic consequences for how height restrictions will be applied. More importantly, it flies in the face of the intent of the code and various height studies and overlays, to promote responsible development consistent with the character and scale of Portland's eastern waterfront and the Munjoy Hill neighborhood.

III. The Applicant Cannot Unilaterally Include New Lots in an Entirely Different Zone Within the Boundary of the 2016 MDP.

As discussed in the December 28, 2022 letter and as further discussed by Board members at the January 10, 2023 Planning Board Workshop, the proposed site plan for Block 6 includes portions of three parcels of land, identified as 13-23 Eastern Promenade, which were never a part of the now void 2016 MDP, but rather separately purchased by the developer in 2021. The Applicant has now included portions of these parcels in the Application as though they were within and a part of the 2016 MDP project. Significantly, these appended properties are not located in the B-6 zone, but rather in the R-6 zone and in the Munjoy Hill Historic District and in addition to being inappropriately included in the present Application, are therefore subject to different and enhanced ordinance standards and regulations.

At the November 23, 2021 workshop for an amendment to the 2016 MDP[5] the Planning Board opined as whether the Board had any control over the design of the project if the Level II site plan application pending at that time was subject only to staff review. The Board was informed that the MDP section of the 2016 Code had a provision for a major MDP amendment determination. In fact however, as noted in our December 28, 2022 letter, the 2016 Land Use Ordinance only provides a methodology for the Planning Authority to permit *minor* amendments to still effective Master Development Plans. Neither the 2016 Land Use Ordinance, nor the 2016 MDP, provide *any* avenue for a major, substantive amendment to an MDP (such as expansion of the boundaries of the original MDP by the addition of new land located in a different zone).

The inclusion of additional land, especially land that is in a different zone, is not a decision that can be made by staff. The addition of land in a residential zone has far reaching impacts upon those already residing in that zone, on the Comprehensive Plan and on the City's and neighborhood's vision for that residential neighborhood. It must be subject to the same rigorous review process that the initial MDP went

as 11 feet) has "has a maximum 70' width parallel with the shore and a maximum 140' length perpendicular to the shore." Per the Study, the maximum total number of stories permitted in this area of the B-6 Overlay is 5 to 6 floors.

[5] The purpose of the November 23, 2021 Planning Board Workshop was to amend the MDP in such a way non-permitted structures and uses at the 58 Fore Street project, then subject to Notices of Violation and a Consent Agreement with the City, would become compliant.

through – and in this case, as the MDP is void, there needs to be a substantial review as an entirely new project under the Site Plan Review section of the Code.

IV. The Applicant Has Failed to Establish Sufficient Right, Title, and Interest to Warrant Review by the Board.

As this Board well knows, to have sufficient standing to pursue an application for land use development, an Applicant must demonstrate that they have a reasonable expectation that they will be able to develop the property as they have proposed. In the absence of that interest, Maine courts have explained that an Applicant lacks sufficient right, title, and interest (RTI) to pursue an application before a municipal board. Ultimately, the standing/RTI requirement is aimed at ensuring that the Planning Board's (and Planning staff's) time is not wasted reviewing applications for projects that may never get built. Therefore, under state law as well as the express language of the City's Code, all applications for permission to develop land must include evidence of sufficient RTI to develop the property *before* review of the proposal is undertaken. As noted in my December 28, 2022 letter, the 2016 Master Development Plan for the 58 Fore Street property is also express on this point.

The now void MDP and the proposed Site Plan clearly contemplate improvements to the site that are located on property outside the Applicant's ownership and control, including City and private property. Easements allowing those improvements are therefore needed and required. The Applicant however has failed to provide copies of executed easements – likely because they have not yet been obtained. Nevertheless, the Applicant is treating the application as if it is complete and entitled to review by staff and this Board. It is not. Given the history of development of this property and before any further staff or board time is taken up reviewing this development, the Applicant should be required to go to the effort of securing the easements and any other permissions needed to build out the project *before* the Board reviews it. Otherwise, it is entirely possible that necessary easements will not be given causing the plans to later be amended with additional rounds of review and Board meetings required.

Rather than invite multiple hearings and amended approvals, the Applicant can and should be made to wait to present its proposals until such time as it actually has the permissions needed to build it. Without those permissions, review of this application is a waste of staff and board time. More fundamentally, the Applicant lacks standing to seek site plan approval at all.

Very Truly Yours,

SANDRA L. GUAY

KEITH P. RICHARD

Copy to:
John Roger Trettel
Portland Historic Preservation Board
c/o Evan R. Schueckler, Program Manager

ATTACHMENT A

Grade Elevation Study

Project: 58 Fore St. Project Area Elevation Review

Tetra Tech, Inc. is a global engineering, design, and consulting firm with over 50 years of experience performing complex engineering, design and construction services on 1000's of projects worldwide.

Tetra Tech performed a desktop investigation of the 58 Fore St. Project development area in the City of Portland, Maine to establish the estimated average grade across the site above mean sea level. The study area is located in the eastern waterfront area of Portland and consists of approximately 5 acres of commercial, past industrial, and vacant land uses. Approximately two-thirds of the study site is marked by a large low-lying level area slightly above sea level supporting parking areas, a commercial building slab, and a rail yard; while about one third of the site consists of undeveloped, fragmented scrub forest on steeply sloping to almost vertical terrain along its northern and eastern boundaries. The vertical portion of the site is a narrow strip along the north boundary where a stone retaining wall supports Fore Street.

The industry standard method for calculating average elevation of an irregularly shaped and undulating parcel of land involves the use on-site topographic land surveying or contouring. If time, budget, or access prohibit collecting of field data, a site can be studied remotely using Digital Elevation Models (DEMs) and Geographical Information Systems (GIS). The DEMs provide a three-dimensional representation of the topography of the parcel, while the GIS is used to process and analyze the DEM data. The first step in this process is to obtain the DEM data, either by using aerial LiDAR (Light Detection and Ranging) technology or by interpolating spot elevation data using techniques such as kriging (ESRI, 2018). Once the DEM data are obtained, it is processed to create a raster layer, which is a grid of cells with equal dimensions that represent the elevation of the parcel at each cell location. The average elevation of the parcel is then calculated by summing the elevation values of all the cells in the raster layer and dividing by the total number of cells (Lidén et al., 2003). This process is often performed using GIS software, such as ArcGIS or QGIS.

Such data were not readily available for this study, and as such, Tetra Tech utilized Google Earth's elevation profile functionality as the DEM to find the elevation across the site using a 10-foot by 10-foot raster grid. Elevation profiles were obtained by casting the raster grid across the irregular site polygon using the southern corner as an anchor point (see attached figure). Elevation profiles along grid lines were examined at 10 foot intervals and the elevation at each point was recorded and rounded to nearest whole number (data attached).

A total of 2406 data points were recorded across the polygon, totaling to 69,647 feet of total elevation. The average elevation across the site was determined to be 29 feet (total elevation / total number of data points), which is approximately 15 feet above the existing level grade elevation.

While Google Earth data are generally regarded as quite accurate and reliable in urban areas, the best measurement of average elevation/grade of an irregularly shaped and uneven site would be determined by an on-site topographic land survey using total station or global positioning system (GPS) equipment. Upon completion of a land survey, there are numerous industry standard DEM engineering models available that would use these data to quickly and precisely measure the average elevation/grade across the site.

In performing this desktop analysis, Tetra Tech performed a QA/QC check of the Google Earth data by doing a representative spot check of points across the site and comparing them to the topographic survey map provided in the 58 Fore Street project's original 2016 application. This review determined the Google Earth data to be close to the applicant's field surveyed measurements with only minor deviations observed. As such, the average calculated elevation across the site of 29 feet is expected to be accurate within a small margin of error.

Discussion on Perimeter Measure Methodology

The average grade of the site was previously determined by others using a perimeter elevation measure methodology. Using elevation measurements taken around the perimeter of an undulating site to determine the average elevation is not appropriate, as it does not accurately reflect the complex topography of the interior of the site. This method provides only a rough estimate of the average elevation and is likely to be significantly different from an average elevation calculated from more comprehensive elevation data. Using only perimeter measurements is likely to give a biased estimate of the average elevation and may result in errors, especially if the site has steep or complex topography (Lidén et al., 2003). In this case, a difference of 21 feet (50.1ft vs. 29 ft) between the perimeter measure approach and the grid overlay/topographic approach is a dramatic deviation and indicates that the perimeter measure approach is not providing an accurate assessment of the average grade of the site.

The level of measurement error that is acceptable for a project site is dependent upon the ultimate use of the site. However, in general, such a large deviation between two methods of measurement is not considered to be an acceptable level of error to enable accurate and responsible decision making and design. Tetra Tech recommends a more comprehensive method, such as a topographic land survey or a DEM analysis, to obtain a more accurate average elevation of an undulating site with extreme topography changes such as the 58 Fore St. project area.

References:

ESRI (2018). Understanding Raster Elevation Data. Environmental Systems Research Institute, Redlands, CA, USA.

American Society of Civil Engineers. (2017). Surveying Fundamentals. https://asce.org/continuing-education/courses/surveying-fundamentals/

Lidén, K., Jonsson, P., and Löfgren, S. (2003). Average elevation and other terrain attributes from digital elevation models: a comparison of methods. Geomorphology, 55(1-2), 89-104.


58 Fore Block 4, 5 & 6 Area
58 Fore Project Area
10'x10' Grade Grid
Legend
58 fore area
Feature 1
St Lawrence St
Fore St
Eastern Promenade Trail
Eastern Promenade Trail
Google Earth
N
200 ft

	58 Fore Street Site Elevation Study - 10x10 Foot Grid Data																					
GE Paths	**0**	**10**	**20**	**30**	**40**	**50**	**60**	**70**	**80**	**90**	**100**	**110**	**120**	**130**	**140**	**150**	**160**	**170**	**180**	**190**	**200**	**210**
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Path2	12	12	12	12	12	12	12	12	12	12	12	11	11	11	11	11	11	11	11	11	11	11
Path3	12	12	12	12	12	12	12	12	12	12	12	12	11	11	11	11	11	11	11	11	11	11
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Path5	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	11
Path6	12	13	13	13	13	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
Path7	13	13	13	13	13	13	13	13	13	13	13	13	13	12	12	12	12	12	12	12	12	12
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Path38	87	88	88																			
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Path43	74	72	72	71	70	69	67															
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Path45	74	74	72	72	71	71	70															
Path46	75	74	73	72	72	72	72															
	Total Count	2406																				
	Total Elevation	69647	feet																			
	Average Elevation	28.95																				

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82	86	87	88																				

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700	710	720	730	740	750	760	770	780	790
38									
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69	68	64	62	58	55	51	50	49	47
72	70	69	66	62	58	56	54	54	

ATTACHMENT B

Expert Opinion

TETRA TECH

February 24, 2023

City of Portland
Planning Division
389 Congress Street, 4th Floor
Portland, ME 04101

Attn: Planning Board

Re: Miscalculation of Average Grade
Level III Site Plan and Subdivision – 58 Fore Street
Portland Foreside Development Company

Dear Planning Board Members:

Based on our review of the above-referenced submission, it appears the Applicant has either miscalculated or misrepresented average grade for proposed structures on Parcel 4 ("Harbor Hill") and Parcel 6 ("The Channel Mark"). The proposed building elevations note average grade *singularly* as **elevation 50.1** despite there effectively being two buildings on separate parcels of land with substantially different surrounding grades. The average grade noted has no discernible relevance to the buildings proposed and no reasonably justifiable supporting calculations were found for the value. Furthermore, the calculations provided are clearly and unjustifiably skewed to result in a higher elevation than would otherwise reasonably be determined. This is particularly egregious as it pertains to the Harbor Hill structure.

The City of Portland Land Use Code (March 2022) clearly and logically specifies average grade as being calculated at the corners of the foundation of the proposed structure. Common practice for determining average grade requires weighting selected foundation corners relative to the length of building foundation. The attached figures show how applying common practice and using existing elevations at the principal foundation corners results in the substantially different average grade calculation of **elevation 39.5** for the Harbor Hill structure and **elevation 36.3** for The Channel Mark structure. A substantially different average grade calculation would be the result whether calculated using the four principal foundation corners or equidistant points along the foundation.

Any building height measured from the average grade of elevation 50.1 is simply unsupportable and inconsistent with the relatively clear intent expressed in the City of Portland Land Use Code (March 2022).

Very truly yours,

Sean P. Reardon, PE
Vice President

Matthew W. Moyen, PE
Senior Project Manager

Attachments: Figure 1 – Civil Building Height Calculation Figure Markup

Cc: Roger Trettel

Tetra Tech
Marlborough Technology Park, 100 Nickerson Road, Marlborough, MA 01752
Tel 508.786.2200 Fax 508.786.2201 tetratech.com



Figure 1
02-16-23

Source: Civil Building Height Calculation Figure prepared by Woodard & Curran dated November 2022

TETRA TECH, INC.

Tetra Tech has been a world class provider of consulting and engineering services for over 50 years. We support global commercial and governmental clients focused on sustainable infrastructure, water, environment, energy, and international development. With over 27,000 associates worldwide, Tetra Tech provides clear solutions to complex problems.

In a complex world with competing demands for limited resources, Tetra Tech offers clear solutions made possible with sound science, understanding, innovation, and industry-leading approaches.

PERSONNEL EXPERIENCE SUMMARY

Sean P. Reardon, PE

Mr. Reardon is a Vice President at Tetra Tech who specializes in guiding site/civil engineering and land development programs to successful completion. He has 30 years of experience in the planning, permitting, design and construction of a wide range of facilities and infrastructure. His broad background encompasses all service sectors: municipal, institutional, private land developers and public/private partnerships. He is particularly skilled in managing multidisciplinary services under aggressive timeframes, as well as design/build and on-call engineering contracts. Mr. Reardon prides himself on building long-term, collaborative client relationships and overcoming technical and regulatory challenges with creative solutions that optimize project objectives. In addition to his leadership on residential, institutional, commercial and mixed-use development programs, Mr. Reardon is regularly called upon to provide expert witness testimony and litigation support. Mr. Reardon is a licensed Professional Engineer in Maine, Massachusetts, Rhode Island, New Hampshire, Connecticut, and Vermont.

Matthew W. Moyen, PE

Mr. Moyen is a Senior Project Manager at Tetra Tech with 16 years of experience in planning, civil engineering design, permitting, and construction as part of multidiscipline and multi-firm project teams. He leverages his diverse skill set and technical background to lead a range of commercial, industrial and residential land development projects, renewable energy projects, and stormwater programs to successful completion for public agencies and private clients. Mr. Moyen also provides peer review services of complex projects for municipal boards and state agencies. Mr. Moyen is a licensed Professional Engineer in New Hampshire, with reciprocity underway in several states including Maine.

Kelly Walker 11:13 AM
to planningboard

I believe this is the correct way to make a comment on the 58 Fore St project. When looking at the zoning ordinance it appears to me as though the proposed buildings do not follow the ordinance as pertains to height and potentially other zoning restrictions as well. As such I am reaching out with my concerns.

If this is not the correct format to make a comment please let me know.

All the best,
Kelly Walker

58 Fore St/ Portland Foreside Co

0 views

Subscribe



martica douglas <tica1529@gmail.com> 7:25 AM (4 hours ago)

to Planning and Urban Development, Planning Board, atrevorrow@portlandmaine.gov, council@portlandmaine.gov

Dear City Planners and Planning Board:

I write to let you know that Tuesday night's neighborhood meeting hosted by the Portland Foreside Development Company was so woefully lacking in information relevant to the neighborhood as to call into question the competency and/or good faith of the Company. Residents tried without success to get clear information about the height of the proposed barrier between land and water and the Company's interpretation of the "view corridor" requirement. The presenters' vague answers suggested that the Company believes that it's acceptable to obstruct the Harbor from street view even in the mandated view corridors, and that thanks to some kind of cobbled together grade calculation which common sense recognizes as a “cheat,” 10-story buildings are acceptable along the City's eastern waterfront. They were also unable or unwilling to address residents' concerns about the huge increase in vehicular traffic we can expect on already max'd out Fore St.

This behemoth development will profoundly and heart-breakingly destroy the iconic landscape that is the Hill overlooking the Harbor. The Hill itself will be permanently and irrevocably walled off from the view of persons on the water and the water walled off from the view of persons on the Hill. Future generations are robbed of this priceless legacy. The City has a lot to answer for for tossing Munjoy Hill under the bus here. The very least you folks can do is to make sure the developer exercises good faith in calculating allowable heights and abides by the requirements of the master plan.

Tica Douglas
District 1

Sandra L. Guay
Principal
sguay@archipelagona.com

Keith P. Richard
Principal
krichard@archipelagona.com

1 Dana Street
Portland, Maine 04101
(207) 558-0102

June 16, 2023

Via Email:
Portland Planning Board
Maggie Stanley, Chair
City of Portland Planning & Urban Development
389 Congress Street
Portland, ME 04101
planningboard@portlandmaine.gov

Re: Portland Foreside Development Company
58 Fore Street/Mixed Use of Blocks 4. 5 and 6
Major Site Plan Review Application

Dear Madam Chair and Board Members:

As previously noted, this firm represents John Roger Trettel. As the owner of property located at 5 Eastern Promenade, Mr. Trettel is a direct abutter to 58 Fore Street and the mixed-use development project that is the subject of the Portland Foreside Development Company ("Applicant") site plan Application currently pending before the Board ("Application"). While supportive of the general concept of the development, Mr. Trettel remains concerned about the serious and repeated deficiencies put forward by the Applicant in the Application.

As also put forth in Mr. Trettel's prior submissions, the Master Development Plan ("MDP") under which the Application has been submitted, has expired. There was only one way for an extension to have been granted under the express terms of the MDP and the 2016 Ordinance which governed that approval, and that was a written request by the applicant prior to December 22, 2022, followed by a determination by the Planning Authority that there had not been any changes to the underlying zoning or site plan standards that could substantially impact the project since the date of the MDP approval. At the very least, the critical amendment to the Inclusionary Zoning requirements should have been reviewed at that time. There is no evidence in the record that either a written request was made or that zoning amendments were ever considered.

While maintaining that the review of the Application should not proceed under the 2016 MDP, and without waiving that argument, Mr. Trettel provides the following comments to the Applicant's Block 5 submission.

I. The Applicant has not provided information or a narrative sufficient for the Board to make the required findings on applicable Code standards.

The latest amended Application submission purports to set forth consistency with various site design standards (the Applicant cites 2022 Code site design standards). Describing the content of the narrative on those standards as "sparse" would be generous. For example, regarding massing, ventilation, and wind impact, as well as shadows, the narrative contends compliance is met:

> **7.1 Massing, ventilation, and wind impact**
> Buildings have been designed within a context of similarly scaled new and existing buildings. All primary mechanical equipment is housed either within buildings, or within a fully screened extent of roof located to minimize disruption to abutting properties. HVAC venting is directed away from adjacent public areas.
>
> **7.2 Shadows**
> Buildings have been designed to minimize impacts of shadows on open space and public areas that would affect the viability of the public use and existing vegetation. Over the course of the day, direct sunlight will be provided to adjacent areas to promote the use and growth of vegetation.

Major Site Plan submission at 7-1 (Nov. 2022). It is not clear what "similarly scaled new and existing buildings" are being referenced, but the only comparable high-rise building in the area is the Portland House, which few would cite as a model of massing or indicative of any other buildings in the entire Munjoy Hill area. There is no detail or narrative that connects the various architectural components of the proposed development to the longstanding or new development in the area. The proximity to the waterfront means that there will be high wind conditions on the site, enhanced by the high-rise buildings and narrow corridors that break up the buildings, yet there are no wind studies illustrating the scope of that impact. As to shadows, anyone familiar with the progression of the sun as it passes over the Portland peninsula to the west, knows that the promenade experiences premature shadow caused by the hill in mid- to late afternoon. One can anticipate that buildings of this scale and mass will create an even more substantial and earlier shadow over one of most utilized public trails used by walkers, joggers, bikers, and others year-round. A shadow study should be commissioned to analyze these impacts.

It is unclear how, without significant additional information, the Board can find these standards have been met.

II. There are multiple flaws in how "grade" is being calculated, primarily related to the parking pedestal "structure" that purportedly straddles Blocks 4, 5, and 6.

We have previously addressed the miscalculation of grade and the misinterpretation of the height standard in prior letters and incorporate those comments by reference. Now that Blocks 4, 5, and

6 are fully before the Planning Board, the entirety of the so-called "parking pedestal" structure is under review for the first time.[1] Because "grade" and "height" are keyed to a structure, and the Applicant needs to leverage the extreme elevation gain up to Fore Street to elevate building heights across the site, the Applicant must convince this Board of the fiction that the parking pedestal is one single structure. The proposed parking pedestal[2] is, as a matter of fact, more than one structure and the 2016 "Overall Site Master Plan" requires that they be kept as separate structures with individualized height calculations.[3]

III. Height restrictions vary across the combined development site and thus grade must be evaluated segment-by-segment.

Block 4 ("Harbor Hill") and Block 6 ("The Channel Mark") are separate buildings on separate parcels that must be evaluated for height compliance as such. The Applicant, in its March 2, 2023 letter to Planning calls out Block 5 as proposed was, in the Applicant's own words in the original submissions, a separate building.[4] (Woodard & Curran Letter Mar. 2, 2023.) Although stating Blocks 4+6 and Block 5 will be *separate* construction, the Applicant characterizes Block 5 as a "phased addition" to the "single building structure." As Maine courts have stated dryly, "Painting a pumpkin green and calling it a watermelon will not render its contents sweet and juicy." *Sacred Feather v. Merrill*, No. 07-18-B, 2008 U.S. Dist. LEXIS 47543, at *9 (D. Me. June 19, 2008).

Furthermore, the plans submitted clearly depict separate buildings and any reasonable observer of the site will see a group of free-standing separate buildings, despite whatever integrated infrastructure may link them. An example illustrates the absurdity of the argument: As applied to the new Townhouse buildings that are proposed to line Fore Street, this would be equivalent to considering the buildings across the street as one structure if there was a subterranean parking

[1] As was noted in the Planning Board's December 2016 decision on the Master Development Plan, "if the parking base is built in phases, the average grade for each phase will need to be evaluated for consistency with the B-6 Height Overlay. There are no final building designs in a MDP plan Application, so this review addresses the feasibility of the site design concept as proposed." (PB 12/20/16 decision at 12.)

[2] With only approximately 30 parking spaces within Block 5, it is unclear how much, if any significant actual parking connected with Block 5 is located there.

[3] The Applicant includes the Development Block Layout Plan from the 2016 MDP, but conspicuously omits the Overall Site Master Plan – the plan that shows the approved layout of structures within those Blocks.

[4] The Applicant states "Block 4 and Block 6 are considered one building. The building has pedestal parking at the base, with connected and architecturally varied residential uses above. This approach was presented and agreed to in the MDP approval and was documented in the Staff memos to the Planning Board as part of that process. Block 5 will be a phased addition to this single building structure. We will address Block 5 as part of the site plan application to be submitted separately." (Woodard & Curran Letter Mar. 2, 2023.)

garage under Fore Street that linked them. No rational interpretation of code standards or development norms would support such an assertion.

For the height standards to have any rational relationship to the structures that are being regulated (which is required by how grade and height is defined in the Code), the height standard cannot be applied as proposed but rather must be applied in segments, either by (1) each building; or (2) each parcel of the 10-parcel subdivision that comprises the site; or (3) each Block. Any of those three methodologies follow from the Code, the B-6 Height overlay, and the objective factual circumstances presented by the site.

The "parking pedestal" as a "single" massive structure is a tool of manipulation that is more fiction than fact. The manipulation is particularly obvious and consequential when one considers the average grade of Block 5, which is approximately 14' above MS. Even using the 2016 MDP version of the B-6 Height Overlay, the building envelopes that Block 5 straddles restrict heights to 45' and 45' with extensions to 55', meaning that no structure within the Block 5 building envelope should exceed 69 feet in total height. Block 5 proposes an eight-story building "comprised of a hotel, residential condominiums ground-level retail and restaurant, and below-grade parking." The structure(s) will clearly exceed 69 feet.

IV. Even assessing the site as a whole, the "average" as calculated is not an accurate average.

Even if the site is evaluated as a whole in calculating grade, the "average" is not a true average. A middle schooler with a rudimentary grasp of calculating averages could tell you that concentrating 75% of your data points in one limited area, rather than evenly distributing the points and collecting data at consistent intervals, will skew your results and will not produce an average of the whole. Polling a political issue by querying 75 Portland peninsula residents and 25 residents from the farthest rural corners of the State will not produce survey results that could be fairly presented as the opinion of "the average Mainer."

In our March 17 submission, we described two methods of determining average grade of the site using the City's grade and height methodology.[5] The first involved applying the industry standard topographic method across the entire Block 4, 5, and 6 "superblock" as was shown by the Applicant in 2016 that they improperly utilized to establish an estimated average grade of 50.1 feet. The true average grade is approximately 29 feet when calculated accurately, scientifically, and objectively without skewing the data points to the highest elevation corners of the site to "gain" more height. (Trettel Letter, March 17, 2023, Attach. A.)

[5] For the reasons stated herein and in prior submissions to this Board, we maintain that the City's interpretation of "grade" is arbitrary, unlawful, preempted, unconstitutional, and void.

The second method utilized the City's method of measuring grade from the primary foundation corners of each building (generally assumed to be four corners). Using this methodology, we demonstrated the average grade of the buildings on Block 4 and Block 6 is approximately 39 feet and 36 feet, respectively. Using this methodology, the average grade of the site of the Block 5 building would be approximately 14 feet. (Trettel Letter, March 17, 2023, Attach. B.)

If we apply the above "superblock" methodology to the new Block 5 building, the average starting grade would be 29 feet, thus resulting in a maximum allowable building height of 29+55 = 84 feet. Applying the City's "corners" methodology, the maximum allowable building height would be 14+55 = 69 feet. In either case, the 125 feet proposed by the Applicant far exceeds the maximum heights permitted in the B6 overlay zone. If the "corners" methodology is used on the superblock area, given the numerous "corners" (of what are really at least three separate buildings), the Board should be drawing an average from more than the six selective and highly subjective points that the Applicant has presented in its most recent average grade drawing. Of the six points the Applicant strategically placed on the drawing to achieve its target 50-foot average grade, four of them are concentrated on the highest edge of the site along Fore Street, with only two elevation points representing the low side of the parcel which comprises roughly 75% of the land area.

No advanced degree in engineering or mathematics is required to recognize that the grade calculations are not lawful or rationally supported by or connected to the available evidence and data.

V. The water views that the view corridors were intended to protect appear to have been eliminated.

The current proposed plans appear to eliminate a view of the water down the designated view corridors from Munjoy Hill. Notwithstanding the dimensional requirements stated in the B-6 Height Overlay notes, the clear intent of the view corridors and the spacing, massing, and building break around them was to preserve a view of Casco Bay from Kellogg, Waterville, St. Lawrence and Atlantic Streets. This intent was confirmed by renderings submitted in 2016 that show clear unobstructed sight lines down the view corridor to the water from the perspectives depicted. Those prior renderings with ocean blue are conspicuously absent from the present filings by the Applicant, which suggests that those views will be eliminated. It is not entirely clear what purpose the view corridors will now serve other than to present a horizontal view of new building rooftops.

The water views were not merely in the 2016 renderings; the approved MDP Application in numerous places spoke of the water views in connection with the view corridors, so it appears the Applicant is departing from a fundamental premise of their original proposals and prior MDP approval. *See, e.g.*, MDP Application (Sept. 2016) at 3-7 ("On the hill side, housing and planted courtyards step down the hill providing residents active and passive landscaped courts and mews to soften and enliven the architecture and to provide a lush ground plane which serves to maximize the view corridors"); 4-2 (celebrating the "preservation of significant view corridors to the water

and along the waterfront"); 4-3 ("View Corridors - Street corridor placement and design should provide for views to and from the water . . . .")).

If the City Council and Planning Board thought that the corridors would protect the water views, there has been a bait and switch.

VI. The submission does not even meet the layout that had been approved in the 2016 MDP.

The Applicant claims that the 2016 MDP approval is still valid and applicable when it works to its favor, for instance when relying on the 2016 Inclusionary Zoning requirement, but ignores the MDP when its provisions do not work in the Applicant's favor. In addition to the several ways this is illustrated in the discussion above, in its Permitting and Zoning Section. 2.3.4., the Applicant states that the "*the proposed development of Blocks 4, 5 and 6 is consistent with the general layout of the site on the Master Development Plan."* In fact, however, the proposed development of Blocks 4, 5 and 6 is not consistent with the general layout of the site on the Master Development Plan (MDP). For one thing, the design, separation and layout of structures are not as depicted in the 2016 MDP Overall Site Master Plan that, as noted above, has been excluded from the recent Application. Furthermore, the Applicant appears to simply take for granted that the newly acquired R-6 Zone property has been subsumed into the 2016 MDP approval. The R-6 Zone land that has been added to the new Application is not a part of the "second phase of development" of the 2016 MDP, as stated by the Applicant. Block 6 cannot be arbitrarily expanded beyond the MDP district in whatever way the Applicant schemes or desires, or what then is the purpose of defining the MDP district in the first place.

The dimensional requirements for the development were all based on the B-6 standards, there was never any consideration given to the separate R-6 requirements and any impact on the R-6 neighborhood, which would then have been factors in the original MDP review. Inclusion of this newly acquired property into the development plan is not "*consistent with the general layout of the site on the Master Development Plan."*

VII. The project is not in compliance with the character and form of the historic district.

For the reasons set forth in a March 31, 2023 letter to the Historic Preservation Board, attached to this letter for brevity and the Planning Board's information, the project as proposed does not meet the Munjoy Hill Historic District preservation standards.

VIII. Portland's lack of objective "grade" standards is an impermissible delegation of legislative authority to the Planning Board, would allow the Board to unlawfully grant variances, and violates constitutional due process and equal protection protections.

A decision left in the hands of the unfettered discretion of an adjudicator lacking objective standards is arbitrary and violates constitutional protections of due process and equal protection. These principles are well established in Maine law. *See, e.g.*, *Stucki v. Plavin*, 291 A.2d 508, 510 (Me. 1972) ("The governing rule, constitutionally mandated, may be simply stated as that in delegating power to an administrative agency, the legislative body must spell out its policies in sufficient detail to furnish a guide which will enable those to whom the law is to be applied to reasonably determine their rights thereunder, and so that the determination of those rights will not be left to the purely arbitrary discretion of the administrator."); *Wakelin v. Yarmouth*, 523 A.2d 575, 577 (Me. 1987) ("the absence of specific standards in zoning ordinances results in a denial of equal protection of the laws . . . The ordinance opens the door wide to favoritism and discrimination by permitting the Board to grant or deny special exceptions for reasons that are unconnected to the ordinance but that masquerade as quasi-judicial findings of fact."); *Perkins v. Town of Ogunquit*, 1998 ME 42, ¶ 9, 709 A.2d 106 ("Such a scheme would permit a town to circumvent the Legislature's express and implicitly exclusive grant of variance-granting authority to boards of appeals. . . . The statutory language is clear that allowing planning boards variance-granting powers would frustrate the purpose of the statute."); *Kosalka v. Town of Georgetown*, 2000 ME 106, ¶ 17, 752 A.2d 183 ("Because the condition that all proposed developments 'conserve natural beauty' is an unmeasurable quality, totally lacking in cognizable, quantitative standards, this condition is an unconstitutional delegation of legislative authority and violative of the due process clause.").

The City's proposed interpretation of "grade" as "average developed grade" would allow heights that are limited only by whatever the Applicant introduces for fill or creative parking pedestals or retaining walls—a regulatory gap, that on its face and as applied to the present Application, renders height restrictions objectively meaningless. Leaving the Planning Board discretion to determine "grade" as "average developed grade" results in a Code height standard that violates at least three core tenets of constitutional and administrative law: (1) the standard is an impermissible delegation of legislative authority to an adjudicatory decision maker, the Planning Board, which is a function that is expressly and solely the power of the legislative arm of government, the City Council; (2) the standard, which can essentially be relaxed, amended, or suspended to suit the application, would allow ad hoc variances from height restrictions, a function that is similarly outside the Planning Board's powers, but rather committed to the Zoning Board of Appeals; and (3) the height standard, as interpreted, is unconstitutional and void because the public and property owners to whom the standards apply cannot discern a consistent, objective standard that they or their neighbor may be held to. The lack of definition of "grade" and thereby an objective measure of how height restrictions are calculated is unlawful and unconstitutional.

In summary, the Application fails in the most significant ways to meet the standards and requirements of the City Code, or even of the now expired 2016 MDP. Mr. Trettel appreciates the Planning Board's continued examination of the Application.

Very Truly Yours,

SANDRA L. GUAY

KEITH P. RICHARD

Copy to:
John Roger Trettel

Sandra L. Guay
Partner
sguay@archipelagolaw.com

1 Dana Street
Portland, Maine 04101
(207) 558-0102

March 31, 2023

Via Email:

Portland Historic Preservation Board
Robert O'Brien, Chair
c/o Evan Schuekler, Program Manager
City of Portland
389 Congress Street
Portland, ME 04101
evans@portlandmaine.gov

Re: Portland Foreside Development Company
58 Fore Street/Mixed Use of Blocks 4 and 6
Historic Preservation Board Review Workshop
HPBR-002380-2023

Dear Chair O'Brien and Board Members:

This firm represents John Roger Trettel, the owner of property located at 5 Eastern Promenade, and a direct abutter to the proposed new construction and development at 58 Fore Street as presented in the Historic Preservation Board ("HPB") Review application ("Application") submitted by Portland Foreside Development Company ("Applicant"). This letter is submitted to voice Mr. Trettel's concerns about the proposed development's impact on his property and on the Munjoy Hill Historic District. Mr. Trettle makes these informed observations as the recent recipient of the 2023 Preservation Buffalo award for his work in the renovation of historic structures in Buffalo, New York.

The HPB is also in receipt of Mr. Trettel's March 17, 2023 letter to the Planning Board, which is incorporated into this letter and included in the record to this Board. The March 17 letter lays out in detail: (a) that the 2016 Master Development Plan ("MDP") for this project expired in December of 2022 and was never extended as required by both the City Code in effect in 2016 and as explicitly conditioned in the MDP itself, and is therefore void; (b) that the proposed new development violates the City's height restrictions on numerous grounds; (c) that even if it didn't violate the City Code on height restrictions, the methodology used by the Applicant to calculate height for the new structures in flawed, leading to significant errors in the height calculation (by more than 20 feet); (d) that the Applicant is including land that is not included in the 2016 MDP and is in fact located in an entirely different zone (the R-6 zone, which is in the Munjoy Hill

Historic District); and, (d) that that Applicant has failed to submit sufficient right, title or interest for areas of the proposed new construction that are outside of the Applicant's control, including both private and City property.

While each of these issues, well supported in the March 17 letter, are important to this Board in its review of the Application, the purpose of this letter is to focus on the additional review criteria subject to HPB review. In addition, this letter suggests that in light of the void MDP, the incomplete Application and the unresolved height calculation issues, the HPB should table the review of this Application until such time as a new and complete non-MDP application is submitted, and the height questions resolved.

I. The Application is Not Complete

The purpose of having a complete application prior to acceptance and initial review by any administrative board is to avoid waste of the board's time in the event that an applicant is either unable to provide what is needed in the application, and/or the applicant needs to significantly alter the application after review has already commenced, public comment has been received, and time has been expended. In this case, the City Code *requires* that an application submitted for review to the HPB must be deemed complete *before* that application is placed on a HPB meeting agenda. (Sec. 17.7.4.A). In addition to insufficient evidence of right, title or interest and insufficient evidence of adequate financial security, as noted in the March 15, 2023 Staff Memorandum to the HPB from Evan R. Schuekler, there is "significant amounts" of information that is lacking from the Application. The Application, as submitted, therefore lacks sufficient and required substantive information for the Applicant to have standing for even a workshop review by this Board, and review of the Application should therefore be tabled.

II. The Project is Not in Compliance with the Character and Form of the Historic District

In part, the stated purpose of the City's Historic Preservation Code is to "prevent the unnecessary loss of the community's historical features and to ensure compatible new construction." (Sect. 17.1.C). By manipulating the otherwise allowed height for structures in the B-6 zone, the massing of the proposed townhouses is significantly out of scale with the existing historic structures, leaving these historic structures shaded and dwarfed in comparison. This oversized scaling fails to meet the stated purpose of the Code, and additionally fails to protect and enhance neighborhood character (Sect. 17.1.E), fails to stabilize and improve the value of the designated properties and area (Sect. 17.1.F), fails to protect and enhance the attractiveness of the City (Sect. 17.1.G), and fails to foster and encourage preservation, restoration, and rehabilitation that respects the historic, cultural, architectural and archeological significance of the distinctive Munjoy Hill historic area and the historic structures (see discussion about the historic seawall in an email addressed to this Board from Barbara Vestal, dated March 29, 2023).

The original seawall structure is a significant archeological resource in the City of Portland. (Sec. 14.6.4.3.i). As such, it is subject to the requirements of that Section of the Code, including "leaving archeological resources untouched beneath a new development through adaptation of foundation design or architectural layout". (Sec. 14.6.4.3.a). The Applicant is required to provide evidence if complete protection is not feasible. (Sec. 14.6.4.3.b). Further, the need to impact the City's historic seawall in any way does not appear to be supported by evidence right, title or interest to do so. In addition, old maps of the area encompassing Block 4/Block 6, indicate that a fort was at one time located in that area. An archeological study should be required to identify whether the fort is located within the proposed development area, and if so, to make certain that any further development at the very least documents and where feasible, preserves, that important piece of Portland history.

The Munjoy Hill Architectural Development & Context Statement (April 2019) also illustrates how the proposed new structures fail to comply with the standards for the Munjoy Hill Historic District. For example, in the 'Visual Character of the Hill' section of the Context Statement, the scale of the existing houses is described as "generally modest" with most buildings ranging from 1½ to 3 stories in height. The Statement points out that this is the reason why some of the later developments "do not feel sufficiently integrated with the neighborhood." This statement easily applies to the tall, narrow structures proposed in the Application.

In addition, the review standards provided in Section 17.8.3.A of the City Code require that new construction in a Historic District must be visually compatible with surrounding structures "when viewed from any street or open space" with respect to height, width, proportion and scale. Section 17.8.3.B requires that the composition of the principal facades be visually compatible with structures, public ways and places to which the building is visually related. Section 17.8.3.C requires such compatibility with relation to the street. Section 17.8.3.D. requires that "the distinguishing original qualities or character of a structure, object, *or site and its environment,* not be destroyed" (emphasis added). There is no amount of wordsmithing by the Applicant that can make the proposed new structures meet these mandatory standards.

Furthermore, one critical "open space" from which these structures can be viewed is the water. For centuries, boaters have enjoyed the view of Fore Street and Munjoy Hill as seen over the top of the Portland Company buildings. The proposed structures will block and destroy this historic view forever. Likewise, because the proposed structures do not "step down" toward the water, they will forever block the view to the water from Fore Street and other locations on Munjoy Hill.

III. The Height Issue Must be Resolved Prior to Review by this Board

As fully illustrated in the March 17, 2023 letter to the Planning Board, on which this Board was copied, there are numerous issues with the way height has been calculated for the proposed new structures. In part, the Applicant (and previously, the City) has been applying an "average

developed grade" from which to begin to calculate height. Not only is this term not defined in the Code, it makes no logical sense. As used, it would mean that a developer can bring as much fill onto a property as it wants to raise the pre-measurement height to any level it desires (in this case even using another structure, the parking structure to establish "average developed grade"). In effect, this means that the City has *no enforceable maximum height restrictions*, as the starting point from which to start calculating height can be artificially manipulated to whatever the developer desires and can afford. Here the existing Portland Company site has a historically established grade – the parking lot – and it is from here that the height of the structures should be measured.

In the MDP, despite the radically elevated rear portion of the property along Fore Street, the City's Planning Office permitted the Applicant to use a method of calculating the "average developed grade" by allowing the developer to calculate an average at the corners of the building foundation. In the application to the Planning Board, it was however readily apparent that rather than use the industry standard for determining an average grade, the Applicant had taken numerous measurements from the highest side of the property, and very few measurements from the lower elevation of the property. In doing so, the supposed "average grade" was manipulated to look significantly greater than it actually is; a difference of *over 20 feet*.

Until the issue of height calculation is resolved, it is a waste of this Board's valuable time reviewing an application for structures that have been designed around these miscalculations.

IV. Summary

The Historic Preservation Board has always played a critical role in the review of applications before it and, in keeping with the legislative wishes of the City and of the surrounding community, works diligently to ensure that new development in Portland's historic districts meet the letter of the Code. The Board often gets only one shot to reshape a proposed development – or to disapprove of a proposed design in its entirety when, as proposed, the project fails to comply with the Code.

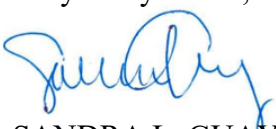
There is of course great significance to all applications that come before the HPB, from the perspective of the Board, the applicant, and the community. The size and scope of the 58 Fore Street project is however unique in many respects. The all-encompassing, view blocking scale of the proposed structures now before this Board would forever alter and destroy the historic nature of Munjoy Hill, as viewed both from the streets of the City and from the water.

The 2016 Master Development Plan has expired and is now void. The Application as submitted is woefully incomplete, in part lacking necessary evidence of right, title or interest. The height calculations proposed by the Applicant are artificially manipulated and otherwise fail to comply with the Code. The project area includes land in the R-6 zone and outside of the scope of

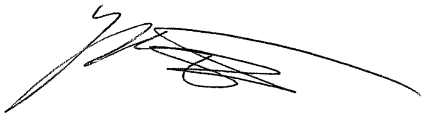
even the now void 2016 MDP. Lastly, the Application fails to meet even the most basic requirements of the Historic Preservation portion of the Code.

On behalf of abutter John Roger Trettel, we ask that the Historic Preservation Board find the application to be incomplete and/or otherwise not in compliance with the required review standards of the City Code.

Very Truly Yours,



SANDRA L. GUAY



KEITH P. RICHARD

Copy to:

John Roger Trettel

Dear Mr. Tetelman,

I am an owner of an apartment at 45 Eastern Promenade, and have a few questions for the upcoming meeting regarding Phase 2 of the Portland Foreside Master Development Plan.

1. There is growing traffic generated since Wex and recently Sun Life have become a part of the Fore Street/Eastern Prom/Franklin Street/295 traffic pattern. This of course will increase once the proposed 1,000 parking spots will become part of the Portland Foreside Master Development Plan. I've read the reports from various experts who have analyzed the proposed situation based on percentages, volume, etc.

(a) My concern is that currently there is parking on both sides of the street almost all the way between India Street to Fort Allen Park. Is a bicycle lane really going to be included in the new plans on such a narrow two-lane street in its current configuration, (with 2 hotels at the base)? Block 5/6 is going to be another hotel generating its own traffic.

(b) Between September and June, this street is a school bus route. In the mornings, children cross the street over to just past the Kate Moss Gallery going up the hill to catch their bus. Sometimes, and let's not forget these are children, they run out. If this becomes a higher traffic area, consideration of this will need to be made.

(c) I may have missed this in looking at what plans have been offered, but I do not see sufficient entries/exits for emergency use vehicles, i.e., MEDCU, fire trucks, police cars and vans. What are this company's evacuation plans in case of an emergency? Have they offered a plan? How are all those people going to get out in case of a fire? Have they created a fire drill plan? Think of all those people out on the street while fire trucks are trying to get in. I never see a building plan with a fire hydrant in it. I used to live in Manhattan; this is where this question stems.

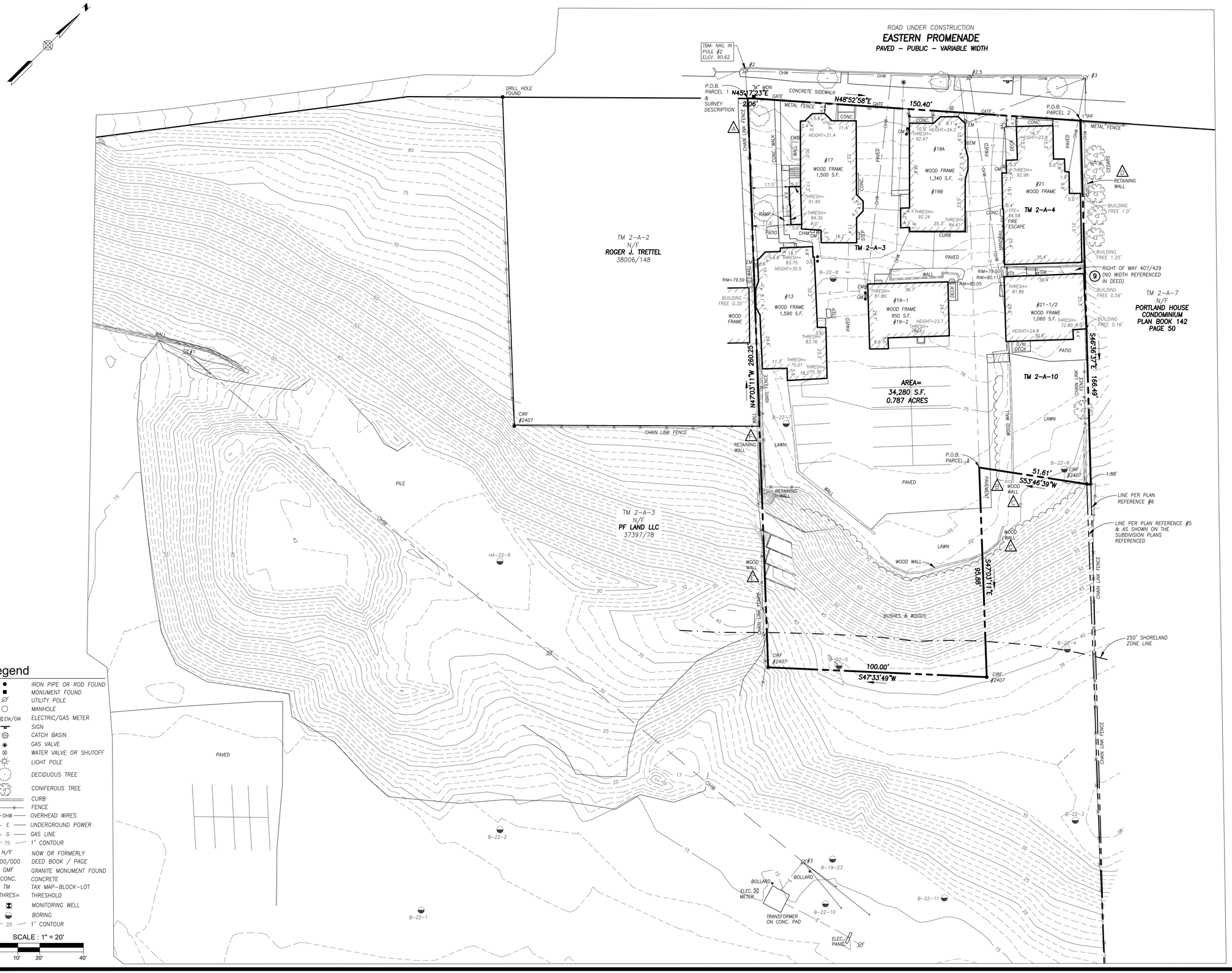
Thank you for reading this.

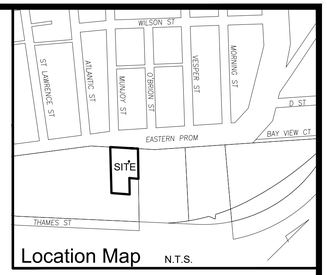
Lisa Martorella

45 Eastern Promenade, Apt. 7J

Portland, Maine 04101

207-775-0472





Location Map N.T.S.

Plan References

1. "BOUNDARY & TOPOGRAPHY SURVEY AT 58 FORE STREET, PORTLAND, MAINE MADE FOR WOODARD & CURRAN" AUGUST 29, 2016, REVISED OCT. 3, 2016 BY OWEN HASKELL, INC.

2. "ALTA/ACSM LAND TITLE SURVEY, 58 FORE STREET, PORTLAND, MAINE MADE FOR CPB2 LLC" BY OWEN HASKELL, INC. DATED MAY 22, 2013.

3. "ALTA/ACSM LAND TITLE SURVEY, 58 FORE STREET, PORTLAND, MAINE MADE FOR PF MARINA LLC" BY OWEN HASKELL, INC. DATED MAY 22, 2018 AND PLAN OF PF MARINA LEASE AREA AT 58 FORE STREET, PORTLAND, MAINE MADE FOR PF MARINA LLC BY OWEN HASKELL, INC. DATED MAY 17, 2018 AS REVISED ON JANUARY 22, 2019.

4. "ALTA/ACSM LAND TITLE SURVEY, 58 FORE STREET, PORTLAND, MAINE MADE FOR PF ONE DEVCO LLC AND PF LAND LLC" BY OWEN HASKELL, INC. DATED MARCH 4, 2020 LAST REVISED NOVEMBER 5, 2020.

5. "SUBDIVISION PLAT, PORTLAND FORESIDE, THAMES STREET & FORE STREET, PORTLAND, MAINE MADE FOR OWNER OF RECORD, CPB2 I LLC," BY OWEN HASKELL INC. DATED FEBRUARY 13, 2020 AND RECORDED AT CUMBERLAND COUNTY REGISTRY OF DEEDS IN PLAN BOOK 220, PAGE 65.

6. "AMENDED SUBDIVISION PLAT, PORTLAND FORESIDE, THAMES STREET AND FORE STREET, PORTLAND MAINE, MADE FOR OWNER OF RECORD, PF ONE DEVCO LLC AND PF LAND LLC" BY OWEN HASKELL, INC. DATED NOVEMBER 20, 2020 AND RECORDED AT CUMBERLAND COUNTY REGISTRY OF DEEDS IN PLAN BOOK 220, PAGE 446.

7. "ALTA/NSPS LAND TITLE SURVEY, 1 MARINA WAY, PORTLAND, CUMBERLAND COUNTY, MAINE MADE FOR PF MARINA, LLC" JANUARY 26, 2021 REVISED MARCH 18, 2021 BY OWEN HASKELL, INC.

Utility Note

THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. THE SURVEYOR MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES. CALL 1-888-DIGSAFE AT LEAST THREE BUSINESS DAYS BEFORE PERFORMING ANY CONSTRUCTION. DUE TO OSHA CONFINED SPACE REQUIREMENTS, ALL INVERTS AND PIPE SIZES MUST BE VERIFIED PRIOR TO ANY CONSTRUCTION.

General Notes

1. OWNER OF RECORD: 21 EASTERN PROM LLC
   254 COMMERCIAL STREET, PORTLAND, MAINE
   CUMBERLAND COUNTY REGISTRY OF DEEDS BOOK 39047 PAGE 291

2. LOCUS IS SHOWN AS LOTS 3, 4 & 10 BLOCK A ON CITY OF PORTLAND'S ASSESSORS MAP 2.

3. BEARINGS ARE BASED ON MAINE STATE PLANE COORDINATES WEST ZONE NAD83.
   CITY POINTS: T-113-80-206 N:302687.77 E:2932345.31
   T-113-12-111 N:302722.13 E:2933029.45

4. THERE ARE 20 REGULAR PARKING SPACES ON SITE.

5. UTILITIES SHOWN ARE OBSERVED EVIDENCE ONLY.

6. ELEVATIONS ARE BASED ON CITY DATUM. BENCHMARK: NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION (NOAA) – TIDAL BENCHMARK. BENCH MARK STAMPING: NO. 3 1971 ELEVATION 11.02. ALSO TBM 11, BOLT ON U.S.S. PORTLAND MEMORIAL – FORT ALLEN PARK TOPOGRAPHIC SURVEY BY CITY OF PORTLAND, ELEVATION 73.22. PER THE CITY OF PORTLAND THE CITY DATUM IS EQUAL TO +0.02 FEET ABOVE NGVD 29.

Legend

- IRON PIPE OR ROD FOUND
- MONUMENT FOUND
- UTILITY POLE
- MANHOLE
- EM/GM ELECTRIC/GAS METER
- SIGN
- CATCH BASIN
- GAS VALVE
- WATER VALVE OR SHUTOFF
- LIGHT POLE
- DECIDUOUS TREE
- CONIFEROUS TREE
- CURB
- FENCE
- OHW OVERHEAD WIRES
- E UNDERGROUND POWER
- G GAS LINE
- 75 1' CONTOUR
- N/F NOW OR FORMERLY
- 000/000 DEED BOOK / PAGE
- GMF GRANITE MONUMENT FOUND
- CONC. CONCRETE
- TM TAX MAP–BLOCK–LOT
- THRES= THRESHOLD
- MONITORING WELL
- BORING
- 20 1' CONTOUR

SCALE : 1" = 20'

0' 10' 20' 40'

Topographic Survey

At

13-23 Eastern Promenade, Portland, Maine

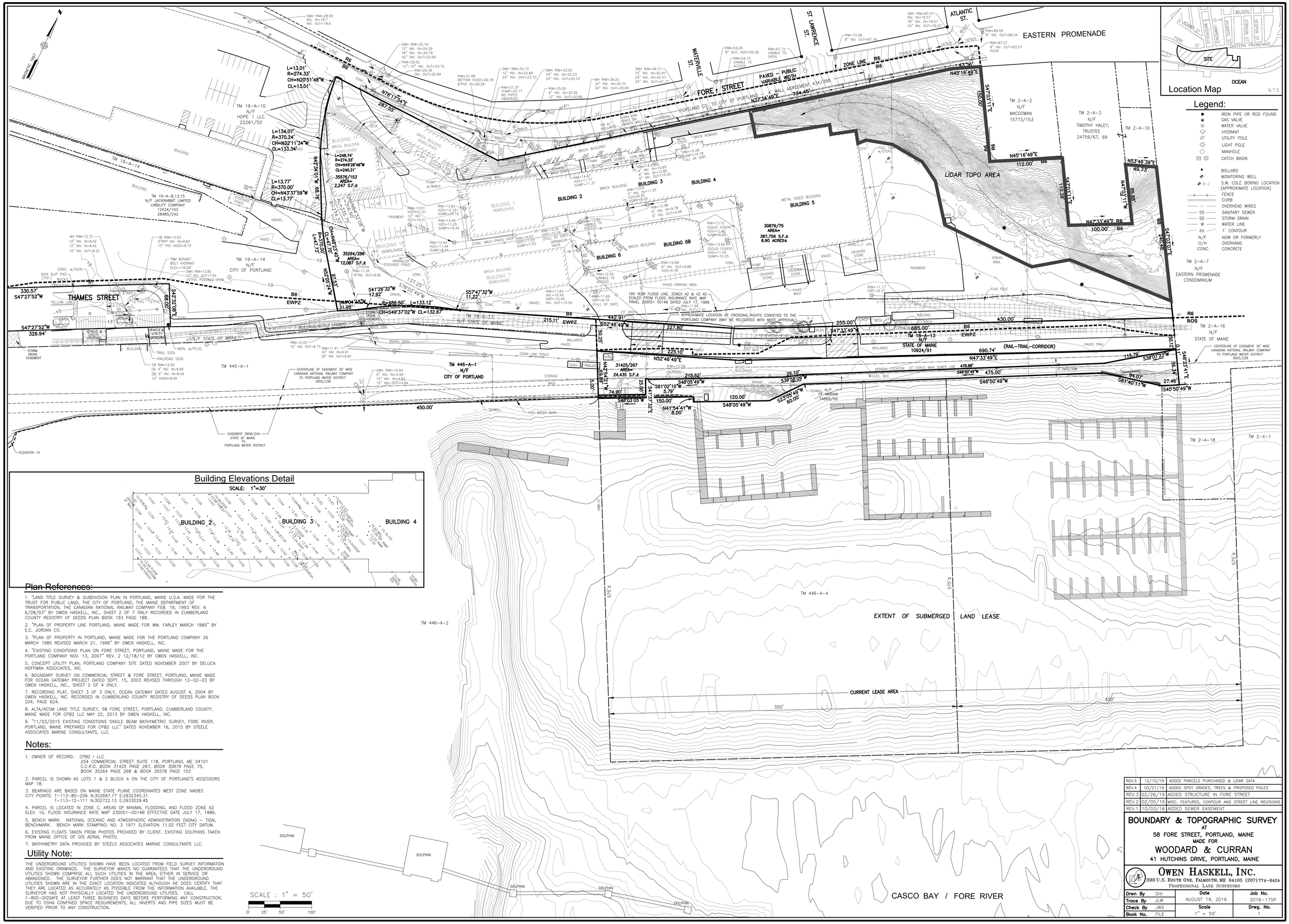
Made for

PF Six Devco LLC

254 Commercial Street, Suite 18, Portland, Maine

OWEN HASKELL, INC.
PROFESSIONAL LAND SURVEYORS
390 US ROUTE 1, UNIT 10, FALMOUTH, ME 04105 TEL. 207-774-0424

DRAWN BY: RS / JLW	DATE: JUNE 27, 2022	JOB NO. 2022-042 P	
CHECKED BY: RRL	SCALE: 1" = 20'	DRWG. NO. 1-T	



Building Elevations Detail

SCALE: 1"=30'

Legend:

- IRON PIPE OR ROD FOUND
- GAS VALVE
- WATER VALVE
- HYDRANT
- UTILITY POLE
- LIGHT POLE
- MANHOLE
- CATCH BASIN
- BOLLARD
- MONITORING WELL
- B-2 S.W. COLE BORING LOCATION (APPROXIMATE LOCATION)
- FENCE
- CURB
- OVERHEAD WIRES
- SS SANITARY SEWER
- SD STORM DRAIN
- W WATER LINE
- 20 1' CONTOUR
- N/F NOW OR FORMERLY
- O/H OVERHANG
- CONC. CONCRETE

Plan References:

1. "LAND TITLE SURVEY & SUBDIVISION PLAN IN PORTLAND, MAINE U.S.A. MADE FOR THE TRUST FOR PUBLIC LAND, THE CITY OF PORTLAND, THE MAINE DEPARTMENT OF TRANSPORTATION, THE CANADIAN NATIONAL RAILWAY COMPANY FEB. 19, 1993 REV. 6 6/28/93" BY OWEN HASKELL, INC., SHEET 2 OF 7 ONLY RECORDED IN CUMBERLAND COUNTY REGISTRY OF DEEDS PLAN BOOK 193 PAGE 188.
2. "PLAN OF PROPERTY LINE PORTLAND, MAINE MADE FOR WM. FARLEY MARCH 1985" BY E.C. JORDAN CO.
3. "PLAN OF PROPERTY IN PORTLAND, MAINE MADE FOR THE PORTLAND COMPANY 26 MARCH 1985 REVISED MARCH 21, 1996" BY OWEN HASKELL, INC.
4. "EXISTING CONDITIONS PLAN ON FORE STREET, PORTLAND, MAINE MADE FOR THE PORTLAND COMPANY NOV. 13, 2007" REV. 2 12/18/12 BY OWEN HASKELL, INC.
5. CONCEPT UTILITY PLAN, PORTLAND COMPANY SITE DATED NOVEMBER 2007 BY DELUCA HOFFMAN ASSOCIATES, INC.
6. BOUNDARY SURVEY ON COMMERCIAL STREET & FORE STREET, PORTLAND, MAINE MADE FOR OCEAN GATEWAY PROJECT DATED SEPT. 15, 2003 REVISED THROUGH 12-02-03 BY OWEN HASKELL, INC., SHEET 2 OF 4 ONLY.
7. RECORDING PLAT, SHEET 3 OF 3 ONLY, OCEAN GATEWAY DATED AUGUST 4, 2004 BY OWEN HASKELL, INC. RECORDED IN CUMBERLAND COUNTY REGISTRY OF DEEDS PLAN BOOK 204, PAGE 624.
8. ALTA/ACSM LAND TITLE SURVEY, 58 FORE STREET, PORTLAND, CUMBERLAND COUNTY, MAINE MADE FOR CPB2 LLC MAY 22, 2013 BY OWEN HASKELL, INC.
9. "11/03/2015 EXISTING CONDITIONS SINGLE BEAM BATHYMETRIC SURVEY, FORE RIVER, PORTLAND, MAINE PREPARED FOR CPB2 LLC" DATED NOVEMBER 16, 2015 BY STEELE ASSOCIATES MARINE CONSULTANTS, LLC.

Notes:

1. OWNER OF RECORD: *CPB2 I LLC*
   254 COMMERCIAL STREET SUITE 118, PORTLAND, ME 04101
   C.C.R.D. BOOK 31425 PAGE 267, BOOK 30879 PAGE 75,
   BOOK 35264 PAGE 268 & BOOK 35576 PAGE 153
2. PARCEL IS SHOWN AS LOTS 1 & 2 BLOCK A ON THE CITY OF PORTLAND'S ASSESSORS MAP 18.
3. BEARINGS ARE BASED ON MAINE STATE PLANE COORDINATES WEST ZONE NAD83. CITY POINTS: T-113-80-206 N:302687.77 E:2932345.31
   T-113-12-111 N:302722.13 E:2933029.45
4. PARCEL IS LOCATED IN ZONE C, AREAS OF MINIMAL FLOODING, AND FLOOD ZONE A2 ELEV. 10, FLOOD INSURANCE RATE MAP 230051-0014B EFFECTIVE DATE JULY 17, 1986.
5. BENCH MARK: NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION (NOAA) – TIDAL BENCHMARK. BENCH MARK STAMPING: NO. 3 1971 ELEVATION 11.02 FEET CITY DATUM.
6. EXISTING FLOATS TAKEN FROM PHOTOS PROVIDED BY CLIENT. EXISTING DOLPHINS TAKEN FROM MAINE OFFICE OF GIS AERIAL PHOTO.
7. BATHYMETRY DATA PROVIDED BY STEELS ASSOCIATES MARINE CONSULTANTS LLC.

Utility Note:

THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. THE SURVEYOR MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM THE INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES. CALL 1-800-DIGSAFE AT LEAST THREE BUSINESS DAYS BEFORE PERFORMING ANY CONSTRUCTION. DUE TO OSHA CONFINED SPACE REQUIREMENTS, ALL INVERTS AND PIPE SIZES MUST BE VERIFIED PRIOR TO ANY CONSTRUCTION.

REV.5	12/10/19	ADDED PARCELS PURCHASED & LIDAR DATA
REV.4	03/21/19	ADDED SPOT GRADES, TREES & PROPOSED POLES
REV.3	02/26/19	ADDED STRUCTURE IN FORE STREET
REV.2	02/05/19	MISC. FEATURES, CONTOUR AND STREET LINE REVISIONS
REV.1	10/03/16	ADDED SEWER EASEMENT

BOUNDARY & TOPOGRAPHIC SURVEY

AT

58 FORE STREET, PORTLAND, MAINE

MADE FOR

WOODARD & CURRAN

41 HUTCHINS DRIVE, PORTLAND, MAINE

OWEN HASKELL, INC.
390 U.S. ROUTE ONE, FALMOUTH, ME 04105 (207) 774-0424
PROFESSIONAL LAND SURVEYORS

Drwn By	OHI	Date	Job No.
Trace By	JLW	AUGUST 19, 2016	2016-175P
Check By	JWS	Scale	Drwg. No.
Book No.	FILE	1" = 50'	1

PORTLAND FORESIDE DEVELOPMENT COMPANY
PORTLAND, MAINE

PHASE 2

JUNE 2023

NOT FOR CONSTRUCTION

18 C-206 CIVIL DETAILS - 7



PROJECT LOCATION MAP

DRAWING INDEX		
SHEET NO.	**SHEET TITLE**	**SHEET NAME**
-	G-000	COVER
1	G-001	GENERAL NOTES, LEGEND & ABBREVIATIONS
2	C-001	EXISTING CONDITIONS
3	C-002	DEMOLITION PLAN
4	C-100	SITE PLAN - 1
5	C-101	SITE PLAN - 2
6	C-102	GRADING & DRAINAGE PLAN - 1
7	C-103	GRADING & DRAINAGE PLAN - 2
8	C-104	UTILITY PLAN - 1
9	C-105	UTILITY PLAN - 2
10	C-106	ROAD PROFILE
11	C-107	PIPE & STRUCTURE TABLES
12	C-200	CIVIL DETAILS - 1
13	C-201	CIVIL DETAILS - 2
14	C-202	CIVIL DETAILS - 3
15	C-203	CIVIL DETAILS - 4
16	C-204	CIVIL DETAILS - 5
17	C-205	CIVIL DETAILS - 6
18	C-206	CIVIL DETAILS - 7
19	C-207	FORE STREET DETAILS



SITE LOCATION MAP

SOURCE: USGS TOPO QUADRANGLE

Woodard & Curran
41 Hutchins Drive
Portland, Maine 04102
800.426.4262 | www.woodardcurran.com

THIS DOCUMENT IS THE PROPERTY OF WOODARD & CURRAN AND ITS CLIENT. REPRODUCTION OR MODIFICATION WITHOUT WRITTEN PERMISSION IS PROHIBITED.

PE SEAL:

STATE OF MAINE
LAUREN JANE SWETT
No. 12284
LICENSED PROFESSIONAL ENGINEER

NOT FOR CONSTRUCTION

CLIENT INFO:

PORTLAND FORESIDE DEVELOPMENT COMPANY
PORTLAND, MAINE

PHASE 2

REV	MM/DD/YY	DESCRIPTION

JOB NO:	227007
DATE:	JUNE 2023
SCALE:	AS NOTED
DESIGNED BY:	ANL
DRAWN BY:	BCM
CHECKED BY:	LJS
FILENAME:	PHASE 2 COVER.dwg

DRAWING TITLE:

CIVIL COVER

DRAWING NO:

G-000

SHEET: ---- OF 19

C:\Users\lswett\OneDrive - Woodard & Curran_PC\Desktop\PFDC\Phase 2 - 3D\Phase 2 Cover.dwg, Jun 22, 2023 - 10:00am, BMCROWTT

CIVIL GENERAL NOTES

1. SITE AND TOPOGRAPHIC DATA COMPILED FROM MULTIPLE PLANS PREPARED BY OWEN HASKELL, INC. DATED 6/27/2022. SITE DATA SUPPLEMENTED BY PHASE 1 DESIGN PLANS AND RECORD DRAWINGS.
2. VERTICAL DATUM IS REFERENCED TO CITY DATUM WITH ONE FOOT CONTOUR INTERVALS. CITY DATUM IS +0.02 FT NGVD 1929. HORIZONTAL DATUM IS REFERENCED TO STATE PLANE NAD 1983 (FEET), MAINE WEST ZONE.
3. THE ENTIRE SITE SHALL BE DEVELOPED AND/OR MAINTAINED AS DEPICTED ON THE SITE PLAN. APPROVAL OF THE PLANNING AUTHORITY OR PLANNING BOARD SHALL BE REQUIRED FOR ANY ALTERATION TO OR DEVIATION FROM THE APPROVED SITE PLAN, INCLUDING, WITHOUT LIMITATION: TOPOGRAPHY, DRAINAGE, LANDSCAPING, RETENTION OF WOODED OR LAWN AREAS, ACCESS, SIZE, LOCATION, AND SURFACING OF PARKING AREAS, AND LOCATION AND SIZE OF BUILDINGS.
4. THE CONTRACTOR SHALL CALL "DIG SAFE" AT 811 AT LEAST 72 HOURS PRIOR TO EXCAVATION IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL SAFETY CODES.
5. PROPERLY PROTECT AND DO NOT DISTURB PROPERTY IRONS AND MONUMENTS. IF DISTURBED, THE PROPERTY MONUMENT SHALL BE RESET AT THE CONTRACTOR'S EXPENSE BY A LICENSED LAND SURVEYOR ACCEPTABLE TO THE CITY. PROPERTY MONUMENTS SHALL BE RESET IN ACCORDANCE WITH CITY OF PORTLAND STANDARDS.
6. DO NOT PARK, IMPEDE ACCESS TO, OR STORE EQUIPMENT ON ADJACENT CITY OR PRIVATELY OWNED LOTS, UNLESS PERMISSION HAS BEEN GRANTED IN ADVANCE IN WRITING BY CITY AND/OR LAND OWNER.
7. PRIOR TO CONSTRUCTION, A PRECONSTRUCTION MEETING SHALL BE HELD AT THE PROJECT SITE WITH THE CONTRACTOR, ENGINEER, CITY OF PORTLAND DEVELOPMENT REVIEW COORDINATOR, CITY OF PORTLAND DEPARTMENT OF PUBLIC WORKS REPRESENTATIVE, AND OWNER TO REVIEW THE CONSTRUCTION SCHEDULE AND CRITICAL ASPECTS OF THE SITE WORK. AT THAT TIME, THE SITE/BUILDING CONTRACTOR SHALL PROVIDE THREE (3) COPIES OF A DETAILED CONSTRUCTION SCHEDULE TO THE ATTENDING CITY REPRESENTATIVE. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO ARRANGE A MUTUALLY AGREEABLE TIME FOR THE PRECONSTRUCTION MEETING.
8. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL RELOCATIONS THAT CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE SITE DRAWINGS, INCLUDING BUT NOT LIMITED TO ALL UTILITIES, STORM INFRASTRUCTURE, SIGNS, UTILITY POLES, FENCES, ETC. AS REQUIRED. ALL WORK SHALL BE IN ACCORDANCE WITH THE GOVERNING AUTHORITY'S SPECIFICATIONS AND SHALL BE APPROVED BY SUCH. ALL COSTS SHALL BE INCURRED BY THE CONTRACTOR.
9. LAND OUTSIDE THE PROPOSED LIMIT OF WORK SHALL NOT BE DISTURBED BY THE CONTRACTOR. ANY LAND OUTSIDE LIMIT OF WORK DISTURBED BY CONTRACTOR SHALL BE RESTORED BY CONTRACTOR AT NO EXPENSE TO OWNER.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ESTABLISHING AND MAINTAINING ALL CONTROL POINTS AND BENCH MARKS NECESSARY FOR THE WORK.
11. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL SAFETY CODES, REGULATIONS, LEGAL REQUIREMENTS, PERMIT CONDITIONS, ETC.
12. THE CONTRACTOR SHALL TAKE ADEQUATE PRECAUTIONS TO PROTECT ALL WALKWAYS, STREETS, PAVEMENTS, CURBING, TREES, PLANTINGS, LAWN, FENCING TO REMAIN ON OR OFF THE PREMISES, AND SHALL REPAIR AND REPLACE AT HIS/HER OWN EXPENSE, AS DIRECTED BY THE ENGINEER, ANY ITEMS DAMAGED AS A RESULT OF THE CONTRACTOR'S WORK.
13. THE CONTRACTOR SHALL PROVIDE ADEQUATE BRACING AND SHORING OF ALL EXCAVATIONS IN ACCORDANCE WITH THE REQUIREMENTS OF ALL GOVERNING CODES AND REGULATIONS.
14. SAWCUTS IN EXISTING PAVEMENT SHALL BE SMOOTH AND STRAIGHT. EXISTING PAVEMENT SHALL BE SAWCUT AND BUTTED TO THE NEW PAVEMENT. NO FEATHERING OF PAVEMENT WILL BE PERMITTED.
15. WORK WITHIN PUBLIC RIGHT-OF-WAY SHALL COMPLY WITH APPLICABLE CITY OF PORTLAND AND STATE REQUIREMENTS.
16. ALL CURB DAMAGED DURING CONSTRUCTION SHALL BE REPLACED IN KIND AND SHALL CONFORM TO CITY OF PORTLAND SPECIFICATIONS. COST IS INCIDENTAL TO CONTRACT.
17. ALL FULL DEPTH PAVEMENT REPLACEMENT SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE CITY OF PORTLAND TECHNICAL STANDARDS.
18. ALL WORK WITHIN THE RIGHT OF WAY OF CITY STREETS SHALL BE PERFORMED IN ACCORDANCE WITH THE REQUIREMENTS OF THE CITY TRAFFIC ENGINEER. THE CONTRACTOR SHALL SUBMIT A PROPOSED TRAFFIC CONTROL PLAN TO THE TRAFFIC ENGINEER AT LEAST 7 DAYS BEFORE BEGINNING CONSTRUCTION IN ANY STREET. THE PROPOSED TRAFFIC CONTROL PLAN SHALL BE SUBJECT TO APPROVAL BY THE TRAFFIC ENGINEER, WHO MAY ATTACH SPECIAL CONDITIONS TO, OR REQUIRE MODIFICATIONS OF, THE TRAFFIC CONTROL PLAN. WORK SHALL NOT BEGIN UNTIL THE PLAN IS APPROVED BY THE TRAFFIC ENGINEER.
19. THE CONTRACTOR SHALL OBTAIN A CITY STREET OPENING PERMIT BEFORE BEGINNING CONSTRUCTION. THE CONTRACTOR WILL ALSO BE REQUIRED TO HAVE A CURRENT EXCAVATOR'S LICENSE IN THE CITY.
20. ALL WORK IN THE PUBLIC R.O.W. SHALL BE COMPLETED IN ACCORDANCE WITH THE CITY'S TECHNICAL MANUAL ARTICLES VI, VII, AND IX OF CHAPTER 25-STREETS, SIDEWALKS, AND OTHER PUBLIC PLACES OF THE CITY OF PORTLAND CODE OF ORDINANCES.
21. ALL SEWER CONSTRUCTION IN THE PUBLIC WAY SHALL BE COMPLETED IN ACCORDANCE WITH ARTICLE II OF CHAPTER 24-SEWERS OF THE CITY OF PORTLAND CODE OF ORDINANCES.
22. CONTACT CITY OF PORTLAND ARBORIST AND ENGINEER PRIOR TO CUTTING ROOTS, TRIMMING BRANCHES, OR DISTURBING TREES WITHIN THE R.O.W. THAT NOT HAVE BEEN NOTED FOR REMOVAL ON THE PLANS.
23. IF IMPORTED FILL MATERIAL IS REQUIRED, IT SHALL BE CERTIFIED IN WRITING BY CONTRACTOR AS NON-CONTAMINATED, CLEAN FILL SUITABLE FOR THE INTENDED USE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TESTING OF ENVIRONMENTAL PARAMETERS AS OUTLINED IN THE PROJECT SPECIFICATIONS.
24. RESTORE ALL AREAS DISTURBED BY CONTRACTOR'S OPERATIONS TO ORIGINAL FINISH (GRAVEL, PAVEMENT, RIPRAP, GRASS, ETC.) UNLESS OTHERWISE NOTED ON PLANS. RESTORATION OF ALL AREAS DAMAGED BY CONTRACTOR SHALL BE INCIDENTAL TO THE PROJECT.
25. ALL MATERIAL SHALL BE FURNISHED BY CONTRACTOR UNLESS OTHERWISE NOTED.
26. CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFICATION OF ALL DIMENSIONS PRIOR TO START OF CONSTRUCTION.
27. RESTRICT ACCESS TO SITE THROUGH THE USE OF APPROPRIATE SIGNAGE, BARRIERS, FENCES, ETC. SITE SHALL BE LEFT WITH APPROPRIATE SAFETY MEASURES IN PLACE DURING NON-WORKING HOURS. NO TRENCH SHALL BE LEFT OPEN DURING NON-WORKING HOURS. SITE SAFETY IS THE RESPONSIBILITY OF CONTRACTOR, DURING BOTH WORKING AND NON-WORKING HOURS.
28. CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL NECESSARY CONSTRUCTION PERMITS. PERMIT APPLICATIONS SHALL BE SUBMITTED WITH ADEQUATE TIME SO AS NOT TO DELAY CONSTRUCTION.
29. CONTRACTOR SHALL PROVIDE AND MAINTAIN EROSION AND SEDIMENTATION CONTROL MEASURES IN ACCORDANCE WITH THESE PLANS AND THE LATEST EDITION OF THE MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION'S BEST MANAGEMENT PRACTICES MANUAL. KEEP ALL STREETS FREE OF DUST, MUD, AND DEBRIS. STREETS AND WALKWAYS SHALL BE SWEPT REGULARLY, AND TEMPORARY CONSTRUCTION ENTRANCES SHALL BE UTILIZED DURING CONSTRUCTION.
30. CONTRACTOR IS REQUIRED TO PERFORM ALL WORK IN ACCORDANCE WITH REQUIREMENTS OUTLINED WITHIN THE MAINE CONSTRUCTION GENERAL PERMIT. CONTRACTOR SHALL FILE A NOTICE OF TERMINATION WITH PHOTOGRAPHS AND REQUIRED ATTACHMENTS TO THE MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION UPON COMPLETION OF THE PROJECT. A DRAFT OF THE NOTICE WILL BE PROVIDED TO THE OWNER AND THE OWNER'S REPRESENTATIVE FOR REVIEW PRIOR TO SUBMISSION. A COPY OF THE NOTICE CAN BE OBTAINED AT WWW.MAINE.GOV/DEP/LAND/STORMWATER/CONSTRUCTION.HTML.
31. CONTRACTOR SHALL MAINTAIN EROSION CONTROL AND STORMWATER POLLUTION PREVENTION SYSTEMS IN COMPLIANCE WITH THE REQUIREMENTS OF THE MAINE CONSTRUCTION GENERAL PERMIT (MCGP). CONTRACTOR SHALL CONDUCT AND MAINTAIN RECORDS OF EROSION CONTROL INSPECTIONS PER THE NOTICE OF INTENT TO COMPLY WITH THE MAINE CONSTRUCTION GENERAL PERMIT. CONTRACTOR SHALL PREPARE AND SUBMIT A NOTICE OF TERMINATION TO THE MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION, UPON COMPLETION OF THE CONSTRUCTION PROJECT. SUBMIT A COPY OF THE INSPECTION RECORDS AND THE NOTICE OF TERMINATION TO THE OWNER AND ARCHITECT.
32. THE UTILITY LOCATIONS SHOWN IN PLAN AND PROFILE ARE APPROXIMATE AND REQUIRE FIELD VERIFICATION BY THE CONTRACTOR. CONTACT THE ENGINEER AND OWNER IMMEDIATELY UPON DISCOVERING ANY CONFLICTS WITH EXISTING AND PROPOSED UTILITY LOCATIONS. NOT ALL EXISTING UTILITIES ARE SHOWN ON PLANS.
33. CONTRACTOR SHALL CLEAN AND/OR FLUSH ALL MANHOLES, CATCH BASINS, AND ASSOCIATED PIPING AFTER THE WORK HAS BEEN COMPLETED.
34. CONTRACTOR SHALL COORDINATE CONSTRUCTION ACTIVITY WITH UTILITY COMPANIES, EMERGENCY SERVICES AND CITY. NOTIFY UTILITY COMPANIES WITHIN 48 HOURS OF WORK ACTIVITY ADJACENT TO THOSE UTILITIES.
35. CONTRACTOR SHALL SEQUENCE THE WORK SO AS TO MAINTAIN UTILITY SERVICES FOR EXISTING OPERATIONS ON AND ADJACENT TO THE SITE. CONTRACTOR SHALL PROVIDE A PLAN FOR TEMPORARY UTILITY SERVICES OR AS REQUIRED. THE PLAN SHALL BE STAMPED BY A PROFESSIONAL ENGINEER AND SUBMITTED TO OWNER. ENGINEER AND UTILITY FOR ACCEPTANCE A MINIMUM OF 14 DAYS PRIOR TO START OF UTILITY WORK.
36. EXISTING FACILITIES (I.E. SIGNS, POLES, LIGHT POSTS, ETC.) SHALL BE REMOVED AND PROTECTED DURING CONSTRUCTION. OWNER RETAINS RIGHT TO KEEP ANY AND ALL REMOVED FACILITIES. CONTRACTOR SHALL DISPOSE OF ANY REMOVED FACILITY AT THE REQUEST OF CITY AT CONTRACTOR'S EXPENSE.
37. ALL TREES NOT NOTED TO BE REMOVED OR RELOCATED SHALL BE PROTECTED BY CONTRACTOR DURING CONSTRUCTION.
38. A COMPLETE SET OF "RECORD" DRAWINGS THAT REFLECT ANY AND ALL MODIFICATIONS TO THE SANITARY SEWER SYSTEM, STORM SEWER SYSTEM AND ANY OTHER UTILITY INSTALLATIONS OR ALTERATIONS WITHIN THE PROJECT LIMITS SHALL BE SUBMITTED TO THE CITY OF PORTLAND. THESE DRAWINGS SHALL BE SUBMITTED IN BOTH DIGITAL (ACAD) AND HARD COPY FORMAT AS DEFINED IN THE SPECIFICATIONS PRIOR TO PAYMENT OF FINAL RETAINAGE.
39. ALL UTILITY SERVICES AND MAINS ARE APPROXIMATE AS SHOWN. CONTRACTOR SHALL FIELD VERIFY LOCATION OF EXISTING SERVICES AND MAINS AND RELOCATE AS REQUIRED TO COMPLETE WORK. CONTRACTOR SHALL COORDINATE WORK WITH THE CITY OF PORTLAND, PORTLAND WATER DISTRICT, UNITIL, CMP, AND ANY OTHER UTILITY OWNERS AND PROPERTY OWNERS.
40. WORK IS PROPOSED IN CLOSE PROXIMITY TO EXISTING UTILITIES. CONTRACTOR SHALL PROTECT EXISTING UTILITIES DURING CONSTRUCTION. CONTRACTOR SHALL SUBMIT PROTECTION PLAN FOR CROSSING 33" SANITARY SEWER FORCE MAIN, STAMPED BY PROFESSIONAL ENGINEER PRIOR TO START OF WORK.
41. CAPPED PIPE STUB LOCATIONS SHALL BE MARKED WITH EMBEDDED STAKE AND A MINIMUM OF THREE TIES SHALL BE RECORDED. EMBEDDED STAKE SHALL BE 2X4 WITH PK NAIL DRIVEN IN TOP, LENGTH AS REQUIRED TO SPAN FROM TOP OF PIPE TO 6" BELOW GRADE. LOCATION AND ELEVATION OF PIPE STUB SHALL BE PROVIDED. WARNING TAPE AND WIRE SHALL BE INSTALLED OVER PIPE STUBS IN ACCORDANCE WITH SPECIFICATIONS.
42. ALL SIGNAGE SHALL CONFORM WITH MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD)
43. ACTIVITIES THAT HAVE THE POTENTIAL TO DISTURB SOIL SUCH AS UTILITY AND SUBSURFACE STRUCTURE INSTALLATION/RELOCATION WORK, FOUNDATION INSTALLATION, GRADING, PAVING, AND LANDSCAPING SHALL BE CONDUCTED IN ACCORDANCE WITH THE PROJECT SOIL MANAGEMENT PLAN. APPLICABLE SOIL MANAGEMENT PROCEDURES INCLUDE SITE CONTROLS AND CONSTRUCTION MEASURES TO REDUCE EXPOSURE TO SOIL DURING CONSTRUCTION, AS WELL AS TO FACILITATE THE PROPER HANDLING, STORAGE, CHARACTERIZATION, TRANSPORT, ONSITE REUSE, AND/OR OFFSITE REUSE, OR DISPOSAL, OF EXCESS SOIL THAT MAY BE GENERATED DURING CONSTRUCTION.
44. SOIL SAMPLING AND ANALYSIS FOR THE PROPOSED LIMIT OF WORK WAS COMPLETED IN JULY 2022. THESE PLANS SHOW LOCATIONS OF SOIL SAMPLING WITHIN THE PROJECT AREA. SOIL DATA AND THE ASSOCIATED SOIL MANAGEMENT PLAN WILL BE PROVIDED WHEN THE ANALYSIS IS COMPLETED.

CIVIL LEGEND

EXISTING		PROPOSED
	CONTOUR (1' INTERVAL)	
	CONTOUR (INDEX)	
S	SANITARY SEWER	S
FM	FORCEMAIN	FM
SD	STORM DRAIN	SD
UD	UNDERDRAIN	UD
W	WATER LINE	W
E	UNDERGROUND ELECTRIC	E
COMM	UNDERGROUND TELECOMMUNICATIONS	COMM
G	GAS LINE	G
OE	OVERHEAD ELECTRIC	
AS	ABANDONED SEWER	
AW	ABANDONED WATER LINE	
	PROPERTY LINE	
	RIGHT OF WAY	
	EASEMENT	
	EDGE OF VEGETATION	
	FENCE	
	CENTERLINE	
	RETAINING WALL	
	STONEWALL	
	CURB	
	EDGE OF PAVEMENT	
	EDGE OF GRAVEL	
	GUARDRAIL	
	RAILROAD TRACKS	
	DRAINAGE DITCH / SWALE	
	SEDIMENT BARRIER	
	LIMIT OF WORK	LW
	PAVER AREA	
	BRICK SIDEWALK	
	BITUMINOUS PAVEMENT	

CIVIL LEGEND

EXISTING		PROPOSED
	SANITARY SEWER MANHOLE	
CO	CLEAN OUT	CO
	DRAINAGE MANHOLE	
	FIELD INLET CATCH BASIN	
	ELECTRICAL MANHOLE	EMH
	TELECOMMUNICATIONS MANHOLE	CMH
TELE BOX	TELEPHONE STAND BOX	
G	GAS METER BOX	G
	GAS VENT	
	GAS GATE	
	TRANSFORMER	TRANS.
	UTILITY POLE	
	UTILITY POLE WITH GUY	
	LIGHTPOST	
	WATER GATE	
	CURB STOP	
	REDUCER	
	COUPLING	
	WATER SHUT OFF VALVE	
	HYDRANT	
W	WATER METER BOX	W
	THRUST BLOCK	
	PROPERTY MONUMENT	
MB	MAIL BOX	
	STREET AND MISCELLANEOUS SIGNS	
FP	FLAGPOLE	
XXX.XX	SPOT ELEVATION	XXX.XX
	TREE/SHRUB	
TP-#	TEST PIT	
WC-XX	SOIL SAMPLE LOCATION	

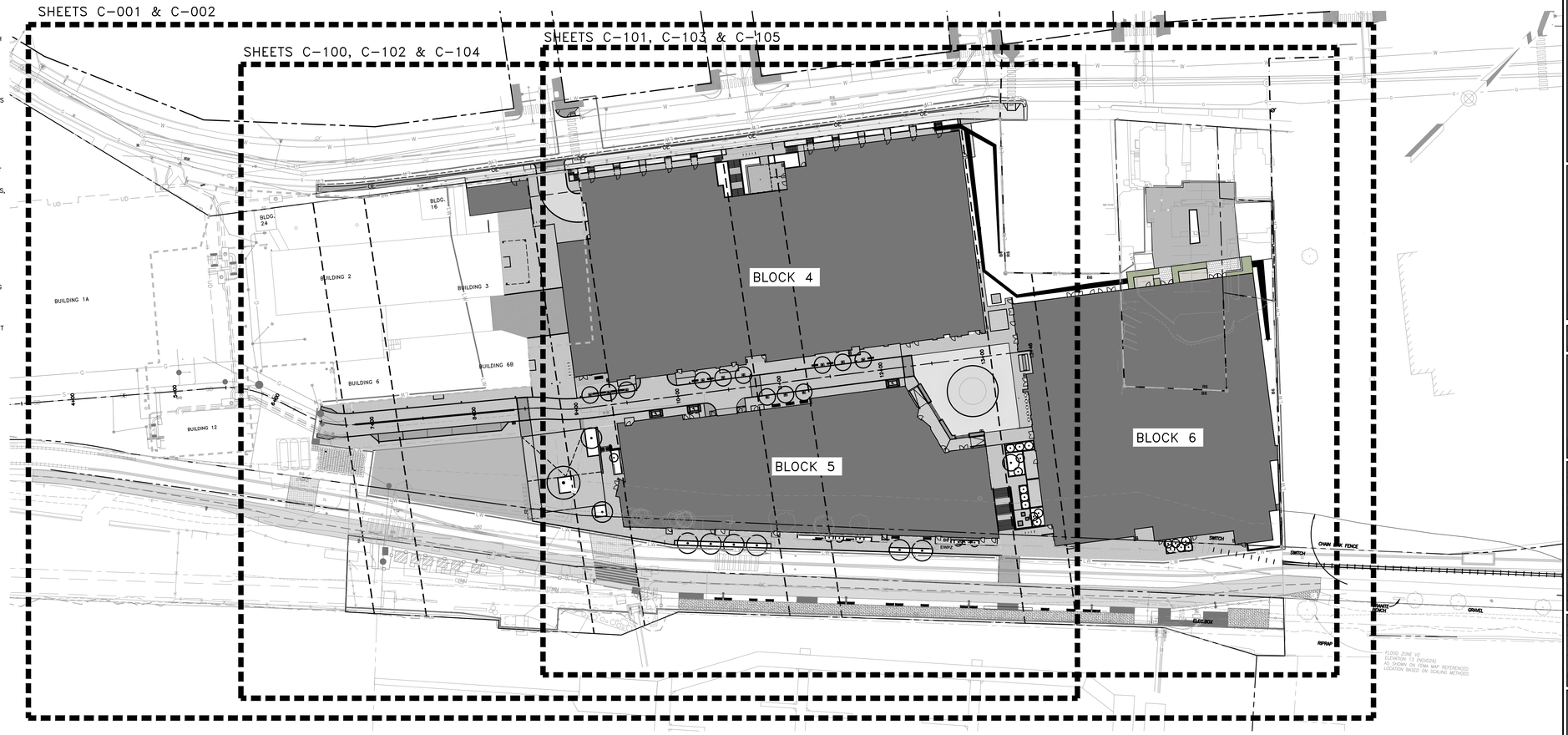
CIVIL ABBREVIATIONS

&	AND	N.I.C.	NOT IN CONTRACT
A.G.	ABOVE GROUND	NO.	NUMBER
		NR	NO REFUSAL
BC	BOTTOM OF CURB	N.T.S.	NOT TO SCALE
BIT	BITUMINOUS		
BW	BOTTOM OF WALL	OE	OVERHEAD ELECTRIC
B/W	BETWEEN	OH	OVERHEAD
CB	CATCH BASIN	±	PLUS OR MINUS
CI	CAST IRON	LLS	LICENSED LAND SURVEYOR
CMP	CENTRAL MAINE POWER	PROP.	PROPOSED
CMP	CORRUGATED METAL PIPE	PT.	POINT
CONC	CONCRETE	PVC	POLYVINYL CHLORIDE
DI	DUCTILE IRON	R.O.W.	RIGHT-OF-WAY
DIA.	DIAMETER	RCP	REINFORCED CONCRETE PIPE
DMH	DRAIN MANHOLE	REINF.	REINFORCED
DTL.	DETAIL	REQ'D	REQUIRED
E	UNDERGROUND ELECTRICAL	S	SLOPE (FT./FT.)
EL.	ELEVATION	S	SEWER
E.O.P.	EDGE OF PAVEMENT	SD	STORM DRAIN
EXIST.	EXISTING	SMH	SEWER MANHOLE
		SCH	SCHEDULE
FF	FINISH FLOOR	STA.	STATION
FM	FORCEMAIN		
FT	FOOT/FEET	TS	TOP OF STAIRS
		TW	TOP OF WALL
G	GAS MAIN	TYP.	TYPICAL
GS	GAS SERVICE		
GALV.	GALVANIZED	UP	UTILITY POLE
GRAN.	GRANITE		
		VC	VITRIFIED CLAY
HDPE	HIGH DENSITY POLYETHYLENE	VIT.	VITRIFIED CLAY
HYD	HYDRANT		
		W	WEST
INV.	INVERT	W	WATER
		W/	WITH
LF	LINEAR FEET	W	WATERMAIN
		WS	WATER SERVICE
MAX.	MAXIMUM	WV	WATER VALVE
MDOT	MAINE DEPARTMENT OF TRANSPORTATION		
MIN.	MINIMUM		
MON	MONUMENT		

SHEETS C-001 & C-002

SHEETS C-100, C-102 & C-104

SHEETS C-101, C-103 & C-105



OVERALL SITE PLAN

SCALE: 1"=50'

50' 0 50' 100'

BAR SCALE
1" = 50'
CHECK GRAPHIC SCALE BEFORE USING

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LAUREN JANE SWETT
No. 12284
LICENSED PROFESSIONAL ENGINEER

Lauren J. Swett

NOT FOR CONSTRUCTION

CLIENT INFO:

PORTLAND FORESIDE DEVELOPMENT COMPANY
PORTLAND, MAINE

PHASE 2

REV	MM/DD/YY	DESCRIPTION
#	#	#
#	#	#
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JOB NO:	227007
DATE:	JUNE 2023
SCALE:	AS NOTED
DESIGNED BY:	ANL
DRAWN BY:	BCM
CHECKED BY:	LJS
FILENAME:	PHASE 2 SITE PLANS.dwg

DRAWING TITLE:

CIVIL
GENERAL NOTES, LEGEND & ABBREVIATIONS

DRAWING NO:

G-001

SHEET: 1 OF 19

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30x42
PLOT SCALE: 100 = 1'-0"

WATERVILLE ST.
ST. LAWRENCE ST.
ATLANTIC ST.
FORE STREET
E. PROMENADE
MUNJOY HILL HISTORIC DISTRICT BOUNDARY
PORTLAND COMPANY HISTORIC DISTRICT BOUNDARY
LOCATION OF PRIOR BUILDING DEMOLITION
BLOCK 2 HISTORIC CORE RENOVATION (PROPOSED AS PART OF PHASE 1)
APPROX. LOCATION OF PREVIOUSLY DEMOISHED EXISTING BUILDING FOUNDATION LIMITS
BLDG. 16
BUILDING 2
BUILDING 3
BUILDING 6
BUILDING 6A
PH. 1
BUILDING 1A
(CONSTRUCTED AS PART OF PHASE 1)
BUILDING 12
(CONSTRUCTED AS PART OF PHASE 1)
TM 2-A-2
N/F
ROGER J. TRETTEL
38006/148
TM 2-A-7
N/F
PORTLAND HOUSE CONDOMINIUM
PLAN BOOK 142
PAGE 50
B6
B6 ZONE LINE
EWPZ
R6
B6
SWITCH
SWITCH
CP
ELEC BOX
RAIL/TRAIL CORRIDOR IMPROVEMENTS (PROPOSED AS PART OF PHASE 1)
MOOT R.O.W.
PM MARINA
PMD EASEMENT
PMD EASEMENT
N/F PP MARINA
34869/50
CENTERLINE OF EASEMENT 30' WIDE
CANADIAN NATIONAL RAILWAY COMPANY
TO PORTLAND WATER DISTRICT
3905/238
CANADIAN NATIONAL EASEMENT
STORM DRAIN EASEMENT
EXISTING MARINA

40' 0 40' 80'
BAR SCALE
1" = 40'
CHECK GRAPHIC SCALE BEFORE USING

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NOT FOR CONSTRUCTION

CLIENT INFO:

PORTLAND FORESIDE DEVELOPMENT COMPANY
PORTLAND, MAINE

PHASE 2

REV	MM/DD/YY	DESCRIPTION
#	#	#
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CHECKED BY:	LJS
FILENAME:	PHASE 2 SITE PLANS.dwg

DRAWING TITLE:
CIVIL
EXISTING CONDITIONS

DRAWING NO:
C-001
SHEET: 2 OF 19

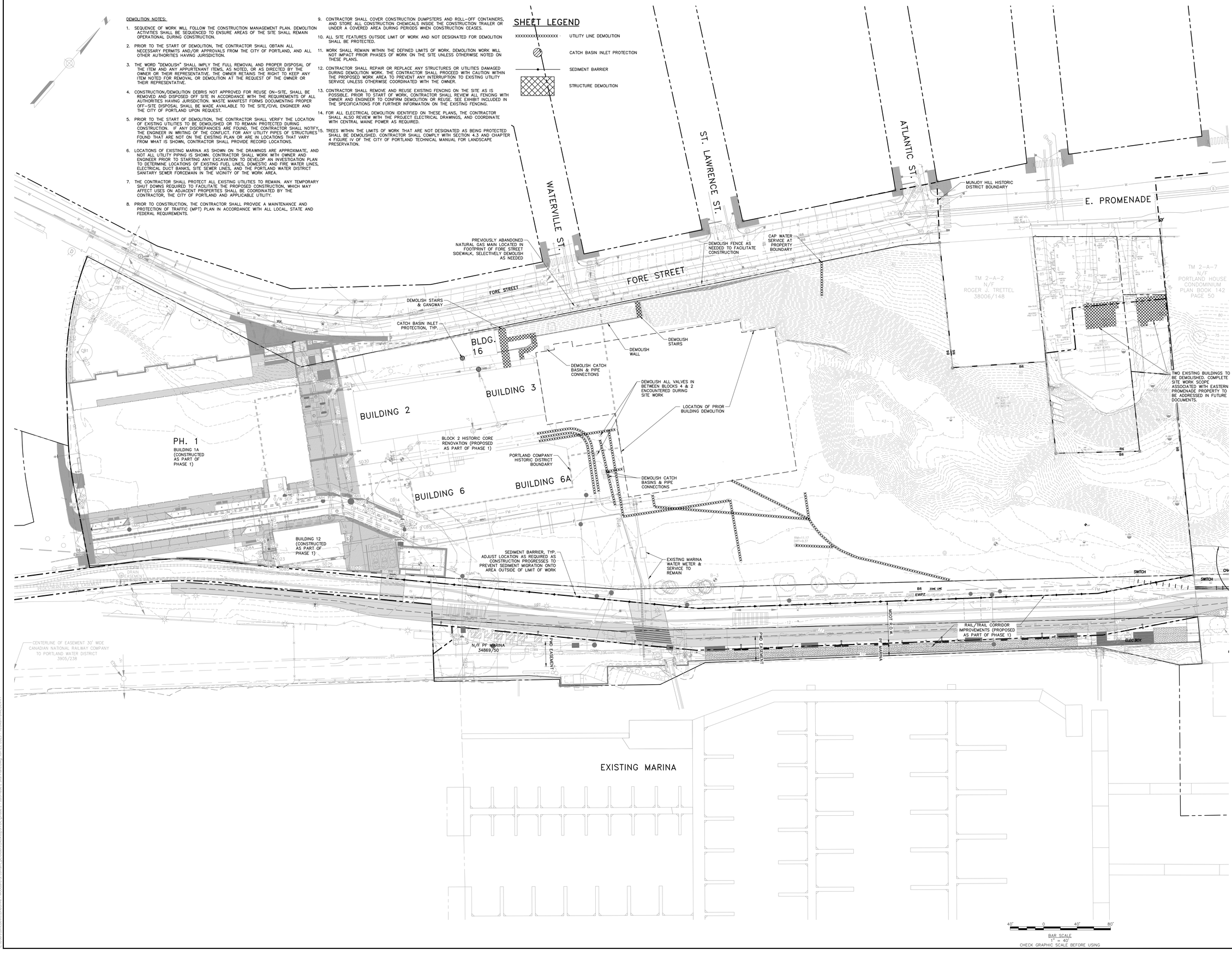
30x42
PLOT SCALE: 100 = 1'-0"

DEMOLITION NOTES:

1. SEQUENCE OF WORK WILL FOLLOW THE CONSTRUCTION MANAGEMENT PLAN. DEMOLITION ACTIVITIES SHALL BE SEQUENCED TO ENSURE AREAS OF THE SITE SHALL REMAIN OPERATIONAL DURING CONSTRUCTION.
2. PRIOR TO THE START OF DEMOLITION, THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS AND/OR APPROVALS FROM THE CITY OF PORTLAND, AND ALL OTHER AUTHORITIES HAVING JURISDICTION.
3. THE WORD "DEMOLISH" SHALL IMPLY THE FULL REMOVAL AND PROPER DISPOSAL OF THE ITEM AND ANY APPURTENANT ITEMS, AS NOTED, OR AS DIRECTED BY THE OWNER OR THEIR REPRESENTATIVE. THE OWNER RETAINS THE RIGHT TO KEEP ANY ITEM NOTED FOR REMOVAL OR DEMOLITION AT THE REQUEST OF THE OWNER OR THEIR REPRESENTATIVE.
4. CONSTRUCTION/DEMOLITION DEBRIS NOT APPROVED FOR REUSE ON-SITE, SHALL BE REMOVED AND DISPOSED OFF SITE IN ACCORDANCE WITH THE REQUIREMENTS OF ALL AUTHORITIES HAVING JURISDICTION. WASTE MANIFEST FORMS DOCUMENTING PROPER OFF-SITE DISPOSAL SHALL BE MADE AVAILABLE TO THE SITE/CIVIL ENGINEER AND THE CITY OF PORTLAND UPON REQUEST.
5. PRIOR TO THE START OF DEMOLITION, THE CONTRACTOR SHALL VERIFY THE LOCATION OF EXISTING UTILITIES TO BE DEMOLISHED OR TO REMAIN PROTECTED DURING CONSTRUCTION. IF ANY DISCREPANCIES ARE FOUND, THE CONTRACTOR SHALL NOTIFY, THE ENGINEER IN WRITING OF THE CONFLICT. FOR ANY UTILITY PIPES OF STRUCTURES FOUND THAT ARE NOT ON THE EXISTING PLAN OR ARE IN LOCATIONS THAT VARY FROM WHAT IS SHOWN, CONTRACTOR SHALL PROVIDE RECORD LOCATIONS.
6. LOCATIONS OF EXISTING MARINA AS SHOWN ON THE DRAWINGS ARE APPROXIMATE, AND NOT ALL UTILITY PIPING IS SHOWN. CONTRACTOR SHALL WORK WITH OWNER AND ENGINEER PRIOR TO STARTING ANY EXCAVATION TO DEVELOP AN INVESTIGATION PLAN TO DETERMINE LOCATIONS OF EXISTING FUEL LINES, DOMESTIC AND FIRE WATER LINES, ELECTRICAL DUCT BANKS, SITE SEWER LINES, AND THE PORTLAND WATER DISTRICT SANITARY SEWER FORCEMAIN IN THE VICINITY OF THE WORK AREA.
7. THE CONTRACTOR SHALL PROTECT ALL EXISTING UTILITIES TO REMAIN. ANY TEMPORARY SHUT DOWNS REQUIRED TO FACILITATE THE PROPOSED CONSTRUCTION, WHICH MAY AFFECT USES ON ADJACENT PROPERTIES SHALL BE COORDINATED BY THE CONTRACTOR, THE CITY OF PORTLAND AND APPLICABLE UTILITY.
8. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL PROVIDE A MAINTENANCE AND PROTECTION OF TRAFFIC (MPT) PLAN IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL REQUIREMENTS.
9. CONTRACTOR SHALL COVER CONSTRUCTION DUMPSTERS AND ROLL-OFF CONTAINERS, AND STORE ALL CONSTRUCTION CHEMICALS INSIDE THE CONSTRUCTION TRAILER OR UNDER A COVERED AREA DURING PERIODS WHEN CONSTRUCTION CEASES.
10. ALL SITE FEATURES OUTSIDE LIMIT OF WORK AND NOT DESIGNATED FOR DEMOLITION SHALL BE PROTECTED.
11. WORK SHALL REMAIN WITHIN THE DEFINED LIMITS OF WORK. DEMOLITION WORK WILL NOT IMPACT PRIOR PHASES OF WORK ON THE SITE UNLESS OTHERWISE NOTED ON THESE PLANS.
12. CONTRACTOR SHALL REPAIR OR REPLACE ANY STRUCTURES OR UTILITIES DAMAGED DURING DEMOLITION WORK. THE CONTRACTOR SHALL PROCEED WITH CAUTION WITHIN THE PROPOSED WORK AREA TO PREVENT ANY INTERRUPTION TO EXISTING UTILITY SERVICE UNLESS OTHERWISE COORDINATED WITH THE OWNER.
13. CONTRACTOR SHALL REMOVE AND REUSE EXISTING FENCING ON THE SITE AS IS POSSIBLE. PRIOR TO START OF WORK, CONTRACTOR SHALL REVIEW ALL FENCING WITH OWNER AND ENGINEER TO CONFIRM DEMOLITION OR REUSE. SEE EXHIBIT INCLUDED IN THE SPECIFICATIONS FOR FURTHER INFORMATION ON THE EXISTING FENCING.
14. FOR ALL ELECTRICAL DEMOLITION IDENTIFIED ON THESE PLANS, THE CONTRACTOR SHALL ALSO REVIEW WITH THE PROJECT ELECTRICAL DRAWINGS, AND COORDINATE WITH CENTRAL MAINE POWER AS REQUIRED.
15. TREES WITHIN THE LIMITS OF WORK THAT ARE NOT DESIGNATED AS BEING PROTECTED SHALL BE DEMOLISHED. CONTRACTOR SHALL COMPLY WITH SECTION 4.3 AND CHAPTER 4 FIGURE IV OF THE CITY OF PORTLAND TECHNICAL MANUAL FOR LANDSCAPE PRESERVATION.

SHEET LEGEND

- XXXXXXXXXXXXXXXXX · UTILITY LINE DEMOLITION
- CATCH BASIN INLET PROTECTION
- SEDIMENT BARRIER
- STRUCTURE DEMOLITION



40' 0 40' 80'
BAR SCALE
1" = 40'
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PROFESSIONAL ENGINEER

NOT FOR CONSTRUCTION

CLIENT INFO:

PORTLAND FORESIDE DEVELOPMENT COMPANY
PORTLAND, MAINE

PHASE 2

REV	MM/DD/YY	DESCRIPTION
#	#	#
#	#	#
#	#	#
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JOB NO:	227007
DATE:	JUNE 2023
SCALE:	AS NOTED
DESIGNED BY:	ANL
DRAWN BY:	BCM
CHECKED BY:	LJS
FILENAME:	PHASE 2 SITE PLANS.dwg

DRAWING TITLE:
CIVIL DEMOLITION PLAN

DRAWING NO:
C-002
SHEET: 3 OF 19

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30x42
PLOT SCALE: 100 = 1'-0"

NOTES:
1. SEE LANDSCAPE PLANS FOR SITE SURFACE MATERIAL ASSOCIATED WITH LANDSCAPED AREAS, PATIOS, AND NON-BITUMINOUS WALKWAYS & ROADWAYS.
2. UTILITY & DRAINAGE STRUCTURES NOT SHOWN FOR CLARITY, SEE GRADING & DRAINAGE & UTILITY PLAN FOR MORE INFORMATION.

WATERVILLE ST
ST. LAWRENCE ST.
FORE STREET
ZONE LINE
R6
B6
PROVIDE ADA CURB RAMP WITH DETECTABLE WARNING TABLE, TYP.
PROVIDE GRANITE RADIUS CORNER "BUG", TYP.
MATCH EXISTING CONCRETE DRIVEWAY
TM 2-A-2
N/F
ROGER J. TRETTEL
38006/148
REFER TO SHEET C-101
DETECTABLE WARNING TABLE, TYP.
REMOVE EXISTING CURB, PROVIDE FLUSH GRANITE CURB
PROVIDE 4' LONG TIPDOWN CURB
SAWCUT & PROVIDE BITUMINOUS PAVEMENT, TYP
PROVIDE 7' LONG TIPDOWN CURB
VERTICAL GRANITE CURB, TYP.
EXISTING BELOW GRADE BUILDING 15 LIMIT
BRICK SIDEWALK, TYP.
MATCH EXISTING BRICK SIDEWALK
TOWNHOUSES
BLDG. 16
DRIVEWAY APRON AT FORE STREET, TYP. SEE DETAILS ON SHEET C-207
ENTRANCE STAIR, SEE STRUCTURAL AND LANDSCAPE PLANS
RAMPED PARKING GARAGE ENTRANCE TO LEVEL 4
RETAINING WALL, SEE GEOTECHNICAL PLANS
SAFETY RAILING, SEE LANDSCAPING PLANS
50' WIDE VIEW CORRIDOR
BLOCK 4
PAVER PLAZA AREA
PORTLAND COMPANY HISTORIC DISTRICT BOUNDARY
BUILDING 2
BUILDING 3
BUILDING 6B
BUILDING 6
BLOCK 6
BIKE RACK, SEE LANDSCAPE PLANS
SITE LANDSCAPING, SEE LANDSCAPE PLANS
BENCH, SEE LANDSCAPE PLANS
ENTRANCE STAIR, SEE STRUCTURAL AND LANDSCAPE PLANS
PODIUM
LIGHT POLE, TYP. SEE LANDSCAPE PLANS
SHARED STREET, SEE NOTE 1
PARKING - 5 SPACES
24' TYP.
PH. 1
BLOCK 5
TEMPORARY CONSTRUCTION FENCING, TO BE RELOCATED AS NECESSARY TO MAINTAIN SITE SECURITY
FUTURE BLOCK 3 INTERIM BITUMINOUS PAVEMENT (TEMPORARY CONDITION)
PAVER PLAZA AREA
PLAZA AREA
VERTICAL GRANITE CURB, TYP.
TEMPORARY CONSTRUCTION FENCE
B6
EWPZ
MDOT PROPERTY
PW MAINTENANCE PROPERTY
PWD EASEMENT
EXISTING MARINA
REFER TO SHEET C-101
20' 0 20' 40'
BAR SCALE
1" = 20'
CHECK GRAPHIC SCALE BEFORE USING

C:\Users\ljs\Documents\Projects\227007_Woodard & Curran\PDF Drawings\C-100 SITE PLAN - 1.dwg, 6/29/2023 11:47:49 AM, ljs

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PE SEAL:
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No. 12284
LICENSED PROFESSIONAL ENGINEER

NOT FOR CONSTRUCTION

CLIENT INFO:
PORTLAND FORESIDE DEVELOPMENT COMPANY
PORTLAND, MAINE
PHASE 2

REV	MM/DD/YY	DESCRIPTION
#	#	#

JOB NO:	227007
DATE:	JUNE 2023
SCALE:	AS NOTED
DESIGNED BY:	ANL
DRAWN BY:	BCM
CHECKED BY:	LJS
FILENAME:	PHASE 2 SITE PLANS.dwg

DRAWING TITLE:
CIVIL
SITE PLAN - 1

DRAWING NO:
C-100
SHEET: 4 OF 19

30x42
PLOT SCALE: 100 = 1'-0"

REFER TO SHEET C-100

ATLANTIC ST.

FORE STREET

ZONE LINE

R6 B6

VERTICAL GRANITE CURB, TYP.

SITE LANDSCAPING, SEE LANDSCAPE PLANS

UTILITY POLE, TYP.

BRICK SIDEWALK, TYP.

SAWCUT & PROVIDE BITUMINOUS PAVEMENT, TYP.

ENTRANCE STAIR, SEE STRUCTURAL & LANDSCAPE PLANS

50' WIDE VIEW CORRIDOR

BLOCK 4

BENCH, TYP. SEE LANDSCAPE PLANS

LIGHT POLE, TYP. SEE LANDSCAPE PLANS

ENTRANCE STAIR, SEE STRUCTURAL & LANDSCAPE PLANS

SHARED STREET

PODIUM STRUCTURE CONNECTING BLOCK 4 AND BLOCK 6 SEE STRUCTURES SEE STRUCTURAL PLANS

PAVER PLAZA AREA

50' WIDE VIEW CORRIDOR

BLOCK 5

BLOCK 6

SITE LANDSCAPING, SEE LANDSCAPE PLANS

ENTRANCE STAIR, SEE STRUCTURAL AND LANDSCAPE PLANS

BIKE RACK, TYP. SEE LANDSCAPE PLANS

WASTE RECEPTACLE, TYP. SEE LANDSCAPE PLANS

B6 ZONE LINE

EWPZ

TEMPORARY CONSTRUCTION FENCING, TO BE RELOCATED AS NECESSARY TO MAINTAIN SITE SECURITY

WC-70 WC-71 WC-72 WC-73 WC-74 WC-75

MOOT PROPERTY

PIER

MARINA PROPERTY

EXISTING MARINA

ELEC.BOX

SWITCH

SWITCH

CHAIN L

RIPRA

REFER TO SHEET C-100

ADA CURB RAMP, TYP.

MATCH EXISTING BRICK SIDEWALK

E. PROMENADE

RETAINING WALL, SEE GEOTECHNICAL PLANS

BITUMINOUS PAVEMENT

TM 2-A-2
N/F
ROGER J. TRETTEL
38006/148

TM 2-A-4

TM 2-A-7
N/F
PORTLAND HOUSE
CONDOMINIUM
PLAN BOOK 142
PAGE 50

TM 2-A-10

HA-22

HA-21

B-22-4

B-22-5

B-22-6

B-22-7

B-22-8

B-22-9

B-22-10

B-22-11

NOTES:
1. SEE LANDSCAPE PLANS FOR SITE SURFACE MATERIAL ASSOCIATED WITH LANDSCAPED AREAS, PATIOS, AND NON-BITUMINOUS WALKWAYS & ROADWAYS.

2. UTILITY & DRAINAGE STRUCTURES NOT SHOWN FOR CLARITY, SEE GRADING & DRAINAGE & UTILITY PLAN FOR MORE INFORMATION.

BAR SCALE
1" = 20'
CHECK GRAPHIC SCALE BEFORE USING

20' 0 20' 40'

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LAUREN JANE SWETT
No. 12284
LICENSED PROFESSIONAL ENGINEER

NOT FOR CONSTRUCTION

CLIENT INFO:

PORTLAND FORESIDE DEVELOPMENT COMPANY
PORTLAND, MAINE

PHASE 2

REV	MM/DD/YY	DESCRIPTION
#	#	#
#	#	#
#	#	#
#	#	#
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#	#	#
#	#	#

JOB NO:	227007
DATE:	JUNE 2023
SCALE:	AS NOTED
DESIGNED BY:	ANL
DRAWN BY:	BCM
CHECKED BY:	LJS
FILENAME:	PHASE 2 SITE PLANS.dwg

DRAWING TITLE:
CIVIL
SITE PLAN - 2

DRAWING NO:
C-101
SHEET: 5 OF 19

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30x42
PLOT SCALE: 100 = 1'-0"

FORE STREET
WATERVILLE ST.
ST. LAWRENCE ST.
RESET CATCH BASIN RIM AS NECESSARY
PROVIDE GRANITE CATCH BASIN INLET HEADSTONE, TYP. SEE DETAILS ON SHEET C-207
TOWNHOUSES
BLDG. 16
BUILDING 2
BUILDING 3
BUILDING 6B
BUILDING 6
PH. 1
BLOCK 4
FF ELEV. 17.75
BLOCK 5
BLOCK 6
PODIUM
EL=24.00
APPROXIMATE EXTENT OF BELOW GRADE PODIUM
EARTHEN RAMP
TRENCH DRAIN, SEE DETAILS
PIPE SD67 BELOW TRENCH DRAIN
SUBSURFACE R-TANK, SEE DETAIL
CONNECT DMH14 TO PREVIOUSLY INSTALLED 24" OUTFALL
EXISTING MARINA
MDOT PROPERTY
PWD EASEMENT
PF MARINA PROPERTY
TM 2-A-2
N/F
ROGER J. TRETTEL
38006/148
TW=85
BW=64
TW=80
BW=64
TW=51
BW=35.00
LP=51
ZONE LINE
B6
R6
EWPZ
REFER TO SHEET C-103
REFER TO SHEET C-103
REFER TO SHEET C-107 FOR PIPE & STRUCTURE SCHEDULES

BAR SCALE
1" = 20'
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PORTLAND, MAINE

PHASE 2

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DRAWING TITLE:

CIVIL
GRADING & DRAINAGE PLAN - 1

DRAWING NO:

C-102

SHEET: 6 OF 19

30x42
PLOT SCALE: 100 = 1'-0"

REFER TO SHEET C-102

FORE STREET

ATLANTIC ST.

E. PROMENADE

BLOCK 4
FF ELEV. 17.75

BLOCK 5

BLOCK 6

TM 2-A-2
N/F
ROGER J. TRETTEL
38006/148

TM 2-A-4

TM 2-A-7
N/F
PORTLAND HOUSE
CONDOMINIUM
PLAN BOOK 142
PAGE 50

PODIUM STRUCTURE CONNECTING BLOCK 4 AND BLOCK 6 - SEE STRUCTURAL PLANS

APPROXIMATE EXTENT OF BELOW GRADE PODIUM

SHARED STREET - NOT IN CONTRACT

TWO (2) 6'x8' FILTERRA UNITS

CONNECT ROOF DRAINS TO FILTERRA UNITS

CONNECT CAPPED 24" STORM DRAIN PIPE TO NEW DMH

MDOT PROPERTY LINE

PF MARINA PROPERTY LINE

EASEMENT

ELEC.BOX

SWITCH

CHAIN L

RIPRA

EXISTING MARINA

REFER TO SHEET C-102

REFER TO SHEET C-107 FOR PIPE & STRUCTURE SCHEDULES

BAR SCALE
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PORTLAND, MAINE

PHASE 2

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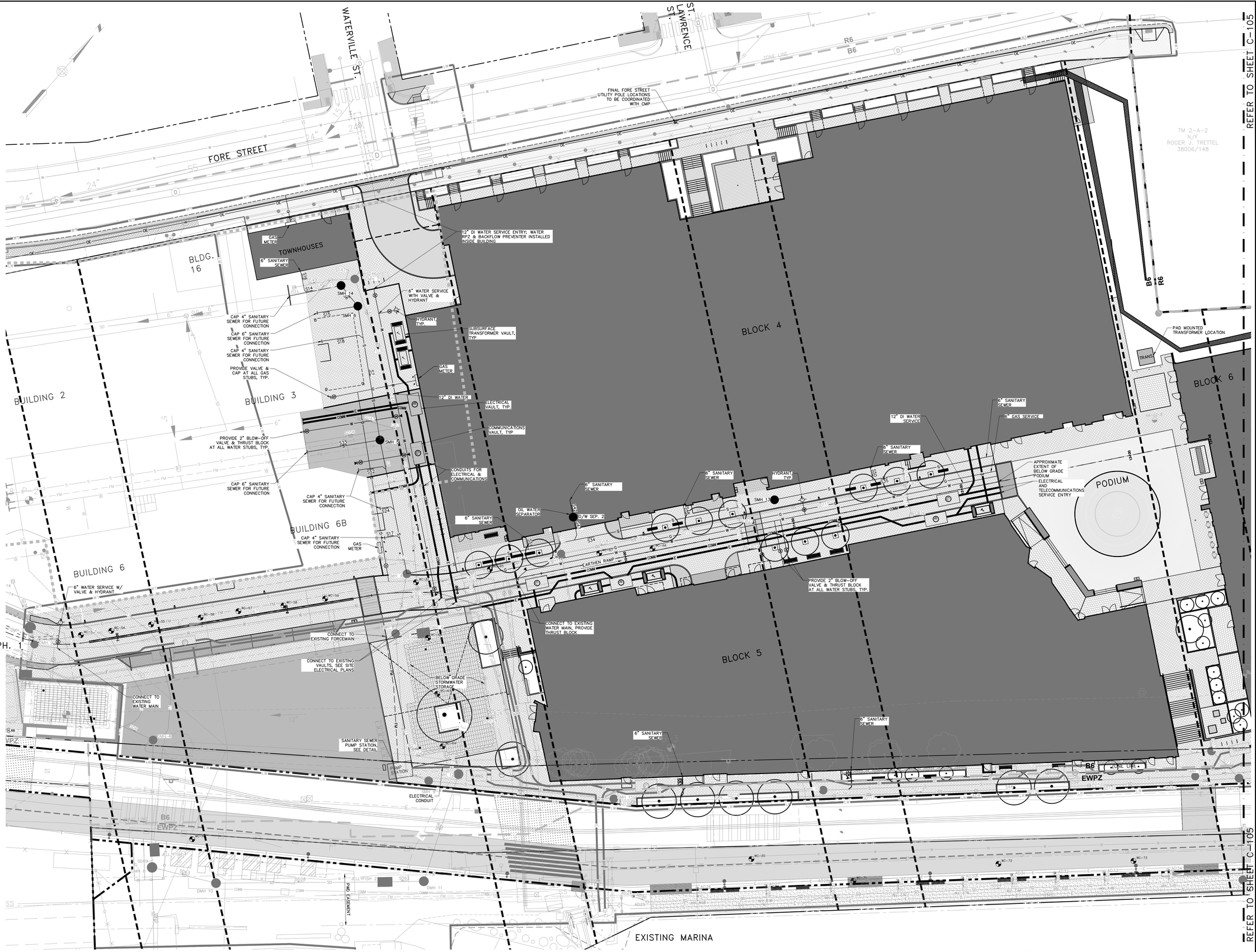
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CIVIL
GRADING & DRAINAGE PLAN - 2

DRAWING NO:
C-103
SHEET: 7 OF 19

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PLOT SCALE: 100 = 1'-0"



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CIVIL
UTILITY PLAN - 1

DRAWING NO:
C-104
SHEET: 8 OF 19

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30x42
PLOT SCALE: 100 = 1'-0"

REFER TO SHEET C-104

FORE STREET

E. PROMENADE

R6
B6

ZONE LINE

BLOCK 4

BLOCK 5

BLOCK 6

TM 2-A-2
N/F
ROGER J. TRETTEL
38006/148

TM 2-A-7
N/F
PORTLAND HOUSE
CONDOMINIUM
PLAN BOOK 142
PAGE 50

TM 2-A-4

TM 2-A-10

TM 2-A-1
N/F
PF LAND LLC
37397/78

PAD MOUNTED
TRANSFORMER LOCATION

TRANS

12" DI WATER
SERVICE

6" SANITARY
SEWER

8" GAS
SERVICE

6" SANITARY
SEWER

6" SANITARY
SEWER

HYDRANT
TYP.

SMH 1

O/W SEP. 2

APPROXIMATE
EXTENT OF
BELOW GRADE
PODIUM

ELECTRICAL
AND
TELECOMMUNICATIONS
SERVICE ENTRY

PODIUM

PROVIDE 2" BLOW-OFF
VALVE & THRUST BLOCK
AT ALL WATER STUBS, TYP.

6" SANITARY
SEWER

6" SANITARY
SEWER

SUBSURFACE
TRANSFORMER
VAULT, TYP.

ELECTRICAL
VAULT, TYP.

COMMUNICATIONS
VAULT, TYP.

8" PVC SEWER

CONNECT TO
PREVIOUSLY
INSTALLED SMH11

EWPZ

PUE
EASEMENT

SWITCH

SWITCH

CHAIN L

ELEC.BOX

RIPRA

EXISTING MARINA

REFER TO SHEET C-104

REFER TO SHEET C-107 FOR PIPE & STRUCTURE SCHEDULES

BAR SCALE
1" = 20'
CHECK GRAPHIC SCALE BEFORE USING
20' 0 20' 40'

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PORTLAND, MAINE

PHASE 2

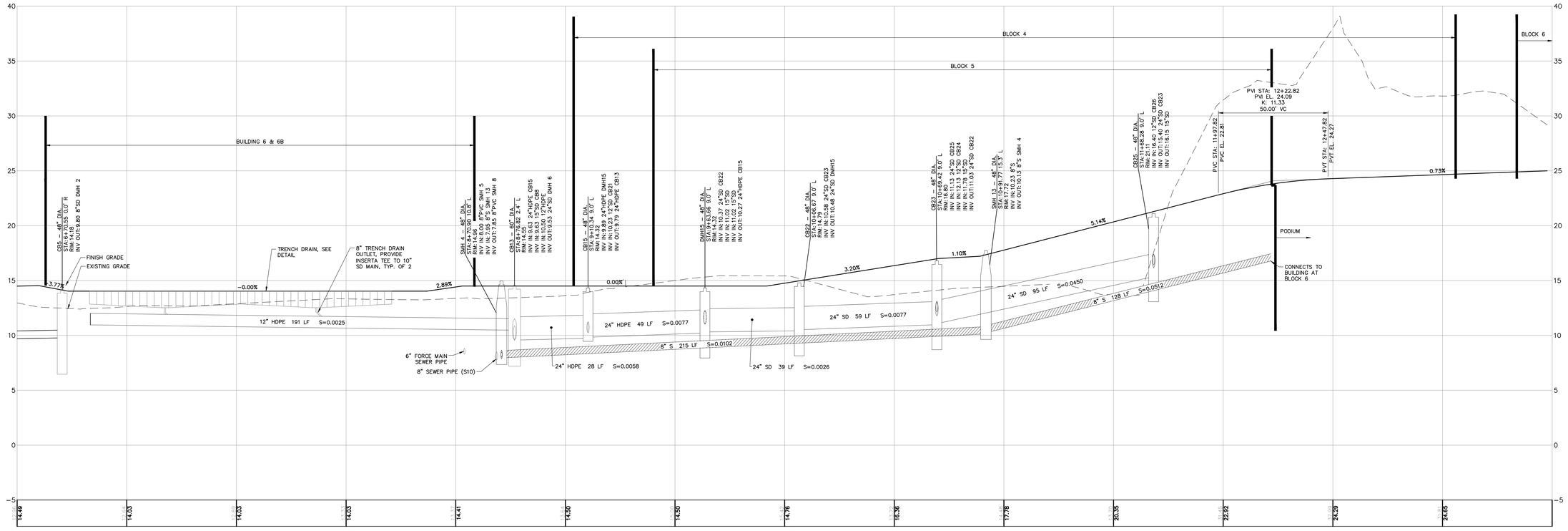
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CIVIL
UTILITY PLAN - 2

DRAWING NO:
C-105
SHEET: 9 OF 19

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PROFILE STA. 6+50 TO STA. 13+50

HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 4'

20' 0 20' 40'
BAR SCALE
1" = 20'
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PHASE 2

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SCALE:	AS NOTED
DESIGNED BY:	ANL
DRAWN BY:	BCM
CHECKED BY:	LJS
FILENAME:	PHASE 2 SITE PLANS.dwg

DRAWING TITLE:
CIVIL
ROAD PROFILE

DRAWING NO:
C-106
SHEET: 10 OF 19

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STORMWATER STRUCTURES

STRUCTURE TABLE					
NAME	DIA.	RIM	INV IN/SIZE/FROM	INV OUT/SIZE/TO	STRUCTURE LOCATION
AD38	15"	12.30		9.73/10"SD /AD39	N: 302304.36 E: 2932605.30
AD39	15"	12.10	9.14/10"SD /AD38	9.04/10"SD /AD40	N: 302384.13 E: 2932691.33
AD40	15"	11.90	8.84/10"SD /AD39	8.74/10"SD /AD41	N: 302411.36 E: 2932720.73
AD41	15"	11.76	7.85/10"SD /AD40	7.75/10"SD /AD42	N: 302440.54 E: 2932751.76
AD42	15"	11.94	7.42/10"SD /AD41	7.32/10"SD /AD43	N: 302485.98 E: 2932799.59
AD43	15"	12.30	7.08/10"SD /AD42	6.98/10"SD /DMH14	N: 302518.62 E: 2932834.47
AD45	15"	12.70	7.02/12"SD /AD46	6.92/12"SD /DMH14	N: 302558.60 E: 2932877.07
AD46	15"	12.55	7.52/12"SD /AD47	7.42/12"SD /AD45	N: 302594.26 E: 2932915.52
AD47	15"	12.60	8.03/12"SD /AD48	7.93/12"SD /AD46	N: 302631.96 E: 2932955.80
AD48	15"	12.89	8.50/12"SD /AD51	8.40/12"SD /AD47	N: 302671.11 E: 2932985.90
AD49	15"	18.80	14.28/12"SD /AD50	14.00/12"SD /AD51	N: 302722.71 E: 2933025.00
AD50	15"	18.75	14.48/12"SD /FILTERRA 1	14.38/12"SD /AD49	N: 302736.43 E: 2933010.70
AD51	15"	15.75	8.80/12"SD /AD49	8.60/12"SD /AD48	N: 302700.37 E: 2933008.07
CB7	4'	14.58	9.92/12"SD/FI13 9.92/10"SD/ 9.92/6"SD/	9.82/15"SD/CB8	N: 302377.61 E: 2932357.66
CB8	4'	14.51	9.75/15"SD/CB7	9.64/15"SD/CB13	N: 302349.86 E: 2932393.71
CB13*	5'	14.55	9.63/24"HDPE/CB15 9.63/15"SD/CB8 10.50/12"HDPE/	9.53/24"SD/DMH 6	N: 302315.95 E: 2932428.67
CB15*	4'	14.32	9.89/24"HDPE/DMH15 10.23/12"SD/CB21	9.79/24"HDPE/CB13	N: 302343.90 E: 2932446.12
CB21	4'	14.32		10.32/12"SD/CB15	N: 302332.91 E: 2932460.35
CB22	4'	14.79	10.58/24"SD/CB23	10.48/24"SD/DMH15	N: 302420.17 E: 2932504.97
CB23	4'	16.80	11.13/24"SD/CB25 12.13/12"SD/CB24 11.78/15"SD/	11.03/24"SD/CB22	N: 302469.85 E: 2932543.29
CB24	4'	16.80		12.22/12"SD/CB23	N: 302458.85 E: 2932557.55
CB25	4'	21.11	16.40/12"SD/CB26	15.40/24"SD/CB23 16.15/15"SD/	N: 302548.12 E: 2932603.69
CB26	4'	21.11		16.49/12"SD/CB25	N: 302537.12 E: 2932617.94
CB27	4'	14.25		9.43/12"SD/RTANK INLET7	N: 302242.76 E: 2932487.52
CB28	4'	14.25		9.41/12"SD/RTANK INLET8	N: 302288.33 E: 2932511.58
DMH 6	8'x6'	13.23	9.39/24"SD/CB13	9.39/15"SD/RTANK INLET6 9.39/15"SD/RTANK INLET4 9.39/15"SD/RTANK INLET5	N: 302298.68 E: 2932448.43
DMH 7	4'	14.88	10.28/10"SD/FI12 10.28/4"SD/	10.18/10"SD/FI13	N: 302428.10 E: 2932282.83
DMH 11*	5'	19.58	7.82/24"HDPE/DMH 12	7.82/24"HDPE/JELLYFISH 2	N: 302159.52 E: 2932543.53
DMH 12*	5'	12.98	7.82/24"SD/RTANK OUTLET2	7.82/24"HDPE/DMH 11	N: 302249.93 E: 2932517.81
DMH14*	4'	12.50	6.78/10"SD /AD43 6.78/12"SD /AD45 6.78/12"SD /DMH16	6.68/24"HDPE/DMH13	N: 302546.58 E: 2932862.68
DMH15	4'	14.32	10.37/24"SD/CB22 11.02/15"SD/ 11.02/15"SD/	10.27/24"HDPE/CB15	N: 302386.12 E: 2932478.69
DMH16	4'	12.80	7.00/10"SD / 7.00/10"SD /	6.90/12"SD /DMH14	N: 302548.04 E: 2932840.22
FI11	2'	14.77		10.44/10"SD/FI12	N: 302401.24 E: 2932259.44
FI12	2'	14.77	10.38/10"SD/FI11 10.38/4"SD/	10.33/10"SD/DMH 7	N: 302418.33 E: 2932272.62
FI13	2'	14.58	10.08/10"SD/DMH 7	10.03/12"SD/CB7	N: 302407.81 E: 2932318.40
FILTERRA 1	6'x4'	18.60	14.50/12"SD /RD1	14.50/12"SD /AD50	N: 302734.55 E: 2933007.09
FILTERRA 2	6'x4'	18.60	14.50/12"SD /RD2	14.50/12"SD /	N: 302729.46 E: 2933013.68
JELLYFISH 2*	8'x6'	11.43	7.71/24"HDPE/DMH 11	7.71/24"HDPE/DMH 10	N: 302174.36 E: 2932526.71

*STRUCTURES INSTALLED AS PART OF WATERFRONT AND UTILITIES ENABLEMENT PHASE

STORMWATER PIPES

PIPE TABLE			
PIPE NAME	SIZE	LENGTH	SLOPE
SD13	24" SD	10'	0.0000
SD37	4" SD	17'	0.1534
SD38	15" SD	44'	0.0002
SD39	4" SD	18'	0.1017
SD40	15" SD	41'	0.0016
SD43	6" SD	41'	0.0619
SD44	12" SD	47'	0.0025
SD45	10" SD	38'	0.0027
SD46	4" SD	4'	0.0131
SD47	10" SD	11'	0.0045
SD48	4" SD	17'	0.1219
SD49	10" SD	20'	0.0031
SD56	10" SD	51'	0.0504
SD57	12" SD	14'	0.0064
SD58	24" SD	39'	0.0026
SD59	24" SD	24'	0.0057
SD60	15" SD	7'	0.0000
SD61	15" SD	7'	0.0000
SD65	15" SD	7'	0.0000
SD77	24" HDPE	49'	0.0077
SD109	24" SD	59'	0.0077
SD110	12" SD	14'	0.0064
SD111	24" SD	95'	0.0450
SD112	12" SD	14'	0.0064
SD113	15" SD	11'	0.0119
SD114	15" SD	12'	0.0108
SD115	15" SD	11'	0.0390
SD116	10" SD	116'	0.0051
SD117	10" SD	39'	0.0052
SD118	10" SD	41'	0.0215
SD119	10" SD	65'	0.0051
SD120	10" SD	47'	0.0051
SD122	10" SD	37'	0.0054
SD123	12" SD	3'	0.0116
SD124	12" SD	2'	0.0133
SD125	12" SD	16'	0.0087
SD126	12" SD	51'	0.0077
SD127	12" SD	54'	0.0077
SD128	12" SD	48'	0.0077
SD129	12" SD	35'	0.0028
SD133	12" SD	19'	0.0061
SD134	10" SD	17'	0.0056
SD135	10" SD	5'	0.0072

SEWER STRUCTURES

STRUCTURE TABLE					
NAME	DIA.	RIM	INV IN/SIZE/FROM	INV OUT/SIZE/TO	STRUCTURE LOCATION
O/W SEP. 2	4'	16.21			N: 302406.84 E: 2932470.01
PS	4'	12.67	7.15/8"S /SMH 8 5.95/8"S /SMH 9	7.52/6"FM/SMH 1	N: 302230.60 E: 2932484.34
SMH 5	4'	14.73	8.42/6"S/SMH 6 8.42/6"S/	8.03/8"S /SMH 4	N: 302366.88 E: 2932355.51
SMH 6	4'	14.80	9.00/4"S/SMH 14 8.90/6"S/	8.80/6"S/SMH 5	N: 302417.32 E: 2932294.57
SMH 9	4'	11.06	6.15/8"S /SMH 15	6.05/8"S /PS	N: 302235.54 E: 2932507.25
SMH 10	4'	12.45	8.03/8"S /SMH 11	7.93/8"S/SMH 15	N: 302382.29 E: 2932684.33
SMH 11	4'	11.42	9.76/8"S/SMH 16	9.66/8"S /SMH 10	N: 302530.61 E: 2932842.74
SMH 13	4'	17.72	10.23/8"S/	10.13/8"S/SMH 4	N: 302491.43 E: 2932551.91
SMH 14	4'	14.85	9.00/4"S/	12.50/4"S/SMH 6	N: 302419.99 E: 2932279.32
SMH 15	4'	11.81	7.02/8"S/SMH 10	6.96/8"S /SMH 9	N: 302298.43 E: 2932595.62
SMH 16	4'	12.02	10.50/8"S/ 10.50/6"FM/	10.02/8"S/SMH 11	N: 302555.87 E: 2932867.25

SEWER PIPES

PIPE TABLE			
PIPE NAME	SIZE	LENGTH	SLOPE
S6	4" S	12'	0.3028
S7	6" S	75'	0.0050
S8	8" S	76'	0.0003
S9	8" S	10'	0.0105
S11	8" S	77'	0.0007
S14	4" S	29'	0.1223
S15	6" S	22'	0.0060
S16	4" S	11'	0.5052
S17	4" S	7'	0.0087
S18	4" S	22'	0.0031
S24	4" S	6'	0.0094
S33	6" S	41'	0.0092
S34	8" S	215'	0.0102
S35	8" S	128'	0.0512
S42	6" S	10'	0.0134
S43	8" S	104'	0.0078
S44	8" S	213'	0.0076
S47	6" S	11'	0.0050
S48	6" S	8'	0.0081
S50	6" S	8'	0.0081
S51	6" S	8'	0.0081
S52	4" S	14'	0.0094
S53	6" S	10'	0.0793
S54	6" S	10'	0.0116
S55	8" S	118'	0.0078
S56	8" S	23'	0.0054
S57	8" S	31'	0.0085

Woodard & Curran
41 Hutchins Drive
Portland, Maine 04102
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PE SEAL:

STATE OF MAINE
LAUREN JANE SWETT
No. 12284
LICENSED
PROFESSIONAL ENGINEER

NOT FOR CONSTRUCTION

CLIENT INFO:

PORTLAND FORESIDE DEVELOPMENT COMPANY
PORTLAND, MAINE

PHASE 2

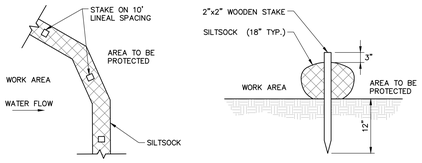
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JOB NO:	227007
DATE:	JUNE 2023
SCALE:	AS NOTED
DESIGNED BY:	ANL
DRAWN BY:	BCM
CHECKED BY:	LJS
FILENAME:	PHASE 2 SITE PLANS.dwg

DRAWING TITLE:
CIVIL
PIPE & STRUCTURE TABLE

DRAWING NO:
C-107
SHEET: 11 OF 19

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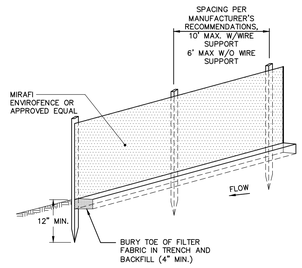


PLAN VIEW SECTION

NOTE:

1. WHEN STAKING IS NOT POSSIBLE, HEAVY CONCRETE BLOCKS SHALL BE USED BEHIND THE SEDIMENT BARRIER TO HELP STABILIZE DURING RAINFALL/RUNOFF EVENTS.

SILT SOCK
N.T.S.



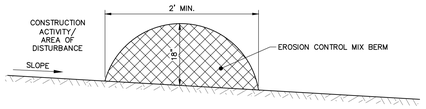
NOTES:

- INSTALL FABRIC ON UPHILL SIDE OF SUPPORT POSTS
- INSTALL SILT FENCE ACROSS SLOPES
- SILT FENCE SHALL NOT BE USED IN DRAINAGE WAYS

MAINTENANCE: INSPECT FOR TEARS IN THE FABRIC OR DAMAGE TO SUPPORTS. REPAIR AS NECESSARY. REMOVE ACCUMULATED SEDIMENT WHEN IT REACHES A DEPTH OF SIX-INCHES OR LESS.

REMOVAL: WHEN UPSLOPE AREAS ARE STABILIZED, THE STRUCTURE AND ANY ACCUMULATED SEDIMENT WILL BE REMOVED.

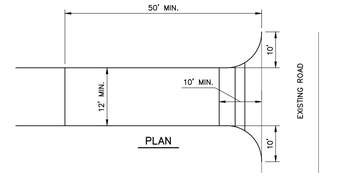
SEDIMENT BARRIER – SILTATION FENCE DETAIL
N.T.S.



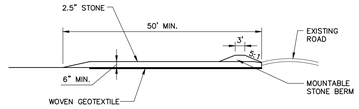
NOTES:

1. EROSION CONTROL MIX CAN BE MANUFACTURED ON OR OFF THE PROJECT SITE. IT MUST CONSIST PRIMARILY OF ORGANIC MATERIAL AND MAY INCLUDE: SHREDDED BARK, STUMP GRINDINGS, COMPOSTED BARK, OR ACCEPTABLE MANUFACTURED PRODUCTS. WOOD AND BARK CHIPS, GROUND CONSTRUCTION DEBRIS OR REPROCESSED WOOD PRODUCTS WILL NOT BE ACCEPTABLE AS THE ORGANIC COMPONENT OF THE MIX.
2. EROSION CONTROL MIX SHALL CONTAIN A WELL-GRADED MIXTURE OF PARTICLE SIZES AND MAY CONTAIN ROCKS LESS THAN 4" IN DIAMETER. EROSION CONTROL MIX MUST BE FREE OF REFUSE, PHYSICAL CONTAMINANTS, AND MATERIAL TOXIC TO PLANT GROWTH. THE MIX COMPOSITION SHALL MEET THE FOLLOWING STANDARDS:
   - THE ORGANIC MATTER CONTENT SHALL BE BETWEEN 80 AND 100%, DRY WEIGHT BASIS.
   - PARTICLE SIZE BY WEIGHT SHALL BE 100% PASSING A 6" SCREEN AND A MINIMUM OF 70%, MAXIMUM OF 85%, PASSING A 0.75" SCREEN.
   - THE ORGANIC PORTION NEEDS TO BE FIBROUS AND ELONGATED.
   - LARGE PORTIONS OF SILTS, CLAYS OR FINE SANDS ARE NOT ACCEPTABLE IN THE MIX.
   - SOLUBLE SALTS CONTENT SHALL BE < 4.0 MMHOS/CM.
   - THE PH SHOULD FALL BETWEEN 5.0 AND 8.0.

EROSION CONTROL MIX BERM
N.T.S.



PLAN



PROFILE

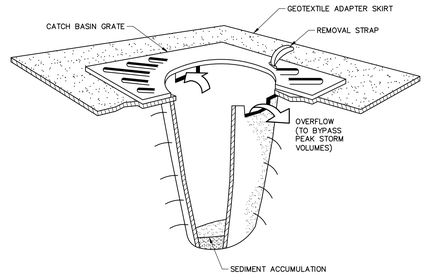
NOTES:

- CONSTRUCTION ENTRANCES MAY BE RELOCATED AS CONSTRUCTION PROGRESSES.
- WHEEL WASH PITS MAY ALSO BE USED, IF APPROVED.

MAINTENANCE: INSPECT FOR EFFECTIVE REMOVAL OF SOIL FROM VEHICLES PRIOR TO LEAVING THE SITE. SWEEP ANY SOIL FROM ADJACENT ROADWAYS.

REMOVAL: AT LEAST ONE CONSTRUCTION ENTRANCE SHALL BE MAINTAINED UNTIL ALL AREAS OF THE SITE ARE STABILIZED.

STABILIZED CONSTRUCTION ENTRANCE DETAIL
N.T.S.



NOTES:

CATCH BASIN PROTECTION TO BE "SILTSACK" (BY ACF ENVIRONMENTAL) OR "STREAM GUARD" (BY FOSS ENVIRONMENTAL SERVICES).

INSERT TO BE EMPTIED IN AN APPROVED MANNER WHEN IT IS 1/2 FULL OF SEDIMENT.

INSPECT INSERT AFTER ALL RAINFALL EVENTS, REPAIR AND MAINTAIN AS REQUIRED.

TEMPORARY INLET PROTECTION
N.T.S.

EROSION AND SEDIMENT CONTROL NOTES

Temporary Erosion Control

Contractor shall prepare and submit a soil erosion and water pollution control plan to engineer.

Measure	Dates For Use	Timing, Activity, and Location
Sediment Barrier	ALL	Before soil disturbance, install downhill of areas to be disturbed and around material stockpiles.
Up-slope Diversion	ALL	Before soil disturbance, install uphill of areas to be disturbed and material stockpiles.
Catch Basin Protection	ALL	Before soil or pavement disturbance, install ACF Environmental, Inc. High Flow Siltsack, Siltsaver Inlet Filter. or equal, installed per manufacturer's requirements.
Dust Control	ALL	During dry weather, apply water and calcium chloride to control dust.
Temporary Seeding	April 15 to Oct. 1	Soil stockpiles that are not covered and disturbed areas that will not be disturbed again within 14 days. If grass growth provides less than 95% soil coverage by Nov. 1, apply mulch and anchor with erosion control blanket.
Mulch	April 15 to Sept. 15	On all areas of exposed soil prior to rain events or every 7 days, apply 100–150 lbs (2.5 bales) per 1,000 sq ft. by mechanical blower.
Winter Mulch	Sept. 16 to Oct. 31	On all areas of exposed soil prior to precipitation or every 7 days, apply 150 to 170 lbs. mulch (4 bales) per 1,000 sq. ft. by mechanical blower, Erosion control blanket may be used as a substitute for winter mulch.
	Nov. 1 to April 14	On all areas of exposed soil, apply 150 to 170 lbs. mulch (4 bales) per 1,000 sq. ft. and anchor with netting at the end of each working day. Erosion control blanket may be used as a substitute for winter mulch.
Inspections	Until site is permanently stabilized	Inspect the erosion and sedimentation control measures daily, and maintain and repair as necessary.

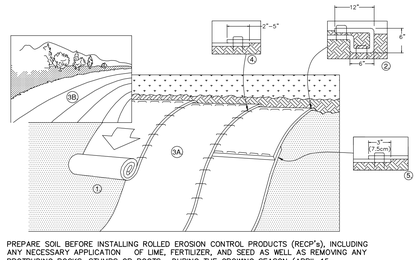
Permanent Erosion Control:

Measure	Dates For Use	Timing, Activity, and Location
Pavement – Base Course – Final Course	When no frost is in ground	Install only in areas shown on the plan, shortly after pavement base is brought to final grade. Install near completion of project.
Permanent Seeding	April 15 to Sept. 15	On final grade areas, within 7 days of grade preparation, prepare topsoil, followed by seed and mulch application.
Dormant Seeding	Sept. 16 to April 15	On final grade areas, with prepared topsoil. Apply seed at double the specified rate on bare soil, and follow with an application of winter mulch.
Ground Cover, Trees, Shrubs	April 15 to Nov. 1	Install with final landscaping.
Permanent Mulch	ALL	Install with final landscaping.

Inspections:

Regular inspections of all erosion and sedimentation controls shall be made at least weekly and prior to and following storm events. Minimum inspections shall be made as listed in the table below.

Inspected Item	Look For
Mulched Surfaces	Thin mulch or inadequate application. Wind movement.
Seeded Surfaces	Poor seed germination. Loss of mulch. Development of rivulets.
Sediment Barrier	Sediment build–up to one half the height of the barrier. Undermining of the barrier. Supporting stakes loose, toppled, or unmarked. Breaks in barrier.
Perimeter Diversion	Discharge is to stabilized area. Erosion or breaks in barrier. Supporting stakes loose, toppled or unmarked.
Catch Basin Protection	Sediment build–up and structure blockages. Slow flow/Ponding water. Breaks in fabric or voids in barrier.
Dewatering Filter	Breaks in fabric or supporting structure. Slow flow, indicating high sediment build–up.
Construction Entrance	Sedimentation of roadways. Off–site dust complaints.



1. PREPARE SOIL BEFORE INSTALLING ROLLED EROSION CONTROL PRODUCTS (RECP's), INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED AS WELL AS REMOVING ANY PROTRUDING ROCKS, LUMPS OR ROOTS. DURING THE GROWING SEASON (APRIL 15– SEPTEMBER 15) USE RECP'S ON THE BASE OF GRASSED WATERWAYS, SOIL SLOPES HAVING A GRADE GREATER THAN 15%, OR ANYWHERE WHERE HAY MULCH HAS PROVEN TO BE INEFFECTIVE AT CONTROLLING SHEET EROSION. RECP'S ARE A MANUFACTURED COMBINATION OF MULCH AND NETTING DESIGNED TO PREVENT EROSION AND RETAIN SOIL MOISTURE. FOR OVER WINTER PROTECTION, APPLY RECP'S ON THE BASE AND SIDE SLOPES OF GRASSED WATERWAYS AND ON SLOPES STEEPER THAN AN 8% GRADE.
2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE RECP's IN A 6" DEEP X 6" WIDE TRENCH WITH APPROXIMATELY 12" OF RECP's EXTENDED BEYOND THE UP–SLOPE PORTION OF THE TRENCH. ANCHOR THE RECP's WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" PORTION OF RECP's BACK OVER SEED AND COMPACTED SOIL. SECURE RECP's OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" APART ACROSS THE WIDTH OF THE RECP's.
3. ROLL THE RECP's (A.) DOWN OR (B.) HORIZONTALLY ACROSS THE SLOPE. RECP's WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL RECP's MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING THE DOT SYSTEM, STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
4. THE EDGES OF PARALLEL RECP's MUST BE STAPLED WITH APPROXIMATELY 2" – 5" OVERLAP DEPENDING ON RECP's TYPE.
5. CONSECUTIVE RECP's SPLICED DOWN THE SLOPE MUST BE PLACED END OVER END (SHINGLE STYLE) WITH AN APPROXIMATE 3" OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" APART ACROSS ENTIRE RECP's WIDTH. NOTE: *IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" MAY BE NECESSARY TO PROPERLY SECURE THE RECP's.
6. UNTIL GRASS IS ABUNDANT, INSPECT PERIODICALLY AND AFTER EACH RAINSTORM TO CHECK FOR EROSION. IMMEDIATELY REPAIR AND ADD MORE MULCH UNTIL GRASSES ARE FIRMLY ESTABLISHED. DO NOT MOW THE FIRST YEAR.

ROLLED EROSION CONTROL MATTING
N.T.S.

EROSION AND SEDIMENT CONTROL NOTES

TEMPORARY EROSION CONTROL MEASURES MAY INCLUDE THE USE OF STABILIZED CONSTRUCTION ENTRANCES, HYDRAULIC MULCH, HAY AND STRAW MULCH, EROSION CONTROL BLANKET, TURF REINFORCED MATTING, RIPRAP AND TEMPORARY SEEDING. TEMPORARY SEDIMENT CONTROL MEASURES INCLUDE THE USE OF SILT FENCE, EROSION CONTROL MIX BERMS, CATCHBASIN SEDIMENT COLLECTION BAGS AND GEOTEXTILE FILTER BAGS. PERMANENT MEASURES INCLUDE PERMANENT VEGETATION OR PAVING.

GENERAL

A. THE PROJECT SHALL CONFORM WITH THE STANDARDS OF THE MAINE CONSTRUCTION GENERAL PERMIT.
B. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH THE MAINE EROSION AND SEDIMENT CONTROL BMPS HANDBOOK PUBLISHED BY THE MAINE DEP UNLESS OTHERWISE NOTED IN THESE PLANS. HTTP://MAINE.GOV/DEP/BLWQ/DOCSTAND/ESCBMPS/
C. ANY ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES DEEMED NECESSARY BY THE OWNER'S REPRESENTATIVE, DEPARTMENT OF ENVIRONMENTAL PROTECTION, AND/OR MUNICIPAL OFFICIALS SHALL BE INSTALLED BY THE CONTRACTOR.
D. THE CONTRACTOR IS RESPONSIBLE FOR ALL FINES RESULTING FROM EROSION OR SEDIMENTATION FROM THE SITE TO SURROUNDING PROPERTIES, WATER BODIES, OR WETLANDS AS A RESULT OF THIS PROJECT.
E. THE CONTRACTOR SHALL MINIMIZE DISTURBANCE TO THE SITE WHENEVER POSSIBLE WHILE ALLOWING PROPER SITE DEVELOPMENT.
F. CONSTRUCTION STAGING SHALL BE CONDUCTED IN A WAY TO MINIMIZE THE POTENTIAL FOR STORMWATER RUN–ON TO DISTURBED AREAS.
G. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPAIR/REPLACEMENT/MAINTENANCE OF ALL EROSION CONTROL MEASURES UNTIL ALL DISTURBED AREAS ARE STABILIZED TO THE SATISFACTION OF THE ABOVE PERSONNEL. DESCRIPTIONS OF PERMANENT STABILIZATION FOR VARIOUS COVER TYPES FOLLOWS:
   i. FOR SEEDED AREAS, PERMANENT STABILIZATION MEANS THAT 90% OF THE DISTURBED AREA IS COVERED WITH REASONABLY THICK UNIFORM STAND OF PERMANENT GRASS SPECIES, FREE FROM SIZABLE THIN OR BARE SPOTS.
   ii. FOR SODDED AREAS, PERMANENT STABILIZATION MEANS THAT COMPLETE BINDING OF THE SOD ROOTS INTO THE UNDERLYING SOIL WITH NO SLUMPING OF THE SOD OR DIE OFF;
   iii. FOR MULCHED AREAS, PERMANENT STABILIZATION MEANS TOTAL COVERAGE OF THE EXPOSED AREA WITH AN APPROVED MULCH MATERIAL.
   iv. FOR PAVED AREAS, PERMANENT STABILIZATION MEANS THE PLACEMENT OF THE ASPHALT BINDER COURSE.
H. IF THE AREA WILL REMAIN UNWORKED FOR MORE THAN ONE YEAR OR HAS BEEN BROUGHT TO FINAL GRADE, AND WILL NOT BE BUILT ON, THEN IMMEDIATELY PROVIDE PERMANENT STABILIZATION USING VEGETATION THROUGH PLANTING, SEEDING, SOD OR THROUGH THE USE OF PERMANENT MULCH OR RIPRAP. IF USING VEGETATION FOR STABILIZATION, SELECT THE PROPER VEGETATION FOR THE LIGHT, MOISTURE, AND SOIL CONDITIONS. AMEND AREAS OF DISTURBED, OVERLY–COMPACTED SUBSOIL WITH TOPSOIL OR COMPOST AND LIGHTLY TILL 2–3" OF SOIL AMENDMENTS INTO THE TOP 8" OF SOIL.
I. PERMANENT SEEDING SPECIFICATION: IT IS RECOMMENDED THAT PERMANENT SEEDING BE COMPLETED BETWEEN APRIL 1 AND AUGUST 15 OF EACH YEAR. LATE SEASON SEEDING MAY BE DONE BETWEEN AUGUST 15 AND SEPTEMBER 15. AREAS NOT SEEDED OR WHICH DO NOT OBTAIN A SATISFACTORY GROWTH BY OCTOBER 1 SHALL BE SEEDED WITH AROOSTOCK WINTER RYE OR MULCHED AT SPECIFIED RATES. SEE WINTER SEEDING AND MULCHING SPECIFICATIONS FOR STABILIZATION AFTER NOVEMBER 1.
   i. APPLY TOPSOIL TO A DEPTH OF 6 INCHES. IN COMPACTED AREAS TILL 2–3" OF COMPOST INTO UPPER 8" OF DISTURBED SOIL AND THEN APPLY 6 INCHES OF TOPSOIL.
   ii. APPLY LIME AND FERTILIZER ACCORDING TO SOIL TESTS. IN LIEU OF SOIL TESTS, APPLY GROUND LIMESTONE AT A RATE OF 3.3 LBS PER 1000 SQUARE FEET AND GRANULAR, COMMERCIAL–GRADE FERTILIZER 10–10–10 AT A RATE OF 18 LBS PER 1000 SQUARE FEET.
   iii. UNIFORMLY APPLY SEED MIXTURE AT THE RECOMMENDED SEEDING RATES AND DATES. APPLY HAY OR STRAW MULCH AT A RATE OF 2.5 BALES PER 1000 SQUARE FEET AND ANCHOR AS NECESSARY.
J. PROTECT ALL SEEDED AREAS WITH MULCH OR EROSION CONTROL BLANKET IN AREAS OF SHEET OR CONCENTRATED FLOWS. MULCH ALL AREAS SO THAT SOIL IS NOT VISIBLE THROUGH THE MULCH REGARDLESS OF THE APPLICATION RATE. SCHEDULE SEEDING OR SODDING TO AVOID FAILURE DUE TO SUMMER DROUGHT AND FALL FROST. NEWLY SEEDED AREAS SHOULD BE PROTECTED FROM VEHICLE TRAFFIC, PEDESTRIAN TRAFFIC AND CONCENTRATED RUNOFF UNTIL THE VEGETATION IS WELL ESTABLISHED. AREAS MUST BE REWORKED AND RESTABILIZED IF GERMINATION IS SPARSE OR SURFACE EROSION IS EVIDENT.
K. EROSION CONTROL BLANKET SHALL BE INSTALLED ON ALL PERMANENT SLOPES STEEPER THAN 3:1 OR AS OTHERWISE NOTED. EROSION CONTROL BLANKET SHALL BE NORTH AMERICAN GREEN S150BN OR APPROVED EQUAL. EROSION CONTROL BLANKET SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
L. THE CONTRACTOR IS RESPONSIBLE FOR REMOVAL OF ALL TEMPORARY EROSION CONTROL MEASURE UPON STABILIZATION OF PROJECT AREA & COST SHALL BE INCIDENTAL TO CONTRACT.

WINTER CONDITIONS

A. WINTER CONSTRUCTION IS CONSTRUCTION ACTIVITY PERFORMED DURING THE PERIOD FROM NOVEMBER 1 THROUGH APRIL 1. IF AREAS WITHIN THE CONSTRUCTION AREA ARE NOT STABILIZED WITH TEMPORARY OR PERMANENT MEASURES OUTLINED ABOVE BY NOVEMBER 15 THEN THE SITE MUST BE PROTECTED WITH ADDITIONAL STABILIZATION MEASURES THAT ARE SPECIFIC TO WINTER CONDITIONS.

GOOD HOUSEKEEPING AND POLLUTION PREVENTION

A. SPILL PREVENTION CONTROLS MUST BE USED TO PREVENT POLLUTANTS FROM BEING DISCHARGED FROM MATERIALS ON SITE, INCLUDING STORAGE PRACTICES TO MINIMIZE EXPOSURE OF THE MATERIALS TO STORMWATER RUNOFF AND APPROPRIATE SPILL PREVENTION, CONTAINMENT AND RESPONSE PLANNING AND IMPLEMENTATION.
B. DURING CONSTRUCTION, PETROLEUM PRODUCTS AND OTHER HAZARDOUS MATERIALS WITH THE POTENTIAL TO CONTAMINATE GROUND OR SURFACE WATERS MAY NOT BE STORED OR HANDLED IN AREAS OF THE SITE DRAINING TO INFILTRATION AREAS. AN "INFILTRATION AREA" IS ANY ARE OF THE SITE THAT BY DESIGN, OR AS A RESULTS OF SOIL AND TOPOGRAPHY, ACCUMULATES RUNOFF THAT INFILTRATES IN THE SOIL. DIKES, BERMS, SUMPS AND OTHER FORMS OF TEMPORARY SECONDARY CONTAINMENT THAT PREVENT DISCHARGE TO GROUNDWATER MAY BE USED TO ISOLATE PORTIONS OF THE SITE FOR THE PURPOSES OF STORAGE AND HANDLING OF THESE MATERIALS.
C. LOCATE ALL MATERIAL STOCKPILES WITH CONSIDERATION FOR STORMWATER DRAINAGE PATTERNS AND INFRASTRUCTURE.
D. TAKE ALL REASONABLE MEASURES TO MINIMIZE DUST RESULTING FROM THE PROJECT. OIL MAY NOT BE USED FOR DUST CONTROL.
E. LOCATE ALL LITTER, CONSTRUCTION DEBRIS AND CONSTRUCTION CHEMICALS WITH CONSIDERATION FOR STORMWATER DRAINAGE PATTERNS AND INFRASTRUCTURE.
F. TRENCH OR FOUNDATION DE–WATERING MUST BE SPREAD THROUGH SUFFICIENT NATURAL BUFFERS THAT HAVE CAPACITY TO INFILTRATE THE PUMPED WATER OR SHOULD BE PUMPED TO DESIGNED CONSTRUCTION DEWATERING DEVICES AS DESCRIBED IN THE MAINE EROSION AND SEDIMENT CONTROL BMPS HANDBOOK.
G. SEDIMENTS AND SOIL MATERIALS SHOULD BE SWEPT FROM PAVED SURFACES AT THE END OF EACH WORKDAY OR PRIOR TO RAIN EVENTS, WHENEVER POSSIBLE.

INSPECTION AND MAINTENANCE

A. A PERSON WITH KNOWLEDGE OF EROSION AND STORMWATER CONTROLS, INCLUDING THE STANDARDS IN THE MAINE CONSTRUCTION GENERAL PERMIT, THE MAINE EROSION AND SEDIMENT CONTROL BMPS HANDBOOK OR ANY MUNICIPAL REQUIREMENTS MUST CONDUCT THE INSPECTION. THIS PERSON MUST BE IDENTIFIED IN THE INSPECTION LOG. IF ADDITIONAL BMPS OR MODIFICATIONS TO BMPS ARE NECESSARY, THE MODIFICATIONS MUST BE IMPLEMENTED WITH 7 CALENDAR DAYS OR PRIOR TO ANY PRECIPITATION EVENT. ALL MEASURES MUST BE MAINTAINED IN EFFECTIVE OPERATING CONDITION UNTIL AREAS ARE PERMANENTLY STABILIZED.
B. AN INSPECTION AND MAINTENANCE LOG MUST BE KEPT BY THE CONTRACTOR, SUMMARIZING THE SCOPE OF THE INSPECTION, DATE, AND MAJOR OBSERVATIONS RELATING TO THE OPERATION OF EROSION AND SEDIMENT CONTROL BMPS, MATERIAL STORAGE AREAS, AND VEHICLE ACCESS POINTS TO THE CONSTRUCTION AREA. THE INSPECTION LOG SHOULD BE DELIVERED TO THE PROPERTY OWNER OR RESPONSIBLE CONTRACTING ENTITY UPON COMPLETION OF THE PROJECT.

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CLIENT INFO:

PORTLAND FORESIDE DEVELOPMENT COMPANY
PORTLAND, MAINE

PHASE 2

REV	MM/DD/YY	DESCRIPTION

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DATE:	JUNE 2023
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DRAWN BY:	BCM
CHECKED BY:	LJS
FILENAME:	PHASE 2 DETAILS .dwg

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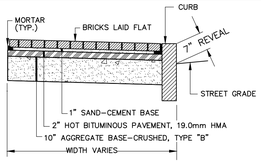
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C-200

SHEET: 12 OF 19

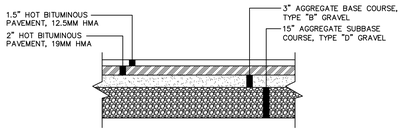
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SECTION

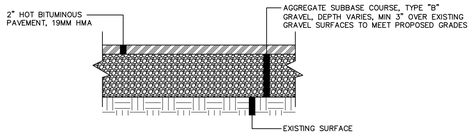
BRICK SIDEWALK DETAIL AT CITY R.O.W.

N.T.S.



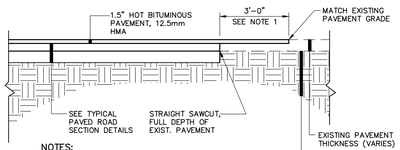
THAMES ST. PAVED ROAD & SITE PAVEMENT SECTION

N.T.S.



TEMPORARY PAVEMENT SECTION

N.T.S.

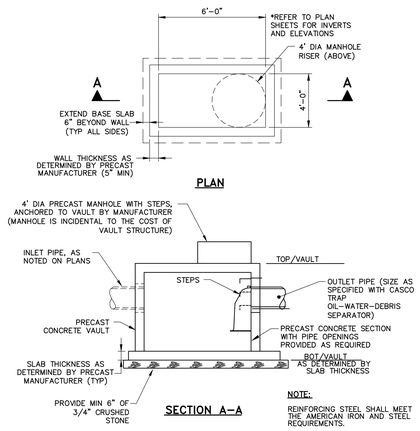


NOTES:

1. GRIND EXISTING PAVEMENT, TO 1.5" DEPTH.
2. PROVIDE BITUMINOUS TACK COAT ON VERTICAL AND HORIZONTAL SURFACES PRIOR TO PAVING.
3. DETAIL APPLICABLE TO PAVEMENT BUTT JOINTS AT ROADWAY WORK LIMITS. REFER TO PIPE INSTALLATION DTL. OR PAVED ROAD SECTION DTLS. FOR TRENCH REPAIR REQUIREMENTS.

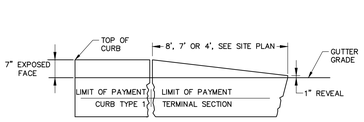
PAVEMENT BUTT JOINT DETAIL

N.T.S.



PRECAST 8'X6' CONCRETE VAULT

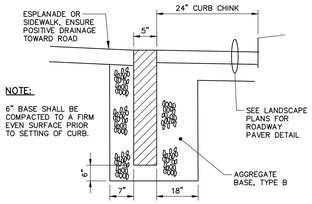
N.T.S.



TERMINAL SECTION TYPE "1"

TERMINAL CURB SECTION

N.T.S.



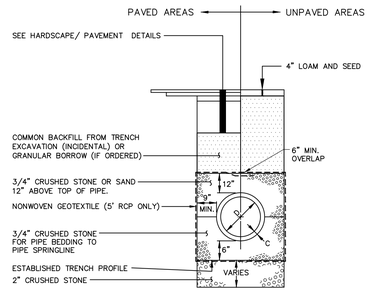
NOTE:
6" BASE SHALL BE COMPACTED TO A FIRM EVEN SURFACE PRIOR TO SETTING OF CURB.

SECTION

TYPICAL FLUSH CURB INSTALLATION

N.T.S.

NOTE: AGGREGATE TYPES PER MDOT SECTION 304.02



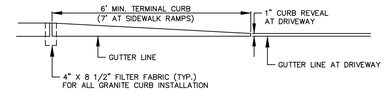
NOTES:
DEPTH & TYPE OF PAVEMENT & AGGREGATE COURSES SHALL BE PER PLANS. SEE CIVIL & LANDSCAPING PAVEMENT DETAILS.

TYPICAL STORMDRAIN/ SEWER PIPE TRENCH INSTALLATION

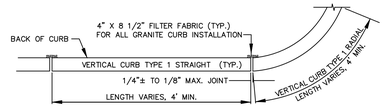
N.T.S.

OIL WATER SEPARATOR

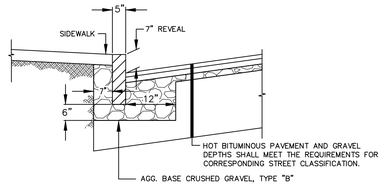
N.T.S.



TERMINAL CURB PROFILE



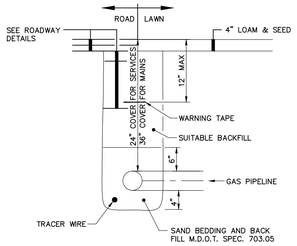
VERTICAL GRANITE CURB PLAN VIEW



VERTICAL GRANITE CURB CROSS SECTION

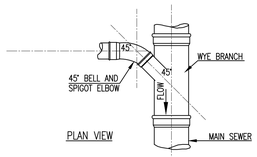
VERTICAL GRANITE CURB

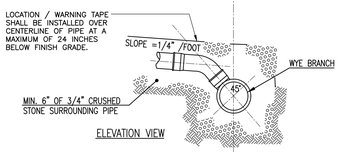
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NATURAL GAS PIPE

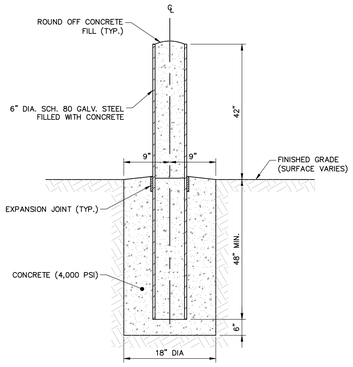
N.T.S.





TYPICAL LATERAL WYE CONNECTION DETAILS

N.T.S.



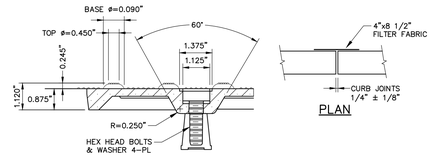
NOTE:

1. ALL BOLLARDS SHALL BE PAINTED. COLOR SELECTED BY OWNER.

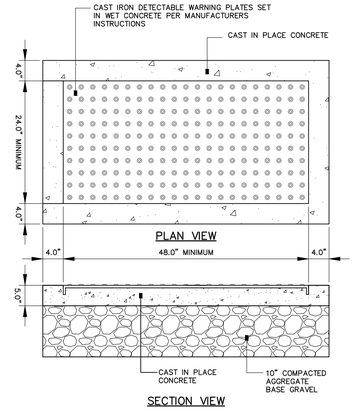
6" DIA. SECURITY BOLLARD

N.T.S.

(GMP RFI 005)



BOLT DETAIL



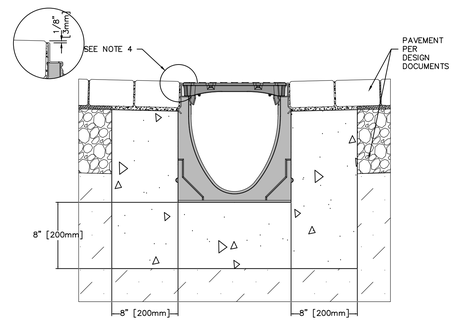
SECTION VIEW

SIDEWALK RAMP DETECTABLE WARNING

N.T.S.

NOTES:

1. ALL DETECTABLE WARNING PLATES SHALL BE UNCOATED CAST IRON. FOLLOW MANUFACTURER'S INSTRUCTIONS FOR INSTALLATION.
2. CAST IN PLACE CONCRETE SHALL MEET SPECIFICATIONS FOR MAINE D.O.T. CLASS A STRUCTURAL CONCRETE, MINIMUM COMPRESSIVE STRENGTH 4,000 PSI. THE EXPOSED CONCRETE BORDER SHALL RECEIVE A UNIFORM BROOM FINISH PERPENDICULAR TO THE FLOW OF PEDESTRIAN TRAFFIC.
3. TRUNCATED DOMES SHALL BE ALIGNED IN ROWS, PARALLEL AND PERPENDICULAR TO THE PREDOMINANT DIRECTION OF TRAVEL. TRUNCATED DOME BRICKS AND GRANITE PAVERS ARE NOT ALLOWED.
4. SIZE: THE DETECTABLE WARNING PLATES SHALL EXTEND 24 INCHES MINIMUM IN THE DIRECTION OF TRAVEL AND THE PLATE WIDTH AND CONCRETE SHALL EXTEND THE WIDTH OF THE CURB RAMP, LANDING, OR BLENDING TRANSITION TO THE STREET.
5. ORIENTATION: THE DETECTABLE WARNING PANEL SHALL BE LOCATED SO THAT THE EDGE NEAREST THE CURB LINE IS 6 INCHES MINIMUM AND 8 INCHES MAXIMUM FROM THE CURB LINE. THE PANEL SHALL BE ORIENTED TO THE DIRECTION OF TRAVEL AS IDENTIFIED BY THE POINT OF EGRESS.



NOTES:

1. IT IS NECESSARY TO ENSURE MINIMUM DIMENSIONS SHOWN ARE SUITABLE FOR EXISTING GROUND CONDITIONS. ENGINEERING ADVICE MAY BE REQUIRED.
2. MINIMUM CONCRETE STRENGTH OF 4,000 PSI IS RECOMMENDED. CONCRETE SHOULD BE VIBRATED TO ELIMINATE AIR POCKETS.
3. EXPANSION AND CONTRACTION CONTROL JOINTS AND REINFORCEMENT ARE RECOMMENDED TO PROTECT CHANNEL AND CONCRETE SURROUND. ENGINEERING ADVICE MAY BE REQUIRED.
4. THE FINISHED LEVEL OF THE CONCRETE SURROUND MUST BE APPROX. 1/8" [3mm] ABOVE THE TOP OF THE CHANNEL EDGE.
5. CONCRETE BASE THICKNESS SHOULD MATCH SLAB THICKNESS. ENGINEERING ADVICE MAY BE REQUIRED TO DETERMINE PROPER LOAD CLASS.
6. REFER TO ACO'S LATEST INSTALLATION INSTRUCTIONS FOR FURTHER DETAILS.

SPECIFICATION CLAUSE

K200 KLASSIKDRAIN 'DRAINLOK' LOAD CLASS C

GENERAL
THE SURFACE DRAINAGE SYSTEM SHALL BE POLYMER CONCRETE K200 CHANNEL SYSTEM WITH GALVANIZED STEEL EDGE RAILS AS MANUFACTURED BY ACO POLYMER PRODUCTS, INC.

MATERIALS
CHANNELS SHALL BE MANUFACTURED FROM POLYESTER RESIN POLYMER CONCRETE WITH AN INTEGRALLY CAST-IN GALVANIZED STEEL EDGE RAIL. MINIMUM PROPERTIES OF POLYMER CONCRETE WILL BE AS FOLLOWS:
COMPRESSIVE STRENGTH: 14,000 PSI
FLEXURAL STRENGTH: 4,000 PSI
TENSILE STRENGTH: 1,500 PSI
WATER ABSORPTION: 0.07%
FROST PROOF YES
DILUTE ACID AND ALKALI RESISTANT YES
B117 SALT SPRAY TEST COMPLIANT YES

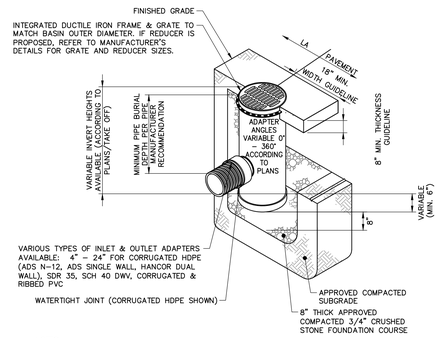
THE SYSTEM SHALL BE 8" (200mm) NOMINAL INTERNAL WIDTH WITH A 10.2" (260mm) OVERALL WIDTH AND A BUILT-IN SLOPE OF 0.5%. CHANNEL INVERT SHALL HAVE DEVELOPED "V" SHAPE. ALL CHANNELS SHALL BE INTERLOCKING WITH A MALE/FEMALE JOINT.

THE COMPLETE DRAINAGE SYSTEM SHALL BE BY ACO POLYMER PRODUCTS, INC. ANY DEVIATION OR PARTIAL SYSTEM DESIGN AND/OR IMPROPER INSTALLATION WILL VOID ANY AND ALL WARRANTIES PROVIDED BY ACO POLYMER PRODUCTS, INC.

CHANNEL SHALL WITHSTAND LOADING TO PROPER LOAD CLASS AS OUTLINED BY EN 1433. GRATE TYPE SHALL BE APPROPRIATE TO MEET THE SYSTEM LOAD CLASS SPECIFIED AND INTENDED APPLICATION. GRATES SHALL BE SECURED USING 'DRAINLOK' BOLTLESS LOCKING SYSTEM. CHANNEL AND GRATE SHALL BE CERTIFIED TO MEET THE SPECIFIED EN 1433 LOAD CLASS. THE SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS.

TRENCH DRAIN DETAIL

N.T.S.



NOTES:

1. INSTALL BASIN IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS
2. PRODUCT SHALL BE NYLOPLAST DRAIN BASIN MANUFACTURED BY ADVANCED DRAINAGE SYSTEMS (ADS) OR APPROVED EQUAL.
3. GRATES/SOLID COVER SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05.
4. FRAMES SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05.
5. DRAIN BASIN TO BE CUSTOM MANUFACTURED ACCORDING TO PLAN DETAILS. RISERS ARE NEEDED FOR BASINS OVER 84" DUE TO SHIPPING RESTORATIONS.
6. DRAINAGE CONNECTION STUB JOINT TIGHTNESS SHALL CONFORM TO ASTM D3212 FOR CORRUGATED HDPE (ADS & HANCOR DUAL WALL) & SDR 35 PVC.
7. ADAPTERS CAN BE MOUNTED ON ANY ANGLE 0° TO 360°.

AREA DRAIN

N.T.S.

Woodard & Curran
41 Hutchins Drive
Portland, Maine 04102
800.426.4262 | www.woodardcurran.com

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PE SEAL:

STATE OF MAINE
LAUREN JANE SWETT
No. 12284
LICENSED PROFESSIONAL ENGINEER

NOT FOR CONSTRUCTION

CLIENT INFO:

PORTLAND FORESIDE DEVELOPMENT COMPANY
PORTLAND, MAINE

PHASE 2

REV	MM/DD/YY	DESCRIPTION

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DATE:	JUNE 2023
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DRAWN BY:	BCM
CHECKED BY:	LJS
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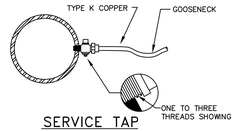
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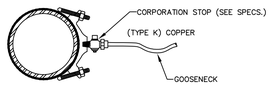
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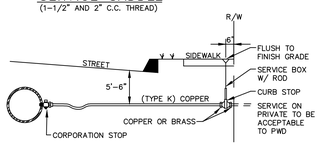
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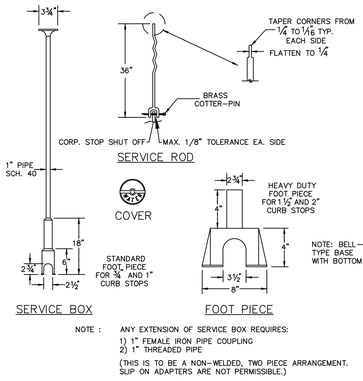
SERVICE TAP
(3/4" AND 1" C.C. THREAD)

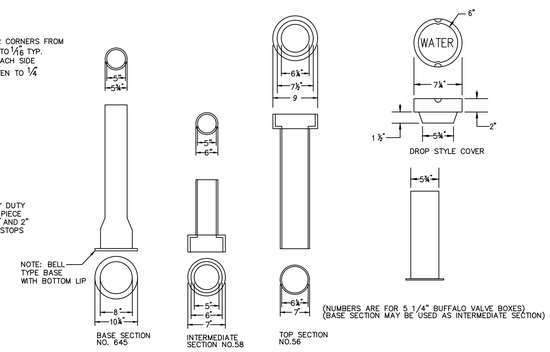


SERVICE SADDLE
(1-1/2" AND 2" C.C. THREAD)



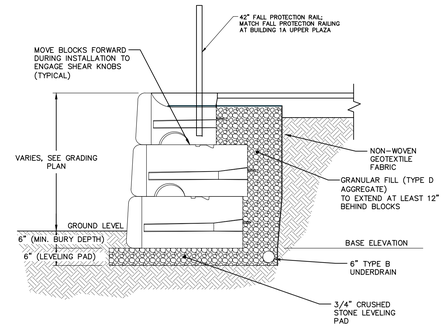
TYPICAL SERVICE CONNECTION
N.T.S.





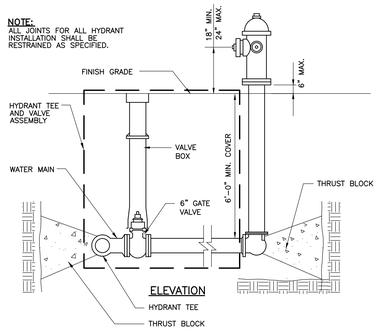
NOTE : ANY EXTENSION OF SERVICE BOX REQUIRES:
1) 1" FEMALE IRON PIPE COUPLING
2) 1" THREADED PIPE
(THIS IS TO BE A NON-WELDED, TWO PIECE ARRANGEMENT. SLIP ON ADAPTERS ARE NOT PERMISSIBLE.)

VALVE BOX & COVER
N.T.S.

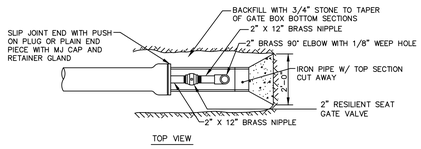


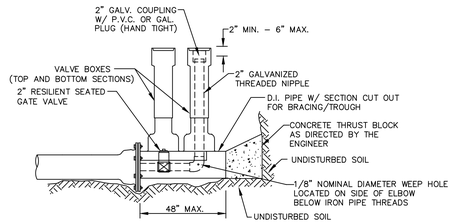
NOTE: PREFAB CONCRETE GRAVITY BLOCK WALL SHALL BE PER SUPPLEMENTAL SPECIFICATION SECTION 32 32 23.13. PREFAB CONCRETE GRAVITY BLOCK WALL DETAIL IS FOR REFERENCE PURPOSES TO AID IN LAYOUT AND DEVELOPMENT OF MANUFACTURER DETAILS. WALL MANUFACTURER SHALL PROVIDE FINAL WALL DESIGN AND CALCULATIONS, STAMPED AND SIGNED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF MAINE. REFER TO SUPPLEMENTAL SPECIFICATION SECTION 32 32 23.13 FOR ADDITIONAL REQUIREMENTS.

SEGMENTED RETAINING WALL DETAIL
N.T.S.

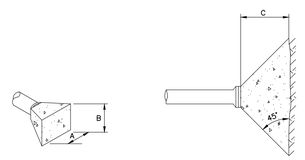


TYPICAL HYDRANT ASSEMBLY DETAIL
N.T.S.





STANDARD 2" BLOW OFF
N.T.S.



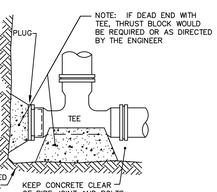
DEAD END ISOMETRIC VIEW

DEAD END PLAN VIEW

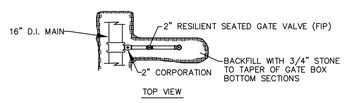
TABLE 1: 12" FITTINGS			
SOIL TYPE	TEES & PLUGS		
	A	B	C
SOFT CLAY	72"	36"	30"
SAND	36"	30"	18"
GRAVEL	30"	24"	12"

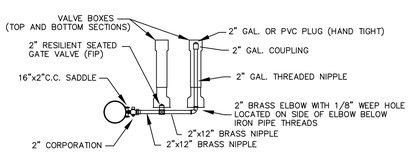
NOTES:
1. CONCRETE FOR ALL THRUST BLOCKS TO BE MINIMUM 3,000 PSI, 28 DAY STRENGTH, TYPE I/II CEMENT, 3/4" STONE.
2. WHERE POSSIBLE, CONSTRUCT THRUST BLOCKS AGAINST UNDISTURBED SOIL. WHERE NOT POSSIBLE, PLACE FILL BETWEEN THE THRUST BLOCK AND THE UNDISTURBED SOIL COMPACTED TO 90% STANDARD PROCTOR DENSITY.
3. WRAP FITTINGS WITH POLYETHYLENE PRIOR TO CONSTRUCTING THRUST BLOCKS. NO JOINTS SHALL BE COVERED WITH CONCRETE.
4. THRUST BLOCK DIMENSIONS ARE BASED ON A MAXIMUM PIPE PRESSURE OF 110 PSI.

TYPICAL THRUST BLOCK DETAIL
N.T.S.

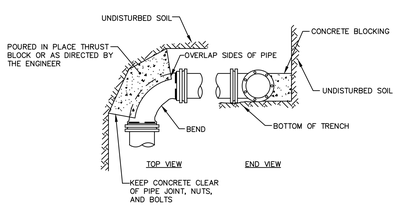


STANDARD TEE BLOCKING
N.T.S.





SIDE-ARM BLOW-OFF
4" & LARGER MAINS
N.T.S.



STANDARD BEND BLOCKING
N.T.S.

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Portland, Maine 04102
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PORTLAND, MAINE

PHASE 2

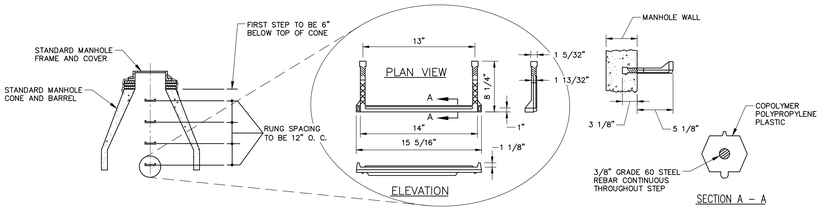
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DATE:	JUNE 2023
SCALE:	AS NOTED
DESIGNED BY:	ANL
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CHECKED BY:	LJS
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CIVIL DETAILS - 3

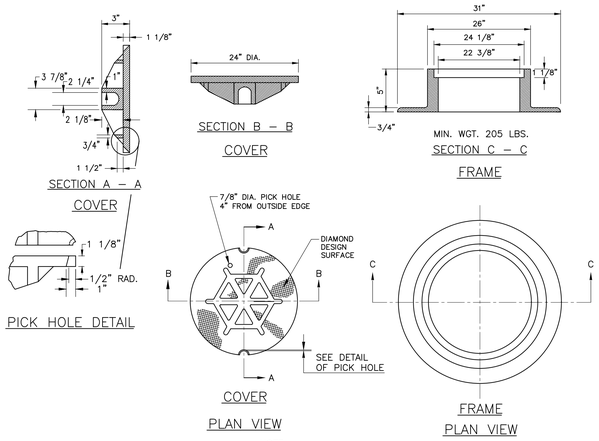
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C-202
SHEET: 14 OF 19

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PLASTIC MANHOLE STEPS

N.T.S.



NOTE:

FOR ALL CROSS COUNTRY MANHOLES (LAWN AREAS), USE PAM REXUS MANHOLE COVERS BY CERTAINTEED.

TYPE "A" CAST IRON MANHOLE COVER AND FRAME

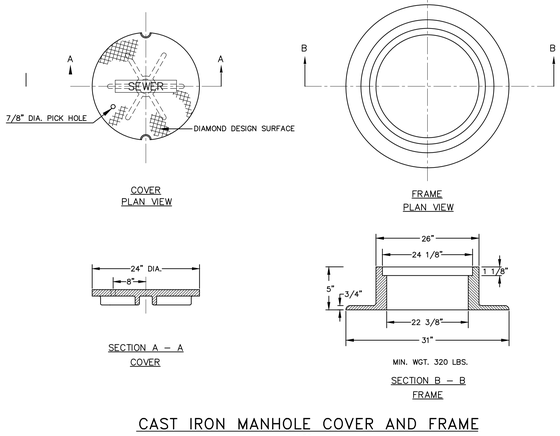
N.T.S.

GENERAL NOTES FOR MANHOLES AND CATCH BASINS

1. ALL CONCRETE SHALL BE CLASS "A" AND HAVE A MINIMUM ULTIMATE COMPRESSIVE STRENGTH OF 4000 LBS. PER SQ. INCH AT THE END OF 28 DAYS, UNLESS OTHERWISE NOTED.
2. PRECAST REINFORCED CONE BARREL MANUFACTURED PER ASTM SPEC. C-478.
3. ALL MANHOLES SHALL HAVE A BITUMINOUS WATERPROOFING APPLIED TO THE EXTERIOR SURFACE. IF CONSTRUCTED OF BRICK MASONRY, SURFACE SHALL BE PLASTERED WITH A SMOOTH MORTAR FINISH 3/8" THICK. AFTER THE MORTAR HAS SET, THE SURFACE SHALL BE WATERPROOFED AS REQUIRED BY SUPPLEMENTAL SPECIFICATIONS SECTION 604.
4. CASTINGS SHALL CONFORM TO ASTM DESIGNATION A48–CLASS 35. ALL PARTS OF CASTINGS, EXCEPT FINISHED SURFACE, SHALL RECEIVE A COAT OF COAL TAR PITCH VARNISH OR ASPHALTUM PAINT WHICH SHALL BE SMOOTH AND TOUGH BUT NOT BRITTLE.
5. MANHOLES MAY BE CONSTRUCTED OF MASONRY, PRECAST REINFORCED CONCRETE, OR CAST IN PLACE.
6. CONTRACTOR SHALL SUBMIT ANTIFLOATATION CALCULATIONS FOR ALL MANHOLE AND CATCH BASIN STRUCTURES.
7. ALL PRECAST MANHOLES AND CATCH BASINS SHALL BE IDENTIFIED BY STATION, OFFSET, AND STRUCTURE ID PAINTED ON THE SIDE OF THE STRUCTURE BY THE MANUFACTURER.
8. STORM AND SEWER MANHOLES SHALL HAVE SOLID COVERS WITH ONE DRILLED PICK HOLE.
9. EXISTING MANHOLES, CATCH BASINS, FRAMES, AND COVERS SHALL BE SALVAGED BY THE CONTRACTOR, AND SHALL REMAIN THE PROPERTY OF THE CITY OF PORTLAND.
10. WHEN THE FLOW CHANGES DIRECTION IN A MANHOLE, THE CHANNEL ALIGNMENT SHALL FOLLOW A SMOOTH RADIUS. CHANNELS SHALL BE FORMED TO ACCEPT ALL INLET PIPES.
11. ON STORM AND SEWER MANHOLES, THE SHELF AND CHANNEL SHALL BE FORMED BY BRICK SET IN CEMENT MORTAR OR BY FACTORY PRE–CAST CONCRETE. SUCH PRE–CAST CONCRETE SHALL BE EPOXY COATED AND THE SHELF SHALL HAVE A PERMANENT NON–SKID SURFACE.

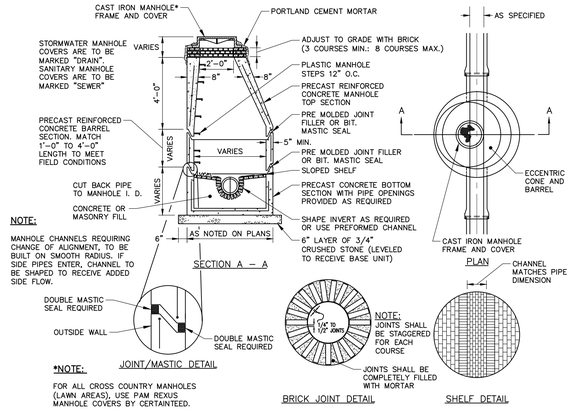
NOTE:
ALL MANHOLE COVERS SHALL BE SOLID AND SHALL HAVE ONE 7/8" DIAMETER DRILLED PICK HOLE, LOCATED 8" FROM THE CENTER OF THE COVER.

ALL SANITARY MANHOLE COVERS SHALL HAVE "SEWER" CAST INTO THE COVER. ALL STORMWATER/DRAIN MANHOLE COVERS SHALL HAVE "DRAIN" CAST INTO THE COVER.



CAST IRON MANHOLE COVER AND FRAME

N.T.S.

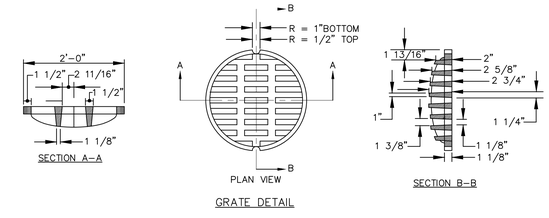


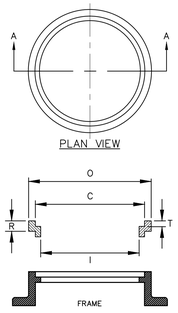
*NOTE:

FOR ALL CROSS COUNTRY MANHOLES (LAWN AREAS), USE PAM REXUS MANHOLE COVERS BY CERTAINTEED.

PRECAST CONCRETE MANHOLE

N.T.S.

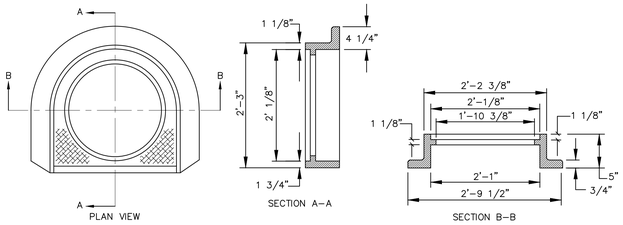




SIZE	C	R	T	O	I	Wt.
R241 1/2	24	1 1/2	1 1/8	26 1/4	22 1/2	60
R242	24	2	1 1/8	26 1/4	22 1/2	80
R242 1/2	24	2 1/2	1 1/8	26 1/4	22	100
R243	24	3	1 1/8	26 1/4	22	120

MANHOLE RISER RING

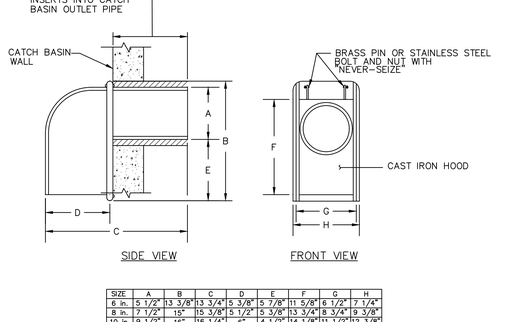
N.T.S.



FRAME DETAIL

CATCH BASIN FRAME & GRATE

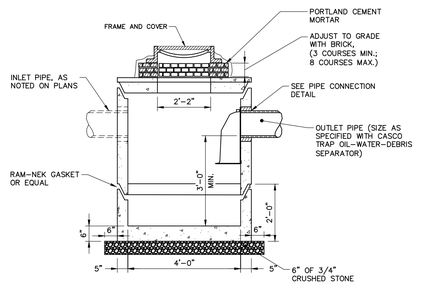
N.T.S.



SIZE	A	B	C	D	E	F	G	H
6 in.	5 1/2"	13 3/8"	13 3/4"	5 3/8"	5 7/8"	11 5/8"	8 1/2"	7 1/4"
8 in.	7 1/2"	15"	15 3/8"	5 1/2"	5 3/8"	13 3/4"	8 3/4"	9 3/8"
10 in.	9 1/2"	16"	16 1/4"	6"	4 1/2"	14 1/8"	11 1/2"	12 3/8"
12 in.	11 1/2"	17"	22"	8"	3 1/2"	17"	12 1/2"	13 3/8"

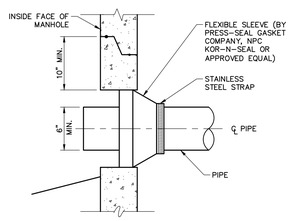
CASCO TRAP

N.T.S.



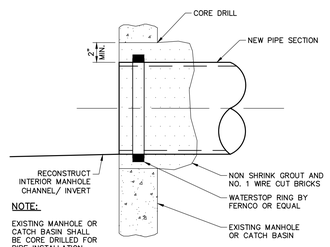
PRECAST CONCRETE CATCH BASIN

N.T.S.



NEW PIPE TO NEW STRUCTURE CONNECTION DETAIL

N.T.S.



NOTE:

EXISTING MANHOLE OR CATCH BASIN SHALL BE CORE DRILLED FOR PIPE INSTALLATION

NEW PIPE TO EXISTING STRUCTURE

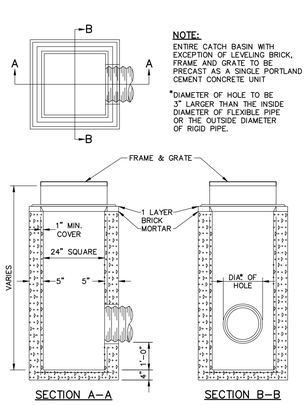
N.T.S.



NOTE: 5520M GRATE BY EJ OR APPROVED EQUAL

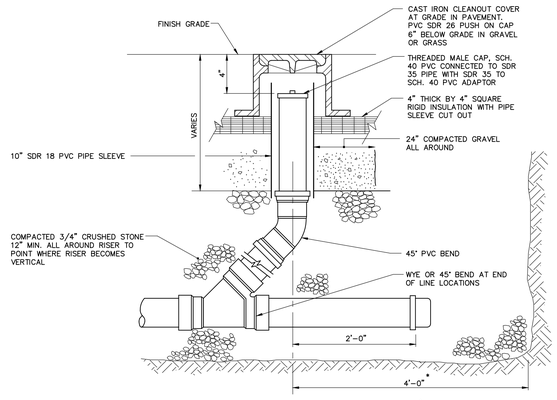
FIELD INLET GRATE

N.T.S.



FIELD INLET

N.T.S.



CLEANOUT DETAIL

N.T.S.

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STATE OF MAINE
LAUREN JANE SWETT
No. 12284
LICENSED PROFESSIONAL ENGINEER

NOT FOR CONSTRUCTION

CLIENT INFO:

PORTLAND FORESIDE DEVELOPMENT COMPANY
PORTLAND, MAINE

PHASE 2

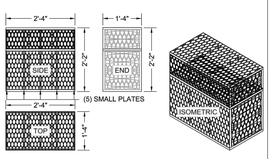
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CHECKED BY:	LJS
FILENAME:	PHASE 2 DETAILS .dwg

DRAWING TITLE:
CIVIL
CIVIL DETAILS - 4

DRAWING NO:
C-203
SHEET: 15 OF 19

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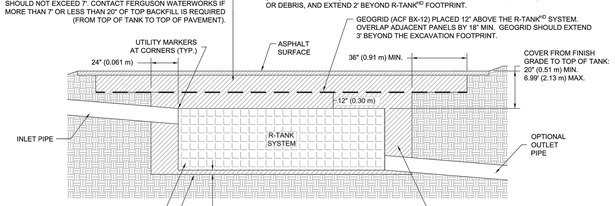
MODULE DATA

GEOMETRY:	**LOAD RATING:**
LENGTH = 28.15 IN. (715 MM)	33.4 PSI, (MODULE ONLY)
WIDTH = 15.75 IN. (400 MM)	HS20/HS25 - SEE SPEC FOR
HEIGHT = 25.98 IN. (660 MM)	COVER REQUIREMENTS
TANK VOLUME = 6.67 CF	**MATERIAL:**
STORAGE VOLUME = 6.33 CF	100% RECYCLED POLYPROPYLENE
VOID INTERNAL VOLUME: 95%	**SMALL PLATES REQUIRED:**
VOID SURFACE AREA: 90%	5/SEGMENT, 10/MODULE

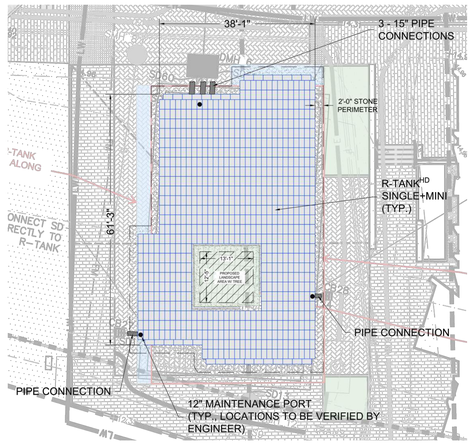
SINGLE + MINI R-TANK^{HD} - MODULE DETAIL

TOTAL COVER: 20" MINIMUM AND 84" MAXIMUM. FIRST 12" MUST BE FREE DRAINING BACKFILL (SPEC SECTION 2.03B): STONE <1.5" OR SOIL (USCS CLASS GW, GP, SW OR SP). ADDITIONAL FILL MAY BE STRUCTURAL FILL (SPEC SECTION 2.03C): STONE OR SOIL (USCS CLASS SM, SP, SW, GM, GP OR GW) WITH MAX CLAY CONTENT<10%, MAX 25% PASSING NO. 200 SIEVE, AND MAX PLASTICITY INDEX OF 4 A MIN. 12" COVER MUST BE MAINTAINED BETWEEN BACKFILL EQUIPMENT AND THE TOP OF THE R-TANK™ SYSTEM AT ALL TIMES. TOTAL HEIGHT OF TOP BACKFILL SHOULD NOT EXCEED 7'. CONTACT FERGUSON WATERWORKS IF MORE THAN 7' OR LESS THAN 20" OF TOP BACKFILL IS REQUIRED (FROM TOP OF TANK TO TOP OF PAVEMENT).

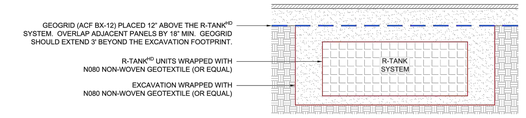
NOTES:
1. FOR COMPLETE MODULE DATA, SEE APPROPRIATE R-TANK^{HD} MODULE SHEET .
2. INSTALLATIONS PER THIS DETAIL MEET GUIDELINES OF HL-93 LOADING PER THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, CUSTOMARY U.S. UNITS, 7TH EDITION, 2014 WITH 2015 AND 2016 INTERIM REVISIONS.
3. PRE-TREATMENT STRUCTURES NOT SHOWN.
4. FOR INFILTRATION APPLICATIONS, GEOTEXTILE ENVELOPING R-TANK SHALL BE ACF M200 (PER SPEC SECTION 2.02A) AND BASE SHALL BE 4" MIN. UNCOMPACTED FREE DRAINING BACKFILL (SPEC SECTION 2.03A) TO PROVIDE A LEVEL BASE. SURFACE MUST BE SMOOTH, FREE OF LUMPS OR DEBRIS, AND EXTEND 2' BEYOND R-TANK^{HD} FOOTPRINT.



R-TANK^{HD} & HS-20 LOADS - SECTION VIEW



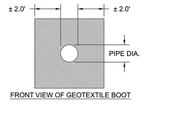
SUBSURFACE R-TANK #2
N.T.S.



SUBSURFACE R-TANK SECTION
N.T.S.

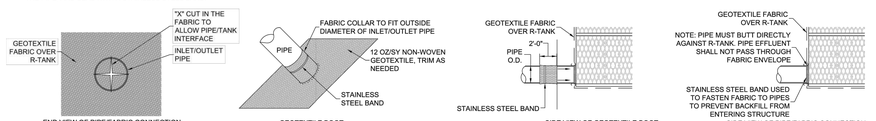
NOTE:
- PIPE BOOTS ARE AVAILABLE IN THE FOLLOWING STANDARD SIZES: 8" | 12" | 15" | 18" | 24".
- LARGER SPECIAL ORDER, CUSTOM SIZES ARE AVAILABLE

CUT AN "X" IN THE FABRIC ENVELOPE THAT IS SLIGHTLY LARGER THAN THE PIPE. PULL THE FABRIC FLAPS AROUND THE PIPE, AND SEAL WITH A STAINLESS STEEL BAND.



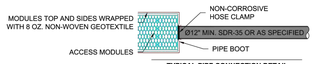
FRONT VIEW OF GEOTEXTILE BOOT

AFTER TANK WRAP IS SECURED TO PIPE, SLIDE BOOT AGAINST R-TANK AND SECURE WITH SECOND STAINLESS STEEL BAND, THEN ATTACH BOOT FLAP TO TANK ENVELOPE FABRIC WITH DUCT TAPE OR OTHER ADHESIVE.



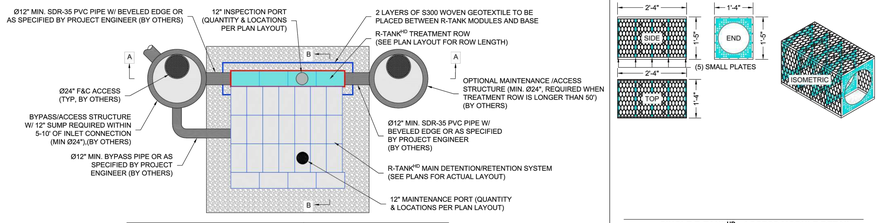
END VIEW OF PIPE/FABRIC CONNECTION | GEOTEXTILE BOOT | SIDE VIEW OF GEOTEXTILE BOOT | SIDE VIEW OF PIPE/FABRIC CONNECTION

R-TANK TYPICAL TANK INLET/OUTLET W/ GEOTEXTILE PIPE BOOT DETAIL



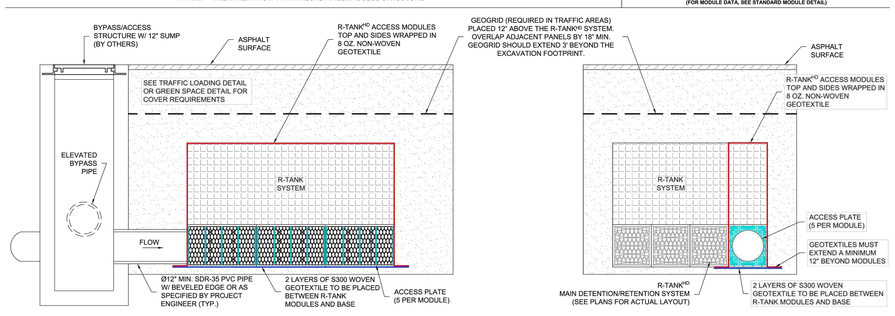
TYPICAL PIPE CONNECTION DETAIL

NOTE:
IF PIPE CONNECTING TO TREATMENT ROW IS LARGER THAN Ø12" SDR-35, IT SHALL BE ABUTTED FLUSH TO END PLATE AND SEALED WITH A PIPE BOOT.



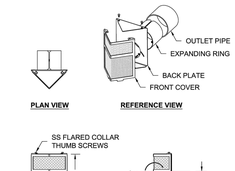
R-TANK^{HD} TREATMENT ROW WITH PRECAST INLET/ACCESS STRUCTURE

SINGLE R-TANK^{HD} - ACCESS MODULE DETAIL
(FOR MODULE DATA, SEE STANDARD MODULE DETAIL)



R-TANK^{HD} TREATMENT ROW SECTION A-A | **R-TANK^{HD} TREATMENT ROW SECTION B-B**

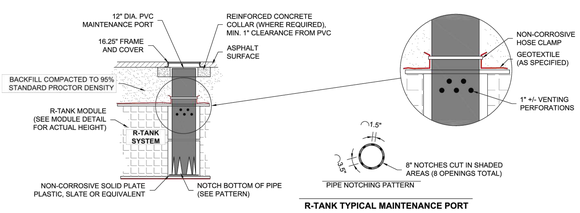
R-TANK GENERAL DETAILS
N.T.S.



PIPE DIA. (A)	STUB LENGTH (B)	CPS DEPTH (C)	CPS HEIGHT (D)	CPS WIDTH (E)
6"	4.00"	8.50"	10.00"	10.00"
8"	6.00"	11.00"	12.25"	11.50"
12"	8.00"	16.00"	15.50"	15.50"
15"	8.00"	16.00"	21.50"	18.50"
18"	8.00"	16.00"	28.00"	21.50"

STORMRING CPS PRETREATMENT DETAIL

NOTES
1. THIS PORT IS USED TO PUMP WATER INTO THE SYSTEM AND RE-SUSPEND ACCUMULATED SEDIMENT SO THAT IT MAY BE PUMPED OUT.
2. MINIMUM REQUIRED MAINTENANCE INCLUDES A QUARTERLY INSPECTION DURING THE FIRST YEAR OF OPERATION AND A YEARLY INSPECTION THEREAFTER. FLUSH AS NEEDED.
3. R-TANK^{HD}, R-TANK^{HD} R-TANK^{HD} AND R-TANK^{HD} MAY BE USED IN TRAFFIC APPLICATIONS.
4. SEE TRAFFIC LOADING DETAIL FOR MINIMUM & MAXIMUM COVER REQUIREMENTS.
5. IF MAINTENANCE PORT IS LOCATED IN A NON-TRAFFIC AREA, A PLASTIC CAP CAN BE USED IN LIEU OF A FRAME AND COVER WITH CONCRETE COLLAR.



R-TANK TYPICAL MAINTENANCE PORT

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PHASE 2

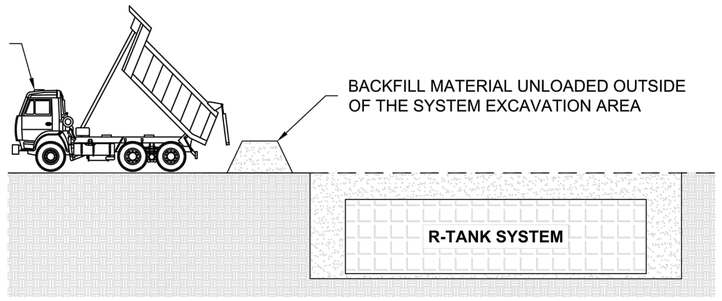
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CIVIL DETAILS - 5

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SHEET: 16 OF 19

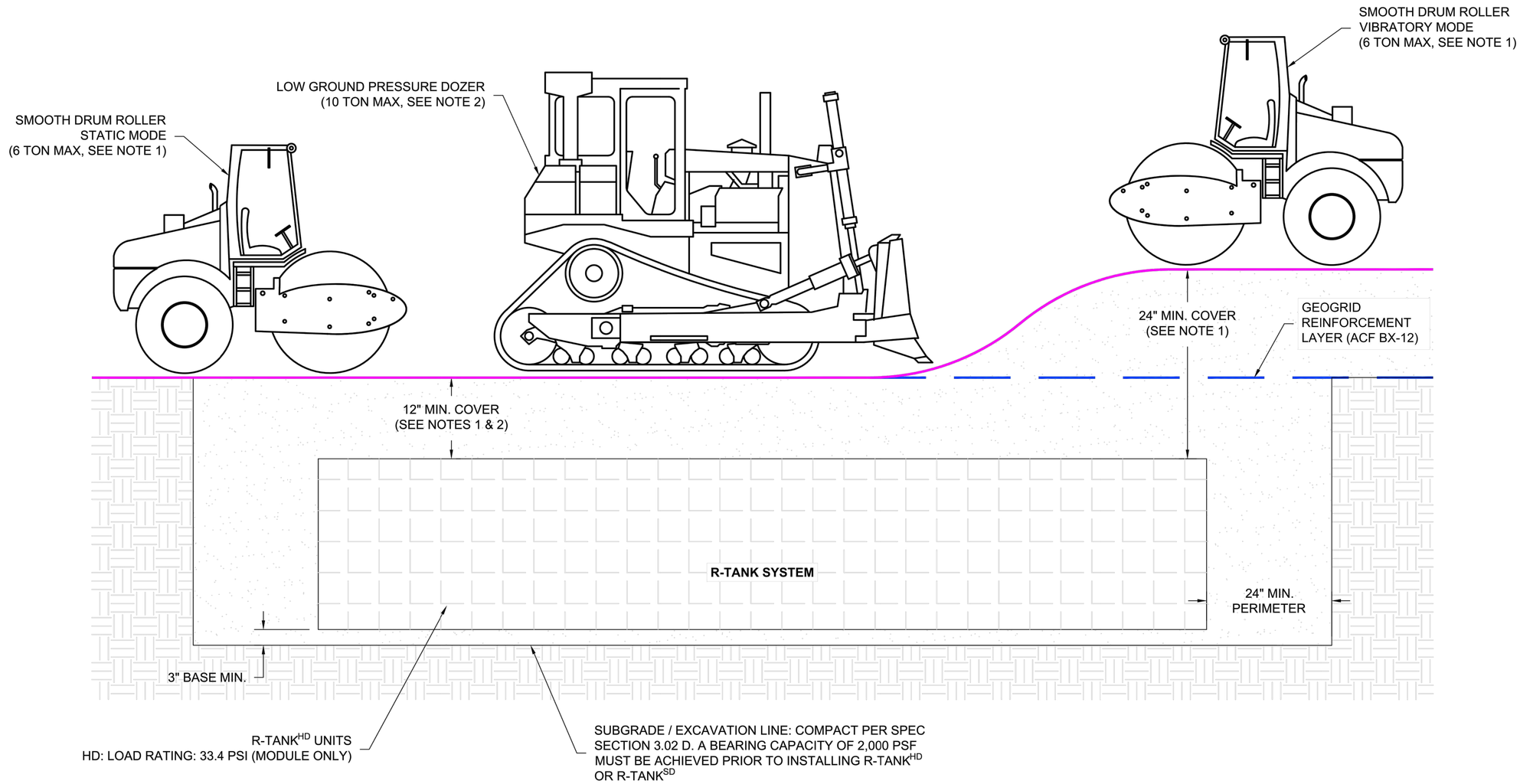
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DUMP TRUCK DETAIL (SEE NOTE 3)

NOTES:

1. FOLLOWING PLACEMENT OF SIDE BACKFILL, A UNIFORM 12" LIFT OF THE FREELY DRAINING MATERIAL (SPEC SECTION 2.03 B2) SHALL BE PLACED OVER THE R-TANK AND LIGHTLY COMPACTED USING A WALK-BEHIND TRENCH ROLLER. ALTERNATELY, A ROLLER (MAXIMUM GROSS VEHICLE WEIGHT OF 6 TONS) MAY BE USED. ROLLER MUST REMAIN IN STATIC MODE UNTIL A MINIMUM OF 24" OF COVER HAS BEEN PLACED OVER THE MODULES. SHEEP FOOT ROLLERS SHOULD NOT BE USED. **SPEC SECTION 3.05 A5**
2. ONLY LOW PRESSURE TIRE OR TRACK VEHICLES (LESS THAN 7 PSI AND OPERATING WEIGHT OF LESS THAN 20,000 LBS) SHALL BE OPERATED OVER THE R-TANK SYSTEM DURING CONSTRUCTION. **SPEC SECTION 3.05 A5**
3. DUMP TRUCKS AND PANS SHALL NOT BE OPERATED WITHIN THE R-TANK SYSTEM AT ANY TIME. WHERE NECESSARY, THE HEAVY EQUIPMENT SHOULD UNLOAD IN AN AREA ADJACENT TO THE R-TANK SYSTEM AND THE MATERIAL SHOULD BE MOVED OVER THE SYSTEM WITH TRACKED EQUIPMENT. **SPEC SECTION 3.05 A5**
4. ENSURE THAT ALL UNRELATED CONSTRUCTION TRAFFIC IS KEPT AWAY FROM THE LIMITS OF EXCAVATION UNTIL THE PROJECT IS COMPLETE AND FINAL SURFACE MATERIALS ARE IN PLACE. NO NON-INSTALLATION RELATED LOADING SHOULD BE ALLOWED OVER THE R-TANK SYSTEM UNTIL THE FINAL DESIGN SECTION HAS BEEN CONSTRUCTED (INCLUDING PAVEMENT). **SPEC SECTION 3.05 B**
5. SEE R-TANK INSTALLATION GUIDE OR CONTACT YOUR LOCAL FERGUSON REPRESENTATIVE FOR ADDITIONAL INFORMATION.



CONSTRUCTION EQUIPMENT COVER DETAIL - VEHICULAR TRAFFIC

R–TANK SPECIFICATIONS
N.T.S.

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Portland, Maine 04102
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STATE OF MAINE
LAUREN JANE SWETT
No. 12284
LICENSED PROFESSIONAL ENGINEER

NOT FOR CONSTRUCTION

CLIENT INFO:

PORTLAND FORESIDE DEVELOPMENT COMPANY
PORTLAND, MAINE

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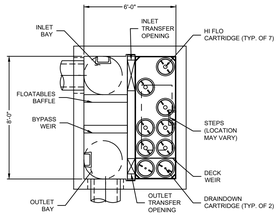
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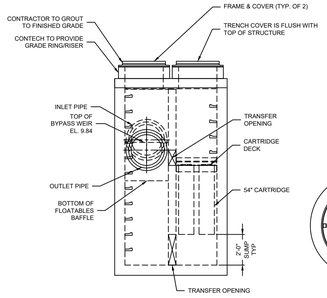
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C-205
SHEET: 17 OF 19

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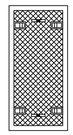
PLAN VIEW
(TOP SLAB NOT SHOWN FOR CLARITY)



ELEVATION VIEW



FRAME AND COVER
(DIAMETER VARIES)
N.T.S.

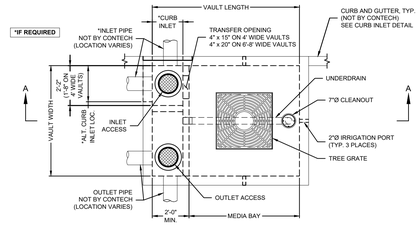


24" TRENCH COVER
(LENGTH VARIES)
N.T.S.

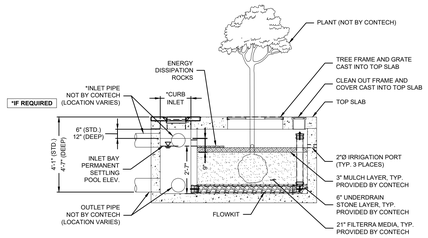
GENERAL NOTES:
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. FOR SITE SPECIFIC DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHT, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS REPRESENTATIVE www.ContechES.com
3. JELLYFISH WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING. CONTRACTOR TO CONFIRM STRUCTURE MEETS REQUIREMENTS OF PROJECT.
4. STRUCTURE SHALL MEET AASHTO HS-20 OR PER APPROVING JURISDICTION REQUIREMENTS, WHICHEVER IS MORE STRINGENT, ASSUMING EARTH COVER OF 0' - 10', AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. CONTRACTOR TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M306 LOAD RATING AND BE CAST WITH THE CONTECH LOGO.
5. STRUCTURE SHALL BE PRECAST CONCRETE CONFORMING TO ASTM C-857, ASTM C-978, AND AASHTO LOAD FACTOR DESIGN METHOD.
6. OUTLET PIPE INVERT IS EQUAL TO THE CARTRIDGE DECK ELEVATION.

INSTALLATION NOTES
A. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE STRUCTURE.
B. CONTRACTOR WILL INSTALL AND LEVEL THE STRUCTURE, SEALING THE JOINTS, LINE ENTRY AND EXIT POINTS (NON-SHRINK GROUT WITH APPROVED WATERSTOP OR FLEXIBLE BOOT).
C. CARTRIDGE INSTALLATION, BY CONTECH, SHALL OCCUR ONLY AFTER SITE HAS BEEN STABILIZED AND THE JELLYFISH UNIT IS CLEAN AND FREE OF DEBRIS. CONTACT CONTECH TO COORDINATE CARTRIDGE INSTALLATION WITH SITE STABILIZATION.

PEAK DIVERSION JELLYFISH FILTER #2
N.T.S.



PLAN VIEW

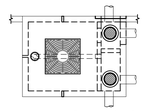


SECTION A-A
(STANDARD DEPTH SHOWN)

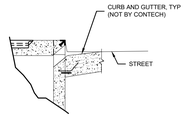
FTPD CONFIGURATION
(OPTIONS: DEEP "-D", THROAT INLET "-T", PIPE INLET "-P", PIPE AND THROAT INLET "-PT")

MODEL NAME	PART NUMBER	AVAILABILITY	MEDIA AREA (SF)	MEDIA BAY SIZE	VAULT SIZE (W x L)	WEIR LENGTH/ MAX. CURB OPENING	*MAX. BYPASS FLOW (CFS) STD / DEEP	INLET/ OUTLET ACCESS DIA.	TREE GRATE QTY. AND SIZE
FTPD 6x8 (6x10 VAULT)	FTPD0608	ALL (EXCEPT CA, TX)	48	6 x 8	6 x 10	1'-8"	1.4 / 4.6	12"/12"	(1) 4' x 4'

*MAX. BYPASS FLOW IS INTERNAL WEIR FLOW. CAPACITIES SHOWN ARE FOR STANDARD DEPTH AND DEEP (-D), RESPECTIVELY. SITE SPECIFIC ANALYSIS IS REQUIRED TO DETERMINE CURB INLET FLOW CAPACITY.

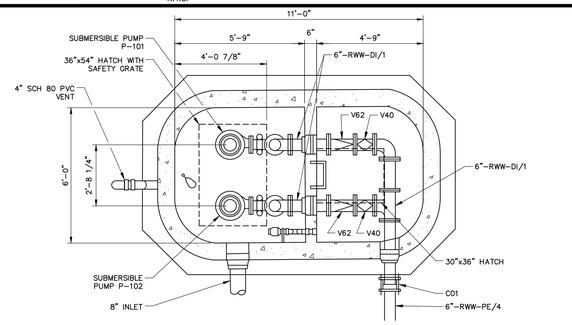


ALTERNATE ORIENTATION

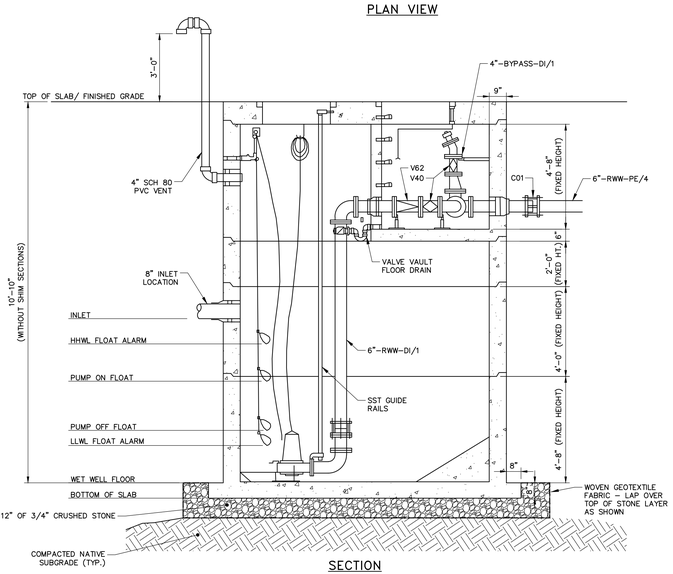


CURB INLET DETAIL

FILTERRA PEAK DIVERSION
N.T.S.



PLAN VIEW



SECTION

PUMPS	
MANUFACTURER	ZOELLER
MODEL	X62 HD
NUMBER OF PUMPS	TWO (2)
PUMP EQUIP TAGS	P–101 & P–102
PUMP TYPE	SUBMERSIBLE SOLIDS HANDLING
MAXIMUM SOLIDS SIZE	3 INCH
FLOW CAPACITY (PER PUMP)	500 GPM
TOTAL DYNAMIC HEAD (PER PUMP)	17.6 FT.
MOTOR HORSEPOWER (MAX.)	5 HP
POWER SUPPLY	208V/3PH/60HZ *NOTE: PROVIDE TRANSFER SWITCH FOR CONNECTION TO EMERGENCY POWER ⚠
PUMP CONFIGURATION	LEAD–STANDBY
DRIVE TYPE	CONSTANT SPEED
ELECTRICAL HAZARD AREA	CLASS 1, DIVISION 1 (XP)
DISCHARGE CONNECTION	6 INCH (FLANGED)
PUMPED FLUID	RAW WASTEWATER (UNSCREENED)
BASE TYPE	BASE/DISCHARGE ELBOW
EFFICIENCY (MIN.)	50%
PUMP VENDOR CONTROL PANEL	YES

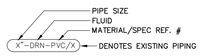
PUMP STATION	
MANUFACTURER	ONELIFT
MODEL	RC611
HEIGHT (TOP TO FLOOR)	12'–10"
DISCHARGE SIZE	6 INCH
BYPASS CONNECTION	4 INCH D.I.
INTERIOR PIPING	D.I.
PIPE SUPPORTS	STAINLESS STEEL
H2S CONCRETE PROTECTION	YES
EXTERIOR DAMPROOFING	YES
HATCH LOAD	H20
ACCESS	ALUMINUM LADDER
VENTING	4 INCH PVC
CONTROL PANEL	PROVIDE LOOSE
JUNCTION BOX LOCATION	INTERIOR FLOAT ONLY

ELEVATIONS	
PUMP STATION PART	ELEVATION
FINISHED GRADE	12.44
TOP OF SLAB	12.44
DISCHARGE PIPE INVERT	7.52
INLET PIPE INVERT	6.80 ⚠
HHWL FLOAT ALARM	5.80
PUMP ON FLOAT	5.47
PUMP OFF FLOAT	3.47
LLWL FLOAT ALARM	2.00
WET WELL FLOOR	–0.04

VALVE & COUPLING SCHEDULE	
ID (V##)	VALVE/ COUPLING TYPE
V40	METALLIC PLUG VALVE (FLANGED)
V62	METALLIC SWNG CHECK VALVE
C01	SLEEVE TYPE COUPLINGS

PIPE MATERIALS

CI/X – CAST IRON PIPE
CU/1 – COPPER PIPE & TUBING
DI/1 – DUCTILE IRON PIPE (FLANGED)
DI/2 – DUCTILE IRON PIPE (MECHANICAL JOINT)
DI/3 – DUCTILE IRON (PUSH–ON JOINT)
DI/4 – DUCTILE IRON (RIGID GROOVED END)
PVC/1 – PVC PIPE (SOCKET WELDED – SCH. 80)
PVC/2 – PVC TUBING
PVC/3 – PVC DOUBLE CONTAINMENT PIPE
PVC/4 – PVC PIPE (CPVC)
PVC/5 – PVC PIPE (BURIED SDR 35)
PVC/6 – PVC PIPE (BURIED SDR 18)
PVC/7 – PVC PIPE (SOCKET WELDED – SCH. 40)
SS/1 – STAINLESS STEEL PIPE (SCH. 10S)
SS/2 – STAINLESS STEEL PIPE (SCH. 40)
SS/3 – STAINLESS STEEL TUBING
SS/4 – STAINLESS STEEL HOSE
CS/1 – CARBON STEEL PIPE
CS/2 – TEFLON LINED STEEL PIPE (FLANGED)
PE/1 – POLYETHYLENE PIPING (SOCKET WELDED)
PE/2 – POLYETHYLENE TUBING (HIGH DENSITY)
PE/3 – POLYETHYLENE TUBING (LOW DENSITY)
PE/4 – POLYETHYLENE PIPING (BURIED) – DR–11
PE/5 – POLYETHYLENE PIPING (BURIED STORM DRAIN)



PIPING NOTES:

1. FLUID DESIGNATION
   A.RWW = RAW WASTE WATER
2. PROVIDE DUCTILE IRON PIPING IN ACCORDANCE WITH SPECIFICATION SECTION 40 05 13 – PROCESS PIPE. PROVIDE HIGH DENSITY POLYETHENE IN ACCORDANCE WITH SPECIFICATION SECTION 33 31 23.02 – SANITARY SEWERAGE FORCE MAINS.
3. AFTER INSTALLATION IS COMPLETE ALL PIPING SYSTEMS SHALL BE PRESSURE TESTED. ALL LEAKS OR OTHER ASSOCIATED DEFECTS SHALL BE CORRECTED AND THE PIPING SHALL BE RETESTED AT NO ADDITIONAL COST TO THE OWNER. REFER TO SPECIFICATION SECTION 40 05 13 "PROCESS PIPE AND FITTINGS" FOR ADDITIONAL INFORMATION AND REQUIREMENTS. PE/5 – POLYETHYLENE PIPING (BURIED STORM DRAIN)

VALVE & COUPLING NOTES:

1. PROVIDE VALVE IN ACCORDANCE WITH SPECIFICATION SECTION 40 05 23 – PROCESS VALVES.
2. PROVIDE PIPE COUPLINGS IN ACCORDANCE WITH SPECIFICATION SECTION 40 05 14 – PROCESS PIPE COUPLINGS AND CONNECTORS.

PUMP STATION NOTES:

1. MECHANICAL GENERAL NOTES:
   a. PIPING, VALVES, AND COUPLINGS WITHIN PUMP STATION STRUCTURE TO BE PROVIDED BY PUMP STATION MANUFACTURER UP TO THE C01 COUPLING OUTSIDE OF PUMP STATION. EXTERIOR PIPING AND C01 COUPLING TO BE PROVIDED BY CONTRACTOR.
   b. PROVIDE A MINIMUM 6" CLEAR BETWEEN PIPE PENETRATIONS AND PRECAST STRUCTURE JOINTS.
   c. FILL ALL BOLT AND LIFTING POCKETS WITH NON–SHRINK GROUT FOR CORROSION PREVENTION.
   d. PROVIDE TWO COATS OF BITUMINOUS DAMP–PROOFING ON ENTIRE EXTERIOR OF STRUCTURES BELOW GRADE.
   e. ALL PRECAST STRUCTURES SHALL BE HYDROSTATICALLY TESTED PER (ACI 350.1–01), CHAPTER 2, HST–VI0. HYDROSTATIC TESTING SHALL BE WITNESSED BY ENGINEER. ALL HYDROSTATIC TESTING SHALL BE COMPLETED TO THE SATISFACTION OF ENGINEER PRIOR TO BACKFILL OF STRUCTURES. REFER TO SPECIFICATION 03 41 26 FOR ADDITIONAL DETAILS. PROVIDE ALL LABOR, WATER, PUMPING EQUIPMENT, PIPING AND RELATED APPURTENANCES FOR TESTING. WASTEWATER SHALL NOT BE USED FOR TESTING. PROVIDE DISPOSAL OF TEST WATER.
   f. PROVIDE 304 STAINLESS STEEL PIPE SUPPORTS IN VALVE VAULT. ALL OTHER HARDWARE SHALL BE 316 STAINLESS STEEL.
   g. SOME VALVE HANDWHEEL ACTUATORS HAVE BEEN OMITTED FOR CLARITY.
   h. PROVIDE A TWO PART EPOXY COATING (PRIME & FINISH COAT) FOR ALL DUCTILE IRON PIPING AND FITTINGS INSIDE WET WELL AND VALVE VAULT. PRIME COAT SHALL BE TNEMEC N69F OR EQUAL AND FINISH COAT SHALL BE TNENEC N69 OR EQUAL.
2. PUMP INSTALLATION:
   a. INSTALL THE PUMPS AND MOTORS IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS AND AS DIRECTED ON SITE BY THE MANUFACTURER'S REPRESENTATIVE AND/OR ENGINEER. CORRECT INSTALLATION AND ASSEMBLY OF THE EQUIPMENT SHALL BE THE CONTRACTOR'S RESPONSIBILITY. INSTALL ALL PUMPS AND APPURTENANCES IN ACCORDANCE WITH THE CONTRACT DRAWINGS AND WITH THE MANUFACTURERS' INSTALLATION INSTRUCTION MANUAL.
   b. ALL APPURTENANCES REQUIRED FOR A COMPLETE AND OPERATING PUMPING SYSTEM SHALL BE PROVIDED, INCLUDING BUT NOT LIMITED TO SUCH ITEMS AS PIPING, CONDUIT, VALVES, WALL SLEEVES, WALL PIPES, CONCRETE FOUNDATIONS, ANCHORS, GROUTING, POWER SUPPLY, AND CONTROLS.
3. PUMP FACTORY TESTING:
   a. THE MANUFACTURER'S STANDARD FACTORY HYDROSTATIC AND PERFORMANCE TESTS SHALL BE PERFORMED ON EACH OF THE OTHER PUMPING UNITS INCLUDED IN THIS SECTION IN ACCORDANCE WITH THE LATEST EDITION OF THE HYDRAULIC INSTITUTE STANDARDS. THE TESTING SHALL INCLUDE BUT IS NOT LIMITED TO THE FOLLOWING:
      i. A FINAL INSPECTION OF THE IMPELLER, MOTOR RATING, AND ELECTRICAL CONNECTIONS FOR COMPLIANCE WITH PURCHASE ORDER.
      ii. A DRY RUN TEST TO VERIFY CORRECT ROTATION AND MECHANICAL INTEGRITY. THE ENTIRE UNIT SHALL BE CHECKED FOR EXCESSIVE VIBRATION. THE UNIT SHALL ALSO BE BALANCED.
      iii. A MOTOR AND CABLE INSULATION TEST OR INSPECTION FOR MOISTURE CONTENT AND INSULATION DEFECTS.
      iv. A TEST OF THE PUMP MOTOR (RUN FOR 5 MINUTES AT FULL LOAD) TO VERIFY ELECTRICAL DATA MEASUREMENTS. ALL ELECTRICAL DATA SHALL BE REGISTERED AS PART OF DOCUMENTATION
   b. A QUALITY CONTROL CHECK FORM SHOWING THE FACTORY TEST RESULTS AND THAT EACH PUMP SUCCESSFULLY PASSED FACTORY TESTS SHALL BE PROVIDED BY THE MANUFACTURER.
4. PUMP FIELD TESTING
   a. PRIOR TO ACCEPTANCE, AN OPERATIONAL TEST OF ALL PUMPS, DRIVERS, AND CONTROL SYSTEMS SHALL BE PERFORMED TO DETERMINE IF THE INSTALLED EQUIPMENT MEETS THE PURPOSE AND INTENT OF THE SPECIFICATIONS. TEST SHALL DEMONSTRATE THAT THE EQUIPMENT IS NOT ELECTRICALLY, MECHANICALLY, STRUCTURALLY, OR OTHERWISE DEFECTIVE; IS IN SAFE AND SATISFACTORY OPERATING CONDITION; AND CONFORMS WITH THE SPECIFIED OPERATING CHARACTERISTICS. PRIOR TO APPLYING ELECTRICAL POWER TO ANY MOTOR DRIVEN EQUIPMENT, THE DRIVE TRAIN SHALL BE ROTATED BY HAND TO DEMONSTRATE FREE OPERATION OF ALL MECHANICAL PARTS. TESTS SHALL INCLUDE CHECKS FOR EXCESSIVE VIBRATION, LEAKS IN ALL PIPING AND SEALS, CORRECT OPERATION OF CONTROL SYSTEMS, PROPER ALIGNMENT, AND POWER CONSUMPTION.
   b. PROVIDE ALL THE REQUIREMENTS TO CONDUCT A PROPER FIELD TEST WHICH INCLUDE BUT ARE NOT LIMITED TO: POWER, WATER, FACILITIES, LABOR, MATERIALS, SUPPLIES AND TEST INSTRUMENTS.
   c. IN THE PRESENCE OF THE MANUFACTURER'S REPRESENTATIVE, THE CONTRACTOR SHALL TEST AND INSPECT "ALL" NECESSARY CONTROLS WHICH INCLUDE BUT ARE NOT LIMITED TO ALL PUMP ON/OFF SET POINTS, ALARM SET POINTS AND INTERLOCKS (HIGH TEMPERATURE AND MOISTURE) REQUIRED FOR THE PUMPING UNITS TO FUNCTION PROPERLY WITHOUT CAUSING DAMAGE TO THE EQUIPMENT. THE MANUFACTURER'S REPRESENTATIVE SHALL PROVIDE THE CONTRACTOR AND ENGINEER WITH THE NECESSARY SET POINTS IN WRITING PRIOR TO THE SITE ACCEPTANCE TEST VISIT AS INDICATED IN THE SUBMITTALS. INITIAL TESTING OF THE PUMPS SHALL BE WITH WATER. WASTEWATER SHALL NOT BE USED FOR INITIAL TESTING.
   d. FIELD TESTING SHALL DEMONSTRATE THAT ALL CONTROLS AND SYSTEMS FUNCTION PROPERLY. A SUCCESSFUL FIELD TEST SHALL INCLUDE "CONTINUOUS" OPERATION OF EACH PUMP FOR A MINIMUM PERIOD OF THREE (3) HOURS WITHOUT ALARMS OR SHUT DOWNS, EXCEPT AS INTENDED FOR TESTING.
   e. IF THE EQUIPMENT DOES NOT SUCCESSFULLY PASS THE TESTS LISTED ABOVE, THE MANUFACTURER SHALL REPAIR THE EQUIPMENT AND PERFORM THE TESTS AGAIN UNTIL PASSING THE TESTS SUCCESSFULLY. IF ANY DEFICIENCIES ARE REVEALED DURING ANY TEST, SUCH DEFICIENCIES SHALL BE CORRECTED, AND THE TESTS SHALL BE RECONDUCTED AT NO ADDITIONAL COST TO THE OWNER.
5. PUMP MANUFACTURER'S SERVICES:
   a. SERVICES OF A MANUFACTURER'S REPRESENTATIVE WHO IS EXPERIENCED IN THE INSTALLATION, ADJUSTMENT, AND OPERATION OF THE EQUIPMENT SPECIFIED SHALL BE PROVIDED. THE ON–SITE MAN DAYS LISTED BELOW ARE EXCLUSIVE OF TRAVEL TIME AND DO NOT RELIEVE THE OBLIGATION TO PROVIDE SUFFICIENT SERVICE TO PLACE THE EQUIPMENT INTO SATISFACTORY OPERATION.
   b. THE MANUFACTURER'S REPRESENTATIVE SHALL SUPERVISE THE INSTALLATION, ADJUSTMENT, AND TESTING OF THE EQUIPMENT. THE MANUFACTURER'S REPRESENTATIVE SHALL BE PRESENT FOR A PERIOD OF NOT LESS THAN ONE (1) ON–SITE MAN DAY (TOTAL) TO INSPECT THE INSTALLED EQUIPMENT, SUPERVISE THE INITIAL TEST RUN, AND TO PROVIDE INSTRUCTION TO THE PLANT PERSONNEL.
   c. THE MANUFACTURER'S REPRESENTATIVE SHALL MAKE ALL NECESSARY ADJUSTMENTS AND SETTINGS TO THE CONTROLS. IN PARTICULAR, SERVICE ENGINEER SHALL VERIFY THE CONTROL SET POINTS FOR EACH PUMP AS WELL AS PROPER ROTATIONAL DIRECTION.
   d. A FIELD TRAINING COURSE SHALL BE PROVIDED FOR DESIGNATED OPERATING AND MAINTENANCE STAFF MEMBERS. TRAINING SHALL BE PROVIDED IN CONJUNCTION WITH THE VISIT FROM THE MANUFACTURER'S REPRESENTATIVE. THE TRAINING SHALL START AFTER THE SYSTEM IS FUNCTIONALLY COMPLETE BUT PRIOR TO FINAL ACCEPTANCE TESTS. FIELD TRAINING SHALL COVER ALL OF THE ITEMS CONTAINED IN THE OPERATING AND MAINTENANCE MANUALS, INCLUDING NORMAL OPERATIONS, TROUBLE–SHOOTING, MAINTENANCE, LUBRICATION, AND OTHER RELATED WORK.

PUMP STATION PLAN, SECTION & NOTES
N.T.S.

C:\Users\lanceb\Desktop\PDC\Phase 2 - SD\Phase 2 Details .dwg, Jun 23, 2023 - 10:09am, BMCDEVITT

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800.426.4262 | www.woodardcurran.com

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PE SEAL:



NOT FOR CONSTRUCTION

CLIENT INFO:

PORTLAND FORESIDE DEVELOPMENT COMPANY
PORTLAND, MAINE

PHASE 2

REV	MM/DD/YY	DESCRIPTION

JOB NO:	227007
DATE:	JUNE 2023
SCALE:	AS NOTED
DESIGNED BY:	ANL
DRAWN BY:	BCM
CHECKED BY:	LJS
FILENAME:	PHASE 2 DETAILS .dwg

DRAWING TITLE:
CIVIL
CIVIL DETAILS - 7

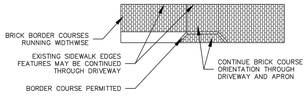
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C-206
SHEET: 18 OF 19

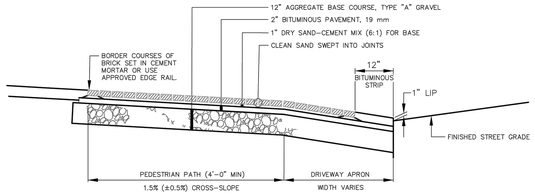
BRICKS TO BE USED:

NEW CONSTRUCTION:
4"x8" PINE HALL PATHWAY PAVER BRICK; MFG. BY PINE HALL BRICK CO., MADISON, NORTH CAROLINA. LACHANCE ITEM # 193623, PINE HALL PATHWAY PAVER BRICK.

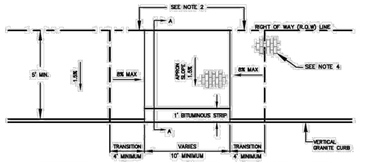
REPAIR /MAINTENANCE TO EXISTING BRICK SIDEWALKS: VERMONT PAVER; SUPPLIED BY GAGNE AND SONS.
SPECIFICATION NUMBER:
"VERMONT BACKER BRICK",
ITEM NUMBER # VBBB

BRICK ORIENTATION DETAIL

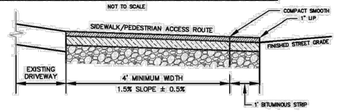




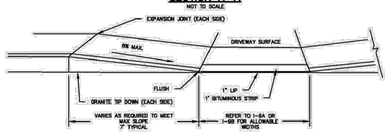
BRICK DRIVEWAY APRON WITH BITUMINOUS BASE
NOT TO SCALE



DRIVEWAY APRON AT CONSTRAINED SIDEWALK LAYOUT
NOT TO SCALE



SECTION A-A
NOT TO SCALE



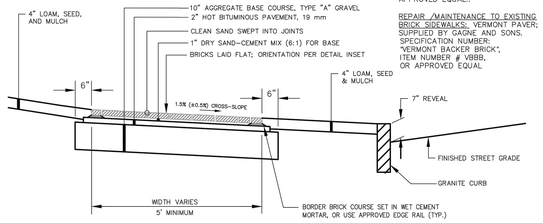
NOTES:
1. MATCH EXISTING GRADE AT R.O.W LINE. WHERE REQUIRED TO MEET A.D.A. AND DRIVEWAY APRON SLOPE REQUIREMENTS, A CONSTRUCTION EASEMENT MAY BE REQUIRED.
2. SIDEWALK TRANSITION SLOPE SHALL NOT EXCEED 8.33%. RAMP LENGTH SHALL ACCOMMODATE THIS CONSTRAINT UP TO 15 FOOT RAMP LENGTH OR AS OTHERWISE REQUIRED BY ADA STANDARDS.
3. MOUNTABLE CURB (SEE DETAIL I-15) OR INCREASE IF BITUMINOUS LIP IS PREFERRED TO MAINTAIN SIDEWALK GRADE THROUGH APRON.
4. ALL MATERIALS IN ROW TO COMPLY WITH CITY'S SIDEWALK & DRIVEWAY MATERIAL POLICY. BRICK IN DRIVEWAY APRONS, WHERE APPLICABLE, SHALL BE ORIENTED IN THE SAME WAY AS THE ADJACENT BRICK SIDEWALK.

DRIVEWAY APRON AT CONSTRAINED SIDEWALKS
NOT TO SCALE

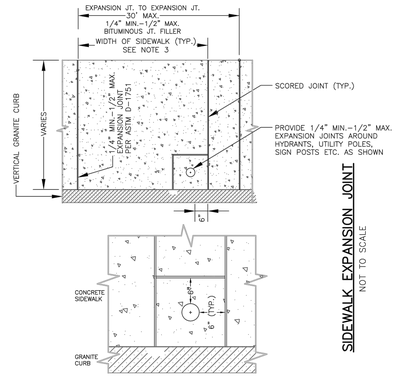
BRICKS TO BE USED:

NEW CONSTRUCTION:
4"x8" PINE HALL PATHWAY PAVER BRICK; MFG. BY PINE HALL BRICK CO., MADISON, NORTH CAROLINA, OR APPROVED EQUAL.
LACHANCE ITEM # 193623, PINE HALL PATHWAY PAVER BRICK, OR APPROVED EQUAL.

REPAIR /MAINTENANCE TO EXISTING BRICK SIDEWALKS: VERMONT PAVER; SUPPLIED BY GAGNE AND SONS.
SPECIFICATION NUMBER:
"VERMONT BACKER BRICK",
ITEM NUMBER # VBBB,
OR APPROVED EQUAL



BRICK SIDEWALK WITH BITUMINOUS BASE
NOT TO SCALE



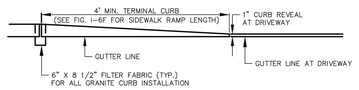
SIDEWALK EXPANSION JOINT
NOT TO SCALE

CONCRETE SIDEWALK JOINT NOTES:

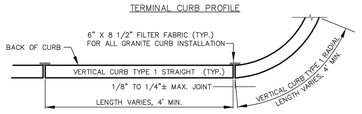
1. EXPANSION JOINTS SHALL BE LOCATED WHERE SIDEWALK ABUTS DRIVEWAYS, CURB OR OTHER ADJACENT STRUCTURES.
2. SLABS SHALL BE PLACED ALTERNATELY IN LENGTHS, NOT TO EXCEED 30 LINEAR FEET OR AS DIRECTED AND SHALL BE SEPARATED BY AN EXPANSION JOINT OF PREFORMED EXPANSION FILLER 1/4" MIN.-1/2" MAX. IN THICKNESS AND SHALL EXTEND THE FULL LENGTH/DEPTH OF THE CONCRETE.
3. THE SIDEWALK SURFACE SHALL BE SCORED INTO BLOCK UNITS. THE DEPTH OF SCORING SHALL BE AT LEAST ONE QUARTER OF THICKNESS OF THE SLABS (1" TYP.). SCORED JOINTS MUST BE COMPLETED AS PART OF THE FINISHING PROCESS. SAW CUTTING OF JOINTS IS NOT ALLOWED. SCORED JOINTS SHALL BE PLACED AT THE FOLLOWING LOCATIONS:
   A. IN LOCATIONS TO ENSURE BLOCK UNITS DO NOT EXCEED 36 SQUARE FEET.
   B. AT THE SPACING THAT MATCHES ADJACENT TIP DOWN CURB
   C. EXTENSION OF EXPANSION JOINTS LOCATED AT HYDRANTS & UTILITY POLES.
4. ALL OUTSIDE EDGES OF THE SLAB AND ALL JOINTS SHALL BE ROUNDED WITH A 1/4" RADIUS EDGING TOOL.
5. CONCRETE SHALL BE FINISHED BY MEANS OF A FLOAT, STEEL TROWELED AND BROOMED WITH A FINE BRUSH IN A TRANSVERSE DIRECTION.

SIDEWALK EXPANSION JOINT
NOT TO SCALE

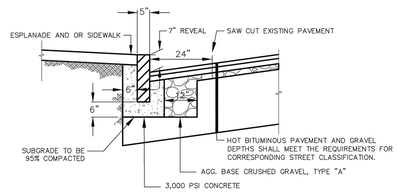
FORE ST. PAVED ROAD SECTION
N.T.S.



TERMINAL CURB PROFILE



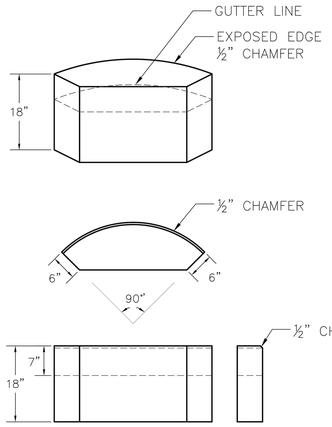
VERTICAL GRANITE CURB PLAN VIEW



VERTICAL GRANITE CURB CROSS SECTION

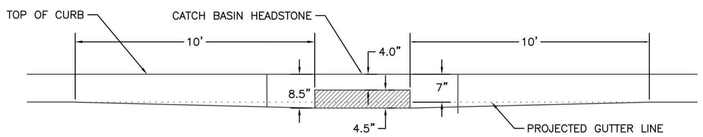
NOTES:
1. INDIVIDUAL PIECES OF CURB SHORTER THAN 4 L.F. ARE NOT ALLOWED, WITH THE EXCEPTION OF RADIAL CURB.
2. THE MINIMUM HEIGHT OF THE CONCRETE BACKING SHALL BE 10-INCHES OR TO THE BOTTOM OF THE HOT MIX ASPHALT PAVEMENT, WHICHEVER IS GREATER, MEASURED FROM THE BOTTOM OF CURB.
3. CURBING SHALL BE SET IN A 6-INCH BED OF POURED IN PLACE 3,000 PSI CONCRETE MIX.
4. WOODEN SHIMS MAY BE USED TO SET CURB.

VERTICAL GRANITE CURB
NOT TO SCALE

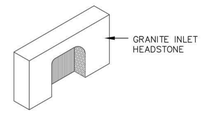


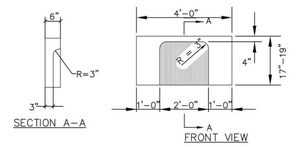
GRANITE RADIUS CORNER "BUG"
NOT TO SCALE

NOTE:
DISH 10' EITHER SIDE OF HEADSTONE FOR CATCH BASIN AT LOW POINT



TYPICAL PAVEMENT GRADING FOR CATCH BASIN INLETS
NOT TO SCALE





4' GRANITE HEADSTONE FOR CATCH BASIN INLET
NOT TO SCALE

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PE SEAL:

STATE OF MAINE
LAUREN JANE SWETT
No. 12284
LICENSED PROFESSIONAL ENGINEER

NOT FOR CONSTRUCTION

CLIENT INFO:

PORTLAND FORESIDE DEVELOPMENT COMPANY
PORTLAND, MAINE

PHASE 2

REV	MM/DD/YY	DESCRIPTION

JOB NO:	227007
DATE:	JUNE 2023
SCALE:	AS NOTED
DESIGNED BY:	ANL
DRAWN BY:	BCM
CHECKED BY:	LJS
FILENAME:	PHASE 2 DETAILS .dwg

DRAWING TITLE:
CIVIL
FORE STREET DETAILS

DRAWING NO:
C-207
SHEET: 19 OF 19

C:\Users\bmcdevitt\OneDrive - Woodard & Curran_PCFolders\Desktop\PTDO\Phase 2 - SD\Phase 2 Details .dwg, Jun 23, 2023 - 10:09am BMCDEVITT



LEGEND

- PROPERTY LINE
- LIMIT OF WORK
- SHEET DELINEATION

SCALE: 1"=20'
0 10' 20' 40'
NORTH

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OWNER'S CONSULTANT

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Michael Boucher Landscape Architecture
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Freeport, Maine
t 207.865.1080

STAMP

PROJECT

FORESIDE DEVELOPMENT

PFDC - BLOCK 4: HARBOR HILL

PROJECT ADDRESS

254 Commercial Street, Suite 118, Portland, ME 04101

KEYPLAN

MARK	ISSUE	DATE

COORDINATION DRAWING

MAY 10, 2023

Job Number	XXXXXXX
Drawn	SMG
Checked	JP
Approved	MB

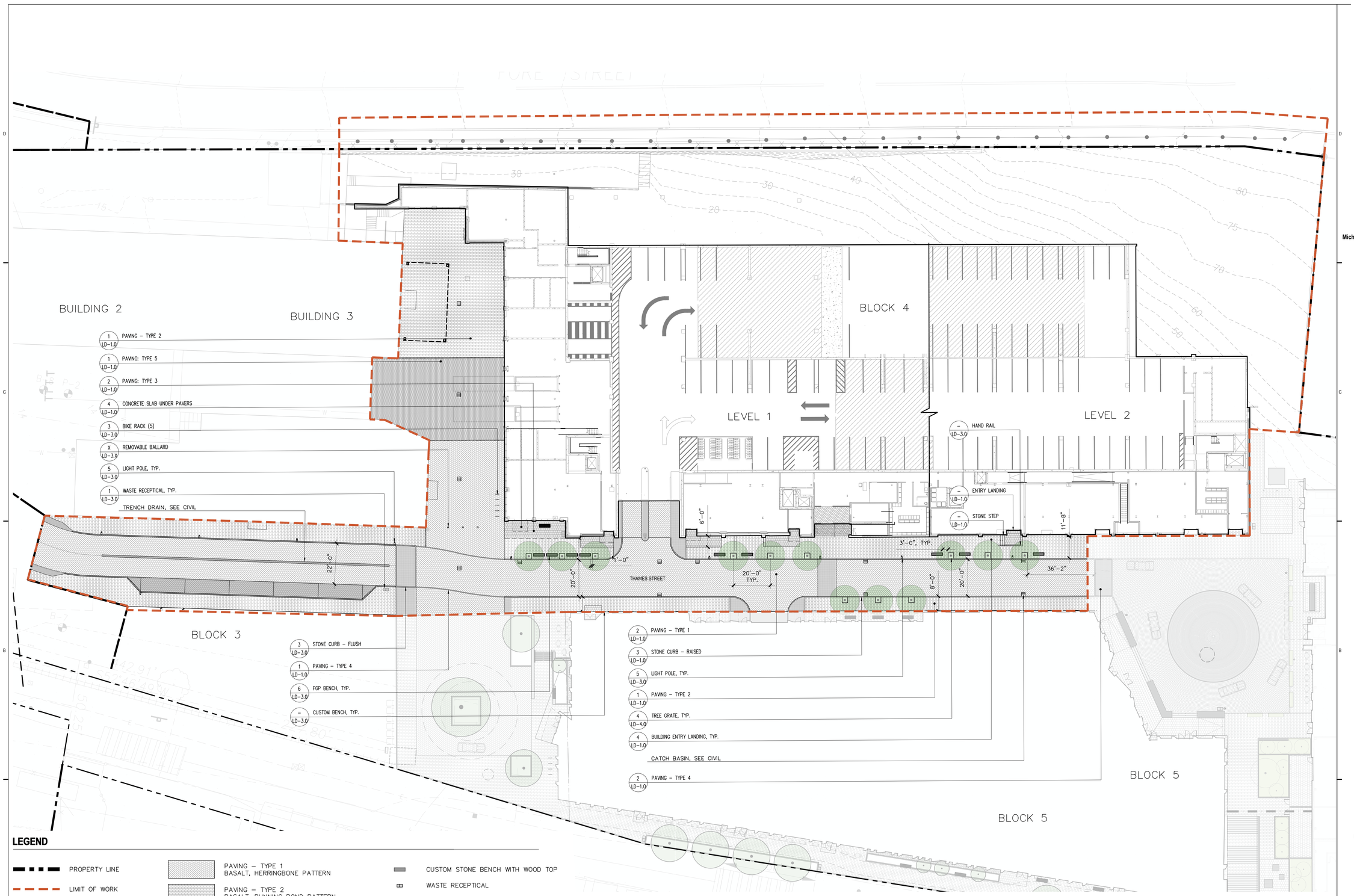
TITLE

BLOCK 4 - LANDSCAPE REFERENCE PLAN

SHEET NUMBER

L-0.0

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LEGEND

- PROPERTY LINE
- LIMIT OF WORK
- OVERHEAD
- PROPOSED TREE
- PAVING – TYPE 1 BASALT, HERRINGBONE PATTERN
- PAVING – TYPE 2 BASALT, RUNNING BOND PATTERN
- PAVING – TYPE 3 RUNNING BOND PATTERN
- PAVING – TYPE 4 STONE SETTS
- PAVING – TYPE 5 ASPHALT PAVERS, RUNNING BOND PATTERN
- PAVING – TYPE 6 STONE SETTS, SINGLE ROW
- STONE CURB – RAISED
- STONE CURB – FLUSH
- CUSTOM STONE BENCH WITH WOOD TOP
- WASTE RECEPTICAL
- REMOVABLE BOLLARD
- BIKE RACK
- LIGHT POLE
- TREE GRATE
- HAND RAIL
- CONCRETE SLAB BELOW PAVERS

GENERAL NOTES:
1.

SCALE: 1"=20'
0 10' 20' 40'
NORTH

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PROJECT

PFDC - BLOCK 4: HARBOR HILL

PROJECT ADDRESS

254 Commercial Street, Suite 118, Portland, ME 04101

KEYPLAN

MARK	ISSUE	DATE

COORDINATION DRAWING

MAY 10, 2023

Job Number	XXXXXXX
Drawn	SMG
Checked	JP
Approved	MB

TITLE

Landscape Layout and Materials Plan - Thames Street

SHEET NUMBER

L-1.0

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LEGEND

- WOODEN ENTRY STOOP
- STONE PAVERS OVER STRUCTURE
- GREEN ROOF SYSTEM
- PLANTING AREA
- CIP CONCRETE PLANTER WALL WITH STONE VENEER
- AMENITY GRILL
- PRIVACY SCREEN
- BIKE RACK
- FGP BENCH
- CIP CONCRETE RETAINING WALL
- GUARD RAIL
- LIMIT OF WORK
- PROPERTY LINE

SCALE: 1"=20'
0 10' 20' 40'
NORTH

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PROJECT

FORESIDE DEVELOPMENT

PFDC - BLOCK 4: HARBOR HILL

PROJECT ADDRESS

254 Commercial Street, Suite 118, Portland, ME 04101

KEYPLAN

MARK	ISSUE	DATE

PERMIT SET

JUNE 23, 2023

Job Number	XXXXXXX
Drawn	SMG
Checked	JP
Approved	MB

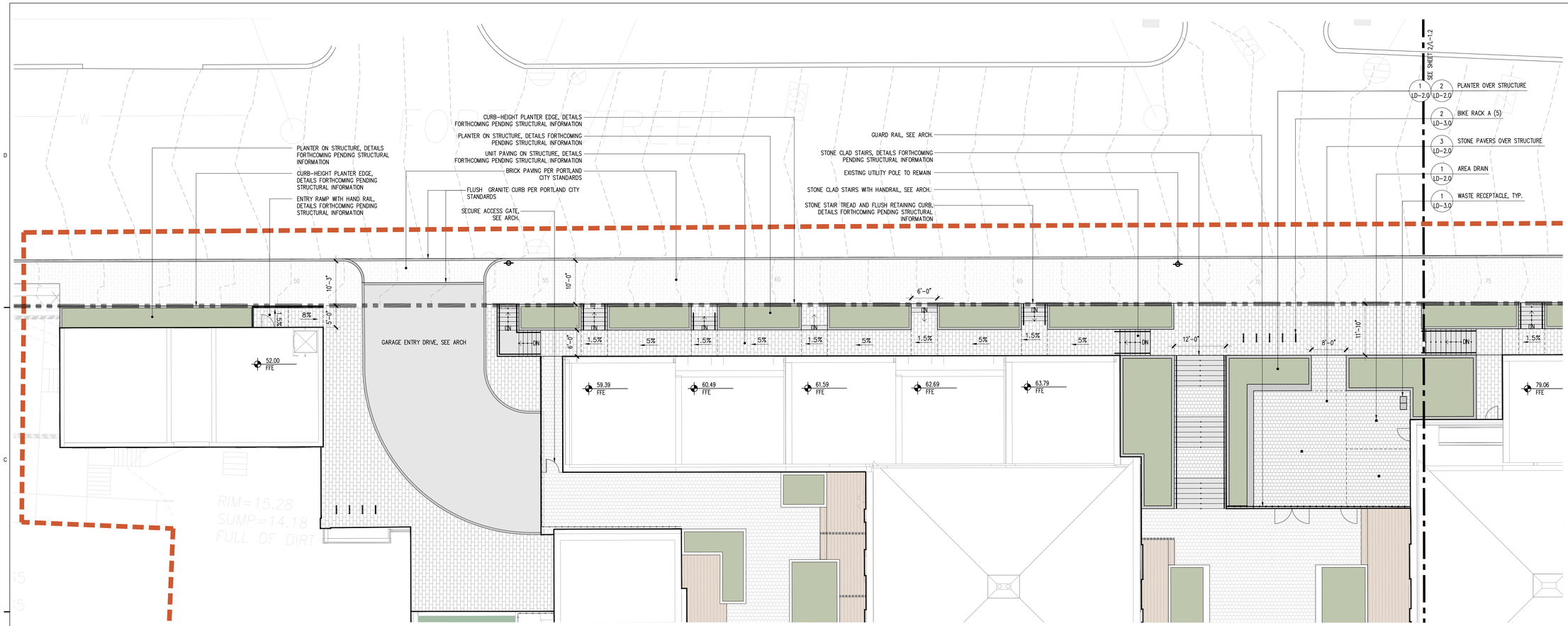
TITLE

Landscape Layout and Materials Plan - Courtyard Level

SHEET NUMBER

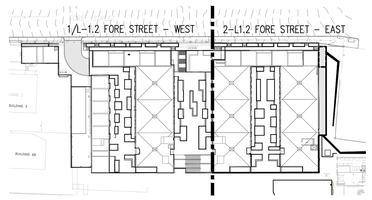
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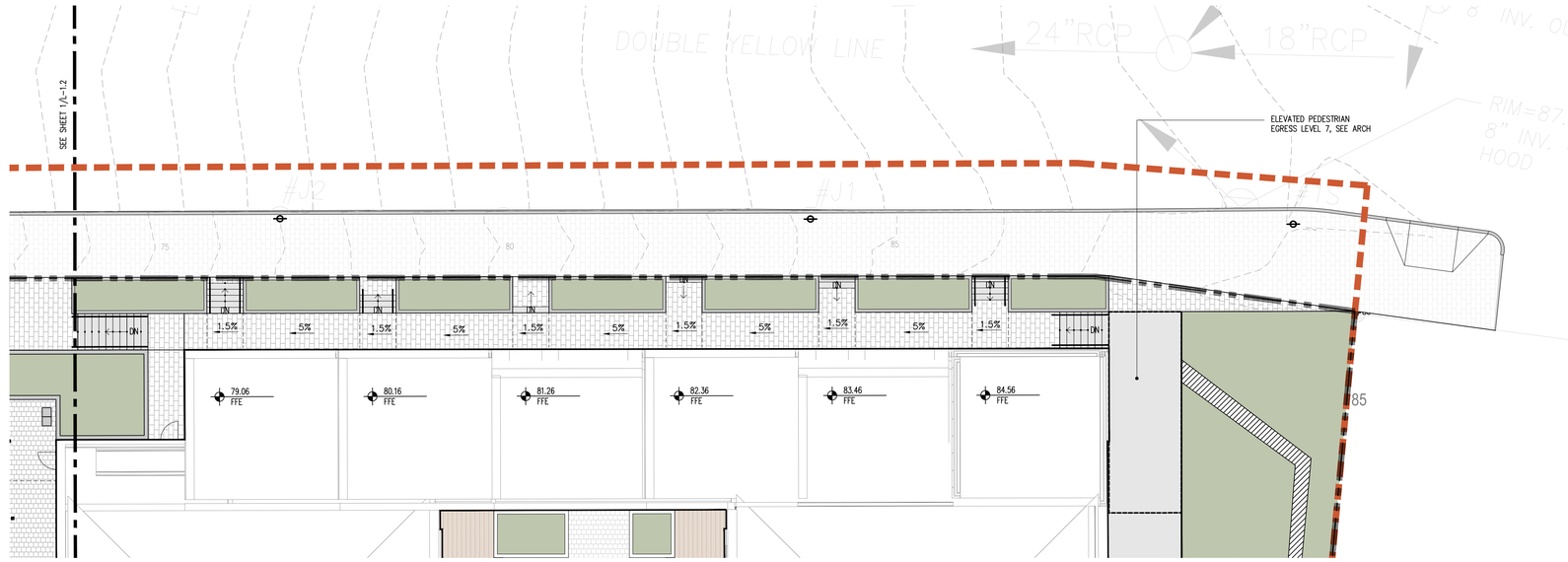
1 FORE STREET - WEST
1"=10'

KEY PLAN



LEGEND

- BRICK PAVERS PER PORTLAND CITY STANDARD
- UNIT PAVERS OVER STRUCTURE
- STONE PAVERS OVER STRUCTURE
- PLANTING AREA
- CIP CONCRETE PLANTER WALL WITH STONE VENEER
- STONE CLAD RETAINING WALL
- BIKE RACK
- FGP BENCH
- WASTE RECEPTACLE
- HAND RAIL AT STAIRS
- GUARD RAIL
- LIMIT OF WORK
- PROPERTY LINE



2 FORE STREET - EAST
1"=10'

SCALE: 1"=10' 0 15' 10' 20' NORTH

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PROJECT
FORESIDE DEVELOPMENT

PFDC - BLOCK 4:
HARBOR HILL

PROJECT ADDRESS

254 Commercial Street,
Suite 118, Portland, ME
04101

KEYPLAN

MARK	ISSUE	DATE

PERMIT SET

JUNE 23, 2023

Job Number	XXXXXXX
Drawn	SMG
Checked	JP
Approved	MB

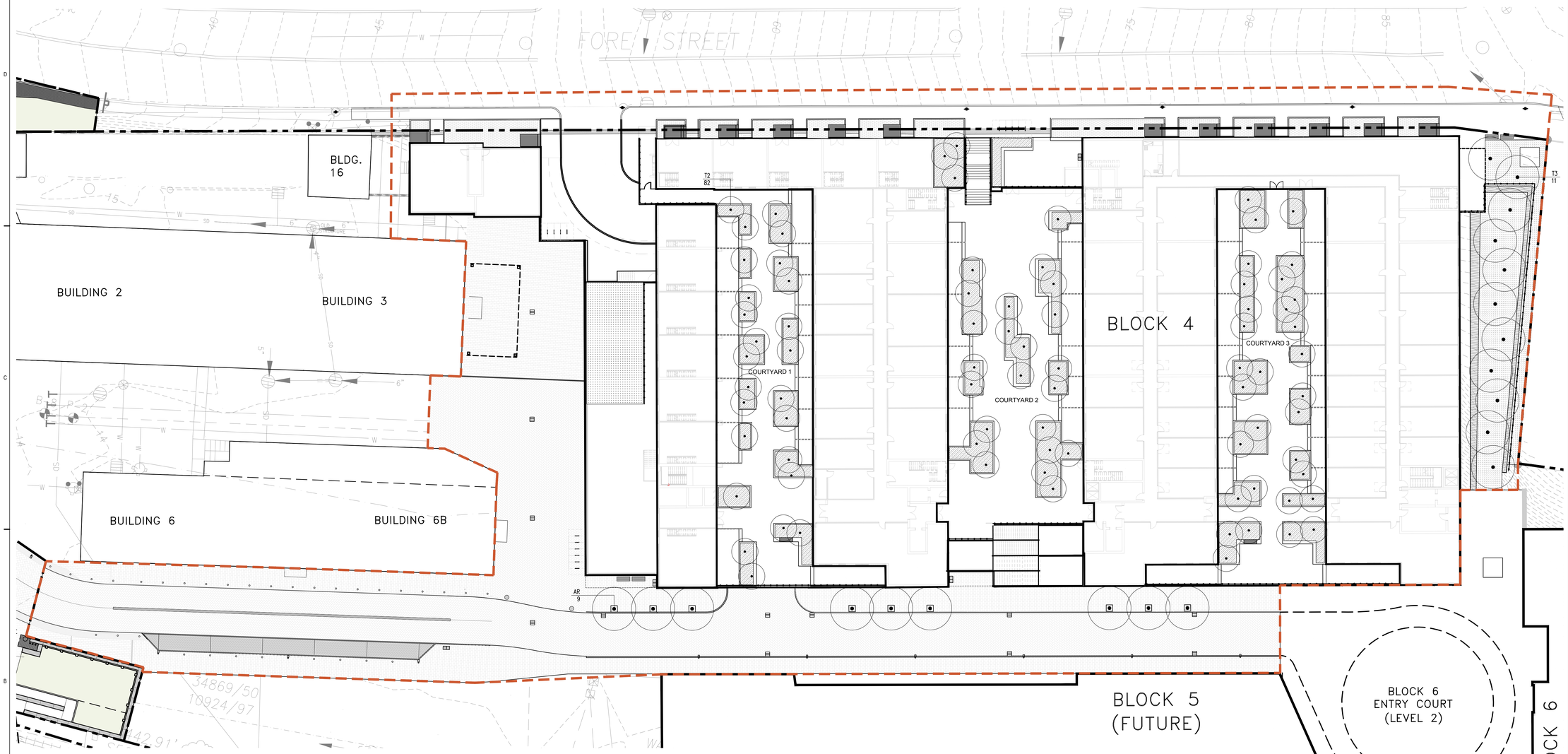
TITLE

Landscape
Layout and Materials
Plan - Fore Street

SHEET NUMBER

L-1.2

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REPRESENTATIVE PLANT LIST

SYM.	KEY	QTY.	BOTANICAL NAME	COMMON NAME	SIZE	ROOT	SPACING	COMMENTS
TREES								
	STREET PLANTING							
•	AR	9	ACER RUBRUM 'KARPICK'	RED SUNSET RED MAPLE	4–5" CAL.	B+B	PER PLAN	
	TERRACE PLANTERS							
•	T2	82	ACER SPICATUM	MOUNTAIN MAPLE	X	B+B	PER PLAN	
			AMELANCHIER CANADENSIS	SERVICEBERRY				
			CARPINUS CAROLINIANA	AMERICAN HORNBEAM				
	WOODLAND GARDEN							
•	T3	11	BETULA ALLEGHANIENSIS	YELLOW BIRCH	X	B+B	PER PLAN	
			XXX	XXX				
			XXX	XXX				
SHRUBS AND GROUNDCOVERS								
	GREEN ROOF							
	GR	1,458 SF	GREEN ROOF PLANT MIX – TBD		X	X	X	
	STREET PLANTING							
	G1	2,152 SF	RHUS AROMATICA 'GRO–LOW'	GRO–LOW FRAGRANT SUMAC	X	CONT.	X	
			VIBURNUM DENTATUM	ARROWWOOD VIBURNUM				

PLANTS LISTED HERE ARE INTENDED TO CONVEY THE DESIGN CONCEPT ONLY. FINAL PLAN SELECTION WILL BE DETERMINED DURING FUTURE PHASES OF WORK.

SYM.	KEY	QTY.	BOTANICAL NAME	COMMON NAME	SIZE	ROOT	SPACING	COMMENTS
SHRUBS AND GROUNDCOVERS, CONT.								
	TERRACE PLANTERS 6,833 SF TOTAL							
		SHRUBS 20% OF TOTAL AREA						
		1,367 SF	CLETHRA ALNIFOLIA	SWEET PEPPERBUSH	X	CONT.	X	
			COMPTONIA PEREGRINA	SWEETFERN				
			VACCINIUM CORYMBOSUM	HIGHBUSH BLUEBERRY				
		GROUNDCOVERS 80% OF TOTAL AREA						
	G2	5,466 SF	ACTAEA RACEMOSA	BLACK COHOSH	X	CONT.	X	
			ANEMONE CANADENSIS	CANADA WINDFLOWER				
			EURYBIA MACROPHYLLA	LARGE–LEAVED ASTER				
			GERANIUM MACULATUM	SPOTTED CRANESBILL				
			OSMUNDA CINNAMOMEA	CINNAMON FERN				
			POLYGONATUM COMMUTATUM	GREAT SOLOMON'S SEAL				
			POLYSTICHUM ACROSTICHOIDES	CHRISTMAS FERN				
			RHUS AROMATICA 'GRO–LOW'	GRO–LOW FRAGRANT SUMAC				
	WOODLAND GARDEN							
	G3	3,380 SF	DENNSTAEDTIA PUNCTILOBULA	HAYSCENTED FERN	X	CONT.	X	
			EURYBIA MACROPHYLLUS	LARGE–LEAVED ASTER				
			KALMIA LATIFOLIA	MOUNTAIN LAUREL				

SCALE: 1"=20' 0 10' 20' 40' NORTH

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PROJECT

FORESIDE DEVELOPMENT

PFDC - BLOCK 4: HARBOR HILL

PROJECT ADDRESS

254 Commercial Street, Suite 118, Portland, ME 04101

KEYPLAN

MARK	ISSUE	DATE

PERMIT SET

SEPTEMBER 30, 2022

Job Number	XXXXXXX
Drawn	SMG
Checked	JP
Approved	MB

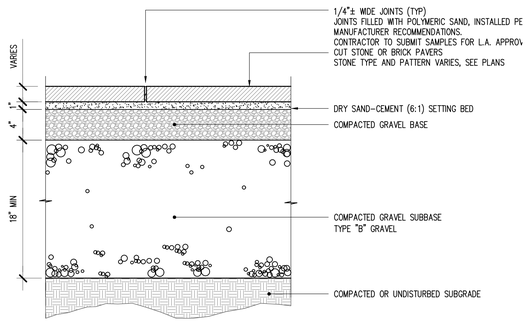
TITLE

Landscape Planting Plan

SHEET NUMBER

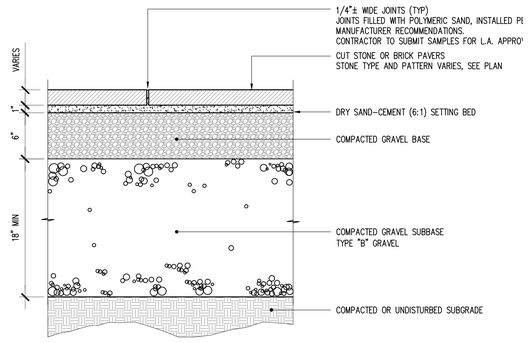
L-1.2

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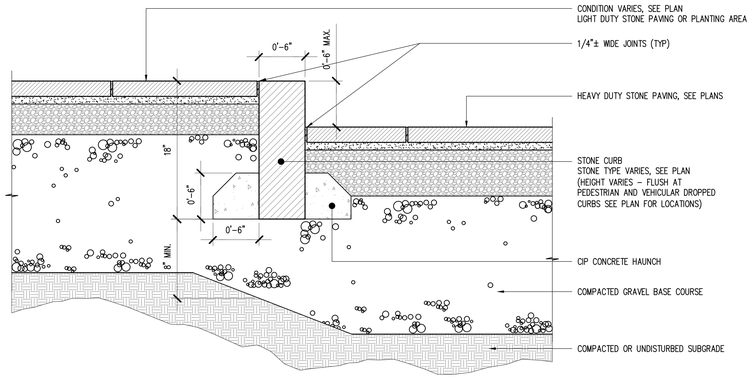
1 LIGHT DUTY STONE PAVING

1 1/2" = 1'-0"



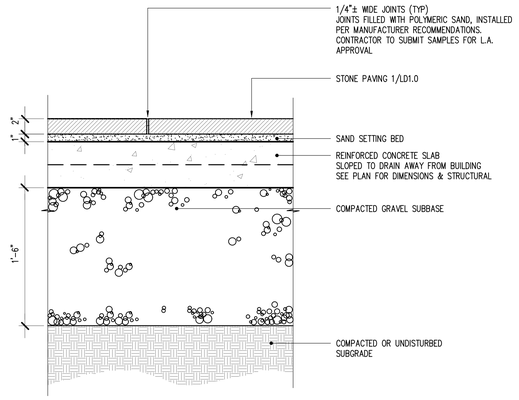
2 HEAVY-DUTY STONE PAVING

1 1/2" = 1'-0"



3 STONE CURB

1 1/2" = 1'-0"



4 BUILDING ENTRY LANDING

1 1/2" = 1'-0"

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PROJECT

I:\S NY\SRC_PFDC TOWER SUB 4 + 5\Whitson Shell\Landscape\Sheets\LD1.0_Site Details.dwg

PFDC - BLOCK 4: HARBOR HILL

PROJECT ADDRESS

254 Commercial Street, Suite 118, Portland, ME 04101

KEYPLAN

MARK	ISSUE	DATE

DESIGN DEVELOPMENT

FEBRUARY 03, 2023

Job Number	157087.000
Drawn	TH
Checked	JP
Approved	XXX

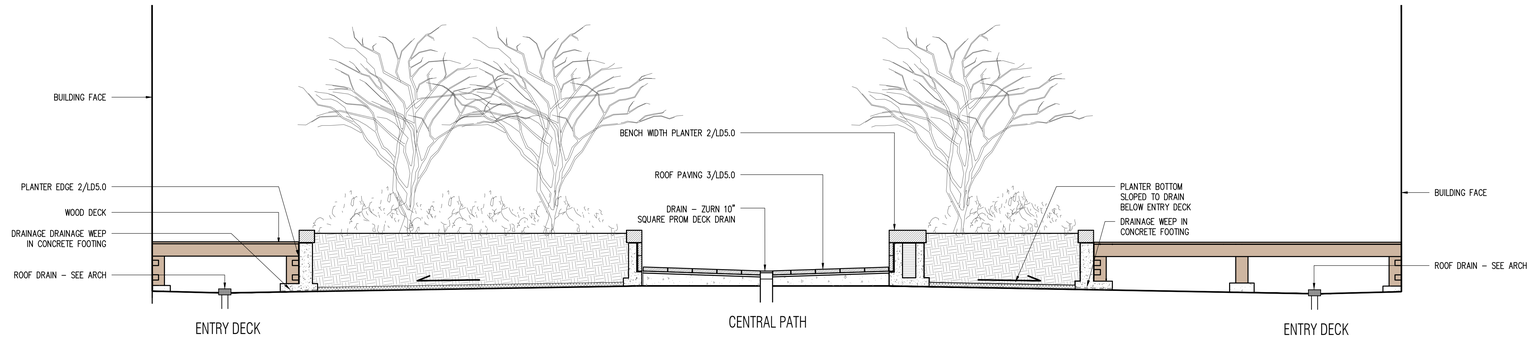
TITLE

SITE DETAILS

SHEET NUMBER

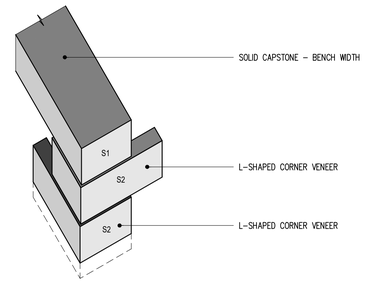
LD-1.0

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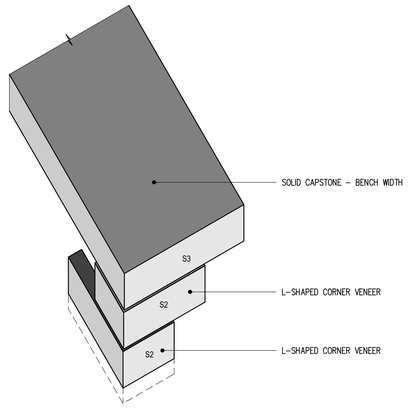


1 COURTYARD SECTION

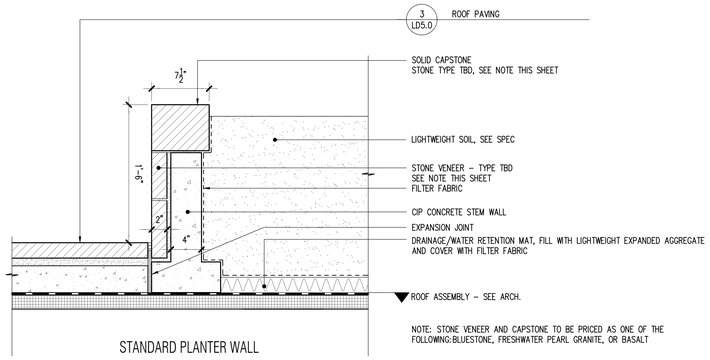
1" = 30'



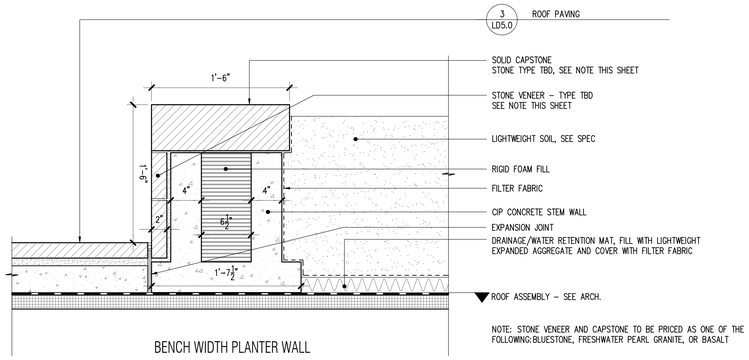
PLANTER CORNER DETAIL



BENCH/PLANTER CORNER DETAIL



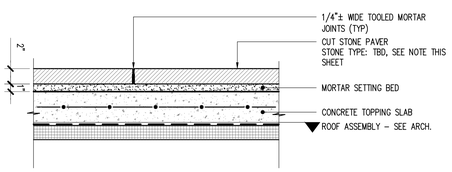
STANDARD PLANTER WALL



BENCH WIDTH PLANTER WALL

2 ROOF TOP PLANTER DETAILS

3/4" = 1'-0"



3 ROOF PAVING DETAIL

1-1/2" = 1'-0"

NOTE:
STONE TYPE FOR COURTYARD PAVING AND PLANTER VENEER OPTIONS FOR PRICING FOR CLIENT REVIEW AND EVALUATION
- BLUESTONE
- FRESHWATER PEARL GRANITE
- BASALT

ALL OPTIONS SAWN AND FLAMED FINISH

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PROJECT

FORESIDE DEVELOPMENT

PFDC - BLOCK 4: HARBOR HILL

PROJECT ADDRESS

254 Commercial Street, Suite 118, Portland, ME 04101

KEYPLAN

MARK	ISSUE	DATE

DESIGN DEVELOPMENT

FEBRUARY 03, 2023

Job Number	157087.000
Drawn	TH
Checked	JP
Approved	XXX

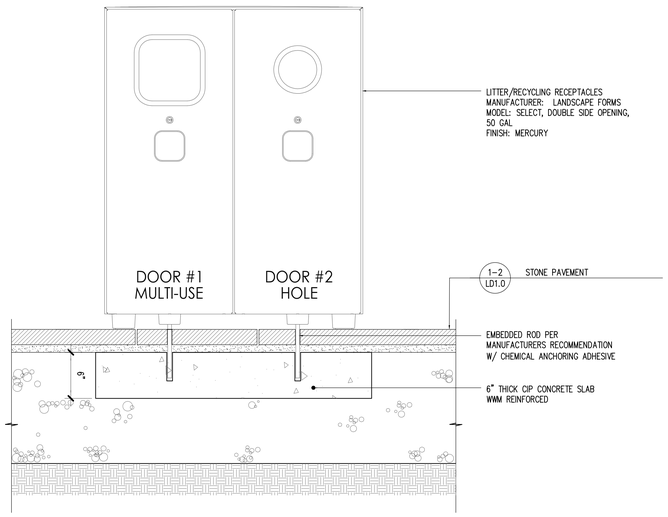
TITLE

COURTYARD DETAILS

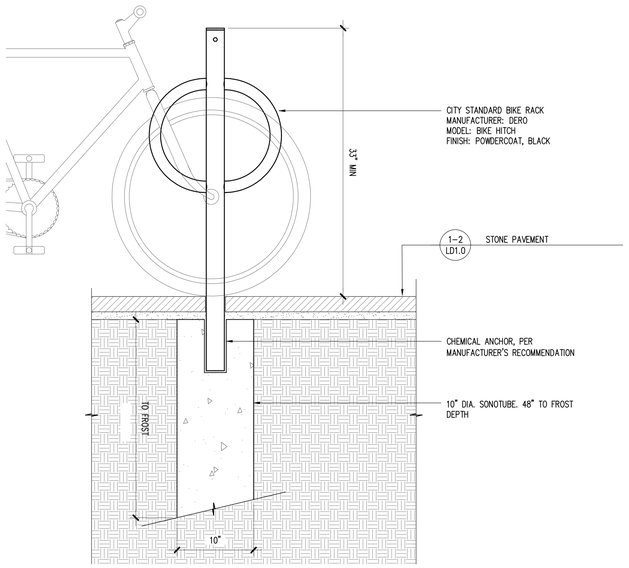
SHEET NUMBER

LD-2.0

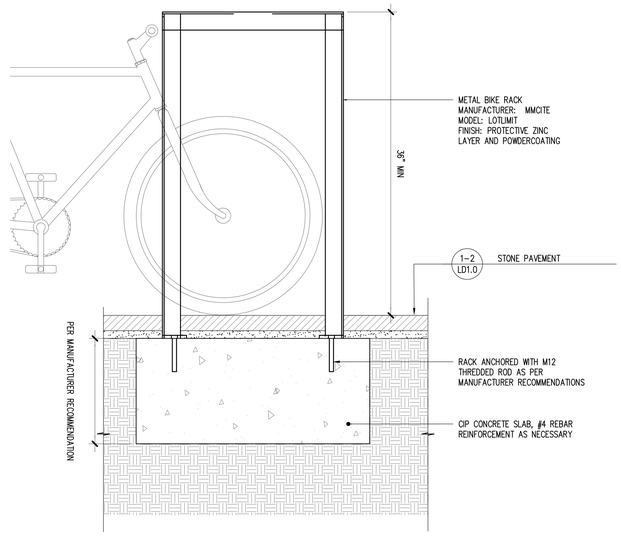
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1 LITTER/RECYCLING RECEPTACLE ATTACHMENT
1 1/2" = 1'-0"



2 BIKE RACK A
1 1/2" = 1'-0"



3 BIKE RACK B
1 1/2" = 1'-0"

4 STEEL BOLLARD MOUNTING DETAIL (YG2 & YG5)
1-1/2"=1'-0"

5 LIGHT POLE FOUNDATION
1/2"=1'-0"

6 FGP BENCH
1 1/2" = 1'-0"

7 STONE BOLLARD
1"=1'-0"

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Portland, ME 04101
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OWNER'S CONSULTANT

LANDSCAPE ARCHITECT
Michael Boucher Landscape Architecture
457 US Route 1 Suite 2
Freeport, Maine
t 207.865.1080

STAMP

PROJECT

FORESIDE DEVELOPMENT

PFDC - BLOCK 4: HARBOR HILL

PROJECT ADDRESS

254 Commercial Street, Suite 118, Portland, ME 04101

KEYPLAN

MARK	ISSUE	DATE

DESIGN DEVELOPMENT

FEBRUARY 03, 2023

Job Number	157087.000
Drawn	TH
Checked	JP
Approved	XXX

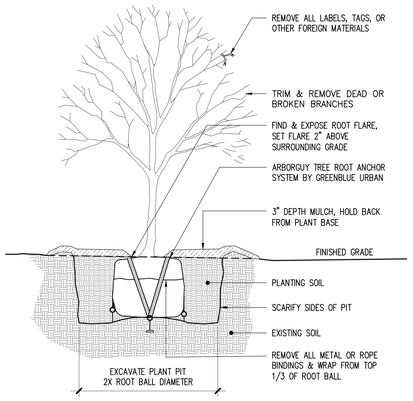
TITLE

SITE FURNISHINGS

SHEET NUMBER

LD-3.0

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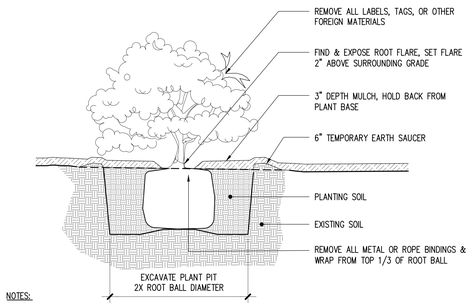


NOTES:

1. SET TREE PLUMB.
2. SECURE TREE AS REQUIRED ACCORDING TO TREE SIZE, LOCATION, & WIND/WEATHER CONDITIONS.
3. IF USING ROOTBALL STABILIZATION, FOLLOW MANUFACTURER'S RECOMMENDATIONS.

1 TREE PLANTING & STAKING DETAIL

1/2" = 1'-0"

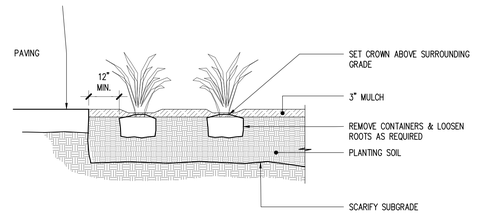


NOTES:

1. SET SHRUB PLUMB.
2. SECURE SHRUB AS MAY BE REQUIRED ACCORDING TO SIZE, LOCATION, & WIND/WEATHER CONDITIONS.
3. IF USING ROOTBALL STABILIZATION, FOLLOW MANUFACTURER'S RECOMMENDATIONS.

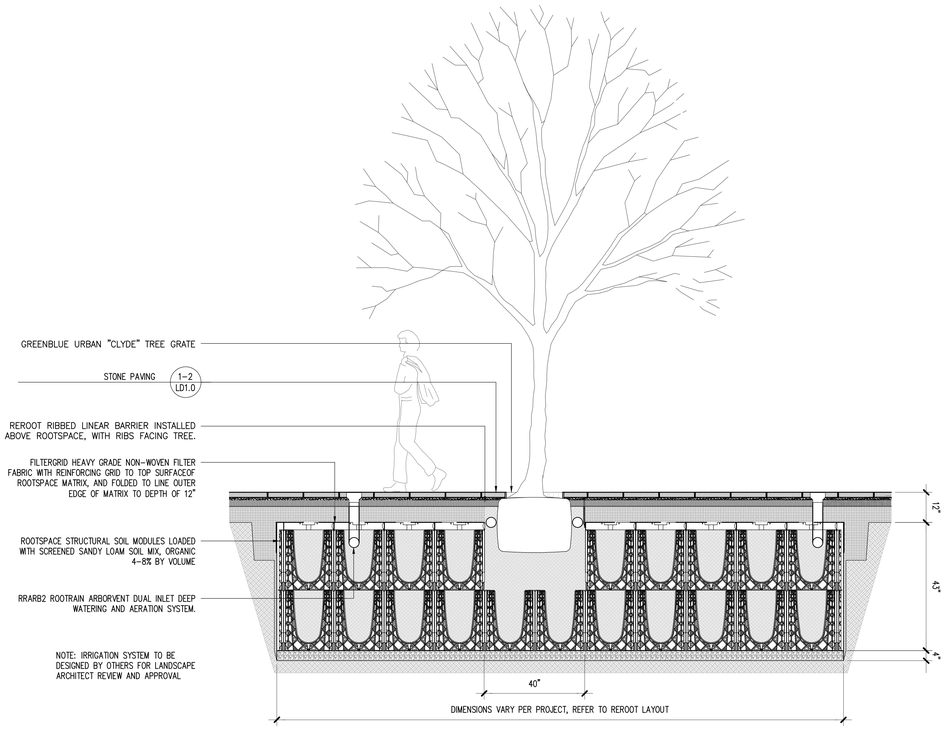
2 SHRUB PLANTING DETAIL

1/2" = 1'-0"



3 GROUNDCOVER PLANTING DETAIL

1/2" = 1'-0"



4 GREEN BLUE URBAN TREE ROOT SYSTEM

1/2" = 1'-0"

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PROJECT

FORESIDE DEVELOPMENT

PFDC - BLOCK 4: HARBOR HILL

PROJECT ADDRESS

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KEYPLAN

MARK	ISSUE	DATE

DESIGN DEVELOPMENT

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TITLE

PLANTING DETAILS

SHEET NUMBER

LD-4.0

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LEGEND

- LIMIT OF WORK
- PROPERTY LINE
- MATCHLINE
- OVERHEAD
- PROPOSED TREE, SEE PLANTING SCHEDULE

PLANTING NOTES:
1. –

PLANTING SCHEDULE LG-201

SYMBOL	KEY	QTY.	BOTANICAL NAME	COMMON NAME	SIZE	ROOT	SPACING	COMMENTS
TREES								
		1	AMELANCHIER CANADENSIS	SERVICEBERRY	1.5 CAL.	B+B	PER PLAN	
		2	BETULA ALLEGHANIENSIS	YELLOW BIRCH	6" CAL.	B+B	PER PLAN	
		2	CRATAEGUS CRUS–GALLI	COCKSPUR HAWTHORN	1.5 CAL.	B+B	PER PLAN	
		1	QUERCUS ALBA	WHITE OAK	8" CAL.	B+B	PER PLAN	
SHRUB & GROUNDCOVER PALETTE TOTAL AREA– 1,160 SF								
			ARCTOSTAPHYLOS UVA–URSI	COMMON BEARBERRY	#1	CONT.	42" O.C.	
			ARONIA MELANOCARPA	CHOKEBERRY	#10	CONT.	42" O.C.	
			ASTER 'WOODS BLUE'	WOOD'S BLUE ASTER	#1	CONT.	12" O.C.	

SYMBOL	KEY	QTY.	BOTANICAL NAME	COMMON NAME	SIZE	ROOT	SPACING	COMMENTS
SHRUB & GROUNDCOVER PALETTE - CONTINUED								
			ACHILLEA MILLEFOLIUM	YARROW	#1	CONT.	12" O.C.	
			CAREX PENNSYLVANICA	PENNSYLVANIA SEDGE	#1	CONT.	12" O.C.	
			DENNSTAEDTIA PUNCTILOBULA	HAYSCENTED FERN	#1	CONT.	12" O.C.	
			OSMUNDASTRUM CINNAMOMEUM	CINNAMON FERN	#10	CONT.	42" O.C.	
			MYRICA PENNSYLVANICA	SWEETGALE	#10	CONT.	42" O.C.	
			RHUS AROMATICA 'GRO–LOW'	GRO–LOW FRAGRANT SUMAC	#1	CONT.	12" O.C.	

SCALE: 1"=10'
0 5' 10' 20'
NORTH

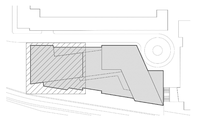


ARCHITECT / LANDSCAPE ARCHITECT
MARVEL
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212.616.0420

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WSP
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ENCLOSURE
RWDI
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CIVIL ENGINEER
WOODARD & CURRAN
41 HUTCHINS DR, PORTLAND, ME 04102
LANDSCAPE ARCHITECT (STREETSCAPE)
MBLA
457 US RTE 1, STE 2, FREEPORT, ME 04032
LEAD INTERIOR DESIGNER
WORKSHOP/APD
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LIGHTING CONSULTANT
FISHER MARANTZ STONE
22 W 19TH ST, FL 6, NEW YORK, NY 10011
SUSTAINABILITY
ATELIER TEN
104 W 29TH ST, 8TH FL, NEW YORK, NY 10001
CODE / ACCESSIBILITY CONSULTANT
CCI
215 W 40TH ST, FL 10, NEW YORK, NY 10018
ACOUSTICAL CONSULTANT
LONGMAN LINDSEY
200 W41ST ST, STE1100, NEW YORK, NY 10036
ELEVATOR CONSULTANT
VDA
100 SUMMER ST, STE 1600, BOSTON, MA 02110
FOOD SERVICE
ROMANO GATLAND
1 HUNTINGTON QUAD #2C03, MELVILLE, NY
POOL
LOTHROP / AQUATECTONIC
333 WESTCHESTER AVE, WHITE PLAINS, NY
TECHNOLOGY
SHEN, MILSOM & WILKE
275 MADISON AVE, FL 14, NEW YORK, NY 10016

REV	DATE	DESCRIPTION
1	03.XX.2023	SITE PLAN APPLICATION

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PLOT PLAN

2230
PORTLAND FORESIDE B5
PORTLAND, ME

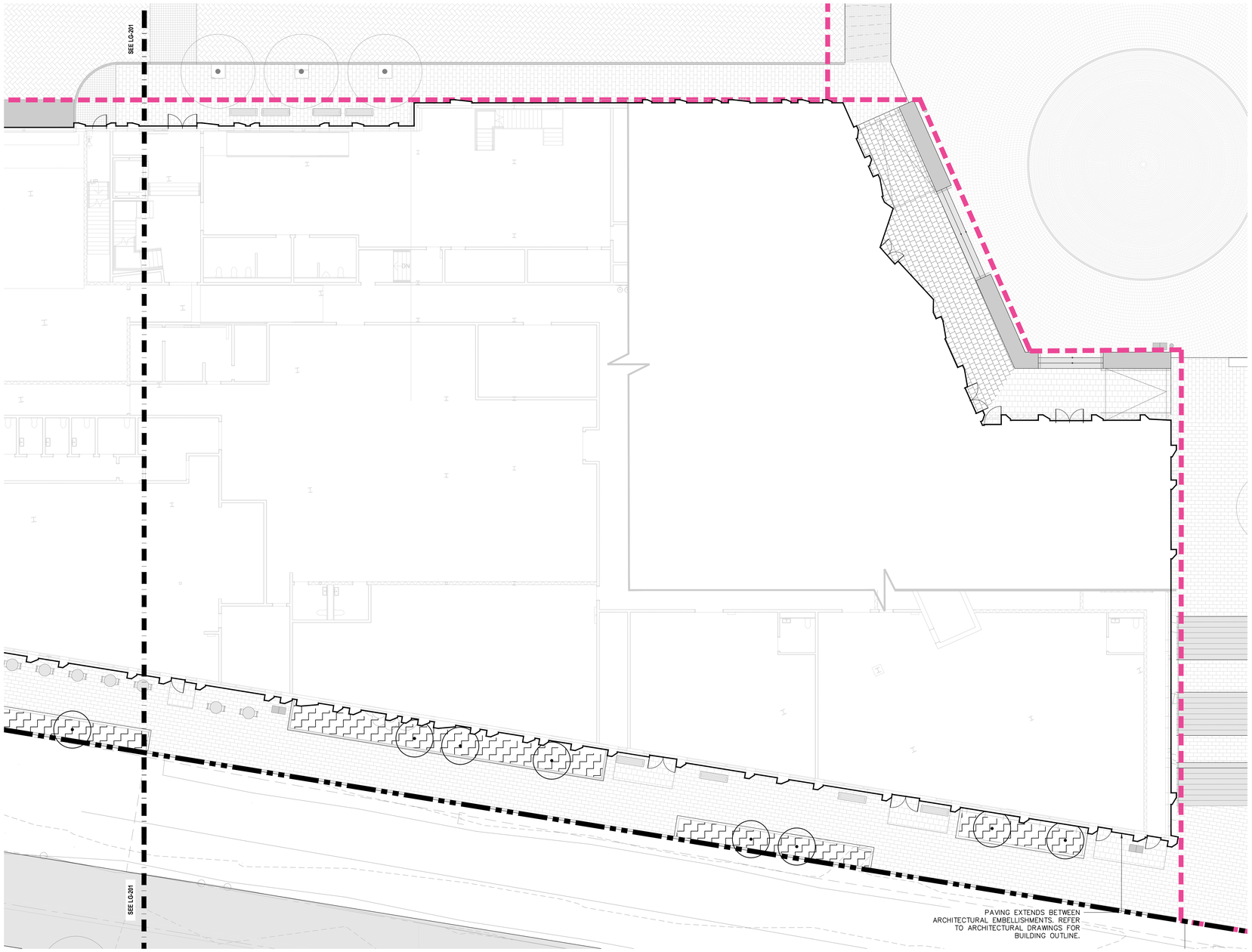
PLANTING PLAN

SCALE: 1" = 10'

DRAWING #:
LG-201

JOB #:

10/11/2022 12:21:41 PM MARVEL ARCHITECTS, LANDSCAPE ARCHITECTS, URBAN DESIGNERS, PLLC



LEGEND

- LIMIT OF WORK
- PROPERTY LINE
- MATCHLINE
- OVERHEAD
- PROPOSED TREE, SEE PLANTING SCHEDULE

PLANTING NOTES:
1. –

PLANTING SCHEDULE LG-202

SYMBOL	KEY	QTY.	BOTANICAL NAME	COMMON NAME	SIZE	ROOT	SPACING	COMMENTS
TREES								
		5	AMELANCHIER CANADENSIS	SERVICEBERRY	1.5 CAL.	B+B	PER PLAN	
		2	CRATAEGUS CRUS–GALLI	COCKSPUR HAWTHORN	1.5 CAL.	B+B	PER PLAN	
SHRUB & GROUNDCOVER PALETTE TOTAL AREA– 643 SF								
			ARCTOSTAPHYLOS UVA–URSI	COMMON BEARBERRY	#1	CONT.	42" O.C.	
			ARONIA MELANOCARPA	CHOKEBERRY	#10	CONT.	42" O.C.	
			ASTER 'WOODS BLUE'	WOOD'S BLUE ASTER	#1	CONT.	12" O.C.	

SYMBOL	KEY	QTY.	BOTANICAL NAME	COMMON NAME	SIZE	ROOT	SPACING	COMMENTS
SHRUB & GROUNDCOVER PALETTE - CONTINUED								
			ACHILLEA MILLEFOLIUM	YARROW	#1	CONT.	12" O.C.	
			CAREX PENNSYLVANICA	PENNSYLVANIA SEDGE	#1	CONT.	12" O.C.	
			DENNSTAEDTIA PUNCTILOBULA	HAYSCENTED FERN	#1	CONT.	12" O.C.	
			OSMUNDASTRUM CINNAMOMEUM	CINNAMON FERN	#10	CONT.	42" O.C.	
			MYRICA PENNSYLVANICA	SWEETGALE	#10	CONT.	42" O.C.	
			RHUS AROMATICA 'GRO–LOW'	GRO–LOW FRAGRANT SUMAC	#1	CONT.	12" O.C.	

SCALE: 1"=10'
0 5' 10' 20'
NORTH

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ROMANO GATLAND
1 HUNTINGTON QUAD #2C03, MELVILLE, NY
POOL
LOTHROP / AQUATECTONIC
333 WESTCHESTER AVE, WHITE PLAINS, NY
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REV	DATE	DESCRIPTION
1	03.XX.2023	SITE PLAN APPLICATION

NOT FOR CONSTRUCTION

PLOT PLAN

2230
PORTLAND FORESIDE B5
PORTLAND, ME

PLANTING PLAN

SCALE: 1" = 10'

DRAWING #:
LG-202

JOB #:

10/11/2022 12:21:41 PM

MARVEL ARCHITECTS, LANDSCAPE ARCHITECTS, URBAN DESIGNERS, PLLC



SCALE: 1"=20'
0 10' 20' 40'
NORTH

Baskervill

FORESIDE/

THE CHANNEL MARK°

BASKERVILL, P.O. BOX 400, RICHMOND, VA 23218-0400

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PROJECT NUMBER
2.210338.0

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THE CHANNEL MARK

58 FORE ST
PORTLAND, ME 04101

ISSUE
05/17/23
PERMITTING

LANDSCAPE REFERENCE PLAN

L0.0

LEVEL 1

LEVEL 2

LEVEL 2

LEVEL 1

SEE SHEET L1.2

3 LD3.0 BICYCLE RACKS, TYP.

2 LD3.0 BENCH – TYP.

2 LD2.0 HEAVY DUTY STONE PAVING

3 LD1.0 CONCRETE SLAB UNDER PAVING AT ALL DOORWAYS

1 LD3.0 WASTE RECEPTACLE, TYP.

STONE CURB AT PLANTER

CIP RETAINING WALL WITH STONE VENEER, SEE STRUCTURAL

FILTERRA BIOFILTRATION SYSTEM, SEE CIVIL

RIPRAP AT TOE OF SLOPE, SEE CIVIL

LEGEND

- LIMIT OF WORK
- PROPERTY LINE
- MATCHLINE
- OVERHEAD
- PROPOSED TREE
- HEAVY DUTY STONE PAVING RUNNING BOND PATTERN
- LIGHT–DUTY STONE PAVING RUNNING BOND PATTERN
- CONCRETE SLAB BELOW PAVERS
- PLANTING AREA
- CUSTOM STONE BENCH WITH WOOD TOP
- WASTE RECEPTICAL
- STONE BOLLARD
- SURFACE–MOUNTED BOLLARD
- BIKE RACK
- LIGHT POLE

GENERAL NOTES:
1. –

SCALE: 1"=10'
0 5' 10' 20'
NORTH

Baskervill

FORESIDE/

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LAYOUT AND MATERIALS PLAN – LEVEL 1

L1.1

TRANSORMER

1 LD3.0 WASTE RECEPTACLE

7 LD2.0 HEAVY DUTY STONE PAVERS ON STRUCTURE

7 LD2.0 HEAVY DUTY STONE PAVERS ON STRUCTURE

PLAZA LIGHT FIXTURE POLE

2 LD2.0 CUSTOM BENCH

PLAZA LIGHT FIXTURE POLE

PRE-FABRICATED PLANTER

PLAZA LIGHT FIXTURE POLE

1 LD3.0 WASTE RECEPTACLE

STONE CLAD PLANTER WALL

PRIVACY SCREEN

PRIVACY SCREEN

STONE-CLAD STAIRS

WOOD-CLAD BENCHES

SEE SHEET L1.1

LEVEL 2

LEVEL 2

UP

DN

LEGEND

- LIMIT OF WORK
- PROPERTY LINE
- MATCHLINE
- OVERHEAD
- PROPOSED TREE
- HEAVY DUTY STONE PAVING RUNNING BOND PATTERN
- HEAVY-DUTY STONE PAVING STONE SETTS
- LIGHT-DUTY STONE PAVING RUNNING BOND PATTERN
- CONCRETE SLAB BELOW PAVERS
- PLANTING AREA
- CUSTOM STONE BENCH WITH WOOD TOP
- WASTE RECEPTICAL
- LIGHT POLE
- BIKE RACK

GENERAL NOTES:
1. –

SCALE: 1"=10'
0 5' 10' 20'
NORTH

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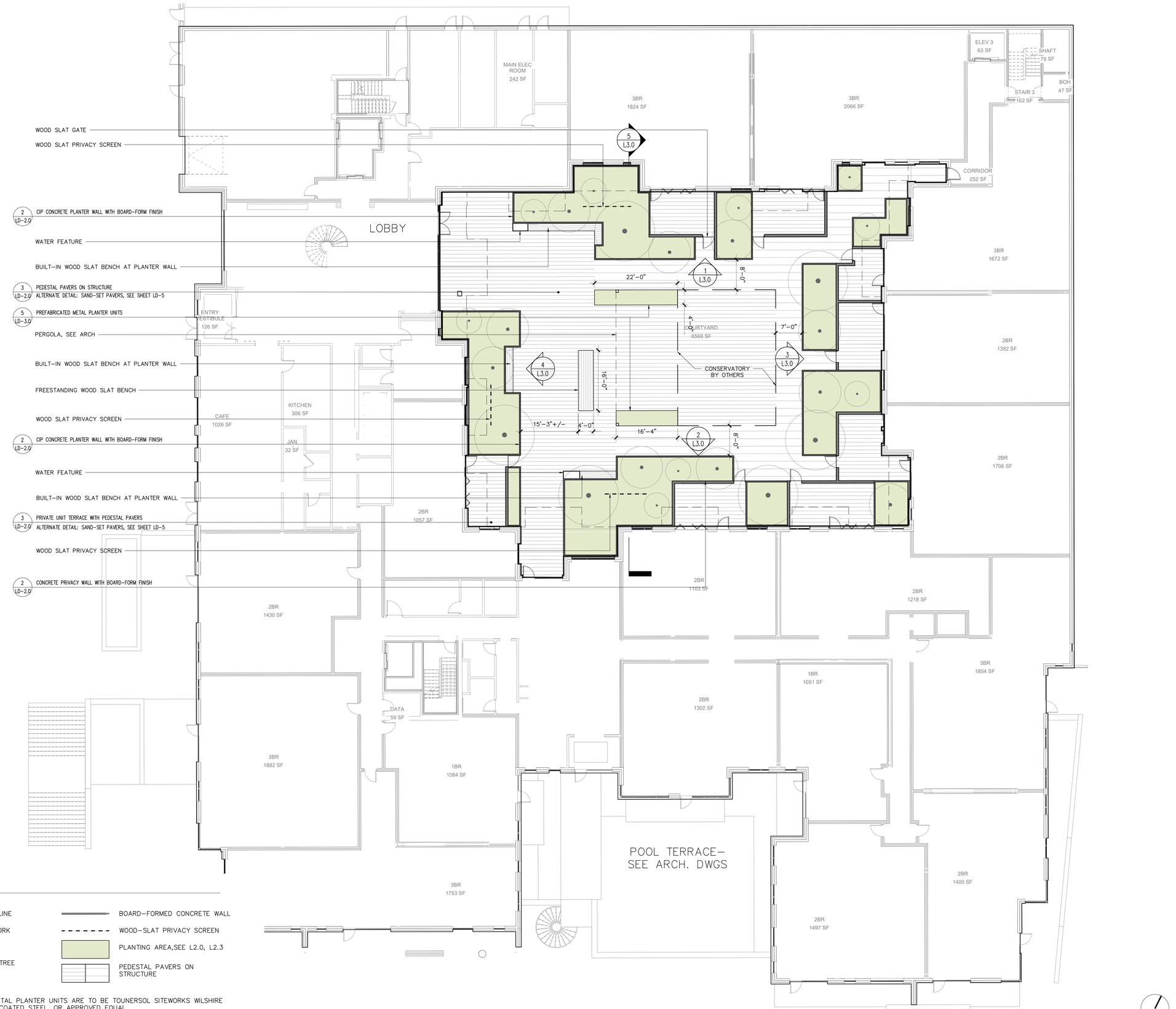
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REV 1 LIGHTING UPDATE 01/20/23

ISSUE
05/17/23
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LAYOUT AND MATERIALS PLAN – PODIUM

L1.2



LEGEND

- PROPERTY LINE
- LIMIT OF WORK
- OVERHEAD
- PROPOSED TREE
- BOARD–FORMED CONCRETE WALL
- WOOD–SLAT PRIVACY SCREEN
- PLANTING AREA,SEE L2.0, L2.3
- PEDESTAL PAVERS ON STRUCTURE

GENERAL NOTES:

1. ALL PREFABRICATED METAL PLANTER UNITS ARE TO BE TOUNERSOL SITEWORKS WILSHIRE PLANTERS IN POWDER–COATED STEEL, OR APPROVED EQUAL.
2. FOR POOL TERRACE LAYOUT AND HARDSCAPE MATERIALS SELECTIONS, SEE ARCHITECTURAL DRAWINGS. FOR PLANTING AT POOL TERRACE, SEE L2.3.
3. ALL PLANTER WALLS TO BE 4" THICK BOARDFORM CONCRETE. ALL PRIVACY WALLS TO BE 8" THICK BOARDFORM CONCRETE.
4. WATER FEATURES ARE TO BE CIRCULATING SYSTEMS AND INCLUDE CIP CONCRETE BOARDFORM BASES WITH CUSTOM METAL INSERT, A PUMP.AND RESERVOIR.
5. FOR CONSERVATORY LAYOUT AND SELECTION,, SEE ARCHITECTURAL DRAWINGS.

SCALE: 1"=10' 0 5' 10' 20' NORTH

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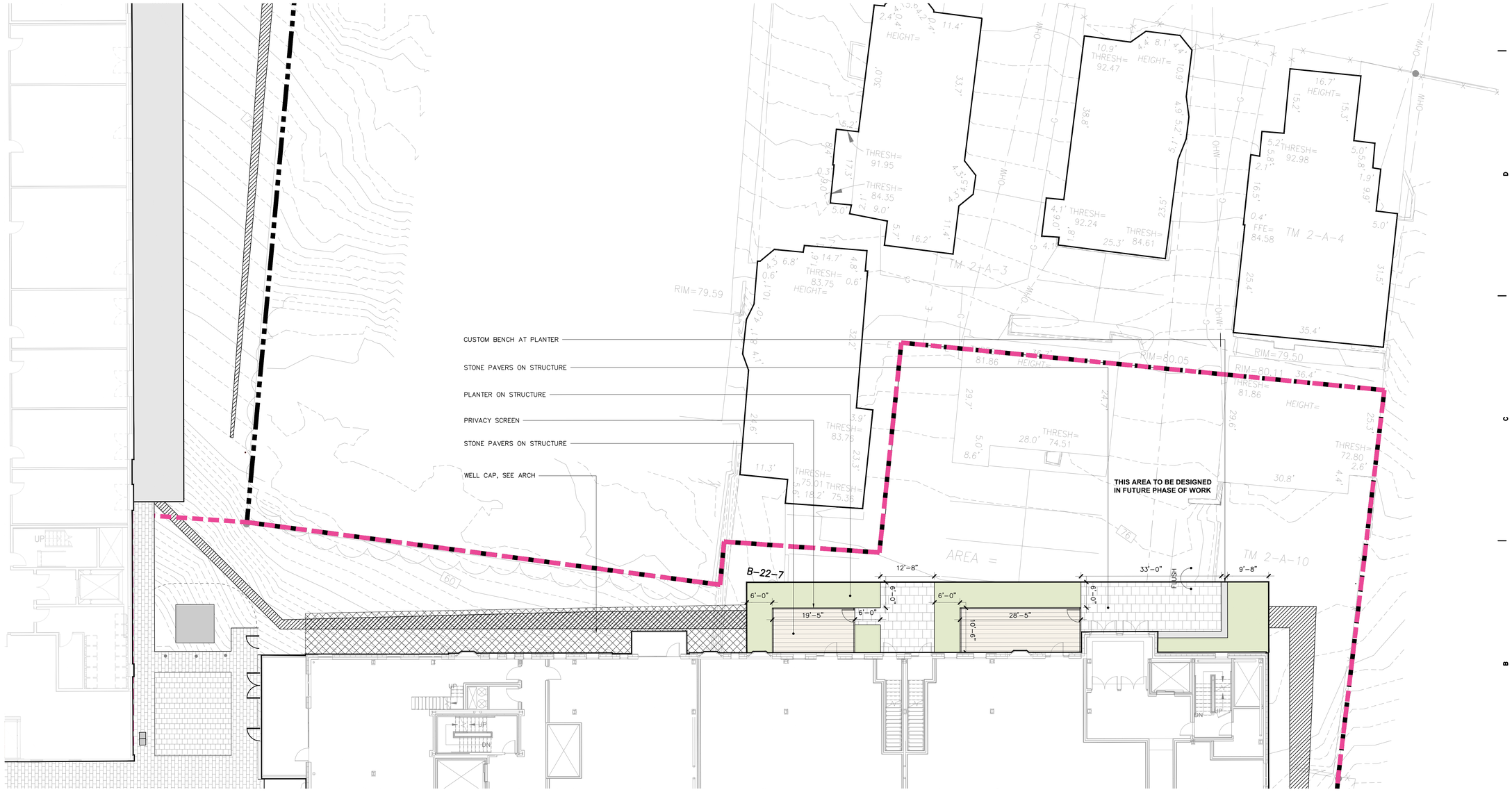
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LAYOUT AND MATERIALS PLAN – LEVEL 2 COURTYARDS

L1.3



LEGEND

- LIGHT DUTY STONE PAVERS ON STRUCTURE
- PEDESTAL PAVERS ON STRUCTURE
- PLANTING AREA
- LIMIT OF WORK
- PROPERTY LINE

SCALE: 1"=10'
0 5' 10' 20'
NORTH

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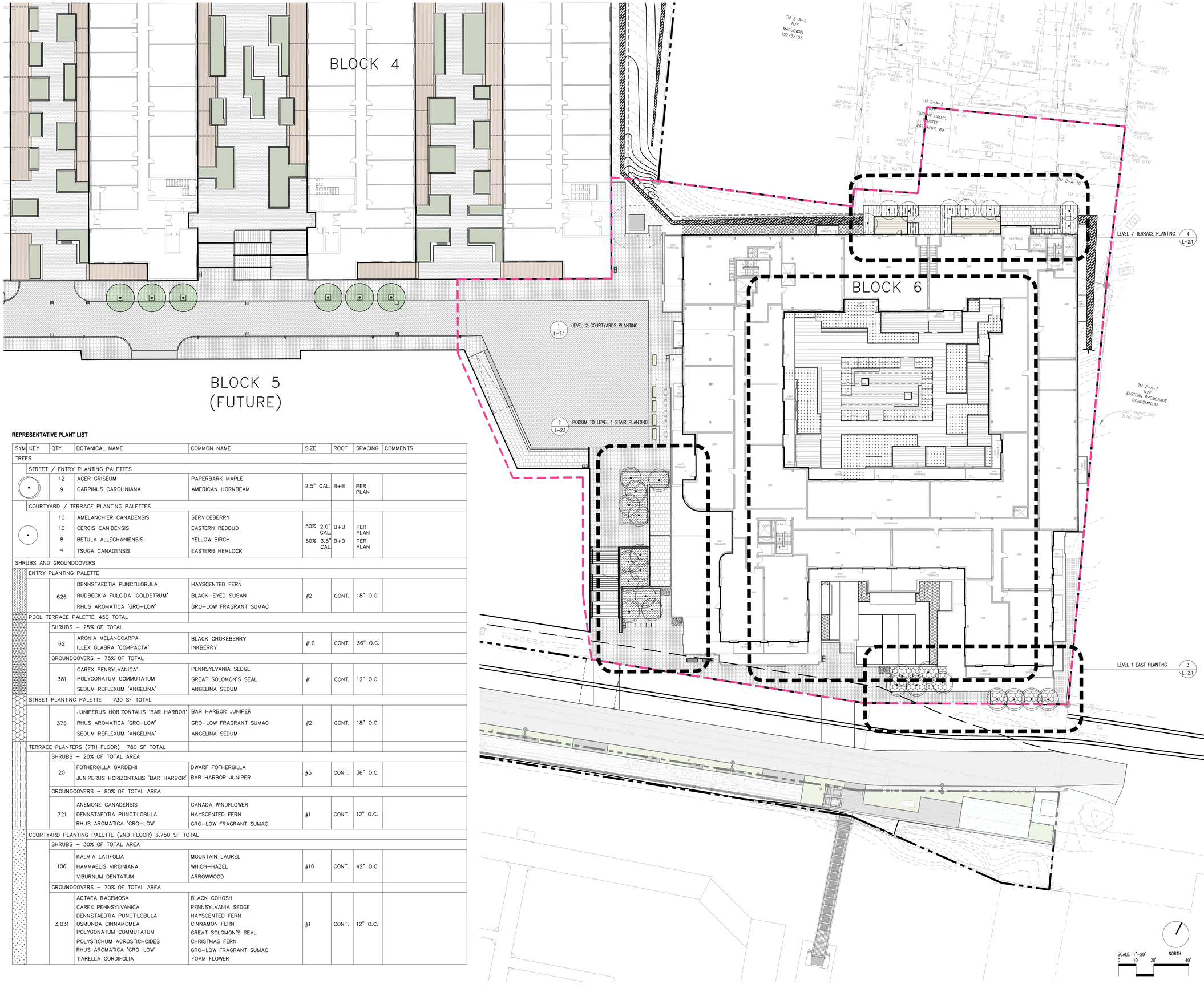
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LAYOUT AND MATERIALS PLAN – LEVEL 7 TERRRACE

L1.4



REPRESENTATIVE PLANT LIST

SYM	KEY	QTY.	BOTANICAL NAME	COMMON NAME	SIZE	ROOT	SPACING	COMMENTS
TREES								
		STREET / ENTRY PLANTING PALETTES						
		12	ACER GRISEUM	PAPERBARK MAPLE	2.5" CAL.	B+B	PER PLAN	
		9	CARPINUS CAROLINIANA	AMERICAN HORNBEAM				
		COURTYARD / TERRACE PLANTING PALETTES						
		10	AMELANCHIER CANADENSIS	SERVICEBERRY	50% 2.0" CAL.	B+B	PER PLAN	
		10	CERCIS CANIDENSIS	EASTERN REDBUD				
		8	BETULA ALLEGHANIENSIS	YELLOW BIRCH	50% 3.5" CAL.	B+B	PER PLAN	
		4	TSUGA CANADENSIS	EASTERN HEMLOCK				
SHRUBS AND GROUNDCOVERS								
		ENTRY PLANTING PALETTE						
		626	DENNSTAEDTIA PUNCTILOBULA	HAYSCENTED FERN	#2	CONT.	18" O.C.	
			RUDBECKIA FULGIDA 'GOLDSTRUM'	BLACK-EYED SUSAN				
			RHUS AROMATICA 'GRO-LOW'	GRO-LOW FRAGRANT SUMAC				
		POOL TERRACE PALETTE 450 TOTAL						
			SHRUBS - 25% OF TOTAL					
		62	ARONIA MELANOCARPA	BLACK CHOKEBERRY	#10	CONT.	36" O.C.	
			ILLEX GLABRA 'COMPACTA'	INKBERRY				
			GROUNDCOVERS - 75% OF TOTAL					
		381	CAREX PENSYLVANICA'	PENNSYLVANIA SEDGE	#1	CONT.	12" O.C.	
			POLYGONATUM COMMUTATUM	GREAT SOLOMON'S SEAL				
			SEDUM REFLEXUM 'ANGELINA'	ANGELINA SEDUM				
		STREET PLANTING PALETTE 730 SF TOTAL						
		375	JUNIPERUS HORIZONTALIS 'BAR HARBOR'	BAR HARBOR JUNIPER	#2	CONT.	18" O.C.	
			RHUS AROMATICA 'GRO-LOW'	GRO-LOW FRAGRANT SUMAC				
			SEDUM REFLEXUM 'ANGELINA'	ANGELINA SEDUM				
		TERRACE PLANTERS (7TH FLOOR) 780 SF TOTAL						
			SHRUBS - 20% OF TOTAL AREA					
		20	FOTHERGILLA GARDENII	DWARF FOTHERGILLA	#5	CONT.	36" O.C.	
			JUNIPERUS HORIZONTALIS 'BAR HARBOR'	BAR HARBOR JUNIPER				
			GROUNDCOVERS - 80% OF TOTAL AREA					
		721	ANEMONE CANADENSIS	CANADA WINDFLOWER	#1	CONT.	12" O.C.	
			DENNSTAEDTIA PUNCTILOBULA	HAYSCENTED FERN				
			RHUS AROMATICA 'GRO-LOW'	GRO-LOW FRAGRANT SUMAC				
		COURTYARD PLANTING PALETTE (2ND FLOOR) 3,750 SF TOTAL						
			SHRUBS - 30% OF TOTAL AREA					
		106	KALMIA LATIFOLIA	MOUNTAIN LAUREL	#10	CONT.	42" O.C.	
			HAMMAELIS VIRGINIANA	WHICH-HAZEL				
			VIBURNUM DENTATUM	ARROWWOOD				
			GROUNDCOVERS - 70% OF TOTAL AREA					
		3,031	ACTAEA RACEMOSA	BLACK COHOSH	#1	CONT.	12" O.C.	
			CAREX PENNSYLVANICA	PENNSYLVANIA SEDGE				
			DENNSTAEDTIA PUNCTILOBULA	HAYSCENTED FERN				
			OSMUNDA CINNAMOMEA	CINNAMON FERN				
			POLYGONATUM COMMUTATUM	GREAT SOLOMON'S SEAL				
			POLYSTICHUM ACROSTICHOIDES	CHRISTMAS FERN				
			RHUS AROMATICA 'GRO-LOW'	GRO-LOW FRAGRANT SUMAC				
			TIARELLA CORDIFOLIA	FOAM FLOWER				

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FORESIDE/

THE CHANNEL MARK°

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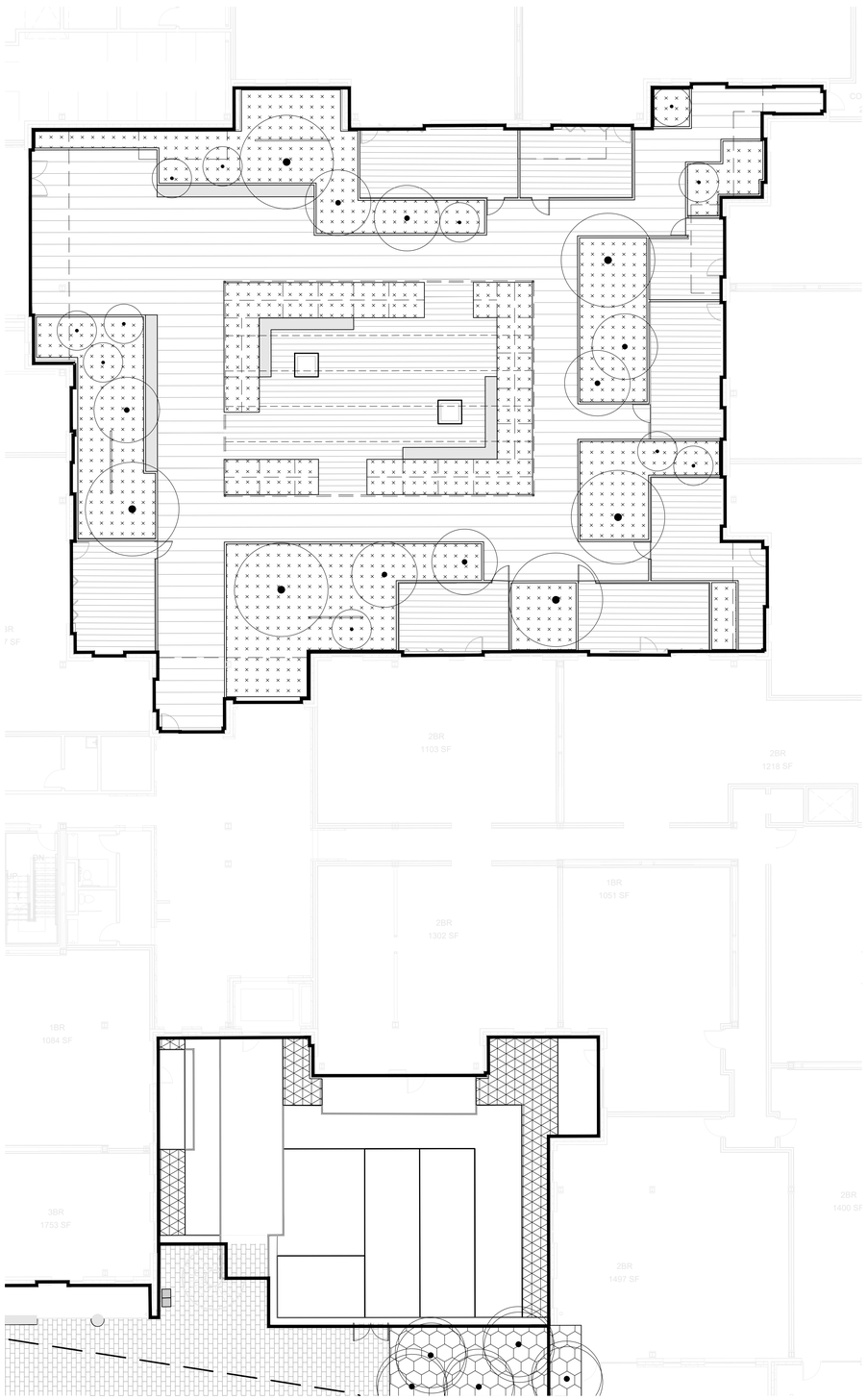
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THE CHANNEL MARK

58 FORE ST
PORTLAND, ME 04101

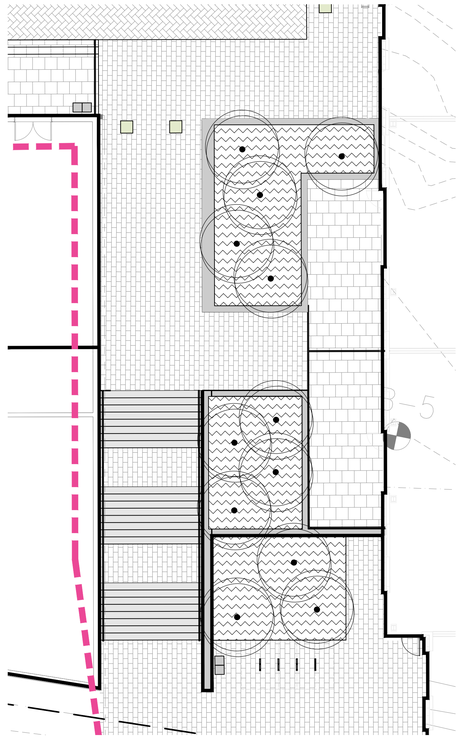
ISSUE
11/18/22
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PLANTING REFERENCE PLAN

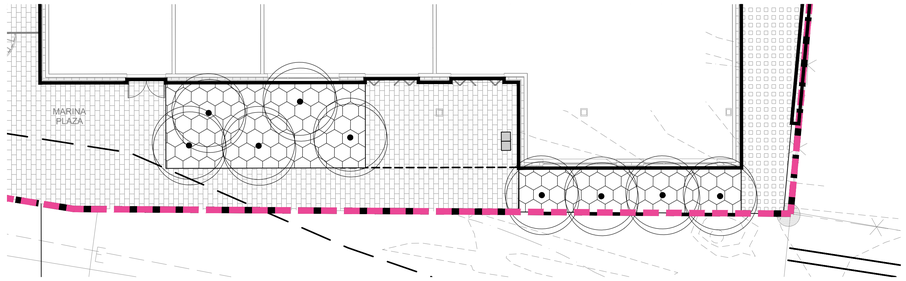
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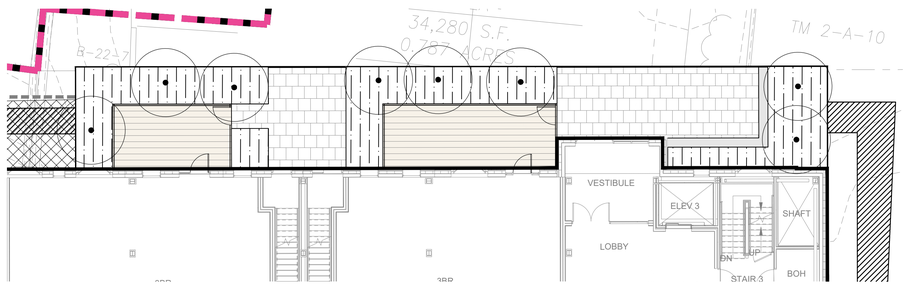
1 LEVEL 2 COURTYARDS PLANTING
1"=10'



2 PODIUM TO LEVEL 1 STAIR PLANTING
1"=10'



3 LEVEL 1 EAST PLANTING
1"=10'



4 LEVEL 7 TERRACE PLANTING
1"=10'

LEGEND

- ENTRY PLANTING PALETTE
- POOL TERRACE PALETTE
- STREET PLANTING PALETTE
- TERRACE PLANTERS
- COURTYARD PLANTING PALETTE
- PROPOSED TREE
- LIMIT OF WORK
- PROPERTY LINE

SCALE: 1"=10' 0 5' 10' 20' NORTH

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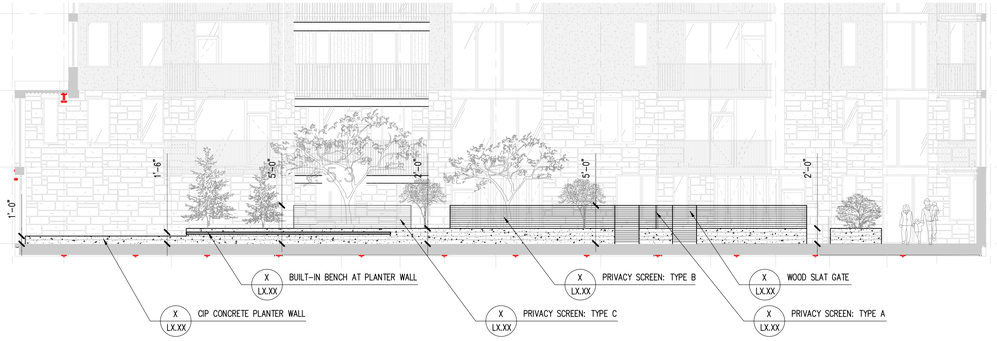
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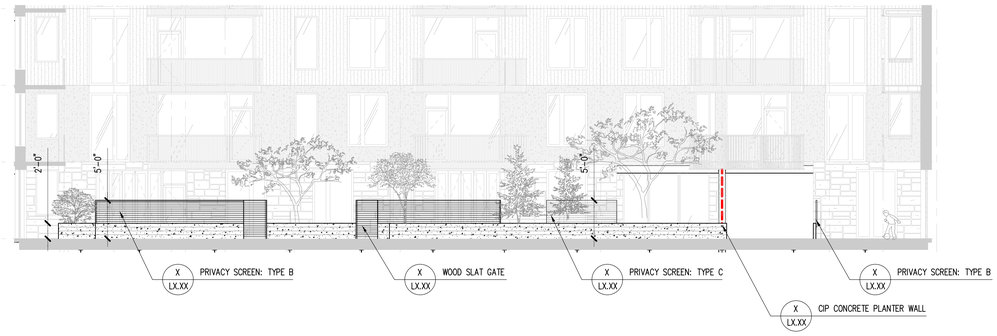
ISSUE
11/18/22
< DESIGN DEVELOPMENT

PLANTING DETAIL PLANS

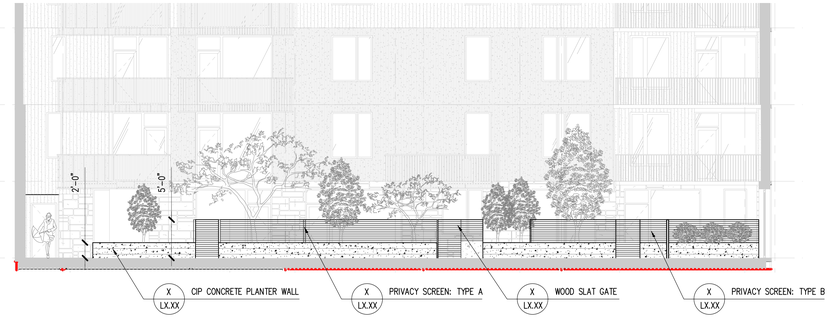
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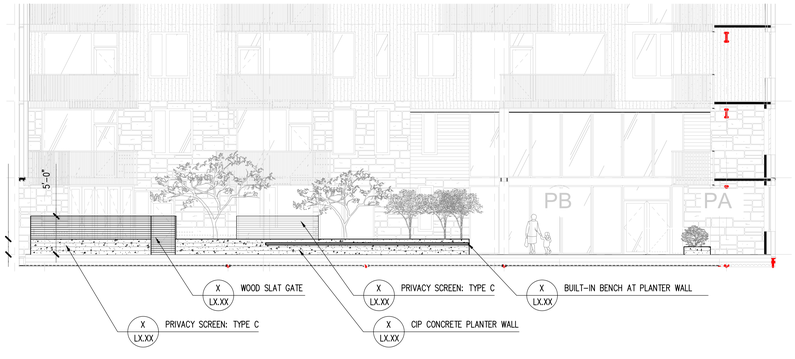
1 COURTYARD LANDSCAPE ELEVATION - LOOKING NORTH
1/8" = 1'-0"



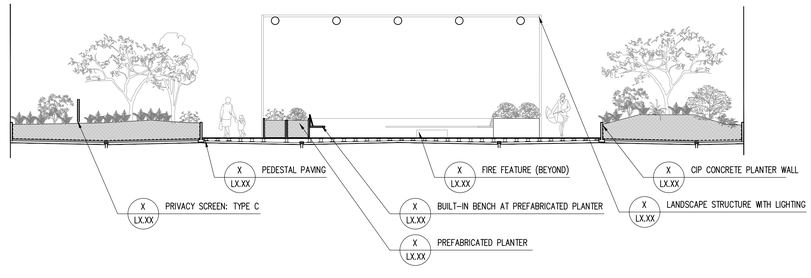
2 COURTYARD LANDSCAPE ELVATION - LOOKING SOUTH
1/8" = 1'-0"



3 COURTYARD LANDSCAPE ELEVATION - LOOKING EAST
1/8" = 1'-0"



4 COURTYARD LANDSCAPE ELEVATION - LOOKING WEST
1/8" = 1'-0"



5 CONCEPTUAL COURTYARD CROSS SECTION-ELEVATION
1/8" = 1'-0"

0 4' 8' 16'

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FORESIDE7

THE CHANNEL MARK

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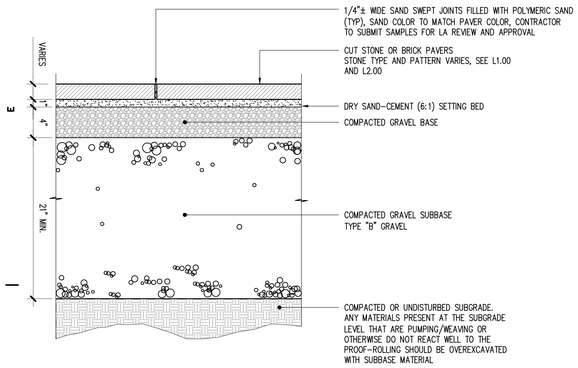
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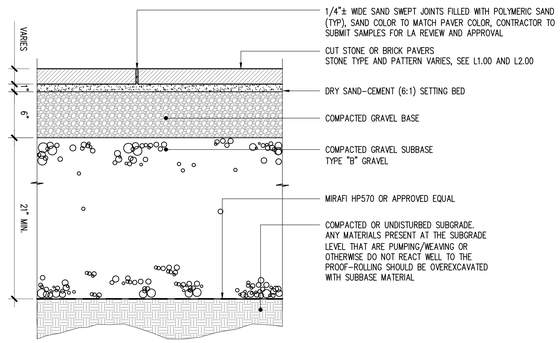
ISSUE
11/18/22
DESIGN DEVELOPMENT

COURTYARD SECTIONS AND ELEVATIONS

L3.0

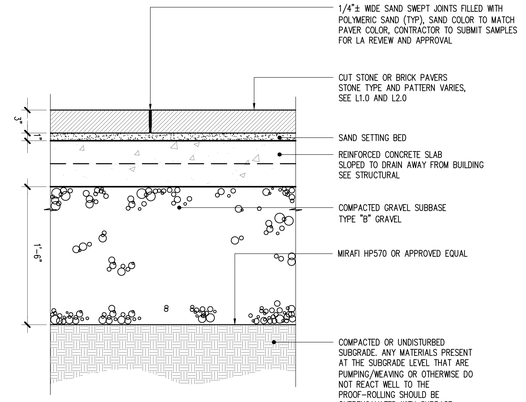


1 LIGHT DUTY STONE PAVING
1 1/2" = 1'-0"



2 HEAVY-DUTY STONE PAVING
1 1/2" = 1'-0"

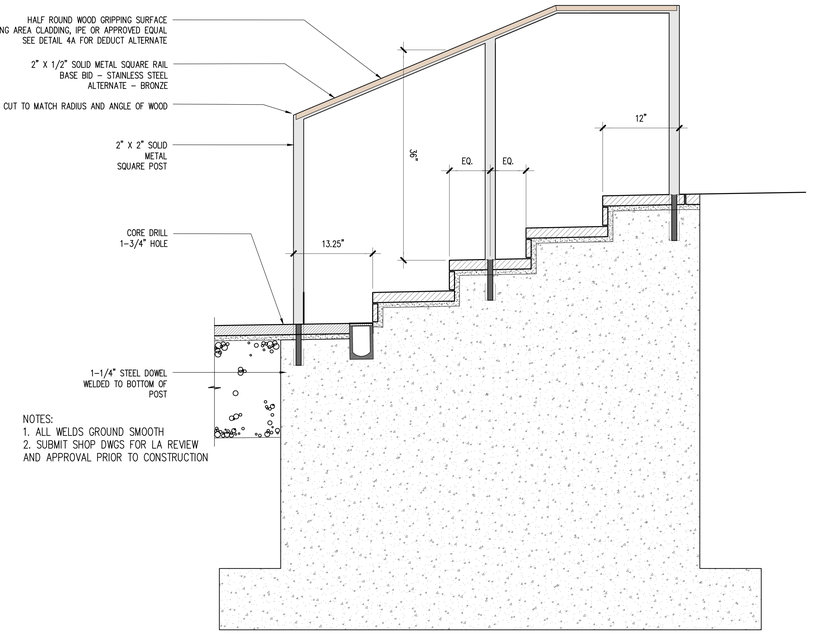
NOTE:
A. SUBGRADE PREPARATION AND PROTECTION ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND ANY DISTURBANCE THAT OCCURS AS A RESULT OF THEIR MEANS AND METHODS SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER AT NO ADDITIONAL COST TO THE OWNER.
B. FINAL EXCAVATIONS MADE TO THE DESIGN SUBGRADE LEVEL SHALL BE COMPLETED USING SMOOTH-BLADED EQUIPMENT TO LIMIT SOIL DISTURBANCE AT SUBGRADE LEVEL. EXCAVATION EQUIPMENT THAT IS OUTFITTED WITH A "TOOTHED" BUCKET OR A "TOOTHED" BUCKET WITH A FLAT PLATE WELDED ACROSS THE "TEETH" ARE NOT PERMITTED.
C. THE USE OF THE BACK OF THE EXCAVATOR BUCKET TO "SMOOTH" OR "SMEAR" SUBGRADE SURFACES IS NOT PERMITTED
D. PREVENT WATER FROM ACCUMULATING ON SURFACES TO REDUCE THE POSSIBILITY OF SOIL DISTURBANCE. SURFACES THAT BECOME DISTURBED DUE TO WATER INFILTRATION SHOULD BE EXCAVATED, STABILIZED AND/OR REPLACED.
E. THE CONCTRACTOR SHALL, TO THE EXTEND POSSIBLE, LIMIT EQUIPMENT AND CONSTRUCTION WORKER TRAFFIC ON THE EXPOSED SUBGRADE SURFACES.
F. GRANULAR SUBGRADE SURFACES SHALL BE PROOFROLLED WITH A STATIC OR VIBRATORY SMOOTH-DRUM ROLLER UNTIL FIRM PRIOR TO FILL PLACEMENT IF THE SOIL APPEARS DRY AND NO "FREE" WATER IS OBSERVED. TO MINIMIZE DISTURBANCE THE POTENTIAL FOR DISTURBANCE, MARINE SILT/CLAY AND GRANULAR SOILS WITH "FREE" WATER EXPOSED AT SUBGRADE LEVEL SHOULD NOT BE PROOFROLLED. AFTER PROOF-ROLLING, IT MAY BE NECESSARY TO REMOVE WEAK, DISTURBED OR OTHERWISE UNACCEPTABLE SOILS AS DESCRIBED ABOVE. IF OVER-EXCAVATION AND REPLACEMENT BELOW THE DESIGN SUBGRADE LEVEL IS REQUIRED, THE MATERIAL SHALL BE REPLACED WITH SUBBASE MATERIAL THAT IS PLACED 12-IN. THICK (MAXIMUM) LOOSE LIFTS AND COMPACTED TO 95 PERCENT (MINIMUM) OF THE MATERIALS MAXIMUM DRY DENSITY.
G. IF ENCOUNTERED AT THE SUBGRADE LEVEL, THE CONTRACTOR SHALL REMOVE DEBRIS, TOPSOIL, ORGANIC SOIL OR OTHER UNSUITABLE MATERIAL PRESENT. IF OVER-EXCAVATION BELOW THE DESIGN SUBGRADE LEVEL IS REQUIRED, THE EXCAVATED MATERIAL SHALL BE REPLACED WITH SUBBASE MATERIAL THAT SHALL BE PLACED IN 12-INCH THICK (MAXIMUM) LOOS LIFTS AND COMPACTED TO 95 PERCENT (MINIMUM) OF THE MATERIALS MAXIMUM DRY DENSITY.



3 STONE PAVING AT LANDING
1 1/2" = 1'-0"

4 PAVING EDGE
1 1/2" = 1'-0"

5 PLANTING CURB, BASALT
1 1/2" = 1'-0"



6 HANDRAIL AT STAIRS
1 1/2" = 1'-0"

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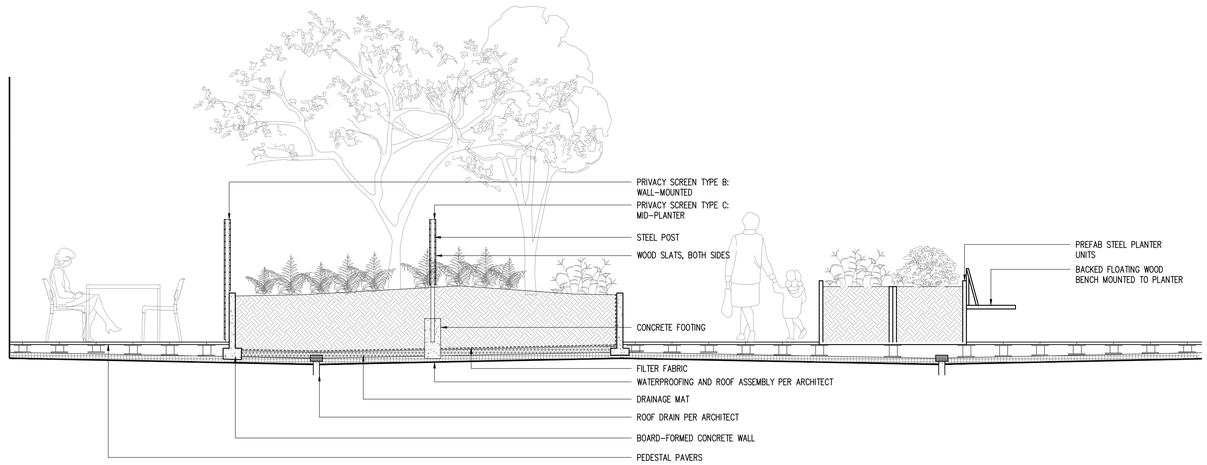
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PORTLAND, ME 04101

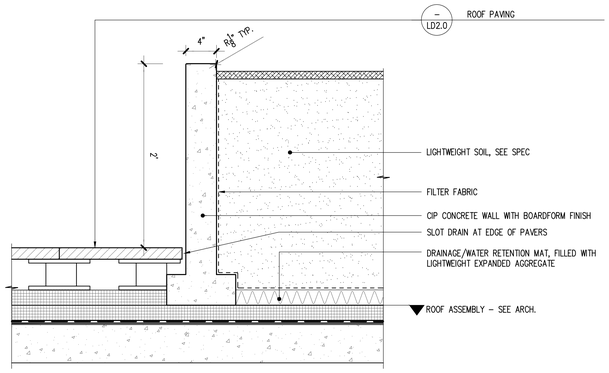
ISSUE
10/18/22
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SITE DETAILS

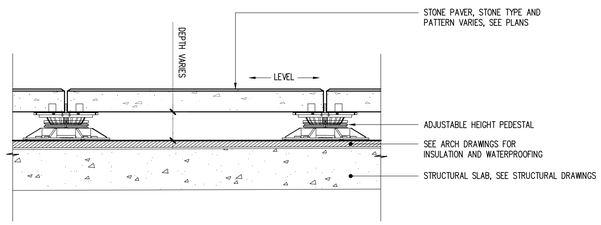
LD1.0



1 COURTYARD SECTION
1" = 30'



2 CIP PLANTER WALL
1-1/2" = 1'-0"

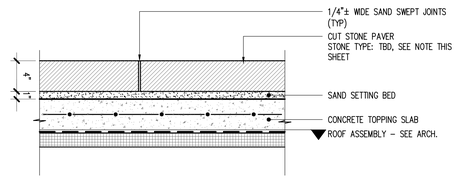


3 ROOF PAVING DETAIL - PEDESTAL
1-1/2" = 1'-0"

4 WATER FEATURE
1-1/2" = 1'-0"

5 BUILT-IN BENCH AT PLANTER WALL
1-1/2" = 1'-0"

6 BUILT-IN BENCH AT PLANTER WALL
1-1/2" = 1'-0"



7 ROOF PAVING DETAIL - HEAVY DUTY STONE PAVING
1-1/2" = 1'-0"

8 FIRE FEATURE
1-1/2" = 1'-0"

9 PRIVACY SCREEN TYPE A: FREE STANDING
1-1/2" = 1'-0"

10 PRIVACY SCREEN TYPE B: WALL-MOUNTED
1-1/2" = 1'-0"

11 PRIVACY SCREEN TYPE C: MID-PLANTER
1-1/2" = 1'-0"

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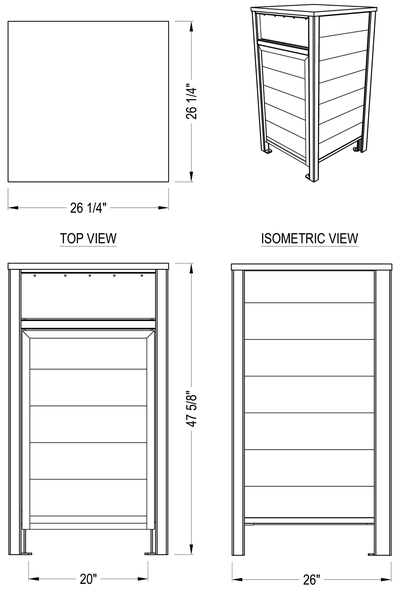
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PORTLAND, ME 04101

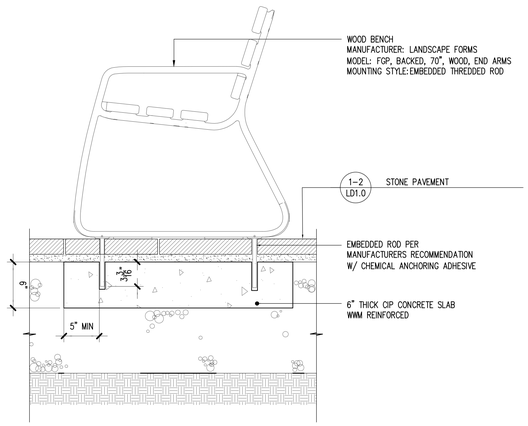
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10/18/22
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ROOFTOP COURTYARD DETAILS

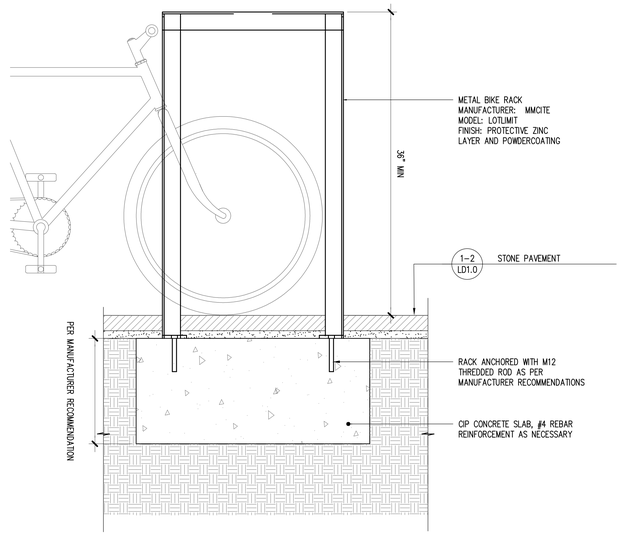
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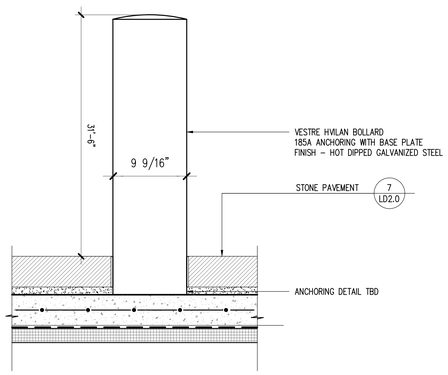
1 WISHBONE - URBAN FORM LARGE CAPACITY WASTE RECEPTACLE
NTS



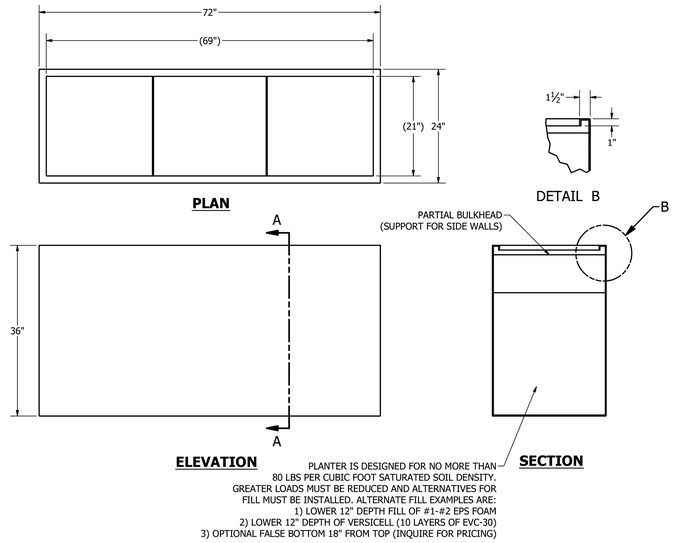
2 FGP BENCH
1 1/2" = 1'-0"



3 BIKE RACK B
1 1/2" = 1'-0"



4 SECURITY BOLLARD
1 1/2" = 1'-0"



5 TOURNESOL WILSHIRE PLANTER
NTS

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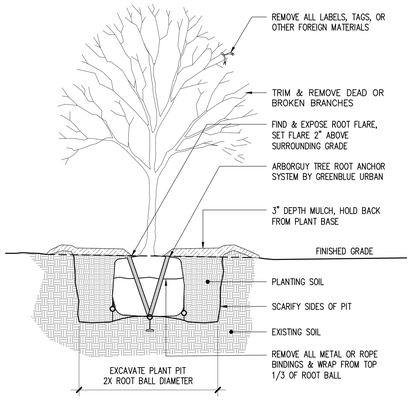
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DESIGN DEVELOPMENT

SITE FURNISHING DETAILS

LD3.0

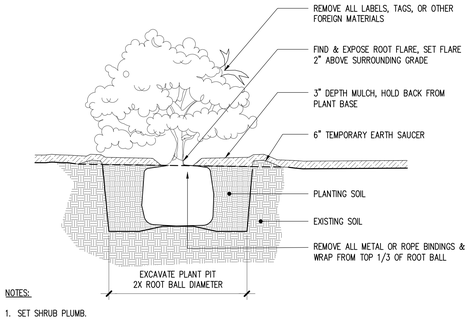


NOTES:

1. SET TREE PLUMB.
2. SECURE TREE AS REQUIRED ACCORDING TO TREE SIZE, LOCATION, & WIND/WEATHER CONDITIONS.
3. IF USING ROOTBALL STABILIZATION, FOLLOW MANUFACTURER'S RECOMMENDATIONS.

1 TREE PLANTING & STAKING DETAIL

1/2" = 1'-0"

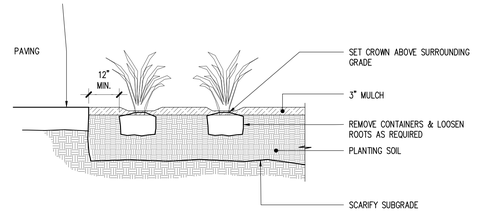


NOTES:

1. SET SHRUB PLUMB.
2. SECURE SHRUB AS MAY BE REQUIRED ACCORDING TO SIZE, LOCATION, & WIND/WEATHER CONDITIONS.
3. IF USING ROOTBALL STABILIZATION, FOLLOW MANUFACTURER'S RECOMMENDATIONS.

2 SHRUB PLANTING DETAIL

1/2" = 1'-0"



3 GROUNDCOVER PLANTING DETAIL

1/2" = 1'-0"

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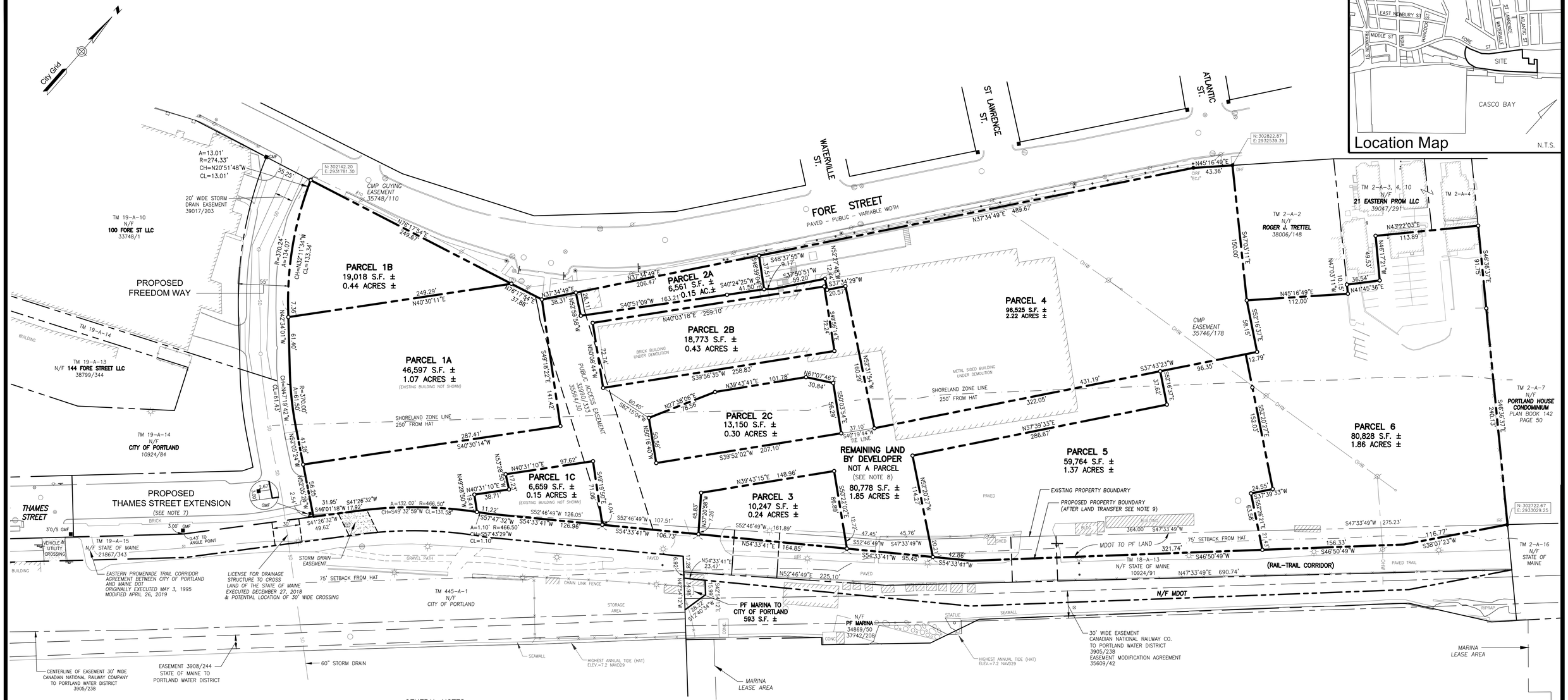
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PLANTING DETAILS

LD4.0



GENERAL NOTES:

1. OWNER OF RECORD: PF LAND LLC
254 COMMERCIAL STREET SUITE 118, PORTLAND, ME 04101
C.C.R.D. BOOK 37397 PAGE 78
PF ONE DEVCO LLC
254 COMMERCIAL STREET SUITE 118, PORTLAND, ME 04101
C.C.R.D. BOOK 37397 PAGE 73

NOTE: SINCE THE DATE OF THE ORIGINAL SUBDIVISION PLAN THE LAND HAS BEEN CONVEYED TO THE ABOVE REFERENCED OWNERS OF RECORD.

2. PARCEL IS SHOWN AS 18-A001, 19-A003 & P/O 19-A010 ON THE CITY OF PORTLAND'S TAX ASSESSORS MAPS.

3. BEARINGS ARE BASED ON MAINE STATE PLANE COORDINATES WEST ZONE NAD83. CITY POINTS: T-113-80-206 N:302687.77 E:2932345.31
T-113-12-111 N:302722.13 E:2933029.45

4. PARCEL IS LOCATED IN ZONE C, AREAS OF MINIMAL FLOODING, AND FLOOD ZONE A2 ELEV. 10, FLOOD INSURANCE RATE MAP 230051-0014B EFFECTIVE DATE JULY 17, 1986.

5. BENCH MARK: NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION (NOAA) - TIDAL BENCHMARK. BENCH MARK STAMPING: NO. 3 1971 ELEVATION 11.02 FEET CITY DATUM.

6. PARCEL IS LOCATED IN THE B6 URBAN COMMERCIAL BUSINESS ZONE AND PARTIALLY IN THE EWPZ WATERFRONT ZONE AS SHOWN ON THE CITY OF PORTLAND ZONING MAP.

7. THAMES STREET IS NOT PART OF THIS SUBDIVISION. THAMES STREET EXTENSION IS NOT AN ACCEPTED CITY STREET AS OF THE DATE OF THIS PLAN. REFERENCE IS MADE TO AN ACCESS LICENSE FROM THE CITY OF PORTLAND TO PF ONE DEVCO LLC, PF LAND LLC & PF MARINA LLC RECORDED IN DEED BOOK 37398, PAGE 112.

8. THE "REMAINING LAND BY DEVELOPER" SHALL REMAIN PRIVATE PROPERTY AND SHALL BE UTILIZED TO PROVIDE ACCESS AND UTILITIES TO THE PARCELS SHOWN.

9. THE PROPOSED PROPERTY BOUNDARY IS THE SUBJECT OF THE EXCHANGE AGREEMENT DATED AS OF JUNE 21, 2017 BETWEEN THE CITY OF PORTLAND, PF LAND LLC, PF DEVCO LLC, PF MARINA AND THE STATE OF MAINE DEPARTMENT OF TRANSPORTATION, A COPY OF WHICH IS ON RECORD WITH THE CITY OF PORTLAND. UNTIL THE EXCHANGE IS COMPLETED, THE SOUTHERN BOUNDARY OF PARCELS 1C, 3 AND 5 AND THE SOUTHERN BOUNDARY OF THE AREA "REMAINING LAND BY DEVELOPER" IS THE EXISTING PROPERTY BOUNDARY. AFTER THE EXCHANGE IS COMPLETED, THE SOUTHERN BOUNDARY OF PARCELS 1C, 3 AND 5 AND THE SOUTHERN BOUNDARY OF THE AREA "REMAINING LAND BY DEVELOPER" WILL BE THE PROPOSED PROPERTY BOUNDARY.

LEGEND:

- CAPPED IRON ROD OR NAIL TO BE SET
- IRON PIPE OR ROD FOUND
- MONUMENT FOUND
- UTILITY POLE
- MANHOLE
- ELECTRIC/GAS METER
- SIGN
- CATCH BASIN
- HYDRANT
- WATER VALVE OR SHUTOFF
- GAS VALVE
- LIGHT POLE
- FENCE
- CURB
- GUARDRAIL
- IPF/IRF IRON PIPE OR ROD FOUND
- N/F NOW OR FORMERLY
- 000/000 DEED BOOK / PAGE

SCALE : 1" = 50'
0' 25' 50' 100'

APPROVED BY THE
CITY OF PORTLAND PLANNING BOARD

DATE

PLAN REFERENCES:

1. LAND TITLE SURVEY & SUBDIVISION PLAN IN PORTLAND, MAINE U.S.A. MADE FOR THE TRUST FOR PUBLIC LAND, THE CITY OF PORTLAND, THE MAINE DEPARTMENT OF TRANSPORTATION, THE CANADIAN NATIONAL RAILWAY COMPANY DATED FEB. 19, 1993, REV. 9 11/04/96 BY OWEN HASKELL, INC. AND RECORDED IN PLAN BOOK 193, PAGE 187.

2. RECORDING PLAT OCEAN GATEWAY MADE FOR THE CITY OF PORTLAND AND STATE OF MAINE, BY OWEN HASKELL, INC, DATED AUGUST 4, 2004, RECORDED IN PLAN BOOK 204, PAGE 622-624

3. BOUNDARY & TOPOGRAPHY SURVEY AT 58 FORE STREET, PORTLAND, MAINE MADE FOR WOODARD & CURRAN BY OWEN HASKELL, INC. AUGUST 29, 2016, REVISED THROUGH FEB. 2019.

4. EXHIBIT PLAN PARCELS TO BE CONVEYED 58 FORE STREET, PORTLAND, MAINE MADE FOR WOODARD & CURRAN BY OWEN HASKELL, INC. DATED MARCH 21, 2018.

5. TOPOGRAPHIC SURVEY 100 FORE STREET MADE FOR JONATHAN COHEN BY OWEN HASKELL, INC DATED DECEMBER 4, 2017 REVISED THROUGH 12/17/18.

6. ALTA/NSPS LAND TITLE SURVEY, 13-23 EASTERN PROMENADE, PORTLAND, CUMBERLAND COUNTY, MAINE MADE FOR PF SIX DEVCO LLC DATED MAY 19, 2022 REVISED JUNE 27, 2022 BY OWEN HASKELL, INC.

DRAFT

CERTIFICATE:

OWEN HASKELL, INC. HEREBY CERTIFIES THAT THIS PLAN IS BASED ON, AND THE RESULT OF, AN ON THE GROUND FIELD SURVEY AND THAT TO THE BEST OF OUR KNOWLEDGE, INFORMATION AND BELIEF, IT CONFORMS TO THE BOARD OF LICENSURE FOR PROFESSIONAL LAND SURVEYORS CURRENT STANDARDS OF PRACTICE.

4/14/2023
DATE

RANDY R. LOUBIER, PLS #2407

STATE OF MAINE
RANDY R. LOUBIER 2407
PROFESSIONAL LAND SURVEYOR

THIS PLAN AMENDS THE
"SUBDIVISION PLAT"
RECORDED IN
C.C.R.D. PLAN BOOK 220, PAGE 446

REVISED LOCATION OF THE PROPOSED PROPERTY BOUNDARY AFTER LAND TRANSFER; ADDED PF MARINA PARCEL TO CITY OF PORTLAND OF 593 S.F.; REVISED LOTS 4 & 5; ADDED LOT 6.

Second Amended Subdivision Plat
Portland Foreside
Thames Street & Fore Street
Portland, Maine
Made for Owner of Record
PF One Devco LLC & PF Land LLC
254 Commercial St. Suite 118, Portland, ME 04101

OWEN HASKELL, INC.
PROFESSIONAL LAND SURVEYORS
390 U.S. ROUTE ONE, UNIT 10, FALMOUTH, MAINE 04105 207.774.0424

DRAWN BY: RRL / JLW	DATE: APRIL 11, 2023	JOB NO. 2019-013 P
CHECKED BY: RRL	SCALE: 1" = 50'	DRWG. NO. SP-B

30x42
PLOT SCALE: 100 = 1'-0"

BLOCK 2 TOWNHOMES
AVERAGE GRADE = 32.25

FORE STREET

+55
+52
+47
+15
+15
+88
+75
+19
+13

TOWNHOUSES
BLDG. 16
BLDG. 24
BUILDING 1A
BUILDING 2
BUILDING 3
BUILDING 6B
BUILDING 6
BUILDING 12
PH. 1

BLOCK 4

BLOCKS 4, 5 & 6
AVERAGE GRADE = 50.0

PODIUM

BLOCK 6

BLOCK 5

TM 2-A-7
N/F
PORTLAND HOUSE
CONDOMINIUM
PLAN BOOK 142
PAGE 50

TM 2-A-2
N/F
ROGER J. TRETTEL
38006/148

STORM DRAIN EASEMENT
PROPOSED 40' ACCESS EASEMENT

EXISTING MARINA

40' 0 40' 80'
BAR SCALE
1" = 40'
CHECK GRAPHIC SCALE BEFORE USING

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PE SEAL:

STATE OF MAINE
LAUREN JANE SWETT
No. 12284
LICENSED PROFESSIONAL ENGINEER

NOT FOR CONSTRUCTION

CLIENT INFO:

PORTLAND FORESIDE DEVELOPMENT COMPANY
PORTLAND, MAINE

PHASE 2

REV	MM/DD/YY	DESCRIPTION

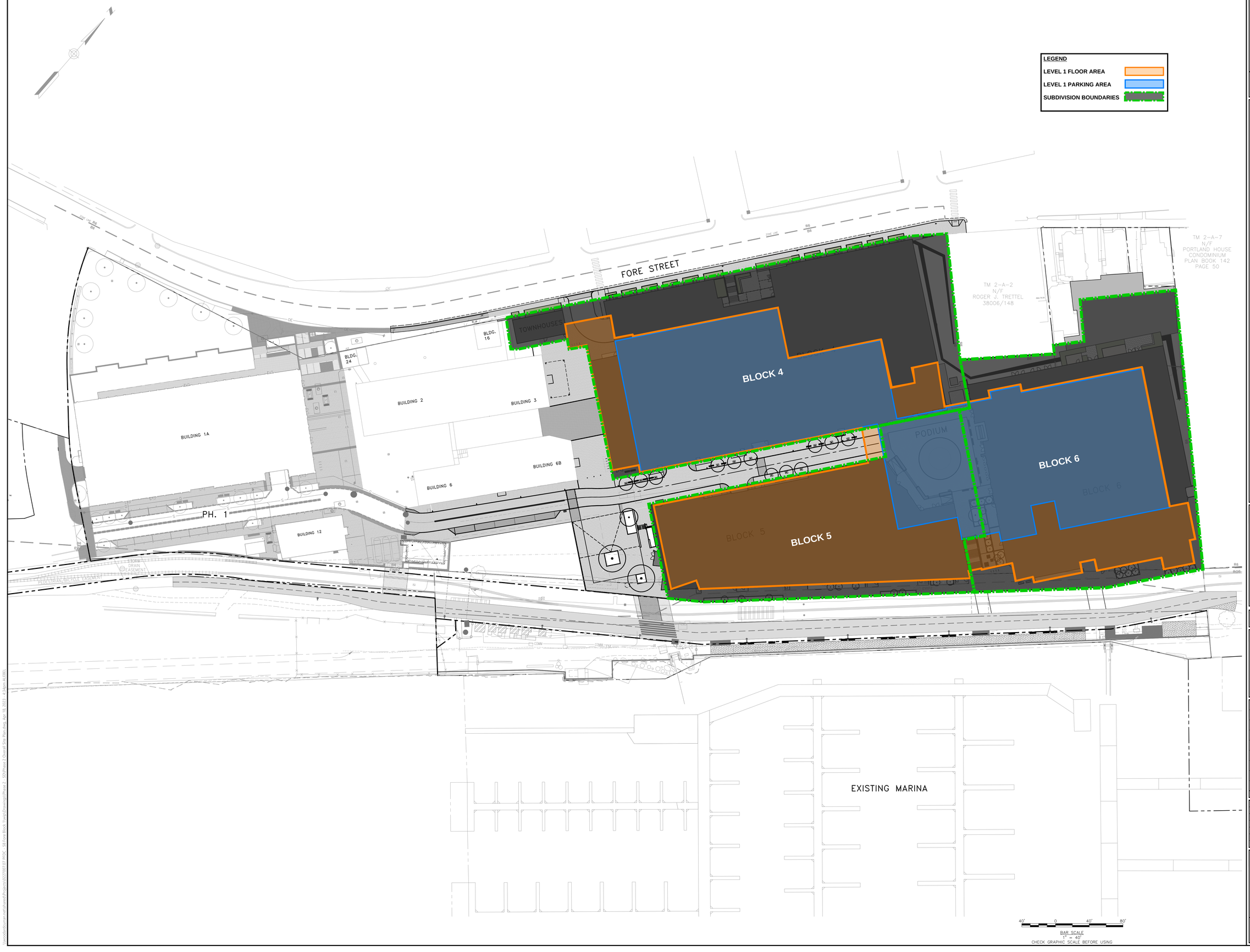
JOB NO:	227007
DATE:	MAY 2023
SCALE:	AS NOTED
DESIGNED BY:	ANL
DRAWN BY:	BCM
CHECKED BY:	LJS
FILENAME:	PHASE 2 OVERALL SITE PL*.dwg

DRAWING TITLE:
CIVIL
AVERAGE GRADE FIGURE

DRAWING NO:
FIGURE 2
SHEET: 1 OF 1

\\woodardcurran.net\shared\Projects\227007.07 PFDC - SB Fore Block 1\wip\Drawings\Phase 2 - SD\Phase 2 Overall Site Plan.dwg, Jun 20, 2023 - 5:25pm, LSWETT

30x42
PLOT SCALE: 1.00000000.00000000 = 1'-0"



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CLIENT INFO:

PORTLAND FORESIDE DEVELOPMENT COMPANY
PORTLAND, MAINE

PHASE 2

REV	MM/DD/YY	DESCRIPTION

JOB NO:	227007
DATE:	APRIL 2023
SCALE:	AS NOTED
DESIGNED BY:	ANL
DRAWN BY:	BCM
CHECKED BY:	LJS
FILENAME:	PHASE 2 OVERALL SITE PL*.dwg

DRAWING TITLE:

CIVIL
LEVEL 1 PARKING PLINTH

DRAWING NO:

FIGURE 1

SHEET: 1 OF 1

\\woodardcurran.net\shared\Projects\227007.07 PFDC - SB Fore Block Tiven\Drawings\Phase 2 - SDP\Phase 2 Overall Site Plan.dwg, Apr 18, 2023 - 4:34pm ALEBEL

LUMINAIRE SCHEDULE

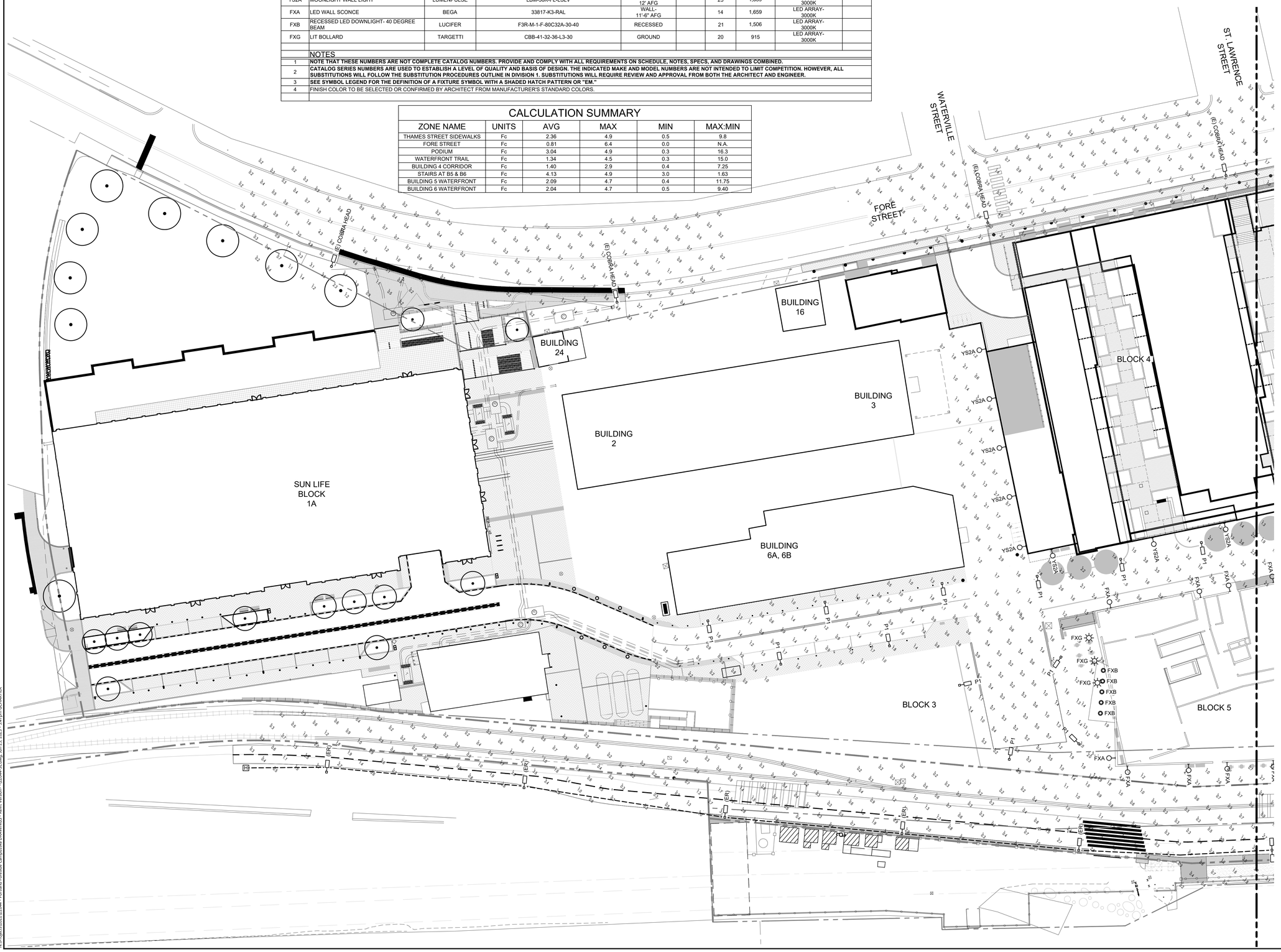
TYPE	DESCRIPTION	MFR	CATALOG SERIES NUMBER SEE NOTES 1 & 2	MOUNTING, U.N.O.	VOLTS	LAMP			KEY NOTES
						WATTS	DELIVERED LUMENS	TYPE	
P1	PEDESTRIAN POLE LIGHT	HOLOPHANE	GELB3-P303-30K-BG3	POLE- 16'-0"		28	3,385	LED ARRAY- 3000K	
FX1	LED FRAMING PROJECTOR	WE-EF	FLC210	POLE- SEE PLAN		28	1,154	LED ARRAY- 3000K	
FX2	CATERNARY-SUPPORTED LINEAR LED	STRUCTURA	CORDE-8-L30-MO-CAT/S	CATERNARY- SEE PLAN		24	2,034	LED ARRAY- 3000K	
FX3	LED WALLPACK	BEGA	22 386	WALL- 12' AFG		22.9	2,352	LED ARRAY- 3000K	
FX4	ENCAPSULATED LED STAIR LIGHT	Q-TRAN	LL3SW-1.5-30-ENC-STD-TL	STAIR RISER		1.5W/ft.	67 lum/ft.	LED ARRAY- 3000K	
FX5	MICRO LED DOWNLIGHT	SISTEMALUX	S3321-W-REM-19	CANOPY		2.19	132	LED ARRAY- 3000K	
FX6	DECORATIVE POLE LIGHT	BEGA	77 208	POLE- SEE PLAN		40	2,674	LED ARRAY- 3000K	
FX7	LIT BOLLARD	FORMS+ SURFACES	HELIO M30/K4	GROUND		34	604	LED ARRAY- 3000K	
YS2A	MOONLIGHT WALL LIGHT	LUMENPULSE	LBM-30K-FL-LSLV	WALL- 12' AFG		25	1,839	LED ARRAY- 3000K	
FXA	LED WALL SCONCE	BEGA	33817-K3-RAL	WALL- 11'-6" AFG		14	1,659	LED ARRAY- 3000K	
FXB	RECESSED LED DOWNLIGHT- 40 DEGREE BEAM	LUCIFER	F3R-M-1-F-80C32A-30-40	RECESSED		21	1,506	LED ARRAY- 3000K	
FXG	LIT BOLLARD	TARGETTI	CBB-41-32-36-L3-30	GROUND		20	915	LED ARRAY- 3000K	

NOTES

1. **NOTE THAT THESE NUMBERS ARE NOT COMPLETE CATALOG NUMBERS. PROVIDE AND COMPLY WITH ALL REQUIREMENTS ON SCHEDULE, NOTES, SPECS, AND DRAWINGS COMBINED.**
2. **CATALOG SERIES NUMBERS ARE USED TO ESTABLISH A LEVEL OF QUALITY AND BASIS OF DESIGN. THE INDICATED MAKE AND MODEL NUMBERS ARE NOT INTENDED TO LIMIT COMPETITION. HOWEVER, ALL SUBSTITUTIONS WILL FOLLOW THE SUBSTITUTION PROCEDURES OUTLINE IN DIVISION 1. SUBSTITUTIONS WILL REQUIRE REVIEW AND APPROVAL FROM BOTH THE ARCHITECT AND ENGINEER.**
3. **SEE SYMBOL LEGEND FOR THE DEFINITION OF A FIXTURE SYMBOL WITH A SHADED HATCH PATTERN OR "EM."**
4. FINISH COLOR TO BE SELECTED OR CONFIRMED BY ARCHITECT FROM MANUFACTURER'S STANDARD COLORS.

CALCULATION SUMMARY

ZONE NAME	UNITS	AVG	MAX	MIN	MAX:MIN
THAMES STREET SIDEWALKS	Fc	2.36	4.9	0.5	9.8
FORE STREET	Fc	0.81	6.4	0.0	N.A.
PODIUM	Fc	3.04	4.9	0.3	16.3
WATERFRONT TRAIL	Fc	1.34	4.5	0.3	15.0
BUILDING 4 CORRIDOR	Fc	1.40	2.9	0.4	7.25
STAIRS AT B5 & B6	Fc	4.13	4.9	3.0	1.63
BUILDING 5 WATERFRONT	Fc	2.09	4.7	0.4	11.75
BUILDING 6 WATERFRONT	Fc	2.04	4.7	0.5	9.40



PROJECT NORTH

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Structural Mechanical Electrical Commissioning
160 Veranda Street
Portland, Maine 04103
T: 207.221.2360
F: 207.221.2266
Web: www.allied-eng.com

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CLIENT INFO:

PORTLAND FORESIDE DEVELOPMENT COMPANY
PORTLAND, MAINE

WATERFRONT IMPROVEMENTS & UTILITY ENABLEMENT PHASE

REV	MM/DD/YY	DESCRIPTION
9	6/23/23	ELECTRICAL UPDATES
8	2/28/23	ELECTRICAL UPDATES
7	1/13/23	ELECTRICAL UPDATES
6	12/13/22	ELECTRICAL UPDATES
5	11/23/22	ELECTRICAL UPDATES
4	10/28/22	ELECTRICAL UPDATES
3	10/19/22	ELECTRICAL UPDATES
2	09/16/22	ELECTRICAL UPDATES
1	08/22/22	CONSTRUCTION DOCUMENTS

JOB NO:	227007
DATE:	JULY 2022
SCALE:	AS NOTED
DESIGNED BY:	BTG
DRAWN BY:	GMC
CHECKED BY:	BTG
FILENAME:	22044-SL.dwg

DRAWING TITLE:
ELECTRICAL SITE PART PLAN- SITE LIGHTING PHOTOMETRICS

DRAWING NO:
SL-110
SHEET: 28 OF 37

N:\Projects\2022\22044 - Portland Foreside Campus\4x DRAWINGS - Revit Version - 22044-SL.dwg, Jun 23, 2023 - 3:47pm, GOHARTER

LUMINAIRE SCHEDULE

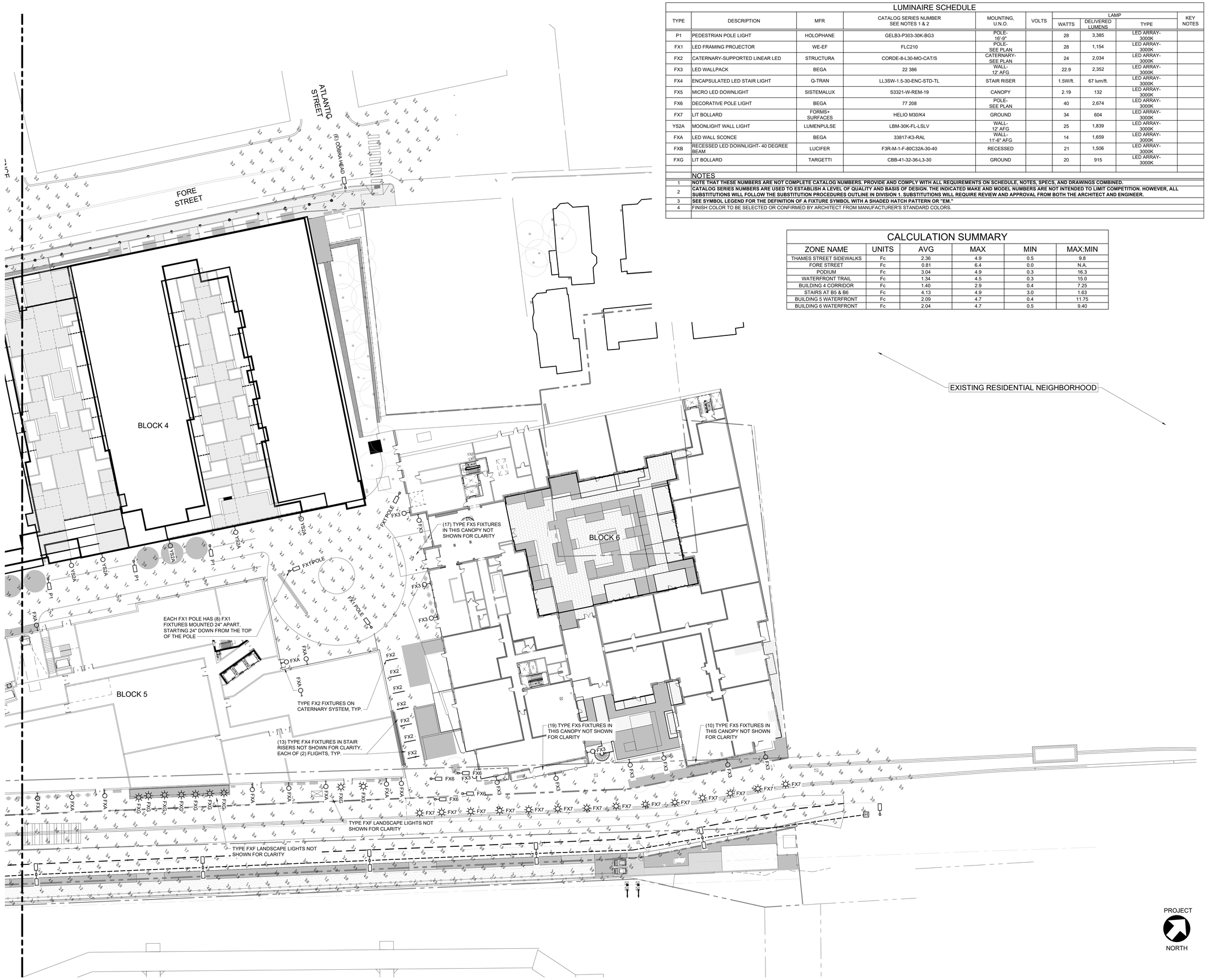
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CLIENT INFO:

PORTLAND FORESIDE DEVELOPMENT COMPANY
PORTLAND, MAINE

WATERFRONT IMPROVEMENTS & UTILITY ENABLEMENT PHASE

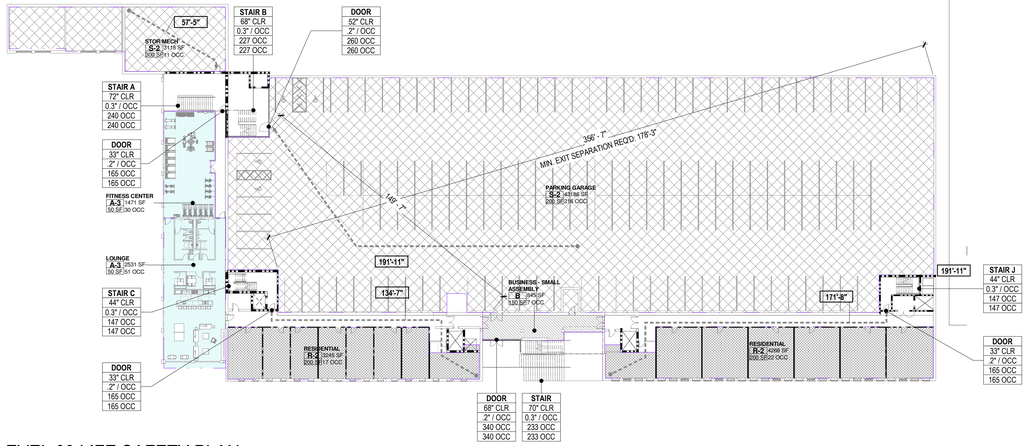
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JOB NO:	227007
DATE:	JULY 2022
SCALE:	AS NOTED
DESIGNED BY:	BTG
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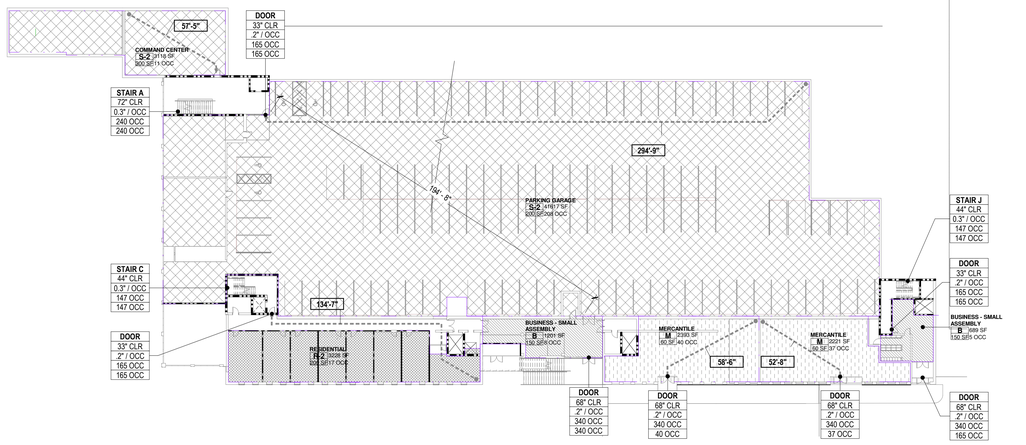
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DRAWING NO:
SL-111
SHEET: 29 OF 37

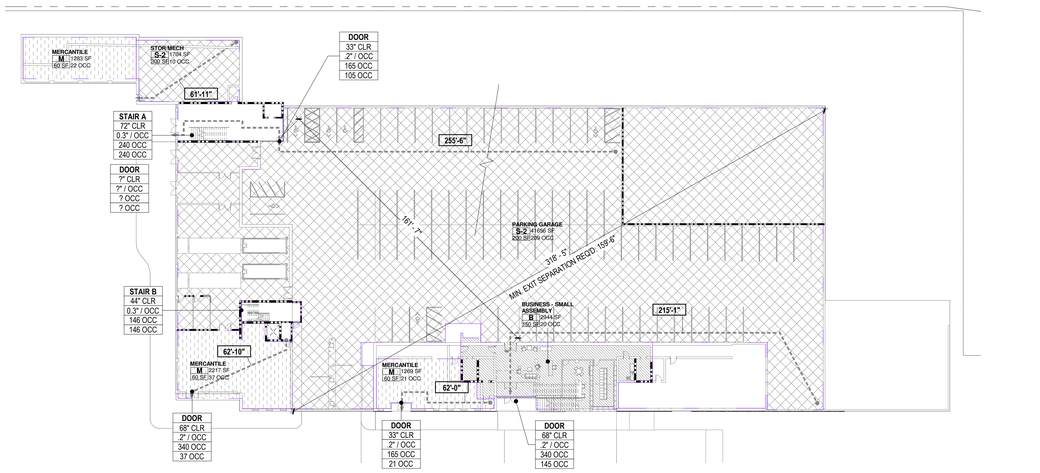
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7 LEVEL 03 LIFE SAFETY PLAN
1/32" = 1'-0"



6 LEVEL 02 LIFE SAFETY PLAN
1/32" = 1'-0"



5 LEVEL 01 LIFE SAFETY PLAN
1/32" = 1'-0"

CODE COMPLIANCE PLAN GENERAL NOTES

1. ALL WORK IS TO BE DONE IN ACCORDANCE WITH APPLICABLE CODES.
2. FINAL LOCATIONS OF ALL LIFE SAFETY DEVICES AND FIXTURES ARE SUBJECT TO APPROVAL BY THE AUTHORITY HAVING JURISDICTION.

CODE COMPLIANCE PLAN LEGEND

- NON-FIRE-RATED SMOKE PARTITION
- EXISTING NON-FIRE-RATED SMOKE PARTITION
- SMOKE BARRIER 1-HOUR FIRE RATING
- EXISTING SMOKE BARRIER. 1-HOUR FIRE RATING.
- 1-HOUR FIRE PARTITION
- 1.5-HOUR FIRE PARTITION
- 2-HOUR FIRE BARRIER REQUIRED TO HAVE SMOKE DAMPERS
- EXISTING 2-HOUR FIRE BARRIER REQUIRED TO HAVE SMOKE DAMPERS
- 3-HOUR FIRE WALL
- EXISTING 3-HOUR FIRE WALL
- EXIT SIGN
- FEC — FIRE EXTINGUISHER & CABINET (SCREENED IF EXISTING)
- FE — FIRE EXTINGUISHER (SCREENED IF EXISTING)
- FEC — FIRE EXTINGUISHER & CABINET SURFACE MOUNTED (SCREENED IF EXISTING)
- OCC. OCC. — DOOR EXIT WIDTH
- 20 MIN — FIRE RATING OF DOOR IN MINUTES
- NOT IN CONTRACT
- 999'-11" — LONGEST ROUTE TO AN EXIT
- 999'-11" — MAXIMUM OVERALL DIAGONAL DISTANCE
- 999'-11" — EXIT SEPARATION
- 999'-11" — COMMON PATH OF EGRESS TRAVEL / DEAD END

DOOR	STAIR	
72" CLR	48" CLR	EGRESS COMPONENT
0.2"/OCC	0.3"/OCC	CLEAR WIDTH - PROVIDED
360 OCC	160 OCC	OCCUPANCY FACTOR
100 OCC	100 OCC	OCCUPANCY CAPACITY - MAXIMUM
		OCCUPANCY CAPACITY - PROVIDED

BUSINESS — FUNCTION OF SPACE
B — OCCUPANCY GROUP
6240 SF — AREA
150 SF/42 OCC — OCCUPANTS / OCCUPANT LOAD FACTOR

PROJECT DATA & CODE REFERENCES

PROJECT LOCATION: PORTLAND, MAINE.
AUTHORITY HAVING JURISDICTION: PERMITTING & INSPECTIONS DEPARTMENT, CITY OF PORTLAND, ME
PROJECT DESCRIPTION: NEW CORE & SHELL CONSTRUCTION OF A 9 STORY HOUSING AND RETAIL BUILDING WITH 3 LEVELS OF PARKING GARAGE.

APPLICABLE CODES:

BUILDING CODE:	2018 IBC, MAINE UNIFORM BUILDING AND ENERGY CODE (MUBEC) - BASED ON INTERNATIONAL BUILDING CODE - 2015 EDITION
FIRE CODE:	2018 NFPA 1
LIFE SAFETY:	2018 NFPA 101
ACCESSIBILITY:	2015 IBC CHAPTER 11, 2010 ADA STANDARDS FOR ACCESSIBLE DESIGN.
ELECTRICAL:	2020 NATIONAL ELECTRIC CODE (NFPA 70)
MECHANICAL:	2015 INTERNATIONAL MECHANICAL CODE
PLUMBING CODE:	MAINE STATE INTERNAL PLUMBING CODE/2021 UPC
ENERGY:	2021 INTERNATIONAL ENERGY AND CONSERVATION CODE AND ASHRAE 90.1 (2016 EDITION)

GENERAL CODE SUMMARY

USES & OCCUPANCY CLASSIFICATION

GROUP A-2, ASSEMBLY — RESTAURANT, NIGHTCLUB, BARS
GROUP A-3, ASSEMBLY — TERRACES, MEETING ROOMS W/ OCCUPANT LOAD >50
GROUP B, BUSINESS — LOBBIES, OFFICES, TERRACES, MEETING ROOMS W/ OCCUPANT LOAD >50
GROUP M, MERCANTILE — LEVEL 1 & 2 RETAIL
GROUP R-2, RESIDENTIAL — APARTMENTS
GROUP S-1, MODERATE HAZARD STORAGE — COMBUSTABLE STORAGE
LOW HAZARD STORAGE (S-2) — PARKING GARAGE, MEP SPACES, NON-COMBUSTABLE STORAGE

Perkins&Will
225 Franklin Street, Suite 1100
Boston, MA 02110
t 617.478.0300
www.perkinswill.com

CONSULTANTS

CIVIL ENGINEER
Woodard & Curran
41 Hutchins Dr
Portland, ME 04102
t 207.774.2112

STRUCTURAL ENGINEER
Thornton Tomasetti
14 York Street, Suite 201
Portland, ME 04101
t +1 207.245.6062

MEP ENGINEER
Allied Engineering, Inc.
160 Veranda St, Portland,
ME 04103
t +1 207.221.2260

OWNER'S CONSULTANT

LANDSCAPE ARCHITECT
Michael Boucher Landscape Architecture
457 US Route 1 Suite 2
Freeport, Maine
t 207.865.1080

PROJECT

FORESIDE DEVELOPMENT

PFDC HARBOR HILL
254 COMMERCIAL ST
SUITE 118
PORTLAND, ME 04101

KEYPLAN

TRUE NORTH

MARK	ISSUE	DATE

DESIGN DEVELOPMENT
SEPTEMBER 16, 2022

Job Number	157111
Drawn	Author
Checked	Checker
Approved	Approver

TITLE

CODE COMPLIANCE PLANS

SHEET NUMBER

G01-01

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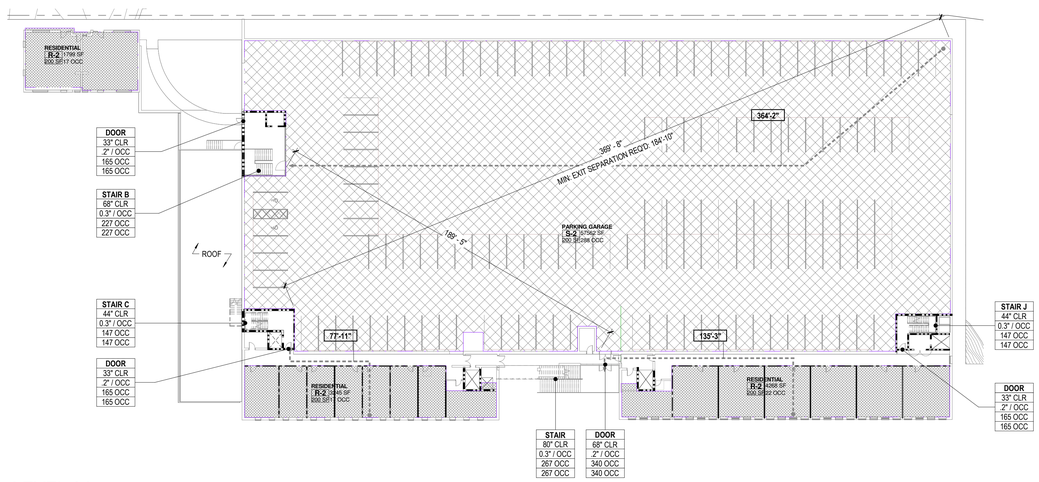
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3 LEVEL 06
1/32" = 1'-0"



2 LEVEL 05
1/32" = 1'-0"



1 LEVEL 04
1/32" = 1'-0"

CODE COMPLIANCE PLAN GENERAL NOTES

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- FEC — FIRE EXTINGUISHER & CABINET (SCREENED IF EXISTING)
- FE — FIRE EXTINGUISHER (SCREENED IF EXISTING)
- FEC — FIRE EXTINGUISHER & CABINET SURFACE MOUNTED (SCREENED IF EXISTING)
- 00" CLR / OCC — DOOR EXIT WIDTH
- 20 MIN — FIRE RATING OF DOOR IN MINUTES
- NOT IN CONTRACT
- 999'-11" — LONGEST ROUTE TO AN EXIT
- 999'-11" — MAXIMUM OVERALL DIAGONAL DISTANCE
- 999'-11" — EXIT SEPARATION
- 999'-11" — COMMON PATH OF EGRESS TRAVEL / DEAD END

DOOR	STAIR	
72" CLR	48" CLR	CLEAR WIDTH - PROVIDED
0.2"/OCC	0.3"/OCC	OCCUPANCY FACTOR
360 OCC	160 OCC	OCCUPANCY CAPACITY - MAXIMUM
100 OCC	100 OCC	OCCUPANCY CAPACITY - PROVIDED

EGRESS COMPONENT

BUSINESS — B — 6240 SF — FUNCTION OF SPACE
B — OCCUPANCY GROUP
6240 SF — AREA
150 SF — 42 OCC — OCCUPANTS
OCCUPANT LOAD FACTOR

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PROJECT

PFDC HARBOR HILL

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PORTLAND, ME 04101

FORESIDE DEVELOPMENT

KEYPLAN

ISSUE CHART

MARK	ISSUE	DATE

Job Number 157111

TITLE

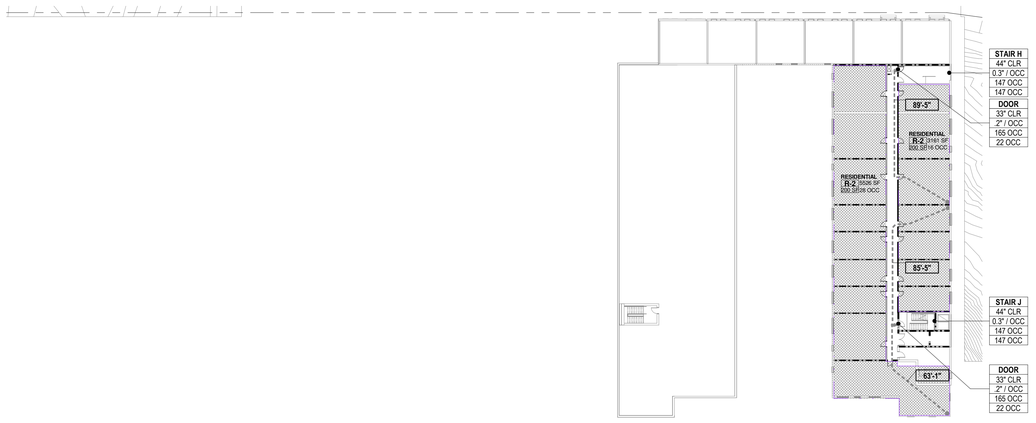
CODE COMPLIANCE PLANS

SHEET NUMBER

G01-02

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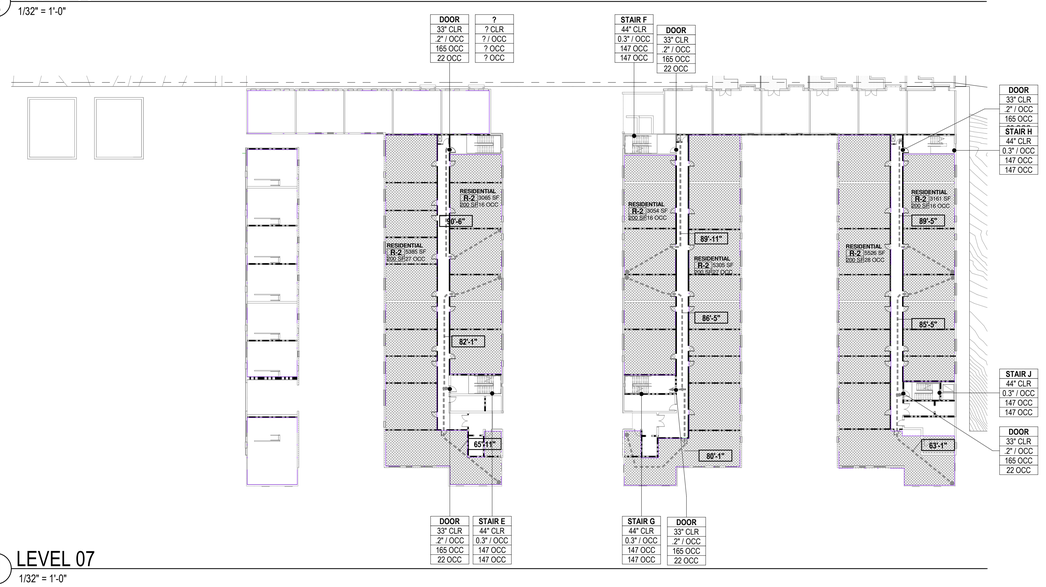
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3 LEVEL 09
1/32" = 1'-0"



2 LEVEL 08
1/32" = 1'-0"



1 LEVEL 07
1/32" = 1'-0"

CODE COMPLIANCE PLAN GENERAL NOTES

1. ALL WORK IS TO BE DONE IN ACCORDANCE WITH APPLICABLE CODES.
2. FINAL LOCATIONS OF ALL LIFE SAFETY DEVICES AND FIXTURES ARE SUBJECT TO APPROVAL BY THE AUTHORITY HAVING JURISDICTION.

CODE COMPLIANCE PLAN LEGEND

- NON-FIRE-RATED SMOKE PARTITION
- EXISTING NON-FIRE-RATED SMOKE PARTITION
- SMOKE BARRIER 1-HOUR FIRE RATING
- EXISTING SMOKE BARRIER. 1-HOUR FIRE RATING.
- 1-HOUR FIRE PARTITION
- 1.5-HOUR FIRE PARTITION
- 2-HOUR FIRE BARRIER REQUIRED TO HAVE SMOKE DAMPERS
- EXISTING 2-HOUR FIRE BARRIER REQUIRED TO HAVE SMOKE DAMPERS
- 3-HOUR FIRE WALL
- EXISTING 3-HOUR FIRE WALL

- EXIT SIGN
- FEC — FIRE EXTINGUISHER & CABINET (SCREENED IF EXISTING)
- FE — FIRE EXTINGUISHER (SCREENED IF EXISTING)
- FEC — FIRE EXTINGUISHER & CABINET SURFACE MOUNTED (SCREENED IF EXISTING)
- OCC. OCC. — DOOR EXIT WIDTH
- 20 MIN — FIRE RATING OF DOOR IN MINUTES
- NOT IN CONTRACT
- 999'-11" — LONGEST ROUTE TO AN EXIT
- 999'-11" — MAXIMUM OVERALL DIAGONAL DISTANCE
- 999'-11" — EXIT SEPARATION
- 999'-11" — COMMON PATH OF EGRESS TRAVEL / DEAD END

DOOR	STAIR	
72" CLR	48" CLR	EGRESS COMPONENT
0.2"/OCC	0.3"/OCC	CLEAR WIDTH - PROVIDED
360 OCC	160 OCC	OCCUPANCY FACTOR
100 OCC	100 OCC	OCCUPANCY CAPACITY - MAXIMUM
		OCCUPANCY CAPACITY - PROVIDED

BUSINESS — FUNCTION OF SPACE
B — OCCUPANCY GROUP
6240 SF — AREA
150 SF / 42 OCC — OCCUPANTS
OCCUPANT LOAD FACTOR

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PROJECT

FORESIDE DEVELOPMENT

PFDC HARBOR HILL

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KEYPLAN

TRUE NORTH

MARK	ISSUE	DATE

DESIGN DEVELOPMENT
SEPTEMBER 16, 2022

Job Number	157111
Drawn	Author
Checked	Checker
Approved	Approver

TITLE

CODE COMPLIANCE PLANS

SHEET NUMBER

G01-03

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2"
1"
1/2"
0

FACE BRICK TYPE DESCRIPTIONS

TYPE		DESCRIPTION	LOCATION
1a	MEDIUM IRONSPOT #46 (RED TONE)	ROMAN BRICK SIZE, RUNNING BOND. NO BRICK PROJECTIONS	FORE ST TOWNHOUSES, THAMES ST WRAPPER
1b		ROMAN BRICK SIZE, SINGLE SOLDIER COURSE, ALTERNATING 1" PROJECTIONS	THAMES ST STOREFRONT HEADER & PUNCHED...
1c		AMBASSADOR BRICK SIZE, SINGLE SOLDIER COURSE, ALTERNATING 1" PROJECTIONS	FORE ST TOWNHOUSE CORNICE
2a	MANGANESE IRONSPOT SMOOTH (GRAY TONE)	ROMAN BRICK SIZE, RUNNING BOND. NO BRICK PROJECTIONS	LEVEL 5 COURTYARD TERRACE BRICK BASE
2b		AMBASSADOR BRICK SIZE, SINGLE SOLDIER COURSE, NO PROJECTIONS	LEVEL 5 COURTYARD TERRACE BRICK HEAD

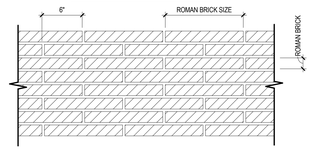
NOTES:
1. REFER TO OVERALL ELEVATIONS AND ENLARGED EXTERIOR ELEVATIONS FOR EXTENTS OF BRICK TYPES.
2. STANDARD MODULAR BRICK SIZE AT SOLDIER COURSE LOCATIONS, INDICATED ON ELEVATIONS.
3. BRICK SOLDIER COURSE HEADERS ABOVE WINDOWS AS INDICATED ON ELEVATIONS.
4. TYPICAL BRICK LOADING LOCATIONS INDICATED ON ENLARGED ELEVATIONS (RELIEF ANGLE AT EVERY OTHER LEVEL, DEAD LOADING AT STRUCTURAL SLABS).
5. SEE ILLUSTRATIVE BRICK COURSING DIAGRAM ON A20-01 FOR MORE INFORMATION.

Unit

SINGLE SOLDIER COURSE WITH 1" PROJECTION TYPE 1c

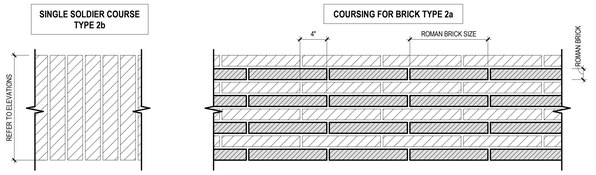
SINGLE SOLDIER COURSE WITH 1" PROJECTION TYPE 1b

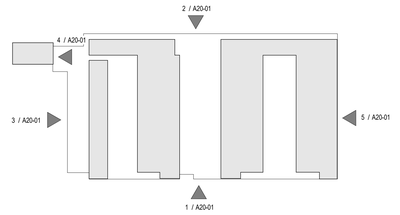
COURSING FOR BRICK TYPE 1a



SINGLE SOLDIER COURSE TYPE 2b

COURSING FOR BRICK TYPE 2a





FACE BRICK

FACE BRICK WITH 1" PROJECTION

REFER TO FACE BRICK TYPE DESCRIPTIONS FOR MORE INFORMATION



5 OVERALL ELEVATION - EAST
1/16" = 1'-0"



4 OVERALL ELEVATION - B2 EAST
1/16" = 1'-0"

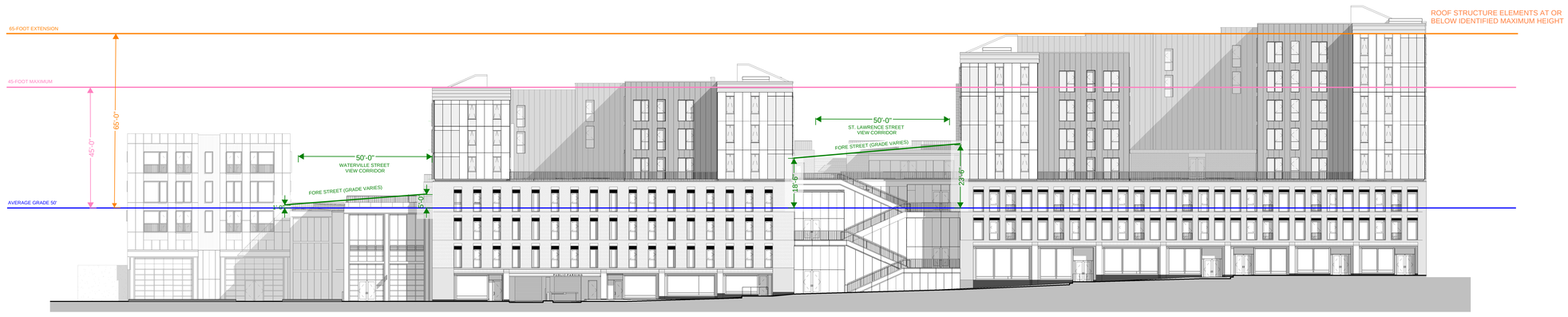
6 BRICK BONDING ELEVATIONS
1 1/2" = 1'-0"



3 OVERALL ELEVATION - WEST
1/16" = 1'-0"



2 OVERALL ELEVATION - NORTH
1/16" = 1'-0"



1 OVERALL ELEVATION - SOUTH
1/16" = 1'-0"

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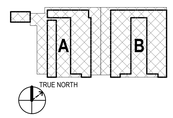
LANDSCAPE ARCHITECT
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Freeport, Maine
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PROJECT

FORESIDE DEVELOPMENT

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KEYPLAN



DESIGN DEVELOPMENT
FEBRUARY 24, 2023

ISSUE CHART

NO	ISSUE	DATE
Job Number		157111
Checked		Checker
Approved		Approver

TITLE

OVERALL ELEVATIONS

SHEET NUMBER

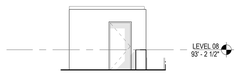
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TOWER 2 ELEVATOR OVERRUN- NORTH

12 1/8" = 1'-0"



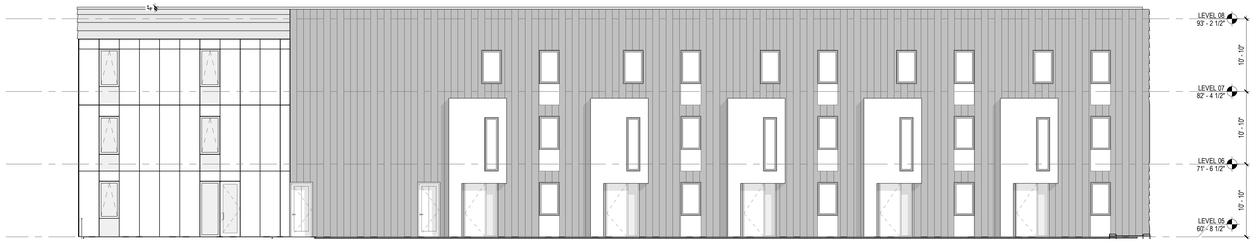
10 TOWER 1 ROOF STAIR- EAST

1/8" = 1'-0"



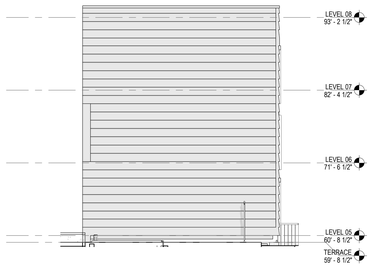
9 TOWER 1 ROOF STAIR- NORTH

1/8" = 1'-0"



6 TOWER 1- EAST

1/8" = 1'-0"



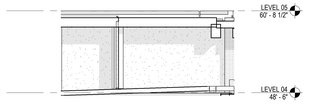
5 TOWER 1- NORTH

1/8" = 1'-0"



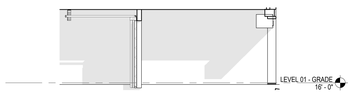
4 TOWER 1- WEST

1/8" = 1'-0"



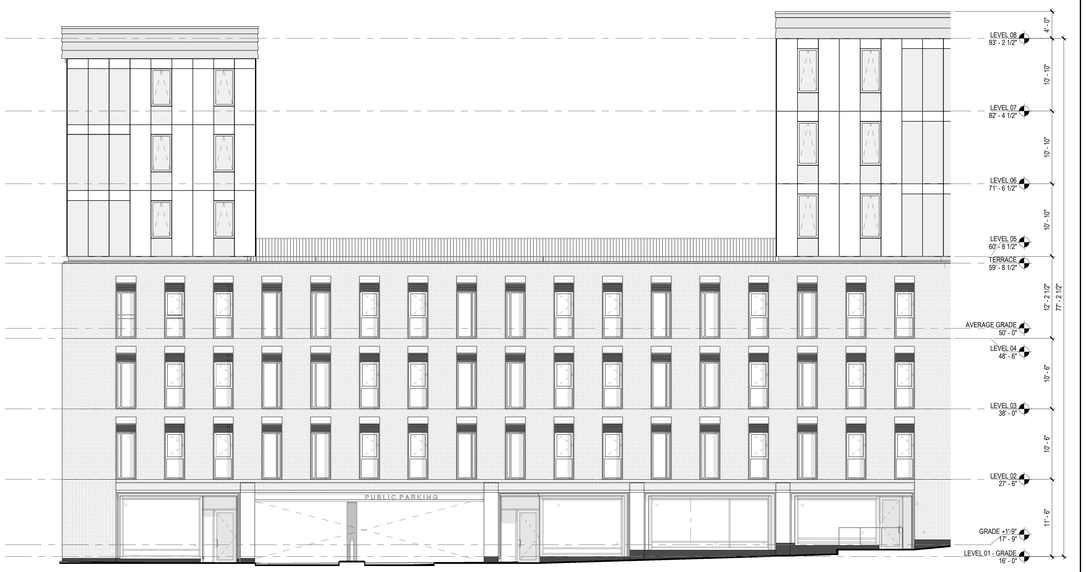
7 FORE ST. PARKING ENTRANCE- SOUTH

1/8" = 1'-0"



2 THAMES ST. PARKING ENTRANCE- EAST

1/8" = 1'-0"



1 PODIUM SOUTH - PART 1

1/8" = 1'-0"

EXTERIOR FACADE LEGEND

- EWA-XX — EXTERIOR WALL ASSEMBLY
- A — EXTERIOR WINDOW ASSEMBLY, REFER TO A33 SERIES FOR SCHEDULE
- EJ — BUILDING EXPANSION JOINT
- MJ — MASONRY EXPANSION JOINT: MATCH MORTAR COLOR
- BRICK
- FIBER CEMENT 1
- FIBER CEMENT 2
- METAL PANEL 1
- METAL PANEL 2
- GRANITE
- WOOD

EXTERIOR FACADE GENERAL NOTES

1. MATERIAL SYMBOLS ON ELEVATIONS ARE TO DISPLAY THE EXTENT OF THE MATERIAL ONLY. THEY ARE NOT TO SCALE.
2. REFER TO ENLARGED ELEVATIONS FOR DESCRIPTION OF FACE BRICK TYPES.

KEYNOTES

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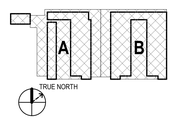
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t 207.865.1060

PROJECT

FORESIDE DEVELOPMENT

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KEYPLAN



DESIGN DEVELOPMENT
FEBRUARY 24, 2023

ISSUE CHART

NO	ISSUE	DATE
Job Number		157111
Checked		Checker
Approved		Approver

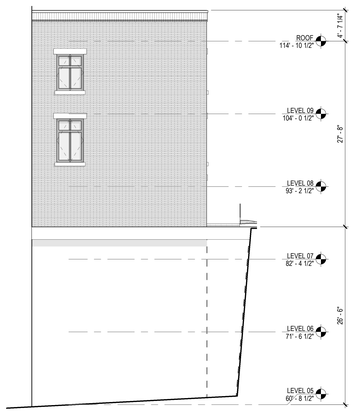
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PARTIAL ELEVATIONS- COURTYARD 1

SHEET NUMBER

A20-51

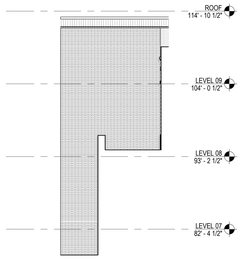
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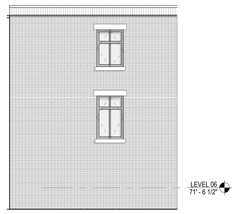
13 TOWNHOUSES- EAST PART 2
1/8" = 1'-0"



12 TOWNHOUSES- NORTH PART 2
1/8" = 1'-0"



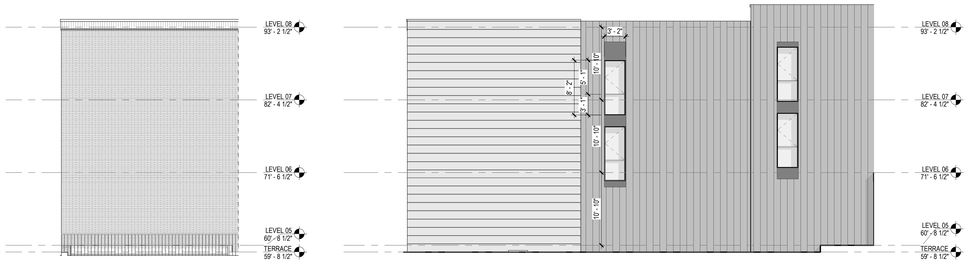
11 TOWNHOUSES- WEST PART 2
1/8" = 1'-0"





10 TOWNHOUSES- EAST PART 1
1/8" = 1'-0"

9 TOWNHOUSES- NORTH PART 1
1/8" = 1'-0"



7 COURTYARD 1- NORTH
1/8" = 1'-0"



6 TOWER 2- NORTH ENTRANCE
1/8" = 1'-0"

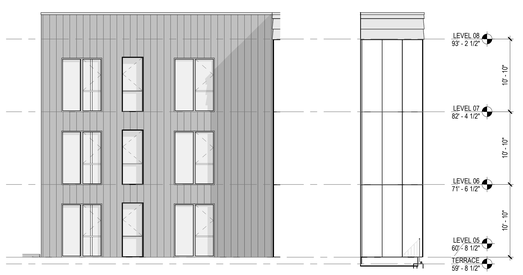
5 TOWER 2- EAST ENTRANCE
1/8" = 1'-0"

4 TOWER 2- SOUTH ENTRANCE
1/8" = 1'-0"

8 TOWNHOUSES- WEST PART 1
1/8" = 1'-0"



3 COURTYARD 1- EAST PART 1
1/8" = 1'-0"



2 COURTYARD 1- NORTH @ THAMES
1/8" = 1'-0"

1 COURTYARD 1- EAST PART 2
1/8" = 1'-0"

EXTERIOR FACADE LEGEND

- EWA-XX — EXTERIOR WALL ASSEMBLY
- A — EXTERIOR WINDOW ASSEMBLY, REFER TO A33 SERIES FOR SCHEDULE
- EJ — BUILDING EXPANSION JOINT
- MJ — MASONRY EXPANSION JOINT: MATCH MORTAR COLOR
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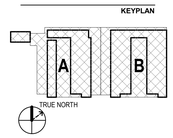
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KEYPLAN



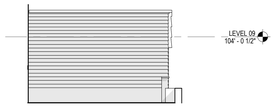
DESIGN DEVELOPMENT
FEBRUARY 24, 2023
ISSUE CHART

NO	ISSUE	DATE
Job Number		157111
Checked		Checker
Approved		Approver

TITLE
PARTIAL ELEVATIONS- COURTYARD 1 & FORE ST. TH.

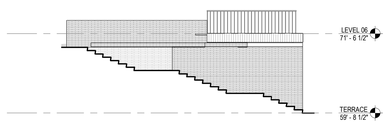
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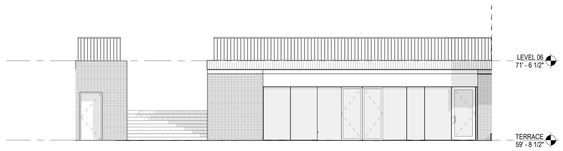


16 TOWER 3 - NORTH
1/8" = 1'-0"





15 COURTYARD 2 STAIR
1/8" = 1'-0"



13 COURTYARD 2 STAIR - NORTH
1/8" = 1'-0"

TOWER 3
10 RETAIL - NORTH 1
1/8" = 1'-0"

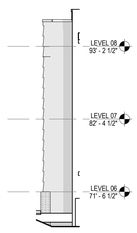
TOWER 3
9 RETAIL - WEST
1/8" = 1'-0"

TOWER 3
8 RETAIL- SOUTH
1/8" = 1'-0"

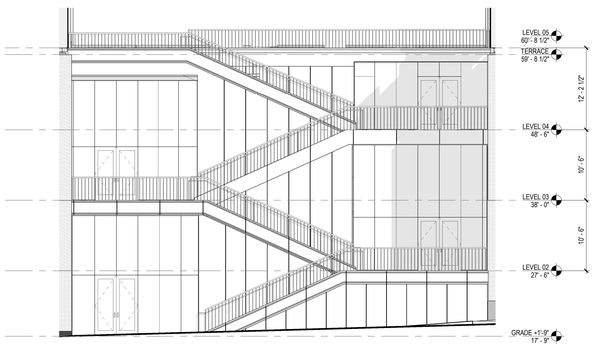
7 COURTYARD 2 - EAST
1/8" = 1'-0"



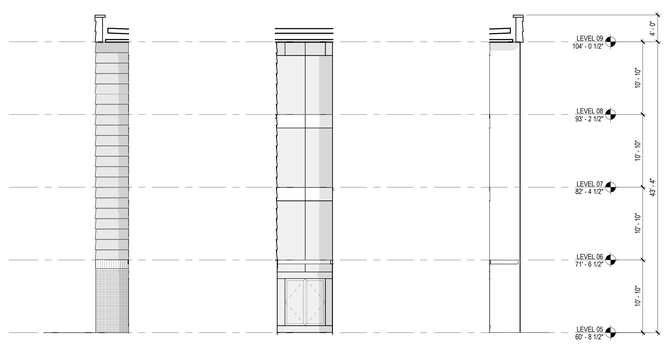
6 COURTYARD 2 - WEST
1/8" = 1'-0"



5 TOWER 2- NORTH
1/8" = 1'-0"



4 COURTYARD 2- STAIR
1/8" = 1'-0"



TOWER 3- NORTH
3 ENTRANCE
1/8" = 1'-0"

TOWER 3- EAST
2 ENTRANCE
1/8" = 1'-0"

TOWER 3- SOUTH
1 ENTRANCE
1/8" = 1'-0"

EXTERIOR FACADE LEGEND

- EWA-XX — EXTERIOR WALL ASSEMBLY
- A — EXTERIOR WINDOW ASSEMBLY; REFER TO A33 SERIES FOR SCHEDULE
- EJ — BUILDING EXPANSION JOINT
- MJ — MASONRY EXPANSION JOINT: MATCH MORTAR COLOR
- BRICK
- FIBER CEMENT 1
- FIBER CEMENT 2
- METAL PANEL 1
- METAL PANEL 2
- GRANITE
- WOOD

EXTERIOR FACADE GENERAL NOTES

1. MATERIAL SYMBOLS ON ELEVATIONS ARE TO DISPLAY THE EXTENT OF THE MATERIAL ONLY. THEY ARE NOT TO SCALE.
2. REFER TO ENLARGED ELEVATIONS FOR DESCRIPTION OF FACE BRICK TYPES.

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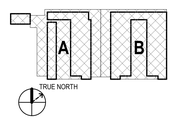
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Michael Boucher Landscape Architecture
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Freeport, Maine
t 207.865.1060

PROJECT

FORESIDE DEVELOPMENT

PFDC HARBOR HILL
254 COMMERCIAL ST
SUITE 118
PORTLAND, ME 04101

KEYPLAN



DESIGN DEVELOPMENT
FEBRUARY 24, 2023
ISSUE CHART

NO	ISSUE	DATE
Job Number		157111
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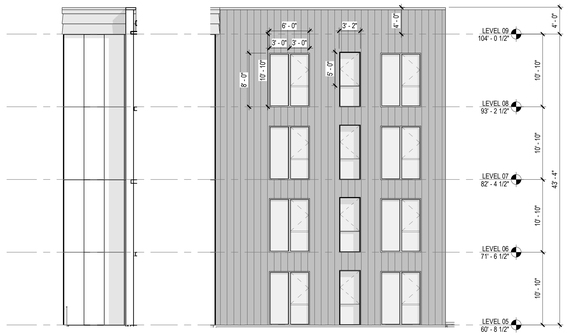
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PARTIAL ELEVATIONS - COURTYARD 2

SHEET NUMBER

A20-53

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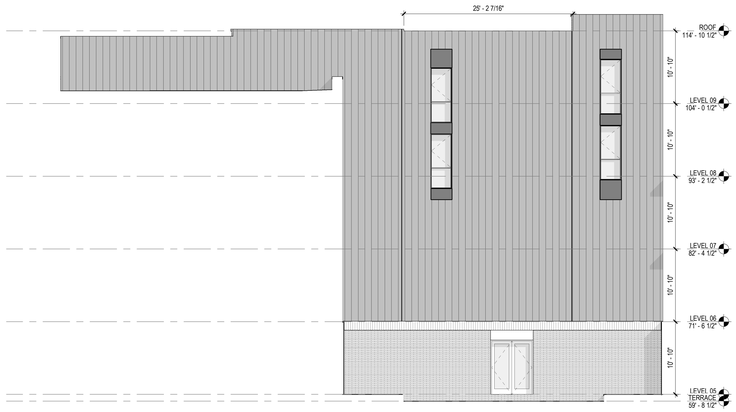


COURTYARD 3 ELEVATION
10 - WEST PART 2
1/8" = 1'-0"



9 COURTYARD 3- NORTH @ THAMES 2
1/8" = 1'-0"

8 COURTYARD 3- WEST PART 1
1/8" = 1'-0"



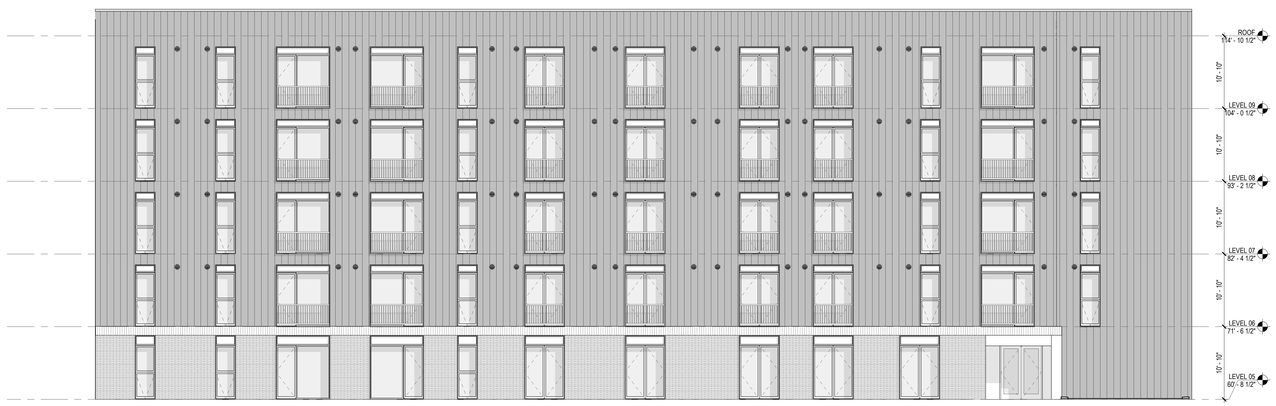
7 COURTYARD 3- NORTH
1/8" = 1'-0"



6 TOWER 4 ENTRANCE - NORTH
1/8" = 1'-0"

5 TOWER 4 ENTRANCE - EAST
1/8" = 1'-0"

4 TOWER 4 ENTRANCE - SOUTH
1/8" = 1'-0"



3 COURTYARD 3 - EAST PART 2
1/8" = 1'-0"



2 COURTYARD 3- NORTH @ THAMES 1
1/8" = 1'-0"

1 COURTYARD 3 - EAST PART 1
1/8" = 1'-0"

EXTERIOR FACADE LEGEND

- EWA-XX — EXTERIOR WALL ASSEMBLY
- A — EXTERIOR WINDOW ASSEMBLY, REFER TO A33 SERIES FOR SCHEDULE
- EJ — BUILDING EXPANSION JOINT
- MJ — MASONRY EXPANSION JOINT: MATCH MORTAR COLOR
- BRICK
- FIBER CEMENT 1
- FIBER CEMENT 2
- METAL PANEL 1
- METAL PANEL 2
- GRANITE
- WOOD

EXTERIOR FACADE GENERAL NOTES

1. MATERIAL SYMBOLS ON ELEVATIONS ARE TO DISPLAY THE EXTENT OF THE MATERIAL ONLY. THEY ARE NOT TO SCALE.
2. REFER TO ENLARGED ELEVATIONS FOR DESCRIPTION OF FACE BRICK TYPES.

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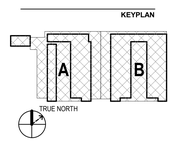
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t 207.865.1060

PROJECT

FORESIDE DEVELOPMENT

PFDC HARBOR HILL
254 COMMERCIAL ST
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KEYPLAN



DESIGN DEVELOPMENT
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PARTIAL ELEVATIONS - COURTYARD 3

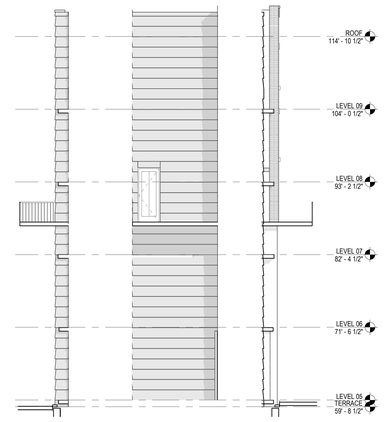
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A20-54

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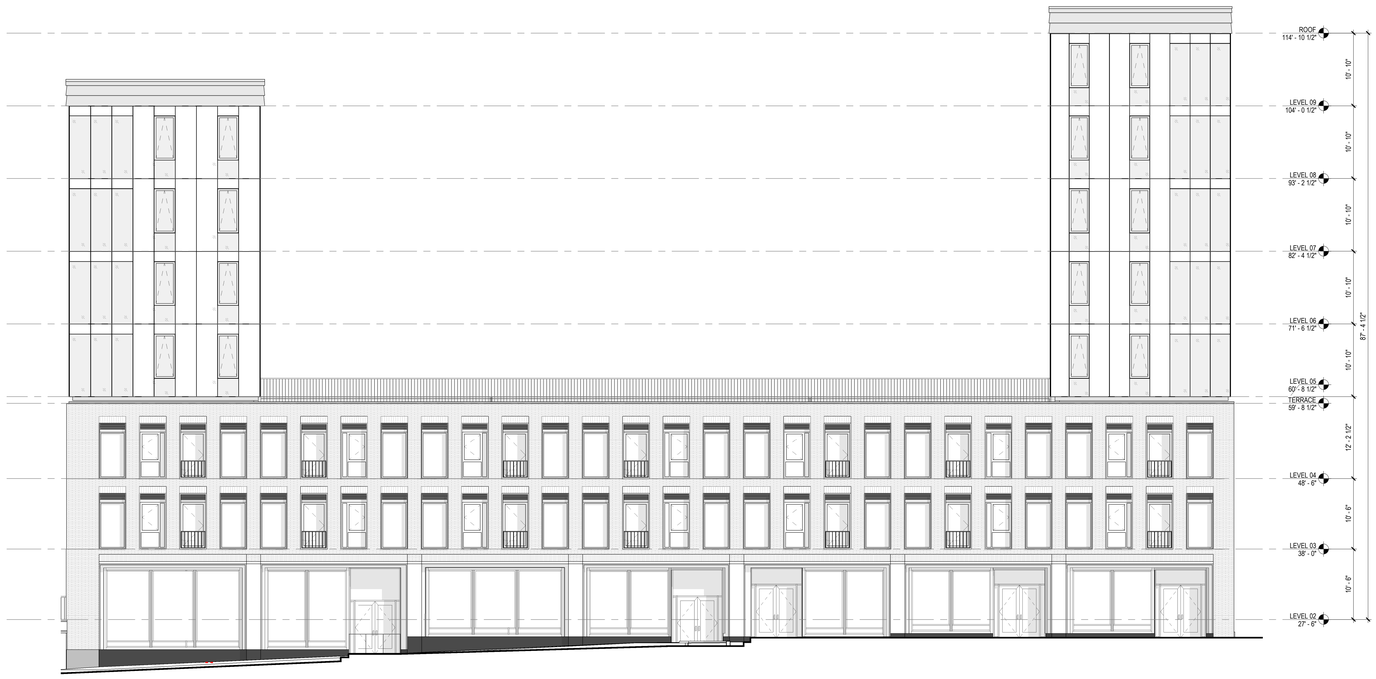
5 TOWER 4 - EAST PART 2
1/8" = 1'-0"



4 TOWER 4 EXIT 2
1/8" = 1'-0"

TOWER 4-
3 EAST PART 1
1/8" = 1'-0"

2 TOWER 4- EXIT 1
1/8" = 1'-0"



1 PODIUM SOUTH- PART 2
1/8" = 1'-0"

EXTERIOR FACADE LEGEND

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- BRICK
- FIBER CEMENT 1
- FIBER CEMENT 2
- METAL PANEL 1
- METAL PANEL 2
- GRANITE
- WOOD

EXTERIOR FACADE GENERAL NOTES

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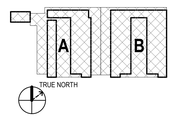
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PROJECT

FORESIDE DEVELOPMENT

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SUITE 118
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KEYPLAN



DESIGN DEVELOPMENT
FEBRUARY 24, 2023

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PARTIAL ELEVATIONS SOUTH AND EAST

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A20-55

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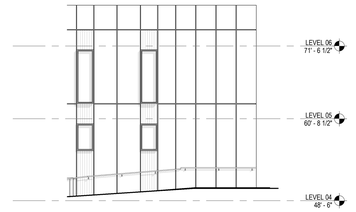
EXTERIOR FACADE LEGEND

- EWA-XX — EXTERIOR WALL ASSEMBLY
- A — EXTERIOR WINDOW ASSEMBLY; REFER TO A33 SERIES FOR SCHEDULE
- EJ — BUILDING EXPANSION JOINT
- MJ — MASONRY EXPANSION JOINT: MATCH MORTAR COLOR
- BRICK
- FIBER CEMENT 1
- FIBER CEMENT 2
- METAL PANEL 1
- METAL PANEL 2
- GRANITE
- WOOD

EXTERIOR FACADE GENERAL NOTES

1. MATERIAL SYMBOLS ON ELEVATIONS ARE TO DISPLAY THE EXTENT OF THE MATERIAL ONLY. THEY ARE NOT TO SCALE.
2. REFER TO ENLARGED ELEVATIONS FOR DESCRIPTION OF FACE BRICK TYPES.

KEYNOTES



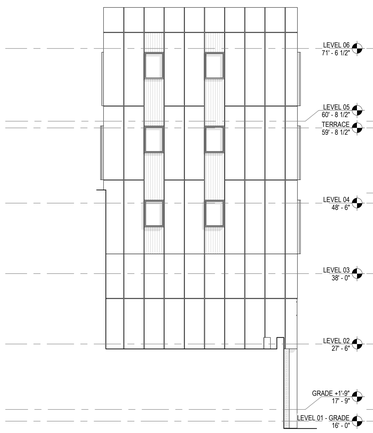
9 B2 TOWNHOUSES- EAST
1/8" = 1'-0"



8 B2 TOWNHOUSES- NORTH
1/8" = 1'-0"



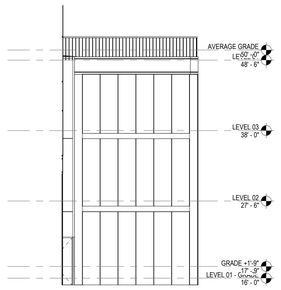
7 B2 TOWNHOUSES- OVERLOOK
1/8" = 1'-0"



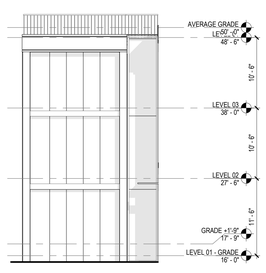
6 B2 TOWNHOUSES- WEST
1/8" = 1'-0"



5 B2 TOWNHOUSES- SOUTH
1/8" = 1'-0"



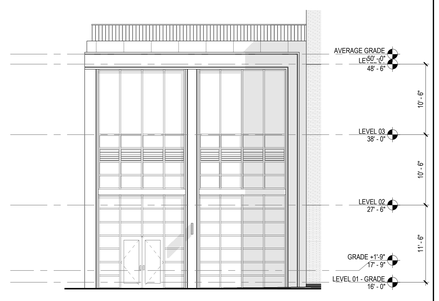
4 PODIUM- WEST PART 2
1/8" = 1'-0"



3 PODIUM- SOUTH PART 4
1/8" = 1'-0"



2 PODIUM- WEST PART 1
1/8" = 1'-0"



1 PODIUM- SOUTH PART 3
1/8" = 1'-0"

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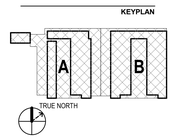
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PROJECT

FORESIDE DEVELOPMENT

PFDC HARBOR HILL
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SUITE 118
PORTLAND, ME 04101

KEYPLAN



DESIGN DEVELOPMENT
FEBRUARY 24, 2023
ISSUE CHART

NO	ISSUE	DATE
Job Number		157111
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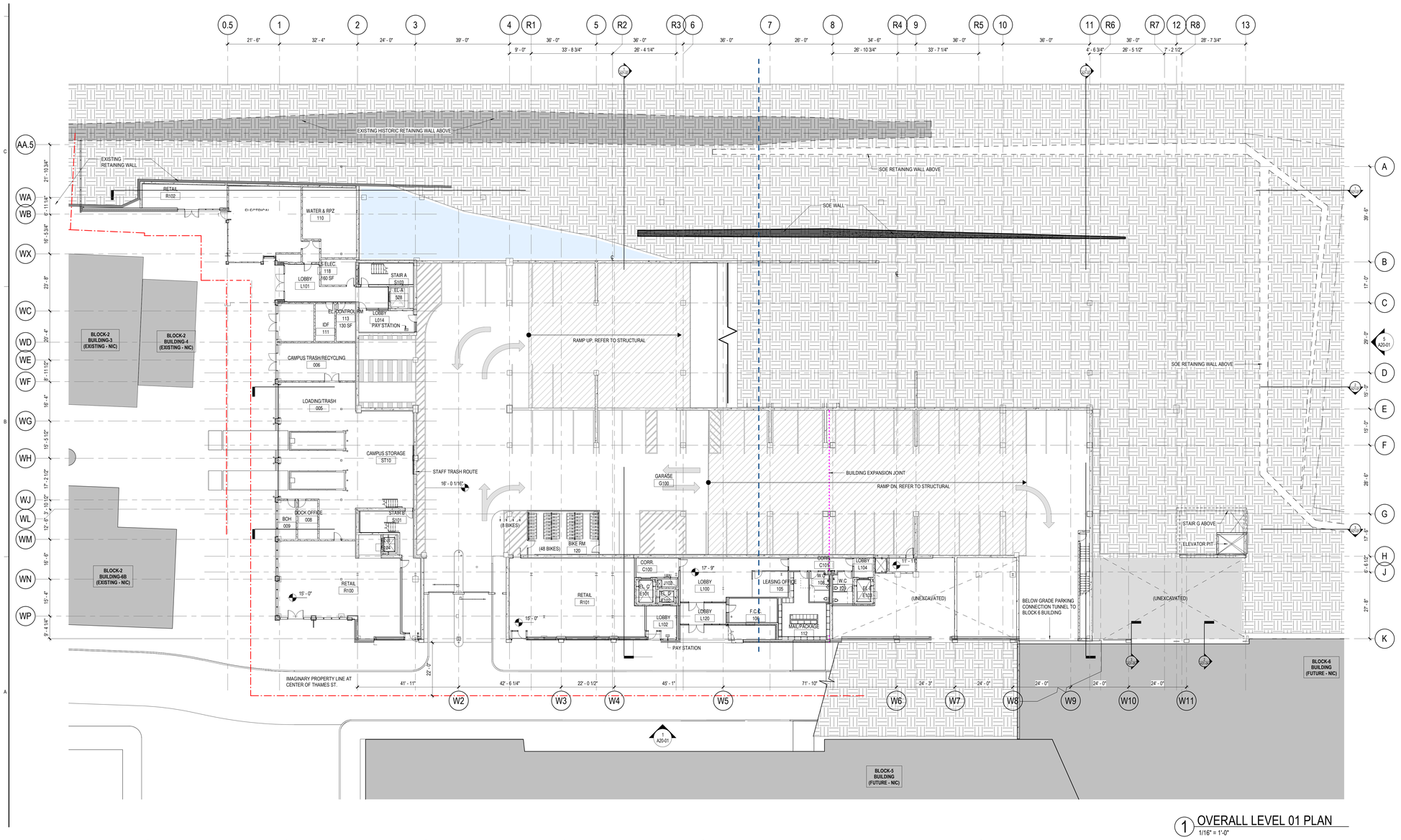
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PARTIAL ELEVATIONS- B2 AND WEST WRAPPER

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A20-56

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1 OVERALL LEVEL 01 PLAN
1/16" = 1'-0"

FLOOR PLAN LEGEND

- NON-FIRE-RATED SMOKE PARTITION
- 30 MIN FIRE/SMOKE PARTITION
- 1-HOUR FIRE PARTITION
- 1-HOUR FIRE BARRIER
- 2-HOUR FIRE BARRIER REQUIRED TO HAVE SMOKE DAMPERS
- SOIL
- SLOPED PARKING SPEED RAMP
- CREVASSE SPACES (OPEN TO AIR, ADJACENT OR BELOW BUILDING SPACE - APPROXIMATE FOR DIAGRAMMATIC CLARITY)
- EXISTING HISTORIC SEAWALL
- SUPPORT OF EXCAVATION (SOE)
- 1t — DOOR TAG
- A11 — WALL TYPE TAG
- INTERCOM LOCATION
- CARD READER LOCATION
- TV — TV OUTLET LOCATION
- WALL DUPLEX OUTLET LOCATION
- GFI — WALL DUPLEX OUTLET LOCATION, GFI
- S — LIGHT SWITCH LOCATION
- FIRE EXTINGUISHER/ CABINET

FLOOR PLAN GENERAL NOTES

1. REFER TO CODE COMPLIANCE DRAWINGS G00-SERIES FOR FIRE RATING REQUIREMENTS
2. PARTITION TYPES ARE SCHEDULED IN THE A61 SERIES
3. TYPICAL RESIDENTIAL UNIT DEMISING PARTITIONS ARE TYPE " W10 " UNLESS NOTED OTHERWISE
4. TYPICAL RESIDENTIAL UNIT CORRIDOR PARTITIONS ARE TYPE " Q20 " UNLESS NOTED OTHERWISE
5. ALL CMU EXCEPT BOH SPACES TO RECEIVE M21 WALL TYPE DRYWALL
6. TYPICAL INTERIOR PARTITIONS ARE TYPE " A41 " UNLESS NOTED OTHERWISE
7. PARTITION DIMENSIONS ARE TO FACE OF GYPSUM BOARD UNLESS NOTED OTHERWISE.

KEYNOTES

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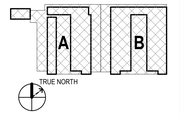
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KEYPLAN



DESIGN DEVELOPMENT
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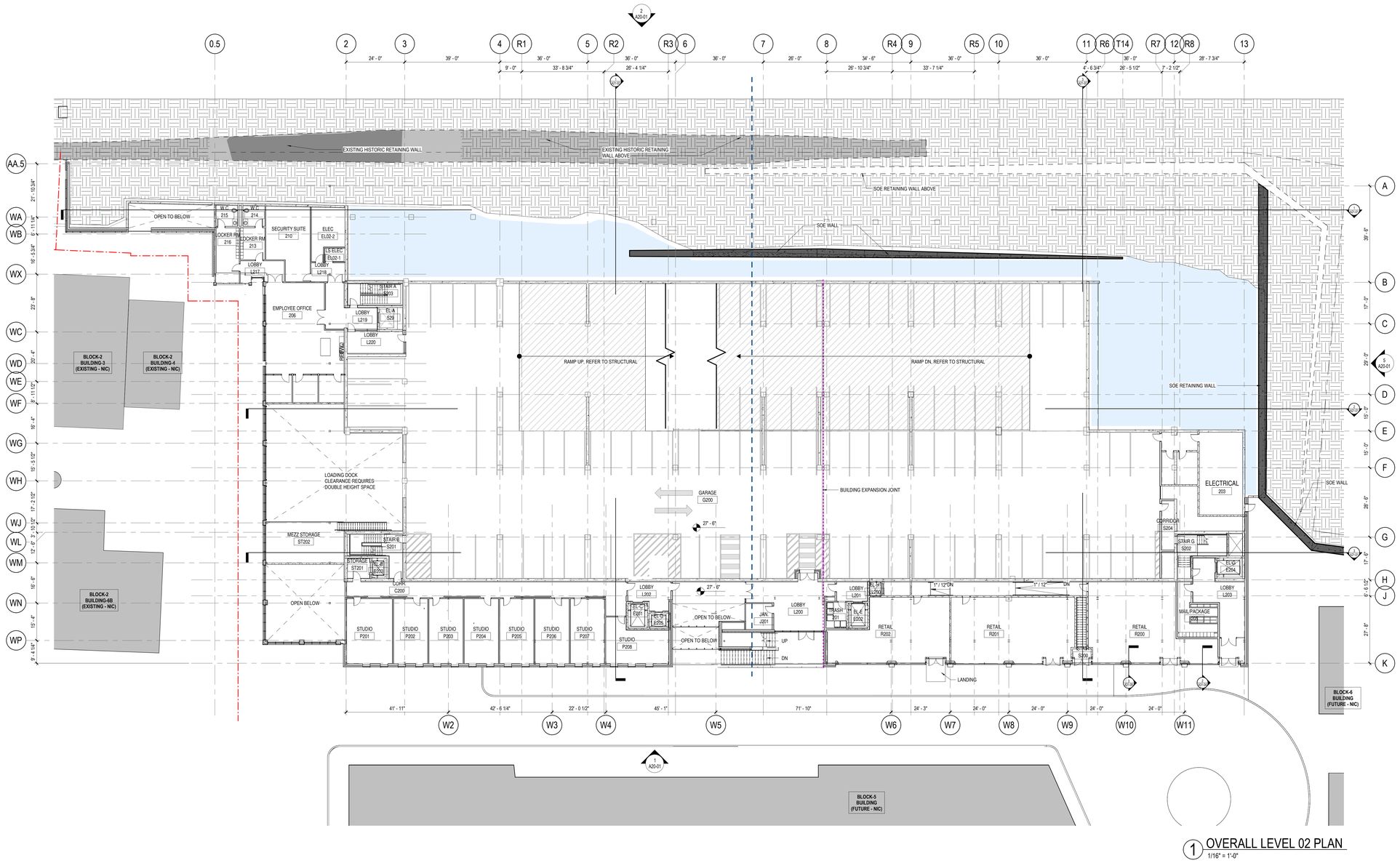
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OVERALL PLAN - LEVEL 01

SHEET NUMBER

A10-01

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1 OVERALL LEVEL 02 PLAN
1/16" = 1'-0"

FLOOR PLAN LEGEND

- NON-FIRE-RATED SMOKE PARTITION
- 30 MIN FIRE/SMOKE PARTITION
- 1-HOUR FIRE PARTITION
- 1-HOUR FIRE BARRIER
- 2-HOUR FIRE BARRIER REQUIRED TO HAVE SMOKE DAMPERS
- SOIL
- SLOPED PARKING SPEED RAMP
- CREVASSE SPACES (OPEN TO AIR, ADJACENT OR BELOW BUILDING SPACE - APPROXIMATE FOR DIAGRAMMATIC CLARITY)
- EXISTING HISTORIC SEAWALL
- SUPPORT OF EXCAVATION (SOE)
- 1t — DOOR TAG
- A11 — WALL TYPE TAG
- INTERCOM LOCATION
- CARD READER LOCATION
- TV — TV OUTLET LOCATION
- WALL DUPLEX OUTLET LOCATION
- GFI — WALL DUPLEX OUTLET LOCATION, GFI
- S — LIGHT SWITCH LOCATION
- FIRE EXTINGUISHER/ CABINET

FLOOR PLAN GENERAL NOTES

1. REFER TO CODE COMPLIANCE DRAWINGS G00-SERIES FOR FIRE RATING REQUIREMENTS
2. PARTITION TYPES ARE SCHEDULED IN THE A61 SERIES
3. TYPICAL RESIDENTIAL UNIT DEMISING PARTITIONS ARE TYPE " W10 " UNLESS NOTED OTHERWISE
4. TYPICAL RESIDENTIAL UNIT CORRIDOR PARTITIONS ARE TYPE " Q20 " UNLESS NOTED OTHERWISE
5. ALL CMU EXCEPT BOH SPACES TO RECEIVE M21 WALL TYPE DRYWALL
6. TYPICAL INTERIOR PARTITIONS ARE TYPE " A41 " UNLESS NOTED OTHERWISE
7. PARTITION DIMENSIONS ARE TO FACE OF GYPSUM BOARD UNLESS NOTED OTHERWISE.

KEYNOTES

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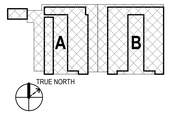
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PROJECT

FORESIDE DEVELOPMENT

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DESIGN DEVELOPMENT
FEBRUARY 24, 2023

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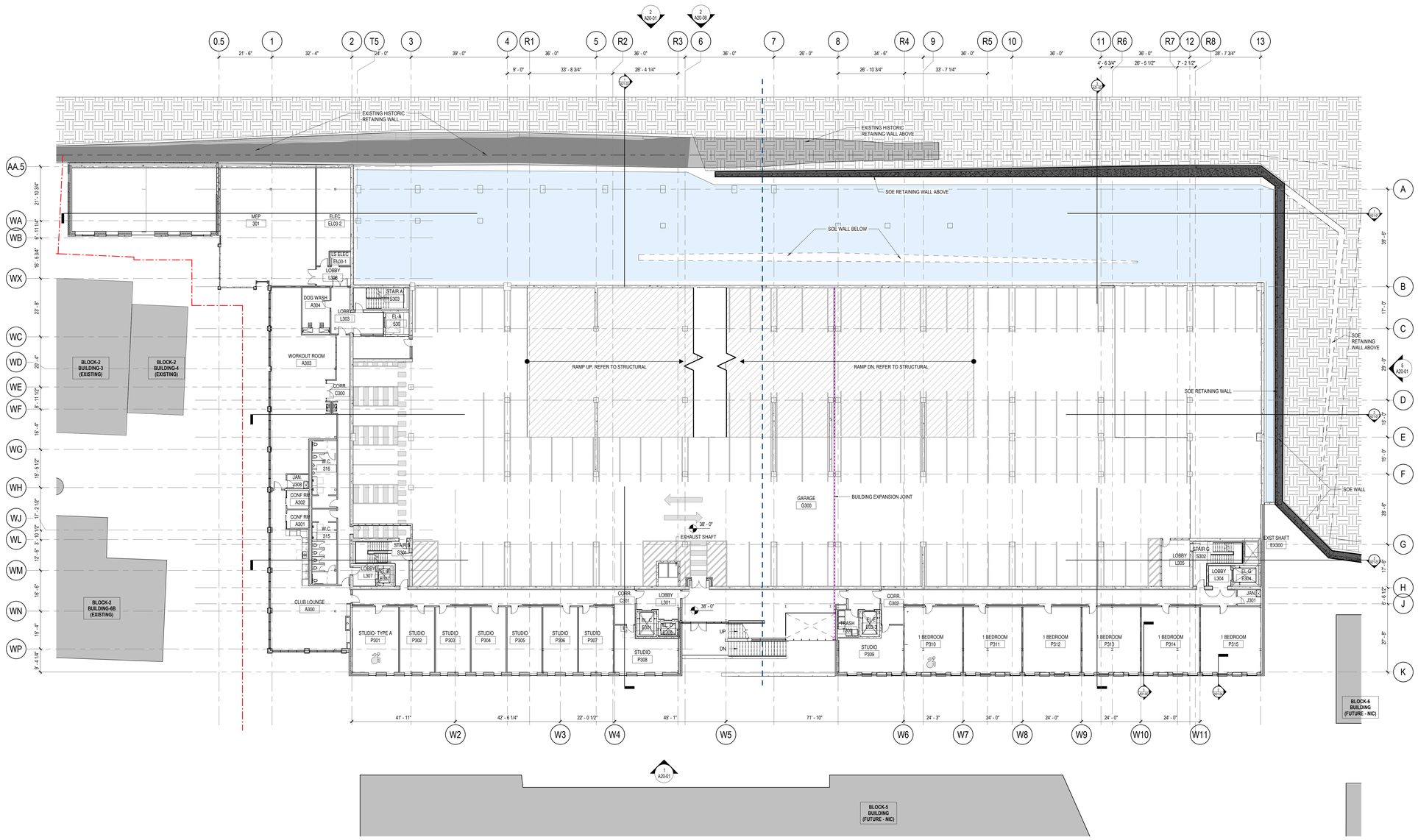
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OVERALL PLAN - LEVEL 02

SHEET NUMBER

A10-02

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1 OVERALL LEVEL 03 PLAN
1/16" = 1'-0"

FLOOR PLAN LEGEND

- NON-FIRE-RATED SMOKE PARTITION
- 30 MIN FIRE/SMOKE PARTITION
- 1-HOUR FIRE PARTITION
- 1-HOUR FIRE BARRIER
- 2-HOUR FIRE BARRIER REQUIRED TO HAVE SMOKE DAMPERS
- SOIL
- SLOPED PARKING SPEED RAMP
- CREVASSE SPACES (OPEN TO AIR, ADJACENT OR BELOW BUILDING SPACE - APPROXIMATE FOR DIAGRAMMATIC CLARITY)
- EXISTING HISTORIC SEAWALL
- SUPPORT OF EXCAVATION (SOE)
- 1t — DOOR TAG
- A11 — WALL TYPE TAG
- INTERCOM LOCATION
- CARD READER LOCATION
- TV — TV OUTLET LOCATION
- WALL DUPLEX OUTLET LOCATION
- GFI — WALL DUPLEX OUTLET LOCATION, GFI
- S — LIGHT SWITCH LOCATION
- FIRE EXTINGUISHER/ CABINET

FLOOR PLAN GENERAL NOTES

1. REFER TO CODE COMPLIANCE DRAWINGS G00-SERIES FOR FIRE RATING REQUIREMENTS
2. PARTITION TYPES ARE SCHEDULED IN THE A61 SERIES
3. TYPICAL RESIDENTIAL UNIT DEMISING PARTITIONS ARE TYPE " W10 " UNLESS NOTED OTHERWISE
4. TYPICAL RESIDENTIAL UNIT CORRIDOR PARTITIONS ARE TYPE " Q20 " UNLESS NOTED OTHERWISE
5. ALL CMU EXCEPT BOH SPACES TO RECEIVE M21 WALL TYPE DRYWALL
6. TYPICAL INTERIOR PARTITIONS ARE TYPE " A41 " UNLESS NOTED OTHERWISE
7. PARTITION DIMENSIONS ARE TO FACE OF GYPSUM BOARD UNLESS NOTED OTHERWISE.

KEYNOTES

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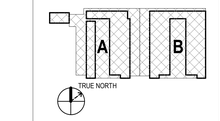
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PROJECT

FORESIDE DEVELOPMENT

PFDC HARBOR HILL
254 COMMERCIAL ST
SUITE 118
PORTLAND, ME 04101

KEYPLAN



DESIGN DEVELOPMENT
FEBRUARY 24, 2023

ISSUE CHART

NO	ISSUE	DATE
Job Number		157111
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Approved		Approver

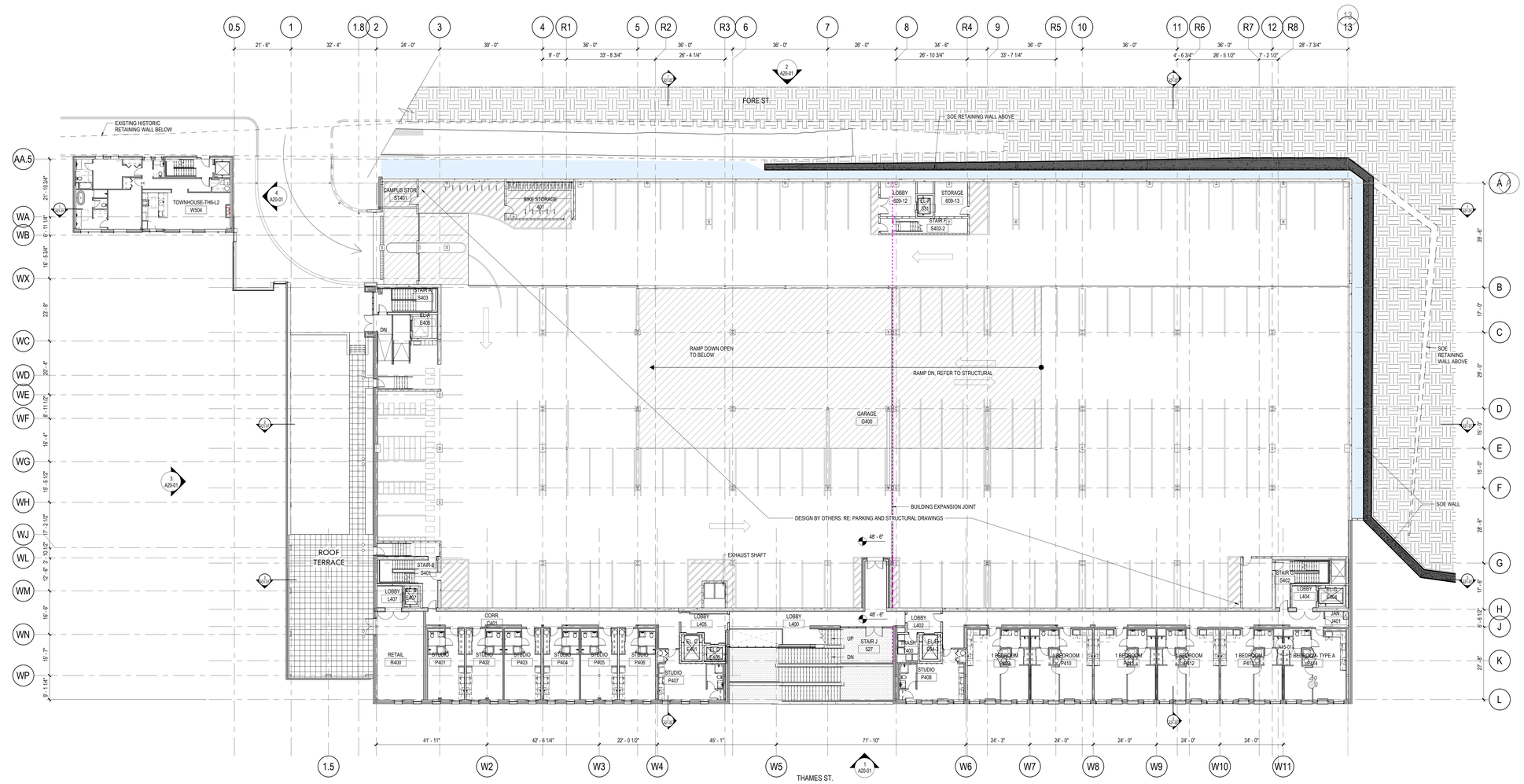
TITLE

OVERALL PLAN - LEVEL 03

SHEET NUMBER

A10-03

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1 OVERALL LEVEL 04 PLAN
1/16" = 1'-0"

FLOOR PLAN LEGEND

- NON-FIRE-RATED SMOKE PARTITION
- 30 MIN FIRE/SMOKE PARTITION
- 1-HOUR FIRE PARTITION
- 1-HOUR FIRE BARRIER
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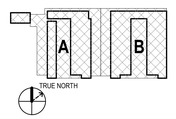
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PROJECT

FORESIDE DEVELOPMENT

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DESIGN DEVELOPMENT
FEBRUARY 24, 2023
ISSUE CHART

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Job Number		157111
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TITLE

OVERALL PLAN - LEVEL 04

SHEET NUMBER

A10-04

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1 OVERALL LEVEL 05 PLAN
1/16" = 1'-0"

FLOOR PLAN LEGEND

- NON-FIRE-RATED SMOKE PARTITION
- 30 MIN FIRE/SMOKE PARTITION
- 1-HOUR FIRE PARTITION
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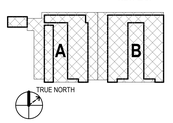
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PROJECT

FORESIDE DEVELOPMENT

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254 COMMERCIAL ST
SUITE 118
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KEYPLAN



DESIGN DEVELOPMENT
FEBRUARY 24, 2023

ISSUE CHART

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Job Number		157111
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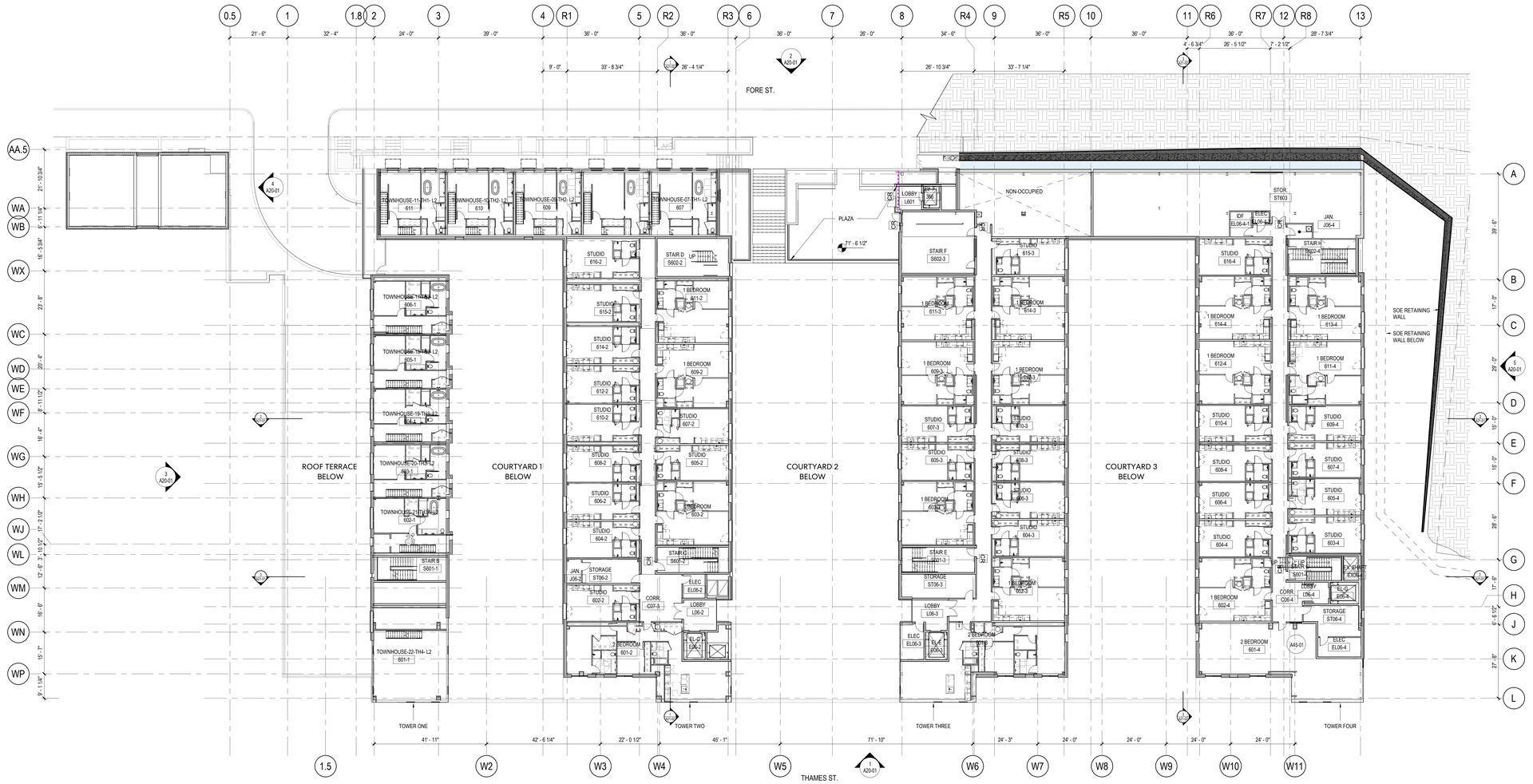
TITLE

OVERALL PLAN - LEVEL 05

SHEET NUMBER

A10-05

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1 OVERALL LEVEL 06 PLAN
1/16" = 1'-0"

FLOOR PLAN LEGEND

- NON-FIRE-RATED SMOKE PARTITION
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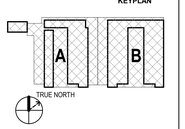
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PROJECT

FORESIDE DEVELOPMENT

PFDC HARBOR HILL
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SUITE 118
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KEYPLAN



DESIGN DEVELOPMENT
FEBRUARY 24, 2023

ISSUE CHART

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Job Number		157111
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Approved		Approver

TITLE

OVERALL PLAN - LEVEL 06

SHEET NUMBER

A10-06

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1 OVERALL LEVEL 07 PLAN
1/16" = 1'-0"

FLOOR PLAN LEGEND

- NON-FIRE-RATED SMOKE PARTITION
- 30 MIN FIRE/SMOKE PARTITION
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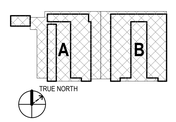
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PROJECT

FORESIDE DEVELOPMENT

PFDC HARBOR HILL
254 COMMERCIAL ST
SUITE 118
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KEYPLAN



DESIGN DEVELOPMENT
FEBRUARY 24, 2023

ISSUE CHART

NO	ISSUE	DATE
Job Number		157111
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Approved		Approver

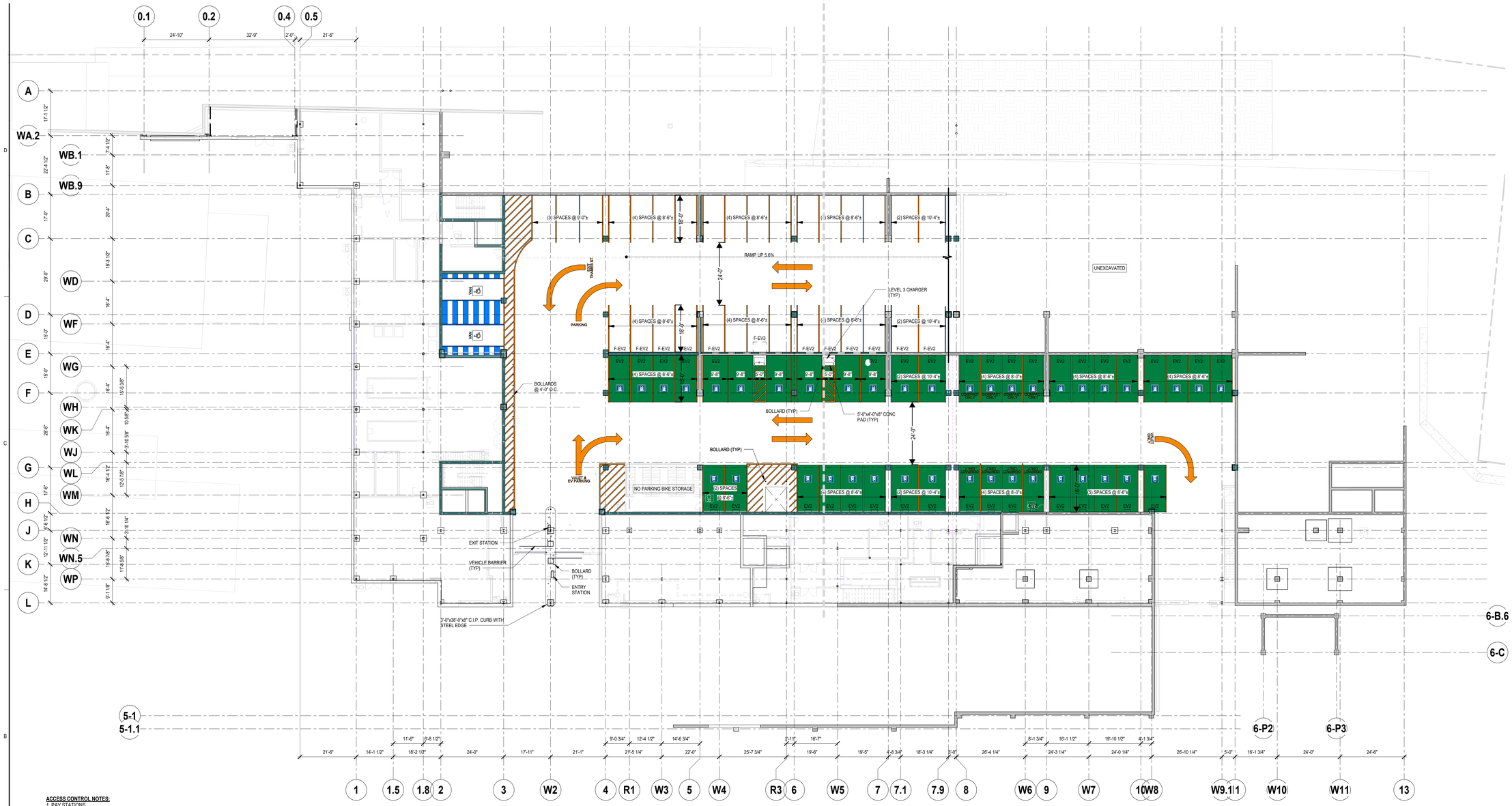
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OVERALL PLAN - LEVEL 07

SHEET NUMBER

A10-07

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ACCESS CONTROL NOTES:

1. PAY STATIONS
A. 6 REQUIRED, CREDIT CARD ONLY.
B. PROVIDE VOIP INTERCOM TO EACH UNIT.
C. ADA COMPLIANT.
D. CALCULATE AND DISPLAYS PARKING FEES.
E. PRINTS PATRON RECEIPTS ON DEMAND.
F. RETURNS VALIDATED TICKETS.

2. ENTRY STATIONS
A. 2 REQUIRED
B. INTEGRATED INTERCOM
C. HIGH SPEED TICKET ISSUANCE.
D. SUPPORT TICKET-LESS ENTRY.
E. HIGH RESOLUTION TOUCH SCREEN.
F. CONTROLS BARRIER GATE.

3. VEHICLE BARRIERS
A. 4 REQUIRED
B. ARTICULATED – MUST MAINTAIN 8'-2" CLEARANCE.
C. BREAKAWAY FLANGE.
D. REAL TIME MONITORING AND CONTROL.
E. REMOTE DIAGNOSTICS.
F. VEHICLE DETECTION LOOPS IN FRONT AND BEHIND GATE.
G. LPR AND/OR AVI ACTIVATED.

4. EXIT STATIONS
A. 2 REQUIRED
B. INTEGRATED INTERCOM.
C. IN-LANE TICKET PROCESSING AND PAY STATION.
D. CALCULATES AND DISPLAYS PARKING FEE.
E. PRINTS RECEIPTS ON DEMAND.
F. SUPPORT TICKET-LESS EXIT.
G. HIGH RESOLUTION TOUCH SCREEN.
H. CONTROLS BARRIER GATE.

5. LPR/AVI CAMERAS
A. 4 REQUIRED
B. ABLE TO OPERATE VEHICLE BARRIERS AND OVERHEAD COILING GATES DURING OFF HOURS.
C. CAMERAS TO INCLUDE AT A MINIMUM: CAMERA PROCESSOR, CABLE/CONNECTOR(S), CLIENT/SERVER ARCHITECTURE, BRACKET MOUNT ASSEMBLIES. CAMERAS SHALL BE VANDAL PROOF.
D. THE CAMERAS MUST BE CAPABLE OF PRODUCING MULTIPLE LICENSE PLATE IMAGES WITH VARYING FLASH, SHUTTER AND GAIN SETTINGS TO ENSURE A HIGH-QUALITY IMAGE REGARDLESS OF WEATHER OR LIGHTING CONDITIONS.

6. FACILITY MANAGEMENT SYSTEM OF SERVER, TASK OR SUBSYSTEM COMPUTERS AND WORKSTATIONS PROVIDING ON-LINE MONITORING AND CNOTROL OF ALL PARCS DEVICES VIA INDEPENDENT DEDICATED TCP/IP NETWORK.
A. PROVIDE CAPACITY FOR REMOTE MONITORING OF ALL EQUIPMENT.

7. ACCURACY: PROVIDE THE FOLLOWING MINIMUM ACCURACY LEVELS.
A. TICKET READING: 99.5%
B. FEE CALCULATION: 99.5%
C. TRANSACTION COUNTS: 99.5%

LEVEL 1 PARKING PLAN

1/16"=1'-0"

SIZE	QTY
HC	0
HC VAN	2
REGULAR	72
TOTAL	74

PARKING NOTES:

1. PROVIDE BOLLARS AT ALL LEVEL 3 EVI AND PARCS EQUIPMENT AND PEDESTRIAN AREAS. ASSUME 25 BOLLARDS PER LEVEL.
2. PAINTED LINES:
a. PAINT ACCESSIBLE SPACES WITH BLUE PAINT AND PROVIDE ADA SYMBOL 3'x3'.
b. PAINT EV STATIONS WITH GREEN PAINT AND EV SYMBOL 3'x3'.
c. PARKING STALLS 4" WIDE x18FT LONG
d. PROVIDE DIRECTIONAL ARROWS AND 12" TEXT AT EACH END OF BAY AND IN THE MIDDLE OF TRAVEL LANES.
e. DIAGONAL STRIPED AREAS SHALL BE 4" WIDE @ 12" O.C.
f. PROVIDE ALL TEXT IN SPACES AT 12" HIGH (NO PARKING, COMPACT SPACE. ETC.)
g. PROVIDE WHITE AND YELLOW PAINT FOR LINE WORK.

3. PROVIDE 1/2x6 BENT PLATE PROTECT FOR ALL DRAIN LINES, ELECTRICAL CONDUIT, STANDPIPES OR FIRE PROTECTION PIPE VERTICALLY PENETRATING THROUGH PARKING STALLS OR TRAVEL LANES.
4. MAINTAIN 7'-0" CLEAR AT ALL DRIVE LANES AND PARKING STALLS (TYP). PROVIDE 8'-2" CLEAR TO AND FROM VAN ACCESSIBLE SPACES AND THE DRIVE LANE TO BLOCK 6.
5. PROVIDE HEADACHE BARS AT EACH ENTRANCE AND AT THE START OF THE RAMP UP FROM LEVEL 1. 6" DIAMETER WITH CLEARANCES NOTED ON EACH BAR.

GARAGE PARKING COUNT

LEVEL	TYP SPACES	COMPACT SPACES	ACCESSIBLE SPACES	VAN ACCESSIBLE SPACES	LEVEL TOTAL	NOTES
LEVEL 1	64	8	0	2	74	45 SPACES REQUIRE WAIVER, SMALLS 8'-8"
LEVEL 2	93	16	2	0	111	65 SPACES REQUIRE WAIVER, SMALLS 8'-6"
LEVEL 3	110	16	5	0	131	86 SPACES REQUIRE WAIVER, SMALLS 8'-6"
LEVEL 4	106	16	5	0	127	81 SPACES REQUIRE WAIVER, SMALLS 8'-6"
TOTAL GARAGE SPACES	373	56	12	2	443	

REQUIRED ADA PARKING 2% FOR 500-1000 SPACES - 10 SPACES REQUIRED.
1/6 REQUIRED TO BE VAN ACCESSIBLE - 2 REQUIRED.

EV CHARGING STATIONS

	VOLTAGE (V)	CHARGING LOAD (KW)	CURRENT	FUTURE
LEVEL 2 1-PHASE AC	208 OR 240	2.5-19.2	51 EV2	55 F-EV2
LEVEL 3 1-PHASE DC	208 OR 240	75	4 EV3	2 F-EV3

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DESIGN DEVELOPMENT (PROGRESS) 2/24/23

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PROJECT

FORESIDE DEVELOPMENT

BLOCK FOUR

PROJECT ADDRESS ENTERED HERE

KEYPLAN

TRUE NORTH

MARK	ISSUE	DATE

DESIGN DEVELOPMENT
2/24/23

Job Number	TTP22728
Drawn	CHF/CGW
Checked	JBB/TMN
Approved	

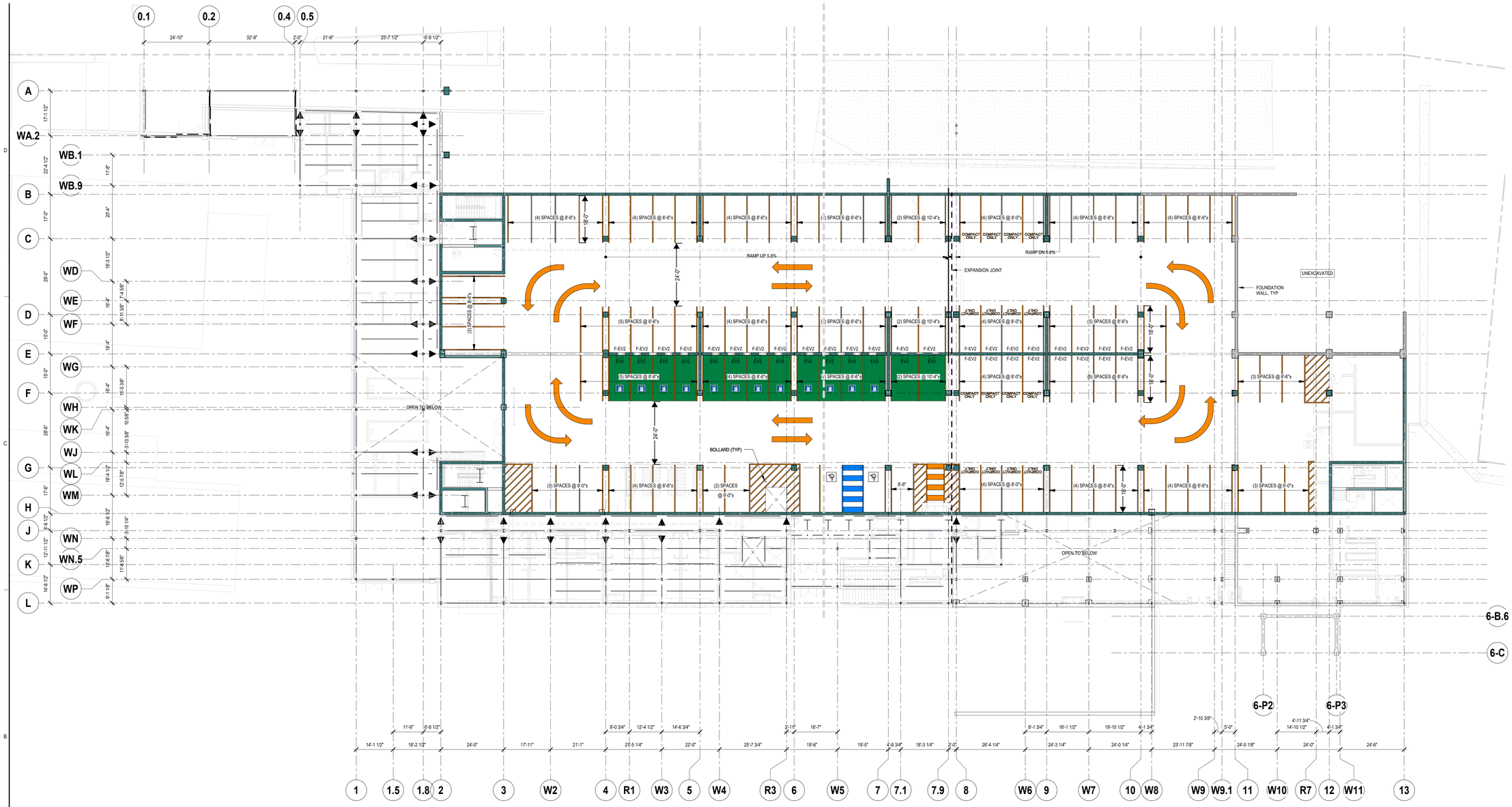
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LEVEL 1 PARKING PLAN

SHEET NUMBER

PK1.1

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LEVEL 2 PARKING PLAN

1/16"=1'-0"

SIZE	QTY
HC	2
HC VAN	0
REGULAR	109
TOTAL	111

NOT FOR CONSTRUCTION
DESIGN DEVELOPMENT (PROGRESS) 2/24/23

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MEP ENGINEER
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ME 04103
t +1 207.221.2260

OWNER'S CONSULTANT

LANDSCAPE ARCHITECT
Michael Boucher Landscape Architecture
457 US Route 1 Suite 2
Freeport, Maine
t 207.865.1080

PROJECT

FORESIDE DEVELOPMENT

BLOCK FOUR

PROJECT ADDRESS
ENTERED HERE

KEYPLAN

TRUE NORTH

MARK	ISSUE	DATE

DESIGN DEVELOPMENT
2/24/23

Job Number	TTP22728
Drawn	CHF/CGW
Checked	JBB/TMN
Approved	

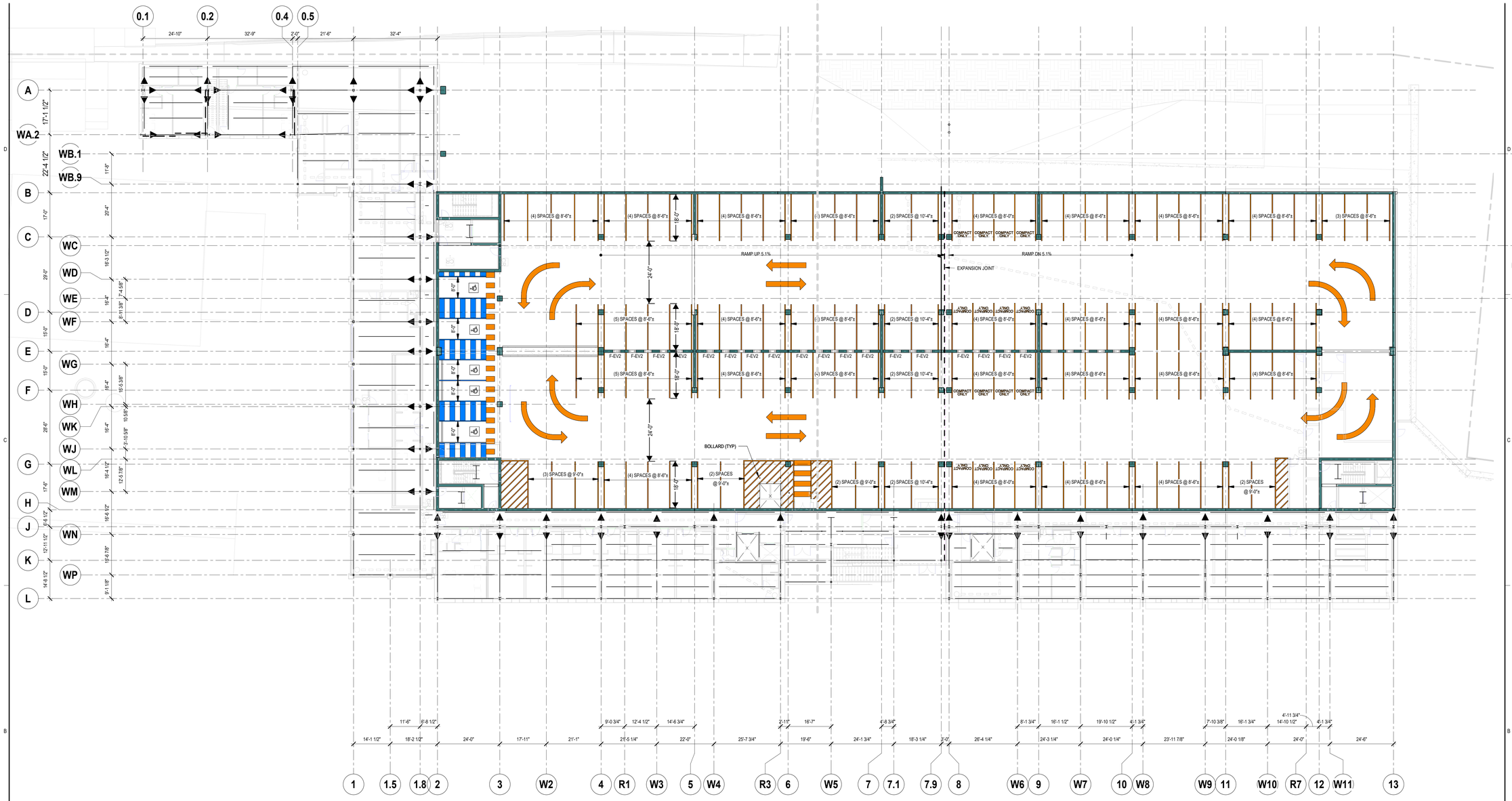
TITLE

LEVEL 2 PARKING PLAN

SHEET NUMBER

PK1.2

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LEVEL 3 PARKING PLAN

1/16"=1'-0"

SIZE	QTY
HC	5
HC VAN	0
REGULAR	126
TOTAL	131

NOT FOR CONSTRUCTION
DESIGN DEVELOPMENT (PROGRESS) 2/24/23

THESE DRAWINGS ARE NOT COMPLETE. DESIGN IS STILL IN PROGRESS. CONTRACTOR SHALL CARRY APPROPRIATE CONTINGENCY

Perkins&Will

225 Franklin Street, Suite 1100
Boston, MA 02110
t 617.478.0300
www.perkinswill.com

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PROJECT

FORESIDE DEVELOPMENT

BLOCK FOUR

PROJECT ADDRESS
ENTERED HERE

KEYPLAN

TRUE NORTH

MARK	ISSUE	DATE

DESIGN DEVELOPMENT
2/24/23

Job Number	TTP22728
Drawn	CHF/CGW
Checked	JBB/TMN
Approved	

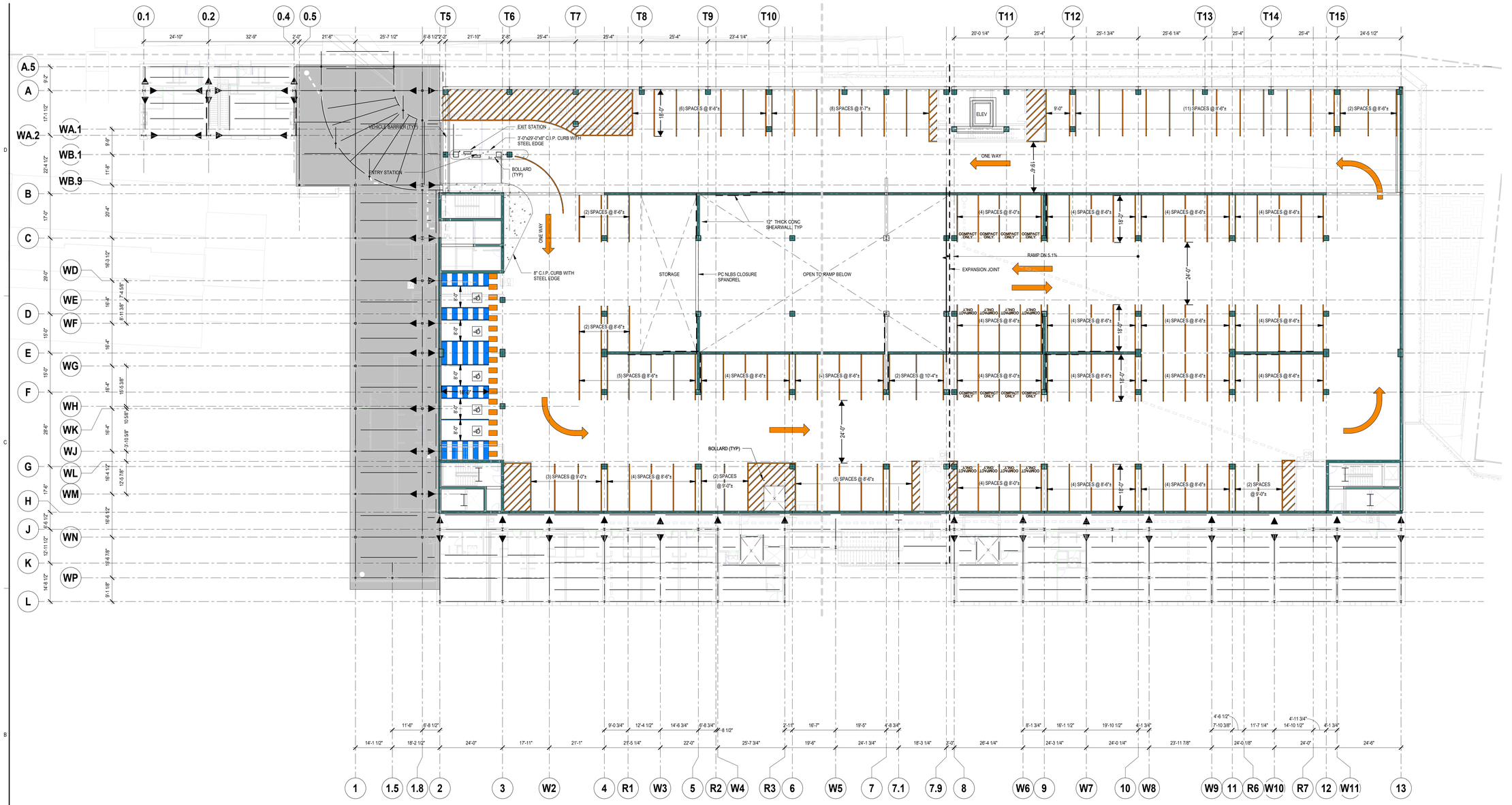
TITLE

LEVEL 3 PARKING PLAN

SHEET NUMBER

PK1.3

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LEVEL 4 PARKING PLAN

1/16"=1'-0"

SIZE	QTY
HC	5
HC VAN	0
REGULAR	122
TOTAL	127

NOT FOR CONSTRUCTION
DESIGN DEVELOPMENT (PROGRESS) 2/24/23

THESE DRAWINGS ARE NOT COMPLETE. DESIGN IS STILL IN PROGRESS. CONTRACTOR SHALL CARRY APPROPRIATE CONTINGENCY

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Freeport, Maine
t 207.865.1080

PROJECT

FORESIDE DEVELOPMENT

BLOCK FOUR

PROJECT ADDRESS
ENTERED HERE

KEYPLAN

TRUE NORTH

MARK	ISSUE	DATE

DESIGN DEVELOPMENT
2/24/23

Job Number	TTP22728
Drawn	CHF/CGW
Checked	JBB/TMN
Approved	

TITLE

LEVEL 4 PARKING PLAN

SHEET NUMBER

PK1.4

5/23/2023 11:24:01 AM Autodesk Docs://FFDC Block Four/TT-P22728-58 FORE BLOCK 4 PC PS-R22-CENTRAL.rvt


Warm Gray Brick
Black Metal


ARKING
PARKING
Shiplap Fiber Cement Panels
Metal Panel
Medium Ironspot Brick
Black Metal

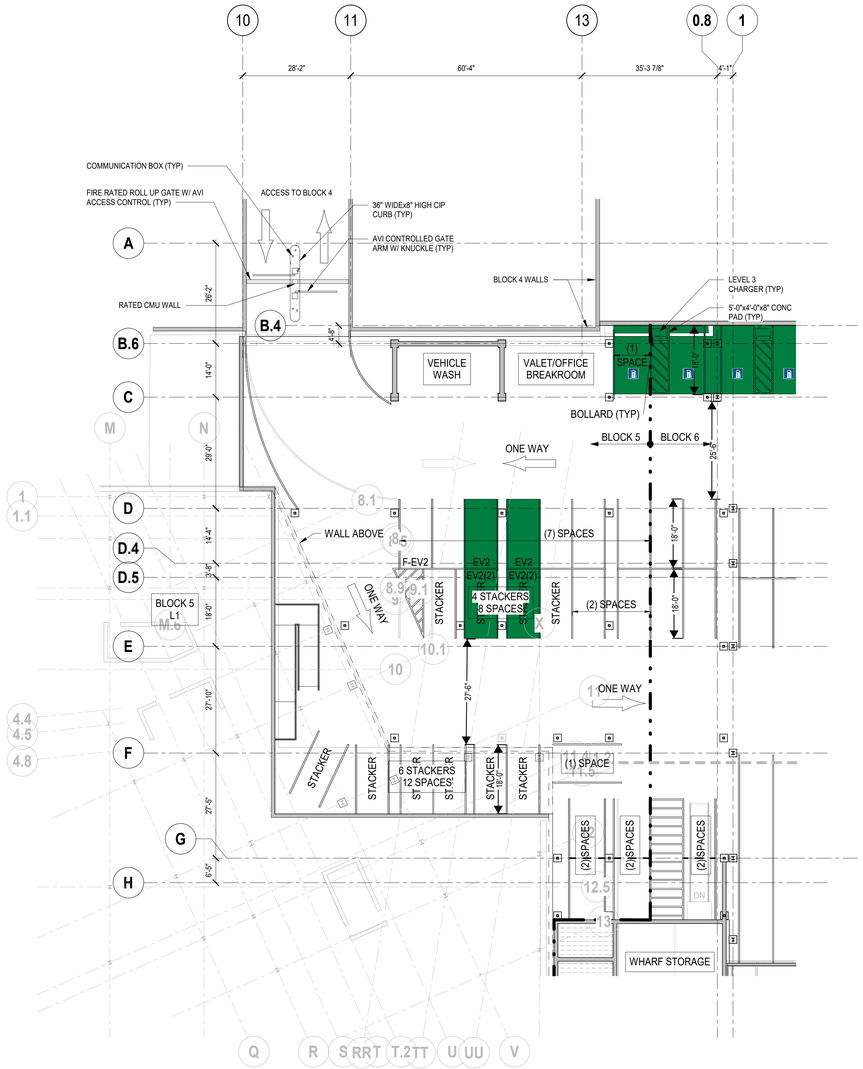

Shiplap Fiber Cement Panels
Gray Metal Panel
Medium Ironspot Brick
Black Metal Panels


Black Metal Panels
Gray Fiber Cement Panels
Restored Brick
Natural Wood Siding


Shiplap Fiber Cement Panels
Restored Brick
Black Metal Panels
BOILER PASSAGE
ART
MUSIC
COFFEE



ARCHITECT / LANDSCAPE ARCHITECT
MARVEL
145 HUDSON STREET, FLR.3 NEW YORK, NY 10013
212.616.0420



LEVEL 1 PARKING PLAN

1/16"=1'-0"

NOTES:
1. PARKING SPACES TO BE 8'-6"x18'-0", TYP U.N.O.
2. PROVIDE BOLLARS AT PARCS EQUIPMENT AND PEDESTRIAN AREAS. ASSUME 12 BOLLARDS.
3. PAINTED LINES:
   - A. PAINT ACCESSIBLE SPACES WITH BLUE PAINT AND PROVIDE ADA SYMBOL 3'x3'.
   - B. PARKING STALLS 4" WIDE x18FT LONG
   - C. PROVIDE DIRECTIONAL ARROWS AND 12" TEXT AT EACH END OF BAY AND IN THE MIDDLE OF TRAVEL LANES.
   - D. DIAGONAL STRIPED AREAS SHALL BE 4" WIDE @ 12" O.C.
   - E. PROVIDE ALL TEXT IN SPACES AT 12" HIGH (NO PARKING, COMPACT SPACE. ETC.)
   - F. PROVIDE WHITE AND YELLOW PAINT FOR LINE WORK.
4. PROVIDE 1/2x6 BENT PLATE PROTECT FOR ALL DRAIN LINES, ELECTRICAL CONDUIT, STANDPIPES OR FIRE PROTECTION PIPE VERTICALLY PENETRATING THROUGH PARKING STALLS OR TRAVEL LANES.
5. MAINTAIN 7'-0" CLEAR AT ALL DRIVE LANES AND PARKING STALLS (TYP). PROVIDE 8'-2" CLEAR TO AND FROM VAN ACCESSIBLE SPACES AND THE DRIVE LANE TO BLOCK 6. MAINTAIN 11'-7" CLEAR AT STACKER EQUIPMENT AND 12'-6 FOR VEHICLES. NOTE SOME BEAMS WILL BE LOWER THAN THIS AND INTENT IS STACKER ARE SPACED BETWEEN BEAMS.
6. PROVIDE HEADACHE BARS AT EACH ENTRANCE 6" DIAMETER WITH CLEARANCES NOTED ON EACH BAR.

BLOCK 5 GARAGE PARKING COUNT

LEVEL	TYP SPACES	STACKERS (TOTAL SPACES)	ACCESSIBLE SPACES	VAN ACCESSIBLE SPACES	LEVEL TOTAL	NOTES
LEVEL 1	15	20	0	0	35	VALET PARKING
TOTAL GARAGE SPACES	15	20	0	0	35	

EV CHARGING STATIONS

	VOLTAGE (V)	CHARGING LOAD (KW)	CURRENT	FUTURE
LEVEL 2 1-PHASE AC	208 OR 240	2.5-19.2	6 EV2	1 F-EV2
LEVEL 3 1-PHASE DC	208 OR 240	75	1 EV3	0 F-EV3

1. SYSTEM TO BE COMPATIBLE WITH BLOCK 4.

2. ENTRY STATIONS
   - A. 1 REQUIRED
   - B. INTEGRATED INTERCOM
   - C. SUPPORT TICKETLESS ENTRY.
   - D. HIGH RESOLUTION TOUCH SCREEN.
   - E. CONTROLS BARRIER GATE.

3. VEHICLE BARRIERS
   - A. 2 REQUIRED
   - B. ARTICULATED – MUST MAINTAIN 8'-2" CLEARANCE.
   - C. BREAKAWAY FLANGE.
   - D. REAL TIME MONITORING AND CONTROL.
   - E. REMOTE DIAGNOSTICS.
   - F. VEHICLE DETECTION LOOPS IN FRONT AND BEHIND GATE.
   - G. LPR AND/OR AVI ACTIVATED.

4. EXIT STATIONS
   - A. 1 REQUIRED
   - B. INTEGRATED INTERCOM.
   - C. SUPPORT TICKETLESS EXIT.
   - D. HIGH RESOLUTION TOUCH SCREEN.
   - E. CONTROLS BARRIER GATE.

5. LPR/AVI CAMERAS
   - A. 2 REQUIRED
   - B. ABLE TO OPERATE VEHICLE BARRIERS AND OVERHEAD COILING GATES.
   - C. CAMERAS TO INCLUDE AT A MINIMUM: CAMERA PROCESSOR, CABLE/CONNECTOR(S), CLIENT/SERVER ARCHITECTURE, BRACKET MOUNT ASSEMBLIES. CAMERAS SHALL BE VANDAL PROOF.
   - D. THE CAMERAS MUST BE CAPABLE OF PRODUCING MULTIPLE LICENSE PLATE IMAGES WITH VARYING FLASH, SHUTTER AND GAIN SETTINGS TO ENSURE A HIGH-QUALITY IMAGE REGARDLESS OF WEATHER OR LIGHTING CONDITIONS.

6. FACILITY MANAGEMENT SYSTEM OF SERVER, TASK OR SUBSYSTEM COMPUTERS AND WORKSTATIONS PROVIDING ON-LINE MONITORING AND CONTROL OF ALL PARCS DEVICES VIA INDEPENDENT DEDICATED TCP/IP NETWORK.
   A. PROVIDE CAPACITY FOR REMOTE MONITORING OF ALL EQUIPMENT.

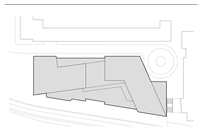
7. ACCURACY: PROVIDE THE FOLLOWING MINIMUM ACCURACY LEVELS.
   - A. TRANSACTION COUNTS: 99.5%

8. MOTORIZED OVERHEAD COILING GRILLES
   - A. 24 REQUIRED
   - B. TYPE 316 STAINLESS STEEL.
   - C. PROVIDE INTERFACE WITH PARKING ACCESS CONTROL SYSTEMS.
   - D. PROVIDE STAINLESS STEEL SHROUDS.
   - E. ASSUME 12FT WIDTHS AND INDIVIDUAL GRILLES AT EXITS AND ENTRANCES.
   - F. PROVIDE FIRE SEPARATION PER ARCH REQUIREMENTS.

STACKER NOTES:
1. PROVIDE 100% GALVANIZED STEEL UNITS.
2. UNITS TO BE SELF STANDING AND SELF SUPPORTING.
3. LIFT TO BE HYDRAULIC.
4. PROVIDE SOLID PLATFORMS.
5. PROVIDE ELECTRONIC LOCK SYSTEM, TRAVEL HEIGHT PROTECTION STOP, AND AUTOMATIC SHUT OFF.
6. MINIMUM WIDTH 8'-6".
7. BOD PARKLIFT 265 BY HARDING STEEL, INC., U.N.O.

REV	DATE	DESCRIPTION

NOT FOR CONSTRUCTION



PLOT PLAN

P22872.00

PORTLAND FORESIDE BLOCK 5
PORTLAND, ME

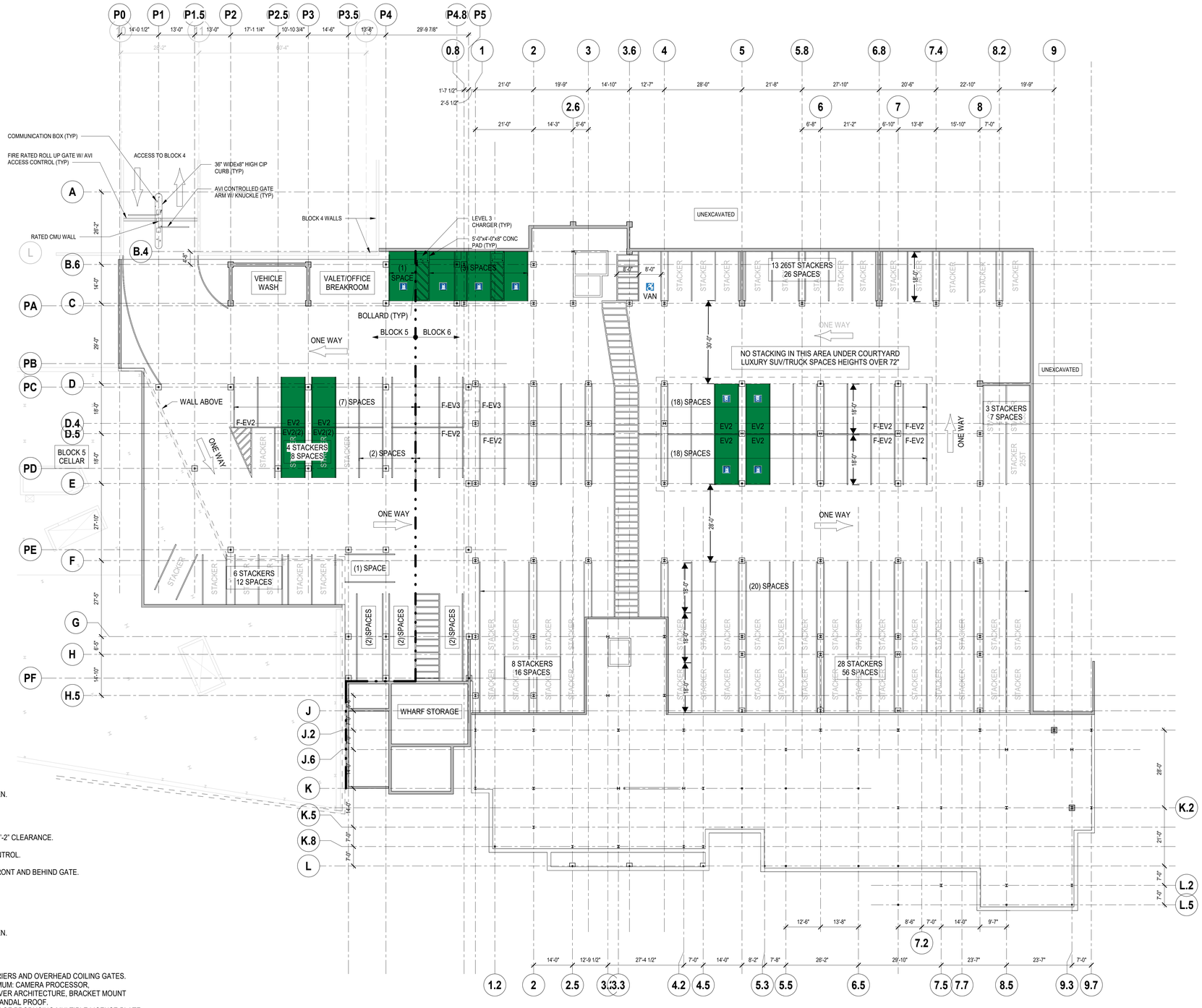
LEVEL 1 PARKING PLAN

SCALE: As indicated

DRAWING #:
PS1.0
of
JOB #:

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MARVEL ARCHITECTS, LANDSCAPE ARCHITECTS, URBAN DESIGNERS, PLLC



1. SYSTEM TO BE COMPATIBLE WITH BLOCK 4.

2. ENTRY STATIONS
   - A. 1 REQUIRED
   - B. INTEGRATED INTERCOM
   - C. SUPPORT TICKETLESS ENTRY.
   - D. HIGH RESOLUTION TOUCH SCREEN.
   - E. CONTROLS BARRIER GATE.

3. VEHICLE BARRIERS
   - A. 2 REQUIRED
   - B. ARTICULATED – MUST MAINTAIN 8'-2" CLEARANCE.
   - C. BREAKAWAY FLANGE.
   - D. REAL TIME MONITORING AND CONTROL.
   - E. REMOTE DIAGNOSTICS.
   - F. VEHICLE DETECTION LOOPS IN FRONT AND BEHIND GATE.
   - G. LPR AND/OR AVI ACTIVATED.

4. EXIT STATIONS
   - A. 1 REQUIRED
   - B. INTEGRATED INTERCOM.
   - C. SUPPORT TICKETLESS EXIT.
   - D. HIGH RESOLUTION TOUCH SCREEN.
   - E. CONTROLS BARRIER GATE.

5. LPR/AVI CAMERAS
   - A. 2 REQUIRED
   - B. ABLE TO OPERATE VEHICLE BARRIERS AND OVERHEAD COILING GATES.
   - C. CAMERAS TO INCLUDE AT A MINIMUM: CAMERA PROCESSOR, CABLE/CONNECTOR(S), CLIENT/SERVER ARCHITECTURE, BRACKET MOUNT ASSEMBLIES. CAMERAS SHALL BE VANDAL PROOF.
   - D. THE CAMERAS MUST BE CAPABLE OF PRODUCING MULTIPLE LICENSE PLATE IMAGES WITH VARYING FLASH, SHUTTER AND GAIN SETTINGS TO ENSURE A HIGH-QUALITY IMAGE REGARDLESS OF WEATHER OR LIGHTING CONDITIONS.

6. FACILITY MANAGEMENT SYSTEM OF SERVER, TASK OR SUBSYSTEM COMPUTERS AND WORKSTATIONS PROVIDING ON-LINE MONITORING AND CONTROL OF ALL PARCS DEVICES VIA INDEPENDENT DEDICATED TCP/IP NETWORK.
   A. PROVIDE CAPACITY FOR REMOTE MONITORING OF ALL EQUIPMENT.

7. ACCURACY: PROVIDE THE FOLLOWING MINIMUM ACCURACY LEVELS.
   - A. TRANSACTION COUNTS: 99.5%

8. MOTORIZED OVERHEAD COILING GRILLES
   - A. 24 REQUIRED
   - B. TYPE 316 STAINLESS STEEL.
   - C. PROVIDE INTERFACE WITH PARKING ACCESS CONTROL SYSTEMS.
   - D. PROVIDE STAINLESS STEEL SHROUDS.
   - E. ASSUME 12FT WIDTHS AND INDIVIDUAL GRILLES AT EXITS AND ENTRANCES.
   - F. PROVIDE FIRE SEPARATION PER ARCH REQUIREMENTS.

STACKER NOTES:
1. PROVIDE 100% GALVANIZED STEEL UNITS.
2. UNITS TO BE SELF STANDING AND SELF SUPPORTING.
3. LIFT TO BE HYDRAULIC.
4. PROVIDE SOLID PLATFORMS.
5. PROVIDE ELECTRONIC LOCK SYSTEM, TRAVEL HEIGHT PROTECTION STOP, AND AUTOMATIC SHUT OFF.
6. MINIMUM WIDTH 8'-6".
7. BOD PARKLIFT 265 BY HARDING STEEL, INC., U.N.O.

LEVEL 1 PARKING PLAN

1/16"=1'-0"

NOTES:
1. PARKING SPACES TO BE 8'-6"x18'-0", TYP U.N.O.
2. PROVIDE BOLLARS AT PARCS EQUIPMENT AND PEDESTRIAN AREAS. ASSUME 12 BOLLARDS.
3. PAINTED LINES:
   - A. PAINT ACCESSIBLE SPACES WITH BLUE PAINT AND PROVIDE ADA SYMBOL 3'x3'.
   - B. PARKING STALLS 4" WIDE x18FT LONG
   - C. PROVIDE DIRECTIONAL ARROWS AND 12" TEXT AT EACH END OF BAY AND IN THE MIDDLE OF TRAVEL LANES.
   - D. DIAGONAL STRIPED AREAS SHALL BE 4" WIDE @ 12" O.C.
   - E. PROVIDE ALL TEXT IN SPACES AT 12" HIGH (NO PARKING, COMPACT SPACE. ETC.)
   - F. PROVIDE WHITE AND YELLOW PAINT FOR LINE WORK.
4. PROVIDE 1/2x6 BENT PLATE PROTECT FOR ALL DRAIN LINES, ELECTRICAL CONDUIT, STANDPIPES OR FIRE PROTECTION PIPE VERTICALLY PENETRATING THROUGH PARKING STALLS OR TRAVEL LANES.
5. MAINTAIN 7'-0" CLEAR AT ALL DRIVE LANES AND PARKING STALLS (TYP). PROVIDE 8'-2" CLEAR TO AND FROM VAN ACCESSIBLE SPACES AND THE DRIVE LANE TO BLOCK 6. MAINTAIN 11'-7" CLEAR AT STACKER EQUIPMENT AND 12'-6 FOR VEHICLES. NOTE SOME BEAMS WILL BE LOWER THAN THIS AND INTENT IS STACKER ARE SPACED BETWEEN BEAMS.
6. PROVIDE HEADACHE BARS AT EACH ENTRANCE 6" DIAMETER WITH CLEARANCES NOTED ON EACH BAR.

BLOCK 6 GARAGE PARKING COUNT

LEVEL	TYP SPACES	STACKERS (TOTAL SPACES)	ACCESSIBLE SPACES	VAN ACCESSIBLE SPACES	LEVEL TOTAL	NOTES
LEVEL 1	61	104	0	1	166	VALET PARKING
TOTAL GARAGE SPACES	61	104	0	1	166	

EV CHARGING STATIONS

	VOLTAG E (V)	CHARGING LOAD (KW)	CURRENT	FUTURE
LEVEL 2 1-PHASE AC	208 OR 240	2.5-19.2	4 EV2	6 F-EV2
LEVEL 3 1-PHASE DC	208 OR 240	75	3 EV3	2 F-EV3

Baskervill

FORESIDE/

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BASKERVILL, P.O. BOX 400, RICHMOND, VA 23218-0400

NOT FOR CONSTRUCTION

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PROJECT NUMBER
P22757.00

PFDC-PORTLAND FORESIDE BLOCK 6

58 FORE STREET
PORTLAND, ME

ISSUE
4/14/2023 -

LEVEL 1 PARKING PLAN

PS1.0

PROJECT INFORMATION

PROJECT DESCRIPTION
NEW CONSTRUCTION 8-STORY MIXED USE HOTEL (R1) WITH ADDITIONAL R2 RESIDENTIAL CONDOMINIUMS, ASSEMBLY SPACES, BUSINESS SPACES, AND MERCANTILE SPACES.
PROPOSED BUILDING LOT IS PARTIALLY WITHIN FEMA AE FLOODPLAIN ZONE PER 1986 EFFECTIVE MAP.
PROPOSED BUILDING ISCOMPRISED OF A R1 HOTEL WITH (128) GUEST ROOMS ON FLOORS 3-8, R2 MULTIFAMILY RESIDENTIAL WITH (43) CONDOMINIUMS ON FLOORS 3-8, HOTEL AMENITY SPACES AND RESIDENTIAL LOBBY SPACES ON THE 2ND FLOOR, AND HOTEL LOBBY, RETAIL, AND OTHER MERCANTILE SPACES ON THE GROUND FLOOR.

SECTION 1. ZONING INFORMATION
A. ZONING DISTRICT: B6
B. PARCEL:
BLOCK 5 PORTLAND FORESIDE DEVELOPMENT SITE = Area 48,029 S.F.
C. LANDMARK: NO
D. SHORELAND ZONING OVERLAY APPLIES

SECTION 2. APPLICATIONS FILED SEPARATELY
A. ELEVATOR
C. FIRE ALARM
D. SIDEWALK SHED
E. MECHANICAL
F. PLUMBING
G. UNDERGROUND PLUMBING
H. ELECTRICAL
I. SPRINKLERS/STANDPIPE
J. S.O.E. (SHEETING, SHORING, AND BRACING)
K. EMERGENCY POWER SYSTEMS (GENERATORS)
L. FLOOD HAZARD DEVELOPMENT APPLICATION
M. SHORELAND ZONING REVIEW
N. SITE PLAN APPLICATION

INSPECTION ITEMS

OWNER WILL ENGAGE AND PAY FOR A SPECIAL INSPECTOR AND AN INDEPENDENT TESTING AGENCY TO PERFORM THE FOLLOWING SPECIAL INSPECTION AND TESTING AS SPECIFIED ON THE APPLICABLE SECTIONS OF THE MBC, CHAPTER 17, SECTION 1705. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE ADEQUATE PRIOR NOTICE FOR COMPLETION OF INSPECTIONS.

1. AS INDICATED IN THE DRAWINGS
2. SPECIAL INSPECTIONS PER MBC-1705 LISTED BELOW
3. ENERGY CODE PROGRESS INSPECTION PER 2021 IECC SECTION C105.1 LISTED BELOW

SPECIAL INSPECTIONS

STRUCTURAL STEEL	BC 1705.2
CONCRETE CONSTRUCTION	BC 1705.3
CONCRETE - WELDING OF REINFORCING BARS	BC 1705.3.1
CONCRETE - MATERIAL TESTS	BC 1705.3.2
SOILS	BC 1705.6
DRIVEN DEEP FOUNDATIONS	BC 1705.7
CAST-IN-PLACE DEEP FOUNDATIONS	BC 1705.8
FABRICATED ITEMS	BC 1705.10
WIND RESISTANCE	BC 1705.11
SEISMIC RESISTANCE	BC 1705.12
SPRAYED FIRE-RESISTANT MATERIALS	BC 1705.14
MASTIC AND INTUMESCENT FIRE-RESISTANT COATINGS	BC 1705.15
FIRE-RESISTANT PENETRATIONS AND JOINTS	BC 1705.17
TESTING FOR SMOKE CONTROL	BC 1705.18

PROGRESS INSPECTION ITEMS

FOOTING AND FOUNDATION -	BC 110.3.1
CONCRETE SLAB AND UNDER-FLOOR INSPECTION -	BC 110.3.2
LOWEST FLOOR ELEVATION -	BC 110.3.3
FRAME INSPECTION -	BC 110.3.4
LATH, GYPSUM BOARD AND GYPSUM PANEL PRODUCT -	BC 110.3.5
FIRE AND SMOKE-RESISTANT PENETRATIONS -	BC 110.3.6
ENERGY EFFICIENCY INSPECTIONS - (SEE 2021 IECC REQUIRED INSPECTIONS BELOW)	BC 110.3.7
SPECIAL INSPECTIONS - (PER MBC CHAPTER 17 AS LISTED ABOVE)	BC 110.3.9
FINAL INSPECTION -	BC 110.3.10

ENERGY CODE PROGRESS INSPECTION - COMMERCIAL BUILDINGS

FOOTING AND FOUNDATION INSULATION -	C105.2.1
THERMAL ENVELOPE -	C105.2.2
PLUMBING SYSTEM -	C105.2.3
MECHANICAL SYSTEM -	C105.2.4
ELECTRICAL SYSTEM -	C105.2.5
FINAL INSPECTION -	C105.2.6

ACCESSIBLE MEANS OF EGRESS

ACCESSIBLE SPACES MUST BE PROVIDED WITH NOT LESS THAN ONE ACCESSIBLE MEANS OF EGRESS (IBC 1009.1). WHERE MORE THAN ONE MEANS OF EGRESS IS REQUIRED FROM AN ACCESSIBLE SPACE, EACH ACCESSIBLE PORTION OF THE SPACE MUST BE SERVED BY NOT LESS THAN TWO ACCESSIBLE MEANS OF EGRESS.

AN ELEVATOR IS REQUIRED TO SERVE AS AN ACCESSIBLE MEANS OF EGRESS. THE REQUIRED ELEVATOR USED AS AN ACCESSIBLE MEANS OF EGRESS MUST COMPLY WITH THE EMERGENCY OPERATIONS AND SIGNALING DEVICE REQUIREMENTS OF SECTION 2.27 OF ASME A17.1/CSA B44

ON FLOOR LEVELS THAT CONTAIN ASSEMBLY AND STORAGE OCCUPANCIES, TWO ACCESSIBLE SPACES SEPARATED BY SMOKE-TIGHT CONSTRUCTION WILL BE PROVIDED.

A TWO-WAY VOICE COMMUNICATION SYSTEM THAT COMPLIES WITH THE REQUIREMENTS OF 1009.8.1 AND 1009.8.2 MUST BE PROVIDED ON EACH ELEVATOR LANDING SERVING EACH ELEVATOR OR BANK OF ELEVATORS ON EACH ACCESSIBLE FLOOR THAT IS ONE OR MORE STORIES ABOVE OR BELOW THE LEVEL OF EXIT DISCHARGE (IBC 1009.8, LSC 7.2.12.1.1)

SMOKE & CARBON DIOXIDE DETECTORS

1. SMOKE DETECTORS SHALL BE INSTALLED AS REQUIRED BY SECTION 907.1 OF 2015 INTERNATIONAL BUILDING CODE AND IN ACCORDANCE WTH NFPA 72.
2. CARBON MONOXIDE DETECTORS SHALL BE INSTALLED AS REQUIRED BY 908.7 OF 2015 INTERNATIONAL BUILDING CODE AND IN ACCORDANCE WITH SECTION 5307.5.2 OF THE INTERNATIONAL FIRE CODE.
3. DETECTORS SHALL BE EITHER IONIZATION CHAMBER OR PHOTOELECTRIC TYPE AND TO COMPLY WITH RS 17-11
4. UNITS TO BE LISTED BY AN ACCEPTABLE TESTING LABORATORY, SUCH AS:
   A. UNDERWRITER'S LABORATORY, NORTHBROOK,ILLINOIS,MEA LAB ;
   B. CANADIAN STANDARD ASSOCIATION, ONTARIO, CANADA,
   C. UNDERWRITER'S LAB. OF CANADA ONTARIO, MEA LAB.
5. UNITS SHALL BE INSTALLED IN AREAS DESIGNATED IN PLANS; THEY SHALL BE LOCATED ON OR NEAR THE CEILING AND WITHIN 15'-0" OF ANY ROOMS USED FOR SLEEPING PURPOSES; FOR DWELLING UNITS WITH MULTIPLE LEVELS, WHEN ANY LEVEL HAS ONLY ONE MEANS OF EGRESS, UNITS SHALL BE PROVIDED AT ALL LEVELS.
6. SMOKE DETECTORS SHALL BE INSTALLED AS FOLLOWS:
   A. CEILING MOUNT - CLOSEST EDGE OF UNIT SHALL BE MINIMUM OF 4" FROM ANY WALL.
   B. WALL MOUNT - CLOSEST EDGE OF UNIT SHALL BE A MINIMUM OF 6" AND A MAXIMUM OF 12" FROM THE CEILING.

BUILDING CODE SUMMARY

CODE REVIEW: MAINE UNIFORM BUILDING CODE (MBC)
CONSTRUCTION CLASS: TYPE IB
FIRE RESISTANCE RATING: THE FIRE RESISTANCE RATING OF BUILDING ELEMENTS SHALL BE DETERMINED IN ACCORDANCE WITH THE TEST PROCEDURES SET FORTH IN ASTM E 119 OR IN ACCORDANCE WITH MBE SECTION 703.3.

CONSTRUCTION CLASS IB (PER TABLE 601)	REQUIRED	PROVIDED	NOTES
PRIMARY STRUCTURAL FRAME	2	2	COMPLIES
BEARING WALLS EXTERIOR INTERIOR	 2 2	 2 2	COMPLIES
NONBEARING WALLS AND PARTITIONS EXTERIOR	SEE TABLE 602	COMPLIES	COMPLIES
NONBEARING WALLS AND PARTITIONS INTERIOR	0	0	COMPLIES
FLOOR CONSTRUCTION AND SECONDARY MEMBERS	2	2	COMPLIES
ROOF CONSTRUCTION AND SECONDARY MEMBERS	1	1	COMPLIES

ALSO COMPLIES WITH MBC 705.5,705.6

NOTE MBC SECTION 705.5: THE REQUIRED FIRE-RESISTANCE RATING OF EXTERIOR WALLS WITH A FIRE SEPARATION DISTANCE OF GREATER THAN 10 FEET SHALL BE RATED FOR EXPOSURE TO FIRE FROM THE INSIDE. THE REQUIRED FIRE-RESISTANCE RATING OF EXTERIOR WALLS WITH A FIRE SEPARATION DISTANCE OF LESS THAN OR EQUAL TO 10 FEET SHALL BE RATED FOR EXPOSURE TO FIRE FROM BOTH SIDES.

ALL WORK DONE UNDER THIS CONTRACT SHALL COMPLY WITH THE PROVISIONS OF THE SPECIFICATIONS, DRAWINGS AND ALL APPLICABLE CODES, ORDINANCES AND REGULATIONS INCLUDING, BUT NOT LIMITED TO THE FOLLOWING:

- MAINE UNIFORM BUILDING CONDE (MBC) BASED ON 2015 INTERNATIONAL BC
- MAINE FIRE PREVENTION CODE (MFPC)
- 2018 NFPA 1 - FIRE CODE (FC)
- 2018 NFPA 101 - LIFE SAFETY CODE (LSC)
- ENERGY: 2021 INTERNATIONAL ENERGY AND CONSERVATION CODE (IECC)
- ELECTRICAL: NATIONAL ELECTRIC CODE 2020.
- MECHANICAL: 2015 INTERNATIONAL MECHANICAL CODE (IMC).
- PLUMBING: UNIFORM PLUMBING CODE 2021.
- ACCESSIBILITY: CHAPTER 11, 2015 INTERNATIONAL BUILDING CODE, AND ANSI A117.1-2009 / 2010 ADAA.

TABLES 504.3, 504.4, & 506.2 - ALLOWABLE BUILDING HEIGHTS, NUMBER OF STORIES, AND BUILDING AREAS BUILDING CLASSIFICATION TYPE IB CONSTRUCTION:

A-2	HEIGHT: 180'	NUMBER OF STORIES: 12	AREA: UL
A-3	HEIGHT: 180'	NUMBER OF STORIES: 12	AREA: UL
B	HEIGHT: 180'	NUMBER OF STORIES: 12	AREA: UL
M	HEIGHT: 180'	NUMBER OF STORIES: 12	AREA: UL
R-1	HEIGHT: 180'	NUMBER OF STORIES: 12	AREA: UL
R-2	HEIGHT: 180'	NUMBER OF STORIES: 12	AREA: UL
S-1	HEIGHT: 180'	NUMBER OF STORIES: 12	AREA: UL

TYPE IB CONSTRUCTION AS PER MBC 602.1 AND IN COMPLIANCE WITH MBC 602.2 PER MBC 508.3.3 NON SEPERATED OCCUPANCIES. SEPARATION. NO SEPARATION IS REQUIRED BETWEEN OCCUPANCIES.

TABLE 602
FIRE-RESISTANCE RATING REQUIREMENTS FOR EXTERIOR WALLS BASED ON FIRE SEPARATION DISTANCE

FIRE SEPARATION DISTANCE	TYPE OF CONSTRUCTION	OCCUPANCY	OCCUPANCY
	IB	F-1,M,S-1	A,B,E,F-2,I,R,S-2,U
< 5		2	1
≥ 5 TO <10		1	1
≥ 10 TO <30		1	1
≥ 30		0	0

TABLE 803.11 - INTERIOR WALL AND CEILING FINISH REQUIREMENTS BY OCCUPANCY

GROUP	SPRINKLERED		
	EXIT ENCLOSURES AND EXIT PASSAGEWAYS	CORRIDORS	ROOMS AND ENCLOSED SPACES
A-1 & A-2	B	B	C
A-3, A-4, A-5	B	B	C
B, E, M, R-1	B	C	C
R-2	C	C	C
S	C	C	C

TABLE 1004.1.1 - MAXIMUM FLOOR AREA ALLOWANCES PER OCCUPANT

USE	OCCUPANT LOAD FACTOR SF/OCC
STORAGE / MECHANICAL	300 (GROSS)
EXERCISE ROOMS W/ EQUIPMENT	50 (GROSS)
EXERCISE ROOMS W/ OUT EQUIPMENT	15 (NET)
ASSEMBLY: - CHAIRS, CONCENTRATED - TABLES & CHAIRS, NON-CONCENTRATED	 7 (NET) 15 (NET)
RESIDENTIAL	200 (GROSS)
GUESTROOMS	200 (GROSS)
BAR/KITCHEN	100 (GROSS)
BUSINESS	100 (GROSS)
MERCANTILE	30 (GROSS)
POOL	50 (GROSS)
POOL DECK	15 (NET)

FOR MIXED USES, SUM OF ALL OF THE LOADS WILL BE ROUNDED UP TO THE NEXT WHOLE NUMBER

TABLE 1020.1 - INTERIOR CORRIDOR FIRE-RESISTANCE RATING

OCCUPANCY	OCCUPANT LOAD SERVED BY INTERIOR CORRIDOR	REQUIRED FIRE-RESISTANCE RATING (HOURS) WITH SPRINKLER SYSTEM
A,B,E,F,M,S,U	GREATER THAN 30	0
R	GREATER THAN 10	0.5

TABLE 1020.2 - MINIMUM CORRIDOR WIDTH

USE/OCCUPANCY	MINIMUM WIDTH
ACCESS TO AND UTILIZATION OF MECHANICAL, PLUMBING, OR ELECTRICAL SYSTEMS OR EQUIPMENT	36 INCHES
WITHIN A DWELLING UNIT	36 INCHES
ANY FACILITY NOT LISTED ABOVE SERVING AN OCCUPANT LOAD LESS THAN 50	36 INCHES
ANY FACILITY NOT LISTED ABOVE SERVING AN OCCUPANT LOAD MORE THAN 50	44 INCHES

TABLE 1020.4 - MAXIMUM PERMITTED DEAD END CORRIDOR LENGTH

USE GROUP	DISTANCE
A	20 FEET
A, M, S, R-1, R-2	50 FEET

TABLE 1017.2 - EXIT ACCESS TRAVEL DISTANCE (& LSC 28.2.6)

OCCUPANCY	FEET (SPRINKLERED)
A	250 FEET
R-1 HOTEL	250 FEET FROM ANY POINT IN A GUESTROOM TO AN EXIT 125 FEET FROM ANY POINT IN A GUESTROOM TO A CORRIDOR 200 FEET FROM THE CORRIDOR DOOR TO NEAREST EXIT
R-2 CONDOS	250 FEET FROM ANY POINT IN A UNIT TO AN EXIT 125 FEET FROM ANY POINT IN A UNIT TO A CORRIDOR DOOR 200 FEET FROM THE CORRIDOR DOOR TO NEAREST EXIT
S-1	250 FEET
B	300 FEET
M	250 FEET

BC 1005.3 - EXIT CAPACITY

STAIRWAYS	OTHER EGRESS COMPONENTS
0.30 INCHES/PERSON	0.20 INCHES/PERSON

THE EXIT CAPACITY FOR STAIRS WIDER THAN 44 INCHES IS PERMITTED TO BE CALCULATED USING THE FOLLOWING EQUATION:

CAPACITY = 146.7+ (X−44), WHERE X IS THE WIDTH OF THE STAIR.
0.218

NUMBER OF EXITS

NOT LESS THAN TWO REMOTE INDEPENDENT EXITS MUST SERVE EVERY STORY (IBC TABLE 1006.3.2). A MINIMUM OF THREE EXITS OR ACCESS TO EXITS MUST BE PROVIDED WHEN THE OCCUPANT LOAD IS BETWEEN 500 – 1000 PERSONS. A MINIMUM OF FOUR EXITS OR ACCESS TO EXITS MUST BE PROVIDED WHEN THE OCCUPANT LOAD OF A STORY EXCEEDS 1,000 PERSONS.

TWO EXIT ACCESS DOORS MUST BE PROVIDED FROM EVERY ROOM OR SPACE HAVING AN OCCUPANT LOAD OR COMMON PATH WITHIN THE SPACE, WHICH IS IN EXCESS OF THAT SHOWN BELOW PER MBC TABLE 1006.2.1, LSC TABLE A7.6:

OCCUPANCY	MINIMUM 2 MEANS OF EGRESS REQUIRED	
	IF OCCUPANT LOAD GREATER THAN	OR COMMON PATH IF TRAVEL GREATER THAN
A	49	75
S, MECH/ELEC	29	100
B	49	100
R-1 HOTEL	10	75
R-2 CONDO	20	125
M	49	75

EXIT REMOTENESS

EXIT DOORS MUST BE PLACED A DISTANCE APART NOT LESS THAN ONE-THIRD OF THE LENGTH OF THE MAXIMUM OVERALL DIAGONAL DIMENSION OF THE AREA SERVED WHERE TWO EXITS ARE REQUIRED FROM A ROOM OR SPACE. ADDITIONAL EXITS OR EXIT ACCESS DOORWAYS MUST BE ARRANGED A REASONABLE DISTANCE APART SO THAT IF ONE BECOMES BLOCKED, THE OTHERS WILL BE AVAILABLE (IBC 1007.1.1 EXCEPTION 2, IBC 1007.1.2).

IN ADDITION, EXIT STAIRWAY ENCLOSURES IN HIGH-RISE BUILDINGS MUST BE PLACED A DISTANCE OF ONE-FOURTH THE LENGTH OF THE MAXIMUM OVERALL DIAGONAL DIMENSION OF THE AREA SERVED, OR 30 FEET, WHICHEVER IS LESS (IBC 403.5.1).

THIS MUST BE MEASURED IN A STRAIGHT LINE BETWEEN THE NEAREST POINTS OF THE EXIT STAIRWAY ENCLOSURES. THE EXIT REMOTENESS DISTANCE REQUIREMENT IS IN ADDITION TO THE ONE-THIRD DIAGONAL RULE.

EXIT DISCHARGE

EXITS MUST DISCHARGE DIRECTLY TO THE EXTERIOR OF THE BUILDING. HOWEVER, A MAXIMUM OF 50% OF THE REQUIRED NUMBER OF EXITS AND 50% OF THE REQUIRED EXIT CAPACITY MAY DISCHARGE THROUGH THE BUILDING AT THE LEVEL OF EXIT DISCHARGE (IBC 1028.1, LSC 7.7.2). WHERE EXIT DISCHARGE IS PROVIDED THROUGH A PROTECTED AREA ON THE LEVEL OF EXIT DISCHARGE, THE FOLLOWING WILL BE MET:

- THE PROTECTED AREA MUST PROVIDE AN UNOBSTRUCTED PATH TO AN EXTERIOR EXIT DOOR AND SUCH EXIT MUST BE READILY VISIBLE AND IDENTIFIABLE FROM THE POINT OF TERMINATION OF THE ENCLOSURE.
- THE PROTECTED AREA MUST BE SEPARATED FROM AREAS BELOW BY CONSTRUCTION CONFORMING TO THE FIRE-RESISTANCE RATING FOR THE EXIT ENCLOSURE.
- THE PROTECTED AREA MUST BE FULLY SPRINKLERED.

EXIT SIGNS AND EVACUATION SIGNAGE

EXITS, OTHER THAN MAIN EXTERIOR EXIT DOORS THAT OBVIOUSLY AND CLEARLY ARE IDENTIFIABLE AS EXITS, MUST BE MARKED BY AN APPROVED SIGN THAT IS READILY VISIBLE FROM ANY DIRECTION OF EXIT ACCESS (IBC 1013.1, LSC 7.10.1.2.1).

EXIT SIGNS MUST BE LOCATED SUCH THAT NO POINT IN AN EXIT ACCESS CORRIDOR OR EXIT PASSAGEWAY IS MORE THAN 100 FEET, OR THE LISTED VIEWING DISTANCE OF THE SIGN, WHICHEVER IS LESS, FROM THE NEAREST VISIBLE EXIT SIGN (IBC 1013.1, LSC 7.10.1.5.2).

LOW-LEVEL EXIT SIGNS ARE REQUIRED TO BE PROVIDED IN GROUP R-1 OCCUPANCIES IN AREAS SERVING GUEST ROOMS (IBC 1013.2, LSC 7.10.1.6). THE BOTTOM OF THE SIGN CANNOT BE LESS THAN 10 INCHES NOR MORE THAN 18 INCHES ABOVE THE FLOOR LEVEL. THE SIGN MUST BE FLUSH MOUNTED TO THE DOOR OR WALL. WHERE MOUNTED ON THE WALL, THE EDGE OF THE SIGN MUST BE WITHIN 4 INCHES OF THE DOOR FRAME ON THE LATCH SIDE.

EMERGENCY LIGHTING

EMERGENCY LIGHTING FACILITIES MUST BE ARRANGED TO PROVIDE INITIAL ILLUMINATION THAT IS NOT LESS THAN AN AVERAGE OF 1 FOOTCANDLE AND, AT ANY POINT, NOT LESS THAN 0.1 FOOTCANDLE, MEASURED ALONG THE PATH OF EGRESS AT FLOOR LEVEL (IBC 1008.3.5, LSC 7.9.2.1.1). A MAXIMUM-TO-MINIMUM ILLUMINATION UNIFORMITY RATIO OF 40 TO 1 MUST NOT BE EXCEEDED. THE EMERGENCY POWER SYSTEM MUST PROVIDE POWER FOR A DURATION OF NOT LESS THAN 90 MINUTES AND MUST CONSIST OF STORAGE BATTERIES, UNIT EQUIPMENT, OR AN ON-SITE GENERATOR (IBC 1008.3.4, LSC 7.9.2.1.2)

LUMINOUS EGRESS PATH MARKINGS

LUMINOUS EGRESS PATH MARKINGS MUST BE PROVIDED IN HIGH-RISE BUILDINGS IN ACCORDANCE WITH SECTION 1025 FOR CERTAIN OCCUPANCIES (403.5.5). THOSE OCCUPANCIES INCLUDE GROUP A, B, M, OR R-1.AS SUCH, THE BUILDING'S INTERIOR EXIT STAIRS EXIT PASSAGEWAYS MUST BE PROVIDED WITH LUMINOUS EGRESS PATH MARKINGS IN ACCORDANCE WITH IBC 1025. LUMINOUS EGRESS PATH MARKINGS ARE NOT REQUIRED TO BE PROVIDED ON THE LEVEL OF EXIT DISCHARGE IN LOBBIES THAT SERVE AS PART OF THE EXIT PATH IN ACCORDANCE WITH SECTION 1028.1, EXCEPTION 1.

ADDITIONAL HIGHRISE BUILDING PROVISIONS

STRUCTURAL INTEGRITY OF INTERIOR EXIT STAIRWAYS AND ELEVATOR HOISTWAY ENCLOSURES

INTERIOR EXIT STAIRWAYS AND ELEVATOR HOISTWAY ENCLOSURES LOCATED IN HIGH-RISE BUILDINGS CLASSIFIED OF RISK CATEGORY III OR IV MUST BE PROVIDED WITH IMPACT RESISTANCE SHAFTS PER IBC SECTION 1604.5 (IBC 403.2.3).

CONCRETE OR MASONRY WALLS ARE DEEMED TO SATISFY THE STRUCTURAL INTEGRITY REQUIREMENTS OUTLINED ABOVE (IBC 403.2.3.3). ANY OTHER WALL ASSEMBLY THAT PROVIDES IMPACT RESISTANCE EQUIVALENT TO THAT REQUIRED BY SECTION 403.2.3.1 AND 403.2.3.2 FOR HARD BODY IMPACT CLASSIFICATION LEVEL 3, AS MEASURED BY THE TEST METHODS DESCRIBED IN ASTM C1629/C1629M IS PERMITTED (IBC 403.2.3.4).

FIRE COMMAND CENTER

A FIRE COMMAND CENTER (FCC) ROOM FOR FIRE DEPARTMENT OPERATIONS MUST BE PROVIDED IN ALL HIGH-RISEBUILDINGS (IBC 403.4.6, LSC 11.8.6). THE FCC MUST BE SEPARATED FROM ADJACENT SPACES BY 1-HOUR FIRE BARRIERS AND DESIGNED IN ACCORDANCE WITH IBC SECTION 911 AND LSC SECTION 11.8.6.2. THE FCC MUST BE AT LEAST 200 SQ. FT. IN AREA WITH A MINIMUM DIMENSION OF 10 FEET (IBC 911.1.3)

STAIRWAY VIDEO MONITORING

APPROVED VIDEO MONITORING EQUIPMENT MUST BE PROVIDED FOR ALL EXIT STAIRS ABOVE THE LEVEL OF EXIT DISCHARGE IN ALL HIGH-RISE BUILDINGS WITH AN OCCUPANT LOAD GREATER THAN 4,000 (LSC 11.8.8.1.1). VIDEO MONITORING LOCATIONS MUST NOT EXCEED BUILDING HEIGHT INTERVALS OF 5-STORIES. EACH TOWER INDIVIDUALLY WILL NOT HAVE AN OCCUPANT LOAD NOT MORE THAN 4,000 PERSONS THUS STAIRWAY VIDEO MONITORING IS NOT REQUIRED.

ELEVATOR HOISTWAY PROTECTION

ELEVATOR HOISTWAY PROTECTION IS REQUIRED IN HIGH-RISE BUILDINGS AT ELEVATORS THAT CONNECT MORE THAN THREE STORIES THAT ARE REQUIRED TO BE ENCLOSED IN A SHAFT ENCLOSURE (IBC 3006.2). ELEVATOR HOISTWAY PROTECTION WILL CONSIST OF ONE OF THE FOLLOWING DESIGN OPTIONS (IBC 3006.3):

- ELEVATOR LOBBIES – THE ELEVATOR LOBBY ENCLOSURE MUST SEPARATE THE ELEVATOR SHAFT ENCLOSURE FROM THE FLOOR AND MAY BE CONSTRUCTED OF SMOKE PARTITIONS IN FULLY SPRINKLERED BUILDINGS. THE DOOR OPENINGS IN THE ELEVATOR LOBBY MUST BE SMOKE AND DRAFT CONTROL DOORS (IBC 710.5.2.2) AND SELF OR AUTOMATIC-CLOSING (IBC 710.5.2.3, 716.5.9). DUCT AND AIR TRANSFER OPENINGS IN THE ELEVATOR LOBBY MUST BE PROTECTED IN ACCORDANCE WITH IBC 717.5.4.1 TO LIMIT THE FREE PASSAGE OF SMOKE.
- HOISTWAY PRESSURIZATION – PRESSURIZE THE ELEVATOR SHAFTS IN ACCORDANCE WITH IBC SECTION 909.21. ELEVATOR SHAFT PRESSURIZATION SYSTEMS MUST MAINTAIN A MINIMUM POSITIVE PRESSURE OF 0.10 INCHES OF WATER AND MAXIMUM PRESSURE OF 0.25 INCHES OF WATER WITH RESPECT TO THE ADJACENT OCCUPIED SPACE.
- ADDITIONAL DOORS LOCATED AT EACH ELEVATOR HOISTWAY DOOR OPENING IN ACCORDANCE WITH SECTION 3002.6. SUCH DOORS MUST COMPLY WITH THE SMOKE AND DRAFT CONTROL DOOR ASSEMBLY REQUIREMENTS IN SECTION 716.5.3.1 WHEN TESTED IN ACCORDANCE WITH UL 1784 WITHOUT AN ARTIFICIAL BOTTOM SEAL.

FIRE PROTECTION SYSTEMS

AUTOMATIC SPRINKLERS

AUTOMATIC SPRINKLERS MUST BE PROVIDED THROUGHOUT HIGH-RISE BUILDINGS (IBC 403.3, LSC 11.8.3.1). THE SPRINKLER SYSTEM MUST BE DESIGNED IN ACCORDANCE WITH NFPA 13, INSTALLATION OF SPRINKLER SYSTEMS, 2016 EDITION.

STANDPIPE SYSTEM

A CLASS III WET STANDPIPE SYSTEM IS REQUIRED THROUGHOUT ALL BUILDINGS WHERE THE HIGHEST FLOOR IS MORE THAN 30-FT ABOVE THE LOWEST LEVEL OF FIRE DEPARTMENT ACCESS (IBC 403.4.3, 905.3.1, LSC 11.8.3.2). IN FULLY SPRINKLERED BUILDINGS, A CLASS I STANDPIPE SYSTEM IS PERMITTED IN LIEU OF A CLASS III SYSTEM (IBC 905.3.1 EXCEPTION 1).

FIRE ALARM SYSTEM

AN EMERGENCY VOICE/ALARM COMMUNICATION FIRE ALARM SYSTEM DESIGNED IN ACCORDANCE WITH IBC SECTION 907.5.2.2 MUST BE PROVIDED IN ALL HIGH-RISE BUILDINGS (IBC 403.4.4, LSC 11.8.4.1). THE FIRE ALARM SYSTEM MUST BE DESIGNED IN ACCORDANCE WITH NFPA 72, NATIONAL FIRE ALARM CODE, AND 2016 EDITION.

SMOKE DETECTION

SMOKE DETECTORS CONNECTED TO THE FIRE ALARM SYSTEM WILL BE PROVIDED WHERE REQUIRED BASED ON BUILDING OCCUPANCIES PER IBC 907.2. SMOKE DETECTION IS DESIGNED IN ACCORDANCE WITH NFPA 72, NATIONAL FIRE ALARM CODE 2016 EDITION.

CARBON MONOXIDE

CARBON MONOXIDE DETECTION MUST BE PROVIDED IN GROUP R, RESIDENTIAL OCCUPANCIES IN SLEEPING UNITS (915.1.1). CARBON MONOXIDE DETECTION DEVICES ARE PERMITTED TO BE INSTALLED OUTSIDE OF EACH SEPARATE SLEEPING AREA IN THE IMMEDIATE VICINITY OF THE SLEEPING UNIT WHERE THE SLEEPING UNIT OR ITS ATTACHED BATHROOM DOES NOT CONTAIN A FUEL-BURNING APPLIANCE AND IS NOT SERVED BY A FORCED AIR FURNACE (IBC 915.2.2).

SMOKE CONTROL SYSTEMS - STAIR PRESSURIZATION

EVERY REQUIRED INTERIOR EXIT STAIRWAY SERVING FLOORS MORE THAN 75 FEET ABOVE THE LOWEST LEVEL OF FIRE DEPARTMENT VEHICLE ACCESS MUST COMPLY WITH REQUIREMENTS FOR SMOKEPROOF ENCLOSURES IN ACCORDANCE WITH IBC SECTION 1023.11 AND LSC 7.2.3 OR MUST BE PRESSURIZED IN ACCORDANCE WITH IBC SECTION 909.20 (IBC 403.5.4, LSC 11.8.2.3).

SMOKE REMOVAL

A SMOKE REMOVAL SYSTEM FOR POST-FIRE SALVAGE OPERATIONS IS REQUIRED AS A HIGH-RISE BUILDING (IBC 403.4.7). THE SMOKE REMOVAL SYSTEM WILL BE EQUIPPED WITH NATURAL OR MECHANICAL VENTILATION.

FIRE DEPARTMENT COMMUNICATION SYSTEM

EMERGENCY RESPONDER RADIO COVERAGE DESIGNED IN ACCORDANCE WITH NFPA 72 WILL BE PROVIDED THROUGHOUT THE BUILDING (IBC 403.4.5, LSC 11.8.4.2.2).

EMERGENCY POWER

AN EMERGENCY POWER SYSTEM WILL BE PROVIDED FOR THE FOLLOWING SYSTEMS (IBC 403.4.8.4, LSC 11.8.5):

- EXIT SIGNS AND MEANS OF EGRESS ILLUMINATION REQUIRED BY CHAPTER 10
- ELEVATOR CAR LIGHTING
- EMERGENCY VOICE/ALARM COMMUNICATION SYSTEMS.
- AUTOMATIC FIRE DETECTION SYSTEMS.
- FIRE ALARM SYSTEM.
- ELECTRICALLY POWERED FIRE PUMPS.

A STANDBY POWER SYSTEM WILL BE PROVIDED FOR THE FOLLOWING SYSTEMS (IBC 403.4.8.3, LSC 11.8.5.3.4):

- POWER AND LIGHTING FOR THE FIRE COMMAND CENTER
- VENTILATION AND AUTOMATIC FIRE DETECTION EQUIPMENT FOR SMOKEPROOF ENCLOSURES
- FIRE SERVICE ACCESS ELEVATORS
- JOCKEY PUMP
- STAIRWAY VIDEO MONITORING (IF PROVIDED)
- ELEVATOR RECALL AND EMERGENCY OPERATION. WHERE A COMMON OPERATING SYSTEM CONTROLS TWO OR MORE ELEVATORS, ALL OF THE ELEVATORS MUST AUTOMATICALLY TRANSFER TO STANDBY POWER WITHIN 60 SECONDS AFTER FAILURE OF NORMAL POWER WHERE THE STANDBY POWER IS SUFFICIENT CAPACITY TO OPERATE ALL THE ELEVATORS AT THE SAME TIME. WHERE IT IS NOT SUFFICIENT, ALL ELEVATORS MUST TRANSFER TO STANDBY POWER IN SEQUENCE, RETURN TO THE DESIGNATED LANDING AND DISCONNECT FROM THE STANDBY POWER SOURCE. AFTER ALL THE ELEVATORS HAVE BEEN RETURNED TO THE DESIGNATED LEVEL, AT LEAST ONE ELEVATOR MUST REMAIN OPERABLE FROM THE STANDBY POWER SOURCE (IBC 3003.1.3).

GENERAL NOTES

1. ALL WORK AND MATERIALS FURNISHED SHALL COMPLY WITH THE MAINE UNIFORM BUILDING, FIRE, PLUMBING, MECHANICAL AND FUEL GAS CODES, THE STATE OF MAINE REGULATIONS, THE REGULATIONS OF THE NATIONAL BOARD OF FIRE UNDERWRITERS, NATIONAL FIRE PROTECTIVE ASSOCIATION REQUIREMENTS AND ALL FEDERAL, STATE, AND MUNICIPAL AUTHORITIES HAVING JURISDICTION OVER THE WORK.
2. BEFORE ORDERING ANY MATERIALS OR DOING ANY WORK, EACH TRADE SHALL VERIFY ALL MEASUREMENTS WITH AT THE BUILDING AND SHALL BE RESPONSIBLE FOR THE CORRECTNESS OF THE SAME. NO EXTRA CHARGE OR COMPENSATION WILL BE ALLOWED ON ACCOUNT OF DIFFERENCE BETWEEN ACTUAL DIMENSIONS AND THE MEASUREMENTS INDICATED ON THE DRAWINGS; ANY DISCREPANCIES BETWEEN THE DRAWINGS AND FIELD CONDITIONS WHICH MAY BE FOUND SHALL BE SUBMITTED TO THE ARCHITECT FOR CONSIDERATION AND CLARIFICATION BEFORE PROCEEDING WITH THE WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DEVIATION FROM THE CONTRACT DOCUMENTS.
3. ALL OF THE ARCHITECT'S DRAWINGS AND CONSTRUCTION NOTES ARE COMPLEMENTARY AND WHAT IS CALLED FOR BE EITHER WILL BE BINDING AS IF CALLED FOR BY ALL; ANY WORK SHOWN OR REFERRED TO ON ANY ONE DRAWING SHALL BE PROVIDED AS THOUGH SHOWN ON ALL DRAWINGS.
4. THE WORK TO BE PERFORMED CONSISTS OF FURNISHING ALL LABOR, EQUIPMENT, TOOLS, TRANSPORTATION, SUPPLIES, FEES, MATERIALS, AND SERVICES IN



ARCHITECT / LANDSCAPE ARCHITECT

MARVEL

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212.616.0420

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254 COMM. ST, STE 118, PORTLAND, ME 04101
STRUCTURAL ENGINEER / PARKING
THORNTON TOMASETTI
14 YORK ST, STE 201, PORTLAND, ME 04101
MEP/FP
WSP
250 W 34TH ST, 5TH FL, NEW YORK, NY 10119
ENCLOSURE
RWDI
1608 WALNUT ST, STE 1603, PHILA., PA 19103
CIVIL ENGINEER
WOODARD & CURRAN
41 HUTCHINS DR, PORTLAND, ME 04102
LANDSCAPE ARCHITECT (STREETSCAPE)
MBLA
457 US RTE 1, STE 2, FREEPORT, ME 04032
LEAD INTERIOR DESIGNER
WORKSHOP/APD
39 W 38TH ST, 7TH FL, NEW YORK, NY 10018
LIGHTING CONSULTANT
FISHER MARANTZ STONE
22 W 19TH ST, FL 6, NEW YORK, NY 10011
SUSTAINABILITY
ATELIER TEN
104 W 29TH ST, 8TH FL, NEW YORK, NY 10001
CODE / ACCESSIBILITY CONSULTANT
CCI
215 W 40TH ST, FL 10, NEW YORK, NY 10018
ACOUSTICAL CONSULTANT
LONGMAN LINDSEY
200 W41ST ST, STE1100, NEW YORK, NY 10036
ELEVATOR CONSULTANT
VDA
100 SUMMER ST, STE 1600, BOSTON, MA 02110
FOOD SERVICE
ROMANO GATLAND
1 HUNTINGTON QUAD #2C03, MELVILLE, NY
POOL
LOTHROP / AQUATECTONIC
333 WESTCHESTER AVE, WHITE PLAINS, NY
TECHNOLOGY
SHEN, MILSOM & WILKE
275 MADISON AVE, FL 14, NEW YORK, NY 10016

REV	DATE	DESCRIPTION
	04.14.2023	SITE PLAN APPLICATION
	05.12.2023	DESIGN DEVELOPMENT
	06.23.2023	SITE PLAN APPLICATION



1 SOUTHEAST ELEVATION
1/16" = 1'-0"

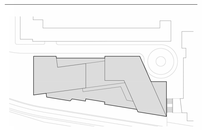
GENERAL ELEVATION NOTES

1. FLOOR-TO-FLOOR DIMENSIONS ARE TO TOP OF FINISHED FLOOR.
2. CLEAR FLOOR-TO-FLOOR DIMENSIONS ARE APPROXIMATE AND WILL BE IMPACTED BY FLOOR AND CEILING FINISHES, WHICH ARE NOT KNOWN AT THIS TIME.
3. REFER TO SHEET A-400 FOR ADDITIONAL INFORMATION ON FACADE WALL TYPES.

ELEVATIONS LEGEND

- GLAZING (IGU-1, TYP.)
- GL-3 REFLECTIVE INFILL PANEL
- GFRC-1 CLADDING PANEL
- GFRC-2 TEXTURED GFRC INFILL PANEL
- ST-1 GRANITE CLADDING
- MTL-8 FIXED METAL LOUVER
- MTL-7 METAL BULKHEAD CLADDING
- MTL-9 METAL MECHANICAL SCREEN WALL
- WD-1 WOOD RAINSCREEN & SOFFIT CLADDING
- WD-2 SLATTED WOOD SCREEN
- MTL-5 WEATHERING STEEL
- MTL-6 CHAMPAGNE ANODIZED ALUMINUM

NOT FOR CONSTRUCTION



PLOT PLAN

2230

PORTLAND FORESIDE B5
PORTLAND, ME

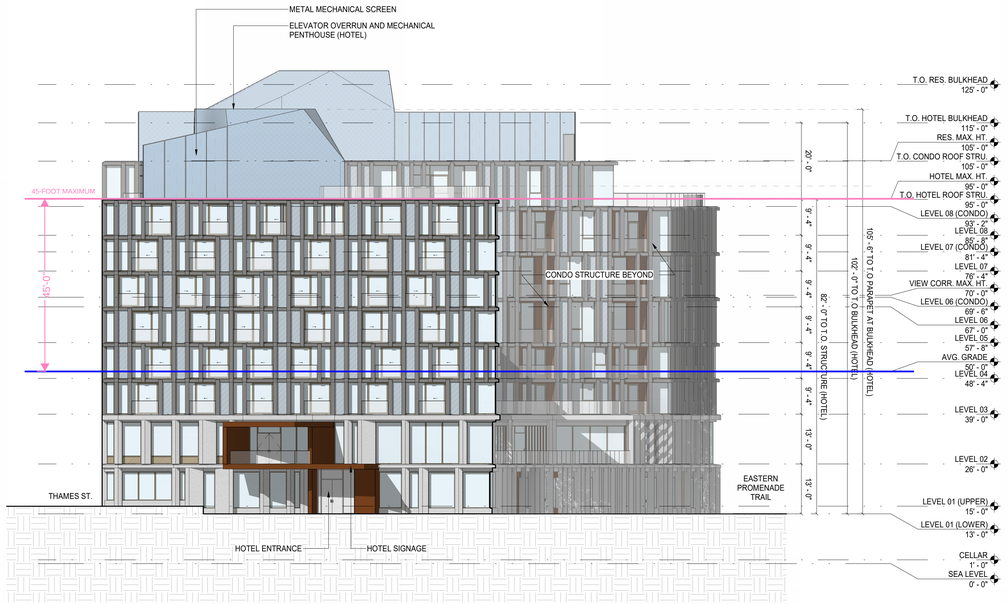
BUILDING ELEVATIONS

SCALE: As indicated

DRAWING #:
A-310
___ of ___
JOB #:

5/12/2023 2:56:37 PM

MARVEL ARCHITECTS, LANDSCAPE ARCHITECTS, URBAN DESIGNERS, PLLC



1 SOUTHWEST ELEVATION

1/16" = 1'-0"



2 NORTHWEST ELEVATION

1/16" = 1'-0"

GENERAL ELEVATION NOTES

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2. CLEAR FLOOR-TO-FLOOR DIMENSIONS ARE APPROXIMATE AND WILL BE IMPACTED BY FLOOR AND CEILING FINISHES, WHICH ARE NOT KNOWN AT THIS TIME.
3. REFER TO SHEET A-400 FOR ADDITIONAL INFORMATION ON FACADE WALL TYPES.

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- MTL-5 WEATHERING STEEL
- MTL-6 CHAMPAGNE ANODIZED ALUMINUM

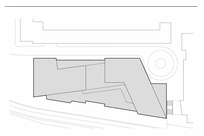


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212.616.0420

CLIENT
PORTLAND FORESIDE
254 COMM. ST, STE 118, PORTLAND, ME 04101
STRUCTURAL ENGINEER / PARKING
THORNTON TOMASETTI
14 YORK ST, STE 201, PORTLAND, ME 04101
MEP/FP
WSP
250 W 34TH ST, 5TH FL, NEW YORK, NY 10119
ENCLOSURE
RWDI
1608 WALNUT ST, STE 1603, PHILA., PA 19103
CIVIL ENGINEER
WOODARD & CURRAN
41 HUTCHINS DR, PORTLAND, ME 04102
LANDSCAPE ARCHITECT (STREETSCAPE)
MBLA
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WORKSHOP/APD
39 W 38TH ST, 7TH FL, NEW YORK, NY 10018
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FISHER MARANTZ STONE
22 W 19TH ST, FL 6, NEW YORK, NY 10011
SUSTAINABILITY
ATELIER TEN
104 W 29TH ST, 8TH FL, NEW YORK, NY 10001
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CCI
215 W 40TH ST, FL 10, NEW YORK, NY 10018
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LONGMAN LINDSEY
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VDA
100 SUMMER ST, STE 1600, BOSTON, MA 02110
FOOD SERVICE
ROMANO GATLAND
1 HUNTINGTON QUAD #2C03, MELVILLE, NY
POOL
LOTHROP / AQUATECTONIC
333 WESTCHESTER AVE, WHITE PLAINS, NY
TECHNOLOGY
SHEN, MILSOM & WILKE
275 MADISON AVE, FL 14, NEW YORK, NY 10016

REV	DATE	DESCRIPTION
	04.14.2023	SITE PLAN APPLICATION
	05.12.2023	DESIGN DEVELOPMENT
	06.23.2023	SITE PLAN APPLICATION

NOT FOR CONSTRUCTION



PLOT PLAN

2230

PORTLAND FORESIDE B5

PORTLAND, ME

BUILDING ELEVATIONS

SCALE: As indicated

DRAWING #:

A-311

___ of ___

JOB #:



ARCHITECT / LANDSCAPE ARCHITECT

MARVEL

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1 **NORTH ELEVATION (CONDO)**
1/16" = 1'-0"

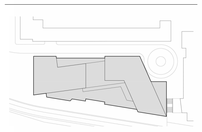
GENERAL ELEVATION NOTES

1. FLOOR-TO-FLOOR DIMENSIONS ARE TO TOP OF FINISHED FLOOR.
2. CLEAR FLOOR-TO-FLOOR DIMENSIONS ARE APPROXIMATE AND WILL BE IMPACTED BY FLOOR AND CEILING FINISHES, WHICH ARE NOT KNOWN AT THIS TIME.
3. REFER TO SHEET A-400 FOR ADDITIONAL INFORMATION ON FACADE WALL TYPES.

ELEVATIONS LEGEND

- GLAZING (IGU-1, TYP.)
- GL-3 REFLECTIVE INFILL PANEL
- GFRC-1 CLADDING PANEL
- GFRC-2 TEXTURED GFRC INFILL PANEL
- ST-1 GRANITE CLADDING
- MTL-8 FIXED METAL LOUVER
- MTL-7 METAL BULKHEAD CLADDING
- MTL-9 METAL MECHANICAL SCREEN WALL
- WD-1 WOOD RAINSCREEN & SOFFIT CLADDING
- WD-2 SLATTED WOOD SCREEN
- MTL-5 WEATHERING STEEL
- MTL-6 CHAMPAGNE ANODIZED ALUMINUM

NOT FOR CONSTRUCTION



PLOT PLAN

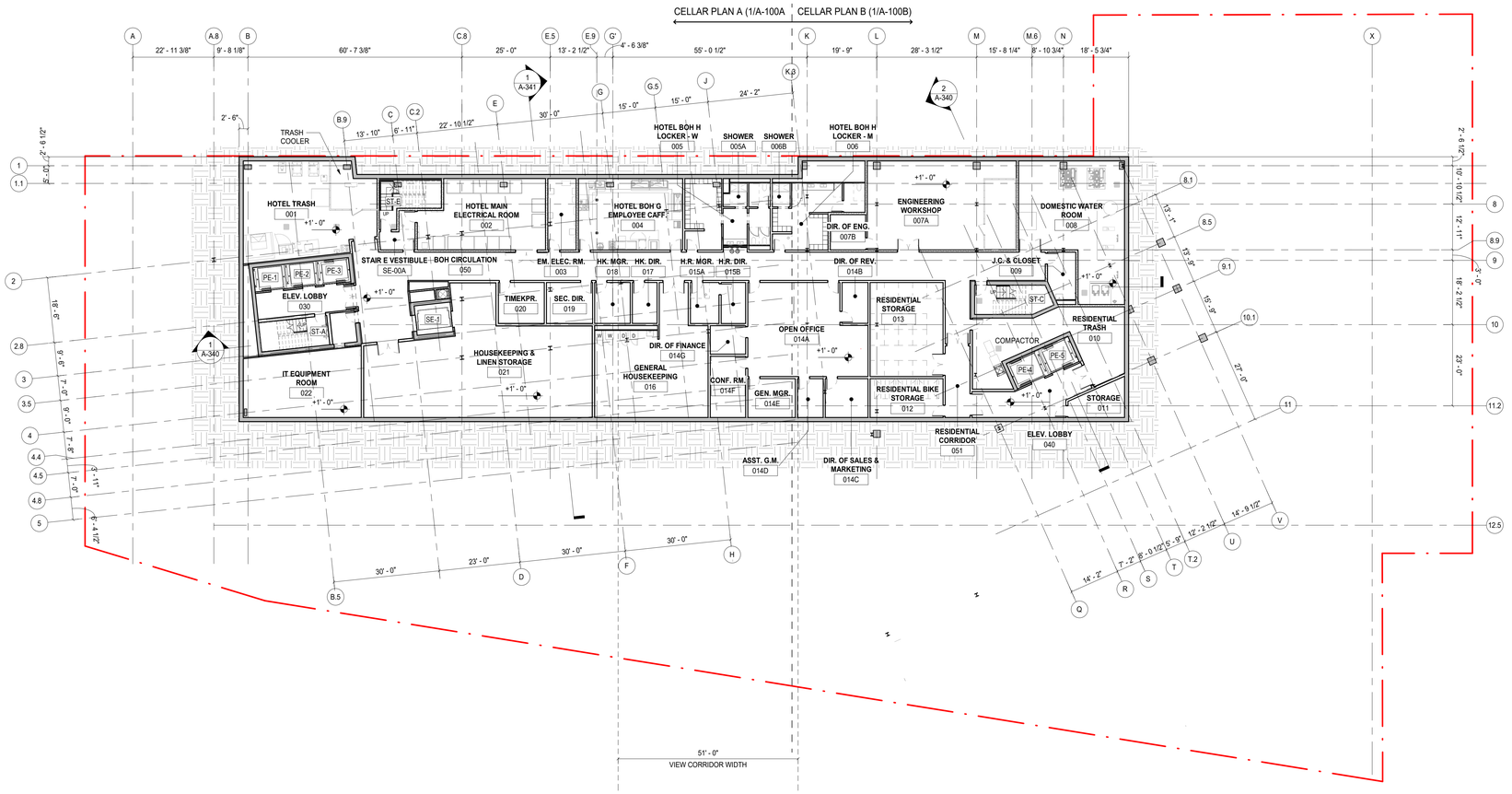
2230
PORTLAND FORESIDE B5
PORTLAND, ME

BUILDING ELEVATIONS

SCALE: As indicated

DRAWING #:
A-312
___ of ___
JOB #:

5/12/2023 2:58:06 PM
MARVEL ARCHITECTS, LANDSCAPE ARCHITECTS, URBAN DESIGNERS, PLLC



1 CELLAR OVERALL PLAN

1/16" = 1'-0"

0 6' 12' 24'

PLAN LEGEND

- FRAMED GWB PARTITION
- CMU PARTITION
- STRUCTURAL CONCRETE WALL
- WHITE BOX SPACE
- PARCEL LINE
- SHARED RESIDENTIAL TERRACE
- PRIVATE RESIDENTIAL TERRACE
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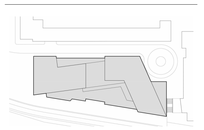


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PLOT PLAN

2230

PORTLAND FORESIDE B5
PORTLAND, ME

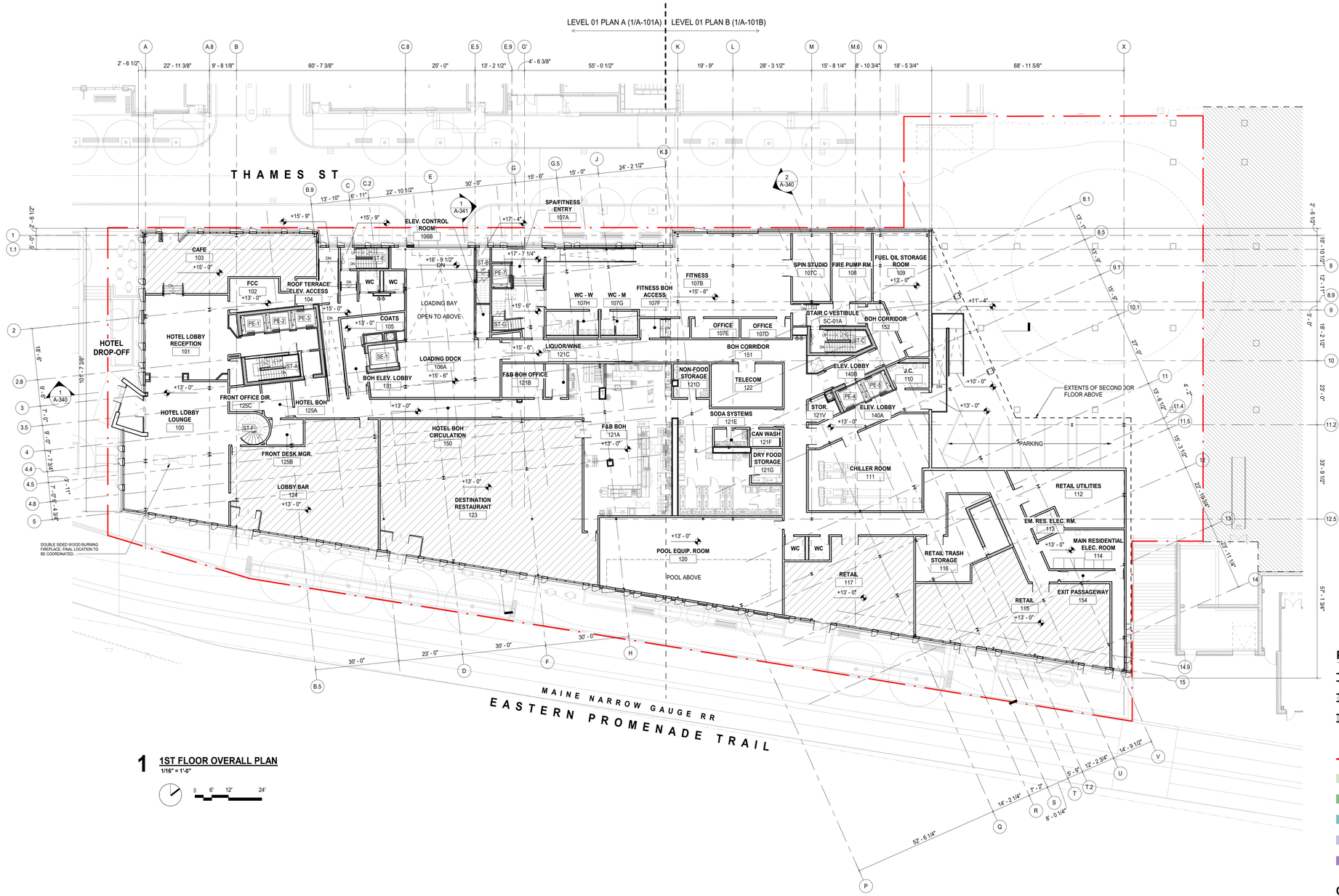
CELLAR OVERALL PLAN

SCALE: As indicated

DRAWING #:
A-100
___ of ___
JOB #:

5/12/2023 6:25:00 PM

MARVEL ARCHITECTS, LANDSCAPE ARCHITECTS, URBAN DESIGNERS, PLLC



1 1ST FLOOR OVERALL PLAN

1/16" = 1'-0"

0 6' 12' 24'

PLAN LEGEND

- FRAMED GWB PARTITION
- CMU PARTITION
- STRUCTURAL CONCRETE WALL
- WHITE BOX SPACE
- PARCEL LINE
- SHARED RESIDENTIAL TERRACE
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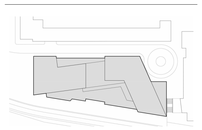


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212.616.0420

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REV	DATE	DESCRIPTION
	10.14.2022	SCHEMATIC DESIGN
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	06.23.2023	SITE PLAN APPLICATION

NOT FOR CONSTRUCTION



PLOT PLAN

2230

PORTLAND FORESIDE B5

PORTLAND, ME

1ST FLOOR OVERALL PLAN

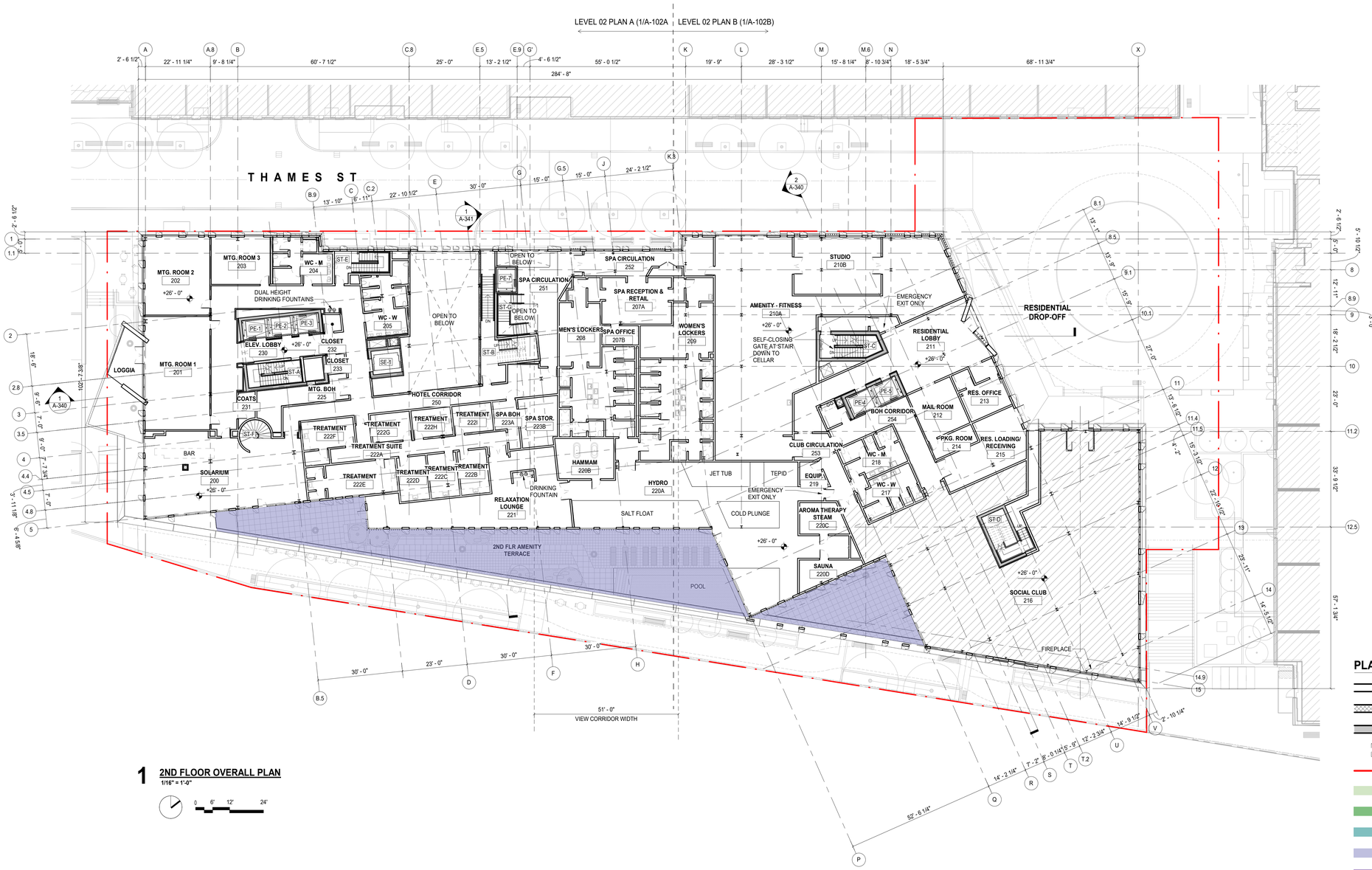
SCALE: As indicated

DRAWING #:

A-101

___ of ___

JOB #:



1 2ND FLOOR OVERALL PLAN

1/16" = 1'-0"

0 6' 12' 24'

PLAN LEGEND

- FRAMED GWB PARTITION
- CMU PARTITION
- STRUCTURAL CONCRETE WALL
- WHITE BOX SPACE
- PARCEL LINE
- SHARED RESIDENTIAL TERRACE
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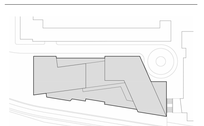


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PLOT PLAN
2230
PORTLAND FORESIDE B5
PORTLAND, ME

2ND FLOOR OVERALL PLAN

SCALE: As indicated

DRAWING #:
A-102
of
JOB #:

5/12/2023 6:25:25 PM

MARVEL ARCHITECTS, LANDSCAPE ARCHITECTS, URBAN DESIGNERS, PLLC



1 3RD FLOOR OVERALL PLAN

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ARCHITECT / LANDSCAPE ARCHITECT

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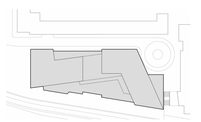
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PLOT PLAN

2230

PORTLAND FORESIDE B5

PORTLAND, ME

3RD FLOOR OVERALL PLAN

SCALE: As indicated

DRAWING #:

A-103

___ of ___

JOB #:

5/12/2023 6:26:38 PM

MARVEL ARCHITECTS, LANDSCAPE ARCHITECTS, URBAN DESIGNERS, PLLC



1 4TH FLOOR OVERALL PLAN

1/16" = 1'-0"

0 6' 12' 24'

PLAN LEGEND

- FRAMED GWB PARTITION
- CMU PARTITION
- STRUCTURAL CONCRETE WALL
- WHITE BOX SPACE
- PARCEL LINE
- SHARED RESIDENTIAL TERRACE
- PRIVATE RESIDENTIAL TERRACE
- PRIVATE RESIDENTIAL BALCONY
- SHARED HOTEL TERRACE
- PRIVATE HOTEL TERRACE

GENERAL PLAN NOTES

1. REFER TO SHEET **A-020-A-021** FOR PARTITION TYPES.
2. REFER TO SHEET **G-010** FOR PROJECT SUMMARY + GENERAL NOTES
3. REFER TO SHEET **G-015** FOR GRAPHIC SYMBOLS AND ABBREVIATIONS.
4. REFER TO SHEET **G-020/G-021/G-022** FOR ACCESSIBILITY NOTES AND DIAGRAMS.
5. SEE A-020 TO A-40 SERIES AND NOTED DETAILS FOR WALL, FLOOR, AND CEILING ASSEMBLIES.
6. EGRESS STAIR WALLS AND ELEVATOR CORE TO BE MIN. 2 HOUR RATED CONSTRUCTION U.O.N.
7. ALL DOORS WITHIN FIRE-RATED PARTITIONS SHALL BE LABELED. FIRE-RATED DOORS SHALL BE EQUIPPED WITH RATED HARDWARE. RATED DOORS ALONG EGRESS ROUTES AND WITHIN INTERIOR EXIT STAIRWAYS ARE TO BE LABELED, SELF-CLOSING, AND EQUIPPED WITH FIRE EXIT DEVICE HARDWARE.
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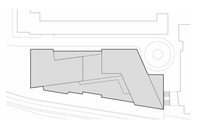


ARCHITECT / LANDSCAPE ARCHITECT
MARVEL
145 HUDSON STREET, FLR.3 NEW YORK, NY 10013
212.616.0420

CLIENT
PORTLAND FORESIDE
254 COMM. ST, STE 118, PORTLAND, ME 04101
STRUCTURAL ENGINEER / PARKING
THORNTON TOMASETTI
14 YORK ST, STE 201, PORTLAND, ME 04101
MEP/FP
WSP
250 W 34TH ST, 5TH FL, NEW YORK, NY 10119
ENCLOSURE
RWDI
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MBLA
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LIGHTING CONSULTANT
FISHER MARANTZ STONE
22 W 19TH ST, FL 6, NEW YORK, NY 10011
SUSTAINABILITY
ATELIER TEN
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CODE / ACCESSIBILITY CONSULTANT
CCI
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200 W41ST ST, STE1100, NEW YORK, NY 10036
ELEVATOR CONSULTANT
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ROMANO GATLAND
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POOL
LOTHROP / AQUATECTONIC
333 WESTCHESTER AVE, WHITE PLAINS, NY
TECHNOLOGY
SHEN, MILSOM & WILKE
275 MADISON AVE, FL 14, NEW YORK, NY 10016

REV	DATE	DESCRIPTION
	10.14.2022	SCHEMATIC DESIGN
	05.12.2023	DESIGN DEVELOPMENT
	06.23.2023	SITE PLAN APPLICATION

NOT FOR CONSTRUCTION



PLOT PLAN

2230
PORTLAND FORESIDE B5
PORTLAND, ME

4TH FLOOR OVERALL PLAN

SCALE: As indicated

DRAWING #:
A-104
___ of ___
JOB #:

5/12/2023 6:25:49 PM

MARVEL ARCHITECTS, LANDSCAPE ARCHITECTS, URBAN DESIGNERS, PLLC



1 5TH FLOOR OVERALL PLAN

1/16" = 1'-0"

0 6" 12" 24"

PLAN LEGEND

- FRAMED GWB PARTITION
- CMU PARTITION
- STRUCTURAL CONCRETE WALL
- WHITE BOX SPACE
- PARCEL LINE
- SHARED RESIDENTIAL TERRACE
- PRIVATE RESIDENTIAL TERRACE
- PRIVATE RESIDENTIAL BALCONY
- SHARED HOTEL TERRACE
- PRIVATE HOTEL TERRACE

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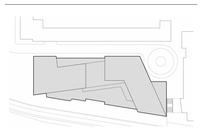


ARCHITECT / LANDSCAPE ARCHITECT
MARVEL
145 HUDSON STREET, FLR.3 NEW YORK, NY 10013
212.616.0420

CLIENT
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REV	DATE	DESCRIPTION
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	05.12.2023	DESIGN DEVELOPMENT
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NOT FOR CONSTRUCTION



PLOT PLAN
2230
PORTLAND FORESIDE B5
PORTLAND, ME

5TH FLOOR OVERALL PLAN

SCALE: As indicated

DRAWING #:
A-105
___ of ___
JOB #:

5/12/2023 6:26:00 PM
MARVEL ARCHITECTS, LANDSCAPE ARCHITECTS, URBAN DESIGNERS, PLLC



1 6TH FLOOR OVERALL PLAN

1/16" = 1'-0"

0 6" 12" 24"

PLAN LEGEND

- FRAMED GWB PARTITION
- CMU PARTITION
- STRUCTURAL CONCRETE WALL
- WHITE BOX SPACE
- PARCEL LINE
- SHARED RESIDENTIAL TERRACE
- PRIVATE RESIDENTIAL TERRACE
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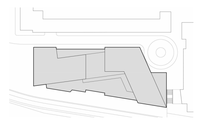


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212.616.0420

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	06.23.2023	SITE PLAN APPLICATION

NOT FOR CONSTRUCTION



PLOT PLAN

2230
PORTLAND FORESIDE B5
PORTLAND, ME

6TH FLOOR OVERALL PLAN

SCALE: As indicated

DRAWING #:
A-106
___ of ___
JOB #:

5/12/2023 6:26:13 PM

MARVEL ARCHITECTS, LANDSCAPE ARCHITECTS, URBAN DESIGNERS, PLLC



1 7TH FLOOR OVERALL PLAN

1/16" = 1'-0"

0 6" 12" 24"

PLAN LEGEND

- FRAMED GWB PARTITION
- CMU PARTITION
- STRUCTURAL CONCRETE WALL
- WHITE BOX SPACE
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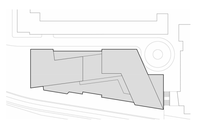


ARCHITECT / LANDSCAPE ARCHITECT
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	05.12.2023	DESIGN DEVELOPMENT
	06.23.2023	SITE PLAN APPLICATION

NOT FOR CONSTRUCTION



PLOT PLAN

2230
PORTLAND FORESIDE B5
PORTLAND, ME

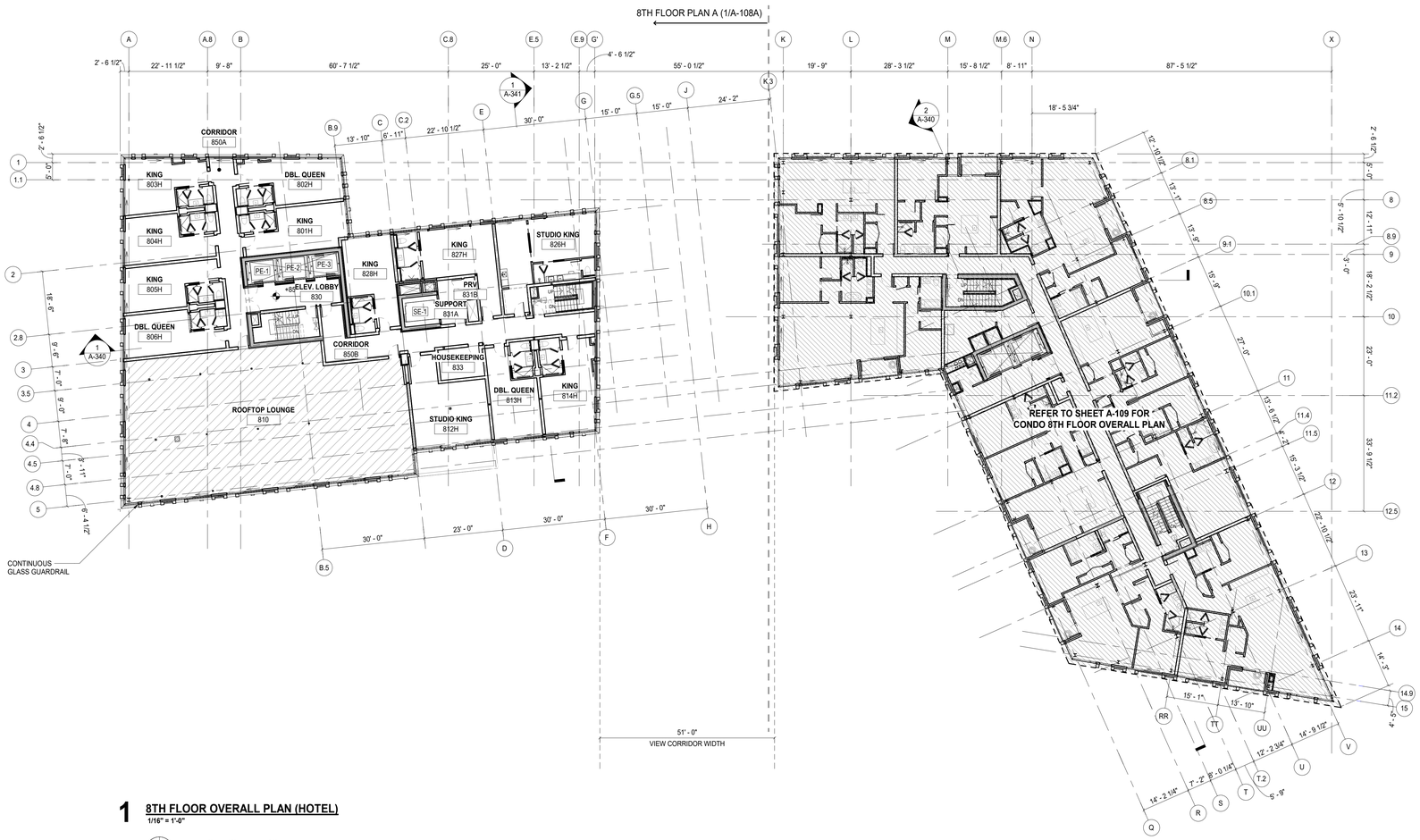
7TH FLOOR OVERALL PLAN

SCALE: As indicated

DRAWING #:
A-107
___ of ___
JOB #:

5/12/2023 6:26:24 PM

MARVEL ARCHITECTS, LANDSCAPE ARCHITECTS, URBAN DESIGNERS, PLLC



1 8TH FLOOR OVERALL PLAN (HOTEL)

1/16" = 1'-0"

0 6" 12" 24"

ARCHITECT / LANDSCAPE ARCHITECT

MARVEL

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	06.23.2023	SITE PLAN APPLICATION

NOT FOR CONSTRUCTION

PLAN LEGEND

- FRAMED GWB PARTITION
- CMU PARTITION
- STRUCTURAL CONCRETE WALL
- WHITE BOX SPACE
- PARCEL LINE
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PLOT PLAN

2230
PORTLAND FORESIDE B5
PORTLAND, ME

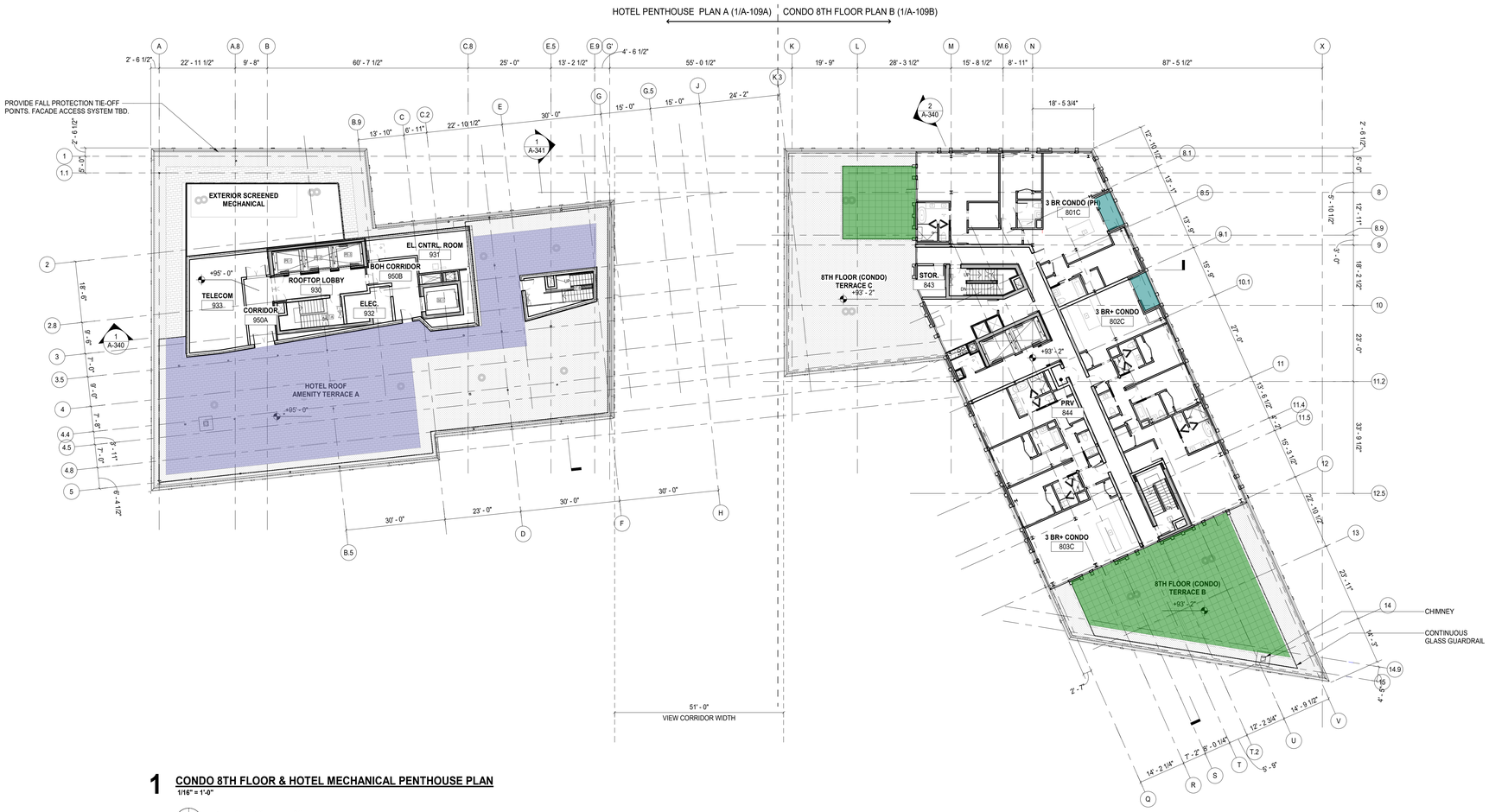
8TH FLOOR OVERALL PLAN (HOTEL)

SCALE: As indicated

DRAWING #:
A-108
___ of ___
JOB #:

5/12/2023 6:26:36 PM

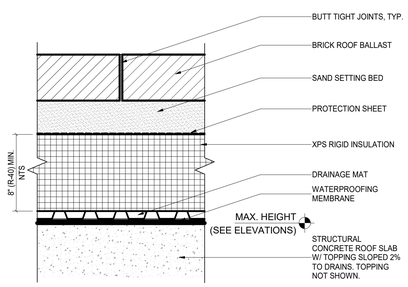
MARVEL ARCHITECTS, LANDSCAPE ARCHITECTS, URBAN DESIGNERS, PLLC



1 CONDO 8TH FLOOR & HOTEL MECHANICAL PENTHOUSE PLAN

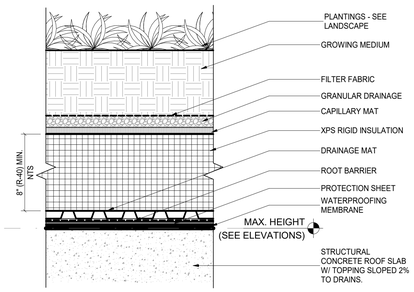
1/16" = 1'-0"

0 6' 12' 24'



2 TYPICAL BRICK ROOF BALLAST ON SAND BED ASSEMBLY

3" = 1'-0"



3 INVERTED ROOF MEMBRANE ASSEMBLY - VEGETATED ROOF BALLAST

3" = 1'-0"



ARCHITECT / LANDSCAPE ARCHITECT
MARVEL
145 HUDSON STREET, FLR.3 NEW YORK, NY 10013
212.616.0420

CLIENT
PORTLAND FORESIDE
254 COMM. ST, STE 118, PORTLAND, ME 04101
STRUCTURAL ENGINEER / PARKING
THORNTON TOMASETTI
14 YORK ST, STE 201, PORTLAND, ME 04101
MEP/FP
WSP
250 W 34TH ST, 5TH FL, NEW YORK, NY 10119
ENCLOSURE
RWDI
1608 WALNUT ST, STE 1603, PHILA., PA 19103
CIVIL ENGINEER
WOODARD & CURRAN
41 HUTCHINS DR, PORTLAND, ME 04102
LANDSCAPE ARCHITECT (STREETSCAPE)
MBLA
457 US RTE 1, STE 2, FREEPORT, ME 04032
LEAD INTERIOR DESIGNER
WORKSHOP/APD
39 W 38TH ST, 7TH FL, NEW YORK, NY 10018
LIGHTING CONSULTANT
FISHER MARANTZ STONE
22 W 19TH ST, FL 6, NEW YORK, NY 10011
SUSTAINABILITY
ATELIER TEN
104 W 29TH ST, 8TH FL, NEW YORK, NY 10001
CODE / ACCESSIBILITY CONSULTANT
CCI
215 W 40TH ST, FL 10, NEW YORK, NY 10018
ACOUSTICAL CONSULTANT
LONGMAN LINDSEY
200 W41ST ST, STE1100, NEW YORK, NY 10036
ELEVATOR CONSULTANT
VDA
100 SUMMER ST, STE 1600, BOSTON, MA 02110
FOOD SERVICE
ROMANO GATLAND
1 HUNTINGTON QUAD #2C03, MELVILLE, NY
POOL
LOTHROP / AQUATECTONIC
333 WESTCHESTER AVE, WHITE PLAINS, NY
TECHNOLOGY
SHEN, MILSOM & WILKE
275 MADISON AVE, FL 14, NEW YORK, NY 10016

REV	DATE	DESCRIPTION
	10.14.2022	SCHEMATIC DESIGN
	05.12.2023	DESIGN DEVELOPMENT
	06.23.2023	SITE PLAN APPLICATION

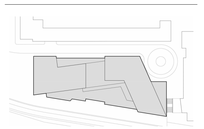
NOT FOR CONSTRUCTION

PLAN LEGEND

- FRAMED GWB PARTITION
- CMU PARTITION
- STRUCTURAL CONCRETE WALL
- WHITE BOX SPACE
- PARCEL LINE
- SHARED RESIDENTIAL TERRACE
- PRIVATE RESIDENTIAL TERRACE
- PRIVATE RESIDENTIAL BALCONY
- SHARED HOTEL TERRACE
- PRIVATE HOTEL TERRACE

GENERAL PLAN NOTES

1. REFER TO SHEET **A-020-A-021** FOR PARTITION TYPES.
2. REFER TO SHEET **G-010** FOR PROJECT SUMMARY + GENERAL NOTES
3. REFER TO SHEET **G-015** FOR GRAPHIC SYMBOLS AND ABBREVIATIONS.
4. REFER TO SHEET **G-020/G-021/G-022** FOR ACCESSIBILITY NOTES AND DIAGRAMS.
5. SEE A-020 TO A-40 SERIES AND NOTED DETAILS FOR WALL, FLOOR, AND CEILING ASSEMBLIES.
6. EGRESS STAIR WALLS AND ELEVATOR CORE TO BE MIN. 2 HOUR RATED CONSTRUCTION U.O.N.
7. ALL DOORS WITHIN FIRE-RATED PARTITIONS SHALL BE LABELED. FIRE-RATED DOORS SHALL BE EQUIPPED WITH RATED HARDWARE. RATED DOORS ALONG EGRESS ROUTES AND WITHIN INTERIOR EXIT STAIRWAYS ARE TO BE LABELED, SELF-CLOSING, AND EQUIPPED WITH FIRE EXIT DEVICE HARDWARE.
8. ALL CORRIDOR WALLS SEPARATING APARTMENTS FROM CORRIDOR TO BE 1 HR FIRE PARTITIONS.
9. ALL DEMISING WALLS SEPARATING APARTMENTS TO BE TYPE 'D1' UON.
10. PROVIDE WALL PROTECTION RAILS, IMPACT RESISTANT WALL COVERINGS, AND CORNER GUARDS IN ALL BACK OF HOUSE CORRIDORS. SEE SPECIFICATIONS.
11. GLASS GUARDRAILS TO BE PROVIDED AT ALL OCCUPIABLE TERRACES AND BALCONIES, INCLUDING JULIET BALCONIES. PROVIDE LAMINATED GLASS WITH SENTRYGLAS INTERLAYER AND STAINLESS STEEL BASE SHOE. THE GLASS BALUSTER PANELS SHALL BE TESTED TO REMAIN IN PLACE AS A BARRIER FOLLOWING IMPACT OR GLASS BREAKAGE IN ACCORDANCE WITH ASTM E2353.



PLOT PLAN

2230

PORTLAND FORESIDE B5

PORTLAND, ME

8TH FLOOR OVERALL PLAN (CONDO)

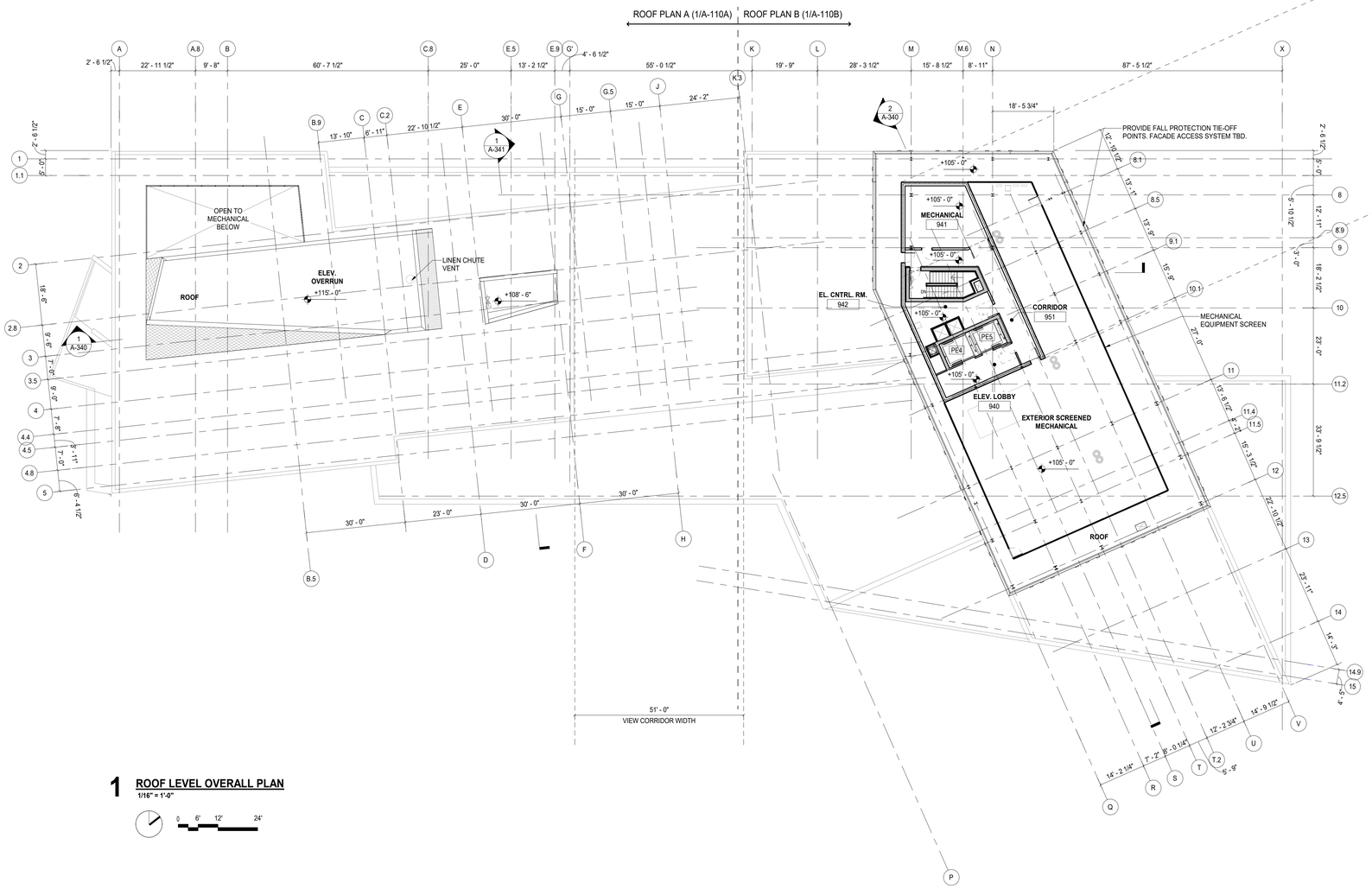
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DRAWING #:

A-109

____ of ____

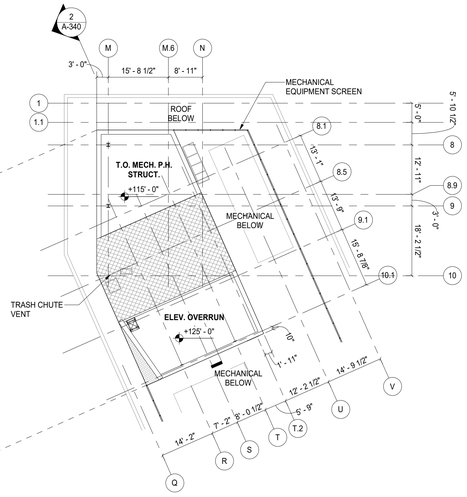
JOB #:



1 ROOF LEVEL OVERALL PLAN

1/16" = 1'-0"

0 6" 12" 24"



2 T.O. BULKHEAD PLAN (CONDO)

1/16" = 1'-0"

PLAN LEGEND

- FRAMED GWB PARTITION
- CMU PARTITION
- STRUCTURAL CONCRETE WALL
- WHITE BOX SPACE
- PARCEL LINE
- SHARED RESIDENTIAL TERRACE
- PRIVATE RESIDENTIAL TERRACE
- PRIVATE RESIDENTIAL BALCONY
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GENERAL PLAN NOTES

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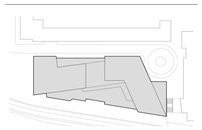


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REV	DATE	DESCRIPTION
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PLOT PLAN

2230

PORTLAND FORESIDE B5

PORTLAND, ME

ROOF PLAN

SCALE: As indicated

DRAWING #:

A-110

of ____

JOB #:

5/12/2023 6:26:53 PM

PART I.1: FACADE DESIGN INTENT, MATERIALS & IMAGERY

Exterior Elevation - Southeast



ELEVATIONS LEGEND

- GLAZING (IGU-1, TYP.)
- MTL-4 REFLECTIVE INFILL PANEL
- GFRC-1 CLADDING PANEL
- GFRC-2 TEXTURED GFRC INFILL PANEL
- ST-1 GRANITE CLADDING
- MTL-8 FIXED METAL LOUVER
- MTL-7 METAL BULKHEAD CLADDING
- MTL-9 METAL MECHANICAL SCREEN WALL
- WD-1 WOOD RAINSCREEN & SOFFIT CLADDING
- WD-2 SLATTED WOOD SCREEN
- MTL-5 WEATHERING STEEL
- MTL-6 CHAMPAGNE ANODIZED ALUMINUM

Exterior Elevation - Southwest



ELEVATIONS LEGEND

- GLAZING (IGU-1, TYP.)
- MTL-4 REFLECTIVE INFILL PANEL
- GFRC-1 CLADDING PANEL
- GFRC-2 TEXTURED GFRC INFILL PANEL
- ST-1 GRANITE CLADDING
- MTL-8 FIXED METAL LOUVER
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- WD-2 SLATTED WOOD SCREEN
- MTL-5 WEATHERING STEEL
- MTL-6 CHAMPAGNE ANODIZED ALUMINUM

Exterior Elevation - Northwest



ELEVATIONS LEGEND

- GLAZING (IGU-1, TYP.)
- MTL-4 REFLECTIVE INFILL PANEL
- GFRC-1 CLADDING PANEL
- GFRC-2 TEXTURED GFRC INFILL PANEL
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- WD-2 SLATTED WOOD SCREEN
- MTL-5 WEATHERING STEEL
- MTL-6 CHAMPAGNE ANODIZED ALUMINUM

Exterior Elevation - North



ELEVATIONS LEGEND

- GLAZING (IGU-1, TYP.)
- MTL-4 REFLECTIVE INFILL PANEL
- GFRC-1 CLADDING PANEL
- GFRC-2 TEXTURED GFRC INFILL PANEL
- ST-1 GRANITE CLADDING
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- WD-1 WOOD RAINSCREEN & SOFFIT CLADDING
- WD-2 SLATTED WOOD SCREEN
- MTL-5 WEATHERING STEEL
- MTL-6 CHAMPAGNE ANODIZED ALUMINUM

Exterior Material Palette



1. CORTEN STEEL

2. GRANITE
JC STONE, SMOOTH (1/64”-1/16” VARIATION) AND SOMEWHAT ROUGH (1/16”-1/4” VARIATION)

3. METAL INFILL

4. WOOD INFILL

5. GLAZING

6. WINDOW FRAME

7. REFELCTIVE INFILL PANEL

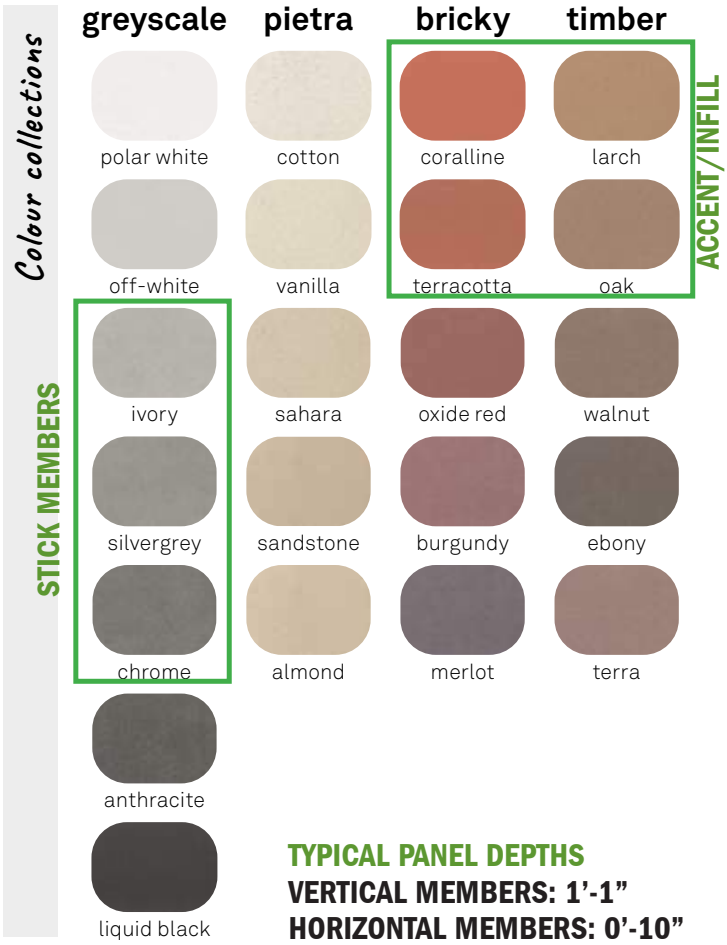
8. GFRC RIBBED INFILL PANEL

9. GFRC

10. COPPER

W1- Formed GFRC Basis-of-Design: Reider Formparts





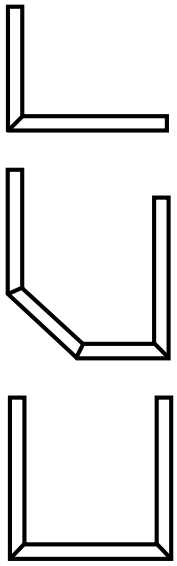
TYPICAL PANEL DEPTHS
VERTICAL MEMBERS: 1'-1"
HORIZONTAL MEMBERS: 0'-10"

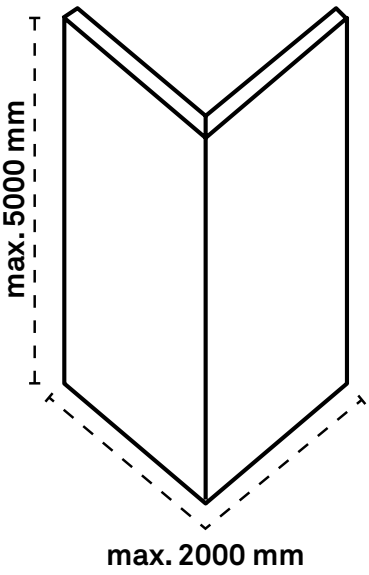


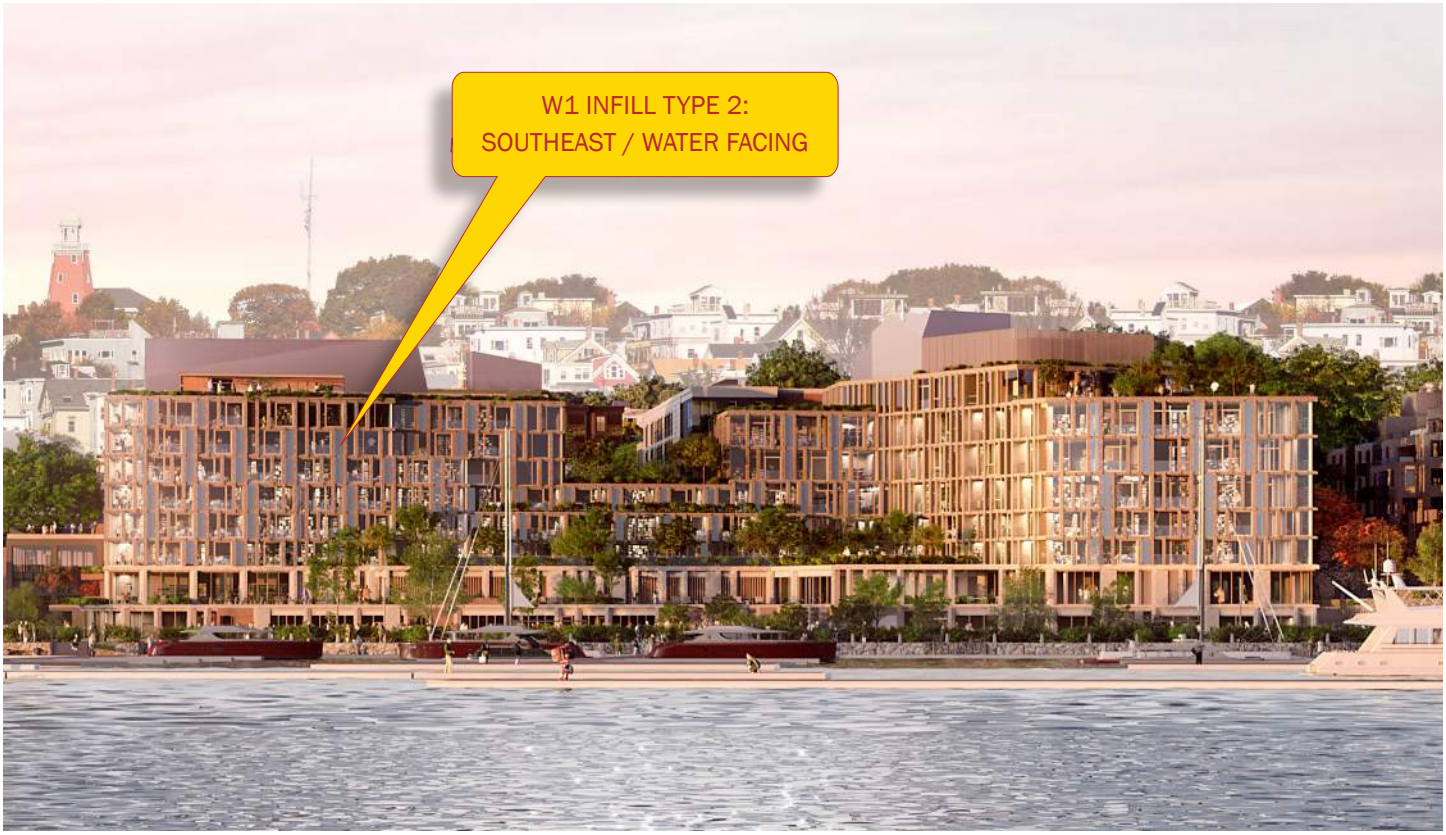
ACCENT/ INFILL TEXTURE



STICK MEMBER TEXTURE






W1 INFILL TYPE 2:
SOUTHEAST / WATER FACING


W1 INFILL TYPE 2:
SOUTHWEST / CITY FACING
THE PROMENADE

W1- Infill Type 2 Basis-of-Design Information

GLASS RAINSCREEN FACADE SYSTEMS

Glass Facades Home | **QC***glass* / **QC***glass-solar* / **QC***glass-digital*

QC*glass* is a unframed glass rainscreen facade system. With the 3/8″ joint and no perimeter metal the system gives you a very clean monolithic facade.

The large variety of glass types available reflect your unique building design aesthetic. From low iron, acid etching other custom finishes we provide a full array of design options.

Our glass is heat strengthened or laminated to meet building codes and is also available in silk screen, enameled or coated applications. For projects and applications large and small, decorative or highly engineered QC*glass* offers a full spectrum of design options.





W1- Infill Type 2 ALTERNATE Basis-of-Design Information



W2- Granite Cladding Basis-of-Design Information





W- 2 Granite Facade Sources - JC Stone

Split-faced



Split-faced stone has been broken by a hydraulic splitter to a specific size, producing a natural look. This finish is mostly used for veneer. It exhibits a natural, quarry texture with untrimmed edges. Split-faced stone generally has a flat back and uneven front surface. The surface evenness varies with the stone type. Faces can be convex, concave or flat. Split-faced finishes come in a number of variations including flat-plane and rough-plane. Flat-plane surface roughness can vary from somewhat rough (1/16-1/4") to rough (1/4-2"). Rough-plane surface roughness can vary from rough to very rough (>2"). While fabrication can be machine-made, hand-made versions are generally considered more attractive. Rockfaced finishes can look similar to split-faced.





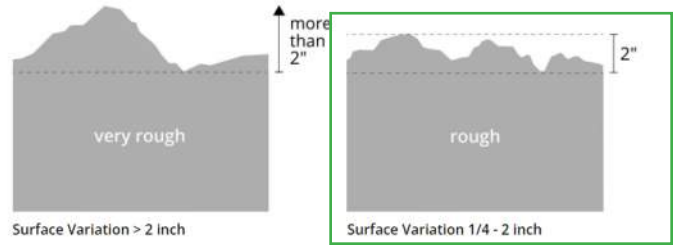
Rock Faced



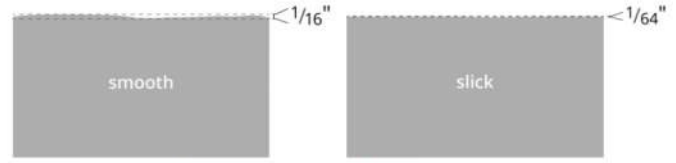
A rustic finish for veneer stone created with a split or chiseled face, and dressed along the stone's perimeter to produce convex projection. This finish is most often used on the sawn edge of the stone to make it look like a natural cleft or split-face surface. It's created with a hammer and chisel, across the face of the stone, resulting in a natural look. Surface roughness can vary from rough (1/4-2") to very rough (>2") depending on the process. Other chiseled patterns include point stalk, pillowed and pineapple. While fabrication can be machine-aided, hand-made versions are generally considered to be more attractive.

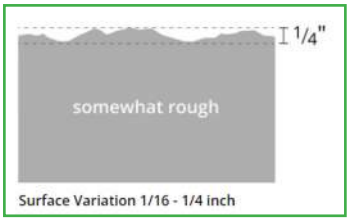






1% - 5% AT SPECIAL MOMENTS





95% AT TYPICAL CONDITIONS

W-2 Granite Cladding Infill Cladding Types





KEBONY CLADDING

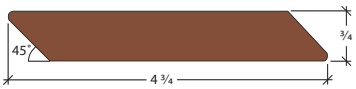




Kebony **Clear**

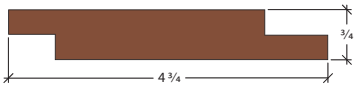


Art.Nr. **2436** **RAP Rhombus Cladding**
Kebony Clear RAP ¾ x 4 ¾ in



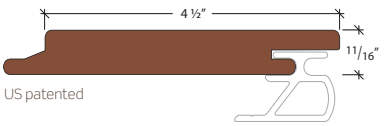


Art.Nr. **2453** **90° Shiplap Cladding**
Kebony Clear RAP ¾ x 4 ¾ in



Special profile:
Climate-Shield® Rain Screen System
Kebony Clear RAP 4 ½ x 11/16 in

NEW

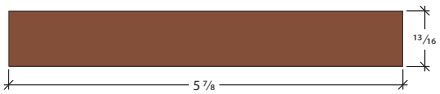


US patented

Kebony **Character**

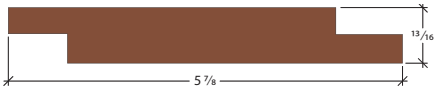


Art.Nr. **1234** **Rectangular Cladding**
Kebony Character 13/16 x 5 7/8 in





Art.Nr. **2216** **90° Shiplap Cladding**
Kebony Character 13/16 x 5 7/8 in





The Kebony® technology gives a deep rich brown color. After exposure to sun and rain the wood develops a natural silver-gray patina. Original color can be maintained using UV protection oils.

Kebony is a natural wood product for outdoor applications and its appearance will therefore be influenced by local environmental conditions over time.

Color changes and checking, or small surface cracks, will occur due to natural weathering. The manufacturer cannot be held liable for any of such variations in color and surface appearance as this will not influence durability and overall performance of the product.

All products are FSC®-certified.

170207 www.tuaj.no

POHL BRONZE

The color spectrum of POHL Bronze* ranges from reddish to gold to brownish shades. The selection of the alloy, polish, patination and finish has a fundamental impact on the final appearance of a surface and adds to the wide range of options possible in a collaboration with POHL.

With a special patination, the natural weathering process of the brass oxidation is recreated. If a layer of wax is applied for protection, the material is allowed to age naturally, where-as the application of varnish seals the look and feel of the surface.

MATERIAL THICKNESS	1 mm to 4 mm
SEALING	Wax | Varnish
PANEL SIZE	1220 mm x 6000 mm Other sizes on request

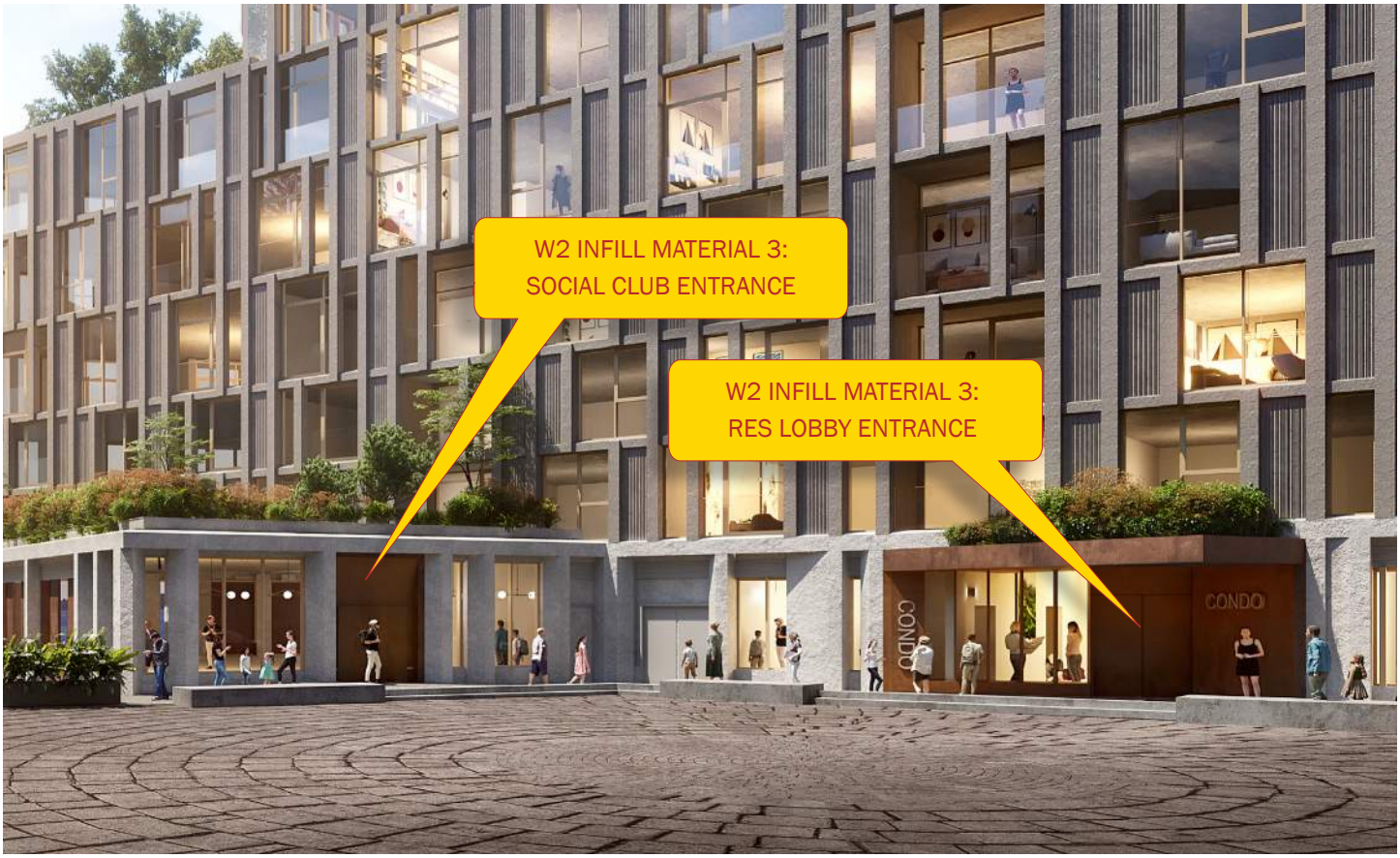

POHL Bronze Light Vibration


POHL Bronze Natural

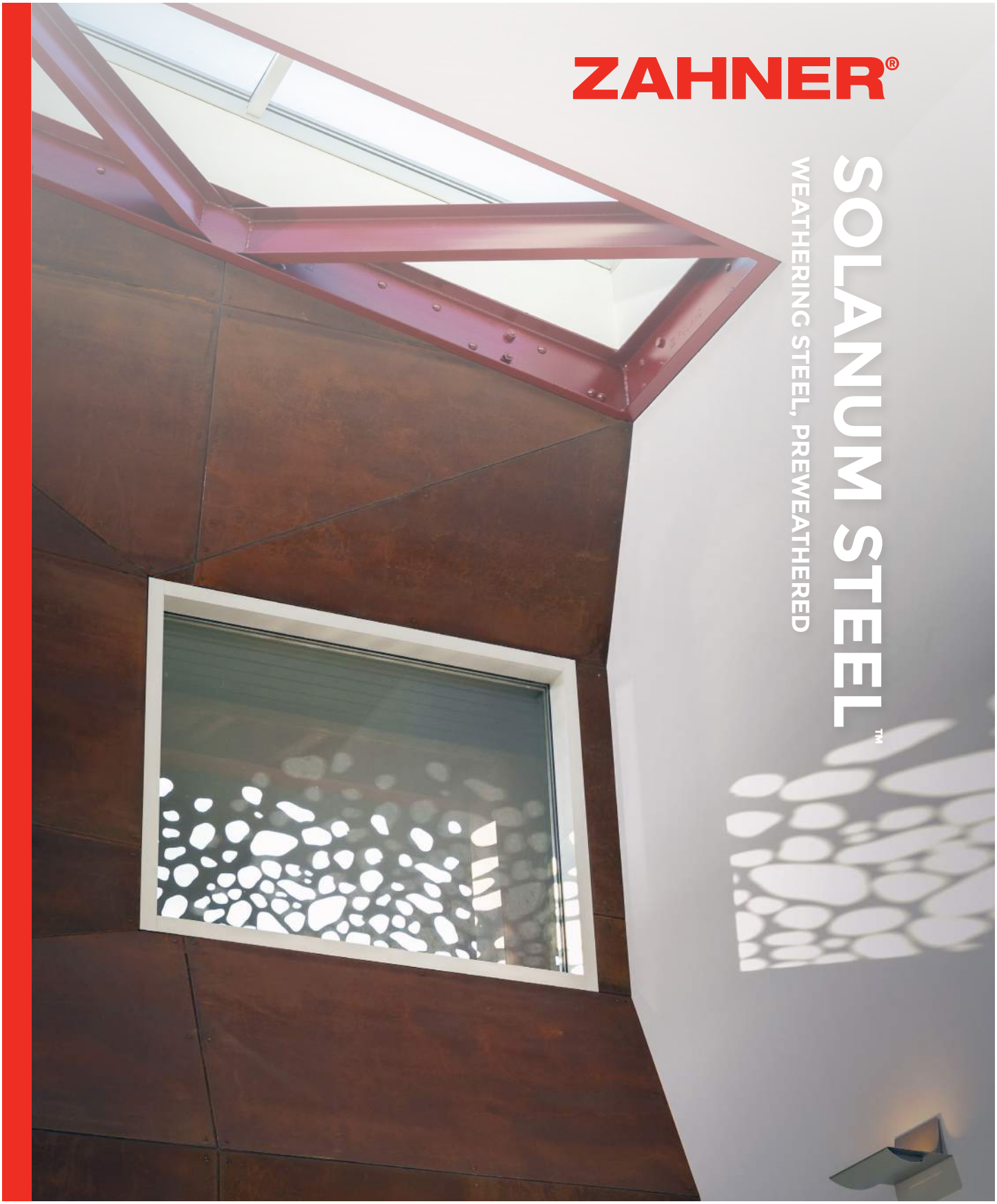

POHL Bronze Dark Hairline

W-2 Granite Cladding Infill Type 3 Locations





W-2 Granite Cladding Infill Type 3 Basis-of-Design



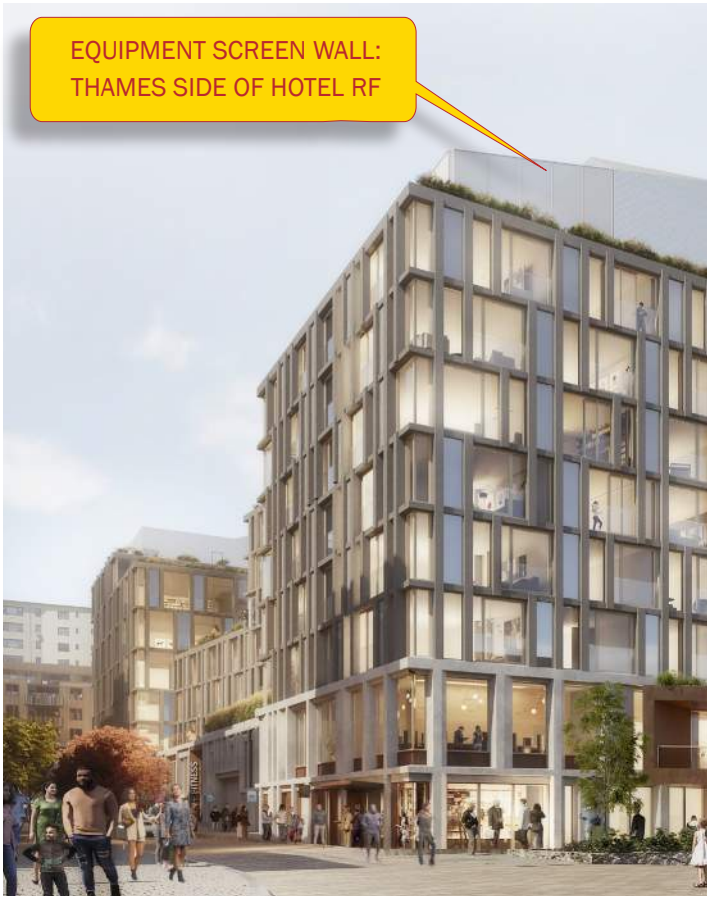
W-3 Roof Bulkhead Cladding B.O.D. Options

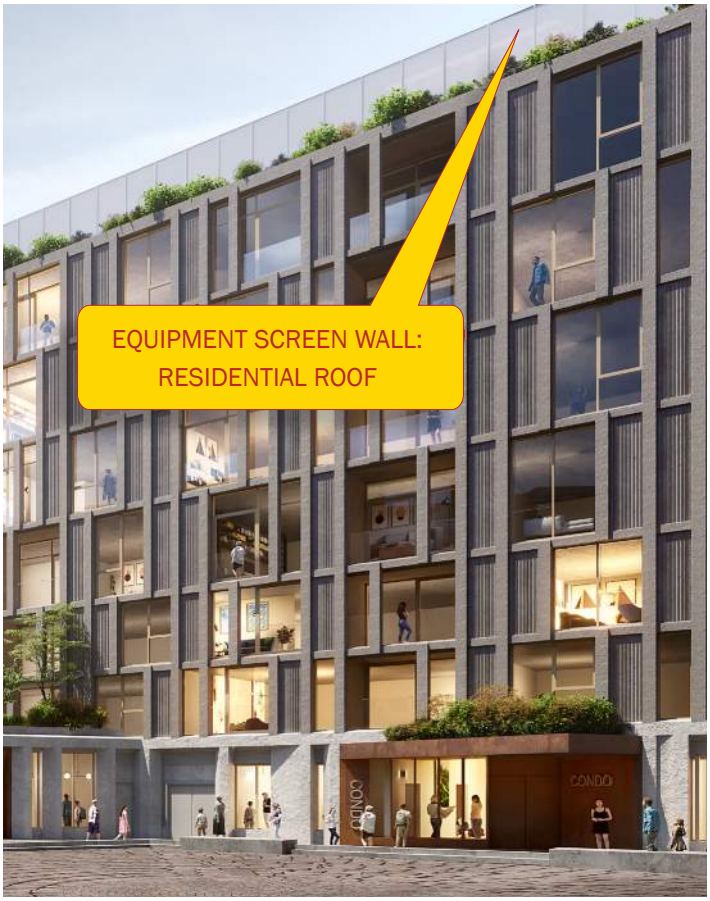




Exterior Roof Equipment Screen Locations







AMIGUARD® 7000 Series High



AMIGUARD® 7100 High Security Mesh



AMIGUARD® 7100 High Security Mesh

Samples shown in 1:1

AMICOAT™ Standard Colors for AMIGUARD® 6000 & 7000 Security Meshes

RAL 1013 Oyster White	RAL 1013 Gray Beige	RAL 3001 Signal Red	RAL 3009 Oxide Red	RAL 5001 Green Blue	RAL 5005 Signal Blue
RAL 6000 Patina Green	RAL 6005 Moss Green	RAL 6026 Opal Green	RAL 6028 Pine Green	RAL 7012 Basalt Gray	RAL 7044 Silk Gray
RAL 8017 Chocolate Brown	RAL 8019 Gray Brown	RAL 9005 Jet Black	RAL 9016 Traffic White		






FITNESS
THE PROMENADE


CONDO
CONDO


RETAIL


THE PROMENADE






FITNESS
THE PROMENADE

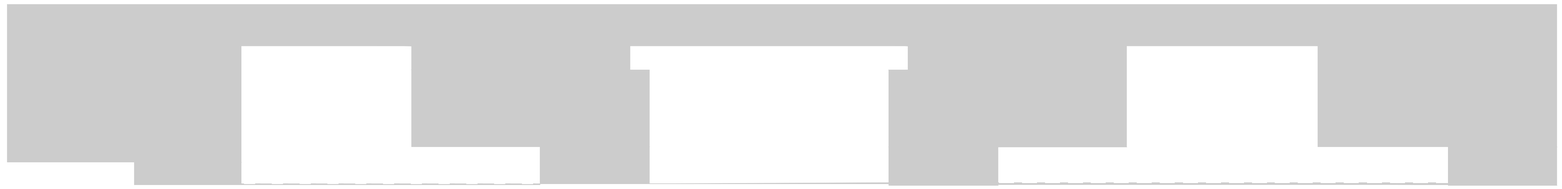

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CONDO

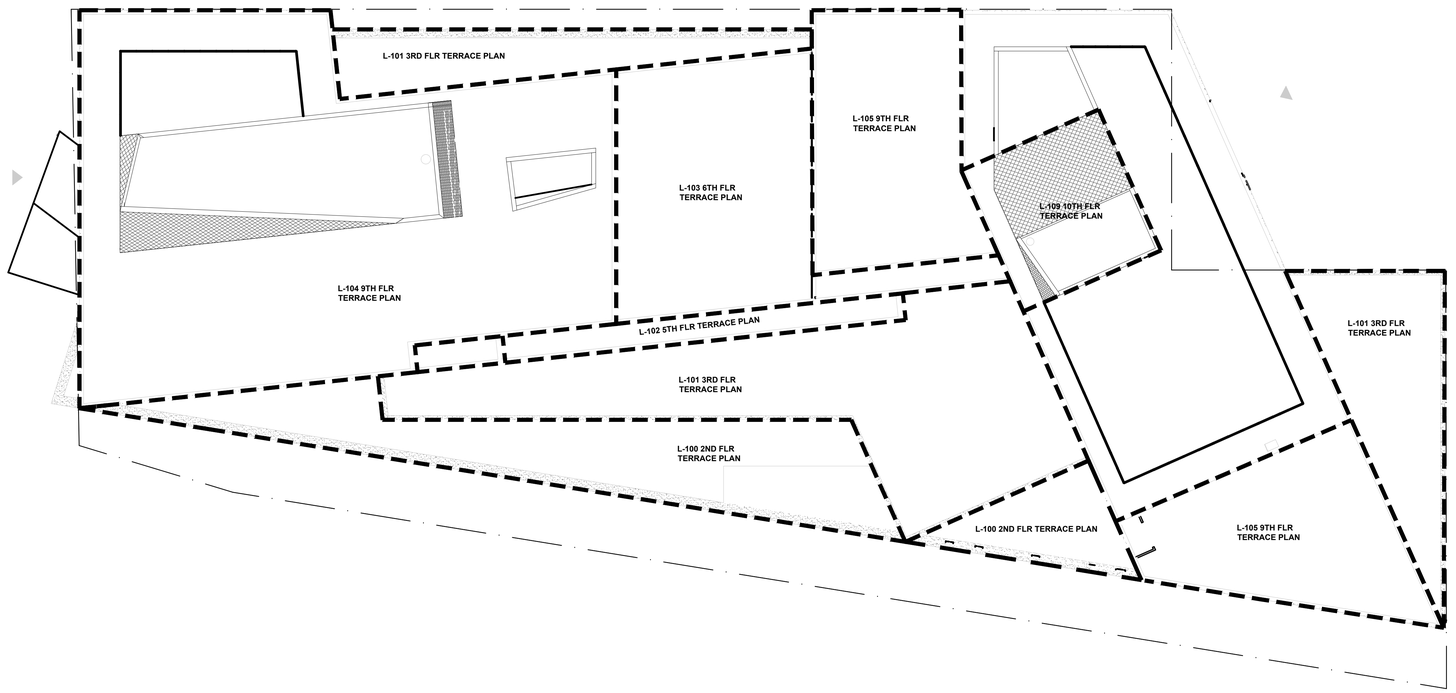
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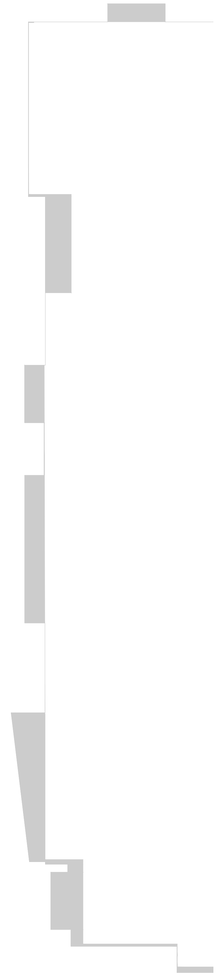

THE PROMENADE

LANDSCAPE ROOF TERRACE DRAWING INDEX

LR-010	COMPILED ROOF KEY PLAN AND DRAWING INDEX
LR-100 SERIES	LAYOUT AND MATERIALS PLAN(S)
LR-200 SERIES	PLANTING PLAN(S)







1 COMPILED ROOF KEY PLAN
SCALE: 1/16 = 1'-0"

8' 16' 32' 48'

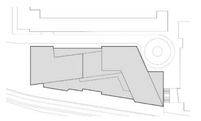


ARCHITECT / LANDSCAPE ARCHITECT
MARVEL
145 HUDSON STREET, FLR.3 NEW YORK, NY 10013
212.616.0420

CLIENT
PORTLAND FORESIDE
254 COMM. ST, STE 118, PORTLAND, ME 04101
STRUCTURAL ENGINEER / PARKING
THORNTON TOMASETTI
14 YORK ST, STE 201, PORTLAND, ME 04101
MEP/FP
WSP
250 W 34TH ST, 5TH FL, NEW YORK, NY 10119
ENCLOSURE
RWDI
1608 WALNUT ST, STE 1603, PHILA., PA 19103
CIVIL ENGINEER
WOODARD & CURRAN
41 HUTCHINS DR, PORTLAND, ME 04102
LANDSCAPE ARCHITECT (STREETSCAPE)
MBLA
457 US RTE 1, STE 2, FREEPORT, ME 04032
LEAD INTERIOR DESIGNER
WORKSHOP/APD
39 W 38TH ST, 7TH FL, NEW YORK, NY 10018
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SUSTAINABILITY
ATELIER TEN
104 W 29TH ST, 8TH FL, NEW YORK, NY 10001
CODE / ACCESSIBILITY CONSULTANT
CCI
215 W 40TH ST, FL 10, NEW YORK, NY 10018
ACOUSTICAL CONSULTANT
LONGMAN LINDSEY
200 W41ST ST, STE1100, NEW YORK, NY 10036
ELEVATOR CONSULTANT
VDA
100 SUMMER ST, STE 1600, BOSTON, MA 02110
FOOD SERVICE
ROMANO GATLAND
1 HUNTINGTON QUAD #2C03, MELVILLE, NY
POOL
LOTHROP / AQUATECTONIC
333 WESTCHESTER AVE, WHITE PLAINS, NY
TECHNOLOGY
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275 MADISON AVE, FL 14, NEW YORK, NY 10016

REV	DATE	DESCRIPTION
-	10.14.2022	SCHEMATIC DESIGN
2	4.14.2023	SITE PLAN APPLICATION

NOT FOR CONSTRUCTION



PLOT PLAN

2230
PORTLAND FORESIDE B5
PORTLAND, ME

COMPILED ROOF KEY PLAN

SCALE: As indicated

DRAWING #:
LR-010
___ of ___
JOB #:

MARVEL ARCHITECTS, LANDSCAPE ARCHITECTS, URBAN DESIGNERS, PLLC



ARCHITECT / LANDSCAPE ARCHITECT

MARVEL

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212.616.0420

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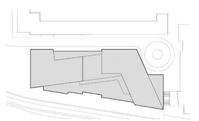


PLAN LEGEND

- PROPERTY LINE
- BUILDING OUTLINE
- SCOPE OF WORK
- PLANTING AREA
- STONE UNIT PAVERS ON SAND SETTING BED - FINISH/COLOR TYPE A
- STONE UNIT PAVERS ON SAND SETTING BED - FINISH/COLOR TYPE B
- WATER
- PRECAST CONCRETE PAVERS ON PEDESTAL SYSTEM
- STONE PLANTER WALL

1 2ND FLR AMENITY TERRACE
SCALE: 1/8 = 1'-0"

NOT FOR CONSTRUCTION



PLOT PLAN

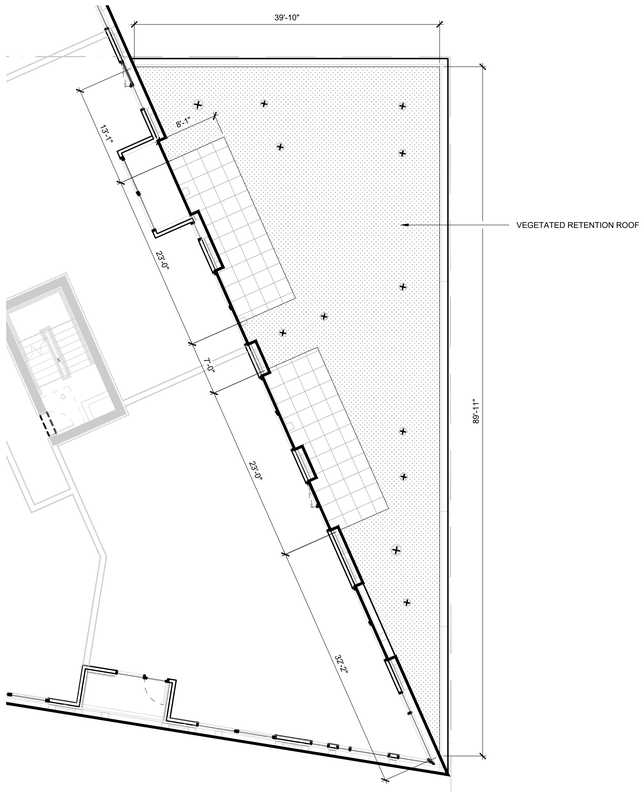
2230
PORTLAND FORESIDE B5
PORTLAND, ME

2ND FLR TERRACE LAYOUT AND MATERIALS PLAN

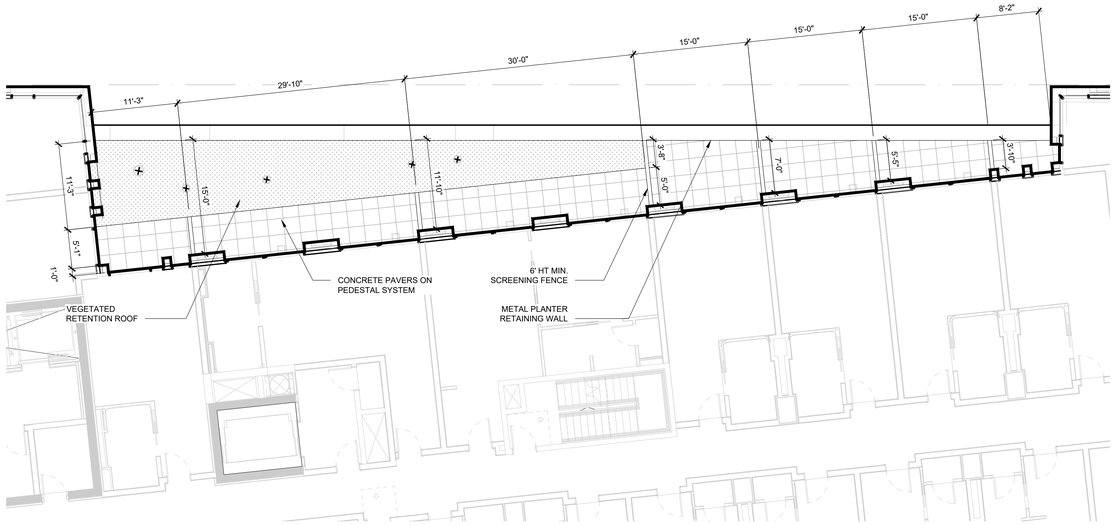
SCALE: As indicated

DRAWING #:
LR-100
___ of ___
JOB #:

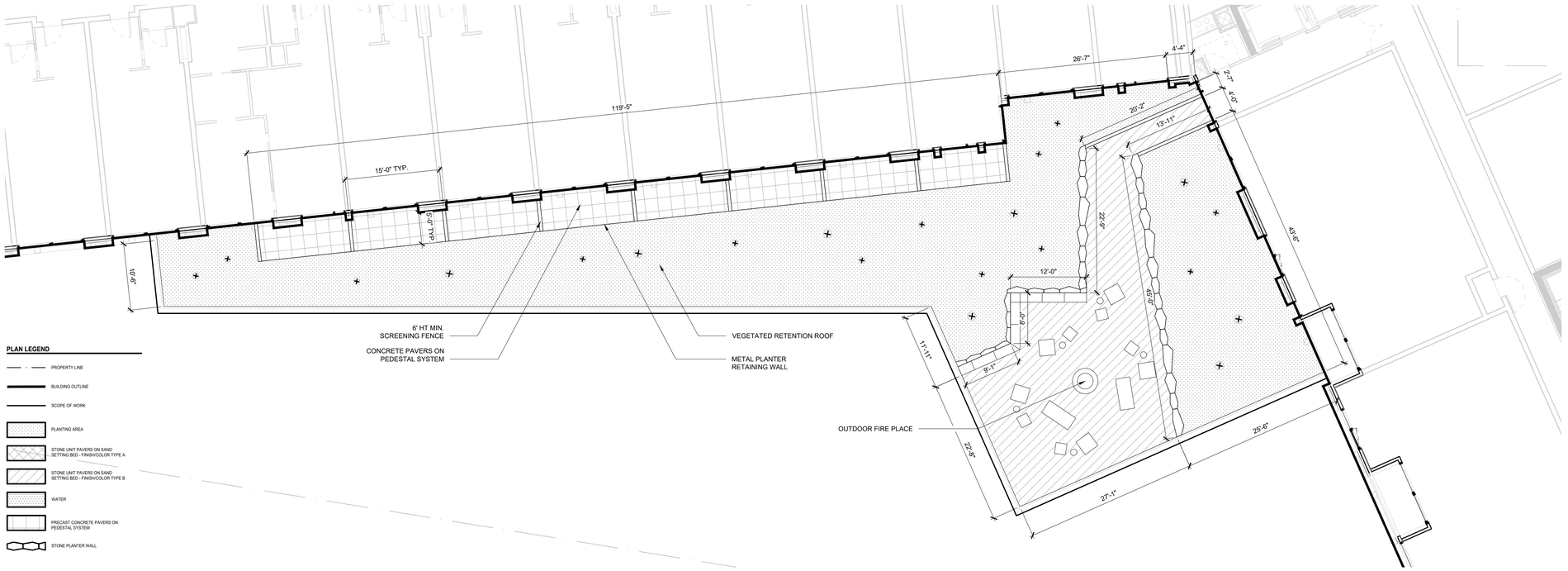
MARVEL ARCHITECTS, LANDSCAPE ARCHITECTS, URBAN DESIGNERS, PLLC



2 3RD FLR ROOF TERRACE B
SCALE: 1/8 = 1'-0"



3 3RD FLR ROOF TERRACE C
SCALE: 1/8 = 1'-0"



1 3RD FLR ROOF TERRACE A
SCALE: 1/8 = 1'-0"

4' 8' 16' 24'

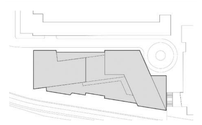


ARCHITECT / LANDSCAPE ARCHITECT
MARVEL
145 HUDSON STREET, FLR.3 NEW YORK, NY 10013
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CLIENT
PORTLAND FORESIDE
254 COMM. ST, STE 118, PORTLAND, ME 04101
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WSP
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RWDI
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WOODARD & CURRAN
41 HUTCHINS DR, PORTLAND, ME 04102
LANDSCAPE ARCHITECT (STREETSCAPE)
MBLA
457 US RTE 1, STE 2, FREEPORT, ME 04032
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POOL
LOTHROP / AQUATECTONIC
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TECHNOLOGY
SHEN, MILSOM & WILKE
275 MADISON AVE, FL 14, NEW YORK, NY 10016

REV	DATE	DESCRIPTION
-	10.14.2022	SCHEMATIC DESIGN
2	4.14.2023	SITE PLAN APPLICATION

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PLOT PLAN

2230
PORTLAND FORESIDE B5
PORTLAND, ME

3RD FLR TERRACE LAYOUT AND MATERIALS PLAN

SCALE: As indicated

DRAWING #:
LR-101
of
JOB #:

MARVEL ARCHITECTS, LANDSCAPE ARCHITECTS, URBAN DESIGNERS, PLLC



ARCHITECT / LANDSCAPE ARCHITECT

MARVEL

145 HUDSON STREET, FLR.3 NEW YORK, NY 10013
212.616.0420

CLIENT
PORTLAND FORESIDE
254 COMM. ST, STE 118, PORTLAND, ME 04101

STRUCTURAL ENGINEER / PARKING
THORNTON TOMASETTI
14 YORK ST, STE 201, PORTLAND, ME 04101

MEP/FP
WSP
250 W 34TH ST, 5TH FL, NEW YORK, NY 10119

ENCLOSURE
RWDI
1608 WALNUT ST, STE 1603, PHILA., PA 19103

CIVIL ENGINEER
WOODARD & CURRAN
41 HUTCHINS DR, PORTLAND, ME 04102

LANDSCAPE ARCHITECT (STREETSCAPE)
MBLA
457 US RTE 1, STE 2, FREEPORT, ME 04032

LEAD INTERIOR DESIGNER
WORKSHOP/APD
39 W 38TH ST, 7TH FL, NEW YORK, NY 10018

LIGHTING CONSULTANT
FISHER MARANTZ STONE
22 W 19TH ST, FL 6, NEW YORK, NY 10011

SUSTAINABILITY
ATELIER TEN
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CODE / ACCESSIBILITY CONSULTANT
CCI
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1 HUNTINGTON QUAD #2C03, MELVILLE, NY

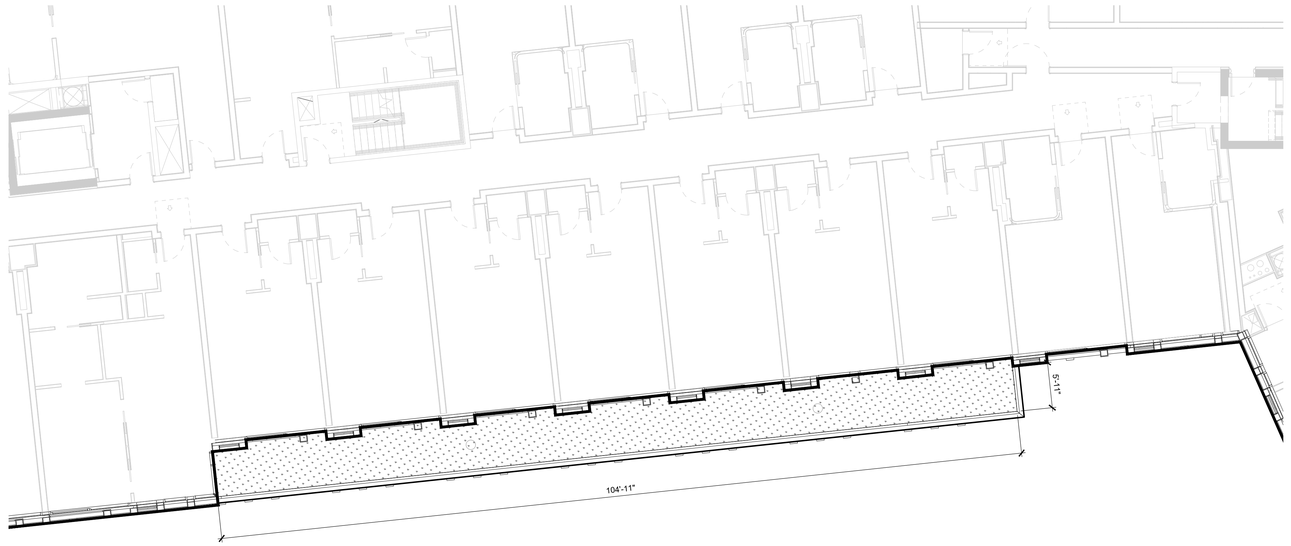
POOL
LOTHROP / AQUATECTONIC
333 WESTCHESTER AVE, WHITE PLAINS, NY

TECHNOLOGY
SHEN, MILSOM & WILKE
275 MADISON AVE, FL 14, NEW YORK, NY 10016

REV	DATE	DESCRIPTION
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PLAN LEGEND

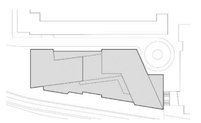
- PROPERTY LINE
- BUILDING OUTLINE
- SCOPE OF WORK
- PLANTING AREA
- STONE UNIT PAVERS ON SAND SETTING BED - FINISH/COLOR TYPE A
- STONE UNIT PAVERS ON SAND SETTING BED - FINISH/COLOR TYPE B
- WATER
- PRECAST CONCRETE PAVERS ON PEDESTAL SYSTEM
- STONE PLANTER WALL



1 5TH FLR ROOF TERRACE A
SCALE: 1/8 = 1'-0"

4' 8' 16' 24'

NOT FOR CONSTRUCTION



PLOT PLAN

2230

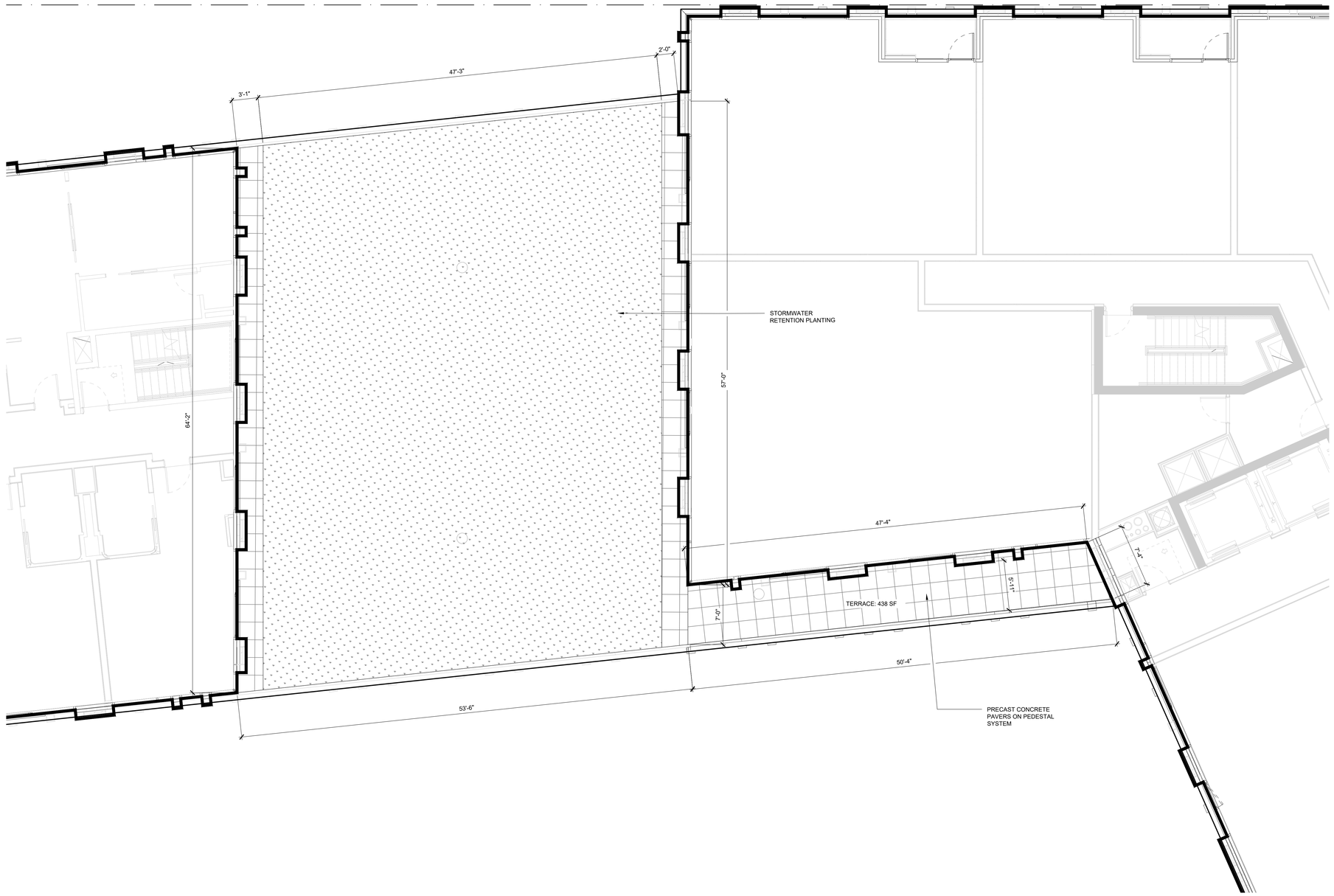
PORTLAND FORESIDE B5
PORTLAND, ME

5TH FLR TERRACE LAYOUT AND MATERIALS PLAN

SCALE: As indicated

DRAWING #:
LR-102
of
JOB #:

MARVEL ARCHITECTS, LANDSCAPE ARCHITECTS, URBAN DESIGNERS, PLLC



PLAN LEGEND

- PROPERTY LINE
- BUILDING OUTLINE
- SCOPE OF WORK
- PLANTING AREA
- STONE UNIT PAVERS ON SAND SETTING BED - FINISH/COLOR TYPE A
- STONE UNIT PAVERS ON SAND SETTING BED - FINISH/COLOR TYPE B
- WATER
- PRECAST CONCRETE PAVERS ON PEDESTAL SYSTEM
- STONE PLANTER WALL

1 6TH FLR ROOF TERRACE A
SCALE: 3/16 = 1'-0"

4' 8' 16'

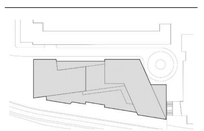


ARCHITECT / LANDSCAPE ARCHITECT
MARVEL
145 HUDSON STREET, FLR.3 NEW YORK, NY 10013
212.616.0420

CLIENT
PORTLAND FORESIDE
254 COMM. ST, STE 118, PORTLAND, ME 04101
STRUCTURAL ENGINEER / PARKING
THORNTON TOMASETTI
14 YORK ST, STE 201, PORTLAND, ME 04101
MEP/FP
WSP
250 W 34TH ST, 5TH FL, NEW YORK, NY 10119
ENCLOSURE
RWDI
1608 WALNUT ST, STE 1603, PHILA., PA 19103
CIVIL ENGINEER
WOODARD & CURRAN
41 HUTCHINS DR, PORTLAND, ME 04102
LANDSCAPE ARCHITECT (STREETSCAPE)
MBLA
457 US RTE 1, STE 2, FREEPORT, ME 04032
LEAD INTERIOR DESIGNER
WORKSHOP/APD
39 W 38TH ST, 7TH FL, NEW YORK, NY 10018
LIGHTING CONSULTANT
FISHER MARANTZ STONE
22 W 19TH ST, FL 6, NEW YORK, NY 10011
SUSTAINABILITY
ATELIER TEN
104 W 29TH ST, 8TH FL, NEW YORK, NY 10001
CODE / ACCESSIBILITY CONSULTANT
CCI
215 W 40TH ST, FL 10, NEW YORK, NY 10018
ACOUSTICAL CONSULTANT
LONGMAN LINDSEY
200 W41ST ST, STE1100, NEW YORK, NY 10036
ELEVATOR CONSULTANT
VDA
100 SUMMER ST, STE 1600, BOSTON, MA 02110
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ROMANO GATLAND
1 HUNTINGTON QUAD #2C03, MELVILLE, NY
POOL
LOTHROP / AQUATECTONIC
333 WESTCHESTER AVE, WHITE PLAINS, NY
TECHNOLOGY
SHEN, MILSOM & WILKE
275 MADISON AVE, FL 14, NEW YORK, NY 10016

REV	DATE	DESCRIPTION
-	10.14.2022	SCHEMATIC DESIGN
2	4.14.2023	SITE PLAN APPLICATION

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PLOT PLAN

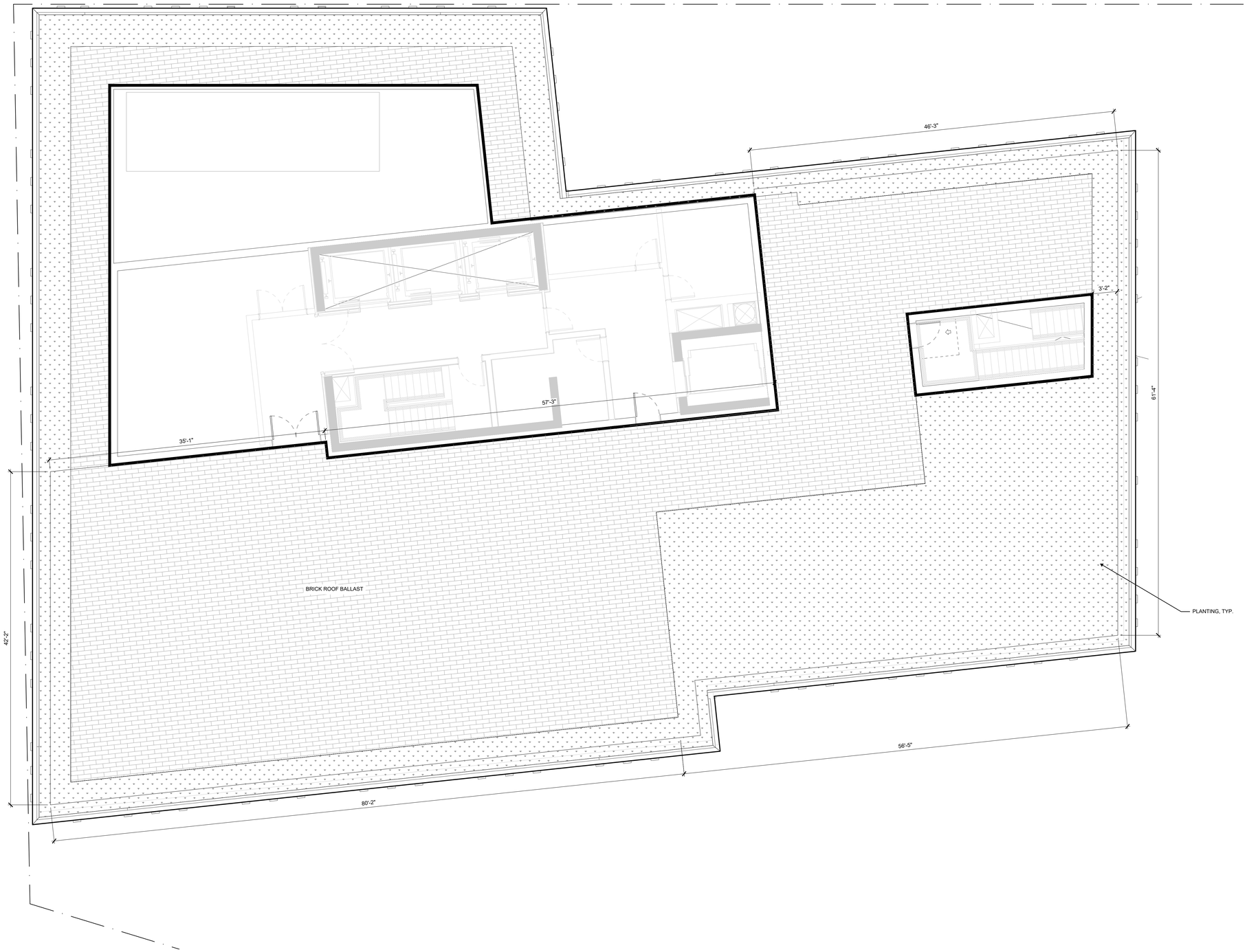
2230
PORTLAND FORESIDE B5
PORTLAND, ME

6TH FLR TERRACE LAYOUT AND MATERIALS PLAN

SCALE: As indicated

DRAWING #:
LR-103
___ of ___
JOB #:

MARVEL ARCHITECTS, LANDSCAPE ARCHITECTS, URBAN DESIGNERS, PLLC



PLAN LEGEND

- PROPERTY LINE
- BUILDING OUTLINE
- SCOPE OF WORK
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- STONE UNIT PAVERS ON SAND SETTING BED - FINISH/COLOR TYPE A
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- PRECAST CONCRETE PAVERS ON PEDESTAL SYSTEM
- STONE PLANTER WALL

1 9TH FLR AMENITY TERRACE A
SCALE: 3/16 = 1'-0"

N

4' 8' 16'

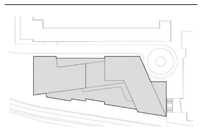


ARCHITECT / LANDSCAPE ARCHITECT
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PLOT PLAN

2230
PORTLAND FORESIDE B5
PORTLAND, ME

9TH FLR TERRACE LAYOUT AND MATERIALS PLAN

SCALE: As indicated

DRAWING #:
LR-104
___ of ___
JOB #:



ARCHITECT / LANDSCAPE ARCHITECT

MARVEL

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PORTLAND FORESIDE
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STRUCTURAL ENGINEER / PARKING
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14 YORK ST, STE 201, PORTLAND, ME 04101

MEP/FP
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250 W 34TH ST, 5TH FL, NEW YORK, NY 10119

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MBLA
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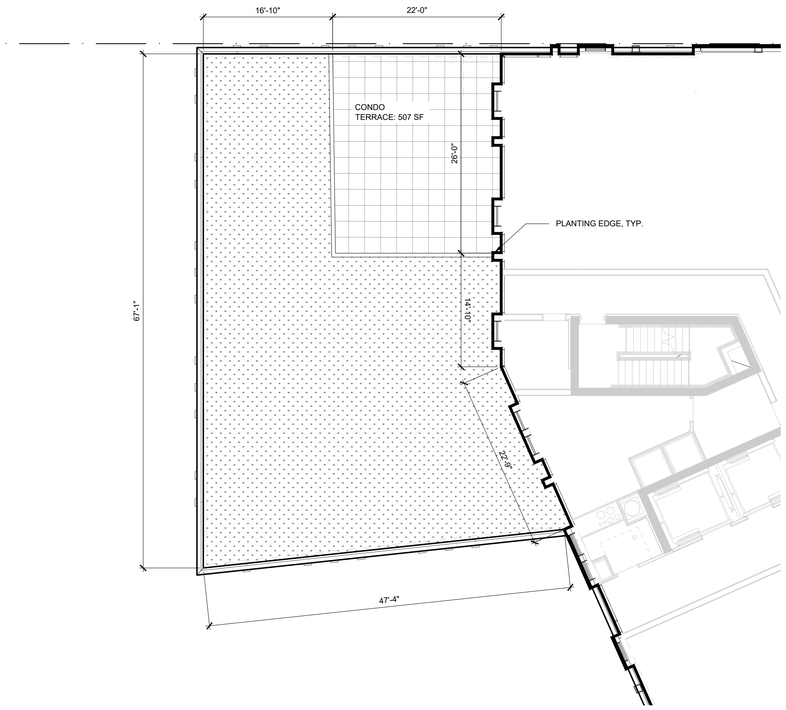
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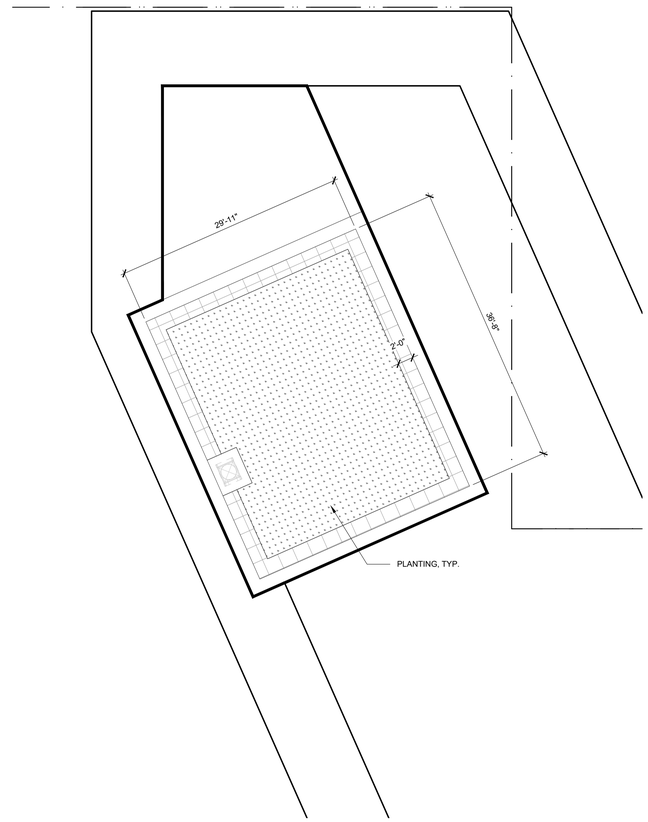
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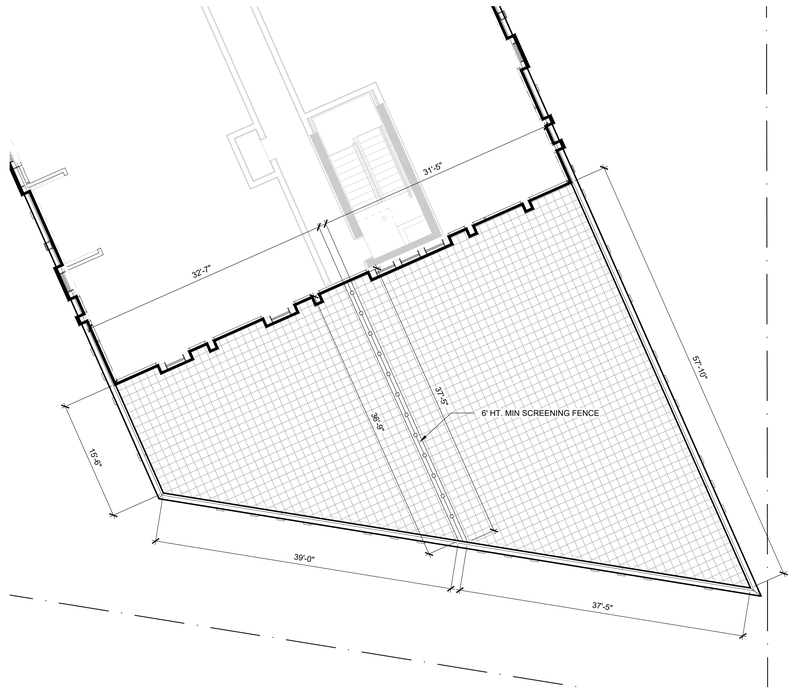
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2 9TH FLR TERRACE C
SCALE: 1/8 = 1'-0"



3 10TH FLR ROOF
SCALE: 1/8 = 1'-0"



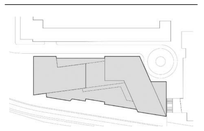
1 9TH FLR TERRACE B
SCALE: 1/8 = 1'-0"

PLAN LEGEND

- PROPERTY LINE
- BUILDING OUTLINE
- SCOPE OF WORK
- PLANTING AREA
- STONE UNIT PAVERS ON SAND SETTING BED - FINISH/COLOR TYPE A
- STONE UNIT PAVERS ON SAND SETTING BED - FINISH/COLOR TYPE B
- WATER
- PRECAST CONCRETE PAVERS ON PEDESTAL SYSTEM
- STONE PLANTER WALL

4' 8' 16'

NOT FOR CONSTRUCTION



PLOT PLAN

2230
PORTLAND FORESIDE B5
PORTLAND, ME

10TH FLR TERRACE LAYOUT AND MATERIALS PLAN

SCALE: As indicated

DRAWING #:
LR-105
___ of ___
JOB #:

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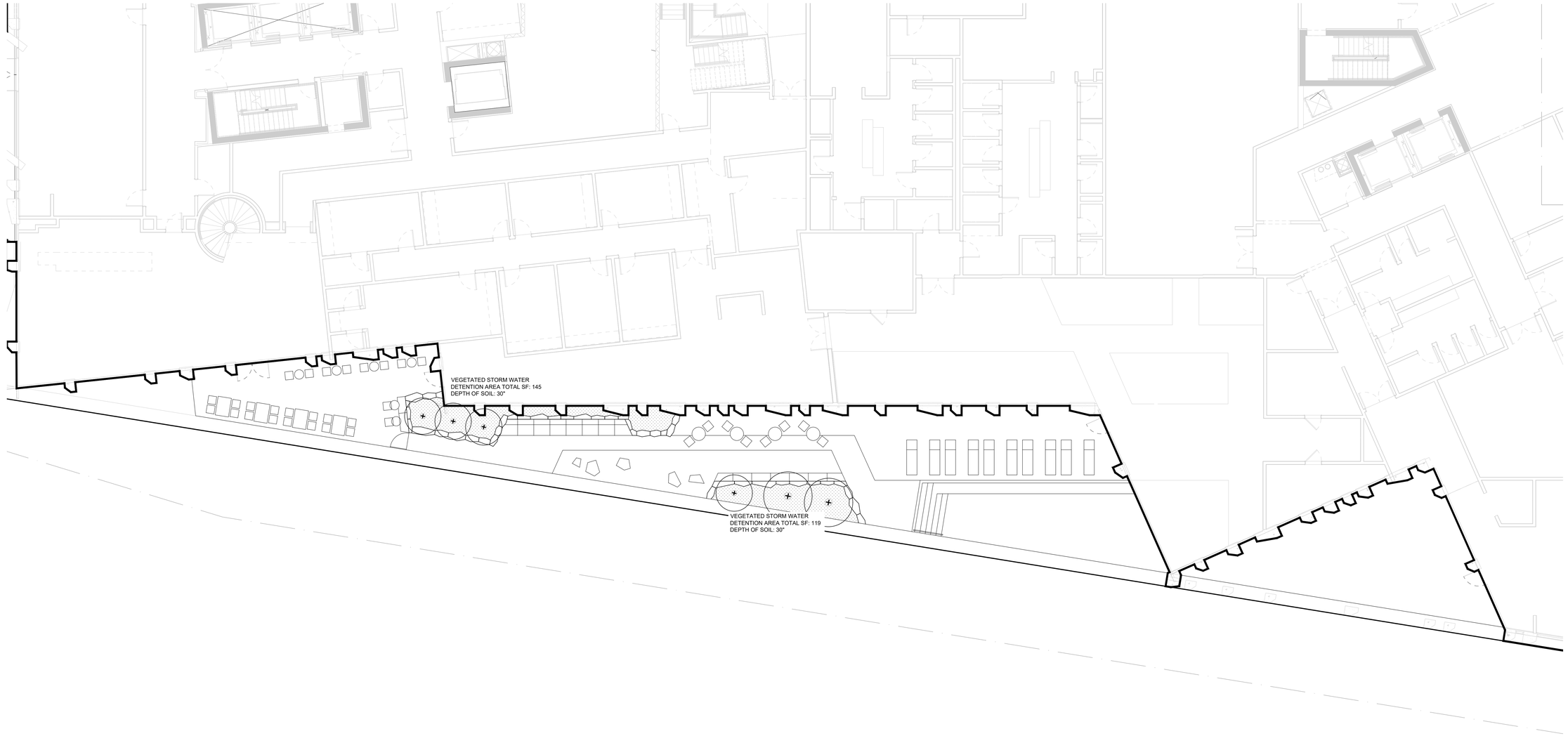
ARCHITECT / LANDSCAPE ARCHITECT

MARVEL

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212.616.0420

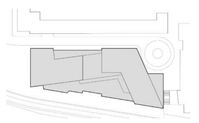
CLIENT
PORTLAND FORESIDE
254 COMM. ST, STE 118, PORTLAND, ME 04101
STRUCTURAL ENGINEER / PARKING
THORNTON TOMASETTI
14 YORK ST, STE 201, PORTLAND, ME 04101
MEP/FP
WSP
250 W 34TH ST, 5TH FL, NEW YORK, NY 10119
ENCLOSURE
RWDI
1608 WALNUT ST, STE 1603, PHILA., PA 19103
CIVIL ENGINEER
WOODARD & CURRAN
41 HUTCHINS DR, PORTLAND, ME 04102
LANDSCAPE ARCHITECT (STREETSCAPE)
MBLA
457 US RTE 1, STE 2, FREEPORT, ME 04032
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FISHER MARANTZ STONE
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SUSTAINABILITY
ATELIER TEN
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CCI
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ACOUSTICAL CONSULTANT
LONGMAN LINDSEY
200 W41ST ST, STE1100, NEW YORK, NY 10036
ELEVATOR CONSULTANT
VDA
100 SUMMER ST, STE 1600, BOSTON, MA 02110
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ROMANO GATLAND
1 HUNTINGTON QUAD #2C03, MELVILLE, NY
POOL
LOTHROP / AQUATECTONIC
333 WESTCHESTER AVE, WHITE PLAINS, NY
TECHNOLOGY
SHEN, MILSOM & WILKE
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REV	DATE	DESCRIPTION
-	10.14.2022	SCHEMATIC DESIGN
2	4.14.2023	SITE PLAN APPLICATION



1 2ND FLR AMENITY TERRACE
SCALE: 1/8 = 1'-0"

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PLOT PLAN

2230
PORTLAND FORESIDE B5
PORTLAND, ME

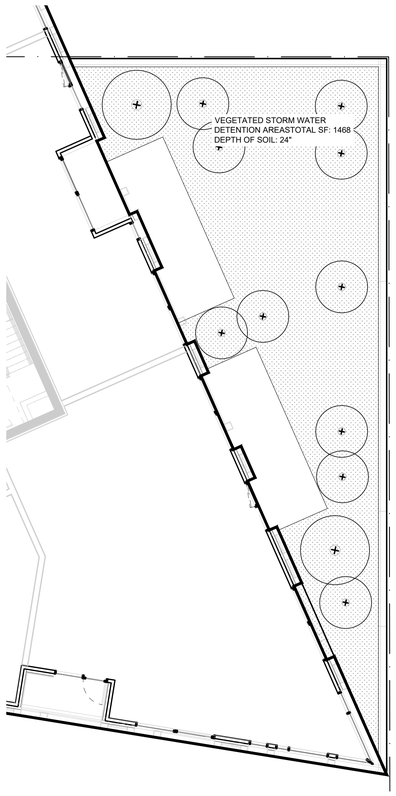
2ND FLR TERRACE PLANTING PLAN

SCALE: As indicated

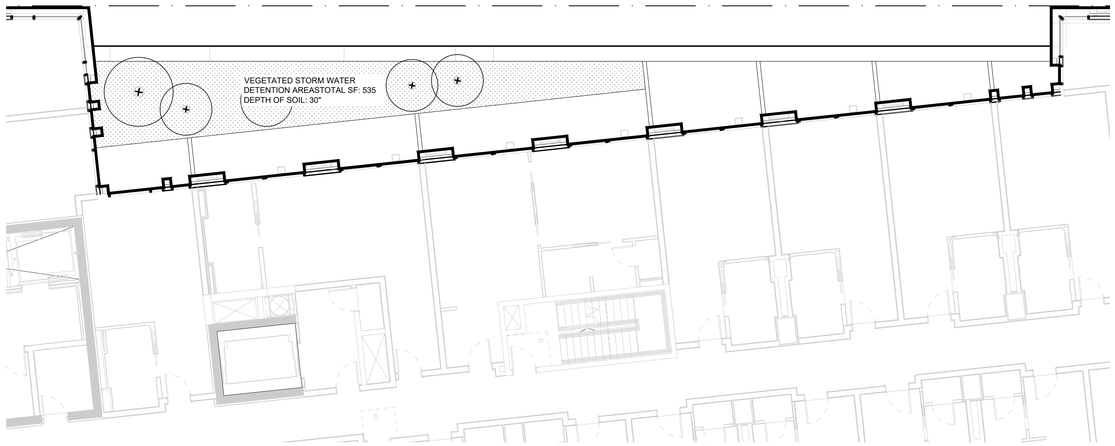
DRAWING #:
LR-200
of
JOB #:

4' 8' 16' 24'

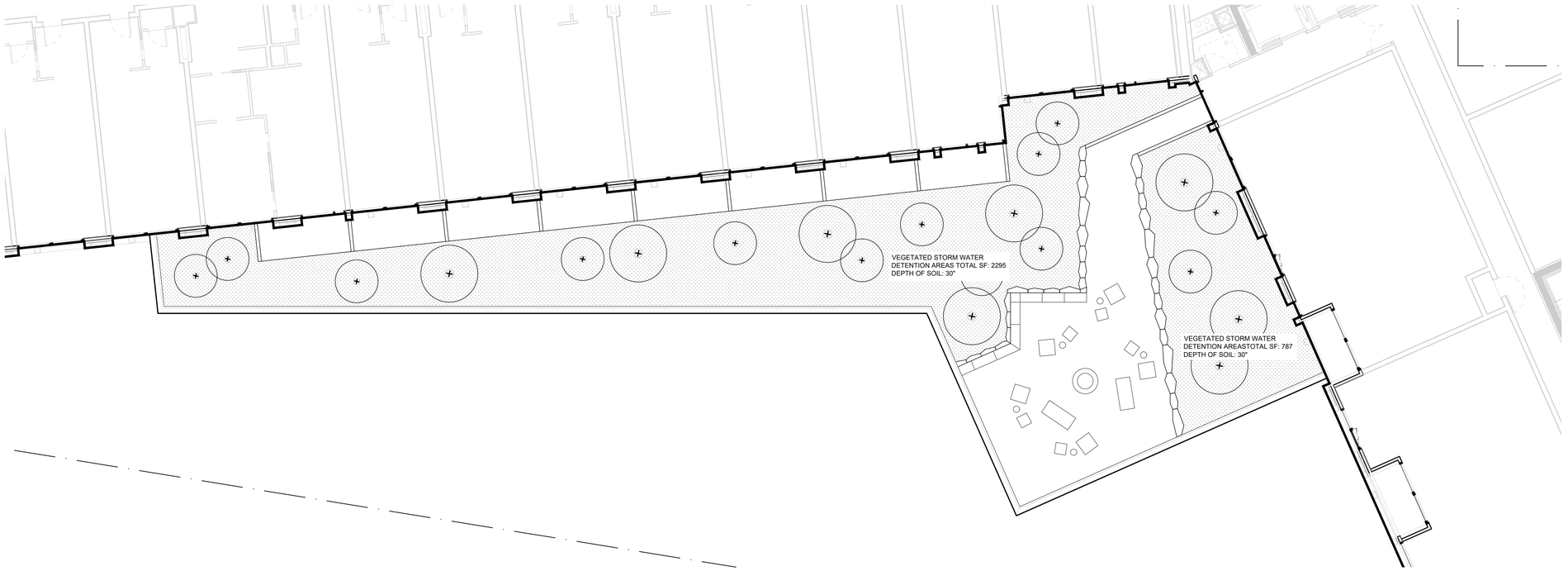
MARVEL ARCHITECTS, LANDSCAPE ARCHITECTS, URBAN DESIGNERS, PLLC



2 3RD FLR ROOF TERRACE B
SCALE: 1/8 = 1'-0"



3 3RD FLR ROOF TERRACE C
SCALE: 1/8 = 1'-0"



1 3RD FLR ROOF TERRACE A
SCALE: 1/8 = 1'-0"

4' 8' 16' 24'

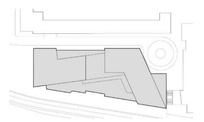


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MARVEL
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CLIENT
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STRUCTURAL ENGINEER / PARKING
THORNTON TOMASETTI
14 YORK ST, STE 201, PORTLAND, ME 04101
MEP/FP
WSP
250 W 34TH ST, 5TH FL, NEW YORK, NY 10119
ENCLOSURE
RWDI
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WOODARD & CURRAN
41 HUTCHINS DR, PORTLAND, ME 04102
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MBLA
457 US RTE 1, STE 2, FREEPORT, ME 04032
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TECHNOLOGY
SHEN, MILSOM & WILKE
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REV	DATE	DESCRIPTION
-	10.14.2022	SCHEMATIC DESIGN
2	4.14.2023	SITE PLAN APPLICATION

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PLOT PLAN

2230
PORTLAND FORESIDE B5
PORTLAND, ME

3RD FLR TERRACE PLANTING PLAN

SCALE: As indicated

DRAWING #:
LR-201
of
JOB #:

MARVEL ARCHITECTS, LANDSCAPE ARCHITECTS, URBAN DESIGNERS, PLLC



ARCHITECT / LANDSCAPE ARCHITECT

MARVEL

145 HUDSON STREET, FLR.3 NEW YORK, NY 10013
212.616.0420

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PORTLAND FORESIDE
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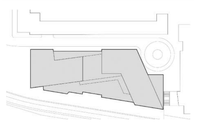
REV	DATE	DESCRIPTION
-	10.14.2022	SCHEMATIC DESIGN
2	4.14.2023	SITE PLAN APPLICATION



1 5TH FLR ROOF TERRACE A
SCALE: 1/8 = 1'-0"

4' 8' 16' 24'

NOT FOR CONSTRUCTION



PLOT PLAN

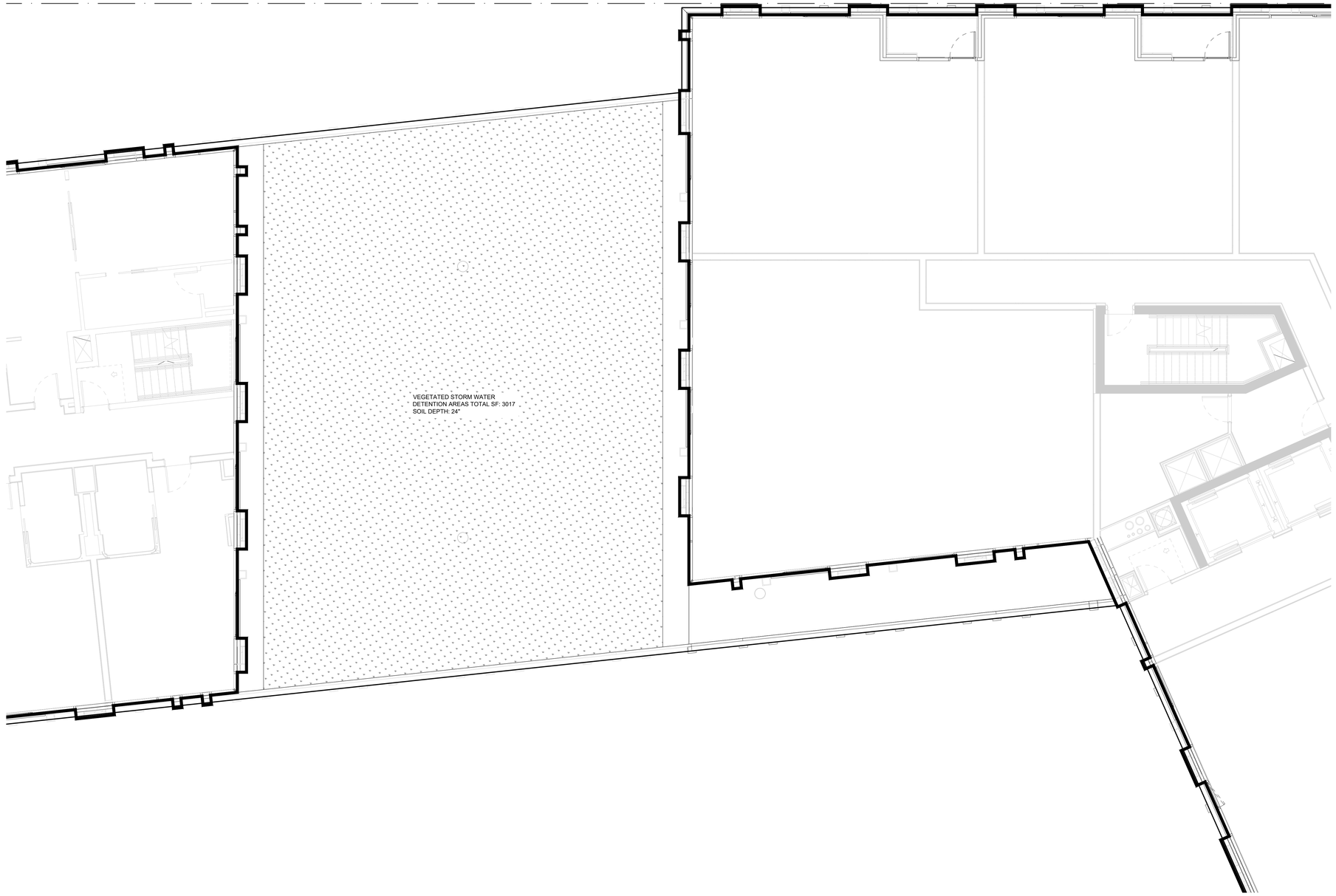
2230
PORTLAND FORESIDE B5
PORTLAND, ME

5TH FLR TERRACE PLANTING PLAN

SCALE: As indicated

DRAWING #:
LR-202
of
JOB #:

MARVEL ARCHITECTS, LANDSCAPE ARCHITECTS, URBAN DESIGNERS, PLLC



1 6TH FLR ROOF TERRACE A
SCALE: 3/16 = 1'-0"

4' 8' 16'

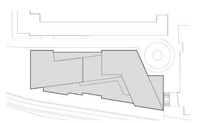


ARCHITECT / LANDSCAPE ARCHITECT
MARVEL
145 HUDSON STREET, FLR.3 NEW YORK, NY 10013
212.616.0420

CLIENT
PORTLAND FORESIDE
254 COMM. ST, STE 118, PORTLAND, ME 04101
STRUCTURAL ENGINEER / PARKING
THORNTON TOMASETTI
14 YORK ST, STE 201, PORTLAND, ME 04101
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REV	DATE	DESCRIPTION
-	10.14.2022	SCHEMATIC DESIGN
2	4.14.2023	SITE PLAN APPLICATION

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PLOT PLAN

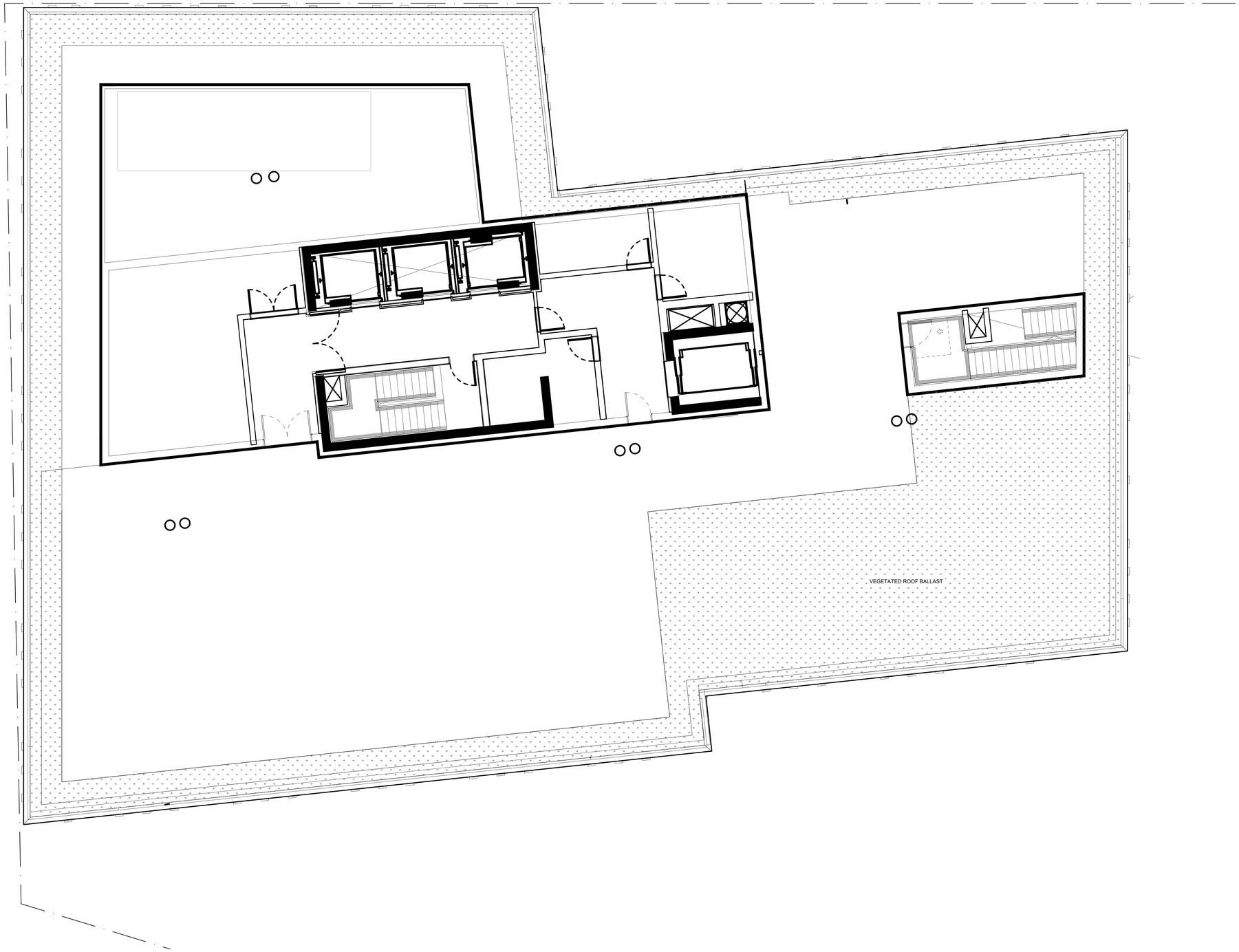
2230
PORTLAND FORESIDE B5
PORTLAND, ME

6TH FLR TERRACE PLANTING PLAN

SCALE: As indicated

DRAWING #:
LR-203
of
JOB #:

MARVEL ARCHITECTS, LANDSCAPE ARCHITECTS, URBAN DESIGNERS, PLLC



1 9TH FLR AMENITY TERRACE A
SCALE: 3/16 = 1'-0"

4' 8' 16'

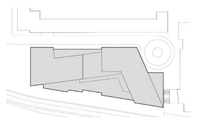


ARCHITECT / LANDSCAPE ARCHITECT
MARVEL
145 HUDSON STREET, FLR.3 NEW YORK, NY 10013
212.616.0420

CLIENT
PORTLAND FORESIDE
254 COMM. ST, STE 118, PORTLAND, ME 04101
STRUCTURAL ENGINEER / PARKING
THORNTON TOMASETTI
14 YORK ST, STE 201, PORTLAND, ME 04101
MEP/FP
WSP
250 W 34TH ST, 5TH FL, NEW YORK, NY 10119
ENCLOSURE
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1608 WALNUT ST, STE 1603, PHILA., PA 19103
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457 US RTE 1, STE 2, FREEPORT, ME 04032
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333 WESTCHESTER AVE, WHITE PLAINS, NY
TECHNOLOGY
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275 MADISON AVE, FL 14, NEW YORK, NY 10016

REV	DATE	DESCRIPTION
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PLOT PLAN
2230
PORTLAND FORESIDE B5
PORTLAND, ME

9TH FLR TERRACE PLANTING PLAN

SCALE: As indicated

DRAWING #:
LR-204
___ of ___
JOB #:



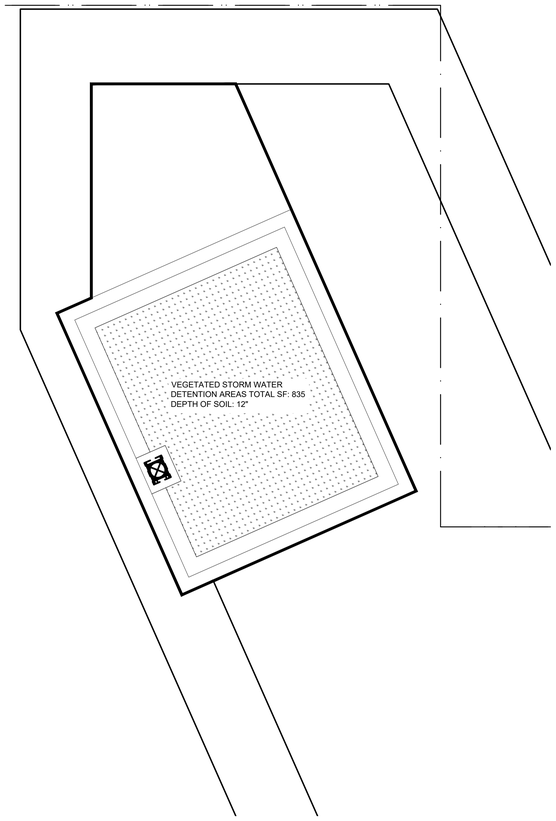
ARCHITECT / LANDSCAPE ARCHITECT

MARVEL

145 HUDSON STREET, FLR.3 NEW YORK, NY 10013
212.616.0420

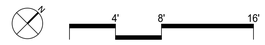
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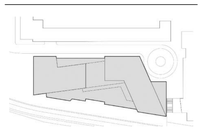


2 10TH FLR ROOF
SCALE: 1/8 = 1'-0"

1 9TH FLR TERRACE C
SCALE: 1/8 = 1'-0"



NOT FOR CONSTRUCTION



PLOT PLAN

2230
PORTLAND FORESIDE B5
PORTLAND, ME

10TH FLR TERRACE PLANTING PLAN

SCALE: As indicated

DRAWING #:
LR-205
___ of ___
JOB #:

MARVEL ARCHITECTS, LANDSCAPE ARCHITECTS, URBAN DESIGNERS, PLLC

Sheet	Terrace	Total SF Planting	Soil Depth
LR-200	2ND FLR AMENITY TERRACE	264	30"
LR-201	3RD FLR ROOF TERRACE A	3082	30"
LR-201	3RD FLR ROOF TERRACE B	1468	24"
LR-201	3RD FLR ROOF TERRACE C	535	30"
LR-202	5TH FLR ROOF TERRACE A	701	24"
LR-203	6TH FLR ROOF TERRACE A	3017	24"
LR-204	9TH FLR ROOF TERRACE A	1728	30"
LR-205	9TH FLR ROOF TERRACE B	835	12"
LR-205	10TH FLR ROOF	2021	12"

7 STORM WATER DETENTION CHART
SCALE:N/A

6 9TH AND 10TH FLR TERRACE PLANT LIST
SCALE:N/A

PLANTING SCHEDULE

SINGLE-STEM TREES / LARGE

QTY.	BOTANICAL NAME	COMMON NAME	KEY	CALIPER SIZE	CONTAINER	NOTES
0	*PINUS RIGIDA*	PITCH PINE	PR	5" CAL.	B&B	Single-stem, well-branched specimen. Other varieties accepted, pending Landscape Architect approval.
0	*BETULA ALLEGHANIENSIS*	YELLOW BIRCH	BA	5" CAL.	B&B	Single-stem, well-branched specimen. Other varieties accepted, pending Landscape Architect approval.

MULTI-STEM TREES / SMALL

QTY.	BOTANICAL NAME	COMMON NAME	KEY	CALIPER SIZE	CONTAINER	NOTES
0	*CARPINUS CAROLINIANA*	AMERICAN HORNBEAM	CC	5" CAL.	B&B	Multi-stem, well-branched specimen. Other varieties accepted, pending Landscape Architect approval.
0	*AMELANCHIER CANADENSIS*	SERVICEBERRY	AC	5" CAL.	B&B	Multi-stem, well-branched specimen. Other varieties accepted, pending Landscape Architect approval.

SHRUBS,PERENNIALS, GRASSES, FERNS, VINES AND GROUND COVER

AREA	BOTANICAL NAME	COMMON NAME	KEY	SPACING	CONTAINER	NOTES
3089 SF	*VIBURNUM DENTATUM*	ARROWWOOD VIBURNUM	VD	12" O.C.	2.5 GAL	Vigorous, well rooted, and established in container.
	RHUS AROMATICA	GROW-LOW FRAGRANT SUMAC	RA	12" O.C.	2.5 GAL	Vigorous, well rooted, and established in container.
	CLETHRA ALNIFOLIA	SWEET PEPPERBUSH	CA	12" O.C.	2.5 GAL	Vigorous, well rooted, and established in container.
	COMPTONIA PEREGRINA	SWEETFERN	CP	12" O.C.	2.5 GAL	Vigorous, well rooted, and established in container.
	MORELLA PENSYLVANICA	NORTHERN BAYBERRY	MP	12" O.C.	2.5 GAL	Vigorous, well rooted, and established in container.
	ARONIA ARBUTIFOLIA	RED CHOKEBERRY	AA	12" O.C.	2.5 GAL	Vigorous, well rooted, and established in container.
	ARONIA MELANOCARPA	BLACK CHOKEBERRY	AM	12" O.C.	2.5 GAL	Vigorous, well rooted, and established in container.
	JUNIPERUS COMMUNIS	COMMON JUNIPER	JC	12" O.C.	2.5 GAL	Vigorous, well rooted, and established in container.
	JUNIPERUS HORIZONTALIS	CREEPING JUNIPER	JH	12" O.C.	2.5 GAL	Vigorous, well rooted, and established in container.
	ANEMONE CANADENSIS	CANADA WINDFLOWER	AC	12" O.C.	1 GAL	Vigorous, well rooted, and established in container.
	OSMUNDA CINNAMOMEA	CINNAMON FERN	OC	12" O.C.	1 GAL	Vigorous, well rooted, and established in container.
	POLYSTICHUM ACROSTICHOIDES	CHRISTMAS FERN	PA	12" O.C.	1 GAL	Vigorous, well rooted, and established in container.
	SYMPHYOTRICHUM CORDIFOLIUM	BLUE WOOD ASTER	SC	12" O.C.	1 GAL	Vigorous, well rooted, and established in container.
	ASCLEPIAS TUBEROSA	BUTTERFLY WEED	AT	12" O.C.	1 GAL	Vigorous, well rooted, and established in container.
	SCHIZACHYRIUM SCOPARIUM	LITTLE BLUESTEM	SS	12" O.C.	1 GAL	Vigorous, well rooted, and established in container.
	ARCTOSTAPHYLOS UVA-URSI	BEARBERRY	AU	12" O.C.	1 GAL	Vigorous, well rooted, and established in container.
	BAPTISIA AUSTRALIS	BLUE FALSE INDIGO	BA	12" O.C.	1 GAL	Vigorous, well rooted, and established in container.
	LUPINUS PERENNIS	SUNDIAL LUPINE	LP	12" O.C.	1 GAL	Vigorous, well rooted, and established in container.

5 9TH FLR MAIN TERRACE PLANT LIST
SCALE:N/A

PLANTING SCHEDULE

SINGLE-STEM TREES / LARGE

QTY.	BOTANICAL NAME	COMMON NAME	KEY	CALIPER SIZE	CONTAINER	NOTES
0	*PINUS RIGIDA*	PITCH PINE	PR	5" CAL.	B&B	Single-stem, well-branched specimen. Other varieties accepted, pending Landscape Architect approval.
0	*BETULA ALLEGHANIENSIS*	YELLOW BIRCH	BA	5" CAL.	B&B	Single-stem, well-branched specimen. Other varieties accepted, pending Landscape Architect approval.

MULTI-STEM TREES / SMALL

QTY.	BOTANICAL NAME	COMMON NAME	KEY	CALIPER SIZE	CONTAINER	NOTES
0	*CARPINUS CAROLINIANA*	AMERICAN HORNBEAM	CC	5" CAL.	B&B	Multi-stem, well-branched specimen. Other varieties accepted, pending Landscape Architect approval.
0	*AMELANCHIER CANADENSIS*	SERVICEBERRY	AC	5" CAL.	B&B	Multi-stem, well-branched specimen. Other varieties accepted, pending Landscape Architect approval.

SHRUBS,PERENNIALS, GRASSES, FERNS, VINES AND GROUND COVER

AREA	BOTANICAL NAME	COMMON NAME	KEY	SPACING	CONTAINER	NOTES
2856 SF	*VIBURNUM DENTATUM*	ARROWWOOD VIBURNUM	VD	12" O.C.	2.5 GAL	Vigorous, well rooted, and established in container.
	RHUS AROMATICA	GROW-LOW FRAGRANT SUMAC	RA	12" O.C.	2.5 GAL	Vigorous, well rooted, and established in container.
	CLETHRA ALNIFOLIA	SWEET PEPPERBUSH	CA	12" O.C.	2.5 GAL	Vigorous, well rooted, and established in container.
	COMPTONIA PEREGRINA	SWEETFERN	CP	12" O.C.	2.5 GAL	Vigorous, well rooted, and established in container.
	MORELLA PENSYLVANICA	NORTHERN BAYBERRY	MP	12" O.C.	2.5 GAL	Vigorous, well rooted, and established in container.
	ARONIA ARBUTIFOLIA	RED CHOKEBERRY	AA	12" O.C.	2.5 GAL	Vigorous, well rooted, and established in container.
	ARONIA MELANOCARPA	BLACK CHOKEBERRY	AM	12" O.C.	2.5 GAL	Vigorous, well rooted, and established in container.
	JUNIPERUS COMMUNIS	COMMON JUNIPER	JC	12" O.C.	2.5 GAL	Vigorous, well rooted, and established in container.
	JUNIPERUS HORIZONTALIS	CREEPING JUNIPER	JH	12" O.C.	2.5 GAL	Vigorous, well rooted, and established in container.
	ANEMONE CANADENSIS	CANADA WINDFLOWER	AC	12" O.C.	1 GAL	Vigorous, well rooted, and established in container.
	OSMUNDA CINNAMOMEA	CINNAMON FERN	OC	12" O.C.	1 GAL	Vigorous, well rooted, and established in container.
	POLYSTICHUM ACROSTICHOIDES	CHRISTMAS FERN	PA	12" O.C.	1 GAL	Vigorous, well rooted, and established in container.
	SYMPHYOTRICHUM CORDIFOLIUM	BLUE WOOD ASTER	SC	12" O.C.	1 GAL	Vigorous, well rooted, and established in container.
	ASCLEPIAS TUBEROSA	BUTTERFLY WEED	AT	12" O.C.	1 GAL	Vigorous, well rooted, and established in container.
	SCHIZACHYRIUM SCOPARIUM	LITTLE BLUESTEM	SS	12" O.C.	1 GAL	Vigorous, well rooted, and established in container.
	ARCTOSTAPHYLOS UVA-URSI	BEARBERRY	AU	12" O.C.	1 GAL	Vigorous, well rooted, and established in container.
	BAPTISIA AUSTRALIS	BLUE FALSE INDIGO	BA	12" O.C.	1 GAL	Vigorous, well rooted, and established in container.
	LUPINUS PERENNIS	SUNDIAL LUPINE	LP	12" O.C.	1 GAL	Vigorous, well rooted, and established in container.

4 6TH FLR TERRACE PLANT LIST
SCALE:N/A

PLANTING SCHEDULE

SINGLE-STEM TREES / LARGE

QTY.	BOTANICAL NAME	COMMON NAME	KEY	CALIPER SIZE	CONTAINER	NOTES
0	*PINUS RIGIDA*	PITCH PINE	PR	5" CAL.	B&B	Single-stem, well-branched specimen. Other varieties accepted, pending Landscape Architect approval.
0	*BETULA ALLEGHANIENSIS*	YELLOW BIRCH	BA	5" CAL.	B&B	Single-stem, well-branched specimen. Other varieties accepted, pending Landscape Architect approval.

MULTI-STEM TREES / SMALL

QTY.	BOTANICAL NAME	COMMON NAME	KEY	CALIPER SIZE	CONTAINER	NOTES
0	*CARPINUS CAROLINIANA*	AMERICAN HORNBEAM	CC	5" CAL.	B&B	Multi-stem, well-branched specimen. Other varieties accepted, pending Landscape Architect approval.
0	*AMELANCHIER CANADENSIS*	SERVICEBERRY	AC	5" CAL.	B&B	Multi-stem, well-branched specimen. Other varieties accepted, pending Landscape Architect approval.

SHRUBS,PERENNIALS, GRASSES, FERNS, VINES AND GROUND COVER

AREA	BOTANICAL NAME	COMMON NAME	KEY	SPACING	CONTAINER	NOTES
701 SF	*VIBURNUM DENTATUM*	ARROWWOOD VIBURNUM	VD	12" O.C.	2.5 GAL	Vigorous, well rooted, and established in container.
	RHUS AROMATICA	GROW-LOW FRAGRANT SUMAC	RA	12" O.C.	2.5 GAL	Vigorous, well rooted, and established in container.
	CLETHRA ALNIFOLIA	SWEET PEPPERBUSH	CA	12" O.C.	2.5 GAL	Vigorous, well rooted, and established in container.
	COMPTONIA PEREGRINA	SWEETFERN	CP	12" O.C.	2.5 GAL	Vigorous, well rooted, and established in container.
	MORELLA PENSYLVANICA	NORTHERN BAYBERRY	MP	12" O.C.	2.5 GAL	Vigorous, well rooted, and established in container.
	ARONIA ARBUTIFOLIA	RED CHOKEBERRY	AA	12" O.C.	2.5 GAL	Vigorous, well rooted, and established in container.
	ARONIA MELANOCARPA	BLACK CHOKEBERRY	AM	12" O.C.	2.5 GAL	Vigorous, well rooted, and established in container.
	JUNIPERUS COMMUNIS	COMMON JUNIPER	JC	12" O.C.	2.5 GAL	Vigorous, well rooted, and established in container.
	JUNIPERUS HORIZONTALIS	CREEPING JUNIPER	JH	12" O.C.	2.5 GAL	Vigorous, well rooted, and established in container.
	ANEMONE CANADENSIS	CANADA WINDFLOWER	AC	12" O.C.	1 GAL	Vigorous, well rooted, and established in container.
	OSMUNDA CINNAMOMEA	CINNAMON FERN	OC	12" O.C.	1 GAL	Vigorous, well rooted, and established in container.
	POLYSTICHUM ACROSTICHOIDES	CHRISTMAS FERN	PA	12" O.C.	1 GAL	Vigorous, well rooted, and established in container.
	SYMPHYOTRICHUM CORDIFOLIUM	BLUE WOOD ASTER	SC	12" O.C.	1 GAL	Vigorous, well rooted, and established in container.
	ASCLEPIAS TUBEROSA	BUTTERFLY WEED	AT	12" O.C.	1 GAL	Vigorous, well rooted, and established in container.
	SCHIZACHYRIUM SCOPARIUM	LITTLE BLUESTEM	SS	12" O.C.	1 GAL	Vigorous, well rooted, and established in container.
	ARCTOSTAPHYLOS UVA-URSI	BEARBERRY	AU	12" O.C.	1 GAL	Vigorous, well rooted, and established in container.
	BAPTISIA AUSTRALIS	BLUE FALSE INDIGO	BA	12" O.C.	1 GAL	Vigorous, well rooted, and established in container.
	LUPINUS PERENNIS	SUNDIAL LUPINE	LP	12" O.C.	1 GAL	Vigorous, well rooted, and established in container.

3 5TH FLR TERRACE PLANT LIST
SCALE:N/A

PLANTING SCHEDULE

SINGLE-STEM TREES / LARGE

QTY.	BOTANICAL NAME	COMMON NAME	KEY	CALIPER SIZE	CONTAINER	NOTES
7	*PINUS RIGIDA*	PITCH PINE	PR	5" CAL.	B&B	Single-stem, well-branched specimen. Other varieties accepted, pending Landscape Architect approval.
4	*BETULA ALLEGHANIENSIS*	YELLOW BIRCH	BA	5" CAL.	B&B	Single-stem, well-branched specimen. Other varieties accepted, pending Landscape Architect approval.

MULTI-STEM TREES / SMALL

QTY.	BOTANICAL NAME	COMMON NAME	KEY	CALIPER SIZE	CONTAINER	NOTES
10	*CARPINUS CAROLINIANA*	AMERICAN HORNBEAM	CC	5" CAL.	B&B	Multi-stem, well-branched specimen. Other varieties accepted, pending Landscape Architect approval.
17	*AMELANCHIER CANADENSIS*	SERVICEBERRY	AC	5" CAL.	B&B	Multi-stem, well-branched specimen. Other varieties accepted, pending Landscape Architect approval.

SHRUBS,PERENNIALS, GRASSES, FERNS, VINES AND GROUND COVER

AREA	BOTANICAL NAME	COMMON NAME	KEY	SPACING	CONTAINER	NOTES
5085 SF	*VIBURNUM DENTATUM*	ARROWWOOD VIBURNUM	VD	12" O.C.	2.5 GAL	Vigorous, well rooted, and established in container.
	RHUS AROMATICA	GROW-LOW FRAGRANT SUMAC	RA	12" O.C.	2.5 GAL	Vigorous, well rooted, and established in container.
	CLETHRA ALNIFOLIA	SWEET PEPPERBUSH	CA	12" O.C.	2.5 GAL	Vigorous, well rooted, and established in container.
	COMPTONIA PEREGRINA	SWEETFERN	CP	12" O.C.	2.5 GAL	Vigorous, well rooted, and established in container.
	MORELLA PENSYLVANICA	NORTHERN BAYBERRY	MP	12" O.C.	2.5 GAL	Vigorous, well rooted, and established in container.
	ARONIA ARBUTIFOLIA	RED CHOKEBERRY	AA	12" O.C.	2.5 GAL	Vigorous, well rooted, and established in container.
	ARONIA MELANOCARPA	BLACK CHOKEBERRY	AM	12" O.C.	2.5 GAL	Vigorous, well rooted, and established in container.
	JUNIPERUS COMMUNIS	COMMON JUNIPER	JC	12" O.C.	2.5 GAL	Vigorous, well rooted, and established in container.
	JUNIPERUS HORIZONTALIS	CREEPING JUNIPER	JH	12" O.C.	2.5 GAL	Vigorous, well rooted, and established in container.
	ANEMONE CANADENSIS	CANADA WINDFLOWER	AC	12" O.C.	1 GAL	Vigorous, well rooted, and established in container.
	OSMUNDA CINNAMOMEA	CINNAMON FERN	OC	12" O.C.	1 GAL	Vigorous, well rooted, and established in container.
	POLYSTICHUM ACROSTICHOIDES	CHRISTMAS FERN	PA	12" O.C.	1 GAL	Vigorous, well rooted, and established in container.
	SYMPHYOTRICHUM CORDIFOLIUM	BLUE WOOD ASTER	SC	12" O.C.	1 GAL	Vigorous, well rooted, and established in container.
	ASCLEPIAS TUBEROSA	BUTTERFLY WEED	AT	12" O.C.	1 GAL	Vigorous, well rooted, and established in container.
	SCHIZACHYRIUM SCOPARIUM	LITTLE BLUESTEM	SS	12" O.C.	1 GAL	Vigorous, well rooted, and established in container.
	ARCTOSTAPHYLOS UVA-URSI	BEARBERRY	AU	12" O.C.	1 GAL	Vigorous, well rooted, and established in container.
	BAPTISIA AUSTRALIS	BLUE FALSE INDIGO	BA	12" O.C.	1 GAL	Vigorous, well rooted, and established in container.
	LUPINUS PERENNIS	SUNDIAL LUPINE	LP	12" O.C.	1 GAL	Vigorous, well rooted, and established in container.

2 3RD FLR TERRACE PLANT LIST
SCALE:N/A

PLANTING SCHEDULE

SINGLE-STEM TREES / LARGE

QTY.	BOTANICAL NAME	COMMON NAME	KEY	CALIPER SIZE	CONTAINER	NOTES
2	*PINUS RIGIDA*	PITCH PINE	PR	5" CAL.	B&B	Single-stem, well-branched specimen. Other varieties accepted, pending Landscape Architect approval.
0	*BETULA ALLEGHANIENSIS*	YELLOW BIRCH	BA	5" CAL.	B&B	Single-stem, well-branched specimen. Other varieties accepted, pending Landscape Architect approval.

MULTI-STEM TREES / SMALL

QTY.	BOTANICAL NAME	COMMON NAME	KEY	CALIPER SIZE	CONTAINER	NOTES
2	*CARPINUS CAROLINIANA*	AMERICAN HORNBEAM	CC	5" CAL.	B&B	Multi-stem, well-branched specimen. Other varieties accepted, pending Landscape Architect approval.
2	*AMELANCHIER CANADENSIS*	SERVICEBERRY	AC	5" CAL.	B&B	Multi-stem, well-branched specimen. Other varieties accepted, pending Landscape Architect approval.

SHRUBS,PERENNIALS, GRASSES, FERNS, VINES AND GROUND COVER

AREA	BOTANICAL NAME	COMMON NAME	KEY	SPACING	CONTAINER	NOTES
264 SF	*VIBURNUM DENTATUM*	ARROWWOOD VIBURNUM	VD	12" O.C.	2.5 GAL	Vigorous, well rooted, and established in container.
	RHUS AROMATICA	GROW-LOW FRAGRANT SUMAC	RA	12" O.C.	2.5 GAL	Vigorous, well rooted, and established in container.
	CLETHRA ALNIFOLIA	SWEET PEPPERBUSH	CA	12" O.C.	2.5 GAL	Vigorous, well rooted, and established in container.
	COMPTONIA PEREGRINA	SWEETFERN	CP	12" O.C.	2.5 GAL	Vigorous, well rooted, and established in container.
	MORELLA PENSYLVANICA	NORTHERN BAYBERRY	MP	12" O.C.	2.5 GAL	Vigorous, well rooted, and established in container.
	ARONIA ARBUTIFOLIA	RED CHOKEBERRY	AA	12" O.C.	2.5 GAL	Vigorous, well rooted, and established in container.
	ARONIA MELANOCARPA	BLACK CHOKEBERRY	AM	12" O.C.	2.5 GAL	Vigorous, well rooted, and established in container.
	JUNIPERUS COMMUNIS	COMMON JUNIPER	JC	12" O.C.	2.5 GAL	Vigorous, well rooted, and established in container.
	JUNIPERUS HORIZONTALIS	CREEPING JUNIPER	JH	12" O.C.	2.5 GAL	Vigorous, well rooted, and established in container.
	ANEMONE CANADENSIS	CANADA WINDFLOWER	AC	12" O.C.	1 GAL	Vigorous, well rooted, and established in container.
	OSMUNDA CINNAMOMEA	CINNAMON FERN	OC	12" O.C.	1 GAL	Vigorous, well rooted, and established in container.
	POLYSTICHUM ACROSTICHOIDES	CHRISTMAS FERN	PA	12" O.C.	1 GAL	Vigorous, well rooted, and established in container.
	SYMPHYOTRICHUM CORDIFOLIUM	BLUE WOOD ASTER	SC	12" O.C.	1 GAL	Vigorous, well rooted, and established in container.
	ASCLEPIAS TUBEROSA	BUTTERFLY WEED	AT	12" O.C.	1 GAL	Vigorous, well rooted, and established in container.
	SCHIZACHYRIUM SCOPARIUM	LITTLE BLUESTEM	SS	12" O.C.	1 GAL	Vigorous, well rooted, and established in container.
	ARCTOSTAPHYLOS UVA-URSI	BEARBERRY	AU	12" O.C.	1 GAL	Vigorous, well rooted, and established in container.
	BAPTISIA AUSTRALIS	BLUE FALSE INDIGO	BA	12" O.C.	1 GAL	Vigorous, well rooted, and established in container.
	LUPINUS PERENNIS	SUNDIAL LUPINE	LP	12" O.C.	1 GAL	Vigorous, well rooted, and established in container.

1 2ND FLR TERRACE PLANT LIST
SCALE:N/A



ARCHITECT / LANDSCAPE ARCHITECT

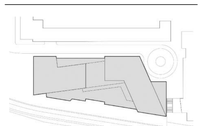
MARVEL

145 HUDSON STREET, FLR.3 NEW YORK, NY 10013
212.616.0420

CLIENT
PORTLAND FORESIDE
254 COMM. ST, STE 118, PORTLAND, ME 04101
STRUCTURAL ENGINEER / PARKING
THORNTON TOMASETTI
14 YORK ST, STE 201, PORTLAND, ME 04101
MEP/FP
WSP
250 W 34TH ST, 5TH FL, NEW YORK, NY 10119
ENCLOSURE
RWDI
1608 WALNUT ST, STE 1603, PHILA., PA 19103
CIVIL ENGINEER
WOODARD & CURRAN
41 HUTCHINS DR, PORTLAND, ME 04102
LANDSCAPE ARCHITECT (STREETSCAPE)
MBLA
457 US RTE 1, STE 2, FREEPORT, ME 04032
LEAD INTERIOR DESIGNER
WORKSHOP/APD
39 W 38TH ST, 7TH FL, NEW YORK, NY 10018
LIGHTING CONSULTANT
FISHER MARANTZ STONE
22 W 19TH ST, FL 6, NEW YORK, NY 10011
SUSTAINABILITY
ATELIER TEN
104 W 29TH ST, 8TH FL, NEW YORK, NY 10001
CODE / ACCESSIBILITY CONSULTANT
CCI
215 W 40TH ST, FL 10, NEW YORK, NY 10018
ACOUSTICAL CONSULTANT
LONGMAN LINDSEY
200 W41ST ST, STE1100, NEW YORK, NY 10036
ELEVATOR CONSULTANT
VDA
100 SUMMER ST, STE 1600, BOSTON, MA 02110
FOOD SERVICE
ROMANO GATLAND
1 HUNTINGTON QUAD #2C03, MELVILLE, NY
POOL
LOTHROP / AQUATECTONIC
333 WESTCHESTER AVE, WHITE PLAINS, NY
TECHNOLOGY
SHEN, MILSOM & WILKE
275 MADISON AVE, FL 14, NEW YORK, NY 10016

REV	DATE	DESCRIPTION
-	10.14.2022	SCHEMATIC DESIGN
2	4.14.2023	SITE PLAN APPLICATION

NOT FOR CONSTRUCTION



PLOT PLAN

2230
PORTLAND FORESIDE B5
PORTLAND, ME

HOTEL TERRACES PLANT LIST

SCALE: As indicated

DRAWING #:
LR-206
of
JOB #:

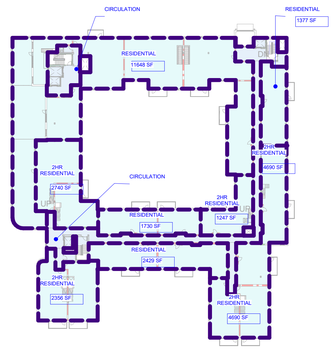
MARVEL ARCHITECTS, LANDSCAPE ARCHITECTS, URBAN DESIGNERS, PLLC

OCCUPANCY SCHEDULE

NAME	FUNCTION OF SPACE	AREA	OCC LOAD FACTOR	GROSS / NET / FIXED	TABULAR OCC
LEVEL 1					
BOH	ACCESSORY STORAGE AREAS, MECHANICAL EQUIPMENT ROOM	361 SF	300	SF GROSS	2
STORAGE	ACCESSORY STORAGE AREAS, MECHANICAL EQUIPMENT ROOM	4173 SF	300	SF GROSS	14
MERCANTILE	MERCANTILE	7558 SF	60	SF GROSS	132
ENCLOSED GARAGE UNDER BUILDING	PARKING GARAGES	33747 SF	200	SF GROSS	169
CIRCULATION	UNASSIGNED	3190 SF	0		
		49029 SF			
LEVEL 2					
STORAGE	ACCESSORY STORAGE AREAS, MECHANICAL EQUIPMENT ROOM	2068 SF	300	SF GROSS	7
TRASH	ACCESSORY STORAGE AREAS, MECHANICAL EQUIPMENT ROOM	1936 SF	300	SF GROSS	7
AMENITY	ASSEMBLY WITHOUT FIXED SEATS - UNCONCENTRATED (TABLES & CHAIRS)	1520 SF	15	SF NET	102
COURTYARD	ASSEMBLY WITHOUT FIXED SEATS - UNCONCENTRATED (TABLES & CHAIRS)	5283 SF	15	SF NET	341
LOBBY	ASSEMBLY WITHOUT FIXED SEATS - UNCONCENTRATED (TABLES & CHAIRS)	2126 SF	15	SF NET	142
OFFICE	BUSINESS	440 SF	150	SF GROSS	3
MERCANTILE	MERCANTILE	1718 SF	60	SF GROSS	29
RESIDENTIAL	RESIDENTIAL	29344 SF	200	SF GROSS	147
DECK	SKATING RINKS, SWIMMING POOLS - DECKS	459 SF	15	SF GROSS	31
POOL	SKATING RINKS, SWIMMING POOLS - RINK & POOL	349 SF	50	SF GROSS	7
CIRCULATION	UNASSIGNED	4808 SF	0		
COVERED EXTERIOR	UNASSIGNED	193 SF	0		
		50244 SF			
LEVEL 3					
AMENTIY	ASSEMBLY WITHOUT FIXED SEATS - UNCONCENTRATED (TABLES & CHAIRS)	321 SF	15	SF NET	22
FITENSS	EXERCISE ROOMS	701 SF	50	SF GROSS	15
RESIDENTIAL	RESIDENTIAL	32750 SF	200	SF GROSS	164
CIRCULATION	UNASSIGNED	6851 SF	0		
		40622 SF			
LEVEL 4					
RESIDENTIAL	RESIDENTIAL	33250 SF	200	SF GROSS	167
CIRCULATION	UNASSIGNED	6645 SF	0		
		39895 SF			
LEVEL 5					
AMENTIY	ASSEMBLY WITHOUT FIXED SEATS - UNCONCENTRATED (TABLES & CHAIRS)	2001 SF	15	SF NET	134
RESIDENTIAL	RESIDENTIAL	31288 SF	200	SF GROSS	157
CIRCULATION	UNASSIGNED	6558 SF	0		
		39846 SF			
LEVEL 6					
RESIDENTIAL	RESIDENTIAL	31250 SF	200	SF GROSS	157
CIRCULATION	UNASSIGNED	6588 SF	0		
		37838 SF			
LEVEL 7					
RESIDENTIAL	RESIDENTIAL	31644 SF	200	SF GROSS	159
CIRCULATION	UNASSIGNED	5578 SF	0		
		37222 SF			
LEVEL 8					
2HR RESIDENTIAL	RESIDENTIAL	11033 SF	200	SF GROSS	56
RESIDENTIAL	RESIDENTIAL	17183 SF	200	SF GROSS	86
CIRCULATION	UNASSIGNED	4725 SF	0		
		32941 SF			
LEVEL 9					
2HR RESIDENTIAL	RESIDENTIAL	7772 SF	200	SF GROSS	39
RESIDENTIAL	RESIDENTIAL	3478 SF	200	SF GROSS	18
CIRCULATION	UNASSIGNED	395 SF	0		
		11645 SF			
LEVEL 10					
2HR RESIDENTIAL	RESIDENTIAL	7219 SF	200	SF GROSS	37
		7219 SF			
Grand total: 73		346501 SF		TOTAL OCC = 2,344	

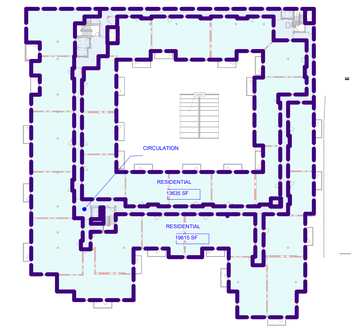
FUNCTION OF SPACE COLOR LEGEND

- ACCESSORY STORAGE AREAS, MECHANICAL EQUIPMENT ROOM
- ASSEMBLY WITHOUT FIXED SEATS - UNCONCENTRATED (TABLES & CHAIRS)
- BUSINESS
- MERCANTILE
- EXERCISE ROOM
- RESIDENTIAL
- SKATING RINKS, SWIMMING POOLS - DECKS
- SKATING RINKS, SWIMMING POOLS - RINK & POOL
- UNASSIGNED
- PARKING GARAGE



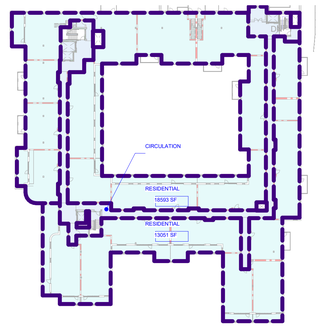
2D LEVEL 8

SCALE: 1" = 50'-0" DRAWING REF: A200



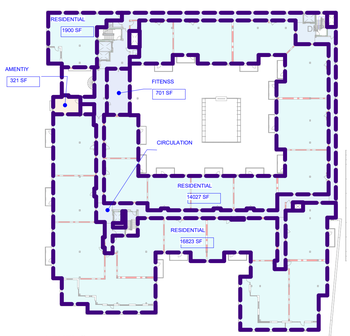
1D LEVEL 4

SCALE: 1" = 50'-0" DRAWING REF: A200



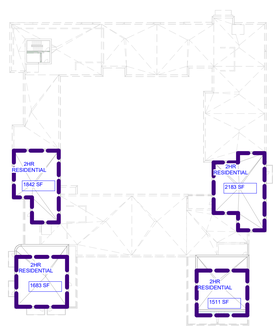
2C LEVEL 7

SCALE: 1" = 50'-0" DRAWING REF: A200



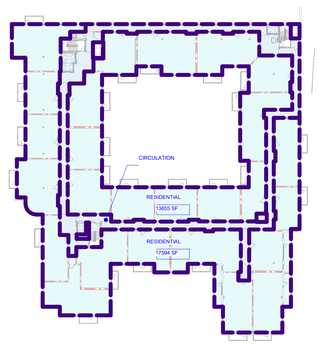
1C LEVEL 3

SCALE: 1" = 50'-0" DRAWING REF: A200



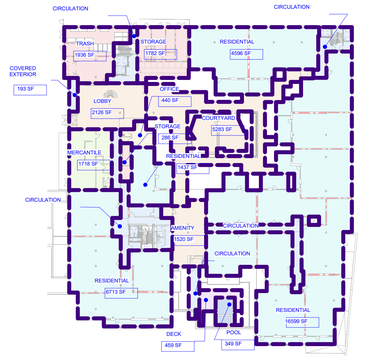
3B LEVEL 10

SCALE: 1" = 50'-0" DRAWING REF: A200



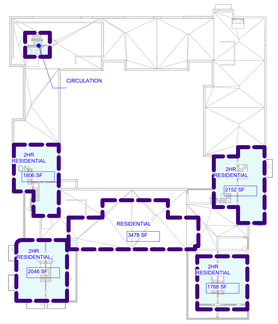
2B LEVEL 6

SCALE: 1" = 50'-0" DRAWING REF: A200



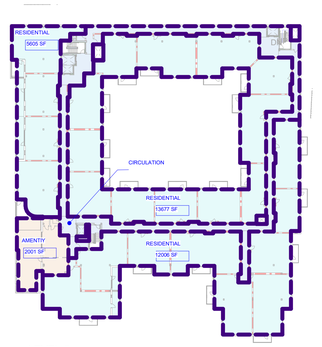
1B LEVEL 2

SCALE: 1" = 50'-0" DRAWING REF: A200



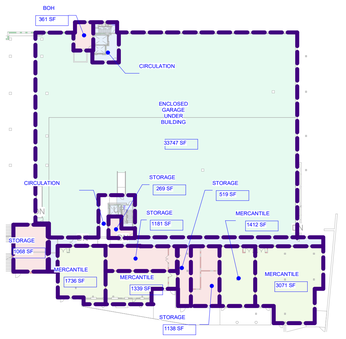
3A LEVEL 9

SCALE: 1" = 50'-0" DRAWING REF: A200



2A LEVEL 5

SCALE: 1" = 50'-0" DRAWING REF: A200



1A LEVEL 1

SCALE: 1" = 50'-0" DRAWING REF: A200

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PROJECT NUMBER
2.210338.0

PFDC - BLOCK 6: THE CHANNEL MARK

58 FORE ST
PORTLAND, ME 04101

ISSUE

06/22/2023 - PROGRESS PRINT

CODE CALCULATED OCCUPANCY AND AREA PLANS

G001

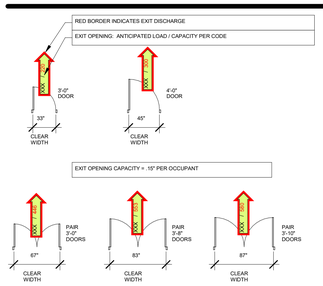
EGRESS PATH DISTANCES

TYPE	PATH OF EGRESS
LEVEL 1 - GARAGE PATH A	
COMMON PATH OF EGRESS TRAVEL	29'-6"
PATH OF CHOICE	139'-3"
	168'-9"
LEVEL 1 - RETAIL A	
COMMON PATH OF EGRESS TRAVEL	8'-4"
PATH OF CHOICE	30'-11"
	39'-3"
LEVEL 1 - RETAIL B	
COMMON PATH OF EGRESS TRAVEL	20'-6"
PATH OF CHOICE	87'-0"
	107'-6"
LEVEL 1 - RETAIL C	
COMMON PATH OF EGRESS TRAVEL	25'-9"
PATH OF CHOICE	40'-2"
	65'-11"
LEVEL 1 - RETAIL D	
COMMON PATH OF EGRESS TRAVEL	53'-6"
PATH OF CHOICE	40'-2"
	93'-8"
LEVEL 2 - EXIT PATH 'A'	
PATH OF CHOICE	240'-11"
	240'-11"
LEVEL 2 - EXIT PATH 'B'	
COMMON PATH OF EGRESS TRAVEL	109'-5"
PATH OF CHOICE	74'-7"
	184'-0"

FIRE PROTECTION & ALARM DEVICES (906 -908)

- FE — FIRE EXTINGUISHER BRACKET MOUNTED
- FEC — FIRE EXTINGUISHER CABINET (RECESSED/ SEMI RECESSED)
- V — FIRE ALARM STROBE ONLY, + 80" SYNCHRONIZED 15 CANDELA UNLESS OTHERWISE NOTED
- SD — FIRE ALARM PHOTOELECTRIC SMOKE DETECTOR CEILING MOUNTED
- F — FIRE ALARM PULL STATION, +48"
- F — FIRE ALARM HORN/STROBE DEVICE, +80" SYNCHRONIZED 15 CANDELA UNLESS OTHERWISE NOTED
- SD — FIRE ALARM PHOTOELECTRIC DUCT SMOKE DETECTOR HOUSING WITH SENSOR AND REMOTE LED/ALARM TEST STATION

EXIT DISCHARGE CAPACITY (SPRINKLERED)



EXIT / EGRESS SYMBOLS

- EP — EXIT PASSAGEWAY (1024)
- EXIT ACCESS CORRIDOR (1020)
- DIRECTIONAL ILLUMINATED EXIT SIGN (1013)
- ELEV — ELEVATOR (3001)
- HE — HORIZONTAL EXIT (1026)
- EAS — EXIT ACCESS (1019)
- IES — INTERIOR EXIT STAIRWAY (1023)

LIFE SAFETY GENERAL NOTES

1. BASIS OF DESIGN BUILDING COMPONENTS RATING ASSEMBLIES
   - A. UL X017 - 2-HR COLUMN ENCLOSURE GYP
   - B. UL U493 - 1-2HR DEMISING WALL
   - C. UL U305 - 1HR WALL
   - D. UL U415 - 2-HR SHAFT WALL
   - E. UL N501 - 2HR BEAM ENCLOSURE GYP
   - F. UL D704 - 2HR BEAM AND DECK SPRAY APPLIED
2. FIRE EXTINGUISHER CABINETS SHALL BE LOCATED SO THAT THE MAXIMUM TRAVEL DISTANCE SHALL NOT EXCEED 75'-0" (906.3).
3. MINIMUM EGRESS WIDTH PER OCCUPANT AT STAIRS = 0.3" PER OCCUPANT MINIMUM EGRESS WIDTH PER OCCUPANT AT ALL OTHER EGRESS COMPONENTS = 0.15" PER OCCUPANT. (1005.3.2)
4. A FIRE RATED ASSEMBLY AND SMOKE BARRIER ASSEMBLY SHALL BE STENCILED WITH THE RELEVANT DESIGNATION AS FOLLOWS (703.7):
   - 3-INCH TALL LETTERS IN RED INK OR PAINT
   - APPLIED AT ALL CONCEALED LOCATIONS (EG., ABOVE CEILING AND INSIDE ELEVATOR SHAFTS) @ 8'-0" OC MAX.

PARTITION DESIGNATIONS (705-710)

NON-RATED PARTITION

707 FIRE BARRIERS

1 HR FIRE BARRIER

2 HR FIRE BARRIER

HORIZONTAL ASSEMBLIES (711)

NOTE:
ALL RATED CONSTRUCTION IS ALSO SMOKE RESISTIVE CONSTRUCTION

1 HR RATED ROOF/FLOOR ASSEMBLY

1-HR FIRE BARRIER CEILING

2 HR RATED ROOF/FLOOR ASSEMBLY

TRAVEL DISTANCE LIMITATIONS (1017)

EXIT ACCESS TRAVEL DISTANCE (1017.2)

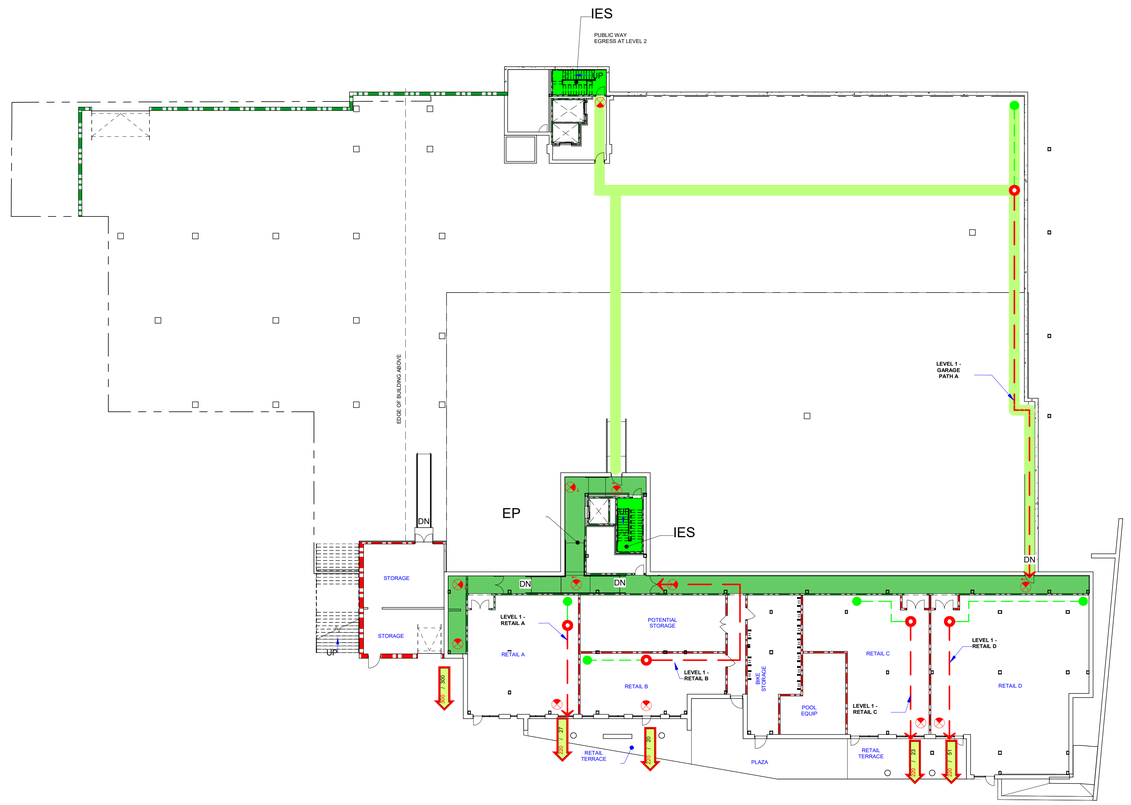
(USE GROPUS A, M, R = 250' MAX)	USE GROUP R = 125'-0" MAX
(USE GROUP B = 300' MAX)	USE GROUP A, B & M = 75'-0" MAX
(USE GROUP S1 & S2 = 400' MAX)	USE GROUP S1 & S2 = 100'-0" MAX

POINT OF EGRESS CHOICE — PATH OF CHOICE — COMMON PATH (1006.2.1)



6A LEVEL 2 - LIFE SAFETY PLAN

SCALE: 3/64" = 1'-0" DRAWING REF: A200



3A LEVEL 1 - LIFE SAFETY PLAN

SCALE: 3/64" = 1'-0" DRAWING REF: A200

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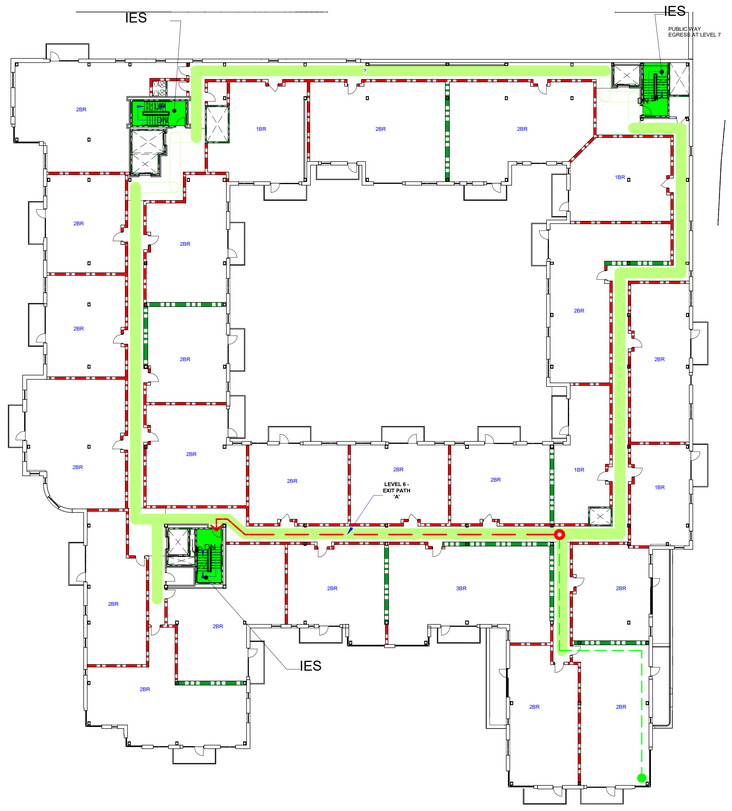
ISSUE
06/22/2023 - PROGRESS PRINT

LIFE SAFETY LEGEND & LIFE SAFETY PLANS

G002

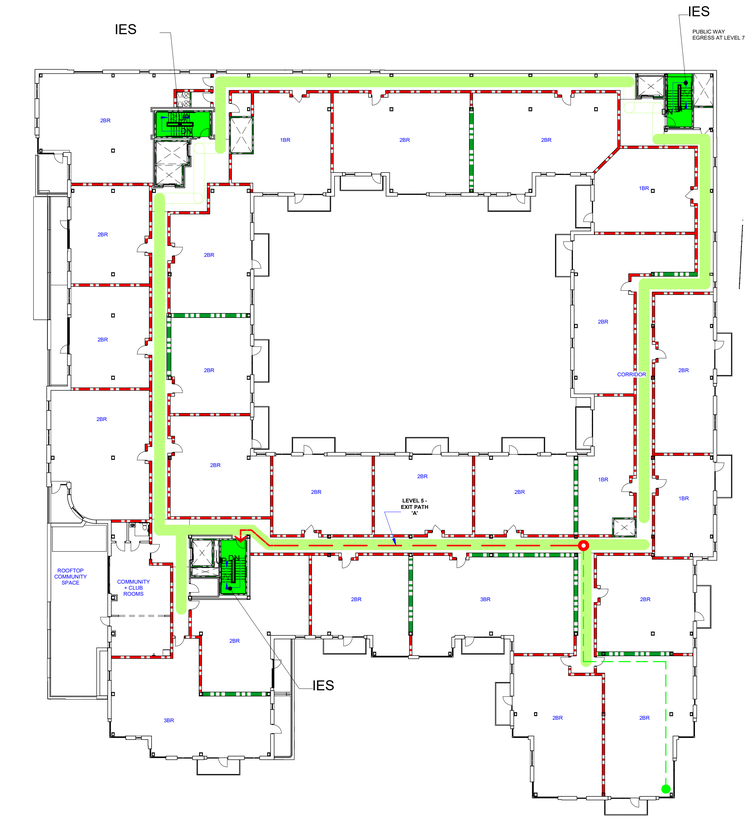
EGRESS PATH DISTANCES

TYPE	PATH OF EGRESS
LEVEL 3 - EXIT PATH 'A'	
COMMON PATH OF EGRESS TRAVEL	112'-5"
PATH OF CHOICE	125'-8"
	238'-1"
LEVEL 4 - EXIT PATH 'A'	
COMMON PATH OF EGRESS TRAVEL	112'-8"
PATH OF CHOICE	125'-7"
	238'-3"
LEVEL 5 - EXIT PATH 'A'	
COMMON PATH OF EGRESS TRAVEL	113'-4"
PATH OF CHOICE	124'-9"
	238'-1"
LEVEL 6 - EXIT PATH 'A'	
COMMON PATH OF EGRESS TRAVEL	113'-4"
PATH OF CHOICE	124'-9"
	238'-1"



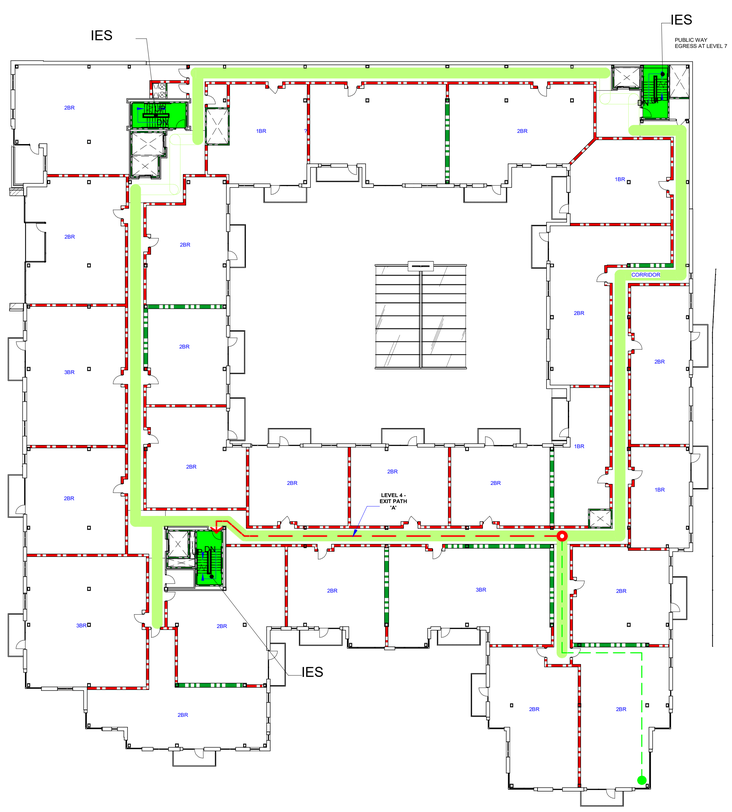
5C LEVEL 6 - LIFE SAFETY PLAN

SCALE: 3/64" = 1'-0" DRAWING REF: A200



3C LEVEL 5 - LIFE SAFETY PLAN

SCALE: 3/64" = 1'-0" DRAWING REF: A200



5A LEVEL 4 - LIFE SAFETY PLAN

SCALE: 3/64" = 1'-0" DRAWING REF: A200



3A LEVEL 3 - LEFE SAFETY PLAN

SCALE: 3/64" = 1'-0" DRAWING REF: A200

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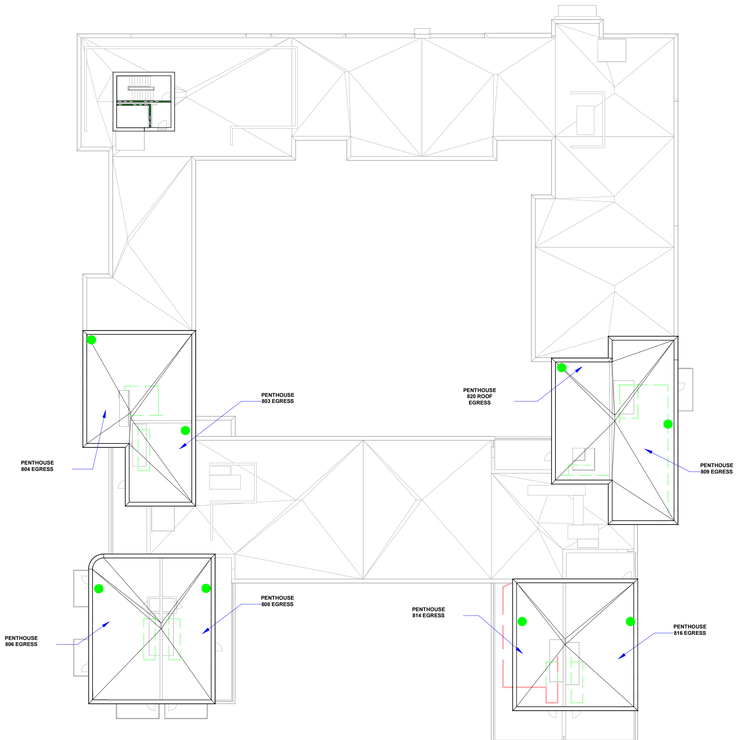
ISSUE
06/22/2023 - PROGRESS PRINT

LIFE SAFETY PLANS

G003

EGRESS PATH DISTANCES

TYPE	PATH OF EGRESS
LEVEL 7 - EXIT PATH 'A'	
COMMON PATH OF EGRESS TRAVEL	106'-0"
PATH OF CHOICE	124'-9"
	230'-9"
LEVEL 8 - EXIT PATH 'A'	
COMMON PATH OF EGRESS TRAVEL	40'-4"
PATH OF CHOICE	125'-8"
	166'-0"
PENTHOUSE 803 EGRESS	
COMMON PATH OF EGRESS TRAVEL	110'-1"
	110'-1"
PENTHOUSE 804 EGRESS	
COMMON PATH OF EGRESS TRAVEL	89'-3"
	89'-3"
PENTHOUSE 806 EGRESS	
COMMON PATH OF EGRESS TRAVEL	116'-9"
	116'-9"
PENTHOUSE 808 EGRESS	
COMMON PATH OF EGRESS TRAVEL	127'-9"
	127'-9"
PENTHOUSE 809 EGRESS	
COMMON PATH OF EGRESS TRAVEL	118'-2"
	118'-2"
PENTHOUSE 814 EGRESS	
COMMON PATH OF EGRESS TRAVEL	124'-5"
	124'-5"
PENTHOUSE 816 EGRESS	
COMMON PATH OF EGRESS TRAVEL	121'-2"
	121'-2"
PENTHOUSE 820 2ND FLR EGRESS	
COMMON PATH OF EGRESS TRAVEL	125'-7"
	125'-7"
PENTHOUSE 820 ROOF EGRESS	
COMMON PATH OF EGRESS TRAVEL	116'-6"
	116'-6"
Terrace Test Line	
PATH OF CHOICE	124'-9"
	124'-9"



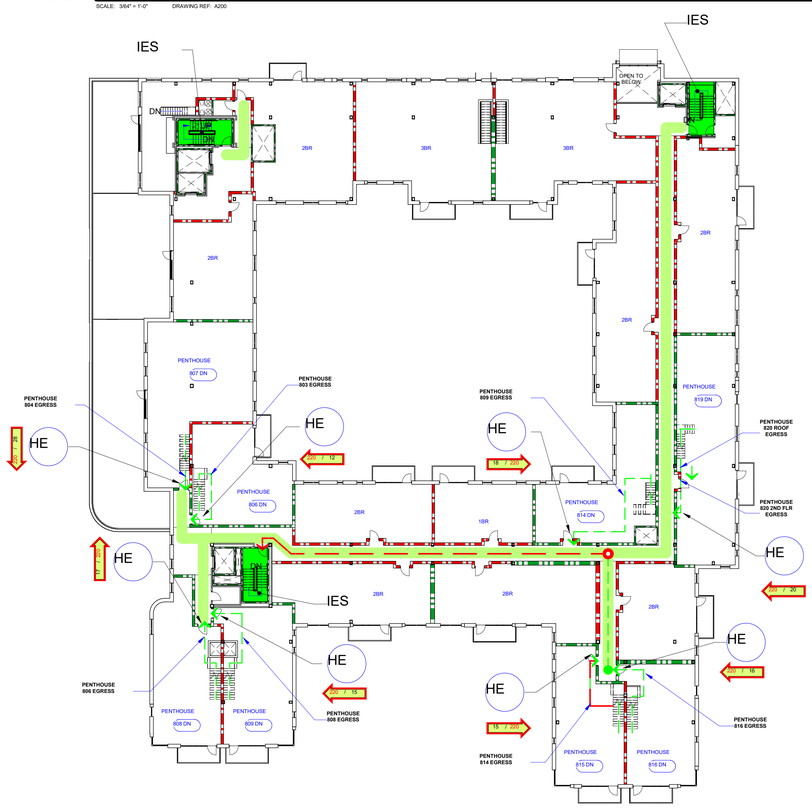
5C LEVEL 10 - LIFE SAFETY PLAN

SCALE: 3/64" = 1'-0" DRAWING REF: A200



3C LEVEL 9 - LIFE SAFETY PLAN

SCALE: 3/64" = 1'-0" DRAWING REF: A200



5A LEVEL 8 - LIFE SAFETY PLAN

SCALE: 3/64" = 1'-0" DRAWING REF: A200



3A LEVEL 7 - LIFE SAFETY PLAN

SCALE: 3/64" = 1'-0" DRAWING REF: A200

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06/22/2023 - PROGRESS PRINT

LIFE SAFETY PLANS

G004

EXTERIOR FINISH LEGEND

FINISH NO.	MATERIAL	MANUFACTURER	STYLE NAME / NO.	COLOR	SIZE	DESCRIPTION / REMARKS
CONCRETE						
CONC-01	CONCRETE					EXPOSED POURED IN PLACE CONCRETE
EXTERIOR FLOORING						
CT-01	PORCELAIN PAVER		WOOD LOOK		LARGE FORMAT - RECTILINEAR	AT POOL AND ROOF TERRACES
CT-02	PORCELAIN PAVER		STONE LOOK		LARGE FORMAT - PLANK	AT POOL AND ROOF TERRACES
PS-01	PEDASTAL PAVER SYSTEM	HANOVER PAVERS	GRIDLOC ON PEDASTAL PAVERS			WEIGHTED
PS-02	PAVERS	PER LANDSCAPE			VARIED	ABOVE PODIUM
MASONRY						
STN-01	STONE		GRANITE		LARGE FORMAT	CAVITY WALL VENEER
STN-02	STONE		GRANITE		LEDGESTONE	CAVITY WALL VENEER
METAL						
MTL-01	ALUMINUM FRAMED DOOR / WINDOW SYSTEM	WASAU		DARK BRONZE		THERMALLY BROKEN
MTL-02	ALUMINUM COMPOSITE PANEL	FAIRVIEW ARCHITECTURALS	VITRAPLATE	FACTORY FINISHED TO MATCH WINDOW SYSTEM		ROOF EQUIPMENT SCREEN
MTL-03	ALUMINIUM RAILING SYSTEM	LEVOLUX	SERENITI BALUSTADE	FACTORY FINISHED TO MATCH WINDOW SYSTEM		VERTICAL PICKET RAILING WITH NARROW PROFILE

EXTERIOR FINISH LEGEND

FINISH NO.	MATERIAL	MANUFACTURER	STYLE NAME / NO.	COLOR	SIZE	DESCRIPTION / REMARKS
MTL-04	GLASS GUARDRAIL	WESHAMPTON ARCHITECTURAL GLASS	BOTTOM SHOE	FINISH TO MATCH MTL-01	48" PANELS	GLASS PANEL RAILING WITH ALUMINUM MOUNT SYSTEM
MTL-05	MODULAR BALCONY	LEVOLUX	SERENITI BALCONY	FINISH TO MATCH MTL-01	15' X 5'	THERMALLY BROKEN ATTACHMENT, RAILED ALLUM DECKING, AND EDGE DRAINAGE
PAINT						
PNT-01	ELASTOMERIC COATING			COLOR TO MATCH MTL-01		ALL EXPOSED STEEL
RAINSCREEN PANEL						
FCP-1	FIBER CEMENT PANEL	SWISS PEARL	GRAVIAL	GRANITE 624		CONCEALED ATTACHEMENT SYSTEM
FCP-2	FIBER CEMENT PANEL	TBD	CLAPBOARD	WHITE	6"	CONCEALED ATTACHEMENT SYSTEM
GFRC-1	GLASSFIBER REINFORCED CONCRETE SLAT	RIEDER	ÖKO SKIN STRIPES	COLOR/FINISH MIX TBD	70mm, 147mm, 302m	CONCEALED ATTACHEMENT SYSTEM; VERTICAL ORIENTATION
GFRC-2	GLASSFIBER REINFORCED CONCRETE SLAT	RIEDER	ÖKO SKIN STRIPES	COLOR/FINISH MIX TBD	70mm, 147mm, 302m	CONCEALED ATTACHEMENT SYSTEM; HORIZONTAL ORIENTATION

KEYNOTES

05.59.13	MODULAR ALUMINUM BALCONY, BOD: LEVOLUX SERENITI MODULAR BALCONY WITH RAILED ALUMINUM BALUSTRADE, NON COMBUSTIBLE DECKING, AND EDGE DRAINAGE
05.73.00.B	PREFINISHED ALUMINUM GUARDRAIL TO MATCH MODULAR BALCONIES
05.73.13	GLASS GUARDRAIL IN ALUMINUM SHOE
07.44.53	FRP COLUMN WRAP, MOUNTED VERTICALLY
07.62.00.A	ALUMINUM COPING WITH KYNAR FINISH SEE SECTION 07 6200
08.11.13	PAINTED HOLLOW METAL DOOR AND FRAME SEE SHEETS A8-01, A8-02, AND SECTION 08 1113
08.33.23	OVERHEAD COILING DOORS
10.55.01	ADAPTIVE OUTDOOR SHADE STRUCTURE, BOD: LANDSCAPE FORMS UPFIT
31 32 36	SOE PER CIVIL DRAWINGS
32.13.13.A	GRAND EXTERIOR STAIR PER LANDSCAPE DRAWINGS



5C ELEVATION - WEST

SCALE: 3/32" = 1'-0" DRAWING REF: A111



5A ELEVATION - SOUTH

SCALE: 3/32" = 1'-0" DRAWING REF: A111

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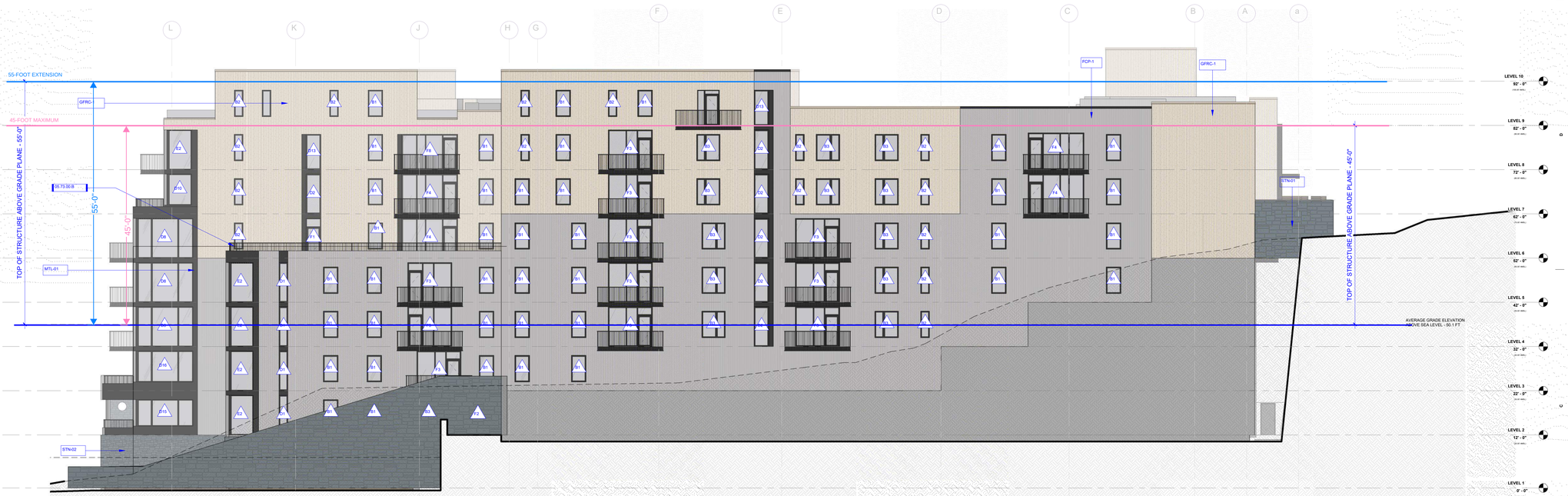
ISSUE
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EXTERIOR ELEVATIONS

A200

KEYNOTES

05.73.00.B PREFINISHED ALUMINUM GUARDRAIL TO MATCH MODULAR BALCONIES
05.73.13 GLASS GUARDRAIL IN ALUMINUM SHOE
07.62.00.A ALUMINUM COPING WITH KYNAR FINISH SEE SECTION 07 6200

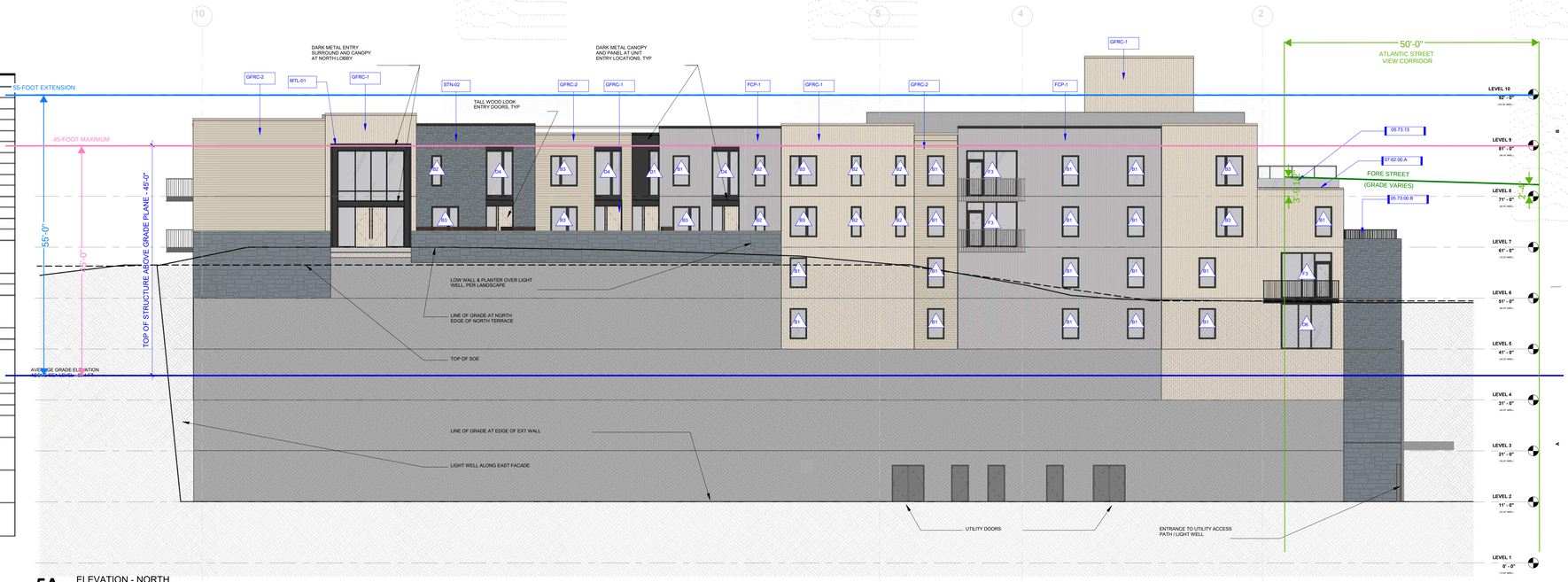


5C ELEVATION - EAST

SCALE: 3/32" = 1'-0" DRAWING REF: A112

WINDOW SCHEDULE

Mark	Mfr	Model	Size (WxH)	Material	Comments
A1	Wasau	Invent 4250i-XLT	40" x 72"	MTL-01	
A2	Wasau	Invent 4250i-XLT	24" x 72"	MTL-01	
A3	Wasau	Invent 4250i-XLT	48" x 72"	MTL-01	
A4	Wasau	Invent 4250i-XLT	36" x 60"	MTL-01	
B1	Wasau	Invent 4250i-XLT	64" x 72"	MTL-01	
C1	Wasau	Invent Window Wall	40" x 108"	MTL-01	
C4	Wasau	Invent Window Wall	48" x 108"	MTL-01	
D1	Wasau	Invent Window Wall	64" x 108"	MTL-01	
D2	Wasau	Invent Window Wall	88" x 108"	MTL-01	
D3	Wasau	Invent Window Wall	120" x 108"	MTL-01	
E1	Wasau	Invent Window Wall	(66" X 66") X 108"	MTL-01	Corner Window
E2	Wasau	Invent Window Wall	(66" X 75") X 108"	MTL-01	Corner Window
E3	Wasau	Invent Window Wall	(66" X 75") X 88"	MTL-01	Corner Window
J1	Wasau	Invent Window Wall	(66" X 106") X 108"	MTL-01	Corner Window
J2	Wasau	Invent Window Wall and Advantage Terrace Door TD4250i	(66" X 106") X 108"	MTL-01	Corner Window
J3	Wasau	Invent Window Wall	(66" X 106") X 108"	MTL-01	Corner Window
K1	Wasau	Invent Window Wall	(34" X 150") X 108"	MTL-01	Corner Window
K2	Wasau	Invent Window Wall and Advantage Terrace Door TD4250i	(34" X 150") X 108"	MTL-01	Corner Window
K3	Wasau	Invent Window Wall	(120" X 30") X 108"	MTL-01	Corner Window
L1	Wasau	Invent Window Wall		MTL-01	Corner Window
L2	Wasau	Invent Window Wall and Advantage Terrace Door TD4250i		MTL-01	Corner Window
H1	TBD	Bay Window	60" x 60"	Varies	
G1	TBD	Double Hung	24" x 60"	Varies	
G2	TBD	Double Hung	36" x 60"	Varies	
F1	Wasau	Advantage Terrace Door TD4250i	Varies x 108"	MTL-01	
F2	Wasau	Invent Window Wall and Advantage Terrace Door TD4250i	88" x 108"	MTL-01	
F3	Wasau	Invent Window Wall and Advantage Terrace Door TD4250i	120" x 108"	MTL-01	
F4	Wasau	Invent Window Wall and Advantage Terrace Door TD4250i	152" x 108"	MTL-01	



5A ELEVATION - NORTH

SCALE: 3/32" = 1'-0" DRAWING REF: A117

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EXTERIOR ELEVATIONS

A201

LEVEL 1 - PUBLIC SPACE SCHEDULE

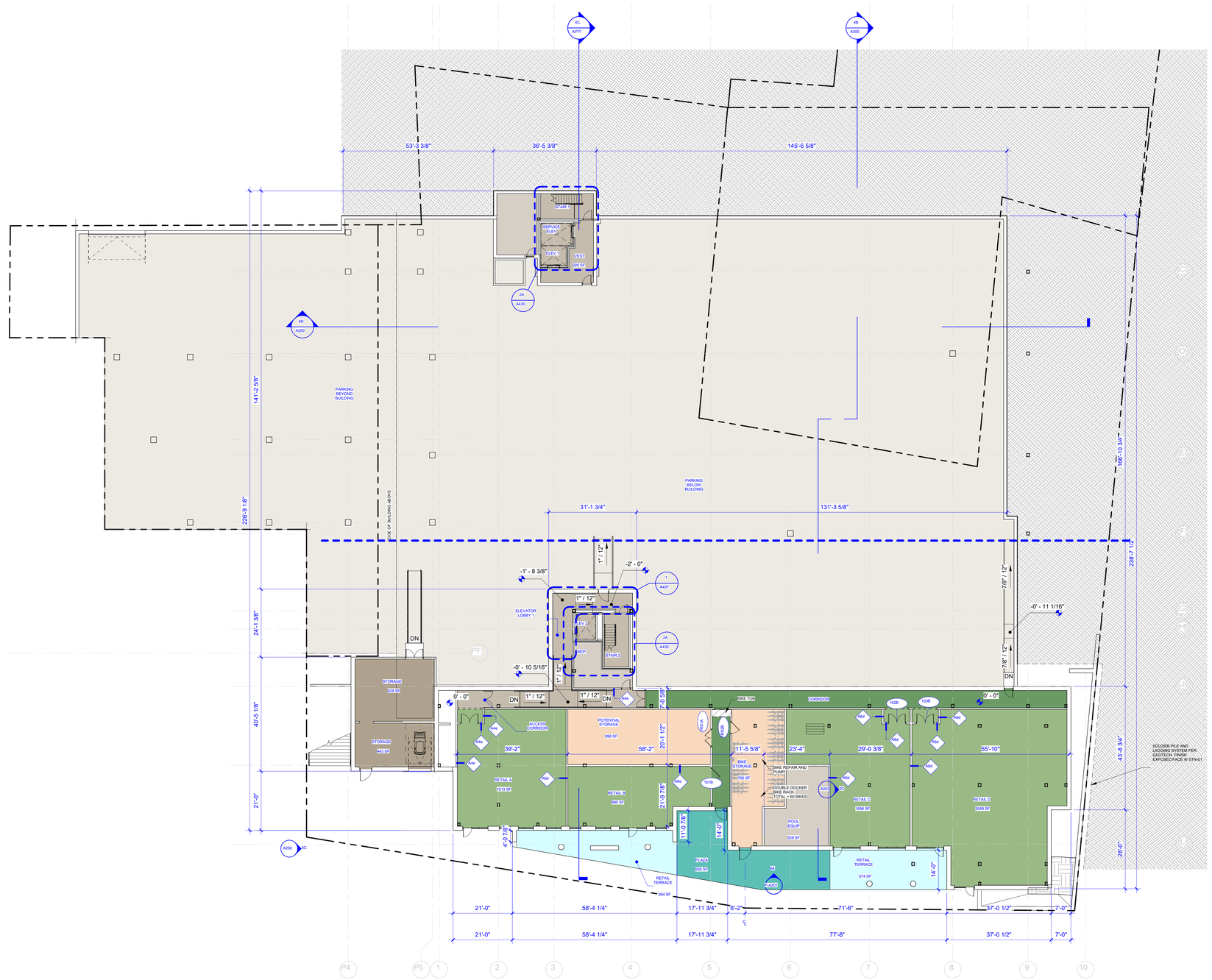
NO	SPACE	NET AREA
LEVEL 1		
1C4	CORRIDOR	1139 SF
1MP1	PLAZA	935 SF
1R1	RETAIL A	1613 SF
1R2	RETAIL B	995 SF
1R3	RETAIL C	1694 SF
1R4	RETAIL D	3049 SF
1RT1	RETAIL TERRACE	594 SF
1RT2	RETAIL TERRACE	574 SF
		10592 SF

LEVEL 1 - COMMON SPACE SCHEDULE

SPACE TYPE	NET AREA
LEVEL 1	
COMMON SPACE - ACCESS	1559 SF
COMMON SPACE - AMENITY	1791 SF
COMMON SPACE - BOH	1071 SF
COMMON SPACE - UTILITIES	758 SF
	5179 SF

AREA/UNIT TYPE

- SITE - OUTDOOR SPACE
- RETAIL
- RETAIL - ACCESS SPACE
- RETAIL - OUTDOOR SPACE
- COMMON SPACE - BOH
- COMMON SPACE - ACCESS
- COMMON SPACE - UTILITIES
- COMMON SPACE - PARKING
- COMMON SPACE - AMENITY



5A LEVEL 1 (MARINA/PROMENADE) - PLAN

SCALE: 1/16" = 1'-0"

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PROJECT NUMBER
2.210338.0

PFDC - BLOCK 6: THE CHANNEL MARK

58 FORE ST
PORTLAND, ME 04101

ISSUE

06/22/2023 - PROGRESS PRINT

LEVEL 1 - OVERALL PLAN

A111

LEVEL 2 - UNIT SCHEDULE

NO	SPACE	AREA
LEVEL 2		
204	2BR	1057 SF
204 T	UNIT TERRACE	286 SF
205	2BR	1419 SF
205 T	UNIT TERRACE	339 SF
207	3BR	1870 SF
207 T	UNIT TERRACE	395 SF
208	3BR	1752 SF
208 T	UNIT TERRACE	309 SF
209	1BR	1045 SF
209 T	UNIT TERRACE	102 SF
211	2BR	1310 SF
211 T	UNIT TERRACE	157 SF
212	2BR	1096 SF
212 T	UNIT TERRACE	230 SF
213	1BR	1061 SF
213 T	UNIT TERRACE	116 SF
214	2BR	1218 SF
214 T	UNIT TERRACE	268 SF
215	2BR	1502 SF
215 T	UNIT TERRACE	205 SF
216	2BR	1387 SF
216 T1	UNIT TERRACE	151 SF
217	3BR	1815 SF
217 T	UNIT TERRACE	259 SF
218	2BR	1706 SF
218 T	UNIT TERRACE	308 SF
219	2BR	1382 SF
219 T	UNIT TERRACE	280 SF
220	2BR	1662 SF
220 T	UNIT TERRACE	152 SF
221	3BR	2061 SF
221 T	UNIT TERRACE	230 SF
223	3BR	1826 SF
223 T	UNIT TERRACE	325 SF
		29281 SF

UNITS TOTAL FOR LEVEL (CONDITIONED SPACE)
17

LEVEL 2 - COMMON SPACE SCHEDULE

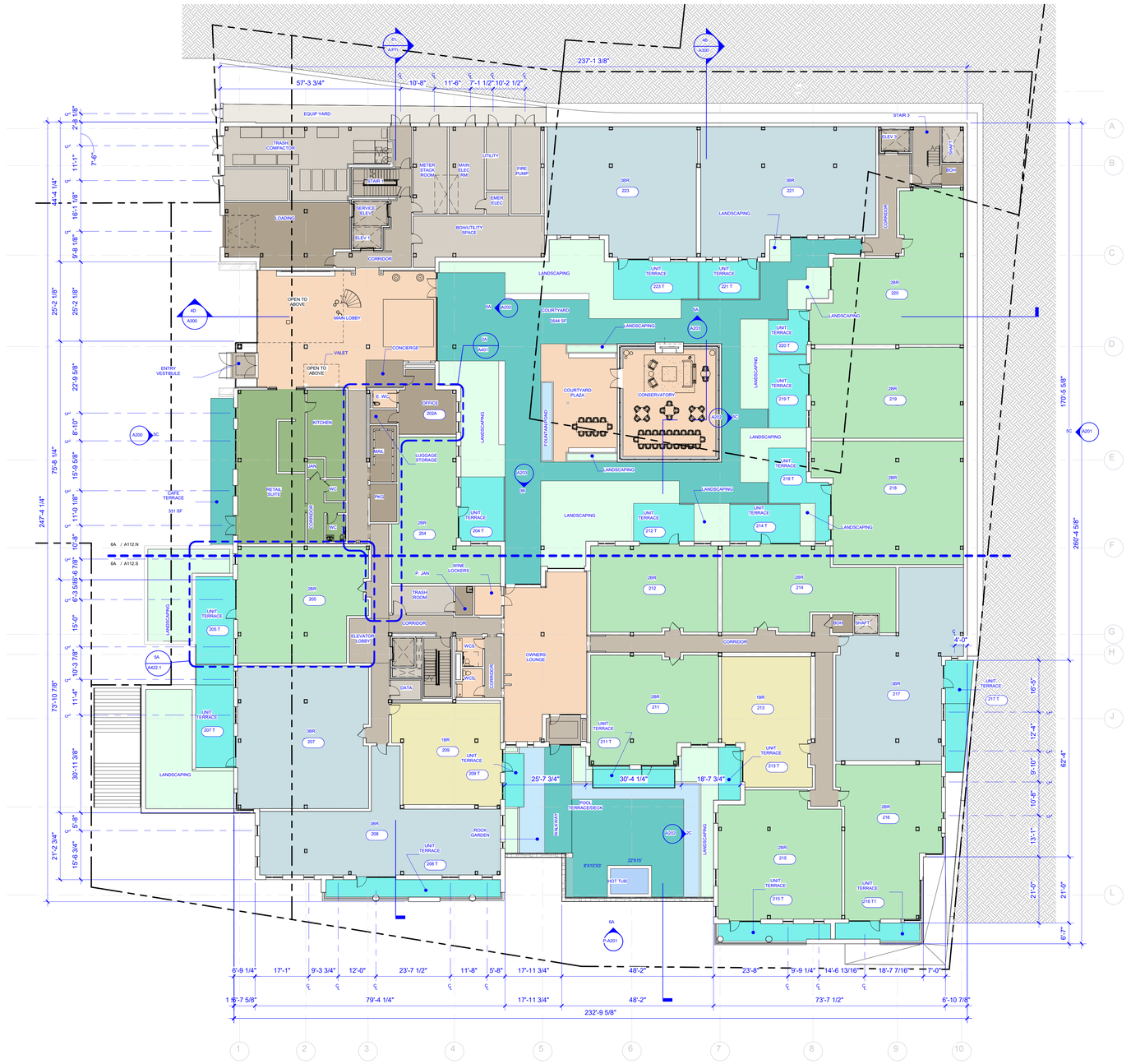
SPACE TYPE	AREA
LEVEL 2	
COMMON SPACE - ACCESS	3422 SF
COMMON SPACE - AMENITY	4972 SF
COMMON SPACE - BOH	1589 SF
COMMON SPACE - OUTDOOR	5150 SF
COMMON SPACE - UTILITIES	3046 SF
COMMON SPACE - UTILITIES (OUTDOOR)	561 SF
	18741 SF

UNIT TYPE & SELLEABLE SF

UNIT TYPE	COUNT	SQUARE FOOTAGE
1BR	17	15070.7 SF
2BR	108	129928 SF
3BR	23	40022.9 SF
PENTHOUSE	8	17184.6 SF
UNIT BALCONY	118	8557.7 SF
UNIT TERRACE - LARGE	16	8113.8 SF
UNIT COUNT WITHIN RESIDENTIAL = 72	290	218877.7 SF

AREA/UNIT TYPE

- SITE - LANDSCAPING
- SITE - WATER POOL
- SITE - WATER LOW
- RETAIL
- COMMON SPACE - BOH
- COMMON SPACE - ACCESS
- COMMON SPACE - UTILITIES
- COMMON SPACE - UTILITIES (OUTDOOR)
- COMMON SPACE - AMENITY
- COMMON SPACE - OUTDOOR
- UNIT-ONE BEDROOM
- UNIT - TWO BEDROOM
- UNIT - THREE BEDROOM
- UNIT - OUTDOOR SPACE



4A LEVEL 2 (STREET LEVEL) - PLAN

SCALE: 1/16" = 1'-0"

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PFDC - BLOCK 6: THE CHANNEL MARK

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LEVEL 2 - OVERALL PLAN

A112

LEVEL 3 - UNIT SCHEDULE

NO	SPACE	AREA
LEVEL 3		
302	2BR	908 SF
302 T	UNIT BALCONY	73 SF
303	3BR	1647 SF
303 T	UNIT BALCONY	73 SF
304	2BR	1112 SF
304 T	UNIT BALCONY	73 SF
305	2BR	1254 SF
305 T	UNIT BALCONY	75 SF
307	3BR	1873 SF
307 T	UNIT BALCONY	73 SF
308	2BR	1371 SF
308 T	UNIT TERRACE - LARGE	658 SF
309	2BR	1433 SF
309 T	UNIT BALCONY	70 SF
310	2BR	931 SF
310 T	UNIT BALCONY	73 SF
311	2BR	1014 SF
311 T	UNIT BALCONY	74 SF
312	2BR	921 SF
312 T	UNIT BALCONY	73 SF
313	3BR	1754 SF
313 T	UNIT BALCONY	73 SF
314	2BR	930 SF
314 T	UNIT BALCONY	73 SF
315	2BR	1282 SF
315 T	UNIT TERRACE - LARGE	638 SF
316	2BR	1365 SF
316 T1	UNIT TERRACE	175 SF
317	3BR	1531 SF
317 T	UNIT BALCONY	69 SF
318	2BR	1308 SF
318 T	UNIT BALCONY	76 SF
319	2BR	1709 SF
319 T	UNIT BALCONY	70 SF
320	2BR	1550 SF
320 T1	UNIT BALCONY	73 SF
320 T2	UNIT BALCONY	73 SF
321	2BR	1483 SF
321 T	UNIT BALCONY	70 SF
322	2BR	1493 SF
322 T	UNIT BALCONY	70 SF
323	1BR	961 SF
323 T	UNIT BALCONY	70 SF
324	3BR	1733 SF
324 T	UNIT TERRACE	124 SF
		32535 SF

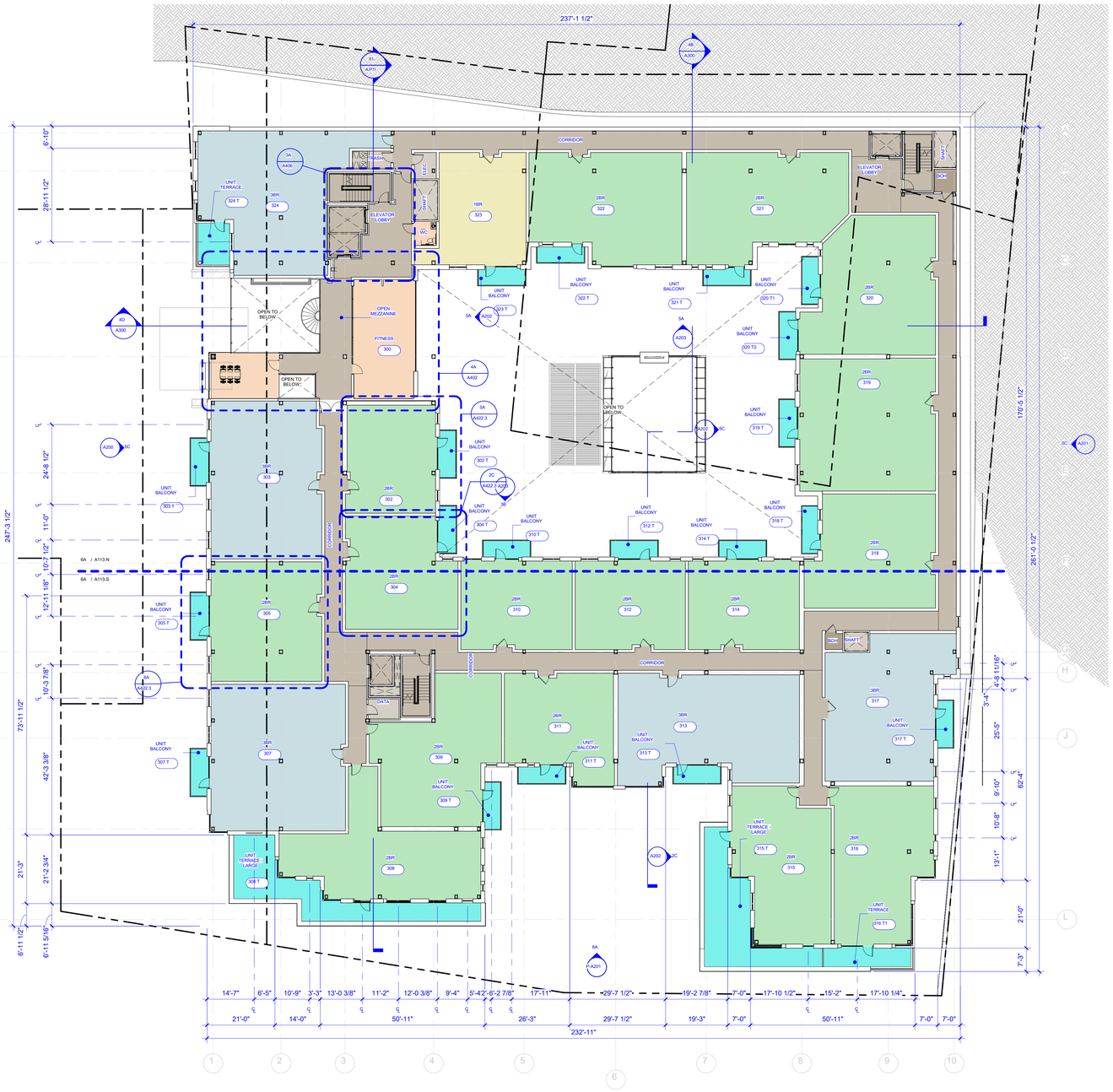
UNITS TOTAL FOR LEVEL (CONDITIONED SPACE)
22

LEVEL 3 - COMMON SPACE SCHEDULE

SPACE TYPE	AREA
LEVEL 3	
COMMON SPACE - ACCESS	5803 SF
COMMON SPACE - AMENITY	1021 SF
COMMON SPACE - BOH	76 SF
COMMON SPACE - UTILITIES	313 SF
	7213 SF

AREA/UNIT TYPE

- COMMON SPACE - BOH
- COMMON SPACE - ACCESS
- COMMON SPACE - UTILITIES
- COMMON SPACE - AMENITY
- UNIT-ONE BEDROOM
- UNIT - TWO BEDROOM
- UNIT - THREE BEDROOM
- UNIT - OUTDOOR SPACE



4A LEVEL 3 - PLAN

SCALE: 1/16" = 1'-0"

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PFDC - BLOCK 6: THE CHANNEL MARK

58 FORE ST.
PORTLAND, ME 04101

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LEVEL 3 - OVERALL PLAN

A113

LEVEL 4 - UNIT SCHEDULE

NO	SPACE	AREA
LEVEL 4		
400	2BR	1091 SF
400 T	UNIT BALCONY	75 SF
401	2BR	1381 SF
401 T	UNIT TERRACE	84 SF
402	2BR	908 SF
402 T	UNIT BALCONY	73 SF
403	3BR	1643 SF
403 T	UNIT BALCONY	75 SF
404	2BR	1112 SF
404 T	UNIT BALCONY	73 SF
405	2BR	1254 SF
405 T	UNIT BALCONY	75 SF
407	3BR	1873 SF
407 T	UNIT BALCONY	73 SF
408	2BR	1371 SF
408 T	UNIT BALCONY	74 SF
409	2BR	1437 SF
409 T	UNIT BALCONY	73 SF
410	2BR	933 SF
410 T	UNIT BALCONY	73 SF
411	2BR	1014 SF
411 T	UNIT BALCONY	74 SF
412	2BR	918 SF
412 T	UNIT BALCONY	73 SF
413	3BR	1755 SF
413 T	UNIT BALCONY	73 SF
414	2BR	932 SF
414 T	UNIT BALCONY	73 SF
415	2BR	1276 SF
415 T1	UNIT BALCONY	73 SF
416	2BR	1373 SF
416 T1	UNIT BALCONY	73 SF
417	2BR	1099 SF
417 T	UNIT BALCONY	69 SF
418	1BR	762 SF
418 T	UNIT BALCONY	74 SF
419	1BR	706 SF
419 T	UNIT BALCONY	73 SF
420	2BR	1418 SF
420 T	UNIT BALCONY	73 SF
421	2BR	1112 SF
421 T	UNIT BALCONY	73 SF
422	1BR	966 SF
422 T	UNIT BALCONY	73 SF
423	2BR	1482 SF
423 T	UNIT BALCONY	73 SF
424	2BR	1488 SF
424 T	UNIT BALCONY	70 SF
425	1BR	1004 SF
425 T	UNIT BALCONY	73 SF
426	2BR	1545 SF
426 T	UNIT TERRACE	145 SF
		33838 SF

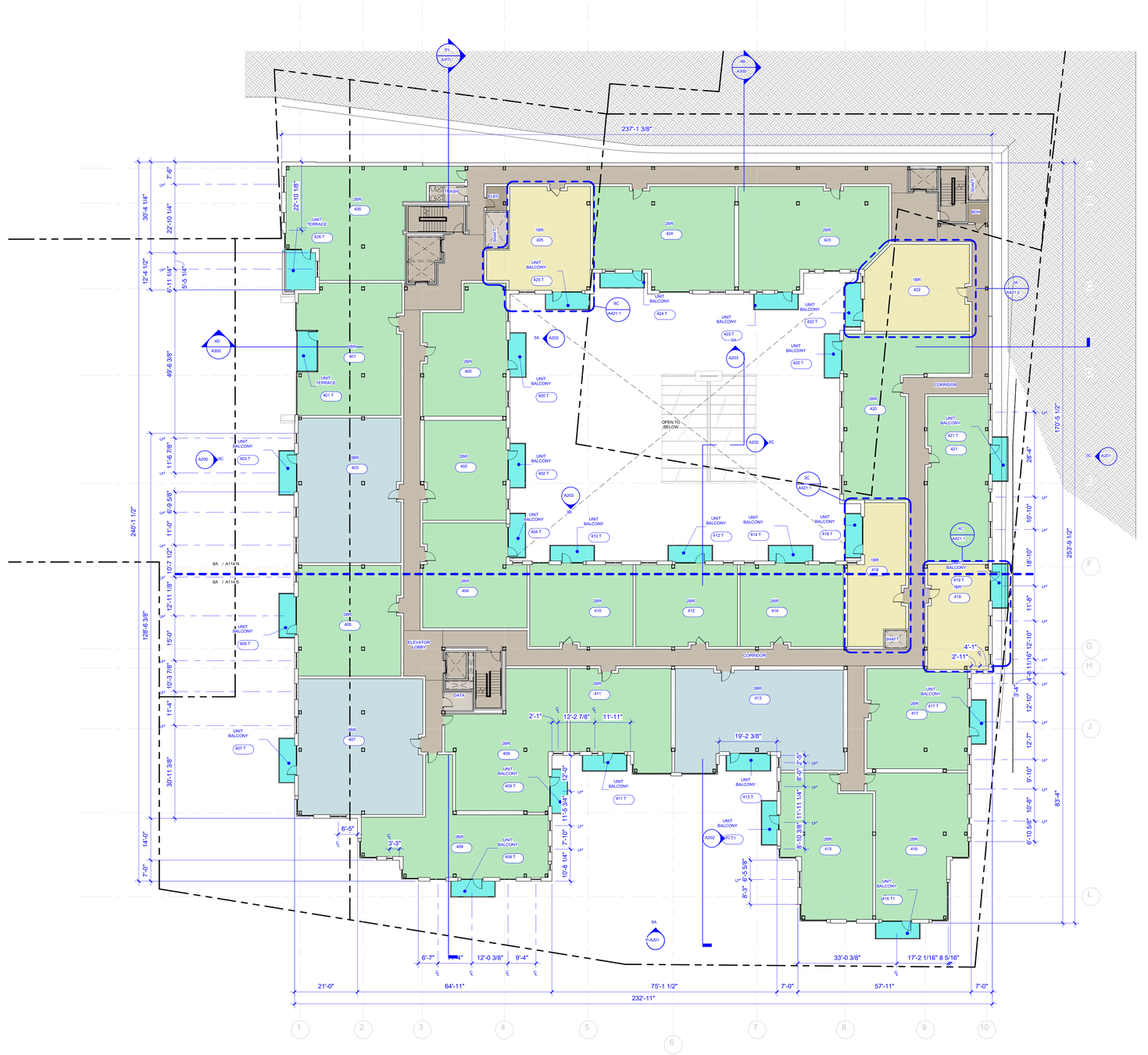
UNITS TOTAL FOR LEVEL (CONDITIONED SPACE)
26

LEVEL 4- COMMON SPACE SCHEDULE

SPACE TYPE	AREA
LEVEL 4	
COMMON SPACE - ACCESS	5608 SF
COMMON SPACE - BOH	104 SF
COMMON SPACE - UTILITIES	95 SF
	5808 SF

AREA/UNIT TYPE

- COMMON SPACE - BOH
- COMMON SPACE - ACCESS
- COMMON SPACE - UTILITIES
- UNIT-ONE BEDROOM
- UNIT - TWO BEDROOM
- UNIT - THREE BEDROOM
- UNIT - OUTDOOR SPACE



4A LEVEL 4 - PLAN

SCALE: 1/16" = 1'-0"

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PFDC - BLOCK 6: THE CHANNEL MARK

58 FORE ST.
PORTLAND, ME 04101

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LEVEL 4 - OVERALL PLAN

A114

LEVEL 5 - UNIT SCHEDULE

NO	SPACE	AREA
LEVEL 5		
500	2BR	1092 SF
500 T	UNIT BALCONY	73 SF
501	2BR	919 SF
501 T	UNIT TERRACE	194 SF
502	2BR	914 SF
502 T	UNIT BALCONY	73 SF
503	2BR	951 SF
503 T	UNIT TERRACE	216 SF
504	2BR	1112 SF
504 T	UNIT BALCONY	73 SF
505	2BR	1424 SF
505T1	UNIT TERRACE	94 SF
508	3BR	1522 SF
508 T1	UNIT TERRACE	129 SF
508 T2	UNIT BALCONY	74 SF
509	2BR	1296 SF
509 T	UNIT TERRACE	112 SF
510	2BR	932 SF
510 T	UNIT BALCONY	73 SF
511	2BR	1015 SF
511 T	UNIT BALCONY	74 SF
512	2BR	919 SF
512 T	UNIT BALCONY	73 SF
513	3BR	1755 SF
513 T	UNIT BALCONY	73 SF
514	2BR	932 SF
514 T	UNIT BALCONY	73 SF
515	2BR	1275 SF
515 T1	UNIT BALCONY	73 SF
516	2BR	1373 SF
516 T1	UNIT BALCONY	73 SF
517	2BR	1100 SF
517 T	UNIT BALCONY	69 SF
518	1BR	762 SF
518 T	UNIT BALCONY	74 SF
519	1BR	706 SF
519 T	UNIT BALCONY	73 SF
520	2BR	1417 SF
520 T	UNIT BALCONY	73 SF
521	2BR	1112 SF
521 T	UNIT BALCONY	73 SF
522	1BR	966 SF
522 T	UNIT BALCONY	73 SF
523	2BR	1483 SF
523 T	UNIT BALCONY	73 SF
524	2BR	1494 SF
524 T	UNIT BALCONY	70 SF
525	1BR	999 SF
525 T	UNIT BALCONY	73 SF
526	2BR	1544 SF
526 T	UNIT TERRACE	157 SF
		31371 SF

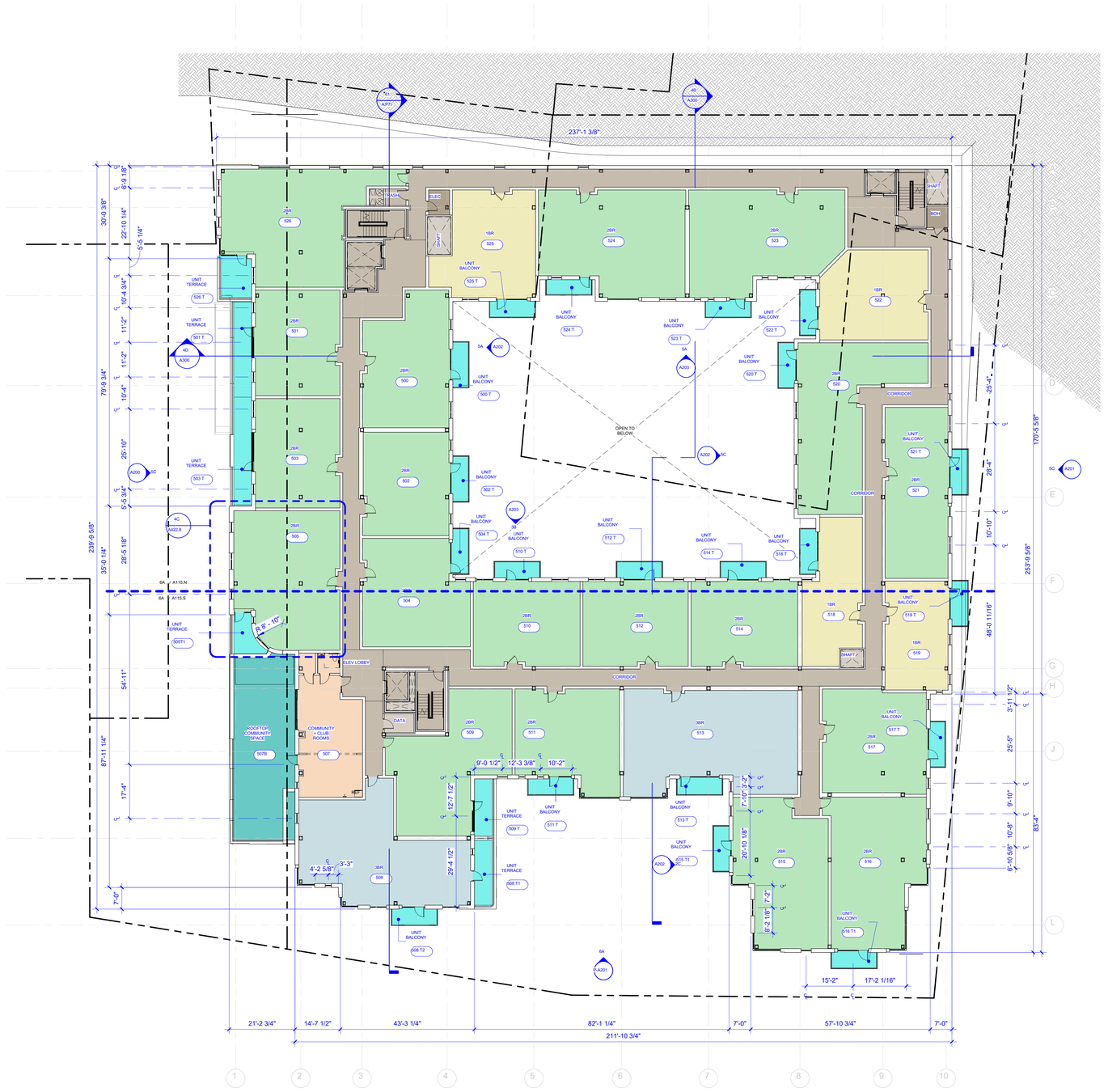
UNITS TOTAL FOR LEVEL (CONDITIONED SPACE)
25

LEVEL 5- COMMON SPACE SCHEDULE

SPACE TYPE	AREA
COMMON SPACE - ACCESS	5632 SF
COMMON SPACE - AMENITY	826 SF
COMMON SPACE - BOH	104 SF
COMMON SPACE - OUTDOOR	1182 SF
COMMON SPACE - UTILITIES	59 SF
	7803 SF

AREA/UNIT TYPE

- COMMON SPACE - BOH
- COMMON SPACE - ACCESS
- COMMON SPACE - UTILITIES
- COMMON SPACE - AMENITY
- COMMON SPACE - OUTDOOR
- UNIT-ONE BEDROOM
- UNIT - TWO BEDROOM
- UNIT - THREE BEDROOM
- UNIT - OUTDOOR SPACE



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PFDC - BLOCK 6: THE CHANNEL MARK

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4A LEVEL 5 - PLAN

SCALE: 1/16" = 1'-0"

LEVEL 5 - OVERALL PLAN

A115

LEVEL 6 - UNIT SCHEDULE

NO	SPACE	AREA
LEVEL 6		
600	2BR	1092 SF
600 T	UNIT BALCONY	73 SF
601	2BR	919 SF
601 T	UNIT BALCONY	73 SF
602	2BR	908 SF
602 T	UNIT BALCONY	73 SF
603	2BR	951 SF
603 T	UNIT BALCONY	73 SF
604	2BR	1112 SF
604 T	UNIT BALCONY	73 SF
605	2BR	1423 SF
605 T	UNIT BALCONY	69 SF
607	2BR	981 SF
607 T	UNIT TERRACE	73 SF
608	2BR	1376 SF
608 T	UNIT BALCONY	74 SF
609	2BR	1295 SF
609 T	UNIT BALCONY	70 SF
610	2BR	932 SF
610 T	UNIT BALCONY	73 SF
611	2BR	1013 SF
611 T	UNIT BALCONY	74 SF
612	2BR	919 SF
612 T	UNIT BALCONY	73 SF
613	3BR	1714 SF
613 T	UNIT BALCONY	73 SF
614	2BR	932 SF
614 T	UNIT BALCONY	73 SF
615	2BR	1092 SF
615 T1	UNIT TERRACE	194 SF
615T2	UNIT BALCONY	74 SF
616	2BR	1178 SF
616 T1	UNIT TERRACE	175 SF
616 T2	UNIT BALCONY	73 SF
617	2BR	871 SF
617 T	UNIT TERRACE	200 SF
618	1BR	762 SF
618 T	UNIT BALCONY	74 SF
619	1BR	707 SF
619 T	UNIT BALCONY	73 SF
620	2BR	1412 SF
620 T	UNIT BALCONY	73 SF
621	2BR	1112 SF
621 T	UNIT BALCONY	73 SF
622	1BR	968 SF
622 T	UNIT BALCONY	73 SF
623	2BR	1483 SF
623 T	UNIT BALCONY	73 SF
624	2BR	1489 SF
624 T	UNIT BALCONY	70 SF
625	1BR	995 SF
625 T	UNIT BALCONY	73 SF
626	2BR	1544 SF
626 T	UNIT BALCONY	74 SF
		31565 SF

UNITS TOTAL FOR LEVEL (CONDITIONED SPACE)
26

LEVEL 6- COMMON SPACE SCHEDULE

SPACE TYPE	AREA
LEVEL 6	
COMMON SPACE - ACCESS	5629 SF
COMMON SPACE - BOH	49 SF
COMMON SPACE - UTILITIES	114 SF
	5793 SF

AREA/UNIT TYPE

- COMMON SPACE - BOH
- COMMON SPACE - ACCESS
- COMMON SPACE - UTILITIES
- UNIT-ONE BEDROOM
- UNIT - TWO BEDROOM
- UNIT - THREE BEDROOM
- UNIT - OUTDOOR SPACE



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4A LEVEL 6 - PLAN
SCALE: 1/16" = 1'-0"

LEVEL 6 - OVERALL PLAN

A116

LEVEL 7 - UNIT SCHEDULE

NO	SPACE	AREA
LEVEL 7		
702	2BR	1332 SF
702 T	UNIT BALCONY	63 SF
703	2BR	919 SF
703 T	UNIT BALCONY	73 SF
704	3BR	1516 SF
704 T	UNIT TERRACE	444 SF
705	2BR	1003 SF
705 T	UNIT BALCONY	73 SF
706	1BR	1019 SF
706 T	UNIT TERRACE	77 SF
707	2BR	1060 SF
707 T	UNIT TERRACE - LARGE	273 SF
708	2BR	1125 SF
708 T1	UNIT TERRACE - LARGE	600 SF
708 T2	UNIT TERRACE	108 SF
709	2BR	1161 SF
709 T	UNIT TERRACE	157 SF
710	2BR	1400 SF
710 T	UNIT TERRACE	423 SF
711	2BR	1076 SF
711 T	UNIT TERRACE - LARGE	383 SF
713	2BR	1235 SF
713 T	UNIT TERRACE - LARGE	354 SF
714	2BR	1447 SF
714 T1	UNIT TERRACE	248 SF
715	2BR	1014 SF
715 T	UNIT TERRACE	156 SF
716	2BR	1012 SF
716 T1	UNIT TERRACE	153 SF
717	2BR	871 SF
717 T	UNIT BALCONY	73 SF
719	3BR	1612 SF
719 T	UNIT BALCONY	73 SF
720	2BR	1424 SF
720 T	UNIT BALCONY	73 SF
721	2BR	1314 SF
721 T	UNIT BALCONY	73 SF
722	3BR	1656 SF
722 T1	UNIT TERRACE	232 SF
722 T2	UNIT BALCONY	73 SF
723	3BR	1707 SF
723 T1	UNIT TERRACE	240 SF
723 T2	UNIT BALCONY	70 SF
		29392 SF

LEVEL 7 - COMMON SPACE SCHEDULE

SPACE TYPE	AREA
LEVEL 7	
COMMON SPACE - ACCESS	4650 SF
COMMON SPACE - BOH	94 SF
COMMON SPACE - OUTDOOR	839 SF
COMMON SPACE - UTILITIES	95 SF
	5678 SF

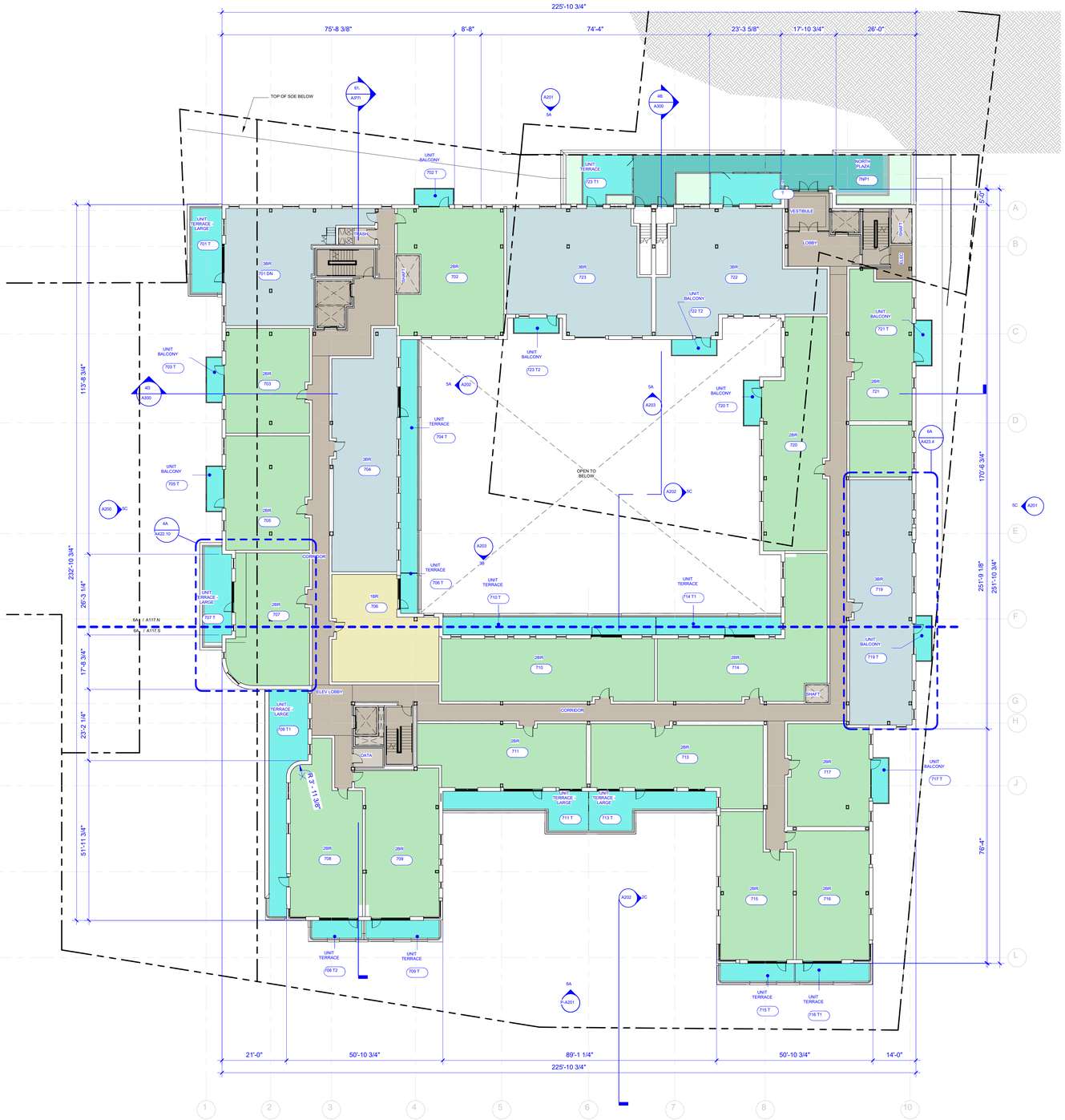
LEVEL 7 - MULTI STORY UNIT

NO	SPACE	LEVEL	AREA
701			
701 DN	3BR	LEVEL 7	1241 SF
701 UP	3BR	LEVEL 8	593 SF
2			1834 SF
701 T	UNIT TERRACE - LARGE	LEVEL 7	294 SF
701 RT	UNIT TERRACE - LARGE	LEVEL 8	610 SF
2			904 SF

UNITS TOTAL FOR LEVEL (CONDITIONED SPACE)
21

AREA/UNIT TYPE

- SITE - LANDSCAPING
- COMMON SPACE - BOH
- COMMON SPACE - ACCESS
- COMMON SPACE - UTILITIES
- COMMON SPACE - OUTDOOR
- UNIT-ONE BEDROOM
- UNIT - TWO BEDROOM
- UNIT - THREE BEDROOM
- UNIT - OUTDOOR SPACE



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4A LEVEL 7 - PLAN

SCALE: 1/16" = 1'-0" DRAWING REF: A200

LEVEL 7 - OVERALL PLAN

A117

LEVEL 8 - UNIT SCHEDULE

NO	SPACE	AREA
LEVEL 8		
802	2BR	1367 SF
802 T	UNIT BALCONY	63 SF
803	2BR	1009 SF
803 RT	UNIT TERRACE - LARGE	1159 SF
817	2BR	870 SF
817 T	UNIT BALCONY	73 SF
820	2BR	1424 SF
820 T	UNIT BALCONY	73 SF
822	3BR	1763 SF
822 T1	UNIT BALCONY	73 SF
823	3BR	1809 SF
823 T1	UNIT BALCONY	73 SF
		9757 SF

LEVEL 8 - COMMON SPACE SCHEDULE

SPACE TYPE	AREA
LEVEL 8	
COMMON SPACE - ACCESS	3966 SF
COMMON SPACE - BOH	94 SF
COMMON SPACE - UTILITIES	59 SF
	4119 SF

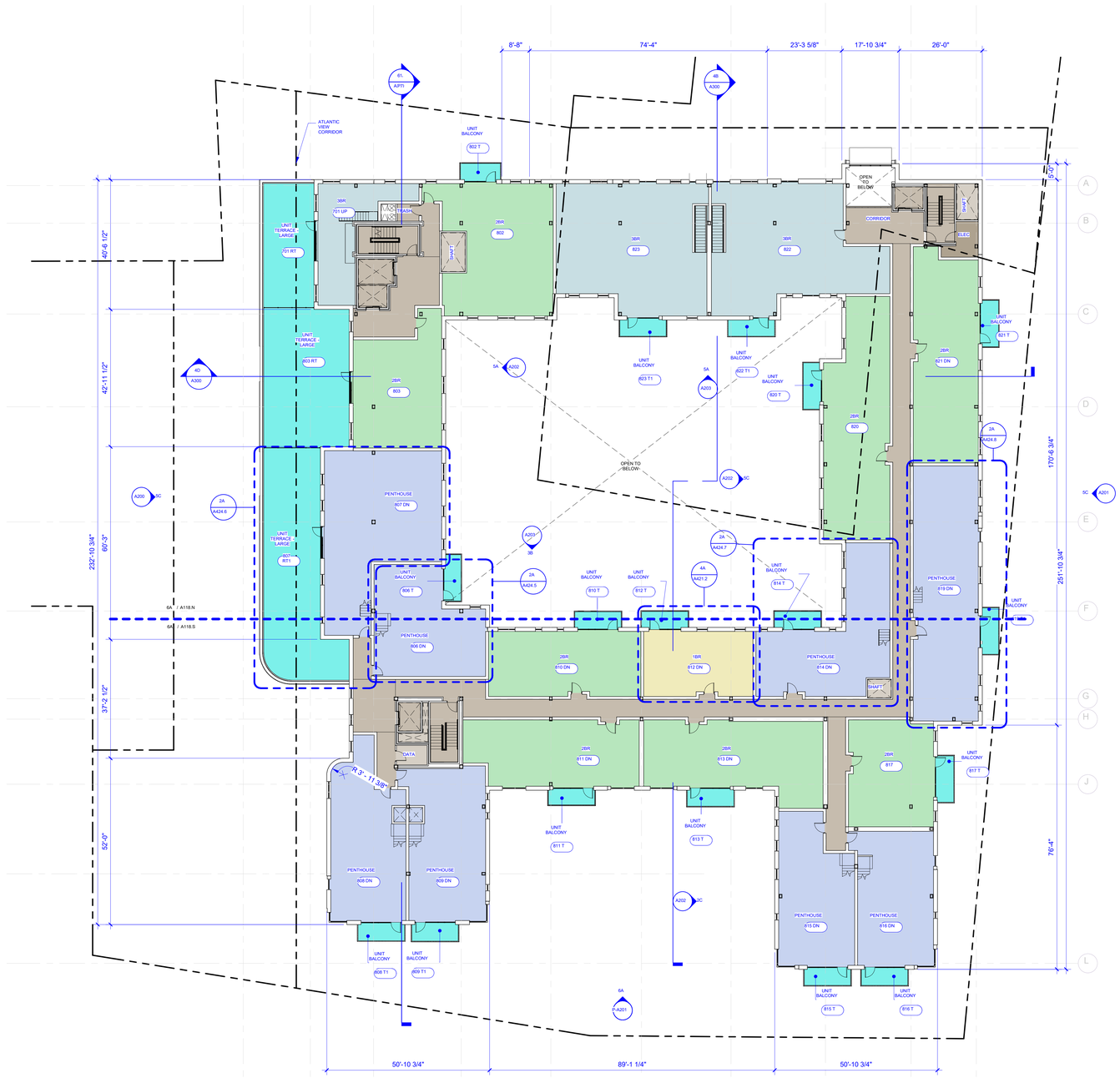
LEVEL 8 - MULTI STORY UNITS

NO	SPACE	LEVEL	AREA
806			
806 DN	PENTHOUSE	LEVEL 8	1029 SF
806 UP	PENTHOUSE	LEVEL 9	596 SF
2			1626 SF
806 RT2	UNIT ROOF TERRACE	Not Placed	Not Placed
807 RT2	UNIT ROOF TERRACE	Not Placed	Not Placed
806 T	UNIT BALCONY	LEVEL 8	70 SF
806 RT1	UNIT TERRACE - LARGE	LEVEL 9	292 SF
808 T4	UNIT BALCONY	LEVEL 9	63 SF
808 T3	UNIT BALCONY	LEVEL 9	63 SF
6			488 SF
807			
807 DN	PENTHOUSE	LEVEL 8	1607 SF
807 UP	PENTHOUSE	LEVEL 9	1220 SF
2			2827 SF
807 RT2	UNIT ROOF TERRACE	Not Placed	Not Placed
807 RT1	UNIT TERRACE - LARGE	LEVEL 8	1383 SF
2			1383 SF
808			
808 DN	PENTHOUSE	LEVEL 8	1131 SF
808 UP	PENTHOUSE	LEVEL 9	1104 SF
2			2234 SF
808 RT	UNIT ROOF TERRACE	Not Placed	Not Placed
808 T3	UNIT TERRACE	Not Placed	Not Placed
808 T2	UNIT TERRACE	Not Placed	Not Placed
808 T1	UNIT BALCONY	LEVEL 8	74 SF
4			74 SF
809			
809 DN	PENTHOUSE	LEVEL 8	1165 SF
809 UP	PENTHOUSE	LEVEL 9	785 SF
2			1950 SF
809 RT2	UNIT ROOF TERRACE	Not Placed	Not Placed
809 T2	UNIT TERRACE	Not Placed	Not Placed
809 T1	UNIT BALCONY	LEVEL 8	75 SF
809 RT	UNIT TERRACE - LARGE	LEVEL 9	285 SF
4			359 SF
810			
810 DN	2BR	LEVEL 8	958 SF
1			958 SF
810 RT	UNIT ROOF TERRACE	Not Placed	Not Placed
810 T	UNIT BALCONY	LEVEL 8	71 SF
2			71 SF
811			
811 DN	2BR	LEVEL 8	1075 SF
1			1075 SF
811 RT	UNIT ROOF TERRACE	Not Placed	Not Placed
811 T	UNIT BALCONY	LEVEL 8	67 SF
2			67 SF
812			
812 DN	1BR	LEVEL 8	685 SF
1			685 SF
812 RT	UNIT ROOF TERRACE	Not Placed	Not Placed
812 T	UNIT BALCONY	LEVEL 8	72 SF
2			72 SF
813			
813 DN	2BR	LEVEL 8	1235 SF
1			1235 SF
813 RT	UNIT ROOF TERRACE	Not Placed	Not Placed
813 T	UNIT BALCONY	LEVEL 8	73 SF
2			73 SF
814			
814 DN	PENTHOUSE	LEVEL 8	1179 SF
814 UP	PENTHOUSE	LEVEL 9	777 SF
2			1956 SF
814 RT	UNIT ROOF TERRACE	Not Placed	Not Placed
814 T	UNIT BALCONY	LEVEL 8	72 SF
2			72 SF
815			
815 DN	PENTHOUSE	LEVEL 8	1014 SF
815 UP	PENTHOUSE	LEVEL 9	634 SF
2			1648 SF
815 RT	UNIT ROOF TERRACE	Not Placed	Not Placed
815 T2	UNIT TERRACE	Not Placed	Not Placed
815 T	UNIT BALCONY	LEVEL 8	73 SF
815 RT	UNIT TERRACE - LARGE	LEVEL 9	517 SF
816 RT2	UNIT TERRACE - LARGE	LEVEL 9	215 SF
814 RT	UNIT TERRACE - LARGE	LEVEL 9	204 SF
819 T2	UNIT BALCONY	LEVEL 9	73 SF
7			1083 SF
816			
816 DN	PENTHOUSE	LEVEL 8	1012 SF
816 UP	PENTHOUSE	LEVEL 9	958 SF
2			1970 SF
816 RT	UNIT ROOF TERRACE	Not Placed	Not Placed
816 T2	UNIT TERRACE	Not Placed	Not Placed
816 T	UNIT BALCONY	LEVEL 8	73 SF
816 RT1	UNIT TERRACE - LARGE	LEVEL 9	249 SF
4			322 SF
819			
819 DN	PENTHOUSE	LEVEL 8	1613 SF
819 UP	PENTHOUSE	LEVEL 9	1361 SF
2			2974 SF
819 RT	UNIT ROOF TERRACE	Not Placed	Not Placed
819 T1	UNIT BALCONY	LEVEL 8	73 SF
2			73 SF
821			
821 DN	2BR	LEVEL 8	1313 SF
1			1313 SF
821 RT	UNIT ROOF TERRACE	Not Placed	Not Placed
821 T	UNIT BALCONY	LEVEL 8	73 SF
2			73 SF

UNITS TOTAL FOR LEVEL (CONDITIONED SPACE)

AREA/UNIT TYPE

- COMMON SPACE - BOH
- COMMON SPACE - ACCESS
- COMMON SPACE - UTILITIES
- UNIT-ONE BEDROOM
- UNIT - TWO BEDROOM
- UNIT - THREE BEDROOM
- UNIT - PENTHOUSE
- UNIT - OUTDOOR SPACE



4A LEVEL 8 - PLAN

SCALE: 1/16" = 1'-0"

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PROJECT NUMBER
2.210338.0

PFDC - BLOCK 6: THE CHANNEL MARK

58 FORE ST
PORTLAND, ME 04101

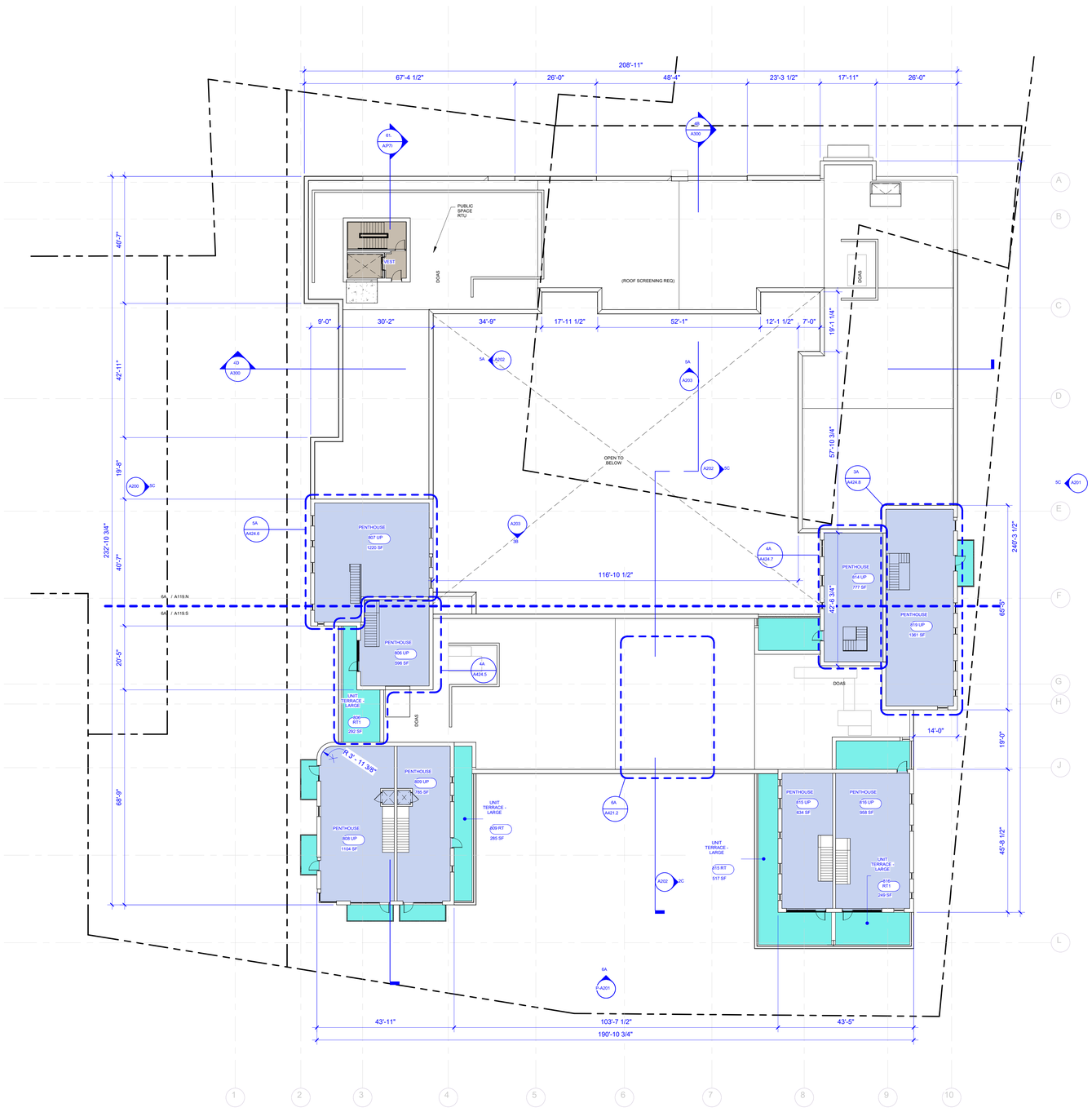
ISSUE
06/22/2023 - PROGRESS PRINT

LEVEL 8 - OVERALL PLAN

A118

AREA/UNIT TYPE

- COMMON SPACE - ACCESS
- UNIT - PENTHOUSE
- UNIT - OUTDOOR SPACE



4A LEVEL 9 (ROOF) - PLAN

SCALE: 1/16" = 1'-0" DRAWING REF: A200

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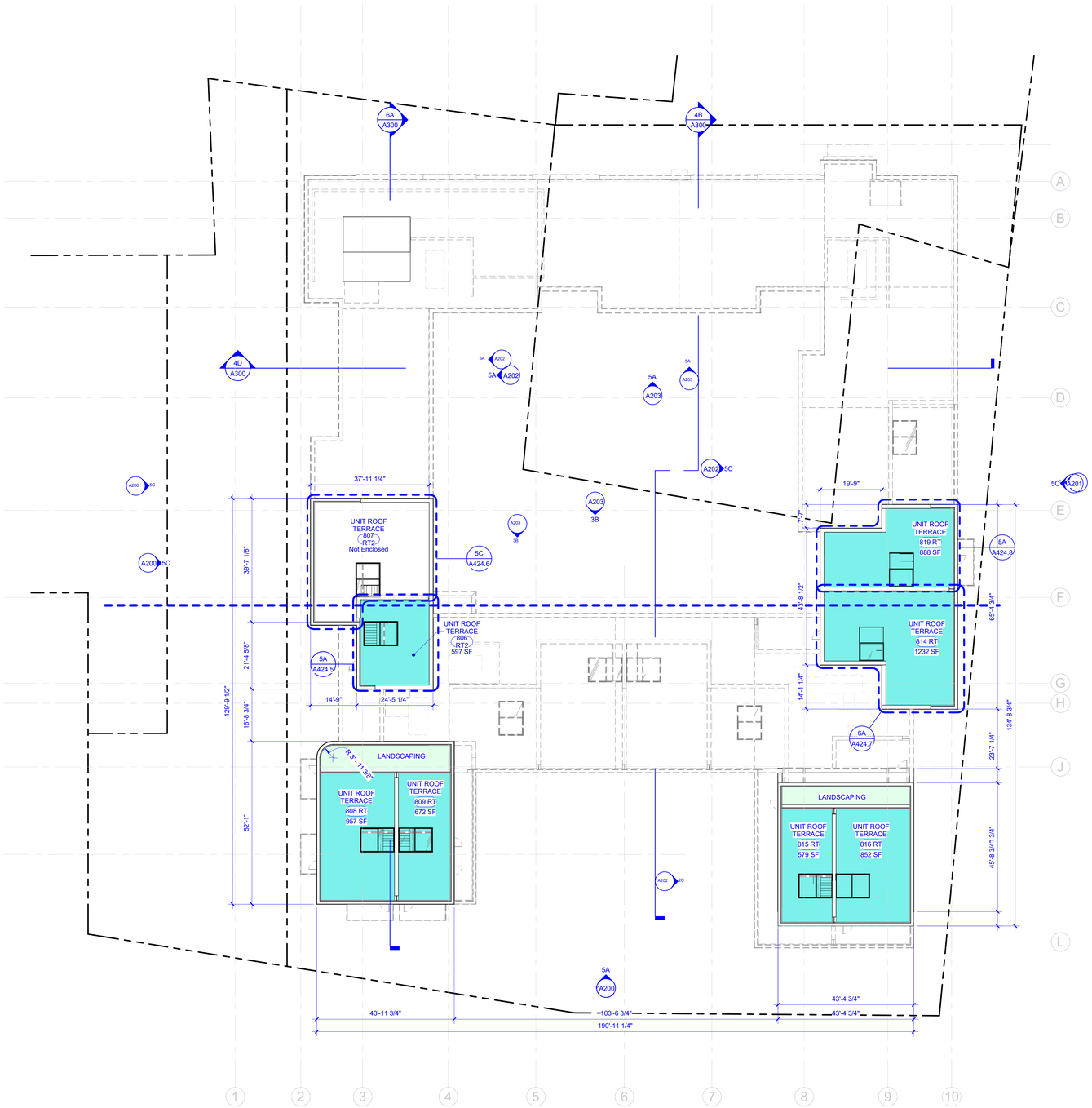
PFDC - BLOCK 6: THE CHANNEL MARK

58 FORE ST
PORTLAND, ME 04101

ISSUE
06/22/2023 - PROGRESS PRINT

LEVEL 9 - OVERALL PLAN

A119



4A LEVEL 10 - (ROOF) PLAN

SCALE: 1/16" = 1'-0" DRAWING REF: A200

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PORTLAND, ME 04101

ISSUE
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LEVEL 10 - PLAN

A120

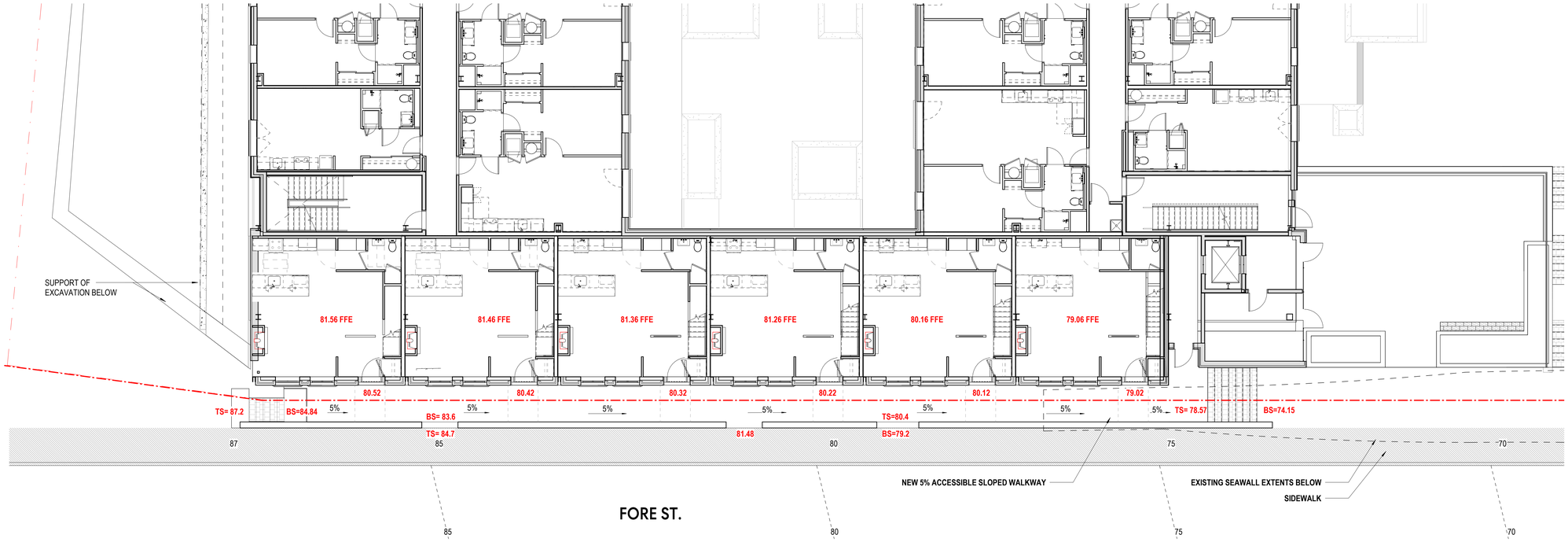




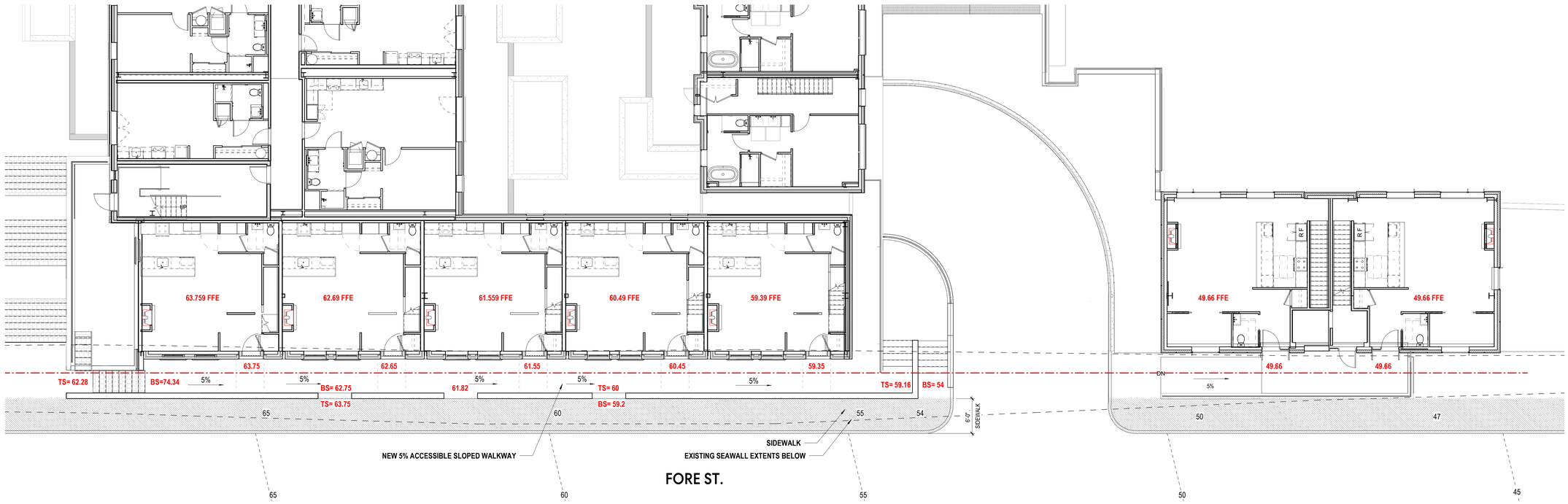
THE CHANNEL MARK | Portland Foreside Block 6 | View from Thames Street | January 5, 2023



THE CHANNEL MARK | Portland Foreside Block 6 | View from Eastern Promenade Trail | January 5, 2023



2 FORE STREET- PART 2
1/8" = 1'-0"



1 FORE STREET- PART 2
1/8" = 1'-0"
PROPERTY LINE

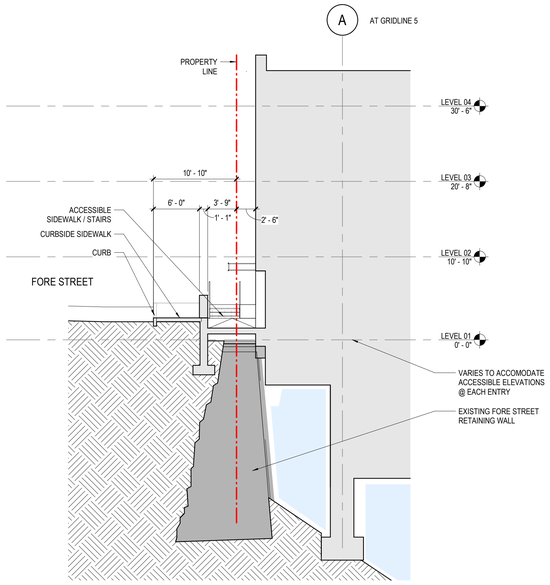
PFDC HARBOR HILL

FORESIDE/

05/03/2023

FORE STREET SIDEWALK PLAN

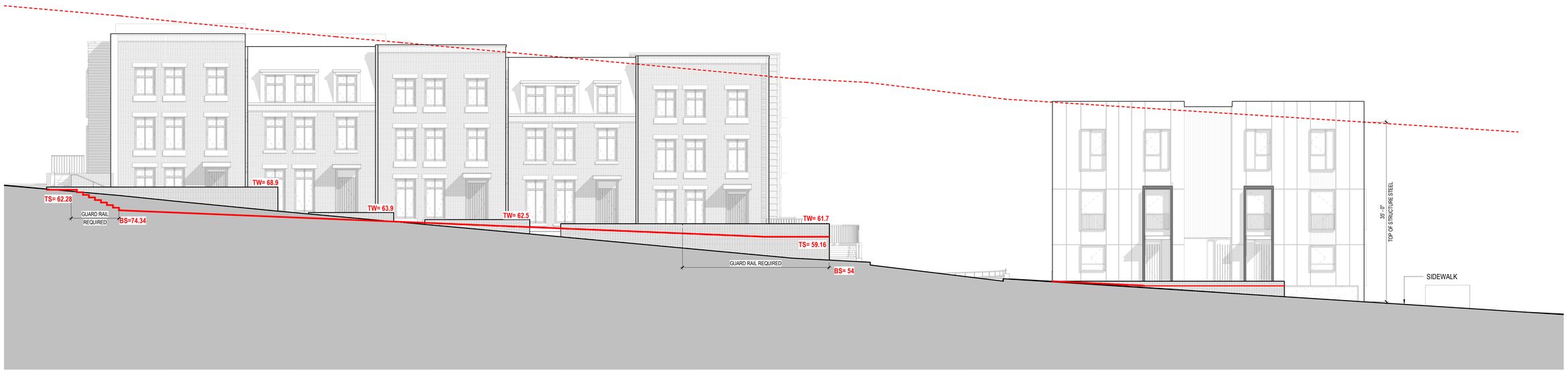
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3 SLOPED WALKWAY SECTION
1/8" = 1'-0"



2 OVERALL ELEVATION - NORTH- PART 2
1/8" = 1'-0"



01 OVERALL ELEVATION - NORTH- PART 1
1/8" = 1'-0"

NEW 5% ACCESSIBLE SLOPED WALKWAY

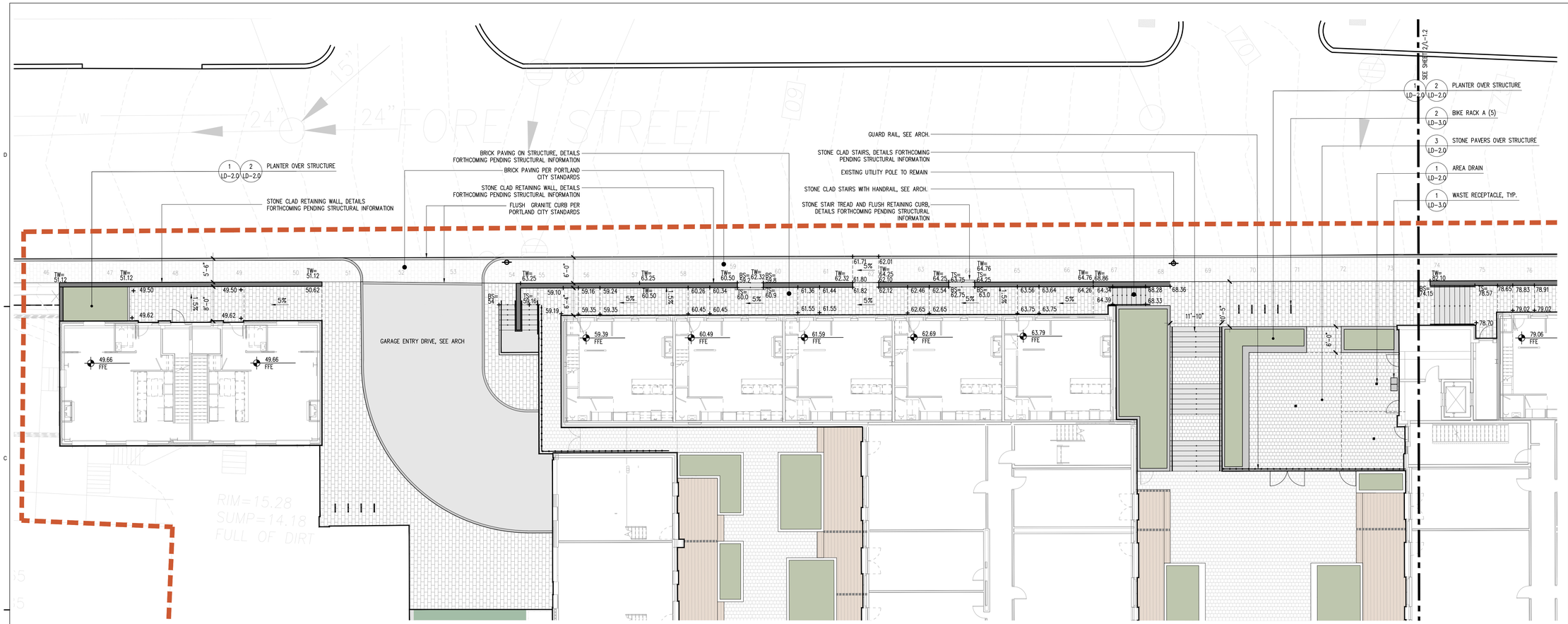
FORESIDE/

PFDC HARBOR HILL

05/03/2023

FORE STREET ACCESSIBLE WALKWAY

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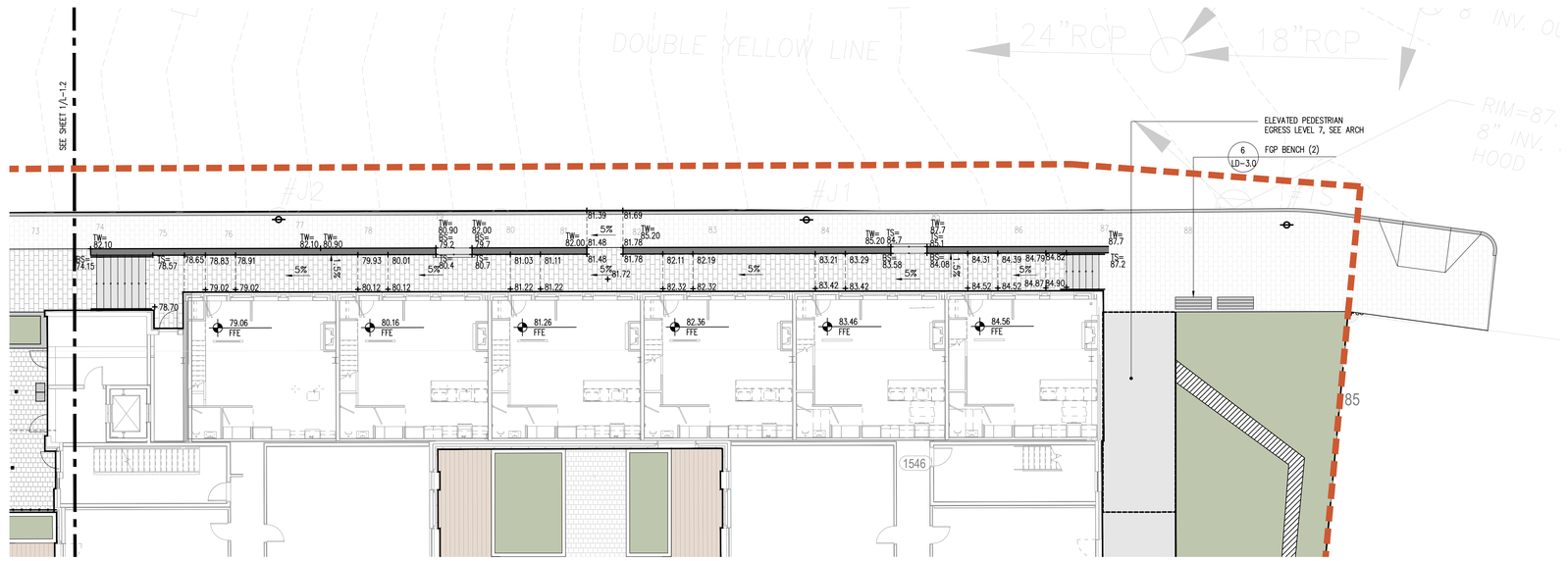
1 FORE STREET - WEST
1"=10'

KEY PLAN



LEGEND

- BRICK PAVERS PER PORTLAND CITY STANDARD
- BRICK PAVERS OVER STRUCTURE
- STONE PAVERS OVER STRUCTURE
- PLANTING AREA
- CIP CONCRETE PLANTER WALL WITH STONE VENEER
- STONE CLAD RETAINING WALL
- BIKE RACK
- FGP BENCH
- WASTE RECEPTACLE
- HAND RAIL AT STAIRS
- GUARD RAIL
- LIMIT OF WORK
- PROPERTY LINE



2 FORE STREET - EAST
1"=10'

SCALE: 1"=10' 0 15" 10' 20' NORTH

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t 207.865.1080

STAMP

PROJECT

FORESIDE DEVELOPMENT

PFDC - BLOCK 4: HARBOR HILL

PROJECT ADDRESS

254 Commercial Street, Suite 118, Portland, ME 04101

KEYPLAN

MARK	ISSUE	DATE

PERMIT SET

MAY 10, 2023

Job Number	XXXXXXX
Drawn	SMG
Checked	JP
Approved	MB

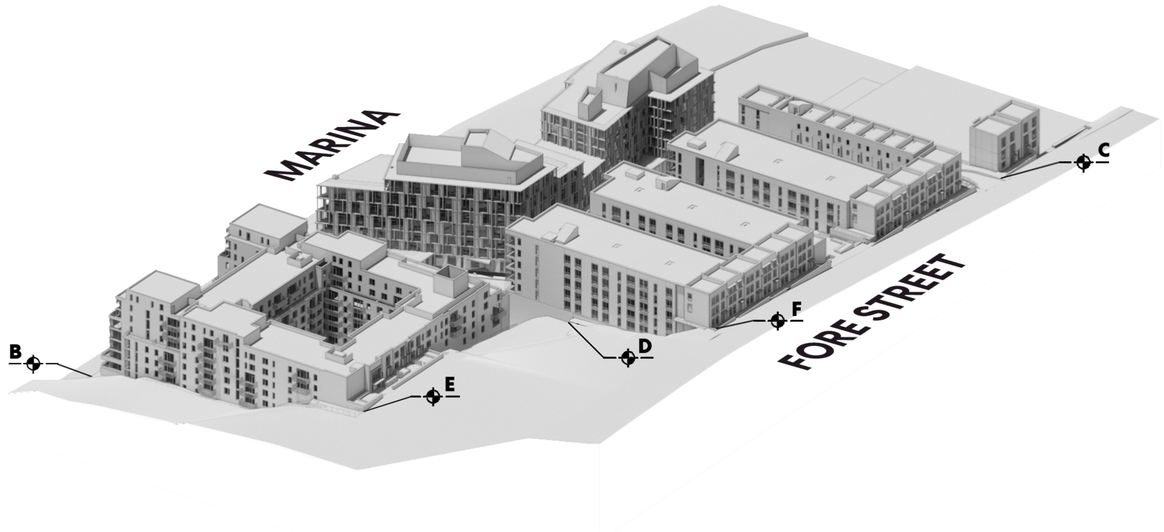
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Landscape Layout and Materials Plan - Fore Street

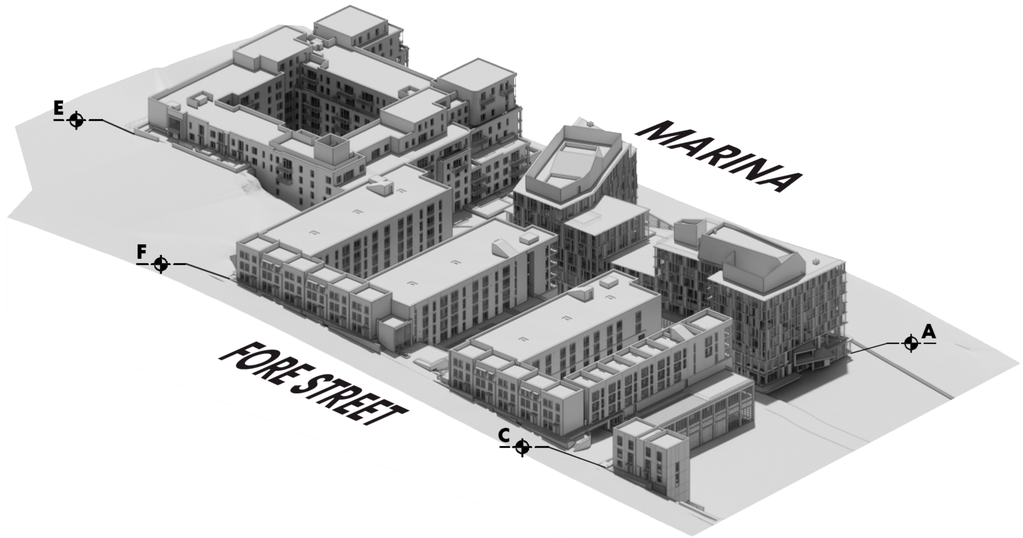
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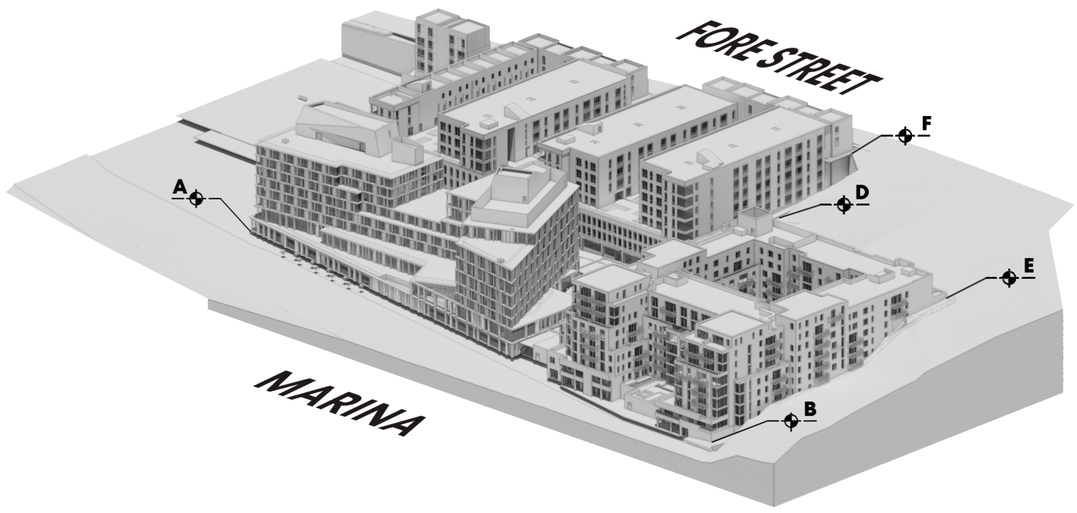
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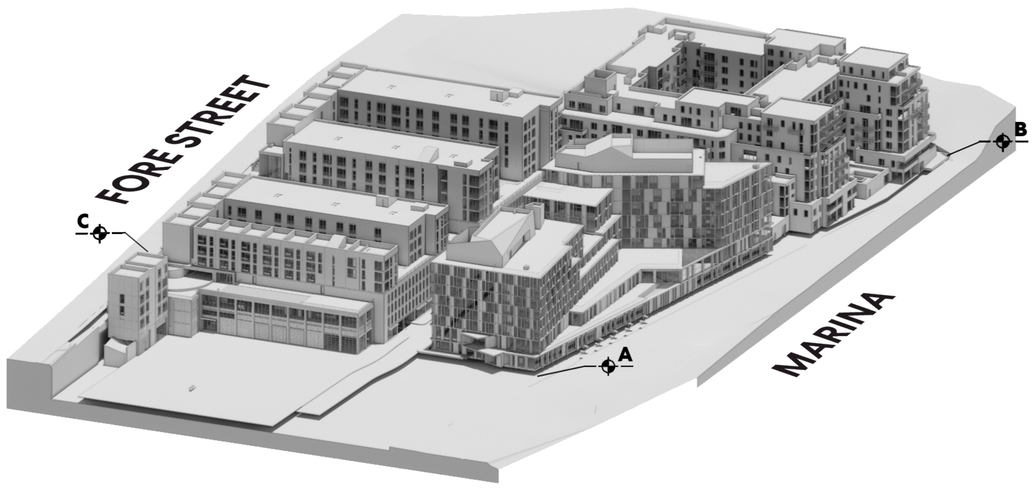
NORTHEAST



NORTHWEST



SOUTHEAST



SOUTHWEST

PUBLIC PERMEABILITY

ELEVATION POINTS RELATIVE TO CITY DATUM

- A - 13'
- B - 18'
- C - 52'
- D - 55'
- E - 75'
- F - 87'

AVERAGE GRADE ELEVATION 50.0'

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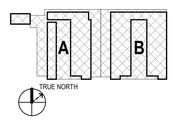
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Freeport, Maine
t 207.865.1000

PROJECT

FORESIDE DEVELOPMENT

PFDC HARBOR HILL
254 COMMERCIAL ST
SUITE 118
PORTLAND, ME 04101

KEYPLAN



DESIGN DEVELOPMENT
FEBRUARY 24, 2023

ISSUE CHART

NO	ISSUE	DATE
Job Number		157111
Checked		Checker
Approved		Approver

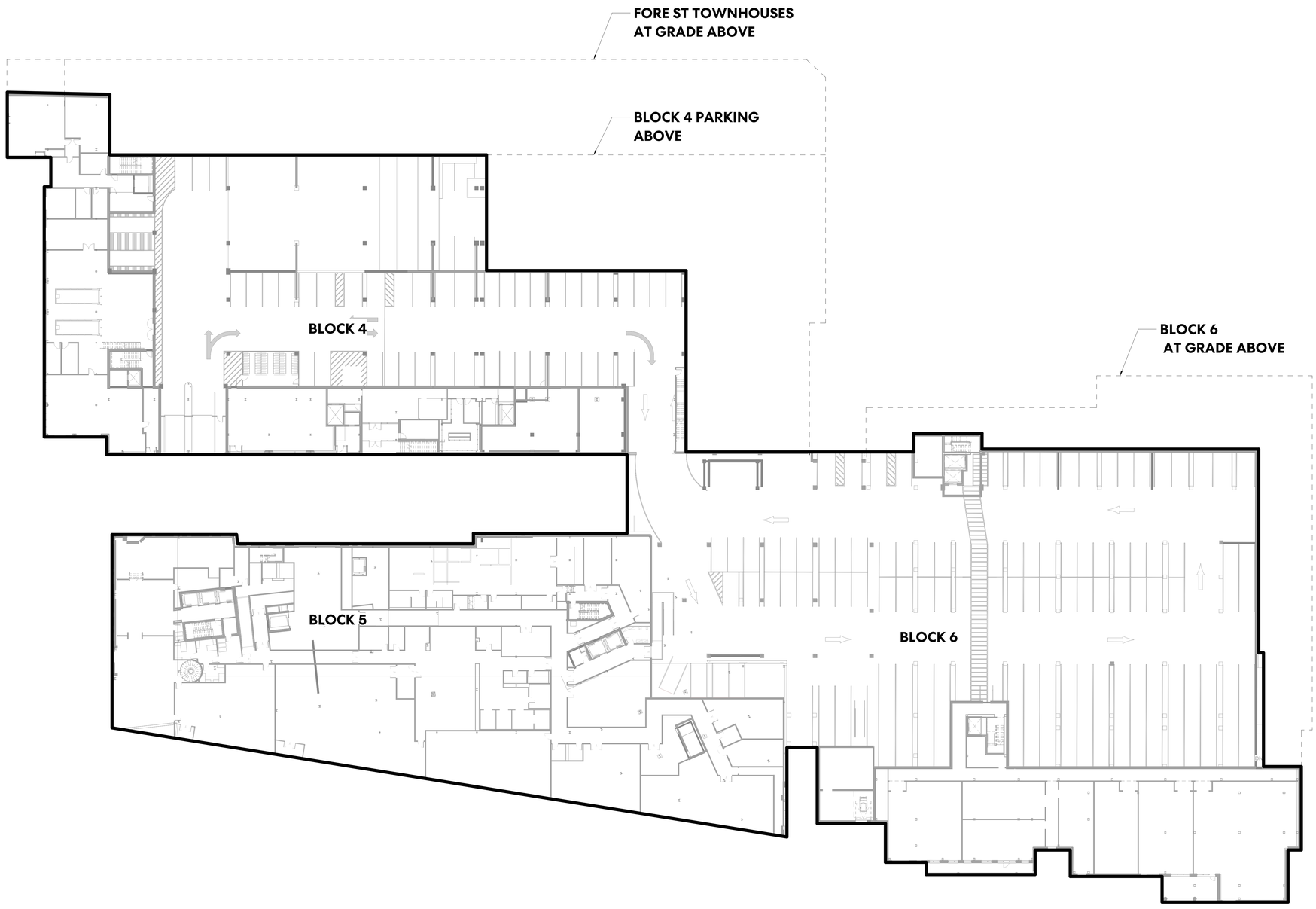
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BLOCK 4, 5 & 6 AVERAGE GRADE AXONS

SHEET NUMBER

SA-000

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1 BLOCK 4, 5 & 6 FOUNDATION PLAN
3/64" = 1'-0"

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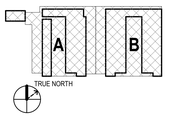
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PROJECT

FORESIDE DEVELOPMENT

PFDC HARBOR HILL
254 COMMERCIAL ST
SUITE 118
PORTLAND, ME 04101

KEYPLAN



DESIGN DEVELOPMENT
FEBRUARY 24, 2023

ISSUE CHART

NO	ISSUE	DATE
Job Number		157111
Checked		Checker
Approved		Approver

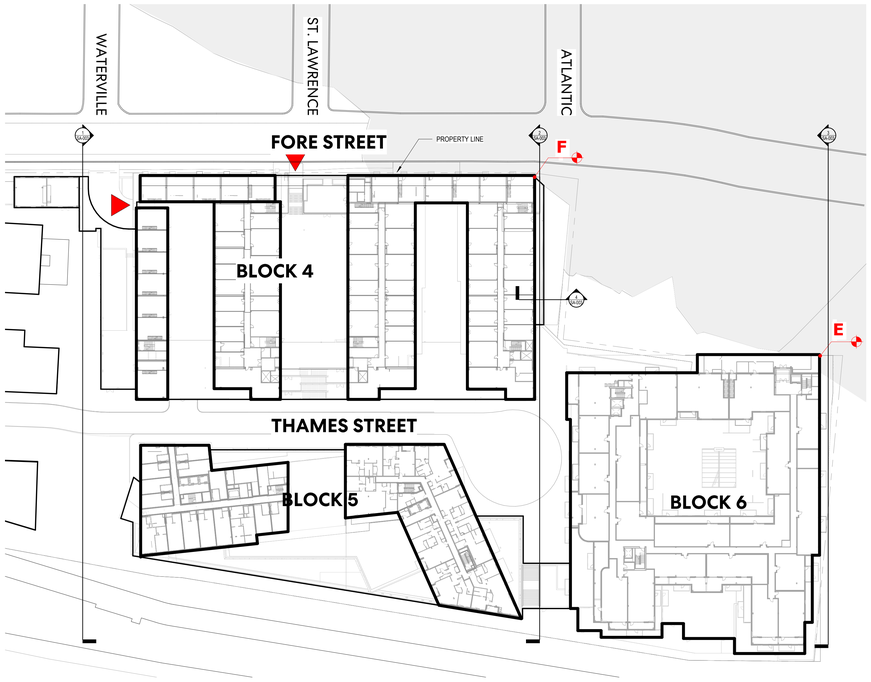
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BLOCK 4, 5 & 6 FOUNDATION PLAN

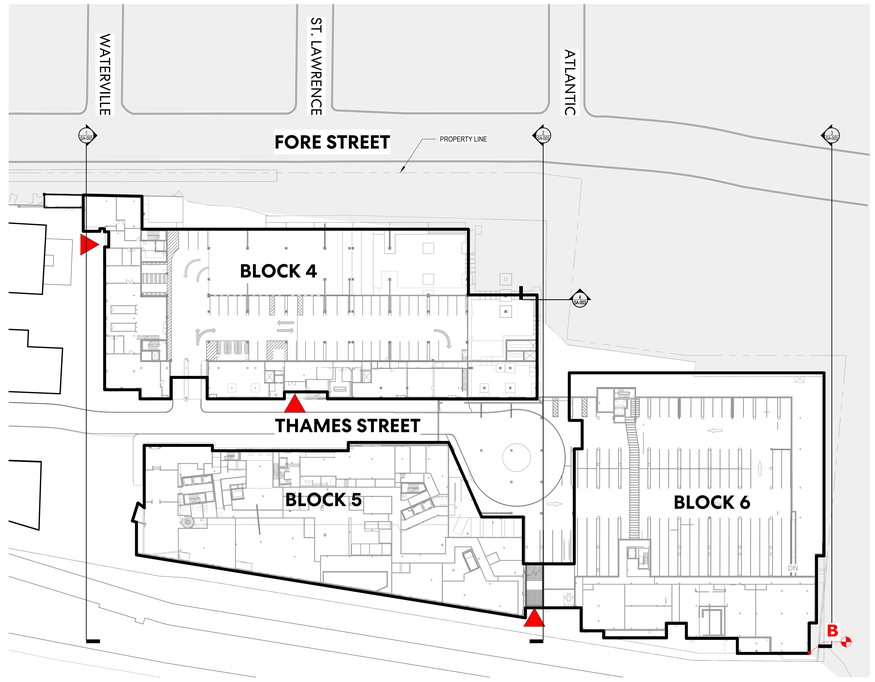
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SA-001

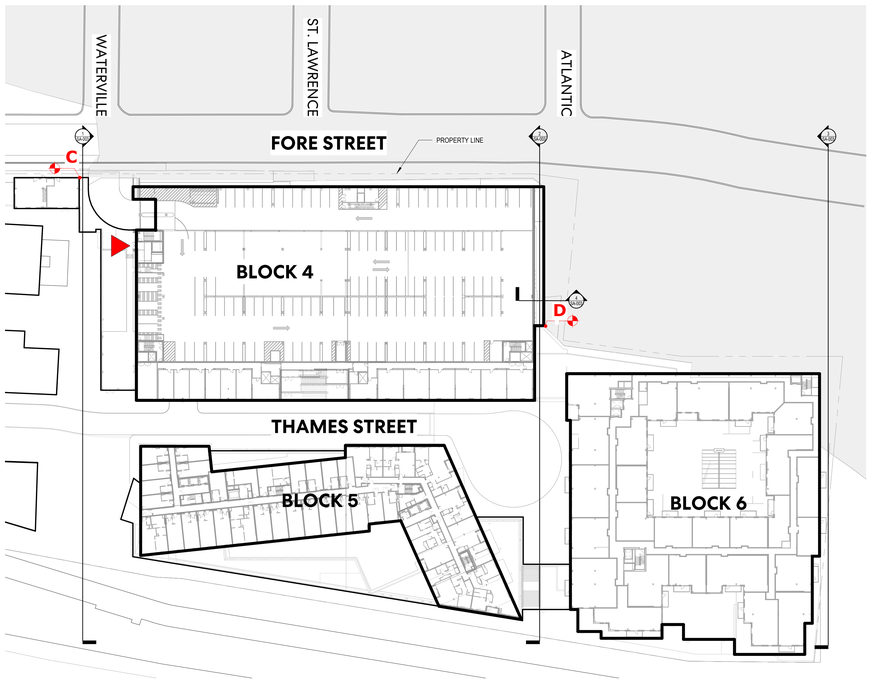
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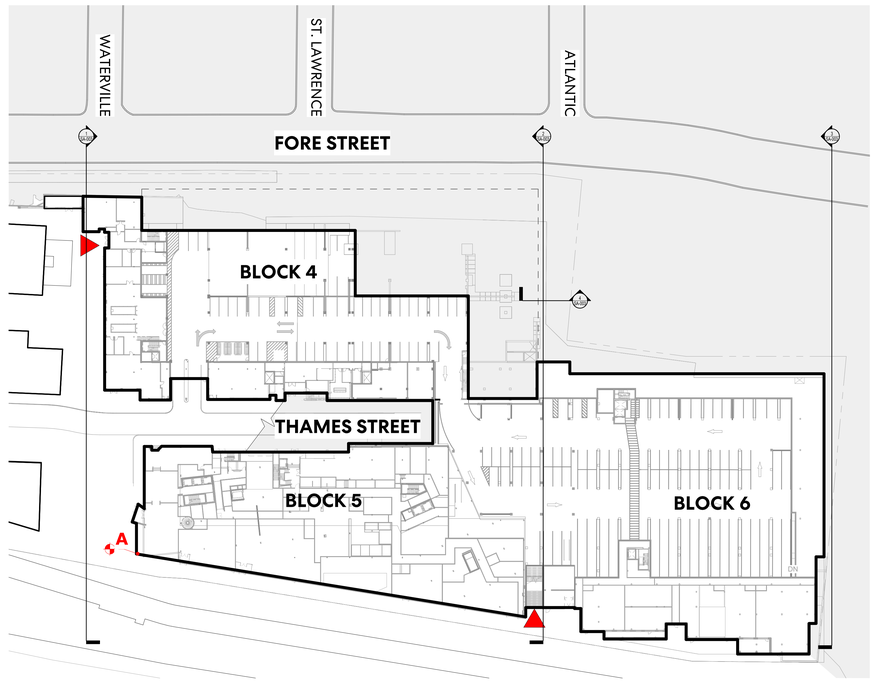
4. UPPER LEVEL
1" = 50'-0"



2. NEW PODIUM
1" = 50'-0"



3. FORE STREET
1" = 50'-0"



1. WATERFRONT
1" = 50'-0"

▲ PUBLIC PERMEABILITY

◆ ELEVATION POINTS RELATIVE TO CITY DATUM

- A - 13'
- B - 18'
- C - 52'
- D - 55'
- E - 75'
- F - 87'

AVERAGE GRADE ELEVATION 50.0'

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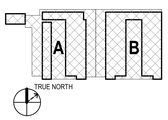
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PROJECT

FORESIDE DEVELOPMENT

PFDC HARBOR HILL
254 COMMERCIAL ST
SUITE 118
PORTLAND, ME 04101

KEYPLAN



DESIGN DEVELOPMENT
FEBRUARY 24, 2023
ISSUE CHART

NO	ISSUE	DATE
Job Number		157111
Checked		Checker
Approved		Approver

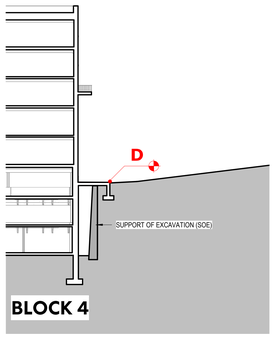
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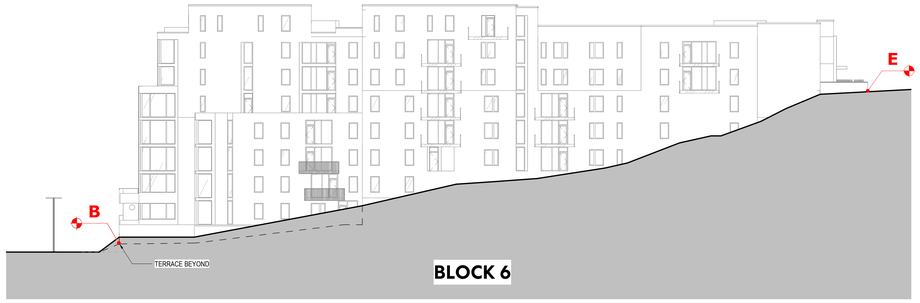
BLOCK 4, 5 & 6 AVERAGE GRADE POINTS

SHEET NUMBER

SA-002

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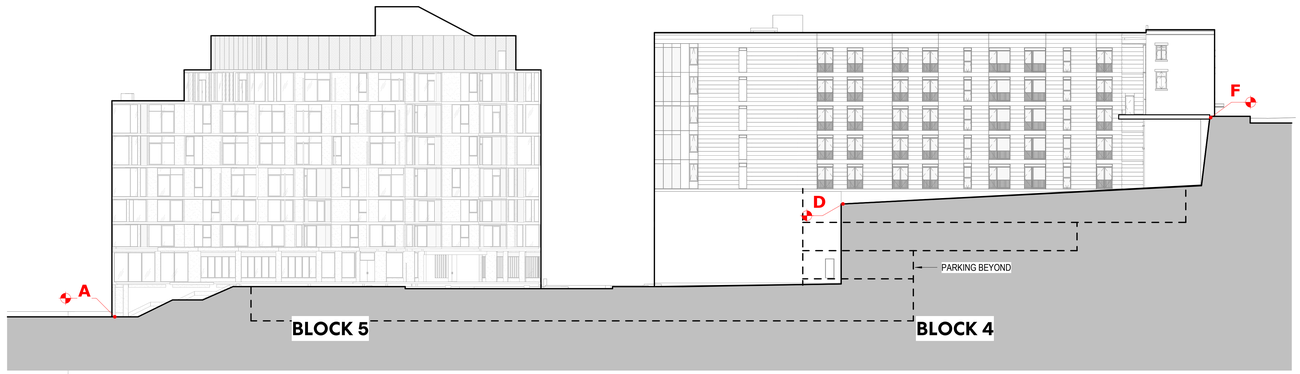




AVERAGE GRADE ELEVATION 50.0'

4 SITE SECTION - E/W @ BLOCK 4
1" = 20'-0"

3 SITE SECTION - N/S @ BLOCK 6
1" = 20'-0"



AVERAGE GRADE ELEVATION 50.0'

2 SITE SECTION - N/S @ HIGH POINT
1" = 20'-0"

PUBLIC PERMEABILITY

ELEVATION POINTS RELATIVE TO CITY DATUM

A - 13'
B - 18'
C - 52'
D - 55'
E - 75'
F - 87'

AVERAGE GRADE ELEVATION 50.0'



AVERAGE GRADE ELEVATION 50.0'

1 SITE SECTION - N/S AT GARAGE ENTRY
1" = 20'-0"

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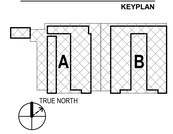
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PROJECT

FORESIDE DEVELOPMENT

PFDC HARBOR HILL
254 COMMERCIAL ST
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DESIGN DEVELOPMENT
FEBRUARY 24, 2023
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Approved		Approver

TITLE

BLOCK 4, 5 & 6 AVERAGE GRADE POINT SECTIONS

SHEET NUMBER

SA-003

5/18/2023 12:50:32 PM
Autodesk Docs://PFDC Block Four/ARCH-PFDC_B4-Res_INT.rvt

9 B2 TOWNHOUSES- EAST
1/8" = 1'-0"

8 B2 TOWNHOUSES- NORTH
1/8" = 1'-0"

6 B2 TOWNHOUSES- WEST
1/8" = 1'-0"

5 B2 TOWNHOUSES- SOUTH
1/8" = 1'-0"

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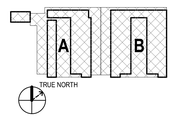
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PROJECT

FORESIDE DEVELOPMENT

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254 COMMERCIAL ST
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KEYPLAN



DESIGN DEVELOPMENT
FEBRUARY 24, 2023

ISSUE CHART

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Job Number		157111
Checked		Checker
Approved		Approver

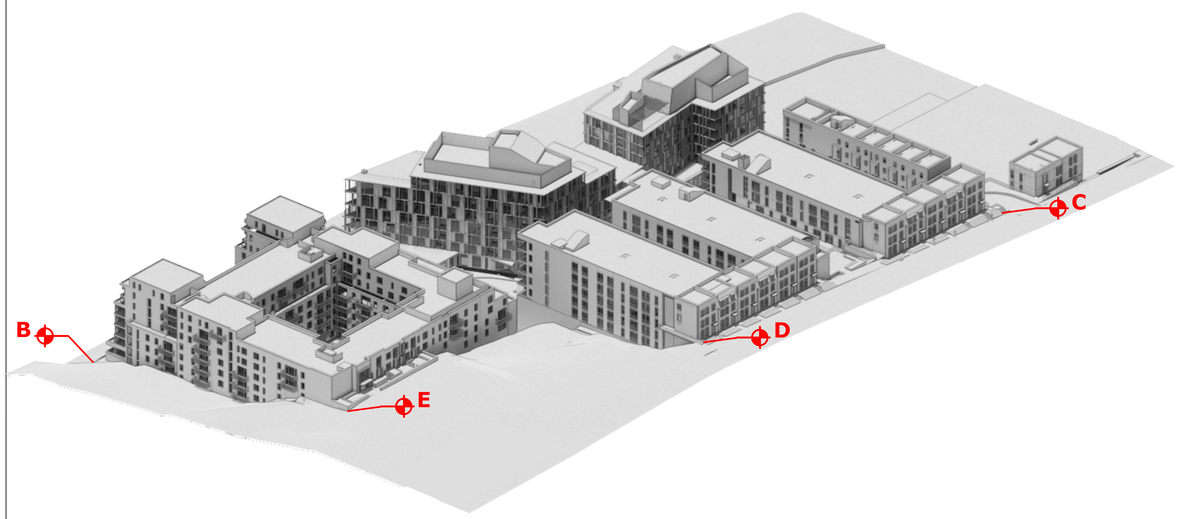
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BLOCK 4 B2 TOWNHOUSE AVERAGE GRADE

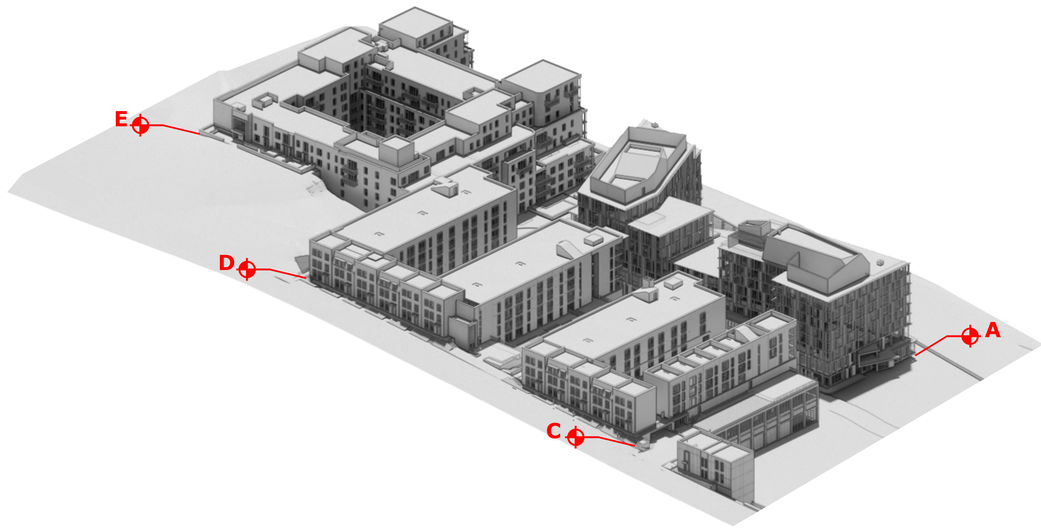
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NORTHEAST



NORTHWEST

SOUTHEAST



SOUTHWEST

- PUBLIC PERMEABILITY
- EARTH SOIL
- ELEVATION POINTS RELATIVE TO CITY DATUM
  - A - 13'
  - B - 19'
  - C - 55'
  - D - 88'
  - E - 75'

AVERAGE GRADE ELEVATION 50.0'

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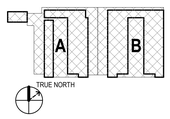
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PROJECT

FORESIDE DEVELOPMENT

PFDC HARBOR HILL
254 COMMERCIAL ST
SUITE 118
PORTLAND, ME 04101

KEYPLAN



DESIGN DEVELOPMENT
FEBRUARY 24, 2023

ISSUE CHART

NO	ISSUE	DATE
Job Number		157111
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Approved		Approver

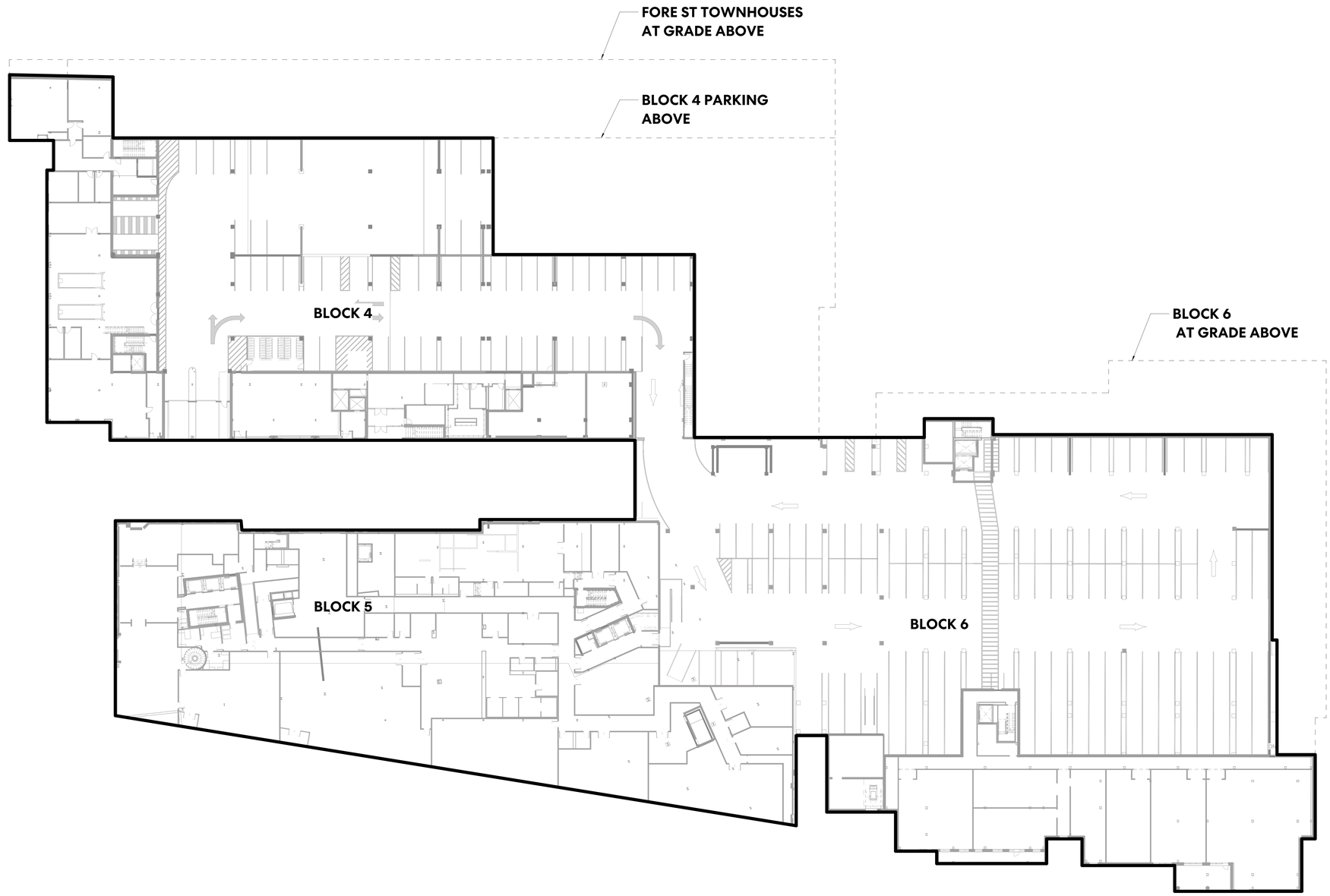
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BLOCK 4, 5 & 6 AVERAGE GRADE AXONS

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1 BLOCK 4, 5 & 6 FOUNDATION PLAN
3/64" = 1'-0"

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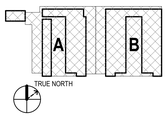
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PROJECT

FORESIDE DEVELOPMENT

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DESIGN DEVELOPMENT
FEBRUARY 24, 2023

ISSUE CHART

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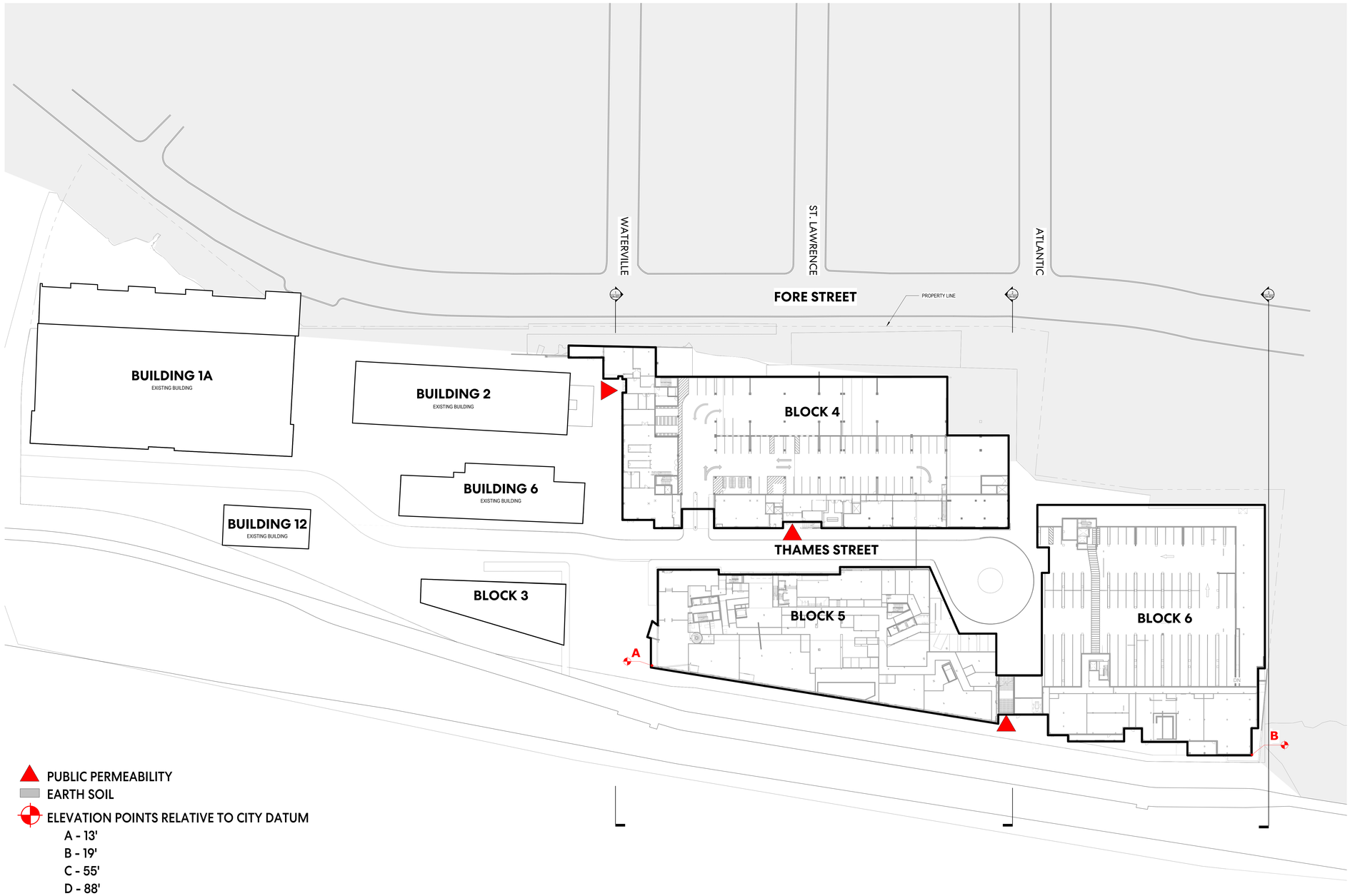
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BLOCK 4, 5 & 6 FOUNDATION PLAN

SHEET NUMBER

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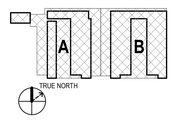
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PROJECT

FORESIDE DEVELOPMENT

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DESIGN DEVELOPMENT
FEBRUARY 24, 2023

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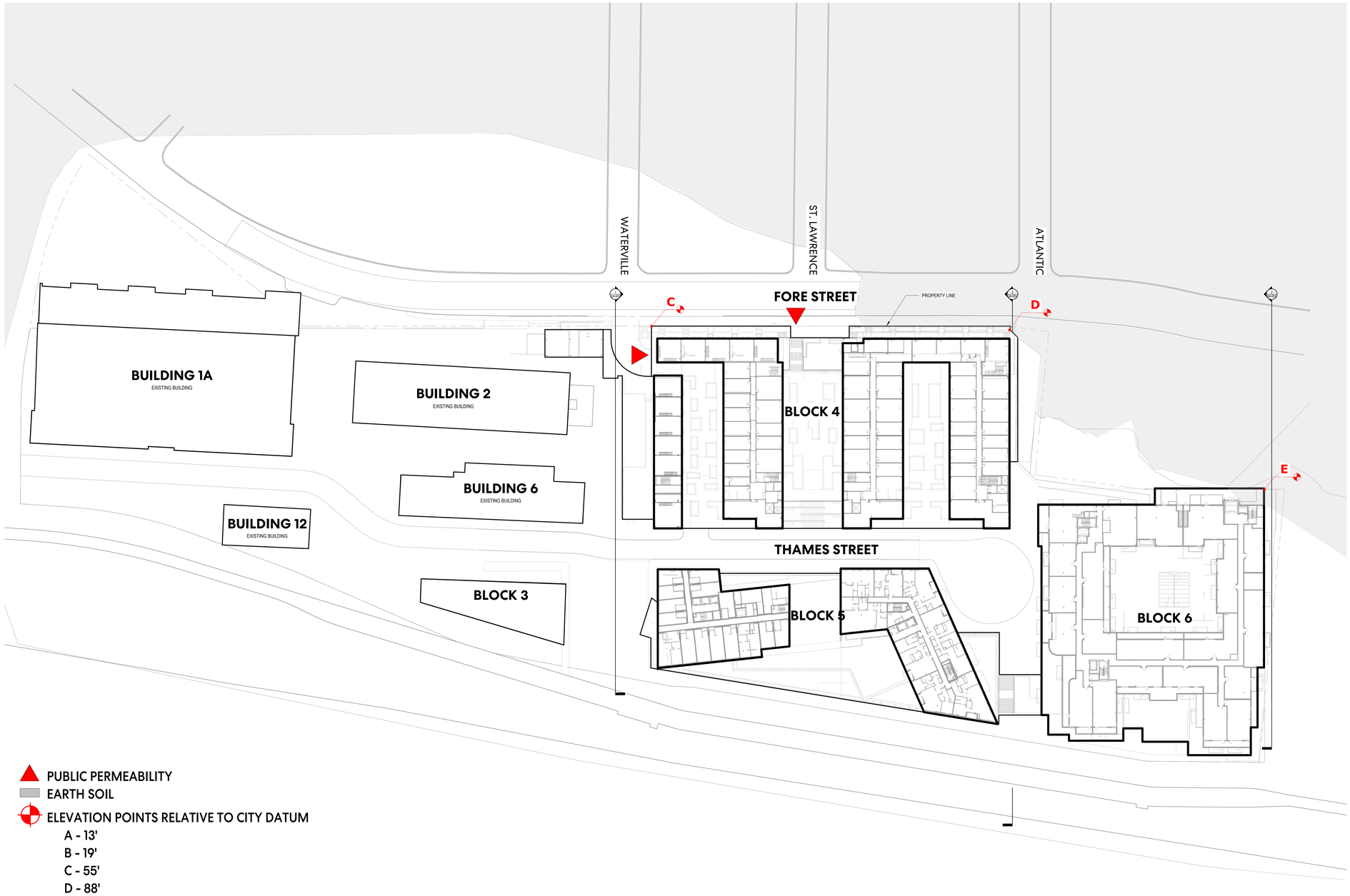
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PERMIT SITE PLAN- WATERFRONT

SHEET NUMBER

SA-007

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PUBLIC PERMEABILITY
EARTH SOIL
ELEVATION POINTS RELATIVE TO CITY DATUM
A - 13'
B - 19'
C - 55'
D - 88'
E - 75'

AVERAGE GRADE ELEVATION 50.0'

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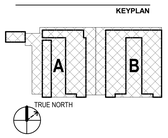
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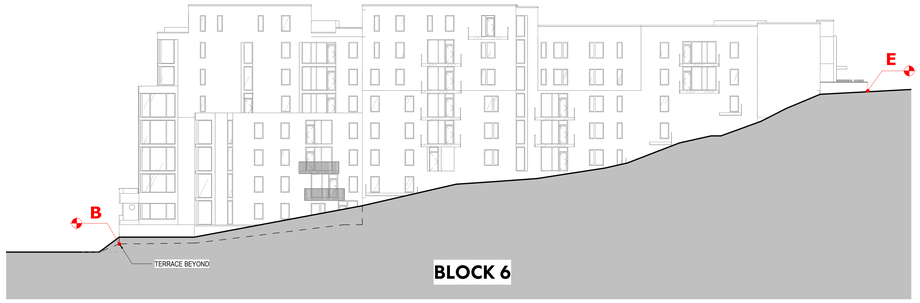
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PERMIT SITE PLAN- UPPER LEVEL

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AVERAGE GRADE ELEVATION 50.0'

3 SITE SECTION - N/S @ BLOCK 6
1" = 20'-0"



AVERAGE GRADE ELEVATION 50.0'

2 SITE SECTION - N/S @ HIGH POINT
1" = 20'-0"

▲ PUBLIC PERMEABILITY
EARTH SOIL
ELEVATION POINTS RELATIVE TO CITY DATUM
A - 13'
B - 19'
C - 55'
D - 88'
E - 75'

AVERAGE GRADE ELEVATION 50.0'



AVERAGE GRADE ELEVATION 50.0'

1 SITE SECTION - N/S AT GARAGE ENTRY
1" = 20'-0"

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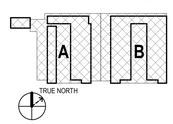
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PROJECT

FORESIDE DEVELOPMENT

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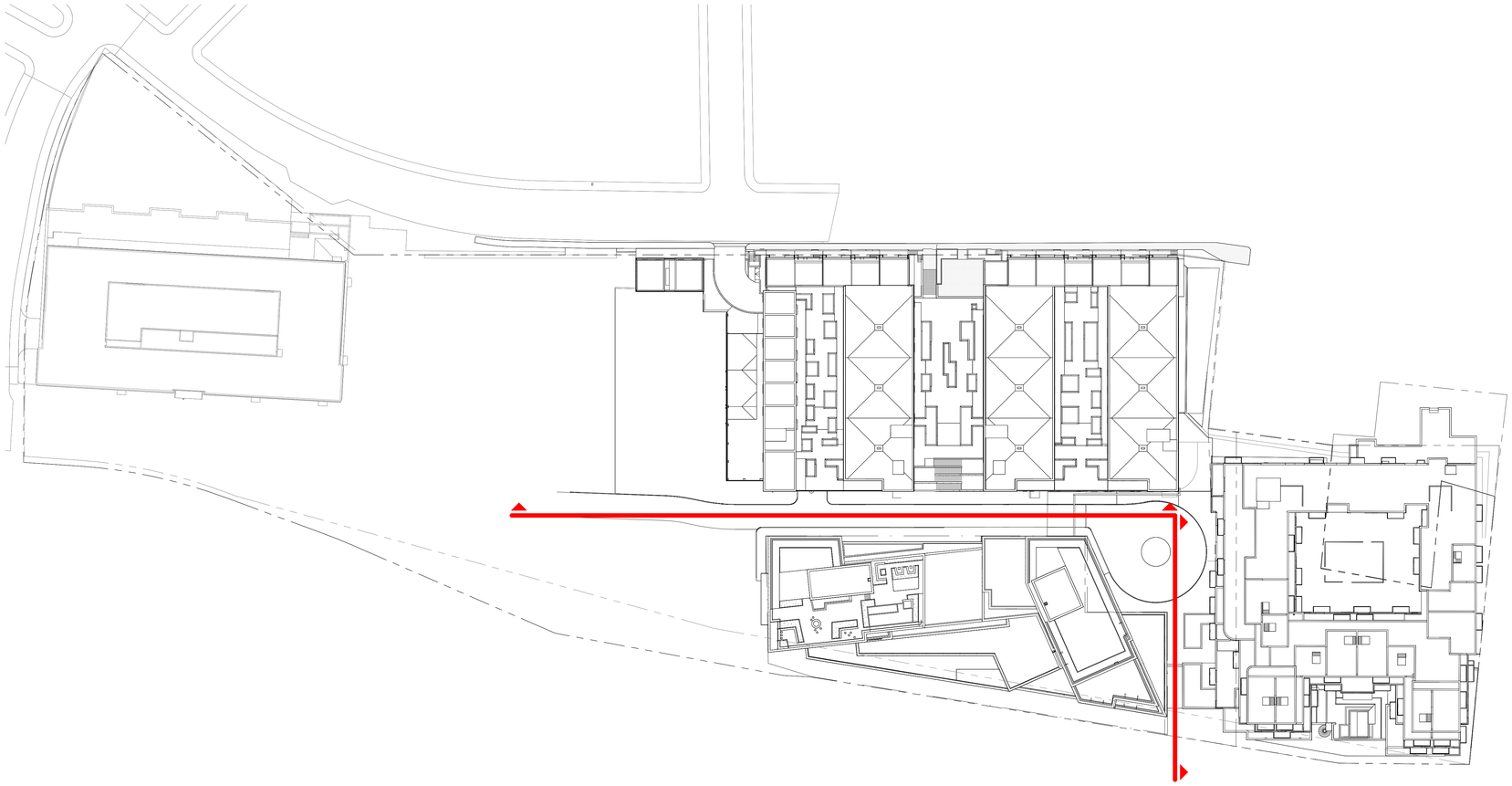
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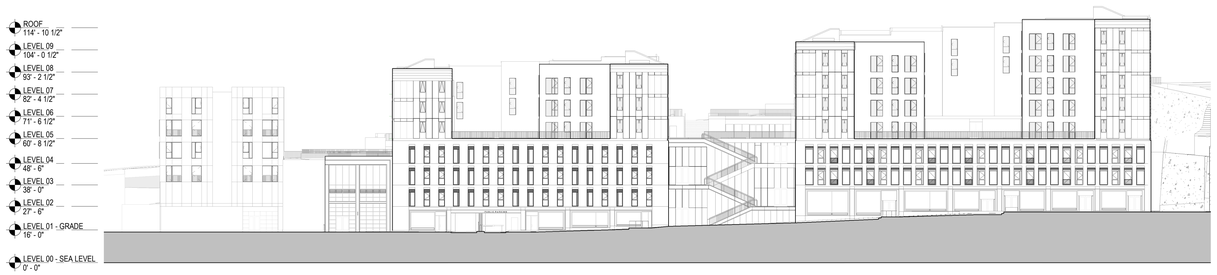
BLOCK 4, 5 & 6 AVERAGE GRADE POINT SECTIONS

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BLOCK 4



BLOCK 6

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PROJECT

FORESIDE DEVELOPMENT

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Approved	Approver

TITLE

THAMES STREET ELEVATION

SHEET NUMBER

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1. PROJECT SUMMARY

On behalf of Portland Foreside Development Company (Applicant), Woodard & Curran is pleased to submit this Major Site Plan Application to develop Blocks 4, 5 and 6 of the Portland Foreside Master Development Plan ("Phase 2"). A letter authorizing Woodard & Curran to act as the agent on behalf of the Applicant is attached to this Section.

Woodard & Curran previously submitted materials for this Major Site Plan Application that included only Block 4 and Block 6. We have updated the Major Site Plan Application to now also include Block 5.

The transformation of the former 58 Fore Street Portland Company Complex property is underway as it emerges into a new urban neighborhood that is a welcoming place to live, work and visit, while staying connected to its authentic and important past. The development is known as Portland Foreside, and this next phase of implementing the Master Development Plan will continue the redevelopment of this 10.7-acre property into an accessible, connected, public neighborhood along the City's eastern waterfront.

The continued redevelopment of the 58 Fore Street property into a resilient, mixed-used waterfront neighborhood will be a tremendous benefit to the City. This next phase of development is arranged around the following framework:

- Support the City in its goal for housing production by providing 440+ housing units which will help meet critical demand in the market;
- Support the City's goal of providing a variety of housing types by introducing rental apartments, townhouses and condominiums to the market that are located along the waterfront in a densely developed area of the City with access to a variety of transportation options;
- Improve public connections from the eastern waterfront to the rest of the City through meaningful open spaces, plaza spaces and pedestrian/bicycle connections;
- Reinforce the eastern waterfront as key to the City's overall health and vibrancy;
- Consider resiliency and sustainability measures that are important to the City such as redevelopment and reuse, provisioning for EV charging stations and renewed focus on pedestrians and bicycles;
- Introduce additional housing, retail, office, hotel, and restaurant spaces that all contribute to the City's tax and employment bases; and
- Continue utility and infrastructure improvements that will serve the development and provide added benefits to the surrounding area such as improved drainage and stormwater quality.

As one of the largest redevelopment projects in the City, this next phase of the Portland Foreside redevelopment work will continue to turn this underutilized waterfront area into a space for residents, employees, and visitors to enjoy. With thoughtful connections to existing and new open space, the new housing and economic opportunities will bring to life many of the ideas that were envisioned by the Eastern Waterfront Master Plan and Portland's Plan 2030.

1.1 Completed Development Phases

The redevelopment planning for the former Portland Company Complex Site began with a Master Development Plan that was approved by the City of Portland Planning Board in 2016. The Master Development Plan includes seven development "blocks" consisting of new buildings, renovated historic buildings, open space plazas, public access easements, view corridors to the waterfront, a marina, and a private roadway that provides shared access for both vehicular and pedestrian traffic through the Site. Figure 1-1 below shows the block layout as it was approved as part of the Master Development Plan.

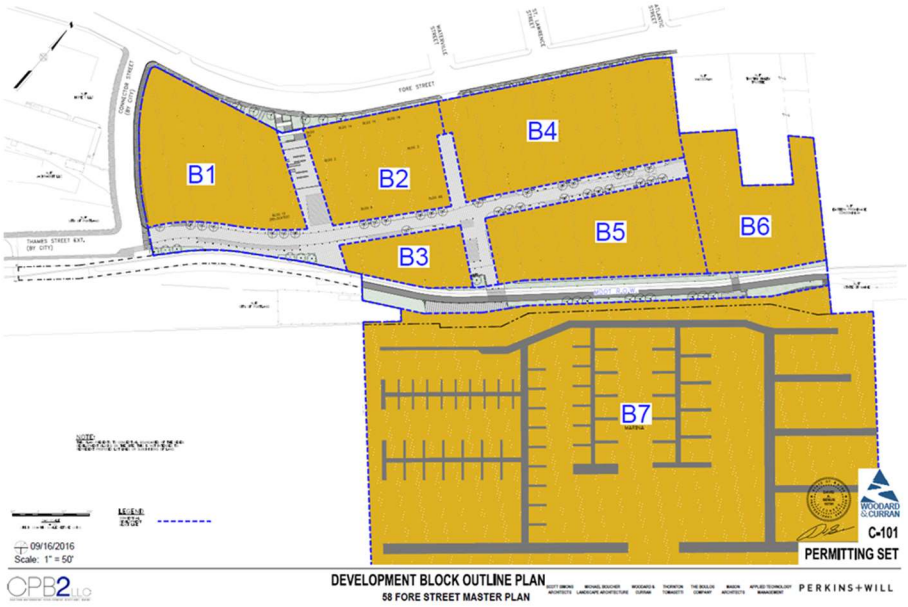


Figure 1-1 Master Development Plan Blocks B1-B7

The site has previously received a number of permits from the City of Portland, as described later in this report. The work that has been completed to date includes the construction of the Fore Points Marina on Block 7, Buildings 1A and 12 on Block 1, the extension of utility infrastructure within the site to support both the constructed and future blocks, the extension of Thames Street as a private roadway into the site, and site and landscaping improvements supporting the site. These site improvements include the construction of the Grand Stair and pedestrian plaza space between Blocks 1 and 2 that provides access from Fore Street within the public access easement on the site.

1.2 Proposed Project Description – Phase 2

The proposed development continues the implementation of the overall vision for the site which is to create a mixed-use neighborhood. The three development blocks in Phase 2 (Block 4, Block 5, and Block 6) include residential, hotel, parking, retail, restaurant, and public open space uses. The proposed uses are consistent with the original Master Development Plan.

For this Major Site Plan application, we have broken all proposed development areas for Block 4, Block 5, and Block 6 into four categories – residential, hotel, retail/service/restaurant, and parking. These categories are consistent with other blocks of development on the site.

Block 4

Development of a portion of Block 4 was previously submitted and approved as part of a Phase 1 Level III Site Plan Application that was approved by the Planning Board in January 2020 (PL-000924-2019). Block 4 previously included a structured parking garage that would allow for future buildout of residential (above), ground-floor retail (south elevation) and expansion of the parking garage into other development blocks during a future phase. A small number of residential units, storage and retail were proposed on the west elevation. After the project received Planning Board approval for the Level III Site Plan, construction advanced on a portion of Phase 1; however, Block 4 construction was not completed. A Level III Site Plan amendment will be submitted under separate cover to remove Block 4 from the Phase 1 Site Plan.

The current proposed development work now includes the full build-out of Block 4, with some revisions to what was previously planned during Phase 1. This work will include the construction of a four-level structured parking garage with overlying rental apartment units and plaza space, three-story townhouses along Fore Street, and ground-level retail on the north and south elevations. Table 1-1 summarizes the uses and square footage amounts associated with Block 4 and provides a comparison to the previously approved Phase 1 version of the block.

Table 1-1 Block 4 Building Use Breakdown

Use	Previously Approved Phase 1 Block 4 (January 2020)	Proposed Phase 2 Block 4 (Current Application)
	Area (SF)	*Area (SF)*
Residential	12,900 (12 units)	200,866 (247 units)
Hotel	N/A	N/A
Retail/Service/Restaurant	1,100	47,035
Parking	221,800 (652 spaces)	168,374 (443 spaces)
Total	**234,700 SF**	**416,275 SF**

The parking garage within Block 4 has been reduced in size from what was previously approved. The garage will connect below-grade to Blocks 5 and 6, providing a continuous parking area that will serve all blocks. Below-grade parking on Blocks 4, 5 and 6 will be accessed using the Block 4 garage entrances on Fore Street and Thames Street.

Block 5

Block 5 includes development of an eight-story building comprised of a hotel, residential condominiums ground-level retail and restaurant, and below-grade parking. Building amenities include function space, a fitness center and spa, pools, social club space, and rooftop garden. The table below summarizes the uses and square footage amounts associated with Block 5. These categories are consistent with other blocks of development on the site.

Table 1-2: Block 5 Building Use Breakdown

Use	Proposed

	Area (SF)
Residential	74,094 (43 units)
Hotel	128,309 (128 units)
Retail/Service/Restaurant	42,708
Parking	13,422 (35 spaces)
Total	**258,533 SF**

Block 6

Block 6 includes development of residential condominiums, an interior courtyard area, ground-level retail, and below-grade parking. The residential condominiums will be built throughout with amenities that include a café/library, coworking space, fitness center and spa, pool, community room, and rooftop garden. The table below summarizes the uses and square footage amounts associated with Block 6.

Table 1-3: Block 6 Building Use Breakdown

Use	**Proposed**
	Area (SF)
Residential	196,660 (154 units)
Hotel	N/A
Retail/Service/Restaurant	9,108
Parking	67,798 (166 spaces)
Total	**291,836 SF**

Infrastructure, Utilities & Access Improvements

Shared street infrastructure and utilities will be installed throughout the site in the common spaces between the development parcels with reciprocal easements granted throughout. The private roadway into the site is an extension of Thames Street and carries the primary utilities to serve the buildings of Blocks 4, 5 and 6. This is a continuation of infrastructure installation that began with Phase 1 of the project.

Interim Conditions

In order to create a complete, functional site following construction of Phase 2, interim conditions are proposed in Block 2, which will not see its finished condition as part of this project. Minor surface improvements, grading, and utility work are required within Parcel 2B and 2C to enable the surrounding work for Phase 2.

2. PERMITTING & ZONING

For the proposed Phase 2 development work, a Major Site Plan Application is required along with a number of associated permit applications and updates. This section documents prior permits, proposed permits, and a number of conditions required for the project's permits.

2.1 Prior Permitting

The Portland Foreside redevelopment project has received a number of prior permit approvals from the City of Portland for the overall project and for work that has been completed to date on the site.

Master Development Plan

The 58 Fore Street Master Development Plan was unanimously approved by the Portland Planning Board (Project ID: 2016-224) on December 22, 2016, to redevelop and revitalize the 10.7-acre former Portland Company Complex into a mixed-use development. The 2016 Master Development Plan approval established the general parameters for the overall development including development program, massing, open space, and infrastructure. The proposed development of Blocks 4, 5 and 6 is consistent with the Master Development Plan.

Traffic Movement Permit

The project received a Traffic Movement Permit (TMP) from the City of Portland under its delegated review authority on May 26, 2017. This permit was approved in association with the Master Development Plan, and the site's phased projects have, and will continue to address the requirements of this permit. No updates to this permit have been required, and the current proposed development work will continue to fall within the thresholds established by the TMP.

Phase 1 Level III Site Plan (PL-000924-2019)

On January 28, 2020, the project received approval of a Level III Site Plan, Site Location of Development Permit (under delegated review authority) and Subdivision from the Portland Planning Board for Phase I of the development. Phase I included portions of Block 1 (office building on Parcel 1A and reconstruction of Building 12 on Parcel 1C), Block 2 (renovation of historic core buildings on Parcels 2A, 2B and 2C), a portion of Block 4 (parking garage on Parcel 4), construction of site infrastructure around these buildings, and improvements along the waterfront. This approved waterfront work included the relocation of the MaineDOT-owned corridor that includes the Maine Narrow Gauge Railroad and the Eastern Promenade Trail closer to the water. The first part of the work approved as part of the Level III Site Plan, including construction of Building 1A, Building 12, and associated site and utility infrastructure is largely complete.

Waterfront Level II Site Plan (PL-00906-2019)

On April 17, 2020, Level II Site Plan approval was granted by the Planning Authority for work associated with Fore Points Marina, which included modifications to the seawall and site utilities, as well as two stormwater outfalls to convey runoff from the upgradient Portland Foreside Development. Shortly after receiving approval for the project, a short section of the seawall failed adjacent to the eastern outfall. As a result, the work associated with this approval was only partially constructed in 2020. The western stormwater outfall and some of the proposed utility work has been completed. This Level II Site Plan approval also

permitted up to 13 temporary buildings totaling no more than 3,200 square feet within the Marina Operations Area.

Minor Site Plan (PL-001656-2021) and Master Development Interim Conditions (PL-001654-2021)

As the planned final condition for Fore Points Marina is dependent on the completion of other work on the site, it was identified that there is a varying interim condition in the marina space. On November 23, 2021, the Planning Board approved an amendment to the Master Development Plan approval to add an interim condition plan for Fore Points Marina. This MDP Interim Conditions plan permitted up to 13 temporary buildings totaling no more than 3,200 square feet within the Marina Operations Area. Subsequently, on January 13, 2022, the Planning Authority approved a Minor Site Plan amendment application for interim conditions on the Fore Points Marina property.

Minor Site Plan Amendment (PL-001656-2021): This amendment application included relocation of the Fore Points Marina temporary buildings within current property boundaries. This application was approved by City Staff on January 30, 2023.

Waterfront Enablement Site Plan Amendments

On July 29, 2022, an amendment application was initially submitted for waterfront and utility enablement work. Per discussions with City Planning staff, we have separated the review materials and resubmitted them as part of three separate application packages to distinguish the different amendments. The applications include the following:

- *Phase I Level III Site Plan Amendment (PL-000924-2019):* Submitted to the City on October 25, 2022. This amendment application included modification to the Maine DOT corridor, relocation of the Maine Narrow Gauge Railroad rail lines, relocation and widening of the Eastern Promenade Trail, modifications to waterfront improvements and modifications to utility infrastructure within the land swap boundaries shown on the approved Level III site plan application. This application will be revised to include removal of Block 4 from the Site Plans.

- *Waterfront Level II Site Plan Amendment (PL-00906-2019)*: Submitted to the City on October 25, 2022. This amendment application included relocation of a stormwater outfall and modification to seawall reconstruction.

We are working with the City on these applications, and they will be reviewed and approved separately.

2.2 New Permits Required

The proposed Phase 2 development work will require approval by the Planning Board for multiple permit applications.

Major Site Plan

The project's size and scale qualify it for a Major Site Plan that will require review and approval by the Planning Board.

Site Location of Development (SLOD) Amendment

The project is subject to the Maine Department of Environmental Protection (DEP) regulations for a Site Location of Development Act (SLOD) or Site Law Permit. It is our understanding that the project will be reviewed as an amendment to the prior approved SLOD by the City of Portland under their Delegated Review Authority. A separate SLOD permit application has been provided with this Site Plan Application, and 3 paper copies will be provided for the City to give to the Maine DEP.

Subdivision Plan Amendment

This application requires modifications to the previously approved 58 Fore Street Subdivision Plan, which divides property into ten development parcels with utility and access space held in common with reciprocal easements granted to the proposed parcels. Specifically, the plan is being amended to subdivide Parcel 5 into Parcels 5 and 6, and to include adjacent land area acquired by the Applicant since the last subdivision plan was approved.

A draft of the revised subdivision plan prepared by Owen Haskell, Inc. is included with the project drawings.

2.3 Master Development Plan Consistency

The 2016 Master Development Plan for 58 Fore Street approved a proposed mixed-use neighborhood that intertwines a historic core with new development along the eastern waterfront. The total development square footage of 1,393,879 that was approved was broken down into the following categories:

- 958,679 SF of mixed residential and commercial uses
    - Including 638 residential units
- 435,200 SF of parking
    - Including 736 spaces

The proposed Phase 2 development is consistent with the Master Development Plan. The design intent of each phase of development is to remain true to the Master Development Plan, providing for the planned uses generally within the planned footprints. As noted, Phase 1 included Buildings 1A and 12 of Block 1, the historic core of Block 2, and a portion of Block 4. Buildings 1A and 12 have been constructed. Phase 2 includes Block 4 in its entirety, Block 5, and Block 6.

2.3.1 Residential Unit Comparison

The table below compares the number of residential units proposed during the 2016 Master Development Plan process with Phase 1 of the project that has been constructed and the currently proposed Phase 2. The total number of residential units proposed in the MDP was 638 dwelling units (D.U.). With the application for Blocks 4, 5, and 6, 444 dwelling units are proposed. Together with an anticipated future phase 1B residential building of 89 units, a total of 533 D.U. on the site is estimated, or a decrease of 105 units from the MDP. The decrease is primarily a result of refinement of the design beyond master plan level. In other words, gross square footage estimates are made during master planning based on an assumed floor area efficiency, and these can be on the conservative side. As design has advanced and adjustments are made to comply with zoning and building constraints, the total number of dwelling units has decreased.

Table 2-1 Residential Unit Comparison

Development Block	Residential Units Proposed During Master Development Plan	Residential Units Constructed to Date	Residential Units Proposed (Not Constructed Yet)	Notes
Block 1	91 units	2 units	89 units	The remainder of these units would be associated with Block 1B when it is developed if it includes a residential component.
Block 2	19 units	0	None	Residential units will not be constructed as part of Block 2.
Block 3	0	0	0	
Block 4	275 units	0	247 units	Reduction of 28 units on this block.
Block 5 – Residential Units	108 units	0	43 units	Reduction of 65 units on this block.
Block 6 - Condos	131 units	0	154 units	Increase of 23 residential units
Block 6 – Apartments	14 units	0	0	No apartment units are being proposed for this block.
Block 7	0	0	0	
TOTAL	638	2	533	This is a reduction of 105 units from the MDP phase.

2.3.2 Hotel Unit Comparison

The development program for Block 5 is a mix of hotel rooms and residential housing units. The residential housing units have been accounted above. For hotel use, the MDP originally proposed 132 rooms, while the proposed Block 5 hotel will include 128 rooms. This represents a slight reduction of 4 rooms but remains within the original intent for hotel scale.

2.3.3 Parking Comparison

The table below compares the parking totals proposed in the MDP, with the total parking constructed to date and planned for Blocks 4, 5 and 6. The MDP contemplated 736 parking spaces, and the current proposals together with the 68 spaces that have been constructed (in Phase 1) will provide 712 spaces, or 24 less spaces more than estimated at MDP.

Table 2-2 Parking Totals By Block

Block	Proposed in Master Development Plan	Actual (Constructed to Date)	Proposed (Yet to be Constructed)
B1		68 spaces	N/A
B2		N/A	N/A
B3		N/A	N/A
B4		N/A	443 spaces
B5		N/A	35 spaces
B6		N/A	166 spaces
B7		N/A	N/A
Totals	**736 Spaces**	**68 Spaces**	**644 Spaces**
		712 spaces	

2.3.4 Overall Master Development Plan Area Comparison

The following table outlines the square footage of each of the proposed Blocks to date showing progress towards the total areas defined in the Master Development Plan. In addition to the information below, the proposed development of Blocks 4, 5 and 6 is consistent with the general layout of the site on the Master Development Plan. There have been some adjustments made, as necessary. For example, with the addition of new property, the Block 6 footprint has changed. In addition, we are planning to use "stackers" for some of the structured parking areas, which allows for more efficient use of space for parking. As noted in the table, with the proposed development work in Phase 2, the site will be brought to approximately 83% of the original planned square footage for the Master Development Plan.

Table 2-3 Master Development Plan Area Comparison

Development Phase	Block/Building	Use	Area	% of Total Master Development Plan Area
Overall Master Development Plan		Mixed Residential & Commercial	958,679 SF (includes 638 residential units)	68.8%
		Parking	435,200 SF (includes 736 spaces)	31.2%
TOTAL	1,393,879 SF Total			100%
Phase 1	Block 1 - Building 1A	Office, retail	104,400 SF	7.5%
		Parking	26,500 SF (includes 68 spaces)	1.9%
Phase 1	Block 1 - Building 12	Restaurant, office, residential	9,600 SF (includes 2 residential units)	0.7%
Phase 1	Block 2	Retail, restaurant	66,200 SF	4.7%
Phase 2	Block 4	Residential, retail, restaurant	247,901 SF (includes 247 residential units)	17.8%
		Parking	168,374 SF (includes 443 spaces)	12.1%
	Block 5	Residential, retail, restaurant	97,105 SF (includes 43 residential units)	7.0%
		Hotel	148,006 SF (includes 128 rooms)	10.6%
		Parking	13,422 SF (includes 35 spaces)	1.0%
Phase 2	Block 6	Residential, retail	205,768 SF (includes 154 residential units)	14.8%
		Parking	67,798 SF (includes 166 spaces)	4.9%
TOTAL	1,155,074 SF Total 730,974 SF Mixed Residential & Commercial (446 residential units) 148,006 Hotel (128 Rooms) 276,094 SF Parking (712 parking spaces)			82.9%

2.4 Zoning

The second phase of development is associated with multiple Zoning Districts including:

- B-6 Eastern Waterfront Mixed Zone (B6),
- R-6 Residential Zone (R6), and
- Eastern Waterfront Port Zone (EWPZ).

Portions of the work will also be within the Shoreland Overlay Zone, the Portland Company Historic District, and the Munjoy Hill Historic District.

Since the time of the Master Development Plan approval, Portland Foreside has acquired the property located at 21 Eastern Promenade. The addresses associated within this property are 13, 17, 19, 21A and 21-23 Eastern Promenade. 21 Eastern Promenade is located in the R6 Zoning District. The Table below summarizes the Zoning Districts associated with Block 4, Block 5, Block 6 and the Infrastructure, Utility and Access Improvements that are being proposed.

Table 2-4 Project Zones

Development Block	Zone
Block 4	B6
Block 5	B6, EWPZ, Shoreland Overlay Zone
Block 6	B6, R6, Shoreland Overlay Zone, Munjoy Hill Historic District
Infrastructure, Utilities & Access Improvements	B6, EWPZ, and Shoreland Overlay Zone

2.4.1 B6 Zone

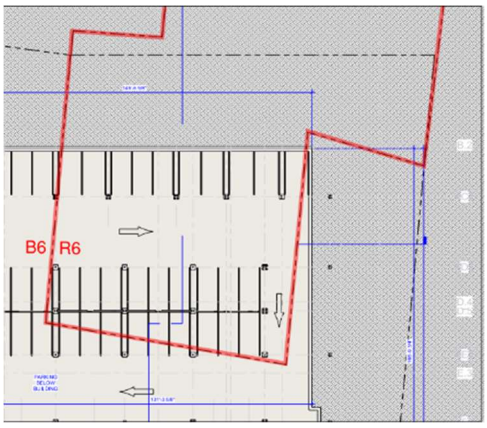
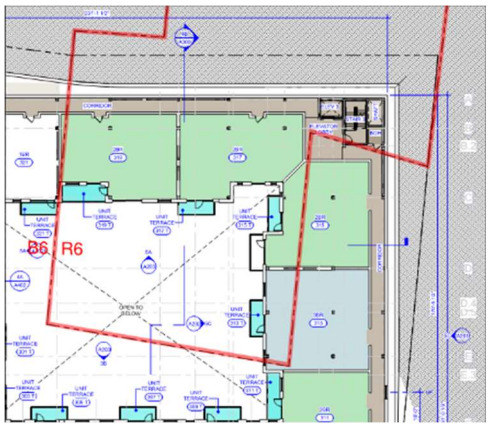
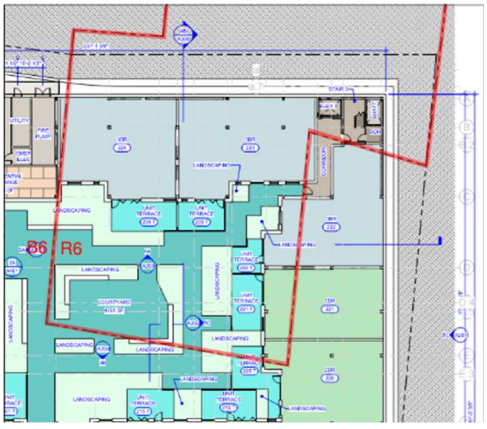
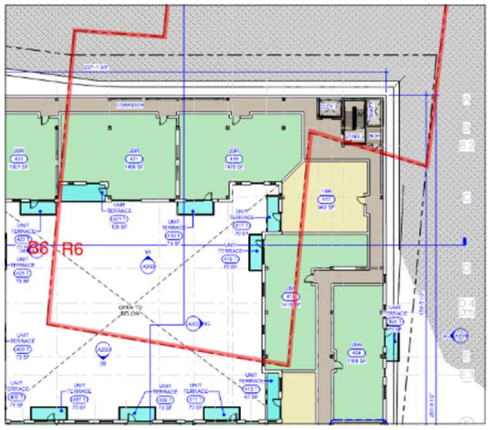
Uses associated with Blocks 4, 5 and 6 within the B6 Zone include residential, hotel, parking, and retail. Residential, hotel, and retail are permitted uses in the B6 zone. Structured parking is a permitted conditional use in B6, given that first floor retail space is provided on the street frontages. The proposed parking structure includes a first-floor retail wrap along the frontage of the new private roadway.

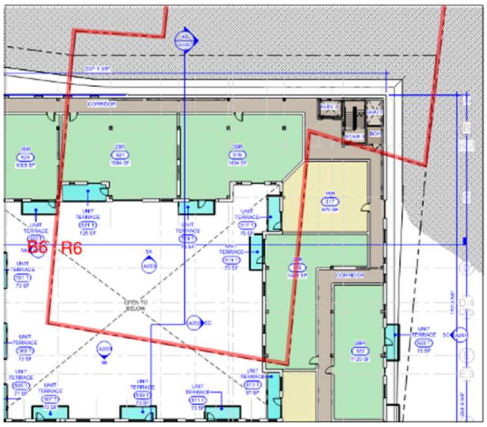
The attached Zoning Assessment Table shows that the project complies with dimensional requirements specified in the City's Land Use Ordinance. For the B6 zone, most standard zoning analysis values are not applicable. The property exceeds the required lot size. The Block 4 building has been designed to meet the maximum front yard setback and building wall length requirements. Height is addressed later in this report.

2.4.2 R6 Zone

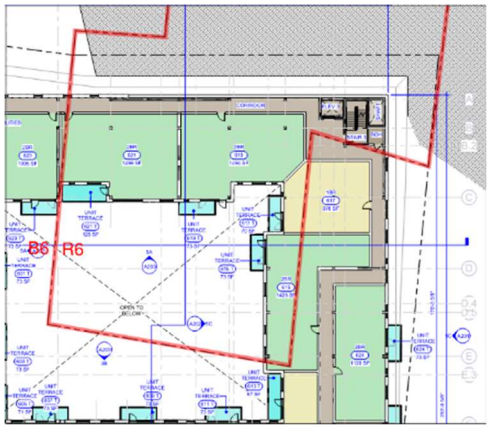
A portion of Block 6 will be located within the R6 Zone. The zone boundary crosses through the building, passing through parking on the first floor and residential units on the second through eighth floors. Screenshots of the R6 area on each of the floors are provided in the following table just for general reference and with notes on the specific uses within each floor. The zone boundary line is shown on the civil drawings as well as on the architectural floor plans where more detail can be viewed. In total, the R6 zone area includes 4 complete residential units, and 23 partial units that are split in some way by the zone boundary.

Table 2-5 R6 Zone Boundary for B6 Floors

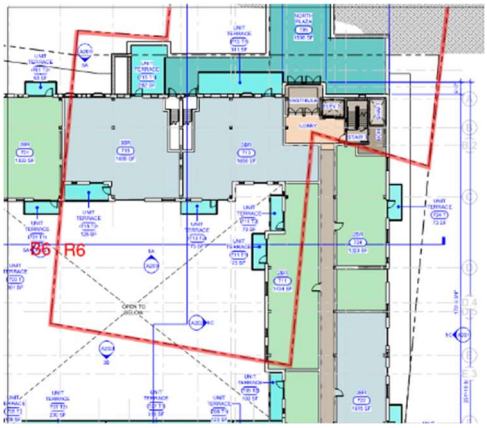
 Floor 1 – Structured Parking	 Floor 2 – 5 Partial Residential Units
 Floor 3 – 1 Complete, and 3 Partial Residential Units	 Floor 4 – 1 Complete, and 3 Partial Residential Units



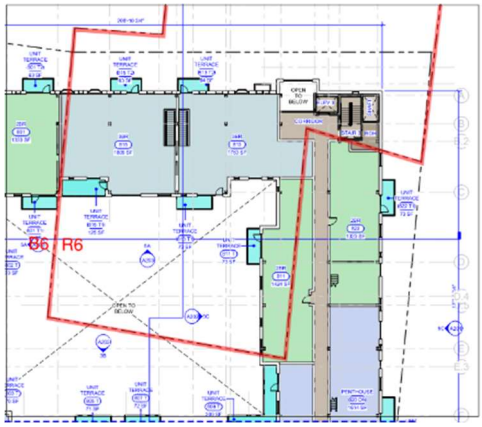
Floor 5 – 1 Complete and 3 Partial Residential Units



Floor 6 – 1 Complete and 3 Partial Residential Units



Floor 7 – 3 Partial Residential Units



Floor 8 – 3 Partial Residential Units

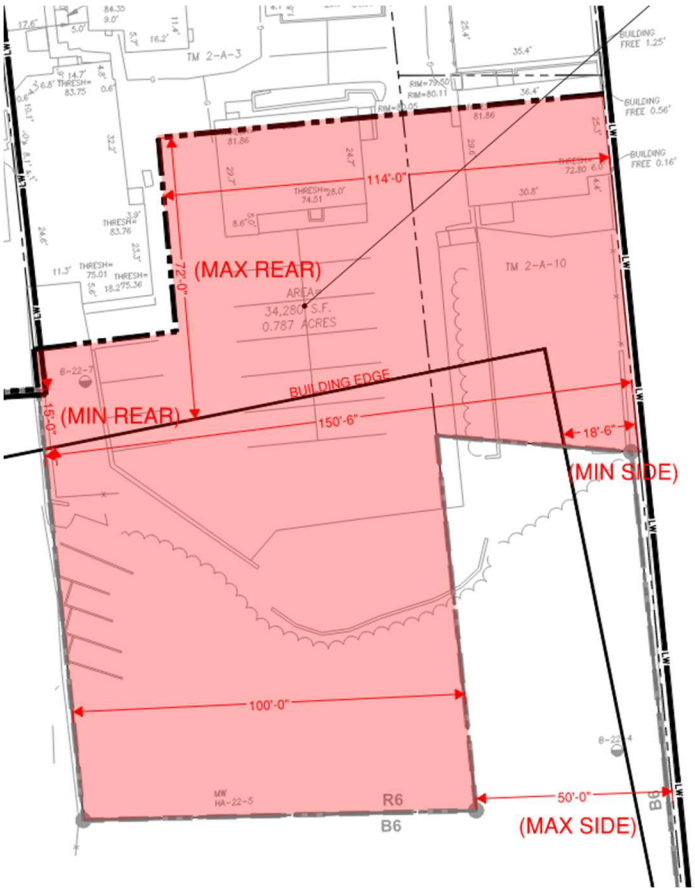


Figure 2-1 R6 Zone portion of Block 6 Development Work

The Zoning Assessment Table submitted with the application shows that this portion of the project complies with dimensional requirements specified in the City's Land Use Ordinance for the R6 zone. The size of the lot located within the R6 zone exceeds the minimum required and considering the 27 residential units located at least partially within the zone, the minimum land area per dwelling unit is accomplished. This portion of the project does not include any street frontage but is attached to the remainder of Blocks 4 and 6 that include frontage in the B6 zone. This portion of the site meets the lot dimension and coverage requirements associated with the R6 zone, and the figure above shows some general dimensional values for the portion of the site. Building height is addressed later in this section of the report.

2.4.3 Eastern Waterfront Port Zone

The portion of the site that falls within the Eastern Waterfront Port Zone is primarily not planned for direct impact due to this project. The only planned work within this zone is utility connection. Disturbance in this zone due to work on the marina and on the Eastern Promenade Trail and Narrow Gauge Railroad is covered under separate permits.

2.4.4 Building Height Evaluation

The Phase 2 buildings have been designed in compliance with the B6 Height Overlay Map and the Master Development Plan. In addition, the portion of the site that is located in the R6 Zone will comply with the height requirements of that zone.

Per the City of Portland's Land Use Code, allowable heights are calculated from average finished grade. The Master Development Plan considered the proposed parking podium structure that spans Block 4, Block 5, and Block 6 as one single structure, with an average grade measured at 50.1'. This average grade was calculated by evaluating the grade at each corner of the overall building structure. The Master Development Plan identified that Blocks 4, 5, and 6 may be constructed in phases, and noted that at each phase conformance with average grade/height regulations should be confirmed. With the inclusion of all three blocks in this revised site plan application, we have evaluated the entire building for average grade, and the included height figure shows that the average grade is calculated as 50.

The building designs take into consideration the height requirements of the B6 Height Overlay Map and the R6 Zone where applicable. The B6 map identifies areas with different height restrictions within the B6 Zone, including a number of view corridors that are defined by the streets that intersect with Fore Street. Buildings may be located within the view corridors, but the height of structures within the view corridors must be lower than the grade of Fore Street. Block 4 is located entirely within the B6 Zone in an area with a maximum height of 45', with sections that allow for 55' and 65' height extensions. The Waterville Street and St. Lawrence Street view corridors both cross the Block 4 building. Block 6 is located partially within the B6 Zone in an area with a maximum height of 45' and an allowance for 55' height extensions, and partially in the R6 zone which allows a maximum height of 45'. The Atlantic Street view corridor is located along the western edge of Block 6.

2.4.5 Housing Preservation & Replacement

During Block 6 construction, two buildings on the acquired Eastern Promenade property will be demolished. The five units in these two buildings are four, 2 bedroom/1 bath units and one, 1 bedroom/1 bath units. These buildings are non-contributing to the Munjoy Hill Historic District (see February 17, 2022 email from Deb Andrews). There are 154 condominiums that will be built as a part of the condominium project on this development block resulting in a net increase of 149 units for Block 6.

2.4.6 Inclusionary Zoning

The project is required to comply with the City of Portland's Inclusionary Zoning requirements that were in effect at the time the site received its Master Development Plan in December 2016. These Inclusionary Zoning requirements will apply to each phase of development. The Planning and Housing and Economic Development departments confirmed in September and October 2022 that these are the appropriate thresholds to consider. The project plans to meet the inclusionary zoning requirements for each block as follows:

- Block 4: This development block will include a total of 247 housing units. A total of 25 units, 10%, will be provided as market rate apartments at 100% Area Median Income (AMI).
- Block 5: This development block will include a total of 43 condominium units and 128 hotel rooms. The Applicant will be paying the fee-in-lieu for these housing units. The Applicant does not have

to comply with the hotel inclusionary zoning requirements – these were put into place after the Master Development Plan was approved in 2016.

- Block 6: This development block will include a total of 154 condominium units. The Applicant will be paying the fee-in-lieu for these units.

We have reached out to the Housing and Economic Development department to confirm what the current adjusted fee will be.

2.5 Floodplain

Portland Foreside has submitted and received approval of two Letters of Map Amendment (LOMA), removing the site's developed area from the floodplain. As a result, a Flood Hazard Permit is not required as part of this project's permit review. A copy of the LOMA documentation is attached.

2.6 Waiver Requests

We are requesting the following waivers as a part of the Site Plan process.

- Driveway Apron Grading – The steepness of the existing Fore Street slope does not allow for the creation of a continuously graded driveway apron without pedestrian ramps, per the current requirements of the Department of Public Works. We are requesting a waiver of this requirement.
- Electric Vehicle Charging – Section 1.17 Electric Vehicle Infrastructure within Section 1 – Transportation Systems of the City of Portland Technical Manual requires new structured parking facilities of five or more spaces to include energized electrical outlets or installed chargers capable of providing Level 2 EV charging or higher to 20% of parking spaces (rounded down to the nearest whole number). Applying that formula to the Phase 2 parking garage would require a total of 129 charging stations. The applicant is currently proposing sixty nine (69) electric vehicle charging station parking spaces within the garage, as follows:

Table 2-6 Phase 2 Electric Vehicle Charging Quantities

Charger Level	EV Charging Spaces	
	Proposed	Future (Additional)
Level 2	61	62
Level 3	8	4
TOTALS	69	66

These stations will meet the projected demand for the residents and visitors to the site. The proposed 69 parking spaces represent 10% of the proposed Phase 2 parking spaces. The applicant is committed to meeting EV charging demand as it grows and will increase the number of EV charging stations within the garage, over time, up to 20%. Given the pace of change in EV charging technology and equipment, it is not advisable to install EV charging stations or other infrastructure beyond the 69 charging station spaces as described above, as the excess will largely go unused until more electrical vehicles are on the road, at which time the technology will have advanced and underutilized charging stations will need to be replaced. The current electrical infrastructure will be sized to accommodate growth (i.e., providing additional space for panels within electrical rooms

and sizing transformers to account for future electrical load). By monitoring and installing in response to demand, the applicant will remain up to date with the rapidly improving technology.

The applicant requests a Waiver from paragraph 1.17 Electric Vehicle Infrastructure within Section 1 – Transportation Systems outlined in the City of Portland Technical Manual.

- Stormwater Flooding Standard – The project site received a waiver of the Flooding Standard as part of the Master Development Plan. This waiver will continue to remain in place for the current phase of work. As described in our Stormwater Management report, our site discharges directly to Casco Bay, part of a tidal body of water, via the outfall discharge.

2.7 Evidence of State and/or Federal Approvals

The following state and federal permits will be required for the proposed work:

- MaineDEP Site Location of Development Act Permit (reviewed by City of Portland under Delegated Review Authority);
- Maine Construction General Permit Notice of Intent; and
- FAA Notice of Proposed Construction.

Copies of these permit approvals can be provided to the City of Portland.

2.8 Evidence of Financial Capability

We have included copies of two letters verifying the Applicant's financial capacity to undertake the project.

2.9 Evidence of Technical Capacity

The project team includes the following partners completing various engineering, landscape architecture, and architecture components of the project work. The project team is also supported by a number of other professional firms providing support with survey, structural design, geotechnical design, mechanical/electrical/plumbing design, and other disciplines. Copies of resumes and information on other members of the project team can be provided upon request.

- **Woodard & Curran (W&C)**, an over 1,000-person Portland-based firm, has provided engineering services to the public and private sector for over 40 years, including permitting, civil/site engineering, stormwater, and construction management services. W&C has completed projects for colleges, universities, and healthcare institutions that build strong, sustainable infrastructure and environmental programs serving both their business needs and the communities that make them so vibrant. With extensive experience in design and permitting for site development projects, W&C has completed many projects within the City of Portland and for the University of Maine System.

- **MBLA** is a professional design firm located in Freeport, Maine. MBLA practices nationally and internationally, and over the past twenty-eight years, the office has collaborated on diverse and notable projects, located in a wide range of settings and climates and across the state of Maine. MBLA projects range in scale and complexity including plazas, courtyards, university building projects, private school facilities, master plans, museums, churches, resorts, parks, and residential

landscape projects. Many of MBLA's design projects have focused on creating places for people to gather while addressing issues of circulation, security, and programming.

- **Perkins+Will** architects is a firm consisting of twenty-four domestic and international offices with a depth of technical and management skill employed to execute projects of great complexity. Perkins+Will maintains a full-time QA/QC leader in each office to provide ongoing quality assurance for projects. These experts are guided by a national project delivery system that has resulted from the best practices from around the firm.

- **MARVEL** is a design firm with over 20 years of experience working at the intersection of public and private space, creating intentionally timeless design solutions that integrate nature and context. Their portfolio spans affordable housing, commercial, cultural institutions, schools and higher education, civic and public works, hospitality, high-end residential, recreational projects, workspaces, and parks and public spaces.

- **Baskervill**, founded in 1897, is one of the nation's oldest continually operating architectural firms. With five offices along the east coast of the United States, and internationally, Baskervill is a multi-disciplinary design firms with a mix of services from architecture and interior design to MEP engineering and sustainable design.

2.10 Attachments

- Agent Letter
- Location Map
- Tax Map
- FEMA Map and LOMA Documentation
- Financial Capacity Letter

2.11 Construction Management Plan (uploaded to Construction Management Plan folder in Eplan)

A draft Construction Management Plan has been prepared for the proposed development. The Contractor will be required to provide adequate safety fencing and signage directing pedestrians safely around the construction area. It should be noted that the constructability of future phases of development has been considered. The proposed development has been designed such that it will not prevent the construction of future phases of the site's Master Development Plan.

2.12 Forms (uploaded separately to Documents folder in Eplan)

- Application Checklist
- Zoning Assessment Table
- Waiver Table

2.13 Drawings (uploaded separately to Drawings folder in Eplan)

- Boundary & Topographic Surveys, prepared by Owen Haskell, Inc.
- Civil, Landscape, & Architecture Design Plans
- Subdivision Plan

FORESIDE
PORTLAND, MAINE
254 Commercial Street, Suite 118, Portland, Maine 04101

July 21, 2022

RE: Agent Authorization

To Whom It May Concern:

Woodard & Curran will be acting as the agent on behalf of PF Marina LLC and PF Land LLC for all local, state, and federal permitting associated with the projects located on or adjacent to the properties at 58 Fore Street / 110 Thames Street / 115 Thames Street / 1 Marina Way in Portland, Maine.

Please contact me if you have any questions, 207.517.1102.

Sincerely,



David Senus

Director of Planning and Design

U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

The National Map US Topo

PORTLAND EAST QUADRANGLE
MAINE - CUMBERLAND COUNTY
7.5-MINUTE SERIES



Produced by the United States Geological Survey
North American Datum of 1983 (NAD83)
World Geodetic System of 1984 (WGS84). Projection and
1 000-meter grid:Universal Transverse Mercator, Zone 19T

This map is not a legal document. Boundaries may be generalized for this map scale. Private lands within government reservations may not be shown. Obtain permission before entering private lands.

Imagery.....NAIP, July 2015 - November 2015
Roads.....U.S. Census Bureau, 2017
Names.....GNIS, 1980 - 2017
Hydrography.....National Hydrography Dataset, 2003 - 2016
Contours.....National Elevation Dataset, 2005 - 2012
Boundaries.....Multiple sources; see metadata file 2014 - 2016

Wetlands.....FWS National Wetlands Inventory 2001 - 2004

MN
GN
15°23′
273 MILS
0°49′
15 MILS
UTM GRID AND 2017 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

U.S. National Grid
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CJ
DJ
Grid Zone Designation
19T

SCALE 1:24 000

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MILES
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FEET

CONTOUR INTERVAL 20 FEET
NORTH AMERICAN VERTICAL DATUM OF 1988

This map was produced to conform with the National Geospatial Program US Topo Product Standard, 2011.
A metadata file associated with this product is draft version 0.6.18

MAINE
QUADRANGLE LOCATION

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4 5
6 7
ADJOINING QUADRANGLES

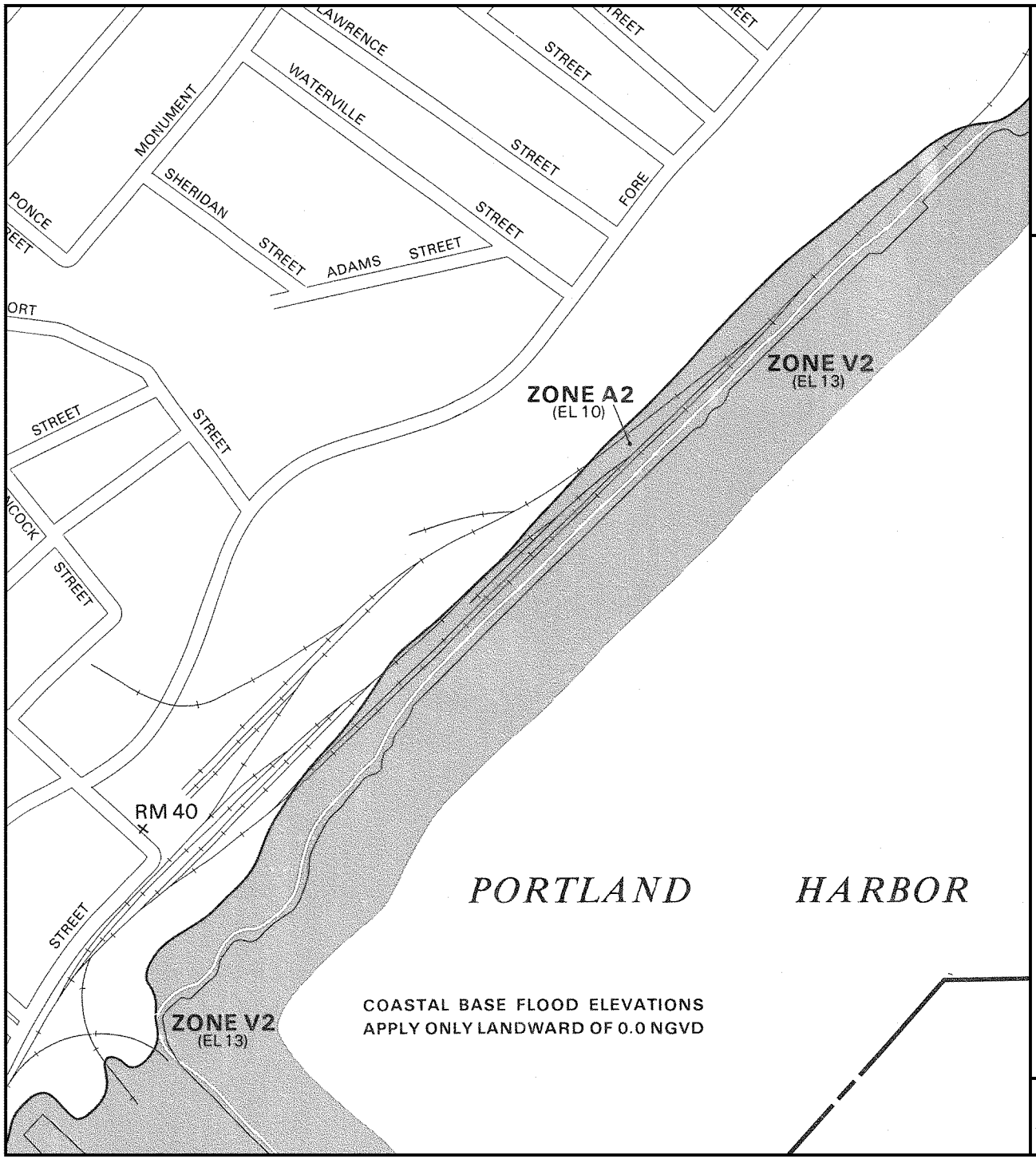
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2 Yarmouth
3 Freeport
4 Portland West
5 South Harpswell
6 Prouts Neck
7 Cape Elizabeth

ROAD CLASSIFICATION
Expressway
Secondary Hwy
Ramp
Local Connector
Local Road
4WD
Interstate Route
US Route
State Route

PORTLAND EAST, ME
2018

76430163704O9
NSN.
NGA REF NO. USGSX24K36119


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46,597 Sq. Ft
018 A007
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018 A002
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018 A005
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017 E028
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017 E032
017 E033
017 E036
017 E034
017 E035
017 E037
017 E038
017 E042
017 E041
017 E015
017 E016
017 F028
1,376 Sq. Ft
017 F001
7,310 Sq. Ft
017 F002
017 F003
017 F017
017 F018
017 F019
017 F020
017 F021
017 F022
017 F023
017 F024
017 F025
017 F026
017 F027
017 F015
017 F016
017 F013
2,952 Sq. Ft
017 F014
3,419 Sq. Ft
017 F029
5,405 Sq. Ft
017 F005
27 Sq. Ft
1,600 Sq. Ft
016 H003
016 H005
016 H007
016 H006
016 H012
016 H013
016 H009
016 H010
016 I001
016 I002
016 I003
016 I004
016 I006
016 I007
016 I008
016 J001
016 J002
016 J014
016 J015
016 J033
016 J016
016 J017
016 J065
016 J020
016 J021
016 J022
016 J023
016 J024
016 J025
016 J026
016 J007
016 J008
016 J009
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016 J013
016 E019
016 E020
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016 F001
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016 F020
016 F022
016 F023
016 F024
016 C017
016 C018
016 C019
016 C020
016 C021
016 C022
016 C009
016 C010
016 C012
016 C013
016 C023
003 O013
003 O012
003 O014
003 O007
ADAMS ST
MUNJOY SOUTH
FORE ST
WATERVILLE ST
KELLOGG ST
SHERBROOKE ST
ST LAWRENCE ST
MONUMENT ST
MUNJOY ST
EASTERN PROM
EASTERN PROM TRAIL
JOHN POOR XING
THAMES ST
RAIL YARD PLZ
BRASS KEY
BOILER PSGE
FREEDOM WAY
COUNTFORT ST
Amethyst Park
Fort Allen Park



This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov



CASCO BAY / FORE RIVER

Area to be Removed from Flood Zone AE

A CERTAIN LOT OR PARCEL OF LAND ON THE SOUTHERLY SIDE OF, BUT NOT ADJACENT TO FORE STREET IN THE CITY OF PORTLAND, COUNTY OF CUMBERLAND AND STATE OF MAINE BOUNDED AND DESCRIBED AS FOLLOWS:

BEGINNING ON THE NORTHERLY LINE OF LAND NOW OR FORMERLY OF STATE OF MAINE AS DESCRIBED IN DEED BOOK 10924, PAGE 91 AT THE SOUTHWESTERLY CORNER OF LAND NOW OR FORMERLY OF PORTLAND HOUSE CONDOMINIUM AS SHOWN ON PLAN BOOK 142, PAGE 50;

THENCE, S 47°33'49" W ALONG THE NORTHELRY LINE OF SAID STATE OF MAINE 685.00 FEET;

THENCE, S 52°46'49" W CONTINUING ALONG THE NORTHELRY LINE OF STATE OF MAINE 272.75 FEET TO THE NORTHERLY LIMIT OF FLOOD ZONE A2 (EL 10) AS SCALED FROM FEMA FLOOD INSURANCE RATE MAP NO. 230051-0014B;

THENCE, THE FOLLOWING COURSES AND DISTANCES ALONG THE NORTHERLY LIMIT OF SAID FLOOD ZONE A2:

N 18°22'51" E A DISTANCE OF 26.60 FEET;
N 48°05'42" E A DISTANCE OF 204.67 FEET;
N 50°41'38" E A DISTANCE OF 184.50 FEET;
N 45°09'56" E A DISTANCE OF 136.93 FEET;
N 47°53'09" E A DISTANCE OF 144.17 FEET;
N 39°47'45" E A DISTANCE OF 121.02 FEET;
N 60°27'17" E A DISTANCE OF 116.02 FEET;
N 44°32'44" E A DISTANCE OF 28.73 FEET TO THE WESTERLY LINE OF LAND OF SAID PORTLAND HOUSE CONDOMINIUM;

THENCE, S 47°03'07" E ALONG PORTLAND HOUSE CONDOMINIUM 22.78 FEET TO THE POINT OF BEGINNING, CONTAINING 28,157 S.F. OR 0.65 ACRES, MORE OR LESS.

Utility Note

THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. THE SURVEYOR MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES. CALL 1-888-DIGSAFE AT LEAST THREE BUSINESS DAYS BEFORE PERFORMING ANY CONSTRUCTION. DUE TO OSHA CONFINED SPACE REQUIREMENTS, ALL INVERTS AND PIPE SIZES MUST BE VERIFIED PRIOR TO ANY CONSTRUCTION.

Plan References

1. *LAND TITLE SURVEY & SUBDIVISION PLAN IN PORTLAND, MAINE U.S.A. MADE FOR THE TRUST FOR PUBLIC LAND, THE CITY OF PORTLAND, THE MAINE DEPARTMENT OF TRANSPORTATION, THE CANADIAN NATIONAL RAILWAY COMPANY DATED FEB. 19, 1993, REV. 9 11/04/96 BY OWEN HASKELL, INC. AND RECORDED IN PLAN BOOK 193, PAGE 187.*

2. *RECORDING PLAT OCEAN GATEWAY MADE FOR THE CITY OF PORTLAND AND STATE OF MAINE, BY OWEN HASKELL, INC, DATED AUGUST 4, 2004, RECORDED IN PLAN BOOK 204, PAGE 622-624*

3. *BOUNDARY & TOPOGRAPHY SURVEY AT 58 FORE STREET, PORTLAND, MAINE MADE FOR WOODARD & CURRAN BY OWEN HASKELL, INC. AUGUST 29, 2016, REVISED THROUGH FEB. 2019.*

4. *EXHIBIT PLAN PARCELS TO BE CONVEYED 58 FORE STREET, PORTLAND, MAINE MADE FOR WOODARD & CURRAN BY OWEN HASKELL, INC. DATED MARCH 21, 2018.*

5. *TOPOGRAPHIC SURVEY 100 FORE STREET MADE FOR JONATHAN COHEN BY OWEN HASKELL, INC DATED DECEMBER 4, 2017 REVISED THROUGH 12/17/18.*

6. *AMENDED SUBDIVISION PLAN, OCEAN GATEWAY, COMMERCIAL STREET, THAMES STREET & FORE STREET, PORTLAND, MAINE MADE FOR OWNER OF RECORD CITY OF PORTLAND JULY 17, 2019 BY OWEN HASKELL.*

7. *SUBDIVISION PLAT PORTLAND FORESIDE THAMES STREET & FORE STREET PORTLAND, MAINE MADE FOR OWNER OF RECORD CPB2 I LLC, BY OWEN HASKELL, INC. DATED FEB. 13, 2020, RECORDED IN PLAN BOOK 220, PAGE 65.*

Flood Zone Note

BY GRAPHIC PLOTTING ONLY, THIS PROPERTY IS LOCATED IN ZONE C, AREAS OF MINIMUM FLOODING, ON THE FLOOD INSURANCE RATE MAP, COMMUNITY PANEL NO. 230051-0014B, WHICH BEARS AN EFFECTIVE DATE OF JULY 17, 1986. THE FEMA FIRM ZONE A2 FLOOD LINE IS DEMARKED ON THE PLAN BY THE ELEVATION 10 CONTOUR. ALL POINTS NORTH OF THIS CONTOUR ON THE SUBJECT PROPERTY EXCEEDS THIS ELEVATION AND THEREFORE FALL OUTSIDE OF THE A2 ZONE.

General Notes

1. OWNER OF RECORD: CPB2 I LLC, C.C.R.D. BOOK 31425 PAGE 267, BOOK 30879 PAGE 75, BOOK 35264, PAGE 286. SEE AFFIDAVIT RECORDED IN BOOK 34737 PAGE 327 FOR NAME CHANGE & CPB2 I LLC BOOK 35576 PAGE 153

2. PARCEL IS MADE UP OF LOTS A3, A1, PART OF A2 & PART OF A13 ON TAX MAP 18 AND LOT A3 & A16 ON TAX MAP 19 AS SHOWN ON THE OFFICIAL CITY OF PORTLAND TAX ASSESSORS MAPS.

3. BEARINGS ARE BASED ON MAINE STATE PLANE COORDINATES WEST ZONE NAD83. CITY POINTS: T-113-80-206 N:302687.77 E:2932345.31
T-113-12-111 N:302722.13 E:2933029.45

4. BENCH MARK: NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION (NOAA) - TIDAL BENCHMARK. BENCH MARK STAMPING: NO. 3 1971 ELEVATION 11.02 FEET NGVD 29 DATUM.

EXISTING CONDITIONS SURVEY

58 Fore Street
Portland, Cumberland County, Maine
Made For
PF One Devco LLC & PF Land LLC

Surveyor's Certification

OWEN HASKELL, INC. HEREBY CERTIFIES THAT THIS PLAN IS BASED ON, AND THE RESULT OF, AN ON THE GROUND FIELD SURVEY AND THAT TO THE BEST OF OUR KNOWLEDGE, INFORMATION AND BELIEF, IT CONFORMS TO THE BOARD OF LICENSURE FOR PROFESSIONAL LAND SURVEYORS CURRENT STANDARDS OF PRACTICE.

RANDY R. LOUBIER
PROFESSIONAL LAND SURVEYOR NO. 2407

DATE OF PLAT OR MAP: NOVEMBER 5, 2020
REVISED THROUGH: NOVEMBER 17, 2020

STATE OF MAINE · RANDY R. LOUBIER 2407 · PROFESSIONAL LAND SURVEYOR

OWEN HASKELL, INC.
PROFESSIONAL LAND SURVEYORS
390 U.S. ROUTE ONE, UNIT 10, FALMOUTH, MAINE 04105
Tel. (207) 774-0424 www.owenhaskell.com rloubier@owenhaskell.com

DRAWN BY: RRL / JLW	FIELD BOOK: FILE	JOB NO.	2019-013 P
CHECKED BY: RRL/SDG	SCALE: 1" = 50'	DRWG. #	LOMA

Federal Emergency Management Agency
Washington, D.C. 20472

MR. RANDY LOUBIER
OWEN HASKELL
390 U.S. ROUTE 1 UNIT 10
FALMOUTH, ME 04105

CASE NO.: 21-01-0177A
COMMUNITY: CITY OF PORTLAND,
CUMBERLAND COUNTY, MAINE
COMMUNITY NO.: 230051

DEAR MR. LOUBIER:

This is in reference to a request that the Federal Emergency Management Agency (FEMA) determine if the property described in the enclosed document is located within an identified Special Flood Hazard Area, the area that would be inundated by the flood having a 1-percent chance of being equaled or exceeded in any given year (base flood), on the effective National Flood Insurance Program (NFIP) map. Using the information submitted and the effective NFIP map, our determination is shown on the attached Letter of Map Amendment (LOMA) Determination Document. This determination document provides additional information regarding the effective NFIP map, the legal description of the property and our determination.

Additional documents are enclosed which provide information regarding the subject property and LOMAs. Please see the List of Enclosures below to determine which documents are enclosed. Other attachments specific to this request may be included as referenced in the Determination/Comment document. If you have any questions about this letter or any of the enclosures, please contact the FEMA Map Assistance Center toll free at (877) 336-2627 (877-FEMA MAP) or by letter addressed to the Federal Emergency Management Agency, Attn: North Wind Resource Partners (NWRP) eLOMA Coordinator, NWRP eLOMA Coordinator, 3601 Eisenhower Ave., Alexandria, VA 22304-6439, Fax: 703-751-7415.

Sincerely,

Luis V. Rodriguez, P.E., Director
Engineering and Modeling Division
Federal Insurance and Mitigation Administration

LIST OF ENCLOSURES:
LOMA DETERMINATION DOCUMENT (REMOVAL)

cc: State/Commonwealth NFIP Coordinator
Community Map Repository
Region

Federal Emergency Management Agency

Washington, D.C. 20472

LETTER OF MAP AMENDMENT
DETERMINATION DOCUMENT (REMOVAL)

COMMUNITY AND MAP PANEL INFORMATION		LEGAL PROPERTY DESCRIPTION
COMMUNITY	CITY OF PORTLAND, CUMBERLAND COUNTY, MAINE	A parcel of land, as described in the Quitclaim Deed with Covenant recorded as Document No. 13675 in Book 31425, Pages 267, 268, and 269; and in the Trustee's Deed recorded as Document No. 45157 in Book 30879, Pages 75 through 79; both deeds in the Office of the Register of Deeds, Cumberland County, Maine
	COMMUNITY NO: 230051	
AFFECTED MAP PANEL	NUMBER: 2300510014B	The portion of property is more particularly described by the following metes and bounds:
	DATE: 7/17/1986	
FLOODING SOURCE: PORTLAND HARBOR; CASCO BAY		APPROXIMATE LATITUDE & LONGITUDE OF PROPERTY: 43.662943, -70.242677 SOURCE OF LAT & LONG: GPS DATUM: NAD 83

DETERMINATION

LOT	BLOCK/ SECTION	SUBDIVISION	STREET	OUTCOME WHAT IS REMOVED FROM THE SFHA	FLOOD ZONE	1% ANNUAL CHANCE FLOOD ELEVATION (NGVD 29)	LOWEST ADJACENT GRADE ELEVATION (NGVD 29)	LOWEST LOT ELEVATION (NGVD 29)
--	--	--	58 Fore Street	Portion of Property	C	--	--	12.0 feet

Special Flood Hazard Area (SFHA) - The SFHA is an area that would be inundated by the flood having a 1-percent chance of being equaled or exceeded in any given year (base flood).

ADDITIONAL CONSIDERATIONS (Please refer to the appropriate section on Attachment 1 for the additional considerations listed below.)

LEGAL PROPERTY DESCRIPTION
PORTIONS REMAIN IN THE SFHA/FLOODWAY
eLOMA DETERMINATION

This document provides the Federal Emergency Management Agency's determination regarding a request for a Letter of Map Amendment for the property described above. Using the information submitted and the effective National Flood Insurance Program (NFIP) map, we have determined that the described portion(s) of the property(ies) is/are not located in the SFHA, an area inundated by the flood having a 1-percent chance of being equaled or exceeded in any given year (base flood). This document amends the effective NFIP map to remove the subject property from the SFHA located on the effective NFIP map; therefore, the Federal mandatory flood insurance requirement does not apply. However, the lender has the option to continue the flood insurance requirement to protect its financial risk on the loan. A Preferred Risk Policy (PRP) is available for buildings located outside the SFHA. Information about the PRP and how one can apply is enclosed.

This determination is based on the flood data presently available. If there are any errors on this eLOMA Determination Letter that cause FEMA to rescind and/or nullify the determination the property owner should consult the Licensed Professional that submitted this eLOMA. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Assistance Center toll free at (877) 336-2627 (877-FEMA MAP) or by letter addressed to the Federal Emergency Management Agency, Attn: North Wind Resource Partners (NWRP) eLOMA Coordinator, 3601 Eisenhower Avenue, Alexandria, VA 22304-4605, Fax: 703-751-7415.

Luis V. Rodriguez, P.E., Director
Engineering and Modeling Division
Federal Insurance and Mitigation Administration

eLOMA

Federal Emergency Management Agency

Washington, D.C. 20472

LETTER OF MAP AMENDMENT
DETERMINATION DOCUMENT (REMOVAL)

ATTACHMENT 1 (ADDITIONAL CONSIDERATIONS)

LEGAL PROPERTY DESCRIPTION (CONTINUED)

BEGINNING ON THE NORTHERLY LINE OF LAND NOW OR FORMERLY OF STATE OF MAINE AS DESCRIBED IN DEED BOOK 10924, PAGE 91 AT THE SOUTHWESTERLY CORNER OF LAND NOW OR FORMERLY OF PORTLAND HOUSE CONDOMINIUM AS SHOWN ON PLAN BOOK 142, PAGE 50; THENCE S47°33'49"W, ALONG THE NORTHERLY LINE OF SAID STATE OF MAINE 685.00 FEET; THENCE S52°46'49"W, CONTINUING ALONG THE NORTHERLY LINE OF STATE OF MAINE 272.75 FEET; THENCE N18°22'51"E, A DISTANCE OF 26.60 FEET; THENCE N48°05'42"E, A DISTANCE OF 204.67 FEET; THENCE N50°41'38"E, A DISTANCE OF 184.50 FEET; THENCE N45°09'56"E, A DISTANCE OF 136.93 FEET; THENCE N47°53'09"E, A DISTANCE OF 144.17 FEET; THENCE N39°47'45"E, A DISTANCE OF 121.02 FEET; THENCE N60°27'17"E, A DISTANCE OF 116.02 FEET; THENCE N44°32'44"E, A DISTANCE OF 28.73 FEET TO THE WESTERLY LINE OF LAND OF SAID PORTLAND HOUSE CONDOMINIUM; THENCE S47°03'07"E, ALONG PORTLAND HOUSE CONDOMINIUM 22.78 FEET TO THE POINT OF BEGINNING.

This attachment provides additional information regarding this request. If you have any questions about this attachment, please contact the FEMA Map Assistance Center toll free at (877) 336-2627 (877-FEMA MAP) or by letter addressed to the Federal Emergency Management Agency, Attn: North Wind Resource Partners (NWRP) eLOMA Coordinator, NWRP eLOMA Coordinator, 3601 Eisenhower Ave., Alexandria, VA 22304-6439, Fax: 703-751-7415

Luis V. Rodriguez, P.E., Director
Engineering and Modeling Division
Federal Insurance and Mitigation Administration

Federal Emergency Management Agency

Washington, D.C. 20472

LETTER OF MAP AMENDMENT
DETERMINATION DOCUMENT (REMOVAL)

ATTACHMENT 1 (ADDITIONAL CONSIDERATIONS)

Portion of Property Removal:

The following considerations may or may not apply to the determination for your Portion of Property:

PORTIONS OF THE PROPERTY REMAIN IN THE SFHA and/or FLOODWAY - Portions of this property, but not the subject of the Determination document, may remain in the Special Flood Hazard Area (SFHA) and/or the regulatory floodway for the flooding source indicated on the Determination Document. The NFIP regulatory floodway is the area that must remain unobstructed in order to prevent unacceptable increases in base flood elevations. Therefore, no construction may take place in an NFIP regulatory floodway that may cause an increase in the base flood elevation. Therefore, any future construction or substantial improvement on the property remains subject to Federal, State/Commonwealth, and local regulations for floodplain management. The NFIP regulatory floodway is provided to the community as a tool to regulate floodplain development. Modifications to the NFIP regulatory floodway must be accepted by both the Federal Emergency Management Agency (FEMA) and the community involved. Appropriate community actions are defined in Paragraph 60.3(d) of the NFIP regulations. Any proposed revision to the NFIP regulatory floodway must be submitted to FEMA by community officials. The community should contact either the Regional Director (for those communities in Regions I-IV, and VI-X), or the Regional Engineer (for those communities in Region V) for guidance on the data which must be submitted for a revision to the NFIP regulatory floodway. Contact information for each regional office can be obtained by calling the FEMA Map Assistance Center toll free at (877) 336-2627 (877-FEMA MAP) or from our web site at https://www.fema.gov/regional-contact-information

STUDY UNDERWAY - This determination is based on the flood data presently available. However, the Federal Emergency Management Agency may be currently revising the National Flood Insurance Program (NFIP) map for the community. New flood data could be generated that may affect this property. If a new NFIP map is issued it will supersede this determination. The Federal requirement for the purchase of flood insurance will then be based on the newly revised NFIP map.

EXTRATERRITORIAL JURISDICTION - The subject of the determination is shown on the National Flood Insurance Program map and may be located in an Extraterritorial Jurisdiction area for the community indicated on the Determination Document.

This attachment provides additional information regarding this request. If you have any questions about this attachment, please contact the FEMA Map Assistance Center toll free at (877) 336-2627 (877-FEMA MAP) or by letter addressed to the Federal Emergency Management Agency, Attn: North Wind Resource Partners (NWRP) eLOMA Coordinator, NWRP eLOMA Coordinator, 3601 Eisenhower Ave., Alexandria, VA 22304-6439, Fax: 703-751-7415

Luis V. Rodriguez, P.E., Director
Engineering and Modeling Division
Federal Insurance and Mitigation Administration

Federal Emergency Management Agency

Washington, D.C. 20472

LETTER OF MAP AMENDMENT
DETERMINATION DOCUMENT (REMOVAL)

ATTACHMENT 1 (ADDITIONAL CONSIDERATIONS)

GREAT LAKES - The Federal Emergency Management Agency (FEMA) has based this determination on elevation data which is published in the current Flood Insurance Study for the community. However, the elevations established in the U.S. Army Corps of Engineers (USACE) reports on the Great Lakes are the best available data known to us. If in the future there are any subsequent map revisions to the National Flood Insurance Program map and the USACE reports remain the best available data known, FEMA will use those elevations for any such revisions. Further, be advised that the elevations on the Flood Insurance Rate Map (FIRM) may only reflect the Stillwater elevation for the lake and may not account for the effects of wind driven waves or wave run-up. On-site conditions such as wind speed, wind direction, fetch distance, water depth and the slope of the beach or bluff may result in significant increases to the base flood elevation. Therefore, it is strongly recommended that the requestor be aware of these circumstances and, if warranted, evaluate the effects of wind driven waves along the shoreline of the property.

STATE AND LOCAL CONSIDERATIONS - Please note that this document does not override or supersede any State or local procedural or substantive provisions which may apply to floodplain management requirements associated with amendments to State or local floodplain zoning ordinances, maps, or State or local procedures adopted under the National Flood Insurance Program.

COASTAL BARRIER RESOURCE SYSTEM - Based upon information provided to FEMA by the U.S. Fish and Wildlife Service (USFWS), the subject property may be within a System Unit or an Otherwise Protected Area (OPA) of the John H. Chafee Coastal Barrier Resource System (CBRS). Federal flood insurance is generally not available within the CBRS for new construction or substantial improvements occurring after the flood insurance prohibition date (which is generally tied to the date that the area was first established as either a System Unit or OPA, but may differ in some cases). Other federal expenditures and financial assistance (including certain types of disaster assistance) are also restricted within System Units of the CBRS. The USFWS is the authoritative source for information regarding the CBRS. Additional information, including the CBRS Mapper, can be found on the USFWS website at: https://www.fws.gov/cbra.

This attachment provides additional information regarding this request. If you have any questions about this attachment, please contact the FEMA Map Assistance Center toll free at (877) 336-2627 (877-FEMA MAP) or by letter addressed to the Federal Emergency Management Agency, Attn: North Wind Resource Partners (NWRP) eLOMA Coordinator, NWRP eLOMA Coordinator, 3601 Eisenhower Ave., Alexandria, VA 22304-6439, Fax: 703-751-7415

Luis V. Rodriguez, P.E., Director
Engineering and Modeling Division
Federal Insurance and Mitigation Administration

Federal Emergency Management Agency

Washington, D.C. 20472

ADDITIONAL INFORMATION REGARDING LETTERS OF MAP AMENDMENT

When making determinations on requests for Letters of Map Amendment (LOMAs), the Department of Homeland Security's Federal Emergency Management Agency (FEMA) bases its determination on the flood hazard information available at the time of the determination. Requesters should be aware that flood conditions may change or new information may be generated that would supersede FEMA's determination. In such cases, the community will be informed by letter.

Requesters also should be aware that removal of a property (parcel of land or structure) from the Special Flood Hazard Area (SFHA) means FEMA has determined the property is not subject to inundation by the flood having a 1-percent chance of being equaled or exceeded in any given year (base flood). This does not mean the property is not subject to other flood hazards. The property could be inundated by a flood with a magnitude greater than the base flood or by localized flooding not shown on the effective National Flood Insurance Program (NFIP) map.

The effect of a LOMA is it removes the Federal requirement for the lender to require flood insurance coverage for the property described. The LOMA *is not* a waiver of the condition that the property owner maintain flood insurance coverage for the property. *Only* the lender can waive the flood insurance purchase requirement because the lender imposed the requirement. *The property owner must request and receive a written waiver from the lender before canceling the policy*. The lender may determine, on its own as a business decision that it wishes to continue the flood insurance requirement to protect its financial risk on the loan.

The LOMA provides FEMA's comment on the mandatory flood insurance requirements of the NFIP as they apply to a particular property. A LOMA is not a building permit, nor should it be construed as such. Any development, new construction, or substantial improvement of a property impacted by a LOMA must comply with all applicable State and local criteria and other Federal criteria.

If a lender releases a property owner from the flood insurance requirement, and the property owner decides to cancel the policy and seek a refund, the NFIP will refund the premium paid for the current policy year, provided that no claim is pending or has been paid on the policy during the current policy year. The property owner must provide a written waiver of the insurance requirement from the lender to the property insurance agent or company servicing his or her policy. The agent or company will then process the refund request.

Even though structures are not located in an SFHA, as mentioned above, they could be flooded by a flooding event with a greater magnitude than the base flood. In fact, more than 25 percent of all claims paid by the NFIP are for policies for structures located outside the SFHA in Zones B, C, X (shaded), or X (unshaded). More than one-fourth of all policies purchased under the NFIP protect structures located in these zones. The risk to structures located outside SFHAs is just not as great as the risk to structures located in SFHAs. Finally, approximately 90 percent of all federally declared disasters are caused by flooding, and homeowners insurance does not provide financial protection from this flooding. Therefore, FEMA encourages the widest possible coverage under the NFIP.

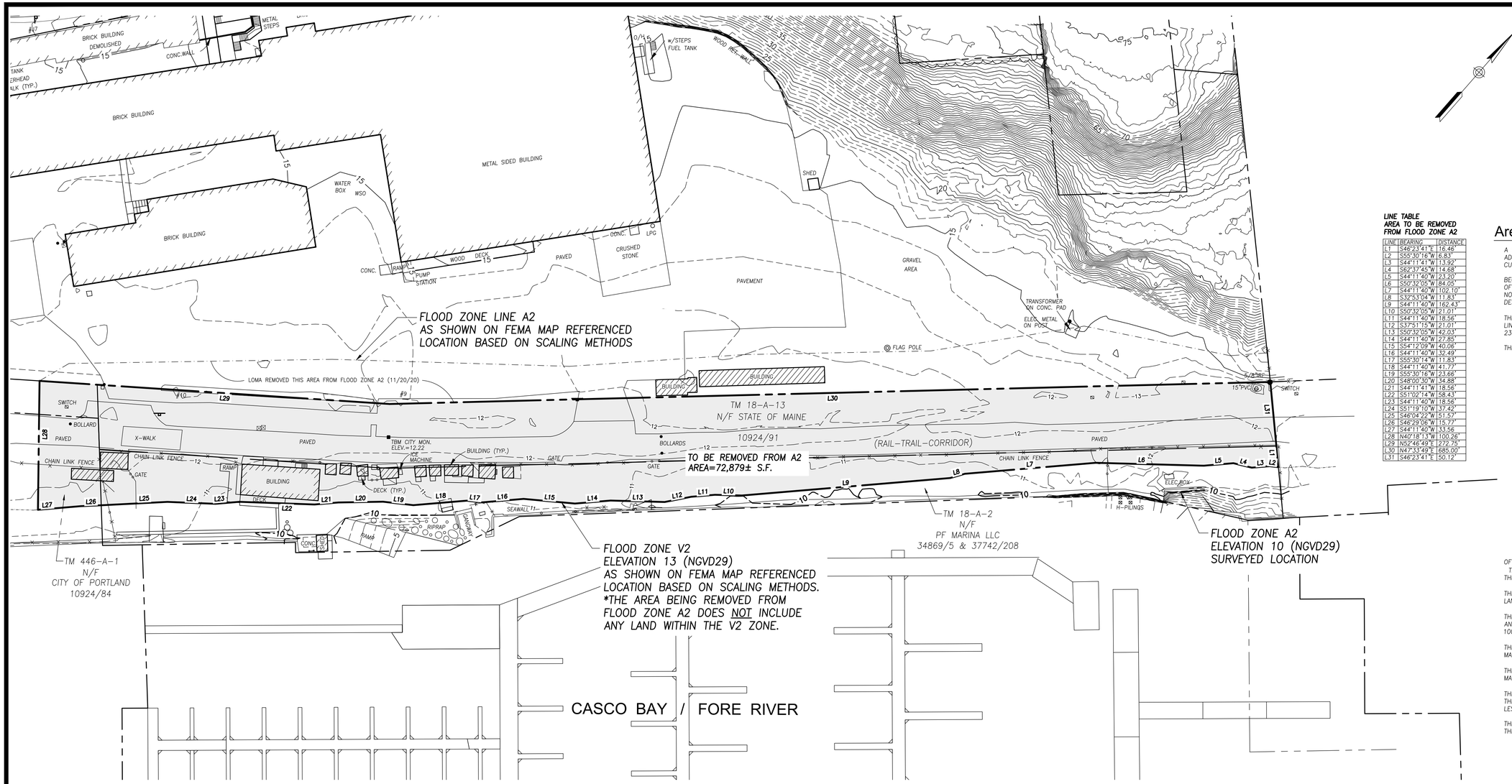
The NFIP offers two types of flood insurance policies to property owners: the low-cost Preferred Risk Policy (PRP) and the Standard Flood Insurance Policy (SFIP). The PRP is available for 1- to 4-family residential structures located outside the SFHA with little or no loss history. The PRP is available for townhouse/rowhouse-type structures, but is not available for other types of condominium units. The SFIP is available for all other structures. Additional information on the PRP and how a property owner can quality for this type of policy may be obtained by calling the Flood Insurance Information Hotline, toll free, at 1-800-427-4661. Before making a final decision about flood insurance coverage, FEMA strongly encourages property owners to discuss their individual flood risk situations and insurance needs with an insurance agent or company.

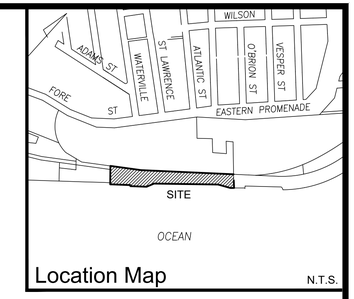
FEMA has established "Grandfather" rules to benefit flood insurance policyholders who have maintained continuous coverage. Property owners may wish to note also that, if they live outside but on the fringe of the SFHA shown on an effective NFIP map and the map is revised to expand the SFHA to include their structure(s), their flood insurance policy rates will not increase as long as the coverage for the affected structure(s) has been continuous. Property owners would continue to receive the lower insurance policy rates.

LOMAs are based on minimum criteria established by the NFIP. State, county, and community officials, based on knowledge of local conditions and in the interest of safety, may set higher standards for construction in the SFHA. If a State, county, or community has adopted more restrictive and comprehensive floodplain management criteria, these criteria take precedence over the minimum Federal criteria.

In accordance with regulations adopted by the community when it made application to join the NFIP, letters issued to amend an NFIP map must be attached to the community's official record copy of the map. That map is available for public inspection at the community's official map repository. Therefore, FEMA sends copies of all such letters to the affected community's official map repository.

When a restudy is undertaken, or when a sufficient number of revisions or amendments occur on particular map panels, FEMA initiates the printing and distribution process for the affected panels. FEMA notifies community officials in writing when affected map panels are being physically revised and distributed. In such cases, FEMA attempts to reflect the results of the LOMA on the new map panel. If the results of particular LOMAs cannot be reflected on the new map panel because of scale limitations, FEMA notifies the community in writing and revalidates the LOMAs in that letter. LOMAs revalidated in this way usually will become effective 1 day after the effective date of the revised map.





LINE TABLE
AREA TO BE REMOVED FROM FLOOD ZONE A2

LINE	BEARING	DISTANCE
L1	S46°23'41"E	16.46'
L2	S55°30'16"W	6.83'
L3	S44°11'41"W	13.92'
L4	S62°37'45"W	14.68'
L5	S44°11'40"W	23.20'
L6	S50°32'05"W	84.05'
L7	S44°11'40"W	102.10'
L8	S32°53'04"W	11.83'
L9	S44°11'40"W	162.43'
L10	S50°32'05"W	21.01'
L11	S44°11'40"W	18.56'
L12	S37°51'15"W	21.01'
L13	S50°32'05"W	42.03'
L14	S44°11'40"W	27.85'
L15	S54°12'09"W	40.06'
L16	S44°11'40"W	32.49'
L17	S55°30'14"W	11.83'
L18	S44°11'40"W	41.77'
L19	S55°30'16"W	23.66'
L20	S48°00'30"W	34.88'
L21	S44°11'41"W	18.56'
L22	S51°02'14"W	58.43'
L23	S44°11'40"W	18.56'
L24	S51°19'10"W	37.42'
L25	S46°04'22"W	51.57'
L26	S46°29'06"W	15.77'
L27	S44°11'40"W	33.56'
L28	N40°18'13"W	100.26'
L29	N52°46'49"E	272.75'
L30	N47°33'49"E	685.00'
L31	S46°23'41"E	50.12'

Area to be Removed from Flood Zone A2

A CERTAIN LOT OR PARCEL OF LAND ON THE SOUTHERLY SIDE OF, BUT NOT ADJACENT TO FORE STREET IN THE CITY OF PORTLAND, COUNTY OF CUMBERLAND AND STATE OF MAINE BOUNDED AND DESCRIBED AS FOLLOWS:

BEGINNING ON THE SOUTHERLY LINE OF LAND NOW OR FORMERLY OF STATE OF MAINE AS DESCRIBED IN DEED BOOK 10924, PAGE 91 AT THE NORTHWESTERLY CORNER OF LAND NOW OR FORMERLY OF PF MARINA, LLC AS DESCRIBED IN DEED BOOK 37742, PAGE 208;

THENCE, S 46°23'41" E A DISTANCE OF 16.46 FEET TO THE V2 FLOOD ZONE LINE AS SHOWN ON THE FLOOD INSURANCE RATE MAP, COMMUNITY PANEL NO. 230051-0014B;

THENCE, THE FOLLOWING COURSES AND DISTANCES ALONG SAID V2 ZONE:

S 55°30'16" W A DISTANCE OF 6.83 FEET;
S 44°11'41" W A DISTANCE OF 13.92 FEET;
S 62°37'45" W A DISTANCE OF 14.68 FEET;
S 44°11'40" W A DISTANCE OF 23.20 FEET;
S 50°32'05" W A DISTANCE OF 84.05 FEET;
S 44°11'40" W A DISTANCE OF 102.10 FEET;
S 32°53'04" W A DISTANCE OF 11.83 FEET;
S 44°11'40" W A DISTANCE OF 162.43 FEET;
S 50°32'05" W A DISTANCE OF 21.01 FEET;
S 44°11'40" W A DISTANCE OF 18.56 FEET;
S 37°51'15" W A DISTANCE OF 21.01 FEET;
S 50°32'05" W A DISTANCE OF 42.03 FEET;
S 44°11'40" W A DISTANCE OF 27.85 FEET;
S 54°12'09" W A DISTANCE OF 40.06 FEET;
S 44°11'40" W A DISTANCE OF 32.49 FEET;
S 55°30'14" W A DISTANCE OF 11.83 FEET;
S 44°11'40" W A DISTANCE OF 41.77 FEET;
S 55°30'16" W A DISTANCE OF 23.66 FEET;
S 48°00'30" W A DISTANCE OF 34.88 FEET;
S 44°11'41" W A DISTANCE OF 18.56 FEET;
S 51°02'14" W A DISTANCE OF 58.43 FEET;
S 44°11'40" W A DISTANCE OF 18.56 FEET;
S 51°19'10" W A DISTANCE OF 37.42 FEET;
S 46°04'22" W A DISTANCE OF 51.57 FEET TO LAND NOW OR FORMERLY OF CITY OF PORTLAND AS DESCRIBED IN DEED BOOK 10924, PAGE 84;
THENCE, S 46°29'06" W CONTINUING ALONG THE SAID V2 ZONE AND THROUGH LAND OF SAID CITY OF PORTLAND A DISTANCE OF 15.77 FEET;

THENCE, S 44°11'40" W CONTINUING ALONG THE SAID V2 ZONE AND THROUGH LAND OF CITY OF PORTLAND A DISTANCE OF 33.56 FEET;

THENCE, N 40°18'13" W CONTINUING THROUGH LAND OF CITY OF PORTLAND AND LAND NOW OR FORMERLY OF SAID STATE OF MAINE A DISTANCE OF 100.26 FEET TO THE NORTHERLY LINE OF LAND OF SAID STATE OF MAINE;

THENCE, N 52°46'49" E ALONG THE NORTHERLY LINE OF STATE OF MAINE 272.75 FEET;

THENCE, N 47°33'49" E CONTINUING ALONG THE NORTHERLY LINE OF STATE OF MAINE 685.00 FEET;

THENCE, S 46°23'41" E THROUGH LAND OF STATE OF MAINE 50.12 FEET TO THE POINT OF BEGINNING, CONTAINING 72,879 S.F. OR 1.67 ACRES MORE OR LESS.

THE LAND DESCRIBED ABOVE DOES NOT INTEND TO INCLUDE ANY LAND WITHIN THE V2 ZONE.

SCALE : 1" = 50'
0' 25' 50' 100'

General Notes

1. OWNERS OF RECORD: PF MARINA LLC
C.C.R.D. BOOK 34869 PAGE 50
BOOK 37742, PAGE 208

2. PARCEL IS SHOWN AS LOT 2 BLOCK A ON THE CITY OF PORTLAND'S ASSESSORS MAP 18.

3. BEARINGS ARE BASED ON MAINE STATE PLANE COORDINATES WEST ZONE NAD83.

4. BENCH MARK: NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION (NOAA) – TIDAL BENCHMARK. BENCH MARK STAMPING: NO. 3 1971 ELEVATION 11.02 FEET NGVD 29 DATUM.

Plan References

1. "ALTA/NSPS LAND TITLE SURVEY, 1 MARINA WAY, PORTLAND, MAINE MADE FOR PF MARINA, LLC" BY OWEN HASKELL, INC. DATED JANUARY 26, 2021 REVISED THROUGH MARCH 18, 2021.

Flood Zone Note

BY GRAPHIC PLOTTING ONLY, THIS PROPERTY IS PARTIALLY LOCATED IN FLOOD ZONE A2 ELEV. 10, AREAS OF 100-YEAR FLOOD AND PARTIALLY LOCATED IN FLOOD ZONE V2 ELEV. 13, AREAS OF 100-YEAR COASTAL FLOOD WITH VELOCITY ON THE FLOOD INSURANCE RATE MAP, COMMUNITY PANEL NO. 230051-0014B, WHICH BEARS AN EFFECTIVE DATE OF JULY 17, 1986. THE FEMA FIRM ZONE A2 FLOOD LINE IS DEMARKED ON THE PLAN BY THE ELEVATION 10 CONTOUR. ALL POINTS NORTH OF THIS CONTOUR ON THE SUBJECT PROPERTY EXCEEDS THIS ELEVATION AND THEREFORE FALL OUTSIDE OF THE A2 ZONE.

Existing Conditions Survey

1 Marina Way
Portland, Cumberland County, Maine
Made For
PF MARINA, LLC
1 Marina Way, Portland, Maine

Surveyor's Certification

OWEN HASKELL, INC. HEREBY CERTIFIES THAT THIS PLAN IS BASED ON, AND THE RESULT OF, AN ON THE GROUND FIELD SURVEY AND THAT TO THE BEST OF OUR KNOWLEDGE, INFORMATION AND BELIEF, IT CONFORMS TO THE BOARD OF LICENSURE FOR PROFESSIONAL LAND SURVEYORS CURRENT STANDARDS OF PRACTICE.

RANDY R. LOUBIER
PROFESSIONAL LAND SURVEYOR NO. 2407

DATE OF PLAT OR MAP: JULY 19, 2021

STATE OF MAINE
RANDY R. LOUBIER 2407
PROFESSIONAL LAND SURVEYOR

OWEN HASKELL, INC.
PROFESSIONAL LAND SURVEYORS
390 U.S. ROUTE 1, UNIT 10, FALMOUTH, ME 04105 TEL. 207-774-0424

DRAWN BY: RRL / JLW	FIELD BOOK: FILE	JOB NO.	2019-031 P
CHECKED BY: RRL/SDG	SCALE: 1" = 50'	DRWG. #	MARINA-ALTA

Federal Emergency Management Agency

Washington, D.C. 20472

LETTER OF MAP AMENDMENT
DETERMINATION DOCUMENT (REMOVAL)

COMMUNITY AND MAP PANEL INFORMATION		LEGAL PROPERTY DESCRIPTION
COMMUNITY	CITY OF PORTLAND, CUMBERLAND COUNTY, MAINE	A parcel of land, as described in the Deeds recorded as Document Nos. 23925 and 55154, both in the Office of the Register of Deeds, Cumberland County, Maine The portion of property is more particularly described by the following metes and bounds:
	COMMUNITY NO.: 230051	
AFFECTED MAP PANEL	NUMBER: 2300510014B	
	DATE: 7/17/1986	
FLOODING SOURCE: PORTLAND HARBOR; CASCO BAY		APPROXIMATE LATITUDE & LONGITUDE OF PROPERTY:43.662774, -70.242547 SOURCE OF LAT & LONG: LOMA LOGIC DATUM: NAD 83

DETERMINATION

LOT	BLOCK/ SECTION	SUBDIVISION	STREET	OUTCOME WHAT IS REMOVED FROM THE SFHA	FLOOD ZONE	1% ANNUAL CHANCE FLOOD ELEVATION (NGVD 29)	LOWEST ADJACENT GRADE ELEVATION (NGVD 29)	LOWEST LOT ELEVATION (NGVD 29)
--	--	--	1 Marina Way	Portion of Property	C	--	--	10.5 feet

Special Flood Hazard Area (SFHA) - The SFHA is an area that would be inundated by the flood having a 1-percent chance of being equaled or exceeded in any given year (base flood).

ADDITIONAL CONSIDERATIONS (Please refer to the appropriate section on Attachment 1 for the additional considerations listed below.)

LEGAL PROPERTY DESCRIPTION
ZONE V
PORTIONS REMAIN IN THE SFHA
SUPERSEDES PREVIOUS DETERMINATION
STATE LOCAL CONSIDERATIONS

This document provides the Federal Emergency Management Agency's determination regarding a request for a Letter of Map Amendment for the property described above. Using the information submitted and the effective National Flood Insurance Program (NFIP) map, we have determined that the described portion(s) of the property(ies) is/are not located in the SFHA, an area inundated by the flood having a 1-percent chance of being equaled or exceeded in any given year (base flood). This document amends the effective NFIP map to remove the subject property from the SFHA located on the effective NFIP map; therefore, the Federal mandatory flood insurance requirement does not apply. However, the lender has the option to continue the flood insurance requirement to protect its financial risk on the loan. A Preferred Risk Policy (PRP) is available for buildings located outside the SFHA. Information about the PRP and how one can apply is enclosed.

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Information eXchange (FMIX) toll free at (877) 336-2627 (877-FEMA MAP) or by letter addressed to the Federal Emergency Management Agency, Engineering Library, 3601 Eisenhower Ave Ste 500, Alexandria, VA 22304-6426.

Luis V. Rodriguez, P.E., Director
Engineering and Modeling Division
Federal Insurance and Mitigation Administration

Federal Emergency Management Agency
Washington, D.C. 20472

LETTER OF MAP AMENDMENT
DETERMINATION DOCUMENT (REMOVAL)

ATTACHMENT 1 (ADDITIONAL CONSIDERATIONS)

LEGAL PROPERTY DESCRIPTION (CONTINUED)

BEGINNING ON THE SOUTHERLY LINE OF LAND NOW OR FORMERLY OF STATE OF MAINE AS DESCRIBED IN DEED BOOK 10924, PAGE 91 AT THE NORTHWESTERLY CORNER OF LAND NOW OR FORMERLY OF PF MARINA, LLC AS DESCRIBED IN DEED BOOK 37742, PAGE 208; THENCE, S 46°23'41" E A DISTANCE OF 16.46 FEET TO THE V2 FLOOD ZONE LINE AS SHOWN ON THE FLOOD INSURANCE RATE MAP, COMMUNITY PANEL NO. 230051-0014B; THENCE, THE FOLLOWING COURSES AND DISTANCES ALONG SAID V2 ZONE: S 55°30'16" W A DISTANCE OF 6.83 FEET; S 44°11'41" W A DISTANCE OF 13.92 FEET; S 62°37'45" W A DISTANCE OF 14.68 FEET; S 44°11'40" W A DISTANCE OF 23.20 FEET; S 50°32'05" W A DISTANCE OF 84.05 FEET; S 44°11'40" W A DISTANCE OF 102.10 FEET; S 32°53'04" W A DISTANCE OF 11.83 FEET; S 44°11'40" W A DISTANCE OF 162.43 FEET; S 50°32'05" W A DISTANCE OF 21.01 FEET; S 44°11'40" W A DISTANCE OF 18.56 FEET; S 37°51'15" W A DISTANCE OF 21.01 FEET; S 50°32'05" W A DISTANCE OF 42.03 FEET; S 44°11'40" W A DISTANCE OF 27.85 FEET; S 54°12'09" W A DISTANCE OF 40.06 FEET; S 44°11'40" W A DISTANCE OF 32.49 FEET; S 55°30'14" W A DISTANCE OF 11.83 FEET; S 44°11'40" W A DISTANCE OF 41.77 FEET; S 55°30'16" W A DISTANCE OF 23.66 FEET; S 48°00'30" W A DISTANCE OF 34.88 FEET; S 44°11'41" W A DISTANCE OF 18.56 FEET; S 51°02'14" W A DISTANCE OF 58.43 FEET; S 44°11'40" W A DISTANCE OF 18.56 FEET; S 51°19'10" W A DISTANCE OF 37.42 FEET; S 46°04'22" W A DISTANCE OF 51.57 FEET TO LAND NOW OR FORMELRY OF CITY OF PORTLAND AS DESCRIBED IN DEED BOOK 10924, PAGE 84; THENCE, S 46°29'06" W CONTINUING ALONG THE SAID V2 ZONE AND THROUGH LAND OF SAID CITY OF PORTLAND A DISTANCE OF 15.77 FEET; THENCE, S 44°11'40" W CONTINUING ALONG THE SAID V2 ZONE AND THROUGH LAND OFCITY OF PORTLAND A DISTANCE OF 33.56 FEET; THENCE, N 40°18'13" W CONTINUING THROUGH LAND OF CITY OF PORTLAND AND LAND NOW OR FORMERLY OF SAID STATE OF MAINE A DISTANCE OF 100.26 FEET TO THE NORTHERLY LINE OF LAND OF SAID STATE OF MAINE; THENCE, N 52°46'49" E ALONG THE NORTHERLY LINE OF STATE OF MAINE 272.75 FEET; THENCE, N 47°33'49" E CONTINUING ALONG THE NORTHERLY LINE OF STATE OF MAINE 685.00 FEET; THENCE, S 46°23'41" E THROUGH LAND OF STATE OF MAINE 50.12 FEET TO THE POINT OF BEGINNING

ZONE V (This Additional Consideration applies to the preceding 1 Property.)

A portion of this property, but not the subject of the Determination/Comment Document, is located within a Coastal High Hazard Area (Zone V, VE or V1-30). Therefore, any future construction or substantial improvement on the property remains subject to Federal, State/Commonwealth, and local regulations for floodplain management. No construction using fill for structural support or that may increase flood damage to other property may take place in these areas.

PORTIONS OF THE PROPERTY REMAIN IN THE SFHA (This Additional Consideration applies to the preceding 1 Property.)

Portions of this property, but not the subject of the Determination/Comment document, may remain in the Special Flood Hazard Area. Therefore, any future construction or substantial improvement on the property remains subject to Federal, State/Commonwealth, and local regulations for floodplain management.

This attachment provides additional information regarding this request. If you have any questions about this attachment, please contact the FEMA Map Information eXchange (FMIX) toll free at (877) 336-2627 (877-FEMA MAP) or by letter addressed to the Federal Emergency Management Agency, Engineering Library, 3601 Eisenhower Ave Ste 500, Alexandria, VA 22304-6426.

Luis V. Rodriguez, P.E., Director
Engineering and Modeling Division
Federal Insurance and Mitigation Administration

Federal Emergency Management Agency
Washington, D.C. 20472

LETTER OF MAP AMENDMENT
DETERMINATION DOCUMENT (REMOVAL)

ATTACHMENT 1 (ADDITIONAL CONSIDERATIONS)

SUPERSEDES OUR PREVIOUS DETERMINATION (This Additional Consideration applies to all properties in the LOMA DETERMINATION DOCUMENT (REMOVAL))

This Determination Document supersedes our previous determination dated 7/16/2021, for the subject property.

STATE AND LOCAL CONSIDERATIONS (This Additional Consideration applies to all properties in the LOMA DETERMINATION DOCUMENT (REMOVAL))

Please note that this document does not override or supersede any State or local procedural or substantive provisions which may apply to floodplain management requirements associated with amendments to State or local floodplain zoning ordinances, maps, or State or local procedures adopted under the National Flood Insurance Program.

This attachment provides additional information regarding this request. If you have any questions about this attachment, please contact the FEMA Map Information eXchange (FMIX) toll free at (877) 336-2627 (877-FEMA MAP) or by letter addressed to the Federal Emergency Management Agency, Engineering Library, 3601 Eisenhower Ave Ste 500, Alexandria, VA 22304-6426.

Luis V. Rodriguez, P.E., Director
Engineering and Modeling Division
Federal Insurance and Mitigation Administration

Federal Emergency Management Agency
Washington, D.C. 20472

ADDITIONAL INFORMATION REGARDING LETTERS OF MAP AMENDMENT

When making determinations on requests for Letters of Map Amendment (LOMAs), the Department of Homeland Security's Federal Emergency Management Agency (FEMA) bases its determination on the flood hazard information available at the time of the determination. Requesters should be aware that flood conditions may change or new information may be generated that would supersede FEMA's determination. In such cases, the community will be informed by letter.

Requesters also should be aware that removal of a property (parcel of land or structure) from the Special Flood Hazard Area (SFHA) means FEMA has determined the property is not subject to inundation by the flood having a 1-percent chance of being equaled or exceeded in any given year (base flood). This does not mean the property is not subject to other flood hazards. The property could be inundated by a flood with a magnitude greater than the base flood or by localized flooding not shown on the effective National Flood Insurance Program (NFIP) map.

The effect of a LOMA is it removes the Federal requirement for the lender to require flood insurance coverage for the property described. The LOMA *is not* a waiver of the condition that the property owner maintain flood insurance coverage for the property. *Only* the lender can waive the flood insurance purchase requirement because the lender imposed the requirement. *The property owner must request and receive a written waiver from the lender before canceling the policy*. The lender may determine, on its own as a business decision, that it wishes to continue the flood insurance requirement to protect its financial risk on the loan.

The LOMA provides FEMA's comment on the mandatory flood insurance requirements of the NFIP as they apply to a particular property. A LOMA is not a building permit, nor should it be construed as such. Any development, new construction, or substantial improvement of a property impacted by a LOMA must comply with all applicable State and local criteria and other Federal criteria.

If a lender releases a property owner from the flood insurance requirement, and the property owner decides to cancel the policy and seek a refund, the NFIP will refund the premium paid for the current policy year, provided that no claim is pending or has been paid on the policy during the current policy year. The property owner must provide a written waiver of the insurance requirement from the lender to the property insurance agent or company servicing his or her policy. The agent or company will then process the refund request.

Even though structures are not located in an SFHA, as mentioned above, they could be flooded by a flooding event with a greater magnitude than the base flood. In fact, more than 25 percent of all claims paid by the NFIP are for policies for structures located outside the SFHA in Zones B, C, X (shaded), or X (unshaded). More than one-fourth of all policies purchased under the NFIP protect structures located in these zones. The risk to structures located outside SFHAs is just not as great as the risk to structures located in SFHAs. Finally, approximately 90 percent of all federally declared disasters are caused by flooding, and homeowners insurance does not provide financial protection from this flooding. Therefore, FEMA encourages the widest possible coverage under the NFIP.

The NFIP offers two types of flood insurance policies to property owners: the low-cost Preferred Risk Policy (PRP) and the Standard Flood Insurance Policy (SFIP). The PRP is available for 1- to 4-family residential structures located outside the SFHA with little or no loss history. The PRP is available for townhouse/rowhouse-type structures, but is not available for other types of condominium units. The SFIP is available for all other structures. Additional information on the PRP and how a property owner can quality for this type of policy may be obtained by calling the Flood Insurance Information Hotline, toll free, at 1-800-427-4661. Before making a final decision about flood insurance coverage, FEMA strongly encourages property owners to discuss their individual flood risk situations and insurance needs with an insurance agent or company.

FEMA has established "Grandfather" rules to benefit flood insurance policyholders who have maintained continuous coverage. Property owners may wish to note also that, if they live outside but on the fringe of the SFHA shown on an effective NFIP map and the map is revised to expand the SFHA to include their structure(s), their flood insurance policy rates will not increase as long as the coverage for the affected structure(s) has been continuous. Property owners would continue to receive the lower insurance policy rates.

LOMAs are based on minimum criteria established by the NFIP. State, county, and community officials, based on knowledge of local conditions and in the interest of safety, may set higher standards for construction in the SFHA. If a State, county, or community has adopted more restrictive and comprehensive floodplain management criteria, these criteria take precedence over the minimum Federal criteria.

In accordance with regulations adopted by the community when it made application to join the NFIP, letters issued to amend an NFIP map must be attached to the community's official record copy of the map. That map is available for public inspection at the community's official map repository. Therefore, FEMA sends copies of all such letters to the affected community's official map repository.

When a restudy is undertaken, or when a sufficient number of revisions or amendments occur on particular map panels, FEMA initiates the printing and distribution process for the affected panels. FEMA notifies community officials in writing when affected map panels are being physically revised and distributed. In such cases, FEMA attempts to reflect the results of the LOMA on the new map panel. If the results of particular LOMAs cannot be reflected on the new map panel because of scale limitations, FEMA notifies the community in writing and revalidates the LOMAs in that letter. LOMAs revalidated in this way usually will become effective 1 day after the effective date of the revised map.

Your property has been reclassified as moderate-to-low flood risk. Your flood risk has been reduced but not removed.

You may now qualify for a Preferred Risk Flood Insurance Policy with annual rates starting as low as $325. Keep your home—and everything inside of it—covered for less money. Contact your insurance agent to secure a lower-cost policy today.

Protect the life you've built.

Call **800-427-4661** or visit www.FloodSmart.gov



FEMA

NATIONAL FLOOD INSURANCE PROGRAM

Flooding 101: Did you know?

- Flooding is the most common and costly disaster in the United States. Just 1 inch of flood water can cause $25,000 of damage to your home.
- People outside of high-risk flood areas file more than 20% of NFIP claims and receive one-third of disaster assistance for flooding.
- Most homeowners and renters insurance doesn't cover flood damage. Only flood insurance provides financial protection from costly flooding.

Stay covered. Save money. Talk to an agent today.
For more information visit FloodSmart.gov.

September 14, 2022

PF One Devco, LLC
Portland Foreside Development Company
Casey Prentice
Kevin Costello
254 Commercial Street,
Portland, ME 02101

To: City of Portland

From: Rose M. Buckley, Senior Vice President
Rockland Trust Company

Rockland Trust Company has and will provide funding for the construction at 58 Fore Street, Portland ME. Rockland Trust is funding the construction of the Sun Life Building and has provided funding for Building 12 occupied by Twelve Restaurant.

Rockland Trust looks forward to working with Portland Foreside Development Company in the future.

Please contact me at 781-982-6165 with any questions.

Best regards,
ROCKLAND TRUST COMPANY

By: Rose M. Buckley
Rose M. Buckley, Senior Vice President

Member FDIC

EQUAL HOUSING LENDER

Mary Ann Devlin
Director & Senior Vice President
Commercial Real Estate
Middlesex Savings Bank
301 Edgewater Place
Wakefield, MA 01880

Robert F. Millerick
Senior Vice President
Commercial Real Estate
Middlesex Savings Bank
301 Edgewater Place
Wakefield, MA 01880

September 16, 2022

Ms. Christine Grimando, AICP
Planning Director
Planning & Urban Development
Department
389 Congress Street 4th Floor
Portland, ME 04101

RE: 58 Fore Street Development, Portland, ME

Dear Ms. Grimando,

It is with pleasure that we provide this letter confirming our association with Portland Foreside Development Company (PFDC) and its managing partners Casey Prentice and Kevin Costello. My colleague and I have worked directly with the principals for the past three years having provided a $65.0 million construction loan facility in 2020 to finance the first of several phases of an approved Master Development Plan located at 58 Fore Street in downtown Portland, ME.

Loan proceeds were used to conduct Phase I site work, relocate and renovate a historical building and conduct vertical construction of an approximately 144,000 SF office/retail building including underground parking that will when complete be the home to the consolidated Maine offices of Sun Life of Canada. Additionally some preliminary earthwork was performed on the remaining adjacent phases. Phase I of the project is now nearing completion. It has been our experience that all stages of the Phase I development from the planning, to the design, engineering and implementation were carried out as represented, on time and on budget.

We value our affiliation with PFDC and its principals, Casey and Kevin. Their vision for 58 Fore Street continues to impress as they help to transform the waterfront along the Eastern Promenade into a uniquely beautiful destination for all to enjoy. The principals have continuously demonstrated their determination, resilience, maneuverability and resourcefulness in making Fore Street a reality. It is our hope that we will continue our association with Casey and Kevin and their vision, and take an active financing role in the next phase or phases of development at Fore Street.

Very truly yours,

Mary Ann Devlin
Director, Senior Vice President

Robert F. Millerick
Senior Vice President

3. EVIDENCE OF RIGHT, TITLE & INTEREST

3.1 Right, Title & Interest

The Project will occur on a parcel of land identified by the City as Lot 18-A-01 and owned by PF Land LLC. The deed for PF Land is attached. PF Land LLC subsequently conveyed approximately 482 square feet to PF One Devco LLC. The deed from PF Land LLC to PF One Devco LLC is also attached, modifying the original parcel into PF Land.

The Project area also includes a portion of an adjacent lot purchased by 21 Eastern Prom LLC, which is an entity affiliated with PF Land LLC. That lot is identified by the City as Lot 2-A-4 and is located at 21 Eastern Promenade. 21 Eastern Prom will convey said portion of Lot 2-A-4 to PF Land LLC prior to obtaining a building permit for the work occurring on that portion of the property.

3.2 Easements & Other Burdens

Depending on which method of support for excavation is utilized, project construction could require installation of tiebacks into property on adjacent land, including City land. This would be similar to the tiebacks into the City's Fore Street right-of-way for the Block 4 garage as previously approved in the Phase 1 Site Plan. In addition to the potential need for tiebacks, there will be encroachments into the City right-of-way with structural elements that will span over the top of the existing seawall, creating a connection from the Block 4 Townhouses to the Fore Street sidewalk. The Phase 1 Site Plan approval contained the following condition to address the situation: "Prior to application for building permits, the applicant shall finalize any agreement required by the City of Portland authorizing the replacement and maintenance of the retaining wall along Fore Street and any license agreements required to permit encroachments into the City's right of way. All necessary agreements shall be finalized to the satisfaction of the Planning Authority, Department of Public Works, and Corporation Counsel."

The Applicant requests a similar condition to address possible encroachments onto the City right-of-way for Phase 2. In addition, to the extent the project design results in encroachments onto adjacent private property, the Applicant requests the following condition: "Prior to application for building permits, the applicant shall provide written agreements with adjacent landowners necessary to permit encroachments onto adjacent property."

The attached memo from the project's geotechnical engineer, Haley & Aldrich, documents two options for support of excavation – one that will require tiebacks, and one that will not. Both options were deemed technically feasible by the engineers. The Applicant will make a determination on construction type prior to application for a building permit and will provide all easement documentation if necessary.

Small portions of the Project located along the Maine DOT corridor are subject to the Land Exchange Agreement between the City, Maine DOT, and PF Land. The land swap will occur prior to obtaining building permits for work occurring on that southern edge of the property.

3.3 Attachments

- Property Deeds
- Geotechnical Design Memo

TRUSTEE'S DEED
(Maine Statutory Short Form)

KNOW ALL PERSONS BY THESE PRESENTS, that **TIMOTHY HALEY, of Stuart, Florida, SOLE TRUSTEE OF THE TIMOTHY HALEY LIVING TRUST, dated June 3, 2005** ("Grantor"), for consideration paid, grants to **21 EASTERN PROM LLC**, a Maine limited liability company with a mailing address of 254 Commercial Street, Portland, Maine 04101 ("Grantee"), the following described real estate situated at 13-23 Eastern Promenade, in the City of Portland, Cumberland County, State of Maine as more particularly described in Exhibit A attached hereto and made a part hereof

See Attached Exhibit A

MAINE REAL ESTATE TAX PAID

Meaning and intending to convey the premises conveyed by virtue of Quitclaim Deed without Covenant from Katherine C. Haley and Timothy J. Haley, Trustees, under the Daniel T. Haley Sr. Family Trust dated January 21, 2006, dated January 11, 2007, and recorded in the Cumberland County Registry of Deeds in Book 24759, Page 67, by Quitclaim Deed without Covenants from Katherine C. Haley and Timothy J. Haley, Trustees, under the Daniel T. Haley Sr. Family Trust dated January 21, 2006, dated January 11, 2007 and recorded at Cumberland County Registry of Deeds in Book 24759, Page 069 and by Quitclaim Deed without Covenants from Timothy J. Haley and Julia A. Haley, successor Trustees, under the Haley Family Living Trust dated February 6, 1997, dated December 4, 2008 and recorded at Cumberland County Registry of Deeds in Book 26503, Page 224 to Timothy Haley, sole Trustee or his successors in trust, under the Timothy Haley Living Trust, dated June 3, 2005.

I hereby covenant that I am Trustee pursuant to said Trust; that said Trust is still in full force and effect; that I have the power thereunder to convey as aforesaid; and that, in the making this conveyance, I have, in all respects, acted pursuant to the authority vested in and granted to me there.

WITNESS my hand and seal, this 08 day of December, 2021.

WITNESS:

Cecilia Nevels

Timothy Haley, Sole Trustee of The Timothy Haley Living Trust, dated June 3, 2005

STATE OF FLORIDA
COUNTY OF MARTIN, ss.

December 28, 2021

Then personally appeared the above-named Timothy Haley, as aforesaid, and acknowledged the foregoing instrument to be his free act and deed in his said capacity.

LANA ELAINE BAILEY
Commission # GG 329959
Expires August 31, 2023
Bonded Thru Troy Fain Insurance 800-385-7019

Before me,

Attorney at Law/Notary Public
Print Name: Elaine Bailey
My Commission Expires: 8-31-23

Exhibit A

Certain lots or parcels of land, together with any building and improvement thereon, situated on the southeasterly side of Eastern Promenade, in the City of Portland, Cumberland County, State of Maine, bounded and described as follows:

PARCEL ONE:

A certain lot or parcel of land, with the buildings thereon, situated on the southeasterly side of the Eastern Promenade in said Portland, and bounded and described as follows, viz: Beginning on said side of said Eastern Promenade at the northeasterly corner of land now or formerly of Henry F. Merrill, and running thence southeasterly by said Merrill land and land of Portland Company two hundred fifty-five (255) feet, more or less, to land conveyed by John G. Munroe and others to the Portland Company by deed dated January 5, 1904, and recorded in Cumberland County Registry of Deeds, Book 765, Page 307; thence northeasterly by said land conveyed to said Portland Company as aforesaid one hundred (100) feet to other land now or formerly of Henry F. Merrill; thence northwesterly on a line parallel with the first described course two hundred fifty-five (255) feet, more or less, to said Eastern Promenade; thence southwesterly by said Eastern Promenade one hundred (100) feet to the place of beginning.

PARCEL TWO:

Beginning at a point on the southeasterly side of said Eastern Promenade at the northwesterly corner of land of Walter W. Duffett and thirty-six (36) feet southwesterly from the dividing line between the land now or formerly of Walter W. Duffett and the land now or formerly of William Curtis; thence southwesterly by said Eastern Promenade, forty-nine (49) feet, more or less, to land formerly belonging to one Monroe; thence southeasterly by said Monroe's land seventy (70) feet, more or less, to land now or formerly of Cyrus Cole; thence northeasterly by said Cole's land, forty-nine (49) feet, more or less, to said Duffett's land; thence northwesterly by said Duffett's land, seventy (70) feet, more or less, to the point begun at.

PARCEL THREE:

Beginning at a point in a southeasterly direction from the Eastern Promenade in the northeasterly side line of land now or formerly owned by heirs of J. Monroe, and distant one hundred and sixty-two (162) feet from the point of intersection of said side line of the Monroe land with the southeasterly side line of said Eastern Promenade, and from this point extending in a northeasterly direction about fifty (50) feet along the northwesterly side line of land sold to Henry Merrill et als. by deed dated June 29, 1898, recorded in Cumberland Registry of Deeds in Book 661, Page 176, and to the southwesterly side of land sold to Walter W. Duffett by deed dated June 29, 1898, recorded in said Registry of Deeds in Book 661, Page 175; thence by said southwesterly side line of the land so conveyed to Walter W. Duffett and by land now or

formerly of Mary Duffett to the southeasterly side line of land now or formerly of one Clark: thence by the said southeasterly side line of land now or formerly of said Clark, and by said line extended, to the said northeasterly side line of said Monroe land; thence by said Monroe land, in a southeasterly direction to the point of beginning.

Received
Recorded Register of Deeds
Dec 30,2021 03:33:48P
Cumberland County
Jessica M. Spaulding

SHORT FORM QUITCLAIM DEED WITH COVENANT
DLN: 1002040119134

CPB2 I LLC (formerly known as **CPB2 LLC**), a Delaware limited liability company, with a mailing address of 254 Commercial Street, Suite 118, Portland, Maine 04101 (the "Grantor"), FOR CONSIDERATION PAID, grants to **PF LAND LLC**, a Maine limited liability company, with a mailing address of 254 Commercial Street, Suite 118, Portland, Maine 04101 (the "Grantee"), with QUITCLAIM COVENANT, certain real property, together with any improvements thereon, situated southerly of Fore Street, in the City of Portland, County of Cumberland and State of Maine, more particularly described on **Exhibit A** attached hereto and made a part hereof (the "Property").

Being a portion of the property described in the following deeds: (i) Quitclaim Deed with Covenant from 100 Fore Street, LLC dated April 10, 2019 and recorded in the Cumberland County Registry of Deeds in Book 35576, Page 153; (ii) Quitclaim Deed with Covenant from the City of Portland to CPB2 I LLC dated November 2, 2018 and recorded in the Cumberland County Registry of Deeds in Book 35264, Page 286; (iii) Quitclaim Deed with Covenant from The Portland Company to CPB2 LLC dated April 1, 2014 and recorded in the Cumberland County Registry of Deeds in Book 31425, Page 267; and (iv) Trustee's Deed from Elizabeth M. Sprague, Eric Thomas Sprague and Phineas M. Sprague, Trustees of the Buena Vista Trust, to CPB2 LLC dated July 19, 2013 and recorded in the Cumberland County Registry of Deeds in Book 30879, Page 75.

IN WITNESS WHEREOF, CPB2 I LLC has caused this instrument to be executed by Casey W. Prentice, Manager of CPB2 Management LLC, Manager of CPB2 I LLC, thereunto duly authorized, as of this 4th day of November 2020.

WITNESS:

Richard D Prentice

Name: Richard D Prentice

CPB2 I LLC
By: CPB2 Management LLC, Manager

By: _____
Casey W. Prentice, Manager

13531538.3
12481681.4.4.3.3.2

State of Maine
County of Cumberland, ss. November 3, 2020

PERSONALLY APPEARED the above-named Casey W. Prentice, Manager of CPB2 Management LLC, Manager of CPB2 I LLC, as aforesaid, and acknowledged the foregoing instrument to be his free act and deed in his said capacity and the free act and deed of said limited liability companies.

Before me,

Notary ~~Public~~/Attorney at Law
Print Name: Tom S. Hanson
Commission Expires: N/A

13531538.3
12481681.4.4.3.3.2

EXHIBIT A

A CERTAIN LOT OR PARCEL OF LAND WITH THE BUILDING THEREON SITUATED ON THE SOUTHERLY SIDE OF FORE STREET IN THE CITY OF PORTLAND, COUNTY OF CUMBERLAND AND STATE OF MAINE BOUNDED AND DESCRIBED AS FOLLOWS:

BEGINNING AT THE NORTHERLY CORNER OF LAND NOW OR FORMERLY OF 100 FORE STREET LLC AS DESCRIBED IN DEED BOOK 33748, PAGE 1 ON THE SOUTHEASTERLY SIDELINE OF FORE STREET AT AN IRON ROD FOUND;

THENCE, N 76°17'54"E ALONG THE SOUTHEASTERLY SIDELINE OF SAID FORE STREET 287.55 FEET;

THENCE, N 37°34'49"E CONTINUING ALONG THE SOUTHEASTERLY SIDELINE OF FORE STREET 734.45 FEET;

THENCE, N 45°16'49"E CONTINUING ALONG THE SOUTHEASTERLY SIDELINE OF FORE STREET 43.36 FEET TO THE SOUTHWESTERLY CORNER OF LAND NOW OR FORMERLY OF KENNETH & CAROLL MACGOWAN AS DESCRIBED IN DEED BOOK 15773, PAGE 153;

THENCE, S 47°03'11"E ALONG THE SOUTHERLY LINE OF SAID MACGOWEN 150.00 FEET;

THENCE, N 45°16'49"E ALONG THE EASTERLY LINE OF LAND OF MACGOWEN 112.00 FEET TO THE SOUTHERLY LINE OF LAND NOW OR FORMERLY OF TIMOTHY HALEY, TRUSTEE AS DESCRIBED IN DEED BOOK 24759, PAGE 67 & 69;

THENCE, ALONG THE LAND OF SAID HALEY THE FOLLOWING COURSES AND DISTANCES:

S 47°03'11"E A DISTANCE OF 110.28 FEET;

N 47°33'49"E A DISTANCE OF 100.00 FEET;

N 47°03'11"W A DISTANCE OF 95.88 FEET;

N 53°46'39"E A DISTANCE OF 49.73 FEET TO THE SOUTHERLY LINE OF LAND NOW OR FORMERLY OF PORTLAND HOUSE CONDOMINIUM AS SHOWN ON PLAN BOOK 142, PAGE 50;

THENCE, S 47°03'07"E ALONG THE SOUTHERLY LINE OF LAND OF SAID PORTLAND HOUSE CONDOMINIUM 240.48 FEET TO THE NORTHWESTERLY LINE OF LAND NOW OR FORMERLY OF STATE OF MAINE KNOWN AS THE RAIL-TRAIL CORRIDOR AT AN IRON ROD FOUND;

13531538.3
12481681.4.4.3.3.2

THENCE, S 47°33'49"W ALONG THE NORTHWESTERLY LINE OF LAND OF SAID STATE OF MAINE 685.00 FEET;

THENCE, S 52°46'49"W CONTINUING ALONG THE NORTHWESTERLY LINE OF LAND OF STATE OF MAINE 442.91 FEET TO THE LAND NOW OR FORMERLY OF CITY OF PORTLAND AS DESCRIBED IN DEED BOOK 10924, PAGE 84;

THENCE, S 57°47'32" W ALONG LAND OF SAID CITY OF PORTLAND 11.22 FEET TO A POINT OF CURVATURE;

THENCE, SOUTHWESTERLY CONTINUING ALONG LAND OF SAID CITY OF PORTLAND ALONG A CURVE TO THE LEFT, HAVING A RADIUS OF 466.50 FEET, AN ARC LENGTH OF 133.12 FEET, CHORD BEARING OF S 49°37'02" W AND CHORD LENGTH OF 132.67 FEET;

THENCE, S 41°26'32" W CONTINUING ALONG LAND OF THE CITY OF PORTLAND 17.92 FEET TO THE LAND NOW OR FORMERLY OF SAID STATE OF MAINE;

THENCE, S 46°01'18" W ALONG LAND OF STATE OF MAINE 31.95 FEET TO THE LAND OF CITY OF PORTLAND;

THENCE, N 52°05'24" W ALONG LAND OF CITY OF PORTLAND 97.53 FEET TO A POINT OF CURVATURE;

THENCE, NORTHWESTERLY ALONG LAND OF CITY OF PORTLAND ALONG A CURVE TO THE RIGHT HAVING A RADIUS OF 370.00 FEET, AN ARC LENGTH OF 47.73 FEET, CHORD BEARING OF N 48°23'40" W AND CHORD LENGTH OF 47.70 FEET TO THE SOUTHERLY LINE OF LAND OF SAID 100 FORE STREET LLC;

THENCE, NORTHWESTERLY ALONG THE EASTERLY LINE OF SAID 100 FORE STREET, LLC ALONG A CURVE TO THE RIGHT HAVING A RADIUS OF 370.00 FEET, AN ARC LENGTH OF 13.77 FEET, CHORD BEARING OF N 43°37'59" W AND CHORD LENGTH OF 13.77 FEET;

THENCE, N 42°34'01" W CONTINUING ALONG THE EASTERLY LINE OF 100 FORE STREET LLC 68.76 FEET;

THENCE, NORTHWESTERLY CONTINUING ALONG THE EASTERLY LINE OF 100 FORE STREET, LLC ALONG A CURVE TO THE RIGHT HAVING A RADIUS OF 370.24 FEET, AN ARC LENGTH OF 134.07 FEET, CHORD BEARING OF N 32°11'34" W AND CHORD LENGTH OF 133.34 FEET;

THENCE, NORTHWESTERLY CONTINUING ALONG THE EASTERLY LINE OF 100 FORE STREET, LLC ALONG A CURVE TO THE RIGHT HAVING A RADIUS OF 274.33 FEET, AN ARC LENGTH OF 13.01 FEET, CHORD BEARING OF N 20°51'48" W AND CHORD LENGTH OF 13.01 FEET TO THE SOUTHERLY SIDELINE OF SAID FORE STREET AT THE POINT OF BEGINNING.

13531538.3
12481681.4.4.3.3.2

BEARING ARE BASED ON MAINE STATE PLANE COORDINATE SYSTEM WEST ZONE NAD 83.

EXCEPTING FROM THE ABOVE DESCRIBED PARCEL, THE LAND CONVEYED BY CBP2 1 LLC TO PF ONE DEVCO LLC BY DEED OF EVEN DATE TO BE RECORDED IN THE CUMBERLAND COUNTY REGISTRY OF DEEDS CONTEMPORANEOUSLY WITH THIS DEED

REFERENCE IS MADE TO THAT CERTAIN PLAN ENTITLED "ALTA/NSPS LAND TITLE SURVEY, 58 FORE STREET, PORTLAND, CUMBERLAND COUNTY, MAINE, MADE FOR PF ONE DEVCO LLC & PF LAND LLC", DATED MARCH 4, 2020 AND REVISED THOUGH NOVEMBER 2, 2020, PREPARED BY OWEN HASKELL, INC., JOB NO. 2019-013P.

THE PROPERTY IS CONVEYED SUBJECT TO AND WITH THE BENEFIT OF CERTAIN INTERESTS, RIGHTS, EASEMENTS, CONDITIONS, COVENANTS, RESTRICTIONS AND ENCUMBRANCES AS MORE FULLY SET FORTH IN THAT CERTAIN DECLARATION OF RESTRICTIONS, EASEMENTS AND AGREEMENTS BY CPB2 I LLC OF NEAR OR EVEN DATE HEREWITH, AND TO BE RECORDED IN THE CUMBERLAND COUNTY REGISTRY OF DEEDS BEFORE THE RECORDING OF THIS DEED.

THE PROPERTY IS CONVEYED TOGETHER WITH THAT CERTAINREVOCABLE ACCESS LICENSE BY AND BETWEEN THE CITY OF PORTLAND, PF ONE DEVCO LLC, PF LAND LLC AND PF MARINA LLC OF NEAR OR EVEN DATE HEREWITH, TO BE RECORDED IN THE CUMBERLAND COUNTY REGISTRY OF DEEDS AT OR NEAR THE DATE OF THIS DEED.

THIS CONVEYANCE IS ALSO MADE SUBJECT TO ALL OTHER EASEMENTS, CONDITIONS, COVENANTS AND RESTRICTIONS OF RECORD.

MAINE REAL ESTATE TAX-Paid

QUITCLAIM DEED WITHOUT COVENANT
DLN: 1002140132239

PF LAND LLC, a Delaware limited liability company, with a mailing address of 254 Commercial Street, Suite 118, Portland, Maine 04101 (the "Grantor"), FOR CONSIDERATION PAID, grants to **PF ONE DEVCO LLC**, a Delaware limited liability company, with a mailing address of 254 Commercial Street, Suite 118, Portland, Maine 04101 (the "Grantee"), certain real property, together with any improvements thereon, situated southerly of Fore Street, in the City of Portland, County of Cumberland and State of Maine, more particularly described on **Exhibit A** attached hereto and made a part hereof.

Being a portion of the property conveyed to Grantor by deed from CPB2 I LLC dated November 4, 2020 and recorded in the Cumberland County Registry of Deeds in Book 37397, Page 78.

IN WITNESS WHEREOF, PF Land LLC has caused this instrument to be executed by Casey W. Prentice, Manager, thereunto duly authorized, this 11th day of February, 2021.
as of

WITNESS:

Name:

PF LAND LLC

By:
Casey W. Prentice, Manager

State of Maine
County of Cumberland, ss.

February 9, 2021

PERSONALLY APPEARED the above-named Casey W. Prentice, Manager of PF Land LLC, and acknowledged that the foregoing instrument to be his free act and deed in his said capacity and the free act and deed of said limited liability company.

Before me,

~~Notary Public~~/Attorney at Law
Print Name: William M. Welch
Commission Expires:

13531538.3
12722943.2

DOC :11203 BK:37821 PG:161
RECEIVED - RECORDED, CUMBERLAND COUNTY REGISTER OF DEEDS
02/17/2021, 10:57:49A
Register of Deeds Nancy A. Lane E-RECORDED

EXHIBIT A

A CERTAIN LOT OR PARCEL OF LAND SITUATED ON THE SOUTHERLY SIDE OF, BUT NOT ADJACENT TO FORE STREET IN THE CITY OF PORTLAND, COUNTY OF CUMBERLAND AND STATE OF MAINE BOUNDED AND DESCRIBED AS FOLLOWS:

BEGINNING AT THE SOUTHERLY CORNER OF LAND OF PARCEL 1C AS SHOWN ON PLAN TITLED "SUBDIVISION PLAT PORTLAND FORESIDE THAMES STREET & FORE STREET PORTLAND, MAINE MADE FOR OWNER OF RECORD CPB2 I LLC" BY OWEN HASKELL, INC. DATED FEB. 13, 2020, RECORDED IN THE CUMBERLAND COUNTY REGISTRY OF DEEDS IN PLAN BOOK 220, PAGE 65;

THENCE, S 57°47'32" W A DISTANCE OF 10.19 FEET;

THENCE, ALONG A CURVE TO THE LEFT HAVING A RADIUS OF 466.50 FEET, AN ARC LENGTH OF 1.10 FEET, A CHORD BEARING OF S 57°43'29" W AND CHORD DISTANCE OF 1.10 FEET;

THENCE, N 49°28'50" W THROUGH REMAINING LAND BY DEVELOPER A DISTANCE OF 19.41 FEET;

THENCE, N 40°31'10" E CONTINUING THROUGH REMAINING LAND BY DEVELOPER A DISTANCE OF 38.71 FEET TO SAID PARCEL 1C;

THENCE, S 53°28'50" E ALONG PARCEL 1C A DISTANCE OF 9.05 FEET;

THENCE, S 40°31'10" W ALONG PARCEL 1C A DISTANCE OF 28.56 FEET;

THENCE, S 49°28'50" E ALONG PARCEL 1C A DISTANCE OF 13.73 FEET TO THE POINT OF BEGINNING, CONTAINING 482 S.F. MORE OR LESS.

BEARING ARE BASED ON MAINE STATE PLANE COORDINATE SYSTEM WEST ZONE NAD 83.

HALEY & ALDRICH, INC.
75 Washington Avenue
Suite 1A
Portland, ME 04101
207.482.4600

MEMORANDUM

6 March 2023
File No. 39486-881/882

TO: Portland Foreside Development Company
David A. Senus, P.E.
Director of Planning and Design

C: Woodard & Curran
Darrin B. Stairs, P.E.
Project Manager/Associate Principal

FROM: Haley & Aldrich, Inc.
Wayne A. Chadbourne, P.E.
Principal/Geotechnical Engineer

SUBJECT: Support of Excavation System Options
Proposed Block Four and Block Six Buildings
PFDC Harbor Hill/Foreside Development
Fore Street, Portland, Maine

Per your request and our recent discussions, this memorandum summarizes permanent support of excavation (SOE) system options that would be needed to allow construction of the proposed buildings for the Block Four and Block Six projects. The project team has evaluated two SOE system options for the projects. Both options are presented below, and we consider both to be technically feasible based on the soil and rock conditions present at the site.

The first option is an "externally braced" system which includes installation of below grade soil nails and tieback anchors into the retained soil. These elements are needed to provide lateral support for the system. This option will require easements on adjacent properties to allow installation of the soil nails and tieback anchors, some of which would extend over the property line. Please refer to Figure 1 for a typical cross section of the externally braced SOE system option.

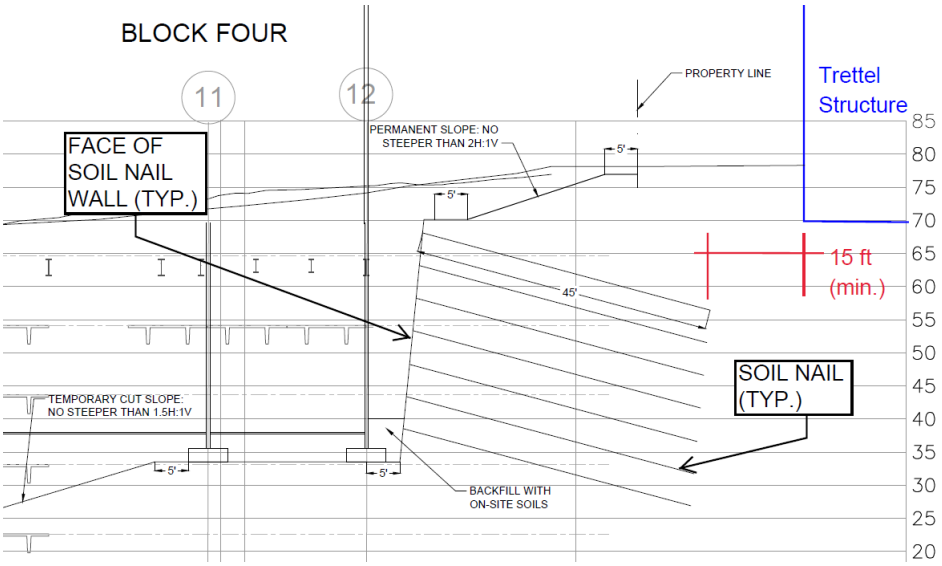


Figure 1 – Typical cross section, externally braced SOE system; easements would be required.

The second SOE system option is an "internally braced" system which uses steel walers and steel raker bracing located inside the limits of the excavation to provide lateral support for the system. This option will not require easements on adjacent properties as the entire system can be constructed within the limits of the site. Please refer to Figure 2 for a typical cross section of the internally braced SOE system option.

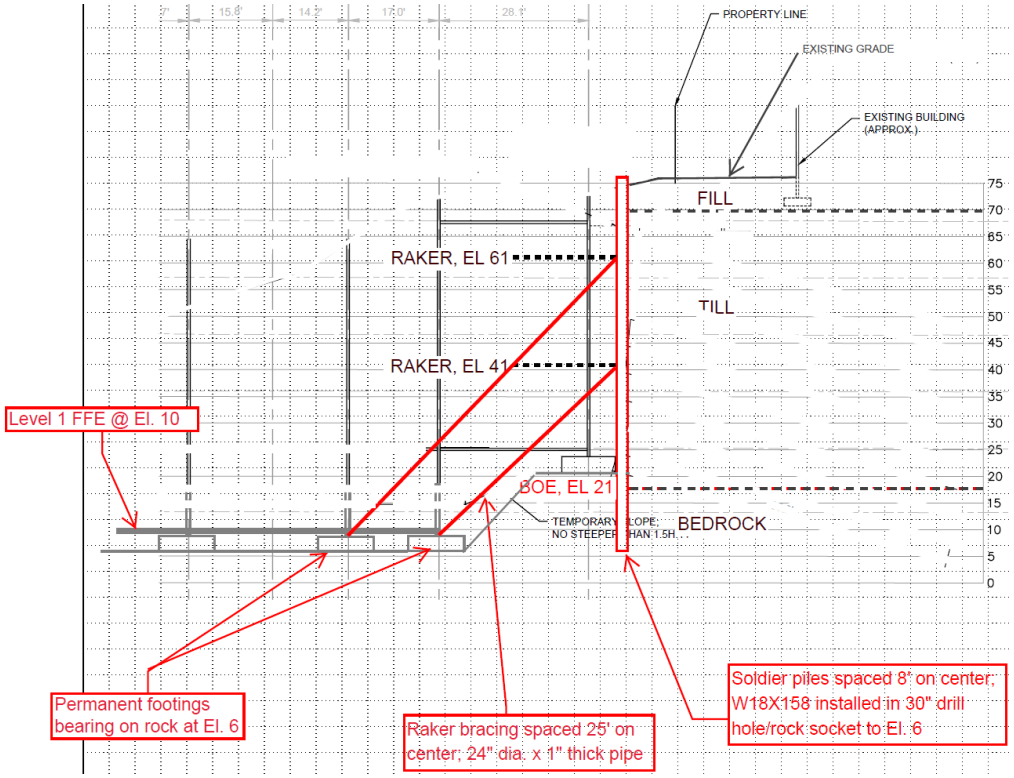


Figure 2 – Typical cross section, internally braced SOE system; easements not required.

We appreciate the opportunity to provide support to the team on this aspect of the project. We would be happy to meet with you or the City of Portland to discuss the information provided in this memorandum. Please do not hesitate to contact us if you have any questions or comments.

\\haleyaldrich.com\share\CF\Projects\39486\881 - Block 4 Schematic Design\SOE adjust for no nails on Trettle\2022-0306-HAI-no easement SOE memo-f3.docx

4. CONSISTENCY WITH CITY OF PORTLAND TRANSPORTATION STANDARDS (14.6.1)

A Traffic Movement Permit (TMP #2016-224) was issued by the City of Portland on May 26, 2017, as part of the 58 Fore Street Master Development Plan review process. The TMP conditions of approval require that updated traffic analyses and a Transportation Demand Management (TDM) Plan be approved for each phase of development. Traffic Assessments have been prepared by Gorrill Palmer for each development Block (assuming Block 4 will be constructed first, followed by Block 6, then Block 5). A TDM Plan was developed by VHB for all three development blocks. These reports will be uploaded separately to the Documents folder in Eplan.

Compliance with the City of Portland's Land Use Code Section 14.6.1 Transportation Standards is described in the following sections.

4.1 Impact on Surrounding Street Systems

The project's Traffic Assessments were prepared by Gorrill Palmer for the proposed development. They evaluate the entire site as approved to date with previously approved and constructed Block 1A and Building 12, and the approved, but not yet rehabilitated Block 2 development. The first assessment adds in just the Block 4 development, the second memo includes both Block 4 and Block 6, and the third memo includes Blocks 4, 5, and 6. A trip generation summary is provided in the traffic assessment, as well as a comparison to trip generation previously approved in the Traffic Movement Permit as part of the 58 Fore Street Master Development Plan process. The proposed development will remain within the level of traffic that was previously approved for the Traffic Movement Permit.

4.2 Access and Circulation

General

The primary vehicular and pedestrian entrances to the site are via Thames Street Extension and Fore Street. Pedestrians will also be able to access the site from the Eastern Promenade trail and Fore Street by using the new staircase that was installed as part of Phase 1.

Vehicles entering on Thames Street may park in one of nine on-street parallel parking spaces or may drive through the site to park in garage spaces located in Buildings 1A, 4, or 6. Additional vehicular access to the Building 4 garage is provided via a garage entrance on Fore Street, directly opposite Waterville Street.

Similar to Phase 1, the design of the proposed roadway internal to the Site will safely accommodate a mix of pedestrian and vehicle traffic. Sections of the roadway will have continuous paving to unify the driving lane and sidewalk zones, while the paving design defines various zones for vehicles, pedestrians, and parking through a mix of materials and paving patterns. Though the material will be continuous, a textured band of paving will differentiate the zones providing visual and tactile clues to the change in use. Curbing will also be used in some areas of the site to help to accommodate grading challenges. Driving lanes are defined by continuous, centerline trench drains along sections of the roadway and the edges are marked by a combination of parking spaces, plants, street trees, bollards, and light poles.

Loading and Servicing

Loading and trash removal will be addressed in each of the buildings throughout the site with designated spaces to accommodate deliveries and storage.

Fore Street Curb and Sidewalks

Brick sidewalks and granite curbs will be provided along Fore Street, generally per the City of Portland Sidewalks and Driveway Apron Materials Policy. We have requested a waiver relative to the driveway apron standards, requesting that ramps be provided on either side of the Fore Street garage entrance as an alternative to the City's apron detail that requires a continuous sidewalk grade with a steep grade change at the curb edge of the sidewalk. The existing steep running grade of Fore Street (as much as 12% in the area of the garage entrance) makes the grading of this space a challenge. With this grade defining the cross pitch of the driveway we do not want to also introduce a steep grade change at the curb line as well. In addition, the City's recent Fore Street roadwork has introduced a crosswalk across Fore Street from Waterville Street located just to the west of the garage entrance; we will be providing a ramp down to access this crosswalk and will ramp the sidewalk back up to curb height following the garage entrance.

4.3 Public Transit Access

While no specific changes to public transit access are proposed as part of this project at this time, Portland Foreside Development Company has been in close touch with Metro. Portland Foreside and Metro are in agreement that this development area is very transit-friendly in terms of land use and location. In addition, the recent development of the Fore Street/Thames Street corridor warrants consideration for transit service in the future. Currently, the site is one quarter of a mile away from India Street where Route 8 runs, with additional service along Congress Street which is a short walk, or Route 8 transfer.

Casco Bay Lines, transit to the local islands, is also within a short walking distance from the site and the Portland Jetport and Portland Transportation Station (Amtrak and Bus Service) are within a 10-minute drive.

4.4 Parking

Vehicular Parking

The attached Traffic Assessment provides a detailed parking analysis for the proposed development. The parking demand will be satisfied by parking spaces on the garage level of Building 1A (previously permitted and under construction), and the proposed Phase 2 parking garage. A portion of the Phase 2 parking garage includes stackers that will allow for more efficient use of space for parking.

Snow Storage

The Site's snow removal will be managed by a contracted third party to ensure safe vehicular and pedestrian circulation, and to maintain access to the building entrances.

Electric Vehicle (EV) Charging

We are currently proposing 69 electric vehicle charging stations within the proposed parking garage. We are evaluating the electrical demand of more widespread electric vehicle charging, anticipating increases in demand in the future, and developing the garage space to support future expansions in charging stations. As set forth in more detail in Section 2.6, we are requesting a waiver of this standard to allow for a smaller number of stations initially, with installation of additional stations in response to demand.

Bicycle Parking

The project will include significant increases in bicycle parking on the site to support both the residential and non-residential uses on the property. Residential bicycle parking will be located inside the Block 4, 5 and Block 6 residential buildings. In the Block 4 building, a majority of the storage space is located on the first floor in a Campus Storage room and in a space near the Thames Street garage entrance. A bicycle FixIt Station will also be included within the Block 4 garage space. In Block 6, bicycle storage will be located on the first flow within designated recreational storage space that will be accessed both from the interior of the garage and through a building entrance fronting along the Eastern Promenade Trail. The non-residential bicycle parking is primarily located outside on exterior bicycle racks, with a few spaces previously provided inside Building 1A associated with the office use. The outside non-residential bicycle parking spaces will not be designated for specific users, and residents may choose to use these spaces as well.

The attached Traffic Assessments provide an analysis of the total number of bicycle parking spaces required based on an evaluation of both the number of residential uses and the number of parking spaces. Based on this analysis and considering the bicycle parking that was provided for Buildings 1A/12 and what is proposed for Blocks 4, 5 and 6, the site will be providing adequate bicycle parking, as represented in the table below.

Table 4-1 Bicycle Parking

	Internal	External
Building 1A/12 (previously approved)	9 (non-residential)	12 (non-residential)
Block 4	100 (residential)	20 (non-residential) (Block 4 and 5 site area combined)
Block 5	30 (residential)	
Block 6	60 (residential)	12 (non-residential)

	Required	Provided
Residential:	178	190
Non-Residential:	40	53
Total:	218	243

4.5 Transportation Demand Management (TDM)

A TDM Plan was developed by VHB for all three development blocks. This report will be uploaded separately to the Documents folder in Eplan.

5. CONSISTENCY WITH CITY OF PORTLAND ENVIRONMENTAL QUALITY STANDARDS (14.6.2)

Compliance with the City of Portland's Land Use Code Section 14.6.2 Environmental Quality Standards is described in the following sections.

5.1 Preservation of Significant Natural Features

The Site has been previously developed and there are no known areas of significant natural features, including unusual natural areas, rare or endangered botanical features, areas of significant wildlife habitats, or wetland areas. The attached Official Species List identifies the northern long-eared bat (threatened species), roseate tern (endangered species) and monarch butterfly (candidate species) in association with the project area; however, there are no critical habitat areas located within the project area. Based on US Fish & Wildlife information, the northern long-eared bat typically lives in caves during the winter months, and in trees larger than three inches in diameter during the summer, with migration between these two habitats in the spring in the fall. Tree-clearing for this project will be minimal. It is not anticipated that the proposed development will have a negative impact on the northern long-eared bat, roseate tern, or monarch butterfly.

5.2 Landscape Preservation

The project will meet the Landscape Preservation standards as follows:

1. Site development shall be designed to incorporate, limit disturbance to, and limit removal of existing trees.
    a. The existing site is fully developed and there are no known areas of significant or unusual natural features, rare or endangered botanical features, or areas of significant wildlife habitats within or adjacent to the project site.
    b. Much of the site will be raised to elevation +/-15' above sea level (see grading plan for more detail) as an extension of the first phase of the project and to align with the City of Portland Comprehensive Plan for a resilient waterfront.
    c. The area around the existing seawall along Fore Street is populated with volunteer plants that have seeded themselves in. This slope will be cleared to allow the building to address Fore Street. The planting design more than doubles the number of trees currently found on site.
2. The site plan shall include adequate measures to protect vegetation to be preserved from construction impacts, in accordance with the landscaping and landscape preservation standards of the Technical Manual.
    a. There are no significant trees on site to be preserved.
3. All development subject to zoning setbacks shall preserve a minimum of 30% of existing trees 10 inches DBH or greater within the required setback area unless trees are non-native invasive species, as identified in the landscaping and landscape preservation standards of the Technical Manual or are deemed unsalvageable by the Portland City Arborist or their designee.
    a. The only vegetation on site is a steep slope of volunteer trees and dense shrubs/weeds. Much of the area is dominated by vines and invasive plants. The slope will be cleared as part of the construction process.

5.3 Site Landscaping & Buffers

Block 4 of the development is located to the east of Phase 1 of the project along Fore Street. The site design for this formerly industrial site includes an extension of Thames Street from Phase 1 along the southern side of the building, four significant courtyard spaces on the rooftop of the garage between the residential towers, and individual entries to several townhouses along Fore Street. The design intent is to provide vehicular and pedestrian access to the building and site while creating contemporary social spaces respectful of the site's industrial history that support the programmatic intent of the building.

The frontage along Fore Street consists primarily of a series of individual townhouses. Each unit has its own entry from the sidewalk. Each entry is flanked by a series of planting areas containing a mix of shrubs and groundcover plants to provide separation between the residential units and the sidewalk. The proximity to the existing seawall precludes the planting of trees as their roots would undermine the back of the seawall.

The primary pedestrian and vehicular entrances to the site are via an extension of Thames Street from the west. Nine street trees (Karpick Red Maple) are located within the sidewalk to the south of the building. These trees will be planted using a pavement support system to allow for healthy root development while maximizing paved areas for pedestrian circulation. The trees are arranged in groups of three to mimic the spacing of the residential buildings above. This has the added benefit of being able to aggregate the pavement support system such that they share a contiguous volume of soil.

Pedestrians will also be able to access the site via public stairs from Fore Street through the central courtyard, then down to Thames Street. The courtyards will contain an extensive series of raised planters, paved walkways, seating areas and entry decks to the residential units. The planters will contain a variety of plant types including small to medium trees, shrubs, and perennials to provide privacy for the residential units and to enhance the public walkway.

The east side of the property, where construction will require reinforced slopes cut into the hillside, will contain a sunken woodland garden containing thirteen birch trees and a mix of shade tolerant perennials.

5.4 Water Quality, Stormwater Management & Erosion Control

The project must comply with the water quality, stormwater management, and erosion control standards identified by the City of Portland in the Land Use Chapter of the Code of Ordinances, as well as the MaineDEP Chapter 500 Stormwater Standards associated with Site Location of Development Act Permit requirements. The Stormwater Management Plan included with this application demonstrates that the proposed development meets the applicable standards.

The project has been designed to minimize the impact of stormwater leaving the site. The project will not result in the flooding of adjacent lots or City property. Proprietary stormwater treatment systems have been installed as part of Phase 1 of the site's development, and additional systems are proposed as part of the current phase. A site that had previously seen no stormwater treatment or management other than some limited collection systems, will be managed to reduce the impact of stormwater on surrounding resources. Additionally, the project is not located within the watershed of an Urban Impaired Stream and is not anticipated to pose a risk of groundwater contamination during or after construction. Erosion and sediment control measures are described in the attached Stormwater Management Plan and detailed in the drawings. The development has also been designed to provide for the adequate and sanitary disposal of sewage, as further described in Section 5 of this Report.

5.5 Attachments

- Official Species List
- Stormwater Management Report (uploaded separately)

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Maine Ecological Services Field Office
P. O. Box A
East Orland, ME 04431
Phone: (207) 469-7300 Fax: (207) 902-1588

In Reply Refer To:
Project Code: 2022-0086547
Project Name: 58 Fore Street

September 19, 2022

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological

evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts see https://www.fws.gov/birds/policies-and-regulations.php.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures see https://www.fws.gov/birds/bird-enthusiasts/threats-to-birds.php.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit https://www.fws.gov/birds/policies-and-regulations/executive-orders/e0-13186.php.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Maine Ecological Services Field Office
P. O. Box A
East Orland, ME 04431
(207) 469-7300

Project Summary

Project Code: 2022-0086547
Project Name: 58 Fore Street
Project Type: Mixed-Use Construction
Project Description: Development project at 58 Fore Street.
Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@43.663273149999995,-70.24280579125673,14z



Counties: Cumberland County, Maine

Endangered Species Act Species

There is a total of 3 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Northern Long-eared Bat *Myotis septentrionalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Threatened

Birds

NAME	STATUS
Roseate Tern *Sterna dougallii dougallii* Population: Northeast U.S. nesting population No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/2083	Endangered

Insects

NAME	STATUS
Monarch Butterfly *Danaus plexippus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

IPaC User Contact Information

Agency: Woodard & Curran
Name: Amy LeBel
Address: 41 Hutchins Drive
City: Portland
State: ME
Zip: 04102
Email alebel@woodardcurran.com
Phone: 2075583841

6. CONSISTENCY WITH CITY OF PORTLAND PUBLIC INFRASTRUCTURE AND SAFETY STANDARDS (14.6.3)

Compliance with the City of Portland's Land Use Code Section 14.6.3 Public Infrastructure and Safety Standards is described in the following sections.

6.1 Public Safety and Fire Prevention

Provisions for public safety have been incorporated into the design of site visibility, access, and security. Adequate emergency vehicle access is provided via the proposed roadway. We have had multiple conversations with the Fire Department over the years throughout the Master Development Plan and previous site plan phases. Access remains consistent with what has been intended over the years of planning for this site.

6.1.1 Portland Fire Department Site Review Checklist

The items in the Portland Fire Department Site Review Checklist are addressed as follows:

- Name, address, telephone number of applicant:
    - Portland Foreside Development Company, c/o David Senus, PE
        - 110 Thames Street, Suite 200, Portland, ME 04101
        - (207) 558-3704
- Name, address, telephone number of architect:
    - Block 4
        - Perkins+Will, c/o Derek Johnson, LEED AP BD+C
        - 225 Franklin St, Boston, MA 02110
        - (617) 406-3430
    - Block 5
        - MARVEL, c/o Zachary Griffin
        - 145 Hudson Street, New York, NY 10013
        - (212) 616-0420
    - Block 6
        - Baskervill, c/o Burt Pinnock
        - 1051 E. Cary Street, Suite 200, Richmond, VA 23219
        - (804)728-3039
- Proposed uses of any structures [NFPA and IBC classification]:
    - The structures are mixed-use. Use classifications are provided on the code summaries included in the architectural plans.

- Square footage of all structures [total and per story]:
    - The square footage of all structures is provided on the architectural plans.
- Elevations of all structures:
    - The elevations of all structures are provided on the architectural plans.
- Proposed fire protection of all structures:
    - All structures shall be sprinkled.
- Hydrant locations:
    - Hydrant locations are shown on the Utility Plan.
- Water main size and location:
    - Watermain locations and sizes are shown on the Utility Plan.
- Access to all structures [min. 2 sides]:
    - Access will be provided to a minimum of two sides of all structures.
- A code summary shall be included referencing NFPA 1 and all fire department technical standards:
    - The buildings will be compliant with requirements of NFPA 101: Uniform Fire Code. Automatic sprinkler systems and fire alarms will be provided as required by Use and Occupancy types. Code summaries are provided on the architectural plans.

The life safety code plans for the proposed buildings are uploaded separately to the Drawings folder in Eplan.

6.2 Availability and Adequate Capacity of Public Utilities

The proposed development will be serviced by public water, sewer, gas, and electric utilities. The proposed locations of the utility services are shown on the Utility Plan included in the Design Drawings. The proposed development will also generate waste as a result of construction and post-construction operations.

6.2.1 Water

Woodard & Curran has been working directly with the Portland Water District (PWD) throughout the prior and current phases of work to ensure that all proposed infrastructure is being constructed in conformance with their standards. We previously received the ability to serve confirmation for the overall development and will provide required block-specific approvals as part of the Site Plan process for each phase of development.

The proposed development will be provided with both fire protection water service and domestic water service as shown on the drawings via a private water system that will connect to the public water main on Fore Street. Woodard & Curran is working directly with the Portland Water District to determine the appropriate design for this work. The ability to serve documentation for Phase 2 is attached to this section.

6.2.2 Sewer

The proposed development will be provided with sanitary sewer service as shown in the drawings. The private system on the site will include a combination of gravity sewer and force main with a pump station that will discharge to the sewer on the Thames Street Extension. The existing sewer service on Fore Street will be abandoned. The proposed development will include restaurants, kitchens, and parking garages; grease traps and oil/water separators will be provided as shown in the drawings. A copy of the City's determination of ability to serve will be provided upon receipt.

6.2.3 Gas

The proposed development will utilize natural gas service provided by Unitil. Proposed infrastructure is shown on the Utility Plan. The location and size of the gas service is being coordinated with Unitil. An ability to serve determination will be provided upon receipt.

6.2.4 Electric

The proposed development will utilize underground electric service. Proposed infrastructure is shown on the Utility Plan. The design of the electric service is being coordinated with Central Maine Power (CMP). Final electric layouts will be provided to CMP for their review and an ability to serve determination will be provided upon receipt.

6.2.5 Solid Waste

Adequate provisions for recycling and solid waste disposal have been made. All solid waste materials and recyclables generated by the proposed development will be transported and disposed of or recycled in accordance with applicable laws and regulations. Solid waste will be managed in full accordance with all applicable laws and regulations.

6.2.6 Construction & Demolition Debris

The proposed development will generate construction waste and demolition debris (CDD). The Contractor will be responsible for properly disposing of the CDD. The Contractor will be responsible for handling, managing, and disposing of all waste generated by construction in accordance with the Maine Solid Waste Management Regulations and all other applicable local, state, and federal regulations.

6.2.7 Special & Hazardous Waste

The proposed development is not anticipated to produce any hazardous waste. Environmental assessments of the Site have been conducted and the Owner is a participant in the Maine Department of Environmental Protection Voluntary Response Action Program (VRAP). A soil management plan has been developed for the site.

6.3 Attachments

- PWD Ability to Serve Email

Amy LeBel

From: AMaP MEANS <means@pwd.org>
Sent: Wednesday, March 22, 2023 3:47 PM
To: Lauren Swett
Cc: Thomas Whitney
Subject: 525766-58 Fore Street PH2, PO
Attachments: PO - Portland Foreside Ph II - Infrastructure Map - 2023.pdf

Hello Ms. Swett,

This email does not give final approval of the 58 Fore Street Phase 2 development project from PWD, however it can be used to satisfy Site Law Statute §484 - Standards for Development, Site Law Rule Chapter 375(18), and Site Law Rule Chapter 375(6) granted that the applicant meet all applicable standards set forth by DEP or other governing body. Attached is a copy of PWD's infrastructure map noting the location, type, and size of the public water infrastructure near your site, demonstrating a sufficient and healthful water supply exists. Based on the demand provided by the applicant, the district has sufficient supply to serve the proposed project, as long as the project is designed and installed in accordance with PWD standards. This email shall serve as PWD's acknowledgement of the project and the start of design coordination with the development team; In no way shall this information be interpreted as a determination of PWD's ability to serve the project at this time as this is only a determination of the capacity of the existing system based on the proposed development. As your project progresses, we require that you submit design plans to MEANS for review of the proposed water improvements. An Ability to Serve Determination letter is required from the District in order to receive final approval from the District and the municipality having jurisdiction.

Please let me know if you have any questions.

Thanks,

Portland Water District

225 Douglass Street, PO Box 3553

Portland, ME 04104

Phone: 207-774-5961 x3199

E-mail: means@pwd.org

http://www.pwd.org

Portland Water District NOTICE & DISCLAIMER Confidentiality Notice:

THIS MESSAGE IS INTENDED ONLY FOR THE USE OF THE INDIVIDUAL OR ENTITY TO WHICH IT IS ADDRESSED AND MAY CONTAIN INFORMATION THAT IS PRIVILEGED AND CONFIDENTIAL. Please notify the sender if you have received this message in error. Recipients should be aware that replies to this message may not be considered confidential under the Maine Freedom of Access law, 1 M.R.S.A. §402, and may therefore be subject to public disclosure upon request.

Please consider the environment before printing this email



86 Leland Street

Portland

PORTLAND WATER DISTRICT
225 Douglass Street
Portland, ME 04104

Scale 0 20 40 80 120 160 Feet — 1 inch = 100 feet

Legend

- Air Valve
- Blow Off
- By Pass
- Distribution
- Transmission
- Connection
- Attribute Change
- Hydrant Control
- Reducer
- Hydrant
- Meter Pits
- Combined Service
- Domestic Service
- Fire Service
- Shallow Water Main
- Deep Water Main
- Proposed Water Main
- Private Hydrants
- Gravity
- Force
- Manhole
- CSO

Disclaimer: This map is suitable for preliminary study and analysis and is based on PWD record information. PWD is not liable for any damages whatsoever resulting from inaccurate data or from errors made in the location and marking of its infrastructure.

Drawn By: HAS	Infrastructure Map
Scale: As Noted	March 8, 2023

7. CONSISTENCY WITH CITY OF PORTLAND SITE DESIGN STANDARDS (14.6.4)

Compliance with the City of Portland's Land Use Code Section 14.6.4 Site Design Standards is described in the following sections.

7.1 Massing, ventilation, and wind impact

Buildings have been designed within a context of similarly scaled new and existing buildings. All primary mechanical equipment is housed either within buildings, or within a fully screened extent of roof located to minimize disruption to abutting properties. HVAC venting is directed away from adjacent public areas.

7.2 Shadows

Buildings have been designed to minimize impacts of shadows on open space and public areas that would affect the viability of the public use and existing vegetation. Over the course of the day, direct sunlight will be provided to adjacent areas to promote the use and growth of vegetation.

7.3 Snow and ice loading

Buildings have been designed to prevent snow and ice from accumulating and falling onto abutting properties and public ways.

7.4 View corridors

Buildings have been designed to accommodate view corridors identified in the City's regulatory requirements.

7.5 Historic Resources

A small portion (4 townhouses) of the proposed development is located within the Portland Company Historic District and the western façade of Block 4 is located within 100 feet of the Portland Company Historic District. The design of these components takes into consideration the review that was undertaken during the Master Development Plan process and the previous Level III Site Plan process. A portion of the residential condominium project associated with Block 6 is located partially within the Munjoy Hill Historic District. We will work with the Planning Division on the required historic preservation review concurrent with the Site Plan process.

7.6 Exterior Lighting

Site Lighting

Proposed exterior lighting will be addressed as part of a future submission. The photometric evaluation of the site is currently ongoing and will be provided under separate cover.

7.7 Noise and Vibration

The noise impact from the proposed development will be minor. The primary source of noise from the proposed project will be the result of construction. Construction activities will be limited to the hours permitted by the City. HVAC and primary mechanical equipment will be located and screened to mitigate noise impacts. Noise associated with the proposed development will not exceed regulated levels and is not anticipated to negatively impact surrounding development in its urban setting. Noise and vibration associated with the proposed development will not exceed regulated levels.

7.8 Signage and Wayfinding

Sign permit applications will be submitted under separate cover. The size, scale, proportions, design, materials, placement, quantity and source and intensity of illumination shall be designed to complement and enhance the architectural attributes of the proposed building.

Consideration has been put into wayfinding to minimize vehicular traffic. The primary site entrances associated with Phase 2 are located off Fore Street and Thames Street, which will lead directly into the Block 4 parking garage. The Traffic Assessment provided in Section 3 includes a trip summary for each site entrance.

8. CONSISTENCY WITH CITY COMPREHENSIVE PLAN

Since the original vision for the redevelopment of 58 Fore Street was formed, Portland Foreside has reviewed, considered, and referenced numerous City Planning documents – both past and present. The broad planning efforts that have been undertaken in the past have provided a foundation for what the intention and vision is for the eastern waterfront and for what this new, mixed-use neighborhood will become.

Portland Foreside has documented consistency with the City's comprehensive plan(s) twice in the past, including the Master Development Plan that was approved in 2016 and the Phase I Level III Site Plan that was approved in 2020. Phase II, the next phase of development which includes Block 4, Block 5, Block 6 and associated site and infrastructure improvements was designed to bring to life many of the goals and themes of Portland's Plan 2030. Creating a vibrant mixed-use neighborhood that is an extension of the City's downtown area and opens up the waterfront to residents, employees and visitors is what this overall project seeks to achieve.

The City's current Comprehensive Plan (Portland's Plan 2030) completed in 2017 articulates a vision of Portland's values and provides a framework for decision making revolving around the values, goals, and strategies of the City over the next decade. This next phase of the redevelopment remains consistent with the previous planning documents and is also consistent with Portland's Plan 2030.



Figure 8-1 Six Interconnected Themes Identified During Portland's Comprehensive Planning Process

Comprehensive Plan Vision Statement

Portland's Plan 2030 is guided by a vision statement for the City that includes six interconnected themes, which provide the foundation for focusing City policies and priorities identified for gauging success. The goals and implementation strategies in the Plan support the vision statement.

This current phase of the Portland Foreside development aligns with all six themes of the vision statement, with focus on many of the specific points (listed below in italics) highlighted within those themes.

Equitable *We (City) will remain an open and inclusive city, celebrating diversity and providing a welcoming and safe place for residents and visitors alike.*

The benefits and costs of our City will be born fairly across the entire City.

We will incorporate the needs of all our residents in planning for our future.

A core principle of the entire Portland Foreside project is connectivity to the rest of the City and opening up this part of the eastern waterfront to the public for the very first time. Enjoying the waterfront is something that should be available to all residents, employees, and visitors to the City. This new mixed-use neighborhood will be welcoming and safe.

Phase 2 of the project features the addition of over 444 housing units of various types to the Portland market, a hotel, retail spaces and public plaza spaces. The added tax revenue to the City that will be generated from this currently underutilized property will be a tremendous benefit. Phase I of the project completed site features such as stairs and plaza areas that are now accessible from Fore Street. The site is intended to be welcoming to pedestrians and provide important public access to the waterfront.

Sustainable *Portland has been built and rebuilt to endure; we will balance our historic fabric, sound infrastructure, and the best of new technology and design for the future.*

Portland will grow in order to sustain our community, infrastructure, and economy.

Growth should respect and seek to preserve our spectacular natural resources.

We will recognize our responsibility as a global citizen and that climate change will have significant impacts on our city by prioritizing a transition to a low-carbon economy and adapting to those climate changes we can no longer mitigate.

With an authentic, celebrated historic core, Portland Foreside is excited to balance the past with a mix of uses that will allow for full enjoyment of the eastern waterfront by the public. Redevelopment and reuse are a core sustainability principle. Block 4, Block 5, and Block 6 will serve to complement the adjacent historic core and provide needed housing units and additional infrastructure to support sustainable growth. Developing underutilized urban sites by nature helps to preserve natural resources where otherwise growth may occur. The Portland Foreside neighborhood has been framed with important consideration given to floodplain, drainage during storm events, EV charging stations, bicycle access, pedestrian access and offering residents, visitors, and employees a place to live, work and visit without using a vehicle or other mode of transportation. Each of these considerations are actions to help advance the City's climate change goals.

Dynamic *We will embrace innovation in order for our community to thrive.*

We will welcome new residents into our community because they enrich and sustain our city.

Portland will plan for a built environment that encourages an active citizenry.

Phase 2 of the Portland Foreside redevelopment project supports the opportunity to link its a vibrant downtown to the eastern waterfront. Connections to the Eastern Promenade trail reinforce important pedestrian and bicycle connections, while the shared street design prioritizes pedestrian access through the site. The space will be accessible to residents, visitors, and employees from within the development and from the surrounding Portland neighborhoods. The addition of 400 housing units to this site in an already densely developed area is good urban planning and a way to further enrich the City and where people can live. With a new neighborhood that provides places for people to work, live and visit, there is a natural intersection of the built environment with varying uses to encourage an active, diverse, dynamic vibrancy.

Secure *We will strive to create a resilient economy through innovation, investment, and commitment to diversity.*

We will be committed to accessible housing and healthy food for all our residents.

We will prepare for emergencies and be ready for a changing climate.

We will strive to create a resilient economy through innovation, investment, and commitment to diversity.

Phase I of the redevelopment at Portland Foreside focused heavily on adding good paying jobs to the local downtown area by constructing a building for Sun Life Financial. The innovation, investment, and commitment to diversity of this company is inspiring. To further support this office use, Phase 2 is further diversifying the uses on the site to include retail, a hotel, housing, waterfront improvements and infrastructure that will be a major investment along the eastern waterfront. Creating 444 housing units in Block 4, Block 5 and Block 6 is advancing the City's commitment to accessible housing units. Designing these three blocks with climate change and security in mind will provide the City the ability to achieve its resilient economy goals.

Authentic *We (City) will celebrate our city's incredible history.*

The uniqueness and integrity of our neighborhoods will be maintained and enhanced.

We will invest in and support our local economy.

We will maintain our character through preservation, innovation, and excellence in design for the built environment.

The entire Portland Foreside redevelopment project is a celebration of the City's history while positioning the eastern waterfront to be successful in the future. The historic core of this project is complemented by Phase 2 which is unique and different from any other neighborhood in the City. As a true mixed-use neighborhood, the uses not only provide much needed housing, but also a variety of jobs that are good paying and foster further investment in the local economy. Maintaining the character of the eastern waterfront is evident through what has been preserved on site and the outstanding thought and design put forth in Blocks 4, 5 and 6 to complement the historic core and waterfront area.

Connected *We will foster accessible linkages between where we live, work, shop, and play.*

We will enable meaningful access to the natural world and recreational opportunities as a central component of community health.

Our success will be tied to our connections to each other, our state, and our region.

A 21st century Portland will continue to rely on integrated transportation infrastructure.

The entire Portland Foreside redevelopment project is focused on being connected and fostering linkages to the rest of the Old Port, the Eastern Promenade, and the Munjoy Hill Neighborhood. The access to these areas is very meaningful, because historically, they have not existed in this part of the City. Residents, employees, and visitors have not been able to live, work or visit this area of the City and the access that Phase II will provide immediate, meaningful access to the Eastern Promenade trail and the enjoyment of Casco Bay. As a true mixed-use neighborhood, connection of all uses on this property are key to success of the project, but also for people who live and work there. The massive changes as a result of this project connect directly to the City, State and region through increased tax revenue, increased sales tax, and increased income tax. The commitment to integrating this site into the City's public infrastructure will also serve to offer meaningful connections and integration throughout other areas of Portland and the region.

The proposed development supports Portland's desire to endure by offering an opportunity to grow, change, and revitalize an area of the City that has been underutilized for many years and to support redevelopment where it makes sense within the City. The following sections describe how the proposed development will align with the policy guides associated with Portland's Plan 2030.

Comprehensive Plan Policy Guides

The City of Portland Comprehensive Plan includes eight specific policy guides focused on the topics of environment, historic resources, waterfront, economy, housing, recreation and open space, facilities and services and transportation. The discussion below emphasizes how the proposed development is consistent with each individual policy guide.

Environment Policy Guide

- Within the Environment Policy Guide, one of the local goals is to develop climate resilience through specific carbon reduction goals, comprehensive climate adaptation strategies, and protections for the City's most vulnerable infrastructure. The design team has specifically considered resiliency as part of the proposed Block 4, Block 5 and Block 6 development through building design and site layout.

- The Policy Guide also has a local goal to adopt sustainable land use and transportation policies that support connectivity, walkable neighborhoods, and multi-modal transportation. The proposed development is the next phase of the overall 58 Fore Street Master Development Plan to move forward, and it was conceptualized around the ideas of connectivity and walkability. The proposed shared street concept will prioritize pedestrian movements through the site, and parking garages have been efficiently incorporated into the site layout. Pedestrians will be able to access the site directly from Munjoy Hill.

- One future strategy is improving water quality. As described by the project-specific Stormwater Management Plan, stormwater best management practices will be incorporated into the Site to improve drainage and water quality treatment.

- Another future strategy is to develop climate resilience by pursuing strategic investment where storm surge and sea level rise will have impacts, including the waterfront. The design team has considered future sea level rise, storm surge, and flooding scenarios and the project has been designed to prioritize resiliency on the Site. Building finish floor elevations are established in consideration of future sea level rise.

- The development also includes the addition of stormwater treatment and conveyance systems to improve drainage and water quality. Prior to the site's redevelopment, no stormwater treatment was in place on the site. The development of this phase of work will bring the site to a level of 50% treatment through the use of proprietary treatment devices and below-grade stormwater storage.

The proposed development of Blocks 4, 5 and 6 of the 58 Fore Street Master Development Plan will have a positive impact on maintaining and enhancing connectivity and walkability in the East End of the City. This downtown development is also in line with the goals of the City's environmental policy.

Historic Resources Policy Guide

The overall proposed development supports the Historic Resources Policy Guide by aligning with the following goals:

- Promote historic preservation as a key economic, sustainability, and community development strategy.

- Stabilize and enhance historic areas of the city by ensuring quality investment in existing structures and compatible infill development.

- Ensure an appropriate balance of continuity and change as Portland grows and evolves.

Portions of the proposed development are located within the Portland Company Historic District and the Munjoy Hill Historic District. This phase of the 58 Fore Street Master Development Plan will be compatible with the major character defining elements of the districts. The development has been designed to promote historic preservation as an economic, sustainability, and community development strategy. The redevelopment of this Site is based on enhancing the former Portland Company Complex components that remain through quality investment and compatible adaptive reuse. The project balances continuity and change in an evolving Portland by preserving the historic character of the site while helping to meet the demand for sustainable growth.

Waterfront Policy Guide

The proposed development includes access points from Fore Street and through the site that connect plaza areas on the building rooftops down to the waterfront level. Promoting passive and active recreational access to the waterfront is a key goal in the Waterfront Policy Guide. The overall site development will create public access to the waterfront in an area of the City where direct access does not currently exist by creating thoughtful linkages at the pedestrian level in a built environment. The proposed development will also promote the City's connectivity by maintaining and enhancing the existing Eastern Promenade Trail, which

provides pedestrian access to both the Site and the waterfront area. Reconstruction of the trail has been included as part of a separate site plan application along with the reconstruction of the Narrow Gauge Railroad through this area, and other waterfront improvements that will supplement the work being completed for this phase.

Economy Policy Guide

The proposed development directly supports goals within the Economy Policy Guide including:

- Create economic prosperity by growing Portland's tax and employment base.
- Reinforce the waterfront as a key component of Portland's economic health, balancing traditional and emerging industries with tourism and recreation.

Retail, hotel, and residential space created by the development will help to grow Portland's tax and employment base. Locating these types of uses in this development helps to balance activity in this part of the City between tourism and recreation and traditional and emerging industries, while also providing for new residential uses. The proposed development intends to encourage public access by creating an authentic and dynamic environment, which will help stimulate use of the businesses located in the City's east end. The scale of residential development proposed will also bring a new residential population a property in the City that has never previously served the residential use. Additionally, the proposed development will revitalize the area, which will ultimately result in an increased valuation of the existing surrounding properties.

Housing Policy Guide

Phase 2 (Block 4, Block 5, and Block 6) includes the development of 444 housing units and supports the goals of the City's Housing Policy Guide to create complete neighborhoods. The proposed development will provide housing in close proximity to the City's urban center and transportation hubs in support of a walkable and vibrant neighborhood.

In a 2021 memo to the HECD from the City's Planning Director, it is noted that housing is one of the City's most pressing issues. It references Portland's Plan 2030 and the housing production target goals to "encourage housing that meets the needs, preferences and financial capabilities of all Portland households." Portland's Plan 2030 also is supportive of housing creation "in all neighborhoods and supports significant increases in housing within major transportation nodes and corridors."

The opportunity to create 444 housing units on the peninsula in a mixed-use waterfront neighborhood is consistent with both local policies and plans and with redevelopment efforts throughout the country. The opportunity to live, work and visit waterfront areas that have been previously underutilized in the past is a documented, successful approach to sustainable cities and communities. Phase II will directly and immediately address some of the City's housing production goals in a positive way and allow for residents at varying incomes to live in a vibrant, densely developed area.

Recreation and Open Space Policy Guide

Additional public access to the waterfront from Fore Street is being created as part of Phase 2 through the addition of two staircases that will take pedestrians through a courtyard down a staircase to Thames Street or through an interior staircase down to the historic core. From these locations, pedestrians can continue

onto the waterfront and the Eastern Promenade Trail. The proposed development is exciting and directly consistent with goals in this policy guide including:

- Sustain and build our system of parks, trails, and open spaces to enhance our quality of life, protect our environment, and promote the economic well-being of our remarkable city by the sea.

- Strengthen connections between open spaces.

Providing and strengthening connections to the waterfront and providing passive open space areas is stated in this policy guide as integral to the health and well-being of Portland's residents and visitors. The preservation of open space and revitalization of the downtown area will help the City to maintain its authentic character.

Facilities and Services Policy Guide

The infrastructure associated with the proposed development is supportive of the goal in the Facilities and Services Policy Guide focused on coordinating infrastructure planning and investments with areas of greatest anticipated growth. The buildings will require connections to water, sewer, gas, and electric utilities. Some of the infrastructure investments will be paid for privately, but the coordination and additional investments by the City are in an area where growth is supported and has been planned for. The City will realize a reduced cost for public infrastructure operations and maintenance by permitting downtown development and leveraging existing utilities when compared to developments in other areas of Portland where new utilities are required.

Eastern Waterfront Master Plan

The Master Plan for Redevelopment of the Eastern Waterfront (EWMP) specifically acknowledges the vacant, underutilized land in the area of the project site at 58 Fore Street. The EWMP notes that, given the location of the site and proximity to water views, urban amenities, vehicular access, port access and integration with the City trail system, significant redevelopment potential exists. Redevelopment such as parking structures, intensive reuse of historic buildings, replacement of non-historic structures, and open space enhancement were all anticipated in the EWMP. Many of these items are included in this Phase II project. Several principles and associated objectives for redevelopment are identified in the EWMP, including:

- *"Development within the eastern waterfront will be compatible with the surrounding areas, neighborhoods, natural environment and maritime uses."* Objectives associated with this principle that are consistent with the proposed redevelopment are the use of compatible architecture, continued establishment of a new street and pedestrian network that integrates with the surrounding street and trail network and preservation of significant view corridors to the water and along the waterfront.

- *"Development within the eastern waterfront will create a vital and active mixed-use urban area that generates life and use every day of the year and all hours of the day."* Objectives associated with this principle that are consistent with the proposed redevelopment are the creation of mixed-used non-marine development and activities that are compatible with the use of maritime resources, the increase of the public's use of the water, waterfront, and shore through public access, and maintaining and enhancing recreational trail access.

- *"Development in the eastern waterfront on piers, bulkheads and on land within 75' of mean high-water line, will give priority to compatible water-dependent and maritime uses."* Objectives associated with this principle that are consistent with the proposed redevelopment are preserving and enhancing water dependent uses by providing public physical and visual access to the water and continued prioritization of Fore Points Marina, a water dependent use.

- *"Development in the eastern waterfront will provide a significant benefit to the City and the regional economy."* Objectives associated with this principle that are consistent with the proposed redevelopment are creating a positive economic return to City, sustaining, and strengthening water-related tourism, enhancing the economic viability of the eastern waterfront's property and facilities, and assuring that development benefits the residents of the greater Portland community.

The vision for Phase 2 of the Portland Foreside Master Development Plan was built on the foundation of the EWMP with the intent of connecting the waterfront to the City of Portland with inspiring design focused on mixed-uses, public spaces and historic preservation.

Design Guidelines for the Eastern Waterfront

Consistent with Phase I of the project, the Design Guidelines for the Eastern Waterfront have been considered as part of the master planning of the proposed project. In general, it was noted that encouraging the adaptive reuse and sensitive rehabilitation of historic structures, increasing connections to Commercial Street, and promoting shared parking with abutting uses were key points to consider in the design of the proposed project. The design team has made the following considerations:

Streets

- Appropriate Street Design – The proposed shared roadway has been designed to accommodate expected vehicles and pedestrians safely and efficiently while encouraging appropriate speeds. On-street parking has been provided wherever possible to provide a buffer between pedestrians and moving traffic and to serve the retail, residential, and commercial uses in the area.

- Sidewalks – The proposed shared street concept along with sufficient additional walkways will accommodate pedestrians comfortably and safely. The pedestrian environment will be further enhanced using fixed street furniture, compatible and consistent lighting, and landscaping. Sidewalk cafes, temporary art installations, and seasonal lighting will also be considered to encourage year-round activity.

- View Corridors – The site has been designed to provide for views to and from the water, including the view corridors.

- Underground Utilities - Overhead utilities have been avoided; utilities have been designed to be located underground to the maximum extent practicable.

- Bicycle Safety - The proposed roadway has been designed to accommodate bicycle traffic and safety. Bicycle parking will be provided throughout the site and in the parking garage.

Buildings/Architecture

- Contextual Design - Buildings have been designed in response to their context and will be compatible with the surrounding neighborhood.

- Pedestrian Environment - Large expanses of blank walls have been avoided and multiple entries will be provided into buildings. Amenities such as street furniture and lighting will encourage year-round pedestrian use.

- Primary Entrances and Service Entrances - Service entrances and loading facilities have been strategically located such that they will not directly impact primary entrances.

- Parking Structures - Parking structures will be compatible with adjacent uses and architecture.

Open Space

- Public Open Space and Plazas – The proposed project will contribute to the public realm through enhancement of pedestrian spaces and increased recreational opportunities.

Waterfront

- The Eastern Waterfront - The function of this area as an intermodal transportation center has been designed to facilitate integration and coordination of the various current and potential future modes of transportation.

The overall intent of the project has been to create a vibrant, usable space that will become an extension of the City of Portland's existing downtown. Throughout design, the project team has considered the City's various master plans, policies, and guidelines with the goal of integrating the project into the existing City fabric.

Standard to be Waived: Cite Ordinance or Technical Manual Standard	Cite Standard Language: Cite specific language of applicable Ordinance or Technical Manual Standard	Waiver Being Sought: Describe waiver being sought. Ex. – We are requesting a two-way parking lot drive aisle width of 20' feet.	Justification for Waiver: Address specific waiver criteria, if applicable, and document reasons for the waiver request.
Current Department of Public Works Requirements for Driveway Aprons	Per discussions with City DPW staff, driveways should be continuously graded without pedestrian ramps.	Driveway apron at the Fore Street garage to be graded with pedestrian ramps on both sides.	The steepness of the existing Fore Street slope does not allow for a continuously graded driveway apron.
City of Portland Technical Manual Section 1 - Transportation Systems - Subsection 1.17 Electric Vehicle Infrastructure	New structured garages shall provide EV charging to 20% of parking spaces. Remaining spaces must be served by sufficient conduit, wiring, and electrical service to allow for future installation of electric vehicle supply equipment.	78 Charging Stations (11% of garage spaces) with plan to increase the number of EV charging stations within the garage, over time, up to 142 (20%) as EV charging demand grows.	See Section 2.6 of the Site Plan Narrative (Permitting and Zoning) for waiver justification.
City of Portland Technical Manual Section 5 - Stormwater Management Standards and Maine DEP Chapter 500 Stormwater Management Section IV.	...provide the following submission items...Flooding Standard: Subcatchment plans with flow paths, full hydrology computations/model output of pre- and post-development conditions, summary of pre- and post-development	The project site received a waiver of the Flooding Standard as part of the Master Development Plan. This waiver will continue to remain in place for the current phase of work.	As described in our Stormwater Management report, our site discharges directly to Casco Bay, part of a tidal body of water, via the outfall discharge.

CITY OF PORTLAND
Planning & Urban Development Department

MAJOR SITE PLAN
GENERAL DOCUMENT AND DRAWINGS CHECKLIST
Please submit each document as a separate PDF file.
Please confirm by electronically checking the boxes in the left-hand column.

**** PLEASE FILL OUT AND UPLOAD THE ZONING ASSESSMENT TABLE AND WAIVER TABLE SEPARATELY AS NOTED BELOW ****

At the time of application submission, please contact the Department of Public Works regarding E-911 addressing for your project.

GENERAL APPLICATION DOCUMENTS	
Yes NA	**Project Description** ● Cover letter with detailed project description
Yes NA	**Completed Checklist** (this document)
Yes NA	**Evidence of Right, Title, and Interest** ● Deeds, leases, or purchase and sales agreements
Yes NA	**Evidence of State or Federal Approvals** ● Permits or letters of non-jurisdiction, if applicable
Yes NA	**Zoning Assessment** (see Zoning Assessment Table) Summary of compliance with use and dimensional standards of the land use code
Yes NA	**Site Plan Standards Assessment** (see Section 14.6 of the land use code) • Summary of project compliance with site plan standards of the land use code
Yes NA	**Summary of Existing and/or Proposed Easements or Covenants, applicable.** ● Evidence of existing easements and any proposed easements, covenants, public or private rights-of-way
Yes NA	**Waiver Requests** (see Waiver Table) ● Written request for waiver describing request and compliance with applicable waiver standards
Yes NA	**Financial Capability** ● Letter or evidence from a financial institution or third party verifying financial capacity to undertake project
Yes NA	**Technical Capability** ● Evidence of technical capability of applicant and consultants – resumes and/or examples of past projects

MAJOR SITE PLAN
STANDARDS AND SUBMISSION CHECKLIST

Provide assessment of compliance with standards and include supplemental documentation, as applicable.
Please submit each document as a separate PDF file.

TRANSPORTATION		
Yes	**NA**	**Impact on Surrounding Street Systems (14-14.6.1(A))** ● Describe incremental volume of traffic impacts and mitigation measures. If needed
Yes	**NA**	**Access and Circulation (14-14.6.1(B))** Identify and describe the following: ● Site access and internal circulation, including ADA access ● Drive-up features, if applicable ● Loading and servicing needs, routes, and geometry, providing turning templates for delivery vehicles, if applicable ● Sidewalks and condition along street frontages and internal walkways ● Engineered details for ADA ramps and public sidewalks, meeting sidewalk material policy and construction requirements (Technical Manual, Section 1)
Yes	**NA**	**Public Transit (14-14.6.1(C)), if applicable** Identify and describe the following: ● Existing available transit service and proposed transit improvements, including design details, such as easement, pad base, and shelter
Yes	**NA**	**Off-Street Parking (14-14.6.1(D)), if applicable** Identify and describe the following: ● Proposed vehicular and bicycle parking supply (including ADA-compliant parking) in relation to applicable parking requirements in Article 19 of the land use code ● Curb cut separation and parking layout (Technical Manual, Section 1) ● Construction details for bicycle racks ● Management plan for snow storage and removal
Yes	**NA**	**Transportation Demand Management (TDM) (14-14.6.1(E)), if applicable** ● Provide TDM plan drafted in accordance with Technical Manual Section 1 requirements

ENVIRONMENTAL	
Yes NA	**Preservation of Significant Natural Features (14-14.6.2(A)), if applicable** Identify and describe the following: ● High and moderate value waterfowl and wading habitat ● Aquifers (for Casco Bay Islands) ● Waterbodies (including wetlands, watercourses, significant vernal pools and floodplains) ● Proposed preservation areas and protection measures ● Documentation from environmental compliance consultants and determinations from applicable state and federal agencies
Yes NA	**Landscape Preservation (14-14.6.2(B))** Identify and describe the following: ● Measures to preserve trees, including within required zoning setbacks (Technical Manual, Section 4) ● Measures to protect existing vegetation during construction
Yes NA	**Site Landscaping and Buffers (14-14.6.2(C))** Identify and describe the following: ● Overall landscaping approach and consistency with standards ● The use of screening and buffering of service areas and between non-residential and residential uses ● Existing Heritage or Feature Trees on site and measures to preserve ● Compliance with street tree requirements
Yes NA	**Water Quality, Stormwater Management, and Erosion Control (14-14.6.2(D))** Identify and describe the following: ● Erosion and sedimentation control plan and measures ● Evidence of compliance with Urban Impaired Stream Standards pursuant to DEP Chapter 500 stormwater law, as applicable ● Subsurface sanitary sewage disposal and groundwater protection measures

PUBLIC INFRASTRUCTURE AND COMMUNITY SAFETY		
Yes	NA	**Consistency with City Master Plans (14-14.6.3(A))** ● Describe proposed easements, rights and improvements to connect or continue off-premises public infrastructure, as applicable
Yes	NA	**Public Safety and Fire Prevention (14-14.6.3(B))** Identify and describe the following: ● Compliance with Crime Prevention through Environmental Design (CPTED) requirements (Technical Manual, Section 3) ● Emergency vehicle access ● Consistency with public safety standards (Technical Manual, Section 3)
Yes	NA	**Availability and Adequacy of Public Utilities (14-14.6.3(C)) (Technical Manual, Sections 2 & 9)** Identify and describe the following: ● Electrical services, including providing underground services ● Existing and proposed connections for public utilities and required public utility upgrades ● Sewer line connections
SITE DESIGN		
Yes	NA	**Massing, Ventilations and Wind Impact (14-14.6.4(A))** Identify and describe the following: ● Wind and ventilation impacts on adjoining structures and/or adjacent public spaces, including wind study, if applicable ● Bulk, location, or height impacts on adjoining structures
Yes	NA	**Shadows (14-14.6.4(B)), if applicable** ● Provide shadow analysis of impacts on publicly accessible open space (Technical Manual, Section 11)
Yes	NA	**Snow and Ice Loading (14-14.6.4(C))** ● Describe building design measures to prevent snow and ice from loading or falling onto adjacent properties or public ways
Yes	NA	**View Corridors (14-14.6.4(D)), if applicable** ● Describe any protection of designated view corridors (Portland Design Manual, Appendix. 1)
Yes	NA	**Historic Resources (14-14.6.4(E)), if applicable** Identify and describe the following: ● The site's status as a designated landmark, within a historic district or historic landscape district, or within 100 feet of any designated landmark, historic district, or historic landscape district ● Compliance with standards for preservation and documentation of archaeological resources

Yes	NA	**Exterior Lighting (14-14.6.4(F))** ● Describe how the proposed site lighting will adhere to photometrics requirements as it relates to light trespass and full cutoff fixture design, pursuant to Technical Manual Section 12
Yes	NA	**Noise and Vibration (14-14.6.4(G))** ● Provide data on noise levels for HVAC and other mechanical equipment, such as design specifications, to demonstrate consistency with state and federal noise emissions requirements as well as City code
Yes	NA	**Signage and Wayfinding (14-14.6.4(H)), if applicable** ● Provide signage plan showing the location, dimensions, height and setback of all existing and proposed signs ● Provide drawings of all commercial and directional signage on site
Yes	NA	**Zone-Related Design Standards (14-14.6.4(I))** ● Address any applicable design review standards by zone, including compliance with Design Manual

MAJOR SITE PLAN
DRAWINGS CHECKLIST

Please upload the following DRAWINGS with the listed details into e-Plan as separate pdfs.

All drawings must be submitted in a 24 x 36 sheet size.

BOUNDARY SURVEY (stamped by a Maine Licensed Surveyor and drawn as per Technical Manual Sec. 13)

SITE PLAN(s) (stamped by a Maine Licensed Professional Engineer) including:

All sheets – Include a title block with project title and the following information:

- Project street address
- Name and address of property owner & applicant
- Licensed design professional, incl firm that produced plans
- North arrow
- Date of preparation and revision history block
- Tax parcel (chart, block, and lot) number

Existing Conditions Plan with the following:

- Existing structures, with distance from primary building façade(s) to the property line
- Approximate location of structures on abutting properties
- All streets and intersections adjacent to the site
- Existing driveways, pedestrian ways, and bicycle infrastructure, including dimensions and materials
- Existing public transit infrastructure
- Existing vehicle & bicycle parking areas
- Existing utilities on site and within adjacent rights-of-way
- Existing grades (two-foot contours preferred)
- Location of water courses, wetlands, and vegetation, or other significant natural features
- Existing soil conditions and location of test pits and borings
- Zoning boundary lines, including overlays
- Location of all existing easements and rights-of-way

Proposed Site Plan with the following:

- Proposed structures, including distance from primary building façade(s) to property lines
- Ground floor area, and finished floor elevations for all buildings
- Any proposed geometric modifications to streets and intersections adjacent to site
- Location, dimensions and materials of all proposed driveways, vehicle, bicycle, & pedestrian access ways with corresponding curb lines
- Engineered specifications/ cross-sections for proposed driveways, sidewalks & paved areas
- Location and dimensions of proposed loading areas, including turning templates
- Proposed transit infrastructure with dimensions/ engineering specifications
- Location of vehicle and bicycle parking with dimensions and engineering specifications
- Location of all snow storage areas
- Exterior lighting (please see Technical Manual Sec. 12 for photometrics requirements)

- Location of fire hydrants
- Location of solid waste management receptacles
- Location of all proposed HVAC and mechanical equipment, including proposed screening, where applicable
- Location of proposed easements and rights-of-way, including dimensions
- Please utilize color-coding and/or hatches and shading to delineate changes between the pre and post development condition as needed

UTILITY PLAN including:

- Proposed electrical infrastructure
- Location, sizing and directional flows of all proposed sewer and stormwater infrastructure
- Location and dimensions of off-premises public or publicly accessible infrastructure adjacent to site
- Electric utility infrastructure

GRADING AND DRAINAGE PLAN including:

- Proposed grades
- Proposed stormwater management measures meeting Technical Manual (Section 5) standards
- Any proposed alteration of a watercourse or wetlands
- Any groundwater protection measures
- Proposed buffers and preservation measures for wetlands or significant natural features

LANDSCAPE PLAN including:

- Existing vegetation to be preserved and preservation measures
- Proposed landscaping, screening, and street trees, including caliper widths for trees
- Planting schedule, including street trees

ARCHITECTURAL PLANS AND RENDERINGS including:

- Exterior building elevations, color renderings, illustrations of all sides
- Axonometric and street-level views for structures greater than three stories in height
- Provide context drawings, if applicable (Design Manual, page 1)
- Floor plans

CONSTRUCTION MANAGEMENT PLAN including:

- Specifics on traffic control, sidewalk sheds, and pedestrian rerouting
- Include a drawing and written narrative

OTHER

- Details and cross-sections, as necessary

ZONING ANALYSIS Relevant Zone(s) B6 - Blocks 4, 5 and 6

All Projects:

	Required	Proposed
Lot Size	10,000 SF	438,900 SF
Area Per Dwelling Unit	N/A	N/A
Minimum Street Frontage	N/A	N/A
Front Yard Minimum (Setback)	N/A	N/A
Front Yard Maximum (Setback)	10'	10'
Rear Yard (Setback)	N/A	N/A
Yard Right (Setback)	N/A	N/A
Yard Left (Setback)	N/A	N/A
Side Street Setback	N/A	N/A
Step Back	N/A	N/A
Maximum Lot Coverage	N/A	N/A
Minimum Lot Coverage	N/A	N/A
Maximum Height	45/55/65/Fore St	Varied
Open Space	N/A	N/A
Maximum Impervious Area	N/A	N/A
Pavement Setback	N/A	N/A
Floor Area Ratio	N/A	N/A
Off Street Parking Spaces	See parking study	See parking study
Loading Bays	1	3
Other 1 Length of building wall at maximum setback (min)	N/A	N/A
Other 2		
Other 3		

See Average Grade Figure for more detail on locations of varied height requirements and Building Elevations for corresponding heights.

For 5,000-40,000 SF retail; loading area provided for each, Blocks 4, 5 and 6 The project is located east of the Fore Street Connector.

ZONING ANALYSIS Relevant Zone(s) R6 - Block 6

All Projects:

	Required	Proposed
Lot Size	2000 SF	20,000 SF
Area Per Dwelling Unit	725 SF	741 SF
Minimum Street Frontage	20'	N/A
Front Yard Minimum (Setback)	5'	N/A
Front Yard Maximum (Setback)	N/A	N/A
Rear Yard (Setback)	10'	15'
Yard Right (Setback)	None	18'-6"
Yard Left (Setback)	None	N/A
Side Street Setback	None	N/A
Step Back	10' side/15' rear	> min
Maximum Lot Coverage	60%	55%
Minimum Lot Coverage	N/A	55%
Maximum Height	45'	45'
Open Space	20%	45%
Maximum Impervious Area	N/A	N/A
Pavement Setback	N/A	N/A
Floor Area Ratio	N/A	N/A
Off Street Parking Spaces	See parking study	See parking study
Loading Bays	N/A	N/A
Other 1 Lot Width	20'	100'
Other 2		
Other 3		

A total of 27 units fall in part or in whole within the R6 portion of the property.

The portion of the lot in the R6 zone does not front on a public street

The portion of the structure in the R6 zone does not have a front yard, or a yard left (west) as it is is integral with the remainder of the building that extends into the B6 zone.

The portion of the building in the R6 zone will be located such that it will exceed minimum setbacks and in turn minimum step backs as required.

ZONING ANALYSIS Relevant Zone(s) R6 -Remaining Fore St Property

Note, no new building construction is proposed; two buildings will be demolished; only dimensional items that have changed are noted.

All Projects:

	Required	Proposed
Lot Size	2000 SF	14,260 SF
Area Per Dwelling Unit	725 SF	1,100 SF
Minimum Street Frontage	20'	No change
Front Yard Minimum	5'	No change
Front Yard Maximum	N/A	N/A
Rear Yard	10'	10'
Yard Right	5'	No change
Yard Left	5'	No change
Side Street Setback	None	N/A
Step Back	10' side/15' rear	No change
Maximum Lot Coverage	60%	43%
Minimum Lot Coverage	N/A	N/A
Maximum Height	45'	No change
Open Space	20%	20%
Maximum Impervious Area	N/A	N/A
Pavement Setback	N/A	N/A
Floor Area Ratio	N/A	N/A
Off Street Parking Spaces	13	13
Loading Bays	N/A	N/A
Other 1		
Other 2		
Other 3		

13 dwelling units remaining; parking spaces to be provided within the Block 4/6 parking garage

Not Applicable

Planned Residential Unit Developments (PRUD) Requirements

	Required	Proposed
Minimum Lot Size		
Minimum Lot Area per Dwelling		
Maximum # Units per Building		
Maximum Building Length		
Maximum Accessory Building Length		
Minimum Setbacks		
Minimum Building Separation		
Minimum Open Space		

Affordable Housing Density Bonuses (if applicable)

	Bonus Increase or Decrease	Maximum Allowable With Bonus	Proposed
Density			
Height			
Setback Reduction			
Recreation Space			
Maximum Accessory Building Length			
Minimum Setbacks			
Minimum Building Separation			
Minimum Open Space			
Explanatory Text 1 (optional):			
Explanatory Text 2 (optional):			
Explanatory Text 3 (optional):			

REVOCABLE ENCROACHMENT LICENSE

This Revocable Encroachment License (hereinafter "License") is made and entered into by and between the City of Portland (hereinafter, "City"), a Maine body corporate and politic, with a mailing address of 389 Congress Street, Portland, Maine 04101 and PF Land LLC, a Maine corporation with a mailing address of 110 Thames Street, Portland Maine (hereinafter, "Licensee"), owner of the real property located at 58 Fore Street, Portland, Maine 04101 by virtue of a deed recorded in the Cumberland County Registry of Deeds at Book 37297, Page 78 (the "Property").

RECITALS

WHEREAS, Licensee is the owner of the Property, which is more particularly described in the legal description attached as Exhibit A, hereto; and

WHEREAS, Licensee desires to construct/place and maintain certain improvements consisting of building foundation footings (the "Encroachment") which will encroach into/over real property owned by the City, as depicted on the plan entitled "_____ _____", dated _____, 2023, a copy of which is attached hereto as Exhibit B and incorporated herein by reference (the "Plan"); and

WHEREAS, the Encroachment design was approved by the Planning Board in a Major Site Plan approved on _____, 2023, a copy of which is attached hereto as Exhibit C and incorporated herein by reference (the "Site Plan"); and

WHEREAS, the area occupied by said Encroachment is referred to herein as the "Licensed Area"; and

WHEREAS, the City will allow the Encroachment to encroach into the Licensed Area under the terms and conditions set forth in this License.

NOW, THEREFORE, the City and Licensee agree as follows:

1. Licensee is hereby permitted to bring upon the Licensed Area and areas adjacent thereto workers, materials and machinery necessary to install and maintain the Encroachment over the Licensed Area as shown on the Plan.

2. Licensee is hereby permitted to occupy the Licensed Area only for the purpose of carrying out the installation and maintenance of the Encroachment pursuant to the terms of this License and in accordance with the Plan. Such work shall not substantially interfere with the City's use and maintenance of the Licensed Area.

3. All work performed upon and use of the Licensed Area for the purposes set forth herein shall be at Licensee's sole cost and expense (unless otherwise agreed in writing), the parties acknowledging that there may be temporary interruptions in enjoyment of the City's

property adjacent to the Licensed Areas related to the conduct of any work related to this License. Licensee agrees at its sole expense to restore any portion of the Licensed Areas and adjacent City property affected by work conducted by Licensee under this License to substantially the same condition that it was in prior to such work or as close to that condition as is reasonably practicable. To the extent said adjacent City property is to be reconstructed in accordance with the Approved Site Plan, the adjacent property shall be restored consistent with the Site Plan. Licensee, its successors and assigns, shall defend, indemnify and hold the City, its officers, agents, and employees harmless from any and all claims, including but not limited to claims for damage to City property and reasonable attorney's fees, which arise out of Licensee's use, or the use of Licensee's contractors, of the City's property as described above during the term of the License. The Licensee's obligation to defend, indemnify and hold the City harmless shall survive termination or revocation of this License.

4. Licensee shall be responsible for the proper maintenance of the Encroachment. In the event of damage to the Encroachment and/or the Licensed Area, Licensee shall promptly repair/restore the same. Prior to such repair/restoration, Licensee shall notify the City (in writing and by telephone) at least forty-eight hours before it plans to conduct such repair or restoration and shall work with City staff on the closure, if needed, of any City streets in the vicinity of the property in order to conduct such repair/restoration.

5. Upon prior written notice to Licensee, except in the case of an emergency, Licensee agrees that City may enter and utilize the Licensed Area at any time for the purpose of installing, repairing, replacing, or maintaining improvements to its public facilities or utilities necessary for the health, safety and welfare of the public or for any other public purpose. City shall bear no responsibility or liability for any damage or disruption or other adverse consequences resulting from the Encroachment installed by Licensee, but City will make reasonable efforts to minimize such damage. In the event that any installation, reinstallation, relocation or repair of any existing or future utility or improvements owned by, constructed by or on behalf of the public or at public expense is made costlier by virtue of the construction, maintenance or existence of the Encroachment and use, Licensee shall pay to City an amount equal to such additional cost as reasonably determined by the Director of Public Works or said Director's duly authorized representatives.

6. Licensee agrees, binds and obligates itself, its successors and assigns to procure and maintain throughout the term of this License automobile and comprehensive general liability insurance in the minimum amount of Four Hundred Thousand Dollars ($400,000) (or the amount stated in the Maine Tort Claims Act, as may be amended from time to time) per occurrence for bodily injury, death, or property damage covering its activities hereunder and naming the City as an additional insured thereon. In addition, Licensee shall provide evidence of Workers' Compensation insurance in the statutory amount to the extent it may be required by law. Certificates evidencing such policies shall be delivered to the City and shall provide the City with no less than thirty (30) days prior notice of cancellation or non-renewal. All insurance coverage required herein shall include coverage of all Licensees' contractors and subcontractors.

7. Licensee, by execution of this License, hereby agrees to assume and hereby does assume responsibility for any and all claims and/or damage to persons or property arising out of or in any way related to Licensee's exercise of the rights granted by this License, and does hereby forever waive, release, relinquish, remise, indemnify and discharge the City, its agents, employees, successors and assigns from and against any and all losses, costs or expenses (including reasonable attorneys' fees), damages, demands, liabilities, claims, actions, causes of action, suits, or judgments (collectively, "Claims") whatsoever of every name and nature, in law and in equity, including without limitation those related in any manner to any accident or injury to, or death of, any person, or any damage to property occurring on, in or in the vicinity of the area covered by this License, arising out of the presence in and use by the Licensee of the area covered by this License.

8. This License is assignable to any subsequent owners of the property depicted on the Plan, and in the event of such assignment, Licensee shall notify the City of such assignment no fewer than 10 days prior to the effective date of such assignment.

9. This License, and all of the rights and obligations herein, shall be binding upon and inure to the benefit of the parties hereto and their respective heirs, successors and assigns.

10. The City may revoke this License six (6) months after receipt by the Licensee of written notice that an Event of Revocation (as defined below) has occurred, identifying such Event of Revocation, provided that such Event of Revocation is not cured within six (6) months after Licensee's receipt of such notice, except as set forth in subsection (d) below. "Event of Revocation" shall mean:

    a) Licensee's non-compliance with any of the terms of this Agreement;

    b) the building shown on the Plan fails to be constructed substantially in accordance with the Plan or any amendments thereto;

    c) the building as shown on the Plan is destroyed, removed or otherwise thereafter ceases to exist on Licensee's property and construction to rebuild said building has not begun within twelve (12) months of said destruction or removal, or

    d) failure to maintain insurance as required under Section 6 above, and such failure is not remedied within thirty (30) days after written notice thereof.

11. Any notice of an Event of Revocation delivered pursuant to Section 10 of this License must be sent by certified mail, return receipt requested to the Licensee at the address first set forth above, or at such other address as the Licensee may provide to the City in writing from time to time.

12. Notwithstanding any other provision herein, in the event that a notice of an Event of Revocation is delivered to Licensee, any mortgagee of Licensee's property shall be entitled to cure the matter set forth in such notice within the time frames set forth in Section 10

hereof, and the City agrees to accept such performance by any such mortgagee of Licensee's obligations hereunder.

IN WITNESS WHEREOF, the City of Portland has caused this License to be executed by Brendan O'Connell, its Finance Director thereunto duly authorized, and PF Land LLC has caused this License to be executed by Casey Prentice, its Manager thereunto duly authorized, as of the day and year first written above.

CITY OF PORTLAND

_____
By: Brendan O'Connell
Its Finance Director

PF Land LLC

_____
By: Casey Prentice
Its Manager

STATE OF MAINE
CUMBERLAND, ss.

_____, 2023

Then personally appeared the above-named Brendan O'Connell, Finance Director of the City of Portland, as aforesaid, and acknowledged the foregoing instrument to be his free act and deed in his said capacity and the free act and deed of said City of Portland.

Before me,

_____
Notary Public/Attorney at Law

STATE OF MAINE
CUMBERLAND, ss.

_____, 2020

Then personally appeared the above-named Casey Prentice, Manager of PF Land LLC, as aforesaid, and acknowledged the foregoing to be his free act and deed in his said capacity, and the free act and deed of said limited liability company.

Before me,

_____
Attorney-at-Law/Notary Public

EXHIBIT A

(Legal Description of Licensee's Property)

EXHIBIT B

(Plan Depicting the Licensed Area and Encroachment)

EXHIBIT C

(Site Plan)

WATERVILLE ST.

FORE ST.

ST. LAWRENCE ST.

ATLANTIC ST.

MUNJOY ST.

PROMENADE

CISTERN

PORTLAND COMPANY WORKS

POND

PLAN
OF
FORE ST.
ADJOINING
PORTLAND CO'S WORKS

Survey and Plan made under the direction of
Wm. A. Goodwin, C.C.E. by Wm. S. Edwards, 1st Asst.

Scale 30 ft. to 1 inch *November, 1873*

Wm. A. Goodwin.
C. C. Engr.

Drawer P

FORE ST.

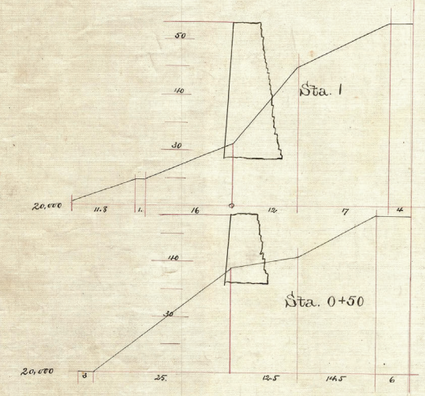
OPPOSITE PORTLAND CO WORKS.

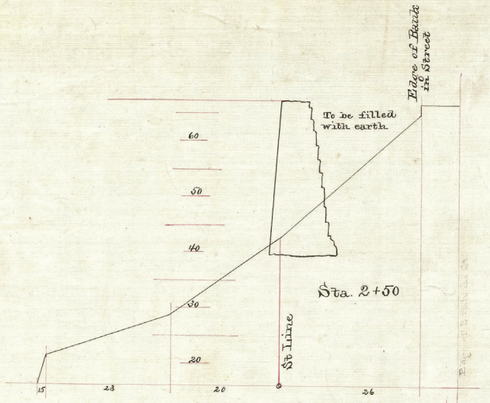
(Signed) Wm Alexander
C.E. Engr.
Nov. 1873.

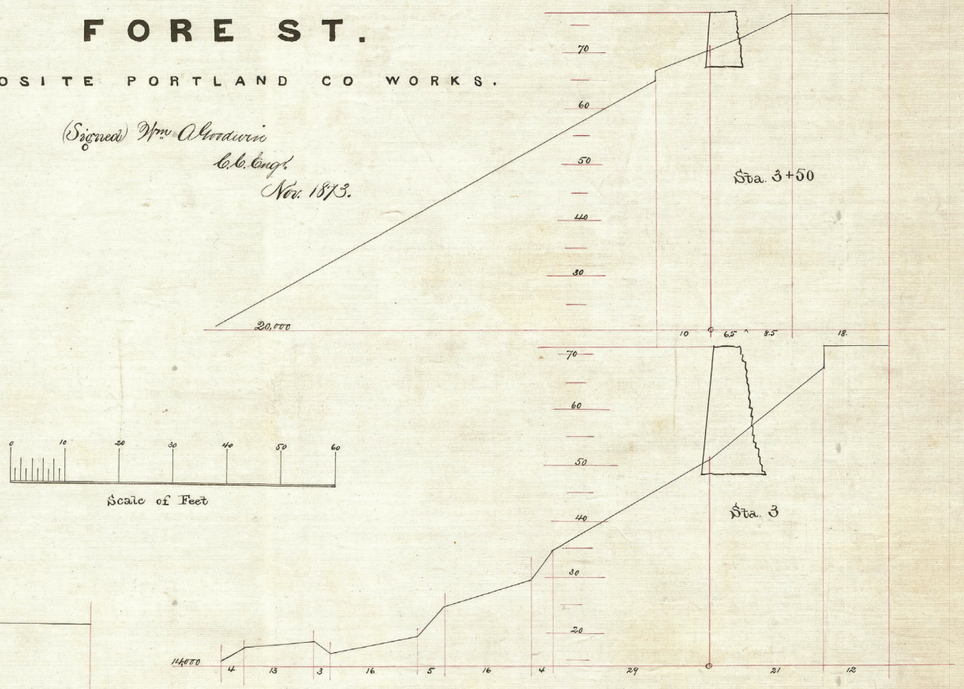
Face of Wall at Top to be on Street Line
Base of Wall to be ½ height in thickness
Top " " " 5 feet " "

Base to be 3 feet beneath surface at St. line
Batter 1 in 12 to 1 foot.

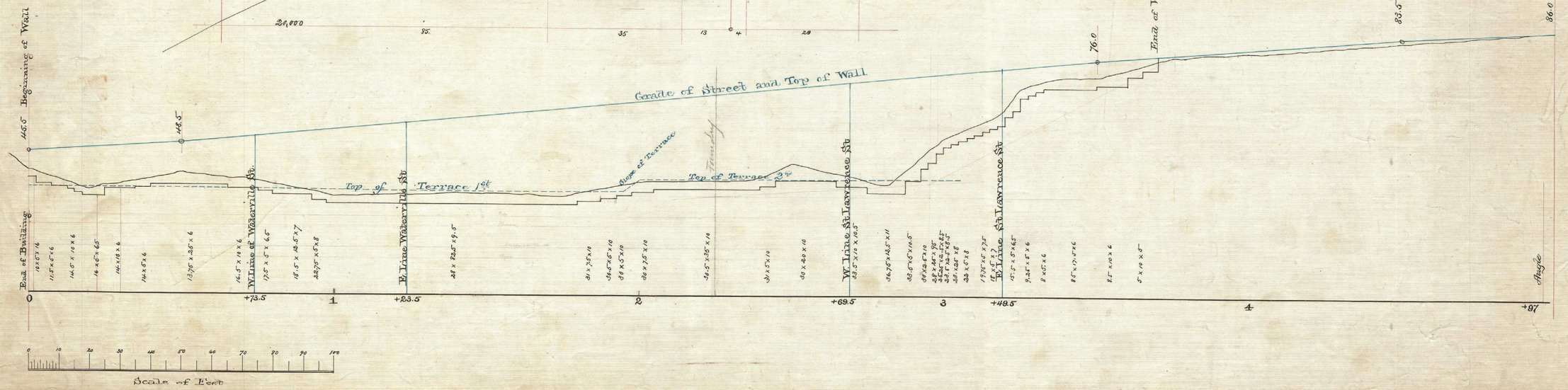








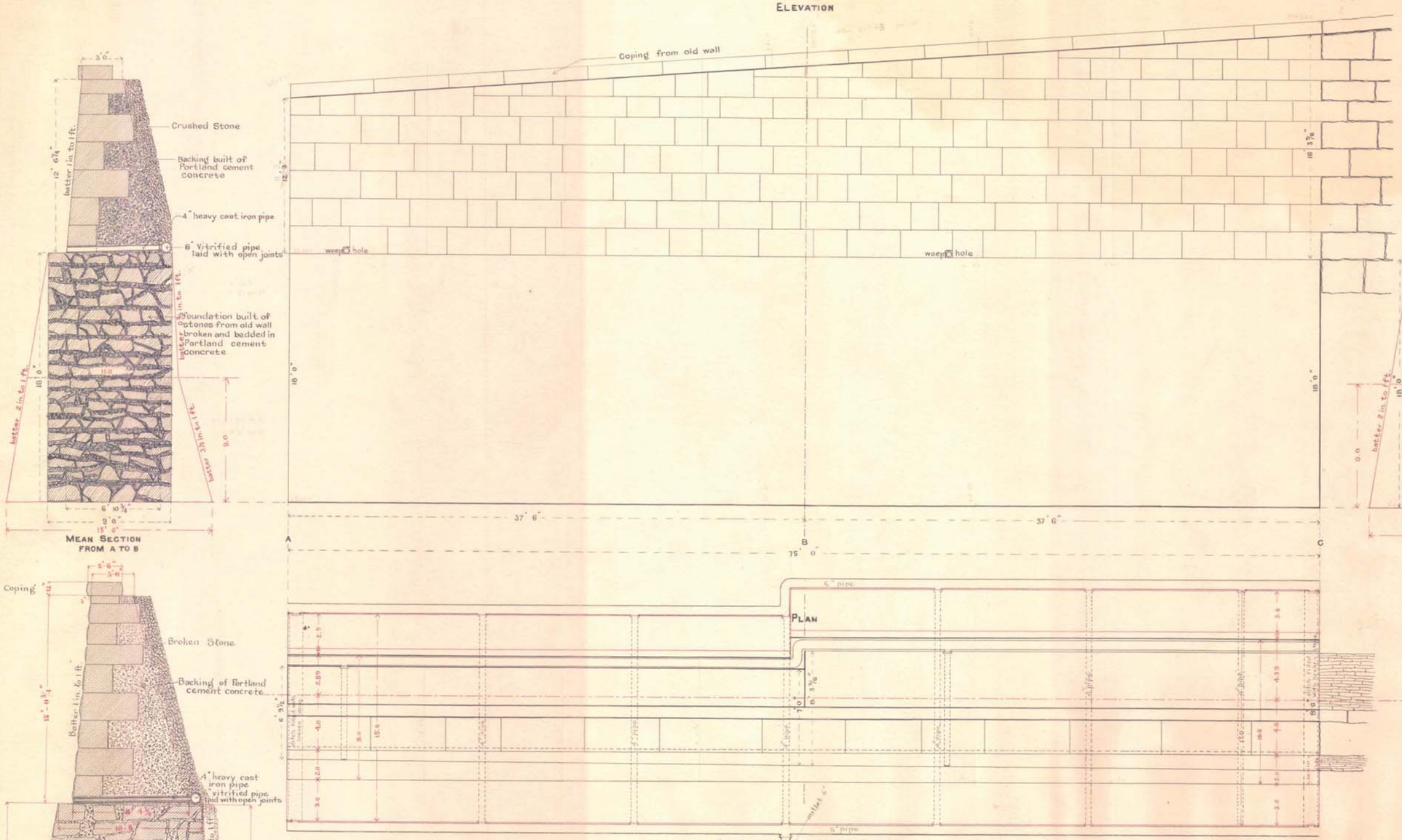




K5b
270592

377/6

ELEVATION



CITY OF PORTLAND

PLAN FOR REBUILDING

FORE ST. RETAINING WALL

SCALE 1/4 INCH TO 1 FOOT

APRIL 1896

Geo. N. Fenwald

CITY ENGINEER

Foundation of wall built as shown by red lines

Underdrains of 6" pipe with 4" laterals. Outlet of 6" pipe discharging into Portland Co's reservoir

377/16

426 Portland Foreside B5
Lighting Fixture Schedule (see attached fixture details)
Design Development

May 12, 2023

Type	Description	Location	Finish	Lamp	Watt	Volt	Mfr.
Exterior							
FXA	Surface mounted LED area light sconce.	Ground Level Entries	Architect to Confirm	1659lm 3000K LED	14W	Per EE	Bega
FXB	Exterior rated, fully recessed LED downlight with nominal 3" round micro-flange bevel trim.	Ground Level Entries	Architect to Confirm	1506lm 3000K LED	14W	Per EE	Lucifer
FXC	Exterior rated, surface mounted LED tape light with fully diffuse potted lensing.	Landscape Benches	Standard	187lm/ft 3000K LED	4 W/LF	LV/Per EE	Acclaim
FXD	Fully submersible recessed mounted linear LED pool light.	Pool Steps	Standard	76lm/ft 3000K LED	3 W/LF	LV/Per EE	Filix
FXE	Fully submersible recessed mounted LED pool marker light.	Pool	Standard	600lm 3000K LED	9W	LV/Per EE	Filix
FXF	Stake mounted LED tree uplight.	Landscape Throughout	Architect to Confirm	1091lm 3000K LED	13W	Per EE	BK Lighting
FXG	Surface mounted LED garden bollard area light with 360 degree distribution.	Landscape Throughout	Architect to Confirm	915lm 3000K LED	20W	Per EE	Targetti
FXH	Surface mounted LED handrail stanchion light.	Terrace Handrails	Standard	116lm 3000K LED	2W	LV/Per EE	Wagner
FXI	NOT USED						
FXJ	Fully recessed LED step light.	Landscape Throughout	Standard	269lm 3000K LED	6W	LV/Per EE	Sistemalux
FXK	Fully recessed exterior rated LED downlight integrated into terrace pergolas.	Pergolas	Standard	540lm 3000K LED	5W	LV/Per EE	ZANEEN
FXL	Exterior rated ingrade LED grazer uplight.	Mechanical Equipment Screen	Standard	4586lm/ft 3000K LED	9 W/LF	Per EE	Lumenpulse
FXM	Recessed linear LED handrail light.	Ground Level Stairs	Standard	152lm/ft 3000K LED	4 W/LF	LV/Per EE	Wagner

426 Portland Foreside B5
Lighting Fixture Schedule (see attached fixture details)
Design Development

May 12, 2023

Type	Description	Location	Finish	Lamp	Watt	Volt	Mfr.
FXN	Surface mounted LED floodlight.	Rooftop Terraces	Architect to Confirm	1597lm 3000K LED	27W	LV/Per EE	BK Lighting
FXO	NOT USED						
FXP	Surface mounted LED sconce.	Private Terraces	Architect to Confirm	781lm 3000K LED	20W	Per EE	Artimede

Note:

1. Contractor to confirm all input wattages with specified voltages.
2. Contractor to verify all fixture mounting as required per code.
3. Contractor to verify all ceiling types for trim compatibility; ACT to have overlap flange, gyp to have mud-in trimless flange.
4. Contractor to provide fixture with flicker-free dimming where dimming is required to avoid ripple effect with video conferencing e
5. Remote drivers / control modules to be located in nearby, accessible location.
6. Architect to verify all finishes.



FMS SHEETS FOR REFERENCE ONLY - REFER TO ARCHITECTURAL AND ELECTRICAL DRAWINGS

100% DD 12 MAY 2023
DD PROGRESS SET 28 APR 2023
Issued For: DATE:

FMS

Project PORTLAND FORESIDE B5

Title 1ST FLOOR OVERALL PLAN - LIGHTING LAYOUT

Job No. 426

Scale 1/16" = 1'-0"

LT-101

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LEVEL 02 PLAN A (1/A-102A LEVEL 02 PLAN B (1/A-102B)



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100% DD	12 MAY 2023
DD PROGRESS SET	28 APR 2023
Issued For:	DATE:

FMS

Project PORTLAND FORESIDE B5

Title 2ND FLOOR OVERALL PLAN - LIGHTING LAYOUT

Job No. 426

Scale 1/16" = 1'-0"

LT-102

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DD PROGRESS SET	28 APR 2023
Issued For:	DATE:

FMS

Project PORTLAND FORESIDE B5

Title 3RD FLOOR OVERALL PLAN - LIGHTING LAYOUT

Job No. 426

Scale 1/16" = 1'-0"

LT-103

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DD PROGRESS SET	28 APR 2023
Issued For:	DATE:

FMS

Project PORTLAND FORESIDE B5

Title 4TH FLOOR OVERALL PLAN - LIGHTING LAYOUT

Job No. 426

Scale 1/16" = 1'-0"

LT-104

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FMS

Project PORTLAND FORESIDE B5

Title 5TH FLOOR OVERALL PLAN - LIGHTING LAYOUT

Job No. 426

Scale 1/16" = 1'-0"

LT-105

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100% DD 12 MAY 2023
DD PROGRESS SET 28 APR 2023
Issued For: DATE:

FMS

Project PORTLAND FORESIDE B5

Title 6TH FLOOR OVERALL PLAN - LIGHTING LAYOUT

Job No. 426

Scale 1/16" = 1'-0"

LT-106

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100% DD	12 MAY 2023
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Issued For:	DATE:

FMS

Project PORTLAND FORESIDE B5

Title 7TH FLOOR OVERALL PLAN - LIGHTING LAYOUT

Job No. 426

Scale 1/16" = 1'-0"

LT-107

Fisher Marantz Stone Partners in Architectural Lighting Design
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DD PROGRESS SET	28 APR 2023
Issued For:	DATE:

FMS

Project PORTLAND FORESIDE B5

Title 8TH FLOOR OVERALL PLAN (HOTEL) - LIGHTING LAYOUT

Job No. 426

Scale 1/16" = 1'-0"

LT-108

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22 West 19th Street, Floor 6 New York, NY 10011 | +1 212 691 3020
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100% DD	12 MAY 2023
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Issued For:	DATE:

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Project PORTLAND FORESIDE B5

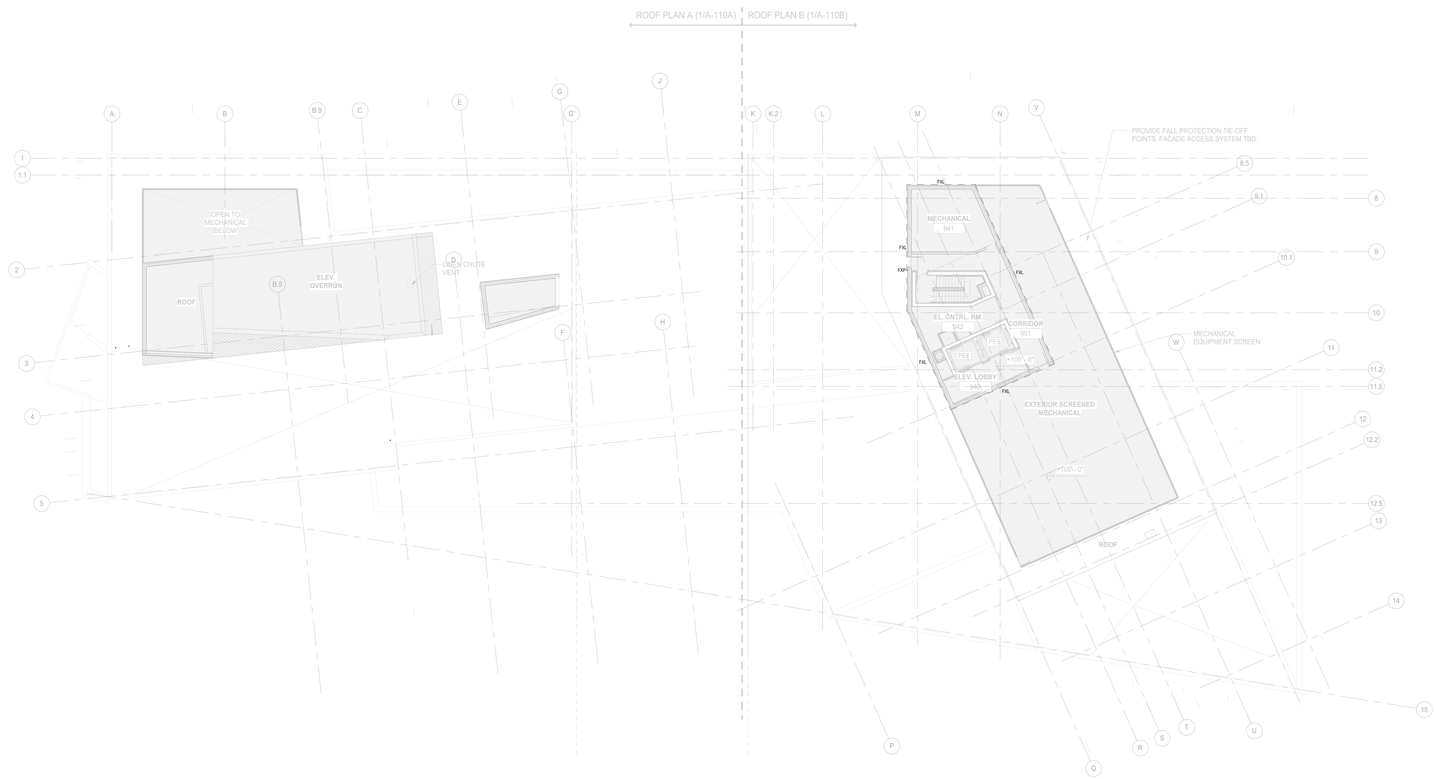
Title 8TH FLOOR OVERALL PLAN (CONDO) - LIGHTING LAYOUT

Job No. 426

Scale 1/16" = 1'-0"

LT-109

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Issued For:	DATE:

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Project PORTLAND FORESIDE B5

Title ROOF PLAN - LIGHTING LAYOUT

Job No. 426

Scale 1/16" = 1'-0"

LT-110

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Issued For:	DATE:

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Project PORTLAND FORESIDE B5

Title 2ND FLOOR OVERALL RCP - LIGHTING LAYOUT

Job No. 426

Scale 1/16" = 1'-0"

LT-202

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80 Vine Street, Suite 202 Seattle, WA 98121 | +1 206 691 0101
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Application
This wall mounted LED luminaire features a forward throw light distribution and is designed for the general illumination of pathways and walkways from various mounting heights. Downlight applications only.

Materials
Luminaire housing constructed of die-cast marine grade, copper free (≤0.3% copper content) A360.0 aluminum alloy
Clear safety glass with optical texture
High temperature silicone gasket
Mechanically captive stainless steel fasteners

NRTL listed to North American Standards, suitable for wet locations
Protection class IP64
Weight: 3.7 lbs

Electrical

Operating voltage	120-277V AC
Minimum start temperature	-30° C
LED module wattage	13.9 W
System wattage	17 W
Controllability	0-10V dimmable
Color rendering index	Ra > 80
Luminaire lumens	1659 lumens (3000K)
Lifetime at Ta = 15° C	>500,000 h (L70)
Lifetime at Ta = 50° C	101,000 h (L70)

LED color temperature

☐ 4000K - Product number + **K4**
☐ 3500K - Product number + **K35**
☉ 3000K - Product number + **K3**
☐ 2700K - Product number + **K27**

BEGA can supply you with suitable LED replacement modules for up to 20 years after the purchase of LED luminaires - see website for details

Finish
All BEGA standard finishes are matte, textured polyester powder coat with minimum 3 mil thickness.

Available colors ☐ Black (BLK) ☐ White (WHT) ☐ RAL:
☐ Bronze (BRZ) ☐ Silver (SLV) ☐ CUS:

Type:
BEGA Product:
Project:
Modified:





LED wall luminaire · shielded with forward throw

	LED	A	B	C
33817	13.9 W	5 1/8	9 1/8	5 3/8

BEGA 1000 BEGA Way, Carpinteria, CA 93013 (805) 684-0533 info@bega-us.com

Due to the dynamic nature of lighting products and the associated technologies, luminaire data on this sheet is subject to change at the discretion of BEGA North America. For the most current technical data, please refer to bega-us.com
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Updated 09/10/18

100% Design Development

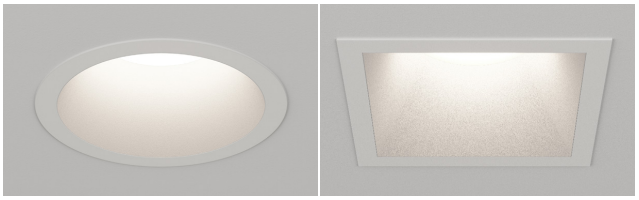
FMS

Project **Portland Foreside B5** Date **12 May 2023** Type **FXA**
Architect **Marvel** Proj No. **522426** 1 of 1

Fisher Marantz Stone Partners in Architectural Lighting Design **New York** | **Seattle** | www.fmsp.com

FRAXION®3 SLIM FIXED

PROJECT NAME:	TYPE:



Lots of light in an under-the-radar profile, with multiple design and installation options, ideal for corporate offices and retail settings.

ORDERING INFORMATION - DOWNLIGHT / HOUSING

JA8-2019 INDICATED BY SHADING

SHAPE	TRIM	RATING	TYPE	FLANGE FINISH	BAFFLE FINISH	LUMEN PACKAGE	CCT	OPTIC	INSTALL TYPE	CEILING THICKNESS	DRIVER	EFFECTS DEVICE
			F									
F3R Round F3S Square	M Microflange T Trimless Drywall W Trimless Millwork	1 Dry/Damp 2 Wet* *(Requires provided suction cup to service or aim & focus)	F Fixed	WH White AG Satin Silver AU Cashmere Gold BB Burnt Bronze BK Black PR Primer 00 Trimless* *(Required for trimless) CF Custom Finish* *(Consult Factory)	WH White AG Satin Silver AU Cashmere Gold BB Burnt Bronze BK Black PR Primer CF Custom Finish* *(Consult Factory)	STATIC WHITE 80C12A 80+ CRI Dlvd. Lumens - 795 80C16A 80+ CRI Dlvd. Lumens - 1095 80C23A 80+ CRI Dlvd. Lumens - 1506 90C10A 90+ CRI Dlvd. Lumens - 683 90C14A 90+ CRI Dlvd. Lumens - 936 90C19A 90+ CRI Dlvd. Lumens - 1291 97C10A 97+ CRI Dlvd. Lumens - 608 97C12A 97+ CRI Dlvd. Lumens - 833 97C17A 97+ CRI Dlvd. Lumens - 1151* *(Not available for IC housings)	22 2200K* *(Only available with 90C10A and 90C14A) 27 2700K 30 3000K 35 3500K 40 4000K	10 10°* *(Only available with 80C12A, 90C10A and 97C10A. Not available with 2200K) 15 15° 22 22° 40 40° 60 60° 85 85°* *(Uses 60° optic and optional configuration 14 (WDL) to achieve 85° beam spread)	INTEGRAL DRIVER X IC Y NIC C IC, Airtight* *(Chicago Plenum, Airtight & Title 24 compliant housing) REMOTE DRIVER V IC, Remote W NIC, Remote D IC, Airtight, Remote* *(Chicago Plenum, Airtight & Title 24 compliant housing)	1 0.50" - 1.375" 2 1.375" - 2.125" T 0.50" - 1.375"* *(Includes adjustable housing height bracket, recommended for any T-Grid or Furring Channel applications)	INTEGRAL PH ELV/Triac, 2% 120V* *(Not available for 80C12A, 90C10A, and 97C10A) SG 0-10V Analog, LOG 1% 120 or 277V SN 0-10V Analog, LIN 1% 120 or 277V EG eldoLED, SOLOdrive 0.1% 0-10V, LOG* *(Not available for 80C23A, 90C19A, or 97C17A in all IC install types) EN eldoLED, SOLOdrive 0.1% 0-10V, LIN* *(Not available for 80C23A, 90C19A, or 97C17A in all IC install types) ED eldoLED, SOLOdrive 0.1% DALI-2, LOG* *(Not available for 80C23A, 90C19A, or 97C17A in all IC install types) REMOTE (120V) L2 Lutron, Hi-Lume 1% 2-wire REMOTE (120-277V) LH Lutron, Hi-Lume 1% Ecosystem EG eldoLED, SOLOdrive 0.1% 0-10V, LOG EN eldoLED, SOLOdrive 0.1% 0-10V, LIN ED eldoLED, SOLOdrive 0.1% DALI, LOG TUNABLE WHITE REMOTE (120-277V) DG eldoLED, DUALdrive 0.1% 0-10V, LOG DN eldoLED, DUALdrive 0.1% 0-10V, LIN DD eldoLED, DUALdrive 0.1% DALI, LOG	STANDARD EFFECTS DEVICE 04 Soft Focus Lens NL No Lens* *(Standard with 10° optic. Not available for Wet location, Warm Dim or Airtight Housings) ALTERNATE EFFECTS DEVICE 02 Honeycomb Louver* *(Not available for Wet location, Warm Dim or Airtight Housings) 03 Clear Glass Lens* *(Not available for Warm Dim) 05 Frosted Glass Lens 08 Frosted Soft Focus Lens 14 Wide Distribution Lens* *(Required and only available for 85° beam spread) 26 Frosted Linear Spread Lens
						WARM DIM 90W11A 90+ CRI Dlvd. Lumens - 856 Incandescent Profile 90W12A 90+ CRI Dlvd. Lumens - 962 Standard Profile *SEE PAGE 3 FOR DETAILED WARM DIM PROFILE COMPARISON.	WL 2700K - 1800K WD 3000K - 1800K	15 15° 22 22° 40 40° 60 60° 85 85°* *(Uses 60° optic and optional configuration 14 (WDL) to achieve 85° beam spread)				
						TUNABLE WHITE 90T12A 90+ CRI Dlvd. Lumens - 950* *(Only available for remote housings) *ALL DELIVERED LUMEN OUTPUTS AND T24 COMPLIANCE REFLECT 3000K PAIRED WITH 40° OPTIC AND SOFT FOCUS LENS. REFERENCE PAGE 3 FOR ADDITIONAL T24 COMPLIANT CONFIGURATIONS.	TW 5000K - 2700K	22 22° 40 40° 60 60° 85 85°* *(Uses 60° optic and optional configuration 14 (WDL) to achieve 85° beam spread)				

(WH) White Powder Coat

(AG) Satin Silver Powder Coat

(AU) Cashmere Gold Powder Coat

(BB) Burnt Bronze Powder Coat

(BK) Black Powder Coat

PART NUMBER NOTES

- Housing and trim ship as e.g., F3RM1F-WHWH-90C10A2-3X1-PH*
- Remote driver ships with fixture as e.g., PSF3-RMT-90C-10A-1L2*

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As part of its policy of continuous research and product development, the company reserves the right to change or withdraw specifications without prior notice.

[PH] +1-210-227-7329
[FAX] +1-210-227-4967

FRAXION3 SLIM FIXED

ACCESSORIES

ROUND ALTERNATE EFFECTS DEVICES
Dry / Damp location only
Wet location requires alternate baffle.

- ☐ **HCL-F3R** Honeycomb Louver w/ Diffusion Lens*
  *(Not available for Warm Dim, Wet locations, or Airtight Housings)
- ☐ **CGL-F3R** Clear Glass Lens*
  *(Not available for Warm Dim)
- ☐ **FGL-F3R** Frosted Glass Lens
- ☐ **SFL-F3R** Soft Focus Lens
- ☐ **FSFL-F3R** Frosted Soft Focus Lens
- ☐ **WDL-F3R** Wide Distribution Lens*
  *(For use with 60° optic only)
- ☐ **FLSL-F3R** Frosted Linear Spread Lens

SQUARE ALTERNATE EFFECTS DEVICES
Dry / Damp location only
Wet location requires alternate baffle.

- ☐ **HCL-F3S** Honeycomb Louver w/ Diffusion Lens*
  *(Not available for Warm Dim, Wet locations, or Airtight Housings)
- ☐ **CGL-F3S** Clear Glass Lens*
  *(Not available for Warm Dim)
- ☐ **FGL-F3S** Frosted Glass Lens
- ☐ **SFL-F3S** Soft Focus Lens
- ☐ **FSFL-F3S** Frosted Soft Focus Lens
- ☐ **WDL-F3S** Wide Distribution Lens*
  *(For use with 60° optic only)
- ☐ **FLSL-F3S** Frosted Linear Spread Lens

REPLACEMENT OPTICS
Interchangeable optics accessible through fixture aperture.

- ☐ **RO-50-15-2** 15° optic
- ☐ **RO-50-22-2** 22° optic
- ☐ **RO-50-40-2** 40° optic
- ☐ **RO-50-60-2** 60° optic

REPLACEMENT TUNABLE WHITE OPTICS
Interchangeable optics accessible through fixture aperture.

- ☐ **RO-50-22-3** 22° optic
- ☐ **RO-50-40-3** 40° optic
- ☐ **RO-50-60-3** 60° optic

ALTERNATE BAFFLE ASSEMBLY (INCLUDES EFFECTS DEVICE)

ASSEMBLY		SHAPE	RATING	TYPE		BAFFLE FINISH		EFFECTS DEVICE
RBA	-			F	-		-	
REPLACEMENT BAFFLE ASSEMBLY		F3R Round F3S Square	1 Dry / Damp 2 Wet* *(Requires suction cup to service or aim & focus)	F Fixed		WH White BK Black PR Primer AU Cashmere Gold AG Satin Silver BB Burnt Bronze CF Custom Finish * *(Consult Factory)		Leave blank for standard Soft Focus Lens CGL Clear Glass Lens * *(Not available for Warm Dim) FGL Frosted Glass Lens FSFL Frosted Soft Focus Lens WDL Wide Distribution Lens * *(For use with 60° optic only) FLSL Frosted Linear Spread Lens

REPLACEMENT SUCTION TOOL
One included with every six fixtures designated Wet location.

- ☐ **F4-TOOL-SUCTION** Allows for removal of Wet Location baffles

T-GRID ACCESSORY KIT
Supplied with ceiling thickness "T" and recommended for installations in T-Grid and furring channel up to 1.5" tall. Available for ceiling thicknesses from 0.50" - 2.125".

- ☐ **TG-FX3-KIT**

HANGER BAR EXTENDER KIT
Extends hanger bars from 24.0" to 46.0" maximum.

- ☐ **FRX-HBE-46** Extender, Hanger Bar

EMERGENCY LIGHTING - REMOTE MOUNT ONLY
During disruption of main power, emergency battery inverter provides temporary 120V or 277V to fixture.

- ☐ **EMB-S-20/25-120/277-LEDX** 20/25 watt max capacity, 120 or 277 VAC 60Hz, Non-Dimmable
- ☐ **EMB-S-100-120-LEDX** 100 watt max capacity, 120 VAC 60Hz, Dimmable
- ☐ **EMB-S-100-277-LEDX** 100 watt max capacity, 277 VAC 60Hz, Dimmable
- ☐ **EMB-S-250-120/277-LEDX** 250 watt max capacity, 120 or 277 VAC 60Hz, Dimmable

REPLACEMENT APPLIQUÉ

- ☐ **DLA-APP-F3RT** Round
- ☐ **DLA-APP-F3ST** Square

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FRAXION3 SLIM FIXED

PERFORMANCE - 3000K

LUMEN PACKAGE	WATTAGE	10° OPTIC NO SOFT FOCUS LENS		15° OPTIC SOFT FOCUS LENS		22° OPTIC SOFT FOCUS LENS		40° OPTIC SOFT FOCUS LENS		60° OPTIC SOFT FOCUS LENS		85° OPTIC WIDE DISTRIBUTION LENS	
		DELIVERED	LPW	DELIVERED	LPW	DELIVERED	LPW	DELIVERED	LPW	DELIVERED	LPW	DELIVERED	LPW
80C12A	10	739	51 (14W)	872	86	729	72	795	79	784	78	623	62
80C16A	14	-	-	1191	82	1003	71	1095	78	1079	77	857	61
80C23A	21	-	-	1642	77	1381	65	1506	71	1486	70	1180	56
90C10A	10	627	44 (14W)	721	71	626	62	683	68	673	67	535	53
90C14A	14	-	-	984	68	858	61	936	66	923	65	733	52
90C19A	21	-	-	1357	63	1184	56	1291	61	1273	60	1011	48
97C10A	10	578	40 (14W)	657	65	557	55	608	60	599	59	476	47
97C12A	14	-	-	897	62	763	54	833	59	821	58	652	46
97C17A	21	-	-	1238	58	1055	50	1151	58	1135	54	901	42
90W11A	14	-	-	910	65	744	53	856	61	871	62	703	50
90W12A	14	-	-	1023	73	837	59	962	68	979	69	790	56
90T12A	16	-	-	-	-	852	53	950	59	949	59	838	52

JA8-2019 INDICATED BY SHADING

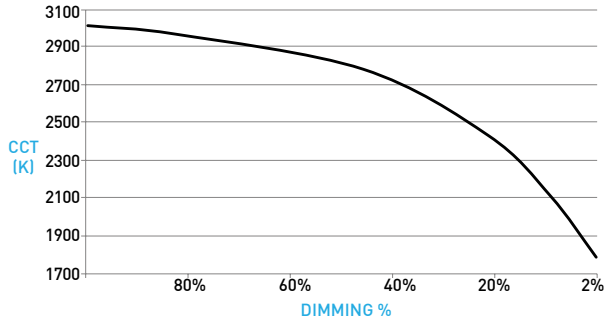
OUTPUT MULTIPLIER	
CCT	CCT SCALE
2200K (Consult factory for JA8 details)	0.800
2700K	0.957
3000K	1.000
3500K	1.019
4000K	1.030

LIGHT LOSS FACTOR MULTIPLIER	
NO LENS	1.05
CGL	1.00
SFL	1.00
FGL	0.90
FSFL	0.87
FLSL	0.83
WDL	0.78
HCL	0.65

WARM DIM PERFORMANCE - SOFT FOCUS LENS - 40° OPTIC

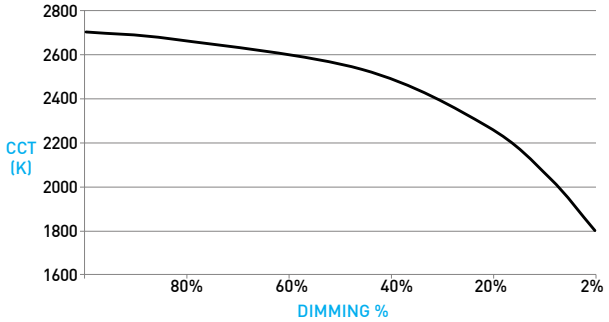
STANDARD WARM DIM PROFILE

90W12A 3000K - 1800K	Full on 100%	Dimmed to 80%	Dimmed to 70%	Dimmed to 50%	Dimmed to 20%	Dimmed to 10%	Dimmed to 2%
CCT (K)	3000	2950	2920	2775	2375	2000	1800
Light Output (Lm)	962	769	673	481	192	96	19
Power (W)	14	11	10	7	3	1.5	0.3
Efficacy (LPW)	68	68	68	68	68	68	68



WARM DIM TO MIRROR INCANDESCENT DIMMING PROFILE

90W11A 2700K - 1800K	Full on 100%	Dimmed to 80%	Dimmed to 70%	Dimmed to 50%	Dimmed to 20%	Dimmed to 10%	Dimmed to 2%
CCT (K)	2700	2650	2620	2520	2180	1950	1800
Light Output (Lm)	856	684	599	428	171	85	17
Power (W)	14	11	10	7	3	1.5	0.5
Efficacy (LPW)	61	61	61	61	61	61	61



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FRAXION3 SLIM FIXED

DOWNLIGHT / HOUSING

A LED
Integral LED module design enables field service / replacement through housing aperture.

B OPTIC
Proprietary optic integrates Reflection, Refraction and TIR offering 10°, 15°, 22°, 40° & 60° beams.

C TRIMLESS MILLWORK SPACERS
Provided for Trimless Millwork installations; includes (1) 1/16" spacer and (5) 1/8" spacers.

D TRIM EXTENSION
Provided for -2 ceiling thickness; accommodates 2.125" max ceiling thickness.

E MICROFLANGE PROFILE
Features 0.30" flange. Thickness measures 0.06". Installed after ceiling is complete. Requires 3.375" diameter cutout. Wet location features integral silicone gasket.

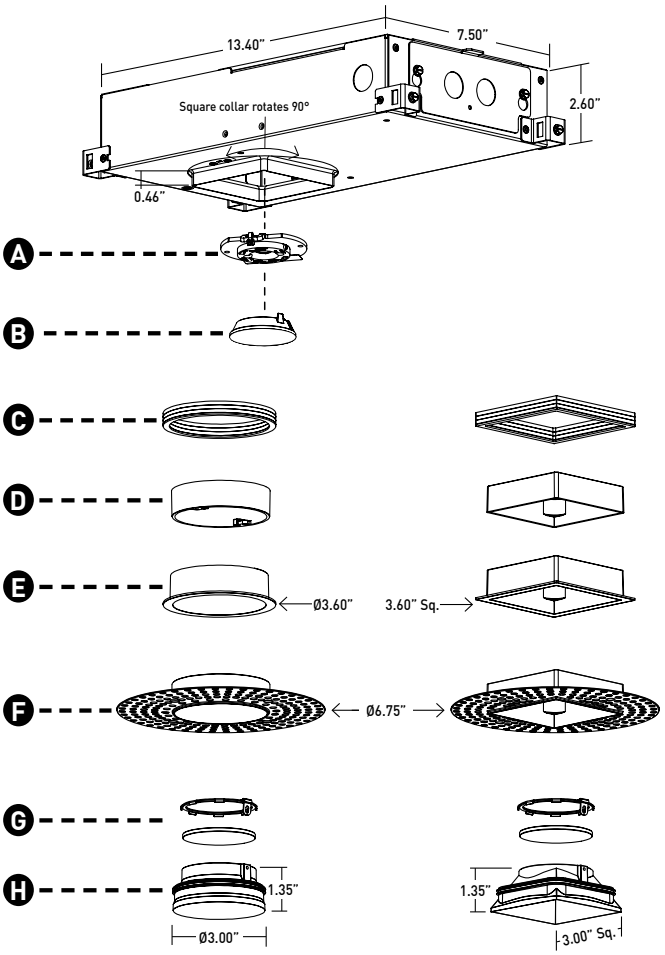
F TRIMLESS DRYWALL PROFILE
Installs totally flush with the ceiling with no visible trim. Appliqué includes screws for mounting and has 0.06" plaster stop. Not recommended for stucco applications.

G EFFECTS DEVICES / LENS RETAINER
Fixture is limited to 1 effects device. Wet location effects device is sealed in place. Suction tool provided for removal of baffle with wet location. Lens retainer allows effects devices to be changed in Dry /Damp locations.

H ROUND BAFFLE
Die-cast removable baffle provides easy access to tilting mechanism and features 62° glare cutoff. Minimizes aperture glare and conceals view into housing; includes gasket.

SQUARE TRANSITIONAL BAFFLE
Die-cast removable baffle provides easy access to tilting mechanism and features 62° glare cutoff. Transitions from square aperture at ceiling plane to round aperture at light source. Minimizes aperture glare and conceals view into housing; includes gasket.

DIMENSIONS / DRAWINGS



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FRAXION3 SLIM FIXED

DOWNLIGHT / HOUSING

I **IC HOUSING**
- For IC ceilings.
- No setback from polycell spray foam insulation having max R-Value of 60 on all sides and top of housing.

J **NIC HOUSING**
- Minimum 0.50" setback from combustible and non-combustible materials on all sides and top of housing.
- Minimum 3.00" setback from insulation material having max R-Value 30 on all sides and top of housing.
- Minimum 6.00" setback from polycell spray foam insulation having max R-Value 60.

K **ADJUSTABLE HANGER BAR HEIGHT ACCESSORY**
Provided with ceiling thickness "T" and recommended for installations in T-Grid and furring channel up to 1.5" tall. Hanger bars are installed to adjustable bracket. Allows housing to be raised and lowered; ceiling thickness remains 0.5" to 1.375" max.

L **APPLIQUÉ DETAIL**
Appliqué for plaster floating directly to baffle.

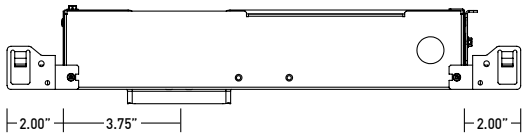
M **REMOTE POWER SUPPLY**
Provided with install Types "V", "W" and "D". Remote power supply provides additional driver options. See page 6 for maximum allowable secondary run lengths between PSF3-RMT and fixture. Must be installed in an accessible location.

HOUSING NOTES

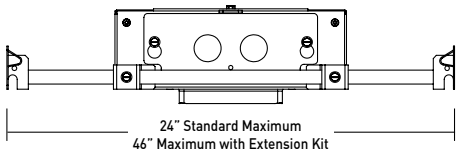
- Do not install NON-IC housings in environments where ambient temperatures exceed 40°C (104°F). See table below for IC housings.
- Power supply compartment and all splice connections may be serviced from room side.
- Consult factory for spacing requirements for any installations exceeding R-Value 60.
- Hanger bars fitted to short side of housing or long side when TG accessory is specified; extend from 14.0" to 24.0", but may be field cut to accommodate narrow stud spacing. Can be extended up to 46" maximum with FRX-HBE-46 kit.
- Hanger bars and brackets add 4.00" max to the overall dimension, but are exclusive of the setback requirements.
- Housings for round trims feature a round aperture housing collar. Housings for square trims feature a square housing collar that rotates up to 90 degrees for fixture alignment. Housing collars accommodate ceiling thicknesses between 0.50" and 2.125".

IC HOUSING MAX AMBIENT TEMPERATURE	
LUMEN PACKAGE	TEMPERATURE
10W STATIC WHITE	40°C (104°F)
14W STATIC WHITE	35°C (95°F)
21W STATIC WHITE	25°C (77°F)
14W WARM DIM	30°C (86°F)
16W TUNABLE WHITE	30°C (86°F)

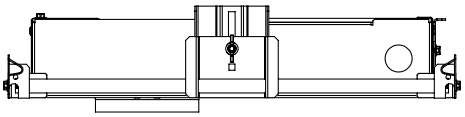
I / J



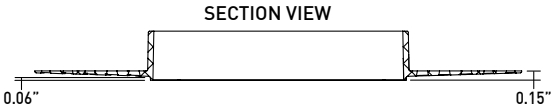
IC HOUSING FEATURES STRIP GASKETS



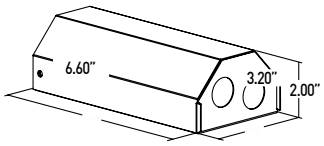
K



L



M



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FRAXION3 SLIM FIXED

TECHNICAL

CONSTRUCTION
Downlight: Painted finishes are granulated powder coat.
Housing: Aluminum and 22 Gauge galvanized steel. Extruded aluminum housing panel to act as heat-sink.
Remote Power Supply: 22 Gauge galvanized steel.
Appliqué: Zinc alloy.

STATIC WHITE LED
2-step MacAdam ellipse LED module available in 80+, 90+ and 97+ CRI configurations in color temperatures of 2200K, 2700K, 3000K, 3500K and 4000K. Average rated lamp life of 50,000 hours. LED and driver assemblies are field-replaceable.

WARM DIM LED
3-step MacAdam ellipse warm dim LED module available in 90+ CRI configuration. 3000K or 2700K at full brightness, warming to 1800K at full dim. Average rated lamp life of 50,000 hours. LED and driver assemblies are field-replaceable.

TUNABLE WHITE LED
5-step MacAdam ellipse tunable white LED module available in 90+ CRI configuration. Features tuning range of 2700K to 5000K. Average rated lamp life of 50,000 hours. LED and driver assemblies are field-replaceable.

POWER SUPPLY PERFORMANCE AND DIMMING INFORMATION

Power Supply	PH	SG	SN	LH	L2	EG	EN	ED	DG	DN	DD
Minimum °C	-20 °C	-10 °C	-10 °C	0 °C	0 °C	-20 °C	-20 °C	-20 °C	-20 °C	-20 °C	-20 °C
Maximum °C	40 °C	40 °C	40 °C	40 °C	40 °C	40 °C	40 °C	40 °C	40 °C	40 °C	40 °C
Dimming %	2.0%	1.0%	1.0%	0.1%	1.0%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%

Note: For L2, LH, EG and EN drivers consult chart on page 7 to confirm appropriate dimming curve for compatibility with selected control.

MAXIMUM ALLOWABLE REMOTE DRIVER WIRING DISTANCES

	WIRE AWG				
DRIVER	12	14	16	18	20
PH, SG, SN	285'	180'	113'	71'	45'
LH, L2	60'	40'	25'	15'	-
EG, EN, ED, DG, DN, DD	-	-	118'	72	46'

LISTING
cTUVus listed to UL1598 standard for Dry / Damp and Wet locations.
CCEA, Airtight and Title 24 JA8-2019 Listed.

BUY AMERICAN ACT
All Fraxion3 Slim Fixed configurations are Buy American Act compliant.

WEIGHT
Fixture - 2.4 lbs
Remote Driver - 1.4 lbs

LIMITED WARRANTY
Manufacturer's 1-year warranty guarantees product(s) listed to be free from defects in material and workmanship under normal use and service. 5-year warranty on LED and power supply to operate with 70% of the original flux and remain within a range of 3 duv. 10-year Lutron Advantage limited warranty available on Lutron equipped systems. Warranty period begins from the date of shipment by Seller and conditional upon the use of manufacturer-supplied power supply. Consult website for full warranty terms and conditions.

CHANGE LOG
1. 01/12/2021: ADDED 2200K, 2700K-1800K WARM DIM AND 10 DEGREE OPTIC OFFERINGS.
2. 04/30/2021: REMOVED QUICK SHIP.
3. 06/16/2021: ADDED BAA COMPLIANCE.
4. 10/17/2022: REMOVED 90W13A 3200K-1800K WARM DIM AND ADDED 90W12A 3000K-1800K WARM DIM.
5. 10/17/2022: UPDATED MAX AMBIENT TEMPERATURE TABLE.
6. 10/26/2022: DISCONTINUED LP DRIVER AND ADDED LH DRIVER.
7. 02/14/2022: ADDED EG, EN, AND ED INTEGRAL DRIVER OFFERINGS.

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DIMMING COMPATIBILITY

LUTRON DRIVER COMPATIBILITY

Power supply **L2** **Lutron Product Family**	**Part No.**
Maestro WirelessR 600 W dimmer	MRF2-6ND-120-
Maestro WirelessR 1000 W dimmer	MRF2-10ND-120-
Caséta® Wireless Pro 1000 W dimmer	PD-10NXD-
GRAFIK T™ CL® dimmer	GT-250M- GTJ-250M-
HomeWorks® QS adaptive dimmer	HQRD-6NA-
HomeWorks® QS 600 W dimmer	HQRD-6ND-
HomeWorks® QS 1000 W dimmer	HQRD-10ND-
RadioRA® 2 adaptive dimmer	RRD-6NA-
RadioRA® 2 1000 W dimmer	RRD-10ND
myRoom™ DIN power module	MQSE-4A1-D
HomeWorks® QS DIN power module	LQSE-4A1-D
HomeWorks® QS wallbox power module	HQRJ-WPM-6D-120
HomeWorks® wallbox power module	HWI-WPM-6D-120
GRAFIK Eye® QS control unit	QSGR-, QSGRJ-
GRAFIK Eye® 3000 control unit	GRX-3100- GRX-3500-
RPM-4U module (LCP, HomeWorks® QS, GRAFIK Systems™, Quantum®)	HW-RPM-4U-120 LP-RPM-4U-120
RPM-4A module (LCP, HomeWorks® QS, GRAFIK Systems™, Quantum®)	HW-RPM-4A-120, LP-RPM-4A-120
GP dimming panels	Various
Ariadni CL 250W dimmer	AYCL-253P-
Diva CL 250W dimmer	DVCL-253P- DCSCCL-253P-
Nova T CL 250W dimmer	NTCL-250-
Power supply LH **Lutron Product Family**	**Part No.**
PowPak Dimming Modules	RMJ-ECO32-DV-B
PowPak Dimming Modules	FCJ/FCJS-ECO
Energi Savr Nodes	QSN-1ECO-S
GRAFIK Eye QS control unit Homeworks QS control unit	QSN-2ECO-S
GRAFIK Eye QS control unit Homeworks QS control unit	QSGRJ-_E (wireless) QSGR-_E
Quantum Hub	QP2-_ _ 2C
Quantum Hub	QP2-_ _ 4C
Quantum Hub	QP2-_ _ 6C
Quantum Hub	QP2-_ _ 8C
Homeworks QS power module myRoom Plus power module	LQSE-2ECO-D

LUTRON 2016 OEM ADVANTAGE ACCOUNT

eldoLED DRIVER COMPATIBILITY

Power supply **EG / EN** **Dimmer / Switch Control Manufacturer**	**Family/Model #**
Busch-Jaeger	2112U-101
Jung	240-10
Leviton Lighting Controls	IP710-DLX
Lightolier Controls	ZP600FAM120
Lutron Electronics	Nova T® - NTFTV
Lutron Electronics	Diva® - DVTV
Lutron Electronics	Nova® - NFTV
Merten	5729
Pass & Seymour	CD4FB-W
The Watt Stopper	DCLV1
Sensor Switch	nIO EZ
Synergy	ISD BC
Power supply EG / EN **Lighting Control System Manufacturer**	**Family/Model #**
Lutron Electronics	GrafixEye® GRX-TVI w GRX3503
Lutron Electronics	Energy Savr Node™ - QSN-4T16-S
Lutron Electronics	TVM2 Module
Crestron®	GLX-DIMFLV8
Crestron®	GLXP-DIMFLV8
Crestron®	GLPAC-DIMFLV4-*
Crestron®	GLPAC-DIMFLV8-*
Crestron®	GLPP-DIMFLVEX-PM
Crestron®	GLPP-1DIMFLV2EX-PM
Crestron®	GLPP-1DIMFLV3EX-PM
Crestron®	DIN-AO8
Crestron®	DIN-4DIMFLV4
Crestron®	CLS-EXP-DIMFLV
Crestron®	CLCI-1DIMFLV2EX
ABB	SD/S 2.16.1

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FLEX TUBE SC™

GEN 2

ACCLAIM LIGHTING



Client:	
Project:	
Type:	
Order Code:	
Quantity:	

Flex Tube SC is a flexible, single color, indoor/outdoor LED strip, available in multiple color temperatures and mounting orientations. It comes in seven-meter spool or custom-built lengths to suit project requirements and features a highly durable second-generation silicone body, which is outdoor rated and high impact resistant.

SPECIFICATIONS

Colors	2200K, 2700K, 3000K, 3500K. 4000K, 5700K, Red, Green, Blue, Amber
Beam Angle	120º
Photometrics	Up to 215 lumens per foot, 80 CRI, 3 step SDCM, see page 4 for details
Strip Length	Built to order lengths from 4.37" (111mm) to 22.96' (7m), most sections length 2.18" (55.56mm)
Dimming	DMX/RDM (0-100%), DALI (0-100%), 0-10V (1-100%), TRIAC (1-100%), ELV (1-100%)
Bend Directions & Radius	Vertical bending or horizontal bending options, minimum bend radius of 5.9" (150mm)
Power Consumption	3.65W per foot, 12W per meter ***except*** Red and Amber - 2.43W per foot, 8W per meter
Operating Voltage	24VDC
Lumen Maintenance	L70 @ 50,000 hours (25º C)
Mounting	Aluminum mounting channel required, 0.78" (20mm), 11.8' (1m), or 6.56' (2m) lengths
Finish	White
Material	UV resistant silicone
Ambient Operating Temperature	-40º F to 131º F (-40º C to 55º C)
IP Rating	IP68, wet location, submersible* up to 6.56' (2m)
IK Rating	IK08, protection against 5 joule impact
Fixture Connectors	16.4' (5m) injection molded feed cable and end cap included
Warranty	5 Years, limited
Weight	5.73 lbs (2.59 kg) - 7m Spool
Dimensions	**L:** As specified **W:** 0.62" **H:** 0.66" **/ L:** As specified **W:** 16mm **H:** 17mm
Certifications	c UL us CE

*UL approval limits submersible installation to non-human occupied and freshwater locations only. All cables must be landed in environmentally suitable junction boxes.

ORDER CODES

* indicates special order

F2# - 2 2 # - # A # N

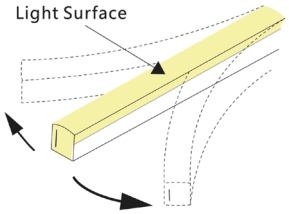
- **Version:** **B** = Horizontal Bend, **U** = Vertical Bend
- **Control:** **2** = Dimmable
- **Housing Finish:** **2** = White
- **Feed Cable:** **2** = Side Feed Right, **4** = Side Feed Left, **5** = Rear Feed, **6** = End Feed
- **Length:** **X** = Custom*†
- **Beam:** **A** = 120°
- **LED Color:** **B** = 2200K, **D** = 2700K, **E** = 3000K, **F** = 3500K, **G** = 4000K, **J** = 5700K, **M** = Red *83.34mm, **N** = Green, **O** = Blue, **P** = Amber *83.34mm
- **Input Voltage:** **N** = 24VDC

†: When ordering custom lengths, please specificy number of 2.18" (55.56mm) sections required after X (4.37" / 111mm min - 22.96', 7m max).
Example order code: **F2B-225-X40AQN = 55.56mm x 40 / 2.22m spool**

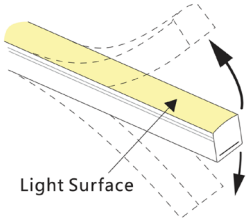
FEED CABLE LOCATIONS



HORIZONTAL BEND



VERTICAL BEND



TWO WIRE CABLE LIMIT

Gauge	Conductors	Max Amperage	Max feet to tube
18 AWG	2	4	40
14 AWG	2	4	100
12 AWG	2	4	170

RELATED COMPONENTS

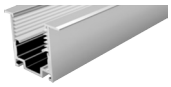
Mounting Accessories



F2CH20
20mm (0.78") Gen 2 mounting channel
Aluminum profile, includes 2 screws

F2CH1000
1M (3.28') Gen 2 mounting channel
Aluminum profile, includes 5 screws

F2CH2000
2M (6.56') Gen 2 mounting channel
Aluminum profile, includes 10 screws



F2RCH20
20mm (0.78") Gen 2 recessed mounting channel
Aluminum profile, includes 2 screws

F2RCH1000
1M (3.28') Gen 2 recessed mounting channel
Aluminum profile, includes 5 screws

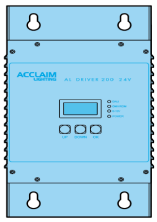
F2RCH2000
2M (6.56') Gen 2 recessed mounting channel
Aluminum profile, includes 10 screws



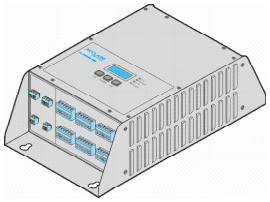
F2FCH500
0.5M (1.64') Gen 2 flexible mounting channel
Only for HB versions, includes 2 screws

F2FCH1000
1M (3.28') Gen 2 flexible mounting channel
Only for HB versions, includes 5 screws

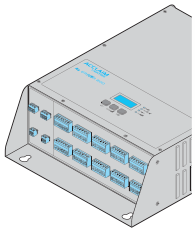
DMX Multi Protocol Drivers AL Driver 200/400/800



ALD-200-24 C2
AL Driver 200 24V, 2 spools max
200W 24V Class 2 power supply
DMX, 0-10V (sink & source) & DALI driver
4 output ports, 100-277VAC input



ALD-400-24 C2
AL Driver 400 24V, 4 spools max
400W 24V Class 2 power supply
DMX, 0-10V (sink & source) & DALI driver
6 output ports, 100-277VAC input



ALD-800-24 C2
AL Driver 800 24V, 8 spools max
800W 24V Class 2 power supply
DMX, 0-10V (sink & source) & DALI driver
10 output ports, 100-277VAC input

RELATED COMPONENTS

0-10V + TRIAC (Forward Phase) Drivers



MLE96-24DC-UD
24VDC PWM Driver, 1 spool max
96W 24V Class 2 LED Driver, 5-100%
0-10V (sink) & TRIAC (forward phase) dimming
100-277VAC input



MLE192-24DC-UD
24VDC PWM Driver, 2 spools max
192W 24V Class 2 LED Driver, 5-100%
0-10V (sink) & TRIAC (forward phase) dimming
100-277VAC input



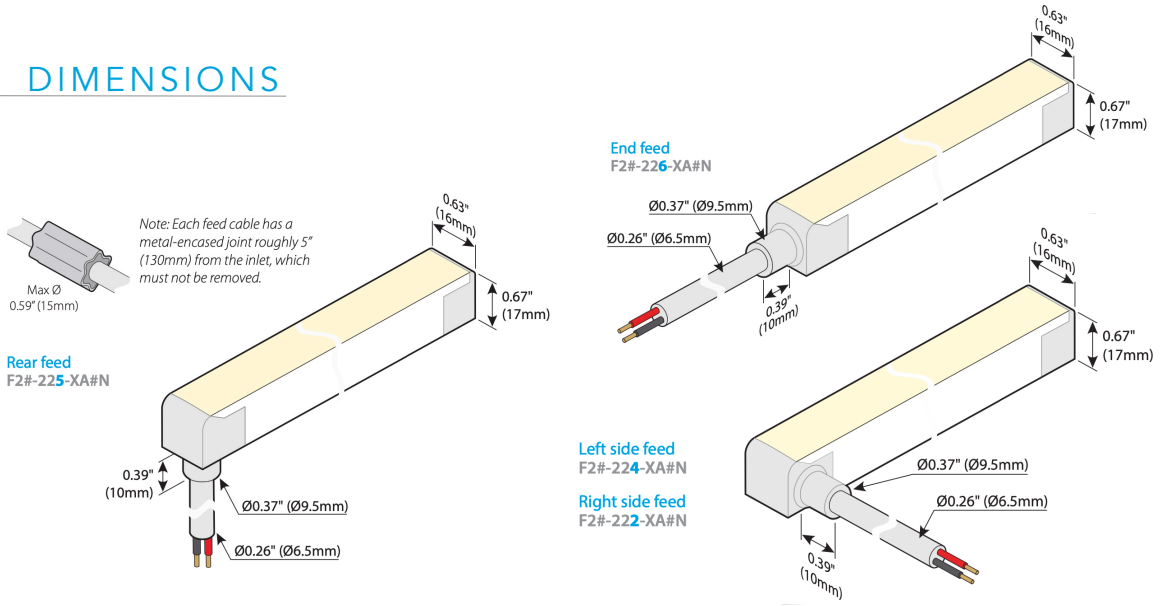
MLE288-24DC-UD
24VDC PWM Driver, 3 spools max
288W 24V Class 2 LED Driver, 5-100%
0-10V (sink) & TRIAC (forward phase) dimming
100-277VAC input

PHOTOMETRICS

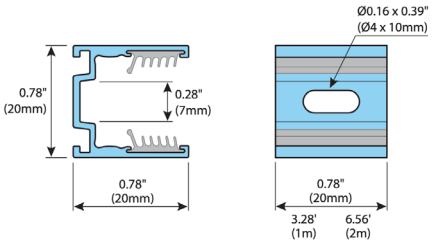
Bend /Color	Lumens (per foot)	Max Candela	CRI	TM30
HB 2200K	149	47.5	80.7	83.1
HB 2700K	157	52.5	83.1	81.8
HB 3000K	154	49.1	86.2	86.2
HB 3500K	155	49.1	84	84.9
HB 4000K	151	50.5	84.1	83.7
HB 5700K	151	47.9	84.3	83.2
HB Red	60	19.3	-	-
HB Green	182	58.4	-	-
HB Blue	38	12.6	-	-

Bend /Color	Lumens (per foot)	Max Candela	CRI	TM30
VB 2700K	182	61.3	83.4	81.7
VB 3000K	187	62.7	85.3	83.7
VB 3500K	189	63.5	82.0	82.8
VB 4000K	183	61.1	84.5	84.9
VB 5700K	188	63	83.3	82.4
VB Green	215	69.4	-	-
VB Blue	43	15	-	-

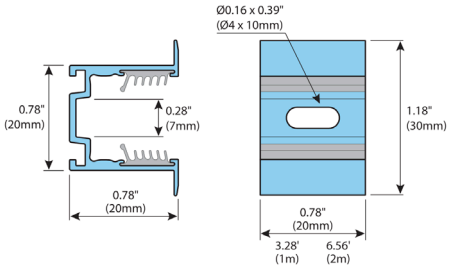
DIMENSIONS



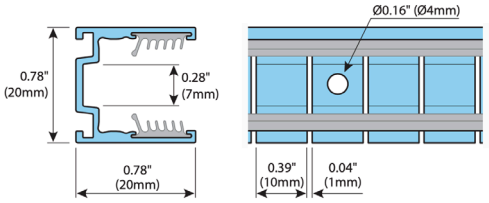
Flex Tube Gen 2



Flex Tube Gen 2 Recessed



Flex Tube Gen 2 Flexible



Note: The Ø0.16" (4mm) mounting holes are spaced at 4.57" (116mm) - on every tenth segment.

100% Design Development

FMS	Project	**Portland Foreside B5**	Date	**12 May 2023**	Type **FXC**
	Architect	**Marvel**	Proj No.	**522426**	5 of 5

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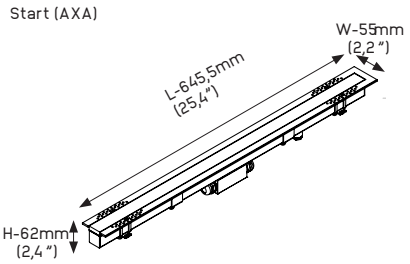
FILIX LIGHTING

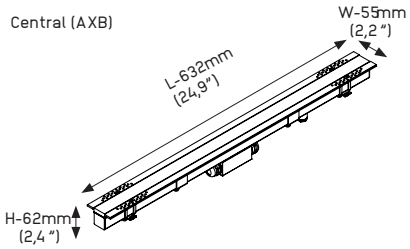
Arpool Nexus

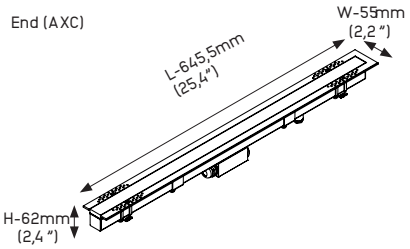
Specification Sheet



UL STD 676 swimming pool rated
CSA C22.2#89 swimming pool rated
IP68







LUMINAIRE FEATURES

Design and Application

- Installation depth max. up to 5m (16')
- Max tile thickness 25mm (1")
- Trim flange overlap 10mm (0,4")
- DMX, DALI, 0-10V compatible (remote)
- Wall and floor installation
- Infinity pools and swimming pool complexes

Performance

- IK10, PMMA cover
- Chlorine and saline environment
- Stainless Steel type 316L, marine grade
- Galvanic current protection (installation housing)
- Thermal fold back technology
- Lifetime TM-21 @85C L90(9K)=60500h
- Supplied with oil and water resistant 3m (10') feed cable as standard
- CRI: > 85
- 3 Step MacAdam

Safety

- Remote power supply
- Low voltage operation
- Recessed installation

Sustainabilty

- Recyclable material

Installation housing

- A501 - Start (left) Installation housing
- B503 - Central Installation housing
- C505 - End (Right) Installation housing

Power suplies

- List of proposed power supplies that are to be ordered separately.
- Click here for list of available drivers.
- Click here for voltage drop and distances.

Click here to download fixure instalation manual.

100% Design Development

Arpool Nexus

ORDERING INFORMATION

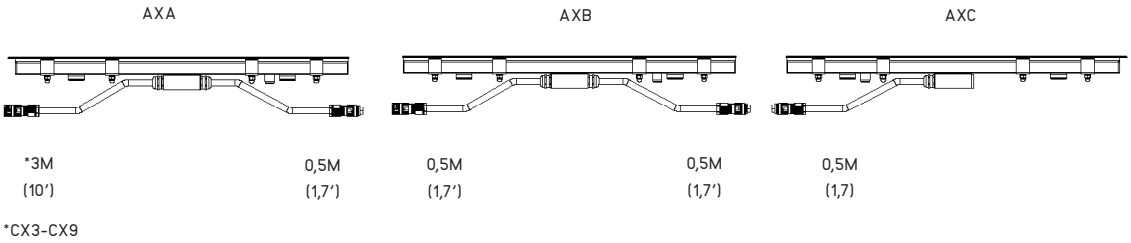
	MODEL	
●	**AX**	
	LENGHT	
○	**A**	• A - (25,4") 645,5mm - Start (AXA)
○	**B**	• B - (24,9") 632mm - Central (AXB)
○	**C**	• C - (25,4") 645,5mm - End (AXC)
	POWER	
○	**L**	• L - 10W/m, 3000 - 4000K, 250lm/m
○		• L - 18W/m, RGBW
	COLOR TEMP.	
○	**30**	• 30 - 3000K
○	**40**	• 40 - 4000K
○	**RGBW**	• RGBW (W 4000K)
	OPTICS	
○	**LL**	• LL - 120° even illumination
	VOLTAGE	
○	**12**	• 12 - 12VDC fixture voltage
○	**24**	• 24 - 24VDC fixture voltage
	OPTIONS	TYPE A ONLY:
○	**X3**	• X3 - coming lead 3m (10') feed cable with connector
○	**X6**	• X6 - coming lead 6m (20') feed cable with connector
○	**X9**	• X9 - coming lead 9m (30') feed cable with connector
○	**X20**	• X20 - coming lead 20m (65') feed cable with connector

Arpool Nexus

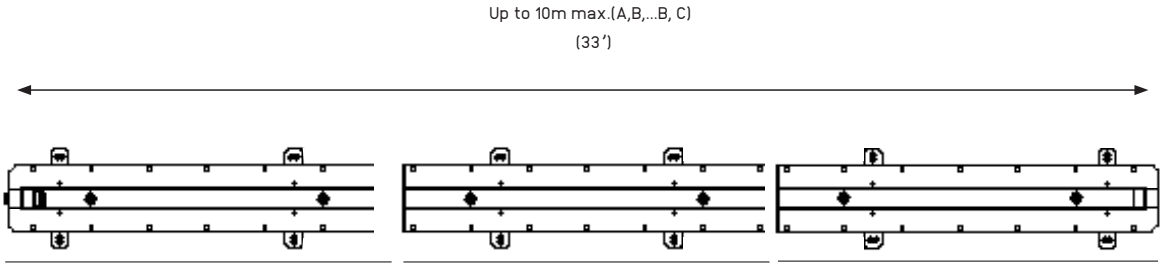
INSTALATION DETAILS

Specifying continuous run (A+B+C)
A - START
A - has "U"typed flange to cover the start gap of the line (shown in page 1.)
B - CENTRAL
B - has "I" typed flange to allow continuation of the line of light (shown in page 1.)
C - END
C - has "U" typed to cover the end gap of the line (shown in page 1.)

Cable length*



*CX3-CX9



657mm
(25,9")

FA501

632mm
(24,9")

FB503

657mm
(25,9")

FC505

Note:
Possible to combine only A housing + C housing, min 1,2m

FILIX LIGHTING USA INC

FIXTURE TO BE RATED FOR SHOWERS

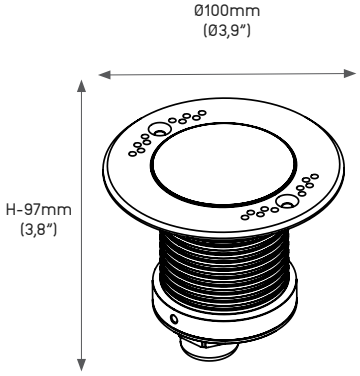
Arpool M

Specification Sheet



UL STD 676 swimming pool rated
CSA C22.2#89 swimming pool rated
IP68

TRIM (TM)



LUMINAIRE FEATURES

Design and Application

- Installation depth max. up to 3m (10')
- Max tile thickness 25mm (1")
- Trim flange overlap 10mm (0,4")
- DMX, DALI, 0-10V compatible (remote)
- Wall and stairs installation
- Small and medium pools
- Fountains and water features

Performance

- IK10, Tempered glass, crystal clear
- Chlorine and saline environment
- Stainless Steel type 316L, marine grade
- Galvanic current protection (installation housing)
- Thermal fold back technology
- Lifetime TM-21 @85C L80(10K)=60500h
- Supplied with oil and water resistant 3m (10') feed cable as standard
- CRI: > 85
- 3 Step MacAdam

Safety

- Remote power supply
- Low voltage operation
- Recessed installation

Sustainabilty

- Recyclable material

Installation housing

- FAM382 - Concrete Pool Installation
- FAM382SP - Stainless Steel Pool Installation
- FAM382LN - Liner Pool Installation

Accesories

- 203131 - Socket wrench for cable gland

Power supplies

- List of proposed power supplies that are to be ordered separately.
- Click here for list of available drivers.
- Click here for voltage drop and distances.

Note

Underwater luminaire – must be constantly submersed.

Click here to download fixure installation manual.
Click here to download housing installation manual.
Click here to download CAD file.
Click here to download IES-LTD data.

filixlighting-usa.com info@filixlighting.com
Filix reserves the right to make technical changes without notice.

100% Design Development

Arpool M

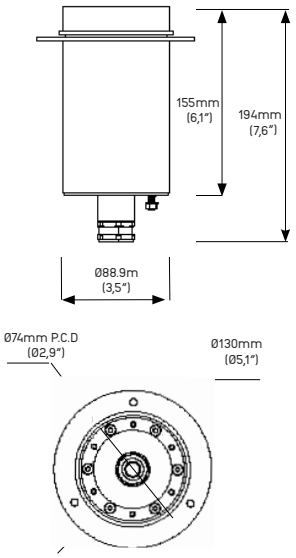
ORDERING INFORMATION

	MODEL	
●	**FAM**	
	APPLICATION	
○	**TM**	• TM - Ø100mm x 97mm (Ø3,9" x 3,9")
	POWER	
○	**L**	• **L - 9W, 3000/4000K, 600 lm**
○	**H**	• **H - 15W, 3000/4000K, 1000lm**
		• **H - 15W, RGBW (W 4000K)**
	COLOR TEMP.	
○	**30**	• 30 - 3000K
○	**40**	• 40 - 4000K
○	**RGBW**	• RGBW (W 4000K)
	OPTICS	
○	**SP**	• SP - Spot - 15°
○	**FL**	• FL - Flood - 40°
○	**W**	• W - Wide - 70°
	VOLTAGE	
○	**12**	• 12 - 12VDC fixture voltage
○	**24**	• 24 - 24VDC fixture voltage
	OPTIONS	
○	**3**	• 3* - standard feed cable 3m (10')
○	**6**	• 6 - luminaire supplied with 6m (20') feed cable
○	**9**	• 9 - luminaire supplied with 9m (30') feed cable
○	**20**	• 20 - luminaire supplied with 20m (65') feed cable

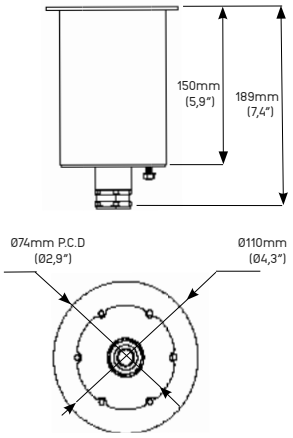
Arpool M

HOUSING

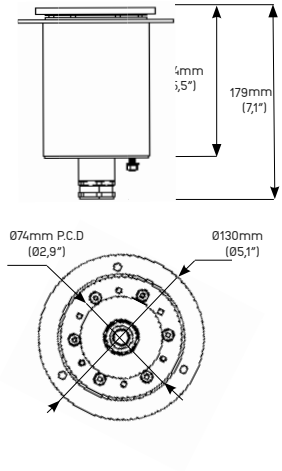
Installation housing - FAM382 *fits 1m (3') cable
Concrete pool installation



Installation housing - FAM382SP *fits 1m (3') cable
Stainless steel pool installation



Installation housing - FAM382LN *fits 1m (3') cable
Liner pool installation



Note:
For details on specific depths, tiling thickness and other please refer to both Installation instructions for fixture and housing.

DENALI LED (INTEGRAL)

IP66 RATED

DATE:	PROJECT:	TYPE:

CATALOG NUMBER LOGIC:



*Accommodates up to 2 lens/shielding media.

**120V only.

CATALOG NUMBER LOGIC		
Example: DE - LED - TR - x98 - SP - BZW - 9 - 11 - A - ELV - 120 - 25		
MATERIAL		
Aluminum		
SERIES		
DE - Denali		
SOURCE		
LED - Chip on Board (COB) Technology		
HOUSING		
TR - Integral Driver		
LED TYPE		
x98 - 13W/2700K/80CRI	x101 - 13W/2700K/90CRI	✓
x99 - 13W/3000K/80CRI	x102 - 13W/3000K/90CRI	✓
x103 - 13W/3500K/80CRI	x104 - 13W/3500K/90CRI	✓
x100 - 13W/4000K/80CRI	x121 - 13W/4000K/90CRI	✓
x122 - 21W/2700K/80CRI	x126 - 21W/2700K/90CRI	✓
x123 - 21W/3000K/80CRI	x127 - 21W/3000K/90CRI	✓
x124 - 21W/3500K/80CRI	x128 - 21W/3500K/90CRI	✓
x125 - 21W/4000K/80CRI	x129 - 21W/4000K/90CRI	✓
OPTICS		
SP - Spot (17°)	FL - Flood (45°)	WFL - Wide Flood (55°)
FINISH (See page 3 for full-color swatches)		
Standard Finishes (BZP, BZW, BLP, BLW, WHP, WHW, SAP, VER)		
Premium Finish (ABP, AMG, AQW, BCM, BGE, BPP, CAP, CMG, CRM, HUG, NBP, OCP, RMG, SDS, SMG, TXF, WCP, WIR)		
Also available in RAL Finishes		
LENS TYPE*		
9 - Clear (Standard)		
12 - Soft Focus	13 - Rectilinear	
SHIELDING*		
11 - Honeycomb Baffle		
CAP STYLE		
A - 45°		
B - 90°		
C - Flush		
D - 45° Less Weephole (Downward Aiming Only)		
E - 90° Less Weephole (Downward Aiming Only)		
CONTROLS		
ELV - Dimming Driver (For use with Electronic Low Voltage Dimmer)**		
INC - Dimming Driver (For use with incandescent dimmer)**		
010 - 0-10V Dimming Driver (Dimming ≤3-100%)		
INPUT VOLTAGE		
120 - 120 VAC		
277 - 277 VAC		

✓ **TITLE 24, JA8 COMPLIANT**

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12/06/2022 SKU-1245 P1
SUB-2783-00

DENALI LED (INTEGRAL) IP66 RATED

DATE:	PROJECT:	TYPE:

CATALOG NUMBER LOGIC:



MOD OPTIONS
5 - 5 Ft Leads
25 - 25 Ft Leads

*Accommodates up to 2 lens/shielding media.

**120V only.

TITLE 24, JA8 COMPLIANT

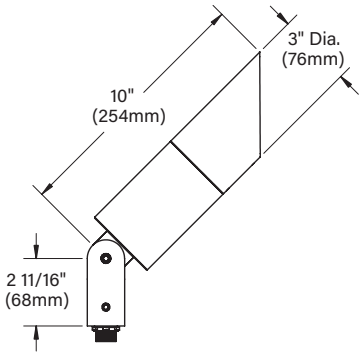
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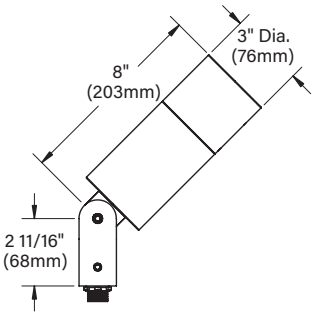
12/06/2022 SKU-1245 P2
SUB-2783-00

DENALI LED (INTEGRAL) — IP66 RATED

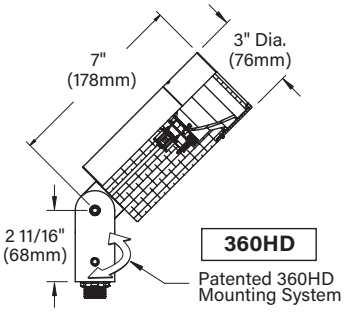
DATE:	PROJECT:	TYPE:



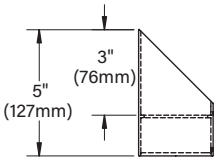
"A/D" CAP



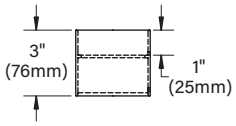
"B/E" CAP



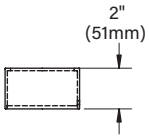
"C" CAP



"A"/"D" CAP



"B"/"E" CAP



"C" CAP

STANDARD FINISHES

Satin Black (BLP)	Satin Bronze (BZP)	Satin White (WHP)	Satin Aluminum (SAP)
Black Wrinkle (BLW)	Bronze Wrinkle (BZW)	White Wrinkle (WHW)	Verde (VER)

Click Here to view larger, full-color swatches of all available finishes on our website.

PREMIUM FINISHES

Cascade Mtn. Granite (CMG)	Rocky Mtn. Granite (RMG)	Sierra Mtn Granite (SMG)	Aleutian Mtn Granite (AMG)	Textured Forest (TXF)
Black Chrome (BCM)	Beige (BGE)	Weathered Copper (WCP)	Old Copper (OCP)	Hunter Green (HUG)
Antique Brass Powder (ABP)	Brown Patina Powder (BPP)	Sonoran Desert Sandstone (SDS)	Weathered Iron (WIR)	Clear Anodized Powder (CAP)
Cream (CRM)	Antique White (AQW)	Natural Brass Powder (NBP)		

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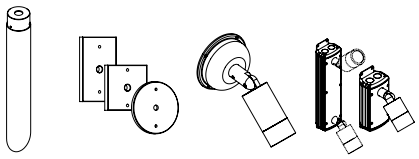
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12/06/2022 SKU-1245 P1
SUB-2783-00

DENALI LED (INTEGRAL) IP66 RATED

DATE:	PROJECT:	TYPE:

Accessories (Configure separately)



Power Pipe II | Canopies | Power Canopy | PM2DJ & PM2J

SPECIFICATIONS

ELECTRICAL	WATTAGE	13W or 21W LED
	LED	COB technology and modular design with electrical quick disconnects allow for easy field upgrade and maintenance. LM-80 certified. Title 24, JA8 compliant options available. Minimum 50,000 hour rated life at 70% of initial lumens (L70).
	COLOR MANAGEMENT	COB technology delivers natural white light. Exact color point conformity exceeds ANSI C78.377 standard. Module exceeds 80 CRI (RA>80, R9.16). Color point uniformity 2 SDCM color control for 2700K-4000K CCT.
	WIRING	INC/ELV Wiring: 3 Wire, 18GA, Stranded, XLPE, 125°C, 300V, UL3265 rated wire 0-10 Wiring: 5 Wire, (3) 18GA and (2) 22GA, Stranded, XLPE, 125°C, 300V, UL3265 rated wire
	DRIVER	Incandescent/ELV Control Option Driver: Dimming driver for use with standard incandescent or electronic low voltage dimmers (10-100% range), 120VAC only. 0-10 Control Option Driver: Dimming driver for use with standard 0-10V dimmers (≤3-100% dim. range), 120-277VAC. With [1] 440mA (13W) / 700mA (21W). 50/60Hz. >0.9 Power Factor, (INC/ELV)10.0A/(0-10) <250mA in-rush current , .20%THD (nominal at 120VAC full load). Output over-voltage, overcurrent, and short circuit protection with auto recovery. Class 2 power supply; FCC47CFR Part 15 Compliant Class B (120VAC)/Class A (277VAC).
PHYSICAL	MATERIALS	Furnished in copper-free aluminum (6061-T6).
	BODY	Unibody design with enclosed, water-proof wireway and integral heat sink is fully machined from solid billet. Anti-condensation and corrosion vent equalizes fixture pressure and eliminates potential for damage to internal components.
	KNUCKLE	360HD Mounting System features a mechanical taperlock, allowing full 180° vertical adjustment without the use of aim-limiting serrated teeth. High temperature, silicone 'O' Ring provides water-tight seal and compressive resistance to maintain fixture position. Design withstands 73 lbs. static load prior to movement for optical alignment with a ½" pipe thread for mounting. Biaxial source control additionally provides 360° horizontal rotation in addition to vertical adjustment. Aim & Lock technology allows precision adjustment without the redundant tightening and loosening of knuckle screw.
	CAP	Fully machined and accommodates two (2) lens or louver media.
	LENS	Shock-resistant, tempered glass lens is factory adhered to fixture cap and provides hermetically sealed optical compartment.
	HARDWARE	Tamper-resistant, stainless steel hardware. 360HD hardware is black oxide treated for additional corrosion resistance.
	OPTICS	Interchangeable optics permit changes in the field.
	FINISH	StarGuard, our 15-stage chromate-free process, cleans and conversion coats aluminum components prior to application of Class 'A' TGIC polyester powder coating and is RoHS compliant.
TITLE 24, JA8	WARRANTY	5-year limited warranty.
c UL us LISTED	CERTIFICATION & LISTING	UL tested to IESNA LM-79. UL Listed. Certified to CAN/CSA/ANSI Standards. RoHS compliant components. Suitable for indoor or outdoor use, in wet locations, and for installation within 4' of the ground. IP66 Rated. Made in the USA with sustainable processes.
RoHS		
MADE IN THE USA		

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12/06/2022 SKU-1245 P1
SUB-2783-00

LAMP & DRIVER DATA (page 1 of 2)

DATE:	PROJECT:	TYPE:

DRIVER ELECTRICAL DATA

Type	AC Input Range	Frequency Hz	Power Factor At Full Load (Efficiency)	THD	InRush Current	Operating Current	Operation Ambient Temperature	Dimmer Type	Dimmer Range
Integral	120VAC	50/60	> 0.9	20%	10A	440mA (13W)/700mA (21W)	-30° C ~ 70°C	TRIAC/ELV	1-100%
Integral	105-300VAC	50/60	> 0.9	20%	<250mA	440mA (13W)/700mA (21W)	-30° C ~ 90°C	0-10	≤3-100%

LM79 DATA

BK No.	CCT (Typ.)	CRI (Typ.)	Input Watts (Typ.)	L70 Data
x98	2700	80	13	50,000
x98	**2700**	**80**	**13**	**50,000**
x98	2700	80	13	50,000
x99	3000	80	13	50,000
x99	**3000**	**80**	**13**	**50,000**
x99	3000	80	13	50,000
x103	3500	80	13	50,000
x103	**3500**	**80**	**13**	**50,000**
x103	3500	80	13	50,000
x100	4000	80	13	50,000
x100	**4000**	**80**	**13**	**50,000**
x100	4000	80	13	50,000
x101	2700	90	13	50,000
x101	**2700**	**90**	**13**	**50,000**
x101	2700	90	13	50,000
x102	3000	90	13	50,000
x102	**3000**	**90**	**13**	**50,000**
x102	3000	90	13	50,000
x104	3500	90	13	50,000
x104	**3500**	**90**	**13**	**50,000**
x104	3500	90	13	50,000
x121	4000	90	13	50,000
x121	**4000**	**90**	**13**	**50,000**
x121	4000	90	13	50,000
x122	2700	80	21	50,000
x122	**2700**	**80**	**21**	**50,000**
x122	2700	80	21	50,000
x123	3000	80	21	50,000
x123	**3000**	**80**	**21**	**50,000**
x123	3000	80	21	50,000
x124	3500	80	21	50,000
x124	**3500**	**80**	**21**	**50,000**
x124	3500	80	21	50,000
x125	4000	80	21	50,000
x125	**4000**	**80**	**21**	**50,000**
x125	4000	80	21	50,000

OPTICAL DATA

Angle	CBCP	Del. Lumens	Muliplier
17	6,480	829	0.92
45	**1,773**	**1,041**	**0.92**
55	1,478	1,180	0.92
17	6,796	869	0.96
45	**1,860**	**1,091**	**0.96**
55	1,550	1,237	0.96
17	6,685	855	0.95
45	**1,829**	**1,074**	**0.95**
55	1,525	1,217	0.95
17	7,059	903	1.00
45	**1,931**	**1,134**	**1.00**
55	1,610	1,285	1.00
17	4,486	574	0.69
45	**1,228**	**720**	**0.69**
55	1,023	817	0.69
17	4,936	631	0.73
45	**1,350**	**793**	**0.73**
55	1,126	899	0.73
17	4,775	611	0.71
45	**1,307**	**767**	**0.71**
55	1,089	869	0.71
17	5,324	681	0.75
45	**1,457**	**855**	**0.75**
55	1,214	969	0.75
17	9,040	1,208	0.87
45	**2,437**	**1,359**	**0.87**
55	1,876	1,416	0.87
17	10,030	1,341	0.96
45	**2,704**	**1,508**	**0.96**
55	2,082	1,571	0.96
17	8,496	1,136	0.81
45	**2,290**	**1,277**	**0.81**
55	1,763	1,331	0.81
17	10,431	1,394	1.00
45	**2,812**	**1,568**	**1.00**
55	2,165	1,634	1.00

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LAMP & DRIVER DATA (page 2 of 2)

DATE:	PROJECT:	TYPE:

LM79 DATA

BK No.	CCT (Typ.)	CRI (Typ.)	Input Watts (Typ.)
x126	2700	90	21
x126	**2700**	**90**	**21**
x126	2700	90	21
x127	3000	90	21
x127	**3000**	**90**	**21**
x127	3000	90	21
x128	3500	90	21
x128	**3500**	**90**	**21**
x128	3500	90	21
x129	4000	90	21
x129	**4000**	**90**	**21**
x129	4000	90	21

OPTICAL DATA

L70 Data	Angle	CBCP	Del. Lumens	Muliplier
50,000	17	6120	818	0.68
50,000	**45**	**1650**	**920**	**0.68**
50,000	55	1270	959	0.68
50,000	17	7535	1007	0.75
50,000	**45**	**2031**	**1133**	**0.75**
50,000	55	1564	1180	0.75
50,000	17	5406	723	0.64
50,000	**45**	**1457**	**813**	**0.64**
50,000	55	1225	847	0.64
50,000	17	8148	1089	0.78
50,000	**45**	**2196**	**1225**	**0.78**
50,000	55	1691	1277	0.78

OPTICS

Optic	Angle
Spot w/ 13 Accy	16 x 50
Spot	17°
Flood	45°
Wide Flood	55°

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POWER PIPE

ORDER FIXTURE SEPARATELY.

DATE:	PROJECT:	TYPE:

CATALOG NUMBER LOGIC:



**Includes stake, not available with Junction Box or transformer. Not compatible with fixtures that has 360HD knuckle.*

***For use with MR16 LED Lamps and Halogen Lamps.*

****For use with 3W-7W LED fixtures. 105-300 VAC. 50/60 Hz. non-dimming.*

*****Non-dimming.*

CATALOG NUMBER LOGIC
Example: PP - S12 - TRSS75 - BZW - B - 120 -SF
MATERIAL
(Blank) - Aluminum B - Brass S - Stainless Steel
SERIES
PP - Power Pipe System
TYPE
S12 - 12" Stake
S18 - 18" Stake
J12 - 12" Junction Box
J18 - 18" Junction Box
A18 - 18" Adjustable Stem*
TRANSFORMER HOUSING
(Blank) - Less Transformer Housing
TRSS75 - 75VA Electronic Transformer with Housing**
TRe20 - TRe20 Electronic Transformer with Housing***
FINISH (See page 2 for full-color swatches)
Standard Finishes (BZP, BZW, BLP, BLW, WHP, WHW, SAP, VER)
Premium Finish (ABP, AMG, AQW, BCM, BGE, BPP, CAP, CMG, CRM, HUG, NBP, OCP, RMG, SDS, SMG, TXF, WCP, WIR)
(Also available in RAL Finishes. See submittal SUB-1439-00)
Brass Finishes (MAC, POL, MIT)
Stainless Steel Finishes (MAC, POL)
CAP STYLE
(Blank) - Less Cap (Adjustable stem only)
B - Single Hole Cap
C- Solid Cap
INPUT VOLTAGE
(Blank) - For use with TRe20 Electronic Transformer***
120 - 120 VAC (For use with TRSS75)
230 - 230 VAC**** (Electronic only, for use with TRSS75)
277 - 277 VAC**** (For use with TRSS75)
OPTIONS
SF - Stability Flange

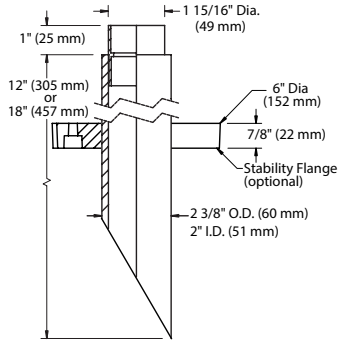
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POWER PIPE

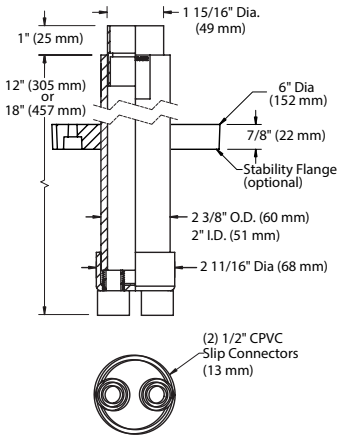
ORDER FIXTURE SEPARATELY.

DATE: | PROJECT: | TYPE:

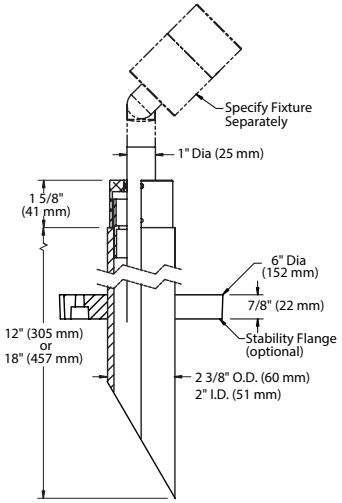
STAKE (S)



JUNCTION (J)

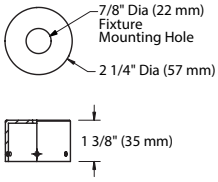


ADJUSTABLE STEM (A)

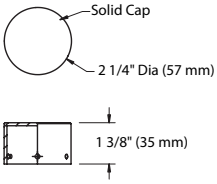


CAP STYLES

'B' Cap (Single Hole)

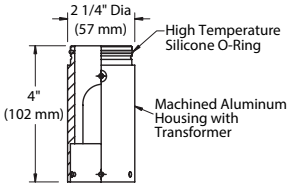


'C' Cap (Solid Cap)



TRANSFORMER

Transformer with Housing



STANDARD FINISHES

Satin Black (BLP)	Satin Bronze (BZP)	Satin White (WHP)	Satin Aluminum (SAP)
Black Wrinkle (BLW)	Bronze Wrinkle (BZW)	White Wrinkle (WHW)	Verde (VER)

Click Here to view larger, full-color swatches of all available finishes on our website.

PREMIUM FINISHES

Cascade Mtn. Granite (CMG)	Rocky Mtn. Granite (RMG)	Sierra Mtn Granite (SMG)	Aleutian Mtn Granite (AMG)	Textured Forest (TXF)
Black Chrome (BCM)	Beige (BGE)	Weathered Copper (WCP)	Old Copper (OCP)	Hunter Green (HUG)
Antique Brass Powder (ABP)	Brown Patina Powder (BPP)	Sonoran Desert Sandstone (SDS)	Weathered Iron (WIR)	Clear Anodized Powder (CAP)
Cream (CRM)	Antique White (AQW)	Natural Brass Powder (NBP)		

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12/06/2022 SKU-449

POWER PIPE

ORDER FIXTURE SEPARATELY.

DATE:	PROJECT:	TYPE:

Accessories (Configure separately)

SPECIFICATIONS

Electrical	WIRING	Teflon® coated wire, 18AWG, 600V, 250° C rated and certified to UL 1659 standard. Adjustable stem mount additionally includes 24" or 36" 12/2 direct burial low voltage cable.
	TRANSFORMER HOUSING	Fully machined from copper-free aluminum, solid machined brass or stainless steel. Stainless steel hardware. High temperature, silicone 'O' Ring provides watertight seal.
	ELECTRONIC TRANSFORMER	For use with halogen lamps. 120V, 230V, and 277V primary voltage. 120V is fully dimmable (40W minimum load). 50/60Hz. 11.6V secondary voltage. 10W minimum load (halogen) non-dimmed. 75 watt maximum load. >0.93 Power Factor. <20% THD. Operating frequency >10kHz. Soft start circuitry to extend lamp life.
	TRe20 ELECTRONIC TRANSFORMER	For use with solid state 12V systems. 105-300VAC primary voltage. 50/60Hz. Non-dimming. 20VA maximum load.
PHYSICAL	INSTALLATION	Provides a clean, architectural transition from wiring system to fixture. 2" Schedule 80 PVC pipe. For direct burial in soil or concrete. Available in 12" and 18" lengths. Available in three installation types:
	STAKE (TYPE S)	60° angled bottom designed for use with conduit or direct burial low voltage cable.
	JUNCTION BOX (TYPE J)	Includes two (2) 1/2" PVC slip connectors for branch circuit wiring.
	ADJUSTABLE STEM (TYPE A18)	18" field adjustable stem accommodates future landscape growth. Unused stem length remains hidden inside housing. Delrin bushing and stainless steel set screws lock mounting height.
	STABILITY FLANGE	Optional 6" diameter, molded stability flange simplifies installation and projects into substrate to simplify installation and reinforce housing stability.
	CAP STYLE	Machined from copper-free aluminum or machined brass.
	HARDWARE	Tamper-resistant, stainless steel hardware.
	FINISH	StarGuard, our 15-stage, chromate-free process cleans and conversion coats aluminum components prior to application of Class 'A' TGIC polyester powder coating and is RoHS compliant.
	WARRANTY	5-year limited warranty.
	CERTIFICATION & LISTING	Certified to CAN/CSA/ANSI Standards. UL Listed. RoHS compliant. Made in USA with sustainable processes.

c UL us LISTED

RoHS

MADE IN THE USA

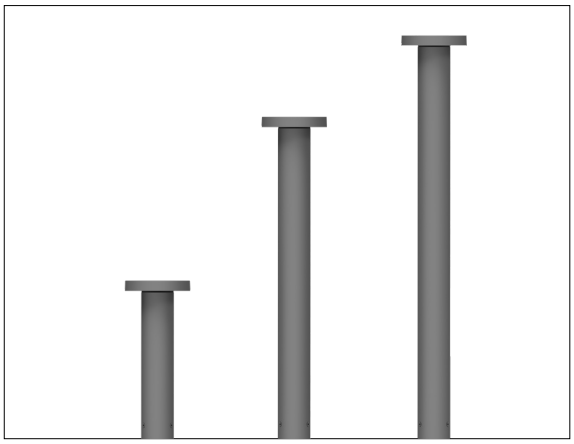
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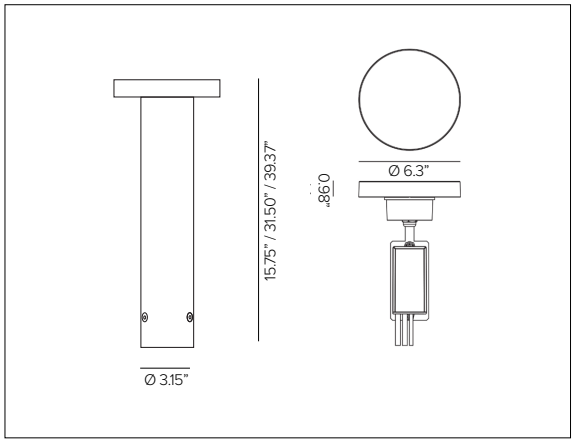
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12/06/2022 SKU-449

CHIOBO

Radial Emission LED Bollard





Dark Sky · Marine[E] · RoHS3 Compliant · IP66 · cULus

CONCEPT

Radial-emission LED bollard specifically designed to light large open spaces.

FIXTURE MECHANICAL CHARACTERISTICS

Housing	Ø 6.3" Dia. Top with Ø 3.15" Dia. Post
Materials	Powder coated anodized die-cast aluminum optical head with extruded body. Marine Grade cataphoresis[E] available as optional.
Finish	Textured finish. Ferrite Dark Grey · Black · White · Bronze Sandstone Grey · Heritage Brown
Power Connection	Factory shipped with DSM&T IP68 quick disconnect at fixture and mating 4ft SJOOW 18-6 cable with purple and grey wires for 0-10V.
Functionality	Available in three different heights - 15.75in, 31.50in and 39.37in. 316L grade stainless steel base and stainless steel anti-theft screws.
BUG	B0–U0–G0 Dark Sky Compliant
Weight	2.98lbs (fixture head only)
Protection	IP66
Resistance	IK10

CERTIFICATIONS

cULus Wet Location Listed.
Tested in accordance with LM-79-08.
Compliant for California installations.
IEC 62471
RoHS3 EU 215/863

WARRANTY

5 year limited warranty.

SUSTAINABILITY

Luminaire designed for disposal/recycling at end-of-life. Replaceable LED light source and control gear by a Targetti technician.

ELECTRICAL CHARACTERISTICS

Driver	Integral 4/1 smart driver (Non-Dimmable / 0-10V / Reverse Phase / Forward Phase).
Wattage	20W (360°) / 14W (180°, 90°+90°) / 9W (90°)
Voltage	Universal Voltage 120-277V AC 50/60Hz

SOURCE

LED Chip on Board.

TM30	CCT (Nominal)	CRI	Rf	Rg	SDCM
	2700K	80	82	96	2
	3000K	80	83	96	2
	3500K	80	83	95	2
	4000K	80	82	95	2

Ra90 available upon request

OPTIC

Internal high reflective anodized aluminum reflector with transparent polycarbonate lens positioned horizontally under optical head with external black anti-glare control.



Beam		360°	180°	90°	90°+90°
Delivered Lumens	2700K	878Lm	470Lm	232Lm	485Lm
	3000K	915Lm	490Lm	242Lm	506Lm
	3500K	931Lm	498Lm	246Lm	514Lm
	4000K	939Lm	502Lm	248Lm	519Lm

Efficacy	47Lm/W max. Refer to photometric graphs for specific values.
Lifetime	14W / 9W version: L92/B10 30000hrs at max TA +25°C L90/B10 50000hrs at max TA +25°C 20W version only: L89/B10 30000hrs at max TA +25°C L84/B10 50000hrs at max TA +25°C
Photobiological Classification	Low risk safety RG1

100% Design Development

FMS

Project **Portland Foreside B5** Date **12 May 2023** Type **FXG**
Architect **Marvel** Proj No. **522426** 1 of 5

Fisher Marantz Stone Partners in Architectural Lighting Design **New York | Seattle | www.fmsp.com**

CHIOBO

SPECIFICATION INFORMATION

CBB							/	/	
1	2	3	4	5	6	7	8	9	10
							OPTIONAL	REQUIRED	

Ex: CBB414036L330FE / 1US4033 / 1US2530

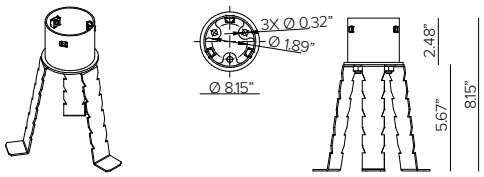
1 - PRODUCT CODE	3 - DRIVER	4 - HEIGHT	5 - EMISSION	6 - WATTAGE	6 - KELVIN	7 - FINISH
CBB — CHIOBO	**41** — 4/1 Smart Dimming *(Non-Dimming / 0-10V / Reverse Phase / Forward Phase)*	**16** — 16in **32** — 32in **40** — 40in	**36**[D] — 360° **18**[C] — 180° **99**[C] — 90°+90° **90**[B] — 90°	**L3** — 20W **L2** — 14W **L1** — 9W	**27** — 2700K **30** — 3000K **35** — 3500K **40** — 4000K	**FE** — Ferrite Dark Grey **HB** — Heritage Brown **BZ** — Bronze **WT** — White **BT** — Black **SG** — Sandstone Grey **RAL** — Custom RAL

8 - OPTIONAL	9 - MOUNTING	10 - INSTALLATION
__ — Blank no option **MG**[E] — Marine Grade	Trimless Anchor Base *See section for details* Plate for Surface Installation *See section for details* Ground Anchor Base *See section for details*	J-Box with sleeve *See section for details*

[B] 90° optic only available in 9W nominal.
[C] 90°+90° and 180° optics only available in 14W nominal.
[D] 360°optic only available in 20W nominal.
[E] Marine Grade is recommended for use in environments with occasional exposure to salt air, reclaimed water, fertilizers, chemical cleaners, or frequent pressure washing (steam) cleaning. Fixture housing complete with marine grade cataphoresis suitable for use in marine grade environments. Not to be in direct contact with salt or corrosive agents for extended periods of time.

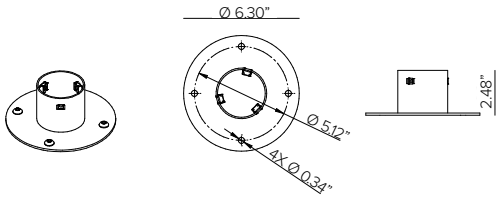
CHIOBO

9 – MOUNTING (REQUIRED)



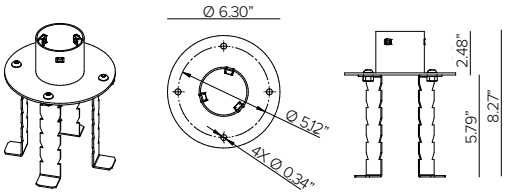
Trimless mounting base with ground anchor fixing rods for installation in concrete. AISI 316 stainless steel. Mounting bolts included. **Required for use with 1US2530 by NEC.**

Part No. **1US4033**



Powder coated mounting plate for surface installation outside the post. AISI 316 stainless steel compatible with dowels to be inserted into 4 holes, Ø 0.34" Dia. for use with 5/16" bolts maximum. Anchor bolts not included. **Required for use with 1US2530 by NEC.**

Part No. **1US4035(*)**



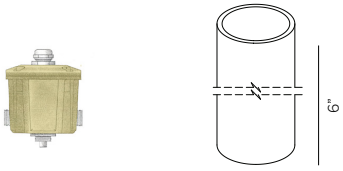
Powder coated mounting base with ground anchor fixing rods for installation in concrete. AISI 316 stainless steel. Mounting bolts included. **Required for use with 1US3450 by NEC.**

Part No. **1US3450(*)**

Ferrite Dark Grey *(Default)* · Heritage Brown (**HB**)* · Bronze (**BZ**)* · White (**WT**)* · Black (**BT**)* · Sandstone Grey (**SG**)*

Add suffix to end of number to identify finish (EX. 1US4035HB)

10 – INSTALLATION (REQUIRED)



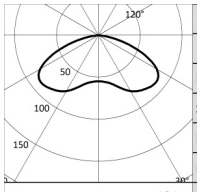
Direct burial brass ingrade j-box with PVC sleeve. Features stainless steel cover screws and strain relief for power cord, (2) 3/4" NPT bottom holes and (2) 3/4" NPT side holes. Includes (4) 3/4" to 1/2" adapters and (2) 1/2" NPT plugs. **(REQUIRED by NEC).**

Part No. **1US2530**

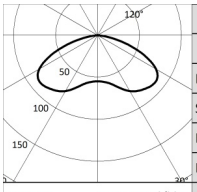
CHIOBO

PHOTOMETRY

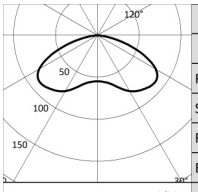
360° EMISSION



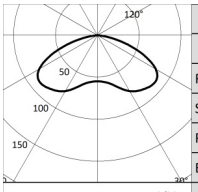
2700K		H(m)	D(m)	Emax(lx)
Ra80			143°	
Fixture Power	20W	1	5.90	136
Source Flux	2489lm	2	11.81	34
Fixture Flux	878lm	3	17.71	15
Efficacy	44lm/W	4	23.61	9
TS1587 Imax=88cd/klm	Imax 220cd	5	29.51	5



3000K		H(m)	D(m)	Emax(lx)
Ra80			143°	
Fixture Power	20W	1	5.90	142
Source Flux	2595lm	2	11.81	36
Fixture Flux	915lm	3	17.71	16
Efficacy	46lm/W	4	23.61	9
TS1587 Imax=88cd/klm	Imax 230cd	5	29.51	6

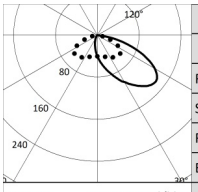


3500K		H(m)	D(m)	Emax(lx)
Ra80			143°	
Fixture Power	20W	1	5.90	144
Source Flux	2640lm	2	11.81	36
Fixture Flux	931lm	3	17.71	16
Efficacy	47lm/W	4	23.61	9
TS1587 Imax=88cd/klm	Imax 234cd	5	29.51	6

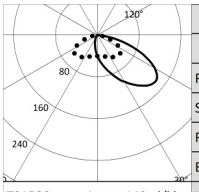


4000K		H(m)	D(m)	Emax(lx)
Ra80			143°	
Fixture Power	20W	1	5.90	146
Source Flux	2661lm	2	11.81	36
Fixture Flux	939lm	3	17.71	16
Efficacy	47lm/W	4	23.61	9
TS1587 Imax=88cd/klm	Imax 235cd	5	29.51	6

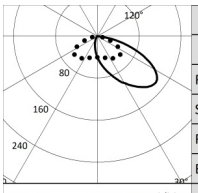
180° EMISSION



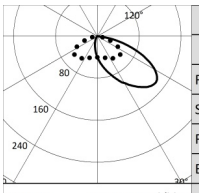
2700K		H(m)	D1(m)	D2(m)	Emax(lx)
Ra80			55°	106°	
Fixture Power	14W	1	2.65	4.33	127
Source Flux	1855lm	2	5.30	8.65	32
Fixture Flux	470lm	3	7.95	12.98	14
Efficacy	35lm/W	4	10.60	17.31	8
TS1588 Imax=142cd/klm	Imax 263cd	5	13.25	21.64	5



3000K		H(m)	D1(m)	D2(m)	Emax(lx)
Ra80			55°	106°	
Fixture Power	14W	1	2.65	4.33	132
Source Flux	1934lm	2	5.30	8.65	33
Fixture Flux	490lm	3	7.95	12.98	15
Efficacy	36lm/W	4	10.60	17.31	8
TS1588 Imax=142cd/klm	Imax 274cd	5	13.25	21.64	5



3500K		H(m)	D1(m)	D2(m)	Emax(lx)
Ra80			55°	106°	
Fixture Power	14W	1	2.65	4.33	134
Source Flux	1967lm	2	5.30	8.65	34
Fixture Flux	498lm	3	7.95	12.98	15
Efficacy	37lm/W	4	10.60	17.31	8
TS1588 Imax=142cd/klm	Imax 279cd	5	13.25	21.64	5

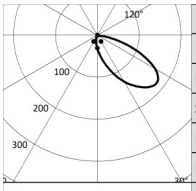


4000K		H(m)	D1(m)	D2(m)	Emax(lx)
Ra80			55°	106°	
Fixture Power	14W	1	2.65	4.33	136
Source Flux	1983lm	2	5.30	8.65	34
Fixture Flux	502lm	3	7.95	12.98	15
Efficacy	37lm/W	4	10.60	17.31	8
TS1588 Imax=142cd/klm	Imax 281cd	5	13.25	21.64	5

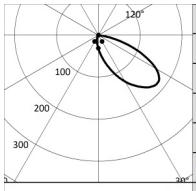
CHIOBO

PHOTOMETRY

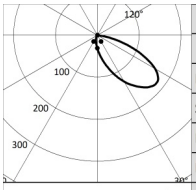
90° EMISSION



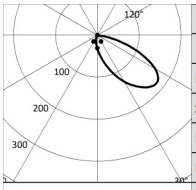
2700K		H(m)	D1(m)	D2(m)	Emax(lx)
Ra80			49°	53°	
Fixture Power	9W	1	2.36	1.58	114
Source Flux	1379lm	2	4.73	3.15	28
Fixture Flux	232lm	3	7.09	4.73	13
Efficacy	27lm/W	4	9.46	6.31	7
TS1589 Imax=181cd/klm	Imax 250cd	5	11.82	7.88	5



3000K		H(m)	D1(m)	D2(m)	Emax(lx)
Ra80			49°	53°	
Fixture Power	9W	1	2.36	1.58	118
Source Flux	1438lm	2	4.73	3.15	30
Fixture Flux	242lm	3	7.09	4.73	13
Efficacy	28lm/W	4	9.46	6.31	7
TS1589 Imax=181cd/klm	Imax 260cd	5	11.82	7.88	5

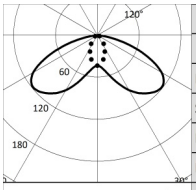


3500K		H(m)	D1(m)	D2(m)	Emax(lx)
Ra80			49°	53°	
Fixture Power	9W	1	2.36	1.58	121
Source Flux	1463lm	2	4.73	3.15	30
Fixture Flux	246lm	3	7.09	4.73	13
Efficacy	28lm/W	4	9.46	6.31	8
TS1589 Imax=181cd/klm	Imax 265cd	5	11.82	7.88	5

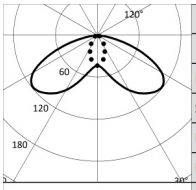


4000K		H(m)	D1(m)	D2(m)	Emax(lx)
Ra80			49°	53°	
Fixture Power	9W	1	2.36	1.58	122
Source Flux	1475lm	2	4.73	3.15	30
Fixture Flux	248lm	3	7.09	4.73	14
Efficacy	29lm/W	4	9.46	6.31	8
TS1589 Imax=181cd/klm	Imax 267cd	5	11.82	7.88	5

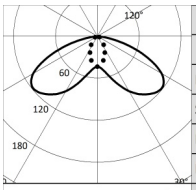
90° + 90° EMISSION



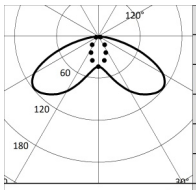
2700K		H(m)	D1(m)	D2(m)	Emax(lx)
Ra80			54°	77°	
Fixture Power	14W	1	2.58	2.54	110
Source Flux	1855lm	2	5.16	5.08	27
Fixture Flux	485lm	3	7.74	7.62	12
Efficacy	36lm/W	4	10.32	10.15	7
TS1590 Imax=118cd/klm	Imax 219cd	5	12.90	12.69	4



3000K		H(m)	D1(m)	D2(m)	Emax(lx)
Ra80			54°	77°	
Fixture Power	14W	1	2.58	2.54	114
Source Flux	1934lm	2	5.16	5.08	29
Fixture Flux	506lm	3	7.74	7.62	13
Efficacy	37lm/W	4	10.32	10.15	7
TS1590 Imax=118cd/klm	Imax 228cd	5	12.90	12.69	5



3500K		H(m)	D1(m)	D2(m)	Emax(lx)
Ra80			54°	77°	
Fixture Power	14W	1	2.58	2.54	116
Source Flux	1967lm	2	5.16	5.08	29
Fixture Flux	514lm	3	7.74	7.62	13
Efficacy	38lm/W	4	10.32	10.15	7
TS1590 Imax=118cd/klm	Imax 232cd	5	12.90	12.69	5



4000K		H(m)	D1(m)	D2(m)	Emax(lx)
Ra80			54°	77°	
Fixture Power	14W	1	2.58	2.54	117
Source Flux	1983lm	2	5.16	5.08	29
Fixture Flux	519lm	3	7.74	7.62	13
Efficacy	38lm/W	4	10.32	10.15	7
TS1590 Imax=118cd/klm	Imax 234cd	5	12.90	12.69	5

WAGNER
Architectural Systems



POST SURFACE LUMINAIRE

This post mount luminaire is designed for wall grazing and pathway illumination with mounting options for railings, walls, decks and entry structures. Superior harsh environment protection and vandal resistance are combined with a simple field or factory prepared installation using included 316 stainless steel hardware.

The Bantam provides an inconspicious architectural solution for new or retrofit applications and egress compliance opportunities.



- Solid machined 316 stainless steel
- 116 lumens per watt LED (500mA)
- 70° beam spread @ 10° above nadir
- 5 IES file supported optic distributions
- IK10 impact rating
- 24VDC operation
- ETL wet location listed
- IP67 ingress protection
- Standard in 2700 K, 3000 K and 4000 K
- 4 CCT whites and solid colors available
- Round or flat post mounting options

Specifications subject to change without notice. Verify data at time of order.

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WagnerCompanies.com
LUBT SUBM R5

100% Design Development

FMS

Project	**Portland Foreside B5**	Date	**12 May 2023**	Type	**FXH**
Architect	**Marvel**	Proj No.	**522426**		1 of 1

Fisher Marantz Stone Partners in Architectural Lighting Design — **New York** | **Seattle** | www.fmsp.com

BANTAM™

Another Lumenrail® Component for Life Safety and Light



PROJECT NAME: _____

REP AGENCY: _____

APPROX. LINEAR FT: _____

SERVICE OPTIONS: ☐ Field Measure ☐ Job Site Support ☐ System Installation

SCAN QR CODE
for technical information, downloads and instructions.

PART NUMBER BUILDER

LULF30K705XTR	LULF				
EXAMPLE	FIXTURE TYPE	COLOR TEMP	OPTIC	DRIVE CURRENT	BANTAM
** Indicates stock, other options may require additonal leadtime*	**LULF**- Lumenpod 16 Light Engine	***27K**- 2700 K ***30K**- 3000 K ***40K**- 4000 K **50K**- 5000 K **BLU**- Blue **GRN**- Green **RED**- Red **AMB**- Amber	**16**- 16° beam **23**- 23° beam **46**- 46° beam ***70**- 70° beam **94**- 94° beam	***5**- 2.2W @ 500 mA ***3**- 1.7W @ 350 mA *Extended life 100,000HR version requires 350 mA*	**XTR**- Machined 316 SS, post-mount housing **XTF**- Machined 316 SS, flat surface-mount housing

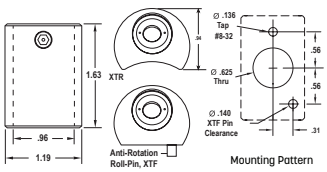
ELECTRICAL SPECIFICATIONS

Intertek

All electrical connections to be made by a qualified electrician in accordance with all national, state and local electrical codes.

24VDC	ETL LISTED WET, IK10, IP67, CE	0-10V INPUT	-40°F TO +120°F		
INPUT VOLTAGE	CERTIFICATIONS	DIMMING	OPERATING TEMP		
CLASS 2 REQUIRED	5 YEARS	UP TO 116 LM/W LED	80+	8″	
DRIVER	WARRANTY	EFFICIENCY	CRI	WIRE LENGTH	

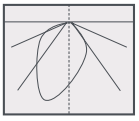
CONSTRUCTION



Bantam is solid machined 316 stainless steel with security hardware and is available for flat or round, 1.50″-1.90″ diameter, surface mounting.

PHOTOMETRICS

70° @ +10° nadir



Bantam is designed with an inherent 10° bias above nadir. This asymmetric feature projects the output from the mounting surface towards the path. Scan QR code or visit our website to view or download available IES reports.

LUMENGEAR™ LED DRIVER & NEMA ENCLOSURE OPTIONS

Wagner offers multiple ETL listed options for both 24VDC power supplies and NEMA enclosures. Quantities and types will be configured based on your specifications and design. Additional specification options are available by request. Not all options apply to all products, please verify compatibility with the factory.

CLASS II DRIVERS:
- STD 100W
- Dali, DMX, 0-10V Dimming Protocols
- Multiple Wattages
- Made in USA Units Available

NEMA ENCLOSURES:
4X - Polycarbonate
4X - Painted Steel
4X - Stainless Steel

Specifications subject to change without notice. Verify data at time of order.

@wagnercompanies

WAGNER Architectural Systems
888-243-6914 // rfq@mailwagner.com
10600 West Brown Deer Road // Milwaukee, WI 53224, USA

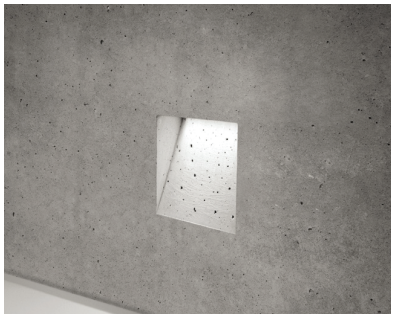
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LUBT SUBM R5

100% Design Development

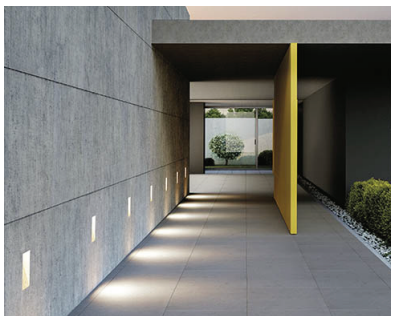
FMS

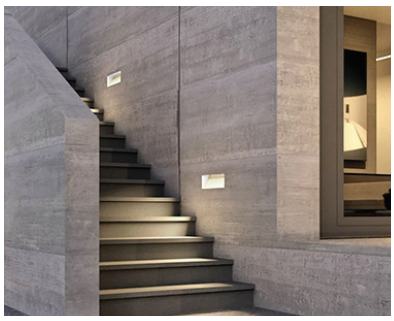
Project **Portland Foreside B5** Date **12 May 2023** Type **FXH**
Architect **Marvel** Proj No. **522426** 1 of 1

Fisher Marantz Stone Partners in Architectural Lighting Design **New York | Seattle | www.fmsp.com**









Unique lighting system for wall recessed lighting in exterior applications. The system consists of a series of concrete forming boxes designed to create a cavity in the wall during the concrete forming process. The resulting void in the wall houses the LED light module, which is concealed from view. Designed for low mounting heights with downward asymmetric light distribution. Low luminance with light source regressed inside the luminaire and shielded from all viewing angles

Luminaire characteristic:	**Power input:** 4W to 12W **Lumens:** up to 551lm (for 3000K, 80CRI) **Luminaire efficacy:** Up to 60lm/W
Source:	White LED module (LM-80) 3000K: 80CRI, 4000K: 80CRI.
Lumen maintenance:	70% of initial lumens at 50 000 hours (L70) (LM79).
Optic:	Downward Asymmetric
Material:	Body: Die-cast Diffuser: Toughened glass Recessed housing: Polypropylene
Mounting:	Wall recessed cast in concrete. Supplied with a two part housing installation kit, anchor screws, bolts, locking system and adhesive template to ensure perfect alignment when installing. Connections to be done inside the back box.
Electrical:	See remote power supply options on page 3.
Finish:	Concrete
Weight:	1.8 lbs (0.8 kg) to 3.97 lbs (1.8 kg).
Warranty:	5 year limited warranty
Rating:	IP65, IK06
Certification:	cULus listed for Wet location

SISTEMALUX
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ORDERING INFO

SGHO - ____ **-** ____ **- REM - 35**
FIXTURE

____
BACK BOX

RESET INFO

MODEL

SQUARE

- ☐ **SQS -** Square Small
- ☐ **SQM -** Square Medium
- ☐ **SQL -** Square Large

HORIZONTAL

- ☐ **HOR -** Horizontal

LED

- ☐ **830 -** 3000K, 80 CRI
- ☐ **840 -** 4000K, 80 CRI

VOLTAGE

- ■ **REM -** 24V remote power supply

FINISH

- ■ **35 -** Concrete

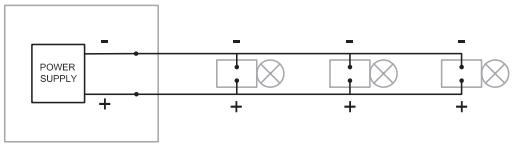
REMOTE POWER SUPPLY OPTIONS (TO BE ORDERED SEPARATELY)

						Min-Max Units			
Watts	**Voltage**	**Dimming protocol**	**Dimming range**	**Dimension**	**Max distance****	**GHO-SQS** 4W*	**GHO-SQM** 6W*	**GHO-HOR** 10W*	**GHO-SQL** 12W*
Indoor rating									
☐		**4444-0024-025-UNV-ND**				1-6	1-4	1-2	1-2
25	120-277V	None	None	6" x 4" x 3" (152 x 102 x 76mm)	30ft (9m)				
☐		**4448-0024-060-UNV-ND**				1-15	1-10	1-5	1-5
60	120-277V	None	None	10" X 8" X 4" (254 X 203 X 101mm)	30ft (9m)				
☐		**4445-0024-072-UNV-D10**				1-18	1-12	1-7	1-6
72	120-277V	0-10V	Down to ±10%	6" X 6" X 3" (152 X 152 X 76mm)	30ft (9m)				
☐		**4447-0024-096-UNV-D2**				2-23	1-16	1-9	1-8
96	120-277V	Lutron Hi Lume® 1% EcoSystem™ (Soft-on, Fade to Black)	Down to ±0.1%	11" X 6" X 2" (279 X 152 X 51mm)	30ft (9m)				
☐		**4448-0024-150-UNV-D10**				1-37	1-25	1-14	1-12
150	120-277V	0-10V	Down to ±10%	10" X 8" X 4" (254 X 203 X 101mm)	20ft (6m)				
Outdoor rating									
☐		**4548-0024-025-UNV-ND**				1-6	1-4	1-2	1-2
25	120-277V	None	None	4" X 7" X 3" (102 X 178 X 76mm)	30ft (9m)				
☐		**4548-0024-036-UNV-ND**				1-9	1-6	1-3	1-3
36	120-277V	None	None	4" X 7" X 3" (102 X 178 X 76mm)	30ft (9m)				
☐		**4551-0024-080-120-LTE**				2-20 (DIM 8-20)	1-13 (DIM 5-13)	1-7 (DIM 3-7)	1-6 (DIM 3-6)
80	120V	Leading and trailing edge (ELV and TRIAC)	Down to ±15%	14" X 5" X 2" (355 X 127 X 51mm)	30ft (9m)				
☐		**4546-0024-200-2C-UNV-ND**				1-25 Per channel (Max 50)	1-16 Per channel (Max 32)	1-10 Per channel (Max 20)	1-8 Per channel (Max 16)
200	120-277V	None	None	12" X 5" X 2" (304 X 127 X 51mm)	15ft (4m)				

* Wattage requirement for one (1) fixture (Remote fixture only).
** Calculated for 16AWG cable. Contact factory for longer remote distance.

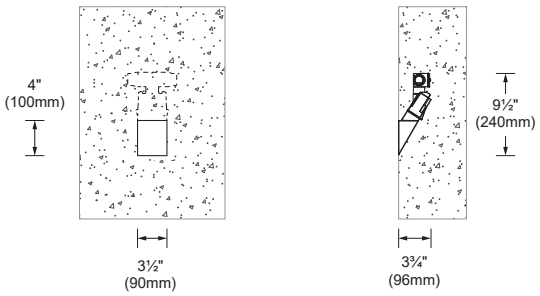
WIRING DIAGRAM

*Multiple luminaires must be connected in parallele

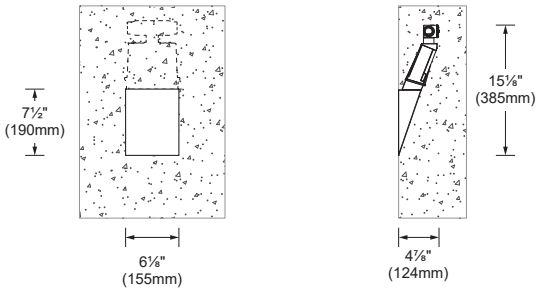


DIMENSION

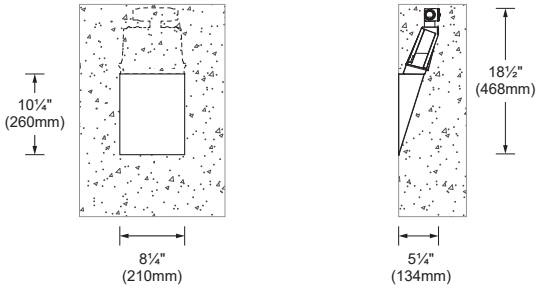
GHOST SQUARE SMALL
Complete with back box: **SCASSC8030**



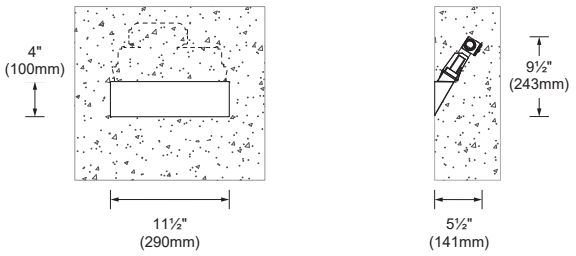
GHOST SQUARE MEDIUM
Complete with back box: **SCASSC8028**



GHOST SQUARE LARGE
Complete with back box: **SCASSC8026**



GHOST HORIZONTAL
Complete with back box: **SCASSC8022**



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PHOTOMETRIC DATA

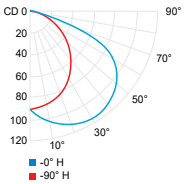
Visit sistemalux.com for complete photometric data.

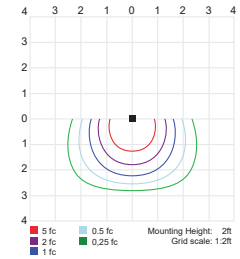
GHOST SQUARE SMALL

CCT (K)	CRI	LOAD (W)	OPTIC	LUMENS (lm)	EFFICACY (lm / W)	MAX CANDELA (cd)	MODEL
3000K	80	4W	Asymmetric	240	60	113	SGHO-SQS-830

***USE MULTIPLIER TABLE FOR OTHER CCT AND CRI OUTPUT DATA**

Asymmetric (3000K, 80 CRI)





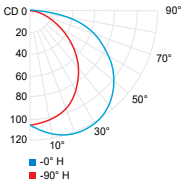
CCT options	300K	4000K
CRI options	80CRI	80CRI
Multiplier	**1**	**1.08**

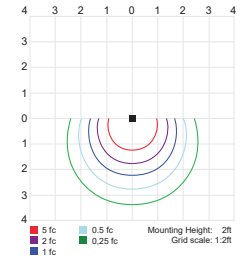
GHOST SQUARE MEDIUM

CCT (K)	CRI	LOAD (W)	OPTIC	LUMENS (lm)	EFFICACY (lm / W)	MAX CANDELA (cd)	MODEL
3000K	80	6W	Asymmetric	269	44	119	SGHO-SQM-830

***USE MULTIPLIER TABLE FOR OTHER CCT AND CRI OUTPUT DATA**

Asymmetric (3000K, 80 CRI)





CCT options	300K	4000K
CRI options	80CRI	80CRI
Multiplier	**1**	**1.08**

ZANEEN®

PROJECT	
TYPE	
SPECIFIER	
QUANTITY	
DATE	

DIXIT RA4 RECESSED

L5604521

base number

1.To build a product code in our configurator select the specify button on the base model # product page
2. To build a manual product code on this datasheet choose from the options listed below in blue font and add the suffix to the base model #



GENERAL

Series: Dixit
Subseries: Dixit RA4
Brand: Ivela
Division: Exterior
Mounting Type: Recessed
Mounting Location: Ceiling
Subcategory: Downlight

PHYSICAL

Shape: Round
Diameter (mm): 41
Diameter (in): 1 5/8
Height (mm): 45
Height (in): 1 3/4
Min. Recessing Depth (mm): 55
Min. Recessing Depth (in): 2 3/16
Light Distribution: Direct
Weight (kg): 0.1
Weight (lbs): 0.22
Diffuser: Clear polycarbonate
Fixture Finish: MWH
Fixture Material: Aluminum Die Cast
Cut-out Measurements: 36mm / 1 7/16"

ELECTRICAL

Input Wattage Range: 1 - 9 W
Lamp Type: LED
Total Output Wattage (W): 4.6
Dimming: Non-Dimming / Phase Dimming (120Vac only) / 0-10V Dimming
Driver Included: No
Driver Location: Remote
Driver Type: Constant Current - 120 / 277Vac
Driver Class: Class 2
Input Voltage (V): 120 / 277
Constant Current (MA): 500

LED

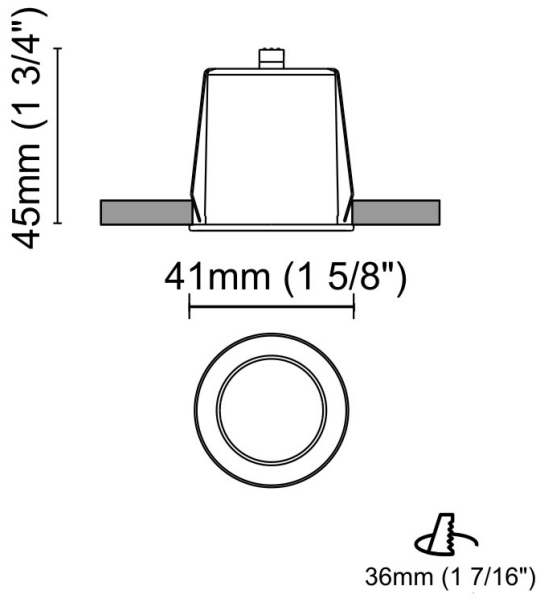
Delivered Lumen Range: 100 - 499 lm
Color Temperature (°K): 3000
Max. Delivered Lumen (lm): 320
Efficiency (%): 59.3
Lamp Life (hrs): 50000

OPTICAL

Optic°: 60

RATINGS AND CERTIFICATIONS

Certified By: Certified for North American Standards
IP rating: IP43
IK Rating: IK07



E

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In a constant effort to supply the best product, we reserve the right to change specifications or materials without notice. The most recent specification sheets are found at zaneen.com

May 2, 2023, 12:06 pm

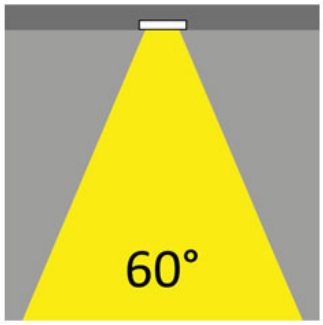
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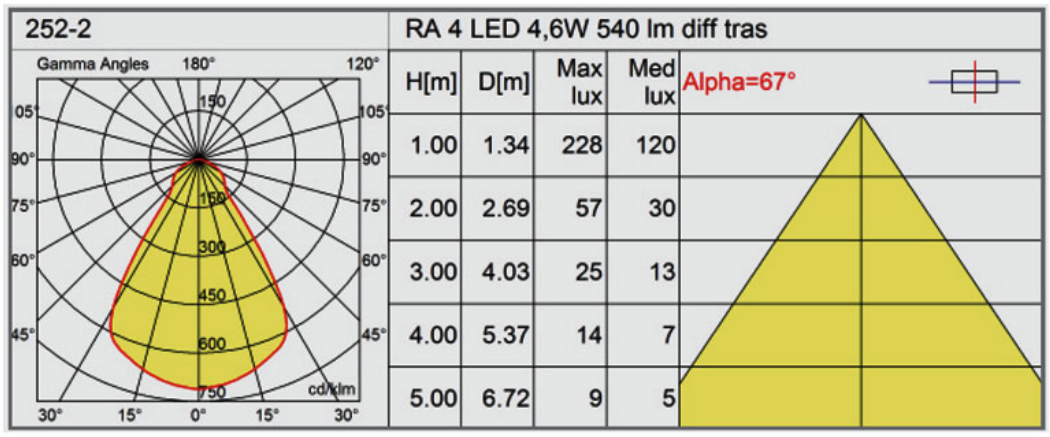
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DIXIT RA4 RECESSED

L5604521

PROJECT	
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DIXIT

COLOR FINISH CHART

Fixture Finish

Matte White - MWH

Digital: Not all screens are calibrated the same, and therefore, colors will appear differently between screens.
Physical: When texture is involved, there will be variations in color, character and tone within a product series and between product families.

E

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DIXIT

PROJECT	
TYPE	
SPECIFIER	
QUANTITY	
DATE	

LEGEND

	floor-mounted		pivotable		special LED (upon request) RGB, RGBW, tunable, gold+, meat+, art+, fashion+
	wall and ceiling: recessed and surface mounted		rotating		warm dim / natural dimming LED
	ceiling-mounted and wall-mounted		illuminate tilted		rechargeable battery powered
	wall-mounted		color of suspension cable		fixture with natural vivid LED (upon request)
	omni-directional light distribution		length of suspension cable	CRI	color rendering index
	direct light distribution		reflector degree selection	°K	color temperature
	direct/indirect light distribution		super spot	LM	lumen (luminous flux)
	indirect light distribution		lens	LM/W	efficacy (lumens per watt)
	asymmetric light distribution		lens pack	UGR	Unified Glare Rating (UGR) range from 5-40
	aura light distribution		shine ring	316	marine grade (AISI 316 stainless steel)
	round wall or ceiling cut-out		integrated shine ring with diffuser		walk on
	square wall or ceiling cut-out		free individual colors 01-29		drive on
	the supplied jig specifies the cutout dimensions		individual colors: 00 (free of charge), 01-25 (extra charge)	DSC	Dark Sky Compliance
	minimum distance (meters) lamp - object		luminaire part to be colored (F1)		Americans with Disabilities Act (less than 4" off the wall located between 27"-84" from floor)
	recessed depth		luminaire part to be colored (F2)		lamp protected against explosion
	ceiling thickness in mm		luminaire part to be colored (F3)		blown glass using traditional methods by master glass blower
	ceiling thickness selection		luminaire part to be colored (F4)		acoustic material
	dimmable DP (phase), DV (0-10V), DD (dali), DS (step-dim)		luminaire part to be colored (F5)		protection class I, protection insulation
	included or excluded LED driver/transformer/ control gear		color of 3-circuit adaptor		protection class II, protection insulation
	separately switchable		indirect diffuser		ETL Certified to UL and CSA Standards
	sensor	D	direct diffuser		UL Certified to UL and CSA Standards
	remote control		ball-proof (upon request)		CSA Certified to UL and CSA Standards
	available upon request		accessory		Certified for North American Standards

IP RATING

IP20	protected against ingress of solid bodies greater than 12.5mm (finger)
IP33	protected against ingress of solid bodies greater than 2.5mm protected against sprays of water up to 60 degrees from the vertical (rain)
IP40	protected against ingress of solid bodies greater than 1mm (wire) no protection against the ingress of moisture
IP43	protected against ingress of solid bodies greater than 1mm (wire) protected against sprays of water up to 60 degrees from the vertical (rain)
IP44	protected against ingress of solid bodies greater than 1mm (wire) protected against water splashed from all directions
IP54	protected against limited ingress of dust (wet rooms/covered outdoor areas) protected against water splashed from all directions
IP65	protected against ingress of dust protected against jets of water
IP66	protected against ingress of dust protected against powerful jets of water or heavy seas
IP67	protected against ingress of dust protected against immersion of water between 15cm - 1m for 30 minutes
IP68	protected against ingress of dust protected against immersion of water under pressure for long periods

IK RATING

IK01	protected against 0.14 joules impact (equivalent to 0.25kg mass dropped from 56mm above the surface)
IK02	protected against 0.2 joules impact (equivalent to 0.25kg mass dropped from 80mm above the surface)
IK03	protected against 0.35 joules impact (equivalent to 0.25kg mass dropped from 140mm above the surface)
IK04	protected against 0.5 joules impact (equivalent to 0.25kg mass dropped from 200mm above the surface)
IK05	protected against 0.7 joules impact (equivalent to 0.25kg mass dropped from 280mm above the surface)
IK06	protected against 1 joules impact (equivalent to 0.25kg mass dropped from 400mm above the surface)
IK07	protected against 2 joules impact (equivalent to 0.5kg mass dropped from 400mm above the surface)
IK08	protected against 5 joules impact (equivalent to 1.7kg mass dropped from 300mm above the surface)
IK09	protected against 10 joules impact (equivalent to 5.0kg mass dropped from 200mm above the surface)
IK10	protected against 20 joules impact (equivalent to 5.0kg mass dropped from 400mm above the surface)

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FMS

Project **Portland Foreside B5** Date **12 May 2023** Type **FXK**

Architect **Marvel** Proj No. **522426** 4 of 4

Fisher Marantz Stone Partners in Architectural Lighting Design **New York** | **Seattle** | www.fmsp.com

Specification Sheet

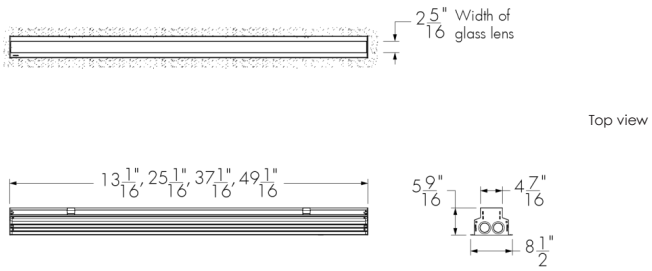
lumenfacade
Inground
LOI

WHITE AND STATIC COLORS

Project Name _____ **Qty** _____

Type _____ **Catalog / Part Number** _____



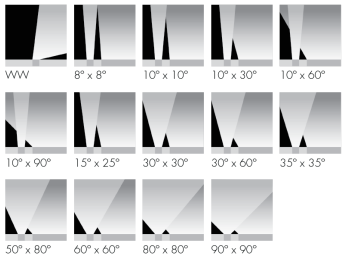


Photometric Summary

	Delivered output (lm)	Intensity (peak cd)
WW	3,634	10,795
8°x8°	4,512	59,238
10°x10°	4,410	33,872
10°x30°	4,586	25,296
10°x60°	3,876	12,062
10°x90°	4,077	6,927
15°x25°	4,346	19,773
30°x30°	4,730	16,886
30°x60°	4,035	5,317
35°x35°	4,612	11,616
50°x80°	4,656	3,904
60°x60°	3,868	3,368
80°x80°	4,548	2,992
90°x90°	4,070	2,132

Based on HO 40K full output, 4ft [1219mm], DMX/RDM configuration.
2.5° factory-set tilt setting for WW optic, 0° tilt setting for all other optics.
Photometric performance is measured in compliance with IESNA LM-79-08.

Optics



Description

The Lumenfacade Inground is an LED luminaire designed for ground-recessed lighting applications, including asymmetric wall washing, grazing, and linear wayfinding. An innovative, plug and play design simplifies installation, protecting the system from water infiltration and ensuring long-lasting performance. Featuring second generation LED technology, the Lumenfacade Inground is available in four different sizes (12 in, 24 in, 36 in or 48 in), with a wide choice of outputs, color temperatures, color-mixing systems, optics and controls. A unique asymmetric wallwash distribution is also available, providing exceptional uniformity and brightness for walls and signage.

Features

Construction	Walk over compliant up to 500 kg in any type of ground, Walk over compliant up to 1000 kg in concrete
Color and Color Temperature	2200K, 2700K, 3000K, 3500K, 4000K, Red, Green, Blue
Length (nominal)	12 in, 24 in, 36 in, 48 in
Optics	Asymmetric wallwash, 8° x 8°, 10° x 10°, 10° x 30°, 10° x 60°, 10° x 90°, 15° x 25°, 30° x 30°, 30° x 60°, 35° x 35°, 50° x 80°, 60° x 60°, 80° x 80°, 90° x 90°
Tilt Setting (factory set)	0 degrees, 2.5 degrees, 5 degrees, 20 degrees
Optical Option	Internal louver
Options	Anti-slip lens, CE (certification covers European Economic Area)
Power Consumption	5 W/ft (meets ASHRAE standards for linear lighting on building facades - not available for 12 in fixture lengths), 8.5 W/ft (RO version), 15.25 W/ft (HO version), Typically 20% higher for 12 in fixture lengths
Warranty	5-year limited warranty

lumenpulse™
1220 Marie-Victorin Blvd., Longueuil, QC, J4G 2H9, CA **T** United States 617.307.5700 | Canada 1.877.937.3003 | 514.937.3003 **F** 514.937.6289
info@lumenpulse.com **www.lumenpulse.com** **www.lumenpulse.com/products/2556**

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FMS

Project **Portland Foreside B5** Date **12 May 2023** Type **FXL**
Architect **Marvel** Proj No. **522426**

Colors and Color Temperatures



Controls

ON/OFF 0-10V DALI

lumentalk DMXrdm EcoSystem Enabled

Ratings

IP68 IK10

Certifications

cULus CE RoHS 5 YEARS

Performance

Maximum Delivered Output	4,730 lm (48 in fixture, 4000K, 30° x 30°, 0° tilt setting, DMX/RDM)
Maximum Delivered Intensity	59,238 cd at nadir (48 in fixture, 4000K, 8° x 8°, 0° tilt setting, DMX/RDM)
Illuminance at Distance	Minimum 1 fc at 243 ft (48 in fixture, 4000K, 8° x 8°, 0° tilt setting, DMX/RDM)
Color Consistency	2 SDCM, 3 SDCM (2200K)
Color Rendering	Minimum CRI 80
Lumen Maintenance	L70 280,000 hrs, L95 35,000 hrs

Physical

Optical Chamber Material	Aluminum
Blockout Material	Polymer recycled PVC reinforced with a stainless steel frame
Trim Material	Anodized aluminum
Lens Material	Tempered glass
End Cap Material	Die cast aluminum
Hardware Material	Stainless steel
Weight	12 in: 7.5 lbs, 24 in: 15.3 lbs, 36 in: 21.4 lbs, 48 in: 27 lbs

Electrical and control

Voltage	120 to 277 volts
Fixture Cable	Power and data in one cable
Leader Cable Conductor	5C #16-5
Connectors	IP68 push-lock
Control	On/Off control, Lumentalk, 0-10V dimming, DALI dimming, Lutron® EcoSystem® Enabled dimming, DMX/RDM enabled
Resolution (DMX/RDM)	Per foot or per fixture (configured with LumenID V3 software), 8-bit or 16-bit

Environmental

Storage Temperature	-40 °F to 185 °F (device must reach start-up temperature value before operating)
Start-up Temperature	-13 °F to 122 °F
Operating Temperature	-40 °F to 122 °F
Ingress Protection Rating	IP68 rated for up to 1 ft, not suitable for permanent immersion applications
Impact Resistance Rating	IK10

Accessories (order separately)

Cables	Lumenfacade Inground Leader Cable, Lumenfacade Inground Jumper Cable
Electrical Accessories	Lumenfacade Inground Junction Box

lumenpulse™ 1220 Marie-Victorin Blvd., Longueuil, QC, J4G 2H9, CA **T** United States 617.307.5700 | Canada 1.877.937.3003 | 514.937.3003 **F** 514.937.6289
info@lumenpulse.com **www.lumenpulse.com** **www.lumenpulse.com/products/2556**

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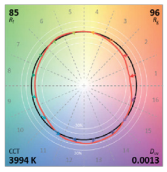
Control Boxes	DMX/RDM enabled (daisy chain or star configuration), Ethernet enabled (daisy chain or star configuration)
Control Systems	Lumentone™ 2 (LTN2), Pharos® kit (PHAROS)
Diagnostic and Addressing Tools	LumenID (LID), LumentalkID (LIDLT)

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EM - R24

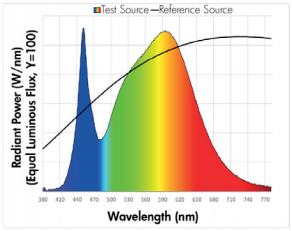
Chromaticity data

TM-30 - 4000K

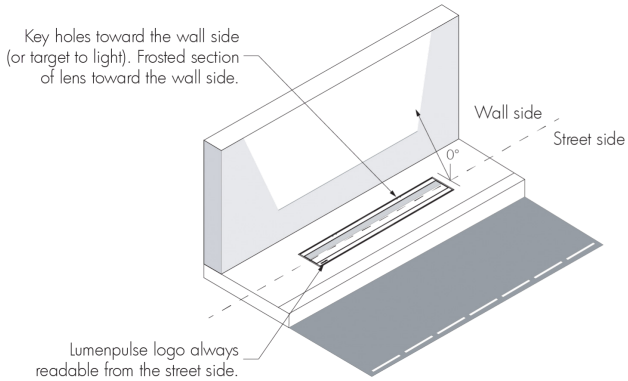
CCT	CIE		TM-30	
4000K	R_a	83	85	R_f
	R_9	14	96	R_g



Spectral Power Distribution



Optical chamber orientation



Cables (order separately)

LOILC - Leader cable for Lumenfacade Inground



LOILC-**CERTIFICATION-LENGTH**

Please specify:
CERTIFICATION: UL or CE; **LENGTH**: 10 ft, 25 ft or 50 ft

- Suitable for dimming/data and non-dimming applications.
- Consult Lumenfacade Inground leader cable specification sheet for details.

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LOIJC - Jumper cable for Lumenfacade Inground

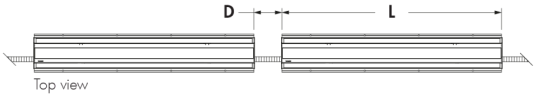


LOIJC-**CERTIFICATION-LENGTH**

Please specify:
CERTIFICATION: UL or CE; **LENGTH**: 2 ft, 4 ft or 10 ft

- Suitable for dimming/data and non-dimming applications.
- Consult Lumenfacade Inground jumper cable specification sheet for details.

Jumper cable length selection



D - distance between two fixtures
L - length of fixture

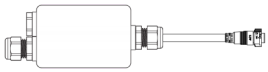
Add the length of one fixture to the distance between two fixtures: L + D. Order the next longest jumper cable available: 2 ft, 4 ft or 10 ft.

Example: if the distance between two 4 ft fixtures is 0.5 ft, L + D = 4.5 ft, therefore a 10 ft jumper cable is required.

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Electrical accessories (order separately)

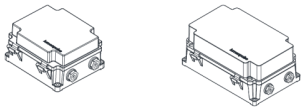
LOI-JBOX - Lumenfacade Inground Junction Box



Lumenfacade Inground IP68 sealed junction box starter kit. Use for stand alone fixtures and/or first of run installations. The LOI-JBOX accessory does not fit in 12 in fixtures.

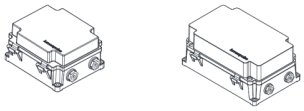
Control boxes (order separately)

CBX-DMX/RDM - DMX/RDM enabled (daisy chain or star configuration)



DMX/RDM control box. Up to six power and data outputs to fixtures or fixture runs. Consult CBX specification sheet and installation instructions for details. Lumenterminators provided with CBX (2x for daisy chain configuration, 6x for star configuration), consult factory to order spares.

CBX-ENET - Ethernet enabled (daisy chain or star configuration)



Ethernet control box. Up to four power and data outputs to fixture or fixture runs. Consult Ethernet CBX specification sheet and installation instructions for details.

Control systems (order separately)

LTN2 - Lumentone™ 2



Lumentone 2 is a simple pre-programmed DMX 512 controller with a push button rotary dial and live feedback.

PHAROS - Pharos® kit



The Pharos kit, available for 1 or 2 DMX universes, allows for complete control of large lighting installations. 2 DMX universes kit shown.

Diagnostic and addressing tools (order separately)

LID - LumenID



LumenID is a diagnostic and addressing DMX/RDM tool. It must be specified on all DMX applications. Consult LID specification sheet for details.

LID-LT - LumentalkID

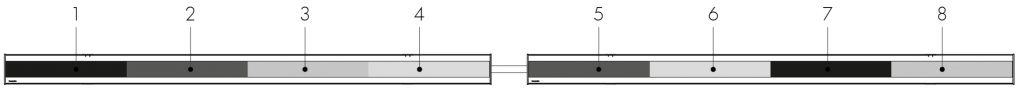


LumentalkID is a diagnostic and addressing tool. It must be specified for all Lumentalk (LT) applications. Consult LID-LT specification sheet for details.

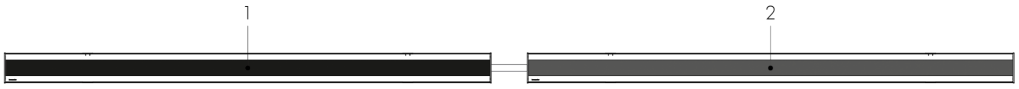
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Resolution details

DMX/RDM control, resolution per foot: each 12 in section is addressed independently
DMX addresses:



DMX/RDM control, resolution per fixture: each fixture is addressed independently
DMX addresses:



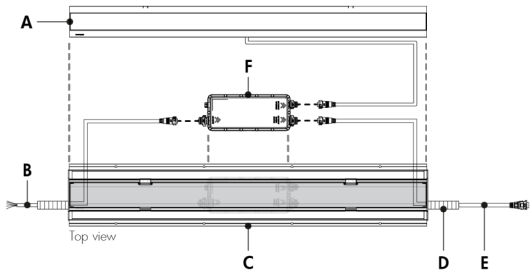
- 48 in fixtures shown.
- Applicable for DMX/RDM control option only. Fixture resolution can be configured on-site within the LumenID V3 software. A DMX/RDM enabled CBX is required.

Typical wiring diagrams

Wiring color code

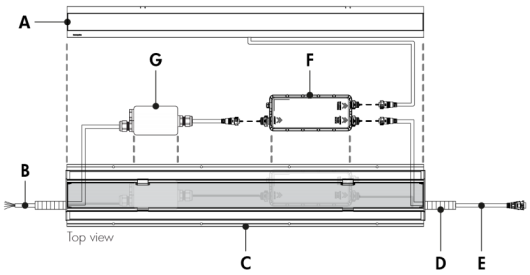
UL Color Code	USE
Green	Ground
Black	Line
White	Line/Neutral
Red or Purple	0-10V / Data +
Orange	0-10V / Data -

Typical installation with leader cable



A - Optical chamber
B - Leader cable (LOILC, order separately)
C - Blockout
D - Conduit (by others)
E - Jumper cable to next fixture (LOIJC, order separately, for continuous run installations)
F - PACBOX

Typical installation with IP68 LOI-JBOX accessory

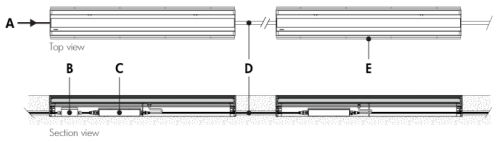


A - Optical chamber
B - Power and data input cable (by others)
C - Blockout
D - Conduit (by others)
E - Jumper cable to next fixture (LOIJC, order separately, for continuous run installations)
F - PACBOX
G - IP68 LOI-JBOX (order separately)

The IP68 LOI-JBOX accessory cannot be used with 12 in fixtures.

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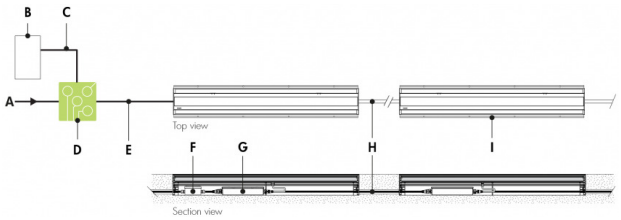
On/Off Control (NO)



A - Power input (120-277V, wiring by others)
B - IP68 LOI-JBOX (optional)
C - PACBOX
D - Jumper cable (LOIJC)
E - Lumenfacade Inground

- Consult the installation instructions for additional wiring details.
- Consult factory for specific applications and maximum fixture count/cable length recommendations.
- ASHRAE version (not available for 12 in fixture lengths): 5 W/ft; Regular Output version: 8.5 W/ft; High Output version: 15.25 W/ft.

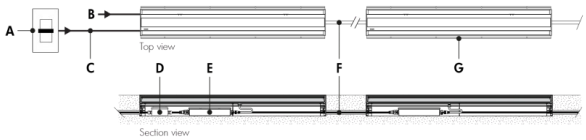
Lumentalk (LT)



A - Power input (100-277V AC, wiring by others)
B - Dimmer/controller (order separately from Lumenpulse, or by others)
C - Data wiring (by others)
D - Lumentranslator 2 (LTL2-DIM, -DMX, -TRIAC, -DALI)
E - Power wiring (by others)
F - IP68 LOI-JBOX (optional)
G - PACBOX
H - Jumper cable (LOIJC)
I - Lumenfacade Inground

- Consult the installation instructions for additional wiring details.
- Consult factory for specific applications and maximum fixture count/cable length recommendations.
- Lumentalk enabled fixtures must be commissioned using LumentalkID software and a LID-LT. Consult factory for details.
- Maximum of 1 transmitter (Lumentranslator or Lumenlink) per system.
- No third party fixtures allowed on the same circuit.
- For DMX applications: 1 DMX controller per Lumentalk network, maximum of 48 DMX channels per Lumentalk network (minimum step transition update rate is 1 second, minimum fade time between two colors is 1 minute). Consult factory for applications that require additional capabilities.
- Consult factory for DALI Lumentalk applications.
- 1% minimum dimming value.
- ASHRAE version (not available for 12 in fixture lengths): 5 W/ft; Regular Output version: 8.5 W/ft; High Output version: 15.25 W/ft.

0-10V dimming (DIM)



A - Dimmer (by others)
B - Power input (120-277V, wiring by others)
C - Data wiring (by others)
D - IP68 LOI-JBOX (optional)
E - PACBOX
F - Jumper cable (LOIJC)
G - Lumenfacade Inground

- Consult the installation instructions for additional wiring details.
- Consult factory for specific applications and maximum fixture count/cable length recommendations.
- 0-10V mA ratings: passive dimmer (Current Sink): 3 mA per fixture, active dimmer (Current Source): 0.5 mA per fixture.
- 1% minimum dimming value.
- ASHRAE version (not available for 12 in fixture lengths): 5 W/ft; Regular Output version: 8.5 W/ft; High Output version: 15.25 W/ft.

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How to order

Housing (1) (4) (5)	Voltage	Length	Color and Color Temperature (6)	Optics	Tilt Setting (10) (11)	Optical Option	Control	Options
LOI ASHRAE Lumenfacade™ Inground, 5 W/ft ASHRAE compliant (2) (3) **LOI RO** Lumenfacade™ Inground, Regular Output, 8.5 W/ft (3) **LOI HO** Lumenfacade™ Inground, High Output, 15.25 W/ft (3)	**120/277** 120-277 volts	**12** 13 1/16 in (7.5 lbs) (5) **24** 25 1/16 in (15.3 lbs) **36** 37 1/16 in (21.4 lbs) **48** 49 1/16 in (27 lbs)	**22K** 2200K **27K** 2700K **30K** 3000K **35K** 3500K **40K** 4000K **RD** Red (7) **GR** Green (7) **BL** Blue (7)	**WW** Asymmetric Wallwash (8) **8x8** 8° x 8° (8) (9) **10x10** 10° x 10° (8) (9) **10x30** 10° x 30° (8) **10x60** 10° x 60° (8) **10x90** 10° x 90° (8) **15x25** 15° x 25° (8) **30x30** 30° x 30° **30x60** 30° x 60° **35x35** 35° x 35° **50x80** 50° x 80° **60x60** 60° x 60° **80x80** 80° x 80° **90x90** 90° x 90°	**TS2.5** 2.5 degrees **TS0** 0 degrees **TS5** 5 degrees **TS20** 20 degrees	**INTL** Internal louver (12)	**NO** On/Off control **LT** Lumentalk (13) **DIM** 0-10V dimming **DALI** DALI dimming **ES** Lutron® EcoSystem® Enabled dimming **DMX/RDM** DMX/RDM enabled (14)	**ASL** Anti-slip lens **CE** CE (European certification) (15)

Notes:

1. A Lumenfacade Inground fixture includes one optical chamber (LOIC), one power and control box (PACBOX) and one recessed blockout (RBO). The LOIC, PACBOX and RBO are provided according to the output/color, length and control configuration.
2. ASHRAE version not available for 12 in fixture lengths.
3. Consult factory for products that are BAA-approved (Buy America.n Act).
4. Consult the installation instructions to plan all aspects of the fixture installation.
5. Power consumption is typically 20% higher for 12 in fixture lengths.
6. Consult factory for availability of static Royal Blue, 6500K and 90+ CRI.
7. Static colors made to order 8-10 weeks.
8. 8x8, 10x10, 10x30, 10x60, 10x90, 15x25 and WW distributions come with a half-frosted lens to bring light low on the wall for grazing applications. Clear lens also available, consult factory.
9. For best results use with HO fixtures at a 6 in setback from surface. Contact factory for application support.
10. Do not specify a tilt setting for the asymmetric wallwash option. The asymmetric wallwash optic is factory set with a 2.5 degree tilt.
11. Tilt setting is factory set and cannot be adjusted in the field.
12. The addition of an internal louver will affect beam distribution. Consult factory for application support.
13. A Lumentranslator 2 (LTL2) and LumentalkID (LIDLT) must be specified for Lumentalk applications. Consult Lumentranslator 2 and Lumentalk pages and specification sheets for details.
14. A control box (CBX) and LumenID (LID) must be specified.
15. Consult European specification sheet and installation instructions for CE wiring information.

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WAGNER
Architectural Systems



LINEAR LUMINAIRE

Our linear product is a state-of-the-art, low-voltage LED light fixture that provides exceptional lighting performance to enhance any stairway, ramp or walkway application. Its soft light provides ample illumination for safety and ambiance without the glare or harshness of overhead lighting. Available with warm, neutral or cool white color temperatures, and a range of solid color options for static hues. Standard low, mid and high output offerings make Lumenlinear a highly flexible and practical solution for adding beauty and light to your life safety installations.



- Industry leading output: 70° asymmetric @ 45° above nadir
- Matte and transparent lens options
- Available in: 140, 152, 284 or 413 lpf (4000 K Values)
- IES full cutoff classification when installed in Wagner Architectural Systems handrail
- Fully gasketed, extruded aluminum housing
- ETL wet location listed, UL1598 certified
- 5 year warranty
- Cast 316 stainless steel, mechanical mounting, secure but easily serviceable
- CCT standard in 5 white options
- 4 solid color options including wildlife amber
- Up to 88 CRI standard, 95+ available upon request
- 9 standard lengths from 6″ to 54″

Specifications subject to change without notice. Verify data at time of order.

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LULSA SUBM R7

100% Design Development

LUMENLINEAR™ ASYMMETRIC

Another Lumenrail® Component for Life Safety and Light



PROJECT NAME: _____

REP AGENCY: _____

APPROX. LINEAR FT: _____

SERVICE OPTIONS: ☐ Field Measure ☐ Job Site Support ☐ System Installation

SCAN QR CODE
for technical information, downloads and instructions.

PART NUMBER BUILDER

LULS40K6070TA24	LULS						
EXAMPLE	FIXTURE TYPE	COLOR TEMP	FIXTURE WATTAGE	BEAM ANGLE	LENS OPTION	LENGTH	
	LULS- Lumenlinear™	**27K**- 2700 K **30K**- 3000 K **35K**- 3500 K **40K**- 4000 K **50K**- 5000 K	**BLU**- Blue **GRN**- Green **RED**- Red **AMB**- Amber	**20**- 1.85 W/FT **40**- 3.57 W/FT **60**- 5.45 W/FT	**70**- 70° Spread *Main Beam @ 45° about nadir*	**TA**- Transparent Asymmetric **MA**- Matte Asymmetric	**6**- 7.64″ **12**- 13.51″ **18**- 19.39″ **24**- 25.33″ **30**- 31.23″	**36**- 37.14″ **42**- 43.07″ **48**- 48.95″ **54**- 54.89″

Longer lengths available by request.

ELECTRICAL SPECIFICATIONS

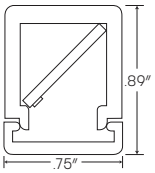
Intertek

All electrical connections to be made by a qualified electrician in accordance with all national, state and local electrical codes.

24VDC	ETL LISTED WET, UL 1598/CSA 22.2	0-10V INPUT (PWM)	-40°F TO +120°F
INPUT VOLTAGE	CERTIFICATIONS	DIMMING	OPERATING TEMP

CLASS 2 REQUIRED	5 YEARS	UP TO 77 LM/W LED	UP TO 88 (95+ AVAIL. UPON REQUEST)	18″ (X2)
DRIVER	WARRANTY	EFFICIENCY	CRI	WIRE LENGTH

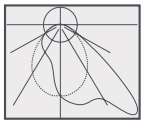
CONSTRUCTION



An extruded aluminum housing and fully gasketed assembly insure heat dissipation and ingress protection to IP67. Stainless steel hardware and mechanical attachment promote easy installation and longevity.

PHOTOMETRICS

Main Beam 45° + nadir



The asymmetric output has industry leading performance with a 70° beam spread, focused at 45° above nadir. Installed in Wagner Lumenrail®, Lumenlinear performs with full IES cutoff. Reports to view or download are available by scanning the QR code or visiting our website.

LUMENGEAR™ LED DRIVER & NEMA ENCLOSURE OPTIONS

Wagner offers multiple ETL listed options for both 24VDC power supplies and NEMA enclosures. Quantities and types will be configured based on your specifications and design. Additional specification options are available by request. Not all options apply to all products, please verify compatibility with the factory.

CLASS II DRIVERS:
- STD 100W
- Dali, DMX, 0-10V Dimming Protocols
- Multiple Wattages
- Made in USA Units Available

NEMA ENCLOSURES:
4X - Polycarbonate, Painted Steel or Stainless Steel

LUMENPOST™:
Integrated 100W, 0-10V DIM

Specifications subject to change without notice. Verify data at time of order.

@wagnercompanies

WAGNER Architectural Systems
888-243-6914 // rfq@mailwagner.com
10600 West Brown Deer Road // Milwaukee, WI 53224, USA

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WagnerCompanies.com
LULSA SUBM R7

100% Design Development

DENALI LED (REMOTE)

IP66 RATED

DATE:	PROJECT:	TYPE:

CATALOG NUMBER LOGIC:



Driver housing required. Configure separately.

**Accommodates up to 2 lens/shielding media.*

CATALOG NUMBER LOGIC			
Example: DE - LED - x58 - SP - BZW - 9 - 11 - A			
MATERIAL			
Aluminum			
SERIES			
DE - Denali			
SOURCE			
LED - Chip on Board Technology			
LED TYPE			
x58 - 12W/2700K/80CRI	x62 - 20W/3000K/80CRI	x66 - 27W/4000K/80CRI	
x59 - 12W/3000K/80CRI	x63- 20W/4000K/80CRI	x67 - 27W/2700K/90CRI	✓
x60 - 12W/4000K/80CRI	x64 - 27W/2700K/80CRI	x68 - 27W/3000K/90CRI	✓
x61 - 20W/2700K/80CRI	x65 - 27W/3000K/80CRI	x69 - 27W/3500K/80CRI	
OPTICS			
SP - Spot (15°)	FL - Flood (35°)	WFL - Wide Flood (60°)	
FINISH (See page 2 for full-color swatches)			
Standard Finishes (BZP, BZW, BLP, BLW, WHP, WHW, SAP, VER)			
Premium Finish (ABP, AMG, AQW, BCM, BGE, BPP, CAP, CMG, CRM, HUG, NBP, OCP, RMG, SDS, SMG, TXF, WCP, WIR)			
Also available in RAL Finishes			
LENS TYPE*			
9 - Clear (Standard)			
10 - Spread	12 - Soft Focus	13 - Rectilinear	
SHIELDING*			
11 - Honeycomb Baffle			
CAP STYLE			
A - 45°			
B - 90°			
C - Flush			
D - 45° Less Weephole (Interior use only)			
E - 90° Less Weephole (Interior use only)			

TITLE 24, JA8 COMPLIANT

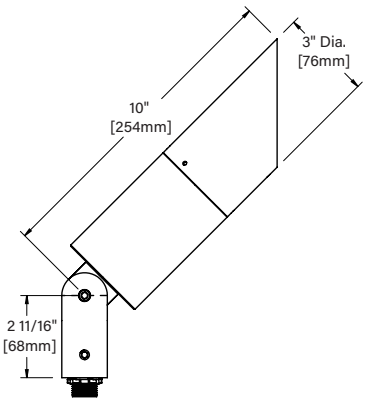
B-K LIGHTING | **MADE IN THE USA** | 559.438.5800 | INFO@BKLIGHTING.COM | BKLIGHTING.COM

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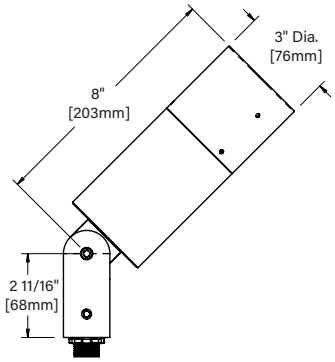
12/06/2022 SKU-848
SUB001113

DENALI LED (REMOTE) IP66 RATED

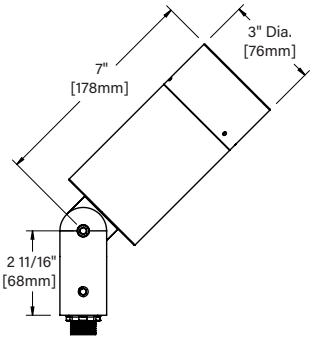
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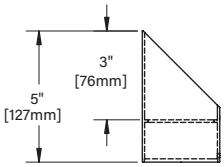
"A"/"D" CAP

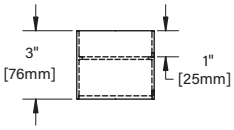


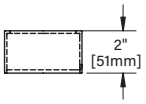
"B"/"E" CAP



"C" CAP







STANDARD FINISHES

Satin Black (BLP)	Satin Bronze (BZP)	Satin White (WHP)	Satin Aluminum (SAP)
Black Wrinkle (BLW)	Bronze Wrinkle (BZW)	White Wrinkle (WHW)	Verde (VER)

Click Here to view larger, full-color swatches of all available finishes on our website.

PREMIUM FINISHES

Cascade Mtn. Granite (CMG)	Rocky Mtn. Granite (RMG)	Sierra Mtn Granite (SMG)	Aleutian Mtn Granite (AMG)	Textured Forest (TXF)
Black Chrome (BCM)	Beige (BGE)	Weathered Copper (WCP)	Old Copper (OCP)	Hunter Green (HUG)
Antique Brass Powder (ABP)	Brown Patina Powder (BPP)	Sonoran Desert Sandstone (SDS)	Weathered Iron (WIR)	Clear Anodized Powder (CAP)
Cream (CRM)	Antique White (AQW)	Natural Brass Powder (NBP)		

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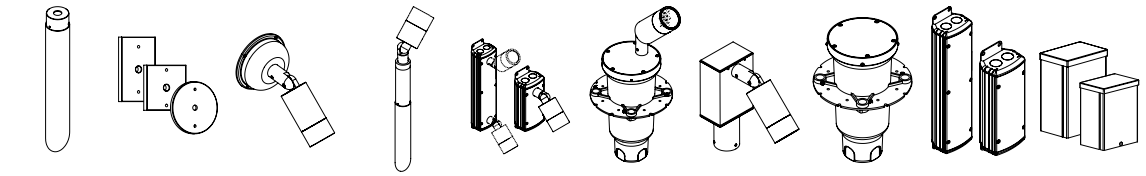
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12/06/2022 SKU-848
SUB001113

DENALI LED (REMOTE) IP66 RATED

DATE:	PROJECT:	TYPE:

Accessories (Configure separately)



Power Pipe II | Canopies | Power Canopy | Power Pipe II | PM2D & PM2 | HP2 | TMB | HP2RM | PM2DRM & PM2RM | RM & DRM

SPECIFICATIONS

ELECTRICAL	WATTAGE	12W, 20W, or 27W LED
	WIRING	Stranded XLPE, 18GA, 600V, 150°C, wire rated to UL3321.
	REMOTE DRIVER	For use with remote LED driver. See remote driver submittal to determine remote distance and wiring requirements prior to detailing field installation of any remote wiring.
PHYSICAL	MATERIALS	Furnished in copper-free aluminum (6061-T6).
	BODY	Unibody design with enclosed, water-proof wireway and integral heat sink is fully machined from solid billet. Anti-condensation and corrosion vent equalizes fixture pressure and eliminates potential for damage to internal components.
	KNUCKLE	360HD Mounting System features a mechanical taperlock, allowing full 180° vertical adjustment without the use of aim-limiting serrated teeth. High temperature, silicone 'O' Ring provides water-tight seal and compressive resistance to maintain fixture position. Design withstands 73 lbs. static load prior to movement for optical alignment with a ½" pipe thread for mounting. Biaxial source control additionally provides 360° horizontal rotation in addition to vertical adjustment. Aim & Lock technology allows precision adjustment without the redundant tightening and loosening of knuckle screw. 360HD hardware is stainless steel with black oxide treatment for additional corrosion resistance.
	CAP	Fully machined and accommodates two (2) lens or louver media.
	LENS	Shock-resistant, tempered glass lens is factory adhered to fixture cap and provides hermetically sealed optical compartment.
	LED	Integrated solid state system and modular design with electrical disconnects allow for easy field upgrade and maintenance. LM-80 certified. Title 24, JA8 compliant. Minimum 50,000 hour rated life at 70% of initial lumens (L70). LED technology provides long life, significant energy reduction and exceptional thermal management.
	COLOR MANAGEMENT	Corrected cold phosphor technology delivers natural white light with long term phosphor maintenance over product life. Exact color point conformity exceeds ANSI C78.377 standard. Provides uniform beam with no color variation over angle. Module exceeds 80 CRI (RA>80, R9>16).
	HARDWARE	Tamper-resistant, stainless steel hardware. 360HD hardware is black oxide treated for additional corrosion resistance.
	FINISH	StarGuard, our 15-stage chromate-free process cleans and conversion coats aluminum components prior to application of Class 'A' TGIC polyester powder coating and is RoHS compliant.
	WARRANTY	5-year limited warranty.
	CERTIFICATION & LISTING	UL tested to IESNA LM-79. UL Listed. Certified to CAN/CSA/ANSI Standards. RoHS compliant. Title 24, JA8 compliant. Suitable for indoor or outdoor use, in wet locations, and for installation within 4' of the ground. IP66 Rated. Made in the USA with sustainable processes.

TITLE 24, JA8

c UL us LISTED

RoHS

MADE IN THE USA

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12/06/2022 SKU-848
SUB001113

LAMP & DRIVER DAT (page 1 of 2)

DATE:	PROJECT:	TYPE:

DRIVER ELECTRICAL DATA

Type	LED Type	AC Input Range	Frequency Hz	Power Factor At Full Load (Efficiency)	THD	InRush Current	Operating Current	Operation Ambient Temperature	Dimmer Type	Dimmer Range
INC	x58-x63	105-305Vac	50/60	> 0.94	≤5%	< 250mA	700mA	-30° C ~ 50°C	Incandescent	10-100%
INC	x64-x66	105-305Vac	50/60	> 0.94	≤5%	< 250mA	700mA	-30° C ~ 50°C	TRIAC/ELV, (120 Only)	10-100%
010	x64-x66	120-277Vac	50/60	> 0.90	<20%	6A	700mA	-30° C ~ 70°C	0-10 (120 or 277)	10-100%

LM79 DATA				OPTICAL DATA				
BK No.	CCT (Typ.)	CRI (Typ.)	Input Watts (Typ.)	L70 Data	Angle	CBCP	Del. Lumens	Muliplier
x58	2700	80	12	50,000	15	3,865	721	0.85
x58	**2700**	**80**	**12**	**50,000**	**35**	**1,493**	**661**	**0.85**
x58	2700	80	12	50,000	60	627	623	0.85
x59	3000	80	12	50,000	15	4,048	756	0.89
x59	**3000**	**80**	**12**	**50,000**	**35**	**1,564**	**692**	**0.89**
x59	3000	80	12	50,000	60	657	653	0.89
x60	4000	80	12	50,000	15	4,561	851	1.00
x60	**4000**	**80**	**12**	**50,000**	**35**	**1,762**	**780**	**1.00**
x60	4000	80	12	50,000	60	740	736	1.00
x61	2700	80	20	50,000	15	7,103	1,307	0.91
x61	**2700**	**80**	**20**	**50,000**	**35**	**2,623**	**1,125**	**0.91**
x61	2700	80	20	50,000	60	1,049	1,064	0.91
x62	3000	80	20	50,000	15	7,478	1,376	0.96
x62	**3000**	**80**	**20**	**50,000**	**35**	**2,761**	**1,184**	**0.96**
x62	3000	80	20	50,000	60	1,104	1,120	0.96
x63	4000	80	20	50,000	15	7,800	1,435	1.00
x63	**4000**	**80**	**20**	**50,000**	**35**	**2,880**	**1,235**	**1.00**
x63	4000	80	20	50,000	60	1,152	1,168	1.00
x64	2700	80	27	50,000	15	15,656	1,767	0.92
x64	**2700**	**80**	**27**	**50,000**	**35**	**4,649**	**1,586**	**0.92**
x64	2700	80	27	50,000	60	1,515	1,383	0.92
x65	3000	80	27	50,000	15	16,132	1,820	0.95
x65	**3000**	**80**	**27**	**50,000**	**35**	**4,791**	**1,634**	**0.95**
x65	3000	80	27	50,000	60	1,561	1,426	0.95
x66	4000	80	27	50,000	15	17,042	1,923	1.00
x66	**4000**	**80**	**27**	**50,000**	**35**	**5,061**	**1,726**	**1.00**
x66	4000	80	27	50,000	60	1,649	1,506	1.00
x67	2700	90	27	50,000	15	14852	1676	0.95
x67	**2700**	**90**	**27**	**50,000**	**35**	**4411**	**1504**	**0.95**
x67	2700	90	27	50,000	60	1437	1312	0.95
x68	3000	90	27	50,000	15	15770	1779	0.98
x68	**3000**	**90**	**27**	**50,000**	**35**	**4683**	**1597**	**0.98**
x68	3000	90	27	50,000	60	1526	1394	0.98

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Oblique LED wall

T086008

SPECIFICATIONS



Design By

Arik Levy

Collection

Outdoor

Colors & Finishes

Anthracite grey

Specifications

Delivered lumens	780.7lm
Light output ratio	39.1lm/W
Power consumption	20W
Led type	20W C.O.B.*
CCT (Correlated Color Temperature)	3000K
CRI (Color Rendering Index)	>90
Life expectancy	50000Hrs
Control type	Dimmable 2-Wire
Input Voltage	120V
Driver	N/A
BUG Rating	B0-U0-G0

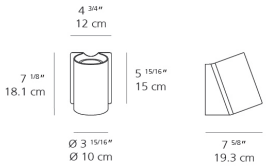
Materials

- Body in aluminum
- Diffuser in frosted tempered glass
- Reflector in polycarbonate

Features & Accessories

- Slightly downward angle projects light via a high-performance reflector

Dimensions



Packaging

1 Box

1 x 10-15/16" x 10-15/16" x 8-3/16" / 5.07 lbs - 27.5 cm x 27.5 cm x 20.5 cm / 2.3 kg

Light distribution

Direct

Luminaire weight

4.41 lbs / 2 kg

Warranty

5 year limited warranty

last updated: 2022-10-26

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For the latest product information please visit www.artemide.net

Artemide

100% Design Development

FMS

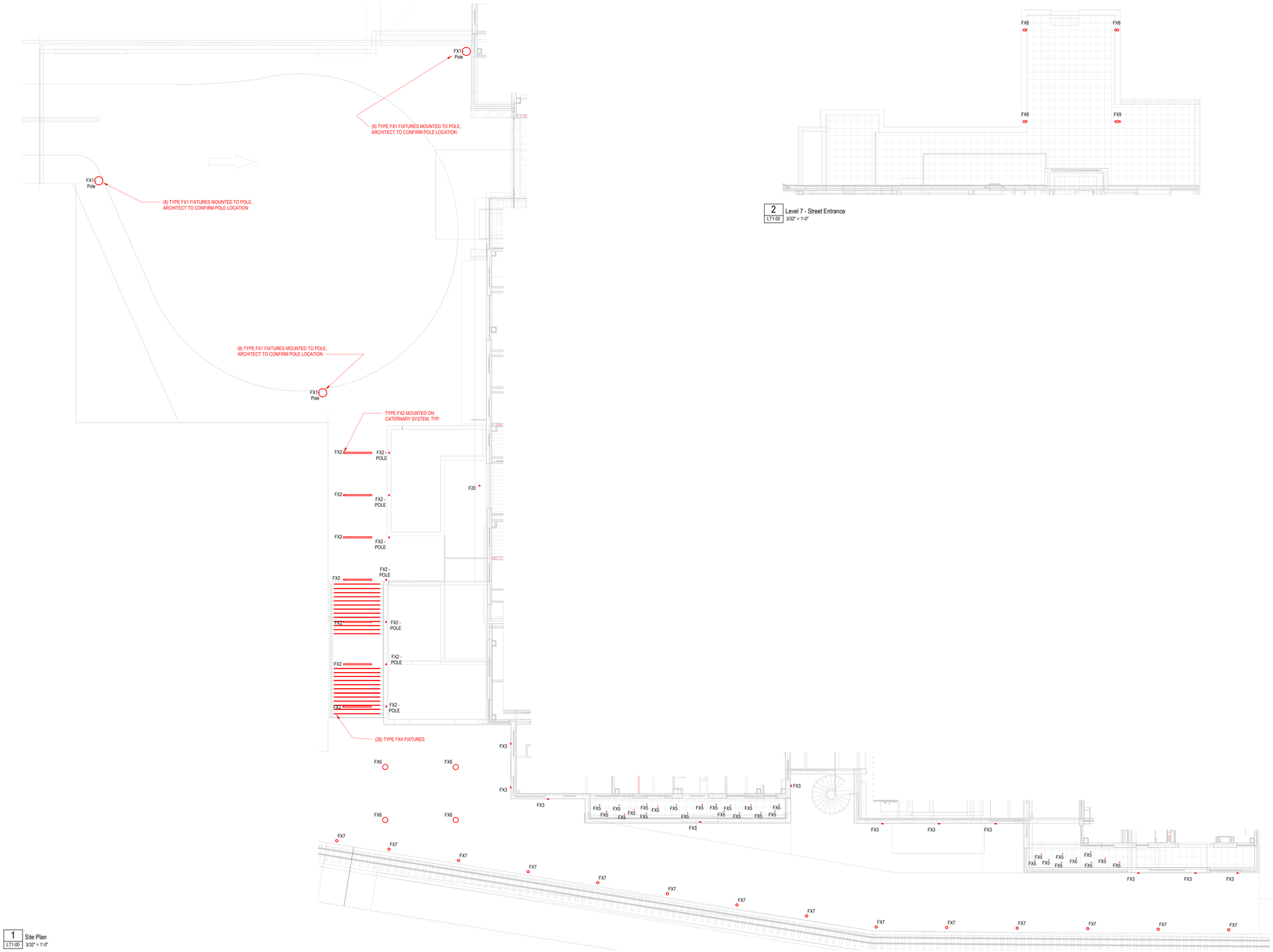
Project **Portland Foreside B5**
Architect **Marvel**

Date **12 May 2023**
Proj No. **522426**

Type **FXP**
1 of 1

Fisher Marantz Stone Partners in Architectural Lighting Design

New York | **Seattle** | www.fmsp.com



1 LT1-00 Site Plan
3/32" = 1'-0"

2 LT1-00 Level 7 - Street Entrance
3/32" = 1'-0"

Baskervill

FORESIDE/

THE CHANNEL MARK°

BASKERVILL, P.O. BOX 400, RICHMOND, VA 23218-0400

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PROJECT NUMBER
2226

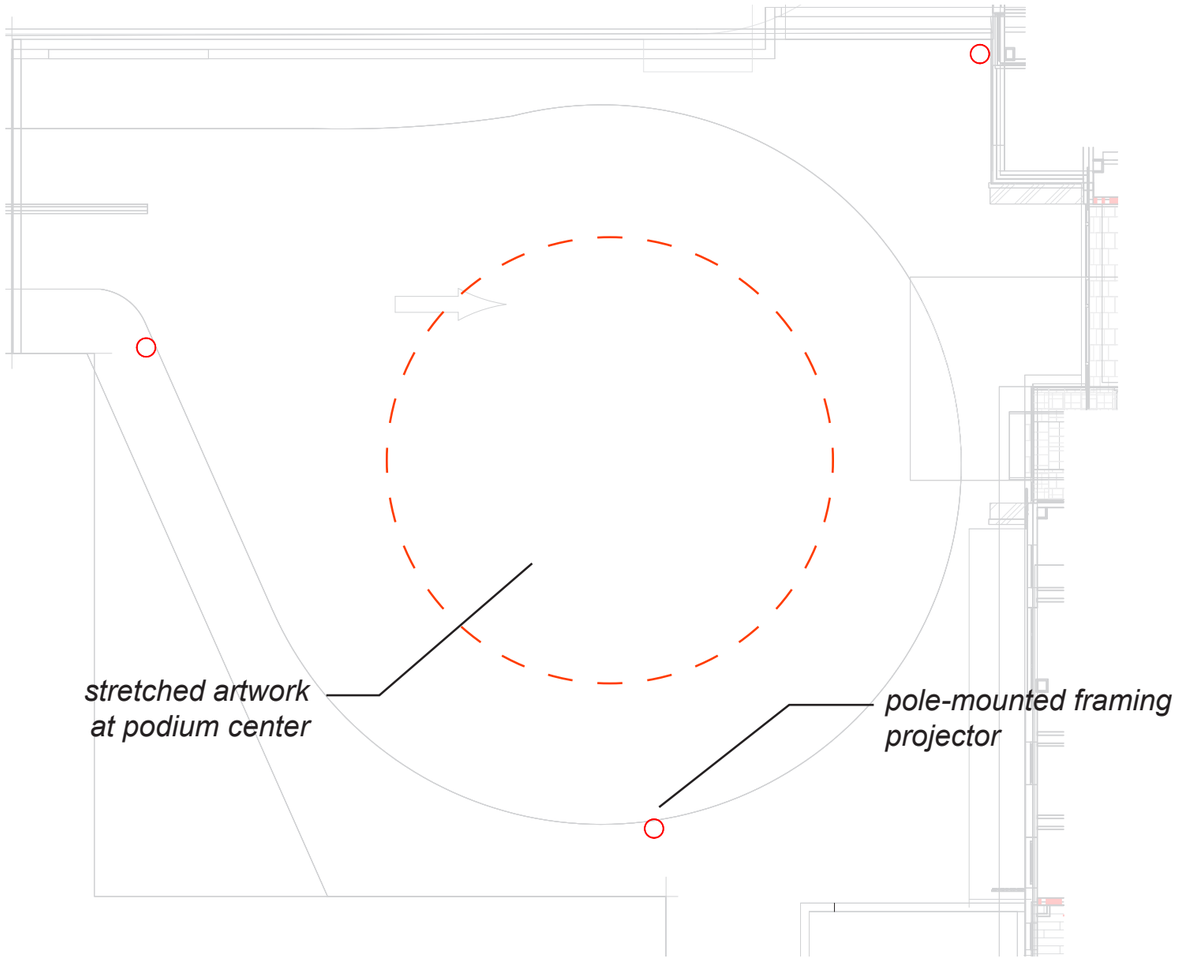
Portland Foreside Block 6

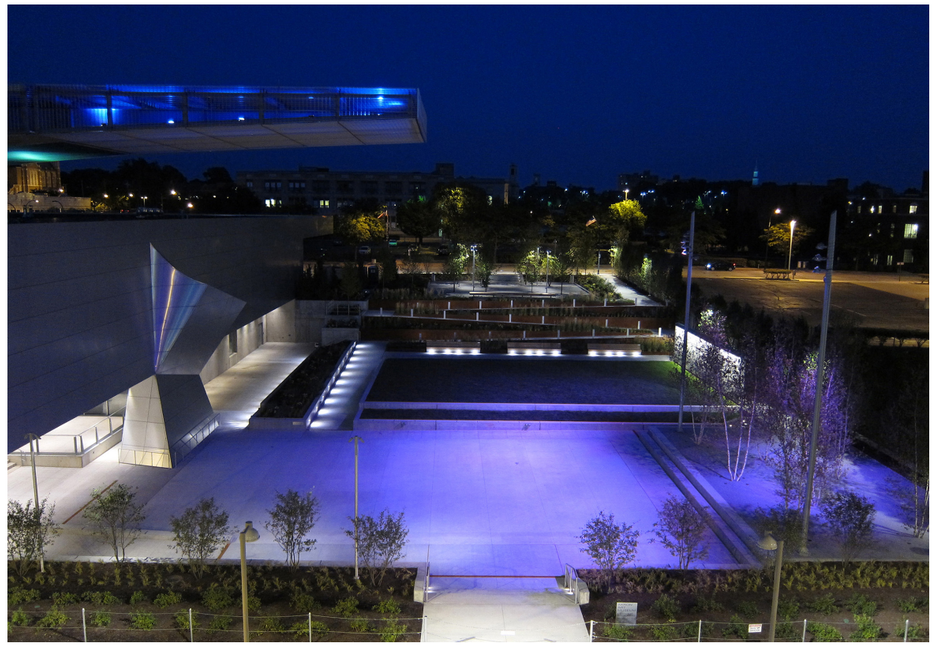
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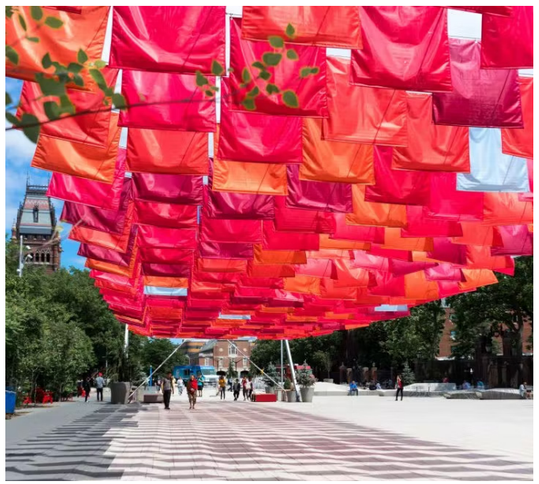
ISSUE
02/09/23 - Schematic Design Progress

Site Plan and 7th Floor - Street Entrance

LT1-00



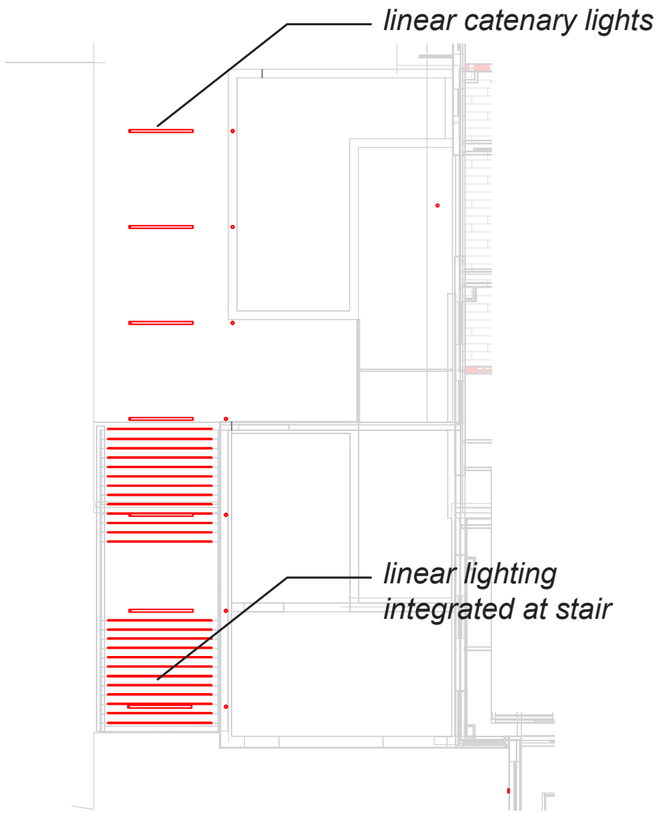




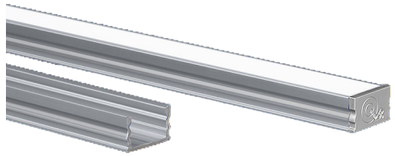




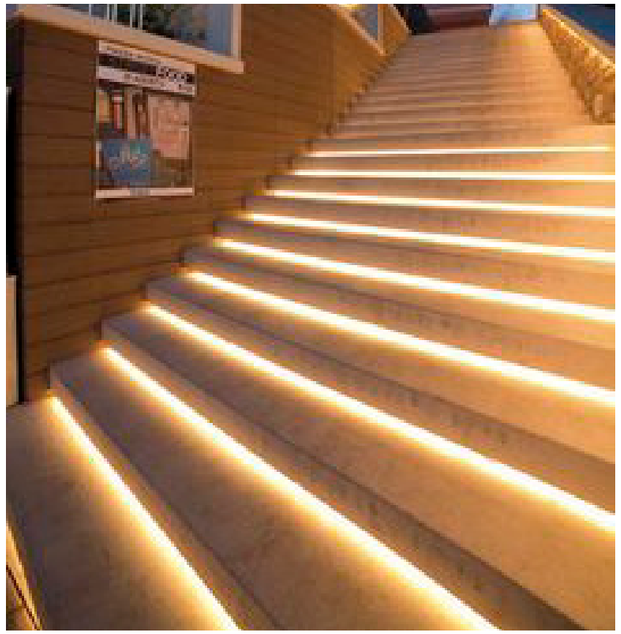
Podium turnaround | Pole lighting



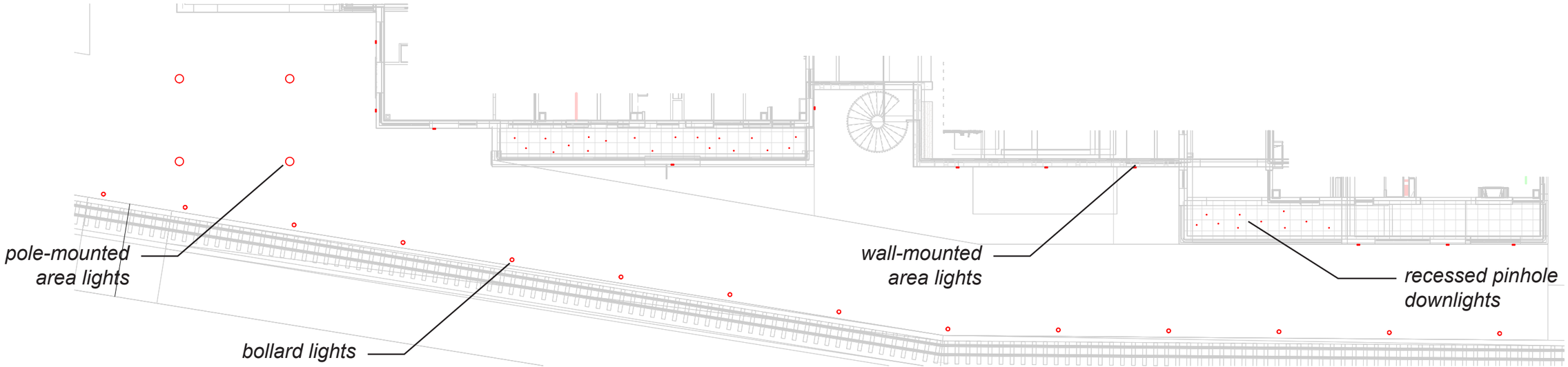








Stair corridor


pole-mounted
area lights
bollard lights
wall-mounted
area lights
recessed pinhole
downlights

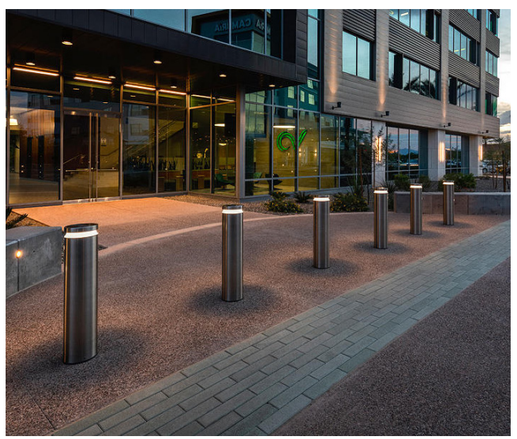


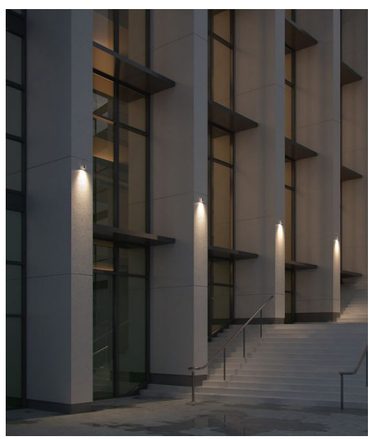


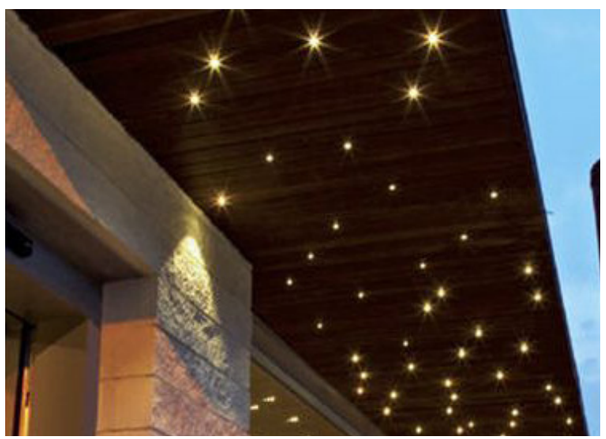


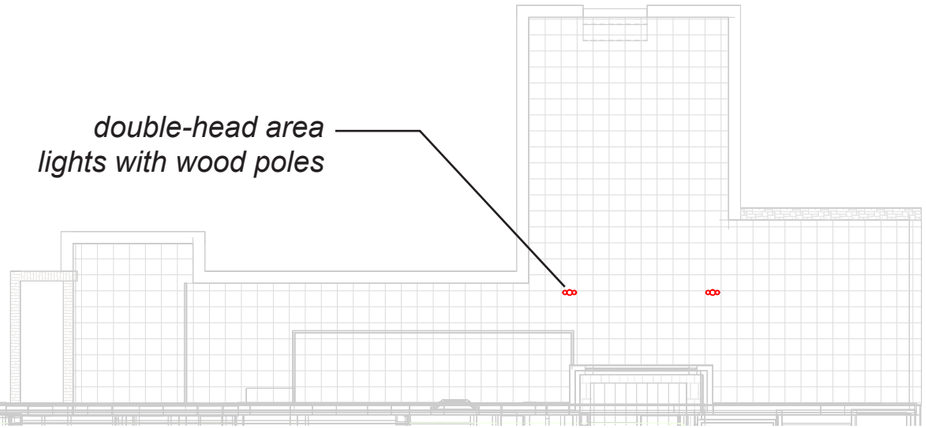




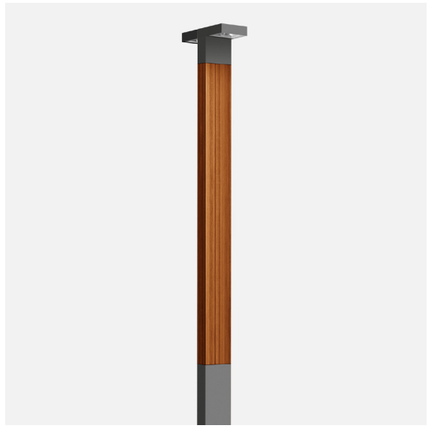








2 LT1-00 Level 7 - Street Entrance
3/32" = 1'-0"





Block 6 Street Entrance

FLC210 LED FRAMING PROJECTOR

139-2481_max

1/8

we-ef



Description
Profile Projector [FP] for framing applications, polygon shape. Spherical and aspherical, double flat convex lens system. IP66, Class I. IK05. Marine-grade, die-cast aluminum alloy. 5CE superior corrosion protection including PCS hardware. Silicone CCG® Controlled Compression Gasket. Safety glass lens. One cable gland. Second gland for through wiring on request. Integral driver, thermally separated. OLC® One LED Concept. Factory installed LED circuit board. 0-10V Dimming comes standard with luminaire. Specify product with 7 Digit product code – Finish Color. Accessories, such as mounting, optical, and electrical, must be specified separately. Example: XXX-XXXX – 9004 (Black) + XXX-XXXX (Accessory 1)

Beam Type	symmetric Framing-Projector [FP] - max aperture angle
Light Source	LED-FT-26W - 3000 K
CRI	80
Gear Type	electronic gear

Nominal Luminous Flux (lm)

LED Lumens	3295 lm
LEDs	1
Total Lumens	3295 lm
Tj	25 °C

Delivered Lumens Flux (lm)

LED Lumens	1827.3 lm
Total Lumens	1827.3 lm
Ta	25 °C

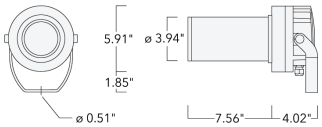
Rated Input Power	28 W

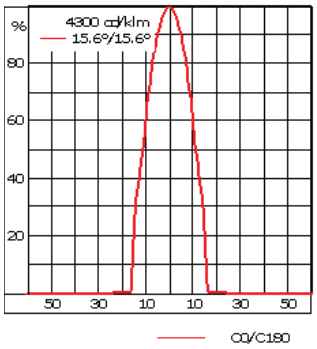
FLC210 LED FRAMING PROJECTOR

139-2481_max

2/8

we-ef





Material Specification

Body:	Marine-grade, die-cast aluminium alloy
Weight (lbs):	8.80
Lens:	Safety glass lens
Colours:	RAL9004 Black RAL9007 Grey Metallic RAL9016 White RAL8019 Dark Bronze
Gasket:	Silicone CCG® Controlled Compression Gasket
Fasteners:	PCS Polymer Coated Stainless Steel Hardware
Ingress protection:	IP66
Impact protection:	IK05
Corrosion protection:	5CE
Listings:	Contact WE-EF USA for ETL/UL certification status.

Electrical Specification

Power supply:	Integral [ECG] electronic driver 120V-277V.
Power factor:	> 0.9
Driver / Ballast:	Integral 0-10V LED Driver
Cable:	One cable gland, second gland for through-wiring on request

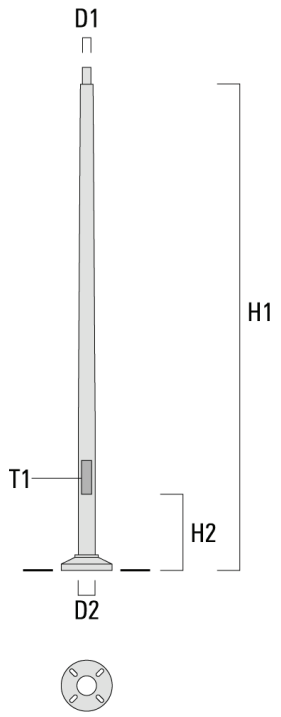
Lifetime

Ta=25°/40° L70B50 > 90000h

AML-K-ANC

we-ef

1/2



Description

Tapered round aluminum. Chromated pre-treatment with superior powdercoat finish in black RAL 9004, grey metallic RAL 9007, white RAL 9016 or dark bronze RAL 8019. The shaft is spun tapered from all new seamless 6063 alloy aluminum tubing and heat treated to produce a T6 temper. It is gracefully cone tapered to the butt diameter. Each shaft has a 6 -long straight section at the top that may be drilled to the luminaire manufacturer's mounting specifications. An Aluminum tenon may also be supplied as standard. Cast from A356 alloy aluminum, the anchor base is heat treated to produce a T6 condition and inserted into the anchor base casting. The two pieces are joined by a continuous circumferential weld at the outside top and inside bottom of the anchor base. The anchor bolts and nuts recess in the base casting, sitting flush, and are covered by four (4) tamper-resistant aluminum nut cover discs.
Refer to Individual Spec sheets for allowable wind loading (Square Feet) - attached at the bottom.

Specify Product Code
-
Specify Pole Top or Tenon: 3"x3" Tenon (-T3x3), 3"x4" Tenon (-T3x4), 3"x4" Tenon (-T3x5), or Pole Cap (-CAP)
-
Specify Finish Color: Black (-9004), Grey Metallic (-9007), White (-9016), or Dark Bronze (-8019); (consult WE-EF color chart for others)

SAMPLE: 695-3120-T3x5-9004

		D1 ϕ	D2 ϕ	H1	Weight (lbs)
693-3310	AML-K-08-30/40-125	3	4	7 ft 8 in	17
693-3311	AML-K-10-30/50-125	3	5	9 ft 8 in	24
693-3324	AML-K-12-30/50-156	3	5	11 ft 8 in	31
693-3312	AML-K-12-30/50-188	3	5	11 ft 8 in	36
693-3325	AML-K-14-30/50-156	3	5	13 ft 8 in	37
693-3313	AML-K-14-30/50-188	3	5	13 ft 8 in	43
693-3314	AML-K-16-30/50-188	3	5	15 ft 8 in	50
693-3326	AML-K-16-40/60-156	4	6	15 ft 8 in	53
693-3315	AML-K-16-40/60-188	4	6	15 ft 8 in	62
693-3327	AML-K-18-30/50-188	3	5	17 ft 8 in	56
693-3316	AML-K-18-40/60-188	4	6	17 ft 8 in	70
693-3317	AML-K-18-40/70-156	4	7	17 ft 8 in	66
693-3328	AML-K-20-40/60-188	4	6	19 ft 8 in	74
693-3318	AML-K-20-40/70-156	4	7	19 ft 8 in	73
693-3329	AML-K-23-40/70-156	4	7	22 ft 8 in	77

WE-EF LIGHTING USA LLC
410-D Keystone Drive | Warrendale PA 15086 | U.S.A. | Tel +1 724 742 0030 | Fax +1 724 742 0035 | info.usa@we-ef.com | www.we-ef.com

AML-K-ANC

we-ef

2/2

	693-3319	AML-K-23-45/80-156	4.50	8	22 ft 8 in	87
	693-3320	AML-K-23-45/80-188	4.50	8	22 ft 8 in	102
	693-3330	AML-K-25-45/80-156	4.50	8	24 ft 8 in	96
	693-3321	AML-K-25-45/80-188	4.50	8	24 ft 8 in	113
	693-3322	AML-K-28-45/80-188	4.50	8	27 ft 8 in	124
	693-3331	AML-K-28-45/80-250	4.50	8	27 ft 8 in	161
	693-3323	AML-K-28-60/10-188	6	10	27 ft 8 in	161
	693-3332	AML-K-29-60/10-250	6	10	27 ft 8 in	217
	693-3333	AML-K-30-60/10-188	6	10	29 ft 8 in	175
	693-3335	AML-K-33-60/10-188	6	10	32 ft 8 in	191
	693-3336	AML-K-33-60/10-250	6	10	32 ft 8 in	257
	693-3617	AML-V-16-55-188	5.5	ø 2.38 x 3.94/ ø 1.66 x 3.94	16 ft 6 in	55

WE-EF LIGHTING USA LLC
410-D Keystone Drive | Warrendale PA 15086 | U.S.A. | Tel +1 724 742 0030 | Fax +1 724 742 0035 | info.usa@we-ef.com | www.we-ef.com

Corde Illuminated Aluminum Linear Pendant

structura

FIXTURE TYPE: _____

PROJECT NAME: _____



Catenary mounted aluminum linear LED pendant.

FEATURES:

- Available in 2' to 20' lengths
- >90CRI smooth, dot free illumination
- Dimmable IP67 power supply and IP67 LED strip
- Small scale with seamless catenary mounting

SPECIFICATIONS:

HOUSING: Seamless housing comprised of custom aluminum 6005A-T6 extrusions with 6061-T6 end caps.

ELECTRICAL: Powered by a standalone Q-Tran QZ, 120-277VAC primary/24VDC secondary outdoor rated remote dimmable power supply. Power supply features built-in short circuit protection, over load protection, and over temperature protection. System is forward phase, reverse phase, and 1-10V dimming. Consult factory for other driver options. Fixtures supplied with 1' infeed cable and 1' outfeed cable, if applicable, with a IP67 connector. Operating temperature of -40°F to 125°F SO, 115°F MO, and 108°F HO.

OPTICAL SYSTEM: Available in 2700K, 3000K, 3500K, 4000K color temperatures with smooth, dot free illumination.

FINISHES: All exterior aluminum parts are polyester powder coat painted to meet AAMA 2604 standards. See Structura's finish options for available colors. Care and Maintenance

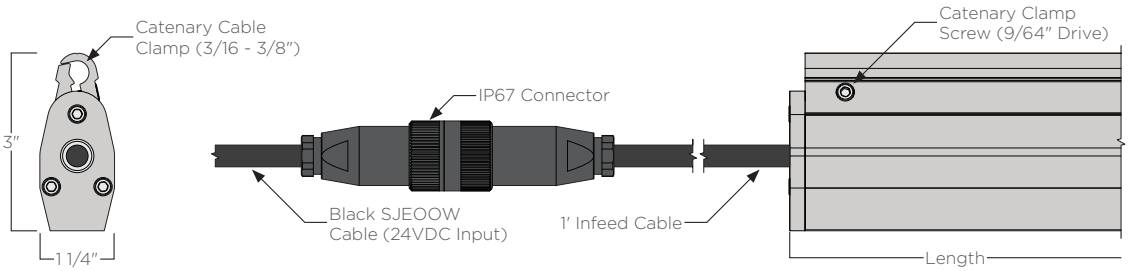
HARDWARE: All fasteners are stainless steel unless otherwise noted.

LISTINGS & RATINGS: Luminaire CSA listed according to CSA C22.2 No. 250.0-18/UL Standard 1598 and UL Standard 2108. Suitable for wet locations. LM-80 test calculated L70 > 35,000 hours.

WARRANTY: A 2-year finish warranty with 3-year warranty on LED and driver.

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structura



	Standard Output		Medium Output		High Output			
Length	Lumens[1]	Watts	Lumens[1]	Watts	Lumens[1]	Watts	Weight	EPA
2'	253	3	508	6	877	12	3.6lbs.	.50ft²
4'	506	6	1017	12	1754	24	7.0lbs.	.98ft²
6'	760	9	1525	18	2631	36	10.4lbs.	1.46ft²
8'	10134	12	2034	24	3508	48	13.8lbs.	1.95ft²
10'	1266	15	2542	30	4385	60	17.3lbs.	2.43ft²
12'	1520	18	3051	36	5262	72	20.7lbs.	2.91ft²
14'	1773	21	3559	42	6139	84	24.1lbs.	3.40ft²
16'	2026	24	4068	48	7016	96	27.5lbs.	3.88ft²
18'	2280	27	4576	54	7893	108	30.9lbs.	4.36ft²
20'	2533	30	5084	60	8771	120	34.4lbs.	4.85ft²

ORDERING GUIDE: EXAMPLE: CORDE-6-L30HO-C3-CAT/S-40-STD

C SP US

CORDE						
1	2	4	5	6	7	8

1 Series
- **CORDE** Corde

2 Length
- **2** 2'
- **4** 4'
- **6** 6'
- **8** 8'
- **10** 10'
- **12** 12'
- **14** 14'
- **16** 16'
- **18** 18'
- **20** 20'

3 CCT
- **L27** 2700K
- **L30** 3000K
- **L35** 3500K
- **L40** 4000K
- **RGB** RGB
- **RGBW/27** RGBW/2700K
- **RGBW/30** RGBW/3000K

4 Output
- **SO** Standard Output
- **MO** Medium Output
- **HO** High Output

5 Metal Finish
- **C*** See color options on finishes technical sheet
- **CSM** Custom Color

6 Mounting
- **CAT/S** Catenary, Standalone
- **CAT/D** Catenary, Daisy Chain[2]

7 Mounting Length
- **10** 10'
- **40** 40'
- ****** Specify

8 Special
- **STD** Standard
- **MOD** Modified

1. Lumen output based upon 3000K CCT.
2. Consult factory for daisy chain applications.

Product specification sheets subject to change.

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LED wall luminaire - asymmetric light distribution

BEGA

Application
This LED wall luminaire with an asymmetric light distribution can be used to illuminate ceiling or ground surfaces in front of the mounting surface. Can be used for uplight or downlight applications.

Materials
Luminaire housing constructed of die-cast marine grade, copper free (≤0.3% copper content) A360.0 aluminum alloy
Clear safety glass
Reflector made of pure anodized aluminum
Silicone applied robotically to casting, plasma treated for increased adhesion
High temperature silicone gasket
Mechanically captive stainless steel fasteners

NRTL listed to North American Standards, suitable for wet locations
Protection class IP 65
Weight: 6.8 lbs

Electrical

Operating voltage	120-277V AC
Minimum start temperature	-30° C
LED module wattage	17.9 W
System wattage	23 W
Controllability	0-10V dimmable
Color rendering index	Ra > 90
Luminaire lumens	2352 lumens (3000K)
Lifetime at Ta = 15° C	>500,000 h (L70)
Lifetime at Ta = 25° C	133,000 h (L70

LED color temperature

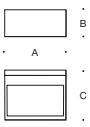
☐ 4000K - Product number + **K4**
☐ 3500K - Product number + **K35**
☐ 3000K - Product number + **K3** ***(EXPRESS)***
☐ 2700K - Product number + **K27**

BEGA can supply you with suitable LED replacement modules for up to 20 years after the purchase of LED luminaires - see website for details

Finish
All BEGA standard finishes are matte, textured polyester powder coat with minimum 3 mil thickness.

Available colors ☐ Black (BLK) ☐ White (WHT) ☐ RAL:
☐ Bronze (BRZ) ☐ Silver (SLV) ☐ CUS:

Type:
BEGA Product:
Project:
Modified:





LED wall luminaire · asymmetric light distribution

	LED	A	B	C
22386	17.9 W	9 1/2	4 1/8	7 7/8

BEGA 1000 BEGA Way, Carpinteria, CA 93013 (805) 684-0533 info@bega-us.com

Due to the dynamic nature of lighting products and the associated technologies, luminaire data on this sheet is subject to change at the discretion of BEGA North America. For the most current technical data, please refer to bega-us.com
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Updated 09/04/18

LALO-ENCAPSULATED (03) Linear Fixtures



Ideal for lighting direct and indirect surface mount applications, LALO is now available as a fully assembled fixture. LALO Encapsulated is available in satin and black finishes and features high quality LED strips encapsulated in a rigid extrusion providing a robust fixture for various environments.

Part Number Builder

Static White

5 YEAR WARRANTY

Product	W/FT	CCT	Rated	Efficiency	Lens	Input/ Output	Connector/ Wire In	Connector/ Wire Out	Wire Color	Wire Type	Mounting	Finish	Length* (in)
LL3SW			ENC	STD									
	1.5 3.0 4.0 5.0	24 27 30 35 40	ENC (IP67)	STD Standard	CL TL	S1 S2 Single (Closed exit)	BW BRL CON6 CON24	CLS	WH BK N/A	CL2 CL2P N/A	SST MG	ST BK	
						P1 P2 Pass through	BW BRL CON6 CON24	BW BRL CON6 CON24					

Voltage: 24 VDC

Typical lumens at 5.0W/ft with CL at 3000K: 331 lm/ft

*Available in 1" increments, maximum length of 98.43" not including end caps. Tolerance +0.0"/-0.5. Minimum fixture length 6".

Static White High Efficacy

5 YEAR WARRANTY

Product	W/FT	CCT	Rated	Efficiency	Lens	Input/ Output	Connector/ Wire In	Connector/ Wire Out	Wire Color	Wire Type	Mounting	Finish	Length* (in)
LL3SW			ENC	STD									
	1.5HE 3.0HE 6.0HE	24 27 30 35 40	ENC (IP67)	STD Standard	CL TL	S1 S2 Single (Closed exit)	BW BRL CON6 CON24	CLS	WH BK N/A	CL2 CL2P N/A	SST MG	ST BK	
						P1 P2	BW BRL CON6 CON24	BW BRL CON6 CON24					

Voltage: 24 VDC

Typical lumens at 6.0W/ft with CL at 3000K: 563 lm/ft

*Available in 2" increments, maximum length of 98.43" not including end caps. Tolerance +0.0"/-0.5. Minimum fixture length 6".

- If selecting **BRL**, select N/A for wire color and type
- **BW** comes in standard 24"- request custom length (Max 120") by writing it in inches next to "BW" in the order code box (ex. BW48)
- **Connector/Wire In or Out** not needed to specify product. Standard configuration is Type S1, Connector/Wire In: BW & Connector/Wire Out: CLS
- Specify **CL2P** for plenum rated wire

- 5 year warranty
- Field modifications void warranty
- Data subject to change, all data has +/- 5% tolerance
- Compatible for use with Q-Tran power supplies
- IK10 rated

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Specification subject to change. Rev-02-24-22

LALO-ENCAPSULATED (03) Linear Fixtures

Technical Information

Static White [Calculated L70 = 30000 hrs]
Tested with LL3SW-**-30-ENC-STD

	1.5W/FT	3.0W/FT	4.0W/FT	5.0W/FT
	LM/FT	LM/FT	LM/FT	LM/FT
CL	126	219	272	331
TL	67	117	145	177

Static White High Efficacy
[Calculated L70 = 70000 hrs]
Tested with LL3SW-**-30-ENC-STD

	1.5HEW/FT	3.0HEW/FT	6.0HEW/FT
	LM/FT	LM/FT	LM/FT
CL	162	297	563
TL	87	159	301

Dynamic White
[Calculated L70 = 70000 hrs]
Tested with LL3DW-6.0-**-ENC-STD

	3000K
	LM/FT
CL	191
TL	102

Dynamic White High Efficacy
[Calculated L70 = 70000 hrs]
Tested with LL3DW-**-30-DRY-STD

	3.0W/FT	5.0W/FT
	LM/FT	LM/FT
CL	130	205
TL	69	110

Static Color [Calculated L70 = 30000 hrs]
Tested with LL3SC-5.0-**-ENC-STD

	Red	Green	Blue	Amber
	LM/FT	LM/FT	LM/FT	LM/FT
CL	76	411	107	69
TL	41	220	57	37

RGB [Calculated L70 = 55000 hrs]
Tested with LL3RGB-6.0-RGB-ENC-STD

	Red	Green	Blue
	LM/FT	LM/FT	LM/FT
CL	73	147	42
TL	39	79	22

RGBW [Calculated L70 = 70000 hrs]
Tested with LL3RGBW-6.0-30-DRY-STD

	Red	Green	Blue	3000K
	LM/FT	LM/FT	LM/FT	LM/FT
CL	27	91	23	72
TL	14	48	12	39

RGBW High Efficacy [Calculated L70 = 70000 hrs]
Tested with LL3RGBW-4.0HE-30-DRY-STD

	Red	Green	Blue	3000K
	LM/FT	LM/FT	LM/FT	LM/FT
CL	29	112	24	69
TL	16	60	13	37

Temperature Ratings Dependent on LED Strip W/FT

Light Engine (LED Strip)	W/FT	Minimum Limit (°F)	Maximum Limit (°F)
Static White	1.5	-4	138
	3.0	-4	124
	4.0	-4	115
	5.0	-4	108
Static White High-Efficacy	1.5HE	-4	152
	3.0HE	-4	140
	6.0HE	-4	118

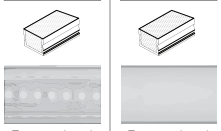
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Specification subject to change. **Rev-02-24-22**

LALO-ENCAPSULATED (03) Linear Fixtures

Lens
with LED visibility

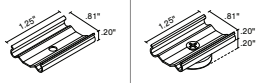
CL | TL



Encapsulated in Clear | Encapsulated in Translucent

Mounting
2 clips provided for 4' or less; 4 clips provided for greater than 4'

SST | MG

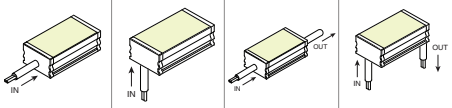


Stainless steel clip | Magnet clip

Type

SINGLE (Input only) | PASS THROUGH (Input/Output)

S1 | S2 | P1 | P2



End feed | Bottom feed | End feed | Bottom feed

Finish

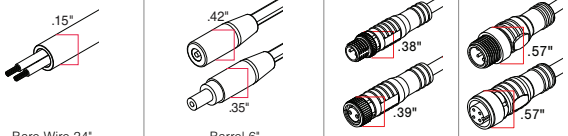
ST | BK



Satin | Black

Connector/Wire – In/Out

BW | BRL | CON6 / CON24

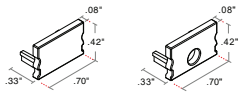


Bare Wire 24" | Barrel 6" | SW, SW-HE, DW, DW-HE, SC | RGB, RGBW, RGBW-HE

6" or 24" wire connector

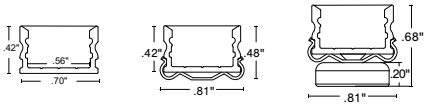
End Caps

Flat end caps



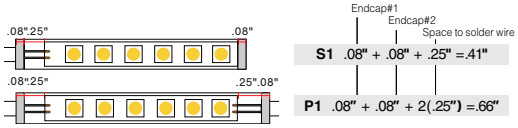
No feed | Feed

Dimensions



Profile | Profile with stainless steel mounting clip | Profile with magnet mounting clip

Length (in) Add to nominal LED length for fixture length



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Specification subject to change. Rev-02-24-22

NANOLED

DOWNLIGHT - REMOTE

Type: **SPECIFICATION SHEET**
Project: Page: 1 of 3









The main feature of this ceiling recessed luminaire is its extremely reduced dimensions (60mm). The lighting body is completely manufactured in 316L stainless steel to ensure an increased corrosion resistance and has no visible screws. Reduced energy consumption and very high lighting performances accomplish the profile of this extraordinary recessed spotlight for the exterior.

Luminaire characteristic:	**Power input:** 2.2W (system wattage) **Lumens:** 131lm (for 3000K, 90CRI) **Luminaire efficacy:** 59lm/W
Source:	White LED (LM-80), 2700K: 90CRI, 3000K: 90CRI, 4000K: 80CRI.
Lumen maintenance:	80% of initial lumens at 70 000 hours (L80) (LM-79).
Optic:	Narrow flood with transparent diffuser
Material:	Body: AISI 316L monoblock stainless steel
Mounting:	Downlight version supplied with clips for installation. Supplied with 16' cable (5m). Ceiling thickness: min: ⅝" (15mm), max 1⅛" (30mm). Cut-out dimension: Ø2" (50mm)
Electrical:	High efficiency LED driver, rated at 50 000 hours. See remote LED driver options on page 2.
Finish:	Stainless steel.
Weight:	1.63lb (0.74kg)
Warranty:	5 year limited warranty.
Rating:	IP65, IP67, IK08
Certification:	cULus listed for wet location

NANOLED
DOWNLIGHT - REMOTE

Type:
Project:

SPECIFICATION SHEET

ORDERING INFO

S3321-19
PRODUCT CODE

S3321		REM	19
MODEL	LED	VOLTAGE	FINISH

MODEL	LED	VOLTAGE	FINISH
S3321 Round downlight Narrow flood 29°	**H** 2700K, 90CRI	**REM** Remote	**19** Stainless steel
	W 3000K, 90CRI		
	N 4000K, 80CRI		

REMOTE LED DRIVER OPTIONS (TO BE ORDERED SEPARATELY)

S3321-19
PRODUCT CODE

Nanoled driver list
DRIVER CODE

Outdoor rated drivers

Driver box model	Min-max units
	1.4W*
4545-0024-075-UNV-ND	1-33
4549-0024-075-UNV-D10	1-33
4551-0024-080-120-LTE	13-35

Indoor rated drivers

Driver box model	Min-max units
	1.4W*
4444-0024-020-120-ND	1-9
4449-0024-060-UNV-D10	1-27

* Wattage requirement for one (1) fixture (Remote fixture only).

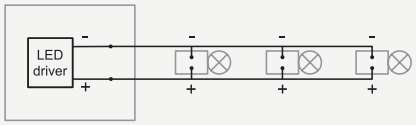
Driver code example

XXXX	-0024	-XXX	-XXX	-XXX
MODEL	CONSTANT VOLTAGE	WATTAGE	VOLTAGE	DIMMING PROTOCOL

MODEL	CONSTANT VOLTAGE	WATTAGE	VOLTAGE	DIMMING PROTOCOL
4444 6" x 4" x 3" (152 x 102 x 76mm)	**0024** 24V	**020 to 080** 20W to 80W	**120** 120V	**ND** No dimming Max distance: 6m (20ft)**
4449 12" x 8" x 4" (305 x 203 x 102mm)			**UNV** 120-277V	**D10** 0-10V Max distance: 6m (20ft)** (down to 10%)
4545 11" x 3" x 2" (279 x 76 x 51mm)				**LTE** Leading edge and trailing edge (ELV and TRIAC) Max distance: 6m (20ft)** (down to 15%)
4549 14.5" x 5" x 3.5" (368 x 127 x 89mm)				
4551 14.5" x 5" x 2" (368 x 127 x 51mm)				

** Max distance cable calculated for 16AWG cable. Contact customer service for longer remote distance.

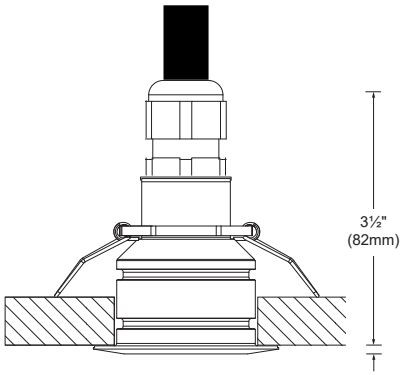
WIRING DIAGRAMS
Multiple luminaires must be connected in parallel.



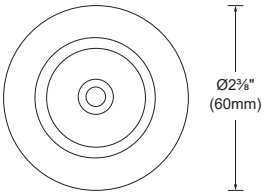
NANOLED
DOWNLIGHT - REMOTE

Type: **SPECIFICATION SHEET**
Project: Page: 3 of 3

DIMENSIONS



SIDE VIEW



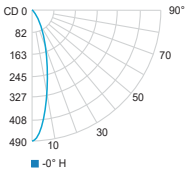
BOTTOM VIEW

PHOTOMETRIC DATA

CCT (K)	CRI	LOAD (W)	OPTIC	LUMENS (lm)	EFFICACY (lm / W)	MAX CANDELA (cd)	MODEL
3000K	90	2.2W	Narrow flood 29°	131	59	481	S3321W

*For products that uses a remote led driver, total system wattage will varies according to the efficacy of the remote led driver selected. For this reason, the load and efficacy values given in the table above refers to the led source only and does not include the led driver consumption.

Narrow flood 29° (3000K, 90 CRI)



	Center Beam fc	Beam Width ft
2ft	120	1.0
4ft	30.1	2.1
6ft	13.4	3.1
8ft	7.52	4.1
10ft	4.81	5.2
12ft	3.34	6.2

CCT options	2700K	3000K	4000K
CRI options	90CRI	90CRI	80CRI
Multiplier	**0.95**	**1**	**1.05**

Pole top luminaires with indirect adjustable light distribution

Type:
BEGA Product:
Project:
Voltage:
Color:
Options:
Modified:

Housing/fitter: Heavy one piece die-cast aluminum optical housing with integrally cast transition "fitter" which slip fits a 3" O.D. pole top or tenon and is secured by six (6) flush, stainless steel set screws. The housing gracefully supports two (2) ¾" diameter stainless steel struts located at 180° as well as a die-cast aluminum diffuser retaining ring. All components function and appear as a unified design. Die castings are marine grade, copper free (≤ 0.3% copper content) A360.0 aluminum alloy.

Enclosure: ¾" thick, machined tempered crystal clear optical glass with a high temperature-rated one piece molded silicone rubber gasket encloses the precise, stippled pure aluminum, wide flood distribution reflector. The glass retaining ring is secured by two (2) hidden stainless steel hex head access screws.

Reflective disk: 31½" diameter x ¼" thick aluminum plate secured by two (2) die-cast aluminum fixed clamping "saddles" which receive the stainless steel struts. Adjustable up to 30° in 5° increments in one direction. A ¼" wide by ⅛" deep "drip" channel is provided around the edge of the underside disk.

Electrical: 36.4W LED luminaire, 43 total system watts, -30°C start temperature. Integral 120V through 277V electronic LED driver, 0-10V dimming. LED module(s) are available from factory for easy replacement. Standard LED color temperature is 3000K with an 85 CRI. Available in 4000K (85 CRI); add suffix K4 to order.

Note: LEDs supplied with luminaire. Due to the dynamic nature of LED technology, LED luminaire data on this sheet is subject to change at the discretion of BEGA-US. For the most current technical data, please refer to www.bega-us.com.

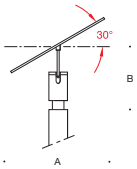
Finish: All BEGA standard finishes are polyester powder coat with minimum 3 mil thickness. Available in four standard BEGA colors: Black (BLK); White (WHT); Bronze (BRZ); Silver (SLV). To specify, add appropriate suffix to catalog number. Custom colors supplied on special order.

CSA certified to U.S. and Canadian standards, suitable for wet locations. Protection class IP65

Weight: 33.0 lbs.

EPA (Effective projection area): 3.2 sq. ft.

Luminaire Lumens: 1742
Tested in accordance with LM-79-08





	Lamp	LEED	A	B
77 208	36.4 W LED	LZ-3	31½	19⅞

BEGA-US 1000 BEGA Way, Carpinteria, CA 93013 (805) 684-0533 FAX (805) 566-9474 www.bega-us.com
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HELIO™ M30/K4 SECURITY BOLLARD, SERIES 900

PRODUCT DATA



FORMS+SURFACES®

HELIO™ M30/K4 SECURITY BOLLARD, SERIES 900

PRODUCT DATA

Helio M30/K4 Security Bollards, Series 900 offer robust protection for public spaces of all kinds. Simply elegant in stainless steel, fixtures 9.25" in diameter have an embedded security core and are available in illuminated and non-illuminated designs. Illuminated bollards feature a frosted acrylic lens, 180˚ or 360˚ light distribution, and Cree® LEDs in 3000K warm white and 4000K neutral white. Helio Bollards with 3000K LEDs are approved by the International DarkSky Association to minimize light pollution. For expanded performance, the Helio family also includes Helio M40/K8 and M50/K12 Security Bollards 11.5" in diameter (Series 1200) in illuminated and non-illuminated designs, and Helio Bollards 6" in diameter (Series 600) in illuminated, non-illuminated and S10-P1 security core variations.

MATERIAL & CONSTRUCTION DETAILS

CONFIGURATIONS

- Series 900 Helio Bollards are 40" high x 9.25" diameter.
- Illuminated security bollards are available with 180° and 360° light distribution options.
- Non-illuminated versions are also available.
- Series 900 Helio Bollards without security cores are available (illuminated or non-illuminated).

MATERIALS & FINISHES

- Illuminated bollards have a tubular stainless steel column, frosted acrylic lens, and stainless steel head cap.
- Non-Illuminated bollards are tubular stainless steel with welded stainless steel cap.
- Stainless steel is standard with a Satin finish and Ceramiloc treatment. See below for details.
- For optional powdercoat colors see the Forms+Surfaces Powdercoat Chart. Custom RAL colors are available for an upcharge.

LED LAMPS & DRIVER

- Custom LED light engine with Cree® LEDs.
- 3000K warm white and 4000K neutural white color temperatures.
- Less than 5% upward lumen output.
- LED driver input voltage is 120-277VAC, -30˚C minimum starting temperature.
- Driver has reverse-phase, forward-phase, and 0-10V dimming capabilities.
- LED driver certifications include: IP64 enclosure and Class 2 rated output (UL8750).

INSTALLATION

- Security bollards have an embedded security core.
- Non-security bollards are surface mounted with J-bolts.
- Installation of a surge protector as part of each unit's wiring is recommended.
- Stainless steel mounting hardware sold separately. Templates are available upon request.

MAINTENANCE

- Metal surfaces can be cleaned as needed using a soft cloth or brush with warm water and a mild detergent. Avoid abrasive cleaners.

CERAMILOC TREATMENT

Ceramiloc is an invisible surface treatment that offers significantly enhanced protection from weather and graffiti and increases the maintenance ease of stainless steel. Ceramiloc combines ceramic durability with an unparalleled ability to lock out water spots, fingerprints, graffiti and more. Patented technology bonds nano-silica particles to the surface of the stainless steel. The treatment minimally alters the surface appearance of the stainless and offers numerous benefits:

- Easily Cleaned: The Ceramiloc treatment creates a surface that simultaneously resists fingerprints and is easy to clean. Water spots, grease marks and more can be quickly wiped away. It also creates an “anti-graffiti” surface – even permanent marker is easily removed with a clean microfiber towel and water.
- Durable: Ceramiloc-treated materials are abrasion- and scratch-resistant. The treatment is permanent, UV stable, and will not degrade or discolor over time.
- Environmentally Sound: The Ceramiloc treatment is a no-VOC, water-based process. Because Ceramiloc surfaces are so easily maintained, cleaning solutions and maintenance are kept to a minimum.

LIGHT ENGINE DESCRIPTION

LED ENGINE	LIGHT DISTRIBUTION	DESCRIPTION	LUMINAIRE LUMENS*	B.U.G. RATING	STARTING TEMPERATURE ˚C
3000K LED	360°	40W LED driver	604	B0-U1-G0	-30
4000K LED	360°	40W LED driver	604	B0-U1-G0	-30
3000K LED	180°	20W LED driver	224	B0-U1-G0	-30
4000K LED	180°	20W LED driver	224	B0-U1-G0	-30

Luminaire lumens represent the absolute photometry for the luminaire, and indicates the lumens out of the entire fixture.

NOTE: Polar candela and isofootcandle plots can be found on the Helio M30/K4 Security Bollard, Series 900 product page on our website.

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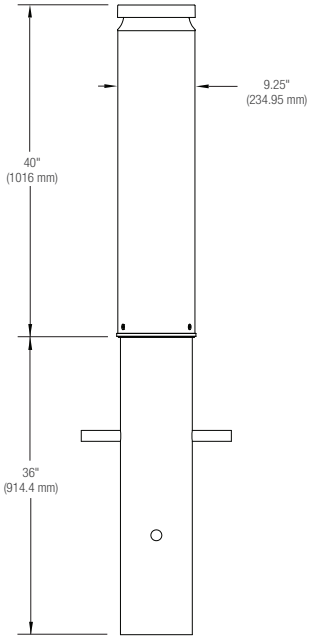
HELIO™ M30/K4 SECURITY BOLLARD, SERIES 900

PRODUCT DATA

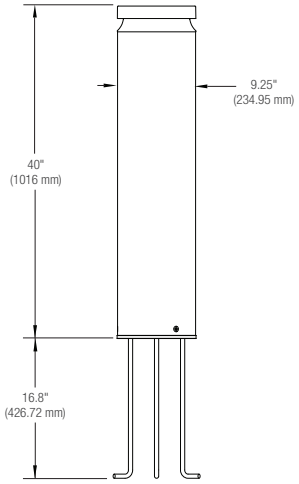
ILLUMINATED BOLLARDS

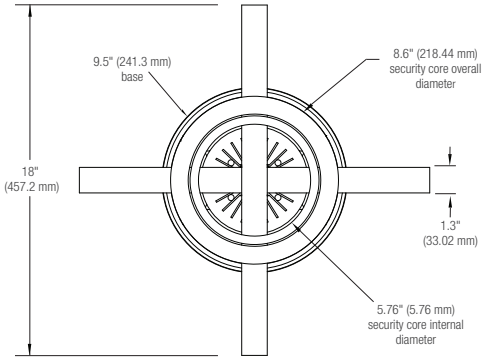
NOMINAL DIMENSIONS

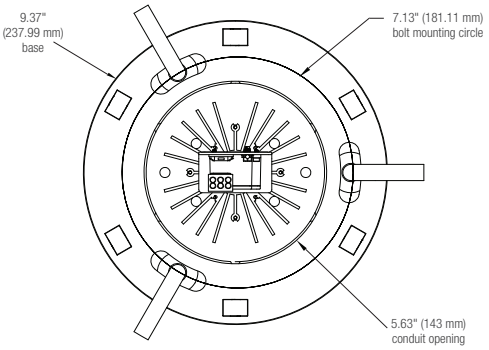
EMBEDDED M30/K4 SECURITY CORE, ILLUMINATED



SURFACE MOUNT WITH J-BOLTS, ILLUMINATED







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HELIO™ M30/K4 SECURITY BOLLARD, SERIES 900

PRODUCT DATA

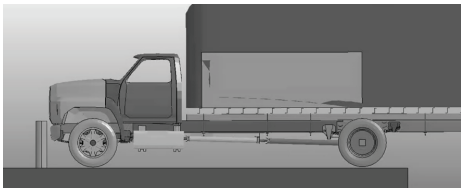
M30-P1/K4 SECURITY CORE

Site security is a major concern in today's unpredictable world. Public and private buildings, government facilities, campuses and public parks are all susceptible to accidental, as well as deliberate, vehicle infringement. Design professionals, city planners, facilities managers and engineers must now be increasingly sensitive to the safety and security requirements of public and private spaces. Security bollards placed at ingress points are an excellent way to guard against vehicle infringement while allowing pedestrian access.

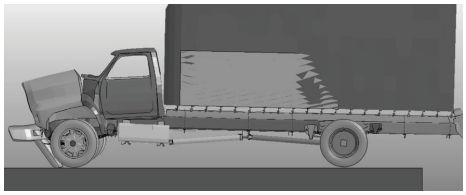
Most security bollards have taken the form of generic pipes and cylinders that offered little in the way of design or lighting functionality. Forms+Surfaces' Helio M30-P1/K4 Security Bollards bring a pre-engineered and fully-tested security core to our Helio line to offer a beautiful and efficient lighting bollard that also meets the stringent high-impact crash requirements normally attained only with unattractive pipe barriers.

Forms+Surfaces' security bollards have been tested using a Finite Element Analysis (FEA) by a professional engineering consultant. FEA is a software-based tool commonly used in the automotive industry and used extensively for crash test simulations. All of our bollards with the security solution option were tested and passed a very demanding set of impact criteria. Tests were performed using a bollard set in permanent concrete footings and struck by a vehicle at a 90-degree impact. The impact simulation found the bollards to be successful in stopping a 15,000 lb. vehicle traveling at a minimum test velocity of 30 mph in less than 3.3 feet (1 meter).

Our permanently embedded security cores are available for both illuminated and non-illuminated bollards. Please contact us to discuss design and installation considerations for Helio bollards with security cores.



Crash scenario with 15,000 lb pickup truck approaching embedded bollard system at 30 mph



Full-scale crash immediately after impact

CERTIFICATION

- ETL and C-ETL listed for wet locations.
- Helio Bollard 3000K is International DarkSky Approved

ENVIRONMENTAL CONSIDERATIONS

- Please refer to the Helio M30/K4 Security Bollard, Series 900 Environmental Data Sheets for detailed environmental impact information.
- Metal components have a long life cycle and are 100% recyclable.
- Standard powdercoat finishes are no-VOC; non-standard powdercoat finishes are no- or low-VOC, depending on color.
- Low maintenance.

MODEL NUMBERS AND DESCRIPTIONS

MODEL	DESCRIPTION
LBHLO-903-SEC	Helio M30/K4 Security Bollard, Series 900, illuminated
LBHLO-903-NSEC	Helio M30/K4 Security Bollard, Series 900, non-illuminated
LBHLO-903	Helio Bollard, Series 900, illuminated (non-security)
LBHLO-903-N	Helio Bollard, Series 900, non-illuminated (non-security)

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HELIO™ M30/K4 SECURITY BOLLARD, SERIES 900

PRODUCT DATA

PRODUCT OPTIONS

The following options are available for an upcharge

Add powdercoat color from Forms+Surfaces Powdercoat Chart	Custom RAL powdercoat color
Add stainless steel mounting hardware	

LEAD TIME: 6 to 8 weeks. Shorter lead times may be available upon request. Please contact us to discuss your specific timing requirements.

PRICING: Please contact us at **800.451.0410** or **sales@forms-surfaces.com**. At Forms+Surfaces, we design, manufacture and sell our products directly to you. Our sales team is available to assist you with questions about our products, requests for quotes, and orders. Territory Managers are located worldwide to assist with the front-end specification and quoting process, and our in-house Project Sales Coordinators follow your project through from the time you place an order to shipment.

TO ORDER SPECIFY: Quantity, finish, color temperature, and light distribution option. Quote/Order Forms are available on our website to lead you through the specification process in a simple checkbox format.

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Wood building element · Asymmetric · Single

BEGA

Application
Wooden light building elements soften the built environment by using natural materials of the highest quality. These luminaires are ideally suited for delineating and structuring interior and exterior spaces such as landscape areas, plazas, building entrances and atria. Optionally available with a brushed finish.

Materials
Clear safety glass with optical texture
Glue-laminated Scots pine heartwood (<10% sapwood)
Marine grade, copper free (≤0.3% copper content) A360.0 aluminum alloy
Fumigation and anti-termite treated
High temperature silicone gasket
High-temperature laminate glue
Timber sourced from FSC or PEFC sustainably managed forests, minimum 80 year growth and 250mm diameter trees
Galvanized steel anchorage
Pure anodized aluminum reflector

NRTL listed to North American Standards, suitable for wet locations
Protection class IP 65

Weight: 88.2 lbs.

Electrical

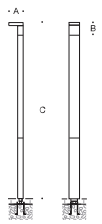
Operating voltage	120-277V AC
Minimum start temperature	-20° C
LED module wattage	17.6 W
System wattage	22.0 W
Controllability	0-10V dimmable
Color rendering index	Ra > 80
Luminaire lumens	2521 lm
LED service life (L70)	60000 hrs

LED color temperature
☐ 4000K (K4)
☐ 3500K (K35)
☐ 3000K (K3)
☐ 2700K (K27)

BEGA can supply you with suitable LED replacement modules for up to 20 years after the purchase of LED luminaires - see website for details

Finish
All BEGA standard finishes are matte, textured powder coat with minimum 3 mil thickness. BEGA Unidure® finish, a fluoropolymer technology, provides superior fade protection in Black, Bronze, and Silver. BEGA standard White is a super durable polyester powder. Optionally available RAL and custom color finishes provided in either polyester powder or liquid paint.

Available colors
☐ Black (BLK)
☐ Silver (SLV)
☐ CUS:
☐ Bronze (BRZ)
☐ RAL:



Wood building element · Asymmetric · Single

	LED	A	B	C
B84468	17.6 W	11	$9\frac{7}{8}$	$137\frac{3}{4}$

Type:
BEGA Product:
Project:
Modified:

Wood Finish
Wood is finished smooth with three coats of stain to both color and protect the wood, optionally available with a brushed finish. BEGA can supply you with wood stain for maintenance up to 20 years after purchase.

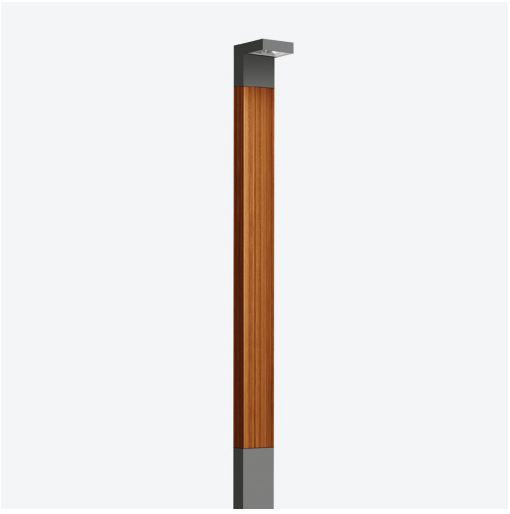
Available colors
☐ Brume
☐ Copper
☐ Ferrare oak
☐ Original mineral
☐ Tyrol pine
☐ Chestnut
☐ Dark mineral
☐ Light mineral
☐ Rustic (brushed)

Available options

☐ 70895	Direct burial anchorage
☐ CUS	Custom finish
☐ DALI	DALI dimming
☐ FSC	Fusing
☐ RAL	RAL finish

Included (available for pre-shipment)

☐ B79802	Anchorage kit



BEGA 1000 BEGA Way, Carpinteria, CA 93013 (805) 684-0533 info@bega-us.com

Due to the dynamic nature of lighting products and the associated technologies, luminaire data on this sheet is subject to change at the discretion of BEGA North America. For the most current technical data, please refer to bega-us.com
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Updated 12/13/22

HALEY ALDRICH

www.haleyaldrich.com

GEOTECHNICAL DATA REPORT
FORESIDE BLOCK FOUR DEVELOPMENT
58 FORE STREET
PORTLAND, MAINE

by
Haley & Aldrich, Inc.
Portland, Maine

for
PF Four Devco, LLC.
Portland, Maine

File No. 39486-881
October 2022

HALEY & ALDRICH, INC.
75 Washington Avenue
Suite 1A
Portland, ME 04101
207.482.4600

19 October 2022
File No. 39486-881

PF Four Devco, LLC.
Merrill's Wharf
254 Commercial Street, Suite 118
Portland, Maine 04101

Attention: David Senus, P.E.
Director of Planning and Design

Subject: Geotechnical Data Report
Foreside Block Four Development
58 Fore Street
Portland, Maine

Ladies and Gentlemen:

Haley & Aldrich, Inc. (Haley & Aldrich) is pleased to submit this Geotechnical Data Report (GDR) to PF Four Devco, LLC., which presents the results of previous and recent subsurface exploration and laboratory testing programs that were completed in support of the subject project. This GDR has been prepared to provide planning and design level geotechnical information to the project team for use during the design development (DD) and construction document (CD) preparation phases of the project. We have coordinated our work with the following project team members:

- PF Four Devco, LLC. (PFDC) — Owner
- Consigli Construction Company, Inc. (Consigli) — Construction Manager
- Perkins & Will (P&W) — Architect
- Thornton Tomasetti (TT) — Structural Engineer
- Woodard & Curran (W&C) — Civil & Environmental Engineer

This work was undertaken at your request in accordance with our subconsultant agreement dated 4 August 2022, which was authorized by you on 7 September 2022.

Please note that some of the information presented herein has also been included in documents that were previously prepared and issued by Haley & Aldrich for different portions of the Foreside Development project. The intent of this GDR is to compile all known subsurface data that has been collected within and near the Block Four building footprint into a single document that can be referenced by the project team. Memoranda and/or reports that summarize foundation support and geotechnical design recommendations needed to complete the final design and CD preparation phases of the project will be provided separately.

Elevations

Elevations referenced herein are in feet and reference Portland City Datum (PCD). Portland City Datum relates to tidal datum at the site as follows:

MHHW = El. 5.4 PCD
MLLW = El. -4.5 PCD

Please note that this tidal information is not site-specific and is taken from National Oceanic Atmospheric Administration (NOAA) tidal station No. 8418150 located on the Maine State Pier, Portland, Maine. This is the NOAA tidal station closest to the site. Actual tidal datum elevations at the site may vary slightly from those shown.

Site Location, Existing Site Conditions and Historic Site Development

The Portland Company complex (site) is located at 58 Fore Street, in the northeastern part of the Portland waterfront and at/near the base of Munjoy Hill as shown in Figure 1, Project Locus. Based on our review of the existing conditions base plan prepared by Owen Haskell, Inc., dated 7 July 2016, we understand that the entire site is approximately 10-acres, which has been subdivided into six development "blocks", each of which will contain existing and/or proposed buildings of varying size. The subject project (Block Four) is located in the eastern portion of the site and is bound by Fore Street to the north, private property (Trettel) to the east, Block Five to the south and Block Two to the west.

The western and southern portions of the site are generally flat with site grades ranging between approximately El. 15 and El. 17. The ground surface in the eastern and northern portions of the site slopes steeply upwards toward Fore Street and Munjoy Hill to approximately El. 75 to El. 85. An existing, approximate 350-ft long granite block retaining wall (wall) is present along a portion of the northern boundary of Block Four, which provides grade separation between the site and Fore Street.

Based on our review of historic drawings that were obtained from the City of Portland (City; see Appendix D), it is our understanding that the wall was originally constructed in 1873 and ranged in height from approximately 0 to 30 ft. The historic drawings also indicate that the base of the wall was founded on soils within approximately 5 ft of the "pre-construction" ground surface. An additional historic drawing also suggests that a 75-ft long portion of the wall was reconstructed in 1896 for unknown reasons. The reconstructed portion of the wall is generally located near the western edge of the Block Four footprint (see Figure 2 for approximate location). The reconstructed wall typically consists of a mortared granite block lower section and a dry-laid granite block upper section with regularly spaced weep pipes to drain water from behind the wall.

Multiple buildings ranging in height from one to three stories formerly occupied the site. It is our understanding that Building 5 was recently demolished as part of sitework that was completed to prepare for the Block Four development. It is unknown whether any of the demolished buildings (including Building 5) contained below-grade (basement) space, but we anticipate that most of the buildings had at grade, soil-supported slabs-on-grade as the lowest level floor slab. In general, it is our

understanding that the finished floor slab elevations (FFEs) of the buildings were generally within a few feet of the existing exterior ground surface adjacent to the buildings.

Numerous existing overhead (electric) and underground (gas, stormwater, water and sanitary sewer) utilities are present on the site and existing gas and sewer lines are located within Fore Street. Based on our review of as-built drawings included in Appendix D, we understand that the existing Fore Street sewer consists of a 36-in. diameter brick pipe that ranges in invert elevation from approximately El. 12 near the site entrance from Fore Street to approximately El. 19 near the western edge of Building 24. At that point, the sewer transitions to a 24-in. diameter vitrified clay pipe, that ranges in invert elevation up to approximately El. 76 near Atlantic Street. It is unknown when the sewer was originally constructed however a portion west of Waterville Street was re-constructed in 1936.

It is also our understanding that the City recently completed construction of a replacement storm drain along Fore Street adjacent to the northern portion of the Block Four building. The new, 3 to 4 ft diameter storm drain runs roughly parallel to, and approximately 25 ft from the northern site property line, a depth of approximately 8 to 9 ft below Fore Street roadway grade (to invert of pipe). Several new 6-ft diameter manholes were also installed along the new storm line alignment with bottom of structure approximately 10 ft below roadway grade. Several new catch basin structures were also installed along the southern curb line of Fore Street (approximately 10 ft from the northern site property line) with bottom of structure approximately 4 to 6 ft below roadway grade. Civil site plans for the recent storm drain replacement project are included in Appendix D.

Based on our review of historical Sanborn maps of the site that are also provided in Appendix D, it appears that the site has been generally unchanged since 1886 except for the wall reconstruction work that was completed in 1896.

Existing site conditions are shown in Figure 2, Site and Subsurface Exploration Location Plan.

Proposed Development

Based on our review of the DD set of drawings, prepared by P&W, dated 16 September 2022, it is our understanding that PFDC is proceeding with the design and permitting associated with the Block Four Development, which will generally include the following key elements:

- An approximate 2,000 square foot (sf), six-story Townhouse, which includes ground floor retail space and five above-grade levels of residential units.
- An approximate 84,000 sf, eight to nine-story Parking/Residential structure, which includes four to five levels of residential units on top of four levels of structured parking.

Please refer to Figure 2 for the location of the Townhouse and Parking/Residential structure footprints. The following FFEs for the Townhouse and Parking/Residential structures have been established by the project team, were developed for the DD submission, and were provided to us by P&W in an email received on 22 September 2022:

Level	Proposed Finish Floor Elevation	
	Townhouse	Parking/Residential Structure
1	El. 16	El. 15 to El. 16*
2	El. 27.5	
3	El. 38.0	
4	El. 48.5	
5	El. 60.8	
6	El. 71.5	
7	NA	El. 82.4
8	NA	El. 93.2
9	NA	El. 104.0

* Note that FFE is at El. 10 at connection into the space below the podium at column line L-10/L-11.

In addition to the key elements described above, ancillary site improvements will include stormwater management, site roadways and parking areas, and utility infrastructure (i.e., water, sewer, natural gas, electricity) needed to service the proposed development.

Subsurface Exploration Programs

Multiple subsurface exploration programs have been completed at the site. Test boring explorations were drilled at the site by others in 2007 to support preliminary geotechnical evaluations for a development previously considered by a former site owner. In late 2016/early 2017, early to mid-2019, and early and late 2022 Haley & Aldrich completed subsurface investigation programs in support of the subject project.

A Haley & Aldrich geologist or geotechnical engineer was present on site to monitor the explorations and to document the soil, rock, and groundwater conditions encountered, and prepare exploration logs. Soil and rock samples collected from the subsurface explorations completed under the direction of Haley & Aldrich were preserved in glass jars and wooden boxes and are currently being stored in our laboratory facility in Portland and are available for review upon request.

Each exploration program is discussed in detail in the following sections of this GDR. The plan locations of the explorations are shown graphically on Figure 2 and exploration logs are provided in Appendix A.

2022 HALEY & ALDRICH EXPLORATION PROGRAM

Subsurface exploration programs were completed at the site in March/April 2022 and again in September 2022 in support of the Block Six and Block Four developments, respectively.

The March/April 2022 Block Six program consisted of eleven test borings, designated HA22-1(OW) through HA22-11, that were drilled by New England Boring Contractors (NEBC) of Hermon, Maine. Only test borings HA22-1(OW) and HA22-9 was drilled near Block Four and are discussed herein.

The September 2022 program consisted of 12 test borings, designated HA22-101 through HA22-112, that were drilled by Northern Test Borings, Inc. (NTB) of Gorham, Maine. Only test borings HA22-101 through HA22-104 and HA22-112 were drilled within or near Block Four and are discussed herein. Please note that test borings HA22-105 through HA22-107 could not be completed because the proposed locations were inaccessible. These areas will require earthwork to re-grade existing stockpiled material so that the locations can be safely accessed. These three test borings as well as test pits needed to determine the bottom of the existing, lower cast-in-place (CIP) concrete retaining wall present within the limits of proposed Townhouse footprint will be completed at a later date.

Test borings were advanced using cased-wash drilling methods through overburden soils and were terminated in bedrock at depths ranging from approximately 12 to 45 ft below ground surface (BGS) using a Mobile Drill B-53 track-mounted (March and April 2022 exploration program) and Diedrich D-50 track-mounted (September 2022) drill rigs and 4-in. outside diameter (OD) steel casing.

Soil samples were collected continuously through man-placed fill soils and at standard, 5-ft intervals thereafter (i.e., in naturally-deposited soils present below the fill) by driving a 1-3/8-in. inside diameter (ID) split-spoon sampler with a 140-lb hammer dropped from a height of 30 in., as indicated on the test boring logs. The number of hammer blows required to advance the sampler through each 6-in. interval was recorded and is provided on the logs. The uncorrected SPT N-value (N-uncorrected) is defined as the total number of blows required to advance the sampler through the middle 12 in. of the 24-in. sampling interval (24-in. long split-spoon sampler).

A photoionization detector (PID) was used by W&C personnel during the March/April 2022 program to screen select soil samples (primarily fill samples) that were recovered from some of the test borings to determine the presence of volatile organic compounds (VOCs).

All test borings were advanced approximately 5 to 6 ft into bedrock using a roller cone and/or a 2.0-in. (NW-size) ID diamond-tipped core barrel.

2019 HALEY & ALDRICH EXPLORATION PROGRAM

Test Borings

A site-wide subsurface exploration program was completed in January 2019 and from May to July 2019. In total, the programs consisted of 28 test borings, designated HA19-1 through HA19-30. Please note that test borings HA19-6 and HA19-7 were not drilled due to property access issues. Only test borings HA19-4, HA19-5, HA19-9 through HA19-11, and HA19-14 through HA19-21 were drilled within or near Block Four and are discussed herein.

Test borings were drilled by NEBC, advanced using cased-wash drilling methods through overburden soils and terminated in bedrock at depths ranging from approximately 12 to 64 ft BGS. Borings were drilled using a combination of a Mobile Drill B-52 track-mounted drill rig, a Simco 2400 track-mounted drill rig or a Mobile Drill B-52 truck-mounted drill rig, and 3-in. OD and/or 4-in. OD steel casing.

Soil samples were collected using similar means and methods to those collected during the 2022 subsurface exploration program, which are described in the previous section of this GDR. Similar to the 2022 subsurface exploration program described above, a PID was used by Haley & Aldrich in the field to screen for the presence of VOCs in the recovered man-placed fill soil samples. PID readings are shown on the test boring logs provided in Appendix A.

All test borings were advanced approximately 5 to 13 ft into bedrock using a 2.0-in. (NQ-size) ID diamond-tipped core barrel.

Observation wells were installed in completed boreholes HA19-10(OW) and HA19-15(OW) to provide information on the static groundwater level at the site. The observation wells consisted of 2-in. ID, machine-slotted PVC well screen and solid PVC riser pipe cut just below the protective covering. The annular space between the slotted PVC and the borehole was backfilled with filter sand. To protect the well from damage, the observation wells were outfitted with a flush-mounted steel roadway box. The observation well installation and groundwater monitoring reports are provided in Appendix B.

Test Pits

Four test pits, designated HA19-TP1 through HA19-TP4, were excavated on 10 December 2019 along the base of the eastern end of the existing granite block retaining wall that provides grade separation between Fore Street and the Block Four site (see Figure 2 for approximate locations). The test pits were excavated to observe the condition of the below grade portion of the wall, determine the depth (and elevation) of the bottom of the wall, and document the soil and groundwater conditions encountered within the limits of the excavations. Please note that proposed bottom of wall level is shown on the historic drawings provided in Appendix D.

The test pits were hand-excavated by PFDC on 10 December 2019 to depths ranging from approximately 1 to 3.5 ft BGS.

A Haley & Aldrich geotechnical engineer was on-site to observe and document the conditions encountered, which are summarized in subsequent sections of this GDR. Test pit photographs are also provided in Appendix A.

2016/2017 HALEY & ALDRICH EXPLORATION PROGRAM

A subsurface exploration program consisting of ten test borings, designated HA16-1(OW) through HA16-10, and two test pits, designated HA16-TP1 and HA16-TP2 was completed under the direction of Haley & Aldrich in December 2016 and January 2017. Only test borings HA16-1(OW), HA16-2, HA16-9, and HA16-10 were drilled within or near Block Four and are discussed herein.

Test borings were drilled by NEBC, advanced using cased-wash drilling methods through overburden soils, and terminated in bedrock at depths ranging from approximately 12 to 74 ft BGS using a Mobile Drill B-53 track-mounted drill rig and 3-in. OD and/or 4-in. OD steel casing.

Soil samples were generally collected using similar means and methods to those collected during the design phase subsurface exploration program, which are described in the previous section of this GDR.

A PID was also used in the field by Haley & Aldrich to screen for the presence of VOCs in the recovered man-placed fill soil samples. Elevated PID readings, if detected, were recorded, and are shown on individual test boring logs provided in Appendix A.

The test borings were advanced approximately 5 to 10 ft into bedrock using a 2.0-in. (NQ-size) ID diamond-tipped core barrel.

One observation well was installed in completed borehole HA16-1(OW) to provide information on the static groundwater level at the site. The observation well consisted of 2-in. ID, machine-slotted PVC well screen and solid PVC riser pipe cut just below the protective covering. The annular space between the slotted PVC and the borehole was backfilled with filter sand. To protect the well from damage, the observation well was outfitted with a steel guardpipe. The observation well installation and groundwater monitoring reports are provided in Appendix B.

2007 EXPLORATION PROGRAM BY OTHERS

As previously discussed, a subsurface exploration program was completed by others in support of a development previously considered by a former site owner. The program generally consisted of the following:

- Eight test borings, designated B-1 through B-8, and two auger probes, designated P-1 and P-2. Only test boring B-4 and auger probe P-1 were completed within or near Block Four and are discussed herein.
- The test borings and auger probes were drilled by Great Works Test Boring, Inc. of Rollingsford, New Hampshire during the period 24 to 26 September 2007 under the direction of S.W. Cole Engineering, Inc. (SWC).
- The test boring and auger probe were drilled through overburden soils and were terminated on refusal surfaces at depths ranging from approximately 11 to 13 ft BGS using cased-wash drilling methods and 4-in. OD steel casing or “probe augers”. Soil samples were generally collected at standard 5-ft intervals using similar methodology to that summarized in the previous section of this GDR. No information was provided on the boring/probe logs regarding drill rig type or the OD of the “probe augers”.

Subsurface Conditions

The subsurface conditions encountered at the site generally consist of man-placed fill soils overlying naturally-deposited marine and glacial till soils and bedrock. A general description of soil, bedrock and groundwater conditions encountered in the test borings is provided below. Additional details are provided on the individual test boring logs, in rock core photographs and in observation well installation and groundwater monitoring reports provided in Appendices A and B, respectively. In addition, a summary of the soil units and strata thicknesses encountered within each test boring that was

completed at the project site is provided in Table I. Estimated ground surface elevation, fill thickness and marine deposit thickness information is also shown graphically next to each test boring symbol on Figure 2. Please refer to the interpretive subsurface profiles shown on Figure 3 for a simplified, graphical representation of the subsurface conditions across portions of the site.

Please note that soil descriptions provided on the test boring logs do not represent actual field conditions other than at the specific test boring locations. Actual conditions encountered between test boring locations will vary from those described herein, shown in Table I and shown on Figures 2 and 3.

SOIL CONDITIONS

A summary of the soil unit thicknesses and conditions encountered in the test borings drilled within the Block Four development area under the direction of Haley & Aldrich are summarized below.

Geologic Unit		Approximate Encountered Thickness (ft)	Generalized Description
Fill		2 to 21	very loose to very dense silty SAND (SM) with varying amounts of gravel; poorly-graded SAND (SP ,SP-SM) with varying amounts of gravel and silt; well graded SAND (SW-SM, SW) with varying amounts of silt and gravel; well graded GRAVEL (GW) with varying amounts of silt and sand; silty gravel (GM); medium dense sandy SILT (ML); portions of the layer in some test borings contained cobbles, roots, wood, coal fragments, ash, iron slag, brick fragments, mortar, and concrete. Substantial ASH with sand was encountered in test boring HA19-17. *(encountered in each test boring; generally thicker in Fore Street and in borings drilled closer to the water)*
Marine Deposit	Granular	3 to 16	very loose to medium dense clayey SAND (SC) with varying amounts of gravel; silty SAND (SM) with varying amounts of gravel; poorly-graded SAND (SP, SP-SM) with varying amounts of silt and gravel; well graded SAND (SW) (t*ypically encountered in test borings drilled in the southwestern portion of the Block Four footprint; see Figure 2)*
	Cohesive	4 to 20	very soft to stiff sandy SILT (ML) with varying amounts of gravel *(only encountered in test borings HA19-4, HA19-14)*
Glacial Till		1 to 60	medium stiff to hard SILT (ML) with varying amounts of sand and gravel; very loose to very dense silty SAND (SM) with varying amounts of gravel; well graded GRAVEL (GW) with sand; poorly graded GRAVEL (GP) with sand; well graded SAND (SW-SM) with gravel and silt; portions of the deposit in some test borings contained frequent cobbles and boulders (*encountered in each test boring except HA16-9, HA19-11 HA19-18, HA19-21, HA22-1(OW), and HA22-101)*
Bedrock		top of bedrock surface encountered between 5 and 64 ft BGS (approx. El. 18 and El. -27) *(bedrock was sampled/cored in each test boring)*	

BEDROCK CONDITIONS

As stated previously, approximately 5 to 13 ft of bedrock was sampled in each test boring. Where encountered and as shown in Table I the top of bedrock surface varied between approximately 5 ft and 64 ft BGS (El. 18 and El. -27) and generally slopes down from north to south and from west to east. The elevation of the top of weathered bedrock or competent bedrock surface, whichever is shallower, is shown graphically next to each test boring symbol on Figure 2 and is also shown on the interpretive subsurface profiles on Figure 3.

The sampled and recovered bedrock generally consists of moderately hard to very hard, fresh to moderately weathered PHYLLITE, SCHIST and/or QUARTZITE.

Rock quality designation (RQD) is a common parameter that is used to help assess the competency of sampled bedrock. RQD is defined as the sum of pieces of recovered bedrock greater than 4 in. in length divided by the total length of the recovered bedrock core run. RQD values for bedrock encountered at the site range from 0 to 100 percent (average RQD approximately 47 percent).

More detailed information on the sampled and recovered bedrock is provided on the test boring logs in Appendix A. Photographs of the sampled and recovered bedrock referenced herein are also provided for reference in Appendix A.

GROUNDWATER CONDITIONS

As discussed in previous sections of this GDR, observation wells were installed in several boreholes that were completed in 2016 and 2019 under the direction of Haley & Aldrich. The observation wells were installed to provide information on the static groundwater levels at the site. After installation, each observation well was “developed”, which included removal of all water present within the well casing in an effort to eliminate the potential effects that drilling means/methods may have had on the previously (prior to development) measured water levels. Measured water levels prior to and after development of each observation well are summarized in the table below. Please note that water level measurements in observation wells installed during the 2016/2017 and 2019 subsurface explorations were collected only during the periods noted. Observation well installation and groundwater monitoring reports for the wells are provided in Appendix B.

Observation Well No.[1]	Approximate Ground Surface Elevation	Approximate Range in Measured Water Levels (ft)				Data Collection Period
		Pre-Development		Post-Development		
		Depth BGS	Elevation	Depth BGS	Elevation	
HA16-1(OW)	75.0	11.4 to 13.3	61.8 to 63.6	8.8 to 15.1	59.9 to 66.2	12/23/2016 to 2/3/2017; 4/5/2022 to 10/17/2022
HA19-10(OW)	17.0	1.5	15.5	1.7	15.3	6/28/2019
HA19-15(OW)	16.0	2.9	13.1	2.5 to 5.1	10.9 to 13.5	6/28/2019 to 11/8/2019
HA22-1(OW)	12.8	8.7 to 8.9	3.9 to 4.1	3.4 to 4.1	8.7 to 9.4	3/30/2022 to 5/5/2022; 9/7/2022 to 10/17/2022

Notes:
[1] – Observation wells HA19-10(OW) and HA19-15(OW) were destroyed during Building 5 demolition.

In general, water levels may fluctuate with season, precipitation, local soil/bedrock conditions, excavation means and methods, temperature, and tidal conditions. Therefore, actual water levels encountered during construction may vary from those summarized above, provided on the testing boring logs included in Appendix A and shown on the groundwater monitoring reports in Appendix B.

Geotechnical Laboratory Testing

A geotechnical laboratory testing program was undertaken on representative soil samples collected during the 2016/2017 and 2022 subsurface exploration programs to aid in soil classification, determination of engineering properties and evaluation of soil reuse potential. A total of 16 grain size analyses were performed on soil samples collected from test borings drilled within or near Block Four and are discussed herein. Laboratory testing was performed in accordance with applicable American Society for Testing Materials (ASTM) testing procedures by GeoTesting Express of Acton, Massachusetts (2016/2017 borings) and R.W. Gillespie & Associates, Inc. of Biddeford, Maine (2022 borings). Laboratory test results are summarized below and complete results are provided in Appendix C.

Laboratory Test	ASTM Test Designation	Soil Unit	No. of Tests	Range in Test Results
Grain Size	ASTM D 422	Fill	8	AASHTO Classification: A-1-b, A-2-4 USCS Classification: SM, SP
		Glacial Till	8	AASHTO Classification: A-1-b, A-2-4, A-4 USCS Classification: SM

In addition to the laboratory test results summarized above, one soil sample obtained from test boring B-4, which was drilled by SWC in 2007, was submitted for grain size analysis. The analysis report is provided for reference in Appendix C.

Existing Retaining Wall Conditions

As previously mentioned, several hand-excavated test pits were conducted along the base of the eastern portion of the existing granite block retaining wall. The test pits were completed to observe the condition of the below grade portion of the wall, determine the wall depth (and elevation) of the bottom of the wall, and document the soil and groundwater conditions encountered within the limits of the excavations. This information will be important when determining the design and construction requirements for the permanent support of excavation (SOE) system that will need to be installed near the eastern end of the existing granite block wall to facilitate construction of the Block Four building. A summary of the test pit excavations is provided below.

Test Pit No.[1]	Closest Structural Column Line	Observations[2]
HA19-TP1	6.3	• Existing ground surface approximately 22.3 ft below top of wall. • Test pit dimensions approximately 2 ft x 2.5 ft x 3.5 ft. • Bottom of wall approximately 3 ft BGS; approx. El. 44 • Glacial till soils observed below bottom of wall; no water observed.
HA19-TP2	6.7	• Existing ground surface approximately 19.9 ft below top of wall. • Test pit dimensions approximately 2 ft x 1 ft x 3 ft. • Bottom of wall approximately 2.3 ft BGS; approx. El. 49.7 • Glacial till soils observed below bottom of wall; no water observed.
HA19-TP3	6.9	• Existing ground surface approximately 13.4 ft below top of wall. • Test pit dimensions approximately 1.5 ft x 1.5 ft x 2 ft. • Bottom of wall approximately 1.3 ft BGS; approx. El. 57.7 • Glacial till soils observed below bottom of wall; no water observed.
HA19-TP4	8	• Existing ground surface approximately 2 to 2.5 ft below top of wall. • Test pit dimensions approximately 2 ft x 2.5 ft x 1.5 ft. • Bottom of wall approximately 0.5 to 1 ft BGS; approx. El. 72 • Glacial till soils observed below bottom of wall; no water observed.

Notes:
[1] – Approximate test pit locations are shown on Figure 2.
[2] – Approximate bottom of wall elevations determined by subtracting the approximate bottom of wall depth from the existing ground surface elevation at each test pit location, which was estimated by interpolating between ground surface elevation contours shown on Figure 2 and rounded down to the nearest foot.

Test pit photographs are provided for reference in Appendix A.

Limitations

This GDR has been prepared for the exclusive use of PFDC for the Foreside Block Four Development in Portland, Maine. There are no intended beneficiaries other than PFDC. Use of this GDR by any person or entity other than of PFDC for any purpose whatsoever is expressly forbidden unless such other person or entity obtains written authorization from PFDC and from Haley & Aldrich. Use of this GDR by such other person or entity without the written authorization PFDC and Haley & Aldrich shall be at such other person's or entities sole risk and shall be without legal exposure or liability to Haley & Aldrich.
Use of this GDR by any person or entity, including by PFDC, for a purpose other than relative to the Foreside Block Four Development in Portland, Maine is expressly prohibited unless such person or entity obtains written authorization from Haley & Aldrich indicating that the GDR is adequate for such other use.

The information provided herein is based, in part, upon the data obtained from the referenced subsurface explorations. The nature and extent of variations between explorations may not become evident until construction. If variations then appear, it may be necessary to reevaluate the information presented in this GDR and/or geotechnical recommendations for the proposed improvements.

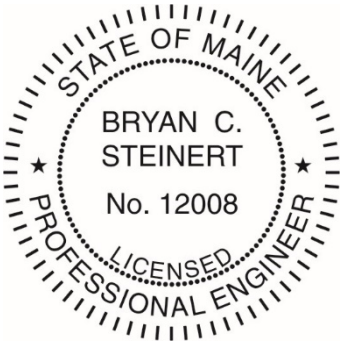
Closure

We appreciate the opportunity to provide geotechnical engineering services on this project. Please do not hesitate to call if you have any questions or comments.

Sincerely yours,
HALEY & ALDRICH, INC.

Tucker Jones, P.E.
Geotechnical Engineer

Bryan C. Steinert, P.E.
Senior Project Manager



Wayne A. Chadbourne, P.E.
Principal

Enclosures:

Figure 1 – Project Locus
Figure 2 – Site and Subsurface Exploration Location Plan
Figure 3 –Subsurface Profile A-A and B-B
Appendix A – Test Boring Logs and Rock Core Photographs
Appendix B – Observation Well Installation and Groundwater Monitoring Reports
Appendix C – Laboratory Test Results
Appendix D – Historic Drawings and Sanborn Maps

References

1. Report entitled, “Geotechnical Data Report, Foreside Block 6 Development, 58 Fore Street, Portland, Maine,” prepared by Haley & Aldrich, Inc., dated 18 May 2022.

2. Memorandum entitled, “Preliminary Geotechnical Design Memorandum, Foreside Block Four Development, 58 Fore Street, Portland, Maine,” prepared by Haley & Aldrich, Inc., dated 30 December 2019.

3. Report entitled, “Geotechnical Data Report, Foreside Development, 58 Fore Street, Portland, Maine,” prepared by Haley & Aldrich, Inc., dated 20 December 2019.

4. Report entitled, “Preliminary Geotechnical Design Report, Portland Company Redevelopment, 58 Fore Street, Portland, Maine,” prepared by Haley & Aldrich, Inc., dated 4 May 2017.

5. Report entitled, “Preliminary Geotechnical Investigation, Proposed Development, Portland Yacht Services Property, 58 Fore Street, Portland, Maine,” prepared by S.W. Cole Engineering, Inc. for Portland Yacht Company, dated 6 November 2007.

TABLE I
Subsurface Exploration Stratigraphic Data
Foreside Block Four Development
58 Fore Street
Portland, Maine

Haley & Aldrich, Inc. File No.: 39486-881

Test Boring No.[1]	Approx. Ground Surface Elevation[2,3] (ft)	Stratigraphic Data[3,4]													Approximate Depth of Bottom of Exploration (ft)	Approximate Elevation of Bottom of Exploration[2,3]
		Bituminous Concrete/Topsoil/Fill			Marine Deposit			Glacial Till Deposit			Weathered Bedrock			Bedrock		
		Depth to Top (ft)	Elev. of Top (ft)	Thickness (ft)	Depth to Top (ft)	Elev. of Top (ft)	Thickness (ft)	Depth to Top (ft)	Elev. of Top (ft)	Thickness (ft)	Depth to Top (ft)	Elev. of Top (ft)	Thickness (ft)	Depth to Top (ft)	Elev. of Top (ft)	
HA16-1(OW)	75.0	0.0	75.0	4.0	NE	NE	NE	4.0	71.0	59.8	NE	NE	NE	63.8	11.2	74.2	0.8
HA16-2	14.5	0.0	14.5	4.6	NE	NE	NE	4.6	9.9	12.8	NE	NE	NE	17.4	-2.9	22.4	-7.9
HA16-9	14.5	0.0	14.5	5.6	NE	NE	NE	NE	NE	NE	NE	NE	NE	5.6	8.9	11.5	3.0
HA16-10	13.5	0.0	13.5	4.5	NE	NE	NE	4.5	9.0	30.9	NE	NE	NE	35.4	-21.9	40.5	-27.0
HA19-4	53.5	0.0	53.5	11.9	11.9	41.6	28.6	40.5	13.0	3.9	NE	NE	NE	44.4	9.1	55.0	-1.5
HA19-5	74.5	0.0	74.5	10.0	NE	NE	NE	10.0	64.5	49.2	NE	NE	NE	59.2	15.3	64.3	10.2
HA19-9	15.5	0.0	15.5	2.0	NE	NE	NE	2.0	13.5	13.0	15.0	0.5	3.0	18.0	-2.5	28.0	-12.5
HA19-10(OW)	17.0	0.0	17.0	3.5	3.5	13.5	5.0	8.5	8.5	5.2	NE	NE	NE	13.7	3.3	23.0	-6.0
HA19-11	17.0	0.0	17.0	2.0	2.0	15.0	5.3	NE	NE	NE	NE	NE	NE	7.3	9.7	12.5	4.5
HA19-14	13.5	0.0	13.5	2.7	2.7	10.8	3.8	6.5	7.0	6.9	NE	NE	NE	13.4	0.1	18.4	-4.9
HA19-15(OW)	16.0	0.0	16.0	1.5	NE	NE	NE	1.5	14.5	11.0	NE	NE	NE	12.5	3.5	18.5	-2.5
HA19-16	15.0	0.0	15.0	11.0	11.0	4.0	3.0	14.0	1.0	3.4	NE	NE	NE	17.4	-2.4	23.0	-8.0
HA19-17	15.5	0.0	15.5	17.5	NE	NE	NE	17.5	-2.0	1.4	18.9	-3.4	1.4	20.3	-4.8	25.3	-9.8
HA19-18	15.5	0.0	15.5	8.5	8.5	7.0	7.8	NE	NE	NE	NE	NE	NE	16.3	-0.8	21.3	-5.8
HA19-19	16.0	0.0	16.0	1.5	NE	NE	NE	1.5	14.5	3.7	NE	NE	NE	5.2	10.8	11.7	4.3
HA19-20	13.5	0.0	13.5	8.0	8.0	5.5	16.0	24.0	-10.5	16.0	NE	NE	NE	40.0	-26.5	45.5	-32.0
HA19-21	13.5	0.0	13.5	9.0	9.0	4.5	7.5	NE	NE	NE	NE	NE	NE	16.5	-3.0	23.9	-10.4
HA22-1(OW)	12.8	0.0	12.8	20.5	20.5	-7.7	18.6	NE	NE	NE	NE	NE	NE	39.1	-26.3	45.0	-32.2
HA22-9	32.2	0.0	32.2	12.0	NE	NE	NE	12.0	20.2	2.0	NE	NE	NE	14.0	18.2	19.0	13.2
HA22-101	15.7	0.0	15.7	2.0	2.0	13.7	4.6	NE	NE	NE	NE	NE	NE	6.6	9.1	12.0	3.7
HA22-102	15.1	0.0	15.1	14.0	NE	NE	NE	14.0	1.1	0.8	NE	NE	NE	14.8	0.3	20.5	-5.4
HA22-103	15.5	0.0	15.5	6.5	NE	NE	NE	6.5	9.0	3.2	NE	NE	NE	9.7	5.8	15.6	-0.1
HA22-104	14.7	0.0	14.7	11.3	NE	NE	NE	11.3	3.4	2.8	NE	NE	NE	14.1	0.6	19.5	-4.8
HA22-112	33.0	0.0	33.0	6.0	NE	NE	NE	6.0	27.0	11.2	NE	NE	NE	17.2	15.8	22.5	10.5

Notes:

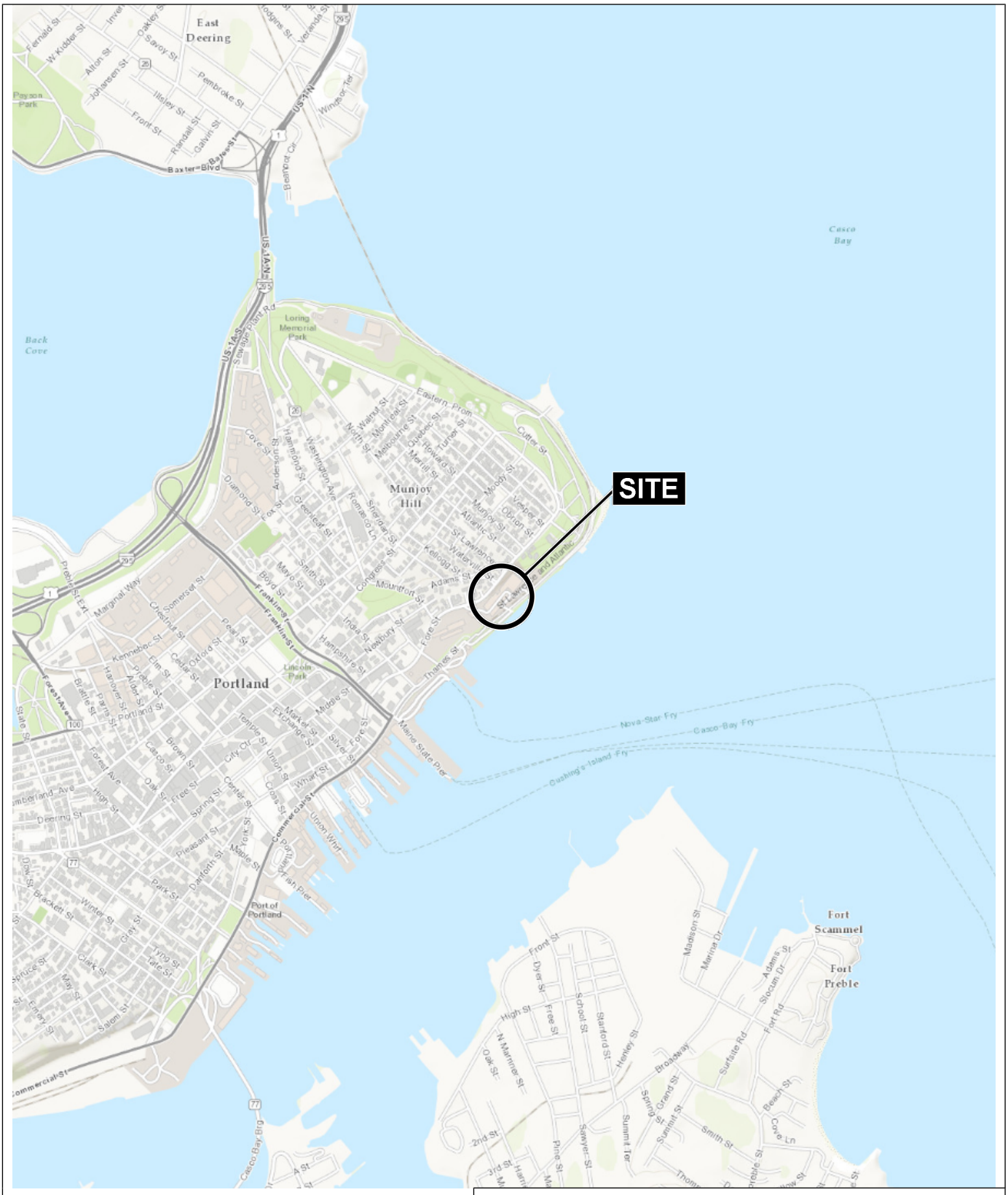
[1] - Test boring locations are shown on Figure 2, Site and Subsurface Exploration Location Plan.

[2] - Ground surface elevations at HA16 and HA19-series test boring locations were estimated by Haley & Aldrich, Inc. by interpolating between ground surface elevation contours provided at the time the test borings were completed (2016 and 2019), have been rounded to the nearest 0.5 ft and are considered approximate. Ground surface elevations at HA22-series test boring locations were determined by Owen Haskell, Inc. upon the completion of drilling using GPS survey equip.

[3] - Elevations are measured in feet and reference the Portland City Datum (PCD).

[4] - "NE" indicates stratum was not encountered in test boring.

	Individual	Date
Prepared By:	TPJ	10/3/2022
Checked By:	BCS	10/6/2022
Reviewed By:	WAC	10/12/2022



MAP SOURCE: ESRI

SITE COORDINATES: 43°39'46"N, 70°14'38"W





HALEY ALDRICH

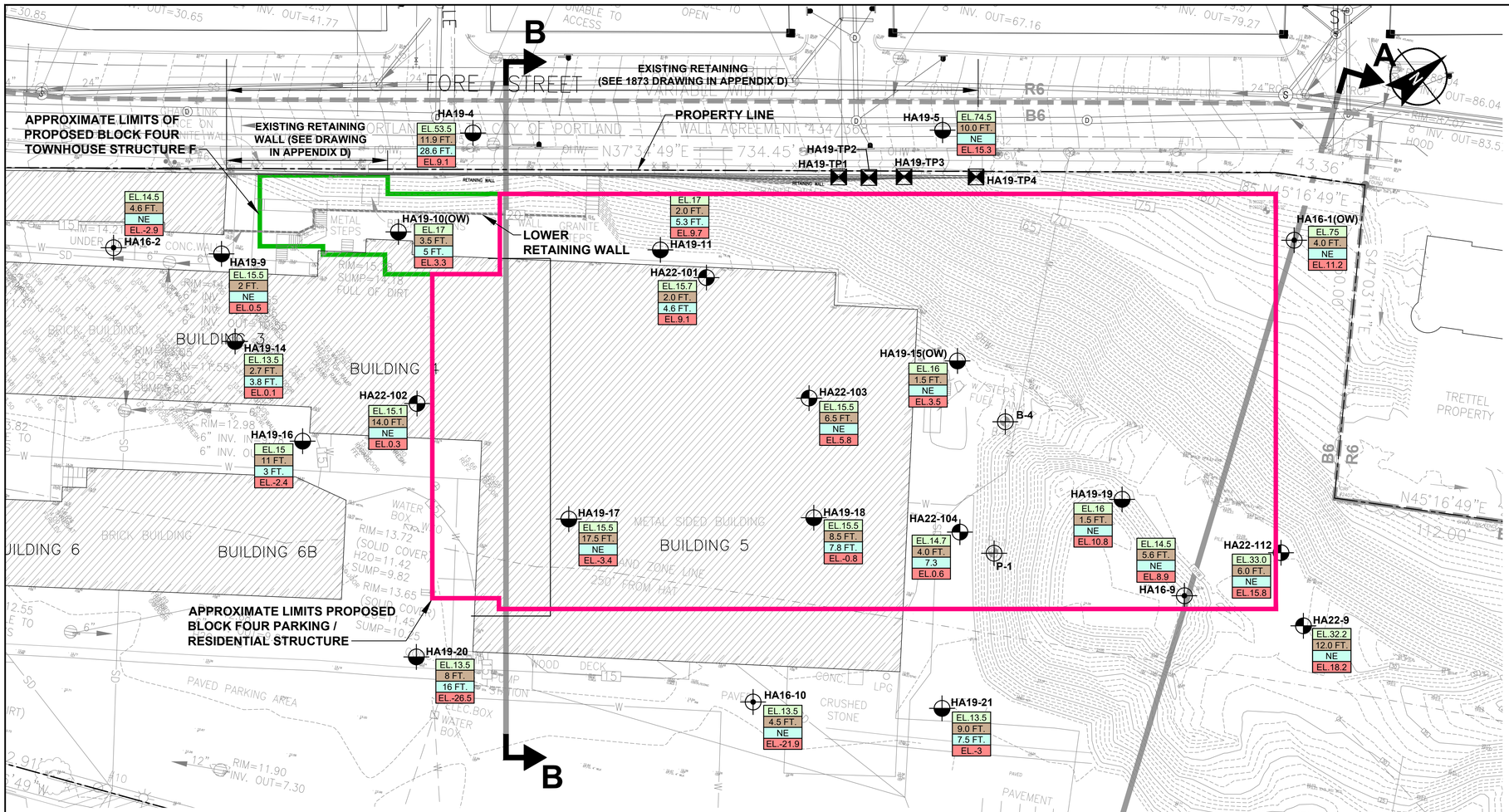
FORESIDE BLOCK FOUR DEVELOPMENT
58 FORE STREET
PORTLAND, MAINE

PROJECT LOCUS

APPROXIMATE SCALE: 1 IN = 2000 FT
OCTOBER 2022

FIGURE 1

39486-872_1_LOCUS.PDF



LEGEND

- **HA22-1 / HA22-101** — DESIGNATION AND LOCATION OF TEST BORING DRILLED BY NEW ENGLAND BORING CONTRACTORS OF HERMON, MAINE (HA22-1 SERIES) AND NORTHERN TEST BORINGS, INC. OF GORHAM, MAINE (HA22-100 SERIES) UNDER THE DIRECTION OF HALEY & ALDRICH, INC. IN MARCH AND APRIL 2022 (HA22-1 SERIES) AND SEPTEMBER 2022 (HA22-100 SERIES)
- **HA19-TP1** — DESIGNATION AND APPROXIMATE LOCATION OF TEST PIT HAND-EXCAVATED BY PORTLAND FORESIDE DEVELOPMENT COMPANY AND OBSERVED BY HALEY & ALDRICH, INC. ON 10 DECEMBER 2019
- **HA19-1** — DESIGNATION AND APPROXIMATE LOCATION OF TEST BORING DRILLED BY NEW ENGLAND BORING CONTRACTORS OF LONDONDERRY, NEW HAMPSHIRE UNDER THE DIRECTION OF HALEY & ALDRICH IN JANUARY AND FROM MAY TO JULY 2019
- **HA16-1** — DESIGNATION AND APPROXIMATE LOCATION OF TEST BORING DRILLED BY NEW ENGLAND BORING CONTRACTORS OF LONDONDERRY, NEW HAMPSHIRE UNDER THE DIRECTION OF HALEY & ALDRICH DURING THE PERIOD 13 DECEMBER 2016 TO 5 JANUARY 2017
- **B-3 / P-1** — DESIGNATION AND APPROXIMATE LOCATION OF TEST BORING AND AUGER PROBE DRILLED BY GREAT WORKS TEST BORING, INC. OF ROLLINGSFORD, NEW HAMPSHIRE UNDER THE DIRECTION OF S.W. COLE ENGINEERING INC. DURING THE PERIOD 24 TO 26 SEPTEMBER 2007
- **(OW)** — INDICATES OBSERVATION WELL INSTALLED IN COMPLETED BOREHOLE
- EXPLORATION DATA BOX
  - EL.75 — APPROXIMATE GROUND SURFACE ELEVATION
  - 4.0 FT. — APPROXIMATE FILL THICKNESS
  - NE — APPROXIMATE MARINE DEPOSIT THICKNESS
  - EL.11.2 — APPROXIMATE TOP OF WEATHERED BEDROCK OR BEDROCK ELEVATION, WHICHEVER IS HIGHER "NE" DENOTES STRATUM NOT ENCOUNTERED
- **A A** — DESIGNATION, LOCATION AND ORIENTATION OF SUBSURFACE PROFILE, SEE FIGURE 3

0 30 60 90 120
SCALE IN FEET

NOTES

1. BASE PLAN CREATED BY HALEY & ALDRICH, INC. USING THE FOLLOWING REFERENCES:
   a. EXISTING GROUND SURFACE ELEVATION CONTOURS AND THE LOCATION AND ORIENTATION OF EXISTING SITE FEATURES ARE TAKEN FROM THE CAD FILE ENTITLED "XR_EX BASE 2022 (COMPILED).DWG" PROVIDED BY WOODARD & CURRAN OF PORTLAND, MAINE ON 2 MAY 2022.
   b. LOCATION AND ORIENTATION OF THE EXISTING FORE STREET RETAINING WALL TAKEN FROM THE CAD FILE ENTITLED "XR_0232341 EXBASE.DWG" PROVIDED BY WOODARD & CURRAN OF PORTLAND, MAINE ON 30 OCTOBER 2019.
   c. LOCATION AND ORIENTATION OF EXISTING STRUCTURES OCCUPYING THE TRETTEL PROPERTY ARE TAKEN FROM THE CAD FILE ENTITLED "PFDC MASTER SITE PLAN V3.DWG" PROVIDED BY WOODARD & CURRAN OF PORTLAND, MAINE ON 29 MARCH 2022.
   d. LOCATION OF "B-4" AND "P-1" EXPLORATIONS COMPLETED UNDER THE DIRECTION OF S.W. COLE ENGINEERING, INC. IN SEPTEMBER 2007 ARE TAKEN FROM THE CAD FILE ENTITLED "XR_227007.03-X00C.DWG" PROVIDED BY WOODARD & CURRAN OF PORTLAND, MAINE ON 2 AUGUST 2016.
   e. PROPOSED BUILDING LAYOUT, IS TAKEN FROM THE CAD FILES ENTITLED "BLOCK 4-SHEET- S1-1-LEVEL 1-FOUNDATION PLAN.DWG", "BLOCK 4-SHEET-S1-2-LEVEL 2 FRAMING PLAN.DWG", "BLOCK 4-SHEET-S1-3-LEVEL 3 FRAMING PLAN.DWG" AND "BLOCK 4-SHEET-S1-4-LEVEL 4 FRAMING PLAN.DWG" PROVIDED BY THORNTON TOMASETTI OF PORTLAND, MAINE ON 29 SEPTEMBER 2022.
2. THE PLAN LOCATION AND ORIENTATION OF THE EXISTING STRUCTURES OCCUPYING THE TRETTEL PROPERTY WERE DETERMINED BY SCALING AND ROTATING REFERENCE DRAWING 1C USING EXISTING PROPERTY LINE INFORMATION AND IS CONSIDERED APPROXIMATE.
3. THE PROPOSED BUILDING LAYOUT, WAS DETERMINED BY SCALING AND ROTATING REFERENCE DRAWINGS 1E USING THE EXISTING LOWER RETAINING WALL INFORMATION THAT IS PRESENT IN THE VICINITY OF THE TOWNHOUSE AND IS CONSIDERED APPROXIMATE.
4. THE LOCATION OF GAS AND SANITARY AND STORM SEWERS IN FORE STREET ARE TAKEN FROM THE CAD FILE ENTITLED "XR_FORE AS BUILT.DWG" PROVIDED BY WOODARD & CURRAN OF PORTLAND, MAINE ON 4 OCTOBER 2022."
5. THE PLAN LOCATIONS OF "HA16" AND "HA19" SERIES TEST BORINGS WERE DETERMINED BY TAPING DISTANCES TO/FROM EXISTING SITE FEATURES AND ARE CONSIDERED APPROXIMATE. THE PLAN LOCATIONS OF "HA22" SERIES TEST BORINGS WERE DETERMINED BY OWEN HASKELL, INC. USING GPS SURVEY EQUIPMENT UPON THE COMPLETION OF DRILLING.
6. GROUND SURFACE ELEVATIONS AT "HA16" AND "HA19" SERIES TEST BORINGS WERE DETERMINED BY HALEY & ALDRICH, INC. BY INTERPOLATING BETWEEN EXISTING GROUND SURFACE TOPOGRAPHIC CONTOUR INFORMATION AVAILABLE AT THE TIME THE TEST BORINGS WERE COMPLETED AND ARE CONSIDERED APPROXIMATE.
7. GROUND SURFACE ELEVATIONS AT "HA22" SERIES TEST BORINGS WERE DETERMINED BY OWEN HASKELL, INC. USING GPS SURVEY EQUIPMENT UPON THE COMPLETION OF DRILLING.
8. ELEVATIONS ARE FEET AND REFERENCE PORTLAND CITY DATUM.
9. REFER TO APPENDIX A FOR TEST BORING AND TEST PIT LOGS AND ROCK CORE PHOTOGRAPHS, APPENDIX B FOR OBSERVATION WELL INSTALLATION AND GROUNDWATER MONITORING REPORTS, APPENDIX C FOR LABORATORY TEST RESULTS, AND APPENDIX D FOR HISTORIC DRAWINGS.

HALEY ALDRICH

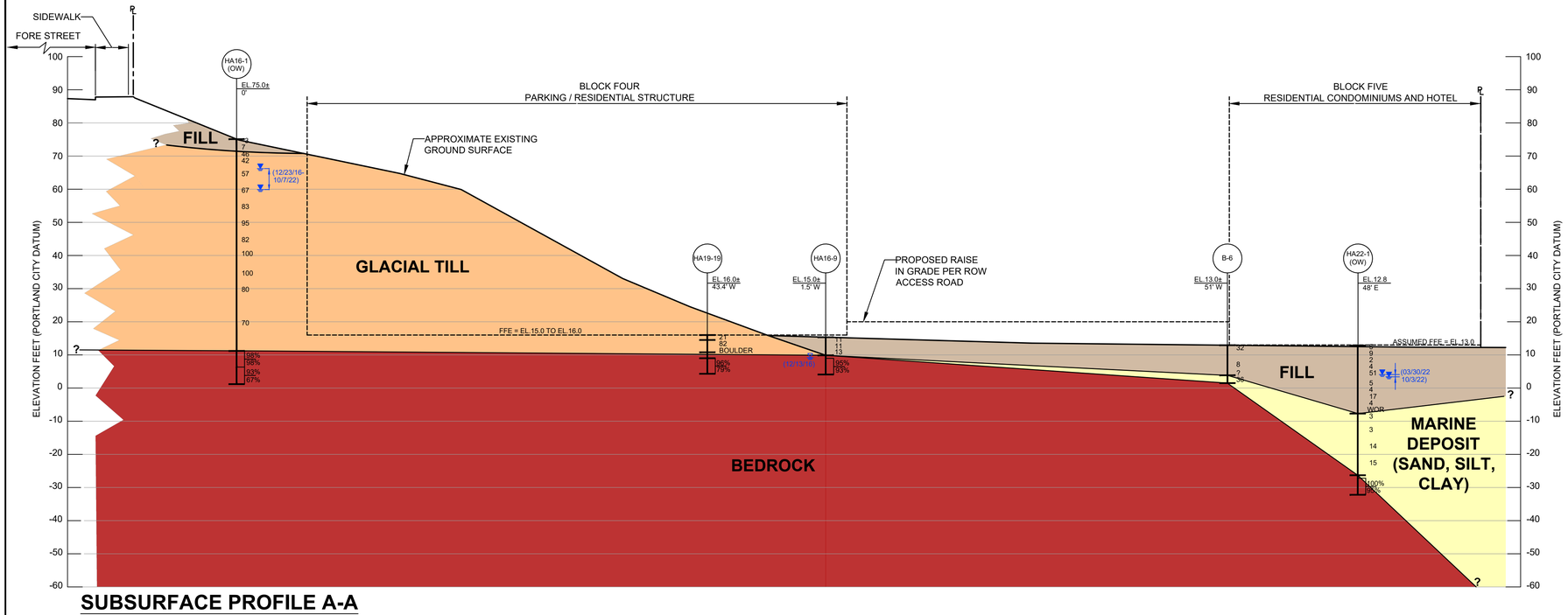
FORESIDE BLOCK FOUR DEVELOPMENT
58 FORE STREET
PORTLAND, MAINE

SITE AND SUBSURFACE EXPLORATION LOCATION PLAN

SCALE: AS SHOWN
OCTOBER 2022

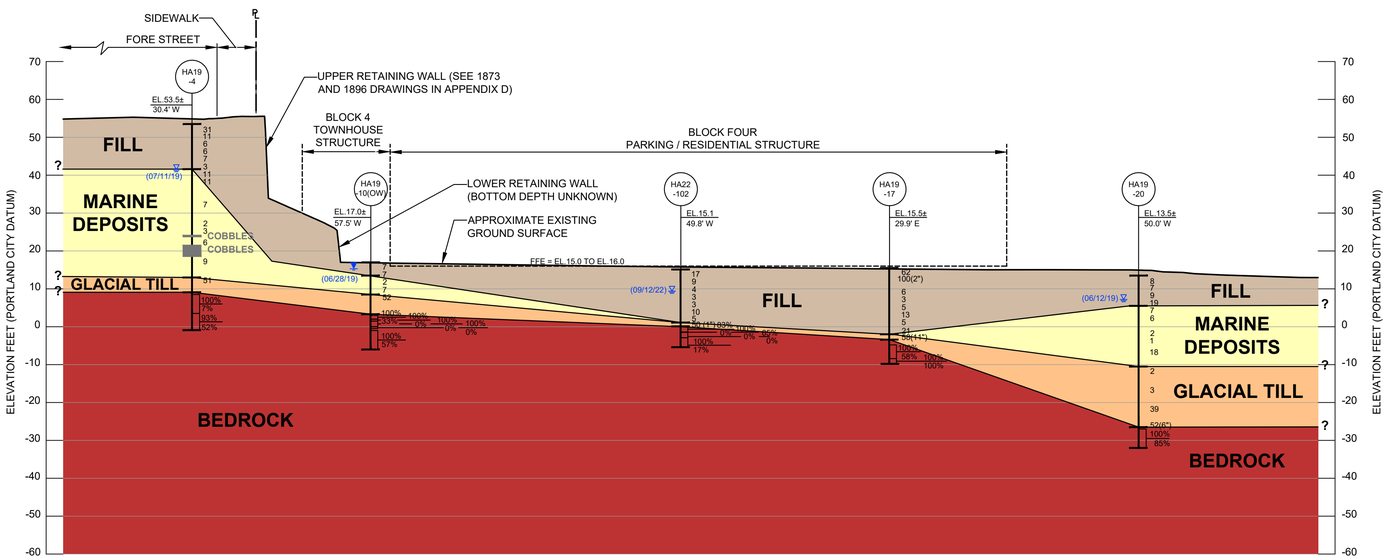
FIGURE 2

Saved by: TAM \\HALEYALDRICH.COM\SHARE\CF\PROJECTS\39486\GLOBAL CAD\39486-882-D014.DWG Printed: 10/19/2022 2:30 PM Sheet: D014



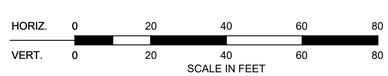
SUBSURFACE PROFILE A-A

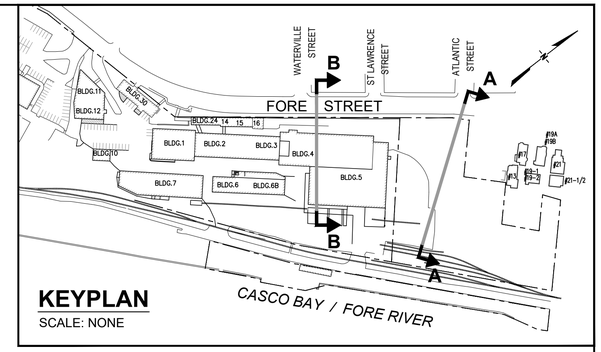
SCALE: AS SHOWN



SUBSURFACE PROFILE B-B

SCALE: AS SHOWN





KEYPLAN

SCALE: NONE

LEGEND

- HA16-1 (OW) — DESIGNATION AND APPROXIMATE LOCATION OF TEST BORING. "OW" INDICATES OBSERVATION WELL INSTALLED IN COMPLETED BOREHOLE
- EL 23.5± / 9' S — APPROXIMATE GROUND SURFACE ELEVATION AT TEST BORING LOCATION; APPROXIMATE PERPENDICULAR OFFSET DISTANCE AND DIRECTION MEASURED FROM THE SUBSURFACE PROFILE LINE
- 29 — SAMPLE OBTAINED BY DRIVING A 1-3/8-INCH I.D. SPLIT SPOON SAMPLER WITH A 140-LB HAMMER. NUMBER INDICATES STANDARD PENETRATION RESISTANCE, "N", UNLESS NOTED OTHERWISE
  - 100/5" = 100 BLOWS, 5 INCHES OF PENETRATION
- INTERPRETED GEOLOGIC STRATUM, DASHED WHERE INFERRED
- 100% / 57% — PERCENT RECOVERY / PERCENT ROCK QUALITY DESIGNATION (RQD)
- BOTTOM OF EXPLORATION
- (DEC. 2016 - FEB. 2017) ▼ — GROUNDWATER LEVEL MEASURED IN OBSERVATION WELL ON DATE SPECIFIED
- (06/12/19) ▽ — WATER LEVEL MEASURED IN BOREHOLE DURING AND/OR AFTER DRILLING ON DATE SPECIFIED

NOTES

1. SEE FIGURE 2 FOR PLAN LOCATION OF EXPLORATIONS SHOWN AND FOR ORIENTATION AND LOCATION OF SUBSURFACE PROFILES.
2. SITE FEATURES, GROUND SURFACE ELEVATIONS AND PLAN LOCATION OF PROPOSED STRUCTURES TAKEN FROM THE ELECTRONIC FILE TITLED, " 58 FORE STREET HA.DWG." PROVIDED TO HALEY & ALDRICH BY WOODARD & CURRAN, DATED 5 JANUARY 2017.
3. SUBSURFACE PROFILES DEPICT THE GENERAL GEOLOGIC CONDITIONS AT THE SITE AND ARE BASED ON INTERPRETATION OF DATA ENCOUNTERED IN THE EXPLORATIONS. LINES REPRESENTING INTERFACES BETWEEN STRATA ON THE PROFILE ARE BASED UPON INTERPOLATION BETWEEN ADJACENT EXPLORATIONS. THIS FIGURE SHOWS THE ACTUAL SEQUENCE OF STRATA ENCOUNTERED AT EACH EXPLORATION LOCATION. ACTUAL SOIL CONDITIONS AND INTERFACES BETWEEN SUBSURFACE EXPLORATIONS MAY VARY SIGNIFICANTLY FROM THOSE INDICATED ON THE PROFILES.
4. MATERIAL DESCRIPTIONS ARE GENERALIZED AND INDICATE SAMPLES WITH A NATURAL DEGREE OF VARIATION. REFER TO THE TEST BORING LOGS IN APPENDIX A FOR INDIVIDUAL SAMPLE DESCRIPTIONS.
5. ELEVATIONS ARE IN FEET AND REFERENCE PORTLAND CITY DATUM.
6. REFER TO APPENDIX A FOR TEST BORING LOGS AND ROCK CORE PHOTOGRAPHS, APPENDIX B OBSERVATION WELL INSTALLATION AND GROUNDWATER MONITORING REPORTS, APPENDIX C FOR LABORATORY TEST RESULTS, AND APPENDIX D FOR HISTORIC DRAWINGS.

HALEY ALDRICH

FORESIDE BLOCK FOUR DEVELOPMENT
58 FORE STREET
PORTLAND, MAINE

SUBSURFACE PROFILE A-A AND B-B

SCALE: AS SHOWN
OCTOBER 2022

FIGURE 3

Printed: 10/19/2022 2:30 PM Sheet: D015
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APPENDIX A

Test Boring Logs and Rock Core Photographs

2022 Haley & Aldrich, Inc.
Test Boring Logs and
Rock Core Photographs

TEST BORING REPORT

Boring No. HA22-1(OW)

Project	Foreside Block 6 Development, 58 Fore Street, Portland, Maine
Client	PF Six Devco, LLC.
Contractor	New England Boring Contractors

File No.	39486-882
Sheet No.	1 of 3
Start	23 March 2022
Finish	23 March 2022
Driller	T. Schaefer
H&A Rep.	T. Jones
Elevation	12.8
Datum	Portland City Datum
Location	See Plan

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HW	S	NQ	Rig Make & Model: Mobile B53 Bombardier #19
Inside Diameter (in.)	4.0	1.375	2.0	Bit Type: Roller Bit
Hammer Weight (lb)	300	140	-	Drill Mud: None
Hammer Fall (in.)	24	30	-	Casing: HW to 39.1 ft
				Hoist/Hammer: Winch Automatic Hammer
				PID Make & Model:

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Casing Blows per ft	Well Diagram	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0	1 2 3 13	S1 5	0.0 2.0	HW Wash Ahead to 20 ft			SW	Loose dark brown well-graded SAND with gravel, mps 0.75 in., no odor, dry		15	20	35	25	5				
								-FILL-										
	7 6 3 3	S2 21	2.0 4.0				SW	Loose black well-graded SAND with gravel (SW), mps 0.75 in., no odor, dry		15	15	20	50					
						8.8												
	3 1 1 2	S3 7	4.0 6.0			4.0	SM	Very loose dark brown to brown silty SAND (SM), mps 0.5 in., slightly bonded, no odor, moist		5	10	15	40	30				
5								-FILL-										
	2 1 3 1	S4A/B 13	6.0 8.0			6.2	SM	Similar to S3		10	10	15	35	30				
						6.6	GP	Very loose black poorly-graded GRAVEL with sand (GP), mps 0.75 in., no odor, moist		60	20	10	10					
						4.8		-FILL-										
	2 1 50 50/3"	S5 15	8.0 10.0			8.0	SM	Very loose to very dense black silty SAND with gravel (SM), mps 1.25 in., slight odor, wet, wood in tip	20	10	10	5	40	15				
10								-FILL-										
								Note: Wood observed in wash water.										
	2 2 3 1	S6 NR	11.0 13.0			-0.2												
	2 1 3 9	S7 9	13.0 15.0			13.0	GP-GM	Loose black poorly-graded GRAVEL with silt and sand (GP-GM), mps 1 in., no odor, wet	10	40	15	10	15	10				
								-FILL-										
15	7 7 10 9	S8 13	15.0 17.0				GP	Medium dense black poorly-graded GRAVEL with sand (GP), mps 1 in., no odor, wet, trace wood, fine sand layer	10	40	10	5	30	5				
	6 3 1 1	S9 8	17.0 19.0				GP-GM	Very loose black poorly-graded GRAVEL with silt and sand (GP-GM), mps 1 in., no odor, wet, iron fragment	10	40	5	15	20	10				
20	2 WOR	S10A/B 15	19.0 21.0				GM	Very loose black silty GRAVEL with sand (GM), mps 1 in., no odor, wet	15	35	10	10	10	20				

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water

Sample ID

O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Split Spoon Sample

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (ft)	39.1
Rock Cored (ft)	5.0
Samples	14S, 1C

Boring No. HA22-1(OW)

Field Tests: **Dilatancy**: R - Rapid S - Slow N - None **Toughness**: L - Low M - Medium H - High **Plasticity**: N - Nonplastic L - Low M - Medium H - High **Dry Strength**: N - None L - Low M - Medium H - High V - Very High

†**Note: Maximum particle size is determined by direct observation within the limitations of sampler size.**

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

H&A-TEST BORING-09 REV ME CASING BLOWS 39486_HA-LIB09-POR-2022.GLB HA-TB+CORE+WELL-09 W FENCE.GDT \\HALEYALDRICH.COM\SHARE\CF\PROJECTS\39486\GINT\39486-882_TEST BORINGS.GPJ 12 May 22

TEST BORING REPORT

Boring No. HA22-1(OW)
File No. 39486-882
Sheet No. 2 of 3

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Casing Blows per ft	Well Diagram	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
20	WOR WOR			23		-7.7 20.5 -8.2	ML	Very soft dark gray SILT with organics (ML), mps 0.425 mm, no odor, wet, trace wood					10	90				
	4 1 2 2	S11 16	21.0 23.0	39 32		21.0	SM	Very loose gray silty SAND with gravel (SM), mps 1 in., no odor, wet, wood in tip -MARINE DEPOSIT-		24	9	14	38	15				
				36 33														
25						-12.2												
	2 1 2 1	S12 10	25.0 27.0	32 40		25.0	SP-SM	Very loose gray poorly-graded SAND with silt and gravel (SP-SM), mps 0.75 in., no odor, wet -MARINE DEPOSIT-	18	6	7	12	47	10				
				46 59 68														
30	6 7 7 7	S13 11	30.0 32.0	44 50			SP	Medium dense gray poorly-graded SAND with gravel (SP), mps 1.25 in., no odor, wet	15	15	5	20	40	5				
				42 61 47														
35	4 7 8 7	S14A/B 13	35.0 37.0	41 63		-22.2 35.0 -23.2 36.0	SM ML	Medium dense gray-brown silty SAND with gravel (SM), mps 0.25 in., no odor, wet -MARINE DEPOSIT- Very stiff gray-brown SILT with sand (ML), mps 1 mm, no odor, wet -MARINE DEPOSIT-		15 10	10 10	30 5	25 10	20 65				
				87 96 14/2"		-26.3 39.1		Note: Top of bedrock at 39.1 ft below ground surface. Note: Advance rollerbit to 40.0 ft. Begin NQ rock core at 40.0 ft.										
40						-27.2 40.0		SEE CORE BORING REPORT FOR ROCK DETAILS										
45																		

NOTE: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

Boring No. HA22-1(OW)

H&A-TEST BORING-09 REV ME CASING BLOWS 39486_HA-LIB09-POR-2022.GLB HA-TB+CORE+WELL-09 W FENCE.GDT \\HALEYALDRICH.COM\SHARE\CF\PROJECTS\39486\GINT\39486-882_TEST BORINGS.GPJ 12 May 22

HALEY ALDRICH

CORE BORING REPORT

Boring No. HA22-1(OW)
File No. 39486-882
Sheet No. 3 of 3

Depth (ft)	Drilling Rate (min./ft)	Run No.	Run Depth (ft)	Recovery/RQD in.	Recovery/RQD %	Weath-ering	Well Dia-gram	Elev./ Depth (ft)	Visual Description and Remarks
									SEE TEST BORING REPORT FOR OVERBURDEN DETAILS
40	2:47	C1	40.0	60	100	Fresh			Hard, fresh, gray, aphanitic to fine-grained PHYLLITE. Primary joints dipping at horizontal to moderate angles, very close to moderately spaced, planar, rough, tight to open.
	1:58		45.0	57	95				
	1:48								
	2:00								
	1:15								
45								-32.2	
								45.0	BOTTOM OF EXPLORATION 45.0 FT
50									
55									
60									
65									
70									
75									

H+A_CORE+WELL-09 39486_HA-LIB09-POR-2022.GLB HA-TB+CORE+WELL-09 W FENCE.GDT \\HALEYALDRICH.COM\SHARE\CF\PROJECTS\39486\GINT\39486-882_TEST BORINGS.GPJ 12 May 22

TEST BORING REPORT

Boring No. HA22-9

Project	Foreside Block 6 Development, 58 Fore Street, Portland, Maine
Client	PF Six Devco, LLC.
Contractor	New England Boring Contractors

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HW	S	NQ	Rig Make & Model: Mobile B53 Bombardier #19
Inside Diameter (in.)	4.0	1.375	2.0	Bit Type: Roller Bit
Hammer Weight (lb)	300	140	-	Drill Mud: None
Hammer Fall (in.)	24	30	-	Casing: HW to 14.0 ft
				Hoist/Hammer: Winch Automatic Hammer
				PID Make & Model:

File No.	39486-882
Sheet No.	1 of 2
Start	24 March 2022
Finish	24 March 2022
Driller	T. Schaefer
H&A Rep.	T. Jones
Elevation	32.2
Datum	Portland City Datum
Location	See Plan

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Casing Blows per ft	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0	2 5 7 8	S1 15	0.0 2.0	HW Push to 8 ft		SM	Medium dense dark brown silty SAND with gravel (SM), mps 1 in., no odor, dry, trace wood		34	7	21	23	15				
							-FILL-										
	5 11 12 5	S2 17	2.0 4.0			SM	Medium dense gray-brown silty SAND with gravel (SM), mps 1.5 in., no odor, moist, trace brick, grading brown to gray last 6 in.		34	7	21	23	15				
5	3 1 1 2	S3 11	4.0 6.0			SM	Very loose dark gray silty SAND with gravel (SM), mps 1 in., no odor, moist, trace brick		32	9	21	23	5				
	2 2 2 2	S4 7	6.0 8.0			SM	Similar to S3, trace wood, no brick		32	9	21	23	15				
					24.2												
	4 2 2 2	S5 3	8.0 10.0	11 7	8.0	SM	Very loose dark brown silty SAND with gravel (SM), mps 0.5 in., no odor, wet, trace brick		15	10	20	40	15				
							-FILL-										
10					22.2												
	4 3 4 6	S6 7	10.0 12.0	14 12	10.0	ML	Medium stiff dark gray sandy SILT (ML), mps 0.5 in., no odor, wet, trace roots, probable reworked glacial till		10	5	5	30	50				
							-FILL-										
					20.2												
	8 14 20 25/4"	S7A/B 14	12.0 14.0	40 25/5"	12.0	SM	Dense brown silty SAND with gravel (SM), mps 1 in., no odor, wet	5	10	10	15	25	35				
					19.6		-GLACIAL TILL-										
					12.6	SM	Dense brown silty SAND (SM), mps 0.5 in., no odor, wet		10	10	20	30	30				
							-GLACIAL TILL-										
					18.2												
					14.0		Note: Used 300-lb hammer for S7.										
							Note: Top of bedrock at 14.0 ft below ground surface.										
15							SEE CORE BORING REPORT FOR ROCK DETAILS										

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water
3/28/22	1130	0	14.0	19.0	8.7

Sample ID

O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Split Spoon Sample

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (ft)	14.0
Rock Cored (ft)	5.0
Samples	7S, 1C

Boring No. HA22-9

Field Tests: **Dilatancy**: R - Rapid S - Slow N - None **Toughness**: L - Low M - Medium H - High **Plasticity**: N - Nonplastic L - Low M - Medium H - High **Dry Strength**: N - None L - Low M - Medium H - High V - Very High

†**Note: Maximum particle size is determined by direct observation within the limitations of sampler size.**

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

H&A-TEST BORING-09 REV ME CASING BLOWS 39486_HA-LIB09-POR-2022.GLB HA-TB+CORE+WELL-09 W FENCE.GDT \\HALEYALDRICH.COM\SHARE\CF\PROJECTS\39486\GINT\39486-882_TEST BORINGS.GPJ 12 May 22

HALEY ALDRICH

CORE BORING REPORT

Boring No. HA22-9
File No. 39486-882
Sheet No. 2 of 2

Depth (ft)	Drilling Rate (min./ft)	Run No.	Run Depth (ft)	Recovery/RQD in.	Recovery/RQD %	Weath-ering	Elev./ Depth (ft)	Visual Description and Remarks
								SEE TEST BORING REPORT FOR OVERBURDEN DETAILS
15	2:57 3:19 2:50 3:47 4:17	C1	14.0 19.0	59 36	98 60	Fresh to Slight		Hard, fresh to slightly weathered, gray/white, fine-grained to aphanitic SCHIST. Joints dipping at low to moderate angles, very close to close, planar to undulating/stepped, rough, tight to open. Oxidation on some joint surfaces, slight weathering. Secondary high angle joints parallel to foliation, frequent quartz veins throughout core stem, quartz intrusion from approximately 17.8 to 19.0 ft.
							13.2 19.0	BOTTOM OF EXPLORATION 19.0 FT
20								
25								
30								
35								
40								
45								

H+A_CORE+WELL-09 39486_HA-LIB09-POR-2022.GLB HA-TB+CORE+WELL-09 W FENCE.GDT \\HALEYALDRICH.COM\SHARE\CF\PROJECTS\39486\GINT\39486-882_TEST BORINGS.GPJ 12 May 22

TEST BORING REPORT

Boring No. HA22-101

Project	Foreside Block 4 Development, 58 Fore Street, Portland, Maine
Client	PF FOUR DEVCO, LLC.
Contractor	Northern Test Boring, Inc.

File No.	39486-881
Sheet No.	1 of 2
Start	13 September 2022
Finish	13 September 2022
Driller	M. Nadeau
H&A Rep.	T. Jones
Elevation	15.7
Datum	Portland City Datum
Location	See Plan

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HW	S	NQ	Rig Make & Model: Track: Diedrich #377
Inside Diameter (in.)	4.0	1.375	2.0	Bit Type: Roller Bit
Hammer Weight (lb)	140	140	-	Drill Mud: None
Hammer Fall (in.)	30	30	-	Casing: Auger to 4.0 ft/HW to 6.6 ft
				Hoist/Hammer: Winch Automatic Hammer
				PID Make & Model:

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Casing Blows per ft	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0	8 6 4 9	S1 10	0.0 2.0			SW-SM	Loose black and brown well-graded SAND with silt (SP-SM), mps 0.5 in., no odor, dry		5	30	30	25	10				
							-FILL-										
					13.7												
	7 4 5 7	S2 9	2.0 4.0		2.0	SP-SM	Loose brown poorly-graded SAND with silt (SP-SM), mps 5 mm, no odor, moist			10	30	50	10				
							-MARINE DEPOSIT-										
					11.7												
	9 8 7 12	S3 14	4.0 6.0	26 51	4.0	SW	Medium dense light brown well-graded SAND (SW), mps 0.75 in., no odor, wet		5	25	40	25	5				
5							-MARINE DEPOSIT-										
	50/5"	S4 6	6.0 6.5	61/6"		SW	Similar to S3		5	30	35	25	5				
					9.1		Note: Top of bedrock at 6.6 ft.										
					6.6 8.7		Note: Advanced rollerbit to 7.0 ft. Begin NQ core at 7.0 ft.										
					7.0		SEE CORE BORING REPORT FOR ROCK DETAILS										
10																	

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water
9/13/22	0900	0.25	N/A	5.5	1.5

Sample ID

O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Split Spoon Sample

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (ft)	6.5
Rock Cored (ft)	5.0
Samples	4S, 3C

Boring No. HA22-101

Field Tests: **Dilatancy**: R - Rapid S - Slow N - None **Toughness**: L - Low M - Medium H - High **Plasticity**: N - Nonplastic L - Low M - Medium H - High **Dry Strength**: N - None L - Low M - Medium H - High V - Very High

†**Note: Maximum particle size is determined by direct observation within the limitations of sampler size.**

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

H&A-TEST BORING-09 REV ME CASING BLOWS 39486_HA-LIB09-POR-2022.GLB HA-TB+CORE+WELL-09 W FENCE.GDT \\HALEYALDRICH.COM\SHARE\CF\PROJECTS\39486\GINT\39486-881_BLOCK 4_2022_TEST BORINGS.GPJ 11 Oct 22

HALEY ALDRICH

CORE BORING REPORT

Boring No. HA22-101
File No. 39486-881
Sheet No. 2 of 2

Depth (ft)	Drilling Rate (min./ft)	Run No.	Run Depth (ft)	Recovery/RQD in.	Recovery/RQD %	Weath-ering	Elev./ Depth (ft)	Visual Description and Remarks
								SEE TEST BORING REPORT FOR OVERBURDEN DETAILS
	2:39	C1	7.0 8.3	15 13	96 83	Fresh		Hard, fresh, gray, aphanitic PHYLLITE. Primary joints horizontal, moderately spaced, planar, rough, open.
	0:33 1:15	C2	8.3 10.3	22 9	92 38	Fresh		Hard, fresh, gray, aphanitic PHYLLITE. Primary joints horizontal and high angles, closely spaced, planar and stepped, smooth to rough, tight to open.
10	1:38 1:25 1:13	C3	10.3 12.0	18 13	88 64	Fresh		Similar to C2.
	2:23						3.7 12.0	BOTTOM OF EXPLORATION 12.0 FT
15								
20								
25								
30								
35								
40								

H+A_CORE+WELL-09 39486_HA-LIB09-POR-2022.GLB HA-TB+CORE+WELL-09 W FENCE.GDT \\HALEYALDRICH.COM\SHARE\CF\PROJECTS\39486\GINT\39486-881_BLOCK 4_2022_TEST BORINGS.GPJ 11 Oct 22

TEST BORING REPORT

Boring No. HA22-102

Project	Foreside Block 4 Development, 58 Fore Street, Portland, Maine
Client	PF FOUR DEVCO, LLC.
Contractor	Northern Test Boring, Inc.

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HW	S	NQ	Rig Make & Model: Track: Diedrich #377
Inside Diameter (in.)	4.0	1.375	2.0	Bit Type: Roller Bit
Hammer Weight (lb)	140	140	-	Drill Mud: None
Hammer Fall (in.)	30	30	-	Casing: Auger to 10.0 ft/HW to 14.8 ft
				Hoist/Hammer: Winch Automatic Hammer
				PID Make & Model:

File No.	39486-881
Sheet No.	1 of 2
Start	12 September 2022
Finish	12 September 2022
Driller	M. Nadeau
H&A Rep.	T. Jones
Elevation	15.1
Datum	Portland City Datum
Location	See Plan

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Casing Blows per ft	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0	11 10 7 10	S1 16	0.0 2.0	Push		SW	Medium dense black-brown well-graded SAND with gravel (SW), mps 0.5 in., no odor, dry		15	15	30	35	5				
							-FILL-										
	15 5 4 4	S2 7	2.0 4.0			SW	Similar to S1, except loose		5	15	35	40	5				
					11.1 4.0												
	4 2 2 2	S3 12	4.0 6.0			SM	Very loose brown-gray silty SAND (SM), mps 0.5 in., no odor, moist, mottled		10	10	20	30	30				
5						SM	Similar to S3, except wet		5	10	20	35	30				
							-FILL-										
	5 1 2 1	S4A/B 24	6.0 8.0			SM	Very loose gray silty SAND (SM), mps 5 mm, well bonded, no odor, wet			10	20	35	35				
	1 2 1 8	S5 8	8.0 10.0			SM	Very loose gray-brown silty SAND with gravel (SM), mps 1 in., well bonded, no odor, wet	5	25	10	15	20	25				
10	6 4 6 8	S6A/B 19	10.0 12.0		4.6 10.5	SM	Medium dense gray-brown silty SAND (SM), mps 0.5 in., moderately bonded, no odor, wet		10	10	20	30	30				
				39		SP	Loose light brown poorly-graded SAND (SP), mps 5 mm, no odor, wet, trace brick (1.5-in. dia. piece)		5	10	40	35	10				
							-FILL-										
	6 3 2 3	S7 22	12.0 14.0	51 50		SP	Similar to 5B, except mps 1.0 in.	5	5	10	35	40	5				
					1.1												
	3 50/1"	S8 6	14.0 14.6	24/10"	14.0 0.3	SM	Loose, gray, silty SAND (SM), mps 1.0 in., well bonded, no odor, wet	5	5	15	15	25	35				
15					14.8 0.1 15.0		-GLACIAL TILL-										
							Note: Top of bedrock at 14.8 ft										
							Note: Advanced rollerbit to 15.0 ft. Begin NQ core at 15.0 ft.										
							SEE CORE BORING REPORT FOR ROCK DETAILS										
20																	

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water
9/12/22	1215	0	14.0	8.9	6.5
9/12/22	1350	0.25	N/A	14.7	5.7

Sample ID

O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Split Spoon Sample

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (ft)	14.8
Rock Cored (ft)	5.5
Samples	8S, 4C

Boring No. HA22-102

Field Tests: **Dilatancy**: R - Rapid S - Slow N - None **Toughness**: L - Low M - Medium H - High **Plasticity**: N - Nonplastic L - Low M - Medium H - High **Dry Strength**: N - None L - Low M - Medium H - High V - Very High

†**Note: Maximum particle size is determined by direct observation within the limitations of sampler size.**

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

H&A-TEST BORING-09 REV ME CASING BLOWS 39486_HA-LIB09-POR-2022.GLB HA-TB+CORE+WELL-09 W FENCE.GDT \\HALEYALDRICH.COM\SHARE\CF\PROJECTS\39486\GINT\39486-881_BLOCK 4_2022_TEST BORINGS.GPJ 11 Oct 22

HALEY ALDRICH

CORE BORING REPORT

Boring No. HA22-102
File No. 39486-881
Sheet No. 2 of 2

Depth (ft)	Drilling Rate (min./ft)	Run No.	Run Depth (ft)	Recovery/RQD in.	Recovery/RQD %	Weath-ering	Elev./ Depth (ft)	Visual Description and Remarks
								SEE TEST BORING REPORT FOR OVERBURDEN DETAILS
15	1:18	C1	15.0	15	83	Fresh		Hard, fresh, aphanitic PHYLLITE. Primary joints horizontal to vertical angles, very close to close, planar, smooth, tight to open.
			16.5	0	0			
	1:03							
	2:27	C2	16.5	2	100	Fresh		Similar to C1.
	4:00	C3	16.6	0	0	Fresh		Similar to C1.
	2:00		16.6	11	65			
	1:40	C4	18.0	0	0	Fresh		Hard, fresh, gray, aphanitic PHYLLITE. Primary joint horizontal to high angles, very close to close, planar to stepped, smooth, tight, occasional calcite stringers and quartz vein approximately 1-in. thick.
			18.0	30	100			
	2:17		20.5	5	17			
20	2:14						-5.4	
							20.5	BOTTOM OF EXPLORATION 20.5 FT
25								
30								
35								
40								
45								
50								

H+A_CORE+WELL-09 39486_HA-LIB09-POR-2022.GLB HA-TB+CORE+WELL-09 W FENCE.GDT \\HALEYALDRICH.COM\SHARE\CF\PROJECTS\39486\GINT\39486-881_BLOCK 4_2022_TEST BORINGS.GPJ 11 Oct 22

TEST BORING REPORT

Boring No. HA22-103

Project	Foreside Block 4 Development, 58 Fore Street, Portland, Maine
Client	PF FOUR DEVCO, LLC.
Contractor	Northern Test Boring, Inc.

File No.	39486-881
Sheet No.	1 of 2
Start	12 September 2022
Finish	12 September 2022
Driller	M. Nadeau
H&A Rep.	T. Jones
Elevation	15.5
Datum	Portland City Datum
Location	See Plan

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HW	S	NQ	Rig Make & Model: Track: Diedrich #377
Inside Diameter (in.)	4.0	1.375	2.0	Bit Type: Roller Bit
Hammer Weight (lb)	140	140	-	Drill Mud: None
Hammer Fall (in.)	30	30	-	Casing: Auger to 8.0 ft
				Hoist/Hammer: Winch Automatic Hammer
				PID Make & Model:

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Casing Blows per ft	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0	12 12 9 6	S1 15	0.0 2.0	Push	15.1 0.4	SW	-BITUMINOUS CONCRETE- Medium dense black and brown well-graded SAND (SW), mps 0.75 in., no odor, dry		10	10	35	40	5				
					13.5		-FILL-										
	6 7 8 9	S2 13	2.0 4.0		2.0	SW-SM	Medium dense light brown well graded SAND with silt (SW-SM), mps 5 mm, no odor, moist			20	30	40	10				
							-FILL-										
5	13 15 14 19	S3 10	4.0 6.0			SW-SM	Medium dense light brown well-graded SAND with silt and gravel (SW-SM), mps 0.5 in., no odor, moist		15	20	25	30	10				
	21 20 36 23	S4A/B 18	6.0 8.0	45 5	9.0 6.5	SW-SM ML	Similar to S3 Hard gray sandy SILT (ML), mps 1 in., well bonded, no odor, moist		15 10	20 10	25 10	30 15	10 55				
							-GLACIAL TILL-										
	15 17 50/4"	S5 15	8.0 9.3	64 49/8"		ML	Similar to S4B		10	10	10	20	50				
					5.8		Note: Top of bedrock at 9.7 ft.										
10					9.7 5.5 10.0		Note: Advanced rollerbit to 10.0 ft. Begin NQ core at 10.0 ft. SEE CORE BORING REPORT FOR ROCK DETAILS										
15																	

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water
9/12/22	1130	0.25	N/A	10.0	2.0

Sample ID

O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Split Spoon Sample

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (ft)	9.7
Rock Cored (ft)	5.5
Samples	5S, 2C

Boring No. HA22-103

Field Tests: **Dilatancy**: R - Rapid S - Slow N - None **Plasticity**: N - Nonplastic L - Low M - Medium H - High
Toughness: L - Low M - Medium H - High **Dry Strength**: N - None L - Low M - Medium H - High V - Very High

†**Note: Maximum particle size is determined by direct observation within the limitations of sampler size.**

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

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HALEY ALDRICH

CORE BORING REPORT

Boring No. HA22-103
File No. 39486-881
Sheet No. 2 of 2

Depth (ft)	Drilling Rate (min./ft)	Run No.	Run Depth (ft)	Recovery/RQD in.	Recovery/RQD %	Weath-ering	Elev./ Depth (ft)	Visual Description and Remarks
								SEE TEST BORING REPORT FOR OVERBURDEN DETAILS
10	1:58	C1	10.0	41	111	Fresh		Hard, fresh to slightly weathered, gray, aphanitic to fine-grained PHYLLITE. Primary joints dipping at horizontal to high angles, very close to closely spaced, planar and stepped, smooth to rough, tight to open, occasional calcite veins.
	1:36		13.1	8	22	to Slight		
	1:38							
	0:20	C2	13.1	29	97	Fresh		Similar to C1, except close to moderately spaced. Primary joints dipping at horizontal to low angles.
	1:46		15.6	17	57	to Slight		
	1:37							
15	0:45						-0.1	
							15.6	BOTTOM OF EXPLORATION 15.6 FT
20								
25								
30								
35								
40								
45								

H+A_CORE+WELL-09 39486_HA-LIB09-POR-2022.GLB HA-TB+CORE+WELL-09 W FENCE.GDT \\HALEYALDRICH.COM\SHARE\CF\PROJECTS\39486\GINT\39486-881_BLOCK 4_2022_TEST BORINGS.GPJ 11 Oct 22

TEST BORING REPORT

Boring No. HA22-104

Project	Foreside Block 4 Development, 58 Fore Street, Portland, Maine
Client	PF FOUR DEVCO, LLC.
Contractor	Northern Test Boring, Inc.

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HW	S	NQ	Rig Make & Model: Track: Diedrich #377
Inside Diameter (in.)	4.0	1.375	2.0	Bit Type: Roller Bit
Hammer Weight (lb)	140	140	-	Drill Mud: None
Hammer Fall (in.)	30	30	-	Casing: Auger to 10.0 ft/ HW to 14.1 ft
				Hoist/Hammer: Winch Automatic Hammer
				PID Make & Model:

File No.	39486-881
Sheet No.	1 of 2
Start	12 September 2022
Finish	12 September 2022
Driller	M. Nadeau
H&A Rep.	T. Jones
Elevation	14.7
Datum	Portland City Datum
Location	See Plan

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Casing Blows per ft	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0	8 7 8 8	S1 15	0.0 2.0	Push	14.3 0.4		-BITUMINOUS CONCRETE-		20	5	20	30	20				
						SW	Medium dense light brown well-graded SAND (SW), mps 5 mm, no odor, dry			25	25	45	5				
							-FILL-										
	6 5 4 4	S2 13	2.0 4.0			SW	Loose light brown well-graded SAND (SW), mps 0.25 in., no odor, dry		10	15	30	40	5				
					10.7 4.0	SM	No Recovery			10	25	50	15				
5	6 1 1 1	S3 NR	4.0 6.0				Note: Pushed spoon from 4.0 to 8.0 ft after driving S3 and S4. Recovered 22 in. gray silty SAND (SM), mps 5 mm, no odor, wet, brick pieces.										
							-FILL-										
	1 1 1/12"	S4 NR	6.0 8.0				No Recovery			10	25	50	15				
	2 1 1 3	S5 18	8.0 10.0			SP-SM	Very loose brown poorly-graded SAND with silt (SP-SM), mps 5 mm, no odor, wet, contains brick			10	25	55	10				
							-FILL-										
10	3 3 1 6	S6A/B 16	10.0 12.0			SP-SM	Very loose brown poorly-graded SAND with silt (SP-SM), mps 0.75 in., no odor, wet, trace brick fragments		5	10	40	35	10				
					3.4 11.3	SM	Very loose gray silty SAND (SM), mps 5 mm, well bonded, no odor, wet			10	20	40	30				
	12 6 3 50/5"	S7 12	12.0 13.9	13.6		SM	-GLACIAL TILL- Similar to 6B, except loose, mps 0.25 in.			10	20	40	30				
				10/5"	0.6 14.1		Note: Top of bedrock at 14.1 ft. Note: Advanced rollerbit to 14.5 ft. Begin NQ core at 14.5 ft.										
15					0.2 14.5		SEE CORE BORING REPORT FOR ROCK DETAILS										

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water
9/12/22	1550	0.25	N/A	15.6	4.3

Sample ID

O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Split Spoon Sample

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (ft)	14.1
Rock Cored (ft)	5.0
Samples	7S, 3C

Boring No. HA22-104

Field Tests: **Dilatancy**: R - Rapid S - Slow N - None
Toughness: L - Low M - Medium H - High
Plasticity: N - Nonplastic L - Low M - Medium H - High
Dry Strength: N - None L - Low M - Medium H - High V - Very High

†**Note: Maximum particle size is determined by direct observation within the limitations of sampler size.**

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

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HALEY ALDRICH

CORE BORING REPORT

Boring No. HA22-104
File No. 39486-881
Sheet No. 2 of 2

Depth (ft)	Drilling Rate (min./ft)	Run No.	Run Depth (ft)	Recovery/RQD in.	Recovery/RQD %	Weathering	Elev./ Depth (ft)	Visual Description and Remarks
								SEE TEST BORING REPORT FOR OVERBURDEN DETAILS
15	1:40	C1	14.5 16.7	22 0	85 0	Slight to Moderate		Hard, slightly to moderately weathered, gray, aphanitic to fine-grained PHYLLITE. Primary joints horizontal to high angles, closely spaced, planar, rough, open, frequent calcite and quartzite intrusions.
	2:01							
	0:53	C2	16.7 18.5	24 14	109 64	Slight		Hard, slightly weathered, gray, aphanitic to fine-grained PHYLLITE. Primary joints horizontal to low angles, close spacing, planar and undulating, rough, tight to open, frequent calcite and quartz intrusions.
	3:00							
	2:42							
	3:09	C3	18.5 19.5	12 12	100 100	Fresh to Slight	-4.8 19.5	Hard, fresh to slightly weathered, gray, aphanitic to fine-grained PHYLLITE. Primary joints moderately dipping, close spacing, planar, rough, tight, frequent calcite and quartzite intrusions.
20								BOTTOM OF EXPLORATION 19.5 FT
25								
30								
35								
40								
45								

H+A_CORE+WELL-09 39486_HA-LIB09-POR-2022.GLB HA-TB+CORE+WELL-09 W FENCE.GDT \\HALEYALDRICH.COM\SHARE\CF\PROJECTS\39486\GINT\39486-881_BLOCK 4_2022_TEST BORINGS.GPJ 11 Oct 22

TEST BORING REPORT

Boring No. HA22-112

Project	Foreside Block 6 Development, 58 Fore Street, Portland, Maine
Client	PF SIX DEVCO, LLC.
Contractor	Northern Test Boring, Inc.

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HW	S	NQ	Rig Make & Model: Track: Diedrich #377
Inside Diameter (in.)	4.0	1.375	2.0	Bit Type: Roller Bit
Hammer Weight (lb)	140	140	-	Drill Mud: None
Hammer Fall (in.)	30	30	-	Casing: Auger to 8.0 ft/HW Drive to 17.2 ft
				Hoist/Hammer: Winch Automatic Hammer
				PID Make & Model:

File No.	39486-882
Sheet No.	1 of 2
Start	13 September 2022
Finish	13 September 2022
Driller	M. Nadeau
H&A Rep.	T. Jones
Elevation	33.0
Datum	Portland City Datum
Location	See Plan
	N 4
	E 0

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Casing Blows per ft	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0	3 3 4 2	S1 9	0.0 2.0	Push		SW	Loose black-gray well-graded SAND with gravel (SW), mps 0.75 in., no odor, dry		15	15	15	50	5				
							-FILL-										
	3 4 7 11	S2 8	2.0 4.0			SW	Medium dense black-gray well-graded SAND with gravel (SW), mps 1.5 in., no odor, dry, trace glass	5	10	20	20	40	5				
					29.0												
	4 2 3 6	S3 11	4.0 6.0		4.0	SM	Loose brown silty SAND (SM), mps 0.5 in., no odor, moist, trace roots, trace brick, trace glass		5	10	15	50	20				
5							-FILL-										
					27.0												
	5 6 9 12	S4 7	6.0 8.0		6.0	SM	Medium dense gray-brown silty SAND (SM), mps 0.5 in., well bonded, no odor, moist		5	15	20	40	20				
							-GLACIAL TILL-										
	16 16 17 39	S5 13	8.0 10.0	90 126		SM	Dense dark gray silty SAND (SM), mps 0.5 in., well bonded, no odor, moist		5	15	20	40	20				
10	10 18 36 49	S6 16	10.1 12.1			SM	Similar to S5, except very dense, well bonded, no odor, wet		5	15	20	40	20				
15	28 50/5"	S7 10	15.0 17.0			SM	Similar to S6, except mps 0.5 in., well bonded, no odor, wet		10	15	20	45	10				
							-GLACIAL TILL-										
					15.8		Note: Top of bedrock at 17.2 ft.										
					17.2		Note: Advanced rollerbit to 17.5 ft. Begin NQ core at 17.5 ft.										
					15.5 17.5		SEE CORE BORING REPORT FOR ROCK DETAILS										
20																	

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water
9/13/22	0945	0	9.0	7.0	N/A
9/13/22	1230	1	NA	15.5	2.6
12/19/22	1330	144	N/A	6.2	4.8

Sample ID

O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Split Spoon Sample

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (ft)	17.2
Rock Cored (ft)	5.0
Samples	7S, 1C

Boring No. HA22-112

Field Tests: **Dilatancy**: R - Rapid S - Slow N - None **Toughness**: L - Low M - Medium H - High **Plasticity**: N - Nonplastic L - Low M - Medium H - High **Dry Strength**: N - None L - Low M - Medium H - High V - Very High

†**Note: Maximum particle size is determined by direct observation within the limitations of sampler size.**

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

H&A-TEST BORING-09 REV ME CASING BLOWS 39486_HA-LIB09-POR-2022.GLB HA-TB+CORE+WELL-09 W FENCE.GDT \\HALEYALDRICH.COM\SHARE\CF\PROJECTS\39486\GINT\39486-882_BLOCK 6_2022_TEST BORINGS - COPY.GPJ 11 Oct 22

HALEY ALDRICH

CORE BORING REPORT

Boring No. HA22-112
File No. 39486-882
Sheet No. 2 of 2

Depth (ft)	Drilling Rate (min./ft)	Run No.	Run Depth (ft)	Recovery/RQD in.	Recovery/RQD %	Weath-ering	Elev./ Depth (ft)	Visual Description and Remarks
								SEE TEST BORING REPORT FOR OVERBURDEN DETAILS
20	1:35 2:11 2:44 2:25 2:39	C1	17.5 22.5	60 44	100 73	Fresh		Hard, fresh, gray, aphanitic PHYLLITE. Primary joints horizontal to moderate angles, very close to moderately close, planar, smooth to rough, tight to open, quartz intrusion from 18.5 to 20.0 ft.
							10.5 22.5	BOTTOM OF EXPLORATION 22.5 FT
25								
30								
35								
40								
45								
50								

H+A_CORE+WELL-09 39486_HA-LIB09-POR-2022.GLB HA-TB+CORE+WELL-09 W FENCE.GDT \\HALEYALDRICH.COM\SHARE\CF\PROJECTS\39486\GINT\39486-882_BLOCK 6_2022_TEST BORINGS - COPY.GPJ 11 Oct 22



Top Row: HA22-2, Core No. C1, 19.5 ft (left) to 21.5 ft (middle left), Core No. C2, 21.5 ft (middle left) to 25.5 ft (right); Top Middle Row: HA22-2, Core No. C2, 21.5 ft (left) to 25.5 ft (middle left), HA22-1, Core No. C1, 40.0 ft (middle left) to 45.0 ft (right); Bottom Middle Row: HA22-1, Core No. C1, 40.0 ft (left) to 45.0 ft (middle left), HA22-9,Core No. C1. 14.0 ft (middle left) to 19.0 ft (right); Bottom Row: HA22-9, Core No. C1, 14.0 ft (left) to 19.0 ft (middle left)



Top Row: HA22-5, Core No. C3, 28.7 ft (left) to 29.5 ft (middle left), Core no. C4, 29.5 ft (middle left) to 34.0 ft (right); Top Middle Row: HA22-5, Core No. C4, 29.5ft (left) to 34.0 ft (middle left), HA22-3, Core No. C1, 41.0 ft (middle left) to 41.7 ft (middle), Core No. C2, 41.7 ft (middle) to 46.0 ft (right); Bottom Middle Row: HA22-3, Core No. C2, 41.7 ft (left) to 46.0 ft (middle left), Core No. C3, 46.0 ft (middle left) to 51.0 ft (right); Bottom Row: HA22-3, Core No. C3, 46.0 ft (left) to 51.0 ft (middle)



Top Row: HA22-103, Core No. C1, 10.0 ft (left) to 13.1 ft (middle right), Core No. C2, 13.1 ft (middle right) to 14.1 ft (right); Top Middle Row: HA22-103, Core No. C2, 14.1 ft (left) to 15.6 ft (middle left), HA22-102, Core No. C1, 15.0 ft (middle left) to 16.5 ft (middle right), Core No. C2, 16.5 ft (middle right) to 16.6 ft (middle right), Core No. C3, 16.6 ft (middle right) to 18.0 ft (right); Bottom Middle Row: HA22-102, Core No. C4, 18.0 ft (left) to 20.5 ft (middle), HA22-104, Core No. C1. 14.5 ft (middle) to 16.7 ft (right); Bottom Row: HA22-104, Core No. C2, 16.7 ft (left) to 18.5 ft (middle left), Core No. C3, 18.5 ft (middle left) to 19.5 ft (middle right)



Top Row: HA22-110, Core No. C1, 54.0 ft (left) to 59.0 ft (right); Top Middle Row: HA22-110, Core No. C2, 59.0 ft (left) to 64.0 ft (right); Bottom Middle Row: HA22-108, Core No. C1, 54.0 ft (left) to 59.0 ft (right); Bottom Row: HA22-108, Core No. C2, 59.0 ft (left) to 64.0 ft (right)



Top Row: HA22-111, Core No. C1, 58.0 ft (left) to 61.5 ft (middle right); Top Middle Row: HA22-111, Core No. C1, 61.5 ft (left) to 63.0 ft (middle), Core No. C2, 63.0 ft (middle) to 65.2 ft (right); Bottom Middle Row: HA22-111, Core No. C2, 65.2 ft (left) to 67.1 ft (middle)



Top Row: HA22-101, Core No. C1, 7.0 ft (left) to 8.3 ft (middle left), Core No. C2, 8.3 ft (middle left) to 10.3 ft (middle right), Core No. C3, 10.3 ft (middle right) to 12.0 ft (right); Top Middle Row: HA22-112, Core No. C1, 17.5 ft (left) to 22.5 ft (right); Bottom Middle Row: HA22-109, Core No. C1, 25.0 ft (left) to 30.0 ft (right)

2019 Haley & Aldrich, Inc.
Test Boring Logs and
Rock Core Photographs

TEST BORING REPORT

Boring No. HA19-4

Project	Foreside Block 2-6 Development, Portland, Maine
Client	Portland Foreside Development Company, LLC
Contractor	New England Boring Contractors

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HW	S	NQ	Rig Make & Model: Mobile Drill B52 Truck
Inside Diameter (in.)	4.0	1.375	2.0	Bit Type: Roller Bit
Hammer Weight (lb)	300	140	-	Drill Mud: None
Hammer Fall (in.)	24	30	-	Casing: HW drive to 44.5 ft
				Hoist/Hammer: Winch/ Automatic Hammer
				PID Make & Model: MiniRAE 2000 10.6 eV

File No.	39486-877
Sheet No.	1 of 3
Start	09 July 2019
Finish	11 July 2019
Driller	T. Schaefer/ E. Baron
H&A Rep.	N. Klausmeyer
Elevation	53.5+/-
Datum	Portland City Datum
Location	See Plan

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Casing Blows Per Ft.	PID Readings (ppm)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Color, GROUP NAME, max. particle size†, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0				Push		0.5		-BITUMINOUS CONCRETE-										
	16 16 15	S1 11	0.5 2.0	Push	0.0		SW	Dense yellow-brown to tan well graded SAND with gravel (SW), mps 1 in., no structure, no odor, dry	10	15	15	20	35	5				
								-FILL-										
	7 6 5 4	S2 4	2.0 4.0	Push	0.3		SW	Medium dense yellow-brown to tan well graded SAND with gravel (SW), mps 0.75 in., no structure, no odor, dry	5	10	20	25	35	5				
				Push														
5	4 3 3 3	S3 20	4.0 6.0	Push	3.5		SM	Loose brown to dark brown and black silty SAND with gravel (SM), mps 1 in., loosely bonded, musty odor, dry to moist, contains coal and ash	5	10	10	25	30	20				
				Push		5.9												
	3 3 3 4	S4 13	6.0 8.0	Push	0.7		SM	Loose brown to gray-brown silty SAND with gravel (SM), mps 0.75 in., loosely bonded, musty odor, moist, contains coal, ash and brick, probable reworked naturally-deposited soil	5	10	15	20	30	20				
				Push				-FILL-										
	3 4 3 4	S5 5	8.0 10.0	8	0.6		SM	Loose brown to gray-brown silty SAND with gravel (SM), mps 0.75 in., loosely bonded, musty odor, wet, contains coal and ash, probable reworked naturally-deposited soil	5	10	15	20	30	20				
				8														
10	3 2 1 1	S6 8	10.0 12.0	8	0.0		SM	Very loose brown to red-brown silty SAND (SM), mps 0.25 in., loosely bonded, no odor, wet, noticeable layering at bottom of sample, probable reworked naturally-deposited soil	5	5	10	15	50	15				
				9		11.9												
	1 5 6 6	S7 0	12.0 14.0	7				No Recovery										
				16														
15	4 5 6 6	S8 6	14.0 16.0	16	0.1		SM	Medium dense light brown silty SAND with gravel (SM), mps 0.5 in., loosely bonded, no odor, wet	5	10	10	15	40	20				
				22														
				29				-MARINE DEPOSIT-										
				38														
				36														
20				28														

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water
7/11/19	09:30	36	40.0	42.0	12.0
7/11/19	13:45	40	44.4	55.0	--

Sample ID

O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Splitspoon Sample
G - Geoprobe

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (ft)	44.4
Rock Cored (ft)	10.0
Samples	14S, 2C

Boring No. HA19-4

Field Tests: **Dilatancy**: R - Rapid S - Slow N - None **Toughness**: L - Low M - Medium H - High **Plasticity**: N - Nonplastic L - Low M - Medium H - High **Dry Strength**: N - None L - Low M - Medium H - High V - Very High

†**Note: Maximum particle size is determined by direct observation within the limitations of sampler size.**

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

H&A-TEST BOR WITH PERM PID+CASING 39486-877_HA-LIB09-POR-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\GINT\PORTLAND\39486\39486-877_TEST BORINGS.GPJ 17 Dec 19

TEST BORING REPORT

HALEY ALDRICH

Boring No. HA19-4
File No. 39486-877
Sheet No. 2 of 3

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Casing Blows Per Ft.	PID Readings (ppm)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Color, GROUP NAME, max. particle size†, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
20	4 3 4 4	S9 23	20.0 22.0	25 28	0.0	20.1	ML	Medium stiff gray-brown sandy SILT with gravel (ML), trace clay, mps 1.25 in., moderately bonded, no odor, wet	5	10	5	10	15	55				
				39 35 32				-MARINE DEPOSIT-										
25	1 1 1 1	S10 20	25.0 27.0	26 30	0.0		ML	Very soft gray-brown sandy SILT (ML), trace clay, mps 0.25 in., loosely bonded, no odor, wet	5	5	5	10	20	55				
	2 1 2 2	S11 17	27.0 29.0	22 31	0.0		ML	Soft gray-brown sandy SILT (ML), trace clay, mps 0.25 in., loosely bonded, no odor, wet	-	5	5	10	25	55				
				38		29.3												
						29.8		Note: Cobble encountered from approximately 29.3 to 29.8 ft. -COBBLES-										
30	3 3 3 7	S12 2	30.0 32.0	46 33	0.2		ML	Medium stiff gray-brown sandy SILT (ML), trace clay, mps 0.25 in., moderately bonded, no odor, wet	-	5	10	10	15	60				
				33		32.0		Note: Cobbles encountered from approximately 32.0 to 35.0 ft.										
				36 66				-COBBLES										
35	4 4 5 4	S13 19	35.0 37.0	41 38	0.0	35.0	ML	Stiff gray-brown sandy SILT (ML), mps 0.5 in., well bonded, no odor, wet, fine sand seams	5	5	5	5	20	60				
				45 45 41				-MARINE DEPOSIT-										
40	7 23 28 30	S14 15	40.0 42.0	50 134	0.0	40.5	ML	Hard yellow-brown to gray-brown and light brown sandy SILT with gravel (ML), mps 1.25 in., well bonded, contains trace weathered rock	10	10	5	10	20	45				
				141 106				-GLACIAL TILL-										
				103/5"		44.4		Note: Drill action and wash water indicate top of bedrock at approximately 44.4 ft.										
45						45.0		Note: Advanced roller bit to 45.0 ft. Began NQ rock core at 45.0 ft. SEE CORE BORING REPORT FOR ROCK DETAILS										

NOTE: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

Boring No. HA19-4

H&A-TEST BOR WITH PERM PID+CASING 39486-877_HA-LIB09-POR-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\GINT\PORTLAND\39486\39486-877_TEST BORINGS.GPJ 17 Dec 19

HALEY ALDRICH

CORE BORING REPORT

Boring No. HA19-4
File No. 39486-877
Sheet No. 3 of 3

Depth (ft)	Drilling Rate (min./ft)	Run No.	Run Depth (ft)	Recovery/RQD in.	Recovery/RQD %	Weath-ering	Elev./ Depth (ft)	Visual Description and Remarks
								SEE TEST BORING REPORT FOR OVERBURDEN DETAILS
45	2:02	C1	45.0 50.0	58 4	100 7	Fresh to High		Hard, fresh to highly weathered, gray, aphanitic PHYLLITE. Joints dipping at low to vertical angles, very close to close, tight to open, smooth to rough, undulating. Oxidation on joint surfaces, fine-grained coatings on joint surfaces, occasional quartz/calcite stringers throughout core stem.
	6:22							
	2:39							
	4:07							
	7:15							Note: Approximately 150 gallons of water loss while coring C1.
50	2:40	C2	50.0 55.0	56 31	93 52	Fresh to Moderate		Hard, fresh to moderately weathered, gray, aphanitic PHYLLITE. Joints dipping at horizontal to high angles, very close to close, smooth to rough, undulating. Slight discoloration and calcite coatings on joint surfaces, slight pitting observed.
	3:17							
	4:04							
	4:24							
	2:37							Note: Approximately 250 gallons of water loss while coring C2.
55							55.0	BOTTOM OF EXPLORATION 55.0 FT
60								
65								
70								
75								

H+A_CORE+WELL07-1 39486-877_HA-LIB09-POR-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\GINT\PORTLAND\39486\39486-877_TEST BORINGS.GPJ 17 Dec 19

TEST BORING REPORT

Boring No. HA19-5

Project	Foreside Block 2-6 Development, Portland, Maine
Client	Portland Foreside Development Company, LLC
Contractor	New England Boring Contractors

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HW	S	NQ	Rig Make & Model: Mobile Drill B52 Truck
Inside Diameter (in.)	4.0	1.375	2.0	Bit Type: Roller Bit
Hammer Weight (lb)	300	140	-	Drill Mud: None
Hammer Fall (in.)	24	30	-	Casing: HW drive to 34.5 ft; NW drive to 60.0 ft
				Hoist/Hammer: Winch/ Automatic Hammer
				PID Make & Model: MiniRAE 2000 10.6 eV

File No.	39486-877
Sheet No.	1 of 4
Start	11 July 2019
Finish	15 July 2019
Driller	E. Baron
H&A Rep.	N. Klausmeyer
Elevation	74.5+/-
Datum	Portland City Datum
Location	See Plan

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Casing Blows Per Ft.	PID Readings (ppm)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Color, GROUP NAME, max. particle size†, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0				Push	0.0	0.4	SW	-BITUMINOUS CONCRETE-										
	16 13 13	S1 14	0.5 2.0	Push				Medium dense yellow-brown to tan well graded SAND with gravel (SW), mps 0.5 in., no structure, no odor, dry	10	15	20	20	30	5				
						2.0	SM	-FILL-										
	7 10 6 6	S2 13	2.0 4.0	Push	0.0		SM	Medium dense brown to dark brown silty SAND (SM), mps 0.25 in., loosely bonded, no odor, damp, probable reworked naturally-deposited soil	-	5	10	10	45	30				
				Push				-FILL-										
	3 4 10 13	S3 7	4.0 6.0	Push	0.0		SM	Medium dense brown grading to gray-brown silty SAND (SM), mps 0.5 in., loosely bonded, no odor, damp, probable reworked naturally-deposited soil	-	5	10	10	40	35				
5				Push														
	8 9 11 12	S4 18	6.0 8.0	Push	0.0		SM	Medium dense light brown to gray-brown silty SAND (SM), mps 0.25 in., loosely bonded, no odor, damp, probable reworked naturally-deposited soil	-	5	10	15	35	35				
				Push														
	13 12 14 18	S5 24	8.0 10.0	Push	0.0		SM	Medium dense light brown to red-brown and gray-brown silty SAND (SM), mps 0.5 in., loose grading to moderately bonded, no odor, damp, probable reworked naturally-deposited soil	5	5	10	20	30	30				
				Push		10.0												
10	15 12 19 17	S6 19	10.0 12.0	Push	0.0		SM	Dense light brown to gray-brown silty SAND with gravel (SM), mps 1.25 in., moderately bonded, no odor, damp	10	10	10	15	25	30				
				79				-GLACIAL TILL-										
	18 100/1"	S7 5	12.0 12.6/	164	0.1	12.6	SM	Dense to medium dense light brown to gray-brown silty SAND with gravel (SM), mps 1 in., moderately bonded, no odor, wet	10	5	10	15	25	35				
				130		13.5		Note: Cobble encountered from approximately 12.6 to 13.5 ft.										
15	5 8 7 7	S8 7	14.0 16.0	152			SM	Medium dense light brown to gray-brown silty SAND (SM), mps 0.25 in., moderately bonded, no odor, wet	-	10	15	15	30	30				
				64				-GLACIAL TILL-										
	8 14 10 16	S9 12	16.0 18.0	51			SM	Medium dense light brown to gray-brown silty SAND with gravel (SM), mps 1 in., moderately bonded, no odor, wet	10	5	10	15	30	30				
				56														
	12 14 22 25	S10 17	18.0 20.0	53	0.0		SM	Dense light brown to gray-brown grading to yellow-brown silty SAND with gravel (SM), mps 0.75 in., well bonded grading to moderately bonded, no odor, wet	5	10	15	15	30	25				
20				36														

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water
7/12/19	09:00	~18	11.0	12.0	8.5
7/12/19	16:40	~26	44.6	57.0	--
7/15/19	09:50	~4 days	34.5	57.0	36.9

Sample ID

O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Splitspoon Sample
G - Geoprobe

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (ft)	59.2
Rock Cored (ft)	5.0
Samples	19S, 1C

Boring No. HA19-5

Field Tests: **Dilatancy**: R - Rapid S - Slow N - None **Toughness**: L - Low M - Medium H - High **Plasticity**: N - Nonplastic L - Low M - Medium H - High **Dry Strength**: N - None L - Low M - Medium H - High V - Very High

†Note: Maximum particle size is determined by direct observation within the limitations of sampler size.

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

H&A-TEST BOR WITH PERM PID+CASING 39486-877_HA-LIB09-POR-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\GINT\PORTLAND\39486\39486-877_TEST BORINGS.GPJ 17 Dec 19

HALEY ALDRICH

TEST BORING REPORT

Boring No. HA19-5
File No. 39486-877
Sheet No. 2 of 4

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Casing Blows Per Ft.	PID Readings (ppm)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Color, GROUP NAME, max. particle size†, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
20	6 11 22 26	S11 16	20.0 22.0	54 48	0.0		SM	Dense light brown to gray-brown silty SAND with gravel (SM), mps 1.25 in., moderately bonded, no odor, wet, noticeable layering in bottom 2 in. of recovery -GLACIAL TILL-	5	10	10	15	35	25				
				42		22.5		Note: Cobble encountered from approximately 22.5 to 23.1 ft.										
				141		23.1												
				70														
25	42 55 66 87	S12 17	25.0 27.0	181 57	0.0		SM	Very dense yellow-brown to light brown silty SAND with gravel (SM), mps 1.25 in., layered, well bonded, no odor, moist -GLACIAL TILL-	10	10	10	15	30	25				
				68														
				83		28.4		Note: Cobble encountered from approximately 28.4 to 29.2 ft.										
				92		29.2												
30	36 72 113 100/3"	S13 16	30.0 31.8	212 113	0.0		SM	Very dense yellow-brown to light brown silty SAND with gravel (SM), mps 1.25 in., well bonded, no odor, wet, contains weathered rock -GLACIAL TILL-	15	10	5	10	30	30				
				135														
				147		33.5		Note: Boulder encountered from 33.5 to 34.5 ft.										
				150/0.5"		34.6												
35	35 118 91 88	S14 18	35.0 37.0		0.0		ML	Hard gray-brown to yellow-brown sandy SILT with gravel (ML), mps 1.25 in., layered, noticeable staining, well bonded, no odor, wet -GLACIAL TILL-	10	10	5	10	20	45				
						38.5												
40	33 50 51 48	S15 12	40.0 42.0		0.0		ML	Hard gray sandy SILT with gravel (ML), mps 1 in., well bonded, no odor, wet	5	10	5	10	15	55				
45	54 90 147 253	S16 0	45.0 47.0					No Recovery										
	21 62 51 70	S17 22	47.0 49.0		0.0		ML	Hard gray sandy SILT with gravel (ML), mps 1 in., well bonded, no odor, wet -GLACIAL TILL-	5	10	5	10	15	55				

NOTE: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

Boring No. HA19-5

H&A-TEST BOR WITH PERM PID+CASING 39486-877_HA-LIB09-POR-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\GINT\PORTLAND\39486\39486-877_TEST BORINGS.GPJ 17 Dec 19

TEST BORING REPORT

Boring No. HA19-5
File No. 39486-877
Sheet No. 3 of 4

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Casing Blows Per Ft.	PID Readings (ppm)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Color, GROUP NAME, max. particle size†, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
50	50/4"	S18 4	50.0 50.4		0.0		ML	Hard gray SILT with sand (ML), mps 0.25 in., well bonded, no odor, wet	-	5	5	5	15	70				
								-GLACIAL TILL-										
55	31 33 43 70	S19 24	55.0 57.0		0.0		ML	Hard gray SILT with sand (ML), well bonded, no odor, wet	-	5	5	5	15	70				
				44														
				34														
				23/2"		59.2		Note: Washed ahead of casing from 55.0 to 59.2 ft. Casing refusal on top of bedrock at approximately 59.2 ft.										
60						60.0		Note: Advanced roller bit to 60.0 ft. Begin NQ rock core at 60.0 ft.										
								SEE CORE BORING REPORT FOR ROCK DETAILS										
65																		
70																		
75																		

NOTE: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

Boring No. HA19-5

H&A-TEST BOR WITH PERM PID+CASING 39486-877_HA-LIB09-POR-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\GINT\PORTLAND\39486\39486-877_TEST BORINGS.GPJ 17 Dec 19

HALEY ALDRICH

CORE BORING REPORT

Boring No. HA19-5
File No. 39486-877
Sheet No. 4 of 4

Depth (ft)	Drilling Rate (min./ft)	Run No.	Run Depth (ft)	Recovery/RQD in.	Recovery/RQD %	Weath-ering	Elev./ Depth (ft)	Visual Description and Remarks
								SEE TEST BORING REPORT FOR OVERBURDEN DETAILS
60	3:29 2:39 2:39 4:10	C1	60.0 64.3	52 33	100 63	Fresh to Moderate		Hard, fresh to moderately weathered, gray, aphanitic to fine-grained QUARTZITE. Joints dipping at low to moderate angles, very close to close, undulating, rough, slightly to moderately weathered, tight to open. Oxidation on most joint surfaces, one silt infilled joint (0.125-in. thick) at approximately 63.0 ft. Frequent quartz veins from 60.0 to 60.8 ft, occasional quartz veins from 60.8 to 64.3 ft, chlorite mineralization with depth. Secondary high angle joints, slightly weathered, undulating, rough.
							64.3	BOTTOM OF EXPLORATION 64.3 FT
65								
70								
75								
80								
85								
90								

H+A_CORE+WELL07-1 39486-877_HA-LIB09-POR-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\GINT\PORTLAND\39486\39486-877_TEST BORINGS.GPJ 17 Dec 19

TEST BORING REPORT

Boring No. HA19-9

Project	Foreside Block 2-6 Development, Portland, Maine
Client	Portland Foreside Development Company, LLC
Contractor	New England Boring Contractors

File No.	39486-877
Sheet No.	1 of 2
Start	18 June 2019
Finish	19 June 2019
Driller	B. Cross
H&A Rep.	N. Klausmeyer/ H. Hollauer
Elevation	15.5+/-
Datum	Portland City Datum
Location	See Plan

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HW/NW	S	NQ	Rig Make & Model: Simco 2400
Inside Diameter (in.)	4.0/3.0	1.375	2.0	Bit Type: Roller Bit
Hammer Weight (lb)	300	140	-	Drill Mud: None
Hammer Fall (in.)	30	30	-	Casing: HW drive to 8.4 ft; NW drive to 18.0 ft
				Hoist/Hammer: Winch/ Automatic Hammer
				PID Make & Model: MiniRAE 2000 10.6 eV

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Casing Blows Per Ft.	PID Readings (ppm)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Color, GROUP NAME, max. particle size†, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0				Push		0.5		-BITUMINOUS CONCRETE-										
	5 6 5	S1 6	0.5 2.0	Push	0.2		SM	Medium dense dark brown to red-brown silty SAND with gravel (SM), mps 1 in., loosely bonded, slight musty odor, wet, contains brick and cinders	10	10	15	20	25	20				
						2.0		-FILL-										
	3 4 4 8	S2 18	2.0 4.0	Push	0.0		ML	Medium stiff light brown grading to gray-brown sandy SILT with gravel (ML), mps 0.5 in., loosely bonded, no odor, wet	5	10	5	10	15	55				
				Push				-GLACIAL TILL-										
	6 6 9 13	S3 14	4.0 6.0	9	0.1		ML	Stiff gray-brown sandy SILT with gravel (ML), mps 0.75 in., moderately bonded, no odor, wet	5	10	5	10	20	50				
5				24														
	11 11 9 16	S4 20	6.0 8.0	39	0.0		ML	Very stiff gray-brown sandy SILT with gravel (ML), mps 1 in., moderately bonded grading to well bonded, no odor, wet	10	5	5	10	20	50				
				71/0.5		7.6		Note: Cobbles encountered from approximately 7.6 to 8.6 ft.										
						8.6		-COBBLES-										
	11 35 86 49	S5 10	8.6 10.6		0.0		SM	Dense red-brown silty SAND with gravel (SM), mps 0.75 in., well bonded, no odor, wet	10	10	10	20	30	20				
						9.6		-GLACIAL TILL-										
10					0.0		GP	Very dense gray poorly-graded GRAVEL with sand (GP), mps 1.25 in., no odor, wet	60	20	5	5	5	5				
	90+	S6 3	10.6 11.1		0.0	11.1	GP	Very dense gray poorly-graded GRAVEL with sand (GP), mps 1 in., no odor, wet	60	20	5	5	5	5				
								Note: Boulder encountered from approximately 11.1 to 13.0 ft. Advanced roller bit and casing to 14.0 ft.										
								-BOULDER-										
	30 38 73 50/1"	S7 10	14.0 15.6			14.0	SM	Very dense gray-brown silty SAND (SM), mps 0.25 in., no structure, no odor, moist	-	-	15	20	40	25				
15						15.0		-GLACIAL TILL-										
								Note: Top of bedrock at approximately 15.0 ft.										
	35 50/2"	S8 6	16.0 16.7					-WEATHERED BEDROCK-										
								Note: Advanced casing and roller bit to 18.0 ft. Begin NQ rock core at 18.0 ft.										
						18.0		SEE CORE BORING REPORT FOR ROCK DETAILS										
20																		

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water

Sample ID

O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Splitspoon Sample
G - Geoprobe

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (ft)	9.6
Rock Cored (ft)	10.0
Samples	8S, 2C

Boring No. HA19-9

Field Tests: **Dilatancy**: R - Rapid S - Slow N - None **Toughness**: L - Low M - Medium H - High **Plasticity**: N - Nonplastic L - Low M - Medium H - High **Dry Strength**: N - None L - Low M - Medium H - High V - Very High

†**Note: Maximum particle size is determined by direct observation within the limitations of sampler size.**

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

H&A-TEST BOR WITH PERM PID+CASING 39486-877_HA-LIB09-POR-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\GINT\PORTLAND\39486\39486-877_TEST BORINGS.GPJ 17 Dec 19

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CORE BORING REPORT

Boring No. HA19-9
File No. 39486-877
Sheet No. 2 of 2

Depth (ft)	Drilling Rate (min./ft)	Run No.	Run Depth (ft)	Recovery/RQD in.	Recovery/RQD %	Weath-ering	Elev./ Depth (ft)	Visual Description and Remarks
								SEE TEST BORING REPORT FOR OVERBURDEN DETAILS
	6	C1	18.0	57	95	Slight		Hard to moderately hard, slightly weathered, gray, aphanitic to fine-grained SCHIST. Primary joints dipping at horizontal to low angles, very close to close, undulating and stepped, rough to smooth, tight to open. Few quartzite bands. Secondary joints dipping at moderate to high angles, iron oxide staining on few joint surfaces, calcite coating on few joint surfaces.
	15		23.0	32	53			
20	20							
	20							
	20							
	5:15	C2	23.0	55	92	Slight		Hard to moderately hard, slightly weathered, gray, aphanitic to fine-grained SCHIST. Primary joints dipping at horizontal to low angles, close, undulating to planar, smooth, tight to open. Secondary joints dipping at moderate to high angles, very close to close, undulating, planar, smooth,tight to open. Calcite and slight oxidation on few joint surfaces.
	6:00		28.0	34	57			
25	6:30							
	6:00							
	8:30							
							28.0	BOTTOM OF EXPLORATION 28.0 FT
30								
35								
40								
45								

H+A_CORE+WELL07-1 39486-877_HA-LIB09-POR-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\GINT\PORTLAND\39486\39486-877_TEST BORINGS.GPJ 17 Dec 19

TEST BORING REPORT

Boring No. HA19-10

Project	Foreside Block 2-6 Development, Portland, Maine
Client	Portland Foreside Development Company, LLC
Contractor	New England Boring Contractors

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HW	S	NQ	Rig Make & Model: Simco 2400
Inside Diameter (in.)	4.0	1.375	2.0	Bit Type: Roller Bit
Hammer Weight (lb)	300	140	-	Drill Mud: None
Hammer Fall (in.)	30	30	-	Casing: HW drive to 14.0 ft
				Hoist/Hammer: Cat-Head/ Safety Hammer
				PID Make & Model: MiniRAE 2000 10.6 eV

File No.	39486-877
Sheet No.	1 of 2
Start	19 June 2019
Finish	20 June 2019
Driller	B. Cross
H&A Rep.	H. Hollauer
Elevation	17.0+/-
Datum	Portland City Datum
Location	See Plan

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Casing Blows Per Ft.	PID Readings (ppm)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Color, GROUP NAME, max. particle size†, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0	3 3 4 7	S1 14	0.0 2.0		0.5	0.3	SM	-TOPSOIL AND ROOT MAT- Loose dark brown silty SAND (SM), mps 1 mm, no structure, no odor, moist, trace organics (leaves)	-	-	-	15	65	20				
	8 4 3 3	S2 12	2.0 4.0		0.7	3.5	SM	-FILL- Loose dark brown silty SAND (SM), mps 1 mm, no structure, no odor, moist, trace organics (leaves), brick and wood	-	-	-	15	65	20				
5	1 1 1 1	S3 14	4.0 6.0		0.6		SC	Very loose gray clayey SAND (SC), mps 0.5 in., no structure, no odor, wet -MARINE DEPOSIT-	-	5	5	10	40	40				
	2 3 4 5	S4 24	6.0 8.0		0.7		SC	Loose gray clayey SAND (SC), mps 0.5 in., no structure, no odor, wet	-	5	5	10	40	40				
	5 23 29 28	S5 12	8.0 10.0			8.5	SM	Very dense brown silty SAND (SM), mps 0.5 in., no structure, no odor, moist, broken rock pieces in split spoon shoe -GLACIAL TILL- Note: Gravelly from approximately 9.9 to 13.7 ft based on drilling action.	-	5	5	5	60	25				
10						13.7		Note: Top of bedrock at approximately 13.7 ft.										
						14.0		Note: Advanced roller bit to 14.0 ft. Begin NQ rock core at 14.0 ft. SEE CORE BORING REPORT FOR ROCK DETAILS										
15																		
20																		

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water

Sample ID

O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Splitspoon Sample
G - Geoprobe

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (ft)	13.7
Rock Cored (ft)	9.0
Samples	5S, 5C

Boring No. HA19-10

Field Tests: **Dilatancy**: R - Rapid S - Slow N - None **Toughness**: L - Low M - Medium H - High **Plasticity**: N - Nonplastic L - Low M - Medium H - High **Dry Strength**: N - None L - Low M - Medium H - High V - Very High

†**Note: Maximum particle size is determined by direct observation within the limitations of sampler size.**

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

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CORE BORING REPORT

Boring No. HA19-10
File No. 39486-877
Sheet No. 2 of 2

Depth (ft)	Drilling Rate (min./ft)	Run No.	Run Depth (ft)	Recovery/RQD in.	Recovery/RQD %	Weath-ering	Elev./ Depth (ft)	Visual Description and Remarks
								SEE TEST BORING REPORT FOR OVERBURDEN DETAILS
	15:00	C1	14.0 15.0	12 4	100 33	Fresh to High		Hard, fresh, gray, aphanitic to fine-grained SCHIST. Primary joints dipping at low to moderate angles, very close to close, planar, rough to smooth, tight to open. Secondary joints dipping at high angles to vertical angles.
15	18:00	C2	15.0	6	100	Fresh to High		
		C3	15.5	0	0			Note: C1 to C3 highly fractured.
	25:00		15.5 17.0	18 0	100 0	Fresh to High		
	15:00	C4	17.0	6	100	Fresh to High		
			17.5	0	0			Note: Apparent void from approximately 17.5 to 18.0 ft.
		C5	18.0 23.0	60 34	100 57	Fresh to Moderate		Hard, fresh to moderately weathered, aphanitic to fine grained SCHIST. Primary joints dipping at low to moderate angles, very close to close, planar, rough, tight to open. Secondary joints high angle to vertical, moderately close to close. Occasional calcite/quarts veins 0.25 to 0.50-in. thick. Quartzite zone from approximately 18.0 to 20.0 ft, contains vugs.
20								
							23.0	BOTTOM OF EXPLORATION 23.0 FT
25								
30								
35								
40								

H+A_CORE+WELL07-1 39486-877_HA-LIB09-POR-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\GINT\PORTLAND\39486\39486-877_TEST BORINGS.GPJ 17 Dec 19

TEST BORING REPORT

Boring No. HA19-11

Project	Foreside Block 2-6 Development, Portland, Maine
Client	Portland Foreside Development Company, LLC
Contractor	New England Boring Contractors

File No.	39486-877
Sheet No.	1 of 2
Start	21 June 2019
Finish	21 June 2019
Driller	B. Cross
H&A Rep.	H. Hollauer
Elevation	17.0+/-
Datum	Portland City Datum
Location	See Plan

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HW	S	NQ	Rig Make & Model: Simco 2400
Inside Diameter (in.)	4.0	1.375	2.0	Bit Type: Roller Bit
Hammer Weight (lb)	300	140	-	Drill Mud: None
Hammer Fall (in.)	30	30	-	Casing: HW drive to 7.5 ft
				Hoist/Hammer: Winch/ Safety Hammer
				PID Make & Model: MiniRAE 2000 10.6 eV

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Casing Blows Per Ft.	PID Readings (ppm)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Color, GROUP NAME, max. particle size†, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0	4 4 6 4	S1 5	0.0 2.0		0.2		SM	Loose olive-brown silty SAND (SM), trace ash, coal fragments, trace roots, mps 0.25 in, no structure, no odor, wet -FILL-	-	5	5	15	55	20				
	1 3 9 27	S2 12	2.0 4.0		0.6	2.0 3.0	SP-SM	Medium dense brown to yellow-brown poorly-graded SAND (SP-SM), mps 1.0 in, no structure, no odor, wet -MARINE DEPOSIT-	5	-	-	-	85	10				
	5 5 19 9	S3 12	4.0 6.0		0.4	4.0	SP	Note: Advanced roller bit through boulder from approximately 3.0 to 4.2 ft and could not advance casing. Moved boring location approximately 3.0 ft and continued sampling at 4.0 ft. -BOULDER- Medium dense brown poorly-graded SAND (SP), mps 0.5 in, no structure, no odor, wet	-	5	10	20	60	5				
5	6 11 50/4"	S4 16	6.0 7.3		0.2	7.3 7.5	SP	-MARINE DEPOSIT- Medium dense brown poorly-graded SAND (SP), mps 0.5 in, no structure, no odor, wet Note: Top of bedrock at approximately 7.3 ft. Note: Advance roller bit to 7.5 ft. Begin NQ rock core at 7.5 ft. SEE CORE BORING REPORT FOR ROCK DETAILS	-	5	10	20	60	5				
10																		
15																		
20																		

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water

Sample ID

O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Splitspoon Sample
G - Geoprobe

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (ft)	7.3
Rock Cored (ft)	5.0
Samples	4S, 1C

Boring No. HA19-11

Field Tests: **Dilatancy**: R - Rapid S - Slow N - None
Toughness: L - Low M - Medium H - High
Plasticity: N - Nonplastic L - Low M - Medium H - High
Dry Strength: N - None L - Low M - Medium H - High V - Very High

†**Note: Maximum particle size is determined by direct observation within the limitations of sampler size.**

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

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CORE BORING REPORT

Boring No. HA19-11
File No. 39486-877
Sheet No. 2 of 2

Depth (ft)	Drilling Rate (min./ft)	Run No.	Run Depth (ft)	Recovery/RQD in.	Recovery/RQD %	Weath-ering	Elev./ Depth (ft)	Visual Description and Remarks
								SEE TEST BORING REPORT FOR OVERBURDEN DETAILS
	5:00	C1	7.5	58	97	Fresh		Hard, fresh to slightly weathered aphanitic to fine-grained SCHIST. Primary joints dipping at horizontal to low angles, very close to moderately close, planar, smooth, tight to open. Secondary joints dipping at moderate to high angles. Joints have occasional calcite coatings and oxidation. Few calcite infilled healed joints.
	6:30		12.5	38	63			
	5:30							
10	5:30							
	4:30							
							12.5	BOTTOM OF EXPLORATION 12.5 FT
15								
20								
25								
30								
35								

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TEST BORING REPORT

Boring No. HA19-14

Project	Foreside Block 2-6 Development, Portland, Maine
Client	Portland Foreside Development Company, LLC
Contractor	New England Boring Contractors

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	NW	S	NQ	Rig Make & Model: Simco 2400
Inside Diameter (in.)	3.0	1.375	2.0	Bit Type: Roller Bit
Hammer Weight (lb)	300	140	-	Drill Mud: None
Hammer Fall (in.)	24	30	-	Casing: NW drive to 12.9 ft
				Hoist/Hammer: Cat-Head/ Doughnut Hammer
				PID Make & Model: MiniRAE 2000 10.6 eV

File No.	39486-877
Sheet No.	1 of 2
Start	23 May 2019
Finish	23 May 2019
Driller	C. DuPuis
H&A Rep.	J. Collins
Elevation	13.5+/-
Datum	Portland City Datum
Location	See Plan

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Casing Blows Per Ft.	PID Readings (ppm)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Color, GROUP NAME, max. particle size†, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0				4		0.5		-PORTLAND CEMENT CONCRETE-										
	3 3 1 2	S1 11	0.5 2.5	6	0.0	0.8	SP	Loose light brown poorly-graded SAND with gravel (SP), mps 1 in., no structure, no odor, moist	-	10	15	25	30	20				
				9			SP-SM	Loose dark brown poorly-graded SAND with silt and gravel (SP-SM), mps 1 in., no structure, no odor, moist	20	5	5	10	50	10				
						2.7		-FILL-										
	2 2 2 1	S2 12	2.5 4.5	9	0.0 0.0		ML/SC	Soft gray sandy SILT (ML), trace clay to sandy CLAY (SC), mps 0.25 in., no structure, no odor, moist	-	5	5	10	30	50				
				15				-MARINE DEPOSIT-										
5	2 4 5 4	S3 2	4.5 6.5		0.0		ML/SC	Soft gray sandy SILT (ML), trace clay to sandy CLAY (SC), mps 0.25 in., no structure, no odor, moist	-	5	5	10	30	50				
						6.5												
	5 8 10 10	S4 24	6.5 8.5		0.0		SM	Medium dense gray silty SAND with gravel (SM), trace clay, mps 0.25 in., no structure, no odor, moist	-	15	10	10	25	40				
								-GLACIAL TILL-										
	8 9 7 9	S5 8	8.5 10.5		0.0		SM	Similar to above	-	15	10	10	25	40				
10						10.5		Note: Advanced roller bit through boulder from approximately 10.5 to 12.0 ft.										
								-BOULDER-										
		S6 2	12.0 12.9			12.0	SM	Gray silty SAND with gravel, cobble (sample collected from core barrel)	5	10	10	10	25	40				
						13.4		Note: Top of Bedrock at approximately 13.4 ft. Advanced roller bit and casing 13.4 ft. Begin NQ rock core at 13.4 ft.										
15								SEE CORE BORING REPORT FOR ROCK DETAILS										
20																		

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water

Sample ID

O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Splitspoon Sample
G - Geoprobe

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (ft)	12.9
Rock Cored (ft)	5.0
Samples	6S, 1C

Boring No. HA19-14

Field Tests: **Dilatancy**: R - Rapid S - Slow N - None **Toughness**: L - Low M - Medium H - High **Plasticity**: N - Nonplastic L - Low M - Medium H - High **Dry Strength**: N - None L - Low M - Medium H - High V - Very High

†**Note: Maximum particle size is determined by direct observation within the limitations of sampler size.**

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

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HALEY ALDRICH

CORE BORING REPORT

Boring No. HA19-14
File No. 39486-877
Sheet No. 2 of 2

Depth (ft)	Drilling Rate (min./ft)	Run No.	Run Depth (ft)	Recovery/RQD in.	Recovery/RQD %	Weath-ering	Elev./ Depth (ft)	Visual Description and Remarks
								SEE TEST BORING REPORT FOR OVERBURDEN DETAILS
15	3:00 4:10 4:45 3:40 5:50	C1	13.4 18.4	58 52	97 87	Fresh to Slight		Hard, fresh to slightly weathered, gray, aphanitic to fine-grained SCHIST with veins of quartz. Primary joints are planar, smooth to rough with low-dipping angles, close to moderate spacing. Secondary joints are planar to undulating, rough, moderately spaced with high to vertical angles. Calcite coating on joints.
							18.4	BOTTOM OF EXPLORATION 18.4 FT
20								
25								
30								
35								
40								

H+A_CORE+WELL07-1 39486-877_HA-LIB09-POR-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\GINT\PORTLAND\39486\39486-877_TEST BORINGS.GPJ 17 Dec 19

TEST BORING REPORT

Boring No HA19-15(OW)

Project	Foreside Block 2-6 Development, Portland, Maine
Client	Portland Foreside Development Company, LLC
Contractor	New England Boring Contractors

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HW	S	NQ	Rig Make & Model: Mobile Drill B52 Track
Inside Diameter (in.)	4.0	1.375	2.0	Bit Type: Roller Bit
Hammer Weight (lb)	300	140	-	Drill Mud: None
Hammer Fall (in.)	24	30	-	Casing: HW drive to 12.5 ft
				Hoist/Hammer: Winch/ Automatic Hammer
				PID Make & Model: MiniRAE 2000 10.6 eV

File No.	39486-877
Sheet No.	1 of 2
Start	13 June 2019
Finish	13 June 2019
Driller	B. Cross
H&A Rep.	N. Klausmeyer
Elevation	16.0+/-
Datum	Portland City Datum
Location	See Plan

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Casing Blows Per Ft.	PID Readings (ppm)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Color, GROUP NAME, max. particle size†, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0				Push		0.5		-BITUMINOUS CONCRETE-										
	4 5 12	S1 6	0.5 2.0	Push	0.2	1.5	SW	Loose light brown to gray-brown well graded SAND with gravel (SW), mps 0.5 in., no structure, no odor, moist	5	10	15	25	40	5				
					0.2		ML	-FILL-	-	10	10	15	15	50				
	9 9 7 8	S2 9	2.0 4.0	Push	0.2		ML	Very stiff gray-brown sandy SILT (ML), mps 0.25 in., well bonded, no odor, moist	5	10	10	10	15	50				
				Push			ML	Very stiff gray-brown sandy SILT with gravel (ML), mps 1 in., well bonded, no odor, moist										
								-GLACIAL TILL-										
5	3 6 11 9	S3 3	4.0 6.0	7	0.2		ML	Very stiff gray-brown sandy SILT (ML), mps 0.75 in., well bonded, no odor, moist	5	5	10	10	20	50				
				10														
	4 12 16 13	S4 15	6.0 8.0	11	0.3		ML	Very stiff gray-brown sandy SILT with gravel (ML), mps 0.5 in., well bonded, no odor, moist	5	10	10	10	20	45				
				7														
	4 7 10 16	S5 17	8.0 10.0	5	0.2		ML	Very stiff gray-brown sandy SILT with gravel (ML), mps 0.5 in., well bonded, no odor, moist	5	5	10	10	20	50				
				23				-GLACIAL TILL-										
10	15 26 30 27	S6 24	10.0 12.0	17	0.2		ML	Hard gray-brown sandy SILT (ML), mps 0.5 in., well bonded, no odor, moist	5	5	10	10	20	50				
				21				-GLACIAL TILL-										
				14/0.5		12.5		Note: Drill action and wash indicate top of bedrock at approximately 12.5 ft.										
						13.5		Note: Advanced roller bit to 13.5 ft. Began NQ rock core at 13.5 ft.										
								SEE CORE BORING REPORT FOR ROCK DETAILS										
15																		
20																		

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water
6/13/19	15:45	--	12.5	18.5	NE

Sample ID

O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Splitspoon Sample
G - Geoprobe

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (ft)	12.5
Rock Cored (ft)	5.0
Samples	6S, 1C

Boring No. HA19-15(OW)

Field Tests: **Dilatancy**: R - Rapid S - Slow N - None **Toughness**: L - Low M - Medium H - High **Plasticity**: N - Nonplastic L - Low M - Medium H - High **Dry Strength**: N - None L - Low M - Medium H - High V - Very High

†**Note: Maximum particle size is determined by direct observation within the limitations of sampler size.**

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

H&A-TEST BOR WITH PERM PID+CASING 39486-877_HA-LIB09-POR-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\GINT\PORTLAND\39486\39486-877_TEST BORINGS.GPJ 17 Dec 19

CORE BORING REPORT

Boring No. HA19-15
File No. 39486-877
Sheet No. 2 of 2

Depth (ft)	Drilling Rate (min./ft)	Run No.	Run Depth (ft)	Recovery/RQD in.	Recovery/RQD %	Weath-ering	Elev./ Depth (ft)	Visual Description and Remarks
								SEE TEST BORING REPORT FOR OVERBURDEN DETAILS
15	5:50 3:55 4:09 8:49 5:11	C1	13.5 18.5	54 38	90 63	Fresh to Slight		Hard, fresh to slightly weathered, gray, aphanitic PHYLLITE. Joints dipping at low to high angles, tight to open, undulating, smooth to rough, very close to close, occasional silt and calcite coatings on joint surfaces, pitting observed.
							18.5	BOTTOM OF EXPLORATION 18.5 FT
20								
25								
30								
35								
40								

H+A_CORE+WELL07-1 39486-877_HA-LIB09-POR-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\GINT\PORTLAND\39486\39486-877_TEST BORINGS.GPJ 17 Dec 19

TEST BORING REPORT

Boring No. HA19-16

Project	Foreside Block 2-6 Development, Portland, Maine
Client	Portland Foreside Development Company, LLC
Contractor	New England Boring Contractors

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HW	S	NQ	Rig Make & Model: Mobile Drill B52 Track
Inside Diameter (in.)	3.0	1.375	2.0	Bit Type: Roller Bit
Hammer Weight (lb)	300	140	-	Drill Mud: None
Hammer Fall (in.)	24	30	-	Casing: HW drive to 17.4 ft
				Hoist/Hammer: Winch/ Automatic Hammer
				PID Make & Model: MiniRAE 2000 10.6 eV

File No.	39486-877
Sheet No.	1 of 2
Start	10 June 2019
Finish	11 June 2019
Driller	B. Cross
H&A Rep.	J. Collins/N. Klausmeyer
Elevation	15.0+/-
Datum	Portland City Datum
Location	See Plan

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Casing Blows Per Ft.	PID Readings (ppm)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Color, GROUP NAME, max. particle size†, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0				20	1.5	0.4		-BITUMINOUS CONCRETE-										
	2 11 22 11	S1 26	0.5 2.5	46			SP	Dense dark brown poorly-graded SAND with gravel (SP), mps 0.25 in., no structure, no odor, dry	20	10	40	20	5	5				
				50/0.5'				-FILL-										
				7														
5	45 30 19 17	S2 18	4.0 6.0		72.6		SP-SM	Dense dark brown to reddish-brown poorly-graded SAND with silt and gravel (SP-SM), mps 4 in., no structure, slight tar-like odor, wet, contains coal Note: Noticeable sheen on drill wash water.	10	15	30	25	10	10				
				1				-FILL-										
				1														
				3														
10	3 3 2 3	S3 1	9.0 11.0	2	0.0			Note: Recovered gravel piece.	100									
				14		11.0												
	2 6 8 9	S4 12	11.0 13.0	9	0.0		SM	Medium dense brown silty SAND with gravel (SM), mps 1 in., slight oxidation, loosely bonded, no odor, wet	10	10	10	20	35	15				
				29														
				25				-MARINE DEPOSIT-										
						14.0												
15	1 1 1 1	S5 24	14.0 16.0	5	0.0		SM	Very loose gray silty SAND with gravel (SM), mps 0.75 in., moderately bonded, no odor, wet	15	10	5	15	25	30				
				2				-GLACIAL TILL-										
				2														
				50/0.4'		17.4		Note: Drill action and wash indicate top of bedrock at approximately 17.4 ft.										
						18.0		Note: Advanced roller bit into bedrock to 18.0 ft. Began NQ rock core at 18.0 ft.										
20								SEE CORE BORING REPORT FOR ROCK DETAILS										

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water
6/11/19	10:45	--	17.4	23.0	4.7

Sample ID

O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Splitspoon Sample
G - Geoprobe

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (ft)	17.4
Rock Cored (ft)	5.0
Samples	5S, 1C

Boring No. HA19-16

Field Tests: **Dilatancy**: R - Rapid S - Slow N - None
Toughness: L - Low M - Medium H - High
Plasticity: N - Nonplastic L - Low M - Medium H - High
Dry Strength: N - None L - Low M - Medium H - High V - Very High

†**Note: Maximum particle size is determined by direct observation within the limitations of sampler size.**

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

H&A-TEST BOR WITH PERM PID+CASING 39486-877_HA-LIB09-POR-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\GINT\PORTLAND\39486\39486-877_TEST BORINGS.GPJ 17 Dec 19

CORE BORING REPORT

Boring No. HA19-16
File No. 39486-877
Sheet No. 2 of 2

Depth (ft)	Drilling Rate (min./ft)	Run No.	Run Depth (ft)	Recovery/RQD in.	Recovery/RQD %	Weath-ering	Elev./ Depth (ft)	Visual Description and Remarks
								SEE TEST BORING REPORT FOR OVERBURDEN DETAILS
20	9:50 7:18 2:58 3:16 3:54	C1	18.0 23.0	60 24	100 40	Fresh to Slight		Very hard to hard, fresh to slightly weathered, gray, aphanitic PHYLLITE. Primary joints dipping at low to horizontal angles, very close to close, planar to undulating, smooth to rough, tight to open. Secondary joints dipping at high to near-vertical angles, moderately close, smooth to rough, tight to open, occasional fine-grained silt coatings on joint surfaces, quartz veins up to 2-in. thick, slight pitting on quartz veins.
							23.0	BOTTOM OF EXPLORATION 23.0 FT
25								
30								
35								
40								
45								

H+A_CORE+WELL07-1 39486-877_HA-LIB09-POR-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\GINT\PORTLAND\39486\39486-877_TEST BORINGS.GPJ 17 Dec 19

TEST BORING REPORT

Boring No. HA19-17

Project	Foreside Block 2-6 Development, Portland, Maine
Client	Portland Foreside Development Company, LLC
Contractor	New England Boring Contractors

File No. 39486-877
Sheet No. 1 of 3
Start 16 May 2019
Finish 17 May 2019
Driller C. DuPuis
H&A Rep. H. Hollauer/ J. Collins
Elevation 15.5+/-
Datum Portland City Datum
Location See Plan

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	NW	S	NQ	Rig Make & Model: Simco 2400
Inside Diameter (in.)	3.0	1.375	2.0	Bit Type: Roller Bit
Hammer Weight (lb)	300	140	-	Drill Mud: None
Hammer Fall (in.)	30	30	-	Casing: NW drive to 20.3 ft
				Hoist/Hammer: Cat-Head/ Safety Hammer
				PID Make & Model: MiniRAE 2000 10.6 eV

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Casing Blows Per Ft.	PID Readings (ppm)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Color, GROUP NAME, max. particle size†, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0				35		0.5		-PORTLAND CEMENT CONCRETE-										
	11 17 45 33	S1 12	0.5 2.5		0.1	1.3	SP	Very dense brown poorly-graded SAND with gravel (SP), mps 0.25 in., no structure, no odor, slightly moist	5	10	20	40	20	5				
							SP-SM	-FILL-	5	5	10	20	50	10				
	100/2"	S2 2	2.5 2.7		0.0	2.5 2.7	SM	Very dense black to dark brown poorly-graded SAND with silt (SP-SM), mps 1.5 in., no structure, no odor, slightly moist, trace brick fragments	5	10	5	35	10	15				
								-FILL-										
5						5.1	SM	Very dense dark brown to black silty SAND with gravel (SM), mps 0.25 in., no structure, no odor, slightly moist, contains ash, brick and coal fragments										
	10 5 11 1	S3 6	5.1 7.1		0.2			-FILL-	-	5	10	15	60	10				
								Note: Drilled through brick, concrete, metal, cobbles and boulders (old foundation wall) from 2.7 to 5.1 ft.										
						7.1		Loose brown to dark brown poorly-graded SAND (SP), mps 0.25 in., no structure, no odor, wet										
	6 2 1 1	S4 9	7.1 9.1		0.0		SP	-FILL-	-	60	10	5	10	15				
								Very loose black ASH (70%) and black silty SAND (SM), mps 0.25 in., no structure, no odor, wet										
	12 3 2 1	S5 2	9.1 11.1	4 4	0.2		SP	Similar to S4	-	60	10	5	10	15				
10																		
	5 4 9 8	S6 0	11.1 13.1	4 8				Note: S6 No Recovery, possibly pushed cobble.										
	8 3 2 3	S7 0	13.1 15.1					No Recovery, possibly soil saturated with water from spun casing, used softest basket in split-spoon to improve recovery										
15																		
	10 11 10 47	S8 24	15.5 17.5	61 27	0.0		SP	Medium dense black poorly-graded ASH AND SAND (SP), mps 2.0 mm, no structure, no odor, very moist, 4-in. thick silt layer with trace clay, contains trace coal	-	-	5	10	80	5				
								-FILL-										
						17.5												
	15 8 50/5"	S9 5	17.5 18.9		0.2		SP-SM	Very dense gray-brown poorly-graded SAND with silt (SP-SM), mps 0.50 in., moderately bonded, no odor, wet	-	10	10	10	60	10				
						18.9		-GLACIAL TILL-										
								Note: Top of bedrock at approximately 18.9 ft.										
20								-WEATHERED BEDROCK-										

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water

Sample ID

O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Splitspoon Sample
G - Geoprobe

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (ft) 18.9
Rock Cored (ft) 5.0
Samples 9S, 2C

Boring No. HA19-17

Field Tests: **Dilatancy**: R - Rapid S - Slow N - None **Toughness**: L - Low M - Medium H - High **Plasticity**: N - Nonplastic L - Low M - Medium H - High **Dry Strength**: N - None L - Low M - Medium H - High V - Very High

†**Note: Maximum particle size is determined by direct observation within the limitations of sampler size.**

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

H&A-TEST BOR WITH PERM PID+CASING 39486-877_HA-LIB09-POR-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\GINT\PORTLAND\39486\39486-877_TEST BORINGS.GPJ 17 Dec 19

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TEST BORING REPORT

Boring No. HA19-17
File No. 39486-877
Sheet No. 2 of 3

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Casing Blows Per Ft.	PID Readings (ppm)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Color, GROUP NAME, max. particle size†, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
20						20.3		Note: Advanced roller bit and casing from 18.9 to 20.3 ft. Begin NQ rock core at 20.3 ft.										
								SEE CORE BORING REPORT FOR ROCK DETAILS										
25																		
30																		
35																		
40																		
45																		

NOTE: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

Boring No. HA19-17

H&A-TEST BOR WITH PERM PID+CASING 39486-877_HA-LIB09-POR-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\GINT\PORTLAND\39486\39486-877_TEST BORINGS.GPJ 17 Dec 19

HALEY ALDRICH

CORE BORING REPORT

Boring No. HA19-17
File No. 39486-877
Sheet No. 3 of 3

Depth (ft)	Drilling Rate (min./ft)	Run No.	Run Depth (ft)	Recovery/RQD in.	Recovery/RQD %	Weath-ering	Elev./ Depth (ft)	Visual Description and Remarks
								SEE TEST BORING REPORT FOR OVERBURDEN DETAILS
	5:00 4:20 7:00 5:40	C1	20.3 23.9	43 25	100 58	Slight to Moderate		Hard, slightly to moderately weathered, medium gray, fine-grained to aphanitic SCHIST. Joints very close to close, tight to open, planar and smooth, fresh to slightly weathered. Primary joints dipping at moderate to high angles. Secondary joints dipping at low angles. Calcite on some joint surfaces.
	9:40	C2	23.9 25.3	17 17	100 100	Slight to Moderate		Similar to above
25							25.3	BOTTOM OF EXPLORATION 25.3 FT
30								
35								
40								
45								
50								

H+A_CORE+WELL07-1 39486-877_HA-LIB09-POR-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\GINT\PORTLAND\39486\39486-877_TEST BORINGS.GPJ 17 Dec 19

TEST BORING REPORT

Boring No. HA19-18

Project	Foreside Block 2-6 Development, Portland, Maine
Client	Portland Foreside Development Company, LLC.
Contractor	New England Boring Contractors

File No.	39486-877
Sheet No.	1 of 2
Start	15 May 2019
Finish	15 May 2019
Driller	C. DuPuis
H&A Rep.	H. Hollauer
Elevation	15.5+/-
Datum	Portland City Datum
Location	See Plan

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	NW	S	NQ	Rig Make & Model: Simco 2400
Inside Diameter (in.)	3.0	1.375	2.0	Bit Type: Roller Bit
Hammer Weight (lb)	300	140	-	Drill Mud: None
Hammer Fall (in.)	24	30	-	Casing: NW drive to 16.3 ft
				Hoist/Hammer: Cat-Head/ Safety Hammer
				PID Make & Model: MiniRAE 2000 10.6 eV

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Casing Blows Per Ft.	PID Readings (ppm)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Color, GROUP NAME, max. particle size†, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0						0.5		-CONCRETE-										
	35	S1	0.5	20	34.6	1.0	SP	Very dense brown poorly-graded SAND with gravel (SP), mps 0.5 in., no structure, moderately strong solvent-like odor, moist	5	10	20	40	20	5				
	100	16	2.5	50			SP-SM	-FILL- Very dense black poorly-graded SAND with silt (SP-SM), mps 0.5 in., no structure, moderately strong solvent-like odor, moist	5	5	10	20	50	10				
	52					2.5												
	37						SM	-FILL-	-	5	10	20	50	15				
	25	S2	2.5	75	10.8	3.2	SM	Very dense gray-brown silty SAND (SM), mps 0.25 in., no structure, no odor, slightly moist	-	5	10	20	50	15				
	30	14	4.5	51				-FILL-										
	22					4.5	SM	Similar to above, except brown to rust brown (iron oxide stain), mps 0.5 in., 0.5-in. thick layer of black ash	-	5	10	30	40	15				
	19					5.2	SM	-FILL-	-	5	5	5	55	30				
5	5	S3	4.5	38	3.7	6.3	SM	Dense gray-brown and brown silty SAND (SM), mps 0.25 in., trace ash, no structure, no odor, wet	-	-	10	20	40	30				
	3	12	6.5	30				-FILL-										
	1						SM	Very loose gray-brown silty SAND (SM), mps 0.25 in., no structure, no odor, wet, trace brick particles	-	-	10	20	40	30				
	1					8.5		-FILL-										
	5	S4	6.5	40	0.4		SM	Very loose gray silty SAND (SM), mps 2.0 mm, no structure, no odor, wet, reworked naturally-deposited soil	-	-	10	20	40	30				
	1	8	8.5	40				-FILL-										
	1						SM	Loose gray silty SAND (SM), mps 2.0 mm, no structure, no odor, wet	-	-	10	20	40	30				
	1							-MARINE DEPOSIT- Very loose gray silty SAND (SM), mps 2.0 mm, no structure, no odor, wet										
10	7	S5	8.5	15	0.6													
	5	5	10.5	19														
	2																	
	2																	
	2	S6	10.5	13	0.4													
	1	12	12.5	14														
	1																	
	1																	
				13														
				12														
15				11														
	8	S7	15.5				SM	Similar to above, with rock in tip of spoon	-	-	10	20	40	30				
	50(5")	10	16.3			16.3		Note: Top of bedrock at approximately 16.3 ft.										
						16.5		Note: Advanced roller bit to 16.5 ft. Begin NQ rock core at 16.5 ft.										
								SEE CORE BORING REPORT FOR ROCK DETAILS										
20																		

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water

Sample ID

O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Splitspoon Sample
G - Geoprobe

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (ft)	15.8
Rock Cored (ft)	4.8
Samples	7S, 1C

Boring No. HA19-18

Field Tests: **Dilatancy**: R - Rapid S - Slow N - None **Toughness**: L - Low M - Medium H - High **Plasticity**: N - Nonplastic L - Low M - Medium H - High **Dry Strength**: N - None L - Low M - Medium H - High V - Very High

†**Note: Maximum particle size is determined by direct observation within the limitations of sampler size.**

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

H&A-TEST BOR WITH PERM PID+CASING 39486_HA-LIB09-POR-2022.GLB HA-TB+CORE+WELL-07-1.GDT \\HALEYALDRICH.COM\SHARE\CF\PROJECTS\39486\GINT\39486-877_TEST BORINGS.GPJ 6 Oct 22

HALEY ALDRICH

CORE BORING REPORT

Boring No. HA19-18
File No. 39486-877
Sheet No. 2 of 2

Depth (ft)	Drilling Rate (min./ft)	Run No.	Run Depth (ft)	Recovery/RQD in.	Recovery/RQD %	Weath-ering	Elev./ Depth (ft)	Visual Description and Remarks
								SEE TEST BORING REPORT FOR OVERBURDEN DETAILS
20	3:38 4:01 3:05 3:28 3:17	C1	16.5 21.3	58 29	100 50	Fresh to Slight		Hard, fresh to slightly weathered, gray, aphanitic to fine-grained SCHIST. Primary joints dipping at low angles, very close to close, planar and smooth, tight to open. Secondary joints vertical, very close to moderate, planar to stepped, smooth. Iron oxide staining and calcite coating on joint surfaces.
							21.3	BOTTOM OF EXPLORATION 21.3 FT
25								
30								
35								
40								
45								
50								

H+A_CORE+WELL-09 39486_HA-LIB09-POR-2022.GLB HA-TB+CORE+WELL-09 W FENCE.GDT \\HALEYALDRICH.COM\SHARE\CF\PROJECTS\39486\GINT\39486-877_TEST BORINGS.GPJ 6 Oct 22

TEST BORING REPORT

Boring No. HA19-19

Project	Foreside Block 2-6 Development, Portland, Maine
Client	Portland Foreside Development Company, LLC.
Contractor	New England Boring Contractors

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HW	S	NQ	Rig Make & Model: Mobile Drill B52 Track
Inside Diameter (in.)	4.0	1.375	2.0	Bit Type: Roller Bit
Hammer Weight (lb)	300	140	-	Drill Mud: None
Hammer Fall (in.)	24	30	-	Casing: HW drive to 5.2 ft
				Hoist/Hammer: Winch/ Automatic Hammer
				PID Make & Model: MiniRAE 2000 10.6 eV

File No.	39486-877
Sheet No.	1 of 2
Start	13 June 2019
Finish	13 June 2019
Driller	B. Cross
H&A Rep.	N. Klausmeyer
Elevation	16.0+/-
Datum	Portland City Datum
Location	See Plan

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Casing Blows Per Ft.	PID Readings (ppm)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Color, GROUP NAME, max. particle size†, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0				Push	0.0	0.5	SM	-BITUMINOUS CONCRETE-										
	1 6 15	S1 17	0.5 2.0	Push	0.0	1.5	ML	Loose light brown grading to gray-brown silty SAND with gravel (SM), mps 1 in., no structure grading to moderately bonded, no odor, damp	15	5	10	20	30	20				
	25 42 40 50/2"	S2 10	2.0 3.7	42 50/0.8'				-FILL-	5	10	5	10	15	55				
						3.7	ML	Stiff to very stiff gray-brown sandy SILT with gravel (ML), mps 0.5 in., well bonded, no odor, damp										
								-GLACIAL TILL-										
						4.5	ML	Hard gray-brown sandy SILT (ML), mps 0.5 in., well bonded, no odor, moist	5	-	5	10	20	60				
5	27 50/3"	S3 10	4.5 5.2			5.2		Note: Advanced roller bit through boulder from approximately 3.7 to 4.5 ft.	5	10	10	10	20	45				
								-BOULDER-										
						7.0		Very stiff to hard gray-brown sandy SILT with gravel (ML), mps 0.75 in., well bonded, no odor, moist, rock in spoon tip										
								-GLACIAL TILL-										
								Note: Drill action and wash indicate top of bedrock at approximately 5.2 ft.										
								Note: Advanced roller bit to 7.0 ft. Began NQ rock core at 7.0 ft.										
								SEE CORE BORING REPORT FOR ROCK DETAILS										
10																		
15																		
20																		

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water
6/13/19	11:45	--	3.8	11.7	NE

Sample ID

O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Splitspoon Sample
G - Geoprobe

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (ft)	5.2
Rock Cored (ft)	4.7
Samples	3S, 1C

Boring No. HA19-19

Field Tests: **Dilatancy**: R - Rapid S - Slow N - None
Toughness: L - Low M - Medium H - High
Plasticity: N - Nonplastic L - Low M - Medium H - High
Dry Strength: N - None L - Low M - Medium H - High V - Very High

†**Note: Maximum particle size is determined by direct observation within the limitations of sampler size.**

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

H&A-TEST BOR WITH PERM PID+CASING 39486_HA-LIB09-POR-2022.GLB HA-TB+CORE+WELL-07-1.GDT \\HALEYALDRICH.COM\SHARE\CF\PROJECTS\39486\GINT\39486-877_TEST BORINGS.GPJ 6 Oct 22

HALEY ALDRICH

CORE BORING REPORT

Boring No. HA19-19
File No. 39486-877
Sheet No. 2 of 2

Depth (ft)	Drilling Rate (min./ft)	Run No.	Run Depth (ft)	Recovery/RQD in.	Recovery/RQD %	Weath-ering	Elev./ Depth (ft)	Visual Description and Remarks
								SEE TEST BORING REPORT FOR OVERBURDEN DETAILS
10	4:57 7:46 15:15 5:19 10:40/0.7'	C1	7.0 11.7	54 44	96 79	Fresh to Slight	11.7	Hard to very hard, fresh to slightly weathered, light gray, aphanitic PHYLLITE. Primary joints dipping at high angles, moderately close, open, smooth to rough, undulating. Secondary joints dipping at low angles, moderately close, open, smooth to rough, undulating, silt coatings on joint surfaces, oxidation on joint surfaces, quartz intrusions up to 5-in. thick throughout core stem.
								BOTTOM OF EXPLORATION 11.7 FT
15								
20								
25								
30								
35								
40								

H+A_CORE+WELL-09 39486_HA-LIB09-POR-2022.GLB HA-TB+CORE+WELL-09 W FENCE.GDT \\HALEYALDRICH.COM\SHARE\CF\PROJECTS\39486\GINT\39486-877_TEST BORINGS.GPJ 6 Oct 22

TEST BORING REPORT

Boring No. HA19-20

Project	Foreside Block 2-6 Development, Portland, Maine
Client	Portland Foreside Development Company, LLC
Contractor	New England Boring Contractors

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HW	S	NQ	Rig Make & Model: Mobile Drill B52 Track
Inside Diameter (in.)	4.0	1.375	2.0	Bit Type: Roller Bit
Hammer Weight (lb)	300	140	-	Drill Mud: None
Hammer Fall (in.)	24	30	-	Casing: HW drive to 26.2 ft
				Hoist/Hammer: Winch/ Automatic Hammer
				PID Make & Model: MiniRAE 2000 10.6 eV

File No.	39486-877
Sheet No.	1 of 3
Start	11 June 2019
Finish	11 June 2019
Driller	B. Cross
H&A Rep.	N. Klausmeyer
Elevation	13.5+/-
Datum	Portland City Datum
Location	See Plan

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Casing Blows Per Ft.	PID Readings (ppm)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Color, GROUP NAME, max. particle size†, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0				Push		0.5		-BITUMINOUS CONCRETE-										
	2 4 4	S1 14	0.5 2.0	Push	0.9		SW	Loose dark brown well graded SAND with gravel (SW), mps 1.25 in., no structure, slight musty odor, damp, contains trace brick, ash, cinders	5	10	20	25	35	5				
								-FILL-										
	2 3 4 5	S2 10	2.0 4.0	Push 26	0.4		SW-SM	Loose dark brown to black well graded SAND with silt and gravel (SW-SM), mps 1 in., no structure, slight musty odor, wet, contains trace brick, ash, cinders	5	15	10	20	40	10				
						4.0												
5	3 5 4 3	S3 12	4.0 6.0	9 6	1.3		SM	Loose light brown silty SAND with gravel (SM), mps 1 in., loosely bonded, no odor, wet, slight oxidation	5	15	20	20	40	15				
								-FILL-										
	3 10 9 8	S4 10	6.0 8.0	16 23	0.3		SM	Medium dense light brown silty SAND with gravel (SM), mps 0.5 in., loosely bonded, no odor, wet, contains trace brick	5	10	10	20	40	15				
						8.0												
	7 4 3 4	S5 12	8.0 10.0	17 20	0.5		SM	Loose gray-brown silty SAND with gravel (SM), trace clay, mps 0.5 in., moderately bonded, no odor, wet	5	10	10	15	45	15				
								-MARINE DEPOSIT-										
10	4 4 2 3	S6 16	10.0 12.0	16 12	0.0		SM	Loose gray-brown silty SAND with gravel (SM), trace clay, mps 0.75 in., moderately bonded, no odor, wet	5	10	10	20	40	15				
				9 8														
15	1 1 1 1	S7 0	14.0 16.0	9 11				No Recovery										
	WOH WOH 1 1	S8 6	16.0 18.0	11 7	0.0		SM	Very loose gray-brown silty SAND with gravel (SM), mps 0.5 in., loosely to moderately bonded, slight organic odor, wet, contains weathered rock fragments, black organic pockets in split spoon tip	-	15	10	20	35	20				
								-MARINE DEPOSIT-										
				11		18.5												
20	7 11	S9 11	19.0 21.0	7	0.0		SW	Medium dense gray-brown grading to yellow-brown well graded SAND with gravel, mps 1 in., no structure, no odor, wet	5	10	15	20	45	5				

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water
6/12/19	11:00	--	40.5	45.5	6.3

Sample ID

O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Splitspoon Sample
G - Geoprobe

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (ft)	26.2
Rock Cored (ft)	5.0
Samples	10S, 1C

Boring No. HA19-20

Field Tests: **Dilatancy**: R - Rapid S - Slow N - None **Toughness**: L - Low M - Medium H - High **Plasticity**: N - Nonplastic L - Low M - Medium H - High **Dry Strength**: N - None L - Low M - Medium H - High V - Very High

†**Note: Maximum particle size is determined by direct observation within the limitations of sampler size.**

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

H&A-TEST BOR WITH PERM PID+CASING 39486-877_HA-LIB09-POR-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\GINT\PORTLAND\39486\39486-877_TEST BORINGS.GPJ 17 Dec 19

HALEY ALDRICH

TEST BORING REPORT

Boring No. HA19-20
File No. 39486-877
Sheet No. 2 of 3

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Casing Blows Per Ft.	PID Readings (ppm)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Color, GROUP NAME, max. particle size†, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
20	7 8			2 20 9 23		24.0		-MARINE DEPOSIT-										
25	2 1 1 4	S10 19	24.0 26.0	21 24 23 12 27	0.0		SM	Very loose gray-brown silty SAND with gravel (SM), mps 0.25 in., well bonded, no odor, wet -GLACIAL TILL- Note: Drill action and wash indicate gravel at approximately 26.2 ft.	-	15	15	15	30	25				
30	1 2 1 1	S11 6	29.0 31.0	17 19 16 16 17	0.0		SM	Very loose gray-brown silty SAND (SM), trace clay, mps 0.25 in., moderately bonded, no odor, wet	-	5	10	15	40	30				
35	7 30 9 7	S12 9	34.0 36.0	9 14 9 10 18	0.0		SM	Dense gray-brown silty SAND with gravel (SM), trace clay, mps 1 in., moderately bonded, no odor, wet -GLACIAL TILL-	10	15	5	10	30	30				
40	7 52	S13 12	39.0 40.0	20 50	0.0	40.0 40.5	SM	Very dense gray-brown silty SAND with gravel, mps 0.75 in., moderately bonded, no odor, wet Note: Drill action and casing refusal indicate top of bedrock at approximately 40.0 ft. Note: Advance roller bit to 40.5 ft. Began NQ rock core at 40.5 ft. SEE CORE BORING REPORT FOR ROCK DETAILS	5	15	15	20	30	15				
45																		

NOTE: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

Boring No. HA19-20

H&A-TEST BOR WITH PERM PID+CASING 39486-877_HA-LIB09-POR-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\GINT\PORTLAND\39486\39486-877_TEST BORINGS.GPJ 17 Dec 19

CORE BORING REPORT

Boring No. HA19-20
File No. 39486-877
Sheet No. 3 of 3

Depth (ft)	Drilling Rate (min./ft)	Run No.	Run Depth (ft)	Recovery/RQD in.	Recovery/RQD %	Weath-ering	Elev./ Depth (ft)	Visual Description and Remarks
								SEE TEST BORING REPORT FOR OVERBURDEN DETAILS
45	4:43 4:59 4:30 4:37 5:25	C1	40.5 45.5	60 51	100 85	Fresh to Slight		Hard, fresh to slightly weathered, gray, aphanitic PHYLLITE. Primary joints dipping at low angles, very close to moderate, tight to open, planar to undulating, smooth to rough. Secondary joints dipping at high angles, moderately close, planar to undulating, smooth to rough, slight silt coating on joint surfaces, one secondary joint from 43.9 to 44.5 ft, oxidized, several quartz stringers throughout core stem.
							45.5	BOTTOM OF EXPLORATION 45.5 FT
50								
55								
60								
65								
70								

H+A_CORE+WELL07-1 39486-877_HA-LIB09-POR-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\GINT\PORTLAND\39486\39486-877_TEST BORINGS.GPJ 17 Dec 19

TEST BORING REPORT

Boring No. HA19-21

Project	Foreside Block 2-6 Development, Portland, Maine
Client	Portland Foreside Development Company, LLC
Contractor	New England Boring Contractors

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HW	S	NQ	Rig Make & Model: Mobile Drill B52 Track
Inside Diameter (in.)	4.0	1.375	2.0	Bit Type: Roller Bit
Hammer Weight (lb)	300	140	-	Drill Mud: None
Hammer Fall (in.)	24	30	-	Casing: HW drive to 16.5 ft
				Hoist/Hammer: Winch/ Automatic Hammer
				PID Make & Model: MiniRAE 2000 10.6 eV

File No.	39486-877
Sheet No.	1 of 2
Start	10 June 2019
Finish	10 June 2019
Driller	B. Cross
H&A Rep.	J. Collins
Elevation	13.5+/-
Datum	Portland City Datum
Location	See Plan

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Casing Blows Per Ft.	PID Readings (ppm)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Color, GROUP NAME, max. particle size†, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0				Push	2.3	0.4	SP	-BITUMINOUS CONCRETE-										
	6 6 7 6	S1 17	0.4 2.4	Push				Medium dense poorly-graded SAND with gravel (SP), mps 0.75 in., no structure, no odor, dry, coal observed	15	20	25	25	10	5				
				Push				-FILL-										
				Push														
				Push		4.4	GM	Very loose dark gray silty GRAVEL (GM), mps 1 in., no structure, no odor, wet	40	30	-	5	5	20				
5	2 1 2 1	S2 4	4.4 6.4	Push	3.3			-FILL-										
				Push														
				Push														
				Push		9.0		Note: Drill action indicates strata change at approximately 9.0 ft.										
				22			SM/ML	Very loose gray to dark brown silty SAND with gravel (SM) to SILT with sand (ML), mps 4 in., no structure, slight organic odor, moist	- -	15 5	5 10	25 15	30 30	25 40				
10	1 1 2 1	S3 16	9.4 11.4	15	1.6			-MARINE DEPOSIT-										
				17														
				31														
				20														
				33			SP-SM	Medium dense dark gray poorly-graded SAND with silt and gravel (SP-SM), mps 0.75 in., few organic soil pockets, slight organic odor, moist	10	20	30	25	5	10				
15	12 12 18 5	S4 12	14.4 16.4	30	2.4													
				30/0.1'		16.5		Note: Top of bedrock at approximately 16.5 ft.										
								Note: Advanced roller bit to 18.4 ft. Began NQ rock core at 18.4 ft.										
						18.4		SEE CORE BORING REPORT FOR ROCK DETAILS										
20																		

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water

Sample ID

O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Splitspoon Sample
G - Geoprobe

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (ft)	16.5
Rock Cored (ft)	5.5
Samples	4S, 2C

Boring No. HA19-21

Field Tests: **Dilatancy**: R - Rapid S - Slow N - None **Toughness**: L - Low M - Medium H - High **Plasticity**: N - Nonplastic L - Low M - Medium H - High **Dry Strength**: N - None L - Low M - Medium H - High V - Very High

†**Note: Maximum particle size is determined by direct observation within the limitations of sampler size.**

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

H&A-TEST BOR WITH PERM PID+CASING 39486-877_HA-LIB09-POR-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\GINT\PORTLAND\39486\39486-877_TEST BORINGS.GPJ 17 Dec 19

HALEY ALDRICH

CORE BORING REPORT

Boring No. HA19-21
File No. 39486-877
Sheet No. 2 of 2

Depth (ft)	Drilling Rate (min./ft)	Run No.	Run Depth (ft)	Recovery/RQD in.	Recovery/RQD %	Weath-ering	Elev./ Depth (ft)	Visual Description and Remarks
								SEE TEST BORING REPORT FOR OVERBURDEN DETAILS
20	5:10 5:00 3:30	C1	18.4 20.9	13 0	43 0	Slight to Moderate		Hard, slightly to moderately weathered, gray, aphanitic to fine-grained SCHIST. Primary joints dipping at low to moderate angles, very close to close, planar, smooth, tight to open, single quartz intrusion.
	11:00 3:30 2:30 3:00/0.5'	C2	20.9 23.9	33 9	92 25	Fresh to Moderate		Hard, fresh to moderately weathered, aphanitic to fine-grained SCHIST. Primary joints dipping at low to moderate angles, very close to close, planar to undulating, smooth to rough, open. Joint surfaces slightly to moderately weathered with frequent quartz intrusions from approximately 20.4 to 22.5 ft.
							23.9	BOTTOM OF EXPLORATION 23.9 FT
25								
30								
35								
40								
45								

H+A_CORE+WELL07-1 39486-877_HA-LIB09-POR-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\GINT\PORTLAND\39486\39486-877_TEST BORINGS.GPJ 17 Dec 19



TOP ROW (L to R): HA19-4: C1 (45.0' - 50.0')
MIDDLE ROW TOP (L to R): HA19-4: C2 (50.0' - 55.0')
MIDDLE ROW BOTTOM (L to R): HA19-5: C1 (60.0' - 64.3')
BOTTOM ROW (L to R): NA



TOP ROW (L to R): HA19-8: C1 (16.5' - 21.5')
MIDDLE ROW TOP (L to R): HA19-8: C2 (21.5' - 26.5')
MIDDLE ROW BOTTOM (L to R): HA19-9: C1 (18.0' - 23.0')
BOTTOM ROW (L to R): HA19-9: C2 (23.0' - 28.0')

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NORTH

0
SCALE IN FEET

CLIENT: PORTLAND FORESIDE DEVELOPMENT CO.
COMPUTED BY: BCS CHECKED BY:
SHEET 1 of 4

HALEY ALDRICH
FILE NO: 39486-877
DATE: 19 DECEMBER 2019
PROJECT: FORESIDE DEVELOPMENT
SUBJECT: ROCK CORE PHOTOGRAPHS



TOP ROW (L to R): HA19-10: C5 (18.0' - 23.0')
MIDDLE ROW TOP (L to R): HA19-11: C1 (7.5' - 12.5')
MIDDLE ROW BOTTOM (L to R): HA19-27: C1 (50.5' - 51.5'); C2 Top (51.5' - 56.9')
BOTTOM ROW (L to R): HA19-27: C2 Bottom (51.5' - 56.9')



TOP ROW (L to R): HA19-12: C2 (15.7' - 17.9')
MIDDLE ROW TOP (L to R): HA19-12: C3 (17.9' - 22.7')
MIDDLE ROW BOTTOM (L to R): HA19-13: Cobbles/Boulders; Cobbles/Boulders; C3 Top (15.5' - 20.0')
BOTTOM ROW (L to R): HA19-13: C3 Bottom (15.5' - 20.0')

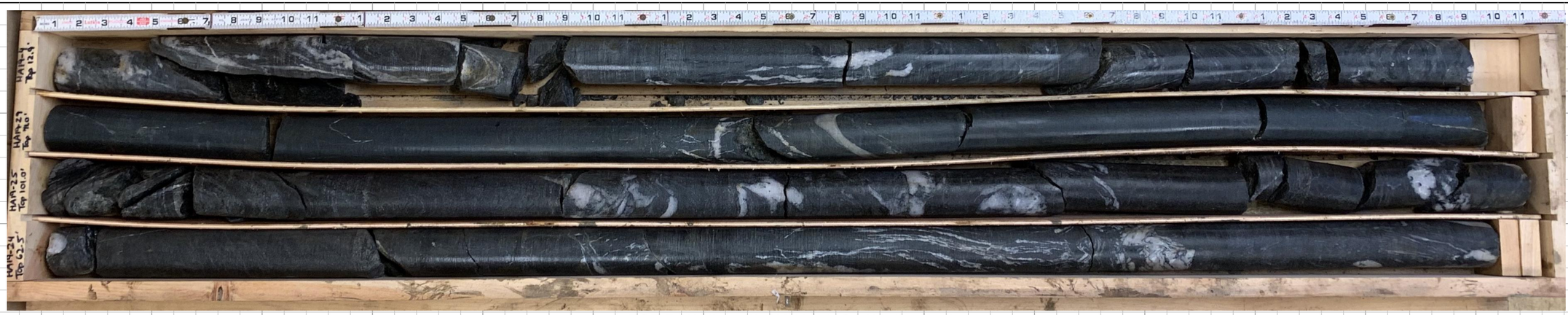
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NORTH

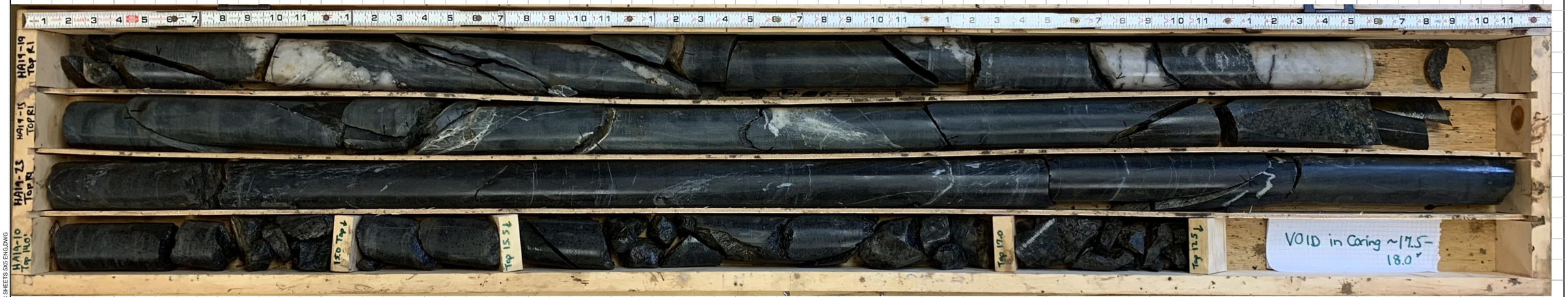
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SCALE IN FEET

CLIENT: PORTLAND FORESIDE DEVELOPMENT CO.
COMPUTED BY: BCS CHECKED BY:
SHEET 2 of 4

HALEY ALDRICH
FILE NO: 39486-877
DATE: 19 DECEMBER 2019
PROJECT: FORESIDE DEVELOPMENT
SUBJECT: ROCK CORE PHOTOGRAPHS



TOP ROW (L to R): HA19-14: C1 (13.4' - 18.4')
MIDDLE ROW TOP (L to R): HA19-29: C1 (71.0' - 76.0')
MIDDLE ROW BOTTOM (L to R): HA19-25: C2 (101.0' - 106.0')
BOTTOM ROW (L to R): HA19-24: C1 (62.5' - 67.5')



TOP ROW (L to R): HA19-19: C1 (7.0' - 11.7')
MIDDLE ROW TOP (L to R): HA19-15: C1 (13.5' - 18.5')
MIDDLE ROW BOTTOM (L to R): HA19-23: C1 (21.5' - 26.5')
BOTTOM ROW (L to R): HA19-10: C1 (14.0' - 15.0'); C2 (15.0' - 15.5'); C3 (15.5' - 17.0'); C4 (17.0' - 17.5')

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NORTH

0
SCALE IN FEET

CLIENT: PORTLAND FORESIDE DEVELOPMENT CO.
COMPUTED BY: BCS CHECKED BY:
SHEET 3 of 4

HALEY ALDRICH
FILE NO: 39486-877
DATE: 19 DECEMBER 2019
PROJECT: FORESIDE DEVELOPMENT
SUBJECT: ROCK CORE PHOTOGRAPHS



TOP ROW (L to R): HA19-22: C1 (4.5' - 9.5')
MIDDLE ROW TOP (L to R): HA19-18: C1 (16.5' - 21.3')
MIDDLE ROW BOTTOM (L to R): HA19-17: C1 (20.3' - 23.9'); C2 (23.9' - 25.3')
BOTTOM ROW (L to R): HA19-12: C1 (10.7' - 14.5'); C2 (15.7' - 17.9')



TOP ROW (L to R): HA19-26: C1 (81.0' - 86.0')
MIDDLE ROW TOP (L to R): HA19-21: C1 (18.4' - 20.9'); C2 (20.9' - 23.9')
MIDDLE ROW BOTTOM (L to R): HA19-16: C1 (18.0' - 23.0')
BOTTOM ROW (L to R): HA19-20: C1 (40.5' - 45.5')

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NORTH

0
SCALE IN FEET

CLIENT: PORTLAND FORESIDE DEVELOPMENT CO.
COMPUTED BY: BCS CHECKED BY:
SHEET 4 of 4

HALEY ALDRICH
FILE NO: 39486-877
DATE: 19 DECEMBER 2019
PROJECT: FORESIDE DEVELOPMENT
SUBJECT: ROCK CORE PHOTOGRAPHS

2019 Haley & Aldrich, Inc.
Test Pit Photographs



Photo 1: HA19-TP1 with bottom of wall visible.



Photo 2: HA19-TP2 with bottom of wall visible.



Photo 3: HA19-TP3 with step at bottom of wall visible.



Photo 4: HA19-TP4 with bottom of wall visible.

2016 Haley & Aldrich, Inc.
Test Boring Logs and
Rock Core Photographs

TEST BORING REPORT

Boring No. HA16-1(OW)

Project	Portland Company Redevelopment, 58 Fore Street, Portland, Maine
Client	CPB2 Management, LLC
Contractor	New England Boring Contractors

File No. 39486-872
Sheet No. 1 of 4
Start 19 December 2016
Finish 20 December 2016
Driller T. Schaefer
H&A Rep. K. Russ
Elevation 75.0 +/-
Datum Portland City
Location See Plan

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HW/NW	S	NQ	Rig Make & Model: Mobile B-53
Inside Diameter (in.)	4.0/3.0	1.375	2.0	Bit Type: Roller Bit
Hammer Weight (lb)	300	140	-	Drill Mud: None
Hammer Fall (in.)	18	30	-	Casing: HW Drive to 55.5'; NW Drive to 64.2'
				Hoist/Hammer: Winch Safety Hammer
				PID Make & Model: MiniRAE 2000

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	PID Readings (ppm) (sample/bkgd)	Well Diagram	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0	1 2 1 2	S1 6	0.0 2.0	0.0		0.5		-TOPSOIL-										
							SM	Very loose brown silty SAND (SM), mps 0.5 in., no odor, moist, contains roots		5	10	20	45	20				
								-FILL-										
	1 4 3 5	S2 14	2.0 4.0	0.0			SM	Loose brown silty SAND with gravel (SM), mps 1 in., contains roots, no odor, dry, contains trace brick chips	5	10	10	20	35	20				
	10 26 20 19	S3 20	4.0 6.0			4.0	SM	Dense olive-brown silty SAND (SM), mps 1.25 in., loosely bonded, no odor, dry, contains occasional roots		8	3	14	31	44				
5								-GLACIAL TILL-										
	17 20 22 25	S4 18	6.0 8.0				SM	Dense olive-brown silty SAND with gravel (SM), mps 1.5 in., moderately bonded, no odor, moist	10	10	10	20	30	20				
								Note: Samples S4 and S5 were moist due to likely perched groundwater.										
10	20 27 30 33	S5 17	10.0 12.0				SM	Very dense olive-brown silty SAND with gravel (SM), mps 1.25 in, well bonded, no odor, dry/moist	5	10	15	25	25	20				
								Note: Advanced rollerbit ahead of casing to 20 ft.										
15	18 25 42 48	S6 16	15.0 17.0				SM	Very dense olive-brown silty SAND (SM), mps 1 in., well bonded, no odor, dry		4	3	14	32	47				
								-GLACIAL TILL-										
								Note: Advanced rollerbit ahead of casing to 25 ft.										
20																		

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water

Sample ID

O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Split Spoon Sample

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (ft)	63.8
Rock Cored (ft)	10.0
Samples	13S, 2R

Boring No. HA16-1(OW)

Field Tests: **Dilatancy**: R - Rapid S - Slow N - None
Toughness: L - Low M - Medium H - High
Plasticity: N - Nonplastic L - Low M - Medium H - High
Dry Strength: N - None L - Low M - Medium H - High V - Very High

***Note: Maximum particle size (mps) is determined by direct observation within the limitations of sampler size.**

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

H&A-TEST BORING-07-1 PID HA-LIB09-REV_39486.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\39486 - FORE STREET\872 - PRELIMINARY PHASE\EXPLORATION PROGRAM\GINT\3946-871 HA16-1_HA16-10.GPJ 4 May 17

TEST BORING REPORT

Boring No. HA16-1(OW)
File No. 39486-872
Sheet No. 2 of 4

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	PID Readings (ppm) (sample/bkgd)	Well Diagram	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
20	24 41 42 60	S7 18	20.0 22.0				SM	Very dense olive-brown silty SAND (SM), mps 1.5 in., well bonded, no odor, dry -GLACIAL TILL- Note: Advanced rollerbit ahead of casing to 30 ft.	5	5	10	20	30	30				
25	31 42 53 52	S8 14	25.0 27.0				SM	Very dense olive-gray silty SAND (SM), mps 1.5 in., well bonded, no odor, dry Note: Advanced rollerbit ahead of casing to 35 ft.		4	5	14	29	48				
30	26 37 45 60	S9 20	30.0 32.0				SM	Very dense olive-gray silty SAND (SM), mps 0.75 in., well bonded, no odor, dry -GLACIAL TILL-		3	4	14	31	48				
35	50/5"	S10 5	35.0 35.4			35.4 35.8	SM	Very dense olive-gray silty SAND (SM), mps 0.75 in., well bonded, no odor, dry -COBBLE- -GLACIAL TILL- Note: Advanced rollerbit ahead of casing to 45 ft.		5	10	20	35	30				
40	38 70 88 90	S11 0	40.0 42.0					No recovery - probable rock stuck in spoon tip Note: Advanced rollerbit ahead of casing between 45 and 55 ft.										
45	20 33 47 49	S12 22	45.0 47.0				SM	Very dense olive-gray silty SAND (SM), mps 1 in., well bonded, no odor, dry -GLACIAL TILL-	6	6	5	15	27	41				

NOTE: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

Boring No. HA16-1(OW)

H&A-TEST BORING-07-1 PID HA-LIB09-REV_39486.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\39486 - FORE STREET\872 - PRELIMINARY PHASE\EXPLORATION PROGRAM\GINT\3946-871 HA16-1_HA16-10.GPJ 4 May 17

TEST BORING REPORT

Boring No. HA16-1(OW)
File No. 39486-872
Sheet No. 3 of 4

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	PID Readings (ppm) (sample/bkgd)	Well Diagram	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
50								Note: Advanced rollerbit ahead of casing between 55 and 60 ft.										
55	25 34 36 50/5"	S13 15	55.0 56.9				SM	Very dense olive-gray silty SAND (SM), mps 1 in., well bonded, no odor, dry		8	6	15	28	43				
								-GLACIAL TILL-										
60								Note: Advanced rollerbit to top of bedrock at 63.8 ft.										
						63.8		Note: Advanced rollerbit to 64.2 ft. Advanced NW casing to 64.2 ft, begin NQ rock core. See Core Boring Report for rock details.										
65																		
70																		

NOTE: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

Boring No. HA16-1(OW)

H&A-TEST BORING-07-1 PID HA-LIB09-REV_39486.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\39486 - FORE STREET\872 - PRELIMINARY PHASE\EXPLORATION PROGRAM\GINT\3946-871 HA16-1_HA16-10.GPJ 4 May 17

HALEY ALDRICH

CORE BORING REPORT

Boring No. HA16-1(OW)
File No. 39486-872
Sheet No. 4 of 4

Depth (ft)	Drilling Rate (min./ft)	Run No.	Run Depth (ft)	Recovery/RQD in.	Recovery/RQD %	Weathering	Well Diagram	Elev./ Depth (ft)	Visual Description and Remarks
									SEE TEST BORING REPORT FOR OVERBURDEN DETAILS
65	2:07	C1	64.2	59	98	Fresh			Very hard, fresh, light gray to blue-gray, aphanitic PHYLLITE. Joints dipping at low to moderate angles, close to moderately close, tight. Joint surfaces planar, smooth with occasional chlorite on joint surfaces.
	1:46		69.2	59	98				
	1:46								
	2:03								-SPRING POINT FORMATION-
	2:02								
70	1:49	C2	69.2	56	93	Slight			Hard to moderately hard, slightly weathered, light gray to blue-gray, aphanitic to fine-grained PHYLLITE. Joints dipping at low to moderate angles, very close to close, planar, smooth, tight to open, occasional moderately weathered joints with silt coatings.
	1:30		74.2	40	67				
	1:35								
	1:35								
	2:47								
75								74.2	BOTTOM OF EXPLORATION 74.2 FT
80									
85									
90									

H+A_CORE+WELL07-1 HA-LIB09-REV_39486.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\39486 - FORE STREET\872 - PRELIMINARY PHASE\EXPLORATION PROGRAM\GINT\3946-871 HA16-1_HA16-10.GPJ 4 May 17

TEST BORING REPORT

Boring No. HA16-2

Project	Portland Company Redevelopment, 58 Fore Street, Portland, Maine
Client	CPB2 Management, LLC
Contractor	New England Boring Contractors

File No. 39486-872
Sheet No. 1 of 2
Start 22 December 2016
Finish 22 December 2016
Driller T. Schaefer
H&A Rep. K. Russ
Elevation 14.5 +/-
Datum Portland City
Location See Plan

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HW	S	NQ	Rig Make & Model: Mobile B-53
Inside Diameter (in.)	4.0	1.375	2.0	Bit Type: Roller Bit
Hammer Weight (lb)	300	140	-	Drill Mud: None
Hammer Fall (in.)	18	30	-	Casing: HW Drive to 17.4'
				Hoist/Hammer: Winch Safety Hammer
				PID Make & Model: MiniRAE 2000

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	PID Readings (ppm) (sample/bkgd)	Well Diagram	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0						0.3		-BITUMINOUS CONCRETE-										
	3 5 5 4	S1 13	1.0 3.0	0.0			SM	Loose dark brown silty SAND with gravel (SM), mps 1 in., no structure, no odor, wet, contains iron slag and coal fragments	10	5	10	10	35	30				
								-FILL-										
	2 3 8 8	S2 14	3.0 5.0	0.0			SM	Medium dense olive-brown to brown silty SAND (SM), mps 1 in., no structure, no odor, wet, contains coal fragments	5	5	15	15	35	25				
						4.6												
5	7 9 6 6	S3 12	5.0 7.0	0.0			SM	Medium dense olive-gray silty SAND (SM), mps 1 in., loosely bonded, no odor, wet	2	7	5	17	33	36				
								-GLACIAL TILL-										
10	23 25 27 30	S4 14	10.0 12.0				SM	Very dense olive-brown silty SAND with gravel (SM), mps 1.5 in., loosely bonded, no odor, wet	8	18	11	17	22	24				
								Note: Advanced rollerbit to hard surface at 13.8 ft. Drove casing to 15 ft. Very coarse material observed in wash water between 12 and 15 ft.										
						13.8												
15	52 50/2"	S5 6	15.0 15.7				GW	Very dense olive well graded GRAVEL with sand (GW), mps 1.5 in., loosely bonded, no odor, wet	25	30	20	10	10	5				
								-GLACIAL TILL-										
						17.4		Note: Advanced rollerbit to 17.4 ft. Advanced NW casing to 17.4 ft, begin NQ rock core. See Core Boring Report for rock details.										
20																		

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water

Sample ID

O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Split Spoon Sample

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (ft)	17.4
Rock Cored (ft)	5.0
Samples	5S, 2R

Boring No. HA16-2

Field Tests: **Dilatancy**: R - Rapid S - Slow N - None
Toughness: L - Low M - Medium H - High
Plasticity: N - Nonplastic L - Low M - Medium H - High
Dry Strength: N - None L - Low M - Medium H - High V - Very High

***Note: Maximum particle size (mps) is determined by direct observation within the limitations of sampler size.**

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

H&A-TEST BORING-07-1 PID HA-LIB09-REV_39486.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\39486 - FORE STREET\872 - PRELIMINARY PHASE\EXPLORATION PROGRAM\GINT\3946-871 HA16-1_HA16-10.GPJ 4 May 17

HALEY ALDRICH

CORE BORING REPORT

Boring No. HA16-2
File No. 39486-872
Sheet No. 2 of 2

Depth (ft)	Drilling Rate (min./ft)	Run No.	Run Depth (ft)	Recovery/RQD in.	Recovery/RQD %	Weath-ering	Elev./ Depth (ft)	Visual Description and Remarks
								SEE TEST BORING REPORT FOR OVERBURDEN DETAILS
	3:00	C1	17.4	23	87	Fresh to Slight		Very hard, fresh to slightly weathered, light gray to dark gray, aphanitic PHYLLITE. Primary joints high angle, secondary joints low angle, very close to close, tight to open, planar, smooth to rough surfaces. Oxidized weathered joint surfaces with calcite coatings, frequent silt/clay coatings. Single vertical joint surface from 19 to 19.6 ft.
	2:30		19.6	6	23			
	2:15							-SPRING POINT FORMATION-
20		C2	19.6	31	92	Fresh to Slight		Very hard, fresh to slightly weathered, light gray to dark gray, aphanitic PHYLLITE. Joints low angle with single vertical joint from 19.6 to 20.6 ft. Joints very close to close, tight to partly open, planar, smooth. Oxidized weathered joint surfaces with occasional calcite coatings.
	2:30		22.4	15	45			
	2:30							
							22.4	BOTTOM OF EXPLORATION 22.4 FT
25								
30								
35								
40								
45								

H+A_CORE+WELL07-1 HA-LIB09-REV_39486.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\39486 - FORE STREET\872 - PRELIMINARY PHASE\EXPLORATION PROGRAM\GINT\3946-871 HA16-1_HA16-10.GPJ 4 May 17

TEST BORING REPORT

Boring No. HA16-9

Project	Portland Company Redevelopment, 58 Fore Street, Portland, Maine
Client	CPB2 Management, LLC
Contractor	New England Boring Contractors

File No. 39486-872
Sheet No. 1 of 2
Start 13 December 2016
Finish 13 December 2016
Driller T. Schaefer
H&A Rep. K. Russ
Elevation 14.5 +/-
Datum Portland City
Location See Plan

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HW	S	NQ	Rig Make & Model: Mobile B-53
Inside Diameter (in.)	4.0	1.375	2.0	Bit Type: Roller Bit
Hammer Weight (lb)	300	140	-	Drill Mud: None
Hammer Fall (in.)	18	30	-	Casing: HW Drive to 6.0'
				Hoist/Hammer: Winch Safety Hammer
				PID Make & Model: MiniRAE 2000

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	PID Readings (ppm) (sample/bkgd)	Well Diagram	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0	5 5 7 11	S1 12	0.0 2.0	0.2			SW	Medium dense black to dark brown well graded SAND (SW), mps 0.75 in., no structure, no odor, moist, contains coal fragments, wood, brick and mortar -FILL-		5	15	30	45	5				
	5 5 6 4	S2 13	2.0 4.0	0.5 1.0		2.5	SW	Loose black to dark brown well graded SAND (SW), mps 0.75 in., no structure, no odor, moist, contains coal fragments, wood, brick and mortar		5	15	30	45	5				
							GW	Loose light brown to red-brown well graded GRAVEL with sand (GW), mps 1.5 in., loosely bonded, no odor, moist, weathered rock pieces	25	25	20	15	10	5				
5 ▽	5 5 8 50/1"	S3 7	4.0 5.6	0.4			GW	-FILL-	25	25	20	15	10	5				
						5.6		Medium dense light brown to red-brown well graded GRAVEL with sand (GW), mps 1.5 in., moderately bonded, no odor, moist, weathered rock pieces (bottom 3 in. of soil recovered is wet) Note: Split-spoon refusal on top of bedrock at 5.6 ft.										
10								Note: Advanced solid-stem auger and casing to 6 ft. Advanced rollerbit to 6.5 ft, begin NQ rock core. See Core Boring Report for rock details.										

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water
12/13/16	13:00	--	--	5.6	5.3

Sample ID

O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Split Spoon Sample

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (ft)	5.6
Rock Cored (ft)	5.0
Samples	3S, 1R

Boring No. HA16-9

Field Tests: **Dilatancy**: R - Rapid S - Slow N - None **Toughness**: L - Low M - Medium H - High **Plasticity**: N - Nonplastic L - Low M - Medium H - High **Dry Strength**: N - None L - Low M - Medium H - High V - Very High

***Note: Maximum particle size (mps) is determined by direct observation within the limitations of sampler size.**

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

H&A-TEST BORING-07-1 PID HA-LIB09-REV_39486.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\39486 - FORE STREET\872 - PRELIMINARY PHASE\EXPLORATION PROGRAM\GINT\3946-871 HA16-1_HA16-10.GPJ 4 May 17

CORE BORING REPORT

Boring No. HA16-9
File No. 39486-872
Sheet No. 2 of 2

Depth (ft)	Drilling Rate (min./ft)	Run No.	Run Depth (ft)	Recovery/RQD in.	Recovery/RQD %	Weath-ering	Elev./ Depth (ft)	Visual Description and Remarks
								SEE TEST BORING REPORT FOR OVERBURDEN DETAILS
10	2:28 2:16 2:48 1:58 1:47	C1	6.5 11.5	57 56	95 93	Fresh to Slight		Moderately hard, fresh, light green, aphanitic PHYLLITE. Joints dipping at high angles, moderately close, open, planar to undulating, smooth to rough, joints slightly to moderately weathered with staining (oxidation) and silt coatings. -SPRING POINT FORMATION-
							11.5	BOTTOM OF EXPLORATION 11.5 FT
15								
20								
25								
30								
35								

H+A_CORE+WELL07-1 HA-LIB09-REV_39486.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\39486 - FORE STREET\872 - PRELIMINARY PHASE\EXPLORATION PROGRAM\GINT\3946-871 HA16-1_HA16-10.GPJ 4 May 17

TEST BORING REPORT

Boring No. HA16-10

Project	Portland Company Redevelopment, 58 Fore Street, Portland, Maine
Client	CPB2 Management, LLC
Contractor	New England Boring Contractors

File No. 39486-872
Sheet No. 1 of 3
Start 13 December 2016
Finish 14 December 2016
Driller T. Schaefer
H&A Rep. K. Russ
Elevation 13.5 +/-
Datum Portland City
Location See Plan

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HW	S	NQ	Rig Make & Model: Mobile B-53
Inside Diameter (in.)	4.0	1.375	2.0	Bit Type: Roller Bit
Hammer Weight (lb)	300	140	-	Drill Mud: None
Hammer Fall (in.)	18	30	-	Casing: HW Drive to 35.4'
				Hoist/Hammer: Winch Safety Hammer
				PID Make & Model: MiniRAE 2000

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	PID Readings (ppm) (sample/bkgd)	Well Diagram	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0	5 5 7 5	S1 16	0.0 2.0	0.0			SM	Medium dense dark brown to light brown silty SAND with gravel (SM), mps 1 in., no structure, no odor, moist, contains coal fragments	9	14	8	28	26	15				
								-FILL-										
	4 3 3 9	S2 10	2.0 4.0	0.1			SM	Loose dark brown to black silty SAND (SM), mps 1 in., no structure, no odor, moist, contains coal fragments	9	14	8	28	26	15				
	6 6 5 4	S3 15	4.0 6.0	0.0		4.5	SP	Medium dense black poorly-graded SAND with gravel (SP), mps 1.5 in., no structure, no odor, moist, contains brick chips	25	5	5	10	50	5				
5							SM	Loose olive-brown silty SAND with gravel (SM), mps 1 in., loosely bonded, no odor, moist	8	7	6	17	28	34				
	3 3 4 4	S4 2	6.0 8.0				SW-SM	-GLACIAL TILL- Loose olive-brown well graded SAND with gravel and silt (SW-SM), mps 1 in., loosely bonded, no odor, moist, low recovery due to rock in tip of spoon	25	10	10	15	30	10				
10	6 3 2 2	S5 16	10.0 12.0			10.0	SM	Loose olive-gray silty SAND with gravel (SM), mps 1 in., loosely bonded, decomposed rock within sample, no odor, wet	3	17	7	16	28	29				
								-GLACIAL TILL-										
								Note: Drill wash water and drill action indicates coarser material with depth.										
15	4 5 10 6	S6 11	15.0 17.0				SM	Medium dense olive-brown silty SAND (SM), loosely bonded, decomposed rock within sample, no odor, wet	3	9	6	19	34	29				
20																		

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water

Sample ID

O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Split Spoon Sample

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (ft)	35.4
Rock Cored (ft)	4.5
Samples	9S, 2R

Boring No. HA16-10

Field Tests: **Dilatancy**: R - Rapid S - Slow N - None
Toughness: L - Low M - Medium H - High
Plasticity: N - Nonplastic L - Low M - Medium H - High
Dry Strength: N - None L - Low M - Medium H - High V - Very High

***Note: Maximum particle size (mps) is determined by direct observation within the limitations of sampler size.**

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

H&A-TEST BORING-07-1 PID HA-LIB09-REV_39486.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\39486 - FORE STREET\872 - PRELIMINARY PHASE\EXPLORATION PROGRAM\GINT\3946-871 HA16-1_HA16-10.GPJ 4 May 17

TEST BORING REPORT

Boring No. HA16-10
File No. 39486-872
Sheet No. 2 of 3

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	PID Readings (ppm) (sample/bkgd)	Well Diagram	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
20	50/1"	NR 0	20.0 20.1			20.1		Note: Split-spoon refusal on cobbles at 20.1 ft. Cored from 20.1 to 23 ft. -COBBLES-										
						23.0		Note: Advanced 4 in. rollerbit to 23 ft. Drove HW casing to 25 ft. Collected split spoon. Clay content increases with depth based on drill wash water contents.										
25	1 2 3 4	S7 10	25.0 27.0				SM	Loose olive-gray silty SAND (SM), mps 1.5 in., no structure, no odor, wet -GLACIAL TILL-	6	5	4	10	31	44				
						28.0		Note: Drove HW casing to 29 ft. Advanced rollerbit to 30 ft. Collected split spoon sample. Drove casing to 33 ft, refusal on boulder.										
30	5 18 4 5	S8 16	30.0 32.0				SM	Medium dense olive-gray silty SAND (SM), mps 1 in., loosely bonded, no odor, wet -GLACIAL TILL-		11	6	14	30	39				
						33.0		Note: Casing refusal on boulder at 33 ft. Advanced rollerbit to 35 ft. -COBBLE-										
						33.9		-GLACIAL TILL-										
35	50/5"	S9 5	35.0 35.4			35.4	GW	Very dense olive-brown well graded GRAVEL with sand (GW), mps 1.5 in., no structure, no odor, wet Note: Split-spoon refusal on top of bedrock at 35.4 ft. Note: Advanced rollerbit to 36 ft, begin NQ rock core. See Core Boring Report for rock details.	35	25	15	10	10	5				
40																		

NOTE: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

Boring No. HA16-10

H&A-TEST BORING-07-1 PID HA-LIB09-REV_39486.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\39486 - FORE STREET\872 - PRELIMINARY PHASE\EXPLORATION PROGRAM\GINT\3946-871 HA16-1_HA16-10.GPJ 4 May 17

HALEY ALDRICH

CORE BORING REPORT

Boring No. HA16-10
File No. 39486-872
Sheet No. 3 of 3

Depth (ft)	Drilling Rate (min./ft)	Run No.	Run Depth (ft)	Recovery/RQD in.	Recovery/RQD %	Weath-ering	Elev./ Depth (ft)	Visual Description and Remarks
								SEE TEST BORING REPORT FOR OVERBURDEN DETAILS
	1:41	C1	36.0	35	65	Moderate to High		Moderately hard to soft, moderately to highly weathered, light gray, aphanitic PHYLLITE. Joints moderately dipping, extremely close to close, open, planar to undulating, smooth to rough, frequent silt coatings and oxidation, joints moderately to highly weathered, occasional to frequent calcite veins.
	1:23		40.5	6	11			
	3:07							-SPRING POINT FORMATION-
	3:07							
40	2:28/0.5						40.5	BOTTOM OF EXPLORATION 40.5 FT
45								
50								
55								
60								
65								

H+A_CORE+WELL07-1 HA-LIB09-REV_39486.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\39486 - FORE STREET\872 - PRELIMINARY PHASE\EXPLORATION PROGRAM\GINT\3946-871 HA16-1_HA16-10.GPJ 4 May 17



Top Row: HA16-9, Core No. R1, 6.5 ft (left) to 11.5 ft (right); Top Middle Row: HA16-10, Core No. R1, 36.0 ft (left) to 40.5 ft (right);
Bottom Middle Row: HA16-8, Core No. R1, 33.5 ft (left) to 38.5 ft (right); Bottom Row: HA16-7, Core No. R1, 30.8 ft (left) to 35.8 ft (right)



Top Row: HA16-1(OW), Core No. R1, 64.2 ft (left) to 69.2 ft (right); Top Middle Row: HA16-1(OW), Core No. R2, 69.2 ft (left) to 74.2 ft (right); Bottom Middle Row: HA16-3(OW), Core No. R1, 40.5 ft (left) to 42.5 ft (middle), Core No. R2 (42.5 ft (middle) to 45.5 ft (right); Bottom Row: HA16-2, Core No. R1, 17.4 ft (left) to 19.6 ft (middle), Core No. R2, 19.6 ft (middle) to 22.4 ft (right)

2007 S.W. Cole Engineering, Inc.
Test Boring and Auger Probe Logs

S.W.COLE ENGINEERING, INC.

BORING LOG

BORING NO.: B-4
SHEET: 1 OF 1
PROJECT NO.: 07-0792
DATE START: 9/25/2007
DATE FINISH: 9/25/2007
ELEVATION: NOT AVAIL.
SWC REP.: PFK

PROJECT / CLIENT: PORTLAND YACHT SERVICES FACILITY / PORTLAND YACHT CO.
LOCATION: 58 FORE STREET, PORTLAND, MAINE
DRILLING CO. : GREAT WORKS TEST BORING
DRILLER: WAYNE

	TYPE	SIZE I.D.	HAMMER WT.	HAMMER FALL
CASING:	HW	4"	300 LB	18"
SAMPLER:	SS	1 3/8"	140 LB	24"
CORE BARREL:				

WATER LEVEL INFORMATION
SOIL WET TO SATURATED AT 9' ±

CASING BLOWS PER FOOT	SAMPLE NO.	PEN.	REC.	DEPTH @ BOT	SAMPLER BLOWS PER 6" 0-6	6-12	12-18	18-24	DEPTH	STRATA & TEST DATA
										4" ± ASPHALT PAVEMENT
	1D	24"	20"	2.5'	12	18	18	24	1.2'	BROWN SAND, SOME GRAVEL, TRACE SILT (FILL) ~ MEDIUM DENSE~
										~MEDIUM DENSE~
										GRAY SAND AND SILT, SOME GRAVEL (TILL)
	2D	24"	10"	7.0'	20	14	11	10		w = 8.5%
									9.5'	
	3D	0"	0"	10.0'	50/0"				10.5'	PROBE AUGER 9.5' TO 10.5' PROBABLE BEDROCK
										BOTTOM OF EXPLORATION @ 10.5' WITH PROBE AUGER (PROBABLE BEDROCK)

SAMPLES:
D = SPLIT SPOON
C = 2" SHELBY TUBE
S = 3" SHELBY TUBE
U = 3.5" SHELBY TUBE

SOIL CLASSIFIED BY:
[ ] DRILLER - VISUALLY
[X] SOIL TECH. - VISUALLY
[X] LABORATORY TEST

REMARKS:
STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL.

6

BORING NO.: B-4

S.W.COLE ENGINEERING, INC.

AUGER PROBE LOG

PROJECT/CLIENT: Portland Yacht Services Facility/Portland Yacht Company
LOCATION: 58 Fore Street Portland, Maine
DRILLING FIRM: Great Works Test Boring DRILLER: Wayne

PROJECT NO. 07-0792
AUGER PROBE SIZE O.D.

BORING NO. P-1
LINE AND STATION See sheet 1
OFFSET
GROUND ELEV. Not Avail.
DATE 9-25-07

DEPTH	STRATUM DESCRIPTION
	4" ± ASPHALT PAVEMENT
	2.0 ± SAND AND GRAVEL FILL
	PROBABLE TILL
11.5'	
13.0'	PROBE AUGER 11.5' TO 13.0' - PROBABLE BEDROCK
	BOTTOM OF EXPLORATION @ 13.0'

BORING NO. P-2
LINE AND STATION See sheet 1
OFFSET
GROUND ELEV.
DATE 9-26-07

DEPTH	STRATUM DESCRIPTION
	4" ± ASPHALT PAVEMENT
	APPEARS TO BE SIMILAR SOILS AS B-8
6.5	
	BOTTOM OF EXPLORATION @ 6.5' (ONLY 1" ± PENETRATION WITH PROBE AUGER)

DRILLER - VISUALLY
SOIL TECHNICIAN - VISUALLY
LABORATORY TESTS

11

KEY TO THE NOTES & SYMBOLS
Test Boring and Test Pit Explorations

All stratification lines represent the approximate boundary between soil types and the transition may be gradual.

Key to Symbols Used:

w	-	water content, percent (dry weight basis)
q_u	-	unconfined compressive strength, kips/sq. ft. - based on laboratory unconfined compressive test
S_v	-	field vane shear strength, kips/sq. ft.
L_v	-	lab vane shear strength, kips/sq. ft.
q_p	-	unconfined compressive strength, kips/sq. ft. based on pocket penetrometer test
O	-	organic content, percent (dry weight basis)
W_L	-	liquid limit - Atterberg test
W_P	-	plastic limit - Atterberg test
WOH	-	advance by weight of hammer
WOM	-	advance by weight of man
WOR	-	advance by weight of rods
HYD	-	advance by force of hydraulic piston on drill
RQD	-	Rock Quality Designator - an index of the quality of a rock mass. RQD is computed from recovered core samples.
γ_T	-	total soil weight
γ_B	-	buoyant soil weight

Description of Proportions:

0 to 5% TRACE
5 to 12% SOME
12 to 35% "Y"
35+% AND

REFUSAL: **Test Boring Explorations** - Refusal depth indicates that depth at which, in the drill foreman's opinion, sufficient resistance to the advance of the casing, auger, probe rod or sampler was encountered to render further advance impossible or impracticable by the procedures and equipment being used.

REFUSAL: **Test Pit Explorations** - Refusal depth indicates that depth at which sufficient resistance to the advance of the backhoe bucket was encountered to render further advance impossible or impracticable by the procedures and equipment being used.

Although refusal may indicate the encountering of the bedrock surface, it may indicate the striking of large cobbles, boulders, very dense or cemented soil, or other buried natural or man-made objects or it may indicate the encountering of a harder zone after penetrating a considerable depth through a weathered or disintegrated zone of the bedrock.

APPENDIX B

Observation Well Installation and Groundwater Monitoring Reports

2022 Haley & Aldrich, Inc.
Observation Well Installation and
Groundwater Monitoring Reports

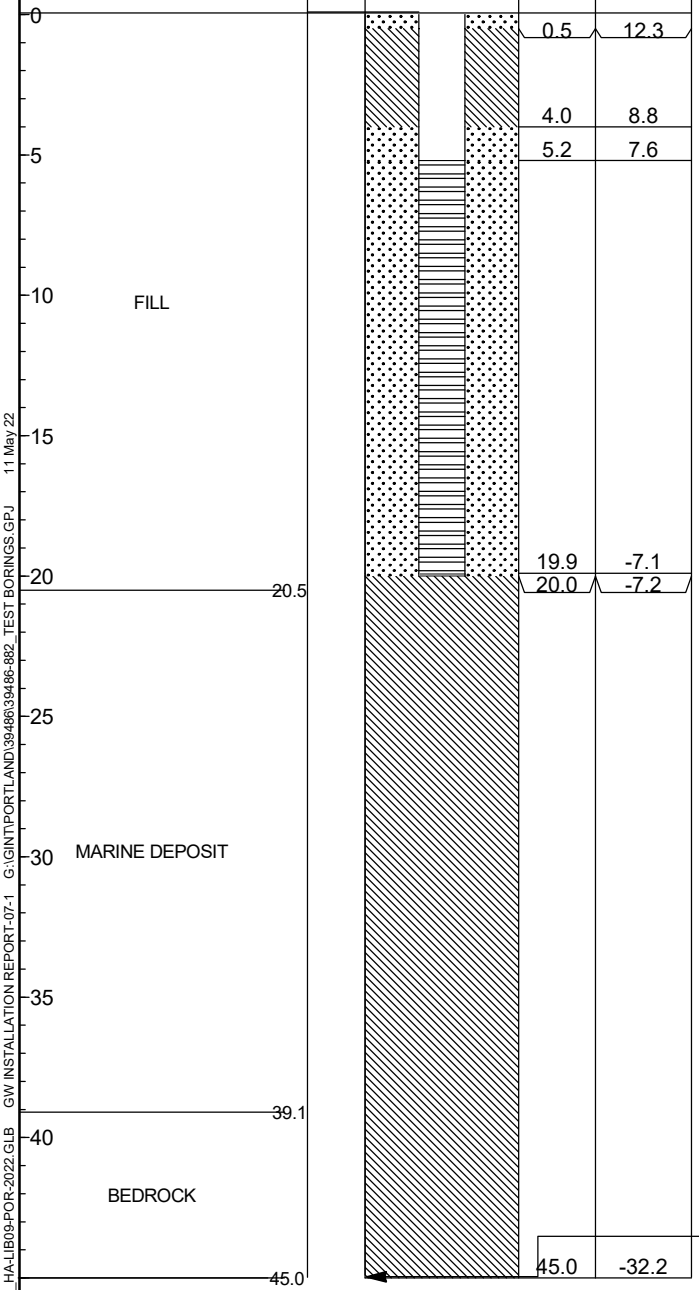
GROUNDWATER OBSERVATION WELL INSTALLATION REPORT

Well No. HA22-1(OW)
Boring No. HA22-1(OW)

Project	Foreside Block 6 Development
Location	58 Fore Street, Portland, Maine
Client	PF Six Devco, LLC.
Contractor	New England Boring Contractors
Driller	T. Schaefer
Initial Water Level (depth bgs)	ft

Well Diagram: Riser Pipe; Screen; Filter Sand; Cuttings; Grout; Concrete; Bentonite Seal

File No.	39486-882
Date Installed	23 Mar 2022
H&A Rep.	T. Jones
Location	See Plan
Ground El.	12.8
Datum	Portland City Datum



WELL CONSTRUCTION DETAILS

Type of protective cover	Steel Cap with Lock
Height of Steel Guardpipe above ground surface	2.6 ft
Height of top of riser above ground surface	2.4 ft
Type of protective casing	Steel Guardpipe
Length	5.3 ft
Inside diameter	3.0 in.
Depth of bottom of Steel Guardpipe	2.7 ft
Type of riser pipe	Schedule 40 PVC
Inside diameter of riser pipe	1.5 in.
Depth of bottom of riser pipe	5.2 ft

Type of Seals	Top of Seal (ft)	Thickness (ft)
Bentonite	0.5	3.5
-	-	-
-	-	-
-	-	-

Diameter of borehole	4.0 in.
Depth to top of well screen	5.2 ft
Type of screen	Machine Slotted Sch 40 PVC
Screen gauge or size of openings	0.010 in.
Diameter of screen	1.5 in.
Type of Backfill around Screen	Filter Sand
Depth to bottom of well screen	19.9 ft
Bottom of silt trap	20.0 ft
Depth of bottom of borehole	45.0 ft

COMMENTS:

39486_HA-LIB09-POR-2022.GLB GW INSTALLATION REPORT-07-1 G:\GINT\PORTLAND\39486\39486-882_TEST BORINGS.GPJ 11 May 22

GROUNDWATER MONITORING REPORT

OW/PZ NUMBER
HA22-1(OW)

PROJECT	Foreside Block 6 Development	**H&A FILE NO.**	39486-882
LOCATION	58 Fore Street, Portland, Maine	**PROJECT MGR.**	B. Steinert
CLIENT	PF Six Devco, LLC.	**FIELD REP.**	T. Jones
CONTRACTOR	New England Boring Contractors	**DATE**	3/23/2022

ELEVATION OF REFERENCE POINT 12.8 **REFERENCE POINT:** **Ground Surface** ☑ **PVC** ☐ **Other** ☐

Date	Time	Elapsed Time (days)	Depth of Water from Reference Point	Elevation of Water	Remarks	Read By
3/30/2022	15:09	7	8.9	3.9		TJ
3/31/2022	14:45	8	8.7	4.1	prior to purging	TJ
4/1/2022	7:46	9	8.9	3.9	after purging	TJ
4/4/2022	11:32	12	9.0	3.8		TJ
4/5/2022	8:37	13	9	3.8		TJ
4/5/2022	15:11	13	9.1	3.7		TJ
4/6/2022	9:22	14	9.1	3.7		TJ
4/6/2022	16:02	14	9.0	3.8		TJ
4/7/2022	10:19	15	9.0	3.8		TJ
4/7/2022	16:34	15	9.0	3.8		TJ
4/11/2022	14:10	19	9.0	3.8		HH
4/15/2022	11:30	23	8.9	3.9		HH
4/20/2022	12:30	28	8.7	4.1		HH
5/5/2022	14:30	43	9.3	3.5		JD
9/7/2022	14:00	168	9.1	3.7		TJ
10/3/2022	14:45	194	9.4	3.4		TJ
10/17/2022	8:50	208	9.2	3.6		TJ

2019 Haley & Aldrich, Inc.
Observation Well Installation and
Groundwater Monitoring Reports

GROUNDWATER OBSERVATION WELL INSTALLATION REPORT

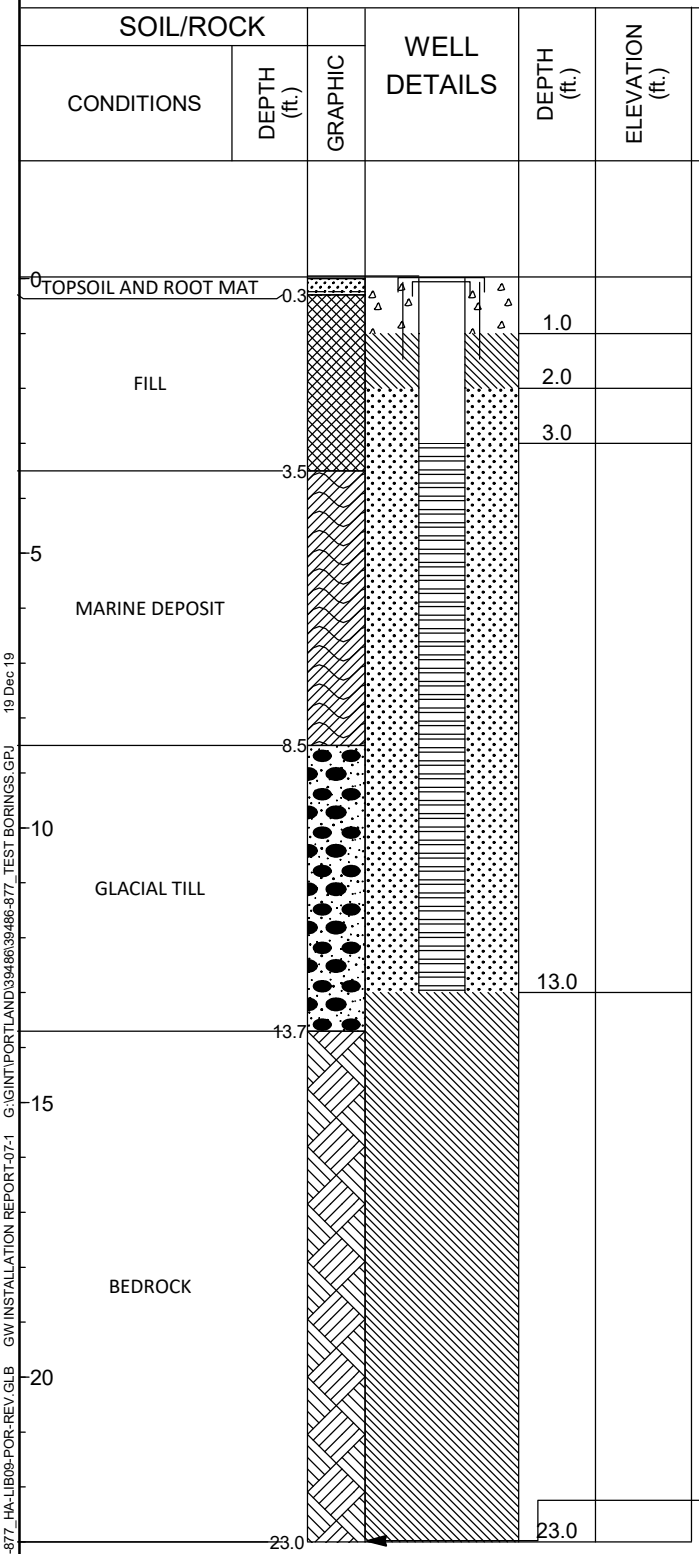
HALEY ALDRICH

Well No. HA19-10
Boring No. HA19-10

Project	Foreside Block 2-6 Development
Location	Portland, Maine
Client	Portland Foreside Development Company, LLC.
Contractor	New England Boring Contractors
Driller	B. Cross
Initial Water Level (depth bgs)	1.4 ft

Well Diagram: Riser Pipe; Screen; Filter Sand; Cuttings; Grout; Concrete; Bentonite Seal

File No.	39486-877
Date Installed	20 Jun 2019
H&A Rep.	H. Hollauer
Location	See Plan
Ground El.	17.0+/-
Datum	Portland City Datum



WELL CONSTRUCTION DETAILS

Type of protective cover	5-Sided Center Bolt
Depth of Roadway Box below ground surface	0.0 ft
Depth of top of riser below ground surface	0.7 ft
Type of protective casing	Roadway Box
Length	0.8 ft
Inside diameter	6.0 in.
Depth of bottom of Roadway Box	0.8 ft
Type of riser pipe	Schedule 40 PVC
Inside diameter of riser pipe	2.0 in.
Depth of bottom of riser pipe	3.0 ft

Type of Seals	Top of Seal (ft)	Thickness (ft)
Concrete	0.0	1.0
Bentonite Seal	1.0	1.0
-	-	-
-	-	-

Diameter of borehole	4.0 in.
Depth to top of well screen	3.0 ft
Type of screen	Machine slotted Sch 40 PVC
Screen gauge or size of openings	0.010 in.
Diameter of screen	2.0 in.
Type of backfill around screen	Filter Sand
Depth to bottom of well screen	13.0 ft
Bottom of silt trap	13.0 ft
Depth of bottom of borehole	23.0 ft

COMMENTS:

39486-877_HA-LIB09-POR-REV.GLB GW INSTALLATION REPORT-07-1 G:\GINT\PORTLAND\39486\39486-877_TEST BORINGS.GPJ 19 Dec 19

GROUNDWATER MONITORING REPORT

OW/PZ NUMBER
HA19-10(OW)

PROJECT	Foreside Development	**H&A FILE NO.**	39486-877
LOCATION	Portland, Maine	**PROJECT MGR.**	B. Steinert
CLIENT	Portland Foreside Development Company	**FIELD REP.**	N. Klausmeyer
CONTRACTOR	New England Boring Contractors	**DATE**	6/20/2019

ELEVATION OF REFERENCE POINT 17.0 **REFERENCE POINT:** **Ground Surface** ☑ **PVC** ☐ **Other** ☐

Date	Time	Elapsed Time (days)	Depth of Water from Reference Point	Elevation of Water	Remarks	Read By
6/28/2019	13:20	8	1.5	15.5	prior to purging	WC
6/28/2019	13:50	8	1.7	15.3	after purging	WC
11/8/2019					not accessible	JF

GROUNDWATER OBSERVATION WELL INSTALLATION REPORT

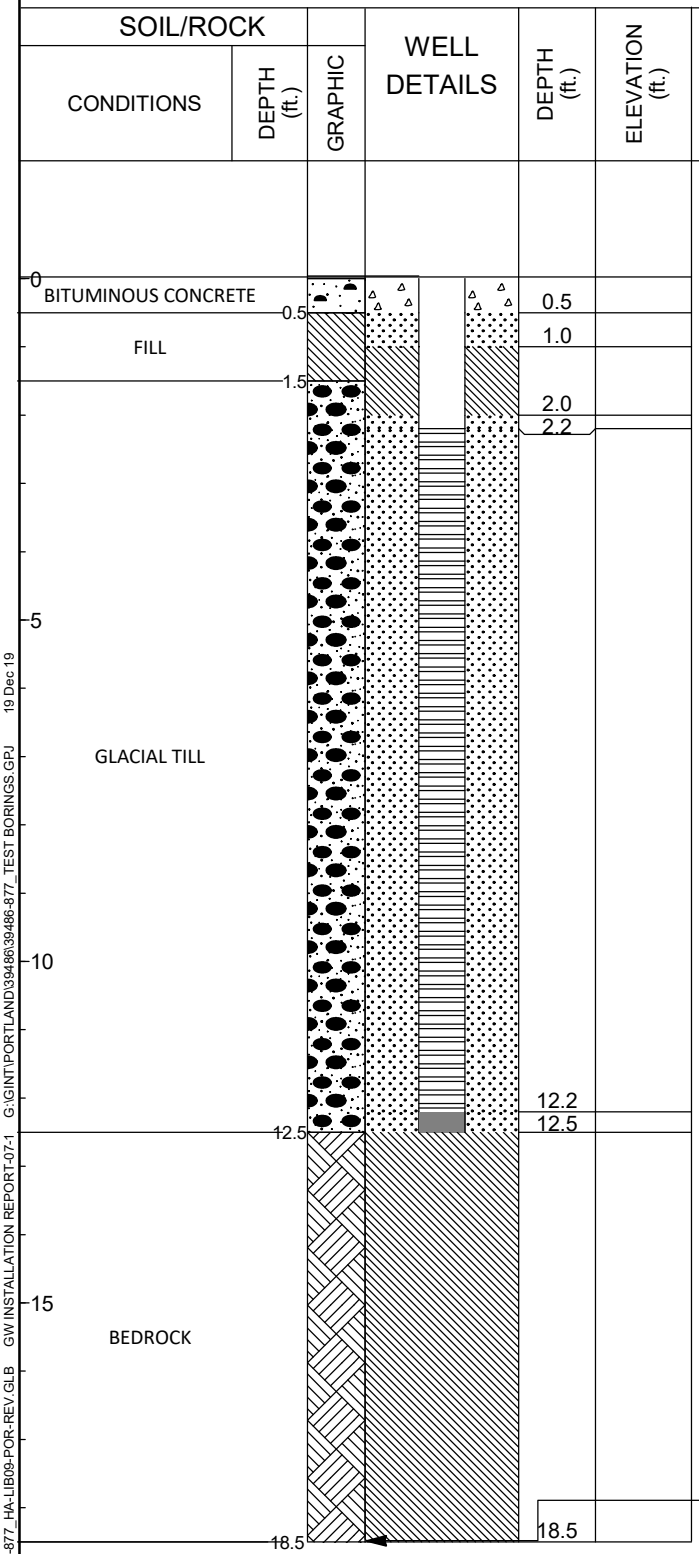
HALEY ALDRICH

Well No. HA19-15
Boring No. HA19-15(OW)

Project	Foreside Block 2-6 Development
Location	Portland, Maine
Client	Portland Foreside Development Company, LLC.
Contractor	New England Boring Contractors
Driller	B. Cross
Initial Water Level (depth bgs)	0.0 ft

Well Diagram: Riser Pipe; Screen; Filter Sand; Cuttings; Grout; Concrete; Bentonite Seal

File No.	39486-877
Date Installed	13 Jun 2019
H&A Rep.	N. Klausmeyer
Location	See Plan
Ground El.	16.0+/-
Datum	Portland City Datum



WELL CONSTRUCTION DETAILS

Type of protective cover	Steel Cap with 5/8" Bolt
Depth of Steel Roadway Box below ground surface	0.0 ft
Depth of top of riser below ground surface	0.3 ft
Type of protective casing	Steel Roadway Box
Length	0.8 ft
Inside diameter	6.0 in.
Depth of bottom of Steel Roadway Box	0.8 ft
Type of riser pipe	Schedule 40 PVC
Inside diameter of riser pipe	2.0 in.
Depth of bottom of riser pipe	2.2 ft

Type of Seals	Top of Seal (ft)	Thickness (ft)
Concrete	0.0	0.5
Bentonite Seal	1.0	1.0
-	-	-
-	-	-

Diameter of borehole	4.0 in.
Depth to top of well screen	2.2 ft
Type of screen	Machine slotted Sch 40 PVC
Screen gauge or size of openings	0.010 in.
Diameter of screen	2.0 in.
Type of backfill around screen	#1S Holliston Filter Sand
Depth to bottom of well screen	12.2 ft
Bottom of silt trap	12.5 ft
Depth of bottom of borehole	18.5 ft

COMMENTS:

39486-877_HA-LIB09-POR-REV.GLB GW INSTALLATION REPORT-07-1 G:\GINT\PORTLAND\39486\39486-877_TEST BORINGS.GPJ 19 Dec 19

GROUNDWATER MONITORING REPORT

OW/PZ NUMBER HA19-15(OW)

PROJECT	Foreside Development	**H&A FILE NO.**	39486-877
LOCATION	Portland, Maine	**PROJECT MGR.**	B. Steinert
CLIENT	Portland Foreside Development Company	**FIELD REP.**	N. Klausmeyer
CONTRACTOR	New England Boring Contractors	**DATE**	6/13/2019

ELEVATION OF REFERENCE POINT 16.0 **REFERENCE POINT:** **Ground Surface** ☑ **PVC** ☐ **Other** ☐

Date	Time	Elapsed Time (days)	Depth of Water from Reference Point	Elevation of Water	Remarks	Read By
6/28/2019	11:07	15	2.9	13.1	prior to purging	WC
6/28/2019	12:54	15	5.1	10.9	after purging	WC
11/8/2019	14:33	148	2.5	13.5		JF

2016/2017 Haley & Aldrich, Inc.
Observation Well Installation and
Groundwater Monitoring Reports

OBSERVATION WELL INSTALLATION REPORT

HALEY ALDRICH

Well No. HA16-1(OW)
Boring No. HA16-1(OW)

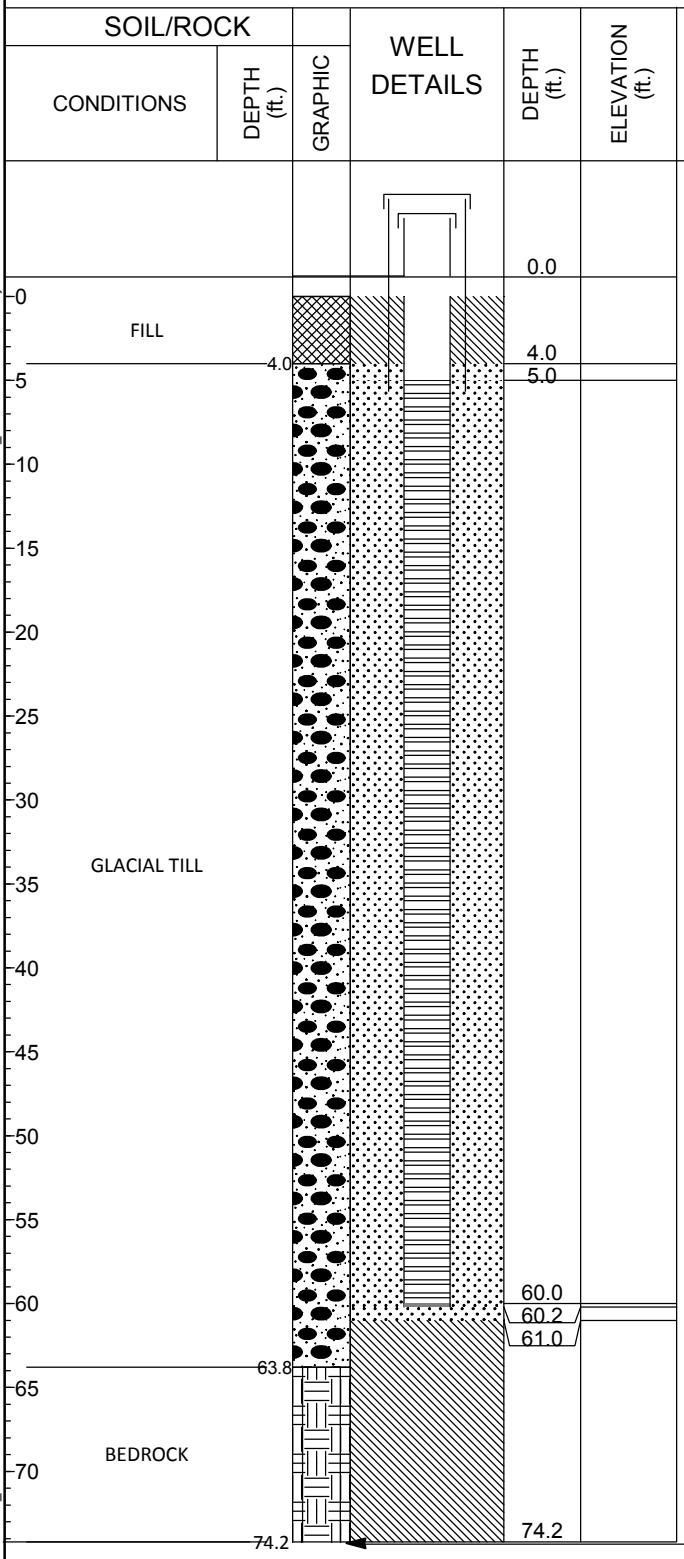
Project Portland Company Redevelopment, 58 Fore Street
Location Portland, Maine
Client CPB2 Management, LLC
Contractor New England Boring Contractors
Driller T. Schaeffer

Initial Water Level (depth bgs) ft

Well Diagram
- Riser Pipe
- Screen
- Filter Sand
- Cuttings
- Grout
- Concrete
- Bentonite Seal

File No. 39486-872
Date Installed 21 Dec 2016
H&A Rep. K. Russ
Location See Plan

Ground El. 75.0 +/-
Datum Portland City



WELL CONSTRUCTION DETAILS

Type of protective cover	Steel Cap with Lock
Height of Guard Pipe above ground surface	2.9 ft
Height of top of riser above ground surface	2.7 ft
Type of protective casing	Guard Pipe
Length	5.0 ft
Inside diameter	4.0 in.
Depth of bottom of Guard Pipe	2.1 ft
Type of riser pipe	Schedule 40 PVC
Inside diameter of riser pipe	2.0 in.
Depth of bottom of riser pipe	5.0 ft

Type of Seals	Top of Seal (ft)	Thickness (ft)
Bentonite	0.0	4.0
Bentonite	61.0	13.2
	-	-
	-	-
	-	-
	-	-

Diameter of borehole	4.0 in.
Depth to top of well screen	5.0 ft
Type of screen	Machine slotted Sch 40 PVC
Screen gauge or size of openings	0.010 in.
Diameter of screen	2.0 in.
Type of Backfill around Screen	Filter Sand
Depth to bottom of well screen	60.0 ft
Bottom of silt trap	60.2 ft
Depth of bottom of borehole	74.2 ft

COMMENTS:

HA-LIB09-REV_39486.GLB MW INSTALLATION REPORT-07-1 G:\PROJECTS\39486 - FORE STREET\872 - PRELIMINARY PHASE\EXPLORATION PROGRAM\GINT\3946-871 HA16-1_HA16-10.GPJ 4 May 17

HALEY ALDRICH

GROUNDWATER MONITORING REPORT

OW/PZ NUMBER
HA16-1(OW)
Page 1 of 1

PROJECT	Portland Company Redevelopment	**H&A FILE NO.**	39486-872
LOCATION	58 Fore Street - Portland, Maine	**PROJECT MGR.**	B. Steinert
CLIENT	CPB2 Management, LLC.	**FIELD REP.**	K. Russ
CONTRACTOR	New England Boring Contractors	**DATE**	12/23/2016

ELEVATION OF REFERENCE POINT 75.0 **REFERENCE POINT:** **Ground Surface** ☑ **PVC** ☐ **Other** ☐

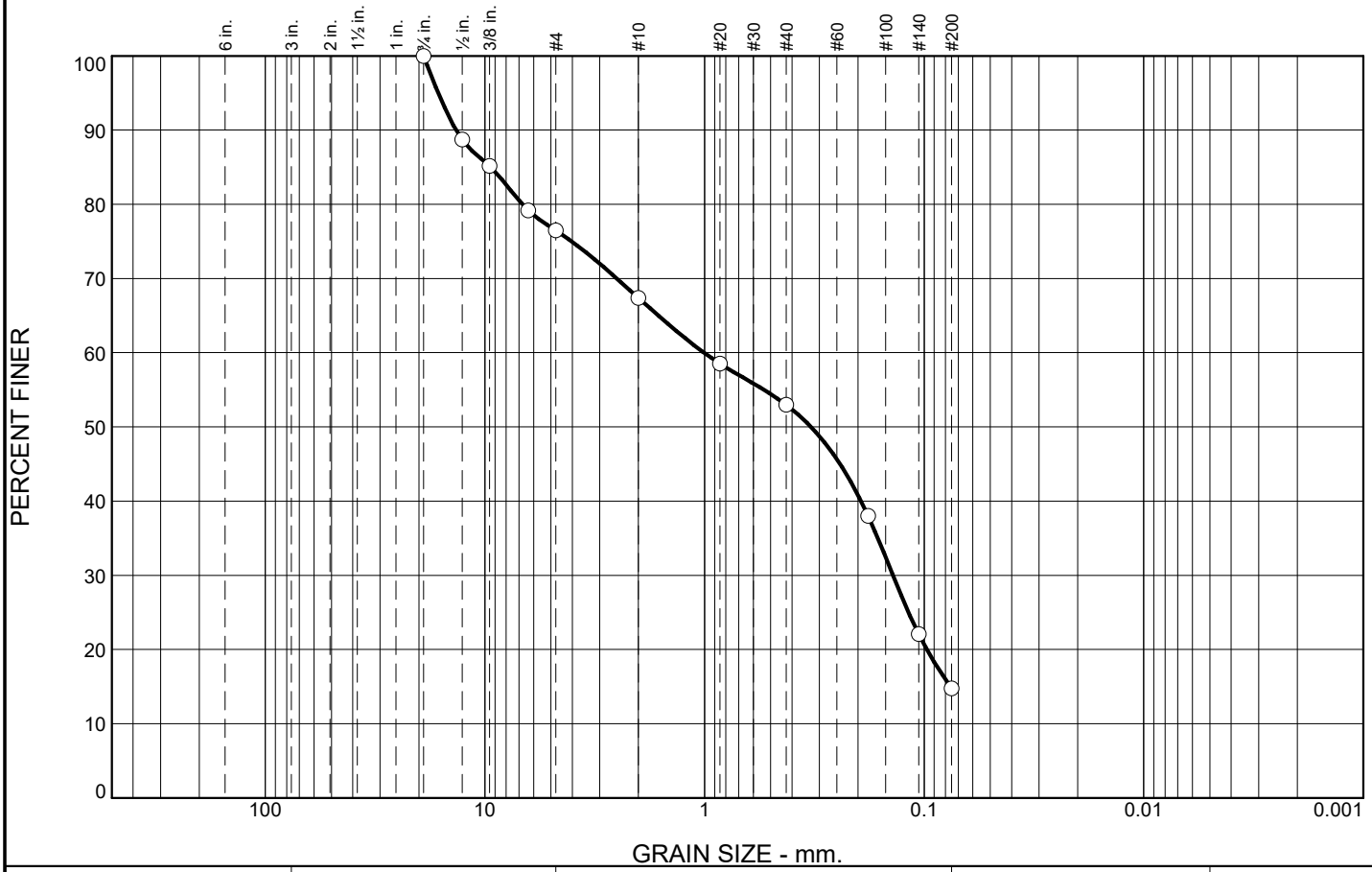
Date	Time	Elapsed Time (days)	Depth of Water from Reference Point	Elevation of Water	Remarks	Read By
12/23/2016	13:00	0	13.3	61.8	Initial reading after installation	KAR
1/4/2017	16:30	12	11.8	63.2	Reference Point = Top of guard pipe	KAR
1/5/2017	13:05	13	11.7	63.4		KAR
1/6/2017	8:20	14	11.4	63.6	1/6/17 before purge of well	KAR
1/6/2017	9:25	14	58.1	16.9	1/6/17 after purge of well	KAR
1/6/2017	10:50	14	51.5	23.5	1/6/17 recharging well	KAR
1/16/2017	12:35	24	9.8	65.2		KAR
1/26/2017	7:45	34	9.7	65.4		KAR
2/3/2017	14:45	42	8.8	66.2		KAR
4/5/2022	8:17	1929	9.3	65.7		TJ
4/6/2022	15:50	1930	9.3	65.7		TJ
4/7/2022	17:30	1931	9.5	65.5		TJ
9/7/2022	14:50	2084	15.1	59.9		TJ
10/3/2022	14:25	2110	13.9	61.1		TJ
10/7/2022	10:00	2114	14.0	61.0		TJ
10/17/2022	9:10	2124	13.9	61.1		TJ

APPENDIX C

Laboratory Test Results

2022 Haley & Aldrich, Inc.
Laboratory Test Results

Particle Size Distribution Report



% +3"	% Gravel	% Sand	% Silt	% Clay
0.0	23.5	61.7	14.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4"	100.0		
1/2"	88.7		
3/8"	85.2		
1/4"	79.2		
#4	76.5		
#10	67.4		
#20	58.5		
#40	53.0		
#80	38.0		
#140	22.1		
#200	14.8		

* (no specification provided)

Soil Description

silty sand with gravel

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 13.5366 D_{85}= 9.4081 D_{60}= 1.0052
D_{50}= 0.3276 D_{30}= 0.1387 D_{15}= 0.0759
D_{10}= C_u= C_c=

Classification

USCS= SM AASHTO= A-2-4(0)

Remarks

Moisture Content: 25.1%

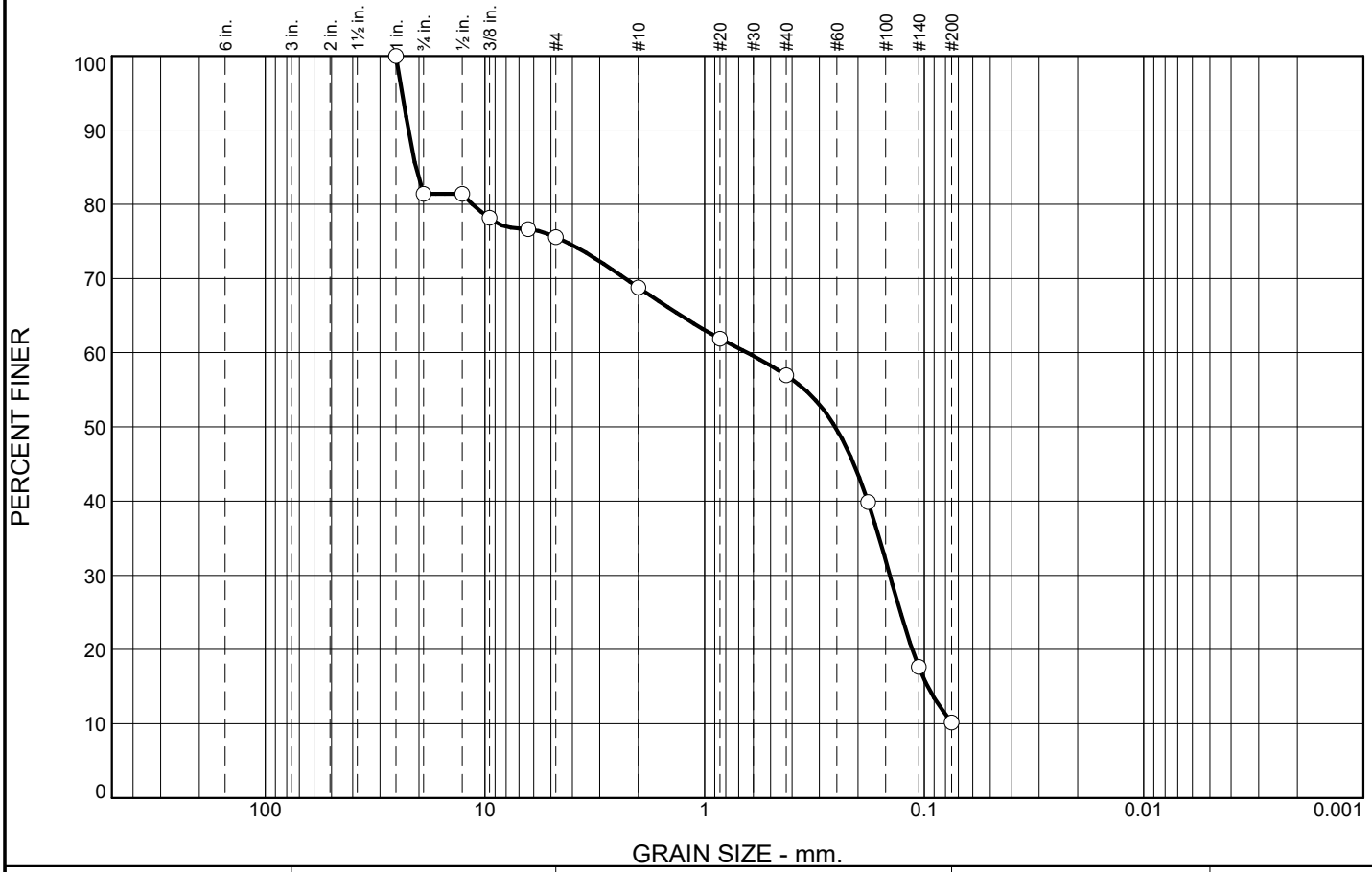
Location: HA22-1(OW)
Sample Number: S-11 **Depth:** 21'-23' **Date:** 05/06/2022

R.W. Gillespie & Associates, Inc.
Biddeford, Maine

Client: Haley & Aldrich
Project: Foreside Block 6 Development #39486-882
Portland, mE
Project No: 0956-13BG08 **Lab No.** 16983-12

Tested By: JMT **Checked By:** MTG

Particle Size Distribution Report



% +3"	% Gravel	% Sand	% Silt	% Clay
0.0	24.4	65.4	10.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1"	100.0		
3/4"	81.4		
1/2"	81.4		
3/8"	78.2		
1/4"	76.7		
#4	75.6		
#10	68.8		
#20	61.9		
#40	57.0		
#80	39.9		
#140	17.7		
#200	10.2		

* (no specification provided)

Soil Description

poorly graded sand with silt and gravel

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 22.3086 D_{85}= 20.6262 D_{60}= 0.6400
D_{50}= 0.2542 D_{30}= 0.1434 D_{15}= 0.0964
D_{10}= C_u= C_c=

Classification

USCS= SP-SM AASHTO= A-3

Remarks

Moisture Content: 18.4%

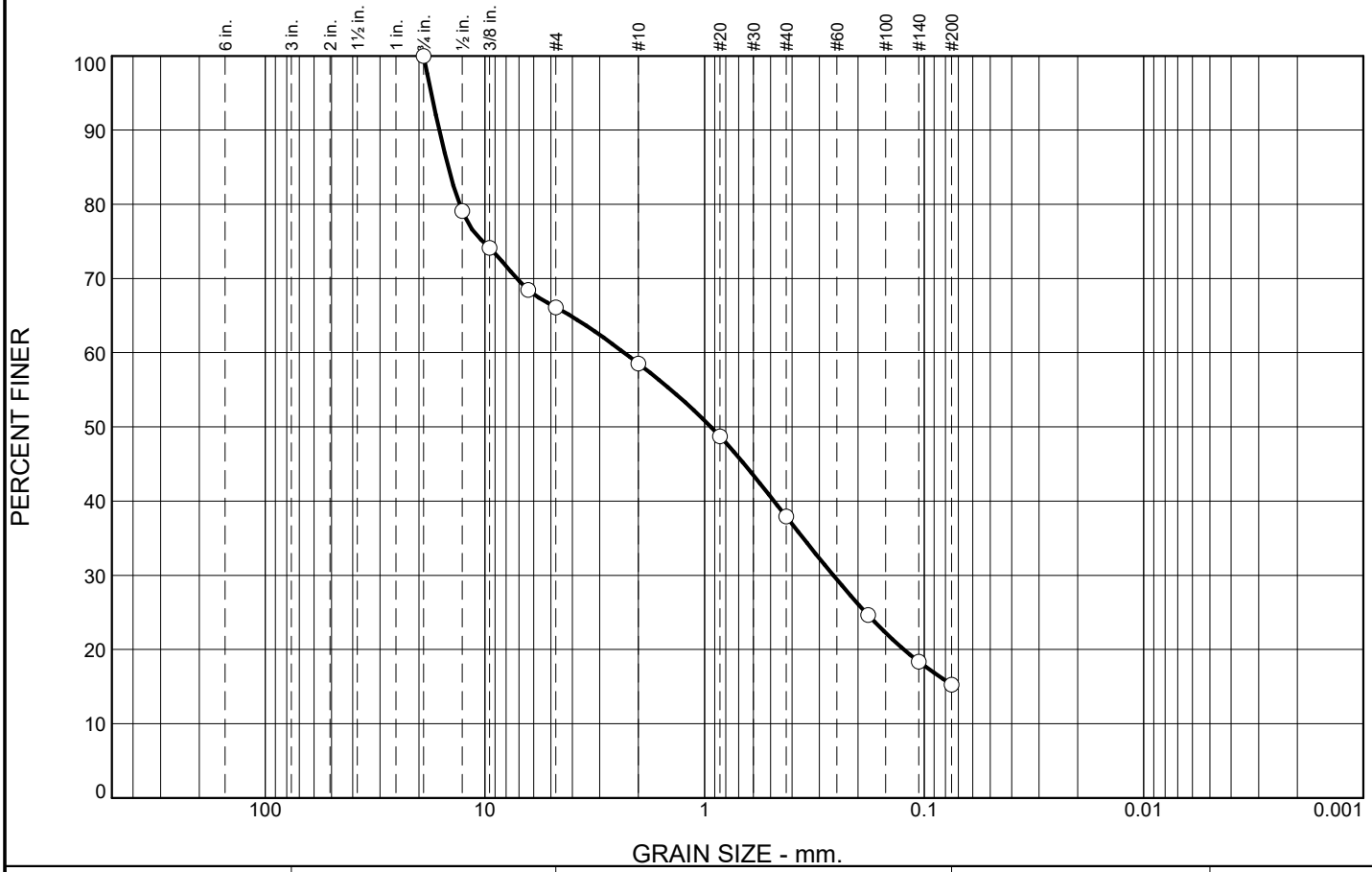
Location: HA22-1(OW)
Sample Number: S-12 **Depth:** 25'-27' **Date:** 05/06/2022

R.W. Gillespie & Associates, Inc.
Biddeford, Maine

Client: Haley & Aldrich
Project: Foreside Block 6 Development #39486-882
Portland, mE
Project No: 0956-13BG08 **Lab No.** 16983-13

Tested By: JMT **Checked By:** MTG

Particle Size Distribution Report



% +3"	% Gravel	% Sand	% Silt	% Clay
0.0	33.9	50.8	15.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4"	100.0		
1/2"	79.1		
3/8"	74.1		
1/4"	68.5		
#4	66.1		
#10	58.5		
#20	48.7		
#40	37.9		
#80	24.7		
#140	18.4		
#200	15.3		

* (no specification provided)

Soil Description

silty sand with gravel

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 16.1343 D_{85}= 14.6865 D_{60}= 2.3232
D_{50}= 0.9356 D_{30}= 0.2594 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SM AASHTO= A-1-b

Remarks

Moisture Content: 7.0%

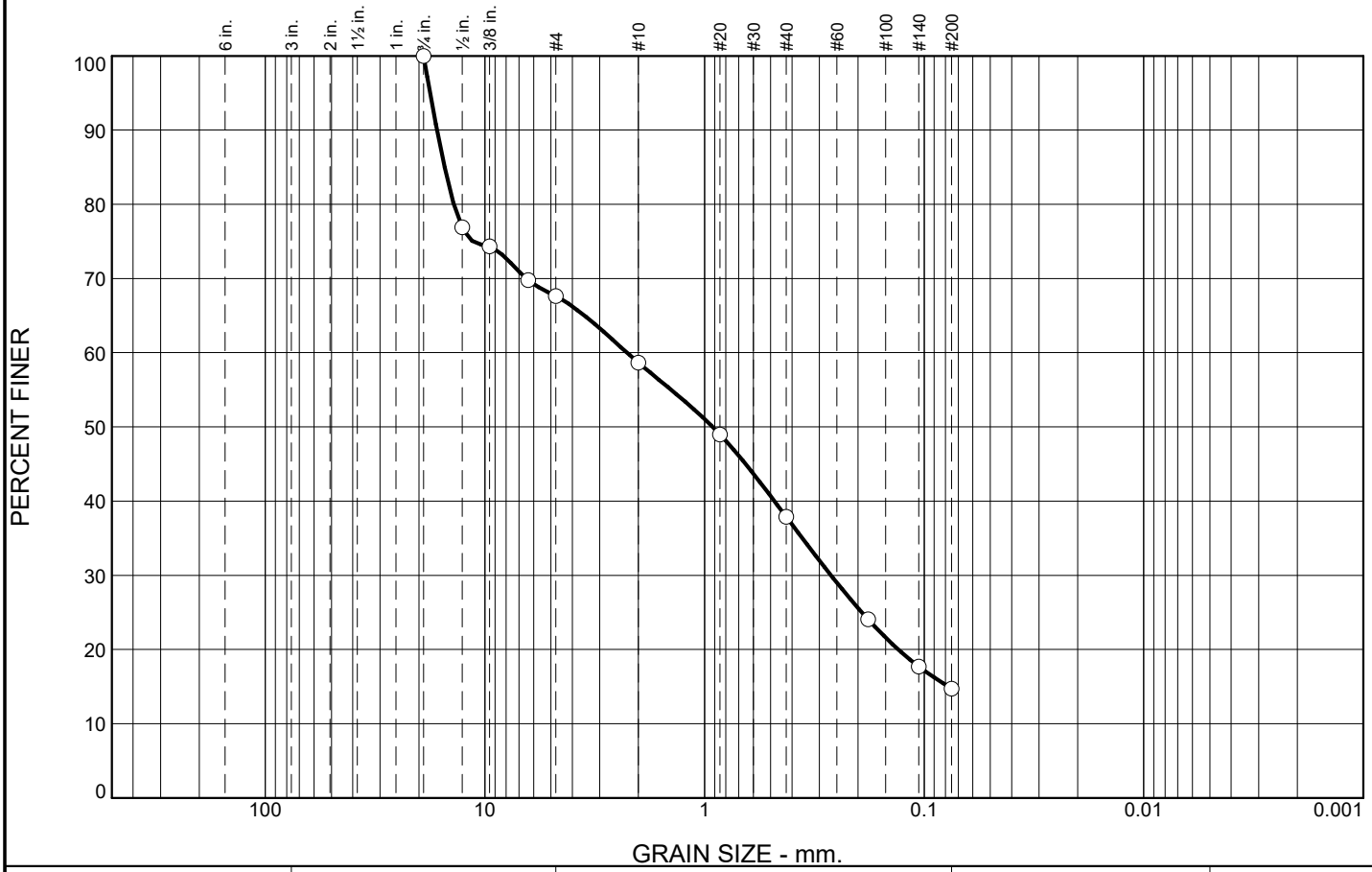
Location: HA22-9
Sample Number: S1+S2 **Depth:** 0'-4' **Date:** 05/06/2022

R.W. Gillespie & Associates, Inc.
Biddeford, Maine

Client: Haley & Aldrich
Project: Foreside Block 6 Development #39486-882
Portland, ME
Project No: 0956-13BG08 **Lab No.** 16983-36

Tested By: JMT **Checked By:** MTG

Particle Size Distribution Report



% +3"	% Gravel	% Sand	% Silt	% Clay
0.0	32.4	52.9	14.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4"	100.0		
1/2"	76.9		
3/8"	74.3		
1/4"	69.8		
#4	67.6		
#10	58.7		
#20	49.0		
#40	37.9		
#80	24.1		
#140	17.7		
#200	14.7		

* (no specification provided)

Soil Description

silty sand with gravel

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 16.5207 D_{85}= 15.2563 D_{60}= 2.2528
D_{50}= 0.9184 D_{30}= 0.2658 D_{15}= 0.0776
D_{10}= C_u= C_c=

Classification

USCS= SM AASHTO= A-1-b

Remarks

Moisture Content: 7.4%

Location: HA22-9
Sample Number: S3+S4 **Depth:** 4'-8' **Date:** 05/06/2022

R.W. Gillespie & Associates, Inc.
Biddeford, Maine

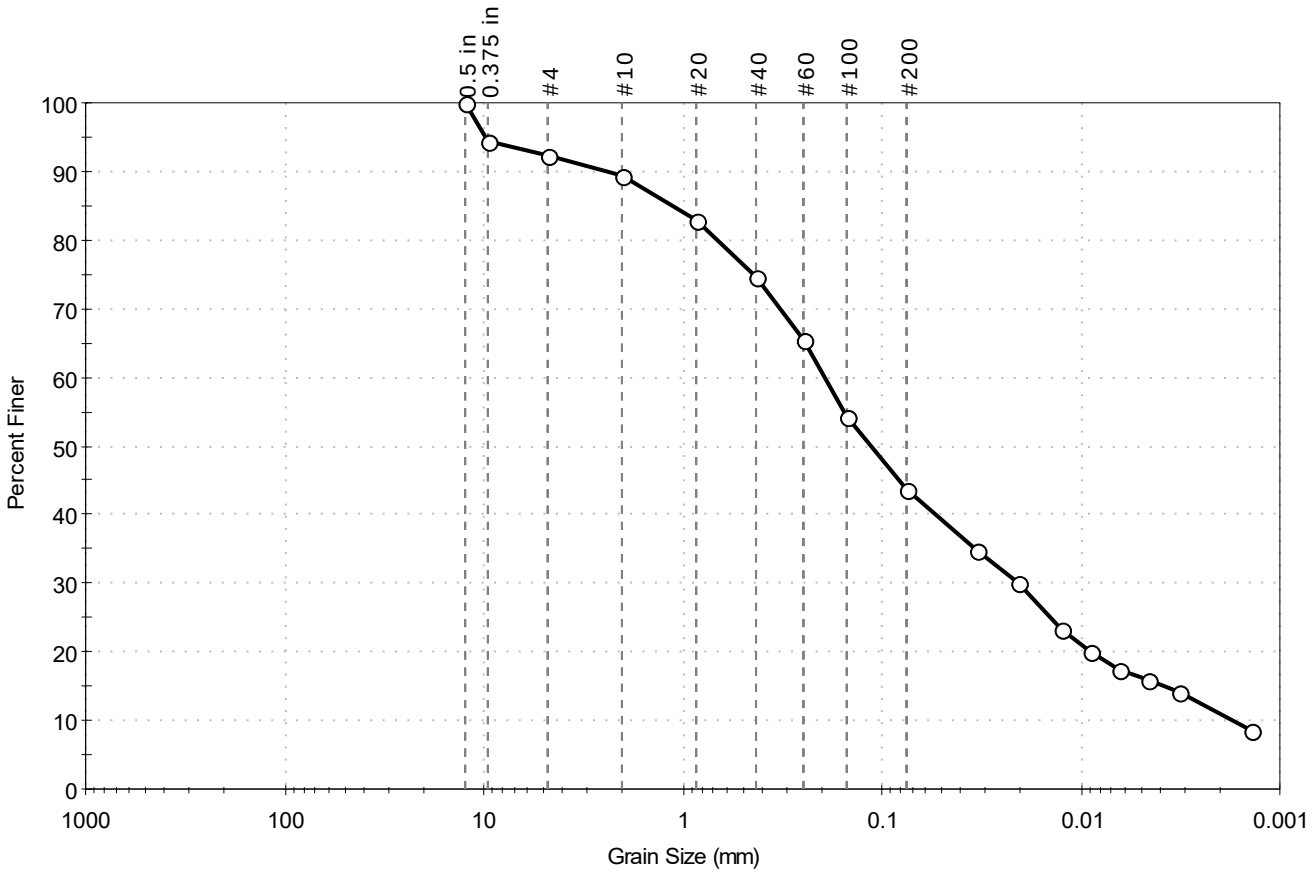
Client: Haley & Aldrich
Project: Foreside Block 6 Development #39486-882
Portland, ME
Project No: 0956-13BG08 **Lab No.** 16983-37

Tested By: JMT **Checked By:** MTG

2016/2017 Haley & Aldrich, Inc.
Laboratory Test Results

Client:	Haley & Aldrich, Inc.				
Project:	Portland Co. Redevelopment				
Location:	Portland, ME			Project No:	GTX-305912
Boring ID:	HA16-1(OW)	Sample Type:	jar	Tested By:	jbr
Sample ID:	S4	Test Date:	01/26/17	Checked By:	emm
Depth :	6-8 ft	Test Id:	402805		
Test Comment:	---				
Visual Description:	Moist, dark grayish brown silty, clayey sand				
Sample Comment:	---				

Particle Size Analysis - ASTM D422



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	7.7	48.7	43.6

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.5 in	12.50	100		
0.375 in	9.50	95		
#4	4.75	92		
#10	2.00	89		
#20	0.85	83		
#40	0.42	75		
#60	0.25	66		
#100	0.15	54		
#200	0.075	44		
---	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0333	35		
---	0.0208	30		
---	0.0127	23		
---	0.0091	20		
---	0.0064	18		
---	0.0046	16		
---	0.0033	14		
---	0.0014	9		

Coefficients

D_{85} = 1.1093 mm
D_{30} = 0.0208 mm
D_{60} = 0.1939 mm
D_{15} = 0.0038 mm
D_{50} = 0.1132 mm
D_{10} = 0.0017 mm
C_u = 114.059
C_c = 1.313

Classification

ASTM N/A

AASHTO Silty Soils (A-4 (0))

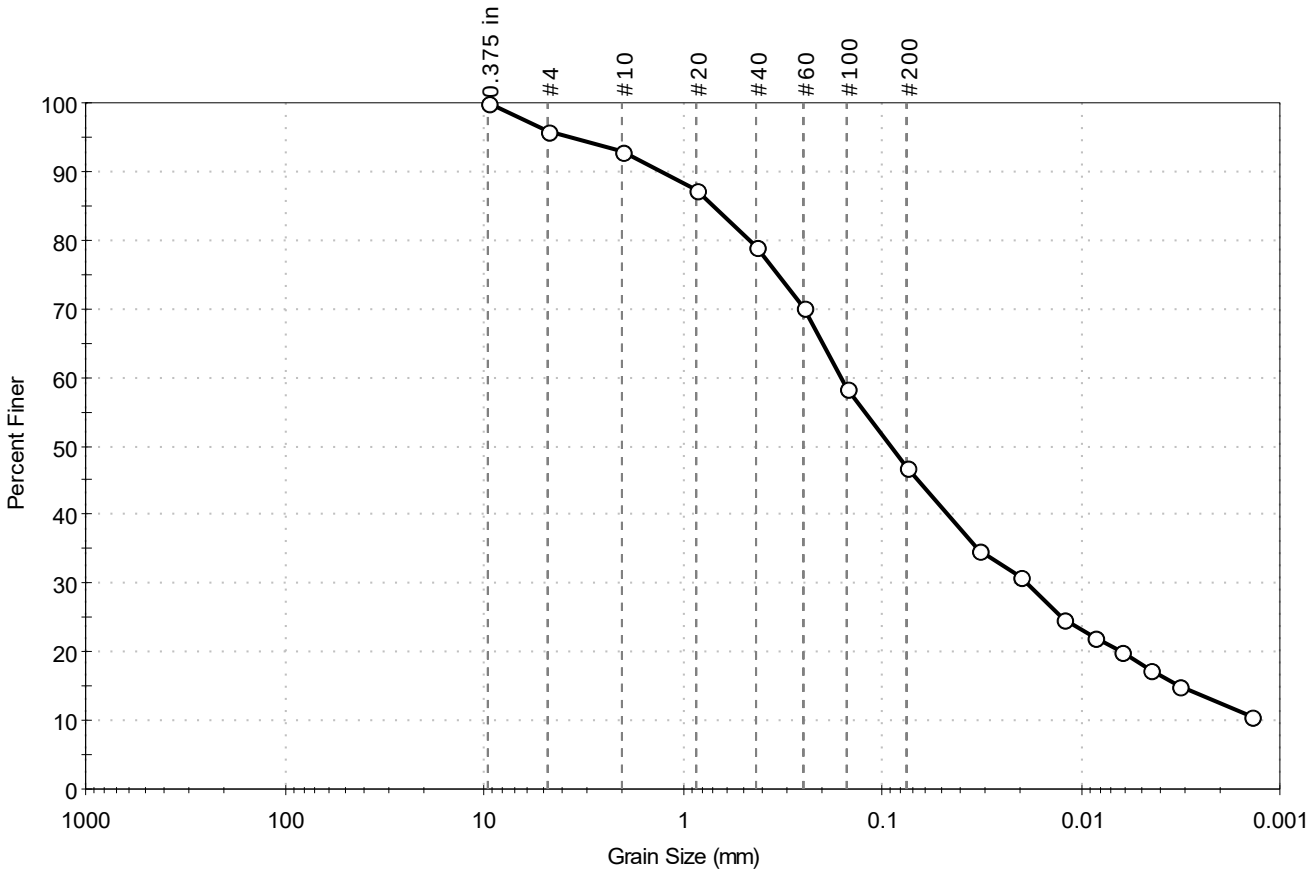
Sample / Test Description

Sand/Gravel Particle Shape : ANGULAR
Sand/Gravel Hardness : HARD
Dispersion Device : Apparatus A - Mech Mixer
Dispersion Period : 1 minute
Specific Gravity : 2.65
Separation of Sample: #200 Sieve

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Client:	Haley & Aldrich, Inc.				
Project:	Portland Co. Redevelopment				
Location:	Portland, ME			Project No:	GTX-305912
Boring ID:	HA16-1(OW)	Sample Type:	jar	Tested By:	jbr
Sample ID:	S6	Test Date:	01/26/17	Checked By:	emm
Depth :	15-17 ft	Test Id:	402806		
Test Comment:	---				
Visual Description:	Moist, gray silty, clayey sand				
Sample Comment:	---				

Particle Size Analysis - ASTM D422



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	4.2	49.0	46.8

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.375 in	9.50	100		
#4	4.75	96		
#10	2.00	93		
#20	0.85	87		
#40	0.42	79		
#60	0.25	70		
#100	0.15	59		
#200	0.075	47		
---	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0323	35		
---	0.0203	31		
---	0.0123	25		
---	0.0086	22		
---	0.0062	20		
---	0.0045	18		
---	0.0032	15		
---	0.0014	11		

Coefficients

D_{85} = 0.6990 mm	D_{30} = 0.0187 mm
D_{60} = 0.1599 mm	D_{15} = 0.0032 mm
D_{50} = 0.0907 mm	D_{10} = N/A
C_u = N/A	C_c = N/A

Classification

ASTM N/A

AASHTO Silty Soils (A-4 (0))

Sample / Test Description

Sand/Gravel Particle Shape : ANGULAR

Sand/Gravel Hardness : HARD

Dispersion Device : Apparatus A - Mech Mixer

Dispersion Period : 1 minute

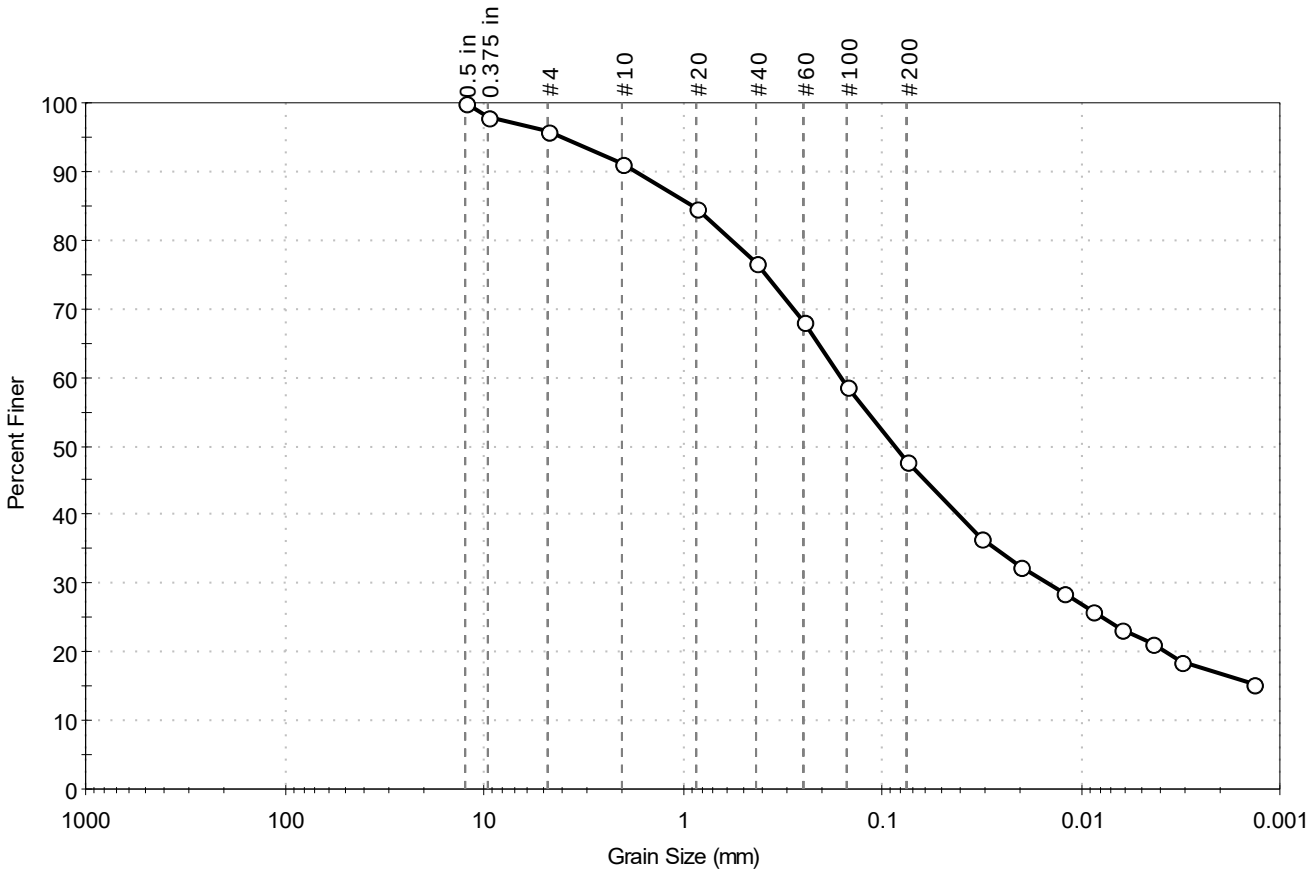
Specific Gravity : 2.65

Separation of Sample: #200 Sieve

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Client:	Haley & Aldrich, Inc.				
Project:	Portland Co. Redevelopment				
Location:	Portland, ME			Project No:	GTX-305912
Boring ID:	HA16-1(OW)	Sample Type:	jar	Tested By:	jbr
Sample ID:	S8	Test Date:	01/27/17	Checked By:	emm
Depth :	25-27 ft	Test Id:	402807		
Test Comment:	---				
Visual Description:	Moist, gray silty, clayey sand				
Sample Comment:	---				

Particle Size Analysis - ASTM D422



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	4.1	48.2	47.7

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.5 in	12.50	100		
0.375 in	9.50	98		
#4	4.75	96		
#10	2.00	91		
#20	0.85	85		
#40	0.42	77		
#60	0.25	68		
#100	0.15	59		
#200	0.075	48		
---	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0315	37		
---	0.0204	33		
---	0.0121	29		
---	0.0087	26		
---	0.0062	23		
---	0.0044	21		
---	0.0032	19		
---	0.0014	15		

Coefficients

D_{85} = 0.8805 mm D_{30} = 0.0147 mm

D_{60} = 0.1618 mm D_{15} = N/A

D_{50} = 0.0870 mm D_{10} = N/A

C_u = N/A C_c = N/A

Classification

ASTM N/A

AASHTO Silty Soils (A-4 (0))

Sample / Test Description

Sand/Gravel Particle Shape : ANGULAR

Sand/Gravel Hardness : HARD

Dispersion Device : Apparatus A - Mech Mixer

Dispersion Period : 1 minute

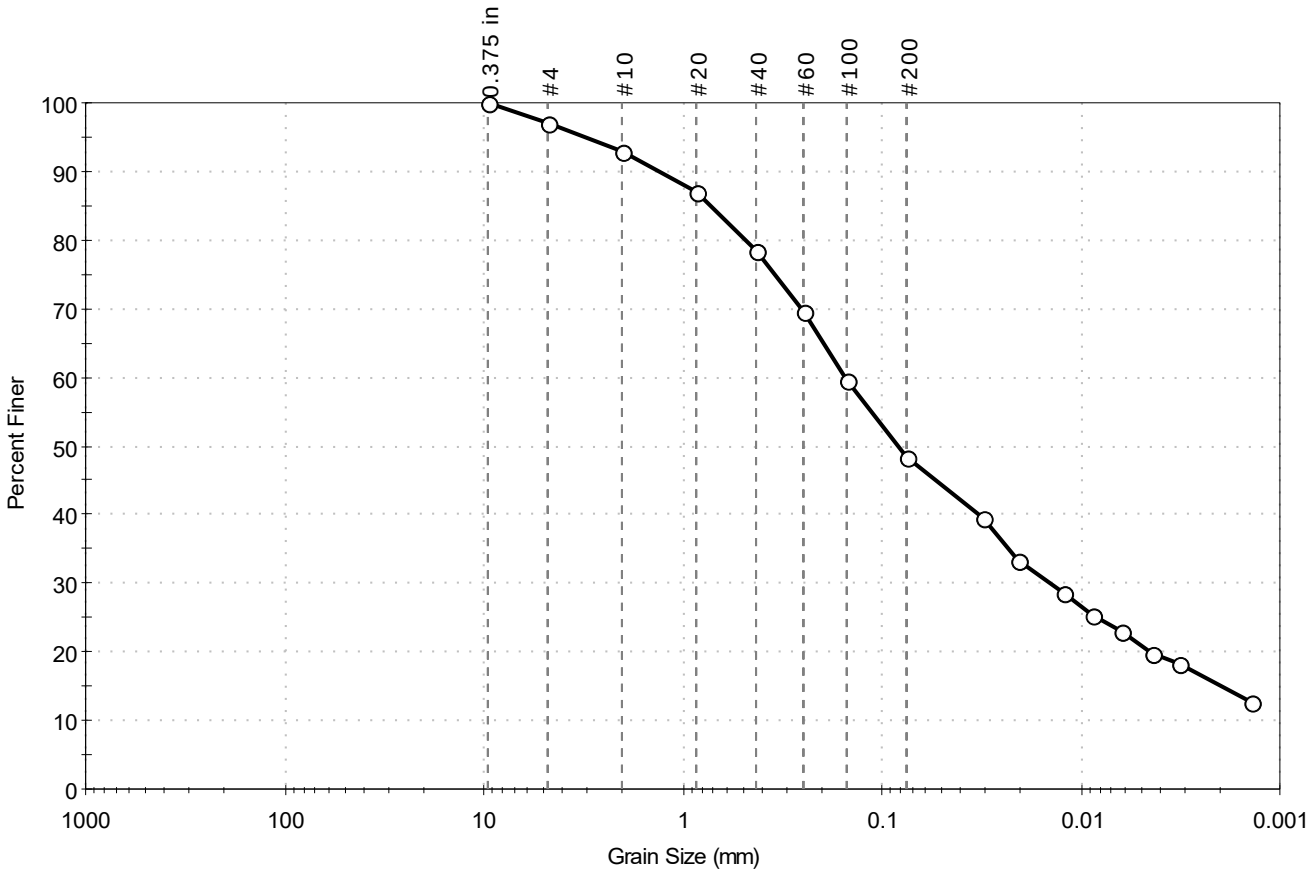
Specific Gravity : 2.65

Separation of Sample: #200 Sieve

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Client:	Haley & Aldrich, Inc.				
Project:	Portland Co. Redevelopment				
Location:	Portland, ME			Project No:	GTX-305912
Boring ID:	HA16-1(OW)	Sample Type:	jar	Tested By:	jbr
Sample ID:	S9	Test Date:	01/27/17	Checked By:	emm
Depth :	30-32 ft	Test Id:	402808		
Test Comment:	---				
Visual Description:	Moist, dark gray silty, clayey sand				
Sample Comment:	---				

Particle Size Analysis - ASTM D422



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	3.1	48.7	48.2

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.375 in	9.50	100		
#4	4.75	97		
#10	2.00	93		
#20	0.85	87		
#40	0.42	79		
#60	0.25	70		
#100	0.15	60		
#200	0.075	48		
---	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0308	39		
---	0.0206	33		
---	0.0123	28		
---	0.0088	25		
---	0.0063	23		
---	0.0044	20		
---	0.0032	18		
---	0.0014	13		

Coefficients

D_{85} = 0.7265 mm
D_{30} = 0.0145 mm
D_{60} = 0.1537 mm
D_{15} = 0.0019 mm
D_{50} = 0.0836 mm
D_{10} = N/A
C_u = N/A
C_c = N/A

Classification

ASTM N/A

AASHTO Silty Soils (A-4 (0))

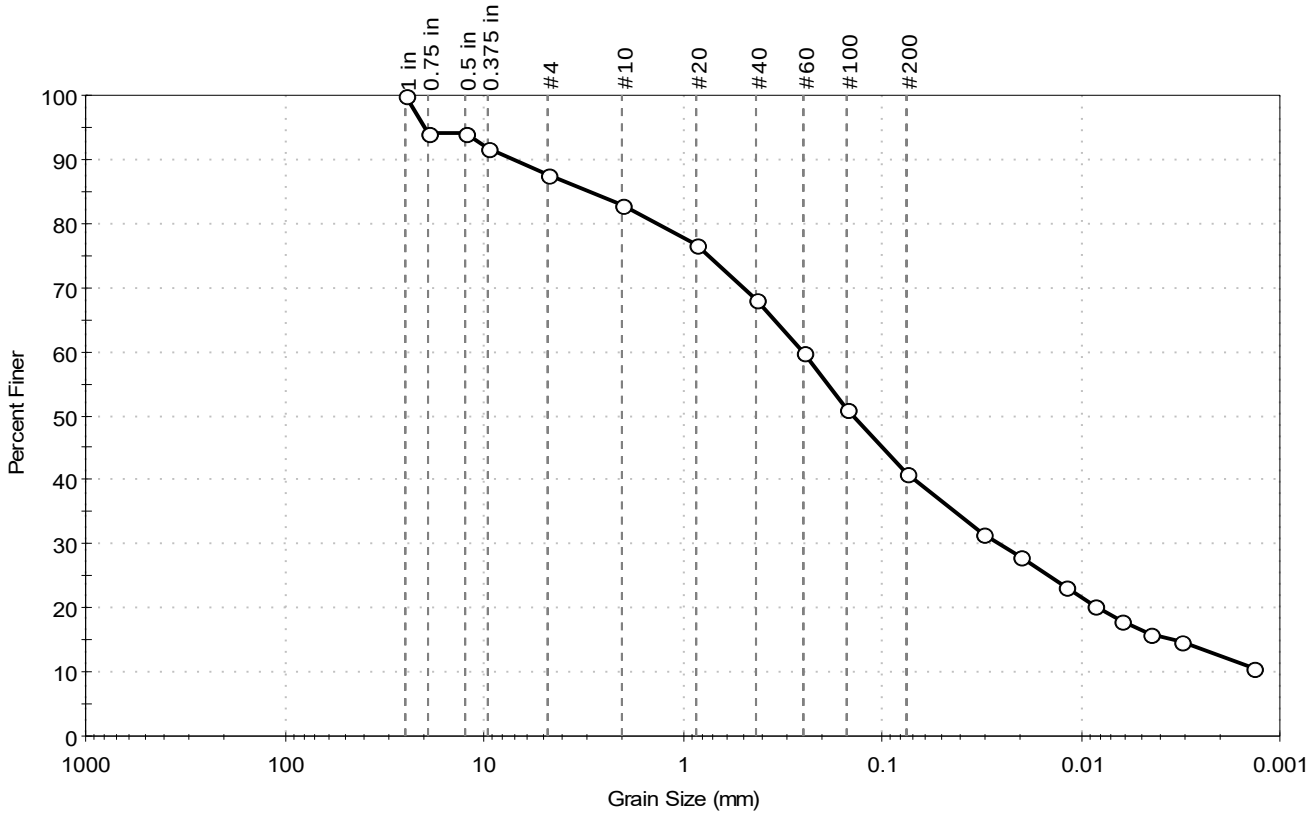
Sample / Test Description

Sand/Gravel Particle Shape : ANGULAR
Sand/Gravel Hardness : HARD
Dispersion Device : Apparatus A - Mech Mixer
Dispersion Period : 1 minute
Specific Gravity : 2.65
Separation of Sample: #200 Sieve

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Client:	Haley & Aldrich, Inc.				
Project:	Portland Co. Redevelopment				
Location:	Portland, ME			Project No:	GTX-305912
Boring ID:	HA16-1(OW)	Sample Type:	jar	Tested By:	jbr
Sample ID:	S12	Test Date:	01/26/17	Checked By:	emm
Depth :	45-47 ft	Test Id:	402809		
Test Comment:	---				
Visual Description:	Moist, dark gray silty, clayey sand				
Sample Comment:	---				

Particle Size Analysis - ASTM D422



% Cobble	% Gravel	% Sand	% Silt & Clay Size
–	12.3	46.6	41.1

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
1 in	25.00	100		
0.75 in	19.00	94		
0.5 in	12.50	94		
0.375 in	9.50	92		
#4	4.75	88		
#10	2.00	83		
#20	0.85	77		
#40	0.42	68		
#60	0.25	60		
#100	0.15	51		
#200	0.075	41		
---	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0313	32		
---	0.0200	28		
---	0.0120	23		
---	0.0086	20		
---	0.0062	18		
---	0.0045	16		
---	0.0032	15		
---	0.0014	11		

Coefficients

D_{85} = 2.8916 mm
D_{30} = 0.0258 mm
D_{60} = 0.2514 mm
D_{15} = 0.0035 mm
D_{50} = 0.1402 mm
D_{10} = N/A
C_u = N/A
C_c = N/A

Classification

ASTM N/A

AASHTO Silty Soils (A-4 (0))

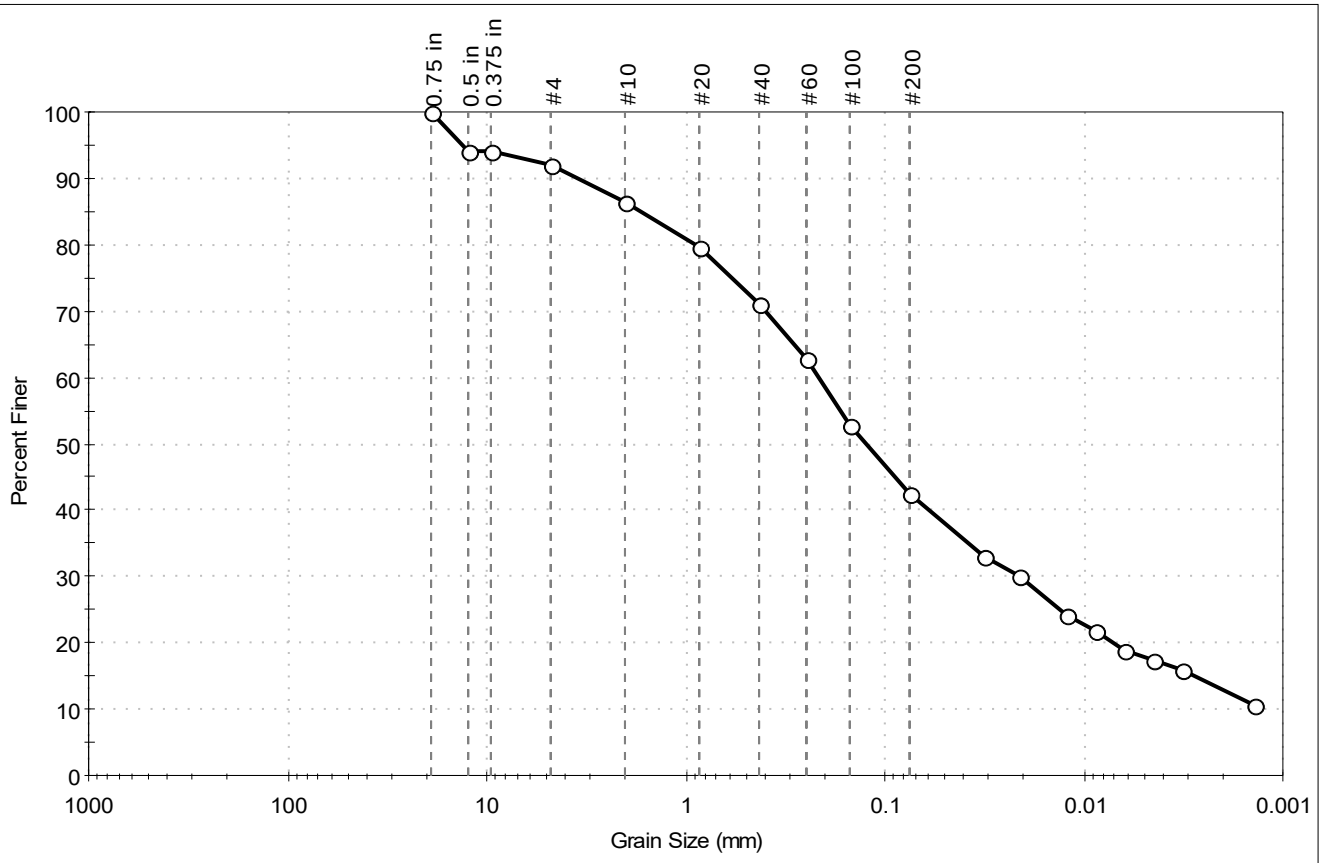
Sample / Test Description

Sand/Gravel Particle Shape : ANGULAR
Sand/Gravel Hardness : HARD
Dispersion Device : Apparatus A - Mech Mixer
Dispersion Period : 1 minute
Specific Gravity : 2.65
Separation of Sample: #200 Sieve

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Client:	Haley & Aldrich, Inc.				
Project:	Portland Co. Redevelopment				
Location:	Portland, ME			Project No:	GTX-305912
Boring ID:	HA16-1(OW)	Sample Type:	jar	Tested By:	jbr
Sample ID:	S13	Test Date:	01/26/17	Checked By:	emm
Depth :	55-56.9 ft	Test Id:	402810		
Test Comment:	---				
Visual Description:	Moist, dark gray silty, clayey sand				
Sample Comment:	---				

Particle Size Analysis - ASTM D422



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	8.1	49.3	42.6

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.75 in	19.00	100		
0.5 in	12.50	94		
0.375 in	9.50	94		
#4	4.75	92		
#10	2.00	86		
#20	0.85	80		
#40	0.42	71		
#60	0.25	63		
#100	0.15	53		
#200	0.075	43		
---	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0317	33		
---	0.0213	30		
---	0.0122	24		
---	0.0087	22		
---	0.0063	19		
---	0.0045	17		
---	0.0032	16		
---	0.0014	11		

Coefficients

D_{85} = 1.6816 mm D_{30} = 0.0210 mm

D_{60} = 0.2170 mm D_{15} = 0.0028 mm

D_{50} = 0.1243 mm D_{10} = N/A

C_u = N/A C_c = N/A

Classification

ASTM N/A

AASHTO Silty Soils (A-4 (0))

Sample / Test Description

Sand/Gravel Particle Shape : ANGULAR

Sand/Gravel Hardness : HARD

Dispersion Device : Apparatus A - Mech Mixer

Dispersion Period : 1 minute

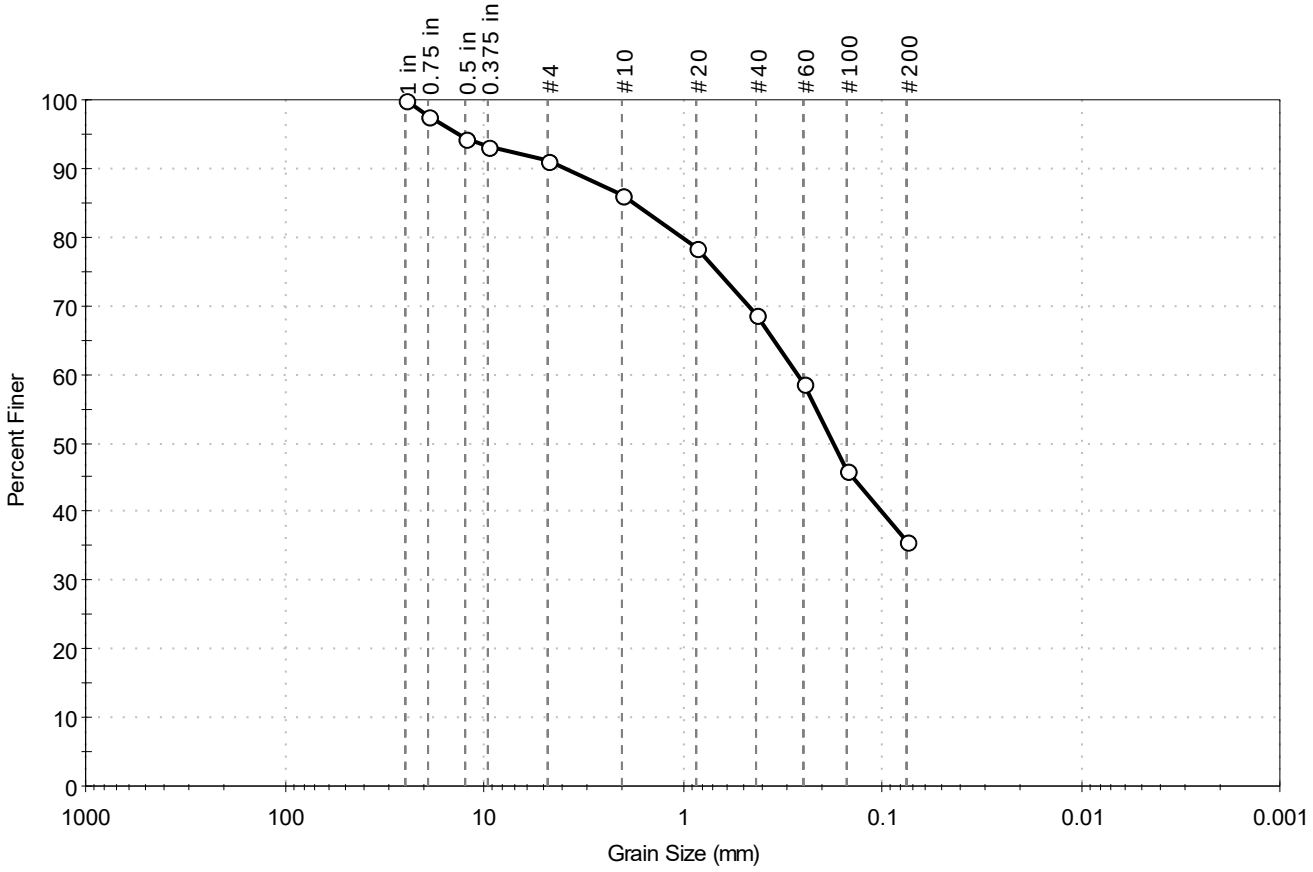
Specific Gravity : 2.65

Separation of Sample: #200 Sieve

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Client:	Haley & Aldrich, Inc.				
Project:	Portland Co. Redevelopment				
Location:	Portland, ME			Project No:	GTX-305912
Boring ID:	HA16-2	Sample Type:	jar	Tested By:	jbr
Sample ID:	S3	Test Date:	01/26/17	Checked By:	emm
Depth :	5-7 ft	Test Id:	402817		
Test Comment:	---				
Visual Description:	Moist, gray clayey sand				
Sample Comment:	---				

Particle Size Analysis - ASTM D422



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	8.9	55.5	35.6

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
1 in	25.00	100		
0.75 in	19.00	98		
0.5 in	12.50	94		
0.375 in	9.50	93		
#4	4.75	91		
#10	2.00	86		
#20	0.85	79		
#40	0.42	69		
#60	0.25	59		
#100	0.15	46		
#200	0.075	36		

Coefficients

D_{85} = 1.7775 mm D_{30} = N/A

D_{60} = 0.2667 mm D_{15} = N/A

D_{50} = 0.1757 mm D_{10} = N/A

C_u = N/A C_c = N/A

Classification

ASTM N/A

AASHTO Silty Soils (A-4 (0))

Sample / Test Description

Sand/Gravel Particle Shape : ANGULAR

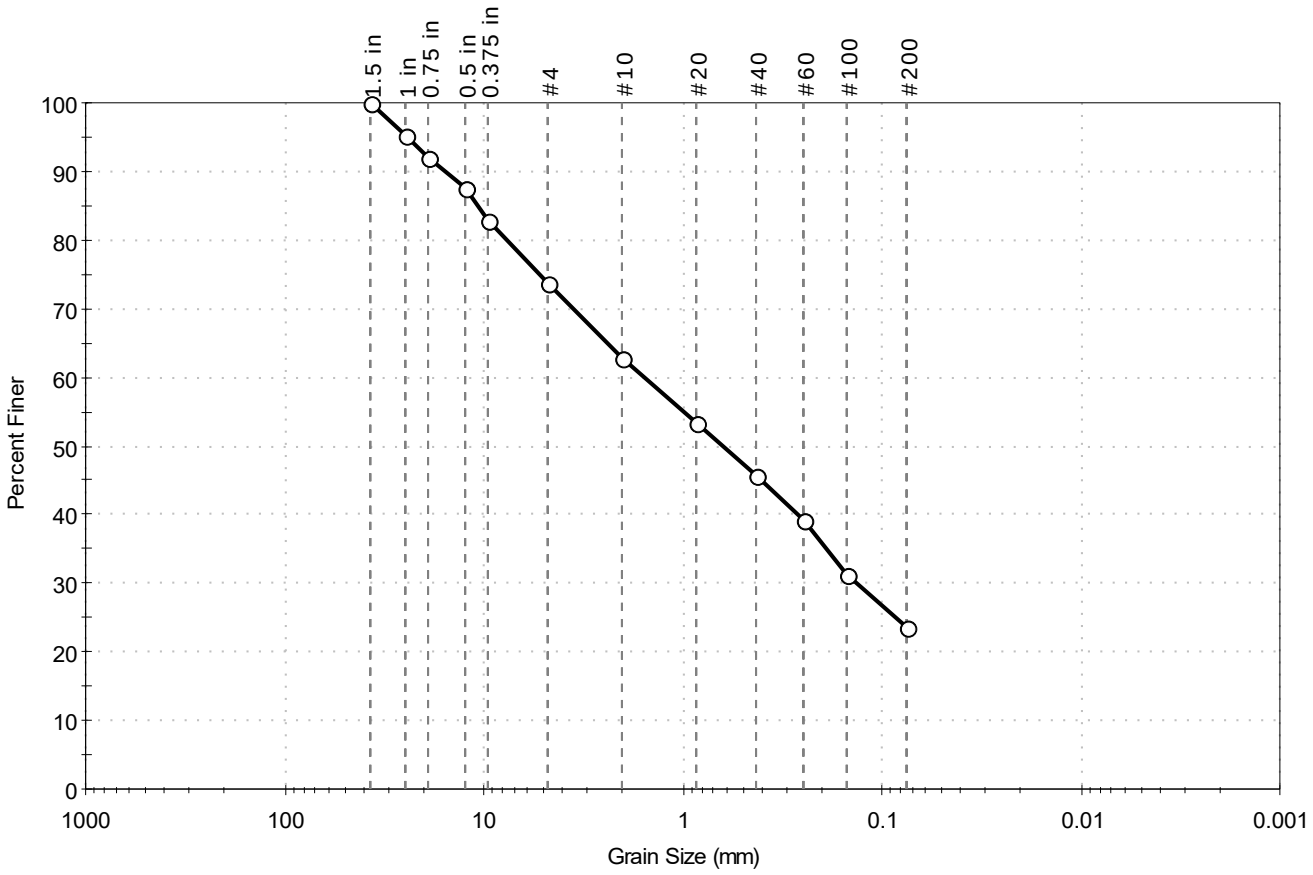
Sand/Gravel Hardness : HARD

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Client:	Haley & Aldrich, Inc.				
Project:	Portland Co. Redevelopment				
Location:	Portland, ME			Project No:	GTX-305912
Boring ID:	HA16-2	Sample Type:	jar	Tested By:	jbr
Sample ID:	S4	Test Date:	01/26/17	Checked By:	emm
Depth :	10-12 ft	Test Id:	402818		

Test Comment: ---
Visual Description: Moist, dark grayish brown silty sand with gravel
Sample Comment: ---

Particle Size Analysis - ASTM D422



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	26.2	50.1	23.7

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
1.5 in	37.50	100		
1 in	25.00	95		
0.75 in	19.00	92		
0.5 in	12.50	88		
0.375 in	9.50	83		
#4	4.75	74		
#10	2.00	63		
#20	0.85	53		
#40	0.42	46		
#60	0.25	39		
#100	0.15	31		
#200	0.075	24		

Coefficients

D_{85} = 10.7832 mm D_{30} = 0.1339 mm
D_{60} = 1.5628 mm D_{15} = N/A
D_{50} = 0.6284 mm D_{10} = N/A
C_u = N/A C_c = N/A

Classification

ASTM N/A

AASHTO Stone Fragments, Gravel and Sand (A-1-b (0))

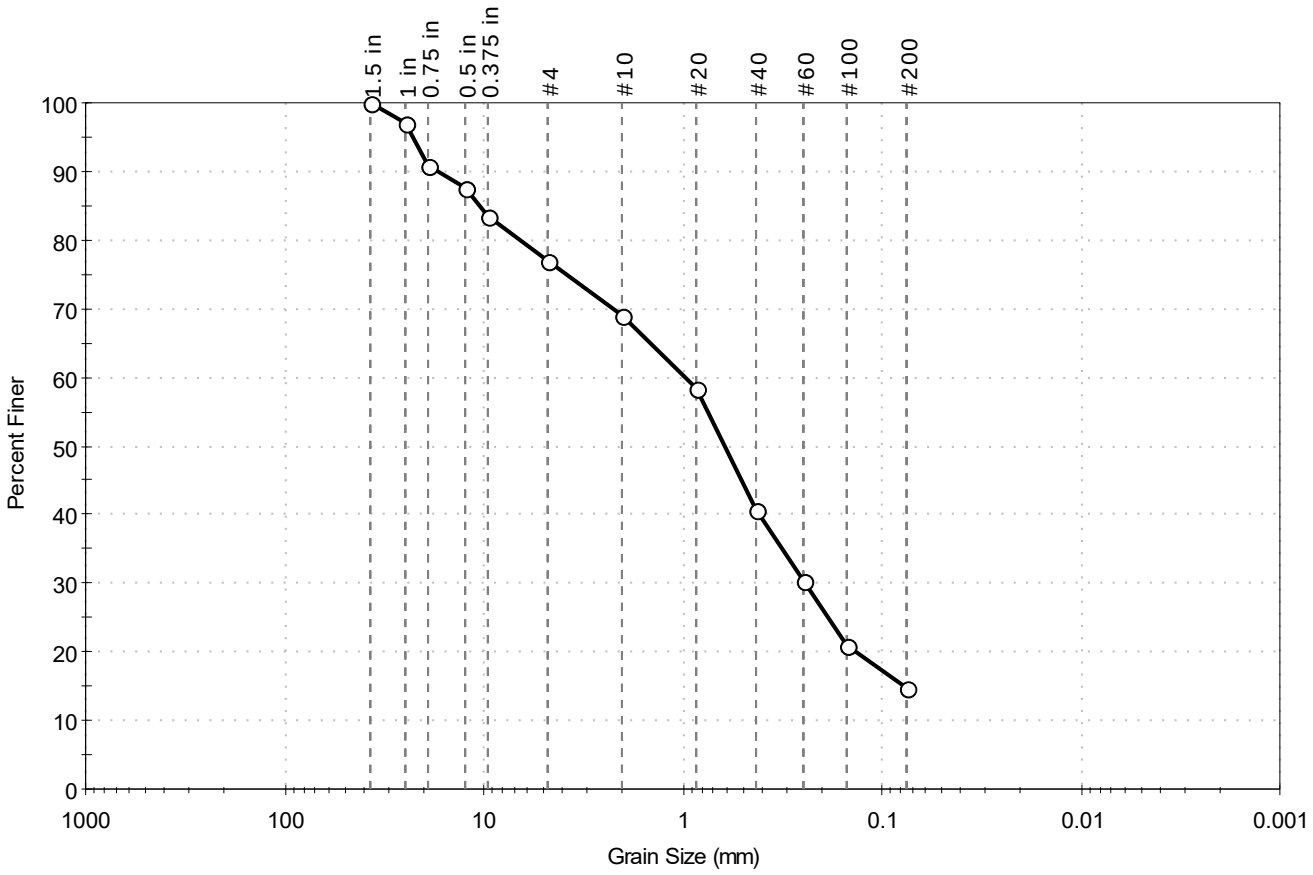
Sample / Test Description

Sand/Gravel Particle Shape : ANGULAR
Sand/Gravel Hardness : HARD

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Client:	Haley & Aldrich, Inc.				
Project:	Portland Co. Redevelopment				
Location:	Portland, ME			Project No:	GTX-305912
Boring ID:	HA16-10	Sample Type:	jar	Tested By:	jbr
Sample ID:	S1+S2	Test Date:	01/26/17	Checked By:	emm
Depth :	0-4 ft	Test Id:	402831		
Test Comment:	---				
Visual Description:	Moist, very dark gray silty sand with gravel				
Sample Comment:	---				

Particle Size Analysis - ASTM D422



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	22.8	62.4	14.8

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
1.5 in	37.50	100		
1 in	25.00	97		
0.75 in	19.00	91		
0.5 in	12.50	88		
0.375 in	9.50	83		
#4	4.75	77		
#10	2.00	69		
#20	0.85	58		
#40	0.42	41		
#60	0.25	31		
#100	0.15	21		
#200	0.075	15		

Coefficients

D_{85} = 10.5533 mm	D_{30} = 0.2430 mm
D_{60} = 0.9640 mm	D_{15} = 0.0771 mm
D_{50} = 0.6109 mm	D_{10} = N/A
C_u = N/A	C_c = N/A

Classification

ASTM N/A

AASHTO Stone Fragments, Gravel and Sand (A-1-b (0))

Sample / Test Description

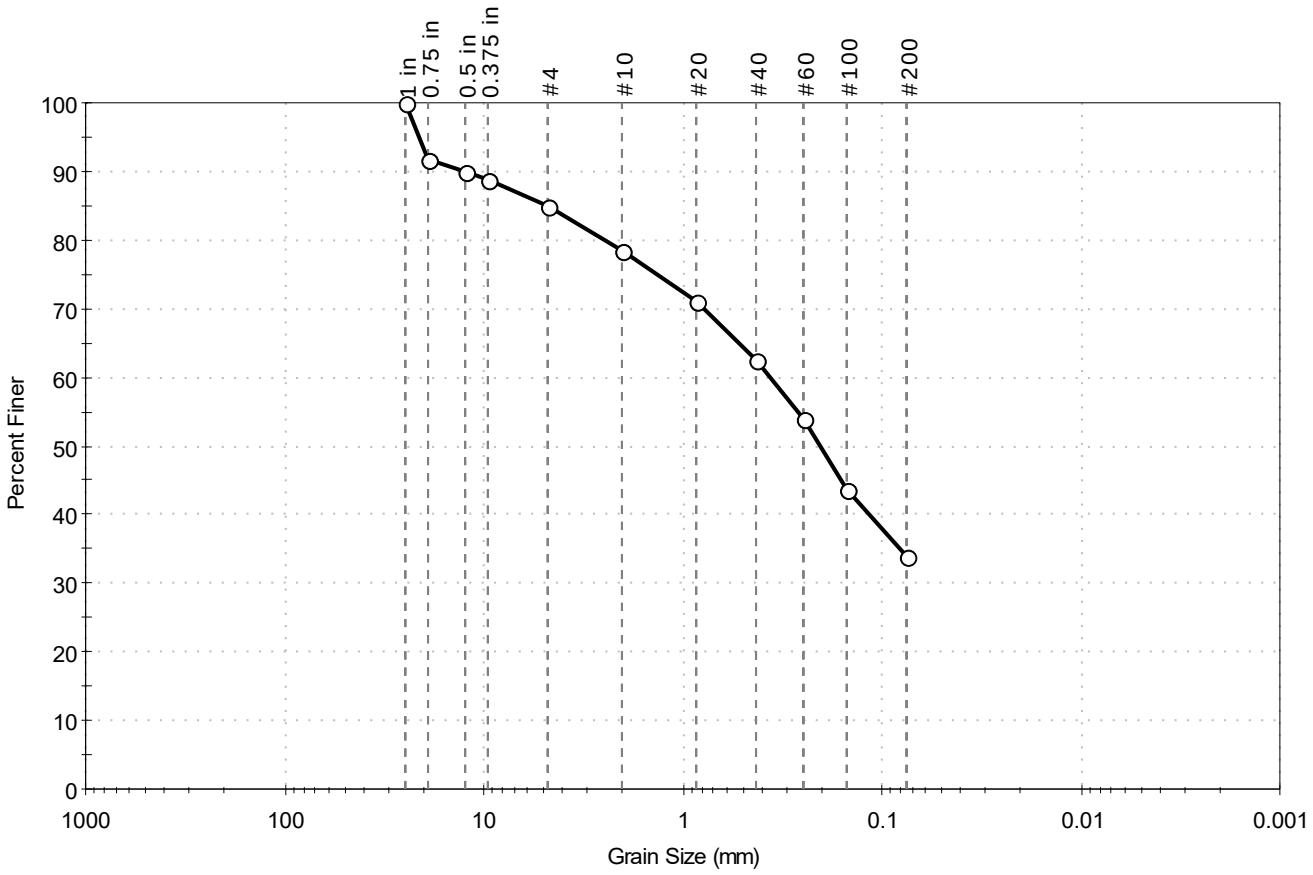
Sand/Gravel Particle Shape : ANGULAR

Sand/Gravel Hardness : HARD

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Client:	Haley & Aldrich, Inc.				
Project:	Portland Co. Redevelopment				
Location:	Portland, ME			Project No:	GTX-305912
Boring ID:	HA16-10	Sample Type:	jar	Tested By:	jbr
Sample ID:	S3A	Test Date:	01/26/17	Checked By:	emm
Depth :	4.5-6 ft	Test Id:	402832		
Test Comment:	---				
Visual Description:	Moist, brown silty sand				
Sample Comment:	---				

Particle Size Analysis - ASTM D422



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	14.9	51.3	33.8

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
1 in	25.00	100		
0.75 in	19.00	92		
0.5 in	12.50	90		
0.375 in	9.50	89		
#4	4.75	85		
#10	2.00	79		
#20	0.85	71		
#40	0.42	62		
#60	0.25	54		
#100	0.15	44		
#200	0.075	34		

Coefficients

D_{85} = 4.6875 mm D_{30} = N/A

D_{60} = 0.3643 mm D_{15} = N/A

D_{50} = 0.2054 mm D_{10} = N/A

C_u = N/A C_c = N/A

Classification

ASTM N/A

AASHTO Silty Gravel and Sand (A-2-4 (0))

Sample / Test Description

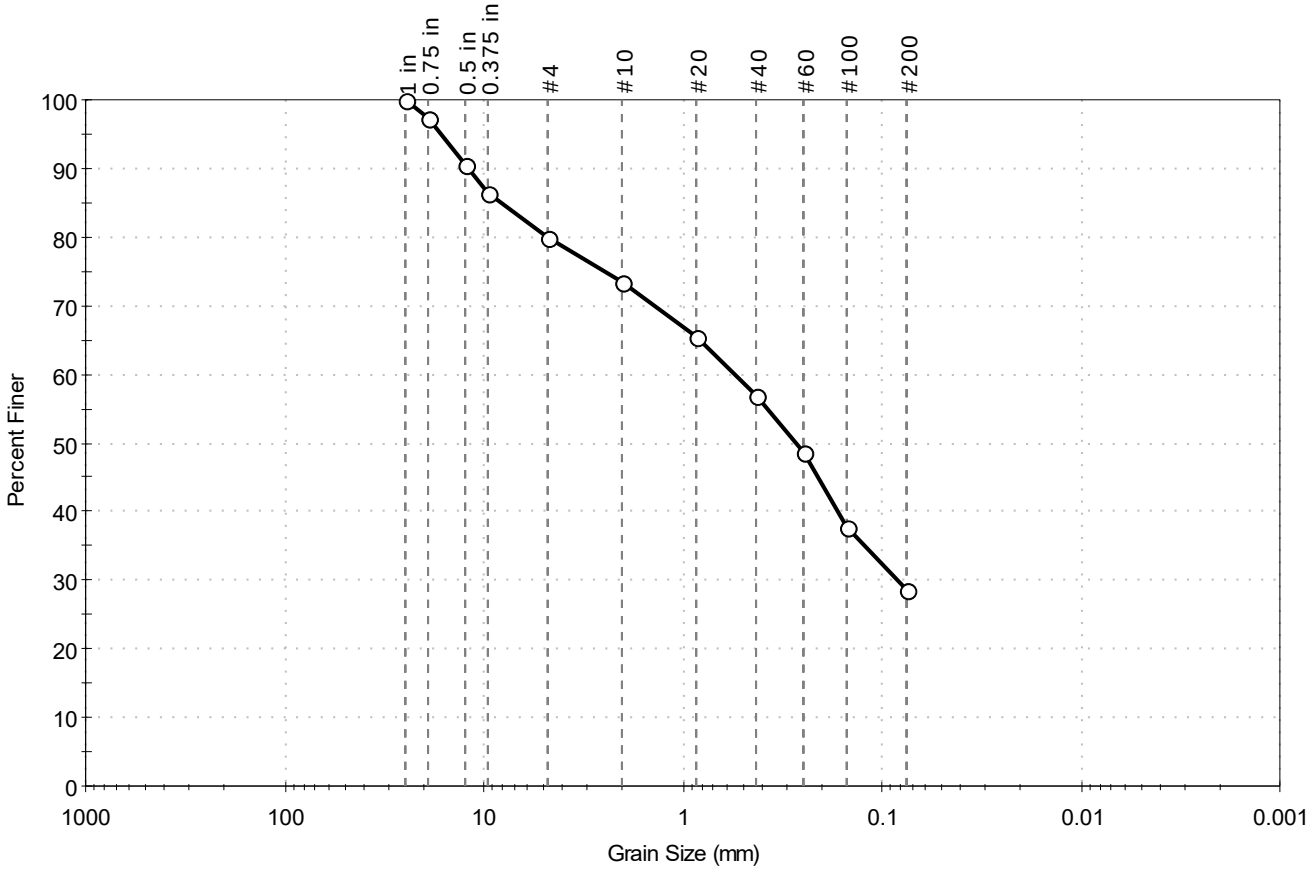
Sand/Gravel Particle Shape : ANGULAR

Sand/Gravel Hardness : HARD

printed 1/30/2017 12:50:01 PM

Client:	Haley & Aldrich, Inc.				
Project:	Portland Co. Redevelopment				
Location:	Portland, ME			Project No:	GTX-305912
Boring ID:	HA16-10	Sample Type:	jar	Tested By:	jbr
Sample ID:	S5	Test Date:	01/26/17	Checked By:	emm
Depth :	10-12 ft	Test Id:	402833		
Test Comment:	---				
Visual Description:	Moist, very dark grayish olive silty sand with gravel				
Sample Comment:	---				

Particle Size Analysis - ASTM D422



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	20.1	51.4	28.5

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
1 in	25.00	100		
0.75 in	19.00	97		
0.5 in	12.50	90		
0.375 in	9.50	87		
#4	4.75	80		
#10	2.00	73		
#20	0.85	65		
#40	0.42	57		
#60	0.25	49		
#100	0.15	38		
#200	0.075	29		

Coefficients

D_{85} = 8.0823 mm	D_{30} = 0.0837 mm
D_{60} = 0.5425 mm	D_{15} = N/A
D_{50} = 0.2722 mm	D_{10} = N/A
C_u = N/A	C_c = N/A

Classification

ASTM N/A

AASHTO Silty Gravel and Sand (A-2-4 (0))

Sample / Test Description

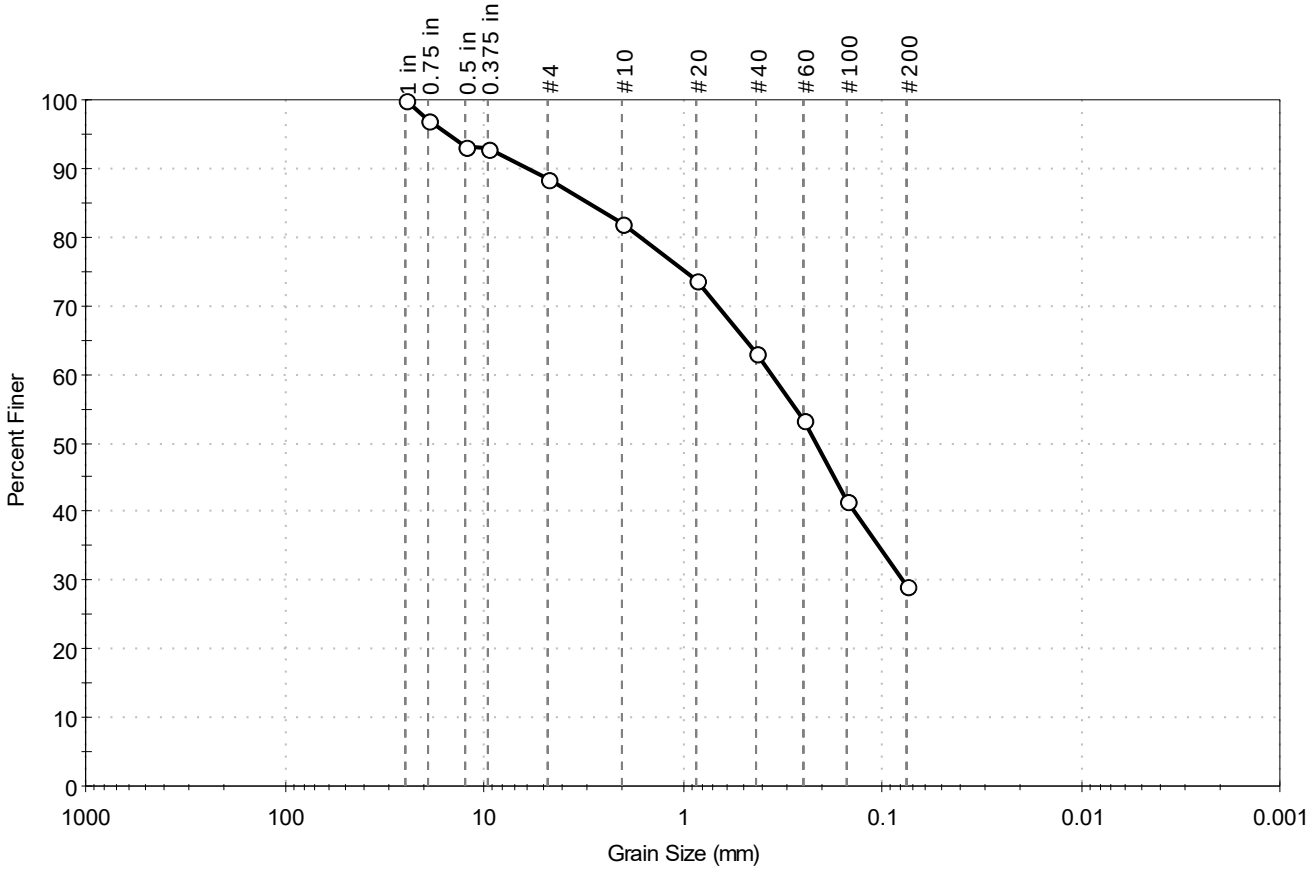
Sand/Gravel Particle Shape : ANGULAR

Sand/Gravel Hardness : HARD

printed 1/30/2017 12:50:01 PM

Client:	Haley & Aldrich, Inc.				
Project:	Portland Co. Redevelopment				
Location:	Portland, ME			Project No:	GTX-305912
Boring ID:	HA16-10	Sample Type:	jar	Tested By:	jbr
Sample ID:	S6	Test Date:	01/26/17	Checked By:	emm
Depth :	15-17 ft	Test Id:	402834		
Test Comment:	---				
Visual Description:	Moist, dark gray clayey sand				
Sample Comment:	---				

Particle Size Analysis - ASTM D422



% Cobble	% Gravel	% Sand	% Silt & Clay Size
–	11.5	59.4	29.1

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
1 in	25.00	100		
0.75 in	19.00	97		
0.5 in	12.50	93		
0.375 in	9.50	93		
#4	4.75	88		
#10	2.00	82		
#20	0.85	74		
#40	0.42	63		
#60	0.25	53		
#100	0.15	41		
#200	0.075	29		

Coefficients

D_{85} = 2.9704 mm	D_{30} = 0.0789 mm
D_{60} = 0.3574 mm	D_{15} = N/A
D_{50} = 0.2163 mm	D_{10} = N/A
C_u = N/A	C_c = N/A

Classification

ASTM N/A

AASHTO Silty Gravel and Sand (A-2-4 (0))

Sample / Test Description

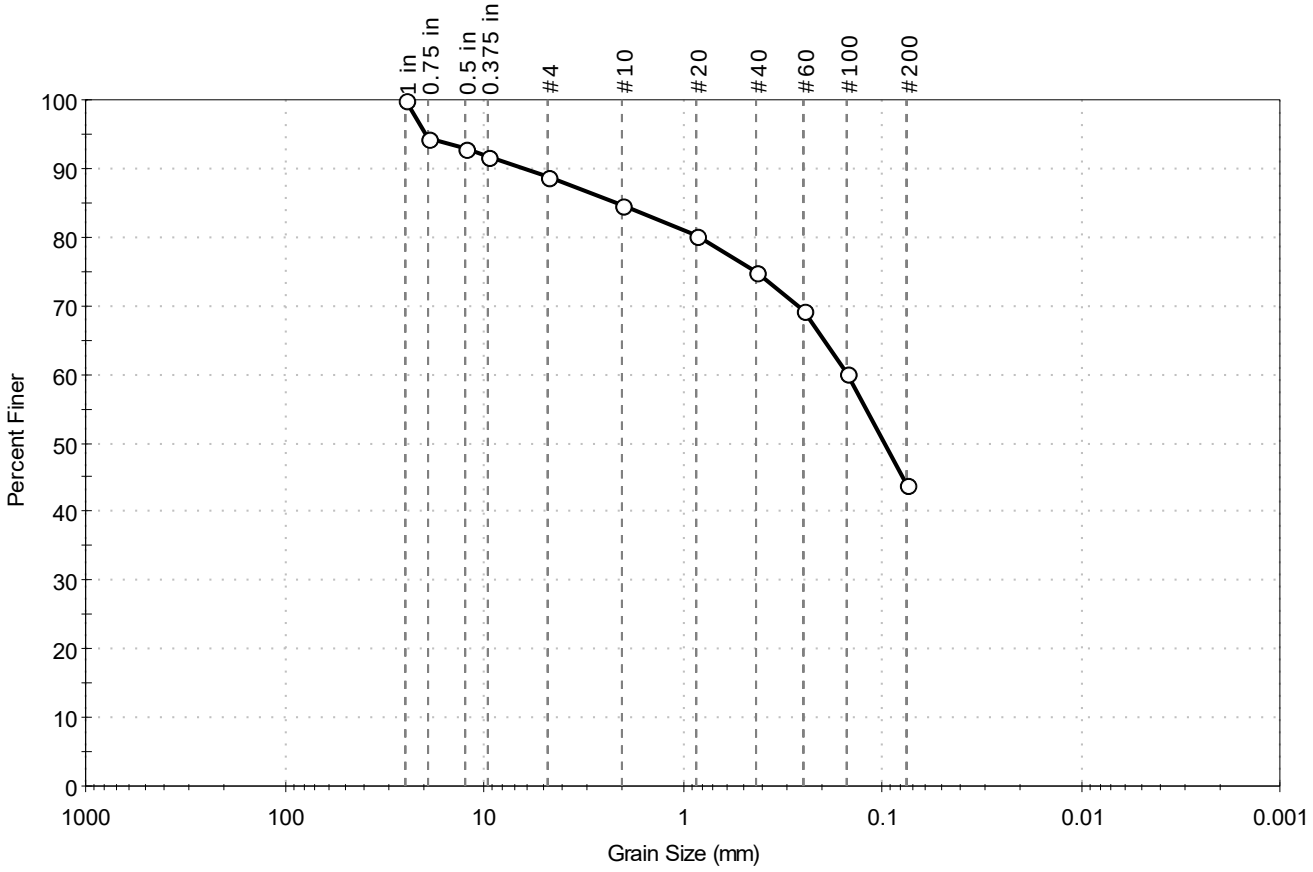
Sand/Gravel Particle Shape : ANGULAR

Sand/Gravel Hardness : HARD

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Client:	Haley & Aldrich, Inc.				
Project:	Portland Co. Redevelopment				
Location:	Portland, ME			Project No:	GTX-305912
Boring ID:	HA16-10	Sample Type:	jar	Tested By:	jbr
Sample ID:	S7	Test Date:	01/26/17	Checked By:	emm
Depth :	25-27 ft	Test Id:	402835		
Test Comment:	---				
Visual Description:	Moist, gray silty sand				
Sample Comment:	---				

Particle Size Analysis - ASTM D422



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	11.4	44.8	43.8

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
1 in	25.00	100		
0.75 in	19.00	94		
0.5 in	12.50	93		
0.375 in	9.50	92		
#4	4.75	89		
#10	2.00	85		
#20	0.85	80		
#40	0.42	75		
#60	0.25	69		
#100	0.15	60		
#200	0.075	44		

Coefficients

D_{85} = 2.1782 mm D_{30} = N/A

D_{60} = 0.1497 mm D_{15} = N/A

D_{50} = 0.0976 mm D_{10} = N/A

C_u = N/A C_c = N/A

Classification

ASTM N/A

AASHTO Silty Soils (A-4 (0))

Sample / Test Description

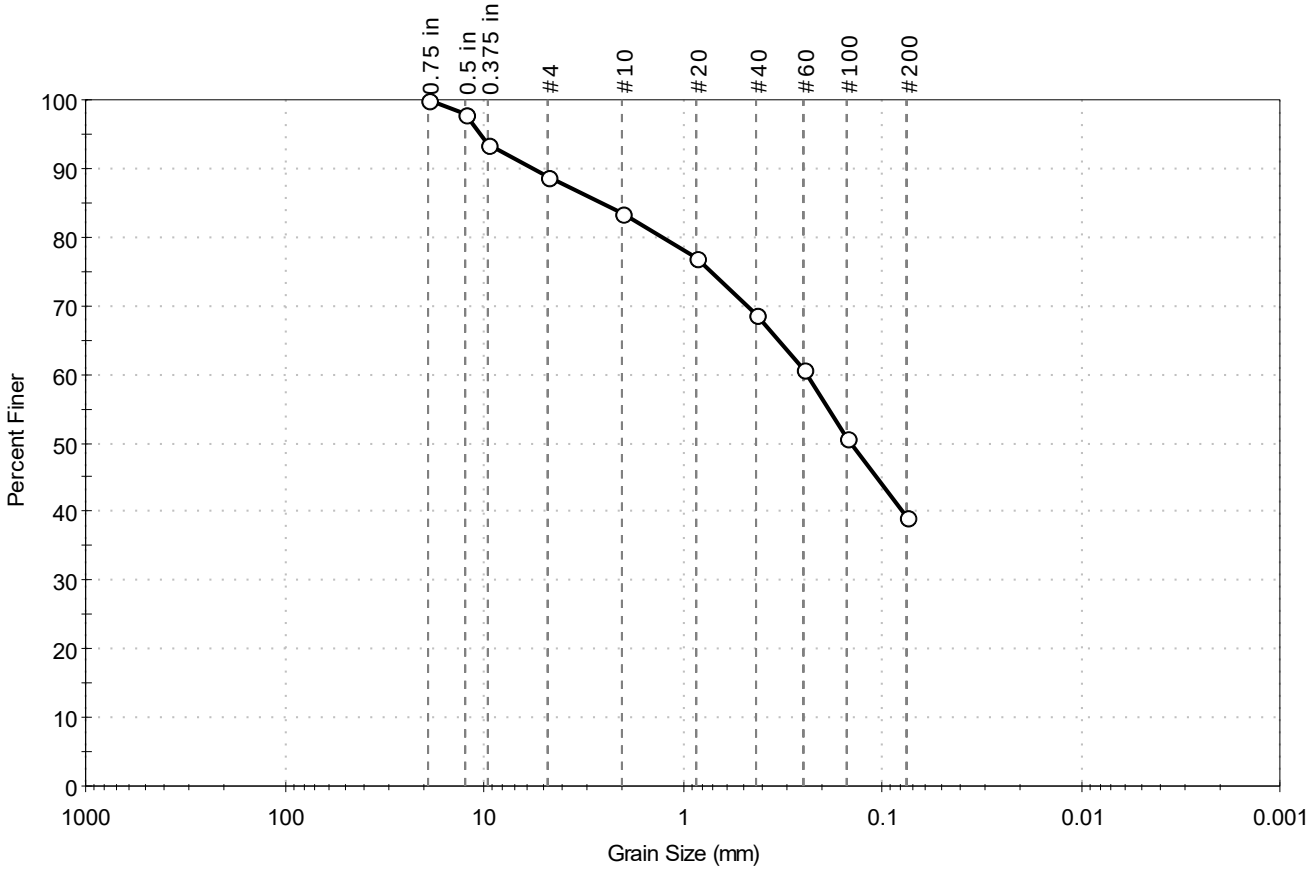
Sand/Gravel Particle Shape : ANGULAR

Sand/Gravel Hardness : HARD

printed 1/30/2017 12:50:02 PM

Client:	Haley & Aldrich, Inc.				
Project:	Portland Co. Redevelopment				
Location:	Portland, ME			Project No:	GTX-305912
Boring ID:	HA16-10	Sample Type:	jar	Tested By:	jbr
Sample ID:	S8	Test Date:	01/26/17	Checked By:	emm
Depth :	30-32.6 ft	Test Id:	402836		
Test Comment:	---				
Visual Description:	Moist, gray silty sand				
Sample Comment:	---				

Particle Size Analysis - ASTM D422



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	11.3	49.5	39.2

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.75 in	19.00	100		
0.5 in	12.50	98		
0.375 in	9.50	94		
#4	4.75	89		
#10	2.00	83		
#20	0.85	77		
#40	0.42	69		
#60	0.25	61		
#100	0.15	51		
#200	0.075	39		

Coefficients

D_{85} = 2.5914 mm D_{30} = N/A

D_{60} = 0.2408 mm D_{15} = N/A

D_{50} = 0.1441 mm D_{10} = N/A

C_u = N/A C_c = N/A

Classification

ASTM N/A

AASHTO Silty Soils (A-4 (0))

Sample / Test Description

Sand/Gravel Particle Shape : ANGULAR

Sand/Gravel Hardness : HARD

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2007 S.W. Cole Engineering, Inc.
Laboratory Test Results

S.W.COLE ENGINEERING, INC.

Report of Gradation

ASTM C-117 & C-136

Project Name: PORTLAND - PROPOSED DEVELOPMENT - PORTLAND YACHT SERVICES SITE - PRELIMINARY GEOTECHNICAL ENGINEERING

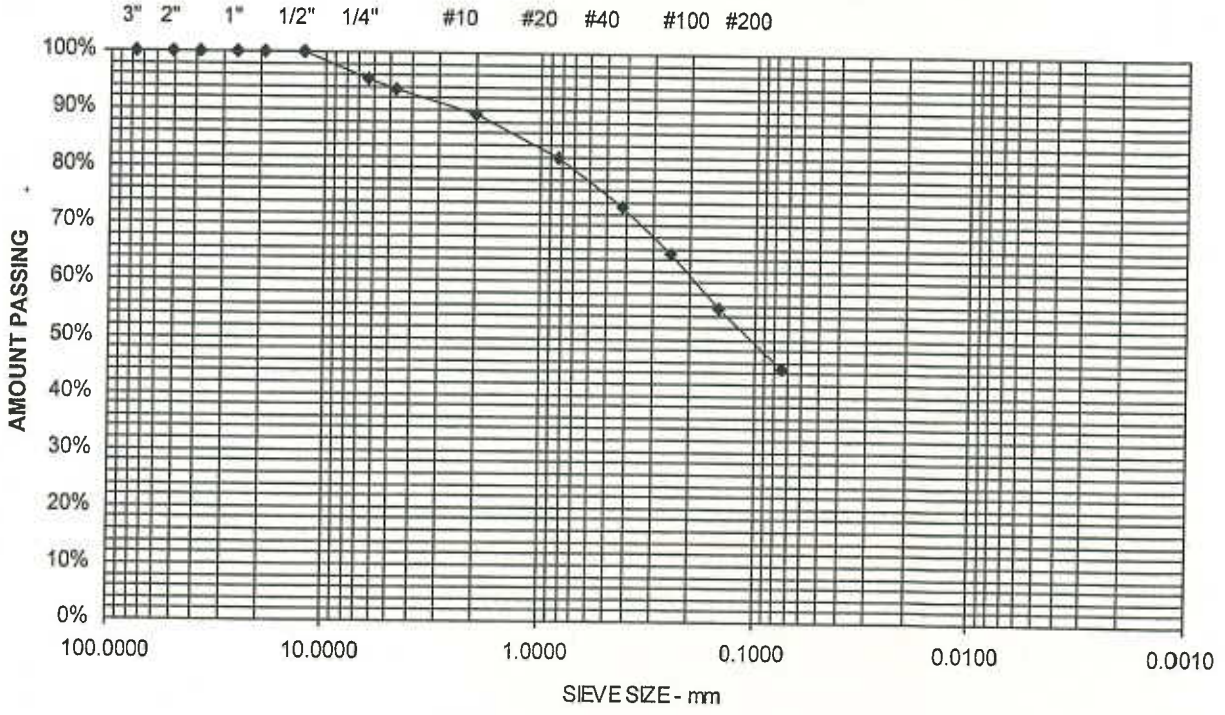
Client: PHINEAS SPRAGUE

Material Source: **B-4 S2 5-7**

Project Number: 07-0792
Lab ID: 7545G
Date Received: 9/28/2007
Date Complete: 10/2/2007
Tested By: JUSTIN BISSON

STANDARD DESIGNATION (mm/µm)	SIEVE SIZE	AMOUNT PASSING (%)	
150 mm	6"	100	
125 mm	5"	100	
100 mm	4"	100	
75 mm	3"	100	
50 mm	2"	100	
38.1 mm	1-1/2"	100	
25.0 mm	1"	100	
19.0 mm	3/4"	100	
12.5 mm	1/2"	100	
6.3 mm	1/4"	95	
4.75 mm	No. 4	94	6.4% Gravel
2.00 mm	No. 10	89	
850 um	No. 20	82	
425 um	No. 40	73	48.7% Sand
250 um	No. 60	65	
150 um	No. 100	56	
75 um	No. 200	44.8	44.8% Fines

SAND AND SILT, SOME GRAVEL



Comments: w = 8.5%

Sheet

APPENDIX D

Historic Drawings and Sanborn Maps

Sanborn Maps

58 Fore Street Portland, Maine

58 Fore Street

Portland, ME 04101

Inquiry Number: 4691431.1

August 04, 2016

Certified Sanborn® Map Report

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

Certified Sanborn® Map Report

08/04/16

Site Name:

58 Fore Street Portland, Maine
58 Fore Street
Portland, ME 04101
EDR Inquiry # 4691431.1

Client Name:

Haley & Aldrich, Inc.
75 Washington Ave.
Portland, ME 04101-2617
Contact: Dave Dearden

The Sanborn Library has been searched by EDR and maps covering the target property location as provided by Haley & Aldrich, Inc. were identified for the years listed below. The Sanborn Library is the largest, most complete collection of fire insurance maps. The collection includes maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow, and others. Only Environmental Data Resources Inc. (EDR) is authorized to grant rights for commercial reproduction of maps by the Sanborn Library LLC, the copyright holder for the collection. Results can be authenticated by visiting www.edrnet.com/sanborn.

The Sanborn Library is continually enhanced with newly identified map archives. This report accesses all maps in the collection as of the day this report was generated.

Certified Sanborn Results:

Certification # 671C-4B65-A45B

PO # 39486-872

Project 39486-872

Maps Provided:

1988
1986
1980
1954
1949
1909
1896
1886

Sanborn® Library search results

Certification #: 671C-4B65-A45B

The Sanborn Library includes more than 1.2 million fire insurance maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow and others which track historical property usage in approximately 12,000 American cities and towns. Collections searched:

- ☑ Library of Congress
- ☑ University Publications of America
- ☑ EDR Private Collection

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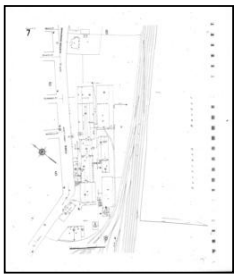
Sanborn Sheet Key

This Certified Sanborn Map Report is based upon the following Sanborn Fire Insurance map sheets.

1988 Source Sheets


Volume 1, Sheet 5
1988

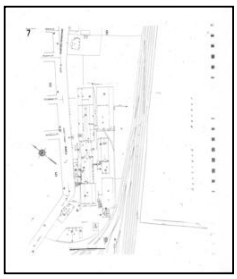

Volume 1, Sheet 6
1988


Volume 1, Sheet 7
1988

1986 Source Sheets


Volume 1, Sheet 5
1986


Volume 1, Sheet 6
1986


Volume 1, Sheet 7
1986

1980 Source Sheets


Volume 1, Sheet 5
1980

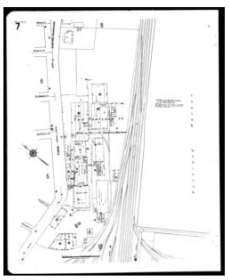

Volume 1, Sheet 6
1980


Volume 1, Sheet 7
1980

1954 Source Sheets


Volume 1, Sheet 5
1954


Volume 1, Sheet 6
1954


Volume 1, Sheet 7
1954

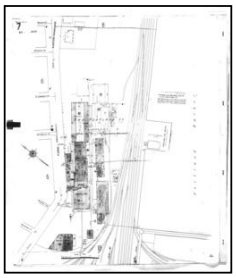
Sanborn Sheet Key

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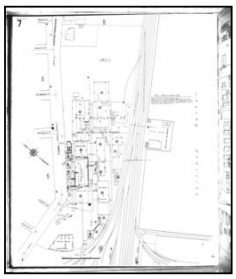
1949 Source Sheets


Volume 1, Sheet 5
1949


Volume 1, Sheet 6
1949


Volume 1, Sheet 7
1949

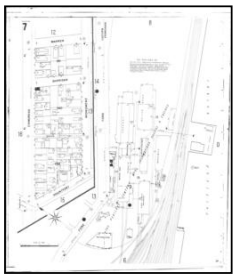
1909 Source Sheets


Volume 1, Sheet 7
1909


Volume 1, Sheet 5
1909


Volume 1, Sheet 6
1909

1896 Source Sheets

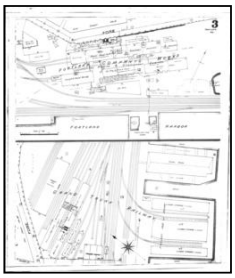

Volume 1, Sheet 7
1896


Volume 1, Sheet 13
1896


Volume 1, Sheet 14
1896

1886 Source Sheets


Volume 1, Sheet 2
1886


Volume 1, Sheet 3
1886



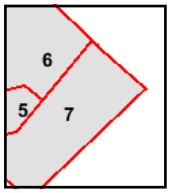
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Site Name: 58 Fore Street Portland, Maine
Address: 58 Fore Street
City, ST, ZIP: Portland, ME 04101
Client: Haley & Aldrich, Inc.
EDR Inquiry: 4691431.1
Order Date: 08/04/2016
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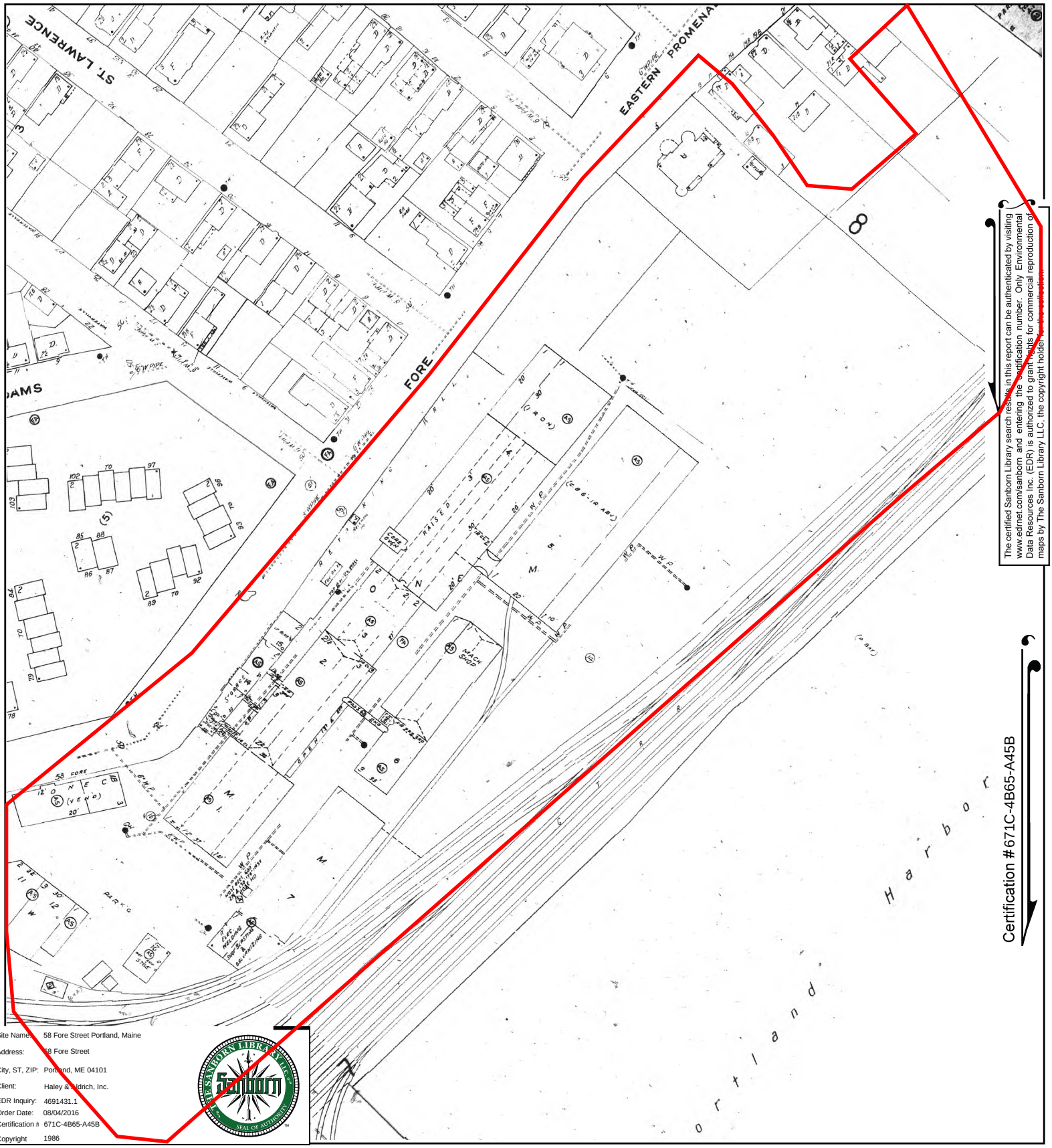




Volume 1, Sheet 7
Volume 1, Sheet 6
Volume 1, Sheet 5

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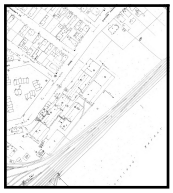
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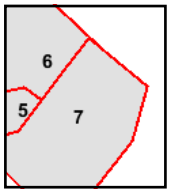


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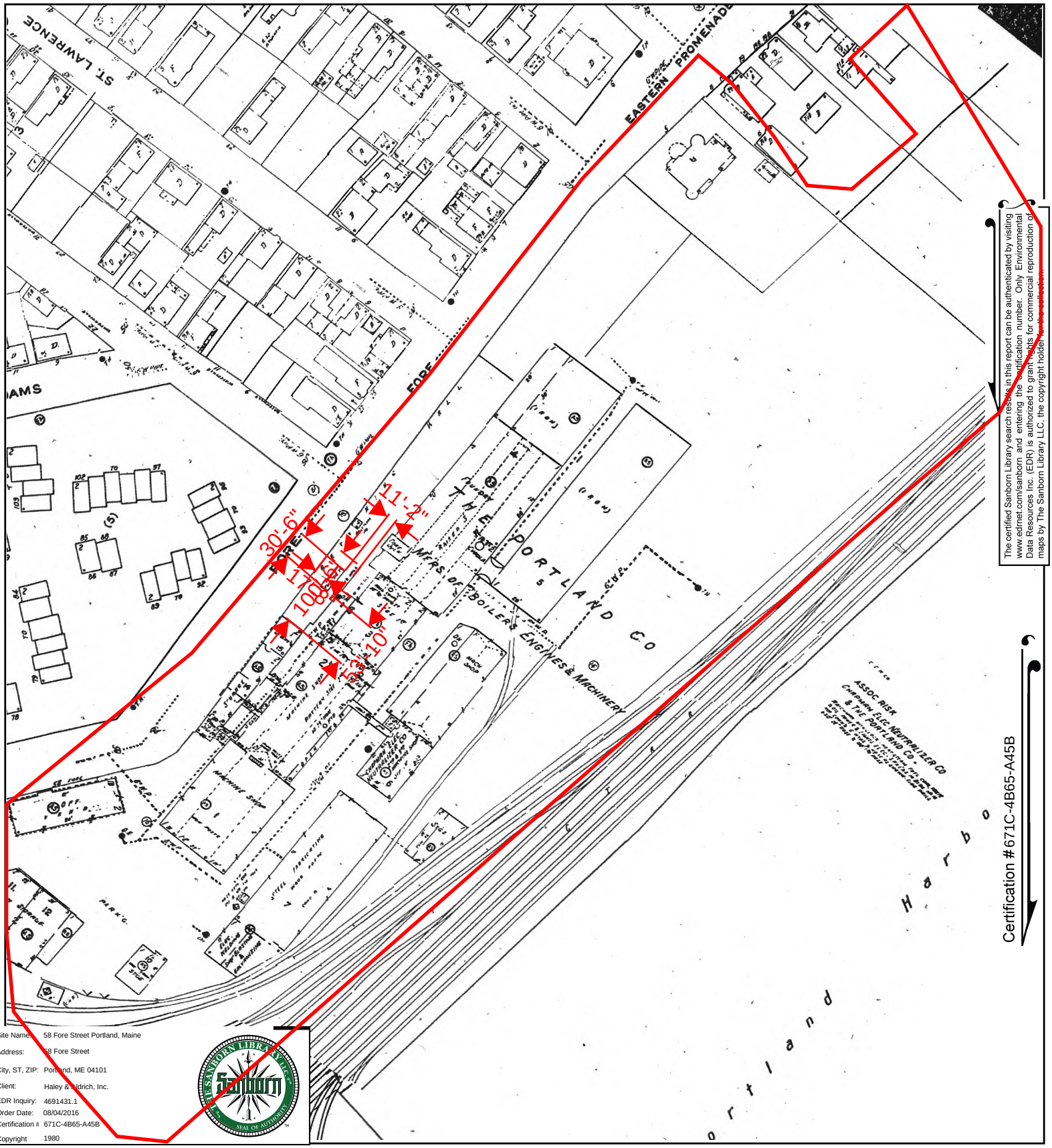




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Volume 1, Sheet 6
Volume 1, Sheet 5

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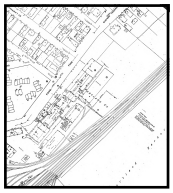


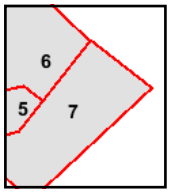
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Client: Haley & Aldrich, Inc.
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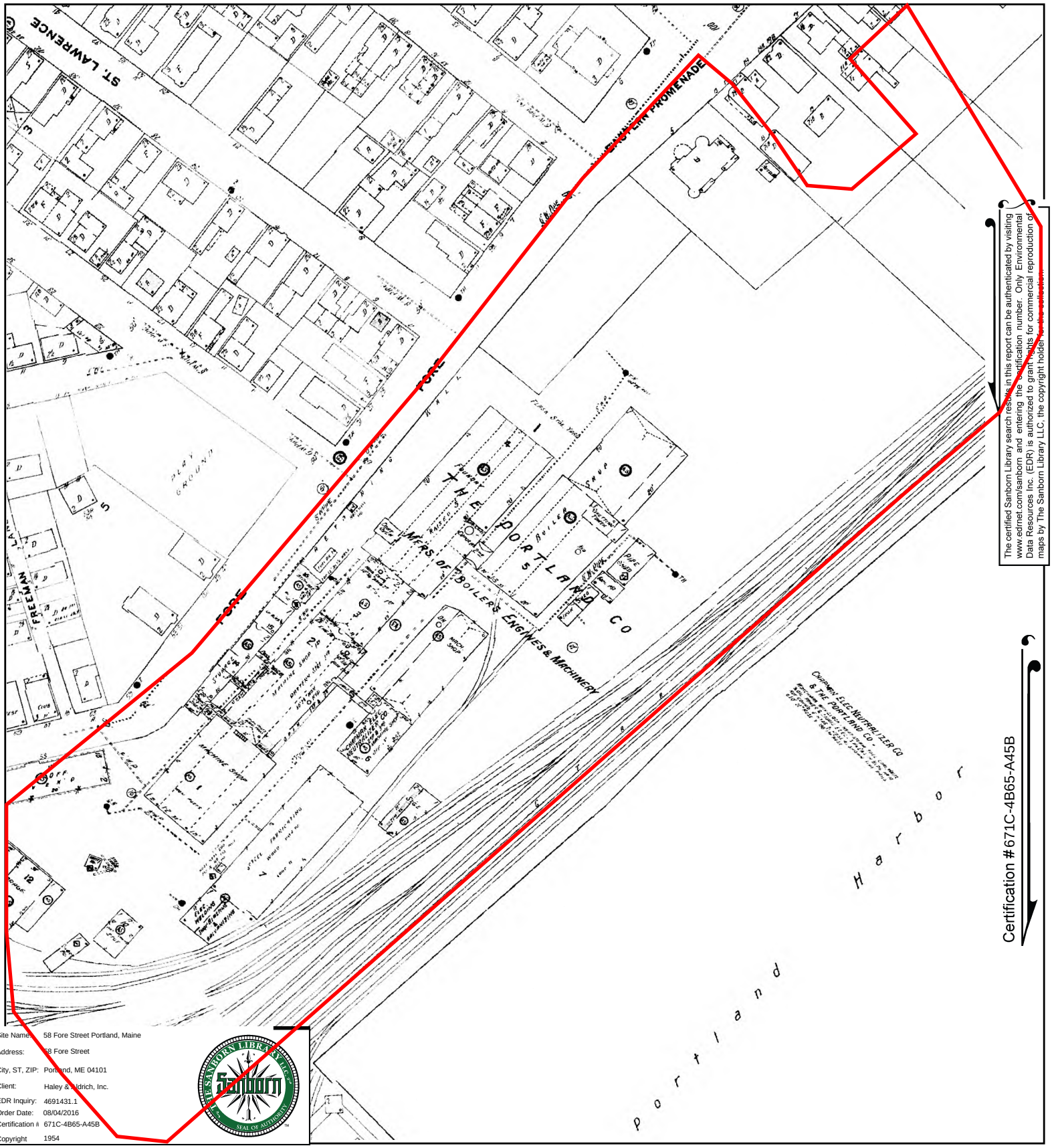




Volume 1, Sheet 7
Volume 1, Sheet 6
Volume 1, Sheet 5

0 Feet 150 300 600

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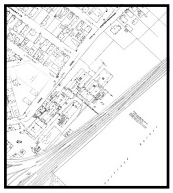


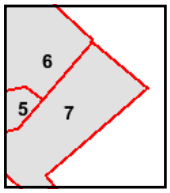
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Address: 58 Fore Street
City, ST, ZIP: Portland, ME 04101
Client: Haley & Aldrich, Inc.
EDR Inquiry: 4691431.1
Order Date: 08/04/2016
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Volume 1, Sheet 5

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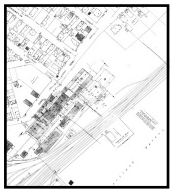


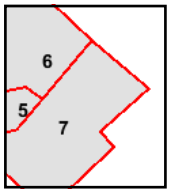
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Certification #671C-4B65-A45B

Site Name: 58 Fore Street Portland, Maine
Address: 58 Fore Street
City, ST, ZIP: Portland, ME 04101
Client: Haley & Aldrich, Inc.
EDR Inquiry: 4691431.1
Order Date: 08/04/2016
Certification #: 671C-4B65-A45B
Copyright: 1949

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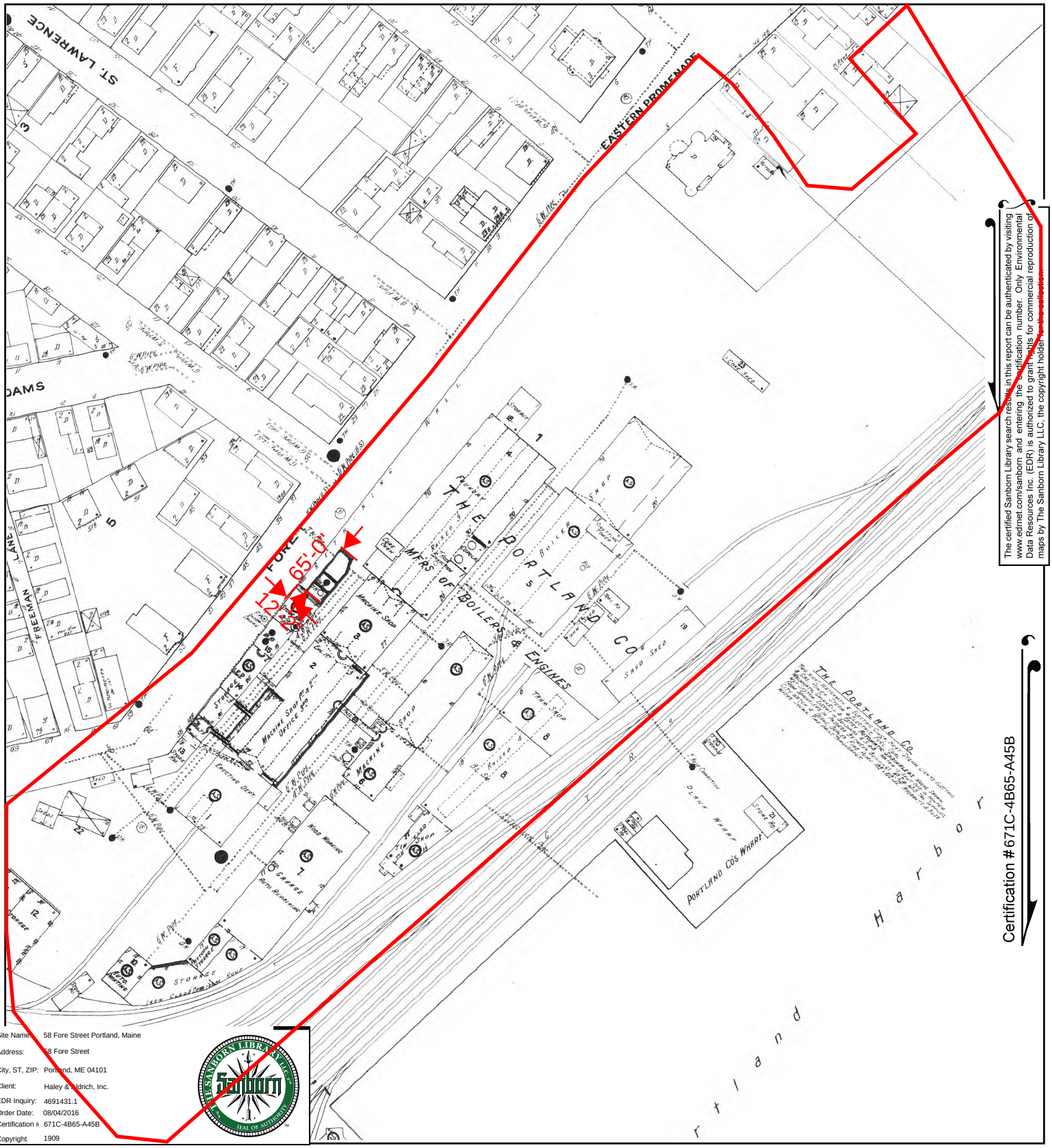




Volume 1, Sheet 7
Volume 1, Sheet 6
Volume 1, Sheet 5

0 Feet 150 300 600

N

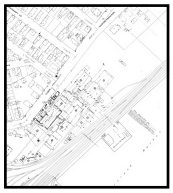


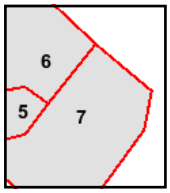
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Certification #671C-4B65-A45B

Site Name: 58 Fore Street Portland, Maine
Address: 58 Fore Street
City, ST, ZIP: Portland, ME 04101
Client: Haley & Aldrich, Inc.
EDR Inquiry: 4691431.1
Order Date: 08/04/2016
Certification #: 671C-4B65-A45B
Copyright: 1909

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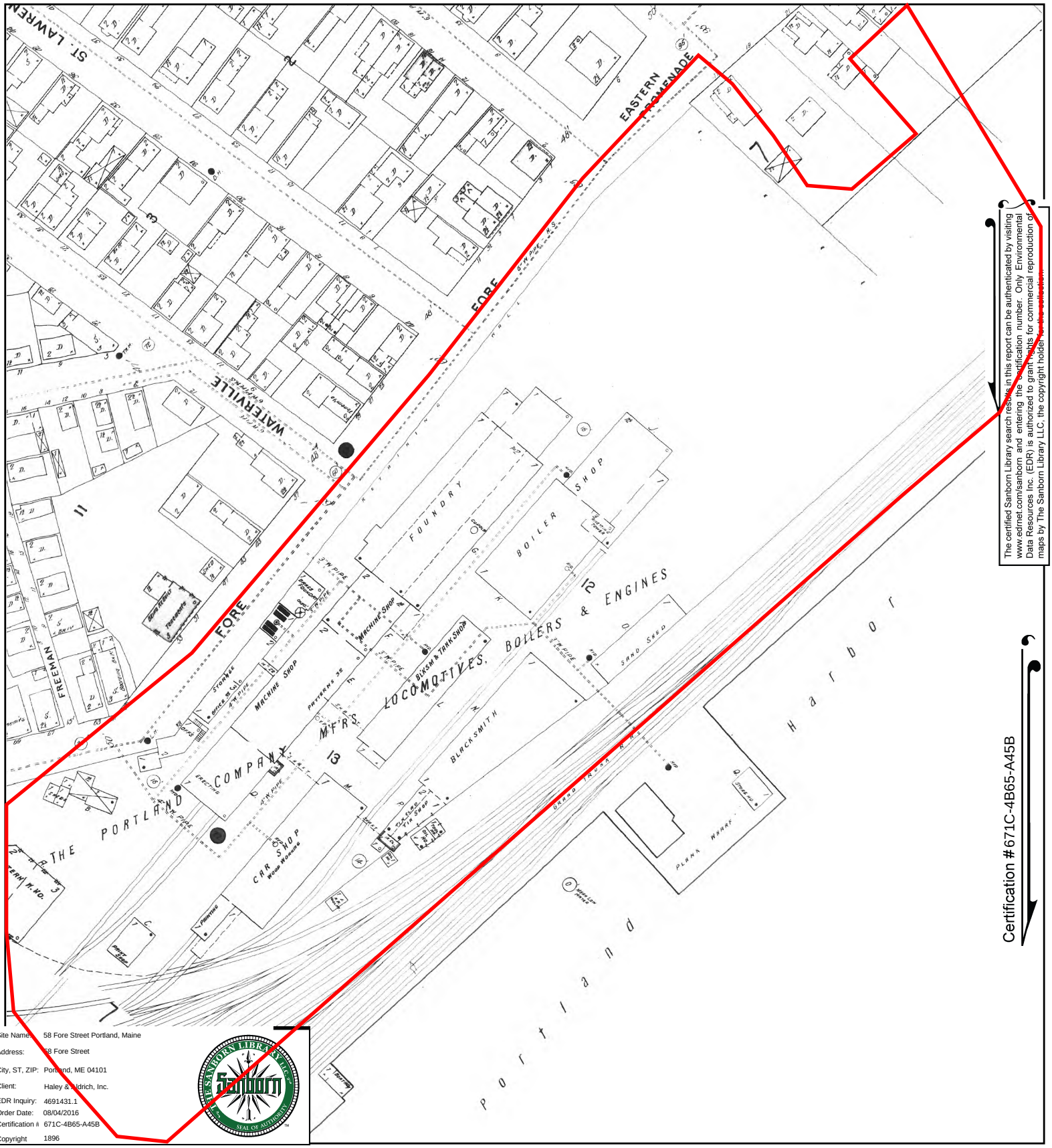




Volume 1, Sheet 6
Volume 1, Sheet 5
Volume 1, Sheet 7

0 Feet 150 300 600

N

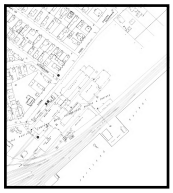


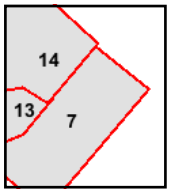
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Certification #671C-4B65-A45B

Site Name: 58 Fore Street Portland, Maine
Address: 58 Fore Street
City, ST, ZIP: Portland, ME 04101
Client: Haley & Aldrich, Inc.
EDR Inquiry: 4691431.1
Order Date: 08/04/2016
Certification #: 671C-4B65-A45B
Copyright: 1896

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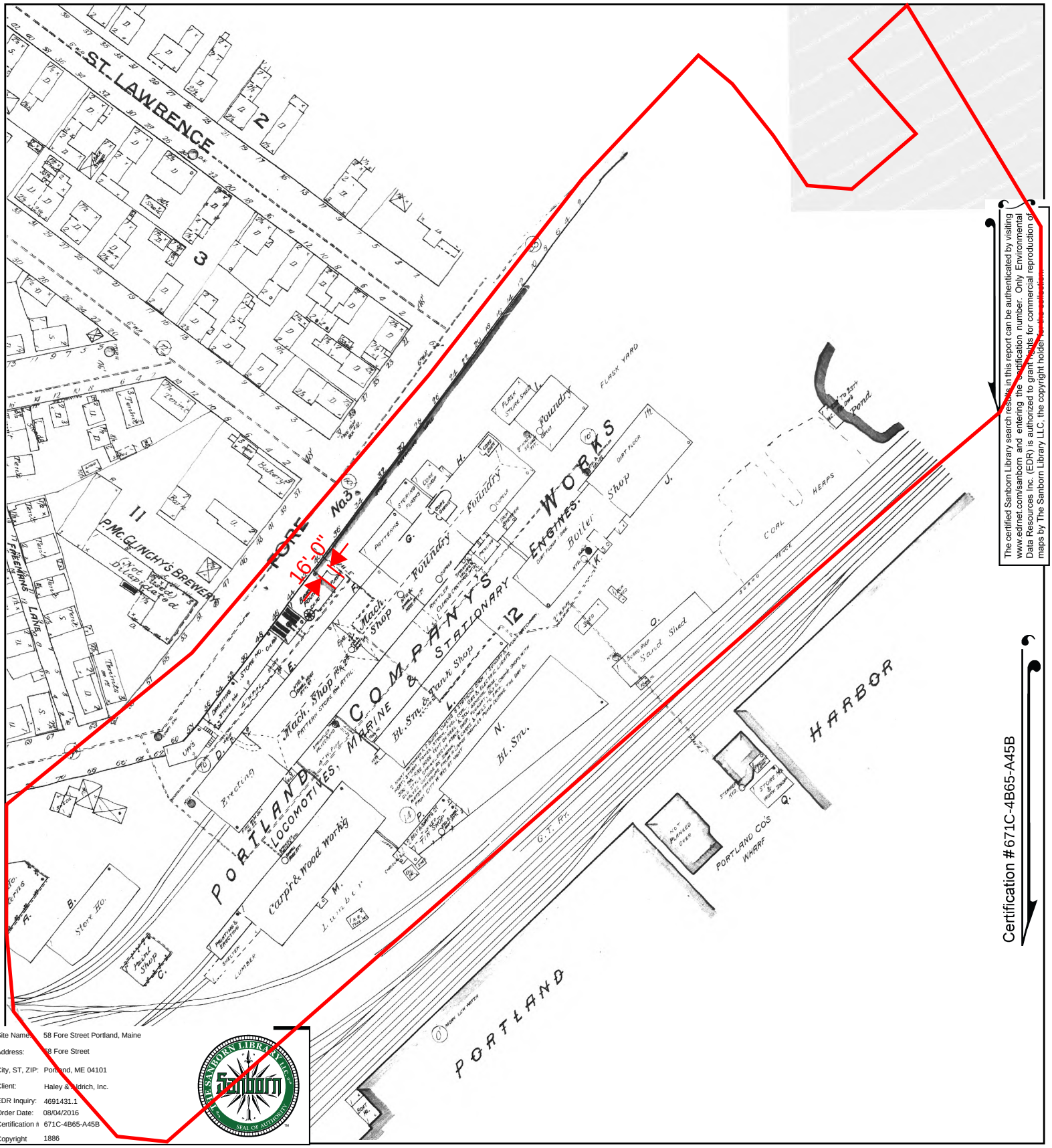




Volume 1, Sheet 14
Volume 1, Sheet 13
Volume 1, Sheet 7

0 Feet 150 300 600

N



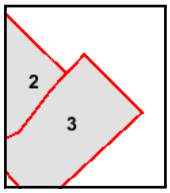
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Certification #671C-4B65-A45B

Site Name: 58 Fore Street Portland, Maine
Address: 58 Fore Street
City, ST, ZIP: Portland, ME 04101
Client: Haley & Aldrich, Inc.
EDR Inquiry: 4691431.1
Order Date: 08/04/2016
Certification #: 671C-4B65-A45B
Copyright: 1886

This Certified Sanborn Map combines the following sheets.
Outlined areas indicate map sheets within the collection.





Volume 1, Sheet 3
Volume 1, Sheet 2

0 Feet 150 300 600

N

1873 Fore Street
Retaining Wall Drawings

WATERVILLE ST.

FORE ST.

ST. LAWRENCE ST.

ATLANTIC ST.

MUNJOY ST.

PROMENADE

CISTERN

PORTLAND COMPANY WORKS

POND

PLAN
OF
FORE ST.
ADJOINING
PORTLAND CO'S WORKS

Survey and Plan made under the direction of
Wm. A. Goodwin, C.C.E. by Wm. S. Edwards, 1st Asst.

Scale 30 ft. to 1 inch *November, 1873*

Wm. A. Goodwin.
C. C. Engr.

Drawer F

9

FORE ST.

OPPOSITE PORTLAND CO WORKS.

(Signed) Wm Alexander
C.E. Engr.
Nov. 1873.

Face of Wall at Top to be on Street Line
Base of Wall to be ½ height in thickness
Top " " " 5 feet "

Base to be 3 feet beneath surface at St. line
Batter 1 in ½ to 1 foot.

Sta. 0

Sta. 1

Sta. 1+50

Sta. 2

Sta. 2+50

Sta. 3

Sta. 3+50

Wall Ends at 3+70

Scale of Feet

Grade of Street and Top of Wall

Top of Terrace 1st

Top of Terrace 2nd

Slope of Terrace

Beginning of Wall

End of Wall

End of Building

W. Line of Waterville St.

E. Line Waterville St.

W. Line St. Lawrence St.

E. Line St. Lawrence St.

Angle

Scale of Feet

K5b
270592

1876 Fore Street
Retaining Wall Agreement

368
368

434 - 368

Portland Company to Portland City.

Agreement.

These articles of agreement entered into by and between the City of Portland, and the Portland Company a corporation duly existing under the laws of the State of Maine, this ninth day of November A. D. 1876.

Witness:

1st That in consideration of the agreement in the 2d. article following, said Portland Company hereby gives grants, bargains and sells to the city the right to put upon the land of said company to an extent not exceeding four feet in width at the base throughout its entire length, the wall now in process of erection on the line between Fore street in said city and the real estate of said Company and to maintain the same forever, with right of entry upon the lands of said Company for purposes of repair.

And said Company further agrees that the embankment which will sustain said wall shall not in any way or under any pretense be disturbed, dug away, removed or the slope diminished except under the restrictions following, viz:

If the said Company or its successors or assigns, owners of said land shall desire to disturb, dig, away or remove said embankment or diminish said slope it its successors and assigns, shall substitute without expense to the city, a complete and sufficient permanent support for said wall.

2d. Said city in consideration of the foregoing, hereby gives, grants, bargains and sells to said Company the right to put upon said wall within the line of said Company's land, any wall of brick or stone which said Company desire or may desire put thereon, consistent with the safety and stability of said wall.

Witness to E. M. Davies
G. F. M.
Rufus D. Bean

Portland Company,
By E. M. Davies, Prest.
Countersigned by
Geo. F. Morrell, Treas.

State of Maine, Cumberland, ss. November 10th 1876.
Personally appeared Edward M. Davies and acknowledged the foregoing instrument to be the free act and deed of the Portland Company,
Before me. H. S. Robinson, Justice of the Peace.
Received, Nov. 10, 1876, at 1 h. 2 m. P. M. and recorded according to the original,
Attest: Henry C. Houston, Register.

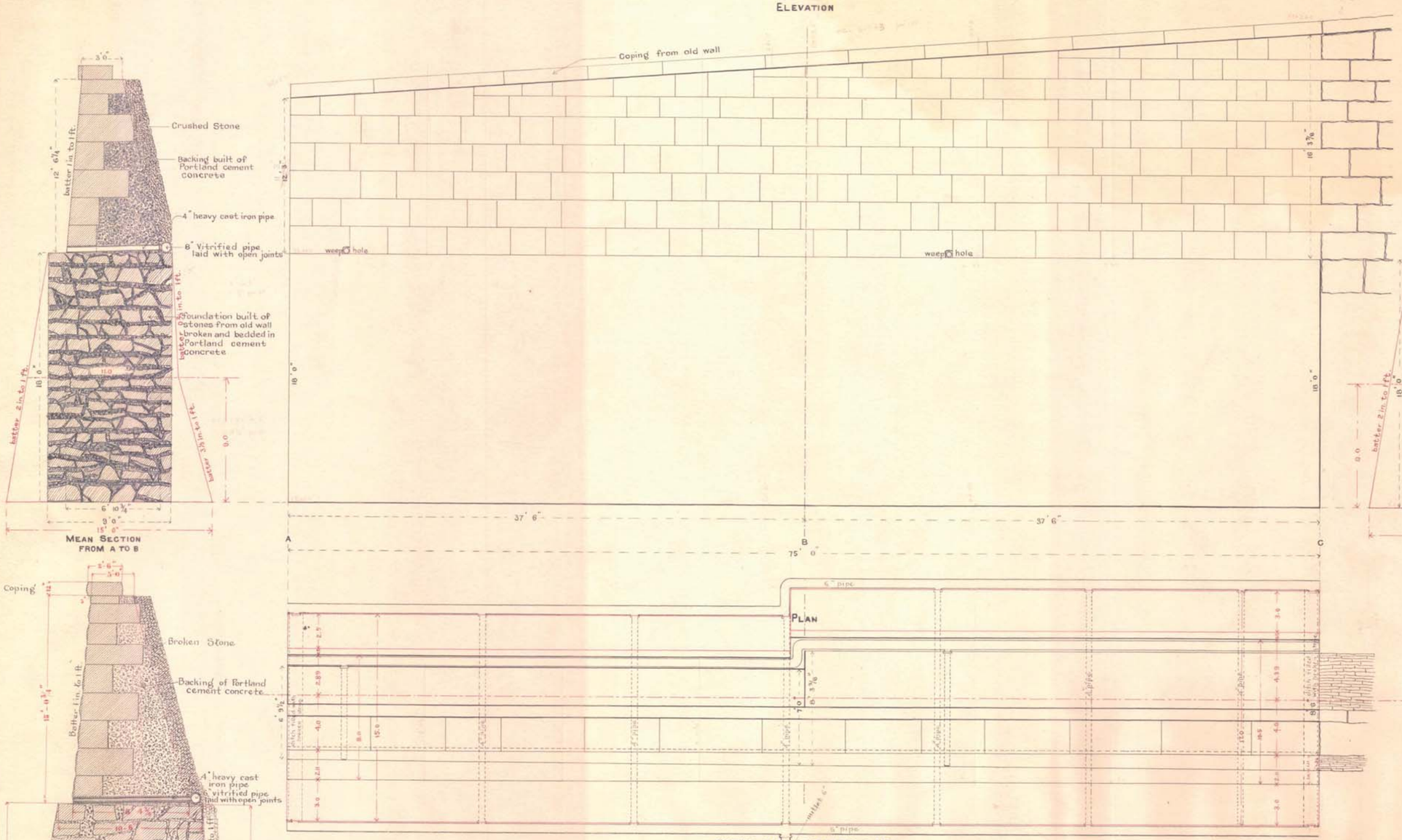
Portland Company Seal Nov. 9 1876

H. S. Robinson to H. H. Francis Fessenden, Mayor.

1896 Fore Street
Retaining Wall Drawing

377/6

ELEVATION



MEAN SECTION FROM B TO C AS BUILT

CITY OF PORTLAND
PLAN FOR REBUILDING
FORE ST. RETAINING WALL
SCALE 1/4 INCH TO 1 FOOT
APRIL 1896

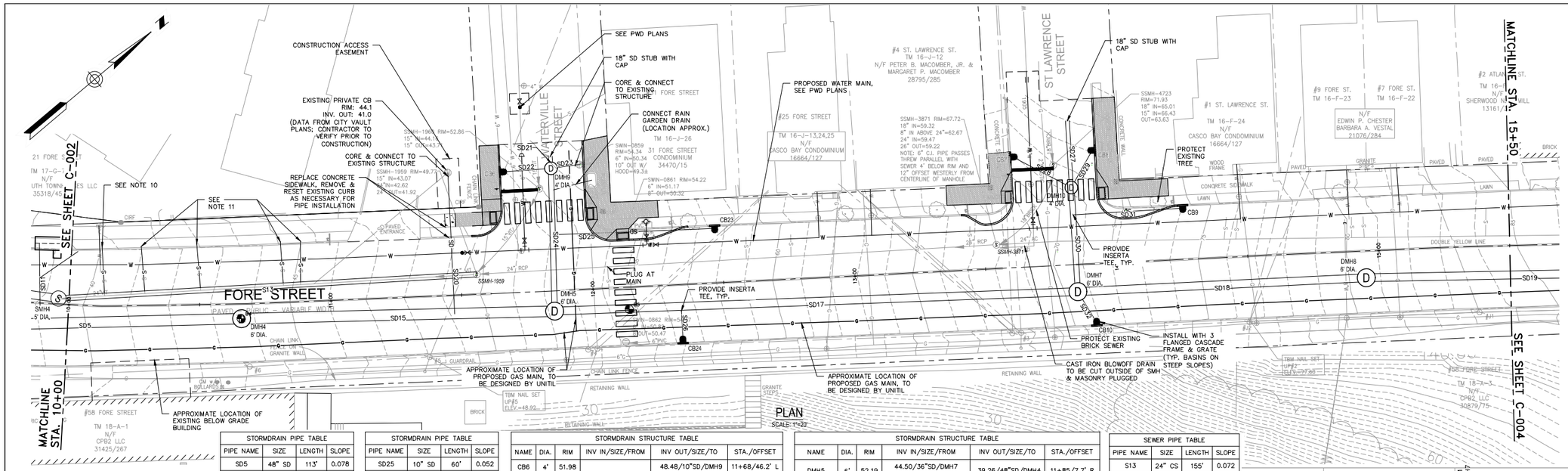
Geo. Ferrald
CITY ENGINEER

Foundation of wall built as shown by red lines

Underdrains of 6" pipe with 4" laterals. Outlet of 6" pipe discharging into Portland Co's reservoir

377/16

2022 Fore Street
Sewer Drawings



STORMDRAIN PIPE TABLE			
PIPE NAME	SIZE	LENGTH	SLOPE
SD5	48" SD	113'	0.078
SD15	48" SD	114'	0.029
SD17	36" SD	194'	0.092
SD18	36" SD	104'	0.096
SD19	36" SD	119'	0.029
SD20	15" SD	52'	0.010
SD21	18" PVC	3'	0.050
SD22	10" SD	15'	0.009
SD23	10" SD	7'	0.124
SD24	24" SD	49'	0.020

STORMDRAIN PIPE TABLE			
PIPE NAME	SIZE	LENGTH	SLOPE
SD25	10" SD	60'	0.052
SD26	10" SD	9'	0.036
SD27	18" SD	24'	0.097
SD28	10" SD	21'	0.009
SD29	10" SD	12'	0.077
SD30	24" SD	35'	0.011
SD31	10" SD	40'	0.043
SD32	10" PVC	9'	0.295

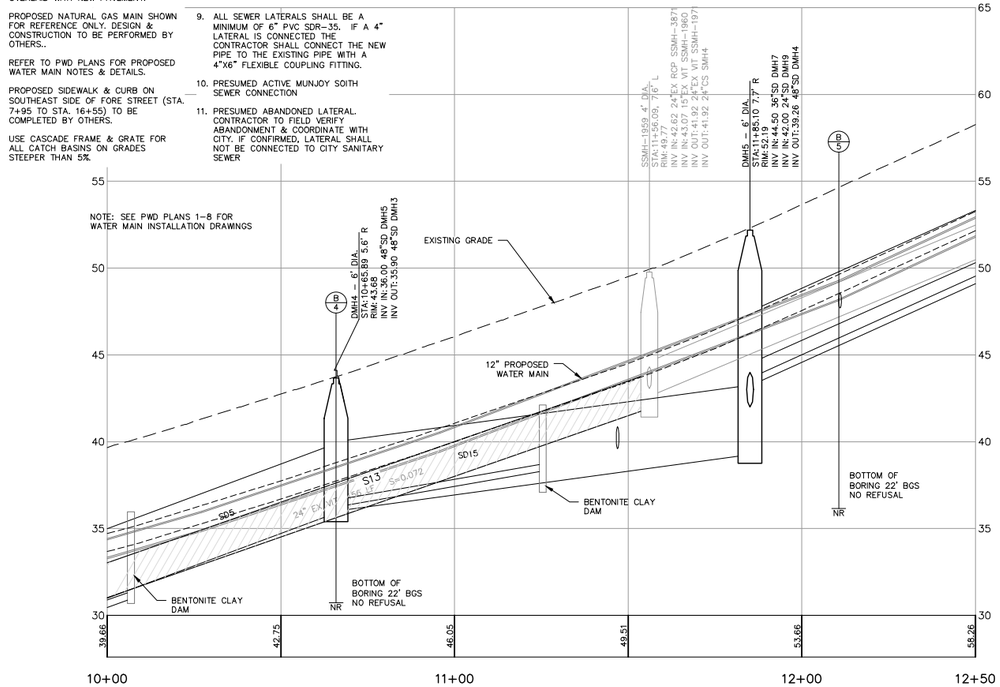
STORMDRAIN STRUCTURE TABLE					
NAME	DIA.	RIM	INV IN/SIZE/FROM	INV OUT/SIZE/TO	STA./OFFSET
CB6	4'	51.98		48.48/10"SD/DMH9	11+68/46.2' L
CB7	4'	70.98		67.09/10"SD/DMH10	13+62/42.1' L
CB8	4'	73.10		68.15/10"SD/DMH10	13+93/43.2' L
CB9	4'	74.18		67.91/10"SD/	14+26/19.5' L
CB10	4'	70.98		67.15/10"PVC/DMH7	13+91/22.5' R
CB23	4'	57.98	51.17/6"EX UD/	50.32/10"SD/	12+48/20.7' L
CB24	4'	56.70	50.82/6"EX UD/	50.47/10"SD/	12+33/21.2' R
DMH4	6'	43.68	36.00/48"SD/DMH5	35.90/48"SD/DMH3	10+66/5.6' R

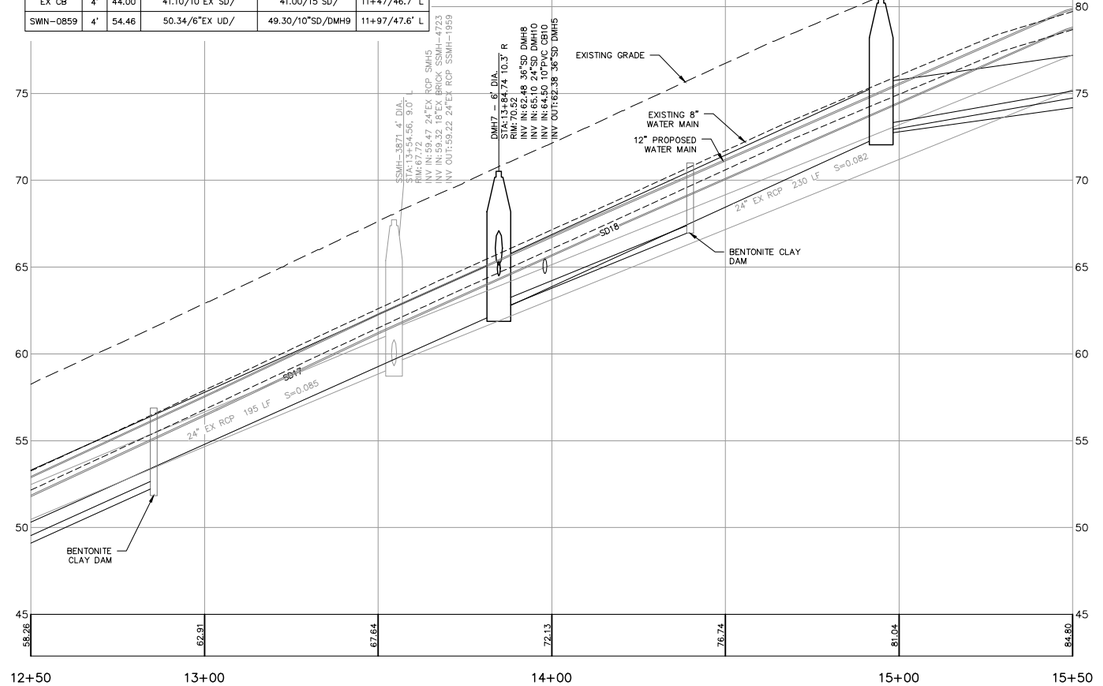
STORMDRAIN STRUCTURE TABLE					
NAME	DIA.	RIM	INV IN/SIZE/FROM	INV OUT/SIZE/TO	STA./OFFSET
DMH5	6'	52.19	44.50/36"SD/DMH7 42.00/24"SD/DMH9	39.26/48"SD/DMH4	11+85/7.7' R
DMH7	6'	70.52	62.48/36"SD/DMH8 65.10/24"SD/DMH10 64.50/10"PVC/CB10	62.38/36"SD/DMH5	13+85/10.3' R
DMH8	6'	80.54	72.65/36"SD/DMH11	72.55/36"SD/DMH7	14+95/10.2' R
DMH9	4'	53.84	48.35/10"SD/CB6 48.42/10"SD/SWN-0859 47.85/18"PVC/	43.00/24"SD/DMH5	11+86/46.7' L
DMH10	4'	71.32	66.89/10"SD/CB7 66.10/18"SD/ 67.20/10"SD/CB8	65.50/24"SD/DMH7	13+84/29.4' L
EX CB	4'	44.00	41.10/10"EX SD/	41.00/15"SD/	11+47/46.7' L
SWN-0859	4'	54.46	50.34/6"EX UD/	49.30/10"SD/DMH9	11+97/47.6' L

SEWER PIPE TABLE			
PIPE NAME	SIZE	LENGTH	SLOPE
S13	24" CS	155'	0.072

PLAN NOTES:

1. PROPOSED STORM DRAIN SHALL BE REINFORCED CONCRETE OR ADS HPPP (MIN. PS 46) UNLESS OTHERWISE NOTED.
2. PROPOSED SANITARY SEWER SHALL BE SCH40 PVC OR ADS SANITITE UNLESS OTHERWISE NOTED.
3. PROPOSED WATER MAIN TO BE DUCTILE IRON UNLESS OTHERWISE NOTED.
4. MILL & OVERLAY AREAS SHALL BE MILLED TO A DEPTH OF 1.5" AND OVERLAID WITH NEW PAVEMENT.
5. PROPOSED NATURAL GAS MAIN SHOWN FOR REFERENCE ONLY. DESIGN & CONSTRUCTION TO BE PERFORMED BY OTHERS..
6. REFER TO PWD PLANS FOR PROPOSED WATER MAIN NOTES & DETAILS.
7. PROPOSED SIDEWALK & CURB ON SOUTHEAST SIDE OF FORE STREET (STA. 7+95 TO STA. 16+55) TO BE COMPLETED BY OTHERS.
8. USE CASCADE FRAME & GRATE FOR ALL CATCH BASINS ON GRADES STEEPER THAN 5%
9. ALL SEWER LATERALS SHALL BE A MINIMUM OF 6" PVC SDR-35. IF A 4" LATERAL IS CONNECTED THE CONTRACTOR SHALL CONNECT THE NEW PIPE TO THE EXISTING PIPE WITH A 4"X6" FLEXIBLE COUPLING FITTING.
10. PRESUMED ACTIVE MUNJOY SOITH SEWER CONNECTION
11. PRESUMED ABANDONED LATERAL. CONTRACTOR TO FIELD VERIFY ABANDONMENT & COORDINATE WITH CITY. IF CONFIRMED, LATERAL SHALL NOT BE CONNECTED TO CITY SANITARY SEWER





41 Hutchins Drive
Portland, Maine 04102
800.426.4262 | www.woodardcurran.com
COMMITMENT & INTEGRITY DRIVE RESULTS

WOODARD & CURRAN

STATE OF MAINE — DARRIN B. SMITH — No. 15118 — REGISTERED PROFESSIONAL ENGINEER — 8/2/21

REV.	SUBMISSION	DATE
	ISSUED FOR CONSTRUCTION	8/2/21

PROJECT NAME:
FORE STREET/ EASTERN PROM. SEWER SEPARATION PROJECT

CITY OF PORTLAND, MAINE
DEPARTMENT OF PUBLIC WORKS
212 CANCO ROAD, SUITE B, PORTLAND, MAINE 04103
PHONE (207) 874-8846 FAX (207) 874-8852

CITY OF PORTLAND, MAINE — RESURGAM

DESIGN BY:	KJT
DRAWN BY:	BCM
CHECKED BY:	DBS

SHEET NAME:
PLAN & PROFILE STA. 10+00 - 15+50

DATE: 04-2021

PAGE 9 OF 37

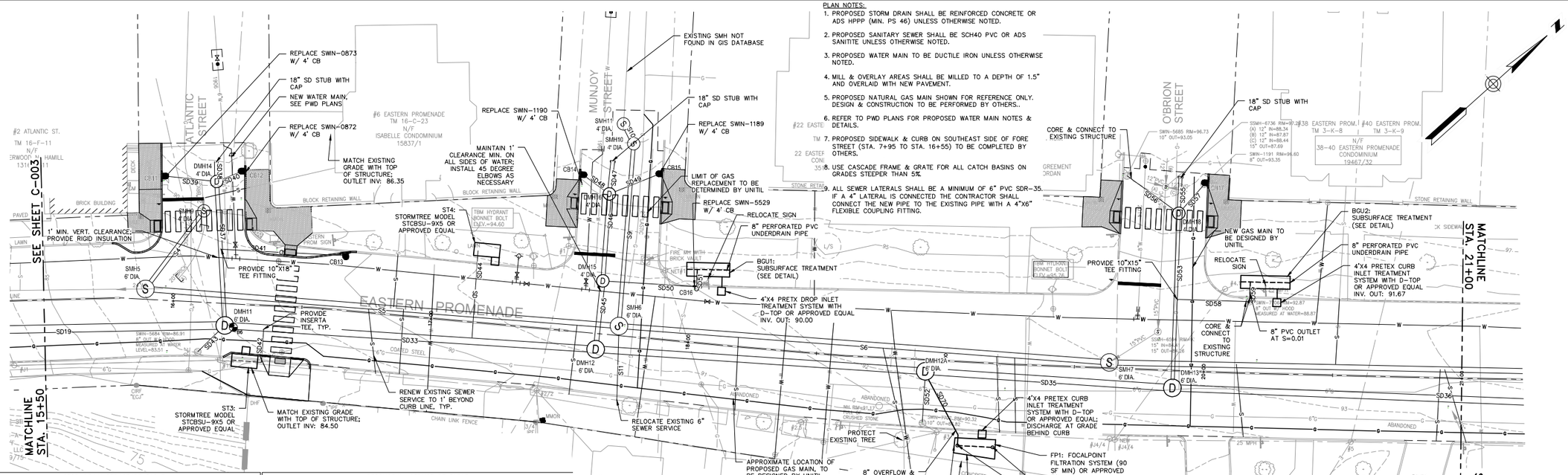
SHEET NO.: C-003 REV.:

VAULT #:

\\WOODARDCURRAN.NET\SHARED\PROJECTS\023341.00 PORTLAND, ME - FORE STR SEWER SEP\WIP\DRAWINGS\CIVIL\023341 C100.DWG C-003 8/25/2019

PLAN NOTES:

1. PROPOSED STORM DRAIN SHALL BE REINFORCED CONCRETE OR ADS HPPP (MIN. PS 46) UNLESS OTHERWISE NOTED.
2. PROPOSED SANITARY SEWER SHALL BE SCH40 PVC OR ADS SANITITE UNLESS OTHERWISE NOTED.
3. PROPOSED WATER MAIN TO BE DUCTILE IRON UNLESS OTHERWISE NOTED.
4. MILL & OVERLAY AREAS SHALL BE MILLED TO A DEPTH OF 1.5" AND OVERLAID WITH NEW PAVEMENT.
5. PROPOSED NATURAL GAS MAIN SHOWN FOR REFERENCE ONLY. DESIGN & CONSTRUCTION TO BE PERFORMED BY OTHERS..
6. REFER TO PWD PLANS FOR PROPOSED WATER MAIN NOTES & DETAILS.
7. PROPOSED SIDEWALK & CURB ON SOUTHEAST SIDE OF FORE STREET (STA. 7+95 TO STA. 16+55) TO BE COMPLETED BY OTHERS.
8. USE CASCADE FRAME & GRATE FOR ALL CATCH BASINS ON GRADES STEEPER THAN 5%.
9. ALL SEWER LATERALS SHALL BE A MINIMUM OF 6" PVC SDR-35. IF A 4" LATERAL IS CONNECTED THE CONTRACTOR SHALL CONNECT THE NEW PIPE TO THE EXISTING PIPE WITH A 4"X6" FLEXIBLE COUPLING FITTING.



PLAN
SCALE: 1"=20'

STORMDRAIN STRUCTURE TABLE					
NAME	DIA.	RIM	INV IN/SIZE/FROM	INV OUT/SIZE/TO	STA./OFFSET
CB11	4'	89.88		85.60/10"SD/DMH14	15+94/48.0' L
CB12	4'	91.87		86.33/10"SD/DMH14	16+24/51.5' L
CB13	4'	89.99		86.18/10"SD/	16+65/21.2' L
CB14	4'	95.36		89.72/10"SD/DMH16	17+53/60.7' L
CB15	4'	95.60		90.43/10"SD/DMH16	17+85/63.9' L
CB16	4'	91.38	88.81/8"PVC/BGU1	86.90/10"SD/DMH15	18+01/21.6' L
CB17	4'	96.60		92.50/10"SD/DMH18	19+98/73.2' L
DMH11	6'	87.93	76.25/30"SD/DMH12 77.00/18"SD/DMH14 83.07/10"SD/SWN-5684	76.15/36"SD/DMH8	16+21/8.5' R
DMH12	6'	91.10	78.00/30"SD/DMH12A 83.00/21"SD/DMH15	77.90/30"SD/DMH11	17+65/6.1' R
DMH13	6'	92.83	79.54/30"SD/DMH19 87.93/15"SD/DMH18	79.44/30"SD/DMH12A	19+88/6.7' R
DMH14	4'	91.17	85.39/10"SD/CB11 85.40/10"SD/CB12 81.00/18"SD/	78.00/18"SD/DMH11	16+14/47.0' L

STORMDRAIN STRUCTURE TABLE					
NAME	DIA.	RIM	INV IN/SIZE/FROM	INV OUT/SIZE/TO	STA./OFFSET
DMH15	4'	91.82	86.00/18"SD/DMH16 86.32/10"SD/CB16	83.75/21"SD/DMH12	17+65/20.5' L
DMH16	4'	95.20	88.67/10"SD/CB14 88.67/10"SD/CB15 88.10/18"SD/	88.00/18"SD/DMH15	17+64/54.3' L
DMH18	4'	96.50	91.92/10"SD/SWN-5685 91.50/10"SD/CB17 91.35/15"SD/	91.25/15"SD/DMH13	19+88/60.9' L
SWN-5684	4'	86.91		83.51/10"SD/DMH11	16+11/19.3' R
SWN-5685	4'	96.73		93.05/10"SD/DMH18	19+68/74.7' L
SWN-7706	4'	92.87	90.39/8"PVC/BGU2	88.87/10"SD/	20+17/27.8' L
SWN-7707	4'	90.32		86.82/10"PVC/DMH12A	18+92/24.2' R

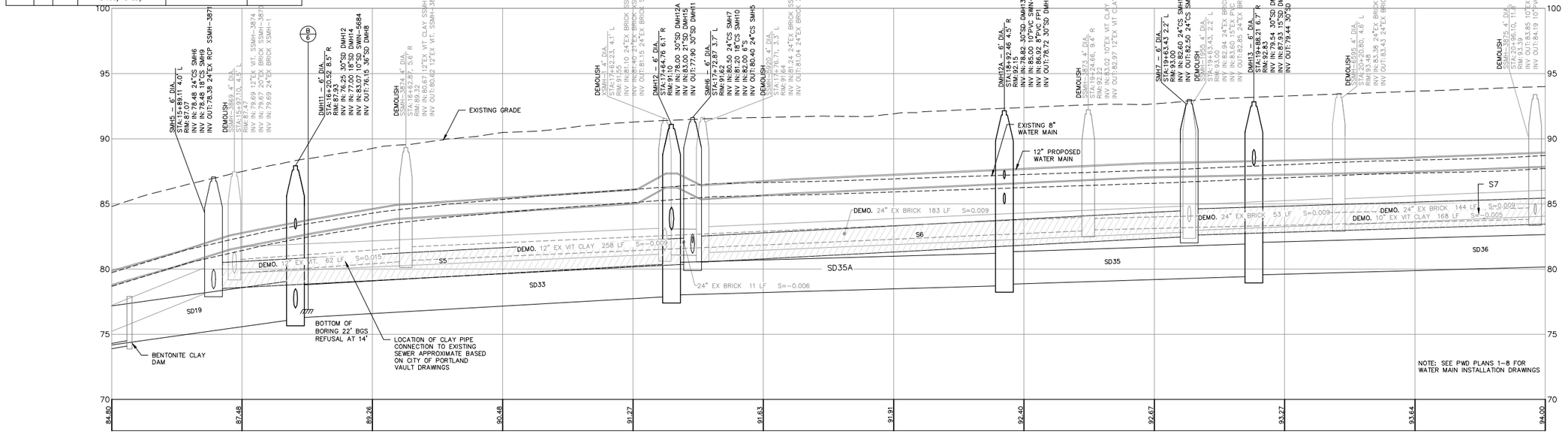
SEWER STRUCTURE TABLE					
NAME	DIA.	RIM	INV IN/SIZE/FROM	INV OUT/SIZE/TO	STA./OFFSET
SMH5	6'	87.07	78.48/24"CS/SMH6 78.48/18"CS/SMH9	78.38/24"EX RCP/SSMH-3871	15+89/4.0' L
SMH6	6'	91.62	80.50/24"CS/SMH7 81.20/18"CS/SMH10 82.00/6"S/	80.40/24"CS/SMH5	17+73/3.7' L
SMH7	6'	93.00	82.60/24"CS/SMH12	82.50/24"CS/SMH6	19+63/2.2' L
SMH9	4'	89.98	80.10/20"EX BRICK/	80.00/18"CS/SMH5	16+10/35.4' L
SMH10	4'	97.00	86.58/18"CS/SMH11	86.48/18"CS/SMH6	17+72/74.6' L
SMH11	4'	97.50	87.10/21"EX BRICK/	87.00/18"CS/SMH10	17+67/81.9' L

STORMDRAIN PIPE TABLE			
PIPE NAME	SIZE	LENGTH	SLOPE
SD19	36" SD	119'	0.029
SD33	30" SD	138'	0.012
SD35	30" SD	90'	0.007
SD35A	30" SD	122'	0.006
SD36	30" SD	205'	0.006
SD39	10" SD	16'	0.013
SD40	10" SD	7'	0.136
SD41	10" SD	46'	0.027
SD42	8" PVC	13'	0.011

STORMDRAIN PIPE TABLE			
PIPE NAME	SIZE	LENGTH	SLOPE
SD43	10" SD	10'	0.046
SD44	8" PVC	33'	0.010
SD45	21" SD	22'	0.035
SD46	18" SD	30'	0.067
SD47	18" SD	11'	0.123
SD48	10" SD	9'	0.120
SD49	10" SD	17'	0.103
SD50	10" SD	32'	0.018
SD51	8" PVC	1'	0.029

STORMDRAIN PIPE TABLE			
PIPE NAME	SIZE	LENGTH	SLOPE
SD52	10" PVC	15'	0.123
SD53	15" SD	63'	0.053
SD55	15" SD	12'	0.054
SD56	10" SD	21'	0.054
SD57	10" SD	12'	0.085
SD58	10" SD	26'	0.034
SD70	8" PVC	27'	0.020

SEWER PIPE TABLE			
PIPE NAME	SIZE	LENGTH	SLOPE
S4	18" CS	33'	0.046
S5	24" CS	178'	0.011
S6	24" CS	184'	0.011
S7	24" CS	222'	0.006
S9	18" CS	66'	0.080
S10	18" CS	5'	0.090
S11	6" S	26'	0.011



PROFILE STA. 15+50 TO STA. 21+00

HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 4'

BAR SCALE
1" = 20'
CHECK GRAPHIC SCALE BEFORE USING

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DARRIN B. BUSBY
STATE OF MAINE
No. 15118
REGISTERED PROFESSIONAL ENGINEER
8/2/21

REV.	DATE	SUBMISSION
	8/2/21	ISSUED FOR CONSTRUCTION

PROJECT NAME:
FORE STREET/ EASTERN PROM. SEWER SEPARATION PROJECT

CITY OF PORTLAND, MAINE
DEPARTMENT OF PUBLIC WORKS

212 CANCO ROAD, SUITE B; PORTLAND, MAINE 04103
PHONE (207) 874-8846 FAX (207) 874-8852

CITY OF PORTLAND

DESIGN BY:	KJT
DRAWN BY:	BCM
CHECKED BY:	DBS

SHEET NAME:
PLAN & PROFILE STA. 15+50 - 21+00

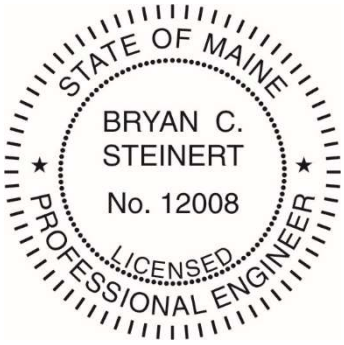
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VAULT #:	

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HALEY & ALDRICH, INC.
75 Washington Avenue
Suite 1A
Portland, ME 04101
207.482.4600

MEMORANDUM

23 November 2022
Revised 17 February 2023
File No. 39486-881



TO: PF Four Devco, LLC.
David Senus, P.E.

FROM: Haley & Aldrich, Inc.
Tucker P. Jones, P.E., Bryan C. Steinert, P.E., Wayne A. Chadbourne, P.E.

SUBJECT: Geotechnical Design Memorandum
Foreside Block Four Building
58 Fore Street
Portland, Maine

This geotechnical design memorandum (GDM) presents foundation support and geotechnical design recommendations for the subject project (see Figure 1, Project Locus). This GDM has been revised to update the column grid to reflect the change from a steel to a precast concrete parking garage superstructure. Our evaluations and recommendations are based on the proposed improvements shown in an updated and interim Block Four Design Development (DD) drawing set that was provided to Haley & Aldrich, Inc. (Haley & Aldrich) on 7 February 2023. Please note that some of the information and recommendations summarized herein have already been communicated to the project team during in-person meetings and/or via a series of electronic mail (email) messages. However, this GDM serves as the "official" documentation of the foundation support and geotechnical design recommendations for the Block Four building and supersedes the information and recommendations that were included in the original (23 November 2022) GDM. Please also note that this GDM provides geotechnical recommendations for the Block Four building only. Design requirements for the permanent Block Four support of excavation (SOE) system will be provided in a separate SOE drawing set, which is currently being advanced from schematic design (SD) level to DD level.

Please recall that a Geotechnical Data Report (GDR) for the Block Four development was issued on 19 October 2022. The GDR summarizes the subsurface conditions encountered in previous and recent subsurface explorations, and the results of previous and recent laboratory testing completed for the subject project.

This GDM is intended to be used by members of the project team responsible for the design of the proposed Block Four building. Please note that the foundation support and geotechnical design recommendations included herein were developed based on DD-level structural loading information available at the time the original (23 November 2022) memorandum was prepared. Updated structural

loading information reflective of a precast concrete parking garage superstructure type has not been provided. Because of this, we anticipate that the recommendations presented herein may need to be refined as the project advances through final design and development of Construction Documents (CDs). The information contained in the final CDs will take precedence over the information and recommendations provided in this revised GDM.

We have coordinated our work with the following project team members:

- PF Four Devco, LLC. (PFDC) — Owner
- Penobscot General Cont./Turner Const. Co. (PGC/TCCO) — Construction Manager
- Perkins & Will (PW) — Architect
- Thornton Tomasetti (TT) — Structural Engineer
- Woodard & Curran (W&C) — Civil & Environmental Engineer

Elevations

Elevations referenced herein are in feet and reference Portland City Datum (PCD). Portland City Datum relates to tidal datum at the site as follows:

MHHW = El. 5.4 PCD
MLLW = El. -4.5 PCD

Please note that this tidal information is not site-specific and is taken from National Oceanic Atmospheric Administration (NOAA) tidal station No. 8418150 located on the Maine State Pier, Portland, Maine. This is the NOAA tidal station closest to the site. Actual tidal datum elevations at the site may vary from those shown.

Site Location and Proposed Development

The Portland Company complex (site) is located at 58 Fore Street, in the northeastern part of the Portland waterfront and at/near the base of Munjoy Hill as shown in Figure 1, Project Locus. Based on our review of the existing conditions base plan prepared by Owen Haskell, Inc., dated 7 July 2016, we understand that the entire site is approximately 10 acres, which has been subdivided into six development “blocks”, each of which will contain existing and/or proposed buildings of varying size. The subject project (Block Four) is located in the eastern portion of the site and is bound by Fore Street to the north, private property (Trettel) to the east, Block Five to the south and Block Two to the west.

PROPOSED SITE DEVELOPMENT

Based on our review of the original DD set of drawings, prepared by P&W, dated 16 September 2022, it is our understanding that PFDC is proceeding with the design and permitting associated with the Block Four Development, which will generally include the following key elements:

- An approximate 2,000 square foot (sf), six-story Townhouse, which includes ground floor retail space and five above-grade levels of residential units.
- An approximate 84,000 sf, eight to nine-story Parking/Residential structure, which includes four to five levels of residential units on top of four levels of structured parking.

The original DD set of drawings was based on a steel superstructure design for both the Townhouse and Parking/Residential structure. As stated above, an updated DD set of drawings are currently being developed to show the change from steel to precast concrete superstructure, which will be submitted on/about 24 February 2023.

Please refer to Figure 2, Anticipated Foundation Support Plan for the location of the Townhouse and Parking/Residential structure footprints. The following FFEs for the Townhouse and Parking/Residential structures have been established by the project team for the updated DD submission:

Level	Proposed Finish Floor Elevation	
	Townhouse	Parking/Residential Structure
1	El. 16	El. 15 to El. 16*
2	El. 27.5	
3	El. 38.0	
4	El. 48.5	
5	El. 60.7	
6	El. 71.5	
7	NA	El. 82.4
8	NA	El. 93.2
9	NA	El. 104.0

* Note that FFE is at El. 10 at connection into the space below the podium at column line L-10/L-11.

In addition to the key elements described above, ancillary site improvements will include stormwater management, site roadways and parking areas, and utility infrastructure (i.e., water, sewer, natural gas, electricity) needed to service the proposed development.

STRUCTURAL LOADING AND BUILDING PERFORMANCE CRITERIA

Axial compressive column loads for building columns within the Townhouse and Parking/Residential structures were not provided at the time this GDM was prepared. Based on our discussions with TT, it is our understanding that foundations (spread footings and micropile caps) shown on the original DD set of drawings were sized based on an allowable bearing pressure equal to 8 kips per square foot (ksf; for spread footings bearing on bedrock, glacial till or rigid inclusion ground improvement) and an allowable micropile compressive resistance equal to 100 kips per micropile.

Please also note that lateral base shear and uplift forces for the Block Four building were not provided at the time this GDM was prepared. General lateral (base shear) and uplift resistance recommendations are provided in subsequent sections of this memorandum.

Based on our discussions with TT, it is our understanding that post-construction total settlement and differential settlement between adjacent building columns should be limited to a maximum of 1 in. and ½-in. over 20 ft, respectively, over the design life of the buildings, which in our experience is typically on the order of 50 years.

Geotechnical Design Recommendations

GENERAL

This section provides geotechnical design recommendations, including foundation support requirements for the proposed Block Four building. Design and construction of the proposed improvements should be completed in accordance with the requirements of the 2015 International Building Code (IBC Code).

SEISMIC DESIGN CONSIDERATIONS

Seismic site class and seismic design parameters were determined in accordance with the requirements of Section 1613.3.2 of the IBC Code and are based on the subsurface conditions encountered in the test borings completed under the direction of Haley & Aldrich within and immediately adjacent to the proposed Block Four building footprint.

Due to the nature and thickness of the overburden soils that are present at the site, we recommend the site be considered "Site Class D". In addition, we recommend the following values be used by TT to determine the design spectral response acceleration parameters (S_{DS} and S_{D1}) and to calculate base shear for seismic design.

- Site Coefficient for Short Periods (F_a) = 1.600
- Site Coefficient for 1-sec Periods (F_v) = 2.400
- Mapped Spectral Response Acceleration at Short Periods (S_s) = 0.240
- Mapped Spectral Response Acceleration at 1-sec Periods (S_1) = 0.078

Please note that "g" refers to acceleration due to gravity. We do not consider the soils encountered at this site to be liquefaction susceptible.

BUILDING FOUNDATION TYPES

Conventional reinforced concrete spread footings with a soil-supported slab-on-grade for the lowest floor is the most economical foundation system for most low to medium-height buildings provided that a suitable, non-compressible, naturally-deposited inorganic soil or bedrock bearing stratum exists at shallow depth and predicted building settlements are within tolerable limits. In our opinion, the man-placed fill and marine deposit soils that are present within portions of Block Four are unsuitable as building foundation bearing strata. Because of this, foundations must transmit building loads below these soil units, or the soils must be improved to avoid the potential for undesirable post-construction settlements and/or foundation instabilities.

To determine the most suitable foundation support alternatives for the buildings, multiple foundation systems were evaluated with the project team during the SD and DD phases of the project. Factors including but not limited to technical feasibility, constructability, performance, and cost were considered in determining the most suitable foundation support alternatives for the structures. Based on our experience, the subsurface conditions present at the site and our current understanding of the proposed Block Four improvements, it is our opinion that multiple foundation support systems will be needed to support the proposed Block Four building, which include spread footings bearing on glacial till or bedrock, spread footings bearing on rigid inclusion (RI) ground improvement (GI) elements and a load transfer layer (LTL), and rock-socketed, drilled-in micropiles. Recommendations for each foundation support system are presented in the following sections of this GDM.

FOUNDATION DESIGN CRITERIA

Spread/Wall Footings on Glacial Till or Bedrock

Based on the proximity of naturally-deposited glacial till soils and/or bedrock to the anticipated foundation bearing levels shown in the DD set of drawings and the attached Table I, it is our opinion that spread/wall footings are a technically feasible and cost-effective way to support the columns shown in yellow and magenta shading on Figure 2. In general, these columns are located in the eastern and northern portions of the Block Four building footprint (see Table I for list of column locations). Spread footing foundation design recommendations are presented below.

- Conventional reinforced concrete spread and wall footings should bear on naturally-deposited glacial till soils or bedrock. Because of the variability in subsurface conditions present across the site, some minor, localized over-excavation below anticipated footing subgrade level is anticipated to be required to remove fill and/or marine deposit soils from within the zone of influence (ZOI) of the new footings (refer to Table I for more information). The ZOI is defined as the area below footings and below imaginary lines that extend 2 ft laterally beyond the footing outer bottom edges and down on a 1 horizontal to 1 vertical (1H:1V) slope to the top of the naturally-deposited glacial till soils.
- If bedrock is encountered at or above the anticipated footing bearing level, we recommend that bedrock be removed to 6 in. below the bearing level and CGF placed from top of rock to the bottom of footing. Crushed stone could be used in lieu of CGF provided that it is fully encapsulated in a geosynthetic separation fabric (e.g., Mirafi 160N). Placement of this crushed stone will allow for strain compatibility between the footings supported on rock and the footings supported on glacial till or RI GI elements and a LTL.
- Spread and wall footings should be sized based on an allowable bearing pressure equal to 8 ksf at the column locations shown on Figure 2 and summarized in Table I. Although higher bearing pressures are technically feasible in areas where the footings will bear directly on bedrock, we recommend that a uniform bearing pressure (8 ksf) be used for design regardless of bearing condition. We also recommend that all footings be at least 3 ft wide.
- Because the lowest levels of the garage will not be heated, spread and wall footings should bear a minimum of 4.5 ft below top of the lowest adjacent ground floor slab elevation. Spread

footings/mats located in the vicinity of elevator pits, sump pits or other localized depressions will bear at or below the bottom of the pits.

- Footings should also be designed to bear below a reference line drawn upward and outward on a 1.5 horizontal to 1 vertical (1.5H:1V) slope from the bottom of any adjacent utilities or other underground structures. If pressurized pipes are to pass beneath or within 5 ft of soil-bearing foundations, the configuration should be reviewed on a case-by-case basis to determine if special measures are needed to protect the foundations from undermining in the event of pipeline failure.

Spread/Wall Footings on Ground Improvement

To mitigate the risk of post-construction building settlement in areas where unsuitable soils (e.g., man-placed fill or marine deposit soils) are present below anticipated foundation bearing level and where the depth of over-excavation and replacement is considered by Haley & Aldrich to be excessive, we recommend that RI GI elements be installed to support the columns shown in blue shading on Figure 2. In general, these columns are located in the southern and western portions of the Block Four building footprint (see Table I for list of column locations). Installation of RI GI elements will improve the load carrying capacity of the in-situ soils and will aid in transferring structure loads to more competent soil/rock strata, which will allow the columns to be supported on conventional spread footings.

As stated above, multiple foundation systems will be needed to support the proposed structure, each having different stiffnesses, which if not designed appropriately could cause unacceptable amounts of differential post-construction settlement of adjacent building columns. Because of this, the nature of the marine soils at the site, and to more closely match the stiffness of building columns supported on spread footings bearing on glacial till/bedrock and on micropiles (see next section), we recommend that RI GI be used to support the building columns shown in Table I and on Figure 2. In our opinion, ungrouted and grouted stone column GI elements will not provide a stiff enough response to meet the total and differential settlement tolerance stated above.

RI GI elements should also be installed beneath elevators, the Thames Street ramp, and other heavy or settlement-sensitive structures (e.g., transformers, generators, grease traps, etc.), unless their base extends below the man-placed fill and/or marine deposit soils. The need for RI GI for other miscellaneous site features should be reviewed on a case-by-case basis prior to finalizing the CDs. Spread/wall footing, and RI GI design recommendations are presented below.

- Conventional reinforced concrete footings should bear directly on a LTL constructed over the tops of RI GI elements.
- Footings bearing on a LTL and RI GI elements should be sized based on an allowable bearing pressure equal to 6 ksf. This value should be confirmed as early as possible with the RI GI designer, working with Haley & Aldrich and TT.
- The RI GI should be designed to limit the magnitude of stress concentrations on the bottoms of the spread footings. We recommend that the RI GI designer coordinate with TT to ensure that

the RI GI has been designed to limit stress concentrations to within tolerable levels such that structural re-design of the footings is not required.

- RI GI elements should penetrate through the full thickness of the fill and marine deposit soils and bear in/on glacial till or bedrock. Based on available subsurface information, we anticipate that the RI GI elements will be relatively short and will range between 5 and 20-ft long.
- RI GI elements may need to be advanced through cobbles, boulders, and/or other materials that are present in the overburden soils present at the site (specifically the near-surface fill soils). Because of this, we recommend that monetary allowances be provided in the budget in the instance additional time and/or alternative means and methods are needed to penetrate these materials.
- A maximum lateral distance of 2 ft (in plan) should be provided between the center of the outermost RI GI elements and the footing outer edges.
- Footings should be sized and located vertically relative to the FFE, proposed exterior site grades and adjacent utilities or other underground structures in accordance with the recommendations for spread footings bearing on glacial till/bedrock (see previous section of this GDM).
- RI GI elements installed beneath footings will require the use of a LTL. We recommend that the LTL consist of an 8-in. thickness of a compacted blend of ¾-in and 3/8-in. crushed stone, encapsulated by a heavy geotextile. We also recommend that the LTL extend a minimum of 6 in. beyond the footing outer edges.
- The RI GI design should be developed to limit total building foundation settlements to a maximum 1-in., including both immediate settlements of the GI system (i.e., RI GI elements and LTL), and a maximum differential settlement of ½-in. over 20 ft. Load bearing and settlement calculations should be provided in the GI designer's design submittal. Contractor design submittal requirements will be included in the GI specification, which will be prepared by Haley & Aldrich).
- Regardless of the design of the RI GI system, full-scale load testing will be required. Because of this, we recommend that budget pricing include an allowance for one full-scale static load test on an array (e.g., nine; 3x3 grid) of sacrificial RI GI elements prior to production RI element installation to confirm that the design of the GI system (i.e., RI elements, LTL, spread footing) meets the required minimum load bearing and maximum settlement requirements.
- The RI GI designer should identify any concerns related to potential effects of planned nearby construction activities, and any restrictions or requirements on means and methods or construction sequencing that should be imposed to avoid risk to the performance of the RI GI system. We recommend that the overall requirements for RI GI be discussed between Haley & Aldrich, TT and the RI GI designer during the early stages of bidding.

Design and installation of RI GI elements are specific for each project based on the subsurface conditions present at the site, the means/methods of installing the elements, the minimum load bearing criteria and the post-construction settlement tolerance established for the proposed buildings. Furthermore, current industry standard dictates that the design and installation of these types of systems be delivered using a performance-based, design-build approach where the specialty RI GI subcontractor determines the details of the system (e.g., element spacing, element diameter, element configuration beneath the footings, LTL design, etc.) based on the load bearing and post-construction settlement requirements of

the proposed structures as provided by the geotechnical engineer-of-record (i.e., Haley & Aldrich). This approach is currently planned to be used to complete the RI GI design for this project.

Drilled-In Micropiles

Because of the proximity of the existing granite block wall to column line A, the existing site grades along the slope in front of the wall between column lines A and B (approximate), the FFE of the lowest floor slab between column lines A and B (i.e., El. 50.3), and the magnitude of "typical" axial compressive column load along column line A (i.e., 400 to 600 kips based on 100-kip resistance and micropile groups of four or six as shown on the original DD set of drawings), it is our opinion that drilled-in piles (i.e., micropiles) are the most technically feasible system to support the columns shown in green on Figure 2. In general, these columns are located in the northern and western portions of the Block Four building footprint along column line A (see Table I for list of column locations). The use of micropiles at these column locations will help to minimize potentially adverse construction impacts on the existing granite block wall, including undermining the wall which would be needed to install spread footing foundations. Micropile foundation support design recommendations are provided below.

- A micropile should consist of a small diameter (typically less than approximately 12 in.), drilled and grouted concrete element that is typically reinforced with a centralized steel bar and permanent steel casing. Micropiles are constructed by drilling a hole to a predetermined depth, placing reinforcement and tremie grouting the hole. Micropiles gain their load resistance through side friction between the grout and the adjacent soil or bedrock (grout-soil or grout-bedrock frictional resistance). Due to the relatively small pile diameter and due to the differences in vertical micropile deformation needed to mobilize side friction and end bearing resistance (i.e., sufficient vertical deformation must occur such that side frictional resistance is overcome and end bearing resistance is mobilized) the contribution of end-bearing resistance is typically neglected. Since the thickness of overburden soils at micropile column locations support is limited and based on the magnitude of the "typical" axial compressive column load provided by TT, we anticipate that rock sockets will be needed.
- The plan locations of the micropiles should be coordinated with the locations of soil nails that will be installed as part of the permanent support of excavation (SOE) system.
- Structural loads for the buildings should be resisted by 100-kip allowable capacity micropiles drilled and socketed into bedrock, which is based on an 8-in. (minimum) diameter, 10-ft long (minimum) rock socket and a grout-to-bedrock frictional resistance of 10 ksf.
- Micropiles should be drilled using 9-5/8-in. outside diameter (OD) permanent steel casing. The casing should have a minimum yield strength of 60 kips per square inch (ksi) and should extend from the top of the micropile to at least 12 in. into bedrock. The casing should be drilled in and should not be advanced using impact methods.
- Based on a bottom of micropile pile cap elevation between El. 25 and El. 41 (see Table I) and a top of bedrock elevation between El. 0 and El. 12, we anticipate that the micropiles will be approximately 35 to 40-ft long, which includes the 10-ft long rock socket. Accordingly, the permanent steel casing length will be approximately 25 to 30-ft long.

- Micropiles should be reinforced the full-length with a centralized deformed steel bar having a minimum yield strength of 75 ksi. Seismic reinforcement, if required, should be provided in accordance with the requirements of the IBC Code.
- Each micropile should be tremie grouted with grout having a minimum unconfined compressive strength equal to 5,000 pounds per square inch (psi).
- The Contractor will be required to confirm the minimum required ultimate micropile capacity in the field. Because of this, we recommend that budget pricing include an allowance for one full-scale static load test on a sacrificial micropile prior to production micropile installation to confirm the grout-to-bedrock frictional resistance used in design and to establish that the Contractor's means and methods that result in a micropile that meets the specified design and performance requirements.
- Micropiles may need to be advanced through cobbles, boulders, and/or other materials that are present in the fill and glacial till soils present at the site. Because of this, we recommend that monetary allowances be provided in the budget in the instance additional time and/or alternative means and methods are needed to penetrate these materials.

TRANSITIONS AND PROXIMITIES OF DIFFERENT FOUNDATION SYSTEMS

The building designs should incorporate transitions between varying foundation supports; that is between rock-socketed micropiles, spread footings bearing in/on glacial till or bedrock and spread footings bearing on RI GI elements and a LTL. The interfaces of the foundation systems (including framing, flooring, architectural features, utilities, and other facilities) should account for anticipated differential settlements. As the design is finalized, further discussions within the design team are recommended to understand implications of the relationships between the varying types of support and identify any necessary mitigating measures.

SUPPLEMENTAL SUBSURFACE EXPLORATIONS

Because of the differences between the SD and the original and updated set of DD foundation plans, specifically the plan locations and bottom depths of proposed foundations, and because of the variable subsurface conditions present at the site, we recommend that additional test borings and test pits be executed during the final design and CD development phases of the project to further refine the limits of the different foundation support systems. The test pits are needed to determine the bearing elevation of the existing cast-in-place concrete and granite block retaining walls, which is needed to confirm that closest adjacent footings (i.e., along column line A.6 and at A.2-0.2 and A.2-2) can be installed without undermining the existing wall. A summary of the proposed scope of the additional field investigation is provided in the below.

Building Column Location	Proposed Exploration	Approximate Range in Depth (ft)	Comments
A.5-0.6	HA22-TP1	< 5	Needed to determine bottom depth of existing retaining wall and whether foundations will be spread footings on glacial till or drilled-in micropiles
A.5-0.5	HA22-TP2		
A.2-0.2	HA22-TP3		
A.2-2	HA22-TP4		
B-5.6	HA22-203	5 to 10	Needed to determine whether foundation will be spread footing on glacial till or RI GI elements.
B-6.3	HA22-204	10 to 15	
D-4.7	HA22-205	10 to 15	Needed to determine whether foundations will be spread footings bearing on glacial till or RI GI elements
D-5.6	HA22-206	10 to 15	
F-4.7	HA22-208	10 to 15	
J.3-9	HA22-211	15 to 20	Needed to determine whether foundations will be spread footings bearing on bedrock or RI GI elements
L-9	HA22-212	15 to 20	

Please note that the number and location of the proposed test borings summarized above are based on the foundation locations shown on the interim DD foundation plan, which is being developed by TT based on a precast concrete parking garage superstructure. Based on our discussions with you on 17 February 2023, it is our understanding that the proposed test borings summarized above will be completed at the onset of construction by the Contractor or Haley & Aldrich (to be determined). It is also our understanding that the proposed test pits will be completed by Haley & Aldrich during the DD or CD phase of the project.

RESISTANCE OF UPLIFT LOADS

Information related to the location and magnitude of axial uplift (tension) loads were not available at the time this GDM was prepared. However, based on our discussions with TT, it is our understanding the uplift loads will be resisted by the dead weight of the structures and additional uplift load resistance measures (e.g., post-tensioned rock anchors) will not be required.

RESISTANCE OF LATERAL BUILDING LOADS

Information related to the location and magnitude of lateral building loads were not available at the time this GDM was prepared. However, we offer the following general recommendations relative to resistance of lateral base shear forces:

- Frictional resistance between the base of footings and the underlying bearing material should be computed using the ultimate base friction coefficients (tan δ) shown below.

Bearing Stratum	Ultimate Base Friction Coefficient (tan δ)
Glacial Till	0.31
Bedrock/Crushed Stone	0.60
RI GI and LTL	0.35

- If friction alone is not sufficient in resisting the lateral base shear forces, we recommended that consideration be given to the net passive resistance (passive minus active) provided by the in-situ fill surrounding the footings and below grade portions of foundation walls. We recommend that the passive resistance be calculated using an equivalent fluid weight (triangular distribution) of 300 pounds per cubic foot (pcf). The top of the assumed passive zone should be 1 ft below the ground surface unless it is confined by a slab. This value assumes that existing fill material present on site is free-draining and is placed and compacted in lifts during backfilling operations. Please note that the recommend passive resistance assumes that backfill used adjacent to shear wall footings is well-graded granular fill that is placed and compacted in lifts to 95 percent of its maximum dry density.
- A minimum factor of safety for sliding equal to 2.0 should be achieved for resistance of permanent lateral loads.
- We recommend that RI GI elements not be used to resist lateral base shear forces.

Based on our discussion with TT, it is our understanding that a combination of frictional resistance between the base of the footings and the underlying bearing material as well as the net passive resistance provided by the in-situ fill surrounding the footings and below grade portions of foundation walls should be sufficient in resisting lateral base shear forces and no additional lateral load resistance measures are required.

LATERAL EARTH PRESSURES ON BELOW-GRADE FOUNDATION WALLS

Based on our discussions with the project team, it is our understanding that environmentally-impacted fill soils will be generated during foundation excavation and will require either offsite disposal or onsite reuse. Because of this and because of the significant cost premium associated with offsite disposal, it is our understanding the excess fill soils will be used to backfill the space between the permanent SOE system and the lowest level of exterior building foundation wall (approximately 10 to 12 ft vertically).

We recommend that below-grade foundation walls retaining soil on one side and restrained at the top be designed to resist static lateral earth pressures based on an equivalent fluid unit weight of 63 pounds per cubic foot (pcf). Cantilever walls (i.e., walls that are free to rotate at the top) shall be designed using an equivalent fluid unit weight of 45 pcf. The fluid unit weights assume that existing fill materials generated from foundation excavation are placed in a controlled manner and are compacted in lifts adjacent to the walls. These pressures also assume a fully-drained condition exists behind the walls (i.e., perimeter foundation drainage system is installed as recommend below).

GROUND FLOOR SLAB

Based on our understanding of the proposed grading for the project as shown in the DD set of drawings, we recommend that the proposed lowest level ground floor slabs be designed as soil-supported reinforced concrete slabs-on-grade (for finished spaces) or bituminous concrete pavement sections (in parking areas). In our opinion, installation of RI GI elements and construction of a LTL are not needed to support the lowest level slabs-on-grade. Reinforced concrete slabs-on-grade should bear directly on a minimum of 12-in. thick layer of ¾-in. crushed stone or CGF overlying a prepared subgrade and should

be structurally independent of the superstructure (i.e., joint at slab/wall interface). Where bedrock is encountered within 6 in. of the slab bearing level, we recommend that the rock be over-excavated and replaced with crushed stone or CGF. All topsoil, debris and organic soils present at slab subgrade level within the slab footprint should be excavated and replaced with CGF.

The lowest level floor slab generally located between column lines A and B (Level 4) will need to be designed as a structural slab due to the FFE of the slab, the difference in bearing level of the foundations along column lines A and B and proximity to the permanent SOE system.
Based on conversations with the project team, we understand that a bituminous concrete surface is planned for the ground floor slab in the Level 1 parking area. We recommend that the bituminous concrete surface bear directly on subbase and base course materials placed on top of prepared in-situ fill or marine deposit (subgrade) soils. Please note that bituminous concrete placed within a partially enclosed space inside a building footprint could be considered a potential fire hazard and may not be allowed by the building code official.

FOUNDATION DRAINAGE

We recommend that a perimeter foundation and underslab drainage system be installed around and within portions of the proposed Block Four building where excavation is needed to reach the proposed ground floor level. The system will generally include the following:

- A network of 4-in. diameter (underslab drain) and 6-in. diameter (perimeter foundation drain), perforated PVC pipes.
- Drain pipes laid flat with perforations oriented down and embedded mid-depth in a 12-in. (underslab drain) or 18-in. (perimeter foundation drain) thick layer of ¾-in. crushed stone; stone layer fully encapsulated in a geosynthetic separation fabric (e.g., Mirafi 160N). The underslab drain pipes should be located below the proposed subgrade level (i.e., below the bottom of the proposed pavement section).
- Drain pipes should ideally drain by gravity and tie into the existing/proposed stormwater drainage system. The details of how the foundation drainage systems connect to site drainage systems will need to be coordinated with W&C prior to finalizing the CDs.

Haley & Aldrich has been retained to design the perimeter foundation and underslab drainage system and will coordinate with the project team to incorporate the design requirements into the CDs. We are currently in the process of developing the initial foundation drainage plans for the permanent SOE system submission.

In addition, surface runoff should be directed away from the buildings. In general, the finished ground surface immediately around the building should be sloped downward away from the structure. To limit surface water infiltration adjacent to the buildings, it is recommended that the upper 8 in. of backfill within 10 ft of the buildings, in unpaved areas, consist of topsoil or other soil having low permeability.

DAMPPROOFING/WATERPROOFING/VAPOR BARRIERS

In general, based on our review of the proposed site development, we recommend that all below grade foundation walls be dampproofed.

Based on the proposed buildings usage/occupancy as well as the man-placed nature of the near-surface, in-situ soils present at the site, we recommend that a vapor barrier be placed below the proposed floor slab in any finished (non-parking garage) space. We assume that the parking garage space will be well ventilated. The floor slab design and construction should be coordinated with the vapor barrier installer, as the barrier may impact concrete curing and curling.

Construction Considerations

The primary purpose of this section is to comment on items related to geotechnical aspects of the proposed construction. It is written primarily for the geotechnical engineer having responsibility for preparation of geotechnical related plans and specifications. Since it identifies potential construction problems related to foundations and earthwork, it will also aid personnel who monitor the construction activities. Prospective contractors for this project must evaluate the construction problems on the basis of their own knowledge and experience in the Portland, Maine area, and on the basis of similar projects in other localities, taking into account their proposed construction methods, procedures, equipment and personnel.

BEDROCK EXCAVATION

Based on the anticipated bearing level of the spread footings in the southeastern portion of the proposed Parking Garage/Residential building footprint we anticipate that up to approximately 10 ft of bedrock will need to be removed to construct the foundations. In general, rock removal will be required in the southeastern portion of the Block Four footprint. In addition, and as noted above, minor bedrock excavation (i.e., up to approximately 6 in.) will be required where bedrock is present at or above the proposed bottom of footing level. Please refer to Table I for additional information on column locations that will require rock removal.

Based on our review of the bedrock encountered in the subsurface explorations and our experience with similar bedrock types in the Portland area, we anticipate that the upper 2 to 3 ft (approximate) of bedrock could be excavated using conventional earth moving equipment, such as a large excavator outfitted with a hoe-ram. The remaining portion of the bedrock excavation will likely require the use of controlled drilling/blasting techniques.

Based on the depth of rock requiring removal and the plan location of the permanent SOE system, we anticipate that pre-splitting (line drilling) will be required in the southeastern portion of the Parking Garage/Residential building to minimize over-break beyond where the permanent SOE system will be located.

We recommend that a pre-construction survey of adjacent properties and nearby utilities be completed prior to the start of construction. The purpose of the survey is to inspect the site area and existing adjacent buildings to identify potentially vibration sensitive structures, equipment and/or utilities. The survey will also aid in determining limiting vibration criteria that should be established to protect the existing structures, equipment and/or utilities. The need for a geotechnical instrumentation program consisting of crack gages, vertical monitoring points and seismographs should be evaluated during CD development and after the pre-construction survey(s) have been completed. The geotechnical instrumentation program, if needed, should be designed, and implemented to monitor the existing structures, equipment and/or adjacent utilities during construction.

PREPARATION OF CONTRACT DOCUMENTS AND SUBMITTAL REVIEWS

The Contract Documents (plans and specifications) should be written so that the requirements of the documents are consistent with the design intent of the geotechnical recommendations outlined herein. Because of this Haley & Aldrich has been retained to prepare and/or assist the project team in the preparation of the CDs related to the following topics:

- Existing Subsurface Conditions
- Earthwork
- Blasting
- Temporary Dewatering
- Permanent Support of Excavation (soil nail wall)
- Foundation Drainage System
- Rigid Inclusion Ground Improvement

The CDs will require the Contractor and/or the Contractor's engineer to perform analyses and submit results to the designers for review (e.g., blasting, rigid inclusion ground improvement). The design team should be allowed to review the geotechnical-related submittals to ensure that the Contractor's analyses/submittals are in accordance with the intent of the design as outlined herein and ultimately in the CDs. This will enable us to observe compliance with the design concepts, assumptions and specifications, and to facilitate design changes in the event that subsurface conditions differ from those anticipated prior to the start of construction.

CONSTRUCTION MONITORING

The recommendations contained herein are based on the predictable behavior of a properly engineered and constructed foundation. Monitoring of the foundation construction is required to enable the geotechnical engineer-of-record to verify that the procedures and techniques used during construction are in accordance with the recommendations contained herein and the Contract Documents. Therefore, it is recommended that a geotechnical engineer or experienced technician be present during construction to:

- Install, initialize and monitor geotechnical instrumentation related to the permanent SOE system and blasting.

- Observe and document the construction of the permanent SOE system.
- Observe drilling and blasting and monitor with seismographs.
- Observe and document the installation of RI GI elements, excavation and subgrade preparation and LTL construction.
- Observe final excavation to subgrade and approve foundation and floor slab subgrade surfaces prior to fill placement/foundation construction.
- Observe installation of the foundation drainage system.

We recommend that Haley & Aldrich be retained to provide these services.

Limitations

This memorandum has been prepared for the exclusive use of PFDC relative to the Foreside Block Four Building in Portland, Maine. There are no intended beneficiaries other than PFDC. Haley & Aldrich shall owe no duty whatsoever to any other person or entity on account of the Agreement or the memorandum. Use of this memorandum by any person or entity other than of PFDC for any purpose whatsoever is expressly forbidden unless such other person or entity obtains written authorization from PFDC and from Haley & Aldrich. Use of this memorandum by such other person or entity without the written authorization PFDC and Haley & Aldrich shall be at such other person's or entities sole risk and shall be without legal exposure or liability to Haley & Aldrich.

Use of this memorandum by any person or entity, including by PFDC, for a purpose other than the Foreside Block Four Building in Portland, Maine is expressly prohibited unless such person or entity obtains written authorization from Haley & Aldrich indicating that the memorandum is adequate for such other use.

The information provided herein is based, in part, upon the data obtained from the referenced subsurface explorations. The nature and extent of variations between explorations may not become evident until construction. If variations then appear, it may be necessary to reevaluate the design recommendations presented in this memorandum.

Attachments:

Table I – Recommended Building Foundation Support
Figure 1 - Project Locus
Figure 2 - Anticipated Foundation Support Plan

TABLE I
Recommended Building Foundation Support
Foreside Block Four Development
58 Fore Street
Portland-Maine

Haley & Aldrich-Inc. File No.: 39486-881

Column Location[1]	Lowest Finished Floor Elevation[2,6]	Recommended Bottom of Foundation Elevation[3,6]	Recommended Foundation Support Type[1,4]	Rock Removal Required[5] (Y/N [Approx. Depth])	Overexcavation Required[5] (Y/N [Approx. Depth])	Comments
A-0.5	31.0	24.0	Micropiles	N	N	Level 2 Townhouses
A-1	50.3	25.0	Micropiles	N	N	Level 4 Garage
A-2	50.3	25.0	Micropiles	N	N	Level 4 Garage
A-3	50.3	33.0	Micropiles	N	N	Level 4 Garage
A-T7	50.3	35.0	Micropiles	N	N	Level 4 Garage
A-4.5	50.3	35.0	Micropiles	N	N	Level 4 Garage
A-5	50.3	38.0	Micropiles	N	N	Level 4 Garage
A-T10	50.3	41.0	Micropiles	N	N	Level 4 Garage
A-6.5	50.3	41.0	Footings on Till	N	N	Level 4 Garage
A-7	50.3	42.0	Footings on Till	N	N	Level 4 Garage
A-8	50.3	44.0	Footings on Till	N	N	Level 4 Garage
A-8.7	50.3	45.0	Footing on Till	N	N	Level 4 Garage
A-9.5	50.3	45.0	Footing on Till	N	N	Level 4 Garage
A-10	50.3	45.0	Footing on Till	N	N	Level 4 Garage
A-10.7	50.3	45.0	Footing on Till	N	N	Level 4 Garage
A-11.5	50.3	45.0	Footing on Till	N	N	Level 4 Garage
A-12	50.3	45.0	Footing on Till	N	N	Level 4 Garage
A-13	50.3	45.0	Footing on Till	N	N	Level 4 Garage
WA.1-12	50.3	45.0	Footing on Till	N	N	Level 4 Garage
WB-2	15.0	7.5	Footing on Till	N	Y (3 ft)	Level 1 Garage
A.5-0.5	15.0	8.0	Footing on Till	N	Y (2-3 ft)	Level 1 Garage
WX-0.5	15.0	7.5	Footing on Till	N	Y (2-3 ft)	Level 1 Garage
WX-1	15.0	7.0	Footing on Till	N	Y (3-4 ft)	Level 1 Garage
WX-2	15.0	7.5	Footing on Till	N	Y (3 ft)	Level 1 Garage
B-2	15.0	7.5	Footing on Till	N	Y (3 ft)	Level 1 Garage
B-3	15.0	6.0	Footing on Rock	N	Y (4-5 ft)	Level 1 Garage. Adjacent to Level 1 Garage elevator pit footing
B-5	16.5	9.0	Footing on Rock	N	Y (3 ft)	Level 1/Level 2 Garage Ramp
B-7.9	22.5	17.5	Footing on Till	N	N	Level 1/Level 2 Garage Ramp
B-11	27.5	23.0	Footing on Till	N	N	Level 2 Garage
B-13	38.0	33.5	Footing on Till	N	N	Level 3 Garage
C-1	15.0	10.0	Footing on GI	N	N	Exterior wall footing. Estimated exterior GS El 14.5. Level 1 Retail
C-1.8	15.0	10.5	Footing on GI	N	N	Level 1 Garage
C-4	15.0	7.0	Footing on Rock	N	Y (3-4 ft)	Level 1 Garage
C-5	16.5	7.5	Footing on Rock	N	Y (4-5 ft)	Level 1/Level 2 Garage Ramp
C-6	18.5	13.5	Footing on GI	N	N	Level 1/Level 2 Garage Ramp
C-7	20.5	15.5	Footing on GI	N	N	Level 1/Level 2 Garage Ramp
C-7.9/8	22.5	17.5	Footing on Till or GI	N	N	Level 1/Level 2 Garage Ramp
C-9	24.5	19.5	Footing on Till	N	N	Level 1/Level 2 Garage Ramp
C-10	27.0	22.0	Footing on Till	N	N	Level 1/Level 2 Garage Ramp
C-11	27.5	23.0	Footing on Till	N	N	Level 2 Garage
C-13	38.0	33.5	Footing on Till	N	N	Level 3 Garage
WD-1	15.0	10.0	Footing on GI	N	N	Exterior wall footing. Estimated exterior GS El 14.5. Level 1 Retail
WD-1.8	15.0	10.5	Footing on GI	N	N	Level 1 Garage
WE-3	15.0	10.5	Footing on GI	N	N	Level 1 Garage
D-4	15.0	10.5	Footing on GI	N	N	Level 1 Garage
D-5	16.5	9.0	Footing on Till or GI	N	N	Level 1/Level 2 Garage Ramp
D-6	18.5	10.0	Footing on Till	N	N	Level 1/Level 2 Garage Ramp
D-7	20.5	10.0	Footing on Till	N	N	Level 1/Level 2 Garage Ramp
D-7.9/8	22.5	7.5	Footing on Till	N	Y (2-3 ft)	Level 1/Level 2 Garage Ramp
D-9	24.5	7.0	Footing on Till	N	Y (2-3 ft)	Level 1/Level 2 Garage Ramp
D-10	27.0	7.0	Footing on Rock	N	N	Level 1/Level 2 Garage Ramp
D-11	27.5	9.0	Footing on Rock	N	N	Level 2 Garage
D-13	38.0	26.0	Footing on Till	N	N	Level 3 Garage
WF-1	15.0	10.0	Footing on GI	N	N	Exterior wall footing. Estimated exterior GS El 14.5. Level 1 Retail
WF-1.8	15.0	10.5	Footing on GI	N	N	Level 1 Garage
E-1.8	15.0	10.5	Footing on GI	N	N	Level 1 Garage
E-2	15.0	10.5	Footing on GI	N	N	Level 1 Garage
E-3	15.0	10.5	Footing on GI	N	N	Level 1 Garage
E-4	15.0	10.5	Footing on GI	N	N	Level 1 Garage
E-5	13.5	9.0	Footing on Till or GI	N	N	Level 1 Garage
E-7.9	12.0	7.5	Footing on Till	N	Y (2-3 ft)	Level 1 Garage
E-9	11.5	7.0	Footing on Till	N	N	Level 1 Garage
E-10	10.5	7.0	Footing on Rock	N	N	Level 1 Garage
E-11	10.5	7.0	Footing on Rock	Y (2-4 ft)	N	Level 1 Garage
E-12	27.5	17.0	Footing on Till	N	N	Level 2 Garage
E-13	26.3	22.0	Footing on Till	N	N	Level 2 Garage
WG-1	15.0	10.0	Footing on GI	N	N	Exterior wall footing. Estimated exterior GS El 14.5. Level 1 Retail
F-4	15.0	10.5	Footing on GI	N	N	Level 1 Garage
F-5	13.5	9.0	Footing on Till or GI	N	N	Level 1 Garage
F-6	13.0	8.5	Footing on Till or GI	N	N	Level 1 Garage
F-7	12.5	8.0	Footing on Till	N	N	Level 1 Garage
F-7.9/8	12.0	7.5	Footing on Till	N	Y (2-3 ft)	Level 1 Garage
F-9	11.5	7.0	Footing on Till	N	N	Level 1 Garage
F-10	11.0	7.0	Footing on Rock	N	N	Level 1 Garage
F-11	10.5	7.0	Footing on Rock	Y (2-4 ft)	N	Level 1 Garage
F-13	27.5	21.0	Footing on Till	N	N	Level 2 Garage
WH-3	15.0	10.5	Footing on GI	N	N	Level 1 Garage
WK-1	15.0	10.0	Footing on GI	N	N	Exterior wall footing. Estimated exterior GS El 14.5. Level 1 Retail
WK-1.8	15.0	10.5	Footing on GI	N	N	Level 1 Retail
WJ-1	15.0	10.0	Footing on GI	N	N	Exterior wall footing. Estimated exterior GS El 14.5. Level 1 Retail
WJ-1.8	15.0	10.5	Footing on GI	N	N	Level 1 Retail
WL-2	15.0	10.5	Footing on GI	N	N	Level 1 Retail
WL-3	15.0	10.5	Footing on GI	N	N	Level 1 Garage
G-4	15.0	10.5	Footing on GI	N	N	Level 1 Garage
G-5	13.5	3.5	Footing on GI	N	N	Level 1 Garage. Adjacent to Level 1 Garage elevator pit footing
G-6	13.0	3.5	Footing on GI	N	N	Level 1 Garage. Adjacent to Level 1 Garage elevator pit footing
G-7	12.5	8.0	Footing on Till	N	N	Level 1 Garage
G-7.9/8	12.0	7.5	Footing on GI	N	N	Level 1 Garage
G-9	11.5	7.0	Footing on GI	N	N	Level 1 Garage
G-10	10.5	6.0	Footing on Rock	N	N	Level 1 Garage
G-11	10.5	6.5	Footing on Rock	Y (5-6 ft)	N	Level 1 Garage
G-13	27.5	17.5	Footing on Till	N	N	Level 2 Garage
WM-1	15.0	10.0	Footing on GI	N	N	Exterior wall footing. Estimated exterior GS El 14.5. Level 1 Retail
WM-1.8	15.0	10.5	Footing on GI	N	N	Level 1 Retail
H-11	10.5	6.5	Footing on Rock	Y (3-4 ft)	N	Level 1 Garage
H-13	27.5	17.0	Footing on Till	N	N	Level 2 Garage. Level 2 elevator pit footing
J-W2	15.0	10.5	Footing on GI	N	N	Level 1 Garage
J-R1	15.0	10.5	Footing on GI	N	N	Level 1 Garage
J-5/R2	13.5	3.5	Footing on GI	N	N	Level 1 Garage. Adjacent to Level 1 Garage elevator pit footing
J-R3	13.0	3.5	Footing on GI	N	N	Level 1 Garage. Adjacent to Level 1 Garage elevator pit footing
J-7.2	17.75	13.0	Footing on GI	N	N	Level 1 Retail
J-7.9/8	17.75	10.0	Footing on GI	N	N	Level 1 Retail
J-R4	21.0	13.0	Footing on GI	N	N	Level 1/Level 2 Retail
J-9	21.0	13.0	Footing on GI	N	N	Level 1/Level 2 Retail

TABLE I
Recommended Building Foundation Support
Foreside Block Four Development
58 Fore Street
Portland-Maine

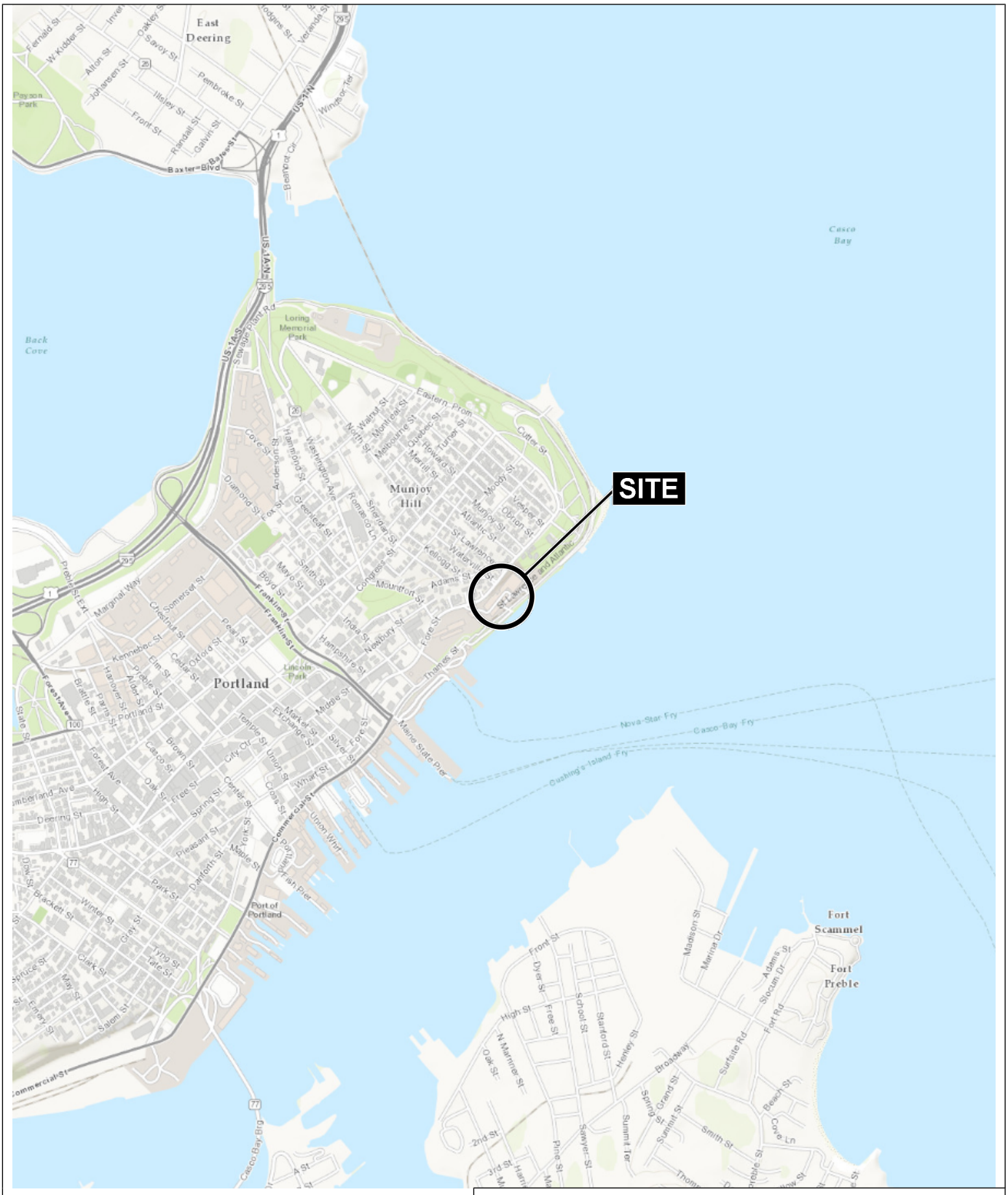
Haley & Aldrich-Inc. File No.: 39486-881

Column Location[1]	Lowest Finished Floor Elevation[2,6]	Recommended Bottom of Foundation Elevation[3,6]	Recommended Foundation Support Type[1,4]	Rock Removal Required[5] (Y/N [Approx. Depth])	Overexcavation Required[5] (Y/N [Approx. Depth])	Comments
J-R5	11.0	7.0	Footing on Till	N	N	Level 1 Garage
J-W8	10.5	6.5	Footing on Rock	Y (1-2 ft)	N	Level 1 Garage
J-11	10.5	6.5	Footing on Rock	Y (3-4 ft)	N	Level 1 Garage
J-13	27.5	17.0	Footing on Till	N	N	Level 2 Garage
WN-1	15.0	10.0	Footing on GI	N	N	Exterior wall footing. Estimated exterior GS El 14.5. Level 1 Retail
WN-1.8	15.0	10.5	Footing on GI	N	N	Level 1 Retail
WN-2	15.0	10.5	Footing on GI	N	N	Level 1 Retail
WN-3	15.0	5.0	Footing on GI	N	N	Level 1 Garage. Adjacent to Level 1 Garage elevator pit footing
WN.5-W5	17.75	13.0	Footing on GI	N	N	Level 1 Retail
WP-1	15.0	10.0	Footing on GI	N	N	Exterior wall footing. Estimated exterior GS El 14.5. Level 1 Retail
WP-1.8	15.0	10.5	Footing on GI	N	N	Level 1 Retail
WP-W3	15.0	10.5	Footing on GI	N	N	Level 1 Garage
WP-R2	15.0	10.5	Footing on GI	N	N	Level 1 Retail
WP-R3	15.0	10.5	Footing on GI	N	N	Level 1 Retail
WP-6.5	17.75	13.0	Footing on GI	N	N	Level 1 Retail
K-2	15.0	10.5	Footing on GI	N	N	Level 1 Retail
K-3	15.0	10.5	Footing on GI	N	N	Level 1 Garage
K-W2	15.0	10.5	Footing on GI	N	N	Level 1 Garage
K-W3	15.0	10.5	Footing on GI	N	N	Level 1 Garage
K-5/W4	15.0	10.5	Footing on GI	N	N	Level 1 Retail
K-R2	15.0	10.5	Footing on GI	N	N	Level 1 Retail
K-R3	15.0	10.5	Footing on GI	N	N	Level 1 Retail
K-7.2	17.75	13.0	Footing on GI	N	N	Level 1 Retail
K-7.9/8	17.75	13.0	Footing on GI	N	N	Level 1 Retail
K-W6	21.0	13.0	Footing on GI	N	N	Level 1/Level 2 Retail
K-W7	21.0	10.0	Footing on Till or GI	N	N	Level 1/Level 2 Retail
K-11/R6	10.0	6.0	Footing on Rock	Y (1-2 ft)	N	Level 1 Podium Space
K-12	10.0	6.0	Footing on Rock	Y (4-6 ft)	N	Level 1 Podium Space
K-13	10.0	6.0	Footing on Rock	Y (8-10 ft)	N	Level 1 Podium Space

Notes:
[1] - Refer to Figure 2, Anticipated Foundation Support Plan, which graphically shows column locations and anticipated foundation support types. Column locations based on precast concrete garage superstructure.
[2] - Interpreted by Haley & Aldrich based on the interim Design Development drawings prepared by Perkins & Will and Thornton Tomasetti, dated 3 February 2023.
[3] - Interpreted by Haley & Aldrich based on the interim Design Development (DD) drawings prepared by Thornton Tomasetti, dated 3 February 2023. In some instances the bottom of foundation elevations shown on the interim DD drawings were raised or lowered by Haley & Aldrich, Inc. based on the lowest finished floor elevations shown and discussions with Thornton Tomasetti.
[4] - "GI" refers to rigid inclusion ground improvement elements and a load transfer layer. "Till" refers to naturally-deposited glacial till. Refer to design memorandum text for design recommendations.
[5] - Determined by Haley & Aldrich based on the assumed bottom of foundation elevations shown and the subsurface conditions present at specific column locations and should be considered approximate. Rock removal depths do not include the additional 6 in. that is recommended be removed from below the bottom of the footings as stated in the GDM.
[6] - Elevations are measured in feet and reference the Portland City Datum (PCD).

	Individual	Date
Prepared By:	TPJ	11/17/2022
Checked By:	WAC	11/17/2022
Reviewed By:	BCS	11/18/2022

REV TPJ/WAC 2/16/23



MAP SOURCE: ESRI

SITE COORDINATES: 43°39'46"N, 70°14'38"W





HALEY ALDRICH

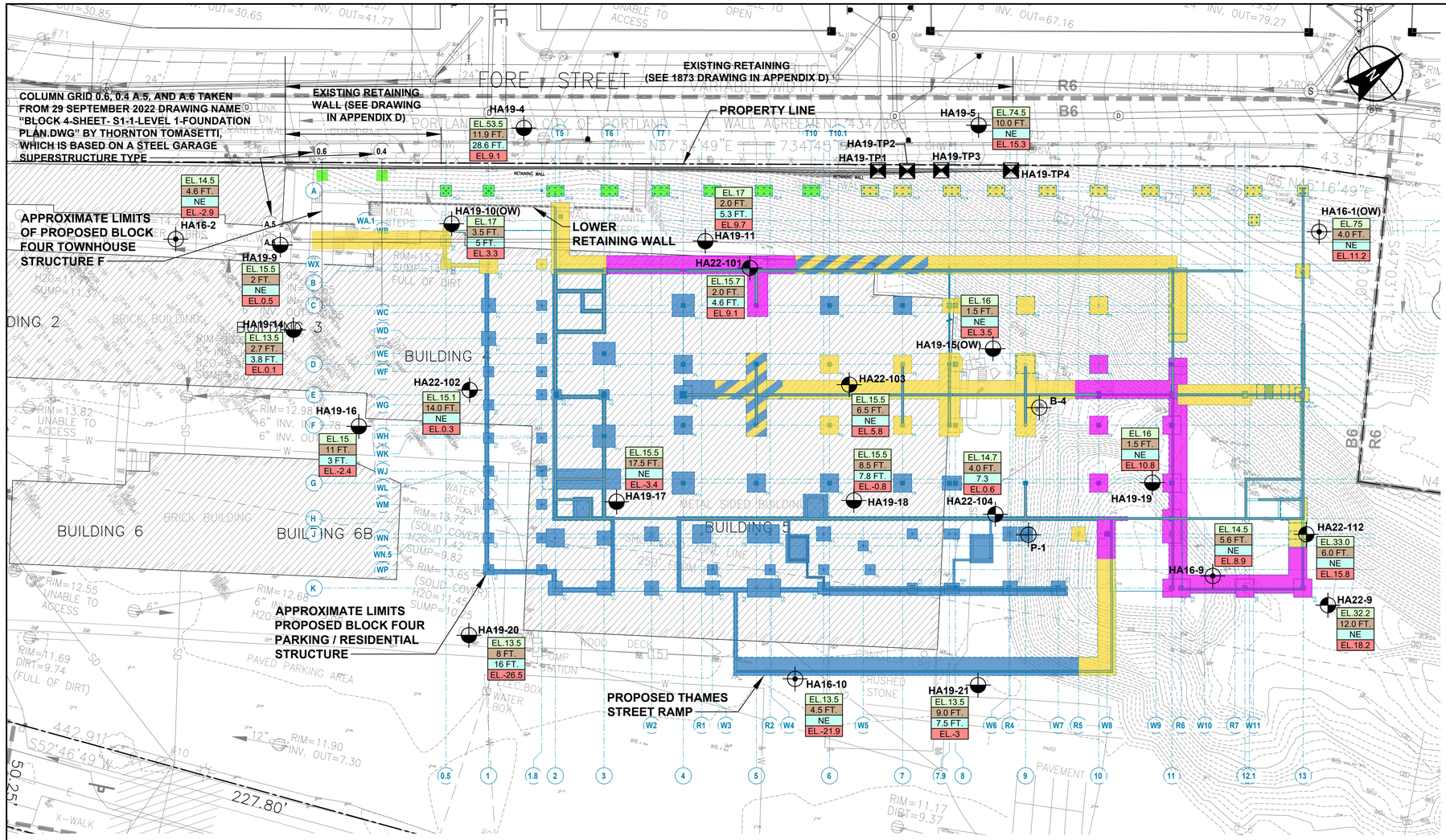
FORESIDE BLOCK FOUR DEVELOPMENT
58 FORE STREET
PORTLAND, MAINE

PROJECT LOCUS

APPROXIMATE SCALE: 1 IN = 2000 FT
OCTOBER 2022

FIGURE 1

39486-872_1_LOCUS.PDF



LEGEND

- **HA22-1 / HA22-101** — DESIGNATION AND LOCATION OF TEST BORING DRILLED BY NEW ENGLAND BORING CONTRACTORS OF HERMON, MAINE (HA22-1 SERIES) AND NORTHERN TEST BORINGS, INC. OF GORHAM, MAINE (HA22-100 SERIES) UNDER THE DIRECTION OF HALEY & ALDRICH, INC. IN MARCH AND APRIL 2022 (HA22-1 SERIES) AND SEPTEMBER 2022 (HA22-100 SERIES)
- **HA19-TP1** — DESIGNATION AND APPROXIMATE LOCATION OF TEST PIT HAND-EXCAVATED BY PORTLAND FORESIDE DEVELOPMENT COMPANY AND OBSERVED BY HALEY & ALDRICH, INC. ON 10 DECEMBER 2019
- **HA19-1** — DESIGNATION AND APPROXIMATE LOCATION OF TEST BORING DRILLED BY NEW ENGLAND BORING CONTRACTORS OF LONDONDERRY, NEW HAMPSHIRE UNDER THE DIRECTION OF HALEY & ALDRICH IN JANUARY AND FROM MAY TO JULY 2019
- **HA16-1** — DESIGNATION AND APPROXIMATE LOCATION OF TEST BORING DRILLED BY NEW ENGLAND BORING CONTRACTORS OF LONDONDERRY, NEW HAMPSHIRE UNDER THE DIRECTION OF HALEY & ALDRICH DURING THE PERIOD 13 DECEMBER 2016 TO 5 JANUARY 2017
- **B-3 / P-1** — DESIGNATION AND APPROXIMATE LOCATION OF TEST BORING AND AUGER PROBE DRILLED BY GREAT WORKS TEST BORING, INC. OF ROLLINGSFORD, NEW HAMPSHIRE UNDER THE DIRECTION OF S.W. COLE ENGINEERING INC. DURING THE PERIOD 24 TO 26 SEPTEMBER 2007
- **(OW)** — INDICATES OBSERVATION WELL INSTALLED IN COMPLETED BOREHOLE

EXPLORATION DATA BOX

EL. 75
4.0 FT.
NE
EL.11.2

- EL. 75 — APPROXIMATE GROUND SURFACE ELEVATION
- 4.0 FT. — APPROXIMATE FILL THICKNESS
- NE — APPROXIMATE MARINE DEPOSIT THICKNESS
- EL.11.2 — APPROXIMATE TOP OF WEATHERED BEDROCK OR BEDROCK ELEVATION, WHICHEVER IS HIGHER
  "NE" DENOTES STRATUM NOT ENCOUNTERED

ANTICIPATED FOUNDATION SUPPORT LEGEND

- SPREAD FOOTINGS BEARING ON GLACIAL TILL
- SPREAD FOOTINGS BEARING ON ROCK / CRUSHED STONE PAD ON ROCK
- DRILLED-IN ROCK SOCKETED MICROPILES AND PILE CAP
- SPREAD FOOTINGS BEARING ON RIGID INCLUSION GROUND IMPROVEMENT ELEMENTS AND A LOAD TRANSFER LAYER

0 30 60 90 120
SCALE IN FEET

NOTES

1. BASE PLAN CREATED BY HALEY & ALDRICH, INC. USING THE FOLLOWING REFERENCES:
   a. EXISTING GROUND SURFACE ELEVATION CONTOURS AND THE LOCATION AND ORIENTATION OF EXISTING SITE FEATURES ARE TAKEN FROM THE CAD FILE ENTITLED "XR_EX BASE 2022 (COMPILED).DWG" PROVIDED BY WOODARD & CURRAN OF PORTLAND, MAINE ON 2 MAY 2022.
   b. LOCATION AND ORIENTATION OF THE EXISTING FORE STREET RETAINING WALL TAKEN FROM THE CAD FILE ENTITLED "XR_0232341 EXBASE.DWG" PROVIDED BY WOODARD & CURRAN OF PORTLAND, MAINE ON 30 OCTOBER 2019.
   c. LOCATION AND ORIENTATION OF EXISTING STRUCTURES OCCUPYING THE TRETTEL PROPERTY ARE TAKEN FROM THE CAD FILE ENTITLED "PFDC MASTER SITE PLAN V3.DWG" PROVIDED BY WOODARD & CURRAN OF PORTLAND, MAINE ON 29 MARCH 2022.
   d. LOCATION OF "B-4" AND "P-1" EXPLORATIONS COMPLETED UNDER THE DIRECTION OF S.W. COLE ENGINEERING, INC. IN SEPTEMBER 2007 ARE TAKEN FROM THE CAD FILE ENTITLED "XR_227007.03-X00C.DWG" PROVIDED BY WOODARD & CURRAN OF PORTLAND, MAINE ON 2 AUGUST 2016.
   e. PROPOSED BUILDING LAYOUT, IS TAKEN FROM THE CAD FILES ENTITLED "BLOCK 4-SHEET- S1-1-LEVEL 1-FOUNDATION PLAN.DWG", "BLOCK 4-SHEET-S1-2-LEVEL 2 FRAMING PLAN.DWG", "BLOCK 4-SHEET-S1-3-LEVEL 3 FRAMING PLAN.DWG" AND "BLOCK 4-SHEET-S1-4-LEVEL 4 FRAMING PLAN.DWG" PROVIDED BY THORNTON TOMASETTI OF PORTLAND, MAINE ON 7 FEBRUARY 2023.
2. THE PLAN LOCATION AND ORIENTATION OF THE EXISTING STRUCTURES OCCUPYING THE TRETTEL PROPERTY WERE DETERMINED BY SCALING AND ROTATING REFERENCE DRAWING 1C USING EXISTING PROPERTY LINE INFORMATION AND IS CONSIDERED APPROXIMATE.
3. THE PROPOSED BUILDING LAYOUT WAS DETERMINED BY SCALING AND ROTATING REFERENCE DRAWINGS 1E USING THE EXISTING LOWER RETAINING WALL INFORMATION THAT IS PRESENT IN THE VICINITY OF THE TOWNHOUSE AND IS CONSIDERED APPROXIMATE.
4. THE LOCATION OF GAS, SANITARY AND STORM SEWERS IN FORE STREET ARE TAKEN FROM THE CAD FILE ENTITLED "XR_FORE AS BUILT.DWG" PROVIDED BY WOODARD & CURRAN OF PORTLAND, MAINE ON 4 OCTOBER 2022."
5. THE PLAN LOCATIONS OF "HA16" AND "HA19" SERIES TEST BORINGS WERE DETERMINED BY TAPING DISTANCES TO/FROM EXISTING SITE FEATURES AND ARE CONSIDERED APPROXIMATE. THE PLAN LOCATIONS OF "HA22" SERIES TEST BORINGS WERE DETERMINED BY OWEN HASKELL, INC. USING GPS SURVEY EQUIPMENT UPON THE COMPLETION OF DRILLING.
6. GROUND SURFACE ELEVATIONS AT "HA16" AND "HA19" SERIES TEST BORINGS WERE DETERMINED BY HALEY & ALDRICH, INC. BY INTERPOLATING BETWEEN EXISTING GROUND SURFACE TOPOGRAPHIC CONTOUR INFORMATION AVAILABLE AT THE TIME THE TEST BORINGS WERE COMPLETED AND ARE CONSIDERED APPROXIMATE.
7. GROUND SURFACE ELEVATIONS AT "HA22" SERIES TEST BORINGS WERE DETERMINED BY OWEN HASKELL, INC. USING GPS SURVEY EQUIPMENT UPON THE COMPLETION OF DRILLING.
8. ELEVATIONS ARE FEET AND REFERENCE PORTLAND CITY DATUM.
9. REFER TO TABLE I FOR ADDITIONAL FOUNDATION SUPPORT INFORMATION AND ASSUMPTIONS.
10. THIS PLAN HAS BEEN UPDATED TO INCLUDE A COLUMN GRID AND FOUNDATION PLAN REPRESENTATIVE OF THE PRECAST CONCRETE PARKING GARAGE SUPERSTRUCTURE PROVIDED BY THORNTON TOMASETTI (SEE NOTE 1e). THE COLUMN GRID AND FOUNDATION PLAN SHOWN WAS LOCATED BY HALEY & ALDRICH BY ASSUMING THAT THE PLAN LOCATION OF COLUMN LINE A AND COLUMN LINE 13 WERE UNCHANGED FROM WHAT WAS SHOWN PREVIOUSLY FOR THE STEEL PARKING GARAGE SUPERSTRUCTURE.

HALEY ALDRICH

FORESIDE BLOCK FOUR DEVELOPMENT
58 FORE STREET
PORTLAND, MAINE

ANTICIPATED FOUNDATION SUPPORT PLAN

SCALE: AS SHOWN
FEBRUARY 2023

FIGURE 2

Printed: 2/17/2023 3:47 PM
Sheet: D027
Saved by: TAM
\\HALEYALDRICH.COM\SHARE\CF\PROJECTS\39486\GLOBAL CAD\39486-881-D027.DWG

PORTLAND FORESIDE DEVELOPMENT – BLOCKS 4 & 6

SITE LOCATION OF DEVELOPMENT

58 Fore Street
Portland, ME

41 Hutchins Drive
Portland, ME 04102
800.426.4262

woodardcurran.com

0227007.19
Portland Foreside Development Company
October 2022

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1. DEVELOPMENT DESCRIPTION

This narrative report is in support of a Site Location of Development (SLOD) Permit Application for development of Block 4 and Block 6 of the Portland Foreside Development located at 58 Fore Street in Portland, Maine. It is also our understanding that the MaineDEP has determined that the City of Portland has delegated review authority over this project.

1.1 OBJECTIVES & DETAILS

The proposed development is the next phase of the 58 Fore Street Master Development Plan, approved by the City of Portland Planning Board (Project ID: 2016-224) on December 22, 2016, to redevelop and revitalize the 10.7-acre former Portland Company complex into a mixed-use development.

The redevelopment of 58 Fore Street into a mixed-use neighborhood highlights the historical significance of the area, access to the waterfront and provides a direct connection from the adjacent neighborhoods to the waterfront. The result is a vibrant revitalization of the City's eastern waterfront. The development program for the project was considered and designed around the overall vision of creating this mixed-use neighborhood and proposes commercial, residential, retail, restaurant, marina and public open space uses which are consistent with the Master Development Plan for the site. Open space proposed for Blocks 4 and 6 includes plazas for pedestrian use between the individual building components as well as a public access easement, view corridors and access to the waterfront.

The 58 Fore Street Master Development Plan consists of six "blocks" of development as shown by the below figure:



The next phase of the development includes the following work:

- **Block 4.** Includes the construction of a four-level structured parking garage with overlying rental apartment units and plaza space, three-story townhouses along Fore Street, and ground-level retail on the north and south elevations.

- **Block 6.** Includes development of residential condominiums and courtyard area with ground-level retail and below-grade parking. The below-grade parking lot is a continuation of the Block 4 parking garage and will be accessed using the Block 4 garage entrances on Fore Street and Thames Street.
- **Infrastructure, Utilities & Access Improvements.** In addition to the Block development and similar to Phase 1 of the development, shared street infrastructure and utilities will be installed throughout the site in the common spaces between the development parcels with reciprocal easements granted throughout.
- **Interim Conditions.** In order to create a complete, functional site at the completion of this phase, interim conditions are proposed in areas of the site that will not see their finished conditions as part of this project, including:
    - Block 2 – Minor surface improvements, grading, and utility work within Parcel 2B and 2C to enable the surrounding work.
    - Block 5 – Minor surface improvements, grading, stormwater management, utility work and interim surface parking within Parcel 5 to enable the surrounding work. No development is proposed at this time in association with this block.

The area of disturbance for development of Blocks 4 and 6 is approximately 7-acres and will include approximately 6.8-acres of impervious area. It should be noted that roof areas were considered fully impervious (as any rooftop landscaping systems do not infiltrate into the ground), and significant areas of landscaping and green roof are proposed.

The proposed development is a critical piece to Portland's future for a number of reasons including:

- The overall Project Site is large (+/- 10.7 acres) and strategically located between Portland's vibrant downtown, its working waterfront, and the beginning of its Eastern Promenade residential neighborhoods. This phase will continue building the connection of an underutilized part of the City to adjacent neighborhoods, the waterfront and the Old Port.
- The Project Site represents a keystone piece in the City's continuing efforts to link its vibrant downtown to the vast potential of its commercial waterfront. This project will help the City further realize the benefits of its investments in the Ocean Gateway marine terminal facility and related infrastructure;
- The development will help stimulate other investments in the eastern waterfront with the anticipation that investment in the Project Site will result in investment in underdeveloped public and private lands situated between the India Street neighborhood and the Project Site;

- As a whole, this proposed development presents an unparalleled opportunity to grow the City's tax base, add housing, and create jobs; and
- The development can act as a catalyst for change in this area, improve the quality of life for all Portland residents by facilitating access to the waterfront, adding capacity for events that draw residents and visitors and enable the City's cruise ship terminal to live up to its name as a truly memorable gateway.

In addition to the SLOD permit, the proposed work requires the following permits:

- City of Portland Major Site Plan & Subdivision;
- City of Portland Historic Preservation Application for Certificate of Appropriateness;
- Maine Construction General Permit Notice of Intent; and
- FAA Notice of Proposed Construction.

1.2 EXISTING FACILITIES

The proposed development will be located on a portion of the approximately 10.7-acre property. Existing site conditions consist primarily of impervious paved and gravel areas with some areas of sparse vegetation and a steep, vegetated slope along the eastern edge of the site. The Site is adjacent to the Fore River. There are no significant natural features or wetlands on-site. A survey of the Site was completed by Owen Haskell, Inc. (dated December 10, 2019 and June 27, 2022).

The former Portland Company Complex contained various industrial uses and many of the existing buildings have been demolished. The Site previously served as a pre-Civil War locomotive manufacturing site and components of that past still stand today. Historically significant facades include the Portland Company Vault, the Machine Shop, The Pattern Storehouse, and the Blacksmith Shop. The development team has included these historic facades, along with the character and linear orientation of the alleyways between, in the redevelopment planning for the site.

1.3 TOPOGRAPHIC MAP

A USGS topographic map showing the approximate location of proposed development is attached to this Section for your reference. The proposed development is located within the Portland East Quadrangle.

1.4 CONSTRUCTION PLAN

The proposed development will be constructed in phases. Construction of Blocks 4 and 6 is anticipated to begin in spring 2023. Erosion and sediment control measures will be installed prior to any ground disturbing activities, as described in Section 14 of this Report. The Contractor will be required to provide a construction management plan for the project, subject to the review and approval of the City and Engineer.

The Site will be managed during construction to minimize impacts to the adjacent land uses. Maintaining access to adjacent properties and public facilities will be a priority. Traffic impacts to adjacent roadways, including Thames Street Extension, Freedom Way, and Fore Street, will be minimized during construction to the greatest extent possible. Traffic controls will consist of temporary signage and barriers where necessary to manage vehicle, pedestrian, and bicycle traffic and direct it safely around the construction area. Work affecting traffic circulation such as underground utility work and grading activities will be conducted during periods of low traffic to reduce potential impacts.

Below is the anticipated sequence of construction activities for major aspects of the development:

- Installation of erosion and sediment control measures and traffic control measures;
- Demolition and site preparation activities;
- Construction of utilities, stormwater management system, and roadway;
- Construction of buildings;
- Installation of landscaping and final surface materials; and
- Removal of erosion and sediment control measures.

1.5 DRAWINGS

Design drawings showing the proposed development are attached to this Section.

1.6 LIST OF ATTACHMENTS

The following documents are attached to this Section:

- Topographic Map; and
- Design Drawings (Bound Separately).

U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

The National Map US Topo

PORTLAND EAST QUADRANGLE
MAINE - CUMBERLAND COUNTY
7.5-MINUTE SERIES



Produced by the United States Geological Survey
North American Datum of 1983 (NAD83)
World Geodetic System of 1984 (WGS84). Projection and
1 000-meter grid:Universal Transverse Mercator, Zone 19T
This map is not a legal document. Boundaries may be
generalized for this map scale. Private lands within government
reservations may not be shown. Obtain permission before
entering private lands.

Imagery.....NAIP, July 2015 - November 2015
Roads.....U.S. Census Bureau, 2017
Names.....GNIS, 1980 - 2017
Hydrography.....National Hydrography Dataset, 2003 - 2016
Contours.....National Elevation Dataset, 2005 - 2012
Boundaries.....Multiple sources; see metadata file 2014 - 2016

Wetlands.....FWS National Wetlands Inventory 2001 - 2004

UTM GRID AND 2017 MAGNETIC NORTH
DECLINATION AT CENTER OF SHEET

SCALE 1:24 000

1 0.5 0 KILOMETERS 1 2
1000 500 0 METERS 1000 2000
1 0.5 0 MILES 1
1000 0 1000 2000 3000 4000 5000 6000 7000 8000 9000 10000 FEET

CONTOUR INTERVAL 20 FEET
NORTH AMERICAN VERTICAL DATUM OF 1988

This map was produced to conform with the
National Geospatial Program US Topo Publication Standard, 2011.
A metadata file associated with this product is version 0.6.18

ADJOINING QUADRANGLES
1 Cumberland Center
2 Yarmouth
3 Freeport
4 Portland West
5 South Harpswell
6 Prouts Neck
7 Cape Elizabeth

ROAD CLASSIFICATION
Expressway
Secondary Hwy
Ramp
Local Connector
Local Road
4WD
Interstate Route
US Route
State Route

PORTLAND EAST, ME
2018

Page 723

7643016370409
USGS X24K361119
MAP NO.
NGA REF NO.

2. TITLE, RIGHT, OR INTEREST

The Project will occur on a parcel of land identified by the City as Lot 18-A-01 and owned by PF Land LLC. The deed into PF Land is attached. PF Land LLC subsequently conveyed approximately 482 square feet to PF One Devco LLC. The deed from PF Land LLC to PF One Devco LLC is also attached, modifying the original parcel into PF Land.

The Project area also includes a portion of an adjacent lot purchased by 21 Eastern Prom LLC, which is an entity affiliated with PF Land LLC. That lot is identified by the City as Lot 2-A-4 and is located at 21 Eastern Promenade. 21 Eastern Prom will convey said portion of Lot 2-A-4 to PF Land LLC prior to obtaining a building permit for the work occurring on that portion of the property.

Project construction may require installation of tiebacks into property on adjacent land, including City land, similar to the tiebacks into the City's Fore Street right-of-way for the Block 4 garage as previously approved in the Phase 1 Site Plan. The Phase 1 Site Plan approval contained the following condition to address the situation: "Prior to application for building permits, the applicant shall finalize any agreement required by the City of Portland authorizing the replacement and maintenance of the retaining wall along Fore Street and any license agreements required to permit encroachments into the City's right of way. All necessary agreements shall be finalized to the satisfaction of the Planning Authority, Department of Public Works, and Corporation Counsel."

The Applicant requests a similar condition to address possible encroachments onto the City right-of-way for Phase 2. In addition, to the extend the project design results in encroachments onto adjacent private property, the Applicant requests the following condition: "Prior to application for building permits, the applicant shall provide written agreements with adjacent landowners necessary to permit encroachments onto adjacent property."

Small portions of the Project located along the Maine DOT corridor are subject to the Land Exchange Agreement between the City, Maine DOT, and PF Land. The land swap will occur prior to obtaining building permits for work occurring on that southern edge of the property.

2.1 LIST OF ATTACHMENTS

- Deeds; and
- Easements.

TRUSTEE'S DEED
(Maine Statutory Short Form)

KNOW ALL PERSONS BY THESE PRESENTS, that **TIMOTHY HALEY, of Stuart, Florida, SOLE TRUSTEE OF THE TIMOTHY HALEY LIVING TRUST, dated June 3, 2005** ("Grantor"), for consideration paid, grants to **21 EASTERN PROM LLC**, a Maine limited liability company with a mailing address of 254 Commercial Street, Portland, Maine 04101 ("Grantee"), the following described real estate situated at 13-23 Eastern Promenade, in the City of Portland, Cumberland County, State of Maine as more particularly described in Exhibit A attached hereto and made a part hereof

See Attached Exhibit A

MAINE REAL ESTATE TAX PAID

Meaning and intending to convey the premises conveyed by virtue of Quitclaim Deed without Covenant from Katherine C. Haley and Timothy J. Haley, Trustees, under the Daniel T. Haley Sr. Family Trust dated January 21, 2006, dated January 11, 2007, and recorded in the Cumberland County Registry of Deeds in Book 24759, Page 67, by Quitclaim Deed without Covenants from Katherine C. Haley and Timothy J. Haley, Trustees, under the Daniel T. Haley Sr. Family Trust dated January 21, 2006, dated January 11, 2007 and recorded at Cumberland County Registry of Deeds in Book 24759, Page 069 and by Quitclaim Deed without Covenants from Timothy J. Haley and Julia A. Haley, successor Trustees, under the Haley Family Living Trust dated February 6, 1997, dated December 4, 2008 and recorded at Cumberland County Registry of Deeds in Book 26503, Page 224 to Timothy Haley, sole Trustee or his successors in trust, under the Timothy Haley Living Trust, dated June 3, 2005.

I hereby covenant that I am Trustee pursuant to said Trust; that said Trust is still in full force and effect; that I have the power thereunder to convey as aforesaid; and that, in the making this conveyance, I have, in all respects, acted pursuant to the authority vested in and granted to me there.

WITNESS my hand and seal, this 08 day of December, 2021.

WITNESS:

Cecilia Merrill

Timothy Haley, Sole Trustee of The Timothy Haley Living Trust, dated June 3, 2005

STATE OF FLORIDA
COUNTY OF MARTIN, ss.

December 28, 2021

Then personally appeared the above-named Timothy Haley, as aforesaid, and acknowledged the foregoing instrument to be his free act and deed in his said capacity.

LANA ELAINE BAILEY
Commission # GG 329959
Expires August 31, 2023
Bonded Thru Troy Fain Insurance 800-385-7019

Before me,

Attorney at Law/Notary Public
Print Name: Elaine Bailey
My Commission Expires: 8-31-23

Exhibit A

Certain lots or parcels of land, together with any building and improvement thereon, situated on the southeasterly side of Eastern Promenade, in the City of Portland, Cumberland County, State of Maine, bounded and described as follows:

PARCEL ONE:

A certain lot or parcel of land, with the buildings thereon, situated on the southeasterly side of the Eastern Promenade in said Portland, and bounded and described as follows, viz: Beginning on said side of said Eastern Promenade at the northeasterly corner of land now or formerly of Henry F. Merrill, and running thence southeasterly by said Merrill land and land of Portland Company two hundred fifty-five (255) feet, more or less, to land conveyed by John G. Munroe and others to the Portland Company by deed dated January 5, 1904, and recorded in Cumberland County Registry of Deeds, Book 765, Page 307; thence northeasterly by said land conveyed to said Portland Company as aforesaid one hundred (100) feet to other land now or formerly of Henry F. Merrill; thence northwesterly on a line parallel with the first described course two hundred fifty-five (255) feet, more or less, to said Eastern Promenade; thence southwesterly by said Eastern Promenade one hundred (100) feet to the place of beginning.

PARCEL TWO:

Beginning at a point on the southeasterly side of said Eastern Promenade at the northwesterly corner of land of Walter W. Duffett and thirty-six (36) feet southwesterly from the dividing line between the land now or formerly of Walter W. Duffett and the land now or formerly of William Curtis; thence southwesterly by said Eastern Promenade, forty-nine (49) feet, more or less, to land formerly belonging to one Monroe; thence southeasterly by said Monroe's land seventy (70) feet, more or less, to land now or formerly of Cyrus Cole; thence northeasterly by said Cole's land, forty-nine (49) feet, more or less, to said Duffett's land; thence northwesterly by said Duffett's land, seventy (70) feet, more or less, to the point begun at.

PARCEL THREE:

Beginning at a point in a southeasterly direction from the Eastern Promenade in the northeasterly side line of land now or formerly owned by heirs of J. Monroe, and distant one hundred and sixty-two (162) feet from the point of intersection of said side line of the Monroe land with the southeasterly side line of said Eastern Promenade, and from this point extending in a northeasterly direction about fifty (50) feet along the northwesterly side line of land sold to Henry Merrill et als. by deed dated June 29, 1898, recorded in Cumberland Registry of Deeds in Book 661, Page 176, and to the southwesterly side of land sold to Walter W. Duffett by deed dated June 29, 1898, recorded in said Registry of Deeds in Book 661, Page 175; thence by said southwesterly side line of the land so conveyed to Walter W. Duffett and by land now or

formerly of Mary Duffett to the southeasterly side line of land now or formerly of one Clark: thence by the said southeasterly side line of land now or formerly of said Clark, and by said line extended, to the said northeasterly side line of said Monroe land; thence by said Monroe land, in a southeasterly direction to the point of beginning.

Received
Recorded Register of Deeds
Dec 30,2021 03:33:48P
Cumberland County
Jessica M. Spaulding

SHORT FORM QUITCLAIM DEED WITH COVENANT
DLN: 1002040119134

CPB2 I LLC (formerly known as **CPB2 LLC**), a Delaware limited liability company, with a mailing address of 254 Commercial Street, Suite 118, Portland, Maine 04101 (the "Grantor"), FOR CONSIDERATION PAID, grants to **PF LAND LLC**, a Maine limited liability company, with a mailing address of 254 Commercial Street, Suite 118, Portland, Maine 04101 (the "Grantee"), with QUITCLAIM COVENANT, certain real property, together with any improvements thereon, situated southerly of Fore Street, in the City of Portland, County of Cumberland and State of Maine, more particularly described on **Exhibit A** attached hereto and made a part hereof (the "Property").

Being a portion of the property described in the following deeds: (i) Quitclaim Deed with Covenant from 100 Fore Street, LLC dated April 10, 2019 and recorded in the Cumberland County Registry of Deeds in Book 35576, Page 153; (ii) Quitclaim Deed with Covenant from the City of Portland to CPB2 I LLC dated November 2, 2018 and recorded in the Cumberland County Registry of Deeds in Book 35264, Page 286; (iii) Quitclaim Deed with Covenant from The Portland Company to CPB2 LLC dated April 1, 2014 and recorded in the Cumberland County Registry of Deeds in Book 31425, Page 267; and (iv) Trustee's Deed from Elizabeth M. Sprague, Eric Thomas Sprague and Phineas M. Sprague, Trustees of the Buena Vista Trust, to CPB2 LLC dated July 19, 2013 and recorded in the Cumberland County Registry of Deeds in Book 30879, Page 75.

IN WITNESS WHEREOF, CPB2 I LLC has caused this instrument to be executed by Casey W. Prentice, Manager of CPB2 Management LLC, Manager of CPB2 I LLC, thereunto duly authorized, as of this 4th day of November 2020.

WITNESS:

Richard D Prentice

Name: Richard D Prentice

CPB2 I LLC
By: CPB2 Management LLC, Manager

By: _____
Casey W. Prentice, Manager

13531538.3
12481681.4.4.3.3.2

State of Maine
County of Cumberland, ss. November 3, 2020

PERSONALLY APPEARED the above-named Casey W. Prentice, Manager of CPB2 Management LLC, Manager of CPB2 I LLC, as aforesaid, and acknowledged the foregoing instrument to be his free act and deed in his said capacity and the free act and deed of said limited liability companies.

Before me,

Notary ~~Public~~/Attorney at Law
Print Name: Tom S. Hanson
Commission Expires: N/A

13531538.3
12481681.4.4.3.3.2

EXHIBIT A

A CERTAIN LOT OR PARCEL OF LAND WITH THE BUILDING THEREON SITUATED ON THE SOUTHERLY SIDE OF FORE STREET IN THE CITY OF PORTLAND, COUNTY OF CUMBERLAND AND STATE OF MAINE BOUNDED AND DESCRIBED AS FOLLOWS:

BEGINNING AT THE NORTHERLY CORNER OF LAND NOW OR FORMERLY OF 100 FORE STREET LLC AS DESCRIBED IN DEED BOOK 33748, PAGE 1 ON THE SOUTHEASTERLY SIDELINE OF FORE STREET AT AN IRON ROD FOUND;

THENCE, N 76°17'54"E ALONG THE SOUTHEASTERLY SIDELINE OF SAID FORE STREET 287.55 FEET;

THENCE, N 37°34'49"E CONTINUING ALONG THE SOUTHEASTERLY SIDELINE OF FORE STREET 734.45 FEET;

THENCE, N 45°16'49"E CONTINUING ALONG THE SOUTHEASTERLY SIDELINE OF FORE STREET 43.36 FEET TO THE SOUTHWESTERLY CORNER OF LAND NOW OR FORMERLY OF KENNETH & CAROLL MACGOWAN AS DESCRIBED IN DEED BOOK 15773, PAGE 153;

THENCE, S 47°03'11"E ALONG THE SOUTHERLY LINE OF SAID MACGOWEN 150.00 FEET;

THENCE, N 45°16'49"E ALONG THE EASTERLY LINE OF LAND OF MACGOWEN 112.00 FEET TO THE SOUTHERLY LINE OF LAND NOW OR FORMERLY OF TIMOTHY HALEY, TRUSTEE AS DESCRIBED IN DEED BOOK 24759, PAGE 67 & 69;

THENCE, ALONG THE LAND OF SAID HALEY THE FOLLOWING COURSES AND DISTANCES:

S 47°03'11"E A DISTANCE OF 110.28 FEET;

N 47°33'49"E A DISTANCE OF 100.00 FEET;

N 47°03'11"W A DISTANCE OF 95.88 FEET;

N 53°46'39"E A DISTANCE OF 49.73 FEET TO THE SOUTHERLY LINE OF LAND NOW OR FORMERLY OF PORTLAND HOUSE CONDOMINIUM AS SHOWN ON PLAN BOOK 142, PAGE 50;

THENCE, S 47°03'07"E ALONG THE SOUTHERLY LINE OF LAND OF SAID PORTLAND HOUSE CONDOMINIUM 240.48 FEET TO THE NORTHWESTERLY LINE OF LAND NOW OR FORMERLY OF STATE OF MAINE KNOWN AS THE RAIL-TRAIL CORRIDOR AT AN IRON ROD FOUND;

THENCE, S 47°33'49"W ALONG THE NORTHWESTERLY LINE OF LAND OF SAID STATE OF MAINE 685.00 FEET;

THENCE, S 52°46'49"W CONTINUING ALONG THE NORTHWESTERLY LINE OF LAND OF STATE OF MAINE 442.91 FEET TO THE LAND NOW OR FORMERLY OF CITY OF PORTLAND AS DESCRIBED IN DEED BOOK 10924, PAGE 84;

THENCE, S 57°47'32" W ALONG LAND OF SAID CITY OF PORTLAND 11.22 FEET TO A POINT OF CURVATURE;

THENCE, SOUTHWESTERLY CONTINUING ALONG LAND OF SAID CITY OF PORTLAND ALONG A CURVE TO THE LEFT, HAVING A RADIUS OF 466.50 FEET, AN ARC LENGTH OF 133.12 FEET, CHORD BEARING OF S 49°37'02" W AND CHORD LENGTH OF 132.67 FEET;

THENCE, S 41°26'32" W CONTINUING ALONG LAND OF THE CITY OF PORTLAND 17.92 FEET TO THE LAND NOW OR FORMERLY OF SAID STATE OF MAINE;

THENCE, S 46°01'18" W ALONG LAND OF STATE OF MAINE 31.95 FEET TO THE LAND OF CITY OF PORTLAND;

THENCE, N 52°05'24" W ALONG LAND OF CITY OF PORTLAND 97.53 FEET TO A POINT OF CURVATURE;

THENCE, NORTHWESTERLY ALONG LAND OF CITY OF PORTLAND ALONG A CURVE TO THE RIGHT HAVING A RADIUS OF 370.00 FEET, AN ARC LENGTH OF 47.73 FEET, CHORD BEARING OF N 48°23'40" W AND CHORD LENGTH OF 47.70 FEET TO THE SOUTHERLY LINE OF LAND OF SAID 100 FORE STREET LLC;

THENCE, NORTHWESTERLY ALONG THE EASTERLY LINE OF SAID 100 FORE STREET, LLC ALONG A CURVE TO THE RIGHT HAVING A RADIUS OF 370.00 FEET, AN ARC LENGTH OF 13.77 FEET, CHORD BEARING OF N 43°37'59" W AND CHORD LENGTH OF 13.77 FEET;

THENCE, N 42°34'01" W CONTINUING ALONG THE EASTERLY LINE OF 100 FORE STREET LLC 68.76 FEET;

THENCE, NORTHWESTERLY CONTINUING ALONG THE EASTERLY LINE OF 100 FORE STREET, LLC ALONG A CURVE TO THE RIGHT HAVING A RADIUS OF 370.24 FEET, AN ARC LENGTH OF 134.07 FEET, CHORD BEARING OF N 32°11'34" W AND CHORD LENGTH OF 133.34 FEET;

THENCE, NORTHWESTERLY CONTINUING ALONG THE EASTERLY LINE OF 100 FORE STREET, LLC ALONG A CURVE TO THE RIGHT HAVING A RADIUS OF 274.33 FEET, AN ARC LENGTH OF 13.01 FEET, CHORD BEARING OF N 20°51'48" W AND CHORD LENGTH OF 13.01 FEET TO THE SOUTHERLY SIDELINE OF SAID FORE STREET AT THE POINT OF BEGINNING.

13531538.3
12481681.4.4.3.3.2

BEARING ARE BASED ON MAINE STATE PLANE COORDINATE SYSTEM WEST ZONE NAD 83.

EXCEPTING FROM THE ABOVE DESCRIBED PARCEL, THE LAND CONVEYED BY CBP2 1 LLC TO PF ONE DEVCO LLC BY DEED OF EVEN DATE TO BE RECORDED IN THE CUMBERLAND COUNTY REGISTRY OF DEEDS CONTEMPORANEOUSLY WITH THIS DEED

REFERENCE IS MADE TO THAT CERTAIN PLAN ENTITLED "ALTA/NSPS LAND TITLE SURVEY, 58 FORE STREET, PORTLAND, CUMBERLAND COUNTY, MAINE, MADE FOR PF ONE DEVCO LLC & PF LAND LLC", DATED MARCH 4, 2020 AND REVISED THOUGH NOVEMBER 2, 2020, PREPARED BY OWEN HASKELL, INC., JOB NO. 2019-013P.

THE PROPERTY IS CONVEYED SUBJECT TO AND WITH THE BENEFIT OF CERTAIN INTERESTS, RIGHTS, EASEMENTS, CONDITIONS, COVENANTS, RESTRICTIONS AND ENCUMBRANCES AS MORE FULLY SET FORTH IN THAT CERTAIN DECLARATION OF RESTRICTIONS, EASEMENTS AND AGREEMENTS BY CPB2 I LLC OF NEAR OR EVEN DATE HEREWITH, AND TO BE RECORDED IN THE CUMBERLAND COUNTY REGISTRY OF DEEDS BEFORE THE RECORDING OF THIS DEED.

THE PROPERTY IS CONVEYED TOGETHER WITH THAT CERTAINREVOCABLE ACCESS LICENSE BY AND BETWEEN THE CITY OF PORTLAND, PF ONE DEVCO LLC, PF LAND LLC AND PF MARINA LLC OF NEAR OR EVEN DATE HEREWITH, TO BE RECORDED IN THE CUMBERLAND COUNTY REGISTRY OF DEEDS AT OR NEAR THE DATE OF THIS DEED.

THIS CONVEYANCE IS ALSO MADE SUBJECT TO ALL OTHER EASEMENTS, CONDITIONS, COVENANTS AND RESTRICTIONS OF RECORD.

MAINE REAL ESTATE TAX-Paid

QUITCLAIM DEED WITHOUT COVENANT
DLN: 1002140132239

PF LAND LLC, a Delaware limited liability company, with a mailing address of 254 Commercial Street, Suite 118, Portland, Maine 04101 (the "Grantor"), FOR CONSIDERATION PAID, grants to **PF ONE DEVCO LLC**, a Delaware limited liability company, with a mailing address of 254 Commercial Street, Suite 118, Portland, Maine 04101 (the "Grantee"), certain real property, together with any improvements thereon, situated southerly of Fore Street, in the City of Portland, County of Cumberland and State of Maine, more particularly described on **Exhibit A** attached hereto and made a part hereof.

Being a portion of the property conveyed to Grantor by deed from CPB2 I LLC dated November 4, 2020 and recorded in the Cumberland County Registry of Deeds in Book 37397, Page 78.

IN WITNESS WHEREOF, PF Land LLC has caused this instrument to be executed by Casey W. Prentice, Manager, thereunto duly authorized, this 11th day of February, 2021, as of

WITNESS:

Name:

PF LAND LLC

By:
Casey W. Prentice, Manager

State of Maine
County of Cumberland, ss.

February 9, 2021

PERSONALLY APPEARED the above-named Casey W. Prentice, Manager of PF Land LLC, and acknowledged that the foregoing instrument to be his free act and deed in his said capacity and the free act and deed of said limited liability company.

Before me,

Notary Public/Attorney at Law
Print Name: William M. Welch
Commission Expires:

13531538.3
12722943.2

DOC :11203 BK:37821 PG:161
RECEIVED - RECORDED, CUMBERLAND COUNTY REGISTER OF DEEDS
02/17/2021, 10:57:49A
Register of Deeds Nancy A. Lane E-RECORDED

EXHIBIT A

A CERTAIN LOT OR PARCEL OF LAND SITUATED ON THE SOUTHERLY SIDE OF, BUT NOT ADJACENT TO FORE STREET IN THE CITY OF PORTLAND, COUNTY OF CUMBERLAND AND STATE OF MAINE BOUNDED AND DESCRIBED AS FOLLOWS:

BEGINNING AT THE SOUTHERLY CORNER OF LAND OF PARCEL 1C AS SHOWN ON PLAN TITLED "SUBDIVISION PLAT PORTLAND FORESIDE THAMES STREET & FORE STREET PORTLAND, MAINE MADE FOR OWNER OF RECORD CPB2 I LLC" BY OWEN HASKELL, INC. DATED FEB. 13, 2020, RECORDED IN THE CUMBERLAND COUNTY REGISTRY OF DEEDS IN PLAN BOOK 220, PAGE 65;

THENCE, S 57°47'32" W A DISTANCE OF 10.19 FEET;

THENCE, ALONG A CURVE TO THE LEFT HAVING A RADIUS OF 466.50 FEET, AN ARC LENGTH OF 1.10 FEET, A CHORD BEARING OF S 57°43'29" W AND CHORD DISTANCE OF 1.10 FEET;

THENCE, N 49°28'50" W THROUGH REMAINING LAND BY DEVELOPER A DISTANCE OF 19.41 FEET;

THENCE, N 40°31'10" E CONTINUING THROUGH REMAINING LAND BY DEVELOPER A DISTANCE OF 38.71 FEET TO SAID PARCEL 1C;

THENCE, S 53°28'50" E ALONG PARCEL 1C A DISTANCE OF 9.05 FEET;

THENCE, S 40°31'10" W ALONG PARCEL 1C A DISTANCE OF 28.56 FEET;

THENCE, S 49°28'50" E ALONG PARCEL 1C A DISTANCE OF 13.73 FEET TO THE POINT OF BEGINNING, CONTAINING 482 S.F. MORE OR LESS.

BEARING ARE BASED ON MAINE STATE PLANE COORDINATE SYSTEM WEST ZONE NAD 83.

3. FINANCIAL CAPACITY

3.1 FINANCING

A copy of a letter verifying the Applicant's financial capacity to undertake the project is attached to this Section.

3.2 CERTIFICATE OF GOOD STANDING

A copy of the Secretary of State's Certificate of Good Standing for Portland Foreside Management Company, LLC (the Applicant) is attached to this Section.

3.3 LIST OF ATTACHMENTS

- Financial Capacity Letter; and
- Certificate of Good Standing.

September 14, 2022

PF One Devco, LLC
Portland Foreside Development Company
Casey Prentice
Kevin Costello
254 Commercial Street,
Portland, ME 02101

To: City of Portland

From: Rose M. Buckley, Senior Vice President
Rockland Trust Company

Rockland Trust Company has and will provide funding for the construction at 58 Fore Street, Portland ME. Rockland Trust is funding the construction of the Sun Life Building and has provided funding for Building 12 occupied by Twelve Restaurant.

Rockland Trust looks forward to working with Portland Foreside Development Company in the future.

Please contact me at 781-982-6165 with any questions.

Best regards,
ROCKLAND TRUST COMPANY

By: Rose M. Buckley
Rose M. Buckley, Senior Vice President

Member FDIC

EQUAL HOUSING LENDER

State of Maine

Department of the Secretary of State

I, the Secretary of State of Maine, certify that according to the provisions of the Constitution and Laws of the State of Maine, the Department of the Secretary of State is the legal custodian of the Great Seal of the State of Maine which is hereunto affixed and that the paper to which this is attached is a true copy from the records of this Department.

In testimony whereof, I have caused the Great Seal of the State of Maine to be hereunto affixed. Given under my hand at Augusta, Maine, this twenty-ninth day of September 2022.

Shenna Bellows

Shenna Bellows

Secretary of State

Additional Addresses

Legal Name	Title	Name	Charter #	Status
PF LAND LLC	Registered Agent	HELEN STERLING COBURN, ESQ.	20200853FC	GOOD STANDING

Home Office Address (of foreign entity)	Other Mailing Address
PO BOX 7987 PORTLAND, ME 04112	BERNSTEIN SHUR, 100 MIDDLE STREET PORTLAND, ME 04101

State of Maine

Department of the Secretary of State

I, the Secretary of State of Maine, certify that according to the provisions of the Constitution and Laws of the State of Maine, the Department of the Secretary of State is the legal custodian of the Great Seal of the State of Maine which is hereunto affixed and that the paper to which this is attached is a true copy from the records of this Department.

In testimony whereof, I have caused the Great Seal of the State of Maine to be hereunto affixed. Given under my hand at Augusta, Maine, this twenty-ninth day of September 2022.

Shenna Bellows

Shenna Bellows

Secretary of State

Additional Addresses

Legal Name	Title	Name	Charter #	Status
PF MARINA LLC	Registered Agent	HELEN STERLING COBURN, ESQ.	20183084DC	GOOD STANDING

Home Office Address (of foreign entity)	Other Mailing Address
	100 MIDDLE STREET WEST TOWER PORTLAND, ME 04101

4. TECHNICAL ABILITY

The project team includes the following partners completing various engineering, landscape architecture, and architecture components of the project work. Copies of resumes can be provided upon request.

Woodard & Curran (W&C), an over 1,000-person Portland-based firm, has provided engineering services to the public and private sector for over 40 years, including permitting, civil/site engineering, stormwater, and construction management services. W&C has completed projects for colleges, universities, and healthcare institutions that build strong, sustainable infrastructure and environmental programs serving both their business needs and the communities that make them so vibrant. With extensive experience in design and permitting for site development projects, W&C has completed many projects within the City of Portland and for the University of Maine System.

MBLA is a professional design firm located in Freeport, Maine. MBLA practices nationally and internationally, and over the past twenty-eight years, the office has collaborated on diverse and notable projects, located in a wide range of settings and climates and across the state of Maine. MBLA projects range in scale and complexity including plazas, courtyards, university building projects, private school facilities, master plans, museums, churches, resorts, parks, and residential landscape projects. Many of MBLA's design projects have focused on creating places for people to gather while addressing issues of circulation, security, and programming.

Perkins+Will architects is a firm consisting of twenty-four domestic and international offices with a depth of technical and management skill employed to execute projects of great complexity. Perkins+Will maintains a full-time QA/QC leader in each office to provide ongoing quality assurance for projects. These experts are guided by a national project delivery system that has resulted from the best practices from around the firm.

Baskervill, founded in 1897, is one of the nation's oldest continually operating architectural firms. With five offices along the east coast of the United States, and internationally, Baskervill is a multi-disciplinary design firms with a mix of services from architecture and interior design to MEP engineering and sustainable design.

5. NOISE

The noise impact from the proposed development will be minor. The primary source of noise from the proposed project will be the result of construction. Construction activities will be limited to the hours permitting by the City. HVAC and primary mechanical equipment will be located and screened to mitigate noise impacts. Noise associated with the proposed development will not exceed regulated levels and is not anticipated to negatively impact surrounding development in its urban setting.

6. VISUAL QUALITY & SCENIC CHARACTER

As further described in the City of Portland Site Plan Application for the proposed development, the architecture and landscaping have been designed to be consistent with the scenic and historic character of the surrounding urban waterfront area. The Site Plan Application includes renderings showing how view corridors will be preserved. A Certificate of Appropriateness will also be obtained from the City of Portland Historic Preservation Board. It is not anticipated that the proposed development will result in any negative visual impacts.

7. WILDLIFE & FISHERIES

The Site has been previously developed and there are no known areas of significant natural features, including areas of significant wildlife habitats or wetlands. The attached Official Species List identifies the northern long-eared bat (threatened species), roseate tern (endangered species) and monarch butterfly (candidate species) in association with the project area; however, there are no critical habitat areas located within the project area. Based on US Fish & Wildlife information, the northern long-eared bat typically lives in caves during the winter months and in trees larger than three inches in diameter during the summer, with migration between these two habitats in the spring in the fall. Tree-clearing for this project will be minimal.

A letter was sent to the Maine Department of Inland Fisheries and Wildlife (MDIFW) requesting information regarding any known threatened or endangered species or critical habitat relative to the project area; a copy of their response letter is attached to this Section. It is not anticipated that the proposed development will have a negative impact on the northern long-eared bat, roseate tern or monarch butterfly.

7.1 LIST OF ATTACHMENTS

- Official Species List; and
- MDIFW Environmental Review Response Letter.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Maine Ecological Services Field Office
P. O. Box A
East Orland, ME 04431
Phone: (207) 469-7300 Fax: (207) 902-1588

In Reply Refer To:
Project Code: 2022-0086547
Project Name: 58 Fore Street

September 19, 2022

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological

evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts see https://www.fws.gov/birds/policies-and-regulations.php.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures see https://www.fws.gov/birds/bird-enthusiasts/threats-to-birds.php.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit https://www.fws.gov/birds/policies-and-regulations/executive-orders/e0-13186.php.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Maine Ecological Services Field Office
P. O. Box A
East Orland, ME 04431
(207) 469-7300

Project Summary

Project Code: 2022-0086547
Project Name: 58 Fore Street
Project Type: Mixed-Use Construction
Project Description: Development project at 58 Fore Street.
Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@43.663273149999995,-70.24280579125673,14z



Counties: Cumberland County, Maine

Endangered Species Act Species

There is a total of 3 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

---

1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Northern Long-eared Bat *Myotis septentrionalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Threatened

Birds

NAME	STATUS
Roseate Tern *Sterna dougallii dougallii* Population: Northeast U.S. nesting population No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/2083	Endangered

Insects

NAME	STATUS
Monarch Butterfly *Danaus plexippus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

IPaC User Contact Information

Agency: Woodard & Curran
Name: Amy LeBel
Address: 41 Hutchins Drive
City: Portland
State: ME
Zip: 04102
Email alebel@woodardcurran.com
Phone: 2075583841

JANET T. MILLS
GOVERNOR

STATE OF MAINE
DEPARTMENT OF
INLAND FISHERIES & WILDLIFE
353 WATER STREET
41 STATE HOUSE STATION
AUGUSTA ME 04333-0041

JUDITH CAMUSO
COMMISSIONER

October 11, 2022

Amy Lebel
Woodard & Curran
41 Hutchins Drive
Portland, ME 04101

RE: Information Request – 58 Fore Street Project, Portland,

Dear Amy:

Per your request received on October 03, 2022, we have reviewed current Maine Department of Inland Fisheries and Wildlife (MDIFW) information for known locations of Endangered, Threatened, and Special Concern species; designated Essential and Significant Wildlife Habitats; and inland fisheries habitat concerns within the vicinity of the *58 Fore Street Project* in Portland.

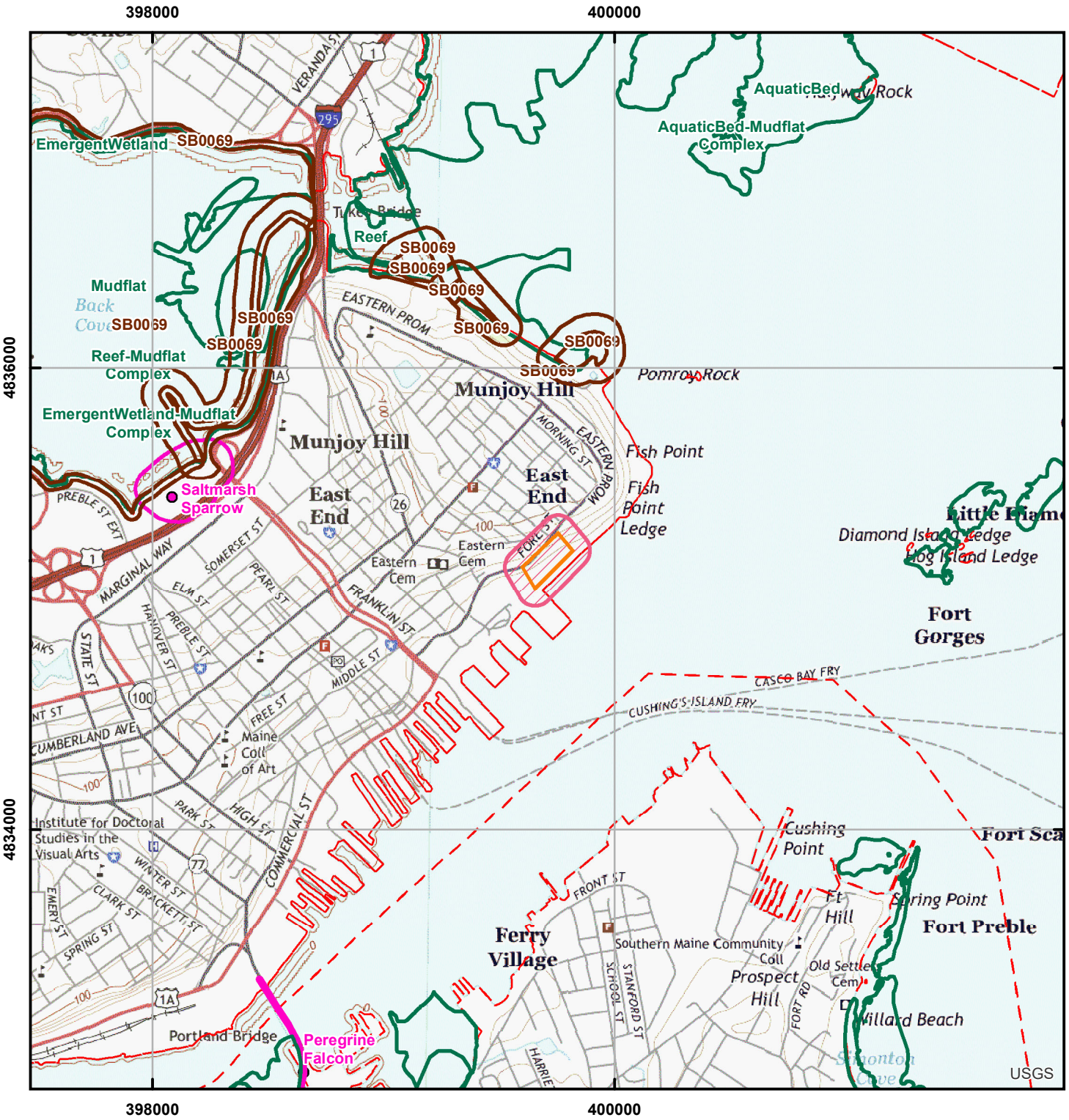
Our information indicates no locations of State-listed Endangered, Threatened, or Special Concern species within the project area that would be affected by your project. Additionally, our Department has not mapped any Essential or Significant Wildlife Habitats or inland fisheries habitats that would be directly affected by your project.

This consultation review has been conducted specifically for known MDIFW jurisdictional features and should not be interpreted as a comprehensive review for the presence of other regulated features that may occur in this area. Prior to the start of any future site disturbance, we recommend additional consultation with the municipality, and other state resource agencies including the Maine Natural Areas Program, Maine Department of Marine Resources, and Maine Department of Environmental Protection in order to avoid unintended protected resource disturbance.

Please feel free to contact my office if you have any questions regarding this information, or if I can be of any further assistance.

Best regards,

Becca Settele
Wildlife Biologist



Environmental Review of Fish and Wildlife Observations and Priority Habitats

Project Name: Portland, 58 Fore Street (Version 2)

Miles

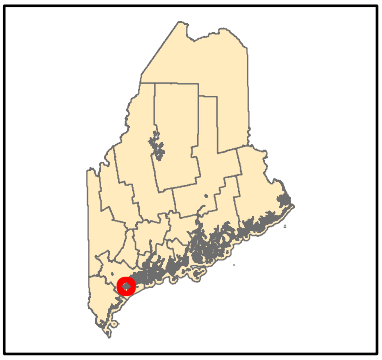
0 0.125 0.25 0.5 0.75 1

Projection: UTM, NAD83, Zone 19N

Date: 10/3/2022

Maine Department of Inland Fisheries and Wildlife

- ProjectSearchAreas - All Versions
- Maine Cliff and Talus Areas
- Deer Winter Area
- LUPC p-fw
- Cooperative DWAs
- Seabird Nesting Islands
- Shorebird Areas
- Inland Waterfowl and Wading Bird
- 2008 Iwwh - Shoreland Zoning
- Tidal Waterfowl and Wading Bird
- Significant Vernal Pools
- Environmental Review Polygons
- Roseate Tern
- Piping Plover and Least Tern
- Aquatic ETSc - 2.5 mi review
- Rare Mussels - 5 mi review
- Maine Heritage Fish Waters
- Arctic Charr Habitat
- Redfin Pickerel and Swamp Darter Habitats - buffer100ft
- Special Concern occupied habitats - 100ft buffer
- Wild Lake Trout Habitats



8. HISTORIC SITES

A letter has been sent to the Maine Historic Preservation Commission (MHPC) requesting a review of the project area relative to historic properties; a copy of this letter is attached to this Section for your reference. A copy of the MHPC response can be provided upon receipt. Portions of the site are also being reviewed by the City of Portland's Historic Preservation Board. A Certificate of Appropriateness has been received for Phase 1 buildings (Building 12, the Block 2 historic core of buildings and Building 1A) and will soon be started for buildings on Blocks 4 and 6.

8.1 LIST OF ATTACHMENTS

- MHPC Project Review Request Letter.

41 Hutchins Drive
Portland, Maine 04102
www.woodardcurran.com

T 800.426.4262
T 207.774.2112
F 207.774.6635

September 29, 2022

Kirk F. Mohney, Director
Maine Historic Preservation Commission
55 Capitol Street, 65 State House Station
Augusta, Maine 04333-0065

Re: Portland Foreside Development Blocks 4 & 6 – Project Review Request

Dear Mr. Mohney:

Portland Foreside Development Company (PFDC) is proposing to develop Blocks 4 and 6 of the mixed-use development to be located at 58 Fore Street in Portland, Maine. The property was previously developed as the Portland Company Complex, which contained various industrial uses. Some of the existing buildings located within the project area have previously been demolished. Current conditions consist primarily of paved and gravel areas, with some areas of sparse vegetation. The proposed work includes the following:

- Construction of a structured parking garage with overlying rental apartments, townhouses, and condominiums and ground-level retail and restaurant spaces on Blocks 4 and 6;
- Construction of a shared street, public plazas, landscaping, and site utilities; and
- Interim surface improvements and stormwater management on Blocks 2 and 5.

The proposed work will require a Maine Department of Environmental Protection Site Location of Development Permit Amendment, which requires coordination with the Maine Historic Preservation Commission. On behalf of PFDC, we are requesting review of the project area relative to historic properties. A USGS topographic map and site plan are attached for your reference. The project is located within a historic district and approval for the proposed work will be obtained from the City of Portland Historic Preservation Commission.

We appreciate your review of this project. If you have any questions regarding this information or the proposed project, please do not hesitate to contact me at 207-558-3841 or alebel@woodardcurran.com. Thank you for your assistance.

Sincerely,

WOODARD & CURRAN

Amy LeBel, P.E.
Project Engineer

Enclosures: USGS Map w/Photo Key
Design Drawings

Cc: MaineDEP

9. UNUSUAL NATURAL AREAS

The Site has been previously developed and there are no known unusual natural areas. A letter was sent to the Maine Natural Areas Program (MNAP) requesting a review of the Site relative to rare and exemplary botanical features; a copy of their response letter is attached to this Section.

9.1 LIST OF ATTACHMENTS

- MNAP Site Review Response Letter.

STATE OF MAINE
DEPARTMENT OF AGRICULTURE, CONSERVATION & FORESTRY
177 STATE HOUSE STATION
AUGUSTA, MAINE 04333

JANET T. MILLS
GOVERNOR

AMANDA E. BEAL
COMMISSIONER

October 5, 2022

Amy LeBel
Woodard & Curran
41 Hutchins Drive
Portland, ME 04102

Via email: alebel@woodardcurran.com

Re: Rare and exemplary botanical features in proximity to: 58 Fore Street Mixed-Use Development, Blocks 4 and 6, Portland, Maine

Dear Ms. LeBel:

I have searched the Maine Natural Areas Program's Biological and Conservation Data System files in response to your request received September 29, 2022 for information on the presence of rare or unique botanical features documented from the vicinity of the project in Portland, Maine. Rare and unique botanical features include the habitat of rare, threatened, or endangered plant species and unique or exemplary natural communities. Our review involves examining maps, manual and computerized records, other sources of information such as scientific articles or published references, and the personal knowledge of staff or cooperating experts.

Our official response covers only botanical features. For authoritative information and official response for zoological features you must make a similar request to the Maine Department of Inland Fisheries and Wildlife, 284 State Street, Augusta, Maine 04333.

According to the information currently in our Biological and Conservation Data System files, there are no rare botanical features documented specifically within the project area. Based on the information in our files and the landscape context of this project, there is a low probability that rare or significant botanical features occur at this project location.

This finding is available and appropriate for preparation and review of environmental assessments, but it is not a substitute for on-site surveys. Comprehensive field surveys do not exist for all natural areas in Maine, and in the absence of a specific field investigation, the Maine Natural Areas Program cannot provide a definitive statement on the presence or absence of unusual natural features at this site.

The Maine Natural Areas Program (MNAP) is continuously working to achieve a more comprehensive database of exemplary natural features in Maine. We would appreciate the contribution of any information obtained should you decide to do field work. MNAP welcomes coordination with individuals or organizations proposing environmental alteration, or conducting environmental assessments. If, however, data provided by MNAP are to be published in any form, the Program should be informed at the outset and credited as the source.

MOLLY DOCHERTY, DIRECTOR
MAINE NATURAL AREAS PROGRAM
90 BLOSSOM LANE, DEERING BUILDING

PHONE: (207) 287-8044
WWW.MAINE.GOV/DACF/MNAP

The Maine Natural Areas Program has instituted a fee structure of $75.00 an hour to recover the actual cost of processing your request for information. You will receive an invoice for $150.00 for two hours of our services.

Thank you for using MNAP in the environmental review process. Please do not hesitate to contact me if you have further questions about the Natural Areas Program or about rare or unique botanical features on this site.

Sincerely,

Lisa St. Hilaire

Lisa St. Hilaire | Information Manager | Maine Natural Areas Program
207-287-8044 | lisa.st.hilaire@maine.gov

10. BUFFERS

The Site has been previously developed. There are no existing or proposed buffers. This Section is not applicable.

11. SOILS

Copies of the United States Department of Agriculture Natural Resources Conservation Service Web Soil Survey and the Geotechnical Report prepared for the Site are attached to this Section for your reference. Environmental assessments of the Site have been conducted and the Owner is a participant in the Maine Department of Environmental Protection Voluntary Response Action Program (VRAP). A soil management plan will be developed for the site.

11.1 LIST OF ATTACHMENTS

- United States Department of Agriculture Natural Resources Conservation Service Web Soil Survey

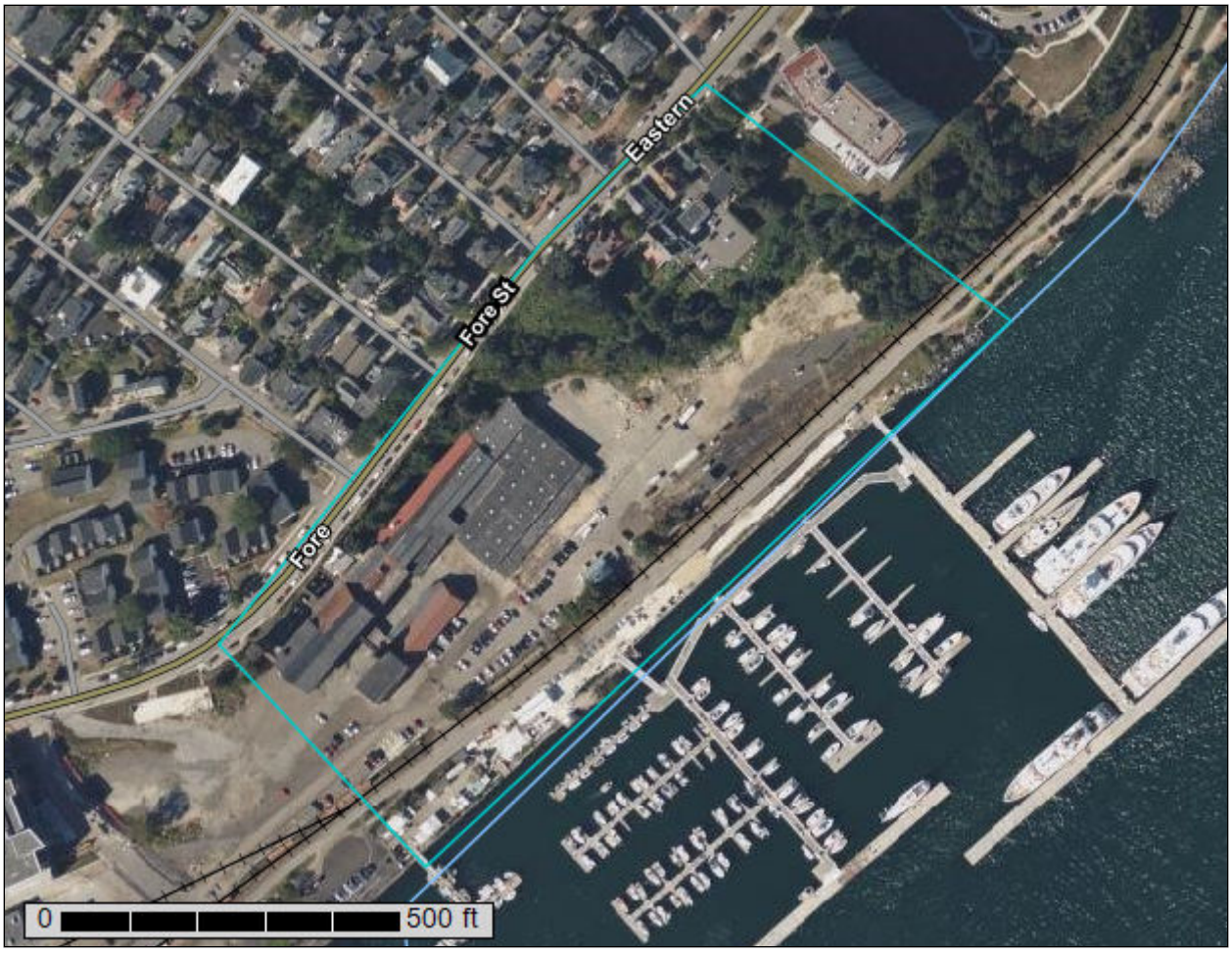
United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Cumberland County and Part of Oxford County, Maine



September 19, 2022

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.


70° 14' 48" W
70° 14' 19" W
399490
399560
399630
399700
399770
399840
399910
399980
400050
400120
43° 39' 54" N
43° 39' 40" N
4835400
4835330
4835260
4835190
4835120
4835050
HIC
HIB
HID
HIB
Cu
W
Hoyts Ln
Fore St
Adams St
Munjoy S
Fore
Soil Map may not be valid at this scale.
Map Scale: 1:2,970 if printed on A landscape (11" x 8.5") sheet.
N
Meters
0 40 80 160 240
Feet
0 100 200 400 600
Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Cumberland County and Part of Oxford County, Maine
Survey Area Data: Version 18, Aug 31, 2021

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jun 19, 2020—Sep 20, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background

MAP LEGEND

MAP INFORMATION

imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Cu	Cut and fill land	8.9	65.7%
HIB	Hinckley loamy sand, 3 to 8 percent slopes	0.8	6.1%
HIC	Hinckley loamy sand, 8 to 15 percent slopes	0.0	0.1%
HID	Hinckley loamy sand, 15 to 25 percent slopes	2.5	18.7%
W	Water	1.3	9.4%
Totals for Area of Interest		**13.6**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Cumberland County and Part of Oxford County, Maine

Cu—Cut and fill land

Map Unit Composition

Cut and fill land: 90 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Cut And Fill Land

Typical profile

H1 - 0 to 65 inches: very gravelly sandy loam

Properties and qualities

Slope: 0 to 35 percent
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to very high (0.06 to 20.00 in/hr)
Depth to water table: About 24 to 42 inches
Available water supply, 0 to 60 inches: Moderate (about 6.6 inches)

HlB—Hinckley loamy sand, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2svm8
Elevation: 0 to 1,430 feet
Mean annual precipitation: 36 to 53 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 240 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Hinckley and similar soils: 85 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hinckley

Setting

Landform: Outwash plains, eskers, moraines, kame terraces, kames, outwash terraces, outwash deltas
Landform position (two-dimensional): Summit, shoulder, backslope, footslope
Landform position (three-dimensional): Nose slope, side slope, base slope, crest, riser, tread
Down-slope shape: Concave, convex, linear
Across-slope shape: Convex, linear, concave
Parent material: Sandy and gravelly glaciofluvial deposits derived from gneiss and/or granite and/or schist

Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material
A - 1 to 8 inches: loamy sand
Bw1 - 8 to 11 inches: gravelly loamy sand

Bw2 - 11 to 16 inches: gravelly loamy sand
BC - 16 to 19 inches: very gravelly loamy sand
C - 19 to 65 inches: very gravelly sand

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to very high (1.42 to 99.90 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Very low (about 3.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3s
Hydrologic Soil Group: A
Ecological site: F144AY022MA - Dry Outwash
Hydric soil rating: No

HIC—Hinckley loamy sand, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: 2svm9
Elevation: 0 to 1,480 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition

Hinckley and similar soils: 85 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hinckley

Setting

Landform: Kame terraces, outwash plains, kames, eskers, moraines, outwash terraces, outwash deltas
Landform position (two-dimensional): Shoulder, backslope, footslope, toeslope
Landform position (three-dimensional): Head slope, nose slope, side slope, crest, riser
Down-slope shape: Concave, convex, linear
Across-slope shape: Convex, linear, concave
Parent material: Sandy and gravelly glaciofluvial deposits derived from gneiss and/or granite and/or schist

Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material
A - 1 to 8 inches: loamy sand
Bw1 - 8 to 11 inches: gravelly loamy sand
Bw2 - 11 to 16 inches: gravelly loamy sand
BC - 16 to 19 inches: very gravelly loamy sand
C - 19 to 65 inches: very gravelly sand

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to very high (1.42 to 99.90 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 3.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: A
Ecological site: F144AY022MA - Dry Outwash
Hydric soil rating: No

HID—Hinckley loamy sand, 15 to 25 percent slopes

Map Unit Setting

National map unit symbol: 2svmc
Elevation: 0 to 1,460 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition

Hinckley and similar soils: 85 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hinckley

Setting

Landform: Outwash plains, eskers, moraines, outwash terraces, outwash deltas, kame terraces, kames
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Head slope, nose slope, side slope, crest, riser
Down-slope shape: Concave, convex, linear

Across-slope shape: Convex, linear, concave
Parent material: Sandy and gravelly glaciofluvial deposits derived from gneiss and/or granite and/or schist

Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material
A - 1 to 8 inches: loamy sand
Bw1 - 8 to 11 inches: gravelly loamy sand
Bw2 - 11 to 16 inches: gravelly loamy sand
BC - 16 to 19 inches: very gravelly loamy sand
C - 19 to 65 inches: very gravelly sand

Properties and qualities

Slope: 15 to 25 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to very high (1.42 to 99.90 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 3.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: A
Ecological site: F144AY022MA - Dry Outwash
Hydric soil rating: No

W—Water

Map Unit Composition

Water: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Water

Setting

Landform: Lakes

Soil Information for All Uses

Soil Properties and Qualities

The Soil Properties and Qualities section includes various soil properties and qualities displayed as thematic maps with a summary table for the soil map units in the selected area of interest. A single value or rating for each map unit is generated by aggregating the interpretive ratings of individual map unit components. This aggregation process is defined for each property or quality.

Soil Qualities and Features

Soil qualities are behavior and performance attributes that are not directly measured, but are inferred from observations of dynamic conditions and from soil properties. Example soil qualities include natural drainage, and frost action. Soil features are attributes that are not directly part of the soil. Example soil features include slope and depth to restrictive layer. These features can greatly impact the use and management of the soil.

Hydrologic Soil Group

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

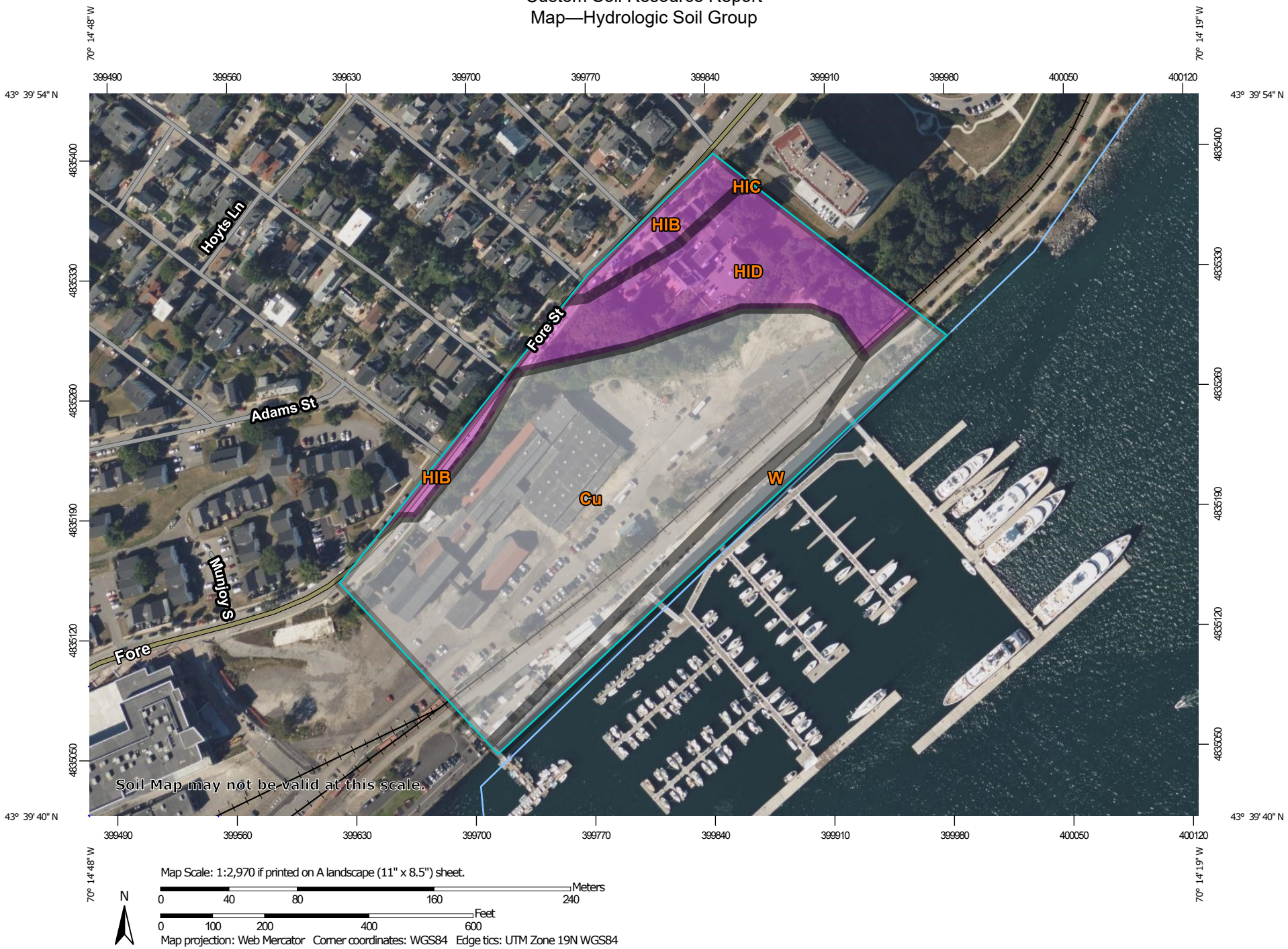
Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.


70° 14' 48" W
70° 14' 19" W
399490
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399840
399910
399980
400050
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43° 39' 54" N
43° 39' 40" N
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4835330
4835260
4835190
4835120
4835050
HIC
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Adams St
Munjoy S
Fore
Soil Map may not be valid at this scale.
Map Scale: 1:2,970 if printed on A landscape (11" x 8.5") sheet.
N
Meters
0 40 80 160 240
Feet
0 100 200 400 600
Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Cumberland County and Part of Oxford County, Maine
Survey Area Data: Version 18, Aug 31, 2021

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jun 19, 2020—Sep 20, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background

MAP LEGEND

MAP INFORMATION

imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Table—Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
Cu	Cut and fill land		8.9	65.7%
HIB	Hinckley loamy sand, 3 to 8 percent slopes	A	0.8	6.1%
HIC	Hinckley loamy sand, 8 to 15 percent slopes	A	0.0	0.1%
HID	Hinckley loamy sand, 15 to 25 percent slopes	A	2.5	18.7%
W	Water		1.3	9.4%
Totals for Area of Interest			**13.6**	**100.0%**

Rating Options—Hydrologic Soil Group

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

References

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Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. September 18, 2002. Hydric soils of the United States.

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United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2_054242

United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053624

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12. STORMWATER MANAGEMENT

The attached Stormwater Management Plan describes the proposed stormwater management measures for the project, as shown on the design drawings attached to Section 1 of this Report. A USGS map and a soils map are attached to Section 1 and Section 11 of this Report, respectively.

12.1 LIST OF ATTACHMENTS

- Stormwater Management Plan (Bound Separately)

13. URBAN IMPAIRED STREAM

The proposed development is not located within the watershed of an Urban Impaired Stream; the Urban Impaired Stream Standard does not apply.

14. BASIC STANDARD

The proposed development is adjacent to the Fore River; there are no other known protected resources associated with the Site. As shown by the soil survey attached to Section 11 of this Report, the Site is comprised primarily of urban fill. The Soil Erosion and Sediment Control Plan and compliance with the Basic Standard is described in the Stormwater Management provided as part of Section 12 of this Report.

During construction, the Contractor will be responsible for conducting inspections in accordance with the attached *Stormwater Erosion & Sediment Control Inspection Report Form* (or equivalent). Inspections shall be performed at least once a week, as well as before and after storm events. A person with knowledge of stormwater management and erosion and sediment control, including the standards and conditions of the permit approvals, shall conduct the inspections and perform maintenance of the facilities. If maintenance or modifications are necessary, implementation will be completed within seven days and prior to any rainfall event. After construction, the Owner will be responsible for inspecting and maintaining the Site's stormwater system.

14.1 LIST OF ATTACHMENTS

- Erosion & Sediment Control Inspection Report Form.

EROSION & SEDIMENT CONTROL
INSPECTION REPORT FORM

Inspectors: Date: ___ / ___ / _____

_____ of _____ (Project Owner)
_____ of _____ (Contractor)
_____ of _____
_____ of _____

Storm Event? ☐ Yes ☐ No Rainfall Amount _____ Storm Duration _____ hours

Visual Observations of Activity and Site Conditions:

Disturbed Soil Areas:

Storage Of Soils:

Sediment & Erosion Control Measures:

Construction Site Entrance:

Surface Stabilization:

Corrective Action Taken:

Attachments (if any):

Signature:

Name Title Date

15. GROUNDWATER

The proposed development is not located within a Significant Sand and Gravel Aquifer; as previously noted, the Site is comprised primarily of urban fill. Environmental assessments of the Site have been conducted and the Owner is a participant in the Maine Department of Environmental Protection Voluntary Response Action Program (VRAP). The proposed development will not infiltrate to or extract groundwater and is not anticipated to produce any hazardous waste. It is not anticipated that the proposed development will result in any impacts to groundwater.

16. WATER SUPPLY

The proposed development will be provided with both fire protection water service and domestic water service as shown on the drawings via a private water system that will connect to the public water main on Fore Street. Woodard & Curran is working directly with the Portland Water District to determine the appropriate design for this work. An ability to serve determination will be provided upon receipt.

17. WASTEWATER DISPOSAL

The proposed development will be provided with sanitary sewer service as shown on the drawings. The private system on the site will include a combination of gravity sewer and forcemain with a pump station that will discharge to the sewer on the Thames Street Extension. The existing sewer service on Fore Street will be abandoned. The proposed development will include restaurants, kitchens, and parking garages; grease traps and oil/water separators will be provided as shown on the drawings. Woodard & Curran is working directly with the City of Portland to determine the appropriate design for this work. A Wastewater Capacity Application is being submitted to the City under separate cover as part of the Site Plan Application for the proposed development. A copy of the City's determination will be provided upon receipt.

18. SOLID WASTE

18.1 SOLID WASTE

All solid waste materials and recyclables from the proposed development will be transported and disposed of or recycled in accordance with applicable laws and regulations.

18.2 CONSTRUCTION & DEMOLITION DEBRIS

The proposed development will generate construction waste and demolition debris (CDD). The Contractor will be responsible for properly disposing of the CDD. The Contractor will be responsible for handling, managing, and disposing of all waste generated by construction in accordance with the Maine Solid Waste Management Regulations and all other applicable local, state, and federal regulations.

18.3 SPECIAL & HAZARDOUS WASTE

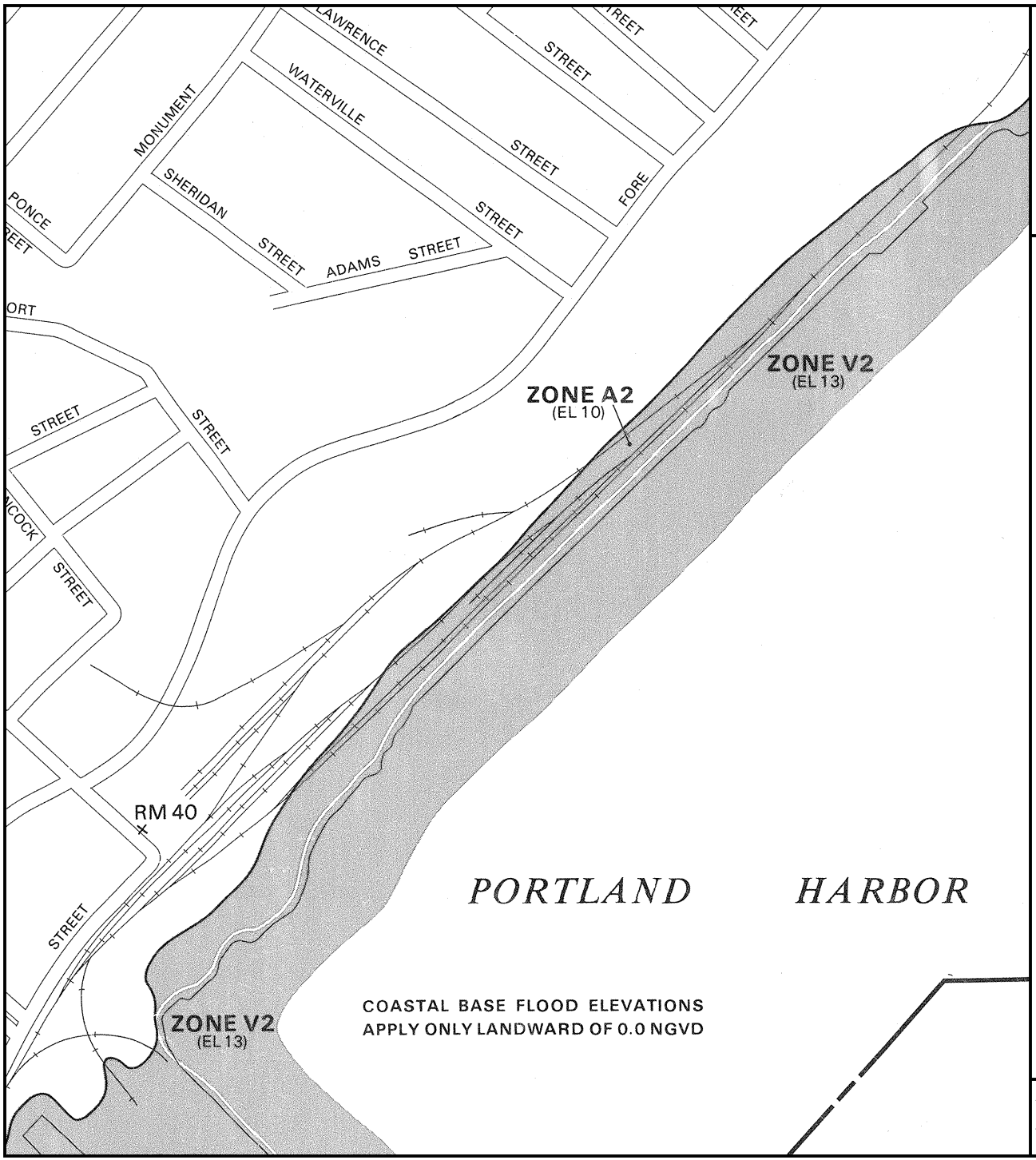
The proposed development is not anticipated to produce any hazardous waste. Environmental assessments of the Site have been conducted and the Owner is a participant in the Maine Department of Environmental Protection Voluntary Response Action Program (VRAP). A soil management plan will be developed for the site to address management of "urban fill" special waste anticipated to be encountered during the construction process.

19. FLOODING

Portland Foreside has submitted and received approval of two Letters of Map Amendment (LOMA), removing the site's developed area from the floodplain. As a result, a Flood Hazard Permit is not required as part of this project's permit review. A copy of the FEMA Flood Insurance Rate Map and LOMA documentation is attached.

19.1 LIST OF ATTACHMENTS

- FEMA Flood Insurance Rate Map;
- LOMA documentation.



This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov



SCALE : 1" = 50'

0' 25' 50' 100'

Utility Note

THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. THE SURVEYOR MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES. CALL 1-888-DIGSAFE AT LEAST THREE BUSINESS DAYS BEFORE PERFORMING ANY CONSTRUCTION. DUE TO OSHA CONFINED SPACE REQUIREMENTS, ALL INVERTS AND PIPE SIZES MUST BE VERIFIED PRIOR TO ANY CONSTRUCTION.

Area to be Removed from Flood Zone AE

A CERTAIN LOT OR PARCEL OF LAND ON THE SOUTHERLY SIDE OF, BUT NOT ADJACENT TO FORE STREET IN THE CITY OF PORTLAND, COUNTY OF CUMBERLAND AND STATE OF MAINE BOUNDED AND DESCRIBED AS FOLLOWS:

BEGINNING ON THE NORTHERLY LINE OF LAND NOW OR FORMERLY OF STATE OF MAINE AS DESCRIBED IN DEED BOOK 10924, PAGE 91 AT THE SOUTHWESTERLY CORNER OF LAND NOW OR FORMERLY OF PORTLAND HOUSE CONDOMINIUM AS SHOWN ON PLAN BOOK 142, PAGE 50;

THENCE, S 47°33'49" W ALONG THE NORTHELRY LINE OF SAID STATE OF MAINE 685.00 FEET;

THENCE, S 52°46'49" W CONTINUING ALONG THE NORTHELRY LINE OF STATE OF MAINE 272.75 FEET TO THE NORTHERLY LIMIT OF FLOOD ZONE A2 (EL 10) AS SCALED FROM FEMA FLOOD INSURANCE RATE MAP NO. 230051-0014B;

THENCE, THE FOLLOWING COURSES AND DISTANCES ALONG THE NORTHERLY LIMIT OF SAID FLOOD ZONE A2:

N 18°22'51" E A DISTANCE OF 26.60 FEET;
N 48°05'42" E A DISTANCE OF 204.67 FEET;
N 50°41'38" E A DISTANCE OF 184.50 FEET;
N 45°09'56" E A DISTANCE OF 136.93 FEET;
N 47°53'09" E A DISTANCE OF 144.17 FEET;
N 39°47'45" E A DISTANCE OF 121.02 FEET;
N 60°27'17" E A DISTANCE OF 116.02 FEET;
N 44°32'44" E A DISTANCE OF 28.73 FEET TO THE WESTERLY LINE OF LAND OF SAID PORTLAND HOUSE CONDOMINIUM;

THENCE, S 47°03'07" E ALONG PORTLAND HOUSE CONDOMINIUM 22.78 FEET TO THE POINT OF BEGINNING, CONTAINING 28,157 S.F. OR 0.65 ACRES, MORE OR LESS.

Plan References

1. *LAND TITLE SURVEY & SUBDIVISION PLAN IN PORTLAND, MAINE U.S.A. MADE FOR THE TRUST FOR PUBLIC LAND, THE CITY OF PORTLAND, THE MAINE DEPARTMENT OF TRANSPORTATION, THE CANADIAN NATIONAL RAILWAY COMPANY DATED FEB. 19, 1993, REV. 9 11/04/96 BY OWEN HASKELL, INC. AND RECORDED IN PLAN BOOK 193, PAGE 187.*

2. *RECORDING PLAT OCEAN GATEWAY MADE FOR THE CITY OF PORTLAND AND STATE OF MAINE, BY OWEN HASKELL, INC, DATED AUGUST 4, 2004, RECORDED IN PLAN BOOK 204, PAGE 622-624*

3. *BOUNDARY & TOPOGRAPHY SURVEY AT 58 FORE STREET, PORTLAND, MAINE MADE FOR WOODARD & CURRAN BY OWEN HASKELL, INC. AUGUST 29, 2016, REVISED THROUGH FEB. 2019.*

4. *EXHIBIT PLAN PARCELS TO BE CONVEYED 58 FORE STREET, PORTLAND, MAINE MADE FOR WOODARD & CURRAN BY OWEN HASKELL, INC. DATED MARCH 21, 2018.*

5. *TOPOGRAPHIC SURVEY 100 FORE STREET MADE FOR JONATHAN COHEN BY OWEN HASKELL, INC DATED DECEMBER 4, 2017 REVISED THROUGH 12/17/18.*

6. *AMENDED SUBDIVISION PLAN, OCEAN GATEWAY, COMMERCIAL STREET, THAMES STREET & FORE STREET, PORTLAND, MAINE MADE FOR OWNER OF RECORD CITY OF PORTLAND JULY 17, 2019 BY OWEN HASKELL.*

7. *SUBDIVISION PLAT PORTLAND FORESIDE THAMES STREET & FORE STREET PORTLAND, MAINE MADE FOR OWNER OF RECORD CPB2 I LLC, BY OWEN HASKELL, INC. DATED FEB. 13, 2020, RECORDED IN PLAN BOOK 220, PAGE 65.*

Flood Zone Note

BY GRAPHIC PLOTTING ONLY, THIS PROPERTY IS LOCATED IN ZONE C, AREAS OF MINIMUM FLOODING, ON THE FLOOD INSURANCE RATE MAP, COMMUNITY PANEL NO. 230051-0014B, WHICH BEARS AN EFFECTIVE DATE OF JULY 17, 1986. THE FEMA FIRM ZONE A2 FLOOD LINE IS DEMARKED ON THE PLAN BY THE ELEVATION 10 CONTOUR. ALL POINTS NORTH OF THIS CONTOUR ON THE SUBJECT PROPERTY EXCEEDS THIS ELEVATION AND THEREFORE FALL OUTSIDE OF THE A2 ZONE.

General Notes

1. OWNER OF RECORD: CPB2 I LLC, C.C.R.D. BOOK 31425 PAGE 267, BOOK 30879 PAGE 75, BOOK 35264, PAGE 286. SEE AFFIDAVIT RECORDED IN BOOK 34737 PAGE 327 FOR NAME CHANGE & CPB2 I LLC BOOK 35576 PAGE 153

2. PARCEL IS MADE UP OF LOTS A3, A1, PART OF A2 & PART OF A13 ON TAX MAP 18 AND LOT A3 & A16 ON TAX MAP 19 AS SHOWN ON THE OFFICIAL CITY OF PORTLAND TAX ASSESSORS MAPS.

3. BEARINGS ARE BASED ON MAINE STATE PLANE COORDINATES WEST ZONE NAD83. CITY POINTS: T-113-80-206 N:302687.77 E:2932345.31
T-113-12-111 N:302722.13 E:2933029.45

4. BENCH MARK: NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION (NOAA) - TIDAL BENCHMARK. BENCH MARK STAMPING: NO. 3 1971 ELEVATION 11.02 FEET NGVD 29 DATUM.

EXISTING CONDITIONS SURVEY

58 Fore Street
Portland, Cumberland County, Maine
Made For
PF One Devco LLC & PF Land LLC

Surveyor's Certification

OWEN HASKELL, INC. HEREBY CERTIFIES THAT THIS PLAN IS BASED ON, AND THE RESULT OF, AN ON THE GROUND FIELD SURVEY AND THAT TO THE BEST OF OUR KNOWLEDGE, INFORMATION AND BELIEF, IT CONFORMS TO THE BOARD OF LICENSURE FOR PROFESSIONAL LAND SURVEYORS CURRENT STANDARDS OF PRACTICE.

STATE OF MAINE
RANDY R. LOUBIER 2407
PROFESSIONAL LAND SURVEYOR

RANDY R. LOUBIER
PROFESSIONAL LAND SURVEYOR NO. 2407

DATE OF PLAT OR MAP: NOVEMBER 5, 2020
REVISED THROUGH: NOVEMBER 17, 2020

OWEN HASKELL, INC.
PROFESSIONAL LAND SURVEYORS
390 U.S. ROUTE ONE, UNIT 10, FALMOUTH, MAINE 04105
Tel. (207) 774-0424 www.owenhaskell.com rloubier@owenhaskell.com

DRAWN BY: RRL / JLW	FIELD BOOK: FILE	JOB NO.	2019-013 P
CHECKED BY: RRL/SDG	SCALE: 1" = 50'	DRWG. # LOMA	

Federal Emergency Management Agency
Washington, D.C. 20472

MR. RANDY LOUBIER
OWEN HASKELL
390 U.S. ROUTE 1 UNIT 10
FALMOUTH, ME 04105

CASE NO.: 21-01-0177A
COMMUNITY: CITY OF PORTLAND,
CUMBERLAND COUNTY, MAINE
COMMUNITY NO.: 230051

DEAR MR. LOUBIER:

This is in reference to a request that the Federal Emergency Management Agency (FEMA) determine if the property described in the enclosed document is located within an identified Special Flood Hazard Area, the area that would be inundated by the flood having a 1-percent chance of being equaled or exceeded in any given year (base flood), on the effective National Flood Insurance Program (NFIP) map. Using the information submitted and the effective NFIP map, our determination is shown on the attached Letter of Map Amendment (LOMA) Determination Document. This determination document provides additional information regarding the effective NFIP map, the legal description of the property and our determination.

Additional documents are enclosed which provide information regarding the subject property and LOMAs. Please see the List of Enclosures below to determine which documents are enclosed. Other attachments specific to this request may be included as referenced in the Determination/Comment document. If you have any questions about this letter or any of the enclosures, please contact the FEMA Map Assistance Center toll free at (877) 336-2627 (877-FEMA MAP) or by letter addressed to the Federal Emergency Management Agency, Attn: North Wind Resource Partners (NWRP) eLOMA Coordinator, NWRP eLOMA Coordinator, 3601 Eisenhower Ave., Alexandria, VA 22304-6439, Fax: 703-751-7415.

Sincerely,

Luis V. Rodriguez, P.E., Director
Engineering and Modeling Division
Federal Insurance and Mitigation Administration

LIST OF ENCLOSURES:
LOMA DETERMINATION DOCUMENT (REMOVAL)

cc: State/Commonwealth NFIP Coordinator
Community Map Repository
Region

Federal Emergency Management Agency

Washington, D.C. 20472

LETTER OF MAP AMENDMENT
DETERMINATION DOCUMENT (REMOVAL)

COMMUNITY AND MAP PANEL INFORMATION		LEGAL PROPERTY DESCRIPTION
COMMUNITY	CITY OF PORTLAND, CUMBERLAND COUNTY, MAINE	A parcel of land, as described in the Quitclaim Deed with Covenant recorded as Document No. 13675 in Book 31425, Pages 267, 268, and 269; and in the Trustee's Deed recorded as Document No. 45157 in Book 30879, Pages 75 through 79; both deeds in the Office of the Register of Deeds, Cumberland County, Maine
	COMMUNITY NO: 230051	
AFFECTED MAP PANEL	NUMBER: 2300510014B	The portion of property is more particularly described by the following metes and bounds:
	DATE: 7/17/1986	
FLOODING SOURCE: PORTLAND HARBOR; CASCO BAY		APPROXIMATE LATITUDE & LONGITUDE OF PROPERTY: 43.662943, -70.242677 SOURCE OF LAT & LONG: GPS DATUM: NAD 83

DETERMINATION

LOT	BLOCK/ SECTION	SUBDIVISION	STREET	OUTCOME WHAT IS REMOVED FROM THE SFHA	FLOOD ZONE	1% ANNUAL CHANCE FLOOD ELEVATION (NGVD 29)	LOWEST ADJACENT GRADE ELEVATION (NGVD 29)	LOWEST LOT ELEVATION (NGVD 29)
--	--	--	58 Fore Street	Portion of Property	C	--	--	12.0 feet

Special Flood Hazard Area (SFHA) - The SFHA is an area that would be inundated by the flood having a 1-percent chance of being equaled or exceeded in any given year (base flood).

ADDITIONAL CONSIDERATIONS (Please refer to the appropriate section on Attachment 1 for the additional considerations listed below.)

LEGAL PROPERTY DESCRIPTION
PORTIONS REMAIN IN THE SFHA/FLOODWAY
eLOMA DETERMINATION

This document provides the Federal Emergency Management Agency's determination regarding a request for a Letter of Map Amendment for the property described above. Using the information submitted and the effective National Flood Insurance Program (NFIP) map, we have determined that the described portion(s) of the property(ies) is/are not located in the SFHA, an area inundated by the flood having a 1-percent chance of being equaled or exceeded in any given year (base flood). This document amends the effective NFIP map to remove the subject property from the SFHA located on the effective NFIP map; therefore, the Federal mandatory flood insurance requirement does not apply. However, the lender has the option to continue the flood insurance requirement to protect its financial risk on the loan. A Preferred Risk Policy (PRP) is available for buildings located outside the SFHA. Information about the PRP and how one can apply is enclosed.

This determination is based on the flood data presently available. If there are any errors on this eLOMA Determination Letter that cause FEMA to rescind and/or nullify the determination the property owner should consult the Licensed Professional that submitted this eLOMA. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Assistance Center toll free at (877) 336-2627 (877-FEMA MAP) or by letter addressed to the Federal Emergency Management Agency, Attn: North Wind Resource Partners (NWRP) eLOMA Coordinator, 3601 Eisenhower Avenue, Alexandria, VA 22304-4605, Fax: 703-751-7415.

Luis V. Rodriguez, P.E., Director
Engineering and Modeling Division
Federal Insurance and Mitigation Administration

eLOMA

Federal Emergency Management Agency
Washington, D.C. 20472

LETTER OF MAP AMENDMENT
DETERMINATION DOCUMENT (REMOVAL)

ATTACHMENT 1 (ADDITIONAL CONSIDERATIONS)

LEGAL PROPERTY DESCRIPTION (CONTINUED)

BEGINNING ON THE NORTHERLY LINE OF LAND NOW OR FORMERLY OF STATE OF MAINE AS DESCRIBED IN DEED BOOK 10924, PAGE 91 AT THE SOUTHWESTERLY CORNER OF LAND NOW OR FORMERLY OF PORTLAND HOUSE CONDOMINIUM AS SHOWN ON PLAN BOOK 142, PAGE 50; THENCE S47°33'49"W, ALONG THE NORTHERLY LINE OF SAID STATE OF MAINE 685.00 FEET; THENCE S52°46'49"W, CONTINUING ALONG THE NORTHERLY LINE OF STATE OF MAINE 272.75 FEET; THENCE N18°22'51"E, A DISTANCE OF 26.60 FEET; THENCE N48°05'42"E, A DISTANCE OF 204.67 FEET; THENCE N50°41'38"E, A DISTANCE OF 184.50 FEET; THENCE N45°09'56"E, A DISTANCE OF 136.93 FEET; THENCE N47°53'09"E, A DISTANCE OF 144.17 FEET; THENCE N39°47'45"E, A DISTANCE OF 121.02 FEET; THENCE N60°27'17"E, A DISTANCE OF 116.02 FEET; THENCE N44°32'44"E, A DISTANCE OF 28.73 FEET TO THE WESTERLY LINE OF LAND OF SAID PORTLAND HOUSE CONDOMINIUM; THENCE S47°03'07"E, ALONG PORTLAND HOUSE CONDOMINIUM 22.78 FEET TO THE POINT OF BEGINNING.

This attachment provides additional information regarding this request. If you have any questions about this attachment, please contact the FEMA Map Assistance Center toll free at (877) 336-2627 (877-FEMA MAP) or by letter addressed to the Federal Emergency Management Agency, Attn: North Wind Resource Partners (NWRP) eLOMA Coordinator, NWRP eLOMA Coordinator, 3601 Eisenhower Ave., Alexandria, VA 22304-6439, Fax: 703-751-7415

Luis V. Rodriguez, P.E., Director
Engineering and Modeling Division
Federal Insurance and Mitigation Administration

Federal Emergency Management Agency

Washington, D.C. 20472

LETTER OF MAP AMENDMENT
DETERMINATION DOCUMENT (REMOVAL)

ATTACHMENT 1 (ADDITIONAL CONSIDERATIONS)

Portion of Property Removal:

The following considerations may or may not apply to the determination for your Portion of Property:

PORTIONS OF THE PROPERTY REMAIN IN THE SFHA and/or FLOODWAY - Portions of this property, but not the subject of the Determination document, may remain in the Special Flood Hazard Area (SFHA) and/or the regulatory floodway for the flooding source indicated on the Determination Document. The NFIP regulatory floodway is the area that must remain unobstructed in order to prevent unacceptable increases in base flood elevations. Therefore, no construction may take place in an NFIP regulatory floodway that may cause an increase in the base flood elevation. Therefore, any future construction or substantial improvement on the property remains subject to Federal, State/Commonwealth, and local regulations for floodplain management. The NFIP regulatory floodway is provided to the community as a tool to regulate floodplain development. Modifications to the NFIP regulatory floodway must be accepted by both the Federal Emergency Management Agency (FEMA) and the community involved. Appropriate community actions are defined in Paragraph 60.3(d) of the NFIP regulations. Any proposed revision to the NFIP regulatory floodway must be submitted to FEMA by community officials. The community should contact either the Regional Director (for those communities in Regions I-IV, and VI-X), or the Regional Engineer (for those communities in Region V) for guidance on the data which must be submitted for a revision to the NFIP regulatory floodway. Contact information for each regional office can be obtained by calling the FEMA Map Assistance Center toll free at (877) 336-2627 (877-FEMA MAP) or from our web site at https://www.fema.gov/regional-contact-information

STUDY UNDERWAY - This determination is based on the flood data presently available. However, the Federal Emergency Management Agency may be currently revising the National Flood Insurance Program (NFIP) map for the community. New flood data could be generated that may affect this property. If a new NFIP map is issued it will supersede this determination. The Federal requirement for the purchase of flood insurance will then be based on the newly revised NFIP map.

EXTRATERRITORIAL JURISDICTION - The subject of the determination is shown on the National Flood Insurance Program map and may be located in an Extraterritorial Jurisdiction area for the community indicated on the Determination Document.

This attachment provides additional information regarding this request. If you have any questions about this attachment, please contact the FEMA Map Assistance Center toll free at (877) 336-2627 (877-FEMA MAP) or by letter addressed to the Federal Emergency Management Agency, Attn: North Wind Resource Partners (NWRP) eLOMA Coordinator, NWRP eLOMA Coordinator, 3601 Eisenhower Ave., Alexandria, VA 22304-6439, Fax: 703-751-7415

Luis V. Rodriguez, P.E., Director
Engineering and Modeling Division
Federal Insurance and Mitigation Administration

eLOMA

Federal Emergency Management Agency

Washington, D.C. 20472

LETTER OF MAP AMENDMENT
DETERMINATION DOCUMENT (REMOVAL)

ATTACHMENT 1 (ADDITIONAL CONSIDERATIONS)

GREAT LAKES - The Federal Emergency Management Agency (FEMA) has based this determination on elevation data which is published in the current Flood Insurance Study for the community. However, the elevations established in the U.S. Army Corps of Engineers (USACE) reports on the Great Lakes are the best available data known to us. If in the future there are any subsequent map revisions to the National Flood Insurance Program map and the USACE reports remain the best available data known, FEMA will use those elevations for any such revisions. Further, be advised that the elevations on the Flood Insurance Rate Map (FIRM) may only reflect the Stillwater elevation for the lake and may not account for the effects of wind driven waves or wave run-up. On-site conditions such as wind speed, wind direction, fetch distance, water depth and the slope of the beach or bluff may result in significant increases to the base flood elevation. Therefore, it is strongly recommended that the requestor be aware of these circumstances and, if warranted, evaluate the effects of wind driven waves along the shoreline of the property.

STATE AND LOCAL CONSIDERATIONS - Please note that this document does not override or supersede any State or local procedural or substantive provisions which may apply to floodplain management requirements associated with amendments to State or local floodplain zoning ordinances, maps, or State or local procedures adopted under the National Flood Insurance Program.

COASTAL BARRIER RESOURCE SYSTEM - Based upon information provided to FEMA by the U.S. Fish and Wildlife Service (USFWS), the subject property may be within a System Unit or an Otherwise Protected Area (OPA) of the John H. Chafee Coastal Barrier Resource System (CBRS). Federal flood insurance is generally not available within the CBRS for new construction or substantial improvements occurring after the flood insurance prohibition date (which is generally tied to the date that the area was first established as either a System Unit or OPA, but may differ in some cases). Other federal expenditures and financial assistance (including certain types of disaster assistance) are also restricted within System Units of the CBRS. The USFWS is the authoritative source for information regarding the CBRS. Additional information, including the CBRS Mapper, can be found on the USFWS website at: https://www.fws.gov/cbra.

This attachment provides additional information regarding this request. If you have any questions about this attachment, please contact the FEMA Map Assistance Center toll free at (877) 336-2627 (877-FEMA MAP) or by letter addressed to the Federal Emergency Management Agency, Attn: North Wind Resource Partners (NWRP) eLOMA Coordinator, NWRP eLOMA Coordinator, 3601 Eisenhower Ave., Alexandria, VA 22304-6439, Fax: 703-751-7415

Luis V. Rodriguez, P.E., Director
Engineering and Modeling Division
Federal Insurance and Mitigation Administration

Federal Emergency Management Agency

Washington, D.C. 20472

ADDITIONAL INFORMATION REGARDING LETTERS OF MAP AMENDMENT

When making determinations on requests for Letters of Map Amendment (LOMAs), the Department of Homeland Security's Federal Emergency Management Agency (FEMA) bases its determination on the flood hazard information available at the time of the determination. Requesters should be aware that flood conditions may change or new information may be generated that would supersede FEMA's determination. In such cases, the community will be informed by letter.

Requesters also should be aware that removal of a property (parcel of land or structure) from the Special Flood Hazard Area (SFHA) means FEMA has determined the property is not subject to inundation by the flood having a 1-percent chance of being equaled or exceeded in any given year (base flood). This does not mean the property is not subject to other flood hazards. The property could be inundated by a flood with a magnitude greater than the base flood or by localized flooding not shown on the effective National Flood Insurance Program (NFIP) map.

The effect of a LOMA is it removes the Federal requirement for the lender to require flood insurance coverage for the property described. The LOMA *is not* a waiver of the condition that the property owner maintain flood insurance coverage for the property. *Only* the lender can waive the flood insurance purchase requirement because the lender imposed the requirement. *The property owner must request and receive a written waiver from the lender before canceling the policy*. The lender may determine, on its own as a business decision that it wishes to continue the flood insurance requirement to protect its financial risk on the loan.

The LOMA provides FEMA's comment on the mandatory flood insurance requirements of the NFIP as they apply to a particular property. A LOMA is not a building permit, nor should it be construed as such. Any development, new construction, or substantial improvement of a property impacted by a LOMA must comply with all applicable State and local criteria and other Federal criteria.

If a lender releases a property owner from the flood insurance requirement, and the property owner decides to cancel the policy and seek a refund, the NFIP will refund the premium paid for the current policy year, provided that no claim is pending or has been paid on the policy during the current policy year. The property owner must provide a written waiver of the insurance requirement from the lender to the property insurance agent or company servicing his or her policy. The agent or company will then process the refund request.

Even though structures are not located in an SFHA, as mentioned above, they could be flooded by a flooding event with a greater magnitude than the base flood. In fact, more than 25 percent of all claims paid by the NFIP are for policies for structures located outside the SFHA in Zones B, C, X (shaded), or X (unshaded). More than one-fourth of all policies purchased under the NFIP protect structures located in these zones. The risk to structures located outside SFHAs is just not as great as the risk to structures located in SFHAs. Finally, approximately 90 percent of all federally declared disasters are caused by flooding, and homeowners insurance does not provide financial protection from this flooding. Therefore, FEMA encourages the widest possible coverage under the NFIP.

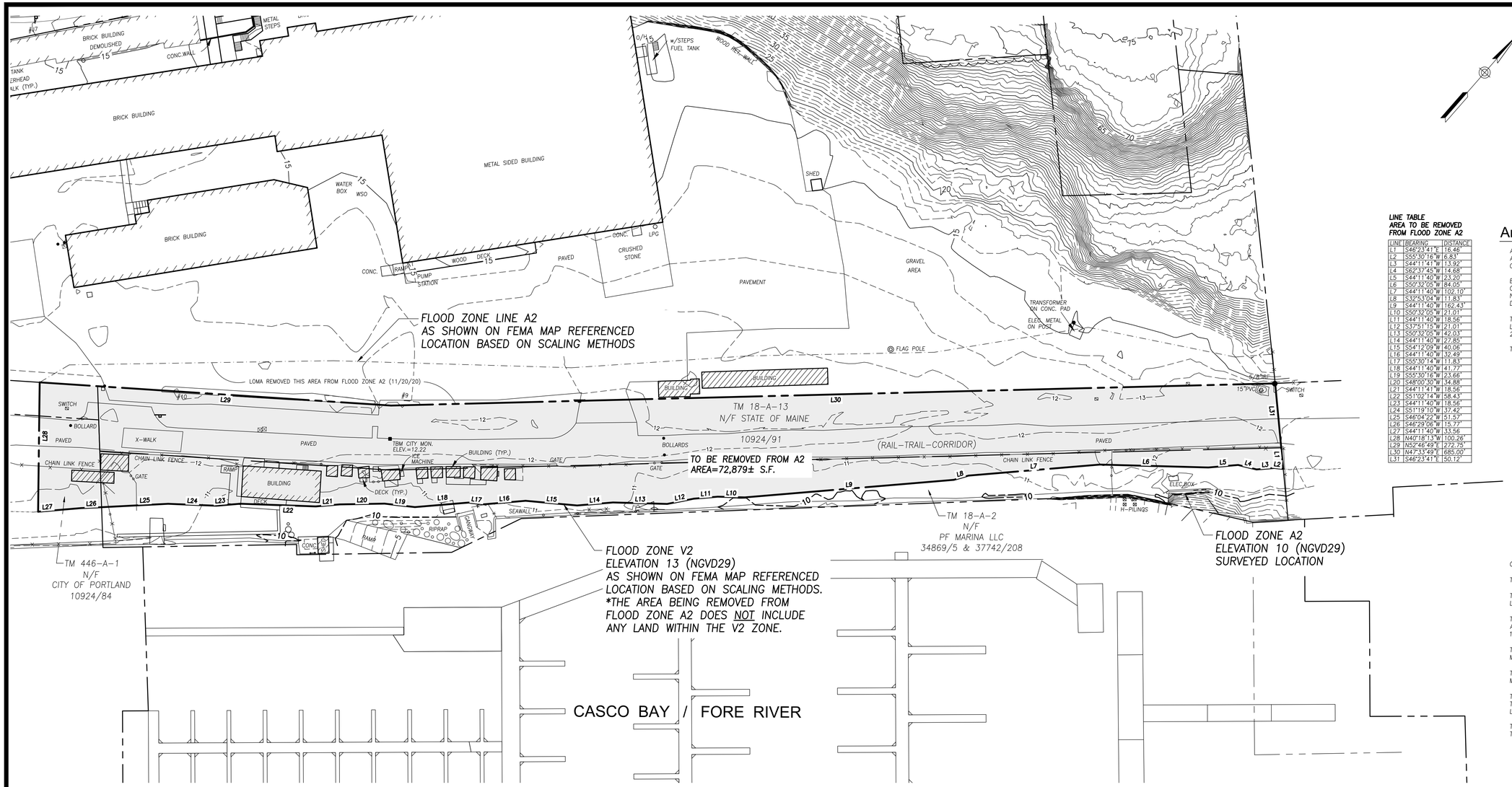
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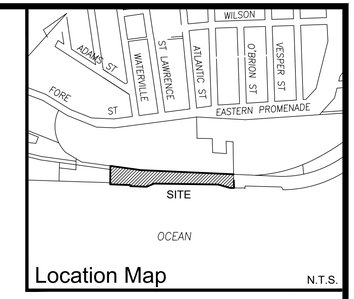
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Location Map N.T.S.

LINE TABLE
AREA TO BE REMOVED FROM FLOOD ZONE A2

LINE	BEARING	DISTANCE
L1	S46°23'41"E	16.46'
L2	S55°30'16"W	6.83'
L3	S44°11'41"W	13.92'
L4	S62°37'45"W	14.68'
L5	S44°11'40"W	23.20'
L6	S50°32'05"W	84.05'
L7	S44°11'40"W	102.10'
L8	S32°53'04"W	11.83'
L9	S44°11'40"W	162.43'
L10	S50°32'05"W	21.01'
L11	S44°11'40"W	18.56'
L12	S37°51'15"W	21.01'
L13	S50°32'05"W	42.03'
L14	S44°11'40"W	27.85'
L15	S54°12'09"W	40.06'
L16	S44°11'40"W	32.49'
L17	S55°30'14"W	11.83'
L18	S44°11'40"W	41.77'
L19	S55°30'16"W	23.66'
L20	S48°00'30"W	34.88'
L21	S44°11'41"W	18.56'
L22	S51°02'14"W	58.43'
L23	S44°11'40"W	18.56'
L24	S51°19'10"W	37.42'
L25	S46°04'22"W	51.57'
L26	S46°29'06"W	15.77'
L27	S44°11'40"W	33.56'
L28	N40°18'13"W	100.26'
L29	N52°46'49"E	272.75'
L30	N47°33'49"E	685.00'
L31	S46°23'41"E	50.12'

Area to be Removed from Flood Zone A2

A CERTAIN LOT OR PARCEL OF LAND ON THE SOUTHERLY SIDE OF, BUT NOT ADJACENT TO FORE STREET IN THE CITY OF PORTLAND, COUNTY OF CUMBERLAND AND STATE OF MAINE BOUNDED AND DESCRIBED AS FOLLOWS:

BEGINNING ON THE SOUTHERLY LINE OF LAND NOW OR FORMERLY OF STATE OF MAINE AS DESCRIBED IN DEED BOOK 10924, PAGE 91 AT THE NORTHWESTERLY CORNER OF LAND NOW OR FORMERLY OF PF MARINA, LLC AS DESCRIBED IN DEED BOOK 37742, PAGE 208;

THENCE, S 46°23'41" E A DISTANCE OF 16.46 FEET TO THE V2 FLOOD ZONE LINE AS SHOWN ON THE FLOOD INSURANCE RATE MAP, COMMUNITY PANEL NO. 230051-0014B;

THENCE, THE FOLLOWING COURSES AND DISTANCES ALONG SAID V2 ZONE:

S 55°30'16" W A DISTANCE OF 6.83 FEET;
S 44°11'41" W A DISTANCE OF 13.92 FEET;
S 62°37'45" W A DISTANCE OF 14.68 FEET;
S 44°11'40" W A DISTANCE OF 23.20 FEET;
S 50°32'05" W A DISTANCE OF 84.05 FEET;
S 44°11'40" W A DISTANCE OF 102.10 FEET;
S 32°53'04" W A DISTANCE OF 11.83 FEET;
S 44°11'40" W A DISTANCE OF 162.43 FEET;
S 50°32'05" W A DISTANCE OF 21.01 FEET;
S 44°11'40" W A DISTANCE OF 18.56 FEET;
S 37°51'15" W A DISTANCE OF 21.01 FEET;
S 50°32'05" W A DISTANCE OF 42.03 FEET;
S 44°11'40" W A DISTANCE OF 27.85 FEET;
S 54°12'09" W A DISTANCE OF 40.06 FEET;
S 44°11'40" W A DISTANCE OF 32.49 FEET;
S 55°30'14" W A DISTANCE OF 11.83 FEET;
S 44°11'40" W A DISTANCE OF 41.77 FEET;
S 55°30'16" W A DISTANCE OF 23.66 FEET;
S 48°00'30" W A DISTANCE OF 34.88 FEET;
S 44°11'41" W A DISTANCE OF 18.56 FEET;
S 51°02'14" W A DISTANCE OF 58.43 FEET;
S 44°11'40" W A DISTANCE OF 18.56 FEET;
S 51°19'10" W A DISTANCE OF 37.42 FEET;
S 46°04'22" W A DISTANCE OF 51.57 FEET TO LAND NOW OR FORMERLY OF CITY OF PORTLAND AS DESCRIBED IN DEED BOOK 10924, PAGE 84;
THENCE, S 46°29'06" W CONTINUING ALONG THE SAID V2 ZONE AND THROUGH LAND OF SAID CITY OF PORTLAND A DISTANCE OF 15.77 FEET;

THENCE, S 44°11'40" W CONTINUING ALONG THE SAID V2 ZONE AND THROUGH LAND OF CITY OF PORTLAND A DISTANCE OF 33.56 FEET;

THENCE, N 40°18'13" W CONTINUING THROUGH LAND OF CITY OF PORTLAND AND LAND NOW OR FORMERLY OF SAID STATE OF MAINE A DISTANCE OF 100.26 FEET TO THE NORTHERLY LINE OF LAND OF SAID STATE OF MAINE;

THENCE, N 52°46'49" E ALONG THE NORTHERLY LINE OF STATE OF MAINE 272.75 FEET;

THENCE, N 47°33'49" E CONTINUING ALONG THE NORTHERLY LINE OF STATE OF MAINE 685.00 FEET;

THENCE, S 46°23'41" E THROUGH LAND OF STATE OF MAINE 50.12 FEET TO THE POINT OF BEGINNING, CONTAINING 72,879 S.F. OR 1.67 ACRES MORE OR LESS.

THE LAND DESCRIBED ABOVE DOES NOT INTEND TO INCLUDE ANY LAND WITHIN THE V2 ZONE.

SCALE : 1" = 50'
0' 25' 50' 100'

General Notes

1. OWNERS OF RECORD: PF MARINA LLC
C.C.R.D. BOOK 34869 PAGE 50
BOOK 37742, PAGE 208

2. PARCEL IS SHOWN AS LOT 2 BLOCK A ON THE CITY OF PORTLAND'S ASSESSORS MAP 18.

3. BEARINGS ARE BASED ON MAINE STATE PLANE COORDINATES WEST ZONE NAD83.

4. BENCH MARK: NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION (NOAA) – TIDAL BENCHMARK. BENCH MARK STAMPING: NO. 3 1971 ELEVATION 11.02 FEET NGVD 29 DATUM.

Plan References

1. "ALTA/NSPS LAND TITLE SURVEY, 1 MARINA WAY, PORTLAND, MAINE MADE FOR PF MARINA, LLC" BY OWEN HASKELL, INC. DATED JANUARY 26, 2021 REVISED THROUGH MARCH 18, 2021.

Flood Zone Note

BY GRAPHIC PLOTTING ONLY, THIS PROPERTY IS PARTIALLY LOCATED IN FLOOD ZONE A2 ELEV. 10, AREAS OF 100-YEAR FLOOD AND PARTIALLY LOCATED IN FLOOD ZONE V2 ELEV. 13, AREAS OF 100-YEAR COASTAL FLOOD WITH VELOCITY ON THE FLOOD INSURANCE RATE MAP, COMMUNITY PANEL NO. 230051-0014B, WHICH BEARS AN EFFECTIVE DATE OF JULY 17, 1986. THE FEMA FIRM ZONE A2 FLOOD LINE IS DEMARKED ON THE PLAN BY THE ELEVATION 10 CONTOUR. ALL POINTS NORTH OF THIS CONTOUR ON THE SUBJECT PROPERTY EXCEEDS THIS ELEVATION AND THEREFORE FALL OUTSIDE OF THE A2 ZONE.

Existing Conditions Survey

1 Marina Way
Portland, Cumberland County, Maine
Made For
PF MARINA, LLC
1 Marina Way, Portland, Maine

Surveyor's Certification

OWEN HASKELL, INC. HEREBY CERTIFIES THAT THIS PLAN IS BASED ON, AND THE RESULT OF, AN ON THE GROUND FIELD SURVEY AND THAT TO THE BEST OF OUR KNOWLEDGE, INFORMATION AND BELIEF, IT CONFORMS TO THE BOARD OF LICENSURE FOR PROFESSIONAL LAND SURVEYORS CURRENT STANDARDS OF PRACTICE.

RANDY R. LOUBIER
PROFESSIONAL LAND SURVEYOR NO. 2407

DATE OF PLAT OR MAP: JULY 19, 2021

STATE OF MAINE
RANDY R. LOUBIER 2407
PROFESSIONAL LAND SURVEYOR

OWEN HASKELL, INC.
PROFESSIONAL LAND SURVEYORS
390 U.S. ROUTE 1, UNIT 10, FALMOUTH, ME 04105 TEL. 207-774-0424

DRAWN BY: RRL / JLW	FIELD BOOK: FILE	JOB NO.	2019-031 P
CHECKED BY: RRL/SDG	SCALE: 1" = 50'	DRWG. #	MARINA-ALTA

Federal Emergency Management Agency

Washington, D.C. 20472

LETTER OF MAP AMENDMENT
DETERMINATION DOCUMENT (REMOVAL)

COMMUNITY AND MAP PANEL INFORMATION		LEGAL PROPERTY DESCRIPTION
COMMUNITY	CITY OF PORTLAND, CUMBERLAND COUNTY, MAINE	A parcel of land, as described in the Deeds recorded as Document Nos. 23925 and 55154, both in the Office of the Register of Deeds, Cumberland County, Maine The portion of property is more particularly described by the following metes and bounds:
	COMMUNITY NO.: 230051	
AFFECTED MAP PANEL	NUMBER: 2300510014B	
	DATE: 7/17/1986	
FLOODING SOURCE: PORTLAND HARBOR; CASCO BAY		APPROXIMATE LATITUDE & LONGITUDE OF PROPERTY:43.662774, -70.242547 SOURCE OF LAT & LONG: LOMA LOGIC DATUM: NAD 83

DETERMINATION

LOT	BLOCK/ SECTION	SUBDIVISION	STREET	OUTCOME WHAT IS REMOVED FROM THE SFHA	FLOOD ZONE	1% ANNUAL CHANCE FLOOD ELEVATION (NGVD 29)	LOWEST ADJACENT GRADE ELEVATION (NGVD 29)	LOWEST LOT ELEVATION (NGVD 29)
--	--	--	1 Marina Way	Portion of Property	C	--	--	10.5 feet

Special Flood Hazard Area (SFHA) - The SFHA is an area that would be inundated by the flood having a 1-percent chance of being equaled or exceeded in any given year (base flood).

ADDITIONAL CONSIDERATIONS (Please refer to the appropriate section on Attachment 1 for the additional considerations listed below.)

LEGAL PROPERTY DESCRIPTION
ZONE V
PORTIONS REMAIN IN THE SFHA
SUPERSEDES PREVIOUS DETERMINATION
STATE LOCAL CONSIDERATIONS

This document provides the Federal Emergency Management Agency's determination regarding a request for a Letter of Map Amendment for the property described above. Using the information submitted and the effective National Flood Insurance Program (NFIP) map, we have determined that the described portion(s) of the property(ies) is/are not located in the SFHA, an area inundated by the flood having a 1-percent chance of being equaled or exceeded in any given year (base flood). This document amends the effective NFIP map to remove the subject property from the SFHA located on the effective NFIP map; therefore, the Federal mandatory flood insurance requirement does not apply. However, the lender has the option to continue the flood insurance requirement to protect its financial risk on the loan. A Preferred Risk Policy (PRP) is available for buildings located outside the SFHA. Information about the PRP and how one can apply is enclosed.

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Information eXchange (FMIX) toll free at (877) 336-2627 (877-FEMA MAP) or by letter addressed to the Federal Emergency Management Agency, Engineering Library, 3601 Eisenhower Ave Ste 500, Alexandria, VA 22304-6426.

Luis V. Rodriguez, P.E., Director
Engineering and Modeling Division
Federal Insurance and Mitigation Administration

Federal Emergency Management Agency
Washington, D.C. 20472

LETTER OF MAP AMENDMENT
DETERMINATION DOCUMENT (REMOVAL)

ATTACHMENT 1 (ADDITIONAL CONSIDERATIONS)

LEGAL PROPERTY DESCRIPTION (CONTINUED)

BEGINNING ON THE SOUTHERLY LINE OF LAND NOW OR FORMERLY OF STATE OF MAINE AS DESCRIBED IN DEED BOOK 10924, PAGE 91 AT THE NORTHWESTERLY CORNER OF LAND NOW OR FORMERLY OF PF MARINA, LLC AS DESCRIBED IN DEED BOOK 37742, PAGE 208; THENCE, S 46°23'41" E A DISTANCE OF 16.46 FEET TO THE V2 FLOOD ZONE LINE AS SHOWN ON THE FLOOD INSURANCE RATE MAP, COMMUNITY PANEL NO. 230051-0014B; THENCE, THE FOLLOWING COURSES AND DISTANCES ALONG SAID V2 ZONE: S 55°30'16" W A DISTANCE OF 6.83 FEET; S 44°11'41" W A DISTANCE OF 13.92 FEET; S 62°37'45" W A DISTANCE OF 14.68 FEET; S 44°11'40" W A DISTANCE OF 23.20 FEET; S 50°32'05" W A DISTANCE OF 84.05 FEET; S 44°11'40" W A DISTANCE OF 102.10 FEET; S 32°53'04" W A DISTANCE OF 11.83 FEET; S 44°11'40" W A DISTANCE OF 162.43 FEET; S 50°32'05" W A DISTANCE OF 21.01 FEET; S 44°11'40" W A DISTANCE OF 18.56 FEET; S 37°51'15" W A DISTANCE OF 21.01 FEET; S 50°32'05" W A DISTANCE OF 42.03 FEET; S 44°11'40" W A DISTANCE OF 27.85 FEET; S 54°12'09" W A DISTANCE OF 40.06 FEET; S 44°11'40" W A DISTANCE OF 32.49 FEET; S 55°30'14" W A DISTANCE OF 11.83 FEET; S 44°11'40" W A DISTANCE OF 41.77 FEET; S 55°30'16" W A DISTANCE OF 23.66 FEET; S 48°00'30" W A DISTANCE OF 34.88 FEET; S 44°11'41" W A DISTANCE OF 18.56 FEET; S 51°02'14" W A DISTANCE OF 58.43 FEET; S 44°11'40" W A DISTANCE OF 18.56 FEET; S 51°19'10" W A DISTANCE OF 37.42 FEET; S 46°04'22" W A DISTANCE OF 51.57 FEET TO LAND NOW OR FORMELRY OF CITY OF PORTLAND AS DESCRIBED IN DEED BOOK 10924, PAGE 84; THENCE, S 46°29'06" W CONTINUING ALONG THE SAID V2 ZONE AND THROUGH LAND OF SAID CITY OF PORTLAND A DISTANCE OF 15.77 FEET; THENCE, S 44°11'40" W CONTINUING ALONG THE SAID V2 ZONE AND THROUGH LAND OFCITY OF PORTLAND A DISTANCE OF 33.56 FEET; THENCE, N 40°18'13" W CONTINUING THROUGH LAND OF CITY OF PORTLAND AND LAND NOW OR FORMERLY OF SAID STATE OF MAINE A DISTANCE OF 100.26 FEET TO THE NORTHERLY LINE OF LAND OF SAID STATE OF MAINE; THENCE, N 52°46'49" E ALONG THE NORTHERLY LINE OF STATE OF MAINE 272.75 FEET; THENCE, N 47°33'49" E CONTINUING ALONG THE NORTHERLY LINE OF STATE OF MAINE 685.00 FEET; THENCE, S 46°23'41" E THROUGH LAND OF STATE OF MAINE 50.12 FEET TO THE POINT OF BEGINNING

ZONE V (This Additional Consideration applies to the preceding 1 Property.)

A portion of this property, but not the subject of the Determination/Comment Document, is located within a Coastal High Hazard Area (Zone V, VE or V1-30). Therefore, any future construction or substantial improvement on the property remains subject to Federal, State/Commonwealth, and local regulations for floodplain management. No construction using fill for structural support or that may increase flood damage to other property may take place in these areas.

PORTIONS OF THE PROPERTY REMAIN IN THE SFHA (This Additional Consideration applies to the preceding 1 Property.)

Portions of this property, but not the subject of the Determination/Comment document, may remain in the Special Flood Hazard Area. Therefore, any future construction or substantial improvement on the property remains subject to Federal, State/Commonwealth, and local regulations for floodplain management.

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Luis V. Rodriguez, P.E., Director
Engineering and Modeling Division
Federal Insurance and Mitigation Administration

Federal Emergency Management Agency
Washington, D.C. 20472

LETTER OF MAP AMENDMENT
DETERMINATION DOCUMENT (REMOVAL)

ATTACHMENT 1 (ADDITIONAL CONSIDERATIONS)

SUPERSEDES OUR PREVIOUS DETERMINATION (This Additional Consideration applies to all properties in the LOMA DETERMINATION DOCUMENT (REMOVAL))

This Determination Document supersedes our previous determination dated 7/16/2021, for the subject property.

STATE AND LOCAL CONSIDERATIONS (This Additional Consideration applies to all properties in the LOMA DETERMINATION DOCUMENT (REMOVAL))

Please note that this document does not override or supersede any State or local procedural or substantive provisions which may apply to floodplain management requirements associated with amendments to State or local floodplain zoning ordinances, maps, or State or local procedures adopted under the National Flood Insurance Program.

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Your property has been reclassified as moderate-to-low flood risk. Your flood risk has been reduced but not removed.

You may now qualify for a Preferred Risk Flood Insurance Policy with annual rates starting as low as $325. Keep your home—and everything inside of it—covered for less money. Contact your insurance agent to secure a lower-cost policy today.

Protect the life you've built.

Call **800-427-4661** or visit www.FloodSmart.gov



FEMA

NATIONAL FLOOD INSURANCE PROGRAM

Flooding 101: Did you know?

- Flooding is the most common and costly disaster in the United States. Just 1 inch of flood water can cause $25,000 of damage to your home.
- People outside of high-risk flood areas file more than 20% of NFIP claims and receive one-third of disaster assistance for flooding.
- Most homeowners and renters insurance doesn't cover flood damage. Only flood insurance provides financial protection from costly flooding.

Stay covered. Save money. Talk to an agent today.
For more information visit FloodSmart.gov.

20. BLASTING

Haley & Aldrich, the geotechnical engineer for the project has confirmed that based on investigations completed to date, no blasting is anticipated for this project.

21. AIR EMISSIONS

The project will not require an air emissions license; this Section is not applicable.

22. ODORS

The proposed development will not involve any processes that emit significant odors; this Section is not applicable.

23. WATER VAPOR

The proposed development will not use water for any processes that would emit water vapor; this Section is not applicable.

24. SUNLIGHT

The proposed development will not block access to sunlight for any structures utilizing solar energy; this Section is not applicable.

25. NOTICES

The City of Portland has Delegated Review Authority for this application; as such, it is our understanding that the public notice requirements associated with MaineDEP Site Law do not apply.

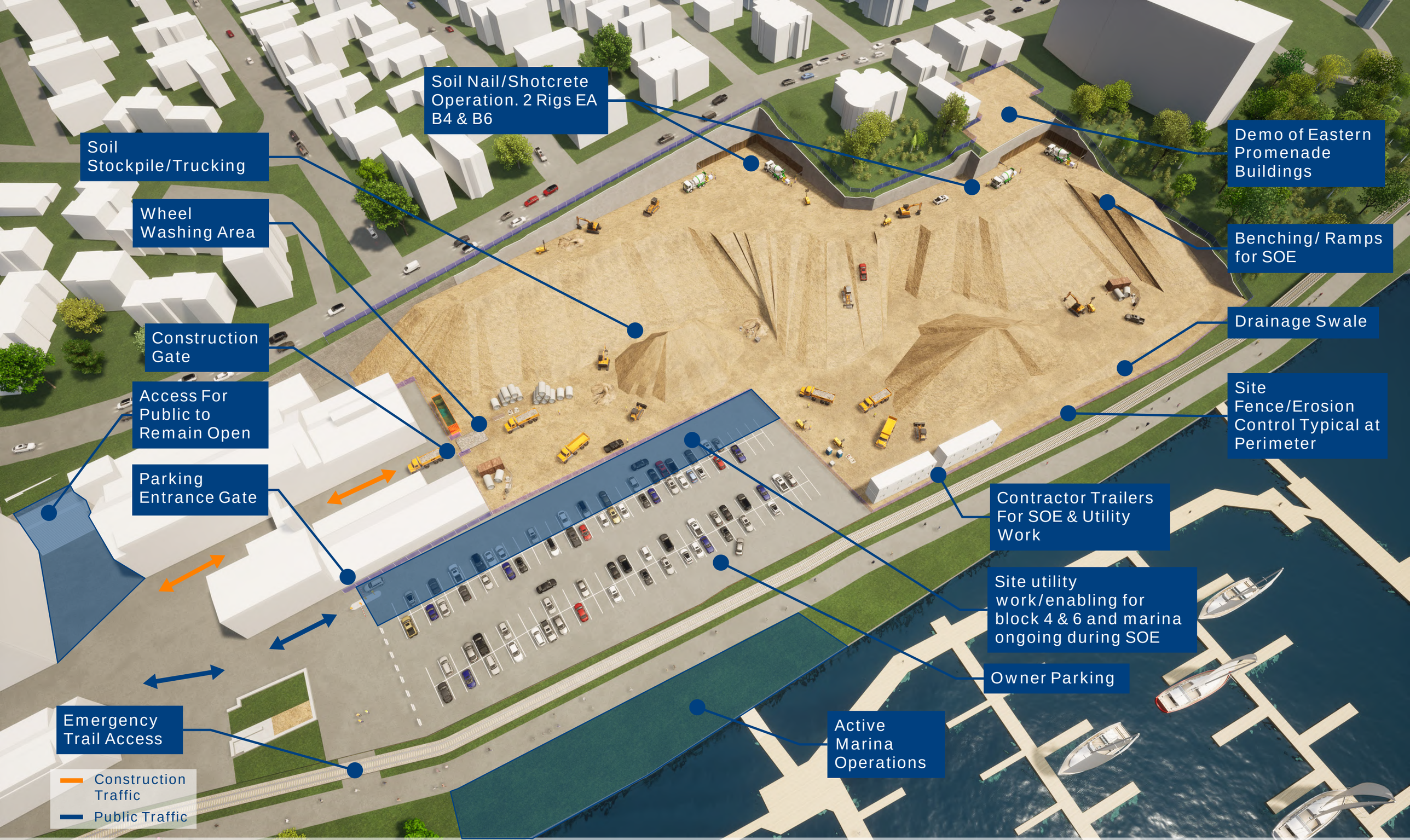


B4, B5 & B6 Site Logistics Plan - Slide 1 (Existing Site)

Foreside Phase 2

Note: CMP Slides provide a general depiction of project logistics and sequencing and are not design documents.

Turner

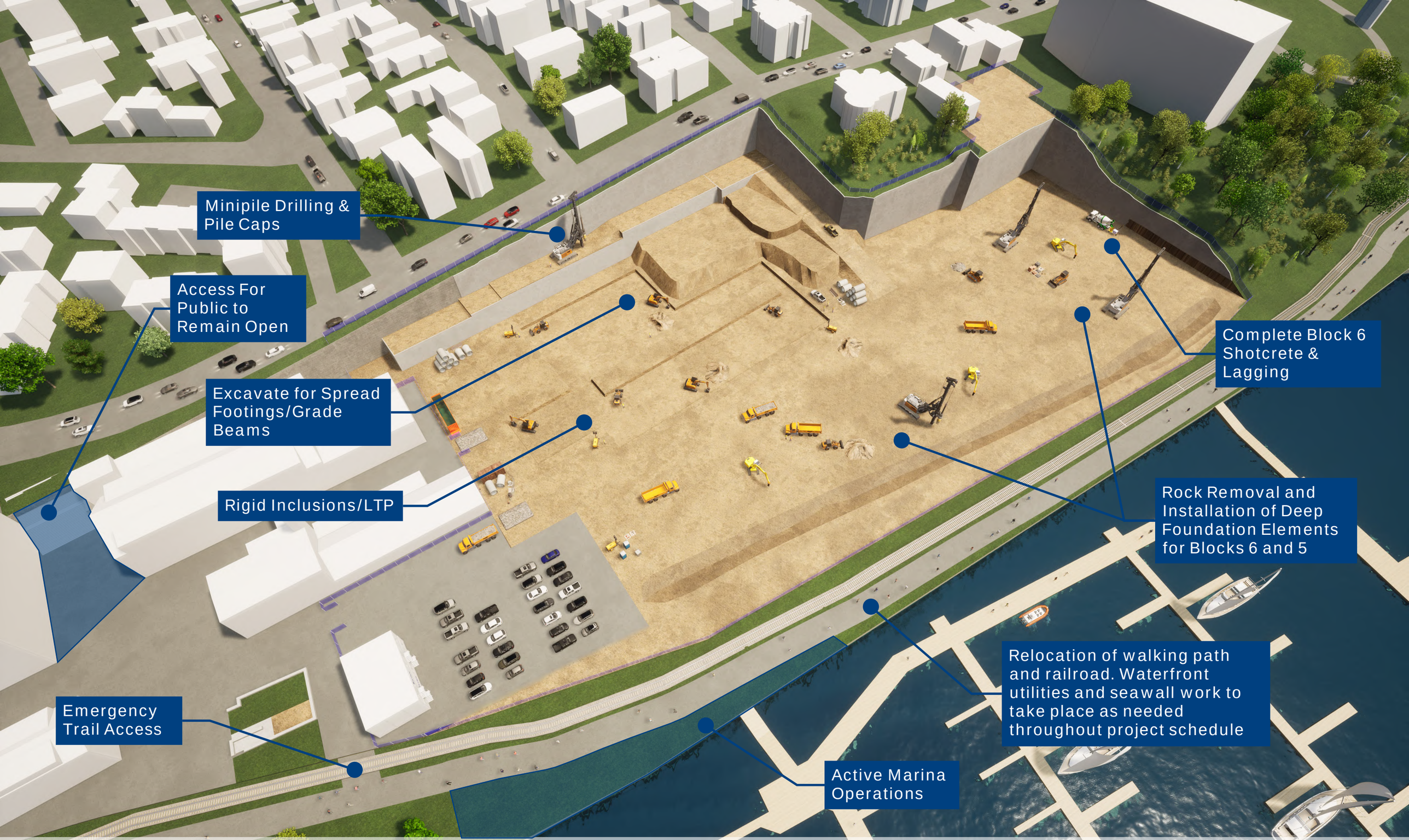


B4, B5 & B6 Site Logistics Plan - Slide 2

Foreside Phase 2

Note: CMP Slides provide a general depiction of project logistics and sequencing and are not design documents.

Turner



B4, B5 & B6 Site Logistics Plan - Slide 3

Foreside Phase 2

Note: CMP Slides provide a general depiction of project logistics and sequencing and are not design documents.

Turner

Sitework, Utility work, and deep foundations tor Blocks 4,5,6 to be done as single mobilization. Foundation work for foundations to be done sequentially from Block 4 to Block 6 to block 5.

B6 Excavation to Subgrade

Concrete Pump & Truck Staging Area

Access For Public to Remain Open

Emergency Trail Access

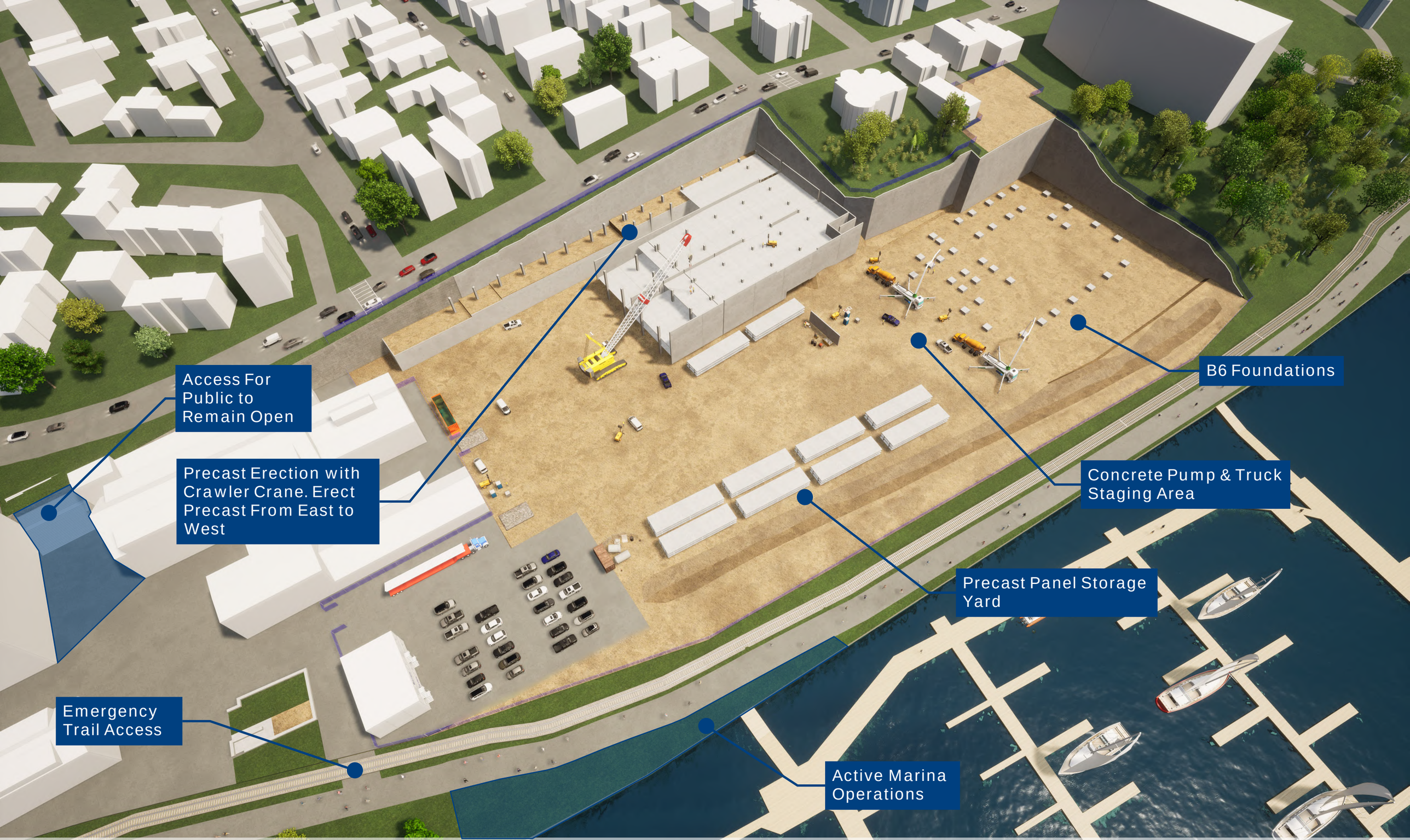
Active Marina Operations

B4, B5 & B6 Site Logistics Plan - Slide 4

Foreside Phase 2

Note: CMP Slides provide a general depiction of project logistics and sequencing and are not design documents.

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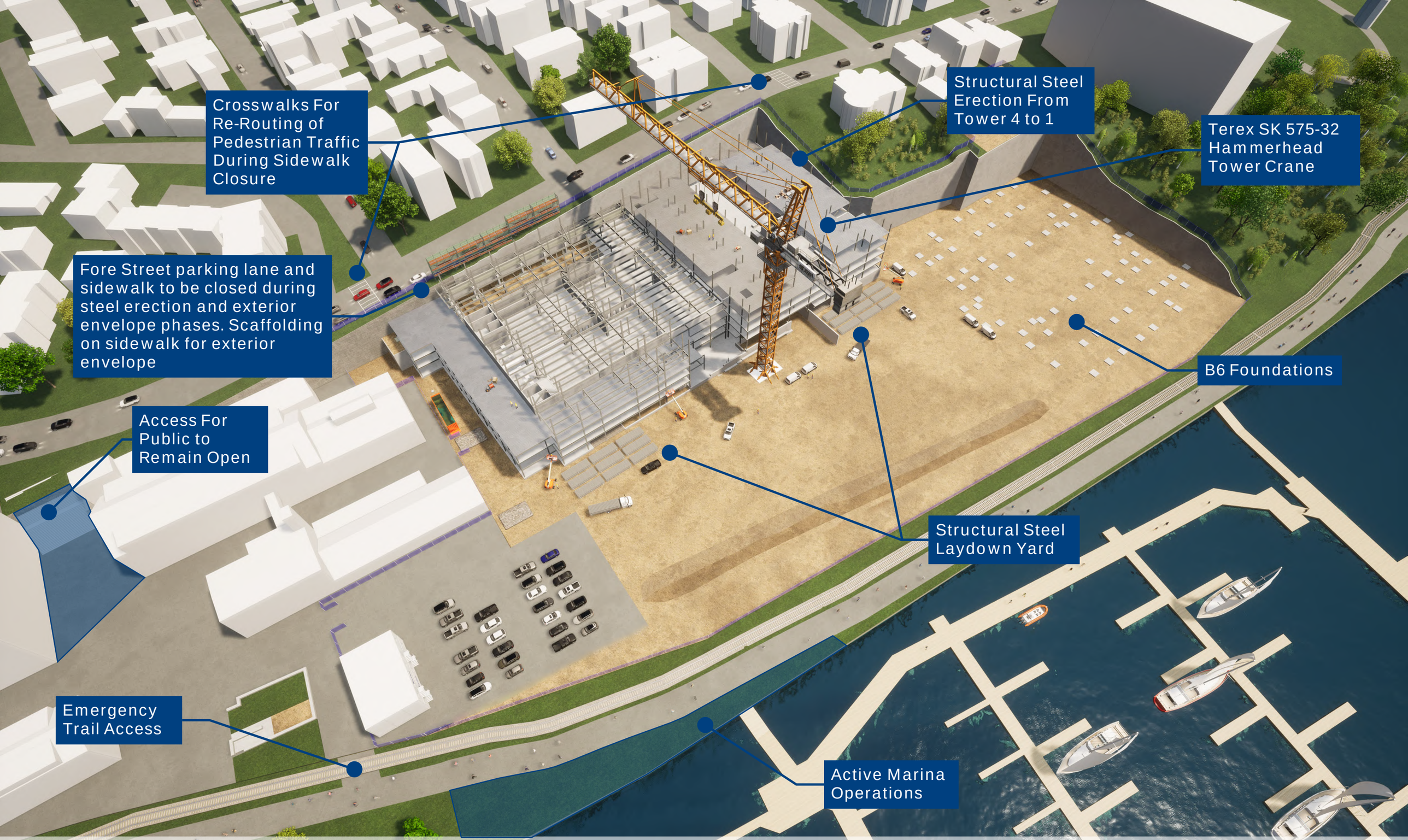


B4, B5 & B6 Site Logistics Plan - Slide 5

Foreside Phase 2

Note: CMP Slides provide a general depiction of project logistics and sequencing and are not design documents.

Turner

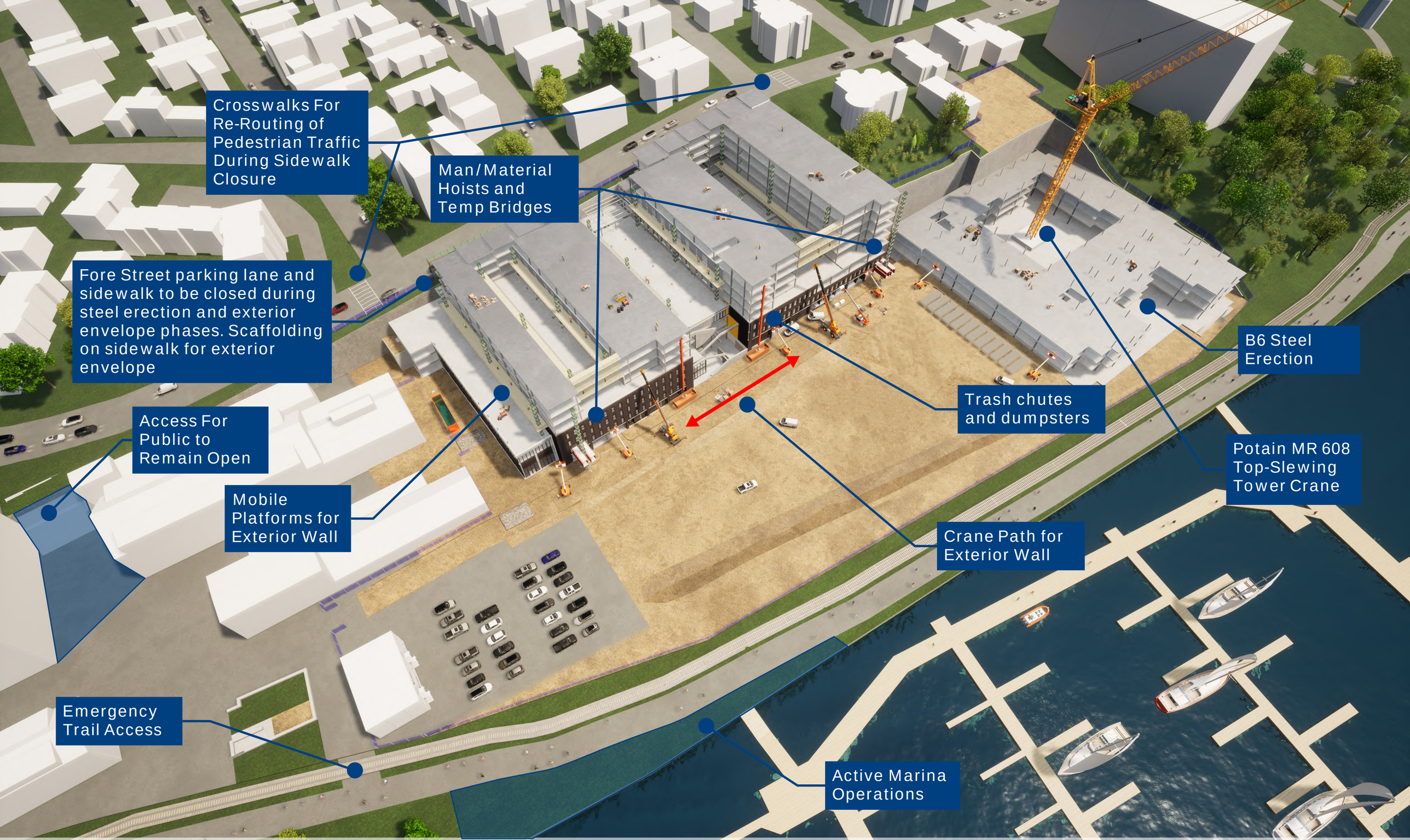


B4, B5 & B6 Site Logistics Plan - Slide 6

Foreside Phase 2

Note: CMP Slides provide a general depiction of project logistics and sequencing and are not design documents.

Turner



B4, B5 & B6 Site Logistics Plan - Slide 7

Foreside Phase 2

Note: CMP Slides provide a general depiction of project logistics and sequencing and are not design documents.

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B4, B5 & B6 Site Logistics Plan - Slide 8

Foreside Phase 2

Note: CMP Slides provide a general depiction of project logistics and sequencing and are not design documents.

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B4, B5 & B6 Site Logistics Plan - Slide 9

Foreside Phase 2

Note: CMP Slides provide a general depiction of project logistics and sequencing and are not design documents.



B4, B5 & B6 Site Logistics Plan - Slide 10

Foreside Phase 2

Note: CMP Slides provide a general depiction of project logistics and sequencing and are not design documents.

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B4, B5 & B6 Site Logistics Plan - Slide 11

Foreside Phase 2

Note: CMP Slides provide a general depiction of project logistics and sequencing and are not design documents.

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B4, B5 & B6 Site Logistics Plan - Slide 12

Foreside Phase 2

Note: CMP Slides provide a general depiction of project logistics and sequencing and are not design documents.

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B4, B5 & B6 Site Logistics Plan - Slide 13

Foreside Phase 2

Note: CMP Slides provide a general depiction of project logistics and sequencing and are not design documents.

Turner

PORTLAND FORESIDE DEVELOPMENT – BLOCKS 4 & 6

STORMWATER MANAGEMENT PLAN

58 Fore Street
Portland, ME

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Portland, ME 04102
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woodardcurran.com

0227007.19
Portland Foreside Development Co.
October 2022

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Appendix B: Stormwater Quality Calculations
Appendix C: HydroCAD Report
Appendix D: Figures

1. STORMWATER MANAGEMENT PLAN

This Stormwater Management Plan (SWMP) describes existing site conditions, the proposed development, compliance with applicable stormwater standards, and inspection and maintenance requirements for the proposed stormwater system associated with development of Blocks 4 and 6 of the Portland Foreside Development located at 58 Fore Street in Portland, Maine.

1.1 Background

The proposed development is the next phase of the 58 Fore Street Master Development Plan, unanimously approved by the Portland Planning Board on December 22, 2016, to redevelop and revitalize the former Portland Company Complex into a mixed-use development. The Master Development Plan consists of six development "blocks" will include new buildings, renovated historic buildings, open space plazas and a shared roadway. The project is being constructed in phases.

The project received approval of a Level III Site Plan, Site Location of Development and Subdivision approval from the Portland Planning Board for Phase I of the development on January 28, 2020. Phase 1 included portions of Block 1 (office building and reconstruction of Building 12), Block 2 (renovation of historic core buildings), Block 4 (parking garage with limited residential and retail), construction of site infrastructure around these buildings, and improvements along the waterfront. After the project received Planning Board approval, construction advanced on a portion of Phase 1. Construction on Block 1 is ongoing, and included installation of R-Tank System 1, Jellyfish 1, and Outfall #1. Construction of Blocks 2 and 4 was not completed, including R-Tank System 2, Jellyfish 2, and Outfall #2.

The proposed project on Blocks 4 and 6 is the next phase of development. The stormwater management system has been designed to ensure stormwater standards are met for the development during each phase, with consideration to the full build-out. The following report demonstrates the development of the site meets the stormwater standards for this next phase.

1.2 Existing Conditions

The project site is a portion of an approximately 10.7-acre property adjacent to the Fore River. The property was previously developed as the Portland Company Complex, which contained various industrial uses. Many of the existing buildings located within the project area have previously been demolished. Current conditions consist primarily of impervious paved and gravel areas with some areas of sparse vegetation and a steep, vegetated slope along the eastern edge of the site.

The project site is bordered by Fore Street to the north, Freedom Way to the west, the Fore River to the south, and the Portland House condominium complex to the east. Runoff from the Site drains via sheet flow in a southerly direction to a series of catch basins that ultimately discharge to the Fore River.

1.3 Proposed Development

The proposed development of Blocks 4 and 6 will result in approximately 7-acres of disturbance and approximately 6.8-acres of impervious area. Proposed work includes the following:

- Construction of a structured parking garage with overlying rental apartments, townhouses, and condominiums and ground-level retail and restaurant spaces;
- Construction of a shared street, plazas, and subsurface utilities to support the development; and
- Landscaping and other site improvements to enable the surrounding work.

The proposed drainage system in Blocks 4 and 6 will be comprised of a series of catch basins and trench drains located along the centerline of the new roadway, which discharge to a subsurface stormwater management system that will provide storage and treatment for site runoff prior to discharging to the Fore River. The subsurface stormwater management system will consist of an R-Tank storage system and Jellyfish Filter for stormwater treatment. Two Filterra units are proposed in an interim surface parking lot on Block 5 to meet the stormwater treatment requirements for this phase of development.

As noted in Section 1.1, the proposed R-Tank storage system (System 2) and Jellyfish Filter (Jellyfish 2) were previously designed, reviewed and approved as part of Phase 1 (System 2). Minimal changes to this system are proposed as detailed below:

- Relocation of Jellyfish Filter 2 to accommodate relocation of the railroad and trail, and associated adjustment of invert elevations;
- Increase in drainage area from approx. 2.6 acres to 3.1 acres, but remaining within the "future treated area" (approx. 3.4 acres) of which the water quality treatment calculations were based on for Phase 1 (i.e. while the contributing area increased, the water quality volume provided remained the same); and
- Improvement in pollutant loading from converting exposed Block 4 parking garage deck (Phase 1) to structured parking with overlying residential apartments and plaza (current phase).

The proposed stormwater management systems are discussed in further detail in the following sections.

1.4 Stormwater Standards

The project is subject to the MaineDEP Chapter 500 Stormwater Standards. The project is not located within the watershed of an Urban Impaired Stream and is therefore not subject to the Urban Impaired Stream Standard. The following sections describe the project's compliance with the applicable stormwater standards.

1.4.1 Basic Standard (Soil Erosion & Sediment Control)

A variety of erosion and sediment control measures will be utilized during construction, including but not limited to the following:

- Stabilized construction entrances;
- Up-gradient runoff diversion barriers;
- Downgradient sediment barriers;
- Catch basin inlet protection devices;
- Preservation and maintenance of vegetated areas to the maximum extent possible;
- Temporary stabilization of disturbed areas to be exposed for more than seven days;
- Permanent stabilization of final graded areas;
- Controls for fugitive dust, debris, and other materials; and
- Inspection of all measures until the Site is permanently stabilized.

Structural measures will be installed as shown on the design drawings. Details and specifications for these measures are included on the drawings. All measures will be implemented in accordance with the "Maine Erosion and Sedimentation Handbook for Construction: Best Management Practices", latest edition. All temporary measures will be installed prior to any earth-disturbing activities and will be removed upon permanent stabilization of the Site. The Contractor will be responsible for implementing and maintaining all erosion and sediment control measures in an effective operating condition during construction. Permanent erosion control measures will include vegetation and pavement. After construction, the Owner will be responsible for inspecting and maintaining the Site as described in Section 1.4 of this Report.

1.4.2 Flooding Standard (Stormwater Quantity)

Runoff from the proposed project will ultimately discharge to the adjacent Fore River, which is a tidal waterbody, via either sheet flow, the on-site storm drain system, or the City's 60-inch storm drain located within the adjacent Fore Connector roadway. In accordance with Section 4.F(3) of the MaineDEP Chapter 500 Stormwater Standards, a project is eligible for a waiver from the Flooding Standard if it discharges to a coastal wetland or a major river segment. Per the Master Development Plan Approval letter dated December 22, 2016, the City of Portland Planning Board voted to grant a waiver from the Flooding Standard for future site plan applications associated with the 58 Fore Street Site.

The stormwater management system has been adequately sized to safely convey runoff from the proposed Site. The stormwater management system was designed utilizing the HydroCAD 10.00 Stormwater Modeling System by Applied Microcomputer Systems. Utilizing the HydroCAD software, a 24-hour duration and Type-III rainfall distribution was applied to the rainfall depths provided in Appendix H of the MaineDEP Chapter 500 Rules in order to estimate the peak flows that the stormwater management system will need to accommodate. For your reference, a copy

of the HydroCAD Report and the Drainage Area Figure for the proposed site are provided in Appendix C and D of this Report, respectively. It should be noted that the stormwater management system has been over-sized in order to accommodate future development.

HydroCAD provides a lookup table for curve number (CN), which is a measure of the retention and runoff properties of various surfaces based on the Hydrological Soil Group (HSG) and land cover type. According to the latest NRCS Web Soil Survey data, the Site consists largely of urban fill, which is assumed to be equivalent to HSG D soils. The area of each land cover type was delineated utilizing survey information and HydroCAD computed the final CN for each subcatchment based on an area-weighted average.

The Time of Concentration (Tc) is the time required for runoff to travel from the most hydrologically distant point of a subcatchment to the point of discharge. The Tc for each subcatchment was computed within HydroCAD as the sum of the travel times for each consecutive segment along the longest flow path. The longest flow path was delineated utilizing topographic survey data and partitioned into segments based on flow types and land cover. The primary types of flow include sheet flow, shallow concentrated flow, and channel flows. A minimum Tc of six minutes was utilized for all subcatchment areas.

1.4.3 General & Redevelopment Standards (Stormwater Quality)

The proposed project is considered redevelopment and for stormwater quality is subject to the redevelopment standards. A figure showing the area of redevelopment is included in Appendix D of this Report. Calculations have been prepared in accordance with Section 4.C(2)(d) of the MaineDEP Chapter 500 Stormwater Standards to determine how much treatment is required for the proposed redevelopment project. Based on the impact analysis calculations provided in Appendix B of this Report, it has been determined that the proposed project is required to provide treatment for 50% of the redevelopment area. Figures showing existing and proposed pollutant ranking areas are provided in Appendix D. Greater than 50% of the redevelopment area will be captured and treated.

It should be noted that future phases of the project are anticipated to improve the overall pollutant impact of the project, as they plan to convert open gravel and paved temporary parking areas to roof area and include green roof areas and additional stormwater treatment measures. The redevelopment calculations will be re-evaluated as part of the design of future phases to determine if treatment requirements change.

Based on previous discussions with Jeff Dennis, MaineDEP Watershed Management Unit Biologist, it is our understanding that the project will not be required to provide storage for the full water quality channel protection volume (typically 1-inch over impervious areas and 0.4-inches over landscaped areas) because the project discharges directly to the Fore River. Some storage will be provided by proposed R-Tanks, which will increase the time of concentration on-site. Due to direct discharge to Fore River and their temporary condition, stand-alone Filterra Units (without subsurface water quality volume storage) are proposed. The purpose of these units is to provide stormwater treatment for higher-pollutant impact ranking area in the interim

condition until the building on Block 5 is developed, at which time stormwater treatment will be provided via green roofs with water quality volume storage. The treatment calculations provided in Appendix B of this Report include a summary of the water quality volume that will be provided. We will continue to coordinate with the MaineDEP to obtain approval for the reduced water quality volume.

A Jellyfish Filter and two Filterra units will provide stormwater quality treatment for the Site. The systems have been designed in accordance with the MaineDEP proprietary BMP approval letter to Contech dated January 21, 2015 (Jellyfish Filter) and February 2, 2017 (Filterra). The Jellyfish Filter and Filterra units have been sized to accommodate the water quality flow from 1-inch of runoff over the entire drainage area. The Jellyfish Filter is equipped with high-flow bypass via an internal weir for larger storm events. The proposed Filterra units are configured to be "off-line" with a downgradient catch basin inlet. We are coordinating with the manufacturer on proposed Jellyfish Filter and Filterra unit design; a letter that demonstrates manufacturer review and approval of the design will be provided upon receipt. It should also be noted that the stormwater management system has been over-sized to treat and convey runoff from future phases of the project.

1.5 Inspection & Maintenance Requirements

General inspection and maintenance of stormwater systems will take place during and after construction. During construction, the Contractor will be responsible for inspecting and maintaining the Site, as described in Section 1.3.1 of this Report. Upon completion of construction, the property owner will be responsible for implementing the Inspection and Maintenance Plan for the proposed stormwater system, which is provided in Appendix A of this Report.

APPENDIX A: STORMWATER INSPECTION & MAINTENANCE PLAN

STORMWATER INSPECTION & MAINTENANCE PLAN

Portland Foreside Development – Blocks 4 & 6, Portland, Maine

General inspection and maintenance during and after construction must take place in accordance with the requirements outlined in Appendix B of the Maine Department of Environmental Protection (MaineDEP) Chapter 500 Rules. Upon completion of the project, the Owner will assume responsibility for overseeing the property, including the inspection and maintenance of the Site's stormwater drainage system and treatment measures outlined herein. A person with knowledge of stormwater management and erosion and sediment control, including the standards and conditions in the permit, shall conduct the inspections and perform maintenance of the facilities.

Inspection and maintenance activities will be performed per the attached checklist, schedule, and manufacturer guidelines; an example page of the BMP Maintenance Log that shall be kept on-site is also attached.

INSPECTION AND MAINTENANCE OF STORMWATER SYSTEMS

Trash, debris, and sediment shall be removed from storm drain pipes and catch basins as needed on a semi-annual basis. In addition to the inspection and maintenance of stormwater systems, paved areas will be inspected annually each spring. These areas will be kept clean and clear through periodic sweeping and winter plowing as required. Inspections will also ensure pavement markings are repainted as needed to maintain proper traffic circulation. Paved areas will be plowed and sanded as often as necessary to maintain public safety. Periodic sweeping of pavement will reduce the amount of sediment available to enter the stormwater systems, in turn reducing the need to clean the stormwater systems.

The R-Tank, Jellyfish and Filterra systems must be inspected and maintained per the manufacturer's guidelines, which are outlined in the attached guidance documents.

STORMWATER INSPECTION CHECKLIST

Inspection by: _____ Date: _____

Stormwater Management Feature	Condition						Comments
Vegetative cover	no bare spots, no evidence of rill erosion		some bare spots, some rill erosion		large bare areas, extensive erosion		
Subsurface Drainage System	no siltation		some siltation		heavily silted in		
Subsurface Drainage System	no clogging/flooding		some clogging/flooding		heavy clogging/flooding		
Subsurface Drainage System	outlet free of erosion		some erosion at outlet		outlet heavily eroded		
Subsurface Drainage System	inlet/outlet clear		some debris		completely blocked		
Jellyfish System*	Cartridges are in good condition		Cartridges in need of cleaning		Cartridges in need of replacement		
Jellyfish System*	no clogging/flooding		some clogging/flooding		heavy clogging/flooding		
Filterra Bioretention System**	No sediment or trash accumulation		Some sediment or trash accumulation		Excessive sediment or trash accumulation		
Filterra Bioretention System**	Plants healthy and pest-free		Plants are somewhat healthy		Plants are not healthy (no growth or excessive growth)		
Filterra Bioretention System**	Structure is in good condition.		Structure has small visible cracks.		Structure has cracks wider than ½ inch.		

**See attached manufacturer's guidelines for Jellyfish System maintenance and inspection.*
***See attached manufacturer's guidelines for Filterra Bioretention System maintenance and inspection.*

Recommended Actions: _____

_____

Actions Completed: _____ Date: _____

MAINTENANCE TASKS	**SCHEDULE**
Inspect for sediment accumulation	Spring and Fall
Remove sediment accumulation	As needed
Clean debris	As needed
Inspect for erosion	As needed
Reestablish vegetation in erosion areas	Early spring
Replace stone rip-rap	Every 3 to 5 years as needed
Inspect structural elements during wet weather and compare to as-built plans	Annually
Make adjustments or replacements as determined by wet weather observations	As needed
Keep records of all inspections and maintenance activities	Annually
Have a professional engineer perform emergency inspections upon identification of severe problems	As needed

R-TANK OPERATION, INSPECTION & MAINTENANCE

Operation

Your ACF R-Tank System has been designed to function in conjunction with the engineered drainage system on your site, the existing municipal infrastructure, and/or the existing soils and geography of the receiving watershed. Unless your site included certain unique and rare features, the operation of your R-Tank System will be driven by naturally occurring systems and will function autonomously. However, upholding a proper schedule of Inspection & Maintenance is critical to ensuring continued functionality and optimum performance of the system.

Inspection

Both the R-Tank and all stormwater pre-treatment features incorporated into your site must be inspected regularly. Inspection frequency for your system must be determined based on the contributing drainage area, but should never exceed one year between inspections (six months during the first year of operation).

Inspections may be required more frequently for pre-treatment systems. You should refer to the manufacturer requirements for the proper inspection schedule.

With the right equipment your inspection and measurements can be accomplished from the surface without physically entering any confined spaces. If your inspection does require confined space entry, you MUST follow all local/regional requirements as well as OSHA standards.

R-Tank Systems may incorporate Inspection Ports, Maintenance Ports, and/or adjoining manholes. Each of these features are easily accessed by removing the lid at the surface. With the cover removed, a visual inspection can be performed to identify sediment deposits within the structure. Using a flashlight, ALL access points should be examined to complete a thorough inspection.

Inspection Ports
Usually located centrally in the R-Tank System, these perforated columns are designed to give the user a base-line sediment depth across the system floor.

Maintenance Ports
Usually located near the inlet and outlet connections, you'll likely find deeper deposits of heavier sediments when compared to the Inspection Ports.

Manholes
Most systems will include at least two manholes - one at the inlet and another at the outlet. There may be more than one location where stormwater enters the system, which would result in additional manholes to inspect.

Bear in mind that these manholes often include a sump below the invert of the pipe connecting to the R-Tank. These sumps are designed to capture sediment before it reaches the R-Tank, and they should be kept clean to ensure they function properly. However, existence of sediment in the sump does NOT necessarily mean sediment has accumulated in the R-Tank.

After inspecting the bottom of the structure, use a mirror on a pole (or some other device) to check for sediment or debris in the pipe connecting to the R-Tank.

If sediment or debris is observed in any of these structures, you should determine the depth of the material. This is typically accomplished with a stadia rod, but you should determine the best way to obtain the measurement.

All observations and measurements should be recorded on an Inspection Log kept on file. We've included a form you can use at the end of this guideline.

Maintenance

The R-Tank System should be back-flushed once sediment accumulation has reached 6" or 15% of the total system height. Use the chart below as a guideline to determine the point at which maintenance is required on your system.

R-Tank Unit	Height	Max Sediment Dept
Mini	9.5"	1.5"
Single	17"	3"
Double	34"	5"
Triple	50"	6"
Quad	67"	6"
Pent	84"	6"

Before any maintenance is performed on your system, be sure to plug the outlet pipe to prevent contamination of the adjacent systems.

To back-flush the R-Tank, water is pumped into the system through the Maintenance Ports as rapidly as possible. Water should be pumped into ALL Maintenance Ports. The turbulent action of the water moving through the R-Tank will suspend sediments which may then be pumped out.

If your system includes an Outlet Structure, this will be the ideal location to pump contaminated water out of the system. However, removal of back-flush water may be accomplished through the Maintenance Ports, as well.

For systems with large footprints that would require extensive volumes of water to properly flush the system, you should consider performing your maintenance within 24 hours of a rain event. Stormwater entering the system will aid in the suspension of sediments and reduce the volume of water required to properly flush the system.

Once removed, sediment-laden water may be captured for disposal or pumped through a Dirtbag™ (if permitted by the locality).

ACF ENVIRONMENTAL
LET'S GET IT DONE
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Richmond, Virginia, 23234
800.448.3636
FAX 804.743.7779
acfenvironmental.com

Step-By-Step Inspection & Maintenance Routine

1) **Inspection**
    a. Inspection Port
        i. Remove Cap
        ii. Use flashlight to detect sediment deposits
        iii. If present, measure sediment depth with stadia rod
        iv. Record results on Maintenance Log
        v. Replace Cap
    b. Maintenance Port/s
        i. Remove Cap
        ii. Use flashlight to detect sediment deposits
        iii. If present, measure sediment depth with stadia rod
        iv. Record results on Maintenance Log
        v. Replace Cap
        vi. Repeat for ALL Maintenance Ports
    c. Adjacent Manholes
        i. Remove Cover
        ii. Use flashlight to detect sediment deposits
        iii. If present, measure sediment depth with stadia rod, accounting for depth of sump (if present)
        iv. Inspect pipes connecting to R-Tank
        v. Record results on Maintenance Log
        vi. Replace Cover
        vii. Repeat for ALL Manholes that connect to the R-Tank

2) **Maintenance**
    a. Plug system outlet to prevent discharge of back-flush water
    b. Determine best location to pump out back-flush water
    c. Remove Cap from Maintenance Port
    d. Pump water as rapidly as possible (without over-topping port) into system until at least 1”
    of water covers system bottom
    e. Replace Cap
    f. Repeat at ALL Maintenance Ports
    g. Pump out back-flush water to complete back-flushing
    h. Vacuum all adjacent structures and any other structures or stormwater pre-treatment systems that require attention
    i. Sediment-laden water may be captured for disposal or pumped through a Dirtbag™.
    j. Replace any remaining Caps or Covers
    k. Record the back-flushing event in your Maintenance Log with any relevant specifics

R-Tank Maintenance Log

Site Name:_____

Location:_____

System Owner:_____

Company Responsible for Maintenance:_____

Contact:_____

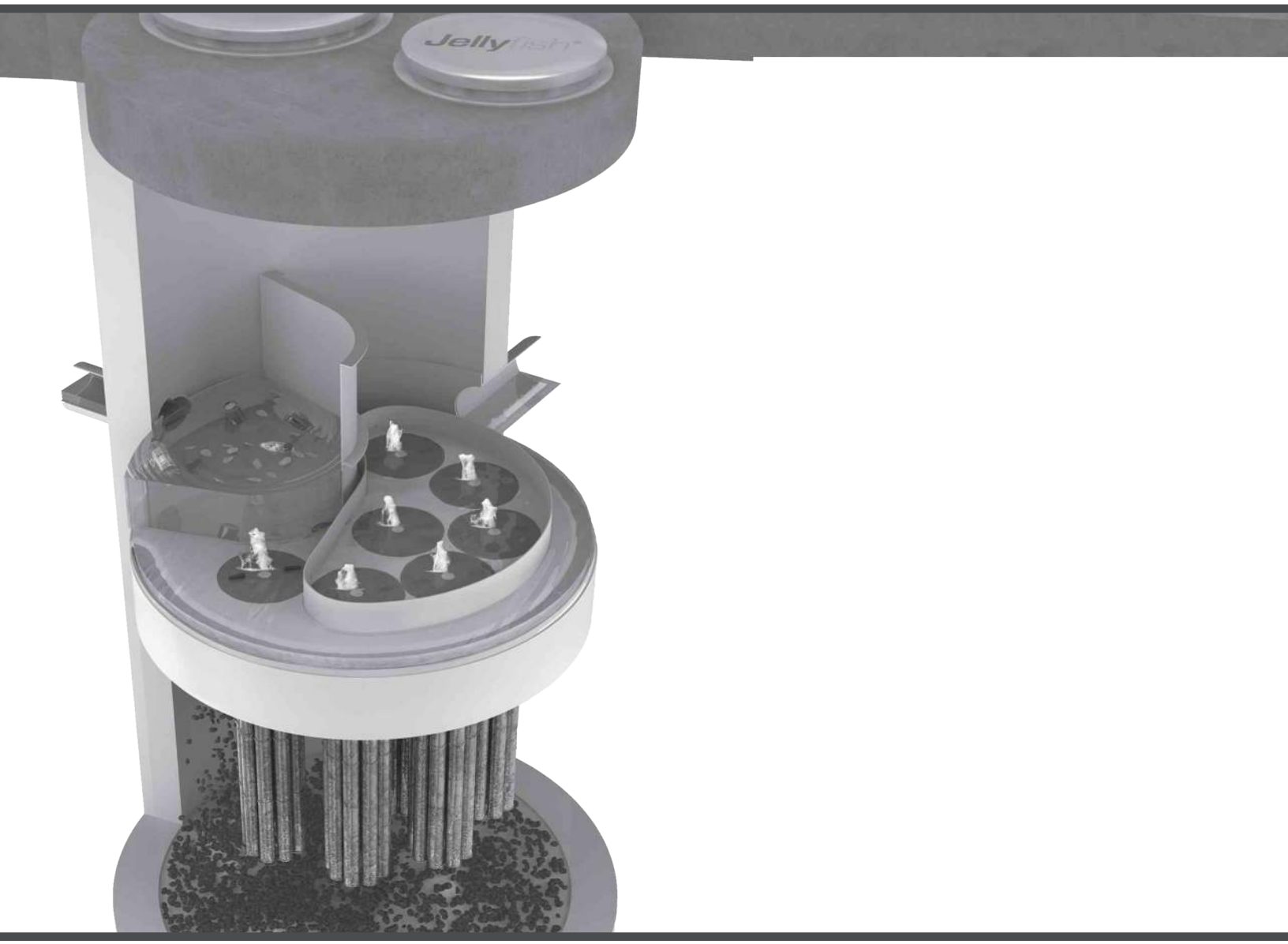
Phone Number:_____

Date	Location	Depth to Bottom	Depth to Sediment	Sediment Depth	Observations/Notes	Initials

For more information about our products, contact Inside Sales at 800.448.3636 or email at info@acfenv.com

CONTECH®
ENGINEERED SOLUTIONS

Jellyfish® Filter Maintenance Guide



Jellyfish®

JELLYFISH® FILTER
INSPECTION & MAINTENANCE GUIDE

Jellyfish units are often just one of many structures in a more comprehensive stormwater drainage and treatment system.

In order for maintenance of the Jellyfish filter to be successful, it is imperative that all other components be properly maintained. The maintenance and repair of upstream facilities should be carried out prior to Jellyfish maintenance activities.

In addition to considering upstream facilities, it is also important to correct any problems identified in the drainage area. Drainage area concerns may include: erosion problems, heavy oil loading, and discharges of inappropriate materials.

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Inspection Process 7

1.0 Inspection and Maintenance Overview

The primary purpose of the Jellyfish® Filter is to capture and remove pollutants from stormwater runoff. As with any filtration system, these pollutants must be removed to maintain the filter's maximum treatment performance. Regular inspection and maintenance are required to insure proper functioning of the system.

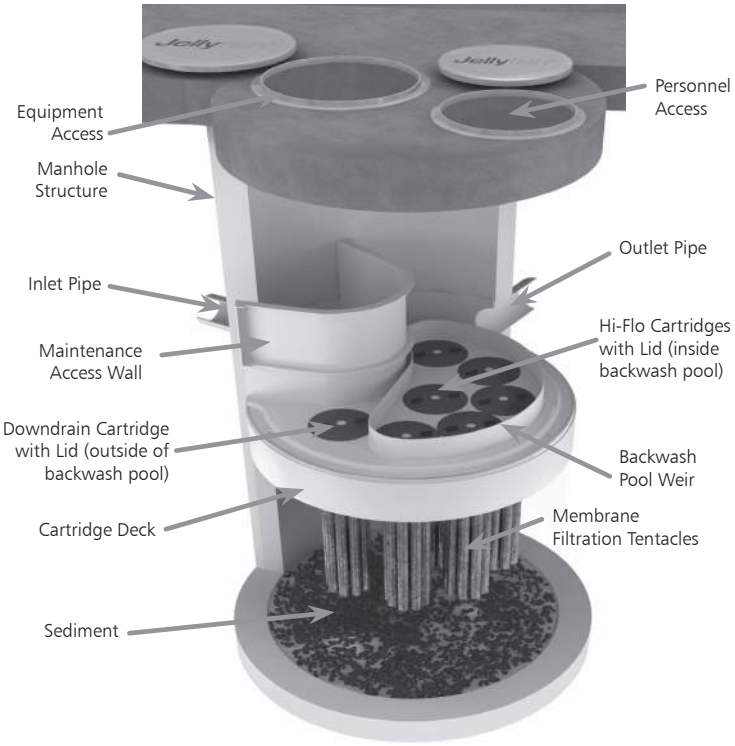
Maintenance frequencies and requirements are site specific and vary depending on pollutant loading. Additional maintenance activities may be required in the event of non-storm event runoff, such as base-flow or seasonal flow, an upstream chemical spill or due to excessive sediment loading from site erosion or extreme runoff events. It is a good practice to inspect the system after major storm events.

Inspection activities are typically conducted from surface observations and include:

- Observe if standing water is present
- Observe if there is any physical damage to the deck or cartridge lids
- Observe the amount of debris in the Maintenance Access Wall (MAW) or inlet bay for vault systems

Maintenance activities include:

- Removal of oil, floatable trash and debris
- Removal of collected sediments
- Rinsing and re-installing the filter cartridges
- Replace filter cartridge tentacles, as needed



Note: Separator Skirt not shown

2.0 Inspection Timing

Inspection of the Jellyfish Filter is key in determining the maintenance requirements for, and to develop a history of, the site's pollutant loading characteristics. In general, inspections should be performed at the times indicated below; *or per the approved project stormwater quality documents (if applicable), whichever is more frequent*.

1. A minimum of quarterly inspections during the first year of operation to assess the sediment and floatable pollutant accumulation, and to ensure proper functioning of the system.
2. Inspection frequency in subsequent years is based on the inspection and maintenance plan developed in the first year of operation. Minimum frequency should be once per year.
3. Inspection is recommended after each major storm event.
4. Inspection is required immediately after an upstream oil, fuel or other chemical spill.

3.0 Inspection Procedure

The following procedure is recommended when performing inspections:

1. Provide traffic control measures as necessary.
2. Inspect the MAW or inlet bay for floatable pollutants such as trash, debris, and oil sheen.
3. Measure oil and sediment depth in several locations, by lowering a sediment probe until contact is made with the floor of the structure. Record sediment depth, and presences of any oil layers.
4. Inspect cartridge lids. Missing or damaged cartridge lids to be replaced.
5. Inspect the MAW (where appropriate), cartridge deck and receptacles, and backwash pool weir, for damaged or broken components.

3.1 Dry weather inspections

- Inspect the cartridge deck for standing water, and/or sediment on the deck.
- No standing water under normal operating conditions.
- Standing water inside the backwash pool, but not outside the backwash pool indicates, that the filter cartridges need to be rinsed.



Inspection Utilizing Sediment Probe

- Standing water outside the backwash pool is not anticipated and may indicate a backwater condition caused by high water elevation in the receiving water body, or possibly a blockage in downstream infrastructure.
- Any appreciable sediment (≥1/16") accumulated on the deck surface should be removed.

3.2 Wet weather inspections

- Observe the rate and movement of water in the unit. Note the depth of water above deck elevation within the MAW or inlet bay.
- Less than 6 inches, flow should be exiting the cartridge lids of each of the draindown cartridges (i.e. cartridges located outside the backwash pool).
- Greater than 6 inches, flow should be exiting the cartridge lids of each of the draindown cartridges and each of the hi-flo cartridges (i.e. cartridges located inside the backwash pool), and water should be overflowing the backwash pool weir.
- 18 inches or greater and relatively little flow is exiting the cartridge lids and outlet pipe, this condition indicates that the filter cartridges need to be rinsed.

4.0 Maintenance Requirements

Required maintenance for the Jellyfish Filter is based upon results of the most recent inspection, historical maintenance records, or the site specific water quality management plan; whichever is more frequent. In general, maintenance requires some combination of the following:

1. Sediment removal for depths reaching 12 inches or greater, or within 3 years of the most recent sediment cleaning, whichever occurs sooner.
2. Floatable trash, debris, and oil removal.
3. Deck cleaned and free from sediment.
4. Filter cartridges rinsed and re-installed as required by the most recent inspection results, or within 12 months of the most recent filter rinsing, whichever occurs sooner.
5. Replace tentacles if rinsing does not restore adequate hydraulic capacity, remove accumulated sediment, or if damaged or missing. It is recommended that tentacles should remain in service no longer than 5 years before replacement.
6. Damaged or missing cartridge deck components must be repaired or replaced as indicated by results of the most recent inspection.
7. The unit must be cleaned out and filter cartridges inspected immediately after an upstream oil, fuel, or chemical spill. Filter cartridge tentacles should be replaced if damaged or compromised by the spill.

5.0 Maintenance Procedure

The following procedures are recommended when maintaining the Jellyfish Filter:

1. Provide traffic control measures as necessary.
2. Open all covers and hatches. Use ventilation equipment as required, according to confined space entry procedures. *Caution: Dropping objects onto the cartridge deck may cause damage*.
3. Perform Inspection Procedure prior to maintenance activity.
4. To access the cartridge deck for filter cartridge service, descend into the structure and step directly onto the deck. Caution: Do not step onto the maintenance access wall (MAW) or backwash pool weir, as damage may result. Note that the cartridge deck may be slippery.
5. Maximum weight of maintenance crew and equipment on the cartridge deck not to exceed 450 lbs.

5.1 Filter Cartridge Removal

1. Remove a cartridge lid.
2. Remove cartridges from the deck using the lifting loops in the cartridge head plate. Rope or a lifting device (available from Contech) should be used. *Caution: Should a snag occur, do not force the cartridge upward as damage to the tentacles may result. Wet cartridges typically weigh between 100 and 125 lbs*.
3. Replace and secure the cartridge lid on the exposed empty receptacle as a safety precaution. Contech does not recommend exposing more than one empty cartridge receptacle at a time.

5.2 Filter Cartridge Rinsing

1. Remove all 11 tentacles from the cartridge head plate. Take care not to lose or damage the O-ring seal as well as the plastic threaded nut and connector.



Cartridge Removal & Lifting Device

2. Position tentacles in a container (or over the MAW), with the threaded connector (open end) facing down, so rinse water is flushed through the membrane and captured in the container.
3. Using the Jellyfish rinse tool (available from Contech) or a low-pressure garden hose sprayer, direct water spray onto the tentacle membrane, sweeping from top to bottom along the length of the tentacle. Rinse until all sediment is removed from the membrane. *Caution: Do not use a high pressure sprayer or focused stream of water on the membrane. Excessive water pressure may damage the membrane*.

4. Collected rinse water is typically removed by vacuum hose.
5. Reassemble cartridges as detailed later in this document. Reuse O-rings and nuts, ensuring proper placement on each tentacle.

5.3 Sediment and Flotables Extraction

1. Perform vacuum cleaning of the Jellyfish Filter only after filter cartridges have been removed from the system. Access the lower chamber for vacuum cleaning only through the maintenance access wall (MAW) opening. Be careful not to damage the flexible plastic separator skirt that is attached to the underside of the deck on manhole systems. Do not lower the vacuum wand through a cartridge receptacle, as damage to the receptacle will result.
2. Vacuum floatable trash, debris, and oil, from the MAW opening or inlet bay. Alternatively, floatable solids may be removed by a net or skimmer.



Vacuuming Sump Through MAW

3. Pressure wash cartridge deck and receptacles to remove all sediment and debris. Sediment should be rinsed into the sump area. Take care not to flush rinse water into the outlet pipe.
4. Remove water from the sump area. Vacuum or pump equipment should only be introduced through the MAW or inlet bay.
5. Remove the sediment from the bottom of the unit through the MAW or inlet bay opening.



Vacuuming Sump Through MAW

6. For larger diameter Jellyfish Filter manholes (≥8-ft) and some vaults complete sediment removal may be facilitated by removing a cartridge lid from an empty receptacle and inserting a jetting wand (not a vacuum wand) through the receptacle. Use the sprayer to rinse loosened sediment toward the vacuum hose in the MAW opening, being careful not to damage the receptacle.

5.4 Filter Cartridge Reinstallation and Replacement

1. Cartridges should be installed after the deck has been cleaned. It is important that the receptacle surfaces be free from grit and debris.
2. Remove cartridge lid from deck and carefully lower the filter cartridge into the receptacle until head plate gasket is seated squarely in receptacle. ***Caution: Do not force the cartridge downward; damage may occur.***
3. Replace the cartridge lid and check to see that both male threads are properly seated before rotating approximately 1/3 of a full rotation until firmly seated. Use of an approved rim gasket lubricant may facilitate installation. See next page for additional details.
4. If rinsing is ineffective in removing sediment from the tentacles, or if tentacles are damaged, provisions must be made to replace the spent or damaged tentacles with new tentacles. Contact Contech to order replacement tentacles.

5.5 Chemical Spills

Caution: If a chemical spill has been captured, do not attempt maintenance. Immediately contact the local hazard response agency and contact Contech.

5.6 Material Disposal

The accumulated sediment found in stormwater treatment and conveyance systems must be handled and disposed of in accordance with regulatory protocols. It is possible for sediments to contain measurable concentrations of heavy metals and organic chemicals (such as pesticides and petroleum products). Areas with the greatest potential for high pollutant loading include industrial areas and heavily traveled roads. Sediments and water must be disposed of in accordance with all applicable waste disposal regulations. When scheduling maintenance, consideration must be made for the disposal of solid and liquid wastes. This typically requires coordination with a local landfill for solid waste disposal. For liquid waste disposal a number of options are available including a municipal vacuum truck decant facility, local waste water treatment plant or on-site treatment and discharge.

Jellyfish Filter Components & Filter Cartridge Assembly and Installation

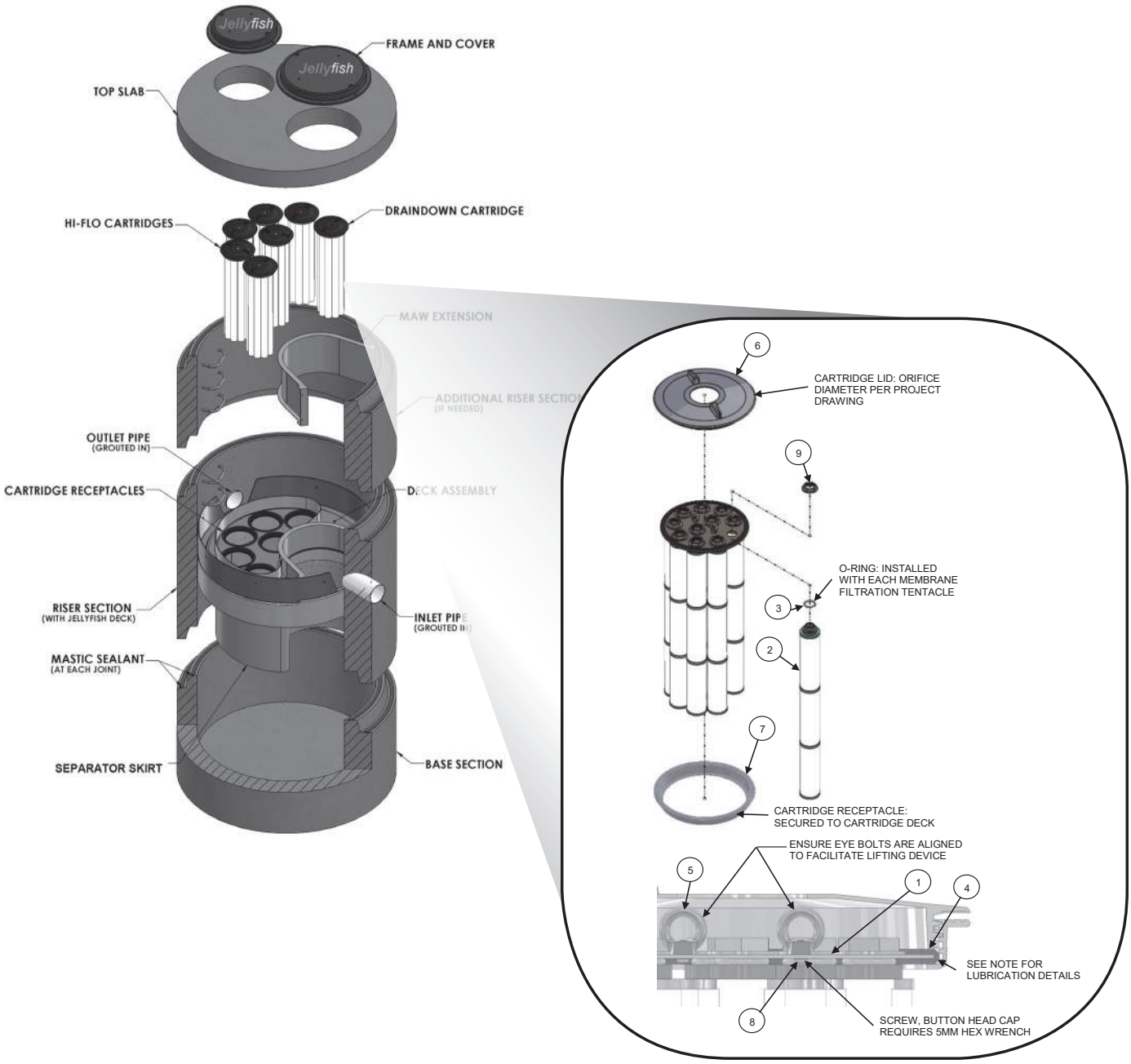


TABLE 1: BOM

ITEM NO.	DESCRIPTION
1	JF HEAD PLATE
2	JF TENTACLE
3	JF O-RING
4	JF HEAD PLATE GASKET
5	JF CARTRIDGE EYELET
6	JF 14IN COVER
7	JF RECEPTACLE
8	BUTTON HEAD CAP SCREW M6X14MM SS
9	JF CARTRIDGE NUT

TABLE 2: APPROVED GASKET LUBRICANTS

PART NO.	MFR	DESCRIPTION
78713	LA-CO	LUBRI-JOINT
40501	HERCULES	DUCK BUTTER
30600	OATEY	PIPE LUBRICANT
PSLUBXL1Q	PROSELECT	PIPE JOINT LUBRICANT

NOTES:

Head Plate Gasket Installation:
Install Head Plate Gasket (Item 4) onto the Head Plate (Item 1) and liberally apply a lubricant from Table 2: Approved Gasket Lubricants onto the gasket where it contacts the Receptacle (Item 7) and Cartridge Lide (ITem 6). Follow Lubricant manufacturer's instructions.

Lid Assembly:
Rotate Cartridge Lid counter-clockwise until both male threads drop down and properly seat. Then rotate Cartridge Lid clock-wise approximately one-third of a full rotation until Cartridge Lid is firmly secured, creating a watertight seal.

Jellyfish Filter Inspection and Maintenance Log

Owner:				Jellyfish Model No:		
Location:				GPS Coordinates:		
Land Use:	Commercial:		Industrial:		Service Station:	
	Roadway/Highway:		Airport:		Residential:	

Date/Time:						
Inspector:						
Maintenance Contractor:						
Visible Oil Present: (Y/N)						
Oil Quantity Removed:						
Floatable Debris Present: (Y/N)						
Floatable Debris Removed: (Y/N)						
Water Depth in Backwash Pool						
Draindown Cartridges externally rinsed and recommissioned: (Y/N)						
New tentacles put on Draindown Cartridges: (Y/N)						
Hi-Flo Cartridges externally rinsed and recommissioned: (Y/N)						
New tentacles put on Hi-Flo Cartridges: (Y/N)						
Sediment Depth Measured: (Y/N)						
Sediment Depth (inches or mm):						
Sediment Removed: (Y/N)						
Cartridge Lids intact: (Y/N)						
Observed Damage:						
Comments:						



Jellyfish®

CONTECH ENGINEERED SOLUTIONS

Support

- Drawings and specifications are available at www.conteches.com/jellyfish.
- Site-specific design support is available from Contech Engineered Solutions.
- Find a Certified Maintenance Provider at www.conteches.com/ccmp

800.338.1122
www.ContechES.com

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Filterra Owner's Manual



filterra®

Bioretention Systems

CONTECH®
ENGINEERED SOLUTIONS

This Owner's Manual applies to all precast Filterra Configurations, including Filterra Bioscape Vault.







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Introduction

Thank you for your purchase of the Filterra® Bioretention System. Filterra is a specially engineered stormwater treatment system incorporating high performance biofiltration media to remove pollutants from stormwater runoff. The system's biota (vegetation and soil microorganisms) then further breakdown and absorb captured pollutants. All components of the system work together to provide a sustainable long-term solution for treating stormwater runoff.

The Filterra system has been delivered to you with protection in place to resist intrusion of construction related sediment which can contaminate the biofiltration media and result in inadequate system performance. These protection devices are intended as a best practice and cannot fully prevent contamination. It is the purchaser's responsibility to provide adequate measures to prevent construction related runoff from entering the Filterra system.

Included with your purchase is Activation of the Filterra system by the manufacturer as well as a 1-year warranty from delivery of the system and 1-year of routine maintenance (mulch replacement, debris removal, and pruning of vegetation) up to twice during the first year after activation.

Design and Installation

Each project presents different scopes for the use of Filterra systems. Information and help may be provided to the design engineer during the planning process. Correct Filterra box sizing (by rainfall region) is essential to predict pollutant removal rates for a given area. The engineer shall submit calculations for approval by the local jurisdiction. The contractor is responsible for the correct installation of Filterra units as shown in approved plans. A comprehensive installation manual is available at www.ContechES.com.

Activation Overview

Activation of the Filterra system is a procedure completed by the manufacturer to place the system into working condition. This involves the following items:

- Removal of construction runoff protection devices
- Planting of the system's vegetation
- Placement of pretreatment mulch layer using mulch certified for use in Filterra systems.

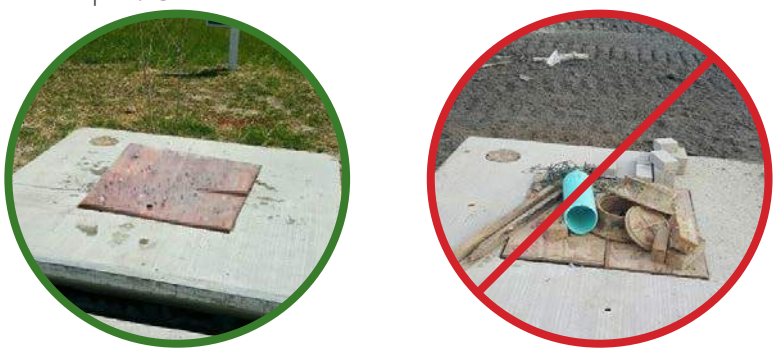
Activation MUST be provided by the manufacturer to ensure proper site conditions are met for Activation, proper installation of the vegetation, and use of pretreatment mulch certified for use in Filterra systems.



Minimum Requirements

The minimum requirements for Filterra Activation are as follows:

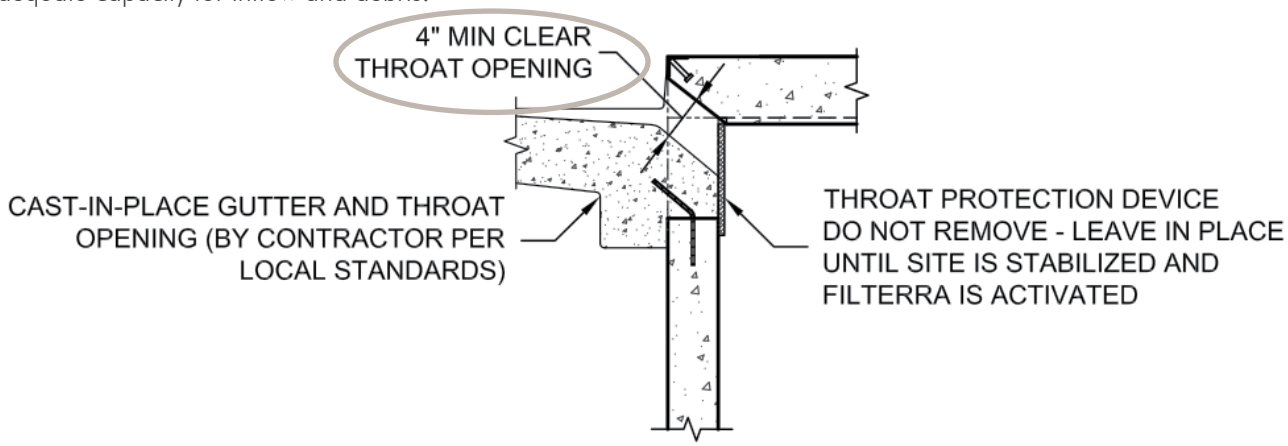
1. The site landscaping must be fully stabilized, i.e. full landscaping installed and some grass cover (not just straw and seed) is required to reduce sediment transport. Construction debris and materials should be removed from surrounding area.



2. Final paving must be completed. Final paving ensures that paving materials will not enter and contaminate the Filterra system during the paving process, and that the plant will receive runoff from the drainage area, assisting with plant survival for the Filterra system.



3. Where curb inlets are included as part of the Filterra system, Filterra throat opening should be at least 4" in order to ensure adequate capacity for inflow and debris.



An Activation Checklist is included on page 12 to ensure proper conditions are met for Contech to perform the Activation services. A charge of $500.00 will be invoiced for each Activation visit requested by Customer where Contech determines that the site does not meet the conditions required for Activation.

Filterra Plant Selection Overview

A Plant List is available on the Contech website highlighting recommended plants for Filterra systems in your area. Keep in mind that plants are subject to availability due to seasonality and required minimum size for the Filterra system. Plants installed in the Filterra system are container plants (max 15 gallon) from nursery stock and will be immature in height and spread at Activation.

It is the responsibility of the owner to provide adequate irrigation when necessary to the plant of the Filterra system.

The "Planting Requirements for Filterra Systems" document is included as an appendix and discusses proper selection and care of the plants within Filterra systems.

Warranty Overview

Refer to the Contech Engineered Solutions LLC Stormwater Treatment System LIMITED WARRANTY for further information. The following conditions may void the Filterra system's warranty and waive the manufacturer provided Activation and Maintenance services:

- Unauthorized activation or performance of any of the items listed in the activation overview
- Any tampering, modifications or damage to the Filterra system or runoff protection devices
- Removal of any Filterra system components
- Failure to prevent construction related runoff from entering the Filterra system
- Failure to properly store and protect any Filterra components (including media and underdrain stone) that may be shipped separately from the vault

Routine Maintenance Guidelines

With proper routine maintenance, the biofiltration media within the Filterra system should last as long as traditional bioretention media. Routine maintenance is included by the manufacturer on all Filterra systems for the first year after activation. This includes a maximum of 2 visits to remove debris, replace pretreatment mulch, and prune the vegetation. More information is provided in the Operations and Maintenance Guidelines. Some Filterra systems also contain pretreatment or outlet bays. Depending on site pollutant loading, these bays may require periodic removal of debris, however this is not included in the first year of maintenance, and would likely not be required within the first year of operation.

These services, as well as routine maintenance outside of the included first year, can be provided by certified maintenance providers listed on the Contech website. Training can also be provided to other stormwater maintenance or landscape providers.



Why Maintain?

All stormwater treatment systems require maintenance for effective operation. This necessity is often incorporated in your property's permitting process as a legally binding BMP maintenance agreement. Other reasons to maintain are:

- Avoiding legal challenges from your jurisdiction's maintenance enforcement program.
- Prolonging the expected lifespan of your Filterra media.
- Avoiding more costly media replacement.
- Helping reduce pollutant loads leaving your property.

Simple maintenance of the Filterra is required to continue effective pollutant removal from stormwater runoff before discharge into downstream waters. This procedure will also extend the longevity of the living biofilter system. The unit will recycle and accumulate pollutants within the biomass, but is also subjected to other materials entering the inlet. This may include trash, silt and leaves etc. which will be contained above the mulch layer. Too much silt may inhibit the Filterra's flow rate, which is the reason for site stabilization before activation. Regular replacement of the mulch stops accumulation of such sediment.

When to Maintain?

Contech includes a 1-year maintenance plan with each system purchase. Annual included maintenance consists of a maximum of two (2) scheduled visits. Additional maintenance may be necessary depending on sediment and trash loading (by Owner or at additional cost). The start of the maintenance plan begins when the system is activated.

Maintenance visits are typically scheduled seasonally; the spring visit aims to clean up after winter loads including salts and sands while the fall visit helps the system by removing excessive leaf litter.

It has been found that in regions which receive between 30-50 inches of annual rainfall, (2) two visits are generally required; regions with less rainfall often only require (1) one visit per annum. Varying land uses can affect maintenance frequency; e.g. some fast food restaurants require more frequent trash removal. Contributing drainage areas which are subject to new development wherein the recommended erosion and sediment control measures have not been implemented may require additional maintenance visits.

Some sites may be subjected to extreme sediment or trash loads, requiring more frequent maintenance visits. This is the reason for detailed notes of maintenance actions per unit, helping the Supplier and Owner predict future maintenance frequencies, reflecting individual site conditions.

Owners must promptly notify the maintenance provider of any damage to the plant(s), which constitute(s) an integral part of the bioretention technology. Owners should also advise other landscape or maintenance contractors to leave all maintenance to the Supplier (i.e. no pruning or fertilizing) during the first year.



Exclusion of Services

Clean up due to major contamination such as oils, chemicals, toxic spills, etc. will result in additional costs and are not covered under the Supplier maintenance contract. Should a major contamination event occur the Owner must block off the outlet pipe of the Filterra (where the cleaned runoff drains to, such as drop inlet) and block off the throat of the Filterra. The Supplier should be informed immediately.

Maintenance Visit Summary

Each maintenance visit consists of the following simple tasks (detailed instructions below).

1. Inspection of Filterra and surrounding area
2. Removal of tree grate (where applicable) and erosion control stones
3. Removal of debris, trash and mulch
4. Mulch replacement
5. Plant health evaluation and pruning or replacement as necessary
6. Clean area around Filterra
7. Complete paperwork

Maintenance Tools, Safety Equipment and Supplies

Ideal tools include: camera, bucket, shovel, broom, pruners, hoe/rake, and tape measure. Appropriate Personal Protective Equipment (PPE) should be used in accordance with local or company procedures. This may include impervious gloves where the type of trash is unknown, high visibility clothing and barricades when working in close proximity to traffic and also safety hats and shoes. A T-Bar or crowbar should be used for moving the tree grates, where applicable (up to 170 lbs each). If tree grate opening expansion is necessary, safety glasses/goggles and a 3lb or greater mini sledgehammer are required. Most visits require minor trash removal and a full replacement of mulch. See below for actual number of bagged mulch that is required in each media bay size. Mulch should be a double shredded, hardwood variety. Some visits may require additional Filterra engineered soil media available from the Supplier.

Media Bay Length	Media Bay Width	Filter Surface Area (ft^2)	Volume at 3" (ft^3)	# of 2 ft^3 Mulch Bags
4	4	16	4	2
6	4	24	6	3
8	4	32	8	4
6	6	36	9	5
8	6	48	12	6
10	6	60	15	8
12	6	72	18	9
13	7	91	23	12

Other sizes not listed - 1 bag per 8 ft^2 of media.

Maintenance Visit Procedure

Keep sufficient documentation of maintenance actions to predict location specific maintenance frequencies and needs. An example Maintenance Report is included in this manual.



1. Inspection of Filterra and surrounding area

- Record individual unit before maintenance with photograph (numbered). Record on Maintenance Report (see example in this document) the following:

Record on Maintenance Report the following:

Standing Water	yes | no
Damage to Box Structure	yes | no
Damage to Grate (if applicable)	yes | no
Is Bypass Clear	yes | no

If yes answered to any of these observations, record with close-up photograph (numbered).



2. Removal of tree grate (if applicable) and erosion control stones

- Remove cast iron grates for access into Filterra box (if applicable).
- Dig out silt (if any) and mulch and remove trash & foreign items.

3. Removal of debris, trash and mulch

Record on Maintenance Report the following:

Silt/Clay	yes | no
Cups/ Bags	yes | no
Leaves	yes | no
Buckets Removed	_____



- After removal of mulch and debris, measure distance from the top of the Filterra engineered media soil to the top of the top slab. Compare the measured distance to the distance shown on the approved Contract Drawings for the system. Add Filterra media (not top soil or other) to bring media up as needed to distance indicated on drawings.

Record on Maintenance Report the following:

Distance to Top of Top Slab (inches)	_____
Inches of Media Added	_____



4. Mulch replacement

- Add double shredded mulch evenly across the entire unit to a depth of 3".
- Refer to Filterra Mulch Specifications for information on acceptable sources.
- Ensure correct repositioning of erosion control stones by the Filterra inlet to allow for entry of trash during a storm event.
- Replace Filterra grates (if applicable) correctly using appropriate lifting or moving tools, taking care not to damage the plant.
- Where applicable, if 6" tree grate opening is too close to plant trunk, the grate opening may be expanded to 12" using a mini sledgehammer. Refer to instructions in Appendix 3.



5. Plant health evaluation and pruning or replacement as necessary

- Examine the plant's health and replace if necessary.
- Prune as necessary to encourage growth in the correct directions

Record on Maintenance Report the following:

Height above top of Filterra Unit	_____ (ft)
Width at Widest Point	_____ (ft)
Health	healthy | unhealthy
Damage to Plant	yes | no
Plant Replaced	yes | no



6. Clean area around Filterra

- Clean area around unit and remove all refuse to be disposed of appropriately.



7. Complete paperwork

- Deliver Maintenance Report and photographs to appropriate location (normally Contech during maintenance contract period).
- Some jurisdictions may require submission of maintenance reports in accordance with approvals. It is the responsibility of the Owner to comply with local regulations.

Maintenance Checklist

Drainage System Failure	Problem	Conditions to Check	Condition that Should Exist	Actions
Inlet	Excessive sediment or trash accumulation.	Accumulated sediments or trash impair free flow of water into Filterra.	Inlet should be free of obstructions allowing free distributed flow of water into Filterra.	Sediments and/or trash should be removed.
Mulch Cover	Trash and floatable debris accumulation.	Excessive trash and/or debris accumulation.	Minimal trash or other debris on mulch cover.	Trash and debris should be removed and mulch cover raked level. Ensure bark nugget mulch is not used.
Mulch Cover	"Ponding" of water on mulch cover.	"Ponding" in unit could be indicative of clogging due to excessive fine sediment accumulation or spill of petroleum oils.	Stormwater should drain freely and evenly through mulch cover.	Recommend contact manufacturer and replace mulch as a minimum.
Vegetation	Plants not growing or in poor condition.	Soil/mulch too wet, evidence of spill. Incorrect plant selection. Pest infestation. Vandalism to plants.	Plants should be healthy and pest free.	Contact manufacturer for advice.
Vegetation	Plant growth excessive.	Plants should be appropriate to the species and location of Filterra.		Trim/prune plants in accordance with typical landscaping and safety needs.
Structure	Structure has visible cracks.	Cracks wider than 1/2 inch or evidence of soil particles entering the structure through the cracks.		Vault should be repaired.
Maintenance is ideally to be performed twice annually.				

Filterra Inspection & Maintenance Log

Filterra System Size/Model:_____**Location:** _____

Date	Mulch & Debris Removed	Depth of Mulch Added	Mulch Brand	Height of Vegetation Above Top of Vault	Vegetation Species	Issues with System	Comments
1/1/17	*5 – 5 gal Buckets*	*3"*	*Lowe's Premium Brown Mulch*	*4'*	*Galaxy Magnolia*	*- Standing water in downstream structure*	*- Removed blockage in downstream structure*

Appendix 1 – Filterra® Activation Checklist

Project Name: _____ Company: _____

Site Contact Name: _____ Site Contact Phone/Email: _____

Site Owner/End User Name: _____ Site Owner/End User Phone/Email: _____

Preferred Activation Date: _____ (provide 2 weeks minimum from date this form is submitted)

Site Designation	System Size	Final Pavement / Top Coat Complete	Landscaping Complete / Grass Emerging	Construction materials / Piles / Debris Removed	Throat Opening Measures 4" Min. Height	Plant Species Requested
		☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No ☐ N/A	
		☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No ☐ N/A	
		☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No ☐ N/A	
		☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No ☐ N/A	
		☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No ☐ N/A	
		☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No ☐ N/A	
		☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No ☐ N/A	
		☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No ☐ N/A	
		☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No ☐ N/A	

Attach additional sheets as necessary.

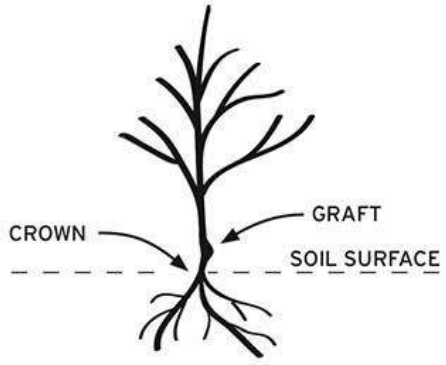
NOTE: A charge of $500.00 will be invoiced for each Activation visit requested by Customer where Contech determines that the site does not meet the conditions required for Activation. ONLY Contech authorized representatives can perform Activation of Filterra systems; unauthorized Activations will void the system warranty and waive manufacturer supplied Activation and 1st Year Maintenance.

_____ _____

Signature Date

Appendix 2 – Planting Requirements for Filterra® Systems

Plant Material Selection



- Select plant(s) as specified in the engineering plans and specifications.
- Select plant(s) with full root development but not to the point where root bound.
- Use local nursery container plants only. Ball and burlapped plants are not permitted.
- For precast Filterra systems with a tree grate, plant(s) must not have scaffold limbs at least 14 inches from the crown due to spacing between the top of the mulch and the tree grate. Lower branches can be pruned away provided there are sufficient scaffold branches for tree or shrub development.
- For precast Filterra systems with a tree grate, at the time of installation, it is required that plant(s) must be at least 6" above the tree grate opening at installation for all Filterra configurations. This DOES NOT apply to Full Grate Cover designs.
- Plant(s) shall not have a mature height greater than 25 feet.
- For standard 21" media depth, a 7 – 15 gallon container size shall be used. Media less than 21" (Filterra boxes only) may require smaller container plants.
- For precast Filterra systems, plant(s) should have a single trunk at installation, and pruning may be necessary at activation and maintenance for some with a tree grate of the faster growing species, or species known to produce basal sprouts.

Plant Installation

- During transport protect the plant foliage from wind and excessive jostling.
- Prior to removing the plant(s) from the container, ensure the soil moisture is sufficient to maintain the integrity of the root ball. If needed, pre-wet the container plant.
- Cut away any roots which are growing out of the container drain holes. Plants with excessive root growth from the drain holes should be rejected.
- Plant(s) should be carefully removed from the pot by gently pounding on the sides of the container with the fist to loosen root ball. Then carefully slide out. Do not lift plant(s) by trunk as this can break roots and cause soil to fall off. Extract the root ball in a horizontal position and support it to prevent it from breaking apart. Alternatively the pot can be cut away to minimize root ball disturbance.
- Remove any excess soil from above the root flare after removing plant(s) from container.
- Excavate a hole with a diameter 4" greater than the root ball, gently place the plant(s).
- If plant(s) have any circling roots from being pot bound, gently tease them loose without breaking them.
- If root ball has a root mat on the bottom, it should be shaved off with a knife just above the mat line.
- Plant the tree/shrub/grass with the top of the root ball 1" above surrounding media to allow for settling.
- All plants should have the main stem centered in the tree grate (where applicable) upon completion of installation.
- With all trees/shrubs, remove dead, diseased, crossed/rubbing, sharply crotched branches or branches growing excessively long or in wrong direction compared to majority of branches.
- To prevent transplant shock (especially if planting takes place in the hot season), it may be necessary to prune some of the foliage to compensate for reduced root uptake capacity. This is accomplished by pruning away some of the smaller secondary branches or a main scaffold branch if there are too many. Too much foliage relative to the root ball can dehydrate and damage the plant.
- Plant staking may be required.

Mulch Installation

- Only mulch that meets Contech Engineered Solutions' mulch specifications can be used in the Filterra system.
- Mulch must be applied to a depth of 3" evenly over the surface of the media.

Irrigation Requirements

- Each Filterra system must receive adequate irrigation to ensure survival of the living system during periods of drier weather.
- Irrigation sources include rainfall runoff from downspouts and/or gutter flow, applied water through the top/tree grate or in some cases from an irrigation system with emitters installed during construction.
- At Activation: Apply about one (cool climates) to two (warm climates) gallons of water per inch of trunk diameter over the root ball.
- During Establishment: In common with all plants, each Filterra plant will require more frequent watering during the establishment period. One inch of applied water per week for the first three months is recommended for cooler climates (2 to 3 inches for warmer climates). If the system is receiving rainfall runoff from the drainage area, then irrigation may not be needed. Inspection of the soil moisture content can be evaluated by gently brushing aside the mulch layer and feeling the soil. Be sure to replace the mulch when the assessment is complete. Irrigate as needed**.
- Established Plants: Established plants have fully developed root systems and can access the entire water column in the media. Therefore irrigation is less frequent but requires more applied water when performed. For a mature system assume 3.5 inches of available water within the media matrix. Irrigation demand can be estimated as 1" of irrigation demand per week. Therefore if dry periods exceed 3 weeks, irrigation may be required. It is also important to recognize that plants which are exposed to windy areas and reflected heat from paved surfaces may need more frequent irrigation. Long term care should develop a history which is more site specific.

** Five gallons per square yard approximates 1 inch of water Therefore for a 6' by 6' Filterra approximately 20-60 gallons of water is needed. To ensure even distribution of water it needs to be evenly sprinkled over the entire surface of the filter bed, with special attention to make sure the root ball is completely wetted. NOTE: if needed, measure the time it takes to fill a five gallon bucket to estimate the applied water flow rate then calculate the time needed to irrigate the Filterra. For example, if the flow rate of the sprinkler is 5 gallons/minute then it would take 12 minutes to irrigate a 6' by 6' filter.



Appendix 3 – Filterra® Tree Grate Opening Expansion Procedure

The standard grates used on all Filterra configurations that employ Tree Grates are fabricated with a 6″ opening that is designed with a breakaway section that can be removed, allowing the grate opening to be expanded to 12″ as the tree matures and the trunk widens.

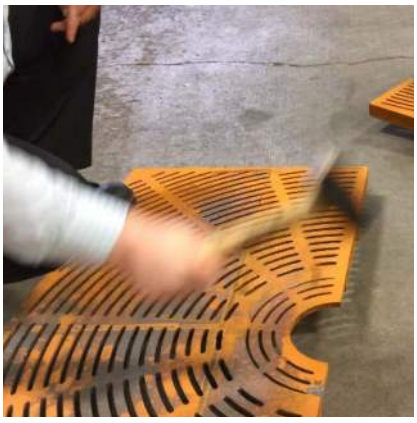
The following tools are required to expand the opening:

- Mini sledgehammer (3 lb. or greater)
- Safety Glasses / Goggles

The following guidelines should be followed to properly expand the tree opening from 6″ to 12″:



1. Remove the grate from the Filterra frame, place it flat on a hard surface, and support the grate by stepping on the edge or using other weighted items such as a few mulch bags if this is being done during a Filterra maintenance event. Put on safety glasses/goggles. Align the mini sledgehammer as shown in the figure to the left. The head of the sledgehammer should be aimed just inside the wide cast iron bar between the larger grate section and the breakaway section.



2. Repeatedly hit the grate at this spot with the mini sledgehammer.



3. After several hits, the breakaway section should snap cleanly off of the larger grate section. Reinstall the grate into the Filterra grate frame. Recycle or dispose of the breakaway section per local guidelines.





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PDF 6/21

Stormwater BMP Maintenance Log

BMP Structure	Inspector (Name)	Work Performed	Date Performed	Comments
Pavement Sweeping				
Catch Basins				
R-Tank System				
Jellyfish Unit				
Filterra Units				
Other				
Additional Comments:				

APPENDIX B: STORMWATER QUALITY CALCULATIONS

Woodard & Curran
41 HUTCHINS DRIVE
PORTLAND, MAINE 04102

CLIENT: PFDC
PROJECT: Blocks 4 & 6 Development
CALCS BY: AL/LS
DATE: 9/28/2022
PROJECT NO.: 227007.19

Redevelopment Treatment Calculations - Per Section 4.C.2.d of the MaineDEP Chapter 500 Rules

Area of Redevelopment (acres) = 12.15

a. Existing Pollutant Impact

Land Use	Pollutant Ranking	Land Area (Ac.)	Impact
High Use Roads/Parking Lot	5	0.00	0.00
Other Roads/Medium Use Parking Lot	4	4.14	16.54
Other Parking Lots/Flat Asphalt Roofs/Industrial Roofs	3	2.70	8.09
Other Roofs/Landscaped Area/Paved Walkway	2	3.51	7.03
Non-grass Landscaping/Stormwater	1	1.80	1.80
Forest/Meadow	0	0.00	0.00
			33.46

b. Proposed Pollutant Impact

Land Use	Pollutant Ranking	Land Area (Ac.)	Impact
High Use Roads/Parking Lot	5	0.51	2.54
Other Roads/Medium Use Parking Lot	4	1.77	7.09
Other Parking Lots/Flat Asphalt Roofs/Industrial Roofs	3	0.26	0.77
Other Roofs/Landscaped Area/Paved Walkway	2	9.52	19.04
Non-grass Landscaping/Stormwater	1	0.09	0.09
Forest/Meadow	0	0.00	0.00
			29.53

c. Existing Impact/Total Redevelopment Acres

2.754

d. Proposed Impact/Total Redevelopment Acres

2.430

e. Item D Minus Item C

-0.32

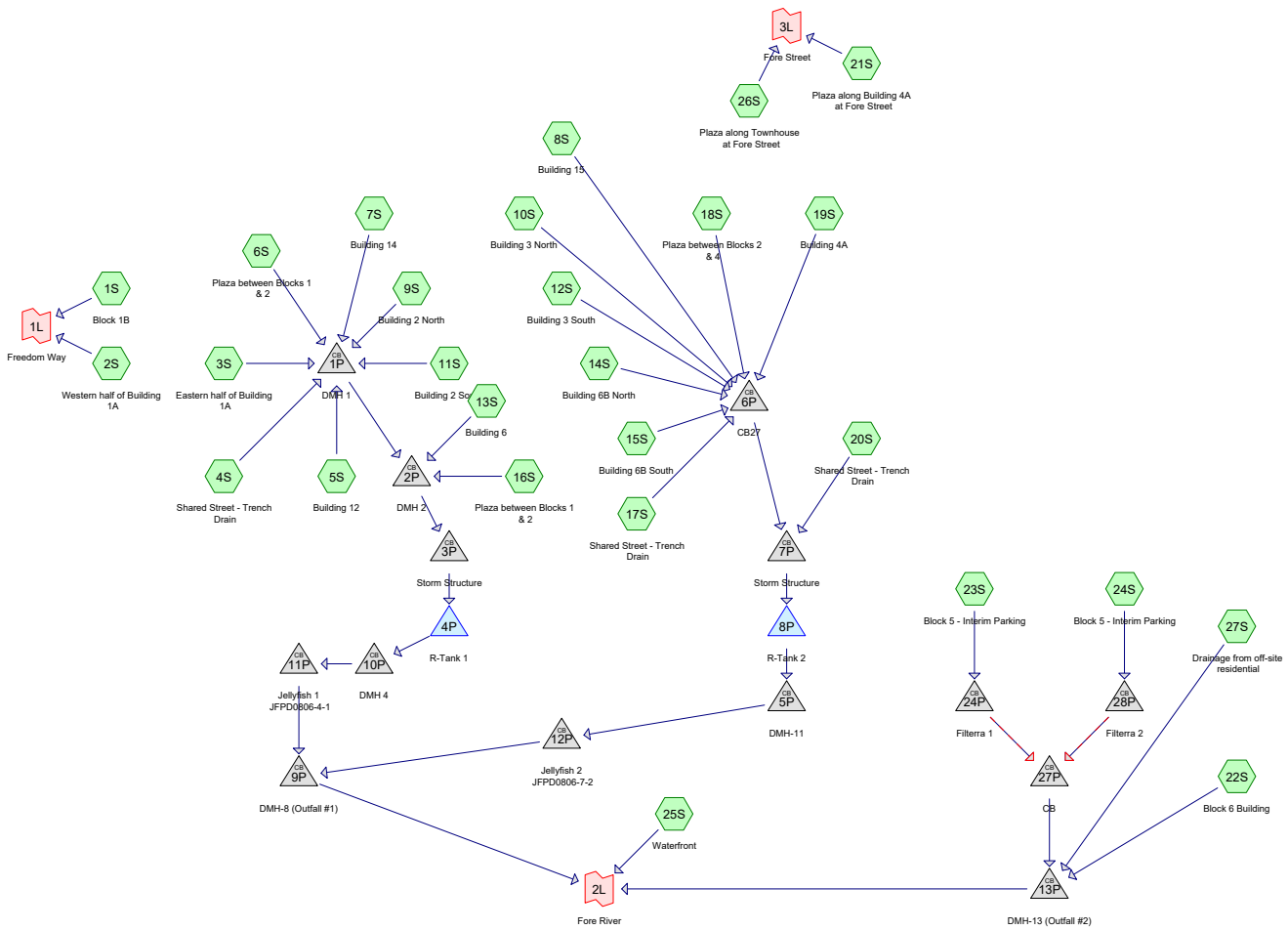
Ranked Impact Change Due to Redevelopment	Percentage of Developed Area that Must be Treated
0.0 or less	0% (Stormwater projects)
	50% (Site projects)
≥ 0.0 to ≤ 1.0	60%
> 1.0 to ≤ 2.0	70%
> 2.0 to ≤ 3.0	80%
> 3.0	Same treatment level as for new development

Stormwater Treatment Summary	*Treatment Percentage*	*Treated Area (SF)*
Required	50%	264,605
Provided	50%	264,876

WQV Summary	*R-Tank System 1*	*R-Tank System 2*	*Filterra 1*	*Filterra 2*
Status	Approved (Phase 1), Constructed	Approved (Phase 1), Proposed	Proposed	Proposed
Phase 1 Treated Area (SF)	84,114	114,084	N/A	N/A
Proposed Treated Area (SF)	89,211	137,562	19,514	18,589
Future Treated Areas (same as Phase 1) (SF)	94,090	149,106	N/A	N/A
WQV Required (CF)	7,841	12,425	1,626	1,549
WQ Design Storm Event (in.)	1.00	1.00	1.00	1.00
WQV Provided (CF)	2,859	6,035	N/A	N/A
*WQ Storm Event Provided (in.)**	0.36	0.49	N/A	N/A
Filterra Size	N/A	N/A	6'X12'	6'X12'

**Note: Based on discussions with Jeff Dennis, MaineDEP Watershed Management Unit Biologist, and consistent with the approach for Phase 1 of the development, it is our understanding that the project will not be required to provide storage for the full Water Quality Volume (WQV) because the project ultimately discharges to the Fore River. R-Tank Systems 1 & 2 were previously approved as part of Phase 1 of development, but only R-Tank System 1 was constructed. R-Tank System 2 is proposed to be installed during this next phase of development. Additional area may be directed to the R-Tank treatment systems as part of future phases of development; the future treated area is consistent with what was approved during Phase 1. The WQ storm event that the proposed WQV will be able to accommodate has been calculated based upon the total future treated area.*

APPENDIX C: HYDROCAD REPORT



Subcat Reach Pond Link

Routing Diagram for PFDC Blocks 4&6 Working Model
Prepared by Woodard & Curran, Inc, Printed 9/28/2022
HydroCAD® 10.20-2d s/n 01204 © 2021 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
2.183	80	>75% Grass cover, Good, HSG D (1S, 4S, 6S, 16S, 17S, 22S, 25S, 27S)
4.924	98	Impervious (1S, 6S, 16S, 18S, 20S, 21S, 23S, 24S, 25S, 26S, 27S)
0.186	98	Impervious Shared Street (17S)
0.507	98	Impervious Shared Street and Plaza (4S)
3.137	98	Roof (2S, 3S, 5S, 7S, 8S, 9S, 10S, 11S, 12S, 13S, 14S, 15S, 22S)
1.988	98	Roof & Plaza (19S)
12.925	**95**	**TOTAL AREA**

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: Block 1B Runoff Area=19,389 sf 1.02% Impervious Runoff Depth>0.08"
Tc=6.0 min CN=80 Runoff=0.02 cfs 0.003 af

Subcatchment2S: Western half of Runoff Area=22,128 sf 100.00% Impervious Runoff Depth>0.79"
Tc=6.0 min CN=98 Runoff=0.44 cfs 0.033 af

Subcatchment3S: Eastern half of Runoff Area=22,147 sf 100.00% Impervious Runoff Depth>0.79"
Tc=6.0 min CN=98 Runoff=0.44 cfs 0.033 af

Subcatchment4S: Shared Street - Trench Runoff Area=26,497 sf 83.29% Impervious Runoff Depth>0.56"
Tc=6.0 min CN=95 Runoff=0.39 cfs 0.029 af

Subcatchment5S: Building 12 Runoff Area=3,244 sf 100.00% Impervious Runoff Depth>0.79"
Tc=6.0 min CN=98 Runoff=0.06 cfs 0.005 af

Subcatchment6S: Plaza between Blocks 1 Runoff Area=18,771 sf 95.74% Impervious Runoff Depth>0.71"
Tc=6.0 min CN=97 Runoff=0.34 cfs 0.025 af

Subcatchment7S: Building 14 Runoff Area=2,557 sf 100.00% Impervious Runoff Depth>0.79"
Tc=6.0 min CN=98 Runoff=0.05 cfs 0.004 af

Subcatchment8S: Building 15 Runoff Area=2,578 sf 100.00% Impervious Runoff Depth>0.79"
Tc=6.0 min CN=98 Runoff=0.05 cfs 0.004 af

Subcatchment9S: Building 2 North Runoff Area=4,695 sf 100.00% Impervious Runoff Depth>0.79"
Tc=6.0 min CN=98 Runoff=0.09 cfs 0.007 af

Subcatchment10S: Building 3 North Runoff Area=2,212 sf 100.00% Impervious Runoff Depth>0.79"
Tc=6.0 min CN=98 Runoff=0.04 cfs 0.003 af

Subcatchment11S: Building 2 South Runoff Area=4,855 sf 100.00% Impervious Runoff Depth>0.79"
Tc=6.0 min CN=98 Runoff=0.10 cfs 0.007 af

Subcatchment12S: Building 3 South Runoff Area=2,326 sf 100.00% Impervious Runoff Depth>0.79"
Tc=6.0 min CN=98 Runoff=0.05 cfs 0.004 af

Subcatchment13S: Building 6 Runoff Area=3,304 sf 100.00% Impervious Runoff Depth>0.79"
Tc=6.0 min CN=98 Runoff=0.07 cfs 0.005 af

Subcatchment14S: Building 6B North Runoff Area=3,873 sf 100.00% Impervious Runoff Depth>0.79"
Tc=6.0 min CN=98 Runoff=0.08 cfs 0.006 af

Subcatchment15S: Building 6B South Runoff Area=2,512 sf 100.00% Impervious Runoff Depth>0.79"
Tc=6.0 min CN=98 Runoff=0.05 cfs 0.004 af

Subcatchment16S: Plaza between Blocks 1 Runoff Area=3,122 sf 71.75% Impervious Runoff Depth>0.45"
Tc=6.0 min CN=93 Runoff=0.04 cfs 0.003 af

Subcatchment17S: Shared Street - Trench Runoff Area=8,931 sf 90.72% Impervious Runoff Depth>0.63"
Tc=6.0 min CN=96 Runoff=0.15 cfs 0.011 af

Subcatchment18S: Plaza between Runoff Area=15,575 sf 100.00% Impervious Runoff Depth>0.79"
Tc=6.0 min CN=98 Runoff=0.31 cfs 0.024 af

Subcatchment19S: Building 4A Runoff Area=86,615 sf 100.00% Impervious Runoff Depth>0.79"
Tc=6.0 min CN=98 Runoff=1.73 cfs 0.131 af

Subcatchment20S: Shared Street - Runoff Area=12,950 sf 100.00% Impervious Runoff Depth>0.79"
Tc=6.0 min CN=98 Runoff=0.26 cfs 0.020 af

Subcatchment21S: Plaza along Building Runoff Area=2,534 sf 100.00% Impervious Runoff Depth>0.79"
Tc=6.0 min CN=98 Runoff=0.05 cfs 0.004 af

Subcatchment22S: Block 6 Building Runoff Area=71,240 sf 84.53% Impervious Runoff Depth>0.56"
Tc=6.0 min CN=95 Runoff=1.06 cfs 0.077 af

Subcatchment23S: Block 5 - Interim Runoff Area=18,694 sf 100.00% Impervious Runoff Depth>0.79"
Tc=6.0 min CN=98 Runoff=0.37 cfs 0.028 af

Subcatchment24S: Block 5 - Interim Runoff Area=17,974 sf 100.00% Impervious Runoff Depth>0.79"
Tc=6.0 min CN=98 Runoff=0.36 cfs 0.027 af

Subcatchment25S: Waterfront Runoff Area=134,732 sf 77.43% Impervious Runoff Depth>0.50"
Tc=6.0 min CN=94 Runoff=1.79 cfs 0.130 af

Subcatchment26S: Plaza along Townhouse Runoff Area=550 sf 100.00% Impervious Runoff Depth>0.79"
Tc=6.0 min CN=98 Runoff=0.01 cfs 0.001 af

Subcatchment27S: Drainage from off-site Runoff Area=49,015 sf 43.79% Impervious Runoff Depth>0.25"
Tc=6.0 min CN=88 Runoff=0.29 cfs 0.024 af

Pond 1P: DMH 1 Peak Elev=10.40' Inflow=1.48 cfs 0.111 af
24.0" Round Culvert n=0.013 L=61.0' S=0.0038 '/' Outflow=1.48 cfs 0.111 af

Pond 2P: DMH 2 Peak Elev=10.12' Inflow=1.59 cfs 0.118 af
24.0" Round Culvert n=0.013 L=31.0' S=0.0048 '/' Outflow=1.59 cfs 0.118 af

Pond 3P: Storm Structure Peak Elev=8.81' Inflow=1.59 cfs 0.118 af
15.0" Round Culvert x 3.00 n=0.013 L=4.0' S=0.0000 '/' Outflow=1.59 cfs 0.118 af

Pond 4P: R-Tank 1 Peak Elev=7.51' Storage=835 cf Inflow=1.59 cfs 0.118 af
21.0" Round Culvert n=0.013 L=62.0' S=0.0000 '/' Outflow=1.29 cfs 0.113 af

Pond 5P: DMH-11 Peak Elev=8.47' Inflow=1.64 cfs 0.189 af
24.0" Round Culvert n=0.013 L=16.0' S=0.0069 '/' Outflow=1.64 cfs 0.189 af

Pond 6P: CB27 Peak Elev=10.34' Inflow=2.46 cfs 0.186 af
24.0" Round Culvert n=0.013 L=22.0' S=0.0064 '/' Outflow=2.46 cfs 0.186 af

Pond 7P: Storm Structure Peak Elev=9.00' Inflow=2.72 cfs 0.205 af
15.0" Round Culvert x 3.00 n=0.013 L=4.0' S=0.0000 '/' Outflow=2.72 cfs 0.205 af

Pond 8P: R-Tank 2 Peak Elev=8.64' Storage=2,549 cf Inflow=2.72 cfs 0.205 af
24.0" Round Culvert n=0.013 L=70.0' S=0.0000 '/' Outflow=1.64 cfs 0.189 af

Pond 9P: DMH-8 (Outfall #1) Peak Elev=7.37' Inflow=2.90 cfs 0.302 af
30.0" Round Culvert n=0.013 L=52.0' S=0.0052 '/' Outflow=2.90 cfs 0.302 af

Pond 10P: DMH 4 Peak Elev=7.47' Inflow=1.29 cfs 0.113 af
24.0" Round Culvert n=0.013 L=59.0' S=0.0000 '/' Outflow=1.29 cfs 0.113 af

Pond 11P: Jellyfish 1 JFPD0806-4-1 Peak Elev=9.73' Inflow=1.29 cfs 0.113 af
Outflow=1.29 cfs 0.113 af

Pond 12P: Jellyfish 2 JFPD0806-7-2 Peak Elev=9.93' Inflow=1.64 cfs 0.189 af
Outflow=1.64 cfs 0.189 af

Pond 13P: DMH-13 (Outfall #2) Peak Elev=7.39' Inflow=2.08 cfs 0.156 af
24.0" Round Culvert n=0.013 L=75.0' S=0.0051 '/' Outflow=2.08 cfs 0.156 af

Pond 24P: Filterra 1 Peak Elev=9.04' Inflow=0.37 cfs 0.028 af
Primary=0.37 cfs 0.028 af Secondary=0.00 cfs 0.000 af Outflow=0.37 cfs 0.028 af

Pond 27P: CB Peak Elev=8.83' Inflow=0.73 cfs 0.055 af
15.0" Round Culvert n=0.013 L=210.0' S=0.0076 '/' Outflow=0.73 cfs 0.055 af

Pond 28P: Filterra 2 Peak Elev=9.03' Inflow=0.36 cfs 0.027 af
Primary=0.36 cfs 0.027 af Secondary=0.00 cfs 0.000 af Outflow=0.36 cfs 0.027 af

Link 1L: Freedom Way Inflow=0.45 cfs 0.037 af
Primary=0.45 cfs 0.037 af

Link 2L: Fore River Inflow=6.39 cfs 0.587 af
Primary=6.39 cfs 0.587 af

Link 3L: Fore Street Inflow=0.06 cfs 0.005 af
Primary=0.06 cfs 0.005 af

Total Runoff Area = 12.925 ac Runoff Volume = 0.650 af Average Runoff Depth = 0.60"
16.89% Pervious = 2.183 ac 83.11% Impervious = 10.742 ac

Summary for Subcatchment 1S: Block 1B

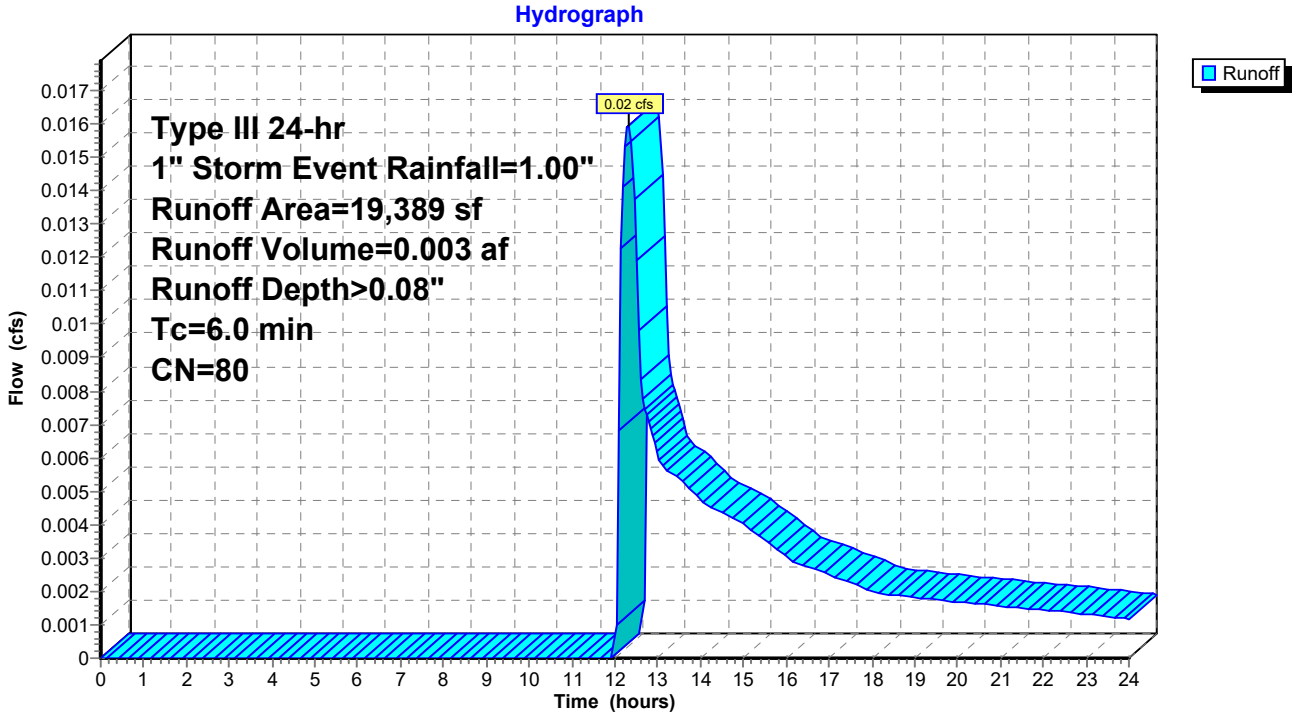
Runoff = 0.02 cfs @ 12.32 hrs, Volume= 0.003 af, Depth> 0.08"
Routed to Link 1L : Freedom Way

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	198	98	Impervious
	19,191	80	>75% Grass cover, Good, HSG D
	19,389	80	Weighted Average
	19,191		98.98% Pervious Area
	198		1.02% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 1S: Block 1B



Summary for Subcatchment 2S: Western half of Building 1A

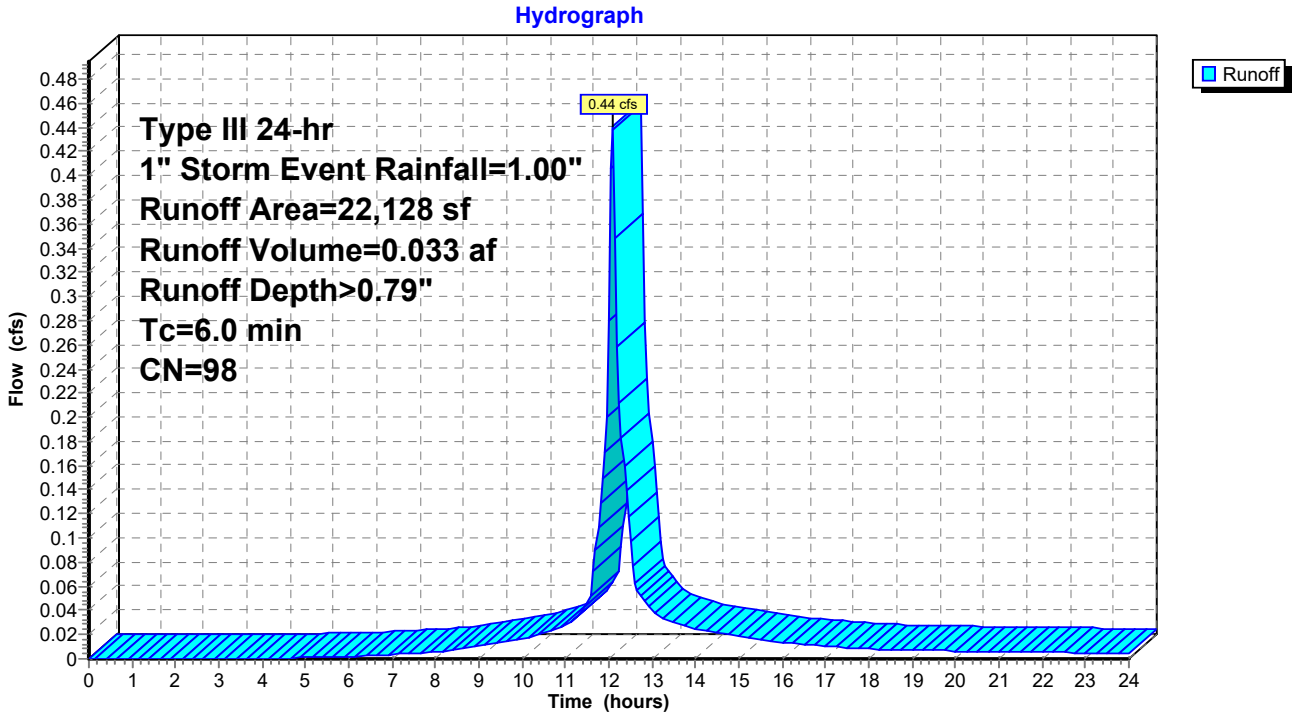
Runoff = 0.44 cfs @ 12.09 hrs, Volume= 0.033 af, Depth> 0.79"
Routed to Link 1L : Freedom Way

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	22,128	98	Roof
	22,128		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 2S: Western half of Building 1A



Summary for Subcatchment 3S: Eastern half of Building 1A

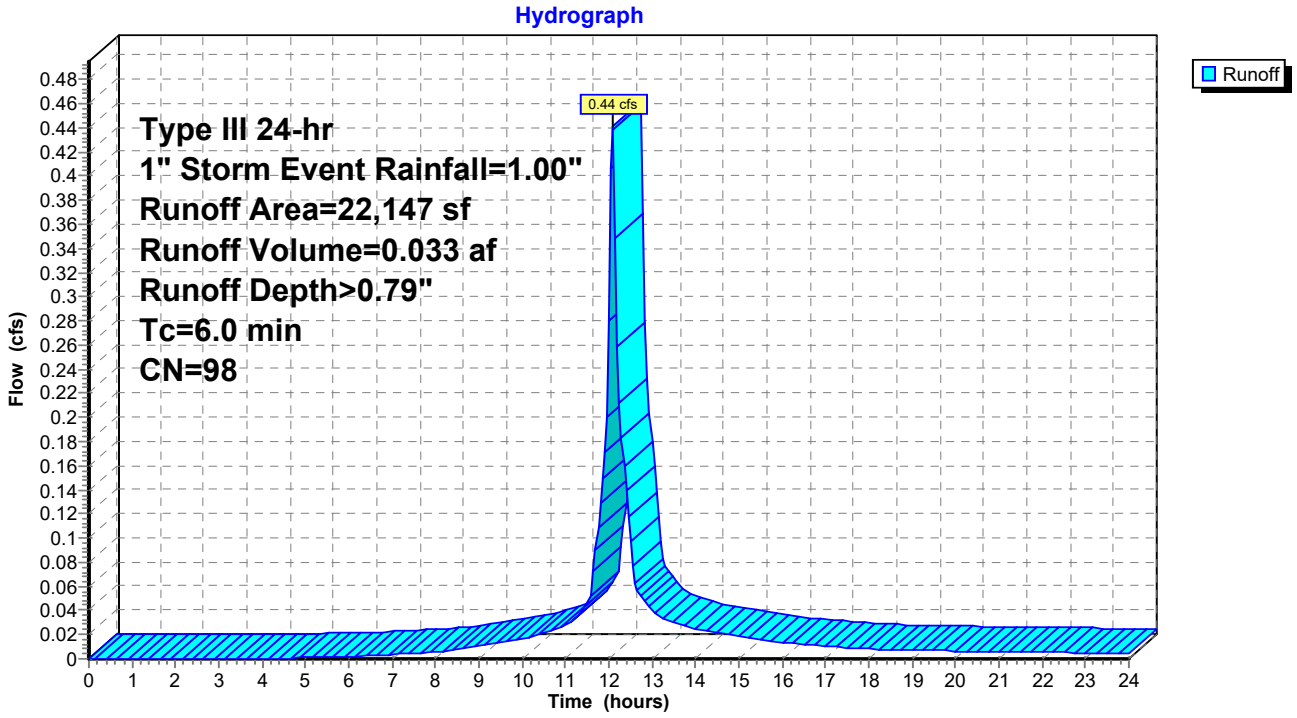
Runoff = 0.44 cfs @ 12.09 hrs, Volume= 0.033 af, Depth> 0.79"
Routed to Pond 1P : DMH 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	22,147	98	Roof
	22,147		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 3S: Eastern half of Building 1A



Summary for Subcatchment 4S: Shared Street - Trench Drain

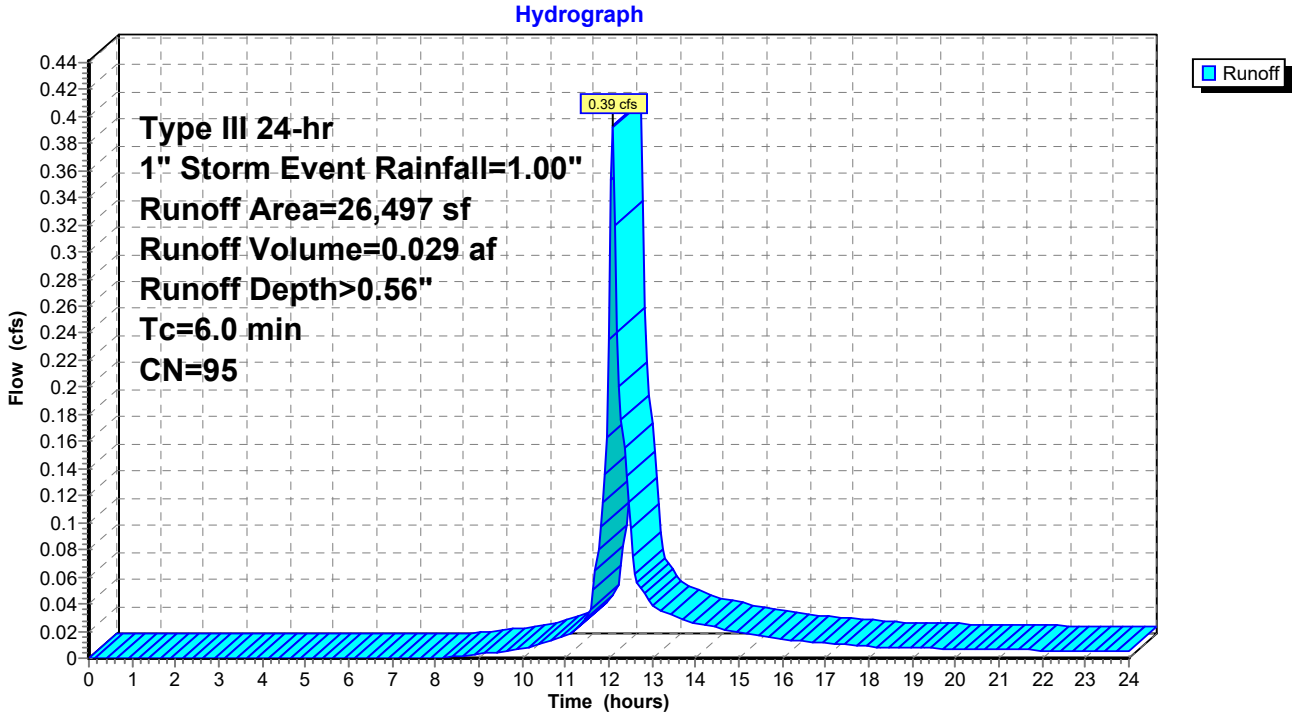
Runoff = 0.39 cfs @ 12.09 hrs, Volume= 0.029 af, Depth> 0.56"
Routed to Pond 1P : DMH 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
	4,428	80	>75% Grass cover, Good, HSG D
*	22,069	98	Impervious Shared Street and Plaza
	26,497	95	Weighted Average
	4,428		16.71% Pervious Area
	22,069		83.29% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 4S: Shared Street - Trench Drain



Summary for Subcatchment 5S: Building 12

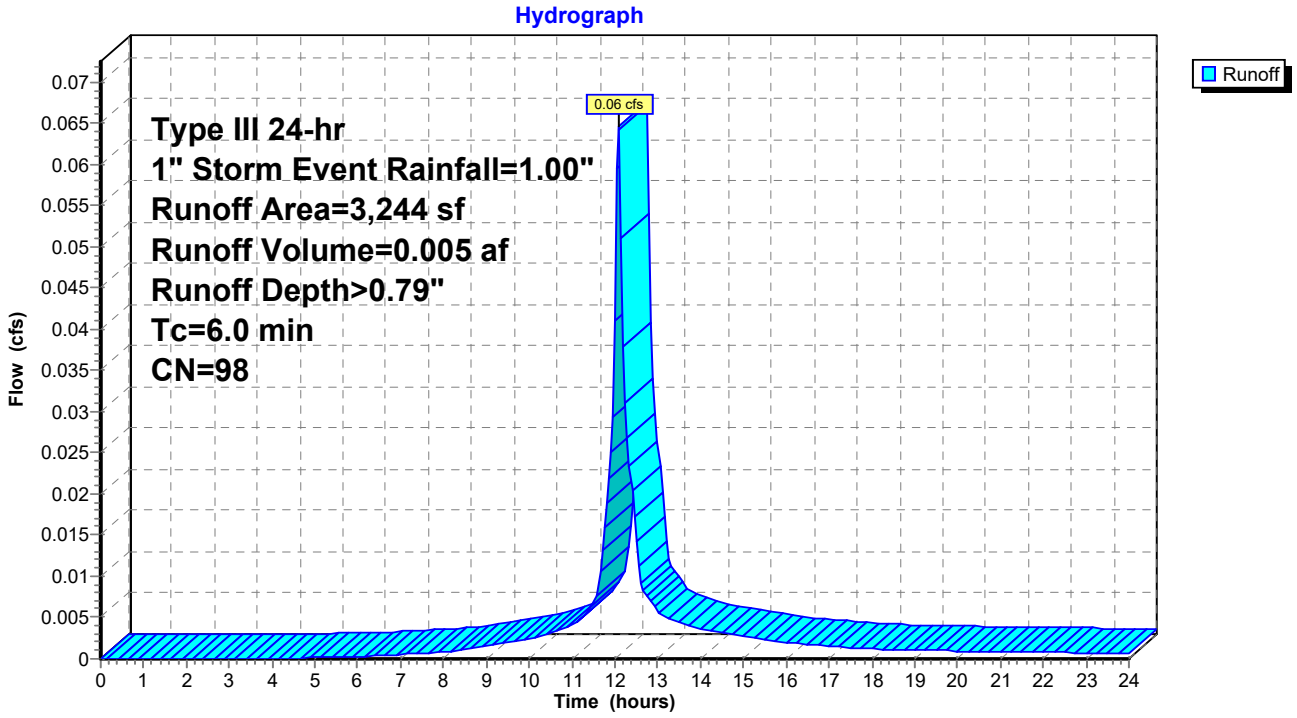
Runoff = 0.06 cfs @ 12.09 hrs, Volume= 0.005 af, Depth> 0.79"
Routed to Pond 1P : DMH 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	3,244	98	Roof
	3,244		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 5S: Building 12



Summary for Subcatchment 6S: Plaza between Blocks 1 & 2

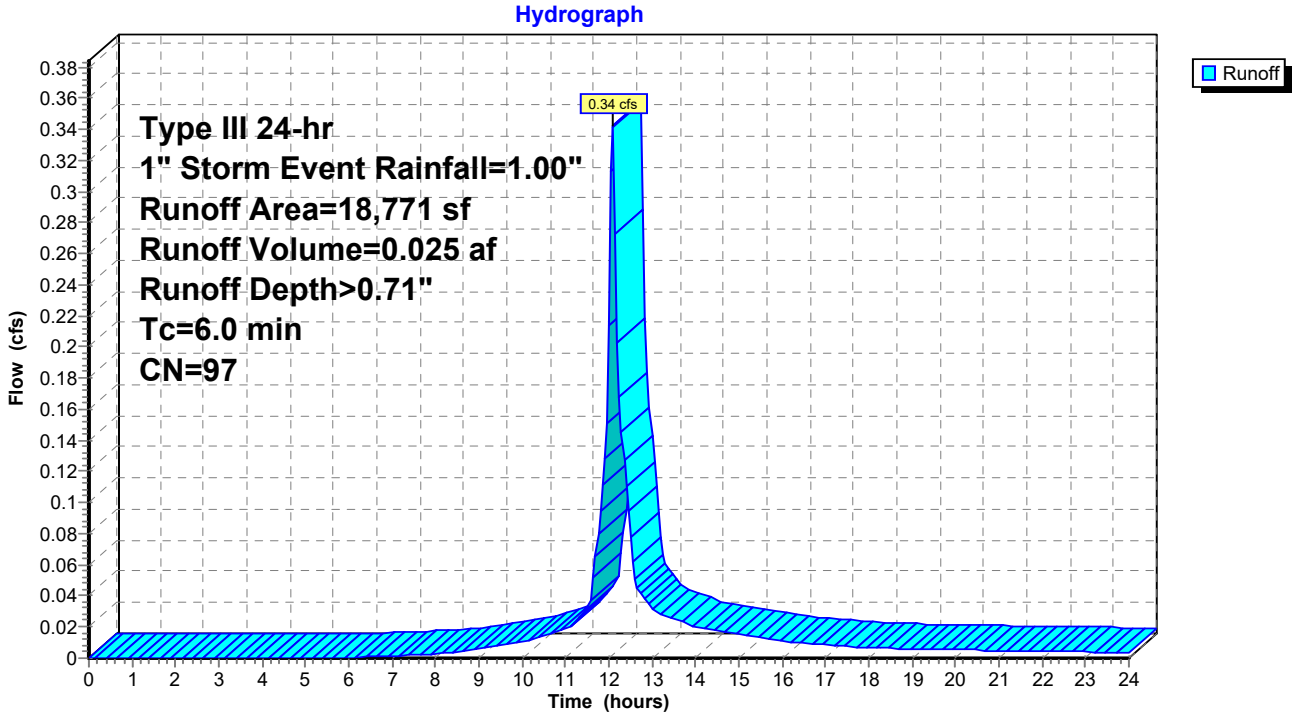
Runoff = 0.34 cfs @ 12.09 hrs, Volume= 0.025 af, Depth> 0.71"
Routed to Pond 1P : DMH 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	17,972	98	Impervious
	799	80	>75% Grass cover, Good, HSG D
	18,771	97	Weighted Average
	799		4.26% Pervious Area
	17,972		95.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 6S: Plaza between Blocks 1 & 2



Summary for Subcatchment 7S: Building 14

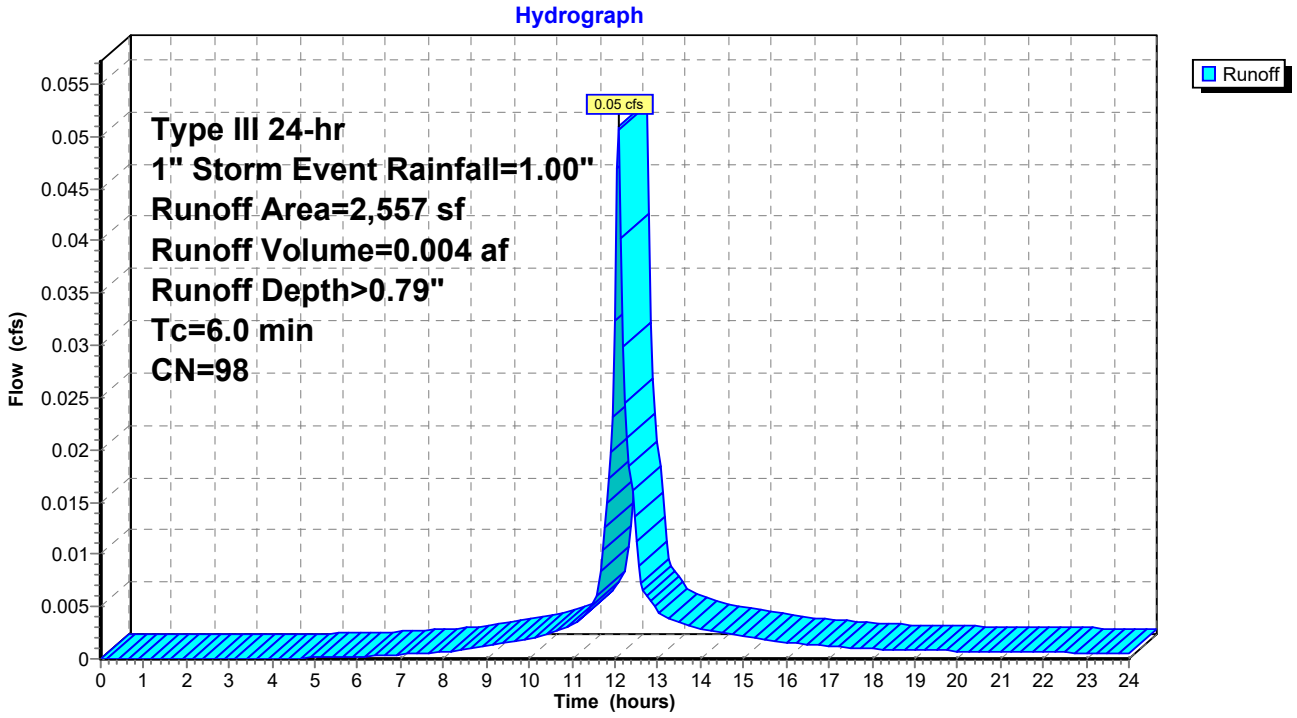
Runoff = 0.05 cfs @ 12.09 hrs, Volume= 0.004 af, Depth> 0.79"
Routed to Pond 1P : DMH 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	2,557	98	Roof
	2,557		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 7S: Building 14



Summary for Subcatchment 8S: Building 15

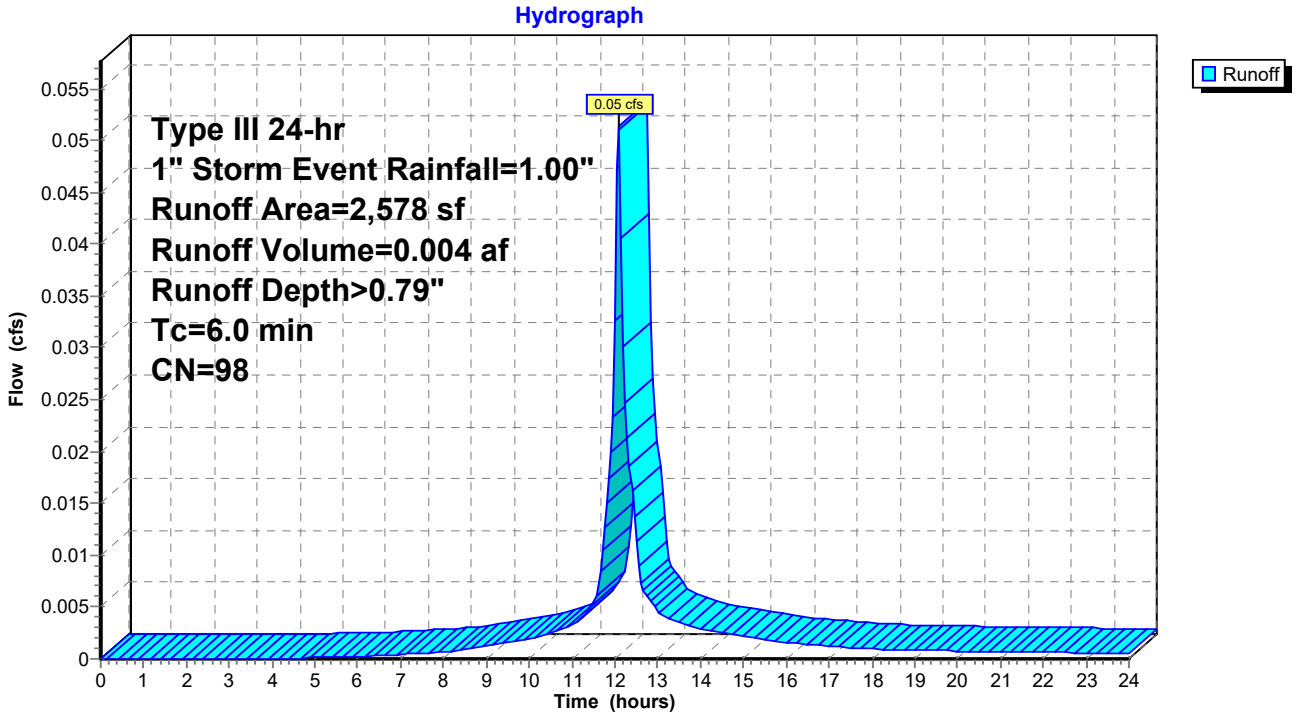
Runoff = 0.05 cfs @ 12.09 hrs, Volume= 0.004 af, Depth> 0.79"
Routed to Pond 6P : CB27

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	2,578	98	Roof
	2,578		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 8S: Building 15



Summary for Subcatchment 9S: Building 2 North

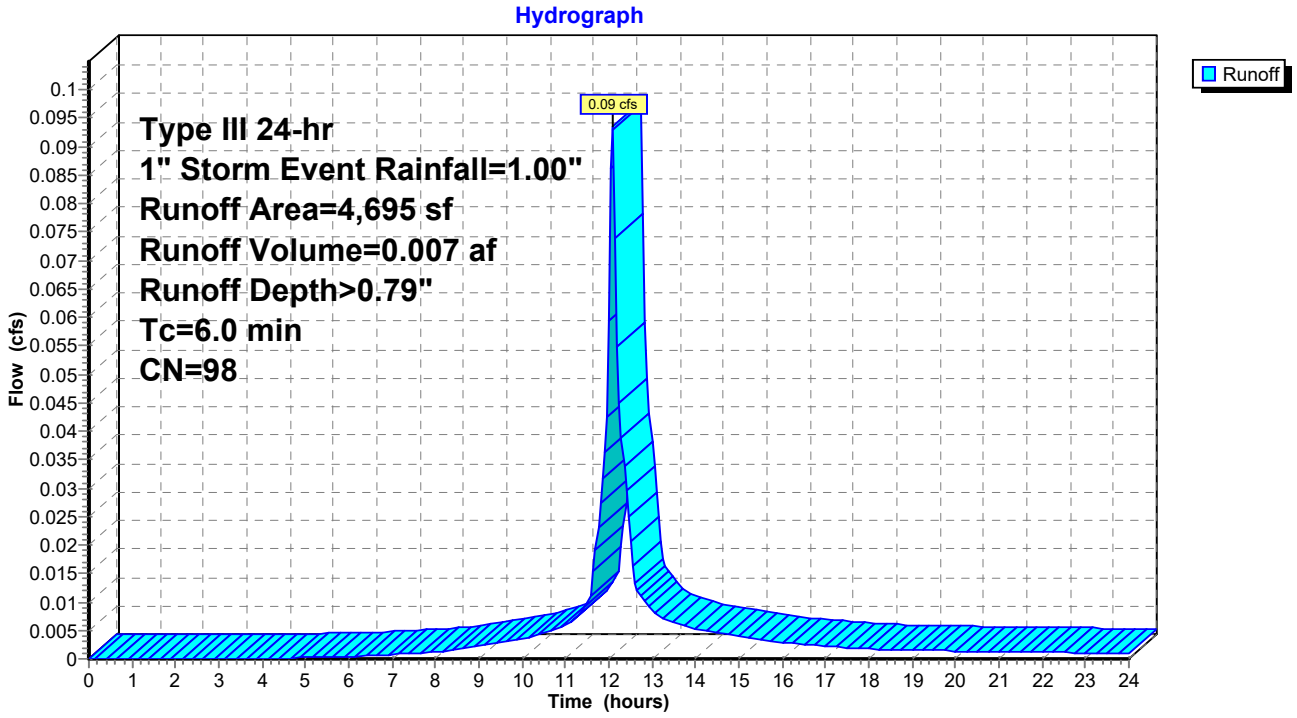
Runoff = 0.09 cfs @ 12.09 hrs, Volume= 0.007 af, Depth> 0.79"
Routed to Pond 1P : DMH 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	4,695	98	Roof
	4,695		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 9S: Building 2 North



Summary for Subcatchment 10S: Building 3 North

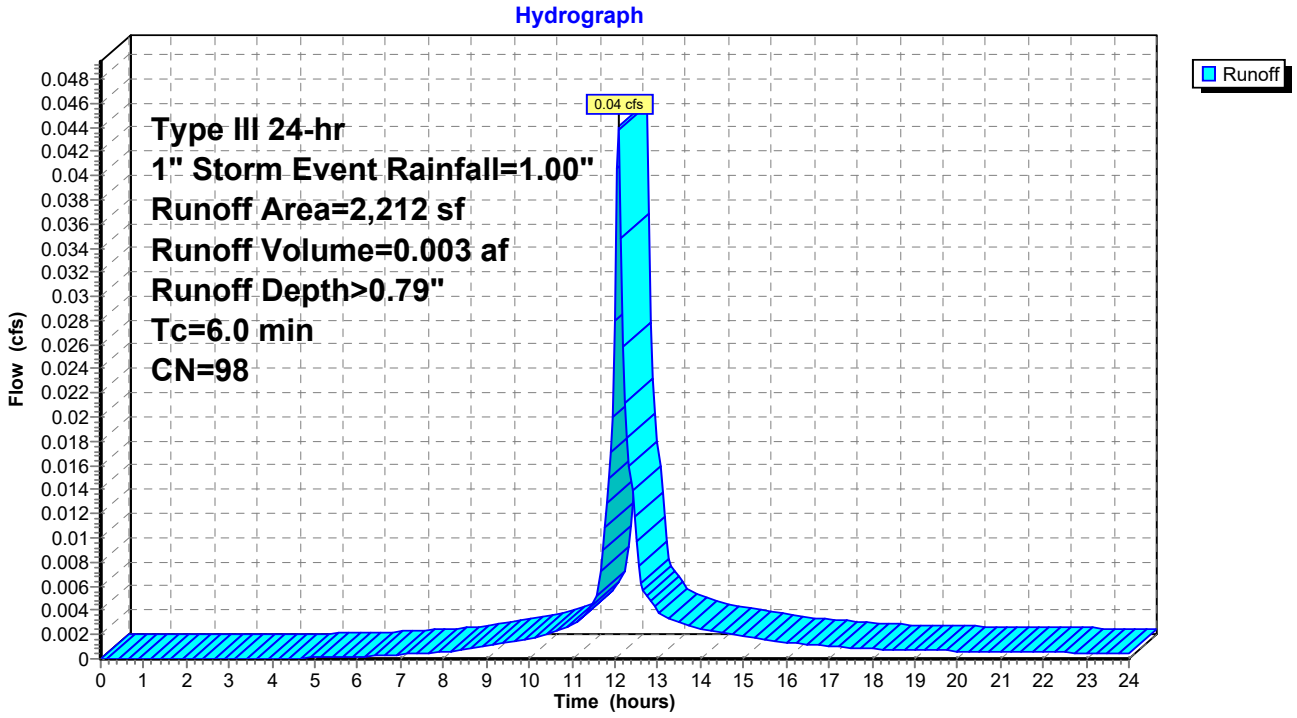
Runoff = 0.04 cfs @ 12.09 hrs, Volume= 0.003 af, Depth> 0.79"
Routed to Pond 6P : CB27

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	2,212	98	Roof
	2,212		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 10S: Building 3 North



Summary for Subcatchment 11S: Building 2 South

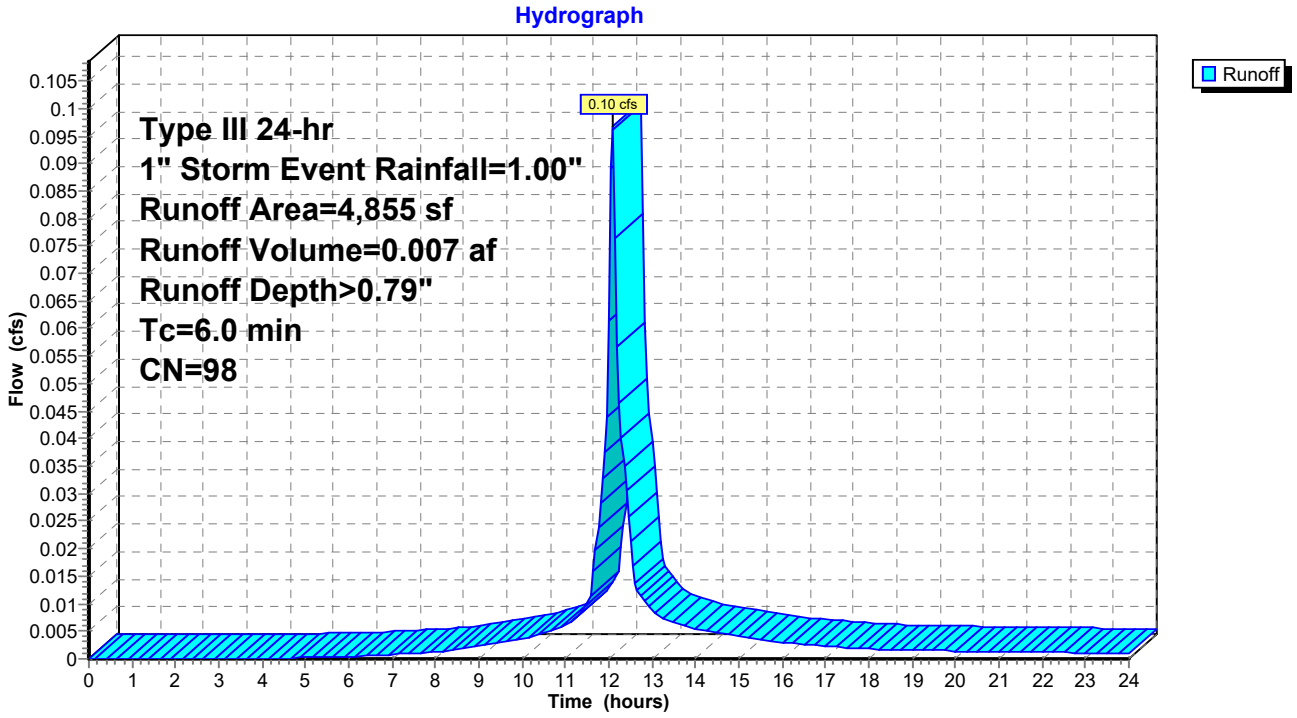
Runoff = 0.10 cfs @ 12.09 hrs, Volume= 0.007 af, Depth> 0.79"
Routed to Pond 1P : DMH 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	4,855	98	Roof
	4,855		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 11S: Building 2 South



Summary for Subcatchment 12S: Building 3 South

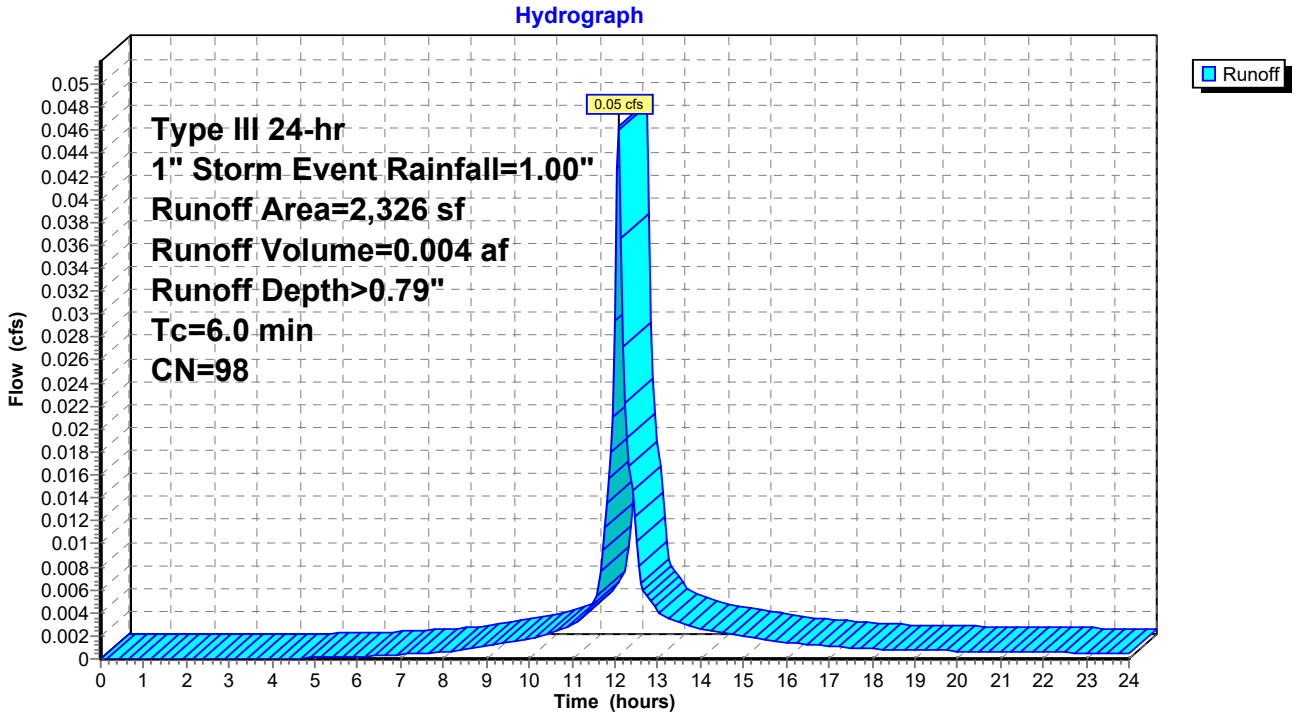
Runoff = 0.05 cfs @ 12.09 hrs, Volume= 0.004 af, Depth> 0.79"
Routed to Pond 6P : CB27

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	2,326	98	Roof
	2,326		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 12S: Building 3 South



Summary for Subcatchment 13S: Building 6

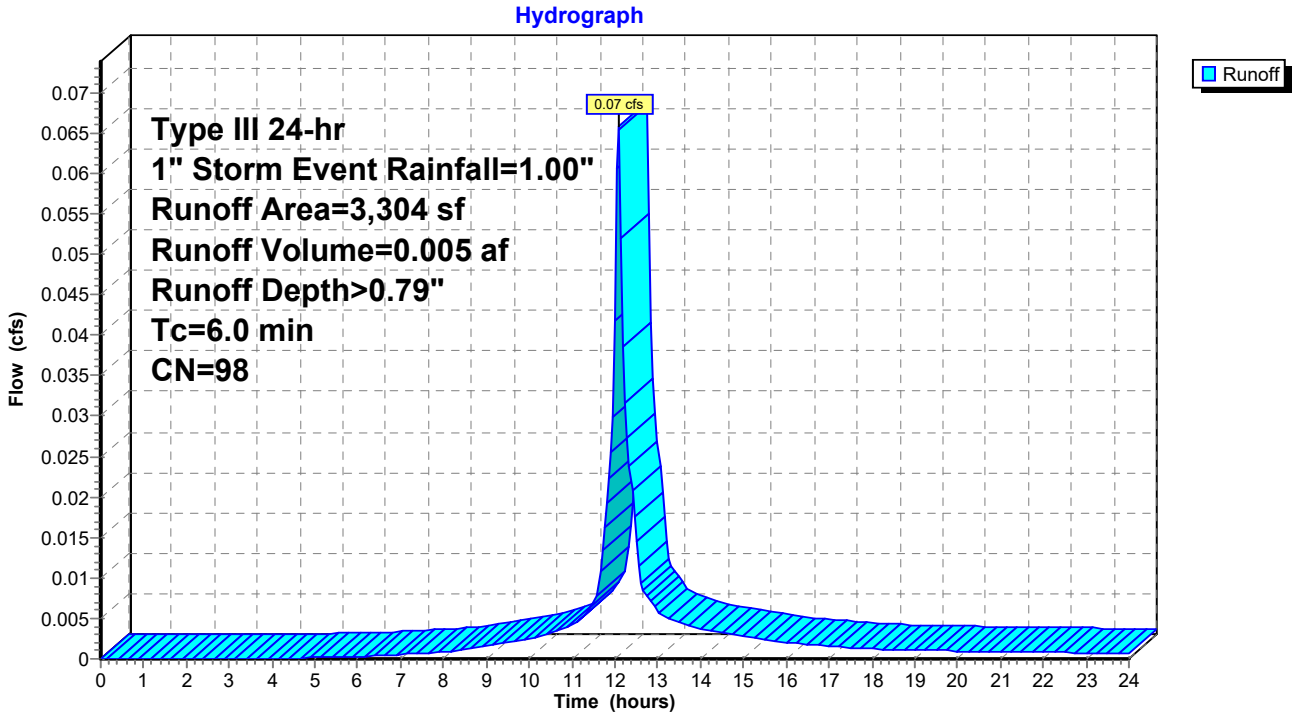
Runoff = 0.07 cfs @ 12.09 hrs, Volume= 0.005 af, Depth> 0.79"
Routed to Pond 2P : DMH 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	3,304	98	Roof
	3,304		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 13S: Building 6



Summary for Subcatchment 14S: Building 6B North

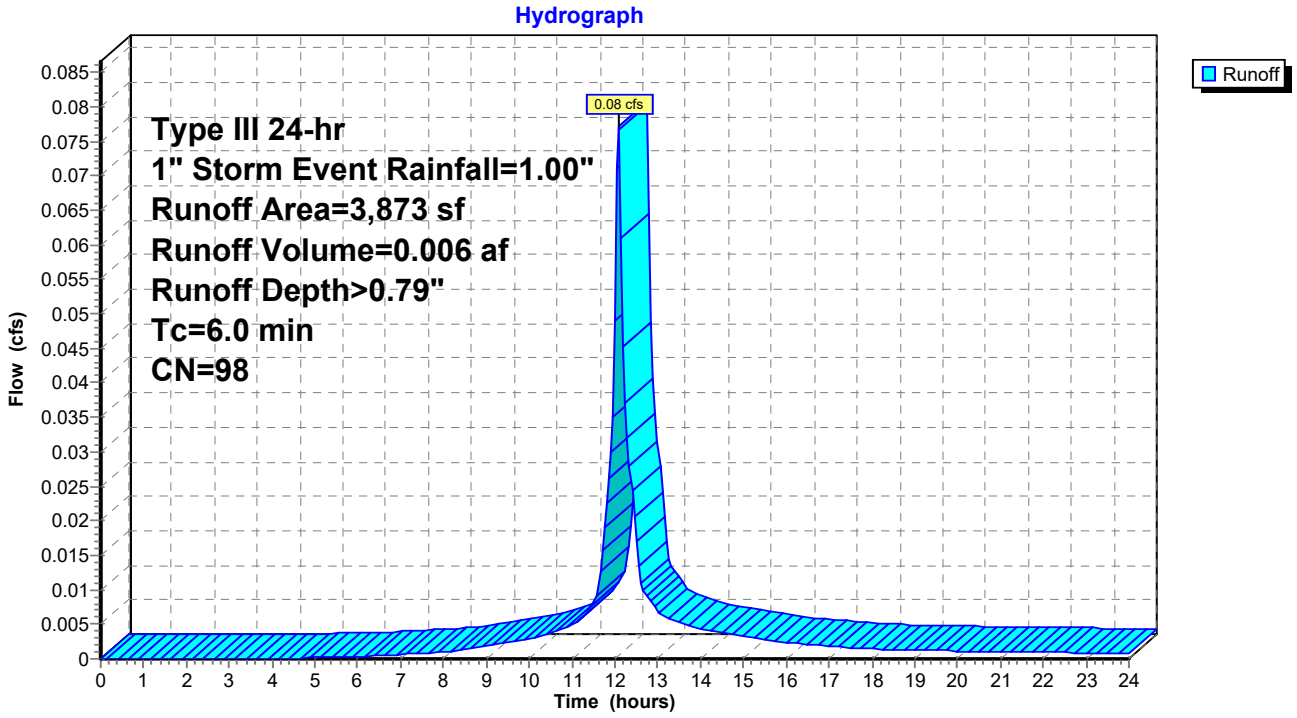
Runoff = 0.08 cfs @ 12.09 hrs, Volume= 0.006 af, Depth> 0.79"
Routed to Pond 6P : CB27

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	3,873	98	Roof
	3,873		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 14S: Building 6B North



Summary for Subcatchment 15S: Building 6B South

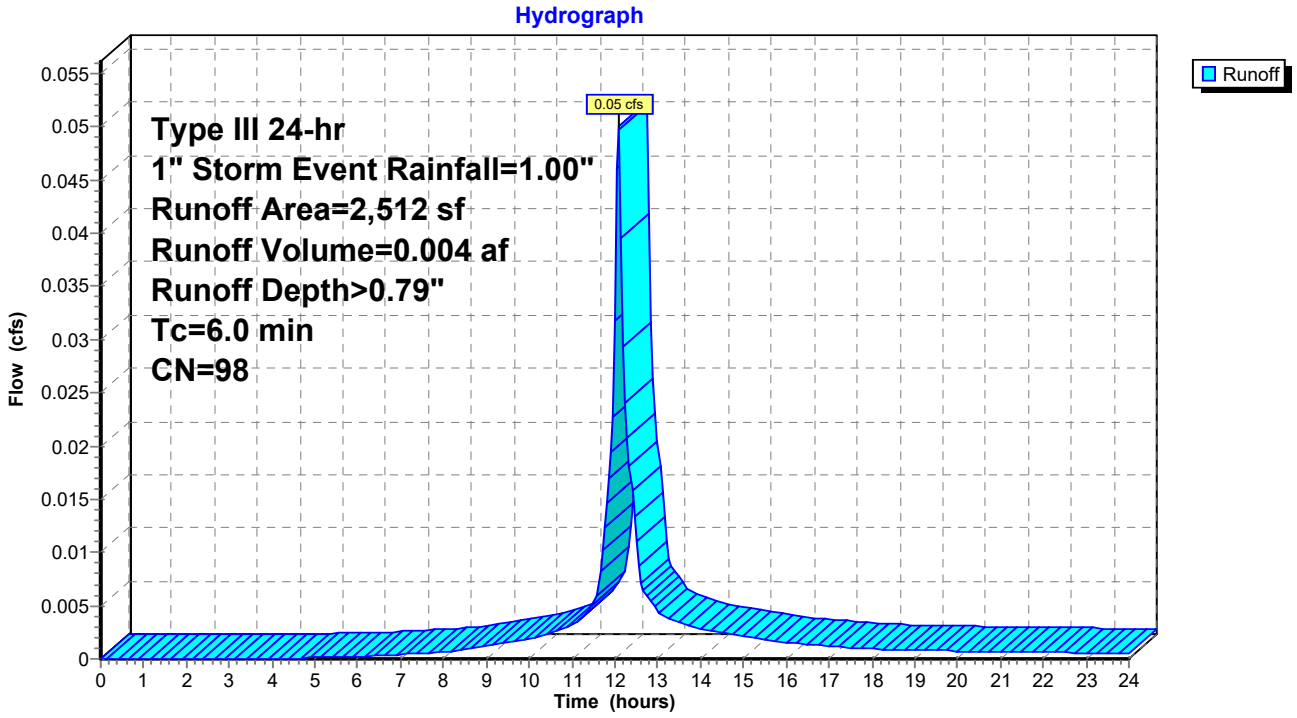
Runoff = 0.05 cfs @ 12.09 hrs, Volume= 0.004 af, Depth> 0.79"
Routed to Pond 6P : CB27

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	2,512	98	Roof
	2,512		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 15S: Building 6B South



Summary for Subcatchment 16S: Plaza between Blocks 1 & 2

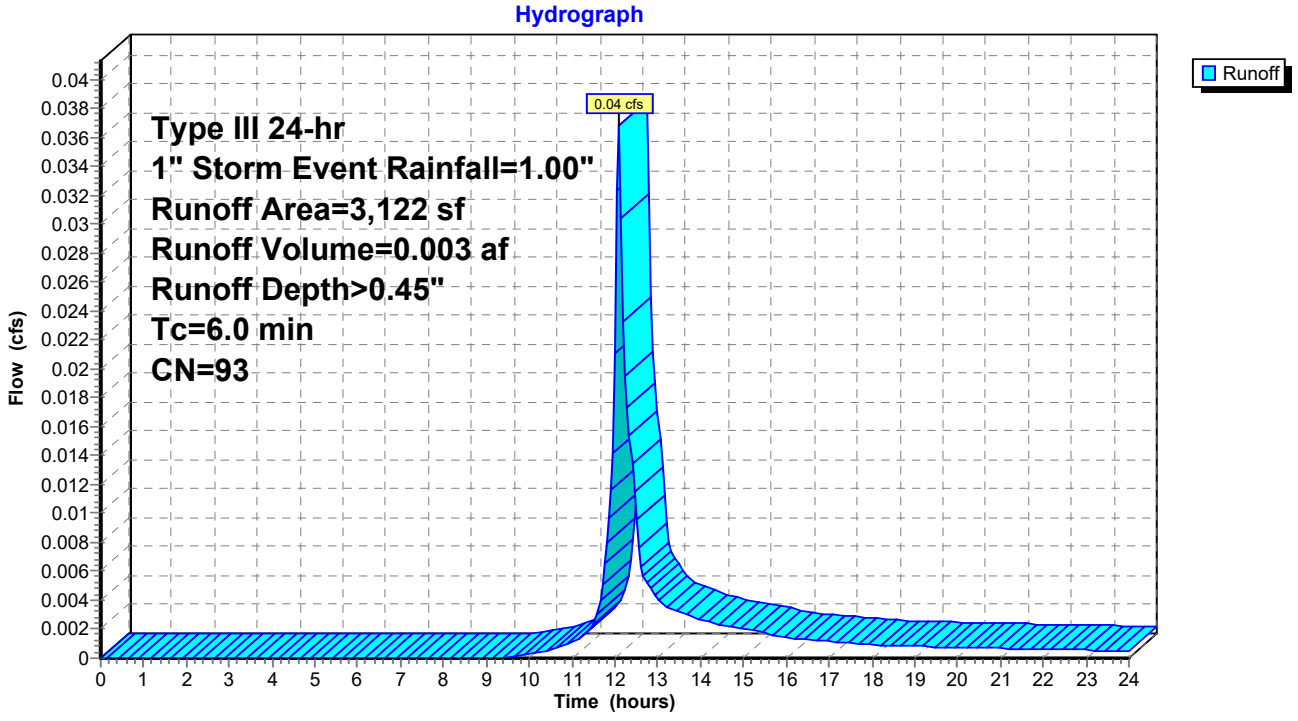
Runoff = 0.04 cfs @ 12.10 hrs, Volume= 0.003 af, Depth> 0.45"
Routed to Pond 2P : DMH 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	2,240	98	Impervious
	882	80	>75% Grass cover, Good, HSG D
	3,122	93	Weighted Average
	882		28.25% Pervious Area
	2,240		71.75% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 16S: Plaza between Blocks 1 & 2



Summary for Subcatchment 17S: Shared Street - Trench Drain

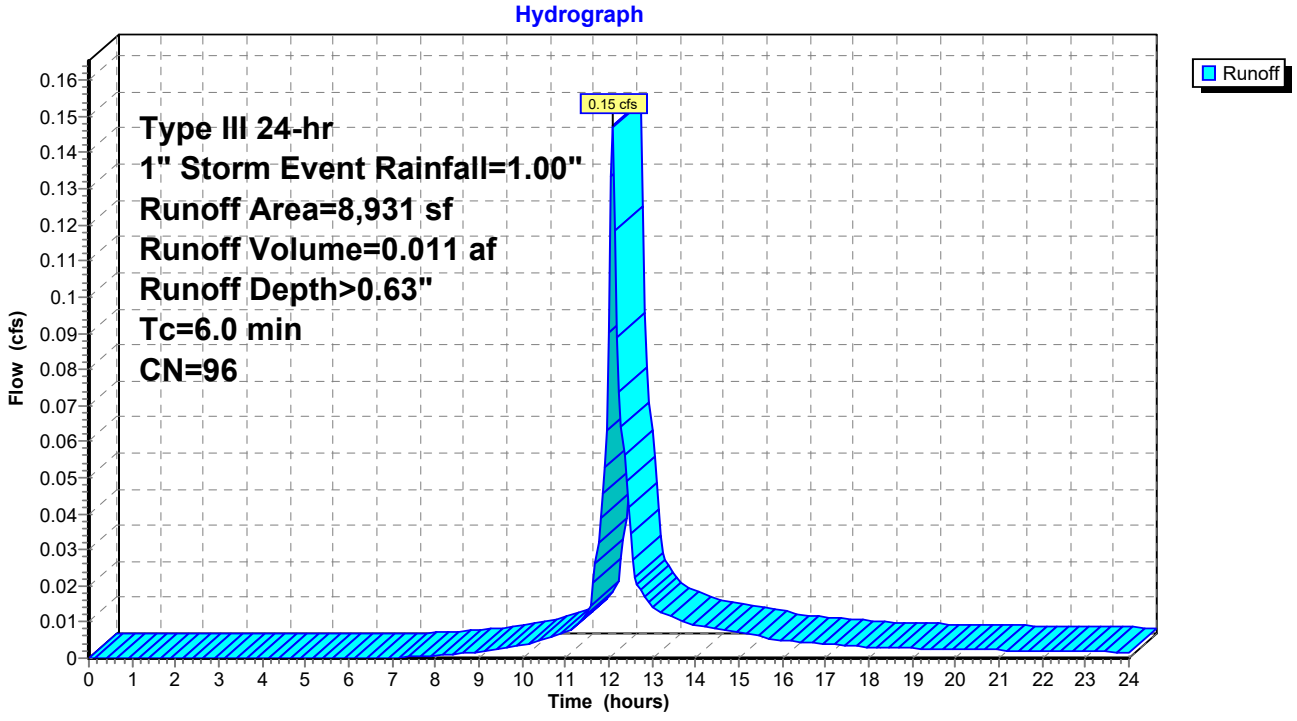
Runoff = 0.15 cfs @ 12.09 hrs, Volume= 0.011 af, Depth> 0.63"
Routed to Pond 6P : CB27

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
	829	80	>75% Grass cover, Good, HSG D
*	8,102	98	Impervious Shared Street
	8,931	96	Weighted Average
	829		9.28% Pervious Area
	8,102		90.72% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 17S: Shared Street - Trench Drain



Summary for Subcatchment 18S: Plaza between Blocks 2 & 4

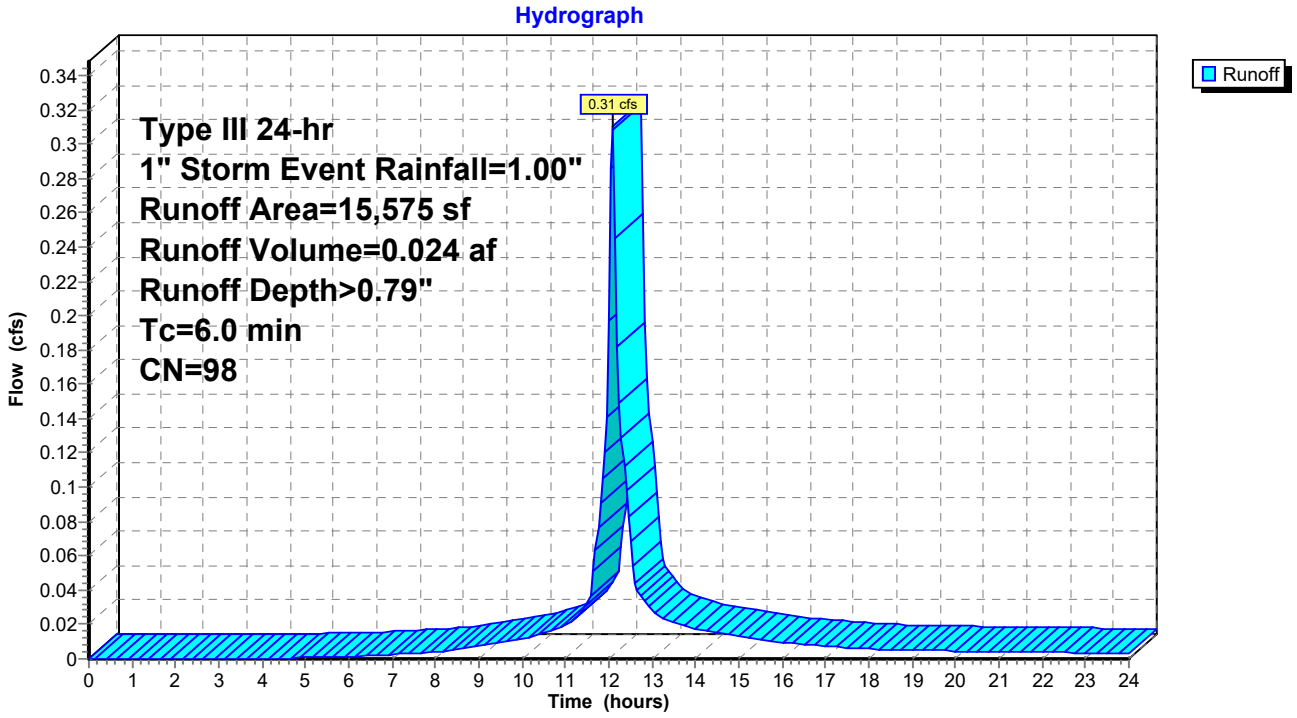
Runoff = 0.31 cfs @ 12.09 hrs, Volume= 0.024 af, Depth> 0.79"
Routed to Pond 6P : CB27

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	15,575	98	Impervious
	15,575		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 18S: Plaza between Blocks 2 & 4



Summary for Subcatchment 19S: Building 4A

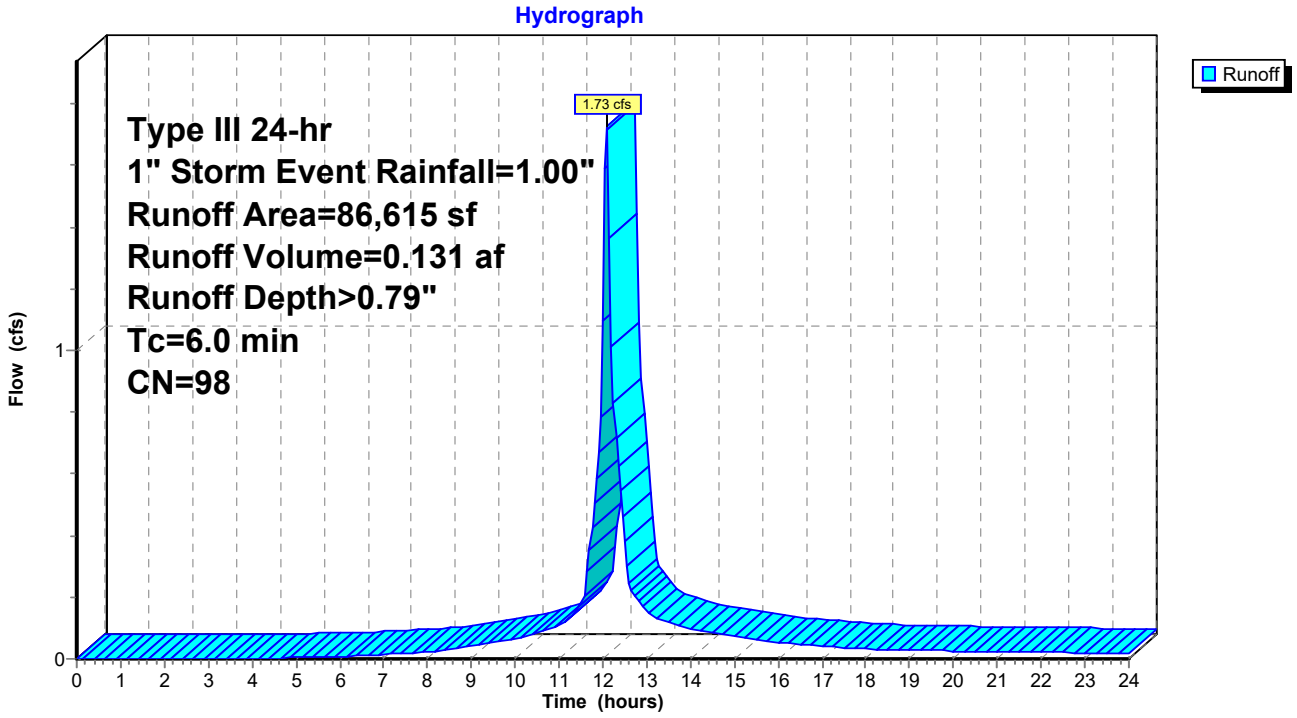
Runoff = 1.73 cfs @ 12.09 hrs, Volume= 0.131 af, Depth> 0.79"
Routed to Pond 6P : CB27

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	86,615	98	Roof & Plaza
	86,615		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 19S: Building 4A



Summary for Subcatchment 20S: Shared Street - Trench Drain

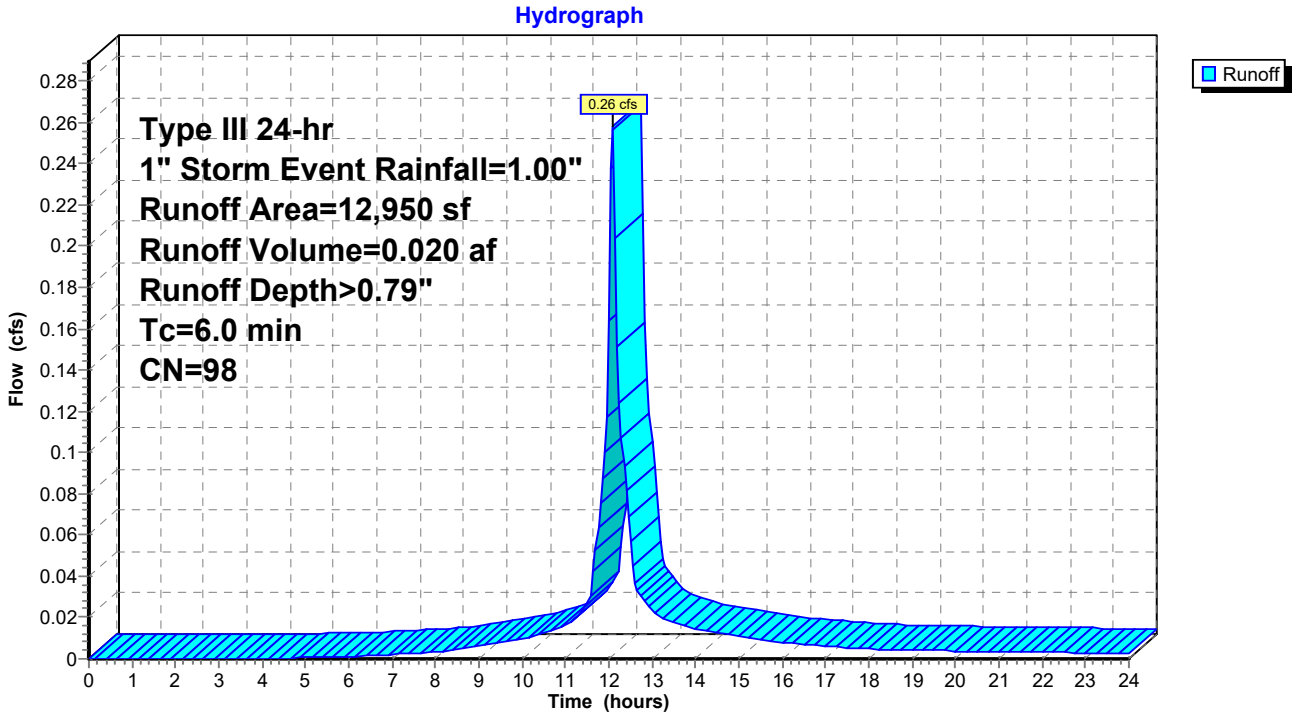
Runoff = 0.26 cfs @ 12.09 hrs, Volume= 0.020 af, Depth> 0.79"
Routed to Pond 7P : Storm Structure

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	12,950	98	Impervious
	12,950		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 20S: Shared Street - Trench Drain



Summary for Subcatchment 21S: Plaza along Building 4A at Fore Street

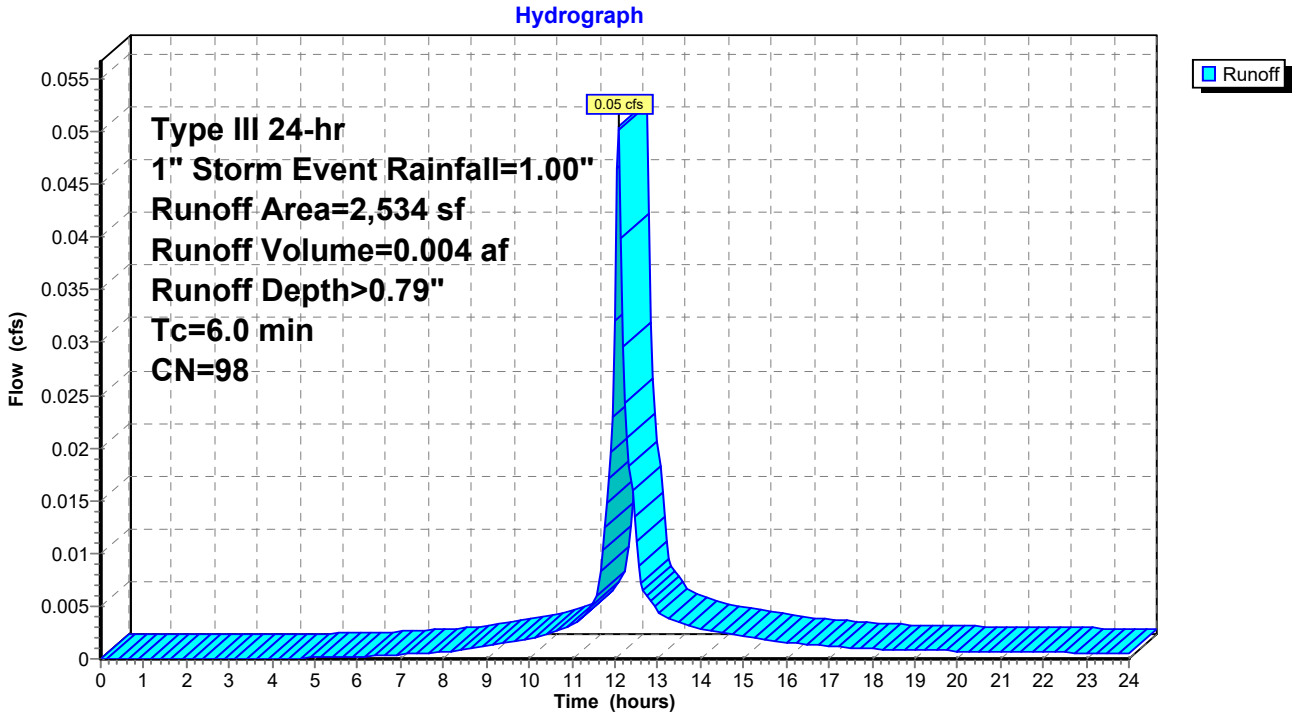
Runoff = 0.05 cfs @ 12.09 hrs, Volume= 0.004 af, Depth> 0.79"
Routed to Link 3L : Fore Street

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	2,534	98	Impervious
	2,534		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 21S: Plaza along Building 4A at Fore Street



Summary for Subcatchment 22S: Block 6 Building

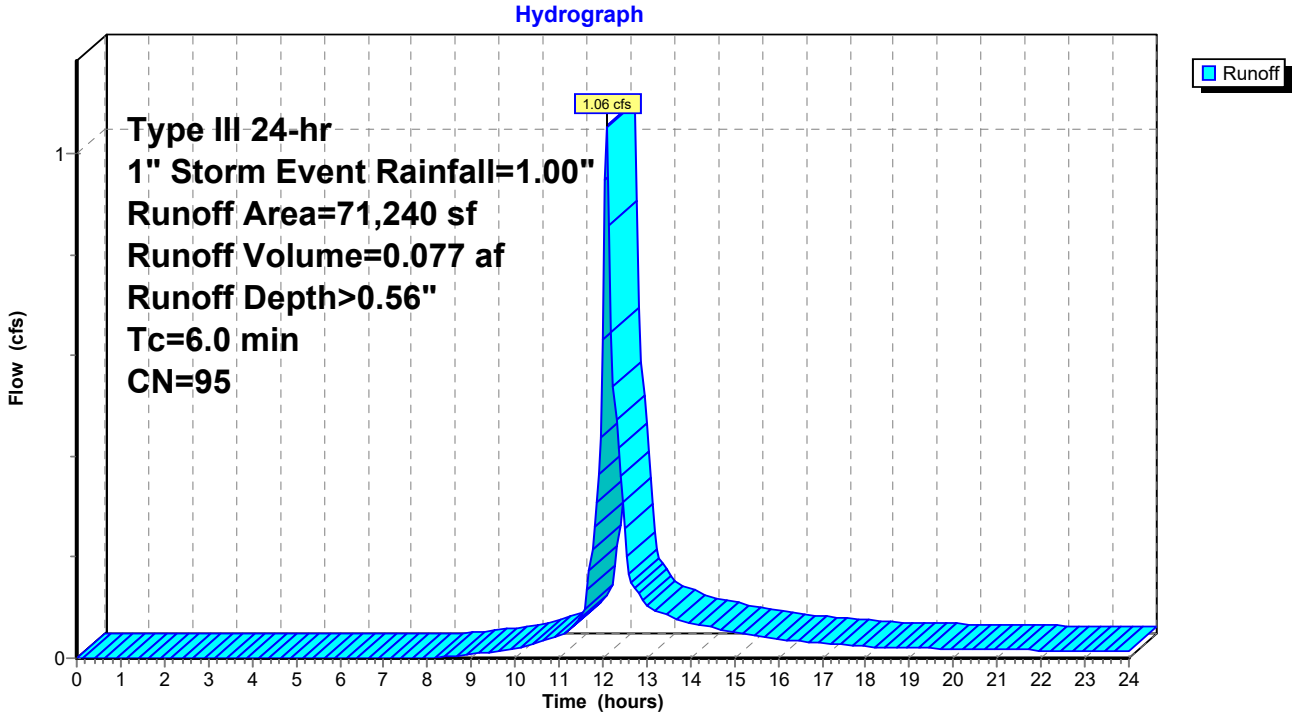
Runoff = 1.06 cfs @ 12.09 hrs, Volume= 0.077 af, Depth> 0.56"
Routed to Pond 13P : DMH-13 (Outfall #2)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	60,220	98	Roof
	11,020	80	>75% Grass cover, Good, HSG D
	71,240	95	Weighted Average
	11,020		15.47% Pervious Area
	60,220		84.53% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 22S: Block 6 Building



Summary for Subcatchment 23S: Block 5 - Interim Parking

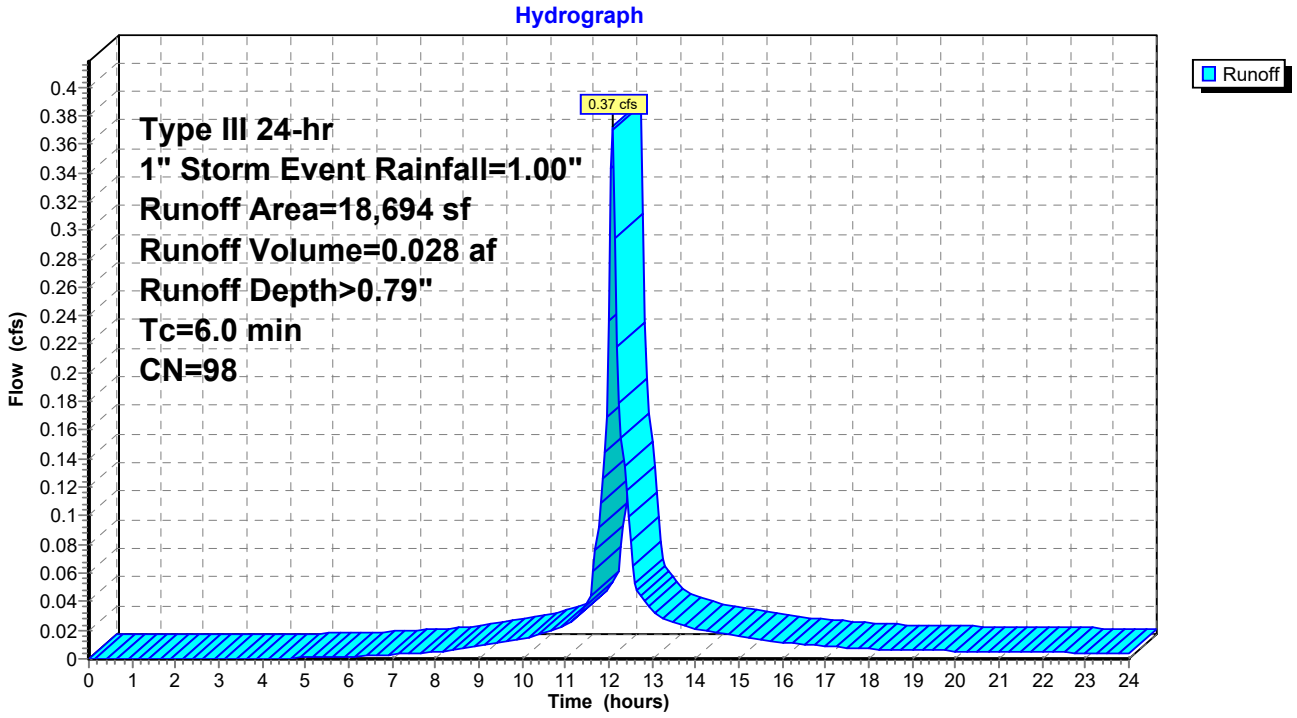
Runoff = 0.37 cfs @ 12.09 hrs, Volume= 0.028 af, Depth> 0.79"
Routed to Pond 24P : Filterra 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	18,694	98	Impervious
	18,694		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 23S: Block 5 - Interim Parking



Summary for Subcatchment 24S: Block 5 - Interim Parking

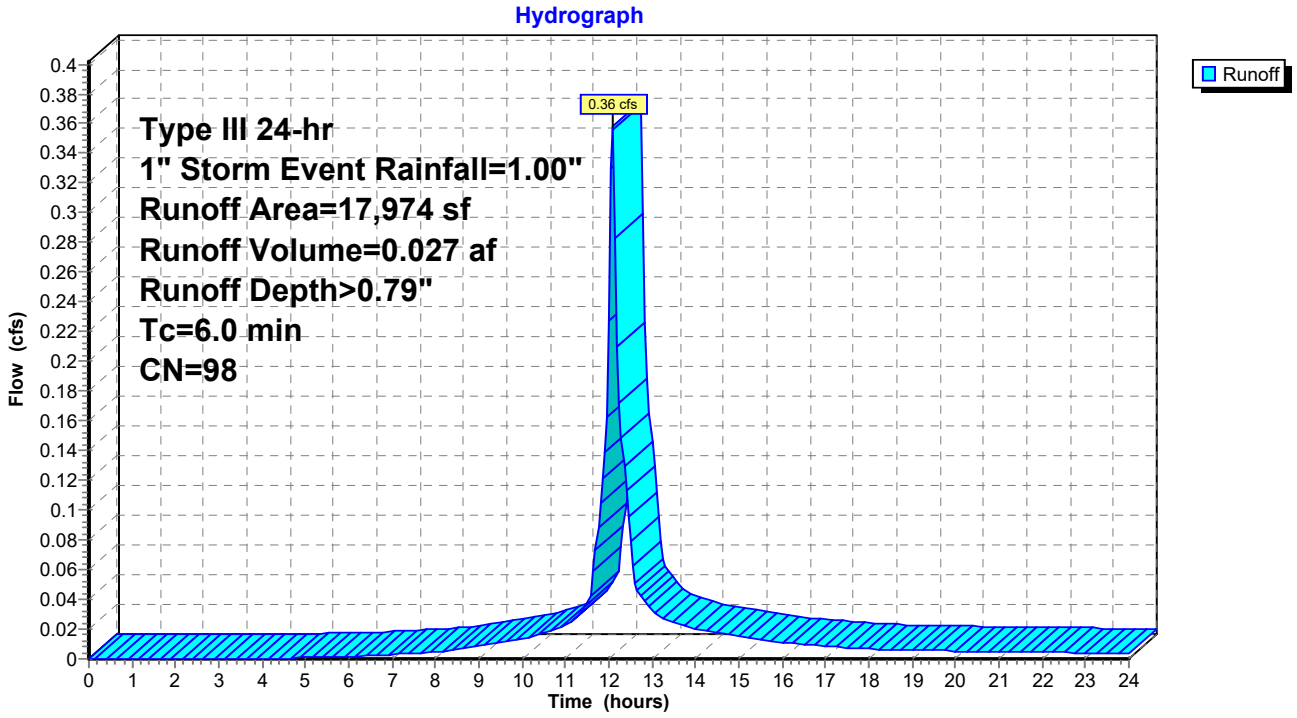
Runoff = 0.36 cfs @ 12.09 hrs, Volume= 0.027 af, Depth> 0.79"
Routed to Pond 28P : Filterra 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	17,974	98	Impervious
	17,974		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 24S: Block 5 - Interim Parking



Summary for Subcatchment 25S: Waterfront

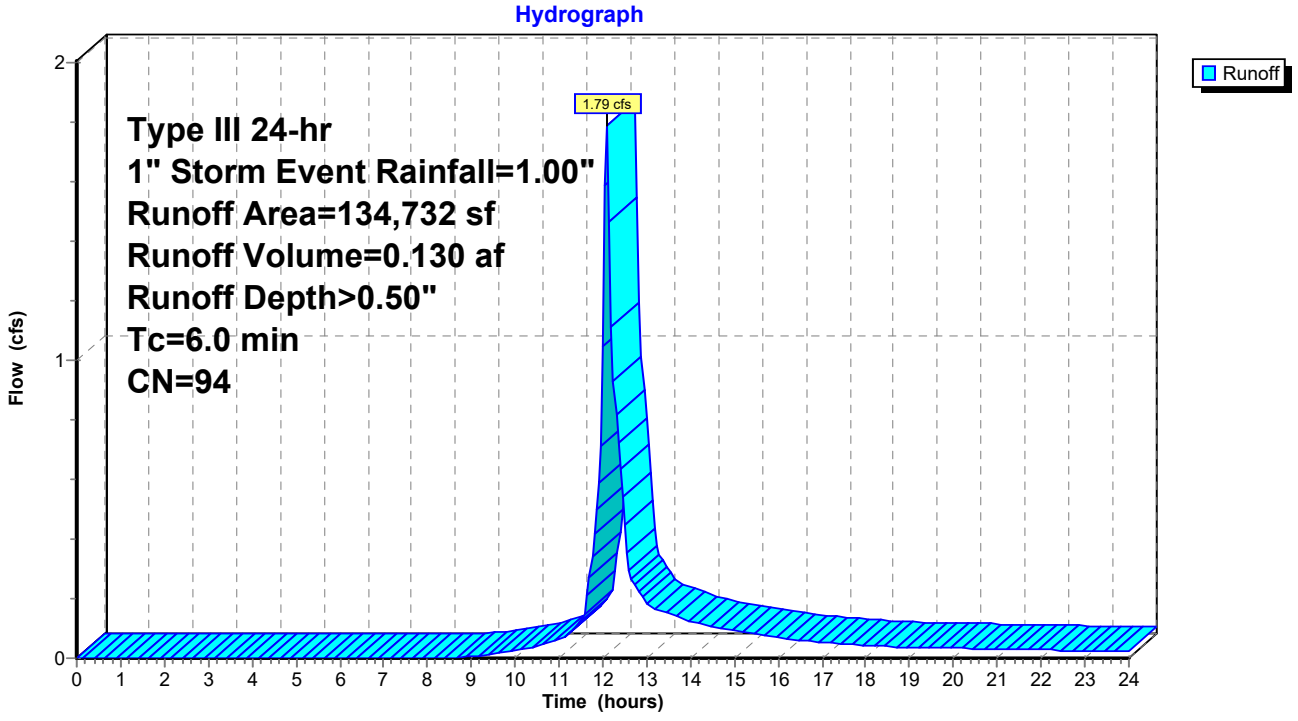
Runoff = 1.79 cfs @ 12.09 hrs, Volume= 0.130 af, Depth> 0.50"
Routed to Link 2L : Fore River

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	104,324	98	Impervious
	30,408	80	>75% Grass cover, Good, HSG D
	134,732	94	Weighted Average
	30,408		22.57% Pervious Area
	104,324		77.43% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 25S: Waterfront



Summary for Subcatchment 26S: Plaza along Townhouse at Fore Street

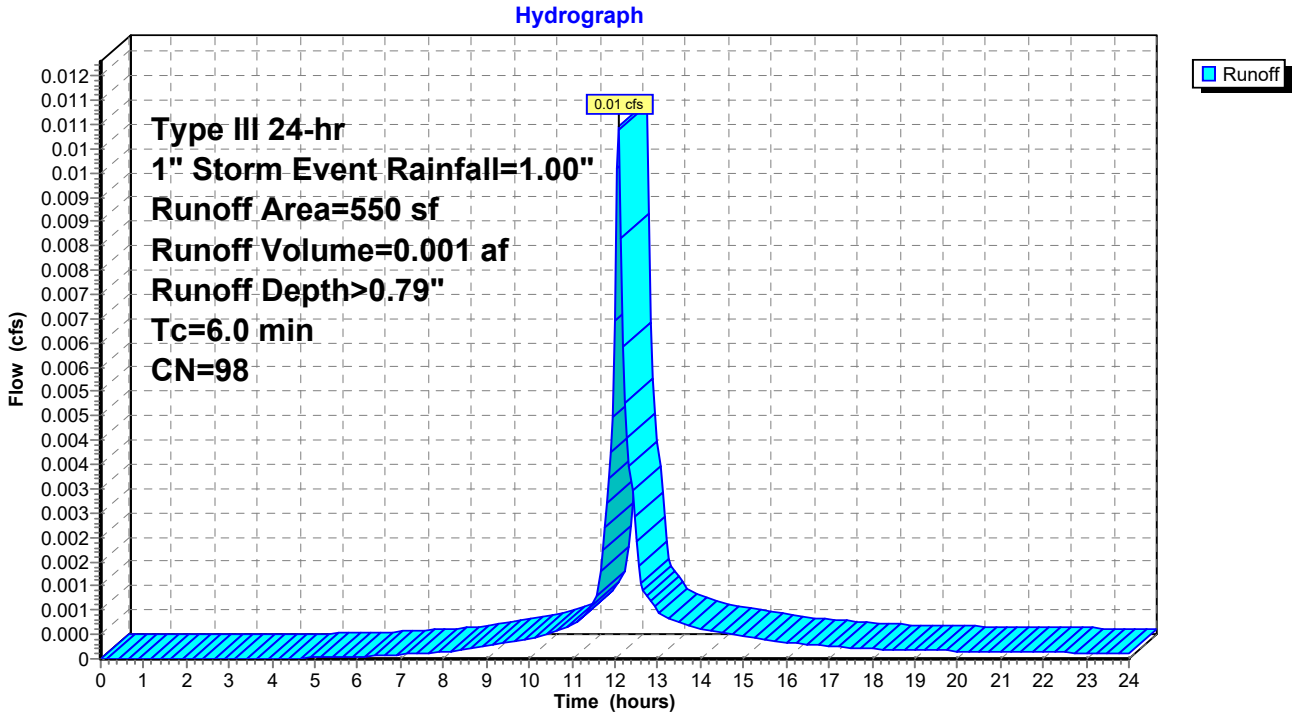
Runoff = 0.01 cfs @ 12.09 hrs, Volume= 0.001 af, Depth> 0.79"
Routed to Link 3L : Fore Street

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	550	98	Impervious
	550		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 26S: Plaza along Townhouse at Fore Street



Summary for Subcatchment 27S: Drainage from off-site residential

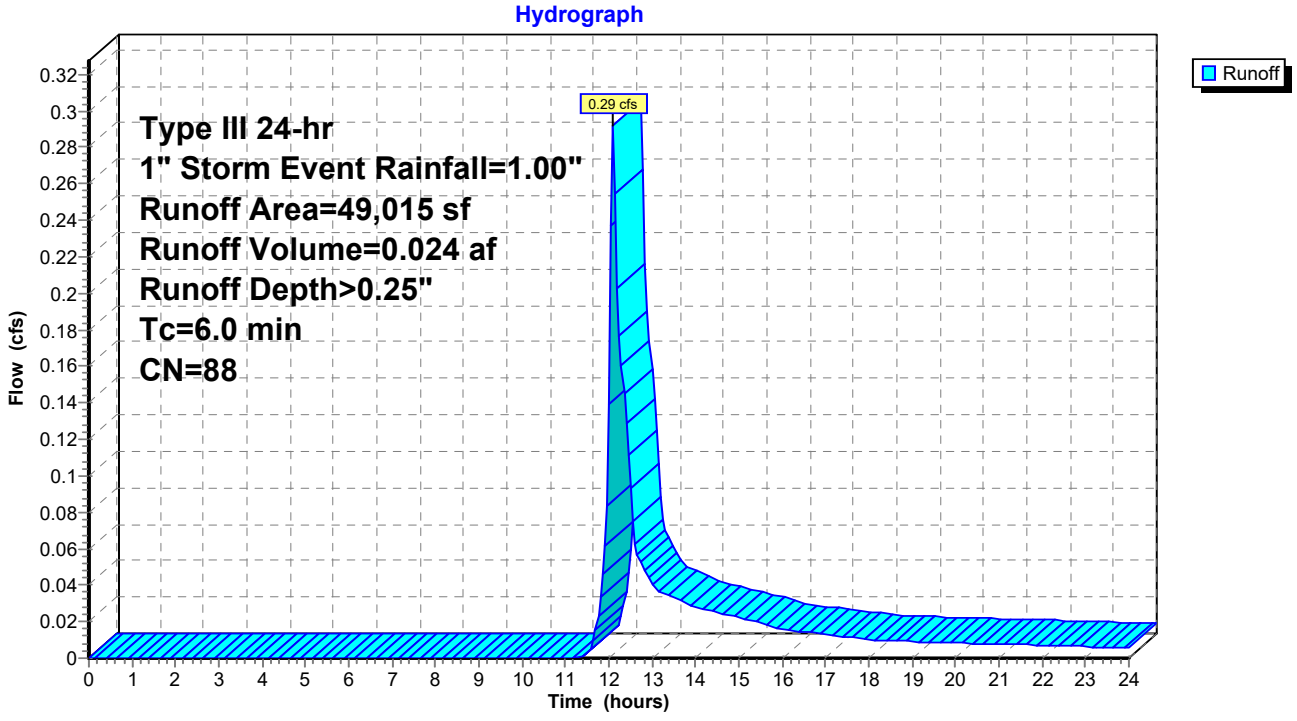
Runoff = 0.29 cfs @ 12.10 hrs, Volume= 0.024 af, Depth> 0.25"
Routed to Pond 13P : DMH-13 (Outfall #2)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	21,465	98	Impervious
	27,550	80	>75% Grass cover, Good, HSG D
	49,015	88	Weighted Average
	27,550		56.21% Pervious Area
	21,465		43.79% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 27S: Drainage from off-site residential



Summary for Pond 1P: DMH 1

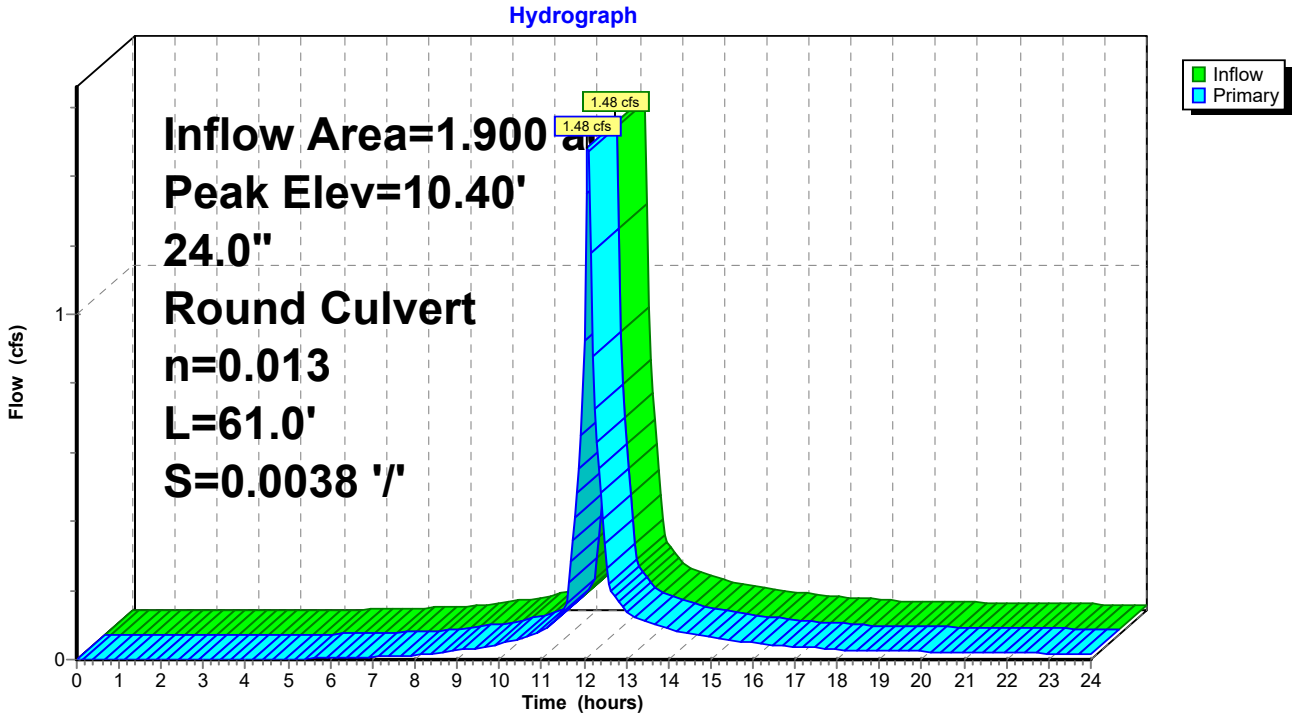
Inflow Area = 1.900 ac, 93.68% Impervious, Inflow Depth > 0.70" for 1" Storm Event event
Inflow = 1.48 cfs @ 12.09 hrs, Volume= 0.111 af
Outflow = 1.48 cfs @ 12.09 hrs, Volume= 0.111 af, Atten= 0%, Lag= 0.0 min
Primary = 1.48 cfs @ 12.09 hrs, Volume= 0.111 af
Routed to Pond 2P : DMH 2

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 10.40' @ 12.09 hrs
Flood Elev= 14.71'

Device	Routing	Invert	Outlet Devices
#1	Primary	9.77'	**24.0" Round Culvert** L= 61.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 9.77' / 9.54' S= 0.0038 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=1.45 cfs @ 12.09 hrs HW=10.39' (Free Discharge)
1=Culvert (Barrel Controls 1.45 cfs @ 2.63 fps)

Pond 1P: DMH 1



Summary for Pond 2P: DMH 2

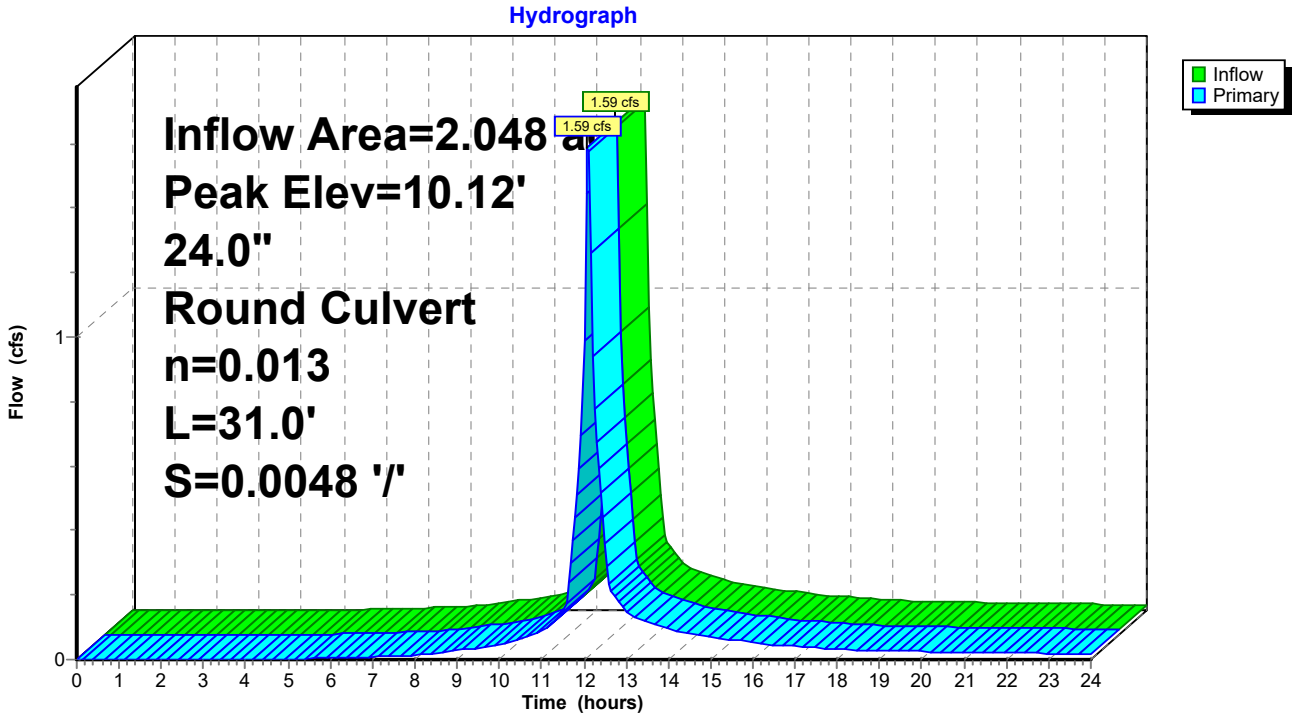
Inflow Area = 2.048 ac, 93.15% Impervious, Inflow Depth > 0.69" for 1" Storm Event event
Inflow = 1.59 cfs @ 12.09 hrs, Volume= 0.118 af
Outflow = 1.59 cfs @ 12.09 hrs, Volume= 0.118 af, Atten= 0%, Lag= 0.0 min
Primary = 1.59 cfs @ 12.09 hrs, Volume= 0.118 af
Routed to Pond 3P : Storm Structure

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 10.12' @ 12.09 hrs
Flood Elev= 14.63'

Device	Routing	Invert	Outlet Devices
#1	Primary	9.50'	**24.0" Round Culvert** L= 31.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 9.50' / 9.35' S= 0.0048 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=1.55 cfs @ 12.09 hrs HW=10.11' (Free Discharge)
1=Culvert (Barrel Controls 1.55 cfs @ 2.87 fps)

Pond 2P: DMH 2



Summary for Pond 3P: Storm Structure

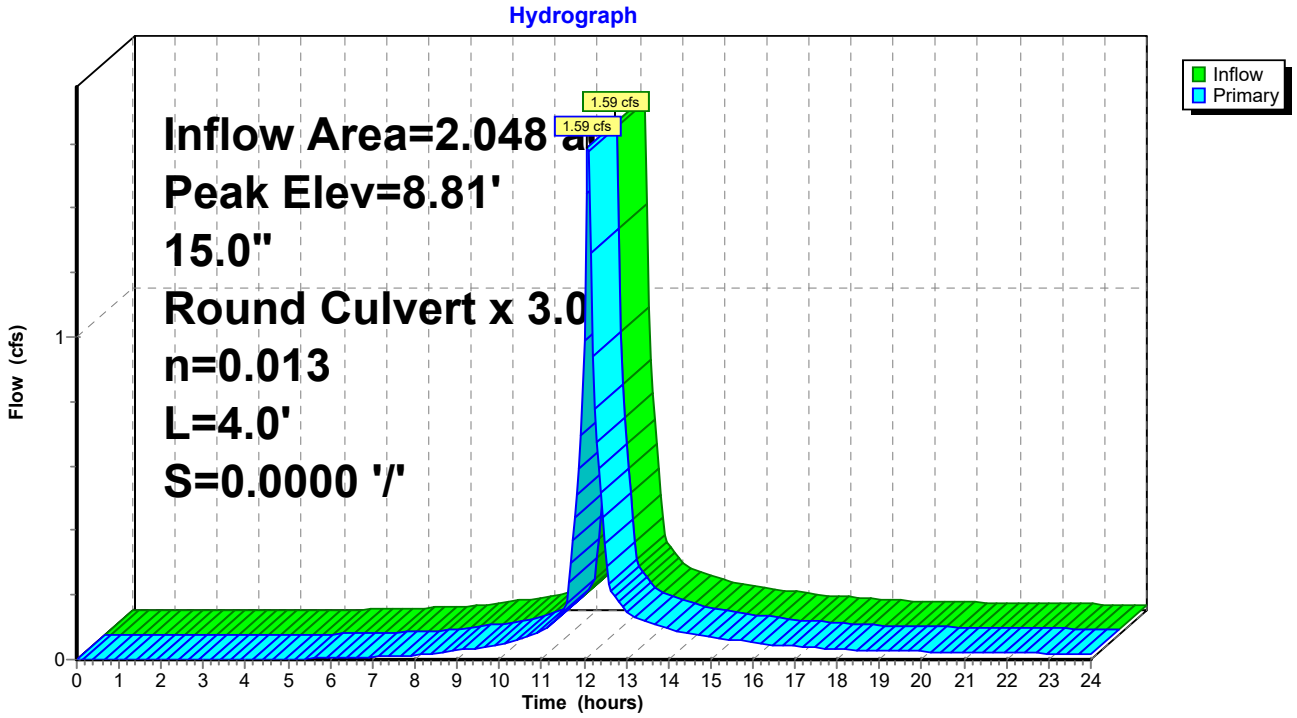
Inflow Area = 2.048 ac, 93.15% Impervious, Inflow Depth > 0.69" for 1" Storm Event event
Inflow = 1.59 cfs @ 12.09 hrs, Volume= 0.118 af
Outflow = 1.59 cfs @ 12.09 hrs, Volume= 0.118 af, Atten= 0%, Lag= 0.0 min
Primary = 1.59 cfs @ 12.09 hrs, Volume= 0.118 af
Routed to Pond 4P : R-Tank 1

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 8.81' @ 12.09 hrs
Flood Elev= 14.51'

Device	Routing	Invert	Outlet Devices
#1	Primary	8.35'	**15.0" Round Culvert X 3.00** L= 4.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 8.35' / 8.35' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.55 cfs @ 12.09 hrs HW=8.81' (Free Discharge)
1=Culvert (Barrel Controls 1.55 cfs @ 1.89 fps)

Pond 3P: Storm Structure



Summary for Pond 4P: R-Tank 1

Inflow Area = 2.048 ac, 93.15% Impervious, Inflow Depth > 0.69" for 1" Storm Event event
Inflow = 1.59 cfs @ 12.09 hrs, Volume= 0.118 af
Outflow = 1.29 cfs @ 12.15 hrs, Volume= 0.113 af, Atten= 19%, Lag= 3.8 min
Primary = 1.29 cfs @ 12.15 hrs, Volume= 0.113 af
Routed to Pond 10P : DMH 4

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 7.51' @ 12.15 hrs Surf.Area= 1,162 sf Storage= 835 cf
Flood Elev= 12.00' Surf.Area= 1,162 sf Storage= 3,266 cf

Plug-Flow detention time= 52.6 min calculated for 0.113 af (95% of inflow)
Center-of-Mass det. time= 27.9 min (828.3 - 800.4)

Volume	Invert	Avail.Storage	Storage Description
#1	6.50'	892 cf	**Stone Envelope (Prismatic)** Listed below (Recalc) 4,729 cf Overall - 2,499 cf Embedded = 2,231 cf x 40.0% Voids
#2	6.75'	2,374 cf	**R-Tank Double Modules (Prismatic)** Listed below (Recalc) Inside #1 2,499 cf Overall x 95.0% Voids
		3,266 cf	Total Available Storage

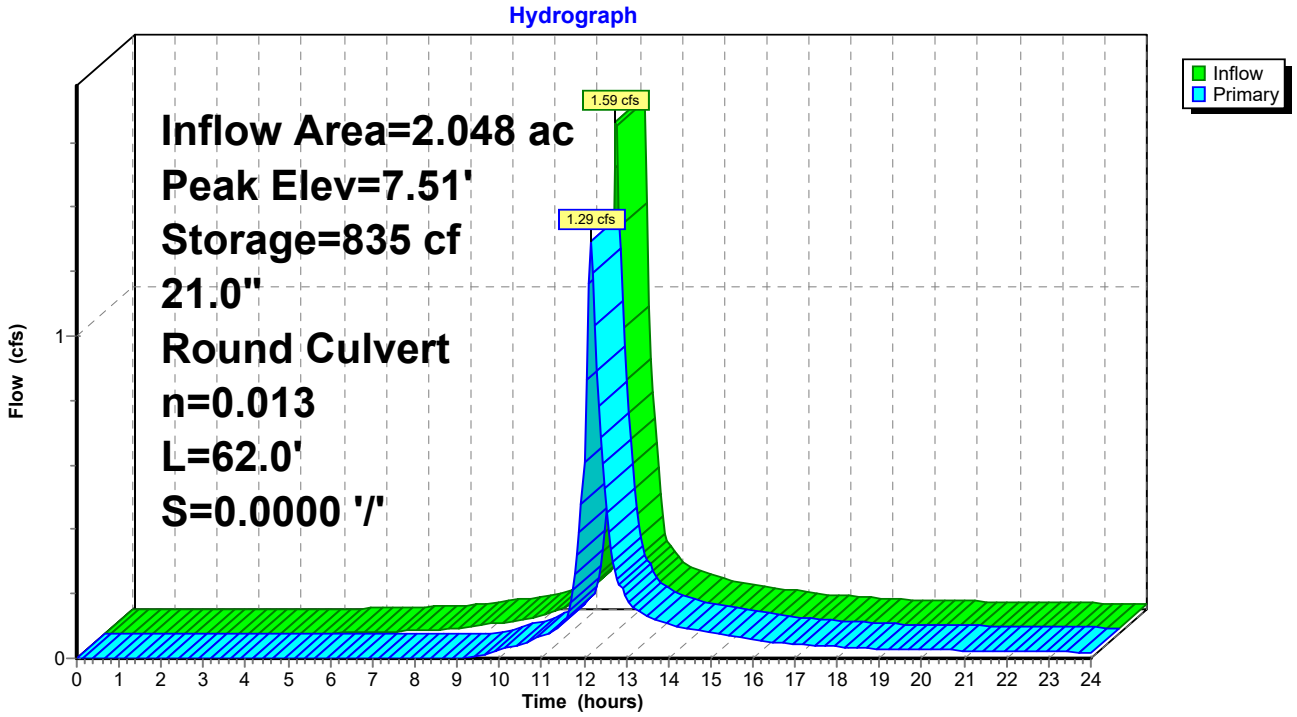
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
6.50	1,162	0	0
10.57	1,162	4,729	4,729

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
6.75	886	0	0
9.57	886	2,499	2,499

Device	Routing	Invert	Outlet Devices
#1	Primary	6.75'	**21.0" Round Culvert to Filter** L= 62.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 6.75' / 6.75' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 2.41 sf

Primary OutFlow Max=1.28 cfs @ 12.15 hrs HW=7.50' (Free Discharge)
↑—**1=Culvert to Filter** (Barrel Controls 1.28 cfs @ 1.91 fps)

Pond 4P: R-Tank 1



Summary for Pond 5P: DMH-11

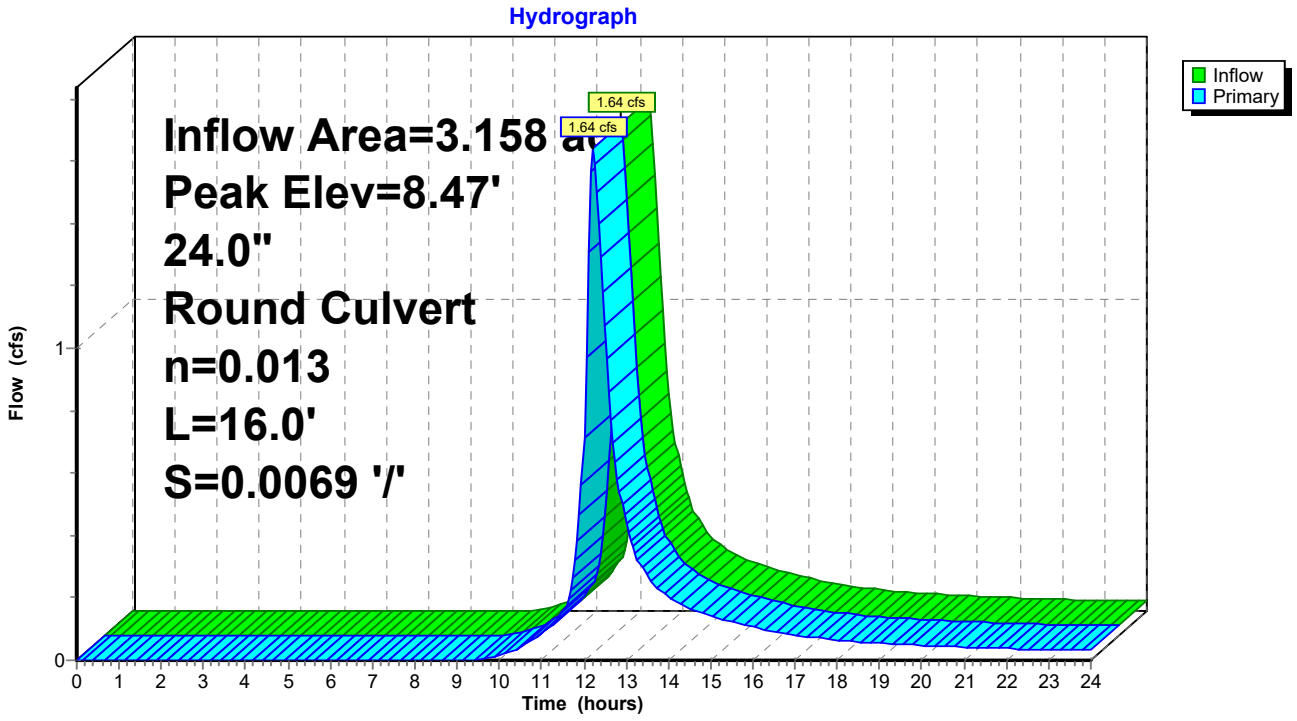
Inflow Area = 3.158 ac, 99.40% Impervious, Inflow Depth > 0.72" for 1" Storm Event event
Inflow = 1.64 cfs @ 12.20 hrs, Volume= 0.189 af
Outflow = 1.64 cfs @ 12.20 hrs, Volume= 0.189 af, Atten= 0%, Lag= 0.0 min
Primary = 1.64 cfs @ 12.20 hrs, Volume= 0.189 af
Routed to Pond 12P : Jellyfish 2 JFPD0806-7-2

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 8.47' @ 12.21 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	7.82'	**24.0" Round Culvert** L= 16.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 7.82' / 7.71' S= 0.0069 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=1.64 cfs @ 12.20 hrs HW=8.47' (Free Discharge)
1=Culvert (Barrel Controls 1.64 cfs @ 2.75 fps)

Pond 5P: DMH-11



Summary for Pond 6P: CB27

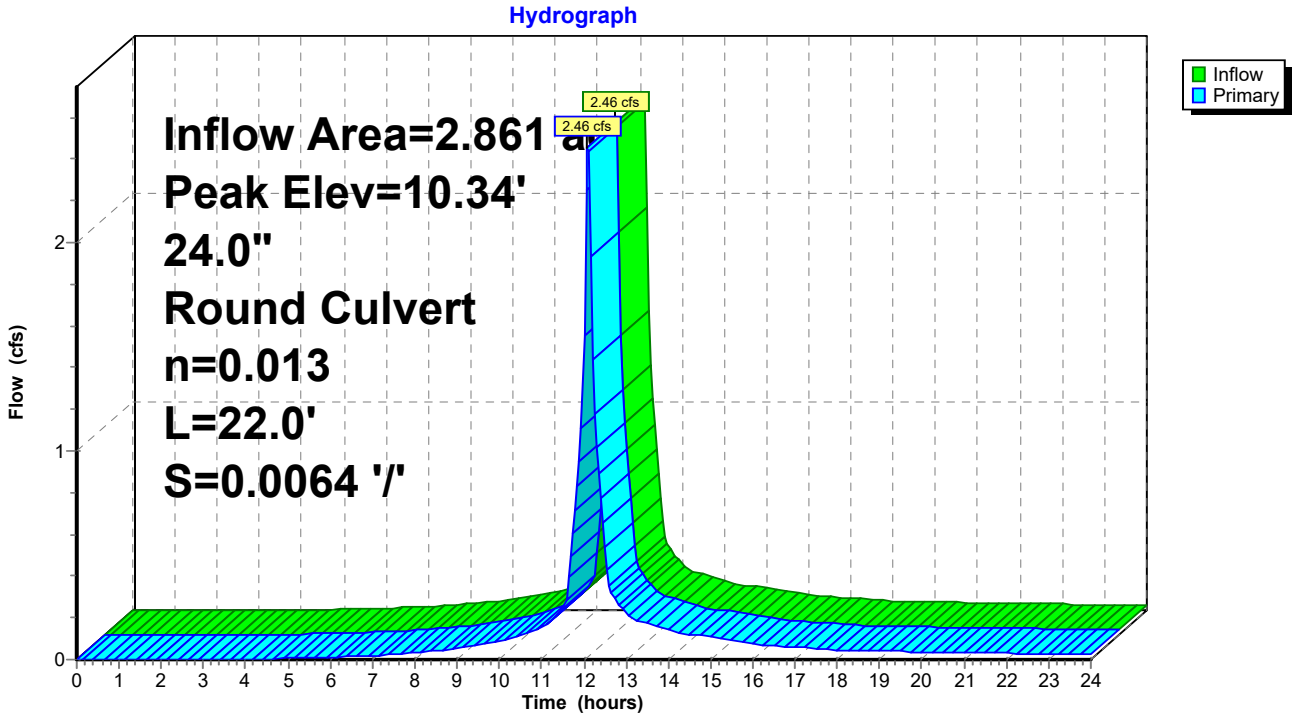
Inflow Area = 2.861 ac, 99.33% Impervious, Inflow Depth > 0.78" for 1" Storm Event event
Inflow = 2.46 cfs @ 12.09 hrs, Volume= 0.186 af
Outflow = 2.46 cfs @ 12.09 hrs, Volume= 0.186 af, Atten= 0%, Lag= 0.0 min
Primary = 2.46 cfs @ 12.09 hrs, Volume= 0.186 af
Routed to Pond 7P : Storm Structure

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 10.34' @ 12.09 hrs
Flood Elev= 14.57'

Device	Routing	Invert	Outlet Devices
#1	Primary	9.53'	**24.0" Round Culvert** L= 22.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 9.53' / 9.39' S= 0.0064 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=2.39 cfs @ 12.09 hrs HW=10.33' (Free Discharge)
1=Culvert (Barrel Controls 2.39 cfs @ 3.04 fps)

Pond 6P: CB27



Summary for Pond 7P: Storm Structure

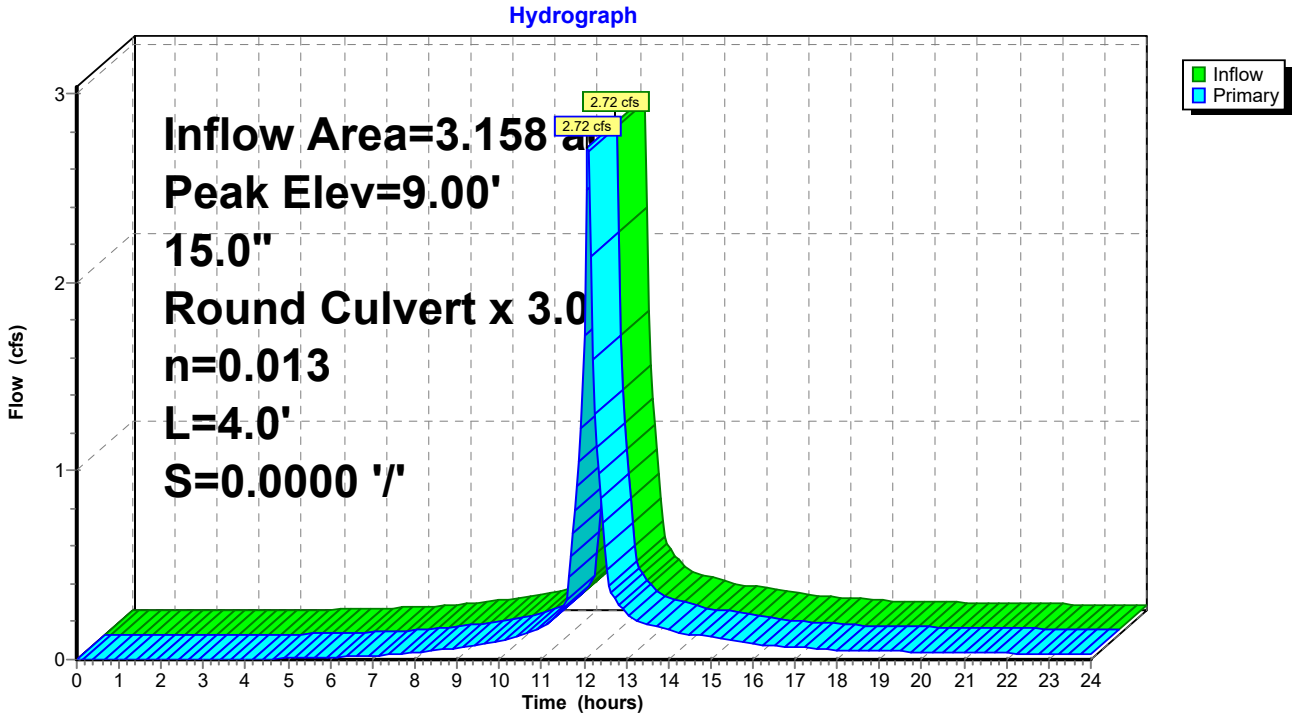
Inflow Area = 3.158 ac, 99.40% Impervious, Inflow Depth > 0.78" for 1" Storm Event event
Inflow = 2.72 cfs @ 12.09 hrs, Volume= 0.205 af
Outflow = 2.72 cfs @ 12.09 hrs, Volume= 0.205 af, Atten= 0%, Lag= 0.0 min
Primary = 2.72 cfs @ 12.09 hrs, Volume= 0.205 af
Routed to Pond 8P : R-Tank 2

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 9.00' @ 12.09 hrs
Flood Elev= 14.25'

Device	Routing	Invert	Outlet Devices
#1	Primary	8.39'	**15.0" Round Culvert X 3.00** L= 4.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 8.39' / 8.39' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.64 cfs @ 12.09 hrs HW=8.99' (Free Discharge)
1=Culvert (Barrel Controls 2.64 cfs @ 2.19 fps)

Pond 7P: Storm Structure



Summary for Pond 8P: R-Tank 2

Inflow Area = 3.158 ac, 99.40% Impervious, Inflow Depth > 0.78" for 1" Storm Event event
Inflow = 2.72 cfs @ 12.09 hrs, Volume= 0.205 af
Outflow = 1.64 cfs @ 12.20 hrs, Volume= 0.189 af, Atten= 40%, Lag= 7.0 min
Primary = 1.64 cfs @ 12.20 hrs, Volume= 0.189 af
Routed to Pond 5P : DMH-11

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 8.64' @ 12.20 hrs Surf.Area= 3,128 sf Storage= 2,549 cf
Flood Elev= 12.71' Surf.Area= 3,128 sf Storage= 8,290 cf

Plug-Flow detention time= 93.6 min calculated for 0.189 af (92% of inflow)
Center-of-Mass det. time= 52.5 min (841.3 - 788.8)

Volume	Invert	Avail.Storage	Storage Description
#1	7.57'	2,767 cf	**Stone Envelope (Prismatic)** Listed below (Recalc) 12,731 cf Overall - 5,813 cf Embedded = 6,918 cf x 40.0% Voids
#2	7.82'	5,523 cf	**R-Tank Double Modules (Prismatic)** Listed below (Recalc) Inside #1 5,813 cf Overall x 95.0% Voids
		8,290 cf	Total Available Storage

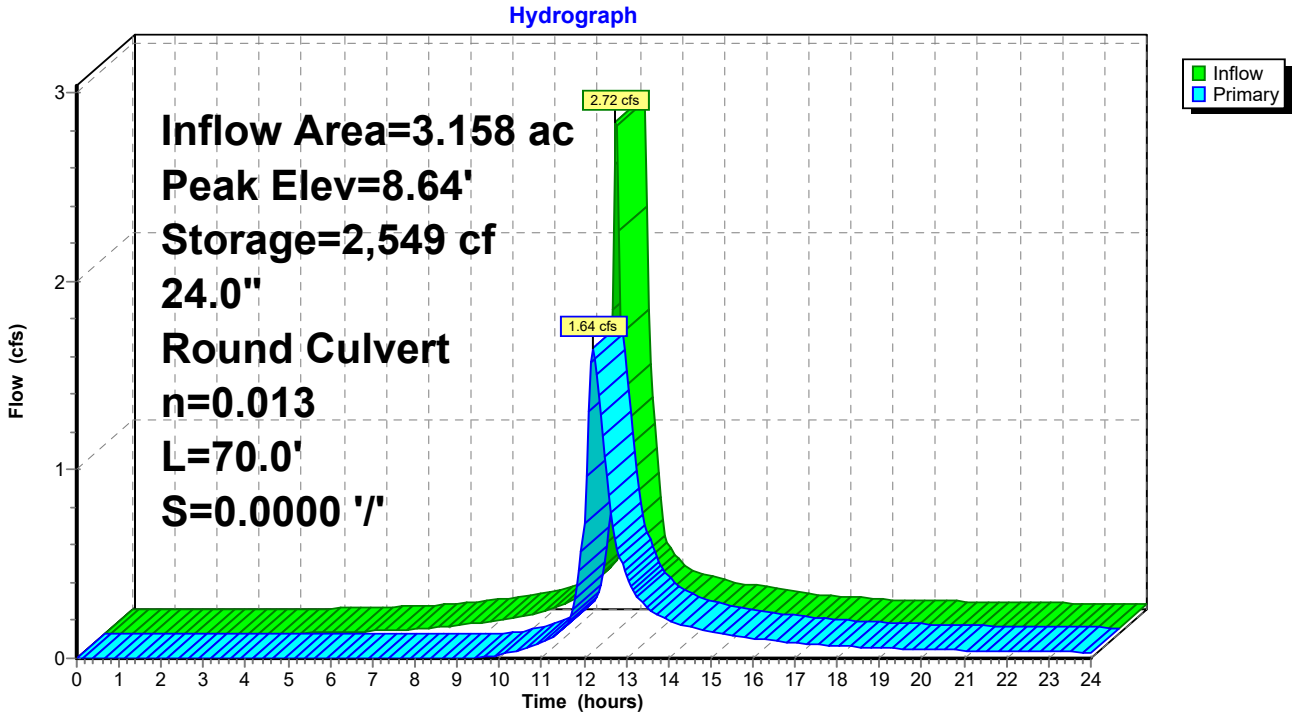
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
7.57	3,128	0	0
11.64	3,128	12,731	12,731

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
7.82	2,679	0	0
9.99	2,679	5,813	5,813

Device	Routing	Invert	Outlet Devices
#1	Primary	7.82'	**24.0" Round Culvert** L= 70.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 7.82' / 7.82' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=1.64 cfs @ 12.20 hrs HW=8.64' (Free Discharge)
↑—**1=Culvert** (Barrel Controls 1.64 cfs @ 2.00 fps)

Pond 8P: R-Tank 2



Summary for Pond 9P: DMH-8 (Outfall #1)

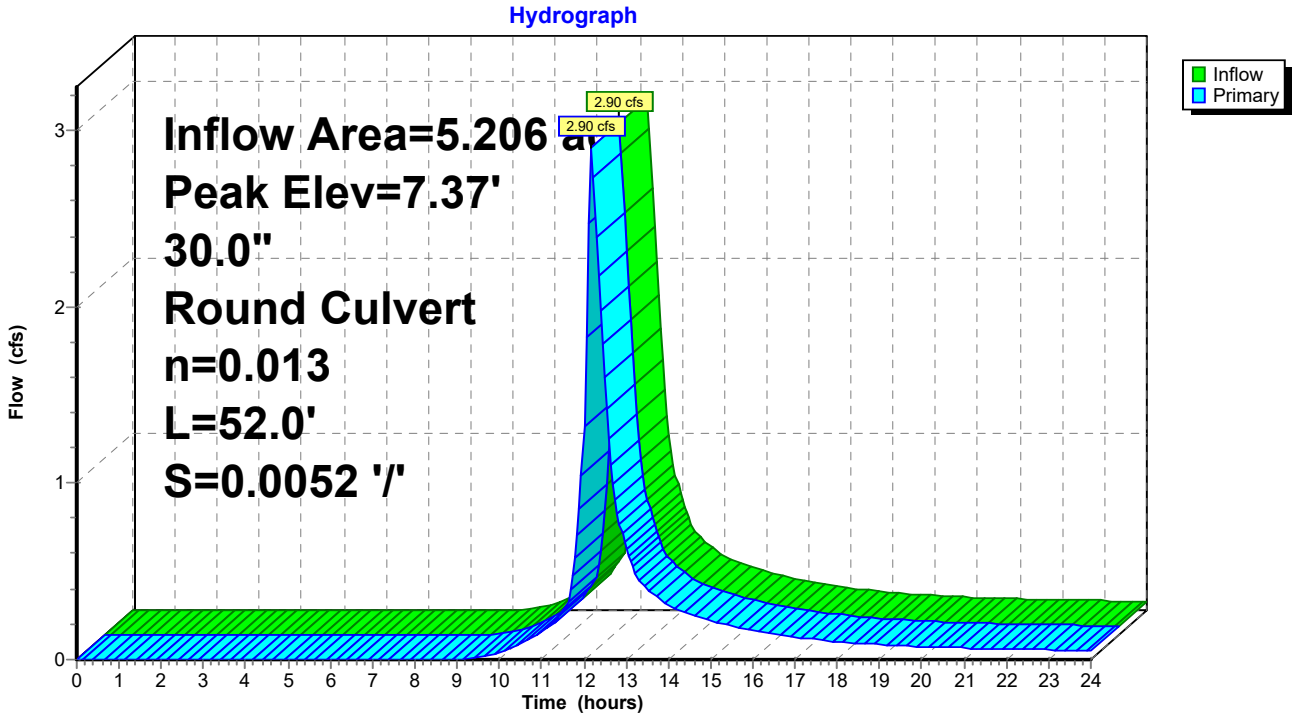
Inflow Area = 5.206 ac, 96.94% Impervious, Inflow Depth > 0.70" for 1" Storm Event event
Inflow = 2.90 cfs @ 12.17 hrs, Volume= 0.302 af
Outflow = 2.90 cfs @ 12.17 hrs, Volume= 0.302 af, Atten= 0%, Lag= 0.0 min
Primary = 2.90 cfs @ 12.17 hrs, Volume= 0.302 af
Routed to Link 2L : Fore River

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 7.37' @ 12.17 hrs
Flood Elev= 11.78'

Device	Routing	Invert	Outlet Devices
#1	Primary	6.57'	**30.0" Round Culvert** L= 52.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 6.57' / 6.30' S= 0.0052 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 4.91 sf

Primary OutFlow Max=2.85 cfs @ 12.17 hrs HW=7.36' (Free Discharge)
1=Culvert (Barrel Controls 2.85 cfs @ 3.20 fps)

Pond 9P: DMH-8 (Outfall #1)



Summary for Pond 10P: DMH 4

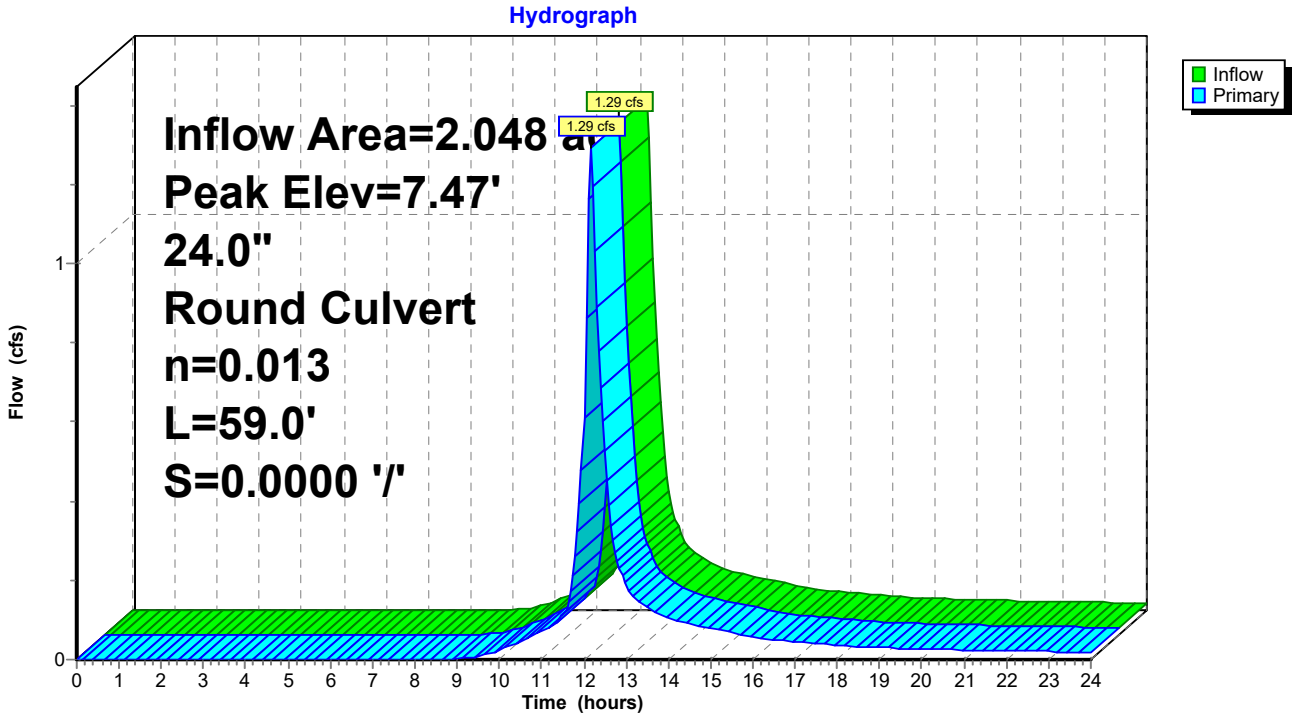
Inflow Area = 2.048 ac, 93.15% Impervious, Inflow Depth > 0.66" for 1" Storm Event event
Inflow = 1.29 cfs @ 12.15 hrs, Volume= 0.113 af
Outflow = 1.29 cfs @ 12.15 hrs, Volume= 0.113 af, Atten= 0%, Lag= 0.0 min
Primary = 1.29 cfs @ 12.15 hrs, Volume= 0.113 af
Routed to Pond 11P : Jellyfish 1 JFPD0806-4-1

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 7.47' @ 12.15 hrs
Flood Elev= 13.56'

Device	Routing	Invert	Outlet Devices
#1	Primary	6.75'	**24.0" Round Culvert** L= 59.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 6.75' / 6.75' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=1.28 cfs @ 12.15 hrs HW=7.47' (Free Discharge)
1=Culvert (Barrel Controls 1.28 cfs @ 1.88 fps)

Pond 10P: DMH 4



Summary for Pond 11P: Jellyfish 1 JFPD0806-4-1

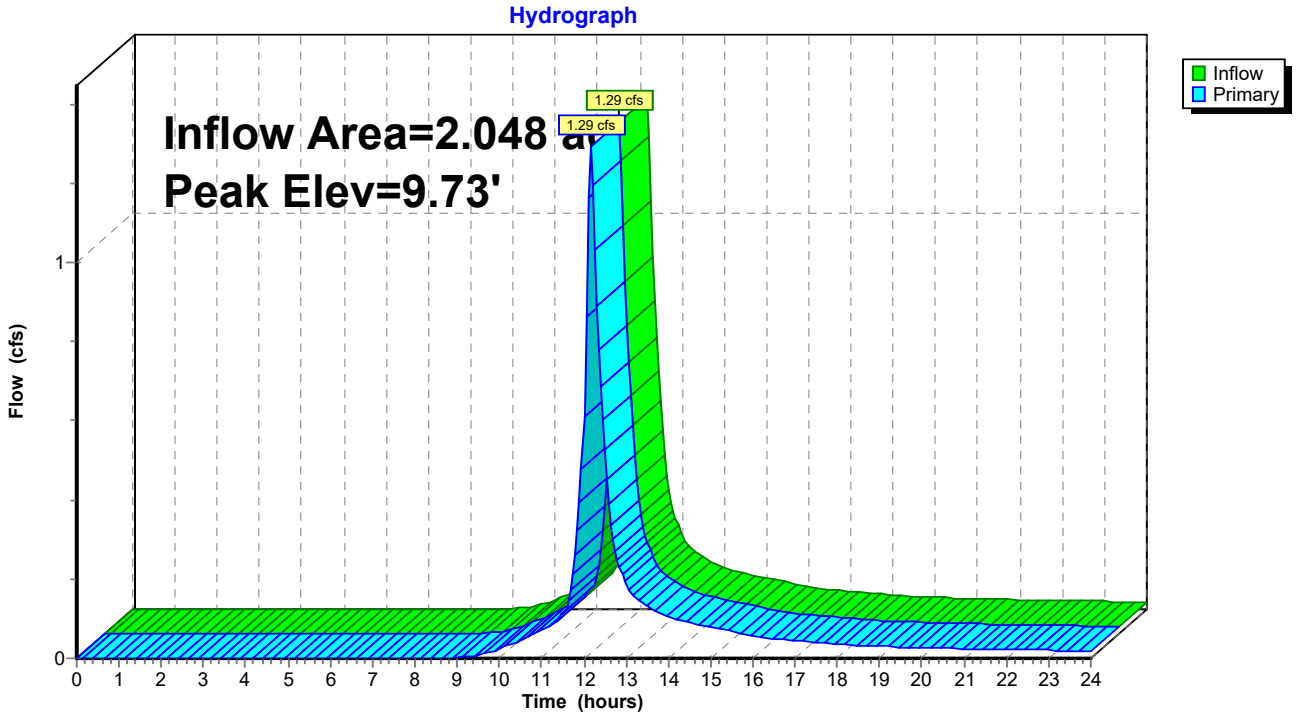
Inflow Area = 2.048 ac, 93.15% Impervious, Inflow Depth > 0.66" for 1" Storm Event event
Inflow = 1.29 cfs @ 12.15 hrs, Volume= 0.113 af
Outflow = 1.29 cfs @ 12.15 hrs, Volume= 0.113 af, Atten= 0%, Lag= 0.0 min
Primary = 1.29 cfs @ 12.15 hrs, Volume= 0.113 af
Routed to Pond 9P : DMH-8 (Outfall #1)

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 9.73' @ 12.15 hrs
Flood Elev= 12.89'

Device	Routing	Invert	Outlet Devices
#1	Primary	6.75'	**24.0" Round Filter Culvert Out** L= 5.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 6.75' / 6.67' S= 0.0160 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Device 1	6.75'	**JF Filter-1 CSV File** Head (feet) 0.00 0.08 0.17 0.25 0.33 0.42 0.50 0.58 0.67 0.75 0.83 0.92 1.00 1.08 1.17 1.25 1.33 1.42 1.50 Disch. (cfs) 0.000 0.010 0.020 0.030 0.040 0.050 0.059 0.129 0.198 0.267 0.337 0.406 0.475 0.545 0.614 0.683 0.753 0.822 0.891
#3	Device 1	9.59'	**2.8' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=1.28 cfs @ 12.15 hrs HW=9.72' (Free Discharge)
└**1=Filter Culvert Out** (Passes 1.28 cfs of 16.78 cfs potential flow)
  ├**2=JF Filter-1 CSV File** (Custom Controls 0.89 cfs)
  └**3=Broad-Crested Rectangular Weir** (Weir Controls 0.39 cfs @ 1.03 fps)

Pond 11P: Jellyfish 1 JFPD0806-4-1



Summary for Pond 12P: Jellyfish 2 JFPD0806-7-2

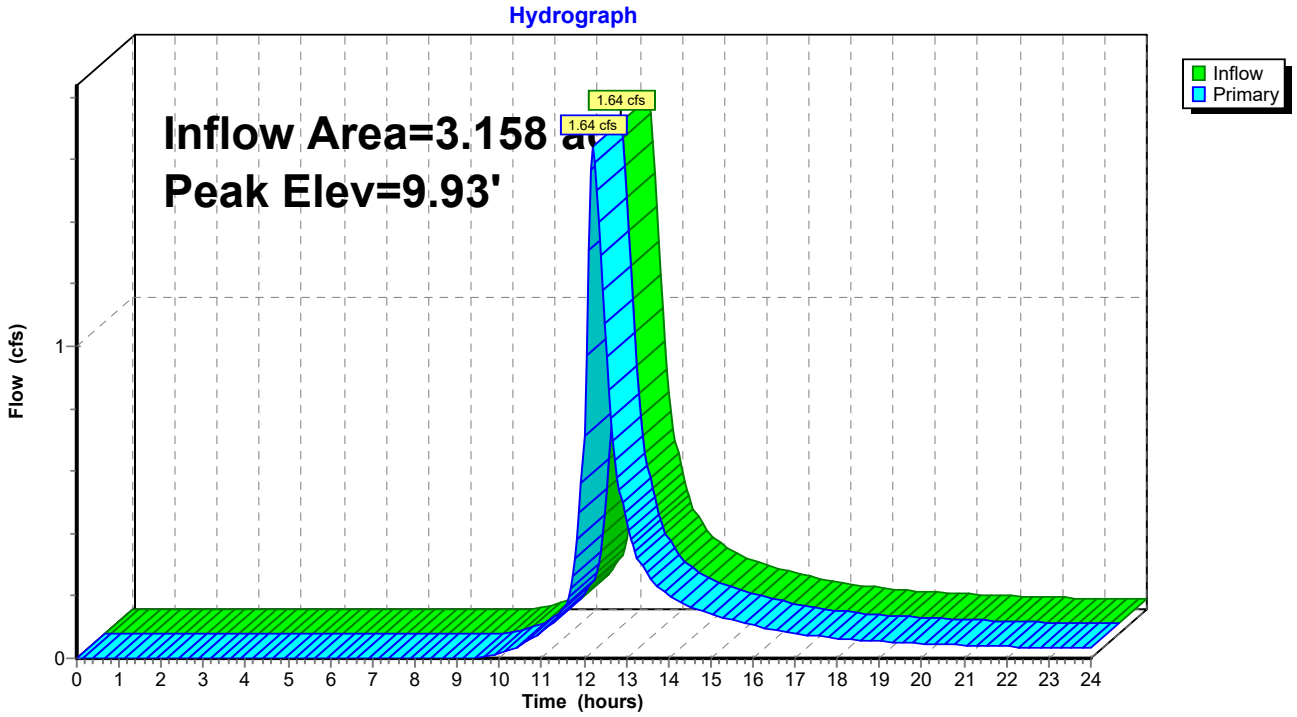
Inflow Area = 3.158 ac, 99.40% Impervious, Inflow Depth > 0.72" for 1" Storm Event event
Inflow = 1.64 cfs @ 12.20 hrs, Volume= 0.189 af
Outflow = 1.64 cfs @ 12.20 hrs, Volume= 0.189 af, Atten= 0%, Lag= 0.0 min
Primary = 1.64 cfs @ 12.20 hrs, Volume= 0.189 af
Routed to Pond 9P : DMH-8 (Outfall #1)

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 9.93' @ 12.20 hrs
Flood Elev= 11.43'

Device	Routing	Invert	Outlet Devices
#1	Primary	7.71'	**24.0" Round Filter Culvert Out** L= 125.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 7.71' / 6.92' S= 0.0063 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Device 1	7.71'	**JF Filter-2 CSV File** Head (feet) 0.00 0.08 0.17 0.25 0.33 0.42 0.50 0.58 0.67 0.75 0.83 0.92 1.00 1.08 1.17 1.25 1.33 1.42 1.50 Disch. (cfs) 0.000 0.010 0.020 0.030 0.040 0.050 0.059 0.173 0.287 0.401 0.515 0.629 0.743 0.857 0.970 1.084 1.198 1.312 1.426
#3	Device 1	9.84'	**2.8' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=1.63 cfs @ 12.20 hrs HW=9.93' (Free Discharge)
└**1=Filter Culvert Out** (Passes 1.63 cfs of 13.18 cfs potential flow)
  ├**2=JF Filter-2 CSV File** (Custom Controls 1.43 cfs)
  └**3=Broad-Crested Rectangular Weir** (Weir Controls 0.21 cfs @ 0.83 fps)

Pond 12P: Jellyfish 2 JFPD0806-7-2



Summary for Pond 13P: DMH-13 (Outfall #2)

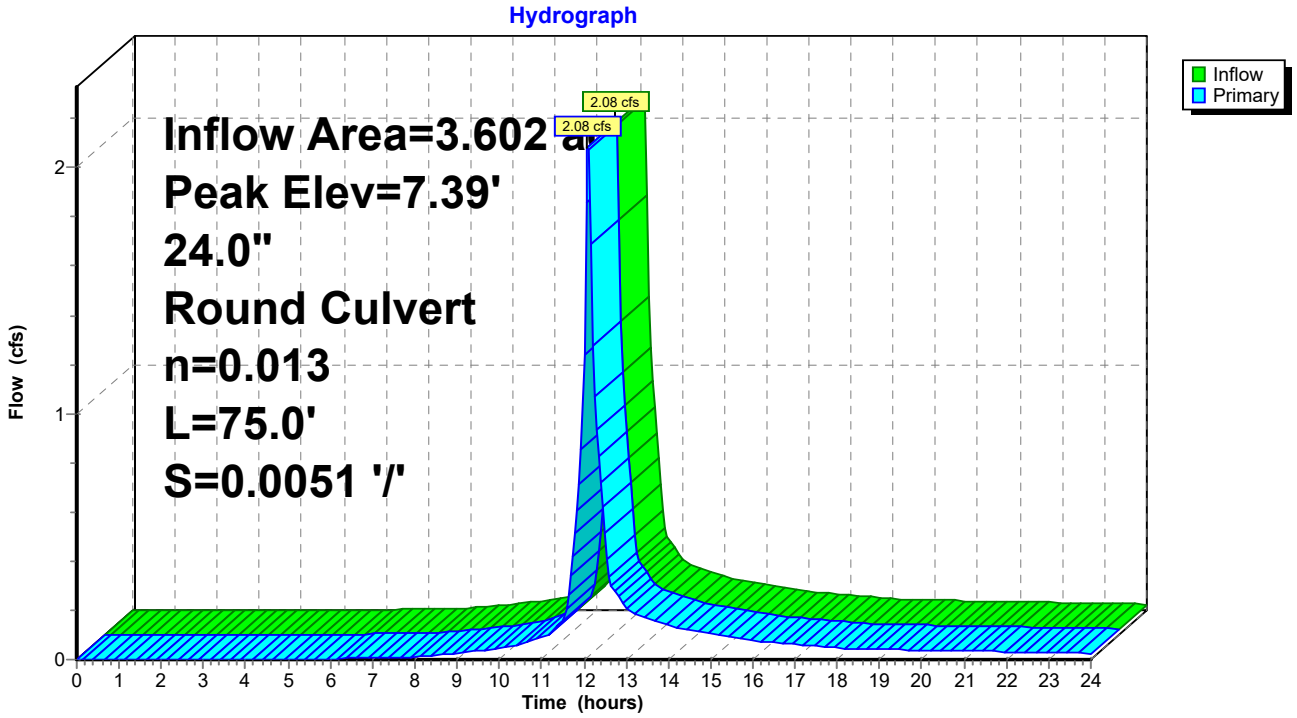
Inflow Area = 3.602 ac, 75.42% Impervious, Inflow Depth > 0.52" for 1" Storm Event event
Inflow = 2.08 cfs @ 12.09 hrs, Volume= 0.156 af
Outflow = 2.08 cfs @ 12.09 hrs, Volume= 0.156 af, Atten= 0%, Lag= 0.0 min
Primary = 2.08 cfs @ 12.09 hrs, Volume= 0.156 af
Routed to Link 2L : Fore River

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 7.39' @ 12.09 hrs
Flood Elev= 11.78'

Device	Routing	Invert	Outlet Devices
#1	Primary	6.68'	**24.0" Round Culvert** L= 75.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 6.68' / 6.30' S= 0.0051 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=2.04 cfs @ 12.09 hrs HW=7.38' (Free Discharge)
1=Culvert (Barrel Controls 2.04 cfs @ 3.11 fps)

Pond 13P: DMH-13 (Outfall #2)



Summary for Pond 24P: Filterra 1

Inflow Area = 0.429 ac,100.00% Impervious, Inflow Depth > 0.79" for 1" Storm Event event
Inflow = 0.37 cfs @ 12.09 hrs, Volume= 0.028 af
Outflow = 0.37 cfs @ 12.09 hrs, Volume= 0.028 af, Atten= 0%, Lag= 0.0 min
Primary = 0.37 cfs @ 12.09 hrs, Volume= 0.028 af
Routed to Pond 27P : CB
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond 27P : CB

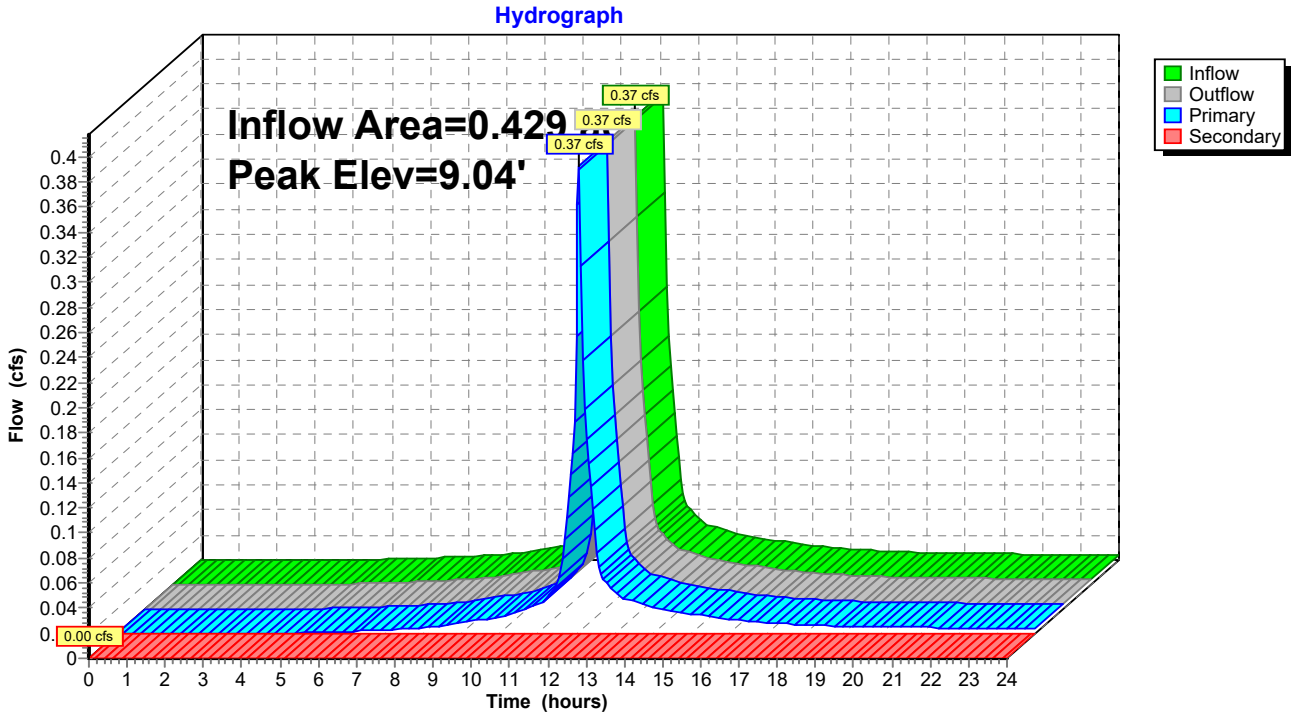
Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 9.04' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	8.51'	**6.0" Round Culvert** L= 4.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 8.51' / 8.48' S= 0.0075 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Secondary	12.05'	**5.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=0.36 cfs @ 12.09 hrs HW=9.03' (Free Discharge)
└**1=Culvert** (Barrel Controls 0.36 cfs @ 2.20 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=8.51' (Free Discharge)
└**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 24P: Filterra 1



Summary for Pond 27P: CB

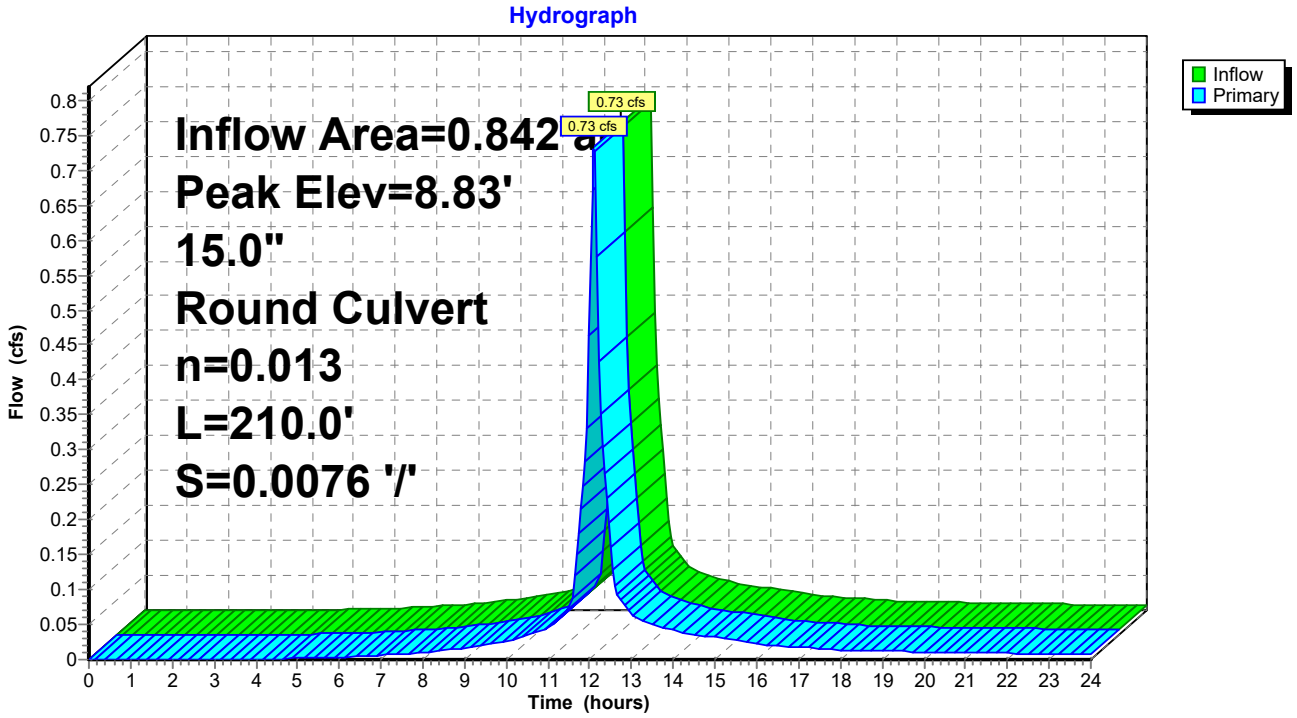
Inflow Area = 0.842 ac,100.00% Impervious, Inflow Depth > 0.79" for 1" Storm Event event
Inflow = 0.73 cfs @ 12.09 hrs, Volume= 0.055 af
Outflow = 0.73 cfs @ 12.09 hrs, Volume= 0.055 af, Atten= 0%, Lag= 0.0 min
Primary = 0.73 cfs @ 12.09 hrs, Volume= 0.055 af
Routed to Pond 13P : DMH-13 (Outfall #2)

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 8.83' @ 12.09 hrs
Flood Elev= 12.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	8.38'	**15.0" Round Culvert** L= 210.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 8.38' / 6.78' S= 0.0076 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.71 cfs @ 12.09 hrs HW=8.83' (Free Discharge)
1=Culvert (Inlet Controls 0.71 cfs @ 1.80 fps)

Pond 27P: CB



Summary for Pond 28P: Filterra 2

Inflow Area = 0.413 ac,100.00% Impervious, Inflow Depth > 0.79" for 1" Storm Event event
Inflow = 0.36 cfs @ 12.09 hrs, Volume= 0.027 af
Outflow = 0.36 cfs @ 12.09 hrs, Volume= 0.027 af, Atten= 0%, Lag= 0.0 min
Primary = 0.36 cfs @ 12.09 hrs, Volume= 0.027 af
Routed to Pond 27P : CB
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond 27P : CB

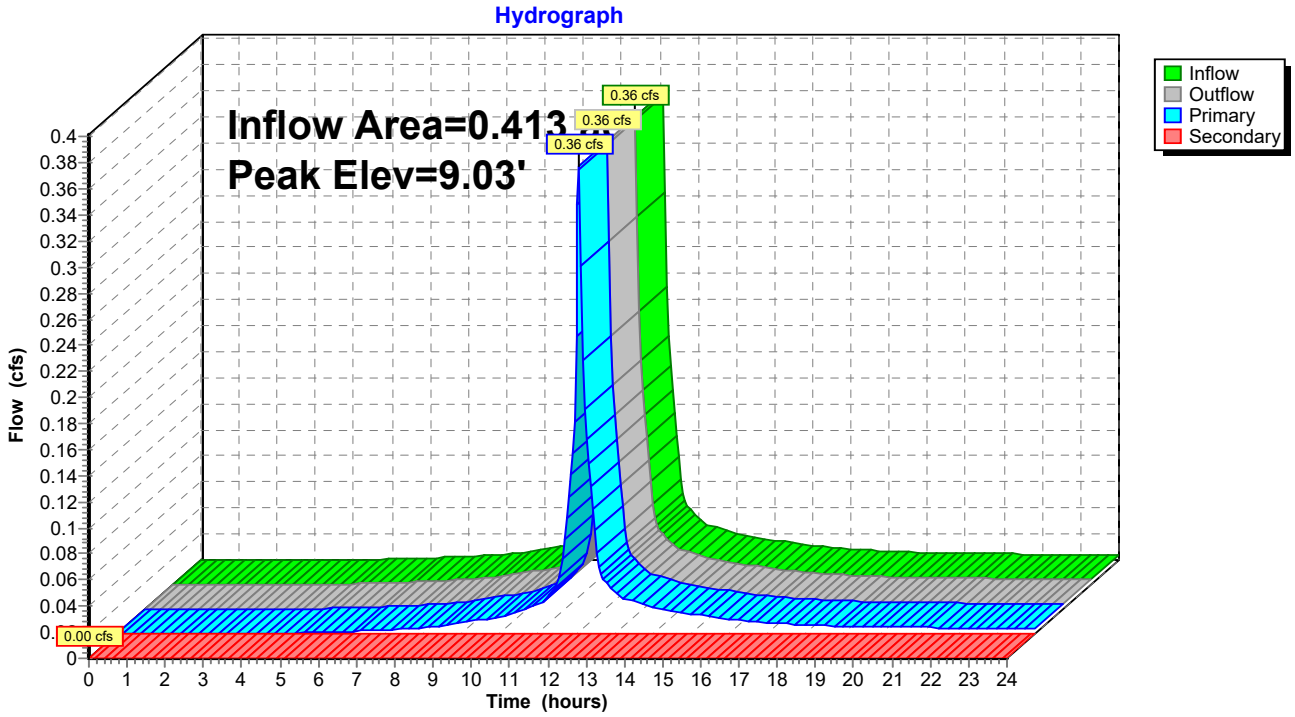
Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 9.03' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	8.51'	**6.0" Round Culvert** L= 4.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 8.51' / 8.48' S= 0.0075 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Secondary	12.05'	**5.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=0.35 cfs @ 12.09 hrs HW=9.02' (Free Discharge)
1=Culvert (Barrel Controls 0.35 cfs @ 2.17 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=8.51' (Free Discharge)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 28P: Filterra 2

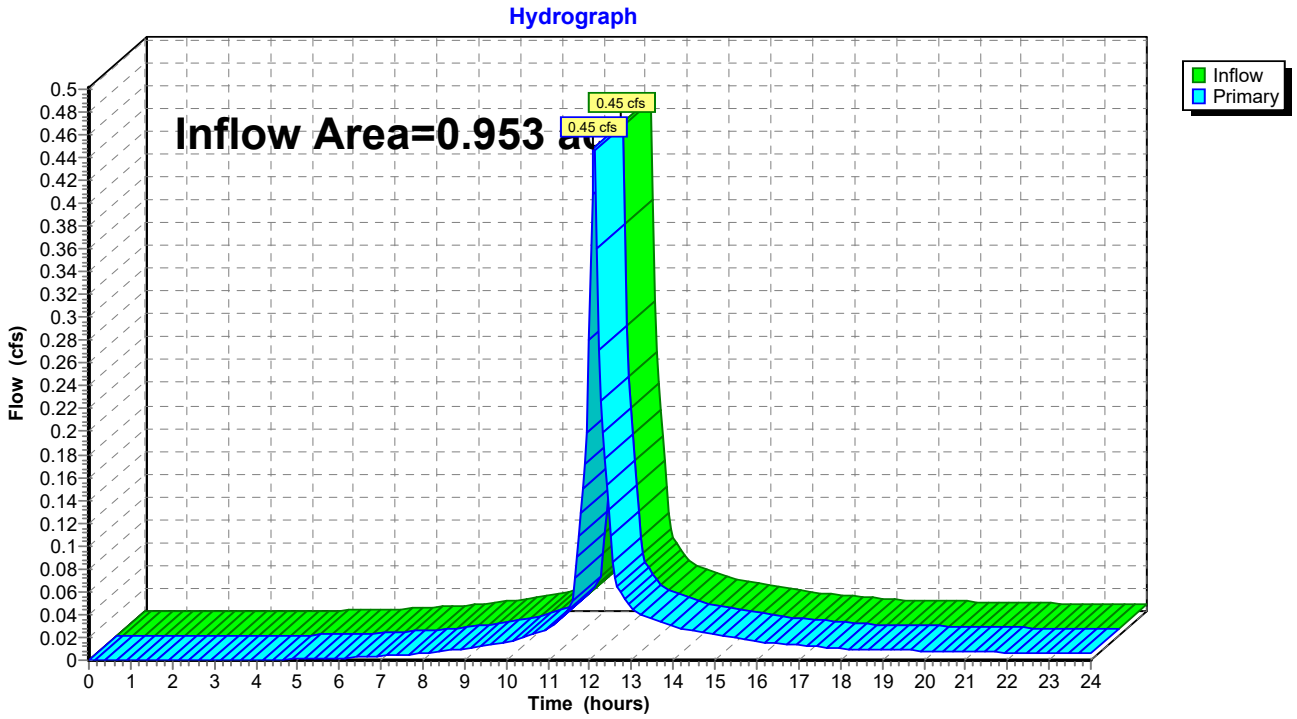


Summary for Link 1L: Freedom Way

Inflow Area = 0.953 ac, 53.78% Impervious, Inflow Depth > 0.46" for 1" Storm Event event
Inflow = 0.45 cfs @ 12.09 hrs, Volume= 0.037 af
Primary = 0.45 cfs @ 12.09 hrs, Volume= 0.037 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 1L: Freedom Way

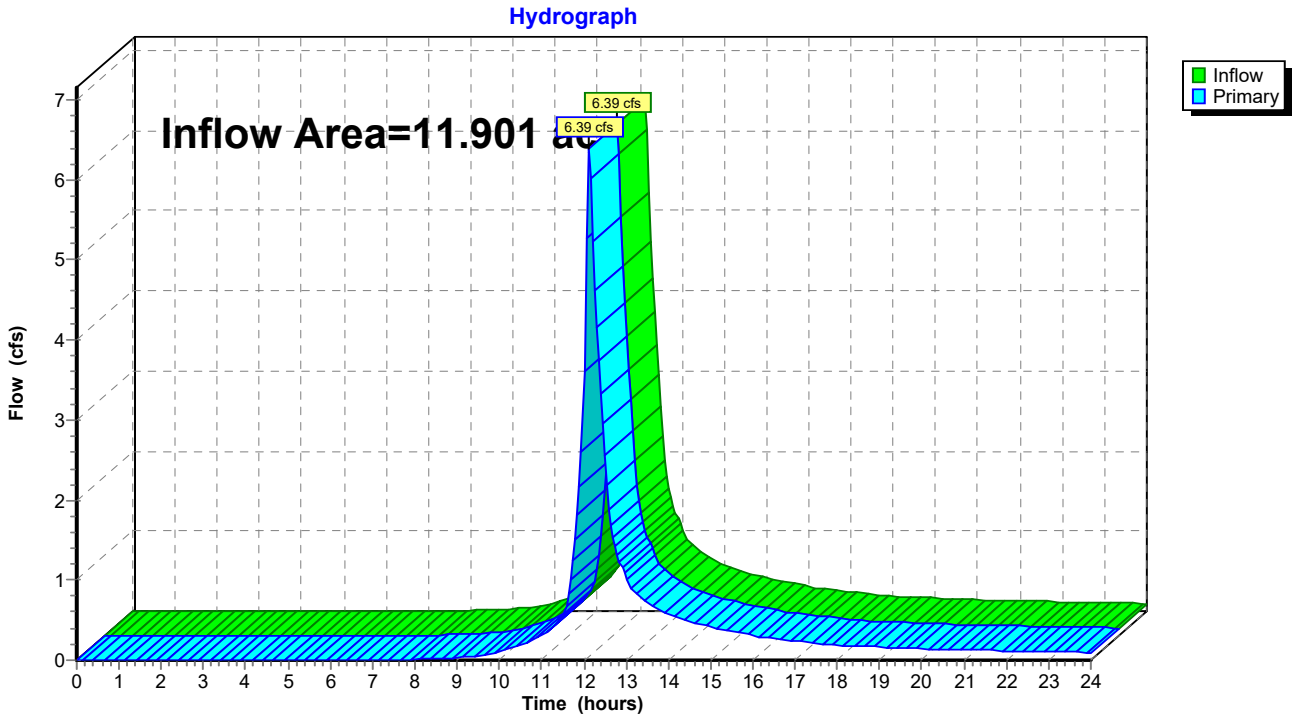


Summary for Link 2L: Fore River

Inflow Area = 11.901 ac, 85.36% Impervious, Inflow Depth > 0.59" for 1" Storm Event event
Inflow = 6.39 cfs @ 12.11 hrs, Volume= 0.587 af
Primary = 6.39 cfs @ 12.11 hrs, Volume= 0.587 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 2L: Fore River

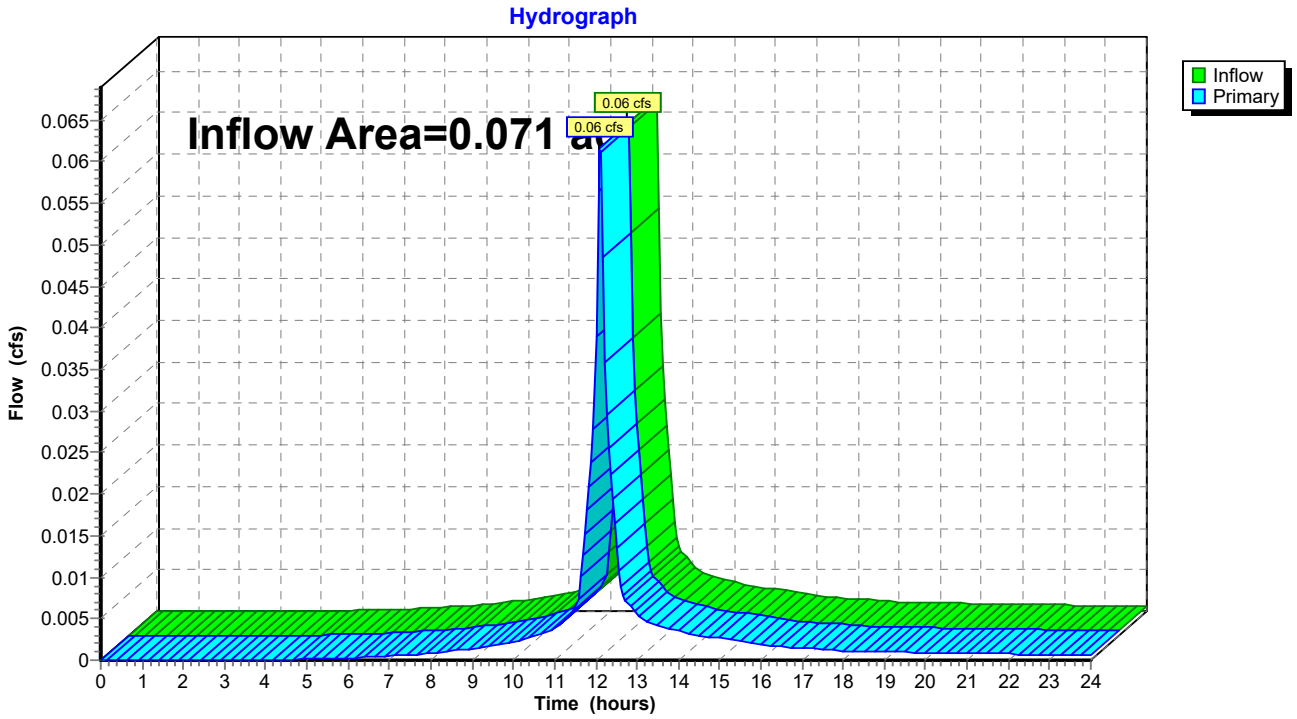


Summary for Link 3L: Fore Street

Inflow Area = 0.071 ac,100.00% Impervious, Inflow Depth > 0.79" for 1" Storm Event event
Inflow = 0.06 cfs @ 12.09 hrs, Volume= 0.005 af
Primary = 0.06 cfs @ 12.09 hrs, Volume= 0.005 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 3L: Fore Street



Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: Block 1B Runoff Area=19,389 sf 1.02% Impervious Runoff Depth>1.32"
Tc=6.0 min CN=80 Runoff=0.67 cfs 0.049 af

Subcatchment2S: Western half of Runoff Area=22,128 sf 100.00% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=98 Runoff=1.49 cfs 0.121 af

Subcatchment3S: Eastern half of Runoff Area=22,147 sf 100.00% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=98 Runoff=1.49 cfs 0.121 af

Subcatchment4S: Shared Street - Trench Runoff Area=26,497 sf 83.29% Impervious Runoff Depth>2.55"
Tc=6.0 min CN=95 Runoff=1.68 cfs 0.129 af

Subcatchment5S: Building 12 Runoff Area=3,244 sf 100.00% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=98 Runoff=0.22 cfs 0.018 af

Subcatchment6S: Plaza between Blocks 1 Runoff Area=18,771 sf 95.74% Impervious Runoff Depth>2.76"
Tc=6.0 min CN=97 Runoff=1.25 cfs 0.099 af

Subcatchment7S: Building 14 Runoff Area=2,557 sf 100.00% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=98 Runoff=0.17 cfs 0.014 af

Subcatchment8S: Building 15 Runoff Area=2,578 sf 100.00% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=98 Runoff=0.17 cfs 0.014 af

Subcatchment9S: Building 2 North Runoff Area=4,695 sf 100.00% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=98 Runoff=0.32 cfs 0.026 af

Subcatchment10S: Building 3 North Runoff Area=2,212 sf 100.00% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=98 Runoff=0.15 cfs 0.012 af

Subcatchment11S: Building 2 South Runoff Area=4,855 sf 100.00% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=98 Runoff=0.33 cfs 0.027 af

Subcatchment12S: Building 3 South Runoff Area=2,326 sf 100.00% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=98 Runoff=0.16 cfs 0.013 af

Subcatchment13S: Building 6 Runoff Area=3,304 sf 100.00% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=98 Runoff=0.22 cfs 0.018 af

Subcatchment14S: Building 6B North Runoff Area=3,873 sf 100.00% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=98 Runoff=0.26 cfs 0.021 af

Subcatchment15S: Building 6B South Runoff Area=2,512 sf 100.00% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=98 Runoff=0.17 cfs 0.014 af

Subcatchment16S: Plaza between Blocks 1 Runoff Area=3,122 sf 71.75% Impervious Runoff Depth>2.35"
Tc=6.0 min CN=93 Runoff=0.19 cfs 0.014 af

Subcatchment17S: Shared Street - Trench Runoff Area=8,931 sf 90.72% Impervious Runoff Depth>2.65"
Tc=6.0 min CN=96 Runoff=0.58 cfs 0.045 af

Subcatchment18S: Plaza between Runoff Area=15,575 sf 100.00% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=98 Runoff=1.05 cfs 0.085 af

Subcatchment19S: Building 4A Runoff Area=86,615 sf 100.00% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=98 Runoff=5.84 cfs 0.475 af

Subcatchment20S: Shared Street - Runoff Area=12,950 sf 100.00% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=98 Runoff=0.87 cfs 0.071 af

Subcatchment21S: Plaza along Building Runoff Area=2,534 sf 100.00% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=98 Runoff=0.17 cfs 0.014 af

Subcatchment22S: Block 6 Building Runoff Area=71,240 sf 84.53% Impervious Runoff Depth>2.55"
Tc=6.0 min CN=95 Runoff=4.52 cfs 0.347 af

Subcatchment23S: Block 5 - Interim Runoff Area=18,694 sf 100.00% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=98 Runoff=1.26 cfs 0.102 af

Subcatchment24S: Block 5 - Interim Runoff Area=17,974 sf 100.00% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=98 Runoff=1.21 cfs 0.099 af

Subcatchment25S: Waterfront Runoff Area=134,732 sf 77.43% Impervious Runoff Depth>2.45"
Tc=6.0 min CN=94 Runoff=8.32 cfs 0.630 af

Subcatchment26S: Plaza along Townhouse Runoff Area=550 sf 100.00% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=98 Runoff=0.04 cfs 0.003 af

Subcatchment27S: Drainage from off-site Runoff Area=49,015 sf 43.79% Impervious Runoff Depth>1.91"
Tc=6.0 min CN=88 Runoff=2.46 cfs 0.179 af

Pond 1P: DMH 1 Peak Elev=11.06' Inflow=5.45 cfs 0.434 af
24.0" Round Culvert n=0.013 L=61.0' S=0.0038 '/' Outflow=5.45 cfs 0.434 af

Pond 2P: DMH 2 Peak Elev=10.77' Inflow=5.86 cfs 0.466 af
24.0" Round Culvert n=0.013 L=31.0' S=0.0048 '/' Outflow=5.86 cfs 0.466 af

Pond 3P: Storm Structure Peak Elev=9.29' Inflow=5.86 cfs 0.466 af
15.0" Round Culvert x 3.00 n=0.013 L=4.0' S=0.0000 '/' Outflow=5.86 cfs 0.466 af

Pond 4P: R-Tank 1 Peak Elev=8.31' Storage=1,603 cf Inflow=5.86 cfs 0.466 af
21.0" Round Culvert n=0.013 L=62.0' S=0.0000 '/' Outflow=5.27 cfs 0.459 af

Pond 5P: DMH-11 Peak Elev=9.32' Inflow=7.04 cfs 0.729 af
24.0" Round Culvert n=0.013 L=16.0' S=0.0069 '/' Outflow=7.04 cfs 0.729 af

Pond 6P: CB27 Peak Elev=11.19' Inflow=8.38 cfs 0.680 af
24.0" Round Culvert n=0.013 L=22.0' S=0.0064 '/' Outflow=8.38 cfs 0.680 af

Pond 7P: Storm Structure Peak Elev=9.62' Inflow=9.25 cfs 0.751 af
15.0" Round Culvert x 3.00 n=0.013 L=4.0' S=0.0000 '/' Outflow=9.25 cfs 0.751 af

Pond 8P: R-Tank 2 Peak Elev=9.55' Storage=5,033 cf Inflow=9.25 cfs 0.751 af
24.0" Round Culvert n=0.013 L=70.0' S=0.0000 '/' Outflow=7.04 cfs 0.729 af

Pond 9P: DMH-8 (Outfall #1) Peak Elev=8.39' Inflow=12.21 cfs 1.188 af
30.0" Round Culvert n=0.013 L=52.0' S=0.0052 '/' Outflow=12.21 cfs 1.188 af

Pond 10P: DMH 4 Peak Elev=8.20' Inflow=5.27 cfs 0.459 af
24.0" Round Culvert n=0.013 L=59.0' S=0.0000 '/' Outflow=5.27 cfs 0.459 af

Pond 11P: Jellyfish 1 JFPD0806-4-1 Peak Elev=10.22' Inflow=5.27 cfs 0.459 af
Outflow=5.27 cfs 0.459 af

Pond 12P: Jellyfish 2 JFPD0806-7-2 Peak Elev=10.57' Inflow=7.04 cfs 0.729 af
Outflow=7.04 cfs 0.729 af

Pond 13P: DMH-13 (Outfall #2) Peak Elev=8.40' Inflow=9.45 cfs 0.727 af
24.0" Round Culvert n=0.013 L=75.0' S=0.0051 '/' Outflow=9.45 cfs 0.727 af

Pond 24P: Filterra 1 Peak Elev=11.60' Inflow=1.26 cfs 0.102 af
Primary=1.26 cfs 0.102 af Secondary=0.00 cfs 0.000 af Outflow=1.26 cfs 0.102 af

Pond 27P: CB Peak Elev=9.29' Inflow=2.47 cfs 0.201 af
15.0" Round Culvert n=0.013 L=210.0' S=0.0076 '/' Outflow=2.47 cfs 0.201 af

Pond 28P: Filterra 2 Peak Elev=11.39' Inflow=1.21 cfs 0.099 af
Primary=1.21 cfs 0.099 af Secondary=0.00 cfs 0.000 af Outflow=1.21 cfs 0.099 af

Link 1L: Freedom Way Inflow=2.16 cfs 0.170 af
Primary=2.16 cfs 0.170 af

Link 2L: Fore River Inflow=29.11 cfs 2.544 af
Primary=29.11 cfs 2.544 af

Link 3L: Fore Street Inflow=0.21 cfs 0.017 af
Primary=0.21 cfs 0.017 af

Total Runoff Area = 12.925 ac Runoff Volume = 2.761 af Average Runoff Depth = 2.56"
16.89% Pervious = 2.183 ac 83.11% Impervious = 10.742 ac

Summary for Subcatchment 1S: Block 1B

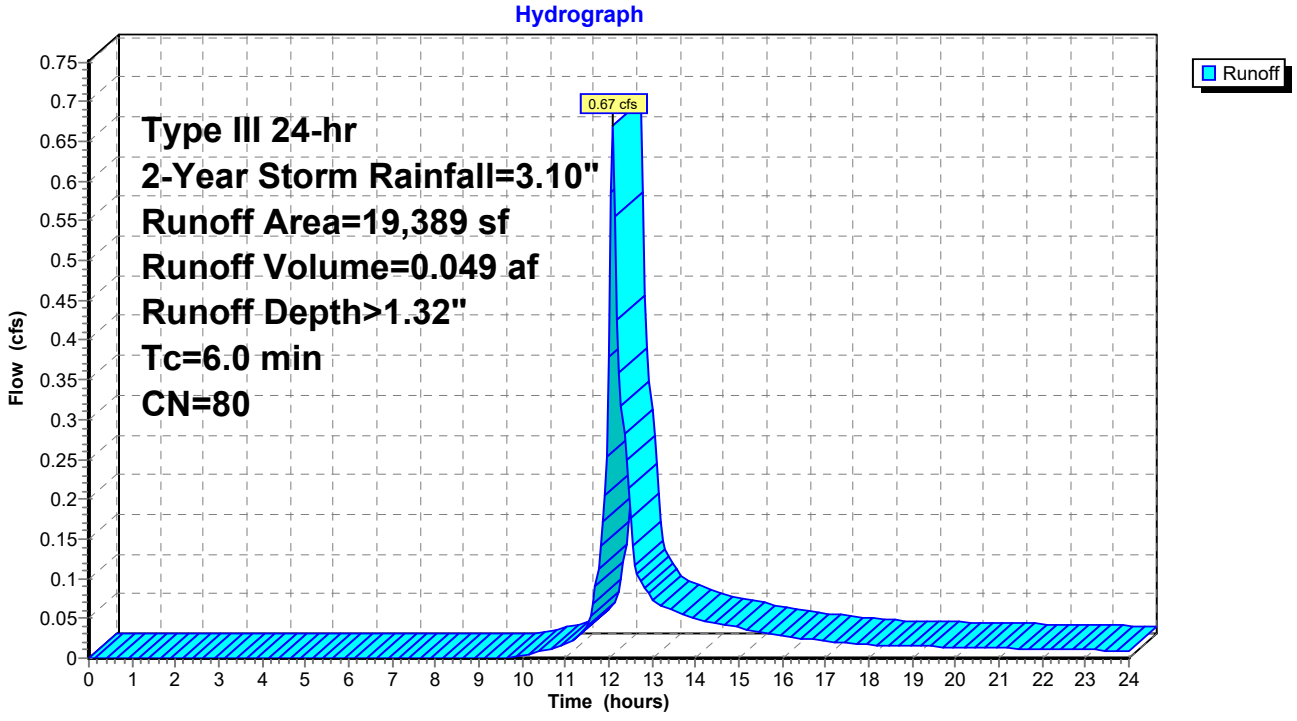
Runoff = 0.67 cfs @ 12.10 hrs, Volume= 0.049 af, Depth> 1.32"
Routed to Link 1L : Freedom Way

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	198	98	Impervious
	19,191	80	>75% Grass cover, Good, HSG D
	19,389	80	Weighted Average
	19,191		98.98% Pervious Area
	198		1.02% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 1S: Block 1B



Summary for Subcatchment 2S: Western half of Building 1A

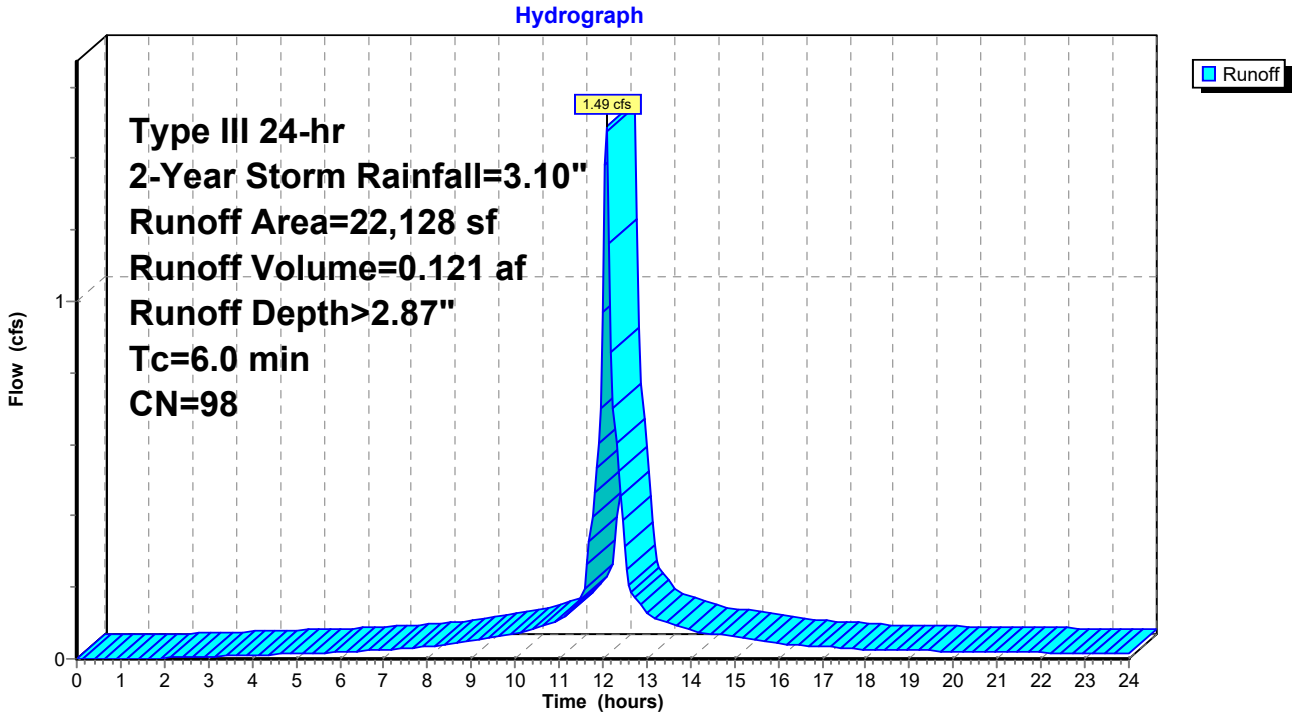
Runoff = 1.49 cfs @ 12.09 hrs, Volume= 0.121 af, Depth> 2.87"
Routed to Link 1L : Freedom Way

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	22,128	98	Roof
	22,128		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 2S: Western half of Building 1A



Summary for Subcatchment 3S: Eastern half of Building 1A

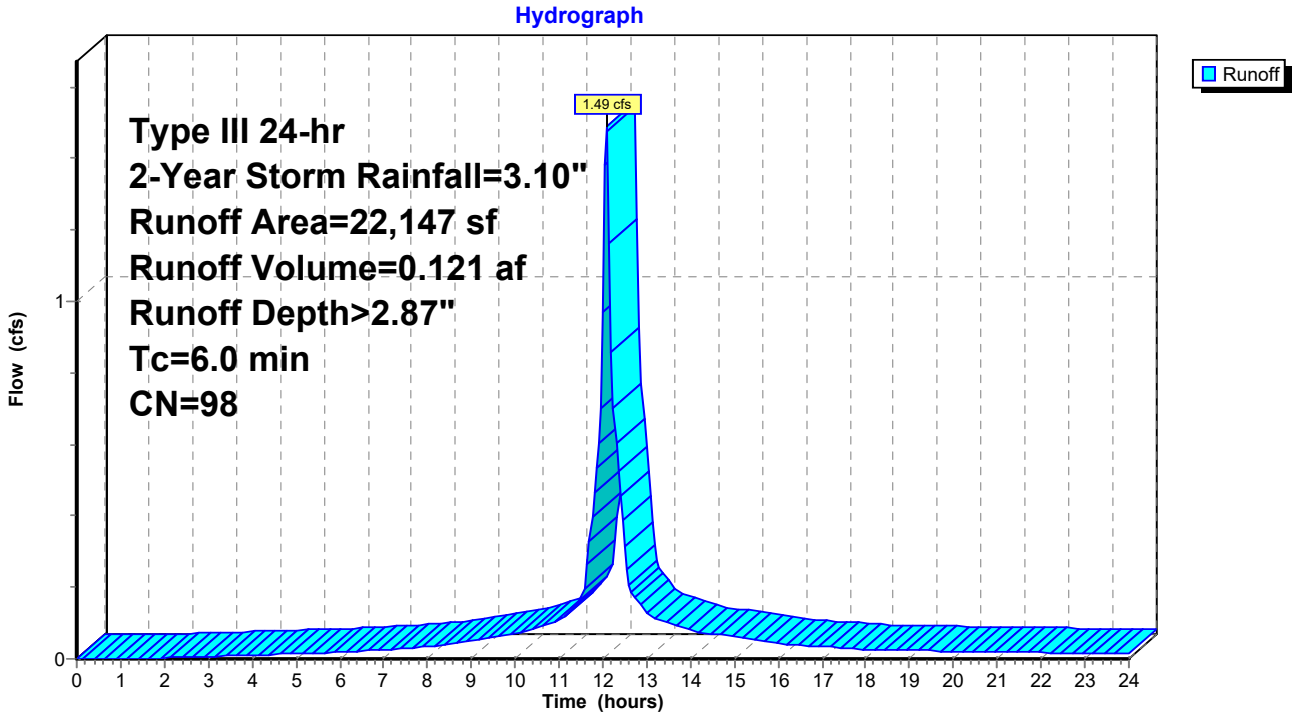
Runoff = 1.49 cfs @ 12.09 hrs, Volume= 0.121 af, Depth> 2.87"
Routed to Pond 1P : DMH 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	22,147	98	Roof
	22,147		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 3S: Eastern half of Building 1A



Summary for Subcatchment 4S: Shared Street - Trench Drain

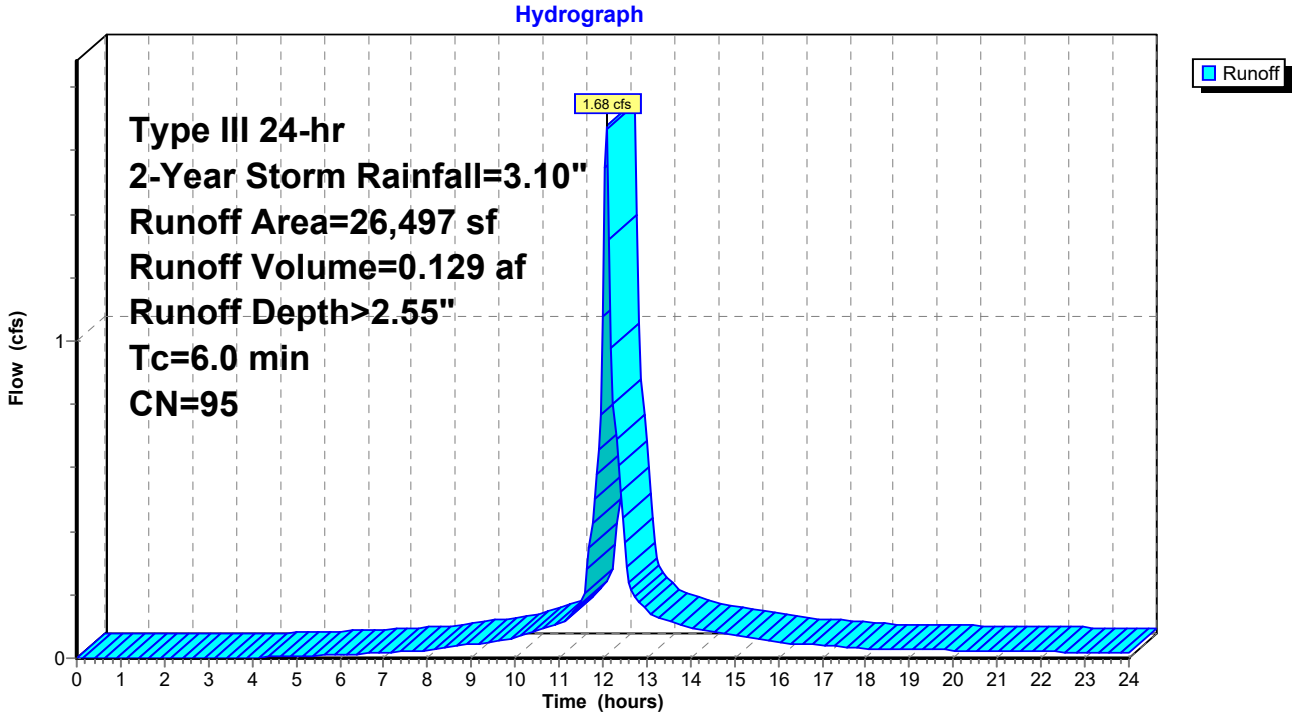
Runoff = 1.68 cfs @ 12.09 hrs, Volume= 0.129 af, Depth> 2.55"
Routed to Pond 1P : DMH 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Storm Rainfall=3.10"

	Area (sf)	CN	Description
	4,428	80	>75% Grass cover, Good, HSG D
*	22,069	98	Impervious Shared Street and Plaza
	26,497	95	Weighted Average
	4,428		16.71% Pervious Area
	22,069		83.29% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 4S: Shared Street - Trench Drain



Summary for Subcatchment 5S: Building 12

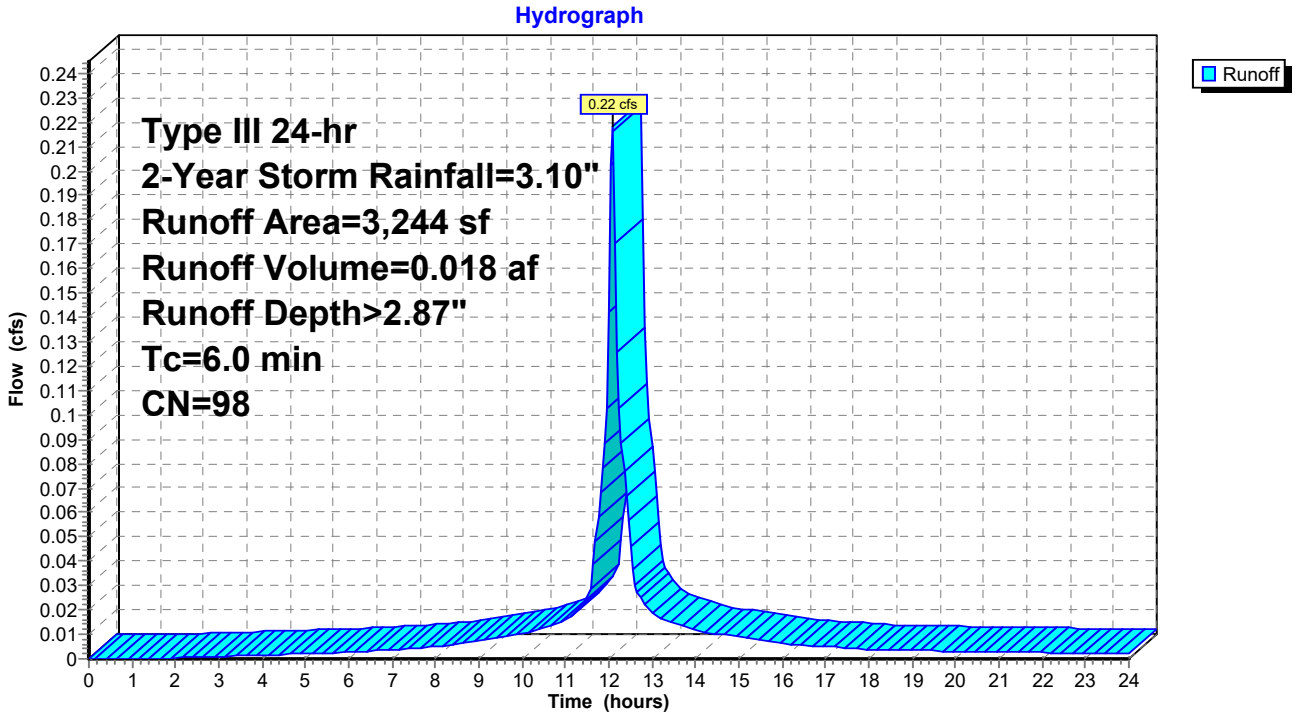
Runoff = 0.22 cfs @ 12.09 hrs, Volume= 0.018 af, Depth> 2.87"
Routed to Pond 1P : DMH 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	3,244	98	Roof
	3,244		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 5S: Building 12



Summary for Subcatchment 6S: Plaza between Blocks 1 & 2

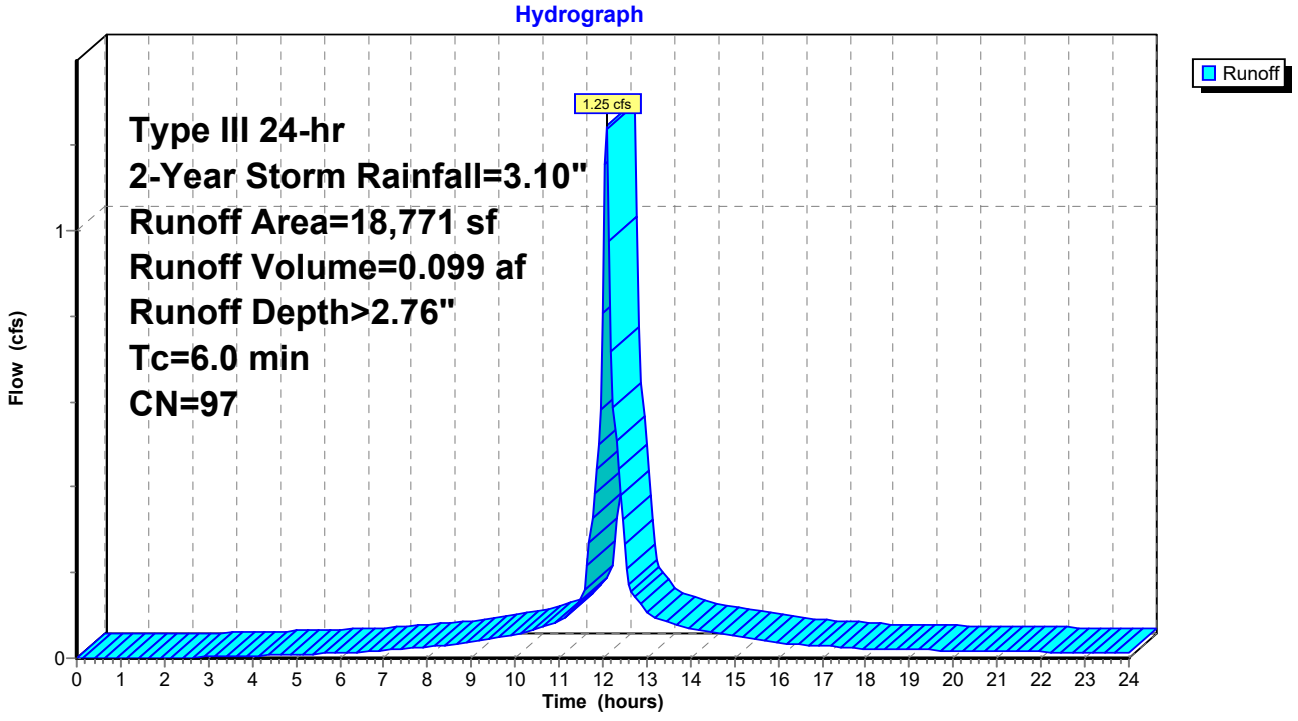
Runoff = 1.25 cfs @ 12.09 hrs, Volume= 0.099 af, Depth> 2.76"
Routed to Pond 1P : DMH 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	17,972	98	Impervious
	799	80	>75% Grass cover, Good, HSG D
	18,771	97	Weighted Average
	799		4.26% Pervious Area
	17,972		95.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 6S: Plaza between Blocks 1 & 2



Summary for Subcatchment 7S: Building 14

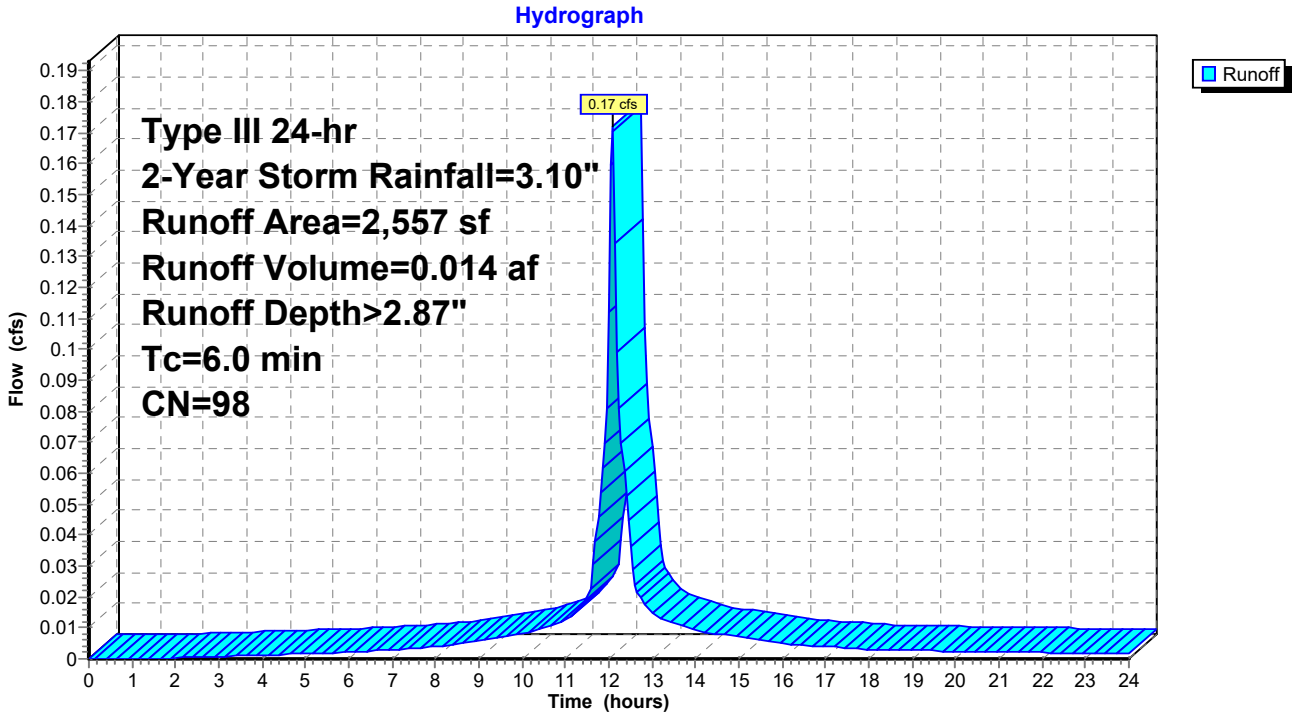
Runoff = 0.17 cfs @ 12.09 hrs, Volume= 0.014 af, Depth> 2.87"
Routed to Pond 1P : DMH 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	2,557	98	Roof
	2,557		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 7S: Building 14



Summary for Subcatchment 8S: Building 15

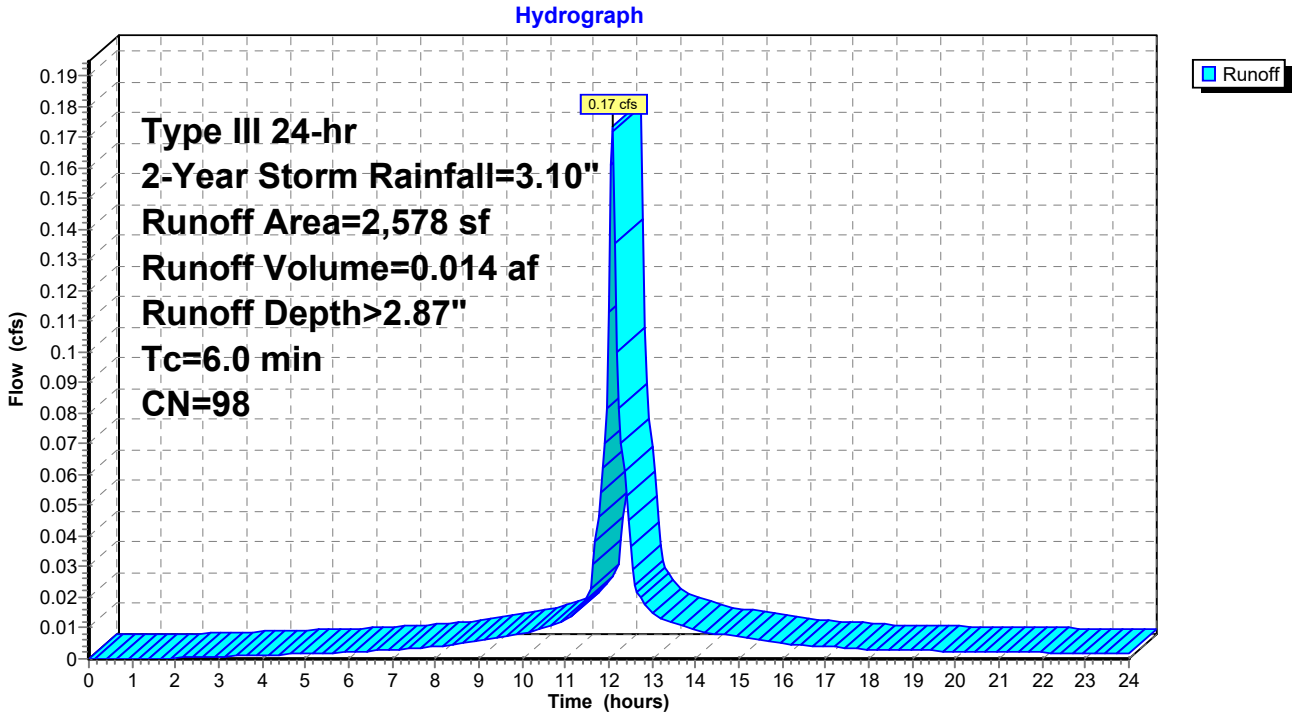
Runoff = 0.17 cfs @ 12.09 hrs, Volume= 0.014 af, Depth> 2.87"
Routed to Pond 6P : CB27

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	2,578	98	Roof
	2,578		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 8S: Building 15



Summary for Subcatchment 9S: Building 2 North

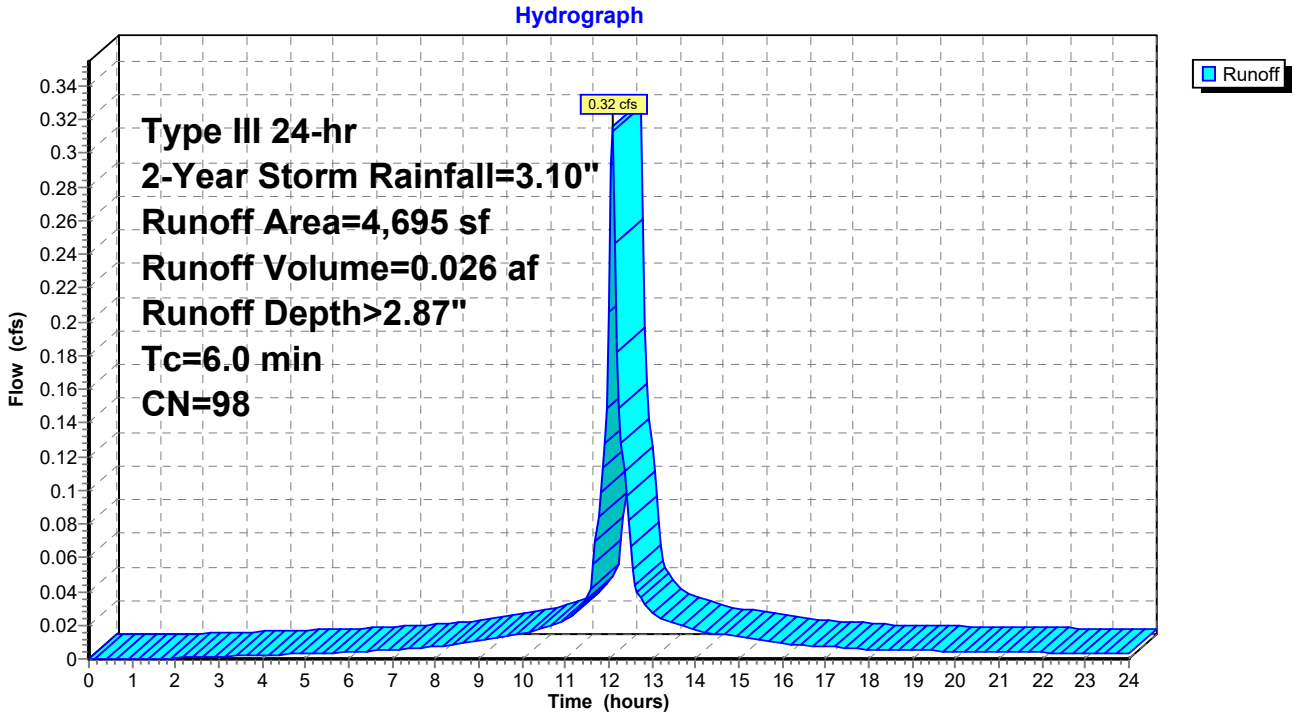
Runoff = 0.32 cfs @ 12.09 hrs, Volume= 0.026 af, Depth> 2.87"
Routed to Pond 1P : DMH 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	4,695	98	Roof
	4,695		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 9S: Building 2 North



Summary for Subcatchment 10S: Building 3 North

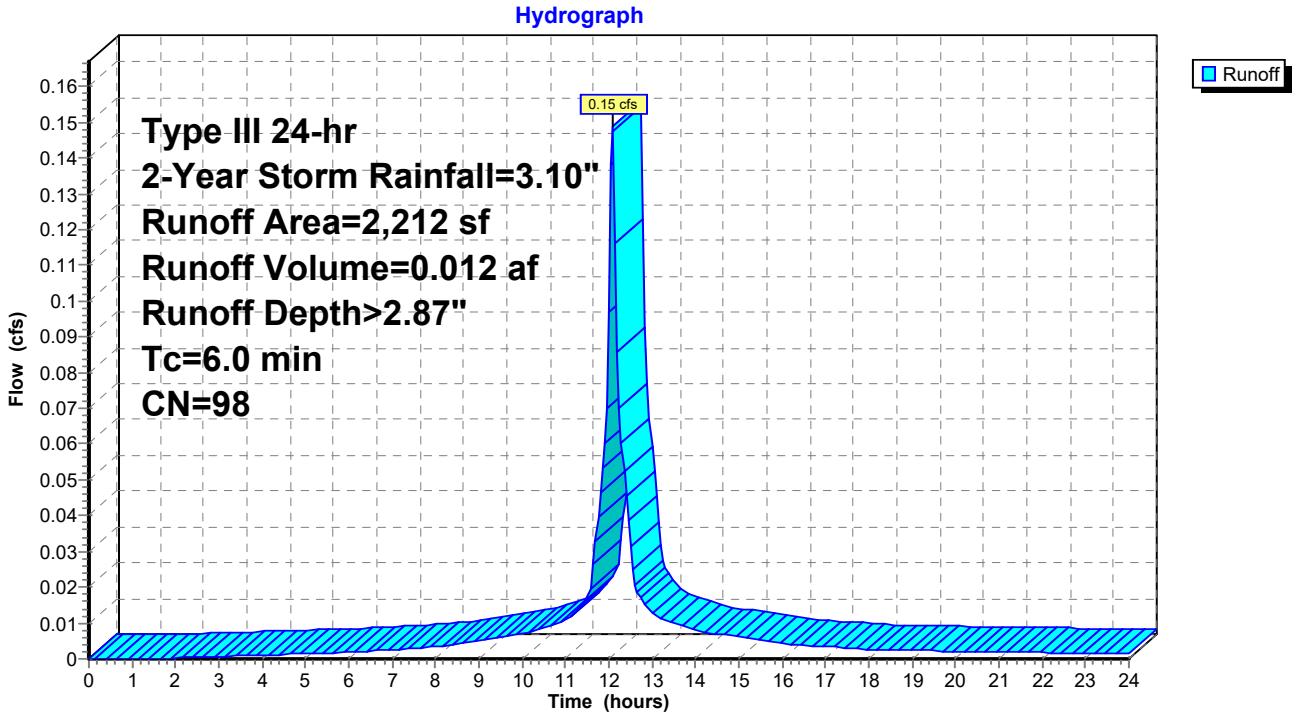
Runoff = 0.15 cfs @ 12.09 hrs, Volume= 0.012 af, Depth> 2.87"
Routed to Pond 6P : CB27

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	2,212	98	Roof
	2,212		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 10S: Building 3 North



Summary for Subcatchment 11S: Building 2 South

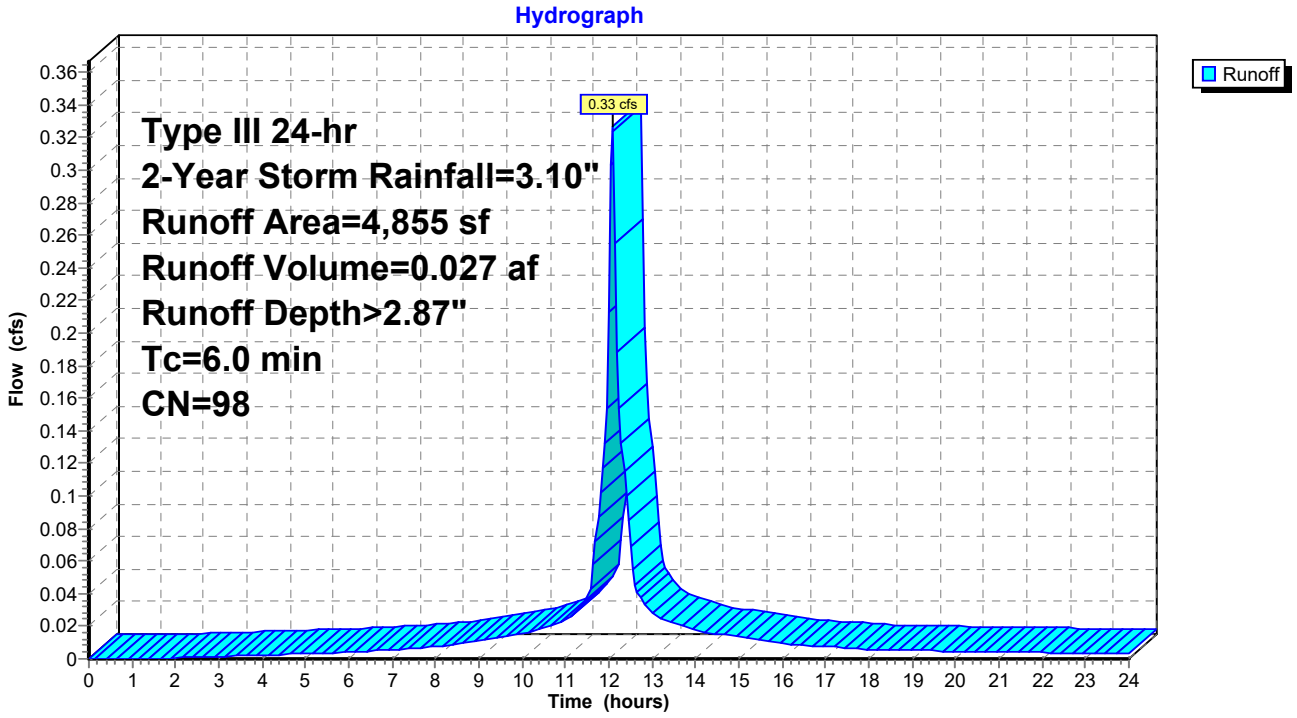
Runoff = 0.33 cfs @ 12.09 hrs, Volume= 0.027 af, Depth> 2.87"
Routed to Pond 1P : DMH 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	4,855	98	Roof
	4,855		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 11S: Building 2 South



Summary for Subcatchment 12S: Building 3 South

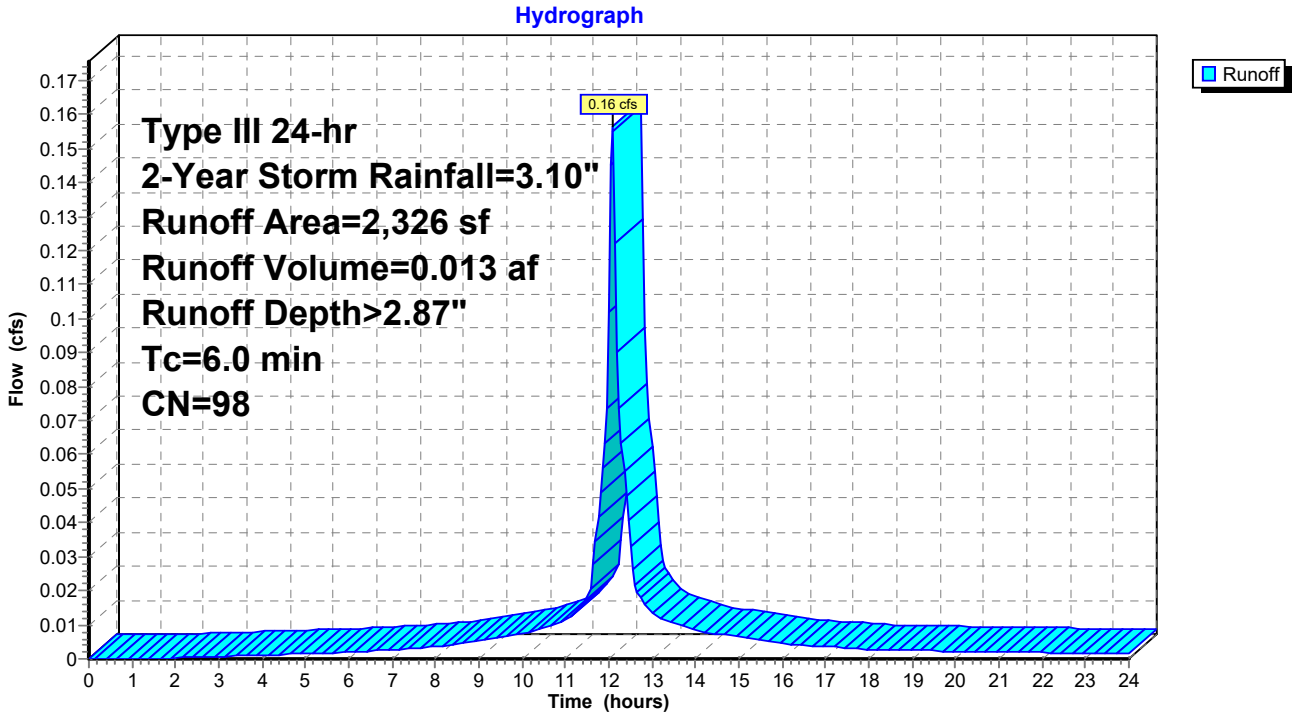
Runoff = 0.16 cfs @ 12.09 hrs, Volume= 0.013 af, Depth> 2.87"
Routed to Pond 6P : CB27

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	2,326	98	Roof
	2,326		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 12S: Building 3 South



Summary for Subcatchment 13S: Building 6

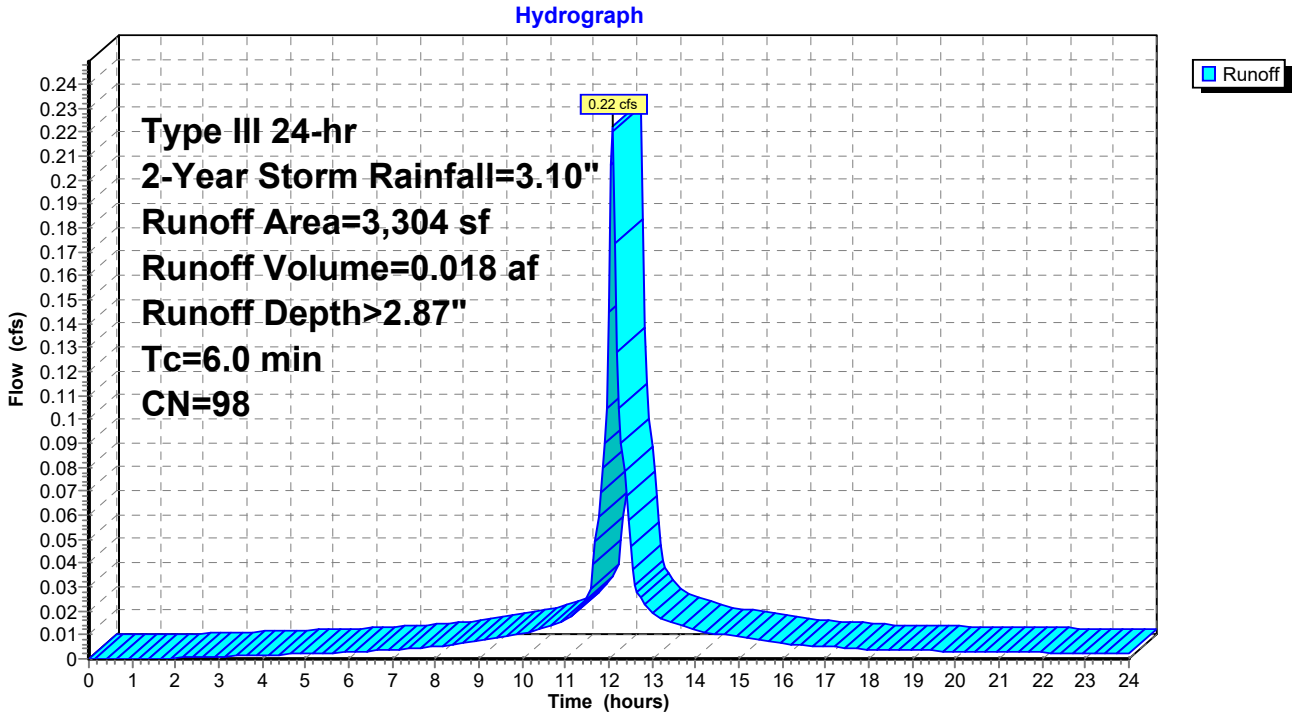
Runoff = 0.22 cfs @ 12.09 hrs, Volume= 0.018 af, Depth> 2.87"
Routed to Pond 2P : DMH 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	3,304	98	Roof
	3,304		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 13S: Building 6



Summary for Subcatchment 14S: Building 6B North

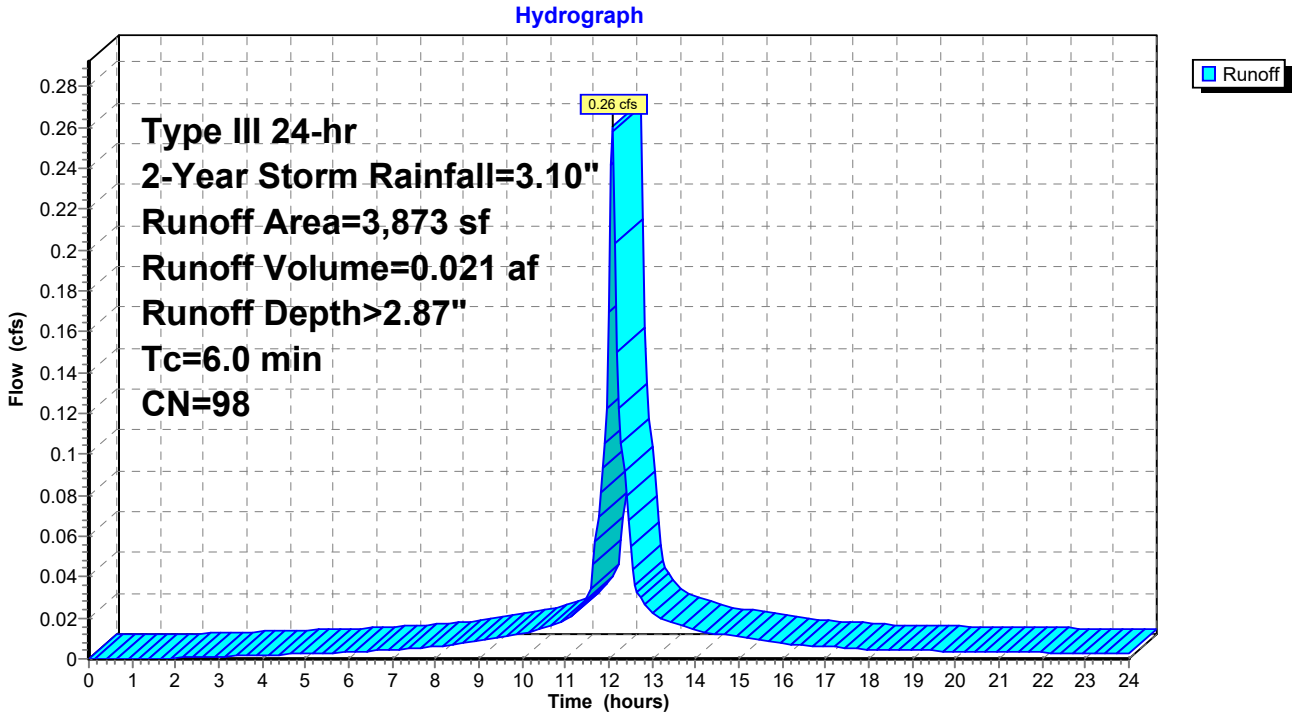
Runoff = 0.26 cfs @ 12.09 hrs, Volume= 0.021 af, Depth> 2.87"
Routed to Pond 6P : CB27

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	3,873	98	Roof
	3,873		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 14S: Building 6B North



Summary for Subcatchment 15S: Building 6B South

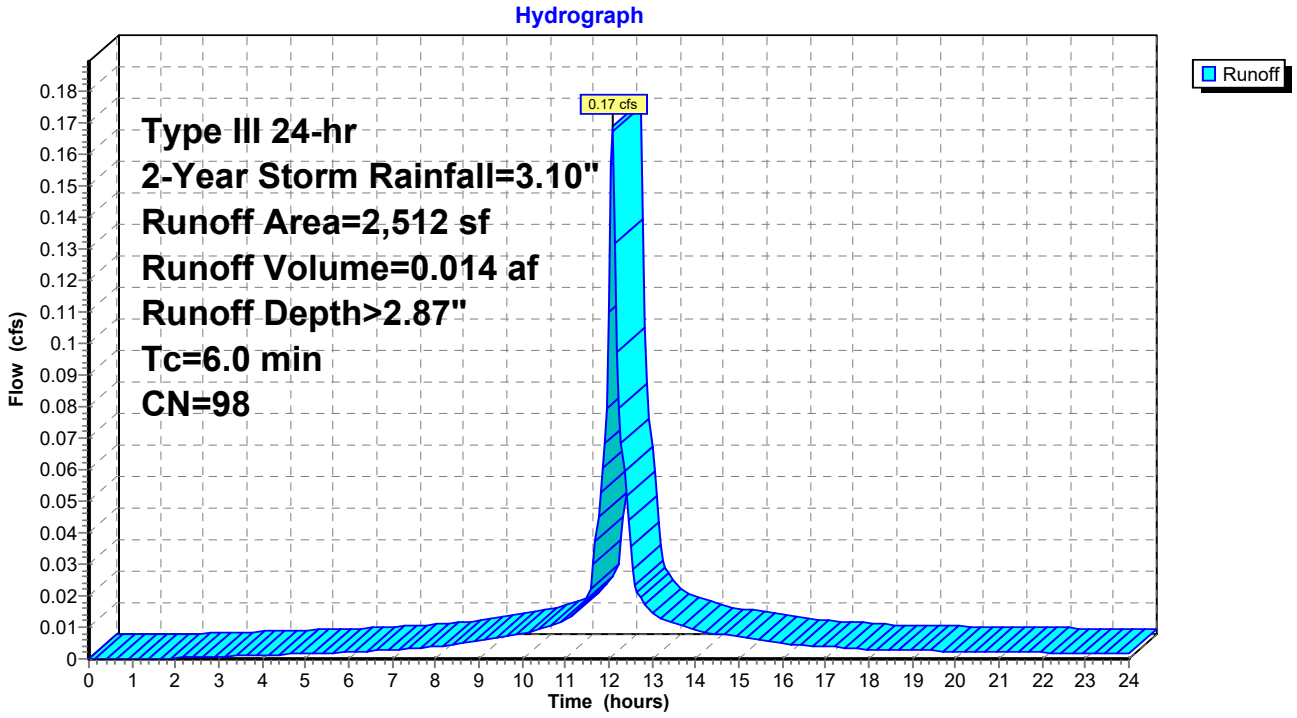
Runoff = 0.17 cfs @ 12.09 hrs, Volume= 0.014 af, Depth> 2.87"
Routed to Pond 6P : CB27

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	2,512	98	Roof
	2,512		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 15S: Building 6B South



Summary for Subcatchment 16S: Plaza between Blocks 1 & 2

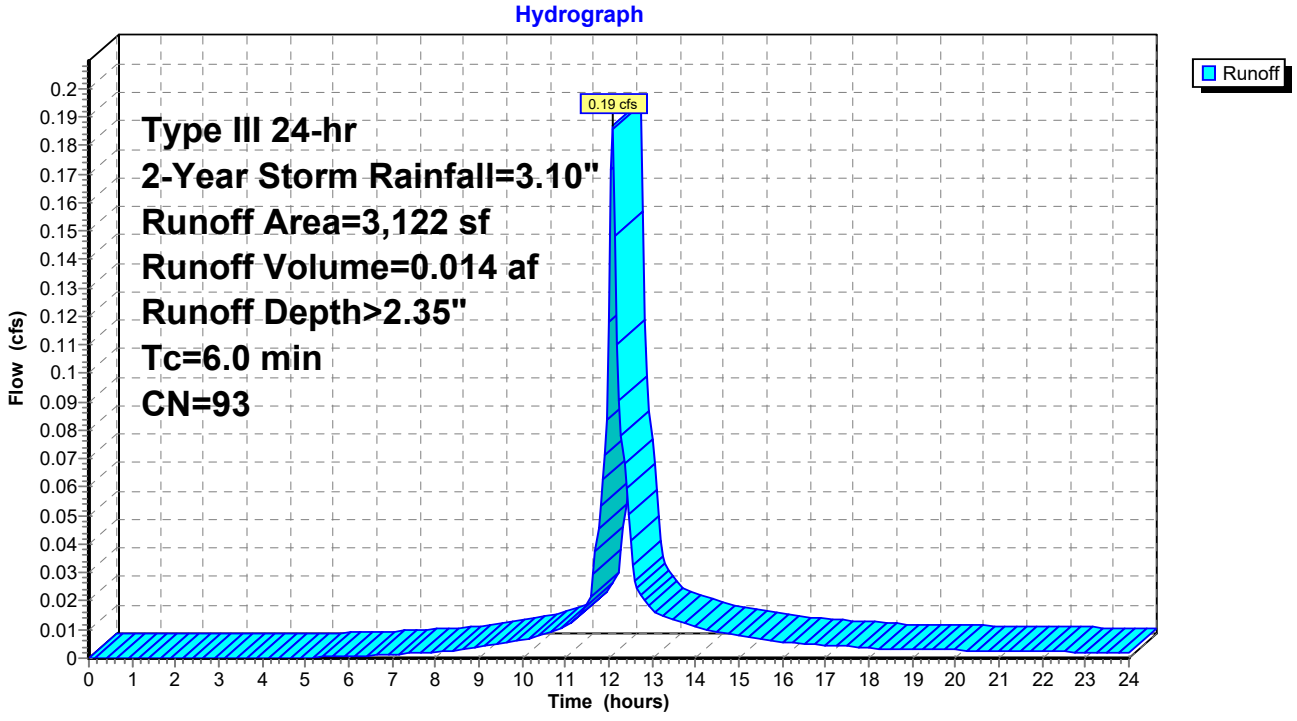
Runoff = 0.19 cfs @ 12.09 hrs, Volume= 0.014 af, Depth> 2.35"
Routed to Pond 2P : DMH 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	2,240	98	Impervious
	882	80	>75% Grass cover, Good, HSG D
	3,122	93	Weighted Average
	882		28.25% Pervious Area
	2,240		71.75% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 16S: Plaza between Blocks 1 & 2



Summary for Subcatchment 17S: Shared Street - Trench Drain

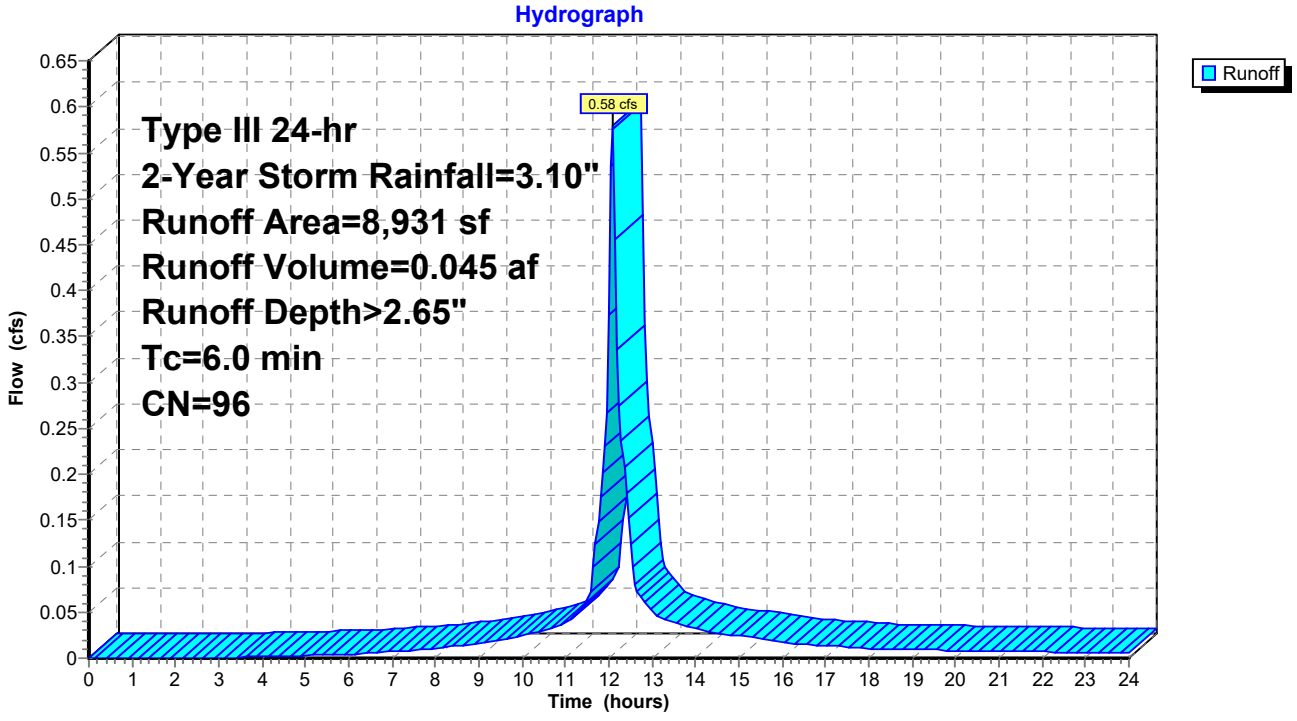
Runoff = 0.58 cfs @ 12.09 hrs, Volume= 0.045 af, Depth> 2.65"
Routed to Pond 6P : CB27

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Storm Rainfall=3.10"

	Area (sf)	CN	Description
	829	80	>75% Grass cover, Good, HSG D
*	8,102	98	Impervious Shared Street
	8,931	96	Weighted Average
	829		9.28% Pervious Area
	8,102		90.72% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 17S: Shared Street - Trench Drain



Summary for Subcatchment 18S: Plaza between Blocks 2 & 4

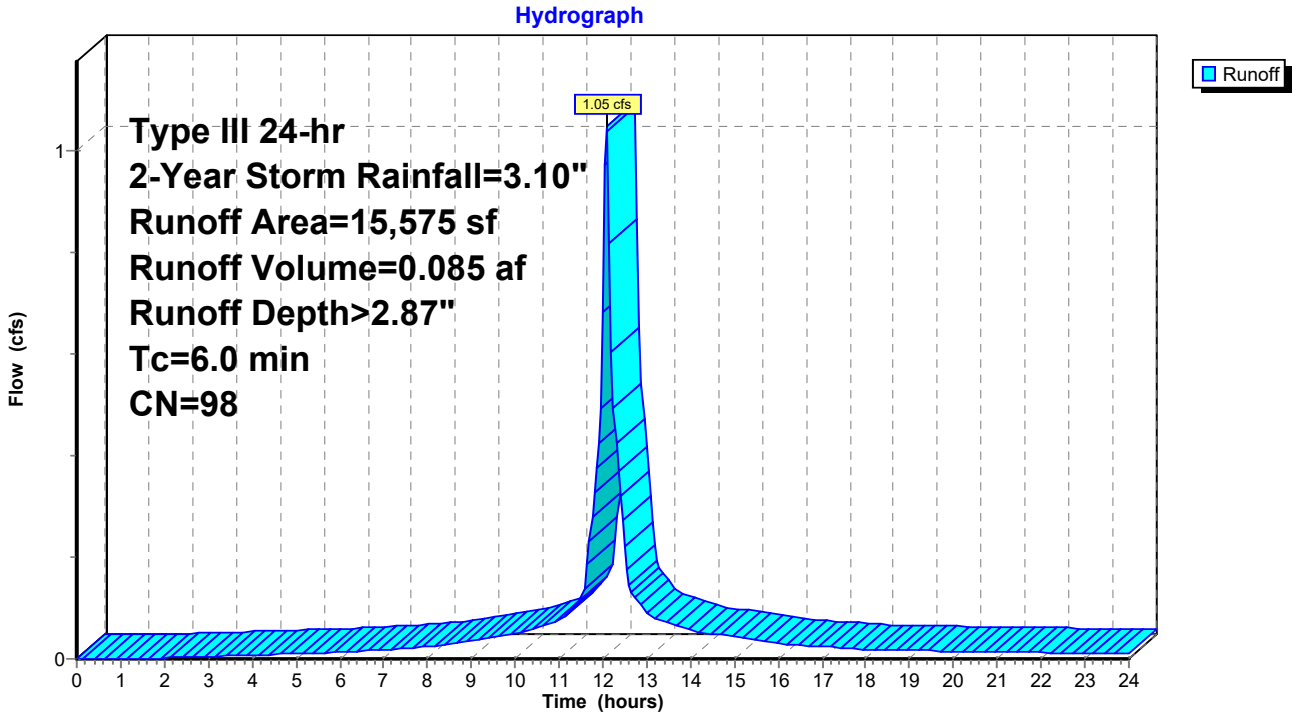
Runoff = 1.05 cfs @ 12.09 hrs, Volume= 0.085 af, Depth> 2.87"
Routed to Pond 6P : CB27

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	15,575	98	Impervious
	15,575		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 18S: Plaza between Blocks 2 & 4



Summary for Subcatchment 19S: Building 4A

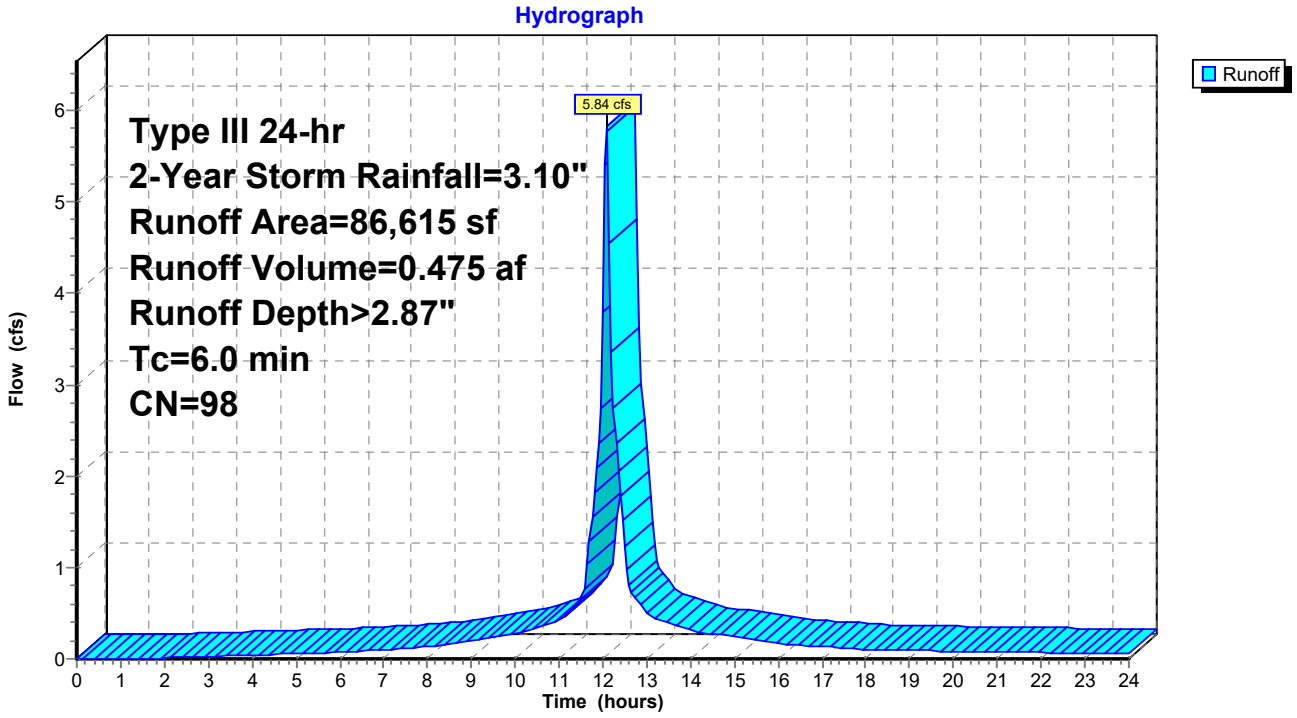
Runoff = 5.84 cfs @ 12.09 hrs, Volume= 0.475 af, Depth> 2.87"
Routed to Pond 6P : CB27

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	86,615	98	Roof & Plaza
	86,615		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 19S: Building 4A



Summary for Subcatchment 20S: Shared Street - Trench Drain

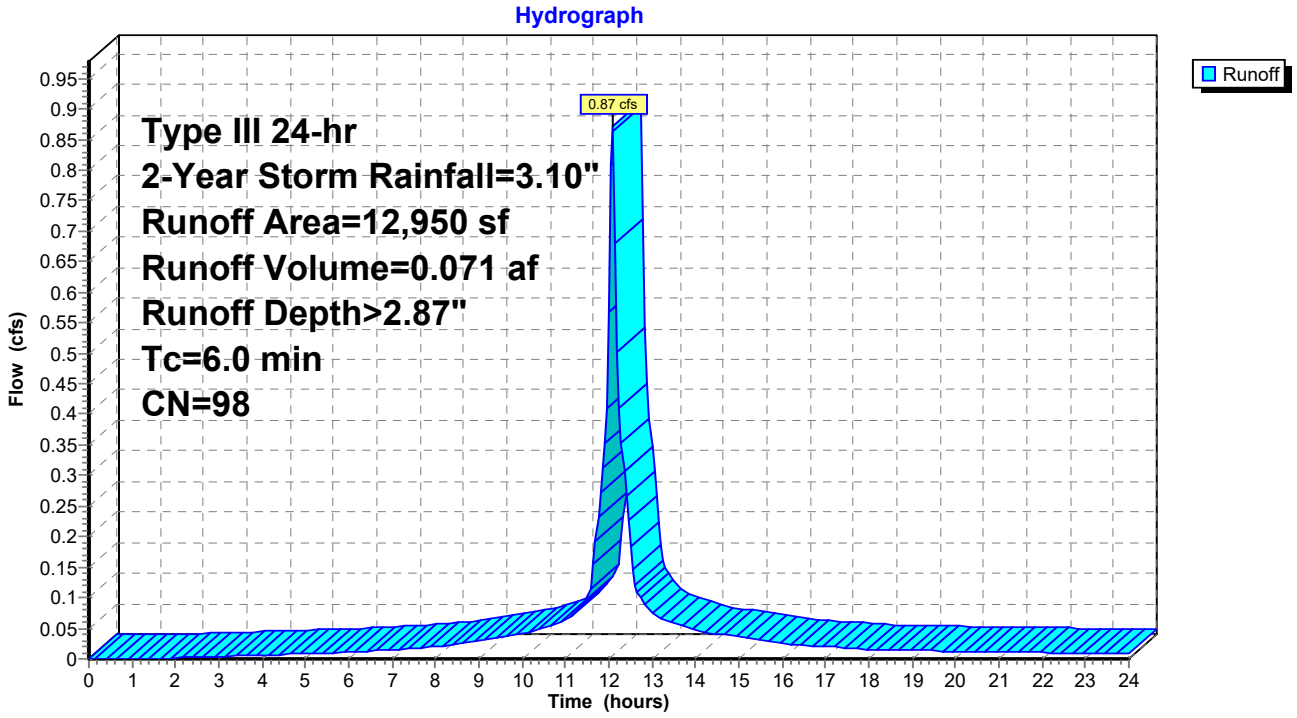
Runoff = 0.87 cfs @ 12.09 hrs, Volume= 0.071 af, Depth> 2.87"
Routed to Pond 7P : Storm Structure

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	12,950	98	Impervious
	12,950		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 20S: Shared Street - Trench Drain



Summary for Subcatchment 21S: Plaza along Building 4A at Fore Street

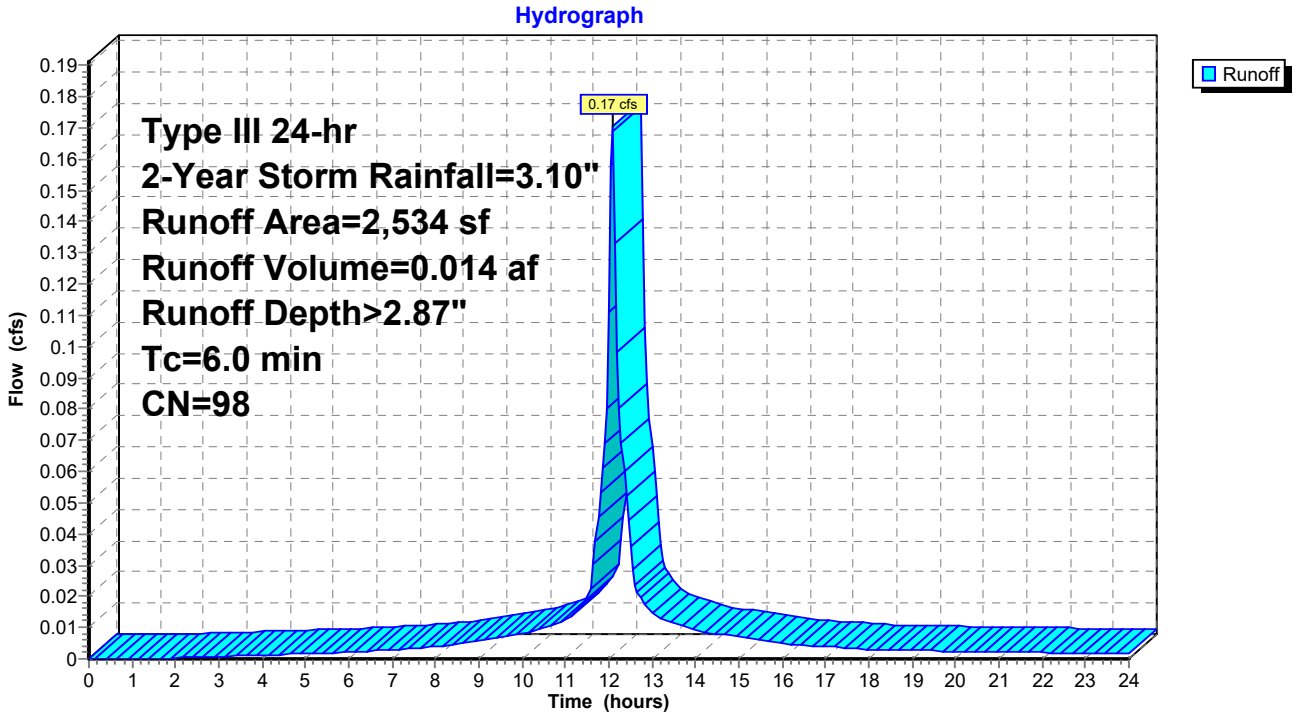
Runoff = 0.17 cfs @ 12.09 hrs, Volume= 0.014 af, Depth> 2.87"
Routed to Link 3L : Fore Street

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	2,534	98	Impervious
	2,534		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 21S: Plaza along Building 4A at Fore Street



Summary for Subcatchment 22S: Block 6 Building

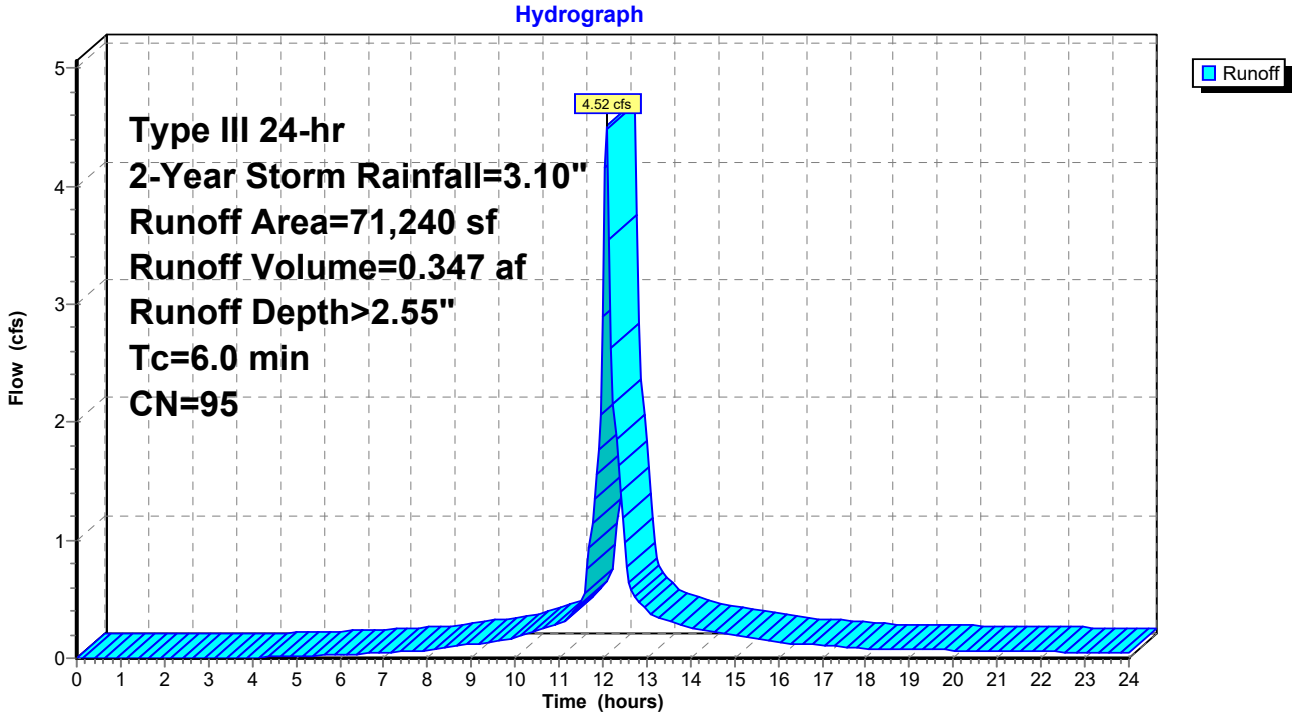
Runoff = 4.52 cfs @ 12.09 hrs, Volume= 0.347 af, Depth> 2.55"
Routed to Pond 13P : DMH-13 (Outfall #2)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	60,220	98	Roof
	11,020	80	>75% Grass cover, Good, HSG D
	71,240	95	Weighted Average
	11,020		15.47% Pervious Area
	60,220		84.53% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 22S: Block 6 Building



Summary for Subcatchment 23S: Block 5 - Interim Parking

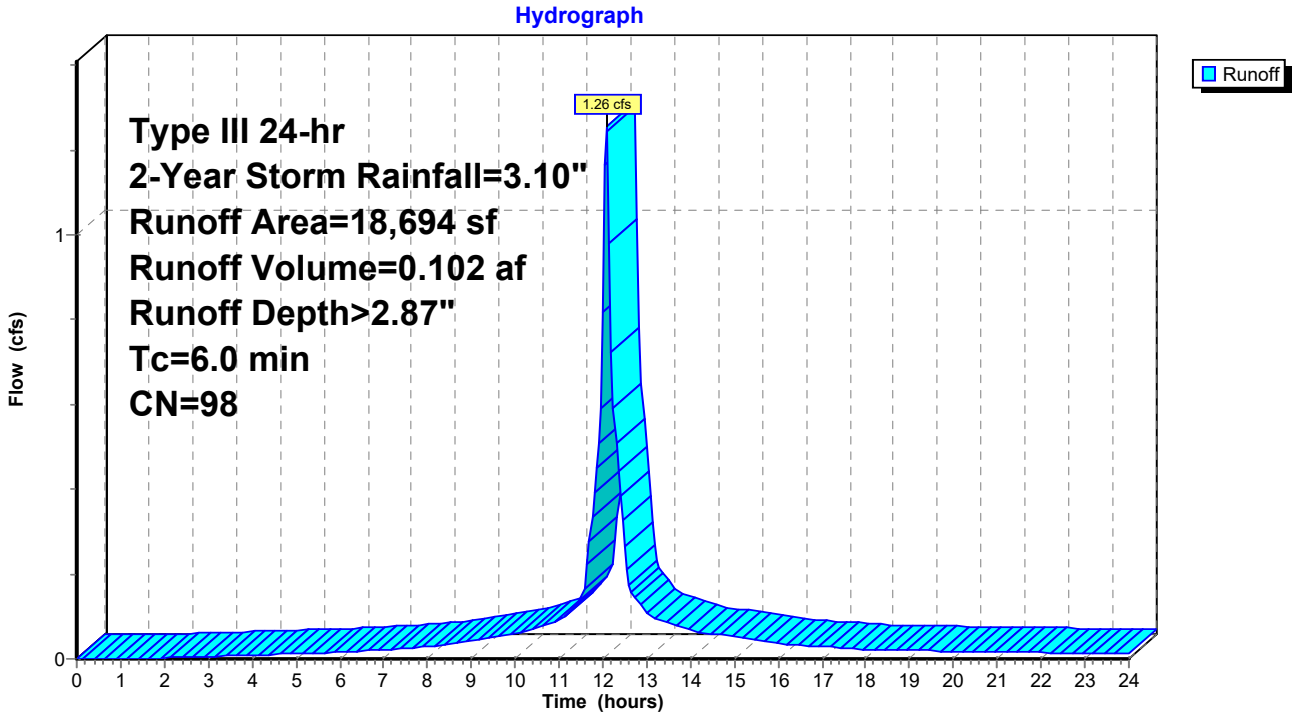
Runoff = 1.26 cfs @ 12.09 hrs, Volume= 0.102 af, Depth> 2.87"
Routed to Pond 24P : Filterra 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	18,694	98	Impervious
	18,694		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 23S: Block 5 - Interim Parking



Summary for Subcatchment 24S: Block 5 - Interim Parking

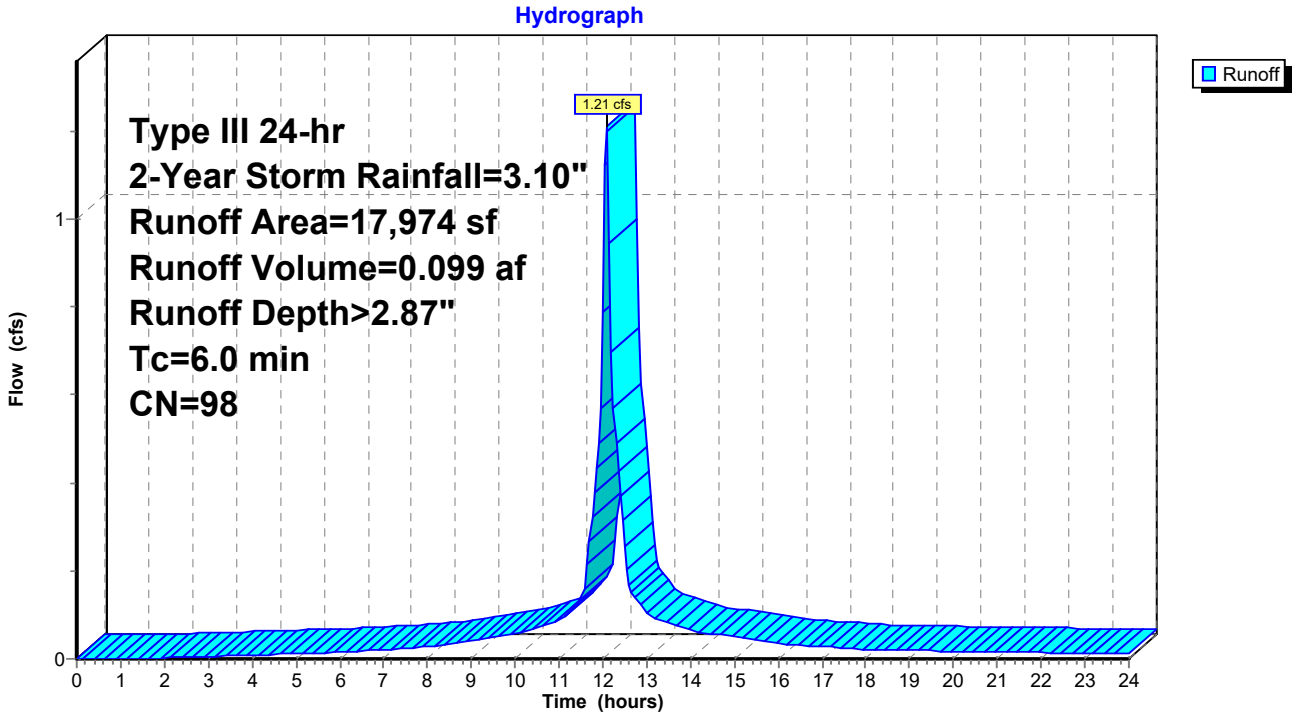
Runoff = 1.21 cfs @ 12.09 hrs, Volume= 0.099 af, Depth> 2.87"
Routed to Pond 28P : Filterra 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	17,974	98	Impervious
	17,974		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 24S: Block 5 - Interim Parking



Summary for Subcatchment 25S: Waterfront

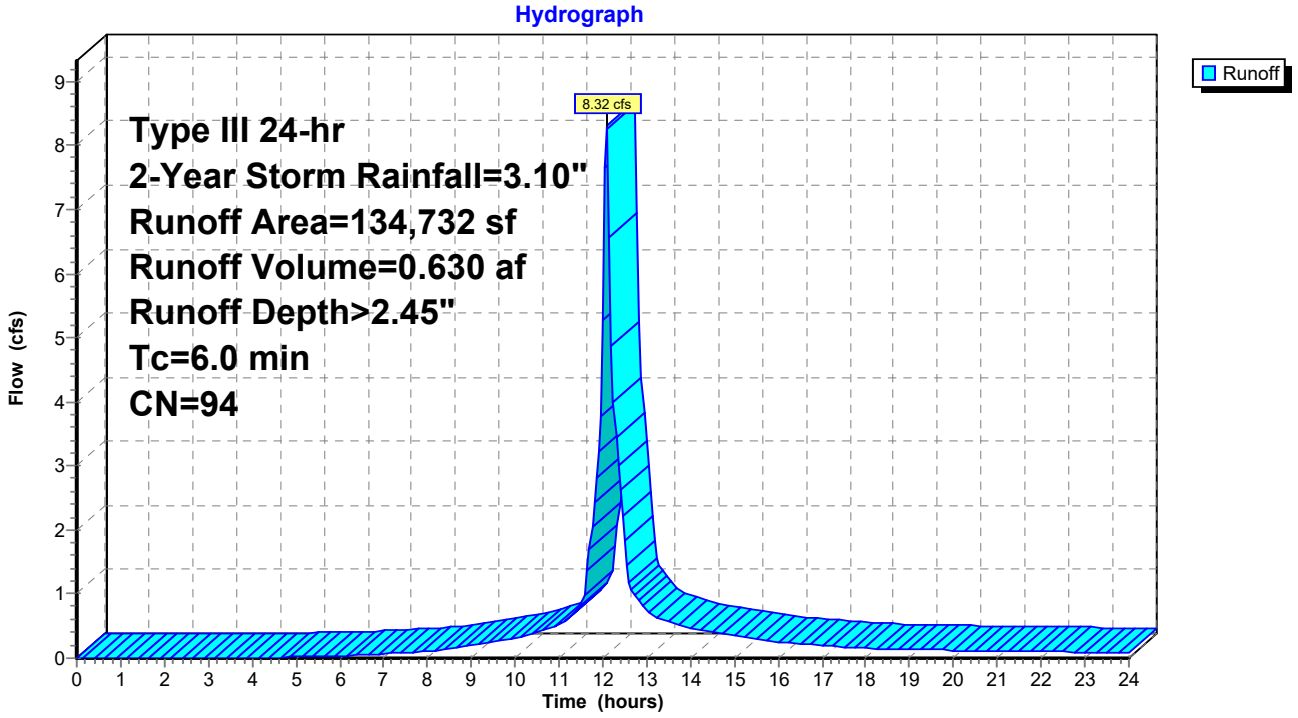
Runoff = 8.32 cfs @ 12.09 hrs, Volume= 0.630 af, Depth> 2.45"
Routed to Link 2L : Fore River

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	104,324	98	Impervious
	30,408	80	>75% Grass cover, Good, HSG D
	134,732	94	Weighted Average
	30,408		22.57% Pervious Area
	104,324		77.43% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 25S: Waterfront



Summary for Subcatchment 26S: Plaza along Townhouse at Fore Street

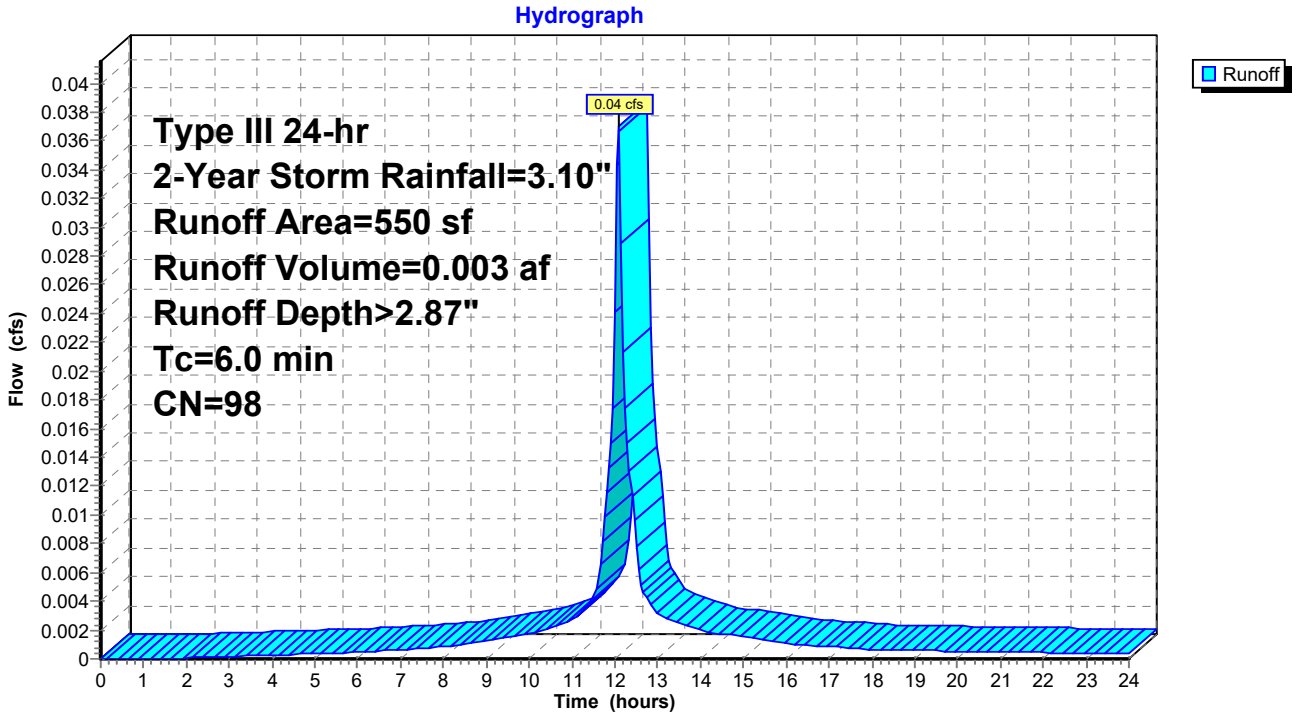
Runoff = 0.04 cfs @ 12.09 hrs, Volume= 0.003 af, Depth> 2.87"
Routed to Link 3L : Fore Street

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	550	98	Impervious
	550		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 26S: Plaza along Townhouse at Fore Street



Summary for Subcatchment 27S: Drainage from off-site residential

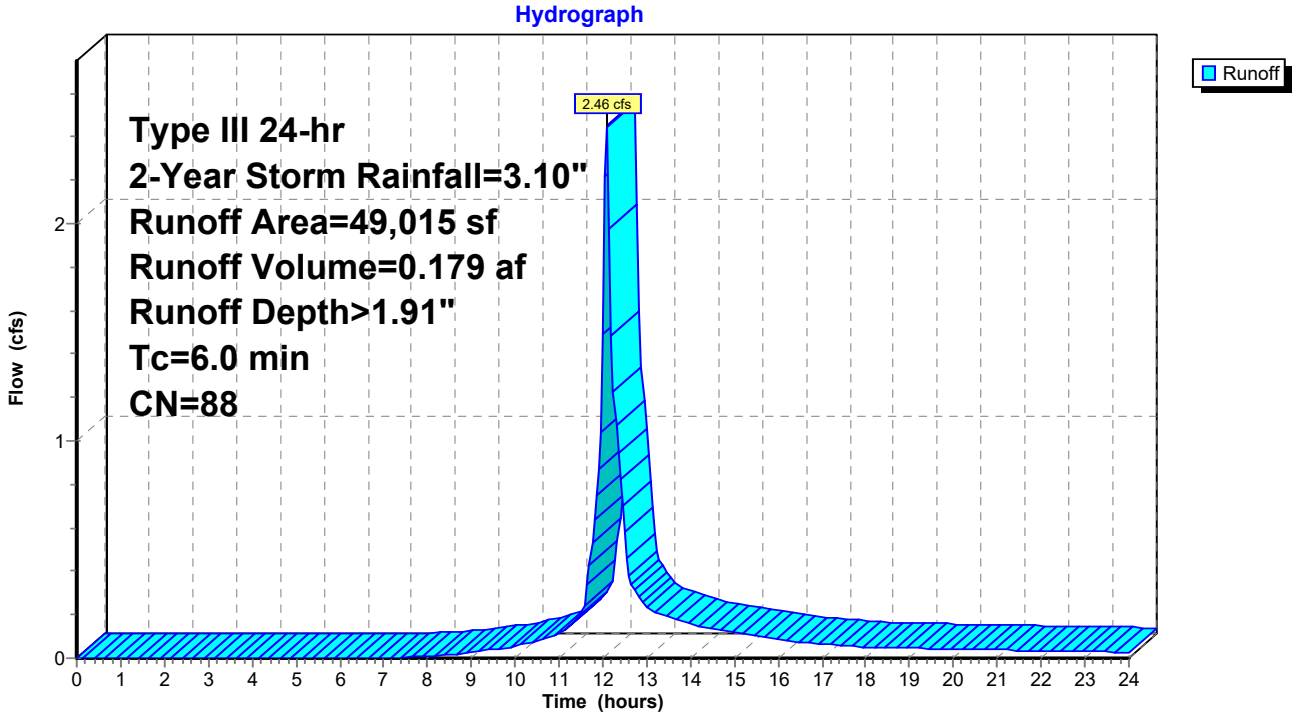
Runoff = 2.46 cfs @ 12.09 hrs, Volume= 0.179 af, Depth> 1.91"
Routed to Pond 13P : DMH-13 (Outfall #2)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	21,465	98	Impervious
	27,550	80	>75% Grass cover, Good, HSG D
	49,015	88	Weighted Average
	27,550		56.21% Pervious Area
	21,465		43.79% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 27S: Drainage from off-site residential



Summary for Pond 1P: DMH 1

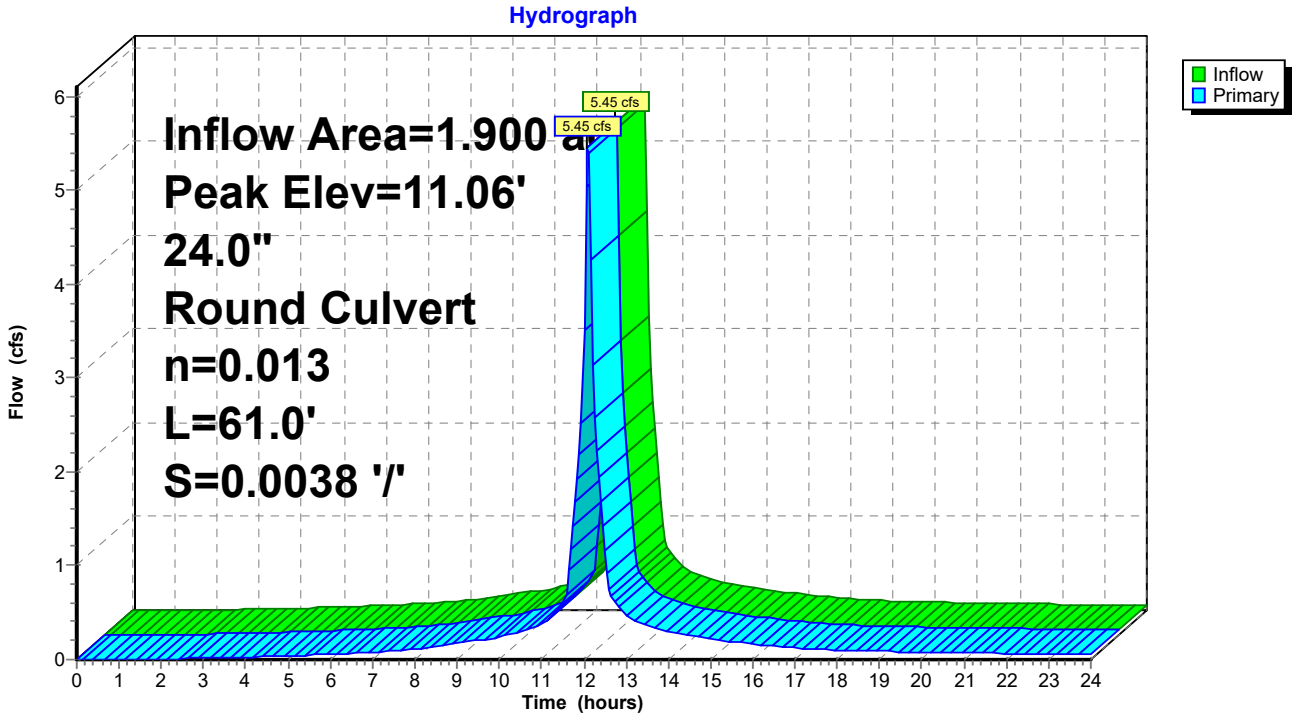
Inflow Area = 1.900 ac, 93.68% Impervious, Inflow Depth > 2.74" for 2-Year Storm event
Inflow = 5.45 cfs @ 12.09 hrs, Volume= 0.434 af
Outflow = 5.45 cfs @ 12.09 hrs, Volume= 0.434 af, Atten= 0%, Lag= 0.0 min
Primary = 5.45 cfs @ 12.09 hrs, Volume= 0.434 af
Routed to Pond 2P : DMH 2

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 11.06' @ 12.09 hrs
Flood Elev= 14.71'

Device	Routing	Invert	Outlet Devices
#1	Primary	9.77'	**24.0" Round Culvert** L= 61.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 9.77' / 9.54' S= 0.0038 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=5.31 cfs @ 12.09 hrs HW=11.04' (Free Discharge)
1=Culvert (Barrel Controls 5.31 cfs @ 3.61 fps)

Pond 1P: DMH 1



Summary for Pond 2P: DMH 2

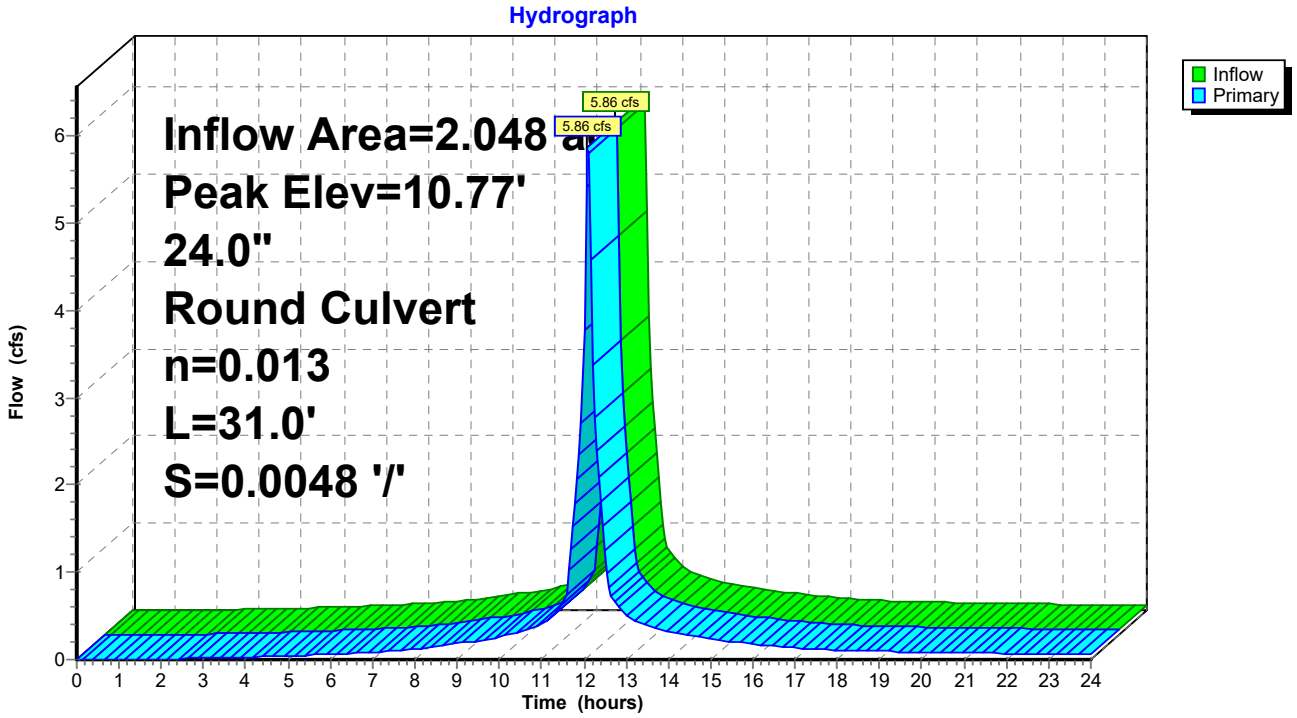
Inflow Area = 2.048 ac, 93.15% Impervious, Inflow Depth > 2.73" for 2-Year Storm event
Inflow = 5.86 cfs @ 12.09 hrs, Volume= 0.466 af
Outflow = 5.86 cfs @ 12.09 hrs, Volume= 0.466 af, Atten= 0%, Lag= 0.0 min
Primary = 5.86 cfs @ 12.09 hrs, Volume= 0.466 af
Routed to Pond 3P : Storm Structure

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 10.77' @ 12.09 hrs
Flood Elev= 14.63'

Device	Routing	Invert	Outlet Devices
#1	Primary	9.50'	**24.0" Round Culvert** L= 31.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 9.50' / 9.35' S= 0.0048 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=5.71 cfs @ 12.09 hrs HW=10.75' (Free Discharge)
1=Culvert (Barrel Controls 5.71 cfs @ 3.95 fps)

Pond 2P: DMH 2



Summary for Pond 3P: Storm Structure

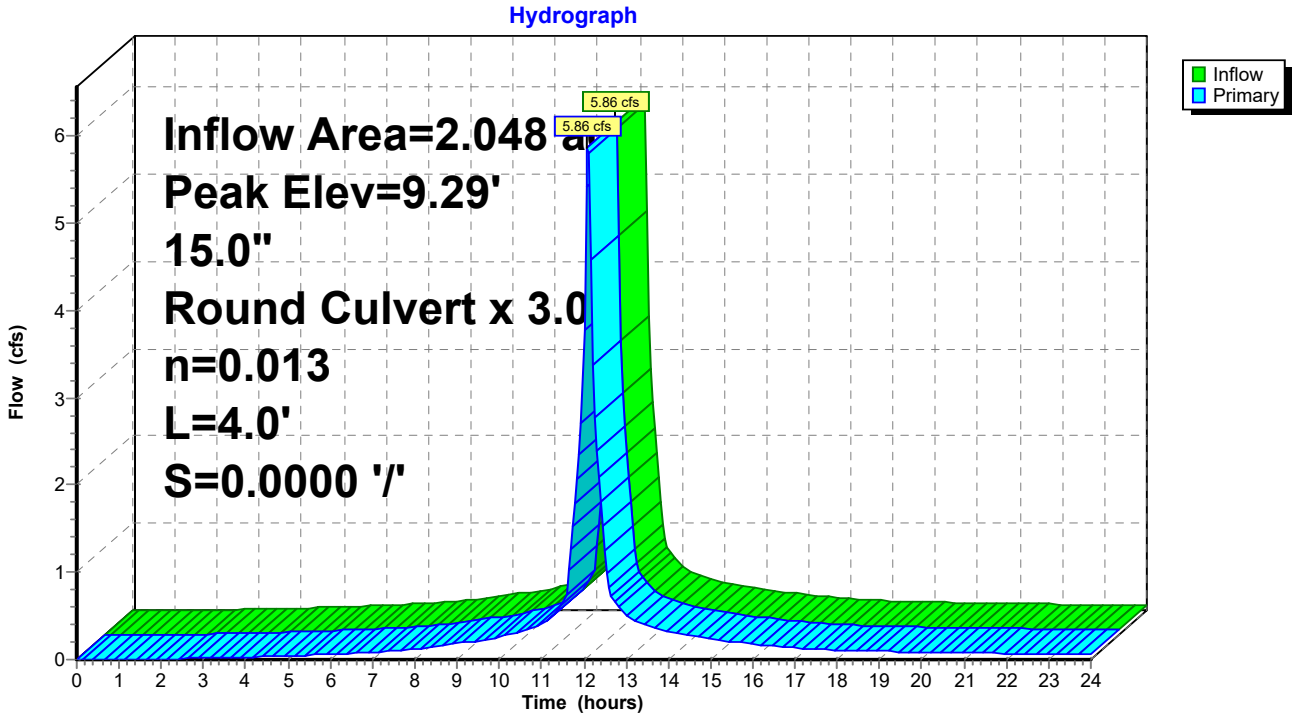
Inflow Area = 2.048 ac, 93.15% Impervious, Inflow Depth > 2.73" for 2-Year Storm event
Inflow = 5.86 cfs @ 12.09 hrs, Volume= 0.466 af
Outflow = 5.86 cfs @ 12.09 hrs, Volume= 0.466 af, Atten= 0%, Lag= 0.0 min
Primary = 5.86 cfs @ 12.09 hrs, Volume= 0.466 af
Routed to Pond 4P : R-Tank 1

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 9.29' @ 12.09 hrs
Flood Elev= 14.51'

Device	Routing	Invert	Outlet Devices
#1	Primary	8.35'	**15.0" Round Culvert X 3.00** L= 4.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 8.35' / 8.35' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=5.71 cfs @ 12.09 hrs HW=9.27' (Free Discharge)
1=Culvert (Barrel Controls 5.71 cfs @ 2.73 fps)

Pond 3P: Storm Structure



Summary for Pond 4P: R-Tank 1

Inflow Area = 2.048 ac, 93.15% Impervious, Inflow Depth > 2.73" for 2-Year Storm event
Inflow = 5.86 cfs @ 12.09 hrs, Volume= 0.466 af
Outflow = 5.27 cfs @ 12.13 hrs, Volume= 0.459 af, Atten= 10%, Lag= 2.4 min
Primary = 5.27 cfs @ 12.13 hrs, Volume= 0.459 af
Routed to Pond 10P : DMH 4

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 8.31' @ 12.13 hrs Surf.Area= 1,162 sf Storage= 1,603 cf
Flood Elev= 12.00' Surf.Area= 1,162 sf Storage= 3,266 cf

Plug-Flow detention time= 24.3 min calculated for 0.459 af (99% of inflow)
Center-of-Mass det. time= 14.9 min (781.6 - 766.7)

Volume	Invert	Avail.Storage	Storage Description
#1	6.50'	892 cf	**Stone Envelope (Prismatic)** Listed below (Recalc) 4,729 cf Overall - 2,499 cf Embedded = 2,231 cf x 40.0% Voids
#2	6.75'	2,374 cf	**R-Tank Double Modules (Prismatic)** Listed below (Recalc) Inside #1 2,499 cf Overall x 95.0% Voids
		3,266 cf	Total Available Storage

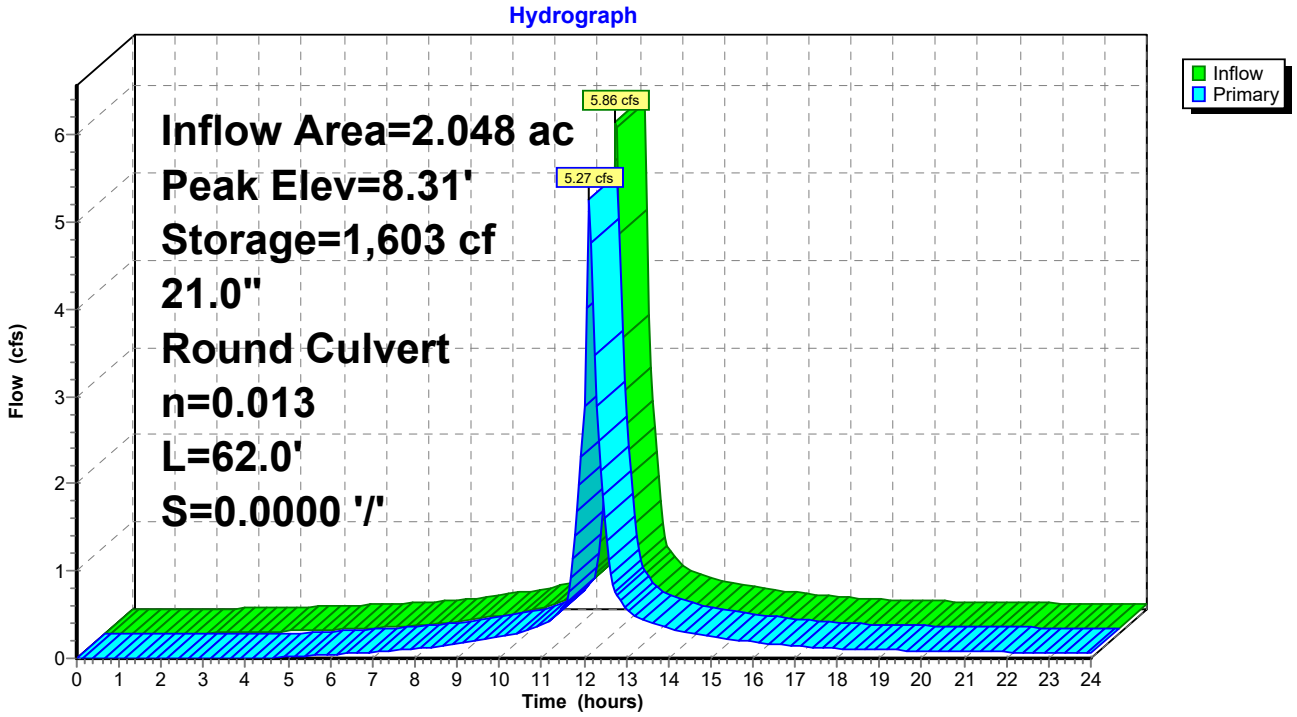
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
6.50	1,162	0	0
10.57	1,162	4,729	4,729

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
6.75	886	0	0
9.57	886	2,499	2,499

Device	Routing	Invert	Outlet Devices
#1	Primary	6.75'	**21.0" Round Culvert to Filter** L= 62.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 6.75' / 6.75' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 2.41 sf

Primary OutFlow Max=5.16 cfs @ 12.13 hrs HW=8.29' (Free Discharge)
↑—**1=Culvert to Filter** (Barrel Controls 5.16 cfs @ 3.06 fps)

Pond 4P: R-Tank 1



Summary for Pond 5P: DMH-11

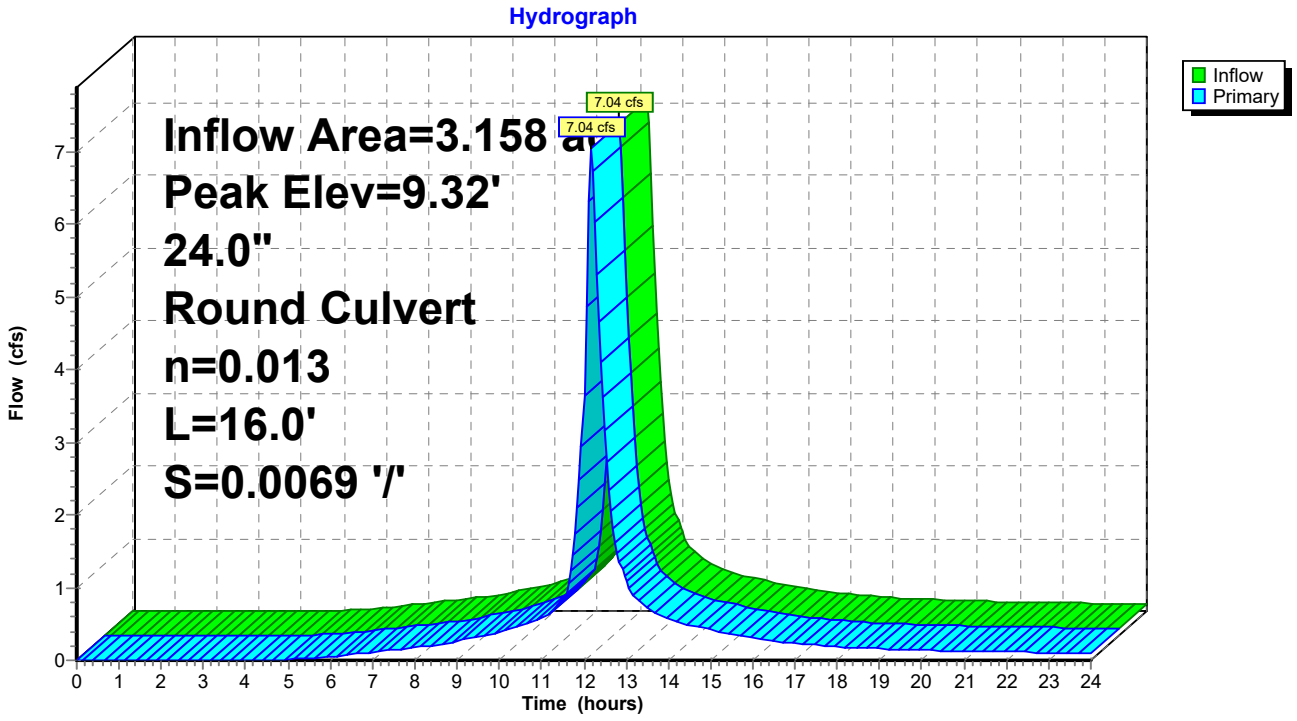
Inflow Area = 3.158 ac, 99.40% Impervious, Inflow Depth > 2.77" for 2-Year Storm event
Inflow = 7.04 cfs @ 12.16 hrs, Volume= 0.729 af
Outflow = 7.04 cfs @ 12.16 hrs, Volume= 0.729 af, Atten= 0%, Lag= 0.0 min
Primary = 7.04 cfs @ 12.16 hrs, Volume= 0.729 af
Routed to Pond 12P : Jellyfish 2 JFPD0806-7-2

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 9.32' @ 12.16 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	7.82'	**24.0" Round Culvert** L= 16.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 7.82' / 7.71' S= 0.0069 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=6.96 cfs @ 12.16 hrs HW=9.31' (Free Discharge)
1=Culvert (Barrel Controls 6.96 cfs @ 3.86 fps)

Pond 5P: DMH-11



Summary for Pond 6P: CB27

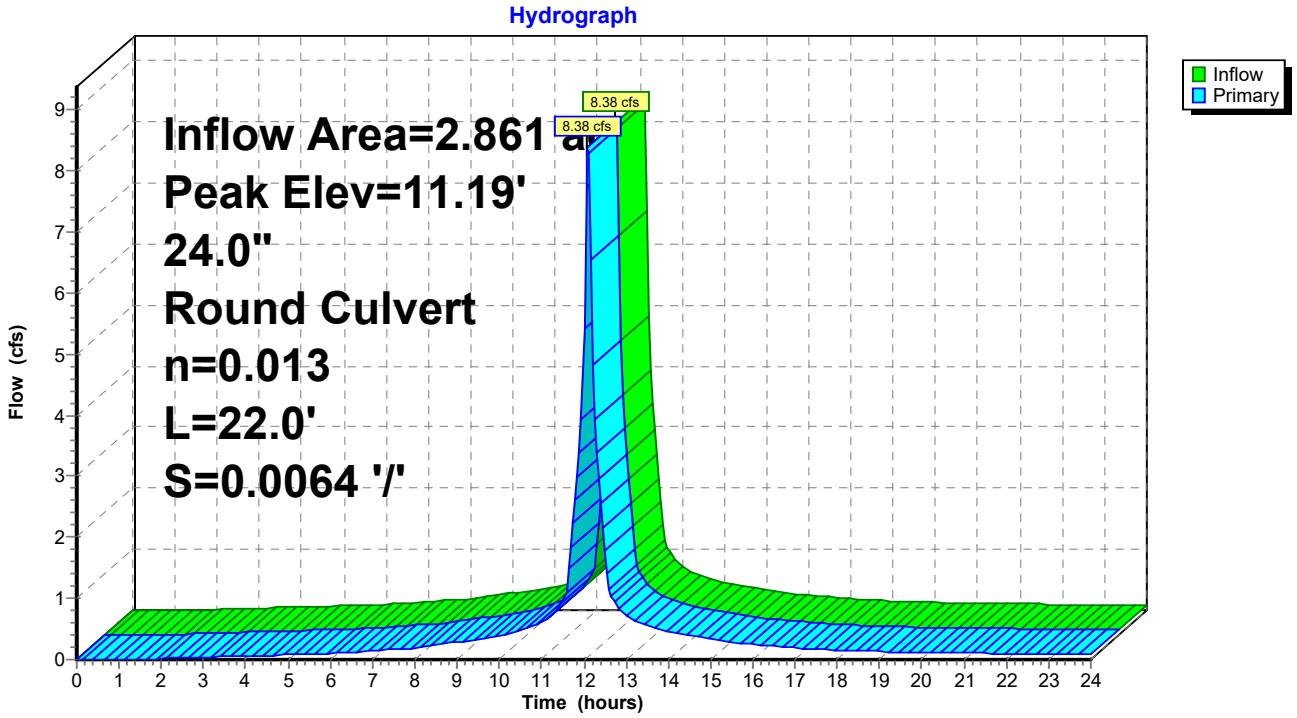
Inflow Area = 2.861 ac, 99.33% Impervious, Inflow Depth > 2.85" for 2-Year Storm event
Inflow = 8.38 cfs @ 12.09 hrs, Volume= 0.680 af
Outflow = 8.38 cfs @ 12.09 hrs, Volume= 0.680 af, Atten= 0%, Lag= 0.0 min
Primary = 8.38 cfs @ 12.09 hrs, Volume= 0.680 af
Routed to Pond 7P : Storm Structure

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 11.19' @ 12.09 hrs
Flood Elev= 14.57'

Device	Routing	Invert	Outlet Devices
#1	Primary	9.53'	**24.0" Round Culvert** L= 22.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 9.53' / 9.39' S= 0.0064 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=8.15 cfs @ 12.09 hrs HW=11.16' (Free Discharge)
1=Culvert (Barrel Controls 8.15 cfs @ 4.06 fps)

Pond 6P: CB27



Summary for Pond 7P: Storm Structure

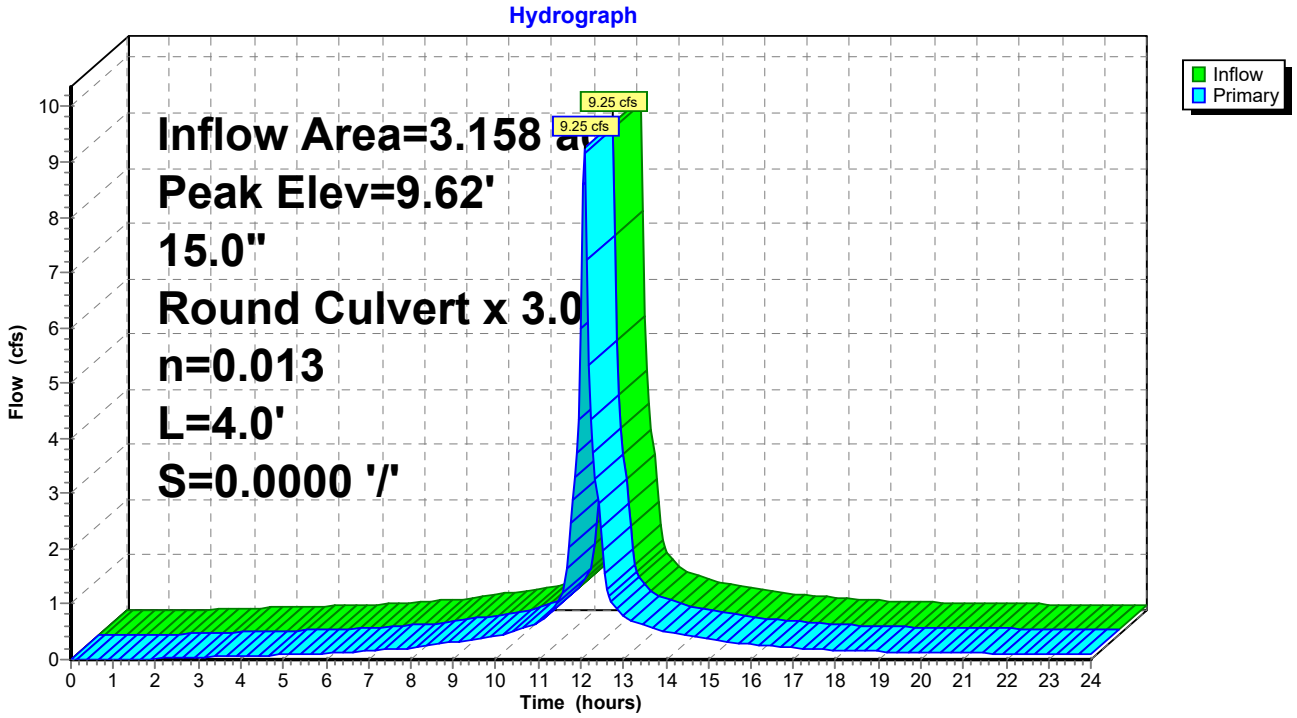
Inflow Area = 3.158 ac, 99.40% Impervious, Inflow Depth > 2.85" for 2-Year Storm event
Inflow = 9.25 cfs @ 12.09 hrs, Volume= 0.751 af
Outflow = 9.25 cfs @ 12.09 hrs, Volume= 0.751 af, Atten= 0%, Lag= 0.0 min
Primary = 9.25 cfs @ 12.09 hrs, Volume= 0.751 af
Routed to Pond 8P : R-Tank 2

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 9.62' @ 12.09 hrs
Flood Elev= 14.25'

Device	Routing	Invert	Outlet Devices
#1	Primary	8.39'	**15.0" Round Culvert X 3.00** L= 4.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 8.39' / 8.39' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=9.00 cfs @ 12.09 hrs HW=9.60' (Free Discharge)
1=Culvert (Barrel Controls 9.00 cfs @ 3.14 fps)

Pond 7P: Storm Structure



Summary for Pond 8P: R-Tank 2

Inflow Area = 3.158 ac, 99.40% Impervious, Inflow Depth > 2.85" for 2-Year Storm event
Inflow = 9.25 cfs @ 12.09 hrs, Volume= 0.751 af
Outflow = 7.04 cfs @ 12.16 hrs, Volume= 0.729 af, Atten= 24%, Lag= 4.4 min
Primary = 7.04 cfs @ 12.16 hrs, Volume= 0.729 af
Routed to Pond 5P : DMH-11

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 9.55' @ 12.16 hrs Surf.Area= 3,128 sf Storage= 5,033 cf
Flood Elev= 12.71' Surf.Area= 3,128 sf Storage= 8,290 cf

Plug-Flow detention time= 48.1 min calculated for 0.729 af (97% of inflow)
Center-of-Mass det. time= 30.3 min (788.0 - 757.7)

Volume	Invert	Avail.Storage	Storage Description
#1	7.57'	2,767 cf	**Stone Envelope (Prismatic)** Listed below (Recalc) 12,731 cf Overall - 5,813 cf Embedded = 6,918 cf x 40.0% Voids
#2	7.82'	5,523 cf	**R-Tank Double Modules (Prismatic)** Listed below (Recalc) Inside #1 5,813 cf Overall x 95.0% Voids
		8,290 cf	Total Available Storage

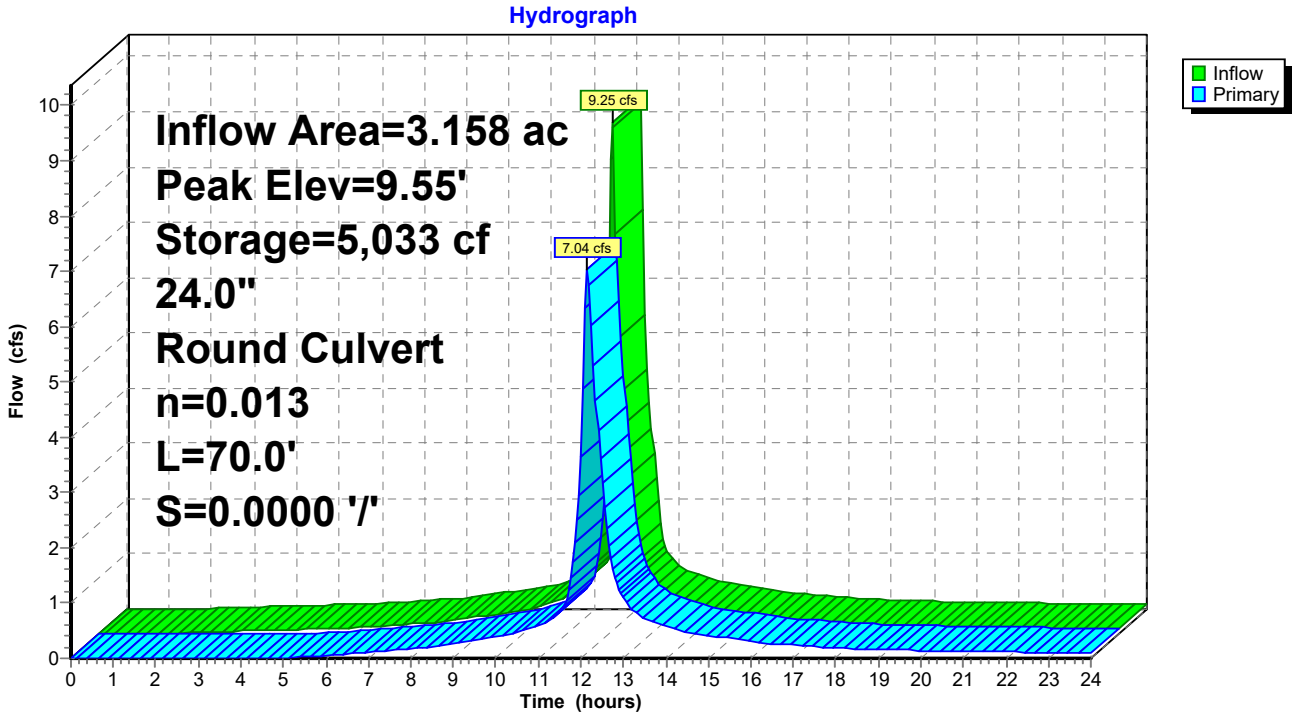
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
7.57	3,128	0	0
11.64	3,128	12,731	12,731

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
7.82	2,679	0	0
9.99	2,679	5,813	5,813

Device	Routing	Invert	Outlet Devices
#1	Primary	7.82'	**24.0" Round Culvert** L= 70.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 7.82' / 7.82' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=6.96 cfs @ 12.16 hrs HW=9.54' (Free Discharge)
1=Culvert (Barrel Controls 6.96 cfs @ 3.25 fps)

Pond 8P: R-Tank 2



Summary for Pond 9P: DMH-8 (Outfall #1)

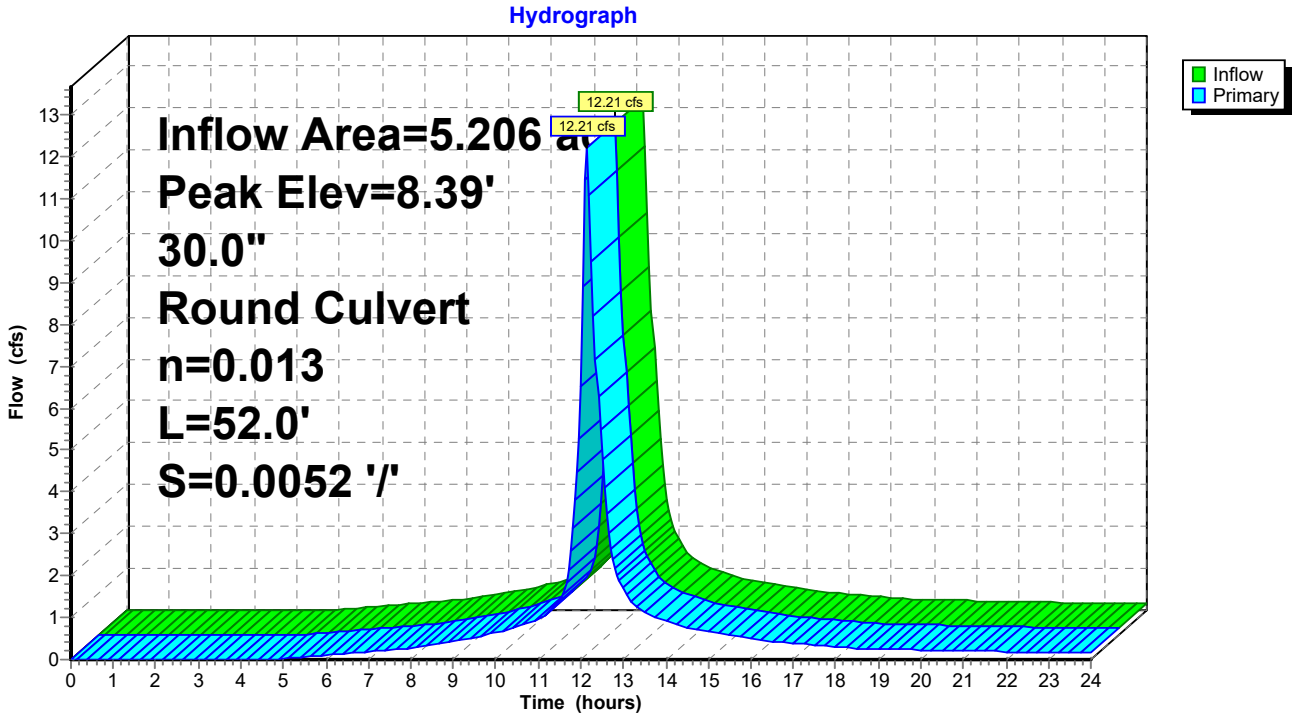
Inflow Area = 5.206 ac, 96.94% Impervious, Inflow Depth > 2.74" for 2-Year Storm event
Inflow = 12.21 cfs @ 12.15 hrs, Volume= 1.188 af
Outflow = 12.21 cfs @ 12.15 hrs, Volume= 1.188 af, Atten= 0%, Lag= 0.0 min
Primary = 12.21 cfs @ 12.15 hrs, Volume= 1.188 af
Routed to Link 2L : Fore River

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 8.39' @ 12.14 hrs
Flood Elev= 11.78'

Device	Routing	Invert	Outlet Devices
#1	Primary	6.57'	**30.0" Round Culvert** L= 52.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 6.57' / 6.30' S= 0.0052 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 4.91 sf

Primary OutFlow Max=12.13 cfs @ 12.15 hrs HW=8.38' (Free Discharge)
1=Culvert (Barrel Controls 12.13 cfs @ 4.45 fps)

Pond 9P: DMH-8 (Outfall #1)



Summary for Pond 10P: DMH 4

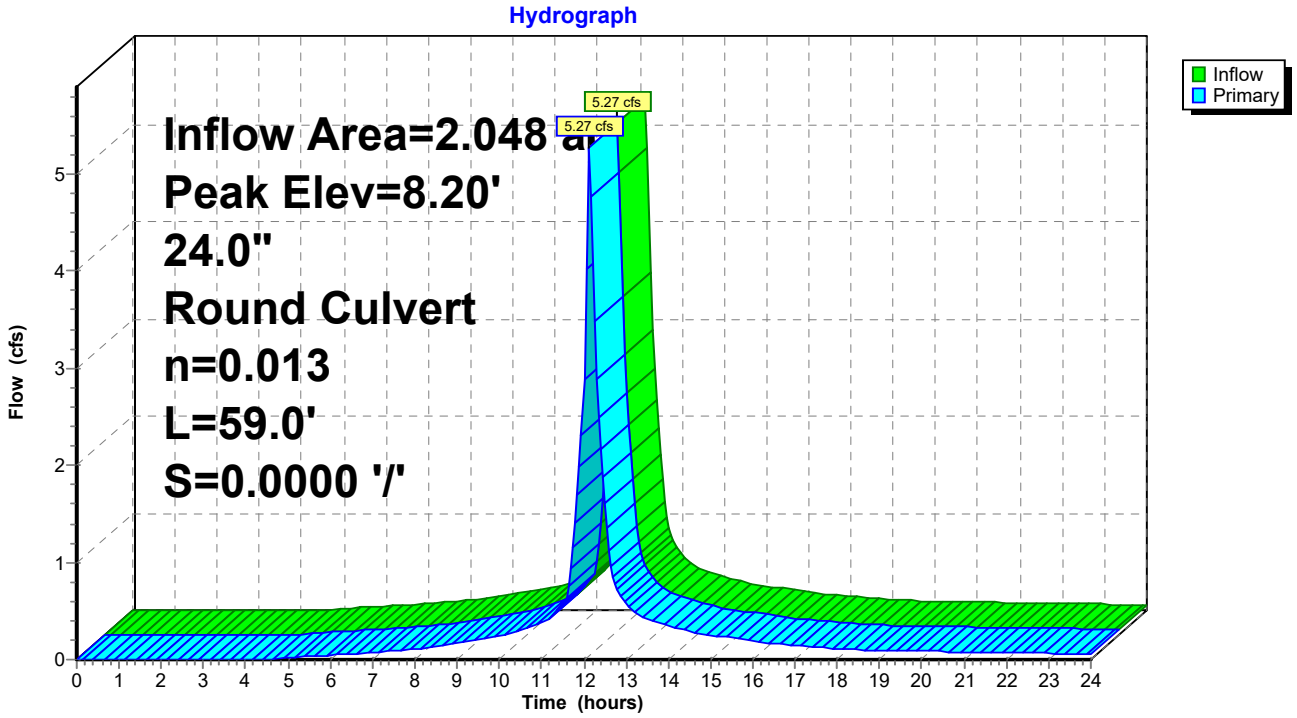
Inflow Area = 2.048 ac, 93.15% Impervious, Inflow Depth > 2.69" for 2-Year Storm event
Inflow = 5.27 cfs @ 12.13 hrs, Volume= 0.459 af
Outflow = 5.27 cfs @ 12.13 hrs, Volume= 0.459 af, Atten= 0%, Lag= 0.0 min
Primary = 5.27 cfs @ 12.13 hrs, Volume= 0.459 af
Routed to Pond 11P : Jellyfish 1 JFPD0806-4-1

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 8.20' @ 12.13 hrs
Flood Elev= 13.56'

Device	Routing	Invert	Outlet Devices
#1	Primary	6.75'	**24.0" Round Culvert** L= 59.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 6.75' / 6.75' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=5.16 cfs @ 12.13 hrs HW=8.19' (Free Discharge)
1=Culvert (Barrel Controls 5.16 cfs @ 2.99 fps)

Pond 10P: DMH 4



Summary for Pond 11P: Jellyfish 1 JFPD0806-4-1

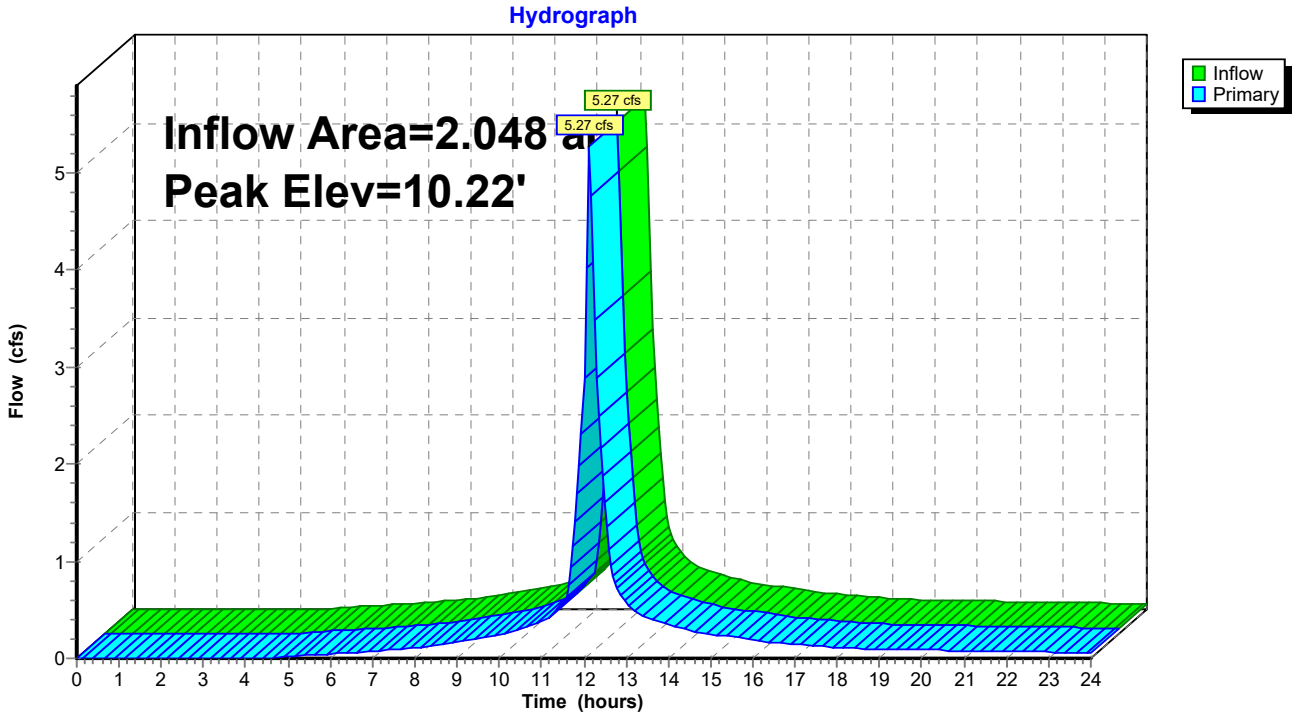
Inflow Area = 2.048 ac, 93.15% Impervious, Inflow Depth > 2.69" for 2-Year Storm event
Inflow = 5.27 cfs @ 12.13 hrs, Volume= 0.459 af
Outflow = 5.27 cfs @ 12.13 hrs, Volume= 0.459 af, Atten= 0%, Lag= 0.0 min
Primary = 5.27 cfs @ 12.13 hrs, Volume= 0.459 af
Routed to Pond 9P : DMH-8 (Outfall #1)

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 10.22' @ 12.13 hrs
Flood Elev= 12.89'

Device	Routing	Invert	Outlet Devices
#1	Primary	6.75'	**24.0" Round Filter Culvert Out** L= 5.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 6.75' / 6.67' S= 0.0160 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Device 1	6.75'	**JF Filter-1 CSV File** Head (feet) 0.00 0.08 0.17 0.25 0.33 0.42 0.50 0.58 0.67 0.75 0.83 0.92 1.00 1.08 1.17 1.25 1.33 1.42 1.50 Disch. (cfs) 0.000 0.010 0.020 0.030 0.040 0.050 0.059 0.129 0.198 0.267 0.337 0.406 0.475 0.545 0.614 0.683 0.753 0.822 0.891
#3	Device 1	9.59'	**2.8' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=5.15 cfs @ 12.13 hrs HW=10.21' (Free Discharge)
└**1=Filter Culvert Out** (Passes 5.15 cfs of 18.74 cfs potential flow)
  ├**2=JF Filter-1 CSV File** (Custom Controls 0.89 cfs)
  └**3=Broad-Crested Rectangular Weir** (Weir Controls 4.26 cfs @ 2.45 fps)

Pond 11P: Jellyfish 1 JFPD0806-4-1



Summary for Pond 12P: Jellyfish 2 JFPD0806-7-2

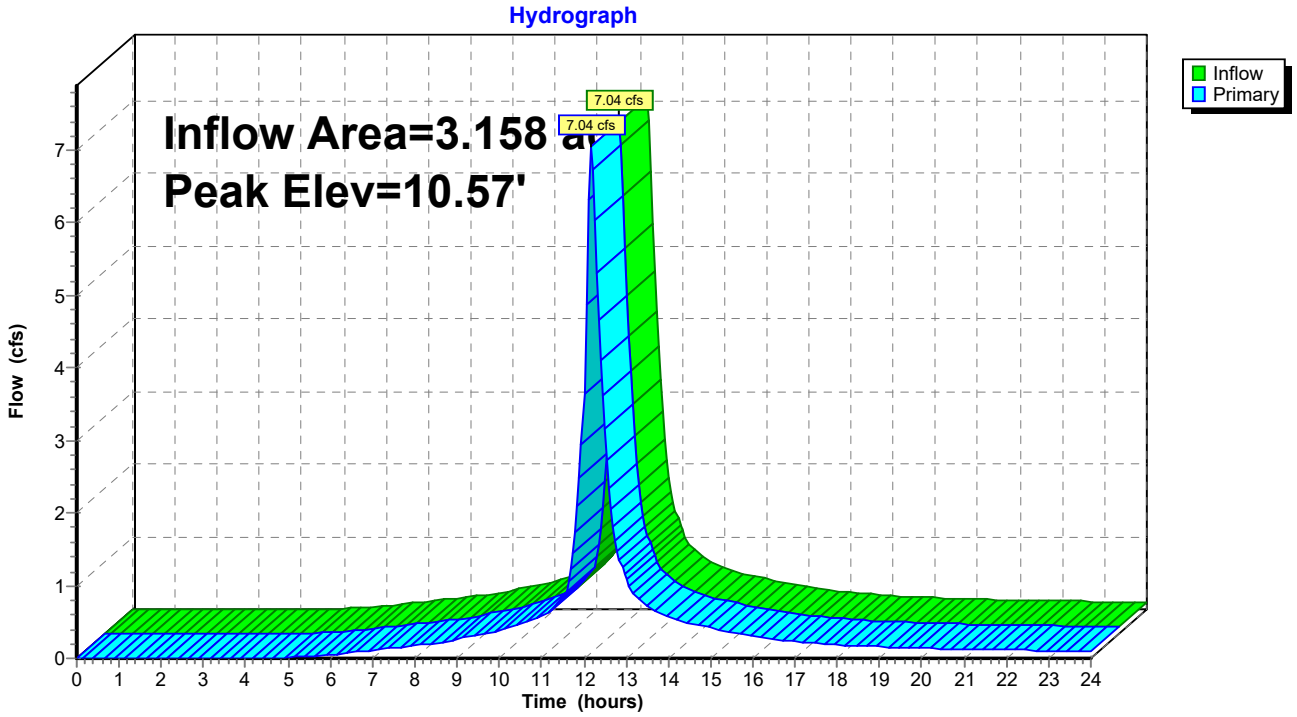
Inflow Area = 3.158 ac, 99.40% Impervious, Inflow Depth > 2.77" for 2-Year Storm event
Inflow = 7.04 cfs @ 12.16 hrs, Volume= 0.729 af
Outflow = 7.04 cfs @ 12.16 hrs, Volume= 0.729 af, Atten= 0%, Lag= 0.0 min
Primary = 7.04 cfs @ 12.16 hrs, Volume= 0.729 af
Routed to Pond 9P : DMH-8 (Outfall #1)

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 10.57' @ 12.16 hrs
Flood Elev= 11.43'

Device	Routing	Invert	Outlet Devices
#1	Primary	7.71'	**24.0" Round Filter Culvert Out** L= 125.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 7.71' / 6.92' S= 0.0063 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Device 1	7.71'	**JF Filter-2 CSV File** Head (feet) 0.00 0.08 0.17 0.25 0.33 0.42 0.50 0.58 0.67 0.75 0.83 0.92 1.00 1.08 1.17 1.25 1.33 1.42 1.50 Disch. (cfs) 0.000 0.010 0.020 0.030 0.040 0.050 0.059 0.173 0.287 0.401 0.515 0.629 0.743 0.857 0.970 1.084 1.198 1.312 1.426
#3	Device 1	9.84'	**2.8' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=6.96 cfs @ 12.16 hrs HW=10.56' (Free Discharge)
└**1=Filter Culvert Out** (Passes 6.96 cfs of 16.26 cfs potential flow)
  ├**2=JF Filter-2 CSV File** (Custom Controls 1.43 cfs)
  └**3=Broad-Crested Rectangular Weir** (Weir Controls 5.53 cfs @ 2.73 fps)

Pond 12P: Jellyfish 2 JFPD0806-7-2



Summary for Pond 13P: DMH-13 (Outfall #2)

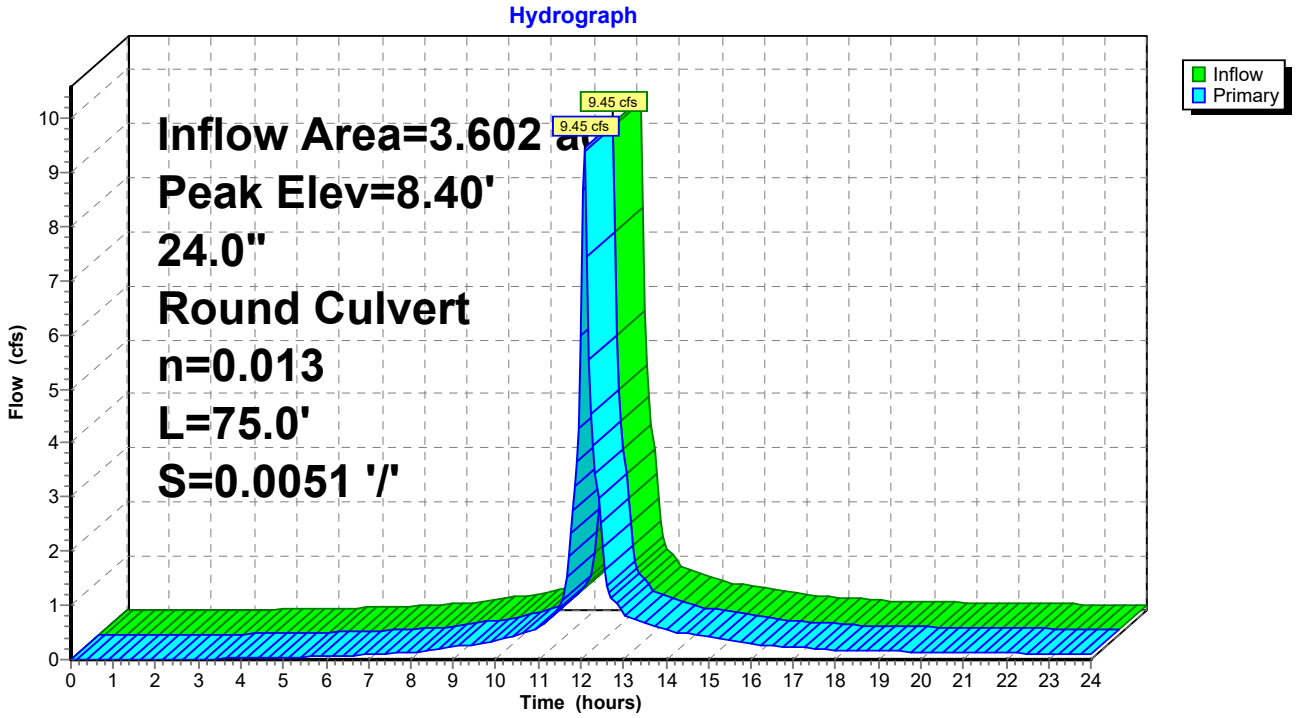
Inflow Area = 3.602 ac, 75.42% Impervious, Inflow Depth > 2.42" for 2-Year Storm event
Inflow = 9.45 cfs @ 12.09 hrs, Volume= 0.727 af
Outflow = 9.45 cfs @ 12.09 hrs, Volume= 0.727 af, Atten= 0%, Lag= 0.0 min
Primary = 9.45 cfs @ 12.09 hrs, Volume= 0.727 af
Routed to Link 2L : Fore River

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 8.40' @ 12.09 hrs
Flood Elev= 11.78'

Device	Routing	Invert	Outlet Devices
#1	Primary	6.68'	**24.0" Round Culvert** L= 75.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 6.68' / 6.30' S= 0.0051 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=9.22 cfs @ 12.09 hrs HW=8.37' (Free Discharge)
1=Culvert (Barrel Controls 9.22 cfs @ 4.39 fps)

Pond 13P: DMH-13 (Outfall #2)



Summary for Pond 24P: Filterra 1

Inflow Area = 0.429 ac,100.00% Impervious, Inflow Depth > 2.87" for 2-Year Storm event
Inflow = 1.26 cfs @ 12.09 hrs, Volume= 0.102 af
Outflow = 1.26 cfs @ 12.09 hrs, Volume= 0.102 af, Atten= 0%, Lag= 0.0 min
Primary = 1.26 cfs @ 12.09 hrs, Volume= 0.102 af
Routed to Pond 27P : CB
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond 27P : CB

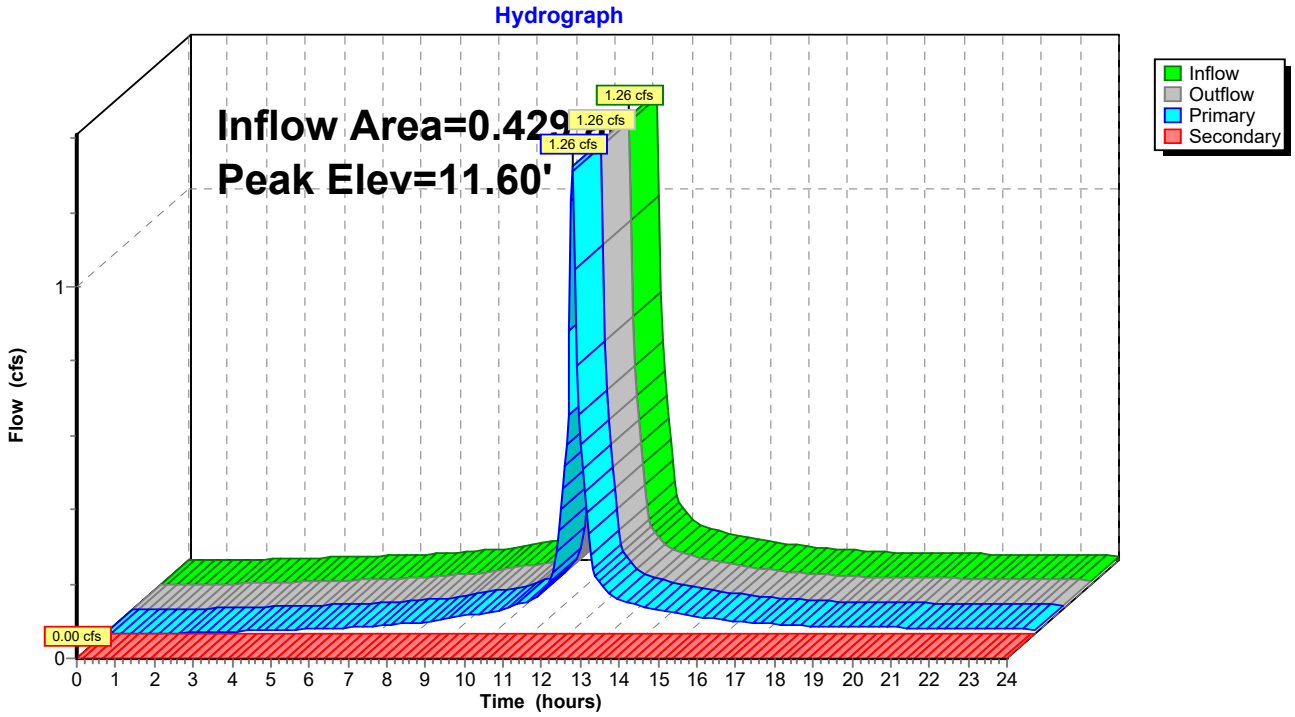
Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 11.60' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	8.51'	**6.0" Round Culvert** L= 4.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 8.51' / 8.48' S= 0.0075 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Secondary	12.05'	**5.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=1.23 cfs @ 12.09 hrs HW=11.46' (Free Discharge)
1=Culvert (Inlet Controls 1.23 cfs @ 6.25 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=8.51' (Free Discharge)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 24P: Filterra 1



Summary for Pond 27P: CB

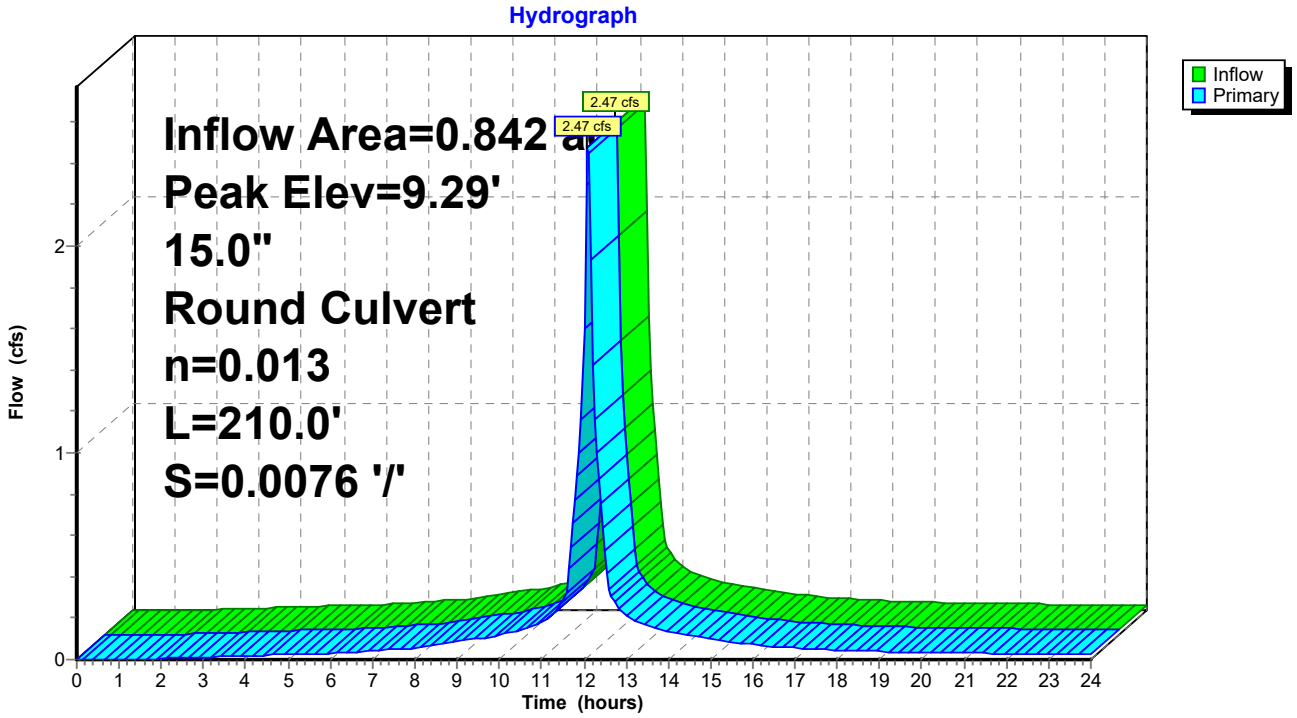
Inflow Area = 0.842 ac,100.00% Impervious, Inflow Depth > 2.87" for 2-Year Storm event
Inflow = 2.47 cfs @ 12.09 hrs, Volume= 0.201 af
Outflow = 2.47 cfs @ 12.09 hrs, Volume= 0.201 af, Atten= 0%, Lag= 0.0 min
Primary = 2.47 cfs @ 12.09 hrs, Volume= 0.201 af
Routed to Pond 13P : DMH-13 (Outfall #2)

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 9.29' @ 12.09 hrs
Flood Elev= 12.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	8.38'	**15.0" Round Culvert** L= 210.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 8.38' / 6.78' S= 0.0076 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.41 cfs @ 12.09 hrs HW=9.28' (Free Discharge)
1=Culvert (Inlet Controls 2.41 cfs @ 2.55 fps)

Pond 27P: CB



Summary for Pond 28P: Filterra 2

Inflow Area = 0.413 ac,100.00% Impervious, Inflow Depth > 2.87" for 2-Year Storm event
Inflow = 1.21 cfs @ 12.09 hrs, Volume= 0.099 af
Outflow = 1.21 cfs @ 12.09 hrs, Volume= 0.099 af, Atten= 0%, Lag= 0.0 min
Primary = 1.21 cfs @ 12.09 hrs, Volume= 0.099 af
Routed to Pond 27P : CB
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond 27P : CB

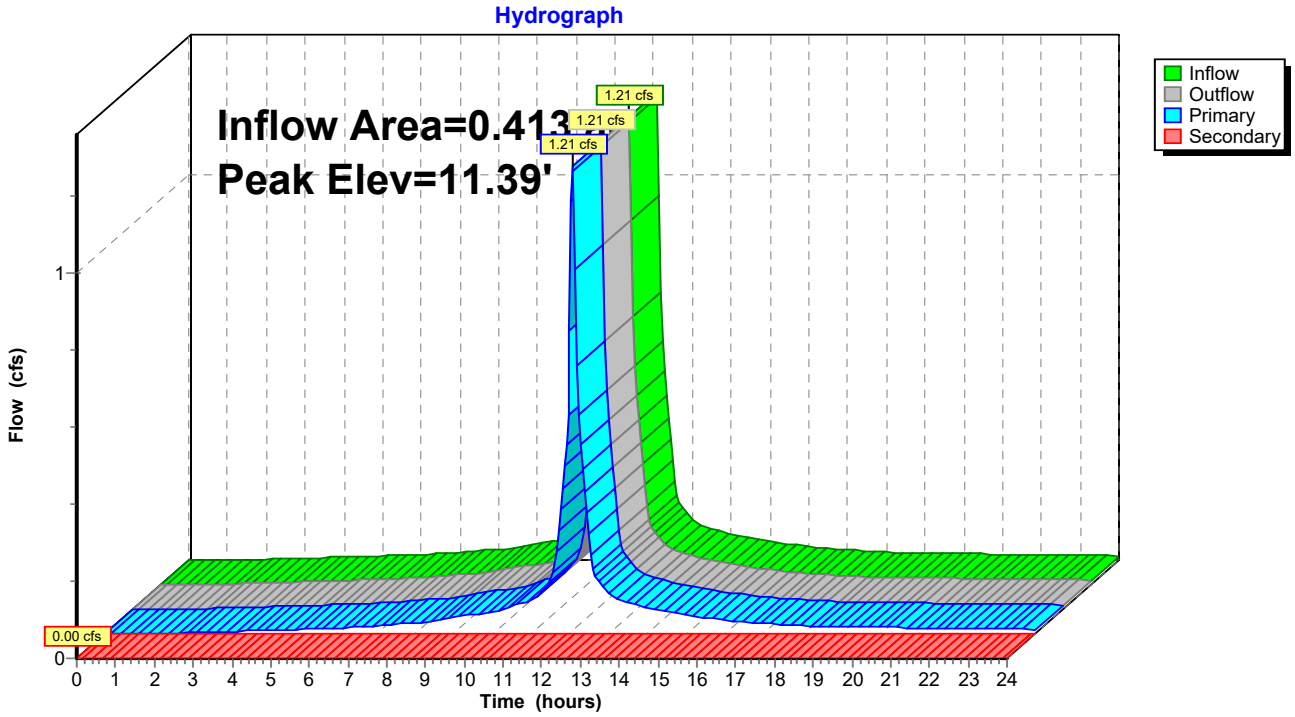
Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 11.39' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	8.51'	**6.0" Round Culvert** L= 4.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 8.51' / 8.48' S= 0.0075 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Secondary	12.05'	**5.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=1.18 cfs @ 12.09 hrs HW=11.26' (Free Discharge)
1=Culvert (Inlet Controls 1.18 cfs @ 6.01 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=8.51' (Free Discharge)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 28P: Filterra 2

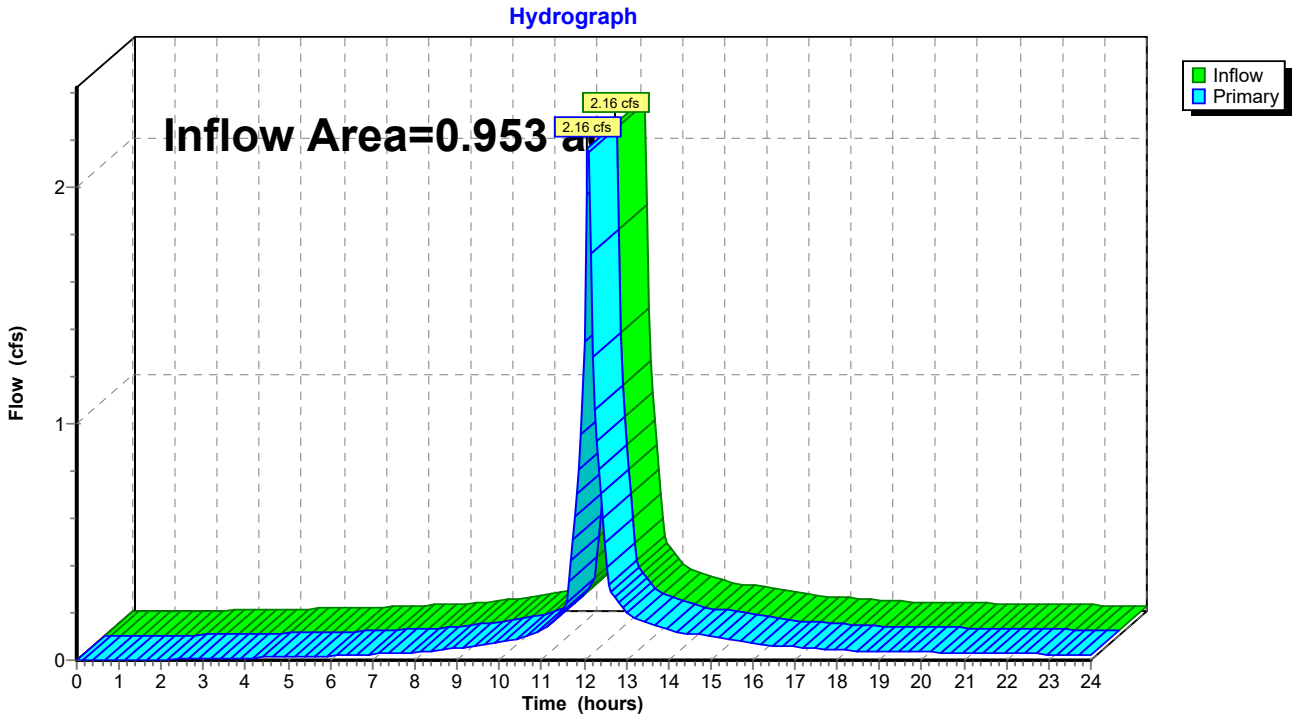


Summary for Link 1L: Freedom Way

Inflow Area = 0.953 ac, 53.78% Impervious, Inflow Depth > 2.15" for 2-Year Storm event
Inflow = 2.16 cfs @ 12.09 hrs, Volume= 0.170 af
Primary = 2.16 cfs @ 12.09 hrs, Volume= 0.170 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 1L: Freedom Way

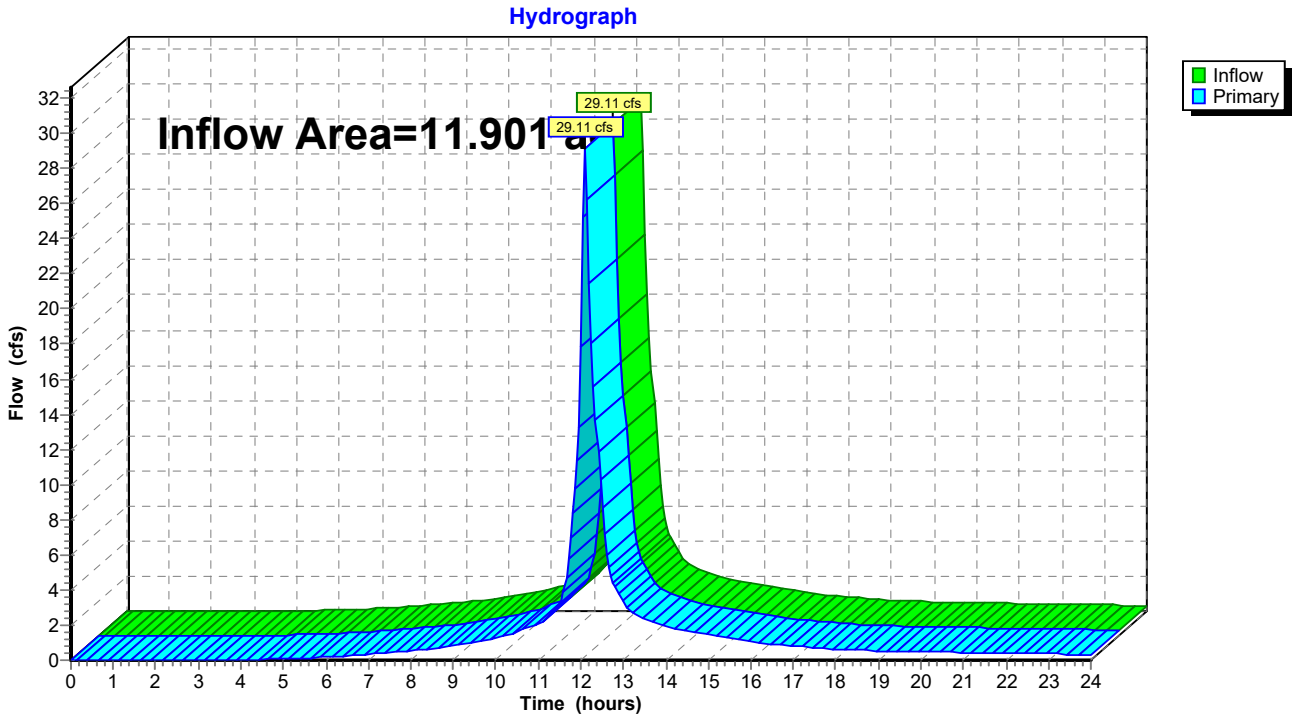


Summary for Link 2L: Fore River

Inflow Area = 11.901 ac, 85.36% Impervious, Inflow Depth > 2.57" for 2-Year Storm event
Inflow = 29.11 cfs @ 12.10 hrs, Volume= 2.544 af
Primary = 29.11 cfs @ 12.10 hrs, Volume= 2.544 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 2L: Fore River

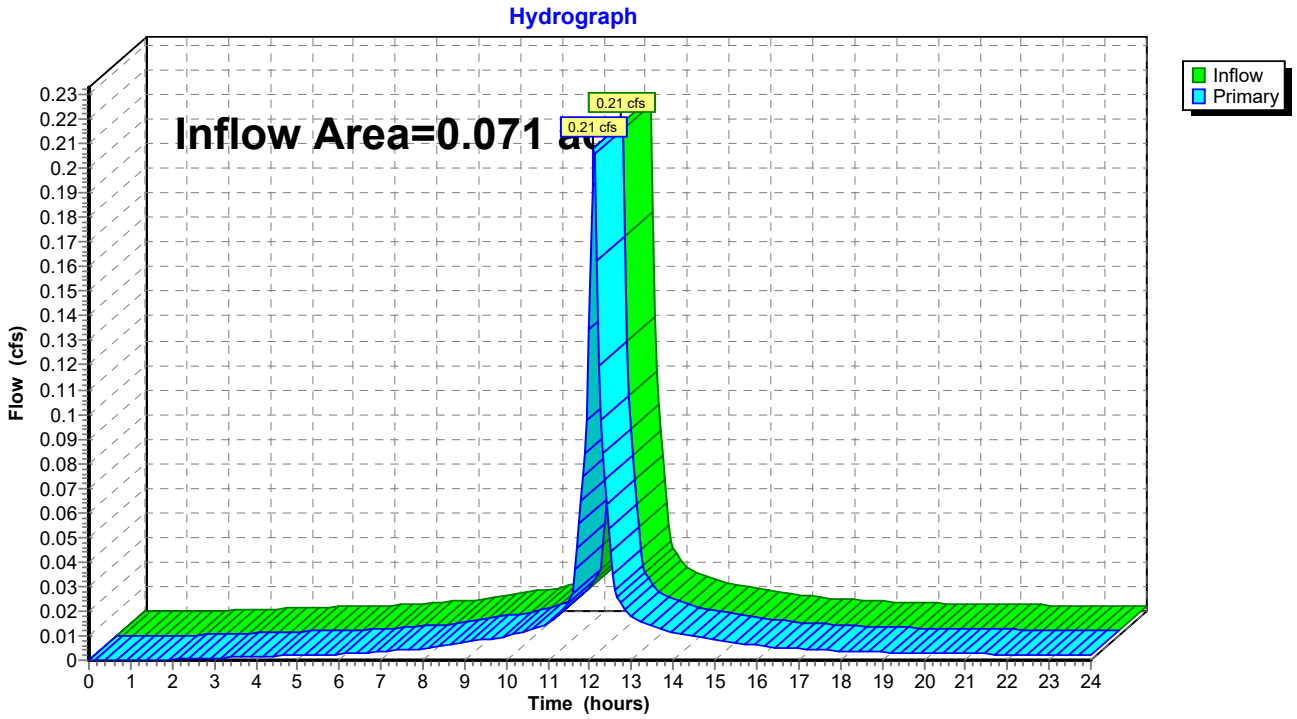


Summary for Link 3L: Fore Street

Inflow Area = 0.071 ac,100.00% Impervious, Inflow Depth > 2.87" for 2-Year Storm event
Inflow = 0.21 cfs @ 12.09 hrs, Volume= 0.017 af
Primary = 0.21 cfs @ 12.09 hrs, Volume= 0.017 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 3L: Fore Street



Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: Block 1B Runoff Area=19,389 sf 1.02% Impervious Runoff Depth>2.54"
Tc=6.0 min CN=80 Runoff=1.30 cfs 0.094 af

Subcatchment2S: Western half of Runoff Area=22,128 sf 100.00% Impervious Runoff Depth>4.36"
Tc=6.0 min CN=98 Runoff=2.23 cfs 0.185 af

Subcatchment3S: Eastern half of Runoff Area=22,147 sf 100.00% Impervious Runoff Depth>4.36"
Tc=6.0 min CN=98 Runoff=2.23 cfs 0.185 af

Subcatchment4S: Shared Street - Trench Runoff Area=26,497 sf 83.29% Impervious Runoff Depth>4.02"
Tc=6.0 min CN=95 Runoff=2.59 cfs 0.204 af

Subcatchment5S: Building 12 Runoff Area=3,244 sf 100.00% Impervious Runoff Depth>4.36"
Tc=6.0 min CN=98 Runoff=0.33 cfs 0.027 af

Subcatchment6S: Plaza between Blocks 1 Runoff Area=18,771 sf 95.74% Impervious Runoff Depth>4.25"
Tc=6.0 min CN=97 Runoff=1.88 cfs 0.152 af

Subcatchment7S: Building 14 Runoff Area=2,557 sf 100.00% Impervious Runoff Depth>4.36"
Tc=6.0 min CN=98 Runoff=0.26 cfs 0.021 af

Subcatchment8S: Building 15 Runoff Area=2,578 sf 100.00% Impervious Runoff Depth>4.36"
Tc=6.0 min CN=98 Runoff=0.26 cfs 0.022 af

Subcatchment9S: Building 2 North Runoff Area=4,695 sf 100.00% Impervious Runoff Depth>4.36"
Tc=6.0 min CN=98 Runoff=0.47 cfs 0.039 af

Subcatchment10S: Building 3 North Runoff Area=2,212 sf 100.00% Impervious Runoff Depth>4.36"
Tc=6.0 min CN=98 Runoff=0.22 cfs 0.018 af

Subcatchment11S: Building 2 South Runoff Area=4,855 sf 100.00% Impervious Runoff Depth>4.36"
Tc=6.0 min CN=98 Runoff=0.49 cfs 0.041 af

Subcatchment12S: Building 3 South Runoff Area=2,326 sf 100.00% Impervious Runoff Depth>4.36"
Tc=6.0 min CN=98 Runoff=0.23 cfs 0.019 af

Subcatchment13S: Building 6 Runoff Area=3,304 sf 100.00% Impervious Runoff Depth>4.36"
Tc=6.0 min CN=98 Runoff=0.33 cfs 0.028 af

Subcatchment14S: Building 6B North Runoff Area=3,873 sf 100.00% Impervious Runoff Depth>4.36"
Tc=6.0 min CN=98 Runoff=0.39 cfs 0.032 af

Subcatchment15S: Building 6B South Runoff Area=2,512 sf 100.00% Impervious Runoff Depth>4.36"
Tc=6.0 min CN=98 Runoff=0.25 cfs 0.021 af

Subcatchment16S: Plaza between Blocks 1 Runoff Area=3,122 sf 71.75% Impervious Runoff Depth>3.80"
Tc=6.0 min CN=93 Runoff=0.30 cfs 0.023 af

Subcatchment17S: Shared Street - Trench Runoff Area=8,931 sf 90.72% Impervious Runoff Depth>4.13"
Tc=6.0 min CN=96 Runoff=0.88 cfs 0.071 af

Subcatchment18S: Plaza between Runoff Area=15,575 sf 100.00% Impervious Runoff Depth>4.36"
Tc=6.0 min CN=98 Runoff=1.57 cfs 0.130 af

Subcatchment19S: Building 4A Runoff Area=86,615 sf 100.00% Impervious Runoff Depth>4.36"
Tc=6.0 min CN=98 Runoff=8.73 cfs 0.723 af

Subcatchment20S: Shared Street - Runoff Area=12,950 sf 100.00% Impervious Runoff Depth>4.36"
Tc=6.0 min CN=98 Runoff=1.31 cfs 0.108 af

Subcatchment21S: Plaza along Building Runoff Area=2,534 sf 100.00% Impervious Runoff Depth>4.36"
Tc=6.0 min CN=98 Runoff=0.26 cfs 0.021 af

Subcatchment22S: Block 6 Building Runoff Area=71,240 sf 84.53% Impervious Runoff Depth>4.02"
Tc=6.0 min CN=95 Runoff=6.96 cfs 0.548 af

Subcatchment23S: Block 5 - Interim Runoff Area=18,694 sf 100.00% Impervious Runoff Depth>4.36"
Tc=6.0 min CN=98 Runoff=1.88 cfs 0.156 af

Subcatchment24S: Block 5 - Interim Runoff Area=17,974 sf 100.00% Impervious Runoff Depth>4.36"
Tc=6.0 min CN=98 Runoff=1.81 cfs 0.150 af

Subcatchment25S: Waterfront Runoff Area=134,732 sf 77.43% Impervious Runoff Depth>3.91"
Tc=6.0 min CN=94 Runoff=12.96 cfs 1.008 af

Subcatchment26S: Plaza along Townhouse Runoff Area=550 sf 100.00% Impervious Runoff Depth>4.36"
Tc=6.0 min CN=98 Runoff=0.06 cfs 0.005 af

Subcatchment27S: Drainage from off-site Runoff Area=49,015 sf 43.79% Impervious Runoff Depth>3.29"
Tc=6.0 min CN=88 Runoff=4.17 cfs 0.308 af

Pond 1P: DMH 1 Peak Elev=11.42' Inflow=8.24 cfs 0.669 af
24.0" Round Culvert n=0.013 L=61.0' S=0.0038 '/' Outflow=8.24 cfs 0.669 af

Pond 2P: DMH 2 Peak Elev=11.13' Inflow=8.87 cfs 0.719 af
24.0" Round Culvert n=0.013 L=31.0' S=0.0048 '/' Outflow=8.87 cfs 0.719 af

Pond 3P: Storm Structure Peak Elev=9.55' Inflow=8.87 cfs 0.719 af
15.0" Round Culvert x 3.00 n=0.013 L=4.0' S=0.0000 '/' Outflow=8.87 cfs 0.719 af

Pond 4P: R-Tank 1 Peak Elev=8.80' Storage=2,068 cf Inflow=8.87 cfs 0.719 af
21.0" Round Culvert n=0.013 L=62.0' S=0.0000 '/' Outflow=7.96 cfs 0.712 af

Pond 5P: DMH-11 Peak Elev=9.83' Inflow=11.12 cfs 1.120 af
24.0" Round Culvert n=0.013 L=16.0' S=0.0069 '/' Outflow=11.12 cfs 1.120 af

Pond 6P: CB27 Peak Elev=11.71' Inflow=12.54 cfs 1.036 af
24.0" Round Culvert n=0.013 L=22.0' S=0.0064 '/' Outflow=12.54 cfs 1.036 af

Pond 7P: Storm Structure Peak Elev=10.07' Inflow=13.85 cfs 1.144 af
15.0" Round Culvert x 3.00 n=0.013 L=4.0' S=0.0000 '/' Outflow=13.85 cfs 1.144 af

Pond 8P: R-Tank 2 Peak Elev=10.15' Storage=6,429 cf Inflow=13.85 cfs 1.144 af
24.0" Round Culvert n=0.013 L=70.0' S=0.0000 '/' Outflow=11.12 cfs 1.120 af

Pond 9P: DMH-8 (Outfall #1) Peak Elev=8.99' Inflow=18.97 cfs 1.831 af
30.0" Round Culvert n=0.013 L=52.0' S=0.0052 '/' Outflow=18.97 cfs 1.831 af

Pond 10P: DMH 4 Peak Elev=8.59' Inflow=7.96 cfs 0.712 af
24.0" Round Culvert n=0.013 L=59.0' S=0.0000 '/' Outflow=7.96 cfs 0.712 af

Pond 11P: Jellyfish 1 JFPD0806-4-1 Peak Elev=10.43' Inflow=7.96 cfs 0.712 af
Outflow=7.96 cfs 0.712 af

Pond 12P: Jellyfish 2 JFPD0806-7-2 Peak Elev=10.87' Inflow=11.12 cfs 1.120 af
Outflow=11.12 cfs 1.120 af

Pond 13P: DMH-13 (Outfall #2) Peak Elev=9.21' Inflow=14.82 cfs 1.162 af
24.0" Round Culvert n=0.013 L=75.0' S=0.0051 '/' Outflow=14.82 cfs 1.162 af

Pond 24P: Filterra 1 Peak Elev=12.17' Inflow=1.88 cfs 0.156 af
Primary=1.38 cfs 0.152 af Secondary=0.51 cfs 0.004 af Outflow=1.88 cfs 0.156 af

Pond 27P: CB Peak Elev=9.62' Inflow=3.70 cfs 0.306 af
15.0" Round Culvert n=0.013 L=210.0' S=0.0076 '/' Outflow=3.70 cfs 0.306 af

Pond 28P: Filterra 2 Peak Elev=12.16' Inflow=1.81 cfs 0.150 af
Primary=1.38 cfs 0.147 af Secondary=0.44 cfs 0.003 af Outflow=1.81 cfs 0.150 af

Link 1L: Freedom Way Inflow=3.53 cfs 0.279 af
Primary=3.53 cfs 0.279 af

Link 2L: Fore River Inflow=45.13 cfs 4.002 af
Primary=45.13 cfs 4.002 af

Link 3L: Fore Street Inflow=0.31 cfs 0.026 af
Primary=0.31 cfs 0.026 af

Total Runoff Area = 12.925 ac Runoff Volume = 4.338 af Average Runoff Depth = 4.03"
16.89% Pervious = 2.183 ac 83.11% Impervious = 10.742 ac

Summary for Subcatchment 1S: Block 1B

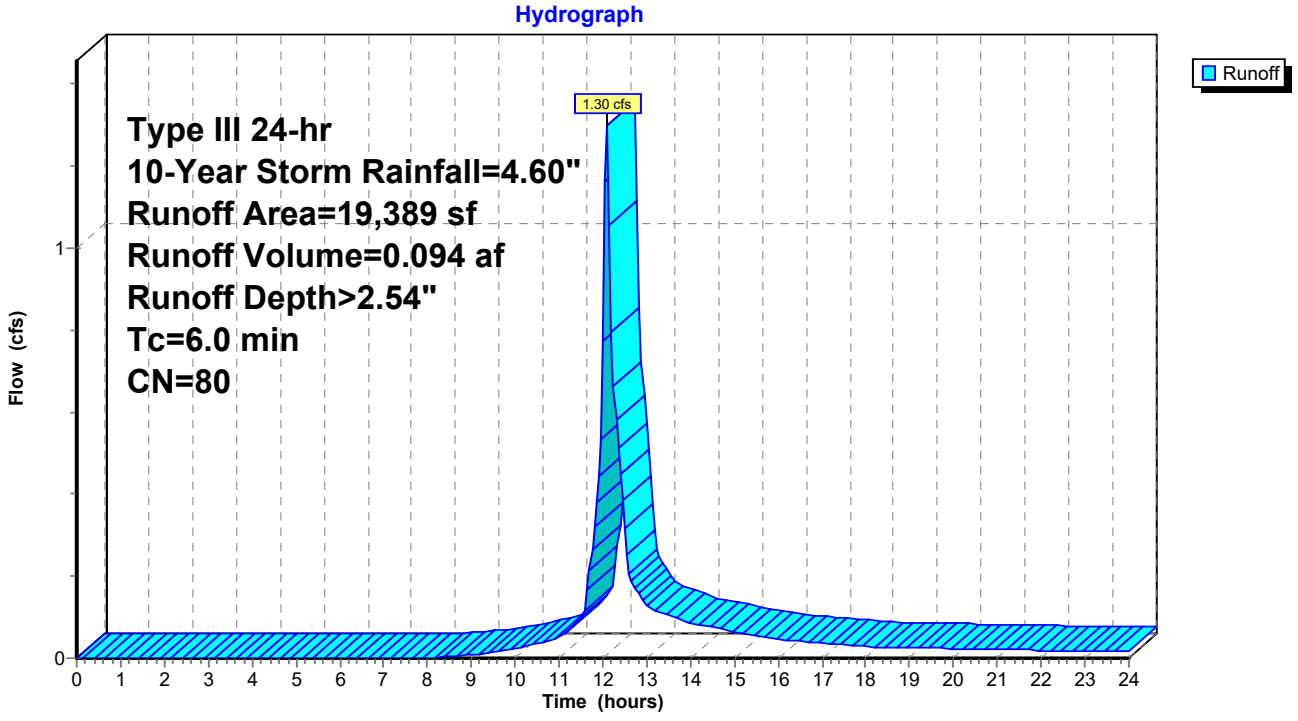
Runoff = 1.30 cfs @ 12.09 hrs, Volume= 0.094 af, Depth> 2.54"
Routed to Link 1L : Freedom Way

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	198	98	Impervious
	19,191	80	>75% Grass cover, Good, HSG D
	19,389	80	Weighted Average
	19,191		98.98% Pervious Area
	198		1.02% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 1S: Block 1B



Summary for Subcatchment 2S: Western half of Building 1A

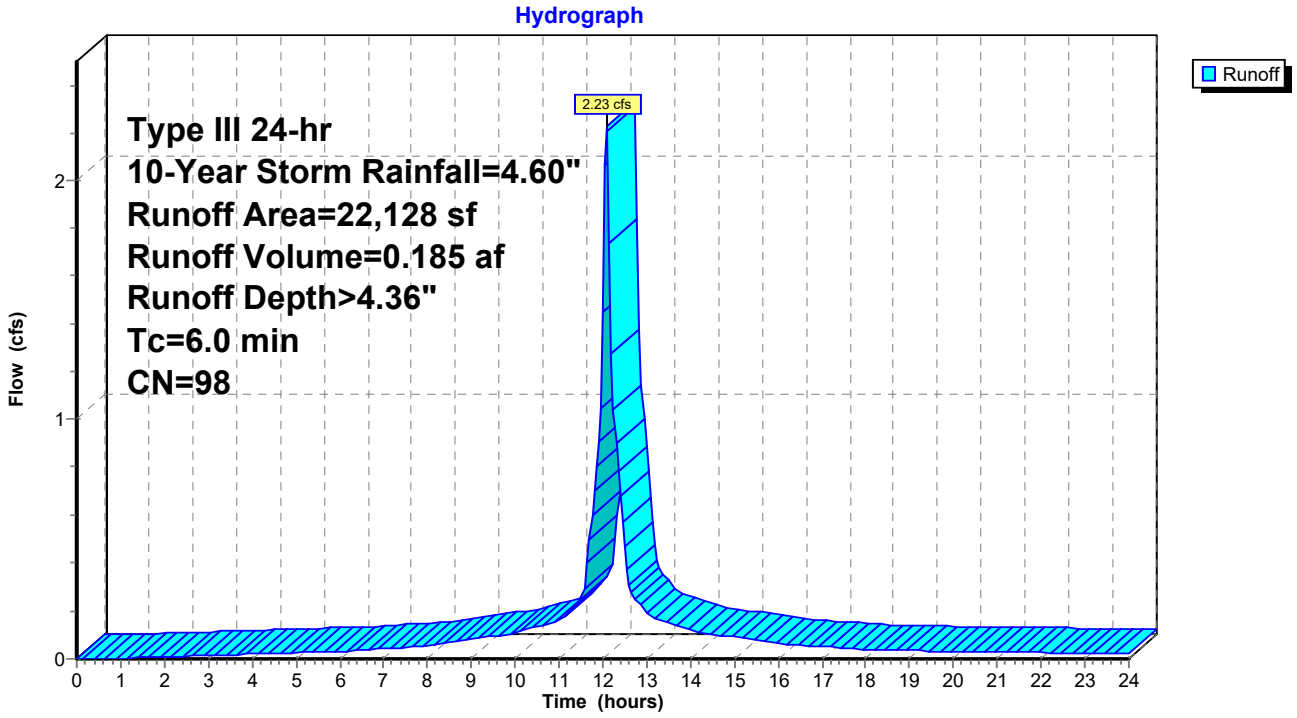
Runoff = 2.23 cfs @ 12.09 hrs, Volume= 0.185 af, Depth> 4.36"
Routed to Link 1L : Freedom Way

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	22,128	98	Roof
	22,128		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 2S: Western half of Building 1A



Summary for Subcatchment 3S: Eastern half of Building 1A

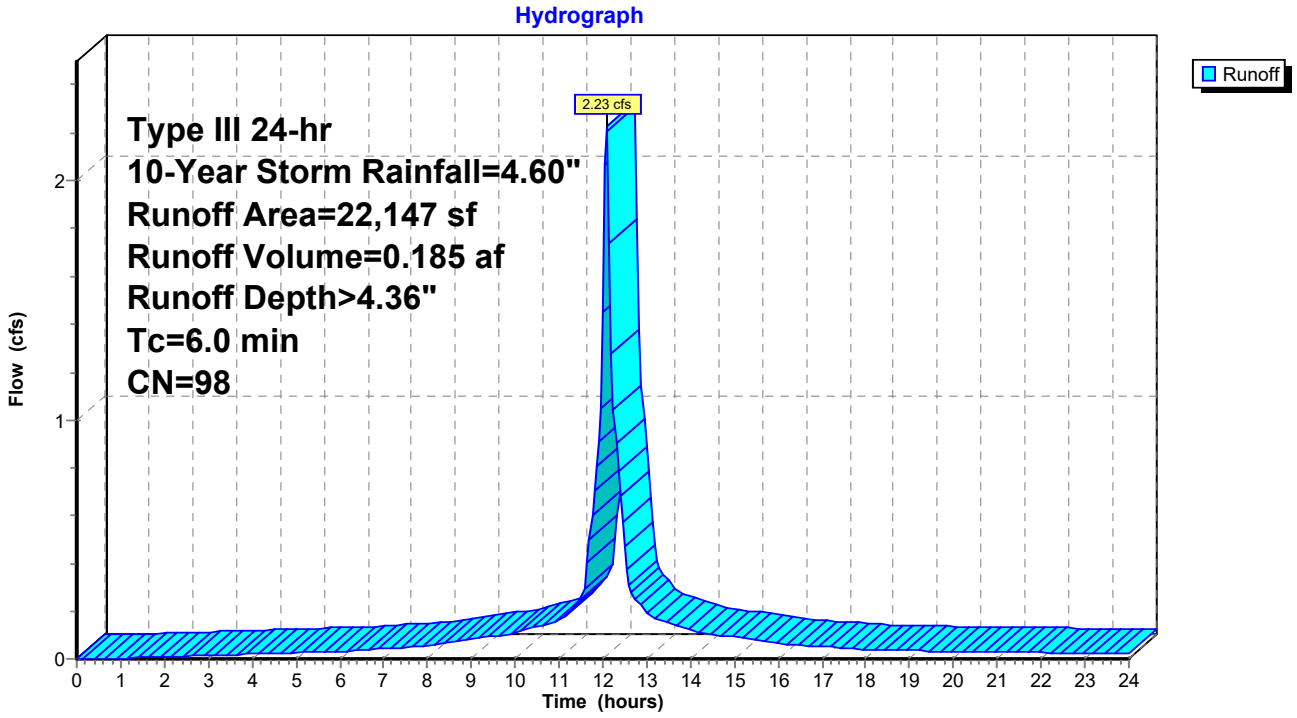
Runoff = 2.23 cfs @ 12.09 hrs, Volume= 0.185 af, Depth> 4.36"
Routed to Pond 1P : DMH 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	22,147	98	Roof
	22,147		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 3S: Eastern half of Building 1A



Summary for Subcatchment 4S: Shared Street - Trench Drain

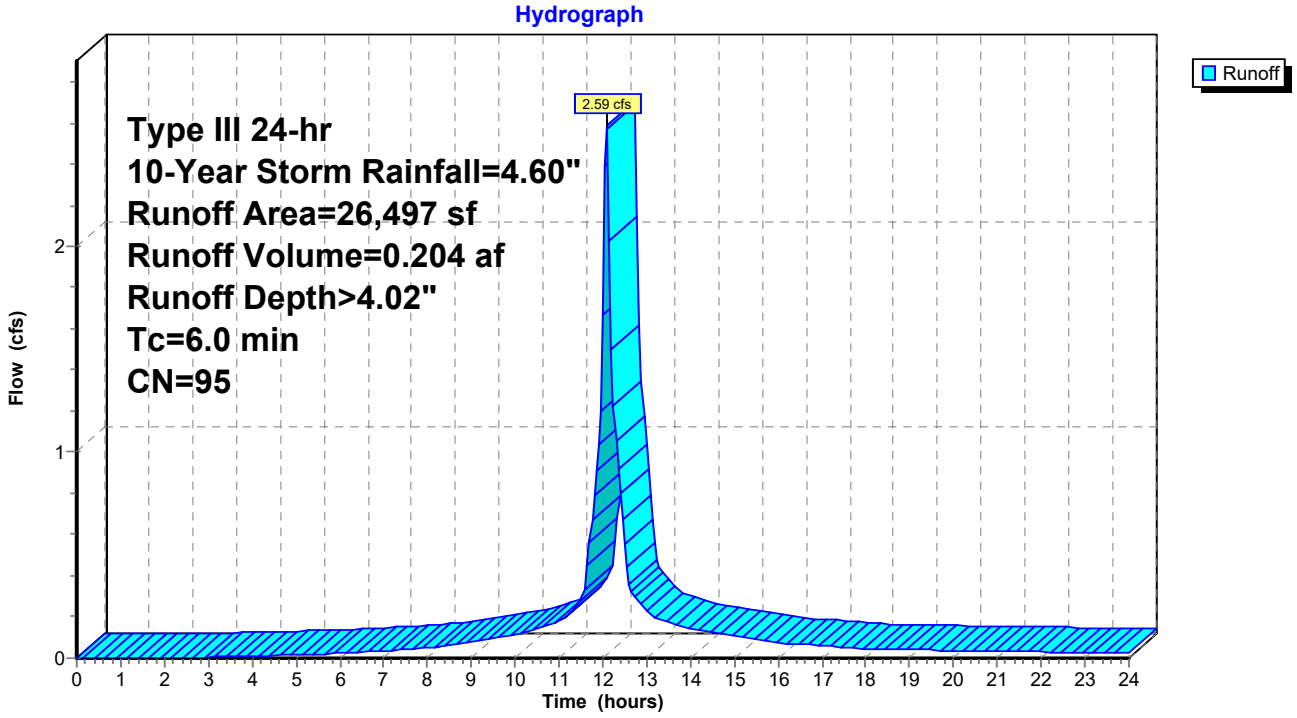
Runoff = 2.59 cfs @ 12.09 hrs, Volume= 0.204 af, Depth> 4.02"
Routed to Pond 1P : DMH 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Storm Rainfall=4.60"

	Area (sf)	CN	Description
	4,428	80	>75% Grass cover, Good, HSG D
*	22,069	98	Impervious Shared Street and Plaza
	26,497	95	Weighted Average
	4,428		16.71% Pervious Area
	22,069		83.29% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 4S: Shared Street - Trench Drain



Summary for Subcatchment 5S: Building 12

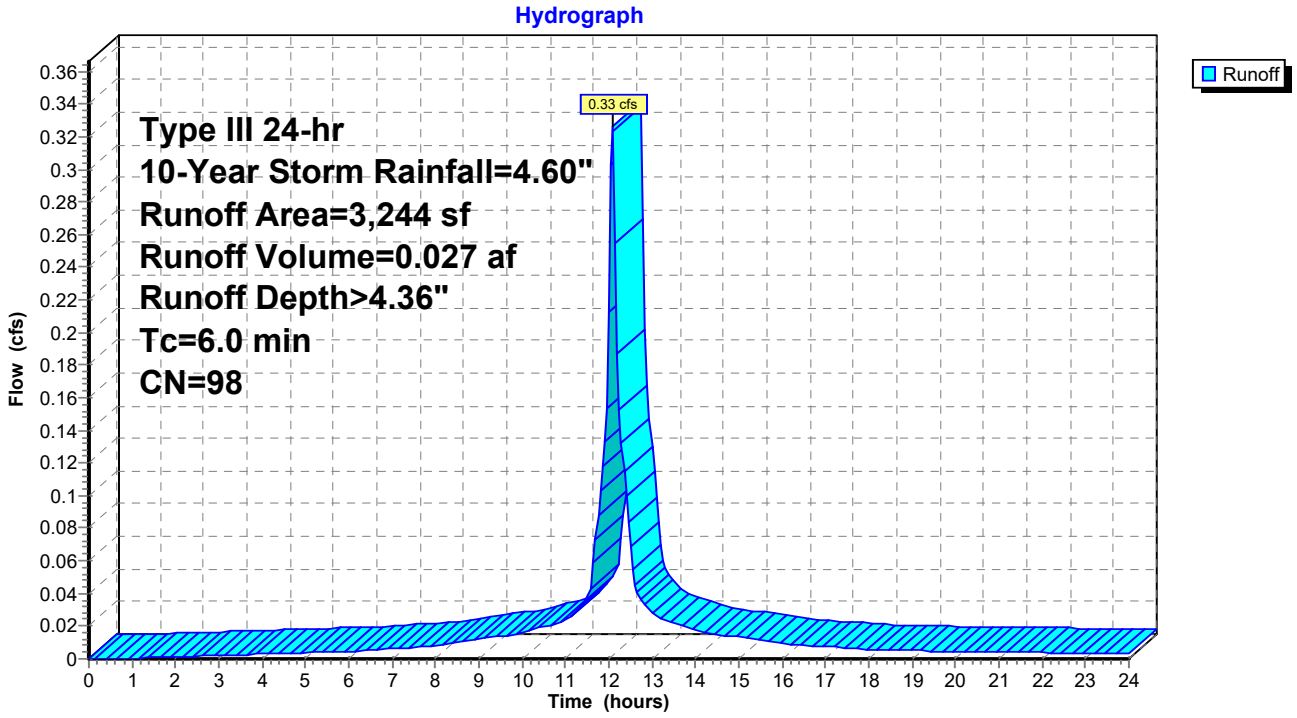
Runoff = 0.33 cfs @ 12.09 hrs, Volume= 0.027 af, Depth> 4.36"
Routed to Pond 1P : DMH 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	3,244	98	Roof
	3,244		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 5S: Building 12



Summary for Subcatchment 6S: Plaza between Blocks 1 & 2

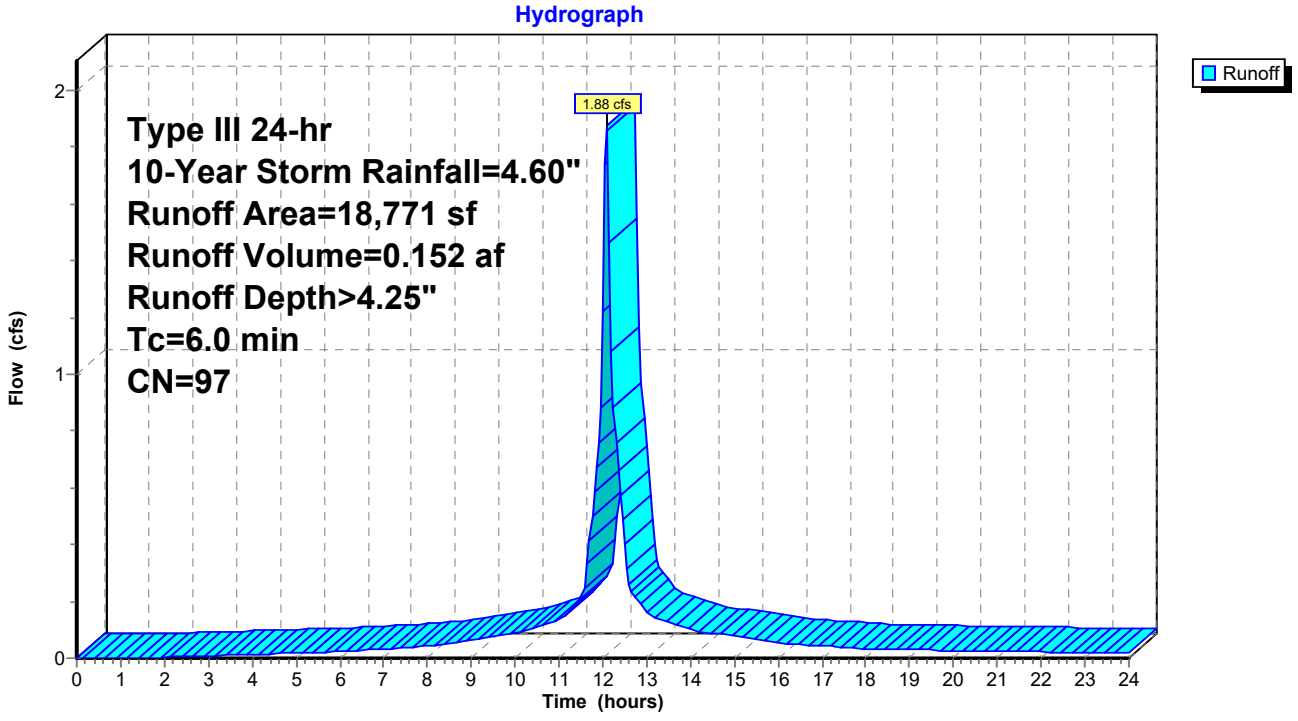
Runoff = 1.88 cfs @ 12.09 hrs, Volume= 0.152 af, Depth> 4.25"
Routed to Pond 1P : DMH 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	17,972	98	Impervious
	799	80	>75% Grass cover, Good, HSG D
	18,771	97	Weighted Average
	799		4.26% Pervious Area
	17,972		95.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 6S: Plaza between Blocks 1 & 2



Summary for Subcatchment 7S: Building 14

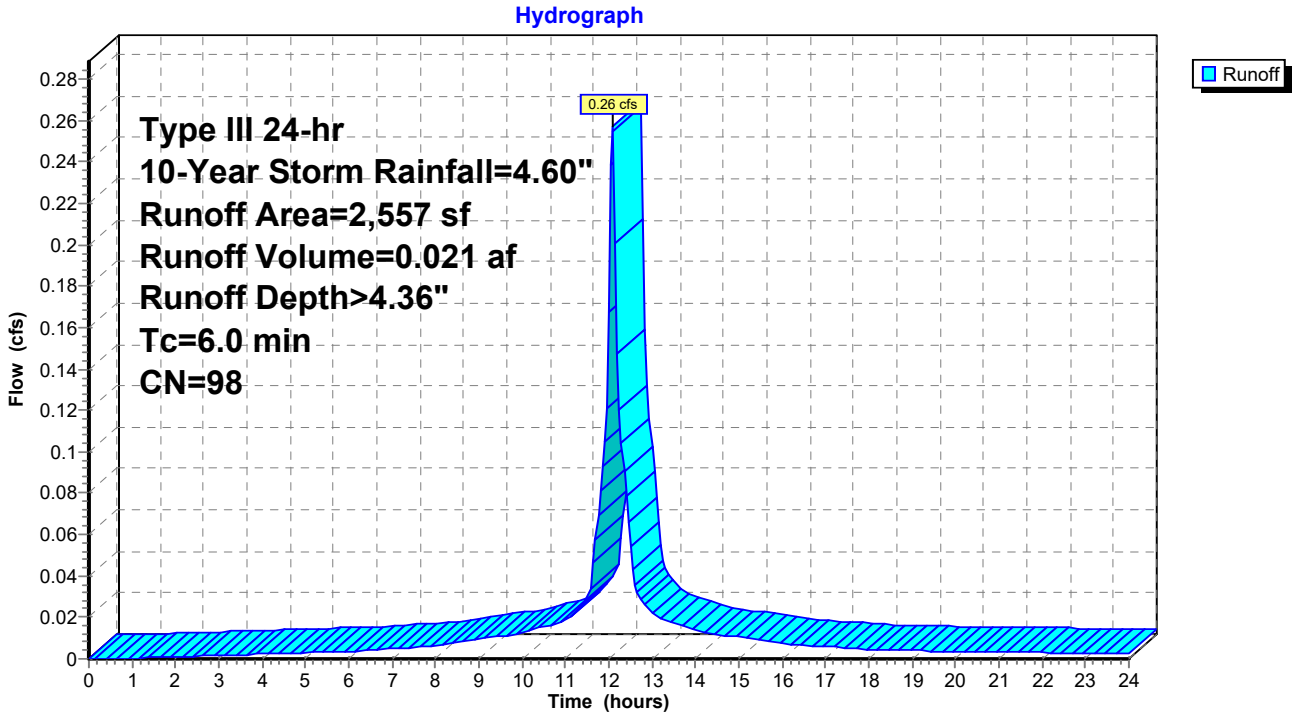
Runoff = 0.26 cfs @ 12.09 hrs, Volume= 0.021 af, Depth> 4.36"
Routed to Pond 1P : DMH 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	2,557	98	Roof
	2,557		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 7S: Building 14



Summary for Subcatchment 8S: Building 15

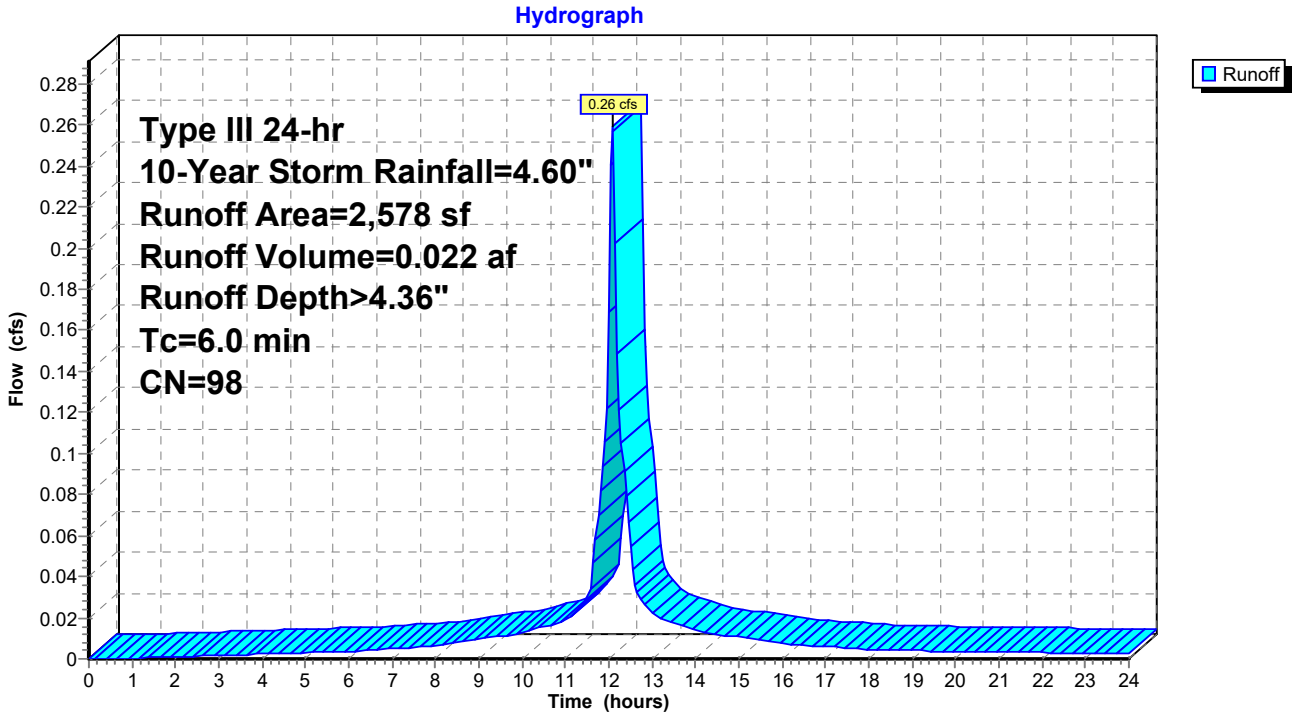
Runoff = 0.26 cfs @ 12.09 hrs, Volume= 0.022 af, Depth> 4.36"
Routed to Pond 6P : CB27

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	2,578	98	Roof
	2,578		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 8S: Building 15



Summary for Subcatchment 9S: Building 2 North

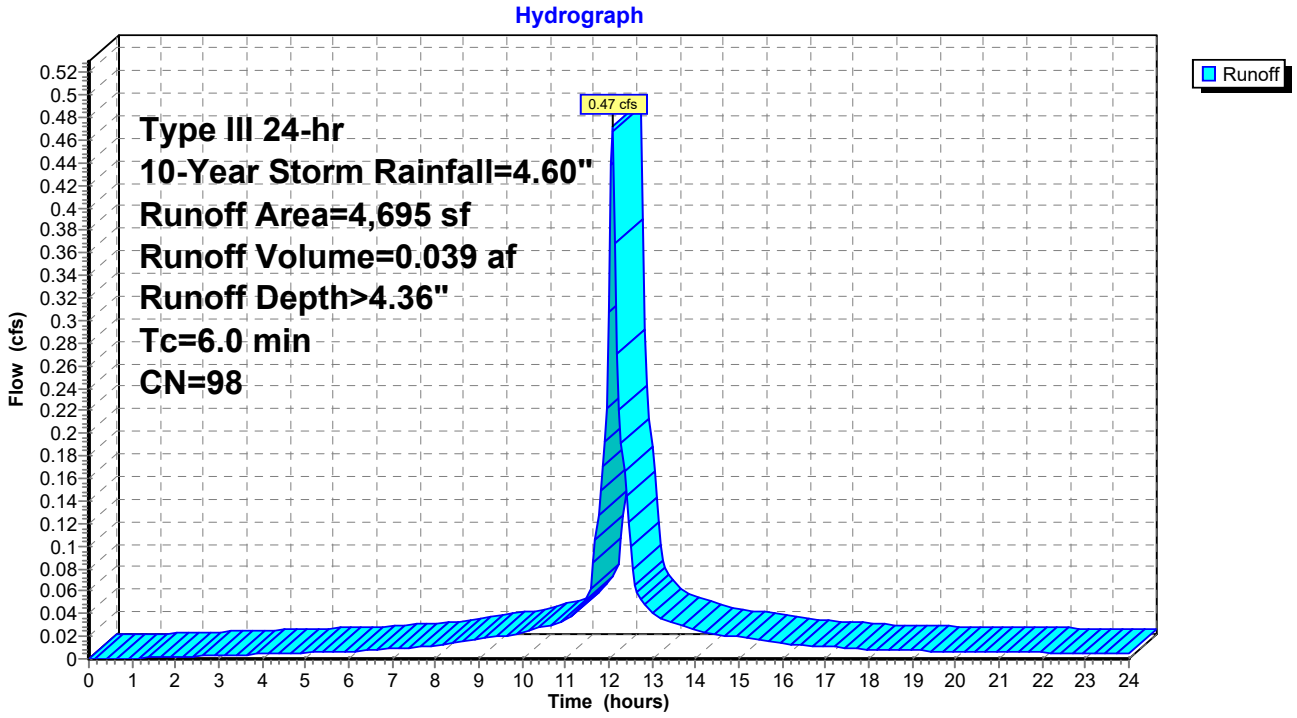
Runoff = 0.47 cfs @ 12.09 hrs, Volume= 0.039 af, Depth> 4.36"
Routed to Pond 1P : DMH 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	4,695	98	Roof
	4,695		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 9S: Building 2 North



Summary for Subcatchment 10S: Building 3 North

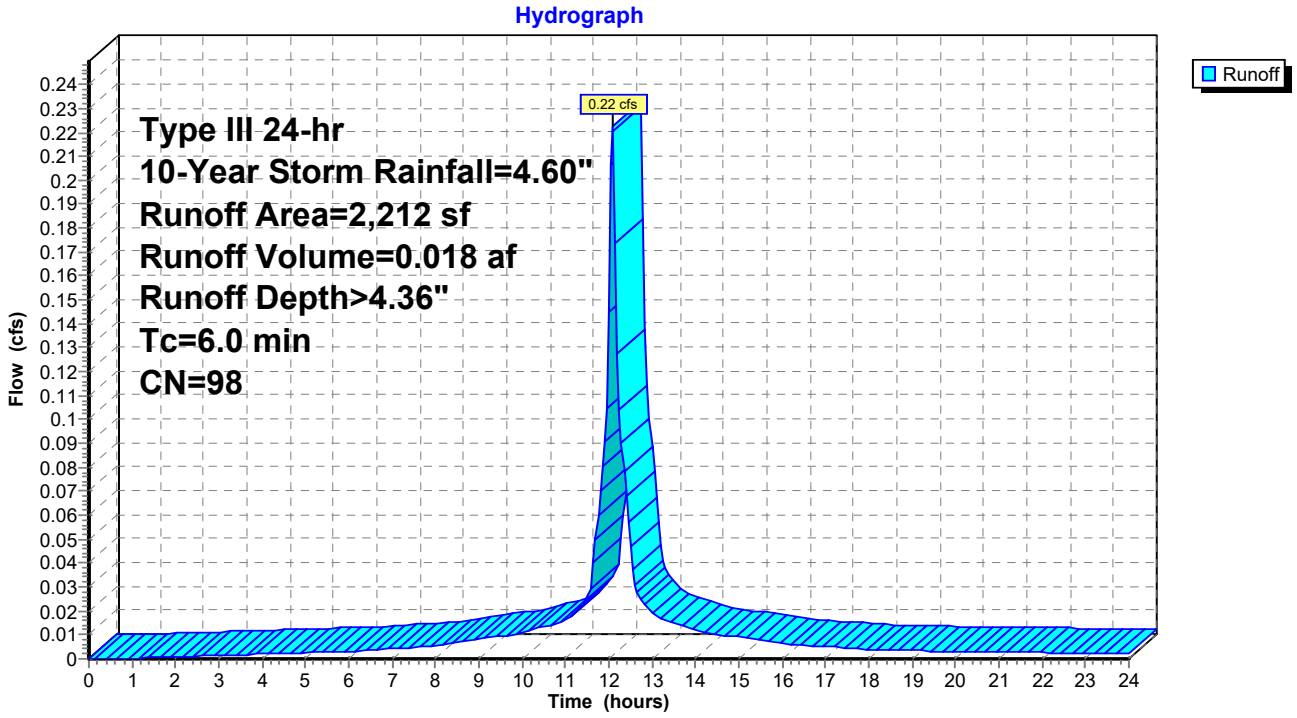
Runoff = 0.22 cfs @ 12.09 hrs, Volume= 0.018 af, Depth> 4.36"
Routed to Pond 6P : CB27

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	2,212	98	Roof
	2,212		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 10S: Building 3 North



Summary for Subcatchment 11S: Building 2 South

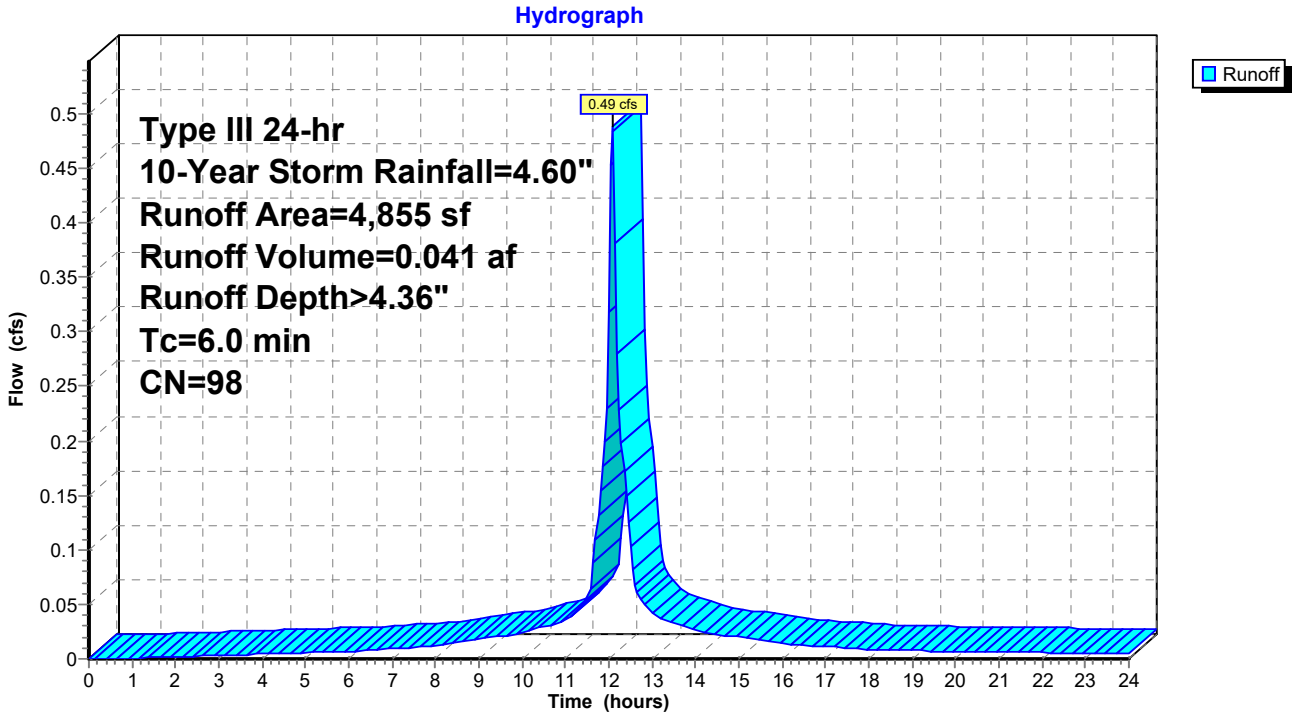
Runoff = 0.49 cfs @ 12.09 hrs, Volume= 0.041 af, Depth> 4.36"
Routed to Pond 1P : DMH 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	4,855	98	Roof
	4,855		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 11S: Building 2 South



Summary for Subcatchment 12S: Building 3 South

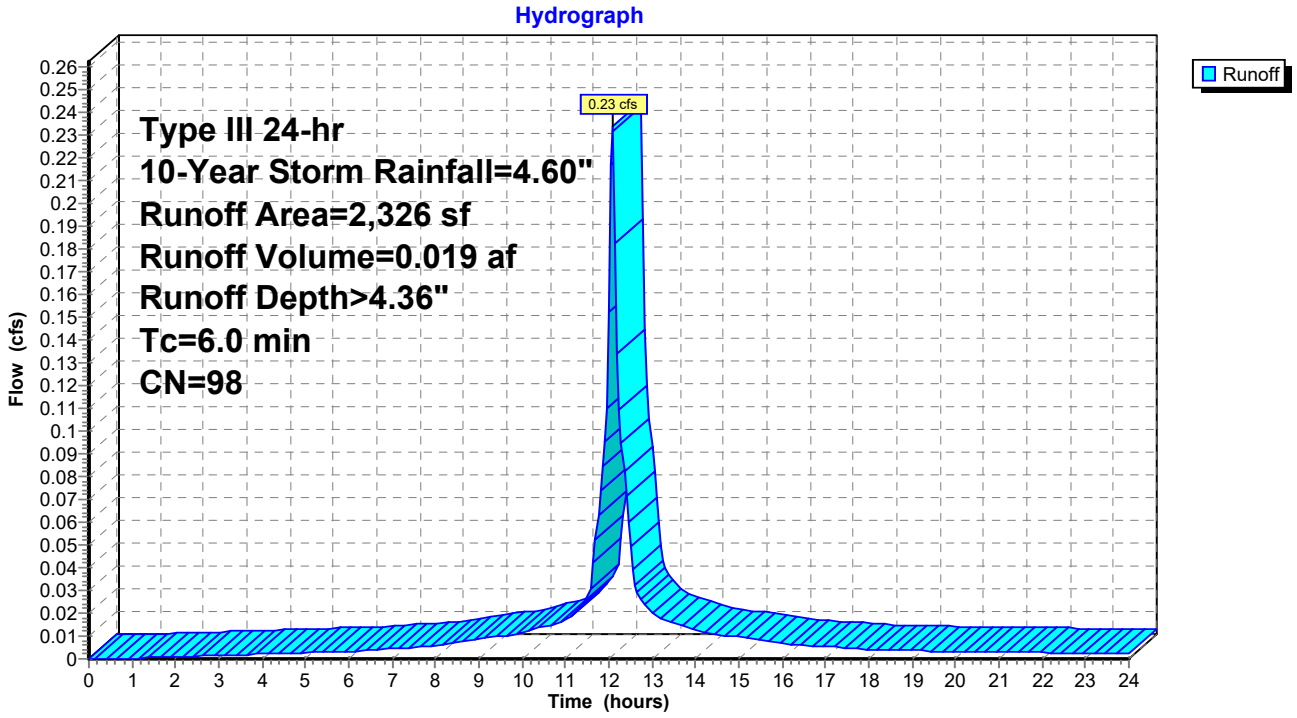
Runoff = 0.23 cfs @ 12.09 hrs, Volume= 0.019 af, Depth> 4.36"
Routed to Pond 6P : CB27

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	2,326	98	Roof
	2,326		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 12S: Building 3 South



Summary for Subcatchment 13S: Building 6

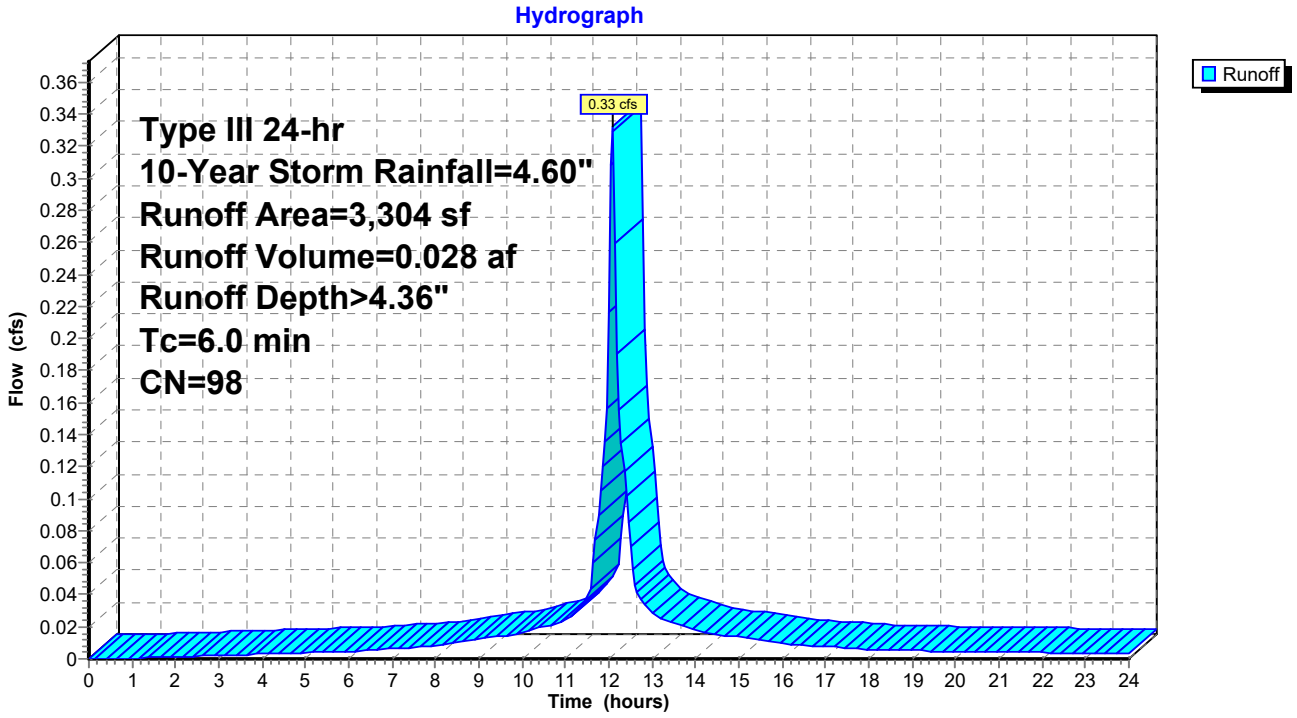
Runoff = 0.33 cfs @ 12.09 hrs, Volume= 0.028 af, Depth> 4.36"
Routed to Pond 2P : DMH 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	3,304	98	Roof
	3,304		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 13S: Building 6



Summary for Subcatchment 14S: Building 6B North

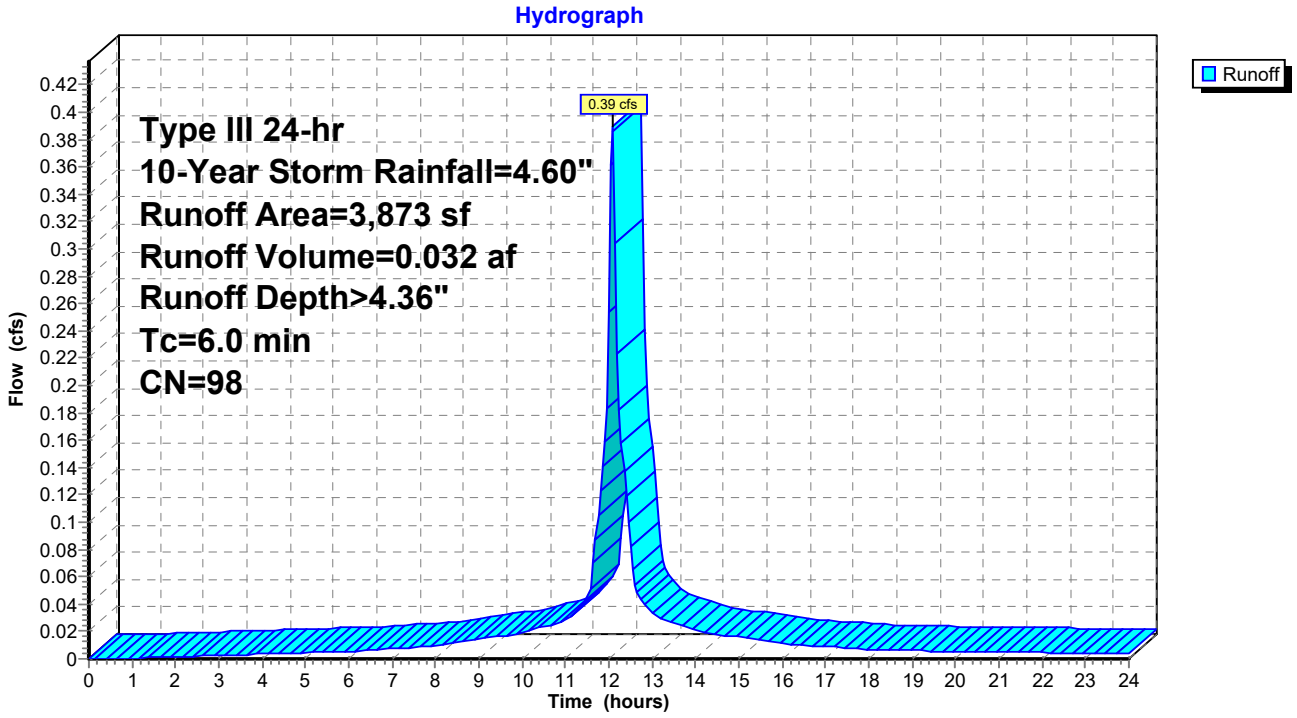
Runoff = 0.39 cfs @ 12.09 hrs, Volume= 0.032 af, Depth> 4.36"
Routed to Pond 6P : CB27

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	3,873	98	Roof
	3,873		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 14S: Building 6B North



Summary for Subcatchment 15S: Building 6B South

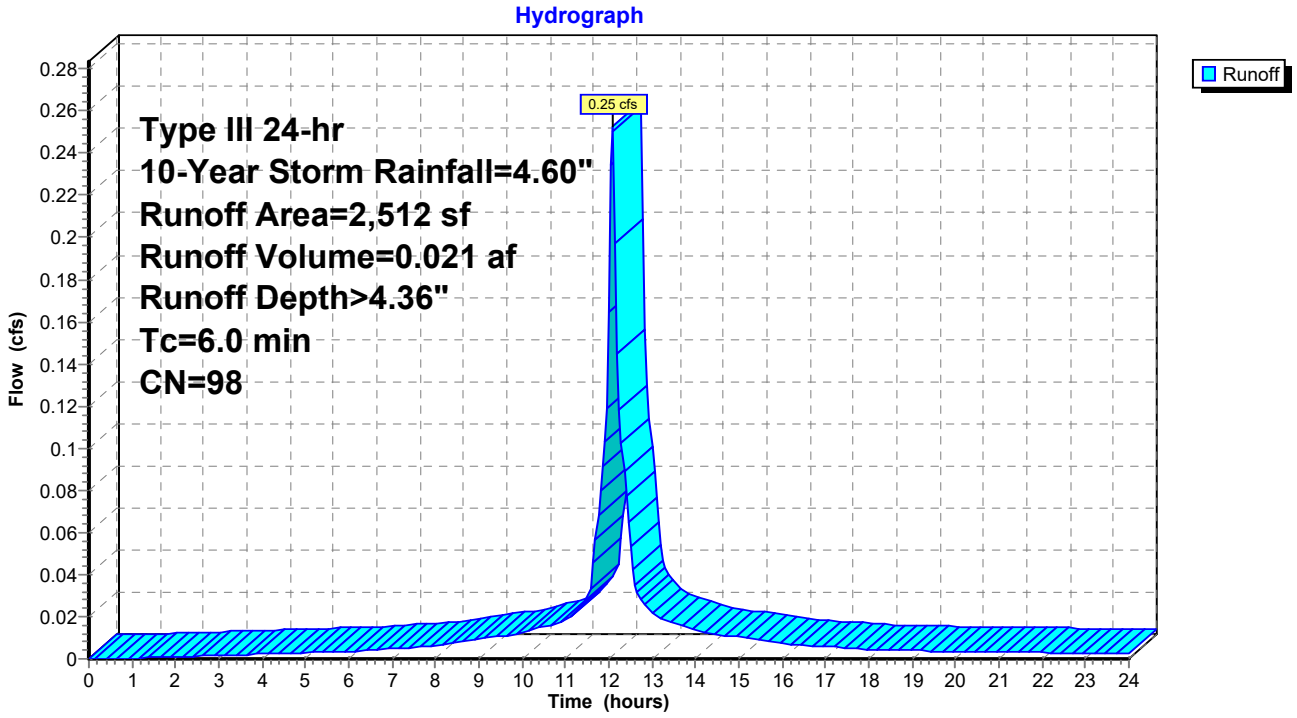
Runoff = 0.25 cfs @ 12.09 hrs, Volume= 0.021 af, Depth> 4.36"
Routed to Pond 6P : CB27

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	2,512	98	Roof
	2,512		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 15S: Building 6B South



Summary for Subcatchment 16S: Plaza between Blocks 1 & 2

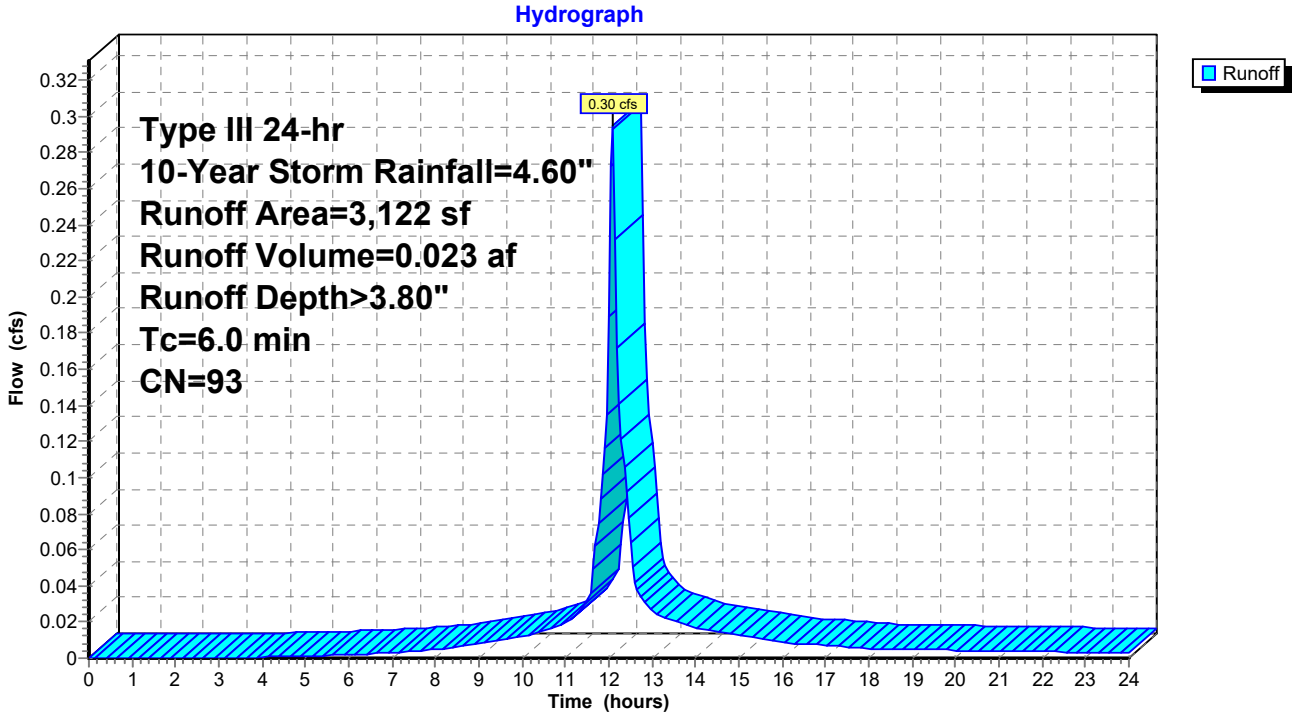
Runoff = 0.30 cfs @ 12.09 hrs, Volume= 0.023 af, Depth> 3.80"
Routed to Pond 2P : DMH 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	2,240	98	Impervious
	882	80	>75% Grass cover, Good, HSG D
	3,122	93	Weighted Average
	882		28.25% Pervious Area
	2,240		71.75% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 16S: Plaza between Blocks 1 & 2



Summary for Subcatchment 17S: Shared Street - Trench Drain

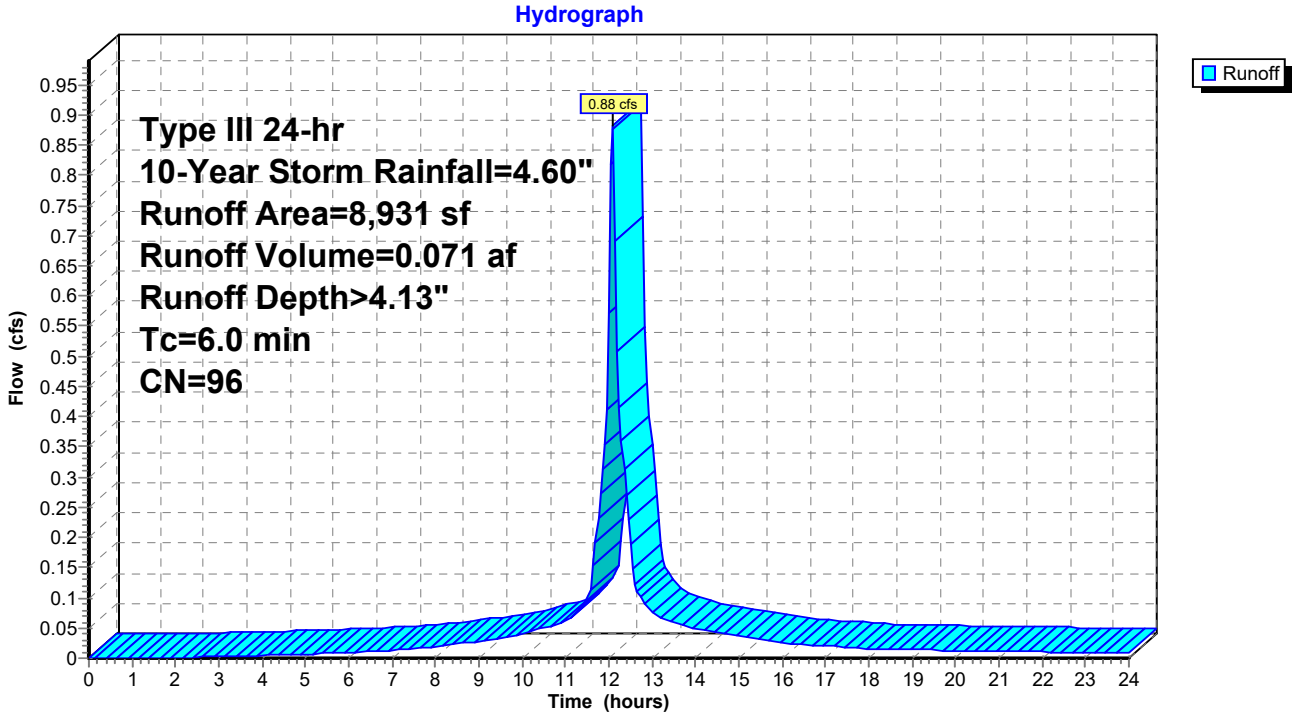
Runoff = 0.88 cfs @ 12.09 hrs, Volume= 0.071 af, Depth> 4.13"
Routed to Pond 6P : CB27

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Storm Rainfall=4.60"

	Area (sf)	CN	Description
	829	80	>75% Grass cover, Good, HSG D
*	8,102	98	Impervious Shared Street
	8,931	96	Weighted Average
	829		9.28% Pervious Area
	8,102		90.72% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 17S: Shared Street - Trench Drain



Summary for Subcatchment 18S: Plaza between Blocks 2 & 4

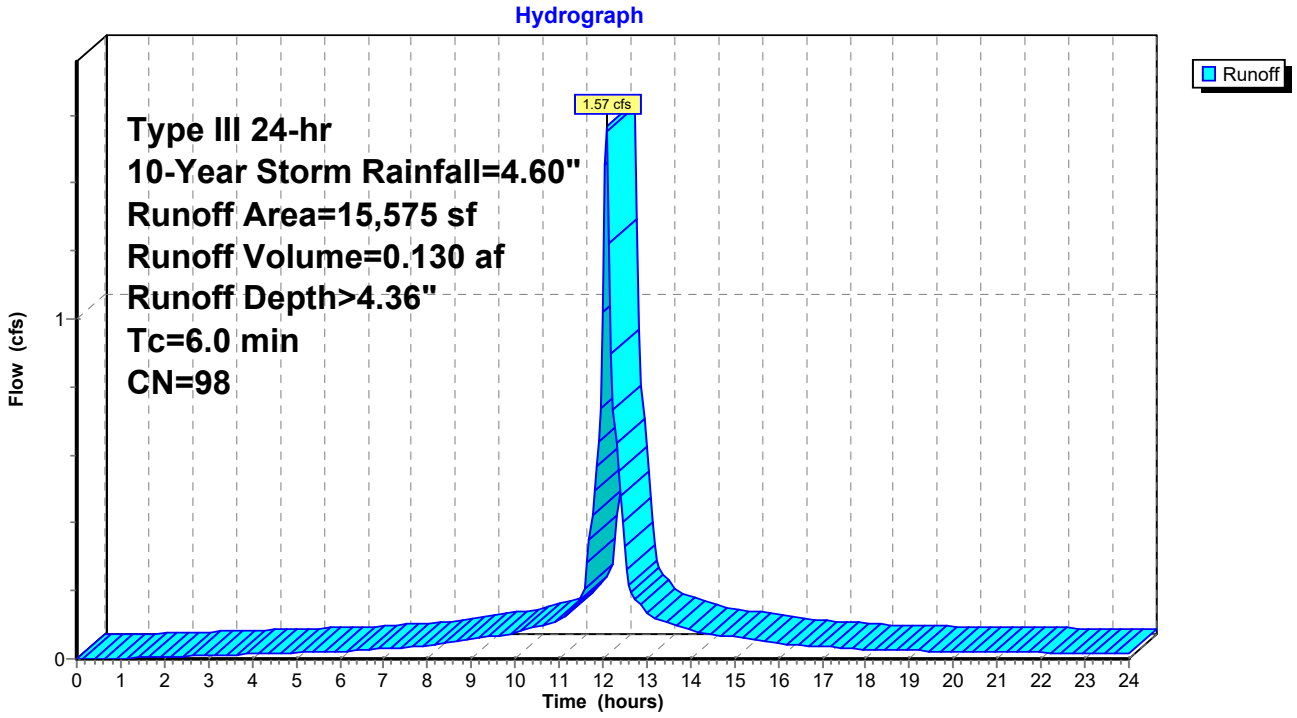
Runoff = 1.57 cfs @ 12.09 hrs, Volume= 0.130 af, Depth> 4.36"
Routed to Pond 6P : CB27

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	15,575	98	Impervious
	15,575		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 18S: Plaza between Blocks 2 & 4



Summary for Subcatchment 19S: Building 4A

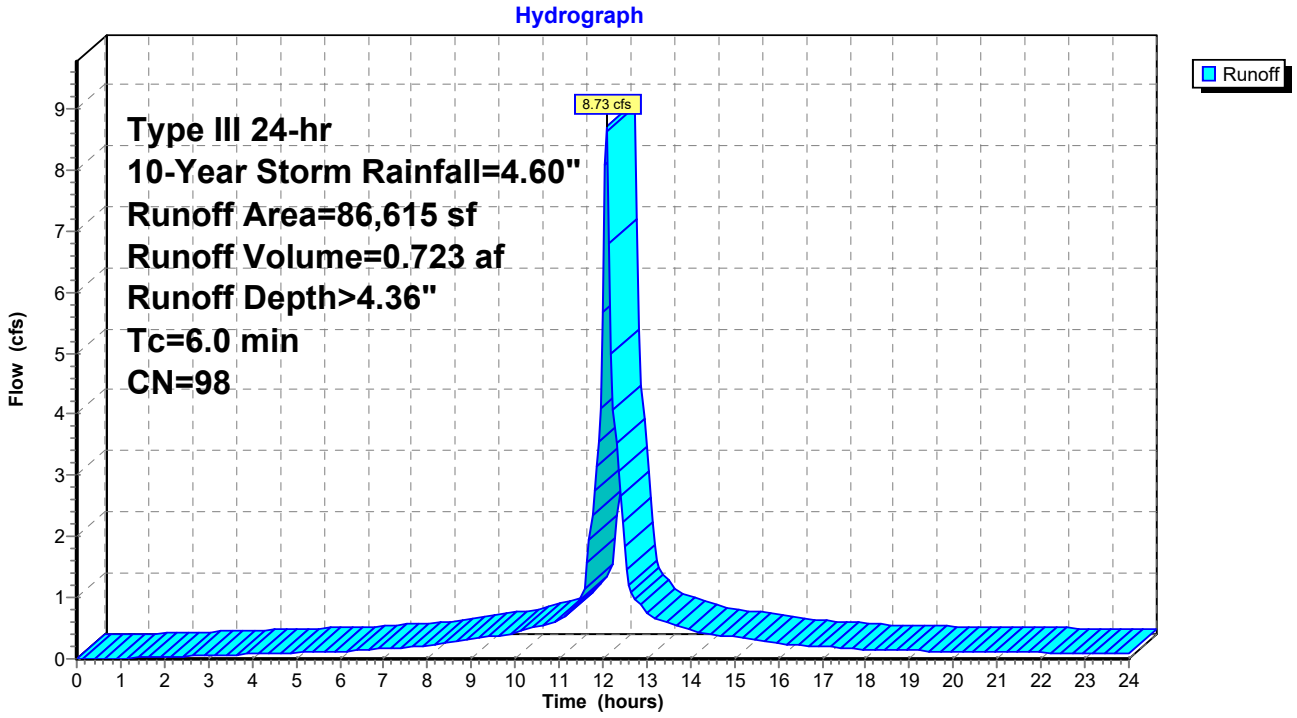
Runoff = 8.73 cfs @ 12.09 hrs, Volume= 0.723 af, Depth> 4.36"
Routed to Pond 6P : CB27

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	86,615	98	Roof & Plaza
	86,615		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 19S: Building 4A



Summary for Subcatchment 20S: Shared Street - Trench Drain

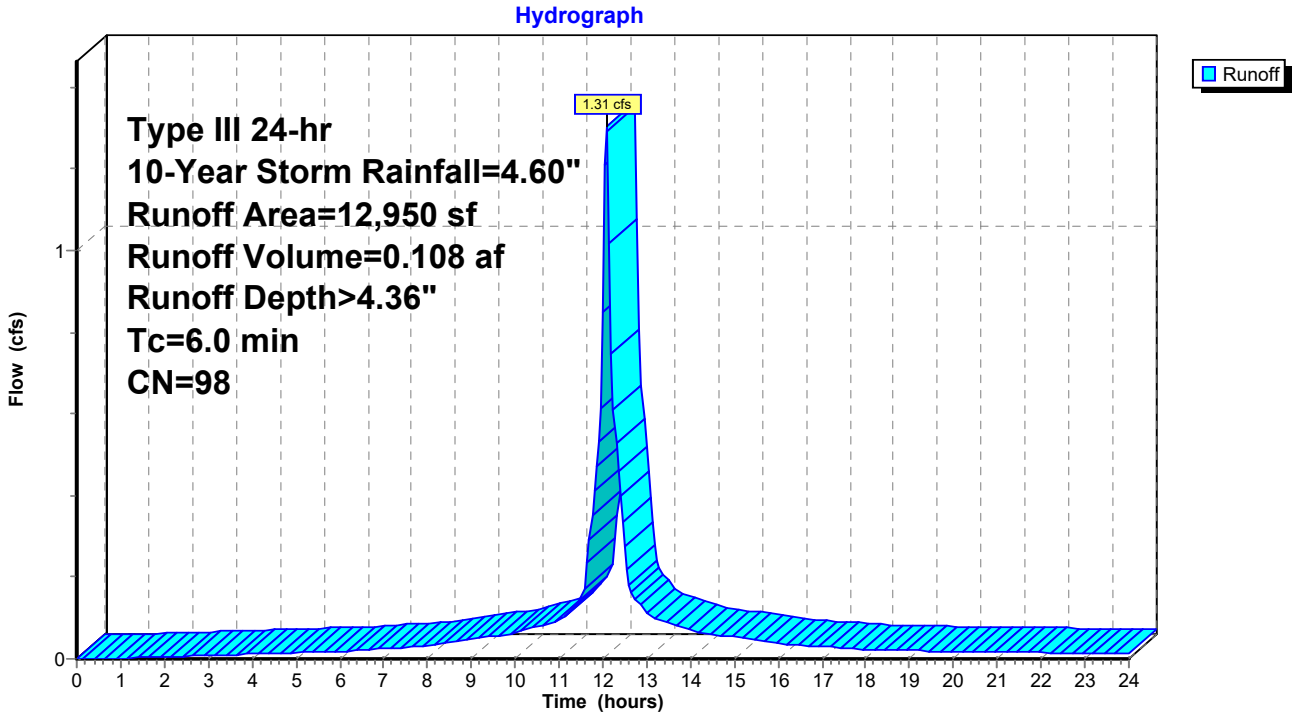
Runoff = 1.31 cfs @ 12.09 hrs, Volume= 0.108 af, Depth> 4.36"
Routed to Pond 7P : Storm Structure

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	12,950	98	Impervious
	12,950		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 20S: Shared Street - Trench Drain



Summary for Subcatchment 21S: Plaza along Building 4A at Fore Street

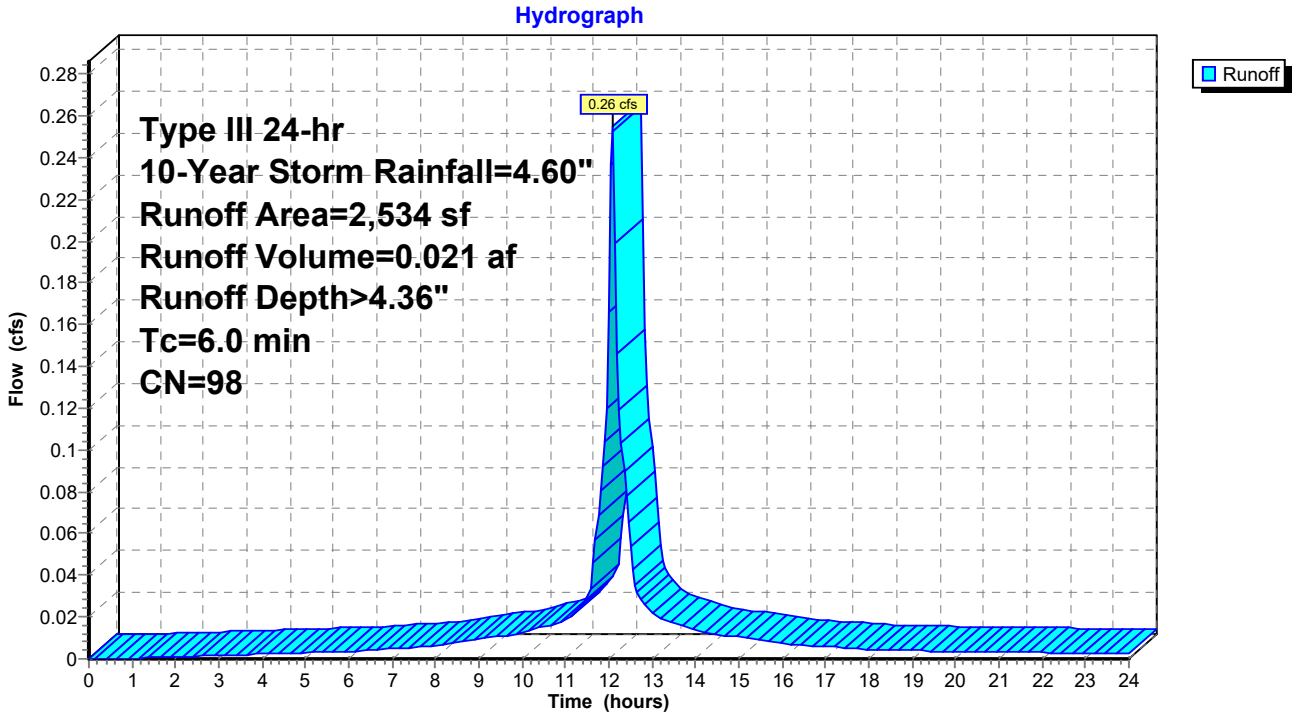
Runoff = 0.26 cfs @ 12.09 hrs, Volume= 0.021 af, Depth> 4.36"
Routed to Link 3L : Fore Street

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	2,534	98	Impervious
	2,534		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 21S: Plaza along Building 4A at Fore Street



Summary for Subcatchment 22S: Block 6 Building

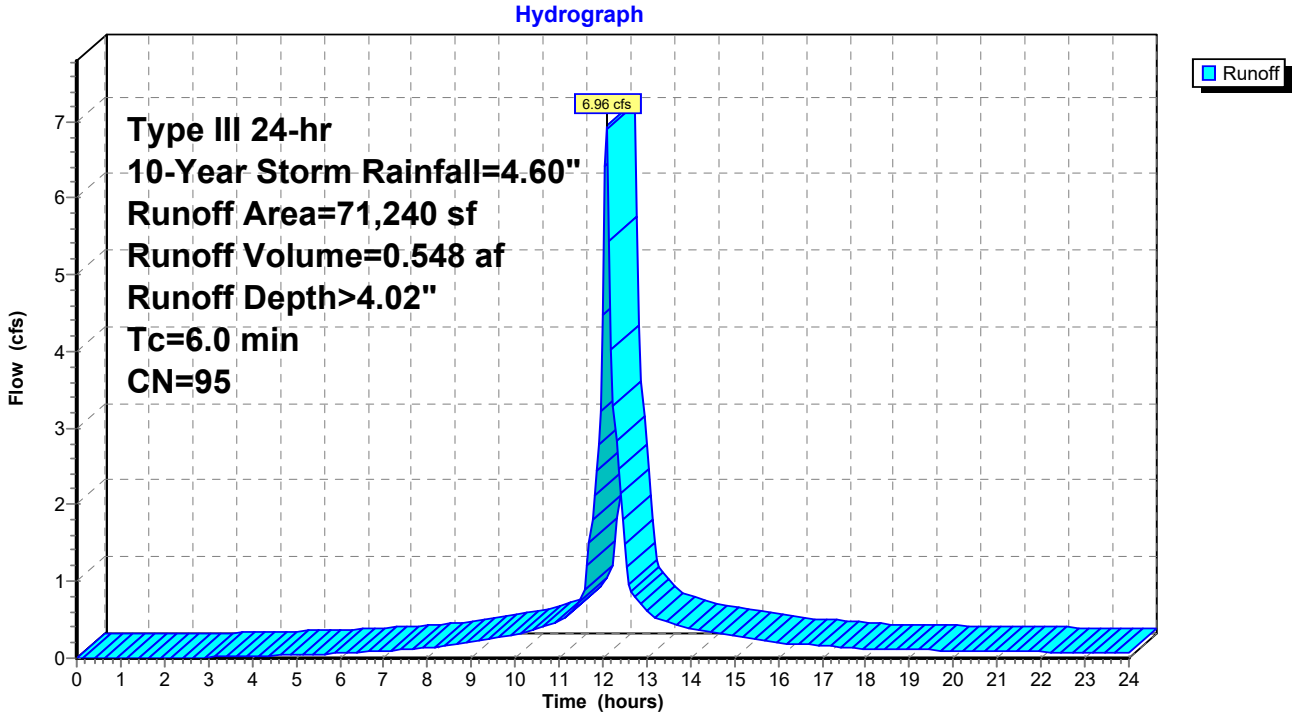
Runoff = 6.96 cfs @ 12.09 hrs, Volume= 0.548 af, Depth> 4.02"
Routed to Pond 13P : DMH-13 (Outfall #2)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	60,220	98	Roof
	11,020	80	>75% Grass cover, Good, HSG D
	71,240	95	Weighted Average
	11,020		15.47% Pervious Area
	60,220		84.53% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 22S: Block 6 Building



Summary for Subcatchment 23S: Block 5 - Interim Parking

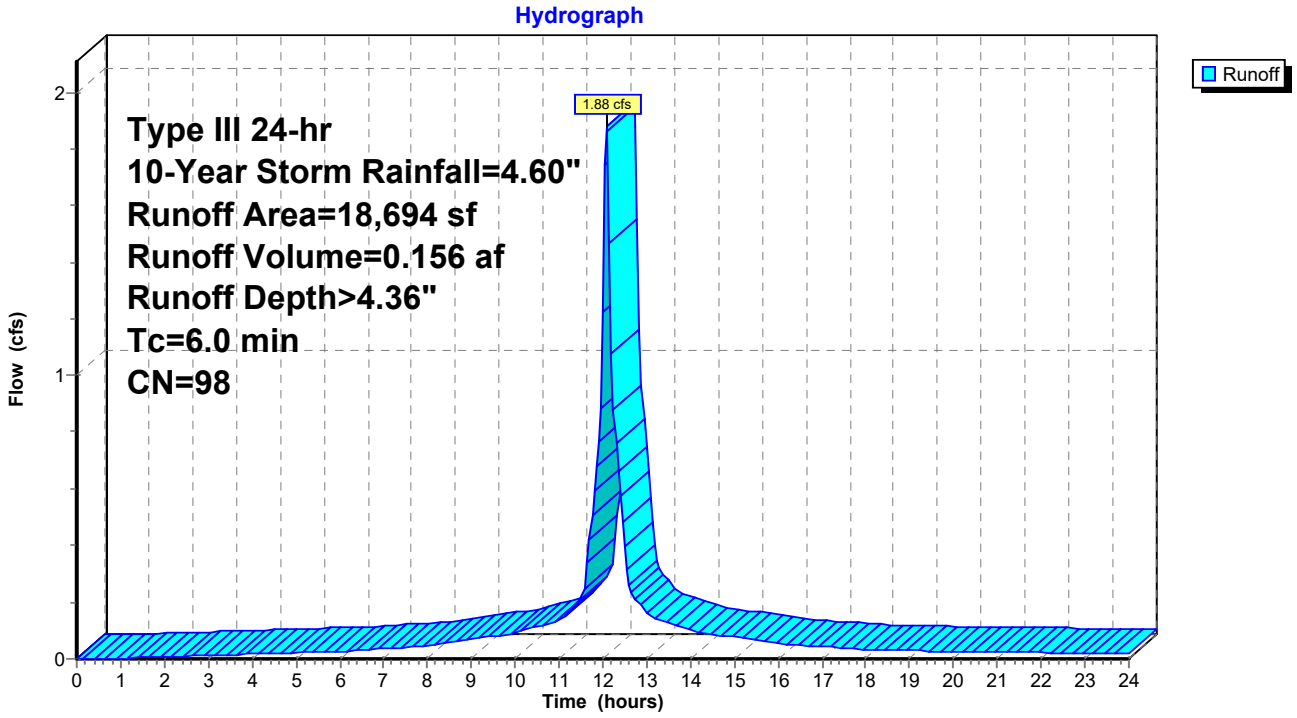
Runoff = 1.88 cfs @ 12.09 hrs, Volume= 0.156 af, Depth> 4.36"
Routed to Pond 24P : Filterra 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	18,694	98	Impervious
	18,694		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 23S: Block 5 - Interim Parking



Summary for Subcatchment 24S: Block 5 - Interim Parking

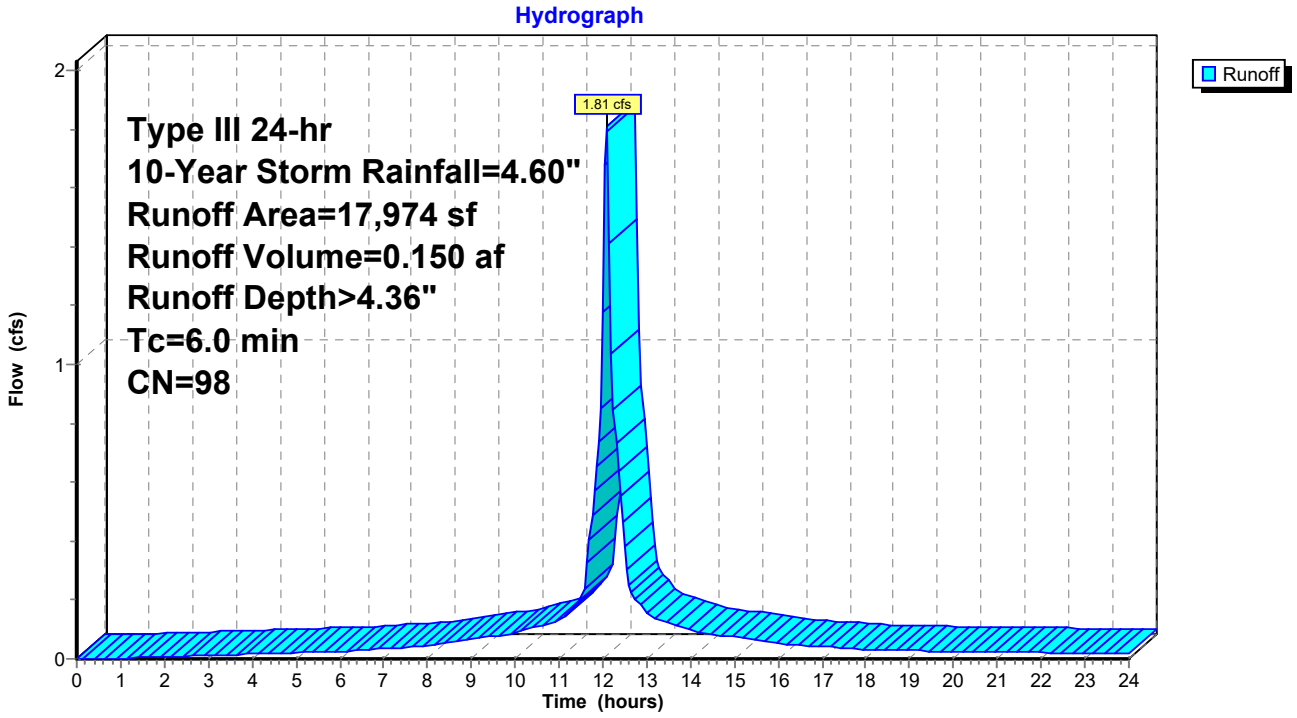
Runoff = 1.81 cfs @ 12.09 hrs, Volume= 0.150 af, Depth> 4.36"
Routed to Pond 28P : Filterra 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	17,974	98	Impervious
	17,974		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 24S: Block 5 - Interim Parking



Summary for Subcatchment 25S: Waterfront

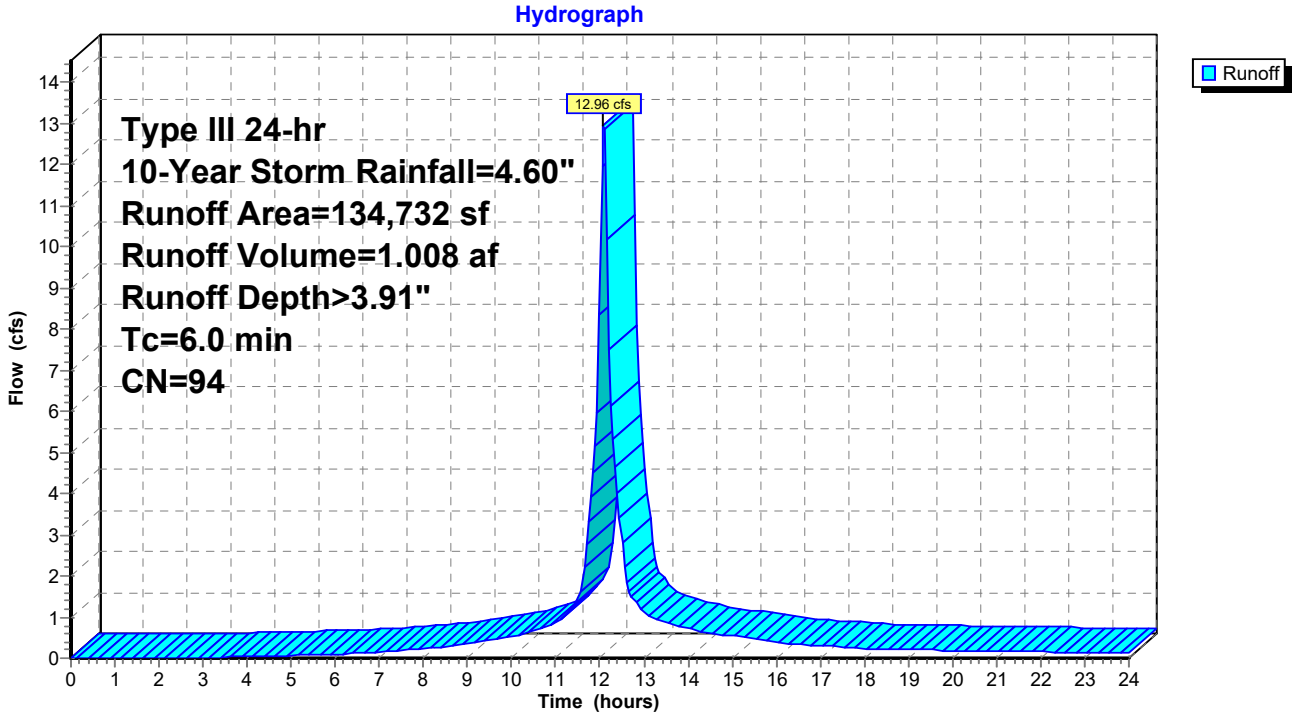
Runoff = 12.96 cfs @ 12.09 hrs, Volume= 1.008 af, Depth> 3.91"
Routed to Link 2L : Fore River

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	104,324	98	Impervious
	30,408	80	>75% Grass cover, Good, HSG D
	134,732	94	Weighted Average
	30,408		22.57% Pervious Area
	104,324		77.43% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 25S: Waterfront



Summary for Subcatchment 26S: Plaza along Townhouse at Fore Street

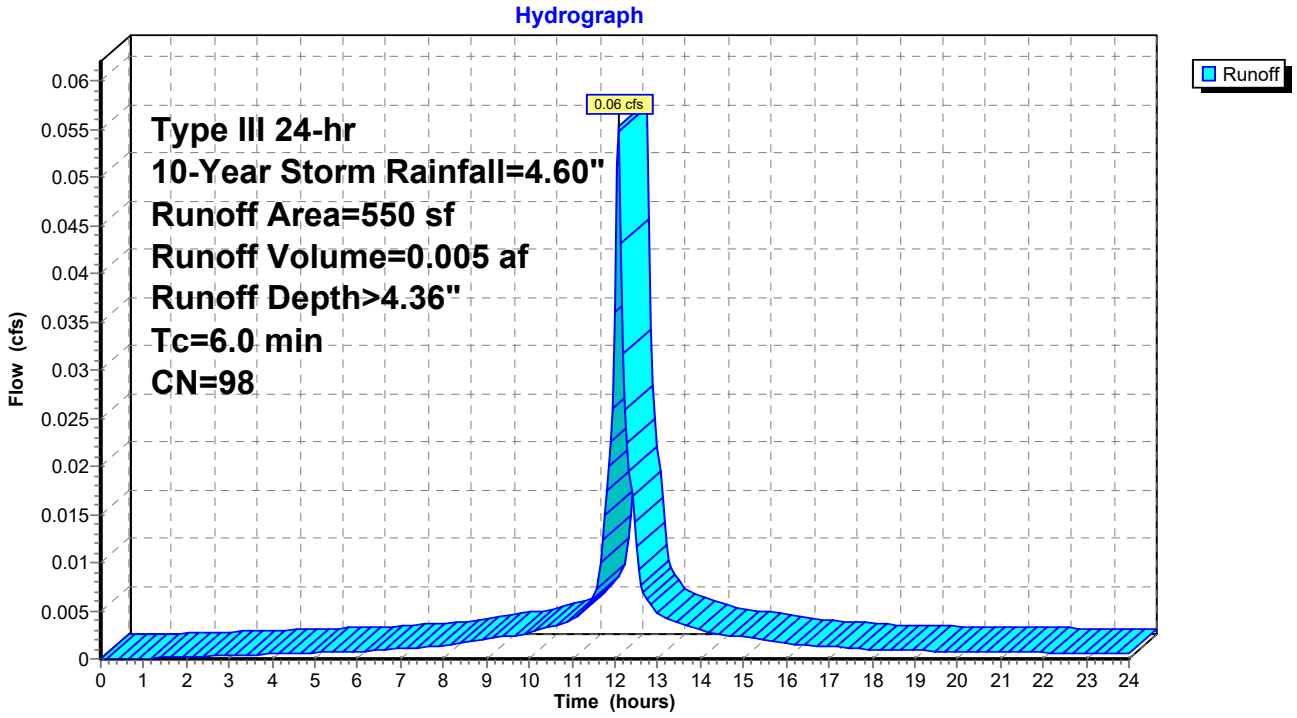
Runoff = 0.06 cfs @ 12.09 hrs, Volume= 0.005 af, Depth> 4.36"
Routed to Link 3L : Fore Street

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	550	98	Impervious
	550		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 26S: Plaza along Townhouse at Fore Street



Summary for Subcatchment 27S: Drainage from off-site residential

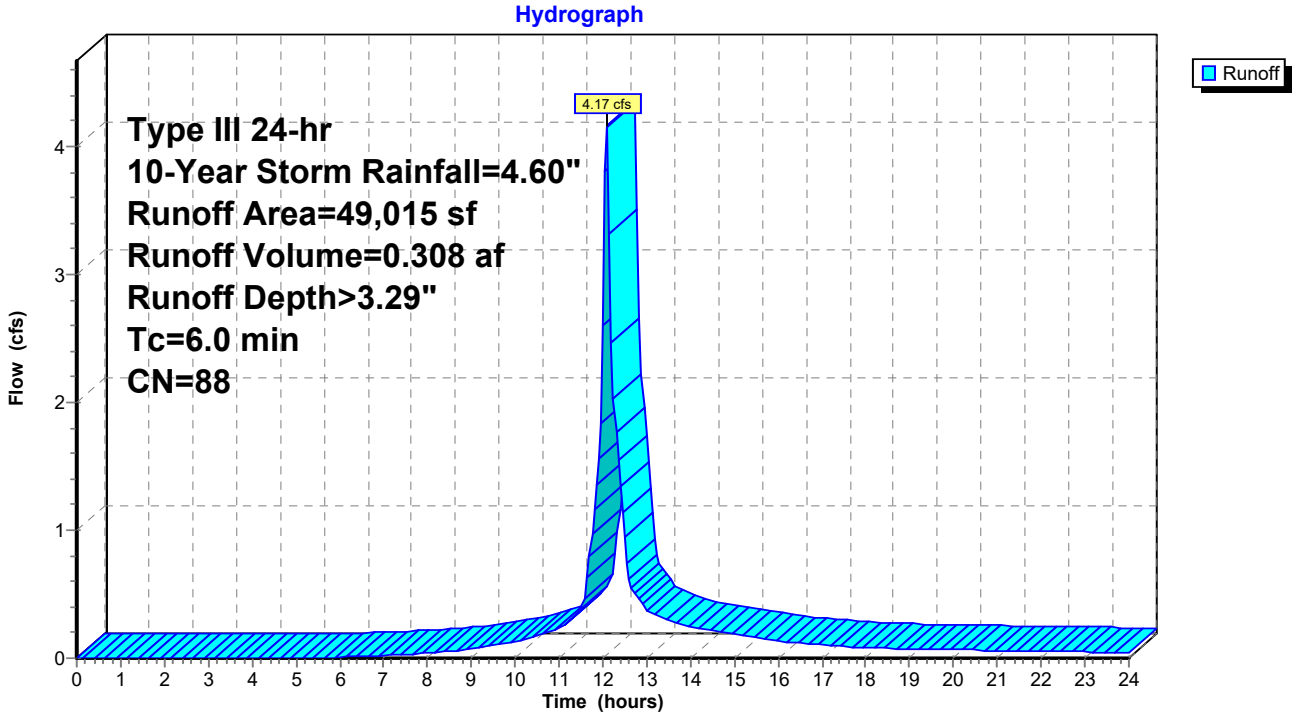
Runoff = 4.17 cfs @ 12.09 hrs, Volume= 0.308 af, Depth> 3.29"
Routed to Pond 13P : DMH-13 (Outfall #2)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	21,465	98	Impervious
	27,550	80	>75% Grass cover, Good, HSG D
	49,015	88	Weighted Average
	27,550		56.21% Pervious Area
	21,465		43.79% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 27S: Drainage from off-site residential



Summary for Pond 1P: DMH 1

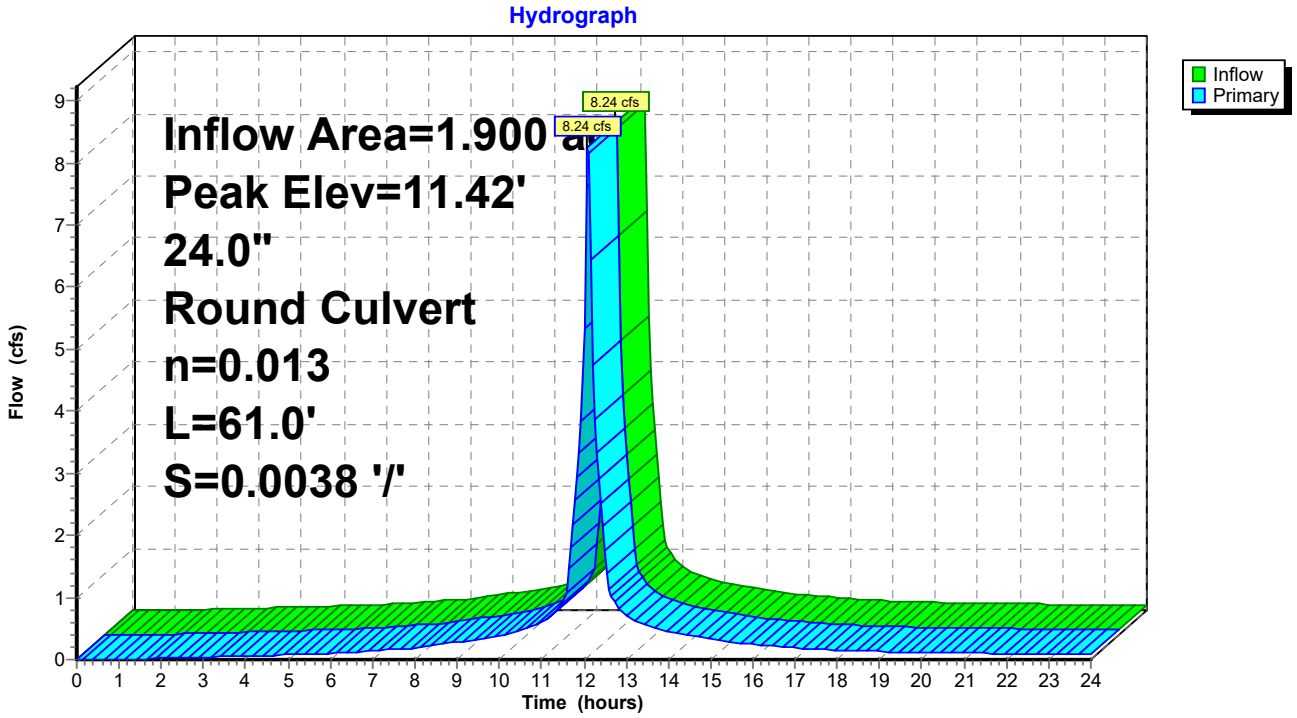
Inflow Area = 1.900 ac, 93.68% Impervious, Inflow Depth > 4.23" for 10-Year Storm event
Inflow = 8.24 cfs @ 12.09 hrs, Volume= 0.669 af
Outflow = 8.24 cfs @ 12.09 hrs, Volume= 0.669 af, Atten= 0%, Lag= 0.0 min
Primary = 8.24 cfs @ 12.09 hrs, Volume= 0.669 af
Routed to Pond 2P : DMH 2

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 11.42' @ 12.09 hrs
Flood Elev= 14.71'

Device	Routing	Invert	Outlet Devices
#1	Primary	9.77'	**24.0" Round Culvert** L= 61.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 9.77' / 9.54' S= 0.0038 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=8.02 cfs @ 12.09 hrs HW=11.39' (Free Discharge)
1=Culvert (Barrel Controls 8.02 cfs @ 4.00 fps)

Pond 1P: DMH 1



Summary for Pond 2P: DMH 2

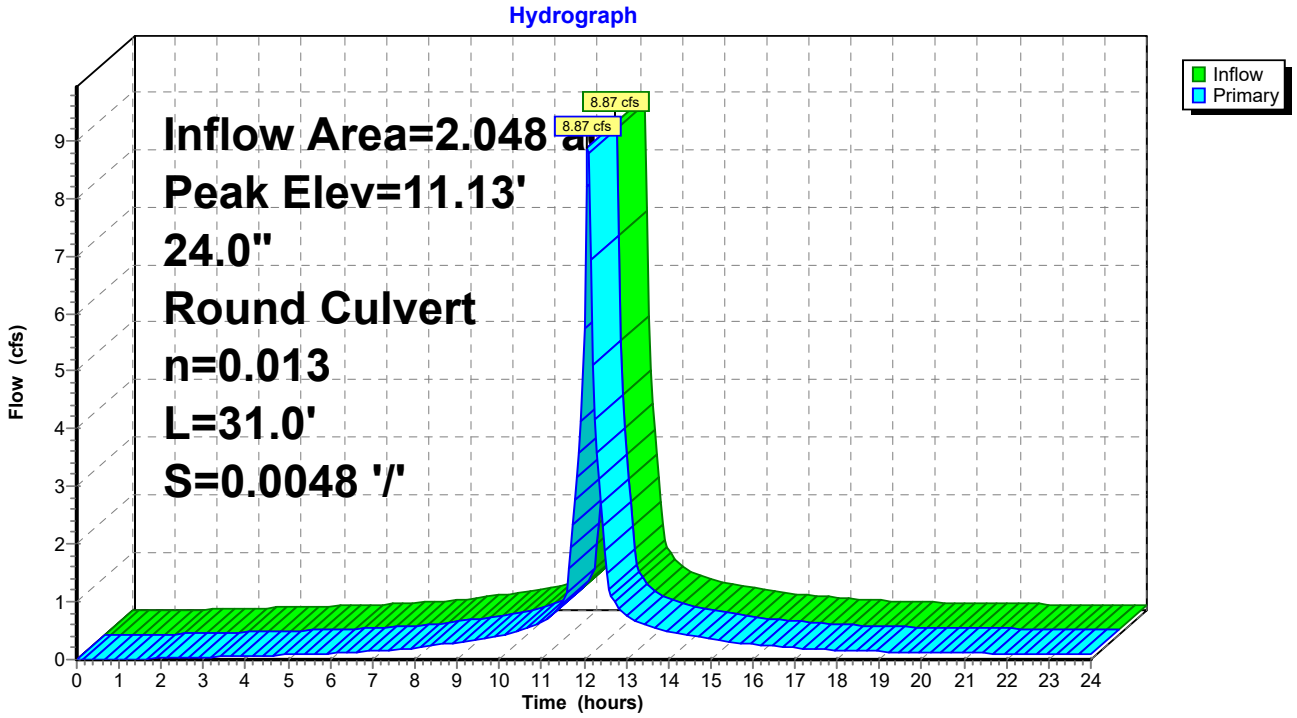
Inflow Area = 2.048 ac, 93.15% Impervious, Inflow Depth > 4.22" for 10-Year Storm event
Inflow = 8.87 cfs @ 12.09 hrs, Volume= 0.719 af
Outflow = 8.87 cfs @ 12.09 hrs, Volume= 0.719 af, Atten= 0%, Lag= 0.0 min
Primary = 8.87 cfs @ 12.09 hrs, Volume= 0.719 af
Routed to Pond 3P : Storm Structure

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 11.13' @ 12.09 hrs
Flood Elev= 14.63'

Device	Routing	Invert	Outlet Devices
#1	Primary	9.50'	**24.0" Round Culvert** L= 31.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 9.50' / 9.35' S= 0.0048 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=8.63 cfs @ 12.09 hrs HW=11.10' (Free Discharge)
1=Culvert (Barrel Controls 8.63 cfs @ 4.39 fps)

Pond 2P: DMH 2



Summary for Pond 3P: Storm Structure

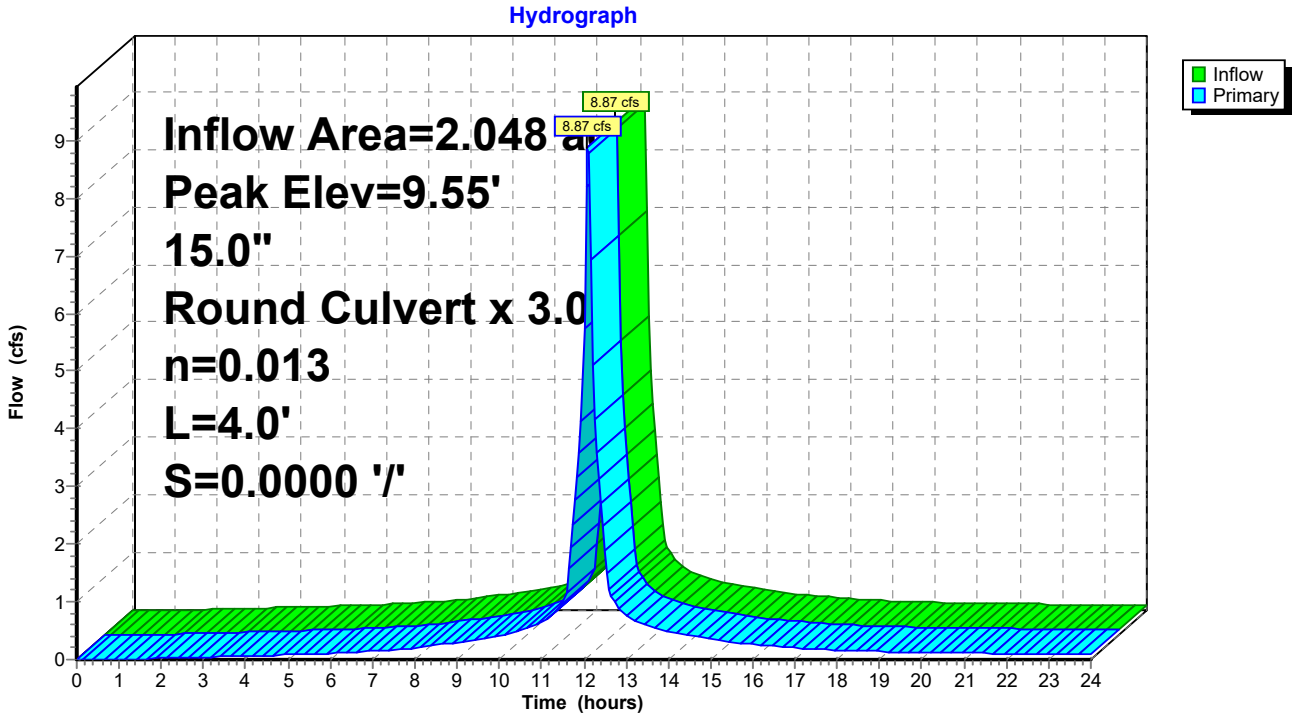
Inflow Area = 2.048 ac, 93.15% Impervious, Inflow Depth > 4.22" for 10-Year Storm event
Inflow = 8.87 cfs @ 12.09 hrs, Volume= 0.719 af
Outflow = 8.87 cfs @ 12.09 hrs, Volume= 0.719 af, Atten= 0%, Lag= 0.0 min
Primary = 8.87 cfs @ 12.09 hrs, Volume= 0.719 af
Routed to Pond 4P : R-Tank 1

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 9.55' @ 12.09 hrs
Flood Elev= 14.51'

Device	Routing	Invert	Outlet Devices
#1	Primary	8.35'	**15.0" Round Culvert X 3.00** L= 4.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 8.35' / 8.35' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=8.63 cfs @ 12.09 hrs HW=9.53' (Free Discharge)
1=Culvert (Barrel Controls 8.63 cfs @ 3.10 fps)

Pond 3P: Storm Structure



Summary for Pond 4P: R-Tank 1

Inflow Area = 2.048 ac, 93.15% Impervious, Inflow Depth > 4.22" for 10-Year Storm event
Inflow = 8.87 cfs @ 12.09 hrs, Volume= 0.719 af
Outflow = 7.96 cfs @ 12.13 hrs, Volume= 0.712 af, Atten= 10%, Lag= 2.4 min
Primary = 7.96 cfs @ 12.13 hrs, Volume= 0.712 af
Routed to Pond 10P : DMH 4

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 8.80' @ 12.13 hrs Surf.Area= 1,162 sf Storage= 2,068 cf
Flood Elev= 12.00' Surf.Area= 1,162 sf Storage= 3,266 cf

Plug-Flow detention time= 18.9 min calculated for 0.712 af (99% of inflow)
Center-of-Mass det. time= 12.0 min (769.7 - 757.7)

Volume	Invert	Avail.Storage	Storage Description
#1	6.50'	892 cf	**Stone Envelope (Prismatic)** Listed below (Recalc) 4,729 cf Overall - 2,499 cf Embedded = 2,231 cf x 40.0% Voids
#2	6.75'	2,374 cf	**R-Tank Double Modules (Prismatic)** Listed below (Recalc) Inside #1 2,499 cf Overall x 95.0% Voids
		3,266 cf	Total Available Storage

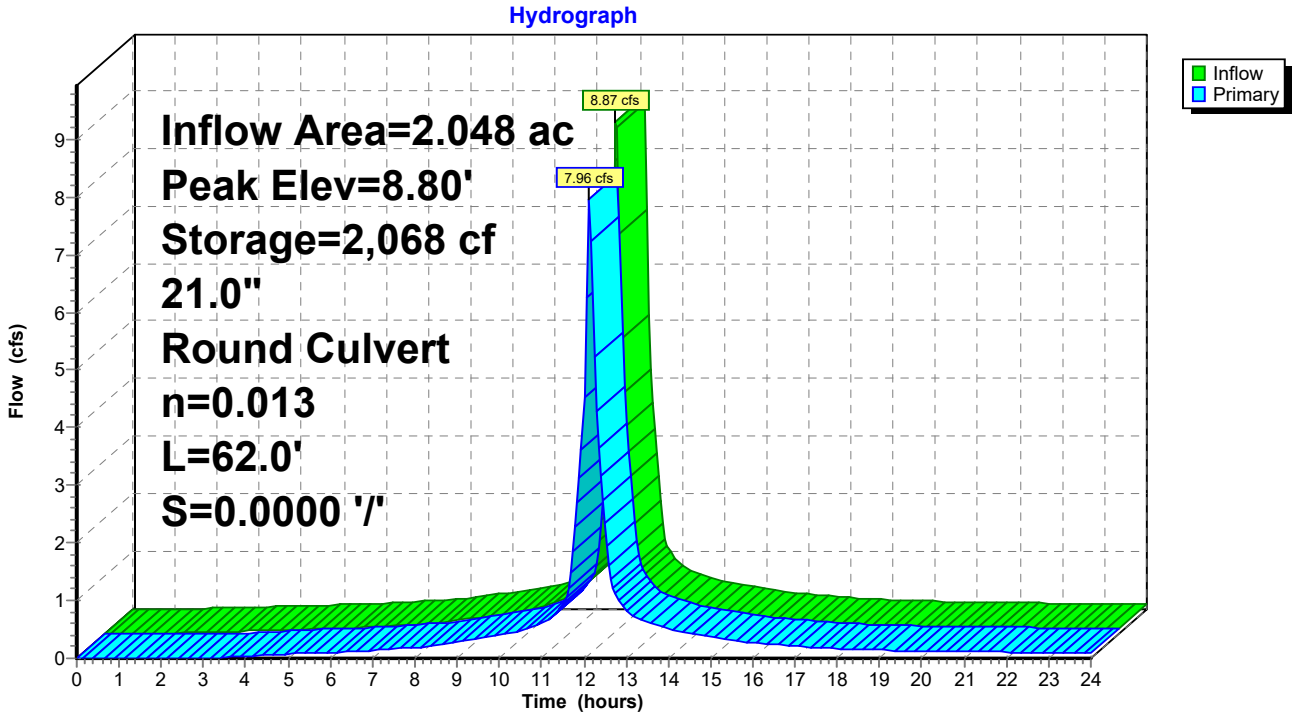
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
6.50	1,162	0	0
10.57	1,162	4,729	4,729

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
6.75	886	0	0
9.57	886	2,499	2,499

Device	Routing	Invert	Outlet Devices
#1	Primary	6.75'	**21.0" Round Culvert to Filter** L= 62.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 6.75' / 6.75' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 2.41 sf

Primary OutFlow Max=7.80 cfs @ 12.13 hrs HW=8.77' (Free Discharge)
↑—**1=Culvert to Filter** (Barrel Controls 7.80 cfs @ 3.53 fps)

Pond 4P: R-Tank 1



Summary for Pond 5P: DMH-11

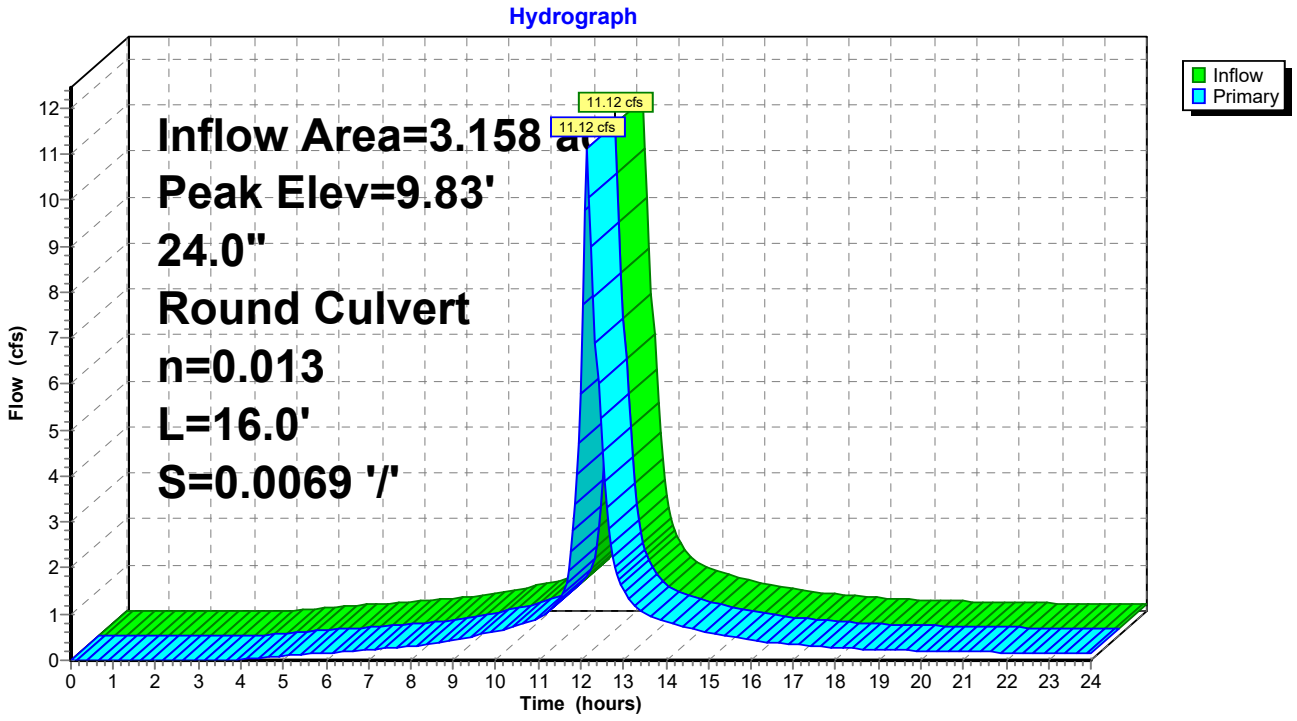
Inflow Area = 3.158 ac, 99.40% Impervious, Inflow Depth > 4.25" for 10-Year Storm event
Inflow = 11.12 cfs @ 12.15 hrs, Volume= 1.120 af
Outflow = 11.12 cfs @ 12.15 hrs, Volume= 1.120 af, Atten= 0%, Lag= 0.0 min
Primary = 11.12 cfs @ 12.15 hrs, Volume= 1.120 af
Routed to Pond 12P : Jellyfish 2 JFPD0806-7-2

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 9.83' @ 12.15 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	7.82'	**24.0" Round Culvert** L= 16.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 7.82' / 7.71' S= 0.0069 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=11.06 cfs @ 12.15 hrs HW=9.82' (Free Discharge)
1=Culvert (Barrel Controls 11.06 cfs @ 4.37 fps)

Pond 5P: DMH-11



Summary for Pond 6P: CB27

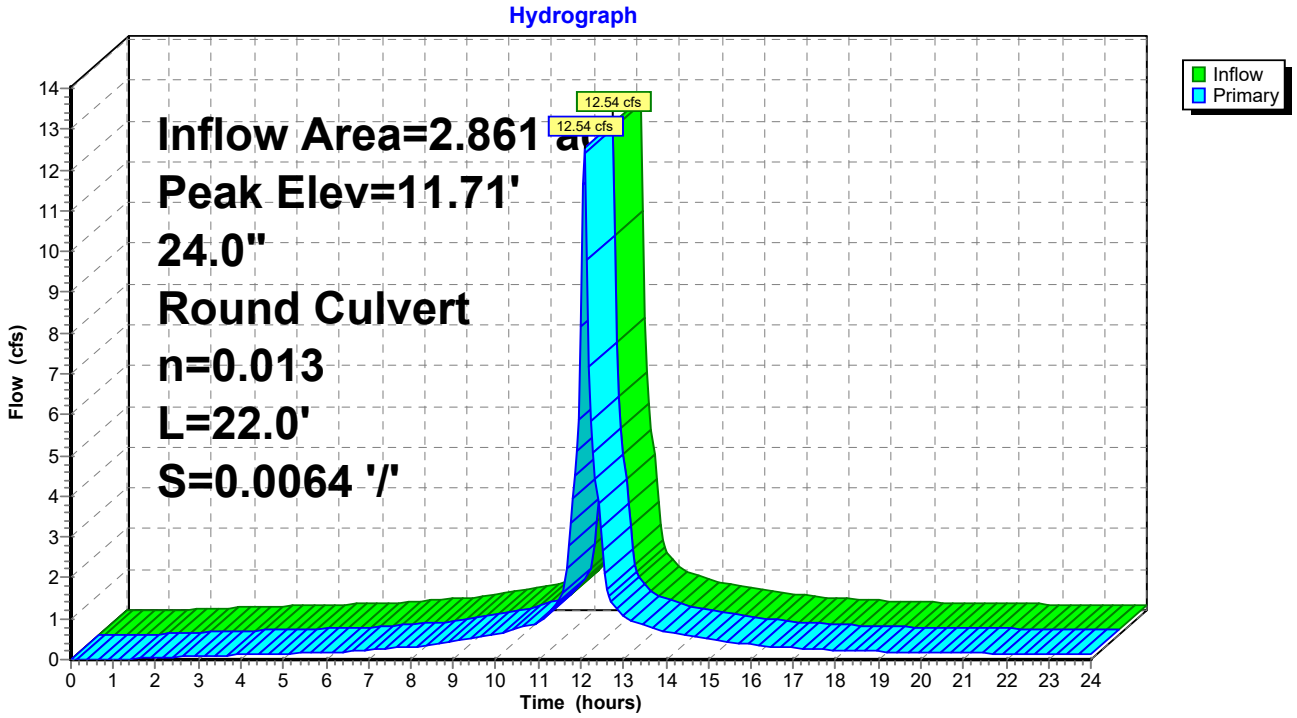
Inflow Area = 2.861 ac, 99.33% Impervious, Inflow Depth > 4.34" for 10-Year Storm event
Inflow = 12.54 cfs @ 12.09 hrs, Volume= 1.036 af
Outflow = 12.54 cfs @ 12.09 hrs, Volume= 1.036 af, Atten= 0%, Lag= 0.0 min
Primary = 12.54 cfs @ 12.09 hrs, Volume= 1.036 af
Routed to Pond 7P : Storm Structure

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 11.71' @ 12.09 hrs
Flood Elev= 14.57'

Device	Routing	Invert	Outlet Devices
#1	Primary	9.53'	**24.0" Round Culvert** L= 22.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 9.53' / 9.39' S= 0.0064 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=12.21 cfs @ 12.09 hrs HW=11.66' (Free Discharge)
1=Culvert (Barrel Controls 12.21 cfs @ 4.53 fps)

Pond 6P: CB27



Summary for Pond 7P: Storm Structure

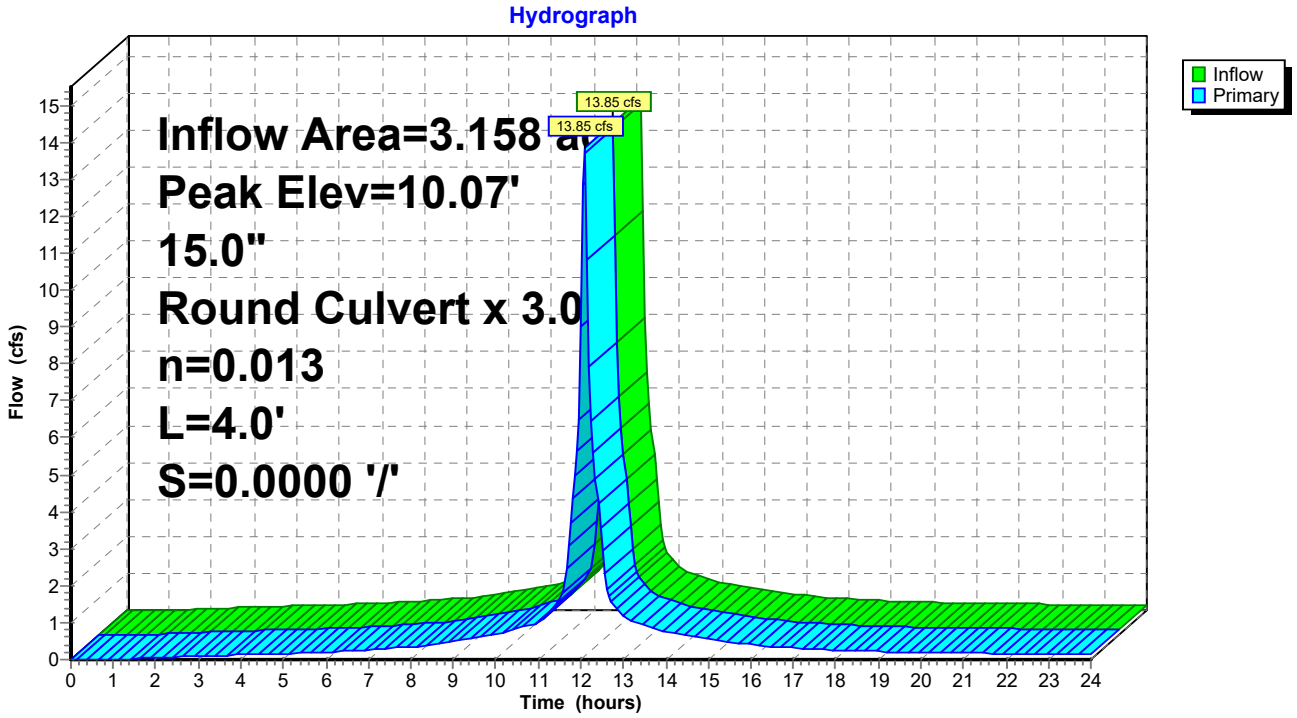
Inflow Area = 3.158 ac, 99.40% Impervious, Inflow Depth > 4.35" for 10-Year Storm event
Inflow = 13.85 cfs @ 12.09 hrs, Volume= 1.144 af
Outflow = 13.85 cfs @ 12.09 hrs, Volume= 1.144 af, Atten= 0%, Lag= 0.0 min
Primary = 13.85 cfs @ 12.09 hrs, Volume= 1.144 af
Routed to Pond 8P : R-Tank 2

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 10.07' @ 12.09 hrs
Flood Elev= 14.25'

Device	Routing	Invert	Outlet Devices
#1	Primary	8.39'	**15.0" Round Culvert X 3.00** L= 4.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 8.39' / 8.39' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=13.40 cfs @ 12.09 hrs HW=10.03' (Free Discharge)
1=Culvert (Barrel Controls 13.40 cfs @ 3.65 fps)

Pond 7P: Storm Structure



Summary for Pond 8P: R-Tank 2

Inflow Area = 3.158 ac, 99.40% Impervious, Inflow Depth > 4.35" for 10-Year Storm event
Inflow = 13.85 cfs @ 12.09 hrs, Volume= 1.144 af
Outflow = 11.12 cfs @ 12.15 hrs, Volume= 1.120 af, Atten= 20%, Lag= 4.0 min
Primary = 11.12 cfs @ 12.15 hrs, Volume= 1.120 af
Routed to Pond 5P : DMH-11

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 10.15' @ 12.15 hrs Surf.Area= 3,128 sf Storage= 6,429 cf
Flood Elev= 12.71' Surf.Area= 3,128 sf Storage= 8,290 cf

Plug-Flow detention time= 38.3 min calculated for 1.120 af (98% of inflow)
Center-of-Mass det. time= 24.8 min (774.7 - 749.9)

Volume	Invert	Avail.Storage	Storage Description
#1	7.57'	2,767 cf	**Stone Envelope (Prismatic)** Listed below (Recalc) 12,731 cf Overall - 5,813 cf Embedded = 6,918 cf x 40.0% Voids
#2	7.82'	5,523 cf	**R-Tank Double Modules (Prismatic)** Listed below (Recalc) Inside #1 5,813 cf Overall x 95.0% Voids
		8,290 cf	Total Available Storage

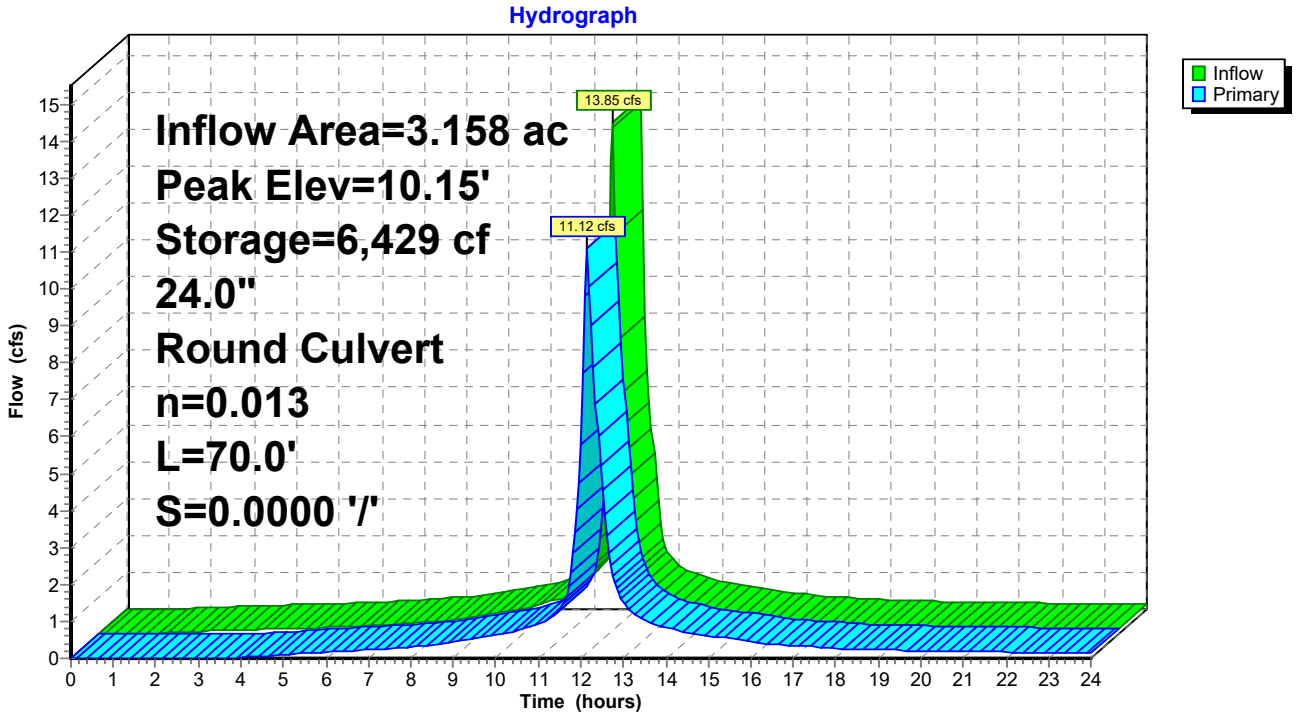
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
7.57	3,128	0	0
11.64	3,128	12,731	12,731

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
7.82	2,679	0	0
9.99	2,679	5,813	5,813

Device	Routing	Invert	Outlet Devices
#1	Primary	7.82'	**24.0" Round Culvert** L= 70.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 7.82' / 7.82' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=11.06 cfs @ 12.15 hrs HW=10.14' (Free Discharge)
↑—**1=Culvert** (Barrel Controls 11.06 cfs @ 3.81 fps)

Pond 8P: R-Tank 2



Summary for Pond 9P: DMH-8 (Outfall #1)

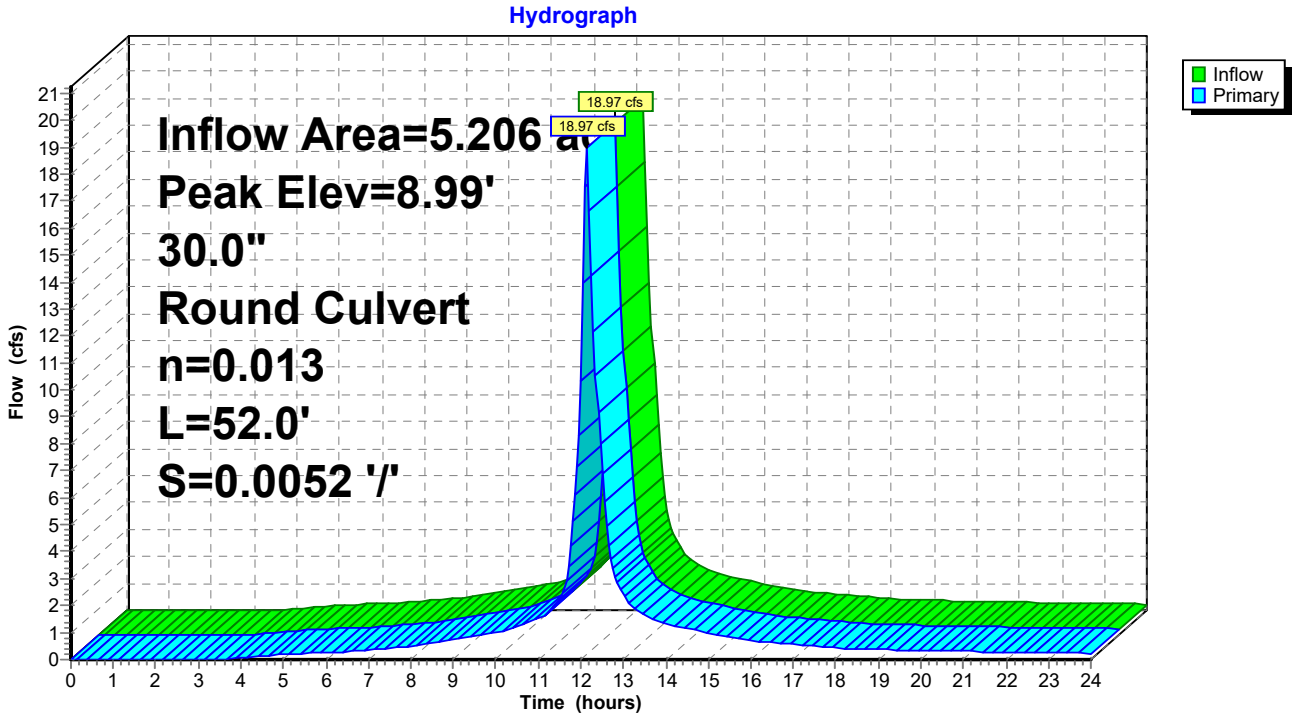
Inflow Area = 5.206 ac, 96.94% Impervious, Inflow Depth > 4.22" for 10-Year Storm event
Inflow = 18.97 cfs @ 12.14 hrs, Volume= 1.831 af
Outflow = 18.97 cfs @ 12.14 hrs, Volume= 1.831 af, Atten= 0%, Lag= 0.0 min
Primary = 18.97 cfs @ 12.14 hrs, Volume= 1.831 af
Routed to Link 2L : Fore River

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 8.99' @ 12.14 hrs
Flood Elev= 11.78'

Device	Routing	Invert	Outlet Devices
#1	Primary	6.57'	**30.0" Round Culvert** L= 52.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 6.57' / 6.30' S= 0.0052 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 4.91 sf

Primary OutFlow Max=18.77 cfs @ 12.14 hrs HW=8.97' (Free Discharge)
1=Culvert (Barrel Controls 18.77 cfs @ 4.96 fps)

Pond 9P: DMH-8 (Outfall #1)



Summary for Pond 10P: DMH 4

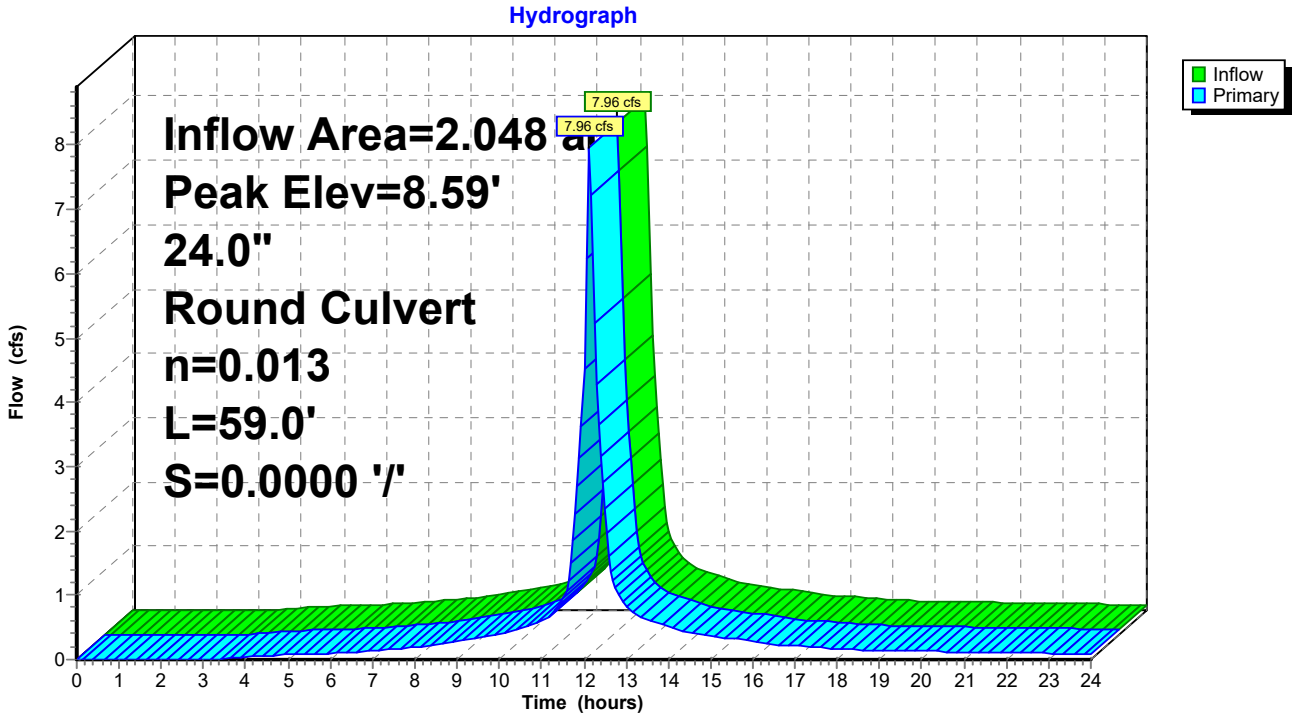
Inflow Area = 2.048 ac, 93.15% Impervious, Inflow Depth > 4.17" for 10-Year Storm event
Inflow = 7.96 cfs @ 12.13 hrs, Volume= 0.712 af
Outflow = 7.96 cfs @ 12.13 hrs, Volume= 0.712 af, Atten= 0%, Lag= 0.0 min
Primary = 7.96 cfs @ 12.13 hrs, Volume= 0.712 af
Routed to Pond 11P : Jellyfish 1 JFPD0806-4-1

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 8.59' @ 12.13 hrs
Flood Elev= 13.56'

Device	Routing	Invert	Outlet Devices
#1	Primary	6.75'	**24.0" Round Culvert** L= 59.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 6.75' / 6.75' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=7.80 cfs @ 12.13 hrs HW=8.57' (Free Discharge)
1=Culvert (Barrel Controls 7.80 cfs @ 3.42 fps)

Pond 10P: DMH 4



Summary for Pond 11P: Jellyfish 1 JFPD0806-4-1

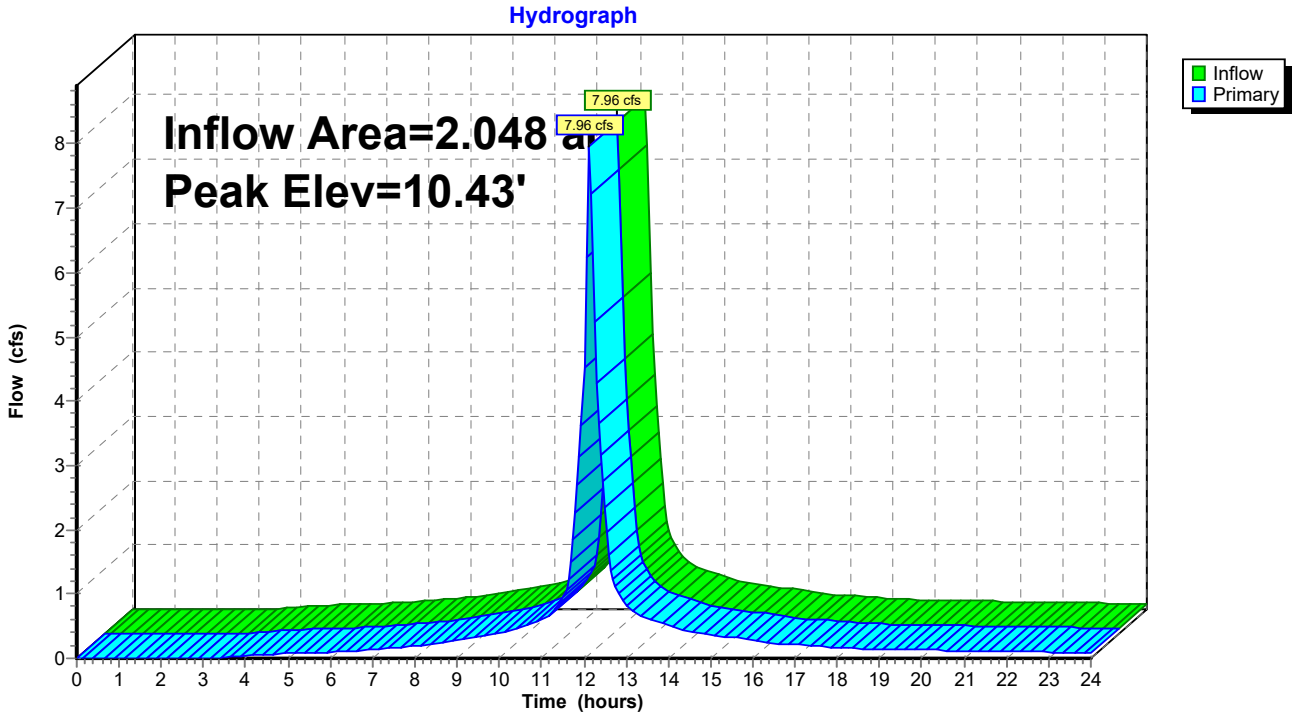
Inflow Area = 2.048 ac, 93.15% Impervious, Inflow Depth > 4.17" for 10-Year Storm event
Inflow = 7.96 cfs @ 12.13 hrs, Volume= 0.712 af
Outflow = 7.96 cfs @ 12.13 hrs, Volume= 0.712 af, Atten= 0%, Lag= 0.0 min
Primary = 7.96 cfs @ 12.13 hrs, Volume= 0.712 af
Routed to Pond 9P : DMH-8 (Outfall #1)

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 10.43' @ 12.13 hrs
Flood Elev= 12.89'

Device	Routing	Invert	Outlet Devices
#1	Primary	6.75'	**24.0" Round Filter Culvert Out** L= 5.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 6.75' / 6.67' S= 0.0160 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Device 1	6.75'	**JF Filter-1 CSV File** Head (feet) 0.00 0.08 0.17 0.25 0.33 0.42 0.50 0.58 0.67 0.75 0.83 0.92 1.00 1.08 1.17 1.25 1.33 1.42 1.50 Disch. (cfs) 0.000 0.010 0.020 0.030 0.040 0.050 0.059 0.129 0.198 0.267 0.337 0.406 0.475 0.545 0.614 0.683 0.753 0.822 0.891
#3	Device 1	9.59'	**2.8' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=7.81 cfs @ 12.13 hrs HW=10.41' (Free Discharge)
└**1=Filter Culvert Out** (Passes 7.81 cfs of 19.49 cfs potential flow)
  ├**2=JF Filter-1 CSV File** (Custom Controls 0.89 cfs)
  └**3=Broad-Crested Rectangular Weir** (Weir Controls 6.92 cfs @ 3.00 fps)

Pond 11P: Jellyfish 1 JFPD0806-4-1



Summary for Pond 12P: Jellyfish 2 JFPD0806-7-2

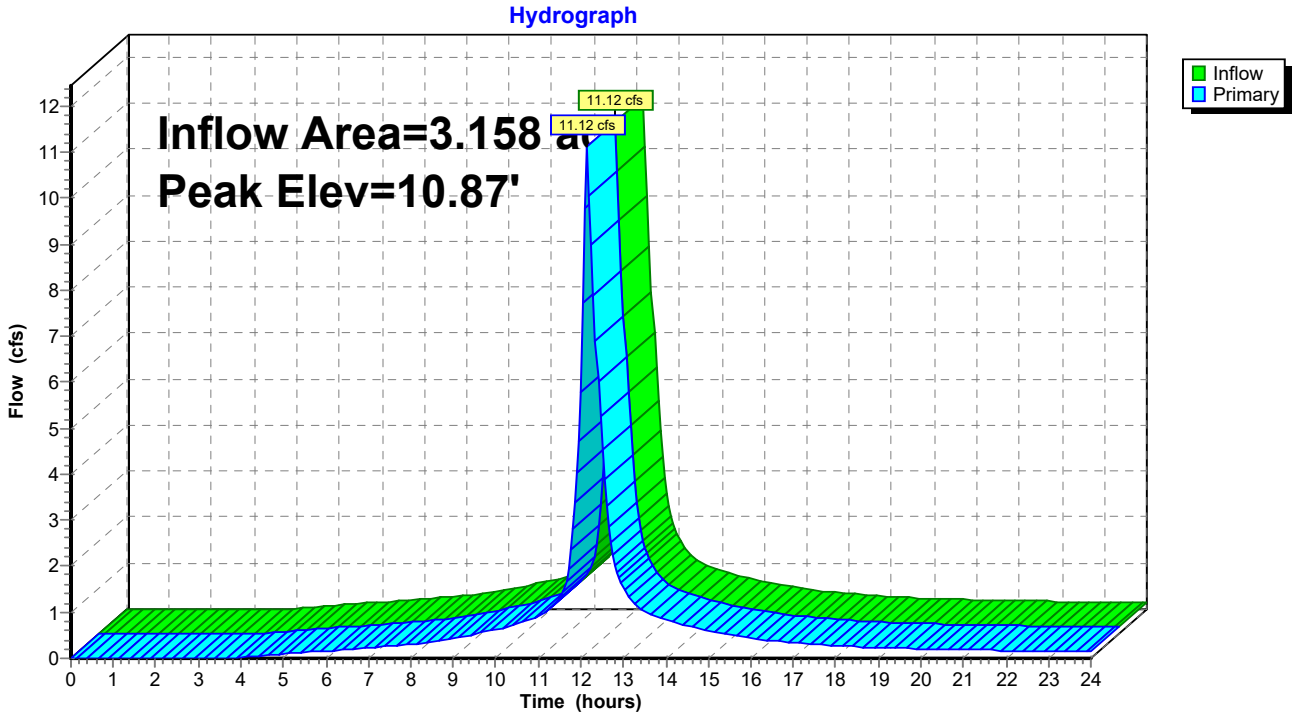
Inflow Area = 3.158 ac, 99.40% Impervious, Inflow Depth > 4.25" for 10-Year Storm event
Inflow = 11.12 cfs @ 12.15 hrs, Volume= 1.120 af
Outflow = 11.12 cfs @ 12.15 hrs, Volume= 1.120 af, Atten= 0%, Lag= 0.0 min
Primary = 11.12 cfs @ 12.15 hrs, Volume= 1.120 af
Routed to Pond 9P : DMH-8 (Outfall #1)

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 10.87' @ 12.15 hrs
Flood Elev= 11.43'

Device	Routing	Invert	Outlet Devices
#1	Primary	7.71'	**24.0" Round Filter Culvert Out** L= 125.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 7.71' / 6.92' S= 0.0063 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Device 1	7.71'	**JF Filter-2 CSV File** Head (feet) 0.00 0.08 0.17 0.25 0.33 0.42 0.50 0.58 0.67 0.75 0.83 0.92 1.00 1.08 1.17 1.25 1.33 1.42 1.50 Disch. (cfs) 0.000 0.010 0.020 0.030 0.040 0.050 0.059 0.173 0.287 0.401 0.515 0.629 0.743 0.857 0.970 1.084 1.198 1.312 1.426
#3	Device 1	9.84'	**2.8' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=11.06 cfs @ 12.15 hrs HW=10.86' (Free Discharge)
└**1=Filter Culvert Out** (Passes 11.06 cfs of 17.53 cfs potential flow)
  ├**2=JF Filter-2 CSV File** (Custom Controls 1.43 cfs)
  └**3=Broad-Crested Rectangular Weir** (Weir Controls 9.63 cfs @ 3.36 fps)

Pond 12P: Jellyfish 2 JFPD0806-7-2



Summary for Pond 13P: DMH-13 (Outfall #2)

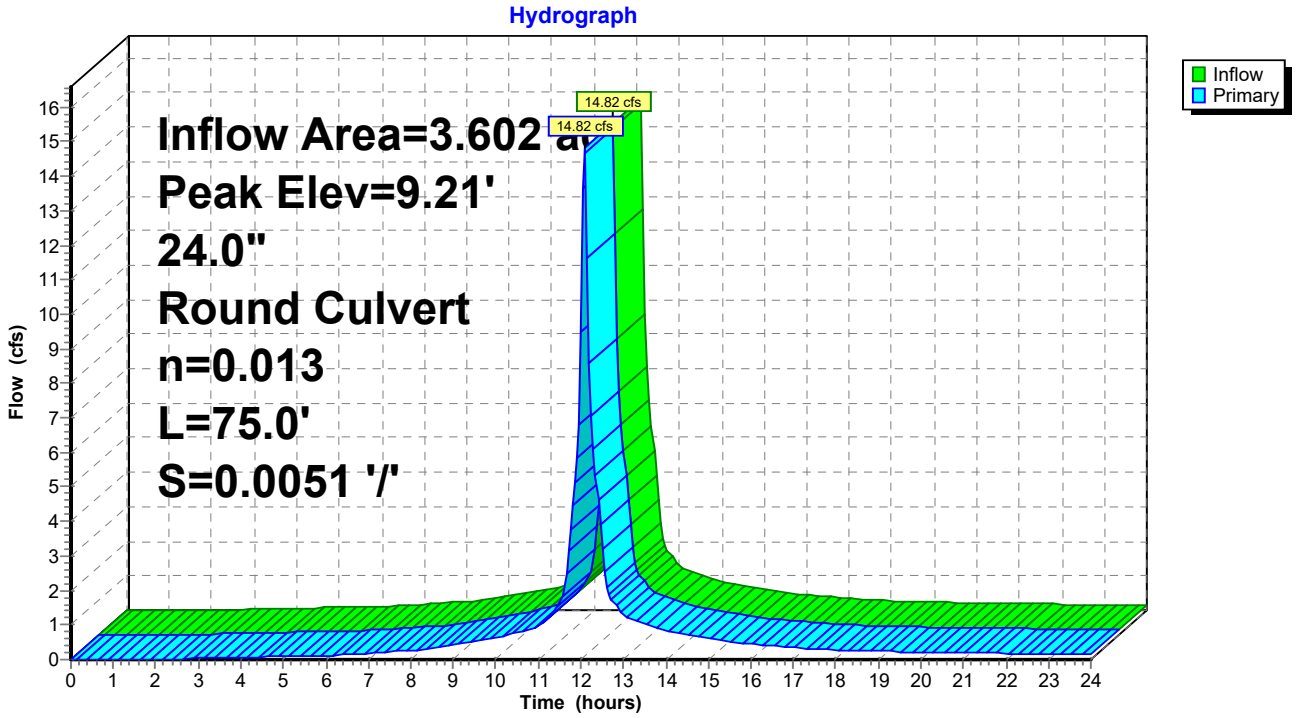
Inflow Area = 3.602 ac, 75.42% Impervious, Inflow Depth > 3.87" for 10-Year Storm event
Inflow = 14.82 cfs @ 12.09 hrs, Volume= 1.162 af
Outflow = 14.82 cfs @ 12.09 hrs, Volume= 1.162 af, Atten= 0%, Lag= 0.0 min
Primary = 14.82 cfs @ 12.09 hrs, Volume= 1.162 af
Routed to Link 2L : Fore River

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 9.21' @ 12.09 hrs
Flood Elev= 11.78'

Device	Routing	Invert	Outlet Devices
#1	Primary	6.68'	**24.0" Round Culvert** L= 75.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 6.68' / 6.30' S= 0.0051 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=14.44 cfs @ 12.09 hrs HW=9.14' (Free Discharge)
1=Culvert (Inlet Controls 14.44 cfs @ 4.60 fps)

Pond 13P: DMH-13 (Outfall #2)



Summary for Pond 24P: Filterra 1

Inflow Area = 0.429 ac,100.00% Impervious, Inflow Depth > 4.36" for 10-Year Storm event
Inflow = 1.88 cfs @ 12.09 hrs, Volume= 0.156 af
Outflow = 1.88 cfs @ 12.09 hrs, Volume= 0.156 af, Atten= 0%, Lag= 0.0 min
Primary = 1.38 cfs @ 12.09 hrs, Volume= 0.152 af
Routed to Pond 27P : CB
Secondary = 0.51 cfs @ 12.09 hrs, Volume= 0.004 af
Routed to Pond 27P : CB

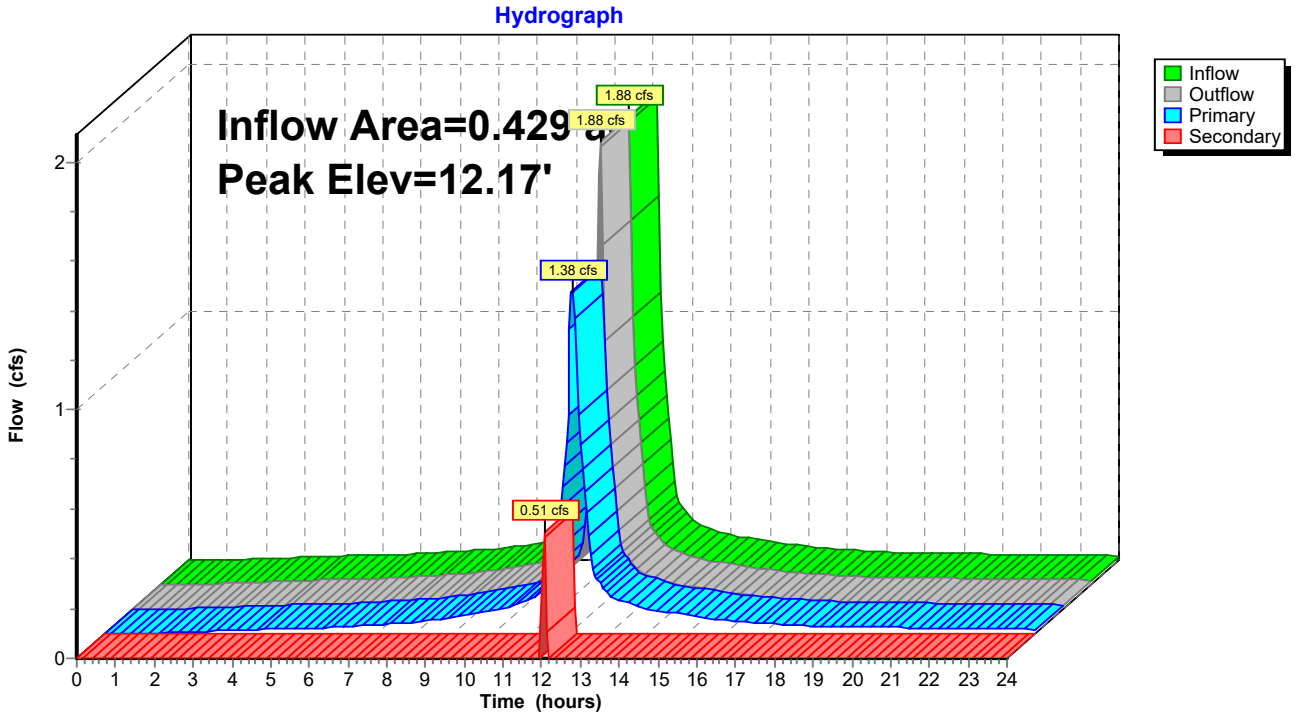
Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 12.17' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	8.51'	**6.0" Round Culvert** L= 4.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 8.51' / 8.48' S= 0.0075 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Secondary	12.05'	**5.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=1.38 cfs @ 12.09 hrs HW=12.16' (Free Discharge)
↑—**1=Culvert** (Inlet Controls 1.38 cfs @ 7.01 fps)

Secondary OutFlow Max=0.45 cfs @ 12.09 hrs HW=12.16' (Free Discharge)
↑—**2=Broad-Crested Rectangular Weir** (Weir Controls 0.45 cfs @ 0.84 fps)

Pond 24P: Filterra 1



Summary for Pond 27P: CB

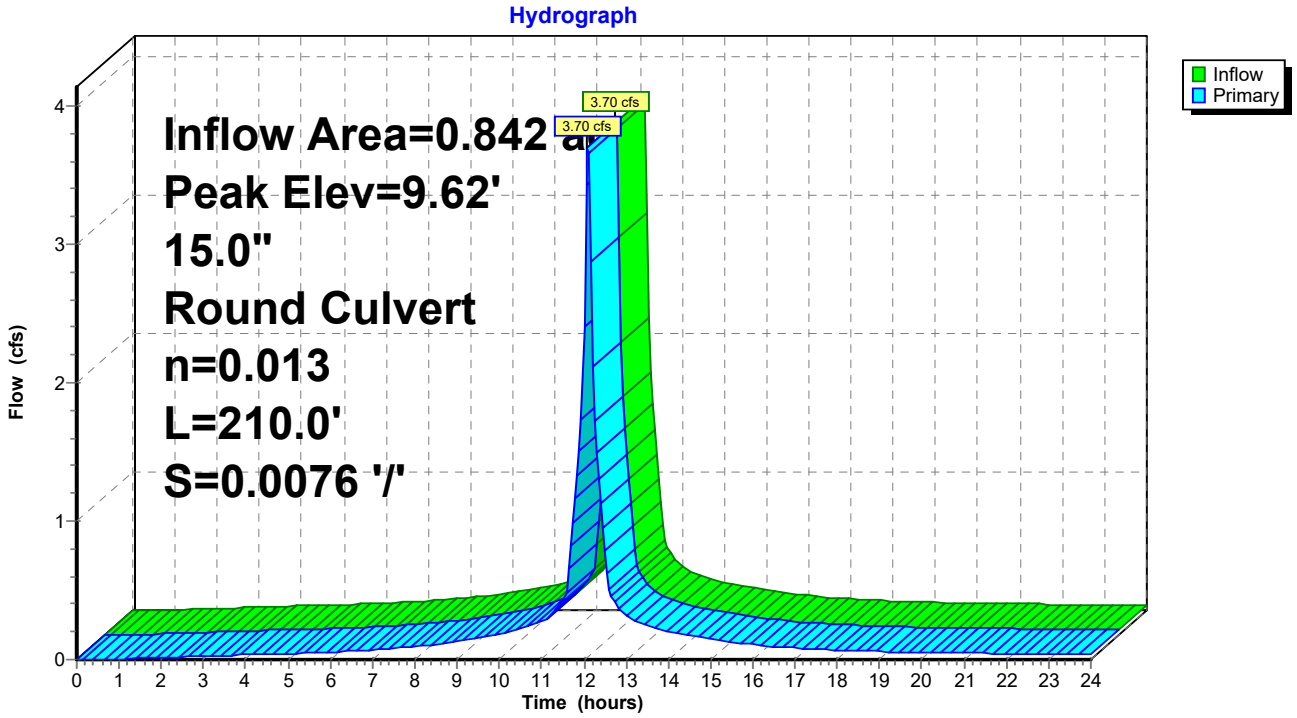
Inflow Area = 0.842 ac,100.00% Impervious, Inflow Depth > 4.36" for 10-Year Storm event
Inflow = 3.70 cfs @ 12.09 hrs, Volume= 0.306 af
Outflow = 3.70 cfs @ 12.09 hrs, Volume= 0.306 af, Atten= 0%, Lag= 0.0 min
Primary = 3.70 cfs @ 12.09 hrs, Volume= 0.306 af
Routed to Pond 13P : DMH-13 (Outfall #2)

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 9.62' @ 12.09 hrs
Flood Elev= 12.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	8.38'	**15.0" Round Culvert** L= 210.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 8.38' / 6.78' S= 0.0076 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=3.60 cfs @ 12.09 hrs HW=9.59' (Free Discharge)
1=Culvert (Inlet Controls 3.60 cfs @ 2.96 fps)

Pond 27P: CB



Summary for Pond 28P: Filterra 2

Inflow Area = 0.413 ac,100.00% Impervious, Inflow Depth > 4.36" for 10-Year Storm event
Inflow = 1.81 cfs @ 12.09 hrs, Volume= 0.150 af
Outflow = 1.81 cfs @ 12.09 hrs, Volume= 0.150 af, Atten= 0%, Lag= 0.0 min
Primary = 1.38 cfs @ 12.08 hrs, Volume= 0.147 af
Routed to Pond 27P : CB
Secondary = 0.44 cfs @ 12.09 hrs, Volume= 0.003 af
Routed to Pond 27P : CB

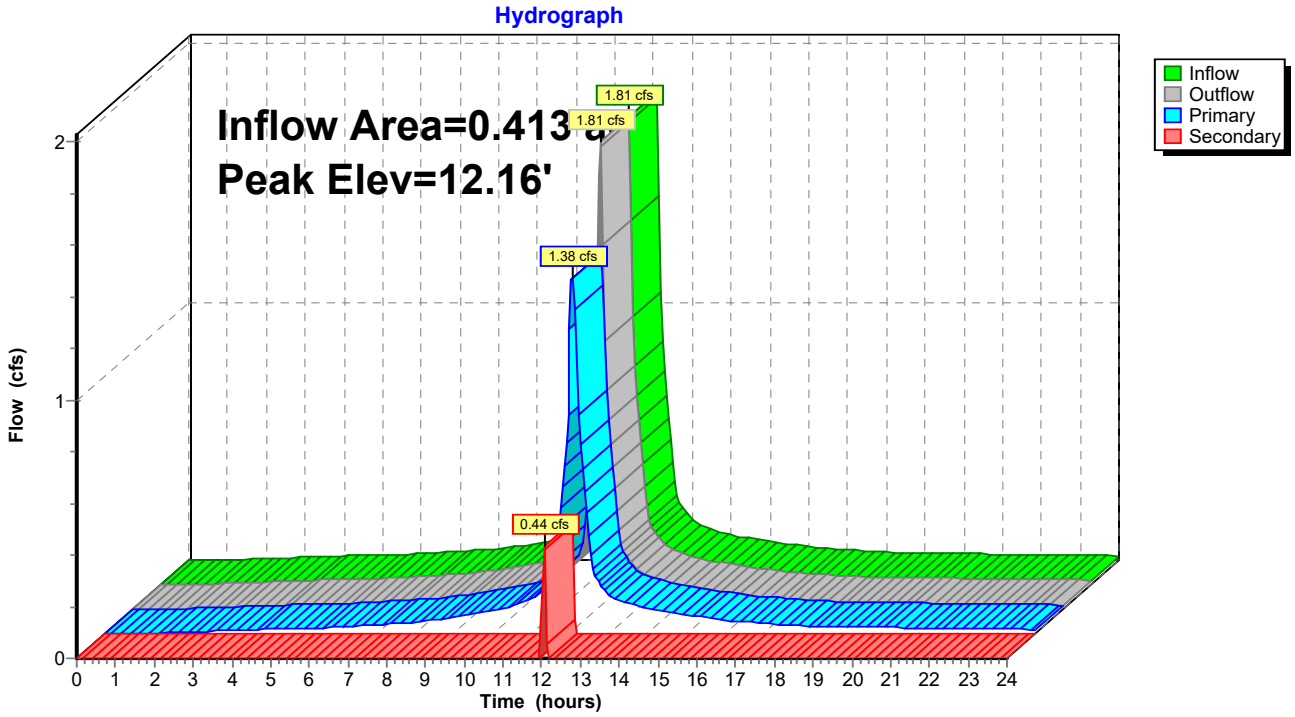
Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 12.16' @ 12.08 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	8.51'	**6.0" Round Culvert** L= 4.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 8.51' / 8.48' S= 0.0075 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Secondary	12.05'	**5.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=1.37 cfs @ 12.08 hrs HW=12.15' (Free Discharge)
└**1=Culvert** (Inlet Controls 1.37 cfs @ 7.00 fps)

Secondary OutFlow Max=0.39 cfs @ 12.09 hrs HW=12.15' (Free Discharge)
└**2=Broad-Crested Rectangular Weir** (Weir Controls 0.39 cfs @ 0.79 fps)

Pond 28P: Filterra 2

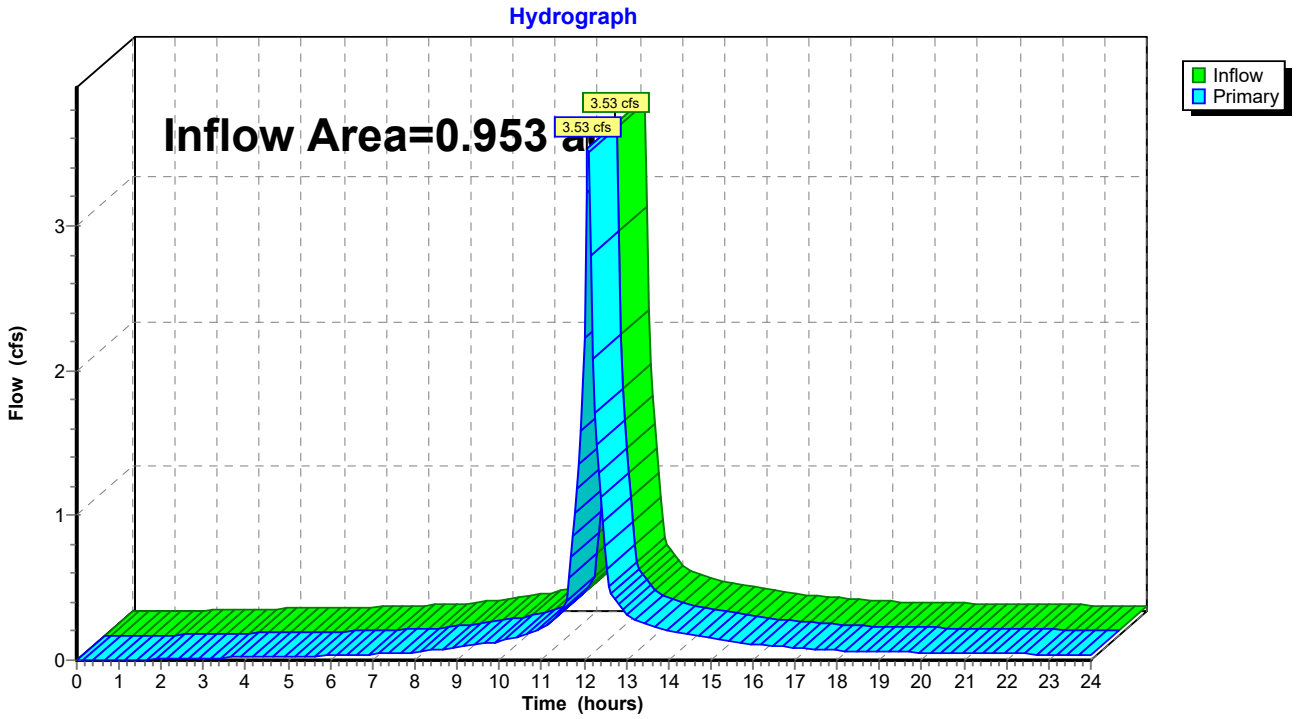


Summary for Link 1L: Freedom Way

Inflow Area = 0.953 ac, 53.78% Impervious, Inflow Depth > 3.51" for 10-Year Storm event
Inflow = 3.53 cfs @ 12.09 hrs, Volume= 0.279 af
Primary = 3.53 cfs @ 12.09 hrs, Volume= 0.279 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 1L: Freedom Way

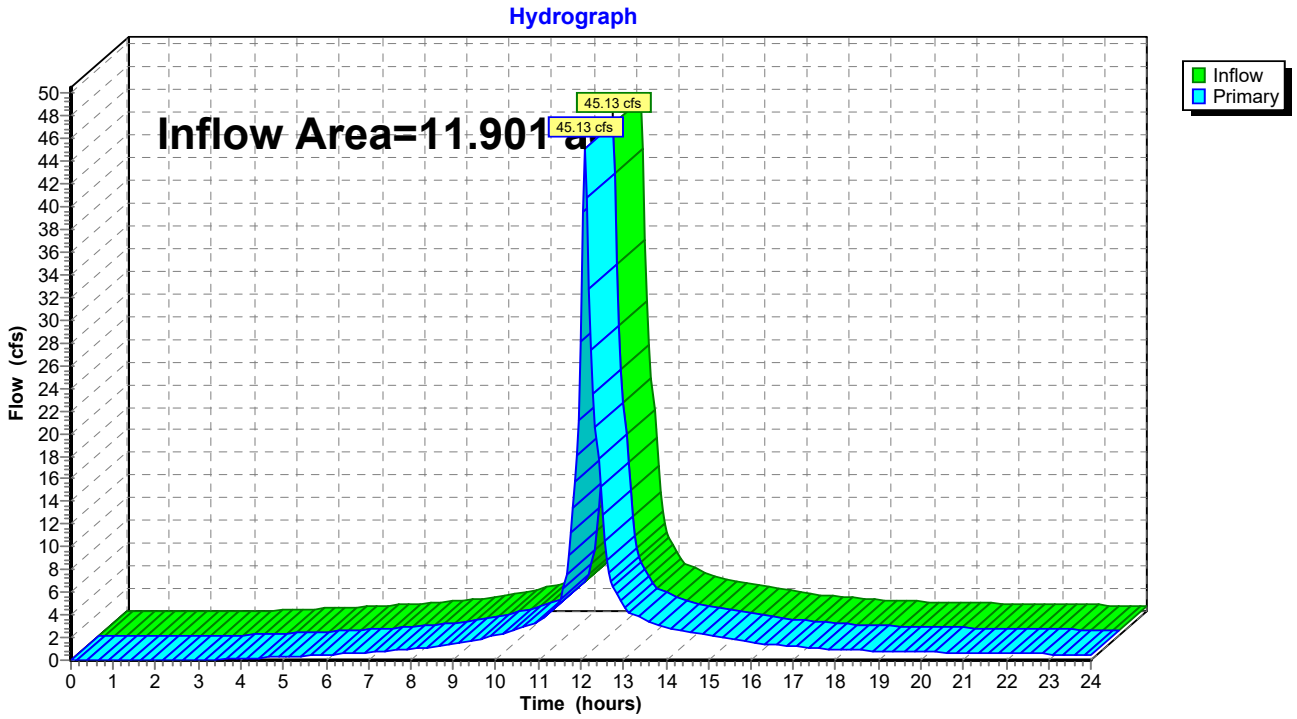


Summary for Link 2L: Fore River

Inflow Area = 11.901 ac, 85.36% Impervious, Inflow Depth > 4.03" for 10-Year Storm event
Inflow = 45.13 cfs @ 12.10 hrs, Volume= 4.002 af
Primary = 45.13 cfs @ 12.10 hrs, Volume= 4.002 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 2L: Fore River

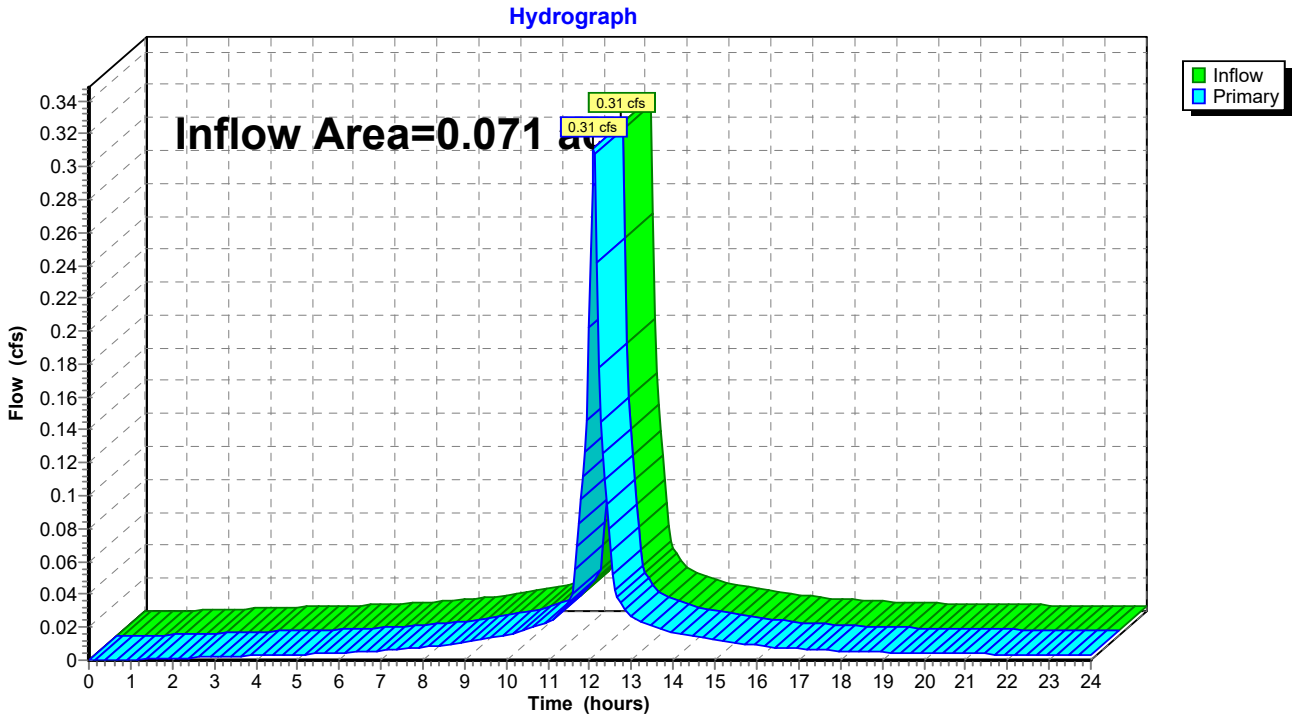


Summary for Link 3L: Fore Street

Inflow Area = 0.071 ac,100.00% Impervious, Inflow Depth > 4.36" for 10-Year Storm event
Inflow = 0.31 cfs @ 12.09 hrs, Volume= 0.026 af
Primary = 0.31 cfs @ 12.09 hrs, Volume= 0.026 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 3L: Fore Street



Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: Block 1B Runoff Area=19,389 sf 1.02% Impervious Runoff Depth>3.60"
Tc=6.0 min CN=80 Runoff=1.83 cfs 0.133 af

Subcatchment2S: Western half of Runoff Area=22,128 sf 100.00% Impervious Runoff Depth>5.56"
Tc=6.0 min CN=98 Runoff=2.82 cfs 0.235 af

Subcatchment3S: Eastern half of Runoff Area=22,147 sf 100.00% Impervious Runoff Depth>5.56"
Tc=6.0 min CN=98 Runoff=2.82 cfs 0.236 af

Subcatchment4S: Shared Street - Trench Runoff Area=26,497 sf 83.29% Impervious Runoff Depth>5.21"
Tc=6.0 min CN=95 Runoff=3.30 cfs 0.264 af

Subcatchment5S: Building 12 Runoff Area=3,244 sf 100.00% Impervious Runoff Depth>5.56"
Tc=6.0 min CN=98 Runoff=0.41 cfs 0.034 af

Subcatchment6S: Plaza between Blocks 1 Runoff Area=18,771 sf 95.74% Impervious Runoff Depth>5.44"
Tc=6.0 min CN=97 Runoff=2.38 cfs 0.195 af

Subcatchment7S: Building 14 Runoff Area=2,557 sf 100.00% Impervious Runoff Depth>5.56"
Tc=6.0 min CN=98 Runoff=0.33 cfs 0.027 af

Subcatchment8S: Building 15 Runoff Area=2,578 sf 100.00% Impervious Runoff Depth>5.56"
Tc=6.0 min CN=98 Runoff=0.33 cfs 0.027 af

Subcatchment9S: Building 2 North Runoff Area=4,695 sf 100.00% Impervious Runoff Depth>5.56"
Tc=6.0 min CN=98 Runoff=0.60 cfs 0.050 af

Subcatchment10S: Building 3 North Runoff Area=2,212 sf 100.00% Impervious Runoff Depth>5.56"
Tc=6.0 min CN=98 Runoff=0.28 cfs 0.024 af

Subcatchment11S: Building 2 South Runoff Area=4,855 sf 100.00% Impervious Runoff Depth>5.56"
Tc=6.0 min CN=98 Runoff=0.62 cfs 0.052 af

Subcatchment12S: Building 3 South Runoff Area=2,326 sf 100.00% Impervious Runoff Depth>5.56"
Tc=6.0 min CN=98 Runoff=0.30 cfs 0.025 af

Subcatchment13S: Building 6 Runoff Area=3,304 sf 100.00% Impervious Runoff Depth>5.56"
Tc=6.0 min CN=98 Runoff=0.42 cfs 0.035 af

Subcatchment14S: Building 6B North Runoff Area=3,873 sf 100.00% Impervious Runoff Depth>5.56"
Tc=6.0 min CN=98 Runoff=0.49 cfs 0.041 af

Subcatchment15S: Building 6B South Runoff Area=2,512 sf 100.00% Impervious Runoff Depth>5.56"
Tc=6.0 min CN=98 Runoff=0.32 cfs 0.027 af

Subcatchment16S: Plaza between Blocks 1 Runoff Area=3,122 sf 71.75% Impervious Runoff Depth>4.98"
Tc=6.0 min CN=93 Runoff=0.38 cfs 0.030 af

Subcatchment17S: Shared Street - Trench Runoff Area=8,931 sf 90.72% Impervious Runoff Depth>5.32"
Tc=6.0 min CN=96 Runoff=1.12 cfs 0.091 af

Subcatchment18S: Plaza between Runoff Area=15,575 sf 100.00% Impervious Runoff Depth>5.56"
Tc=6.0 min CN=98 Runoff=1.98 cfs 0.166 af

Subcatchment19S: Building 4A Runoff Area=86,615 sf 100.00% Impervious Runoff Depth>5.56"
Tc=6.0 min CN=98 Runoff=11.03 cfs 0.921 af

Subcatchment20S: Shared Street - Runoff Area=12,950 sf 100.00% Impervious Runoff Depth>5.56"
Tc=6.0 min CN=98 Runoff=1.65 cfs 0.138 af

Subcatchment21S: Plaza along Building Runoff Area=2,534 sf 100.00% Impervious Runoff Depth>5.56"
Tc=6.0 min CN=98 Runoff=0.32 cfs 0.027 af

Subcatchment22S: Block 6 Building Runoff Area=71,240 sf 84.53% Impervious Runoff Depth>5.21"
Tc=6.0 min CN=95 Runoff=8.88 cfs 0.710 af

Subcatchment23S: Block 5 - Interim Runoff Area=18,694 sf 100.00% Impervious Runoff Depth>5.56"
Tc=6.0 min CN=98 Runoff=2.38 cfs 0.199 af

Subcatchment24S: Block 5 - Interim Runoff Area=17,974 sf 100.00% Impervious Runoff Depth>5.56"
Tc=6.0 min CN=98 Runoff=2.29 cfs 0.191 af

Subcatchment25S: Waterfront Runoff Area=134,732 sf 77.43% Impervious Runoff Depth>5.10"
Tc=6.0 min CN=94 Runoff=16.63 cfs 1.313 af

Subcatchment26S: Plaza along Townhouse Runoff Area=550 sf 100.00% Impervious Runoff Depth>5.56"
Tc=6.0 min CN=98 Runoff=0.07 cfs 0.006 af

Subcatchment27S: Drainage from off-site Runoff Area=49,015 sf 43.79% Impervious Runoff Depth>4.43"
Tc=6.0 min CN=88 Runoff=5.54 cfs 0.415 af

Pond 1P: DMH 1 Peak Elev=11.70' Inflow=10.46 cfs 0.858 af
24.0" Round Culvert n=0.013 L=61.0' S=0.0038 '/' Outflow=10.46 cfs 0.858 af

Pond 2P: DMH 2 Peak Elev=11.40' Inflow=11.26 cfs 0.923 af
24.0" Round Culvert n=0.013 L=31.0' S=0.0048 '/' Outflow=11.26 cfs 0.923 af

Pond 3P: Storm Structure Peak Elev=9.76' Inflow=11.26 cfs 0.923 af
15.0" Round Culvert x 3.00 n=0.013 L=4.0' S=0.0000 '/' Outflow=11.26 cfs 0.923 af

Pond 4P: R-Tank 1 Peak Elev=9.26' Storage=2,505 cf Inflow=11.26 cfs 0.923 af
21.0" Round Culvert n=0.013 L=62.0' S=0.0000 '/' Outflow=9.94 cfs 0.915 af

Pond 5P: DMH-11 Peak Elev=10.40' Inflow=15.04 cfs 1.433 af
24.0" Round Culvert n=0.013 L=16.0' S=0.0069 '/' Outflow=15.04 cfs 1.433 af

Pond 6P: CB27 Peak Elev=12.28' Inflow=15.86 cfs 1.321 af
24.0" Round Culvert n=0.013 L=22.0' S=0.0064 '/' Outflow=15.86 cfs 1.321 af

Pond 7P: Storm Structure Peak Elev=10.57' Inflow=17.51 cfs 1.459 af
15.0" Round Culvert x 3.00 n=0.013 L=4.0' S=0.0000 '/' Outflow=17.51 cfs 1.459 af

Pond 8P: R-Tank 2 Peak Elev=10.81' Storage=7,247 cf Inflow=17.51 cfs 1.459 af
24.0" Round Culvert n=0.013 L=70.0' S=0.0000 '/' Outflow=15.04 cfs 1.433 af

Pond 9P: DMH-8 (Outfall #1) Peak Elev=9.60' Inflow=24.97 cfs 2.348 af
30.0" Round Culvert n=0.013 L=52.0' S=0.0052 '/' Outflow=24.97 cfs 2.348 af

Pond 10P: DMH 4 Peak Elev=8.87' Inflow=9.94 cfs 0.915 af
24.0" Round Culvert n=0.013 L=59.0' S=0.0000 '/' Outflow=9.94 cfs 0.915 af

Pond 11P: Jellyfish 1 JFPD0806-4-1 Peak Elev=10.57' Inflow=9.94 cfs 0.915 af
Outflow=9.94 cfs 0.915 af

Pond 12P: Jellyfish 2 JFPD0806-7-2 Peak Elev=11.13' Inflow=15.04 cfs 1.433 af
Outflow=15.04 cfs 1.433 af

Pond 13P: DMH-13 (Outfall #2) Peak Elev=10.23' Inflow=19.09 cfs 1.515 af
24.0" Round Culvert n=0.013 L=75.0' S=0.0051 '/' Outflow=19.09 cfs 1.515 af

Pond 24P: Filterra 1 Peak Elev=12.23' Inflow=2.38 cfs 0.199 af
Primary=1.39 cfs 0.189 af Secondary=0.99 cfs 0.010 af Outflow=2.38 cfs 0.199 af

Pond 27P: CB Peak Elev=10.00' Inflow=4.67 cfs 0.390 af
15.0" Round Culvert n=0.013 L=210.0' S=0.0076 '/' Outflow=4.67 cfs 0.390 af

Pond 28P: Filterra 2 Peak Elev=12.22' Inflow=2.29 cfs 0.191 af
Primary=1.39 cfs 0.182 af Secondary=0.90 cfs 0.009 af Outflow=2.29 cfs 0.191 af

Link 1L: Freedom Way Inflow=4.65 cfs 0.369 af
Primary=4.65 cfs 0.369 af

Link 2L: Fore River Inflow=58.64 cfs 5.177 af
Primary=58.64 cfs 5.177 af

Link 3L: Fore Street Inflow=0.39 cfs 0.033 af
Primary=0.39 cfs 0.033 af

Total Runoff Area = 12.925 ac Runoff Volume = 5.612 af Average Runoff Depth = 5.21"
16.89% Pervious = 2.183 ac 83.11% Impervious = 10.742 ac

Summary for Subcatchment 1S: Block 1B

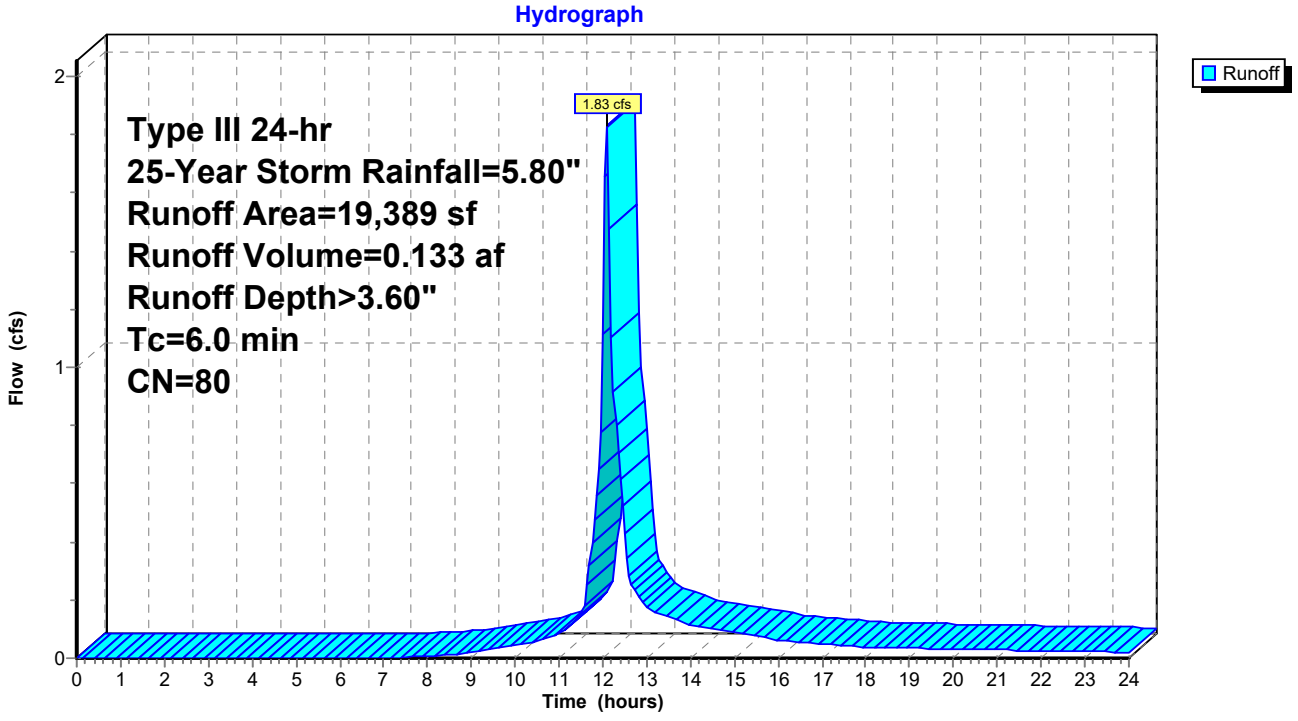
Runoff = 1.83 cfs @ 12.09 hrs, Volume= 0.133 af, Depth> 3.60"
Routed to Link 1L : Freedom Way

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	198	98	Impervious
	19,191	80	>75% Grass cover, Good, HSG D
	19,389	80	Weighted Average
	19,191		98.98% Pervious Area
	198		1.02% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 1S: Block 1B



Summary for Subcatchment 2S: Western half of Building 1A

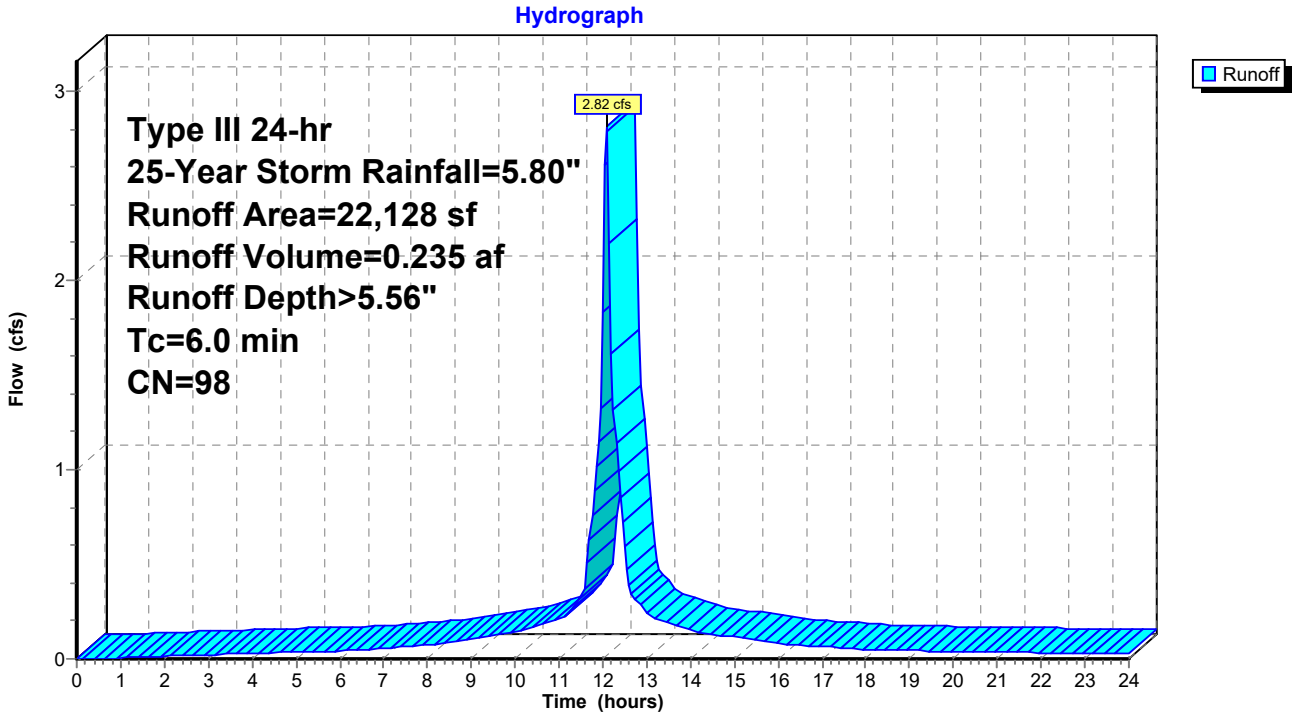
Runoff = 2.82 cfs @ 12.09 hrs, Volume= 0.235 af, Depth> 5.56"
Routed to Link 1L : Freedom Way

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	22,128	98	Roof
	22,128		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 2S: Western half of Building 1A



Summary for Subcatchment 3S: Eastern half of Building 1A

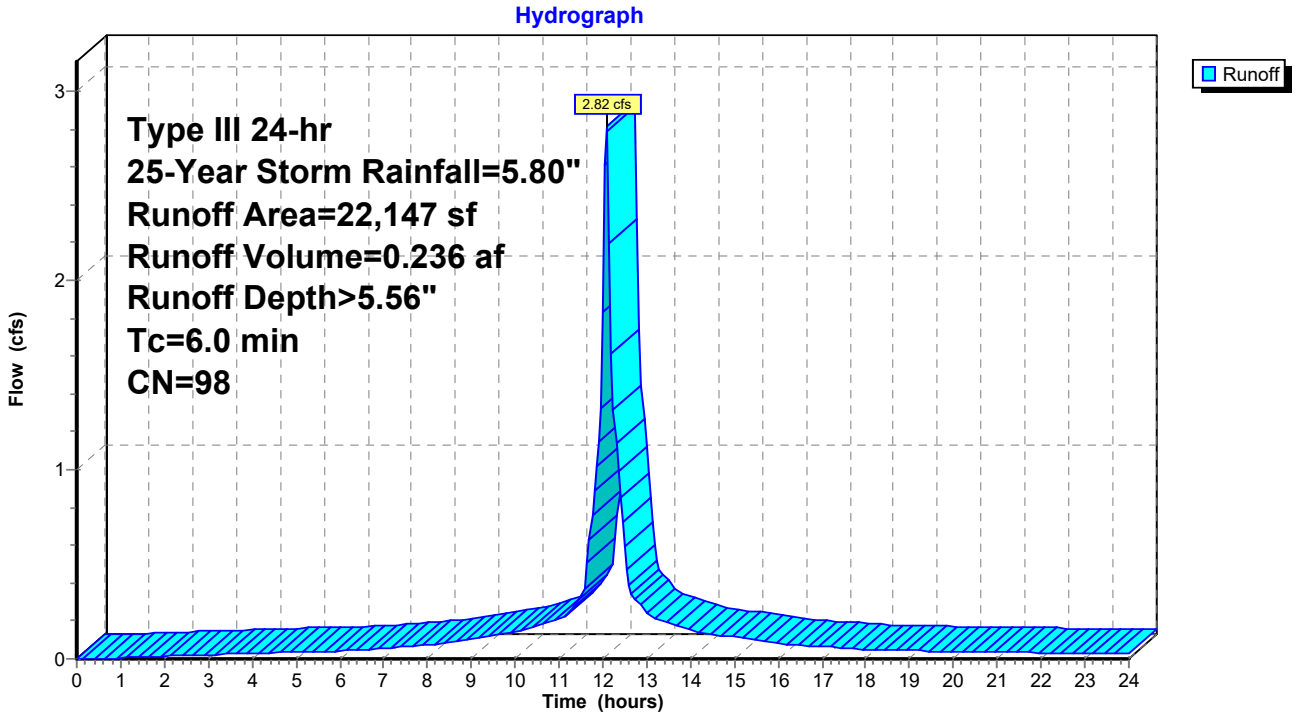
Runoff = 2.82 cfs @ 12.09 hrs, Volume= 0.236 af, Depth> 5.56"
Routed to Pond 1P : DMH 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	22,147	98	Roof
	22,147		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 3S: Eastern half of Building 1A



Summary for Subcatchment 4S: Shared Street - Trench Drain

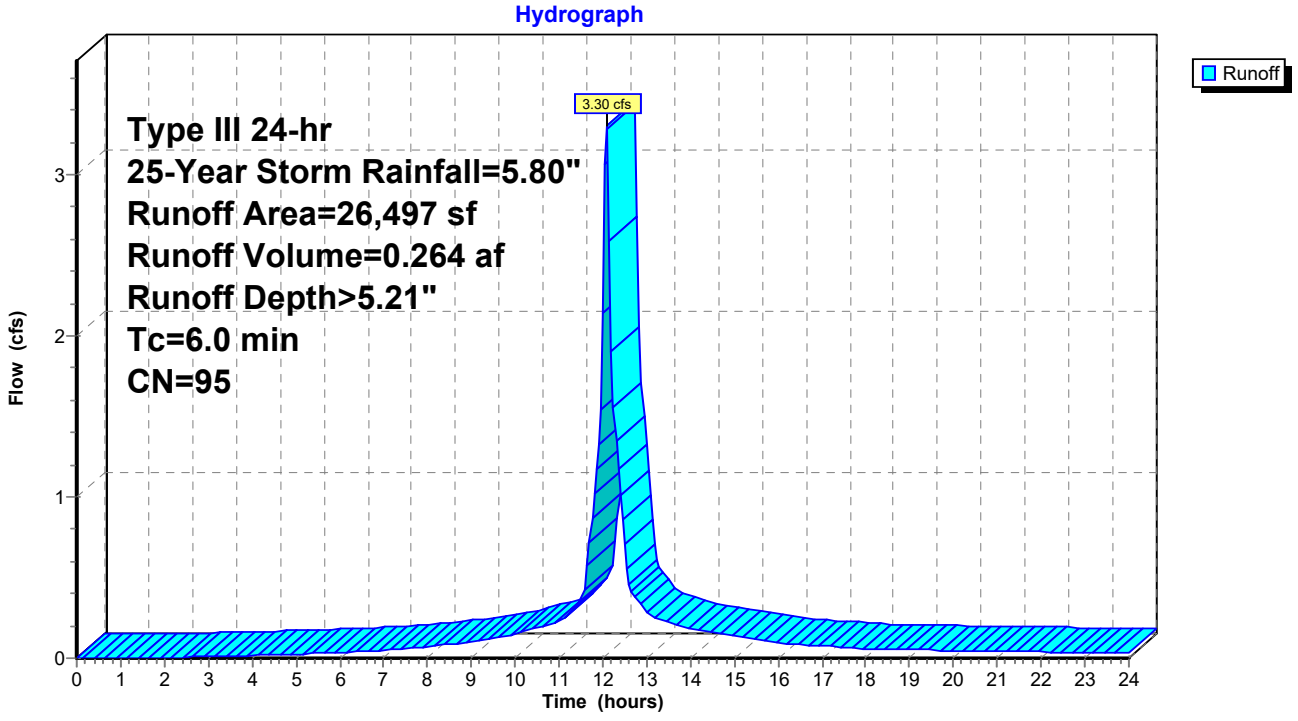
Runoff = 3.30 cfs @ 12.09 hrs, Volume= 0.264 af, Depth> 5.21"
Routed to Pond 1P : DMH 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Storm Rainfall=5.80"

	Area (sf)	CN	Description
	4,428	80	>75% Grass cover, Good, HSG D
*	22,069	98	Impervious Shared Street and Plaza
	26,497	95	Weighted Average
	4,428		16.71% Pervious Area
	22,069		83.29% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 4S: Shared Street - Trench Drain



Summary for Subcatchment 5S: Building 12

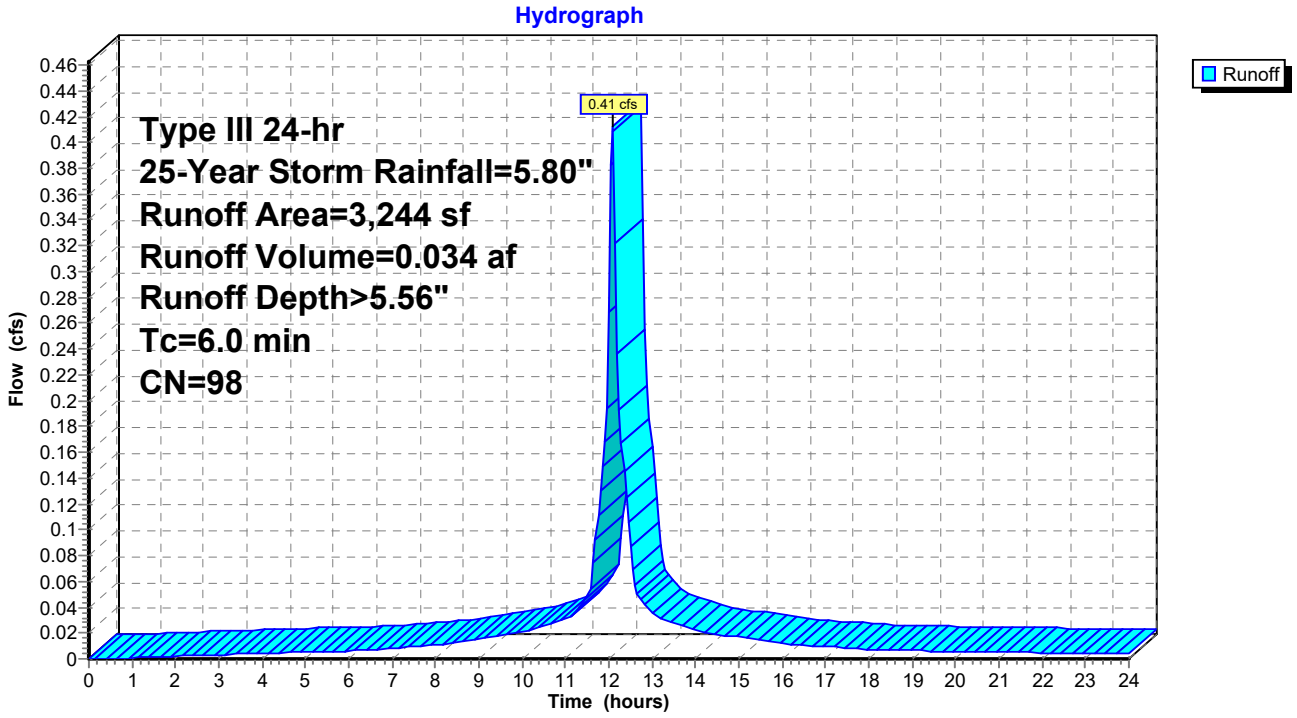
Runoff = 0.41 cfs @ 12.09 hrs, Volume= 0.034 af, Depth> 5.56"
Routed to Pond 1P : DMH 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	3,244	98	Roof
	3,244		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 5S: Building 12



Summary for Subcatchment 6S: Plaza between Blocks 1 & 2

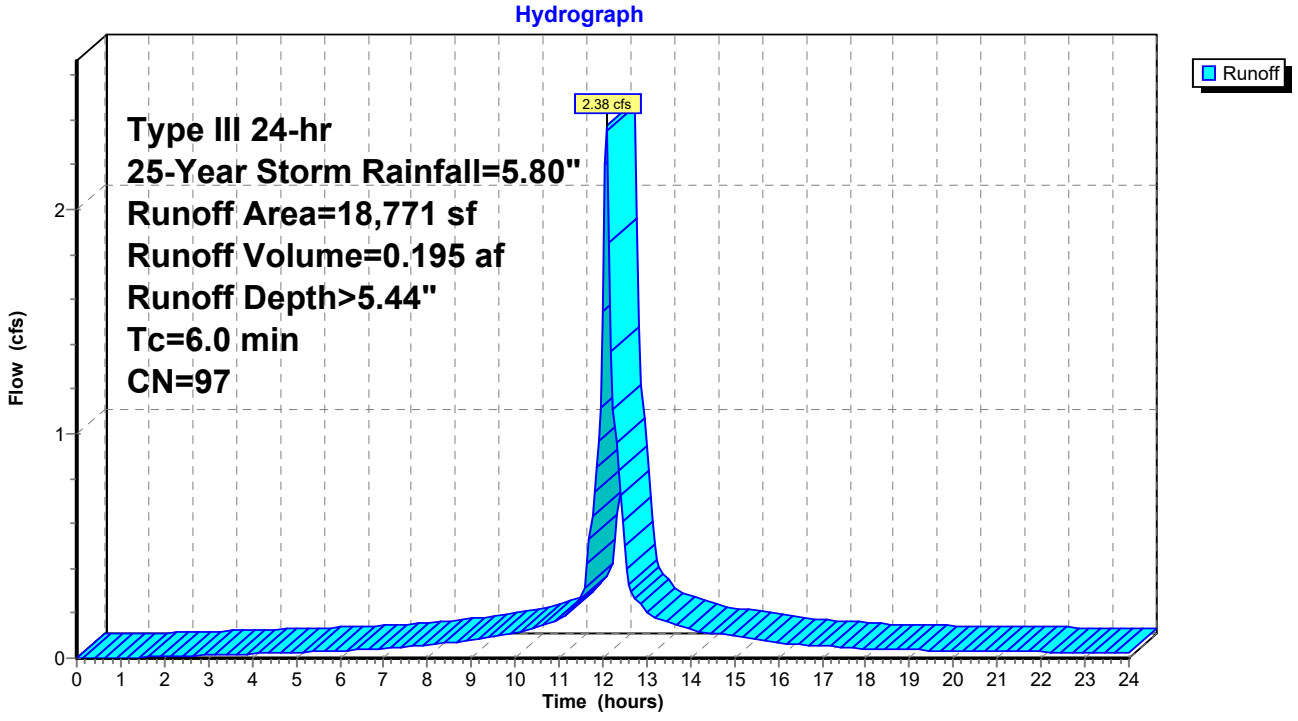
Runoff = 2.38 cfs @ 12.09 hrs, Volume= 0.195 af, Depth> 5.44"
Routed to Pond 1P : DMH 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	17,972	98	Impervious
	799	80	>75% Grass cover, Good, HSG D
	18,771	97	Weighted Average
	799		4.26% Pervious Area
	17,972		95.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 6S: Plaza between Blocks 1 & 2



Summary for Subcatchment 7S: Building 14

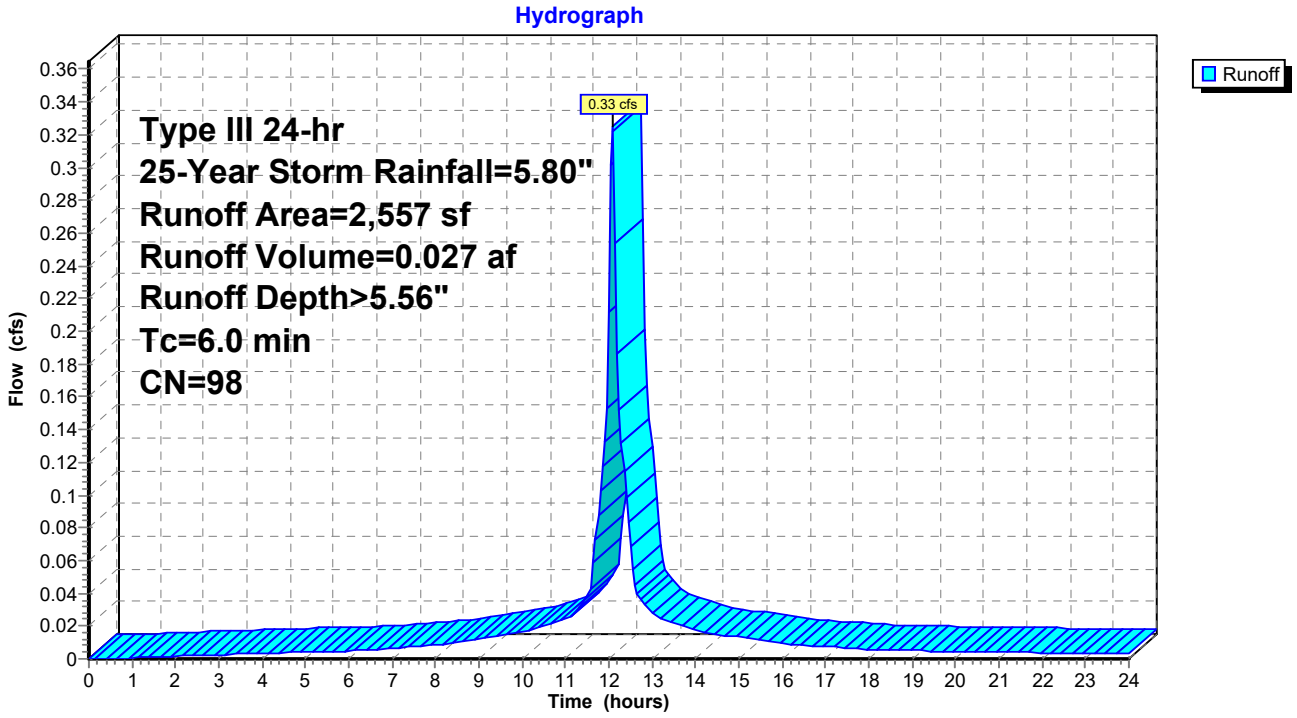
Runoff = 0.33 cfs @ 12.09 hrs, Volume= 0.027 af, Depth> 5.56"
Routed to Pond 1P : DMH 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	2,557	98	Roof
	2,557		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 7S: Building 14



Summary for Subcatchment 8S: Building 15

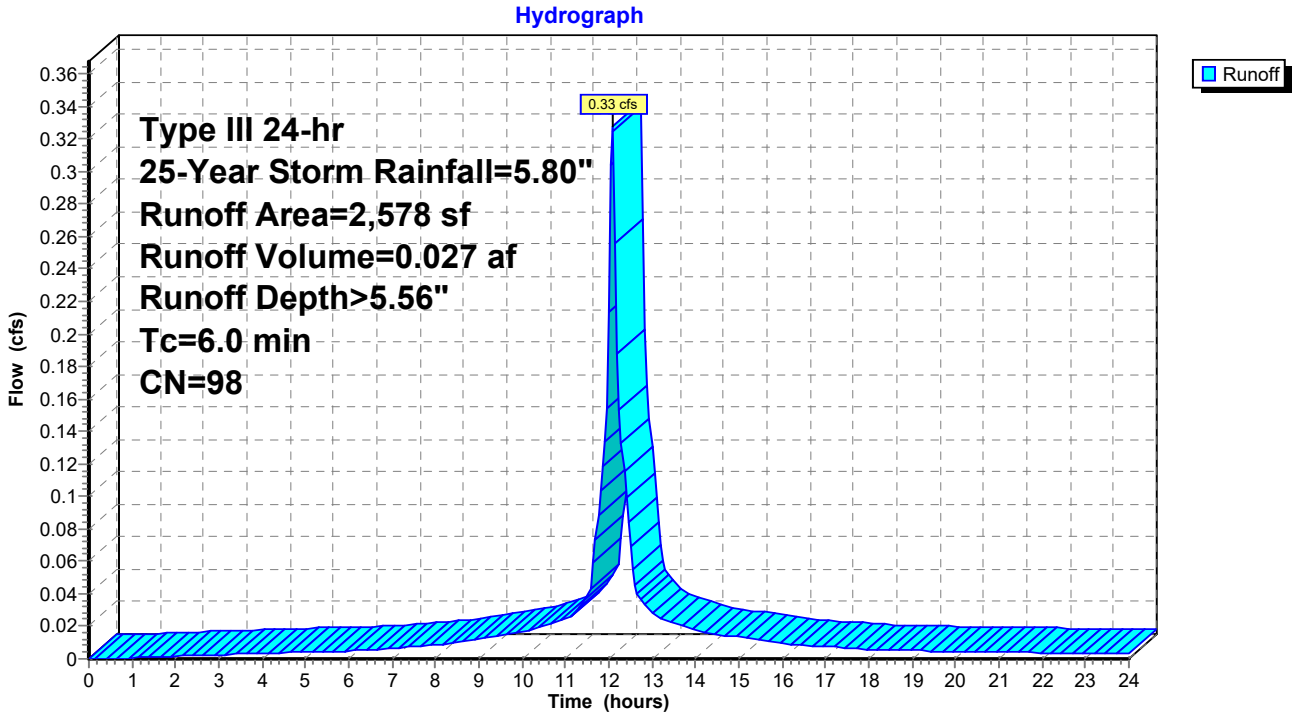
Runoff = 0.33 cfs @ 12.09 hrs, Volume= 0.027 af, Depth> 5.56"
Routed to Pond 6P : CB27

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	2,578	98	Roof
	2,578		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 8S: Building 15



Summary for Subcatchment 9S: Building 2 North

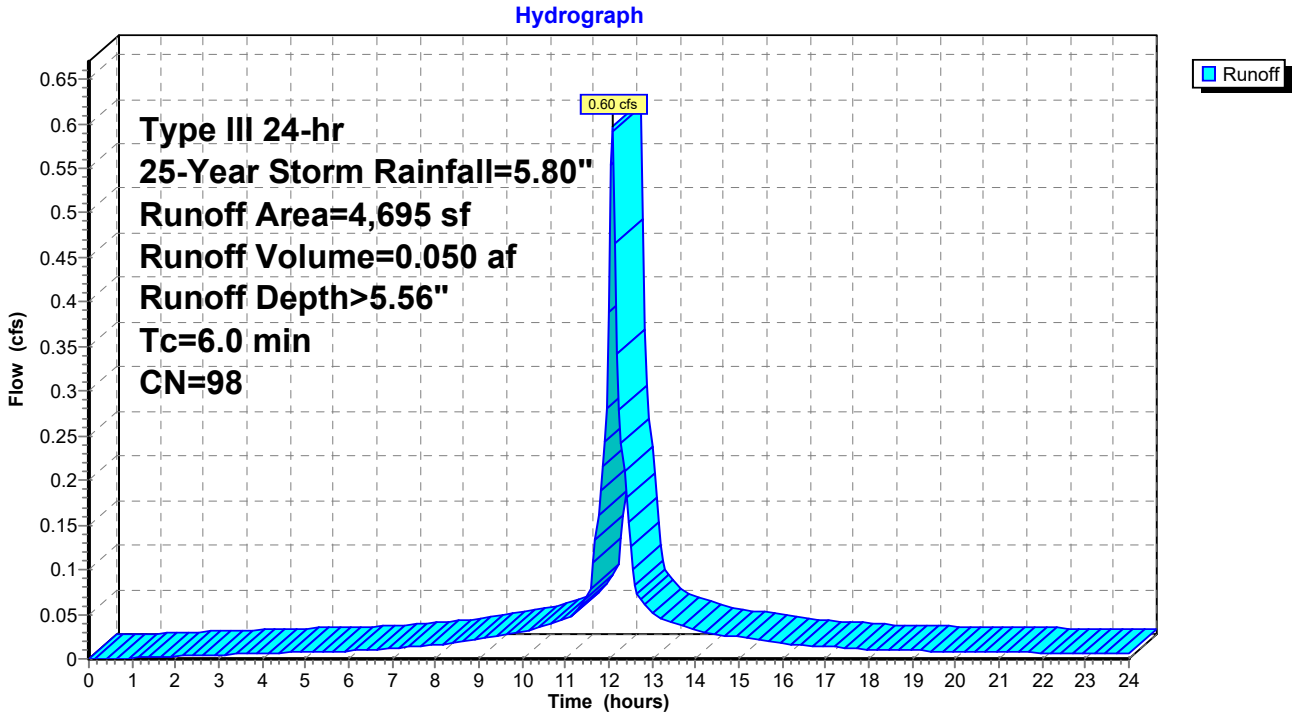
Runoff = 0.60 cfs @ 12.09 hrs, Volume= 0.050 af, Depth> 5.56"
Routed to Pond 1P : DMH 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	4,695	98	Roof
	4,695		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 9S: Building 2 North



Summary for Subcatchment 10S: Building 3 North

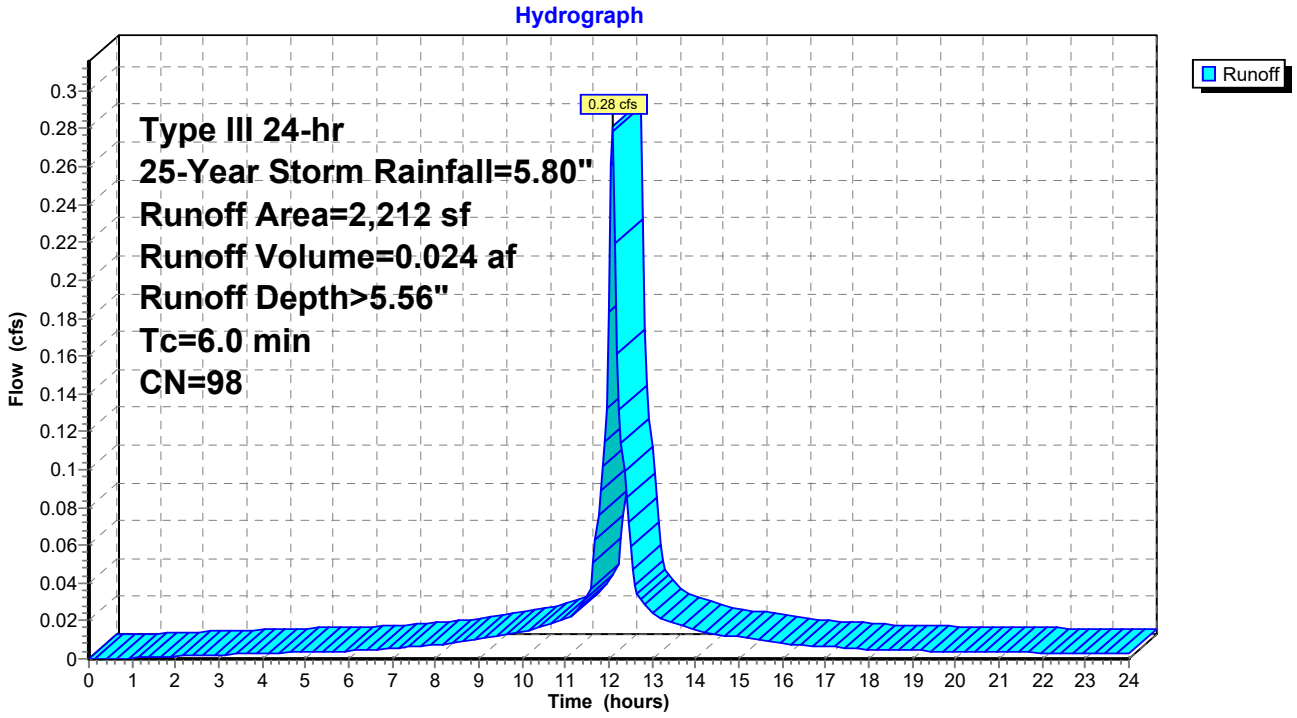
Runoff = 0.28 cfs @ 12.09 hrs, Volume= 0.024 af, Depth> 5.56"
Routed to Pond 6P : CB27

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	2,212	98	Roof
	2,212		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 10S: Building 3 North



Summary for Subcatchment 11S: Building 2 South

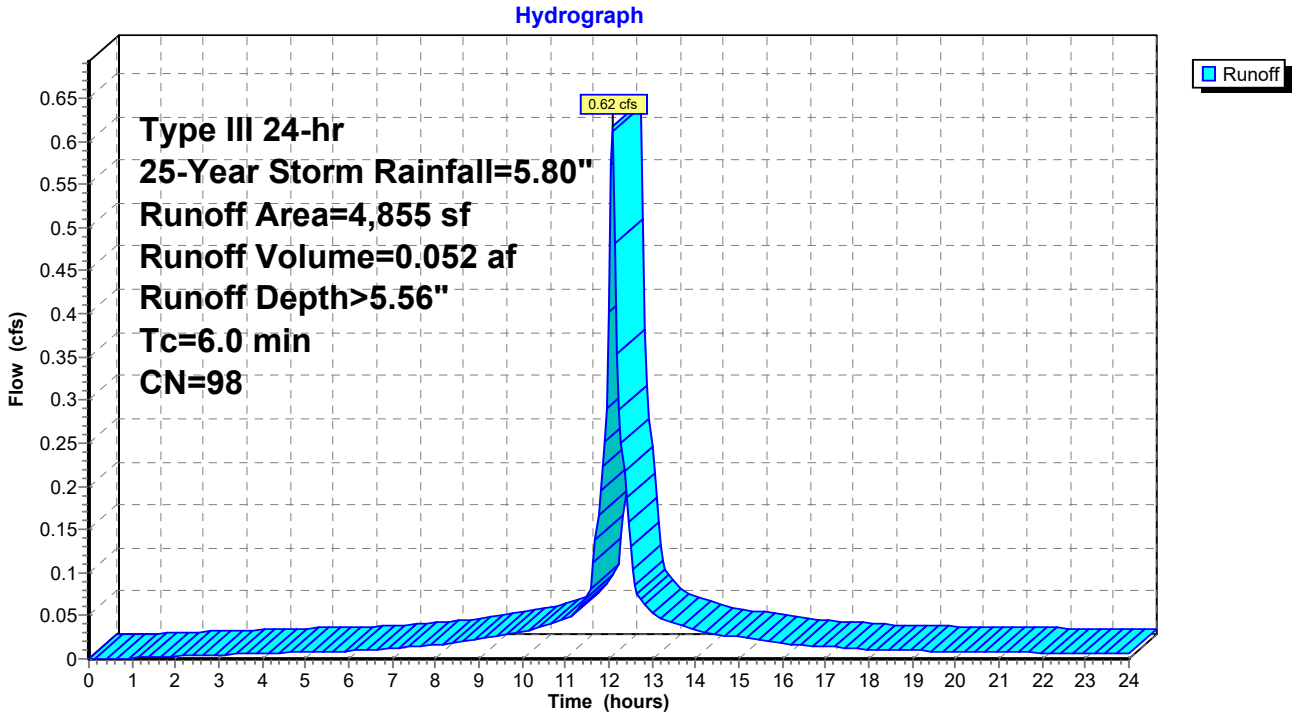
Runoff = 0.62 cfs @ 12.09 hrs, Volume= 0.052 af, Depth> 5.56"
Routed to Pond 1P : DMH 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	4,855	98	Roof
	4,855		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 11S: Building 2 South



Summary for Subcatchment 12S: Building 3 South

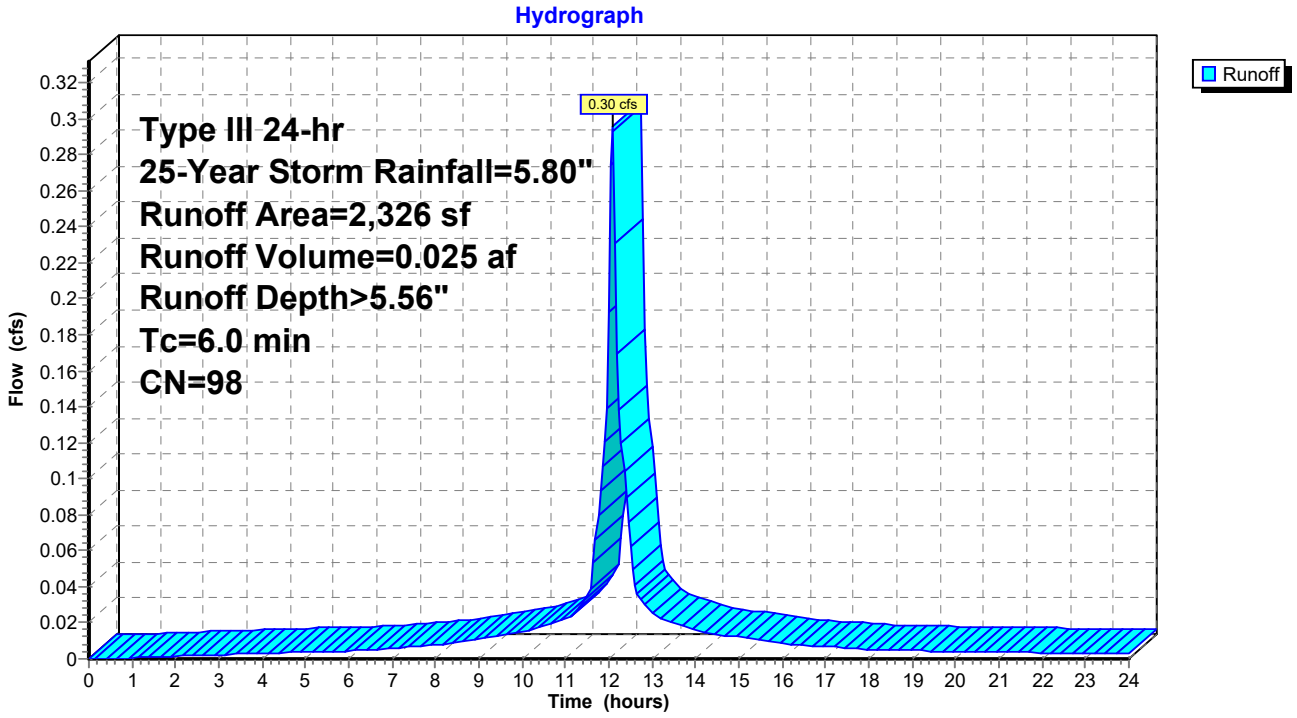
Runoff = 0.30 cfs @ 12.09 hrs, Volume= 0.025 af, Depth> 5.56"
Routed to Pond 6P : CB27

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	2,326	98	Roof
	2,326		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 12S: Building 3 South



Summary for Subcatchment 13S: Building 6

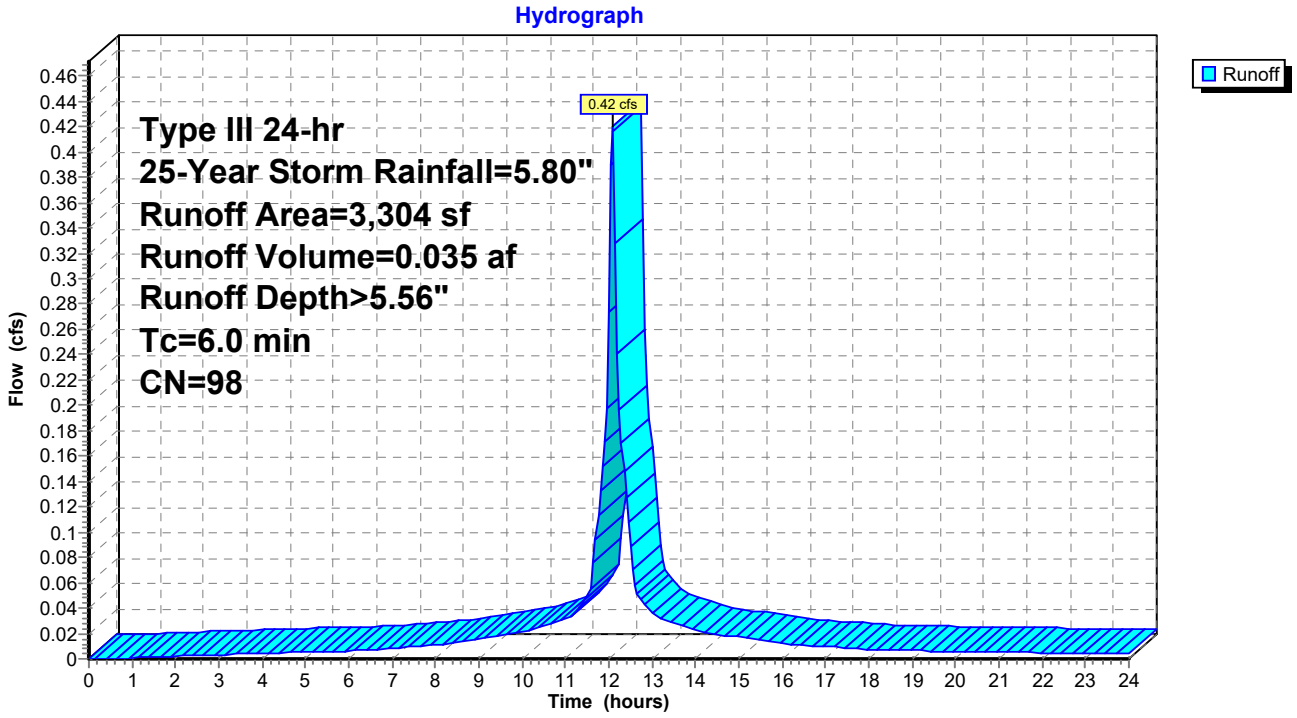
Runoff = 0.42 cfs @ 12.09 hrs, Volume= 0.035 af, Depth> 5.56"
Routed to Pond 2P : DMH 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	3,304	98	Roof
	3,304		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 13S: Building 6



Summary for Subcatchment 14S: Building 6B North

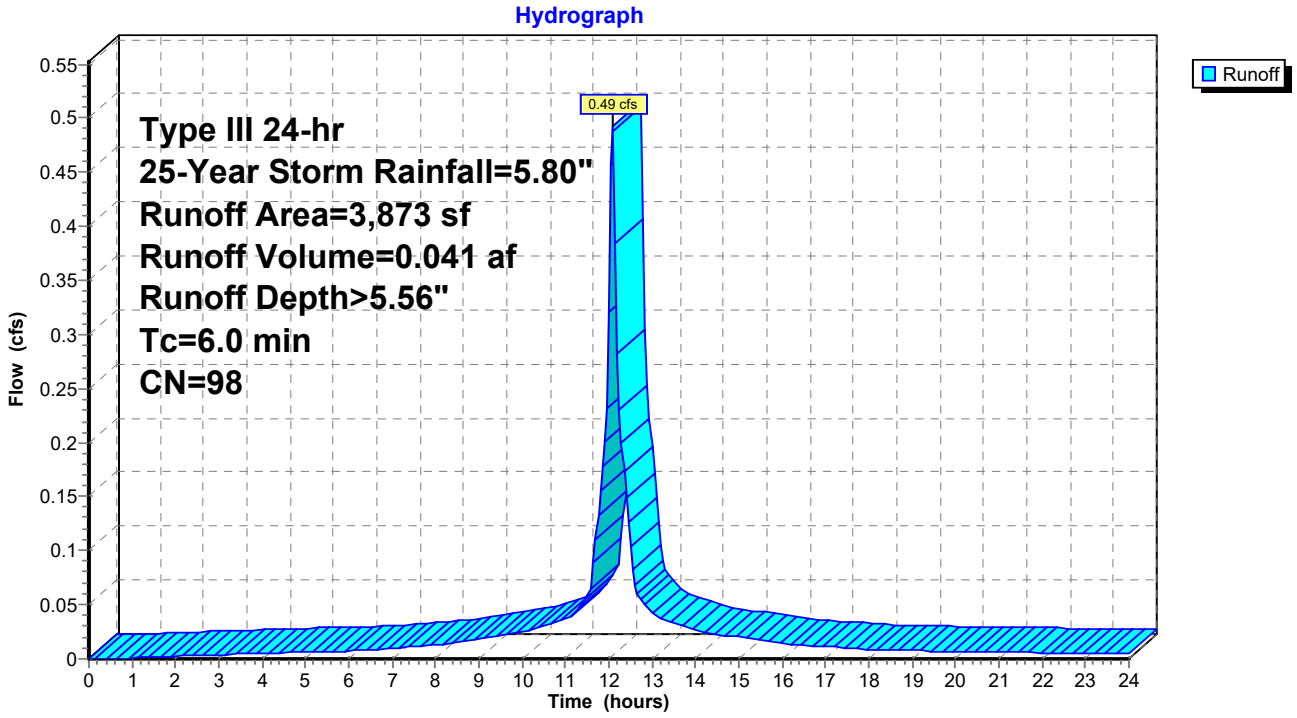
Runoff = 0.49 cfs @ 12.09 hrs, Volume= 0.041 af, Depth> 5.56"
Routed to Pond 6P : CB27

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	3,873	98	Roof
	3,873		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 14S: Building 6B North



Summary for Subcatchment 15S: Building 6B South

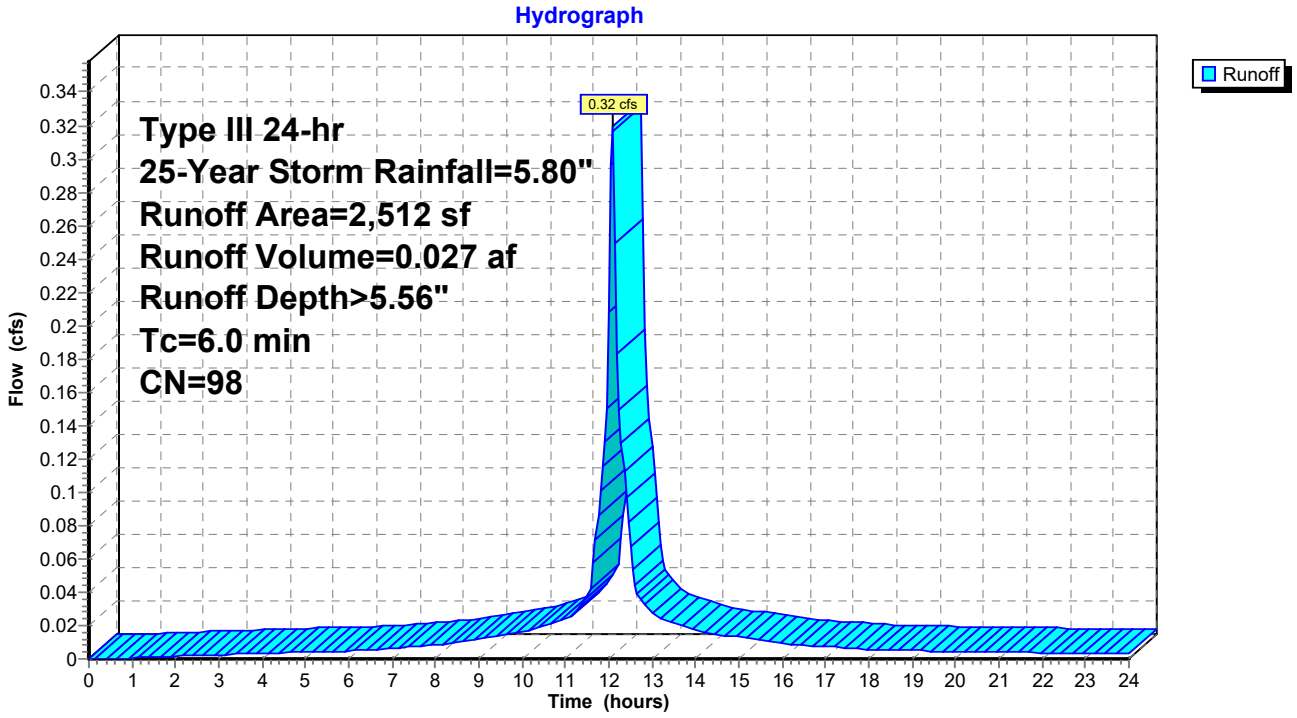
Runoff = 0.32 cfs @ 12.09 hrs, Volume= 0.027 af, Depth> 5.56"
Routed to Pond 6P : CB27

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	2,512	98	Roof
	2,512		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 15S: Building 6B South



Summary for Subcatchment 16S: Plaza between Blocks 1 & 2

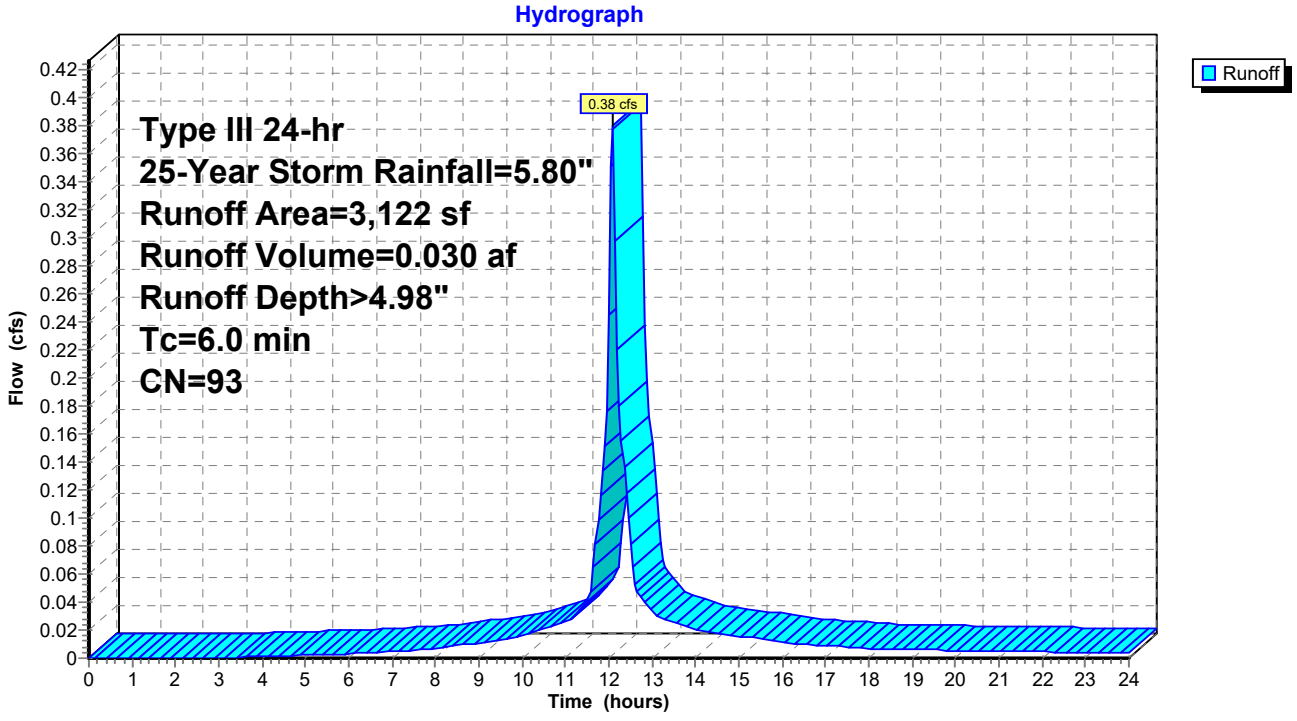
Runoff = 0.38 cfs @ 12.09 hrs, Volume= 0.030 af, Depth> 4.98"
Routed to Pond 2P : DMH 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	2,240	98	Impervious
	882	80	>75% Grass cover, Good, HSG D
	3,122	93	Weighted Average
	882		28.25% Pervious Area
	2,240		71.75% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 16S: Plaza between Blocks 1 & 2



Summary for Subcatchment 17S: Shared Street - Trench Drain

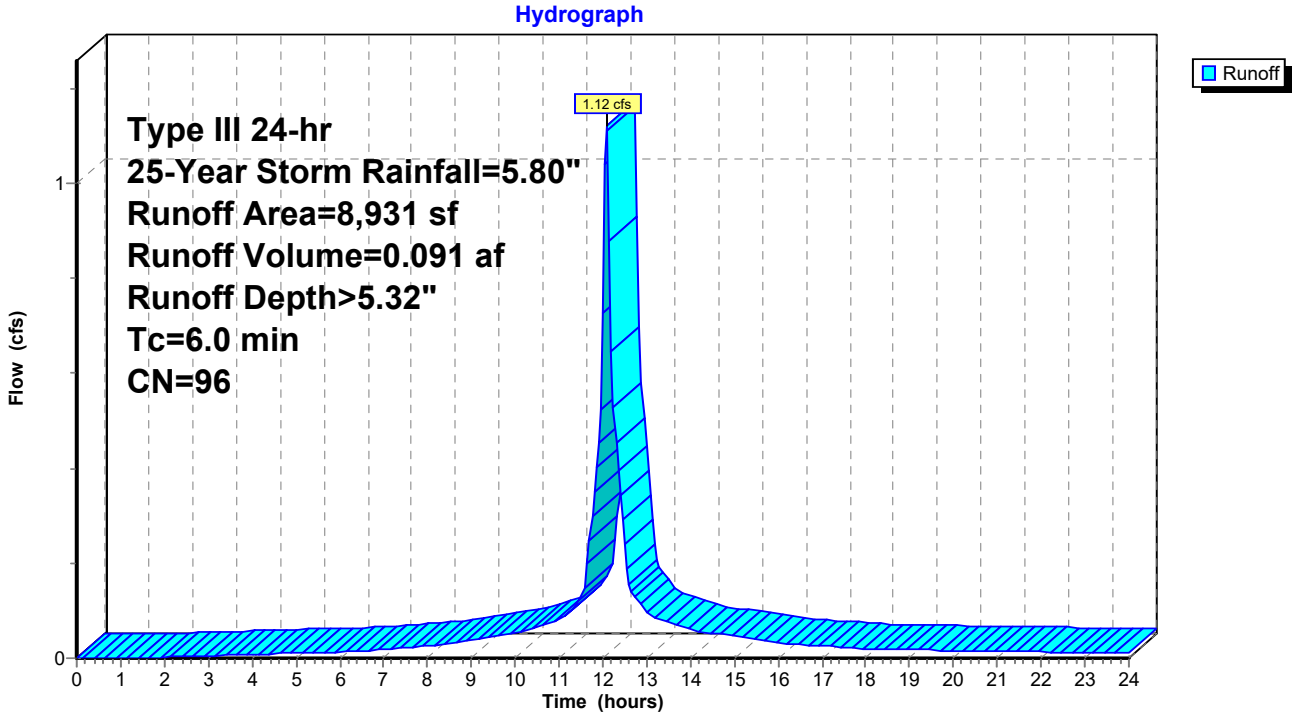
Runoff = 1.12 cfs @ 12.09 hrs, Volume= 0.091 af, Depth> 5.32"
Routed to Pond 6P : CB27

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Storm Rainfall=5.80"

	Area (sf)	CN	Description
	829	80	>75% Grass cover, Good, HSG D
*	8,102	98	Impervious Shared Street
	8,931	96	Weighted Average
	829		9.28% Pervious Area
	8,102		90.72% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 17S: Shared Street - Trench Drain



Summary for Subcatchment 18S: Plaza between Blocks 2 & 4

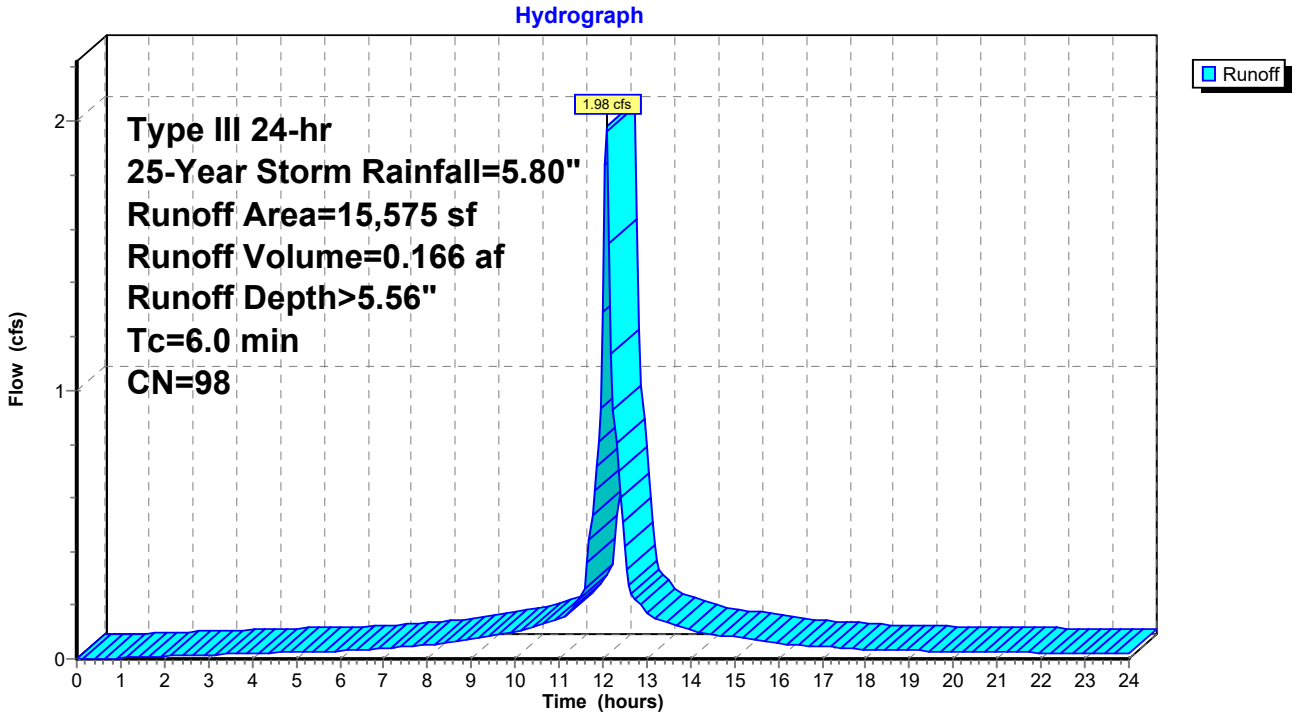
Runoff = 1.98 cfs @ 12.09 hrs, Volume= 0.166 af, Depth> 5.56"
Routed to Pond 6P : CB27

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	15,575	98	Impervious
	15,575		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 18S: Plaza between Blocks 2 & 4



Summary for Subcatchment 19S: Building 4A

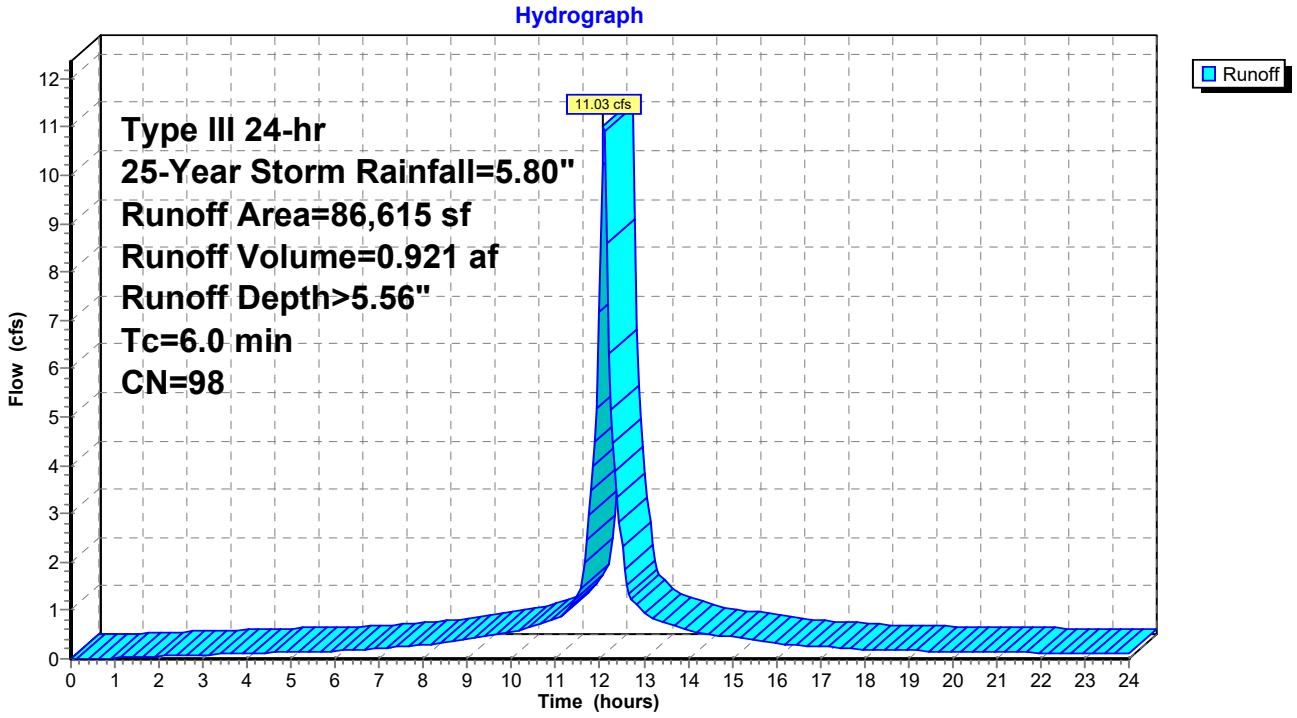
Runoff = 11.03 cfs @ 12.09 hrs, Volume= 0.921 af, Depth> 5.56"
Routed to Pond 6P : CB27

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	86,615	98	Roof & Plaza
	86,615		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 19S: Building 4A



Summary for Subcatchment 20S: Shared Street - Trench Drain

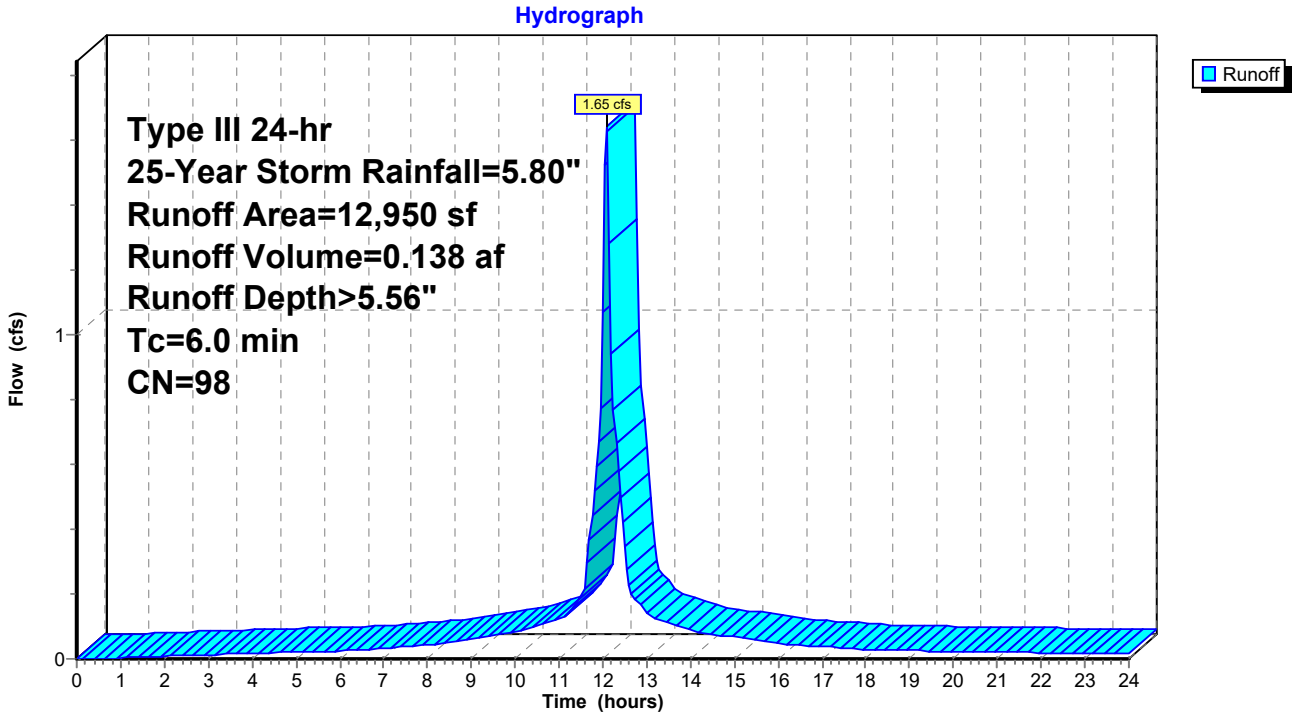
Runoff = 1.65 cfs @ 12.09 hrs, Volume= 0.138 af, Depth> 5.56"
Routed to Pond 7P : Storm Structure

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	12,950	98	Impervious
	12,950		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 20S: Shared Street - Trench Drain



Summary for Subcatchment 21S: Plaza along Building 4A at Fore Street

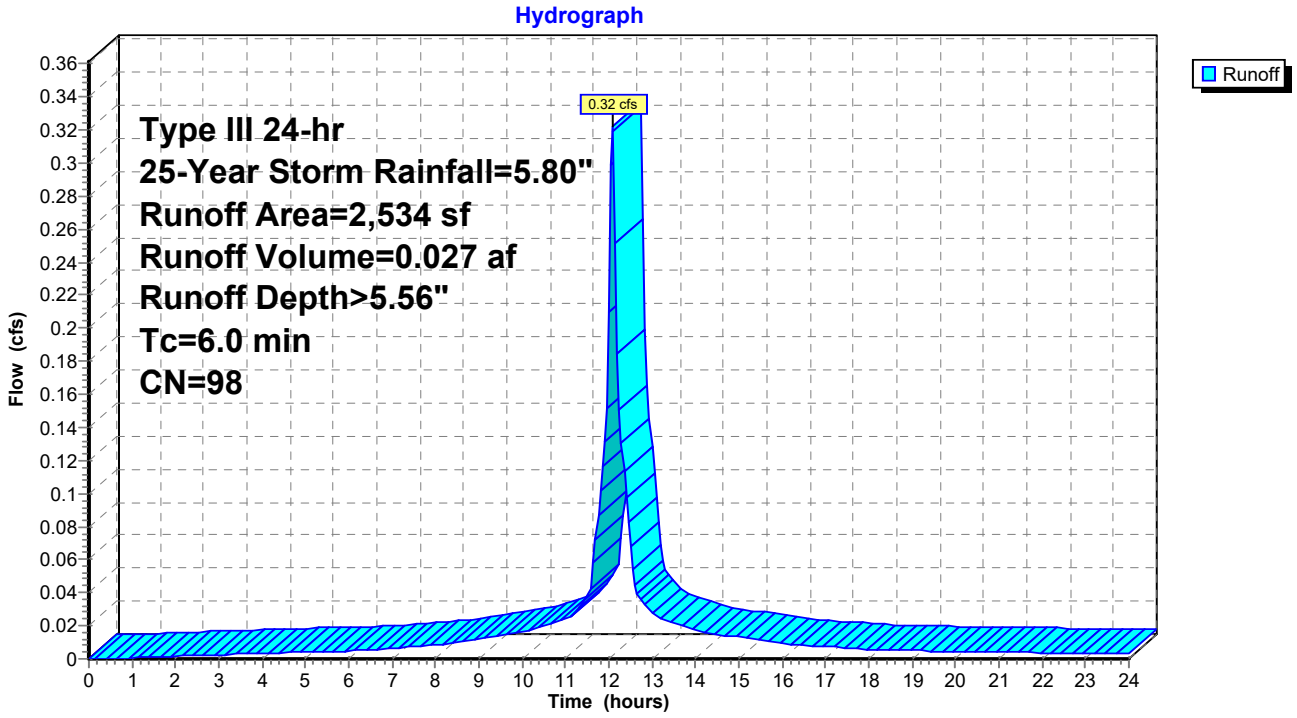
Runoff = 0.32 cfs @ 12.09 hrs, Volume= 0.027 af, Depth> 5.56"
Routed to Link 3L : Fore Street

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	2,534	98	Impervious
	2,534		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 21S: Plaza along Building 4A at Fore Street



Summary for Subcatchment 22S: Block 6 Building

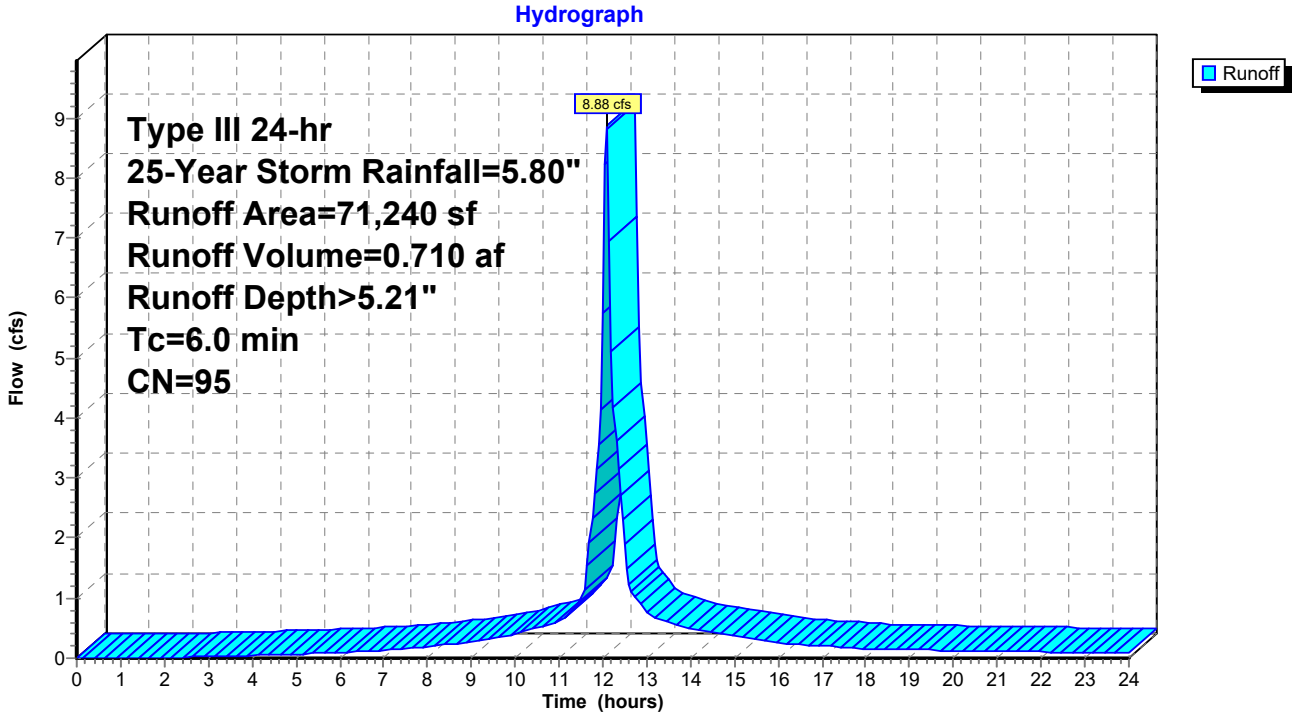
Runoff = 8.88 cfs @ 12.09 hrs, Volume= 0.710 af, Depth> 5.21"
Routed to Pond 13P : DMH-13 (Outfall #2)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	60,220	98	Roof
	11,020	80	>75% Grass cover, Good, HSG D
	71,240	95	Weighted Average
	11,020		15.47% Pervious Area
	60,220		84.53% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 22S: Block 6 Building



Summary for Subcatchment 23S: Block 5 - Interim Parking

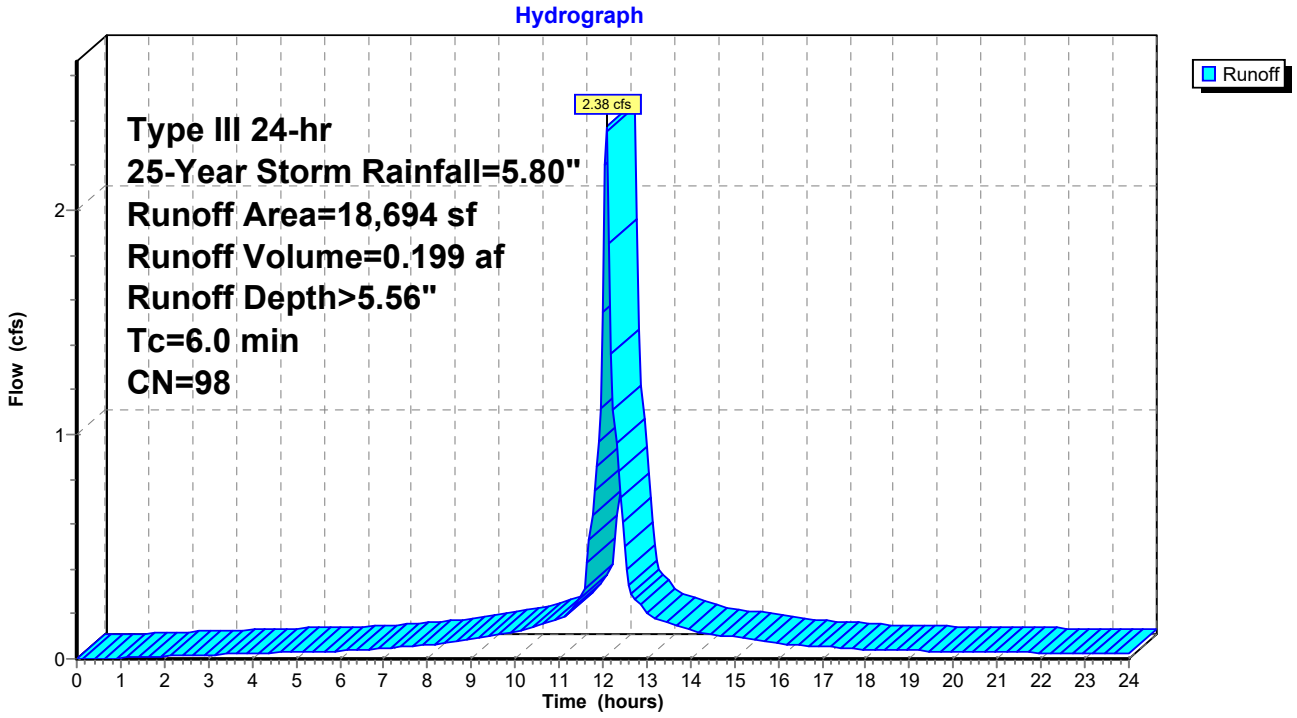
Runoff = 2.38 cfs @ 12.09 hrs, Volume= 0.199 af, Depth> 5.56"
Routed to Pond 24P : Filterra 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	18,694	98	Impervious
	18,694		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 23S: Block 5 - Interim Parking



Summary for Subcatchment 24S: Block 5 - Interim Parking

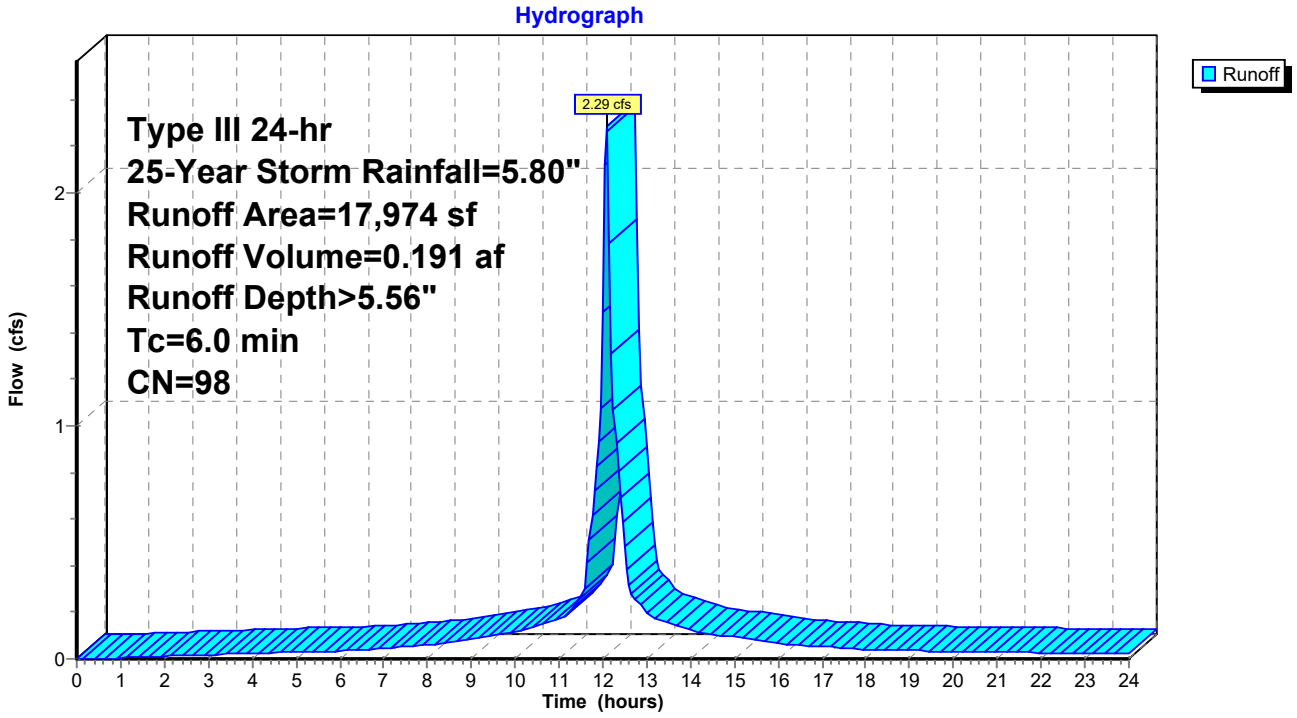
Runoff = 2.29 cfs @ 12.09 hrs, Volume= 0.191 af, Depth> 5.56"
Routed to Pond 28P : Filterra 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	17,974	98	Impervious
	17,974		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 24S: Block 5 - Interim Parking



Summary for Subcatchment 25S: Waterfront

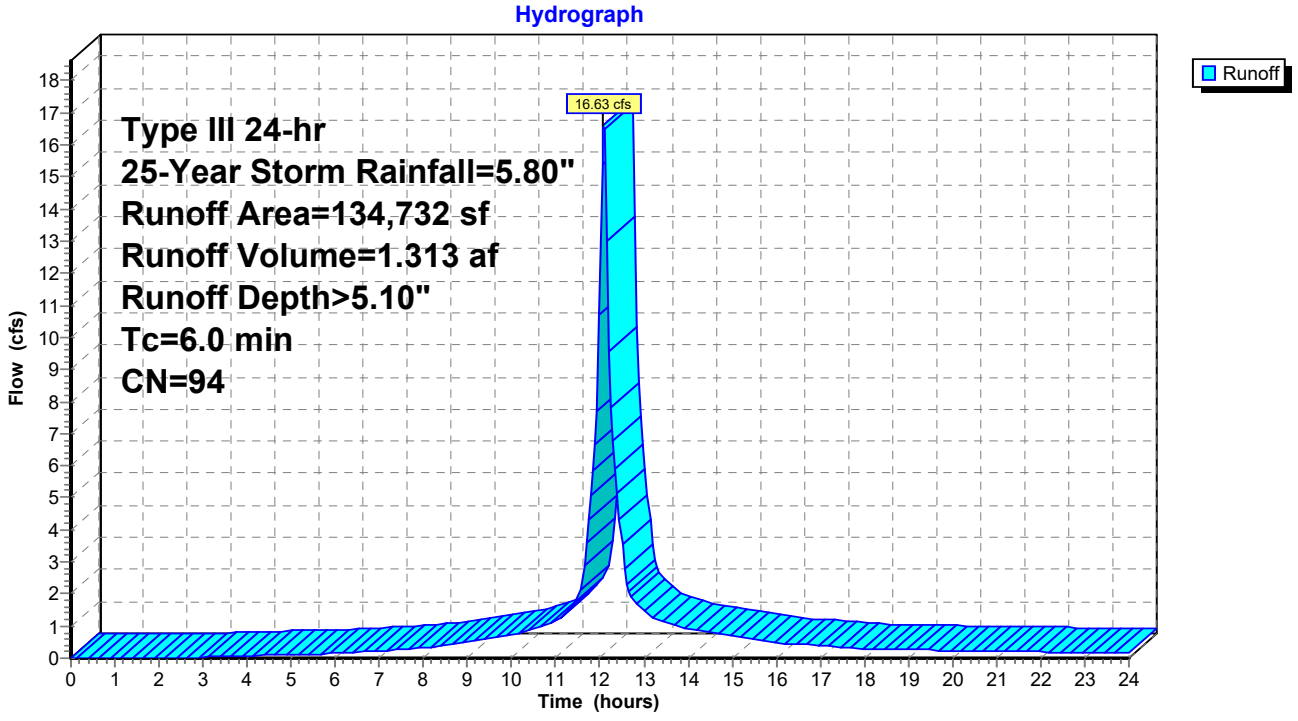
Runoff = 16.63 cfs @ 12.09 hrs, Volume= 1.313 af, Depth> 5.10"
Routed to Link 2L : Fore River

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	104,324	98	Impervious
	30,408	80	>75% Grass cover, Good, HSG D
	134,732	94	Weighted Average
	30,408		22.57% Pervious Area
	104,324		77.43% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 25S: Waterfront



Summary for Subcatchment 26S: Plaza along Townhouse at Fore Street

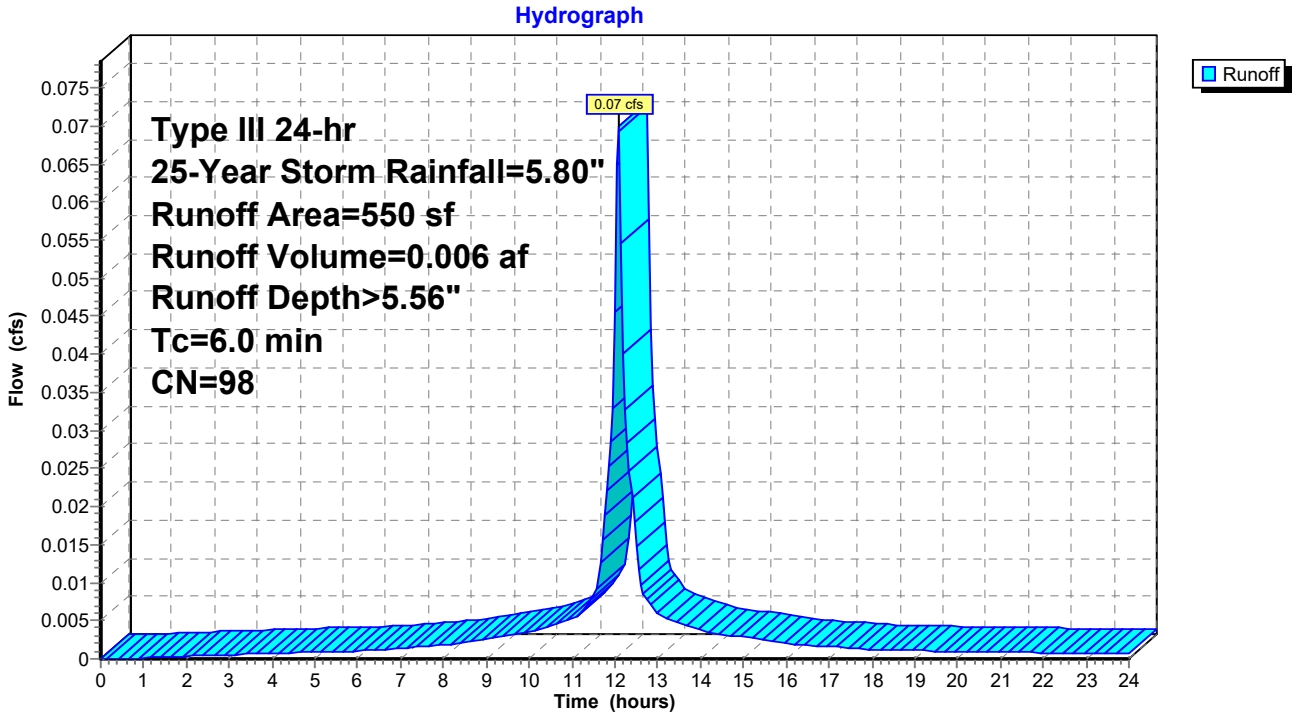
Runoff = 0.07 cfs @ 12.09 hrs, Volume= 0.006 af, Depth> 5.56"
Routed to Link 3L : Fore Street

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	550	98	Impervious
	550		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 26S: Plaza along Townhouse at Fore Street



Summary for Subcatchment 27S: Drainage from off-site residential

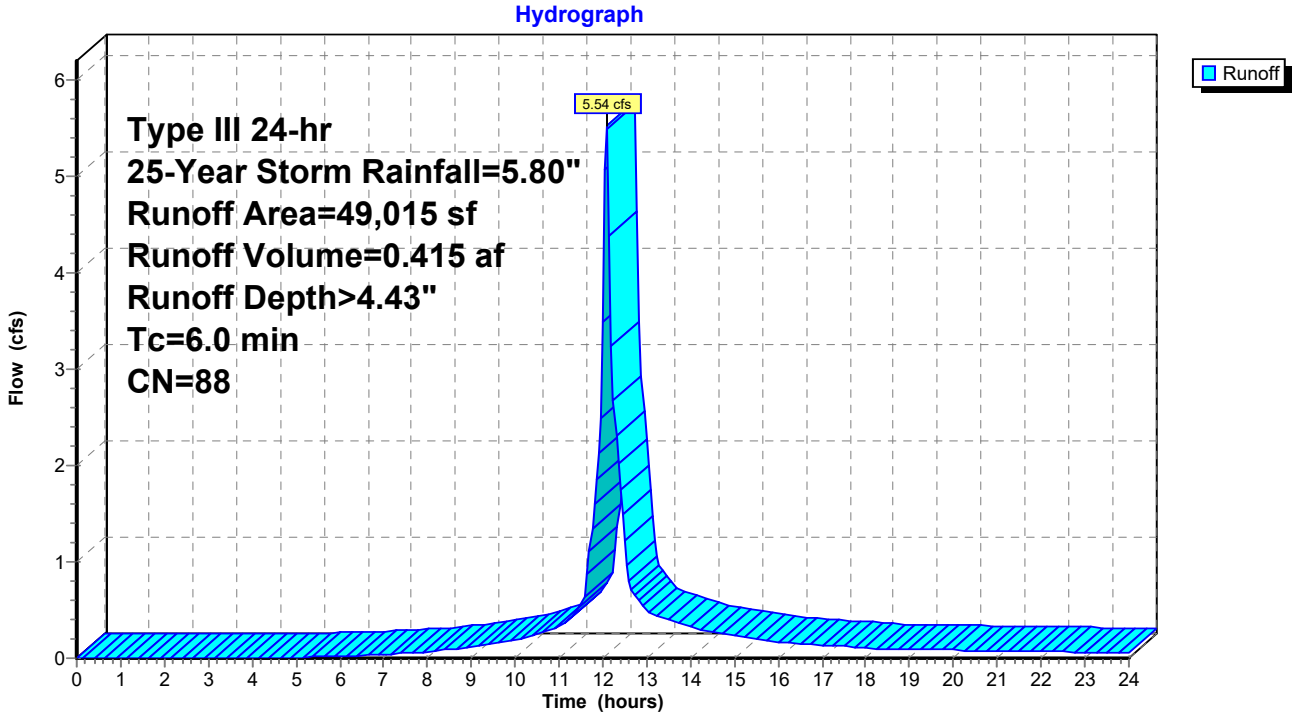
Runoff = 5.54 cfs @ 12.09 hrs, Volume= 0.415 af, Depth> 4.43"
Routed to Pond 13P : DMH-13 (Outfall #2)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	21,465	98	Impervious
	27,550	80	>75% Grass cover, Good, HSG D
	49,015	88	Weighted Average
	27,550		56.21% Pervious Area
	21,465		43.79% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 27S: Drainage from off-site residential



Summary for Pond 1P: DMH 1

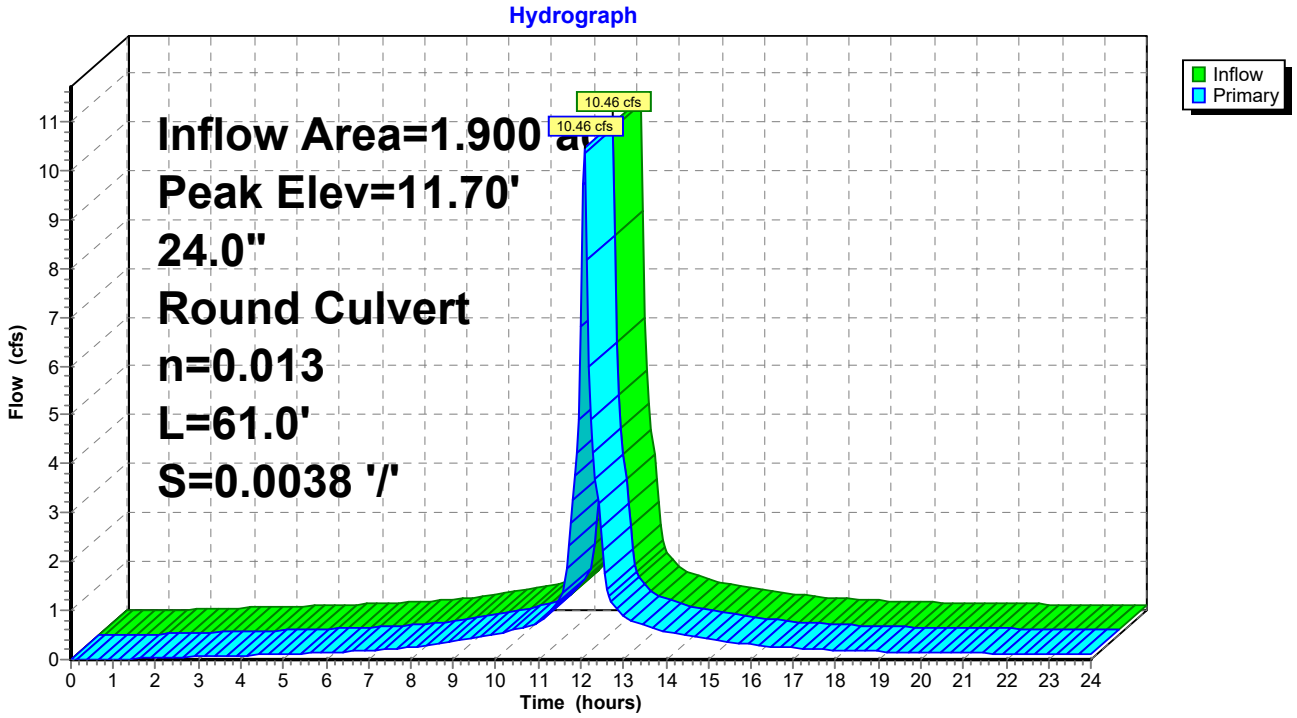
Inflow Area = 1.900 ac, 93.68% Impervious, Inflow Depth > 5.42" for 25-Year Storm event
Inflow = 10.46 cfs @ 12.09 hrs, Volume= 0.858 af
Outflow = 10.46 cfs @ 12.09 hrs, Volume= 0.858 af, Atten= 0%, Lag= 0.0 min
Primary = 10.46 cfs @ 12.09 hrs, Volume= 0.858 af
Routed to Pond 2P : DMH 2

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 11.70' @ 12.09 hrs
Flood Elev= 14.71'

Device	Routing	Invert	Outlet Devices
#1	Primary	9.77'	**24.0" Round Culvert** L= 61.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 9.77' / 9.54' S= 0.0038 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=10.18 cfs @ 12.09 hrs HW=11.67' (Free Discharge)
1=Culvert (Barrel Controls 10.18 cfs @ 4.26 fps)

Pond 1P: DMH 1



Summary for Pond 2P: DMH 2

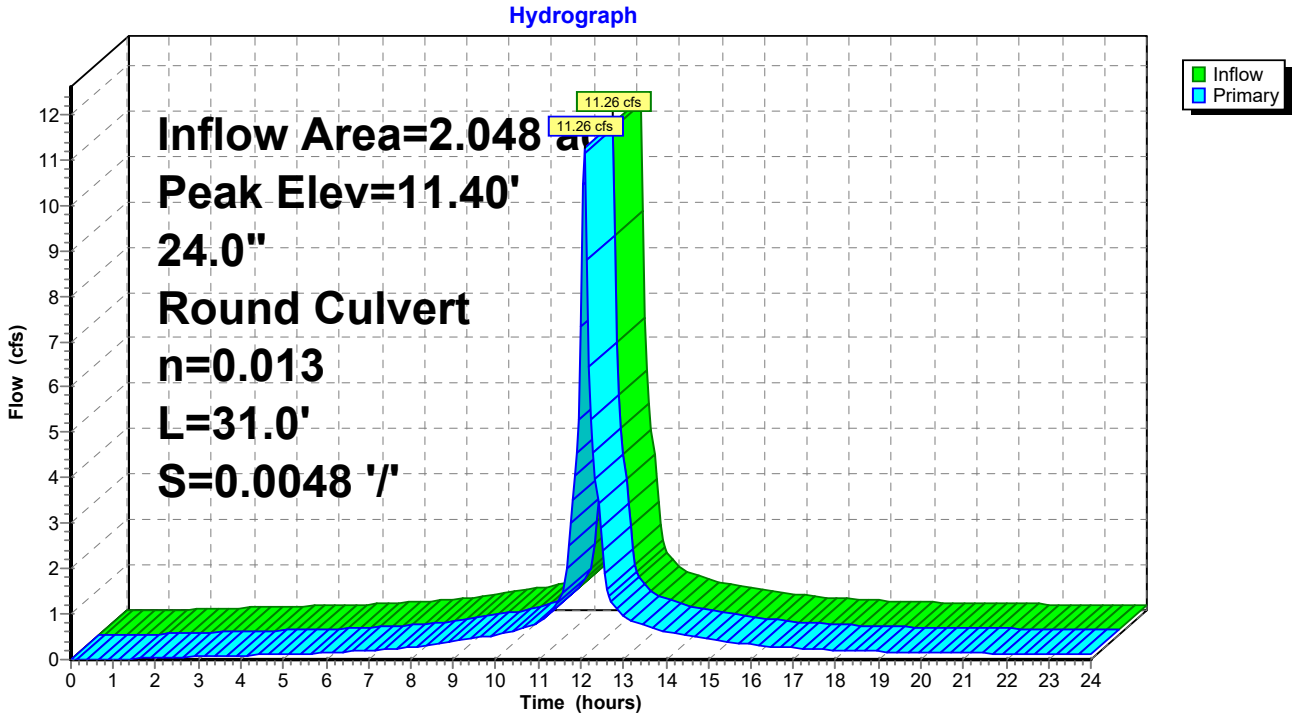
Inflow Area = 2.048 ac, 93.15% Impervious, Inflow Depth > 5.41" for 25-Year Storm event
Inflow = 11.26 cfs @ 12.09 hrs, Volume= 0.923 af
Outflow = 11.26 cfs @ 12.09 hrs, Volume= 0.923 af, Atten= 0%, Lag= 0.0 min
Primary = 11.26 cfs @ 12.09 hrs, Volume= 0.923 af
Routed to Pond 3P : Storm Structure

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 11.40' @ 12.09 hrs
Flood Elev= 14.63'

Device	Routing	Invert	Outlet Devices
#1	Primary	9.50'	**24.0" Round Culvert** L= 31.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 9.50' / 9.35' S= 0.0048 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=10.96 cfs @ 12.09 hrs HW=11.36' (Free Discharge)
1=Culvert (Barrel Controls 10.96 cfs @ 4.68 fps)

Pond 2P: DMH 2



Summary for Pond 3P: Storm Structure

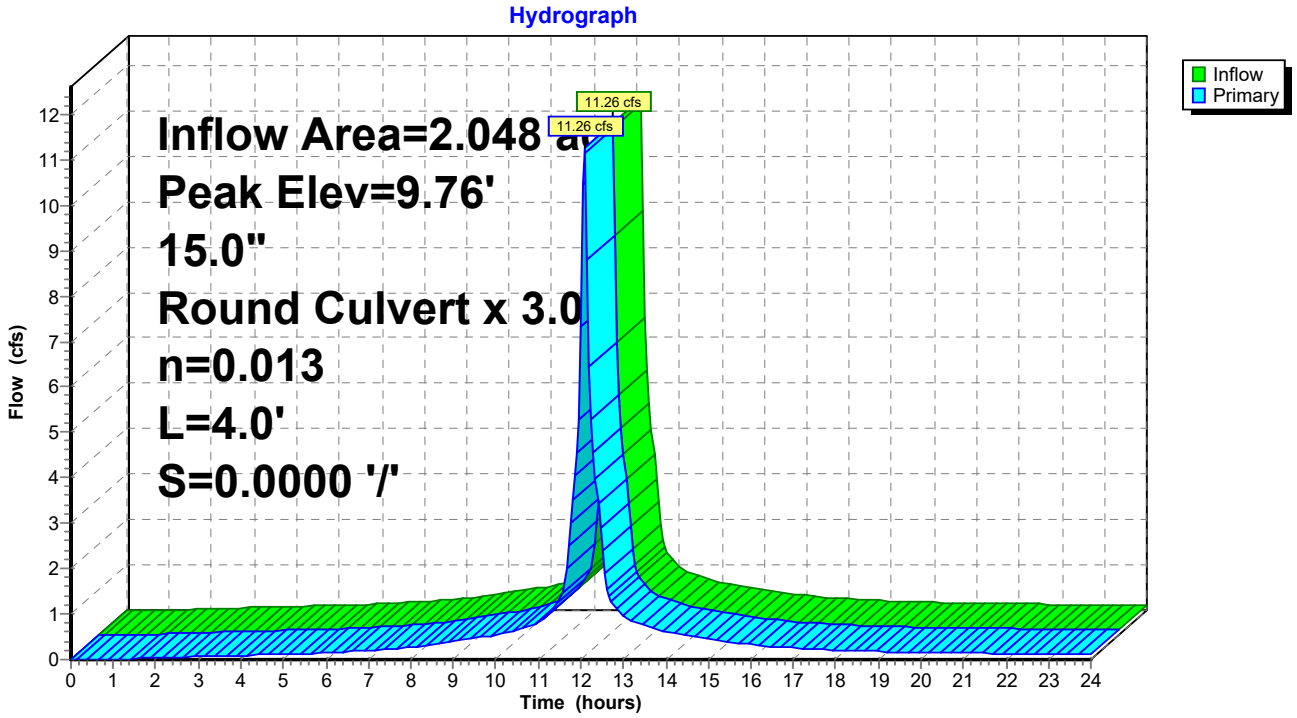
Inflow Area = 2.048 ac, 93.15% Impervious, Inflow Depth > 5.41" for 25-Year Storm event
Inflow = 11.26 cfs @ 12.09 hrs, Volume= 0.923 af
Outflow = 11.26 cfs @ 12.09 hrs, Volume= 0.923 af, Atten= 0%, Lag= 0.0 min
Primary = 11.26 cfs @ 12.09 hrs, Volume= 0.923 af
Routed to Pond 4P : R-Tank 1

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 9.76' @ 12.09 hrs
Flood Elev= 14.51'

Device	Routing	Invert	Outlet Devices
#1	Primary	8.35'	**15.0" Round Culvert X 3.00** L= 4.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 8.35' / 8.35' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=10.96 cfs @ 12.09 hrs HW=9.73' (Free Discharge)
1=Culvert (Barrel Controls 10.96 cfs @ 3.36 fps)

Pond 3P: Storm Structure



Summary for Pond 4P: R-Tank 1

Inflow Area = 2.048 ac, 93.15% Impervious, Inflow Depth > 5.41" for 25-Year Storm event
Inflow = 11.26 cfs @ 12.09 hrs, Volume= 0.923 af
Outflow = 9.94 cfs @ 12.14 hrs, Volume= 0.915 af, Atten= 12%, Lag= 2.9 min
Primary = 9.94 cfs @ 12.14 hrs, Volume= 0.915 af
Routed to Pond 10P : DMH 4

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 9.26' @ 12.13 hrs Surf.Area= 1,162 sf Storage= 2,505 cf
Flood Elev= 12.00' Surf.Area= 1,162 sf Storage= 3,266 cf

Plug-Flow detention time= 16.3 min calculated for 0.913 af (99% of inflow)
Center-of-Mass det. time= 10.6 min (763.6 - 753.0)

Volume	Invert	Avail.Storage	Storage Description
#1	6.50'	892 cf	**Stone Envelope (Prismatic)** Listed below (Recalc) 4,729 cf Overall - 2,499 cf Embedded = 2,231 cf x 40.0% Voids
#2	6.75'	2,374 cf	**R-Tank Double Modules (Prismatic)** Listed below (Recalc) Inside #1 2,499 cf Overall x 95.0% Voids
		3,266 cf	Total Available Storage

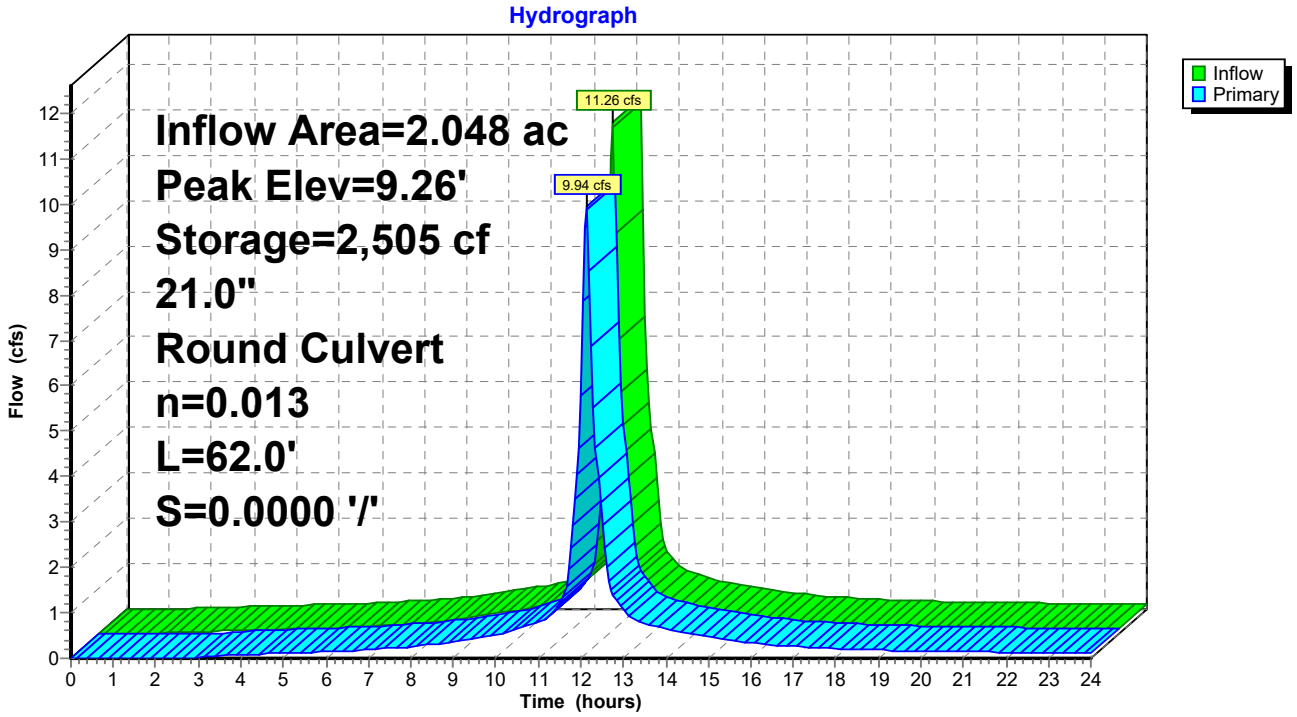
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
6.50	1,162	0	0
10.57	1,162	4,729	4,729

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
6.75	886	0	0
9.57	886	2,499	2,499

Device	Routing	Invert	Outlet Devices
#1	Primary	6.75'	**21.0" Round Culvert to Filter** L= 62.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 6.75' / 6.75' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 2.41 sf

Primary OutFlow Max=9.77 cfs @ 12.14 hrs HW=9.22' (Free Discharge)
↑—**1=Culvert to Filter** (Barrel Controls 9.77 cfs @ 4.06 fps)

Pond 4P: R-Tank 1



Summary for Pond 5P: DMH-11

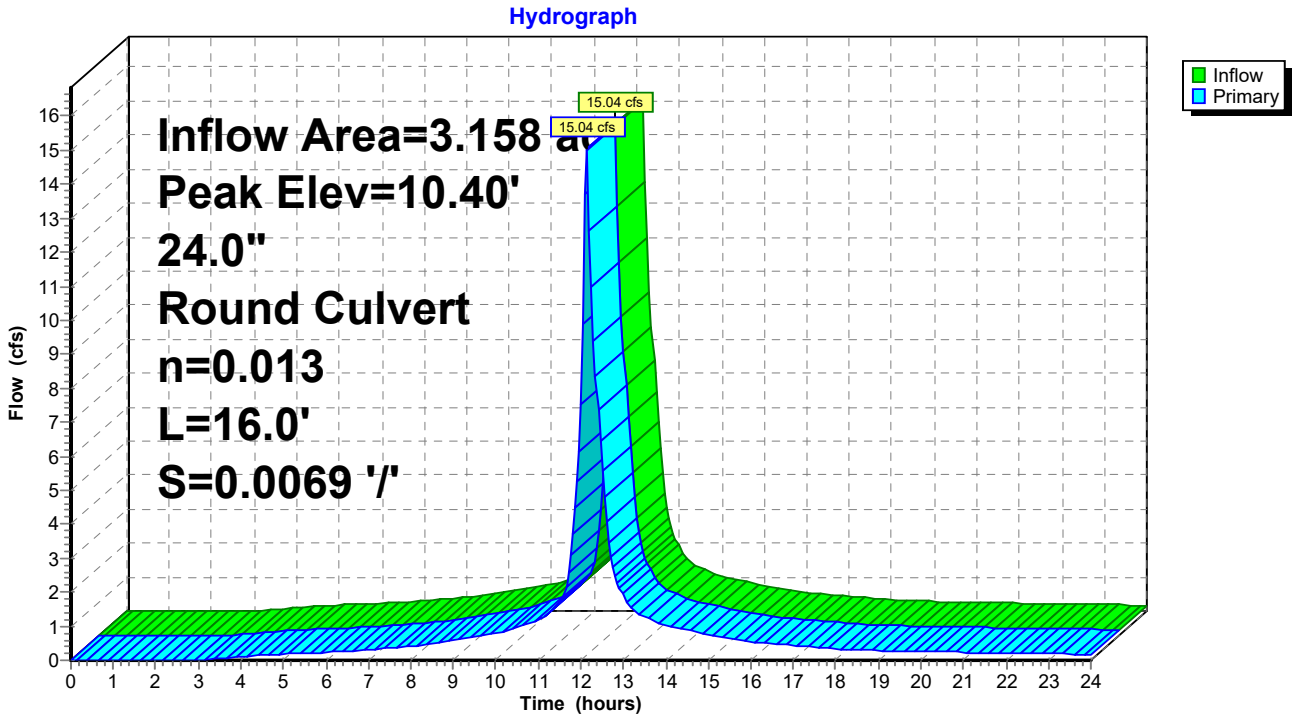
Inflow Area = 3.158 ac, 99.40% Impervious, Inflow Depth > 5.44" for 25-Year Storm event
Inflow = 15.04 cfs @ 12.14 hrs, Volume= 1.433 af
Outflow = 15.04 cfs @ 12.14 hrs, Volume= 1.433 af, Atten= 0%, Lag= 0.0 min
Primary = 15.04 cfs @ 12.14 hrs, Volume= 1.433 af
Routed to Pond 12P : Jellyfish 2 JFPD0806-7-2

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 10.40' @ 12.14 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	7.82'	**24.0" Round Culvert** L= 16.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 7.82' / 7.71' S= 0.0069 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=14.85 cfs @ 12.14 hrs HW=10.37' (Free Discharge)
1=Culvert (Inlet Controls 14.85 cfs @ 4.73 fps)

Pond 5P: DMH-11



Summary for Pond 6P: CB27

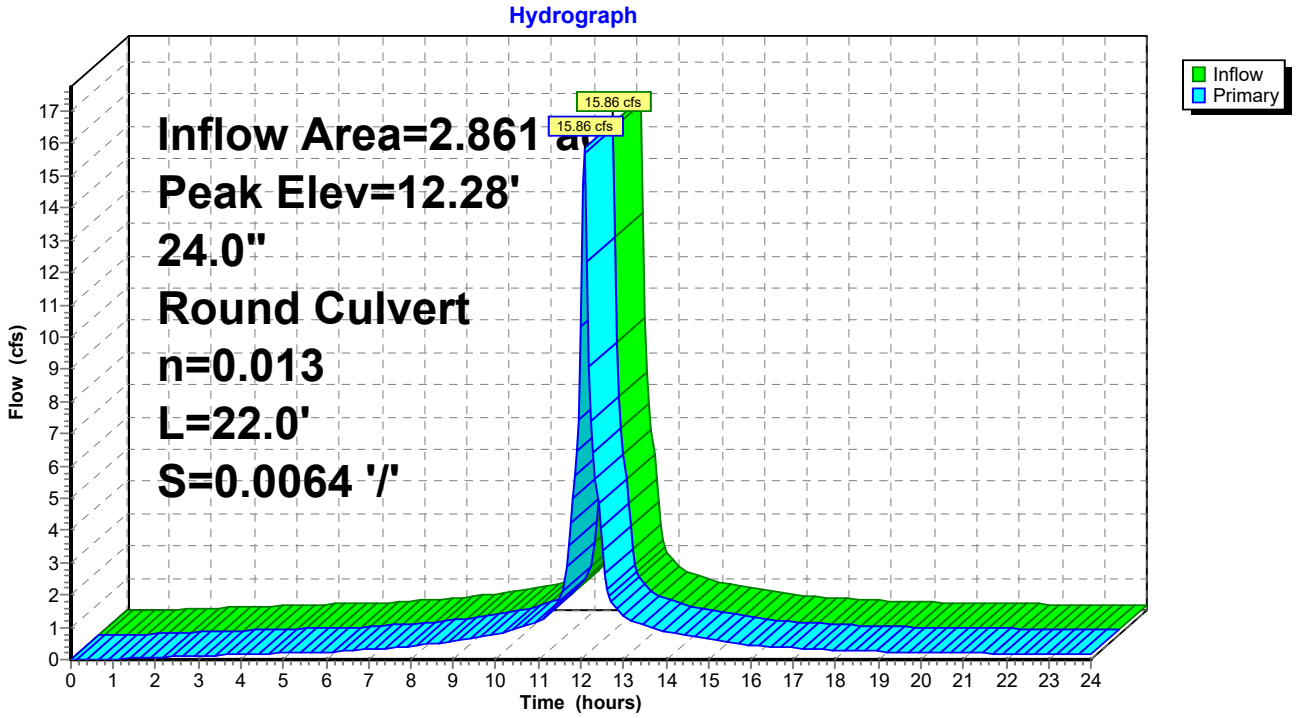
Inflow Area = 2.861 ac, 99.33% Impervious, Inflow Depth > 5.54" for 25-Year Storm event
Inflow = 15.86 cfs @ 12.09 hrs, Volume= 1.321 af
Outflow = 15.86 cfs @ 12.09 hrs, Volume= 1.321 af, Atten= 0%, Lag= 0.0 min
Primary = 15.86 cfs @ 12.09 hrs, Volume= 1.321 af
Routed to Pond 7P : Storm Structure

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 12.28' @ 12.09 hrs
Flood Elev= 14.57'

Device	Routing	Invert	Outlet Devices
#1	Primary	9.53'	**24.0" Round Culvert** L= 22.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 9.53' / 9.39' S= 0.0064 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=15.40 cfs @ 12.09 hrs HW=12.20' (Free Discharge)
1=Culvert (Barrel Controls 15.40 cfs @ 4.90 fps)

Pond 6P: CB27



Summary for Pond 7P: Storm Structure

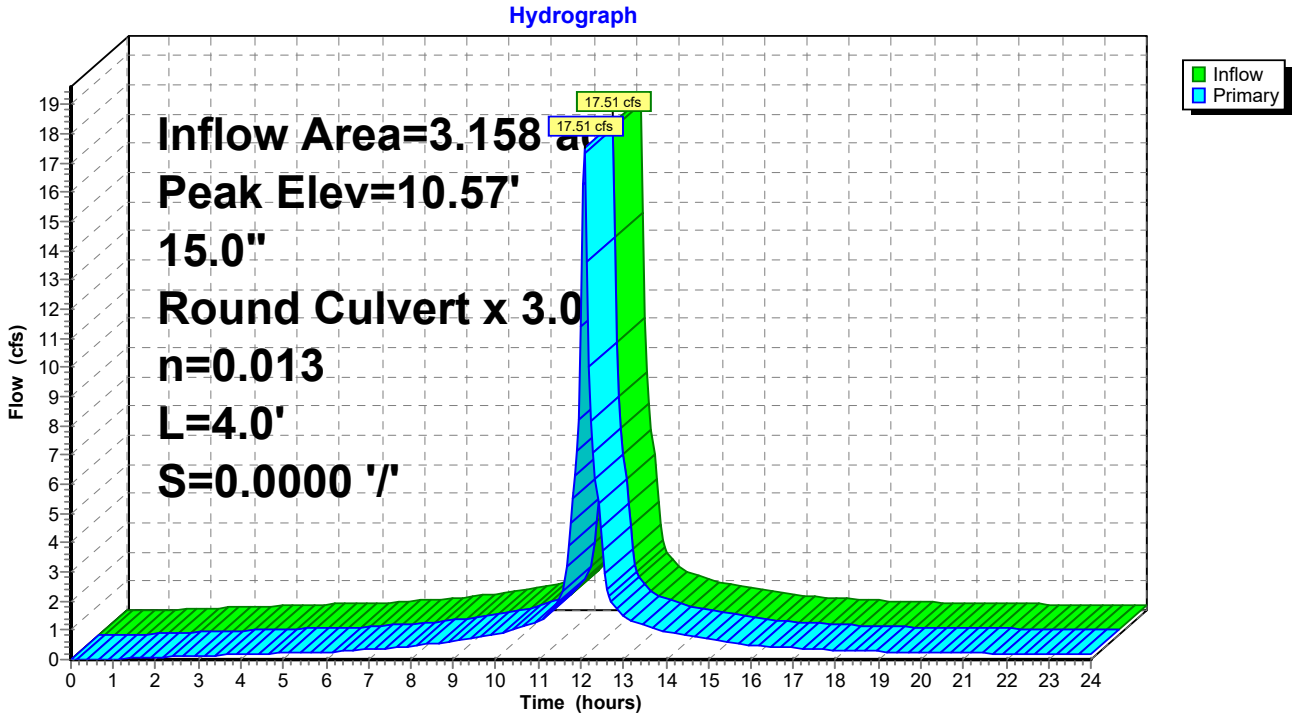
Inflow Area = 3.158 ac, 99.40% Impervious, Inflow Depth > 5.54" for 25-Year Storm event
Inflow = 17.51 cfs @ 12.09 hrs, Volume= 1.459 af
Outflow = 17.51 cfs @ 12.09 hrs, Volume= 1.459 af, Atten= 0%, Lag= 0.0 min
Primary = 17.51 cfs @ 12.09 hrs, Volume= 1.459 af
Routed to Pond 8P : R-Tank 2

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 10.57' @ 12.09 hrs
Flood Elev= 14.25'

Device	Routing	Invert	Outlet Devices
#1	Primary	8.39'	**15.0" Round Culvert X 3.00** L= 4.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 8.39' / 8.39' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=17.04 cfs @ 12.09 hrs HW=10.50' (Free Discharge)
1=Culvert (Inlet Controls 17.04 cfs @ 4.63 fps)

Pond 7P: Storm Structure



Summary for Pond 8P: R-Tank 2

Inflow Area = 3.158 ac, 99.40% Impervious, Inflow Depth > 5.54" for 25-Year Storm event
Inflow = 17.51 cfs @ 12.09 hrs, Volume= 1.459 af
Outflow = 15.04 cfs @ 12.14 hrs, Volume= 1.433 af, Atten= 14%, Lag= 3.4 min
Primary = 15.04 cfs @ 12.14 hrs, Volume= 1.433 af
Routed to Pond 5P : DMH-11

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 10.81' @ 12.14 hrs Surf.Area= 3,128 sf Storage= 7,247 cf
Flood Elev= 12.71' Surf.Area= 3,128 sf Storage= 8,290 cf

Plug-Flow detention time= 33.5 min calculated for 1.433 af (98% of inflow)
Center-of-Mass det. time= 22.0 min (768.0 - 746.1)

Volume	Invert	Avail.Storage	Storage Description
#1	7.57'	2,767 cf	**Stone Envelope (Prismatic)** Listed below (Recalc) 12,731 cf Overall - 5,813 cf Embedded = 6,918 cf x 40.0% Voids
#2	7.82'	5,523 cf	**R-Tank Double Modules (Prismatic)** Listed below (Recalc) Inside #1 5,813 cf Overall x 95.0% Voids
		8,290 cf	Total Available Storage

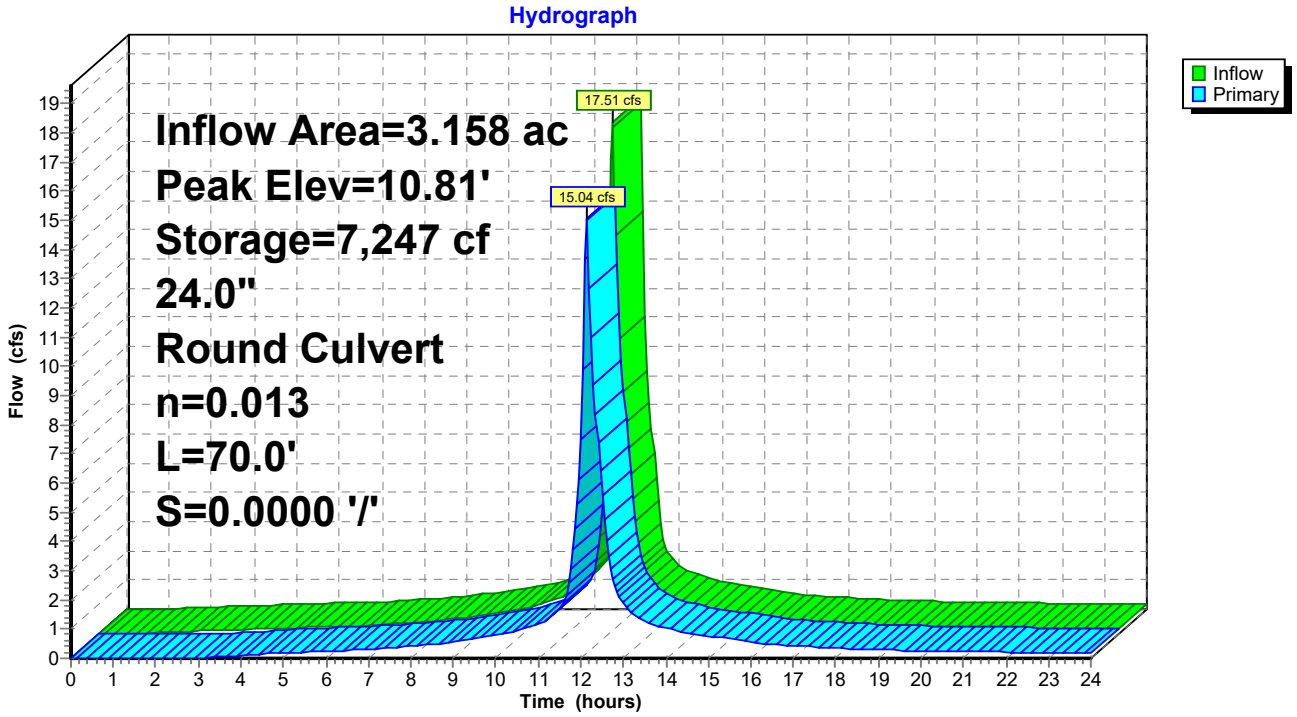
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
7.57	3,128	0	0
11.64	3,128	12,731	12,731

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
7.82	2,679	0	0
9.99	2,679	5,813	5,813

Device	Routing	Invert	Outlet Devices
#1	Primary	7.82'	**24.0" Round Culvert** L= 70.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 7.82' / 7.82' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=14.82 cfs @ 12.14 hrs HW=10.78' (Free Discharge)
1=Culvert (Barrel Controls 14.82 cfs @ 4.72 fps)

Pond 8P: R-Tank 2



Summary for Pond 9P: DMH-8 (Outfall #1)

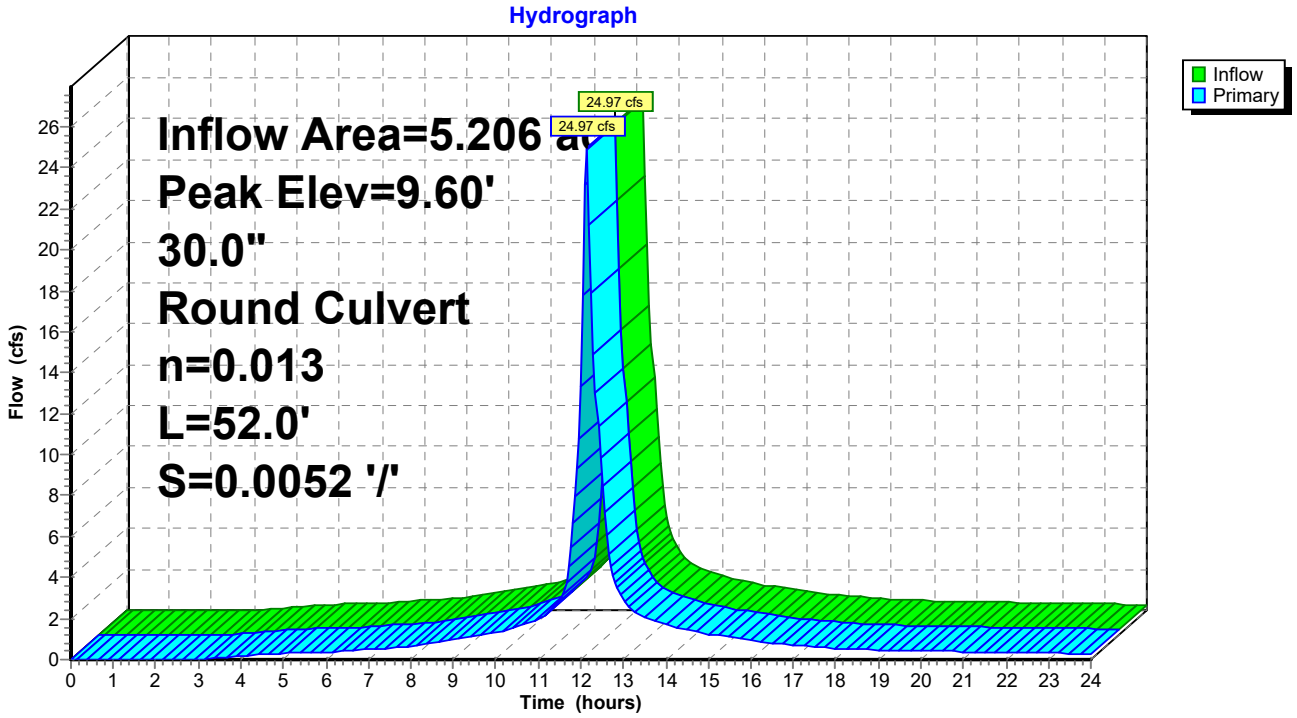
Inflow Area = 5.206 ac, 96.94% Impervious, Inflow Depth > 5.41" for 25-Year Storm event
Inflow = 24.97 cfs @ 12.14 hrs, Volume= 2.348 af
Outflow = 24.97 cfs @ 12.14 hrs, Volume= 2.348 af, Atten= 0%, Lag= 0.0 min
Primary = 24.97 cfs @ 12.14 hrs, Volume= 2.348 af
Routed to Link 2L : Fore River

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 9.60' @ 12.14 hrs
Flood Elev= 11.78'

Device	Routing	Invert	Outlet Devices
#1	Primary	6.57'	**30.0" Round Culvert** L= 52.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 6.57' / 6.30' S= 0.0052 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 4.91 sf

Primary OutFlow Max=24.58 cfs @ 12.14 hrs HW=9.56' (Free Discharge)
1=Culvert (Inlet Controls 24.58 cfs @ 5.01 fps)

Pond 9P: DMH-8 (Outfall #1)



Summary for Pond 10P: DMH 4

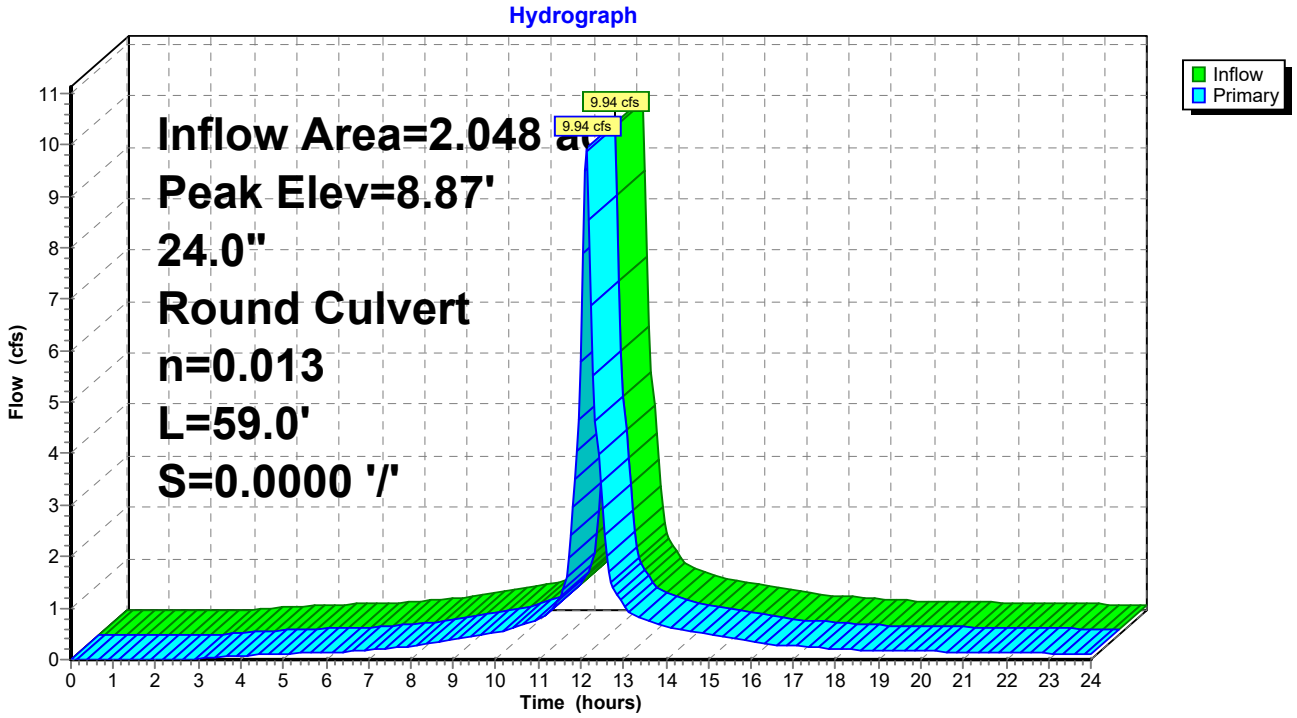
Inflow Area = 2.048 ac, 93.15% Impervious, Inflow Depth > 5.36" for 25-Year Storm event
Inflow = 9.94 cfs @ 12.14 hrs, Volume= 0.915 af
Outflow = 9.94 cfs @ 12.14 hrs, Volume= 0.915 af, Atten= 0%, Lag= 0.0 min
Primary = 9.94 cfs @ 12.14 hrs, Volume= 0.915 af
Routed to Pond 11P : Jellyfish 1 JFPD0806-4-1

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 8.87' @ 12.14 hrs
Flood Elev= 13.56'

Device	Routing	Invert	Outlet Devices
#1	Primary	6.75'	**24.0" Round Culvert** L= 59.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 6.75' / 6.75' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=9.76 cfs @ 12.14 hrs HW=8.84' (Free Discharge)
1=Culvert (Barrel Controls 9.76 cfs @ 3.69 fps)

Pond 10P: DMH 4



Summary for Pond 11P: Jellyfish 1 JFPD0806-4-1

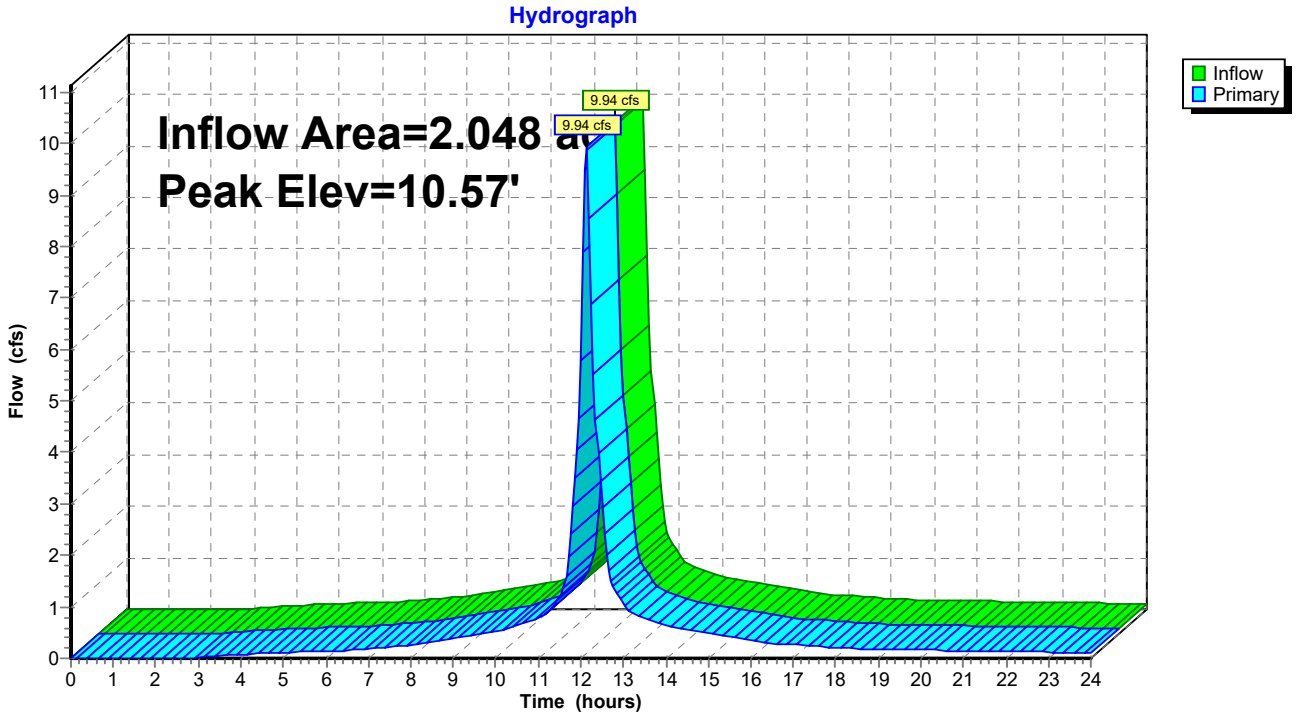
Inflow Area = 2.048 ac, 93.15% Impervious, Inflow Depth > 5.36" for 25-Year Storm event
Inflow = 9.94 cfs @ 12.14 hrs, Volume= 0.915 af
Outflow = 9.94 cfs @ 12.14 hrs, Volume= 0.915 af, Atten= 0%, Lag= 0.0 min
Primary = 9.94 cfs @ 12.14 hrs, Volume= 0.915 af
Routed to Pond 9P : DMH-8 (Outfall #1)

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 10.57' @ 12.14 hrs
Flood Elev= 12.89'

Device	Routing	Invert	Outlet Devices
#1	Primary	6.75'	**24.0" Round Filter Culvert Out** L= 5.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 6.75' / 6.67' S= 0.0160 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Device 1	6.75'	**JF Filter-1 CSV File** Head (feet) 0.00 0.08 0.17 0.25 0.33 0.42 0.50 0.58 0.67 0.75 0.83 0.92 1.00 1.08 1.17 1.25 1.33 1.42 1.50 Disch. (cfs) 0.000 0.010 0.020 0.030 0.040 0.050 0.059 0.129 0.198 0.267 0.337 0.406 0.475 0.545 0.614 0.683 0.753 0.822 0.891
#3	Device 1	9.59'	**2.8' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=9.76 cfs @ 12.14 hrs HW=10.56' (Free Discharge)
└**1=Filter Culvert Out** (Passes 9.76 cfs of 20.02 cfs potential flow)
  ├**2=JF Filter-1 CSV File** (Custom Controls 0.89 cfs)
  └**3=Broad-Crested Rectangular Weir** (Weir Controls 8.87 cfs @ 3.27 fps)

Pond 11P: Jellyfish 1 JFPD0806-4-1



Summary for Pond 12P: Jellyfish 2 JFPD0806-7-2

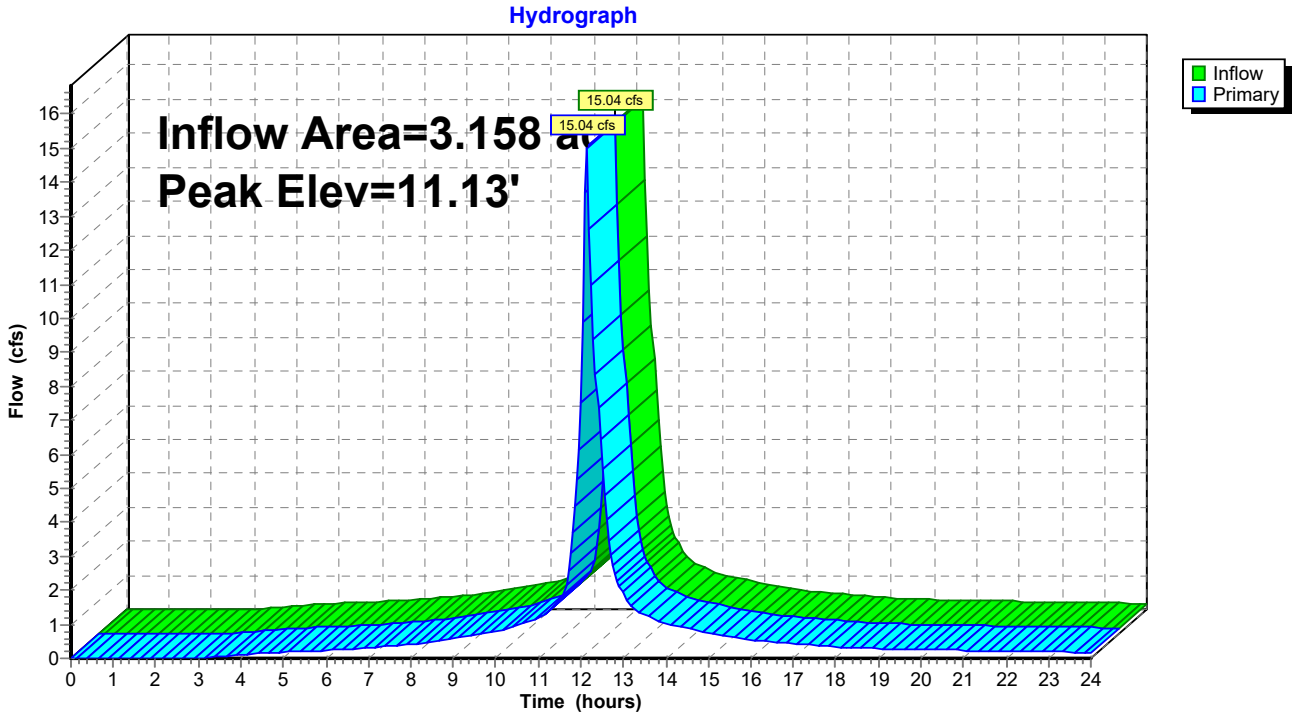
Inflow Area = 3.158 ac, 99.40% Impervious, Inflow Depth > 5.44" for 25-Year Storm event
Inflow = 15.04 cfs @ 12.14 hrs, Volume= 1.433 af
Outflow = 15.04 cfs @ 12.14 hrs, Volume= 1.433 af, Atten= 0%, Lag= 0.0 min
Primary = 15.04 cfs @ 12.14 hrs, Volume= 1.433 af
Routed to Pond 9P : DMH-8 (Outfall #1)

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 11.13' @ 12.14 hrs
Flood Elev= 11.43'

Device	Routing	Invert	Outlet Devices
#1	Primary	7.71'	**24.0" Round Filter Culvert Out** L= 125.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 7.71' / 6.92' S= 0.0063 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Device 1	7.71'	**JF Filter-2 CSV File** Head (feet) 0.00 0.08 0.17 0.25 0.33 0.42 0.50 0.58 0.67 0.75 0.83 0.92 1.00 1.08 1.17 1.25 1.33 1.42 1.50 Disch. (cfs) 0.000 0.010 0.020 0.030 0.040 0.050 0.059 0.173 0.287 0.401 0.515 0.629 0.743 0.857 0.970 1.084 1.198 1.312 1.426
#3	Device 1	9.84'	**2.8' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=14.81 cfs @ 12.14 hrs HW=11.12' (Free Discharge)
└**1=Filter Culvert Out** (Passes 14.81 cfs of 18.52 cfs potential flow)
└**2=JF Filter-2 CSV File** (Custom Controls 1.43 cfs)
└**3=Broad-Crested Rectangular Weir** (Weir Controls 13.39 cfs @ 3.75 fps)

Pond 12P: Jellyfish 2 JFPD0806-7-2



Summary for Pond 13P: DMH-13 (Outfall #2)

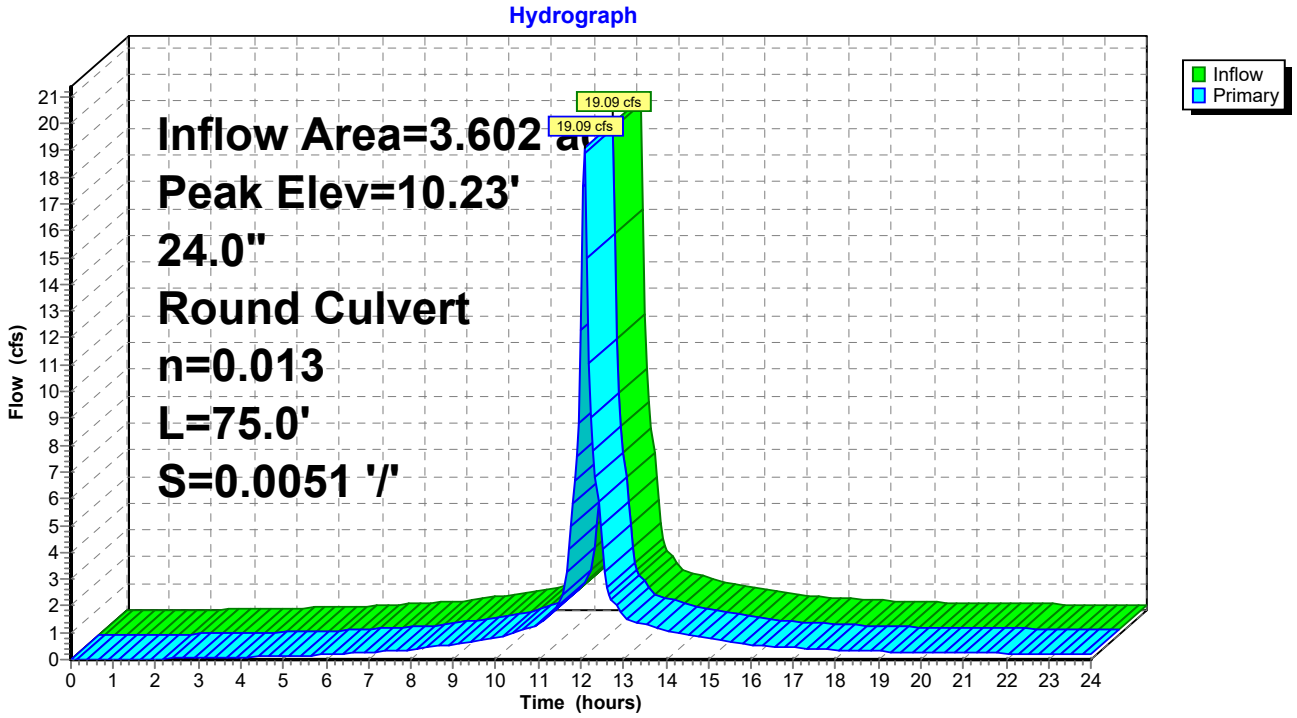
Inflow Area = 3.602 ac, 75.42% Impervious, Inflow Depth > 5.05" for 25-Year Storm event
Inflow = 19.09 cfs @ 12.09 hrs, Volume= 1.515 af
Outflow = 19.09 cfs @ 12.09 hrs, Volume= 1.515 af, Atten= 0%, Lag= 0.0 min
Primary = 19.09 cfs @ 12.09 hrs, Volume= 1.515 af
Routed to Link 2L : Fore River

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 10.23' @ 12.09 hrs
Flood Elev= 11.78'

Device	Routing	Invert	Outlet Devices
#1	Primary	6.68'	**24.0" Round Culvert** L= 75.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 6.68' / 6.30' S= 0.0051 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=18.60 cfs @ 12.09 hrs HW=10.11' (Free Discharge)
1=Culvert (Inlet Controls 18.60 cfs @ 5.92 fps)

Pond 13P: DMH-13 (Outfall #2)



Summary for Pond 24P: Filterra 1

Inflow Area = 0.429 ac,100.00% Impervious, Inflow Depth > 5.56" for 25-Year Storm event
Inflow = 2.38 cfs @ 12.09 hrs, Volume= 0.199 af
Outflow = 2.38 cfs @ 12.09 hrs, Volume= 0.199 af, Atten= 0%, Lag= 0.0 min
Primary = 1.39 cfs @ 12.09 hrs, Volume= 0.189 af
Routed to Pond 27P : CB
Secondary = 0.99 cfs @ 12.09 hrs, Volume= 0.010 af
Routed to Pond 27P : CB

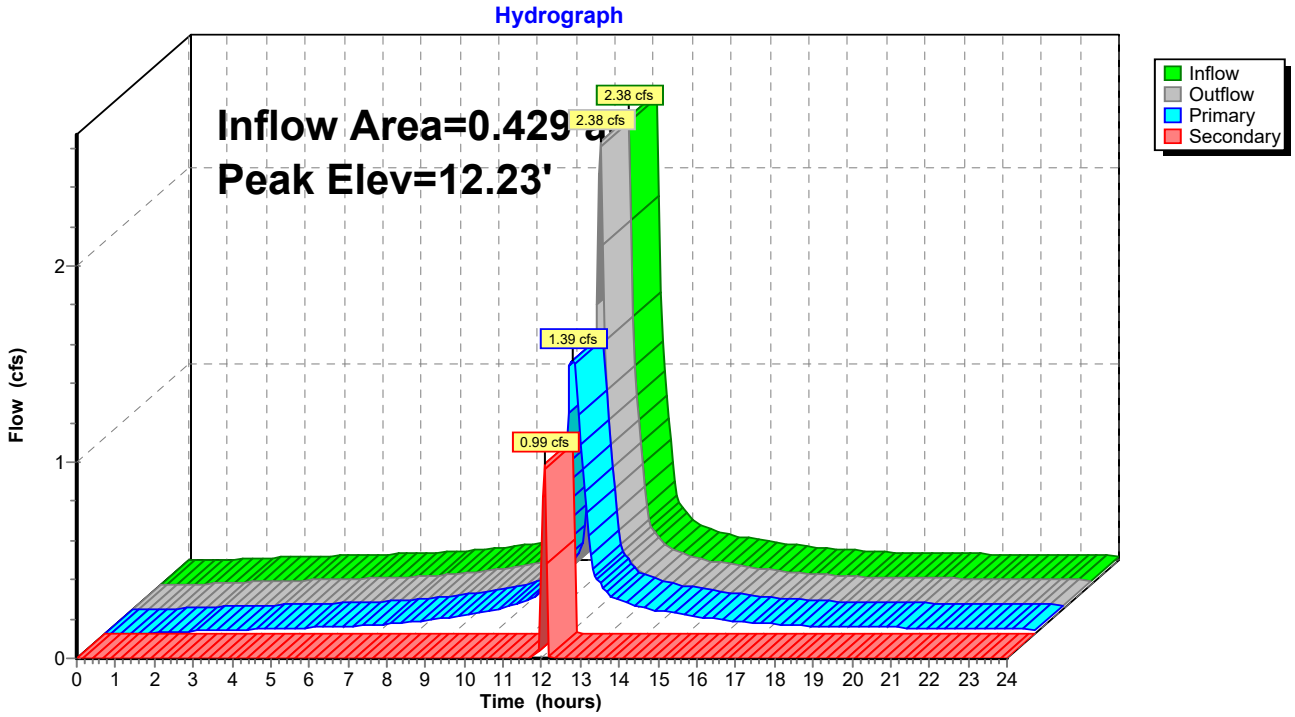
Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 12.23' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	8.51'	**6.0" Round Culvert** L= 4.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 8.51' / 8.48' S= 0.0075 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Secondary	12.05'	**5.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=1.39 cfs @ 12.09 hrs HW=12.22' (Free Discharge)
↑—**1=Culvert** (Inlet Controls 1.39 cfs @ 7.08 fps)

Secondary OutFlow Max=0.93 cfs @ 12.09 hrs HW=12.22' (Free Discharge)
↑—**2=Broad-Crested Rectangular Weir** (Weir Controls 0.93 cfs @ 1.06 fps)

Pond 24P: Filterra 1



Summary for Pond 27P: CB

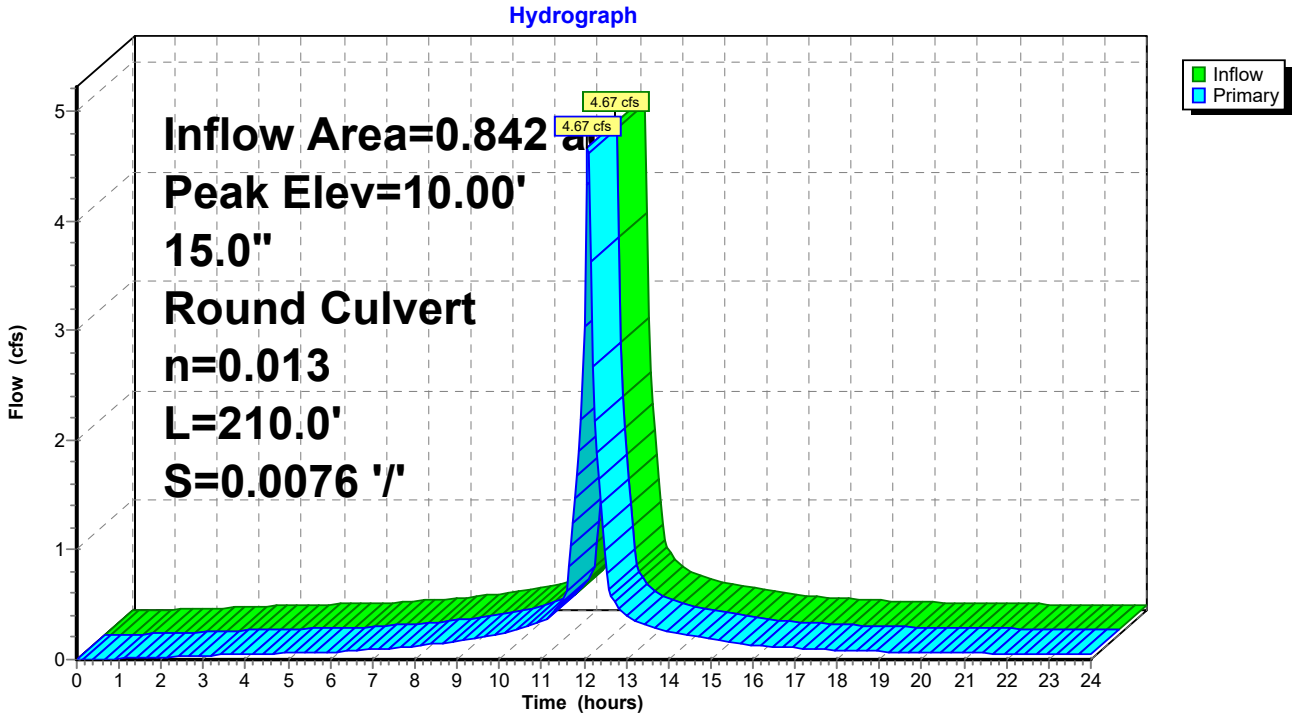
Inflow Area = 0.842 ac,100.00% Impervious, Inflow Depth > 5.56" for 25-Year Storm event
Inflow = 4.67 cfs @ 12.09 hrs, Volume= 0.390 af
Outflow = 4.67 cfs @ 12.09 hrs, Volume= 0.390 af, Atten= 0%, Lag= 0.0 min
Primary = 4.67 cfs @ 12.09 hrs, Volume= 0.390 af
Routed to Pond 13P : DMH-13 (Outfall #2)

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 10.00' @ 12.09 hrs
Flood Elev= 12.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	8.38'	**15.0" Round Culvert** L= 210.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 8.38' / 6.78' S= 0.0076 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=4.55 cfs @ 12.09 hrs HW=9.95' (Free Discharge)
1=Culvert (Inlet Controls 4.55 cfs @ 3.70 fps)

Pond 27P: CB



Summary for Pond 28P: Filterra 2

Inflow Area = 0.413 ac,100.00% Impervious, Inflow Depth > 5.56" for 25-Year Storm event
Inflow = 2.29 cfs @ 12.09 hrs, Volume= 0.191 af
Outflow = 2.29 cfs @ 12.09 hrs, Volume= 0.191 af, Atten= 0%, Lag= 0.0 min
Primary = 1.39 cfs @ 12.09 hrs, Volume= 0.182 af
Routed to Pond 27P : CB
Secondary = 0.90 cfs @ 12.09 hrs, Volume= 0.009 af
Routed to Pond 27P : CB

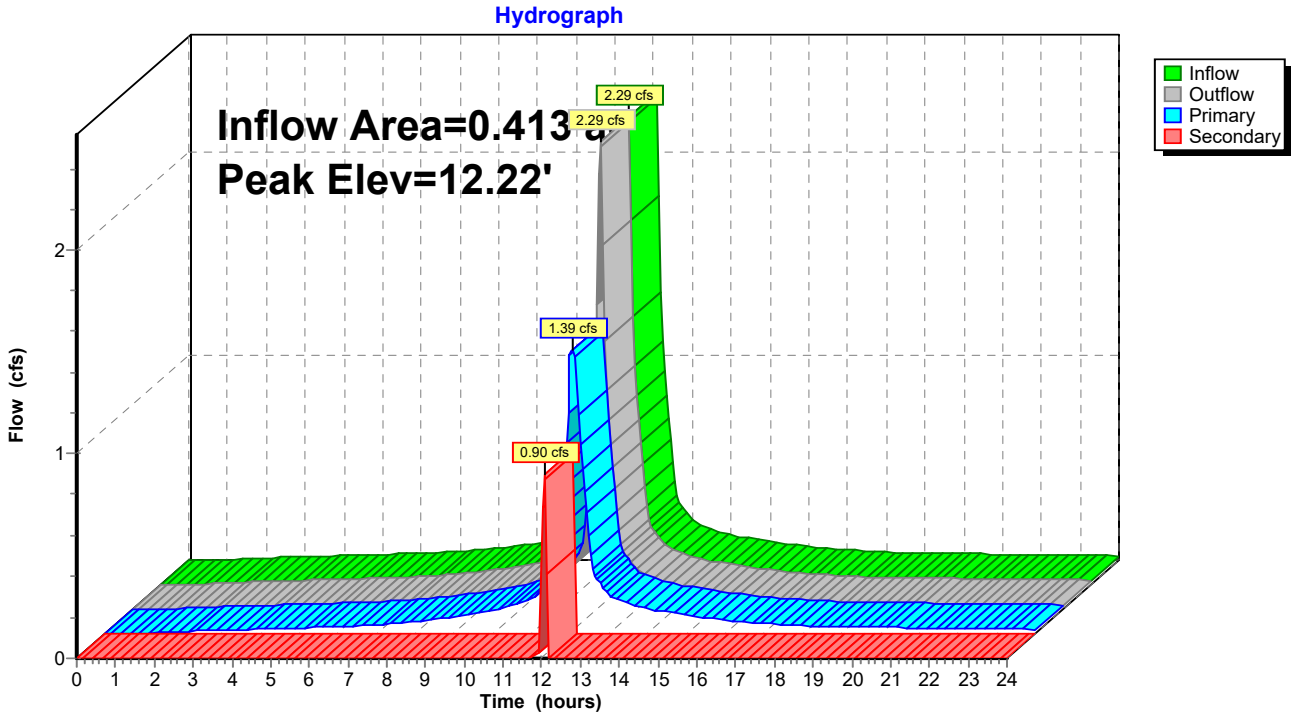
Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 12.22' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	8.51'	**6.0" Round Culvert** L= 4.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 8.51' / 8.48' S= 0.0075 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Secondary	12.05'	**5.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=1.39 cfs @ 12.09 hrs HW=12.21' (Free Discharge)
└**1=Culvert** (Inlet Controls 1.39 cfs @ 7.06 fps)

Secondary OutFlow Max=0.84 cfs @ 12.09 hrs HW=12.21' (Free Discharge)
└**2=Broad-Crested Rectangular Weir** (Weir Controls 0.84 cfs @ 1.03 fps)

Pond 28P: Filterra 2

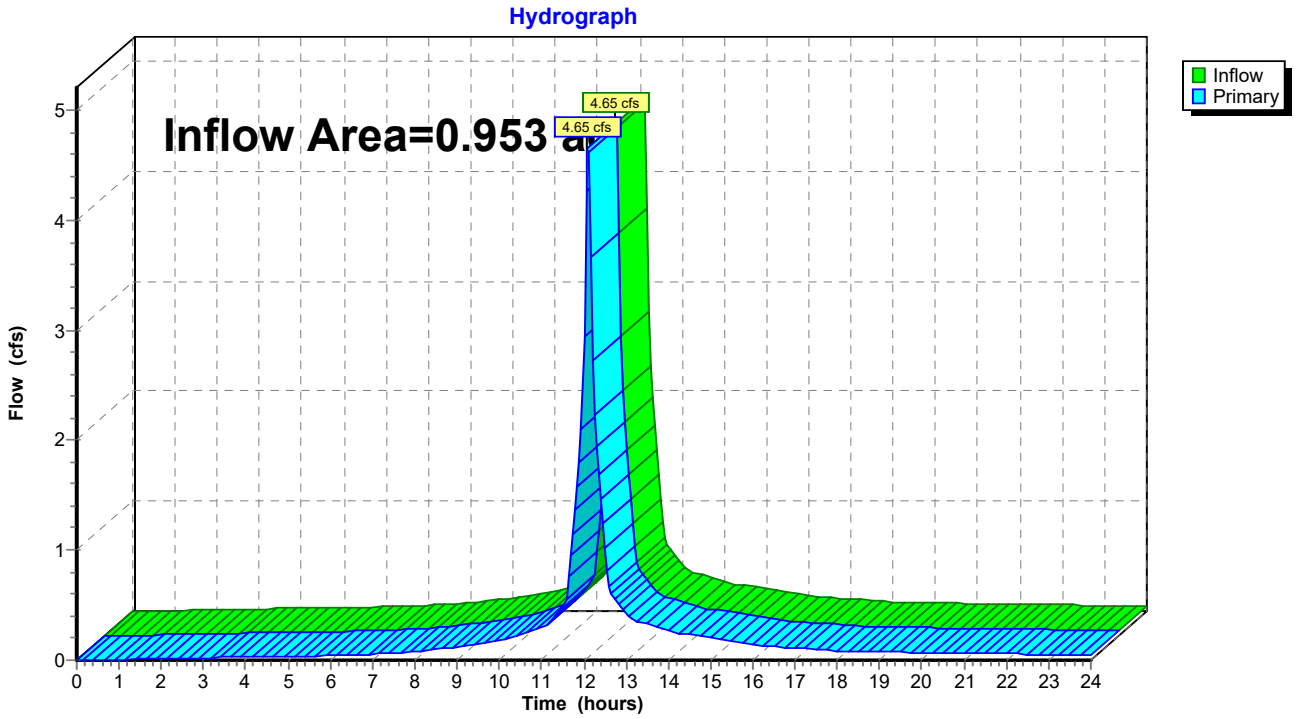


Summary for Link 1L: Freedom Way

Inflow Area = 0.953 ac, 53.78% Impervious, Inflow Depth > 4.64" for 25-Year Storm event
Inflow = 4.65 cfs @ 12.09 hrs, Volume= 0.369 af
Primary = 4.65 cfs @ 12.09 hrs, Volume= 0.369 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 1L: Freedom Way

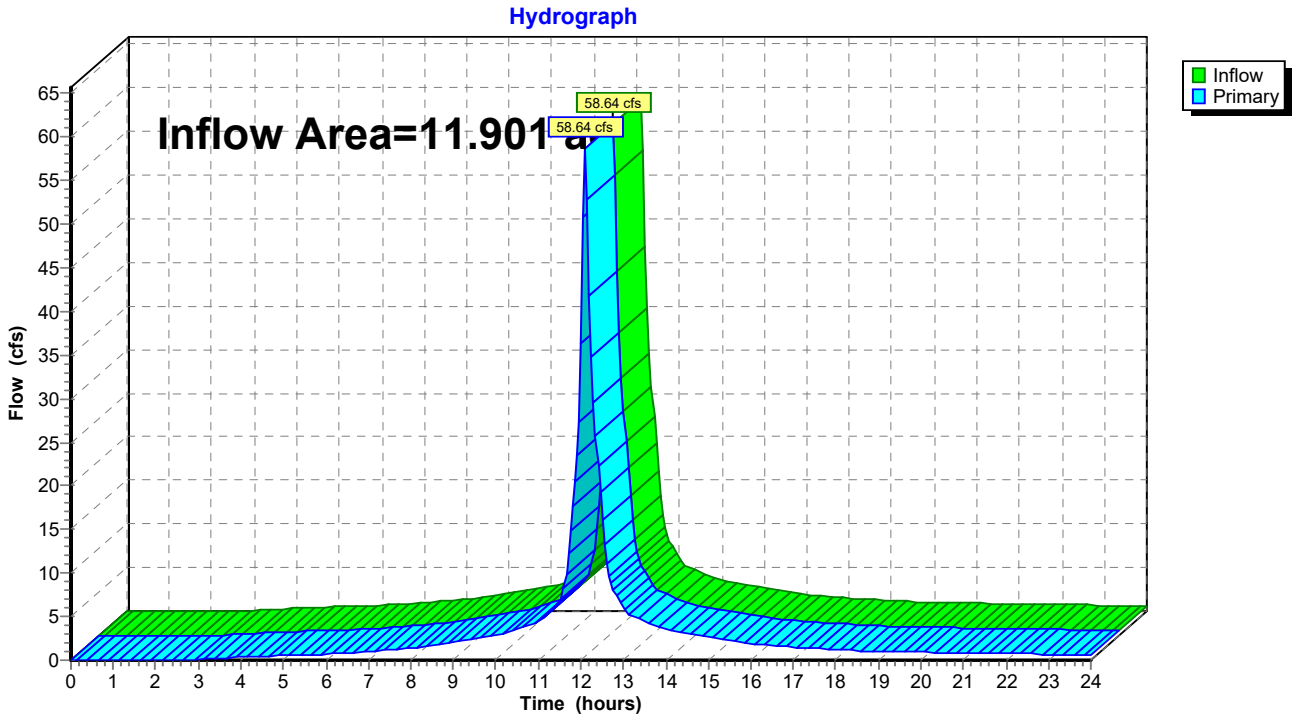


Summary for Link 2L: Fore River

Inflow Area = 11.901 ac, 85.36% Impervious, Inflow Depth > 5.22" for 25-Year Storm event
Inflow = 58.64 cfs @ 12.10 hrs, Volume= 5.177 af
Primary = 58.64 cfs @ 12.10 hrs, Volume= 5.177 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 2L: Fore River

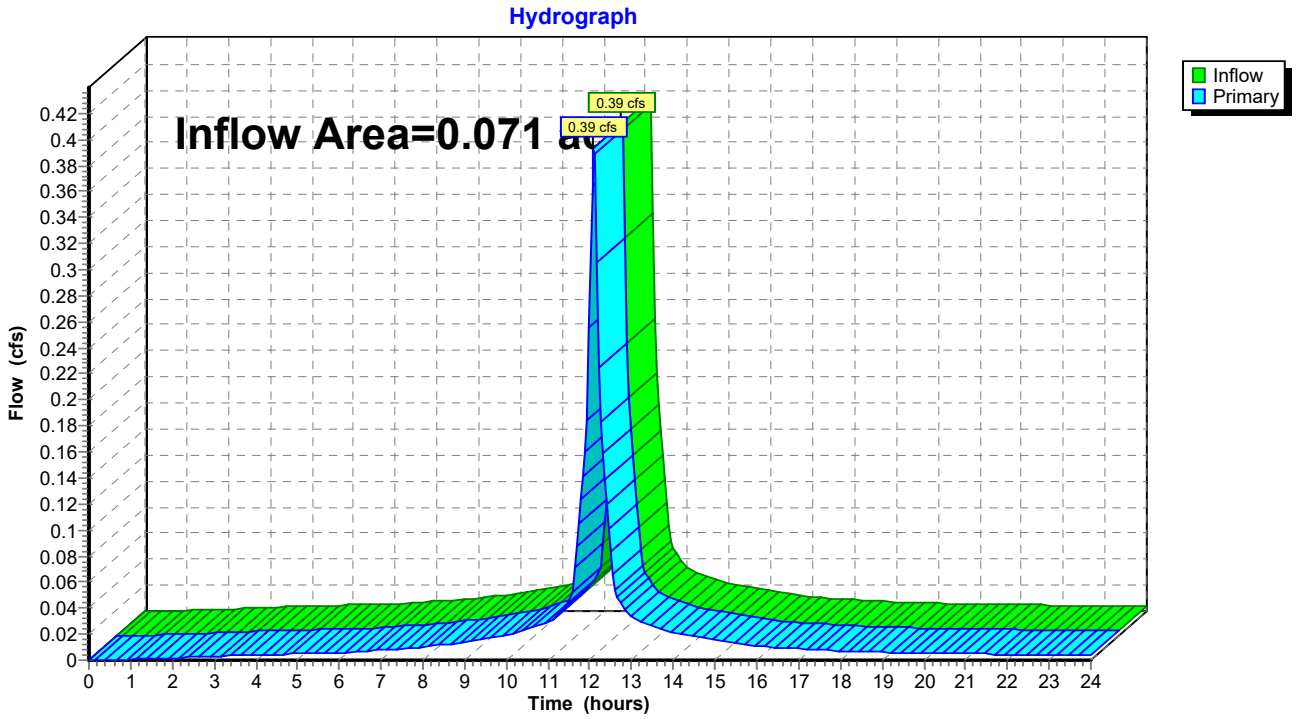


Summary for Link 3L: Fore Street

Inflow Area = 0.071 ac,100.00% Impervious, Inflow Depth > 5.56" for 25-Year Storm event
Inflow = 0.39 cfs @ 12.09 hrs, Volume= 0.033 af
Primary = 0.39 cfs @ 12.09 hrs, Volume= 0.033 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 3L: Fore Street



APPENDIX D: FIGURES

30x42
PLOT SCALE: 100 = 1'-0"

FORE CONNECTOR

FORE STREET

REDEVELOPMENT AREA

THAMES STREET EXTENSION

BUILDING 11

BUILDING 12

BUILDING 10

BUILDING 7

BUILDING 1

BUILDING 4

BUILDING 5

BLDG 14

BLDG 15

B6 EWPZ

APPROX. LOCATION 33" FORCE MAIN SEWER LINE

100 YEAR FLOOD LINE, ZONE V2 (EL 13') AS SCALED FROM FLOOD INSURANCE RATE MAP PANEL 230051 0014B DATED JULY 17, 1986

LEGEND

- POLLUTANT RANKING 5
- POLLUTANT RANKING 4
- POLLUTANT RANKING 3
- POLLUTANT RANKING 2
- POLLUTANT RANKING 1
- POLLUTANT RANKING 0

40' 0 40' 80'
BAR SCALE
1" = 40'
CHECK GRAPHIC SCALE BEFORE USING

C:\Users\bmcdevitt\OneDrive - Woodard & Curran_PCT\Folders\Desktop\PTDCS\Site Plan Submission\Blk 4 & 6 - Stormwater Figures - Impact Analysis.dwg, Sep 30, 2022 - 8:49am, BMCDEVITT

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PE SEAL:

NOT FOR CONSTRUCTION

CLIENT INFO:

PORTLAND FORESIDE DEVELOPMENT COMPANY
PORTLAND, MAINE

BLOCK 4 - HARBOR HILL
BLOCK 6 - CHANNEL MARK

REV	MM/DD/YY	DESCRIPTION
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JOB NO:	227007
DATE:	SEPTEMBER 2022
SCALE:	1"=40'
DESIGNED BY:	LJS/BCM
DRAWN BY:	BCM
CHECKED BY:	LJS
FILENAME:	BLK 4 & 6 - STORMWATER *.dwg

DRAWING TITLE:

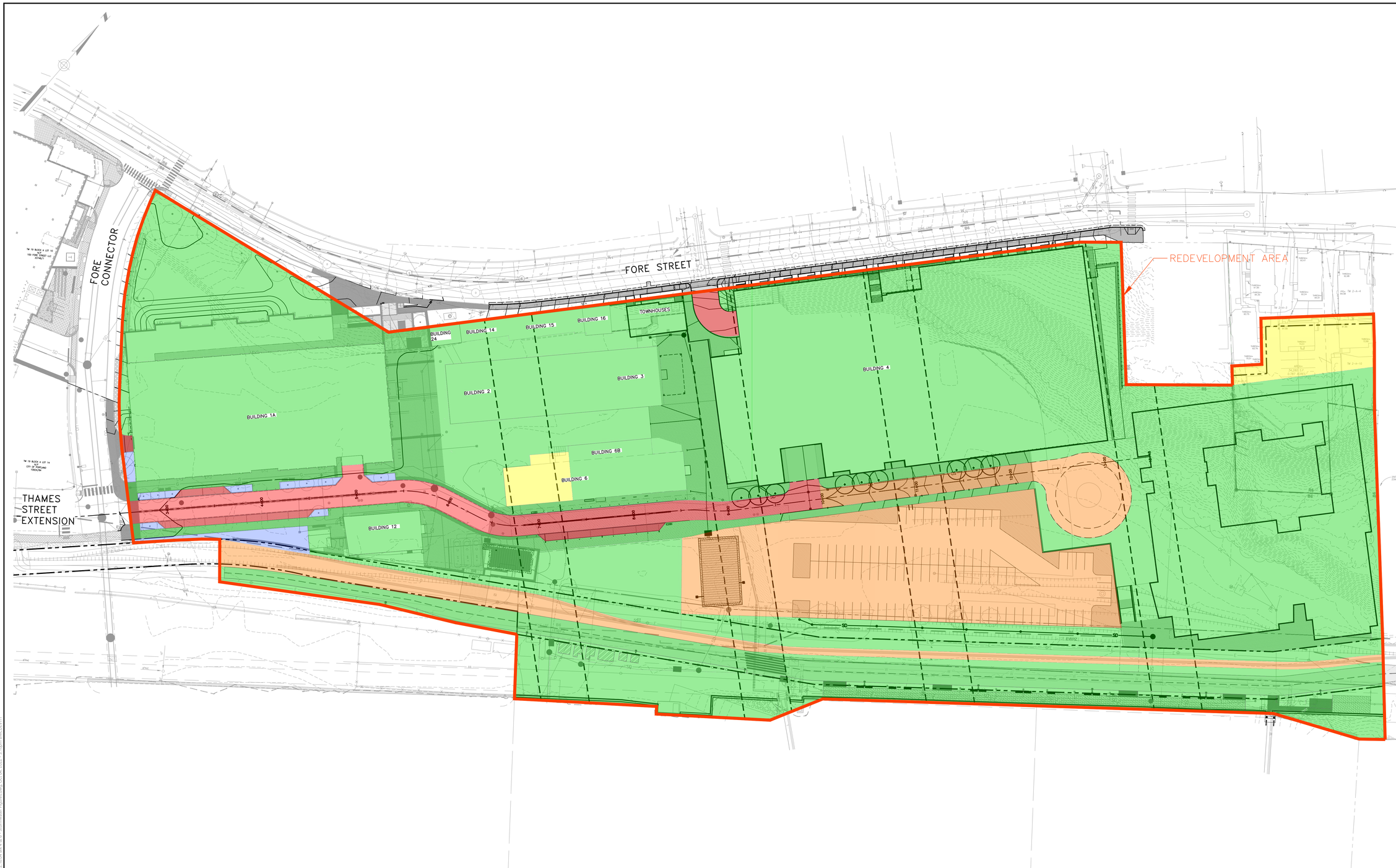
CIVIL
REDEVELOPMENT IMPACT ANALYSIS
EXISTING CONDITION

DRAWING NO:

A

SHEET: 1 OF 1

30x42
PLOT SCALE: 100 = 1'-0"



LEGEND

- POLLUTANT RANKING 5
- POLLUTANT RANKING 4
- POLLUTANT RANKING 3
- POLLUTANT RANKING 2
- POLLUTANT RANKING 1
- POLLUTANT RANKING 0

40' 0 40' 80'
BAR SCALE
1" = 40'
CHECK GRAPHIC SCALE BEFORE USING

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PE SEAL:

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CLIENT INFO:

PORTLAND FORESIDE DEVELOPMENT COMPANY
PORTLAND, MAINE

BLOCK 4 - HARBOR HILL
BLOCK 6 - CHANNEL MARK

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JOB NO:	227007
DATE:	SEPTEMBER 2022
SCALE:	1"=40'
DESIGNED BY:	LJS/BCM
DRAWN BY:	BCM
CHECKED BY:	LJS
FILENAME:	2022.10.04 BLK 4 & 6 - *.dwg

DRAWING TITLE:
CIVIL
REDEVELOPMENT IMPACT ANALYSIS
PROPOSED CONDITION

DRAWING NO:
B
SHEET: 1 OF 1

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30x42
PLOT SCALE: 100 = 1'-0"

FORE STREET

FORE CONNECTOR

THAMES STREET EXTENSION

REDEVELOPMENT AREA

TREATMENT AREA

BUILDING 1A
BUILDING 2
BUILDING 3
BUILDING 4
BUILDING 6
BUILDING 6B
BUILDING 12
BUILDING 14
BUILDING 15
BUILDING 16
BUILDING 24
TOWNHOUSES

40' 0 40' 80'
BAR SCALE
1" = 40'
CHECK GRAPHIC SCALE BEFORE USING

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PE SEAL:

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CLIENT INFO:

PORTLAND FORESIDE DEVELOPMENT COMPANY
PORTLAND, MAINE

BLOCK 4 - HARBOR HILL
BLOCK 6 - CHANNEL MARK

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JOB NO:	227007
DATE:	SEPTEMBER 2022
SCALE:	1"=40'
DESIGNED BY:	LJS/BCM
DRAWN BY:	BCM
CHECKED BY:	LJS
FILENAME:	BLK 4 & 6 - STORMWATER *.dwg

DRAWING TITLE:
CIVIL
REDEVELOPMENT FIGURE

DRAWING NO:
C
SHEET: 1 OF 1

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30x42
PLOT SCALE: 100 = 1'-0"

FORE STREET
FORE CONNECTOR
THAMES STREET EXTENSION
BUILDING 1A
BUILDING 2A
BUILDING 2
BUILDING 3
BUILDING 4
BUILDING 6
BUILDING 6B
BUILDING 12
BUILDING 15
TOWNHOUSES
1S
2S
3S
4S
5S
6S
7S
8S
9S
10S
11S
12S
13S
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5P
6P
7P
8P
9P
10P
11P
12P
13P
24P
27P
28P

STORMWATER LEGEND

- 1S — SUBCATCHMENT AREAS
- LIMIT OF DRAINAGE AREA
- SP1 — STUDY POINT
- xx — POND

BAR SCALE
1" = 40'
CHECK GRAPHIC SCALE BEFORE USING

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CLIENT INFO:

PORTLAND FORESIDE DEVELOPMENT COMPANY
PORTLAND, MAINE

BLOCK 4 - HARBOR HILL
BLOCK 6 - CHANNEL MARK

REV	MM/DD/YY	DESCRIPTION
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DATE:	SEPTEMBER 2022
SCALE:	1"=40'
DESIGNED BY:	LJS/BCM
DRAWN BY:	BCM
CHECKED BY:	LJS
FILENAME:	BLK 4 & 6 - STORMWATER *.dwg

DRAWING TITLE:
CIVIL
DRAINAGE AREA FIGURE

DRAWING NO:
D
SHEET: 1 OF 1

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Portland Foreside Development – Phase 2

CONSTRUCTION MANAGEMENT PLAN

May 26, 2023

Submitted to:

City of Portland Department of Planning & Urban Development Department

Submitted by:

Turner/PGC
Two Seaport Lane
Boston, MA 02210
May 26, 2023

Developer:

Portland Foreside Development Company
110 Thames St
Portland, ME 04101

Index

A. Project Information

B. Responsible Parties

C. Construction Schedule

D. Phases of Construction

E. Construction Traffic Flow

F. Site Fencing/Locations and Durations

G. Additional Provisions

H. Summary

I. Logistic Plans

Portland Foreside
Construction Management Plan

A. Project Information

The Foreside Development Project will be a new mixed use development located on Thames Street. The Project is a multi-phase project and will consist of the construction of a new 247 unit residential apartment building with 4 levels of structured parking and ground level retail space (Block 4), a new 9 story Residential building consisting of 154 residential units and one level of structured parking (Block 6), a new 128 key Hotel with 43 condominium units and ground level retail utilizing a continuous level of parking through connections to blocks 4 and 6.(Block 5). The site of the proposed building currently consists of an existing gravel lot area and wooded hillside. The site is currently bordered by Fore Street to the north, an adjacent Narrow gauge railroad, walking trail, and marina to the south, existing commercial buildings to the west, and existing residential buildings on Eastern Promenade St to the east.

B. Responsible Parties

For the Contractor:

Patrick Carroll, Sr. Project Manager
Turner / PGC
Two Seaport Lane
Boston, MA 02110
Cell Phone 207.233.3328
Email: pcarroll@@tcco.com

For the Developer:

Timothy Schneider, Director of Construction and Operations
Portland Foreside Development Company
110 Thames St., Suite 200
Portland, ME 04101
207.317.6220
Email: tps@portlandforeside.com

C. Construction Schedule

Major phases of the work are as follows:

Major Phases of Construction	Approx. Schedule	Duration
Block 4 & 6 Demolition, Enabling Utility Work, SOE and Site Setup	Months 1 thru 6	6 Months
Block 4		
Foundations	Months 7 thru 10	4 Months
Precast Garage/ Superstructure	Months 11 thru 15	5 Months
Exterior Envelope	Months 16 thru 23	8 Months

Interior MEP and Finishes	Months 24 thru 31	8 Months
Site Development (Weather Permitting)	Months 32 thru 36	5 Months

Block 6

Foundations	Months 10 thru 14	5 Months
Superstructure	Months 15 thru 20	6 Months
Exterior Envelope	Months 21 thru 30	10 Months
Interior MEP and Finishes	Months 31 thru 37	7 Months
Site Development (Weather Permitting)	Months 38 thru 41	4 Months

Block 5 (Understudy)

Foundations
Superstructure
Exterior Envelope
Interior MEP and Finishes
Site Development (Weather Permitting)

D. Phases of Construction

Site Setup, Demolition, Enabling Utility Work, and SOE Phase / Months 1 thru 6 Block 4, 5 & 6

- Site fencing will be established to separate construction areas from public vehicle and pedestrian access.
- Demolition of existing residential structures on Eastern Promenade will be demolished and removed via access from Eastern Promenade.
- The majority of the utility work will be completed during the enabling phase of the project along with temporary utilities that may be required for construction. Remaining utility work will be phased throughout the project dependent on sequence and limitations associated with construction phasing and adjacent facilities.
- A significant amount of utility work, seawall work, walking trail and railroad track relocation work will be required along the existing Marina. This work will require detailed scheduling and phasing to accommodate a continuous operation of the Marina, walking trails and railroad functions. Additional phasing and schedule information will be completed as additional information and details becomes available.
- Support of Excavation work and mass excavation work will require site benching/grading and ramping in order to create access for multiple soil nail drill rigs to drill, install, and grout soil nail walls. Soil nails will be installed in approximate 5' vertical lifts. Grout plants, concrete trucks and pump trucks will be used for grouting and shotcrete operations.
- A Storm Water Pollution Prevention Plan will be established and maintained throughout construction.
- The discharge of pumped ground water shall be done in a manner as according to all required City, State and Federal Permits and approvals

Foundation Construction / Months 7 thru 10 Block 4/Months 10 thru 14 Block 6/Block 5

- Soldier piles and lagging will be installed along the east end of the site. Minipiles and H-piles and rigid inclusions are planned for foundation elements.
- Temporary dewatering will be performed to control site water table until permanent system can be utilized.
- Hoe-Ram and blasting will be required for approximately 5,000 cy of bedrock removal.
- Approximately 70,000 cy of soil will be trucked from the project site for disposal.
- Concrete trucks and pump trucks will be utilized to place building foundations.
- Concrete wash out will be contained on site for disposal.

Superstructure Construction / Months 11 thru 15 Block 4 / Months 21 thru 30 Block 6/Block 5

- Block 4 superstructure consists of a 4 level precast garage structure with four towers of structural steel frame and concrete slabs on deck ranging from 3 to 5 stories above.
- Block 6 superstructure consists of an 8-story structural steel frame and concrete slabs on deck.
- Precast will be delivered to site from offsite staging areas. Precast will also be stored on site. Approximately 25 – 30 pieces are expected to be delivered per day.
- Delivery trucks will follow established delivery routes to the project site.
- Precast erection will be done with crawler type cranes from within the footprint of the site
- Tower cranes will be used for structural steel erection. Tower cranes will be built within the project site. Swing of tower cranes may be required to reach beyond the limits of the project site. Cranes will be erected to heights required to not interfere with surrounding structures.
- Structural steel deliveries will follow established truck routes. Steel will be staged in a laydown area within the site. Daily deliveries will be required.
- The parking lane and sidewalk along Fore Street may be required to safely erect the structural steel and concrete structures along North side (Fore St. elevation) of the site.

Temporary Hoist / Months 15 thru 20 Block 4/ Months 25 thru 30 Block 6/Block 5

- Temporary hoists with loading platforms will be installed within the project site and utilized until permanent service elevators are available for use. Dual man/material hoists with loading platforms will be utilized. It is anticipated that two hoists will be used to service Block 4 and 1 hoist will be used to service block 6.
- Secondary material loading will be utilized from Fore St.

Exterior Envelope Construction / Months 16 thru 23 Block 4 / Months 16 thru 23 Block 6/Block 5

- Block 4 and Block 6 incorporate multiple exterior wall systems and materials. Primarily the exterior wall systems consist of light gauge metal framing, sheathing, air barrier, and a rain screen system of metal panel, masonry, siding and punched windows.
- Access for exterior wall construction will be achieved through the use of conventional staging, mast climbers, and aerial lifts. All work will be performed from within the project site with the exception of work along Fore St that may require the use of the sidewalk and parking lane on for material, equipment, and staging.

Interior MEP and Finishes / Months 18 thru 33 Block 4 / Months 22 thru 37/Block 5

- Interior MEP and Finishes phase will consist of HVAC, electrical distribution and finishes, plumbing distribution and finish systems, fire protection, gypsum wallboard, millwork, flooring, appliance, and specialty work.
- Interior MEP and finish materials will be delivered to project site as needed, offloaded, and stocked on required floors using the site material hoists.
- Off-hour deliveries and hoisting will be required during the project fit out and finish phases.

Site Development / Months 32 thru 36 Block 4/ Months 36 thru 41 Block 6/ Block 5

- The project includes and extensive hardscape and landscape and scope. This work will be weather dependent and need to take place in the May to November months.
- Landscape and hardscape work on Fore St will require use of a parking lane and sidewalk closure for the duration of this work. Input a detailed description of work to take place in this Phase.

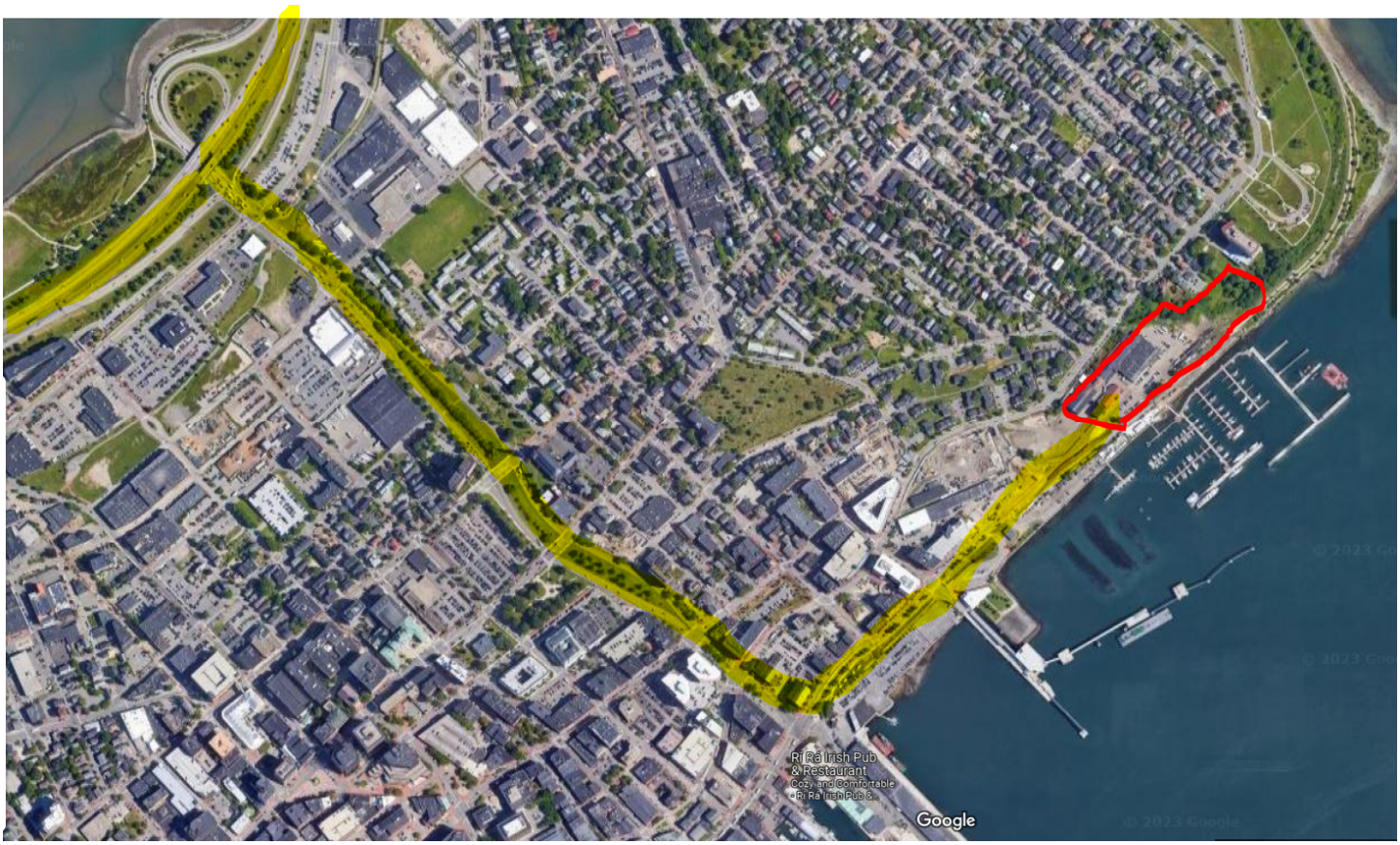
E. Construction Traffic Flow

The delivery routes to the project will be as follows:

- For vehicles traveling North or South on Route 295:
  Take Exit #7 (Franklin Street), continue on Franklin Street to right on Commercial Street, continue on Commercial Street straight on to Thames Street and project entrance at the end of Thames Street.

The exit routes from the project will be as follows:

- For vehicles traveling to Route 295 North or South:
  Exit the site onto Thames Street, continue straight on Commercial Street, take a right onto Franklin Street, continue straight to route 295 north or South.


Ri Rá Irish Pub
& Restaurant
Cozy and Comfortable
Ri Rá Irish Pub &...
Google

F. Site Construction Fencing, Pedestrian Access. (Refer to site logistics plans for locations)

To allow for safe access to and from the site, the following will be provided:

- Fencing will enclose the site for the duration of the project to protect the public.
- A single entrance/exit gate will be established on the project site during months 1 thru 4.
- After month 4 the existing parking area will be captured into the project site and secondary entrance/exit gate will be established on the project site.
- Temporary public walking paths will be provided during phasing work for Marina seawall, utility work, and relocation work for the Eastern Promenade Trail and the Narrow Gauge Railroad.
- Jersey barriers and fencing will be installed along Fore St. It is anticipated that the jersey barriers and fence line will be extended along Fore St to capture a parking lane and sidewalk during structural steel, exterior façade, and landscape/hardscape work. (Anticipated to be project months 11-36). Temporary crosswalks will be provided to route pedestrians across Fore St during sidewalk closures.
- Signage, cross walks, and access ramps will be provided for sidewalk and pedestrian access temporary closures and detours.

G. Additional Provisions

Along with the proposed fencing locations and trucking routes, this plan includes the following:

- Wheel wash stations will utilized to prevent tracking of debris from the project site
- A mechanical street sweeper shall clean the streets impacted by site operations on an as needed basis.
- Deliveries will be scheduled to avoid rush hour traffic to the greatest extent possible.
- Public safety will be the primary consideration in all the planning and building processes.
- Fire access to the site will be provided on Thames St and/or Fore St. A temporary standpipe will be maintained and located on the side of the building and coordinated with the Portland Fire Department. This location will be marked by a temporary red light.
- Existing fire hydrants will remain accessible during construction and readily visible for PFD personnel in the event of an emergency.
- Construction worker parking on the site will be limited. Public parking garages and lots are located within walking distance to the site. There will be language put in all subcontracts informing subcontractors that parking on site is limited, depicting acceptable employee parking locations, and encouraging use of public transportation to the site.
- The project start time shall be 7:00 AM including any time necessary to allow for equipment warm-up. Workers will gather at their workplace from 6:00 AM to 7:00 AM. Saturday work will be required on a regular basis from 7:00 AM to 6:00 PM. Off-hours and second shift work may be required at different points throughout the project.
- Truck queuing or idling will not be permitted on a roadway under the jurisdiction of the City of Portland prior to 7:00 AM.

- Access to the Fore Points Marina, Narrow Gauge Railroad, and Eastern Promenade trail will be maintained throughout the project.

H. Summary

Turner Construction Company will work the Portland Transportation Department and pertinent City groups to ensure a safe and effective program to protect and coordinate the interest of the neighborhood and the City of Portland.

I. Logistics Plans and Maps

See attached Logistics Plans dated 5/26/23

Submitted by: _____ Date _____
Patrick Carroll, Turner / PGC

Approved by: _____ Date Approved _____
City of Portland Department of Planning and Urban Development Department

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Portland, Maine 04102
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NEIGHBORHOOD MEETING MINUTES

Portland Foreside Development Company – Neighborhood Meeting #1

PROJECT: Portland Foreside Development Company – Block 4 & Block 6
MEETING DATE: 12/20/2022

LOCATION: East End School, Portland
ISSUED DATE: 4/18/2023

ATTENDEES:

Presenters/Representatives
David Senus – PFDC
Mary McCrann – PFDC
Shelby Burgau - PFDC
Darrin Stairs – Woodard & Curran (W&C)
Lauren Swett – Woodard & Curran (W&C)

Public
Kelly Walker
Ted Kurtz
Roger Trettel
Denise Preisser
Bonnie Coplon
Peter & Pam Macomber
Gayle Briggs & Joe Sukaskas
Rick & Barbara Reisso
Laura Lee Sanyo
Barbara Vestal
Teresa & Michael Cantara
Pamela Day
Dan Haley
Debby Murray
Robin Whitten
Ned Chester
Mary Rhoads
Brian Ricks
Peter Bass
Rob & Robin Whitten
William Brennan

Total recorded attendance 31. Please note that there were over 45 attendees present, but some elected not to sign in.

In person began at 6:00 p.m.

Project Presentation & Content

- Welcome and Introductions provided by Darrin Stairs, W&C
- Project Background presentation provided by David Senus, PFDC
  - Prior permitting timeline
  - Master Development Plan
  - Work Completed to Date - Marina, Phase 1
- Proposed Phase 2 presentation provided by Darrin Stairs, W&C

- Overview of Blocks 4 and 6 Scope
- Review of proposed architecture for Block 4 and 6, highlighting what has changed since the Master Development Plan

- Information provided on available public tours on the site, presented by Mary McCrann, PFDC

Record of Feedback

Following the project presentation, there was a question and answer period with attendees. The following topics were discussed:

- Discussion about Block 4 and 6 Building Structure and Architecture
  - Reviewed proposed building architecture further
  - Reviewed proposed building heights
  - Specific discussion of Block 6 height relative to the adjacent Portland House
  - Noted that current number of stories is not planned to change
- Discussion about geotechnical design
  - The design does consider the presence of some marinae clay on the site, but this site is mostly fill soil that will be a good condition for construction
- Discussion about scale and scope of project
  - It was noted that the proposed project is consistent with the City's Eastern Waterfront Master Plan.
  - The project proposes a mix of types of housing, welcoming pedestrian access, and public spaces that will make the area open and welcome to all.
  - The project will have a mix of different price points
  - The project will include both apartments and condominiums
- Discussion about timing and length of construction
  - Concern raised about noise and impact on neighbors
  - Asked for notice about timing and types of construction activities (potentially a website?)
  - Anticipating a start in 2023 with completion in 2025 or 2026
- Discussion about Inclusionary Zoning and residential unit types
  - Planning for Market Rate Apartments on Block 4
  - Block 4 units will provide for 10% units to meet inclusionary zoning
  - Block 6 will pay in lieu fee to meet inclusionary zoning
- Discussion about plans for recently purchased Eastern Promenade property
  - Portion of property incorporated into Block 6
  - Only two buildings on property to be demolished; these two buildings have been determined to be non-contributing structures to the Munjoy Hill Historic District
- Planning to keep remaining buildings as rental units Questions about traffic
  - How is traffic from Franklin Arterial and Commercial Street to be addressed as part of this project?
    - The project has a Traffic Movement Permit with a per-trip fee paid for use by the City to make traffic improvements.
  - Are any other egress points possible?
    - Site study has shown no. Freedom Way is a private street.

- Will there be restrictions on who can use certain site entrances?
    - Not planning on restrictions at this time.

- Questions about parking
    - How will parking be accessed?
        - Access will be from entrances on Fore Street and on Thames Street internal to the site
    - Will condo and apartment owners be provided with parking spaces? Will area businesses be offered space?
        - The final parking assignment approach is being determined by the sales department. Programs are being developed to provide more efficiency in parking on the site, including possible bike and car share programs.
        - Parking will be available for on-site retail workers and shoppers
    - How will EV charging be accessed?
        - There will be multiple levels that will likely include both pay-to-park/charge and valet.
- Questions about electrical utility
    - Will Fore Street lines be placed underground?
        - It was noted that a prior study about placing electrical utility underground and it was decided by City not to complete at this time.
    - Are any more poles or transformers needed?
        - CMP is working on the load study to confirm electrical design. Anticipate that the one entrance completed already into the site is adequate, and all transformers are within the site.
- Questions asked about work outside of current project scope
    - Questions about rail/trail changes
        - The trail and rail lines will be moved over along the whole length of the project area
        - Construction documents are complete, and anticipate construction in late 2023, early 2024
        - The land swap required to complete this work was approved by the City Council
    - Questions about Block 2 Historic Core
        - Attendees inquired about the status of this part of the project
        - Clarified as part of previously permitted Phase 1, construction documents completed, working on some changes
        - PFDC working with Project for Public Spaces on plan for modifications Block 2, and will plan on a public meeting in the future to provide more information
        - Block 2 will include mix of retail, public market space, event space, and office space
    - Questions about Block 5, future work
        - Block 5 to be hotel, condosand retail, to be put forward to City in 2023
        - Height takes into consideration view corridors

List of Plans, Documents or Drawings Shared

The following information was shared via the PowerPoint presentation given at the meeting:

- Permitting timeline
- Master Development Plan & Rendering
- Work completed to date including Fore Points Marina
- Phase 1 work completed to date (Sun Life, Building 12, Infrastructure, Public Stair Access)
- Phase 2 (Block 4 & 6)
    - Details of each phase including SF, number of units, vehicle parking and bike parking
    - Block 4 & Block 6 master development plan rendering
    - Block 4 & Block 6 current design model/renderings
- Summary of Foreside Development Public Tours

Meeting Close

- The meeting closed at 7:45 and the project team thanked attendees and noted that a second Neighborhood Meeting would follow on January 11, 2023.

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Neighborhood Meeting Sign-In Sheet

Woodard & Curran

DATE: December 20, 2022

RE: Portland Foreside Phase 2 Neighborhood Meeting Sign-In Sheet

---

Dear Neighbors,

Thank you for attending tonight's public Neighborhood Meeting at the East End School for the proposed development of Phase 2 of the Portland Foreside project to be located at 58 Fore Street in Portland, Maine. Please sign in below.

Thank you,

Portland Foreside Project Team

Name	Email
Kelly Walker	kellytwalker47@gmail.com
Ted Kutz	tedk13@roadrunner.com
Roger Trettel	rogertrettel@gmail.com
Denise Preisser	depreisser@hotmail.com
Bonnie Caplan	bcaplan@gmail.com
Peter & Pam Macomber	peter@macomber.com
GAYLE BRIGGS + JOE SULLIVAN	GJ2017@maine.rr.com
Rick and Barbara Russo	45 Eastern Promenade
Laura Lee Sawyer	Sunsetsuite42@gmail.com 42 North St.

Woodard & Curran

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TERESA & MICHAEL CANTARA	45EP8C@GMAIL.COM
Pamela Day	pday2304@gmail.com
DAN HALEY	Daniel.T.Haley@gmail.com
Debby Murray	debbym@gwi.net
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Woodard & Curran

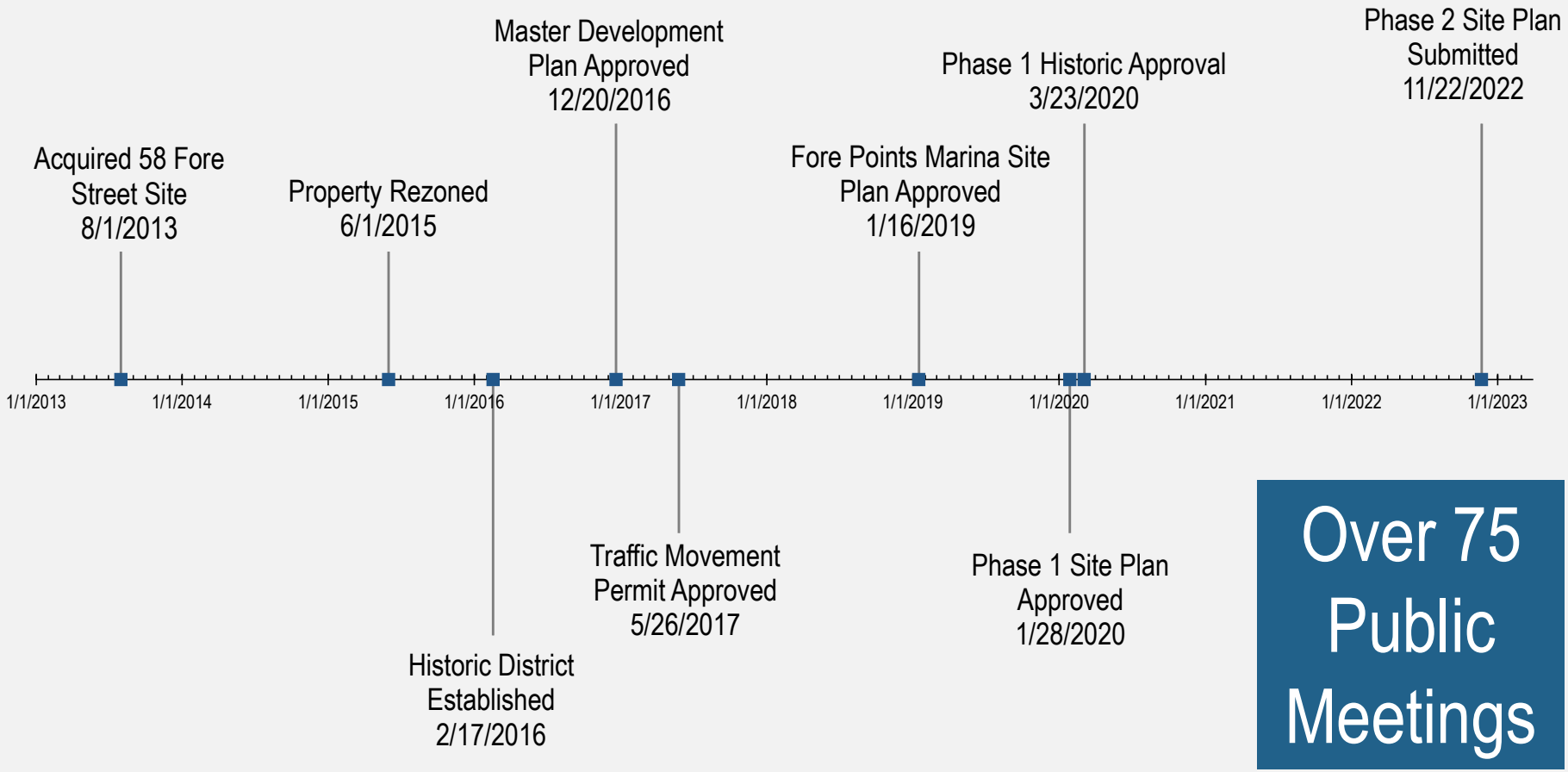
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Portland Foreside Development Company

Phase 2 – Blocks 4 & 6 – Neighborhood Meeting – December 20, 2022 & January 11, 2023



PORTLAND FORESIDE PERMITTING TIMELINE



Over 75 Public Meetings

MASTER DEVELOPMENT PLAN



MASTER DEVELOPMENT PLAN



COMPLETED TO DATE



FORE POINTS MARINA



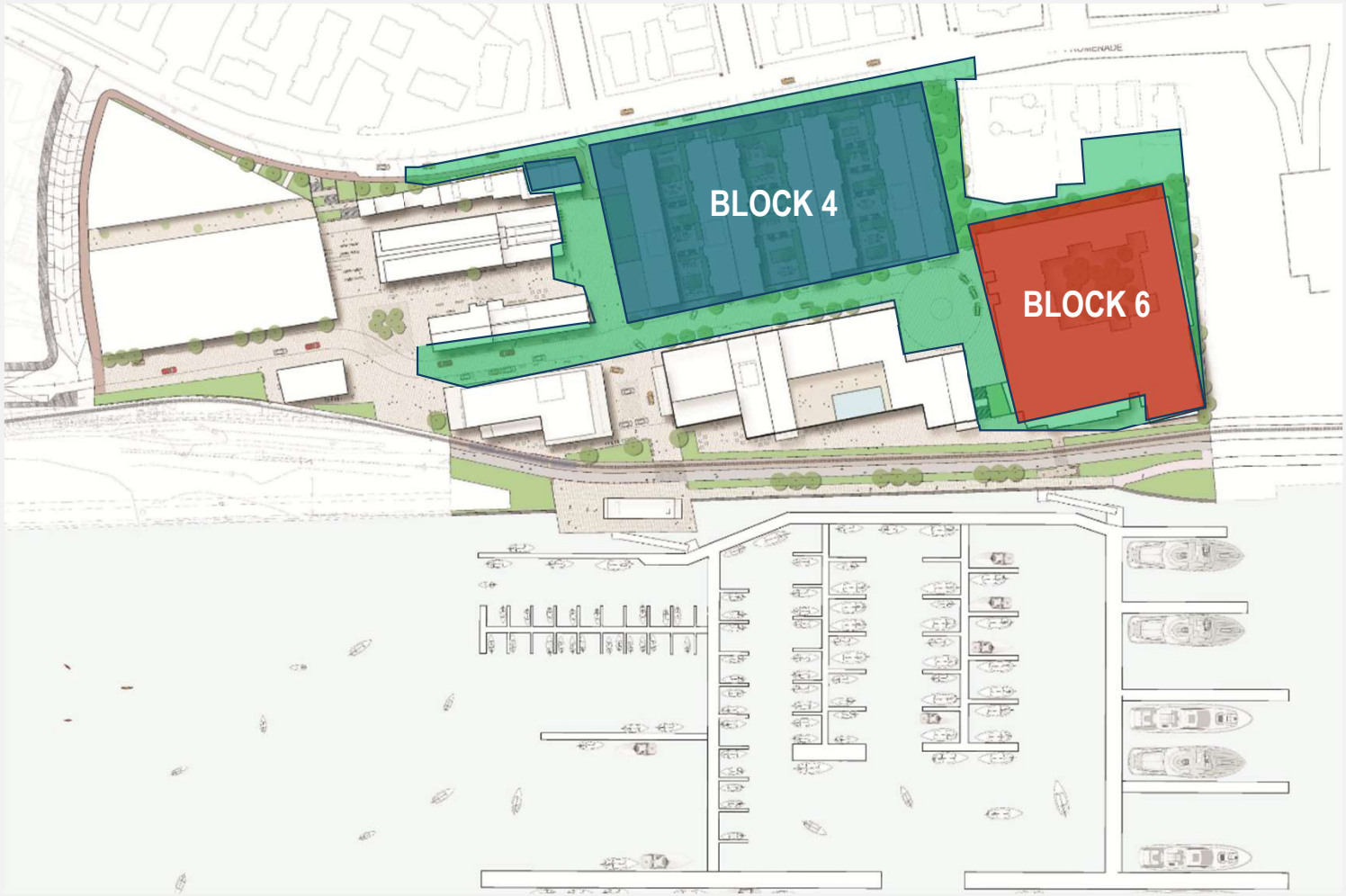
PHASE 1 – SUN LIFE BUILDING AND BUILDING 12



PHASE 1 – FORE STREET STAIR PUBLIC ACCESS



PHASE 2 – BLOCKS 4 AND 6



PHASE 2

Use	Proposed Block 4	Proposed Block 6
Residential	211,180 SF 225 Apartments 22 Townhomes	196,660 SF 154 Condos
Retail, Service, Restaurant	11,950 SF	9,108 SF
Vehicle Parking	202,670 SF 454 spaces	86,068 SF 242 spaces
Bicycle Parking	100 Internal 20 External	70 Internal 12 External

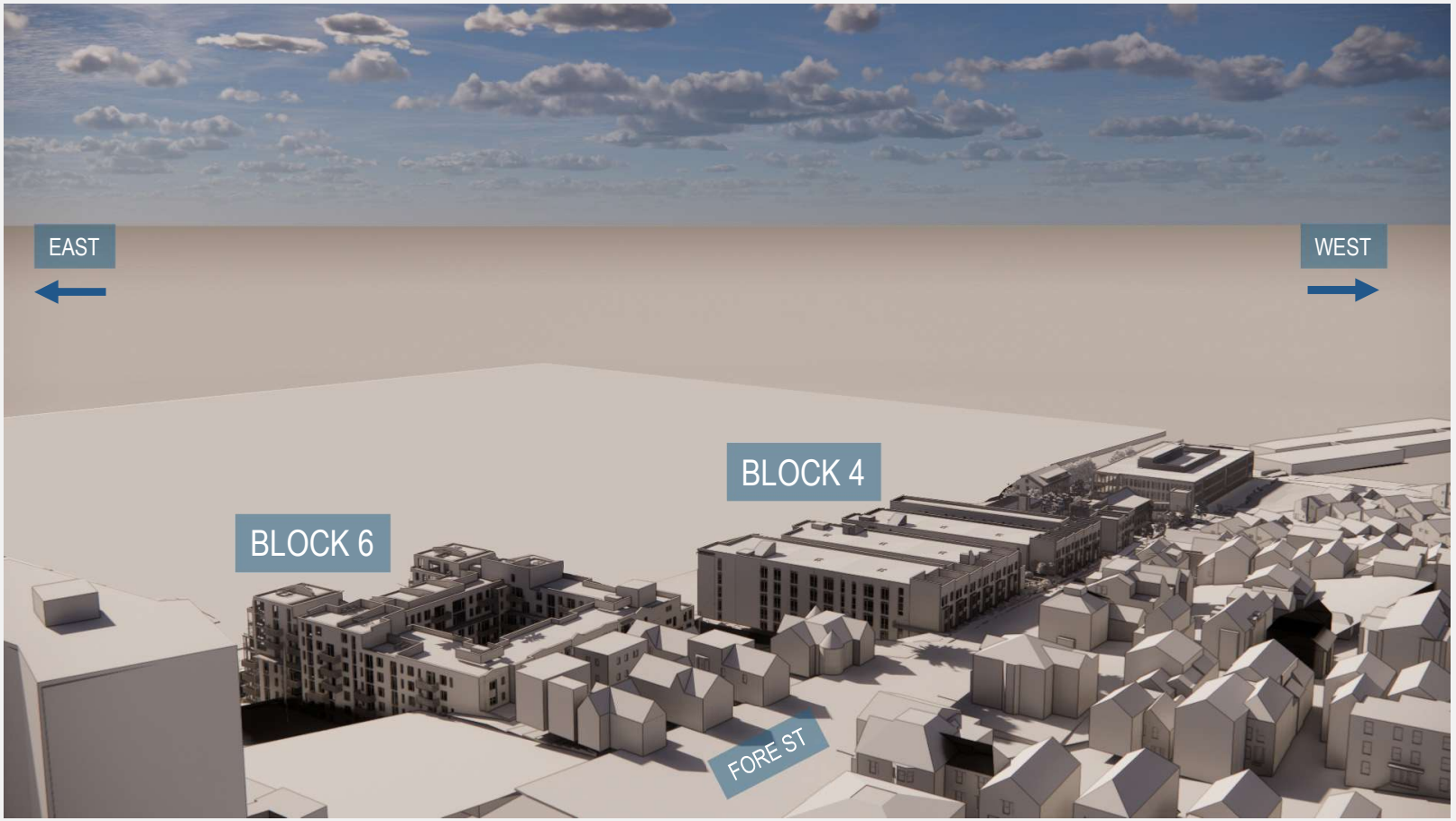
PHASE 2 - MASTER DEVELOPMENT PLAN



PHASE 2 – CURRENT DESIGN



PHASE 2 – CURRENT DESIGN



BLOCK 4



BLOCK 4 – MASTER DEVELOPMENT PLAN



BLOCK 4 – CURRENT DESIGN



BLOCK 4



BLOCK 4 – CURRENT DESIGN



BLOCK 4



BLOCK 4 – CURRENT DESIGN



BLOCK 4



BLOCK 4 – CURRENT DESIGN



BLOCK 6



BLOCK 6 – MASTER DEVELOPMENT PLAN



BLOCK 6 – CURRENT DESIGN



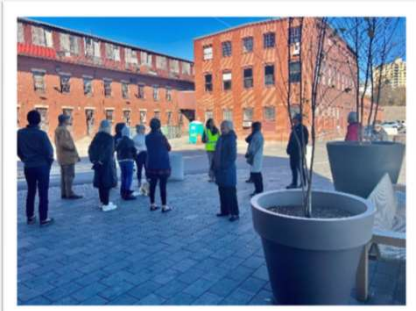
BLOCK 6



BLOCK 6 – CURRENT DESIGN



PORTLAND FORESIDE PUBLIC TOURS



- Informative Public Walking Tours Available
  - Started in September 2022
  - Continuing Wednesdays 11:30am to 12:30pm
- Please contact Sarah Hach to register/attend a tour in the New Year | Sarah.Hach@prenticeorg.com










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Woodard & Curran

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F 207.774.6635

NEIGHBORHOOD MEETING MINUTES

Portland Foreside Development Company – Neighborhood Meeting #2

PROJECT: Portland Foreside Development Company – Block 4 & Block 6
MEETING DATE: 1/11/2023

LOCATION: East End School, Portland
ISSUED DATE: 4/18/2023

ATTENDEES:

Presenters/Representatives
David Senus – PFDC
Mary McCrann – PFDC
Darrin Stairs – Woodard & Curran (W&C)
Lauren Swett – Woodard & Curran (W&C)

Public
Roger Trettel
Terry & Susan Ingalls
Pam & Peter Macomber
Elena Schmidt
Berry Manter
Carol McCracken
Mark MacLeod & Roberta DeDonto
Kelly Walker
Heather Abt
Alex Kapplman
Joe Lewis

Total recorded attendance 18. Please note that there were over 30 attendees present, but some elected not to sign in.

In person meeting began at 6:00 p.m.

Project Presentation

- Welcome and Introductions provided by Darrin Stairs, W&C
- Project Background presentation provided by David Senus, PFDC
  - Prior permitting timeline
  - Master Development Plan
  - Work Completed to Date - Marina, Phase 1
- Proposed Phase 2 presentation provided by Darrin Stairs, W&C
  - Overview of Blocks 4 and 6 Scope
  - Review of proposed architecture for Block 4 and 6, highlighting what has changed since the Master Development Plan
- Information provided on available public tours on the site, presented by Mary McCrann, PFDC

Record of Feedback

Following the project presentation, there was a question and answer period with attendees. The following topics were discussed:

- Discussion about Block 4 and 6 Building Structure and Architecture
    - Reviewed proposed building architecture further
    - Reviewed proposed building heights
    - Specific discussion of Block 6 height relative to the adjacent Portland House and relative to the north elevation
    - Discussion on view corridors
- Questions about electrical utility
    - Will Fore Street lines be placed underground?
        - It was noted that a prior study about placing electrical utility underground and it was decided by City not to complete at this time.
    - Fore Street renderings will be updated to show electrical utility
    - The public questioned why Portland Foreside was not replacing these powerlines and why they were not shown on any renderings.
- Discussion about timing and length of construction
    - Concern raised about noise and impact on neighbors and parking during construction
    - Asked for notice about timing and types of construction activities
    - Planning for neighborhood engagement
    - Anticipating a start in 2023 with completion in 2026
- Discuss plans for renewable energy, sustainability, and resiliency
    - A summary of these aspects of the project was communicated
- Discussion about Inclusionary Zoning and residential unit types
    - Planning for Market Rate Apartments on Block 4
    - Block 4 units will provide for 10% units to meet inclusionary zoning
    - Block 6 will pay in lieu fee to meet inclusionary zoning
- Questions about geotechnical design & site soils
    - Is any pile driving planned?
        - Anticipating some will be necessary
    - Will the existing soil pile remain?
        - Large soil pile on site now will be removed as part of upcoming work.
- Questions about permitting
    - Is any Federal permitting required?
        - None specifically anticipated for these Blocks
- Discussions on site operations
    - Site darkness and security
        - Photometrics is being evaluated
        - Site security will be addressed
    - Who will be in charge of clearing sidewalks?
        - A plan will be developed for the long term maintenance of the site.
    - Will there be amenities on site for children?
        - The intent is for varied facilities, but final plan for all amenities not yet determined.

List of Plans, Documents or Drawings Shared

The following information was shared via the PowerPoint presentation given at the meeting:

- Permitting timeline
- Master Development Plan & Rendering
- Work completed to date including Fore Points Marina
- Phase 1 work completed to date (Sun Life, Building 12, Infrastructure, Public Stair Access)
- Phase 2 (Block 4 & 6)
    - Details of each phase including SF, number of units, vehicle parking and bike parking
    - Block 4 & Block 6 master development plan rendering
    - Block 4 & Block 6 current design model/renderings
- Summary of Foreside Development Public Tours

Meeting Close

- The meeting closed at 7:45 and the project team thanked attendees.

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F 207.774.6635

Neighborhood Meeting Sign-In Sheet

Woodard & Curran

DATE: January 11, 2023

RE: Portland Foreside Phase 2 Neighborhood Meeting Sign-In Sheet

---

Dear Neighbors,

Thank you for attending tonight's public Neighborhood Meeting at the East End School for the proposed development of Phase 2 of the Portland Foreside project to be located at 58 Fore Street in Portland, Maine. Please sign in below.

Thank you,

Portland Foreside Project Team

Name	Email
Roger Trottel	rogertrottel@gmail.com
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Pam + Pete Macomber	pam@macomber.com
Elena Schmidt	eschmidtme@outlook.com

Woodard & Curran

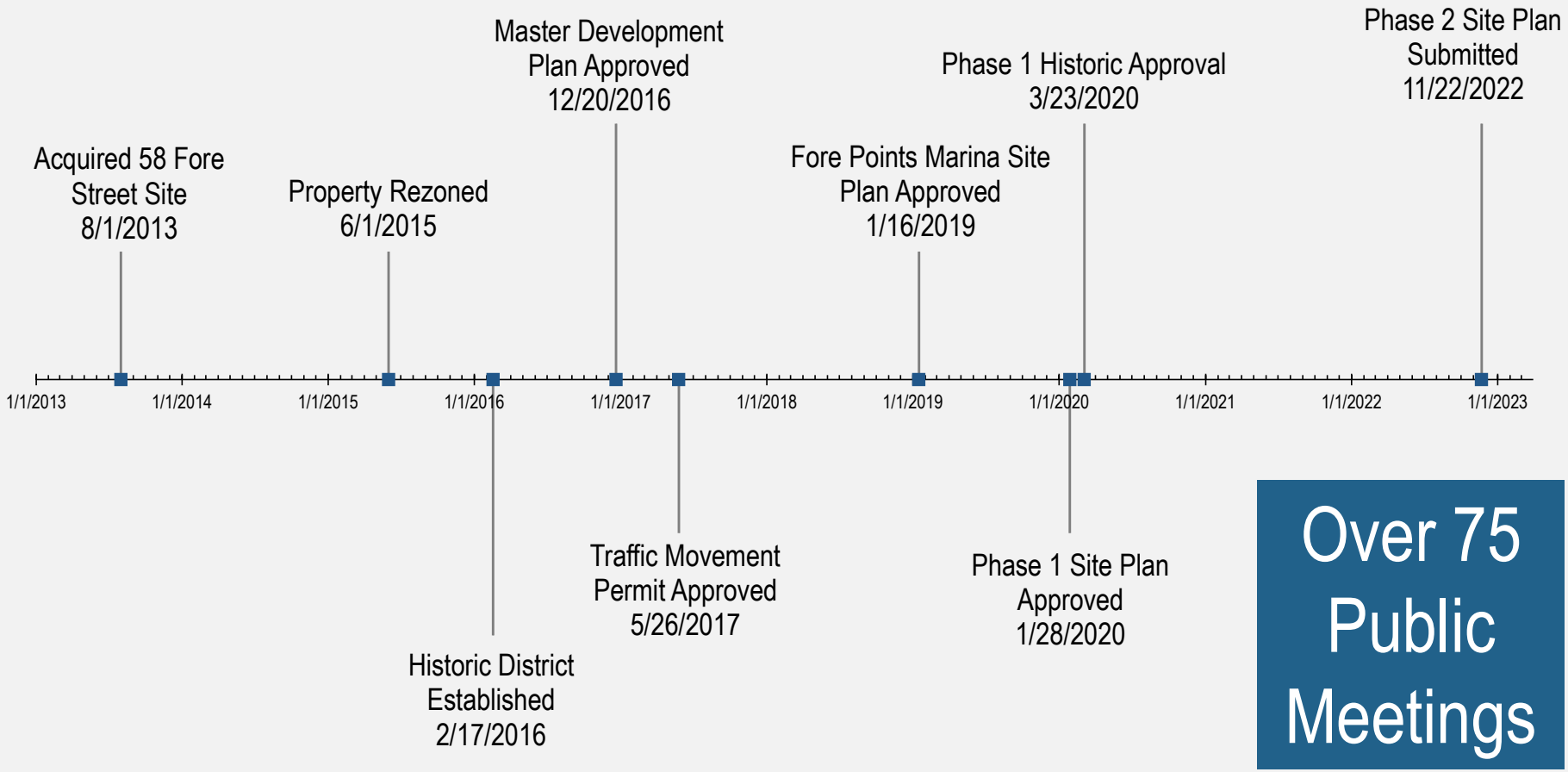
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Carol McCracken	carlockencaol.com
Mark Macleod + Roberta LeBlanc	mark_k_macleod@yahoo.com
Kelly Walker	kellytwalker47@gmail.ca
Heather Abt	Eclipsesglimpsed@gmail.com
Alex Kappelman	alex@shorelineagents.com
Joe Lewis	joe@portcitylegal.ca

Portland Foreside Development Company

Phase 2 – Blocks 4 & 6 – Neighborhood Meeting – December 20, 2022 & January 11, 2023



PORTLAND FORESIDE PERMITTING TIMELINE



Over 75 Public Meetings

MASTER DEVELOPMENT PLAN



MASTER DEVELOPMENT PLAN



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FORE POINTS MARINA



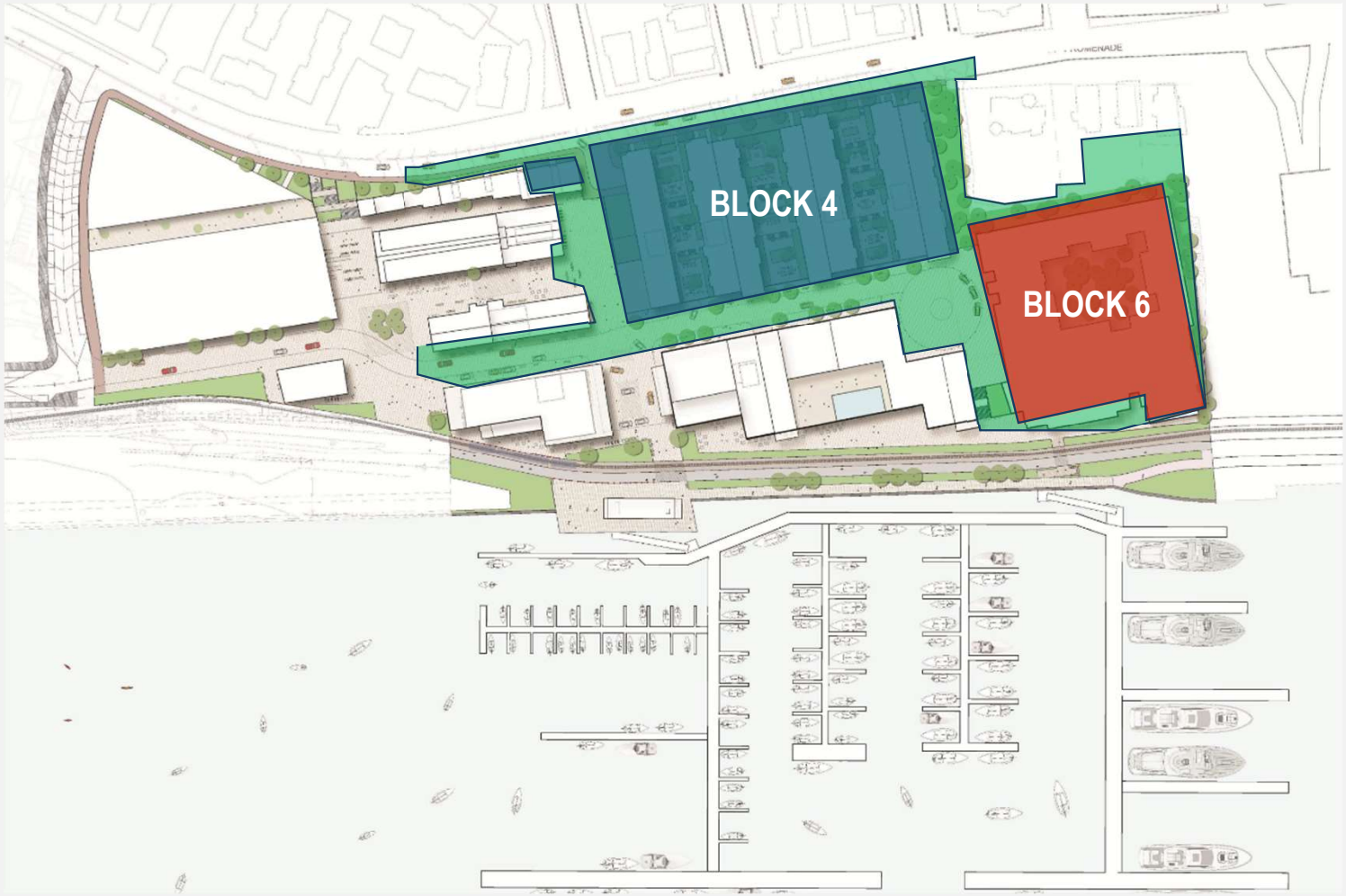
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PHASE 2 – BLOCKS 4 AND 6



PHASE 2

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Residential	211,180 SF 225 Apartments 22 Townhomes	196,660 SF 154 Condos
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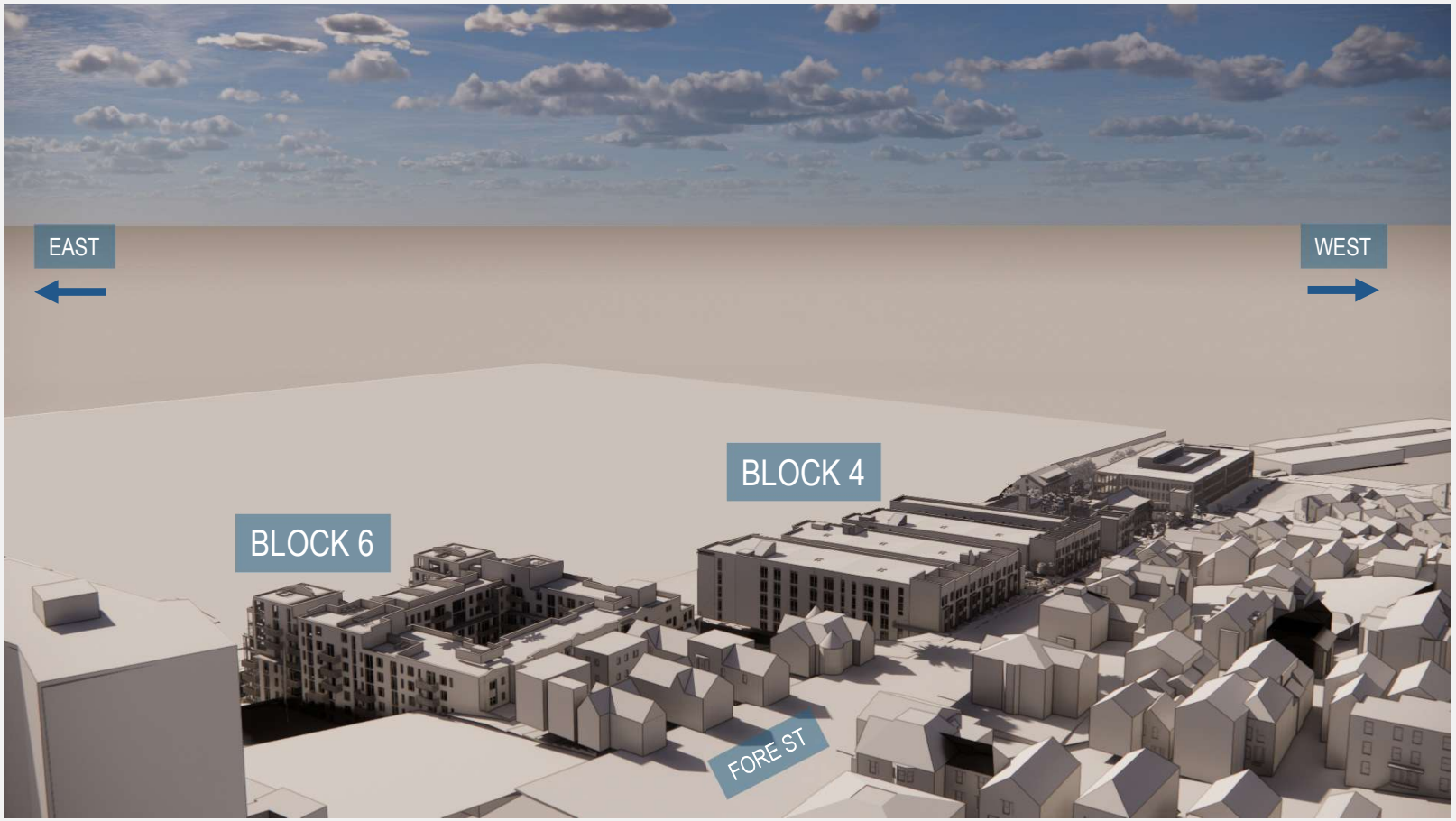
PHASE 2 - MASTER DEVELOPMENT PLAN



PHASE 2 – CURRENT DESIGN



PHASE 2 – CURRENT DESIGN



BLOCK 4



BLOCK 4 – MASTER DEVELOPMENT PLAN



BLOCK 4 – CURRENT DESIGN



BLOCK 4



BLOCK 4 – CURRENT DESIGN



BLOCK 4



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BLOCK 4



BLOCK 4 – CURRENT DESIGN



BLOCK 6



BLOCK 6 – MASTER DEVELOPMENT PLAN



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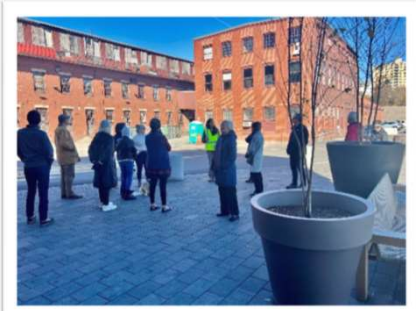
BLOCK 6



BLOCK 6 – CURRENT DESIGN



PORTLAND FORESIDE PUBLIC TOURS



- Informative Public Walking Tours Available
  - Started in September 2022
  - Continuing Wednesdays 11:30am to 12:30pm
- Please contact Sarah Hach to register/attend a tour in the New Year | Sarah.Hach@prenticeorg.com










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NEIGHBORHOOD MEETING MINUTES

Portland Foreside Development Company – Neighborhood Meeting #3

PROJECT: Portland Foreside Development Company – Block, 5
MEETING DATE: 5/2/2023

LOCATION: East End School, Portland
ISSUED DATE: 5/26/2023

ATTENDEES:

Presenters/Representatives
David Senus – PFDC
Mary McCrann – PFDC
Darrin Stairs – Woodard & Curran (W&C)
Lauren Swett – Woodard & Curran (W&C)

Public
Michael Cantara
Teresa Cantara
Tica Douglas
Maggy Wolf
Ron Welton
Roberta DeDonato
Mark MacLeod
Paul Allen
Kelly Walker
Sandi Knakal
Charles Grimes
Paul & Jen Flaxman
Karen Snyder
Ted Kurtz
Barbara Vestal
Nathan Szanton
Roger Trettel
Talce McNally
Pamela Day
Michael Petit

In person meeting began at 6:00 p.m.

Project Presentation

- Welcome and Introductions provided by Darrin Stairs, W&C
- Project Background presentation provided by David Senus, PFDC
  - Prior permitting timeline
  - Master Development Plan
  - Work Completed to Date - Marina, Phase 1
- Proposed Phase 2 presentation provided by Darrin Stairs, W&C
  - Overview of Blocks 4, 5 and 6 Scope
  - Review of proposed architecture for Block 5 highlighting what has changed since the Master Development Plan

- Information provided on available public tours on the site, presented by Mary McCrann, PFDC

Record of Feedback

Following the project presentation, there was a question-and-answer period with attendees. The following topics were discussed:

- Will Blocks 4, 5, and 6 be constructed in parallel?
  - The building will be built as one structure with an anticipated start in fall 2023, continuing through 2026.
  - Block 4 garage is likely to come online one year before completion of remainder of work.
- Questions about access through site to the waterfront, and if the hotel will block access.
  - Access routes will be available through the site.
- What construction materials will be used?
  - Garage is precast concrete with other parts of construction in steel, composite, concrete, wood, and varied architectural façade materials.
- When does the Phase 1 Sun Life Building come online?
  - The exterior construction is complete, a portion of the interior is complete, and Portland Foreside is operating in the office, and the remaining Sun Life portion of the building is expected to be online later in May.
- How will traffic enter the site and how will traffic be mitigated through the neighborhood? There is concern that the project doesn't consider new developments since the prior approvals.
  - Evaluated at Master Plan through the Traffic Movement Permit, and traffic studies are completed with each Block to show how the proposed work falls within the original planned traffic study.
  - The design included traffic modeling throughout the neighborhood from Franklin Arterial.
- Who is the Planner?
  - Charles Tetelman
- How will Sun Life parking be managed?
  - Some parking was constructed in the Block 1 building and there will also be temporary surface parking to support Sun Life until the Block 4 garage is open.
- Throughout the meeting a handful of common questions were asked about building heights
  - Concerns raised on impact to neighborhood, looking for more details on height and renderings with neighborhood views.
  - What is the height of Block 6 relative to the Eastern Promenade?
  - What is the height and how is it justified in this zone? Why isn't height calculated from the foundation?
    - The height is calculated based on average grade calculations per zoning requirements.
  - Concern about boats blocking view corridors
    - Neighbors requested renderings of view corridors from multiple viewpoints including what will be seen from Munjoy Hill.
  - Is the grade in the view corridors at Fore Street or lower?

        - In view corridors, building height is held at or below the Fore Street grade.
        - Neighbors want an interpretation about what can/can't be in a view corridor.
    - Will mechanical systems and landscape elements intrude in the view corridors?
        - Not planning for mechanical systems in view corridors and will check on the landscaping.
- How does electrical service enter the site? Are there any transformers being added to the poles on Fore Street?
    - There is a drop pole on Fore Street that was installed during Phase 1. Electrical service enters the site underground from that location.
    - No new transformers are to be added on Fore Street. There will only be some pole/line upgrades.
- Will there be light/noise impact to the Portland House?
    - Not anticipating significant impact. Much of the site is lower than Portland House, and the area closest to Portland House is residential and will not result in much noise or light impact.
- Are there pre-sales, and what are the prices? Who is the agent?
    - The PFDC representative is Lauren Salzer.
- An easement is requested from Portland House for the soil nail wall construction method. If not received, what is the alternative?
    - If a soil nail wall cannot be constructed, the building's wall design will be used to support the adjacent grade.
- Where is access to parking?
    - Access from Thames Street in the site and from Fore Street entrances to Block 4 garage.
- What is the parking plinth, and where is it relative to Thames Street?
    - The parking plinth is a single level of parking across Blocks 4, 5, and 6, and is located with access from Thames Street.
- Is there a Phase 3 planned?
    - The next phase will be Block 3 or Block 1B, but there is not a specific timeframe.
- When will renovation of the historic buildings be completed.
    - Working on the Public Market for Block 2 and are planning for a Building Permit application in fall of 2023 with construction happening in the winter.
- There was a request for a 3D model and/or a fly through movie of the site.

List of Plans & Drawings Shared

The following information was shared via the PowerPoint presentation given at the meeting:

- Permitting timeline
- Master Development Plan & Rendering
- Work completed to date including Fore Points Marina
- Phase 1 work completed to date (Sun Life, Building 12, Infrastructure, Public Stair Access)
- Phase 2 (Block 4, 5 & 6)

- Details of each phase including SF, number of units, vehicle parking and bike parking
- Block 5 master development plan rendering
- Block 5 current design model/renderings

Meeting Close

- The meeting closed at 7:30 and the project team thanked attendees.

Portland Foreside Development

Transportation Demand Management Plan (Updated)

PREPARED FOR

FORESIDE/

Portland Foreside Development Co.
254 Commercial Street, Suite 105
Portland, ME 04101

PREPARED BY

500 Southborough Drive
South Portland, Maine 04106
207.889.3150

May 26, 2023

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- Introduction 2

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1

Introduction

This updated Transportation Demand Management (TDM) Plan presents a cohesive strategy for the Portland Foreside Development to enhance multimodal accessibility, promote and encourage the use of non-vehicular modes such as walking, biking and transit, and discourage single occupancy vehicles traveling to and from the Development's downtown waterfront location.

The Portland Foreside Development Company ("Portland Foreside") is developing this updated TDM Plan, pursuant to Section 17.3 of the City of Portland Technical Manual (updated November 2022), to promote the use of alternative modes of travel to its 10+ acre development project on the eastern waterfront off Fore Street in Portland, Maine. The original TDM plan was submitted as part of the Phase 1 permitting efforts in 2020. The City of Portland previously granted approval for the Master Development Plan including a MaineDOT Traffic Movement Permit (TMP) in 2017 which required that as a part of Site Plan Review, a TDM Plan be approved for each phase. This updated TDM plan supports the Level III Site Plan Submittal to the City of Portland for Blocks 4, 5 and 6 but also sets the baseline for the entire site moving forward.

The updated TDM Plan intends to implement various strategies to increase multimodal use and promote non-vehicular modes. The strategies aim at encouraging the use of local transit services to promote ridership, encouraging walking and bicycling, supporting carpooling, and disincentivizing vehicular trips via parking pricing.

Program Summary and Project Status

The Portland Foreside Company previously obtained site plan permits for Blocks 1 and 7 which programs and status are summarized in Table 1.

Table 1 Previously Permitted Buildings

Block	Building Name	Land Use	Parking	Status
1	SunLife	95,100 SF Office 9,300 SF Retail	68 Ground Level Parking Spaces	Core and Shell Constructed/91,000 SF of Office Space will be Occupied as of June, 2023
	Building 12	3,200 SF Restaurant 3,200 SF Office 2 Townhouse Condo Units		Core and Shell Constructed/3,000 SF Twelve Restaurant Operating, 3,000 SF of Office will be Occupied Late Summer 2023
7	Marina	150 Seasonal Slips and Transient Boating		Open

Portland Foreside is currently seeking approval for Blocks 4, 5 and 6 as part of the Level III Site Plan Submission to the City of Portland. The proposed project programs by Block are provided in Table 2.

Table 2 Proposed Buildings

Block	Building Name	Land Use	Parking
4	Harbor Hill	225 Apartment Units 22 Townhouse Condo Units 11,951 SF Ground Floor Retail	443 Garage Parking Spaces
5	Promenade Hotel and Residences	128 Key Hotel 43 Condo Units 4,928 SF Retail 18,083 SF Food & Beverage 19,697 SF Spa	35 Parking Spaces
6	Channel Mark	154 Condo Units 9,108 SF Retail	166 Garage Parking Spaces

2

Mobility Context

Understanding the transportation network that is available for employees, residents and visitors of the Portland Foreside Development is important to be able to recommend targeted TDM program elements. This section discusses the alternative modes of transportation that individuals can access the development as well as the opportunities and challenges related to those options.

The traffic analysis associated with the Traffic Movement Permit for the site assumed an auto mode share of 64 percent for the Project trip generation based on data contained in the Portland Plan. Ultimately, however, an alternate mode share of 18 percent was included in the trip estimates and TDM plan with the goal of an additional 5 percent trip reduction associated with the plan.

Walking and the Pedestrian Environment

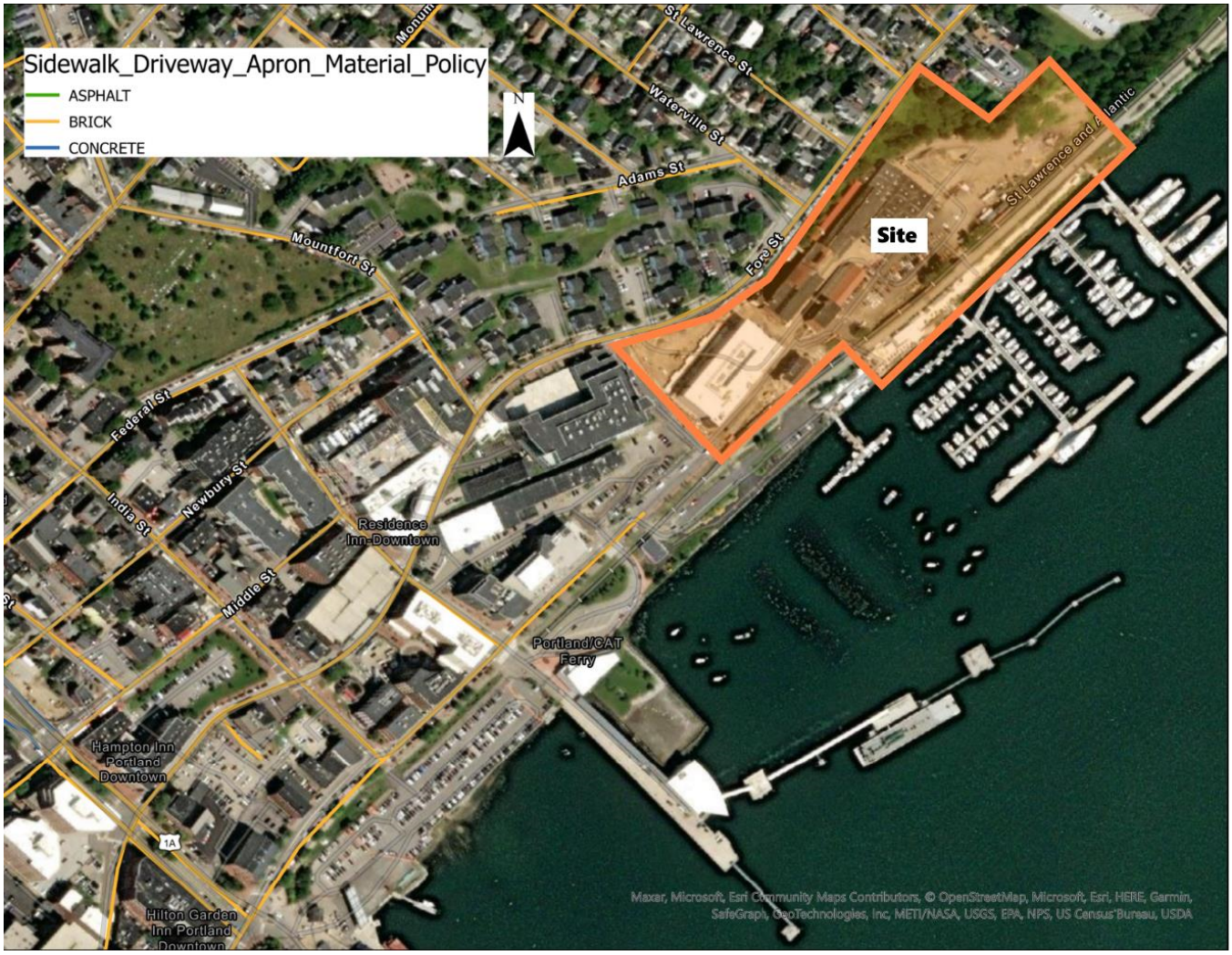
The waterfront development is located on the Eastern Promenade adjacent to a dense residential neighborhood and an urban retail and restaurant hub. These uses are all connected through an extensive network of pedestrian facilities including sidewalks, ramps, and crosswalks. This provides employees, residents and visitors with safe and efficient

pedestrian accommodations to and from the project. There is a mix of concrete, asphalt, stone pavers and brick laid sidewalks dispersed throughout the project area.

As shown in Figure 1, The City's sidewalk policy indicates that new permanent sidewalks in the City right of way will be of brick material. A field visit determined that the sidewalks surrounding Portland Foreside are currently brick along Freedom Way and a combination of brick, asphalt and concrete along Fore Street. Thames Street within the project site is a shared street consisting of stone pavers for the sidewalk, parking and the roadway all at the same grade. Although it is not clear based on this GIS information from City of Portland's Driveway Apron Policy graphic shown below, there are sidewalks on both sides of all of the streets (Fore Street, Freedom Way and Thames Street. surrounding the site). The Eastern Promenade Trail runs along the southeast side of the site along the waterfront connecting pedestrians from the Eastern Promenade to downtown.

Within walking distance of the site are restaurants, retail, offices, residences, and hotels.

Figure 1 – Sidewalk Material Policy



Source: City of Portland Maine, Sidewalks and Driveway Apron Material Policy

Bicycling Environment and Infrastructure

As illustrated in Figure 2, the Eastern Promenade Trail (multi-use path shown with red solid line) runs right through the Foreside Development, separating the marina from the rest of the development. In addition, based on this infrastructure map from the Greater Portland Council of Government, there is a planned shared bicycle lane for Fore Street along the site.

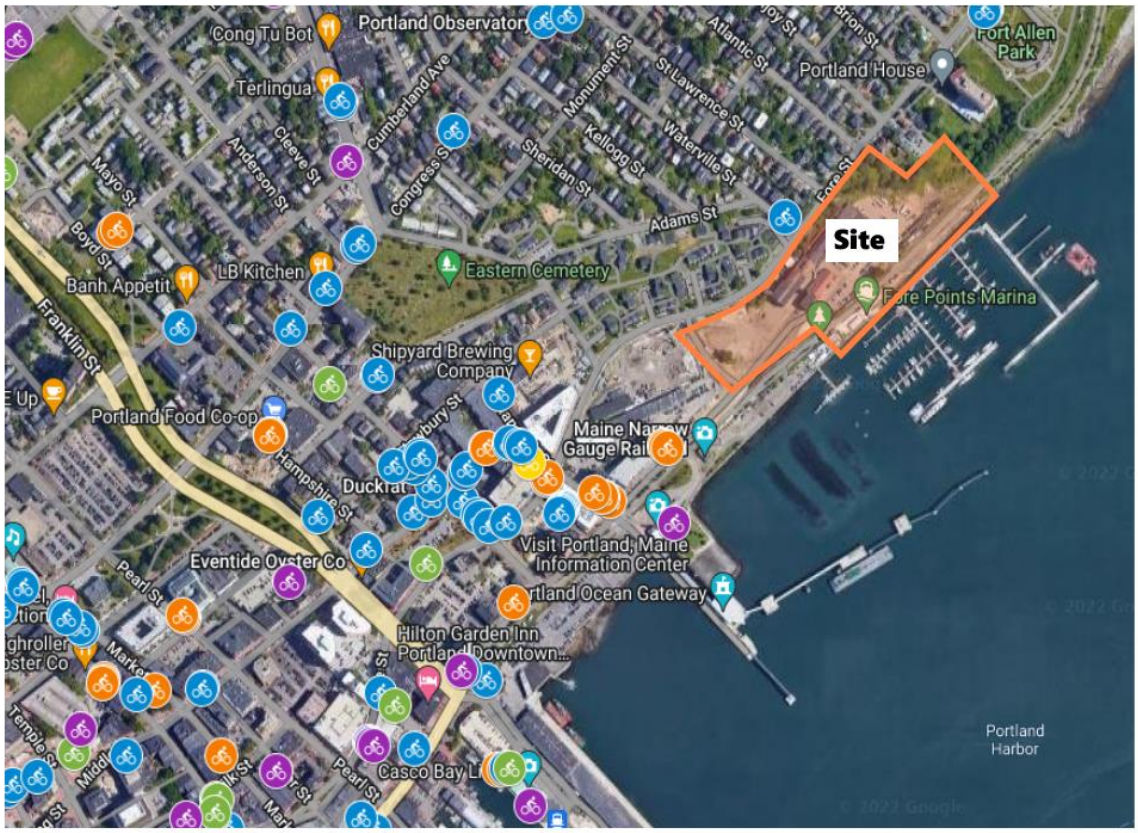
Figure 2- Bicycle and Trail Infrastructure



Source: Greater Portland Councils of Government, Bike Pedestrian Network

In addition to bicycle facilities, there are plenty of bicycle parking opportunities in the area. These opportunities are displayed on Figure 3, which is a Google Map of bicycle rack locations created by Portland Downtown. Blue represents 1-hitch, green is wave racks, purple is wheel benders, orange is u-racks, and yellow is covered bike parking locations.

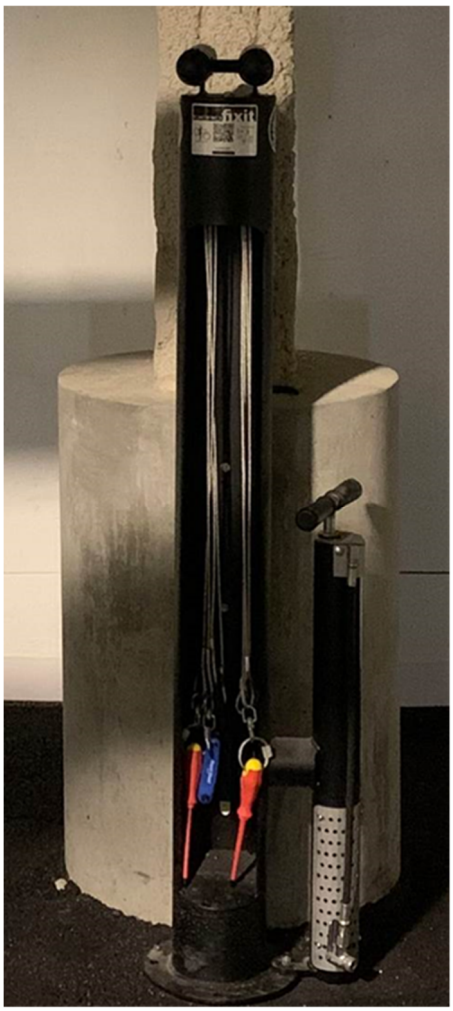
Figure 3 – Existing Bicycle Infrastructure



Source: Portland Downtown, Bike Parking Locations

Bicycle parking at the site was also reviewed. Directly outside the SunLife building, there are two Type A bicycle racks along Fore Street. There are four Type B bicycle racks located on the southeast corner of the SunLife building. For longer-term bicycle parking there are nine vertical bike racks in the garage of the SunLife building. The SunLife building includes a Bike Fix-it station, showers and locker rooms for those who travel by bicycle or walk/run to the site. The Fix-it station is located in the garage as shown in Photograph 1.

Photograph 1 – Fix-It station



The site will provide 178 residential bicycle parking spaces and 39 non-residential bicycle parking spaces once Blocks 4, 5 and 6 are constructed. Portland Foreside will provide showers and lockers for their employees as well.

Portland BIKESHARE provides a bikeshare program with two stations located near the site: Eastern Promenade Trail at Portland Landing and at the Cruise Terminal. The City of Portland has 200 bikes at over 40 stations including pedal and electric bikes. Monthly memberships are available as well as by the minute rentals.

Figure 4 – Existing Portland BIKESHARE Locations

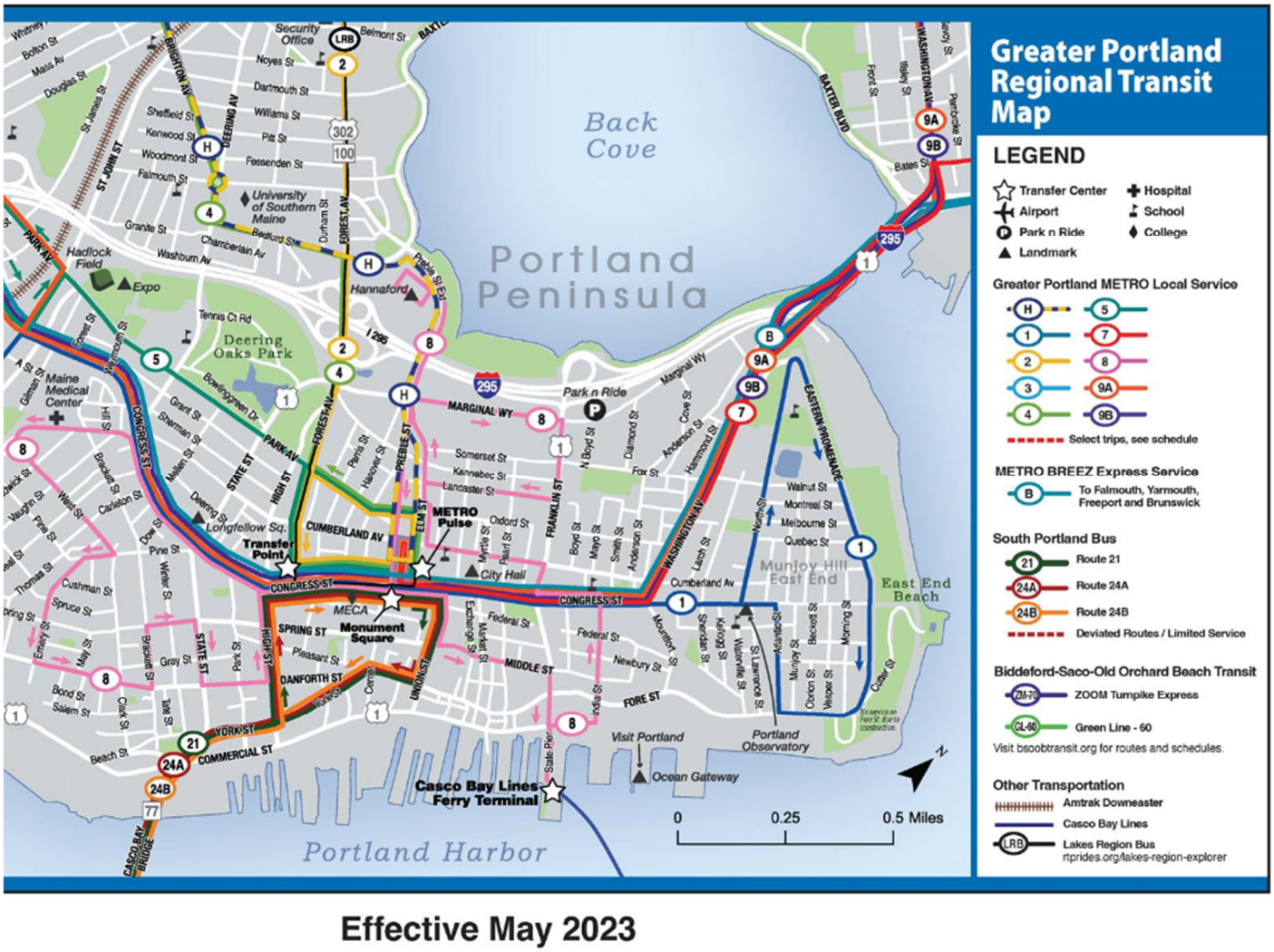


Source: Tandem Mobility, Portland Bikeshare

Public Transit

The site is located within a short walk of several METRO bus stops. Figure 5 illustrates that there are opportunities for employees, residents and visitors to access the Greater Portland Metro bus lines. Route # 8 stops at India Street/Commercial Street within approximately one quarter mile from the site. Bus # 1 stops along Congress Street approximately one third of a mile from the site. Bus # 7, 9 and BRZ stop along Congress Street under half a mile from the site. The distance to the METRO Pulse at Elm Street transit hub corresponds to approximately an 18 minute walk (just under 1 mile).

Figure 5 – Portland Public Transportation Opportunities



Source: Greater Portland Metro, Greater Portland Regional Transit Map

METRO provided an update on their plans for transit in the vicinity of the site.

> *The only significant proposal that has been considered for the Portland Foreside project area is possibly making the Route 8 bus bidirectional; currently it only runs in the counterclockwise direction. At this time we have no plans to introduce any brand new routes…that said, service along Fore Street is something I've flagged for consideration as part of future expansion.*
>
> *In the meantime, the site is still quite transit accessible, being about 1/4 mile away from India Street, where the Route 8 runs, with additional service along Congress Street a short walk (or Route 8 transfer) further.*

Parking Facilities and Policy

A temporary on-site surface parking lot containing 146 spaces currently serves the Marina and Twelve. The parking rate is currently at $5 per hour with a max rate of $40 for 8-24 hours.

The SunLife building provides 68 parking spaces. Short-term paid on-street parking is provided along Thames Street near the SunLife building.

The proposed Block 4 Residential Building (Harbor Hill) will provide 443 parking spaces while the proposed Block 6 Residential Building (Channel Mark) will provide 166 parking spaces. Block 5 (Promenade Hotel and Residences) will provide an additional 35 parking spaces for a site total of 712 parking spaces. The residential parking will be charged at market rate as a separate expense unbundled from rent in order to discourage having a personal vehicle.

3

TDM Coordinator

TDM program management responsibilities will be designated to a single representative associated with the Portland Foreside Development.

Portland Foreside will appoint a TDM Coordinator for the site who will commit to survey employees, residents and visitors to estimate the mode shares as well as understand any barriers to using alternative modes. In the short term, Portland Foreside has hired VHB to perform these services.

The responsibilities of the TDM Coordinator include the following:

- Promote human powered transportation choices to employees, residents and visitors and reduce single occupant vehicles (SOV) trips.
- Coordinate the implementation of TDM strategies with the various tenants and encourage them to conduct new employee orientation to educate regarding their transportation options to and from the site.
- Monitor bike rack usage and make recommendations as needed to accommodate demand.
- Work with the City of Portland, METRO, GoMaine, car share and bike share, and other potential partners to improve access to non-SOV modes

- Recruit and engage participants for any outreach events or campaigns associated with the TDM program
- Coordinate all monitoring and evaluation activities necessary to measure the effectiveness of the TDM program in achieving the targets.
- Develop a TDM Report, which will provide an assessment of strategies implemented to date and outline the activities to be implemented in the upcoming year.
- Conduct Transportation Monitoring
- Administer and review TDM surveys on a yearly basis.
- File annual TDM reports with the City of Portland.

The TDM Coordinator will be the primary point of contact for employers and tenants regarding TDM. The TDM Coordinator will help tenants develop strategies and incentives for employees, residents and customers where applicable. The TDM Coordinator will also work with tenants prior to when they occupy their space to inform them of the robust network of alternative mode choices available to them.

4

Trip Reduction Goal

Portland Foreside is planning for the TDM program to reduce the number of single-occupancy vehicle trips by implementing incentives and infrastructure that encourages the use of alternative travel modes.

Successful implementation of the TDM Plan will reduce automobile trips below what would otherwise be expected. Because only two uses have recently opened at the site, a restaurant and a marina, the goal for this plan will be measured against the estimates created during the permitting process for Blocks 1 and 7 and the trip generation estimates expected as a part of permitting Blocks 4, 5 and 6 and future phases.

Blocks 1 and 7

The original TDM plan included a target auto mode share reduction of 5 percent beyond the assumed alternative mode shares (18 percent) resulting in a decrease of 10 AM Peak Hour trips, 16 PM Peak hour trips and 14 parking spaces for the entire site development.

VHB conducted the annual monitoring program for the existing uses currently occupied: Restaurant (Twelve) and the Marina in the Fall of 2022. VHB worked with Portland Foreside to create a survey for employees of the site to estimate mode shares.

Based on the permitting for Blocks 1 and 7, Block 1 is expected to generate 187 AM Peak Hour vehicle trips and 198 PM Peak Hour vehicle trips prior to internal capture and mode share adjustments. Building 12 is expected to generate 16 AM Peak Hour trips and 37 PM Peak Hour trips. In addition, Block 7 the Marina, is expected to generate 36 AM Peak Hour and 36 PM Peak Hour vehicle trips.

Blocks 4, 5 and 6

The updated Traffic Assessment memorandum dated May 5, 2023 for Block 5 includes updated trip generation for Blocks 1, 2, 4, 5 and 6. The updated trip generation analysis indicates that, after adjusting for alternative modes and internal capture, the site is anticipated to generate 419 AM Peak Hour vehicle trips and 565 PM Peak Hour vehicle trips. To be consistent with the Master Plan for the entire site, there is a goal of a five percent reduction of vehicle trips. Five percent of the trips would result in a reduction of 21 AM Peak Hour vehicle trips and 28 PM Peak Hour vehicle trips. Portland Foreside is committed to implementing the TDM strategies presented in the following section 5 to work towards achieving that goal and beyond.

5

Trip and Parking Reduction Strategies

The Portland Foreside TDM Plan establishes a vision and set of goals for transportation, mobility, and sustainability.

Portland Foreside is taking advantage of the urban site location, providing support for and promoting alternative modes, and discouraging automobile trips in order to achieve success. The table below presents the TDM strategies that Portland Foreside agrees to implement; they are grouped by categories reflected in the City of Portland's *Technical Manual* and include timelines for implementing the various strategies.

Table 3: Proposed TDM Program for Portland Foreside

Strategy		Description	Targeted User/Group	Infrastructure	Incentives	Education	Timeline Years	
							Short-Term (0–2 Years)	Long-Term (2–5 Years)
Walk/Bike	**City Bikeshare – Participation**	Portland Foreside will support participation in the citywide Bikeshare system with the existing stations located at the Eastern Prom Trail at Portland Landing and at the Cruise Terminal.	Primary – Residents and Office Employees who use Alternative Modes to Commute Secondary – Retail and Hotel employees, Retail and Hotel Patrons, Visitors		X		Investigate bikeshare membership for Foreside employees Transportation Coordinator provide information to all tenants	Transportation Coordinator provide information to all tenants
	City Bikeshare – Potential New Location on Site	Portland Foreside is actively investigating a possible Bikeshare station on the Project site.	Primary – Residents and Office Employees who use Alternative Modes to Commute Secondary – Retail and Hotel employees, Retail and Hotel Patrons, Visitors	X			Actively exploring with Bikeshare to choose potential location	Implement
	Bicycle Repair	Portland Foreside will explore the possibility of providing a Fix-it bike station along the Eastern Promenade trail. The SunLife building will provide a compact bike fix-it station in the garage near the hanging bike racks.	Site Residents, Workers and Visitors as well as General Public Amenity	X			Investigate	Implement
	Promote Local Bicycling Activities	Promote the participation in (and facilitation of) local bike activities such as the Portland Slow Ride, Smart Cycling Traffic Skills 101, and Cycling Savvy Events through Bicycle Coalition of Maine. Promote the use of the Eastern Promenade Trail.	Employees, Residents			X	Transportation Coordinator to start promoting	X
	Showers and Lockers for cyclists/runners/ walkers	Portland Foreside will provide showers and lockers for its own employees and will encourage other tenants to do so as well. SunLife will also provide showers and lockers for its employees.	Office Employees	X			Provided upon occupancy	
	Bicycle Parking	There are currently two Type A bicycle racks outside of the SunLife building on Fore Street and four Type B bicycle racks to the southeast of the SunLife building for visitors and all site users. In addition, the SunLife garage provides nine long-term covered vertically mounted bicycle racks for employees. On-site bicycle parking will include 178 residential spaces and 39 non-residential spaces. Increase bicycle parking when warranted.	Office, Hotel and Retail Employees, Residents, Retail Patrons, Visitors	X			Provided upon occupancy	

Strategy		Description	Targeted User/Group	Infrastructure	Incentives	Education	Timeline Years	
							Short-Term (0–2 Years)	Long-Term (2–5 Years)
Transit	**Potential Subsidy and Pre-tax Transit Passes**	Portland Foreside will explore the possibility of providing a transit subsidy for its own office employees. Transportation Coordinator will educate and encourage the other office tenants to offer employees the option of purchasing a pre-tax monthly transit pass and/or provide a subsidy.	Office Employees		X	X	Investigate process and cost implications, investigate Portland Foreside Subsidy	Include Information with Transportation Coordinator Correspondence to all site users Possibly subsidize Portland Foreside transit usage
	GO Maine Program	Portland Foreside will explore the possibility of leveraging GO MAINE programs for employees who use an alternative mode of transportation to travel to work, such as transit or carpool and an emergency ride home benefit to further encourage employees to use alternative means to get to work. GO MAINE also includes a rewards program for current users and a preferential parking program. Employers promote utilization of the GO MAINE programs by streamlining the process to enroll in their programs.	Office Employees		X	X	Transportation Coordinator to investigate demand	Implement as demand dictates/site develops
	Guaranteed Ride Home	Portland Foreside will explore the possibility of promoting a Guaranteed Ride Home Program from GoMaine or a private carpool app to complement alternative mode use.	Office Employees		X		Investigate process and cost implications	Include Information with Transportation Coordinator Correspondence to all site users Implement Portland Foreside Guaranteed Ride Home Program
	Hotel Shuttle Service	Hotel Shuttle service to promote travel to and from hotel for guests. Routes might provide access to the airport, train station etc.	Hotel Patrons	X	X		Investigate	Implement
Carpool	**Establish Carpool System**	Establishment of a carpool system and convenient parking spaces reserved for carpoolers.	Office Employees		X	X	Transportation Coordinator to investigate demand	Implement as demand dictates/site develops
	Carshare Parking	Provide a car-share space on site in the Block 4 garage.	Residents		X		Investigate	Implement
	Carshare Membership	Promote carshare membership.	Residents/Employees			X	Transportation Coordinator to promote	

Strategy		Description	Targeted User/Group	Infrastructure	Incentives	Education	Timeline Years	
							Short-Term (0–2 Years)	Long-Term (2–5 Years)
Parking	**Unbundled Residential Parking**	Unbundle parking cost from the cost of rent. Charge all site users market parking rates.	Residents		X		Implement market rate from beginning	
	Parking Pricing Increase	Increase parking pricing to reflect market rates.	Residents		X			Over time, continue to ensure market rates and unbundled parking
	Electric Vehicle Parking	Provide Level 2 and Level 3 electric vehicle charging stations for 69 vehicles (10%). Install conduits and electrical expansion capacity for an additional 66 Level 2 and Level 3 electric charging stations to meet future capacity (in aggregate, 20%). Currently provide two level 2 electric vehicle charging stations with conduit and capacity for an additional 6 Level 2 electric vehicle charging stations in Building 1A SunLife Building.	Office, Hotel & Retail Employees, Residents, Hotel and Retail Patrons Visitors		X		Incorporate infrastructure in garage during construction	Offer spaces as demand dictates
	Parking Cash Out	A “parking cash out” where employees receive monetary payments in lieu of provided parking, free or reduced public transit passes, or periodic prize drawings for employees using alternative modes of transportation is being considered.	Employees		X		Investigate Options	Transportation Coordinator to provide tenants information
Communications and Marketing	**New Tenant Orientation**	Provide employees and new residents with an orientation and new tenant packet promoting non sov modes as outlined herein.	Employees and Residents			X	Continuous Transportation Coordinator to develop	Continuous
	Transportation Kiosk or Bulletin Board	Identify buildings or site central areas where a Kiosk or Bulletin Board could post transit information, carshare and rideshare opportunities, bicycle and pedestrian information (bikeshare, bike/ped routes, bike parking), and promotions.	Office, Hotel and Retail Employees, Residents, Retail and Hotel Patrons, Visitors			X	Transportation Coordinator to work with tenants to identify locations	Implement
	Transportation Website	Create Transportation page on Portland Foreside website “getting here” that highlights non-automobile methods of travel. Site can provide information on alternative mode. Transportation Coordinator to provide tenants with suggested information for their visitors.	Office, Hotel and Retail Employees, Residents, Retail and Hotel Patrons, Visitors			X	Transportation Coordinator to develop content	Implement

6

Monitoring and Reporting Plan

Program monitoring and evaluation are important components of any successful Transportation Demand Management (TDM) Program because they provide a quantitative benchmark of the program's effectiveness in reducing single occupancy vehicle trips and parking demand. The TDM Coordinator can use the information gathered via the monitoring plan to direct the ongoing implementation of the TDM Program, allowing for adjustments and the introduction of new strategies. Furthermore, via regular periodic reports, Portland Foreside will provide evidence to the City of the applicant's diligence in implementing the program.

There are different methods for collecting the data necessary to monitor a TDM Program, including surveys, program participation documentation, vehicle parking permits and usage data, bicycle parking demand counts and activity logs. Portland Foreside's TDM program monitoring will use person surveys, parking permit data and bicycle parking data in evaluating the effectiveness of the program. Each of these tools is discussed below.

Commute/Travel Survey

On an annual basis, the TDM Coordinator (or contracted company) will administer a survey of employees, residents, hotel and retail patrons and visitors of Portland Foreside

Surveys provide a qualitative understanding of how well TDM program elements are working. The survey will, at a minimum, ask respondents for the type and frequency of modes of transportation used in a typical week (for residents and employees), reasons behind driving alone, and ideas for incentives that would encourage drive-alone respondents to use an alternative mode.

The TDM Coordinator will work with the City of Portland staff to determine the most appropriate time of year to represent a typical week to conduct the monitoring.

Parking Demand Data

The TDM Coordinator will track the number of parked vehicles on the site during the midday period (to capture highest commercial user demand period) and during the late evening (to capture highest resident demand period) during the same data capture window (determined to be a typical week during discussions with the City of Portland). This data will help track the vehicular parking demand on the site over time.

Since Portland Foreside is requesting a partial waiver for the required Electric Vehicle (EV) Parking, the TDM Coordinator will complete annual monitoring of the EV charging demand to determine EV ownership and station use statistics. Should additional EV charging spaces be needed beyond what is initially installed, the report will include a plan to increase the number of EV charging spaces to meet projected demands as warranted.

Bicycle Parking Data

During the same time period as the survey and parking permit review is conducted, the number of bicycles parked in the Portland Foreside bike spaces will be noted. This data will be reviewed for trends in bicycle usage over time.

Transit Usage Data

The TDM Coordinator will work with Metro to track the transit usage of Portland Foreside employees via any pass program implemented for Portland Foreside employees or other site tenants. The data for the same time period as outlined above in the surveys will be obtained and reviewed.

Status and Monitoring Report

Each year that monitoring is conducted, the TDM Coordinator will prepare a report summarizing TDM program status and monitoring results. The report will detail (1) what/when strategies were implemented, (2) an estimate of how many individuals

participated in certain programs, and (3) the lessons learned regarding the most effective TDM strategies.

The data collected regarding vehicle parking, electric vehicle charging use, bicycle parking and transit usage will also be summarized in the monitoring report. This provides separate data sources to verify the changes in the effectiveness of the strategies. Should additional EV charging spaces be needed beyond what was initially installed, the report will include a plan to increase the number of EV charging spaces to meet project demands as warranted.

Consistent with current City guidance, the TDM Coordinator will submit the report to the City of Portland's TDM Program Manager by May 15th of each year. Once the report is submitted, the TDM Coordinator will meet with the City of Portland Planning Department and discuss suggestions for adjustments to the TDM Program.

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March 2, 2023

Charles Tetelman, Planner
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Re: Portland Foreside Development Co. Blocks 4 & 6 – Major Site Plan Submittal Response to City Planning Staff Comments (PL-002202-2022)

Dear Charles:

Thank you for coordinating the review of the Major Site Plan Application for the proposed development of Phase 2 (Block 4 and Block 6) of the Portland Foreside Project located at 58 Fore Street in Portland. We received preliminary City of Portland staff comments from you via email on February 8, 2023, and provide the following response to these comments, which have been included below in *italics* for reference:

GENERAL

- *The applicant states that state or federal permits can be provided to the City. Please submit copies of the permits.*

  The MaineDEP Site Location of Development Act Permit application was submitted to the City for review under Delegated Review Authority. The other State and Federal permits required (Maine Construction General Permit Notice of Intent and FAA Notice of Proposed Construction), are construction permits and will be submitted as the project nears construction. Evidence of approval can be provided to the City upon receipt, and we would ask that this be a condition of approval as these permits will not be received until just prior to construction.

- *A preliminary shadow analysis is required for Major Site Plan applications outside B-3, B-5, B-6, and B-7 zones. Please submit a shadow analysis as portions of the site extend into the R-6 zone.*

  The portion of the Block 6 Building located within the R-6 zone will not rise greater than 45' above the adjacent site features located in that zone and will not be located in the vicinity of any "publicly accessible open space or other important natural features." It is our understanding of Section 11 of the Technical Manual that a shadow analysis is not applicable.

- *Please provide a description of measures taken to prevent snow and ice from falling on adjacent properties, internal streets, and accessible public areas. Include design measures taken to prevent snow and ice from loading or falling onto adjacent areas or public ways.*

  All roofs of the building, including both the Block 4 and Block 6 portions are flat or low slope, and the risk of falling snow and ice is minimal. All site snow will be managed internally to the Portland Foreside site as it currently is through the use of contracted snow management and removal.

- *Block 6 outdoor areas deviate from approved MDP. Please clarify how Block 6 and outdoor areas will interface with the rail corridor. Will the site be separated from the railroad right of way with a railing / fence?*

  The Site Plan is consistent with the Master Development Plan. Minor deviations from the MDP are inherent with the evolution of detailed site plans. No fencing or railings are planned for the area between Block 6 and the rail corridor.

- *Overall Site Plan – Please show the limit of work as part of Phase II development and what structures are associated with other approvals (Phase 1 / Marina structures).*

  The limit of work line depicted on the Overall Site Plan is for the Phase 2 Development. Structures outside of the limit of work are associated with other approvals and have been shown for context as existing conditions.

- *Overall Site Plan – Please provide a secondary overall site plan that removes notes and references and depicts building footprints overlaid with historic district boundaries, view corridors, and other similar elements.*

  A secondary overall site plan removing notes and references is included as part of this response to comments.

- *Interim Conditions Plan – Will the Block 5 parking lot be operating as a pay-to-park lot?*

  In the event that this interim lot is constructed on Block 5, it will be utilized as a pay-to-park lot, consistent with the current operations of the site. We do not anticipate that construction of this lot will actually occur as we will be submitting a Block 5 site plan application in the near future.

- *Subdivision Plat – Lot "Remaining Land By Developer" still needs to be a numbered lot even with Note 8 explaining intention.*

  The remaining "land by the developer" is not a lot in the subdivision and a lot number is not required per subdivision law. The nomenclature is consistent with previously recorded subdivision plats.

- *Elevations – Separate elevations for Block 4 building, and Block 6 building are required. Additionally, if Block 4 and Block 6 building are considered one building per the MDP an elevation including both buildings is required.*

  Separate elevation views were included in the initial site plan submission for Block 4 (plans entitled "Block 4 Elevation East & West" "Block 4 Elevation North", "Block 4 Elevation South", and "Block 4 Elevation Courtyard") and Block 6 (plans entitled "Block 6 Elevations East & North" and "Block 6 Elevations West & South"). Blocks 4 and 6 are one building due to their shared structural pedestal and we have provided an additional elevation drawing as part of this response to comments to show both Blocks.

- *If Block 4, Block 5 (currently not under review or submitted), and Block 6 are going to be considered one building, please provide City Staff with a narrative explaining the design, construction, and function of the building and three structures.*

  Block 4 and Block 6 are considered one building. The building has pedestal parking at the base, with connected and architecturally varied residential uses above. This approach was presented and agreed to in the MDP approval and was documented in the Staff memos to the Planning Board as part of that process. Block 5 will be a phased addition to this single building structure. We will address Block 5 as part of the site plan application to be submitted separately.

- *Floor Plans – City Staff would like to work with applicant to develop a Floor Plan labeling scheme that is consistent between Block 4 and Block 6. Ideally this system would reflect the elevation of each floor rather than the floor specific to each building.*

  To help with any confusion between the different Blocks, we propose adding an elevation coordination table to the drawings. The proposed table is included on the following page. This table will be updated as we add Block 5 to the Building. We are happy to work with you to review and determine if other adjustments can be made to alleviate confusion during review.

	Block 4 FFE	Block 6 FFE
Level 00: Sea Level	0′	0′
Level 0:		10′
Level 1:	16′	13.2′
Level 2:	27.5′	25.2′
Level 3:	38′	35.2′
Level 4:	48.5″	45.2′
Average Grade (MDP):	50.1′	
Level 5:	60.7′	55.2′
Level 6:	71.5′	65.2′
Level 7:	82.4′	75.2′
Level 8:	93.2′	85.2′
Level 9:	104.0′	95.2′
Level 10:	114.9′	105.2′

- *Construction Management and Phasing Plan – Please submit a Phasing Plan that shows the extent of work completed associated with the 58 Fore Master Development Plan (including Phase 1 and the Marina), work to be completed as part of Block 4 and work to be completed as part of Block 6, work to be completed as part of other applications currently under review or recently approved, and future work on site (ex: Block 5). Please include anticipated timelines and expected length of construction (estimates are fine).*

  A Phasing Plan is being developed that will include anticipated timelines and expected durations of construction. This will be provided separately.

ZONING

- *Please provide how height will be calculated as part of this phase of development. Height calculations and average grade points shall be provided.*

  A summary of the building height calculation was provided in Section 2.4.4 of the original Site Plan Application (page 8 of Section 2 Permitting and Zoning file in the

"Document" upload folder). Associated figures and calculations are provided on page 35 through 38 of this Section. The height calculations are consistent with the approach that was approved as part of the Master Development Plan.

- *The portion of the Block 6 building within the R-6 zoned area is required to meet R-6 dimensional standards. Maximum height in the R-6 zone is 45 feet, with stepback requirements. Height calculations and average grade points taken within the R-6 portion of the building are required to be provided.*

  The portion of the Block 6 building within the R-6 zoned area meets the R-6 dimensional standards as demonstrated in Section 2.4.2 of the original Site Plan Application (starting on page 5 of Section 2 Permitting and Zoning in the "Document" upload folder).

TRANSPORTATION

- *Maine Department of Transportation and Third-Party Traffic Consultant noted that the applicant has until May of 2024 to complete the project associated with the previously approved Traffic Movement Permit.*

  "Automatic Permit Expiration" A permit will be considered automatically expired if construction of the project has not begun within a 5-year period or completed within a 7-year period of the date of issuance. The applicant must reapply for and receive approval prior to continuing construction or opening a facility.

  If the construction schedule does not meet the May 2024 deadline the applicant will need to apply and receive approval for a new Traffic Movement Permit.

  The project received its Traffic Movement Permit in May of 2017, prior to the 2022 amendment to Chapter 305 that enacted the 7-year time limit. Our 2017 TMP was specifically designed around a ten-year development horizon and all actions taken to date are in reliance on the 10-year full buildout expected trip generation and association mitigation costs.

- *The Trip Generation estimate included in the Traffic Assessment shall be based on the 11th Edition of the ITE Trip Generation publication. This was discussed and confirmed with MaineDOT's State Traffic Engineer.*

  The project's initial TMP and the associated traffic assessment was based on the 5th Edition of the ITE Trip Generation manual. Our understanding is that these standards

in place at the time of the initial TMP approval remain the standards for review on this project. This has been the experience with other projects with similar approvals.

- *Trip reduction assumptions used in prior analysis should be revisited and documentation should be provided in support of suggested trip reduction factors given current conditions.*

  There were two trip reductions applied in the Traffic Assessment for Blocks 4 & 6; "shared use" and "other modes". The "shared use" reduction was based on NCHRP 684 as required by MaineDOT, with the existing and currently proposed uses included. No credit was taken for future uses. This reduction would not be expected to change. The "other modes" reduction (18%) is based on a recommendation from Mr. Tom Errico in an email dated December 20, 2019. We would not expect that reduction to change. Both of these methodologies were accepted in previous submittals to the City.

- *The applicant must submit a snow removal plan or show snow storage areas on the site plan. Applicant noted that a third-party will be contracted to manage snow removal and storage.*

  Snow will be managed on the site as it currently is through a contracted management company that is responsible for the hauling and offsite disposal of snow from the site. There will also be snow-melt systems installed in various areas throughout the site to help reduce the need for management of snow. This project will include the installation of the snowmelt boiler system within Block 4 which will support these new snowmelt systems as well as previously installed snowmelt in other areas of the site.

- *Please confirm that proposed compact parking spaces for the entire site will consist of no more than 20% of the total spaces.*

  Considering all of the parking spaces previously provided in Block 1, and proposed in Blocks 4 and 6, the total number of compact spaces proposed is currently 62, which yields a total percentage of 8% of the parking on the site.

- *Section 1 Summary notes that the Block 4 parking structure has been reduced 198 spaces (652 to 454). Please provide additional information on how the development of Block 4 and Block 6 will maintain overall parking requirements as laid out in the MDP.*

  The amount of parking provided within the Block 4 section of the building has been adjusted to account for the increased amount of parking being provided within the Block 6 area through the use of parking "stackers". The site's total parking count of

764 is appropriate for the site, as documented in the transportation analysis provided in the original site plan application submission. This amount of parking is within the range that was assumed for the Master Development Plan and the Traffic Movement Permit which references 435,200 SF of parking or 736 spaces.

WATER QUALITY, STORMWATER, & INFRASTRUCTURE

- *If construction is anticipated to occur between November 1 to April 15 for this phase of the project, consider adding winter construction guidelines to the Stormwater Management Plan for disturbed areas as required in Appendix A Section 7 of Maine DEP Chapter 500.*

  Winter construction notes and erosion control measures are located on plans entitled "Block 4 Civil Details 1" and "Block 6 Civil Details 1", which were included as part of the original submission.

- *Section 5.4 of the Major Site Plan Application notes that the site will have "adequate sanitary disposal of sewage as further described in Section 5 of this Report." The Applicant should provide an Ability to Serve Letter from Portland Water District or note previous arrangements in the narrative.*

  A copy of the ability to serve requests are included with this response to comments. An Ability to Serve Letter will be provided upon receipt.

- *Per Section 3 of the City of Portland's Technical Standards, elevators must be designed to fit an 84-inch x 24-inch stretcher inside. City Staff recommend verifying and noting elevator dimensions in the Life Safety Plan to conform to the City of Portland's Technical Standards.*

  All building elevators have been designed to accommodate stretchers per the City of Portland's Technical Standards.

- *Per Section 3 of the City of Portland's Technical Standards, hydrants must have 6 feet of clearance around the circumference. Please verify this clear space is met for all hydrants shown on Sheet C-102 for Block 4.*

  Adjustments have been made to the locations of the fire hydrants to ensure there is a 6-foot clearance provided.

- *On Sheet C-100 there is a callout for an SOE retaining wall with reference to geotechnical*

plans. However, geotechnical plans were not submitted as part of this application. Please submit geotechnical plans for review.

The design of the Support of Excavation (SOE) is ongoing. We will provide geotechnical plans with the building permit applications.

- *On Sheet C-102 for Block 4 and Block 6, there is a callout for conduits for electrical and communications with reference to MEP plans. However, MEP plans were not submitted as part of this application. Please submit MEP plans for review.*

  All required site utilities are shown on sheet C-102. The MEP drawings referenced include internal building mechanical, electrical, and plumbing designs. These are items that are typically reviewed during the building permit phase of permitting and are not provided as part of the site plan process. The provided drawings include all proposed site elements.

- *Sheet L-1.1 for Block 4 references an architectural plan. However, architectural plans were not submitted as part of this application. Please submit architectural plans for review.*

  Architectural plans were submitted with original the application. The architectural plan labels include "…Floor Plan…" or "…Elevation…".

- *For Block 4, the civil plans (Sheet C-100) directs the reviewer to the geotechnical plans for retaining wall details, whereas the landscape plans (Sheet L-1.1) directs reviewer to the structural plans for retaining wall details. Additionally, a Segmented Retaining Wall Detail is provided on the civil plans (Sheet C-202). Please keep the location of detail consistent and revising other references as applicable.*

  The segmented retaining wall detail will be removed from the plans, as it is not applicable.

- *Please provide Landscape Details that are referenced on Landscape Plans for Block 4.*

  The detail sheets have been uploaded separately to Eplan.

- *Sheet C-100 for Block 4 notes a detail for safety railing can be found on the Landscaping Plans, which then notes a detail for the safety railing can be found on the Architectural Plans. City Staff recommend adding a safety railing detail to the Landscaping Plans or changing the note on Sheet C-100 to direct the viewer to the Architectural Plans.*

Plan updates have been provided.

- *On Block 6 Landscaping Plans, many detail callouts are missing reference numbers. Please provide callout reference numbers on the plan set.*

  Plan updates have been provided.

- *Overhead utilities exist on the south side of Fore Street, will those remain? The Applicant should verify that there is at least 10 feet between the proposed buildings and existing utilities.*

  The overhead electrical utilities on the south side of Fore Street will be reinstalled. The site constraints are being coordinated with Central Maine Power who is completing the design, to ensure the utilities have adequate separation from the proposed buildings.

- *Coordinate location of water meters with Portland Water District (PWD).*

  Noted. The water meter will be located within the Block 4 building and is being coordinated with PWD.

- *Show anticipated pavement restoration areas within Fore Street due to utility connections, sidewalk reconstruction and construction damage.*

  Pavement restoration areas are shown with gray hatching on the Civil Drawings.

- *Will the SOE retaining wall on the east side of Block 4 remain permanently?*

  The SOE retaining wall will be permanent.

- *Permanent elements within the Fore Street right of way may require approval of a license with the City.*

  We understand that elements within Fore Street may require approval of a license with the City, and would request that this be made a condition of approval as was done for the Phase 1 approval. We will continue to work with the City on this and would anticipate meeting with the City in the near future to discuss resolving any license requirements.

- *Plans need to show and label existing and proposed curb.*

  We are resetting existing curb on Fore Street as shown on the plans.

- *Will the applicant be reusing the existing granite curb or installing new granite curb? The applicant shall verify the condition of the existing granite curb and the plans need to be labeled to indicate what will be installed.*

  We are resetting existing curb on Fore Street as shown on the plans.

- *The sidewalk, driveway, curb and street need to be dimensioned on the plans.*

  Dimensions have been added to the site plan.

- *There are existing utilities that conflict with the proposed driveway off Fore Street across from Waterville Street. None of the plan sheets show how or where they will be relocated or adjusted.*

  There is an existing utility pole located within the driveway – this will be relocated as part of the resetting of the overhead lines. As noted in a previous comment, this design is being coordinated with Central Maine Power. We do not anticipate that any other utilities would require relocation or changes as a result of the proposed driveway.

- *Grading Sheets: Spot grades and slopes shall be added to plans at proposed driveways, egress locations, pedestrian ramps, accessible crossings, sidewalks and steps. The finish floor elevation for all buildings shall be shown on the plans (along Fore Street).*

  We are currently working with the Landscape Architect and the Architects on some changes to the grading along both Fore Street and Thames Street. Once we have made these changes we will provide updated grading plans to show additional detail as requested.

- *Profile: Label where City ROW ends and Private property begins. Show the centerline elevation of the road. The profile (notes and labels) needs to be updated to reflect the portion of the road that has been constructed so far.*

  The entirety of the road shown within the site is private. The profile has been

drawn along the road centerline, as shown by the stationing on the Block 4 Civil Site and Grading and Drainage Plans, and the elevations are provided along the vertical axis. The profile shows only the portion of the road to be constructed as part of Phase 2.

- *Profile: A portion of the proposed street has a 0% slope. Any proposed street shall be designed to have a minimum grade for the centerline of the street that shall not be less than 0.5 percent.*

  The drainage and grading is accounted for through the use of trench drains located at the center of the roadway. While the street itself has a slope of 0%, it has a cross slope draining to the center, the trench drains have a slope, and the discharge pipes beneath the drains are also sloped. As noted in a previous comment, we are currently working on adjustments to site grades – in particular grading changes are being made along the roadway to accommodate the design of the adjacent Block 5 building that will be submitted as part of a separate site plan application in the near future. We will provide additional spot grades for clarity when we resubmit an updated grading plan.

- *The block 4 grading and drainage plan indicates that Jellyfish-2 will be "as-built" prior to this project commencing. It's unclear what phase the Jellyfish unit will be installed in. The concurrent waterfront and utility enabling work phase (PL-00253-2022) calls out a future location of Jellyfish Filter, but does not indicate it will be installed as part of that project. Please clarify when Jellyfish 2 will be installed.*

  We are currently working with the project's Construction Manager to address project phasing between the Waterfront Enabling project and the Block 4/6 project. We will address where to include the Jellyfish filter and will include it on the appropriate project's plan and will resubmit.

- *The applicant should clarify how sanitary facilities associated with the Marina property will be permanently connected to the new sewer system being constructed as part of the block 4 and 6 development. The applicant should clarify the time frame for the removal of temporary sewer holding tanks on marina site. The Interim Marina Site Plan (PL-00289-2022) shows sanitary facilities connecting to an existing EOne pump station on the southside of the railroad tracks. The plan indicates that a force main routes northerly underneath the railroad tracks. It's unclear how this system will be permanently connected to the new sanitary facilities being installed as part of the block 4 and 6 development. Any temporary above ground sewage holding tanks should be eliminated as part of this next*

phase of development.

The Waterfront and Utility Enabling project (PL-00253-2022) will provide the infrastructure to allow for the connection of the marina into the site sewer utilities. When the site's pump station is brought online, we will be able to disconnect the marina's sewer holding tanks and start utilizing the site sewer for the marina. We are currently working with the site contractor on overall phasing and timing between the Waterfront and Utility Enabling project and the Blocks 4 and 6 project, but anticipate that the two sewer holding tanks will need to be utilized for the upcoming year, but with the pump station installation could be removed for the 2024 marina season. We will plan to meet with Public Works and Planning staff on the logistics of this work, and how we could potentially bring the site's pump station online before overall site construction has been completed.

- *An Erosion and Sedimentation Control (ESC) plan shall be added to the plan set, specific to this project, depicting compliance with all City and State ESC regulations.*

  Erosion and Sedimentation Control Plans are provided on "Block 4 Civil Details 1" and "Block 6 Civil Details 2", and associated measures are depicted on the "Civil Demolition" plans.

- *The applicant shall submit a wastewater capacity application for review and approval to the Water Resources division of DPW for this next phase of development.*

  Wastewater capacity applications have been DPW for each of the proposed Blocks and are attached to this application. Confirmation of ability to serve will be provided upon receipt.

- *The intent of the utility extensions along the limit of block 6 work is unclear.*

  Site utilities have been extended to the building structure. The "podium" area is part of the building structure that connects Blocks 4 and 6, and utilities will be run internally from the locations that have been identified on the Block 6 utility plan.

- *The applicant is not showing any external grease traps for any of the proposed development in blocks 4 and 6. The applicant shall confirm that external grease traps are not required for any of the proposed development in these phases. If grease traps are*

required per City of Portland sewer use regulations, then the plans should be updated to show the configuration and location of each unit. Will grease traps be required for any of the proposed future connections associated with building 3 and 6B? If so, the applicant should show the proposed locations and configurations on the utility plans.

The current core and shell design for Block 4 does not include any grease traps. We will work with he architect to determine if any may be required in the future, but would anticipate that these would be addressed through internal building fit-out. We are currently working with the Block 6 Architect to identify the potential location of a grease trap south of the buliding and will provide that on an updated utility plan.

The existing Buildings 3 and 6B were previously permitted with grease traps shown as part of Block 2 in the Phase 1 Site Plan approval. If changes to the previously approved grease trap layout are anticipated as part of the future Block 2 construction, we will provide that as an amendment to the Phase 1 approval.

- *DPW continues to note that Fore Street will be surface paved, curb to curb, in the early summer months of 2023 as part of final work associated with the Fore Street/Eastern Promenade Sewer Separation project.*

  Noted.

- *The stormwater management report indicates that 2 Filterra units will be installed to provide treatment for an interim parking lot as required during this phase of development. These Filterra units appear to have been factored into the required treatment for the entire redevelopment project. DPW assumes there is a plan in place to provide permanent stormwater treatment for block 5, and subsequent development to replace the Filterra units when they are removed during future phases of development. Please clarify.*

  This assumption is correct. Permanent stormwater treatment will be provided as part of Block 5.

- *As part of the recent sewer separation project in Fore Street, the City of Portland completed a curb extension at the NE corner of the Waterville Street/Fore Street intersection. The City installed flush curbing at this location in anticipation of a crosswalk being installed as part of the next phase of the 58 Fore Street project. The City did not complete the ramp work due to safety concerns of implementing a crosswalk ramp*

without the receiving ramp being in place on the southerly side of the street. The developer should include the work to finish the sidewalk ramp at the NE corner of Waterville and Fore Street in order to establish a new crosswalk at this location as shown on the proposed plans.

The plans account for additional work for the completion of the sidewalk ramps required for the Fore Street crossing. We are happy to review with DPW to ensure that adequate accessibility is being provided. As noted in a previous comment, we are currently working on some regrading design for the entrances to the buildings along Fore Street. Once that is complete, we can finalize detailed plan with spot grades that shows how this crossing will be constructed.

If you have any questions or require additional information, please do not hesitate to contact me at (207) 558-3763 or by email at lswett@woodardcurran.com.

Sincerely,

WOODARD & CURRAN, INC.

Lauren Swett

Lauren Swett
Technical Manager

Enclosures - the following files have been uploaded separately online and are noted here as new or updated.

- Architecture Plans
  - Block 4 & 6 Combined Elevation (New)
- Landscape Plans
  - Block 4 Landscape Layout and Materials Plan Courtyard (Updated)
  - Block 6 Landscape Layout and Materials Plan Level 1 (Updated)
  - Block 6 Landscape Layout and Materials Plan Level 2 (Updated)
  - Block 6 Landscape Layout and Materials Plan Level 2 Courtyards (Updated)
  - Block 6 Landscape Layout and Materials Plan Level 7 Terrace (Updated)
  - Block 4 Landscape Site Details (New)
  - Block 4 Landscape Courtyard Details (New)
  - Block 4 Landscape Site Furnishings Details (New)
  - Block 4 Landscape Plantings Details (New)
- Civil Plans
  - Overall Site Plan 2 (New)
  - Block 4 Civil Utility Plan (Updated)

    - Block 4 Civil Details 3 (Updated)
- Documents
    - Utility Ability to Serve Requests (New)

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June 23, 2023

Charles Tetelman, Planner
City of Portland
389 Congress Street, 4th Floor
Portland, Maine 04101

Re: Response to City Staff Comments – 58 Fore Street Phase 2
Project ID PL-002202-2022

Dear Charles:

Thank you for coordinating the review of the Level III Site Plan, Subdivision and Site Location of Development (SLOD) Amendment for Phase 2 of development at 58 Fore Street in Portland. We received the following City Staff review comments on the project through you, and provide the following response:

City Staff Comments | June 2, 2023 | PL-002202-2022

CRITICAL PATH ITEMS:

1. Phase 2 Average Grade Calculation: Point D and Point E are not acceptable for determining the average grade as currently shown. As currently proposed, the applicant is not measuring the grade from the post development grade but instead from elevated patios/walkways, sidewalks, and other artificial features, projecting from the building facades and to be constructed on top of a retaining wall, with no fill between the building and the retaining wall, leaving a void, and bearing no relation to the structural functionality of the building in these locations. As previously stated, points can be taken at regular intervals or at prominent building corners. Measurement is required to be taken where the building foundation meets the post development earth grade.

   Response: We have revised the points utilized for the average grade calculation. The attached average grade figure includes the selected points at the prominent building corners where the average of proposed grades calculates to 50 feet. We have also included an updated version of the supplemental architecture package that supports the average grade calculations.

2. Fore Street Retaining Wall + Maintenance: The applicant shall assess the current condition of the Fore Street retaining wall and confirm whether footings or other structural elements being proposed pose a risk to the structural integrity of this retaining wall. This study is required to be completed by a qualified professional and will need to address the following questions:

   1) Can the applicant provide past and current elevation data of the Fore Street Retaining Wall for comparison;
   2) Who will ultimately be responsible for maintenance once the structure is occupied;

3) How will the wall be accessed for maintenance and/or replacement once the structure/building is erected; and
4) What is the estimated lifespan of the wall?

Response: The project team's geotechnical engineer Haley & Aldrich has provided the following information with regards to the existing Fore Street wall. The existing Fore Street retaining wall was constructed in 1876 and a short length of the wall was rebuilt in 1896 for reasons unknown. We have visually observed the condition of visible portions of the wall, and it is our opinion that the wall is in good condition with no visible signs of distress, bulging or movement. We have not conducted any physical investigations to further explore the condition of the wall. As explained below, the proposed improvements will not change the stress condition of the wall. Because of that, we do not anticipate that the condition of the wall will change from its current condition once construction is complete.

The proposed building and support of excavation wall will be located south of the existing Fore Street retaining wall (on the water side). Neither structural system - the building foundation or support of excavation wall - will rely on any portion of the existing Fore Street retaining wall for support. Along the Fore Street/Eastern Promenade side of the proposed building, a slab will span over the existing wall from the proposed building to a foundation beneath the sidewalk. The slab will provide pedestrian access from Fore Street into the residential brownstone units. The slab will be structurally connected to and partially supported by the new building. The Fore Street end of the slab will be supported on a small footing or will bear directly on the ground beneath the sidewalk such that negligible additional load will be imparted onto the existing Fore Street retaining wall. The details of the slab and slab support will be finalized in the next phase of design prior to submission for a Building Permit.

- *Existing wall elevation data is provided on page 11 of the enclosed Geotechnical Data Report dated October 2022 prepared by Haley & Aldrich. Historic plans of the wall showing ground surface elevations prior to construction as well as the design wall elevations are also enclosed.*

- *The Applicant intends to take on maintenance responsibility for the existing retaining wall once the structure is occupied. The Fore Street retaining wall is the subject of an 1876 agreement between the City of Portland and the Portland Company. In the Agreement, the Portland Company gave the City permission to locate the wall on the Portland Company property and the City is responsible for maintaining the wall. The Applicant team will work with Corporation Counsel on an amendment to the Agreement which would transfer maintenance responsibility to the Applicant.*

- *As previously noted, the design intent is to span the wall and maintain the existing stress condition of the wall; therefore, maintenance of the wall is anticipated to continue to be minimal. In the unlikely event that wall maintenance is needed in the future, we will have the ability to observe the façade of the wall after the new buildings are constructed and access it through specific interventions along the wall span.*

- *As noted above, the existing wall was constructed in 1876. Historic plans are enclosed for your reference. We were not the designers of the wall and do not know what the design life of it is. We have visually observed the condition of visible portions of the wall, and it is our opinion that the wall is in good condition with no visible signs of distress, bulging or movement. As mentioned previously, the proposed improvements will not change the stress condition of the wall. Because of that, we do not anticipate that the condition of the wall will change from its current condition once construction is complete. Although not all the factors that could influence the stability and "lifespan" of the wall are controllable, and assuming nothing changes, it's reasonable to believe that the wall could continue to function as originally designed for a duration that is equal to or greater that the design life of the proposed structure.*

3. Townhome Height (35 ft.): Dimensional Standards require that buildings along Fore Street do not exceed the grade of Fore Street by more than 35 feet within 100 feet of the Fore Street ROW. This height restriction is required to be met. The applicant needs to provide updated elevations demonstrating consistency with this dimensional standard.

   Response: The height of the townhomes along Fore Street, both for Block 2 and Block 4, will not exceed the grade of Fore Street, measured at the Right of Way, by greater than 35 feet. The elevation drawings have been updated to provide notation that the buildings meet this dimensional requirement.

4. Geotechnical Study: The applicant needs to provide a Geotechnical Study from a qualified professional demonstrating the proposed development is structurally sound and must demonstrate that all structures (pins, retaining walls, etc.) provide adequate support for the proposed development. From the MDP: *"Preliminary geotechnical exploration will occur to inform the future design details related to the B2 and B4 development blocks, specifically how these foundation systems will interface with the retaining wall system."*

   Response: A Geotechnical Data Report (dated 19 October 2022) and Geotechnical Design Memorandum (dated 17 February 2023) prepared by Haley & Aldrich, Inc. for the proposed Block 4 development have been uploaded to ProjectDox for reference on this comment.

5. Fore Street Public Right-of-Way: The applicant is currently proposing a sidewalk, retaining wall, and footings associated with Block 4 and the townhomes encroaching into the City ROW along Fore Street. In order to encroach into the City ROW, a license agreement is required, which the City has not granted to the applicant at this time. The City reiterates that all privatized developed areas, including any necessary retaining walls, pathways, and patios, fronting Fore Street should be shifted outside of the public ROW and onto the property of the applicant. Any building components, except footings, that extend into the ROW are not supported by the City. The City will continue to coordinate with the applicant team to explore the possibility of entering into a license agreement to allow Block 4's footings to encroach into the City ROW, below grade, that is supported by a geotechnical study.

Response: The enclosed civil and landscape plans, floor plans, and elevations reflect modifications that have been made to the proposed Townhomes along Fore Street. All proposed private improvements that are above-surface have been shifted out of the right-of-way. Structural foundation elements will be required within the Right of Way and will be placed beneath the sidewalk. A draft license agreement for these foundations is attached for your reference. The Applicant will continue to coordinate with the City on these required license agreements.

GENERAL

- Please provide snow storage areas on site or provide a management plan for removing snow from site.

  Response: The Applicant is currently working with a private contractor for snow management on the Site, including the finished Phase 1 development area. Equipment is kept on site during the winter to move snow around as necessary, and the contract includes removal of snow from the site as required. During construction, the contractor will be responsible for snow management in the construction zone and the private contractor will continue to be responsible for the remaining areas on Site. After construction, the Applicant intends to expand the existing contract to cover the completed development areas. The intent is that following construction there will not be significant snow storage on site, and it will be managed through removal.

ZONING

- Zoning will review building height and other dimensional requirements once a revised average grade based on the above comments is submitted.

  Response: Noted.

TRANSPORTATION

1. The Trip Generation estimate included in the Traffic Assessment shall be based on the 11th Edition of the ITE Trip Generation publication. This was discussed and confirmed with MaineDOT's State Traffic Engineer. Please provide updated Trip Generation estimates accordingly.

   Response: Please see the attached memo from Gorrill-Palmer that addresses this comment. The Gorrill-Palmer memo does note that the trip generation estimate provided with this application was based on the 7th Edition of the ITE because that was in effect when the Master Development Plan was approved. Normal practice would be to review phases of that project using the edition in effect at the time of original approval, so that it is a consistent comparison. This comment asked us to provide estimates based upon the 11th Edition of the ITE. We have provided the estimates in Gorrill Palmer's memo as requested but note that this is no longer a direct comparison to what was evaluated and approved during the Master Development Plan.

2. The reduction assumptions used in prior analysis should be revisited and documentation should be provided in support of suggested trip reduction factors given current conditions. Please provide revised documentation accordingly.

Response: Please see the attached memo from Gorrill-Palmer that addresses this comment. The response to this comment was prepared based on a 20% non-auto trip factor per the direction of Tom Errico on June 22, 2023.

3. All submitted plans depicting parking shall provide dimensions according to the City of Portland Technical Manual.

   Response: The parking garage plans have been updated to include additional dimensions. The space widths are provided throughout the plans. Space lengths have been dimensioned on each row, and all spaces provided in the garage are 18' in length. Drive aisle widths have been dimensioned for each parking aisle. Revised plans have been added to the ProjectDox file.

4. The applicant shall provide the EXCEL spreadsheet for the parking demand analysis for review and approval. Adjustments to mode share and internal capture may be necessary following the changed to methods used in the traffic study noted above.

   Response: Please see the attached memo from Gorrill-Palmer that addresses this comment. The EXCEL file has been provided as a separate attachment.

5. The proposed details are not compliant with City's standards (for example VERTICAL GRANITE CURB, BRICK SIDEWALK and CAST IRON MANHOLE COVER AND FRAME). City Staff recommend that the applicant review and revise all the proposed Site, Sewer, Storm Drain and Landscape details to meet the requirements of the technical manual. State the location of the details in the installation note.

   Response: Applicable sidewalk, driveway apron, and curb details have been added to Civil Detail Sheet C-207 and callouts have been added to the site plans. No manholes are proposed in the City Right-of-Way. All proposed work in the City Right-of-Way will comply with the City's Technical Manual.

6. A Driveway Apron detail was not included in the submitted plan set and should be added. The proposed driveway apron is required to be designed per the City's Technical Manual Section 1 and the City's Sidewalk and Driveway Apron Material Policy.

   Response: We previously requested a waiver from driveway apron standard due to grading constraints. Figure I-9C and I-10A have been added to Civil Sheet C-207. The brick sidewalk on Fore Street will comply with the City's Sidewalk Material Policy.

7. According to DPW there is an existing utility valve that appears to be within the limits of the proposed driveway.



Response: This valve was previously part of the natural gas main. The gas main on Fore Street was relocated as part of the Fore Street Sewer Separation project, and the old main was abandoned in-place and the valves were demolished (see photo below).



8. The applicant has noted that the existing Granite Curb will be reset. The applicant will be responsible for ensuring that the existing granite is free of any defects such as but not limited to chipping and cracking. Be aware that Public Works may require the use of new granite curb upon inspection of the existing granite curb prior to installation/during construction.

   Response: Noted.

9. DPW understands that the applicant is coordinating the relocation of the overhead utilities and poles with Central Maine Power. The applicant is responsible for ensuring that the design/location of the proposed building maintains the required offset from existing overhead utilities if the building is constructed prior to the utility relocation. Be aware that the curb line shall not be extended into the existing pavement to accommodate future utility pole relocations if the coordination is not completed

before the building is constructed. DPW is requesting all overhead utilities and related infrastructure to be shown on all plans and elevations.

Response: Proposed utility pole locations are shown on the Site Plans and Utility Plans. The Applicant is working with CMP to finalize the design of the electrical utility to be installed as part of this project. The utility design will provide adequate separation distance from proposed buildings. The overhead electric service has been added to the Utility Plans. Additionally, the utility poles and overhead utilities are shown on the Block 4 Renderings.

WATER QUALITY, STORMWATER, & INFRASTRUCTURE

1. DPW's project manager for the Fore/Eastern Promenade Sewer Separation project is available to meet onsite to discuss coordination of the two projects including the proposed crosswalk at Waterville and Fore.

   Response: Noted. We are happy to meet with DPW for further coordination.

2. The applicant shall clarify how the marina sanitary sewer force main will connect to the new sewage pump station being installed as part of the Phase 2 (block 4-6) work. This may require final approval for the minor site plan amendment PL-002252-2022. Applicant shall finalize plans associated with PL-002252-2022 before receiving approval for this site plan.

   Response: The force main will not become active/online until the pump station is installed. Once the pump station and force main are active, the temporary service will be abandoned in place.

3. The applicant shall update the project's wastewater capacity application, previously sent to DPW water resources engineering to include projected flows from block 5. The application on file does not include this information.

   Response: The updated Wastewater Capacity Application is enclosed.

4. The applicant had previously noted that placement of grease traps associated with block 6 were still being determined and they would appear on subsequent utility plans. This updated plan set still does not include any grease traps. Similarly, if any grease traps are required for the recently added block 5 work, they should be added to the utility plan. All sizing and configurations of grease traps shall be in accordance with section 2 of the technical manual.

   Response: The proposed retail spaces are core and shell only, and the use of the space is to be determined as it is contingent on future tenants. Internal grease traps will be provided for restaurant/kitchen uses. We anticipate internal grease trap applicability, configuration, and sizing will be addressed as part future building permit processes for individual space fit-outs as tenants are identified.

5. An oil water separator has been designed to treat flows coming from an internal parking garage as part of the block 4 work. The applicant shall confirm oil water

separators are not required for any internal parking areas associated with blocks 5 and 6.

Response: An oil/water separator will be provided in the Block 6 building and will be plumbed to sewer. We anticipate this will be reviewed as part of the building permit process.

6. Several sewer service pipes are shown with a slope less than 1/8 in/ft. Based on the City of Portland Technical Manual it is stated that, "All building sewer laterals shall have a minimum diameter of four inch (4") and a minimum slope of one eight inch per foot (1/8 in/ft) installed." We recommend the slopes for sewer pipes be revised to meet City standards or a waiver is requested if this is not achievable due to existing infrastructure grades.

   Response: The proposed sewer services within the project area are all private services that connect to the private main and pump station within the site that discharges to the gravity service lateral connection on Thames Street that was installed during Phase 1. It is our understanding that the City Technical Manual only applies to service laterals in the Right-of-Way; no new service laterals are proposed in the City Right-of-Way as part of this project.

7. Phase 2 Civil Plans and Details Sheet C-102: There are catch basins with a rim elevation at the same elevation as adjacent spot grades provided (AD11, CB7, CB8). We would recommend additional spot grading or adjustment of adjacent grades or rim elevations to promote positive drainage towards the catch basins.

   Response: Additional spot grades are provided on the Grading Plans at these locations.

8. Phase 2 Civil Plans and Details Sheet C-102: AD12 has a rim elevation of 14.80' based on Sheet C107 – Civil Pipe & Structure Tables. The linework for SMH-14 is covering the adjacent spot grade, but it appears that the adjacent spot grade is 14.7'. If this is in fact the case, we would recommend grading be revised in this area to promote positive drainage to AD12.

   Response: The spot grade has been updated accordingly.

9. Phase 2 Civil Plans and Details Sheet C-102: It is unclear how the podium area on the east side of Block 4 will drain. The provided spot grades around the podium are 23.89' with adjacent spot grades all being higher than these points making this area a low point. We would recommend considering the need for drainage infrastructure or revising proposed spot grades to drain to proposed storm drainage infrastructure.

   Response: The podium area, while connected to the driveway on the site, is actually part of the building structure constructed over the below-grade parking garage. Drainage from the podium, which acts like a building roof, is plumbed internally to Block 6, which exits the building along the southwest corner and discharges into DMH14.

10. Phase 2 Civil Plans and Details Sheet C-104: Pipes S16, S14, S15, and S33 are assumed to be sewer service laterals for future construction. Per the City of Portland's Technical Manual, sewer service pipes which are 4" or 6" in diameter shall not be connected into

a sanitary manhole and only into a sanitary sewer main. Please confirm the intent of these sewer pipes and revise as appropriate.

Response: Sewer pipes S14 and S33 are trunk lines servicing Block 2, and S15 and S16 are building service laterals. As previously noted, the proposed sewer services are all private services that drain to the site's internal private main and pump station system the gravity service lateral connection on Thames Street that was installed during Phase 1. It is our understanding that the City Technical Manual only applies to service laterals in the Right-of-Way; no new service laterals are proposed in City Right-of-Way as part of this project.

11. Phase 2 Civil Plans and Details Sheet C-104: the label for SMH14 is covering the label for the sewer pipe. It is unclear which sewer pipe in the pipe table (Sheet C-107) is between SMH14 and SMH6.

    Response: The layering has been updated accordingly.

12. Phase 2 Civil Plans and Details Sheet C-107: Several storm drain pipes are shown as having slopes less than 0.005 ft/ft with some drain pipes shown as being placed flat. We would recommend providing a minimum of 0.005 ft/ft slope for all storm drain pipe to ensure positive drainage.

    Response: Noted. Storm drain slopes have been maximized to provide positive drainage to proposed stormwater treatment systems and outfalls. We are working within the constraints of a relatively flat site, and understand the challenges of low slopes on piping.

13. Phase 2 Civil Plans and Details Sheet C-203: There are several area drains on sheet C-107 that are proposed to be 1' diameter. We would recommend a detail be provided for the type of grate to be used for these structures.

    Response: An Area Drain Detail, which shows the proposed grate, is provided on Sheet C-201.

14. Phase 2 Civil Plans and Details Sheet C-204: The applicant is proposing to install a tree over the top of proposed subsurface R-Tank #2. Based on available literature of R-Tank systems, it is not recommended to place large trees over these systems. We would recommend the applicant confirm that this is acceptable with the manufacturer or remove the proposed tree.

    Response: As shown on the detail plan view on Sheet C-204, the proposed R-Tank modules are arranged in a donut shape around the tree, with no modules proposed under the tree. A structural root containment system is proposed for additional protection against root penetration. We are working with both manufacturers to ensure adequate protections are provided.

15. CB27, SD123, CB28, SD124, CB21, and SD57 on Sheet C-102 are not seen on the Pipe & Structure Table (Sheet C-107).

    Response: The referenced pipes and structures have been added to the tables.

16. CB13 has a rim elevation of 14.40 based on Sheet C-107 – Civil Pipe & Structure Tables. Sheet C-102 shows a spot elevation of 14.55 on CB13. Please confirm the correct elevation and revise as necessary.

    Response: The Structure Table was revised accordingly.

17. The Major Site Plan PFDC Phase 2 Checklist notes that "directional flows of all proposed sewer and stormwater infrastructure" are required on utility plans. Please provide flow direction arrows for all proposed sewer and stormwater infrastructure in accordance with this requirement.

    Response: Directional flow arrows have been added to the plans.

18. Please provide a detail showing storm drain pipe connections. For instance, SD39 is shown to connect into SD40 on Sheet C-102, with not catch basin or drain manhole.

    Response: Our intent is to use our standard wye connection, which is represented in a detail on sheet C-201. The title of the detail has been revised so that it is not specific for sewer.

19. Several area drains on Sheet C-107 are listed with a diameter of 1' and a pipe of 10". The applicant has also provided a detail of the area drains on Sheet C-203. There is a note on the proposed detail which states that the diameter of the hole should be 3" larger than the inside diameter of flexible pipe or the outside diameter of rigid pipe. Based on the detail provided, and the proposed sizes of the area drain and storm drain pipe, it is unclear how there will be sufficient room to accommodate the pipe within these structures.

    Response: The proposed area drain inner diameter is 15" and the structure table has been updated.

20. SW Management Plan Comments

    a. Section 1.3 – Proposed Development: The Applicant indicates that Jellyfish Filter 2 will be relocated and invert elevations adjusted as part of this project. However, it is not clear on the plans where the filter will be relocated or what the adjusted elevations of the inverts are. We would recommend the Applicant clearly show where the filter is to be relocated and provide updated invert information for the filter.

       Response: The design has advanced and the proposed Jellyfish Filter location is shown on the design drawings on the PF Marina property southwest of R-Tank System 2. The Jellyfish Filter has been added to the structure table and inverts have been confirmed.

    b. Section 1.4 – General & Redevelopment Standards (Stormwater Quality): The Applicant indicates that they will continue to coordinate with MaineDEP to obtain approval for reduced water quality volume. It is recommended that the applicant provide documentation stating that a reduction in required water quality volume is accepted by MaineDEP prior to final approval.

Response: Noted

c. Section 1.4 - General & Redevelopment Standards (Stormwater Quality): The Applicant states that the Jellyfish Filters are sized to meet flow from 1-inch of runoff. It is recommended that the applicant include a 1-inch storm in the HydroCAD model to ensure the Jellyfish sizing meets the flow requirements outlined in the MaineDEP proprietary BMP approval letter.

   Response: The HydroCAD report for the 1" storm is provided in the Stormwater Management Report uploaded to ProjectDox. Please note the only component of the Stormwater Management Report that was revised is Appendix C (HydroCAD Report); the other components remain the same as the previous submission.

d. Section 1.4 - General & Redevelopment Standards (Stormwater Quality): The Applicant indicated they are coordinating with the manufacturer on approval of the Jellyfish Filter design and can provide a manufacturer letter of approval. Please provide approval letter once received.

   Response: Noted.

e. HydroCAD – Pond 12P – Jellyfish 2: It appears that the applicant is modeling the bypass weir as device #3. If this is the case, the invert elevation used in HydroCAD does not match the elevation shown for the Peak Diversion Jellyfish Filter #2 Detail on Sheet C-206. Please confirm which elevation is correct and revise the other as appropriate.

   Response: The invert on the detail has been updated accordingly.

LANDSCAPING & ENVIRONMENTAL QUALITY

- Parks, Recreation, and Facilities Reviewers will be providing additional comments regarding landscaping and street trees.

  Response: Noted. We have received additional comments within this category; however, they are related to the work proposed as part of the Phase 1 Amendment project. We'll provide responses to those comments as part of the response provided for that project.

If you have any questions or require additional information, please do not hesitate to contact me at (207) 558-3763 or by email at lswett@woodardcurran.com.

Sincerely,

WOODARD & CURRAN, INC.

Lauren Swett

Lauren Swett
Technical Manager

The following supporting documents have been uploaded to ProjectDox, each is noted as a new upload or a revision to materials that have previously been uploaded:

- Average Grade Figure & Supplemental Architectural Plans (Revised)
- 2023.06.23 Traffic Summary Response Memo (New)
- 2023.06.23 Combined Shared Parking Demand 5th Edition – Protected (New)
- Block 4, 5, and 6 Parking Plans (Revised)
- Geotechnical Data Report (New)
- Geotechnical Design Memorandum (New)
- Fore Street Historic Retaining Wall Drawings (New)
- Civil Plans and Details (Revised)
- Block 4 Elevations (Revised)
- Block 4 Floor Plans (Revised)
- Draft Fore Street Foundation License Agreement (New)
- Stormwater Management Plan (Revised with updated HydroCAD model)
- Wastewater Capacity Application (Revised)

cc: Dave Senus, PFDC
Mary McCrann, PFDC
Shelby Burgau, PFDC

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June 23, 2023

Charles Tetelman, Planner
City of Portland
389 Congress Street, 4th Floor
Portland, Maine 04101

Re: Response to Design Review Comments – 58 Fore Street Phase 2
Project ID PL-002202-2022

Dear Charles:

Thank you for coordinating the review of the Level III Site Plan, Subdivision and Site Location of Development (SLOD) Amendment for Phase 2 of development at 58 Fore Street in Portland. We received the following Design Review comments on the project through you, and provide the following response:

REQUEST FOR ADDITIONAL APPLICANT MATERIALS

Staff is requesting additional materials to assist with the design review to include:

- Block 5: 3-dimensional and/or perspective renderings to illustrate the proposed building design with views from the water, view corridor and internal street network in context with the overall development site.

Response: Block 5 3-D renderings were uploaded to ProjectDox on April 25, 2023 and entitled "Block 5 Renderings". Updates have been made to some of the renderings, and a new version has been uploaded with this response to design review comments.

- Block 5 building material palette with images of proposed products

Response: Some of the materiality for Block 5 is shown on the previously submitted Block 5 Renderings. We are providing with this response an additional Block 5 material palette document to provide further clarification of the products that are being proposed. This has been uploaded to ProjectDox as the "Block 5 Material Palette."

- Block 4 renderings to show existing overhead electrical lines along Fore Street.

Response: Overhead electrical utility lines along Fore Street were shown on the Block 4 Renderings uploaded to ProjectDox on March 9, 2023 and entitled "2023.02.21 PFDC Harbor Hill HP Materials & Renderings" and uploaded on March 19, 2023 entitled "Block 4 Renderings". Renderings have been updated and re-uploaded as part of this response to comments, and continue to include the overhead utility lines.

Design Review Comments | June 2, 2023 | PL-002202-2022

DESIGN REVIEW COMMENTS: **bold** text denotes recent updates met, red text denotes standards not met to require resubmission.

A. Land Use Code section 14.7.5 – *Master Development Plan for 58 Fore Street*

b. Developed in a comprehensive, design-integrated manner, according to an overall master development plan,

Staff comment: Staff finds the site plan application to be generally consistent with the overall master plan development.

Response: Noted.

h. An efficient use of land demonstrating full coordination of its own site development and surrounding context including, but not limited to, the land uses and functions contemplated, architecture, open space and pedestrian networks,…

Staff comment: Staff finds the site plan application to be generally consistent with the overall master plan development.

Response: Noted.

l. *Designed to create a cohesive identity through building scale, massing, and articulation; use of quality exterior materials, architectural detailing at pedestrian scale; consistency of design and materials for streetscape and pedestrian amenities; framing of outdoor open space and linkages; a clear conveyance of the function and significance of various buildings, entrances, and features;…*

Staff comment: The site plan application for Block 4, 5 & 6 is generally consistent with the overall master plan development with the exception of the additional property located at the eastern portion where Block 6 extends into the R-6 zone and Munjoy Hill historic district. The applicant shall relate to the context of the surrounding residential neighborhood through building scale, massing and articulation. Staff is requesting the applicant provide additional material for [Block 6] north outdoor open space and pedestrian linkages proposed for the new property boundary in relationship to the existing adjacent residential structures at Fore Street.

Staff finds several inconsistencies from the approved Master Development Plan regarding protection mechanism (shown as a landscape buffer) along the railroad right of way to restrict public points of access into the development.



*approved master plan development overall site plan

Response: For northeast entrance to Block 6, we have updated the drawings in the Phase 2 Civil Plans and Details to show the space with some parking spaces to be used for drop-offs, and additional landscape area. The remaining structures on the Eastern Promenade will be part of a future site plan application that will look at that property and consider how any revisions can be made to integrate it further with the Block 6 entrance.

Along the Narrow Gauge Railroad Right of Way, there have been intermittent planters incorporated into the space south of the Block 5 building. These planters are on the Portland Foreside property, not in the Right of Way, as they had originally been shown at the time of the Master Development Plan. The space within the Right of Way is now reserved for railroad infrastructure and the surrounding ballast. A vertical granite curb is included to connect the space in between the proposed planters and rail crossings to further define the separation of the two spaces. We can discuss with the Narrow Gauge Railroad if there may be opportunities to add additional landscape buffering, like a narrow strip of sea grasses, within the Right of Way to add further buffering, but the goal has been to keep the space as visibly open as possible. We will work with the Narrow Gauge Railroad on any additional safety signage that may be beneficial.

B. Eastern Waterfront Master Plan – *Design Guidelines for Portland's Eastern Waterfront*

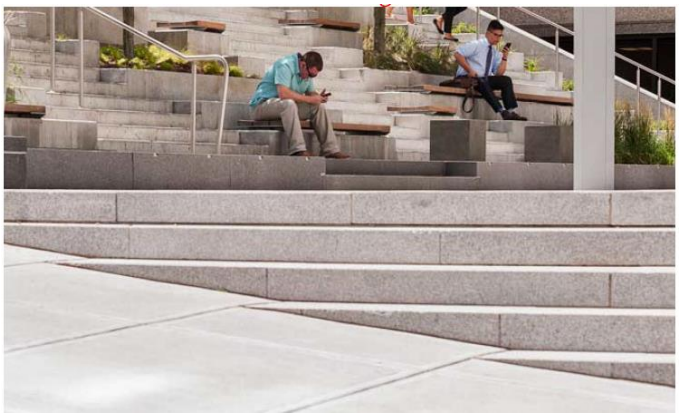
Streets: *The retention and expansion of pedestrian scaled street grid…*

1. Public Streets: The applicant proposes to maintain vehicular and pedestrian access along Fore Street, staff recommends additional crosswalks and curb ramps at St. Lawrence, Atlantic and Munjoy Street to connect the existing neighborhood across Fore Street.

Response: The City of Portland recently conducted a sewer separation and road reconstruction project on Fore Street that included the section of the road along the project frontage and all referenced intersections. During the design of this project, crosswalks were evaluated at intersections along Fore Street based on traffic flow, grades, and existing conditions. The installed pedestrian ramps along the northern side of Fore Street reflect the results of these discussions. The existing crosswalk at Atlantic Street will be maintained, and a crosswalk will be added at Waterville Street once the southern sidewalk is complete and receiving ramps are constructed. Granite tipdown curb sections were installed during the sewer separation at the future Waterville Street ramp location on the northern side of Fore Street to enable pedestrian ramp installation without impacting the newly surface-paved roadway. Tipdowns were not installed along the northern edge of Fore Street at St. Lawrence Street or Munjoy Street. Construction of pedestrian ramps at these locations would result in a much larger disturbance, especially now that Fore Street is under moratorium. Renderings have been updated to be consistent with the proposed crosswalk locations.

2. Sidewalks: The applicant proposes brick sidewalks per city standards along Fore Street. Staff observes the applicant's intent to comply with accessibility requirements and continues to support building entries of the Block 4 Townhouses at Fore Street, however, staff finds the new retaining wall encroachment to be in conflict with this standard *to accommodate visiting and residential pedestrians comfortably and safely*. In particular, staff finds that the proposed retaining wall creates several vertical elevations

above 30 inches to require a guardrail that would not contribute to the value of the pedestrian experience along Fore Street. Staff recommends the applicant replace the retaining wall for stairs to transition the grade difference between the Fore Street sidewalk and paved access to new building entries. The applicant should consider additional landscape opportunities, such as planters, sloped planting areas or other that would consider the existing wall, to mitigate the grade changes between Fore Street sidewalk and new building entries.



Precedent image (courtesy of Christian Phillips Photography, KMDG, landscape architect) to illustrate grade transition along sloped sidewalk condition

Response: The design team recognizes that permanent construction must remain out of the ROW. In addition, we've evaluated the potential for stair grade transitions along Fore Street, and the number of risers and treads necessary would take up more space than is available. The Block 4 Townhouse design has been revised to move the required site features out of the ROW, maintaining only sidewalk within the Fore Street ROW space. There will be below-grade foundation features required in the City ROW, and we understand that a license will be required from the City for this structure. Project drawings including Block 4 Elevations and Renderings and Phase 2 Civil Plans have been updated to reflect these changes.

3. Railroad Right of Way: Staff requests the applicant provide additional detailing, including selection of materials and signage to allow for safe pedestrian access routes at key locations (shown by red arrows) across the railroad right of way. The applicant shall provide additional landscape buffering (e.g., planting areas or low transparent fencing) between the proposed development and railroad right of way to consolidate safe pedestrian access points.



*major site plan landscape plans (combined)

Response: We are working on the railroad crossings as part of the separate site plan application that addresses changes to the Phase 1 site plan approval and includes work within the Narrow Gauge Railroad Right of Way. As noted in a previous comment, along

the Narrow Gauge Railroad Right of Way, there have been intermittent planters incorporated into the space south of the Block 5 building. These planters are on the Portland Foreside property, not in the Right of Way, as they had originally been shown at the time of the Master Development Plan. The space within the Right of Way is now reserved for railroad infrastructure and the surrounding ballast. A vertical granite curb is included to connect the space in between the proposed planters and rail crossings to further define the separation of the two spaces. We can discuss with the Narrow Gauge Railroad if there may be opportunities to add additional landscape buffering, like a narrow strip of sea grasses, within the Right of Way to add further buffering, but the goal has been to keep the space as visibly open as possible. We will work with the Narrow Gauge Railroad on any additional safety signage that may be beneficial.

4. Underground Utilities: Staff supports the underground utilities proposed within the development and observes the existing overhead electrical lines and utility poles to remain along Fore Street. Staff acknowledges the existing cobrahead municipal lights fixed to existing utility poles and shall review exterior lighting during a future submission as the applicant has not provided an exterior lighting replacement.

Response: On Fore Street, we intend to maintain the existing cobrahead lights on the utility poles for site lighting. The Phase 2 Photometrics plans have been updated to show the locations of the existing lights that have been evaluated as part of the overall photometrics design. The revised photometrics plans are uploaded to ProjectDox.

Buildings and Architecture: *Architecture that enhances the development of a mixed-use and marine inter-modal transportation center, and is compatible with the surrounding neighborhood…*

1. Building Composition

    a. Height: The building heights for the Block 4 Townhouses on Fore Street are compatible with the residential building of 3-4 stories located within a two-block radius. The development observes the building break line between Block 4 and Block 5 to divide the building mass into separate distinct buildings of various heights. Block 6 is located at the eastern most portion of the development with the tallest building heights. Staff finds the Block 5, 6 building heights exceed the B-6 building height overlay map with the established average grad (50'). Staff finds the increase in Block 5 heights above Block 4 does not correspond to the B-6 building overlay map's intent to stepdown the building heights towards the waterfront and will continue to review the Block 5 heights related to the City's average grade interpretation.

Response: The enclosed elevations have been notated to show how each of the buildings will meet the height overlay map's requirements.

    b. Massing: The buildings on the western half of the Foreside development site have long and low massing consistent with the historic industrial complex and working waterfront building typologies. The building massing of the Block 4 West Wrapper provides height transitions that step-up towards the west of the development to create a strong relationship with Building 3 and 6B. Staff

recommends Block 5 provide building height transitions by incorporating stepbacks at the southwest elevation. Block 6 is sculpted by many volumetric planes highlighted with changes in the material that staff finds to reduce the building massing.

Response: The Block 5 building has been modified slightly to provide a stepback on the southwest elevation. The ground and second floors are now designed to be slightly forward from the upper floors. The revised Block 5 drawings reflect this change.

c. Proportion: The Block 4,5 & 6 buildings share a similar horizontal orientation with ample window openings unique to each building. The facades along the Thames Street extension include storefront windows to create pedestrian-scaled proportions. The waterfront facades shall be pedestrian scaled and respond more to the intended retail use, staff requests additional articulation or an increased fenestration pattern to reduce the Block 6 ground-level blank facades. In addition, Staff recommends the applicant relocate the Block 6 wharf vehicle storage to promote a stronger pedestrian-activated façade facing the waterfront and discourage marine vehicles within the pedestrian plaza.

Response: The service door is sited to have the least impact on the activation of the Block 6 Terrace, as well as the MNGRR and Eastern Promenade Trail. The location of this door will be further studied along with architectural interventions to enhance the pedestrian experience. Additional fenestration and pattern at the ground level will be incorporated into the design.

d. Materials: Materials shall reflect the historic character of Portland's waterfront. Each building employs a variety of exterior materials and rhythms to complement a contemporary architectural style. Staff will continue to review materials based on future historic preservation board meetings for consistency throughout the development.

- Block 4 Townhouses along Fore Street: The exterior material context of the surrounding neighborhood includes the use of brick, natural stone, and clapboard siding. Based on the architectural renderings, the brick façade, framed windows and roofline articulation separates the Block 4 Townhouse from the internal Block 4 building design. The applicant shall provide exterior material selection on elevations for staff review.

Response: Updated Block 4 renderings are provided with material selection information included.

- Block 5: Staff requests exterior finish material palette imagery for Block 5. Staff is concerned with the reflective infill panel due to glare at the northwest elevation and requests the applicant provide additional narrative and materials for review.

Response: Exterior finish materials were shown on the prior renderings provided for Block 5. Further information is included in a new Block 5 Material Palette document uploaded to ProjectDox with this submission. In addition, it is noted that there are no reflective infill

panels proposed on the northwest elevation of Block 5, as indicated on the renderings and elevations that have been provided.

- Block 6: Staff recommends consideration of a larger format stone to respond to a larger building scale, in addition to historic preservation staff reference to the more monumental stone material found in the nearby context. The proposed stone cladding at the west elevation seems generally out of scale with the mass of the building, staff recommends the applicant consider a horizontal rainscreen panel material above a stone cladded base.



Response: The project team is considering staff's recommendations for larger format stones and is evaluating a larger stone clad base. We will coordinate with the City further as we are considering possible material sources.

2. Pedestrian Environment: Staff finds the Block 4,5 & 6 development generally fosters a walkable pedestrian environment through a unified streetscape at the Thames Street extension with unique surface paving, street trees and lighting. Staff finds the Block 4 Fore Street pedestrian environment to be insufficient and suggests the applicant minimize any encroachments into public right of way to allow for ample sidewalk widths, plantings and pedestrian amenities where possible. Staff recommends a greater concentration of street trees, the applicant should consider a street tree alternative for new trees within the view corridors of St. Lawrence Street and Atlantic Street or allow for street trees within the private property along Fore Street that would require building recessions at the street-facing Block 4 Townhouse facades.

Response: As noted previously, the Block 4 Townhouses have been revised to move site features out of the ROW. The enclosed Block 4 Elevations and Renderings reflect this change to the buildings, site, and landscape features. The landscape design in this area is largely driven by the accessible route of travel adjacent to the sidewalk. The landscape design is also impacted by the presence of the existing Fore Street retaining wall, which provides a restriction on the plantings that are acceptable in the area. It is not recommended that any street trees be planted within the Fore St sidewalk, as these trees may have a negative impact on the retaining wall.

3. Primary Entrances and Service Entrances: Staff supports the clearly articulated primary entrances expressed with distinct materiality at each building as a unifying building

component throughout the development. Service entrances appear to be internal to the site with shared infrastructure. Staff finds the service garage doors at the shared street-facing facades reduce the pedestrian experience and recommends the Block 5 loading dock adjust away from spa and fitness entrance, if possible, to consolidate the rooftop bar entrance (see image below).



Response: The service door is not able to move due to complex coordination of grades on Thames Street and due to the required operational layout of the interior to maintain separation between service corridors, the freight elevator, and public areas. We have updated the design of the service door to match our regular glazed fenestration, changing to a frosted glazed garage door that will better blend with the rest of the façade and feel less like a loading area. The revised Block 5 drawings reflect this change.

Staff finds the building entry south of the garage parking entry at the west elevation is not clearly articulated (see image below), the applicant shall provide additional architectural elements such as a canopy or additional fenestrations that correspond to the Block 4 West Wrapper.

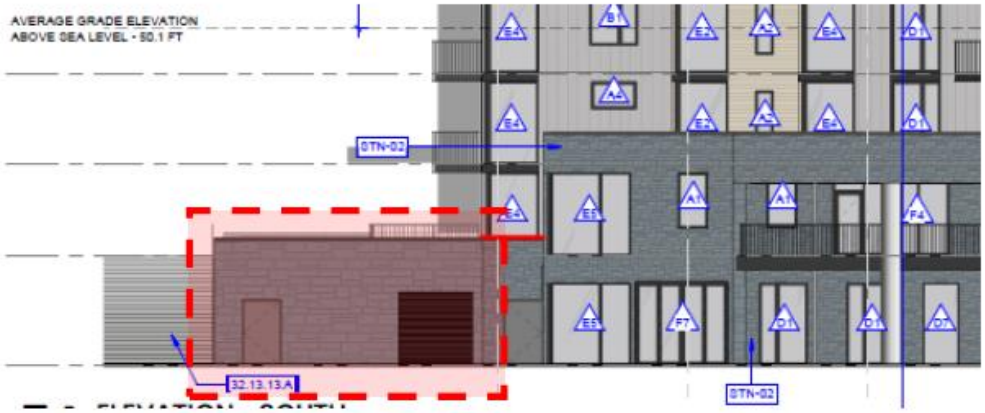


Response: The Block 4 garage entry concerns have been discussed and addressed as part of the Historic Preservation review, and updated Block 4 Elevations and Renderings reflect these changes.

4. Historic Structures: A portion of the Block 4 development is within the Portland Company historic district and a portion of the Block 6 development is within the Munjoy Hill historic district, both are subject to Historic Preservation Board review and applicable design standards. The applicant shall incorporate Historic Preservation board reviews that impact the design of the overall development.

Response: Blocks 4 and 6 are currently under review by the Historic Preservation Board, and recommendations from that Board will be incorporated into the design.

5. Marine Development: Staff observes the Block 6 marine support loading area, service entry and garage door located adjacent to the lower plaza between Block 5 and Block 6. Staff finds the activation of the Block 6 pedestrian-oriented plaza and associated retail uses adjacent to the railroad right of way conflicts with the location of the marine support loading area. Staff recommends the applicant relocate to avoid potential conflicts with vehicles and pedestrians. Staff will review additional railroad right of way crossings as needed as shown in the minor site plan amendment PL-002252-2022.



Response: As noted previously, the service door is sited to have the least impact on the activation of the Block 6 Marina Terrace, as well as the MNGRR and Eastern Promenade Trail. The relocation of the vehicle door will be evaluated along with architectural interventions to enhance the pedestrian experience.

Open Space and the Open Realm: *The character of public streets and sidewalks is the primary determinant of the quality of the public realm…is further defined and enhanced by the incorporation of quality open spaces…*

1. Private Open Space and Plazas: Private open spaces are adjacent to Block 4,5 & 6 retail uses to allow for seating and entries. Internal private open spaces are unique to each building through shared courtyards, rooftop terraces and private balconies for residents. The applicant shall confirm if any shared private opens space (e.g., balconies, terraces, etc.) is proposed for Block 5.

Response: Balconies and Exterior Roof Terraces are indicated on the Block 5 floor plans, and these areas have been highlighted on the updated plans included with this response to comments submission. The large roof terrace on the third floor is intended for shared use by residential tenants. Other roof terrace areas are carved out for individual condo units. Select hotel rooms have terrace space on the third floor as well.

Water's Edge: *The interaction of land activities with harbor activities creates the essential value and character of the Eastern Waterfront district…The successful accommodation of a diverse mixture of people and activity through quality design will best maximize the value of the water's edge.*

1) Public Access to Water: The applicant shall incorporate railroad crossings appropriate to the intended use, staff finds that the conflicts between pedestrians and marine service vehicles shall be minimized to the greatest extent possible.

Response: As noted previously, we are working on the railroad crossings as part of the separate site plan application that addresses changes to the Phase 1 site plan approval and includes work within the Narrow Gauge Railroad Right of Way. The need for service vehicle crossings has been minimized.

2) Lighting: The development provides exterior lighting appropriate at view corridors. Staff requests additional lighting plans and fixture information associated with the Block 5 & 6 buildings to include façade mounted fixtures.

Response: We have submitted additional information about the proposed building lighting fixtures. Two documents on Block 5 Lighting and Block 6 Lighting have been uploaded to the Documents section of ProjectDox.

C. City of Portland Design Manual

i. Two-family, special needs independent living units, multiple-family, lodging houses, bed and breakfasts and emergency shelters.

a. Proposed Structures and related site improvements shall meet the following standards:

iii. *Open space on the site for all multiple-family development shall be integrated into the development site.*

Staff comment: The development of Block 4 & 5 integrates open space within the building through shared courtyards, balconies and roof terraces. Staff observes a green roof in the view corridor of Block 5 along with rooftop amenities specific to the upper condo units. Staff finds that Block 5 does not address open space for each residential unit and requests the applicant provide additional open space (e.g., balconies, shared roof terrace or other outdoor space) and an architectural narrative to meet this design standard.

Response: As noted, in a previous comment response, balconies and exterior roof terraces are indicated on the Block 5 floor plans, and these areas have been highlighted on the updated plans included with this response to comments submission. The large roof

terrace on the third floor is intended for shared use by residential tenants. Other roof terrace areas are carved out for individual condo units. Select hotel rooms have terrace space on the third floor as well.

If you have any questions or require additional information, please do not hesitate to contact me at (207) 558-3763 or by email at lswett@woodardcurran.com.

Sincerely,

WOODARD & CURRAN, INC.

Lauren Swett

Lauren Swett
Technical Manager

The following supporting documents have been uploaded to ProjectDox, each is noted as a new upload or a revision to materials that have previously been uploaded:

- Block 5 Renderings (Revised)
- Block 5 Material Palette (New)
- Block 4 Renderings (Revised)
- Block 4 Elevations (Revised)
- Block 4 Floor Plans (Revised)
- Phase 2 Civil Plans and Details (Revised)
- Block 5 Elevations (Revised)
- Block 5 Foor Plans (Revised)
- Block 6 Elevations (Revised)
- Block 6 Floor Plans (Revised)
- Block 6 Renderings (Revised)
- Block 5 and 6 Lighting (New)
- Photometrics Plans (Revised)

cc: Dave Senus, PFDC
Mary McCrann, PFDC
Shelby Burgau, PFDC

GORRILL PALMER

300 Southborough Dr., Suite 200
South Portland, Maine 04106
207.800.3169

Traffic Response
Blocks 4, 5, & 6 Portland Foreside
Portland, Maine

Date: June 23, 2023
Subject: Portland Foreside, Combined Blocks Traffic Assessment Response
Portland, Maine
To: David Senus, PE – Foreside Development
From: Randy Dunton, PE, PTOE – Gorrill Palmer

Introduction

The purpose of this memo is to respond to traffic comments received from the City regarding Blocks 4, 5, & 6 of the Foreside Development. The following are the original City comments in *italics* followed by our response in **bold**.

Comment:

The Trip Generation estimate included in the Traffic Assessment shall be based on the 11th Edition of the ITE Trip Generation publication. This was discussed and confirmed with MaineDOT's State Traffic Engineer. Please provide updated Trip Generation estimates accordingly.

Response: The trip generation estimate provided with the application was based upon the 7th Edition of the ITE because that was the edition that was in effect when the Master Development Plan was approved. Normal practice would be to review phases of that project using the edition in effect at the time of original approval, so that we compare apples to apples. For example, it is what we used for the first phase of this project. This comment asks us to provide estimates based upon the 11th Edition. We have provided those estimates below, but note that we are no longer comparing apples to apples, as it relates to the MDP approval. Below are revised tables associated with the trip generation for Blocks 4, 5, & 6 based on the ITE Trip Generation Manual, 11th Edition. The other blocks in Table 1 have already been constructed or permitted.

Raw Trip Generation:

It should be noted that the Specialty Retail use that was available in the 7th Edition and used in the previous submittal is not available in the 11th Edition. For that reason, that same square footage was divided into Quality Restaurant, High Turnover Restaurant, and Apparel Store.

Table 1 – Raw Trip Generation

Use	Size	AM Adj St	PM Adj St
Block 1 – SunLife Office	**Constructed per November 2019 Assessment**		
Office	95,100 SF	180	173
Retail	9,300 SF	7	25
Subtotal		187	198
Block 1 – Building 12	**Constructed per November 2019 Assessment**		
Office	3,200 SF	12	12
Restaurant	3,200 SF	3	24
Residential - Condos	2 units	1	1
Subtotal		16	37
Block 2	**Permitted per November 2019 Assessment**		
Restaurant	17,950 SF	15	134
Retail	17,950 SF	13	49
Office	12,400 SF	35	34
Subtotal		63	217
Block 4	**Under Review**		
Multifamily (Mid-Rise)	247 Units	91	96
Quality Restaurant	2,988	2	23
High Turnover Restaurant	2,988	29	27
Apparel Store	5,975	6	25
Subtotal		128	171
Block 5	**Under Review**		
Multifamily (Mid-Rise)	43 Units	16	17
Hotel	128 Units	59	76
Quality Restaurant	19,315	14	151
High Turnover Restaurant	1,232	11	11
Apparel Store	2,464	3	10
Spa (Health / Fitness Club)	19,697 SF	26	68
Subtotal		129	333
Block 6	**Under Review**		
Multifamily (Mid-Rise)	154 Units	57	60
Quality Restaurant	2,277	2	18
High Turnover Restaurant	2,277	22	21
Apparel Store	4,554	5	19
Subtotal		86	118
Total		**609**	**1074**

As seen from the above table, the forecast trip generation is 609 & 1074 trip ends for the AM and PM peak hours of the adjacent street respectively. This is zero change from the previous forecast trip ends for the AM peak hour and an increase of 7 trip ends for the PM peak hour of adjacent street traffic.

Shared Use Reduction:

Table 2 – AM Peak Hour Adjacent Street NCHRP 684 Internal Trip Capture

Land Use	ITE Trip Generation		Internal Capture %		Internal Capture Trip Ends		
	Enter	Exit	Enter	Exit	Enter	Exit	Total
Office	205	22	13	82	26	18	44
Retail	23	11	43	45	10	5	15
Restaurant	53	45	49	42	26	19	45
Residential	38	127	8	12	3	15	18
Hotel	33	26	3	35	1	9	10
All Other Uses (spa)	13	13	50	50	7	7	14
Total	**365**	**244**	**20***	**30***	**73**	**73**	**146**

*The percentages are slightly higher than the NCHRP spreadsheets because the spreadsheets do not adequately represent or include the internal capture of the spa, so those reductions were added after the results of the spreadsheets were determined.

Table 3 – PM Peak Hour Adjacent Street NCHRP 684 Internal Trip Capture

Land Use	ITE Trip Generation		Internal Capture %		Internal Capture Trip Ends		
	Enter	Exit	Enter	Exit	Enter	Exit	Total
Office	33	186	24	8	8	14	22
Retail	61	67	70	60	43	40	83
Restaurant	269	140	19	44	51	62	113
Residential	107	67	36	37	38	25	63
Hotel	39	37	38	38	15	14	29
All Other Uses (spa)	39	29	50	50	20	20	40
Total	**548**	**526**	**32***	**33***	**175**	**175**	**350**

*The percentages are slightly higher than the NCHRP spreadsheets because the spreadsheets do not adequately represent or include the internal capture of the spa, so those reductions were added after the results of the spreadsheets were determined.

Table 4 – Shared Use Reduced Trip Generation Summary

Building Use	Trip Generation	
	AM Adj St	PM Adj St
ITE Total	609	1074
Shared Use Reduction	-146	-350
Reduced Subtotal	**463**	**724**

Other Modes Reduction:

In an email from Tom Errico to Randy Dunton dated 6/22/23, "The City suggests use of a 20% non-auto trip factor."

Table 5 – Other Modes Reduced Trip Generation Summary

Building Use	Trip Generation	
	AM Adj St	PM Adj St
Reduced Subtotal	463	724
Other Modes Reduction	-93	-145
Reduced Site Total	**370**	**579**

Master Plan Trip Generation Comparison:

Table 6 – Trip Generation Comparison Summary

Trip Generation	Trip Generation	
	AM Adj St	PM Adj St
Permitted	506	585
Forecast Combined Blocks	370	579
Remaining Permitted Trips	**136**	**6**

As summarized in Table 6, after completion of Blocks 4, 5, and 6, the site is forecast to have 136 AM and 6 PM trip ends remaining to meet their permitted trip ends. It should be noted that an additional 99 trip ends above what was permitted is allowed before a Traffic Movement Permit modification is required.

Bicycle Parking:

Table 7 - Bicycle Parking Summary

Use	Bicycle parking Demand
Parking Variables	499 Non-Residential Vehicle Spaces, 446 Residential Units
Residential Bicycle Spaces	178
Non-Residential Bicycle Spaces	40
Total	**218**

Comment:

The reduction assumptions used in prior analysis should be revisited and documentation should be provided in support of suggested trip reduction factors given current conditions. Please provide revised documentation accordingly.

Response:

As identified above in the previous response (Other Modes Reduction), the 20% non-auto trip factor provided by the City was used for the revised trip evaluation.

Comment:

The applicant shall provide the EXCEL spreadsheet for the parking demand analysis for review and approval. Adjustments to mode share and internal capture may be necessary following the changed to methods used in the traffic study noted above.

Response:

As requested, a readable EXCEL spreadsheet of the parking summary has been sent to the City and their traffic peer reviewer. A hard copy is provided as an attachment to this response.

Attachments

Attachment A – Supporting information

u:\4060_portland foreside block 5_portland\n traffic\summary response memo - 06-23-23 .docx

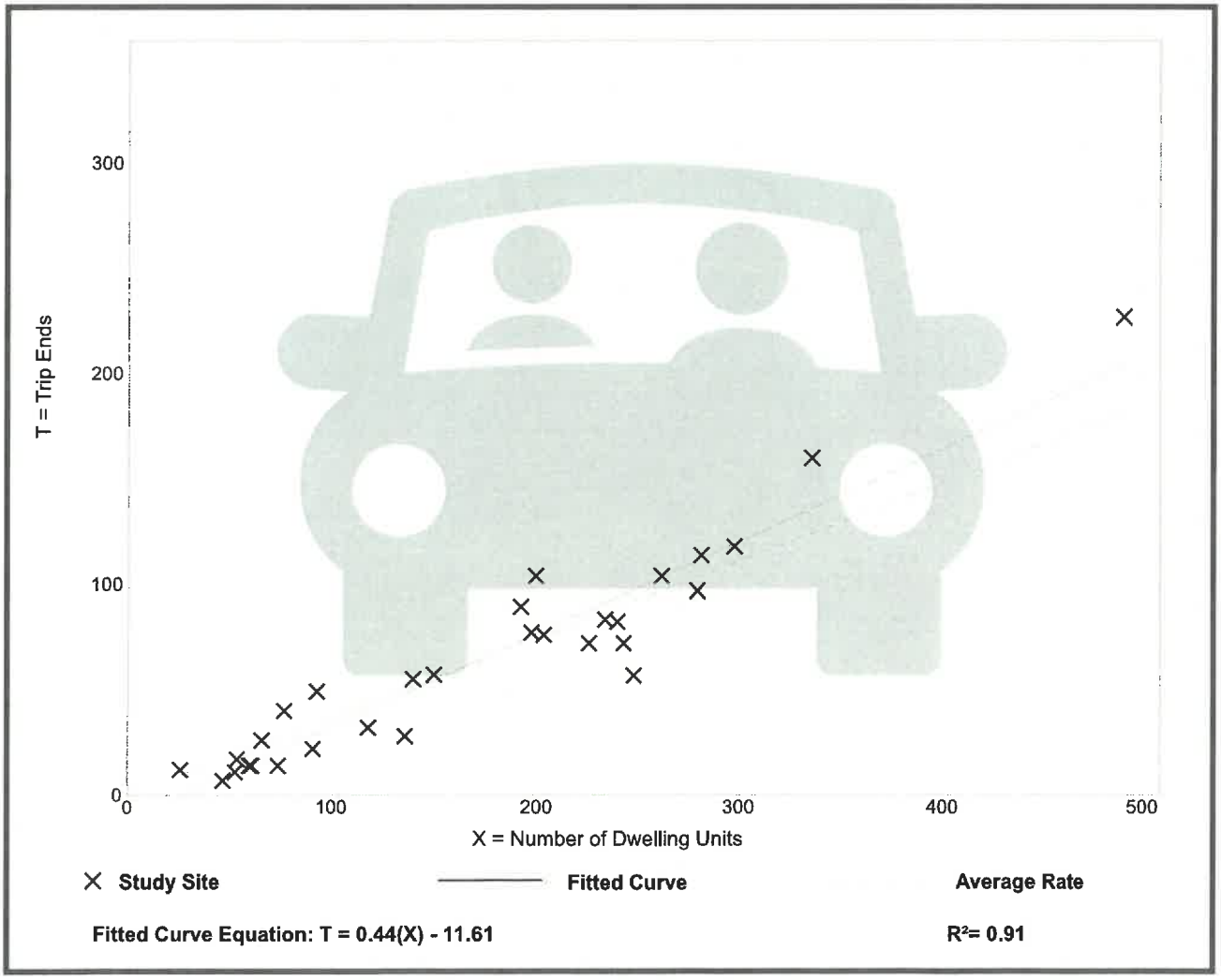
Multifamily Housing (Mid-Rise)
Not Close to Rail Transit (221)

Vehicle Trip Ends vs: **Dwelling Units**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 30
Avg. Num. of Dwelling Units: 173
Directional Distribution: 23% entering, 77% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.37	0.15 - 0.53	0.09

Data Plot and Equation



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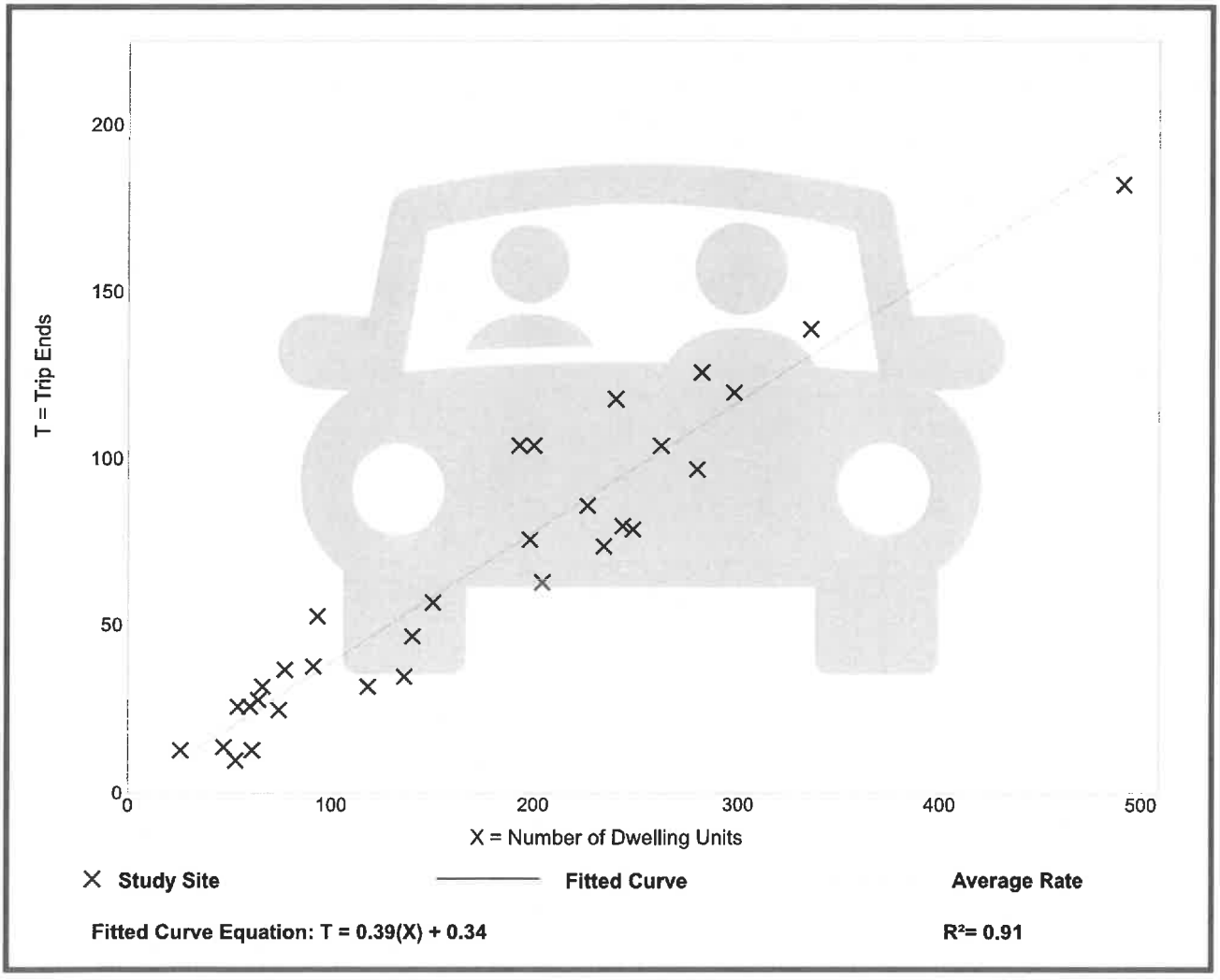
Multifamily Housing (Mid-Rise)
Not Close to Rail Transit (221)

Vehicle Trip Ends vs: **Dwelling Units**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 31
Avg. Num. of Dwelling Units: 169
Directional Distribution: 61% entering, 39% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.39	0.19 - 0.57	0.08

Data Plot and Equation



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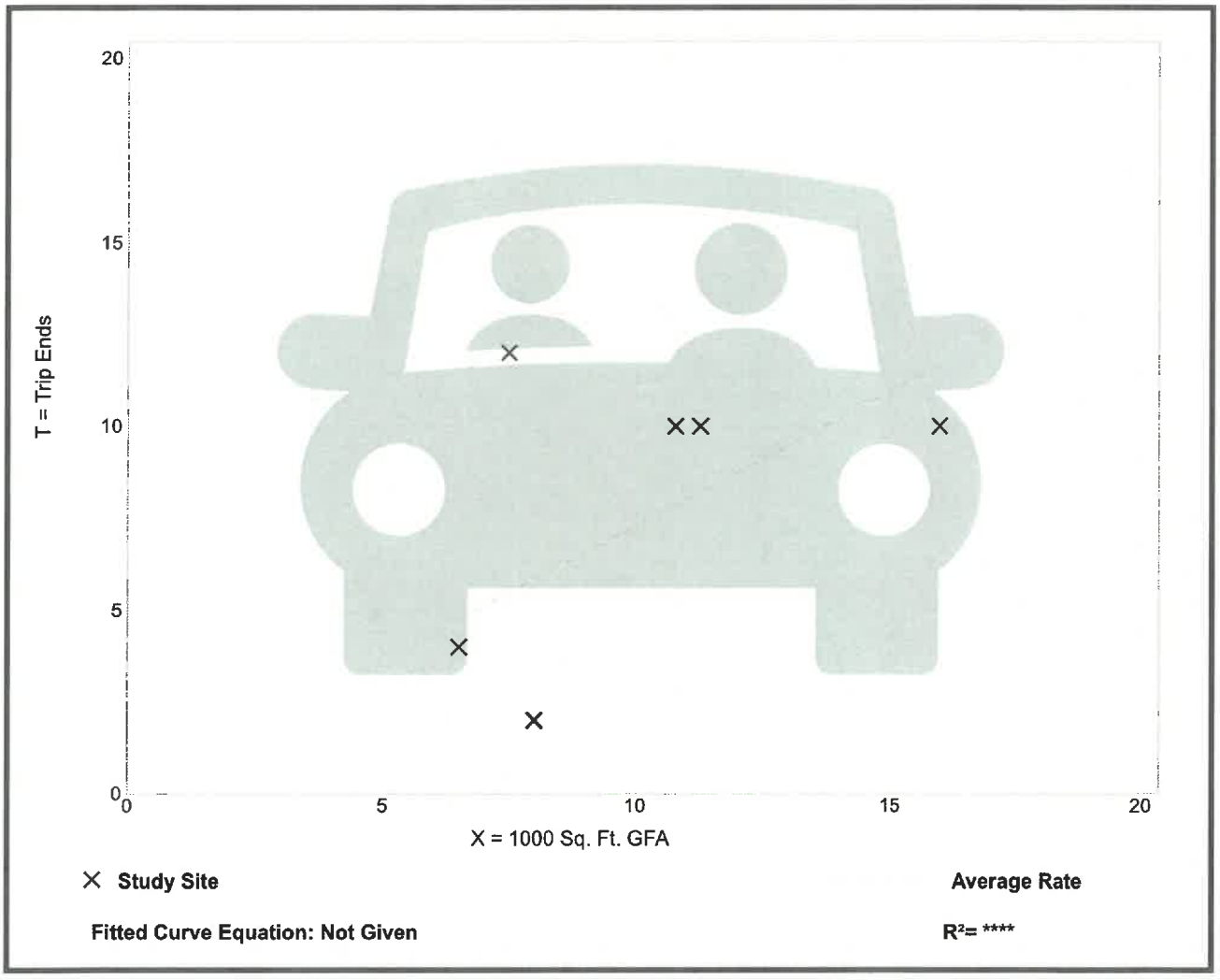
Fine Dining Restaurant
(931)

Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 7
Avg. 1000 Sq. Ft. GFA: 10
Directional Distribution: Not Available

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.73	0.25 - 1.60	0.42

Data Plot and Equation



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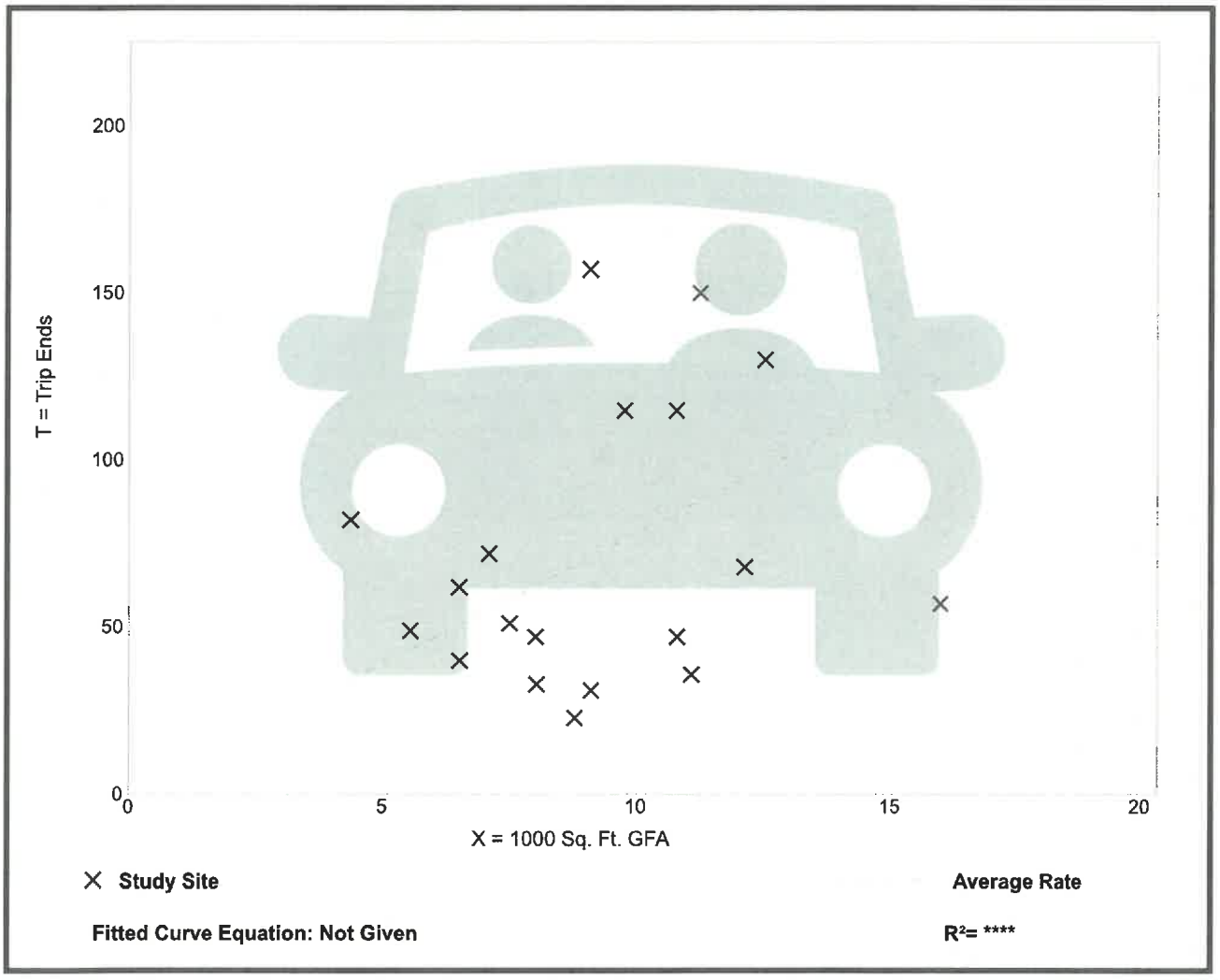
Fine Dining Restaurant
(931)

Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 19
Avg. 1000 Sq. Ft. GFA: 9
Directional Distribution: 67% entering, 33% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
7.80	2.62 - 18.68	4.49

Data Plot and Equation



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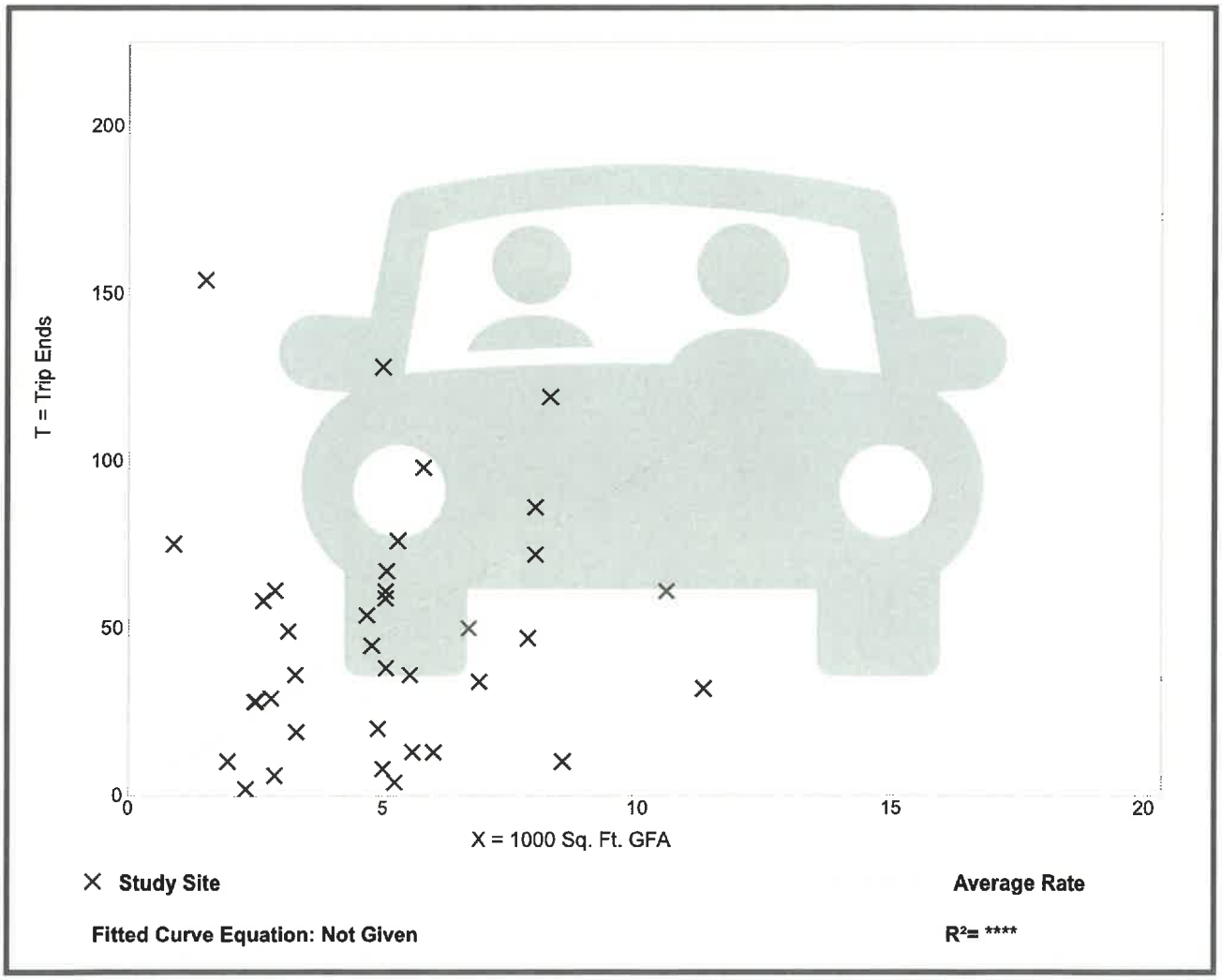
High-Turnover (Sit-Down) Restaurant
(932)

Vehicle Trip Ends vs:	**1000 Sq. Ft. GFA**
On a:	**Weekday,**
	Peak Hour of Adjacent Street Traffic,
	One Hour Between 7 and 9 a.m.
Setting/Location:	**General Urban/Suburban**
Number of Studies:	37
Avg. 1000 Sq. Ft. GFA:	5
Directional Distribution:	55% entering, 45% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
9.57	0.76 - 102.39	11.61

Data Plot and Equation



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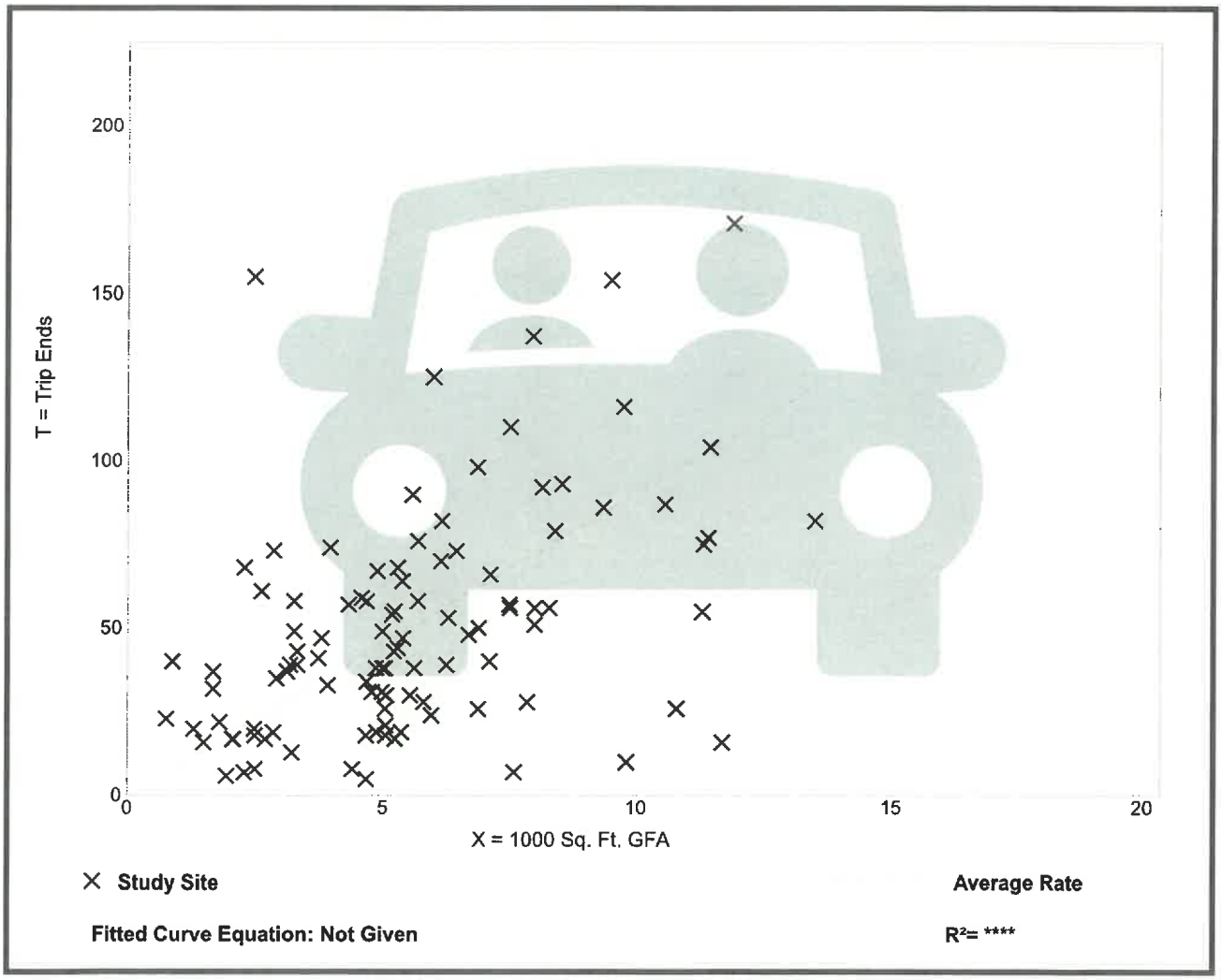
High-Turnover (Sit-Down) Restaurant
(932)

Vehicle Trip Ends vs:	**1000 Sq. Ft. GFA**
On a:	**Weekday,**
	Peak Hour of Adjacent Street Traffic,
	One Hour Between 4 and 6 p.m.
Setting/Location:	**General Urban/Suburban**
Number of Studies:	104
Avg. 1000 Sq. Ft. GFA:	6
Directional Distribution:	61% entering, 39% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
9.05	0.92 - 62.00	6.18

Data Plot and Equation



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Apparel Store
(876)

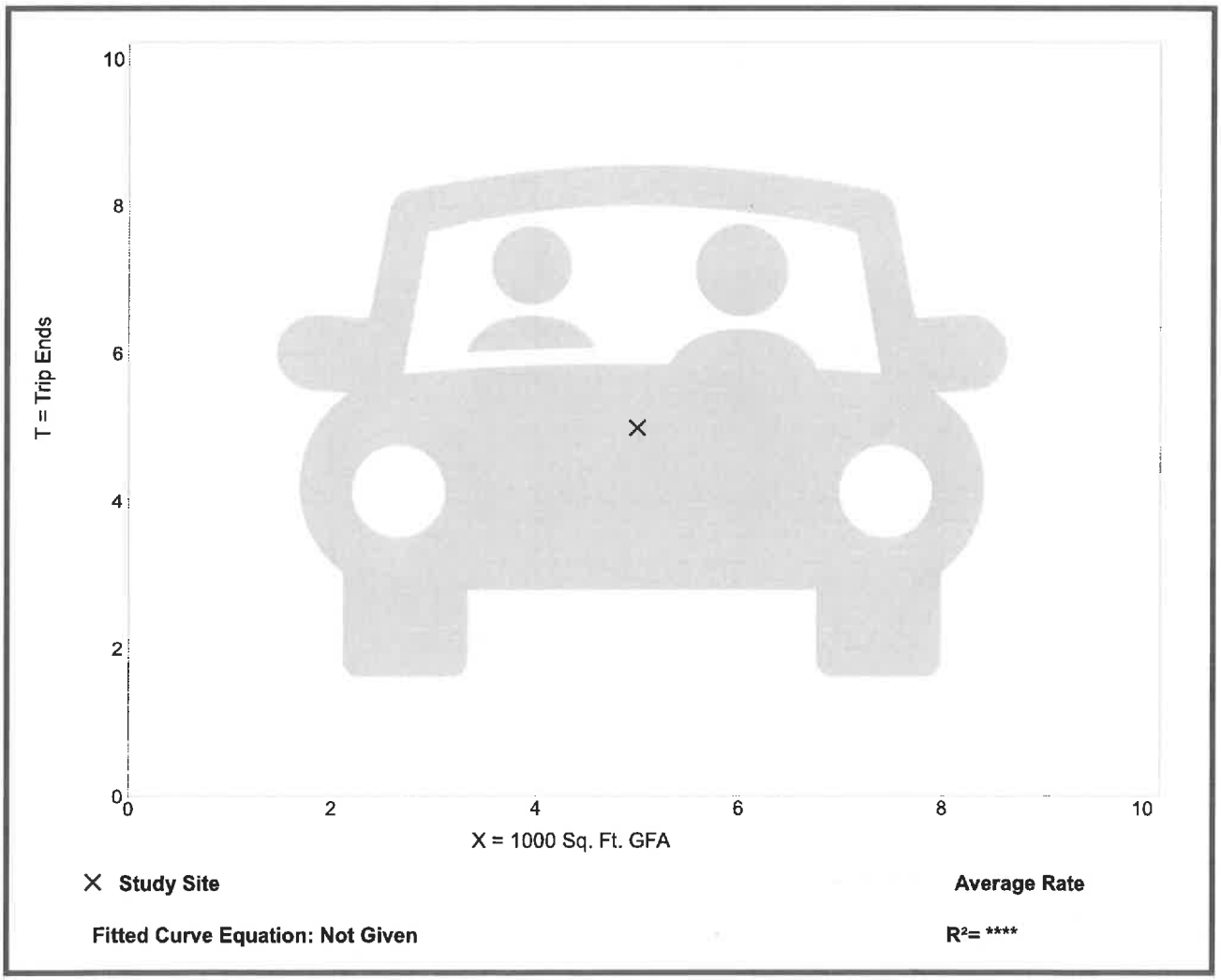
Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 1
Avg. 1000 Sq. Ft. GFA: 5
Directional Distribution: 80% entering, 20% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
1.00	1.00 - 1.00	*

Data Plot and Equation

Caution – Small Sample Size



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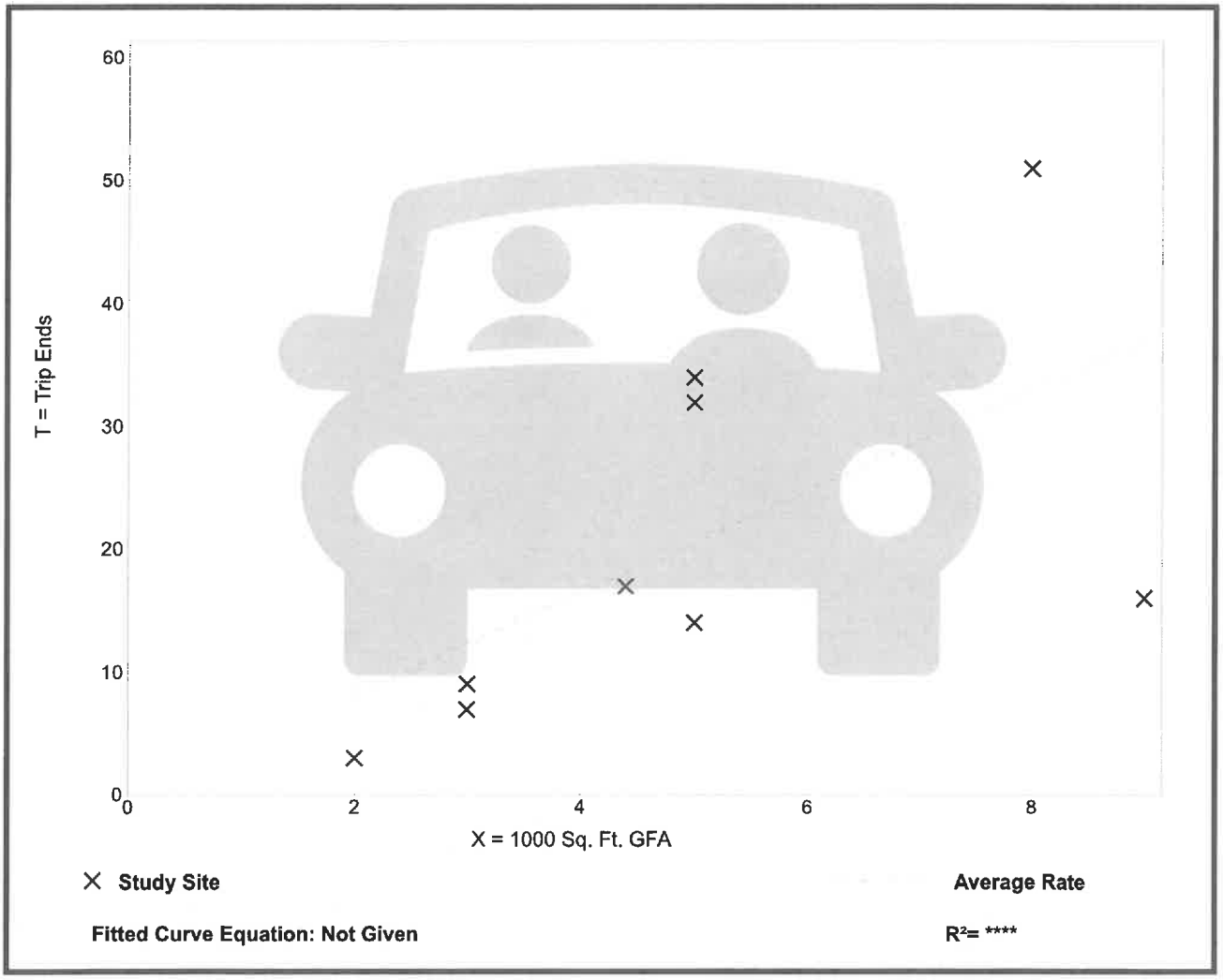
Apparel Store
(876)

Vehicle Trip Ends vs:	**1000 Sq. Ft. GFA**
On a:	**Weekday,**
	Peak Hour of Adjacent Street Traffic,
	One Hour Between 4 and 6 p.m.
Setting/Location:	**General Urban/Suburban**
Number of Studies:	9
Avg. 1000 Sq. Ft. GFA:	5
Directional Distribution:	51% entering, 49% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
4.12	1.50 - 6.80	2.18

Data Plot and Equation



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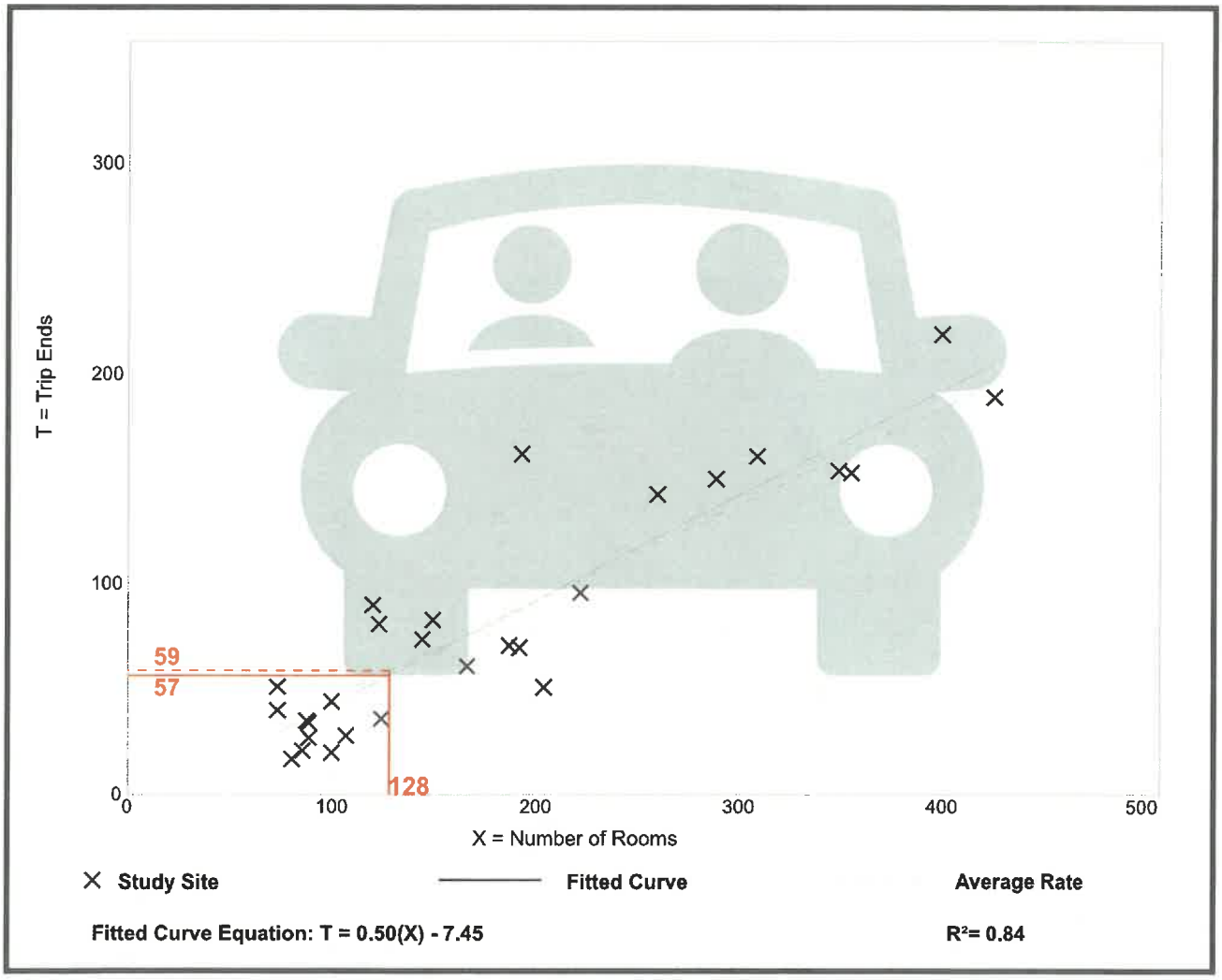
Hotel
(310)

Vehicle Trip Ends vs: **Rooms**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 28
Avg. Num. of Rooms: 182
Directional Distribution: 56% entering, 44% exiting

Vehicle Trip Generation per Room

Average Rate	Range of Rates	Standard Deviation
0.46	0.20 - 0.84	0.14

Data Plot and Equation



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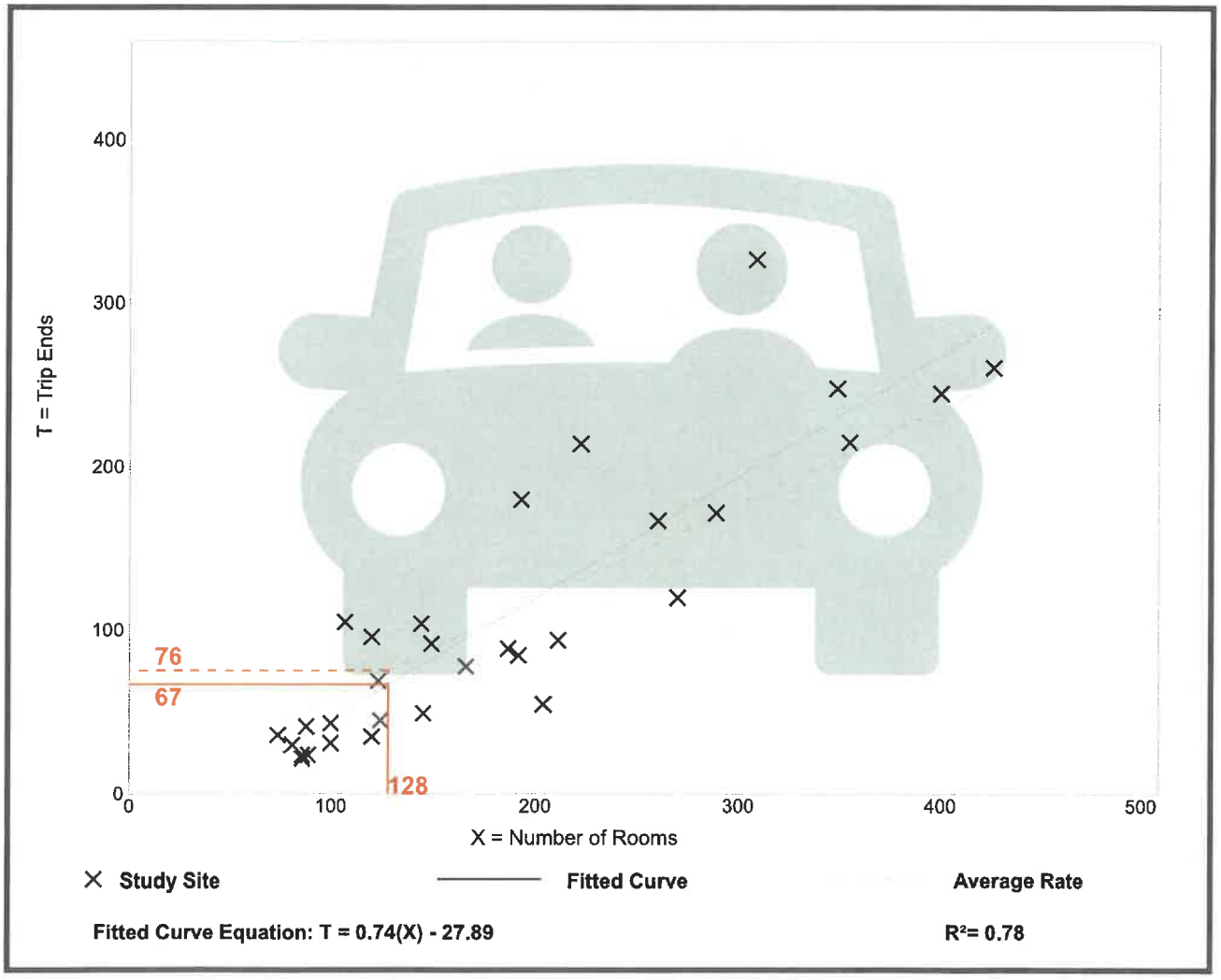
Hotel
(310)

Vehicle Trip Ends vs: **Rooms**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 31
Avg. Num. of Rooms: 186
Directional Distribution: 51% entering, 49% exiting

Vehicle Trip Generation per Room

Average Rate	Range of Rates	Standard Deviation
0.59	0.26 - 1.06	0.22

Data Plot and Equation



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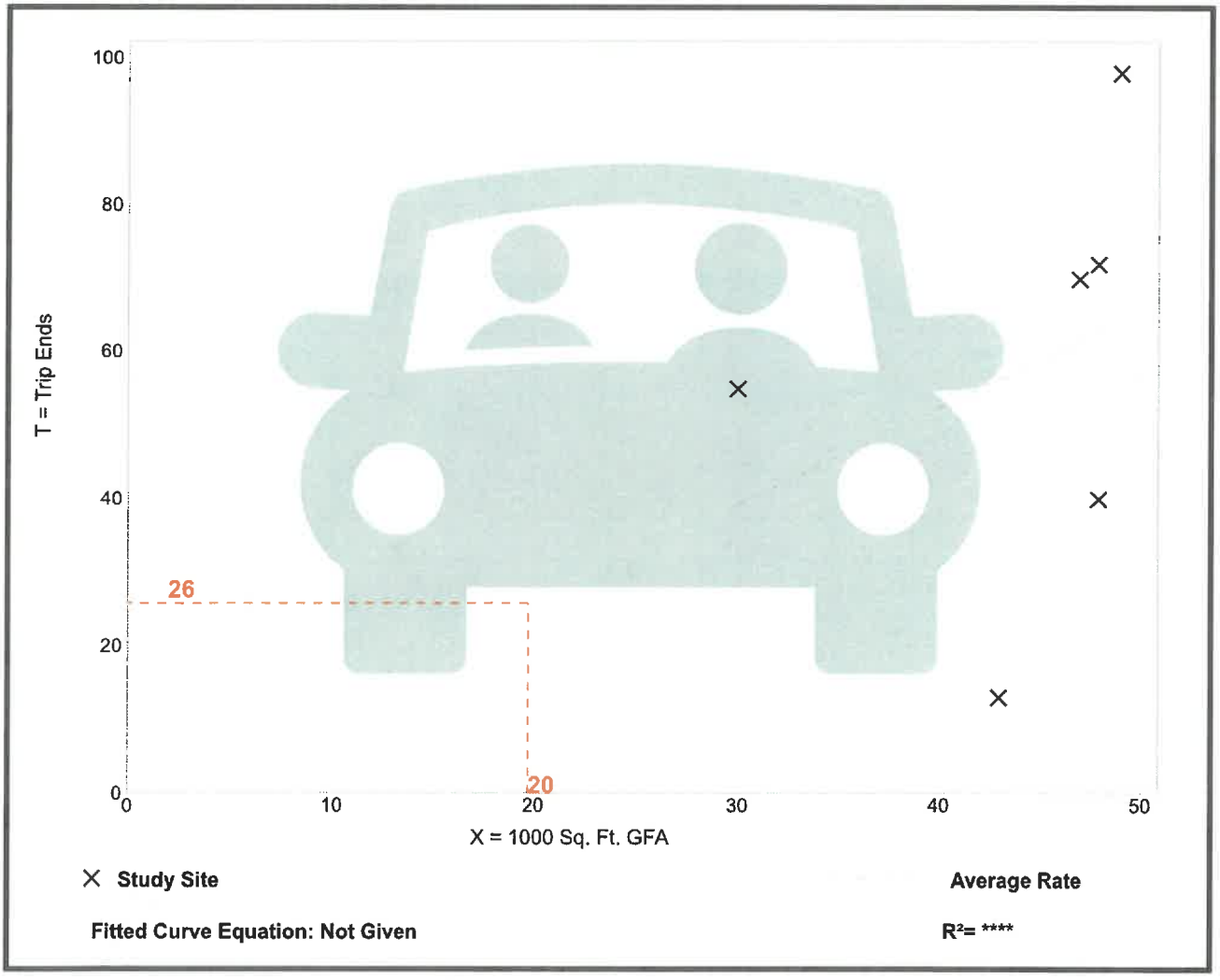
Health/Fitness Club
(492)

Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 6
Avg. 1000 Sq. Ft. GFA: 44
Directional Distribution: 51% entering, 49% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
1.31	0.30 - 2.00	0.64

Data Plot and Equation



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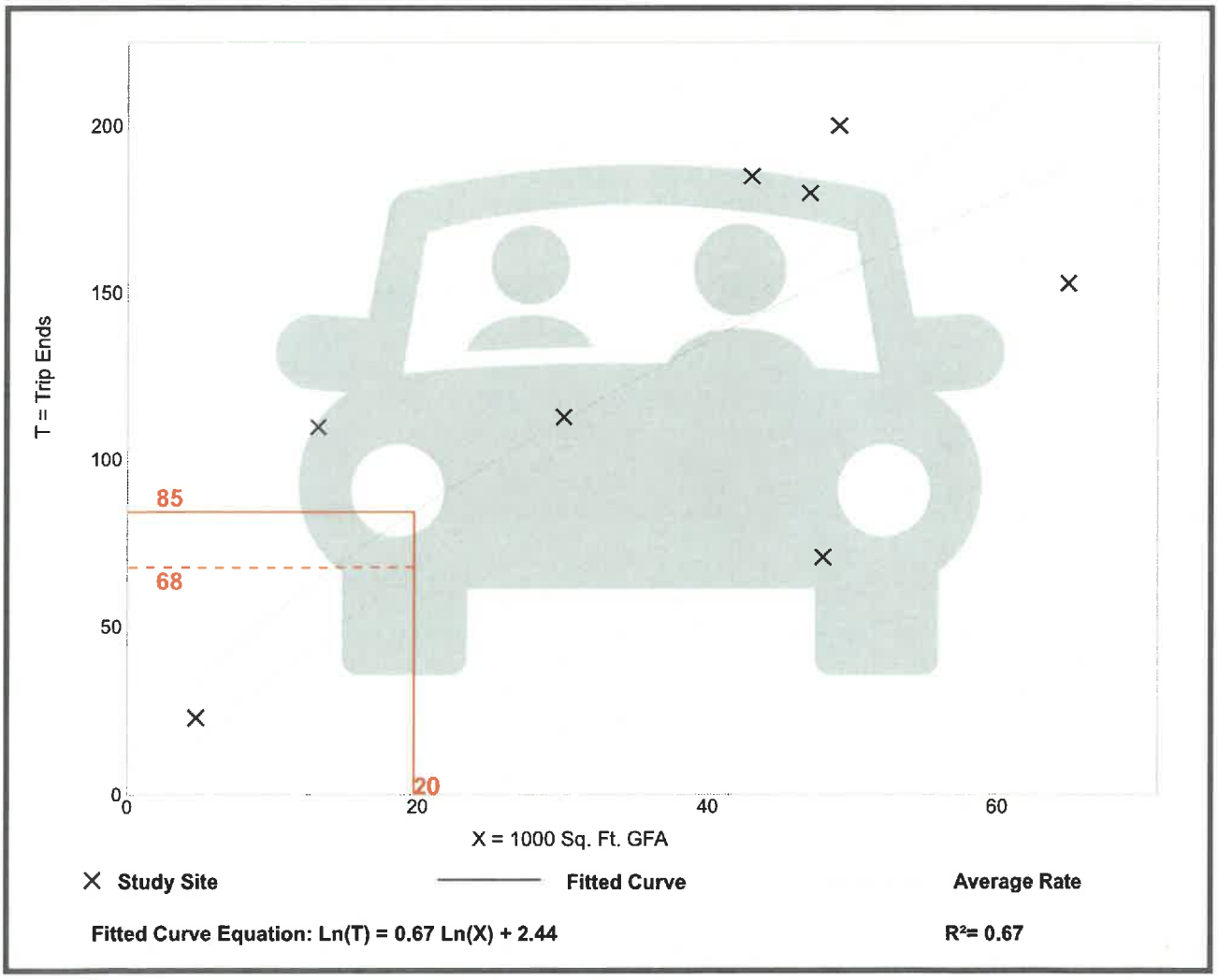
Health/Fitness Club
(492)

Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 8
Avg. 1000 Sq. Ft. GFA: 37
Directional Distribution: 57% entering, 43% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
3.45	1.48 - 8.37	1.57

Data Plot and Equation



Trip Gen Manual, 11th Edition • Institute of Transportation Engineers

NCHRP 8-51 Internal Trip Capture Estimation Tool			
Project Name:	58 Fore Street Redevelopment	**Organization:**	GP
Project Location:	Portland, Maine	**Performed By:**	RED
Scenario Description:	Block 5	**Date:**	6/22/2023
Analysis Year:		**Checked By:**	
Analysis Period:	AM Street Peak Hour	**Date:**	

Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office	710	110,700	SF	227	205	22
Retail	814	53,292	SF	34	23	11
Restaurant	931	30,514	SF	98	53	45
Cinema/Entertainment				0		
Residential	220/230	455	Units	165	38	127
Hotel	310	130	Units	59	33	26
All Other Land Uses[2]	492			26	13	13
Total				609	365	244

Table 2-A: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.	% Transit	% Non-Motorized	Veh. Occ.	% Transit	% Non-Motorized
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						
All Other Land Uses[2]						

Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-A: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		6	12	0	0	0
Retail	3		1	0	1	0
Restaurant	14	2		0	2	1
Cinema/Entertainment	0	0	0		0	0
Residential	3	1	11	0		0
Hotel	6	1	2	0	0	

Table 5-A: Computations Summary

	Total	Entering	Exiting
All Person-Trips	609	365	244
Internal Capture Percentage	22%	18%	27%
External Vehicle-Trips[3]	477	299	178
External Transit-Trips[4]	0	0	0
External Non-Motorized Trips[4]	0	0	0

Table 6-A: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	13%	82%
Retail	43%	45%
Restaurant	49%	42%
Cinema/Entertainment	N/A	N/A
Residential	8%	12%
Hotel	3%	35%

[1]Land Use Codes (LUCs) from *Trip Generation Informational Report*, published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

[3]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

[4]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas Transportation Institute

Project Name:	58 Fore Street Redevelopment
Analysis Period:	AM Street Peak Hour

Table 7-A: Conversion of Vehicle-Trip Ends to Person-Trip Ends

Land Use	Table 7-A (D): Entering Trips			Table 7-A (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	205	205	1.00	22	22
Retail	1.00	23	23	1.00	11	11
Restaurant	1.00	53	53	1.00	45	45
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.00	38	38	1.00	127	127
Hotel	1.00	33	33	1.00	26	26

Table 8-A (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		6	14	0	0	0
Retail	3		1	0	2	0
Restaurant	14	6		0	2	1
Cinema/Entertainment	0	0	0		0	0
Residential	3	1	25	0		0
Hotel	20	4	2	0	0	

Table 8-A (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		7	12	0	0	0
Retail	8		27	0	1	0
Restaurant	29	2		0	2	1
Cinema/Entertainment	0	0	0		0	0
Residential	6	4	11	0		0
Hotel	6	1	3	0	0	

Table 9-A (D): Internal and External Trips Summary (Entering Trips)

Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	26	179	205	179	0	0
Retail	10	13	23	13	0	0
Restaurant	26	27	53	27	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	3	35	38	35	0	0
Hotel	1	32	33	32	0	0
All Other Land Uses[3]	0	13	13	13	0	0

Table 9-A (O): Internal and External Trips Summary (Exiting Trips)

Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	18	4	22	4	0	0
Retail	5	6	11	6	0	0
Restaurant	19	26	45	26	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	15	112	127	112	0	0
Hotel	9	17	26	17	0	0
All Other Land Uses[3]	0	13	13	13	0	0

[1]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

[2]Person-Trips

[3]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

NCHRP 8-51 Internal Trip Capture Estimation Tool			
Project Name:	58 Fore Street Redevelopment	**Organization:**	GP
Project Location:	Portland, Maine	**Performed By:**	RED
Scenario Description:	Block 5	**Date:**	6/22/2023
Analysis Year:		**Checked By:**	
Analysis Period:	PM Street Peak Hour	**Date:**	

Table 1-P: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office	710	110,700	SF	219	33	186
Retail	814	53,292	SF	128	61	67
Restaurant	931	30,514	SF	409	269	140
Cinema/Entertainment				0		
Residential	220/230	455	Units	174	107	67
Hotel	310	130	Units	76	39	37
All Other Land Uses[2]				68	39	29
Total				1074	548	526

Table 2-P: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.	% Transit	% Non-Motorized	Veh. Occ.	% Transit	% Non-Motorized
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						
All Other Land Uses[2]						

Table 3-P: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-P: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		5	5	0	4	0
Retail	1		19	0	17	3
Restaurant	4	31		0	17	10
Cinema/Entertainment	0	0	0		0	0
Residential	3	6	14	0		2
Hotel	0	1	13	0	0	

Table 5-P: Computations Summary

	Total	Entering	Exiting
All Person-Trips	1,074	548	526
Internal Capture Percentage	29%	28%	29%
External Vehicle-Trips[3]	764	393	371
External Transit-Trips[4]	0	0	0
External Non-Motorized Trips[4]	0	0	0

Table 6-P: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	24%	8%
Retail	70%	60%
Restaurant	19%	44%
Cinema/Entertainment	N/A	N/A
Residential	36%	37%
Hotel	38%	38%

[1]Land Use Codes (LUCs) from *Trip Generation Informational Report*, published by the Institute of Transportation Engineers.
[2]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator
[3]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P
[4]Person-Trips
*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas Transportation Institute

Project Name:	58 Fore Street Redevelopment
Analysis Period:	PM Street Peak Hour

Table 7-P: Conversion of Vehicle-Trip Ends to Person-Trip Ends

Land Use	Table 7-P (D): Entering Trips			Table 7-P (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	33	33	1.00	186	186
Retail	1.00	61	61	1.00	67	67
Restaurant	1.00	269	269	1.00	140	140
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.00	107	107	1.00	67	67
Hotel	1.00	39	39	1.00	37	37

Table 8-P (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		37	7	0	4	0
Retail	1		19	3	17	3
Restaurant	4	57		11	25	10
Cinema/Entertainment	0	0	0		0	0
Residential	3	28	14	0		2
Hotel	0	6	25	0	1	

Table 8-P (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		5	5	0	4	0
Retail	10		78	0	49	7
Restaurant	10	31		0	17	28
Cinema/Entertainment	2	2	8		4	0
Residential	19	6	38	0		5
Hotel	0	1	13	0	0	

Table 9-P (D): Internal and External Trips Summary (Entering Trips)

Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	8	25	33	25	0	0
Retail	43	18	61	18	0	0
Restaurant	51	218	269	218	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	38	69	107	69	0	0
Hotel	15	24	39	24	0	0
All Other Land Uses[3]	0	39	39	39	0	0

Table 9-P (O): Internal and External Trips Summary (Exiting Trips)

Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	14	172	186	172	0	0
Retail	40	27	67	27	0	0
Restaurant	62	78	140	78	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	25	42	67	42	0	0
Hotel	14	23	37	23	0	0
All Other Land Uses[3]	0	29	29	29	0	0

[1]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P

[2]Person-Trips

[3]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

06-22-2023 Combined Shared Parking Demand 5th Edition

	Block 1 - SunLife Office Building					Block 4								Block 1 - Building 12							Block 2						
	Block 1A		Block 1A		Total for Block 1A	Block 4		Block 4		Block 4		Block 4		Total for Block 4	Building 12		Building 12		Building 12		Total for Building 12	Block 2		Block 2		Block 2		Total for Block 2
	Office (4)		Specialty Retail (5)			Qual. Rest (6)		High Turn Rest (9)		Specialty Retail (5)		Multi Fam (Mid) (3)			Office (4)		Qual. Rest (6)		Residential (3)			Office (4)		Qual. Rest (6)		Specialty Retail (5)		
Rate	2.39	2.39 / 1,000 sf	1.95	1.95 / 1,000 sf		95.0570	10.52 / 1000 sf	105.9322	9.44 / 1000 SF	1.95	1.95 / 1,000 sf	1.21	1.21 per Unit		2.39	2.39/1,000 sf	95.0570	10.52 / 1000 sf	1.21	1.21 per Unit		2.39	2.39 / 1,000 sf	95.0570	10.52/1000	1.95	1.95 / 1,000 sf	
Monthly Adjustment	1000		1000	1						1000	1		1		1000					1		1000				1000	1	
SQF or Unit	95,100	95100 sf	9,300	9300 sf		2988		2988		5,975	5975	247	247 Units		3,200	3,200 sf	3,200	3,200 sf	2	2 Units		12,400	12400 sf	17,950	17950 sf	17,950	17950 sf	
6:00AM	0.00	0	0.00	0	0	0.00	0	0.10	3	0.00	0	0.90	269	272	0.00	0	0.00	0	0.90	2	2	0.00	0	0.00	0	0.00	0	0
7:00AM	0.13	30	0.00	0	30	0.00	0	0.25	7	0.00	0	0.77	230	237	0.13	1	0.00	0	0.77	2	3	0.13	4	0.00	0	0.00	0	4
8:00AM	0.48	109	0.15	3	112	0.00	0	0.68	19	0.15	2	0.56	167	188	0.48	4	0.00	0	0.56	1	5	0.48	14	0.00	0	0.15	5	19
9:00AM	0.88	200	0.32	6	206	0.00	0	0.72	20	0.32	4	0.45	134	158	0.88	7	0.00	0	0.45	1	8	0.88	26	0.00	0	0.32	11	37
10:00AM	1.00	227	0.54	10	237	0.00	0	0.77	22	0.54	6	0.40	120	148	1.00	8	0.00	0	0.40	1	9	1.00	30	0.00	0	0.54	19	49
11:00AM	1.00	227	0.71	13	240	0.20	6	0.83	23	0.71	8	0.37	111	148	1.00	8	0.20	7	0.37	1	16	1.00	30	0.20	38	0.71	25	93
12:00PM	0.85	193	0.99	18	211	0.51	16	1.00	28	0.99	12	0.36	108	164	0.85	7	0.51	17	0.36	1	25	0.85	25	0.51	96	0.99	35	156
1:00PM	0.84	191	1.00	18	209	0.56	18	0.91	26	1.00	12	0.36	108	164	0.84	6	0.56	19	0.36	1	26	0.84	25	0.56	106	1.00	35	166
2:00PM	0.93	211	0.90	16	227	0.40	13	0.56	16	0.90	10	0.37	111	150	0.93	7	0.40	13	0.37	1	21	0.93	28	0.40	76	0.90	32	136
3:00PM	0.94	214	0.83	15	229	0.27	8	0.42	12	0.83	10	0.43	129	159	0.94	7	0.27	9	0.43	1	17	0.94	28	0.27	51	0.83	29	108
4:00PM	0.85	193	0.81	15	208	0.27	8	0.42	12	0.81	9	0.45	134	163	0.85	7	0.27	9	0.45	1	17	0.85	25	0.27	51	0.81	28	104
5:00PM	0.56	127	0.84	15	142	0.39	12	0.64	18	0.84	10	0.55	164	204	0.56	4	0.39	13	0.55	1	18	0.56	17	0.39	74	0.84	29	120
6:00PM	0.20	45	0.86	16	61	0.71	22	0.87	25	0.86	10	0.66	197	254	0.20	2	0.71	24	0.66	2	28	0.20	6	0.71	134	0.86	30	170
7:00PM	0.11	25	0.80	15	40	1.00	31	0.79	22	0.80	9	0.73	218	280	0.11	1	1.00	34	0.73	2	37	0.11	3	1.00	189	0.80	28	220
8:00PM	0.00	0	0.63	11	11	0.97	30	0.65	18	0.63	7	0.77	230	285	0.00	0	0.97	33	0.77	2	35	0.00	0	0.97	183	0.63	22	205
9:00PM	0.00	0	0.42	8	8	0.00	0	0.42	12	0.42	5	0.86	257	274	0.00	0	0.00	0	0.86	2	2	0.00	0	0.00	0	0.42	15	15
10:00PM	0.00	0	0.15	3	3	0.00	0	0.21	6	0.15	2	0.92	275	283	0.00	0	0.00	0	0.92	2	2	0.00	0	0.00	0	0.15	5	5
Dedicated spaces	0.00	0	0.00	0	0					0.00	0			0	0.00	0	0.00	0			0	0.00	0	0.00	0	0.00	0	0

(1) Based on the results from the NCHRP 684 Internal Trip Capture Estimation Tool (Average of 22% & 29%)

(2) Provided by City of Portland in an email from Tom Errico to Randy Dunton dated 6/22/23

(3 Time of Day distrubution for Dense Multi-use Urban, Rate for General Urban/Suburban

(4) Time of day distribution and rate based on General Urban/Suburban

(5) Time of day distrubution and rate based on Shopping Center, General Urban/Suburban, weekday (non-December)

(6) Time of day distrubution and rate based on Quality Restaurant, General Urban/Suburban, weekday (Monday-Thursday)

(7) Time of day distrubution and rate based on Hotel, General Urban/Suburban, weekday

(8) Time of day distrubution and rate based on Health / Fitness Club, weekday.

(9) Based on ITE Parking Generation 5th Edition using SF for High Turnover Rest

06-22-2023 Combined Shared Parking Demand 5th Edition

Block 5													Block 6									Shared Spaces					
																						Combined Subtotal					
Block 5		Block 5		Block 5		Block 5		Block 5		Block 5		Total for Block 5	Block 6		Block 6		Block 6		Block 6		Total for Block 6						
Hotel (7)		Specialty Retail (5)		High Turn Rest (9)		Qual Rest (6)		Multi Fam (Mid) (3)		Spa (8)			Qual Rest (6)		High Turn Rest (9)		Specialty Retail (5)		Multi Fam (Mid) (3)								
1.1	1.1 per room	1.95	1.95 / 1,000 sf	105.9322	9.44 / 1000 SF	95.0570	10.52/1000	1.21	1.21 per Unit	232.5581	4.3 / 1000SF		95.0570	10.52/1000	105.9322	9.44 / 1000 SF	1.95	1.95 / 1,000 sf	1.21	1.21 per Unit		Combined Subtotal	Mixed Use Reduction (1)	Other Modes Reduction (2)	Reduced Total	Non-Residential Spaces	Residential Spaces
		1000	1						1	1000							1000	1		1			26%	20.0%			
128	128 room	2,464		1232		19,315		43	43 Units	19,697	19660 SF		2277		2277		4,554	4554 sf	154	154 Units							
0.91	128	0.00	0	0.10	1	0.00	0	0.90	47	0.00	0	176	0.00	0	0.10	2	0.00	0	0.90	168	170	620	158	92	370	105	265
0.89	125	0.00	0	0.25	3	0.00	0	0.77	40	0.00	0	168	0.00	0	0.25	5	0.00	0	0.77	143	148	590	150	88	352	126	226
0.90	127	0.15	1	0.68	8	0.00	0	0.56	29	0.00	0	165	0.00	0	0.68	15	0.15	1	0.56	104	120	609	155	91	363	199	164
1.00	141	0.32	2	0.72	8	0.00	0	0.45	23	0.00	0	174	0.00	0	0.72	15	0.32	3	0.45	84	102	685	175	102	408	276	132
0.98	138	0.54	3	0.77	9	0.00	0	0.40	21	0.62	53	223	0.00	0	0.77	17	0.54	5	0.40	75	97	763	195	114	454	336	118
0.89	125	0.71	3	0.83	10	0.20	41	0.37	19	0.55	47	245	0.20	5	0.83	18	0.71	6	0.37	69	98	840	214	125	501	392	109
0.85	120	0.99	5	1.00	12	0.51	104	0.36	19	0.44	37	296	0.51	12	1.00	21	0.99	9	0.36	67	109	961	245	143	573	467	106
0.75	106	1.00	5	0.91	11	0.56	114	0.36	19	0.41	35	289	0.56	13	0.91	20	1.00	9	0.36	67	109	963	246	143	574	468	106
0.81	114	0.90	4	0.56	7	0.40	81	0.37	19	0.36	30	256	0.40	10	0.56	12	0.90	8	0.37	69	99	889	227	132	530	421	109
0.70	99	0.83	4	0.42	5	0.27	55	0.43	22	0.41	35	220	0.27	6	0.42	9	0.83	7	0.43	80	102	835	213	124	498	371	127
0.74	104	0.81	4	0.42	5	0.27	55	0.45	23	0.69	58	250	0.27	6	0.42	9	0.81	7	0.45	84	106	848	216	126	506	374	132
0.65	92	0.84	4	0.64	7	0.39	79	0.55	29	0.96	81	292	0.39	9	0.64	14	0.84	7	0.55	102	132	908	232	135	541	380	161
0.73	103	0.86	4	0.87	10	0.71	144	0.66	34	1.00	85	380	0.71	17	0.87	19	0.86	8	0.66	123	167	1060	270	158	632	438	194
0.78	110	0.80	4	0.79	9	1.00	203	0.73	38	0.85	72	436	1.00	24	0.79	17	0.80	7	0.73	136	184	1197	305	178	714	499	215
0.93	131	0.63	3	0.65	8	0.97	197	0.77	40	0.00	0	379	0.97	23	0.65	14	0.63	6	0.77	143	186	1101	281	164	656	430	226
0.96	135	0.42	2	0.42	5	0.00	0	0.86	45	0.00	0	187	0.00	0	0.42	9	0.42	4	0.86	160	173	659	168	98	393	140	253
0.95	134	0.15	1	0.21	2	0.00	0	0.92	48	0.00	0	184	0.00	0	0.21	5	0.15	1	0.92	171	177	654	167	97	390	120	270

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June 23, 2023

ATTN: Bradley Roland, P.E.
Department of Public Works
212 Canco Road
Portland, ME 04103

Re: 58 Fore Street Phase 2 – Request for Evidence of Ability to Serve

Dear Mr. Roland:

On behalf of Portland Foreside Development Company, Woodard & Curran is submitting this ability to serve request letter for the next phase of development at 58 Fore Street in Portland, Maine. The proposed Phase 2 work includes the following:

- Block 4: Construction a four-level structured parking garage with overlying rental apartment units and townhouses (245 units total) and ground-level restaurant, café and retail space.
- Block 5: Construction of hotel, residential condominiums, ground-level retail and restaurant, and fitness center and spa.
- Block 6: Construction of residential condominiums (153 units total) with amenities including fitness center, spa, heated pool, and rooftop garden, and ground-level restaurant, café and retail space.
- Eastern Promenade Property: Demolition of two rental apartment buildings (5 units total).

Upon completion, the proposed project is anticipated to discharge 141,600 gallons of wastewater per day. This estimate is based on the preliminary design of the buildings. We do not anticipate changes that would result in significant increases but will notify the City if design development results in any major changes.

Please refer to the enclosed Utility Plans for the location and size of proposed utility service connections. All connections proposed as part of this project will connect to the City's sewer via private site mains that have already been installed, and no direct connections to City infrastructure are required. Grease traps with 3,000-gallon capacity will be specified within the buildings to manage flows from anticipated restaurant spaces – we are currently working with the project architects to determine if this should be specified as internal or external structures. A private pump station has been designed to manage wastewater from the current and future phases of development and is proposed to be installed with this phase of work. All wastewater will exit the site via a gravity sewer connection previously installed in the Thames Street Extension.

We have submitted to the City of Portland Planning Department for approval of the Major Site Plan application and will appreciate documentation regarding the City's ability to collect

wastewater from the proposed development. Please let us know if any additional information is required to evaluate the service capacity for the site. We appreciate your assistance. If you have any questions or require any additional information, please do not hesitate to contact me at 207-558-3763 or lswett@woodardcurran.com.

Sincerely,

WOODARD & CURRAN



Lauren Swett, P.E.
Technical Manager

Enclosures: Utility Plan
Wastewater Application
Design Flow Calculations

CITY OF PORTLAND WASTEWATER CAPACITY APPLICATION

Portland Dept. of Public Works -
Water Resources
55 Portland Street,
Portland, Maine 04101-2991

Bradley Roland, P.E.
Water Resources Division
Department of Public Works
55 Portland Street
Portland, ME 04103

Date: **June 23, 2023**

1. Please, Submit Utility, Site, and Locus Plans.

Site Address: **58 Fore Street**

Chart Block Lot Number: **018 A001**

Proposed Use: **Mixed Use Development**
Previous Use: **Industrial**
Existing Sanitary Flows: **0** GPD
Existing Process Flows: **0** GPD
Description and location of City sewer that is to receive the proposed building sewer lateral.

Proposed on-site sewer main

Site Category		
	Commercial *(see part 4 below)*	X
	Industrial *(complete part 5 below)*	
	Governmental	
	Residential	X
	Other *(specify)*	X

Clearly, indicate the proposed connections, on the submitted plans.

2. Please, Submit Contact Information.

City Planner's Name: **Charles Tetelman** Phone: _____
Owner/Developer Name: **Portland Foreside Development Company, c/o David Senus, PE**
Owner/Developer Address: **254 Commercial Street, Suite 118, Portland, ME 04101**
Phone: **(207) 558-3704** Fax: **N/A** E-mail: **das@portlandforeside.com**
Engineering Consultant Name: **Woodard & Curran**
Engineering Consultant Address: **41 Hutchins Drive, Portland, ME 04101**
Phone: **(207) 558-3763** Fax: **N/A** E-mail: **lswett@woodardcurran.com**

Note: Consultants and Developers should allow +/- 15 days, for capacity status, prior to Planning Board Review.

3. Please, Submit Domestic Wastewater Design Flow Calculations.

Estimated Domestic Wastewater Flow Generated: **141,600 GPD**
Peaking Factor/ Peak Times: _____
Specify the source of design guidelines: *(i.e.* _ *"Handbook of Subsurface Wastewater Disposal in Maine," "Plumbers and Pipe Fitters Calculation Manual,"* _ *Portland Water District Records,* _ *Other (specify)*
Handbook of Subsurface Wastewater Disposal in Maine

Note: Please submit calculations showing the derivation of your design flows, either on the following page, in the space provided, or attached, as a separate sheet.

4. Please, Submit External Grease Interceptor Calculations.

Total Drainage Fixture Unit (DFU) Values:
Size of External Grease Interceptor:
Retention Time:
Peaking Factor/ Peak Times:

Complete grease trap needs are TBD and are anticipated to be located within building restaurant spaces. As final design layout progresses, more information can be provided.

Note: In determining your restaurant process water flows, and the size of your external grease interceptor, please use The Uniform Plumbing Code. Note: In determining the retention time, sixty (60) minutes is the minimum retention time. Note: Please submit detailed calculations showing the derivation of your restaurant process water design flows, and please submit detailed calculations showing the derivation of the size of your external grease interceptor, either in the space provided below, or attached, as a separate sheet.

5. Please, Submit Industrial Process Wastewater Flow Calculations **N/A**

Estimated Industrial Process Wastewater Flows Generated: _____ GPD
Do you currently hold Federal or State discharge permits? Yes ____ No ____
Is the process wastewater termed categorical under CFR 40? Yes ____ No ____
OSHA Standard Industrial Code (SIC): *(http://www.osha.gov/oshstats/sicser.html)*
Peaking Factor/Peak Process Times: _____

Note: On the submitted plans, please show where the building's domestic sanitary sewer laterals, as well as the building's industrial-commercial process wastewater sewer laterals exits the facility. Also, show where these building sewer laterals enter the city's sewer. Finally, show the location of the wet wells, control manholes, or other access points; and, the locations of filters, strainers, or grease traps.

Note: Please submit detailed calculations showing the derivation of your design flows, either in the space provided, or attached, as a separate sheet.

PFDC Block 4				
Facility	Unit	Design Flow/Unit	Quantity	Design Flow (gpd)
Parking Garage	Toilet	325	0	0
Restaurant (Eating place, 3 meals/day)	Seat	30	70	2100
	Employee	12	14	168
Restaurant (Eating place, 2 meals/day)	Seat	20	43	860
	Employee	12	9	108
Retail (Employees at place of employment with no showers)	Employee	12	22	264
Residential (single-family dwelling unit w/ 2 or less bedrooms)	Dwelling Unit	180	229	41220
Residential (single-family dwelling unit w/ 3 bedrooms)	Dwelling Unit	270	18	4860
			Total	**49580**

PFDC Block 5				
Facility	Unit	Design Flow/Unit	Quantity	Design Flow (gpd)
Restaurant (Eating place, 3 meals/day)	Seat	30	469	14070
	Employee	12	63	756
Restaurant (Eating place, 2 meals/day)	Seat	20	173	3460
	Employee	12	35	420
Retail (Employees at place of employment with no showers)	Employee	12	13	156
Residential (single-family dwelling unit w/ 2 or less bedrooms)	Dwelling Unit	180	16	2880
Residential (single-family dwelling unit w/ 3 bedrooms)	Dwelling Unit	270	6	1620
Hotel (Hotel rooms with private baths)	Room w/bath	100	158	15800
	Employee	12	100	1200
Hotel room with kitchen	Bed	60	42	2520
Laundry, self-service	Machine	300	8	2400
Fitness, exercise, karate or dance center	100 SF	50	71.3	3565
Swimming pools, Bathhouses & Spas	Toilet	250	13	3250
			Total	**52097**

PFDC Block 6				
Facility	Unit	Design Flow/Unit	Quantity	Design Flow (gpd)
Parking Garage	Toilet	325	0	0
Restaurant (Eating place, 3 meals/day)	Seat	30	183	5490
	Employee	12	37	444
Restaurant (Eating place, 2 meals/day)	Seat	20	183	3660
	Employee	12	7	84
Retail (Employees at place of employment with no showers)	Employee	12	7	84
Residential (single-family dwelling unit w/ 2 or less bedrooms)	Dwelling Unit	180	127	22860
Residential (single-family dwelling unit w/ 3 bedrooms)	Dwelling Unit	270	27	7290
Heated Pool	Toilet	250	0	0
Spa	Toilet	250	0	0
			Total	**39912**

Combined Design Flow to Private Pump Station/Thames Street	
Total	**141589**

Eastern Promenade Property (Net)				
Facility	Unit	Design Flow/Unit	Quantity	Design Flow (gpd)
Residential (single-family dwelling unit w/ 2 or less bedrooms)	Dwelling Unit	180	-5	-900
			Total	**-900**

Net Design Flow to Eastern Promenade	
Total	**-900**

https://www.maine.gov/dhhs/mecdc/environmental-health/dwp/documents/SubsurfaceWastewaterDisposalRulesProposal.pdf

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MEMORANDUM

TO: Charles Tetelman, City of Portland

CC: Christine Grimando, Kevin Kraft, Matt Grooms, City of Portland

Dave Senus, Mary McCrann and Shelby Burgau, Foreside Development

FROM: Darrin Stairs, PE, and Lauren Swett, PE, Woodard & Curran

DATE: May 19, 2023

RE: Height Calculation and Average Grade

Woodard & Curran received an email from Charles Tetelman on May 5, 2023 as a follow up on the average grade and height calculations that have been submitted for the Phase 2 work on the Portland Foreside Development project. The project team has collaborated to create some additional drawings to help provide clarification around the average grade calculation associated with the Block 4, 5, and 6 structure. The email from Charles was focused on the following three comments, and our submission addresses these comments as described below.

- *Provide confirmation of the continuous foundation for Blocks 4, 5, and 6.*

  In the enclosed drawings, plan sheet SA-001 is provided as a foundation plan that shows the bottom floor and parking plan across Blocks 4, 5, and 6 that reflects the common foundation across the blocks. We have updated our average grade figure as well to overlay the bottom floor plan to show how the common foundation is referenced on the site.

- *Provide clarification of the average grade point locations, specifically with regards to the points provided at retaining walls.*

  The supplemental architectural plans also provide a series of drawings to support the average grade calculation. We understand that the complexity of the site makes it difficult to visualize how the building ties into the grade. A set of axonometric views are provided on sheet SA-000 to help give context to how Blocks 4, 5, and 6 reside on the site. Sheet SA-002 includes site plans showing four levels of the site that were used to create the sections on Sheet SA-003. The sections show the locations of each of the points used for the average grade calculation. Section 4 called "Site Section – E/W @ Block 4" represents the corner point on the inside corner where Block 4 and 6 meet (Point D). Comparable to the condition at Fore Street, the building structure extends over the top of a support of excavation wall and the elevation at this corner reflects where the earth grade meets the building structure.

- *Updated Block 2 average grade calculation*

  The average grade figure has been updated to include the calculation of average grade for the Block 2 Townhouses separate from the Block 4, 5, and 6 structure. Drawing SA-004 shows the updated elevation view of these townhouses, showing compliance with the height regulations for this location.

In addition to the updates to the average grade plan and Block 4 elevation plan, and the new plans provided to support the average grade questions, we are also providing updated civil and landscape drawings. Two Filterra units provided to treat stormwater from the roof of Block 6 have been moved around the corner to be located on the eastern side of the building, and the plans have been adjusted to reflect this change.

The project's construction manager PGC/Turner is working on a site logistics plan and will have an updated Construction Management Plan (CMP) that includes Block 5 available by May 26, 2023. They are currently finalizing some updates that are impacted by some changing equipment requirements and market availability of materials. The City had provided some comments on prior CMP submittals with regards to the one-building discussion, and we note that the CMP should not be used to evaluate the design of the building and is solely intended to show construction logistic sequences. We are hopeful that the materials submitted today provide the clarity necessary for the proposed single foundation for Blocks 4, 5, and 6.

We understand from the May 5 email that there are additional comments that will be provided for our review and response. We look forward to receiving those and providing additional information as necessary in preparation for a Planning Board Workshop in June.

Attachments (Uploaded to ProjectDox):

- 2023.05.19 Supplemental Architectural Plans
- Phase 2 Civil Plans and Details (updated)
- Phase 2 Landscape Plans and Details (updated)
- Phase 2 Average Grade Plan (updated)

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MEMORANDUM

TO: Keith Gray and Charles Tetelman, City of Portland

CC: Dave Senus, Mary McCrann and Shelby Burgau, Foreside Development

FROM: Darrin Stairs, PE, and Lauren Swett, PE, Woodard & Curran

DATE: May 12, 2023

RE: Fore Street Cross Section Design - Phase 2 Development

Woodard & Curran received an email from Charles Tetelman on May 3, 2023 documenting a requested cross-section for Fore Street. We understand that this section has been developed by the Department of Public works, and it documents the desire for the inclusion of parking on both sides of Fore Street, and the addition of a bike lane to the south side of Fore Street. This cross-section view is provided here:

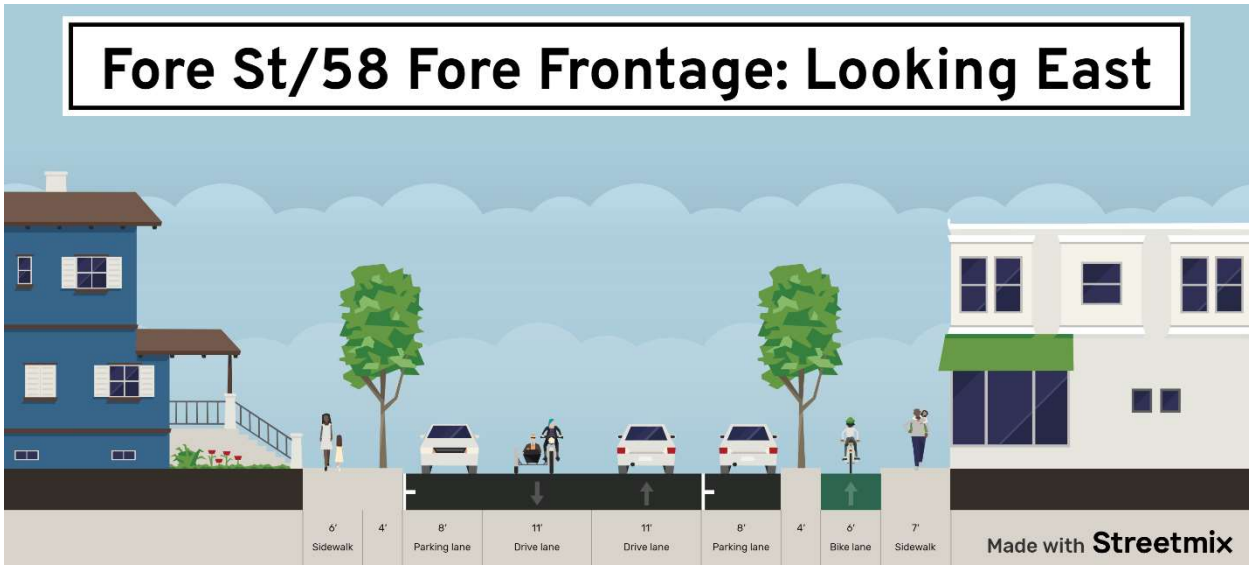


Figure 1. City of Portland Proposed Fore Street Cross Section

After meeting with the City to discuss the Fore Street frontage of the Phase 2 Development of the Portland Foreside project, we have reviewed this section, which conflicts with both our current design, long-standing existing conditions on Fore Street, and the major improvements completed on Fore Street in the last few years. The City has just completed major utility upgrades in Fore Street; we understand that surface paving is proposed to occur within the next month; and the new cross section presented by the City would result in significant impacts that extend beyond what has been anticipated for this location.

Existing Site Constraints

We've marked up the City's cross section to include some of the constraints that will impact the ability to construct what the City has shown. This figure is included below.

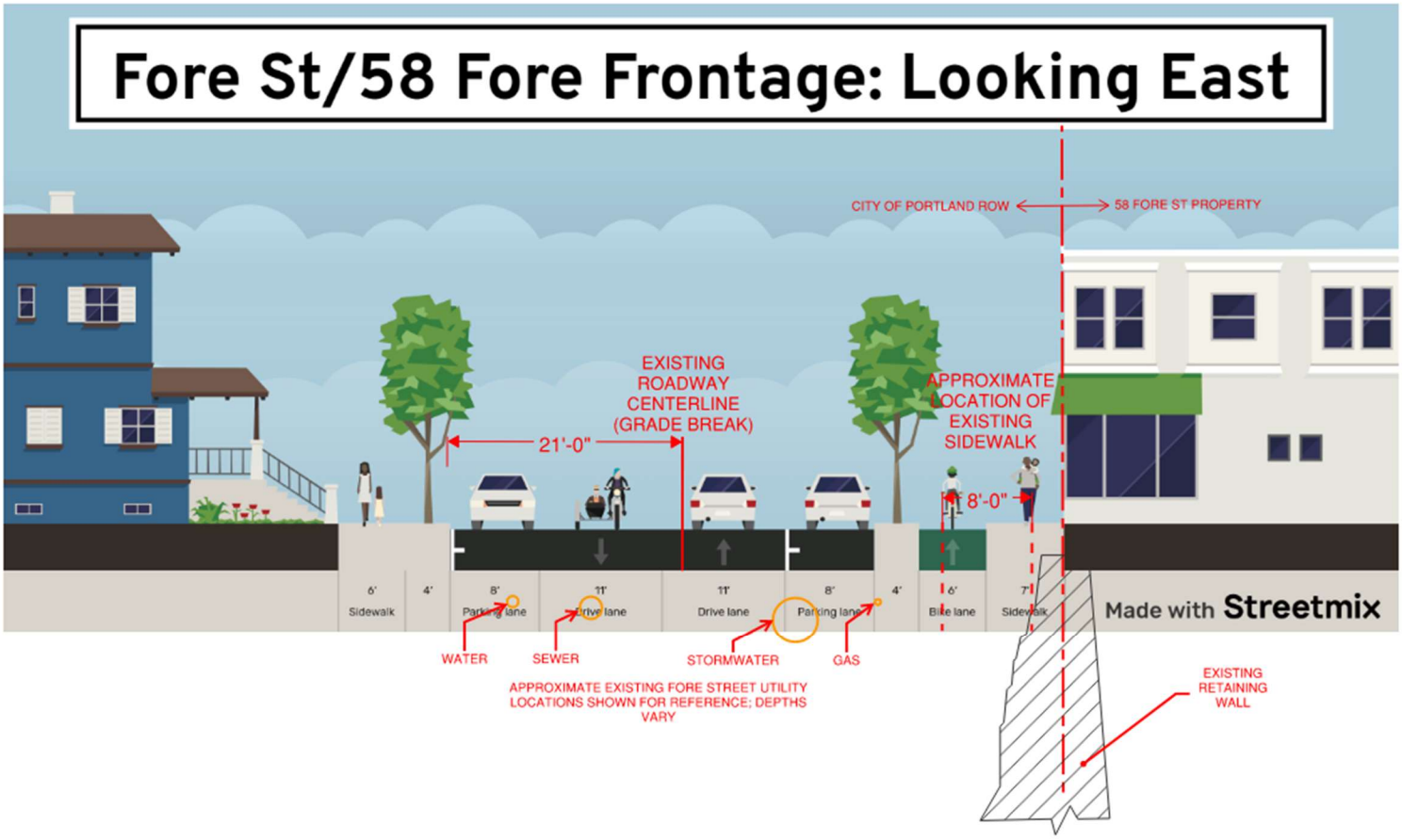


Figure 2. City of Portland Proposed Fore Street Cross Section with Existing Constraints

The following existing conditions are in conflict with what has been proposed:

- The roadway's existing centerline as defined by the break in grade is not in line with the proposed centerline. This would require regrading of the entire roadway that was not anticipated as part of the recent Sewer Separation project.
- The proposed layout positions the southern curbline over the top of the gas line that was recently relocated as part of the Fore Street Sewer Separation project. The relocation work was completed to intentionally relocate the gas line out of the footprint of the sidewalk.
- The existing retaining wall located on the property line would be in conflict with the City's proposed sidewalk construction. As the sidewalk currently exists, it is not located over the top of the wall.
- The City's proposed cross section will not tie into any of the existing sidewalk infrastructure that already exists on Fore Street on either side of the currently proposed project. The sidewalk to the east was not reconstructed as part of the City's Fore Street project, and the sidewalk to the west was reconstructed, as approved by the City, as part of the Phase 1 work by PFDC with only sidewalk, and no esplanade or bicycle lane.

The proposed cross section is also not consistent with conversations that occurred during Phase 1 of the Portland Foreside project. During the design of the City's Fore Street Sewer Separation project, which was occurring during the permitting process for Portland Foreside's Phase 1 work, Portland Foreside coordinated with the City on future sidewalk and utility impacts. As part of their project, the City would not reconstruct the sidewalk in front of the 58 Fore Street property, leaving that work to be completed by PFDC. The City agreed at that time that the curbline could be moved out as much as two feet to provide for wider sidewalk, and the developer would reset the catch basins along the curbline as necessary. The City's section moves the curbline approximately 5.5 feet.

Proposed Alternative Section

We suggest the following alternative cross section:

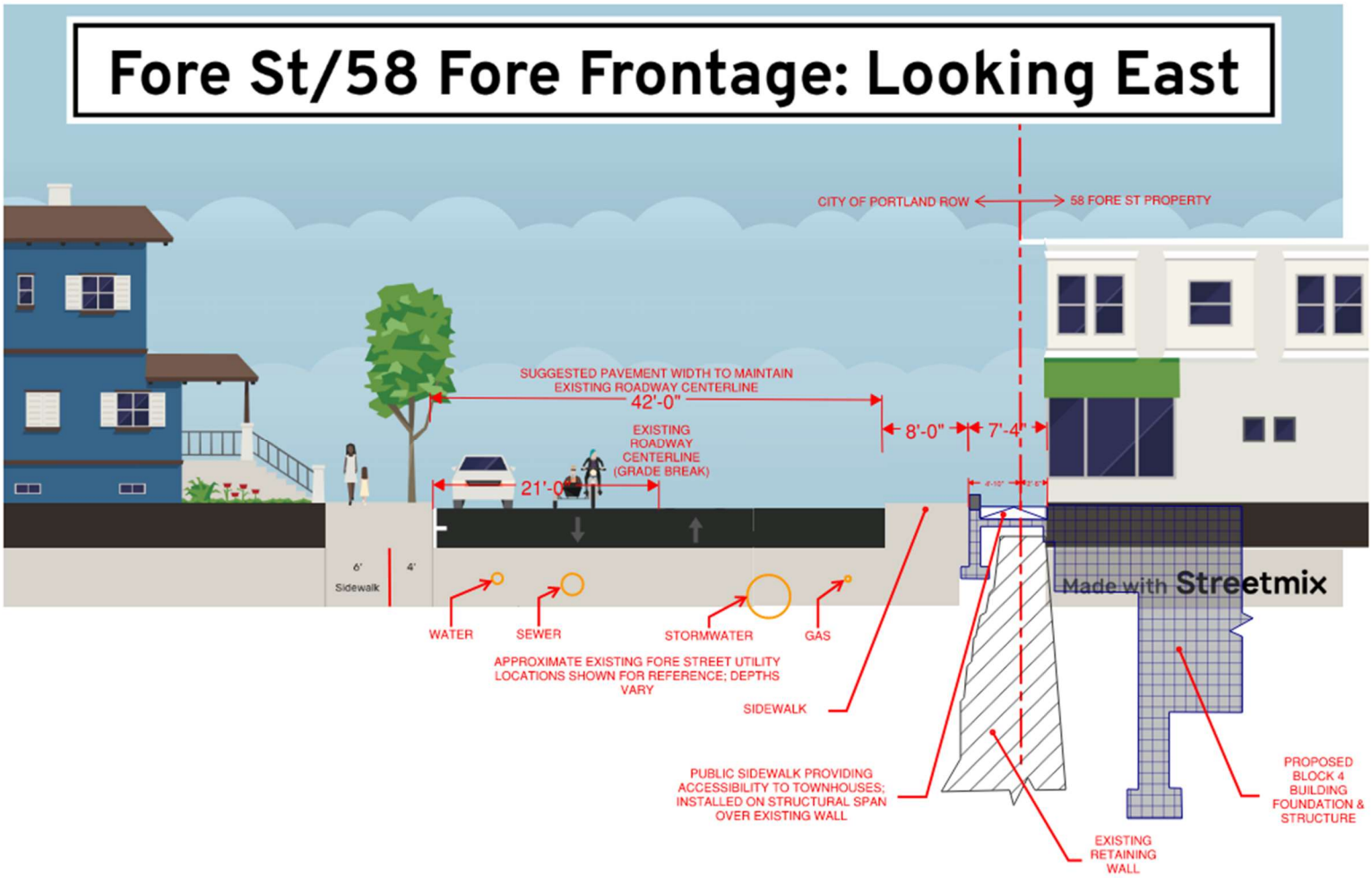


Figure 3. Proposed Alternative Fore Street Cross Section

Based on the constraints that exist within Fore Street (i.e. utilities, existing grades, etc.) and the available width of the ROW relative to the retaining wall, it appears that either on street parking or a bicycle lane could be provided on the southern side of Fore Street. If a bicycle lane is

selected, it should not be separated from the street by an esplanade unless the City is prepared to install a similar layout to the west and east of our project site. As we had planned to do based on the conversations which occurred in advance of the Fore Street Sewer Separation Project, we are willing to work with the City to provide for a wider sidewalk, moving the curb and associated catch basins to provide for more pedestrian access next to parking or a bike lane as the City chooses.

This design incorporates the structural support and public ADA accessible sidewalk constructed by Portland Foreside as shown on the figure to avoid the requirement of direct impact to or support from the existing retaining wall. Please see the separate memo, also provided today that addresses this design approach for the Fore Street frontage.

Fore Street Electric Utility

In the May 3, 2023 emails, the City has provided the additional note that staff are strongly recommending undergrounding the overhead utilities along Fore Street. The Subdivision section in the City's Land Use Code includes the following statement: "All utility lines shall be placed underground unless otherwise approved by the Planning Board." This is a subject that was discussed and reviewed in great detail at the time of the Phase 1 Site Plan approval, and at that time the City was in agreement that undergrounding of the electrical utility on Fore Street would not be a requirement of this project. Waiver number 3 in that approval states:

> *The Planning Board voted 6-0 (Eaton absent), based upon the submitted materials, that extraordinary conditions exist or undue hardship may result from strict compliance with the Subdivision standard (Subdivision Ordinance 14-499(h)) which requires that all utility lines shall be placed underground unless otherwise approved by the Planning Board. The Planning Board waived the Subdivision standard (Subdivision Ordinance 14-499(h)) to allow maintenance of existing above-ground utility distribution on Fore Street.*

This waiver by the Planning Board allows for the existing above-ground utility to be maintained on Fore Street. The electrical infrastructure to connect the entire Portland Foreside site to Central Maine Power's electrical utility on Fore Street was designed at that time and includes drop poles and connection equipment based on the utility on Fore Street remaining overhead. Changing this approach now would impact the entire Portland Foreside development. Consistent with the Ordinance, the electrical infrastructure that was installed within the site as part of Phase 1 and that is proposed in Phase 2 does not include any overhead lines, and all proposed underground infrastructure ties back to the connection made at Fore Street during Phase 1.

Around the time of the Phase 1 approval, the City of Portland also had a study completed to determine what would be necessary to accomplish the undergrounding of electrical infrastructure in critical areas of the City, including on Fore Street. This study found that while undergrounding the electrical utilities is beneficial, the work would be very expensive, and if pursued, the work should be done at a time when other utility work is proposed, as the impacts to the area are significant. The installation of the underground utility requires that not only the primary lines be moved underground, but all cross-connections providing service to buildings across the street and providing connections to side streets, be installed underground. The City elected not to do this work as part of the recently completed Fore Street Sewer Separation project. In fact, the Sewer Separation project design did not take into consideration the

potential for future undergrounding of the electric utility; there may not be physically enough space in Fore Street and its side streets to install the underground conduits and the large vaults that would be required without relocation of recently installed infrastructure. Undergrounding the aerial utilities at this time would take over a year of just planning and coordination with the various utility companies (prior to breaking ground), require relocation of recently installed infrastructure, and would result in significant trenching and reconstruction within the public ROW of the recently completed sewer separation work, sidewalk work and paving work from Freedom Way to Atlantic Street. It would go against all plans prepared to date by CMP for servicing this area, and by the City as part of the sewer separation efforts.

Please let us know if you have any questions. If the City has further design comments related to Fore Street, we would appreciate the opportunity to continue the discussion in a meeting, as we feel that conversation would be more beneficial to ensure that everyone understands the background fully, and so that both sides can make informed decisions that will lead us to the great end product that we are all looking to achieve.

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MEMORANDUM

TO: Keith Gray and Charles Tetelman, City of Portland

CC: Dave Senus, Mary McCrann and Shelby Burgau, Foreside Development

FROM: Darrin Stairs, PE, and Lauren Swett, PE, Woodard & Curran

DATE: May 12, 2023

RE: Fore Street Frontage Design - Phase 2 Development

Woodard & Curran submitted a Major Site Plan Application PL-002202-2022 for the proposed Phase 2 Development on the 58 Fore Street property on November 22, 2022 (revised on April 14, 2023 to include Block 5). This work includes Blocks 4, 5, and 6. The plans for Block 4 include work along Fore Street, with residential townhomes fronting along the street. Woodard & Curran met with the City of Portland, Perkins & Will (Block 4 Architect) and Portland Foreside Development Co. (Owner) on May 3, 2023, to discuss the interaction between Block 4 and Fore Street. The intent of this meeting was to present a new plan for the Fore Street frontage of Block 4 and to obtain input from the City about proposed improvements within the right-of-way prior to submitting the updated plans.

During this meeting, the City requested a memorandum summarizing our design constraints. With this memo, please find revised drawings reflecting the proposed work along Fore Street, as well as a Fore Street-specific architectural and landscape plan set with cross-sections and elevation views of the proposed improvements. These plans have also been uploaded to the ProjectDox folder for the permit application.

Existing Conditions

As City staff are aware, the southern half of the Block 4 frontage along Fore Street is supported by an existing retaining wall, and the northern half is supported by a steep slope down into the project site. Along this frontage, the existing approximately five-foot-wide sidewalk is bounded by a steel guardrail, with chain link fence along the length with the wall. The existing running slope of Fore Street and its sidewalk along the Block 4 frontage is about 9.5%. The City of Portland's Right of Way falls on top of the retaining wall, with a portion of the wall located on both City property and 58 Fore Street property. A photo of the existing condition at the retaining wall is provided as Figure 1.



Figure 1. Existing condition along Fore Street retaining wall.

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Fore Street Activation

The connection of the Block 4 project to Fore Street is fundamental to promoting an active pedestrian environment, providing connectivity from Fore Street to the waterfront and improving public safety along this section of the roadway. Activating the Fore Street frontage at the building entrances is consistent with urban design standards-of-practice and is imperative to meet the City's Comprehensive Plan objectives. The only other option is to maintain a gap between the existing wall and the building on the site with no frontages touching Fore Street. This gap would continue to be protected by a safety fence, and the end result would be a disengaged street frontage that would not meet any of the City's planning standards.

The current proposed project is focused on connectivity and fostering linkages to the rest of the Old Port, the Eastern Promenade, and the Munjoy Hill Neighborhood. The access to these areas is very meaningful, because historically, they have not existed in this part of the City. Residents, employees, and visitors have not been able to live, work or visit this area. The proposed project will provide immediate, meaningful access from Fore Street to the Eastern Promenade trail and the enjoyment of Casco Bay; a vast improvement to the existing, substandard condition. As a true mixed-use neighborhood, connection of all uses on this property are key to success of the project, but also for people who live and work there.

Subsurface Design Constraints

As previously noted, an existing City retaining wall spans approximately half of the Block 4 frontage along Fore Street. The existing retaining wall is located at and encroaches beyond the property line by up to five feet. In 1876, the City entered into an agreement with the Portland Company regarding the retaining wall (the "Agreement"). The Agreement states that the Portland Company gave the City the right to construct the wall on the property line and that the City would forever maintain the wall. The Portland Company gave the City the right to access the wall from the Portland Company property. In addition, the Portland Company agreed to not disturb the embankment or diminish the slope, unless they replace it with a complete and sufficient permanent support for the wall. The City also gave the Portland Company the right to construct a wall on top of the retaining wall, "consistent with the safety and stability of said wall."

The design for Block 4 proposes foundation structural supports on both sides of the City ROW line, spanning this existing wall. Building floor decks are designed to span the retaining wall and land on a footing north of the wall, set at a frost-protected depth. A section view showing this condition is provided below as Figure 2 for your reference. During the previous Phase 1 work, the Owner (PFDC) met with the City to discuss the existing wall and considering the proposed design approach, will enter into an agreement in which PFDC will agree to take over the maintenance responsibility for the existing retaining wall.

The alternative to this approach is to maintain a void between the existing retaining wall and the proposed building, with guardrail and fence to provide fall protection from the Fore Street sidewalk as shown in Figure 3. This does not improve the pedestrian experience along Fore Street and blocks access to the waterfront, which is not desirable to the applicant, nor would it meet the City's goals of activated street frontages.

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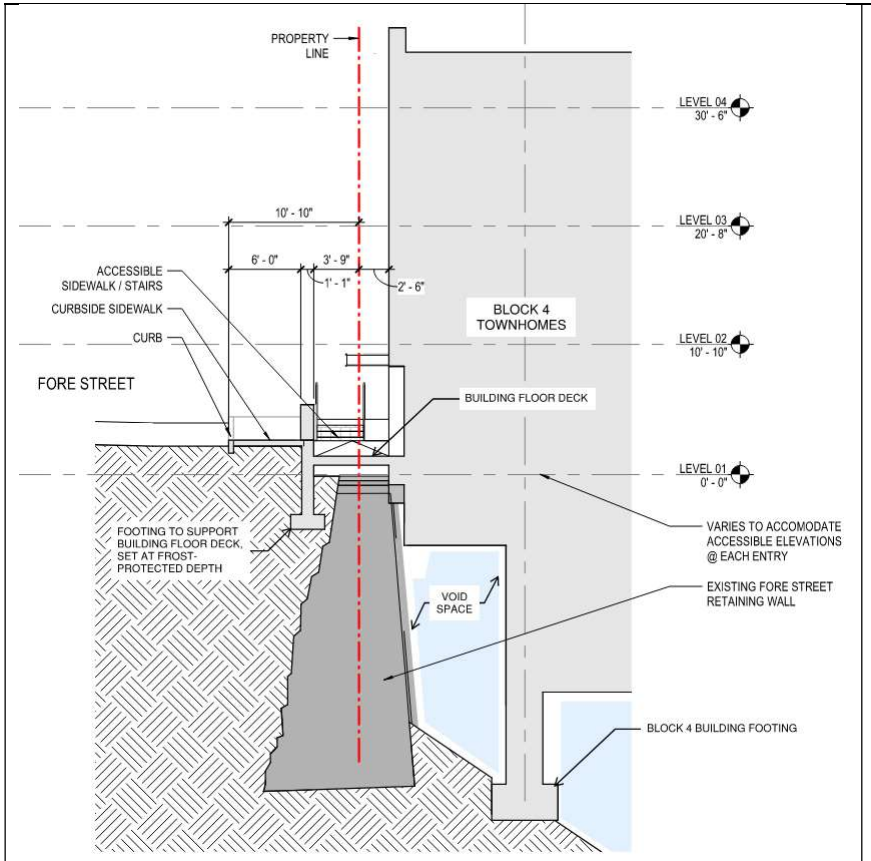


Figure 2. Activation of Fore Street at Block 4 Townhomes (preferred).

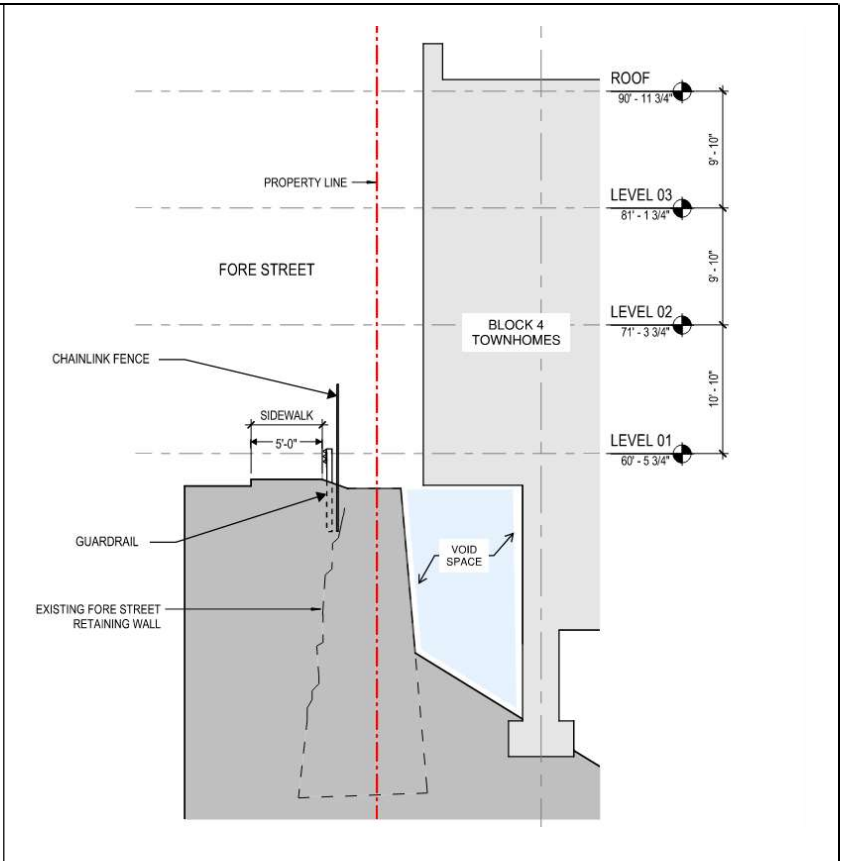


Figure 3. Alternative with no work in City right-of-way (not preferred).

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The remaining portion of the Block 4 frontage (outside the limits of the existing wall) is comprised of a steep slope. To enable the development of Block 4, a soil nail retaining wall is proposed. Additionally, the driveway into the parking garage at Fore Street will need to span over the existing retaining wall. The proposed entry into the garage from Fore Street will be constructed in a manner in which the support for the entry will span the wall and will not rely on the wall for support.

Similar to Phase 1, we respectfully request that license agreements required from the City of Portland be made a condition of approval prior to application for building permits. We proposed similar language from the Phase 1 approval, repeated below for reference:

> *"Prior to application for building permits, the applicant shall finalize any agreement required by the City of Portland authorizing the replacement and maintenance of the retaining wall along Fore Street and any license agreements required to permit encroachments into the City's right of way. All necessary agreements shall be finalized to the satisfaction of the Planning Authority, Department of Public Works, and Corporation Counsel." - Phase 1 (PL-000924-2019) Site Plan Condition 10.*

Surface Design Constraints

As shown in Figure 2, the proposed improvements to Fore Street along the Block 4 frontage include a 13.3-foot publicly accessible sidewalk corridor, which extends 2.5 feet onto private property. This sidewalk corridor is 8.3 feet wider than the existing condition and, unlike the previously submitted design with private stoops, is completely open to the public. The sidewalk corridor is comprised of a 6-foot curbside sidewalk at grade with Fore Street and a 6.25-foot ADA accessible sidewalk along the face of the Townhomes as shown in Figure 2.

The project must comply with both the federal Fair Housing Act (FHA) and the Maine Uniform Building and Energy Code (MUBEC), including 2009 ICC/A117.1 Accessible and Usable Buildings and Facilities, accessibility requirements of the federal Fair Housing Act, and the 2010 ADA Standards for Accessible Design. In order to comply with these codes, the townhouses fronting along Fore Street must meet the following: (1) the primary entry level (Fore Street) must be on an accessible route, (2), an accessible route must be provided that connects the primary entry to site arrival points.

The existing grade of Fore Street (~9.5%) is too steep to be used as the accessible route (maximum 5%), so we propose a publicly accessible ADA compliant route along the front of the townhomes. The enclosed Fore Street Accessible Walkway elevations provided by Perkins & Will show the difference in grade between the public curbside sidewalk (black) versus the public accessible sidewalk (red).

Conclusion

The proposed design of Block 4 along the Fore Street frontage was developed with consideration of a multitude of factors, including accessible connectivity, activation, pedestrian experience, public safety, and geotechnical and structural design. This is a unique condition that requires specific accommodation, as both the owner and City have a shared interest in the

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City's wall, which spans the property boundary. Allowing this interaction with Fore Street is in line with urban design principles and City Standards for street activation. This current proposed design will greatly improve the condition of Fore Street in this location by extending the sidewalk corridor and providing direct connection to the development and waterfront.

GORRILL PALMER

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Traffic Assessment
Portland Foreside, Channel Mark – Block 5
Portland, Maine

Date: May 5, 2023
Subject: Portland Foreside, Channel Mark - Combined Blocks Traffic Assessment
Portland, Maine
To: David Senus, PE – Foreside Development
From: Randy Dunton, PE, PTOE – Gorrill Palmer

Introduction

Gorrill Palmer (GP) has been retained by **Foreside Development Co**. to complete a traffic assessment for the proposed Block 5 of the Portland Foreside Master Development Plan. Block 5 is to accompany the existing Block 1 (which includes the SunLife Office Building and Building 12), as well as the permitted Block 2, and the anticipated Blocks 4 and 6. It is our understanding that submittals seeking approval for Blocks 4 and 6 were submitted to the City in the fall of 2022. It should be noted that all three blocks (4, 5, 6) will be constructed as a single building; however, for the purposes of developing the traffic impact evaluation, it is necessary to sequence this traffic assessment in line with anticipated opening dates. Based on information provided by the Foreside Development Co. team, the proposed Block 5 is to consist of the following:

- Block 5:
  - 128 Key Hotel
  - 43 Condo Units
  - 4,928 SF Retail
  - 18,083 SF Food & Beverage
  - 19,697 SF Spa

While the existing, permitted, and anticipated blocks contain the following:

- Block 1
  - SunLife Office Building (existing, constructed per Traffic Assessment dated November 22, 2019):
    - 95,100 SF Office Space
    - 9,300 SF Retail
  - Building 12 (existing, constructed per Traffic Assessment dated November 22, 2019):
    - 3,200 SF Restaurant
    - 3,200 SF Office
    - 2 Townhouse Condo Units

- Block 2 (permitted, not yet constructed):
  - 17,950 SF Restaurant
  - 17,950 SF Retail
  - 17,900 SF Event Center
  - 12,400 SF Office
- Block 4 (anticipated, submitted fall of 2022):
  - 225 Apartment Units
  - 22 Townhouse Condo Units
  - 11,951 SF Retail
  - 443 Garage Spaces
- Block 6 (anticipated, submitted fall of 2022):
  - 154 Condo Units
  - 9,108 SF of Retail Space
  - 166 Garage Spaces

An existing conditions plan and a site plan are included in Attachment A. The Portland Foreside Master Development Plan received a Traffic Movement Permit (TMP #2016-224) from the City of Portland dated May 26, 2017. The TMP requires, as a condition of approval, that as part of the Site Plan Review by the Planning Board, an updated traffic assessment be approved for each phase of development. The following summarizes the updated traffic assessment for the combination of Blocks 1, 2, 4, 5, and 6.

Previous Traffic Assessment

This traffic assessment is modeled after an assessment associated with this project that was submitted to the City of Portland in November 2019 and approved in January 2020. This previously approved traffic assessment included an analysis for Blocks 1, 2, and 4. It should be noted that at this time, Block 1 (SunLife Office Building and Building 12) has been constructed per what was proposed in that assessment. Block 2 is not yet constructed but is still planned to be constructed per what was proposed in that assessment. The Block 4 described in that assessment is no longer being proposed and the Block 4 described above is proposed in its place. This revised Block 4 and the proposed Block 6 were the subjects of previous separate submittals which were submitted to the City fall of 2022. This traffic assessment intends to follow the same methodologies and approaches as the previous assessments to be consistent with what was originally approved.

Trip Generation

Trip generation for the proposed combined Blocks of the Portland Foreside Master Development Plan has been calculated to compare the combined trip generation to what was approved in the overall site TMP. The Master Development Plan was permitted for 506 trip ends during the AM peak hour of the adjacent street and 585 trip ends during the PM peak hour of the adjacent street. The following summarizes the trip generation calculations for the combined blocks of 1, 2, 4, 5, and 6 and the comparison to the total site approved TMP trip generation.

ITE Trip Generation

The trip generation for the combined blocks has been calculated using the Institute of Transportation Engineers (ITE) publication, *Trip Generation*, Seventh Edition. This was done to be consistent with the means and methods presented in the original submission and consistent with previous traffic assessments for this project. At the time of the original submission, MaineDOT was accepting trip generation calculations for LUC 710 – general office that were based on the eighth edition. Since the space allotted to general office was calculated using the eighth edition in the original submission, it was repeated here. The City of Portland has delegated review authority for TMPs, but they are still required to be in accordance with MaineDOT rules. This methodology is consistent with that used for calculating the trip generation for the approved TMP. The trip generation for the combined blocks has been calculated using the following Land Use Codes (LUCs):

- LUC 710 – General Office
- LUC 931 – Quality Restaurant
- LUC 220 – Apartment
- LUC – 230 – Townhouse / Condo
- LUC 814 – Specialty Retail
- LUC 310 – Hotel
- LUC 492 – Health / Fitness Club

The following table summarizes the ITE trip generation for the site. Detailed trip generation calculations are attached. It should be noted that due to the types of restaurants and that they are expected to be destinations that would draw visitors for at least an hour, they are assumed to operate similarly to quality restaurants. Additionally, as was noted in a previous traffic assessment dated November 2019 for this project, the event space permitted in Block 2 is smaller than the existing event space on site. No credit was taken in the original TMP for the event space. Since the proposed event space is smaller than the existing event space and the uses will be similar, no increase in trips is expected. Therefore, the trip generation for the event space has not been included.

Table 1 – ITE Raw Trip Generation Summary

Use	Size	AM Adj St	PM Adj St
Block 1 – SunLife Office	**Constructed per November 2019 Assessment**		
Office	95,100 SF	180	173
Retail	9,300 SF	7	25
Subtotal		187	198
Block 1 – Building 12	**Constructed per November 2019 Assessment**		
Office	3,200 SF	12	12
Restaurant	3,200 SF	3	24
Residential - Condos	2 units	1	1
Subtotal		16	37
Block 2	**Permitted per November 2019 Assessment**		
Restaurant	17,950 SF	15	134
Retail	17,950 SF	13	49
Office	12,400 SF	35	34
Subtotal		63	217
Block 4	**Under Review**		
Residential - Apartments	225 Units	115	140
Residential - Condos	22 Units	10	12

Retail	11,951 SF	9	32
Subtotal		134	184
Block 6	**Under Review**		
Residential - Condos	154 Units	68	80
Retail	9,108 SF	7	25
Subtotal		75	105
Block 5	**Currently Proposed**		
Residential - Condos	43 Units	19	22
Hotel	128 Units	72	76
Retail	4,928 SF	4	13
Restaurant	18,083 SF	15	135
Spa	19,697 SF	24	80
Subtotal		134	326
Total		**609**	**1067**

As shown in Table 1, the ITE trip generation is forecast to be 609 trip ends during the AM peak hour of the adjacent street and 1,067 trip ends during the PM peak hour of the adjacent street. A trip end is a trip into or out of the site, thus a round trip is equal to two trip ends. The applicable ITE Trip Generation spreadsheets are included in Attachment B.

Shared Use Reduction

The National Cooperative Highway Research Program (NCHRP) 684 Internal Capture Estimation Tool has been used to estimate the traffic that will visit more than one destination without leaving the site. The NCHRP 684 spreadsheet uses the ITE forecast trip generation for each type of land use (office, retail, residential) and estimates the trips that will travel between two uses without leaving the site. This yields an internal trip capture percentage, which is the percentage of trip ends that will travel between two uses. This methodology is consistent with that used for the TMP, the previous traffic assessment, and the MaineDOT. The proposed spa is not represented in the NCHRP spreadsheet but is expected to draw at least 50% of its clientele from the on-site hotel, B4 Townhouses and Apartments, B5 condos, B6 condos, and other onsite businesses, so was added independently. The following tables summarize the AM and PM peak hour internal trip capture percentages for the proposed site.

Table 2 – AM Peak Hour Adjacent Street NCHRP 684 Internal Trip Capture

Land Use	ITE Trip Generation		Internal Capture %		Internal Capture Trip Ends		
	Enter	Exit	Enter	Exit	Enter	Exit	Total
Office	205	22	10%	45%	20	10	30
Retail	24	16	46%	50%	11	8	19
Restaurant	17	16	59%	50%	10	8	18
Residential	32	181	6%	5%	2	9	11
Hotel	43	29	0%	28%	0	8	8
All Other Uses (spa)	10	14	50%	50%	5	7	12
Total	**331**	**278**	**15%***	**18%***	**48**	**50**	**98**

Table 3 – PM Peak Hour Adjacent Street NCHRP 684 Internal Trip Capture

Land Use	ITE Trip Generation		Internal Capture %		Internal Capture Trip Ends		
	Enter	Exit	Enter	Exit	Enter	Exit	Total
Office	33	186	27%	7%	9	13	22
Retail	65	79	71%	63%	46	50	96
Restaurant	190	103	29%	60%	56	62	118
Residential	166	89	27%	37%	44	33	77
Hotel	41	35	34%	31%	14	11	25
All Other Uses (spa)	40	40	50%	50%	20	20	40
Total	**535**	**532**	**35%***	**35%***	**189**	**189**	**378**

*The percentages are slightly higher than the NCHRP spreadsheets because the spreadsheets do not adequately represent or include the internal capture of the spa, so those reductions were added after the results of the spreadsheets were determined.

The following table summarizes the reduced trip generation for the site due to shared use trips:

Table 4 – Shared Use Reduced Trip Generation Summary

Building Use	Trip Generation	
	AM Adj St	PM Adj St
ITE Total	609	1067
Shared Use Reduction	-98	-378
Reduced Subtotal	**511**	**689**

As shown in Table 4, the proposed site with the shared use reduction is forecast to generate 511 trip ends and 689 trip ends during the AM and PM peak hours of the adjacent street respectively. The NCHRP 684 spreadsheets are included in Attachment C.

Other Modes Reduction

In addition to a shared use reduction, a reduction for other modes of transportation can be applied to the trip generation. It can be expected for a site in a downtown area that other modes of transportation will be used to go to and from a given site. These other modes could include things such as public transit, bicycle, carpooling, or walking. This site is adjacent to an existing bus route, as well as located on a pedestrian and bicycle path, so full use of other modes of transportation are readily available. The other modes reduction that was used for the purposes of the November 2019 traffic assessment has been applied to the trip generation in this submission in order to be consistent. The reduction of 18% was recommended by Tom Errico in his comments (Response dated December 20, 2019) based on

census data existing in 2019 and accepted by the City of Portland for multiple projects at that time. The following table summarizes the trip generation including the other modes reduction:

Table 5 – Other Modes Reduced Trip Generation Summary

Building Use	Trip Generation	
	AM Adj St	PM Adj St
Reduced Subtotal	511	689
Other Modes Reduction	-92	-124
Reduced Site Total	**419**	**565**

As shown in the table, the forecast site trip generation for Blocks 1, 2, 4, 5, and 6 is 419 trip ends during the AM peak hour of the adjacent street and 565 trip ends during the PM peak hour of the adjacent street.

Master Plan Trip Generation Comparison

The trip generation for the combined Blocks 1, 2, 4, 5, and 6 has been compared to the permitted trip generation to ensure that it does not exceed the permitted amount. The site was permitted for 506 trip ends during the AM peak hour of the adjacent street and 585 trip ends during the PM peak hour of the adjacent street. The following table summarizes the trip generation comparison:

Table 6 – Trip Generation Comparison Summary

Trip Generation	Trip Generation	
	AM Adj St	PM Adj St
Permitted	506	585
Forecast Combined Blocks	419	565
Remaining Permitted Trips	**87**	**20**

As shown in Table 6, the combined blocks trip generation is 87 AM peak hour trip ends and 20 PM peak hour trip ends **less** than the permitted site trip generation.

It should be noted that the methodology used to arrive at this trip generation will need to be generated every time new development is proposed, because the results are dependent on the overall total uses on the site and the mixture of those uses. The results would be inaccurate to simply calculate the trip generation of new uses and add to the 419 & 565 trips identified above.

Parking Demand

The forecast parking demand for the combined blocks has been based on a combination of City Ordinance parking demand, the ITE Parking Generation Manual, 5th Edition, and published data / engineering judgement. First, the number of spaces required for each use was calculated based on the

ITE Parking Generation Manual, 5th Edition. This method was chosen over the methods presented in the City Ordinance because the ITE method generally leads to more parking being required, and the intent was to be conservative. For example, ITE requires 10.52 parking spaces per 1,000 SF of floor area for a restaurant (0.01052), while the City Ordinance requires 1 parking space per 150 SF of floor area (0.0067). The number of spaces required for each use were then distributed throughout each hour of the day using factors specific to each use presented in the ITE Parking Generation Manual, 5th Edition. Then, the number of spaces required for each use was summed for each hour of the day. A mixed use reduction of 23% (average of 14% AM & 32% PM provided in NCHRP spreadsheest) was applied. This is conservative since the peak parking demand is forecast to occur during the PM peak hours and is not taking credit for the full 32%. Finally, an 18% other modes reduction (based on Tom Errico's recommendation) was applied to the data. Shared parking methodology reflects that the demand for different uses will peak during different times of day; however, when parking spaces are designated for a single use, they cannot be used to satisfy shared parking demand.

The existing parking arrangement on site is difficult to break down as it is an ongoing construction site and as work moves around different areas of the property, portions of parking areas may be unavailable for a period of time. To date, a 68-space parking garage beneath Building 1 and a 146-space surface parking lot along the southern lot line have been constructed, for a total of 214 spaces. A site parking figure has been included in Attachment A. It should be noted that the 2 "drop-off spaces" listed in the surface lot and the 9 "permanent on-street parking" spaces are not included in this total. The "interim parking expansion" and the "future expanded parking zone" are not included in this total either as the future expansion is not yet available and the interim expansion will be significantly affected by the construction of Blocks 4, 5, and 6. It should be noted that the 146-space surface parking lot will be removed once the proposed garage in Block 4 is open. Therefore, for the purposes of this analysis, the site currently has 68 spaces that will be available upon completion of Blocks 4, 5, and 6.

It is assumed that the combined blocks will all utilize the parking garages on Blocks 1, 4, 5, and 6; and that no parking spaces are designated for a specific use. Since no parking spaces are designated for a single use, the shared parking demand methodology is applicable. The combined shared parking demand spreadsheet is included in Attachment C.

Based on the methodology described above, the peak parking demand for the combined blocks is forecast to be 696 spaces and is forecast to occur from 7:00 PM to 8:00 PM, with all other hours considerably less demand. When a parking facility is approximately 85% occupied, it is considered to be the "practical capacity" of the parking facilities. This is because an unfamiliar driver may not see empty parking spaces when the lot is almost completely occupied, especially in a larger parking area. This is typically reserved for a parking facility where drivers are unfamiliar with the parking area and for parking areas that are at the "practical capacity" for several hours throughout the day, and not just a single spike. Since approximately 50% of the users at the peak time of 7:00 PM to 8:00 PM are residents of the complex (i.e. familiar with the parking) and the 696 parking spaces identified is a spike of one hour, with the remainder of the day requiring considerably less parking, the "practical capacity" is not applicable for this situation. Complete parking demand calculations are presented in the shared parking demand spreadsheet included as Attachment C.

As it exists today, the development contains 68 parking spaces that are to remain upon completion of Block 5. Block 4, which is to be constructed before Block 5, proposes to add an additional 443 spaces while Block 6, which is also to be constructed before Block 5, proposes to add an additional 166 spaces for a total of 677 "pre-existing" spaces. The development of Block 5 proposes to add 35 parking spaces for a site total number of 712 parking spaces. Based on a review of the parking demand spreadsheet and the parking demand throughout the day, these 712 parking spaces will accommodate all the parking demands throughout the day, inclusive of the peak hour demand of 696 spaces.

Bicycle Parking

Per City Ordinance, new uses are required to provide bicycle accommodations based on the type of use. Residential structures are required to provide 2 bicycle spaces for every 5 dwelling units. Non-residential structures are required to provide 2 bicycle parking spaces for every 10 vehicle parking spaces for the first 100 required spaces, plus one bicycle parking space for every 20 required vehicle parking spaces over the 100 vehicle parking spaces. Since the proposed development is utilizing shared parking, and therefore, there are not a set number of spaces allotted to non-residential uses, the peak number of spaces attributed to non-residential uses during any hour – as determined by the shared parking demand spreadsheet – was used for the purposes of this calculation. The peak non-residential parking demand was determined to be 464 spaces, which occurs during the 7:00 PM to 8:00 PM hour. The following table shows the required bicycle parking to meet the Ordinance bicycle parking requirements:

Table 7 - Bicycle Parking Summary

Use	Bicycle parking Demand
Parking Variables	464 Non-Residential Vehicle Spaces, 446 Residential Units
Residential Bicycle Spaces	178
Non-Residential Bicycle Spaces	39
Total	**217**

As shown in Table 7, the site will require 217 bicycle parking spaces to meet the City Ordinance requirements for bicycle accommodations.

Conclusions

The following is a summary of the conclusions:

1. The trip generation for the combined blocks is forecast to be 419 trip ends during the AM peak hour of the adjacent street and 565 trip ends during the PM peak hour of the adjacent street. The combined blocks trip generation is 87 AM peak hour trip ends and 20 PM peak hour trip ends **less** than the permitted site trip generation.

2. The peak parking demand for the site is forecast to be 696 spaces and is forecast to occur from 7:00 PM to 8:00 PM. Prior to the construction of Block 5 the site is expected to have 677 parking

spaces. Block 5 is expected to add an additional 35 parking spaces, for a total of 712 spaces. Based on a review of the parking demand spreadsheet and the parking demand throughout the day, these 712 parking spaces will accommodate the forecast parking demand of the site.

3. The combined blocks are required to provide 217 bicycle parking spaces, based on the peak demand for non-residential vehicle parking spaces and the residential units. However, this assumes bicycle parking demand for all uses concurrently, which will not be the case. Therefore, actual demand should be less.

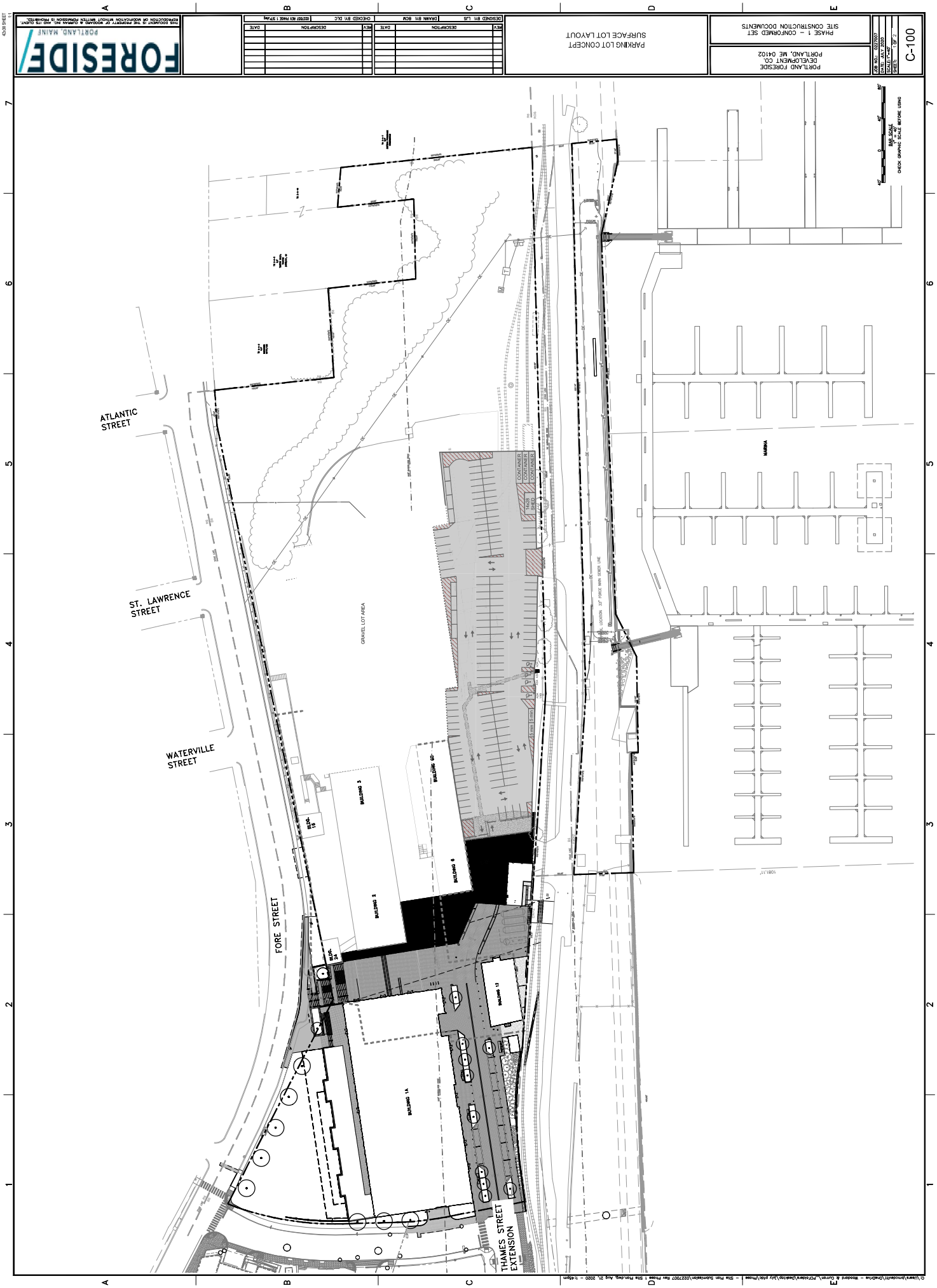
Attachments

Attachment A – Existing Conditions & Site Plans
Attachment B – Trip Generation Spreadsheets
Attachment C – NCHRP 684 & Shared Parking Demand Spreadsheets

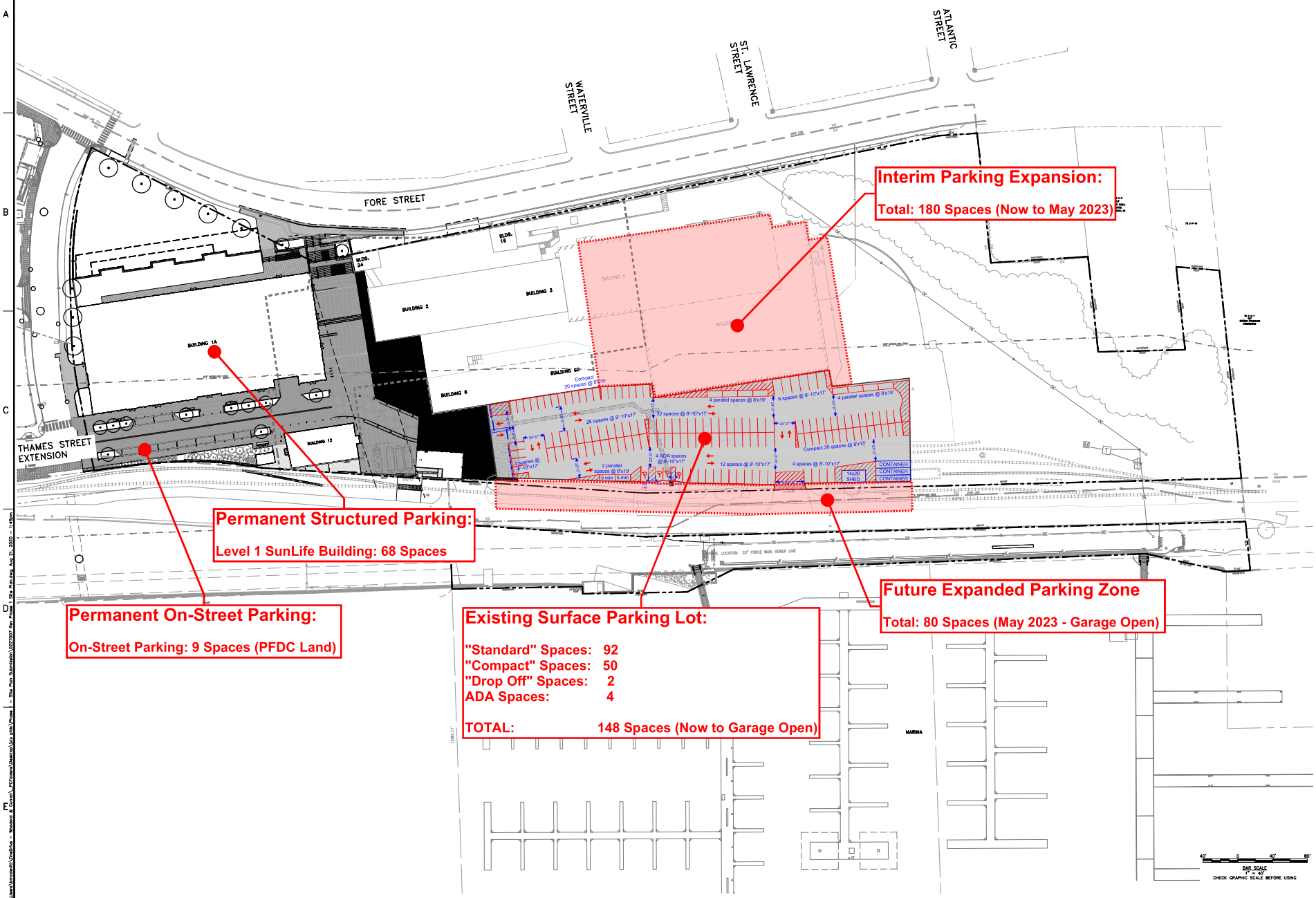
u:\4060_portland foreside block 5_portland\n traffic\block 5 - 05-05-23 combined blocks.docx

Attachment A

Existing Conditions & Site Plans


ATLANTIC STREET
ST. LAWRENCE STREET
WATERVILLE STREET
FORE STREET
THAMES STREET EXTENSION
GRAVEL LOT AREA
MARINA
CONTAINER
CONTAINER
CONTAINER
TRADE SHED
BUILDING 1A
BUILDING 2
BUILDING 3
BUILDING 6
BUILDING 12
BASE SCALE
CHECK GRAPHIC SCALE BEFORE USING
PARKING LOT CONCEPT
SURFACE LOT LAYOUT
PHASE 1 – CONFORMED SET
SITE CONSTRUCTION DOCUMENTS
PORTLAND FORESIDE
DEVELOPMENT CO.
PORTLAND, ME 04102
C-100
FORESIDE
PORTLAND, MAINE

Site Parking Plan




Block 1B
(Future)
Block 1
(Complete)
Block 2
(Permitted)
Block 3
(Future)
Block 4
(Submitted)
Block 5
(Current Application)
Block 6
(Submitted)
Block 7
(Complete)

Attachment B

ITE Trip Generation Spreadsheets

JN: 3138.03
Project Description: Portland Foreside
Project Location: Portland, Maine
Date: 11/11/2019
Calculated By: EAL

Gorrill Palmer Consulting Engineers
707 Sable Oaks Drive
South Portland, ME 04106

General Office Building
Land Use Code (LUC) 710

Square Feet 95,100

Trip Ends Based on Fitted Curve Equation

Time Period	ITE Trip Rate	Trip Ends	Number of Studies	Directional Split *		Directional Distribution		R^2
				IN	OUT	IN	OUT	
Weekday	Ln (T) = 0.77 Ln (X) + 3.65	1283	78	50%	50%	642	641	0.80
AM Peak Hour	**Ln (T) = 0.80 Ln (X) + 1.55**	**180**	**217**	**90%**	**10%**	**162**	**18**	**0.83**
PM Peak Hour	**T = 1.12 (X) + 78.81**	**185**	**235**	**15%**	**85%**	**28**	**157**	**0.82**
Saturday	T = 2.14 (X) + 18.47	222	17	50%	50%	111	111	0.66
Peak Hour of Generator	Ln (T) = 0.81 Ln (X) - 0.12	35	10	55%	45%	19	16	0.59

* Percentages rounded to nearest 5%

Trip Ends Based on Average Rate

Time Period	ITE Trip Rate	Trip Ends	Number of Studies	Directional Split *		Directional Distribution		R^2
				IN	OUT	IN	OUT	
Weekday	T = 11.01 (X)	1047	78	50%	50%	524	523	---
AM Peak Hour	T = 1.55 (X)	147	217	90%	10%	132	15	---
PM Peak Hour	T = 1.49 (X)	142	235	15%	85%	21	121	---
Saturday	T = 2.37 (X)	225	17	50%	50%	113	112	---
Saturday Peak Hour of Gen.	**T = 0.41 (X)**	**39**	**10**	**50%**	**50%**	**20**	**19**	**---**

* Percentages rounded to nearest 5%

PM Peak Hour:	T = 1.49/1.55 (AM Peak)	173		15%	85%	26	147	0.82

JN: 3138.03
Project Description: Portland Foreside
Project Location: Portland, Maine
Date: 11/11/2019
Calculated By: EAL
Checked By:

Gorrill Palmer Consulting Engineers
707 Sable Oaks Drive
Suite 30
South Portland, Maine 04106

Specialty Retail Center- (7th Edition)
Land Use Code (LUC) 814

Gross Floor Area (ft^2): 9,300

Average Rate

Time Period	ITE Trip Rate	Trip Ends	Number of Studies	Directional Split * IN	Directional Split * OUT	Directional Distribution IN	Directional Distribution OUT	R^2
Weekday	T = 44.32 (X)	412	4	50%	50%	206	206	---
Peak Hour of Adjacent Street Traffic 7-9 AM**	---	---	---	---	---	---	---	---
Peak Hour of Adjacent Street Traffic 4-6 PM	**T = 2.71 (X)**	**25**	**5**	**45%**	**55%**	**11**	**14**	**---**
AM Peak Hour of Generator	**T = 6.84 (X)**	**64**	**4**	**50%**	**50%**	**32**	**32**	**---**
PM Peak Hour of Generator	**T = 5.02 (X)**	**47**	**3**	**55%**	**45%**	**26**	**21**	**---**
Saturday	T = 42.04 (X)	391	3	50%	50%	196	195	---
Saturday Peak Hour of Gen.***	---	---	---	---	---	---	---	---
AM Peak of Adjacent Street 7-9 AM**	**T = 0.275 (PM Peak Hour)**	**7**		**60%**	**40%**	**4**	**3**	
Saturday Peak Hour***	**T = 1.325 (PM Peak Hour)**	**33**		**50%**	**50%**	**17**	**16**	

**Based on ratio of AM/PM traffic for LUC 820, Shopping Center
***Saturday Peak Hour comes from a ratio of PM to Saturday trip rates from LUC 820 - Shopping Center
* Percentages rounded to nearest 5%

Fitted Curve Equation

Time Period	ITE Trip Rate	Trip Ends	Number of Studies	Directional Split * IN	Directional Split * OUT	Directional Distribution IN	Directional Distribution OUT	R^2
Weekday	T = 42.78 (X) + 37.66	436	4	50%	50%	218	218	0.69
Peak Hour of Adjacent Street Traffic 7-9 AM	---	---	---	---	---	---	---	---
Peak Hour of Adjacent Street Traffic 4-6 PM	T = 2.40 (X) + 21.48	44	5	45%	55%	20	24	0.98
AM Peak Hour of Generator	T = 4.91 (X) + 115.59	161	4	50%	50%	81	80	0.90
PM Peak Hour of Generator	---	---	---	---	---	---	---	---
Saturday	---	---	---	---	---	---	---	---
Saturday Peak Hour of Gen.	---	---	---	---	---	---	---	---
AM Peak of Adjacent Street 7-9 AM***	T = 0.275 (PM Peak Hour)	12		60%	40%	7	5	
Saturday Peak Hour***	T = 1.325 (PM Peak Hour)	58		50%	50%	29	29	

* Percentages rounded to nearest 5%
(---) Not Given

**Based on ratio of AM/PM traffic for LUC 820, Shopping Center
***Saturday Peak Hour comes from a ratio of PM to Saturday trip rates from LUC 820 - Shopping Center

JN:	3138.03	Gorrill Palmer Consulting Engineers
Project Description:	Portland Foreside	707 Sable Oaks Drive
Project Location:	Portland, Maine	South Portland, ME 04106
Date:	11/11/2019	
Calculated By:	EAL	

Quality Restaurant
Land Use Code (LUC) 931

Gross Floor Area (ft^2): 3,200

Time Period	ITE Trip Rate (Average Rate)	Trip Ends	Directional Split IN	Directional Split OUT	Directional Distribution IN	Directional Distribution OUT
Weekday	T = 89.95 (X)	288	50%	50%	144	144
AM Peak Adjacent Street	T = 0.81 (X)	3	50%	50%	2	1
PM Peak Adjacent Street	T = 7.49 (X)	24	65%	35%	16	8
AM Peak of Generator	T = 5.57 (X)	18	80%	20%	14	4
PM Peak of Generator	T = 9.02 (X)	29	60%	40%	17	12
Saturday	T = 94.36 (X)	302	50%	50%	151	151
Saturday Peak Hour of Gen.	T = 10.82 (X)	35	60%	40%	21	14

JN: 3138.03
Project Description: Portland Foreside
Project Location: Portland, Maine
Date: 11/11/2019
Calculated By: EAL

Gorrill Palmer Consulting Engineers
707 Sable Oaks Drive
South Portland, ME 04106

General Office Building
Land Use Code (LUC) 710

Square Feet 3,200

Trip Ends Based on Fitted Curve Equation

Time Period	ITE Trip Rate	Trip Ends	Number of Studies	Directional Split *		Directional Distribution		R^2
				IN	OUT	IN	OUT	
Weekday	Ln (T) = 0.77 Ln (X) + 3.65	94	78	50%	50%	47	47	0.80
AM Peak Hour	**Ln (T) = 0.80 Ln (X) + 1.55**	**12**	**217**	**90%**	**10%**	**11**	**1**	**0.83**
PM Peak Hour	**T = 1.12 (X) + 78.81**	**82**	**235**	**15%**	**85%**	**12**	**70**	**0.82**
Saturday	T = 2.14 (X) + 18.47	25	17	50%	50%	13	12	0.66
Peak Hour of Generator	Ln (T) = 0.81 Ln (X) - 0.12	2	10	55%	45%	1	1	0.59

* Percentages rounded to nearest 5%

Trip Ends Based on Average Rate

Time Period	ITE Trip Rate	Trip Ends	Number of Studies	Directional Split *		Directional Distribution		R^2
				IN	OUT	IN	OUT	
Weekday	T = 11.01 (X)	35	78	50%	50%	18	17	---
AM Peak Hour	T = 1.55 (X)	5	217	90%	10%	5	0	---
PM Peak Hour	T = 1.49 (X)	5	235	15%	85%	1	4	---
Saturday	T = 2.37 (X)	8	17	50%	50%	4	4	---
Saturday Peak Hour of Gen.	**T = 0.41 (X)**	**1**	**10**	**50%**	**50%**	**1**	**0**	**---**

* Percentages rounded to nearest 5%

PM Peak Hour:	T = 1.49/1.55 (AM Peak)	12		15%	85%	2	10	0.82

JN:	4034	Gorrill Palmer
Project Description:	58 Fore Street	707 Sable Oaks Drive
Project Location:	Portland, Maine	Suite 30
Date:	August 30, 2022	South Portland, Maine 04106

Residential Condominium/Townhouse
Land Use Code (LUC) 230

Dwelling Units: 2

Average Rate

Time Period	ITE Trip Rate	Sample Size	Trip Ends	Directional Split * IN	Directional Split * OUT	Directional Distribution IN	Directional Distribution OUT	R^2
Weekday	**T = 5.86 (X)**	**54**	**12**	**50%**	**50%**	**6**	**6**	**N/A**
Peak Hour of Adjacent Street Traffic 7-9 AM	**T = 0.44 (X)**	**59**	**1**	**15%**	**85%**	**0**	**1**	**N/A**
Peak Hour of Adjacent Street Traffic 4-6 PM	**T = 0.52 (X)**	**62**	**1**	**65%**	**35%**	**1**	**0**	**N/A**
AM Peak Hour of Generator	T = 0.44 (X)	52	1	20%	80%	0	1	N/A
PM Peak Hour of Generator	T = 0.52 (X)	50	1	65%	35%	1	0	N/A
Saturday	T = 5.67 (X)	30	11	50%	50%	6	5	N/A
Saturday Peak Hour of Gen.	T = 0.47 (X)	27	1	55%	45%	1	0	N/A

* Percentages rounded to nearest 5%

Fitted Curve Equation

Time Period	ITE Trip Rate	Sample Size	Trip Ends	Directional Split * IN	Directional Split * OUT	Directional Distribution IN	Directional Distribution OUT	R^2
Weekday	Ln(T) = 0.85 Ln(X) + 2.55	54	23	50%	50%	12	11	0.83
Peak Hour of Adjacent Street Traffic 7-9 AM	Ln(T) = 0.80 Ln(X) + 0.26	59	2	15%	85%	0	2	0.76
Peak Hour of Adjacent Street Traffic 4-6 PM	Ln(T) = 0.82 Ln(X) + 0.32	62	2	65%	35%	1	1	0.80
AM Peak Hour of Generator	Ln(T) = 0.82 Ln(X) + 0.17	52	2	20%	80%	0	2	0.80
PM Peak Hour of Generator	T = 0.34 (X) + 38.31	50	39	65%	35%	25	14	0.83
Saturday	T = 3.62 (X) + 427.93	30	435	50%	50%	218	217	0.84
Saturday Peak Hour of Gen.	T = 0.29 (X) + 42.63	27	43	55%	45%	24	19	0.84

* Percentages rounded to nearest 5%

JN:	3138.03	Gorrill Palmer Consulting Engineers
Project Description:	Portland Foreside	707 Sable Oaks Drive
Project Location:	Portland, Maine	South Portland, ME 04106
Date:	11/11/2019	
Calculated By:	EAL	

Quality Restaurant
Land Use Code (LUC) 931

Gross Floor Area (ft^2): 17,950

Time Period	ITE Trip Rate (Average Rate)	Trip Ends	Directional Split		Directional Distribution	
			IN	OUT	IN	OUT
Weekday	T = 89.95 (X)	1615	50%	50%	808	807
AM Peak Adjacent Street	T = 0.81 (X)	15	50%	50%	8	7
PM Peak Adjacent Street	T = 7.49 (X)	134	65%	35%	87	47
AM Peak of Generator	T = 5.57 (X)	100	80%	20%	80	20
PM Peak of Generator	T = 9.02 (X)	162	60%	40%	97	65
Saturday	T = 94.36 (X)	1694	50%	50%	847	847
Saturday Peak Hour of Gen.	T = 10.82 (X)	194	60%	40%	116	78

JN:	3138.03	Gorrill Palmer Consulting Engineers
Project Description:	Portland Foreside	707 Sable Oaks Drive
Project Location:	Portland, Maine	Suite 30
Date:	11/11/2019	South Portland, Maine 04106
Calculated By:	EAL	
Checked By:		

Specialty Retail Center- (7th Edition)
Land Use Code (LUC) 814

Gross Floor Area (ft^2): 17,950

Average Rate

Time Period	ITE Trip Rate	Trip Ends	Number of Studies	Directional Split * IN	Directional Split * OUT	Directional Distribution IN	Directional Distribution OUT	R^2
Weekday	T = 44.32 (X)	796	4	50%	50%	398	398	---
Peak Hour of Adjacent Street Traffic 7-9 AM**	---	---	---	---	---	---	---	---
Peak Hour of Adjacent Street Traffic 4-6 PM	**T = 2.71 (X)**	**49**	**5**	**45%**	**55%**	**22**	**27**	**---**
AM Peak Hour of Generator	**T = 6.84 (X)**	**123**	**4**	**50%**	**50%**	**62**	**61**	**---**
PM Peak Hour of Generator	**T = 5.02 (X)**	**90**	**3**	**55%**	**45%**	**50**	**40**	**---**
Saturday	T = 42.04 (X)	755	3	50%	50%	378	377	---
Saturday Peak Hour of Gen.***	---	---	---	---	---	---	---	---
AM Peak of Adjacent Street 7-9 AM**	**T = 0.275 (PM Peak Hour)**	**13**		**60%**	**40%**	**8**	**5**	
Saturday Peak Hour***	**T = 1.325 (PM Peak Hour)**	**65**		**50%**	**50%**	**33**	**32**	

**Based on ratio of AM/PM traffic for LUC 820, Shopping Center
***Saturday Peak Hour comes from a ratio of PM to Saturday trip rates from LUC 820 - Shopping Center
* Percentages rounded to nearest 5%

Fitted Curve Equation

Time Period	ITE Trip Rate	Trip Ends	Number of Studies	Directional Split * IN	Directional Split * OUT	Directional Distribution IN	Directional Distribution OUT	R^2
Weekday	T = 42.78 (X) + 37.66	806	4	50%	50%	403	403	0.69
Peak Hour of Adjacent Street Traffic 7-9 AM	---	---	---	---	---	---	---	---
Peak Hour of Adjacent Street Traffic 4-6 PM	T = 2.40 (X) + 21.48	65	5	45%	55%	29	36	0.98
AM Peak Hour of Generator	T = 4.91 (X) + 115.59	204	4	50%	50%	102	102	0.90
PM Peak Hour of Generator	---	---	---	---	---	---	---	---
Saturday	---	---	---	---	---	---	---	---
Saturday Peak Hour of Gen.	---	---	---	---	---	---	---	---
AM Peak of Adjacent Street 7-9 AM***	T = 0.275 (PM Peak Hour)	18		60%	40%	11	7	
Saturday Peak Hour***	T = 1.325 (PM Peak Hour)	86		50%	50%	43	43	

* Percentages rounded to nearest 5%
(---) Not Given

**Based on ratio of AM/PM traffic for LUC 820, Shopping Center
***Saturday Peak Hour comes from a ratio of PM to Saturday trip rates from LUC 820 - Shopping Center

JN: 3138.03
Project Description: Portland Foreside
Project Location: Portland, Maine
Date: 11/11/2019
Calculated By: EAL

Gorrill Palmer Consulting Engineers
707 Sable Oaks Drive
South Portland, ME 04106

General Office Building
Land Use Code (LUC) 710

Square Feet 12,400

Trip Ends Based on Fitted Curve Equation

Time Period	ITE Trip Rate	Trip Ends	Number of Studies	Directional Split *		Directional Distribution		R^2
				IN	OUT	IN	OUT	
Weekday	Ln (T) = 0.77 Ln (X) + 3.65	267	78	50%	50%	134	133	0.80
AM Peak Hour	**Ln (T) = 0.80 Ln (X) + 1.55**	**35**	**217**	**90%**	**10%**	**32**	**3**	**0.83**
PM Peak Hour	**T = 1.12 (X) + 78.81**	**93**	**235**	**15%**	**85%**	**14**	**79**	**0.82**
Saturday	T = 2.14 (X) + 18.47	45	17	50%	50%	23	22	0.66
Peak Hour of Generator	Ln (T) = 0.81 Ln (X) - 0.12	7	10	55%	45%	4	3	0.59

* Percentages rounded to nearest 5%

Trip Ends Based on Average Rate

Time Period	ITE Trip Rate	Trip Ends	Number of Studies	Directional Split *		Directional Distribution		R^2
				IN	OUT	IN	OUT	
Weekday	T = 11.01 (X)	137	78	50%	50%	69	68	---
AM Peak Hour	T = 1.55 (X)	19	217	90%	10%	17	2	---
PM Peak Hour	T = 1.49 (X)	18	235	15%	85%	3	15	---
Saturday	T = 2.37 (X)	29	17	50%	50%	15	14	---
Saturday Peak Hour of Gen.	**T = 0.41 (X)**	**5**	**10**	**50%**	**50%**	**3**	**2**	**---**

* Percentages rounded to nearest 5%

PM Peak Hour:	T = 1.49/1.55 (AM Peak)	34		15%	85%	5	29	0.82

JN:	4034	Gorrill Palmer
Project Description:	58 Fore Street	707 Sable Oaks Drive
Project Location:	Portland, Maine	Suite 30
Date:	9/14/2022	South Portland, Maine 04106

Apartment
Land Use Code (LUC) 220

Dwelling Units: 225

Average Rate

Time Period	ITE Trip Rate	Sample Size	Trip Ends		Directional Split * IN	Directional Split * OUT	Directional Distribution IN	Directional Distribution OUT	R^2
Weekday	T = 6.72 (X)	86	1512		50%	50%	756	756	N/A
AM Peak Hour of Adj. Street Traffic	T = 0.51 (X)	78	115		20%	80%	23	92	N/A
PM Peak Hour of Adj. Street Traffic	T = 0.62 (X)	90	140		65%	35%	91	49	N/A
AM Peak Hour of Generator	T = 0.55 (X)	81	124		30%	70%	37	87	N/A
PM Peak Hour of Generator	T = 0.67 (X)	83	151		60%	40%	91	60	N/A
Saturday	T = 6.39 (X)	15	1438		50%	50%	719	719	N/A
Saturday Peak Hour of Gen.	T = 0.52 (X)	14	117	**	50%	50%	59	58	N/A

* Percentages rounded to nearest 5%

** Not Available (Assumption)

Fitted Curve Equation

Time Period	ITE Trip Rate	Sample Size	Trip Ends		Directional Split * IN	Directional Split * OUT	Directional Distribution IN	Directional Distribution OUT	R^2
Weekday	T = 6.01 (X) + 150.35	86	1503		50%	50%	751	752	0.88
AM Peak Hour of Adj. Street Traffic	T = 0.49 (X) + 3.73	78	114		20%	80%	23	91	0.83
PM Peak Hour of Adj. Street Traffic	T = 0.55 (X) + 17.65	90	141		65%	35%	92	49	0.77
AM Peak Hour of Generator	T = 0.53 (X) + 4.21	81	123		30%	70%	37	86	0.82
PM Peak Hour of Generator	T = 0.60 (X) + 17.52	83	153		60%	40%	92	61	0.80
Saturday	T = 7.85 (X) - 256.19	15	1510		50%	50%	755	755	0.85
Saturday Peak Hour of Gen.	T = 0.41 (X) + 19.23	14	111	**	50%	50%	56	55	0.56

* Percentages rounded to nearest 5%

** Not Available (Assumption)

JN:	4034	Gorrill Palmer
Project Description:	58 Fore Street	707 Sable Oaks Drive
Project Location:	Portland, Maine	Suite 30
Date:	September 14, 2022	South Portland, Maine 04106

Residential Condominium/Townhouse
Land Use Code (LUC) 230

Dwelling Units: 22

Average Rate

Time Period	ITE Trip Rate	Sample Size	Trip Ends	Directional Split * IN	Directional Split * OUT	Directional Distribution IN	Directional Distribution OUT	R^2
Weekday	**T = 5.86 (X)**	**54**	**129**	**50%**	**50%**	**65**	**64**	**N/A**
Peak Hour of Adjacent Street Traffic 7-9 AM	**T = 0.44 (X)**	**59**	**10**	**15%**	**85%**	**2**	**8**	**N/A**
Peak Hour of Adjacent Street Traffic 4-6 PM	**T = 0.52 (X)**	**62**	**11**	**65%**	**35%**	**7**	**4**	**N/A**
AM Peak Hour of Generator	T = 0.44 (X)	52	10	20%	80%	2	8	N/A
PM Peak Hour of Generator	T = 0.52 (X)	50	11	65%	35%	7	4	N/A
Saturday	T = 5.67 (X)	30	125	50%	50%	63	62	N/A
Saturday Peak Hour of Gen.	T = 0.47 (X)	27	10	55%	45%	6	4	N/A

* Percentages rounded to nearest 5%

Fitted Curve Equation

Time Period	ITE Trip Rate	Sample Size	Trip Ends	Directional Split * IN	Directional Split * OUT	Directional Distribution IN	Directional Distribution OUT	R^2
Weekday	Ln(T) = 0.85 Ln(X) + 2.55	54	177	50%	50%	89	88	0.83
Peak Hour of Adjacent Street Traffic 7-9 AM	Ln(T) = 0.80 Ln(X) + 0.26	59	15	15%	85%	2	13	0.76
Peak Hour of Adjacent Street Traffic 4-6 PM	Ln(T) = 0.82 Ln(X) + 0.32	62	17	65%	35%	11	6	0.80
AM Peak Hour of Generator	Ln(T) = 0.82 Ln(X) + 0.17	52	15	20%	80%	3	12	0.80
PM Peak Hour of Generator	T = 0.34 (X) + 38.31	50	46	65%	35%	30	16	0.83
Saturday	T = 3.62 (X) + 427.93	30	508	50%	50%	254	254	0.84
Saturday Peak Hour of Gen.	T = 0.29 (X) + 42.63	27	49	55%	45%	27	22	0.84

* Percentages rounded to nearest 5%

JN:	3138.03	Gorrill Palmer Consulting Engineers
Project Description:	Portland Foreside	707 Sable Oaks Drive
Project Location:	Portland, Maine	Suite 30
Date:	9/21/2022	South Portland, Maine 04106
Calculated By:	BP	
Checked By:	RED	

Specialty Retail Center- (7th Edition)
Land Use Code (LUC) 814

Gross Floor Area (ft^2): 11,951

Average Rate

Time Period	ITE Trip Rate	Trip Ends	Number of Studies	Directional Split * IN	Directional Split * OUT	Directional Distribution IN	Directional Distribution OUT	R^2
Weekday	T = 44.32 (X)	530	4	50%	50%	265	265	---
Peak Hour of Adjacent Street Traffic 7-9 AM**	---	---	---	---	---	---	---	---
Peak Hour of Adjacent Street Traffic 4-6 PM	**T = 2.71 (X)**	**32**	**5**	**45%**	**55%**	**14**	**18**	**---**
AM Peak Hour of Generator	**T = 6.84 (X)**	**82**	**4**	**50%**	**50%**	**41**	**41**	**---**
PM Peak Hour of Generator	**T = 5.02 (X)**	**60**	**3**	**55%**	**45%**	**33**	**27**	**---**
Saturday	T = 42.04 (X)	502	3	50%	50%	251	251	---
Saturday Peak Hour of Gen.***	---	---	---	---	---	---	---	---
AM Peak of Adjacent Street 7-9 AM**	**T = 0.275 (PM Peak Hour)**	**9**		**60%**	**40%**	**5**	**4**	
Saturday Peak Hour***	**T = 1.325 (PM Peak Hour)**	**42**		**50%**	**50%**	**21**	**21**	

**Based on ratio of AM/PM traffic for LUC 820, Shopping Center
***Saturday Peak Hour comes from a ratio of PM to Saturday trip rates from LUC 820 - Shopping Center
* Percentages rounded to nearest 5%

Fitted Curve Equation

Time Period	ITE Trip Rate	Trip Ends	Number of Studies	Directional Split * IN	Directional Split * OUT	Directional Distribution IN	Directional Distribution OUT	R^2
Weekday	T = 42.78 (X) + 37.66	549	4	50%	50%	275	274	0.69
Peak Hour of Adjacent Street Traffic 7-9 AM	---	---	---	---	---	---	---	---
Peak Hour of Adjacent Street Traffic 4-6 PM	T = 2.40 (X) + 21.48	50	5	45%	55%	23	27	0.98
AM Peak Hour of Generator	T = 4.91 (X) + 115.59	174	4	50%	50%	87	87	0.90
PM Peak Hour of Generator	---	---	---	---	---	---	---	---
Saturday	---	---	---	---	---	---	---	---
Saturday Peak Hour of Gen.	---	---	---	---	---	---	---	---
AM Peak of Adjacent Street 7-9 AM***	T = 0.275 (PM Peak Hour)	14		60%	40%	8	6	
Saturday Peak Hour***	T = 1.325 (PM Peak Hour)	66		50%	50%	33	33	

* Percentages rounded to nearest 5%
(---) Not Given

**Based on ratio of AM/PM traffic for LUC 820, Shopping Center
***Saturday Peak Hour comes from a ratio of PM to Saturday trip rates from LUC 820 - Shopping Center

JN:	4035	Gorrill Palmer
Project Description:	58 Fore Street	707 Sable Oaks Drive
Project Location:	Portland, Maine	Suite 30
Date:	September 21, 2022	South Portland, Maine 04106

Residential Condominium/Townhouse
Land Use Code (LUC) 230

Dwelling Units: 154

Average Rate

Time Period	ITE Trip Rate	Sample Size	Trip Ends	Directional Split * IN	Directional Split * OUT	Directional Distribution IN	Directional Distribution OUT	R^2
Weekday	**T = 5.86 (X)**	**54**	**902**	**50%**	**50%**	**451**	**451**	**N/A**
Peak Hour of Adjacent Street Traffic 7-9 AM	**T = 0.44 (X)**	**59**	**68**	**15%**	**85%**	**10**	**58**	**N/A**
Peak Hour of Adjacent Street Traffic 4-6 PM	**T = 0.52 (X)**	**62**	**80**	**65%**	**35%**	**52**	**28**	**N/A**
AM Peak Hour of Generator	T = 0.44 (X)	52	68	20%	80%	14	54	N/A
PM Peak Hour of Generator	T = 0.52 (X)	50	80	65%	35%	52	28	N/A
Saturday	T = 5.67 (X)	30	873	50%	50%	437	436	N/A
Saturday Peak Hour of Gen.	T = 0.47 (X)	27	72	55%	45%	40	32	N/A

* Percentages rounded to nearest 5%

Fitted Curve Equation

Time Period	ITE Trip Rate	Sample Size	Trip Ends	Directional Split * IN	Directional Split * OUT	Directional Distribution IN	Directional Distribution OUT	R^2
Weekday	Ln(T) = 0.85 Ln(X) + 2.55	54	926	50%	50%	463	463	0.83
Peak Hour of Adjacent Street Traffic 7-9 AM	Ln(T) = 0.80 Ln(X) + 0.26	59	73	15%	85%	11	62	0.76
Peak Hour of Adjacent Street Traffic 4-6 PM	Ln(T) = 0.82 Ln(X) + 0.32	62	86	65%	35%	56	30	0.80
AM Peak Hour of Generator	Ln(T) = 0.82 Ln(X) + 0.17	52	74	20%	80%	15	59	0.80
PM Peak Hour of Generator	T = 0.34 (X) + 38.31	50	91	65%	35%	59	32	0.83
Saturday	T = 3.62 (X) + 427.93	30	985	50%	50%	493	492	0.84
Saturday Peak Hour of Gen.	T = 0.29 (X) + 42.63	27	87	55%	45%	48	39	0.84

* Percentages rounded to nearest 5%

JN:	3138.03	Gorrill Palmer Consulting Engineers
Project Description:	Portland Foreside	707 Sable Oaks Drive
Project Location:	Portland, Maine	Suite 30
Date:	9/14/2022	South Portland, Maine 04106
Calculated By:	BP	
Checked By:	RED	

Specialty Retail Center- (7th Edition)
Land Use Code (LUC) 814

Gross Floor Area (ft^2): 9,108

Average Rate

Time Period	ITE Trip Rate	Trip Ends	Number of Studies	Directional Split * IN	Directional Split * OUT	Directional Distribution IN	Directional Distribution OUT	R^2
Weekday	T = 44.32 (X)	404	4	50%	50%	202	202	---
Peak Hour of Adjacent Street Traffic 7-9 AM**	---	---	---	---	---	---	---	---
Peak Hour of Adjacent Street Traffic 4-6 PM	**T = 2.71 (X)**	**25**	**5**	**45%**	**55%**	**11**	**14**	**---**
AM Peak Hour of Generator	**T = 6.84 (X)**	**62**	**4**	**50%**	**50%**	**31**	**31**	**---**
PM Peak Hour of Generator	**T = 5.02 (X)**	**46**	**3**	**55%**	**45%**	**25**	**21**	**---**
Saturday	T = 42.04 (X)	383	3	50%	50%	192	191	---
Saturday Peak Hour of Gen.***	---	---	---	---	---	---	---	---
AM Peak of Adjacent Street 7-9 AM**	**T = 0.275 (PM Peak Hour)**	**7**		**60%**	**40%**	**4**	**3**	
Saturday Peak Hour***	**T = 1.325 (PM Peak Hour)**	**33**		**50%**	**50%**	**17**	**16**	

**Based on ratio of AM/PM traffic for LUC 820, Shopping Center
***Saturday Peak Hour comes from a ratio of PM to Saturday trip rates from LUC 820 - Shopping Center
* Percentages rounded to nearest 5%

Fitted Curve Equation

Time Period	ITE Trip Rate	Trip Ends	Number of Studies	Directional Split * IN	Directional Split * OUT	Directional Distribution IN	Directional Distribution OUT	R^2
Weekday	T = 42.78 (X) + 37.66	427	4	50%	50%	214	213	0.69
Peak Hour of Adjacent Street Traffic 7-9 AM	---	---	---	---	---	---	---	---
Peak Hour of Adjacent Street Traffic 4-6 PM	T = 2.40 (X) + 21.48	43	5	45%	55%	19	24	0.98
AM Peak Hour of Generator	T = 4.91 (X) + 115.59	160	4	50%	50%	80	80	0.90
PM Peak Hour of Generator	---	---	---	---	---	---	---	---
Saturday	---	---	---	---	---	---	---	---
Saturday Peak Hour of Gen.	---	---	---	---	---	---	---	---
AM Peak of Adjacent Street 7-9 AM***	T = 0.275 (PM Peak Hour)	12		60%	40%	7	5	
Saturday Peak Hour***	T = 1.325 (PM Peak Hour)	57		50%	50%	29	28	

* Percentages rounded to nearest 5%
(---) Not Given

**Based on ratio of AM/PM traffic for LUC 820, Shopping Center
***Saturday Peak Hour comes from a ratio of PM to Saturday trip rates from LUC 820 - Shopping Center

JN:	4060
Project Description:	Portland Foreside
Project Location:	Portland, Maine
Date:	March 27, 2023
Calculated By:	BP
Checked By:	RED

Gorrill Palmer
707 Sable Oaks Drive
Suite 30
South Portland, Maine 04106

Hotel
Land Use Code (LUC) 310

Rooms: 128

Average Rate

Time Period	ITE Trip Rate	Sample Size	Trip Ends	Directional Split*		Directional Distribution		R^2
				IN	OUT	IN	OUT	
Weekday	T = 8.17 (X)	10	1046	50%	50%	523	523	-
AM Peak Adjacent Street	T = 0.56 (X)	20	72	60%	40%	43	29	-
PM Peak Adjacent Street	T = 0.59 (X)	25	76	55%	45%	42	34	-
AM Peak Hour of Generator	T = 0.52 (X)	32	67	55%	45%	37	30	-
PM Peak Hour of Generator	T = 0.61 (X)	35	78	60%	40%	47	31	-
Saturday	T = 8.19 (X)	8	1048	50%	50%	524	524	-
Saturday Peak Hour of Gen.	T = 0.72 (X)	9	92	55%	45%	51	41	-

* Percentages rounded to nearest 5%

Fitted Curve Equation

Time Period	ITE Trip Rate	Sample Size	Trip Ends	Directional Split*		Directional Distribution		R^2
				IN	OUT	IN	OUT	
Weekday	T = 8.95 (X) - 373.16	10	772	50%	50%	386	386	0.98
AM Peak Hour of Adjacent Street Traffic	Ln(T) = 1.24 Ln(X) - 2.00	20	56	60%	40%	34	22	0.75
PM Peak Hour of Adjacent Street Traffic	--	25	--	55%	45%	--	--	--
AM Peak Hour of Generator	Ln(T) = 0.87 Ln(X) + 0.02	32	69	55%	45%	38	31	0.54
PM Peak Hour of Generator	Ln(T) = 1.00 Ln(X) - 0.58	35	72	60%	40%	43	29	0.64
Saturday	T = 9.62 (X) - 294.56	8	937	50%	50%	469	468	0.93
Saturday Peak Hour of Gen.	T = 0.69 (X) + 4.32	9	93	55%	45%	51	42	0.80

* Percentages rounded to nearest 5%

JN:	4060	Gorrill Palmer
Project Description:	Portland Foreside	707 Sable Oaks Drive
Project Location:	Portland, Maine	Suite 30
Date:	March 27, 2023	South Portland, Maine 04106

Residential Condominium/Townhouse
Land Use Code (LUC) 230

Dwelling Units: 43

Average Rate

Time Period	ITE Trip Rate	Sample Size	Trip Ends	Directional Split * IN	Directional Split * OUT	Directional Distribution IN	Directional Distribution OUT	R^2
Weekday	**T = 5.86 (X)**	**54**	**252**	**50%**	**50%**	**126**	**126**	**N/A**
Peak Hour of Adjacent Street Traffic 7-9 AM	**T = 0.44 (X)**	**59**	**19**	**15%**	**85%**	**3**	**16**	**N/A**
Peak Hour of Adjacent Street Traffic 4-6 PM	**T = 0.52 (X)**	**62**	**22**	**65%**	**35%**	**14**	**8**	**N/A**
AM Peak Hour of Generator	T = 0.44 (X)	52	19	20%	80%	4	15	N/A
PM Peak Hour of Generator	T = 0.52 (X)	50	22	65%	35%	14	8	N/A
Saturday	T = 5.67 (X)	30	244	50%	50%	122	122	N/A
Saturday Peak Hour of Gen.	T = 0.47 (X)	27	20	55%	45%	11	9	N/A

* Percentages rounded to nearest 5%

Fitted Curve Equation

Time Period	ITE Trip Rate	Sample Size	Trip Ends	Directional Split * IN	Directional Split * OUT	Directional Distribution IN	Directional Distribution OUT	R^2
Weekday	Ln(T) = 0.85 Ln(X) + 2.55	54	313	50%	50%	157	156	0.83
Peak Hour of Adjacent Street Traffic 7-9 AM	Ln(T) = 0.80 Ln(X) + 0.26	59	26	15%	85%	4	22	0.76
Peak Hour of Adjacent Street Traffic 4-6 PM	Ln(T) = 0.82 Ln(X) + 0.32	62	30	65%	35%	20	10	0.80
AM Peak Hour of Generator	Ln(T) = 0.82 Ln(X) + 0.17	52	26	20%	80%	5	21	0.80
PM Peak Hour of Generator	T = 0.34 (X) + 38.31	50	53	65%	35%	34	19	0.83
Saturday	T = 3.62 (X) + 427.93	30	584	50%	50%	292	292	0.84
Saturday Peak Hour of Gen.	T = 0.29 (X) + 42.63	27	55	55%	45%	30	25	0.84

* Percentages rounded to nearest 5%

JN:	4060	Gorrill Palmer Consulting Engineers
Project Description:	Portland Foreside	707 Sable Oaks Drive
Project Location:	Portland, Maine	Suite 30
Date:	4/27/2023	South Portland, Maine 04106
Calculated By:	RED	
Checked By:		

Specialty Retail Center- (7th Edition)
Land Use Code (LUC) 814

Gross Floor Area (ft^2): 4,928

Average Rate

Time Period	ITE Trip Rate	Trip Ends	Number of Studies	Directional Split * IN	Directional Split * OUT	Directional Distribution IN	Directional Distribution OUT	R^2
Weekday	T = 44.32 (X)	218	4	50%	50%	109	109	---
Peak Hour of Adjacent Street Traffic 7-9 AM**	---	---	---	---	---	---	---	---
Peak Hour of Adjacent Street Traffic 4-6 PM	**T = 2.71 (X)**	**13**	**5**	**45%**	**55%**	**6**	**7**	**---**
AM Peak Hour of Generator	**T = 6.84 (X)**	**34**	**4**	**50%**	**50%**	**17**	**17**	**---**
PM Peak Hour of Generator	**T = 5.02 (X)**	**25**	**3**	**55%**	**45%**	**14**	**11**	**---**
Saturday	T = 42.04 (X)	207	3	50%	50%	104	103	---
Saturday Peak Hour of Gen.***	---	---	---	---	---	---	---	---
AM Peak of Adjacent Street 7-9 AM**	**T = 0.275 (PM Peak Hour)**	**4**		**60%**	**40%**	**2**	**2**	
Saturday Peak Hour***	**T = 1.325 (PM Peak Hour)**	**17**		**50%**	**50%**	**9**	**8**	

**Based on ratio of AM/PM traffic for LUC 820, Shopping Center
***Saturday Peak Hour comes from a ratio of PM to Saturday trip rates from LUC 820 - Shopping Center
* Percentages rounded to nearest 5%

Fitted Curve Equation

Time Period	ITE Trip Rate	Trip Ends	Number of Studies	Directional Split * IN	Directional Split * OUT	Directional Distribution IN	Directional Distribution OUT	R^2
Weekday	T = 42.78 (X) + 37.66	248	4	50%	50%	124	124	0.69
Peak Hour of Adjacent Street Traffic 7-9 AM	---	---	---	---	---	---	---	---
Peak Hour of Adjacent Street Traffic 4-6 PM	T = 2.40 (X) + 21.48	33	5	45%	55%	15	18	0.98
AM Peak Hour of Generator	T = 4.91 (X) + 115.59	140	4	50%	50%	70	70	0.90
PM Peak Hour of Generator	---	---	---	---	---	---	---	---
Saturday	---	---	---	---	---	---	---	---
Saturday Peak Hour of Gen.	---	---	---	---	---	---	---	---
AM Peak of Adjacent Street 7-9 AM***	T = 0.275 (PM Peak Hour)	9		60%	40%	5	4	
Saturday Peak Hour***	T = 1.325 (PM Peak Hour)	44		50%	50%	22	22	

* Percentages rounded to nearest 5%
(---) Not Given

**Based on ratio of AM/PM traffic for LUC 820, Shopping Center
***Saturday Peak Hour comes from a ratio of PM to Saturday trip rates from LUC 820 - Shopping Center

JN:	4060	Gorrill Palmer Consulting Engineers
Project Description:	Portland Foreside	707 Sable Oaks Drive
Project Location:	Portland, Maine	South Portland, ME 04106
Date:	3/27/2023	
Calculated By:	RED	

Quality Restaurant
Land Use Code (LUC) 931

Gross Floor Area (ft^2): 18,083

Time Period	ITE Trip Rate (Average Rate)	Trip Ends	Directional Split IN	Directional Split OUT	Directional Distribution IN	Directional Distribution OUT
Weekday	T = 89.95 (X)	1627	50%	50%	814	813
AM Peak Adjacent Street	T = 0.81 (X)	15	50%	50%	8	7
PM Peak Adjacent Street	T = 7.49 (X)	135	65%	35%	88	47
AM Peak of Generator	T = 5.57 (X)	101	80%	20%	81	20
PM Peak of Generator	T = 9.02 (X)	163	60%	40%	98	65
Saturday	T = 94.36 (X)	1706	50%	50%	853	853
Saturday Peak Hour of Gen.	T = 10.82 (X)	196	60%	40%	118	78

JN:	4060	Gorrill-Palmer Consulting Engineers, Inc.
Project Description:	Portland Foreside	P.O. Box 1237
Project Location:	Portland, Maine	15 Shaker Road
Date:	4/27/2023	Gray, Maine 04039

Health/Fitness Club
Land Use Code (LUC) 492

Gross Floor Area (ft^2): 19,697

Average Rate

Time Period	ITE Trip Rate	Trip Ends	Number of Studies	Directional Split * IN	Directional Split * OUT	Directional Distribution IN	Directional Distribution OUT	R^2
Weekday	T = 32.93 (X)	649	1	50%	50%	325	324	---
Peak Hour of Adjacent Street Traffic 7-9 AM**	T = 1.21 (X)	24	3	40%	60%	10	14	
Peak Hour of Adjacent Street Traffic 4-6 PM	T = 4.05 (X)	80	3	50%	50%	40	40	---
AM Peak Hour of Generator	T = 1.41 (X)	28	3	40%	60%	11	17	---
PM Peak Hour of Generator	T = 4.06 (X)	80	3	50%	50%	40	40	---
Saturday	T = 20.87 (X)	411	3	50%	50%	206	205	---
Saturday Peak Hour of Gen.***	T = 2.60 (X)	51	3	50%	50%	26	25	---

* Percentages rounded to nearest 5%

Attachment C

NCHRP 684 & Shared Parking Demand spreadsheets

NCHRP 8-51 Internal Trip Capture Estimation Tool			
Project Name:	58 Fore Street Redevelopment	**Organization:**	GP
Project Location:	Portland, Maine	**Performed By:**	RED
Scenario Description:	Block 5	**Date:**	4/27/2023
Analysis Year:		**Checked By:**	
Analysis Period:	AM Street Peak Hour	**Date:**	

Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office	710	110,700	SF	227	205	22
Retail	814	53,292	SF	40	24	16
Restaurant	931	30,514	SF	33	17	16
Cinema/Entertainment				0		
Residential	220/230	455	Units	213	32	181
Hotel	310	130	Units	72	43	29
All Other Land Uses[2]	492			24	10	14
Total				609	331	278

Table 2-A: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.	% Transit	% Non-Motorized	Veh. Occ.	% Transit	% Non-Motorized
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						
All Other Land Uses[2]						

Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-A: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		6	4	0	0	0
Retail	5		2	0	1	0
Restaurant	5	2		0	1	0
Cinema/Entertainment	0	0	0		0	0
Residential	4	2	3	0		0
Hotel	6	1	1	0	0	

Table 5-A: Computations Summary

	Total	Entering	Exiting
All Person-Trips	609	331	278
Internal Capture Percentage	14%	13%	15%
External Vehicle-Trips[3]	523	288	235
External Transit-Trips[4]	0	0	0
External Non-Motorized Trips[4]	0	0	0

Table 6-A: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	10%	45%
Retail	46%	50%
Restaurant	59%	50%
Cinema/Entertainment	N/A	N/A
Residential	6%	5%
Hotel	0%	28%

[1]Land Use Codes (LUCs) from *Trip Generation Informational Report*, published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

[3]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

[4]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas Transportation Institute

Project Name:	58 Fore Street Redevelopment
Analysis Period:	AM Street Peak Hour

Table 7-A: Conversion of Vehicle-Trip Ends to Person-Trip Ends

Land Use	Table 7-A (D): Entering Trips			Table 7-A (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	205	205	1.00	22	22
Retail	1.00	24	24	1.00	16	16
Restaurant	1.00	17	17	1.00	16	16
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.00	32	32	1.00	181	181
Hotel	1.00	43	43	1.00	29	29

Table 8-A (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		6	14	0	0	0
Retail	5		2	0	2	0
Restaurant	5	2		0	1	0
Cinema/Entertainment	0	0	0		0	0
Residential	4	2	36	0		0
Hotel	22	4	3	0	0	

Table 8-A (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		8	4	0	0	0
Retail	8		9	0	1	0
Restaurant	29	2		0	2	2
Cinema/Entertainment	0	0	0		0	0
Residential	6	4	3	0		0
Hotel	6	1	1	0	0	

Table 9-A (D): Internal and External Trips Summary (Entering Trips)

Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	20	185	205	185	0	0
Retail	11	13	24	13	0	0
Restaurant	10	7	17	7	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	2	30	32	30	0	0
Hotel	0	43	43	43	0	0
All Other Land Uses[3]	0	10	10	10	0	0

Table 9-A (O): Internal and External Trips Summary (Exiting Trips)

Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	10	12	22	12	0	0
Retail	8	8	16	8	0	0
Restaurant	8	8	16	8	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	9	172	181	172	0	0
Hotel	8	21	29	21	0	0
All Other Land Uses[3]	0	14	14	14	0	0

[1]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

[2]Person-Trips

[3]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

NCHRP 8-51 Internal Trip Capture Estimation Tool			
Project Name:	58 Fore Street Redevelopment	**Organization:**	GP
Project Location:	Portland, Maine	**Performed By:**	RED
Scenario Description:	Block 5	**Date:**	4/27/2023
Analysis Year:		**Checked By:**	
Analysis Period:	PM Street Peak Hour	**Date:**	

Table 1-P: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office	710	110,700	SF	219	33	186
Retail	814	53,292	SF	144	65	79
Restaurant	931	30,514	SF	293	190	103
Cinema/Entertainment				0		
Residential	220/230	455	Units	255	166	89
Hotel	310	130	Units	76	41	35
All Other Land Uses[2]				80	40	40
Total				1067	535	532

Table 2-P: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.	% Transit	% Non-Motorized	Veh. Occ.	% Transit	% Non-Motorized
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						
All Other Land Uses[2]						

Table 3-P: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-P: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		5	4	0	4	0
Retail	2		23	0	21	4
Restaurant	3	33		0	19	7
Cinema/Entertainment	0	0	0		0	0
Residential	4	7	19	0		3
Hotel	0	1	10	0	0	

Table 5-P: Computations Summary

	Total	Entering	Exiting
All Person-Trips	1,067	535	532
Internal Capture Percentage	32%	32%	32%
External Vehicle-Trips[3]	729	366	363
External Transit-Trips[4]	0	0	0
External Non-Motorized Trips[4]	0	0	0

Table 6-P: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	27%	7%
Retail	71%	63%
Restaurant	29%	60%
Cinema/Entertainment	N/A	N/A
Residential	27%	37%
Hotel	34%	31%

[1]Land Use Codes (LUCs) from *Trip Generation Informational Report*, published by the Institute of Transportation Engineers.
[2]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator
[3]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P
[4]Person-Trips
*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas Transportation Institute

Project Name:	58 Fore Street Redevelopment
Analysis Period:	PM Street Peak Hour

Table 7-P: Conversion of Vehicle-Trip Ends to Person-Trip Ends

Land Use	Table 7-P (D): Entering Trips			Table 7-P (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	33	33	1.00	186	186
Retail	1.00	65	65	1.00	79	79
Restaurant	1.00	190	190	1.00	103	103
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.00	166	166	1.00	89	89
Hotel	1.00	41	41	1.00	35	35

Table 8-P (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		37	7	0	4	0
Retail	2		23	3	21	4
Restaurant	3	42		8	19	7
Cinema/Entertainment	0	0	0		0	0
Residential	4	37	19	0		3
Hotel	0	6	24	0	1	

Table 8-P (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		5	4	0	7	0
Retail	10		55	0	76	7
Restaurant	10	33		0	27	29
Cinema/Entertainment	2	3	6		7	0
Residential	19	7	27	0		5
Hotel	0	1	10	0	0	

Table 9-P (D): Internal and External Trips Summary (Entering Trips)

Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	9	24	33	24	0	0
Retail	46	19	65	19	0	0
Restaurant	56	134	190	134	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	44	122	166	122	0	0
Hotel	14	27	41	27	0	0
All Other Land Uses[3]	0	40	40	40	0	0

Table 9-P (O): Internal and External Trips Summary (Exiting Trips)

Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	13	173	186	173	0	0
Retail	50	29	79	29	0	0
Restaurant	62	41	103	41	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	33	56	89	56	0	0
Hotel	11	24	35	24	0	0
All Other Land Uses[3]	0	40	40	40	0	0

[1]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P

[2]Person-Trips

[3]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

05-05-2023 Combined Shared Parking Demand 5th Edition

	Block 1 - SunLife Office Building					Block 4					Block 1 - Building 12							Block 2						
	Block 1A		Block 1A		Total for Block 1A	Block 4		Block 4		Total for Block 4	Building 12		Building 12		Building 12		Total for Building 12	Block 2		Block 2		Block 2		Total for Block 2
	Office (4)		Specialty Retail (5)			Specialty Retail (5)		Residential (3)			Office (4)		Restaurant (6)		Residential (3)			Office (4)		Restaurant (6)		Specialty Retail (5)		
Rate	2.39	2.39 / 1,000 sf	1.95	1.95 / 1,000 sf		1.95	1.95 / 1,000 sf	1.21	1.21 per Unit		2.39	2.39/1,000 sf	95.0570	10.52 / 1000 sf	1.21	1.21 per Unit		2.39	2.39 / 1,000 sf	95.0570	10.52/1000	1.95	1.95 / 1,000 sf	
Monthly Adjustment	1000		1000	1		1000	1		1		1000					1		1000				1000	1	
SQF or Unit	95,100	95100 sf	9,300	9300 sf		11,951	11951 sf	247	247 Units		3,200	3,200 sf	3,200	3,200 sf	2	2 Units		12,400	12400 sf	17,950	17950 sf	17,950	17950 sf	
6:00AM	0.00	0	0.00	0	0	0.00	0	0.90	269	269	0.00	0	0.00	0	0.90	2	2	0.00	0	0.00	0	0.00	0	0
7:00AM	0.13	30	0.00	0	30	0.00	0	0.77	230	230	0.13	1	0.00	0	0.77	2	3	0.13	4	0.00	0	0.00	0	4
8:00AM	0.48	109	0.15	3	112	0.15	3	0.56	167	170	0.48	4	0.00	0	0.56	1	5	0.48	14	0.00	0	0.15	5	19
9:00AM	0.88	200	0.32	6	206	0.32	7	0.45	134	141	0.88	7	0.00	0	0.45	1	8	0.88	26	0.00	0	0.32	11	37
10:00AM	1.00	227	0.54	10	237	0.54	13	0.40	120	133	1.00	8	0.00	0	0.40	1	9	1.00	30	0.00	0	0.54	19	49
11:00AM	1.00	227	0.71	13	240	0.71	17	0.37	111	128	1.00	8	0.20	7	0.37	1	16	1.00	30	0.20	38	0.71	25	93
12:00PM	0.85	193	0.99	18	211	0.99	23	0.36	108	131	0.85	7	0.51	17	0.36	1	25	0.85	25	0.51	96	0.99	35	156
1:00PM	0.84	191	1.00	18	209	1.00	23	0.36	108	131	0.84	6	0.56	19	0.36	1	26	0.84	25	0.56	106	1.00	35	166
2:00PM	0.93	211	0.90	16	227	0.90	21	0.37	111	132	0.93	7	0.40	13	0.37	1	21	0.93	28	0.40	76	0.90	32	136
3:00PM	0.94	214	0.83	15	229	0.83	19	0.43	129	148	0.94	7	0.27	9	0.43	1	17	0.94	28	0.27	51	0.83	29	108
4:00PM	0.85	193	0.81	15	208	0.81	19	0.45	134	153	0.85	7	0.27	9	0.45	1	17	0.85	25	0.27	51	0.81	28	104
5:00PM	0.56	127	0.84	15	142	0.84	20	0.55	164	184	0.56	4	0.39	13	0.55	1	18	0.56	17	0.39	74	0.84	29	120
6:00PM	0.20	45	0.86	16	61	0.86	20	0.66	197	217	0.20	2	0.71	24	0.66	2	28	0.20	6	0.71	134	0.86	30	170
7:00PM	0.11	25	0.80	15	40	0.80	19	0.73	218	237	0.11	1	1.00	34	0.73	2	37	0.11	3	1.00	189	0.80	28	220
8:00PM	0.00	0	0.63	11	11	0.63	15	0.77	230	245	0.00	0	0.97	33	0.77	2	35	0.00	0	0.97	183	0.63	22	205
9:00PM	0.00	0	0.42	8	8	0.42	10	0.86	257	267	0.00	0	0.00	0	0.86	2	2	0.00	0	0.00	0	0.42	15	15
10:00PM	0.00	0	0.15	3	3	0.15	3	0.92	275	278	0.00	0	0.00	0	0.92	2	2	0.00	0	0.00	0	0.15	5	5
Dedicated spaces	0.00	0	0.00	0	0	0.00	0			0	0.00	0	0.00	0			0	0.00	0	0.00	0	0.00	0	0

(1) Based on the results from the NCHRP 684 Internal Trip Capture Estimation Tool

(2) Based on Commute to Work data from the 2009-2013 ACS by Census Tract for the City of Portland provided by GPCOG

(3 Time of Day distrubution for Dense Multi-use Urban, Rate for General Urban/Suburban

(4) Time of day distribution and rate based on General Urban/Suburban

(5) Time of day distrubution and rate based on Shopping Center, General Urban/Suburban, weekday (non-December)

(6) Time of day distrubution and rate based on Quality Restaurant, General Urban/Suburban, weekday (Monday-Thursday)

(7) Time of day distrubution and rate based on Hotel, General Urban/Suburban, weekday

(8) Time of day distrubution and rate based on Health / Fitness Club, weekday.

05-05-2023 Combined Shared Parking Demand 5th Edition

Block 5											Block 6					Shared Spaces					
																Combined Subtotal					
Block 5		Block 5		Block 5		Block 5		Block 5		Total for Block 5	Block 6		Block 6		Total for Block 6						
Hotel (7)		Specialty Retail (5)		Restaurant (6)		Residential (3)		Spa (8)			Specialty Retail (5)		Residential (3)								
1.1	1.1 per room	1.95	1.95 / 1,000 sf	95.0570	10.52/1000	1.21	1.21 per Unit	232.5581	4.3 / 1000SF		1.95	1.95 / 1,000 sf	1.21	1.21 per Unit		Combined Subtotal	Mixed Use Reduction (1)	Other Modes Reduction (2)	Reduced Total	Non-Residential Spaces	Residential Spaces
		1000	1				1	1000			1000	1		1			23%	18.0%			
128	128 room	4,928		18,083		43	43 Units	19,697	19660 SF		9,108	9108 sf	154	154 Units							
0.91	128	0.00	0	0.00	0	0.90	47	0.00	0	175	0.00	0	0.90	168	168	614	141	85	388	101	287
0.89	125	0.00	0	0.00	0	0.77	40	0.00	0	165	0.00	0	0.77	143	143	575	132	80	363	118	245
0.90	127	0.15	1	0.00	0	0.56	29	0.00	0	157	0.15	3	0.56	104	107	570	131	79	360	182	178
1.00	141	0.32	3	0.00	0	0.45	23	0.00	0	167	0.32	6	0.45	84	90	649	149	90	410	267	143
0.98	138	0.54	5	0.00	0	0.40	21	0.62	53	216	0.54	10	0.40	75	85	729	168	101	460	332	128
0.89	125	0.71	7	0.20	38	0.37	19	0.55	47	236	0.71	13	0.37	69	82	795	183	110	502	384	118
0.85	120	0.99	10	0.51	97	0.36	19	0.44	37	282	0.99	18	0.36	67	85	890	205	123	562	447	115
0.75	106	1.00	10	0.56	107	0.36	19	0.41	35	275	1.00	18	0.36	67	85	892	205	124	563	448	115
0.81	114	0.90	9	0.40	76	0.37	19	0.36	30	249	0.90	16	0.37	69	85	850	196	118	536	418	118
0.70	99	0.83	8	0.27	51	0.43	22	0.41	35	215	0.83	15	0.43	80	95	812	187	113	512	375	137
0.74	104	0.81	8	0.27	51	0.45	23	0.69	58	245	0.81	14	0.45	84	98	825	190	114	521	378	143
0.65	92	0.84	8	0.39	74	0.55	29	0.96	81	284	0.84	15	0.55	102	117	865	199	120	546	372	174
0.73	103	0.86	8	0.71	135	0.66	34	1.00	85	365	0.86	15	0.66	123	138	979	225	136	618	408	210
0.78	110	0.80	8	1.00	190	0.73	38	0.85	72	418	0.80	14	0.73	136	150	1102	253	153	696	464	232
0.93	131	0.63	6	0.97	185	0.77	40	0.00	0	362	0.63	11	0.77	143	154	1012	233	140	639	394	245
0.96	135	0.42	4	0.00	0	0.86	45	0.00	0	184	0.42	7	0.86	160	167	643	148	89	406	132	274
0.95	134	0.15	1	0.00	0	0.92	48	0.00	0	183	0.15	3	0.92	171	174	645	148	89	408	115	293

PORTLAND FORESIDE DEVELOPMENT – PHASE 2

STORMWATER MANAGEMENT PLAN

58 Fore Street
Portland, ME

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Portland Foreside Development Co.
April 2023

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Appendix A: Stormwater Inspection & Maintenance Plan
Appendix B: Stormwater Quality Calculations
Appendix C: HydroCAD Report
Appendix D: Figures

1. STORMWATER MANAGEMENT PLAN

This Stormwater Management Plan (SWMP) describes existing site conditions, the proposed development, compliance with applicable stormwater standards, and inspection and maintenance requirements for the proposed stormwater system associated with development of Phase 2 of the Portland Foreside Development located at 58 Fore Street in Portland, Maine.

1.1 Background

The proposed development is the next phase of the 58 Fore Street Master Development Plan, unanimously approved by the Portland Planning Board on December 22, 2016, to redevelop and revitalize the former Portland Company Complex into a mixed-use development. The Master Development Plan consists of six development "blocks" will include new buildings, renovated historic buildings, open space plazas and a shared roadway. The project is being constructed in phases.

The project received approval of a Level III Site Plan, Site Location of Development and Subdivision approval from the Portland Planning Board for Phase 1 of the development on January 28, 2020. Phase 1 included portions of Block 1 (office building and reconstruction of Building 12), Block 2 (renovation of historic core buildings), Block 4 (parking garage with limited residential and retail), construction of site infrastructure around these buildings, and improvements along the waterfront. After the project received Planning Board approval, construction advanced on a portion of Phase 1. Construction on Block 1 is complete, and included installation of R-Tank System 1, Jellyfish 1, and Outfall #1. Construction of Blocks 2 and 4 was not completed, including R-Tank System 2, Jellyfish 2, and Outfall #2.

The proposed project on Blocks 4, 5 and 6 is the next phase of development (Phase 2). The stormwater management system has been designed to ensure stormwater standards are met for the development during each phase, with consideration to the full build-out. The following report demonstrates the development of the site meets the stormwater standards for this next phase.

1.2 Existing Conditions

The project site is a portion of an approximately 10.7-acre property adjacent to the Fore River. The property was previously developed as the Portland Company Complex, which contained various industrial uses. Many of the existing buildings located within the project area have previously been demolished. Current conditions consist primarily of impervious paved and gravel areas with some areas of sparse vegetation and a steep, vegetated slope along the eastern edge of the site.

The project site is bordered by Fore Street to the north, Freedom Way to the west, the Fore River to the south, and the Portland House condominium complex to the east. Runoff from the Site drains via sheet flow in a southerly direction to a series of catch basins that ultimately discharge to the Fore River.

1.3 Proposed Development

The proposed development of Phase 2 will result in approximately 7.2-acres of disturbance and approximately 6.9-acres of impervious area. Proposed work includes the following:

- Construction of a structured parking garage with overlying rental apartments, townhouses, hotel, and condominiums and ground-level retail and restaurant spaces;
- Construction of a shared street, plazas, and subsurface utilities to support the development; and
- Landscaping and other site improvements to enable the surrounding work.

The proposed drainage system in Phase 2 will be comprised of trench drains located along the centerline of the new roadway, and a series of catch basins and area drains throughout the plaza area which ultimately discharge to Fore River via two outfalls.

Runoff from the Block 4 building roof, portions of the Block 2 building roofs, and a portion of the Block 5 building roof, as well as the proposed roadway, sidewalks and plaza area between these buildings will be conveyed to a subsurface stormwater management system (R-Tank System 2 and Jellyfish 2) that will provide storage and treatment for site runoff prior to discharging to the Fore River via Outfall #1. Roof runoff from portions of the Block 5 roof will be captured, stored, and treated via green roof, and portions of the Block 6 roof will be captured and treated via one of two Filterra Bioretention Systems (Filterra 1 and Filterra 2). Treated runoff from the green roof and Filterra units will discharge to the Fore River via Outfall #2, along with runoff from the remainder of the roof area on Blocks 5 and 6, plaza around Block 6 and south of Block 5, and runoff captured from upgradient drainage area.

As noted in Section 1.1, the proposed R-Tank storage system (R-Tank System 2) and Jellyfish Filter (Jellyfish 2) were previously designed, reviewed and approved as part of Phase 1. Minimal changes to this system are proposed as detailed below:

- Relocation of Jellyfish Filter 2 to accommodate relocation of the railroad and trail, and associated adjustment of invert elevations;
- Increase in drainage area to accommodate the total "future treated area" of which the water quality treatment calculations were based on for Phase 1 (i.e. while the contributing area increased, the water quality volume provided remained the same, as shown on the water quality calculations in Appendix B);
- Reconfiguration of the R-Tank storage system to accommodate utility and landscaping improvements while maintaining the total storage volume provided; and
- Improvement in pollutant loading from converting exposed Block 4 parking garage deck (Phase 1) to structured parking with overlying residential apartments and plaza (current phase).

The proposed stormwater management systems are discussed in further detail in the following sections.

1.4 Stormwater Standards

The project is subject to the MaineDEP Chapter 500 Stormwater Standards. The project is not located within the watershed of an Urban Impaired Stream and is therefore not subject to the Urban Impaired Stream Standard. The following sections describe the project's compliance with the applicable stormwater standards.

1.4.1 Basic Standard (Soil Erosion & Sediment Control)

A variety of erosion and sediment control measures will be utilized during construction, including but not limited to the following:

- Stabilized construction entrances;
- Up-gradient runoff diversion barriers;
- Downgradient sediment barriers;
- Catch basin inlet protection devices;
- Preservation and maintenance of vegetated areas to the maximum extent possible;
- Temporary stabilization of disturbed areas to be exposed for more than seven days;
- Permanent stabilization of final graded areas;
- Controls for fugitive dust, debris, and other materials; and
- Inspection of all measures until the Site is permanently stabilized.

Structural measures will be installed as shown on the design drawings. Details and specifications for these measures are included on the drawings. All measures will be implemented in accordance with the "Maine Erosion and Sedimentation Handbook for Construction: Best Management Practices", latest edition. All temporary measures will be installed prior to any earth-disturbing activities and will be removed upon permanent stabilization of the Site. The Contractor will be responsible for implementing and maintaining all erosion and sediment control measures in an effective operating condition during construction. Permanent erosion control measures will include vegetation and pavement. After construction, the Owner will be responsible for inspecting and maintaining the Site as described in Section 1.4 of this Report.

1.4.2 Flooding Standard (Stormwater Quantity)

Runoff from the proposed project will ultimately discharge to the adjacent Fore River, which is a tidal waterbody, via either sheet flow, the on-site storm drain system, or the City's 60-inch storm drain located within the adjacent Fore Connector roadway. In accordance with Section 4.F(3) of the MaineDEP Chapter 500 Stormwater Standards, a project is eligible for a waiver from the Flooding Standard if it discharges to a coastal wetland or a major river segment. Per the Master Development Plan Approval letter dated December 22, 2016, the City of Portland Planning

Board voted to grant a waiver from the Flooding Standard for future site plan applications associated with the 58 Fore Street Site.

The stormwater management system has been adequately sized to safely convey runoff from the proposed Site. The stormwater management system was designed utilizing the HydroCAD 10.00 Stormwater Modeling System by Applied Microcomputer Systems. Utilizing the HydroCAD software, a 24-hour duration and Type-III rainfall distribution was applied to the rainfall depths provided in Appendix H of the MaineDEP Chapter 500 Rules in order to estimate the peak flows that the stormwater management system will need to accommodate. For your reference, a copy of the HydroCAD Report and the Drainage Area Figure for the proposed site are provided in Appendix C and D of this Report, respectively.

HydroCAD provides a lookup table for curve number (CN), which is a measure of the retention and runoff properties of various surfaces based on the Hydrological Soil Group (HSG) and land cover type. According to the latest NRCS Web Soil Survey data, the Site consists largely of urban fill, which is assumed to be equivalent to HSG D soils. The area of each land cover type was delineated utilizing survey information and HydroCAD computed the final CN for each subcatchment based on an area-weighted average.

The Time of Concentration (Tc) is the time required for runoff to travel from the most hydrologically distant point of a subcatchment to the point of discharge. The Tc for each subcatchment was computed within HydroCAD as the sum of the travel times for each consecutive segment along the longest flow path. The longest flow path was delineated utilizing topographic survey data and partitioned into segments based on flow types and land cover. The primary types of flow include sheet flow, shallow concentrated flow, and channel flows. A minimum Tc of six minutes was utilized.

1.4.3 General & Redevelopment Standards (Stormwater Quality)

The proposed project is subject to the redevelopment standards for stormwater quality. A figure showing the area of redevelopment is included in Appendix D of this Report. Calculations have been prepared in accordance with Section 4.C(2)(d) of the MaineDEP Chapter 500 Stormwater Standards to determine how much treatment is required for the proposed redevelopment project. Based on the impact analysis calculations provided in Appendix B of this Report, it has been determined that the proposed project is required to provide treatment for 50% of the redevelopment area. Figures showing existing and proposed pollutant ranking areas are provided in Appendix D. Greater than 50% of the redevelopment area will be captured and treated. The redevelopment calculations will be re-evaluated as part of the design of future phases to determine if treatment requirements change.

Based on previous discussions with Jeff Dennis, MaineDEP Watershed Management Unit Biologist, it is our understanding that the project will not be required to provide storage for the full water quality channel protection volume (typically 1-inch over impervious areas and 0.4-inches over landscaped areas) because the project discharges directly to the Fore River. Some storage will be provided by R-Tank 2 prior to treatment via Jellyfish Filter 2, which will increase

the time of concentration on-site. It should be noted the Jellyfish Filter 2 was sized to accommodate the water quality flow from 1-inch of runoff over the entire drainage area. The reduced water quality volume for R-Tank 2 was approved during Phase 1. Due to direct discharge to Fore River, stand-alone Filterra Units (without subsurface water quality volume storage) are proposed for treatment of portions of the Block 6 roof. We anticipate some detention will be provided by the building plumbing system. Green roof provided on Block 5 has been sized to provide the full water quality volume storage for the drainage area. The treatment calculations provided in Appendix B of this Report include a summary of the water quality volume that will be provided.

A Jellyfish Filter and two Filterra units will provide stormwater quality treatment for the Site. The systems have been designed in accordance with the MaineDEP proprietary BMP approval letter to Contech dated January 21, 2015 (Jellyfish Filter) and February 2, 2017 (Filterra). The Jellyfish Filter and Filterra units have been sized to accommodate the water quality flow from 1-inch of runoff over the entire drainage area. The Jellyfish Filter is equipped with high-flow bypass via an internal weir for larger storm events. The proposed Filterra units are configured to be "off-line" with a downgradient catch basin inlet. We are coordinating with the manufacturer on proposed Jellyfish Filter and Filterra unit design; a letter that demonstrates manufacturer review and approval of the design will be provided upon receipt.

1.5 Inspection & Maintenance Requirements

General inspection and maintenance of stormwater systems will take place during and after construction. During construction, the Contractor will be responsible for inspecting and maintaining the Site, as described in Section 1.3.1 of this Report. Upon completion of construction, the property owner will be responsible for implementing the Inspection and Maintenance Plan for the proposed stormwater system, which is provided in Appendix A of this Report.

APPENDIX A: STORMWATER INSPECTION & MAINTENANCE PLAN

STORMWATER INSPECTION & MAINTENANCE PLAN

Portland Foreside Development – Phase 2, Portland, Maine

General inspection and maintenance during and after construction must take place in accordance with the requirements outlined in Appendix B of the Maine Department of Environmental Protection (MaineDEP) Chapter 500 Rules. Upon completion of the project, the Owner will assume responsibility for overseeing the property, including the inspection and maintenance of the Site's stormwater drainage system and treatment measures outlined herein. A person with knowledge of stormwater management and erosion and sediment control, including the standards and conditions in the permit, shall conduct the inspections and perform maintenance of the facilities.

Inspection and maintenance activities will be performed per the attached checklist, schedule, and manufacturer guidelines; an example page of the BMP Maintenance Log that shall be kept on-site is also attached.

INSPECTION AND MAINTENANCE OF STORMWATER SYSTEMS

Trash, debris, and sediment shall be removed from storm drain pipes and catch basins as needed on a semi-annual basis. In addition to the inspection and maintenance of stormwater systems, paved areas will be inspected annually each spring. These areas will be kept clean and clear through periodic sweeping and winter plowing as required. Inspections will also ensure pavement markings are repainted as needed to maintain proper traffic circulation. Paved areas will be plowed and sanded as often as necessary to maintain public safety. Periodic sweeping of pavement will reduce the amount of sediment available to enter the stormwater systems, in turn reducing the need to clean the stormwater systems.

Green Roof

Green roof areas should be inspected after every major storm in the first year to be sure it is functioning properly. Thereafter, the green roof areas should be inspected at least once every six months to ensure that it is draining within 48 hours following a one-inch storm or greater and drains within no less than 36 to 60 hours following storms that fill the system to overflow. If ponding exceeds 48 hours, the top of the filter bed must be rototilled to reestablish the soil's filtration capacity. If ponding exceeds 72 hours, the top several inches of the filter shall be replaced with fresh material. Harvesting and pruning of excessive growth will need to be done occasionally. Weeding to control unwanted or invasive plants may also be necessary.

Subsurface R-Tank System

The subsurface R-Tank System must be inspected and maintained per the manufacturer's guidelines, which are outlined in the attached guidance documents.

Jellyfish Filter Unit

The Jellyfish Filter Unit must be inspected and maintained per the manufacturer's guidelines, which are outlined in the attached guidance document.

Filterra Bioretention System

The Filterra Bioretention System must be inspected and maintained per the manufacturer's guidelines, which are outlined in the attached guidance document.

STORMWATER INSPECTION CHECKLIST

Inspection by: _____ Date: _____

Stormwater Management Feature	Condition						Comments
Vegetative cover	no bare spots, no evidence of rill erosion		some bare spots, some rill erosion		large bare areas, extensive erosion		
Subsurface Drainage System	no siltation		some siltation		heavily silted in		
Subsurface Drainage System	no clogging/flooding		some clogging/flooding		heavy clogging/flooding		
Subsurface Drainage System	outlet free of erosion		some erosion at outlet		outlet heavily eroded		
Subsurface Drainage System	inlet/outlet clear		some debris		completely blocked		
Green Roof	inlet free of erosion		some erosion at inlet		inlet heavily eroded		
Green Roof	drains in <24 hours		drains in 24 to 48 hours		ponding exceeds 48 hours		
Jellyfish Filter Unit*	Cartridges are in good condition		Cartridges in need of cleaning		Cartridges in need of replacement		
Jellyfish Filter Unit*	no clogging/flooding		some clogging/flooding		heavy clogging/flooding		
Filterra Bioretention System*	No sediment or trash accumulation		Some sediment or trash accumulation		Excessive sediment or trash accumulation		
Filterra Bioretention System*	Plants healthy and pest-free		Plants are somewhat healthy		Plants are not healthy (no growth or excessive growth)		
Filterra Bioretention System*	Structure is in good condition.		Structure has small visible cracks.		Structure has cracks wider than ½ inch.		

**See attached manufacturer's guidelines for system maintenance and inspection.*

Recommended Actions: _____

_____

Actions Completed: _____ Date: _____

MAINTENANCE TASKS	**SCHEDULE**
Inspect for sediment accumulation	Spring and Fall
Remove sediment accumulation	As needed
Clean debris	As needed
Inspect for erosion	As needed
Reestablish vegetation in erosion areas	Early spring
Replace stone rip-rap	Every 3 to 5 years as needed
Inspect structural elements during wet weather and compare to as-built plans	Annually
Make adjustments or replacements as determined by wet weather observations	As needed
Keep records of all inspections and maintenance activities	Annually
Have a professional engineer perform emergency inspections upon identification of severe problems	As needed

R-TANK OPERATION, INSPECTION & MAINTENANCE

Operation

Your ACF R-Tank System has been designed to function in conjunction with the engineered drainage system on your site, the existing municipal infrastructure, and/or the existing soils and geography of the receiving watershed. Unless your site included certain unique and rare features, the operation of your R-Tank System will be driven by naturally occurring systems and will function autonomously. However, upholding a proper schedule of Inspection & Maintenance is critical to ensuring continued functionality and optimum performance of the system.

Inspection

Both the R-Tank and all stormwater pre-treatment features incorporated into your site must be inspected regularly. Inspection frequency for your system must be determined based on the contributing drainage area, but should never exceed one year between inspections (six months during the first year of operation).

Inspections may be required more frequently for pre-treatment systems. You should refer to the manufacturer requirements for the proper inspection schedule.

With the right equipment your inspection and measurements can be accomplished from the surface without physically entering any confined spaces. If your inspection does require confined space entry, you MUST follow all local/regional requirements as well as OSHA standards.

R-Tank Systems may incorporate Inspection Ports, Maintenance Ports, and/or adjoining manholes. Each of these features are easily accessed by removing the lid at the surface. With the cover removed, a visual inspection can be performed to identify sediment deposits within the structure. Using a flashlight, ALL access points should be examined to complete a thorough inspection.

Inspection Ports
Usually located centrally in the R-Tank System, these perforated columns are designed to give the user a base-line sediment depth across the system floor.

Maintenance Ports
Usually located near the inlet and outlet connections, you'll likely find deeper deposits of heavier sediments when compared to the Inspection Ports.

Manholes
Most systems will include at least two manholes - one at the inlet and another at the outlet. There may be more than one location where stormwater enters the system, which would result in additional manholes to inspect.

Bear in mind that these manholes often include a sump below the invert of the pipe connecting to the R-Tank. These sumps are designed to capture sediment before it reaches the R-Tank, and they should be kept clean to ensure they function properly. However, existence of sediment in the sump does NOT necessarily mean sediment has accumulated in the R-Tank.

After inspecting the bottom of the structure, use a mirror on a pole (or some other device) to check for sediment or debris in the pipe connecting to the R-Tank.

If sediment or debris is observed in any of these structures, you should determine the depth of the material. This is typically accomplished with a stadia rod, but you should determine the best way to obtain the measurement.

All observations and measurements should be recorded on an Inspection Log kept on file. We've included a form you can use at the end of this guideline.

Maintenance

The R-Tank System should be back-flushed once sediment accumulation has reached 6" or 15% of the total system height. Use the chart below as a guideline to determine the point at which maintenance is required on your system.

R-Tank Unit	Height	Max Sediment Dept
Mini	9.5"	1.5"
Single	17"	3"
Double	34"	5"
Triple	50"	6"
Quad	67"	6"
Pent	84"	6"

Before any maintenance is performed on your system, be sure to plug the outlet pipe to prevent contamination of the adjacent systems.

To back-flush the R-Tank, water is pumped into the system through the Maintenance Ports as rapidly as possible. Water should be pumped into ALL Maintenance Ports. The turbulent action of the water moving through the R-Tank will suspend sediments which may then be pumped out.

If your system includes an Outlet Structure, this will be the ideal location to pump contaminated water out of the system. However, removal of back-flush water may be accomplished through the Maintenance Ports, as well.

For systems with large footprints that would require extensive volumes of water to properly flush the system, you should consider performing your maintenance within 24 hours of a rain event. Stormwater entering the system will aid in the suspension of sediments and reduce the volume of water required to properly flush the system.

Once removed, sediment-laden water may be captured for disposal or pumped through a Dirtbag™ (if permitted by the locality).

ACF ENVIRONMENTAL
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Step-By-Step Inspection & Maintenance Routine

1) **Inspection**
    a. Inspection Port
        i. Remove Cap
        ii. Use flashlight to detect sediment deposits
        iii. If present, measure sediment depth with stadia rod
        iv. Record results on Maintenance Log
        v. Replace Cap
    b. Maintenance Port/s
        i. Remove Cap
        ii. Use flashlight to detect sediment deposits
        iii. If present, measure sediment depth with stadia rod
        iv. Record results on Maintenance Log
        v. Replace Cap
        vi. Repeat for ALL Maintenance Ports
    c. Adjacent Manholes
        i. Remove Cover
        ii. Use flashlight to detect sediment deposits
        iii. If present, measure sediment depth with stadia rod, accounting for depth of sump (if present)
        iv. Inspect pipes connecting to R-Tank
        v. Record results on Maintenance Log
        vi. Replace Cover
        vii. Repeat for ALL Manholes that connect to the R-Tank

2) **Maintenance**
    a. Plug system outlet to prevent discharge of back-flush water
    b. Determine best location to pump out back-flush water
    c. Remove Cap from Maintenance Port
    d. Pump water as rapidly as possible (without over-topping port) into system until at least 1”
    of water covers system bottom
    e. Replace Cap
    f. Repeat at ALL Maintenance Ports
    g. Pump out back-flush water to complete back-flushing
    h. Vacuum all adjacent structures and any other structures or stormwater pre-treatment systems that require attention
    i. Sediment-laden water may be captured for disposal or pumped through a Dirtbag™.
    j. Replace any remaining Caps or Covers
    k. Record the back-flushing event in your Maintenance Log with any relevant specifics

R-Tank Maintenance Log

Site Name:_____

Location:_____

System Owner:_____

Company Responsible for Maintenance:_____

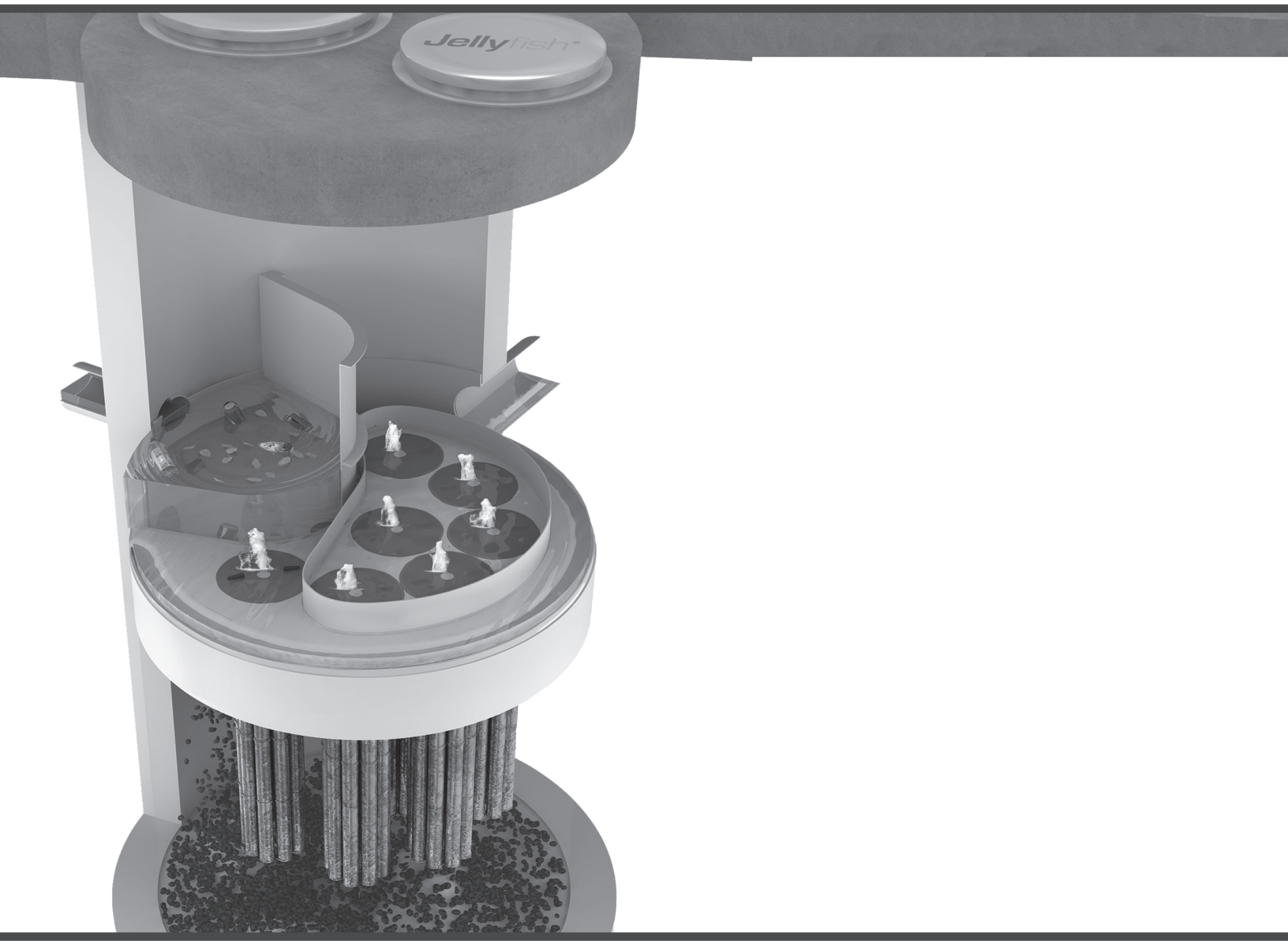
Contact:_____

Phone Number:_____

Date	Location	Depth to Bottom	Depth to Sediment	Sediment Depth	Observations/Notes	Initials

CONTECH®
ENGINEERED SOLUTIONS

Jellyfish® Filter Maintenance Guide



Jellyfish®

JELLYFISH® FILTER
INSPECTION & MAINTENANCE GUIDE

Jellyfish units are often just one of many structures in a more comprehensive stormwater drainage and treatment system.

In order for maintenance of the Jellyfish filter to be successful, it is imperative that all other components be properly maintained. The maintenance and repair of upstream facilities should be carried out prior to Jellyfish maintenance activities.

In addition to considering upstream facilities, it is also important to correct any problems identified in the drainage area. Drainage area concerns may include: erosion problems, heavy oil loading, and discharges of inappropriate materials.

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Inspection Process 7

1.0 Inspection and Maintenance Overview

The primary purpose of the Jellyfish® Filter is to capture and remove pollutants from stormwater runoff. As with any filtration system, these pollutants must be removed to maintain the filter's maximum treatment performance. Regular inspection and maintenance are required to insure proper functioning of the system.

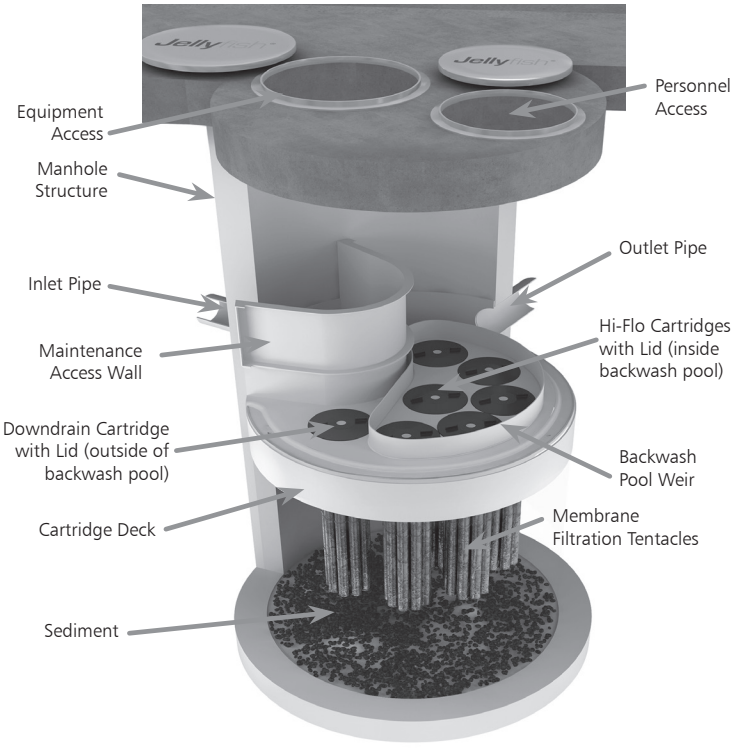
Maintenance frequencies and requirements are site specific and vary depending on pollutant loading. Additional maintenance activities may be required in the event of non-storm event runoff, such as base-flow or seasonal flow, an upstream chemical spill or due to excessive sediment loading from site erosion or extreme runoff events. It is a good practice to inspect the system after major storm events.

Inspection activities are typically conducted from surface observations and include:

- Observe if standing water is present
- Observe if there is any physical damage to the deck or cartridge lids
- Observe the amount of debris in the Maintenance Access Wall (MAW) or inlet bay for vault systems

Maintenance activities include:

- Removal of oil, floatable trash and debris
- Removal of collected sediments
- Rinsing and re-installing the filter cartridges
- Replace filter cartridge tentacles, as needed



Note: Separator Skirt not shown

2.0 Inspection Timing

Inspection of the Jellyfish Filter is key in determining the maintenance requirements for, and to develop a history of, the site's pollutant loading characteristics. In general, inspections should be performed at the times indicated below; *or per the approved project stormwater quality documents (if applicable), whichever is more frequent*.

1. A minimum of quarterly inspections during the first year of operation to assess the sediment and floatable pollutant accumulation, and to ensure proper functioning of the system.
2. Inspection frequency in subsequent years is based on the inspection and maintenance plan developed in the first year of operation. Minimum frequency should be once per year.
3. Inspection is recommended after each major storm event.
4. Inspection is required immediately after an upstream oil, fuel or other chemical spill.

3.0 Inspection Procedure

The following procedure is recommended when performing inspections:

1. Provide traffic control measures as necessary.
2. Inspect the MAW or inlet bay for floatable pollutants such as trash, debris, and oil sheen.
3. Measure oil and sediment depth in several locations, by lowering a sediment probe until contact is made with the floor of the structure. Record sediment depth, and presences of any oil layers.
4. Inspect cartridge lids. Missing or damaged cartridge lids to be replaced.
5. Inspect the MAW (where appropriate), cartridge deck and receptacles, and backwash pool weir, for damaged or broken components.

3.1 Dry weather inspections

- Inspect the cartridge deck for standing water, and/or sediment on the deck.
- No standing water under normal operating conditions.
- Standing water inside the backwash pool, but not outside the backwash pool indicates, that the filter cartridges need to be rinsed.



Inspection Utilizing Sediment Probe

- Standing water outside the backwash pool is not anticipated and may indicate a backwater condition caused by high water elevation in the receiving water body, or possibly a blockage in downstream infrastructure.
- Any appreciable sediment (≥1/16") accumulated on the deck surface should be removed.

3.2 Wet weather inspections

- Observe the rate and movement of water in the unit. Note the depth of water above deck elevation within the MAW or inlet bay.
- Less than 6 inches, flow should be exiting the cartridge lids of each of the draindown cartridges (i.e. cartridges located outside the backwash pool).
- Greater than 6 inches, flow should be exiting the cartridge lids of each of the draindown cartridges and each of the hi-flo cartridges (i.e. cartridges located inside the backwash pool), and water should be overflowing the backwash pool weir.
- 18 inches or greater and relatively little flow is exiting the cartridge lids and outlet pipe, this condition indicates that the filter cartridges need to be rinsed.

4.0 Maintenance Requirements

Required maintenance for the Jellyfish Filter is based upon results of the most recent inspection, historical maintenance records, or the site specific water quality management plan; whichever is more frequent. In general, maintenance requires some combination of the following:

1. Sediment removal for depths reaching 12 inches or greater, or within 3 years of the most recent sediment cleaning, whichever occurs sooner.
2. Floatable trash, debris, and oil removal.
3. Deck cleaned and free from sediment.
4. Filter cartridges rinsed and re-installed as required by the most recent inspection results, or within 12 months of the most recent filter rinsing, whichever occurs sooner.
5. Replace tentacles if rinsing does not restore adequate hydraulic capacity, remove accumulated sediment, or if damaged or missing. It is recommended that tentacles should remain in service no longer than 5 years before replacement.
6. Damaged or missing cartridge deck components must be repaired or replaced as indicated by results of the most recent inspection.
7. The unit must be cleaned out and filter cartridges inspected immediately after an upstream oil, fuel, or chemical spill. Filter cartridge tentacles should be replaced if damaged or compromised by the spill.

5.0 Maintenance Procedure

The following procedures are recommended when maintaining the Jellyfish Filter:

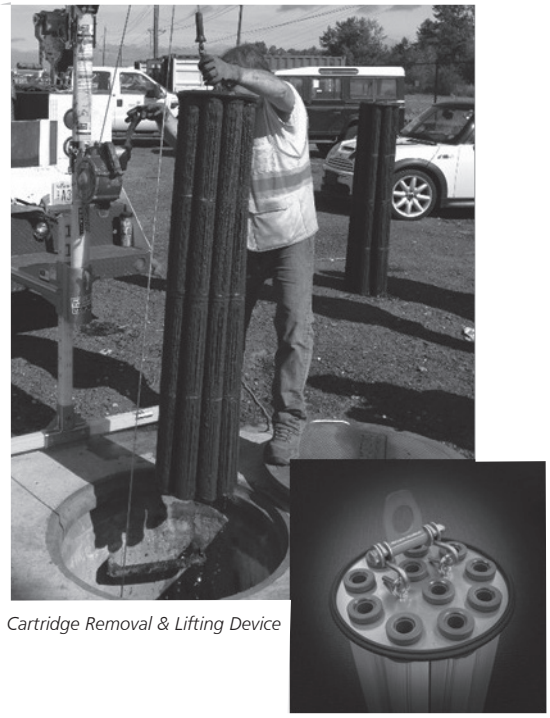
1. Provide traffic control measures as necessary.
2. Open all covers and hatches. Use ventilation equipment as required, according to confined space entry procedures. *Caution: Dropping objects onto the cartridge deck may cause damage*.
3. Perform Inspection Procedure prior to maintenance activity.
4. To access the cartridge deck for filter cartridge service, descend into the structure and step directly onto the deck. Caution: Do not step onto the maintenance access wall (MAW) or backwash pool weir, as damage may result. Note that the cartridge deck may be slippery.
5. Maximum weight of maintenance crew and equipment on the cartridge deck not to exceed 450 lbs.

5.1 Filter Cartridge Removal

1. Remove a cartridge lid.
2. Remove cartridges from the deck using the lifting loops in the cartridge head plate. Rope or a lifting device (available from Contech) should be used. *Caution: Should a snag occur, do not force the cartridge upward as damage to the tentacles may result. Wet cartridges typically weigh between 100 and 125 lbs*.
3. Replace and secure the cartridge lid on the exposed empty receptacle as a safety precaution. Contech does not recommend exposing more than one empty cartridge receptacle at a time.

5.2 Filter Cartridge Rinsing

1. Remove all 11 tentacles from the cartridge head plate. Take care not to lose or damage the O-ring seal as well as the plastic threaded nut and connector.



Cartridge Removal & Lifting Device

2. Position tentacles in a container (or over the MAW), with the threaded connector (open end) facing down, so rinse water is flushed through the membrane and captured in the container.
3. Using the Jellyfish rinse tool (available from Contech) or a low-pressure garden hose sprayer, direct water spray onto the tentacle membrane, sweeping from top to bottom along the length of the tentacle. Rinse until all sediment is removed from the membrane. *Caution: Do not use a high pressure sprayer or focused stream of water on the membrane. Excessive water pressure may damage the membrane*.

4. Collected rinse water is typically removed by vacuum hose.
5. Reassemble cartridges as detailed later in this document. Reuse O-rings and nuts, ensuring proper placement on each tentacle.

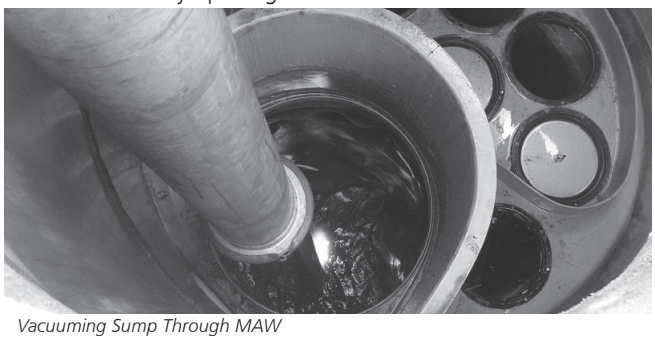
5.3 Sediment and Flotables Extraction

1. Perform vacuum cleaning of the Jellyfish Filter only after filter cartridges have been removed from the system. Access the lower chamber for vacuum cleaning only through the maintenance access wall (MAW) opening. Be careful not to damage the flexible plastic separator skirt that is attached to the underside of the deck on manhole systems. Do not lower the vacuum wand through a cartridge receptacle, as damage to the receptacle will result.
2. Vacuum floatable trash, debris, and oil, from the MAW opening or inlet bay. Alternatively, floatable solids may be removed by a net or skimmer.



Vacuuming Sump Through MAW

3. Pressure wash cartridge deck and receptacles to remove all sediment and debris. Sediment should be rinsed into the sump area. Take care not to flush rinse water into the outlet pipe.
4. Remove water from the sump area. Vacuum or pump equipment should only be introduced through the MAW or inlet bay.
5. Remove the sediment from the bottom of the unit through the MAW or inlet bay opening.



Vacuuming Sump Through MAW

6. For larger diameter Jellyfish Filter manholes (≥8-ft) and some vaults complete sediment removal may be facilitated by removing a cartridge lid from an empty receptacle and inserting a jetting wand (not a vacuum wand) through the receptacle. Use the sprayer to rinse loosened sediment toward the vacuum hose in the MAW opening, being careful not to damage the receptacle.

5.4 Filter Cartridge Reinstallation and Replacement

1. Cartridges should be installed after the deck has been cleaned. It is important that the receptacle surfaces be free from grit and debris.
2. Remove cartridge lid from deck and carefully lower the filter cartridge into the receptacle until head plate gasket is seated squarely in receptacle. ***Caution: Do not force the cartridge downward; damage may occur.***
3. Replace the cartridge lid and check to see that both male threads are properly seated before rotating approximately 1/3 of a full rotation until firmly seated. Use of an approved rim gasket lubricant may facilitate installation. See next page for additional details.
4. If rinsing is ineffective in removing sediment from the tentacles, or if tentacles are damaged, provisions must be made to replace the spent or damaged tentacles with new tentacles. Contact Contech to order replacement tentacles.

5.5 Chemical Spills

Caution: If a chemical spill has been captured, do not attempt maintenance. Immediately contact the local hazard response agency and contact Contech.

5.6 Material Disposal

The accumulated sediment found in stormwater treatment and conveyance systems must be handled and disposed of in accordance with regulatory protocols. It is possible for sediments to contain measurable concentrations of heavy metals and organic chemicals (such as pesticides and petroleum products). Areas with the greatest potential for high pollutant loading include industrial areas and heavily traveled roads. Sediments and water must be disposed of in accordance with all applicable waste disposal regulations. When scheduling maintenance, consideration must be made for the disposal of solid and liquid wastes. This typically requires coordination with a local landfill for solid waste disposal. For liquid waste disposal a number of options are available including a municipal vacuum truck decant facility, local waste water treatment plant or on-site treatment and discharge.

Jellyfish Filter Components & Filter Cartridge Assembly and Installation

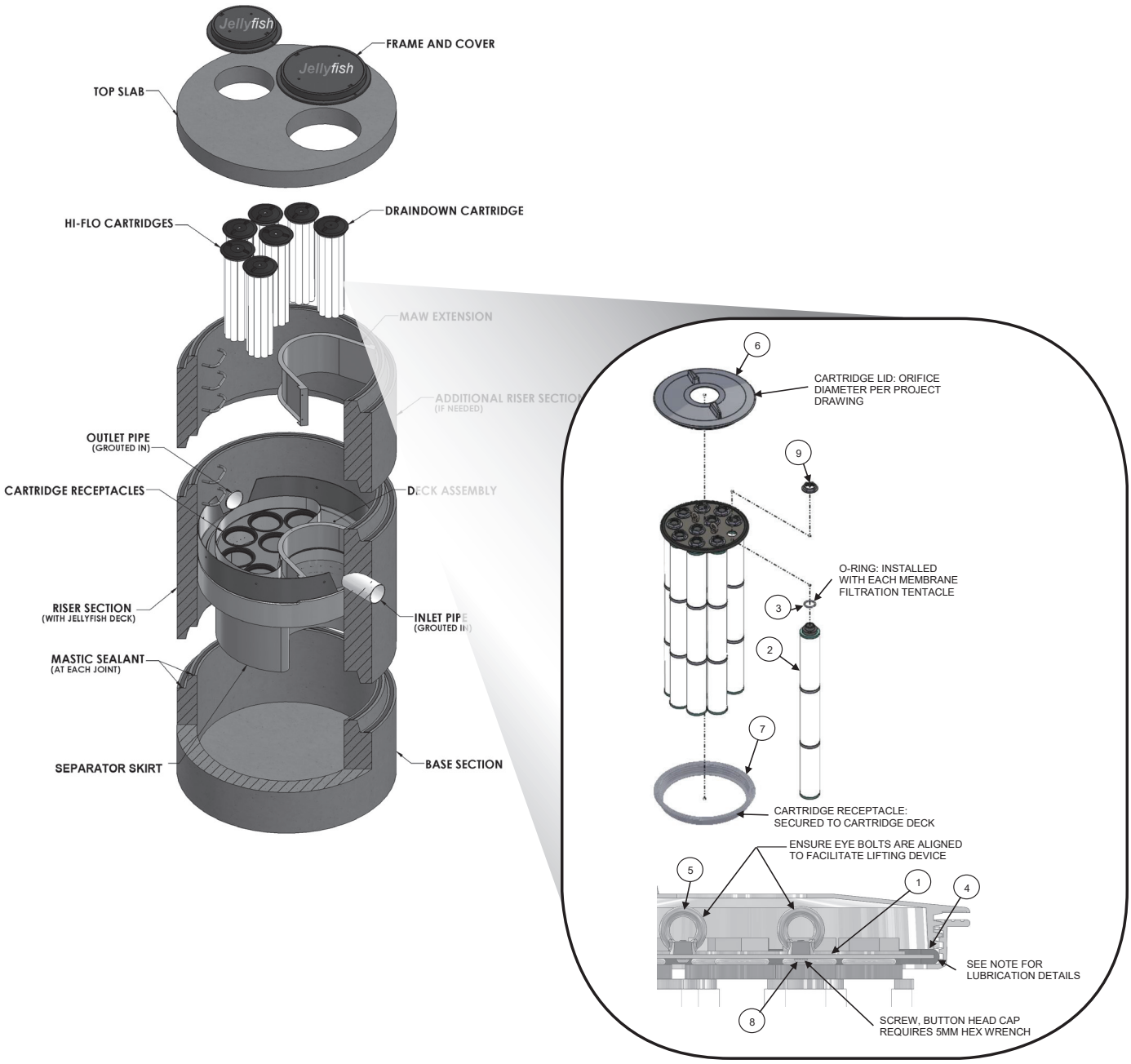


TABLE 1: BOM

ITEM NO.	DESCRIPTION
1	JF HEAD PLATE
2	JF TENTACLE
3	JF O-RING
4	JF HEAD PLATE GASKET
5	JF CARTRIDGE EYELET
6	JF 14IN COVER
7	JF RECEPTACLE
8	BUTTON HEAD CAP SCREW M6X14MM SS
9	JF CARTRIDGE NUT

TABLE 2: APPROVED GASKET LUBRICANTS

PART NO.	MFR	DESCRIPTION
78713	LA-CO	LUBRI-JOINT
40501	HERCULES	DUCK BUTTER
30600	OATEY	PIPE LUBRICANT
PSLUBXL1Q	PROSELECT	PIPE JOINT LUBRICANT

NOTES:

Head Plate Gasket Installation:
Install Head Plate Gasket (Item 4) onto the Head Plate (Item 1) and liberally apply a lubricant from Table 2: Approved Gasket Lubricants onto the gasket where it contacts the Receptacle (Item 7) and Cartridge Lide (ITem 6). Follow Lubricant manufacturer's instructions.

Lid Assembly:
Rotate Cartridge Lid counter-clockwise until both male threads drop down and properly seat. Then rotate Cartridge Lid clock-wise approximately one-third of a full rotation until Cartridge Lid is firmly secured, creating a watertight seal.

Jellyfish Filter Inspection and Maintenance Log

Owner:				Jellyfish Model No:		
Location:				GPS Coordinates:		
Land Use:	Commercial:		Industrial:		Service Station:	
	Roadway/Highway:		Airport:		Residential:	

Date/Time:						
Inspector:						
Maintenance Contractor:						
Visible Oil Present: (Y/N)						
Oil Quantity Removed:						
Floatable Debris Present: (Y/N)						
Floatable Debris Removed: (Y/N)						
Water Depth in Backwash Pool						
Draindown Cartridges externally rinsed and recommissioned: (Y/N)						
New tentacles put on Draindown Cartridges: (Y/N)						
Hi-Flo Cartridges externally rinsed and recommissioned: (Y/N)						
New tentacles put on Hi-Flo Cartridges: (Y/N)						
Sediment Depth Measured: (Y/N)						
Sediment Depth (inches or mm):						
Sediment Removed: (Y/N)						
Cartridge Lids intact: (Y/N)						
Observed Damage:						
Comments:						



Jellyfish®

CONTECH ENGINEERED SOLUTIONS

Support

- Drawings and specifications are available at www.conteches.com/jellyfish.
- Site-specific design support is available from Contech Engineered Solutions.
- Find a Certified Maintenance Provider at www.conteches.com/ccmp

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Filterra Owner's Manual



filterra®

Bioretention Systems

CONTECH®
ENGINEERED SOLUTIONS

This Owner's Manual applies to all precast Filterra Configurations, including Filterra Bioscape Vault.







filterra®
Bioretention Systems

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CONTECH®
ENGINEERED SOLUTIONS

Introduction

Thank you for your purchase of the Filterra® Bioretention System. Filterra is a specially engineered stormwater treatment system incorporating high performance biofiltration media to remove pollutants from stormwater runoff. The system's biota (vegetation and soil microorganisms) then further breakdown and absorb captured pollutants. All components of the system work together to provide a sustainable long-term solution for treating stormwater runoff.

The Filterra system has been delivered to you with protection in place to resist intrusion of construction related sediment which can contaminate the biofiltration media and result in inadequate system performance. These protection devices are intended as a best practice and cannot fully prevent contamination. It is the purchaser's responsibility to provide adequate measures to prevent construction related runoff from entering the Filterra system.

Included with your purchase is Activation of the Filterra system by the manufacturer as well as a 1-year warranty from delivery of the system and 1-year of routine maintenance (mulch replacement, debris removal, and pruning of vegetation) up to twice during the first year after activation.

Design and Installation

Each project presents different scopes for the use of Filterra systems. Information and help may be provided to the design engineer during the planning process. Correct Filterra box sizing (by rainfall region) is essential to predict pollutant removal rates for a given area. The engineer shall submit calculations for approval by the local jurisdiction. The contractor is responsible for the correct installation of Filterra units as shown in approved plans. A comprehensive installation manual is available at www.ContechES.com.

Activation Overview

Activation of the Filterra system is a procedure completed by the manufacturer to place the system into working condition. This involves the following items:

- Removal of construction runoff protection devices
- Planting of the system's vegetation
- Placement of pretreatment mulch layer using mulch certified for use in Filterra systems.

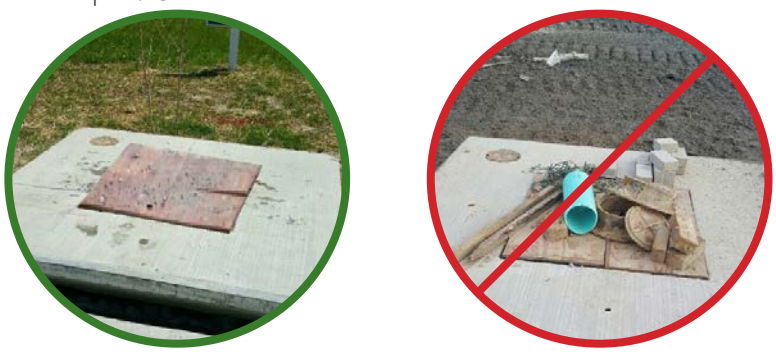
Activation MUST be provided by the manufacturer to ensure proper site conditions are met for Activation, proper installation of the vegetation, and use of pretreatment mulch certified for use in Filterra systems.



Minimum Requirements

The minimum requirements for Filterra Activation are as follows:

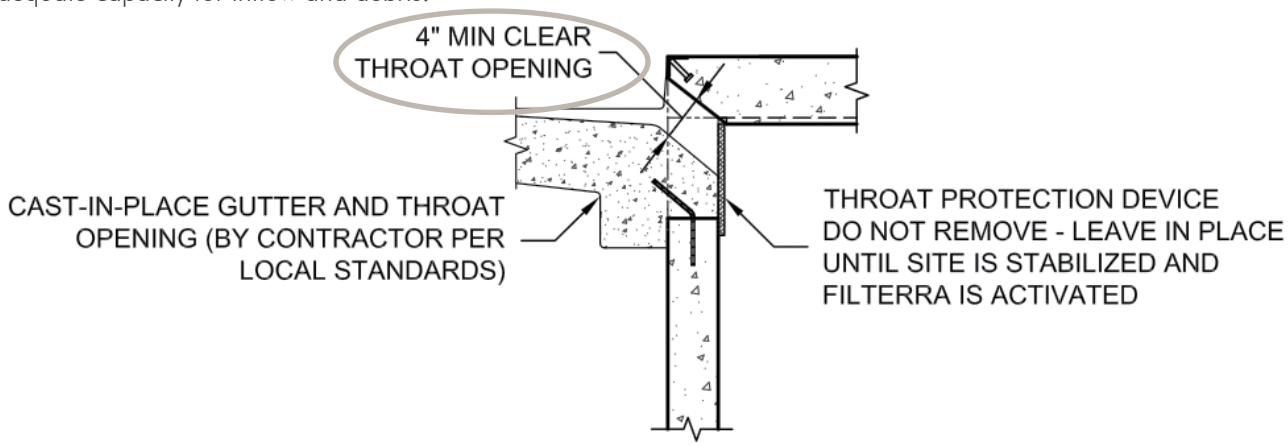
1. The site landscaping must be fully stabilized, i.e. full landscaping installed and some grass cover (not just straw and seed) is required to reduce sediment transport. Construction debris and materials should be removed from surrounding area.



2. Final paving must be completed. Final paving ensures that paving materials will not enter and contaminate the Filterra system during the paving process, and that the plant will receive runoff from the drainage area, assisting with plant survival for the Filterra system.



3. Where curb inlets are included as part of the Filterra system, Filterra throat opening should be at least 4" in order to ensure adequate capacity for inflow and debris.



An Activation Checklist is included on page 12 to ensure proper conditions are met for Contech to perform the Activation services. A charge of $500.00 will be invoiced for each Activation visit requested by Customer where Contech determines that the site does not meet the conditions required for Activation.

Filterra Plant Selection Overview

A Plant List is available on the Contech website highlighting recommended plants for Filterra systems in your area. Keep in mind that plants are subject to availability due to seasonality and required minimum size for the Filterra system. Plants installed in the Filterra system are container plants (max 15 gallon) from nursery stock and will be immature in height and spread at Activation.

It is the responsibility of the owner to provide adequate irrigation when necessary to the plant of the Filterra system.

The "Planting Requirements for Filterra Systems" document is included as an appendix and discusses proper selection and care of the plants within Filterra systems.

Warranty Overview

Refer to the Contech Engineered Solutions LLC Stormwater Treatment System LIMITED WARRANTY for further information. The following conditions may void the Filterra system's warranty and waive the manufacturer provided Activation and Maintenance services:

- Unauthorized activation or performance of any of the items listed in the activation overview
- Any tampering, modifications or damage to the Filterra system or runoff protection devices
- Removal of any Filterra system components
- Failure to prevent construction related runoff from entering the Filterra system
- Failure to properly store and protect any Filterra components (including media and underdrain stone) that may be shipped separately from the vault

Routine Maintenance Guidelines

With proper routine maintenance, the biofiltration media within the Filterra system should last as long as traditional bioretention media. Routine maintenance is included by the manufacturer on all Filterra systems for the first year after activation. This includes a maximum of 2 visits to remove debris, replace pretreatment mulch, and prune the vegetation. More information is provided in the Operations and Maintenance Guidelines. Some Filterra systems also contain pretreatment or outlet bays. Depending on site pollutant loading, these bays may require periodic removal of debris, however this is not included in the first year of maintenance, and would likely not be required within the first year of operation.

These services, as well as routine maintenance outside of the included first year, can be provided by certified maintenance providers listed on the Contech website. Training can also be provided to other stormwater maintenance or landscape providers.



Why Maintain?

All stormwater treatment systems require maintenance for effective operation. This necessity is often incorporated in your property's permitting process as a legally binding BMP maintenance agreement. Other reasons to maintain are:

- Avoiding legal challenges from your jurisdiction's maintenance enforcement program.
- Prolonging the expected lifespan of your Filterra media.
- Avoiding more costly media replacement.
- Helping reduce pollutant loads leaving your property.

Simple maintenance of the Filterra is required to continue effective pollutant removal from stormwater runoff before discharge into downstream waters. This procedure will also extend the longevity of the living biofilter system. The unit will recycle and accumulate pollutants within the biomass, but is also subjected to other materials entering the inlet. This may include trash, silt and leaves etc. which will be contained above the mulch layer. Too much silt may inhibit the Filterra's flow rate, which is the reason for site stabilization before activation. Regular replacement of the mulch stops accumulation of such sediment.

When to Maintain?

Contech includes a 1-year maintenance plan with each system purchase. Annual included maintenance consists of a maximum of two (2) scheduled visits. Additional maintenance may be necessary depending on sediment and trash loading (by Owner or at additional cost). The start of the maintenance plan begins when the system is activated.

Maintenance visits are typically scheduled seasonally; the spring visit aims to clean up after winter loads including salts and sands while the fall visit helps the system by removing excessive leaf litter.

It has been found that in regions which receive between 30-50 inches of annual rainfall, (2) two visits are generally required; regions with less rainfall often only require (1) one visit per annum. Varying land uses can affect maintenance frequency; e.g. some fast food restaurants require more frequent trash removal. Contributing drainage areas which are subject to new development wherein the recommended erosion and sediment control measures have not been implemented may require additional maintenance visits.

Some sites may be subjected to extreme sediment or trash loads, requiring more frequent maintenance visits. This is the reason for detailed notes of maintenance actions per unit, helping the Supplier and Owner predict future maintenance frequencies, reflecting individual site conditions.

Owners must promptly notify the maintenance provider of any damage to the plant(s), which constitute(s) an integral part of the bioretention technology. Owners should also advise other landscape or maintenance contractors to leave all maintenance to the Supplier (i.e. no pruning or fertilizing) during the first year.



Exclusion of Services

Clean up due to major contamination such as oils, chemicals, toxic spills, etc. will result in additional costs and are not covered under the Supplier maintenance contract. Should a major contamination event occur the Owner must block off the outlet pipe of the Filterra (where the cleaned runoff drains to, such as drop inlet) and block off the throat of the Filterra. The Supplier should be informed immediately.

Maintenance Visit Summary

Each maintenance visit consists of the following simple tasks (detailed instructions below).

1. Inspection of Filterra and surrounding area
2. Removal of tree grate (where applicable) and erosion control stones
3. Removal of debris, trash and mulch
4. Mulch replacement
5. Plant health evaluation and pruning or replacement as necessary
6. Clean area around Filterra
7. Complete paperwork

Maintenance Tools, Safety Equipment and Supplies

Ideal tools include: camera, bucket, shovel, broom, pruners, hoe/rake, and tape measure. Appropriate Personal Protective Equipment (PPE) should be used in accordance with local or company procedures. This may include impervious gloves where the type of trash is unknown, high visibility clothing and barricades when working in close proximity to traffic and also safety hats and shoes. A T-Bar or crowbar should be used for moving the tree grates, where applicable (up to 170 lbs each). If tree grate opening expansion is necessary, safety glasses/goggles and a 3lb or greater mini sledgehammer are required. Most visits require minor trash removal and a full replacement of mulch. See below for actual number of bagged mulch that is required in each media bay size. Mulch should be a double shredded, hardwood variety. Some visits may require additional Filterra engineered soil media available from the Supplier.

Media Bay Length	Media Bay Width	Filter Surface Area (ft^2)	Volume at 3" (ft^3)	# of 2 ft^3 Mulch Bags
4	4	16	4	2
6	4	24	6	3
8	4	32	8	4
6	6	36	9	5
8	6	48	12	6
10	6	60	15	8
12	6	72	18	9
13	7	91	23	12

Other sizes not listed - 1 bag per 8 ft^2 of media.

Maintenance Visit Procedure

Keep sufficient documentation of maintenance actions to predict location specific maintenance frequencies and needs. An example Maintenance Report is included in this manual.



1. Inspection of Filterra and surrounding area

- Record individual unit before maintenance with photograph (numbered). Record on Maintenance Report (see example in this document) the following:

Record on Maintenance Report the following:

Standing Water	yes | no
Damage to Box Structure	yes | no
Damage to Grate (if applicable)	yes | no
Is Bypass Clear	yes | no

If yes answered to any of these observations, record with close-up photograph (numbered).



2. Removal of tree grate (if applicable) and erosion control stones

- Remove cast iron grates for access into Filterra box (if applicable).
- Dig out silt (if any) and mulch and remove trash & foreign items.

3. Removal of debris, trash and mulch

Record on Maintenance Report the following:

Silt/Clay	yes | no
Cups/ Bags	yes | no
Leaves	yes | no
Buckets Removed	_____



- After removal of mulch and debris, measure distance from the top of the Filterra engineered media soil to the top of the top slab. Compare the measured distance to the distance shown on the approved Contract Drawings for the system. Add Filterra media (not top soil or other) to bring media up as needed to distance indicated on drawings.

Record on Maintenance Report the following:

Distance to Top of Top Slab (inches)	_____
Inches of Media Added	_____



4. Mulch replacement

- Add double shredded mulch evenly across the entire unit to a depth of 3".
- Refer to Filterra Mulch Specifications for information on acceptable sources.
- Ensure correct repositioning of erosion control stones by the Filterra inlet to allow for entry of trash during a storm event.
- Replace Filterra grates (if applicable) correctly using appropriate lifting or moving tools, taking care not to damage the plant.
- Where applicable, if 6" tree grate opening is too close to plant trunk, the grate opening may be expanded to 12" using a mini sledgehammer. Refer to instructions in Appendix 3.



5. Plant health evaluation and pruning or replacement as necessary

- Examine the plant's health and replace if necessary.
- Prune as necessary to encourage growth in the correct directions

Record on Maintenance Report the following:

Height above top of Filterra Unit	_____ (ft)
Width at Widest Point	_____ (ft)
Health	healthy | unhealthy
Damage to Plant	yes | no
Plant Replaced	yes | no



6. Clean area around Filterra

- Clean area around unit and remove all refuse to be disposed of appropriately.



7. Complete paperwork

- Deliver Maintenance Report and photographs to appropriate location (normally Contech during maintenance contract period).
- Some jurisdictions may require submission of maintenance reports in accordance with approvals. It is the responsibility of the Owner to comply with local regulations.

Maintenance Checklist

Drainage System Failure	Problem	Conditions to Check	Condition that Should Exist	Actions
Inlet	Excessive sediment or trash accumulation.	Accumulated sediments or trash impair free flow of water into Filterra.	Inlet should be free of obstructions allowing free distributed flow of water into Filterra.	Sediments and/or trash should be removed.
Mulch Cover	Trash and floatable debris accumulation.	Excessive trash and/or debris accumulation.	Minimal trash or other debris on mulch cover.	Trash and debris should be removed and mulch cover raked level. Ensure bark nugget mulch is not used.
Mulch Cover	"Ponding" of water on mulch cover.	"Ponding" in unit could be indicative of clogging due to excessive fine sediment accumulation or spill of petroleum oils.	Stormwater should drain freely and evenly through mulch cover.	Recommend contact manufacturer and replace mulch as a minimum.
Vegetation	Plants not growing or in poor condition.	Soil/mulch too wet, evidence of spill. Incorrect plant selection. Pest infestation. Vandalism to plants.	Plants should be healthy and pest free.	Contact manufacturer for advice.
Vegetation	Plant growth excessive.	Plants should be appropriate to the species and location of Filterra.		Trim/prune plants in accordance with typical landscaping and safety needs.
Structure	Structure has visible cracks.	Cracks wider than 1/2 inch or evidence of soil particles entering the structure through the cracks.		Vault should be repaired.
Maintenance is ideally to be performed twice annually.				

Filterra Inspection & Maintenance Log

Filterra System Size/Model:_____**Location:** _____

Date	Mulch & Debris Removed	Depth of Mulch Added	Mulch Brand	Height of Vegetation Above Top of Vault	Vegetation Species	Issues with System	Comments
1/1/17	*5 – 5 gal Buckets*	*3"*	*Lowe's Premium Brown Mulch*	*4'*	*Galaxy Magnolia*	*- Standing water in downstream structure*	*- Removed blockage in downstream structure*

Appendix 1 – Filterra® Activation Checklist

CONTECH® ENGINEERED SOLUTIONS

Project Name: _____ Company: _____

Site Contact Name: _____ Site Contact Phone/Email: _____

Site Owner/End User Name: _____ Site Owner/End User Phone/Email: _____

Preferred Activation Date: _____ (provide 2 weeks minimum from date this form is submitted)

Site Designation	System Size	Final Pavement / Top Coat Complete	Landscaping Complete / Grass Emerging	Construction materials / Piles / Debris Removed	Throat Opening Measures 4" Min. Height	Plant Species Requested
		☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No ☐ N/A	
		☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No ☐ N/A	
		☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No ☐ N/A	
		☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No ☐ N/A	
		☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No ☐ N/A	
		☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No ☐ N/A	
		☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No ☐ N/A	
		☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No ☐ N/A	
		☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No ☐ N/A	

Attach additional sheets as necessary.

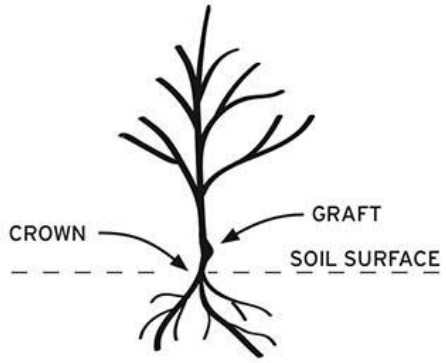
NOTE: A charge of $500.00 will be invoiced for each Activation visit requested by Customer where Contech determines that the site does not meet the conditions required for Activation. ONLY Contech authorized representatives can perform Activation of Filterra systems; unauthorized Activations will void the system warranty and waive manufacturer supplied Activation and 1st Year Maintenance.

_____ _____

Signature Date

Appendix 2 – Planting Requirements for Filterra® Systems

Plant Material Selection



- Select plant(s) as specified in the engineering plans and specifications.
- Select plant(s) with full root development but not to the point where root bound.
- Use local nursery container plants only. Ball and burlapped plants are not permitted.
- For precast Filterra systems with a tree grate, plant(s) must not have scaffold limbs at least 14 inches from the crown due to spacing between the top of the mulch and the tree grate. Lower branches can be pruned away provided there are sufficient scaffold branches for tree or shrub development.
- For precast Filterra systems with a tree grate, at the time of installation, it is required that plant(s) must be at least 6" above the tree grate opening at installation for all Filterra configurations. This DOES NOT apply to Full Grate Cover designs.
- Plant(s) shall not have a mature height greater than 25 feet.
- For standard 21" media depth, a 7 – 15 gallon container size shall be used. Media less than 21" (Filterra boxes only) may require smaller container plants.
- For precast Filterra systems, plant(s) should have a single trunk at installation, and pruning may be necessary at activation and maintenance for some with a tree grate of the faster growing species, or species known to produce basal sprouts.

Plant Installation

- During transport protect the plant foliage from wind and excessive jostling.
- Prior to removing the plant(s) from the container, ensure the soil moisture is sufficient to maintain the integrity of the root ball. If needed, pre-wet the container plant.
- Cut away any roots which are growing out of the container drain holes. Plants with excessive root growth from the drain holes should be rejected.
- Plant(s) should be carefully removed from the pot by gently pounding on the sides of the container with the fist to loosen root ball. Then carefully slide out. Do not lift plant(s) by trunk as this can break roots and cause soil to fall off. Extract the root ball in a horizontal position and support it to prevent it from breaking apart. Alternatively the pot can be cut away to minimize root ball disturbance.
- Remove any excess soil from above the root flare after removing plant(s) from container.
- Excavate a hole with a diameter 4" greater than the root ball, gently place the plant(s).
- If plant(s) have any circling roots from being pot bound, gently tease them loose without breaking them.
- If root ball has a root mat on the bottom, it should be shaved off with a knife just above the mat line.
- Plant the tree/shrub/grass with the top of the root ball 1" above surrounding media to allow for settling.
- All plants should have the main stem centered in the tree grate (where applicable) upon completion of installation.
- With all trees/shrubs, remove dead, diseased, crossed/rubbing, sharply crotched branches or branches growing excessively long or in wrong direction compared to majority of branches.
- To prevent transplant shock (especially if planting takes place in the hot season), it may be necessary to prune some of the foliage to compensate for reduced root uptake capacity. This is accomplished by pruning away some of the smaller secondary branches or a main scaffold branch if there are too many. Too much foliage relative to the root ball can dehydrate and damage the plant.
- Plant staking may be required.

Mulch Installation

- Only mulch that meets Contech Engineered Solutions' mulch specifications can be used in the Filterra system.
- Mulch must be applied to a depth of 3" evenly over the surface of the media.

Irrigation Requirements

- Each Filterra system must receive adequate irrigation to ensure survival of the living system during periods of drier weather.
- Irrigation sources include rainfall runoff from downspouts and/or gutter flow, applied water through the top/tree grate or in some cases from an irrigation system with emitters installed during construction.
- At Activation: Apply about one (cool climates) to two (warm climates) gallons of water per inch of trunk diameter over the root ball.
- During Establishment: In common with all plants, each Filterra plant will require more frequent watering during the establishment period. One inch of applied water per week for the first three months is recommended for cooler climates (2 to 3 inches for warmer climates). If the system is receiving rainfall runoff from the drainage area, then irrigation may not be needed. Inspection of the soil moisture content can be evaluated by gently brushing aside the mulch layer and feeling the soil. Be sure to replace the mulch when the assessment is complete. Irrigate as needed**.
- Established Plants: Established plants have fully developed root systems and can access the entire water column in the media. Therefore irrigation is less frequent but requires more applied water when performed. For a mature system assume 3.5 inches of available water within the media matrix. Irrigation demand can be estimated as 1" of irrigation demand per week. Therefore if dry periods exceed 3 weeks, irrigation may be required. It is also important to recognize that plants which are exposed to windy areas and reflected heat from paved surfaces may need more frequent irrigation. Long term care should develop a history which is more site specific.

** Five gallons per square yard approximates 1 inch of water Therefore for a 6' by 6' Filterra approximately 20-60 gallons of water is needed. To ensure even distribution of water it needs to be evenly sprinkled over the entire surface of the filter bed, with special attention to make sure the root ball is completely wetted. NOTE: if needed, measure the time it takes to fill a five gallon bucket to estimate the applied water flow rate then calculate the time needed to irrigate the Filterra. For example, if the flow rate of the sprinkler is 5 gallons/minute then it would take 12 minutes to irrigate a 6' by 6' filter.



Appendix 3 – Filterra® Tree Grate Opening Expansion Procedure

The standard grates used on all Filterra configurations that employ Tree Grates are fabricated with a 6″ opening that is designed with a breakaway section that can be removed, allowing the grate opening to be expanded to 12″ as the tree matures and the trunk widens.

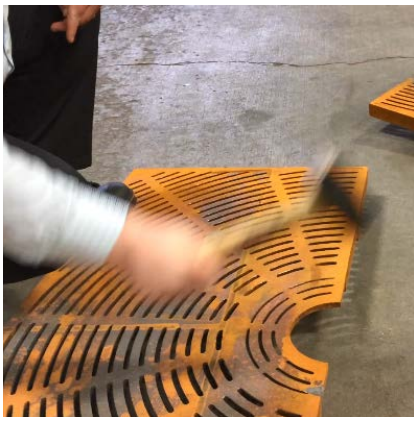
The following tools are required to expand the opening:

- Mini sledgehammer (3 lb. or greater)
- Safety Glasses / Goggles

The following guidelines should be followed to properly expand the tree opening from 6″ to 12″:



1. Remove the grate from the Filterra frame, place it flat on a hard surface, and support the grate by stepping on the edge or using other weighted items such as a few mulch bags if this is being done during a Filterra maintenance event. Put on safety glasses/goggles. Align the mini sledgehammer as shown in the figure to the left. The head of the sledgehammer should be aimed just inside the wide cast iron bar between the larger grate section and the breakaway section.



2. Repeatedly hit the grate at this spot with the mini sledgehammer.



3. After several hits, the breakaway section should snap cleanly off of the larger grate section. Reinstall the grate into the Filterra grate frame. Recycle or dispose of the breakaway section per local guidelines.





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PDF 6/21

Stormwater BMP Maintenance Log

BMP Structure	Inspector (Name)	Work Performed	Date Performed	Comments
Pavement Sweeping				
Catch Basins				
R-Tank System				
Jellyfish Unit				
Filterra Units				
Green Roof				
Other				
Additional Comments:				

APPENDIX B: STORMWATER QUALITY CALCULATIONS

Woodard & Curran
41 HUTCHINS DRIVE
PORTLAND, MAINE 04102

CLIENT: PFDC
PROJECT: Phase 2
CALCS BY: AL/LS
DATE: 4/11/2023
PROJECT NO.: 227007.19

Redevelopment Treatment Calculations - Per Section 4.C.2.d of the MaineDEP Chapter 500 Rules

Area of Redevelopment (acres) = 12.15

a. Existing Pollutant Impact

Land Use	Pollutant Ranking	Land Area (Ac.)	Impact
High Use Roads/Parking Lot	5	0.00	0.00
Other Roads/Medium Use Parking Lot	4	4.14	16.54
Other Parking Lots/Flat Asphalt Roofs/Industrial Roofs	3	2.70	8.09
Other Roofs/Landscaped Area/Paved Walkway	2	3.51	7.03
Non-grass Landscaping/Stormwater	1	1.80	1.80
Forest/Meadow	0	0.00	0.00
		12.15	33.46

b. Proposed Pollutant Impact

Land Use	Pollutant Ranking	Land Area (Ac.)	Impact
High Use Roads/Parking Lot	5	0.51	2.54
Other Roads/Medium Use Parking Lot	4	0.70	2.80
Other Parking Lots/Flat Asphalt Roofs/Industrial Roofs	3	0.55	1.66
Other Roofs/Landscaped Area/Paved Walkway	2	10.29	20.59
Non-grass Landscaping/Stormwater	1	0.09	0.09
Forest/Meadow	0	0.00	0.00
		12.15	27.68

c. Existing Impact/Total Redevelopment Acres

2.754

d. Proposed Impact/Total Redevelopment Acres

2.278

e. Item D Minus Item C

-0.48

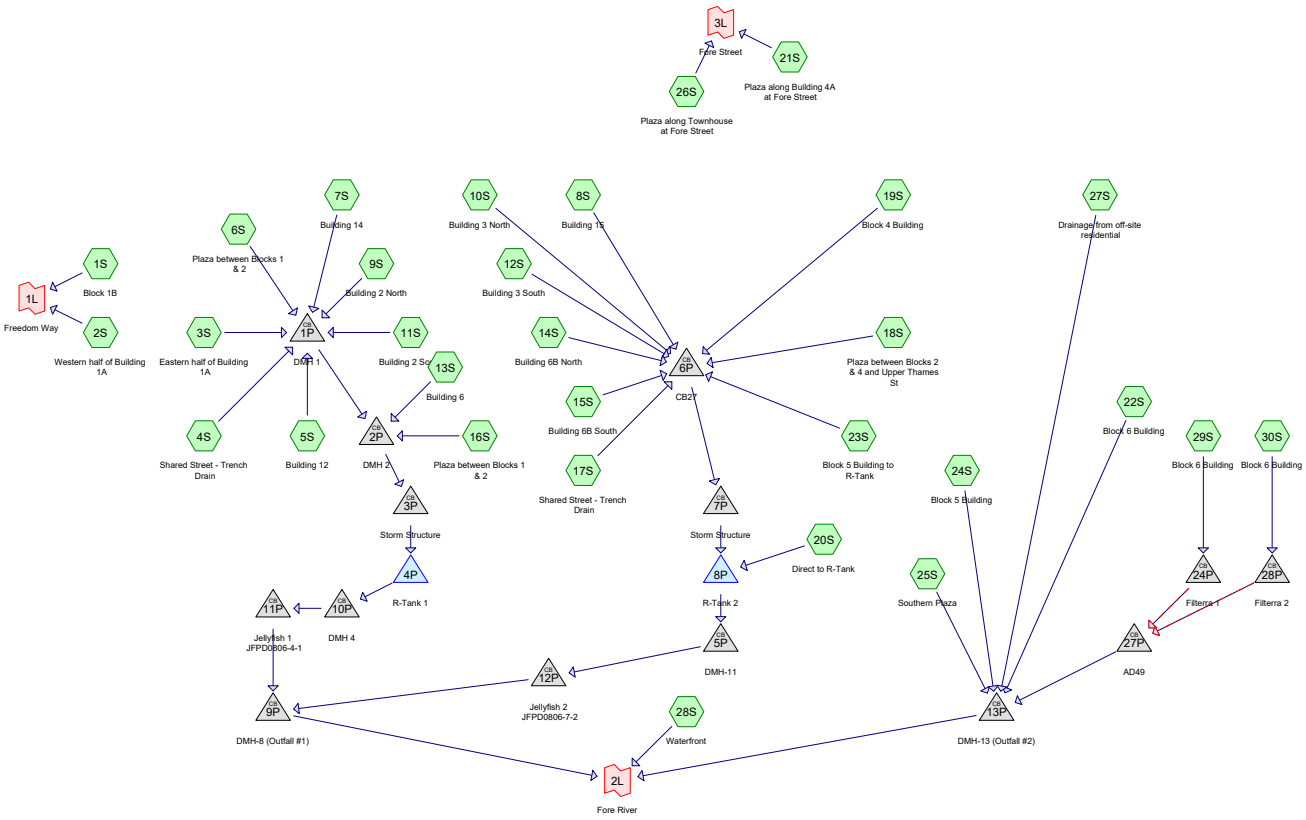
Ranked Impact Change Due to Redevelopment	Percentage of Developed Area that Must be Treated
0.0 or less	0% (Stormwater projects)
	50% (Site projects)
≥ 0.0 to ≤ 1.0	60%
> 1.0 to ≤ 2.0	70%
> 2.0 to ≤ 3.0	80%
> 3.0	Same treatment level as for new development

Stormwater Treatment Summary	*Treatment Percentage*	*Treated Area (SF)*
Required	50%	264,605
Provided	51%	271,000

WQV Summary	*R-Tank System 1*	*R-Tank System 2*	*Block 5 Green Roof*	*Filterra 1*	*Filterra 2*
Status	Approved (Phase 1), Constructed	Approved (Phase 1), Proposed	Proposed	Proposed	Proposed
Phase 1 Treated Area (SF)	84,114	114,084	N/A	N/A	N/A
Proposed Treated Area (SF)	89,644	149,106	8,300	11,975	11,975
Total Future Treated Areas (same as Phase 1) (SF)	94,090	149,106	N/A	N/A	N/A
WQV Required (CF)	7,841	12,426	692	998	998
WQ Design Storm Event (in.)	1.00	1.00	1.00	1.00	1.00
WQV Provided (CF)	2,859	6,035	N/A	N/A	N/A
*WQ Storm Event Provided (in.)**	0.36	0.49	N/A	N/A	N/A
Filterra Size	N/A	N/A	N/A	6'X8'	6'X8'

**Note: Based on discussions with Jeff Dennis, MaineDEP Watershed Management Unit Biologist, and consistent with the approach for Phase 1 of the development, it is our understanding that the project will not be required to provide storage for the full Water Quality Volume (WQV) because the project ultimately discharges to the Fore River. R-Tank Systems 1 & 2 were previously approved as part of Phase 1 of development, but only R-Tank System 1 was constructed. R-Tank System 2 is proposed to be installed during this next phase of development. Additional area may be directed to the R-Tank treatment systems as part of future phases of development; the total future treated area is consistent with what was approved during Phase 1. The WQ storm event that the proposed WQV will be able to accommodate has been calculated based upon the total future treated area.*

APPENDIX C: HYDROCAD REPORT


3L
Fore Street
21S
Plaza along Building 4A at Fore Street
26S
Plaza along Townhouse at Fore Street
7S
Building 14
10S
Building 3 North
8S
Building 1S
19S
Block 4 Building
27S
Drainage from off-site residential
6S
Plaza between Blocks 1 & 2
12S
Building 3 South
1S
Block 1B
9S
Building 2 North
1L
Freedom Way
2S
Western half of Building 1A
3S
Eastern half of Building 1A
1P
DMH 1
11S
Building 2 So
14S
Building 6B North
6P
CB27
18S
Plaza between Blocks 2 & 4 and Upper Thames St
13S
Building 6
15S
Building 6B South
22S
Block 6 Building
29S
Block 6 Building
30S
Block 6 Building
4S
Shared Street - Trench Drain
5S
Building 12
2P
DMH 2
16S
Plaza between Blocks 1 & 2
17S
Shared Street - Trench Drain
23S
Block 5 Building to R-Tank
24S
Block 5 Building
3P
Storm Structure
7P
Storm Structure
20S
Direct to R-Tank
25S
Southern Plaza
4P
R-Tank 1
8P
R-Tank 2
24P
Filterra 1
28P
Filterra 2
11P
Jellyfish 1 JFPD0806-4-1
10P
DMH 4
5P
DMH-11
27P
AD49
12P
Jellyfish 2 JFPD0806-7-2
9P
DMH-8 (Outfall #1)
13P
DMH-13 (Outfall #2)
28S
Waterfront
2L
Fore River
Subcat
Reach
Pond
Link
Routing Diagram for PFDC Working Model
Prepared by Woodard & Curran, Inc, Printed 6/22/2023
HydroCAD® 10.20-2d s/n 01204 © 2021 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
1.914	80	>75% Grass cover, Good, HSG D (1S, 4S, 6S, 16S, 27S, 28S)
5.607	98	Impervious (1S, 4S, 6S, 16S, 17S, 18S, 20S, 21S, 23S, 24S, 25S, 26S, 27S, 28S)
5.399	98	Roof (2S, 3S, 5S, 7S, 8S, 9S, 10S, 11S, 12S, 13S, 14S, 15S, 19S, 22S, 29S, 30S)
12.919	**95**	**TOTAL AREA**

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: Block 1B Runoff Area=19,389 sf 1.02% Impervious Runoff Depth>0.08"
Tc=6.0 min CN=80 Runoff=0.02 cfs 0.003 af

Subcatchment2S: Western half of Runoff Area=22,128 sf 100.00% Impervious Runoff Depth>0.79"
Tc=6.0 min CN=98 Runoff=0.44 cfs 0.033 af

Subcatchment3S: Eastern half of Runoff Area=22,147 sf 100.00% Impervious Runoff Depth>0.79"
Tc=6.0 min CN=98 Runoff=0.44 cfs 0.033 af

Subcatchment4S: Shared Street - Trench Runoff Area=26,424 sf 83.24% Impervious Runoff Depth>0.56"
Tc=6.0 min CN=95 Runoff=0.39 cfs 0.028 af

Subcatchment5S: Building 12 Runoff Area=3,244 sf 100.00% Impervious Runoff Depth>0.79"
Tc=6.0 min CN=98 Runoff=0.06 cfs 0.005 af

Subcatchment6S: Plaza between Blocks 1 Runoff Area=18,771 sf 95.74% Impervious Runoff Depth>0.71"
Tc=6.0 min CN=97 Runoff=0.34 cfs 0.025 af

Subcatchment7S: Building 14 Runoff Area=2,557 sf 100.00% Impervious Runoff Depth>0.79"
Tc=6.0 min CN=98 Runoff=0.05 cfs 0.004 af

Subcatchment8S: Building 15 Runoff Area=2,578 sf 100.00% Impervious Runoff Depth>0.79"
Tc=6.0 min CN=98 Runoff=0.05 cfs 0.004 af

Subcatchment9S: Building 2 North Runoff Area=4,695 sf 100.00% Impervious Runoff Depth>0.79"
Tc=6.0 min CN=98 Runoff=0.09 cfs 0.007 af

Subcatchment10S: Building 3 North Runoff Area=2,212 sf 100.00% Impervious Runoff Depth>0.79"
Tc=6.0 min CN=98 Runoff=0.04 cfs 0.003 af

Subcatchment11S: Building 2 South Runoff Area=4,855 sf 100.00% Impervious Runoff Depth>0.79"
Tc=6.0 min CN=98 Runoff=0.10 cfs 0.007 af

Subcatchment12S: Building 3 South Runoff Area=2,326 sf 100.00% Impervious Runoff Depth>0.79"
Tc=6.0 min CN=98 Runoff=0.05 cfs 0.004 af

Subcatchment13S: Building 6 Runoff Area=3,304 sf 100.00% Impervious Runoff Depth>0.79"
Tc=6.0 min CN=98 Runoff=0.07 cfs 0.005 af

Subcatchment14S: Building 6B North Runoff Area=4,296 sf 100.00% Impervious Runoff Depth>0.79"
Tc=6.0 min CN=98 Runoff=0.09 cfs 0.006 af

Subcatchment15S: Building 6B South Runoff Area=2,512 sf 100.00% Impervious Runoff Depth>0.79"
Tc=6.0 min CN=98 Runoff=0.05 cfs 0.004 af

Subcatchment16S: Plaza between Blocks 1 Runoff Area=3,650 sf 75.84% Impervious Runoff Depth>0.50"
Tc=6.0 min CN=94 Runoff=0.05 cfs 0.004 af

Subcatchment17S: Shared Street - Trench Runoff Area=8,719 sf 100.00% Impervious Runoff Depth>0.79"
Tc=6.0 min CN=98 Runoff=0.17 cfs 0.013 af

Subcatchment18S: Plaza between Runoff Area=28,813 sf 100.00% Impervious Runoff Depth>0.79"
Tc=6.0 min CN=98 Runoff=0.58 cfs 0.044 af

Subcatchment19S: Block 4 Building Runoff Area=86,592 sf 100.00% Impervious Runoff Depth>0.79"
Tc=6.0 min CN=98 Runoff=1.73 cfs 0.131 af

Subcatchment20S: Direct to R-Tank Runoff Area=7,210 sf 100.00% Impervious Runoff Depth>0.79"
Tc=6.0 min CN=98 Runoff=0.14 cfs 0.011 af

Subcatchment21S: Plaza along Building Runoff Area=2,534 sf 100.00% Impervious Runoff Depth>0.79"
Tc=6.0 min CN=98 Runoff=0.05 cfs 0.004 af

Subcatchment22S: Block 6 Building Runoff Area=47,780 sf 100.00% Impervious Runoff Depth>0.79"
Tc=6.0 min CN=98 Runoff=0.95 cfs 0.072 af

Subcatchment23S: Block 5 Building to Runoff Area=11,218 sf 100.00% Impervious Runoff Depth>0.79"
Tc=6.0 min CN=98 Runoff=0.22 cfs 0.017 af

Subcatchment24S: Block 5 Building Runoff Area=30,570 sf 100.00% Impervious Runoff Depth>0.79"
Tc=6.0 min CN=98 Runoff=0.61 cfs 0.046 af

Subcatchment25S: Southern Plaza Runoff Area=11,168 sf 100.00% Impervious Runoff Depth>0.79"
Tc=6.0 min CN=98 Runoff=0.22 cfs 0.017 af

Subcatchment26S: Plaza along Townhouse Runoff Area=550 sf 100.00% Impervious Runoff Depth>0.79"
Tc=6.0 min CN=98 Runoff=0.01 cfs 0.001 af

Subcatchment27S: Drainage from off-site Runoff Area=49,238 sf 43.84% Impervious Runoff Depth>0.25"
Tc=6.0 min CN=88 Runoff=0.29 cfs 0.024 af

Subcatchment28S: Waterfront Runoff Area=109,324 sf 72.19% Impervious Runoff Depth>0.45"
Tc=6.0 min CN=93 Runoff=1.29 cfs 0.094 af

Subcatchment29S: Block 6 Building Runoff Area=11,975 sf 100.00% Impervious Runoff Depth>0.79"
Tc=6.0 min CN=98 Runoff=0.24 cfs 0.018 af

Subcatchment30S: Block 6 Building Runoff Area=11,975 sf 100.00% Impervious Runoff Depth>0.79"
Tc=6.0 min CN=98 Runoff=0.24 cfs 0.018 af

Pond 1P: DMH 1 Peak Elev=10.40' Inflow=1.48 cfs 0.110 af
24.0" Round Culvert n=0.013 L=61.0' S=0.0038 '/' Outflow=1.48 cfs 0.110 af

Pond 2P: DMH 2 Peak Elev=10.12' Inflow=1.60 cfs 0.119 af
24.0" Round Culvert n=0.013 L=31.0' S=0.0048 '/' Outflow=1.60 cfs 0.119 af

Pond 3P: Storm Structure Peak Elev=8.81' Inflow=1.60 cfs 0.119 af
15.0" Round Culvert x 3.00 n=0.013 L=4.0' S=0.0000 '/' Outflow=1.60 cfs 0.119 af

Pond 4P: R-Tank 1 Peak Elev=7.51' Storage=838 cf Inflow=1.60 cfs 0.119 af
21.0" Round Culvert n=0.013 L=62.0' S=0.0000 '/' Outflow=1.30 cfs 0.114 af

Pond 5P: DMH-11 Peak Elev=8.54' Inflow=1.96 cfs 0.219 af
24.0" Round Culvert n=0.013 L=16.0' S=0.0069 '/' Outflow=1.96 cfs 0.219 af

Pond 6P: CB27 Peak Elev=10.43' Inflow=2.98 cfs 0.226 af
24.0" Round Culvert n=0.013 L=22.0' S=0.0064 '/' Outflow=2.98 cfs 0.226 af

Pond 7P: Storm Structure Peak Elev=9.03' Inflow=2.98 cfs 0.226 af
15.0" Round Culvert x 3.00 n=0.013 L=4.0' S=0.0000 '/' Outflow=2.98 cfs 0.226 af

Pond 8P: R-Tank 2 Peak Elev=8.71' Storage=2,746 cf Inflow=3.12 cfs 0.237 af
24.0" Round Culvert n=0.013 L=70.0' S=0.0000 '/' Outflow=1.96 cfs 0.219 af

Pond 9P: DMH-8 (Outfall #1) Peak Elev=7.42' Inflow=3.24 cfs 0.333 af
30.0" Round Culvert n=0.013 L=52.0' S=0.0052 '/' Outflow=3.24 cfs 0.333 af

Pond 10P: DMH 4 Peak Elev=7.47' Inflow=1.30 cfs 0.114 af
24.0" Round Culvert n=0.013 L=59.0' S=0.0000 '/' Outflow=1.30 cfs 0.114 af

Pond 11P: Jellyfish 1 JFPD0806-4-1 Peak Elev=9.73' Inflow=1.30 cfs 0.114 af
Outflow=1.30 cfs 0.114 af

Pond 12P: Jellyfish 2 JFPD0806-7-2 Peak Elev=10.01' Inflow=1.96 cfs 0.219 af
Outflow=1.96 cfs 0.219 af

Pond 13P: DMH-13 (Outfall #2) Peak Elev=7.47' Inflow=2.55 cfs 0.195 af
24.0" Round Culvert n=0.013 L=75.0' S=0.0051 '/' Outflow=2.55 cfs 0.195 af

Pond 24P: Filterra 1 Peak Elev=14.80' Inflow=0.24 cfs 0.018 af
Primary=0.24 cfs 0.018 af Secondary=0.00 cfs 0.000 af Outflow=0.24 cfs 0.018 af

Pond 27P: AD49 Peak Elev=14.39' Inflow=0.48 cfs 0.036 af
12.0" Round Culvert n=0.013 L=240.0' S=0.0301 '/' Outflow=0.48 cfs 0.036 af

Pond 28P: Filterra 2 Peak Elev=14.80' Inflow=0.24 cfs 0.018 af
Primary=0.24 cfs 0.018 af Secondary=0.00 cfs 0.000 af Outflow=0.24 cfs 0.018 af

Link 1L: Freedom Way Inflow=0.45 cfs 0.037 af
Primary=0.45 cfs 0.037 af

Link 2L: Fore River Inflow=6.66 cfs 0.623 af
Primary=6.66 cfs 0.623 af

Link 3L: Fore Street Inflow=0.06 cfs 0.005 af
Primary=0.06 cfs 0.005 af

Total Runoff Area = 12.919 ac Runoff Volume = 0.686 af Average Runoff Depth = 0.64"
14.81% Pervious = 1.914 ac 85.19% Impervious = 11.005 ac

Summary for Subcatchment 1S: Block 1B

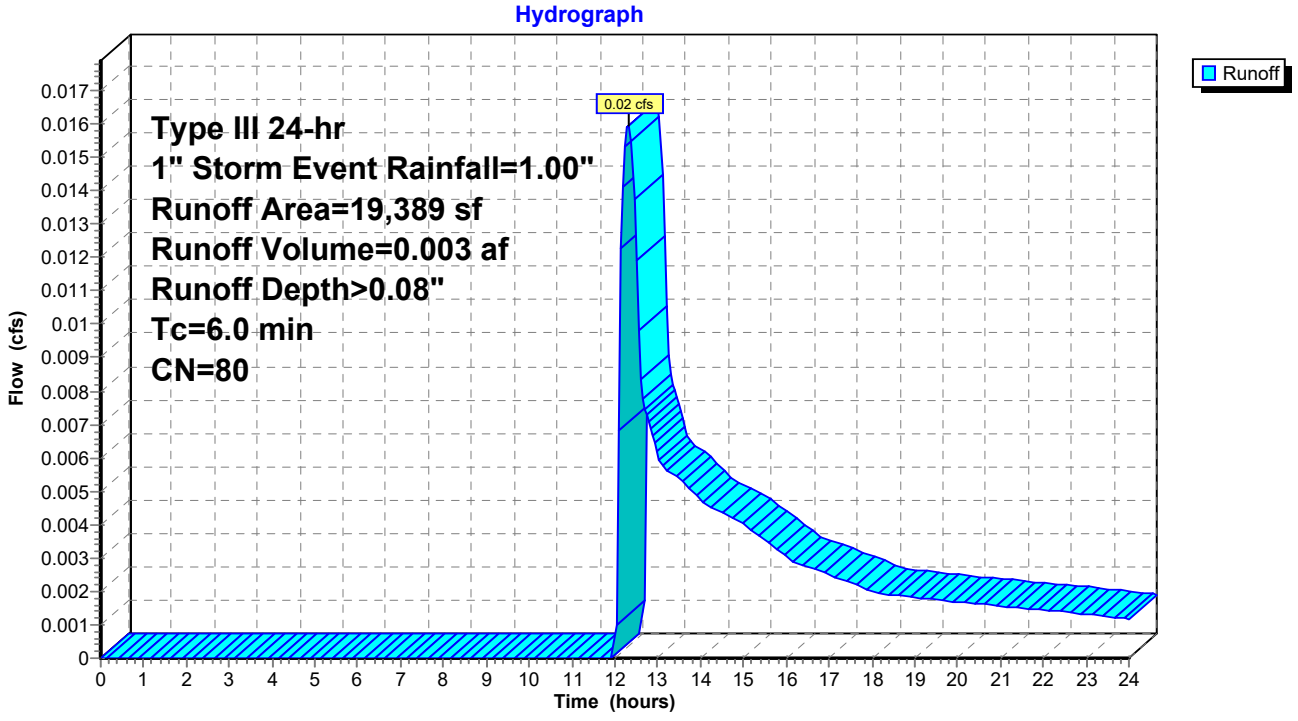
Runoff = 0.02 cfs @ 12.32 hrs, Volume= 0.003 af, Depth> 0.08"
Routed to Link 1L : Freedom Way

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	198	98	Impervious
	19,191	80	>75% Grass cover, Good, HSG D
	19,389	80	Weighted Average
	19,191		98.98% Pervious Area
	198		1.02% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 1S: Block 1B



Summary for Subcatchment 2S: Western half of Building 1A

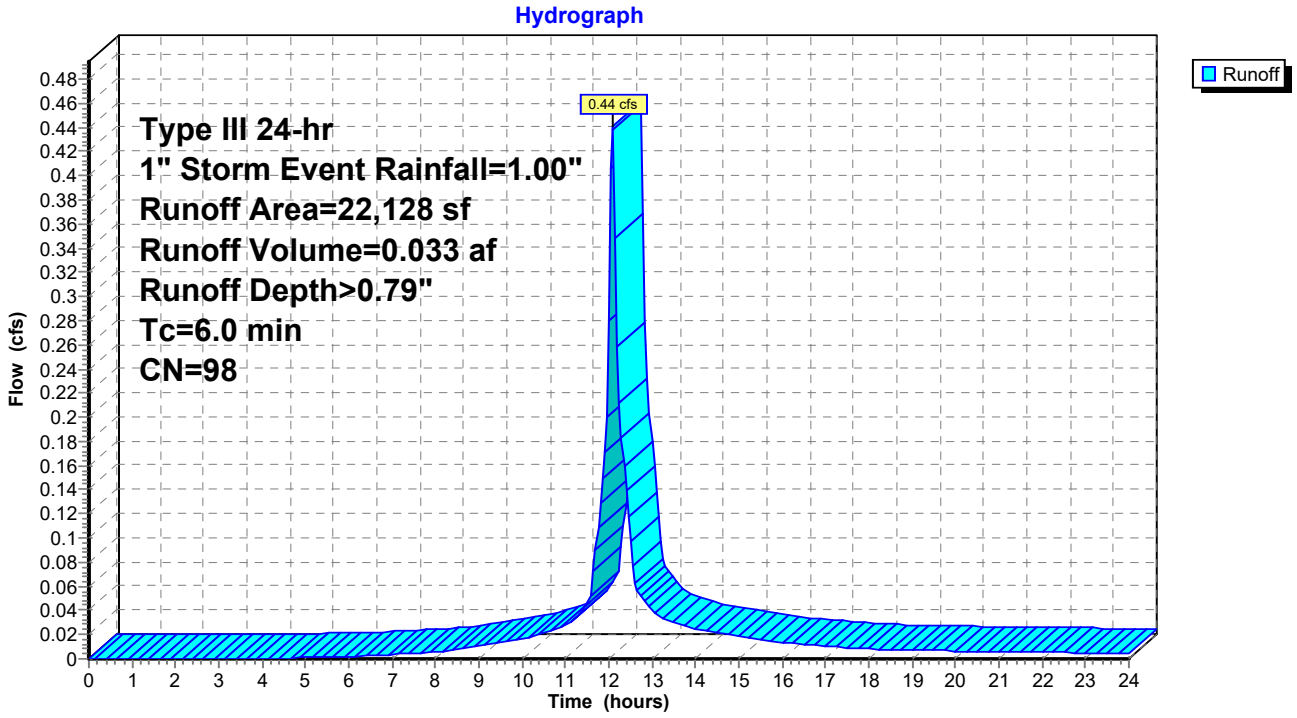
Runoff = 0.44 cfs @ 12.09 hrs, Volume= 0.033 af, Depth> 0.79"
Routed to Link 1L : Freedom Way

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	22,128	98	Roof
	22,128		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 2S: Western half of Building 1A



Summary for Subcatchment 3S: Eastern half of Building 1A

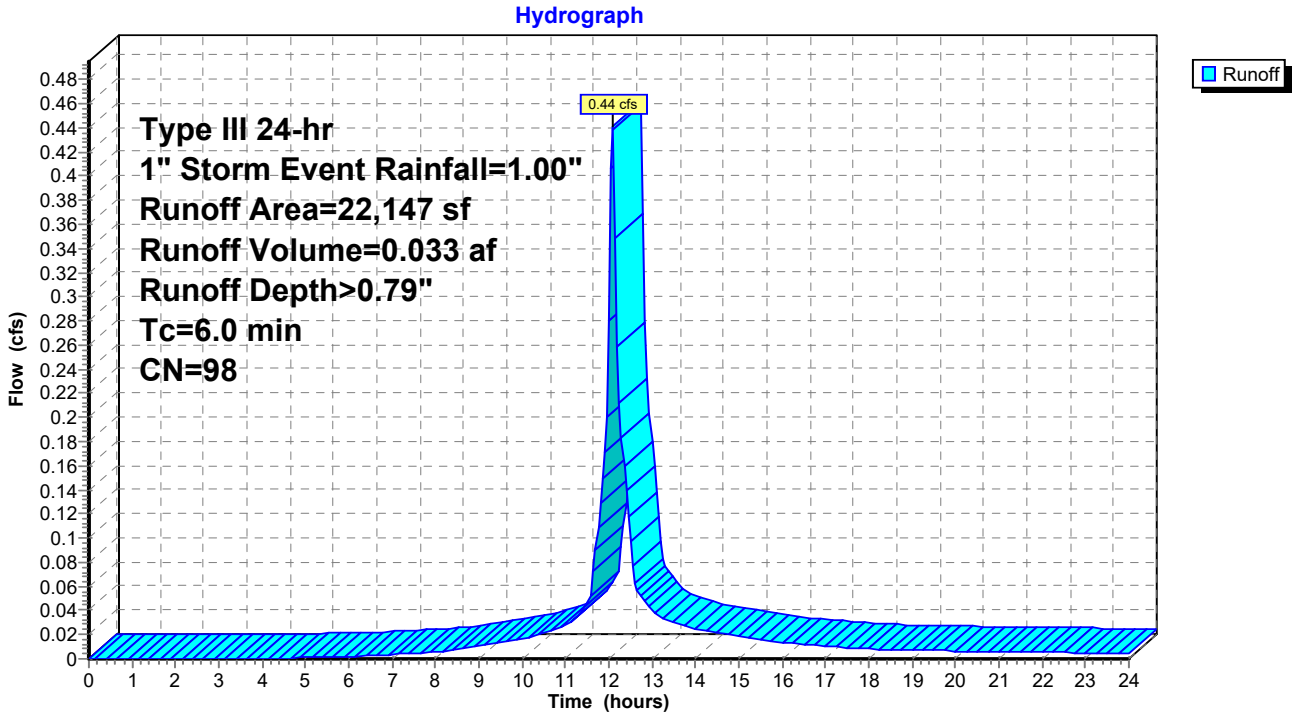
Runoff = 0.44 cfs @ 12.09 hrs, Volume= 0.033 af, Depth> 0.79"
Routed to Pond 1P : DMH 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	22,147	98	Roof
	22,147		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 3S: Eastern half of Building 1A



Summary for Subcatchment 4S: Shared Street - Trench Drain

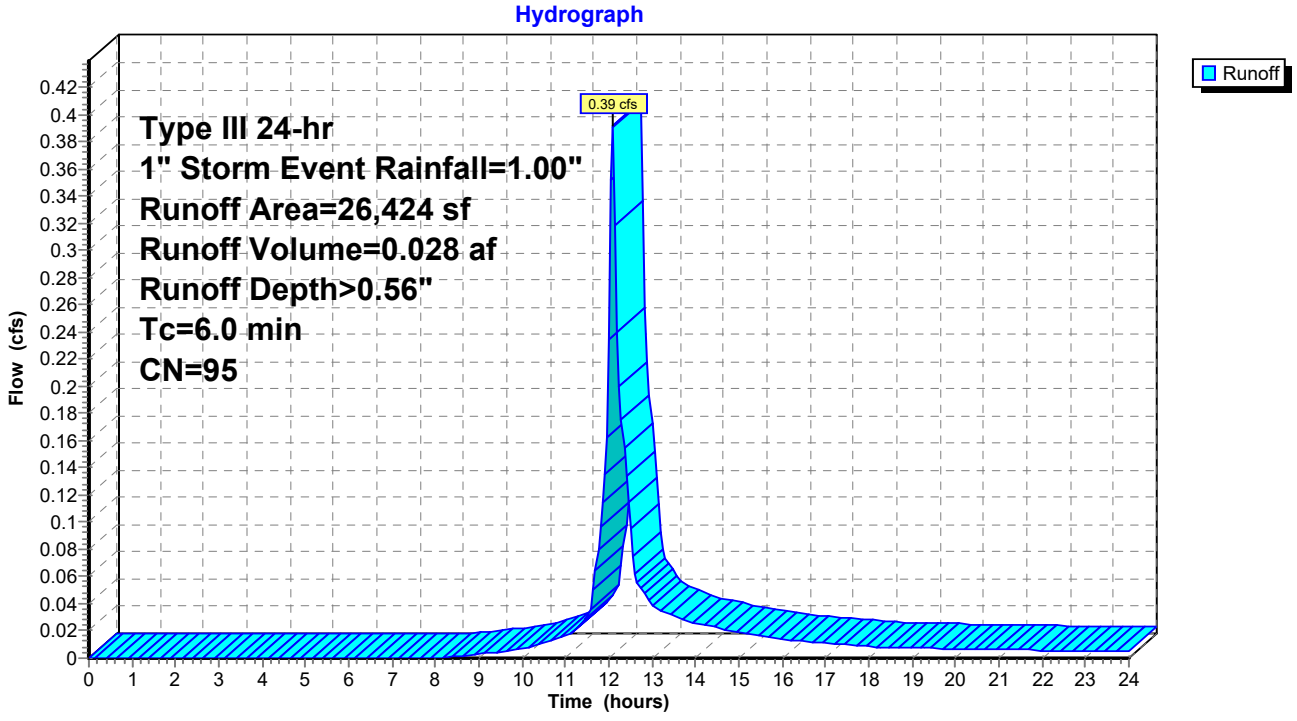
Runoff = 0.39 cfs @ 12.09 hrs, Volume= 0.028 af, Depth> 0.56"
Routed to Pond 1P : DMH 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
	4,428	80	>75% Grass cover, Good, HSG D
*	21,996	98	Impervious
	26,424	95	Weighted Average
	4,428		16.76% Pervious Area
	21,996		83.24% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 4S: Shared Street - Trench Drain



Summary for Subcatchment 5S: Building 12

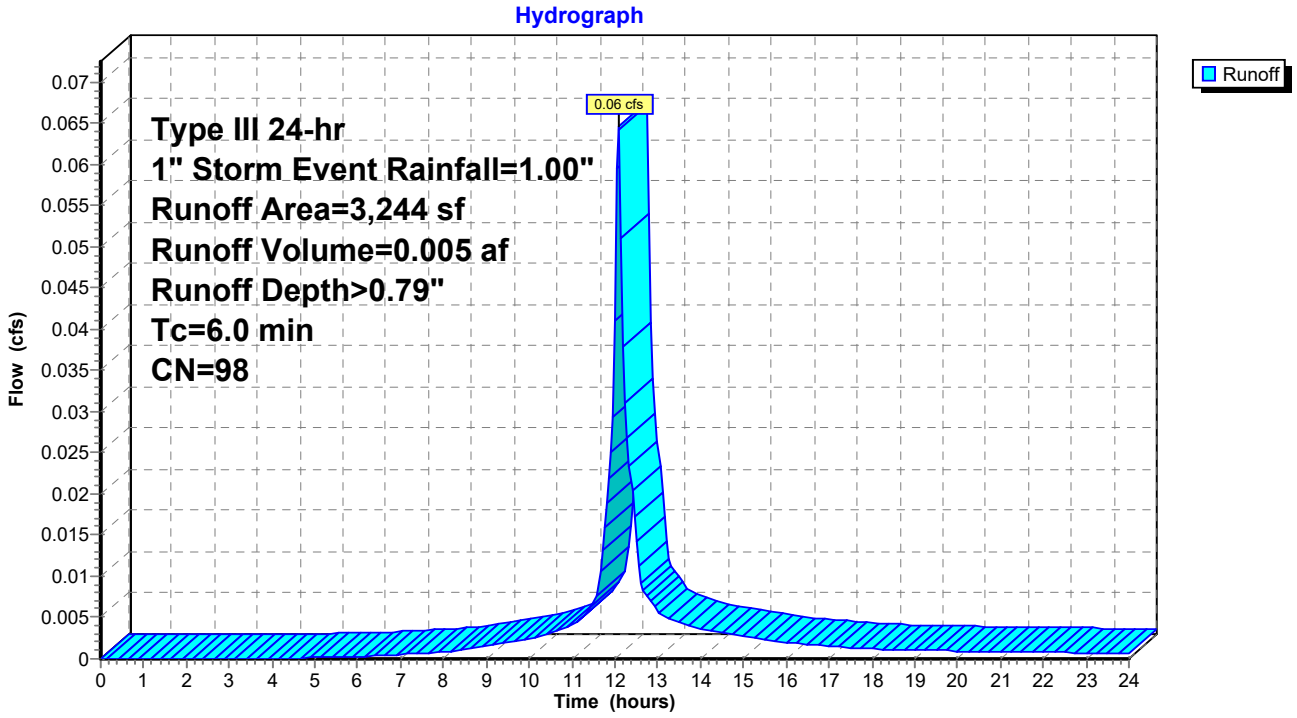
Runoff = 0.06 cfs @ 12.09 hrs, Volume= 0.005 af, Depth> 0.79"
Routed to Pond 1P : DMH 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	3,244	98	Roof
	3,244		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 5S: Building 12



Summary for Subcatchment 6S: Plaza between Blocks 1 & 2

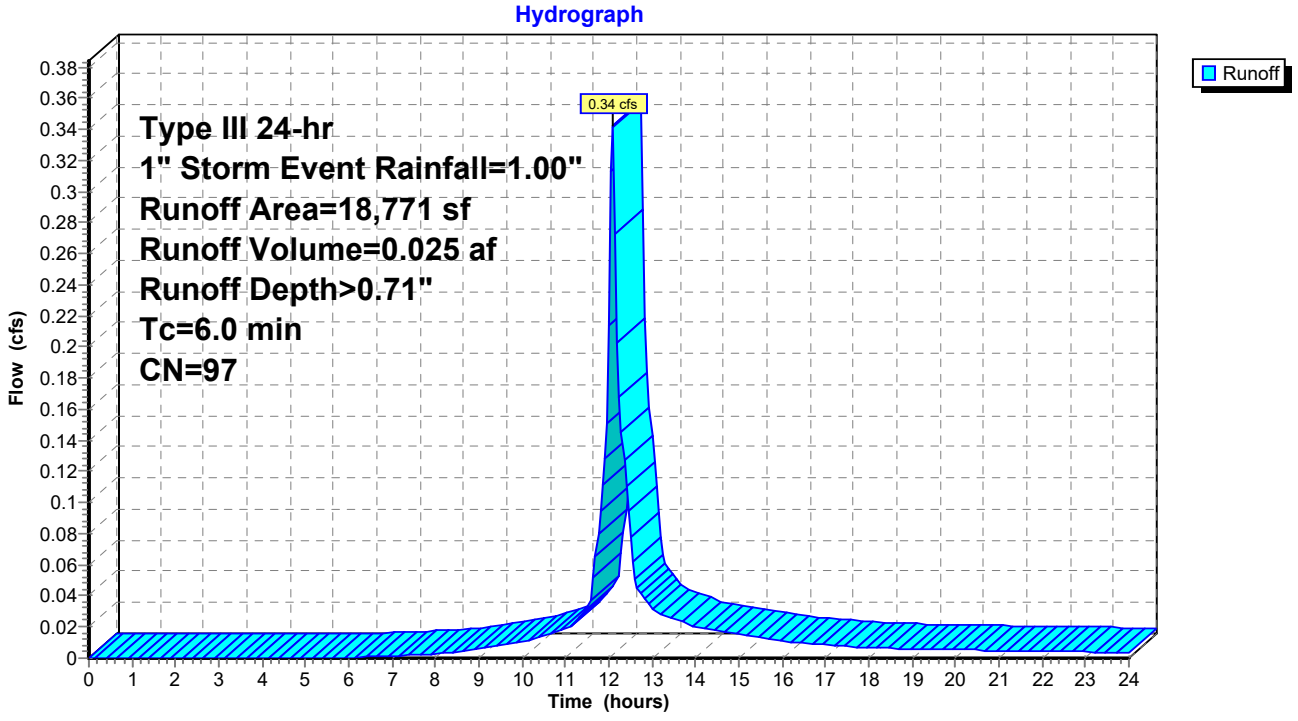
Runoff = 0.34 cfs @ 12.09 hrs, Volume= 0.025 af, Depth> 0.71"
Routed to Pond 1P : DMH 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	17,972	98	Impervious
	799	80	>75% Grass cover, Good, HSG D
	18,771	97	Weighted Average
	799		4.26% Pervious Area
	17,972		95.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 6S: Plaza between Blocks 1 & 2



Summary for Subcatchment 7S: Building 14

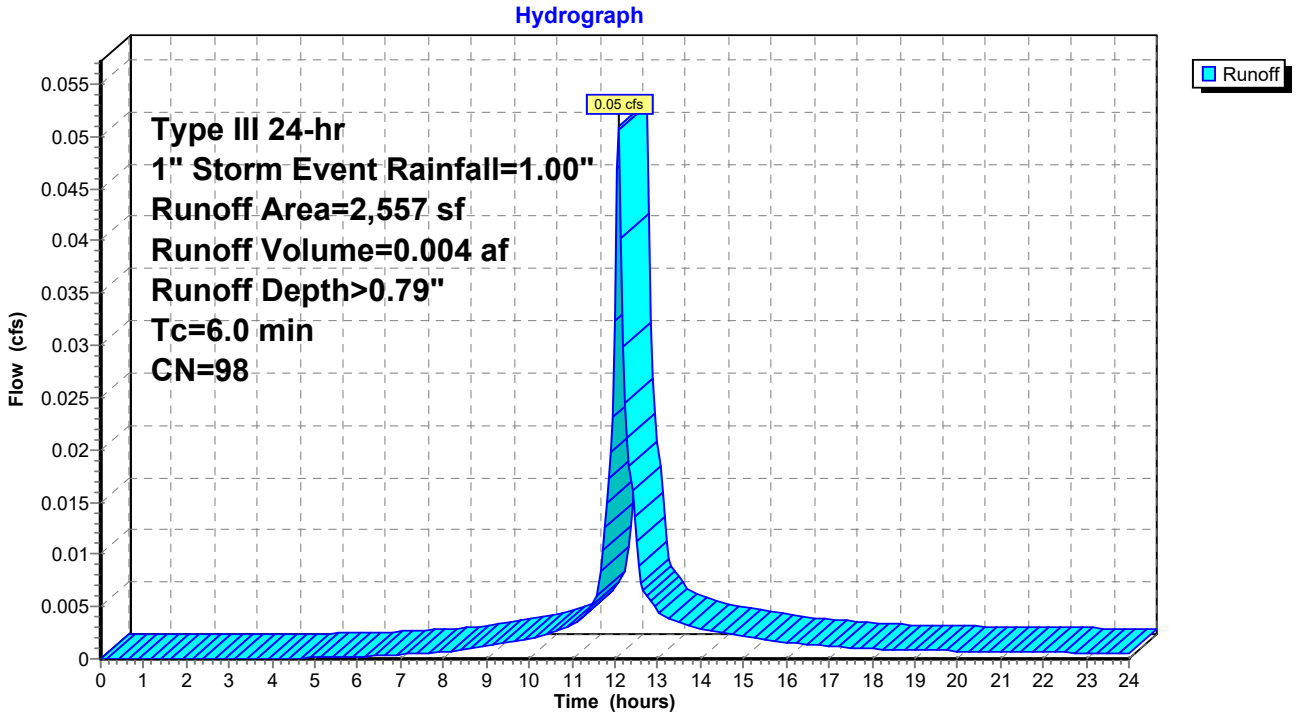
Runoff = 0.05 cfs @ 12.09 hrs, Volume= 0.004 af, Depth> 0.79"
Routed to Pond 1P : DMH 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	2,557	98	Roof
	2,557		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 7S: Building 14



Summary for Subcatchment 8S: Building 15

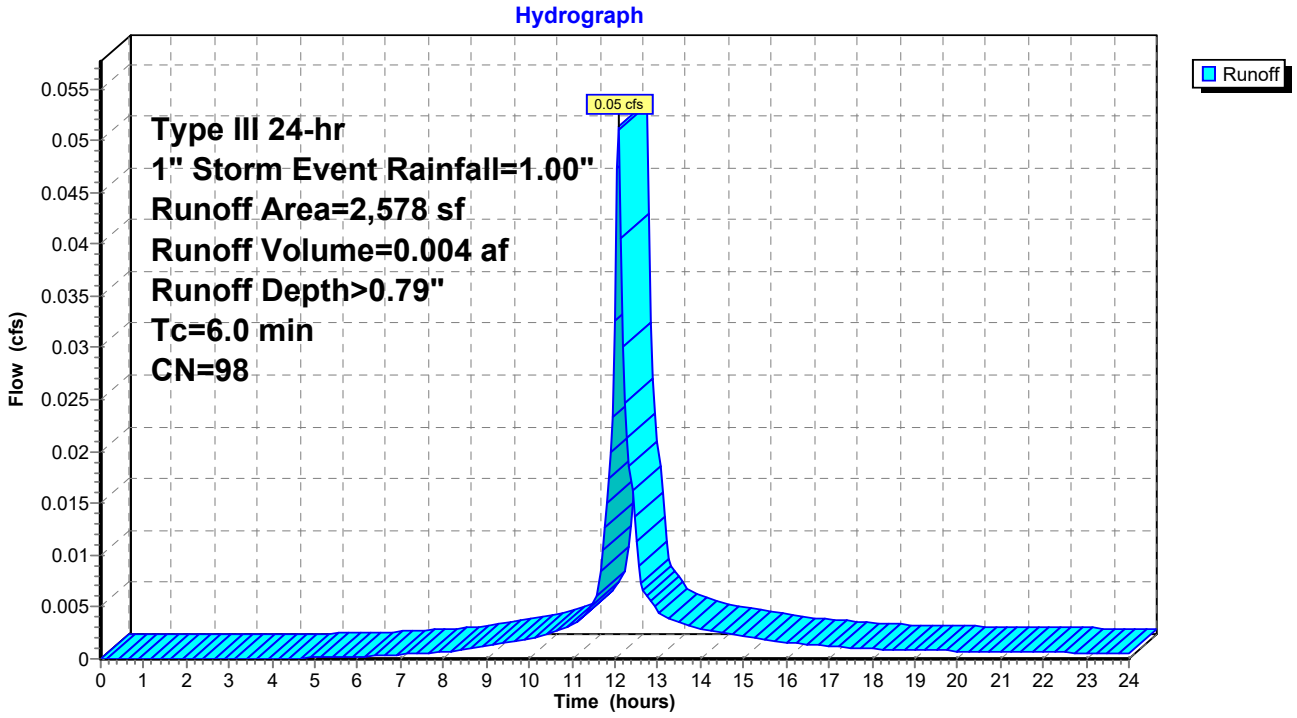
Runoff = 0.05 cfs @ 12.09 hrs, Volume= 0.004 af, Depth> 0.79"
Routed to Pond 6P : CB27

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	2,578	98	Roof
	2,578		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 8S: Building 15



Summary for Subcatchment 9S: Building 2 North

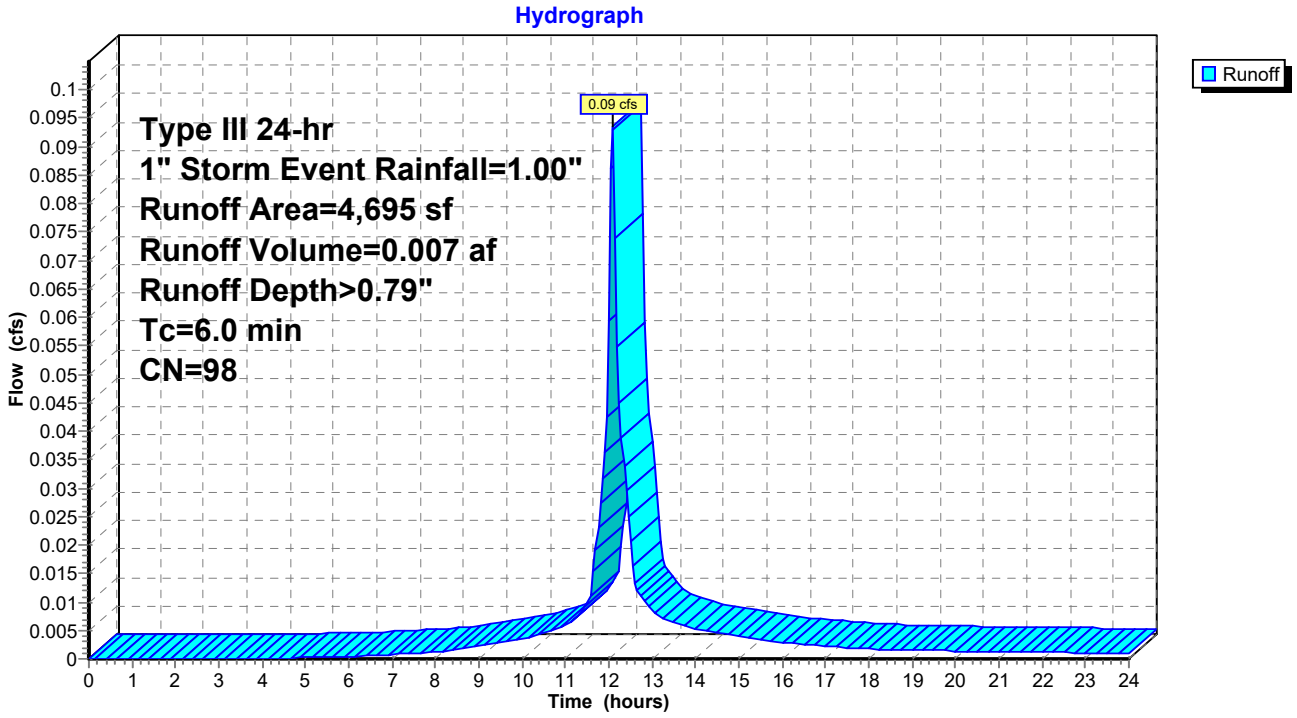
Runoff = 0.09 cfs @ 12.09 hrs, Volume= 0.007 af, Depth> 0.79"
Routed to Pond 1P : DMH 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	4,695	98	Roof
	4,695		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 9S: Building 2 North



Summary for Subcatchment 10S: Building 3 North

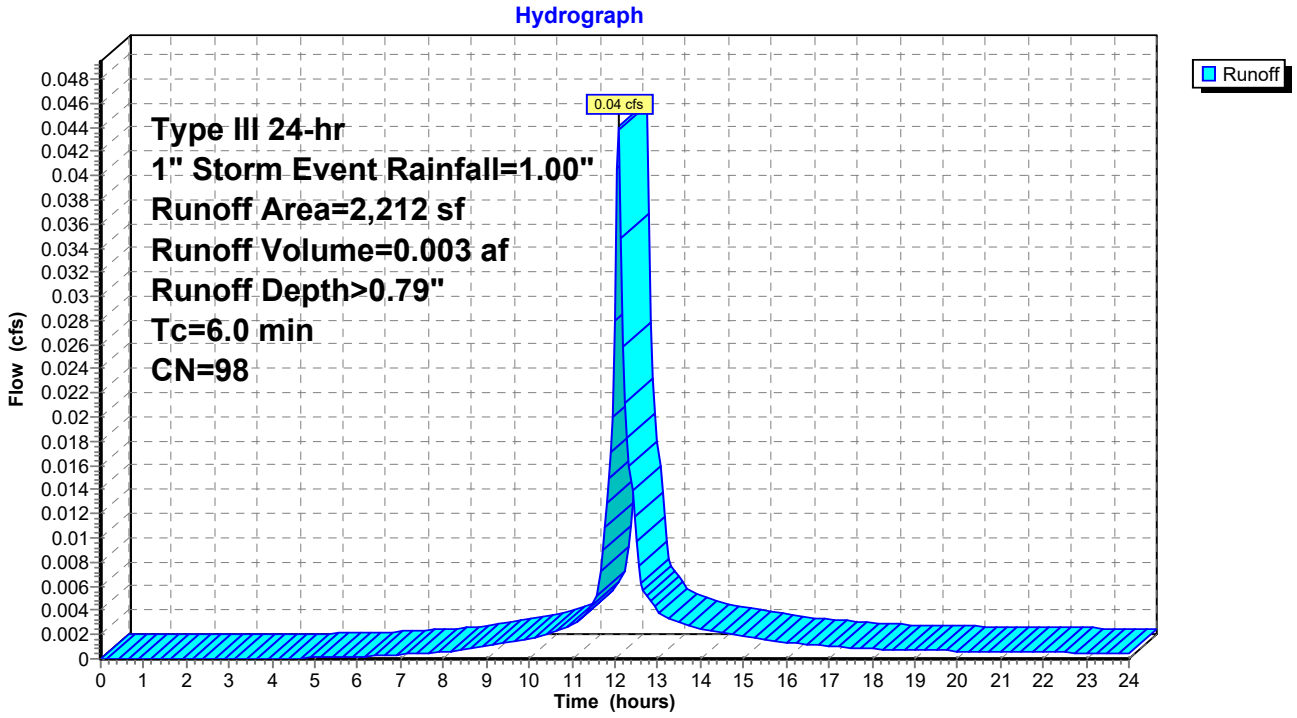
Runoff = 0.04 cfs @ 12.09 hrs, Volume= 0.003 af, Depth> 0.79"
Routed to Pond 6P : CB27

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	2,212	98	Roof
	2,212		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 10S: Building 3 North



Summary for Subcatchment 11S: Building 2 South

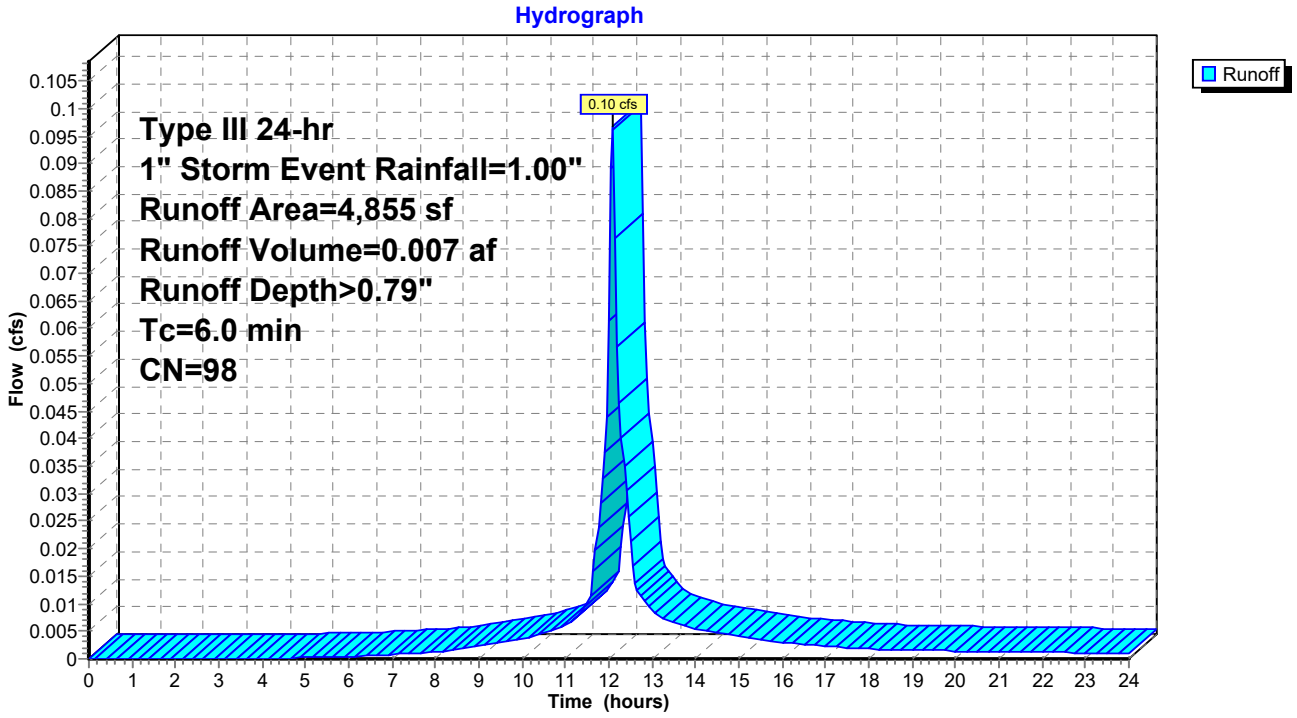
Runoff = 0.10 cfs @ 12.09 hrs, Volume= 0.007 af, Depth> 0.79"
Routed to Pond 1P : DMH 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	4,855	98	Roof
	4,855		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 11S: Building 2 South



Summary for Subcatchment 12S: Building 3 South

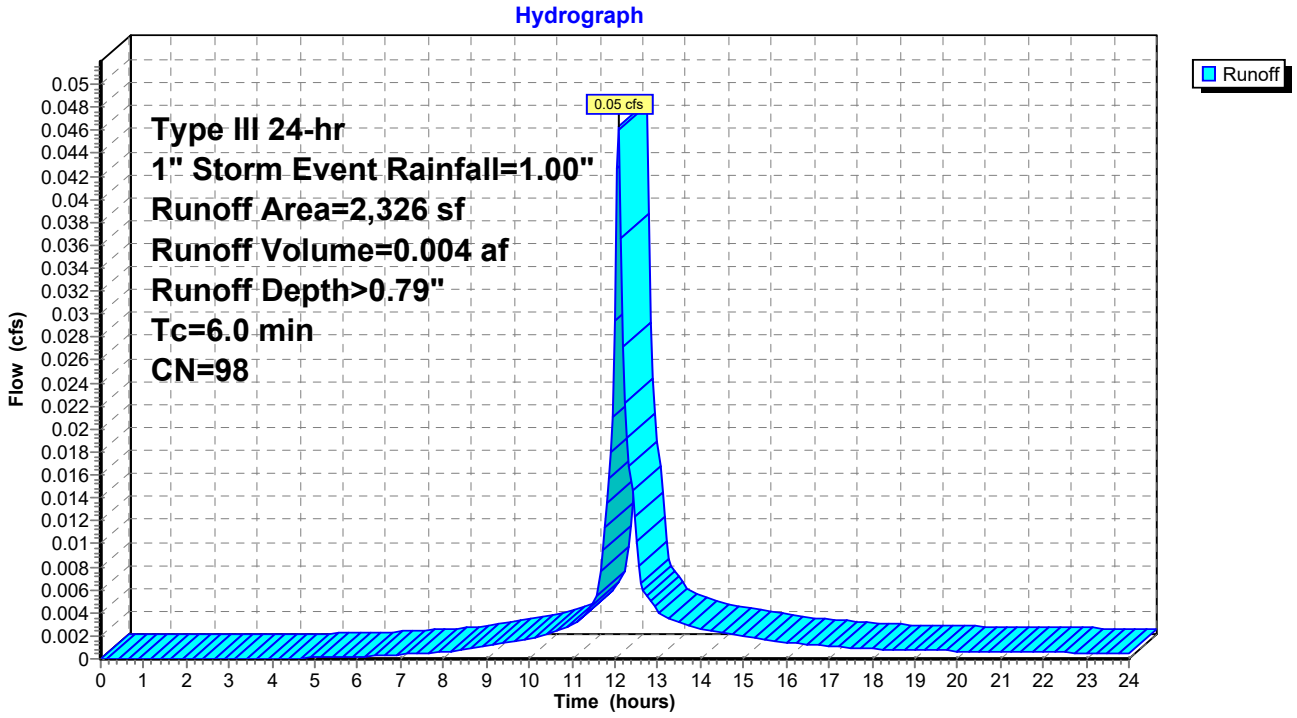
Runoff = 0.05 cfs @ 12.09 hrs, Volume= 0.004 af, Depth> 0.79"
Routed to Pond 6P : CB27

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	2,326	98	Roof
	2,326		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 12S: Building 3 South



Summary for Subcatchment 13S: Building 6

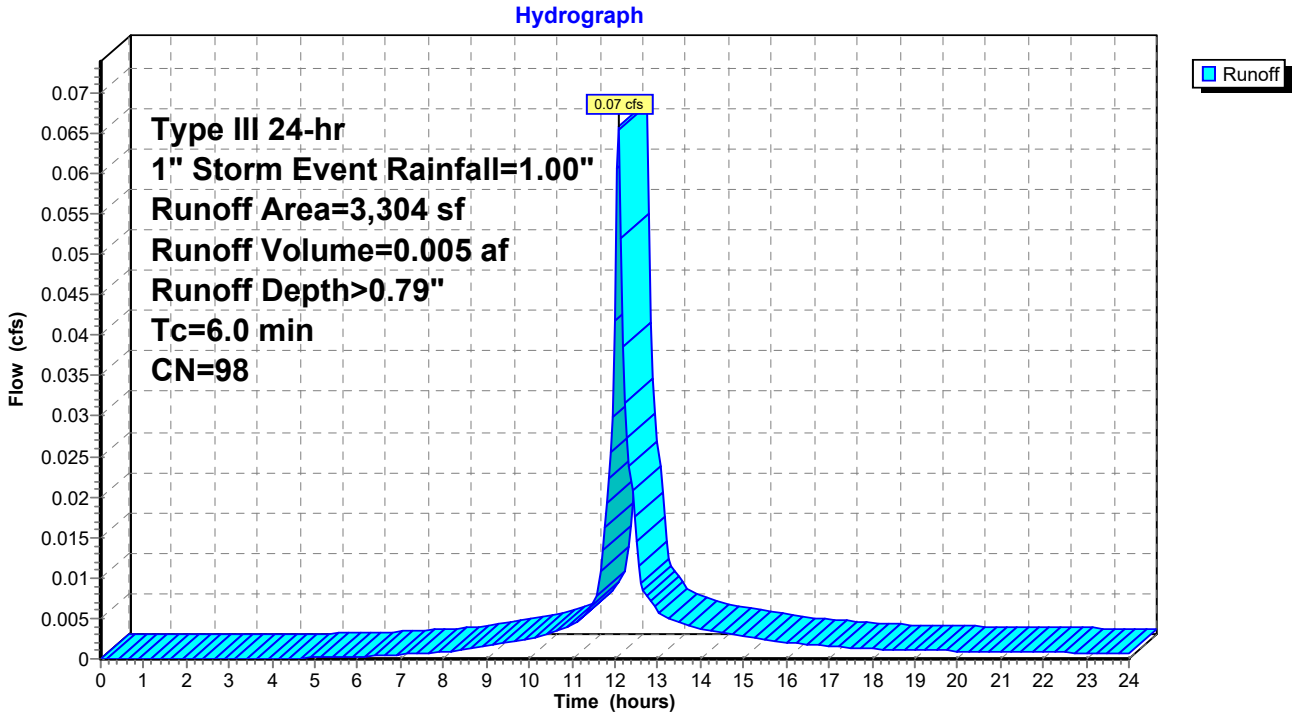
Runoff = 0.07 cfs @ 12.09 hrs, Volume= 0.005 af, Depth> 0.79"
Routed to Pond 2P : DMH 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	3,304	98	Roof
	3,304		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 13S: Building 6



Summary for Subcatchment 14S: Building 6B North

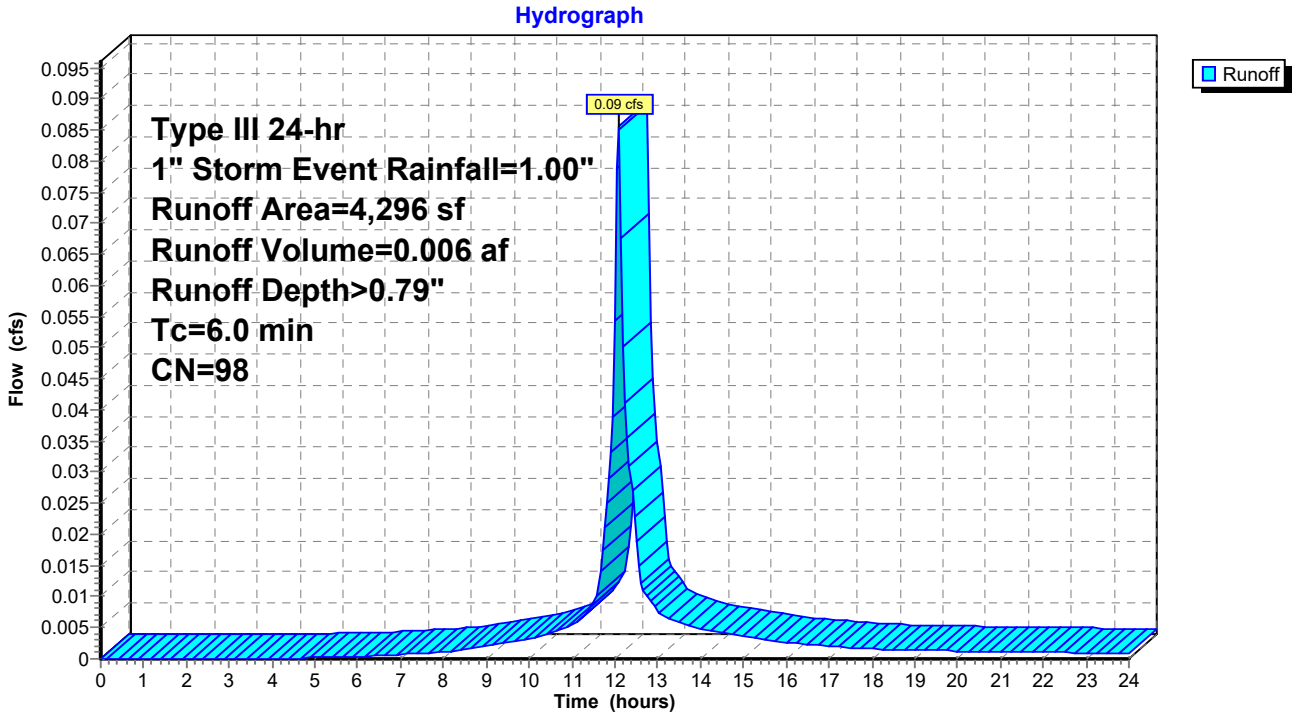
Runoff = 0.09 cfs @ 12.09 hrs, Volume= 0.006 af, Depth> 0.79"
Routed to Pond 6P : CB27

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	4,296	98	Roof
	4,296		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 14S: Building 6B North



Summary for Subcatchment 15S: Building 6B South

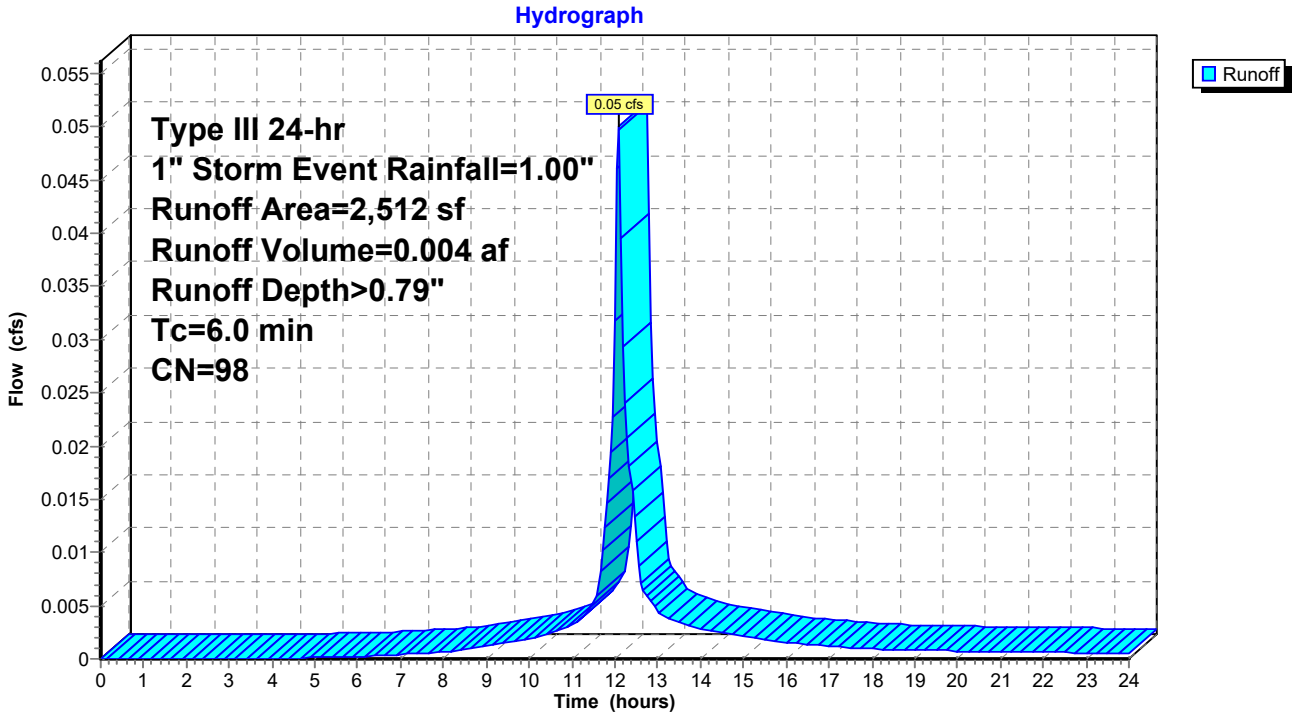
Runoff = 0.05 cfs @ 12.09 hrs, Volume= 0.004 af, Depth> 0.79"
Routed to Pond 6P : CB27

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	2,512	98	Roof
	2,512		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 15S: Building 6B South



Summary for Subcatchment 16S: Plaza between Blocks 1 & 2

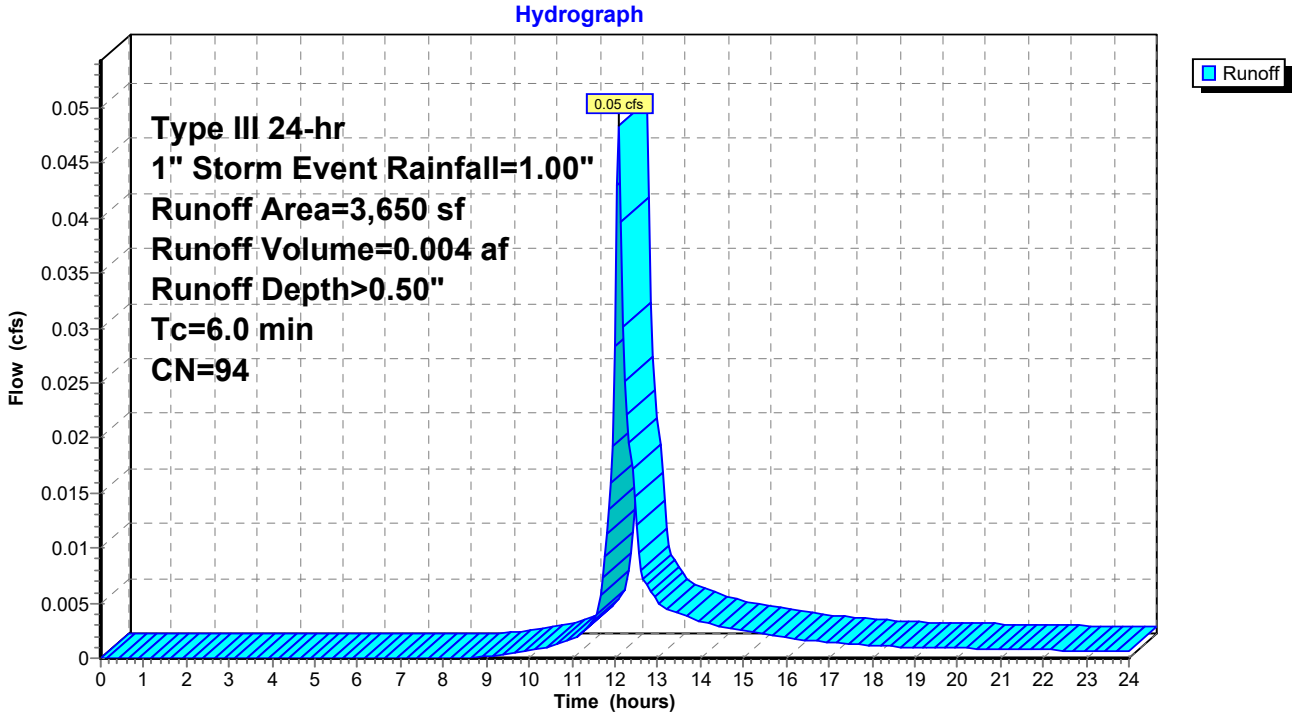
Runoff = 0.05 cfs @ 12.09 hrs, Volume= 0.004 af, Depth> 0.50"
Routed to Pond 2P : DMH 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	2,768	98	Impervious
	882	80	>75% Grass cover, Good, HSG D
	3,650	94	Weighted Average
	882		24.16% Pervious Area
	2,768		75.84% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 16S: Plaza between Blocks 1 & 2



Summary for Subcatchment 17S: Shared Street - Trench Drain

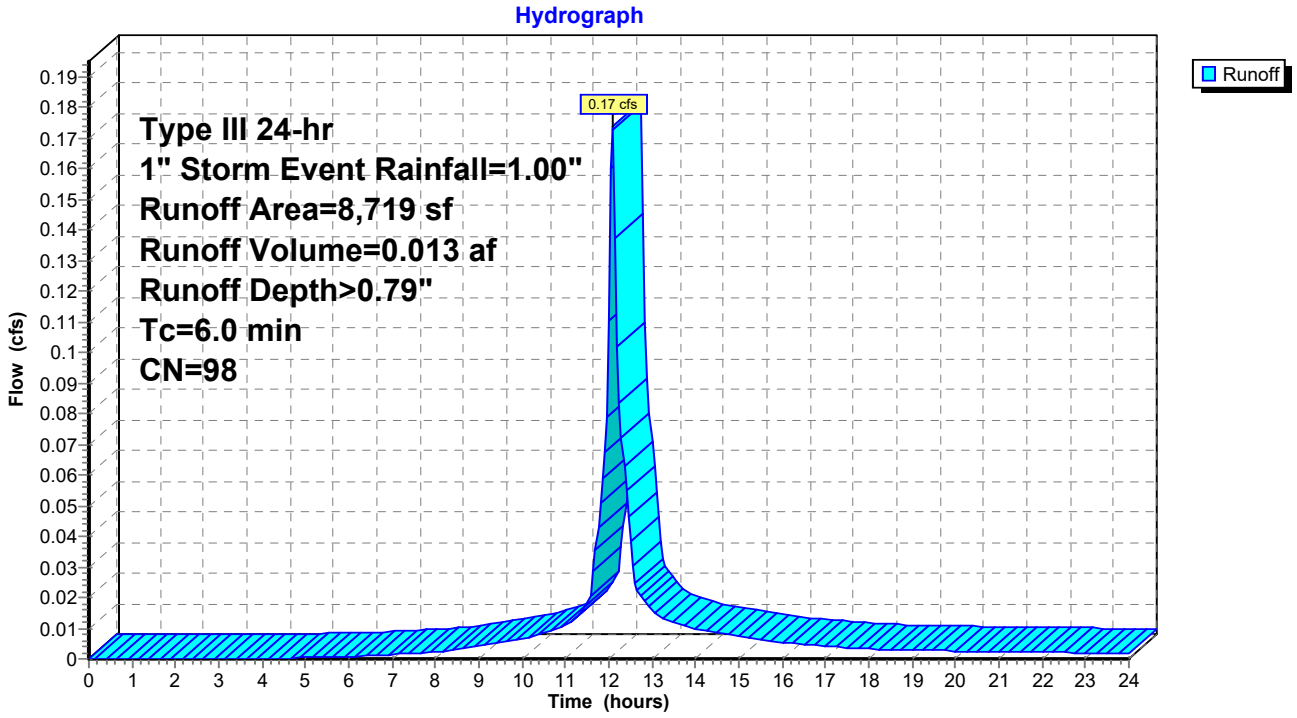
Runoff = 0.17 cfs @ 12.09 hrs, Volume= 0.013 af, Depth> 0.79"
Routed to Pond 6P : CB27

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	8,719	98	Impervious
	8,719		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 17S: Shared Street - Trench Drain



Summary for Subcatchment 18S: Plaza between Blocks 2 & 4 and Upper Thames St

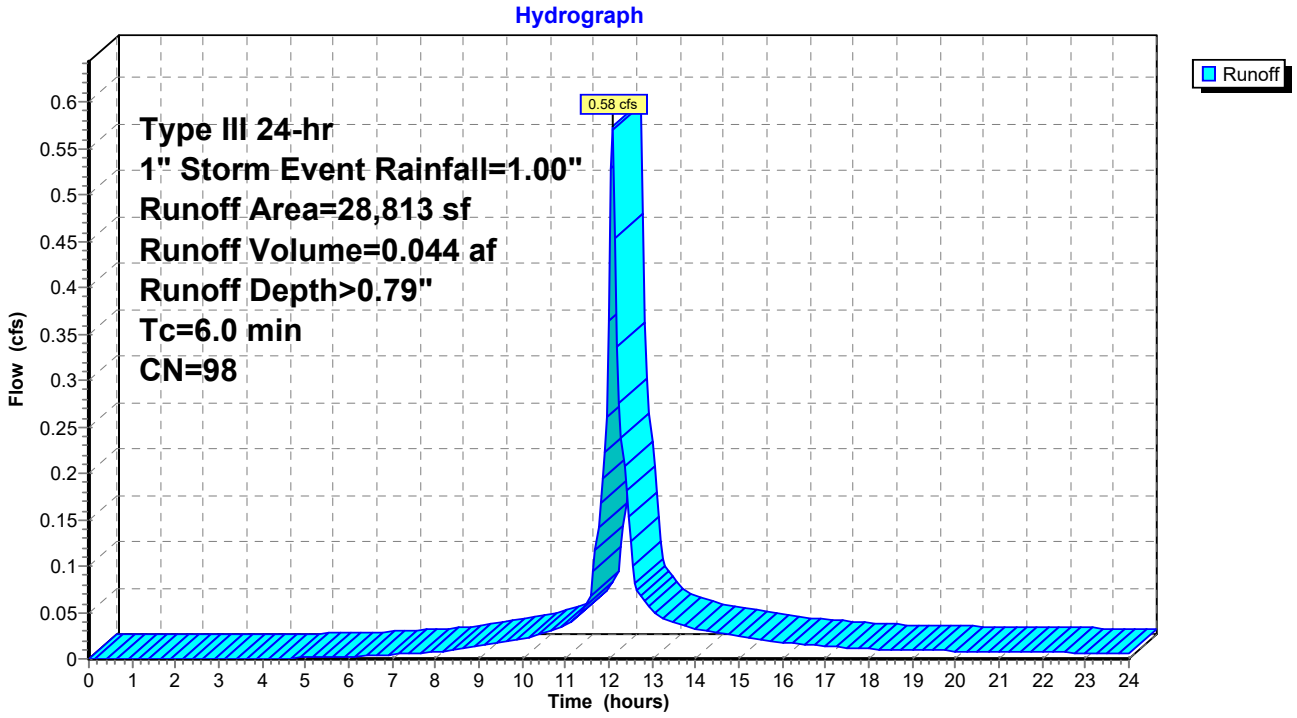
Runoff = 0.58 cfs @ 12.09 hrs, Volume= 0.044 af, Depth> 0.79"
Routed to Pond 6P : CB27

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	28,813	98	Impervious
	28,813		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 18S: Plaza between Blocks 2 & 4 and Upper Thames St



Summary for Subcatchment 19S: Block 4 Building

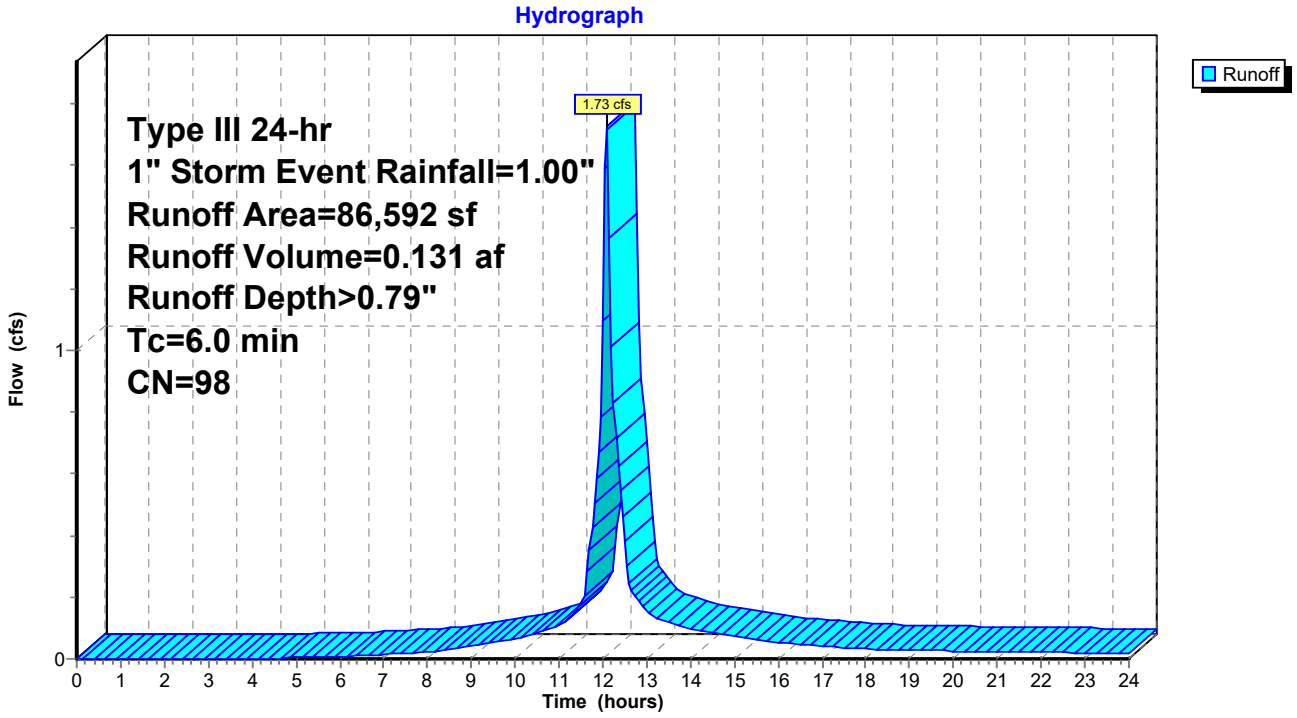
Runoff = 1.73 cfs @ 12.09 hrs, Volume= 0.131 af, Depth> 0.79"
Routed to Pond 6P : CB27

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	86,592	98	Roof
	86,592		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 19S: Block 4 Building



Summary for Subcatchment 20S: Direct to R-Tank

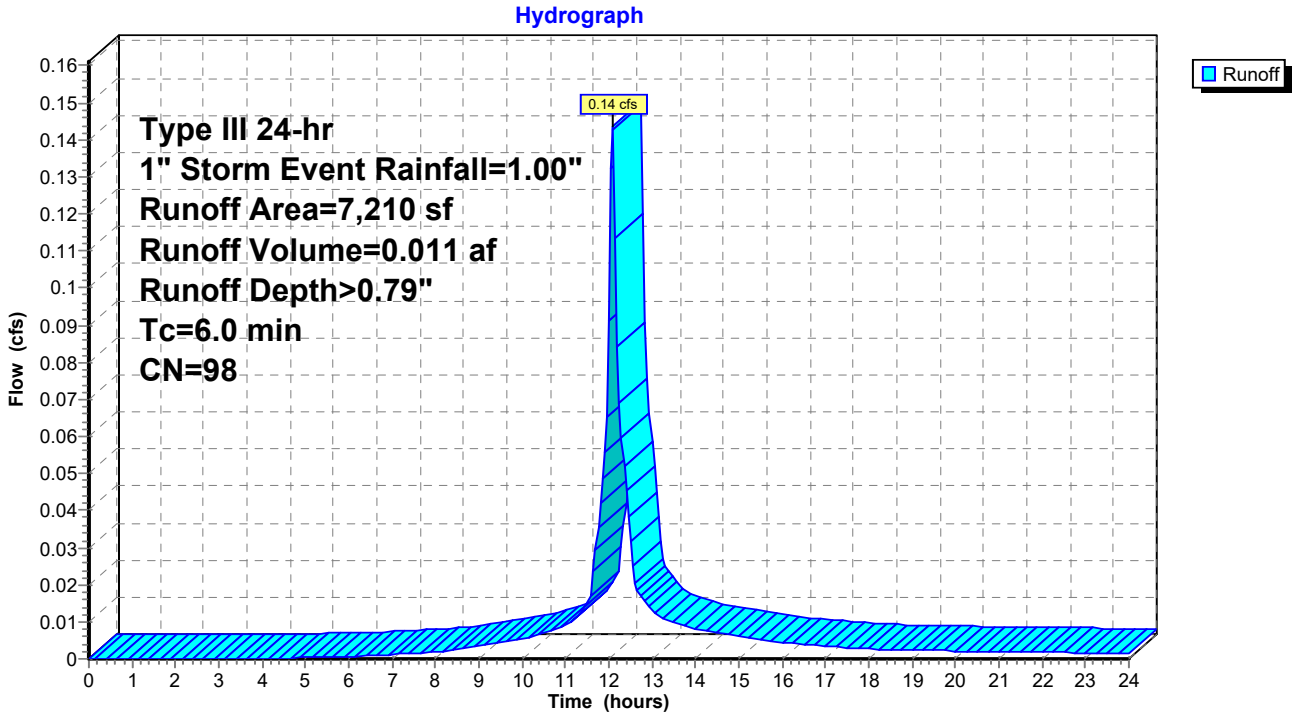
Runoff = 0.14 cfs @ 12.09 hrs, Volume= 0.011 af, Depth> 0.79"
Routed to Pond 8P : R-Tank 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	7,210	98	Impervious
	7,210		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 20S: Direct to R-Tank



Summary for Subcatchment 21S: Plaza along Building 4A at Fore Street

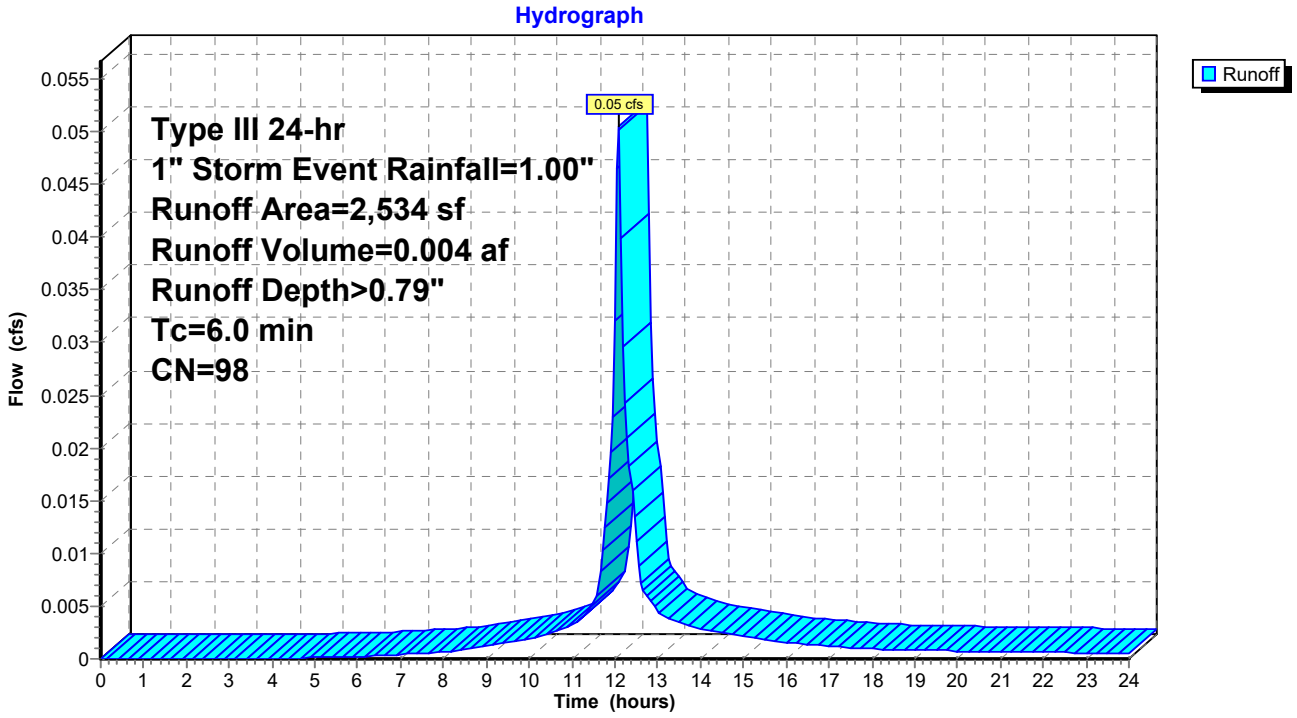
Runoff = 0.05 cfs @ 12.09 hrs, Volume= 0.004 af, Depth> 0.79"
Routed to Link 3L : Fore Street

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	2,534	98	Impervious
	2,534		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 21S: Plaza along Building 4A at Fore Street



Summary for Subcatchment 22S: Block 6 Building

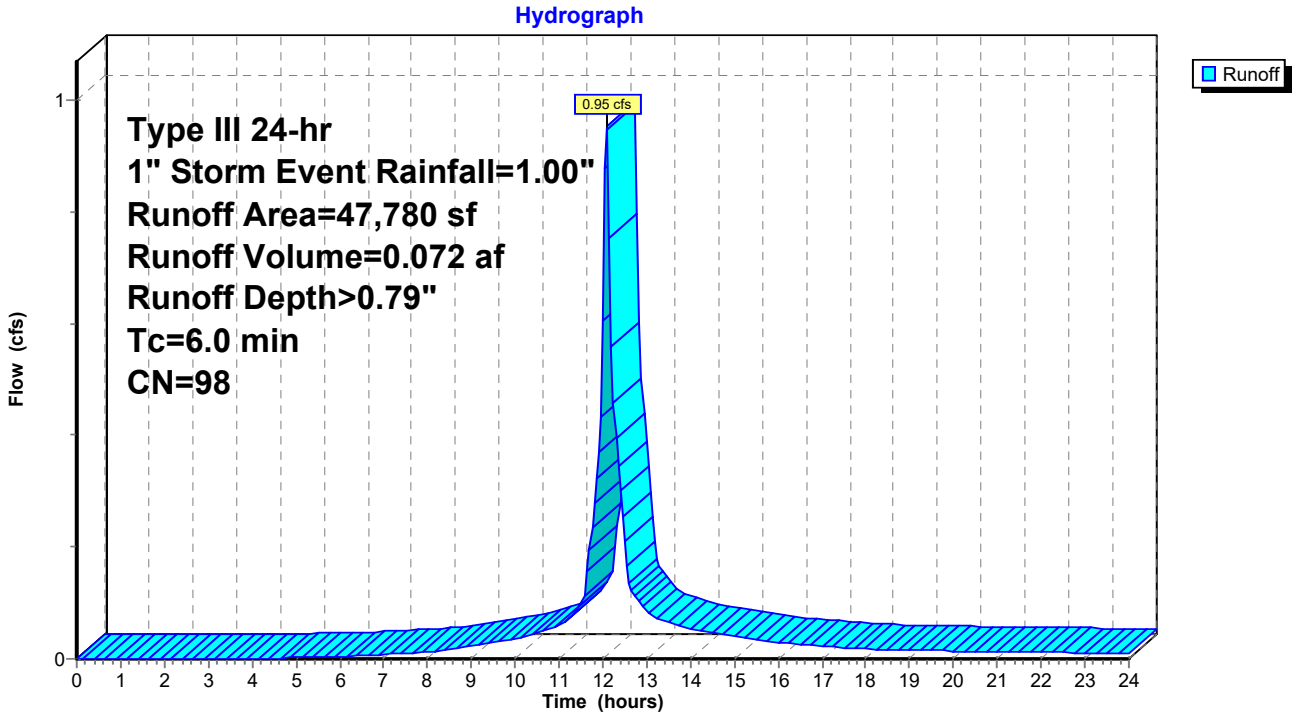
Runoff = 0.95 cfs @ 12.09 hrs, Volume= 0.072 af, Depth> 0.79"
Routed to Pond 13P : DMH-13 (Outfall #2)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	47,780	98	Roof
	47,780		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 22S: Block 6 Building



Summary for Subcatchment 23S: Block 5 Building to R-Tank

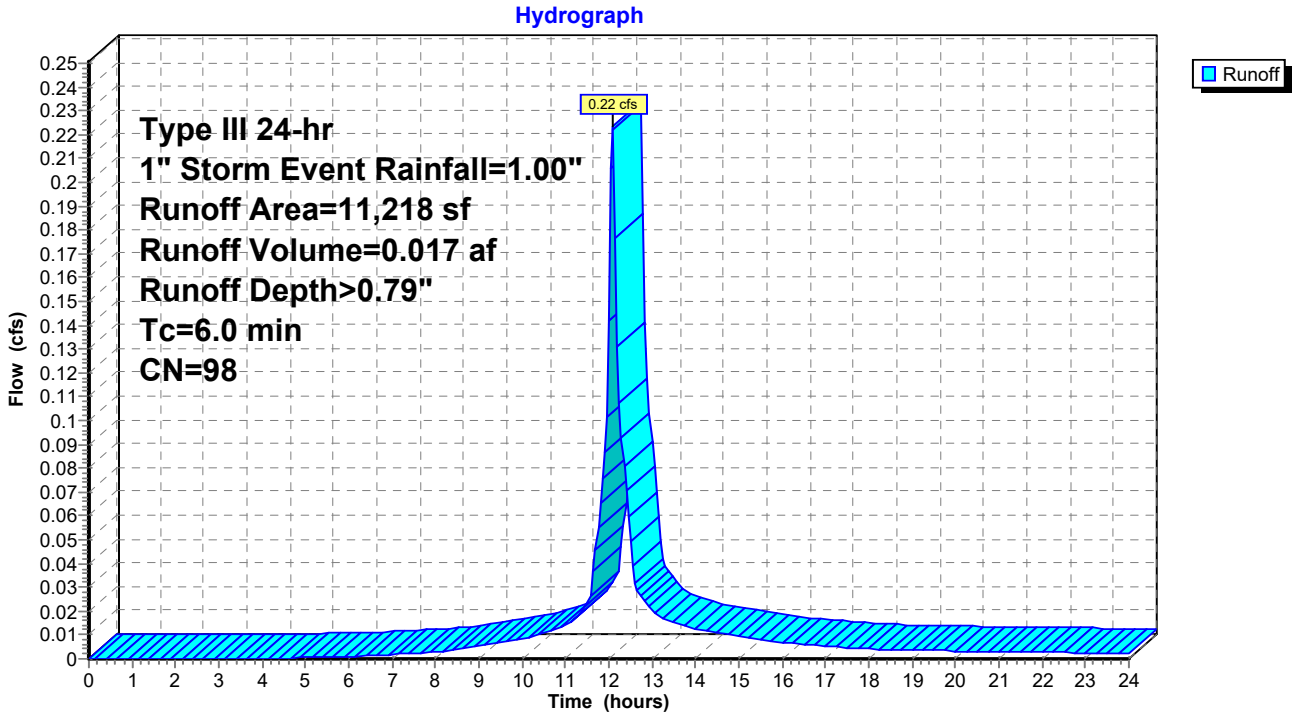
Runoff = 0.22 cfs @ 12.09 hrs, Volume= 0.017 af, Depth> 0.79"
Routed to Pond 6P : CB27

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	11,218	98	Impervious
	11,218		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 23S: Block 5 Building to R-Tank



Summary for Subcatchment 24S: Block 5 Building

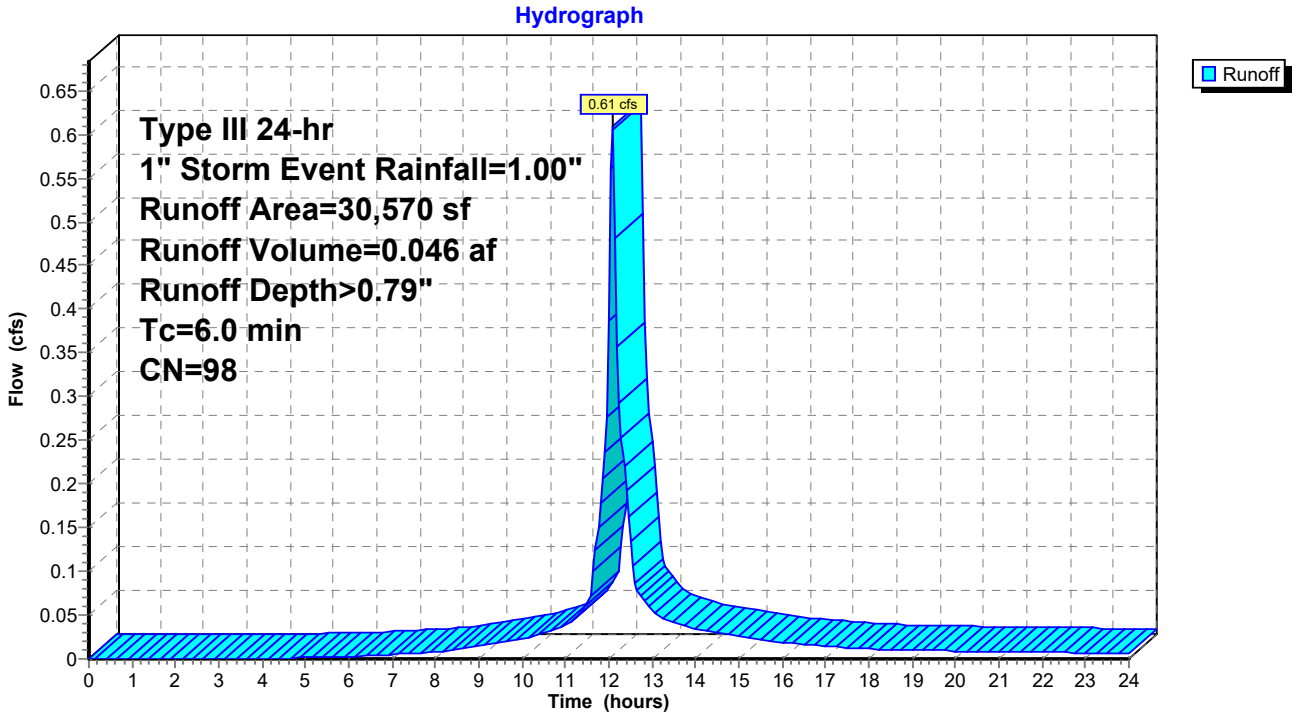
Runoff = 0.61 cfs @ 12.09 hrs, Volume= 0.046 af, Depth> 0.79"
Routed to Pond 13P : DMH-13 (Outfall #2)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	30,570	98	Impervious
	30,570		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 24S: Block 5 Building



Summary for Subcatchment 25S: Southern Plaza

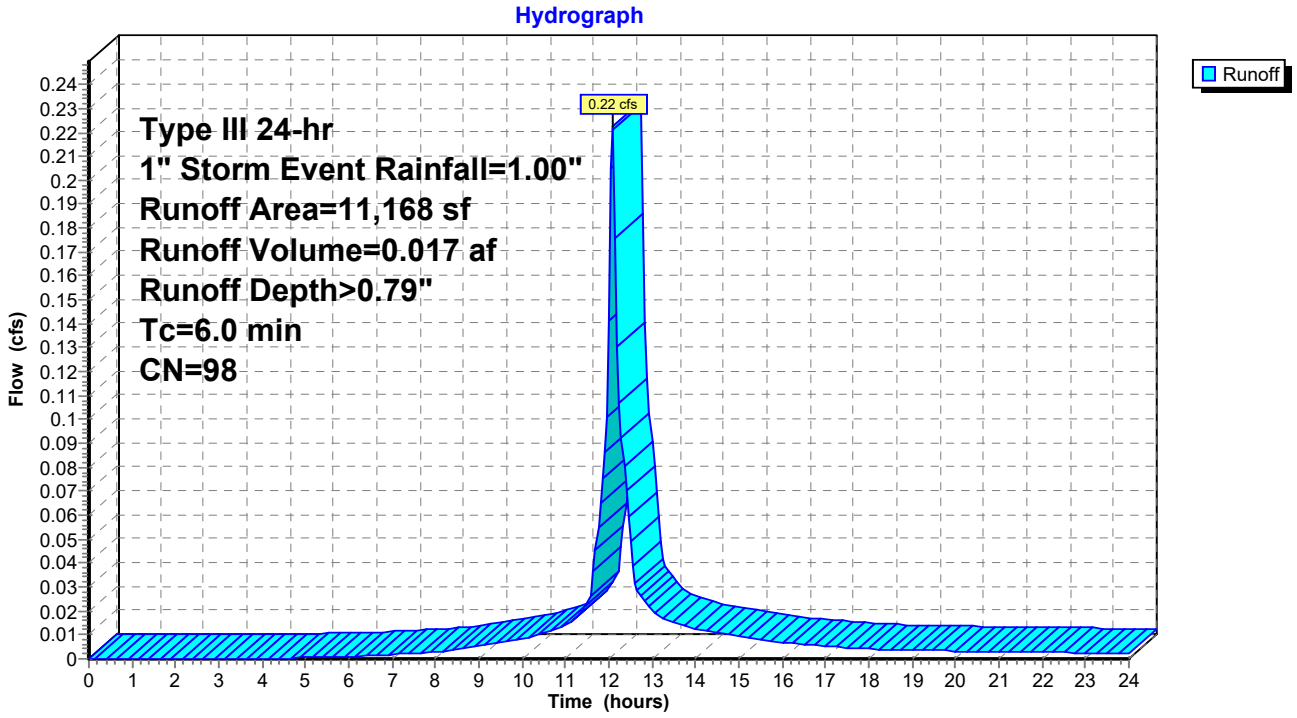
Runoff = 0.22 cfs @ 12.09 hrs, Volume= 0.017 af, Depth> 0.79"
Routed to Pond 13P : DMH-13 (Outfall #2)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	11,168	98	Impervious
	11,168		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 25S: Southern Plaza



Summary for Subcatchment 26S: Plaza along Townhouse at Fore Street

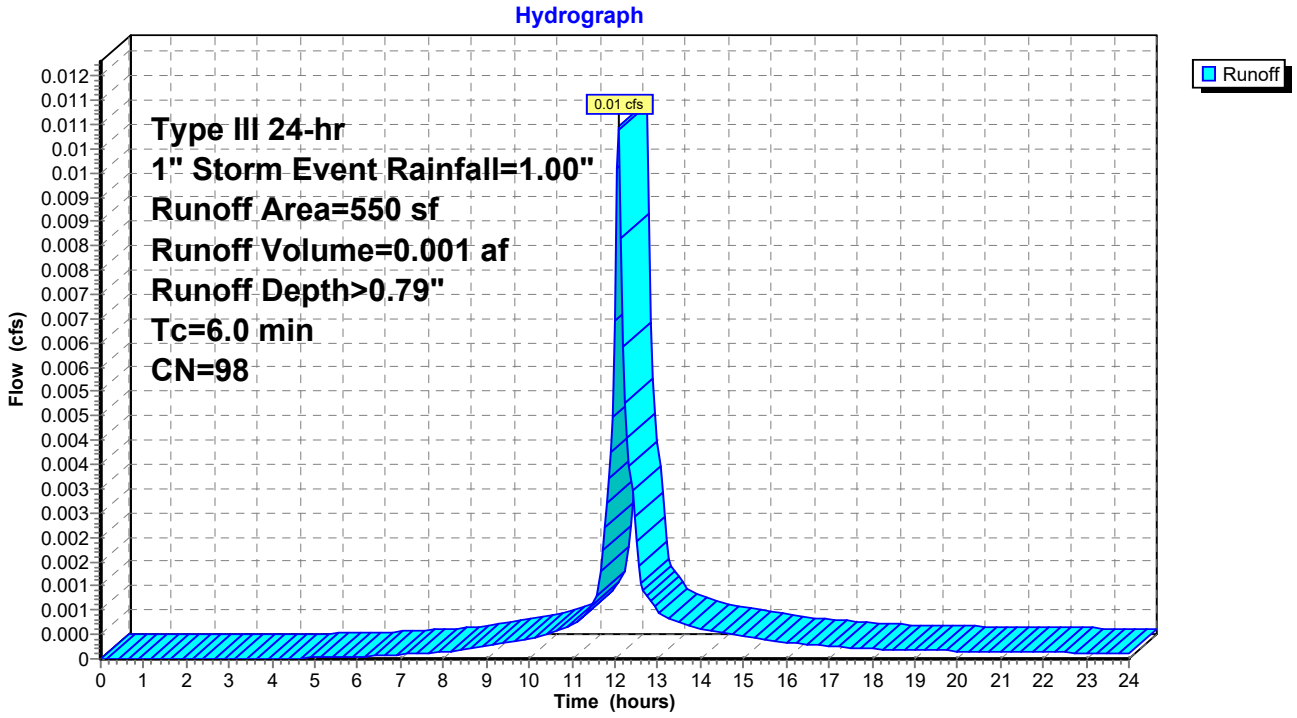
Runoff = 0.01 cfs @ 12.09 hrs, Volume= 0.001 af, Depth> 0.79"
Routed to Link 3L : Fore Street

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	550	98	Impervious
	550		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 26S: Plaza along Townhouse at Fore Street



Summary for Subcatchment 27S: Drainage from off-site residential

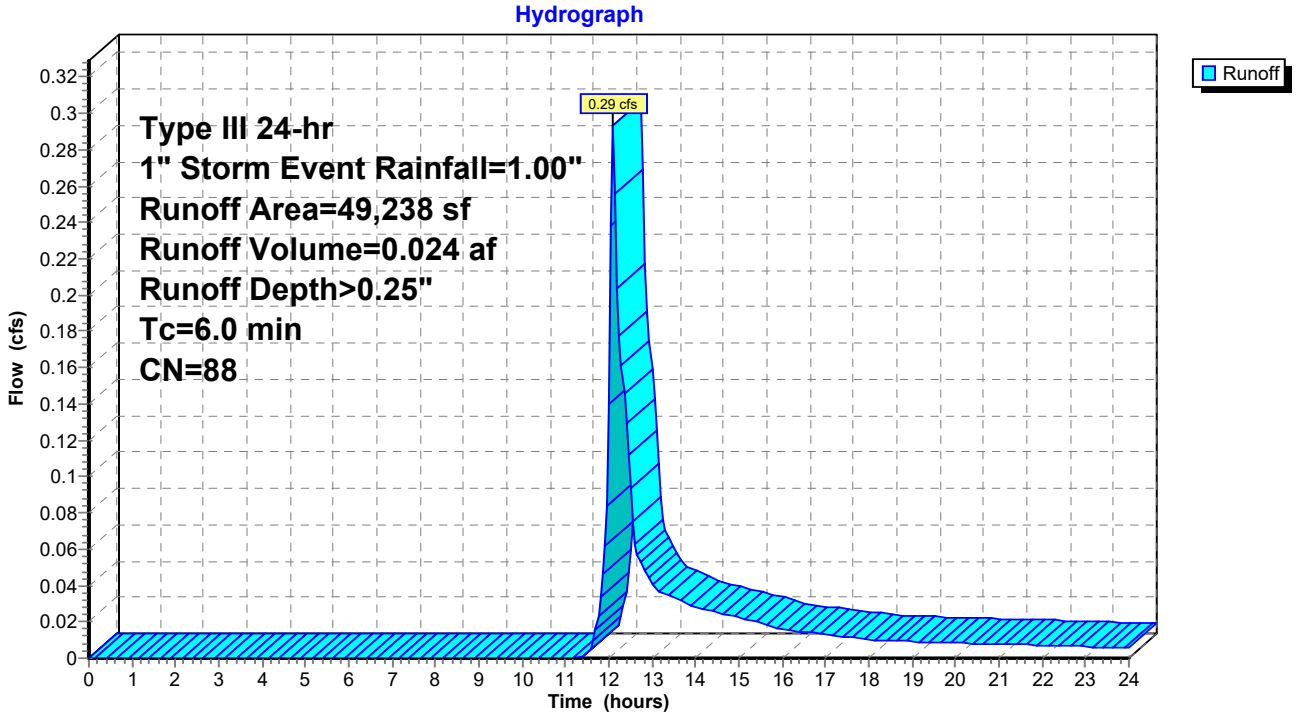
Runoff = 0.29 cfs @ 12.10 hrs, Volume= 0.024 af, Depth> 0.25"
Routed to Pond 13P : DMH-13 (Outfall #2)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	21,588	98	Impervious
	27,650	80	>75% Grass cover, Good, HSG D
	49,238	88	Weighted Average
	27,650		56.16% Pervious Area
	21,588		43.84% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 27S: Drainage from off-site residential



Summary for Subcatchment 28S: Waterfront

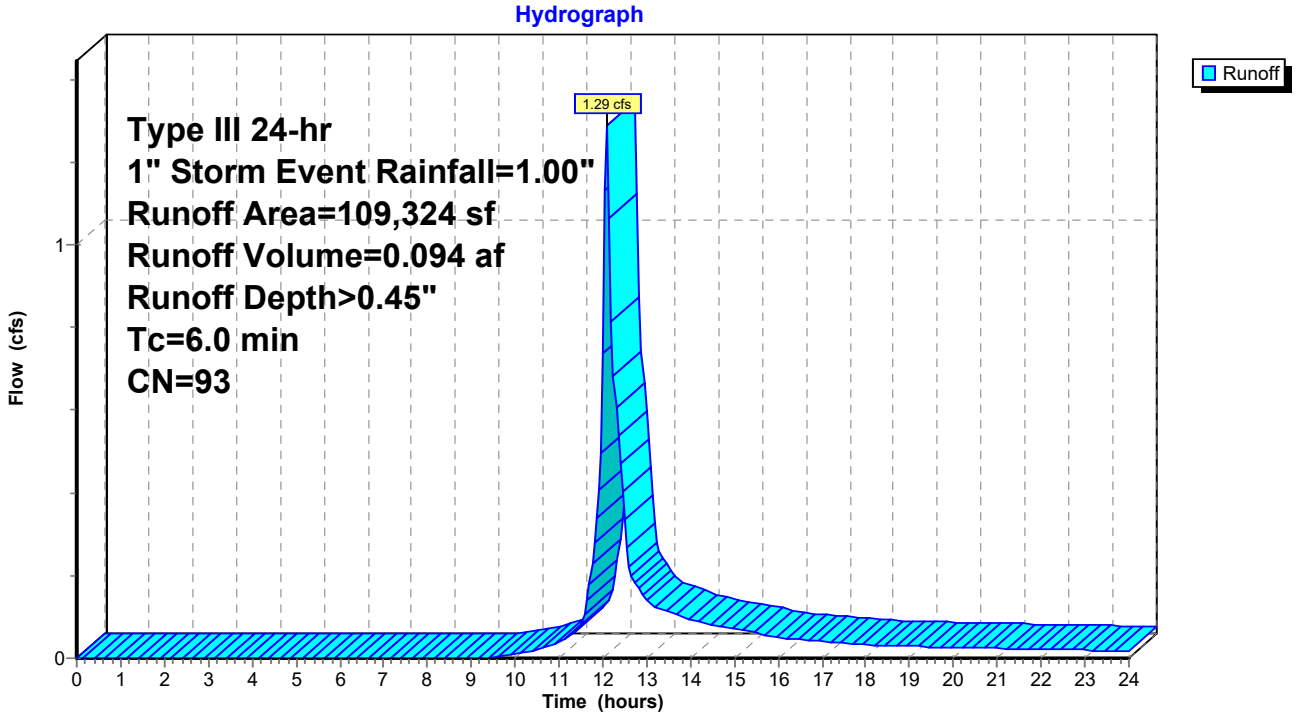
Runoff = 1.29 cfs @ 12.10 hrs, Volume= 0.094 af, Depth> 0.45"
Routed to Link 2L : Fore River

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	78,916	98	Impervious
	30,408	80	>75% Grass cover, Good, HSG D
	109,324	93	Weighted Average
	30,408		27.81% Pervious Area
	78,916		72.19% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 28S: Waterfront



Summary for Subcatchment 29S: Block 6 Building

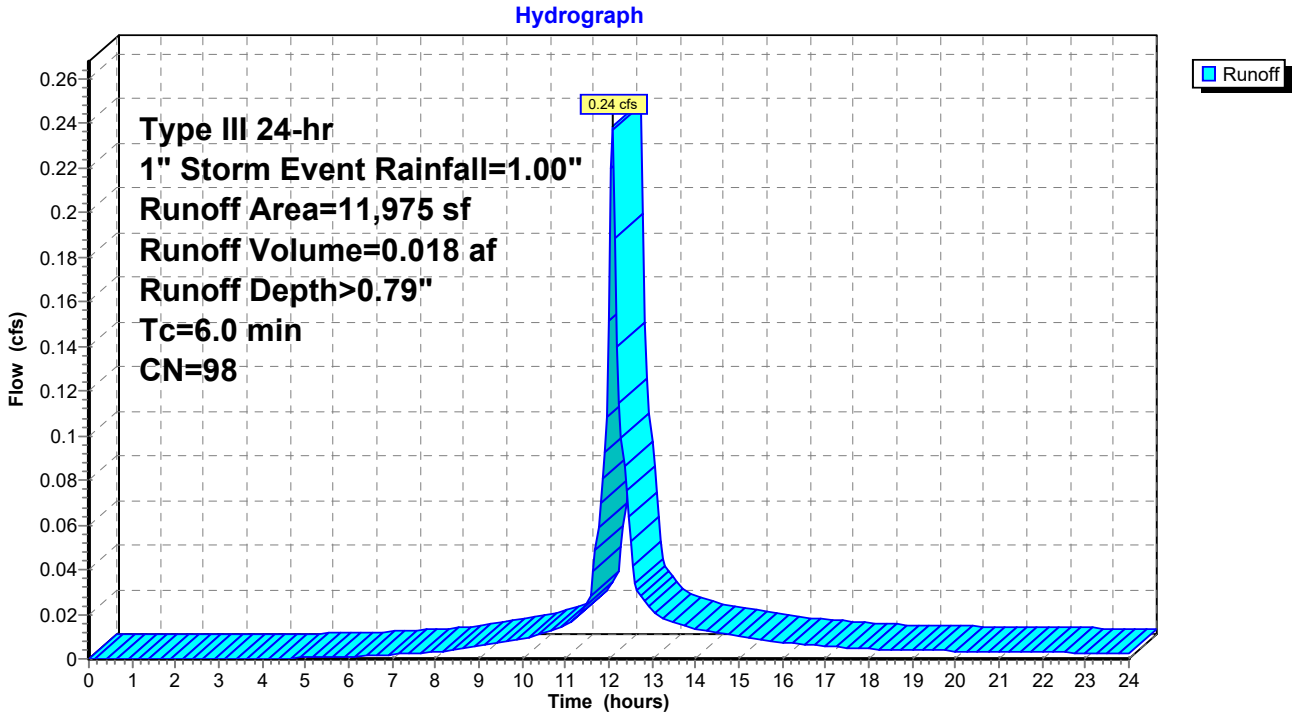
Runoff = 0.24 cfs @ 12.09 hrs, Volume= 0.018 af, Depth> 0.79"
Routed to Pond 24P : Filterra 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	11,975	98	Roof
	11,975		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 29S: Block 6 Building



Summary for Subcatchment 30S: Block 6 Building

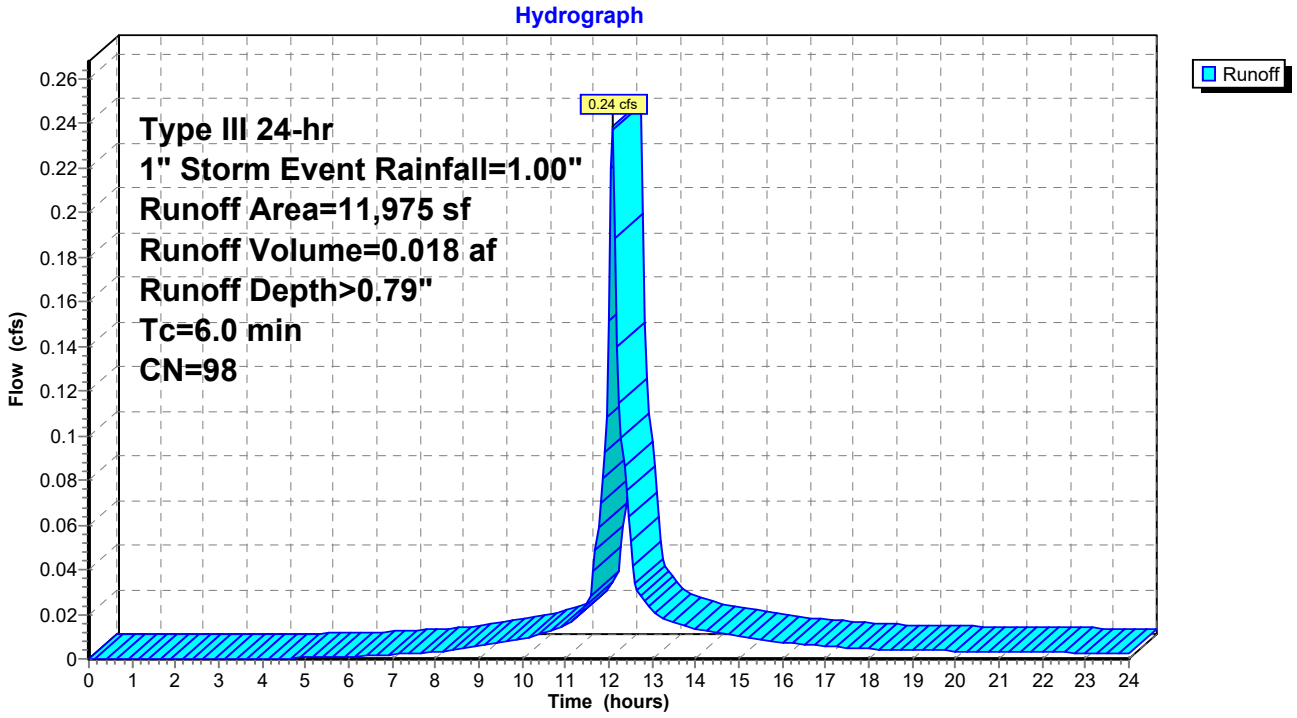
Runoff = 0.24 cfs @ 12.09 hrs, Volume= 0.018 af, Depth> 0.79"
Routed to Pond 28P : Filterra 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	11,975	98	Roof
	11,975		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 30S: Block 6 Building



Summary for Pond 1P: DMH 1

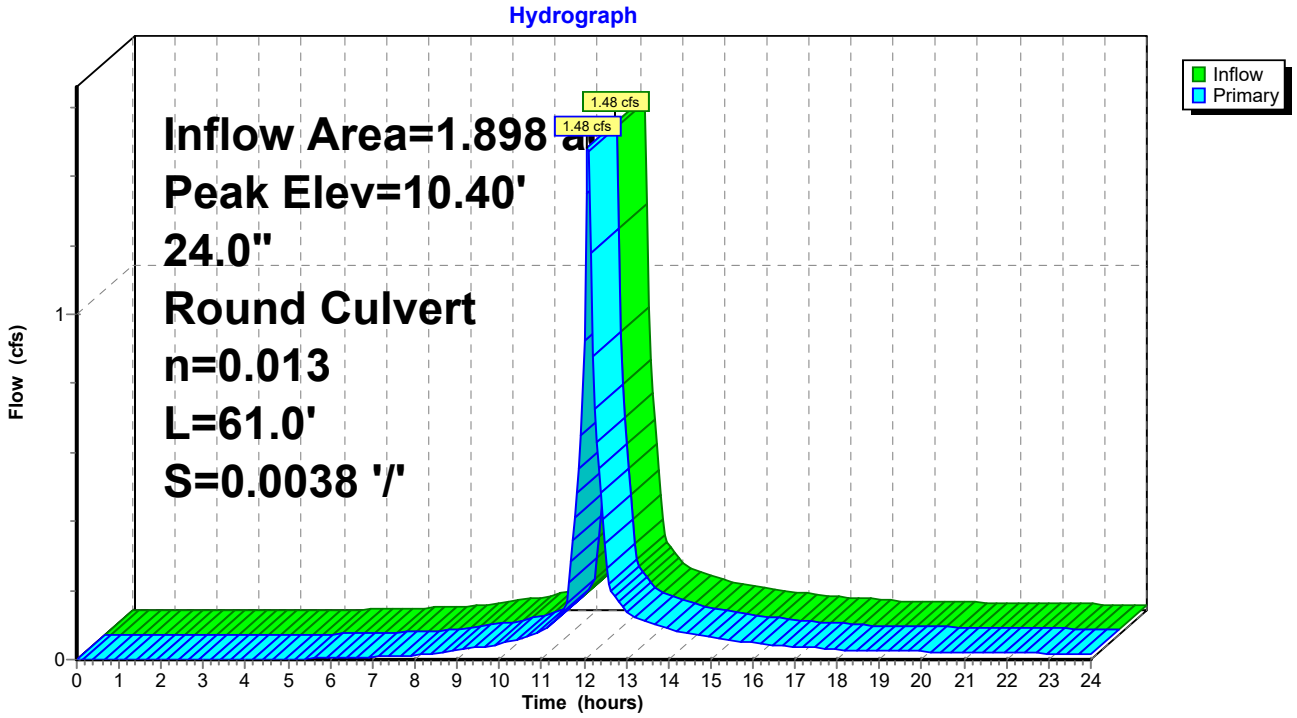
Inflow Area = 1.898 ac, 93.68% Impervious, Inflow Depth > 0.70" for 1" Storm Event event
Inflow = 1.48 cfs @ 12.09 hrs, Volume= 0.110 af
Outflow = 1.48 cfs @ 12.09 hrs, Volume= 0.110 af, Atten= 0%, Lag= 0.0 min
Primary = 1.48 cfs @ 12.09 hrs, Volume= 0.110 af
Routed to Pond 2P : DMH 2

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 10.40' @ 12.09 hrs
Flood Elev= 14.71'

Device	Routing	Invert	Outlet Devices
#1	Primary	9.77'	**24.0" Round Culvert** L= 61.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 9.77' / 9.54' S= 0.0038 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=1.45 cfs @ 12.09 hrs HW=10.39' (Free Discharge)
1=Culvert (Barrel Controls 1.45 cfs @ 2.63 fps)

Pond 1P: DMH 1



Summary for Pond 2P: DMH 2

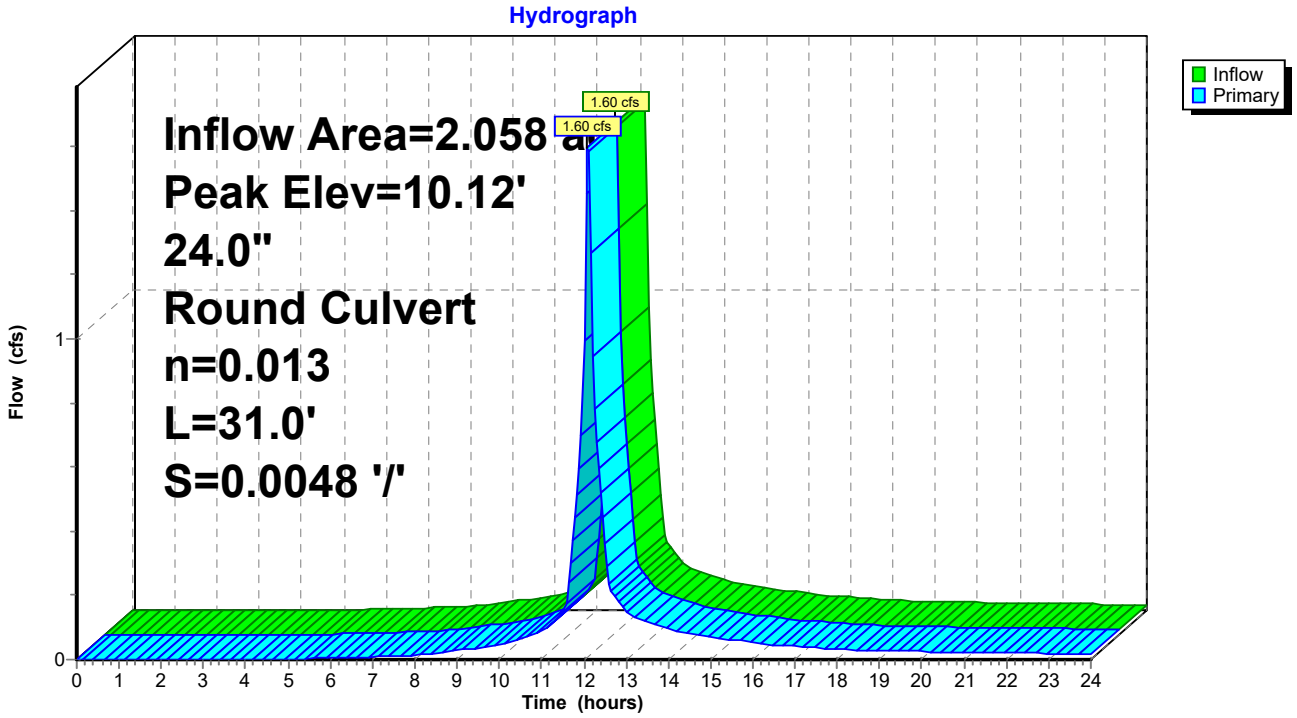
Inflow Area = 2.058 ac, 93.19% Impervious, Inflow Depth > 0.69" for 1" Storm Event event
Inflow = 1.60 cfs @ 12.09 hrs, Volume= 0.119 af
Outflow = 1.60 cfs @ 12.09 hrs, Volume= 0.119 af, Atten= 0%, Lag= 0.0 min
Primary = 1.60 cfs @ 12.09 hrs, Volume= 0.119 af
Routed to Pond 3P : Storm Structure

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 10.12' @ 12.09 hrs
Flood Elev= 14.63'

Device	Routing	Invert	Outlet Devices
#1	Primary	9.50'	**24.0" Round Culvert** L= 31.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 9.50' / 9.35' S= 0.0048 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=1.56 cfs @ 12.09 hrs HW=10.11' (Free Discharge)
1=Culvert (Barrel Controls 1.56 cfs @ 2.87 fps)

Pond 2P: DMH 2



Summary for Pond 3P: Storm Structure

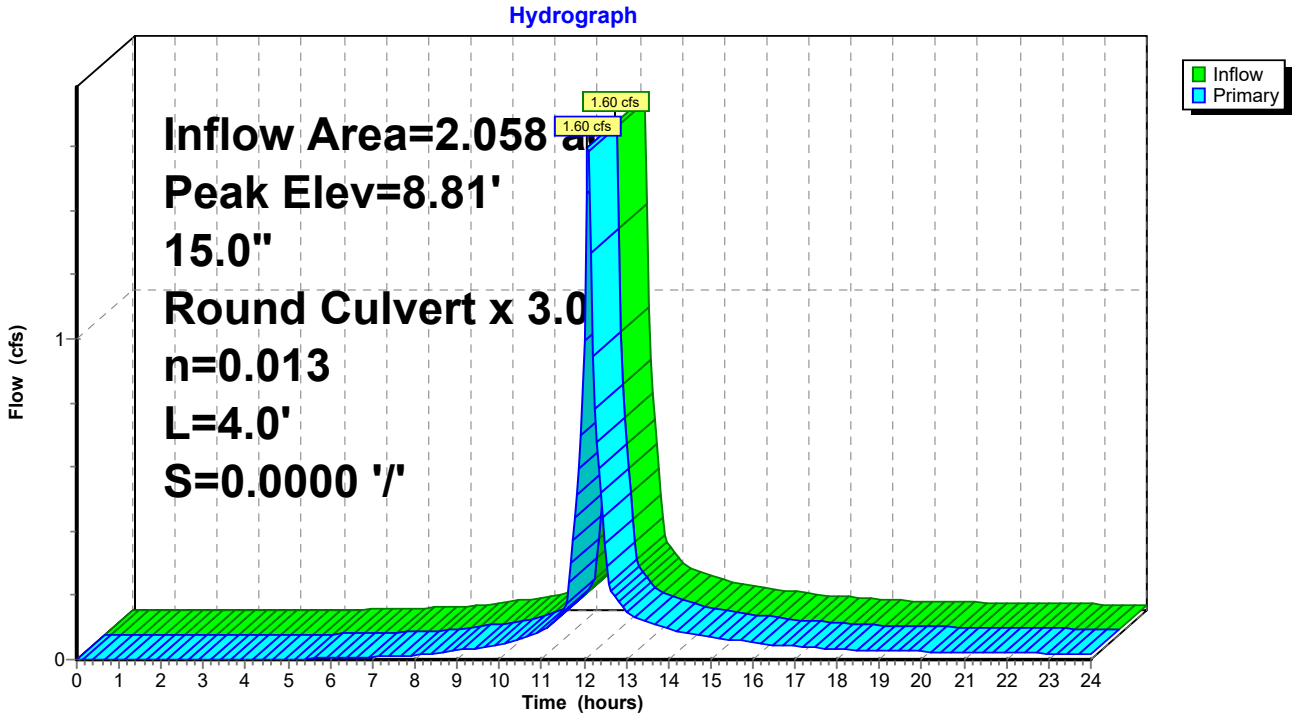
Inflow Area = 2.058 ac, 93.19% Impervious, Inflow Depth > 0.69" for 1" Storm Event event
Inflow = 1.60 cfs @ 12.09 hrs, Volume= 0.119 af
Outflow = 1.60 cfs @ 12.09 hrs, Volume= 0.119 af, Atten= 0%, Lag= 0.0 min
Primary = 1.60 cfs @ 12.09 hrs, Volume= 0.119 af
Routed to Pond 4P : R-Tank 1

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 8.81' @ 12.09 hrs
Flood Elev= 14.51'

Device	Routing	Invert	Outlet Devices
#1	Primary	8.35'	**15.0" Round Culvert X 3.00** L= 4.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 8.35' / 8.35' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.56 cfs @ 12.09 hrs HW=8.81' (Free Discharge)
1=Culvert (Barrel Controls 1.56 cfs @ 1.89 fps)

Pond 3P: Storm Structure



Summary for Pond 4P: R-Tank 1

Inflow Area = 2.058 ac, 93.19% Impervious, Inflow Depth > 0.69" for 1" Storm Event event
Inflow = 1.60 cfs @ 12.09 hrs, Volume= 0.119 af
Outflow = 1.30 cfs @ 12.15 hrs, Volume= 0.114 af, Atten= 18%, Lag= 3.8 min
Primary = 1.30 cfs @ 12.15 hrs, Volume= 0.114 af
Routed to Pond 10P : DMH 4

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 7.51' @ 12.15 hrs Surf.Area= 1,162 sf Storage= 838 cf
Flood Elev= 12.00' Surf.Area= 1,162 sf Storage= 3,266 cf

Plug-Flow detention time= 52.4 min calculated for 0.113 af (95% of inflow)
Center-of-Mass det. time= 27.8 min (828.2 - 800.5)

Volume	Invert	Avail.Storage	Storage Description
#1	6.50'	892 cf	**Stone Envelope (Prismatic)** Listed below (Recalc) 4,729 cf Overall - 2,499 cf Embedded = 2,231 cf x 40.0% Voids
#2	6.75'	2,374 cf	**R-Tank Double Modules (Prismatic)** Listed below (Recalc) Inside #1 2,499 cf Overall x 95.0% Voids
		3,266 cf	Total Available Storage

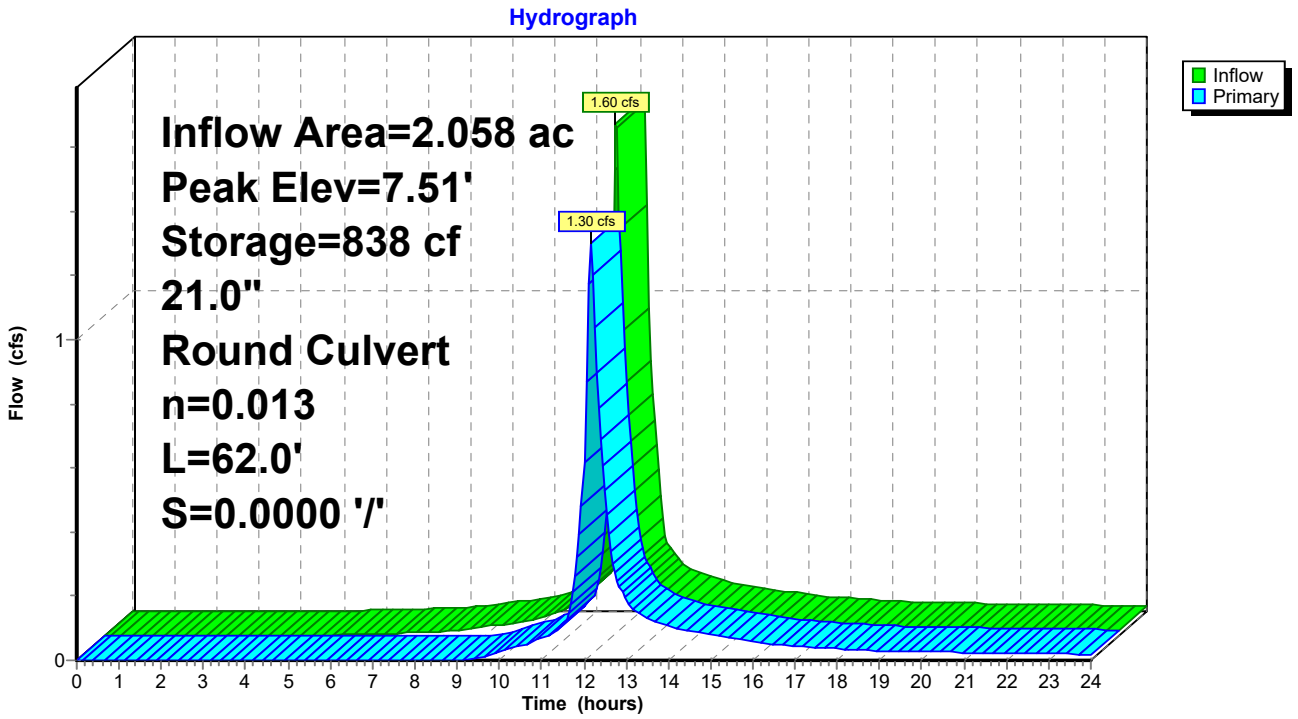
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
6.50	1,162	0	0
10.57	1,162	4,729	4,729

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
6.75	886	0	0
9.57	886	2,499	2,499

Device	Routing	Invert	Outlet Devices
#1	Primary	6.75'	**21.0" Round Culvert to Filter** L= 62.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 6.75' / 6.75' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 2.41 sf

Primary OutFlow Max=1.29 cfs @ 12.15 hrs HW=7.51' (Free Discharge)
↑—**1=Culvert to Filter** (Barrel Controls 1.29 cfs @ 1.92 fps)

Pond 4P: R-Tank 1



Summary for Pond 5P: DMH-11

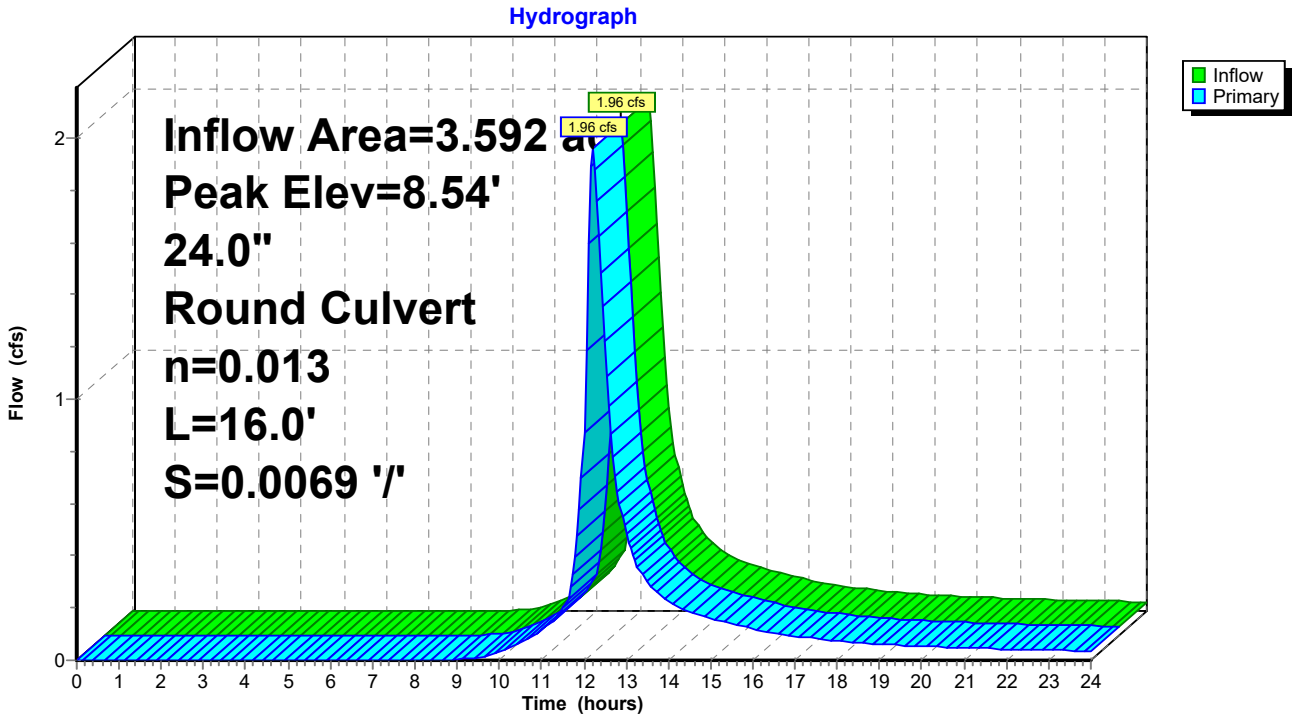
Inflow Area = 3.592 ac,100.00% Impervious, Inflow Depth > 0.73" for 1" Storm Event event
Inflow = 1.96 cfs @ 12.20 hrs, Volume= 0.219 af
Outflow = 1.96 cfs @ 12.20 hrs, Volume= 0.219 af, Atten= 0%, Lag= 0.0 min
Primary = 1.96 cfs @ 12.20 hrs, Volume= 0.219 af
Routed to Pond 12P : Jellyfish 2 JFPD0806-7-2

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 8.54' @ 12.20 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	7.82'	**24.0" Round Culvert** L= 16.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 7.82' / 7.71' S= 0.0069 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=1.96 cfs @ 12.20 hrs HW=8.54' (Free Discharge)
1=Culvert (Barrel Controls 1.96 cfs @ 2.87 fps)

Pond 5P: DMH-11



Summary for Pond 6P: CB27

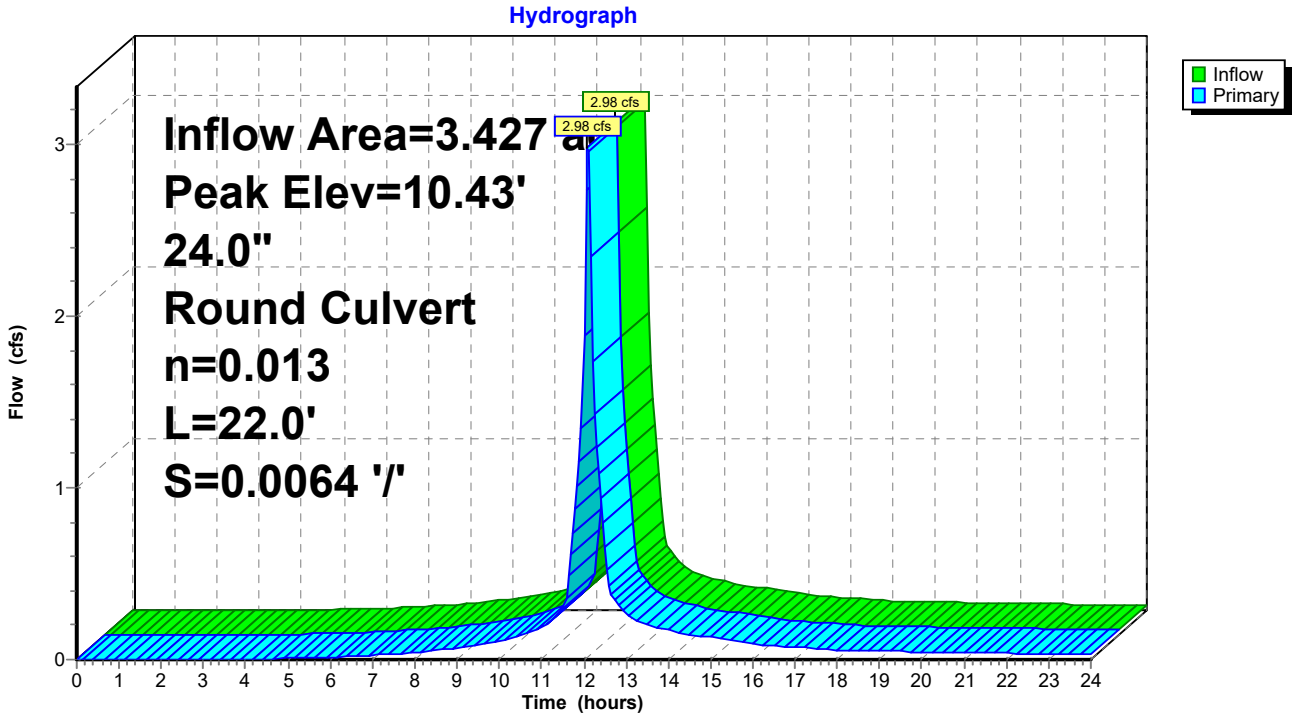
Inflow Area = 3.427 ac,100.00% Impervious, Inflow Depth > 0.79" for 1" Storm Event event
Inflow = 2.98 cfs @ 12.09 hrs, Volume= 0.226 af
Outflow = 2.98 cfs @ 12.09 hrs, Volume= 0.226 af, Atten= 0%, Lag= 0.0 min
Primary = 2.98 cfs @ 12.09 hrs, Volume= 0.226 af
Routed to Pond 7P : Storm Structure

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 10.43' @ 12.09 hrs
Flood Elev= 14.57'

Device	Routing	Invert	Outlet Devices
#1	Primary	9.53'	**24.0" Round Culvert** L= 22.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 9.53' / 9.39' S= 0.0064 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=2.90 cfs @ 12.09 hrs HW=10.42' (Free Discharge)
1=Culvert (Barrel Controls 2.90 cfs @ 3.18 fps)

Pond 6P: CB27



Summary for Pond 7P: Storm Structure

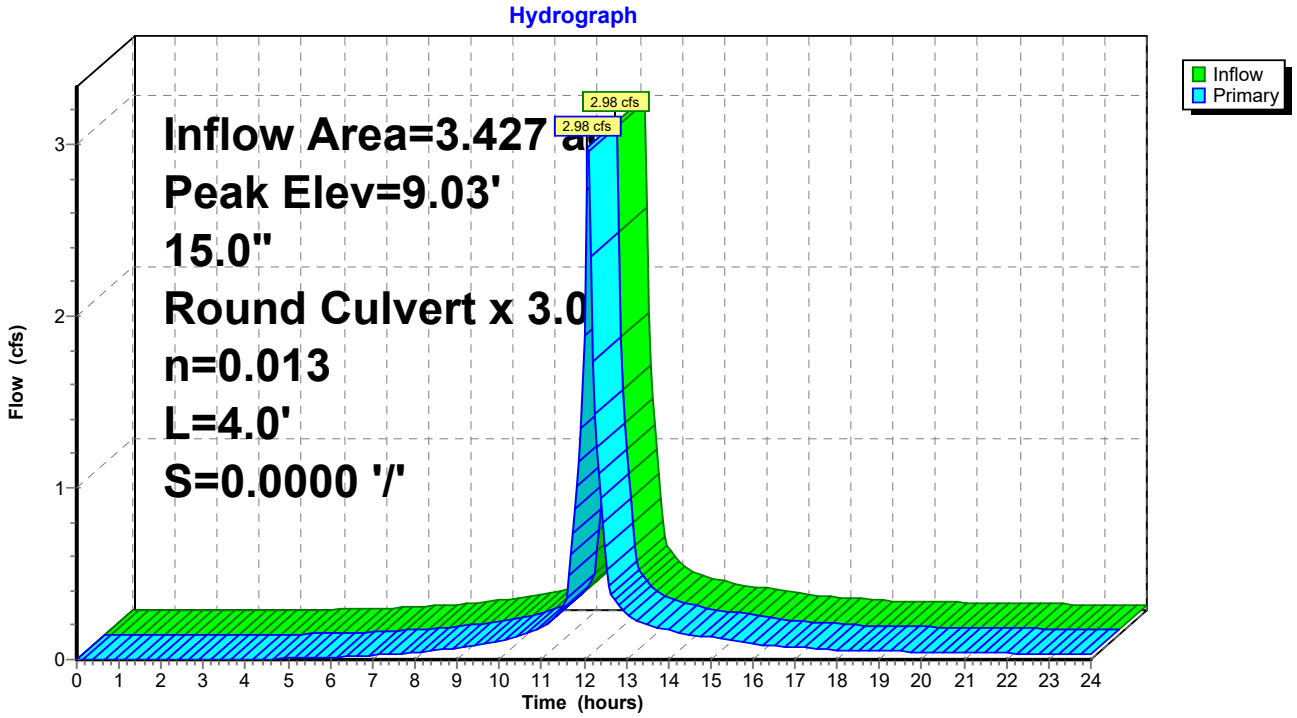
Inflow Area = 3.427 ac,100.00% Impervious, Inflow Depth > 0.79" for 1" Storm Event event
Inflow = 2.98 cfs @ 12.09 hrs, Volume= 0.226 af
Outflow = 2.98 cfs @ 12.09 hrs, Volume= 0.226 af, Atten= 0%, Lag= 0.0 min
Primary = 2.98 cfs @ 12.09 hrs, Volume= 0.226 af
Routed to Pond 8P : R-Tank 2

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 9.03' @ 12.09 hrs
Flood Elev= 14.25'

Device	Routing	Invert	Outlet Devices
#1	Primary	8.39'	**15.0" Round Culvert X 3.00** L= 4.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 8.39' / 8.39' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.90 cfs @ 12.09 hrs HW=9.03' (Free Discharge)
1=Culvert (Barrel Controls 2.90 cfs @ 2.25 fps)

Pond 7P: Storm Structure



Summary for Pond 8P: R-Tank 2

Inflow Area = 3.592 ac,100.00% Impervious, Inflow Depth > 0.79" for 1" Storm Event event
Inflow = 3.12 cfs @ 12.09 hrs, Volume= 0.237 af
Outflow = 1.96 cfs @ 12.20 hrs, Volume= 0.219 af, Atten= 37%, Lag= 6.6 min
Primary = 1.96 cfs @ 12.20 hrs, Volume= 0.219 af
Routed to Pond 5P : DMH-11

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 8.71' @ 12.20 hrs Surf.Area= 3,128 sf Storage= 2,746 cf
Flood Elev= 12.71' Surf.Area= 3,128 sf Storage= 8,290 cf

Plug-Flow detention time= 86.4 min calculated for 0.219 af (93% of inflow)
Center-of-Mass det. time= 48.7 min (836.1 - 787.4)

Volume	Invert	Avail.Storage	Storage Description
#1	7.57'	2,767 cf	**Stone Envelope (Prismatic)** Listed below (Recalc) 12,731 cf Overall - 5,813 cf Embedded = 6,918 cf x 40.0% Voids
#2	7.82'	5,523 cf	**R-Tank Double Modules (Prismatic)** Listed below (Recalc) Inside #1 5,813 cf Overall x 95.0% Voids
		8,290 cf	Total Available Storage

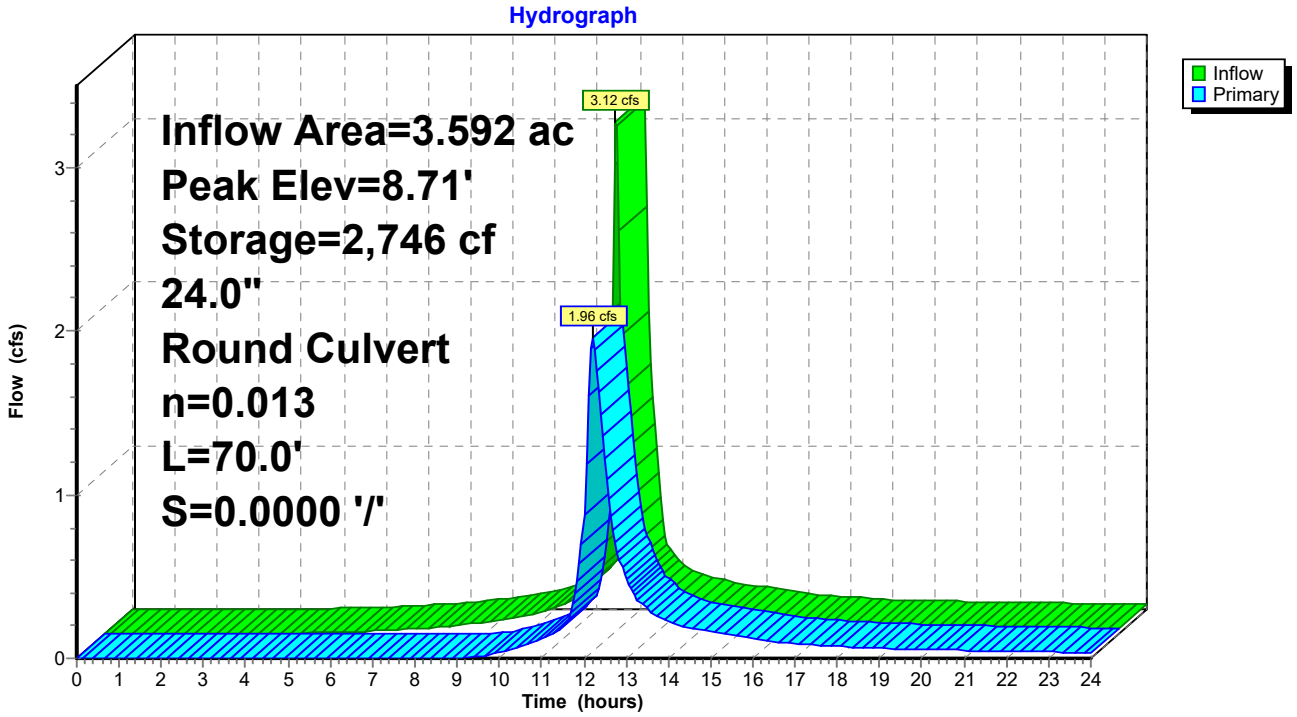
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
7.57	3,128	0	0
11.64	3,128	12,731	12,731

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
7.82	2,679	0	0
9.99	2,679	5,813	5,813

Device	Routing	Invert	Outlet Devices
#1	Primary	7.82'	**24.0" Round Culvert** L= 70.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 7.82' / 7.82' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=1.96 cfs @ 12.20 hrs HW=8.71' (Free Discharge)
1=Culvert (Barrel Controls 1.96 cfs @ 2.12 fps)

Pond 8P: R-Tank 2



Summary for Pond 9P: DMH-8 (Outfall #1)

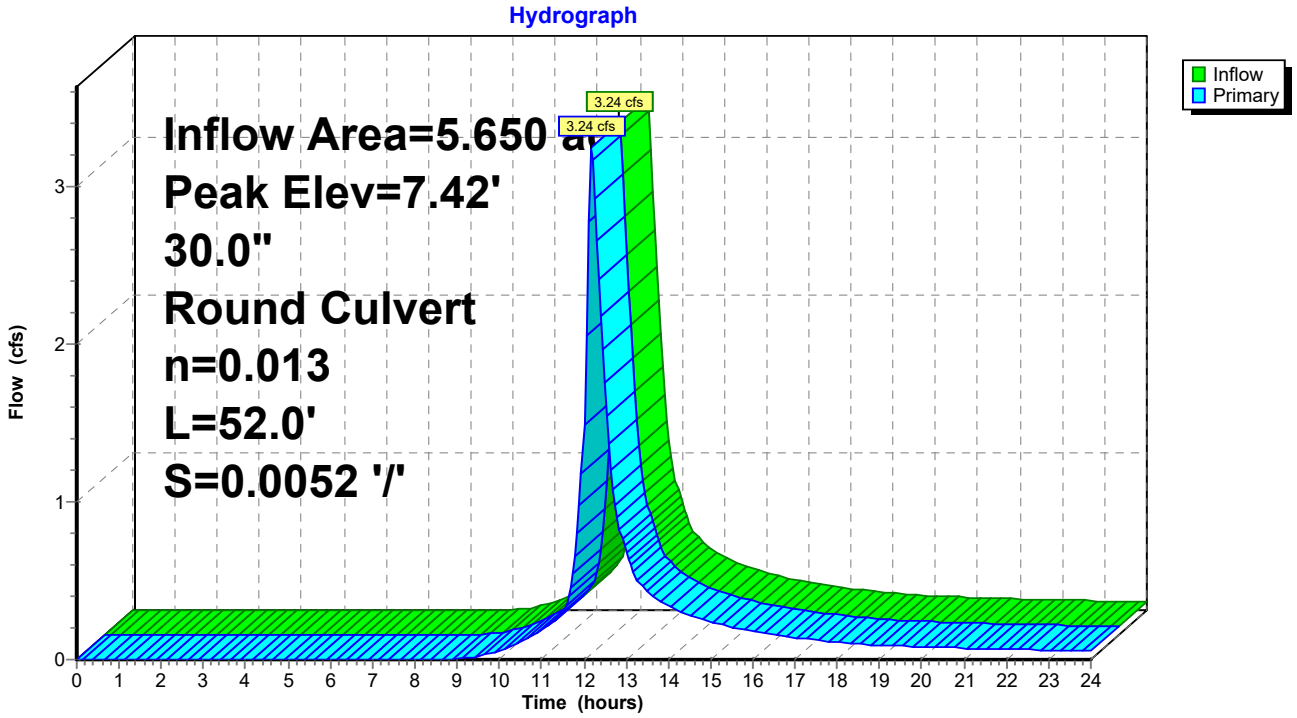
Inflow Area = 5.650 ac, 97.52% Impervious, Inflow Depth > 0.71" for 1" Storm Event event
Inflow = 3.24 cfs @ 12.17 hrs, Volume= 0.333 af
Outflow = 3.24 cfs @ 12.17 hrs, Volume= 0.333 af, Atten= 0%, Lag= 0.0 min
Primary = 3.24 cfs @ 12.17 hrs, Volume= 0.333 af
Routed to Link 2L : Fore River

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 7.42' @ 12.17 hrs
Flood Elev= 11.78'

Device	Routing	Invert	Outlet Devices
#1	Primary	6.57'	**30.0" Round Culvert** L= 52.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 6.57' / 6.30' S= 0.0052 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 4.91 sf

Primary OutFlow Max=3.18 cfs @ 12.17 hrs HW=7.41' (Free Discharge)
1=Culvert (Barrel Controls 3.18 cfs @ 3.28 fps)

Pond 9P: DMH-8 (Outfall #1)



Summary for Pond 10P: DMH 4

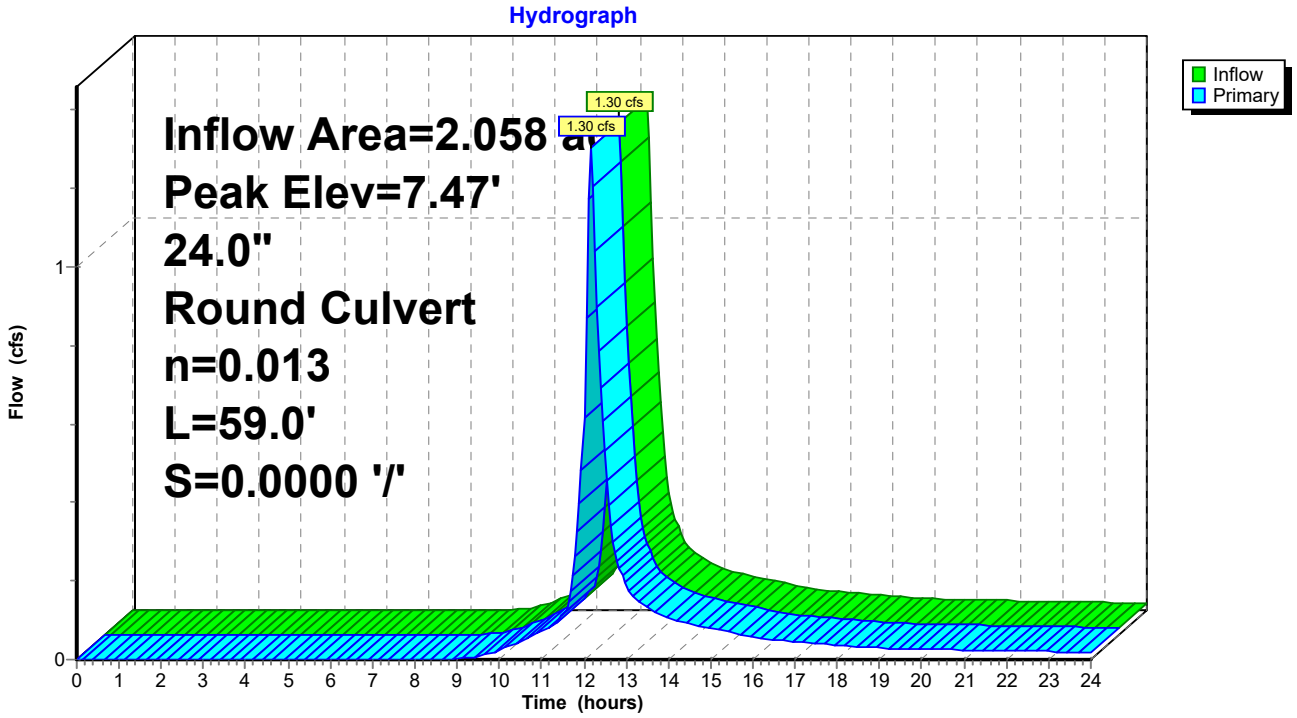
Inflow Area = 2.058 ac, 93.19% Impervious, Inflow Depth > 0.66" for 1" Storm Event event
Inflow = 1.30 cfs @ 12.15 hrs, Volume= 0.114 af
Outflow = 1.30 cfs @ 12.15 hrs, Volume= 0.114 af, Atten= 0%, Lag= 0.0 min
Primary = 1.30 cfs @ 12.15 hrs, Volume= 0.114 af
Routed to Pond 11P : Jellyfish 1 JFPD0806-4-1

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 7.47' @ 12.15 hrs
Flood Elev= 13.56'

Device	Routing	Invert	Outlet Devices
#1	Primary	6.75'	**24.0" Round Culvert** L= 59.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 6.75' / 6.75' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=1.29 cfs @ 12.15 hrs HW=7.47' (Free Discharge)
1=Culvert (Barrel Controls 1.29 cfs @ 1.88 fps)

Pond 10P: DMH 4



Summary for Pond 11P: Jellyfish 1 JFPD0806-4-1

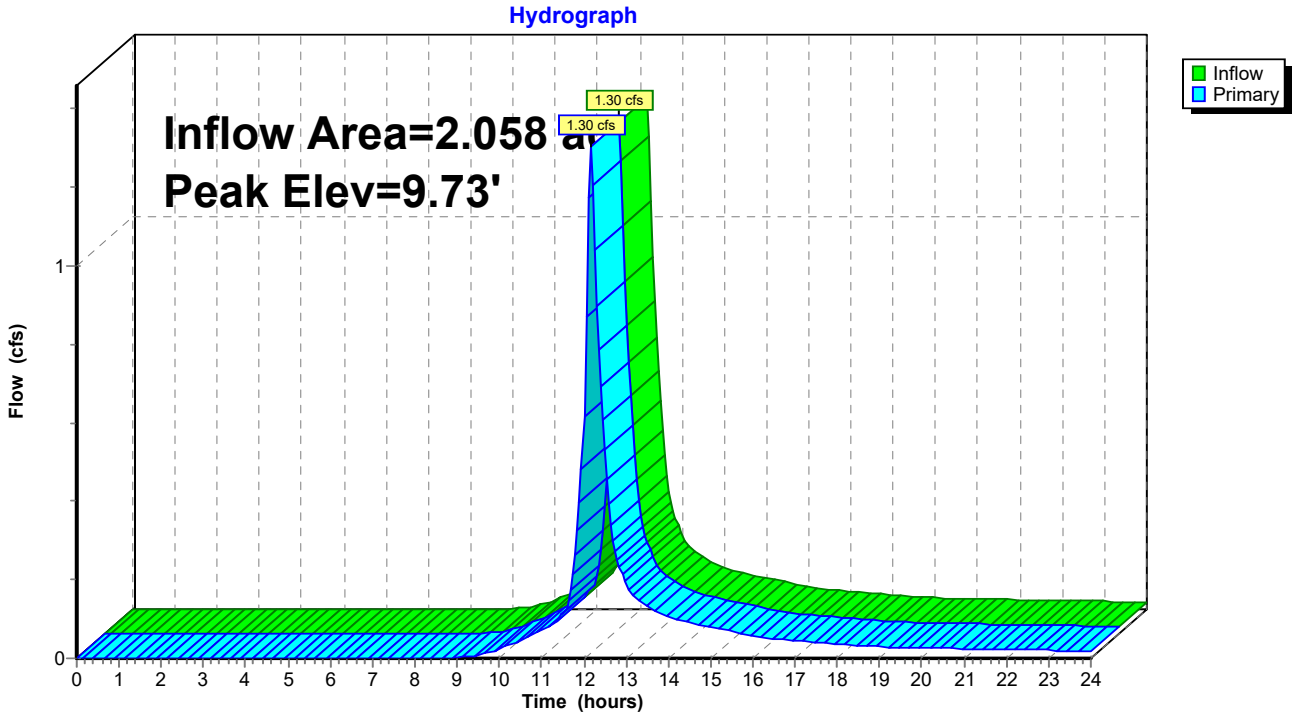
Inflow Area = 2.058 ac, 93.19% Impervious, Inflow Depth > 0.66" for 1" Storm Event event
Inflow = 1.30 cfs @ 12.15 hrs, Volume= 0.114 af
Outflow = 1.30 cfs @ 12.15 hrs, Volume= 0.114 af, Atten= 0%, Lag= 0.0 min
Primary = 1.30 cfs @ 12.15 hrs, Volume= 0.114 af
Routed to Pond 9P : DMH-8 (Outfall #1)

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 9.73' @ 12.15 hrs
Flood Elev= 12.89'

Device	Routing	Invert	Outlet Devices
#1	Primary	6.75'	**24.0" Round Filter Culvert Out** L= 5.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 6.75' / 6.67' S= 0.0160 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Device 1	6.75'	**JF Filter-1 CSV File** Head (feet) 0.00 0.08 0.17 0.25 0.33 0.42 0.50 0.58 0.67 0.75 0.83 0.92 1.00 1.08 1.17 1.25 1.33 1.42 1.50 Disch. (cfs) 0.000 0.010 0.020 0.030 0.040 0.050 0.059 0.129 0.198 0.267 0.337 0.406 0.475 0.545 0.614 0.683 0.753 0.822 0.891
#3	Device 1	9.59'	**2.8' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=1.29 cfs @ 12.15 hrs HW=9.73' (Free Discharge)
└**1=Filter Culvert Out** (Passes 1.29 cfs of 16.79 cfs potential flow)
  ├**2=JF Filter-1 CSV File** (Custom Controls 0.89 cfs)
  └**3=Broad-Crested Rectangular Weir** (Weir Controls 0.40 cfs @ 1.04 fps)

Pond 11P: Jellyfish 1 JFPD0806-4-1



Summary for Pond 12P: Jellyfish 2 JFPD0806-7-2

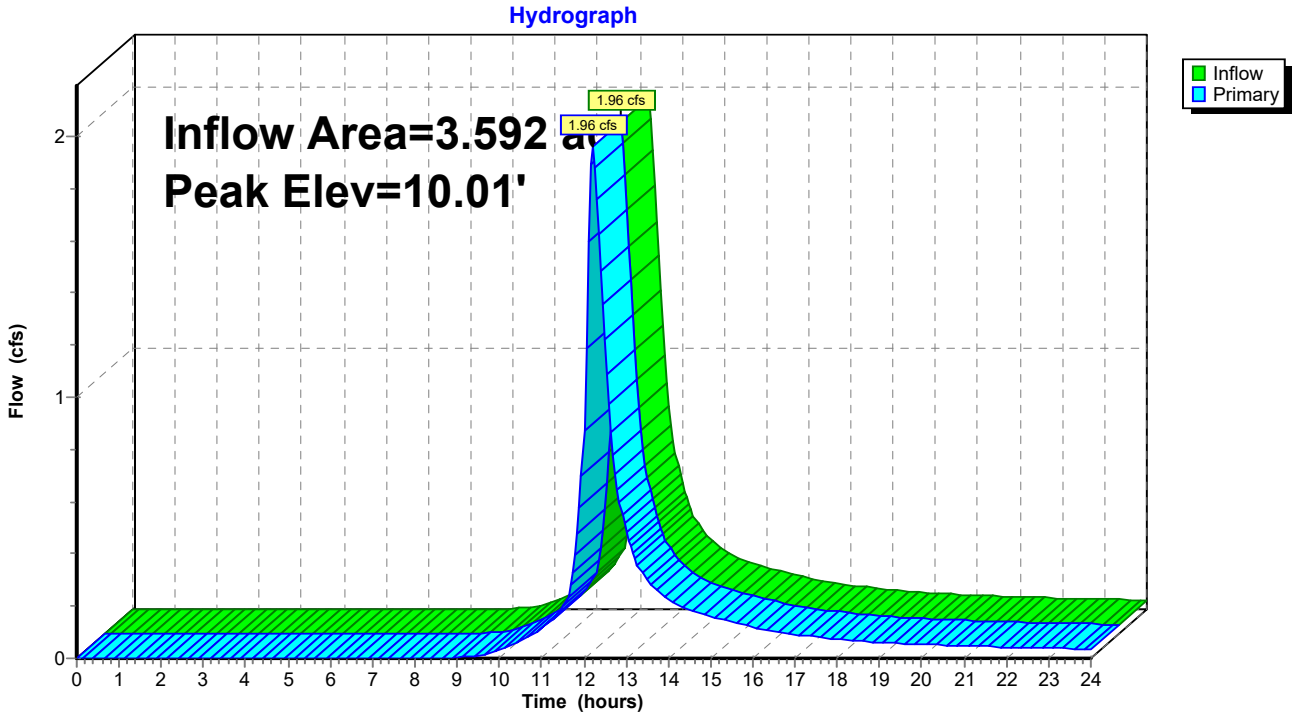
Inflow Area = 3.592 ac,100.00% Impervious, Inflow Depth > 0.73" for 1" Storm Event event
Inflow = 1.96 cfs @ 12.20 hrs, Volume= 0.219 af
Outflow = 1.96 cfs @ 12.20 hrs, Volume= 0.219 af, Atten= 0%, Lag= 0.0 min
Primary = 1.96 cfs @ 12.20 hrs, Volume= 0.219 af
Routed to Pond 9P : DMH-8 (Outfall #1)

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 10.01' @ 12.20 hrs
Flood Elev= 11.43'

Device	Routing	Invert	Outlet Devices
#1	Primary	7.71'	**24.0" Round Filter Culvert Out** L= 125.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 7.71' / 6.92' S= 0.0063 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Device 1	7.71'	**JF Filter-2 CSV File** Head (feet) 0.00 0.08 0.17 0.25 0.33 0.42 0.50 0.58 0.67 0.75 0.83 0.92 1.00 1.08 1.17 1.25 1.33 1.42 1.50 Disch. (cfs) 0.000 0.010 0.020 0.030 0.040 0.050 0.059 0.173 0.287 0.401 0.515 0.629 0.743 0.857 0.970 1.084 1.198 1.312 1.426
#3	Device 1	9.84'	**2.8' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=1.96 cfs @ 12.20 hrs HW=10.01' (Free Discharge)
└**1=Filter Culvert Out** (Passes 1.96 cfs of 13.59 cfs potential flow)
  ├**2=JF Filter-2 CSV File** (Custom Controls 1.43 cfs)
  └**3=Broad-Crested Rectangular Weir** (Weir Controls 0.53 cfs @ 1.14 fps)

Pond 12P: Jellyfish 2 JFPD0806-7-2



Summary for Pond 13P: DMH-13 (Outfall #2)

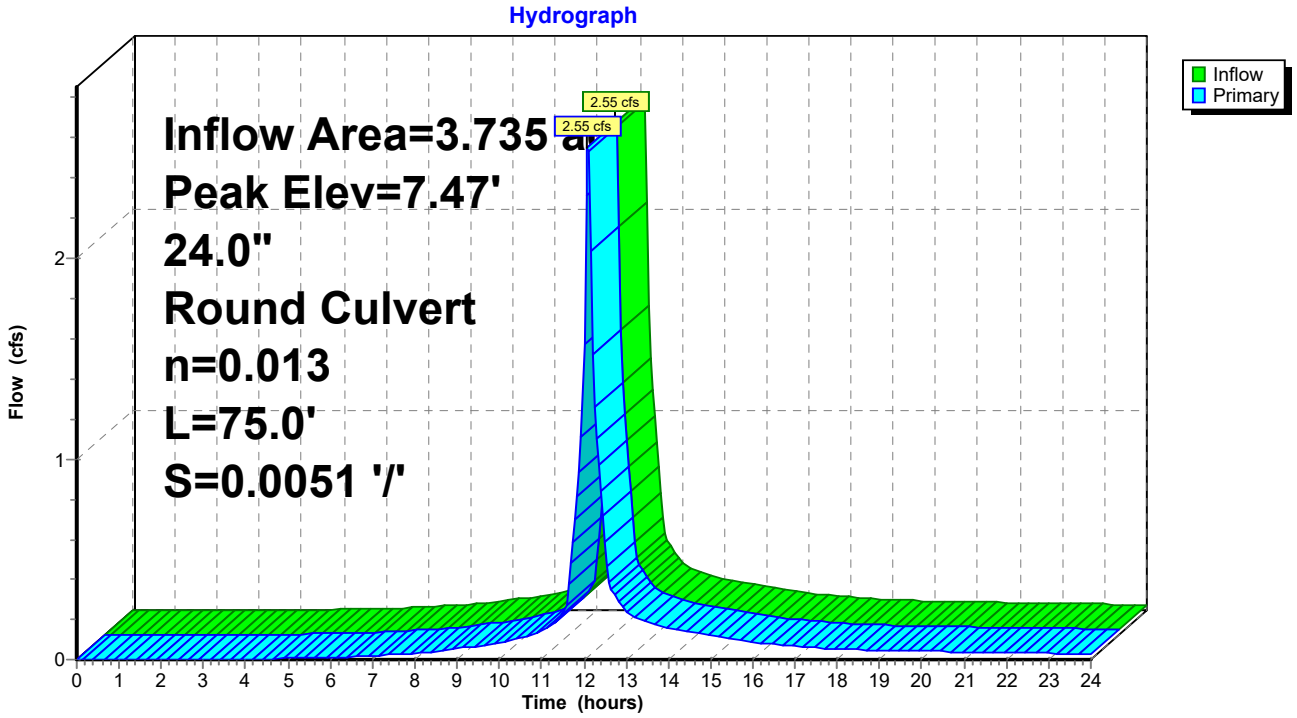
Inflow Area = 3.735 ac, 83.01% Impervious, Inflow Depth > 0.63" for 1" Storm Event event
Inflow = 2.55 cfs @ 12.09 hrs, Volume= 0.195 af
Outflow = 2.55 cfs @ 12.09 hrs, Volume= 0.195 af, Atten= 0%, Lag= 0.0 min
Primary = 2.55 cfs @ 12.09 hrs, Volume= 0.195 af
Routed to Link 2L : Fore River

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 7.47' @ 12.09 hrs
Flood Elev= 11.78'

Device	Routing	Invert	Outlet Devices
#1	Primary	6.68'	**24.0" Round Culvert** L= 75.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 6.68' / 6.30' S= 0.0051 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=2.50 cfs @ 12.09 hrs HW=7.46' (Free Discharge)
1=Culvert (Barrel Controls 2.50 cfs @ 3.26 fps)

Pond 13P: DMH-13 (Outfall #2)



Summary for Pond 24P: Filterra 1

Inflow Area = 0.275 ac,100.00% Impervious, Inflow Depth > 0.79" for 1" Storm Event event
Inflow = 0.24 cfs @ 12.09 hrs, Volume= 0.018 af
Outflow = 0.24 cfs @ 12.09 hrs, Volume= 0.018 af, Atten= 0%, Lag= 0.0 min
Primary = 0.24 cfs @ 12.09 hrs, Volume= 0.018 af
Routed to Pond 27P : AD49
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond 27P : AD49

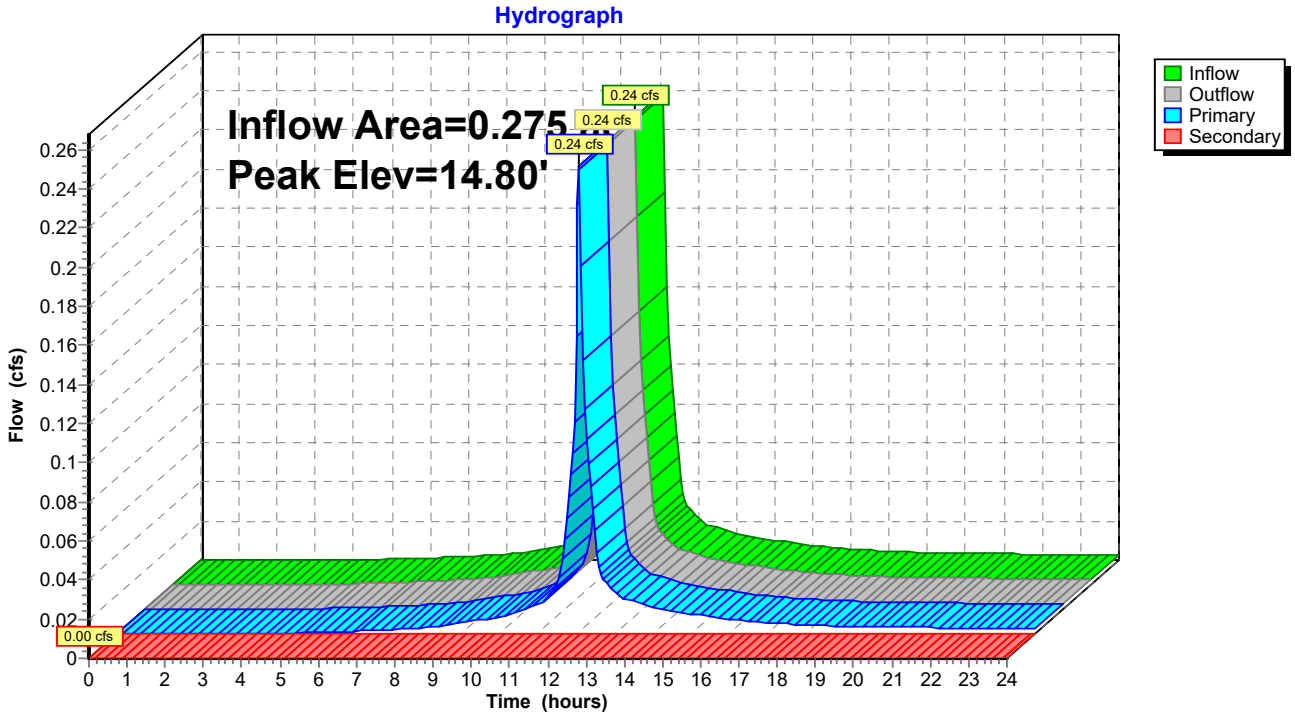
Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 14.80' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	14.50'	**12.0" Round Culvert** L= 4.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 14.50' / 14.47' S= 0.0075 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	18.04'	**5.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=0.23 cfs @ 12.09 hrs HW=14.80' (Free Discharge)
└**1=Culvert** (Barrel Controls 0.23 cfs @ 1.76 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=14.50' (Free Discharge)
└**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 24P: Filterra 1



Summary for Pond 27P: AD49

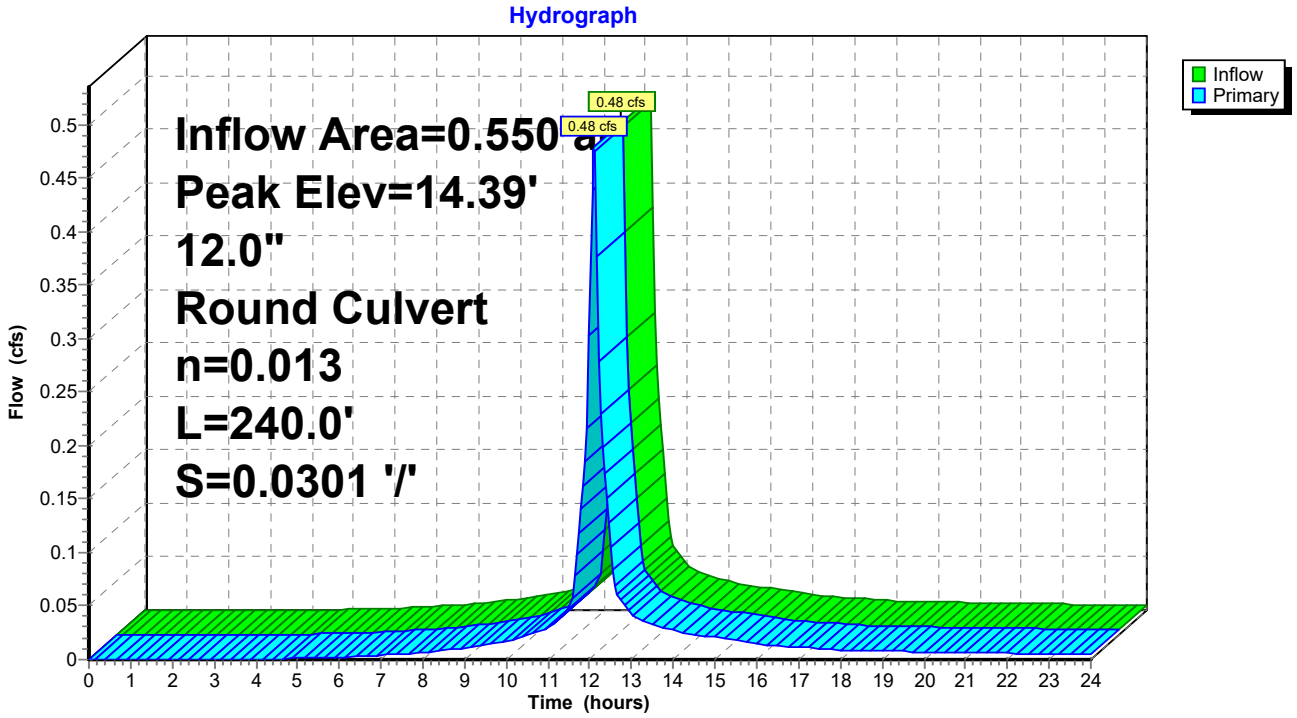
Inflow Area = 0.550 ac,100.00% Impervious, Inflow Depth > 0.79" for 1" Storm Event event
Inflow = 0.48 cfs @ 12.09 hrs, Volume= 0.036 af
Outflow = 0.48 cfs @ 12.09 hrs, Volume= 0.036 af, Atten= 0%, Lag= 0.0 min
Primary = 0.48 cfs @ 12.09 hrs, Volume= 0.036 af
Routed to Pond 13P : DMH-13 (Outfall #2)

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 14.39' @ 12.09 hrs
Flood Elev= 12.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	14.00'	**12.0" Round Culvert** L= 240.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 14.00' / 6.78' S= 0.0301 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.47 cfs @ 12.09 hrs HW=14.39' (Free Discharge)
1=Culvert (Inlet Controls 0.47 cfs @ 1.67 fps)

Pond 27P: AD49



Summary for Pond 28P: Filterra 2

Inflow Area = 0.275 ac,100.00% Impervious, Inflow Depth > 0.79" for 1" Storm Event event
Inflow = 0.24 cfs @ 12.09 hrs, Volume= 0.018 af
Outflow = 0.24 cfs @ 12.09 hrs, Volume= 0.018 af, Atten= 0%, Lag= 0.0 min
Primary = 0.24 cfs @ 12.09 hrs, Volume= 0.018 af
Routed to Pond 27P : AD49
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond 27P : AD49

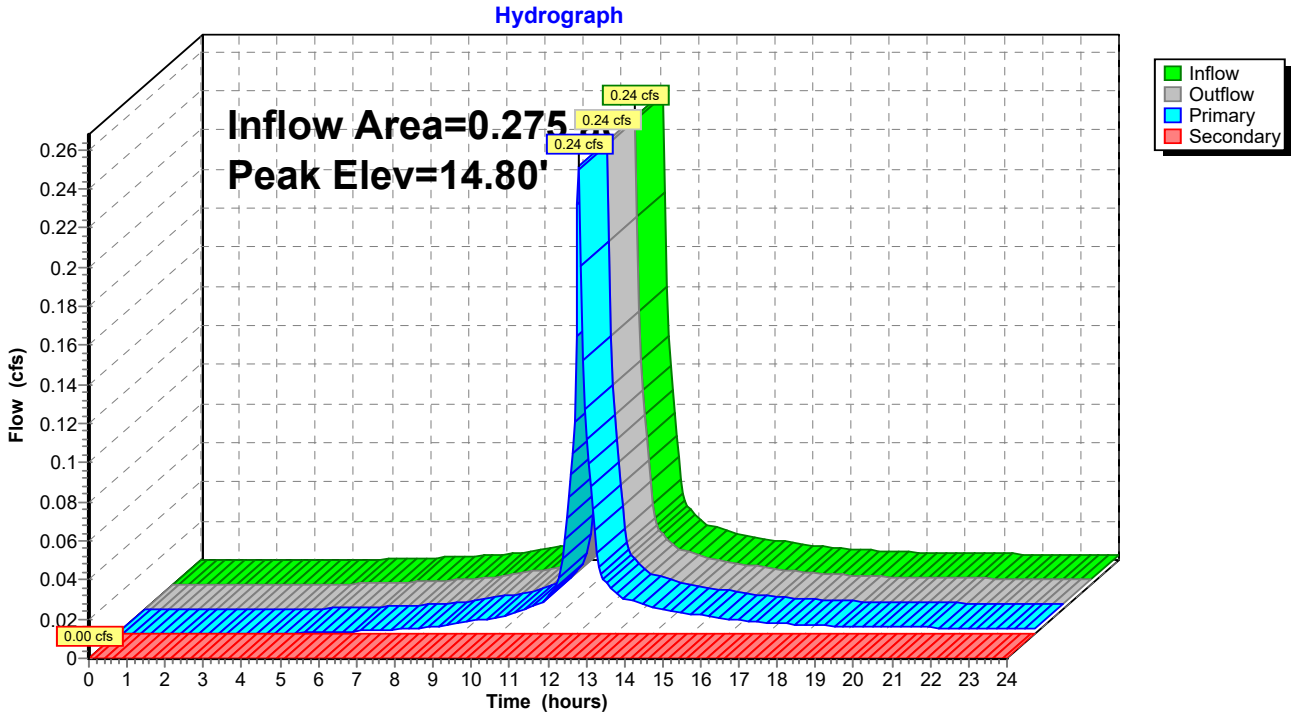
Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 14.80' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	14.50'	**12.0" Round Culvert** L= 4.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 14.50' / 14.47' S= 0.0075 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	18.04'	**5.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=0.23 cfs @ 12.09 hrs HW=14.80' (Free Discharge)
↑—**1=Culvert** (Barrel Controls 0.23 cfs @ 1.76 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=14.50' (Free Discharge)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 28P: Filterra 2

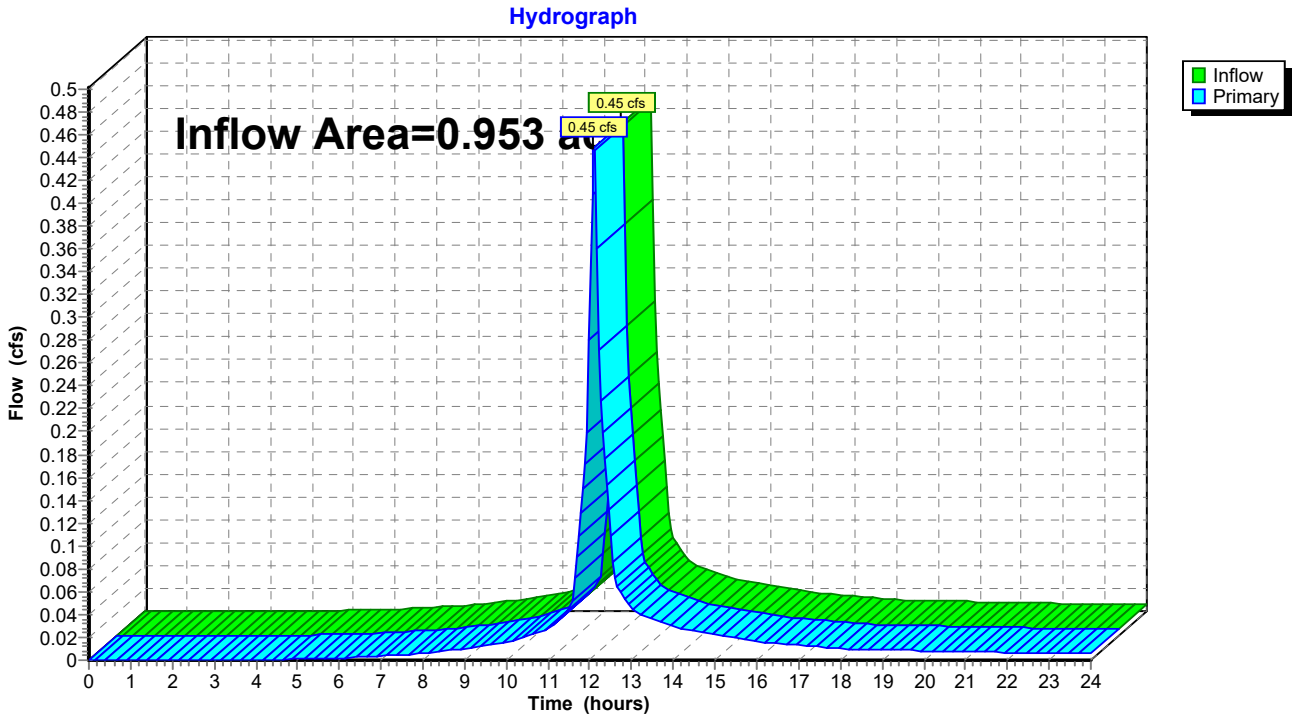


Summary for Link 1L: Freedom Way

Inflow Area = 0.953 ac, 53.78% Impervious, Inflow Depth > 0.46" for 1" Storm Event event
Inflow = 0.45 cfs @ 12.09 hrs, Volume= 0.037 af
Primary = 0.45 cfs @ 12.09 hrs, Volume= 0.037 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 1L: Freedom Way

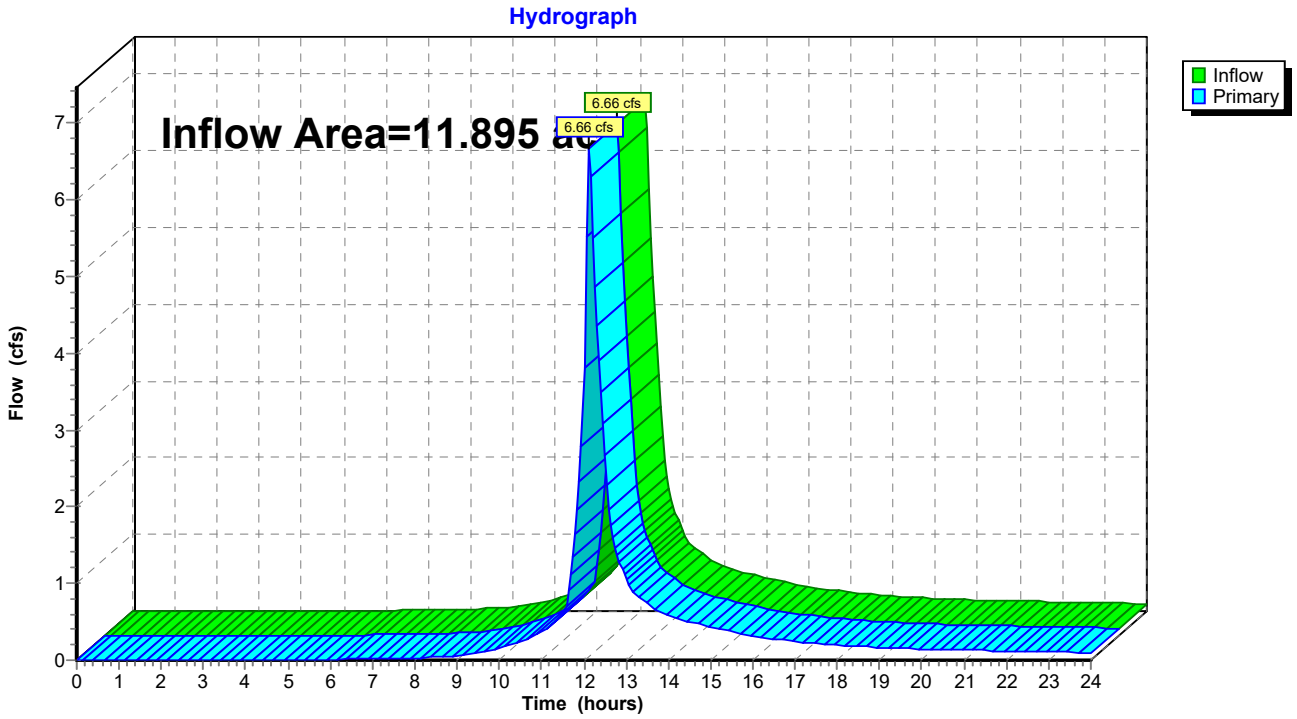


Summary for Link 2L: Fore River

Inflow Area = 11.895 ac, 87.62% Impervious, Inflow Depth > 0.63" for 1" Storm Event event
Inflow = 6.66 cfs @ 12.11 hrs, Volume= 0.623 af
Primary = 6.66 cfs @ 12.11 hrs, Volume= 0.623 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 2L: Fore River

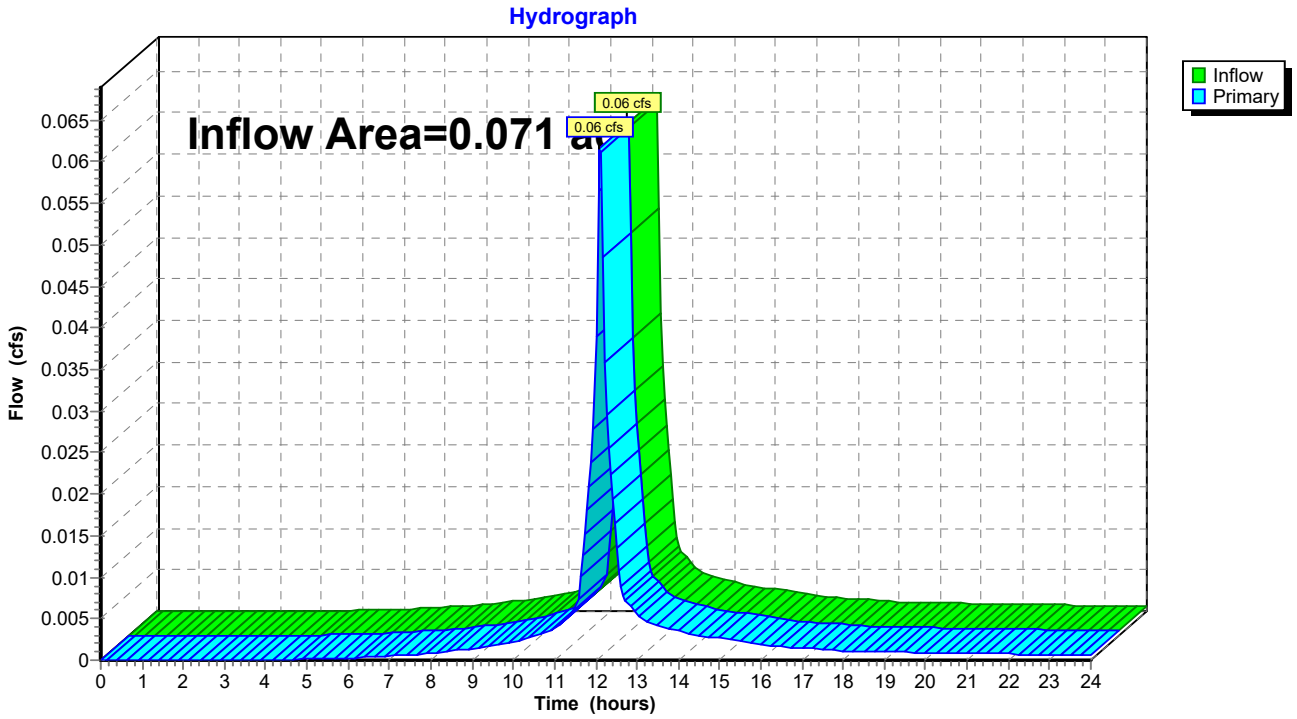


Summary for Link 3L: Fore Street

Inflow Area = 0.071 ac,100.00% Impervious, Inflow Depth > 0.79" for 1" Storm Event event
Inflow = 0.06 cfs @ 12.09 hrs, Volume= 0.005 af
Primary = 0.06 cfs @ 12.09 hrs, Volume= 0.005 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 3L: Fore Street



Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: Block 1B Runoff Area=19,389 sf 1.02% Impervious Runoff Depth>1.32"
Tc=6.0 min CN=80 Runoff=0.67 cfs 0.049 af

Subcatchment2S: Western half of Runoff Area=22,128 sf 100.00% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=98 Runoff=1.49 cfs 0.121 af

Subcatchment3S: Eastern half of Runoff Area=22,147 sf 100.00% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=98 Runoff=1.49 cfs 0.121 af

Subcatchment4S: Shared Street - Trench Runoff Area=26,424 sf 83.24% Impervious Runoff Depth>2.55"
Tc=6.0 min CN=95 Runoff=1.68 cfs 0.129 af

Subcatchment5S: Building 12 Runoff Area=3,244 sf 100.00% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=98 Runoff=0.22 cfs 0.018 af

Subcatchment6S: Plaza between Blocks 1 Runoff Area=18,771 sf 95.74% Impervious Runoff Depth>2.76"
Tc=6.0 min CN=97 Runoff=1.25 cfs 0.099 af

Subcatchment7S: Building 14 Runoff Area=2,557 sf 100.00% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=98 Runoff=0.17 cfs 0.014 af

Subcatchment8S: Building 15 Runoff Area=2,578 sf 100.00% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=98 Runoff=0.17 cfs 0.014 af

Subcatchment9S: Building 2 North Runoff Area=4,695 sf 100.00% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=98 Runoff=0.32 cfs 0.026 af

Subcatchment10S: Building 3 North Runoff Area=2,212 sf 100.00% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=98 Runoff=0.15 cfs 0.012 af

Subcatchment11S: Building 2 South Runoff Area=4,855 sf 100.00% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=98 Runoff=0.33 cfs 0.027 af

Subcatchment12S: Building 3 South Runoff Area=2,326 sf 100.00% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=98 Runoff=0.16 cfs 0.013 af

Subcatchment13S: Building 6 Runoff Area=3,304 sf 100.00% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=98 Runoff=0.22 cfs 0.018 af

Subcatchment14S: Building 6B North Runoff Area=4,296 sf 100.00% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=98 Runoff=0.29 cfs 0.024 af

Subcatchment15S: Building 6B South Runoff Area=2,512 sf 100.00% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=98 Runoff=0.17 cfs 0.014 af

Subcatchment16S: Plaza between Blocks 1 Runoff Area=3,650 sf 75.84% Impervious Runoff Depth>2.45"
Tc=6.0 min CN=94 Runoff=0.23 cfs 0.017 af

Subcatchment17S: Shared Street - Trench Runoff Area=8,719 sf 100.00% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=98 Runoff=0.59 cfs 0.048 af

Subcatchment18S: Plaza between Runoff Area=28,813 sf 100.00% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=98 Runoff=1.94 cfs 0.158 af

Subcatchment19S: Block 4 Building Runoff Area=86,592 sf 100.00% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=98 Runoff=5.84 cfs 0.475 af

Subcatchment20S: Direct to R-Tank Runoff Area=7,210 sf 100.00% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=98 Runoff=0.49 cfs 0.040 af

Subcatchment21S: Plaza along Building Runoff Area=2,534 sf 100.00% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=98 Runoff=0.17 cfs 0.014 af

Subcatchment22S: Block 6 Building Runoff Area=47,780 sf 100.00% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=98 Runoff=3.22 cfs 0.262 af

Subcatchment23S: Block 5 Building to Runoff Area=11,218 sf 100.00% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=98 Runoff=0.76 cfs 0.062 af

Subcatchment24S: Block 5 Building Runoff Area=30,570 sf 100.00% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=98 Runoff=2.06 cfs 0.168 af

Subcatchment25S: Southern Plaza Runoff Area=11,168 sf 100.00% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=98 Runoff=0.75 cfs 0.061 af

Subcatchment26S: Plaza along Townhouse Runoff Area=550 sf 100.00% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=98 Runoff=0.04 cfs 0.003 af

Subcatchment27S: Drainage from off-site Runoff Area=49,238 sf 43.84% Impervious Runoff Depth>1.91"
Tc=6.0 min CN=88 Runoff=2.47 cfs 0.180 af

Subcatchment28S: Waterfront Runoff Area=109,324 sf 72.19% Impervious Runoff Depth>2.35"
Tc=6.0 min CN=93 Runoff=6.56 cfs 0.491 af

Subcatchment29S: Block 6 Building Runoff Area=11,975 sf 100.00% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=98 Runoff=0.81 cfs 0.066 af

Subcatchment30S: Block 6 Building Runoff Area=11,975 sf 100.00% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=98 Runoff=0.81 cfs 0.066 af

Pond 1P: DMH 1 Peak Elev=11.06' Inflow=5.45 cfs 0.433 af
24.0" Round Culvert n=0.013 L=61.0' S=0.0038 '/' Outflow=5.45 cfs 0.433 af

Pond 2P: DMH 2 Peak Elev=10.77' Inflow=5.90 cfs 0.468 af
24.0" Round Culvert n=0.013 L=31.0' S=0.0048 '/' Outflow=5.90 cfs 0.468 af

Pond 3P: Storm Structure Peak Elev=9.29' Inflow=5.90 cfs 0.468 af
15.0" Round Culvert x 3.00 n=0.013 L=4.0' S=0.0000 '/' Outflow=5.90 cfs 0.468 af

Pond 4P: R-Tank 1 Peak Elev=8.32' Storage=1,608 cf Inflow=5.90 cfs 0.468 af
21.0" Round Culvert n=0.013 L=62.0' S=0.0000 '/' Outflow=5.30 cfs 0.461 af

Pond 5P: DMH-11 Peak Elev=9.45' Inflow=8.11 cfs 0.835 af
24.0" Round Culvert n=0.013 L=16.0' S=0.0069 '/' Outflow=8.11 cfs 0.835 af

Pond 6P: CB27 Peak Elev=11.39' Inflow=10.06 cfs 0.818 af
24.0" Round Culvert n=0.013 L=22.0' S=0.0064 '/' Outflow=10.06 cfs 0.818 af

Pond 7P: Storm Structure Peak Elev=9.69' Inflow=10.06 cfs 0.818 af
15.0" Round Culvert x 3.00 n=0.013 L=4.0' S=0.0000 '/' Outflow=10.06 cfs 0.818 af

Pond 8P: R-Tank 2 Peak Elev=9.70' Storage=5,443 cf Inflow=10.55 cfs 0.858 af
24.0" Round Culvert n=0.013 L=70.0' S=0.0000 '/' Outflow=8.11 cfs 0.835 af

Pond 9P: DMH-8 (Outfall #1) Peak Elev=8.49' Inflow=13.31 cfs 1.297 af
30.0" Round Culvert n=0.013 L=52.0' S=0.0052 '/' Outflow=13.31 cfs 1.297 af

Pond 10P: DMH 4 Peak Elev=8.21' Inflow=5.30 cfs 0.461 af
24.0" Round Culvert n=0.013 L=59.0' S=0.0000 '/' Outflow=5.30 cfs 0.461 af

Pond 11P: Jellyfish 1 JFPD0806-4-1 Peak Elev=10.22' Inflow=5.30 cfs 0.461 af
Outflow=5.30 cfs 0.461 af

Pond 12P: Jellyfish 2 JFPD0806-7-2 Peak Elev=10.65' Inflow=8.11 cfs 0.835 af
Outflow=8.11 cfs 0.835 af

Pond 13P: DMH-13 (Outfall #2) Peak Elev=8.48' Inflow=10.12 cfs 0.802 af
24.0" Round Culvert n=0.013 L=75.0' S=0.0051 '/' Outflow=10.12 cfs 0.802 af

Pond 24P: Filterra 1 Peak Elev=15.10' Inflow=0.81 cfs 0.066 af
Primary=0.81 cfs 0.066 af Secondary=0.00 cfs 0.000 af Outflow=0.81 cfs 0.066 af

Pond 27P: AD49 Peak Elev=14.80' Inflow=1.61 cfs 0.131 af
12.0" Round Culvert n=0.013 L=240.0' S=0.0301 '/' Outflow=1.61 cfs 0.131 af

Pond 28P: Filterra 2 Peak Elev=15.10' Inflow=0.81 cfs 0.066 af
Primary=0.81 cfs 0.066 af Secondary=0.00 cfs 0.000 af Outflow=0.81 cfs 0.066 af

Link 1L: Freedom Way Inflow=2.16 cfs 0.170 af
Primary=2.16 cfs 0.170 af

Link 2L: Fore River Inflow=29.07 cfs 2.590 af
Primary=29.07 cfs 2.590 af

Link 3L: Fore Street Inflow=0.21 cfs 0.017 af
Primary=0.21 cfs 0.017 af

Total Runoff Area = 12.919 ac Runoff Volume = 2.806 af Average Runoff Depth = 2.61"
14.81% Pervious = 1.914 ac 85.19% Impervious = 11.005 ac

Summary for Subcatchment 1S: Block 1B

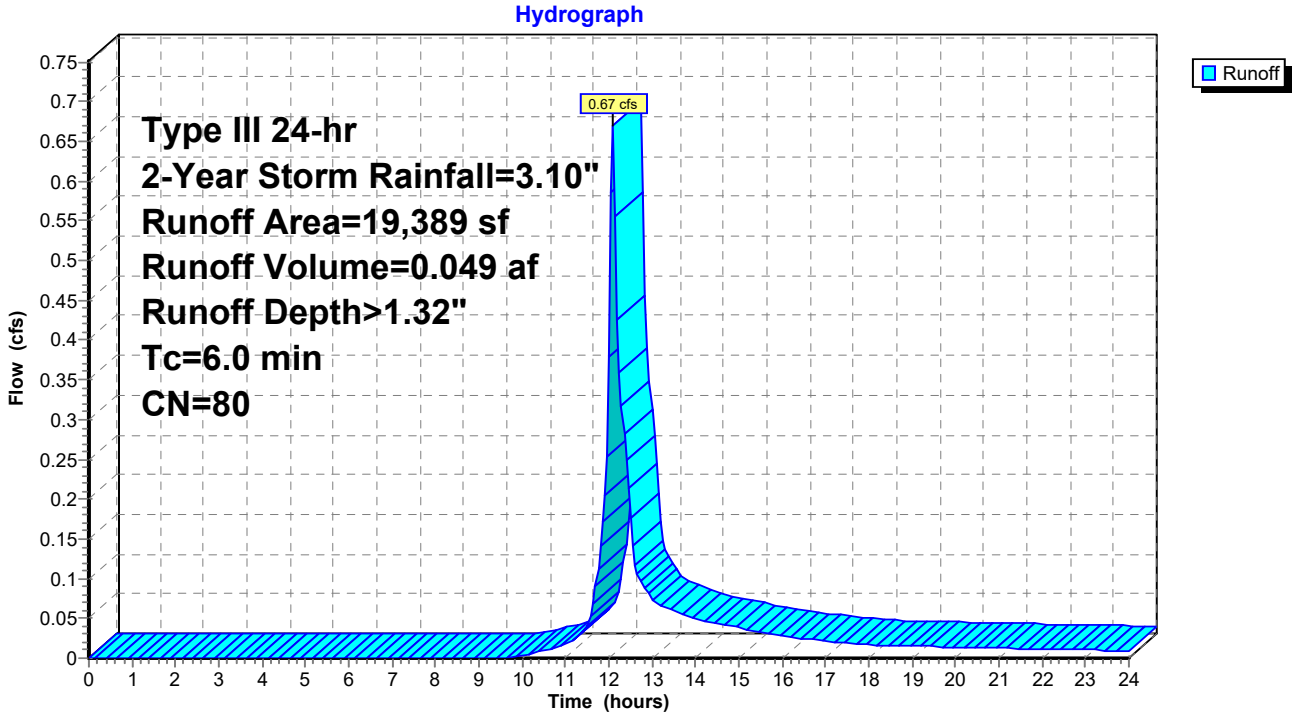
Runoff = 0.67 cfs @ 12.10 hrs, Volume= 0.049 af, Depth> 1.32"
Routed to Link 1L : Freedom Way

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	198	98	Impervious
	19,191	80	>75% Grass cover, Good, HSG D
	19,389	80	Weighted Average
	19,191		98.98% Pervious Area
	198		1.02% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 1S: Block 1B



Summary for Subcatchment 2S: Western half of Building 1A

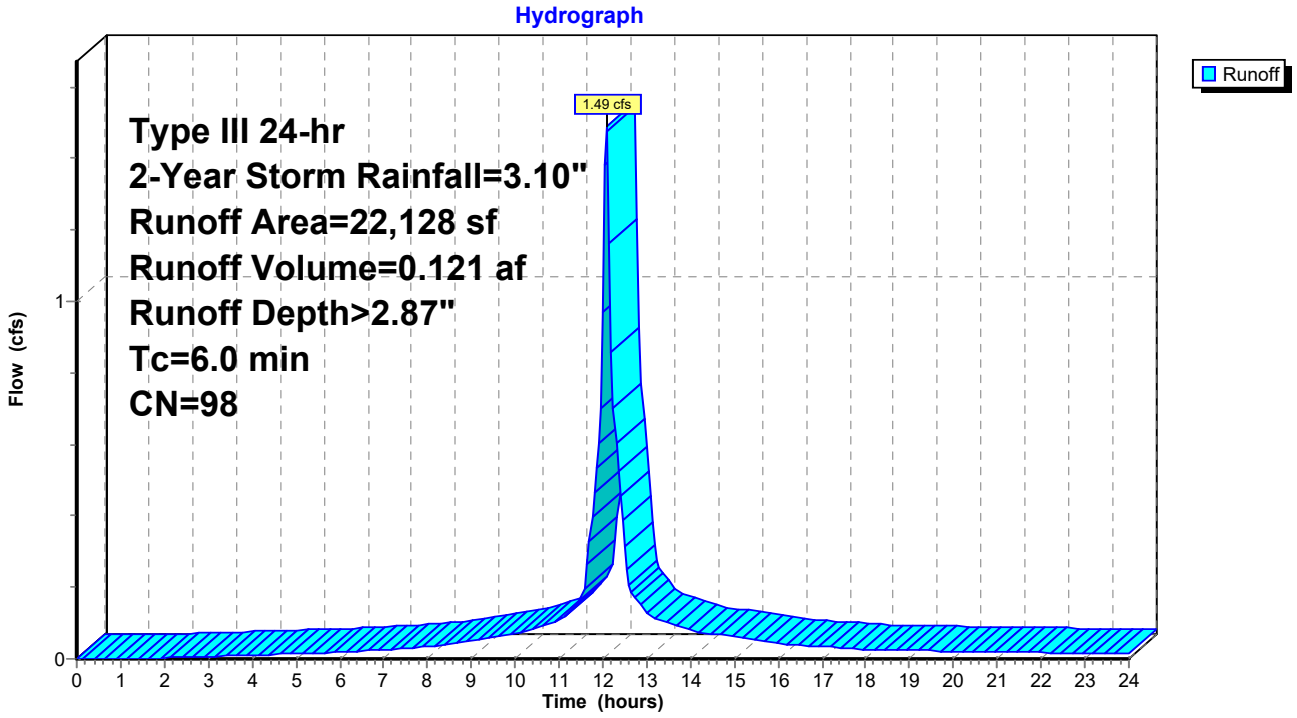
Runoff = 1.49 cfs @ 12.09 hrs, Volume= 0.121 af, Depth> 2.87"
Routed to Link 1L : Freedom Way

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	22,128	98	Roof
	22,128		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 2S: Western half of Building 1A



Summary for Subcatchment 3S: Eastern half of Building 1A

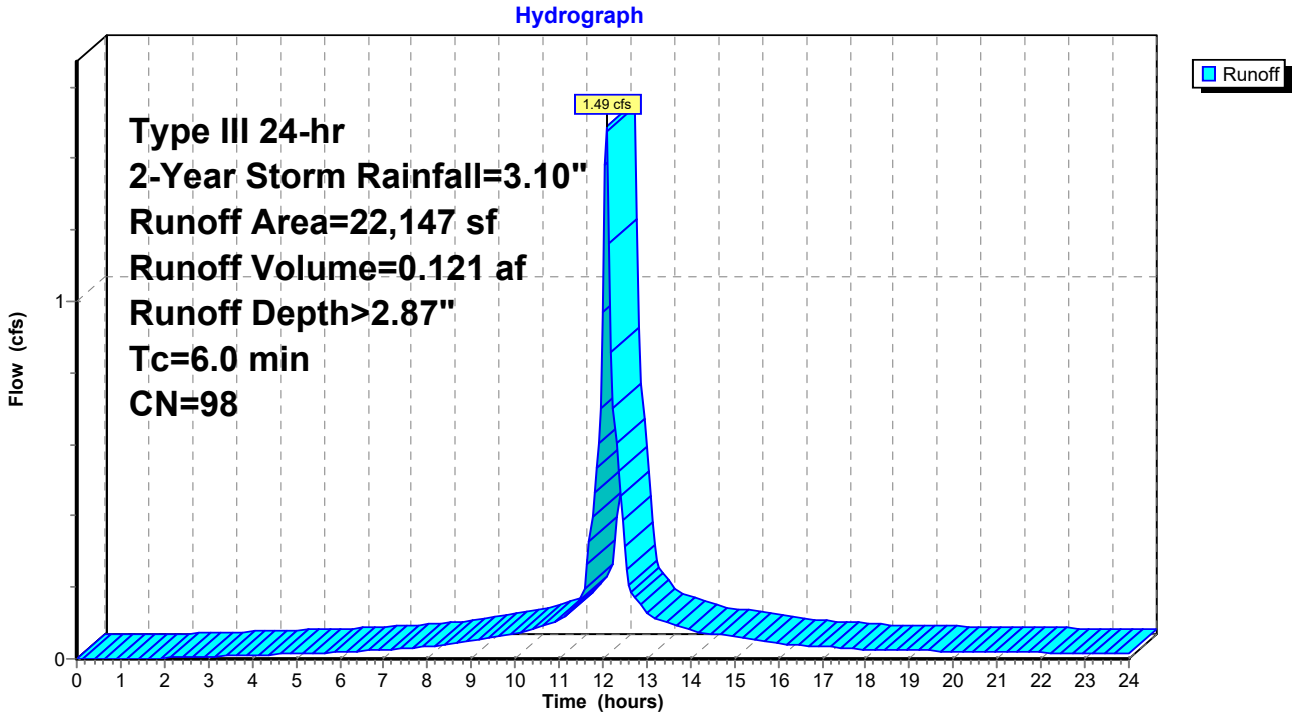
Runoff = 1.49 cfs @ 12.09 hrs, Volume= 0.121 af, Depth> 2.87"
Routed to Pond 1P : DMH 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	22,147	98	Roof
	22,147		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 3S: Eastern half of Building 1A



Summary for Subcatchment 4S: Shared Street - Trench Drain

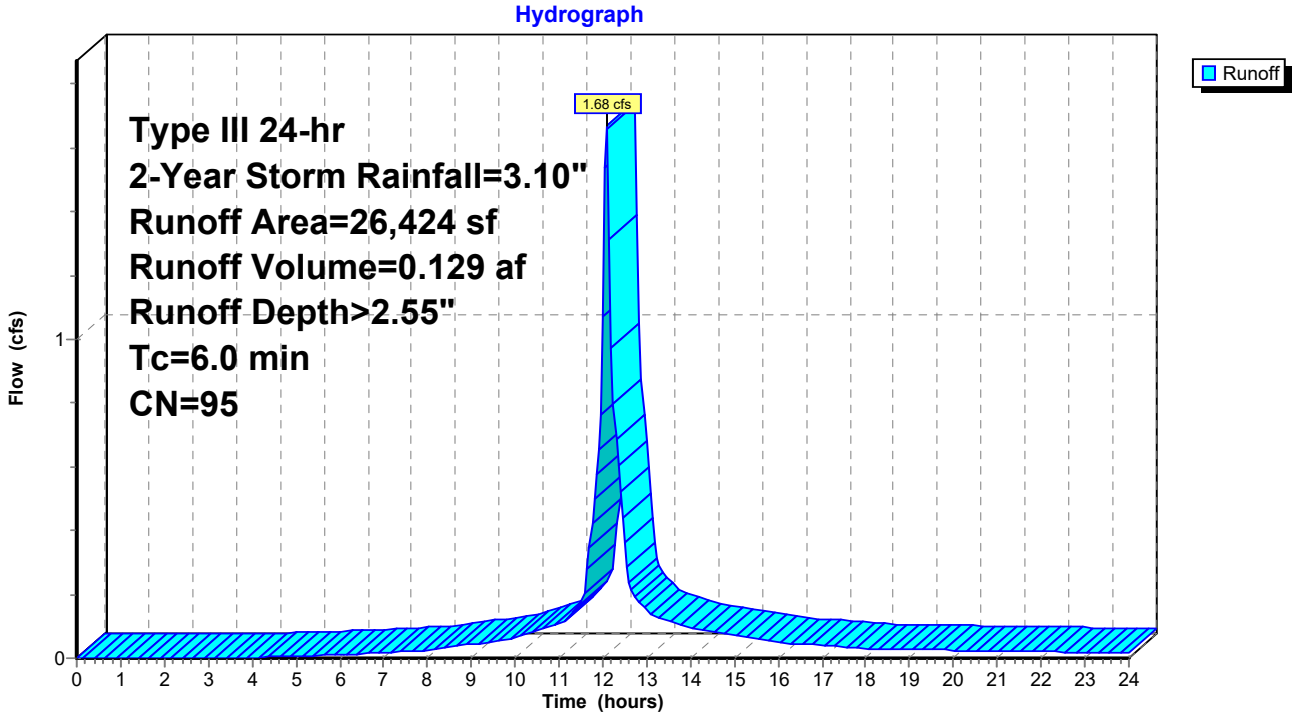
Runoff = 1.68 cfs @ 12.09 hrs, Volume= 0.129 af, Depth> 2.55"
Routed to Pond 1P : DMH 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Storm Rainfall=3.10"

	Area (sf)	CN	Description
	4,428	80	>75% Grass cover, Good, HSG D
*	21,996	98	Impervious
	26,424	95	Weighted Average
	4,428		16.76% Pervious Area
	21,996		83.24% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 4S: Shared Street - Trench Drain



Summary for Subcatchment 5S: Building 12

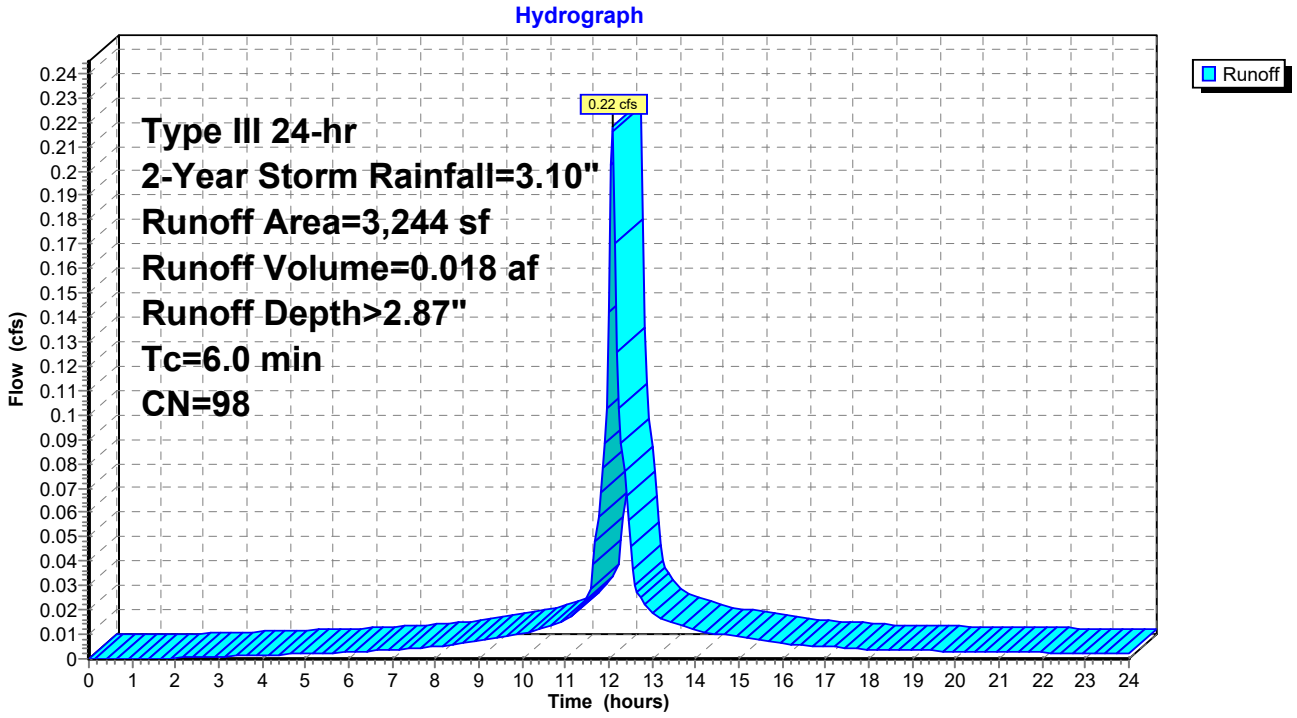
Runoff = 0.22 cfs @ 12.09 hrs, Volume= 0.018 af, Depth> 2.87"
Routed to Pond 1P : DMH 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	3,244	98	Roof
	3,244		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 5S: Building 12



Summary for Subcatchment 6S: Plaza between Blocks 1 & 2

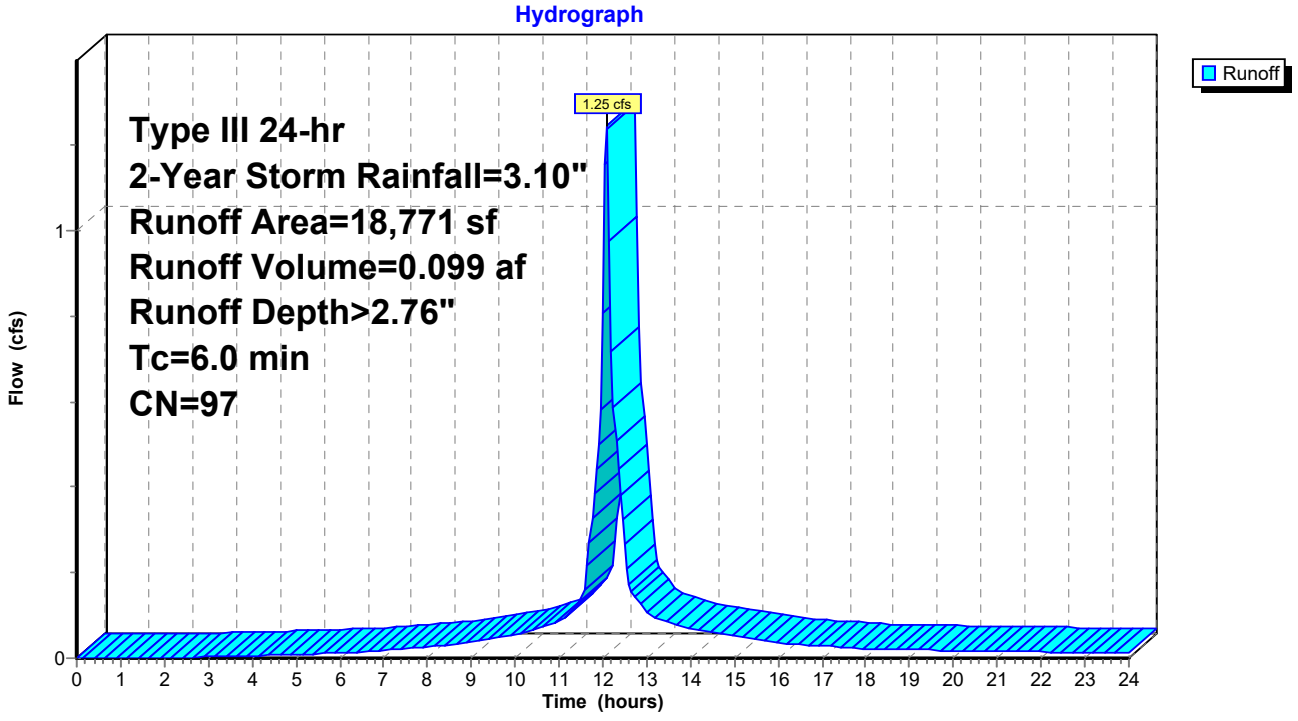
Runoff = 1.25 cfs @ 12.09 hrs, Volume= 0.099 af, Depth> 2.76"
Routed to Pond 1P : DMH 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	17,972	98	Impervious
	799	80	>75% Grass cover, Good, HSG D
	18,771	97	Weighted Average
	799		4.26% Pervious Area
	17,972		95.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 6S: Plaza between Blocks 1 & 2



Summary for Subcatchment 7S: Building 14

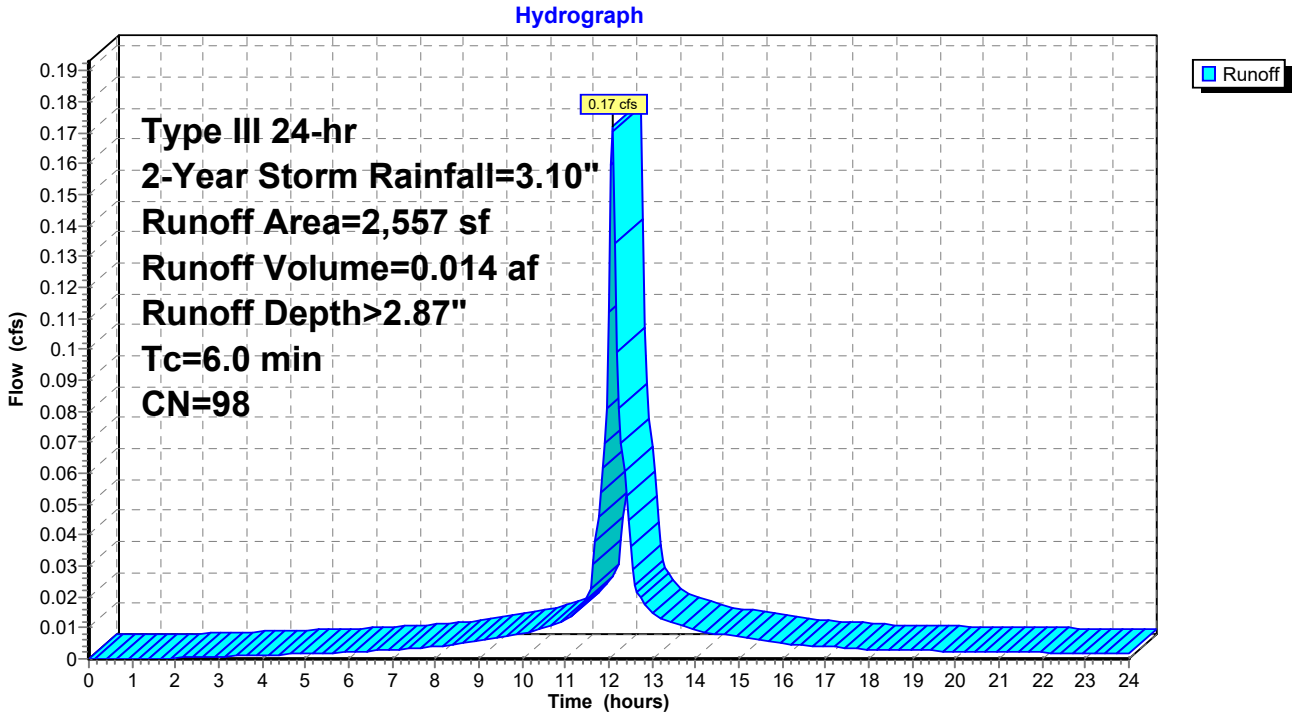
Runoff = 0.17 cfs @ 12.09 hrs, Volume= 0.014 af, Depth> 2.87"
Routed to Pond 1P : DMH 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	2,557	98	Roof
	2,557		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 7S: Building 14



Summary for Subcatchment 8S: Building 15

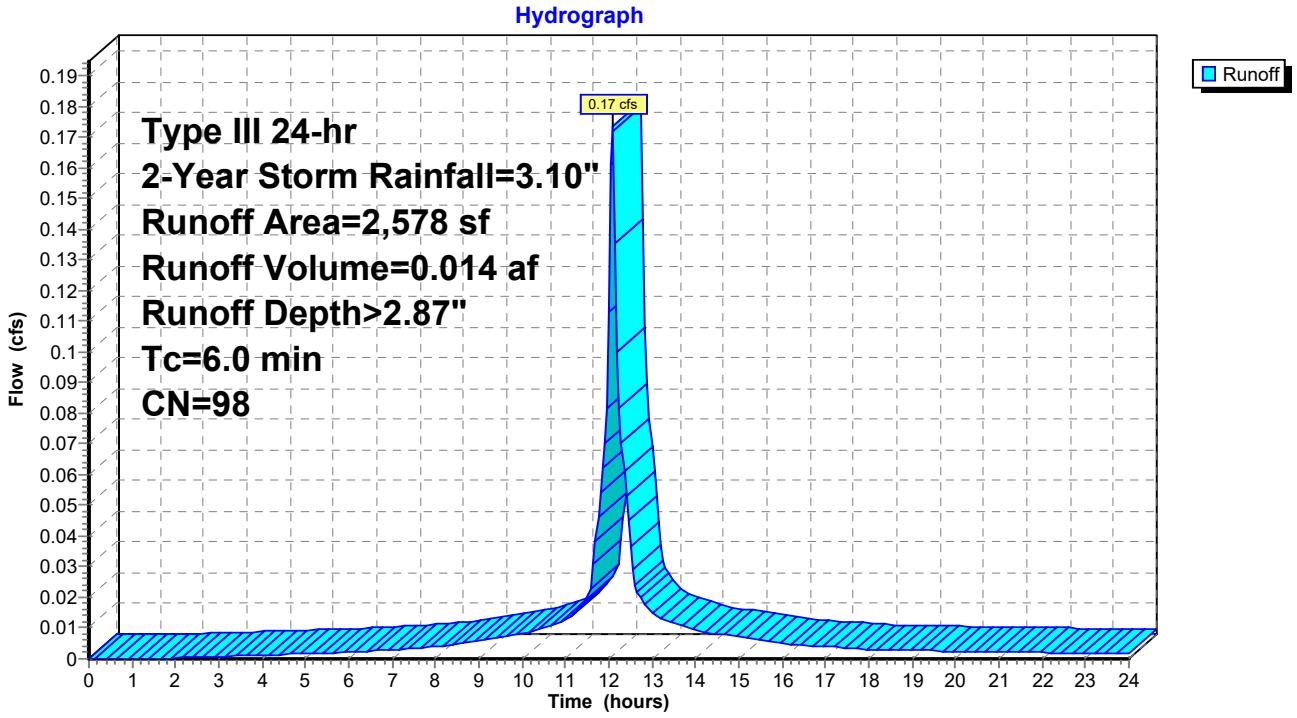
Runoff = 0.17 cfs @ 12.09 hrs, Volume= 0.014 af, Depth> 2.87"
Routed to Pond 6P : CB27

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	2,578	98	Roof
	2,578		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 8S: Building 15



Summary for Subcatchment 9S: Building 2 North

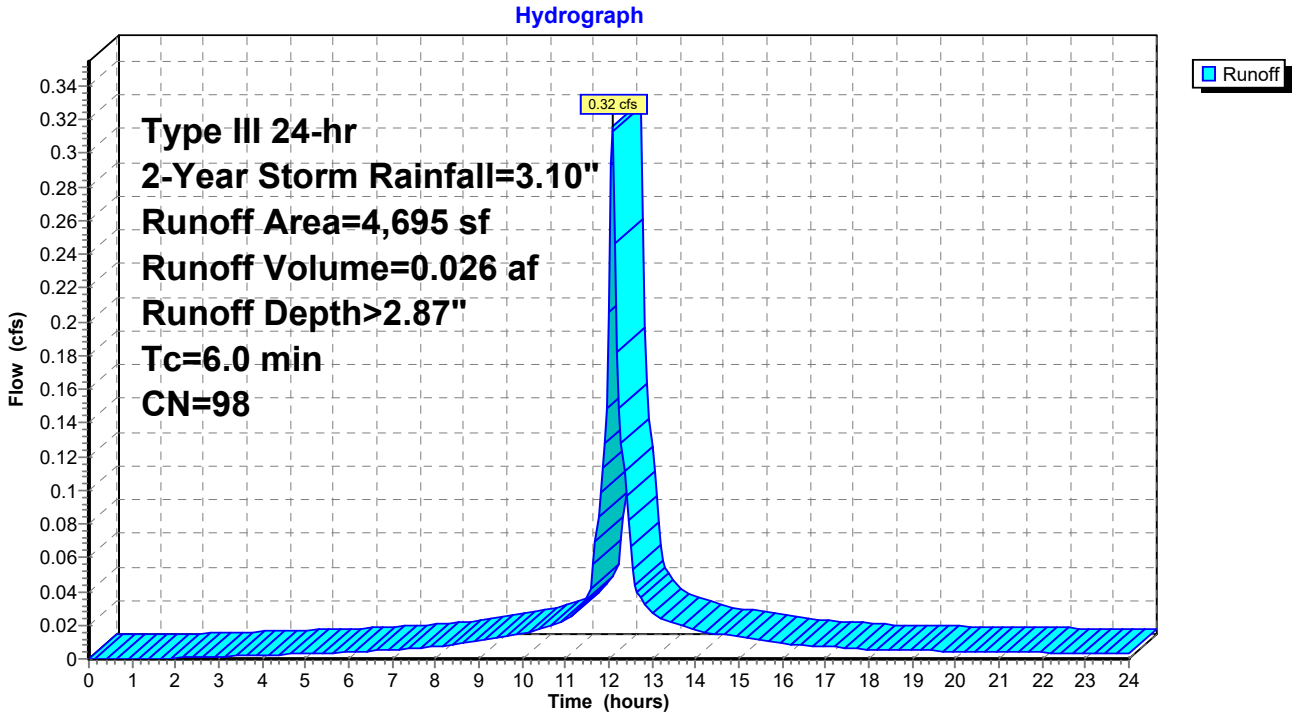
Runoff = 0.32 cfs @ 12.09 hrs, Volume= 0.026 af, Depth> 2.87"
Routed to Pond 1P : DMH 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	4,695	98	Roof
	4,695		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 9S: Building 2 North



Summary for Subcatchment 10S: Building 3 North

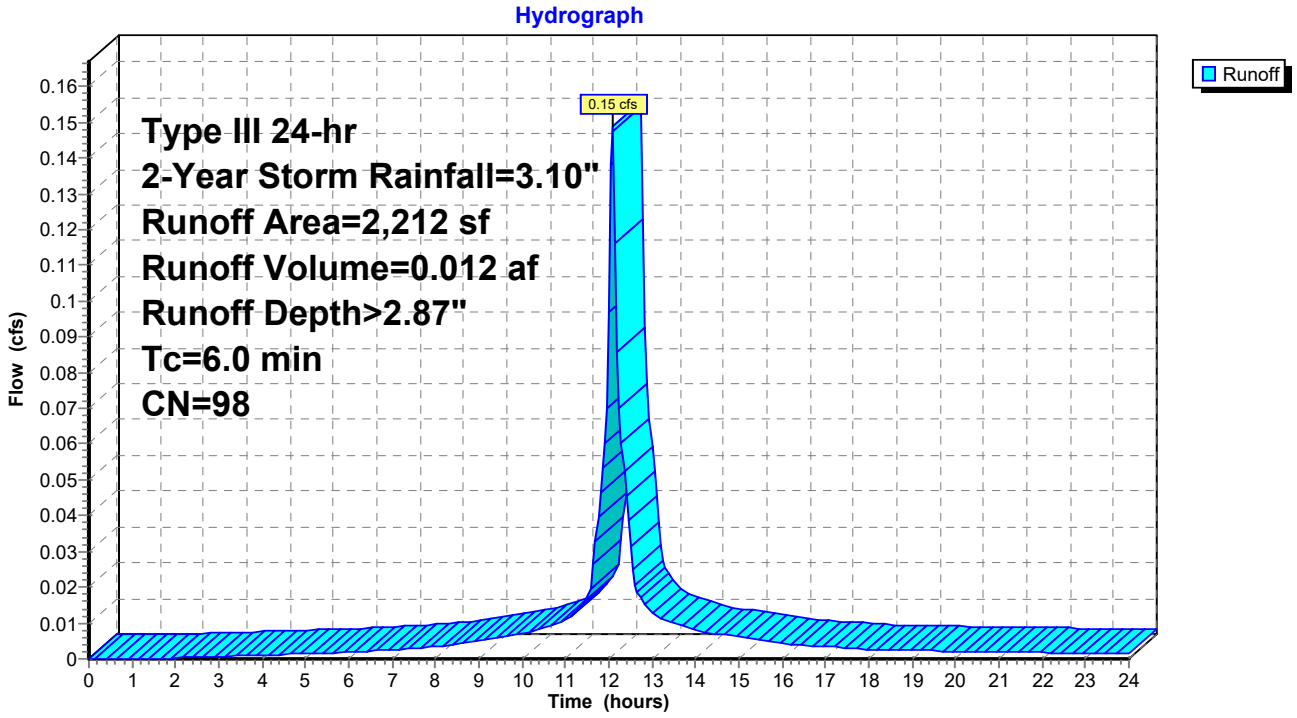
Runoff = 0.15 cfs @ 12.09 hrs, Volume= 0.012 af, Depth> 2.87"
Routed to Pond 6P : CB27

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	2,212	98	Roof
	2,212		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 10S: Building 3 North



Summary for Subcatchment 11S: Building 2 South

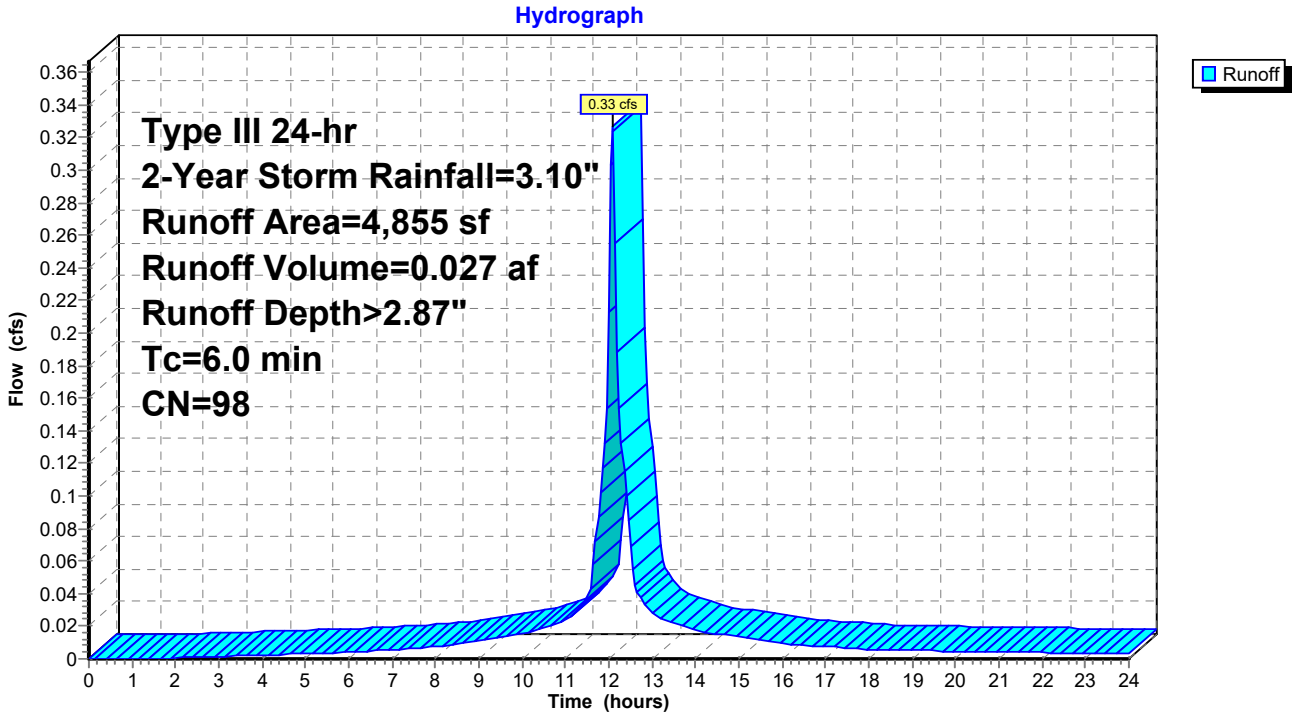
Runoff = 0.33 cfs @ 12.09 hrs, Volume= 0.027 af, Depth> 2.87"
Routed to Pond 1P : DMH 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	4,855	98	Roof
	4,855		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 11S: Building 2 South



Summary for Subcatchment 12S: Building 3 South

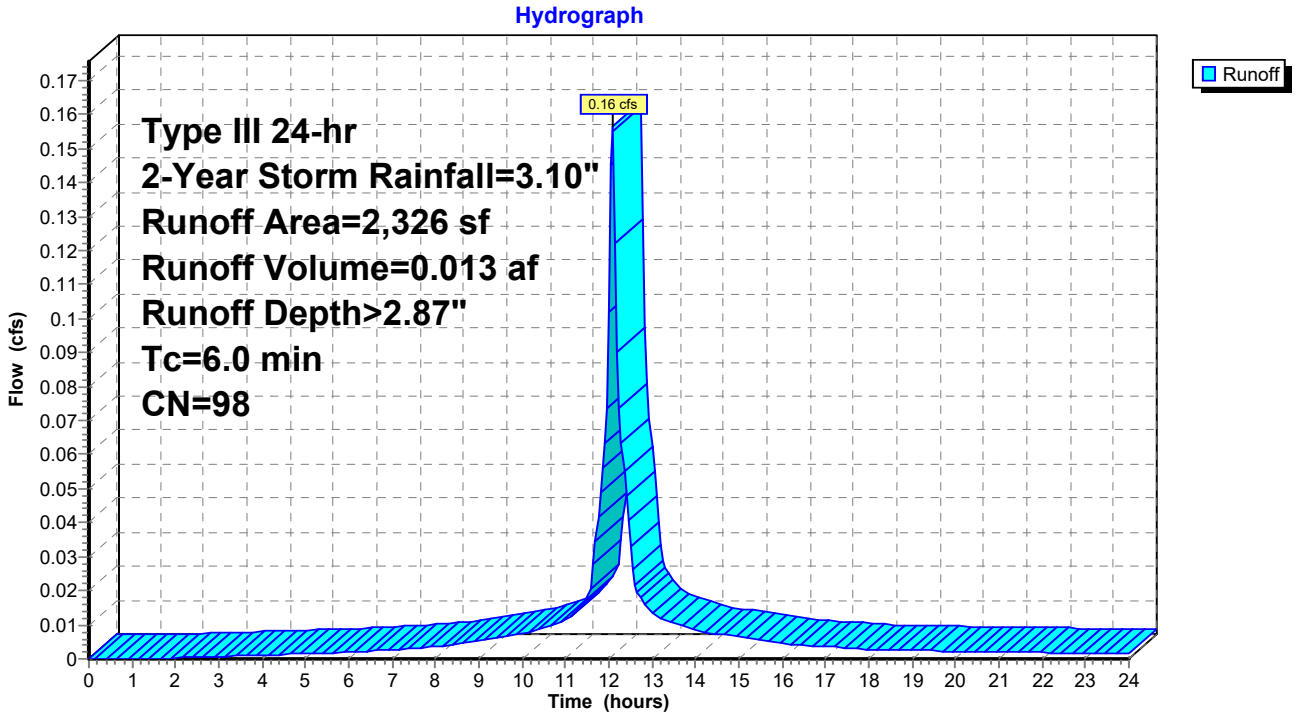
Runoff = 0.16 cfs @ 12.09 hrs, Volume= 0.013 af, Depth> 2.87"
Routed to Pond 6P : CB27

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	2,326	98	Roof
	2,326		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 12S: Building 3 South



Summary for Subcatchment 13S: Building 6

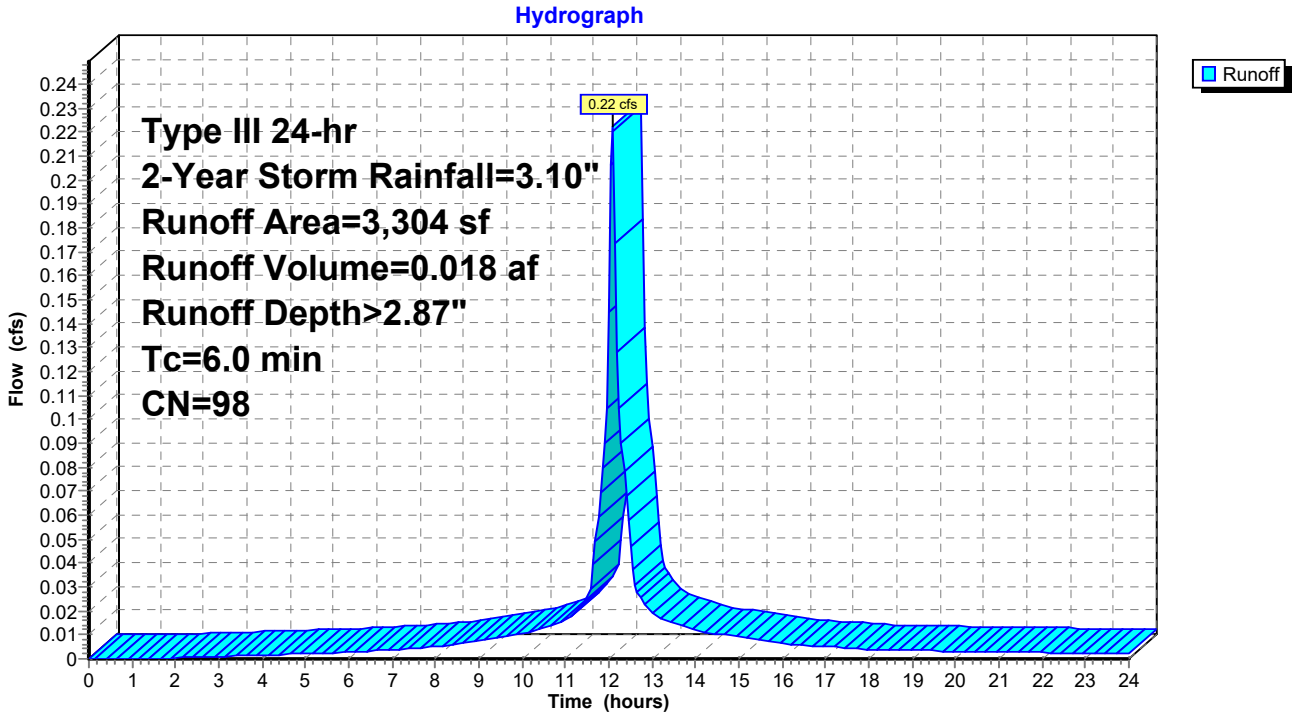
Runoff = 0.22 cfs @ 12.09 hrs, Volume= 0.018 af, Depth> 2.87"
Routed to Pond 2P : DMH 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	3,304	98	Roof
	3,304		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 13S: Building 6



Summary for Subcatchment 14S: Building 6B North

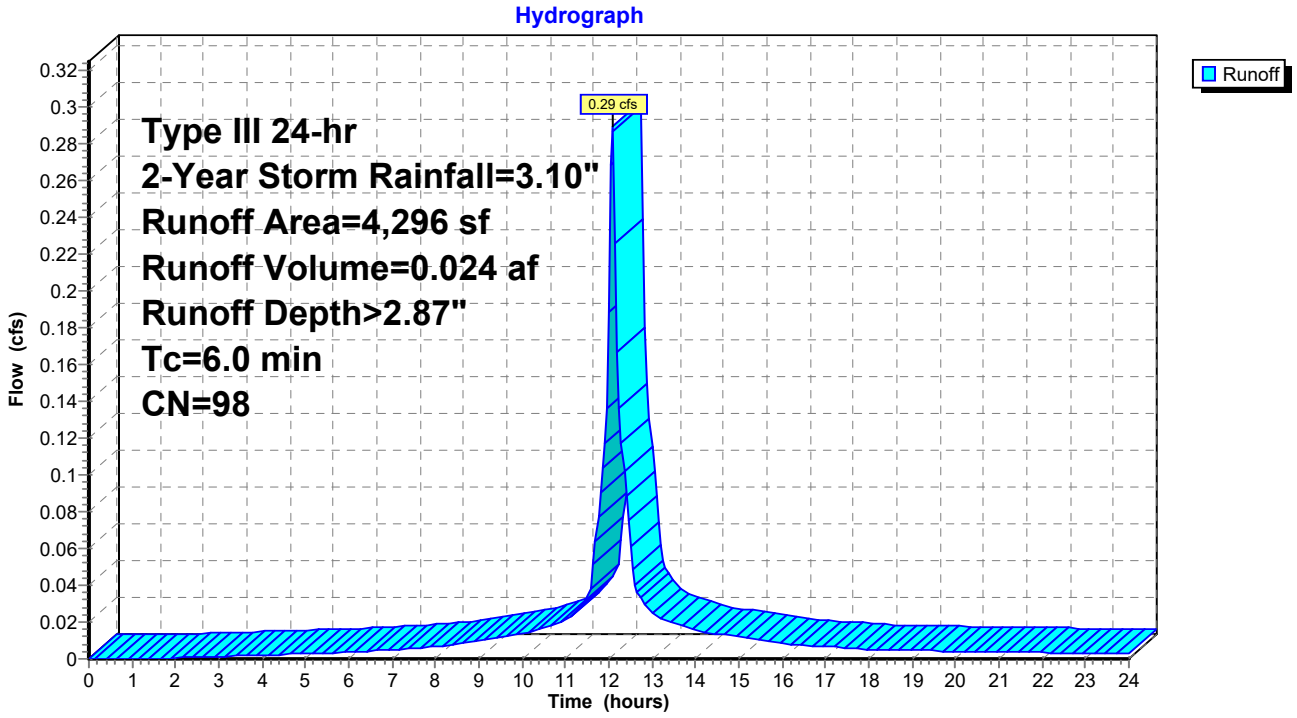
Runoff = 0.29 cfs @ 12.09 hrs, Volume= 0.024 af, Depth> 2.87"
Routed to Pond 6P : CB27

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	4,296	98	Roof
	4,296		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 14S: Building 6B North



Summary for Subcatchment 15S: Building 6B South

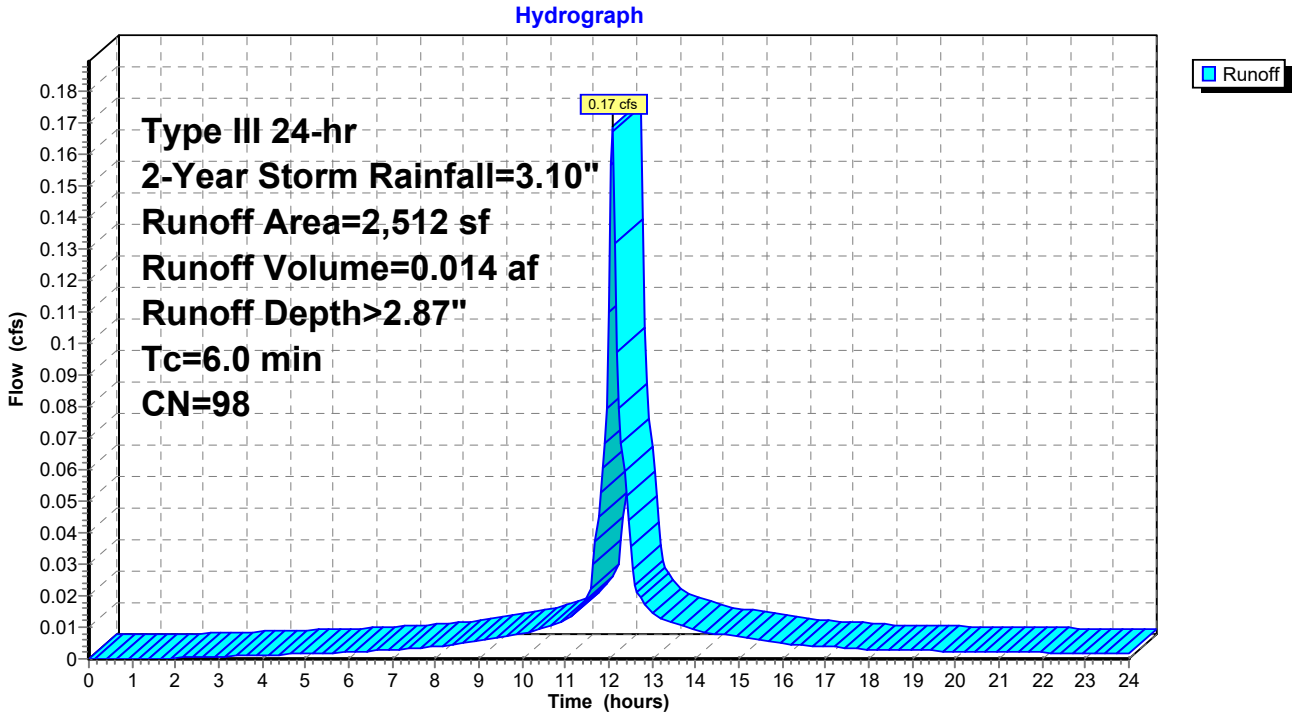
Runoff = 0.17 cfs @ 12.09 hrs, Volume= 0.014 af, Depth> 2.87"
Routed to Pond 6P : CB27

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	2,512	98	Roof
	2,512		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 15S: Building 6B South



Summary for Subcatchment 16S: Plaza between Blocks 1 & 2

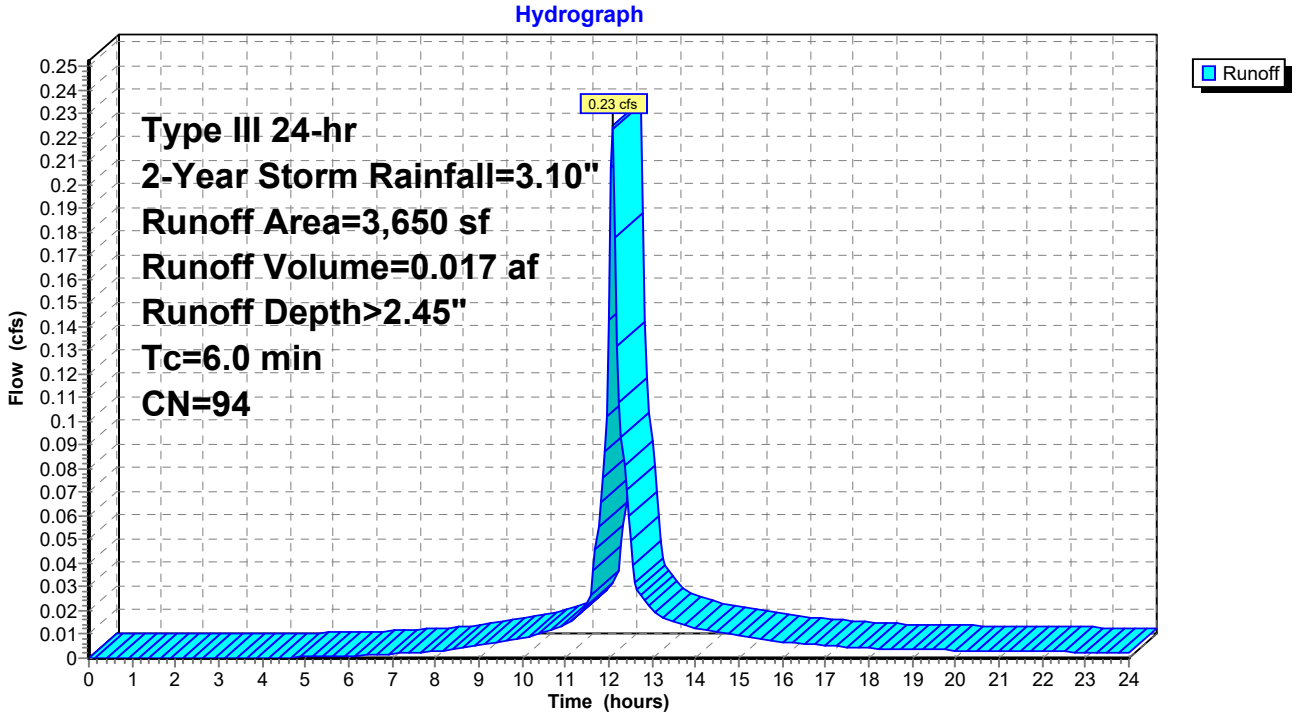
Runoff = 0.23 cfs @ 12.09 hrs, Volume= 0.017 af, Depth> 2.45"
Routed to Pond 2P : DMH 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	2,768	98	Impervious
	882	80	>75% Grass cover, Good, HSG D
	3,650	94	Weighted Average
	882		24.16% Pervious Area
	2,768		75.84% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 16S: Plaza between Blocks 1 & 2



Summary for Subcatchment 17S: Shared Street - Trench Drain

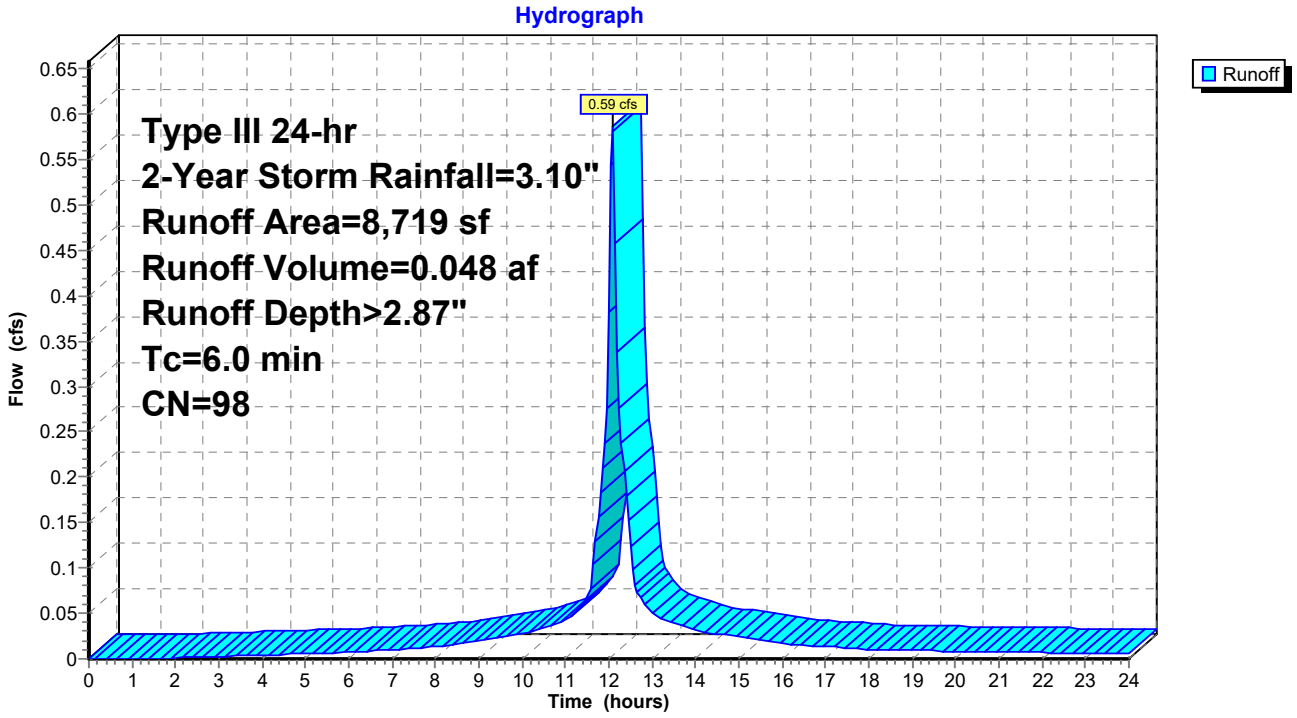
Runoff = 0.59 cfs @ 12.09 hrs, Volume= 0.048 af, Depth> 2.87"
Routed to Pond 6P : CB27

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	8,719	98	Impervious
	8,719		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 17S: Shared Street - Trench Drain



Summary for Subcatchment 18S: Plaza between Blocks 2 & 4 and Upper Thames St

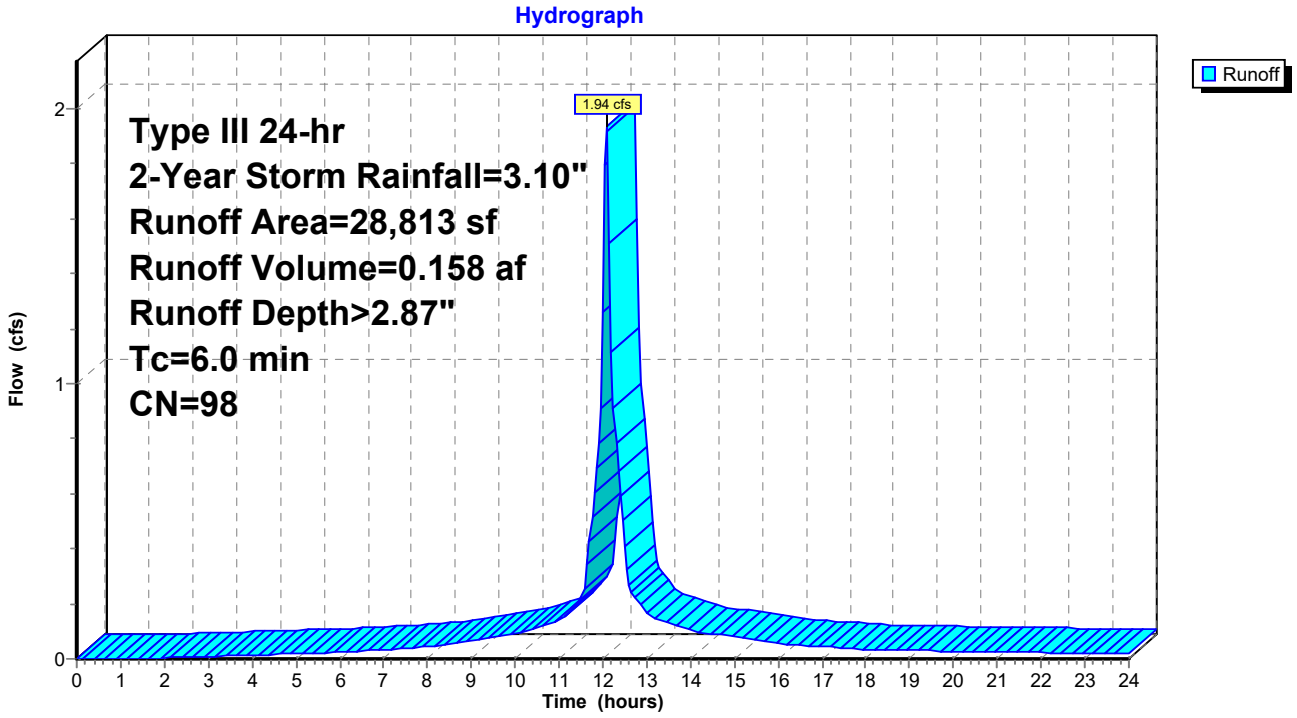
Runoff = 1.94 cfs @ 12.09 hrs, Volume= 0.158 af, Depth> 2.87"
Routed to Pond 6P : CB27

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	28,813	98	Impervious
	28,813		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 18S: Plaza between Blocks 2 & 4 and Upper Thames St



Summary for Subcatchment 19S: Block 4 Building

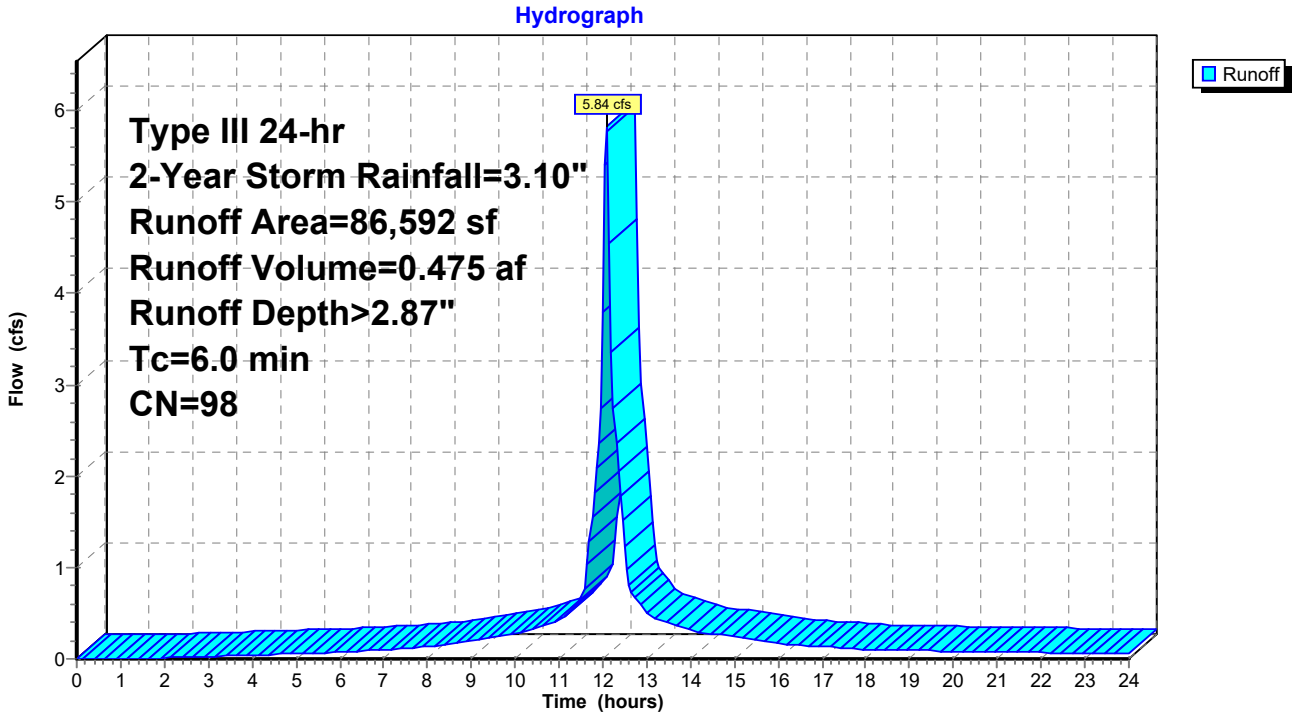
Runoff = 5.84 cfs @ 12.09 hrs, Volume= 0.475 af, Depth> 2.87"
Routed to Pond 6P : CB27

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	86,592	98	Roof
	86,592		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 19S: Block 4 Building



Summary for Subcatchment 20S: Direct to R-Tank

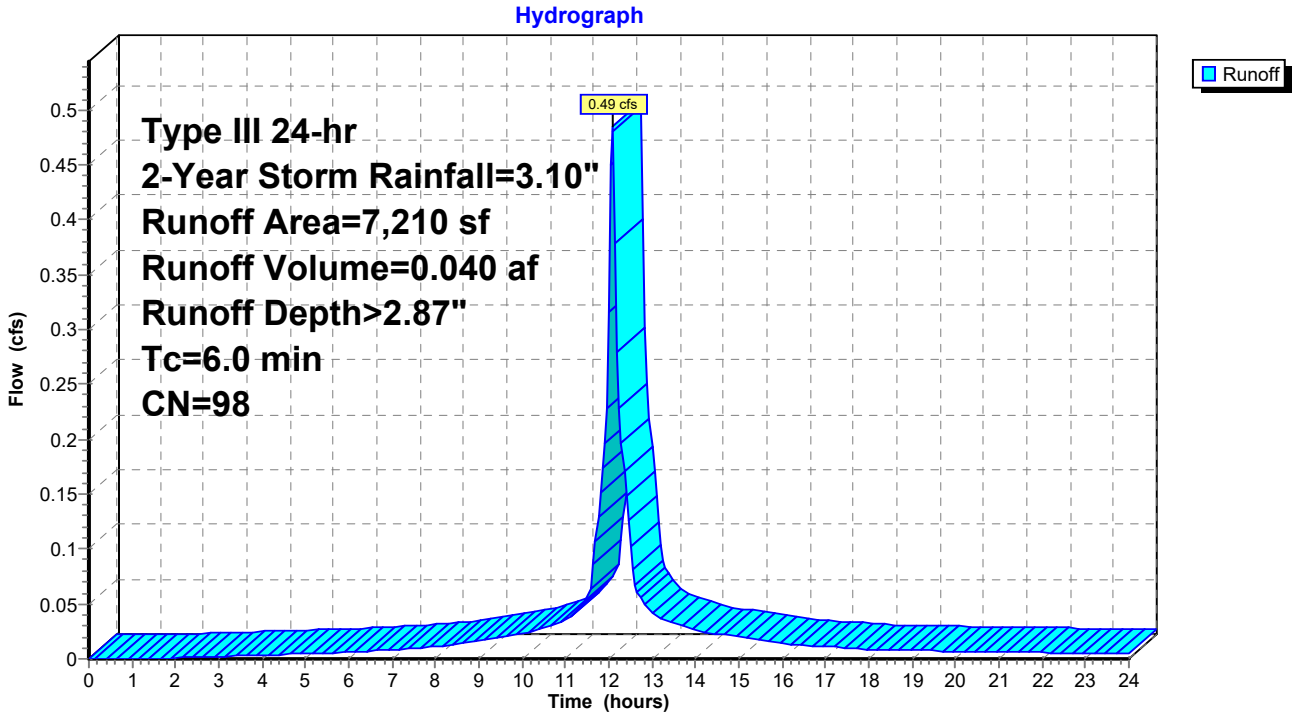
Runoff = 0.49 cfs @ 12.09 hrs, Volume= 0.040 af, Depth> 2.87"
Routed to Pond 8P : R-Tank 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	7,210	98	Impervious
	7,210		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 20S: Direct to R-Tank



Summary for Subcatchment 21S: Plaza along Building 4A at Fore Street

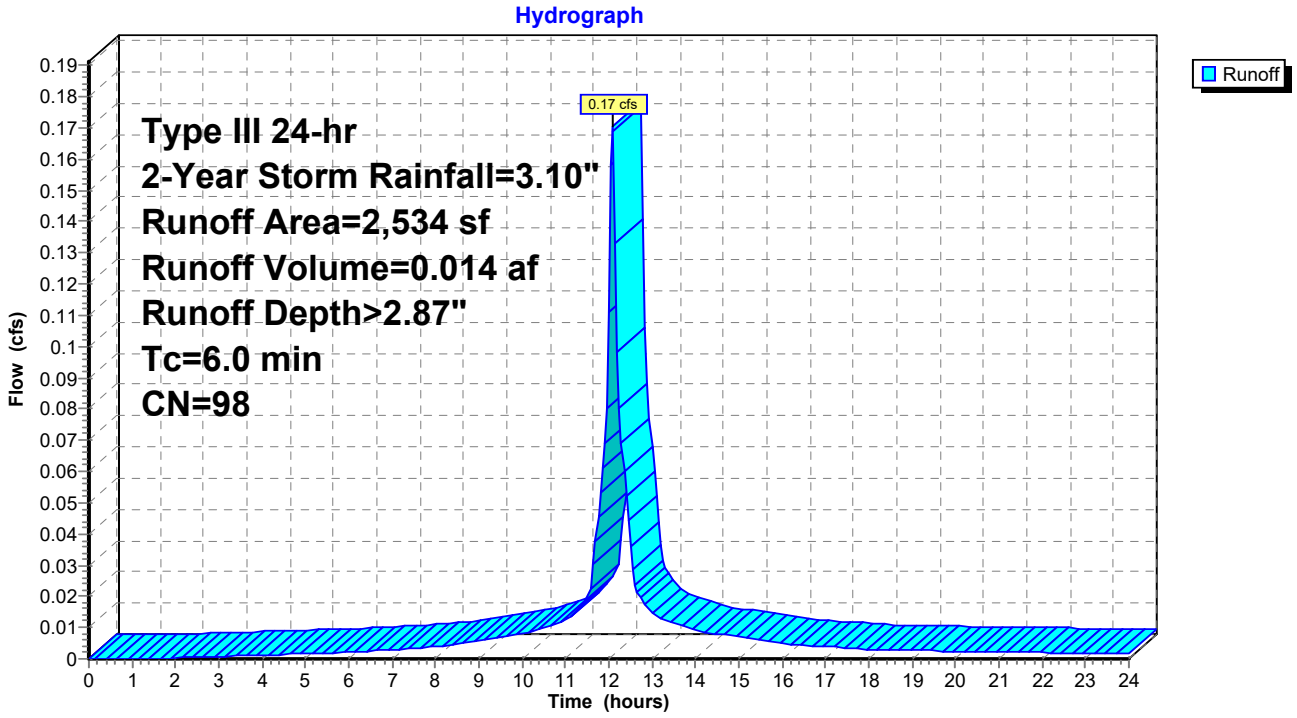
Runoff = 0.17 cfs @ 12.09 hrs, Volume= 0.014 af, Depth> 2.87"
Routed to Link 3L : Fore Street

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	2,534	98	Impervious
	2,534		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 21S: Plaza along Building 4A at Fore Street



Summary for Subcatchment 22S: Block 6 Building

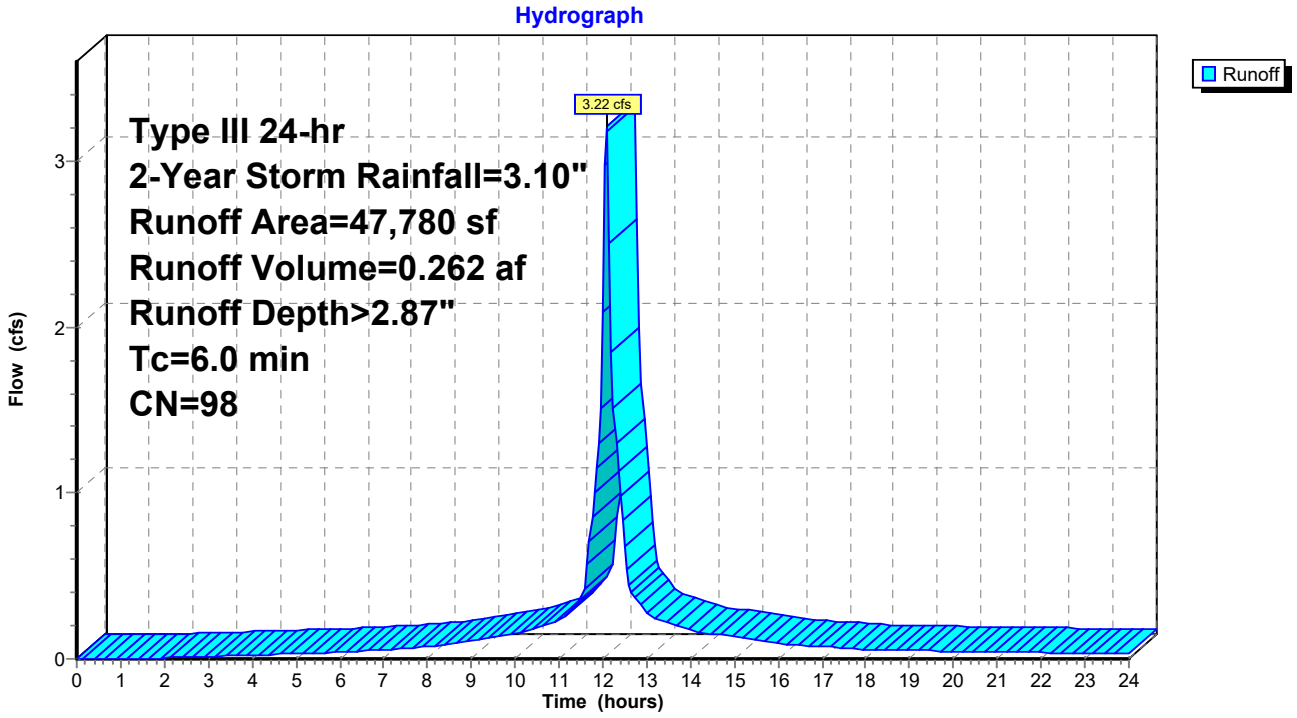
Runoff = 3.22 cfs @ 12.09 hrs, Volume= 0.262 af, Depth> 2.87"
Routed to Pond 13P : DMH-13 (Outfall #2)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	47,780	98	Roof
	47,780		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 22S: Block 6 Building



Summary for Subcatchment 23S: Block 5 Building to R-Tank

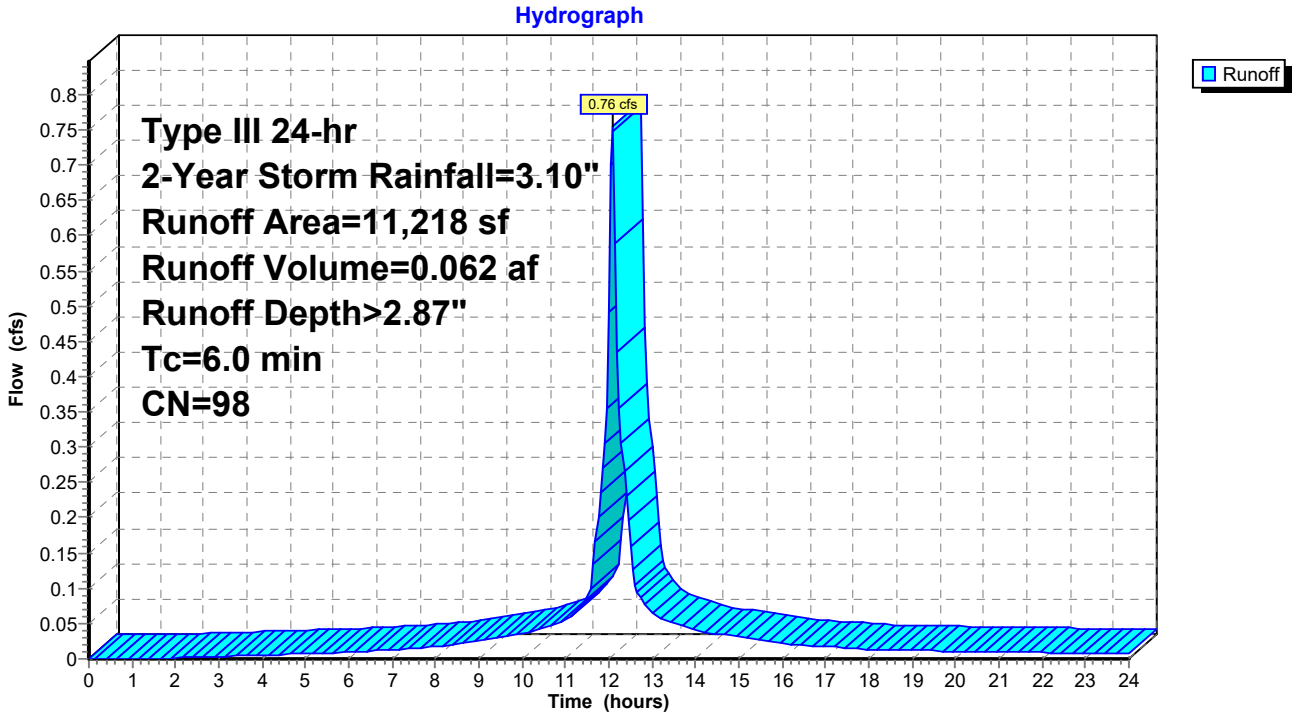
Runoff = 0.76 cfs @ 12.09 hrs, Volume= 0.062 af, Depth> 2.87"
Routed to Pond 6P : CB27

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	11,218	98	Impervious
	11,218		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 23S: Block 5 Building to R-Tank



Summary for Subcatchment 24S: Block 5 Building

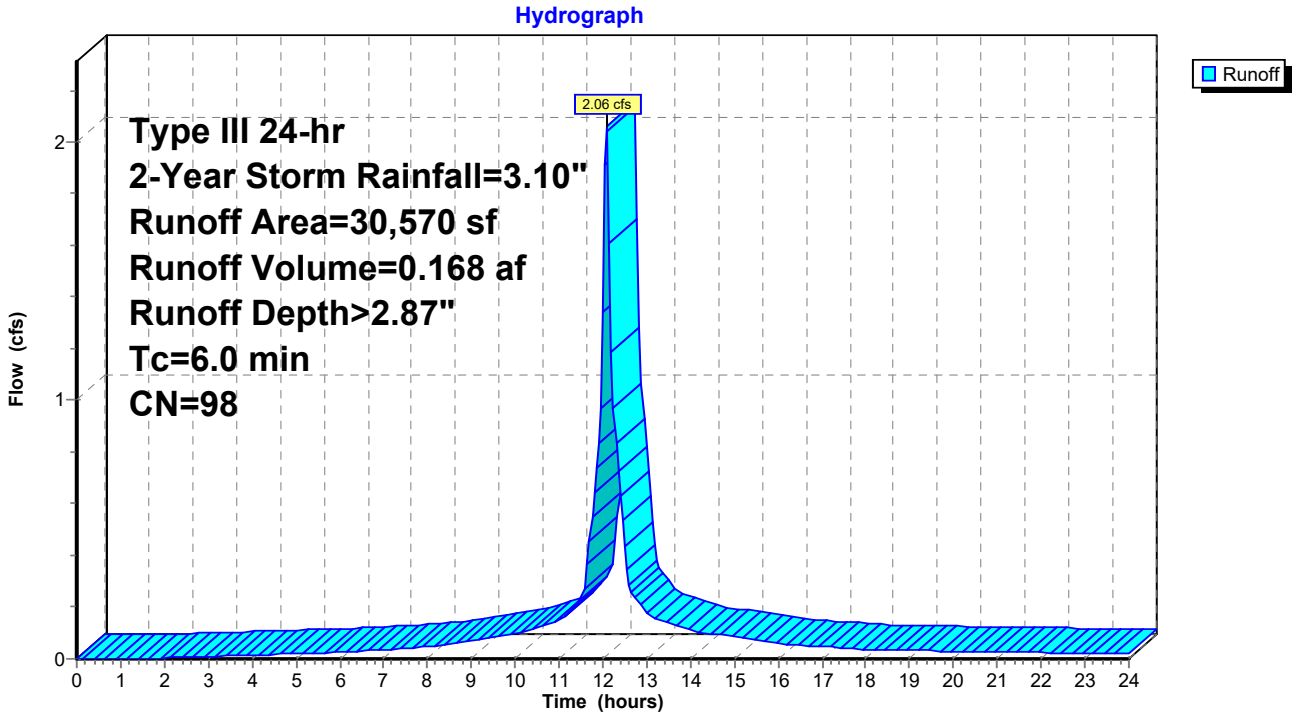
Runoff = 2.06 cfs @ 12.09 hrs, Volume= 0.168 af, Depth> 2.87"
Routed to Pond 13P : DMH-13 (Outfall #2)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	30,570	98	Impervious
	30,570		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 24S: Block 5 Building



Summary for Subcatchment 25S: Southern Plaza

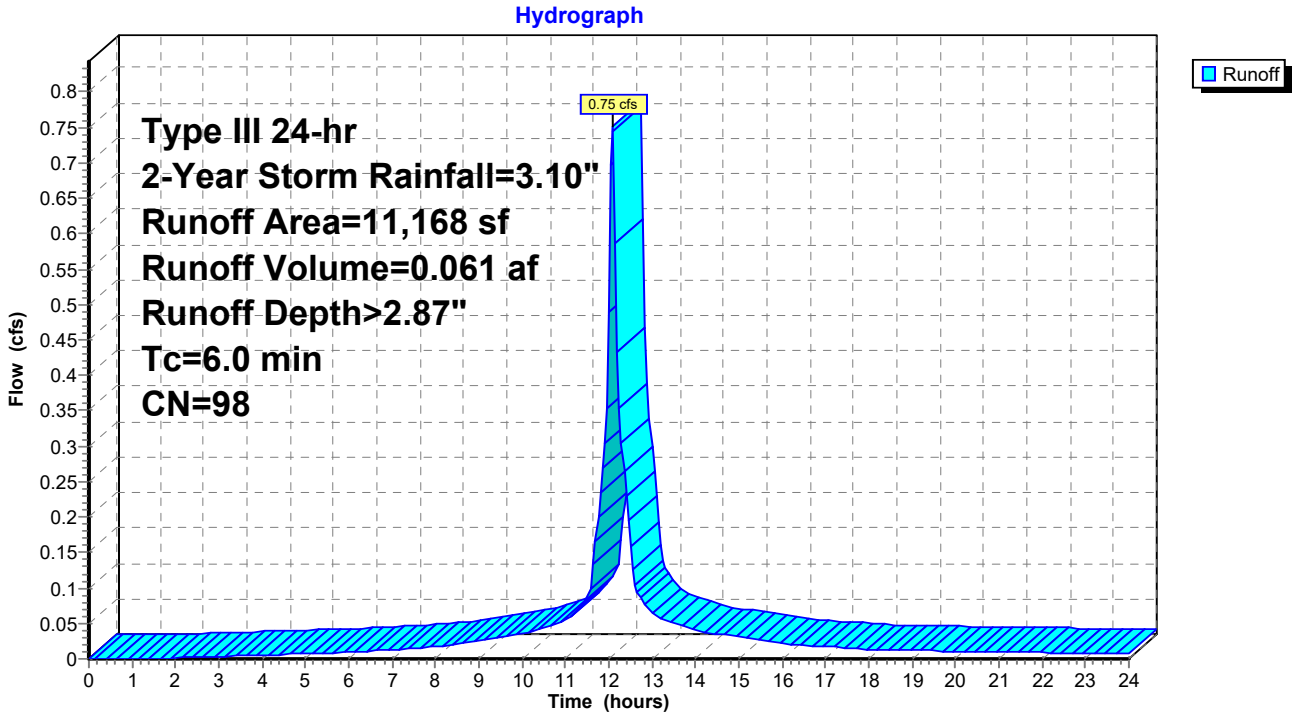
Runoff = 0.75 cfs @ 12.09 hrs, Volume= 0.061 af, Depth> 2.87"
Routed to Pond 13P : DMH-13 (Outfall #2)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	11,168	98	Impervious
	11,168		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 25S: Southern Plaza



Summary for Subcatchment 26S: Plaza along Townhouse at Fore Street

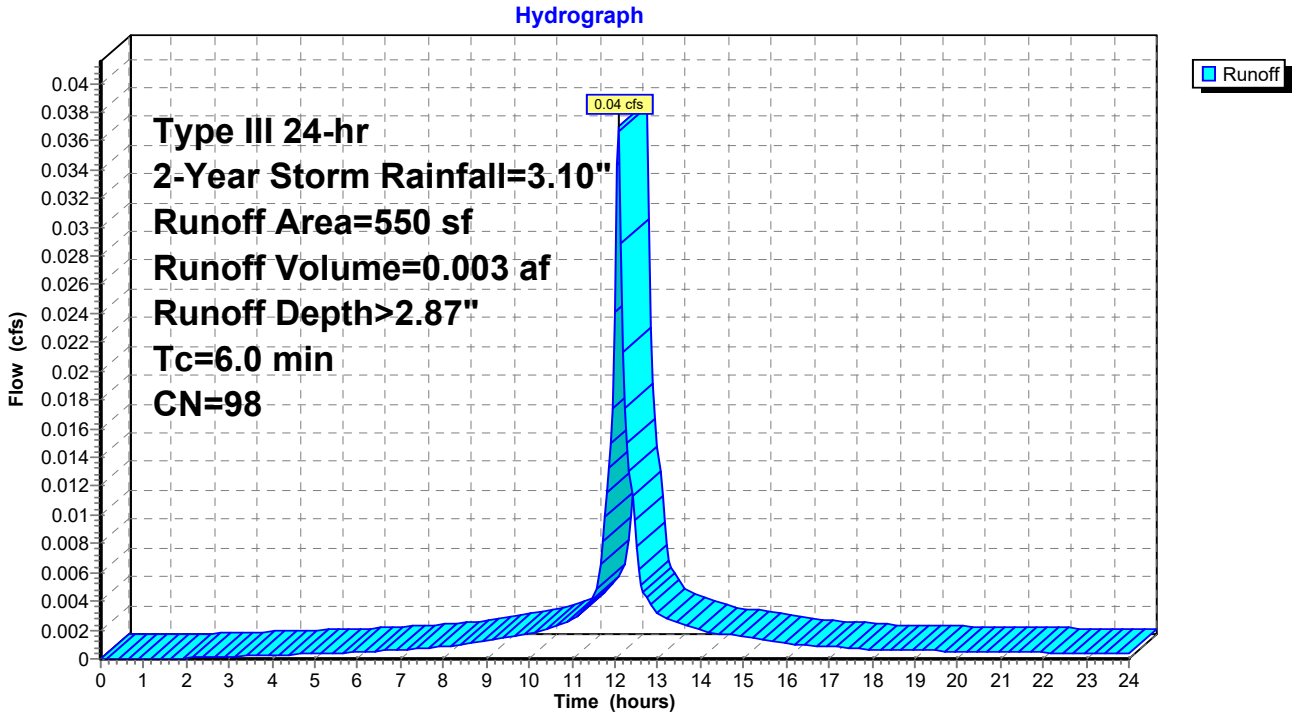
Runoff = 0.04 cfs @ 12.09 hrs, Volume= 0.003 af, Depth> 2.87"
Routed to Link 3L : Fore Street

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	550	98	Impervious
	550		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 26S: Plaza along Townhouse at Fore Street



Summary for Subcatchment 27S: Drainage from off-site residential

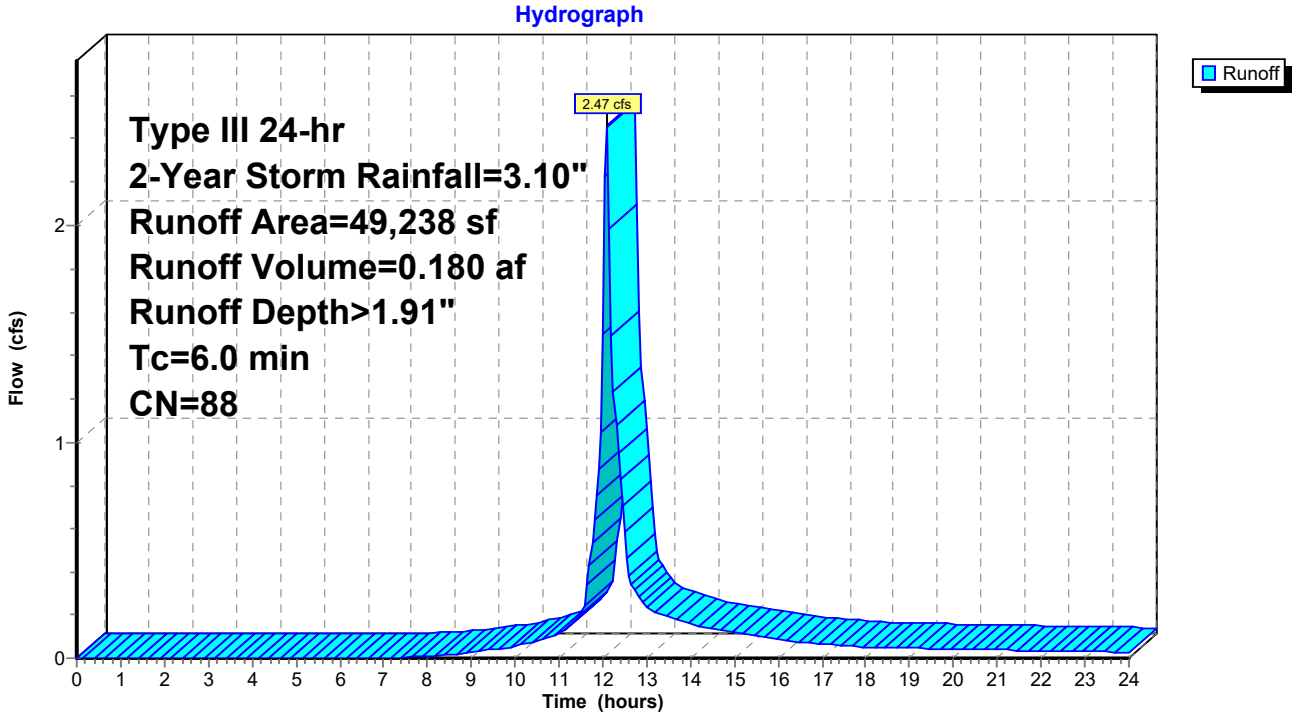
Runoff = 2.47 cfs @ 12.09 hrs, Volume= 0.180 af, Depth> 1.91"
Routed to Pond 13P : DMH-13 (Outfall #2)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	21,588	98	Impervious
	27,650	80	>75% Grass cover, Good, HSG D
	49,238	88	Weighted Average
	27,650		56.16% Pervious Area
	21,588		43.84% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 27S: Drainage from off-site residential



Summary for Subcatchment 28S: Waterfront

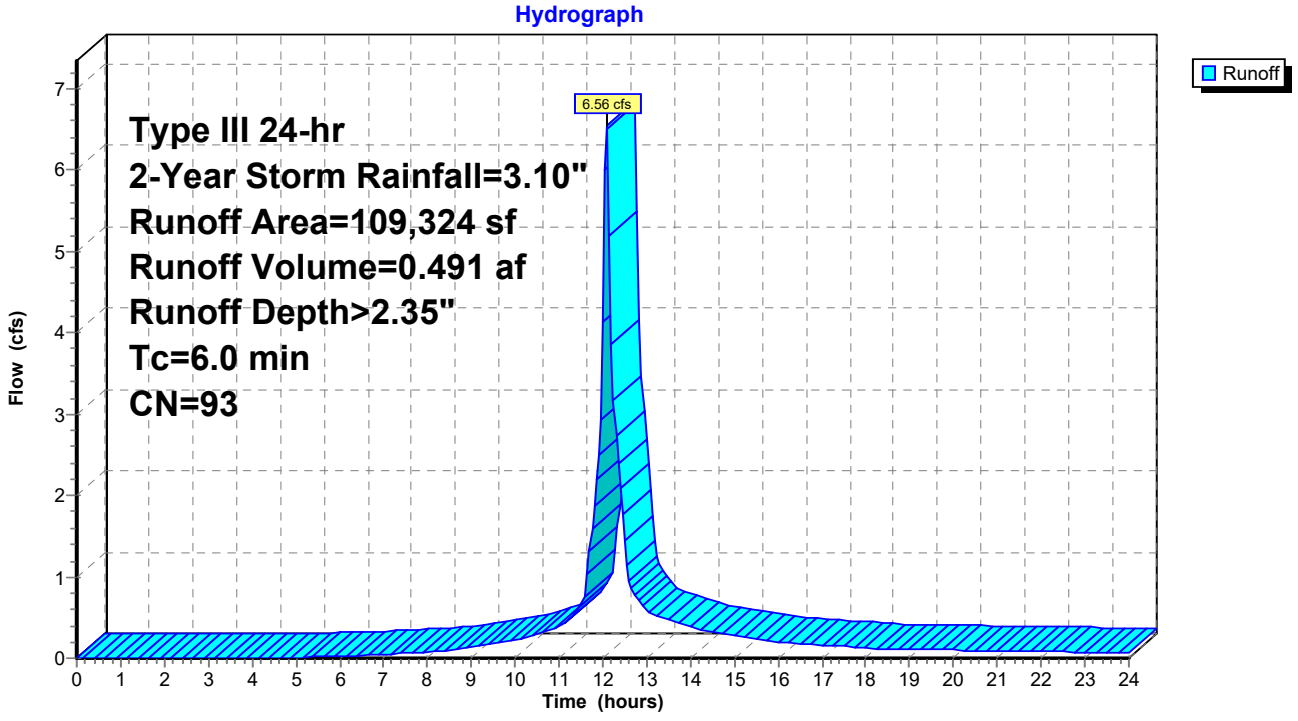
Runoff = 6.56 cfs @ 12.09 hrs, Volume= 0.491 af, Depth> 2.35"
Routed to Link 2L : Fore River

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	78,916	98	Impervious
	30,408	80	>75% Grass cover, Good, HSG D
	109,324	93	Weighted Average
	30,408		27.81% Pervious Area
	78,916		72.19% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 28S: Waterfront



Summary for Subcatchment 29S: Block 6 Building

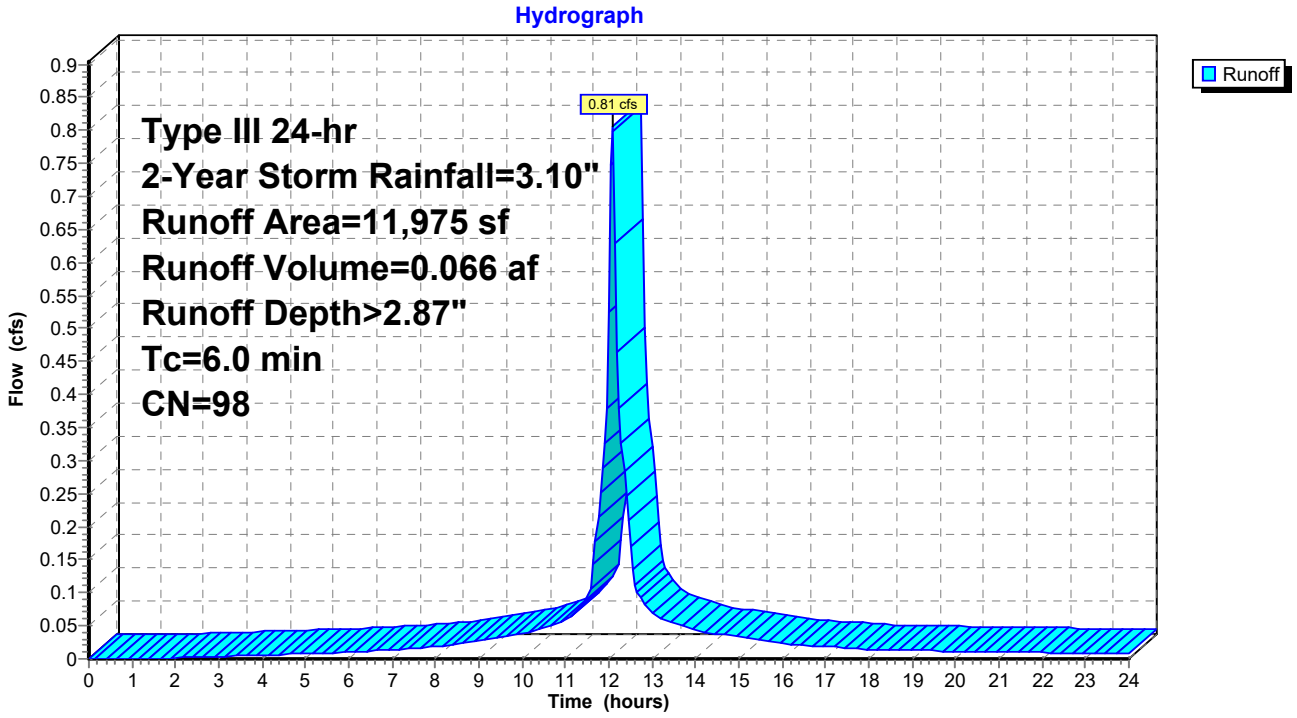
Runoff = 0.81 cfs @ 12.09 hrs, Volume= 0.066 af, Depth> 2.87"
Routed to Pond 24P : Filterra 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	11,975	98	Roof
	11,975		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 29S: Block 6 Building



Summary for Subcatchment 30S: Block 6 Building

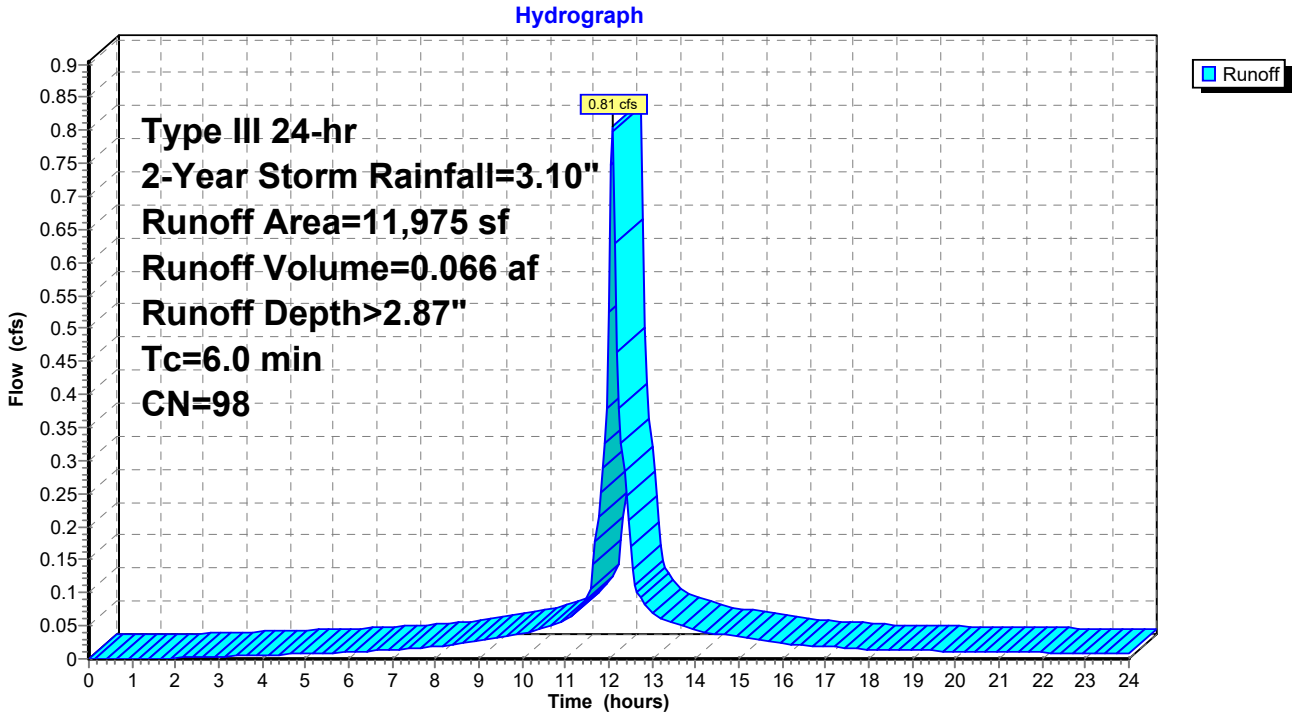
Runoff = 0.81 cfs @ 12.09 hrs, Volume= 0.066 af, Depth> 2.87"
Routed to Pond 28P : Filterra 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	11,975	98	Roof
	11,975		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 30S: Block 6 Building



Summary for Pond 1P: DMH 1

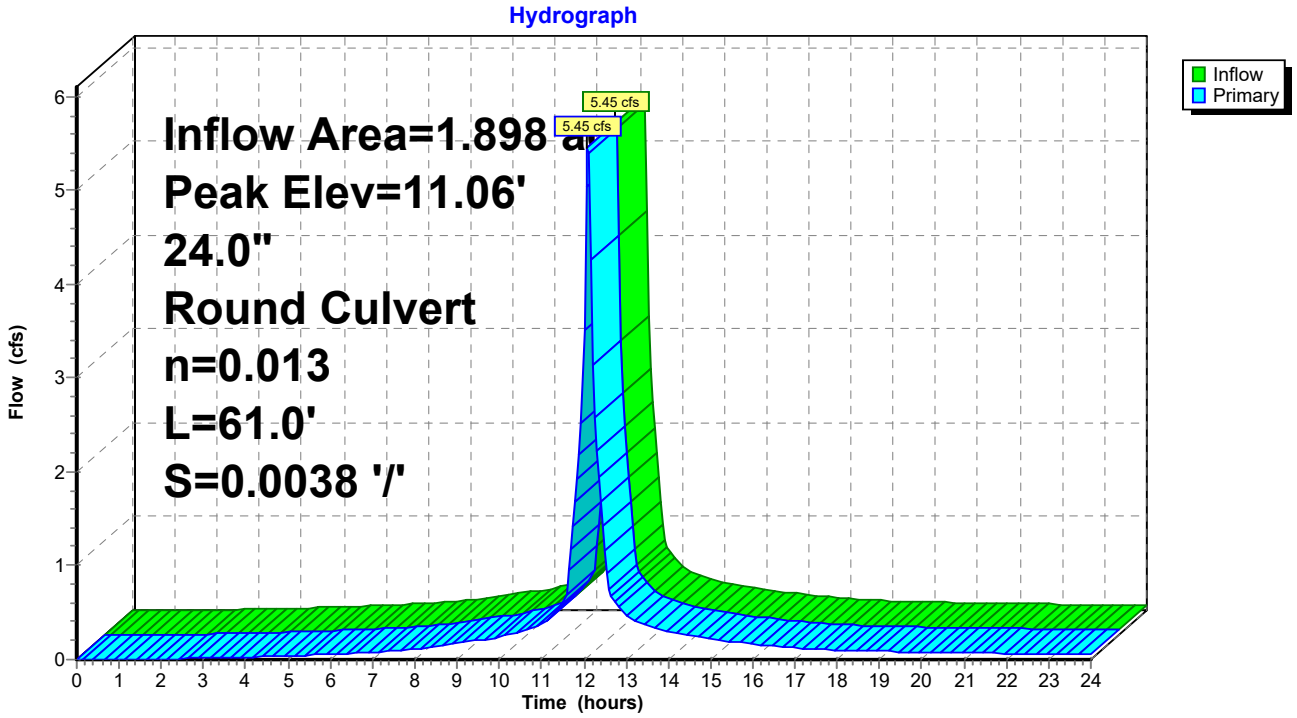
Inflow Area = 1.898 ac, 93.68% Impervious, Inflow Depth > 2.74" for 2-Year Storm event
Inflow = 5.45 cfs @ 12.09 hrs, Volume= 0.433 af
Outflow = 5.45 cfs @ 12.09 hrs, Volume= 0.433 af, Atten= 0%, Lag= 0.0 min
Primary = 5.45 cfs @ 12.09 hrs, Volume= 0.433 af
Routed to Pond 2P : DMH 2

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 11.06' @ 12.09 hrs
Flood Elev= 14.71'

Device	Routing	Invert	Outlet Devices
#1	Primary	9.77'	**24.0" Round Culvert** L= 61.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 9.77' / 9.54' S= 0.0038 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=5.31 cfs @ 12.09 hrs HW=11.04' (Free Discharge)
1=Culvert (Barrel Controls 5.31 cfs @ 3.61 fps)

Pond 1P: DMH 1



Summary for Pond 2P: DMH 2

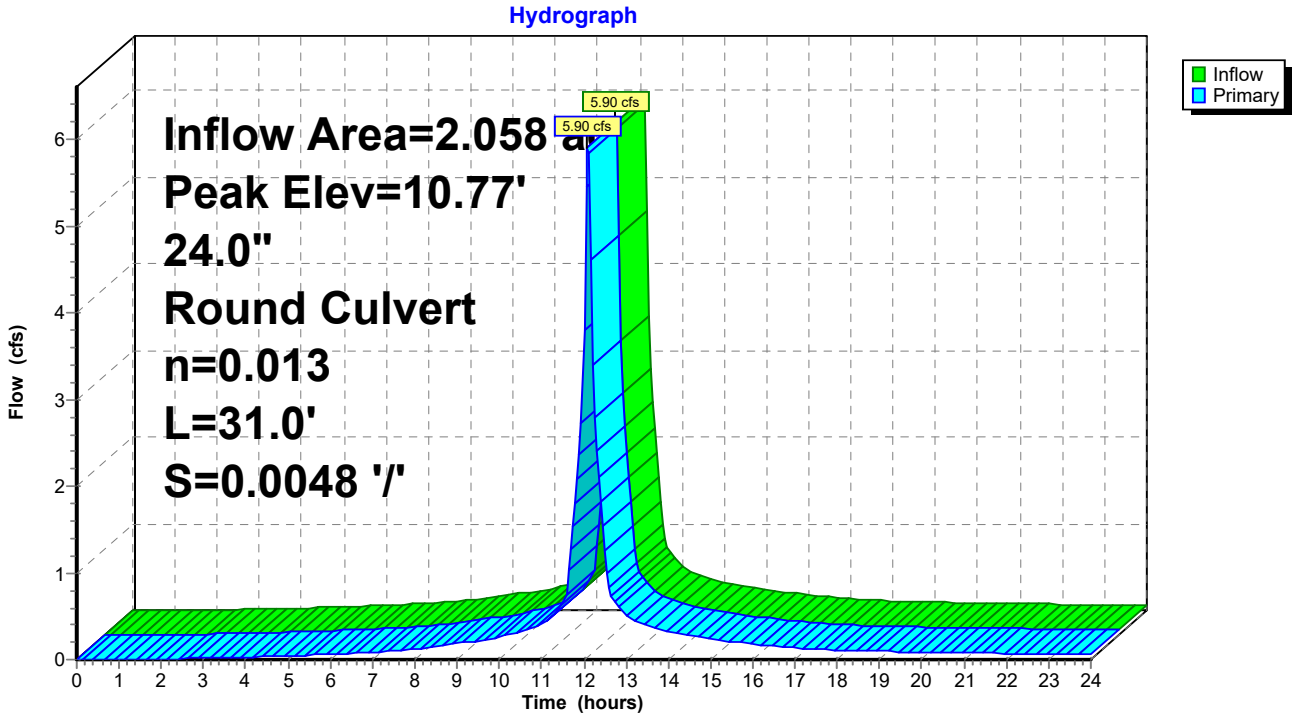
Inflow Area = 2.058 ac, 93.19% Impervious, Inflow Depth > 2.73" for 2-Year Storm event
Inflow = 5.90 cfs @ 12.09 hrs, Volume= 0.468 af
Outflow = 5.90 cfs @ 12.09 hrs, Volume= 0.468 af, Atten= 0%, Lag= 0.0 min
Primary = 5.90 cfs @ 12.09 hrs, Volume= 0.468 af
Routed to Pond 3P : Storm Structure

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 10.77' @ 12.09 hrs
Flood Elev= 14.63'

Device	Routing	Invert	Outlet Devices
#1	Primary	9.50'	**24.0" Round Culvert** L= 31.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 9.50' / 9.35' S= 0.0048 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=5.74 cfs @ 12.09 hrs HW=10.75' (Free Discharge)
1=Culvert (Barrel Controls 5.74 cfs @ 3.96 fps)

Pond 2P: DMH 2



Summary for Pond 3P: Storm Structure

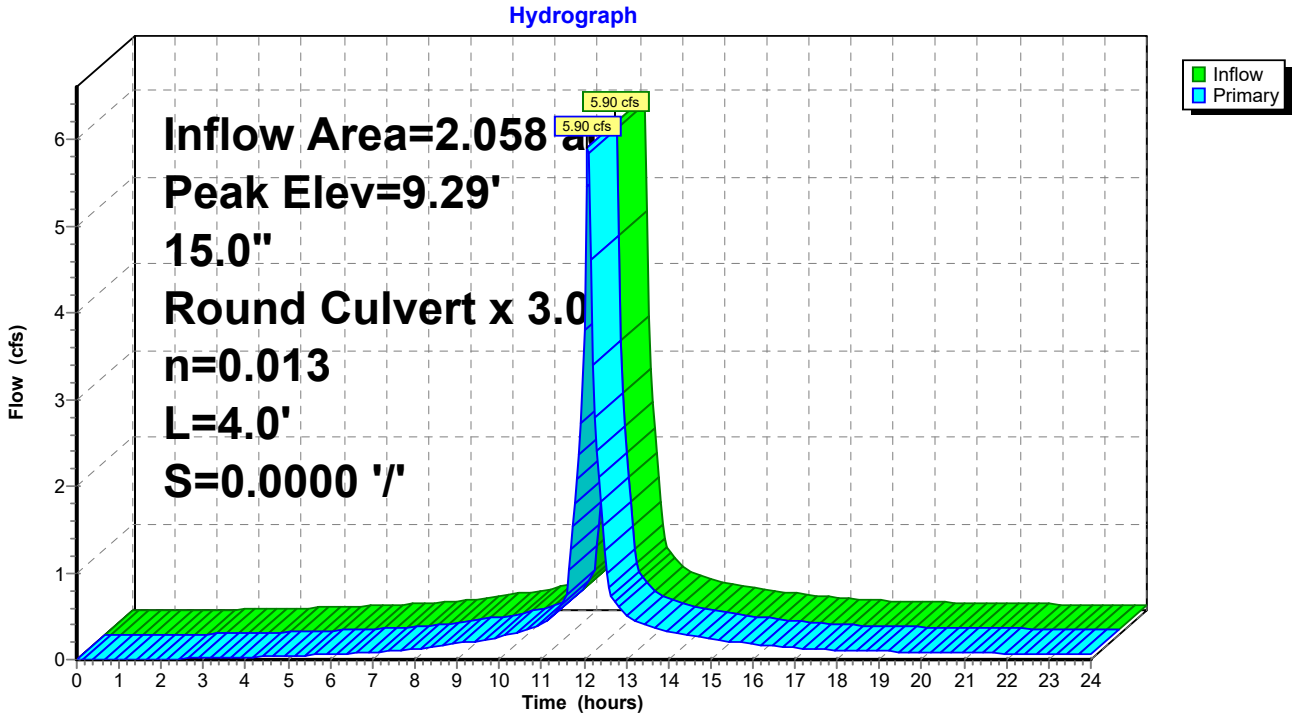
Inflow Area = 2.058 ac, 93.19% Impervious, Inflow Depth > 2.73" for 2-Year Storm event
Inflow = 5.90 cfs @ 12.09 hrs, Volume= 0.468 af
Outflow = 5.90 cfs @ 12.09 hrs, Volume= 0.468 af, Atten= 0%, Lag= 0.0 min
Primary = 5.90 cfs @ 12.09 hrs, Volume= 0.468 af
Routed to Pond 4P : R-Tank 1

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 9.29' @ 12.09 hrs
Flood Elev= 14.51'

Device	Routing	Invert	Outlet Devices
#1	Primary	8.35'	**15.0" Round Culvert X 3.00** L= 4.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 8.35' / 8.35' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=5.74 cfs @ 12.09 hrs HW=9.27' (Free Discharge)
1=Culvert (Barrel Controls 5.74 cfs @ 2.74 fps)

Pond 3P: Storm Structure



Summary for Pond 4P: R-Tank 1

Inflow Area = 2.058 ac, 93.19% Impervious, Inflow Depth > 2.73" for 2-Year Storm event
Inflow = 5.90 cfs @ 12.09 hrs, Volume= 0.468 af
Outflow = 5.30 cfs @ 12.13 hrs, Volume= 0.461 af, Atten= 10%, Lag= 2.4 min
Primary = 5.30 cfs @ 12.13 hrs, Volume= 0.461 af
Routed to Pond 10P : DMH 4

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 8.32' @ 12.13 hrs Surf.Area= 1,162 sf Storage= 1,608 cf
Flood Elev= 12.00' Surf.Area= 1,162 sf Storage= 3,266 cf

Plug-Flow detention time= 24.2 min calculated for 0.461 af (99% of inflow)
Center-of-Mass det. time= 14.9 min (781.5 - 766.7)

Volume	Invert	Avail.Storage	Storage Description
#1	6.50'	892 cf	**Stone Envelope (Prismatic)** Listed below (Recalc) 4,729 cf Overall - 2,499 cf Embedded = 2,231 cf x 40.0% Voids
#2	6.75'	2,374 cf	**R-Tank Double Modules (Prismatic)** Listed below (Recalc) Inside #1 2,499 cf Overall x 95.0% Voids
		3,266 cf	Total Available Storage

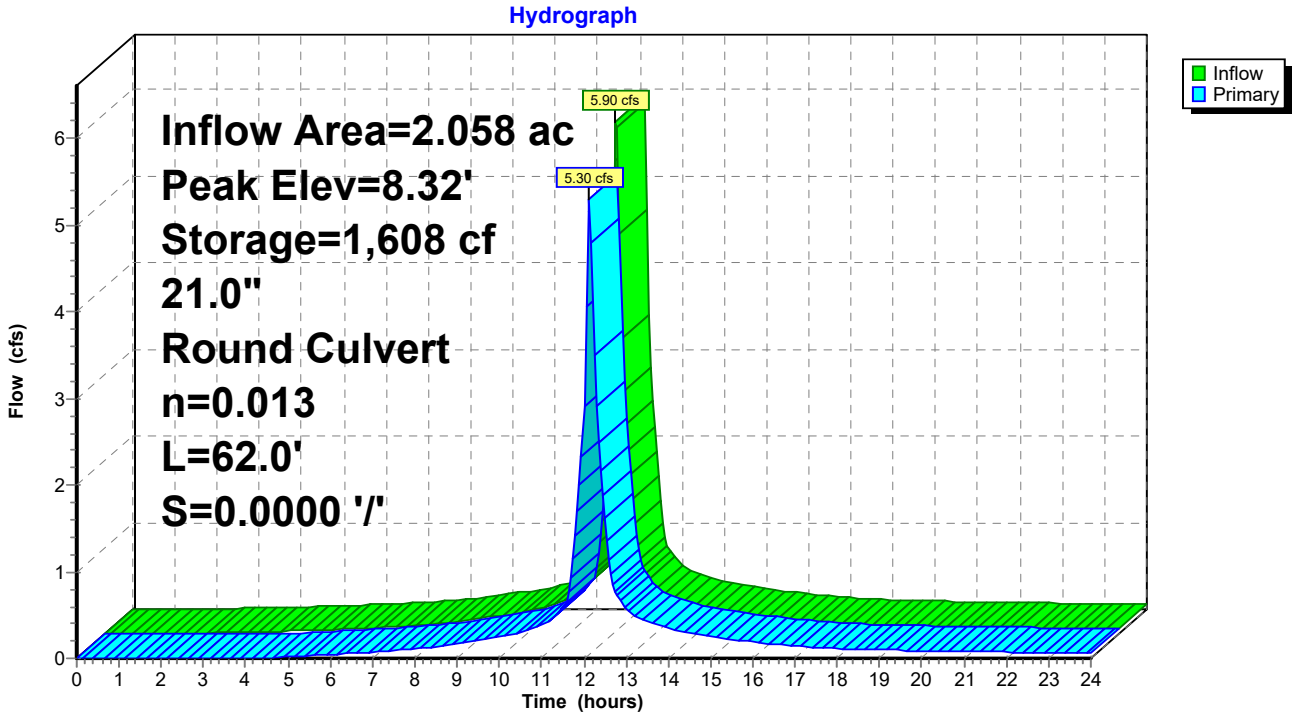
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
6.50	1,162	0	0
10.57	1,162	4,729	4,729

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
6.75	886	0	0
9.57	886	2,499	2,499

Device	Routing	Invert	Outlet Devices
#1	Primary	6.75'	**21.0" Round Culvert to Filter** L= 62.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 6.75' / 6.75' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 2.41 sf

Primary OutFlow Max=5.19 cfs @ 12.13 hrs HW=8.30' (Free Discharge)
↑—**1=Culvert to Filter** (Barrel Controls 5.19 cfs @ 3.06 fps)

Pond 4P: R-Tank 1



Summary for Pond 5P: DMH-11

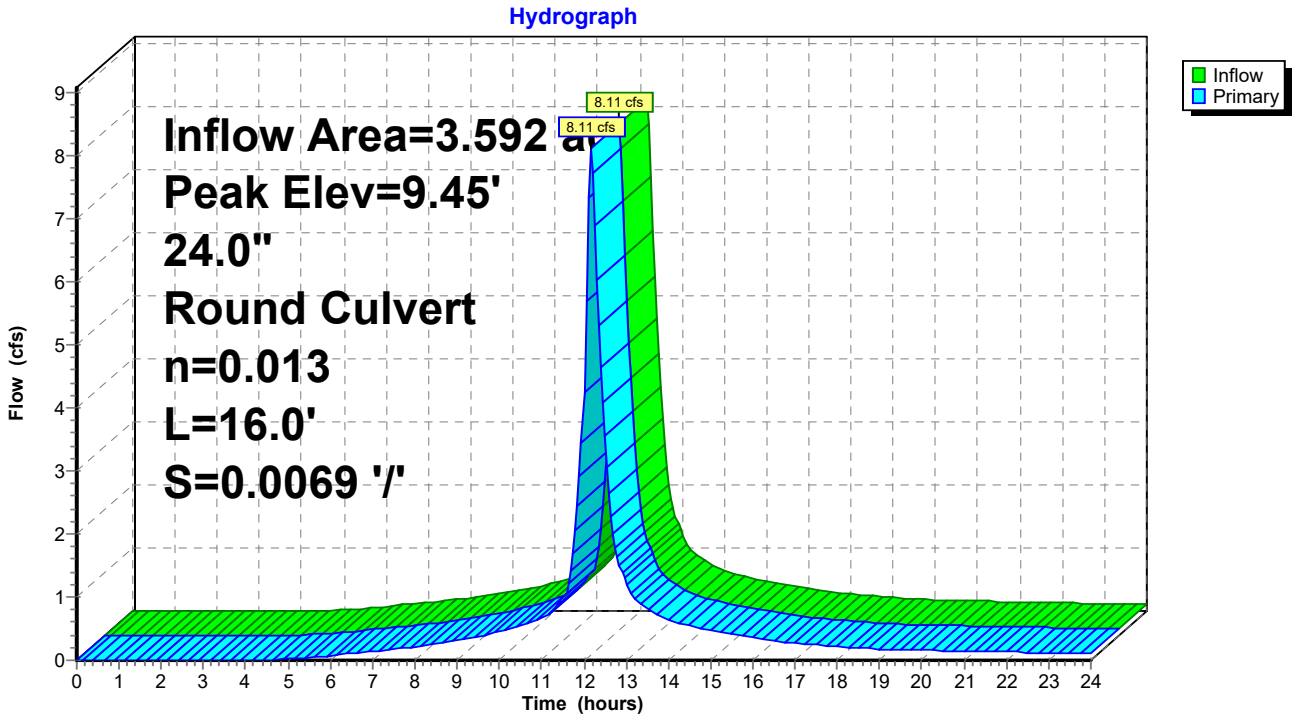
Inflow Area = 3.592 ac,100.00% Impervious, Inflow Depth > 2.79" for 2-Year Storm event
Inflow = 8.11 cfs @ 12.16 hrs, Volume= 0.835 af
Outflow = 8.11 cfs @ 12.16 hrs, Volume= 0.835 af, Atten= 0%, Lag= 0.0 min
Primary = 8.11 cfs @ 12.16 hrs, Volume= 0.835 af
Routed to Pond 12P : Jellyfish 2 JFPD0806-7-2

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 9.45' @ 12.16 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	7.82'	**24.0" Round Culvert** L= 16.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 7.82' / 7.71' S= 0.0069 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=8.02 cfs @ 12.16 hrs HW=9.44' (Free Discharge)
1=Culvert (Barrel Controls 8.02 cfs @ 4.01 fps)

Pond 5P: DMH-11



Summary for Pond 6P: CB27

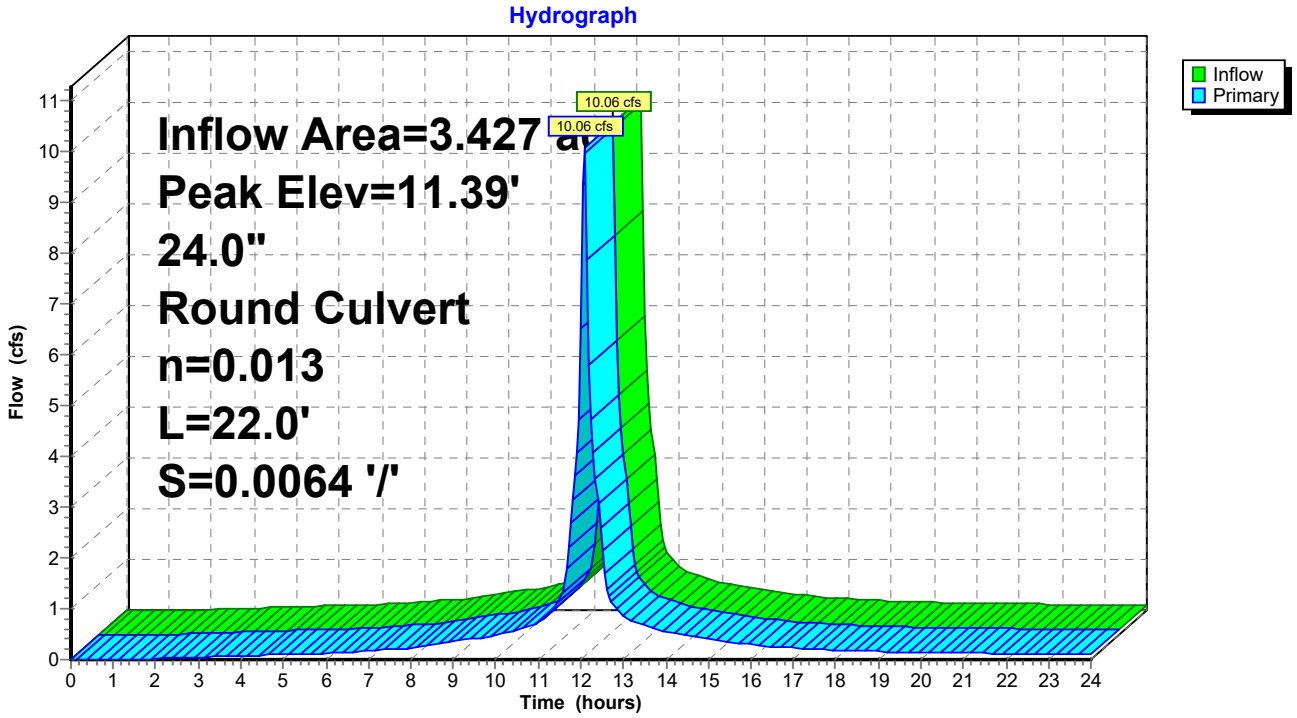
Inflow Area = 3.427 ac,100.00% Impervious, Inflow Depth > 2.87" for 2-Year Storm event
Inflow = 10.06 cfs @ 12.09 hrs, Volume= 0.818 af
Outflow = 10.06 cfs @ 12.09 hrs, Volume= 0.818 af, Atten= 0%, Lag= 0.0 min
Primary = 10.06 cfs @ 12.09 hrs, Volume= 0.818 af
Routed to Pond 7P : Storm Structure

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 11.39' @ 12.09 hrs
Flood Elev= 14.57'

Device	Routing	Invert	Outlet Devices
#1	Primary	9.53'	**24.0" Round Culvert** L= 22.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 9.53' / 9.39' S= 0.0064 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=9.79 cfs @ 12.09 hrs HW=11.36' (Free Discharge)
1=Culvert (Barrel Controls 9.79 cfs @ 4.26 fps)

Pond 6P: CB27



Summary for Pond 7P: Storm Structure

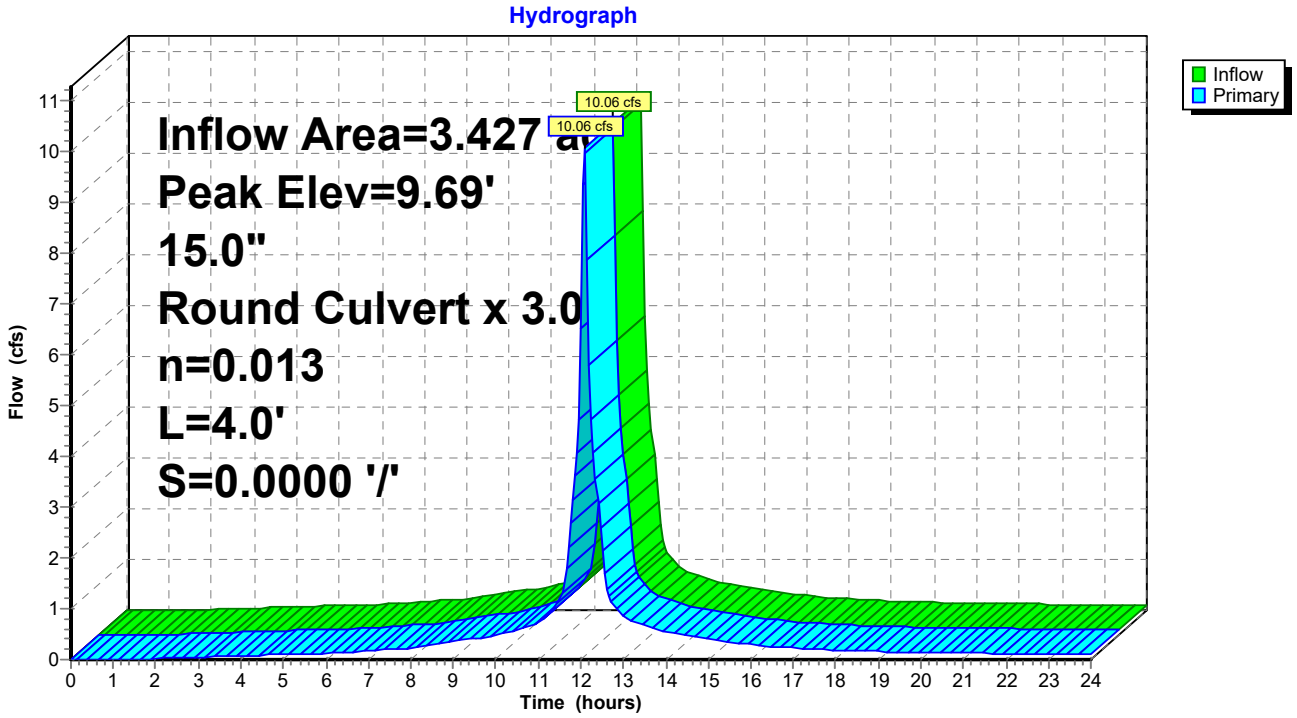
Inflow Area = 3.427 ac,100.00% Impervious, Inflow Depth > 2.87" for 2-Year Storm event
Inflow = 10.06 cfs @ 12.09 hrs, Volume= 0.818 af
Outflow = 10.06 cfs @ 12.09 hrs, Volume= 0.818 af, Atten= 0%, Lag= 0.0 min
Primary = 10.06 cfs @ 12.09 hrs, Volume= 0.818 af
Routed to Pond 8P : R-Tank 2

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 9.69' @ 12.09 hrs
Flood Elev= 14.25'

Device	Routing	Invert	Outlet Devices
#1	Primary	8.39'	**15.0" Round Culvert X 3.00** L= 4.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 8.39' / 8.39' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=9.79 cfs @ 12.09 hrs HW=9.67' (Free Discharge)
1=Culvert (Barrel Controls 9.79 cfs @ 3.23 fps)

Pond 7P: Storm Structure



Summary for Pond 8P: R-Tank 2

Inflow Area = 3.592 ac,100.00% Impervious, Inflow Depth > 2.87" for 2-Year Storm event
Inflow = 10.55 cfs @ 12.09 hrs, Volume= 0.858 af
Outflow = 8.11 cfs @ 12.16 hrs, Volume= 0.835 af, Atten= 23%, Lag= 4.3 min
Primary = 8.11 cfs @ 12.16 hrs, Volume= 0.835 af
Routed to Pond 5P : DMH-11

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 9.70' @ 12.16 hrs Surf.Area= 3,128 sf Storage= 5,443 cf
Flood Elev= 12.71' Surf.Area= 3,128 sf Storage= 8,290 cf

Plug-Flow detention time= 44.5 min calculated for 0.835 af (97% of inflow)
Center-of-Mass det. time= 28.2 min (784.9 - 756.6)

Volume	Invert	Avail.Storage	Storage Description
#1	7.57'	2,767 cf	**Stone Envelope (Prismatic)** Listed below (Recalc) 12,731 cf Overall - 5,813 cf Embedded = 6,918 cf x 40.0% Voids
#2	7.82'	5,523 cf	**R-Tank Double Modules (Prismatic)** Listed below (Recalc) Inside #1 5,813 cf Overall x 95.0% Voids
		8,290 cf	Total Available Storage

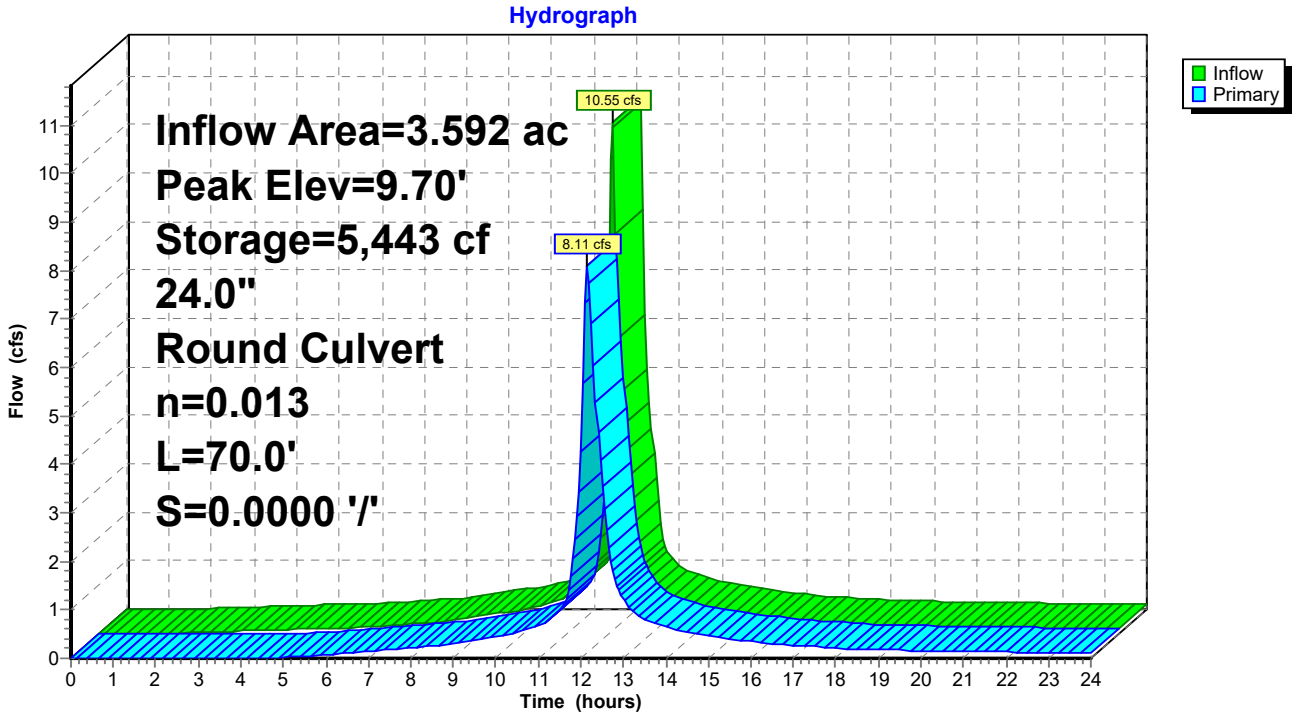
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
7.57	3,128	0	0
11.64	3,128	12,731	12,731

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
7.82	2,679	0	0
9.99	2,679	5,813	5,813

Device	Routing	Invert	Outlet Devices
#1	Primary	7.82'	**24.0" Round Culvert** L= 70.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 7.82' / 7.82' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=8.02 cfs @ 12.16 hrs HW=9.69' (Free Discharge)
↑—**1=Culvert** (Barrel Controls 8.02 cfs @ 3.41 fps)

Pond 8P: R-Tank 2



Summary for Pond 9P: DMH-8 (Outfall #1)

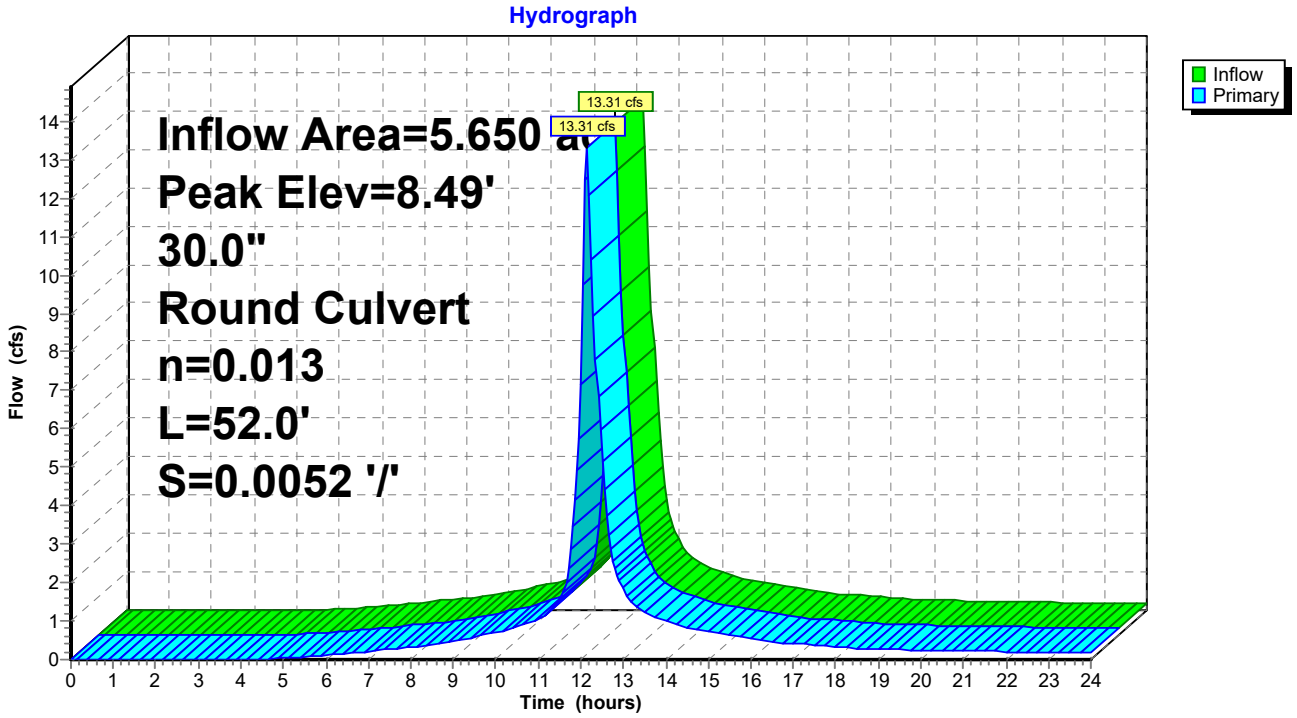
Inflow Area = 5.650 ac, 97.52% Impervious, Inflow Depth > 2.75" for 2-Year Storm event
Inflow = 13.31 cfs @ 12.15 hrs, Volume= 1.297 af
Outflow = 13.31 cfs @ 12.15 hrs, Volume= 1.297 af, Atten= 0%, Lag= 0.0 min
Primary = 13.31 cfs @ 12.15 hrs, Volume= 1.297 af
Routed to Link 2L : Fore River

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 8.49' @ 12.15 hrs
Flood Elev= 11.78'

Device	Routing	Invert	Outlet Devices
#1	Primary	6.57'	**30.0" Round Culvert** L= 52.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 6.57' / 6.30' S= 0.0052 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 4.91 sf

Primary OutFlow Max=13.22 cfs @ 12.15 hrs HW=8.48' (Free Discharge)
1=Culvert (Barrel Controls 13.22 cfs @ 4.54 fps)

Pond 9P: DMH-8 (Outfall #1)



Summary for Pond 10P: DMH 4

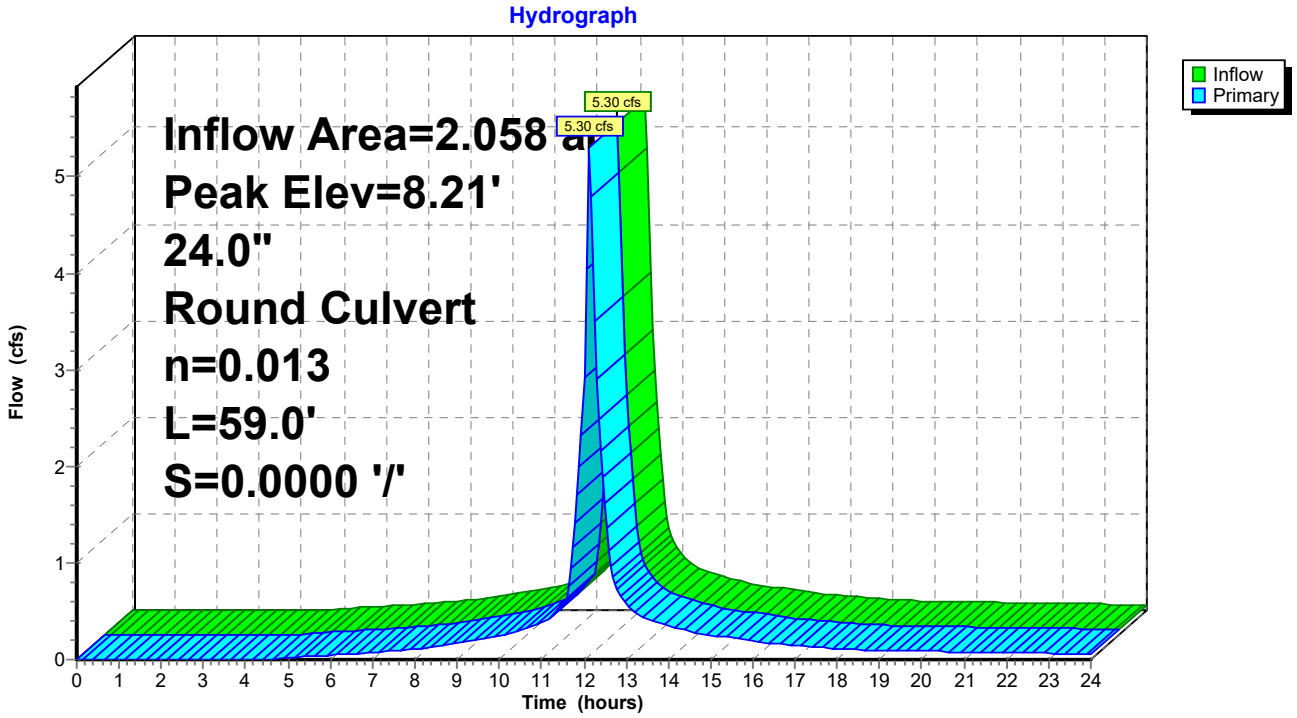
Inflow Area = 2.058 ac, 93.19% Impervious, Inflow Depth > 2.69" for 2-Year Storm event
Inflow = 5.30 cfs @ 12.13 hrs, Volume= 0.461 af
Outflow = 5.30 cfs @ 12.13 hrs, Volume= 0.461 af, Atten= 0%, Lag= 0.0 min
Primary = 5.30 cfs @ 12.13 hrs, Volume= 0.461 af
Routed to Pond 11P : Jellyfish 1 JFPD0806-4-1

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 8.21' @ 12.13 hrs
Flood Elev= 13.56'

Device	Routing	Invert	Outlet Devices
#1	Primary	6.75'	**24.0" Round Culvert** L= 59.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 6.75' / 6.75' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=5.19 cfs @ 12.13 hrs HW=8.19' (Free Discharge)
1=Culvert (Barrel Controls 5.19 cfs @ 2.99 fps)

Pond 10P: DMH 4



Summary for Pond 11P: Jellyfish 1 JFPD0806-4-1

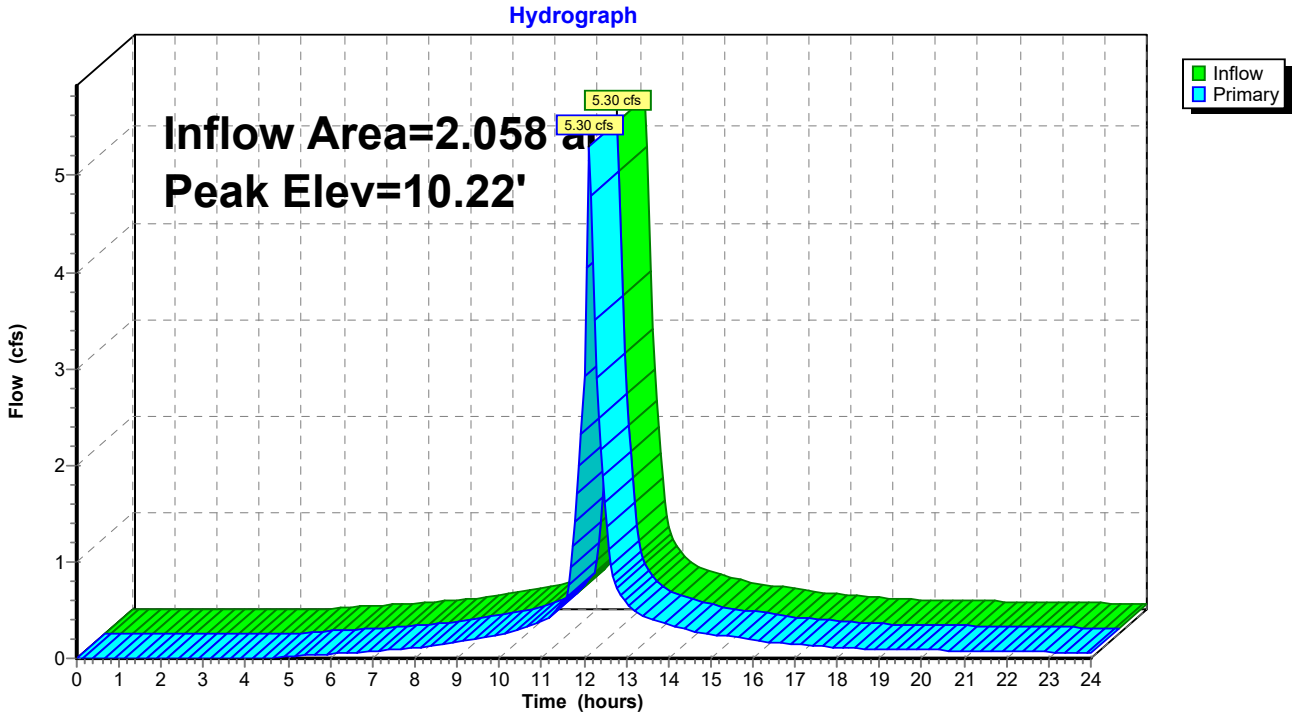
Inflow Area = 2.058 ac, 93.19% Impervious, Inflow Depth > 2.69" for 2-Year Storm event
Inflow = 5.30 cfs @ 12.13 hrs, Volume= 0.461 af
Outflow = 5.30 cfs @ 12.13 hrs, Volume= 0.461 af, Atten= 0%, Lag= 0.0 min
Primary = 5.30 cfs @ 12.13 hrs, Volume= 0.461 af
Routed to Pond 9P : DMH-8 (Outfall #1)

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 10.22' @ 12.13 hrs
Flood Elev= 12.89'

Device	Routing	Invert	Outlet Devices
#1	Primary	6.75'	**24.0" Round Filter Culvert Out** L= 5.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 6.75' / 6.67' S= 0.0160 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Device 1	6.75'	**JF Filter-1 CSV File** Head (feet) 0.00 0.08 0.17 0.25 0.33 0.42 0.50 0.58 0.67 0.75 0.83 0.92 1.00 1.08 1.17 1.25 1.33 1.42 1.50 Disch. (cfs) 0.000 0.010 0.020 0.030 0.040 0.050 0.059 0.129 0.198 0.267 0.337 0.406 0.475 0.545 0.614 0.683 0.753 0.822 0.891
#3	Device 1	9.59'	**2.8' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=5.18 cfs @ 12.13 hrs HW=10.21' (Free Discharge)
└**1=Filter Culvert Out** (Passes 5.18 cfs of 18.75 cfs potential flow)
└**2=JF Filter-1 CSV File** (Custom Controls 0.89 cfs)
└**3=Broad-Crested Rectangular Weir** (Weir Controls 4.29 cfs @ 2.45 fps)

Pond 11P: Jellyfish 1 JFPD0806-4-1



Summary for Pond 12P: Jellyfish 2 JFPD0806-7-2

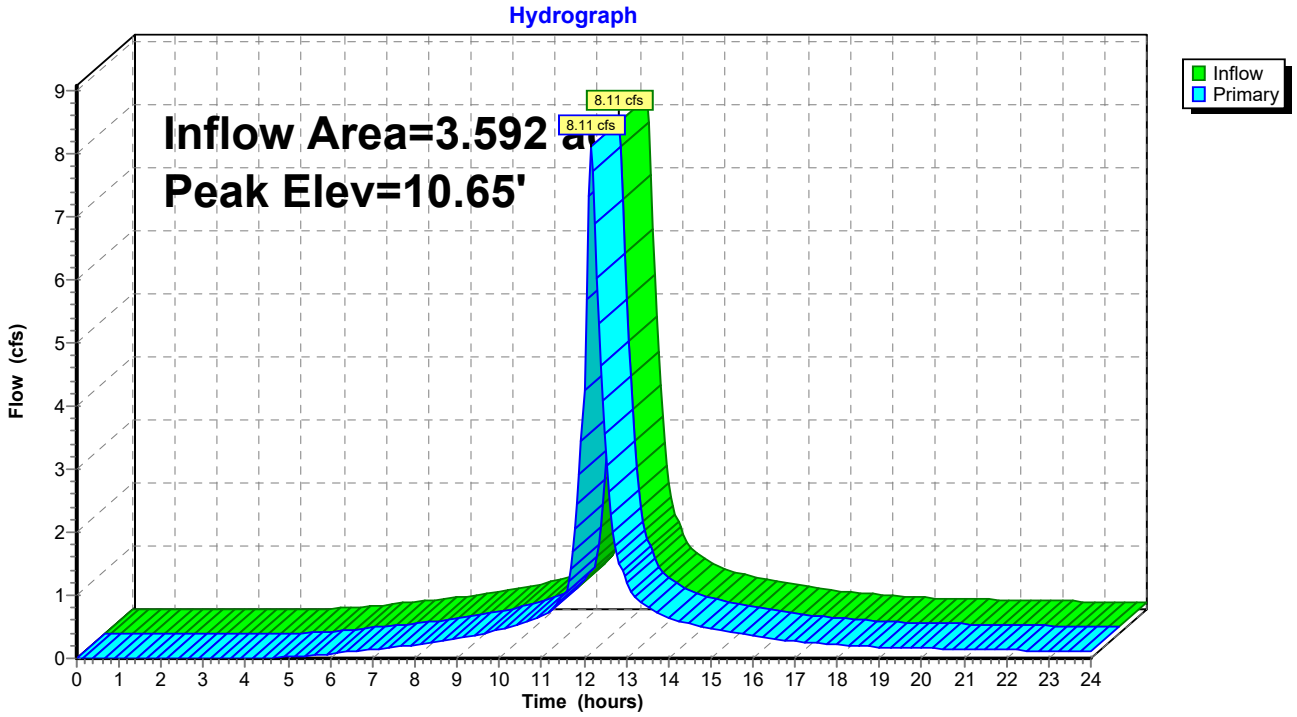
Inflow Area = 3.592 ac,100.00% Impervious, Inflow Depth > 2.79" for 2-Year Storm event
Inflow = 8.11 cfs @ 12.16 hrs, Volume= 0.835 af
Outflow = 8.11 cfs @ 12.16 hrs, Volume= 0.835 af, Atten= 0%, Lag= 0.0 min
Primary = 8.11 cfs @ 12.16 hrs, Volume= 0.835 af
Routed to Pond 9P : DMH-8 (Outfall #1)

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 10.65' @ 12.16 hrs
Flood Elev= 11.43'

Device	Routing	Invert	Outlet Devices
#1	Primary	7.71'	**24.0" Round Filter Culvert Out** L= 125.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 7.71' / 6.92' S= 0.0063 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Device 1	7.71'	**JF Filter-2 CSV File** Head (feet) 0.00 0.08 0.17 0.25 0.33 0.42 0.50 0.58 0.67 0.75 0.83 0.92 1.00 1.08 1.17 1.25 1.33 1.42 1.50 Disch. (cfs) 0.000 0.010 0.020 0.030 0.040 0.050 0.059 0.173 0.287 0.401 0.515 0.629 0.743 0.857 0.970 1.084 1.198 1.312 1.426
#3	Device 1	9.84'	**2.8' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=8.04 cfs @ 12.16 hrs HW=10.64' (Free Discharge)
└**1=Filter Culvert Out** (Passes 8.04 cfs of 16.59 cfs potential flow)
  ├**2=JF Filter-2 CSV File** (Custom Controls 1.43 cfs)
  └**3=Broad-Crested Rectangular Weir** (Weir Controls 6.61 cfs @ 2.95 fps)

Pond 12P: Jellyfish 2 JFPD0806-7-2



Summary for Pond 13P: DMH-13 (Outfall #2)

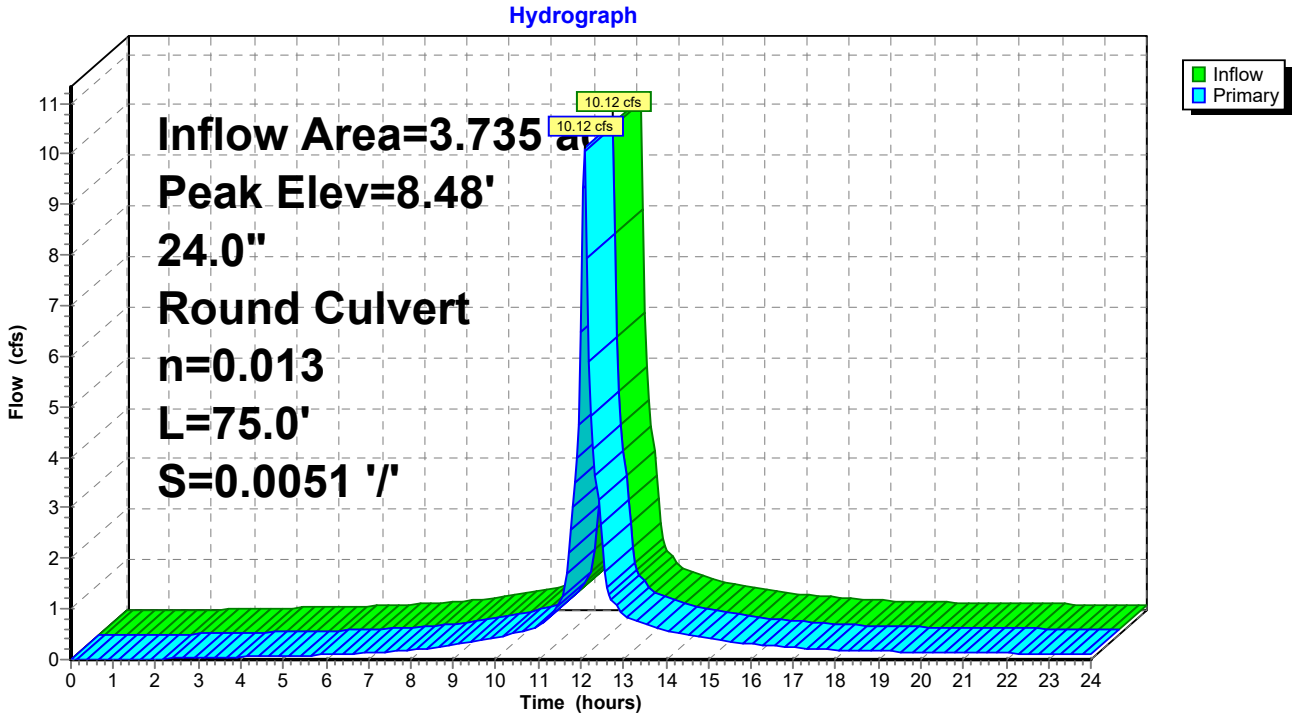
Inflow Area = 3.735 ac, 83.01% Impervious, Inflow Depth > 2.58" for 2-Year Storm event
Inflow = 10.12 cfs @ 12.09 hrs, Volume= 0.802 af
Outflow = 10.12 cfs @ 12.09 hrs, Volume= 0.802 af, Atten= 0%, Lag= 0.0 min
Primary = 10.12 cfs @ 12.09 hrs, Volume= 0.802 af
Routed to Link 2L : Fore River

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 8.48' @ 12.09 hrs
Flood Elev= 11.78'

Device	Routing	Invert	Outlet Devices
#1	Primary	6.68'	**24.0" Round Culvert** L= 75.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 6.68' / 6.30' S= 0.0051 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=9.86 cfs @ 12.09 hrs HW=8.45' (Free Discharge)
1=Culvert (Barrel Controls 9.86 cfs @ 4.46 fps)

Pond 13P: DMH-13 (Outfall #2)



Summary for Pond 24P: Filterra 1

Inflow Area = 0.275 ac,100.00% Impervious, Inflow Depth > 2.87" for 2-Year Storm event
Inflow = 0.81 cfs @ 12.09 hrs, Volume= 0.066 af
Outflow = 0.81 cfs @ 12.09 hrs, Volume= 0.066 af, Atten= 0%, Lag= 0.0 min
Primary = 0.81 cfs @ 12.09 hrs, Volume= 0.066 af
Routed to Pond 27P : AD49
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond 27P : AD49

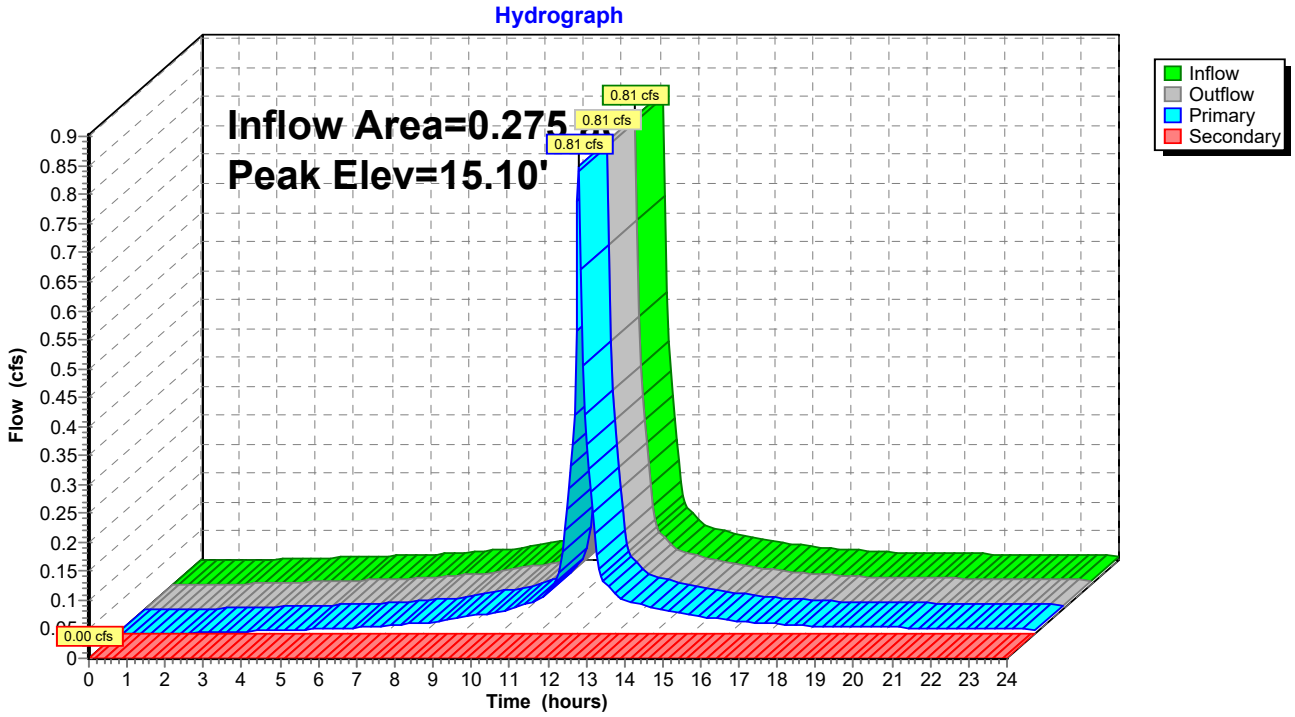
Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 15.10' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	14.50'	**12.0" Round Culvert** L= 4.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 14.50' / 14.47' S= 0.0075 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	18.04'	**5.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=0.79 cfs @ 12.09 hrs HW=15.09' (Free Discharge)
↑—**1=Culvert** (Barrel Controls 0.79 cfs @ 2.36 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=14.50' (Free Discharge)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 24P: Filterra 1



Summary for Pond 27P: AD49

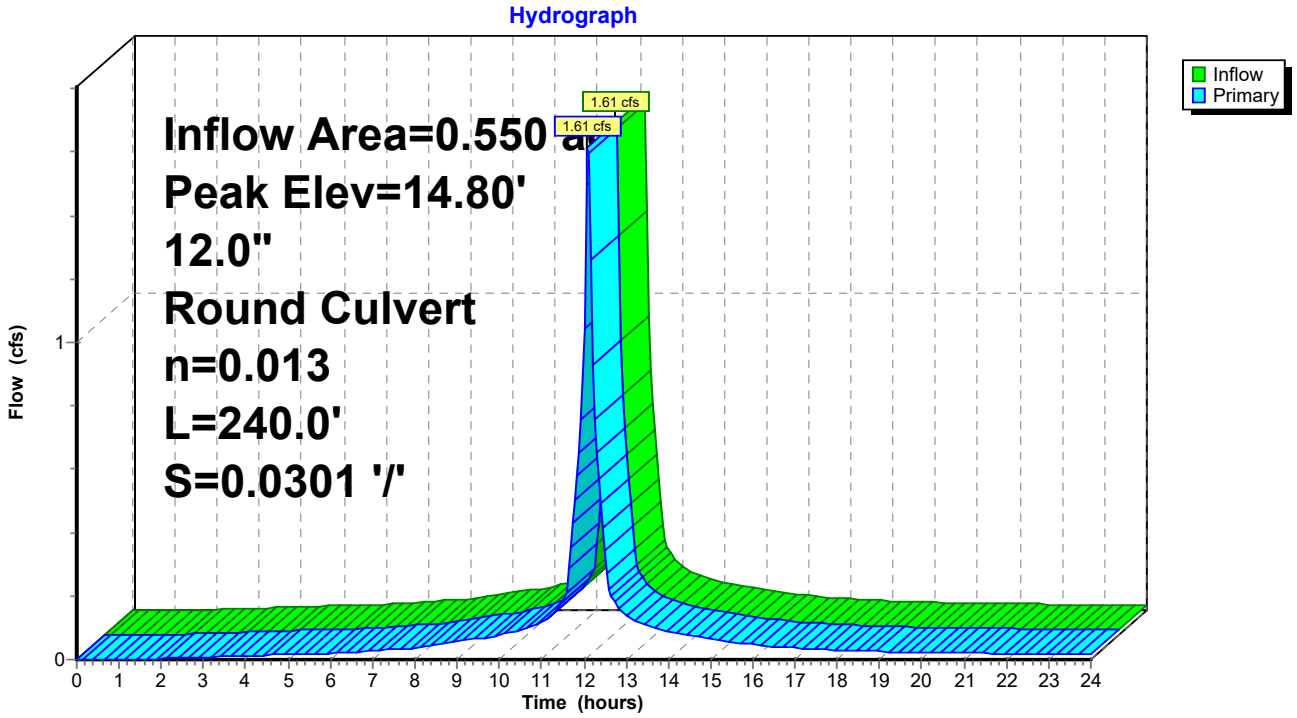
Inflow Area = 0.550 ac,100.00% Impervious, Inflow Depth > 2.87" for 2-Year Storm event
Inflow = 1.61 cfs @ 12.09 hrs, Volume= 0.131 af
Outflow = 1.61 cfs @ 12.09 hrs, Volume= 0.131 af, Atten= 0%, Lag= 0.0 min
Primary = 1.61 cfs @ 12.09 hrs, Volume= 0.131 af
Routed to Pond 13P : DMH-13 (Outfall #2)

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 14.80' @ 12.09 hrs
Flood Elev= 12.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	14.00'	**12.0" Round Culvert** L= 240.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 14.00' / 6.78' S= 0.0301 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.57 cfs @ 12.09 hrs HW=14.78' (Free Discharge)
1=Culvert (Inlet Controls 1.57 cfs @ 2.38 fps)

Pond 27P: AD49



Summary for Pond 28P: Filterra 2

Inflow Area = 0.275 ac,100.00% Impervious, Inflow Depth > 2.87" for 2-Year Storm event
Inflow = 0.81 cfs @ 12.09 hrs, Volume= 0.066 af
Outflow = 0.81 cfs @ 12.09 hrs, Volume= 0.066 af, Atten= 0%, Lag= 0.0 min
Primary = 0.81 cfs @ 12.09 hrs, Volume= 0.066 af
Routed to Pond 27P : AD49
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond 27P : AD49

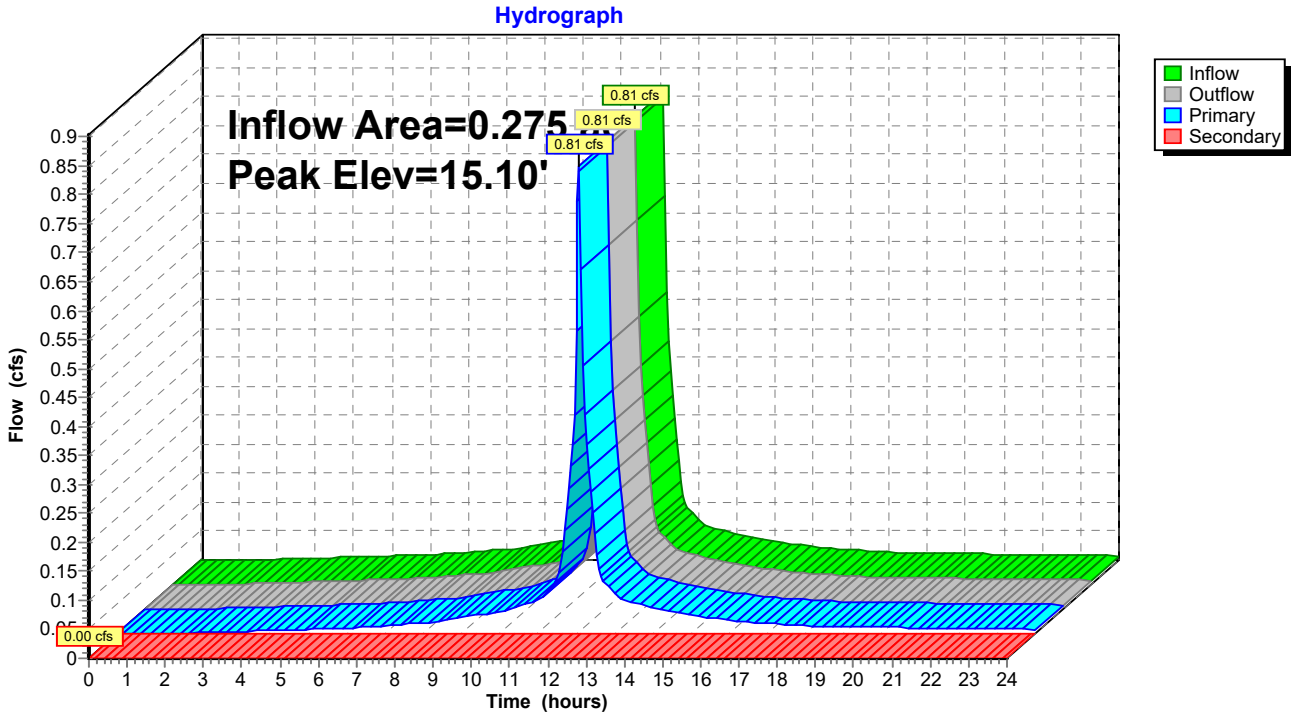
Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 15.10' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	14.50'	**12.0" Round Culvert** L= 4.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 14.50' / 14.47' S= 0.0075 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	18.04'	**5.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=0.79 cfs @ 12.09 hrs HW=15.09' (Free Discharge)
↑—**1=Culvert** (Barrel Controls 0.79 cfs @ 2.36 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=14.50' (Free Discharge)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 28P: Filterra 2

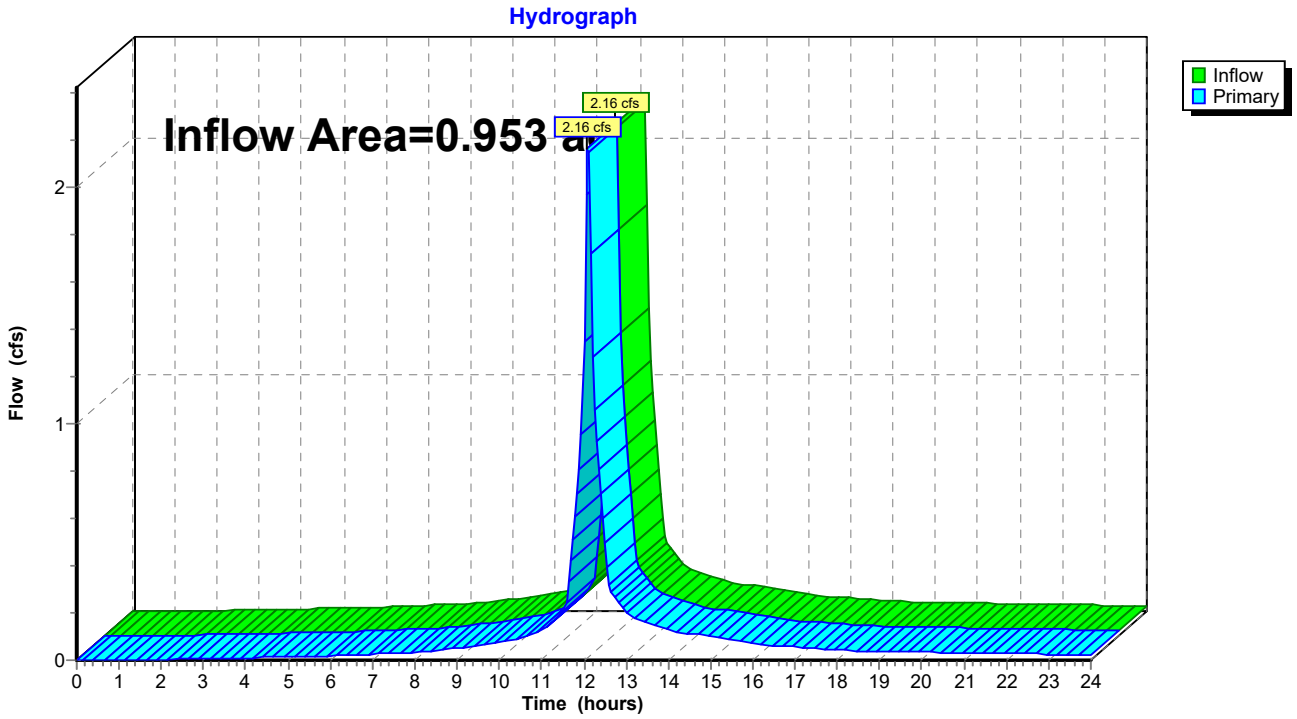


Summary for Link 1L: Freedom Way

Inflow Area = 0.953 ac, 53.78% Impervious, Inflow Depth > 2.15" for 2-Year Storm event
Inflow = 2.16 cfs @ 12.09 hrs, Volume= 0.170 af
Primary = 2.16 cfs @ 12.09 hrs, Volume= 0.170 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 1L: Freedom Way

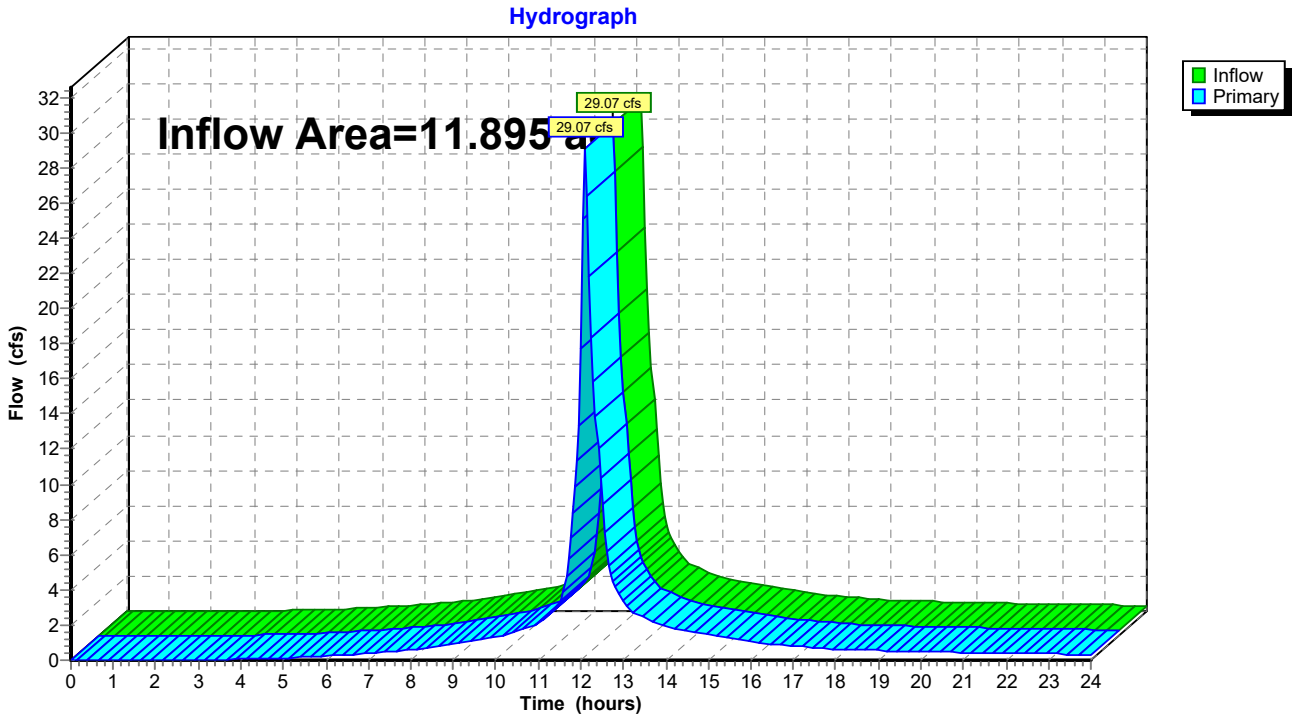


Summary for Link 2L: Fore River

Inflow Area = 11.895 ac, 87.62% Impervious, Inflow Depth > 2.61" for 2-Year Storm event
Inflow = 29.07 cfs @ 12.11 hrs, Volume= 2.590 af
Primary = 29.07 cfs @ 12.11 hrs, Volume= 2.590 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 2L: Fore River

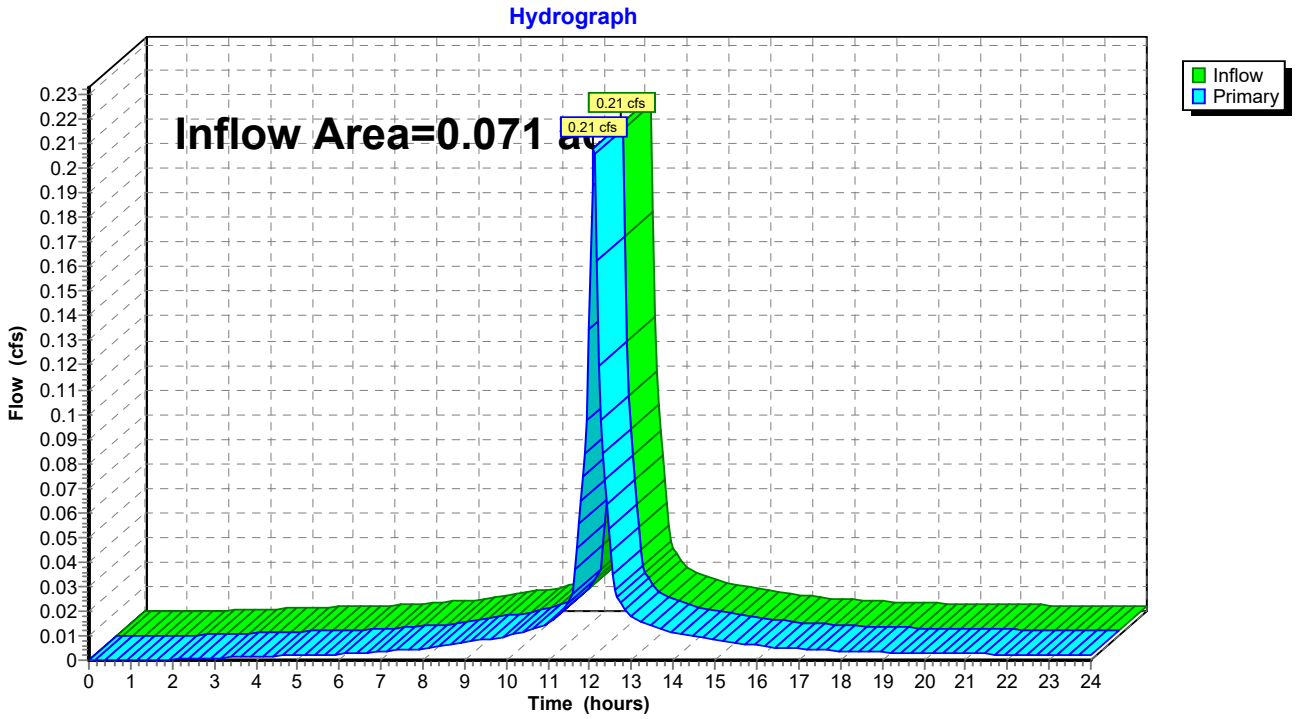


Summary for Link 3L: Fore Street

Inflow Area = 0.071 ac,100.00% Impervious, Inflow Depth > 2.87" for 2-Year Storm event
Inflow = 0.21 cfs @ 12.09 hrs, Volume= 0.017 af
Primary = 0.21 cfs @ 12.09 hrs, Volume= 0.017 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 3L: Fore Street



Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: Block 1B Runoff Area=19,389 sf 1.02% Impervious Runoff Depth>2.54"
Tc=6.0 min CN=80 Runoff=1.30 cfs 0.094 af

Subcatchment2S: Western half of Runoff Area=22,128 sf 100.00% Impervious Runoff Depth>4.36"
Tc=6.0 min CN=98 Runoff=2.23 cfs 0.185 af

Subcatchment3S: Eastern half of Runoff Area=22,147 sf 100.00% Impervious Runoff Depth>4.36"
Tc=6.0 min CN=98 Runoff=2.23 cfs 0.185 af

Subcatchment4S: Shared Street - Trench Runoff Area=26,424 sf 83.24% Impervious Runoff Depth>4.02"
Tc=6.0 min CN=95 Runoff=2.58 cfs 0.203 af

Subcatchment5S: Building 12 Runoff Area=3,244 sf 100.00% Impervious Runoff Depth>4.36"
Tc=6.0 min CN=98 Runoff=0.33 cfs 0.027 af

Subcatchment6S: Plaza between Blocks 1 Runoff Area=18,771 sf 95.74% Impervious Runoff Depth>4.25"
Tc=6.0 min CN=97 Runoff=1.88 cfs 0.152 af

Subcatchment7S: Building 14 Runoff Area=2,557 sf 100.00% Impervious Runoff Depth>4.36"
Tc=6.0 min CN=98 Runoff=0.26 cfs 0.021 af

Subcatchment8S: Building 15 Runoff Area=2,578 sf 100.00% Impervious Runoff Depth>4.36"
Tc=6.0 min CN=98 Runoff=0.26 cfs 0.022 af

Subcatchment9S: Building 2 North Runoff Area=4,695 sf 100.00% Impervious Runoff Depth>4.36"
Tc=6.0 min CN=98 Runoff=0.47 cfs 0.039 af

Subcatchment10S: Building 3 North Runoff Area=2,212 sf 100.00% Impervious Runoff Depth>4.36"
Tc=6.0 min CN=98 Runoff=0.22 cfs 0.018 af

Subcatchment11S: Building 2 South Runoff Area=4,855 sf 100.00% Impervious Runoff Depth>4.36"
Tc=6.0 min CN=98 Runoff=0.49 cfs 0.041 af

Subcatchment12S: Building 3 South Runoff Area=2,326 sf 100.00% Impervious Runoff Depth>4.36"
Tc=6.0 min CN=98 Runoff=0.23 cfs 0.019 af

Subcatchment13S: Building 6 Runoff Area=3,304 sf 100.00% Impervious Runoff Depth>4.36"
Tc=6.0 min CN=98 Runoff=0.33 cfs 0.028 af

Subcatchment14S: Building 6B North Runoff Area=4,296 sf 100.00% Impervious Runoff Depth>4.36"
Tc=6.0 min CN=98 Runoff=0.43 cfs 0.036 af

Subcatchment15S: Building 6B South Runoff Area=2,512 sf 100.00% Impervious Runoff Depth>4.36"
Tc=6.0 min CN=98 Runoff=0.25 cfs 0.021 af

Subcatchment16S: Plaza between Blocks 1 Runoff Area=3,650 sf 75.84% Impervious Runoff Depth>3.91"
Tc=6.0 min CN=94 Runoff=0.35 cfs 0.027 af

Subcatchment17S: Shared Street - Trench Runoff Area=8,719 sf 100.00% Impervious Runoff Depth>4.36"
Tc=6.0 min CN=98 Runoff=0.88 cfs 0.073 af

Subcatchment18S: Plaza between Runoff Area=28,813 sf 100.00% Impervious Runoff Depth>4.36"
Tc=6.0 min CN=98 Runoff=2.90 cfs 0.240 af

Subcatchment19S: Block 4 Building Runoff Area=86,592 sf 100.00% Impervious Runoff Depth>4.36"
Tc=6.0 min CN=98 Runoff=8.73 cfs 0.722 af

Subcatchment20S: Direct to R-Tank Runoff Area=7,210 sf 100.00% Impervious Runoff Depth>4.36"
Tc=6.0 min CN=98 Runoff=0.73 cfs 0.060 af

Subcatchment21S: Plaza along Building Runoff Area=2,534 sf 100.00% Impervious Runoff Depth>4.36"
Tc=6.0 min CN=98 Runoff=0.26 cfs 0.021 af

Subcatchment22S: Block 6 Building Runoff Area=47,780 sf 100.00% Impervious Runoff Depth>4.36"
Tc=6.0 min CN=98 Runoff=4.82 cfs 0.399 af

Subcatchment23S: Block 5 Building to Runoff Area=11,218 sf 100.00% Impervious Runoff Depth>4.36"
Tc=6.0 min CN=98 Runoff=1.13 cfs 0.094 af

Subcatchment24S: Block 5 Building Runoff Area=30,570 sf 100.00% Impervious Runoff Depth>4.36"
Tc=6.0 min CN=98 Runoff=3.08 cfs 0.255 af

Subcatchment25S: Southern Plaza Runoff Area=11,168 sf 100.00% Impervious Runoff Depth>4.36"
Tc=6.0 min CN=98 Runoff=1.13 cfs 0.093 af

Subcatchment26S: Plaza along Townhouse Runoff Area=550 sf 100.00% Impervious Runoff Depth>4.36"
Tc=6.0 min CN=98 Runoff=0.06 cfs 0.005 af

Subcatchment27S: Drainage from off-site Runoff Area=49,238 sf 43.84% Impervious Runoff Depth>3.29"
Tc=6.0 min CN=88 Runoff=4.19 cfs 0.310 af

Subcatchment28S: Waterfront Runoff Area=109,324 sf 72.19% Impervious Runoff Depth>3.80"
Tc=6.0 min CN=93 Runoff=10.34 cfs 0.795 af

Subcatchment29S: Block 6 Building Runoff Area=11,975 sf 100.00% Impervious Runoff Depth>4.36"
Tc=6.0 min CN=98 Runoff=1.21 cfs 0.100 af

Subcatchment30S: Block 6 Building Runoff Area=11,975 sf 100.00% Impervious Runoff Depth>4.36"
Tc=6.0 min CN=98 Runoff=1.21 cfs 0.100 af

Pond 1P: DMH 1 Peak Elev=11.42' Inflow=8.24 cfs 0.669 af
24.0" Round Culvert n=0.013 L=61.0' S=0.0038 '/' Outflow=8.24 cfs 0.669 af

Pond 2P: DMH 2 Peak Elev=11.13' Inflow=8.92 cfs 0.723 af
24.0" Round Culvert n=0.013 L=31.0' S=0.0048 '/' Outflow=8.92 cfs 0.723 af

Pond 3P: Storm Structure Peak Elev=9.55' Inflow=8.92 cfs 0.723 af
15.0" Round Culvert x 3.00 n=0.013 L=4.0' S=0.0000 '/' Outflow=8.92 cfs 0.723 af

Pond 4P: R-Tank 1 Peak Elev=8.81' Storage=2,076 cf Inflow=8.92 cfs 0.723 af
21.0" Round Culvert n=0.013 L=62.0' S=0.0000 '/' Outflow=8.00 cfs 0.716 af

Pond 5P: DMH-11 Peak Elev=10.03' Inflow=12.72 cfs 1.280 af
24.0" Round Culvert n=0.013 L=16.0' S=0.0069 '/' Outflow=12.72 cfs 1.280 af

Pond 6P: CB27 Peak Elev=12.10' Inflow=15.04 cfs 1.245 af
24.0" Round Culvert n=0.013 L=22.0' S=0.0064 '/' Outflow=15.04 cfs 1.245 af

Pond 7P: Storm Structure Peak Elev=10.17' Inflow=15.04 cfs 1.245 af
15.0" Round Culvert x 3.00 n=0.013 L=4.0' S=0.0000 '/' Outflow=15.04 cfs 1.245 af

Pond 8P: R-Tank 2 Peak Elev=10.53' Storage=6,896 cf Inflow=15.77 cfs 1.306 af
24.0" Round Culvert n=0.013 L=70.0' S=0.0000 '/' Outflow=12.72 cfs 1.280 af

Pond 9P: DMH-8 (Outfall #1) Peak Elev=9.14' Inflow=20.64 cfs 1.996 af
30.0" Round Culvert n=0.013 L=52.0' S=0.0052 '/' Outflow=20.64 cfs 1.996 af

Pond 10P: DMH 4 Peak Elev=8.59' Inflow=8.00 cfs 0.716 af
24.0" Round Culvert n=0.013 L=59.0' S=0.0000 '/' Outflow=8.00 cfs 0.716 af

Pond 11P: Jellyfish 1 JFPD0806-4-1 Peak Elev=10.43' Inflow=8.00 cfs 0.716 af
Outflow=8.00 cfs 0.716 af

Pond 12P: Jellyfish 2 JFPD0806-7-2 Peak Elev=10.98' Inflow=12.72 cfs 1.280 af
Outflow=12.72 cfs 1.280 af

Pond 13P: DMH-13 (Outfall #2) Peak Elev=9.38' Inflow=15.62 cfs 1.256 af
24.0" Round Culvert n=0.013 L=75.0' S=0.0051 '/' Outflow=15.62 cfs 1.256 af

Pond 24P: Filterra 1 Peak Elev=15.25' Inflow=1.21 cfs 0.100 af
Primary=1.21 cfs 0.100 af Secondary=0.00 cfs 0.000 af Outflow=1.21 cfs 0.100 af

Pond 27P: AD49 Peak Elev=15.15' Inflow=2.41 cfs 0.200 af
12.0" Round Culvert n=0.013 L=240.0' S=0.0301 '/' Outflow=2.41 cfs 0.200 af

Pond 28P: Filterra 2 Peak Elev=15.25' Inflow=1.21 cfs 0.100 af
Primary=1.21 cfs 0.100 af Secondary=0.00 cfs 0.000 af Outflow=1.21 cfs 0.100 af

Link 1L: Freedom Way Inflow=3.53 cfs 0.279 af
Primary=3.53 cfs 0.279 af

Link 2L: Fore River Inflow=45.43 cfs 4.048 af
Primary=45.43 cfs 4.048 af

Link 3L: Fore Street Inflow=0.31 cfs 0.026 af
Primary=0.31 cfs 0.026 af

Total Runoff Area = 12.919 ac Runoff Volume = 4.386 af Average Runoff Depth = 4.07"
14.81% Pervious = 1.914 ac 85.19% Impervious = 11.005 ac

Summary for Subcatchment 1S: Block 1B

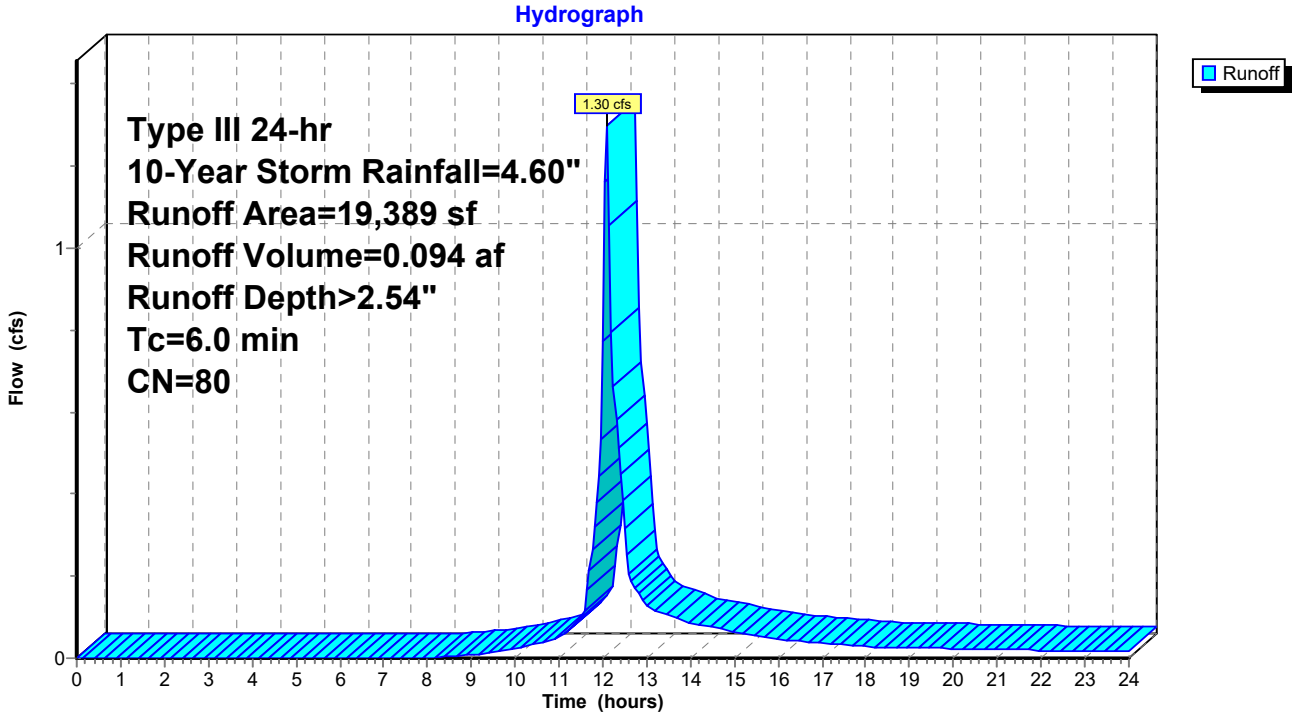
Runoff = 1.30 cfs @ 12.09 hrs, Volume= 0.094 af, Depth> 2.54"
Routed to Link 1L : Freedom Way

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	198	98	Impervious
	19,191	80	>75% Grass cover, Good, HSG D
	19,389	80	Weighted Average
	19,191		98.98% Pervious Area
	198		1.02% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 1S: Block 1B



Summary for Subcatchment 2S: Western half of Building 1A

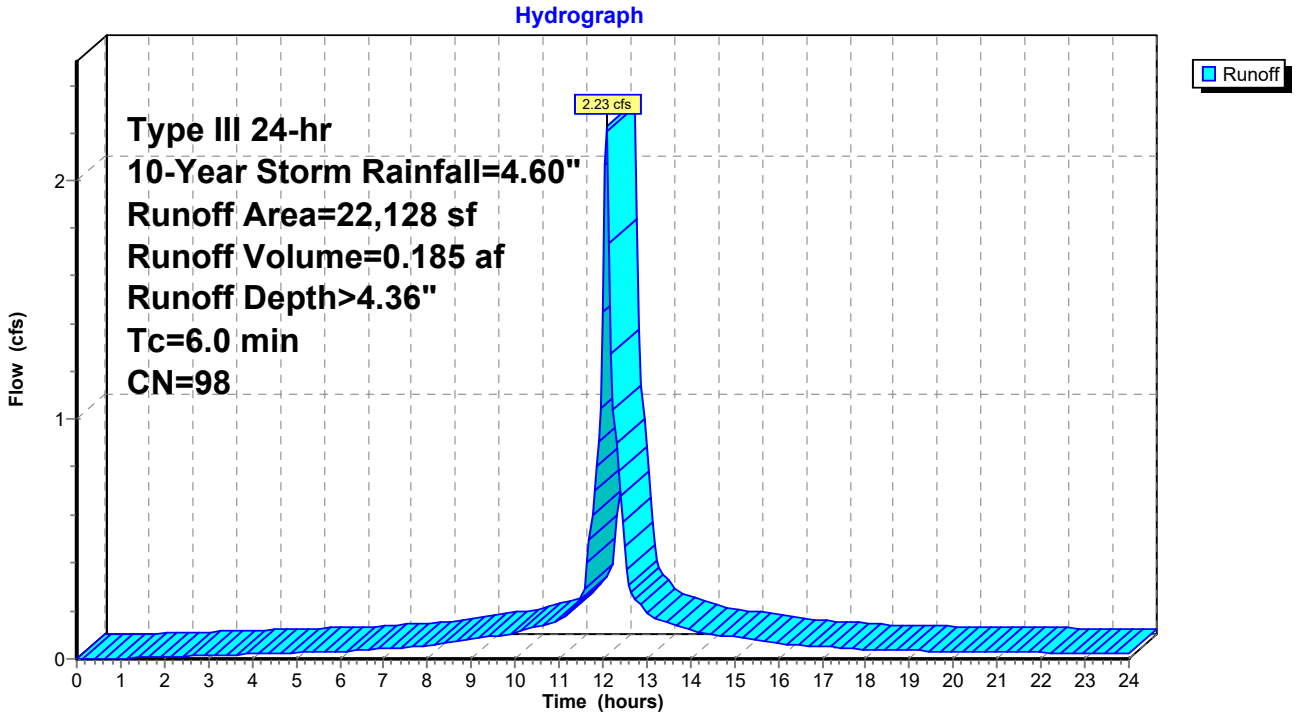
Runoff = 2.23 cfs @ 12.09 hrs, Volume= 0.185 af, Depth> 4.36"
Routed to Link 1L : Freedom Way

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	22,128	98	Roof
	22,128		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 2S: Western half of Building 1A



Summary for Subcatchment 3S: Eastern half of Building 1A

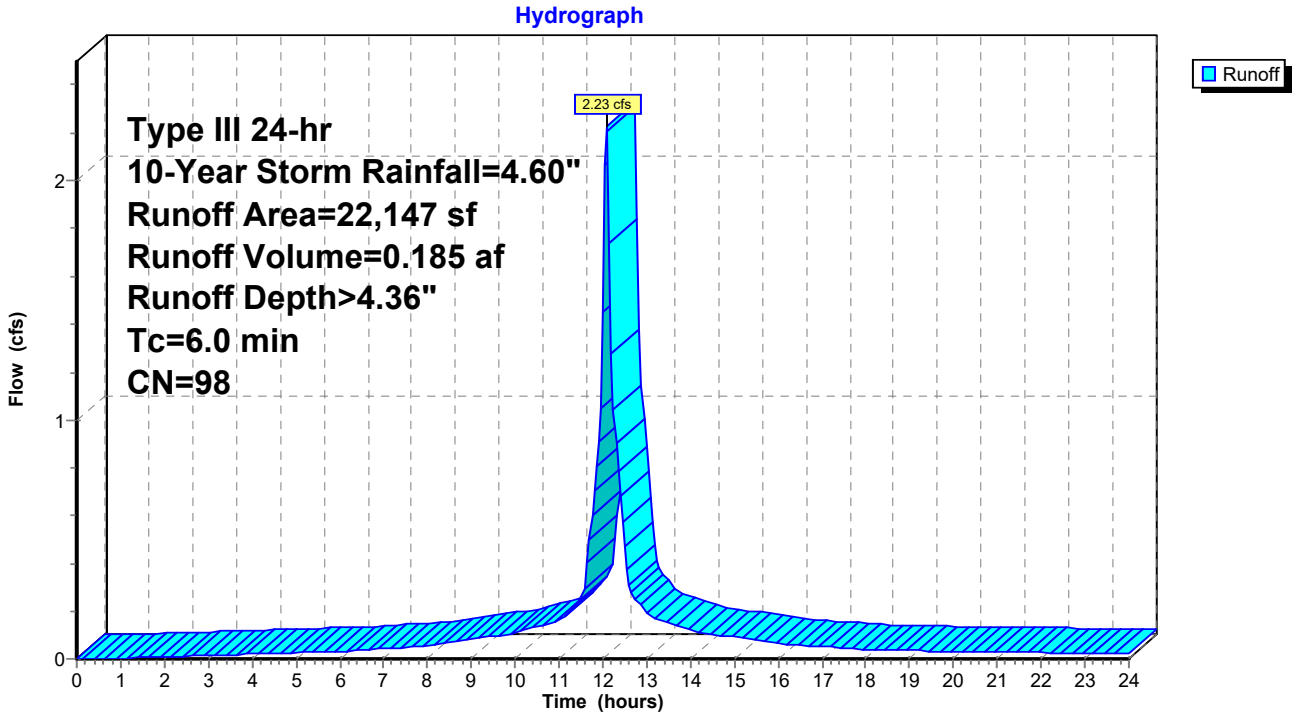
Runoff = 2.23 cfs @ 12.09 hrs, Volume= 0.185 af, Depth> 4.36"
Routed to Pond 1P : DMH 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	22,147	98	Roof
	22,147		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 3S: Eastern half of Building 1A



Summary for Subcatchment 4S: Shared Street - Trench Drain

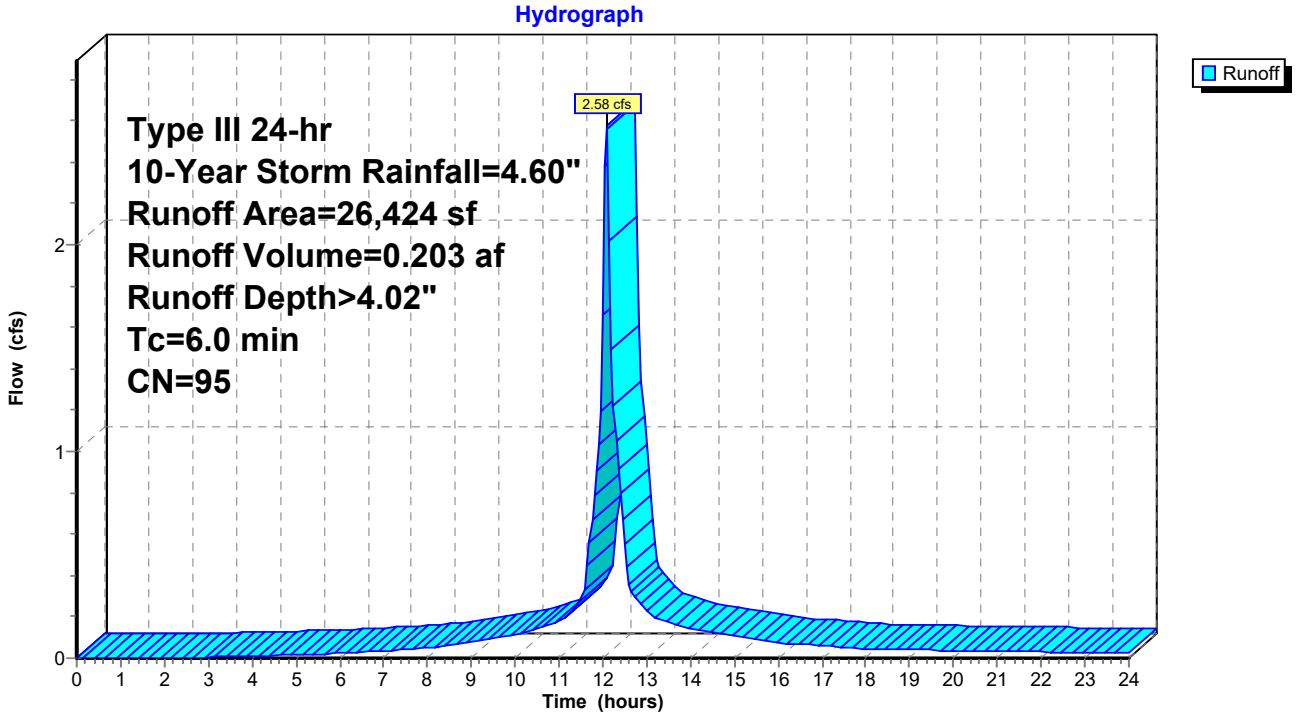
Runoff = 2.58 cfs @ 12.09 hrs, Volume= 0.203 af, Depth> 4.02"
Routed to Pond 1P : DMH 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Storm Rainfall=4.60"

	Area (sf)	CN	Description
	4,428	80	>75% Grass cover, Good, HSG D
*	21,996	98	Impervious
	26,424	95	Weighted Average
	4,428		16.76% Pervious Area
	21,996		83.24% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 4S: Shared Street - Trench Drain



Summary for Subcatchment 5S: Building 12

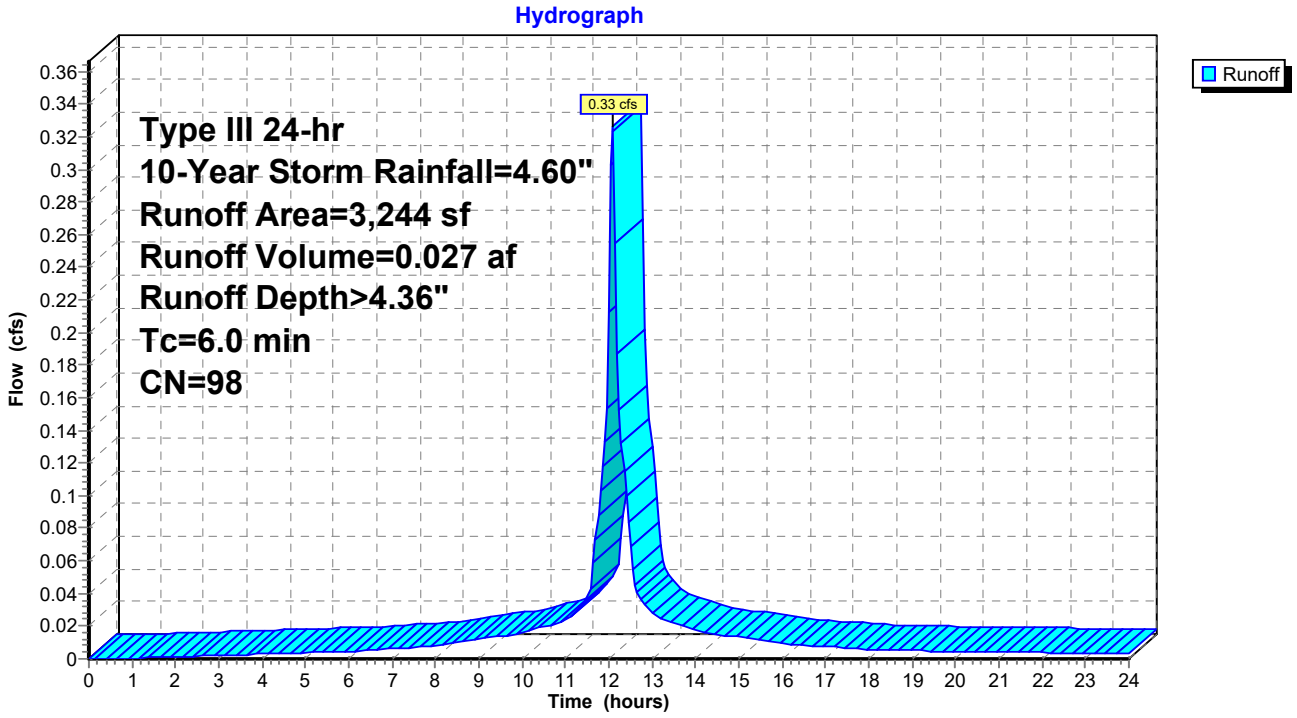
Runoff = 0.33 cfs @ 12.09 hrs, Volume= 0.027 af, Depth> 4.36"
Routed to Pond 1P : DMH 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	3,244	98	Roof
	3,244		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 5S: Building 12



Summary for Subcatchment 6S: Plaza between Blocks 1 & 2

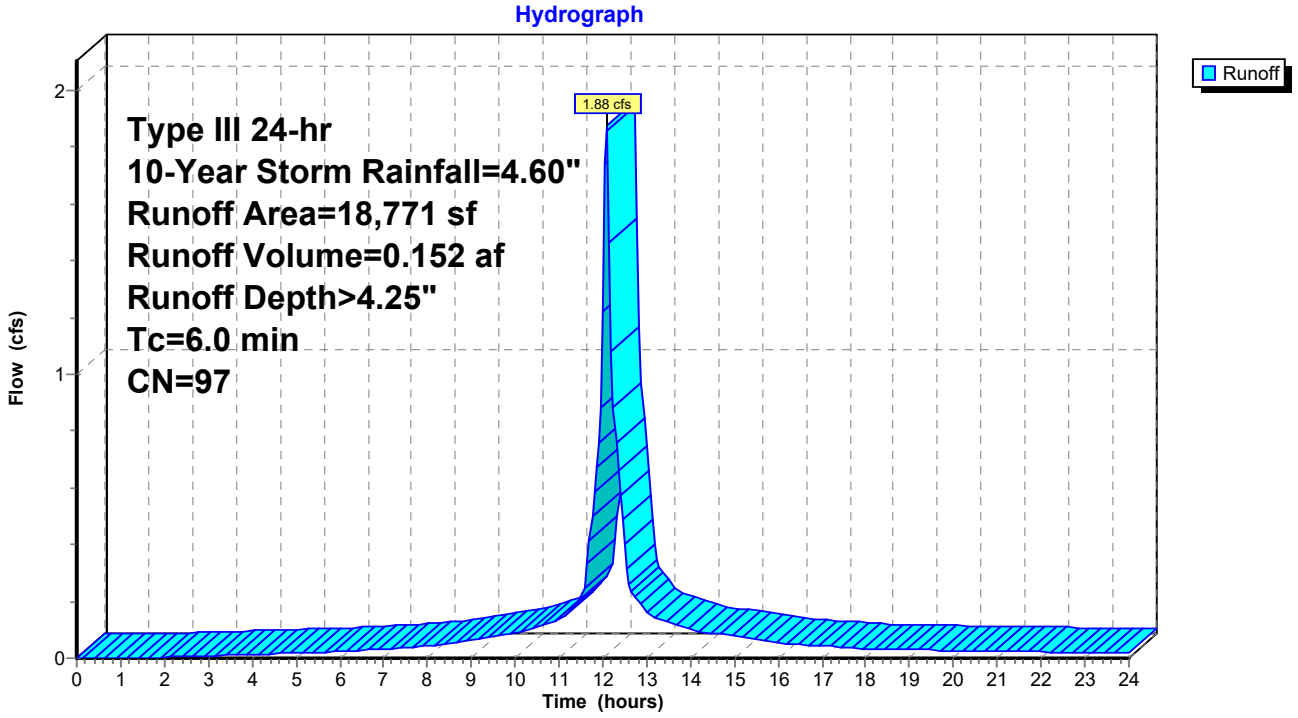
Runoff = 1.88 cfs @ 12.09 hrs, Volume= 0.152 af, Depth> 4.25"
Routed to Pond 1P : DMH 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	17,972	98	Impervious
	799	80	>75% Grass cover, Good, HSG D
	18,771	97	Weighted Average
	799		4.26% Pervious Area
	17,972		95.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 6S: Plaza between Blocks 1 & 2



Summary for Subcatchment 7S: Building 14

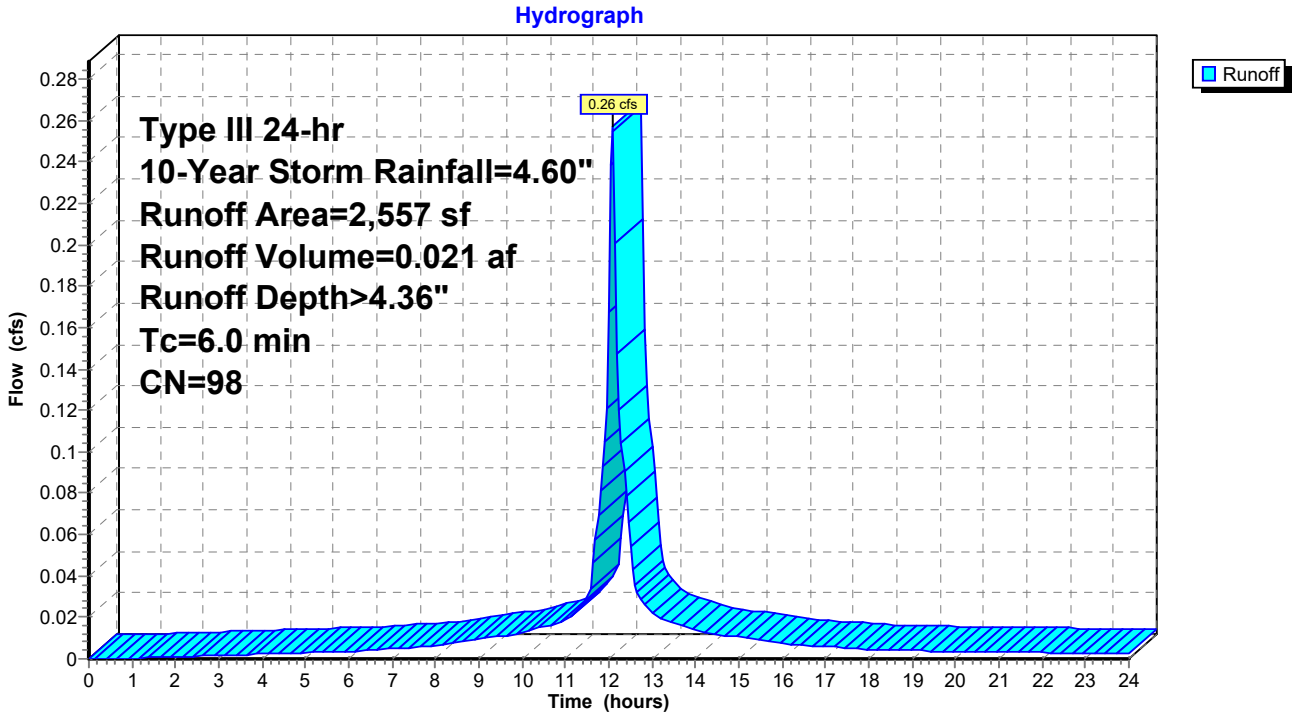
Runoff = 0.26 cfs @ 12.09 hrs, Volume= 0.021 af, Depth> 4.36"
Routed to Pond 1P : DMH 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	2,557	98	Roof
	2,557		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 7S: Building 14



Summary for Subcatchment 8S: Building 15

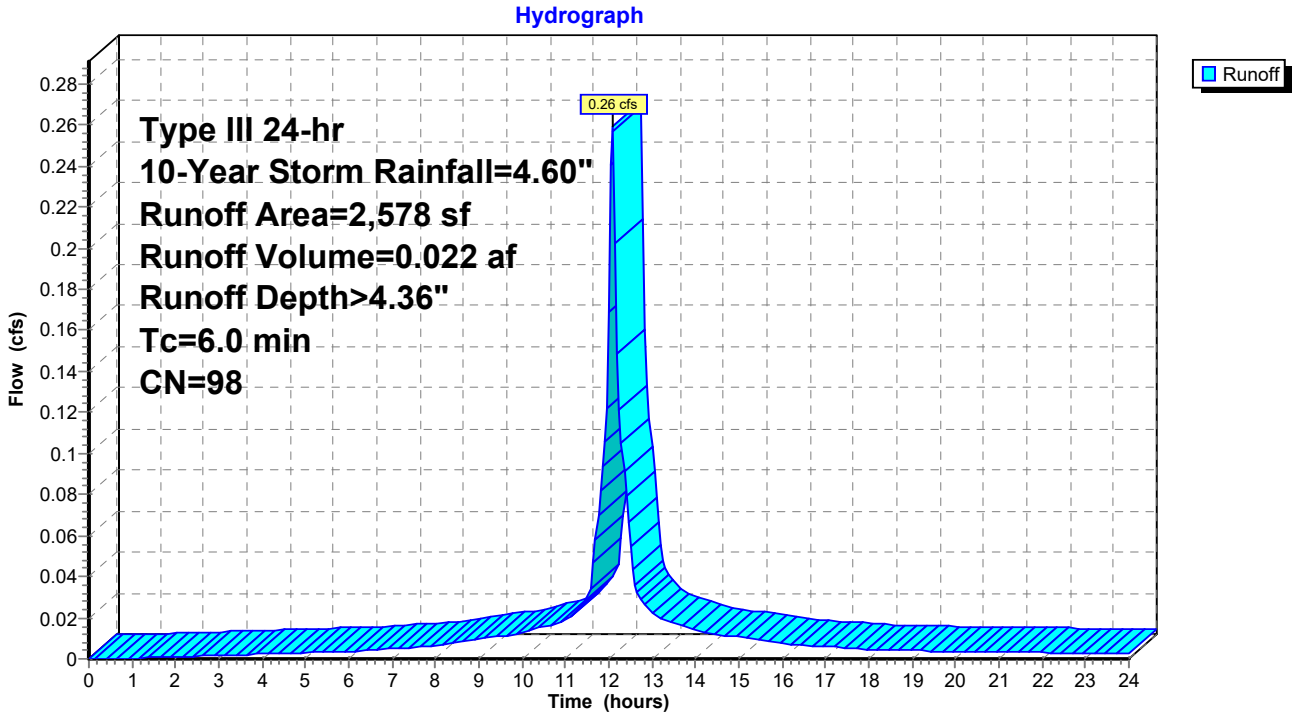
Runoff = 0.26 cfs @ 12.09 hrs, Volume= 0.022 af, Depth> 4.36"
Routed to Pond 6P : CB27

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	2,578	98	Roof
	2,578		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 8S: Building 15



Summary for Subcatchment 9S: Building 2 North

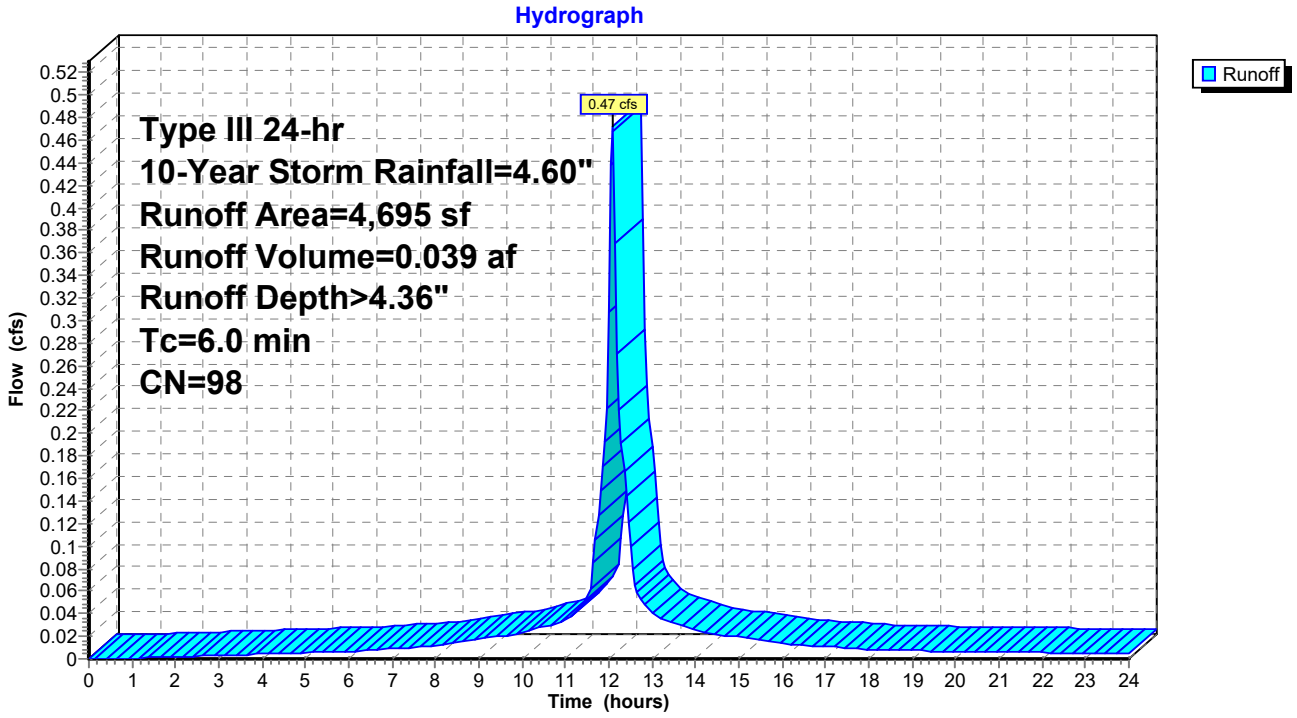
Runoff = 0.47 cfs @ 12.09 hrs, Volume= 0.039 af, Depth> 4.36"
Routed to Pond 1P : DMH 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	4,695	98	Roof
	4,695		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 9S: Building 2 North



Summary for Subcatchment 10S: Building 3 North

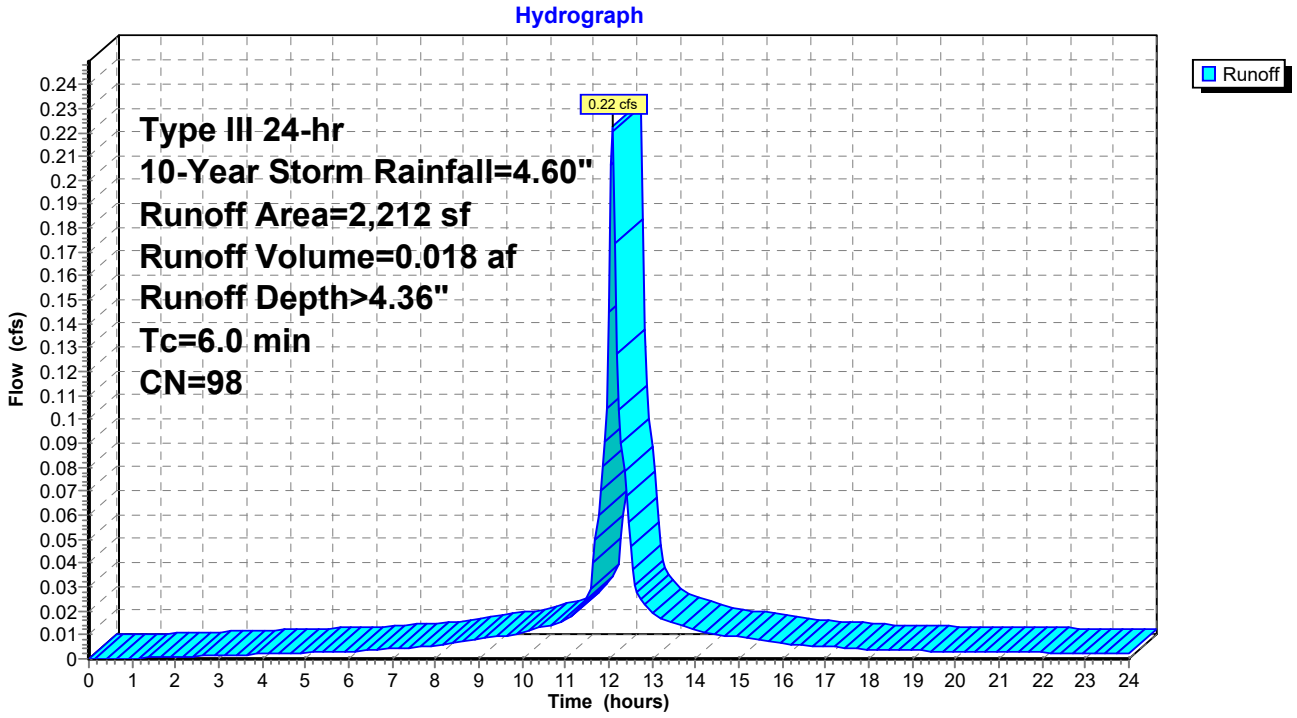
Runoff = 0.22 cfs @ 12.09 hrs, Volume= 0.018 af, Depth> 4.36"
Routed to Pond 6P : CB27

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	2,212	98	Roof
	2,212		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 10S: Building 3 North



Summary for Subcatchment 11S: Building 2 South

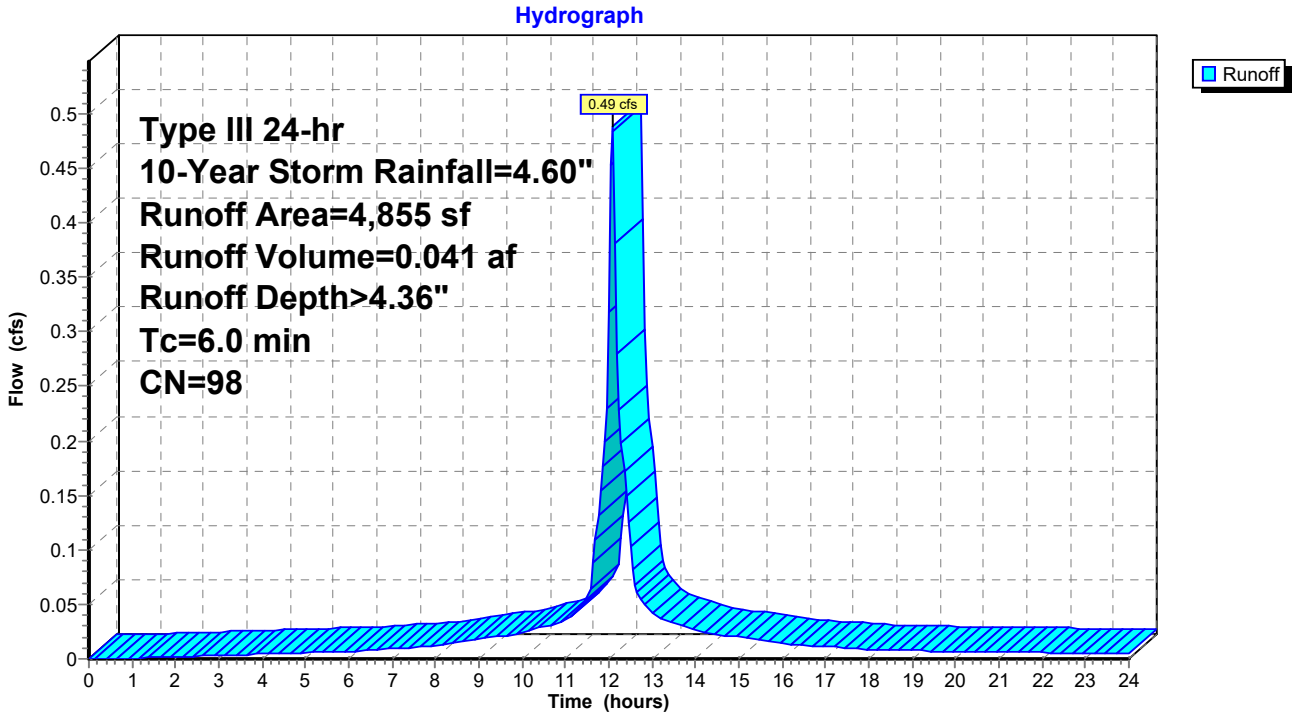
Runoff = 0.49 cfs @ 12.09 hrs, Volume= 0.041 af, Depth> 4.36"
Routed to Pond 1P : DMH 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	4,855	98	Roof
	4,855		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 11S: Building 2 South



Summary for Subcatchment 12S: Building 3 South

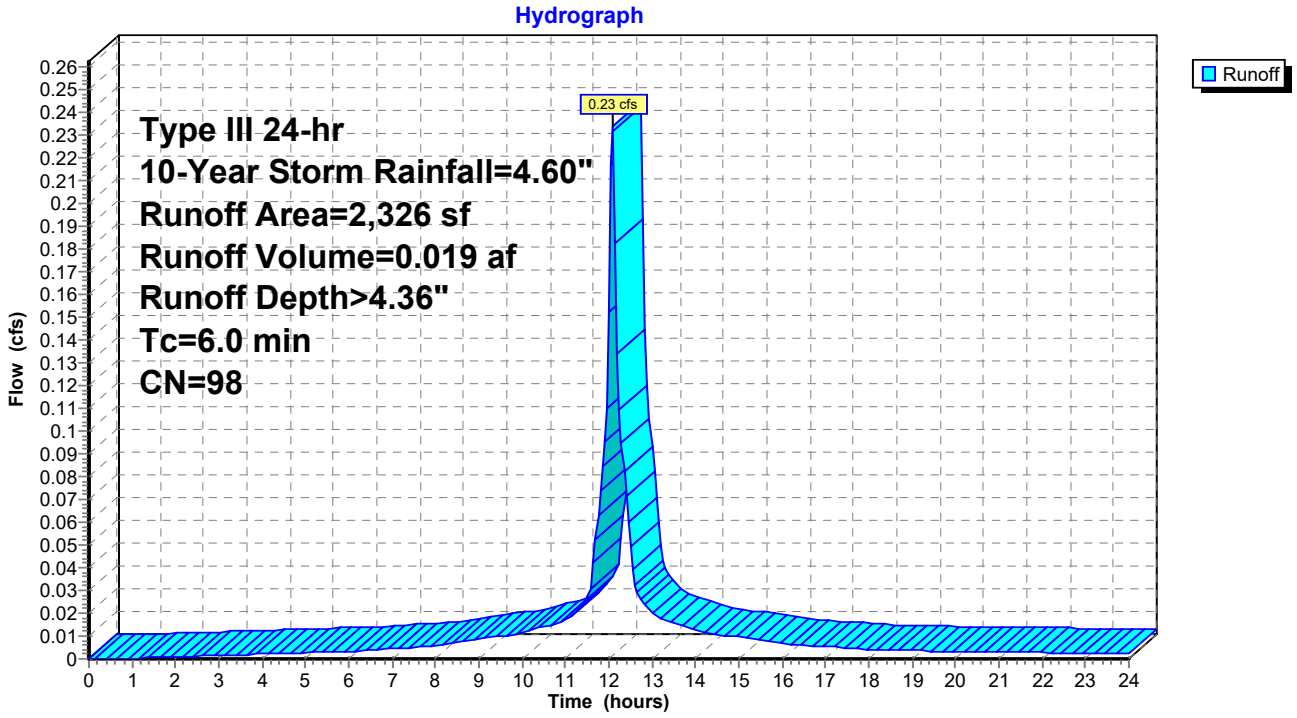
Runoff = 0.23 cfs @ 12.09 hrs, Volume= 0.019 af, Depth> 4.36"
Routed to Pond 6P : CB27

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	2,326	98	Roof
	2,326		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 12S: Building 3 South



Summary for Subcatchment 13S: Building 6

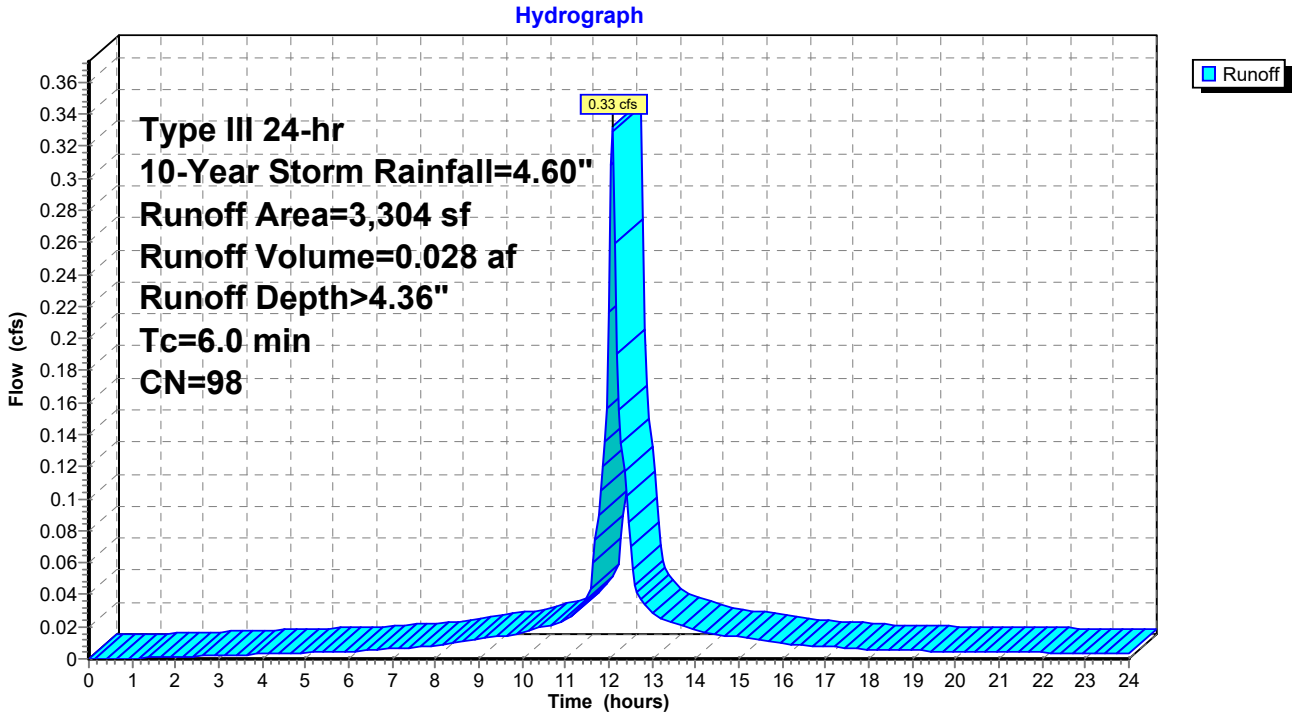
Runoff = 0.33 cfs @ 12.09 hrs, Volume= 0.028 af, Depth> 4.36"
Routed to Pond 2P : DMH 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	3,304	98	Roof
	3,304		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 13S: Building 6



Summary for Subcatchment 14S: Building 6B North

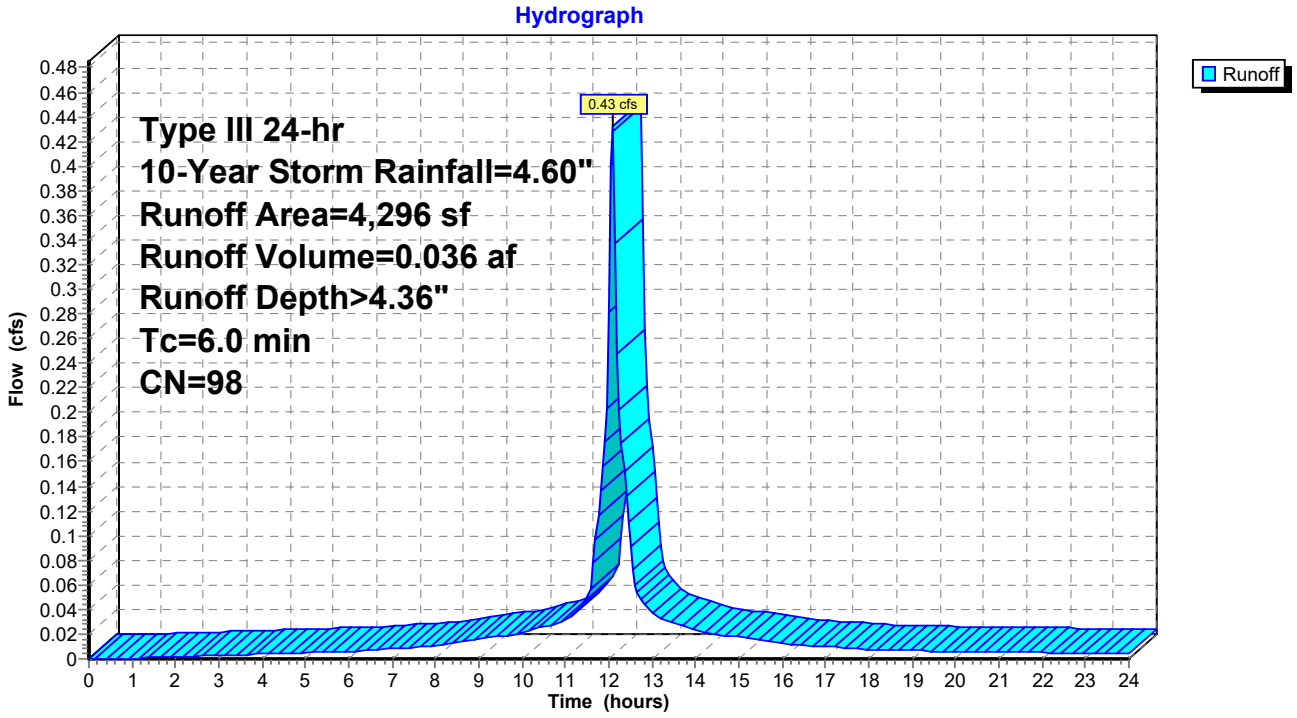
Runoff = 0.43 cfs @ 12.09 hrs, Volume= 0.036 af, Depth> 4.36"
Routed to Pond 6P : CB27

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	4,296	98	Roof
	4,296		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 14S: Building 6B North



Summary for Subcatchment 15S: Building 6B South

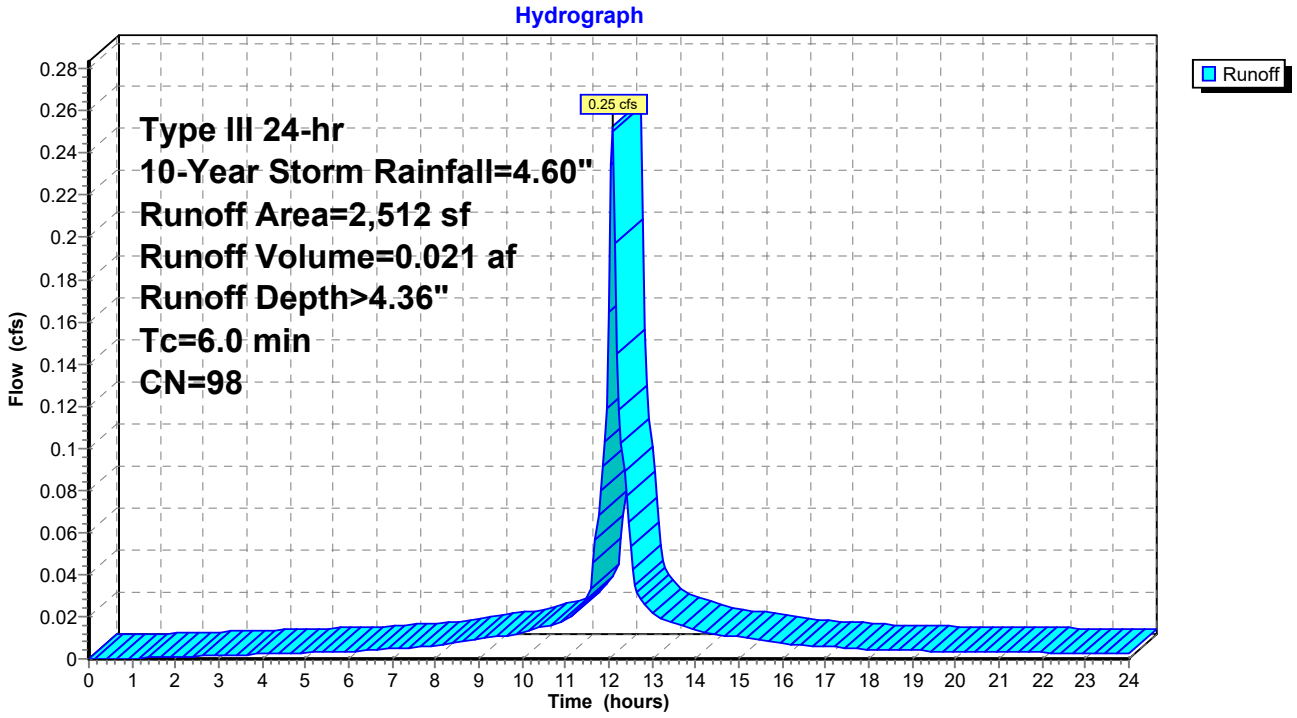
Runoff = 0.25 cfs @ 12.09 hrs, Volume= 0.021 af, Depth> 4.36"
Routed to Pond 6P : CB27

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	2,512	98	Roof
	2,512		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 15S: Building 6B South



Summary for Subcatchment 16S: Plaza between Blocks 1 & 2

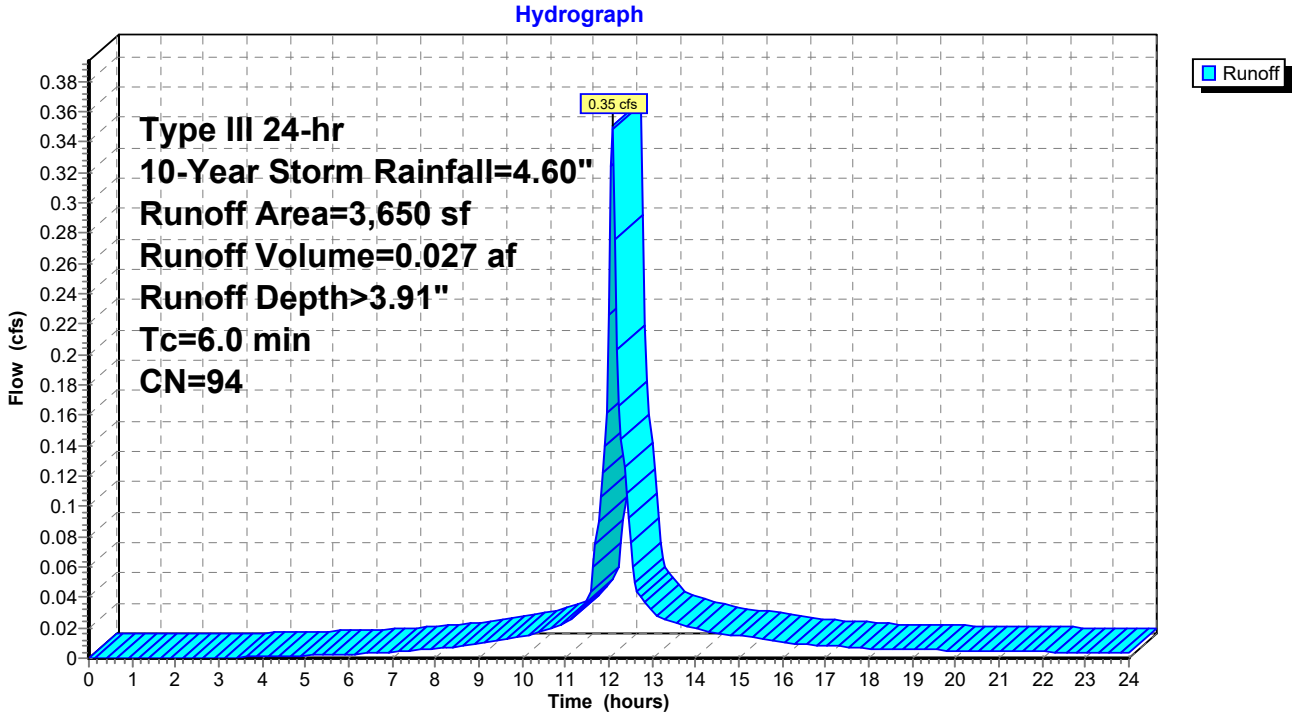
Runoff = 0.35 cfs @ 12.09 hrs, Volume= 0.027 af, Depth> 3.91"
Routed to Pond 2P : DMH 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	2,768	98	Impervious
	882	80	>75% Grass cover, Good, HSG D
	3,650	94	Weighted Average
	882		24.16% Pervious Area
	2,768		75.84% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 16S: Plaza between Blocks 1 & 2



Summary for Subcatchment 17S: Shared Street - Trench Drain

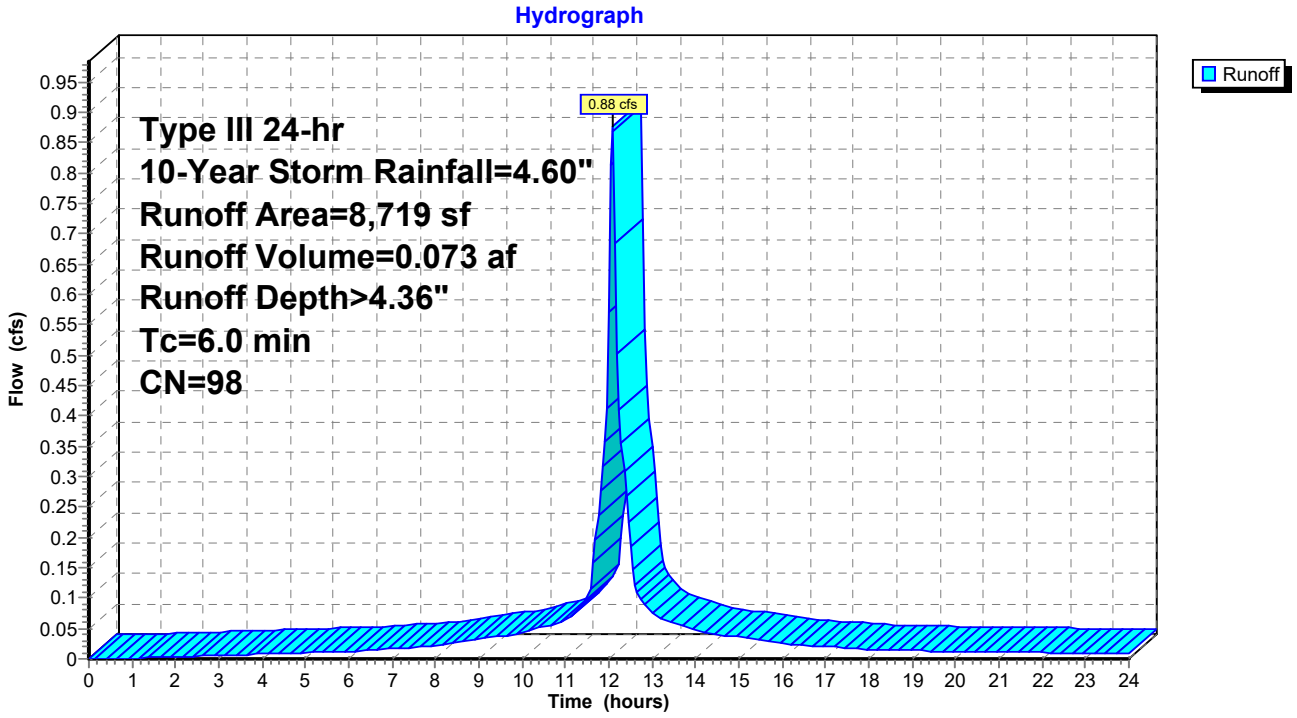
Runoff = 0.88 cfs @ 12.09 hrs, Volume= 0.073 af, Depth> 4.36"
Routed to Pond 6P : CB27

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	8,719	98	Impervious
	8,719		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 17S: Shared Street - Trench Drain



Summary for Subcatchment 18S: Plaza between Blocks 2 & 4 and Upper Thames St

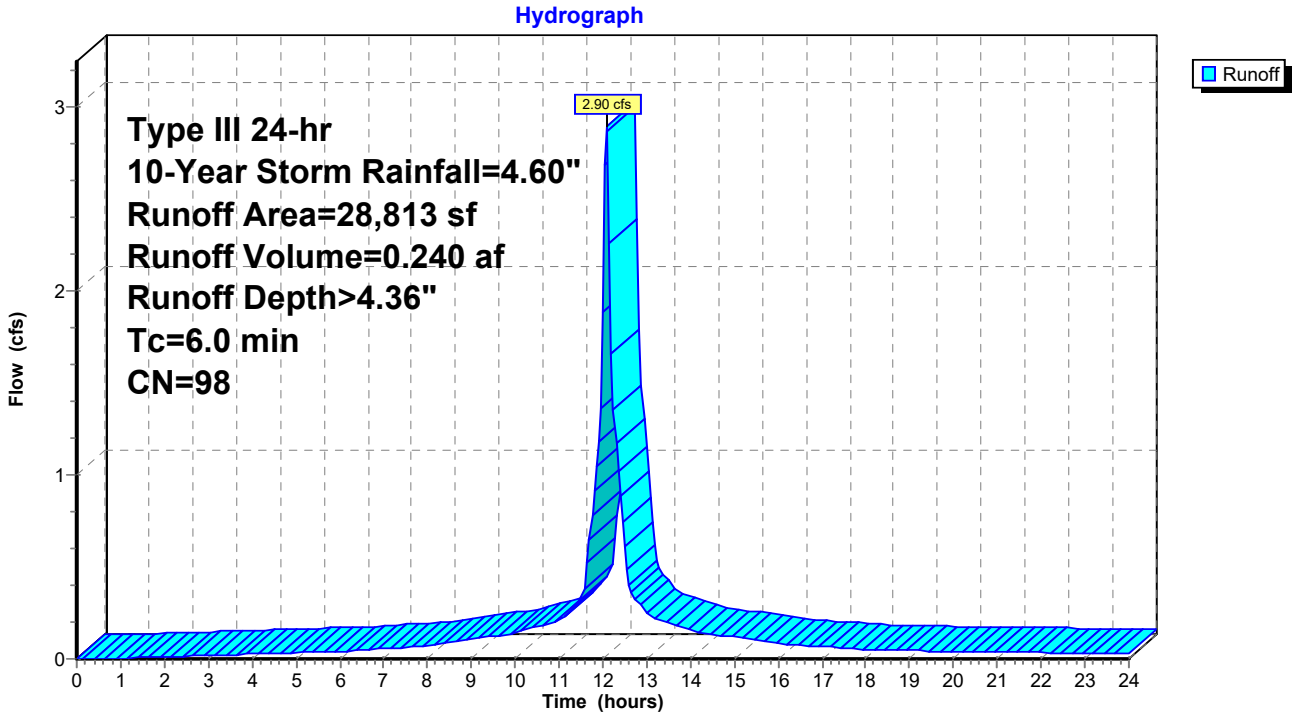
Runoff = 2.90 cfs @ 12.09 hrs, Volume= 0.240 af, Depth> 4.36"
Routed to Pond 6P : CB27

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	28,813	98	Impervious
	28,813		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 18S: Plaza between Blocks 2 & 4 and Upper Thames St



Summary for Subcatchment 19S: Block 4 Building

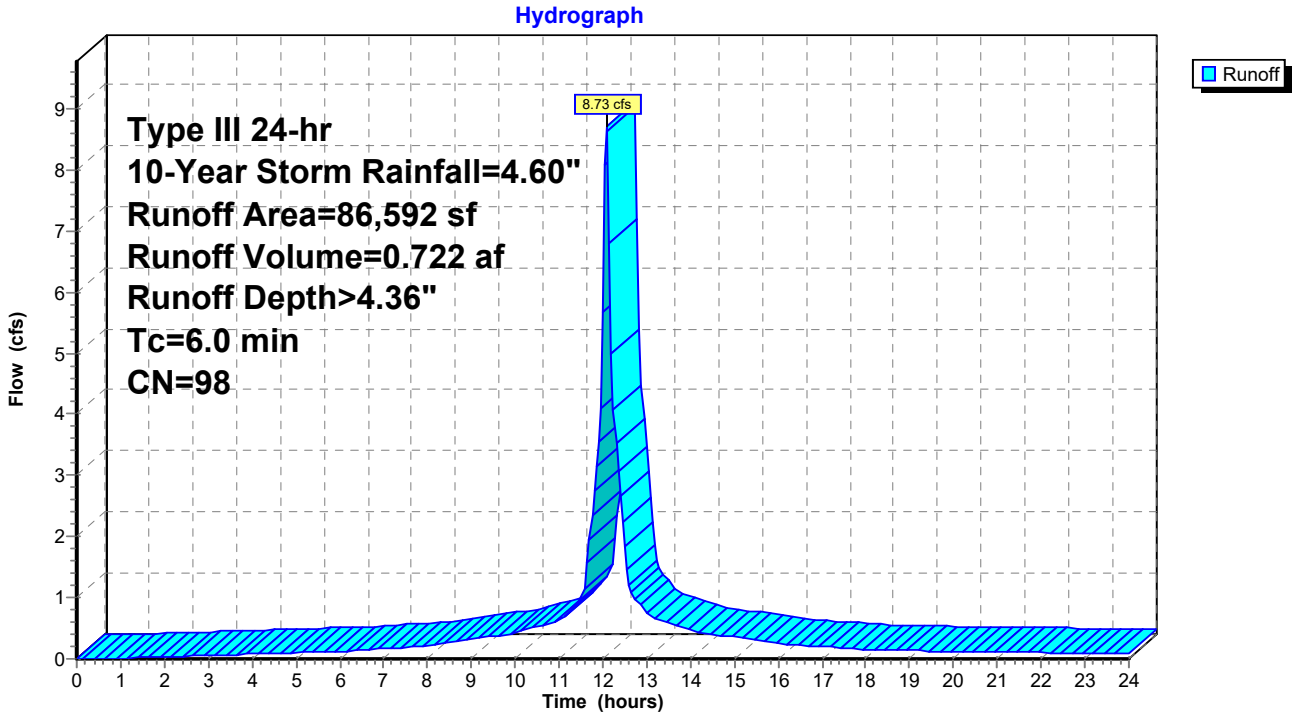
Runoff = 8.73 cfs @ 12.09 hrs, Volume= 0.722 af, Depth> 4.36"
Routed to Pond 6P : CB27

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	86,592	98	Roof
	86,592		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 19S: Block 4 Building



Summary for Subcatchment 20S: Direct to R-Tank

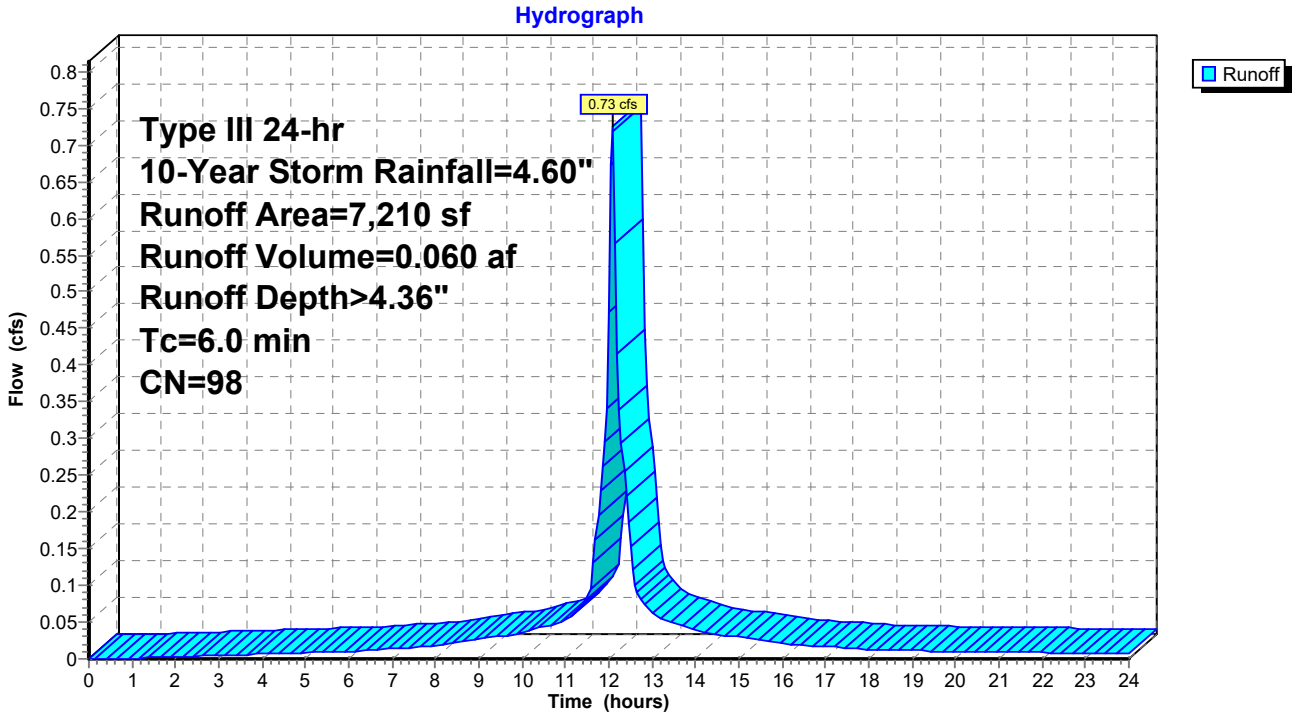
Runoff = 0.73 cfs @ 12.09 hrs, Volume= 0.060 af, Depth> 4.36"
Routed to Pond 8P : R-Tank 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	7,210	98	Impervious
	7,210		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 20S: Direct to R-Tank



Summary for Subcatchment 21S: Plaza along Building 4A at Fore Street

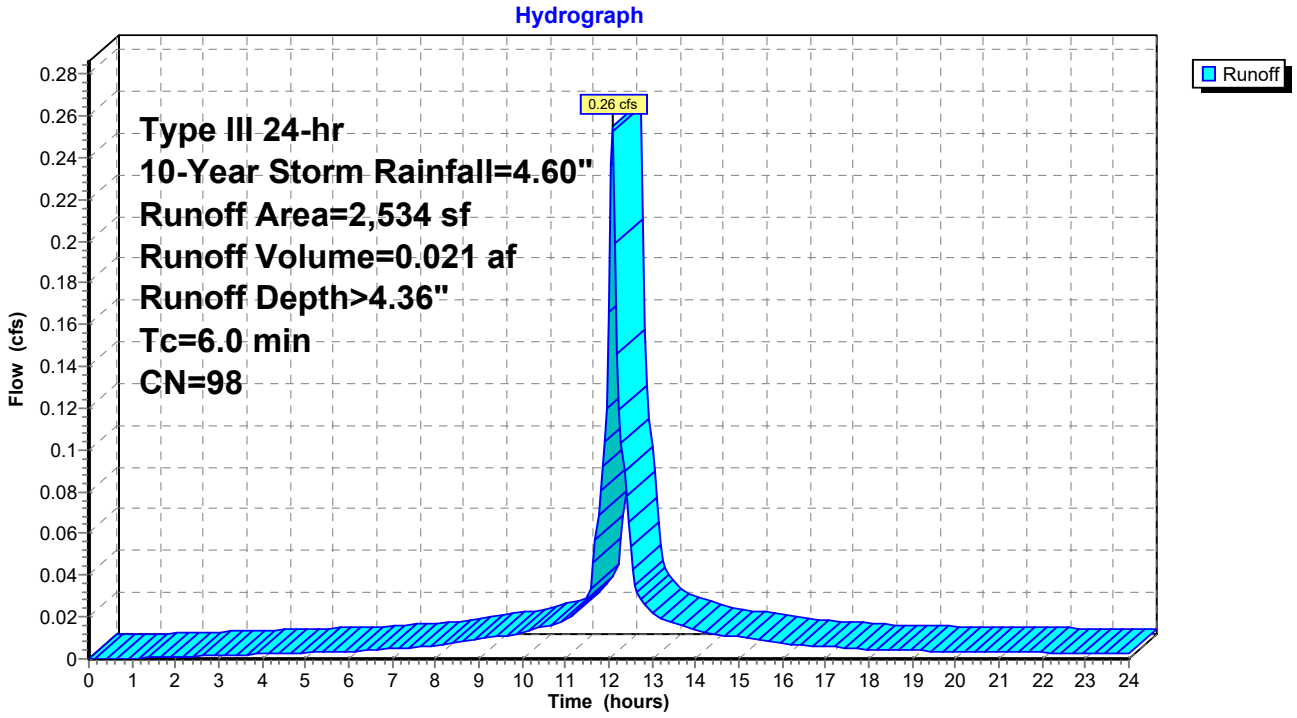
Runoff = 0.26 cfs @ 12.09 hrs, Volume= 0.021 af, Depth> 4.36"
Routed to Link 3L : Fore Street

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	2,534	98	Impervious
	2,534		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 21S: Plaza along Building 4A at Fore Street



Summary for Subcatchment 22S: Block 6 Building

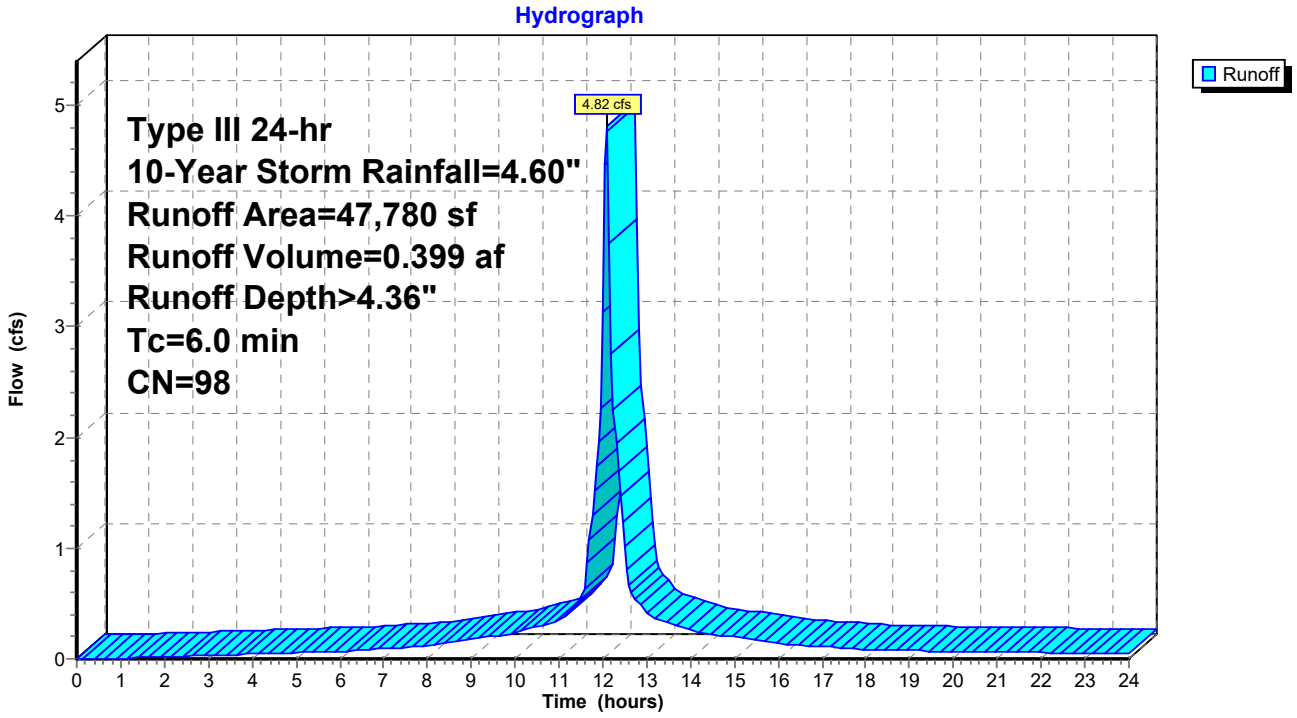
Runoff = 4.82 cfs @ 12.09 hrs, Volume= 0.399 af, Depth> 4.36"
Routed to Pond 13P : DMH-13 (Outfall #2)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	47,780	98	Roof
	47,780		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 22S: Block 6 Building



Summary for Subcatchment 23S: Block 5 Building to R-Tank

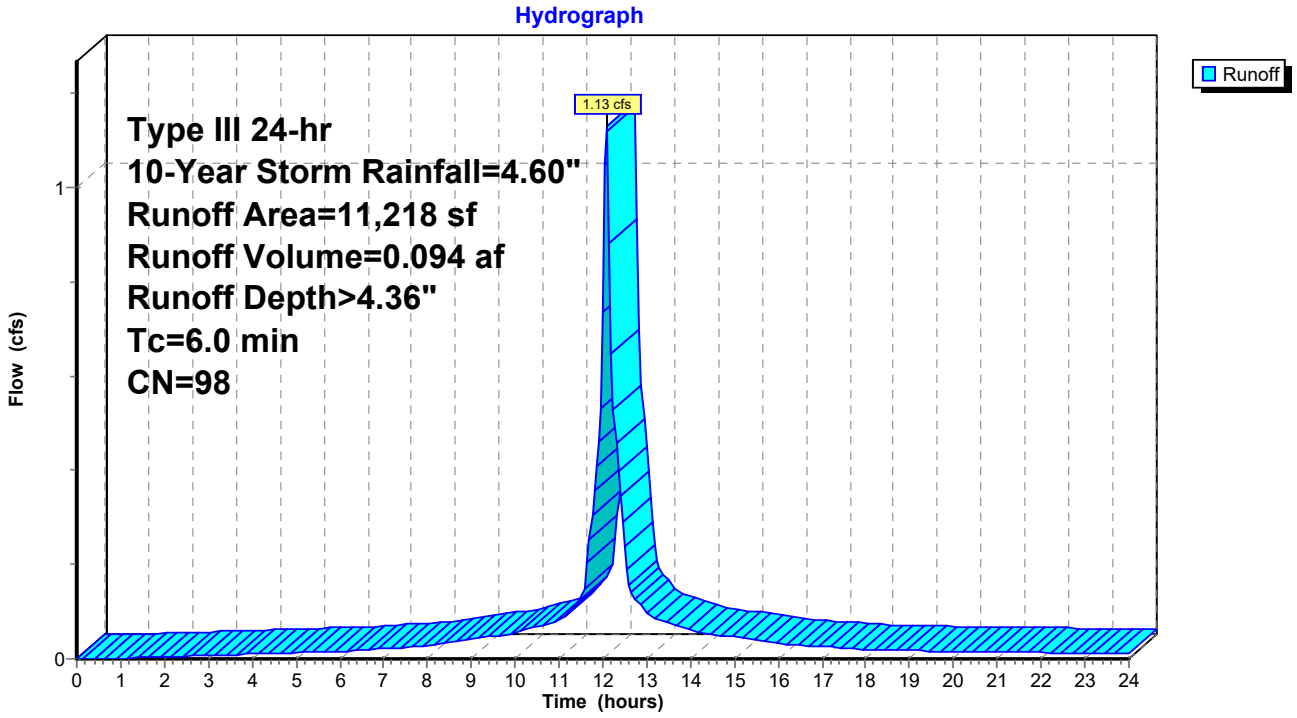
Runoff = 1.13 cfs @ 12.09 hrs, Volume= 0.094 af, Depth> 4.36"
Routed to Pond 6P : CB27

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	11,218	98	Impervious
	11,218		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 23S: Block 5 Building to R-Tank



Summary for Subcatchment 24S: Block 5 Building

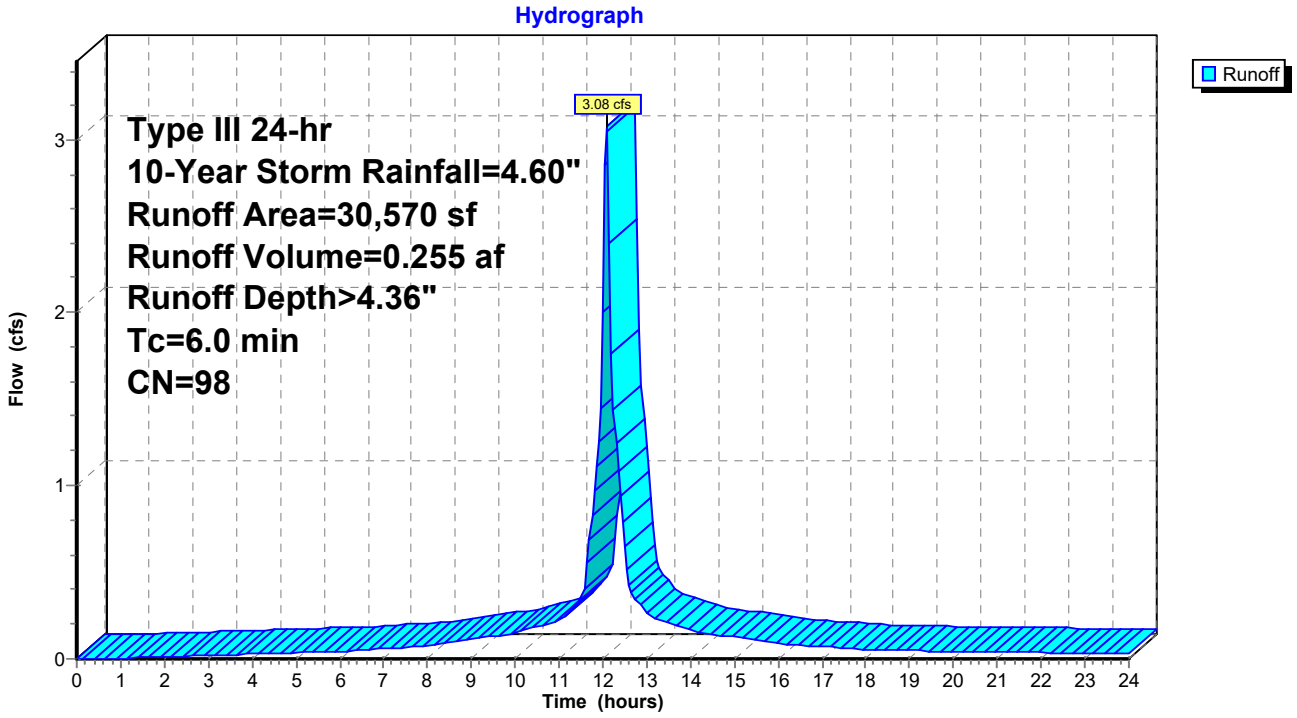
Runoff = 3.08 cfs @ 12.09 hrs, Volume= 0.255 af, Depth> 4.36"
Routed to Pond 13P : DMH-13 (Outfall #2)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	30,570	98	Impervious
	30,570		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 24S: Block 5 Building



Summary for Subcatchment 25S: Southern Plaza

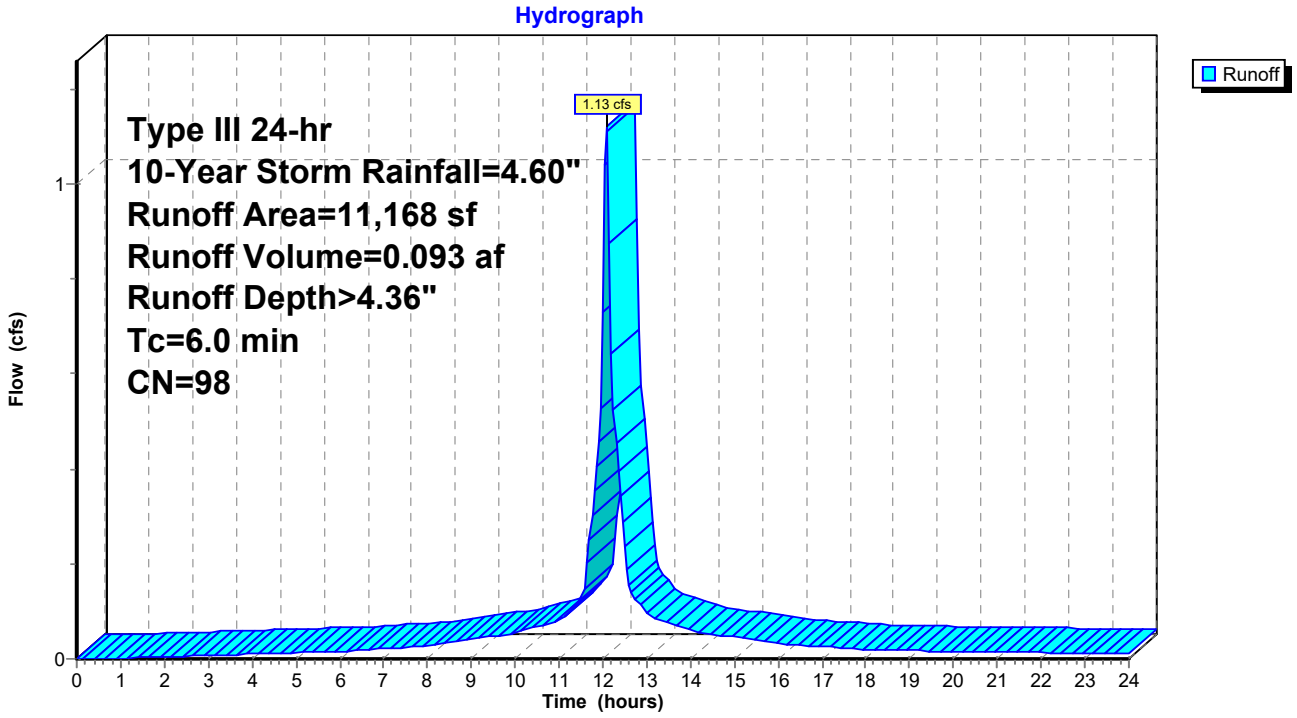
Runoff = 1.13 cfs @ 12.09 hrs, Volume= 0.093 af, Depth> 4.36"
Routed to Pond 13P : DMH-13 (Outfall #2)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	11,168	98	Impervious
	11,168		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 25S: Southern Plaza



Summary for Subcatchment 26S: Plaza along Townhouse at Fore Street

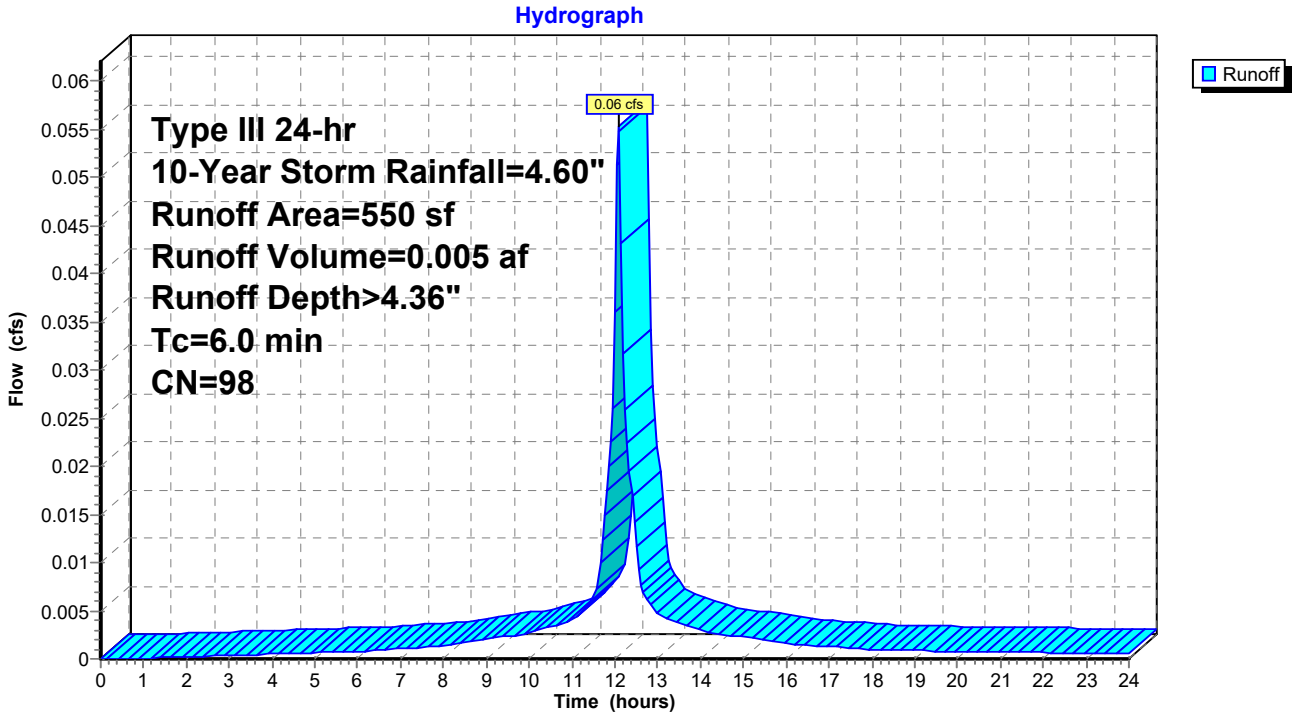
Runoff = 0.06 cfs @ 12.09 hrs, Volume= 0.005 af, Depth> 4.36"
Routed to Link 3L : Fore Street

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	550	98	Impervious
	550		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 26S: Plaza along Townhouse at Fore Street



Summary for Subcatchment 27S: Drainage from off-site residential

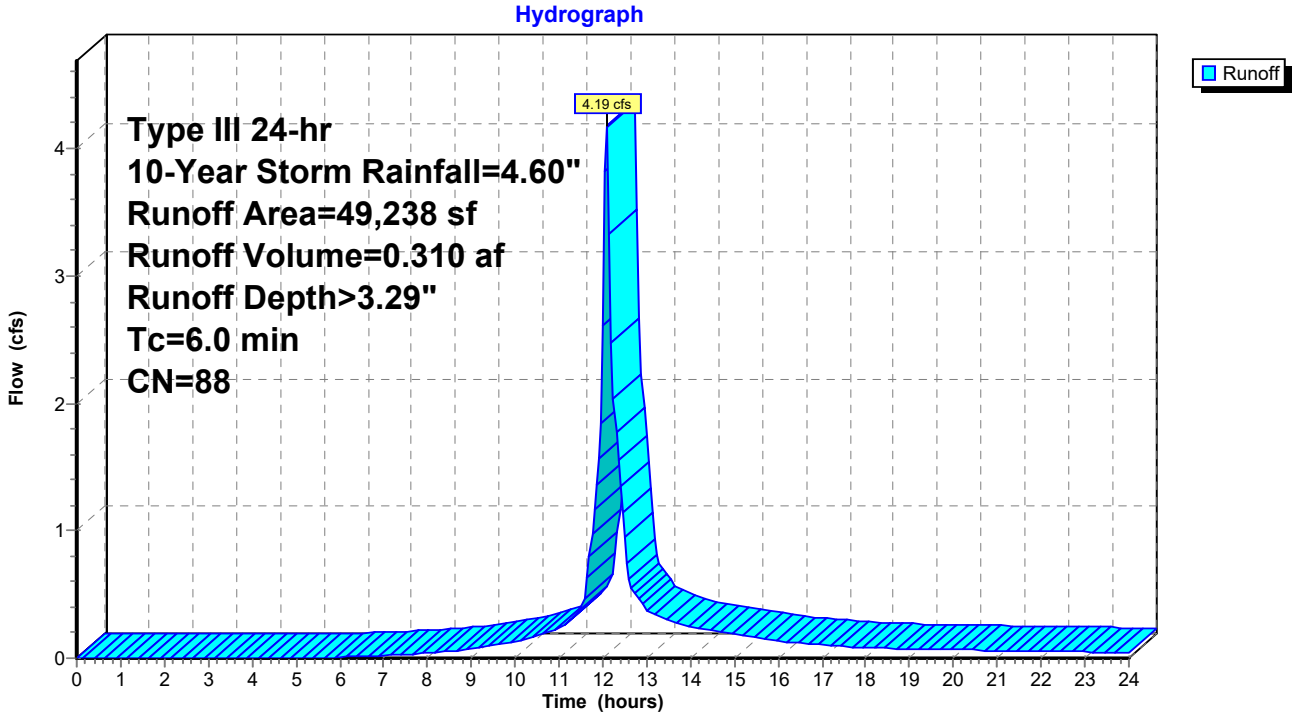
Runoff = 4.19 cfs @ 12.09 hrs, Volume= 0.310 af, Depth> 3.29"
Routed to Pond 13P : DMH-13 (Outfall #2)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	21,588	98	Impervious
	27,650	80	>75% Grass cover, Good, HSG D
	49,238	88	Weighted Average
	27,650		56.16% Pervious Area
	21,588		43.84% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 27S: Drainage from off-site residential



Summary for Subcatchment 28S: Waterfront

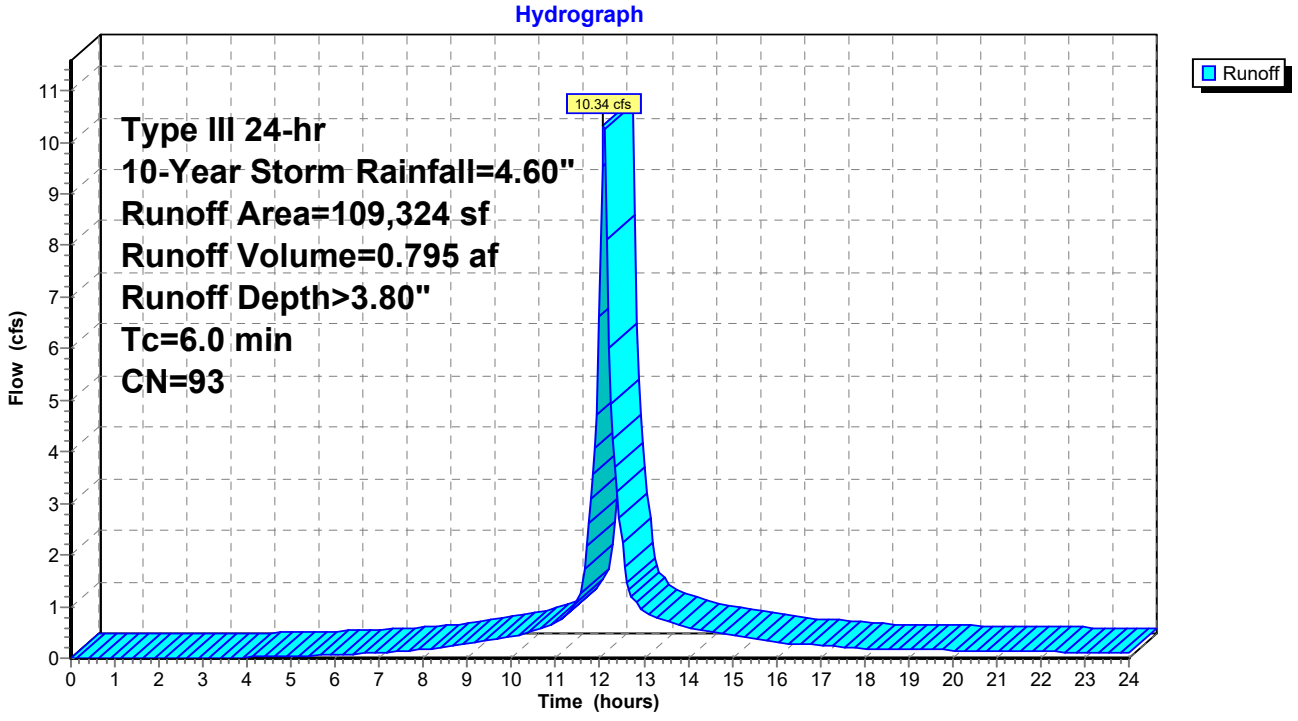
Runoff = 10.34 cfs @ 12.09 hrs, Volume= 0.795 af, Depth> 3.80"
Routed to Link 2L : Fore River

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	78,916	98	Impervious
	30,408	80	>75% Grass cover, Good, HSG D
	109,324	93	Weighted Average
	30,408		27.81% Pervious Area
	78,916		72.19% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 28S: Waterfront



Summary for Subcatchment 29S: Block 6 Building

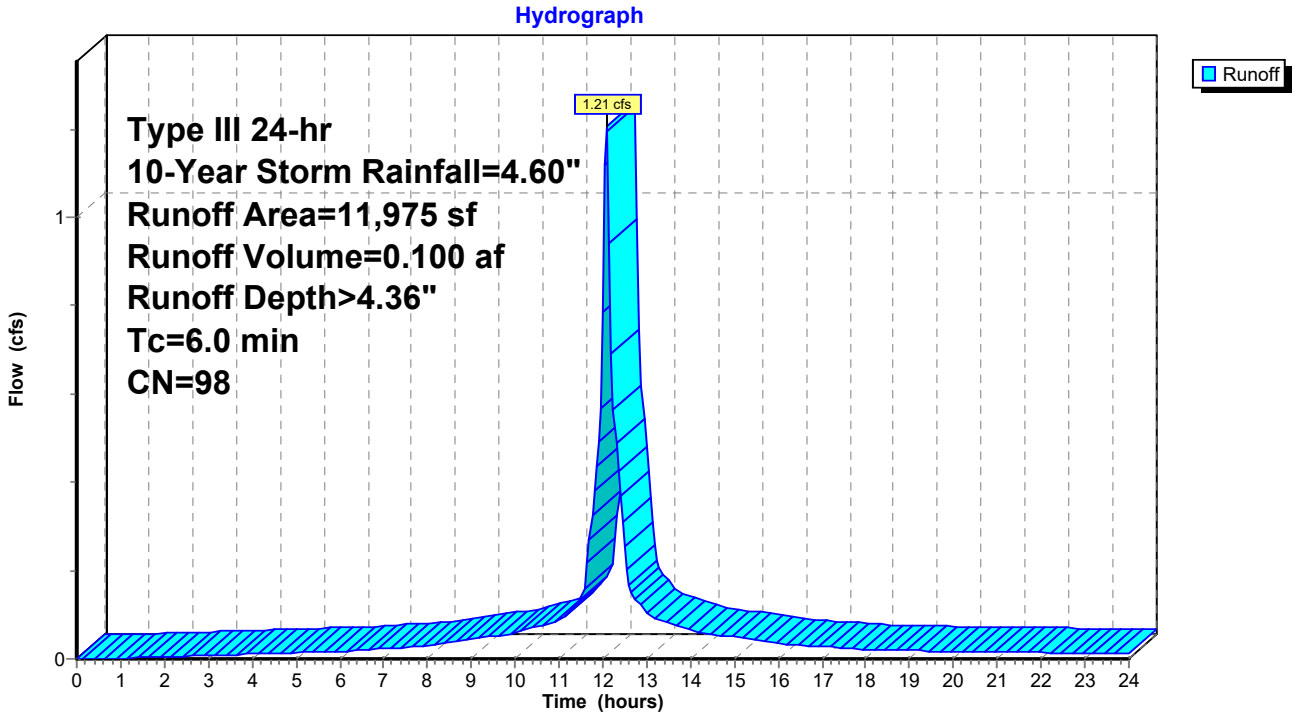
Runoff = 1.21 cfs @ 12.09 hrs, Volume= 0.100 af, Depth> 4.36"
Routed to Pond 24P : Filterra 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	11,975	98	Roof
	11,975		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 29S: Block 6 Building



Summary for Subcatchment 30S: Block 6 Building

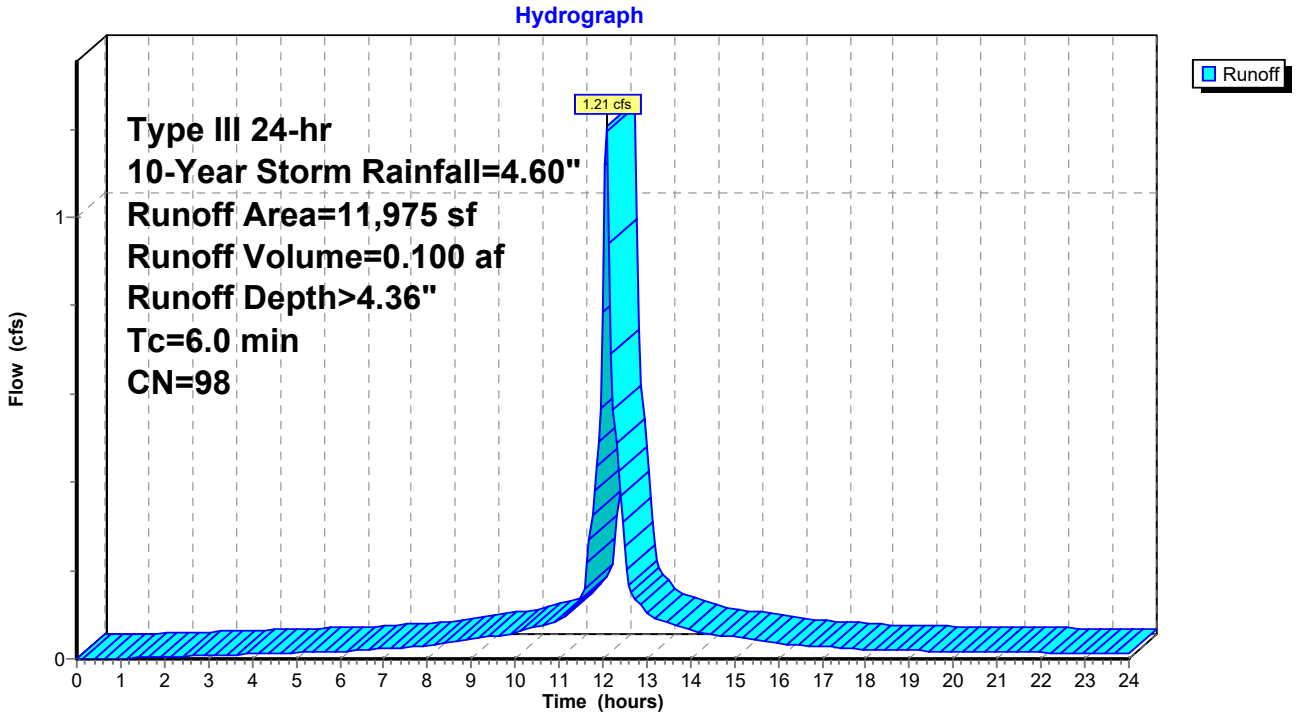
Runoff = 1.21 cfs @ 12.09 hrs, Volume= 0.100 af, Depth> 4.36"
Routed to Pond 28P : Filterra 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	11,975	98	Roof
	11,975		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 30S: Block 6 Building



Summary for Pond 1P: DMH 1

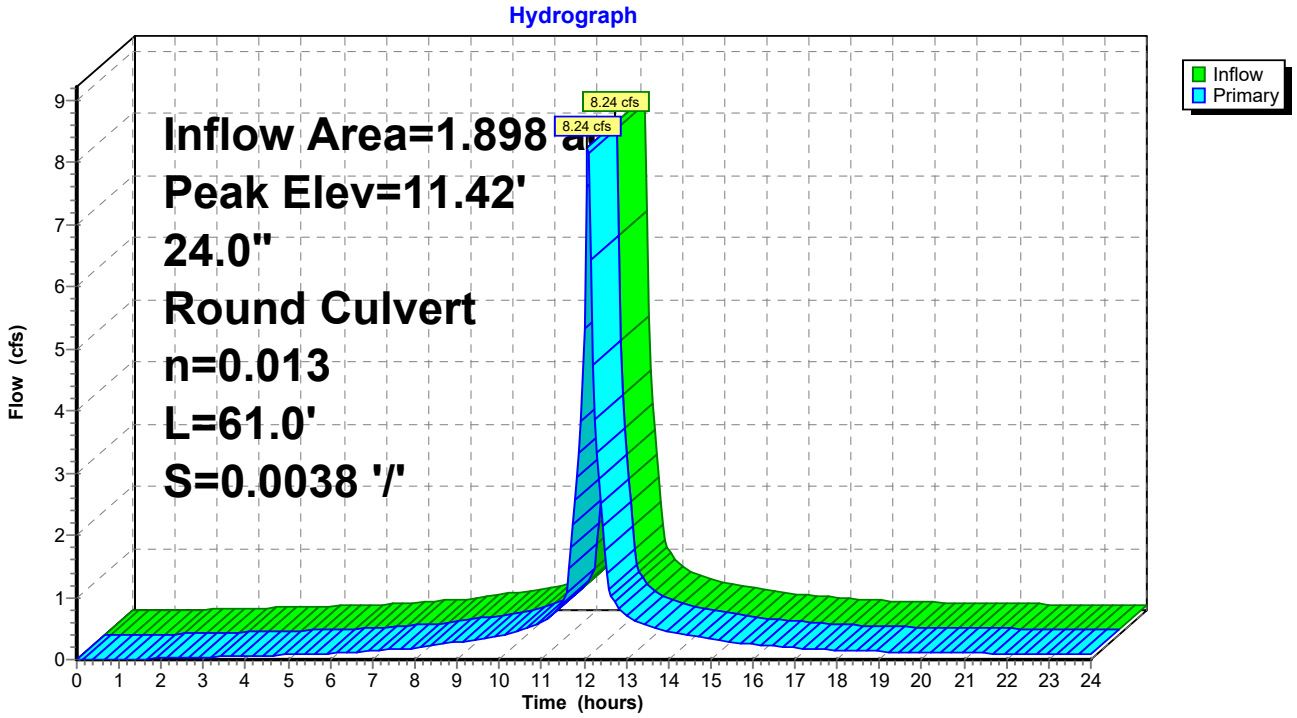
Inflow Area = 1.898 ac, 93.68% Impervious, Inflow Depth > 4.23" for 10-Year Storm event
Inflow = 8.24 cfs @ 12.09 hrs, Volume= 0.669 af
Outflow = 8.24 cfs @ 12.09 hrs, Volume= 0.669 af, Atten= 0%, Lag= 0.0 min
Primary = 8.24 cfs @ 12.09 hrs, Volume= 0.669 af
Routed to Pond 2P : DMH 2

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 11.42' @ 12.09 hrs
Flood Elev= 14.71'

Device	Routing	Invert	Outlet Devices
#1	Primary	9.77'	**24.0" Round Culvert** L= 61.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 9.77' / 9.54' S= 0.0038 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=8.01 cfs @ 12.09 hrs HW=11.39' (Free Discharge)
1=Culvert (Barrel Controls 8.01 cfs @ 4.00 fps)

Pond 1P: DMH 1



Summary for Pond 2P: DMH 2

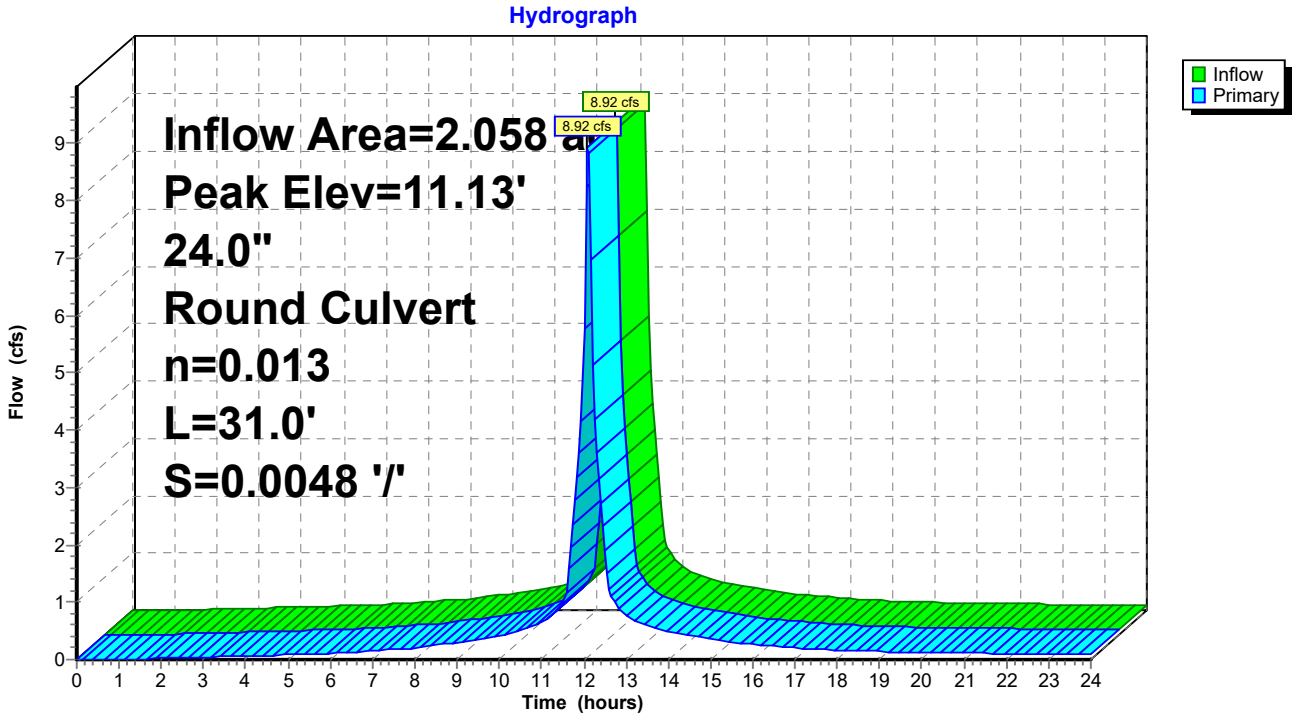
Inflow Area = 2.058 ac, 93.19% Impervious, Inflow Depth > 4.22" for 10-Year Storm event
Inflow = 8.92 cfs @ 12.09 hrs, Volume= 0.723 af
Outflow = 8.92 cfs @ 12.09 hrs, Volume= 0.723 af, Atten= 0%, Lag= 0.0 min
Primary = 8.92 cfs @ 12.09 hrs, Volume= 0.723 af
Routed to Pond 3P : Storm Structure

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 11.13' @ 12.09 hrs
Flood Elev= 14.63'

Device	Routing	Invert	Outlet Devices
#1	Primary	9.50'	**24.0" Round Culvert** L= 31.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 9.50' / 9.35' S= 0.0048 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=8.68 cfs @ 12.09 hrs HW=11.10' (Free Discharge)
1=Culvert (Barrel Controls 8.68 cfs @ 4.40 fps)

Pond 2P: DMH 2



Summary for Pond 3P: Storm Structure

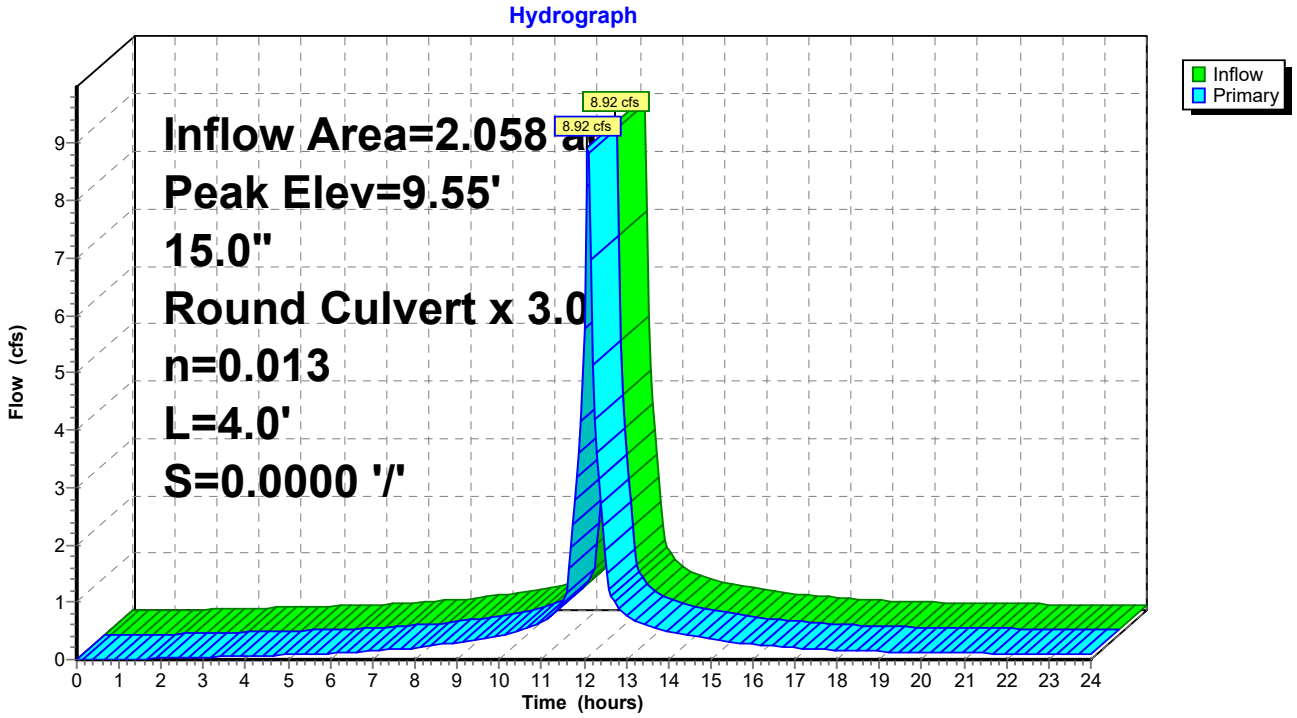
Inflow Area = 2.058 ac, 93.19% Impervious, Inflow Depth > 4.22" for 10-Year Storm event
Inflow = 8.92 cfs @ 12.09 hrs, Volume= 0.723 af
Outflow = 8.92 cfs @ 12.09 hrs, Volume= 0.723 af, Atten= 0%, Lag= 0.0 min
Primary = 8.92 cfs @ 12.09 hrs, Volume= 0.723 af
Routed to Pond 4P : R-Tank 1

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 9.55' @ 12.09 hrs
Flood Elev= 14.51'

Device	Routing	Invert	Outlet Devices
#1	Primary	8.35'	**15.0" Round Culvert X 3.00** L= 4.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 8.35' / 8.35' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=8.68 cfs @ 12.09 hrs HW=9.53' (Free Discharge)
1=Culvert (Barrel Controls 8.68 cfs @ 3.11 fps)

Pond 3P: Storm Structure



Summary for Pond 4P: R-Tank 1

Inflow Area = 2.058 ac, 93.19% Impervious, Inflow Depth > 4.22" for 10-Year Storm event
Inflow = 8.92 cfs @ 12.09 hrs, Volume= 0.723 af
Outflow = 8.00 cfs @ 12.13 hrs, Volume= 0.716 af, Atten= 10%, Lag= 2.4 min
Primary = 8.00 cfs @ 12.13 hrs, Volume= 0.716 af
Routed to Pond 10P : DMH 4

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 8.81' @ 12.13 hrs Surf.Area= 1,162 sf Storage= 2,076 cf
Flood Elev= 12.00' Surf.Area= 1,162 sf Storage= 3,266 cf

Plug-Flow detention time= 18.7 min calculated for 0.714 af (99% of inflow)
Center-of-Mass det. time= 12.0 min (769.6 - 757.6)

Volume	Invert	Avail.Storage	Storage Description
#1	6.50'	892 cf	**Stone Envelope (Prismatic)** Listed below (Recalc) 4,729 cf Overall - 2,499 cf Embedded = 2,231 cf x 40.0% Voids
#2	6.75'	2,374 cf	**R-Tank Double Modules (Prismatic)** Listed below (Recalc) Inside #1 2,499 cf Overall x 95.0% Voids
		3,266 cf	Total Available Storage

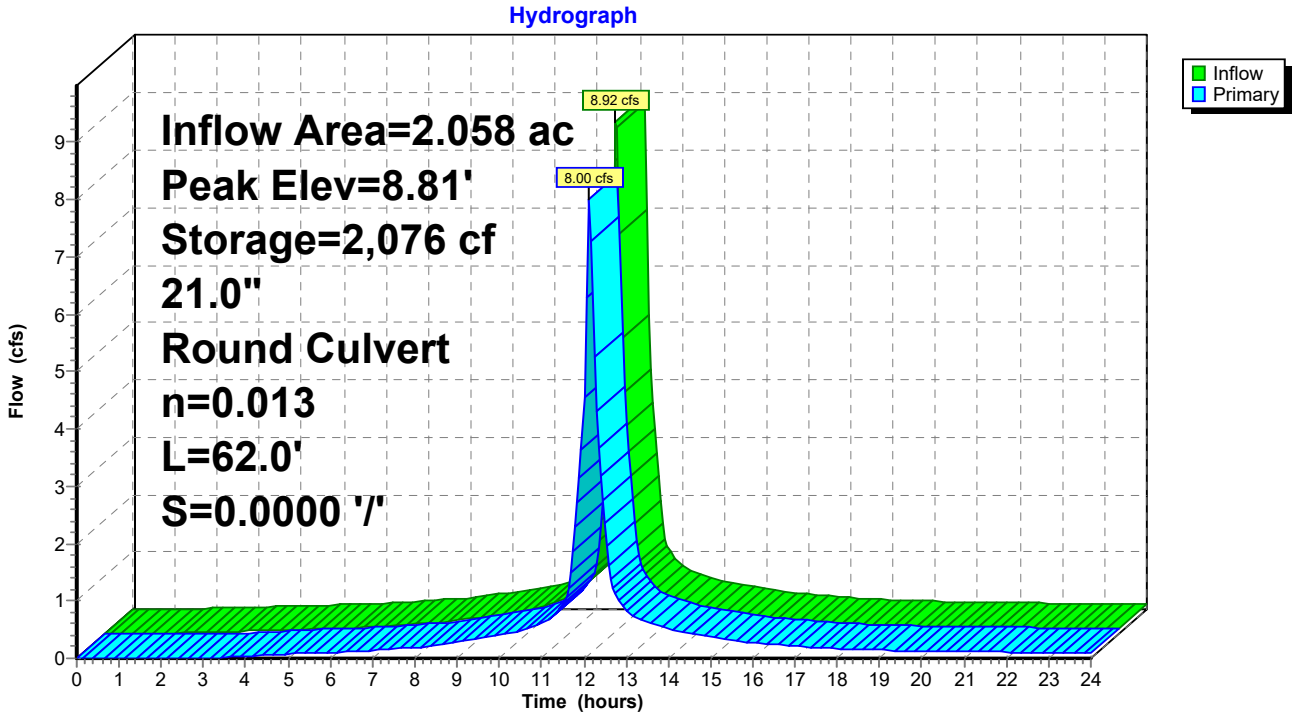
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
6.50	1,162	0	0
10.57	1,162	4,729	4,729

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
6.75	886	0	0
9.57	886	2,499	2,499

Device	Routing	Invert	Outlet Devices
#1	Primary	6.75'	**21.0" Round Culvert to Filter** L= 62.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 6.75' / 6.75' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 2.41 sf

Primary OutFlow Max=7.84 cfs @ 12.13 hrs HW=8.78' (Free Discharge)
↑—**1=Culvert to Filter** (Barrel Controls 7.84 cfs @ 3.53 fps)

Pond 4P: R-Tank 1



Summary for Pond 5P: DMH-11

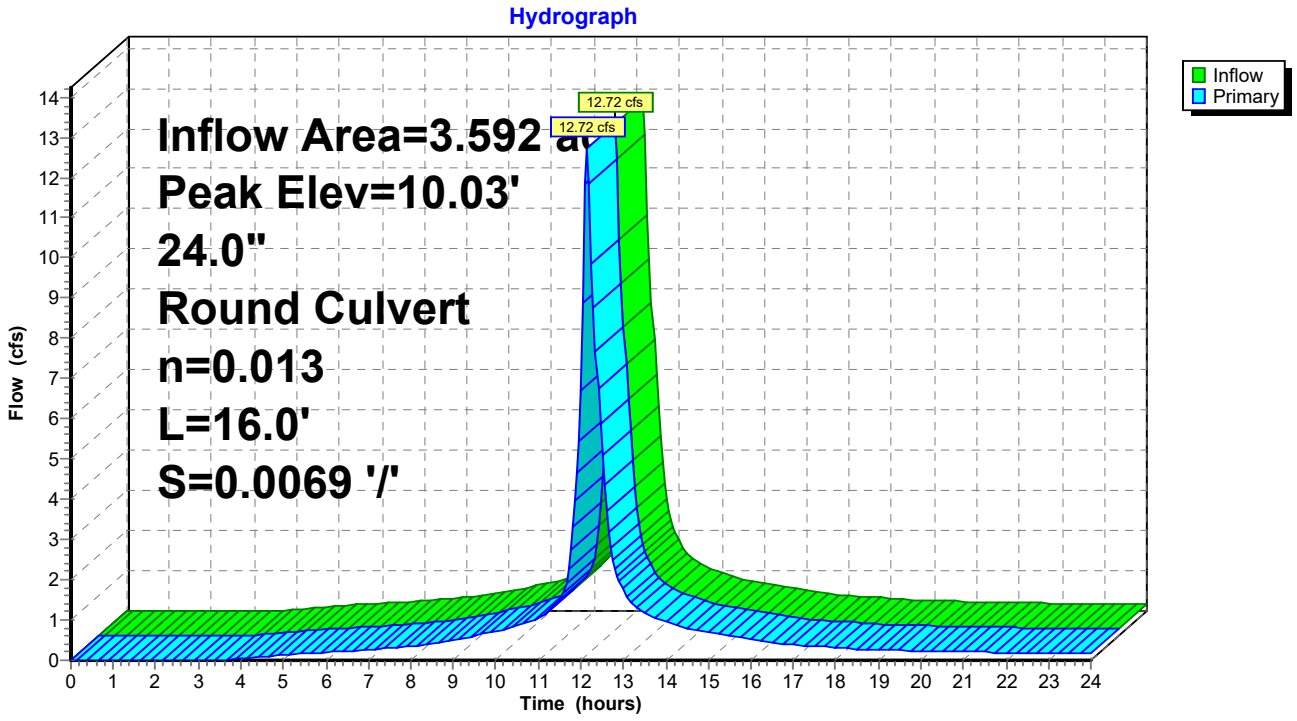
Inflow Area = 3.592 ac,100.00% Impervious, Inflow Depth > 4.28" for 10-Year Storm event
Inflow = 12.72 cfs @ 12.15 hrs, Volume= 1.280 af
Outflow = 12.72 cfs @ 12.15 hrs, Volume= 1.280 af, Atten= 0%, Lag= 0.0 min
Primary = 12.72 cfs @ 12.15 hrs, Volume= 1.280 af
Routed to Pond 12P : Jellyfish 2 JFPD0806-7-2

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 10.03' @ 12.15 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	7.82'	**24.0" Round Culvert** L= 16.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 7.82' / 7.71' S= 0.0069 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=12.71 cfs @ 12.15 hrs HW=10.03' (Free Discharge)
1=Culvert (Barrel Controls 12.71 cfs @ 4.56 fps)

Pond 5P: DMH-11



Summary for Pond 6P: CB27

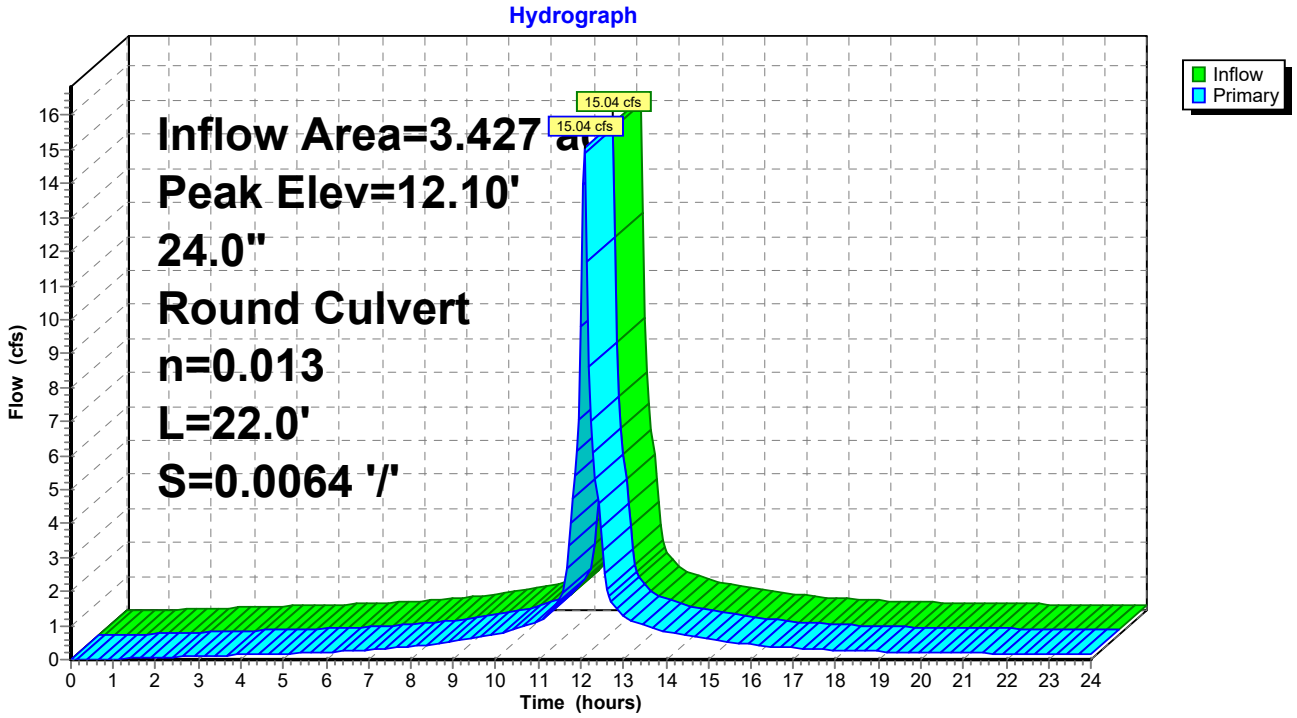
Inflow Area = 3.427 ac,100.00% Impervious, Inflow Depth > 4.36" for 10-Year Storm event
Inflow = 15.04 cfs @ 12.09 hrs, Volume= 1.245 af
Outflow = 15.04 cfs @ 12.09 hrs, Volume= 1.245 af, Atten= 0%, Lag= 0.0 min
Primary = 15.04 cfs @ 12.09 hrs, Volume= 1.245 af
Routed to Pond 7P : Storm Structure

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 12.10' @ 12.09 hrs
Flood Elev= 14.57'

Device	Routing	Invert	Outlet Devices
#1	Primary	9.53'	**24.0" Round Culvert** L= 22.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 9.53' / 9.39' S= 0.0064 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=14.65 cfs @ 12.09 hrs HW=12.04' (Free Discharge)
1=Culvert (Inlet Controls 14.65 cfs @ 4.66 fps)

Pond 6P: CB27



Summary for Pond 7P: Storm Structure

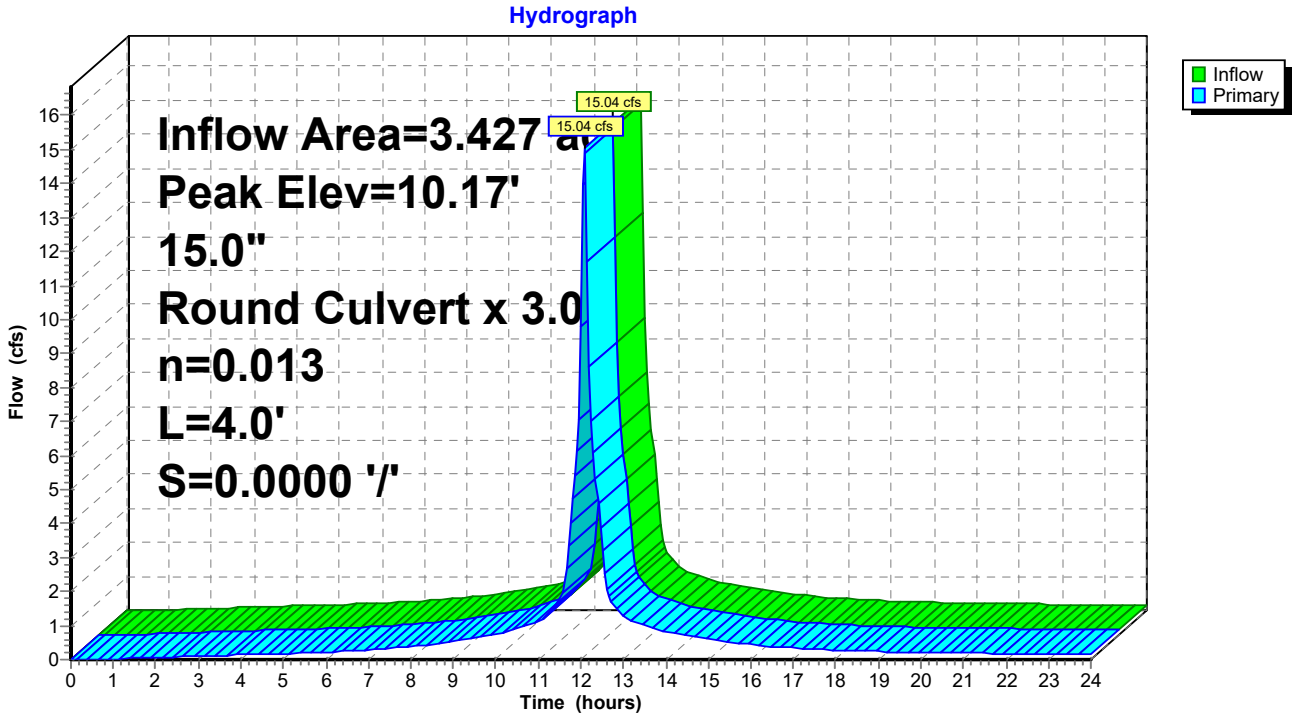
Inflow Area = 3.427 ac,100.00% Impervious, Inflow Depth > 4.36" for 10-Year Storm event
Inflow = 15.04 cfs @ 12.09 hrs, Volume= 1.245 af
Outflow = 15.04 cfs @ 12.09 hrs, Volume= 1.245 af, Atten= 0%, Lag= 0.0 min
Primary = 15.04 cfs @ 12.09 hrs, Volume= 1.245 af
Routed to Pond 8P : R-Tank 2

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 10.17' @ 12.08 hrs
Flood Elev= 14.25'

Device	Routing	Invert	Outlet Devices
#1	Primary	8.39'	**15.0" Round Culvert X 3.00** L= 4.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 8.39' / 8.39' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=14.65 cfs @ 12.09 hrs HW=10.13' (Free Discharge)
1=Culvert (Barrel Controls 14.65 cfs @ 3.98 fps)

Pond 7P: Storm Structure



Summary for Pond 8P: R-Tank 2

Inflow Area = 3.592 ac,100.00% Impervious, Inflow Depth > 4.36" for 10-Year Storm event
Inflow = 15.77 cfs @ 12.09 hrs, Volume= 1.306 af
Outflow = 12.72 cfs @ 12.15 hrs, Volume= 1.280 af, Atten= 19%, Lag= 3.8 min
Primary = 12.72 cfs @ 12.15 hrs, Volume= 1.280 af
Routed to Pond 5P : DMH-11

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 10.53' @ 12.15 hrs Surf.Area= 3,128 sf Storage= 6,896 cf
Flood Elev= 12.71' Surf.Area= 3,128 sf Storage= 8,290 cf

Plug-Flow detention time= 35.4 min calculated for 1.280 af (98% of inflow)
Center-of-Mass det. time= 23.1 min (772.1 - 749.0)

Volume	Invert	Avail.Storage	Storage Description
#1	7.57'	2,767 cf	**Stone Envelope (Prismatic)** Listed below (Recalc) 12,731 cf Overall - 5,813 cf Embedded = 6,918 cf x 40.0% Voids
#2	7.82'	5,523 cf	**R-Tank Double Modules (Prismatic)** Listed below (Recalc) Inside #1 5,813 cf Overall x 95.0% Voids
		8,290 cf	Total Available Storage

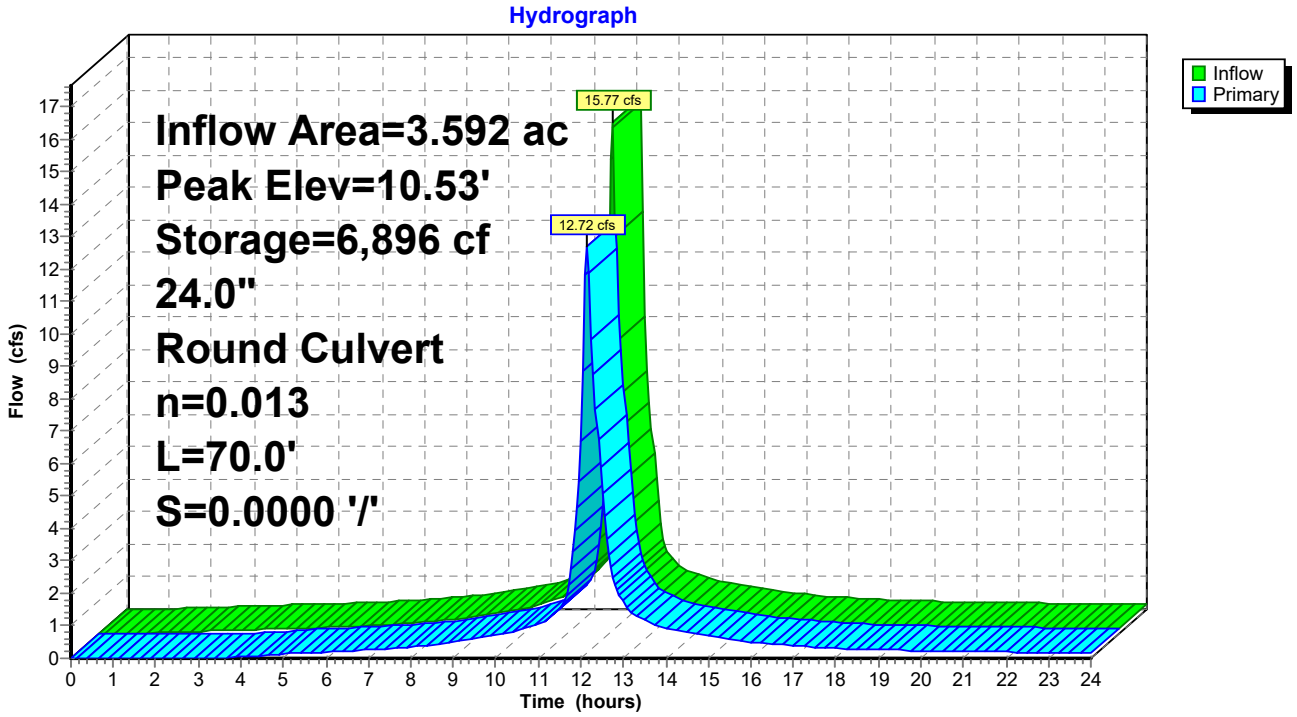
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
7.57	3,128	0	0
11.64	3,128	12,731	12,731

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
7.82	2,679	0	0
9.99	2,679	5,813	5,813

Device	Routing	Invert	Outlet Devices
#1	Primary	7.82'	**24.0" Round Culvert** L= 70.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 7.82' / 7.82' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=12.70 cfs @ 12.15 hrs HW=10.52' (Free Discharge)
1=Culvert (Barrel Controls 12.70 cfs @ 4.04 fps)

Pond 8P: R-Tank 2



Summary for Pond 9P: DMH-8 (Outfall #1)

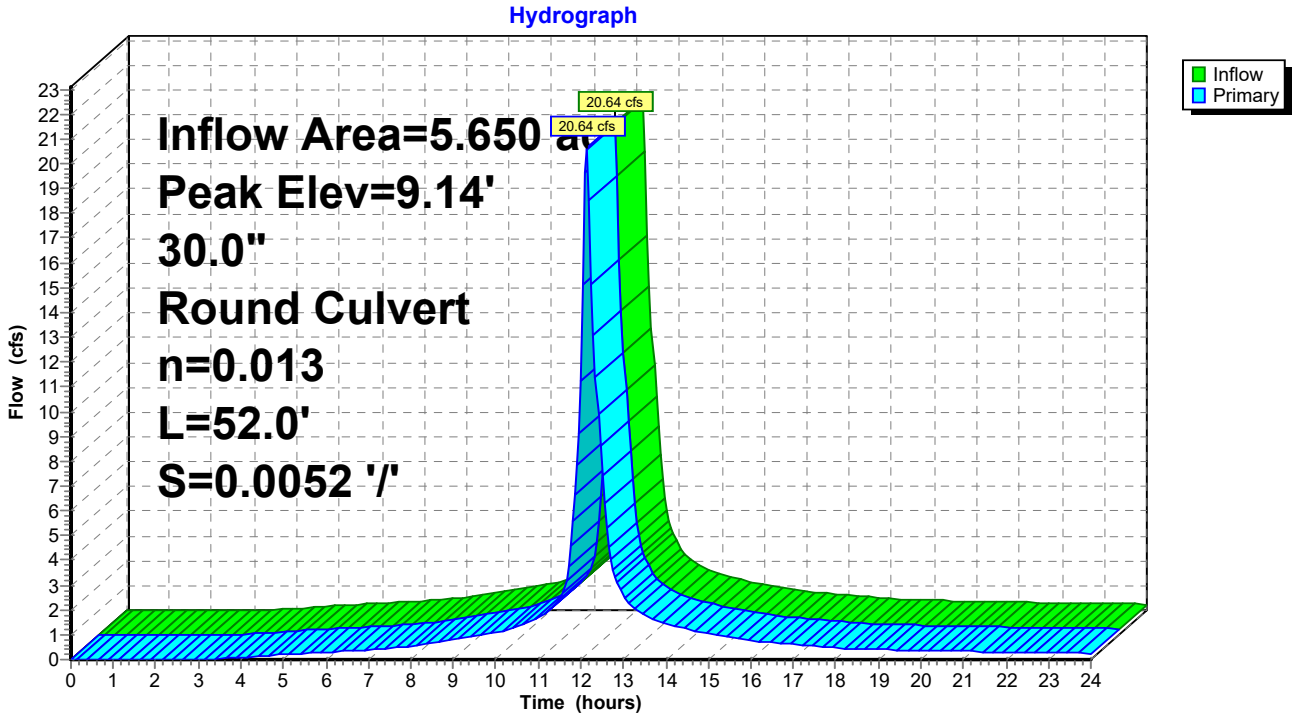
Inflow Area = 5.650 ac, 97.52% Impervious, Inflow Depth > 4.24" for 10-Year Storm event
Inflow = 20.64 cfs @ 12.14 hrs, Volume= 1.996 af
Outflow = 20.64 cfs @ 12.14 hrs, Volume= 1.996 af, Atten= 0%, Lag= 0.0 min
Primary = 20.64 cfs @ 12.14 hrs, Volume= 1.996 af
Routed to Link 2L : Fore River

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 9.14' @ 12.14 hrs
Flood Elev= 11.78'

Device	Routing	Invert	Outlet Devices
#1	Primary	6.57'	**30.0" Round Culvert** L= 52.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 6.57' / 6.30' S= 0.0052 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 4.91 sf

Primary OutFlow Max=20.41 cfs @ 12.14 hrs HW=9.12' (Free Discharge)
1=Culvert (Barrel Controls 20.41 cfs @ 5.07 fps)

Pond 9P: DMH-8 (Outfall #1)



Summary for Pond 10P: DMH 4

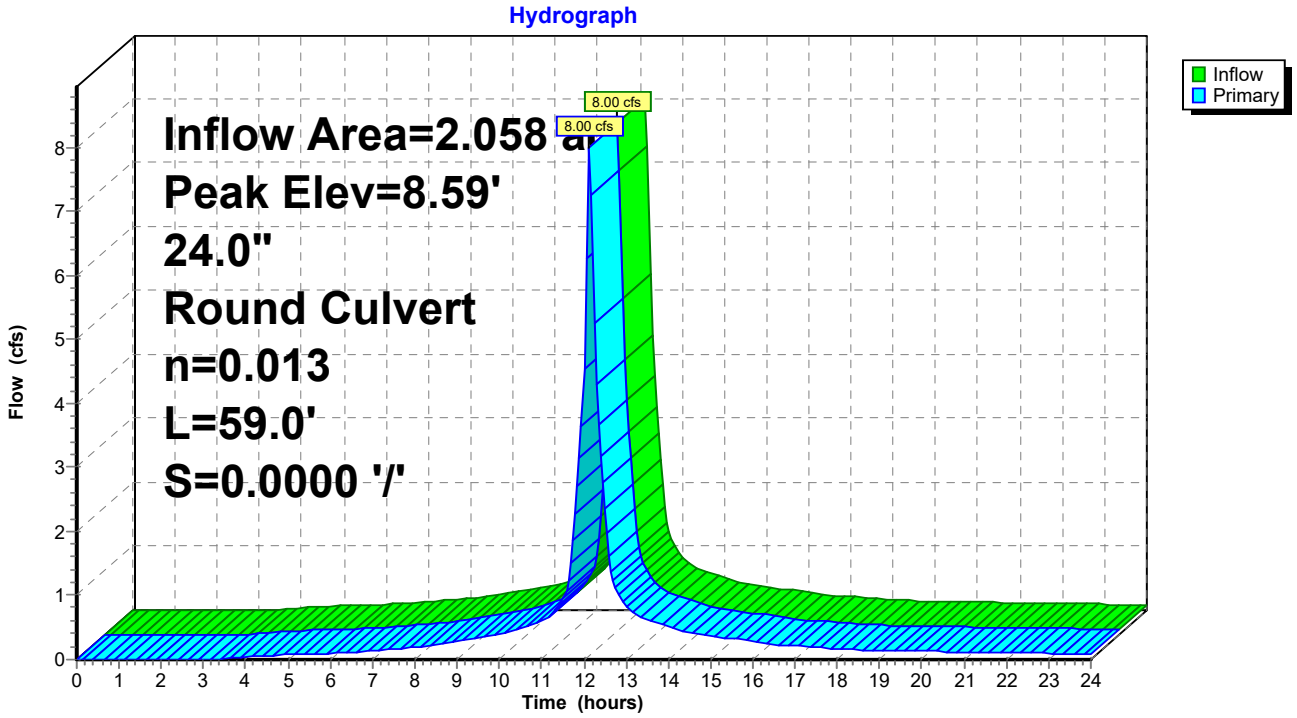
Inflow Area = 2.058 ac, 93.19% Impervious, Inflow Depth > 4.17" for 10-Year Storm event
Inflow = 8.00 cfs @ 12.13 hrs, Volume= 0.716 af
Outflow = 8.00 cfs @ 12.13 hrs, Volume= 0.716 af, Atten= 0%, Lag= 0.0 min
Primary = 8.00 cfs @ 12.13 hrs, Volume= 0.716 af
Routed to Pond 11P : Jellyfish 1 JFPD0806-4-1

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 8.59' @ 12.13 hrs
Flood Elev= 13.56'

Device	Routing	Invert	Outlet Devices
#1	Primary	6.75'	**24.0" Round Culvert** L= 59.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 6.75' / 6.75' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=7.84 cfs @ 12.13 hrs HW=8.57' (Free Discharge)
1=Culvert (Barrel Controls 7.84 cfs @ 3.43 fps)

Pond 10P: DMH 4



Summary for Pond 11P: Jellyfish 1 JFPD0806-4-1

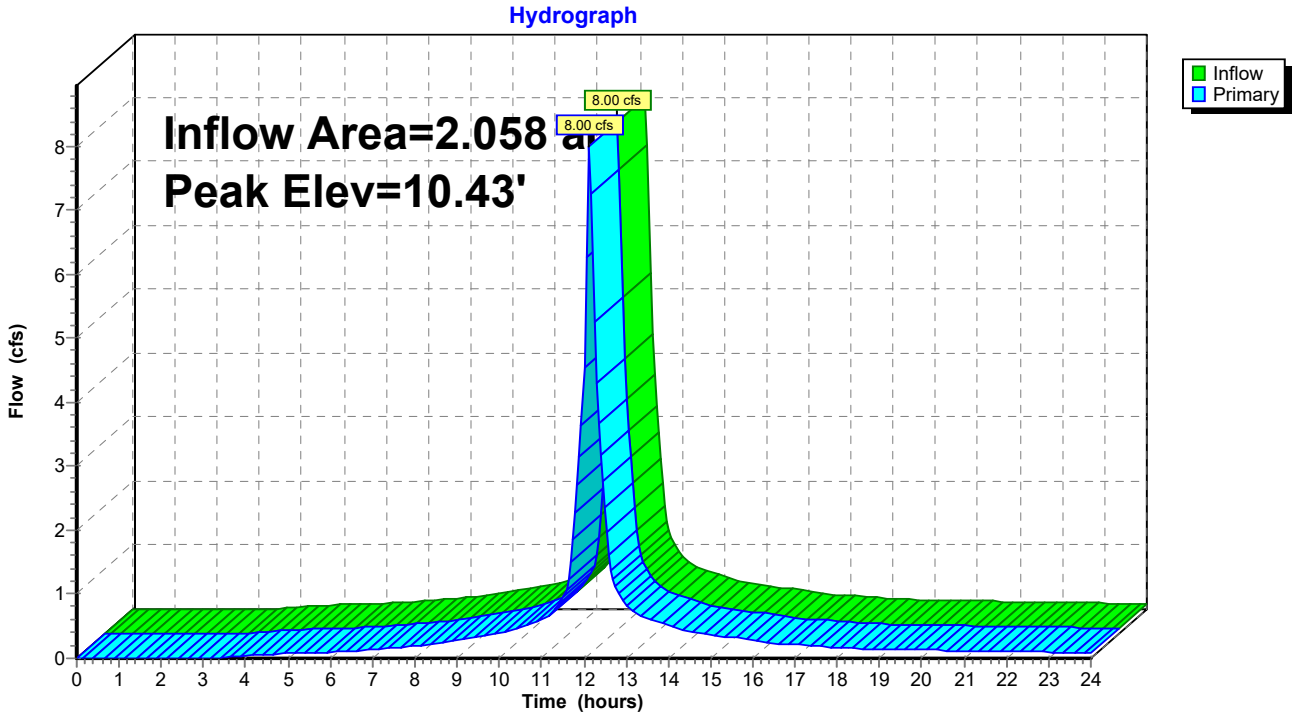
Inflow Area = 2.058 ac, 93.19% Impervious, Inflow Depth > 4.17" for 10-Year Storm event
Inflow = 8.00 cfs @ 12.13 hrs, Volume= 0.716 af
Outflow = 8.00 cfs @ 12.13 hrs, Volume= 0.716 af, Atten= 0%, Lag= 0.0 min
Primary = 8.00 cfs @ 12.13 hrs, Volume= 0.716 af
Routed to Pond 9P : DMH-8 (Outfall #1)

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 10.43' @ 12.13 hrs
Flood Elev= 12.89'

Device	Routing	Invert	Outlet Devices
#1	Primary	6.75'	**24.0" Round Filter Culvert Out** L= 5.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 6.75' / 6.67' S= 0.0160 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Device 1	6.75'	**JF Filter-1 CSV File** Head (feet) 0.00 0.08 0.17 0.25 0.33 0.42 0.50 0.58 0.67 0.75 0.83 0.92 1.00 1.08 1.17 1.25 1.33 1.42 1.50 Disch. (cfs) 0.000 0.010 0.020 0.030 0.040 0.050 0.059 0.129 0.198 0.267 0.337 0.406 0.475 0.545 0.614 0.683 0.753 0.822 0.891
#3	Device 1	9.59'	**2.8' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=7.85 cfs @ 12.13 hrs HW=10.42' (Free Discharge)
└**1=Filter Culvert Out** (Passes 7.85 cfs of 19.50 cfs potential flow)
  ├**2=JF Filter-1 CSV File** (Custom Controls 0.89 cfs)
  └**3=Broad-Crested Rectangular Weir** (Weir Controls 6.96 cfs @ 3.00 fps)

Pond 11P: Jellyfish 1 JFPD0806-4-1



Summary for Pond 12P: Jellyfish 2 JFPD0806-7-2

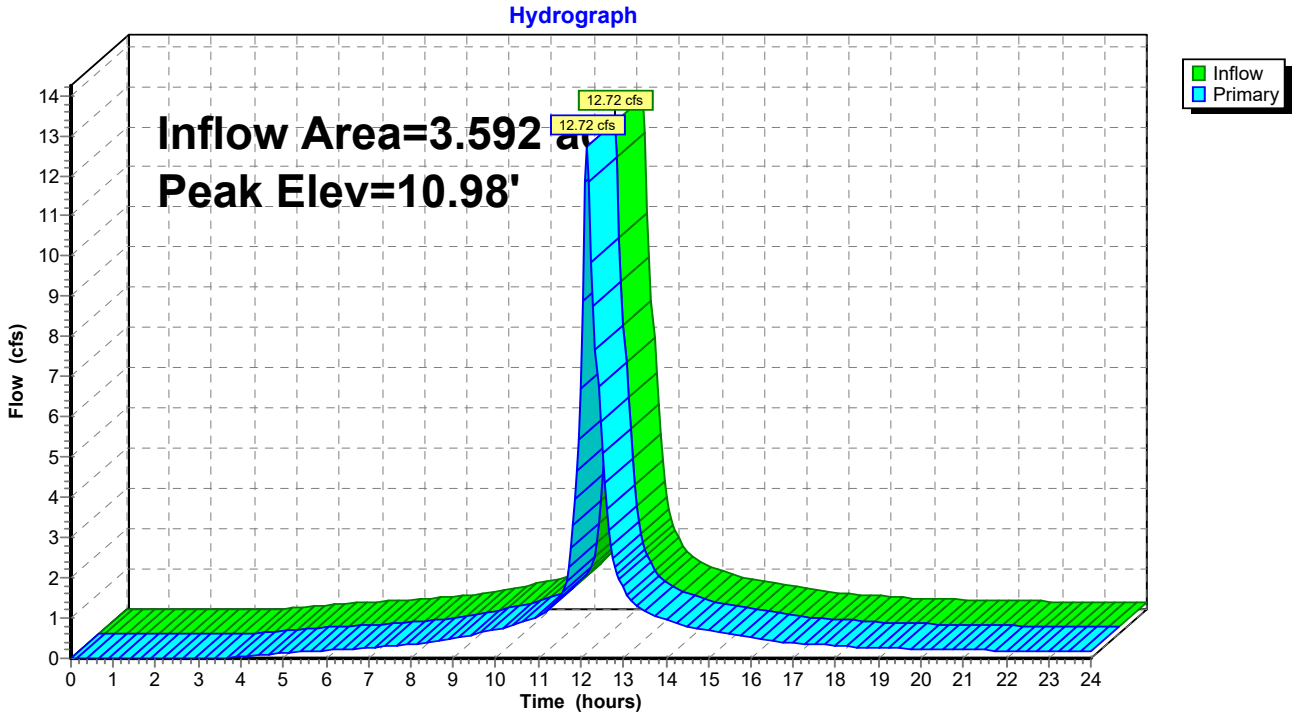
Inflow Area = 3.592 ac,100.00% Impervious, Inflow Depth > 4.28" for 10-Year Storm event
Inflow = 12.72 cfs @ 12.15 hrs, Volume= 1.280 af
Outflow = 12.72 cfs @ 12.15 hrs, Volume= 1.280 af, Atten= 0%, Lag= 0.0 min
Primary = 12.72 cfs @ 12.15 hrs, Volume= 1.280 af
Routed to Pond 9P : DMH-8 (Outfall #1)

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 10.98' @ 12.15 hrs
Flood Elev= 11.43'

Device	Routing	Invert	Outlet Devices
#1	Primary	7.71'	**24.0" Round Filter Culvert Out** L= 125.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 7.71' / 6.92' S= 0.0063 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Device 1	7.71'	**JF Filter-2 CSV File** Head (feet) 0.00 0.08 0.17 0.25 0.33 0.42 0.50 0.58 0.67 0.75 0.83 0.92 1.00 1.08 1.17 1.25 1.33 1.42 1.50 Disch. (cfs) 0.000 0.010 0.020 0.030 0.040 0.050 0.059 0.173 0.287 0.401 0.515 0.629 0.743 0.857 0.970 1.084 1.198 1.312 1.426
#3	Device 1	9.84'	**2.8' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=12.71 cfs @ 12.15 hrs HW=10.98' (Free Discharge)
└**1=Filter Culvert Out** (Passes 12.71 cfs of 17.98 cfs potential flow)
├**2=JF Filter-2 CSV File** (Custom Controls 1.43 cfs)
└**3=Broad-Crested Rectangular Weir** (Weir Controls 11.28 cfs @ 3.54 fps)

Pond 12P: Jellyfish 2 JFPD0806-7-2



Summary for Pond 13P: DMH-13 (Outfall #2)

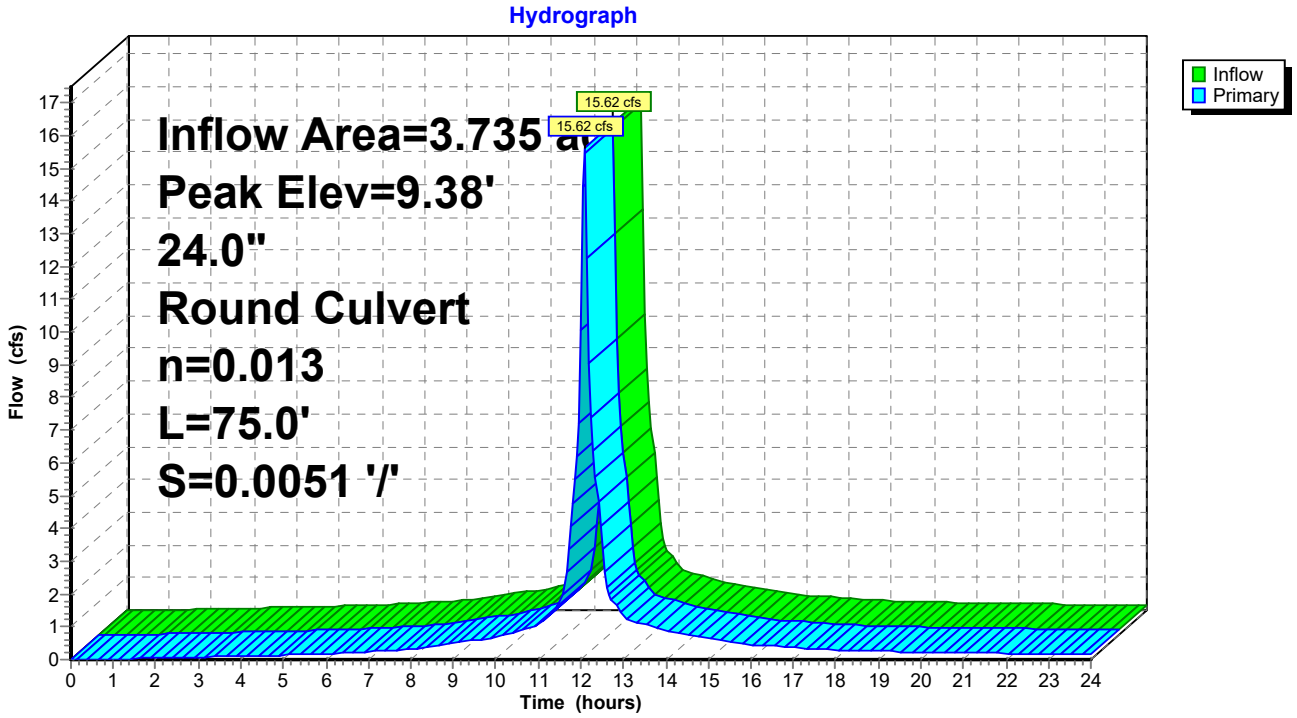
Inflow Area = 3.735 ac, 83.01% Impervious, Inflow Depth > 4.04" for 10-Year Storm event
Inflow = 15.62 cfs @ 12.09 hrs, Volume= 1.256 af
Outflow = 15.62 cfs @ 12.09 hrs, Volume= 1.256 af, Atten= 0%, Lag= 0.0 min
Primary = 15.62 cfs @ 12.09 hrs, Volume= 1.256 af
Routed to Link 2L : Fore River

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 9.38' @ 12.09 hrs
Flood Elev= 11.78'

Device	Routing	Invert	Outlet Devices
#1	Primary	6.68'	**24.0" Round Culvert** L= 75.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 6.68' / 6.30' S= 0.0051 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=15.22 cfs @ 12.09 hrs HW=9.30' (Free Discharge)
1=Culvert (Inlet Controls 15.22 cfs @ 4.84 fps)

Pond 13P: DMH-13 (Outfall #2)



Summary for Pond 24P: Filterra 1

Inflow Area = 0.275 ac,100.00% Impervious, Inflow Depth > 4.36" for 10-Year Storm event
Inflow = 1.21 cfs @ 12.09 hrs, Volume= 0.100 af
Outflow = 1.21 cfs @ 12.09 hrs, Volume= 0.100 af, Atten= 0%, Lag= 0.0 min
Primary = 1.21 cfs @ 12.09 hrs, Volume= 0.100 af
Routed to Pond 27P : AD49
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond 27P : AD49

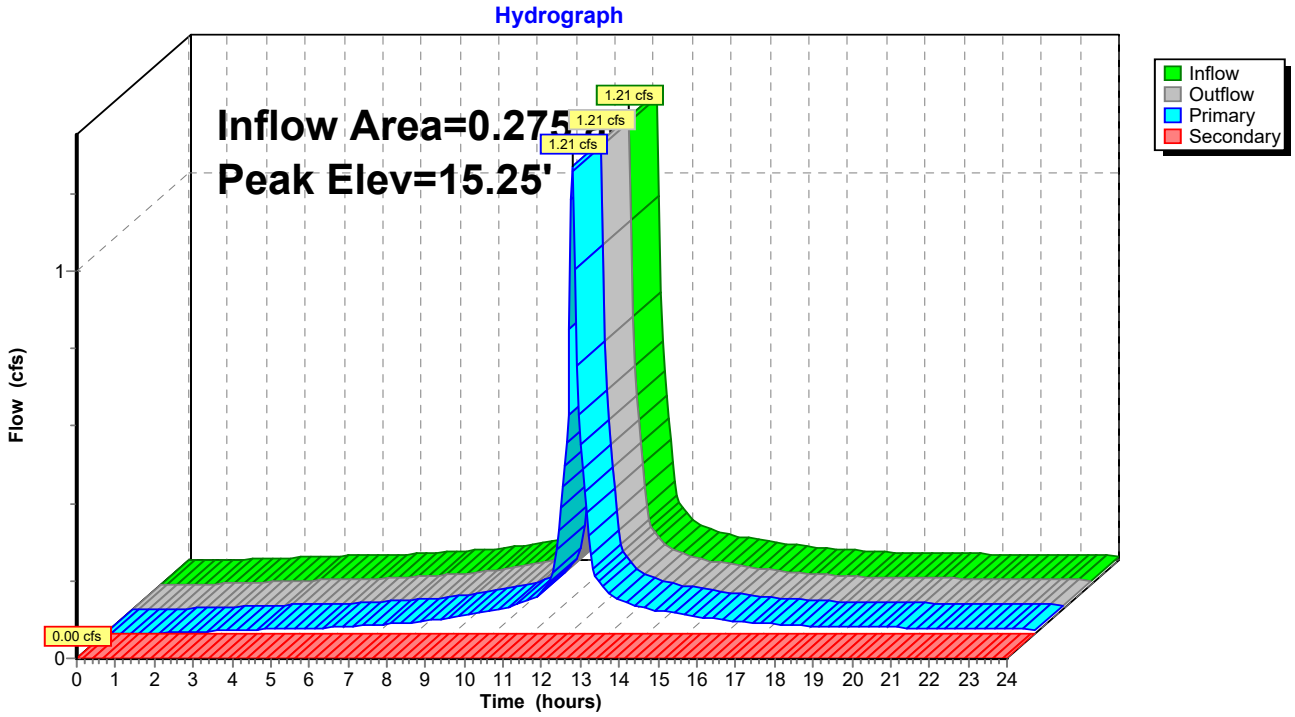
Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 15.25' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	14.50'	**12.0" Round Culvert** L= 4.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 14.50' / 14.47' S= 0.0075 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	18.04'	**5.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=1.17 cfs @ 12.09 hrs HW=15.24' (Free Discharge)
└**1=Culvert** (Barrel Controls 1.17 cfs @ 2.62 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=14.50' (Free Discharge)
└**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 24P: Filterra 1



Summary for Pond 27P: AD49

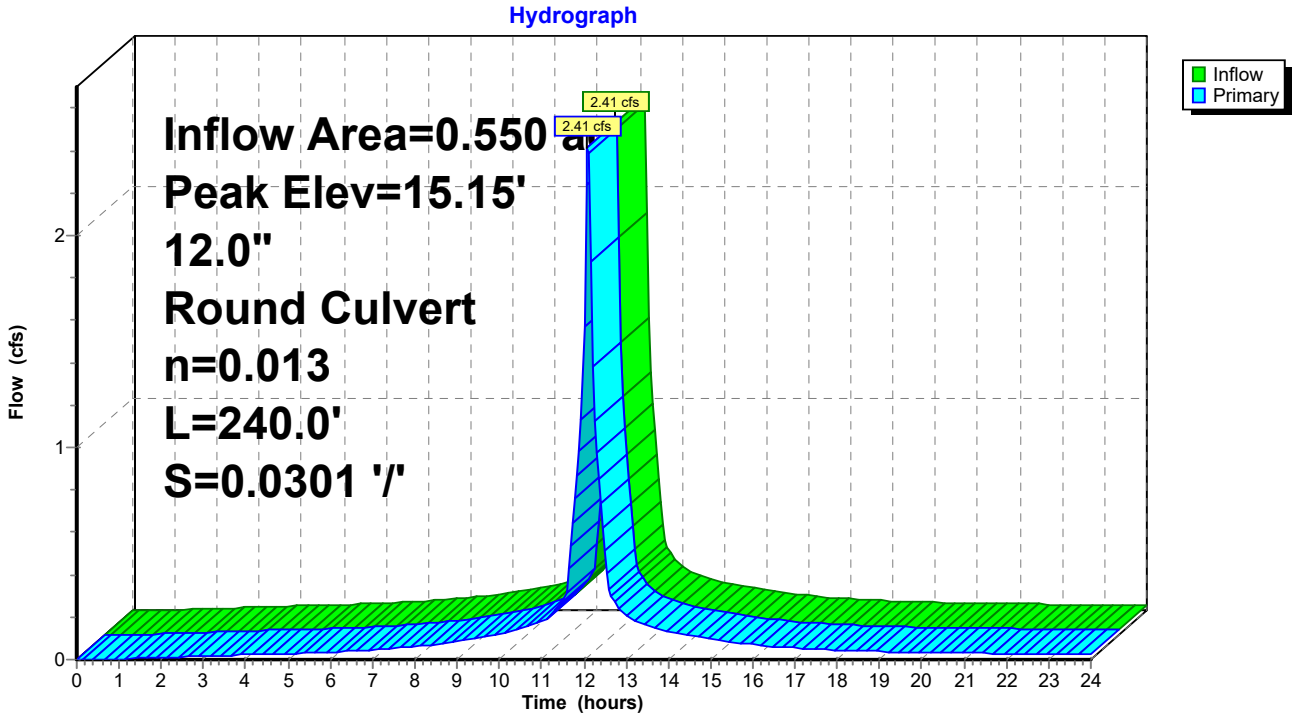
Inflow Area = 0.550 ac,100.00% Impervious, Inflow Depth > 4.36" for 10-Year Storm event
Inflow = 2.41 cfs @ 12.09 hrs, Volume= 0.200 af
Outflow = 2.41 cfs @ 12.09 hrs, Volume= 0.200 af, Atten= 0%, Lag= 0.0 min
Primary = 2.41 cfs @ 12.09 hrs, Volume= 0.200 af
Routed to Pond 13P : DMH-13 (Outfall #2)

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 15.15' @ 12.09 hrs
Flood Elev= 12.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	14.00'	**12.0" Round Culvert** L= 240.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 14.00' / 6.78' S= 0.0301 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.35 cfs @ 12.09 hrs HW=15.12' (Free Discharge)
1=Culvert (Inlet Controls 2.35 cfs @ 2.99 fps)

Pond 27P: AD49



Summary for Pond 28P: Filterra 2

Inflow Area = 0.275 ac,100.00% Impervious, Inflow Depth > 4.36" for 10-Year Storm event
Inflow = 1.21 cfs @ 12.09 hrs, Volume= 0.100 af
Outflow = 1.21 cfs @ 12.09 hrs, Volume= 0.100 af, Atten= 0%, Lag= 0.0 min
Primary = 1.21 cfs @ 12.09 hrs, Volume= 0.100 af
Routed to Pond 27P : AD49
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond 27P : AD49

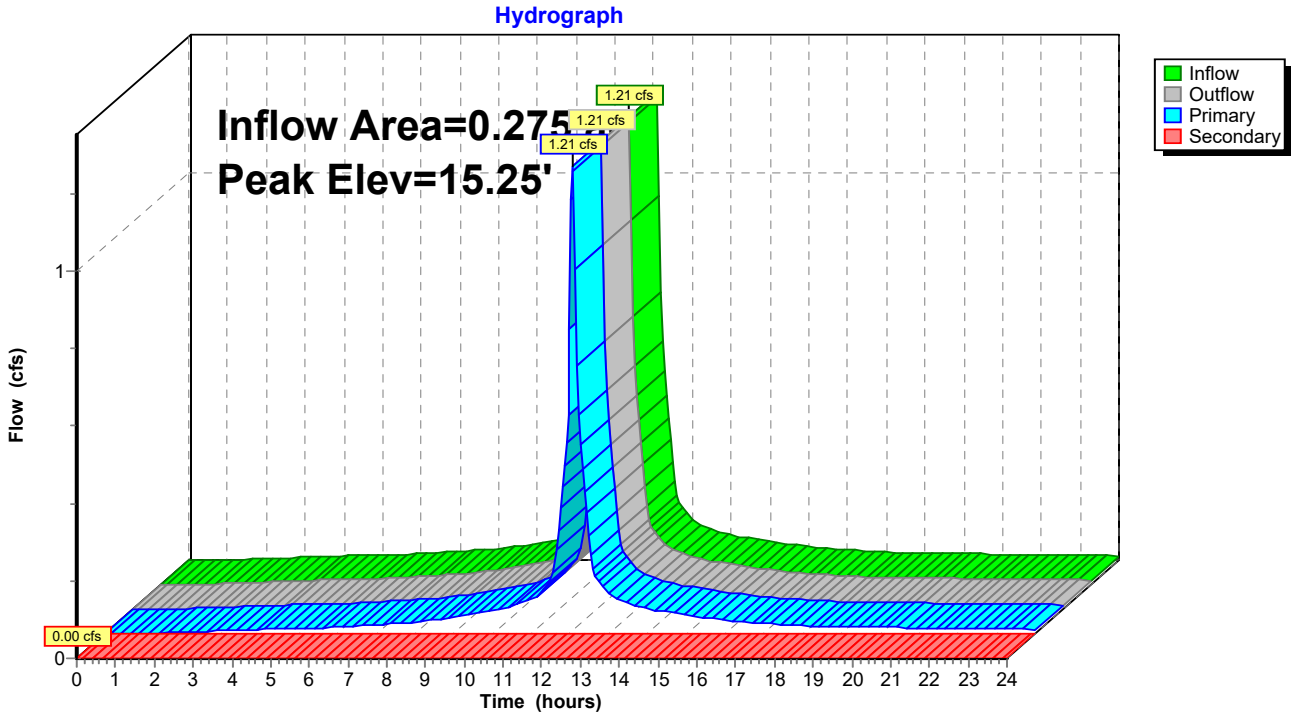
Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 15.25' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	14.50'	**12.0" Round Culvert** L= 4.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 14.50' / 14.47' S= 0.0075 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	18.04'	**5.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=1.17 cfs @ 12.09 hrs HW=15.24' (Free Discharge)
↑—**1=Culvert** (Barrel Controls 1.17 cfs @ 2.62 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=14.50' (Free Discharge)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 28P: Filterra 2

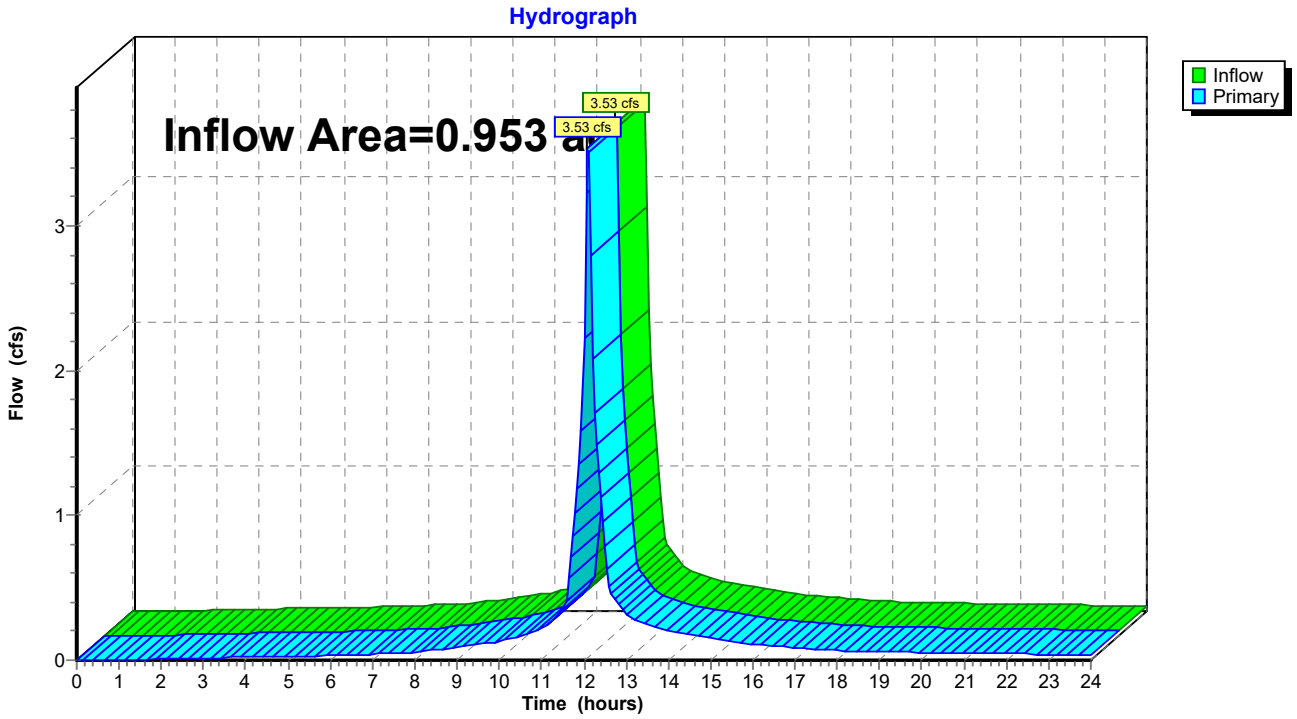


Summary for Link 1L: Freedom Way

Inflow Area = 0.953 ac, 53.78% Impervious, Inflow Depth > 3.51" for 10-Year Storm event
Inflow = 3.53 cfs @ 12.09 hrs, Volume= 0.279 af
Primary = 3.53 cfs @ 12.09 hrs, Volume= 0.279 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 1L: Freedom Way

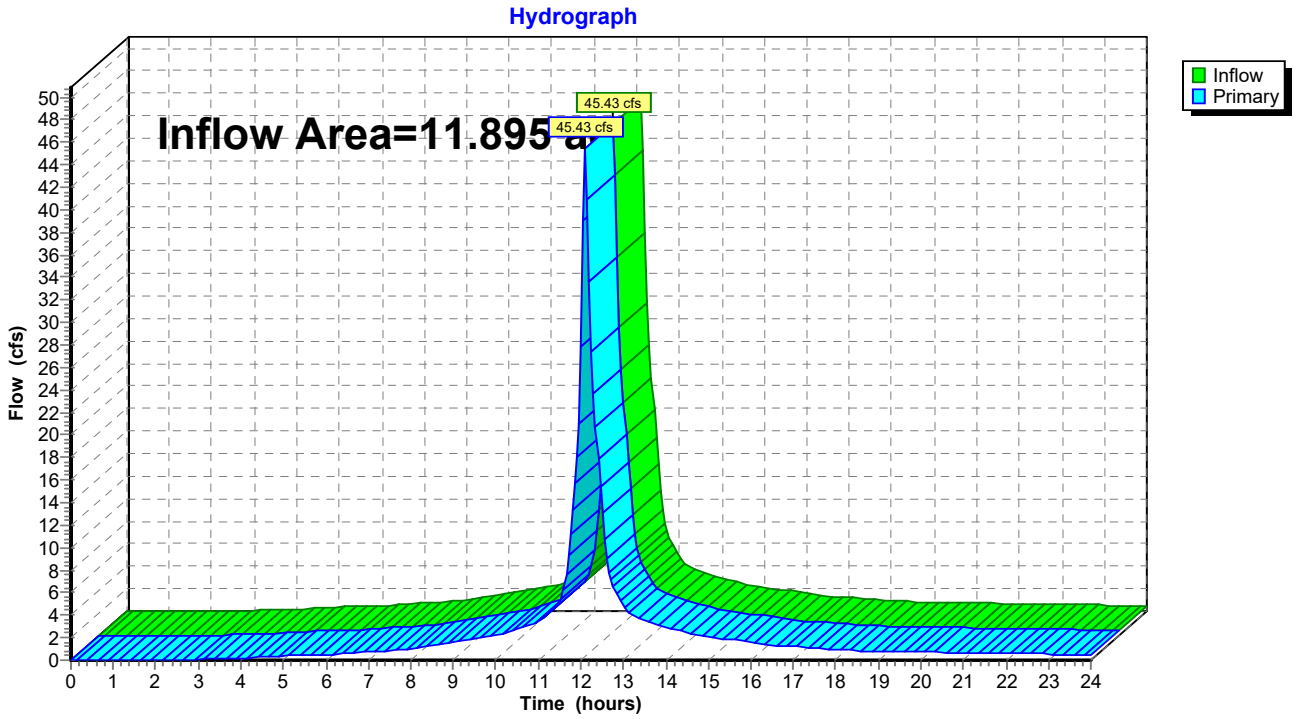


Summary for Link 2L: Fore River

Inflow Area = 11.895 ac, 87.62% Impervious, Inflow Depth > 4.08" for 10-Year Storm event
Inflow = 45.43 cfs @ 12.10 hrs, Volume= 4.048 af
Primary = 45.43 cfs @ 12.10 hrs, Volume= 4.048 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 2L: Fore River

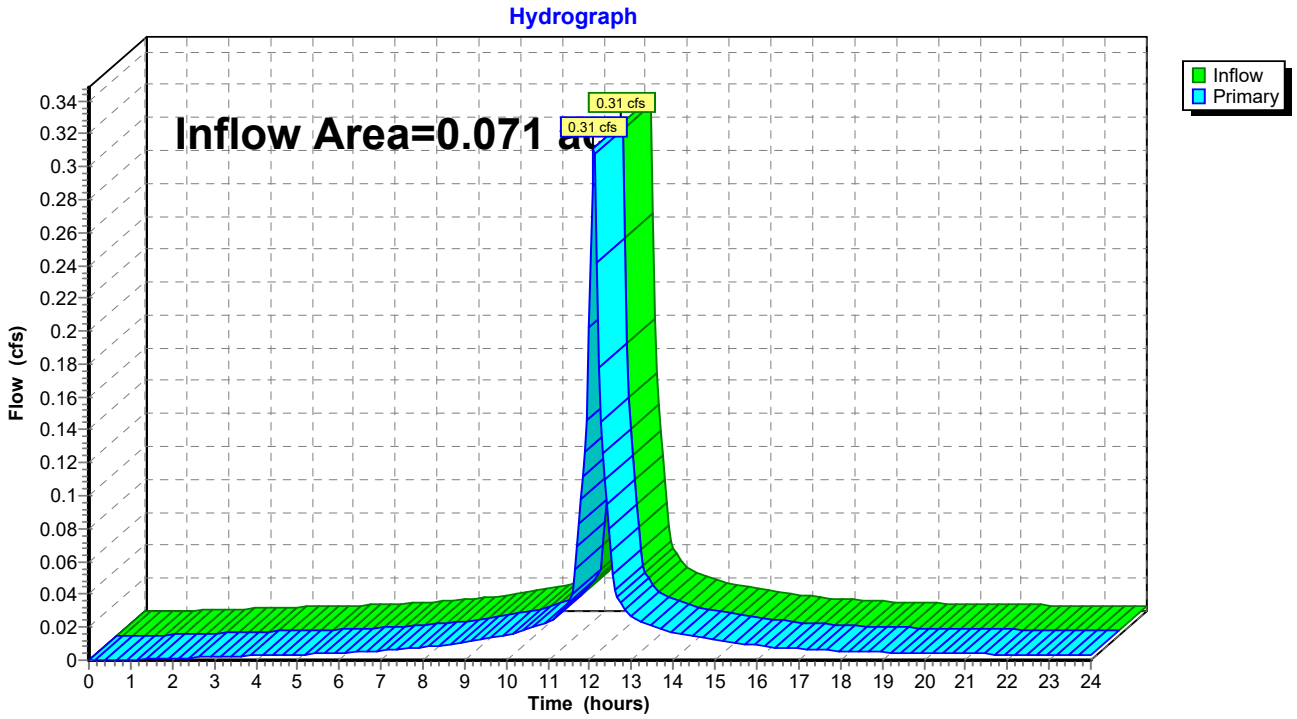


Summary for Link 3L: Fore Street

Inflow Area = 0.071 ac,100.00% Impervious, Inflow Depth > 4.36" for 10-Year Storm event
Inflow = 0.31 cfs @ 12.09 hrs, Volume= 0.026 af
Primary = 0.31 cfs @ 12.09 hrs, Volume= 0.026 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 3L: Fore Street



Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: Block 1B Runoff Area=19,389 sf 1.02% Impervious Runoff Depth>3.60"
Tc=6.0 min CN=80 Runoff=1.83 cfs 0.133 af

Subcatchment2S: Western half of Runoff Area=22,128 sf 100.00% Impervious Runoff Depth>5.56"
Tc=6.0 min CN=98 Runoff=2.82 cfs 0.235 af

Subcatchment3S: Eastern half of Runoff Area=22,147 sf 100.00% Impervious Runoff Depth>5.56"
Tc=6.0 min CN=98 Runoff=2.82 cfs 0.236 af

Subcatchment4S: Shared Street - Trench Runoff Area=26,424 sf 83.24% Impervious Runoff Depth>5.21"
Tc=6.0 min CN=95 Runoff=3.30 cfs 0.263 af

Subcatchment5S: Building 12 Runoff Area=3,244 sf 100.00% Impervious Runoff Depth>5.56"
Tc=6.0 min CN=98 Runoff=0.41 cfs 0.034 af

Subcatchment6S: Plaza between Blocks 1 Runoff Area=18,771 sf 95.74% Impervious Runoff Depth>5.44"
Tc=6.0 min CN=97 Runoff=2.38 cfs 0.195 af

Subcatchment7S: Building 14 Runoff Area=2,557 sf 100.00% Impervious Runoff Depth>5.56"
Tc=6.0 min CN=98 Runoff=0.33 cfs 0.027 af

Subcatchment8S: Building 15 Runoff Area=2,578 sf 100.00% Impervious Runoff Depth>5.56"
Tc=6.0 min CN=98 Runoff=0.33 cfs 0.027 af

Subcatchment9S: Building 2 North Runoff Area=4,695 sf 100.00% Impervious Runoff Depth>5.56"
Tc=6.0 min CN=98 Runoff=0.60 cfs 0.050 af

Subcatchment10S: Building 3 North Runoff Area=2,212 sf 100.00% Impervious Runoff Depth>5.56"
Tc=6.0 min CN=98 Runoff=0.28 cfs 0.024 af

Subcatchment11S: Building 2 South Runoff Area=4,855 sf 100.00% Impervious Runoff Depth>5.56"
Tc=6.0 min CN=98 Runoff=0.62 cfs 0.052 af

Subcatchment12S: Building 3 South Runoff Area=2,326 sf 100.00% Impervious Runoff Depth>5.56"
Tc=6.0 min CN=98 Runoff=0.30 cfs 0.025 af

Subcatchment13S: Building 6 Runoff Area=3,304 sf 100.00% Impervious Runoff Depth>5.56"
Tc=6.0 min CN=98 Runoff=0.42 cfs 0.035 af

Subcatchment14S: Building 6B North Runoff Area=4,296 sf 100.00% Impervious Runoff Depth>5.56"
Tc=6.0 min CN=98 Runoff=0.55 cfs 0.046 af

Subcatchment15S: Building 6B South Runoff Area=2,512 sf 100.00% Impervious Runoff Depth>5.56"
Tc=6.0 min CN=98 Runoff=0.32 cfs 0.027 af

Subcatchment16S: Plaza between Blocks 1 Runoff Area=3,650 sf 75.84% Impervious Runoff Depth>5.10"
Tc=6.0 min CN=94 Runoff=0.45 cfs 0.036 af

Subcatchment17S: Shared Street - Trench Runoff Area=8,719 sf 100.00% Impervious Runoff Depth>5.56"
Tc=6.0 min CN=98 Runoff=1.11 cfs 0.093 af

Subcatchment18S: Plaza between Runoff Area=28,813 sf 100.00% Impervious Runoff Depth>5.56"
Tc=6.0 min CN=98 Runoff=3.67 cfs 0.306 af

Subcatchment19S: Block 4 Building Runoff Area=86,592 sf 100.00% Impervious Runoff Depth>5.56"
Tc=6.0 min CN=98 Runoff=11.03 cfs 0.921 af

Subcatchment20S: Direct to R-Tank Runoff Area=7,210 sf 100.00% Impervious Runoff Depth>5.56"
Tc=6.0 min CN=98 Runoff=0.92 cfs 0.077 af

Subcatchment21S: Plaza along Building Runoff Area=2,534 sf 100.00% Impervious Runoff Depth>5.56"
Tc=6.0 min CN=98 Runoff=0.32 cfs 0.027 af

Subcatchment22S: Block 6 Building Runoff Area=47,780 sf 100.00% Impervious Runoff Depth>5.56"
Tc=6.0 min CN=98 Runoff=6.09 cfs 0.508 af

Subcatchment23S: Block 5 Building to Runoff Area=11,218 sf 100.00% Impervious Runoff Depth>5.56"
Tc=6.0 min CN=98 Runoff=1.43 cfs 0.119 af

Subcatchment24S: Block 5 Building Runoff Area=30,570 sf 100.00% Impervious Runoff Depth>5.56"
Tc=6.0 min CN=98 Runoff=3.89 cfs 0.325 af

Subcatchment25S: Southern Plaza Runoff Area=11,168 sf 100.00% Impervious Runoff Depth>5.56"
Tc=6.0 min CN=98 Runoff=1.42 cfs 0.119 af

Subcatchment26S: Plaza along Townhouse Runoff Area=550 sf 100.00% Impervious Runoff Depth>5.56"
Tc=6.0 min CN=98 Runoff=0.07 cfs 0.006 af

Subcatchment27S: Drainage from off-site Runoff Area=49,238 sf 43.84% Impervious Runoff Depth>4.43"
Tc=6.0 min CN=88 Runoff=5.56 cfs 0.417 af

Subcatchment28S: Waterfront Runoff Area=109,324 sf 72.19% Impervious Runoff Depth>4.98"
Tc=6.0 min CN=93 Runoff=13.34 cfs 1.042 af

Subcatchment29S: Block 6 Building Runoff Area=11,975 sf 100.00% Impervious Runoff Depth>5.56"
Tc=6.0 min CN=98 Runoff=1.53 cfs 0.127 af

Subcatchment30S: Block 6 Building Runoff Area=11,975 sf 100.00% Impervious Runoff Depth>5.56"
Tc=6.0 min CN=98 Runoff=1.53 cfs 0.127 af

Pond 1P: DMH 1 Peak Elev=11.70' Inflow=10.45 cfs 0.858 af
24.0" Round Culvert n=0.013 L=61.0' S=0.0038 '/' Outflow=10.45 cfs 0.858 af

Pond 2P: DMH 2 Peak Elev=11.40' Inflow=11.32 cfs 0.928 af
24.0" Round Culvert n=0.013 L=31.0' S=0.0048 '/' Outflow=11.32 cfs 0.928 af

Pond 3P: Storm Structure Peak Elev=9.76' Inflow=11.32 cfs 0.928 af
15.0" Round Culvert x 3.00 n=0.013 L=4.0' S=0.0000 '/' Outflow=11.32 cfs 0.928 af

Pond 4P: R-Tank 1 Peak Elev=9.27' Storage=2,513 cf Inflow=11.32 cfs 0.928 af
21.0" Round Culvert n=0.013 L=62.0' S=0.0000 '/' Outflow=10.00 cfs 0.920 af

Pond 5P: DMH-11 Peak Elev=10.93' Inflow=17.37 cfs 1.637 af
24.0" Round Culvert n=0.013 L=16.0' S=0.0069 '/' Outflow=17.37 cfs 1.637 af

Pond 6P: CB27 Peak Elev=13.06' Inflow=19.01 cfs 1.587 af
24.0" Round Culvert n=0.013 L=22.0' S=0.0064 '/' Outflow=19.01 cfs 1.587 af

Pond 7P: Storm Structure Peak Elev=10.85' Inflow=19.01 cfs 1.587 af
15.0" Round Culvert x 3.00 n=0.013 L=4.0' S=0.0000 '/' Outflow=19.01 cfs 1.587 af

Pond 8P: R-Tank 2 Peak Elev=11.13' Storage=7,657 cf Inflow=19.93 cfs 1.664 af
24.0" Round Culvert n=0.013 L=70.0' S=0.0000 '/' Outflow=17.37 cfs 1.637 af

Pond 9P: DMH-8 (Outfall #1) Peak Elev=9.97' Inflow=27.37 cfs 2.557 af
30.0" Round Culvert n=0.013 L=52.0' S=0.0052 '/' Outflow=27.37 cfs 2.557 af

Pond 10P: DMH 4 Peak Elev=8.87' Inflow=10.00 cfs 0.920 af
24.0" Round Culvert n=0.013 L=59.0' S=0.0000 '/' Outflow=10.00 cfs 0.920 af

Pond 11P: Jellyfish 1 JFPD0806-4-1 Peak Elev=10.58' Inflow=10.00 cfs 0.920 af
Outflow=10.00 cfs 0.920 af

Pond 12P: Jellyfish 2 JFPD0806-7-2 Peak Elev=11.27' Inflow=17.37 cfs 1.637 af
Outflow=17.37 cfs 1.637 af

Pond 13P: DMH-13 (Outfall #2) Peak Elev=10.48' Inflow=20.01 cfs 1.624 af
24.0" Round Culvert n=0.013 L=75.0' S=0.0051 '/' Outflow=20.01 cfs 1.624 af

Pond 24P: Filterra 1 Peak Elev=15.37' Inflow=1.53 cfs 0.127 af
Primary=1.53 cfs 0.127 af Secondary=0.00 cfs 0.000 af Outflow=1.53 cfs 0.127 af

Pond 27P: AD49 Peak Elev=15.54' Inflow=3.05 cfs 0.255 af
12.0" Round Culvert n=0.013 L=240.0' S=0.0301 '/' Outflow=3.05 cfs 0.255 af

Pond 28P: Filterra 2 Peak Elev=15.37' Inflow=1.53 cfs 0.127 af
Primary=1.53 cfs 0.127 af Secondary=0.00 cfs 0.000 af Outflow=1.53 cfs 0.127 af

Link 1L: Freedom Way Inflow=4.65 cfs 0.369 af
Primary=4.65 cfs 0.369 af

Link 2L: Fore River Inflow=59.19 cfs 5.223 af
Primary=59.19 cfs 5.223 af

Link 3L: Fore Street Inflow=0.39 cfs 0.033 af
Primary=0.39 cfs 0.033 af

Total Runoff Area = 12.919 ac Runoff Volume = 5.660 af Average Runoff Depth = 5.26"
14.81% Pervious = 1.914 ac 85.19% Impervious = 11.005 ac

Summary for Subcatchment 1S: Block 1B

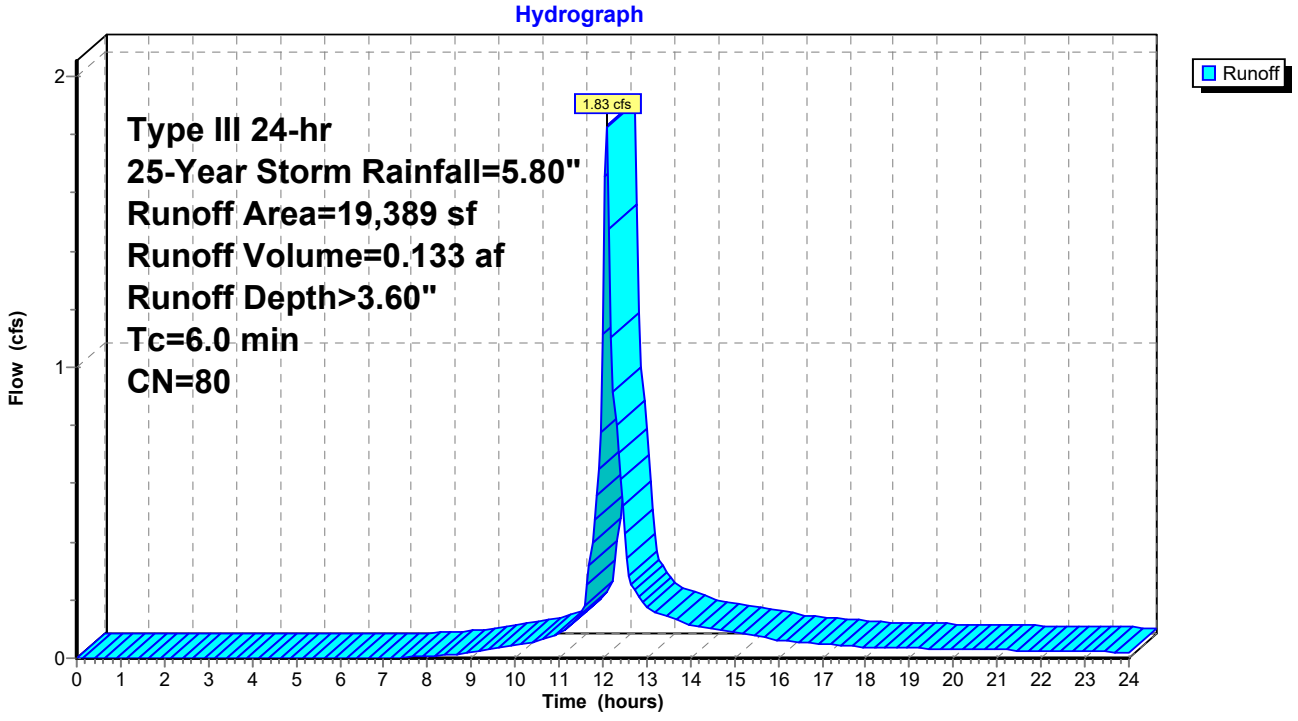
Runoff = 1.83 cfs @ 12.09 hrs, Volume= 0.133 af, Depth> 3.60"
Routed to Link 1L : Freedom Way

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	198	98	Impervious
	19,191	80	>75% Grass cover, Good, HSG D
	19,389	80	Weighted Average
	19,191		98.98% Pervious Area
	198		1.02% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 1S: Block 1B



Summary for Subcatchment 2S: Western half of Building 1A

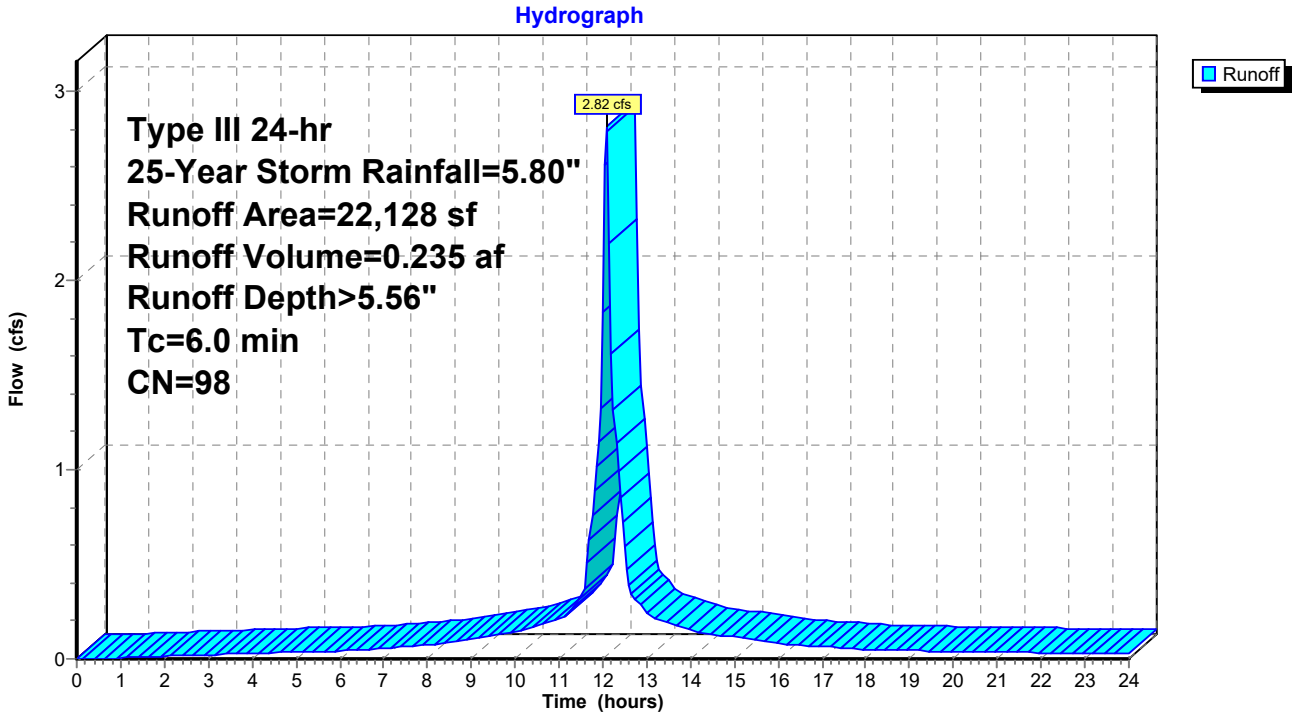
Runoff = 2.82 cfs @ 12.09 hrs, Volume= 0.235 af, Depth> 5.56"
Routed to Link 1L : Freedom Way

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	22,128	98	Roof
	22,128		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 2S: Western half of Building 1A



Summary for Subcatchment 3S: Eastern half of Building 1A

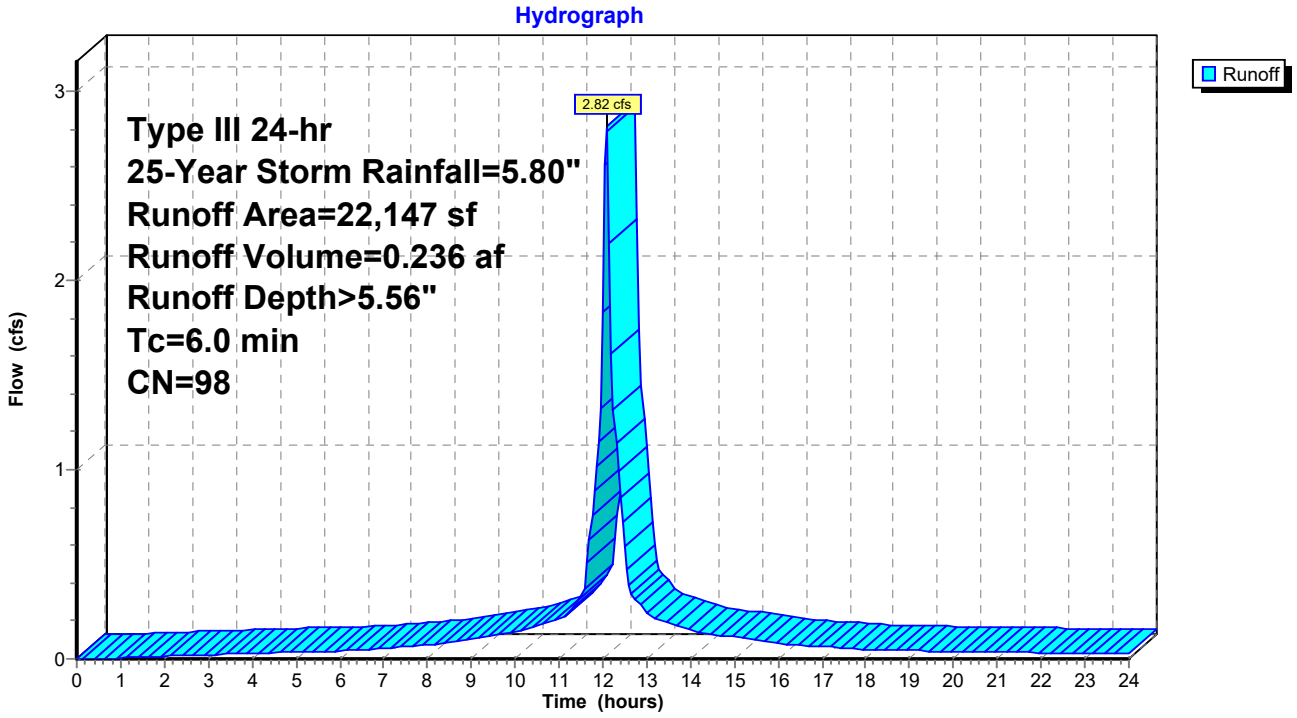
Runoff = 2.82 cfs @ 12.09 hrs, Volume= 0.236 af, Depth> 5.56"
Routed to Pond 1P : DMH 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	22,147	98	Roof
	22,147		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 3S: Eastern half of Building 1A



Summary for Subcatchment 4S: Shared Street - Trench Drain

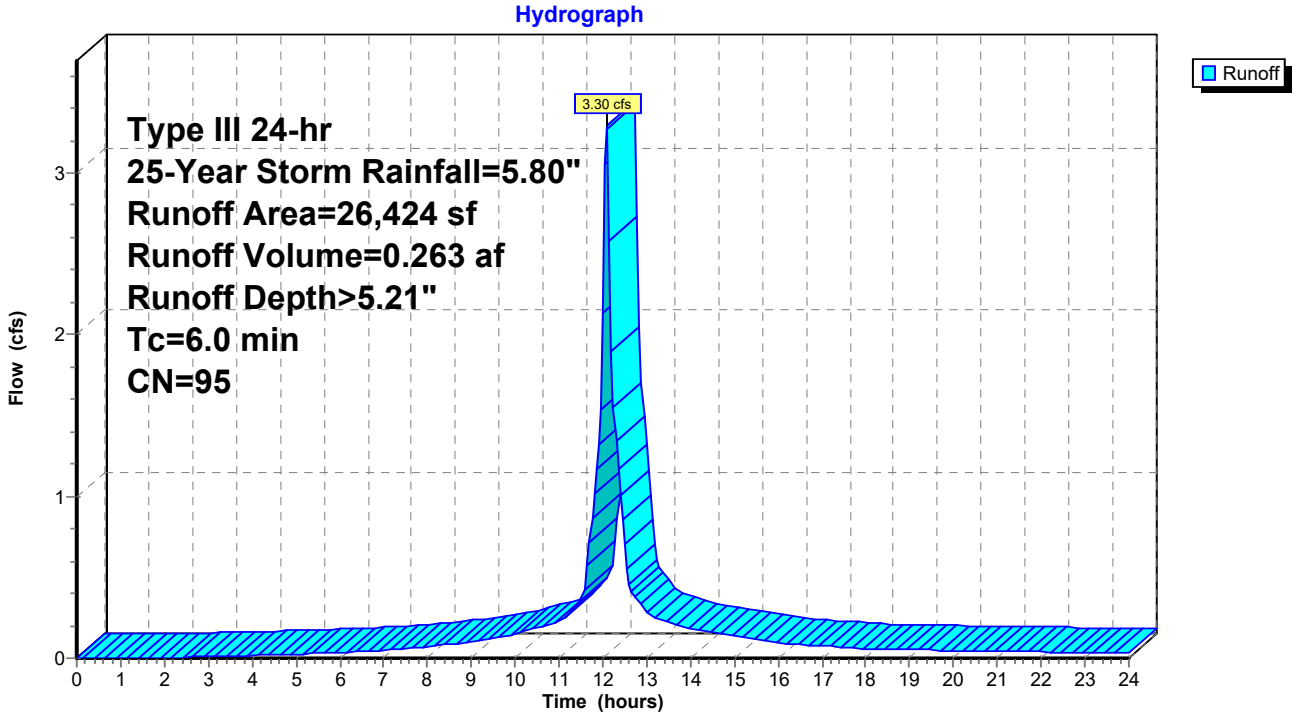
Runoff = 3.30 cfs @ 12.09 hrs, Volume= 0.263 af, Depth> 5.21"
Routed to Pond 1P : DMH 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Storm Rainfall=5.80"

	Area (sf)	CN	Description
	4,428	80	>75% Grass cover, Good, HSG D
*	21,996	98	Impervious
	26,424	95	Weighted Average
	4,428		16.76% Pervious Area
	21,996		83.24% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 4S: Shared Street - Trench Drain



Summary for Subcatchment 5S: Building 12

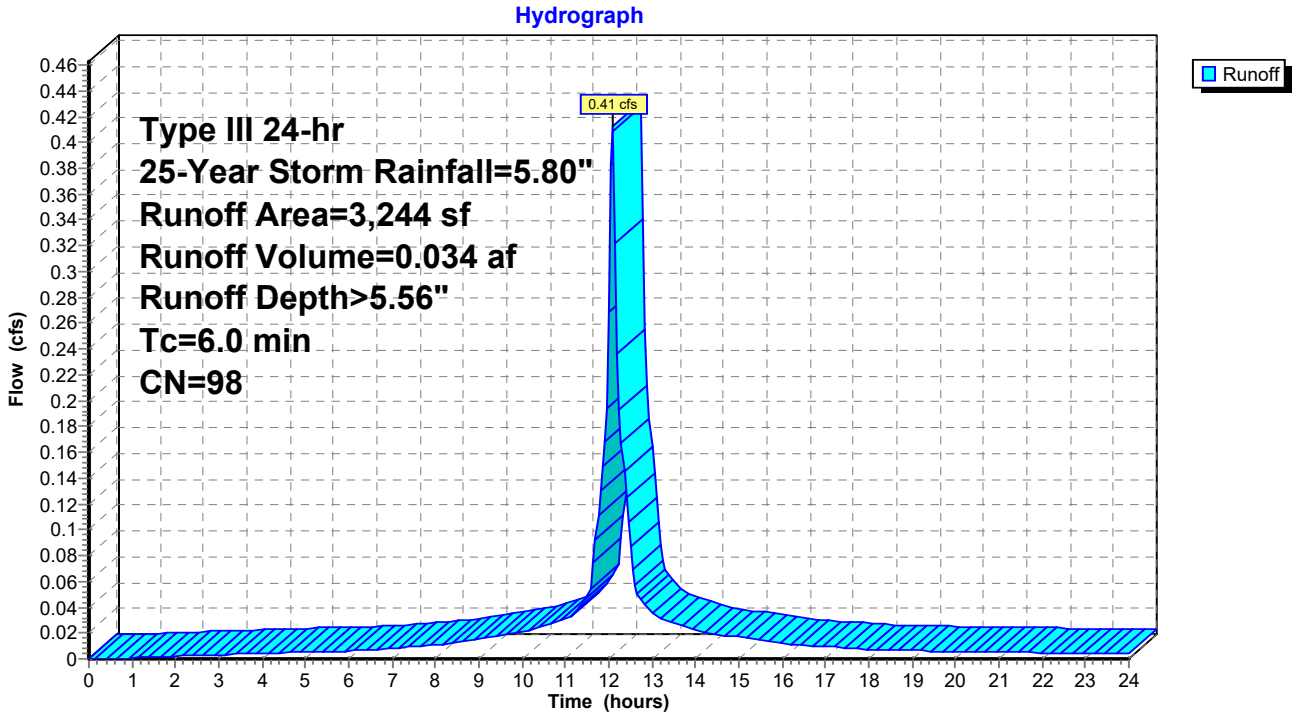
Runoff = 0.41 cfs @ 12.09 hrs, Volume= 0.034 af, Depth> 5.56"
Routed to Pond 1P : DMH 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	3,244	98	Roof
	3,244		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 5S: Building 12



Summary for Subcatchment 6S: Plaza between Blocks 1 & 2

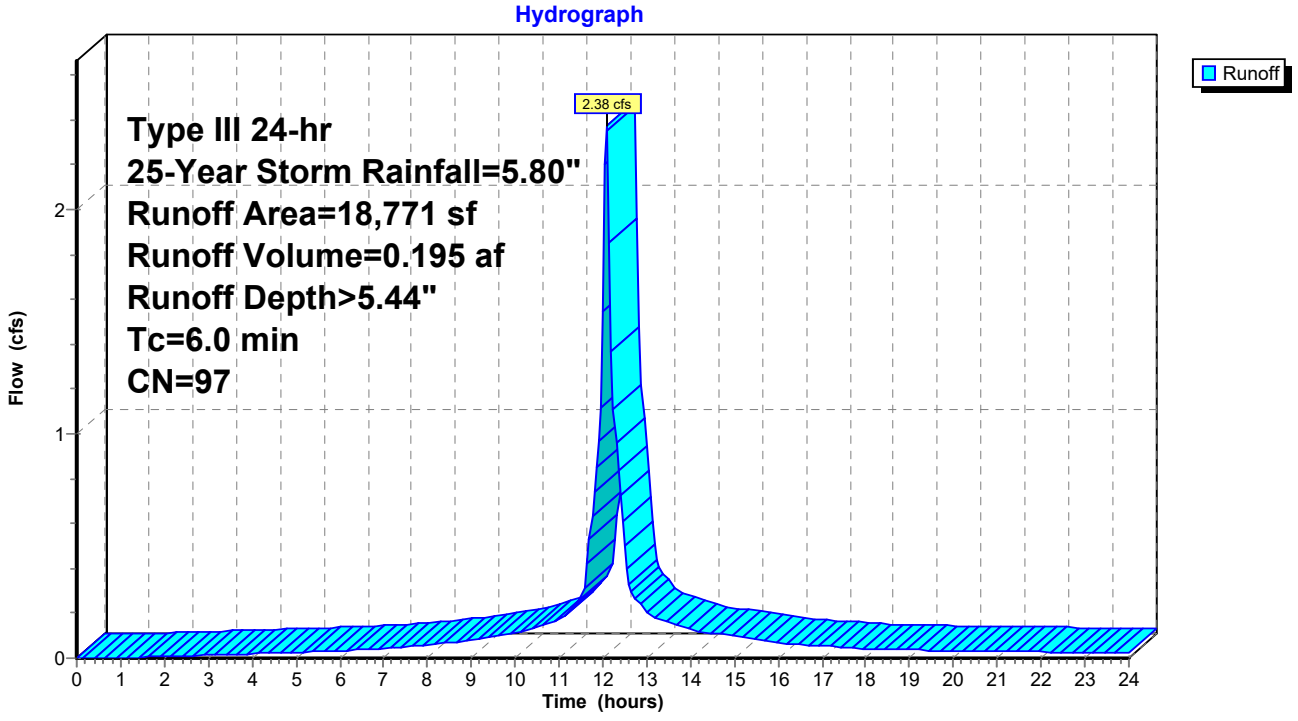
Runoff = 2.38 cfs @ 12.09 hrs, Volume= 0.195 af, Depth> 5.44"
Routed to Pond 1P : DMH 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	17,972	98	Impervious
	799	80	>75% Grass cover, Good, HSG D
	18,771	97	Weighted Average
	799		4.26% Pervious Area
	17,972		95.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 6S: Plaza between Blocks 1 & 2



Summary for Subcatchment 7S: Building 14

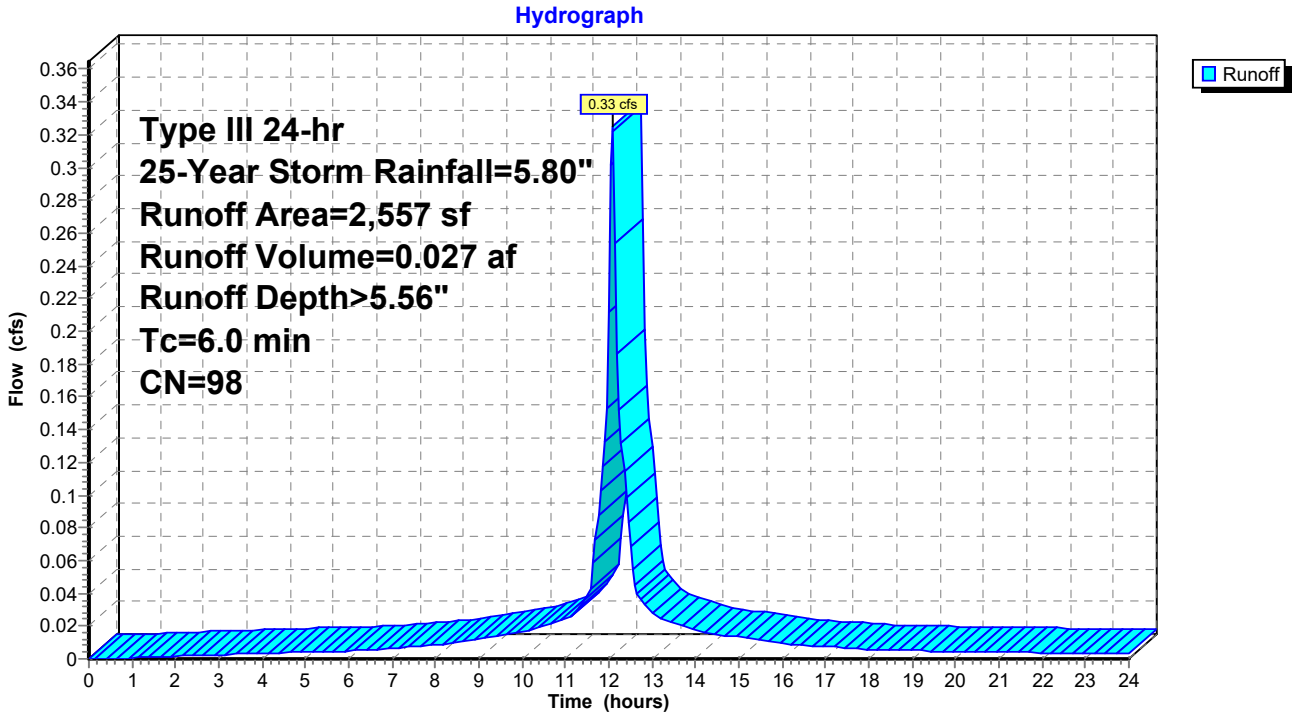
Runoff = 0.33 cfs @ 12.09 hrs, Volume= 0.027 af, Depth> 5.56"
Routed to Pond 1P : DMH 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	2,557	98	Roof
	2,557		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 7S: Building 14



Summary for Subcatchment 8S: Building 15

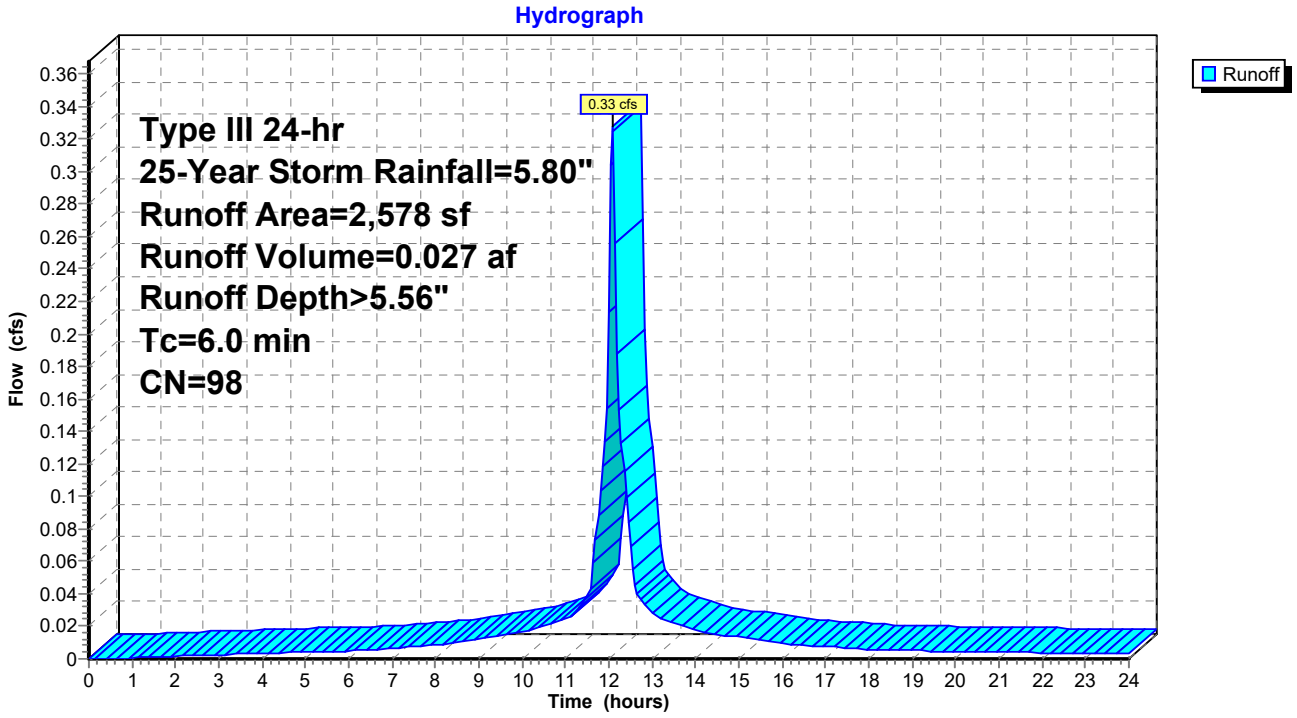
Runoff = 0.33 cfs @ 12.09 hrs, Volume= 0.027 af, Depth> 5.56"
Routed to Pond 6P : CB27

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	2,578	98	Roof
	2,578		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 8S: Building 15



Summary for Subcatchment 9S: Building 2 North

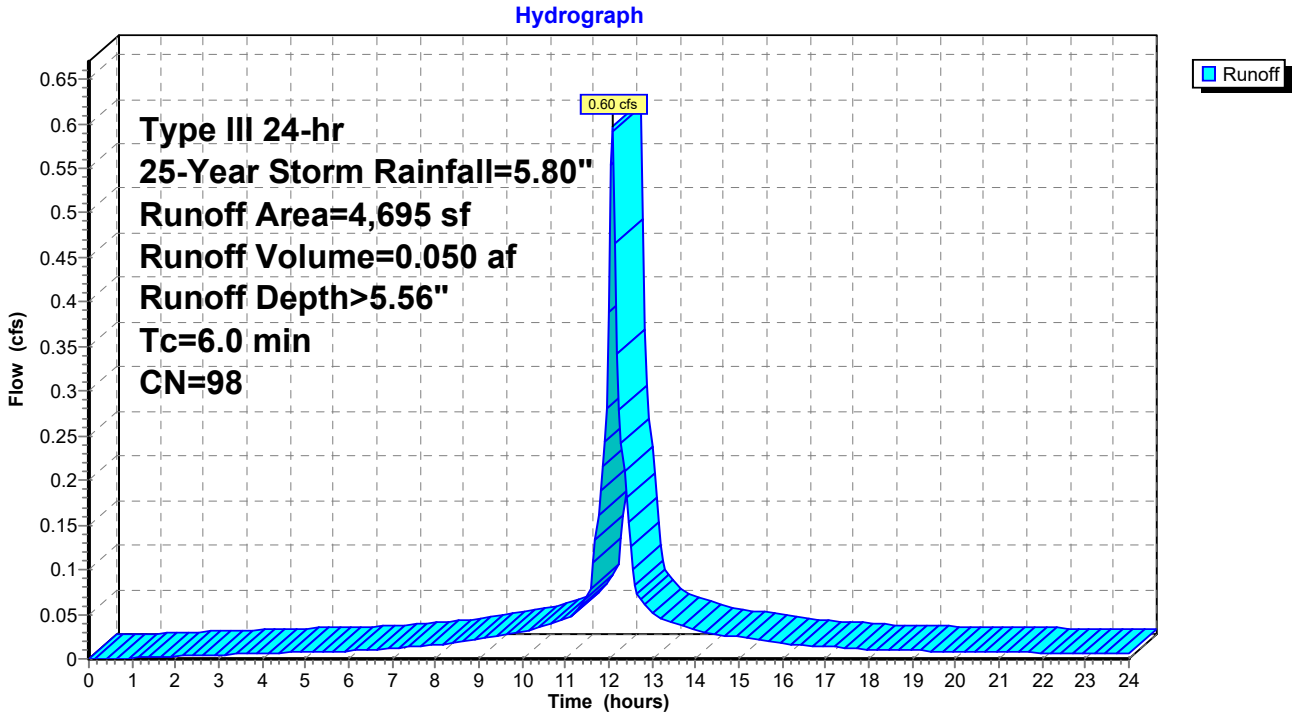
Runoff = 0.60 cfs @ 12.09 hrs, Volume= 0.050 af, Depth> 5.56"
Routed to Pond 1P : DMH 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	4,695	98	Roof
	4,695		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 9S: Building 2 North



Summary for Subcatchment 10S: Building 3 North

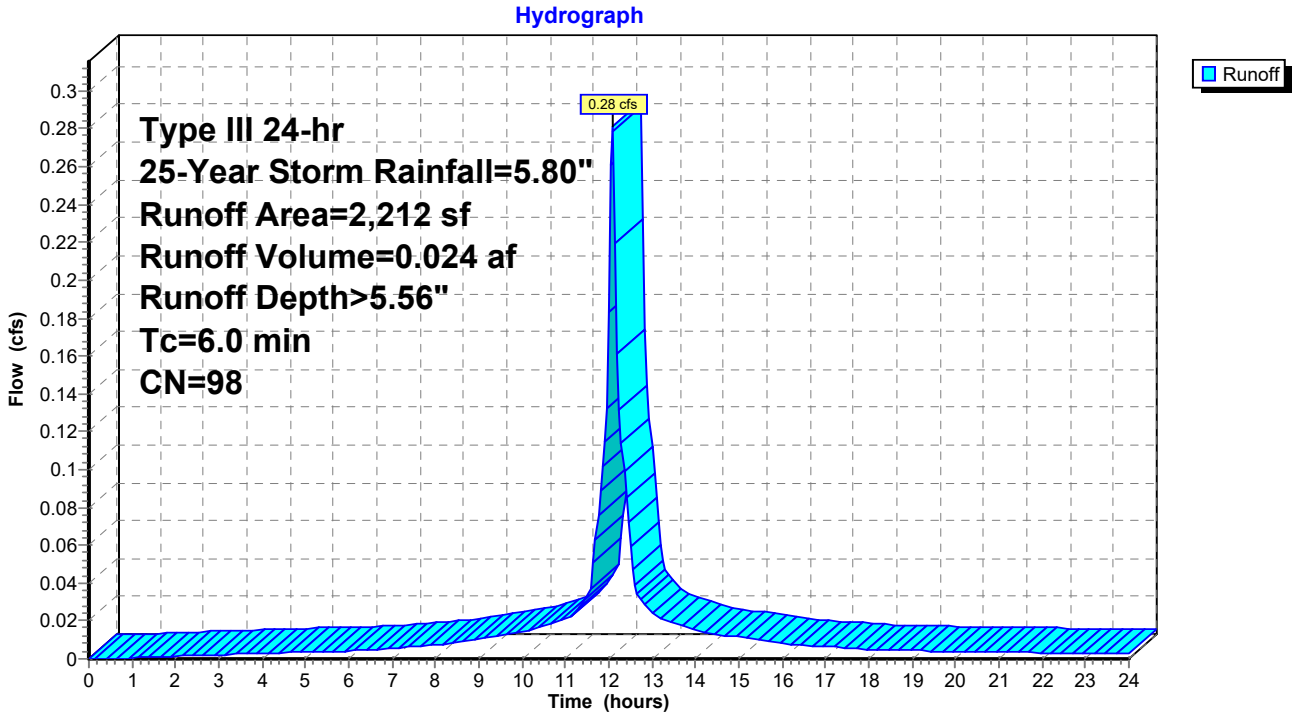
Runoff = 0.28 cfs @ 12.09 hrs, Volume= 0.024 af, Depth> 5.56"
Routed to Pond 6P : CB27

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	2,212	98	Roof
	2,212		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 10S: Building 3 North



Summary for Subcatchment 11S: Building 2 South

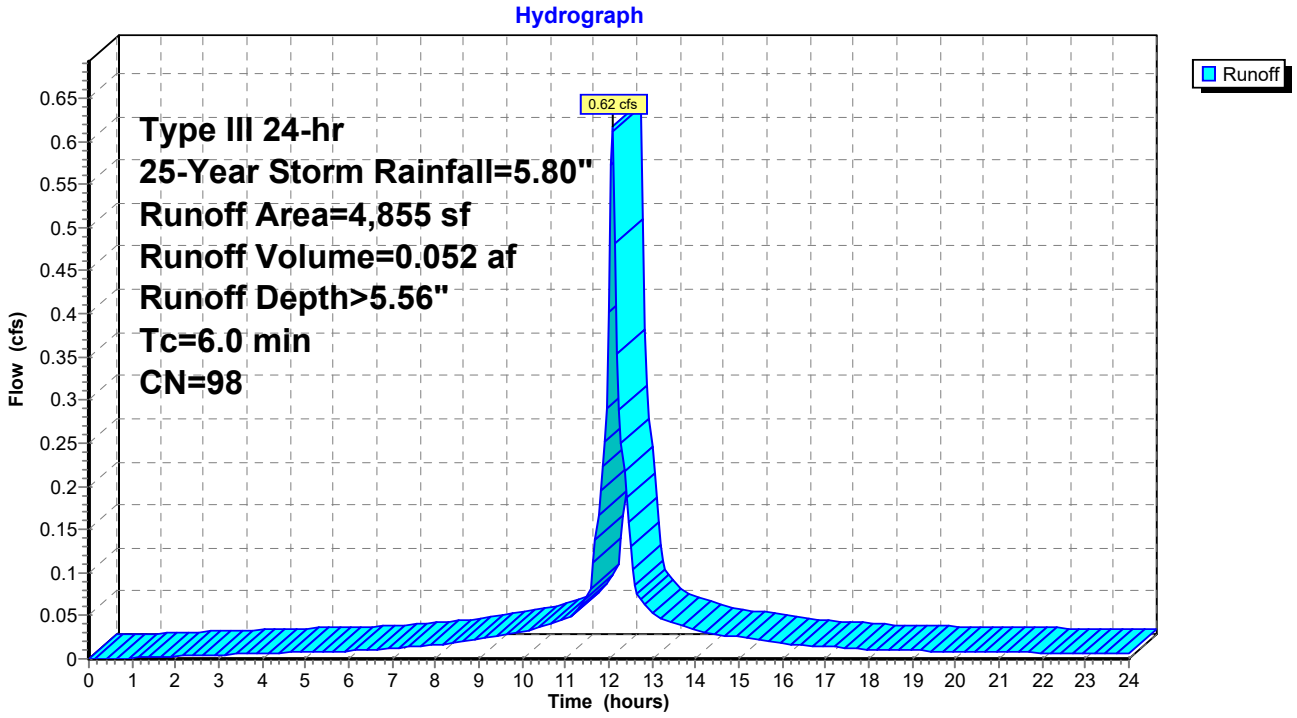
Runoff = 0.62 cfs @ 12.09 hrs, Volume= 0.052 af, Depth> 5.56"
Routed to Pond 1P : DMH 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	4,855	98	Roof
	4,855		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 11S: Building 2 South



Summary for Subcatchment 12S: Building 3 South

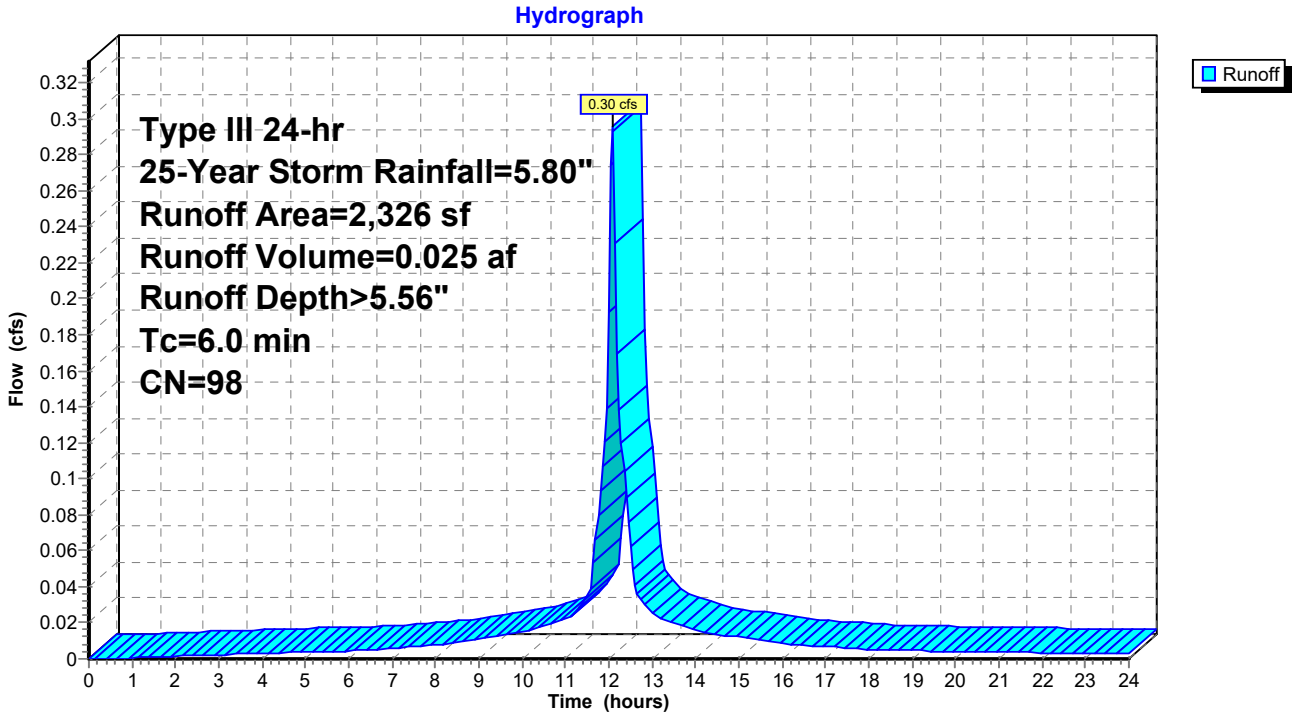
Runoff = 0.30 cfs @ 12.09 hrs, Volume= 0.025 af, Depth> 5.56"
Routed to Pond 6P : CB27

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	2,326	98	Roof
	2,326		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 12S: Building 3 South



Summary for Subcatchment 13S: Building 6

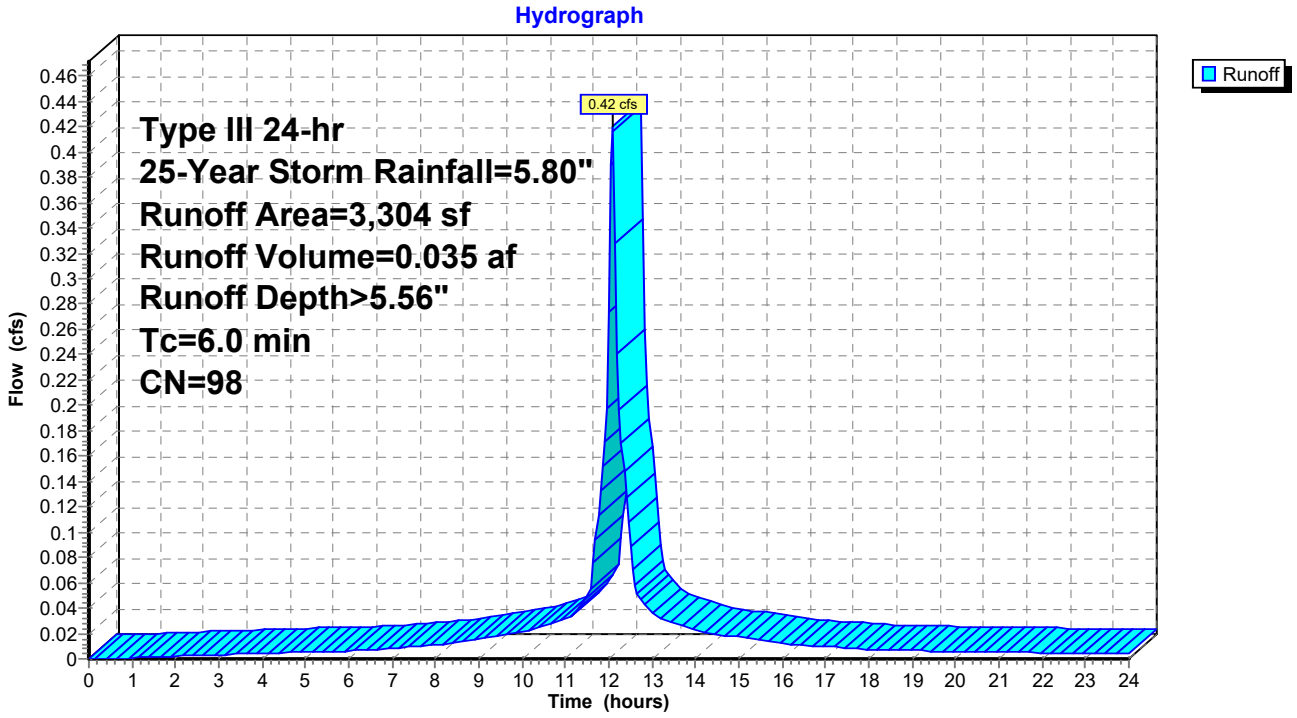
Runoff = 0.42 cfs @ 12.09 hrs, Volume= 0.035 af, Depth> 5.56"
Routed to Pond 2P : DMH 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	3,304	98	Roof
	3,304		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 13S: Building 6



Summary for Subcatchment 14S: Building 6B North

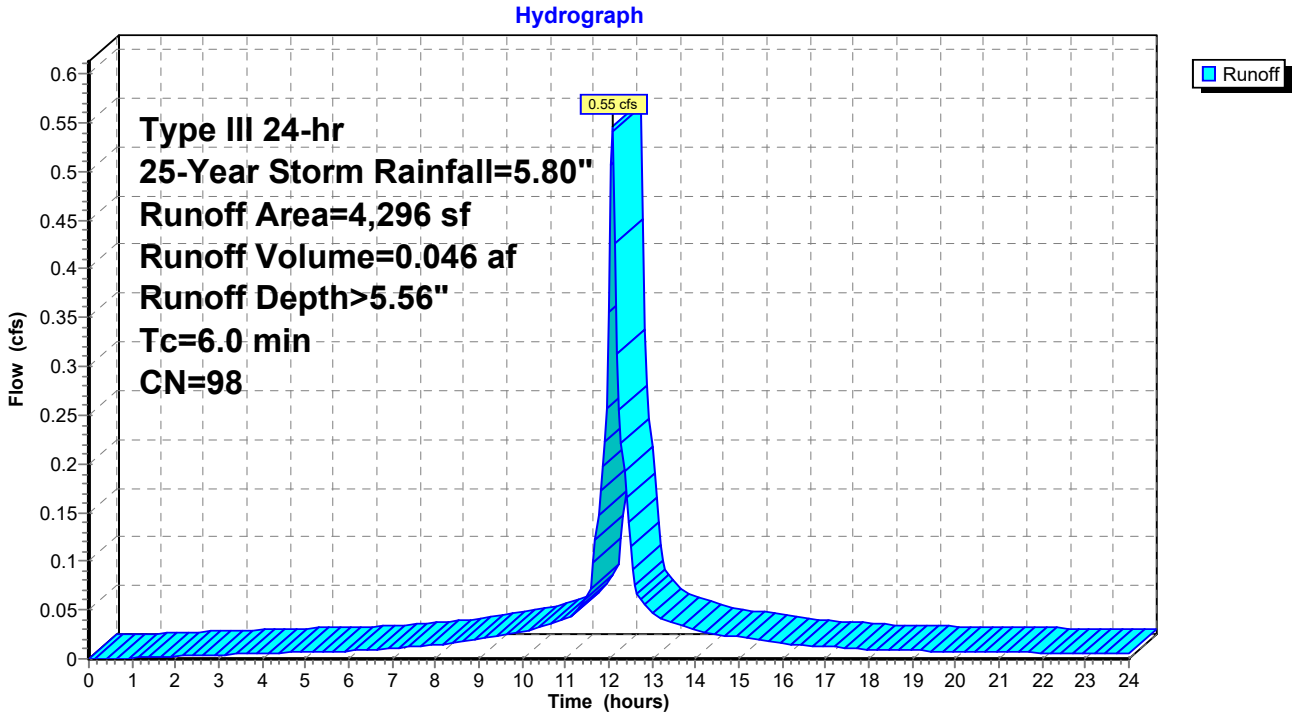
Runoff = 0.55 cfs @ 12.09 hrs, Volume= 0.046 af, Depth> 5.56"
Routed to Pond 6P : CB27

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	4,296	98	Roof
	4,296		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 14S: Building 6B North



Summary for Subcatchment 15S: Building 6B South

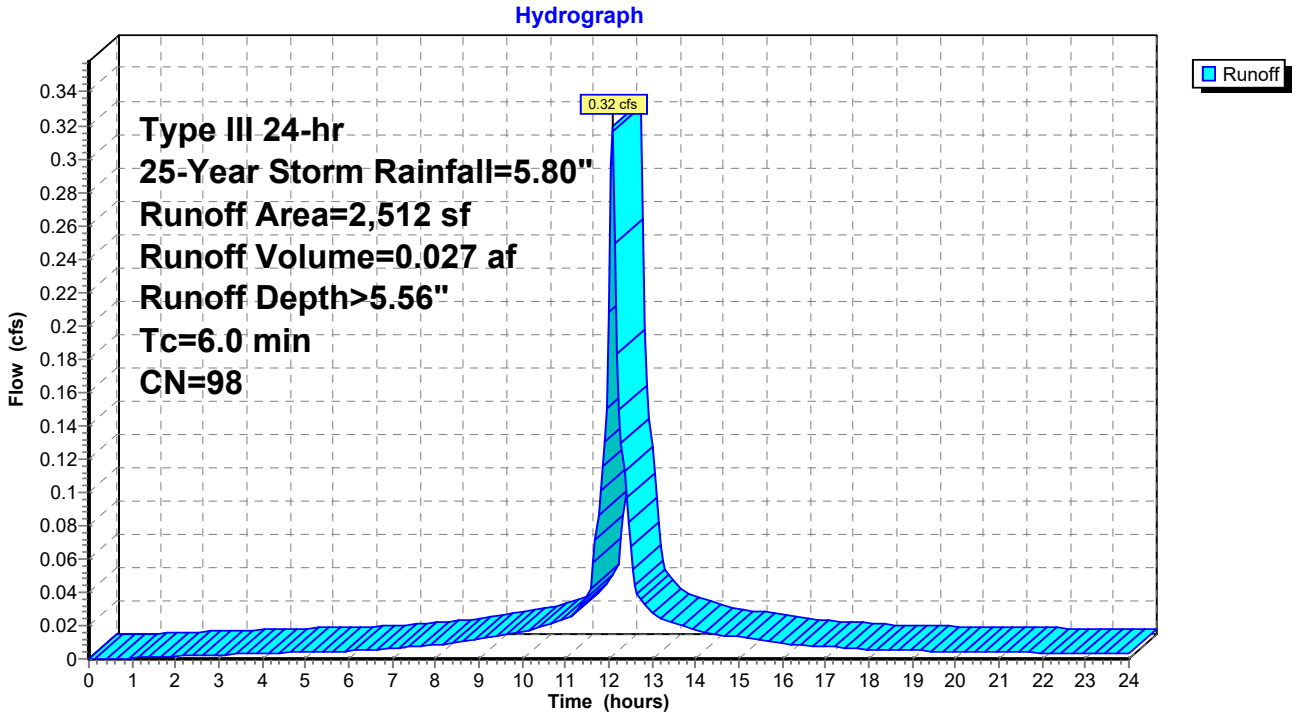
Runoff = 0.32 cfs @ 12.09 hrs, Volume= 0.027 af, Depth> 5.56"
Routed to Pond 6P : CB27

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	2,512	98	Roof
	2,512		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 15S: Building 6B South



Summary for Subcatchment 16S: Plaza between Blocks 1 & 2

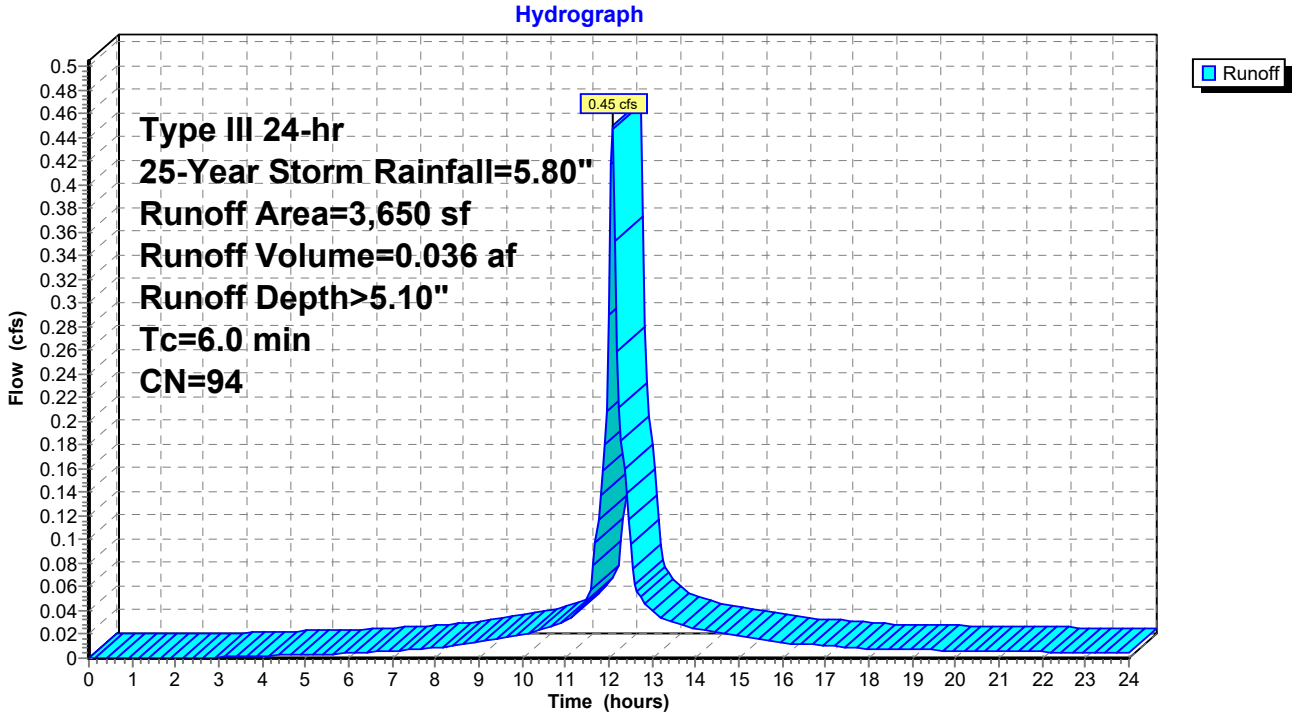
Runoff = 0.45 cfs @ 12.09 hrs, Volume= 0.036 af, Depth> 5.10"
Routed to Pond 2P : DMH 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	2,768	98	Impervious
	882	80	>75% Grass cover, Good, HSG D
	3,650	94	Weighted Average
	882		24.16% Pervious Area
	2,768		75.84% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 16S: Plaza between Blocks 1 & 2



Summary for Subcatchment 17S: Shared Street - Trench Drain

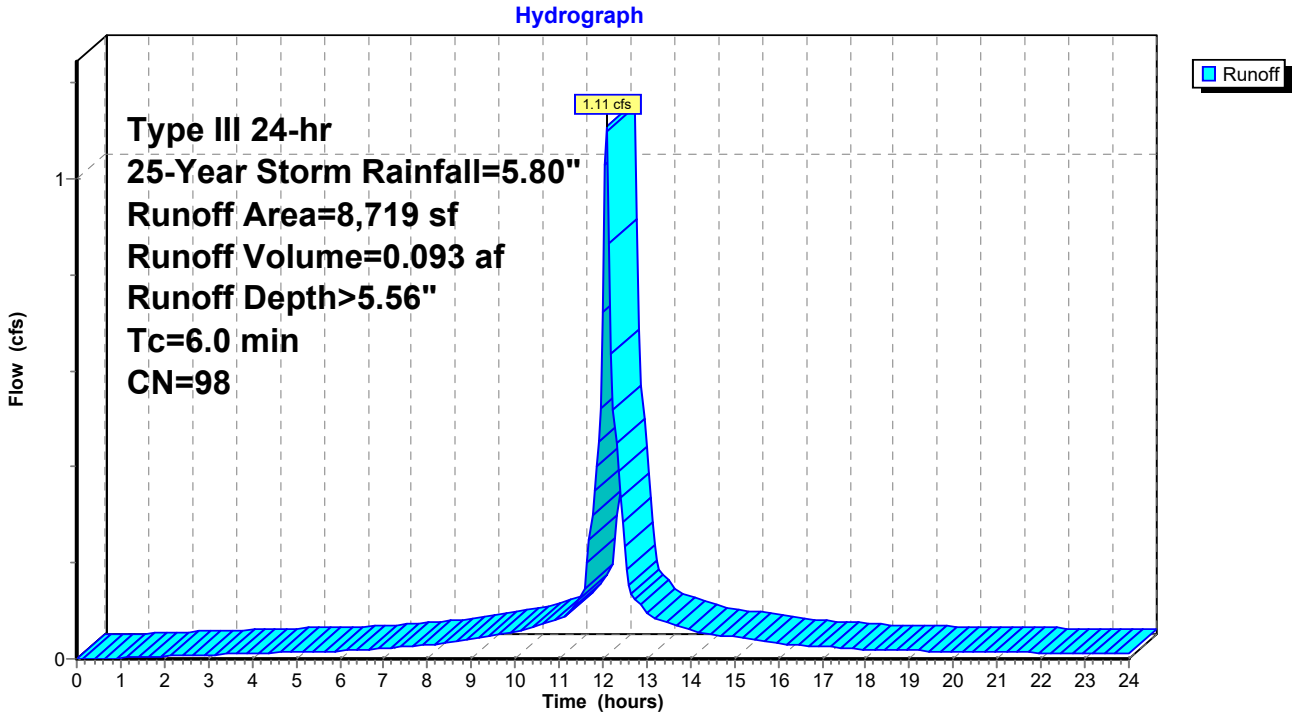
Runoff = 1.11 cfs @ 12.09 hrs, Volume= 0.093 af, Depth> 5.56"
Routed to Pond 6P : CB27

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	8,719	98	Impervious
	8,719		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 17S: Shared Street - Trench Drain



Summary for Subcatchment 18S: Plaza between Blocks 2 & 4 and Upper Thames St

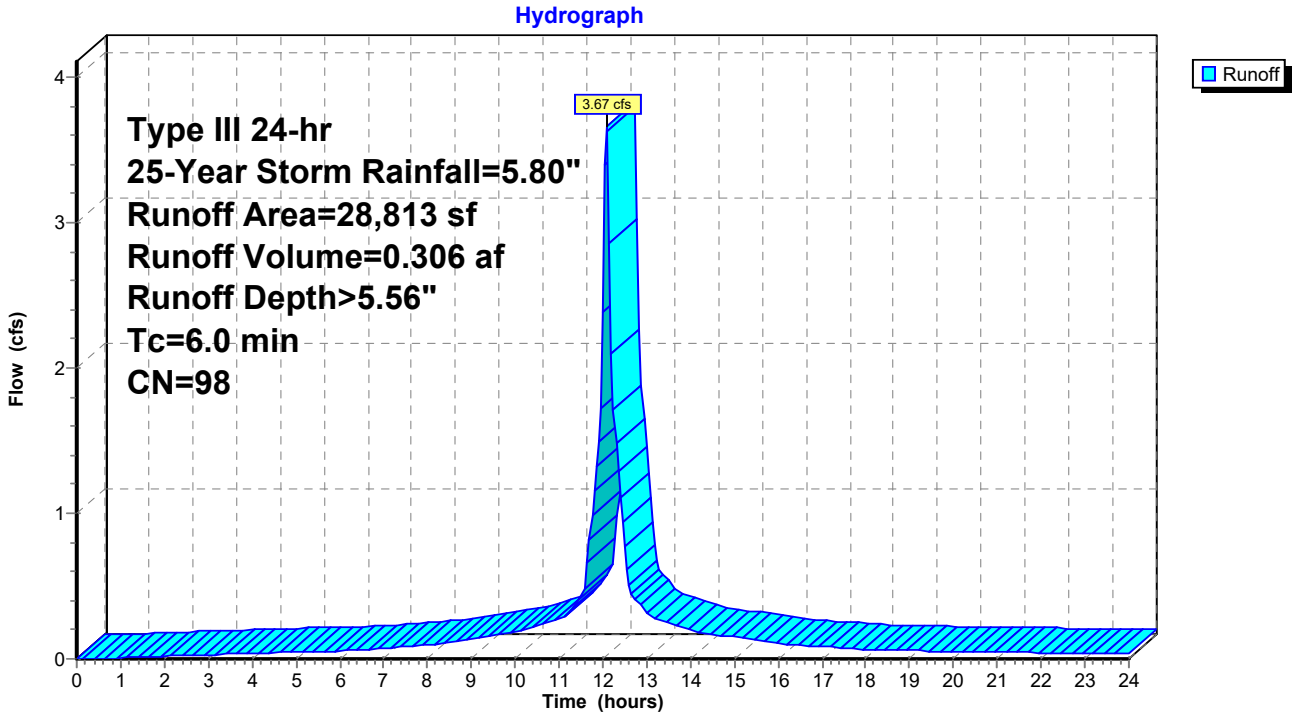
Runoff = 3.67 cfs @ 12.09 hrs, Volume= 0.306 af, Depth> 5.56"
Routed to Pond 6P : CB27

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	28,813	98	Impervious
	28,813		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 18S: Plaza between Blocks 2 & 4 and Upper Thames St



Summary for Subcatchment 19S: Block 4 Building

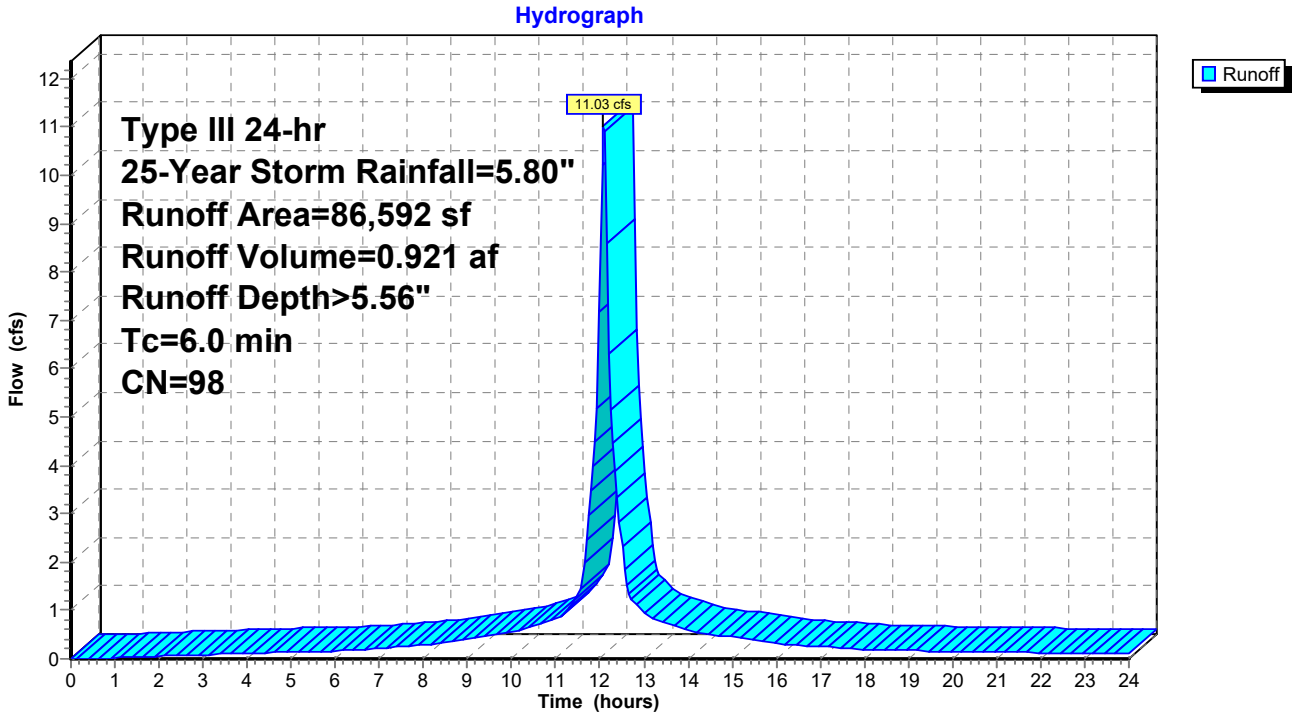
Runoff = 11.03 cfs @ 12.09 hrs, Volume= 0.921 af, Depth> 5.56"
Routed to Pond 6P : CB27

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	86,592	98	Roof
	86,592		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 19S: Block 4 Building



Summary for Subcatchment 20S: Direct to R-Tank

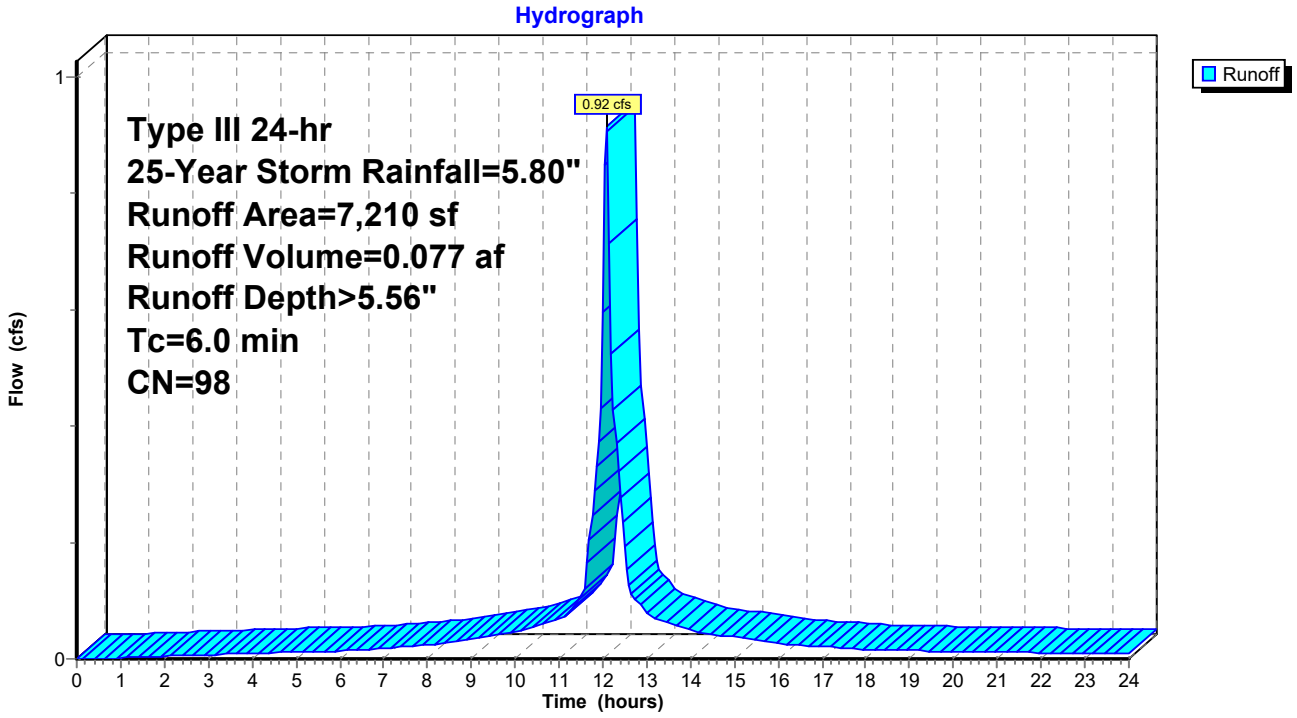
Runoff = 0.92 cfs @ 12.09 hrs, Volume= 0.077 af, Depth> 5.56"
Routed to Pond 8P : R-Tank 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	7,210	98	Impervious
	7,210		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 20S: Direct to R-Tank



Summary for Subcatchment 21S: Plaza along Building 4A at Fore Street

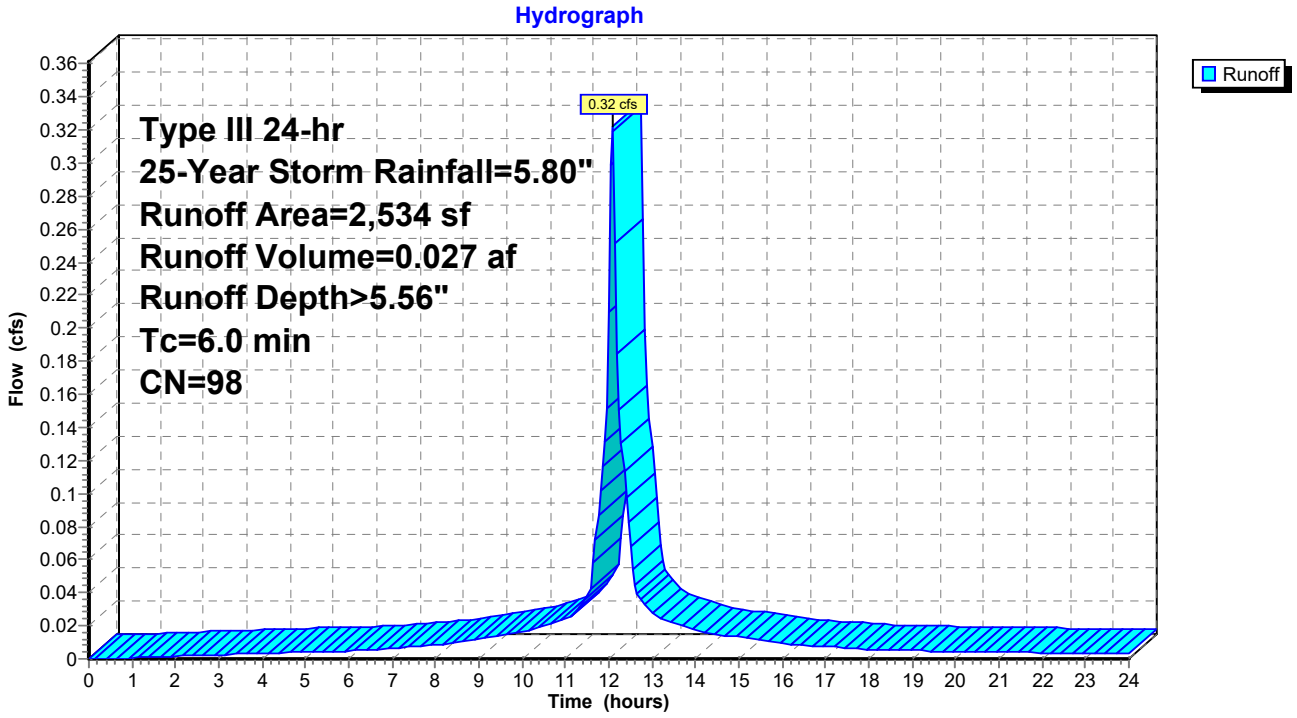
Runoff = 0.32 cfs @ 12.09 hrs, Volume= 0.027 af, Depth> 5.56"
Routed to Link 3L : Fore Street

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	2,534	98	Impervious
	2,534		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 21S: Plaza along Building 4A at Fore Street



Summary for Subcatchment 22S: Block 6 Building

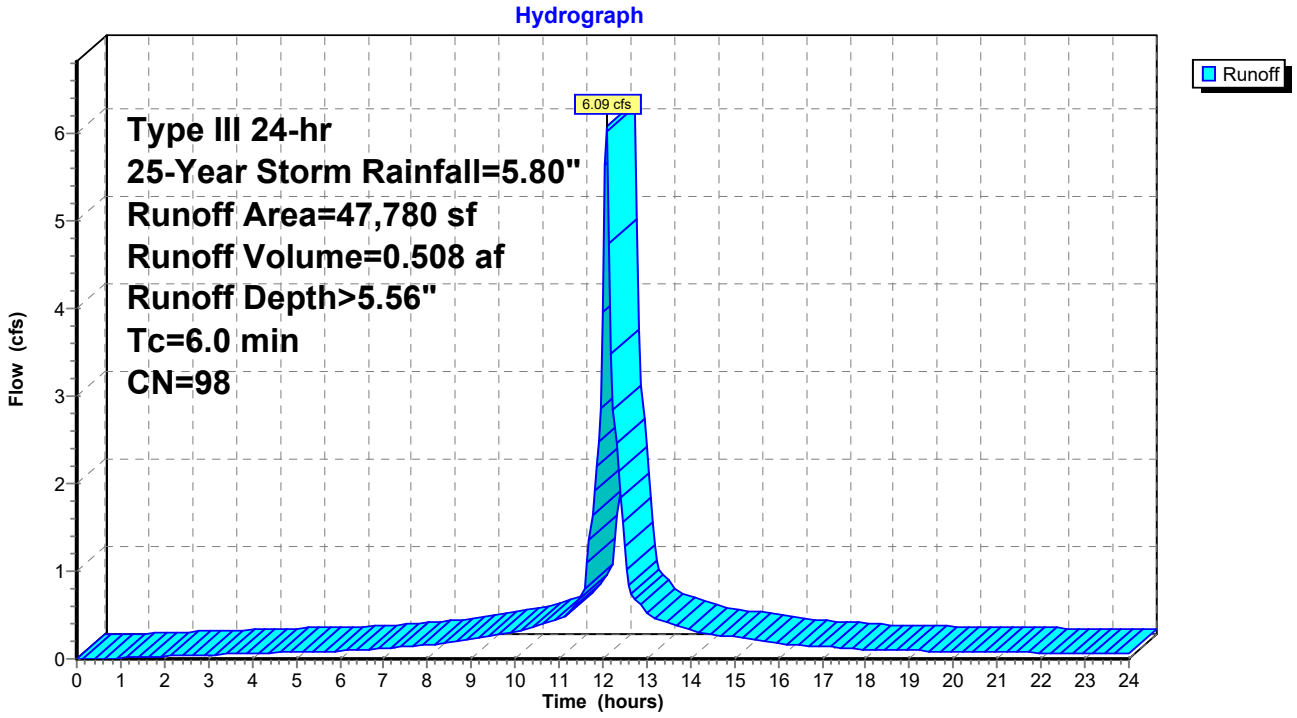
Runoff = 6.09 cfs @ 12.09 hrs, Volume= 0.508 af, Depth> 5.56"
Routed to Pond 13P : DMH-13 (Outfall #2)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	47,780	98	Roof
	47,780		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 22S: Block 6 Building



Summary for Subcatchment 23S: Block 5 Building to R-Tank

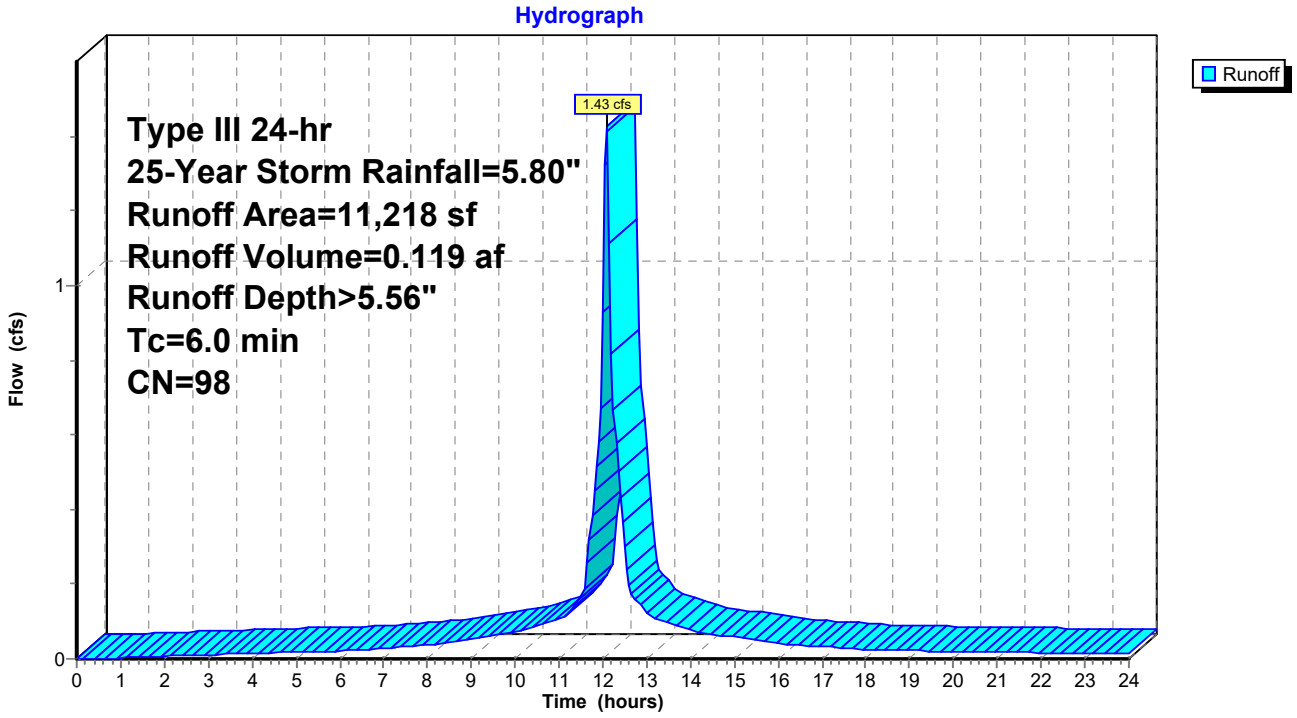
Runoff = 1.43 cfs @ 12.09 hrs, Volume= 0.119 af, Depth> 5.56"
Routed to Pond 6P : CB27

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	11,218	98	Impervious
	11,218		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 23S: Block 5 Building to R-Tank



Summary for Subcatchment 24S: Block 5 Building

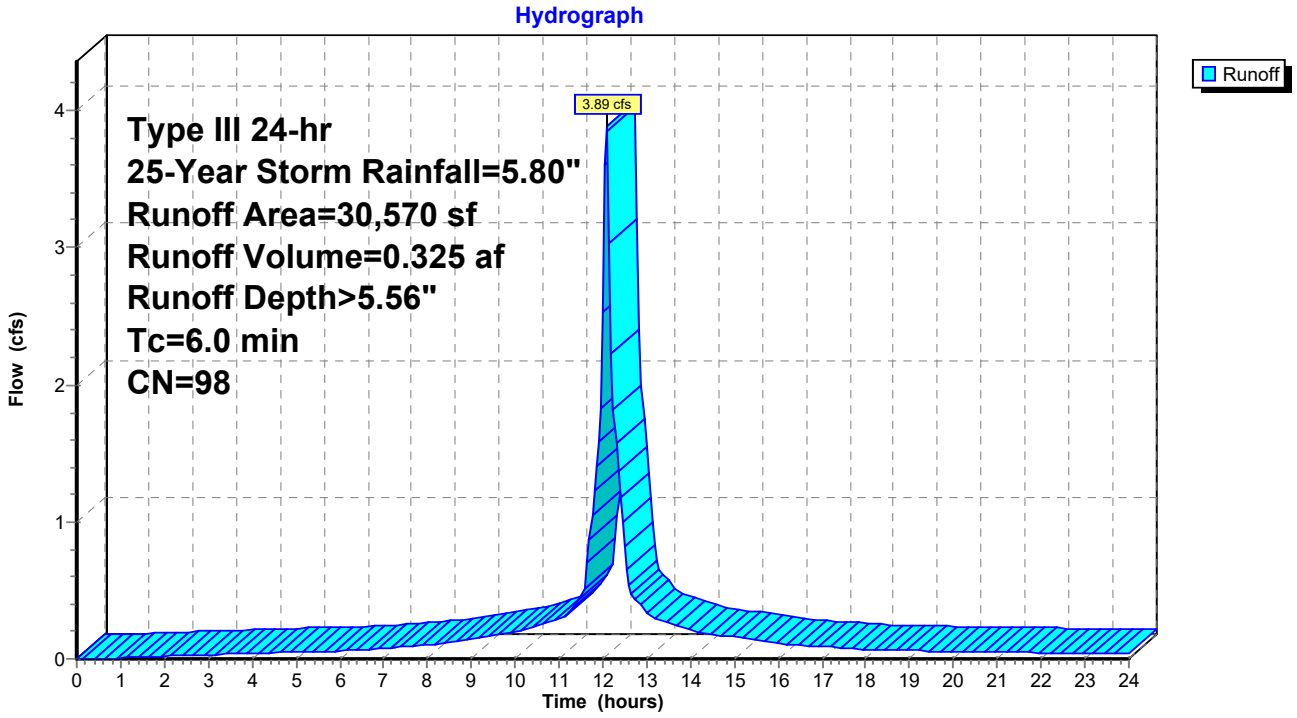
Runoff = 3.89 cfs @ 12.09 hrs, Volume= 0.325 af, Depth> 5.56"
Routed to Pond 13P : DMH-13 (Outfall #2)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	30,570	98	Impervious
	30,570		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 24S: Block 5 Building



Summary for Subcatchment 25S: Southern Plaza

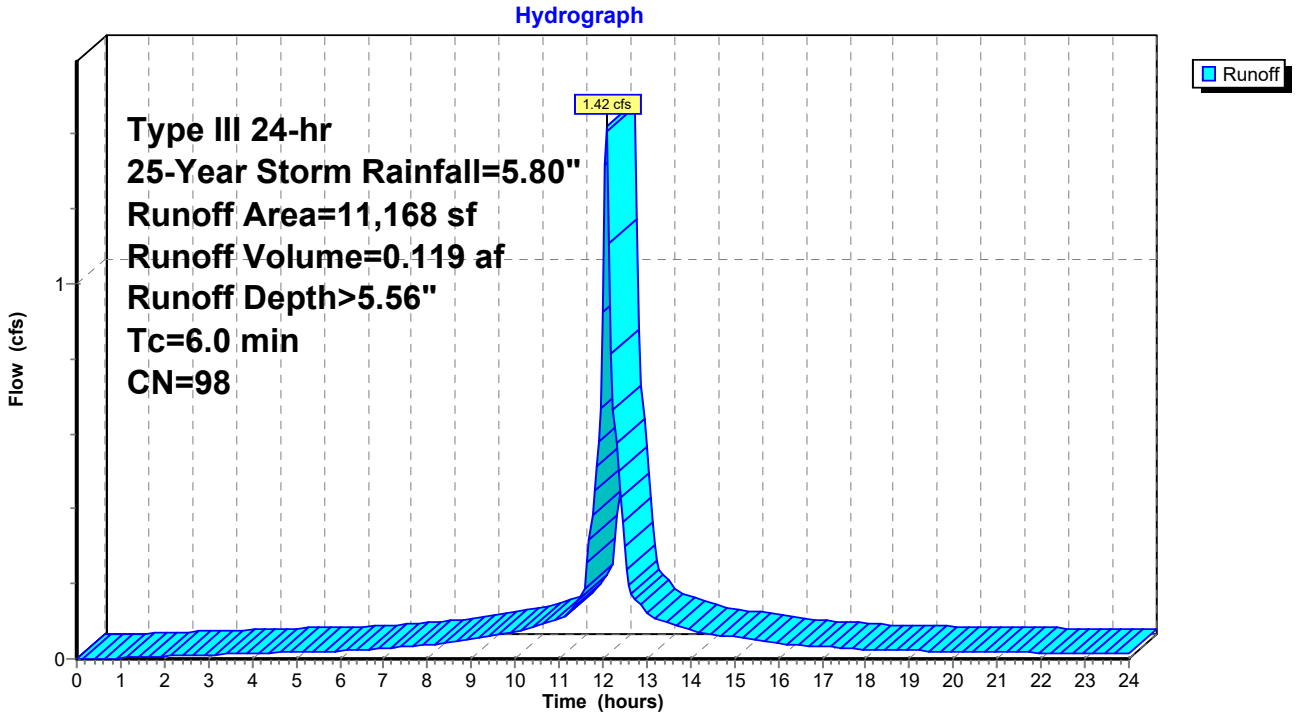
Runoff = 1.42 cfs @ 12.09 hrs, Volume= 0.119 af, Depth> 5.56"
Routed to Pond 13P : DMH-13 (Outfall #2)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	11,168	98	Impervious
	11,168		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 25S: Southern Plaza



Summary for Subcatchment 26S: Plaza along Townhouse at Fore Street

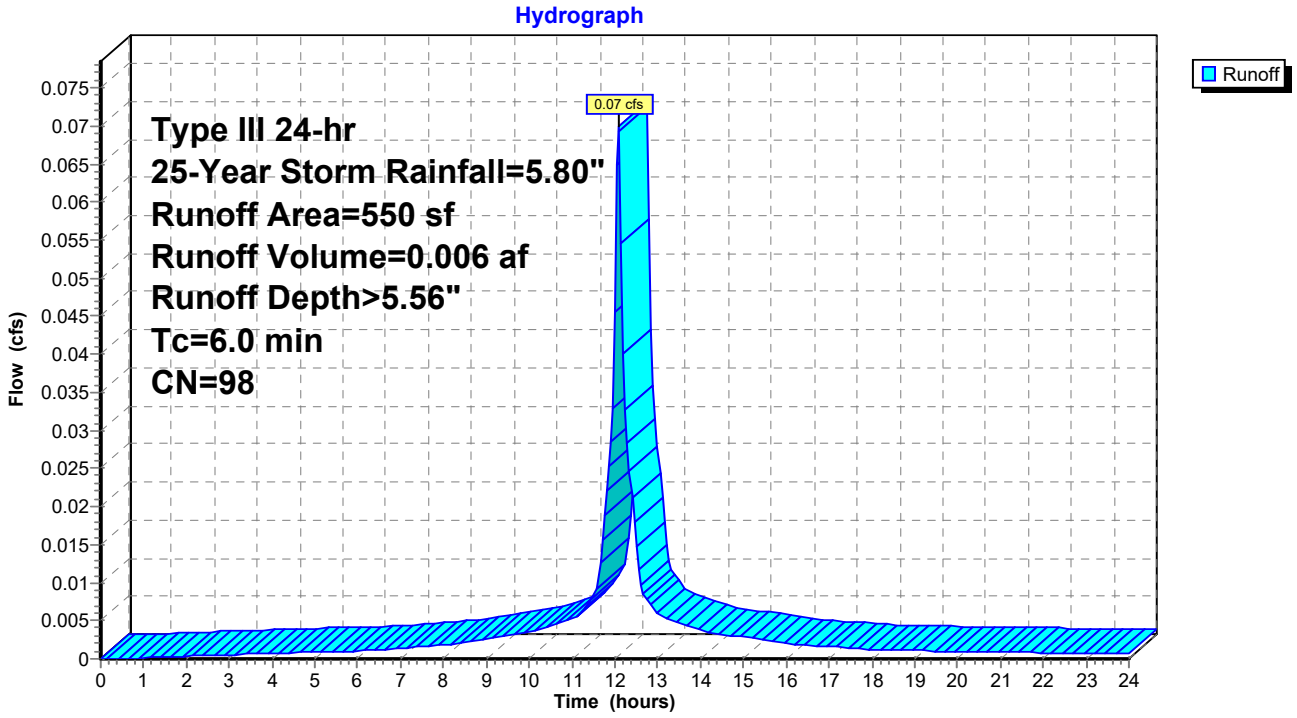
Runoff = 0.07 cfs @ 12.09 hrs, Volume= 0.006 af, Depth> 5.56"
Routed to Link 3L : Fore Street

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	550	98	Impervious
	550		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 26S: Plaza along Townhouse at Fore Street



Summary for Subcatchment 27S: Drainage from off-site residential

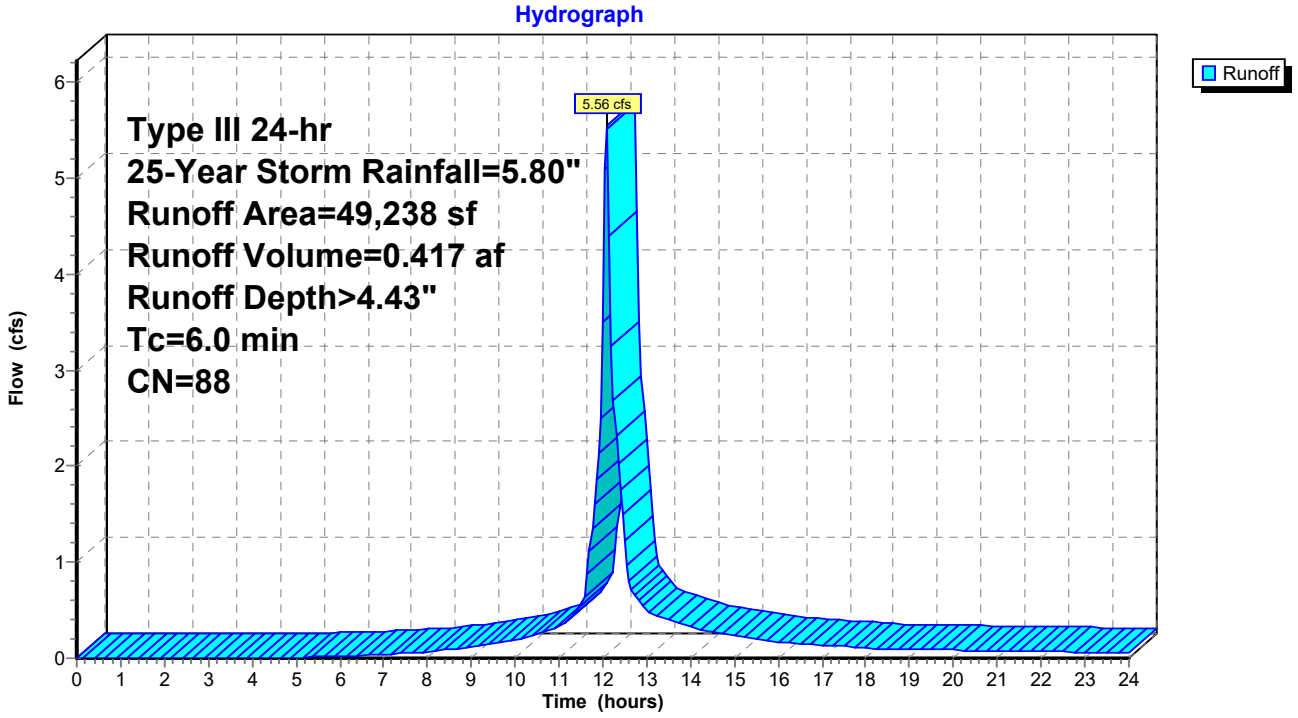
Runoff = 5.56 cfs @ 12.09 hrs, Volume= 0.417 af, Depth> 4.43"
Routed to Pond 13P : DMH-13 (Outfall #2)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	21,588	98	Impervious
	27,650	80	>75% Grass cover, Good, HSG D
	49,238	88	Weighted Average
	27,650		56.16% Pervious Area
	21,588		43.84% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 27S: Drainage from off-site residential



Summary for Subcatchment 28S: Waterfront

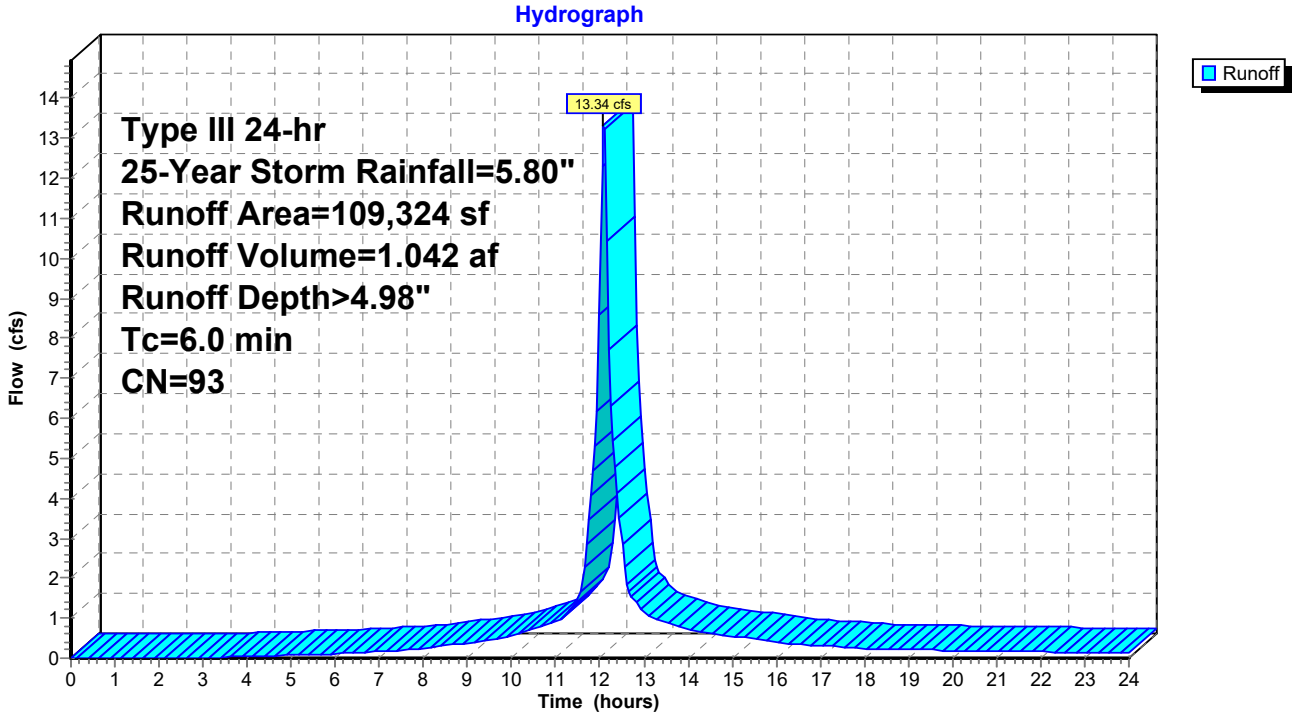
Runoff = 13.34 cfs @ 12.09 hrs, Volume= 1.042 af, Depth> 4.98"
Routed to Link 2L : Fore River

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	78,916	98	Impervious
	30,408	80	>75% Grass cover, Good, HSG D
	109,324	93	Weighted Average
	30,408		27.81% Pervious Area
	78,916		72.19% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 28S: Waterfront



Summary for Subcatchment 29S: Block 6 Building

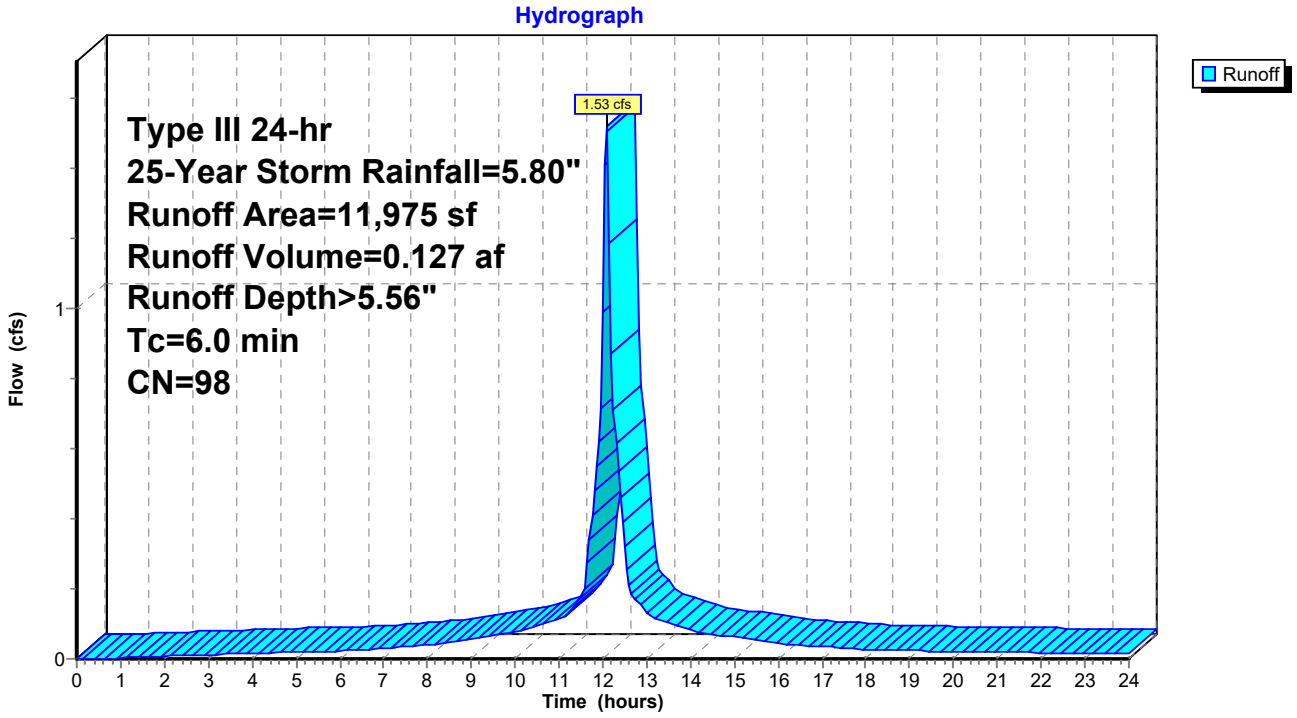
Runoff = 1.53 cfs @ 12.09 hrs, Volume= 0.127 af, Depth> 5.56"
Routed to Pond 24P : Filterra 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	11,975	98	Roof
	11,975		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 29S: Block 6 Building



Summary for Subcatchment 30S: Block 6 Building

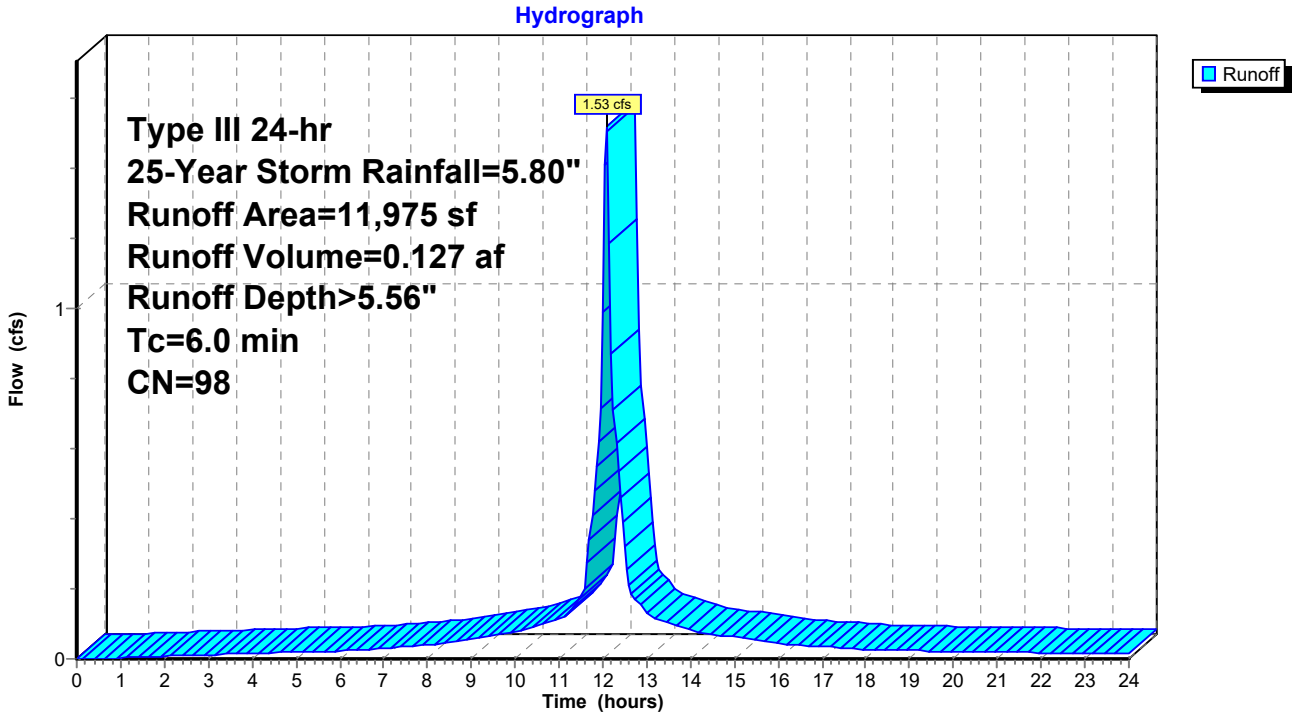
Runoff = 1.53 cfs @ 12.09 hrs, Volume= 0.127 af, Depth> 5.56"
Routed to Pond 28P : Filterra 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	11,975	98	Roof
	11,975		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 30S: Block 6 Building



Summary for Pond 1P: DMH 1

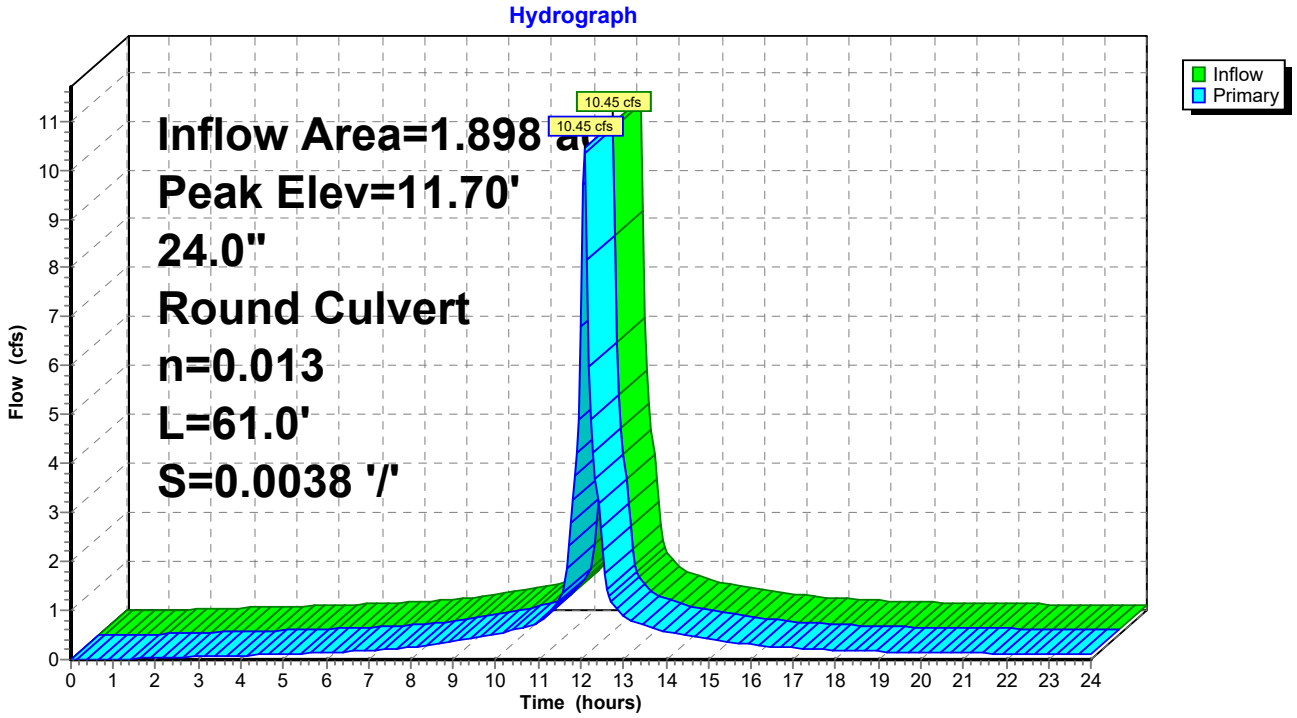
Inflow Area = 1.898 ac, 93.68% Impervious, Inflow Depth > 5.42" for 25-Year Storm event
Inflow = 10.45 cfs @ 12.09 hrs, Volume= 0.858 af
Outflow = 10.45 cfs @ 12.09 hrs, Volume= 0.858 af, Atten= 0%, Lag= 0.0 min
Primary = 10.45 cfs @ 12.09 hrs, Volume= 0.858 af
Routed to Pond 2P : DMH 2

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 11.70' @ 12.09 hrs
Flood Elev= 14.71'

Device	Routing	Invert	Outlet Devices
#1	Primary	9.77'	**24.0" Round Culvert** L= 61.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 9.77' / 9.54' S= 0.0038 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=10.17 cfs @ 12.09 hrs HW=11.67' (Free Discharge)
1=Culvert (Barrel Controls 10.17 cfs @ 4.26 fps)

Pond 1P: DMH 1



Summary for Pond 2P: DMH 2

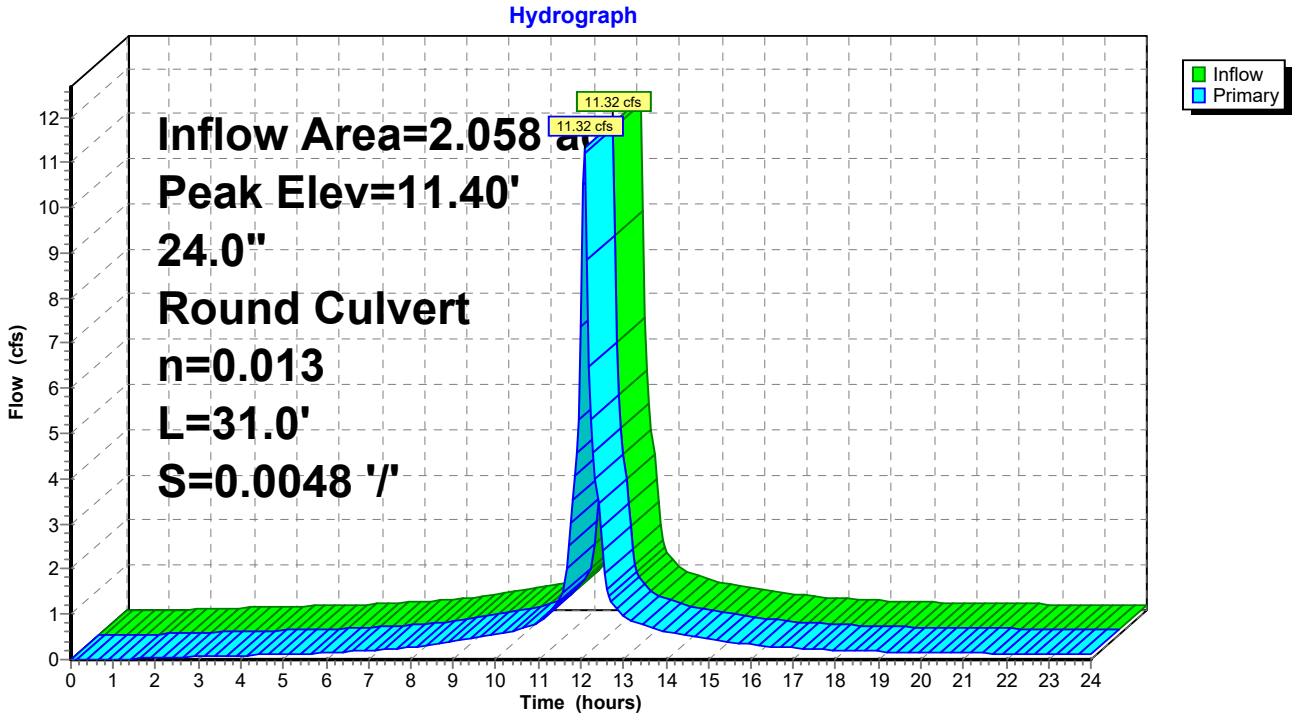
Inflow Area = 2.058 ac, 93.19% Impervious, Inflow Depth > 5.41" for 25-Year Storm event
Inflow = 11.32 cfs @ 12.09 hrs, Volume= 0.928 af
Outflow = 11.32 cfs @ 12.09 hrs, Volume= 0.928 af, Atten= 0%, Lag= 0.0 min
Primary = 11.32 cfs @ 12.09 hrs, Volume= 0.928 af
Routed to Pond 3P : Storm Structure

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 11.40' @ 12.09 hrs
Flood Elev= 14.63'

Device	Routing	Invert	Outlet Devices
#1	Primary	9.50'	**24.0" Round Culvert** L= 31.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 9.50' / 9.35' S= 0.0048 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=11.02 cfs @ 12.09 hrs HW=11.37' (Free Discharge)
1=Culvert (Barrel Controls 11.02 cfs @ 4.69 fps)

Pond 2P: DMH 2



Summary for Pond 3P: Storm Structure

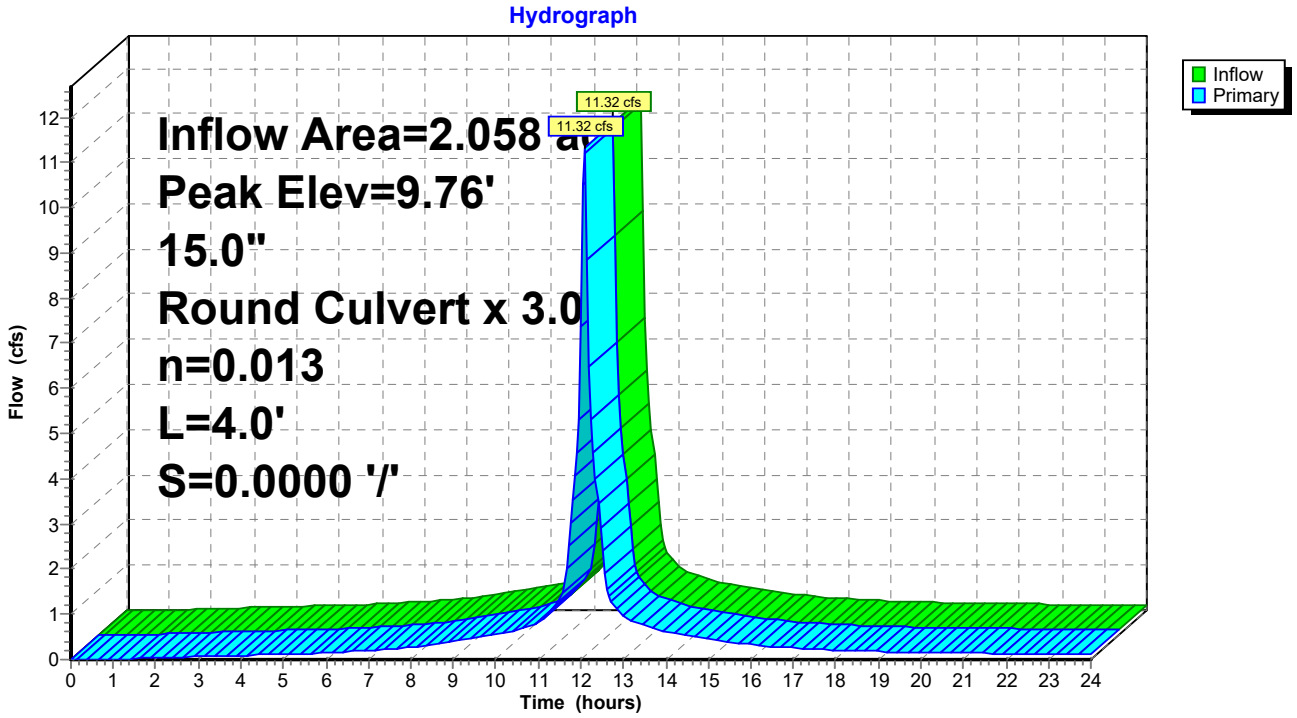
Inflow Area = 2.058 ac, 93.19% Impervious, Inflow Depth > 5.41" for 25-Year Storm event
Inflow = 11.32 cfs @ 12.09 hrs, Volume= 0.928 af
Outflow = 11.32 cfs @ 12.09 hrs, Volume= 0.928 af, Atten= 0%, Lag= 0.0 min
Primary = 11.32 cfs @ 12.09 hrs, Volume= 0.928 af
Routed to Pond 4P : R-Tank 1

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 9.76' @ 12.09 hrs
Flood Elev= 14.51'

Device	Routing	Invert	Outlet Devices
#1	Primary	8.35'	**15.0" Round Culvert X 3.00** L= 4.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 8.35' / 8.35' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=11.02 cfs @ 12.09 hrs HW=9.74' (Free Discharge)
1=Culvert (Barrel Controls 11.02 cfs @ 3.37 fps)

Pond 3P: Storm Structure



Summary for Pond 4P: R-Tank 1

Inflow Area = 2.058 ac, 93.19% Impervious, Inflow Depth > 5.41" for 25-Year Storm event
Inflow = 11.32 cfs @ 12.09 hrs, Volume= 0.928 af
Outflow = 10.00 cfs @ 12.14 hrs, Volume= 0.920 af, Atten= 12%, Lag= 2.9 min
Primary = 10.00 cfs @ 12.14 hrs, Volume= 0.920 af
Routed to Pond 10P : DMH 4

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 9.27' @ 12.13 hrs Surf.Area= 1,162 sf Storage= 2,513 cf
Flood Elev= 12.00' Surf.Area= 1,162 sf Storage= 3,266 cf

Plug-Flow detention time= 16.3 min calculated for 0.920 af (99% of inflow)
Center-of-Mass det. time= 10.6 min (763.5 - 753.0)

Volume	Invert	Avail.Storage	Storage Description
#1	6.50'	892 cf	**Stone Envelope (Prismatic)** Listed below (Recalc) 4,729 cf Overall - 2,499 cf Embedded = 2,231 cf x 40.0% Voids
#2	6.75'	2,374 cf	**R-Tank Double Modules (Prismatic)** Listed below (Recalc) Inside #1 2,499 cf Overall x 95.0% Voids
		3,266 cf	Total Available Storage

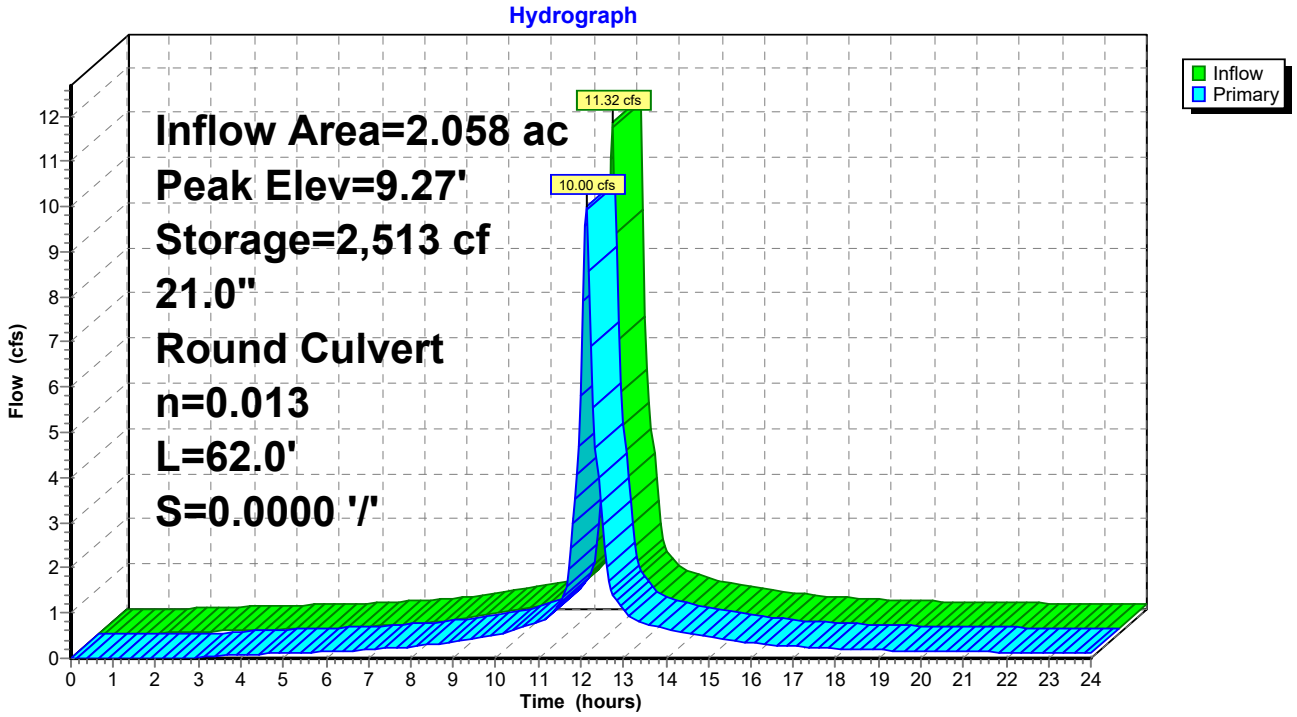
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
6.50	1,162	0	0
10.57	1,162	4,729	4,729

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
6.75	886	0	0
9.57	886	2,499	2,499

Device	Routing	Invert	Outlet Devices
#1	Primary	6.75'	**21.0" Round Culvert to Filter** L= 62.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 6.75' / 6.75' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 2.41 sf

Primary OutFlow Max=9.82 cfs @ 12.14 hrs HW=9.23' (Free Discharge)
↑—**1=Culvert to Filter** (Barrel Controls 9.82 cfs @ 4.08 fps)

Pond 4P: R-Tank 1



Summary for Pond 5P: DMH-11

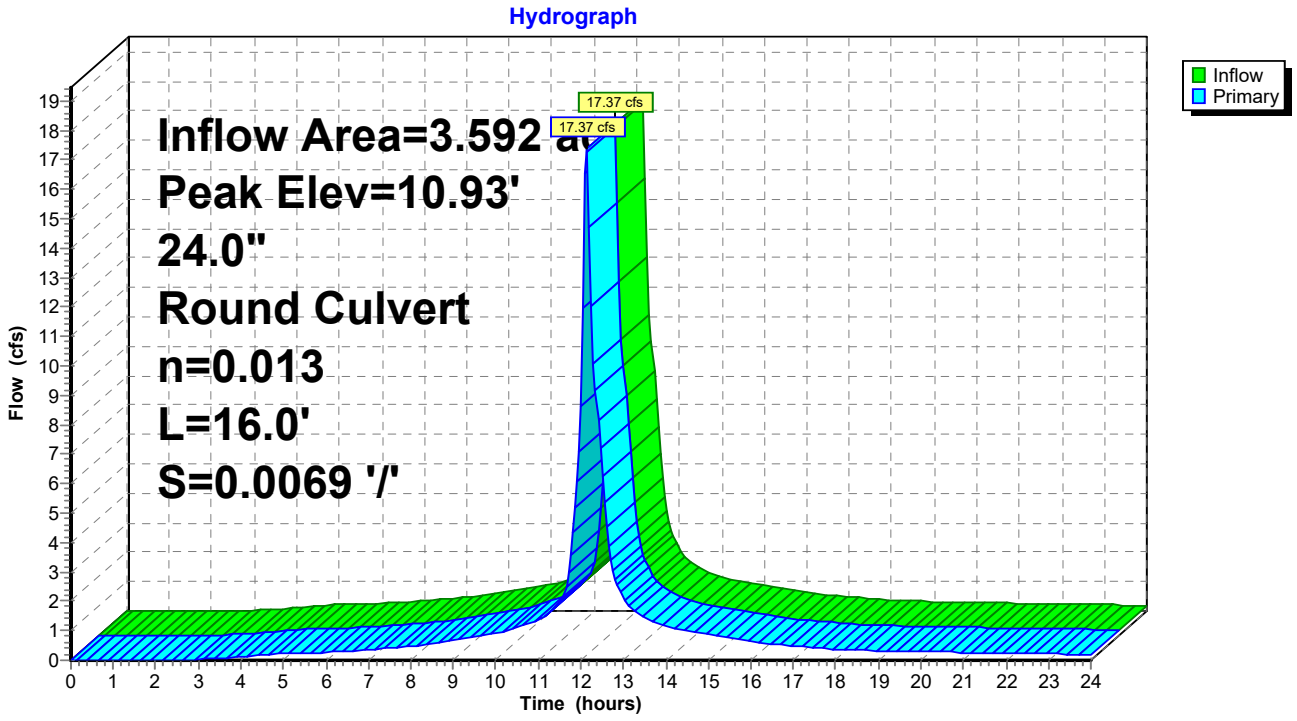
Inflow Area = 3.592 ac,100.00% Impervious, Inflow Depth > 5.47" for 25-Year Storm event
Inflow = 17.37 cfs @ 12.14 hrs, Volume= 1.637 af
Outflow = 17.37 cfs @ 12.14 hrs, Volume= 1.637 af, Atten= 0%, Lag= 0.0 min
Primary = 17.37 cfs @ 12.14 hrs, Volume= 1.637 af
Routed to Pond 12P : Jellyfish 2 JFPD0806-7-2

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 10.93' @ 12.14 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	7.82'	**24.0" Round Culvert** L= 16.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 7.82' / 7.71' S= 0.0069 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=17.04 cfs @ 12.14 hrs HW=10.86' (Free Discharge)
1=Culvert (Inlet Controls 17.04 cfs @ 5.43 fps)

Pond 5P: DMH-11



Summary for Pond 6P: CB27

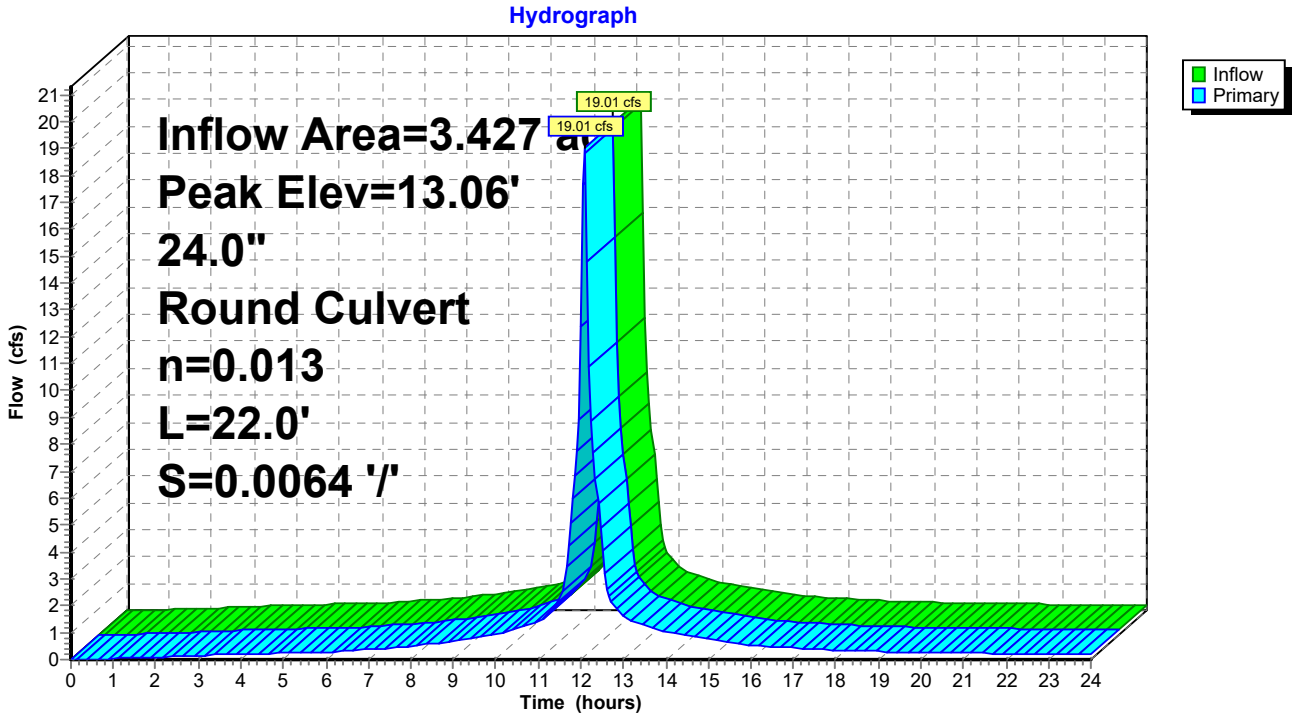
Inflow Area = 3.427 ac,100.00% Impervious, Inflow Depth > 5.56" for 25-Year Storm event
Inflow = 19.01 cfs @ 12.09 hrs, Volume= 1.587 af
Outflow = 19.01 cfs @ 12.09 hrs, Volume= 1.587 af, Atten= 0%, Lag= 0.0 min
Primary = 19.01 cfs @ 12.09 hrs, Volume= 1.587 af
Routed to Pond 7P : Storm Structure

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 13.06' @ 12.09 hrs
Flood Elev= 14.57'

Device	Routing	Invert	Outlet Devices
#1	Primary	9.53'	**24.0" Round Culvert** L= 22.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 9.53' / 9.39' S= 0.0064 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=18.51 cfs @ 12.09 hrs HW=12.93' (Free Discharge)
1=Culvert (Inlet Controls 18.51 cfs @ 5.89 fps)

Pond 6P: CB27



Summary for Pond 7P: Storm Structure

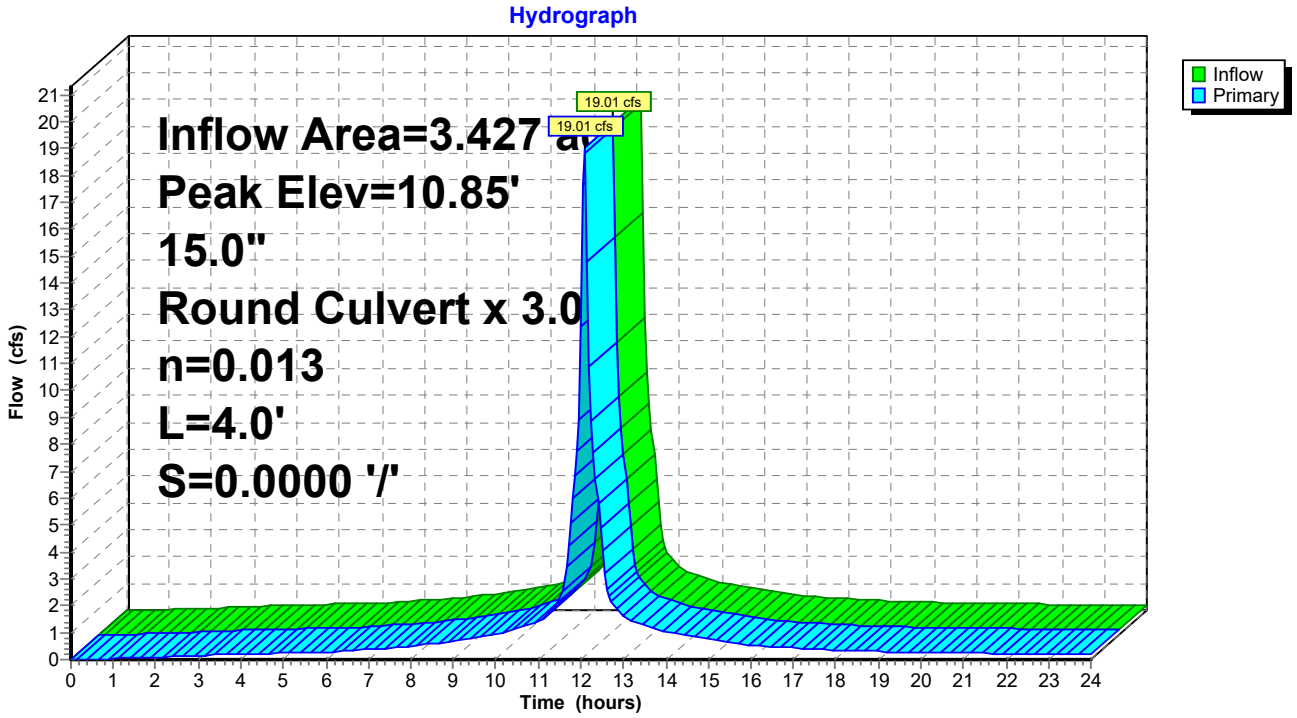
Inflow Area = 3.427 ac,100.00% Impervious, Inflow Depth > 5.56" for 25-Year Storm event
Inflow = 19.01 cfs @ 12.09 hrs, Volume= 1.587 af
Outflow = 19.01 cfs @ 12.09 hrs, Volume= 1.587 af, Atten= 0%, Lag= 0.0 min
Primary = 19.01 cfs @ 12.09 hrs, Volume= 1.587 af
Routed to Pond 8P : R-Tank 2

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 10.85' @ 12.09 hrs
Flood Elev= 14.25'

Device	Routing	Invert	Outlet Devices
#1	Primary	8.39'	**15.0" Round Culvert X 3.00** L= 4.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 8.39' / 8.39' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=18.51 cfs @ 12.09 hrs HW=10.76' (Free Discharge)
1=Culvert (Inlet Controls 18.51 cfs @ 5.03 fps)

Pond 7P: Storm Structure



Summary for Pond 8P: R-Tank 2

Inflow Area = 3.592 ac,100.00% Impervious, Inflow Depth > 5.56" for 25-Year Storm event
Inflow = 19.93 cfs @ 12.09 hrs, Volume= 1.664 af
Outflow = 17.37 cfs @ 12.14 hrs, Volume= 1.637 af, Atten= 13%, Lag= 3.0 min
Primary = 17.37 cfs @ 12.14 hrs, Volume= 1.637 af
Routed to Pond 5P : DMH-11

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 11.13' @ 12.14 hrs Surf.Area= 3,128 sf Storage= 7,657 cf
Flood Elev= 12.71' Surf.Area= 3,128 sf Storage= 8,290 cf

Plug-Flow detention time= 30.8 min calculated for 1.634 af (98% of inflow)
Center-of-Mass det. time= 20.4 min (765.7 - 745.2)

Volume	Invert	Avail.Storage	Storage Description
#1	7.57'	2,767 cf	**Stone Envelope (Prismatic)** Listed below (Recalc) 12,731 cf Overall - 5,813 cf Embedded = 6,918 cf x 40.0% Voids
#2	7.82'	5,523 cf	**R-Tank Double Modules (Prismatic)** Listed below (Recalc) Inside #1 5,813 cf Overall x 95.0% Voids
		8,290 cf	Total Available Storage

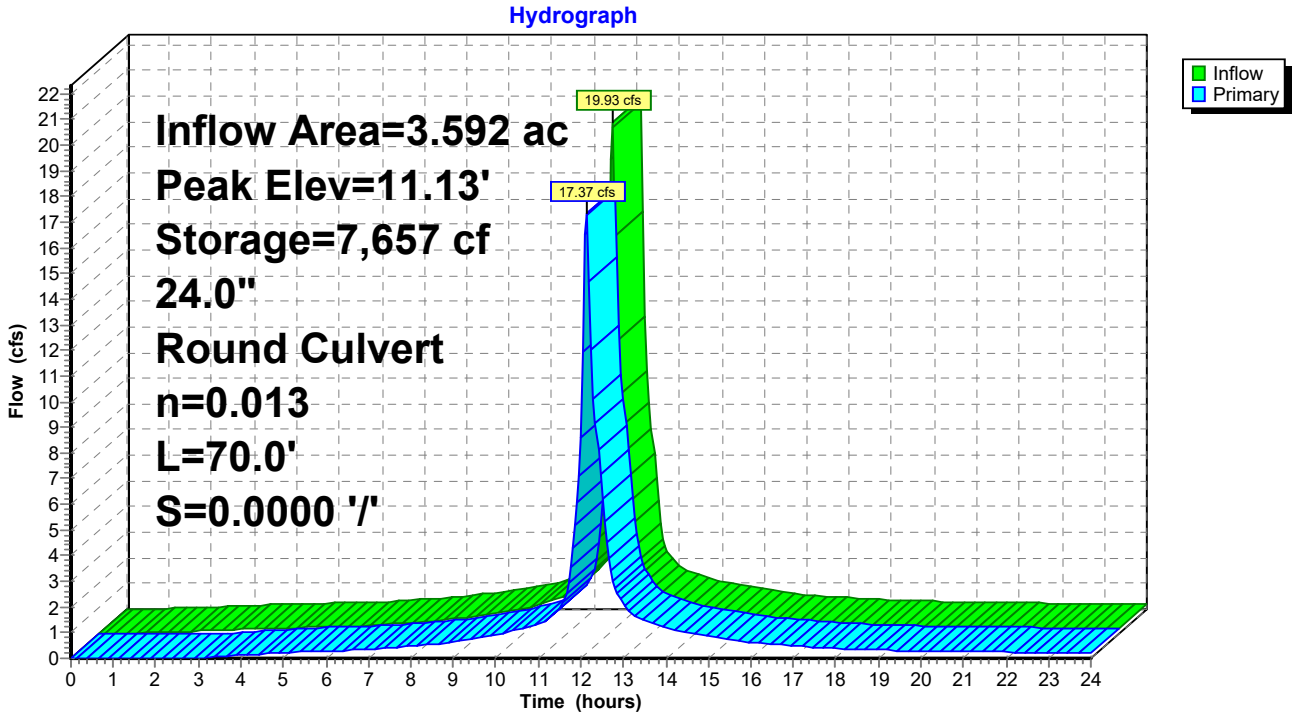
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
7.57	3,128	0	0
11.64	3,128	12,731	12,731

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
7.82	2,679	0	0
9.99	2,679	5,813	5,813

Device	Routing	Invert	Outlet Devices
#1	Primary	7.82'	**24.0" Round Culvert** L= 70.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 7.82' / 7.82' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=17.04 cfs @ 12.14 hrs HW=11.09' (Free Discharge)
↑—**1=Culvert** (Barrel Controls 17.04 cfs @ 5.43 fps)

Pond 8P: R-Tank 2



Summary for Pond 9P: DMH-8 (Outfall #1)

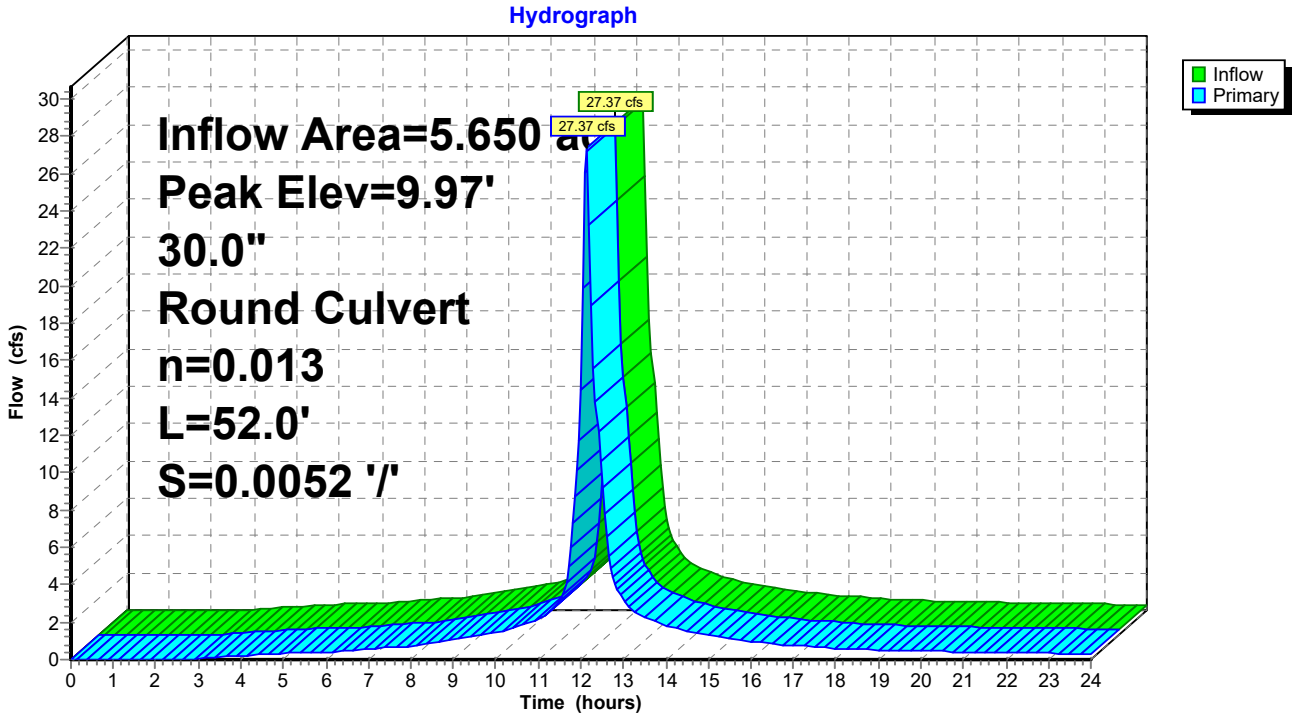
Inflow Area = 5.650 ac, 97.52% Impervious, Inflow Depth > 5.43" for 25-Year Storm event
Inflow = 27.37 cfs @ 12.14 hrs, Volume= 2.557 af
Outflow = 27.37 cfs @ 12.14 hrs, Volume= 2.557 af, Atten= 0%, Lag= 0.0 min
Primary = 27.37 cfs @ 12.14 hrs, Volume= 2.557 af
Routed to Link 2L : Fore River

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 9.97' @ 12.14 hrs
Flood Elev= 11.78'

Device	Routing	Invert	Outlet Devices
#1	Primary	6.57'	**30.0" Round Culvert** L= 52.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 6.57' / 6.30' S= 0.0052 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 4.91 sf

Primary OutFlow Max=26.88 cfs @ 12.14 hrs HW=9.90' (Free Discharge)
1=Culvert (Inlet Controls 26.88 cfs @ 5.48 fps)

Pond 9P: DMH-8 (Outfall #1)



Summary for Pond 10P: DMH 4

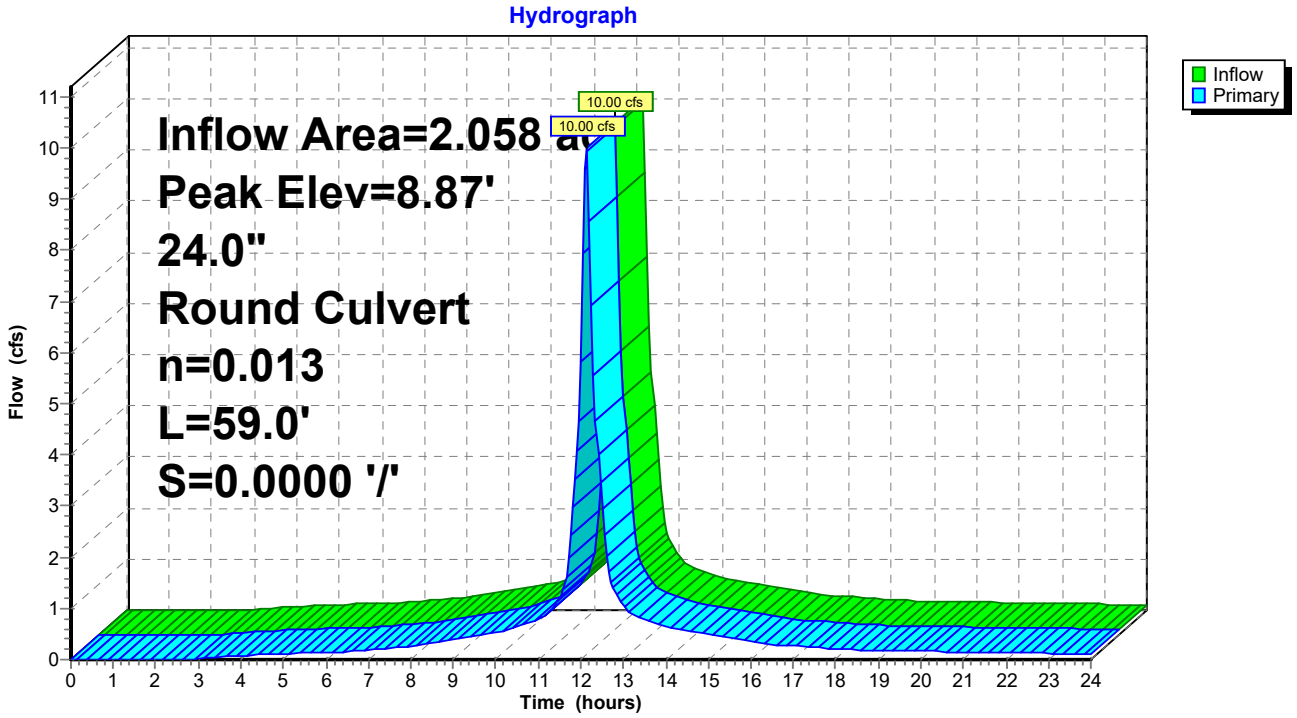
Inflow Area = 2.058 ac, 93.19% Impervious, Inflow Depth > 5.36" for 25-Year Storm event
Inflow = 10.00 cfs @ 12.14 hrs, Volume= 0.920 af
Outflow = 10.00 cfs @ 12.14 hrs, Volume= 0.920 af, Atten= 0%, Lag= 0.0 min
Primary = 10.00 cfs @ 12.14 hrs, Volume= 0.920 af
Routed to Pond 11P : Jellyfish 1 JFPD0806-4-1

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 8.87' @ 12.14 hrs
Flood Elev= 13.56'

Device	Routing	Invert	Outlet Devices
#1	Primary	6.75'	**24.0" Round Culvert** L= 59.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 6.75' / 6.75' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=9.82 cfs @ 12.14 hrs HW=8.85' (Free Discharge)
1=Culvert (Barrel Controls 9.82 cfs @ 3.70 fps)

Pond 10P: DMH 4



Summary for Pond 11P: Jellyfish 1 JFPD0806-4-1

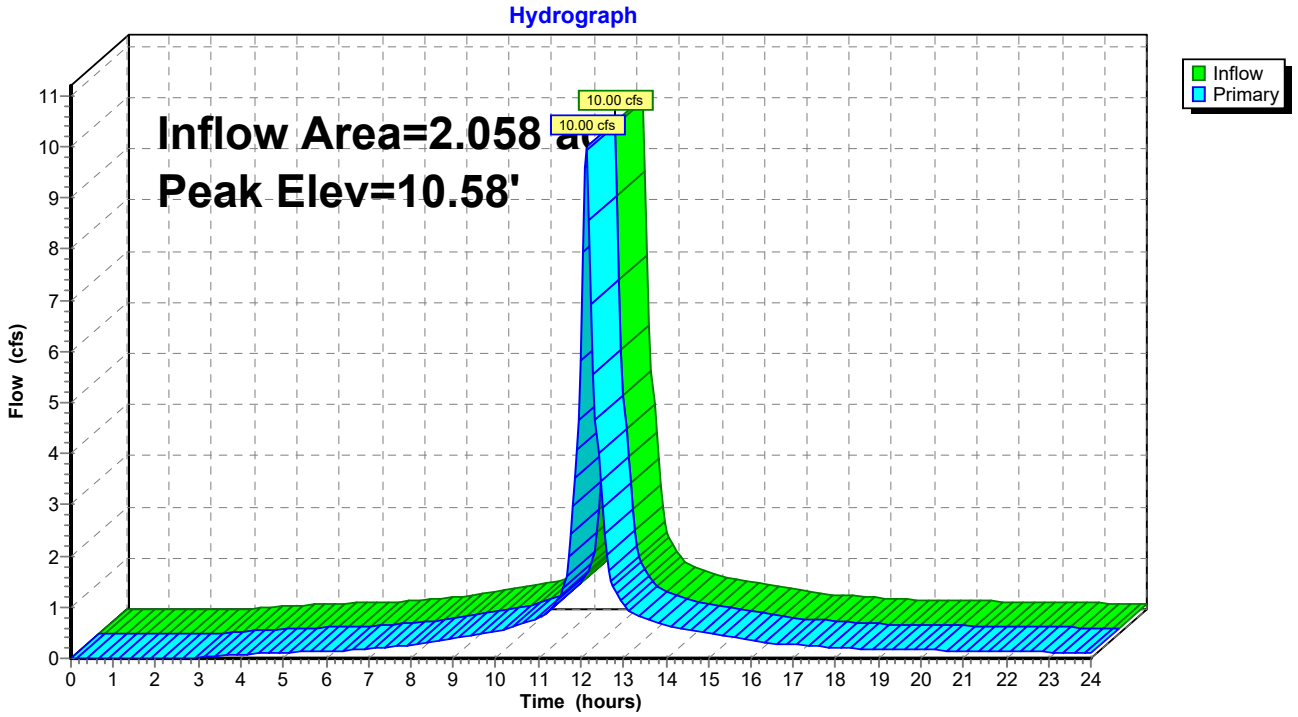
Inflow Area = 2.058 ac, 93.19% Impervious, Inflow Depth > 5.36" for 25-Year Storm event
Inflow = 10.00 cfs @ 12.14 hrs, Volume= 0.920 af
Outflow = 10.00 cfs @ 12.14 hrs, Volume= 0.920 af, Atten= 0%, Lag= 0.0 min
Primary = 10.00 cfs @ 12.14 hrs, Volume= 0.920 af
Routed to Pond 9P : DMH-8 (Outfall #1)

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 10.58' @ 12.14 hrs
Flood Elev= 12.89'

Device	Routing	Invert	Outlet Devices
#1	Primary	6.75'	**24.0" Round Filter Culvert Out** L= 5.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 6.75' / 6.67' S= 0.0160 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Device 1	6.75'	**JF Filter-1 CSV File** Head (feet) 0.00 0.08 0.17 0.25 0.33 0.42 0.50 0.58 0.67 0.75 0.83 0.92 1.00 1.08 1.17 1.25 1.33 1.42 1.50 Disch. (cfs) 0.000 0.010 0.020 0.030 0.040 0.050 0.059 0.129 0.198 0.267 0.337 0.406 0.475 0.545 0.614 0.683 0.753 0.822 0.891
#3	Device 1	9.59'	**2.8' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=9.82 cfs @ 12.14 hrs HW=10.56' (Free Discharge)
└**1=Filter Culvert Out** (Passes 9.82 cfs of 20.03 cfs potential flow)
  ├**2=JF Filter-1 CSV File** (Custom Controls 0.89 cfs)
  └**3=Broad-Crested Rectangular Weir** (Weir Controls 8.92 cfs @ 3.27 fps)

Pond 11P: Jellyfish 1 JFPD0806-4-1



Summary for Pond 12P: Jellyfish 2 JFPD0806-7-2

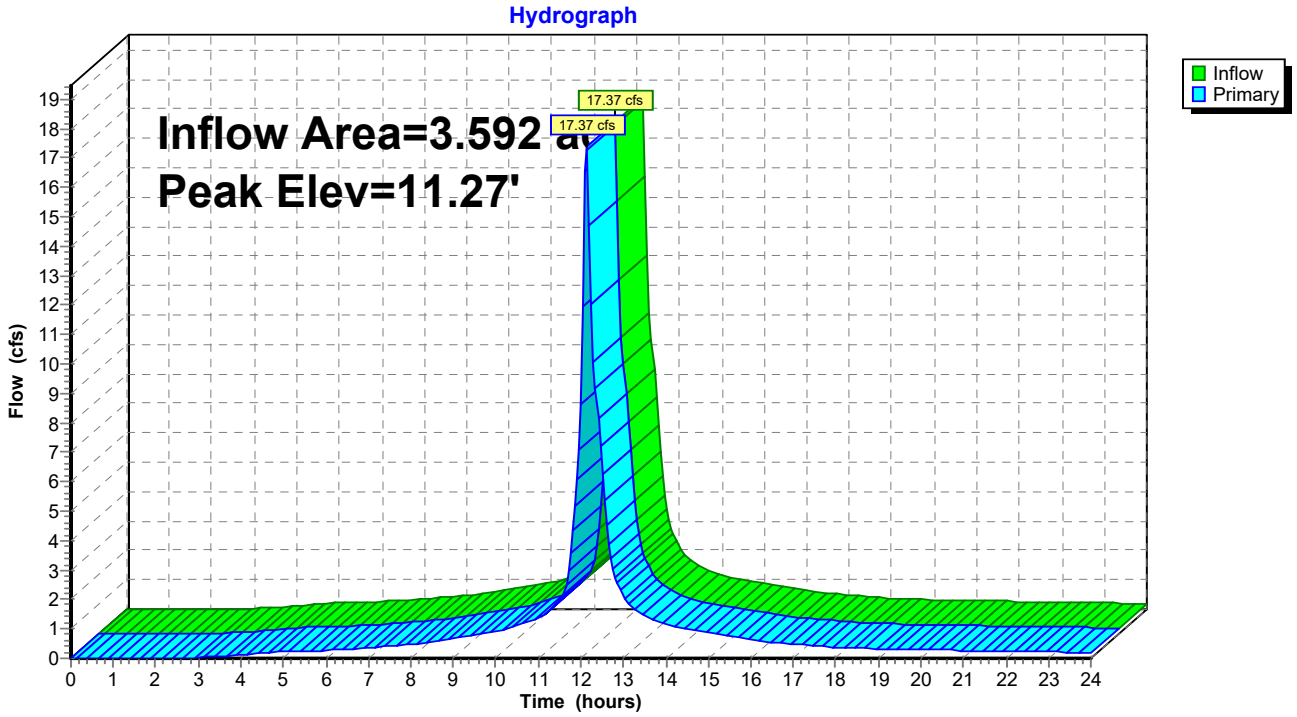
Inflow Area = 3.592 ac,100.00% Impervious, Inflow Depth > 5.47" for 25-Year Storm event
Inflow = 17.37 cfs @ 12.14 hrs, Volume= 1.637 af
Outflow = 17.37 cfs @ 12.14 hrs, Volume= 1.637 af, Atten= 0%, Lag= 0.0 min
Primary = 17.37 cfs @ 12.14 hrs, Volume= 1.637 af
Routed to Pond 9P : DMH-8 (Outfall #1)

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 11.27' @ 12.14 hrs
Flood Elev= 11.43'

Device	Routing	Invert	Outlet Devices
#1	Primary	7.71'	**24.0" Round Filter Culvert Out** L= 125.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 7.71' / 6.92' S= 0.0063 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Device 1	7.71'	**JF Filter-2 CSV File** Head (feet) 0.00 0.08 0.17 0.25 0.33 0.42 0.50 0.58 0.67 0.75 0.83 0.92 1.00 1.08 1.17 1.25 1.33 1.42 1.50 Disch. (cfs) 0.000 0.010 0.020 0.030 0.040 0.050 0.059 0.173 0.287 0.401 0.515 0.629 0.743 0.857 0.970 1.084 1.198 1.312 1.426
#3	Device 1	9.84'	**2.8' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=17.04 cfs @ 12.14 hrs HW=11.25' (Free Discharge)
└**1=Filter Culvert Out** (Passes 17.04 cfs of 19.04 cfs potential flow)
  ├**2=JF Filter-2 CSV File** (Custom Controls 1.43 cfs)
  └**3=Broad-Crested Rectangular Weir** (Weir Controls 15.61 cfs @ 3.95 fps)

Pond 12P: Jellyfish 2 JFPD0806-7-2



Summary for Pond 13P: DMH-13 (Outfall #2)

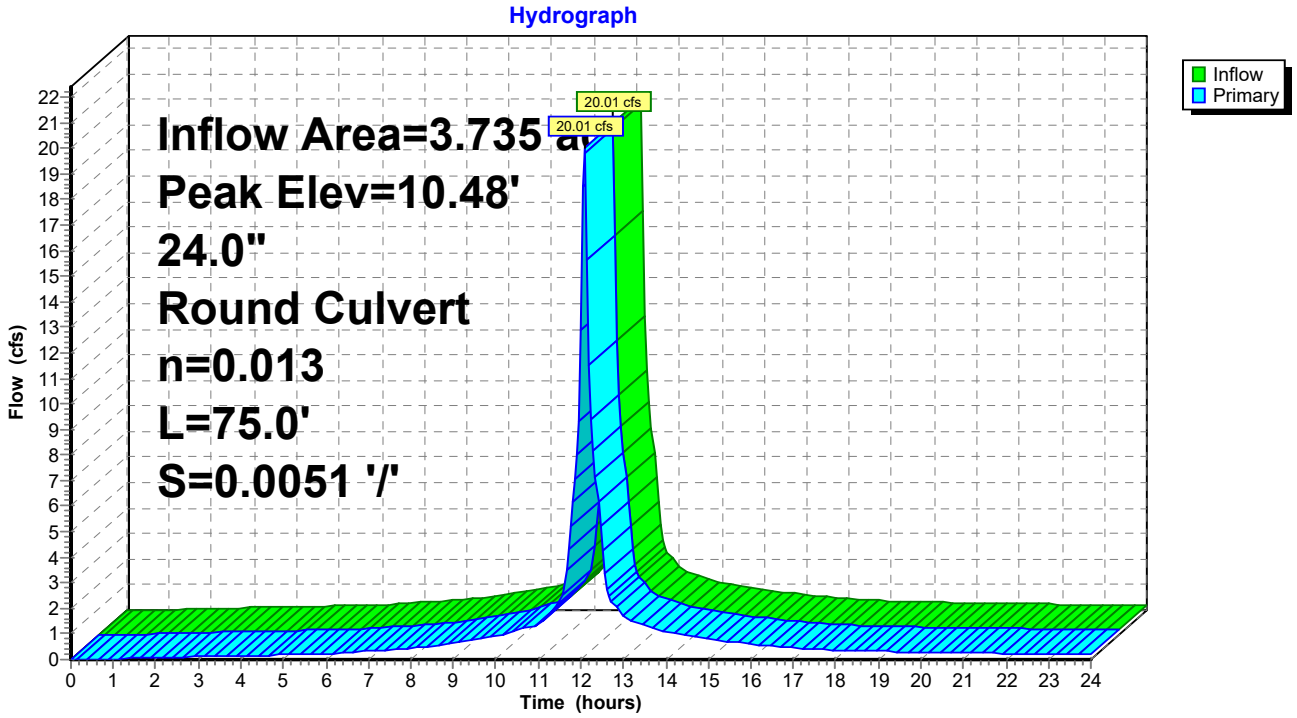
Inflow Area = 3.735 ac, 83.01% Impervious, Inflow Depth > 5.22" for 25-Year Storm event
Inflow = 20.01 cfs @ 12.09 hrs, Volume= 1.624 af
Outflow = 20.01 cfs @ 12.09 hrs, Volume= 1.624 af, Atten= 0%, Lag= 0.0 min
Primary = 20.01 cfs @ 12.09 hrs, Volume= 1.624 af
Routed to Link 2L : Fore River

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 10.48' @ 12.09 hrs
Flood Elev= 11.78'

Device	Routing	Invert	Outlet Devices
#1	Primary	6.68'	**24.0" Round Culvert** L= 75.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 6.68' / 6.30' S= 0.0051 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=19.49 cfs @ 12.09 hrs HW=10.34' (Free Discharge)
1=Culvert (Inlet Controls 19.49 cfs @ 6.21 fps)

Pond 13P: DMH-13 (Outfall #2)



Summary for Pond 24P: Filterra 1

Inflow Area = 0.275 ac,100.00% Impervious, Inflow Depth > 5.56" for 25-Year Storm event
Inflow = 1.53 cfs @ 12.09 hrs, Volume= 0.127 af
Outflow = 1.53 cfs @ 12.09 hrs, Volume= 0.127 af, Atten= 0%, Lag= 0.0 min
Primary = 1.53 cfs @ 12.09 hrs, Volume= 0.127 af
Routed to Pond 27P : AD49
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond 27P : AD49

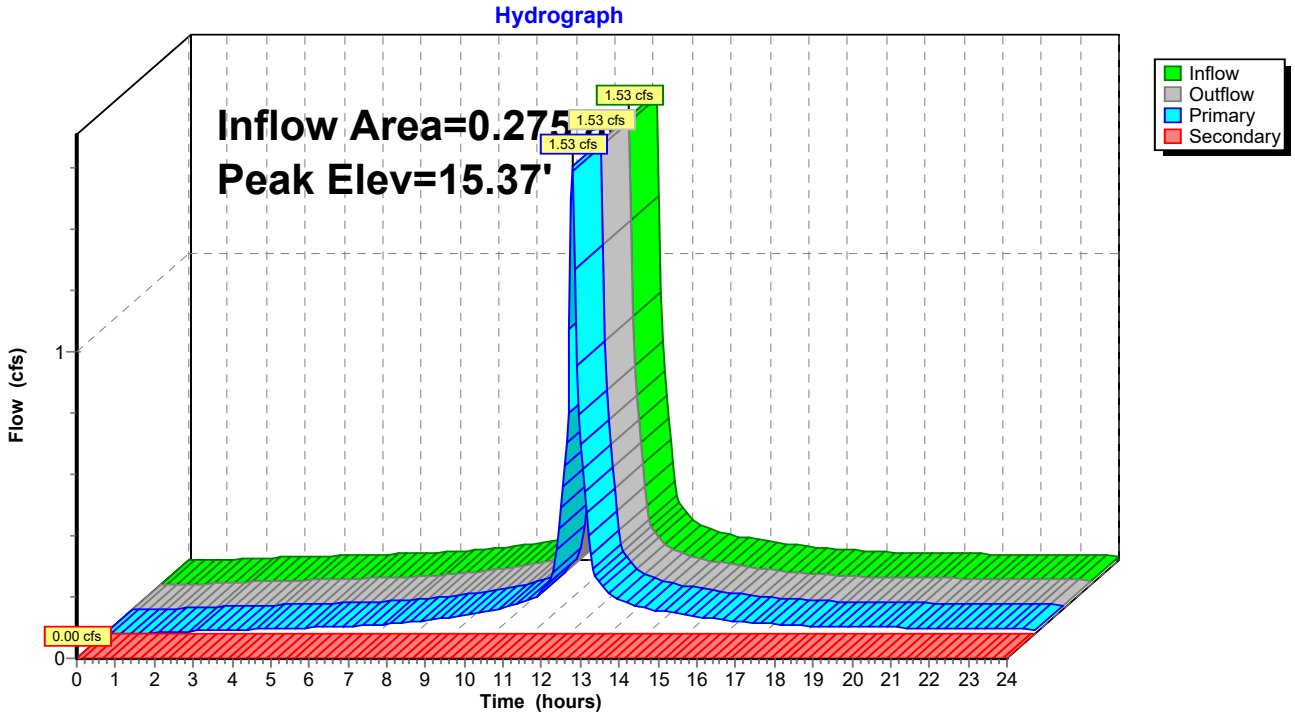
Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 15.37' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	14.50'	**12.0" Round Culvert** L= 4.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 14.50' / 14.47' S= 0.0075 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	18.04'	**5.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=1.48 cfs @ 12.09 hrs HW=15.35' (Free Discharge)
1=Culvert (Barrel Controls 1.48 cfs @ 2.80 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=14.50' (Free Discharge)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 24P: Filterra 1



Summary for Pond 27P: AD49

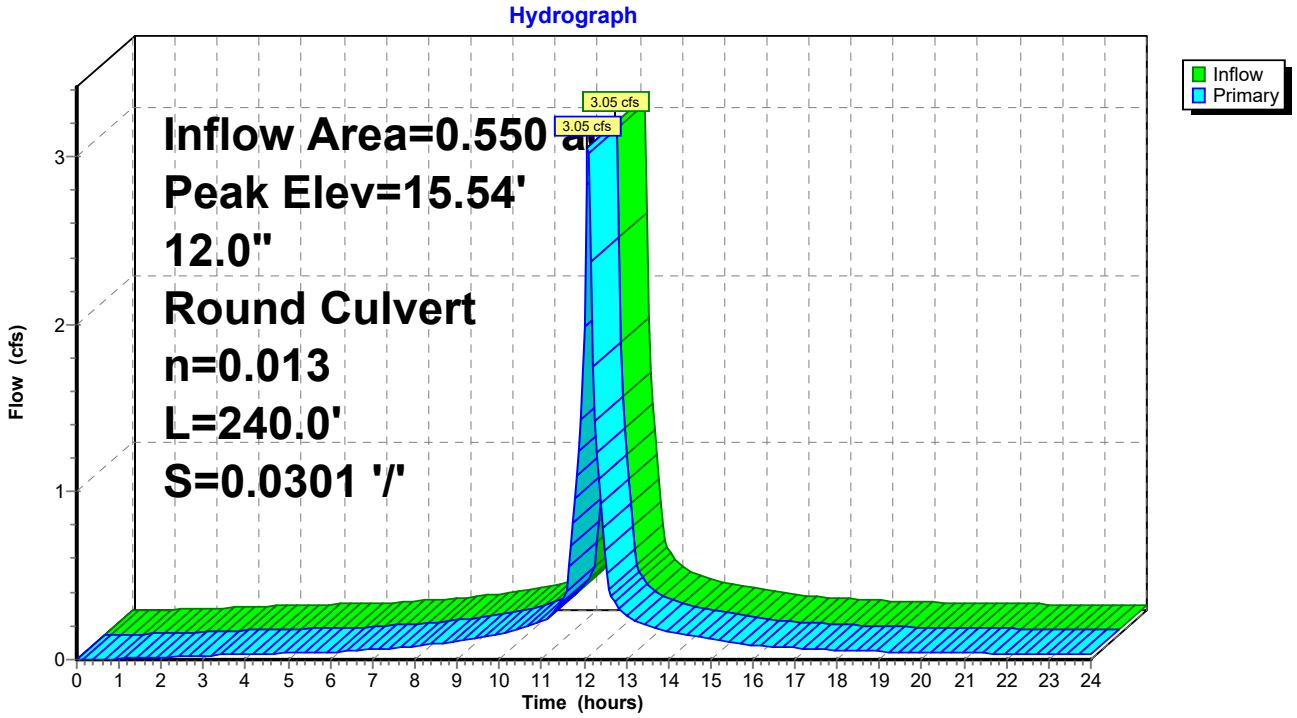
Inflow Area = 0.550 ac,100.00% Impervious, Inflow Depth > 5.56" for 25-Year Storm event
Inflow = 3.05 cfs @ 12.09 hrs, Volume= 0.255 af
Outflow = 3.05 cfs @ 12.09 hrs, Volume= 0.255 af, Atten= 0%, Lag= 0.0 min
Primary = 3.05 cfs @ 12.09 hrs, Volume= 0.255 af
Routed to Pond 13P : DMH-13 (Outfall #2)

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 15.54' @ 12.09 hrs
Flood Elev= 12.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	14.00'	**12.0" Round Culvert** L= 240.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 14.00' / 6.78' S= 0.0301 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.97 cfs @ 12.09 hrs HW=15.49' (Free Discharge)
1=Culvert (Inlet Controls 2.97 cfs @ 3.78 fps)

Pond 27P: AD49



Summary for Pond 28P: Filterra 2

Inflow Area = 0.275 ac,100.00% Impervious, Inflow Depth > 5.56" for 25-Year Storm event
Inflow = 1.53 cfs @ 12.09 hrs, Volume= 0.127 af
Outflow = 1.53 cfs @ 12.09 hrs, Volume= 0.127 af, Atten= 0%, Lag= 0.0 min
Primary = 1.53 cfs @ 12.09 hrs, Volume= 0.127 af
Routed to Pond 27P : AD49
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond 27P : AD49

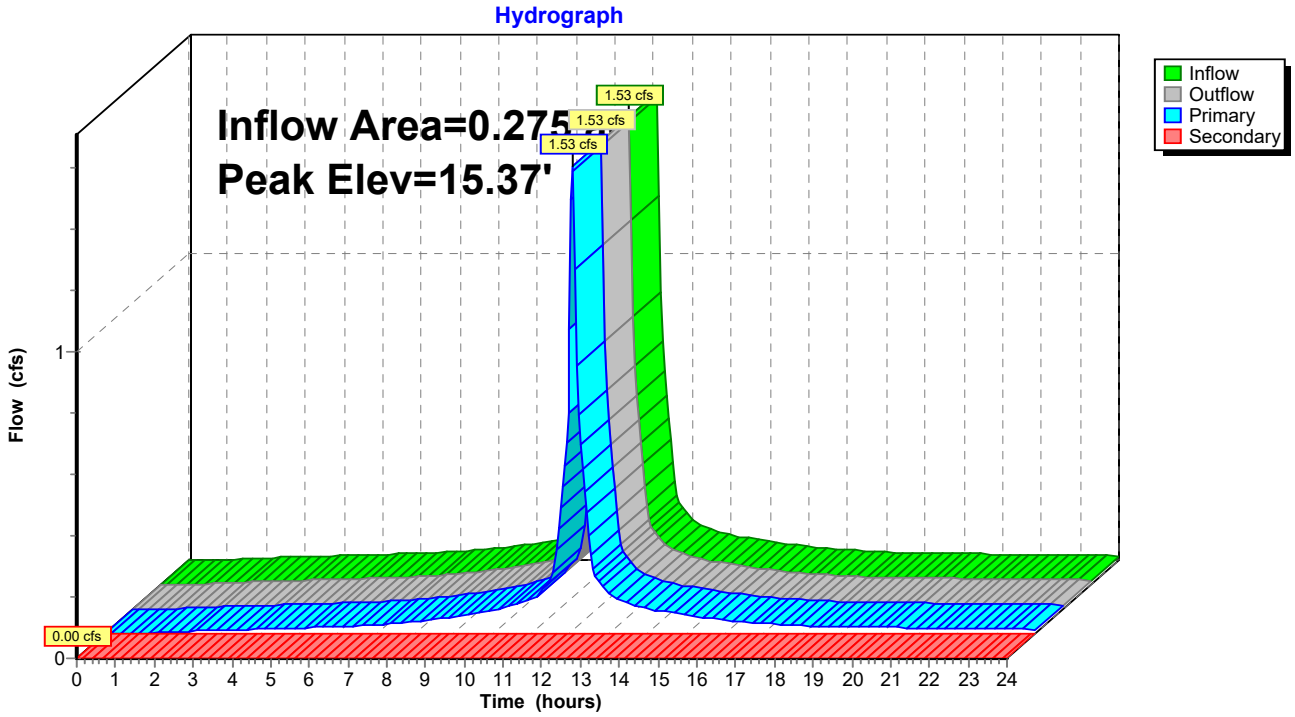
Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 15.37' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	14.50'	**12.0" Round Culvert** L= 4.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 14.50' / 14.47' S= 0.0075 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	18.04'	**5.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=1.48 cfs @ 12.09 hrs HW=15.35' (Free Discharge)
1=Culvert (Barrel Controls 1.48 cfs @ 2.80 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=14.50' (Free Discharge)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 28P: Filterra 2

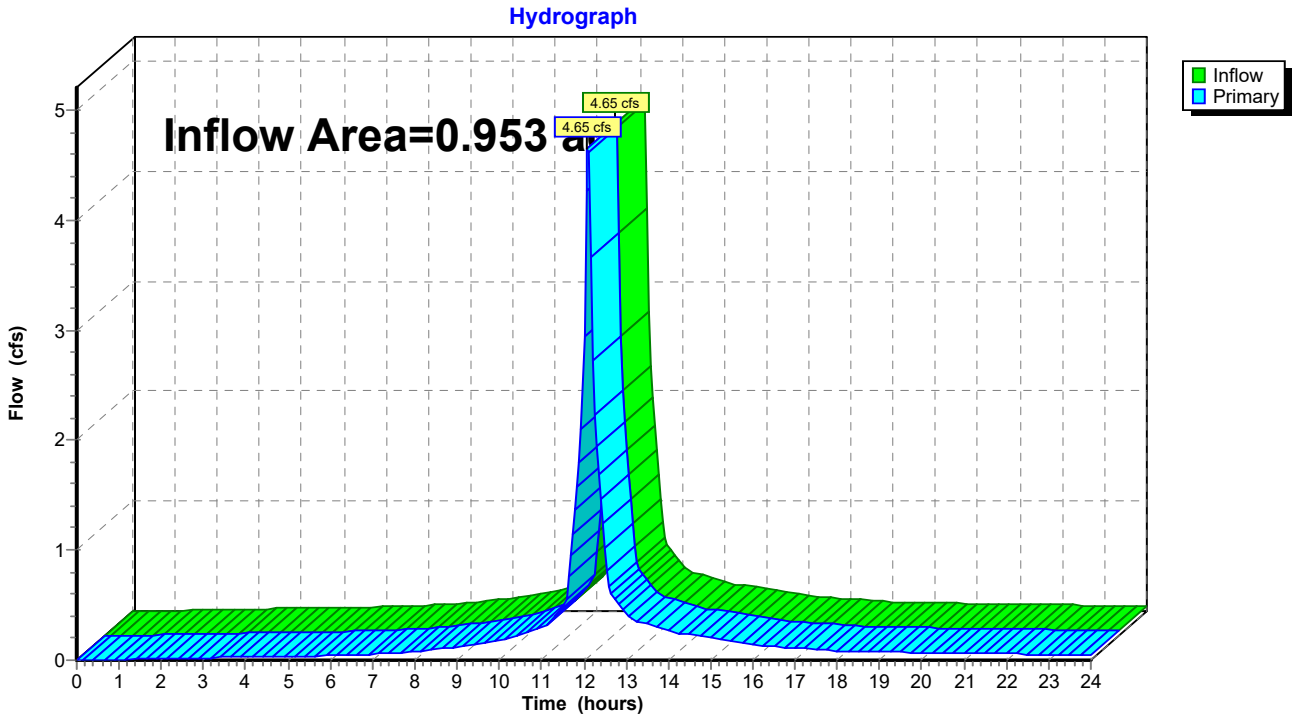


Summary for Link 1L: Freedom Way

Inflow Area = 0.953 ac, 53.78% Impervious, Inflow Depth > 4.64" for 25-Year Storm event
Inflow = 4.65 cfs @ 12.09 hrs, Volume= 0.369 af
Primary = 4.65 cfs @ 12.09 hrs, Volume= 0.369 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 1L: Freedom Way

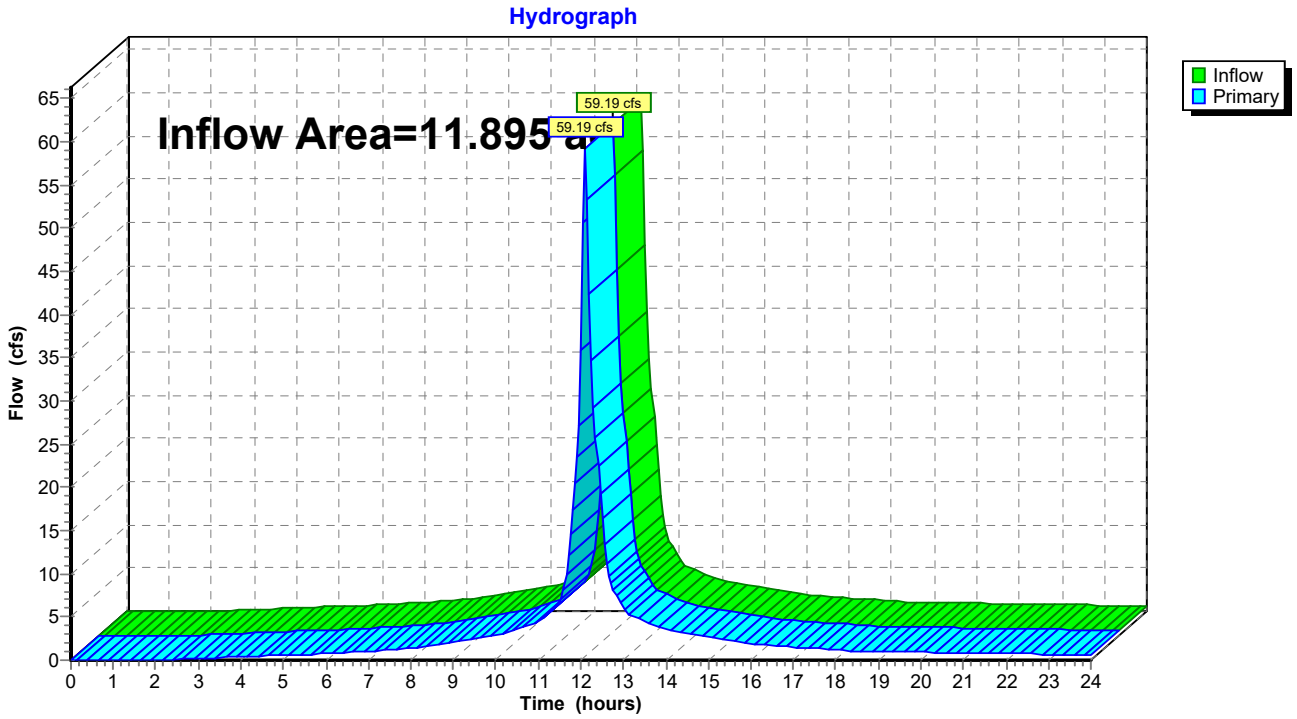


Summary for Link 2L: Fore River

Inflow Area = 11.895 ac, 87.62% Impervious, Inflow Depth > 5.27" for 25-Year Storm event
Inflow = 59.19 cfs @ 12.10 hrs, Volume= 5.223 af
Primary = 59.19 cfs @ 12.10 hrs, Volume= 5.223 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 2L: Fore River

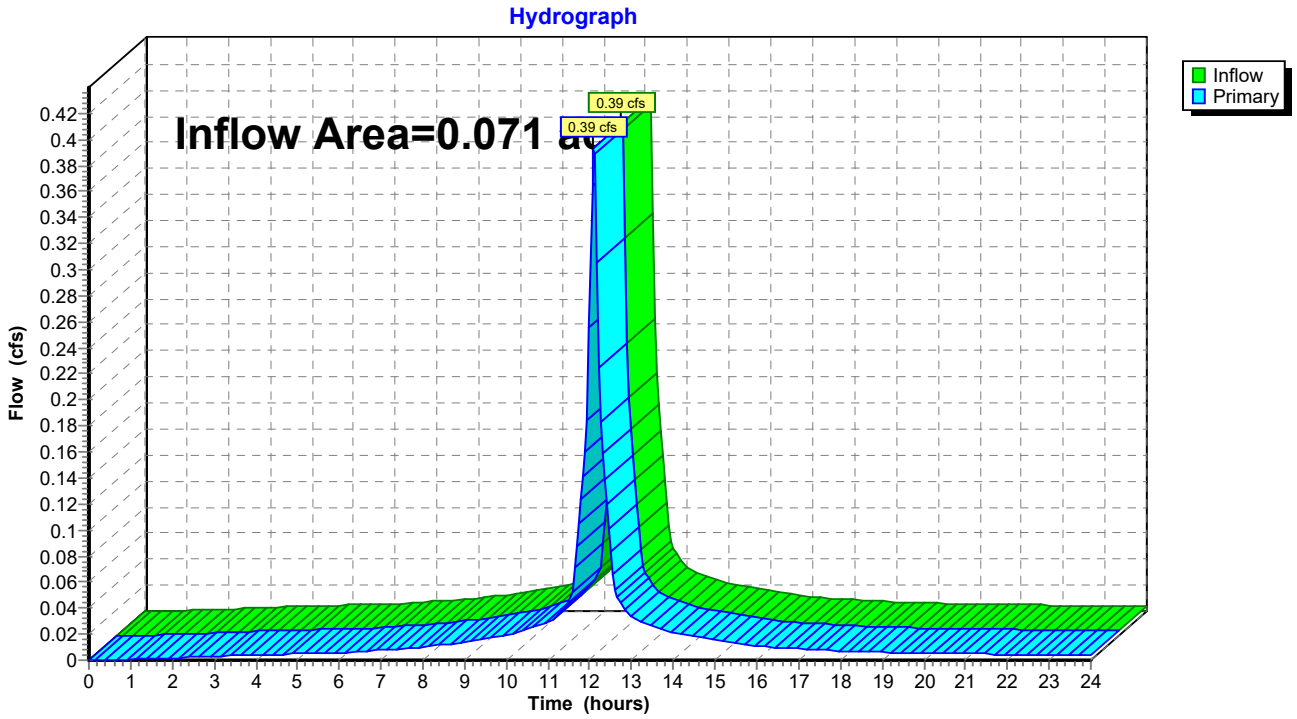


Summary for Link 3L: Fore Street

Inflow Area = 0.071 ac,100.00% Impervious, Inflow Depth > 5.56" for 25-Year Storm event
Inflow = 0.39 cfs @ 12.09 hrs, Volume= 0.033 af
Primary = 0.39 cfs @ 12.09 hrs, Volume= 0.033 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 3L: Fore Street



APPENDIX D: FIGURES

30x42
PLOT SCALE: 100 = 1'-0"



LEGEND

- POLLUTANT RANKING 5
- POLLUTANT RANKING 4
- POLLUTANT RANKING 3
- POLLUTANT RANKING 2
- POLLUTANT RANKING 1
- POLLUTANT RANKING 0

40' 0 40' 80'
BAR SCALE
1" = 40'
CHECK GRAPHIC SCALE BEFORE USING

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Portland, Maine 04102
800.426.4262 | www.woodardcurran.com

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PE SEAL:

NOT FOR CONSTRUCTION

CLIENT INFO:

PORTLAND FORESIDE DEVELOPMENT COMPANY
PORTLAND, MAINE

PHASE 2

REV	MM/DD/YY	DESCRIPTION
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JOB NO:	227007
DATE:	APRIL 2023
SCALE:	1"=40'
DESIGNED BY:	ANL/BCM
DRAWN BY:	BCM
CHECKED BY:	LIS
FILENAME:	STORMWATER FIGURES - EX*.dwg

DRAWING TITLE:

CIVIL
REDEVELOPMENT IMPACT ANALYSIS EXISTING CONDITION

DRAWING NO: **A**

SHEET: 1 OF 1

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30x42
PLOT SCALE: 100 = 1'-0"

FORE STREET

FORE CONNECTOR

THAMES STREET EXTENSION

REDEVELOPMENT AREA

BUILDING 1A
BUILDING 1A

BUILDING 24

BUILDING 14

BUILDING 15

BUILDING 16
16

TOWNHOUSES

BUILDING 2
BUILDING 2

BUILDING 3
BUILDING

BUILDING 4

BLOCK 4

BUILDING 6B

BUILDING 6

BUILDING 6

BUILDING 12
12

BLOCK 6
ENTRY COURT
(LEVEL 2)

BLOCK 6

SD126

AD46 SD127

AD47 SD128

AD48 SD129

DMSD125 AD45

COMM

COMM

LEGEND

- POLLUTANT RANKING 5
- POLLUTANT RANKING 4
- POLLUTANT RANKING 3
- POLLUTANT RANKING 2
- POLLUTANT RANKING 1
- POLLUTANT RANKING 0

40' 0 40' 80'
BAR SCALE
1" = 40'
CHECK GRAPHIC SCALE BEFORE USING

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PE SEAL:

STATE OF MAINE
LAUREN JANE SWETT
No. 12284
LICENSED PROFESSIONAL ENGINEER

NOT FOR CONSTRUCTION

CLIENT INFO:

PORTLAND FORESIDE DEVELOPMENT COMPANY
PORTLAND, MAINE

PHASE 2

REV	MM/DD/YY	DESCRIPTION
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JOB NO:	227007
DATE:	APRIL 2023
SCALE:	1"=40'
DESIGNED BY:	LJS/BCM
DRAWN BY:	BCM
CHECKED BY:	LJS
FILENAME:	PHASE 2 STORMWATER PLAN*.dwg

DRAWING TITLE:

CIVIL
REDEVELOPMENT IMPACT ANALYSIS
PROPOSED CONDITION

DRAWING NO:

B

SHEET: 1 OF 1

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30x42
PLOT SCALE: 100 = 1'-0"

FORE STREET

FORE CONNECTOR

THAMES STREET EXTENSION

REDEVELOPMENT AREA

TREATMENT AREA

BUILDING 1A
BUILDING 2
BUILDING 3
BUILDING 6
BUILDING 6B
BUILDING 12
BUILDING 14
BUILDING 15
BUILDING 16
BUILDING 24
TOWNHOUSES

SD126
SD127
SD128
SD129
AD45
AD46
AD47
AD48
DMH

BAR SCALE
1" = 40'
CHECK GRAPHIC SCALE BEFORE USING

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STATE OF MAINE
LAUREN JANE SVETT
No. 12284
LICENSED PROFESSIONAL ENGINEER
Lauren J. Svett

NOT FOR CONSTRUCTION

CLIENT INFO:

PORTLAND FORESIDE DEVELOPMENT COMPANY
PORTLAND, MAINE

PHASE 2

REV	MM/DD/YY	DESCRIPTION
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JOB NO:	227007
DATE:	APRIL 2023
SCALE:	1"=40'
DESIGNED BY:	LJS/BCM
DRAWN BY:	BCM
CHECKED BY:	LJS
FILENAME:	PHASE 2 STORMWATER PLAN*.dwg

DRAWING TITLE:
CIVIL
REDEVELOPMENT FIGURE

DRAWING NO:
C
SHEET: 1 OF 1

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30x42
PLOT SCALE: 100 = 1'-0"

FORE STREET
FORE CONNECTOR
THAMES STREET EXTENSION
BUILDING 1A
BUILDING 2
BUILDING 3
BUILDING 6
BUILDING 6B
BUILDING 12
BUILDING 15
BUILDING 24
TOWNHOUSES
1S 2S 3S 4S 5S 6S 7S 8S 9S 10S 11S 12S 13S 14S 15S 16S 17S 18S 19S 20S 21S 22S 23S 24S 25S 26S 27S 28S 29S 30S
1L 2L 3L
1P 2P 3P 4P 5P 6P 7P 8P 9P 10P 11P 12P 13P 24P 27P 28P
SD126 SD127 AD46 AD48 DMH3125 AD45

STORMWATER LEGEND

- 1S — SUBCATCHMENT AREAS
- LIMIT OF DRAINAGE AREA
- SP1 — STUDY POINT
- XX — POND

BAR SCALE
1" = 40'
CHECK GRAPHIC SCALE BEFORE USING

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PE SEAL:
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LAUREN JANE SWETT
No. 12284
LICENSED PROFESSIONAL ENGINEER

NOT FOR CONSTRUCTION

CLIENT INFO:
PORTLAND FORESIDE DEVELOPMENT COMPANY
PORTLAND, MAINE
PHASE 2

REV	MM/DD/YY	DESCRIPTION
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JOB NO:	227007
DATE:	APRIL 2023
SCALE:	1"=40'
DESIGNED BY:	LJS/BCM
DRAWN BY:	BCM
CHECKED BY:	LJS
FILENAME:	PHASE 2 STORMWATER PLAN*.dwg

DRAWING TITLE:
CIVIL
DRAINAGE AREA FIGURE

DRAWING NO:
D
SHEET: 1 OF 1

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PORTLAND FORESIDE DEVELOPMENT – PHASE 2

SITE LOCATION OF DEVELOPMENT

58 Fore Street
Portland, ME

41 Hutchins Drive
Portland, ME 04102
800.426.4262

woodardcurran.com

0227007.19
Portland Foreside Development Company
April 2023

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1. DEVELOPMENT DESCRIPTION

This narrative report is in support of a Site Location of Development (SLOD) Permit Application for development of Blocks 4, 5 and 6 of the Portland Foreside Development located at 58 Fore Street in Portland, Maine ("Phase 2"). It is also our understanding that the MaineDEP has determined that the City of Portland has delegated review authority over this project.

1.1 OBJECTIVES & DETAILS

The proposed development is the next phase of the 58 Fore Street Master Development Plan, approved by the City of Portland Planning Board (Project ID: 2016-224) on December 22, 2016, to redevelop and revitalize the 10.7-acre former Portland Company complex into a mixed-use development.

The redevelopment of 58 Fore Street into a mixed-use neighborhood highlights the historical significance of the area, access to the waterfront and provides a direct connection from the adjacent neighborhoods to the waterfront. The result is a vibrant revitalization of the City's eastern waterfront. The development program for the project was considered and designed around the overall vision of creating this mixed-use neighborhood and proposes commercial, residential, retail, restaurant, marina and public open space uses which are consistent with the Master Development Plan for the site. Open space proposed for Phase 2 includes plazas for pedestrian use between the individual building components as well as a public access easement, view corridors and access to the waterfront.

The 58 Fore Street Master Development Plan consists of six "blocks" of development as shown by the below figure:



The next phase of the development includes the following work:

- **Block 4.** Includes the construction of a four-level structured parking garage with overlying rental apartment units and plaza space, three-story townhouses along Fore Street, and ground-level retail on the north and south elevations.

- **Block 5.** Includes the construction of an eight-story building comprised of a hotel, residential condominiums, below-grade parking and ground-level retail and restaurant. The below-grade parking lot is a continuation of the Block 4 parking garage and will be accessed using the Block 4 garage entrances on Fore Street and Thames Street.
- **Block 6.** Includes development of residential condominiums and courtyard area with ground-level retail and below-grade parking. The below-grade parking lot is a continuation of the Block 4 parking garage and will be accessed using the Block 4 garage entrances on Fore Street and Thames Street.
- **Infrastructure, Utilities & Access Improvements.** In addition to the Block development and similar to Phase 1 of the development, shared street infrastructure and utilities will be installed throughout the site in the common spaces between the development parcels with reciprocal easements granted throughout.
- **Interim Conditions.** In order to create a complete, functional site following construction of this phase, interim conditions are proposed in Block 2, which will not see its finished condition as part of this project. Minor surface improvements, grading, and utility work are required within Parcel 2B and 2C to enable the surrounding work.

The area of disturbance for development of Phase 2 is approximately 7.2-acres and will include approximately 6.9-acres of impervious area. It should be noted that roof areas were considered fully impervious (as any rooftop landscaping systems do not infiltrate into the ground), and significant areas of landscaping and green roof are proposed.

The proposed development is a critical piece to Portland's future for a number of reasons including:

- The overall Project Site is large (+/- 10.7 acres) and strategically located between Portland's vibrant downtown, its working waterfront, and the beginning of its Eastern Promenade residential neighborhoods. This phase will continue building the connection of an underutilized part of the City to adjacent neighborhoods, the waterfront and the Old Port.
- The Project Site represents a keystone piece in the City's continuing efforts to link its vibrant downtown to the vast potential of its commercial waterfront. This project will help the City further realize the benefits of its investments in the Ocean Gateway marine terminal facility and related infrastructure;
- The development will help stimulate other investments in the eastern waterfront with the anticipation that investment in the Project Site will result in investment in underdeveloped public and private lands situated between the India Street neighborhood and the Project Site;

- As a whole, this proposed development presents an unparalleled opportunity to grow the City's tax base, add housing, and create jobs; and

- The development can act as a catalyst for change in this area, improve the quality of life for all Portland residents by facilitating access to the waterfront, adding capacity for events that draw residents and visitors and enable the City's cruise ship terminal to live up to its name as a truly memorable gateway.

In addition to the SLOD permit, the proposed work requires the following permits:

- City of Portland Major Site Plan & Subdivision;
- City of Portland Historic Preservation Application for Certificate of Appropriateness;
- Maine Construction General Permit Notice of Intent; and
- FAA Notice of Proposed Construction.

1.2 EXISTING FACILITIES

The proposed development will be located on a portion of the approximately 10.7-acre property. Existing site conditions consist primarily of impervious paved and gravel areas with some areas of sparse vegetation and a steep, vegetated slope along the eastern edge of the site. The Site is adjacent to the Fore River. There are no significant natural features or wetlands on-site. A survey of the Site was completed by Owen Haskell, Inc. (dated December 10, 2019 and June 27, 2022).

The former Portland Company Complex contained various industrial uses and many of the existing buildings have been demolished. The Site previously served as a pre-Civil War locomotive manufacturing site and components of that past still stand today. Historically significant facades include the Portland Company Vault, the Machine Shop, The Pattern Storehouse, and the Blacksmith Shop. The development team has included these historic facades, along with the character and linear orientation of the alleyways between, in the redevelopment planning for the site.

1.3 TOPOGRAPHIC MAP

A USGS topographic map showing the approximate location of proposed development is attached to this Section for your reference. The proposed development is located within the Portland East Quadrangle.

1.4 CONSTRUCTION PLAN

The proposed development will be constructed in phases. Construction of Phase 2 is anticipated to begin in summer 2023. Erosion and sediment control measures will be installed prior to any ground disturbing activities, as described in Section 14 of this Report. The Contractor will be required to provide a construction management plan for the project, subject to the review and approval of the City and Engineer.

The Site will be managed during construction to minimize impacts to the adjacent land uses. Maintaining access to adjacent properties and public facilities will be a priority. Traffic impacts to adjacent roadways, including Thames Street Extension, Freedom Way, and Fore Street, will be minimized during construction to the greatest extent possible. Traffic controls will consist of temporary signage and barriers where necessary to manage vehicle, pedestrian, and bicycle traffic and direct it safely around the construction area. Work affecting traffic circulation such as underground utility work and grading activities will be conducted during periods of low traffic to reduce potential impacts.

Below is the anticipated sequence of construction activities for major aspects of the development:

- Installation of erosion and sediment control measures and traffic control measures;
- Demolition and site preparation activities;
- Construction of utilities, stormwater management system, and roadway;
- Construction of buildings;
- Installation of landscaping and final surface materials; and
- Removal of erosion and sediment control measures.

1.5 DRAWINGS

Design drawings showing the proposed development are attached to this Section.

1.6 LIST OF ATTACHMENTS

The following documents are attached to this Section:

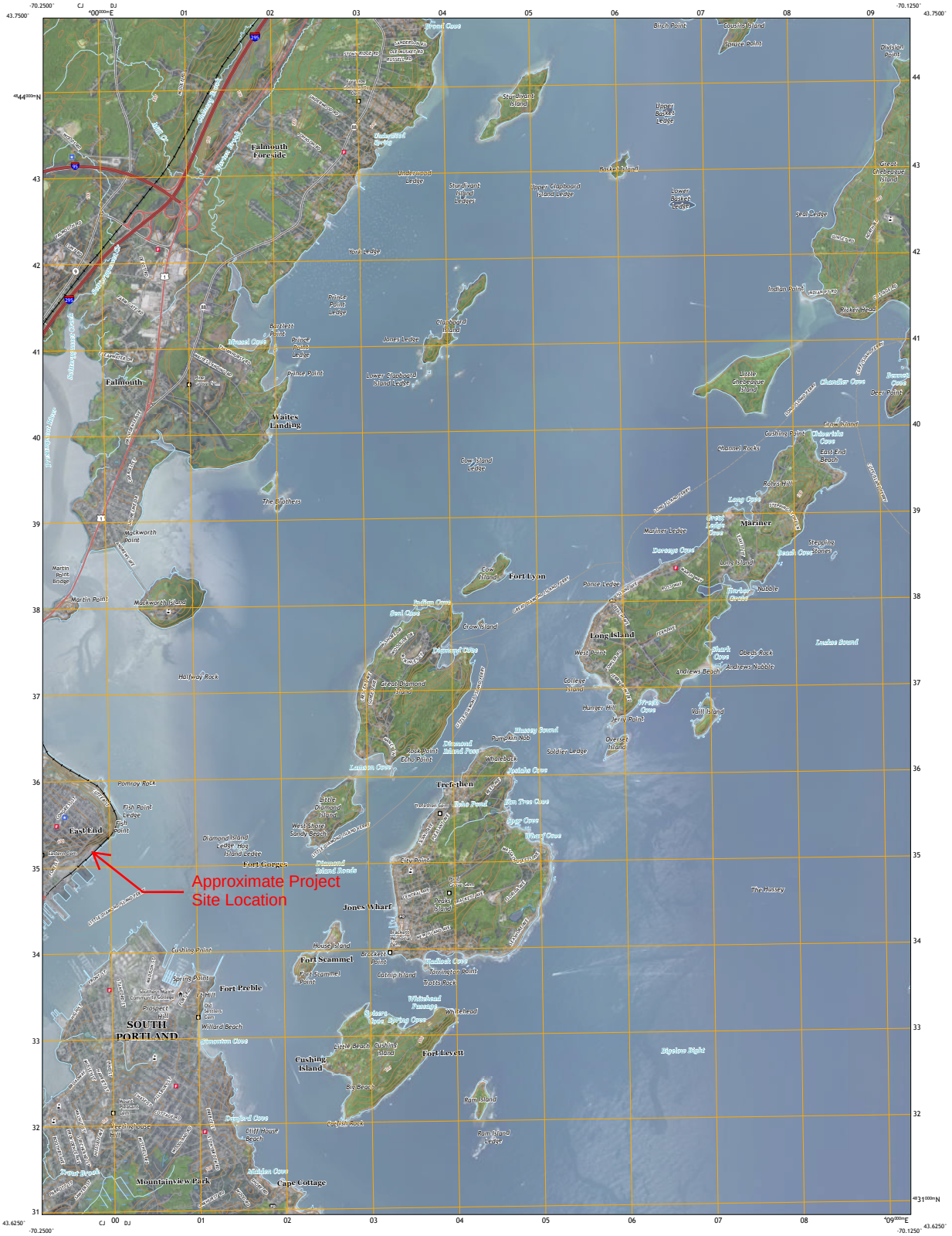
- Topographic Map; and
- Design Drawings (Bound Separately).

USGS science for a changing world

U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

The National Map US Topo

PORTLAND EAST QUADRANGLE
MAINE - CUMBERLAND COUNTY
7.5-MINUTE SERIES



Produced by the United States Geological Survey
North American Datum of 1983 (NAD83)
World Geodetic System of 1984 (WGS84). Projection and
1 000-meter grid:Universal Transverse Mercator, Zone 19T
This map is not a legal document. Boundaries may be
generalized for this map scale. Private lands within government
reservations may not be shown. Obtain permission before
entering private lands.

Imagery.....NAIP, July 2015 - November 2015
Roads.....U.S. Census Bureau, 2017
Names.....GNIS, 1980 - 2017
Hydrography.....National Hydrography Dataset, 2003 - 2016
Contours.....National Elevation Dataset, 2005 - 2012
Boundaries.....Multiple sources; see metadata file 2014 - 2016

Wetlands.....FWS National Wetlands Inventory 2001 - 2004

UTM GRID AND 2017 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

SCALE 1:24 000

CONTOUR INTERVAL 20 FEET
NORTH AMERICAN VERTICAL DATUM OF 1988

This map was produced to conform with the
National Geospatial Program US Topo Version 2.0.0, updated 2011.
A metadata file associated with this product is named ...topo_0.6.18

ADJOINING QUADRANGLES
1 Cumberland Center
2 Yarmouth
3 Freeport
4 Portland West
5 South Harpswell
6 Prouts Neck
7 Cape Elizabeth

ROAD CLASSIFICATION
Expressway
Secondary Hwy
Ramp
Local Connector
Local Road
4WD
Interstate Route
US Route
State Route

PORTLAND EAST, ME
2018

Page 1613

7643016370409
USGS X24K36119
MAP NO.
MEA REF NO.

2. TITLE, RIGHT, OR INTEREST

The Project will occur on a parcel of land identified by the City as Lot 18-A-01 and owned by PF Land LLC. The deed into PF Land is attached. PF Land LLC subsequently conveyed approximately 482 square feet to PF One Devco LLC. The deed from PF Land LLC to PF One Devco LLC is also attached, modifying the original parcel into PF Land.

The Project area also includes a portion of an adjacent lot purchased by 21 Eastern Prom LLC, which is an entity affiliated with PF Land LLC. That lot is identified by the City as Lot 2-A-4 and is located at 21 Eastern Promenade. 21 Eastern Prom will convey said portion of Lot 2-A-4 to PF Land LLC prior to obtaining a building permit for the work occurring on that portion of the property.

Project construction may require installation of tiebacks into property on adjacent land, including City land, similar to the tiebacks into the City's Fore Street right-of-way for the Block 4 garage as previously approved in the Phase 1 Site Plan. The Phase 1 Site Plan approval contained the following condition to address the situation: "Prior to application for building permits, the applicant shall finalize any agreement required by the City of Portland authorizing the replacement and maintenance of the retaining wall along Fore Street and any license agreements required to permit encroachments into the City's right of way. All necessary agreements shall be finalized to the satisfaction of the Planning Authority, Department of Public Works, and Corporation Counsel."

Small portions of the Project located along the Maine DOT corridor are subject to the Land Exchange Agreement between the City, Maine DOT, and PF Land. The land swap will occur prior to obtaining building permits for work occurring on that southern edge of the property.

2.1 LIST OF ATTACHMENTS

- Deeds; and
- Easements.

TRUSTEE'S DEED
(Maine Statutory Short Form)

KNOW ALL PERSONS BY THESE PRESENTS, that **TIMOTHY HALEY, of Stuart, Florida, SOLE TRUSTEE OF THE TIMOTHY HALEY LIVING TRUST, dated June 3, 2005** ("Grantor"), for consideration paid, grants to **21 EASTERN PROM LLC**, a Maine limited liability company with a mailing address of 254 Commercial Street, Portland, Maine 04101 ("Grantee"), the following described real estate situated at 13-23 Eastern Promenade, in the City of Portland, Cumberland County, State of Maine as more particularly described in Exhibit A attached hereto and made a part hereof

See Attached Exhibit A

MAINE REAL ESTATE TAX PAID

Meaning and intending to convey the premises conveyed by virtue of Quitclaim Deed without Covenant from Katherine C. Haley and Timothy J. Haley, Trustees, under the Daniel T. Haley Sr. Family Trust dated January 21, 2006, dated January 11, 2007, and recorded in the Cumberland County Registry of Deeds in Book 24759, Page 67, by Quitclaim Deed without Covenants from Katherine C. Haley and Timothy J. Haley, Trustees, under the Daniel T. Haley Sr. Family Trust dated January 21, 2006, dated January 11, 2007 and recorded at Cumberland County Registry of Deeds in Book 24759, Page 069 and by Quitclaim Deed without Covenants from Timothy J. Haley and Julia A. Haley, successor Trustees, under the Haley Family Living Trust dated February 6, 1997, dated December 4, 2008 and recorded at Cumberland County Registry of Deeds in Book 26503, Page 224 to Timothy Haley, sole Trustee or his successors in trust, under the Timothy Haley Living Trust, dated June 3, 2005.

I hereby covenant that I am Trustee pursuant to said Trust; that said Trust is still in full force and effect; that I have the power thereunder to convey as aforesaid; and that, in the making this conveyance, I have, in all respects, acted pursuant to the authority vested in and granted to me there.

WITNESS my hand and seal, this 08 day of December, 2021.

WITNESS:

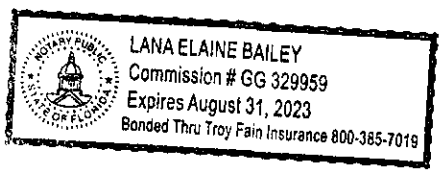
Cecilia Merrill

Timothy Haley, Sole Trustee of The Timothy Haley Living Trust, dated June 3, 2005

STATE OF FLORIDA
COUNTY OF MARTIN, ss.

December 28, 2021

Then personally appeared the above-named Timothy Haley, as aforesaid, and acknowledged the foregoing instrument to be his free act and deed in his said capacity.



Before me,

Attorney at Law/Notary Public
Print Name: Elaine Bailey
My Commission Expires: 8-31-23

Exhibit A

Certain lots or parcels of land, together with any building and improvement thereon, situated on the southeasterly side of Eastern Promenade, in the City of Portland, Cumberland County, State of Maine, bounded and described as follows:

PARCEL ONE:

A certain lot or parcel of land, with the buildings thereon, situated on the southeasterly side of the Eastern Promenade in said Portland, and bounded and described as follows, viz: Beginning on said side of said Eastern Promenade at the northeasterly corner of land now or formerly of Henry F. Merrill, and running thence southeasterly by said Merrill land and land of Portland Company two hundred fifty-five (255) feet, more or less, to land conveyed by John G. Munroe and others to the Portland Company by deed dated January 5, 1904, and recorded in Cumberland County Registry of Deeds, Book 765, Page 307; thence northeasterly by said land conveyed to said Portland Company as aforesaid one hundred (100) feet to other land now or formerly of Henry F. Merrill; thence northwesterly on a line parallel with the first described course two hundred fifty-five (255) feet, more or less, to said Eastern Promenade; thence southwesterly by said Eastern Promenade one hundred (100) feet to the place of beginning.

PARCEL TWO:

Beginning at a point on the southeasterly side of said Eastern Promenade at the northwesterly corner of land of Walter W. Duffett and thirty-six (36) feet southwesterly from the dividing line between the land now or formerly of Walter W. Duffett and the land now or formerly of William Curtis; thence southwesterly by said Eastern Promenade, forty-nine (49) feet, more or less, to land formerly belonging to one Monroe; thence southeasterly by said Monroe's land seventy (70) feet, more or less, to land now or formerly of Cyrus Cole; thence northeasterly by said Cole's land, forty-nine (49) feet, more or less, to said Duffett's land; thence northwesterly by said Duffett's land, seventy (70) feet, more or less, to the point begun at.

PARCEL THREE:

Beginning at a point in a southeasterly direction from the Eastern Promenade in the northeasterly side line of land now or formerly owned by heirs of J. Monroe, and distant one hundred and sixty-two (162) feet from the point of intersection of said side line of the Monroe land with the southeasterly side line of said Eastern Promenade, and from this point extending in a northeasterly direction about fifty (50) feet along the northwesterly side line of land sold to Henry Merrill et als. by deed dated June 29, 1898, recorded in Cumberland Registry of Deeds in Book 661, Page 176, and to the southwesterly side of land sold to Walter W. Duffett by deed dated June 29, 1898, recorded in said Registry of Deeds in Book 661, Page 175; thence by said southwesterly side line of the land so conveyed to Walter W. Duffett and by land now or

formerly of Mary Duffett to the southeasterly side line of land now or formerly of one Clark: thence by the said southeasterly side line of land now or formerly of said Clark, and by said line extended, to the said northeasterly side line of said Monroe land; thence by said Monroe land, in a southeasterly direction to the point of beginning.

Received
Recorded Register of Deeds
Dec 30,2021 03:33:48P
Cumberland County
Jessica M. Spaulding

SHORT FORM QUITCLAIM DEED WITH COVENANT
DLN: 1002040119134

CPB2 I LLC (formerly known as **CPB2 LLC**), a Delaware limited liability company, with a mailing address of 254 Commercial Street, Suite 118, Portland, Maine 04101 (the "Grantor"), FOR CONSIDERATION PAID, grants to **PF LAND LLC**, a Maine limited liability company, with a mailing address of 254 Commercial Street, Suite 118, Portland, Maine 04101 (the "Grantee"), with QUITCLAIM COVENANT, certain real property, together with any improvements thereon, situated southerly of Fore Street, in the City of Portland, County of Cumberland and State of Maine, more particularly described on **Exhibit A** attached hereto and made a part hereof (the "Property").

Being a portion of the property described in the following deeds: (i) Quitclaim Deed with Covenant from 100 Fore Street, LLC dated April 10, 2019 and recorded in the Cumberland County Registry of Deeds in Book 35576, Page 153; (ii) Quitclaim Deed with Covenant from the City of Portland to CPB2 I LLC dated November 2, 2018 and recorded in the Cumberland County Registry of Deeds in Book 35264, Page 286; (iii) Quitclaim Deed with Covenant from The Portland Company to CPB2 LLC dated April 1, 2014 and recorded in the Cumberland County Registry of Deeds in Book 31425, Page 267; and (iv) Trustee's Deed from Elizabeth M. Sprague, Eric Thomas Sprague and Phineas M. Sprague, Trustees of the Buena Vista Trust, to CPB2 LLC dated July 19, 2013 and recorded in the Cumberland County Registry of Deeds in Book 30879, Page 75.

IN WITNESS WHEREOF, CPB2 I LLC has caused this instrument to be executed by Casey W. Prentice, Manager of CPB2 Management LLC, Manager of CPB2 I LLC, thereunto duly authorized, as of this 4th day of November 2020.

WITNESS:

Richard D Prentice

Name: Richard D Prentice

CPB2 I LLC
By: CPB2 Management LLC, Manager

By: _____
Casey W. Prentice, Manager

13531538.3
12481681.4.4.3.3.2

State of Maine
County of Cumberland, ss. November 3, 2020

PERSONALLY APPEARED the above-named Casey W. Prentice, Manager of CPB2 Management LLC, Manager of CPB2 I LLC, as aforesaid, and acknowledged the foregoing instrument to be his free act and deed in his said capacity and the free act and deed of said limited liability companies.

Before me,

Notary ~~Public~~/Attorney at Law
Print Name: Tom S. Hanson
Commission Expires: N/A

13531538.3
12481681.4.4.3.3.2

EXHIBIT A

A CERTAIN LOT OR PARCEL OF LAND WITH THE BUILDING THEREON SITUATED ON THE SOUTHERLY SIDE OF FORE STREET IN THE CITY OF PORTLAND, COUNTY OF CUMBERLAND AND STATE OF MAINE BOUNDED AND DESCRIBED AS FOLLOWS:

BEGINNING AT THE NORTHERLY CORNER OF LAND NOW OR FORMERLY OF 100 FORE STREET LLC AS DESCRIBED IN DEED BOOK 33748, PAGE 1 ON THE SOUTHEASTERLY SIDELINE OF FORE STREET AT AN IRON ROD FOUND;

THENCE, N 76°17'54"E ALONG THE SOUTHEASTERLY SIDELINE OF SAID FORE STREET 287.55 FEET;

THENCE, N 37°34'49"E CONTINUING ALONG THE SOUTHEASTERLY SIDELINE OF FORE STREET 734.45 FEET;

THENCE, N 45°16'49"E CONTINUING ALONG THE SOUTHEASTERLY SIDELINE OF FORE STREET 43.36 FEET TO THE SOUTHWESTERLY CORNER OF LAND NOW OR FORMERLY OF KENNETH & CAROLL MACGOWAN AS DESCRIBED IN DEED BOOK 15773, PAGE 153;

THENCE, S 47°03'11"E ALONG THE SOUTHERLY LINE OF SAID MACGOWEN 150.00 FEET;

THENCE, N 45°16'49"E ALONG THE EASTERLY LINE OF LAND OF MACGOWEN 112.00 FEET TO THE SOUTHERLY LINE OF LAND NOW OR FORMERLY OF TIMOTHY HALEY, TRUSTEE AS DESCRIBED IN DEED BOOK 24759, PAGE 67 & 69;

THENCE, ALONG THE LAND OF SAID HALEY THE FOLLOWING COURSES AND DISTANCES:

S 47°03'11"E A DISTANCE OF 110.28 FEET;

N 47°33'49"E A DISTANCE OF 100.00 FEET;

N 47°03'11"W A DISTANCE OF 95.88 FEET;

N 53°46'39"E A DISTANCE OF 49.73 FEET TO THE SOUTHERLY LINE OF LAND NOW OR FORMERLY OF PORTLAND HOUSE CONDOMINIUM AS SHOWN ON PLAN BOOK 142, PAGE 50;

THENCE, S 47°03'07"E ALONG THE SOUTHERLY LINE OF LAND OF SAID PORTLAND HOUSE CONDOMINIUM 240.48 FEET TO THE NORTHWESTERLY LINE OF LAND NOW OR FORMERLY OF STATE OF MAINE KNOWN AS THE RAIL-TRAIL CORRIDOR AT AN IRON ROD FOUND;

THENCE, S 47°33'49"W ALONG THE NORTHWESTERLY LINE OF LAND OF SAID STATE OF MAINE 685.00 FEET;

THENCE, S 52°46'49"W CONTINUING ALONG THE NORTHWESTERLY LINE OF LAND OF STATE OF MAINE 442.91 FEET TO THE LAND NOW OR FORMERLY OF CITY OF PORTLAND AS DESCRIBED IN DEED BOOK 10924, PAGE 84;

THENCE, S 57°47'32" W ALONG LAND OF SAID CITY OF PORTLAND 11.22 FEET TO A POINT OF CURVATURE;

THENCE, SOUTHWESTERLY CONTINUING ALONG LAND OF SAID CITY OF PORTLAND ALONG A CURVE TO THE LEFT, HAVING A RADIUS OF 466.50 FEET, AN ARC LENGTH OF 133.12 FEET, CHORD BEARING OF S 49°37'02" W AND CHORD LENGTH OF 132.67 FEET;

THENCE, S 41°26'32" W CONTINUING ALONG LAND OF THE CITY OF PORTLAND 17.92 FEET TO THE LAND NOW OR FORMERLY OF SAID STATE OF MAINE;

THENCE, S 46°01'18" W ALONG LAND OF STATE OF MAINE 31.95 FEET TO THE LAND OF CITY OF PORTLAND;

THENCE, N 52°05'24" W ALONG LAND OF CITY OF PORTLAND 97.53 FEET TO A POINT OF CURVATURE;

THENCE, NORTHWESTERLY ALONG LAND OF CITY OF PORTLAND ALONG A CURVE TO THE RIGHT HAVING A RADIUS OF 370.00 FEET, AN ARC LENGTH OF 47.73 FEET, CHORD BEARING OF N 48°23'40" W AND CHORD LENGTH OF 47.70 FEET TO THE SOUTHERLY LINE OF LAND OF SAID 100 FORE STREET LLC;

THENCE, NORTHWESTERLY ALONG THE EASTERLY LINE OF SAID 100 FORE STREET, LLC ALONG A CURVE TO THE RIGHT HAVING A RADIUS OF 370.00 FEET, AN ARC LENGTH OF 13.77 FEET, CHORD BEARING OF N 43°37'59" W AND CHORD LENGTH OF 13.77 FEET;

THENCE, N 42°34'01" W CONTINUING ALONG THE EASTERLY LINE OF 100 FORE STREET LLC 68.76 FEET;

THENCE, NORTHWESTERLY CONTINUING ALONG THE EASTERLY LINE OF 100 FORE STREET, LLC ALONG A CURVE TO THE RIGHT HAVING A RADIUS OF 370.24 FEET, AN ARC LENGTH OF 134.07 FEET, CHORD BEARING OF N 32°11'34" W AND CHORD LENGTH OF 133.34 FEET;

THENCE, NORTHWESTERLY CONTINUING ALONG THE EASTERLY LINE OF 100 FORE STREET, LLC ALONG A CURVE TO THE RIGHT HAVING A RADIUS OF 274.33 FEET, AN ARC LENGTH OF 13.01 FEET, CHORD BEARING OF N 20°51'48" W AND CHORD LENGTH OF 13.01 FEET TO THE SOUTHERLY SIDELINE OF SAID FORE STREET AT THE POINT OF BEGINNING.

13531538.3
12481681.4.4.3.3.2

BEARING ARE BASED ON MAINE STATE PLANE COORDINATE SYSTEM WEST ZONE NAD 83.

EXCEPTING FROM THE ABOVE DESCRIBED PARCEL, THE LAND CONVEYED BY CBP2 1 LLC TO PF ONE DEVCO LLC BY DEED OF EVEN DATE TO BE RECORDED IN THE CUMBERLAND COUNTY REGISTRY OF DEEDS CONTEMPORANEOUSLY WITH THIS DEED

REFERENCE IS MADE TO THAT CERTAIN PLAN ENTITLED "ALTA/NSPS LAND TITLE SURVEY, 58 FORE STREET, PORTLAND, CUMBERLAND COUNTY, MAINE, MADE FOR PF ONE DEVCO LLC & PF LAND LLC", DATED MARCH 4, 2020 AND REVISED THOUGH NOVEMBER 2, 2020, PREPARED BY OWEN HASKELL, INC., JOB NO. 2019-013P.

THE PROPERTY IS CONVEYED SUBJECT TO AND WITH THE BENEFIT OF CERTAIN INTERESTS, RIGHTS, EASEMENTS, CONDITIONS, COVENANTS, RESTRICTIONS AND ENCUMBRANCES AS MORE FULLY SET FORTH IN THAT CERTAIN DECLARATION OF RESTRICTIONS, EASEMENTS AND AGREEMENTS BY CPB2 I LLC OF NEAR OR EVEN DATE HEREWITH, AND TO BE RECORDED IN THE CUMBERLAND COUNTY REGISTRY OF DEEDS BEFORE THE RECORDING OF THIS DEED.

THE PROPERTY IS CONVEYED TOGETHER WITH THAT CERTAINREVOCABLE ACCESS LICENSE BY AND BETWEEN THE CITY OF PORTLAND, PF ONE DEVCO LLC, PF LAND LLC AND PF MARINA LLC OF NEAR OR EVEN DATE HEREWITH, TO BE RECORDED IN THE CUMBERLAND COUNTY REGISTRY OF DEEDS AT OR NEAR THE DATE OF THIS DEED.

THIS CONVEYANCE IS ALSO MADE SUBJECT TO ALL OTHER EASEMENTS, CONDITIONS, COVENANTS AND RESTRICTIONS OF RECORD.

MAINE REAL ESTATE TAX-Paid

QUITCLAIM DEED WITHOUT COVENANT
DLN: 1002140132239

PF LAND LLC, a Delaware limited liability company, with a mailing address of 254 Commercial Street, Suite 118, Portland, Maine 04101 (the "Grantor"), FOR CONSIDERATION PAID, grants to **PF ONE DEVCO LLC**, a Delaware limited liability company, with a mailing address of 254 Commercial Street, Suite 118, Portland, Maine 04101 (the "Grantee"), certain real property, together with any improvements thereon, situated southerly of Fore Street, in the City of Portland, County of Cumberland and State of Maine, more particularly described on **Exhibit A** attached hereto and made a part hereof.

Being a portion of the property conveyed to Grantor by deed from CPB2 I LLC dated November 4, 2020 and recorded in the Cumberland County Registry of Deeds in Book 37397, Page 78.

IN WITNESS WHEREOF, PF Land LLC has caused this instrument to be executed by Casey W. Prentice, Manager, thereunto duly authorized, this 11th day of February, 2021, as of

WITNESS:

Richard D. Grantee
Name:

PF LAND LLC

By: _____
Casey W. Prentice, Manager

State of Maine
County of Cumberland, ss.

February 9, 2021

PERSONALLY APPEARED the above-named Casey W. Prentice, Manager of PF Land LLC, and acknowledged that the foregoing instrument to be his free act and deed in his said capacity and the free act and deed of said limited liability company.

Before me,

_____
~~Notary Public~~/Attorney at Law
Print Name: William M. Welch
Commission Expires:

13531538.3
12722943.2

DOC :11203 BK:37821 PG:161
RECEIVED - RECORDED, CUMBERLAND COUNTY REGISTER OF DEEDS
02/17/2021, 10:57:49A
Register of Deeds Nancy A. Lane E-RECORDED

EXHIBIT A

A CERTAIN LOT OR PARCEL OF LAND SITUATED ON THE SOUTHERLY SIDE OF, BUT NOT ADJACENT TO FORE STREET IN THE CITY OF PORTLAND, COUNTY OF CUMBERLAND AND STATE OF MAINE BOUNDED AND DESCRIBED AS FOLLOWS:

BEGINNING AT THE SOUTHERLY CORNER OF LAND OF PARCEL 1C AS SHOWN ON PLAN TITLED "SUBDIVISION PLAT PORTLAND FORESIDE THAMES STREET & FORE STREET PORTLAND, MAINE MADE FOR OWNER OF RECORD CPB2 I LLC" BY OWEN HASKELL, INC. DATED FEB. 13, 2020, RECORDED IN THE CUMBERLAND COUNTY REGISTRY OF DEEDS IN PLAN BOOK 220, PAGE 65;

THENCE, S 57°47'32" W A DISTANCE OF 10.19 FEET;

THENCE, ALONG A CURVE TO THE LEFT HAVING A RADIUS OF 466.50 FEET, AN ARC LENGTH OF 1.10 FEET, A CHORD BEARING OF S 57°43'29" W AND CHORD DISTANCE OF 1.10 FEET;

THENCE, N 49°28'50" W THROUGH REMAINING LAND BY DEVELOPER A DISTANCE OF 19.41 FEET;

THENCE, N 40°31'10" E CONTINUING THROUGH REMAINING LAND BY DEVELOPER A DISTANCE OF 38.71 FEET TO SAID PARCEL 1C;

THENCE, S 53°28'50" E ALONG PARCEL 1C A DISTANCE OF 9.05 FEET;

THENCE, S 40°31'10" W ALONG PARCEL 1C A DISTANCE OF 28.56 FEET;

THENCE, S 49°28'50" E ALONG PARCEL 1C A DISTANCE OF 13.73 FEET TO THE POINT OF BEGINNING, CONTAINING 482 S.F. MORE OR LESS.

BEARING ARE BASED ON MAINE STATE PLANE COORDINATE SYSTEM WEST ZONE NAD 83.

3. FINANCIAL CAPACITY

3.1 FINANCING

A copy of a letter verifying the Applicant's financial capacity to undertake the project is attached to this Section.

3.2 CERTIFICATE OF GOOD STANDING

A copy of the Secretary of State's Certificate of Good Standing for Portland Foreside Management Company, LLC (the Applicant) is attached to this Section.

3.3 LIST OF ATTACHMENTS

- Financial Capacity Letter; and
- Certificate of Good Standing.

ROCKLAND TRUST Where Each Relationship Matters®

September 14, 2022

PF One Devco, LLC
Portland Foreside Development Company
Casey Prentice
Kevin Costello
254 Commercial Street,
Portland, ME 02101

To: City of Portland

From: Rose M. Buckley, Senior Vice President
Rockland Trust Company

Rockland Trust Company has and will provide funding for the construction at 58 Fore Street, Portland ME. Rockland Trust is funding the construction of the Sun Life Building and has provided funding for Building 12 occupied by Twelve Restaurant.

Rockland Trust looks forward to working with Portland Foreside Development Company in the future.

Please contact me at 781-982-6165 with any questions.

Best regards,
ROCKLAND TRUST COMPANY

By: Rose M. Buckley
Rose M. Buckley, Senior Vice President

Member FDIC

EQUAL HOUSING LENDER

State of Maine

Department of the Secretary of State

I, the Secretary of State of Maine, certify that according to the provisions of the Constitution and Laws of the State of Maine, the Department of the Secretary of State is the legal custodian of the Great Seal of the State of Maine which is hereunto affixed and that the paper to which this is attached is a true copy from the records of this Department.

In testimony whereof, I have caused the Great Seal of the State of Maine to be hereunto affixed. Given under my hand at Augusta, Maine, this twenty-ninth day of September 2022.

Shenna Bellows

Shenna Bellows

Secretary of State

Additional Addresses

Legal Name	Title	Name	Charter #	Status
PF LAND LLC	Registered Agent	HELEN STERLING COBURN, ESQ.	20200853FC	GOOD STANDING

Home Office Address (of foreign entity)	Other Mailing Address
PO BOX 7987 PORTLAND, ME 04112	BERNSTEIN SHUR, 100 MIDDLE STREET PORTLAND, ME 04101

State of Maine

Department of the Secretary of State

I, the Secretary of State of Maine, certify that according to the provisions of the Constitution and Laws of the State of Maine, the Department of the Secretary of State is the legal custodian of the Great Seal of the State of Maine which is hereunto affixed and that the paper to which this is attached is a true copy from the records of this Department.

In testimony whereof, I have caused the Great Seal of the State of Maine to be hereunto affixed. Given under my hand at Augusta, Maine, this twenty-ninth day of September 2022.

Shenna Bellows

Shenna Bellows

Secretary of State

Additional Addresses

Legal Name	Title	Name	Charter #	Status
PF MARINA LLC	Registered Agent	HELEN STERLING COBURN, ESQ.	20183084DC	GOOD STANDING

Home Office Address (of foreign entity)	Other Mailing Address
	100 MIDDLE STREET WEST TOWER PORTLAND, ME 04101

4. TECHNICAL ABILITY

The project team includes the following partners completing various engineering, landscape architecture, and architecture components of the project work. The project team is also supported by a number of other professional firms providing support with survey, structural design, geotechnical design, mechanical/electrical/plumbing design, and other disciplines. Copies of resumes and information on other members of the project team can be provided upon request.

Woodard & Curran (W&C), an over 1,000-person Portland-based firm, has provided engineering services to the public and private sector for over 40 years, including permitting, civil/site engineering, stormwater, and construction management services. W&C has completed projects for colleges, universities, and healthcare institutions that build strong, sustainable infrastructure and environmental programs serving both their business needs and the communities that make them so vibrant. With extensive experience in design and permitting for site development projects, W&C has completed many projects within the City of Portland and for the University of Maine System.

MBLA is a professional design firm located in Freeport, Maine. MBLA practices nationally and internationally, and over the past twenty-eight years, the office has collaborated on diverse and notable projects, located in a wide range of settings and climates and across the state of Maine. MBLA projects range in scale and complexity including plazas, courtyards, university building projects, private school facilities, master plans, museums, churches, resorts, parks, and residential landscape projects. Many of MBLA's design projects have focused on creating places for people to gather while addressing issues of circulation, security, and programming.

Perkins+Will architects is a firm consisting of twenty-four domestic and international offices with a depth of technical and management skill employed to execute projects of great complexity. Perkins+Will maintains a full-time QA/QC leader in each office to provide ongoing quality assurance for projects. These experts are guided by a national project delivery system that has resulted from the best practices from around the firm.

MARVEL is a design firm with over 20 years of experience working at the intersection of public and private space, creating intentionally timeless design solutions that integrate nature and context. Their portfolio spans affordable housing, commercial, cultural institutions, schools and higher education, civic and public works, hospitality, high-end residential, recreational projects, workspaces, and parks and public spaces.

Baskervill, founded in 1897, is one of the nation's oldest continually operating architectural firms. With five offices along the east coast of the United States, and internationally, Baskervill is a multi-disciplinary design firms with a mix of services from architecture and interior design to MEP engineering and sustainable design.

5. NOISE

The noise impact from the proposed development will be minor. The primary source of noise from the proposed project will be the result of construction. Construction activities will be limited to the hours permitting by the City. HVAC and primary mechanical equipment will be located and screened to mitigate noise impacts. Noise associated with the proposed development will not exceed regulated levels and is not anticipated to negatively impact surrounding development in its urban setting.

6. VISUAL QUALITY & SCENIC CHARACTER

As further described in the City of Portland Site Plan Application for the proposed development, the architecture and landscaping have been designed to be consistent with the scenic and historic character of the surrounding urban waterfront area. The Site Plan Application includes renderings showing how view corridors will be preserved. A Certificate of Appropriateness will also be obtained from the City of Portland Historic Preservation Board. It is not anticipated that the proposed development will result in any negative visual impacts.

7. WILDLIFE & FISHERIES

The Site has been previously developed and there are no known areas of significant natural features, including areas of significant wildlife habitats or wetlands. The attached Official Species List identifies the northern long-eared bat (threatened species), roseate tern (endangered species) and monarch butterfly (candidate species) in association with the project area; however, there are no critical habitat areas located within the project area. Based on US Fish & Wildlife information, the northern long-eared bat typically lives in caves during the winter months and in trees larger than three inches in diameter during the summer, with migration between these two habitats in the spring in the fall. Tree-clearing for this project will be minimal.

A letter was sent to the Maine Department of Inland Fisheries and Wildlife (MDIFW) requesting information regarding any known threatened or endangered species or critical habitat relative to the project area; a copy of their response letter is attached to this Section. It is not anticipated that the proposed development will have a negative impact on the northern long-eared bat, roseate tern or monarch butterfly.

7.1 LIST OF ATTACHMENTS

- Official Species List; and
- MDIFW Environmental Review Response Letter.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Maine Ecological Services Field Office
P. O. Box A
East Orland, ME 04431
Phone: (207) 469-7300 Fax: (207) 902-1588

In Reply Refer To:
Project Code: 2022-0086547
Project Name: 58 Fore Street

April 03, 2023

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological

evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts see https://www.fws.gov/birds/policies-and-regulations.php.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures see https://www.fws.gov/birds/bird-enthusiasts/threats-to-birds.php.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit https://www.fws.gov/birds/policies-and-regulations/executive-orders/e0-13186.php.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Maine Ecological Services Field Office
P. O. Box A
East Orland, ME 04431
(207) 469-7300

PROJECT SUMMARY

Project Code: 2022-0086547
Project Name: 58 Fore Street
Project Type: Mixed-Use Construction
Project Description: Development project at 58 Fore Street.
Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@43.66328875,-70.24278546387461,14z



Counties: Cumberland County, Maine

ENDANGERED SPECIES ACT SPECIES

There is a total of 3 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

---

1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

MAMMALS

NAME	STATUS
Northern Long-eared Bat *Myotis septentrionalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Threatened

BIRDS

NAME	STATUS
Roseate Tern *Sterna dougallii dougallii* Population: Northeast U.S. nesting population No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/2083	Endangered

INSECTS

NAME	STATUS
Monarch Butterfly *Danaus plexippus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

IPAC USER CONTACT INFORMATION

Agency: Woodard & Curran
Name: Amy LeBel
Address: 41 Hutchins Drive
City: Portland
State: ME
Zip: 04102
Email alebel@woodardcurran.com
Phone: 2075583841

JANET T. MILLS
GOVERNOR

STATE OF MAINE
DEPARTMENT OF
INLAND FISHERIES & WILDLIFE
353 WATER STREET
41 STATE HOUSE STATION
AUGUSTA ME 04333-0041

JUDITH CAMUSO
COMMISSIONER

October 11, 2022

Amy Lebel
Woodard & Curran
41 Hutchins Drive
Portland, ME 04101

RE: Information Request – 58 Fore Street Project, Portland,

Dear Amy:

Per your request received on October 03, 2022, we have reviewed current Maine Department of Inland Fisheries and Wildlife (MDIFW) information for known locations of Endangered, Threatened, and Special Concern species; designated Essential and Significant Wildlife Habitats; and inland fisheries habitat concerns within the vicinity of the *58 Fore Street Project* in Portland.

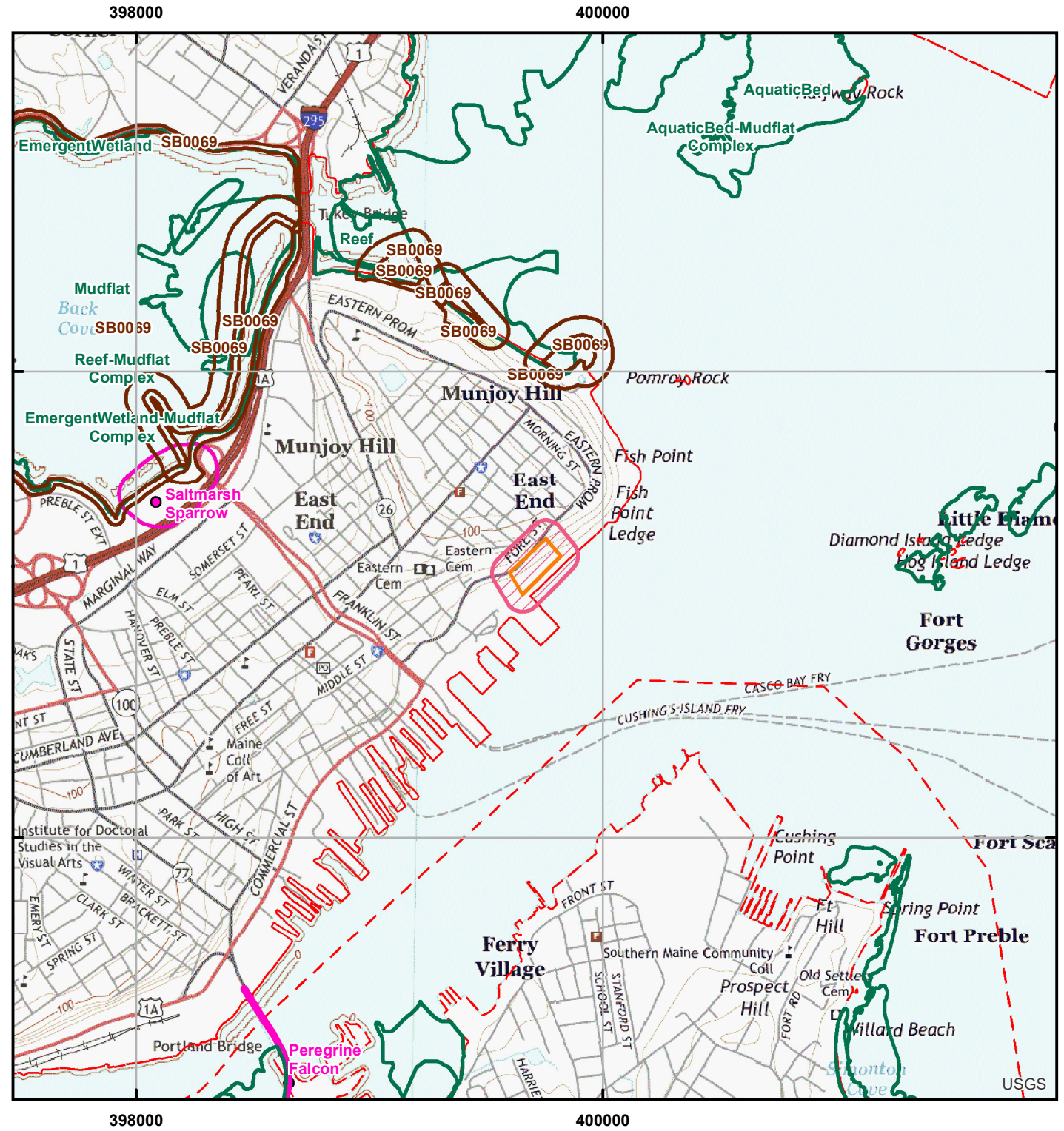
Our information indicates no locations of State-listed Endangered, Threatened, or Special Concern species within the project area that would be affected by your project. Additionally, our Department has not mapped any Essential or Significant Wildlife Habitats or inland fisheries habitats that would be directly affected by your project.

This consultation review has been conducted specifically for known MDIFW jurisdictional features and should not be interpreted as a comprehensive review for the presence of other regulated features that may occur in this area. Prior to the start of any future site disturbance, we recommend additional consultation with the municipality, and other state resource agencies including the Maine Natural Areas Program, Maine Department of Marine Resources, and Maine Department of Environmental Protection in order to avoid unintended protected resource disturbance.

Please feel free to contact my office if you have any questions regarding this information, or if I can be of any further assistance.

Best regards,

Becca Settele
Wildlife Biologist



Environmental Review of Fish and Wildlife Observations and Priority Habitats

Project Name: Portland, 58 Fore Street (Version 2)

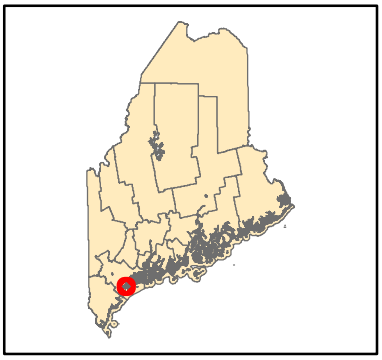
Maine Department of Inland Fisheries and Wildlife

0 0.125 0.25 0.5 0.75 1 Miles

Projection: UTM, NAD83, Zone 19N

Date: 10/3/2022

- ProjectSearchAreas - All Versions
- Maine Cliff and Talus Areas
- Deer Winter Area
- LUPC p-fw
- Cooperative DWAs
- Seabird Nesting Islands
- Shorebird Areas
- Inland Waterfowl and Wading Bird
- 2008 Iwwh - Shoreland Zoning
- Tidal Waterfowl and Wading Bird
- Significant Vernal Pools
- Environmental Review Polygons
- Roseate Tern
- Piping Plover and Least Tern
- Aquatic ETSc - 2.5 mi review
- Rare Mussels - 5 mi review
- Maine Heritage Fish Waters
- Arctic Charr Habitat
- Redfin Pickerel and Swamp Darter Habitats - buffer100ft
- Special Concern occupied habitats - 100ft buffer
- Wild Lake Trout Habitats



8. HISTORIC SITES

A letter has been sent to the Maine Historic Preservation Commission (MHPC) requesting a review of the project area relative to historic properties; a copy of their response letter is attached to this Section. We will work with the Planning Division on the required historic preservation review concurrent with the Site Plan process.

Portions of the site are also being reviewed by the City of Portland's Historic Preservation Board. A Certificate of Appropriateness has been received for Phase 1 buildings (Building 12, the Block 2 historic core of buildings and Building 1A) and will soon be started for the Block 6 building.

8.1 LIST OF ATTACHMENTS

- MHPC Project Review Response Letter.

MAINE HISTORIC PRESERVATION COMMISSION
55 CAPITOL STREET
65 STATE HOUSE STATION
AUGUSTA, MAINE
04333

JANET T. MILLS
GOVERNOR

KIRK F. MOHNEY
DIRECTOR

December 19, 2022

Ms. Amy LeBel
Woodard & Curran
41 Hutchins Drive
Portland, ME 04102

Project: MHPC #1777-22 — Portland Foreside Development Co.; 58 Fore St
Develop Blocks 4 and 6

Town: Portland, ME

Dear Ms. LeBel:

In response to your recent request, I have reviewed the information received November 28, 2022 to continue consultation on the above referenced project in accordance with the requirements of Maine Department of Environmental Protection.

Based on the information provided, the Commission feels that the proposed undertaking will have no adverse effect on architectural resources located with in the proposed project area, as defined by Section 106 of the National Historic Preservation Act of 1966, as amended.

With regard to archaeological resources, a historic archaeological survey is recommended. Survey can be conducted in the form of monitoring ground disturbing activities in coordination with the developer. Purpose of the survey is to document architectural remains of the Portland company buildings that are not depicted on maps and plans, and to identify/document/collect potentially significant objects associated with the company's industrial production.

A list of qualified historic archaeologists can be found on our website:
https://www.maine.gov/mhpc/programs/survey/approved-consultants/historic

If you have any questions regarding archaeology, please contact Dr. Leith Smith of this office at Leith.Smith@maine.gov.

We look forward to continuing consultation with you. If you have any questions regarding above-ground properties, please contact Megan M. Rideout of this office at megan.m.rideout@maine.gov.

Sincerely,

Kirk F. Mohney

Kirk F. Mohney
State Historic Preservation Officer

PHONE: (207) 287-2132 FAX: (207) 287-2335

9. UNUSUAL NATURAL AREAS

The Site has been previously developed and there are no known unusual natural areas. A letter was sent to the Maine Natural Areas Program (MNAP) requesting a review of the Site relative to rare and exemplary botanical features; a copy of their response letter is attached to this Section.

9.1 LIST OF ATTACHMENTS

- MNAP Site Review Response Letter.

STATE OF MAINE
DEPARTMENT OF AGRICULTURE, CONSERVATION & FORESTRY
177 STATE HOUSE STATION
AUGUSTA, MAINE 04333

JANET T. MILLS
GOVERNOR

AMANDA E. BEAL
COMMISSIONER

October 5, 2022

Amy LeBel
Woodard & Curran
41 Hutchins Drive
Portland, ME 04102

Via email: alebel@woodardcurran.com

Re: Rare and exemplary botanical features in proximity to: 58 Fore Street Mixed-Use Development, Blocks 4 and 6, Portland, Maine

Dear Ms. LeBel:

I have searched the Maine Natural Areas Program's Biological and Conservation Data System files in response to your request received September 29, 2022 for information on the presence of rare or unique botanical features documented from the vicinity of the project in Portland, Maine. Rare and unique botanical features include the habitat of rare, threatened, or endangered plant species and unique or exemplary natural communities. Our review involves examining maps, manual and computerized records, other sources of information such as scientific articles or published references, and the personal knowledge of staff or cooperating experts.

Our official response covers only botanical features. For authoritative information and official response for zoological features you must make a similar request to the Maine Department of Inland Fisheries and Wildlife, 284 State Street, Augusta, Maine 04333.

According to the information currently in our Biological and Conservation Data System files, there are no rare botanical features documented specifically within the project area. Based on the information in our files and the landscape context of this project, there is a low probability that rare or significant botanical features occur at this project location.

This finding is available and appropriate for preparation and review of environmental assessments, but it is not a substitute for on-site surveys. Comprehensive field surveys do not exist for all natural areas in Maine, and in the absence of a specific field investigation, the Maine Natural Areas Program cannot provide a definitive statement on the presence or absence of unusual natural features at this site.

The Maine Natural Areas Program (MNAP) is continuously working to achieve a more comprehensive database of exemplary natural features in Maine. We would appreciate the contribution of any information obtained should you decide to do field work. MNAP welcomes coordination with individuals or organizations proposing environmental alteration, or conducting environmental assessments. If, however, data provided by MNAP are to be published in any form, the Program should be informed at the outset and credited as the source.

MOLLY DOCHERTY, DIRECTOR
MAINE NATURAL AREAS PROGRAM
90 BLOSSOM LANE, DEERING BUILDING

PHONE: (207) 287-8044
WWW.MAINE.GOV/DACF/MNAP

The Maine Natural Areas Program has instituted a fee structure of $75.00 an hour to recover the actual cost of processing your request for information. You will receive an invoice for $150.00 for two hours of our services.

Thank you for using MNAP in the environmental review process. Please do not hesitate to contact me if you have further questions about the Natural Areas Program or about rare or unique botanical features on this site.

Sincerely,

Lisa St. Hilaire

Lisa St. Hilaire | Information Manager | Maine Natural Areas Program
207-287-8044 | lisa.st.hilaire@maine.gov

10. BUFFERS

The Site has been previously developed. There are no existing or proposed buffers. This Section is not applicable.

11. SOILS

Copies of the United States Department of Agriculture Natural Resources Conservation Service Web Soil Survey and the Geotechnical Report prepared for the Site are attached to this Section for your reference. Environmental assessments of the Site have been conducted and the Owner is a participant in the Maine Department of Environmental Protection Voluntary Response Action Program (VRAP). A soil management plan will be developed for the site.

11.1 LIST OF ATTACHMENTS

- United States Department of Agriculture Natural Resources Conservation Service Web Soil Survey

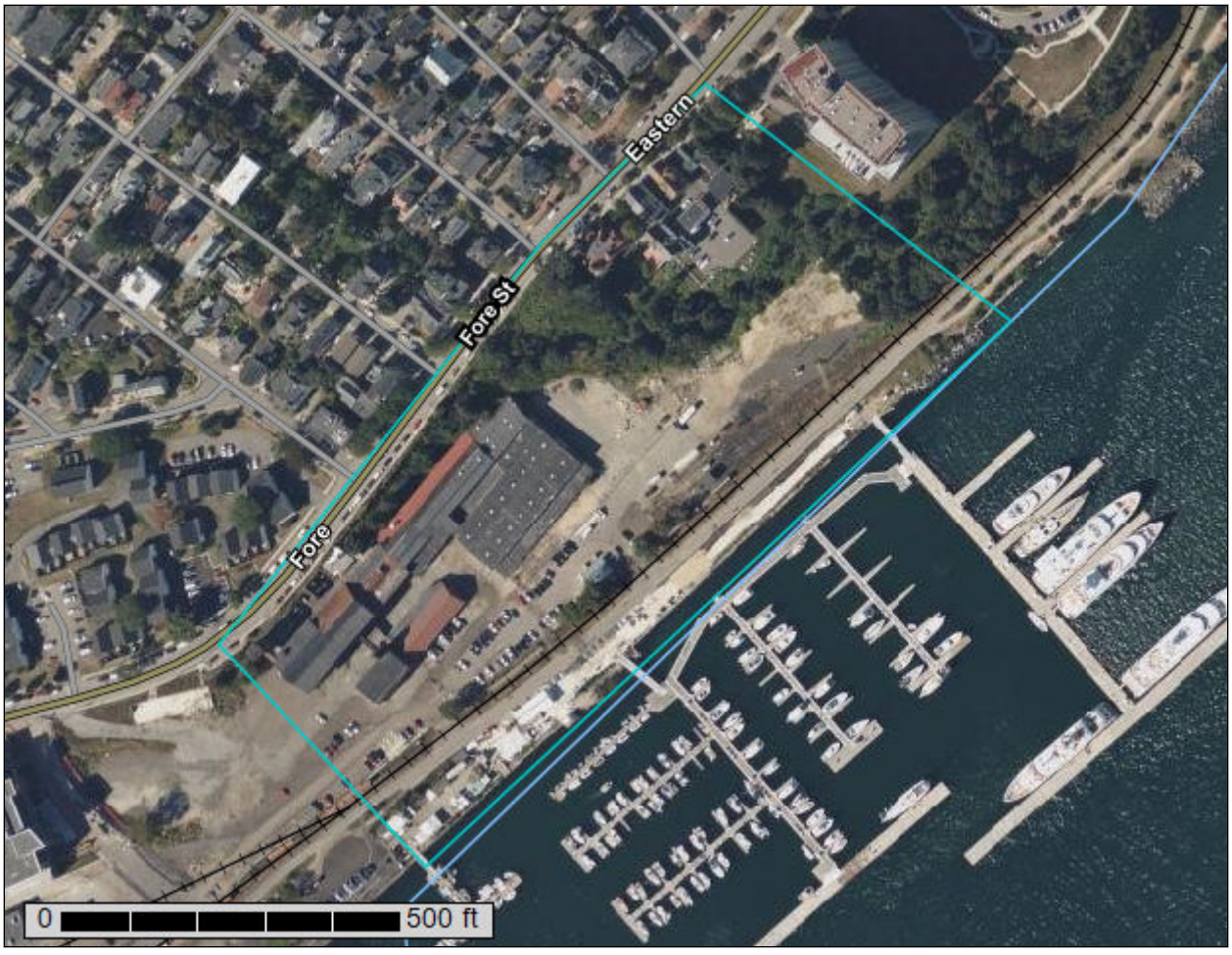
United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Cumberland County and Part of Oxford County, Maine



September 19, 2022

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.


70° 14' 48" W
70° 14' 19" W
399490
399560
399630
399700
399770
399840
399910
399980
400050
400120
43° 39' 54" N
43° 39' 40" N
4835400
4835330
4835260
4835190
4835120
4835050
HIC
HIB
HID
HIB
Cu
W
Hoyts Ln
Fore St
Adams St
Munjoy St
Fore
Soil Map may not be valid at this scale.
Map Scale: 1:2,970 if printed on A landscape (11" x 8.5") sheet.
N
Meters
0 40 80 160 240
Feet
0 100 200 400 600
Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Cumberland County and Part of Oxford County, Maine
Survey Area Data: Version 18, Aug 31, 2021

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jun 19, 2020—Sep 20, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background

MAP LEGEND

MAP INFORMATION

imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Cu	Cut and fill land	8.9	65.7%
HIB	Hinckley loamy sand, 3 to 8 percent slopes	0.8	6.1%
HIC	Hinckley loamy sand, 8 to 15 percent slopes	0.0	0.1%
HID	Hinckley loamy sand, 15 to 25 percent slopes	2.5	18.7%
W	Water	1.3	9.4%
Totals for Area of Interest		**13.6**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Cumberland County and Part of Oxford County, Maine

Cu—Cut and fill land

Map Unit Composition

Cut and fill land: 90 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Cut And Fill Land

Typical profile

H1 - 0 to 65 inches: very gravelly sandy loam

Properties and qualities

Slope: 0 to 35 percent

Drainage class: Moderately well drained

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to very high (0.06 to 20.00 in/hr)

Depth to water table: About 24 to 42 inches

Available water supply, 0 to 60 inches: Moderate (about 6.6 inches)

HlB—Hinckley loamy sand, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2svm8

Elevation: 0 to 1,430 feet

Mean annual precipitation: 36 to 53 inches

Mean annual air temperature: 39 to 55 degrees F

Frost-free period: 140 to 240 days

Farmland classification: Farmland of statewide importance

Map Unit Composition

Hinckley and similar soils: 85 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hinckley

Setting

Landform: Outwash plains, eskers, moraines, kame terraces, kames, outwash terraces, outwash deltas

Landform position (two-dimensional): Summit, shoulder, backslope, footslope

Landform position (three-dimensional): Nose slope, side slope, base slope, crest, riser, tread

Down-slope shape: Concave, convex, linear

Across-slope shape: Convex, linear, concave

Parent material: Sandy and gravelly glaciofluvial deposits derived from gneiss and/or granite and/or schist

Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material

A - 1 to 8 inches: loamy sand

Bw1 - 8 to 11 inches: gravelly loamy sand

Bw2 - 11 to 16 inches: gravelly loamy sand
BC - 16 to 19 inches: very gravelly loamy sand
C - 19 to 65 inches: very gravelly sand

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to very high (1.42 to 99.90 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Very low (about 3.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3s
Hydrologic Soil Group: A
Ecological site: F144AY022MA - Dry Outwash
Hydric soil rating: No

HIC—Hinckley loamy sand, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: 2svm9
Elevation: 0 to 1,480 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition

Hinckley and similar soils: 85 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hinckley

Setting

Landform: Kame terraces, outwash plains, kames, eskers, moraines, outwash terraces, outwash deltas
Landform position (two-dimensional): Shoulder, backslope, footslope, toeslope
Landform position (three-dimensional): Head slope, nose slope, side slope, crest, riser
Down-slope shape: Concave, convex, linear
Across-slope shape: Convex, linear, concave
Parent material: Sandy and gravelly glaciofluvial deposits derived from gneiss and/or granite and/or schist

Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material
A - 1 to 8 inches: loamy sand
Bw1 - 8 to 11 inches: gravelly loamy sand
Bw2 - 11 to 16 inches: gravelly loamy sand
BC - 16 to 19 inches: very gravelly loamy sand
C - 19 to 65 inches: very gravelly sand

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to very high (1.42 to 99.90 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 3.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: A
Ecological site: F144AY022MA - Dry Outwash
Hydric soil rating: No

HID—Hinckley loamy sand, 15 to 25 percent slopes

Map Unit Setting

National map unit symbol: 2svmc
Elevation: 0 to 1,460 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition

Hinckley and similar soils: 85 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hinckley

Setting

Landform: Outwash plains, eskers, moraines, outwash terraces, outwash deltas, kame terraces, kames
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Head slope, nose slope, side slope, crest, riser
Down-slope shape: Concave, convex, linear

Across-slope shape: Convex, linear, concave
Parent material: Sandy and gravelly glaciofluvial deposits derived from gneiss and/or granite and/or schist

Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material
A - 1 to 8 inches: loamy sand
Bw1 - 8 to 11 inches: gravelly loamy sand
Bw2 - 11 to 16 inches: gravelly loamy sand
BC - 16 to 19 inches: very gravelly loamy sand
C - 19 to 65 inches: very gravelly sand

Properties and qualities

Slope: 15 to 25 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to very high (1.42 to 99.90 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 3.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: A
Ecological site: F144AY022MA - Dry Outwash
Hydric soil rating: No

W—Water

Map Unit Composition

Water: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Water

Setting

Landform: Lakes

Soil Information for All Uses

Soil Properties and Qualities

The Soil Properties and Qualities section includes various soil properties and qualities displayed as thematic maps with a summary table for the soil map units in the selected area of interest. A single value or rating for each map unit is generated by aggregating the interpretive ratings of individual map unit components. This aggregation process is defined for each property or quality.

Soil Qualities and Features

Soil qualities are behavior and performance attributes that are not directly measured, but are inferred from observations of dynamic conditions and from soil properties. Example soil qualities include natural drainage, and frost action. Soil features are attributes that are not directly part of the soil. Example soil features include slope and depth to restrictive layer. These features can greatly impact the use and management of the soil.

Hydrologic Soil Group

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

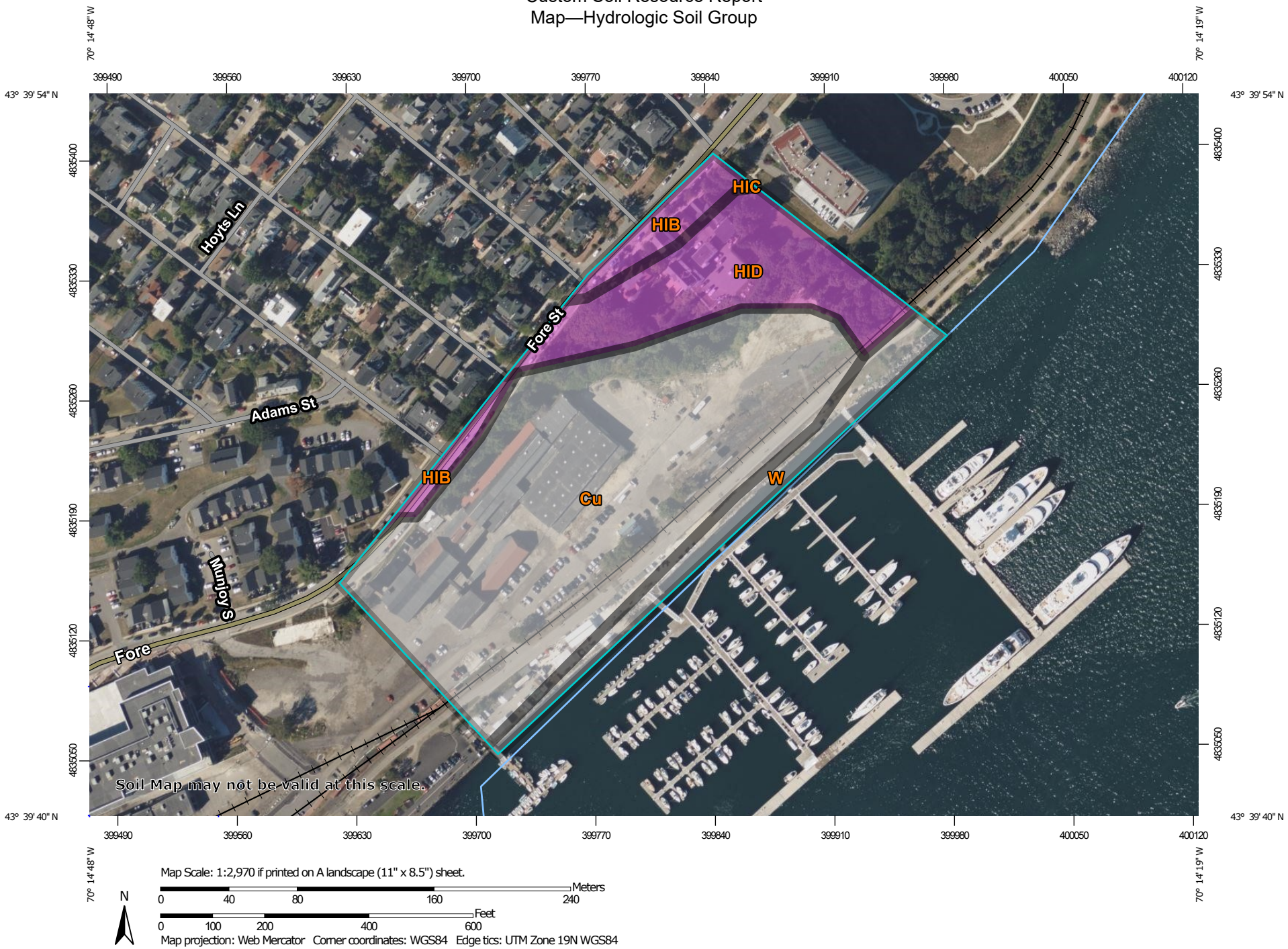
Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.


70° 14' 48" W
70° 14' 19" W
399490
399560
399630
399700
399770
399840
399910
399980
400050
400120
43° 39' 54" N
43° 39' 40" N
4835400
4835330
4835260
4835190
4835120
4835050
HIC
HIB
HID
HIB
Cu
W
Hoyts Ln
Fore St
Adams St
Munjoy St
Fore
Soil Map may not be valid at this scale.
Map Scale: 1:2,970 if printed on A landscape (11" x 8.5") sheet.
N
Meters
0 40 80 160 240
Feet
0 100 200 400 600
Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Cumberland County and Part of Oxford County, Maine
Survey Area Data: Version 18, Aug 31, 2021

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jun 19, 2020—Sep 20, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background

MAP LEGEND

MAP INFORMATION

imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Table—Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
Cu	Cut and fill land		8.9	65.7%
HIB	Hinckley loamy sand, 3 to 8 percent slopes	A	0.8	6.1%
HIC	Hinckley loamy sand, 8 to 15 percent slopes	A	0.0	0.1%
HID	Hinckley loamy sand, 15 to 25 percent slopes	A	2.5	18.7%
W	Water		1.3	9.4%
Totals for Area of Interest			**13.6**	**100.0%**

Rating Options—Hydrologic Soil Group

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

References

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United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2_054242

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12. STORMWATER MANAGEMENT

The attached Stormwater Management Plan describes the proposed stormwater management measures for the project, as shown on the design drawings attached to Section 1 of this Report. A USGS map and a soils map are attached to Section 1 and Section 11 of this Report, respectively.

12.1 LIST OF ATTACHMENTS

- Stormwater Management Plan (Bound Separately)

13. URBAN IMPAIRED STREAM

The proposed development is not located within the watershed of an Urban Impaired Stream; the Urban Impaired Stream Standard does not apply.

14. BASIC STANDARD

The proposed development is adjacent to the Fore River; there are no other known protected resources associated with the Site. As shown by the soil survey attached to Section 11 of this Report, the Site is comprised primarily of urban fill. The Soil Erosion and Sediment Control Plan and compliance with the Basic Standard is described in the Stormwater Management provided as part of Section 12 of this Report.

During construction, the Contractor will be responsible for conducting inspections in accordance with the attached *Stormwater Erosion & Sediment Control Inspection Report Form* (or equivalent). Inspections shall be performed at least once a week, as well as before and after storm events. A person with knowledge of stormwater management and erosion and sediment control, including the standards and conditions of the permit approvals, shall conduct the inspections and perform maintenance of the facilities. If maintenance or modifications are necessary, implementation will be completed within seven days and prior to any rainfall event. After construction, the Owner will be responsible for inspecting and maintaining the Site's stormwater system.

14.1 LIST OF ATTACHMENTS

- Erosion & Sediment Control Inspection Report Form.

EROSION & SEDIMENT CONTROL
INSPECTION REPORT FORM

Inspectors: Date: ___ / ___ / _____

_____ of _____ (Project Owner)
_____ of _____ (Contractor)
_____ of _____
_____ of _____

Storm Event? ☐ Yes ☐ No Rainfall Amount _____ Storm Duration _____ hours

Visual Observations of Activity and Site Conditions:

Disturbed Soil Areas:

Storage Of Soils:

Sediment & Erosion Control Measures:

Construction Site Entrance:

Surface Stabilization:

Corrective Action Taken:

Attachments (if any):

Signature:

Name Title Date

15. GROUNDWATER

The proposed development is not located within a Significant Sand and Gravel Aquifer; as previously noted, the Site is comprised primarily of urban fill. Environmental assessments of the Site have been conducted and the Owner is a participant in the Maine Department of Environmental Protection Voluntary Response Action Program (VRAP). The proposed development will not infiltrate to or extract groundwater and is not anticipated to produce any hazardous waste. It is not anticipated that the proposed development will result in any impacts to groundwater.

16. WATER SUPPLY

The proposed development will be provided with both fire protection water service and domestic water service as shown on the drawings via a private water system that will connect to the public water main on Fore Street. Woodard & Curran is working directly with the Portland Water District to determine the appropriate design for this work and ability to serve documentation is attached to this section.

16.1 LIST OF ATTACHMENTS

- PWD Ability to Serve Email

Amy LeBel

From: AMaP MEANS <means@pwd.org>
Sent: Wednesday, March 22, 2023 3:47 PM
To: Lauren Swett
Cc: Thomas Whitney
Subject: 525766-58 Fore Street PH2, PO
Attachments: PO - Portland Foreside Ph II - Infrastructure Map - 2023.pdf

Hello Ms. Swett,

This email does not give final approval of the 58 Fore Street Phase 2 development project from PWD, however it can be used to satisfy Site Law Statute §484 - Standards for Development, Site Law Rule Chapter 375(18), and Site Law Rule Chapter 375(6) granted that the applicant meet all applicable standards set forth by DEP or other governing body. Attached is a copy of PWD's infrastructure map noting the location, type, and size of the public water infrastructure near your site, demonstrating a sufficient and healthful water supply exists. Based on the demand provided by the applicant, the district has sufficient supply to serve the proposed project, as long as the project is designed and installed in accordance with PWD standards. This email shall serve as PWD's acknowledgement of the project and the start of design coordination with the development team; In no way shall this information be interpreted as a determination of PWD's ability to serve the project at this time as this is only a determination of the capacity of the existing system based on the proposed development. As your project progresses, we require that you submit design plans to MEANS for review of the proposed water improvements. An Ability to Serve Determination letter is required from the District in order to receive final approval from the District and the municipality having jurisdiction.

Please let me know if you have any questions.

Thanks,

Portland Water District
225 Douglass Street, PO Box 3553
Portland, ME 04104
Phone: 207-774-5961 x3199
E-mail: means@pwd.org
http://www.pwd.org

Portland Water District NOTICE & DISCLAIMER Confidentiality Notice:

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Please consider the environment before printing this email



86 Leland Street

Portland

PORTLAND WATER DISTRICT
225 Douglass Street
Portland, ME 04104

Scale 0 20 40 80 120 160 Feet — 1 inch = 100 feet

Legend

- Air Valve
- Blow Off
- By Pass
- Distribution
- Transmission
- Connection
- Attribute Change
- Hydrant Control
- Reducer
- Hydrant
- Meter Pits
- Combined Service
- Domestic Service
- Fire Service
- Shallow Water Main
- Deep Water Main
- Proposed Water Main
- Private Hydrants
- Gravity
- Force
- Manhole
- CSO

Disclaimer: This map is suitable for preliminary study and analysis and is based on PWD record information. PWD is not liable for any damages whatsoever resulting from inaccurate data or from errors made in the location and marking of its infrastructure.

Drawn By: HAS	Infrastructure Map
Scale: As Noted	March 8, 2023

17. WASTEWATER DISPOSAL

The proposed development will be provided with sanitary sewer service as shown on the drawings. The private system on the site will include a combination of gravity sewer and forcemain with a pump station that will discharge to the sewer on the Thames Street Extension. The existing sewer service on Fore Street will be abandoned. The proposed development will include restaurants, kitchens, and parking garages; grease traps and oil/water separators will be provided as shown on the drawings. Woodard & Curran is working directly with the City of Portland to determine the appropriate design for this work. A Wastewater Capacity Application was submitted to the City under separate cover as part of the Site Plan Application for the proposed development. A copy of the City's determination will be provided upon receipt.

18. SOLID WASTE

18.1 SOLID WASTE

All solid waste materials and recyclables from the proposed development will be transported and disposed of or recycled in accordance with applicable laws and regulations.

18.2 CONSTRUCTION & DEMOLITION DEBRIS

The proposed development will generate construction waste and demolition debris (CDD). The Contractor will be responsible for properly disposing of the CDD. The Contractor will be responsible for handling, managing, and disposing of all waste generated by construction in accordance with the Maine Solid Waste Management Regulations and all other applicable local, state, and federal regulations.

18.3 SPECIAL & HAZARDOUS WASTE

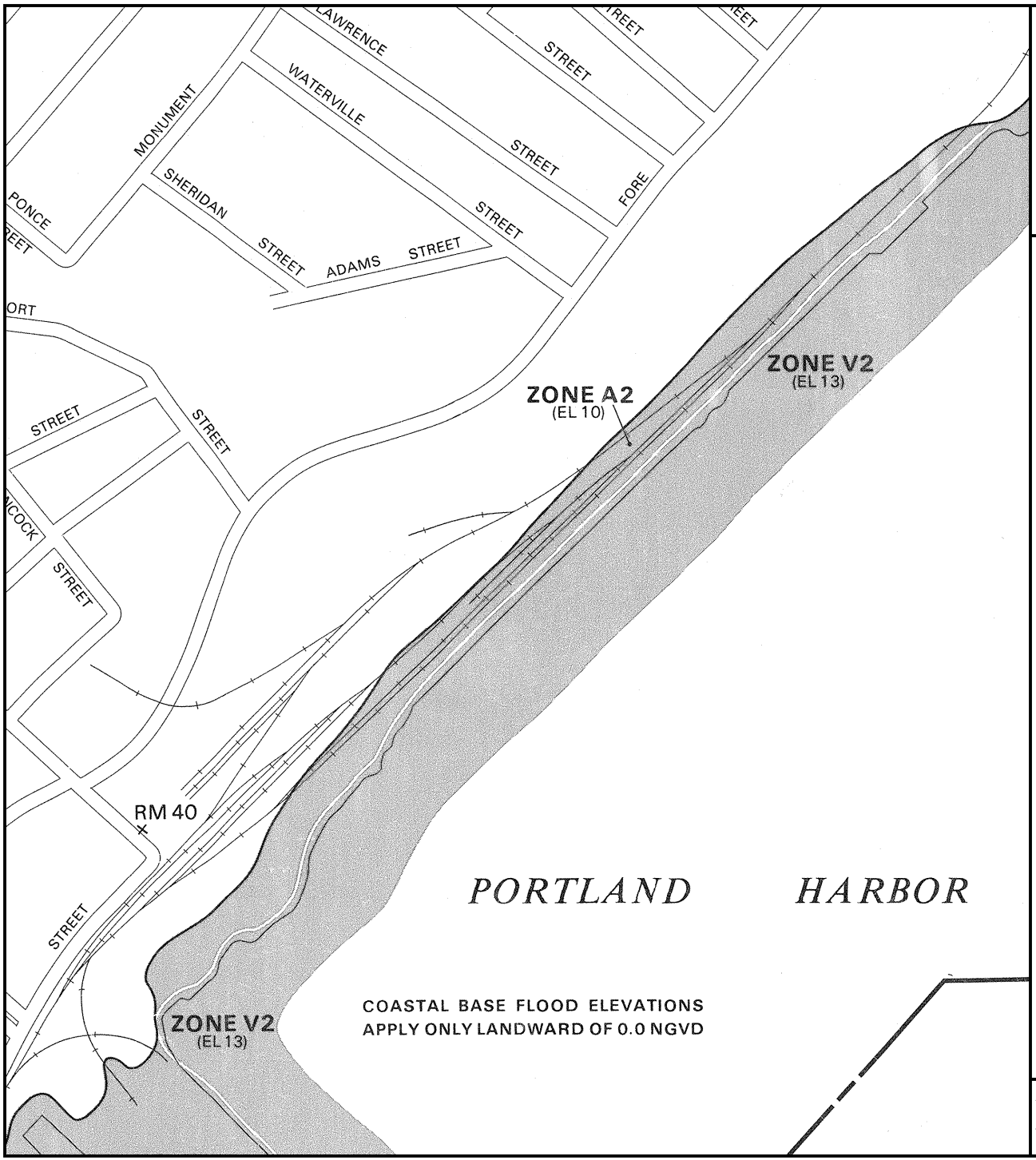
The proposed development is not anticipated to produce any hazardous waste. Environmental assessments of the Site have been conducted and the Owner is a participant in the Maine Department of Environmental Protection Voluntary Response Action Program (VRAP). A soil management plan will be developed for the site to address management of "urban fill" special waste anticipated to be encountered during the construction process.

19. FLOODING

Portland Foreside has submitted and received approval of two Letters of Map Amendment (LOMA), removing the site's developed area from the floodplain. As a result, a Flood Hazard Permit is not required as part of this project's permit review. A copy of the FEMA Flood Insurance Rate Map and LOMA documentation is attached.

19.1 LIST OF ATTACHMENTS

- FEMA Flood Insurance Rate Map;
- LOMA documentation.



APPROXIMATE SCALE

400 0 400 FEET

NATIONAL FLOOD INSURANCE PROGRAM

FIRM

FLOOD INSURANCE RATE MAP

CITY OF
PORTLAND, MAINE
CUMBERLAND COUNTY

PANEL 14 OF 17
(SEE MAP INDEX FOR PANELS NOT PRINTED)

COMMUNITY-PANEL NUMBER
230051 0014 B

EFFECTIVE DATE:
JULY 17, 1986

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov



Area to be Removed from Flood Zone AE

A CERTAIN LOT OR PARCEL OF LAND ON THE SOUTHERLY SIDE OF, BUT NOT ADJACENT TO FORE STREET IN THE CITY OF PORTLAND, COUNTY OF CUMBERLAND AND STATE OF MAINE BOUNDED AND DESCRIBED AS FOLLOWS:

BEGINNING ON THE NORTHERLY LINE OF LAND NOW OR FORMERLY OF STATE OF MAINE AS DESCRIBED IN DEED BOOK 10924, PAGE 91 AT THE SOUTHWESTERLY CORNER OF LAND NOW OR FORMERLY OF PORTLAND HOUSE CONDOMINIUM AS SHOWN ON PLAN BOOK 142, PAGE 50;

THENCE, S 47°33'49" W ALONG THE NORTHERLY LINE OF SAID STATE OF MAINE 685.00 FEET;

THENCE, S 52°46'49" W CONTINUING ALONG THE NORTHERLY LINE OF STATE OF MAINE 272.75 FEET TO THE NORTHERLY LIMIT OF FLOOD ZONE A2 (EL 10) AS SCALED FROM FEMA FLOOD INSURANCE RATE MAP NO. 230051-0014B;

THENCE, THE FOLLOWING COURSES AND DISTANCES ALONG THE NORTHERLY LIMIT OF SAID FLOOD ZONE A2:

N 18°22'51" E A DISTANCE OF 26.60 FEET;
N 48°05'42" E A DISTANCE OF 204.67 FEET;
N 50°41'38" E A DISTANCE OF 184.50 FEET;
N 45°09'56" E A DISTANCE OF 136.93 FEET;
N 47°53'09" E A DISTANCE OF 144.17 FEET;
N 39°47'45" E A DISTANCE OF 121.02 FEET;
N 60°27'17" E A DISTANCE OF 116.02 FEET;
N 44°32'44" E A DISTANCE OF 28.73 FEET TO THE WESTERLY LINE OF LAND OF SAID PORTLAND HOUSE CONDOMINIUM;

THENCE, S 47°03'07" E ALONG PORTLAND HOUSE CONDOMINIUM 22.78 FEET TO THE POINT OF BEGINNING, CONTAINING 28,157 S.F. OR 0.65 ACRES, MORE OR LESS.

Utility Note

THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. THE SURVEYOR MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES. CALL 1-888-DIGSAFE AT LEAST THREE BUSINESS DAYS BEFORE PERFORMING ANY CONSTRUCTION. DUE TO OSHA CONFINED SPACE REQUIREMENTS, ALL INVERTS AND PIPE SIZES MUST BE VERIFIED PRIOR TO ANY CONSTRUCTION.

Plan References

1. *LAND TITLE SURVEY & SUBDIVISION PLAN IN PORTLAND, MAINE U.S.A. MADE FOR THE TRUST FOR PUBLIC LAND, THE CITY OF PORTLAND, THE MAINE DEPARTMENT OF TRANSPORTATION, THE CANADIAN NATIONAL RAILWAY COMPANY DATED FEB. 19, 1993, REV. 9 11/04/96 BY OWEN HASKELL, INC. AND RECORDED IN PLAN BOOK 193, PAGE 187.*

2. *RECORDING PLAT OCEAN GATEWAY MADE FOR THE CITY OF PORTLAND AND STATE OF MAINE, BY OWEN HASKELL, INC, DATED AUGUST 4, 2004, RECORDED IN PLAN BOOK 204, PAGE 622-624*

3. *BOUNDARY & TOPOGRAPHY SURVEY AT 58 FORE STREET, PORTLAND, MAINE MADE FOR WOODARD & CURRAN BY OWEN HASKELL, INC. AUGUST 29, 2016, REVISED THROUGH FEB. 2019.*

4. *EXHIBIT PLAN PARCELS TO BE CONVEYED 58 FORE STREET, PORTLAND, MAINE MADE FOR WOODARD & CURRAN BY OWEN HASKELL, INC. DATED MARCH 21, 2018.*

5. *TOPOGRAPHIC SURVEY 100 FORE STREET MADE FOR JONATHAN COHEN BY OWEN HASKELL, INC DATED DECEMBER 4, 2017 REVISED THROUGH 12/17/18.*

6. *AMENDED SUBDIVISION PLAN, OCEAN GATEWAY, COMMERCIAL STREET, THAMES STREET & FORE STREET, PORTLAND, MAINE MADE FOR OWNER OF RECORD CITY OF PORTLAND JULY 17, 2019 BY OWEN HASKELL.*

7. *SUBDIVISION PLAT PORTLAND FORESIDE THAMES STREET & FORE STREET PORTLAND, MAINE MADE FOR OWNER OF RECORD CPB2 I LLC, BY OWEN HASKELL, INC. DATED FEB. 13, 2020, RECORDED IN PLAN BOOK 220, PAGE 65.*

Flood Zone Note

BY GRAPHIC PLOTTING ONLY, THIS PROPERTY IS LOCATED IN ZONE C, AREAS OF MINIMUM FLOODING, ON THE FLOOD INSURANCE RATE MAP, COMMUNITY PANEL NO. 230051-0014B, WHICH BEARS AN EFFECTIVE DATE OF JULY 17, 1986. THE FEMA FIRM ZONE A2 FLOOD LINE IS DEMARKED ON THE PLAN BY THE ELEVATION 10 CONTOUR. ALL POINTS NORTH OF THIS CONTOUR ON THE SUBJECT PROPERTY EXCEEDS THIS ELEVATION AND THEREFORE FALL OUTSIDE OF THE A2 ZONE.

General Notes

1. OWNER OF RECORD: CPB2 I LLC, C.C.R.D. BOOK 31425 PAGE 267, BOOK 30879 PAGE 75, BOOK 35264, PAGE 286. SEE AFFIDAVIT RECORDED IN BOOK 34737 PAGE 327 FOR NAME CHANGE & CPB2 I LLC BOOK 35576 PAGE 153

2. PARCEL IS MADE UP OF LOTS A3, A1, PART OF A2 & PART OF A13 ON TAX MAP 18 AND LOT A3 & A16 ON TAX MAP 19 AS SHOWN ON THE OFFICIAL CITY OF PORTLAND TAX ASSESSORS MAPS.

3. BEARINGS ARE BASED ON MAINE STATE PLANE COORDINATES WEST ZONE NAD83. CITY POINTS: T-113-80-206 N:302687.77 E:2932345.31
T-113-12-111 N:302722.13 E:2933029.45

4. BENCH MARK: NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION (NOAA) - TIDAL BENCHMARK. BENCH MARK STAMPING: NO. 3 1971 ELEVATION 11.02 FEET NGVD 29 DATUM.

EXISTING CONDITIONS SURVEY

58 Fore Street
Portland, Cumberland County, Maine
Made For
PF One Devco LLC & PF Land LLC

Surveyor's Certification

OWEN HASKELL, INC. HEREBY CERTIFIES THAT THIS PLAN IS BASED ON, AND THE RESULT OF, AN ON THE GROUND FIELD SURVEY AND THAT TO THE BEST OF OUR KNOWLEDGE, INFORMATION AND BELIEF, IT CONFORMS TO THE BOARD OF LICENSURE FOR PROFESSIONAL LAND SURVEYORS CURRENT STANDARDS OF PRACTICE.

STATE OF MAINE
RANDY R. LOUBIER
2407
PROFESSIONAL LAND SURVEYOR

RANDY R. LOUBIER
PROFESSIONAL LAND SURVEYOR NO. 2407

DATE OF PLAT OR MAP: NOVEMBER 5, 2020
REVISED THROUGH: NOVEMBER 17, 2020

OWEN HASKELL, INC.
PROFESSIONAL LAND SURVEYORS
390 U.S. ROUTE ONE, UNIT 10, FALMOUTH, MAINE 04105
Tel. (207) 774-0424 www.owenhaskell.com rloubier@owenhaskell.com

DRAWN BY: RRL / JLW	FIELD BOOK: FILE	JOB NO.	2019-013 P
CHECKED BY: RRL/SDG	SCALE: 1" = 50'	DRWG. #	LOMA

Federal Emergency Management Agency
Washington, D.C. 20472

MR. RANDY LOUBIER
OWEN HASKELL
390 U.S. ROUTE 1 UNIT 10
FALMOUTH, ME 04105

CASE NO.: 21-01-0177A
COMMUNITY: CITY OF PORTLAND,
CUMBERLAND COUNTY, MAINE
COMMUNITY NO.: 230051

DEAR MR. LOUBIER:

This is in reference to a request that the Federal Emergency Management Agency (FEMA) determine if the property described in the enclosed document is located within an identified Special Flood Hazard Area, the area that would be inundated by the flood having a 1-percent chance of being equaled or exceeded in any given year (base flood), on the effective National Flood Insurance Program (NFIP) map. Using the information submitted and the effective NFIP map, our determination is shown on the attached Letter of Map Amendment (LOMA) Determination Document. This determination document provides additional information regarding the effective NFIP map, the legal description of the property and our determination.

Additional documents are enclosed which provide information regarding the subject property and LOMAs. Please see the List of Enclosures below to determine which documents are enclosed. Other attachments specific to this request may be included as referenced in the Determination/Comment document. If you have any questions about this letter or any of the enclosures, please contact the FEMA Map Assistance Center toll free at (877) 336-2627 (877-FEMA MAP) or by letter addressed to the Federal Emergency Management Agency, Attn: North Wind Resource Partners (NWRP) eLOMA Coordinator, NWRP eLOMA Coordinator, 3601 Eisenhower Ave., Alexandria, VA 22304-6439, Fax: 703-751-7415.

Sincerely,

Luis V. Rodriguez, P.E., Director
Engineering and Modeling Division
Federal Insurance and Mitigation Administration

LIST OF ENCLOSURES:
LOMA DETERMINATION DOCUMENT (REMOVAL)

cc: State/Commonwealth NFIP Coordinator
Community Map Repository
Region

Federal Emergency Management Agency

Washington, D.C. 20472

LETTER OF MAP AMENDMENT
DETERMINATION DOCUMENT (REMOVAL)

COMMUNITY AND MAP PANEL INFORMATION		LEGAL PROPERTY DESCRIPTION
COMMUNITY	CITY OF PORTLAND, CUMBERLAND COUNTY, MAINE	A parcel of land, as described in the Quitclaim Deed with Covenant recorded as Document No. 13675 in Book 31425, Pages 267, 268, and 269; and in the Trustee's Deed recorded as Document No. 45157 in Book 30879, Pages 75 through 79; both deeds in the Office of the Register of Deeds, Cumberland County, Maine
	COMMUNITY NO: 230051	
AFFECTED MAP PANEL	NUMBER: 2300510014B	The portion of property is more particularly described by the following metes and bounds:
	DATE: 7/17/1986	
FLOODING SOURCE: PORTLAND HARBOR; CASCO BAY		APPROXIMATE LATITUDE & LONGITUDE OF PROPERTY: 43.662943, -70.242677 SOURCE OF LAT & LONG: GPS DATUM: NAD 83

DETERMINATION

LOT	BLOCK/ SECTION	SUBDIVISION	STREET	OUTCOME WHAT IS REMOVED FROM THE SFHA	FLOOD ZONE	1% ANNUAL CHANCE FLOOD ELEVATION (NGVD 29)	LOWEST ADJACENT GRADE ELEVATION (NGVD 29)	LOWEST LOT ELEVATION (NGVD 29)
--	--	--	58 Fore Street	Portion of Property	C	--	--	12.0 feet

Special Flood Hazard Area (SFHA) - The SFHA is an area that would be inundated by the flood having a 1-percent chance of being equaled or exceeded in any given year (base flood).

ADDITIONAL CONSIDERATIONS (Please refer to the appropriate section on Attachment 1 for the additional considerations listed below.)

LEGAL PROPERTY DESCRIPTION
PORTIONS REMAIN IN THE SFHA/FLOODWAY
eLOMA DETERMINATION

This document provides the Federal Emergency Management Agency's determination regarding a request for a Letter of Map Amendment for the property described above. Using the information submitted and the effective National Flood Insurance Program (NFIP) map, we have determined that the described portion(s) of the property(ies) is/are not located in the SFHA, an area inundated by the flood having a 1-percent chance of being equaled or exceeded in any given year (base flood). This document amends the effective NFIP map to remove the subject property from the SFHA located on the effective NFIP map; therefore, the Federal mandatory flood insurance requirement does not apply. However, the lender has the option to continue the flood insurance requirement to protect its financial risk on the loan. A Preferred Risk Policy (PRP) is available for buildings located outside the SFHA. Information about the PRP and how one can apply is enclosed.

This determination is based on the flood data presently available. If there are any errors on this eLOMA Determination Letter that cause FEMA to rescind and/or nullify the determination the property owner should consult the Licensed Professional that submitted this eLOMA. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Assistance Center toll free at (877) 336-2627 (877-FEMA MAP) or by letter addressed to the Federal Emergency Management Agency, Attn: North Wind Resource Partners (NWRP) eLOMA Coordinator, 3601 Eisenhower Avenue, Alexandria, VA 22304-4605, Fax: 703-751-7415.

Luis V. Rodriguez, P.E., Director
Engineering and Modeling Division
Federal Insurance and Mitigation Administration

eLOMA

Federal Emergency Management Agency
Washington, D.C. 20472

LETTER OF MAP AMENDMENT
DETERMINATION DOCUMENT (REMOVAL)

ATTACHMENT 1 (ADDITIONAL CONSIDERATIONS)

LEGAL PROPERTY DESCRIPTION (CONTINUED)

BEGINNING ON THE NORTHERLY LINE OF LAND NOW OR FORMERLY OF STATE OF MAINE AS DESCRIBED IN DEED BOOK 10924, PAGE 91 AT THE SOUTHWESTERLY CORNER OF LAND NOW OR FORMERLY OF PORTLAND HOUSE CONDOMINIUM AS SHOWN ON PLAN BOOK 142, PAGE 50; THENCE S47°33'49"W, ALONG THE NORTHERLY LINE OF SAID STATE OF MAINE 685.00 FEET; THENCE S52°46'49"W, CONTINUING ALONG THE NORTHERLY LINE OF STATE OF MAINE 272.75 FEET; THENCE N18°22'51"E, A DISTANCE OF 26.60 FEET; THENCE N48°05'42"E, A DISTANCE OF 204.67 FEET; THENCE N50°41'38"E, A DISTANCE OF 184.50 FEET; THENCE N45°09'56"E, A DISTANCE OF 136.93 FEET; THENCE N47°53'09"E, A DISTANCE OF 144.17 FEET; THENCE N39°47'45"E, A DISTANCE OF 121.02 FEET; THENCE N60°27'17"E, A DISTANCE OF 116.02 FEET; THENCE N44°32'44"E, A DISTANCE OF 28.73 FEET TO THE WESTERLY LINE OF LAND OF SAID PORTLAND HOUSE CONDOMINIUM; THENCE S47°03'07"E, ALONG PORTLAND HOUSE CONDOMINIUM 22.78 FEET TO THE POINT OF BEGINNING.

This attachment provides additional information regarding this request. If you have any questions about this attachment, please contact the FEMA Map Assistance Center toll free at (877) 336-2627 (877-FEMA MAP) or by letter addressed to the Federal Emergency Management Agency, Attn: North Wind Resource Partners (NWRP) eLOMA Coordinator, NWRP eLOMA Coordinator, 3601 Eisenhower Ave., Alexandria, VA 22304-6439, Fax: 703-751-7415

Luis V. Rodriguez, P.E., Director
Engineering and Modeling Division
Federal Insurance and Mitigation Administration

Federal Emergency Management Agency
Washington, D.C. 20472

LETTER OF MAP AMENDMENT
DETERMINATION DOCUMENT (REMOVAL)

ATTACHMENT 1 (ADDITIONAL CONSIDERATIONS)

Portion of Property Removal:

The following considerations may or may not apply to the determination for your Portion of Property:

PORTIONS OF THE PROPERTY REMAIN IN THE SFHA and/or FLOODWAY - Portions of this property, but not the subject of the Determination document, may remain in the Special Flood Hazard Area (SFHA) and/or the regulatory floodway for the flooding source indicated on the Determination Document. The NFIP regulatory floodway is the area that must remain unobstructed in order to prevent unacceptable increases in base flood elevations. Therefore, no construction may take place in an NFIP regulatory floodway that may cause an increase in the base flood elevation. Therefore, any future construction or substantial improvement on the property remains subject to Federal, State/Commonwealth, and local regulations for floodplain management. The NFIP regulatory floodway is provided to the community as a tool to regulate floodplain development. Modifications to the NFIP regulatory floodway must be accepted by both the Federal Emergency Management Agency (FEMA) and the community involved. Appropriate community actions are defined in Paragraph 60.3(d) of the NFIP regulations. Any proposed revision to the NFIP regulatory floodway must be submitted to FEMA by community officials. The community should contact either the Regional Director (for those communities in Regions I-IV, and VI-X), or the Regional Engineer (for those communities in Region V) for guidance on the data which must be submitted for a revision to the NFIP regulatory floodway. Contact information for each regional office can be obtained by calling the FEMA Map Assistance Center toll free at (877) 336-2627 (877-FEMA MAP) or from our web site at https://www.fema.gov/regional-contact-information

STUDY UNDERWAY - This determination is based on the flood data presently available. However, the Federal Emergency Management Agency may be currently revising the National Flood Insurance Program (NFIP) map for the community. New flood data could be generated that may affect this property. If a new NFIP map is issued it will supersede this determination. The Federal requirement for the purchase of flood insurance will then be based on the newly revised NFIP map.

EXTRATERRITORIAL JURISDICTION - The subject of the determination is shown on the National Flood Insurance Program map and may be located in an Extraterritorial Jurisdiction area for the community indicated on the Determination Document.

This attachment provides additional information regarding this request. If you have any questions about this attachment, please contact the FEMA Map Assistance Center toll free at (877) 336-2627 (877-FEMA MAP) or by letter addressed to the Federal Emergency Management Agency, Attn: North Wind Resource Partners (NWRP) eLOMA Coordinator, NWRP eLOMA Coordinator, 3601 Eisenhower Ave., Alexandria, VA 22304-6439, Fax: 703-751-7415

Luis V. Rodriguez, P.E., Director
Engineering and Modeling Division
Federal Insurance and Mitigation Administration

eLOMA

Federal Emergency Management Agency

Washington, D.C. 20472

LETTER OF MAP AMENDMENT
DETERMINATION DOCUMENT (REMOVAL)

ATTACHMENT 1 (ADDITIONAL CONSIDERATIONS)

GREAT LAKES - The Federal Emergency Management Agency (FEMA) has based this determination on elevation data which is published in the current Flood Insurance Study for the community. However, the elevations established in the U.S. Army Corps of Engineers (USACE) reports on the Great Lakes are the best available data known to us. If in the future there are any subsequent map revisions to the National Flood Insurance Program map and the USACE reports remain the best available data known, FEMA will use those elevations for any such revisions. Further, be advised that the elevations on the Flood Insurance Rate Map (FIRM) may only reflect the Stillwater elevation for the lake and may not account for the effects of wind driven waves or wave run-up. On-site conditions such as wind speed, wind direction, fetch distance, water depth and the slope of the beach or bluff may result in significant increases to the base flood elevation. Therefore, it is strongly recommended that the requestor be aware of these circumstances and, if warranted, evaluate the effects of wind driven waves along the shoreline of the property.

STATE AND LOCAL CONSIDERATIONS - Please note that this document does not override or supersede any State or local procedural or substantive provisions which may apply to floodplain management requirements associated with amendments to State or local floodplain zoning ordinances, maps, or State or local procedures adopted under the National Flood Insurance Program.

COASTAL BARRIER RESOURCE SYSTEM - Based upon information provided to FEMA by the U.S. Fish and Wildlife Service (USFWS), the subject property may be within a System Unit or an Otherwise Protected Area (OPA) of the John H. Chafee Coastal Barrier Resource System (CBRS). Federal flood insurance is generally not available within the CBRS for new construction or substantial improvements occurring after the flood insurance prohibition date (which is generally tied to the date that the area was first established as either a System Unit or OPA, but may differ in some cases). Other federal expenditures and financial assistance (including certain types of disaster assistance) are also restricted within System Units of the CBRS. The USFWS is the authoritative source for information regarding the CBRS. Additional information, including the CBRS Mapper, can be found on the USFWS website at: https://www.fws.gov/cbra.

This attachment provides additional information regarding this request. If you have any questions about this attachment, please contact the FEMA Map Assistance Center toll free at (877) 336-2627 (877-FEMA MAP) or by letter addressed to the Federal Emergency Management Agency, Attn: North Wind Resource Partners (NWRP) eLOMA Coordinator, NWRP eLOMA Coordinator, 3601 Eisenhower Ave., Alexandria, VA 22304-6439, Fax: 703-751-7415

Luis V. Rodriguez, P.E., Director
Engineering and Modeling Division
Federal Insurance and Mitigation Administration

eLOMA

Federal Emergency Management Agency

Washington, D.C. 20472

ADDITIONAL INFORMATION REGARDING LETTERS OF MAP AMENDMENT

When making determinations on requests for Letters of Map Amendment (LOMAs), the Department of Homeland Security's Federal Emergency Management Agency (FEMA) bases its determination on the flood hazard information available at the time of the determination. Requesters should be aware that flood conditions may change or new information may be generated that would supersede FEMA's determination. In such cases, the community will be informed by letter.

Requesters also should be aware that removal of a property (parcel of land or structure) from the Special Flood Hazard Area (SFHA) means FEMA has determined the property is not subject to inundation by the flood having a 1-percent chance of being equaled or exceeded in any given year (base flood). This does not mean the property is not subject to other flood hazards. The property could be inundated by a flood with a magnitude greater than the base flood or by localized flooding not shown on the effective National Flood Insurance Program (NFIP) map.

The effect of a LOMA is it removes the Federal requirement for the lender to require flood insurance coverage for the property described. The LOMA *is not* a waiver of the condition that the property owner maintain flood insurance coverage for the property. *Only* the lender can waive the flood insurance purchase requirement because the lender imposed the requirement. *The property owner must request and receive a written waiver from the lender before canceling the policy*. The lender may determine, on its own as a business decision that it wishes to continue the flood insurance requirement to protect its financial risk on the loan.

The LOMA provides FEMA's comment on the mandatory flood insurance requirements of the NFIP as they apply to a particular property. A LOMA is not a building permit, nor should it be construed as such. Any development, new construction, or substantial improvement of a property impacted by a LOMA must comply with all applicable State and local criteria and other Federal criteria.

If a lender releases a property owner from the flood insurance requirement, and the property owner decides to cancel the policy and seek a refund, the NFIP will refund the premium paid for the current policy year, provided that no claim is pending or has been paid on the policy during the current policy year. The property owner must provide a written waiver of the insurance requirement from the lender to the property insurance agent or company servicing his or her policy. The agent or company will then process the refund request.

Even though structures are not located in an SFHA, as mentioned above, they could be flooded by a flooding event with a greater magnitude than the base flood. In fact, more than 25 percent of all claims paid by the NFIP are for policies for structures located outside the SFHA in Zones B, C, X (shaded), or X (unshaded). More than one-fourth of all policies purchased under the NFIP protect structures located in these zones. The risk to structures located outside SFHAs is just not as great as the risk to structures located in SFHAs. Finally, approximately 90 percent of all federally declared disasters are caused by flooding, and homeowners insurance does not provide financial protection from this flooding. Therefore, FEMA encourages the widest possible coverage under the NFIP.

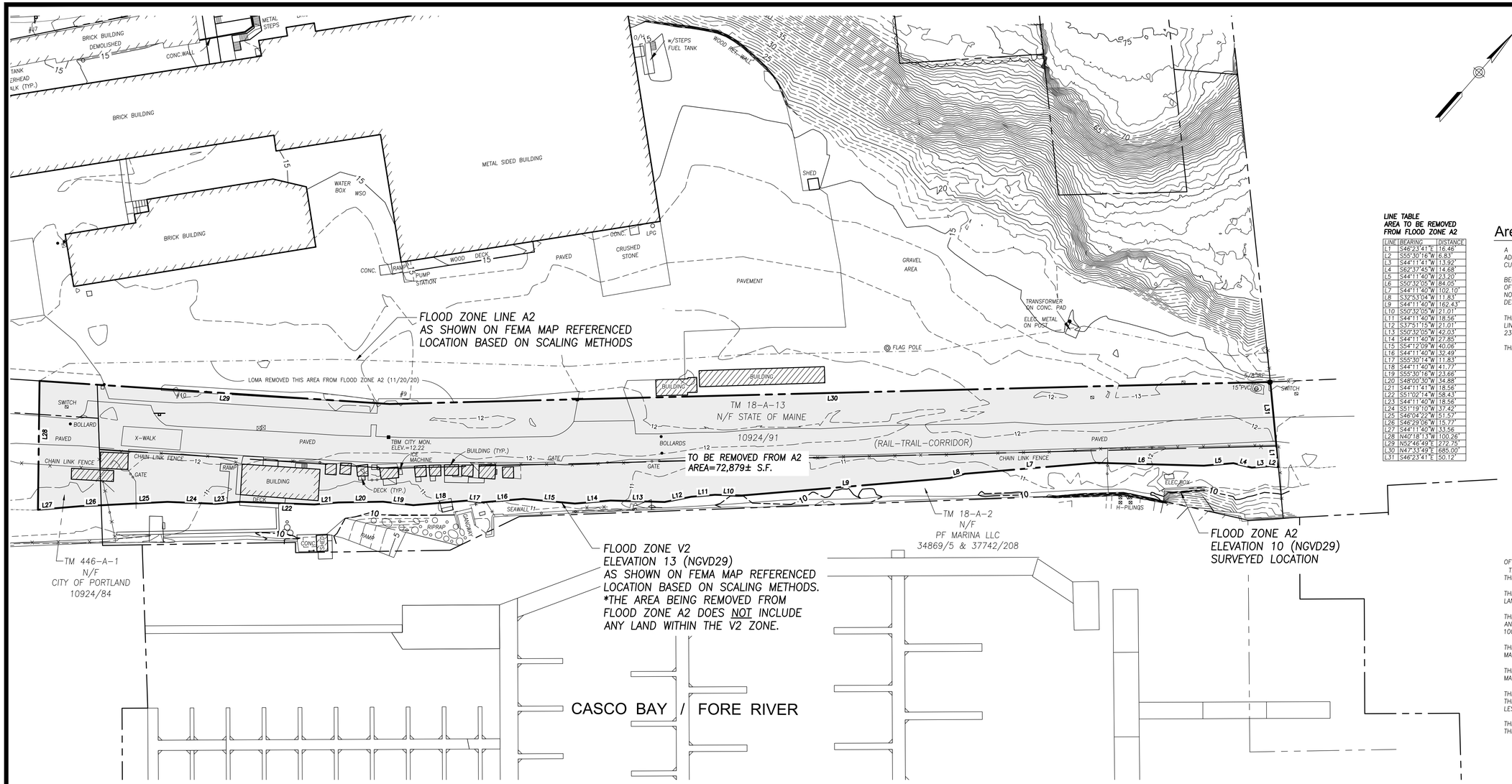
The NFIP offers two types of flood insurance policies to property owners: the low-cost Preferred Risk Policy (PRP) and the Standard Flood Insurance Policy (SFIP). The PRP is available for 1- to 4-family residential structures located outside the SFHA with little or no loss history. The PRP is available for townhouse/rowhouse-type structures, but is not available for other types of condominium units. The SFIP is available for all other structures. Additional information on the PRP and how a property owner can quality for this type of policy may be obtained by calling the Flood Insurance Information Hotline, toll free, at 1-800-427-4661. Before making a final decision about flood insurance coverage, FEMA strongly encourages property owners to discuss their individual flood risk situations and insurance needs with an insurance agent or company.

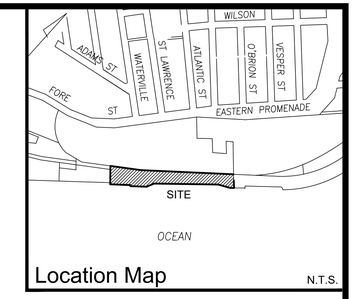
FEMA has established "Grandfather" rules to benefit flood insurance policyholders who have maintained continuous coverage. Property owners may wish to note also that, if they live outside but on the fringe of the SFHA shown on an effective NFIP map and the map is revised to expand the SFHA to include their structure(s), their flood insurance policy rates will not increase as long as the coverage for the affected structure(s) has been continuous. Property owners would continue to receive the lower insurance policy rates.

LOMAs are based on minimum criteria established by the NFIP. State, county, and community officials, based on knowledge of local conditions and in the interest of safety, may set higher standards for construction in the SFHA. If a State, county, or community has adopted more restrictive and comprehensive floodplain management criteria, these criteria take precedence over the minimum Federal criteria.

In accordance with regulations adopted by the community when it made application to join the NFIP, letters issued to amend an NFIP map must be attached to the community's official record copy of the map. That map is available for public inspection at the community's official map repository. Therefore, FEMA sends copies of all such letters to the affected community's official map repository.

When a restudy is undertaken, or when a sufficient number of revisions or amendments occur on particular map panels, FEMA initiates the printing and distribution process for the affected panels. FEMA notifies community officials in writing when affected map panels are being physically revised and distributed. In such cases, FEMA attempts to reflect the results of the LOMA on the new map panel. If the results of particular LOMAs cannot be reflected on the new map panel because of scale limitations, FEMA notifies the community in writing and revalidates the LOMAs in that letter. LOMAs revalidated in this way usually will become effective 1 day after the effective date of the revised map.





Location Map N.T.S.

LINE TABLE
AREA TO BE REMOVED FROM FLOOD ZONE A2

LINE	BEARING	DISTANCE
L1	S46°23'41"E	16.46'
L2	S55°30'16"W	6.83'
L3	S44°11'41"W	13.92'
L4	S62°37'45"W	14.68'
L5	S44°11'40"W	23.20'
L6	S50°32'05"W	84.05'
L7	S44°11'40"W	102.10'
L8	S32°53'04"W	11.83'
L9	S44°11'40"W	162.43'
L10	S50°32'05"W	21.01'
L11	S44°11'40"W	18.56'
L12	S37°51'15"W	21.01'
L13	S50°32'05"W	42.03'
L14	S44°11'40"W	27.85'
L15	S54°12'09"W	40.06'
L16	S44°11'40"W	32.49'
L17	S55°30'14"W	11.83'
L18	S44°11'40"W	41.77'
L19	S55°30'16"W	23.66'
L20	S48°00'30"W	34.88'
L21	S44°11'41"W	18.56'
L22	S51°02'14"W	58.43'
L23	S44°11'40"W	18.56'
L24	S51°19'10"W	37.42'
L25	S46°04'22"W	51.57'
L26	S46°29'06"W	15.77'
L27	S44°11'40"W	33.56'
L28	N40°18'13"W	100.26'
L29	N52°46'49"E	272.75'
L30	N47°33'49"E	685.00'
L31	S46°23'41"E	50.12'

Area to be Removed from Flood Zone A2

A CERTAIN LOT OR PARCEL OF LAND ON THE SOUTHERLY SIDE OF, BUT NOT ADJACENT TO FORE STREET IN THE CITY OF PORTLAND, COUNTY OF CUMBERLAND AND STATE OF MAINE BOUNDED AND DESCRIBED AS FOLLOWS:

BEGINNING ON THE SOUTHERLY LINE OF LAND NOW OR FORMERLY OF STATE OF MAINE AS DESCRIBED IN DEED BOOK 10924, PAGE 91 AT THE NORTHWESTERLY CORNER OF LAND NOW OR FORMERLY OF PF MARINA, LLC AS DESCRIBED IN DEED BOOK 37742, PAGE 208;

THENCE, S 46°23'41" E A DISTANCE OF 16.46 FEET TO THE V2 FLOOD ZONE LINE AS SHOWN ON THE FLOOD INSURANCE RATE MAP, COMMUNITY PANEL NO. 230051-0014B;

THENCE, THE FOLLOWING COURSES AND DISTANCES ALONG SAID V2 ZONE:

S 55°30'16" W A DISTANCE OF 6.83 FEET;
S 44°11'41" W A DISTANCE OF 13.92 FEET;
S 62°37'45" W A DISTANCE OF 14.68 FEET;
S 44°11'40" W A DISTANCE OF 23.20 FEET;
S 50°32'05" W A DISTANCE OF 84.05 FEET;
S 44°11'40" W A DISTANCE OF 102.10 FEET;
S 32°53'04" W A DISTANCE OF 11.83 FEET;
S 44°11'40" W A DISTANCE OF 162.43 FEET;
S 50°32'05" W A DISTANCE OF 21.01 FEET;
S 44°11'40" W A DISTANCE OF 18.56 FEET;
S 37°51'15" W A DISTANCE OF 21.01 FEET;
S 50°32'05" W A DISTANCE OF 42.03 FEET;
S 44°11'40" W A DISTANCE OF 27.85 FEET;
S 54°12'09" W A DISTANCE OF 40.06 FEET;
S 44°11'40" W A DISTANCE OF 32.49 FEET;
S 55°30'14" W A DISTANCE OF 11.83 FEET;
S 44°11'40" W A DISTANCE OF 41.77 FEET;
S 55°30'16" W A DISTANCE OF 23.66 FEET;
S 48°00'30" W A DISTANCE OF 34.88 FEET;
S 44°11'41" W A DISTANCE OF 18.56 FEET;
S 51°02'14" W A DISTANCE OF 58.43 FEET;
S 44°11'40" W A DISTANCE OF 18.56 FEET;
S 51°19'10" W A DISTANCE OF 37.42 FEET;
S 46°04'22" W A DISTANCE OF 51.57 FEET TO LAND NOW OR FORMERLY OF CITY OF PORTLAND AS DESCRIBED IN DEED BOOK 10924, PAGE 84;
THENCE, S 46°29'06" W CONTINUING ALONG THE SAID V2 ZONE AND THROUGH LAND OF SAID CITY OF PORTLAND A DISTANCE OF 15.77 FEET;

THENCE, S 44°11'40" W CONTINUING ALONG THE SAID V2 ZONE AND THROUGH LAND OF CITY OF PORTLAND A DISTANCE OF 33.56 FEET;

THENCE, N 40°18'13" W CONTINUING THROUGH LAND OF CITY OF PORTLAND AND LAND NOW OR FORMERLY OF SAID STATE OF MAINE A DISTANCE OF 100.26 FEET TO THE NORTHERLY LINE OF LAND OF SAID STATE OF MAINE;

THENCE, N 52°46'49" E ALONG THE NORTHERLY LINE OF STATE OF MAINE 272.75 FEET;

THENCE, N 47°33'49" E CONTINUING ALONG THE NORTHERLY LINE OF STATE OF MAINE 685.00 FEET;

THENCE, S 46°23'41" E THROUGH LAND OF STATE OF MAINE 50.12 FEET TO THE POINT OF BEGINNING, CONTAINING 72,879 S.F. OR 1.67 ACRES MORE OR LESS.

THE LAND DESCRIBED ABOVE DOES NOT INTEND TO INCLUDE ANY LAND WITHIN THE V2 ZONE.

SCALE : 1" = 50'
0' 25' 50' 100'

General Notes

1. OWNERS OF RECORD: PF MARINA LLC
C.C.R.D. BOOK 34869 PAGE 50
BOOK 37742, PAGE 208

2. PARCEL IS SHOWN AS LOT 2 BLOCK A ON THE CITY OF PORTLAND'S ASSESSORS MAP 18.

3. BEARINGS ARE BASED ON MAINE STATE PLANE COORDINATES WEST ZONE NAD83.

4. BENCH MARK: NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION (NOAA) – TIDAL BENCHMARK. BENCH MARK STAMPING: NO. 3 1971 ELEVATION 11.02 FEET NGVD 29 DATUM.

Plan References

1. "ALTA/NSPS LAND TITLE SURVEY, 1 MARINA WAY, PORTLAND, MAINE MADE FOR PF MARINA, LLC" BY OWEN HASKELL, INC. DATED JANUARY 26, 2021 REVISED THROUGH MARCH 18, 2021.

Flood Zone Note

BY GRAPHIC PLOTTING ONLY, THIS PROPERTY IS PARTIALLY LOCATED IN FLOOD ZONE A2 ELEV. 10, AREAS OF 100-YEAR FLOOD AND PARTIALLY LOCATED IN FLOOD ZONE V2 ELEV. 13, AREAS OF 100-YEAR COASTAL FLOOD WITH VELOCITY ON THE FLOOD INSURANCE RATE MAP, COMMUNITY PANEL NO. 230051-0014B, WHICH BEARS AN EFFECTIVE DATE OF JULY 17, 1986. THE FEMA FIRM ZONE A2 FLOOD LINE IS DEMARKED ON THE PLAN BY THE ELEVATION 10 CONTOUR. ALL POINTS NORTH OF THIS CONTOUR ON THE SUBJECT PROPERTY EXCEEDS THIS ELEVATION AND THEREFORE FALL OUTSIDE OF THE A2 ZONE.

Existing Conditions Survey

1 Marina Way
Portland, Cumberland County, Maine
Made For
PF MARINA, LLC
1 Marina Way, Portland, Maine

Surveyor's Certification

OWEN HASKELL, INC. HEREBY CERTIFIES THAT THIS PLAN IS BASED ON, AND THE RESULT OF, AN ON THE GROUND FIELD SURVEY AND THAT TO THE BEST OF OUR KNOWLEDGE, INFORMATION AND BELIEF, IT CONFORMS TO THE BOARD OF LICENSURE FOR PROFESSIONAL LAND SURVEYORS CURRENT STANDARDS OF PRACTICE.

RANDY R. LOUBIER
PROFESSIONAL LAND SURVEYOR NO. 2407

DATE OF PLAT OR MAP: JULY 19, 2021

STATE OF MAINE
RANDY R. LOUBIER 2407
PROFESSIONAL LAND SURVEYOR

OWEN HASKELL, INC.
PROFESSIONAL LAND SURVEYORS
390 U.S. ROUTE 1, UNIT 10, FALMOUTH, ME 04105 TEL. 207-774-0424

DRAWN BY: RRL / JLW	FIELD BOOK: FILE	JOB NO.	2019-031 P
CHECKED BY: RRL/SDG	SCALE: 1" = 50'	DRWG. #	MARINA-ALTA

Federal Emergency Management Agency

Washington, D.C. 20472

LETTER OF MAP AMENDMENT
DETERMINATION DOCUMENT (REMOVAL)

COMMUNITY AND MAP PANEL INFORMATION		LEGAL PROPERTY DESCRIPTION
COMMUNITY	CITY OF PORTLAND, CUMBERLAND COUNTY, MAINE	A parcel of land, as described in the Deeds recorded as Document Nos. 23925 and 55154, both in the Office of the Register of Deeds, Cumberland County, Maine The portion of property is more particularly described by the following metes and bounds:
	COMMUNITY NO.: 230051	
AFFECTED MAP PANEL	NUMBER: 2300510014B	
	DATE: 7/17/1986	
FLOODING SOURCE: PORTLAND HARBOR; CASCO BAY		APPROXIMATE LATITUDE & LONGITUDE OF PROPERTY:43.662774, -70.242547 SOURCE OF LAT & LONG: LOMA LOGIC DATUM: NAD 83

DETERMINATION

LOT	BLOCK/ SECTION	SUBDIVISION	STREET	OUTCOME WHAT IS REMOVED FROM THE SFHA	FLOOD ZONE	1% ANNUAL CHANCE FLOOD ELEVATION (NGVD 29)	LOWEST ADJACENT GRADE ELEVATION (NGVD 29)	LOWEST LOT ELEVATION (NGVD 29)
--	--	--	1 Marina Way	Portion of Property	C	--	--	10.5 feet

Special Flood Hazard Area (SFHA) - The SFHA is an area that would be inundated by the flood having a 1-percent chance of being equaled or exceeded in any given year (base flood).

ADDITIONAL CONSIDERATIONS (Please refer to the appropriate section on Attachment 1 for the additional considerations listed below.)

LEGAL PROPERTY DESCRIPTION
ZONE V
PORTIONS REMAIN IN THE SFHA
SUPERSEDES PREVIOUS DETERMINATION
STATE LOCAL CONSIDERATIONS

This document provides the Federal Emergency Management Agency's determination regarding a request for a Letter of Map Amendment for the property described above. Using the information submitted and the effective National Flood Insurance Program (NFIP) map, we have determined that the described portion(s) of the property(ies) is/are not located in the SFHA, an area inundated by the flood having a 1-percent chance of being equaled or exceeded in any given year (base flood). This document amends the effective NFIP map to remove the subject property from the SFHA located on the effective NFIP map; therefore, the Federal mandatory flood insurance requirement does not apply. However, the lender has the option to continue the flood insurance requirement to protect its financial risk on the loan. A Preferred Risk Policy (PRP) is available for buildings located outside the SFHA. Information about the PRP and how one can apply is enclosed.

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Information eXchange (FMIX) toll free at (877) 336-2627 (877-FEMA MAP) or by letter addressed to the Federal Emergency Management Agency, Engineering Library, 3601 Eisenhower Ave Ste 500, Alexandria, VA 22304-6426.

Luis V. Rodriguez, P.E., Director
Engineering and Modeling Division
Federal Insurance and Mitigation Administration

Federal Emergency Management Agency
Washington, D.C. 20472

LETTER OF MAP AMENDMENT
DETERMINATION DOCUMENT (REMOVAL)

ATTACHMENT 1 (ADDITIONAL CONSIDERATIONS)

LEGAL PROPERTY DESCRIPTION (CONTINUED)

BEGINNING ON THE SOUTHERLY LINE OF LAND NOW OR FORMERLY OF STATE OF MAINE AS DESCRIBED IN DEED BOOK 10924, PAGE 91 AT THE NORTHWESTERLY CORNER OF LAND NOW OR FORMERLY OF PF MARINA, LLC AS DESCRIBED IN DEED BOOK 37742, PAGE 208; THENCE, S 46°23'41" E A DISTANCE OF 16.46 FEET TO THE V2 FLOOD ZONE LINE AS SHOWN ON THE FLOOD INSURANCE RATE MAP, COMMUNITY PANEL NO. 230051-0014B; THENCE, THE FOLLOWING COURSES AND DISTANCES ALONG SAID V2 ZONE: S 55°30'16" W A DISTANCE OF 6.83 FEET; S 44°11'41" W A DISTANCE OF 13.92 FEET; S 62°37'45" W A DISTANCE OF 14.68 FEET; S 44°11'40" W A DISTANCE OF 23.20 FEET; S 50°32'05" W A DISTANCE OF 84.05 FEET; S 44°11'40" W A DISTANCE OF 102.10 FEET; S 32°53'04" W A DISTANCE OF 11.83 FEET; S 44°11'40" W A DISTANCE OF 162.43 FEET; S 50°32'05" W A DISTANCE OF 21.01 FEET; S 44°11'40" W A DISTANCE OF 18.56 FEET; S 37°51'15" W A DISTANCE OF 21.01 FEET; S 50°32'05" W A DISTANCE OF 42.03 FEET; S 44°11'40" W A DISTANCE OF 27.85 FEET; S 54°12'09" W A DISTANCE OF 40.06 FEET; S 44°11'40" W A DISTANCE OF 32.49 FEET; S 55°30'14" W A DISTANCE OF 11.83 FEET; S 44°11'40" W A DISTANCE OF 41.77 FEET; S 55°30'16" W A DISTANCE OF 23.66 FEET; S 48°00'30" W A DISTANCE OF 34.88 FEET; S 44°11'41" W A DISTANCE OF 18.56 FEET; S 51°02'14" W A DISTANCE OF 58.43 FEET; S 44°11'40" W A DISTANCE OF 18.56 FEET; S 51°19'10" W A DISTANCE OF 37.42 FEET; S 46°04'22" W A DISTANCE OF 51.57 FEET TO LAND NOW OR FORMELRY OF CITY OF PORTLAND AS DESCRIBED IN DEED BOOK 10924, PAGE 84; THENCE, S 46°29'06" W CONTINUING ALONG THE SAID V2 ZONE AND THROUGH LAND OF SAID CITY OF PORTLAND A DISTANCE OF 15.77 FEET; THENCE, S 44°11'40" W CONTINUING ALONG THE SAID V2 ZONE AND THROUGH LAND OFCITY OF PORTLAND A DISTANCE OF 33.56 FEET; THENCE, N 40°18'13" W CONTINUING THROUGH LAND OF CITY OF PORTLAND AND LAND NOW OR FORMERLY OF SAID STATE OF MAINE A DISTANCE OF 100.26 FEET TO THE NORTHERLY LINE OF LAND OF SAID STATE OF MAINE; THENCE, N 52°46'49" E ALONG THE NORTHERLY LINE OF STATE OF MAINE 272.75 FEET; THENCE, N 47°33'49" E CONTINUING ALONG THE NORTHERLY LINE OF STATE OF MAINE 685.00 FEET; THENCE, S 46°23'41" E THROUGH LAND OF STATE OF MAINE 50.12 FEET TO THE POINT OF BEGINNING

ZONE V (This Additional Consideration applies to the preceding 1 Property.)

A portion of this property, but not the subject of the Determination/Comment Document, is located within a Coastal High Hazard Area (Zone V, VE or V1-30). Therefore, any future construction or substantial improvement on the property remains subject to Federal, State/Commonwealth, and local regulations for floodplain management. No construction using fill for structural support or that may increase flood damage to other property may take place in these areas.

PORTIONS OF THE PROPERTY REMAIN IN THE SFHA (This Additional Consideration applies to the preceding 1 Property.)

Portions of this property, but not the subject of the Determination/Comment document, may remain in the Special Flood Hazard Area. Therefore, any future construction or substantial improvement on the property remains subject to Federal, State/Commonwealth, and local regulations for floodplain management.

This attachment provides additional information regarding this request. If you have any questions about this attachment, please contact the FEMA Map Information eXchange (FMIX) toll free at (877) 336-2627 (877-FEMA MAP) or by letter addressed to the Federal Emergency Management Agency, Engineering Library, 3601 Eisenhower Ave Ste 500, Alexandria, VA 22304-6426.

Luis V. Rodriguez, P.E., Director
Engineering and Modeling Division
Federal Insurance and Mitigation Administration

Federal Emergency Management Agency
Washington, D.C. 20472

LETTER OF MAP AMENDMENT
DETERMINATION DOCUMENT (REMOVAL)

ATTACHMENT 1 (ADDITIONAL CONSIDERATIONS)

SUPERSEDES OUR PREVIOUS DETERMINATION (This Additional Consideration applies to all properties in the LOMA DETERMINATION DOCUMENT (REMOVAL))

This Determination Document supersedes our previous determination dated 7/16/2021, for the subject property.

STATE AND LOCAL CONSIDERATIONS (This Additional Consideration applies to all properties in the LOMA DETERMINATION DOCUMENT (REMOVAL))

Please note that this document does not override or supersede any State or local procedural or substantive provisions which may apply to floodplain management requirements associated with amendments to State or local floodplain zoning ordinances, maps, or State or local procedures adopted under the National Flood Insurance Program.

This attachment provides additional information regarding this request. If you have any questions about this attachment, please contact the FEMA Map Information eXchange (FMIX) toll free at (877) 336-2627 (877-FEMA MAP) or by letter addressed to the Federal Emergency Management Agency, Engineering Library, 3601 Eisenhower Ave Ste 500, Alexandria, VA 22304-6426.

Luis V. Rodriguez, P.E., Director
Engineering and Modeling Division
Federal Insurance and Mitigation Administration

Federal Emergency Management Agency
Washington, D.C. 20472

ADDITIONAL INFORMATION REGARDING LETTERS OF MAP AMENDMENT

When making determinations on requests for Letters of Map Amendment (LOMAs), the Department of Homeland Security's Federal Emergency Management Agency (FEMA) bases its determination on the flood hazard information available at the time of the determination. Requesters should be aware that flood conditions may change or new information may be generated that would supersede FEMA's determination. In such cases, the community will be informed by letter.

Requesters also should be aware that removal of a property (parcel of land or structure) from the Special Flood Hazard Area (SFHA) means FEMA has determined the property is not subject to inundation by the flood having a 1-percent chance of being equaled or exceeded in any given year (base flood). This does not mean the property is not subject to other flood hazards. The property could be inundated by a flood with a magnitude greater than the base flood or by localized flooding not shown on the effective National Flood Insurance Program (NFIP) map.

The effect of a LOMA is it removes the Federal requirement for the lender to require flood insurance coverage for the property described. The LOMA *is not* a waiver of the condition that the property owner maintain flood insurance coverage for the property. *Only* the lender can waive the flood insurance purchase requirement because the lender imposed the requirement. *The property owner must request and receive a written waiver from the lender before canceling the policy*. The lender may determine, on its own as a business decision, that it wishes to continue the flood insurance requirement to protect its financial risk on the loan.

The LOMA provides FEMA's comment on the mandatory flood insurance requirements of the NFIP as they apply to a particular property. A LOMA is not a building permit, nor should it be construed as such. Any development, new construction, or substantial improvement of a property impacted by a LOMA must comply with all applicable State and local criteria and other Federal criteria.

If a lender releases a property owner from the flood insurance requirement, and the property owner decides to cancel the policy and seek a refund, the NFIP will refund the premium paid for the current policy year, provided that no claim is pending or has been paid on the policy during the current policy year. The property owner must provide a written waiver of the insurance requirement from the lender to the property insurance agent or company servicing his or her policy. The agent or company will then process the refund request.

Even though structures are not located in an SFHA, as mentioned above, they could be flooded by a flooding event with a greater magnitude than the base flood. In fact, more than 25 percent of all claims paid by the NFIP are for policies for structures located outside the SFHA in Zones B, C, X (shaded), or X (unshaded). More than one-fourth of all policies purchased under the NFIP protect structures located in these zones. The risk to structures located outside SFHAs is just not as great as the risk to structures located in SFHAs. Finally, approximately 90 percent of all federally declared disasters are caused by flooding, and homeowners insurance does not provide financial protection from this flooding. Therefore, FEMA encourages the widest possible coverage under the NFIP.

The NFIP offers two types of flood insurance policies to property owners: the low-cost Preferred Risk Policy (PRP) and the Standard Flood Insurance Policy (SFIP). The PRP is available for 1- to 4-family residential structures located outside the SFHA with little or no loss history. The PRP is available for townhouse/rowhouse-type structures, but is not available for other types of condominium units. The SFIP is available for all other structures. Additional information on the PRP and how a property owner can quality for this type of policy may be obtained by calling the Flood Insurance Information Hotline, toll free, at 1-800-427-4661. Before making a final decision about flood insurance coverage, FEMA strongly encourages property owners to discuss their individual flood risk situations and insurance needs with an insurance agent or company.

FEMA has established "Grandfather" rules to benefit flood insurance policyholders who have maintained continuous coverage. Property owners may wish to note also that, if they live outside but on the fringe of the SFHA shown on an effective NFIP map and the map is revised to expand the SFHA to include their structure(s), their flood insurance policy rates will not increase as long as the coverage for the affected structure(s) has been continuous. Property owners would continue to receive the lower insurance policy rates.

LOMAs are based on minimum criteria established by the NFIP. State, county, and community officials, based on knowledge of local conditions and in the interest of safety, may set higher standards for construction in the SFHA. If a State, county, or community has adopted more restrictive and comprehensive floodplain management criteria, these criteria take precedence over the minimum Federal criteria.

In accordance with regulations adopted by the community when it made application to join the NFIP, letters issued to amend an NFIP map must be attached to the community's official record copy of the map. That map is available for public inspection at the community's official map repository. Therefore, FEMA sends copies of all such letters to the affected community's official map repository.

When a restudy is undertaken, or when a sufficient number of revisions or amendments occur on particular map panels, FEMA initiates the printing and distribution process for the affected panels. FEMA notifies community officials in writing when affected map panels are being physically revised and distributed. In such cases, FEMA attempts to reflect the results of the LOMA on the new map panel. If the results of particular LOMAs cannot be reflected on the new map panel because of scale limitations, FEMA notifies the community in writing and revalidates the LOMAs in that letter. LOMAs revalidated in this way usually will become effective 1 day after the effective date of the revised map.

Your property has been reclassified as moderate-to-low flood risk. Your flood risk has been reduced but not removed.



You may now qualify for a Preferred Risk Flood Insurance Policy with annual rates starting as low as $325. Keep your home—and everything inside of it—covered for less money. Contact your insurance agent to secure a lower-cost policy today.

Protect the life you've built.

Call **800-427-4661** or visit www.FloodSmart.gov

FEMA

NATIONAL FLOOD INSURANCE PROGRAM

Flooding 101: Did you know?

- Flooding is the most common and costly disaster in the United States. Just 1 inch of flood water can cause $25,000 of damage to your home.
- People outside of high-risk flood areas file more than 20% of NFIP claims and receive one-third of disaster assistance for flooding.
- Most homeowners and renters insurance doesn't cover flood damage. Only flood insurance provides financial protection from costly flooding.

Stay covered. Save money. Talk to an agent today.
For more information visit FloodSmart.gov.

20. BLASTING

Haley & Aldrich, the geotechnical engineer for the project has confirmed that based on investigations completed to date, no blasting is anticipated for this project.

21. AIR EMISSIONS

The project will not require an air emissions license; this Section is not applicable.

22. ODORS

The proposed development will not involve any processes that emit significant odors; this Section is not applicable.

23. WATER VAPOR

The proposed development will not use water for any processes that would emit water vapor; this Section is not applicable.

24. SUNLIGHT

The proposed development will not block access to sunlight for any structures utilizing solar energy; this Section is not applicable.

25. NOTICES

The City of Portland has Delegated Review Authority for this application; as such, it is our understanding that the public notice requirements associated with MaineDEP Site Law do not apply.

41 Hutchins Drive
Portland, Maine 04102
www.woodardcurran.com

T 800.426.4262
T 207.774.2112
F 207.774.6635

March 2, 2023

MEANS Group
Portland Water District
225 Douglass Street
Portland, ME 04104

Re: 58 Fore Street Phase 2 – Blocks 4 & 6 – Request for Evidence of Capacity to Serve

To Whom It May Concern:

On behalf of Portland Foreside Development Company, Woodard & Curran is submitting this ability to serve request letter for the next phase of development at 58 Fore Street in Portland, Maine.

The proposed work as part of this Phase includes the following:

- Block 4: Construction a four-level structured parking garage with overlying rental apartment units and townhouses (245 units total) and ground-level restaurant, café and retail space; these ground-level spaces are being proposed as "core and shell" construction at this time without specific uses in place.
- Block 6: Construction of residential condominiums (153 units total) with amenities including fitness center, spa, heated pool, and rooftop garden, and ground-level restaurant, café and retail space.
- Eastern Promenade Property: Demolition of two rental apartment buildings (5 units total).

Upon completion, this phase of the proposed site development is anticipated to require 107,400 gallons of water per day. This is a conservative estimate based on the proposed uses within the building, including full fit-out of the spaces in Block 4 that are proposed now for just core and shell construction. We are working with our project architects and their design teams to identify fixture counts as building design advances, but do not anticipate that will significantly impact water usage numbers. We will provide the PWD excel file with fixture counts separately once the numbers have been confirmed.

We have attached our utility plan showing site water utility locations. All Block 4 and Block 6 service connections will be located within the private site, connecting to the private water main. Block 4 will contain a meter room, similar to what was installed within Building 1A as part of Phase 1 of the project.

We are currently in the site plan review process with the City of Portland for multiple projects on the site with water infrastructure impacts. We have a utility enabling project that is proposed for a Minor Site Plan amendment to include the water service installation in Fore Street. We have a Major Site Plan application in to the City for the combined construction of Blocks 4 and 6, and documentation regarding the Portland Water District's ability to serve the proposed development with potable water will be provided to the City as part of this permit process. We are also in the process of preparing an application for a Major Site Plan for Block 5, a proposed hotel, and will be submitting a separate ability to serve request for that portion of the work as well.

We would like to meet with the Portland Water District in the near future to review the current status of the various phases of the project. We would plan to review the water meter requirements associated with the Block 4 installation and revisit the installation of the water service in Fore Street to make sure we understand all of the review and approval requirements that need to be completed prior to construction of this service, which is anticipated for this spring to align with the City of Portland's anticipated paving schedule.

Please let us know if any additional information is required to evaluate the service capacity for the site or if you have any questions on our proposed layout. We appreciate your assistance and look forward to meeting with you to discuss the project further. Please do not hesitate to contact me at 207-558-3763 or lswett@woodardcurran.com.

Sincerely,

WOODARD & CURRAN

Lauren Swett

Lauren Swett, P.E.
Technical Manager

Enclosure: Utility Plan

cc: Portland Foreside Development Co

41 Hutchins Drive
Portland, Maine 04102
www.woodardcurran.com

T 800.426.4262
T 207.774.2112
F 207.774.6635

March 2, 2023

ATTN: Bradley Roland, P.E.
Department of Public Works
212 Canco Road
Portland, ME 04103

Re: 58 Fore Street Blocks 4 & 6 – Request for Evidence of Ability to Serve

Dear Mr. Roland:

On behalf of Portland Foreside Development Company, Woodard & Curran is submitting this ability to serve request letter for the next phase of development at 58 Fore Street in Portland, Maine. The proposed work includes the following:

- Block 4: Construction a four-level structured parking garage with overlying rental apartment units and townhouses (245 units total) and ground-level restaurant, café and retail space.
- Block 6: Construction of residential condominiums (153 units total) with amenities including fitness center, spa, heated pool, and rooftop garden, and ground-level restaurant, café and retail space.
- Eastern Promenade Property: Demolition of two rental apartment buildings (5 units total).

Upon completion, the proposed project is anticipated to discharge 89,500 gallons of wastewater per day. This estimate is based on the preliminary design of the buildings. We do not anticipate changes that would result in significant increases but will notify the City if design development results in any major changes.

Please refer to the enclosed Utility Plan for the location and size of proposed utility service connections. All connections proposed as part of this project will connect to the City's sewer via private site mains that have already been installed, and no direct connections to City infrastructure are required. Grease traps with 3,000-gallon capacity will be specified within the buildings to manage flows from anticipated restaurant spaces – we are currently working with the project architects to determine if this should be specified as internal or external structures. A private pump station has been designed to manage wastewater from the current and future phases of development and is proposed to be installed with this phase of work. All wastewater will exit the site via a gravity sewer connection previously installed in the Thames Street Extension.

We have submitted to the City of Portland Planning Department for approval of the Major Site Plan application and will appreciate documentation regarding the City's ability to collect wastewater from the proposed development. Please let us know if any additional information is required to evaluate the service capacity for the site. We appreciate your assistance. If you

have any questions or require any additional information, please do not hesitate to contact me at 207-558-3763 or lswett@woodardcurran.com.

Sincerely,

WOODARD & CURRAN



Lauren Swett, P.E.
Technical Manager

Enclosures: Utility Plan
Wastewater Application

CITY OF PORTLAND WASTEWATER CAPACITY APPLICATION

Portland Dept. of Public Works -
Water Resources
55 Portland Street,
Portland, Maine 04101-2991

Bradley Roland, P.E.
Water Resources Division
Department of Public Works
55 Portland Street
Portland, ME 04103

Date: **March 1, 2023**

1. Please, Submit Utility, Site, and Locus Plans.

Site Address: **58 Fore Street**

Chart Block Lot Number: **018 A001**

Proposed Use: **Mixed Use Development**
Previous Use: **Industrial**
Existing Sanitary Flows: **0** GPD
Existing Process Flows: **0** GPD
Description and location of City sewer that is to receive the proposed building sewer lateral.

Proposed on-site sewer main

Site Category		
	Commercial *(see part 4 below)*	X
	Industrial *(complete part 5 below)*	
	Governmental	
	Residential	X
	Other *(specify)*	X

Clearly, indicate the proposed connections, on the submitted plans.

2. Please, Submit Contact Information.

City Planner's Name: **Charles Tetelman** Phone: _____
Owner/Developer Name: **Portland Foreside Development Company, c/o David Senus, PE**
Owner/Developer Address: **254 Commercial Street, Suite 118, Portland, ME 04101**
Phone: **(207) 558-3704** Fax: **N/A** E-mail: **das@portlandforeside.com**
Engineering Consultant Name: **Woodard & Curran**
Engineering Consultant Address: **41 Hutchins Drive, Portland, ME 04101**
Phone: **(207) 558-3763** Fax: **N/A** E-mail: **lswett@woodardcurran.com**

Note: Consultants and Developers should allow +/- 15 days, for capacity status, prior to Planning Board Review.

3. Please, Submit Domestic Wastewater Design Flow Calculations.

Estimated Domestic Wastewater Flow Generated: **89,500 GPD**
Peaking Factor/ Peak Times: _____
Specify the source of design guidelines: *(i.e.* "*Handbook of Subsurface Wastewater Disposal in Maine,*" "*Plumbers and Pipe Fitters Calculation Manual,*" *Portland Water District Records, Other (specify)*
Handbook of Subsurface Wastewater Disposal in Maine

Note: Please submit calculations showing the derivation of your design flows, either on the following page, in the space provided, or attached, as a separate sheet.

4. Please, Submit External Grease Interceptor Calculations.

Total Drainage Fixture Unit (DFU) Values:
Size of External Grease Interceptor:
Retention Time:
Peaking Factor/ Peak Times:

Complete grease trap needs are TBD and are anticipated to be located within building restaurant spaces. As final design layout progresses, more information can be provided.

Note: In determining your restaurant process water flows, and the size of your external grease interceptor, please use The Uniform Plumbing Code. Note: In determining the retention time, sixty (60) minutes is the minimum retention time. Note: Please submit detailed calculations showing the derivation of your restaurant process water design flows, and please submit detailed calculations showing the derivation of the size of your external grease interceptor, either in the space provided below, or attached, as a separate sheet.

5. Please, Submit Industrial Process Wastewater Flow Calculations **N/A**

Estimated Industrial Process Wastewater Flows Generated: _____ GPD
Do you currently hold Federal or State discharge permits? Yes ____ No ____
Is the process wastewater termed categorical under CFR 40? Yes ____ No ____
OSHA Standard Industrial Code (SIC): *(http://www.osha.gov/oshstats/sicser.html)*
Peaking Factor/Peak Process Times: _____

Note: On the submitted plans, please show where the building's domestic sanitary sewer laterals, as well as the building's industrial-commercial process wastewater sewer laterals exits the facility. Also, show where these building sewer laterals enter the city's sewer. Finally, show the location of the wet wells, control manholes, or other access points; and, the locations of filters, strainers, or grease traps.

Note: Please submit detailed calculations showing the derivation of your design flows, either in the space provided, or attached, as a separate sheet.

30x42
PLOT SCALE: 100 = 1'-0"

FORE STREET
BLDG. 16
BUILDING 2
BUILDING 3
BUILDING 6B
BUILDING 6
BLOCK 4 (NEW BUILDING CONSTRUCTION)
BLOCK 5 (FUTURE BUILDING CONSTRUCTION NOT IN CONTRACT)
BLOCK 6 (FUTURE BUILDING CONSTRUCTION NOT IN CONTRACT)
SHORELAND ZONE LINE 250' FROM HAT
ZONE LINE
R6 B6
B-3
EWPZ
PH. 1
EXISTING MARINA
TRANS
POTENTIAL PAD MOUNTED TRANSFORMER LOCATION
12" DI WATER SERVICE ENTRY; WATER RPZ & BACKFLOW PREVENTER INSTALLED INSIDE BUILDING, REFER TO MEP PLANS
GAS METER
6" SANITARY SEWER
CAP 4" SANITARY SEWER FOR FUTURE CONNECTION
CAP 6" SANITARY SEWER FOR FUTURE CONNECTION
PROVIDE HYDRANT, TYP.
6" WATER SERVICE WITH VALVE & HYDRANT
PROVIDE VALVE & CAP AT ALL GAS STUBS, TYP.
12" DI WATER
PROVIDE 2" BLOW-OFF VALVE & THRUST BLOCK AT ALL WATER STUBS, TYP.
CONDUITS FOR ELECTRICAL & COMMUNICATIONS, REFER TO MEP PLANS
OIL WATER SEPARATOR
O/W SEP. 2
6" WATER SERVICE W/ VALVE & HYDRANT
CONNECT TO EXISTING WATER MAIN
CONNECT TO EXISTING FORCEMAIN
BELOW GRADE STORMWATER STORAGE
SANITARY SEWER PUMP STATION, SEE DETAIL
PUMP STATION
ELECTRICAL CONDUIT, SEE SITE ELECTRICAL PLANS
CONNECT TO EXISTING WATER MAIN, PROVIDE THRUST BLOCK
CAP 6" SANITARY SEWER FOR FUTURE CONNECTION
CAP UTILITIES; COORDINATE TRANSITION TO BUILDING STRUCTURE WITH BLOCK 6 PROJECT
APPROXIMATE EXTENT OF BELOW GRADE PODIUM
EARTHEN RAMP
12" DI WATER SERVICE
6" PLASTIC COATED STEEL GAS SERVICE, TYP.
FUTURE BLOCK 5 BUILDING, SEE INTERIM CONDITIONS SHEET

REFER TO SHEET C-104 FOR PIPE & STRUCTURE SCHEDULES

BAR SCALE
1" = 20'
CHECK GRAPHIC SCALE BEFORE USING

Woodard & Curran
41 Hutchins Drive
Portland, Maine 04102
800.426.4262 | www.woodardcurran.com

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PE SEAL:
STATE OF MAINE
LAUREN JANE SWETT
No. 12284
LICENSED PROFESSIONAL ENGINEER

NOT FOR CONSTRUCTION

CLIENT INFO:
PORTLAND FORESIDE DEVELOPMENT COMPANY
PORTLAND, MAINE

BLOCK 4 - HARBOR HILL

REV	MM/DD/YY	DESCRIPTION

JOB NO:	227007
DATE:	SEPTEMBER 2022
SCALE:	1"=20'
DESIGNED BY:	LJS/BCM
DRAWN BY:	BCM
CHECKED BY:	LJS
FILENAME:	BLOCK 4 SITE PLANS.dwg

DRAWING TITLE:
CIVIL UTILITY PLAN

DRAWING NO:
C-102
SHEET: 6 OF 15

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368

Portland & Company To Portland City.

Agreement.

These articles of agreement entered into by and between the City of Portland, and the Portland Compy a corporation duly existing under the laws of the State of Maine, this ninth day of November A. D. 1876.

Witness:

1st That in consideration of the agreement in the 2d. article following, said Portland Compy hereby gives, grants, bargains and sells to the city the right to put upon the land of said company to an extent not exceeding four feet in width at the base throughout its entire length, the wall now in process of erection on the line between Fore street in said city and the real estate of said Compy and to maintain the same forever, with right of entry upon the lands of said Compy for purposes of repair.

And said Compy further agrees that the embankment which will sustain said wall shall not in any way or under any pretense be disturbed, dug away, removed or the slope diminished except under the restrictions following, viz:

If the said Compy or its successors or assigns, owners of said land shall desire to disturb, dig away or remove said embankment or diminish said slope it, its successors and assigns, shall substitute without expense to the city, a complete and sufficient permanent support for said wall.

2d. Said city in consideration of the foregoing, hereby gives, grants, bargains and sells to said Compy the right to put upon said wall within the line of said Company's land, any wall of brick or stone which said Compy desire or may desire put thereon, consistent with the safety and stability of said wall.

Witness to E. H. Davies
G. F. M. Rufus D. Bean

Portland Company,
By E. H. Davies, Prest.
Countersigned by
Geo. F. Morrill Treas.

Witness:
H. I. Robinson
to E. H.
Francis Fessenden
Mayor.

State of Maine, Cumberland, ss, November 10th 1876. Personally appeared Edward H. Davies and acknowledged the foregoing instrument to be the free act and deed of the Portland Company,
Before me, H. I. Robinson, Justice of the Peace.
Received, Nov. 10, 1876, at 1 h 2 m, P. M. and recorded according to the original,
Attest: Henry C. Houston, Register.

Portland Company Incorporated Aug 8, 1845

C I T Y O F P O R T L A N D, G R A N T E E.

Portland Company — 434 - 368

to — Agreement

City of Portland

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And said Comp'y further agrees that the embankment which will sustain said wall shall not in any way or under any pretense be disturbed dug away, removed or the slope diminished except under the restrictions following, viz:

If the said Comp'y or its successors or assigns, owners of said land shall desire to disturb, dig away or remove said embankment, or diminish said slope, it, its successors and assigns, shall substitute without expense to the City a complete and sufficient permanent support for said wall.

2d. Said City in consideration of the foregoing hereby gives, grants, bargains and sells to said Comp'y the right to put upon said wall within the line of said Comp'y'y land, any wall of brick or stone which said Comp'y desire or may desire put thereon consistent with the safety and stability of said wall.

Nov. 9, 1876 — Portland Company

Nov. 10, 1876 — by E. K. Davis, Prest.

Nov. 10, 1876 — Countersigned by Geo. F. Morse, Treas.

UNE intermodal transportation facility
172 Bishop Street
Major Site Plan Application
PL-002343-2023
The University of New England, Applicant

Submitted to:	Portland Planning Board	**Prepared By:**	Maya Balassa
Public Hearing Date:	July 11, 2023	**Date:**	July 7, 2023

I. INTRODUCTION

The University of New England (UNE) has submitted a major site plan application to develop a new intermodal transportation facility for the University of New England at 172 Bishop Street; an existing gravel parking area with bus shelter. The project would involve reconfiguration and paving of a portion of the existing parking lot, formalizing a campus shuttle route, revegetation of a portion of the site, along with stormwater management improvements. The area of disturbance is approximately 6.9 acres.

The Planning and Urban Development Department mailed 60 notices advertising this meeting to property owners within 500 feet of the site. A legal advertisement ran in the June 30 and July 1, 2023 editions of the *Portland Press Herald*.

The Planning Board held a workshop on May 9, 2023.

Applicant: The University of New England – Portland Campus
Applicant Representatives: Tom Saucier, P.E., Site Design Associates

II. REQUIRED REVIEWS

Review	*Applicable Standards*
Major Site Plan	Site Plan Ordinance

Waiver Requests	*Applicable Standards*
The applicant is requesting to use lighting that emits a color temperature of 4000K to increase the color distinction. Staff Recommendation: Staff supports this waiver as it is consistent with the campus lighting approach.	Technical Manual Section 12.3.5 requires all fixtures must be LED and shall not exceed 3000K Correlated Color Temperature.
The applicant is requesting a maximum foot candle of 10. Staff Recommendation: Staff supports this waiver as it is consistent with the campus lighting approach.	Technical Manual Section 12.3.2 requires that surface parking lots have a maximum foot candle value of 4.

The applicant is requesting drive isle widths of 22 ft. Staff Recommendation: Staff support reducing the drive aisle width to 22 feet to accommodate a pedestrian walkway in the parking lot without increasing impervious surface.	Technical Manual Section 1.10.2 requires that the minimum two-way drive aisle width be 24 feet.

III. PROJECT DATA

Existing Zoning	I-H Industrial- High Impact, IM Industrial- Moderate Impact, R3 Residential
Property Size	836,442 square feet
Existing Use	Parking lot
Proposed Use	Parking lot

	Existing	*Proposed*	*Net Change*
Building Footprint	1,107 square feet	306 square feet	-801 square feet
Impervious Surface Area	253,912 square feet	156,970 square feet	-96,942 square feet
Parking Spaces	600	344	-256
Bicycle Parking Spaces	0	0	0*
EV Charging Stations	0	72	+72

*The university is meeting bike parking space requirements campus-wide.

IV. BACKGROUND AND EXISTING CONDITONS



Figure 1 GoogleEarth view of 172 Bishop Street in the existing condition

The University of New England acquired the property at 172 Bishop Street in 2012. This parking area is currently utilized by students, faculty and guests, who access the main Portland campus by shuttle, which circulates between the campus and parking area via an existing carriage road. Aside from surface parking, this property also contains an existing 801 square foot one-story storage building and a 306 square foot bus shelter. The main function of this parking area is to reroute traffic away from Stevens Avenue and Morrill's Corner and to reduce parking demand along Stevens Avenue.

In 2022, the city approved a minor site plan for UNE at 180 Bishop Street, within the same parcel as 172 Bishop Street. This application involved the construction of a new 15,000 square foot field maintenance shop to house the Maine Army National Guard. A 10-foot fence was subsequently permitted around the parking area.

V. PROPOSED DEVELOPMENT

The proposed development retains the property's function as a multimodal transportation facility but reduces the total parking count from 600 spaces to 344 spaces and removes 2.23 acres of impervious surface. The plan depicts two parking areas separated by a defined circulation area with a transit shelter for the UNE Shuttle. The primary parking area features 309 spaces and is located to the west of the shuttle circulation area, while a second smaller parking area with 35 spaces is located to the east of the shuttle circulation area. Other improvements include the addition of stormwater management infrastructure, revegetation of former impervious areas and the planting of site landscaping throughout the facility.

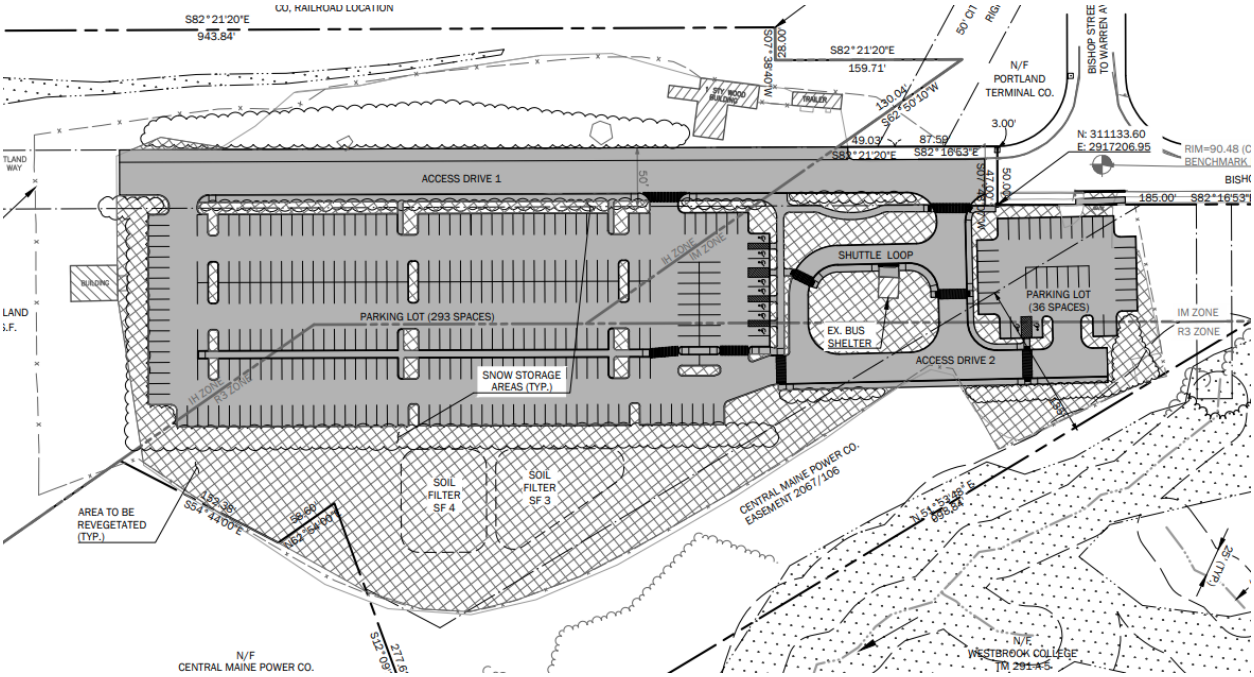


Figure 2 Site Plan

VI. PREVIOUS WORKSHOPS

A workshop was held for this project on May 9, 2023. At this workshop, the Planning Board raised questions regarding the lack of bicycle parking being proposed as part of this application, which the applicant clarified was due to the availability of an excess number of bicycle parking spaces on the main campus. The Board also indicated their support of staff's recommendation that a safe, internal pedestrian pathway be added through the parking area, and further supported the City's position regarding the waivers being requested around site lighting. The Board also asked whether Level 1 or Level 2 Electric Vehicle (EV) chargers would be required to satisfy the project's EV site plan requirement. Staff clarified that a minimum of 20% of the proposed parking spaces would need to be equipped with Level 2 chargers or energized outlets capable of supporting a Level 2 charger.

VII. RIGHT, TITLE, & INTEREST

The applicant has demonstrated right, title, and interest through the property deed (Applicant Submittal D).

VIII. FINANCIAL & TECHNICAL CAPACITY

The University of New England Financial and Administration Vice President submitted a letter demonstrating sufficient financial capacity to construct, equip, and operate the proposed Bishop Street Intermodal Transportation Facility. The engineering team, Site Design Associates, and construction manager, Ledgewood, have the technical capacity to complete the proposed project.

IX. ZONING ANALYSIS

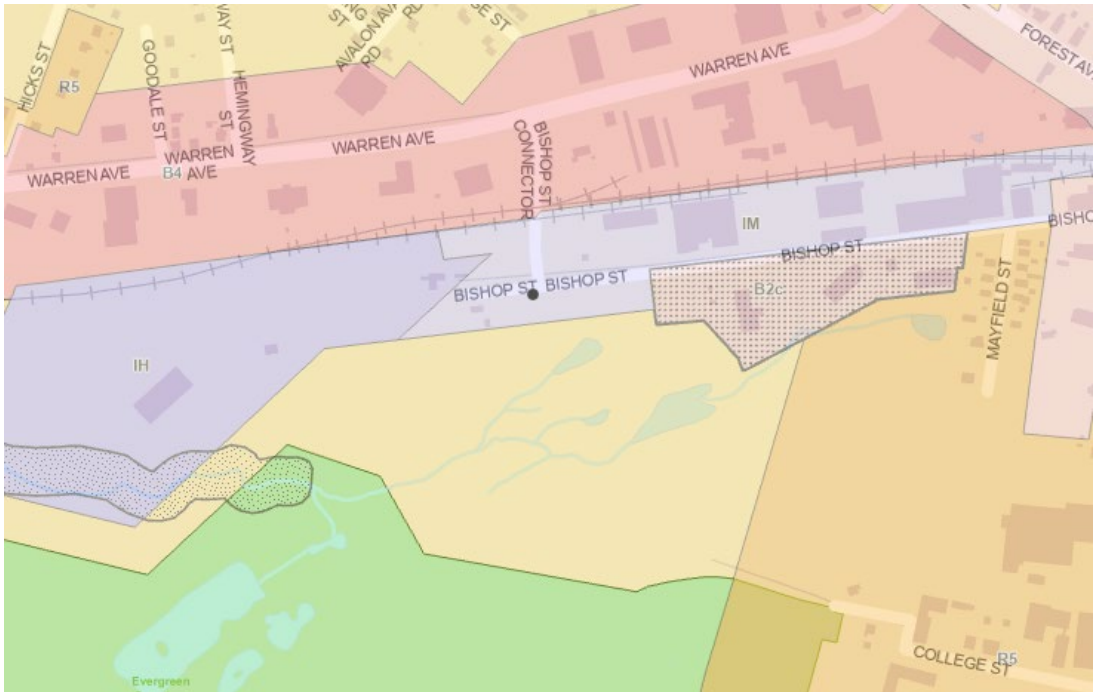


Figure 3 Zoning map context from Portland's Map Viewer

The subject parcel is located within three different zones; the I-H High Impact Industrial, I-M Moderate Impact Industrial, and R-3 Residential. The proposed off-street parking lot is not permitted in the I-H and I-M zones, while off-street parking is identified as a conditional use in the R-3 zone. As the project proposes a reduction of a legally non-conforming use, the plans meet zoning standards.

X. SITE PLAN STANDARDS (Section 14.6)

The proposed development has been reviewed by staff for conformance with the relevant review standards of the City of Portland's Site Plan Ordinance, Section 14.6. Staff comments are below.

1. Transportation Standards (Section 14.6.1)
   A. Impact on surrounding street systems

      As part of the College of Osteopathic Medicine (COM) project, the City evaluated campus-wide traffic impacts and parking demand. That application anticipated the Bishop Street lot (in its

proposed configuration) being utilized to meet campus-wide parking demand. Since no other program changes are being implemented, and the development of this facility aligns with the documentation provided for the COM project, this standard is considered met.

B. Access and circulation

There are three vehicle access points to the intermodal transportation facility off Bishop Street. The larger parking lot has two, 22-foot wide driveways with a radius of 10 feet. The farthest west driveway aisle is 24 feet wide with a radius of 25 feet and is solely for the shuttle bus to access the shuttle loop. The smaller parking lot east of the shuttle loop is accessed via an access driveway located within, and along the southern edge of the proposed parking area.

In response to comments from staff, the applicant has added an internal walkway in the larger parking lot to accommodate safe pedestrian movement. Signage is being proposed to clarify the intended circulation patterns for buses and cars.

The city is requesting that the applicant add a more direct pedestrian connection from the smaller parking lot to the proposed internal crosswalk to avoid the creation of a pedestrian desire line across the proposed grass esplanade. A draft condition of approval has been added for the Board's consideration.

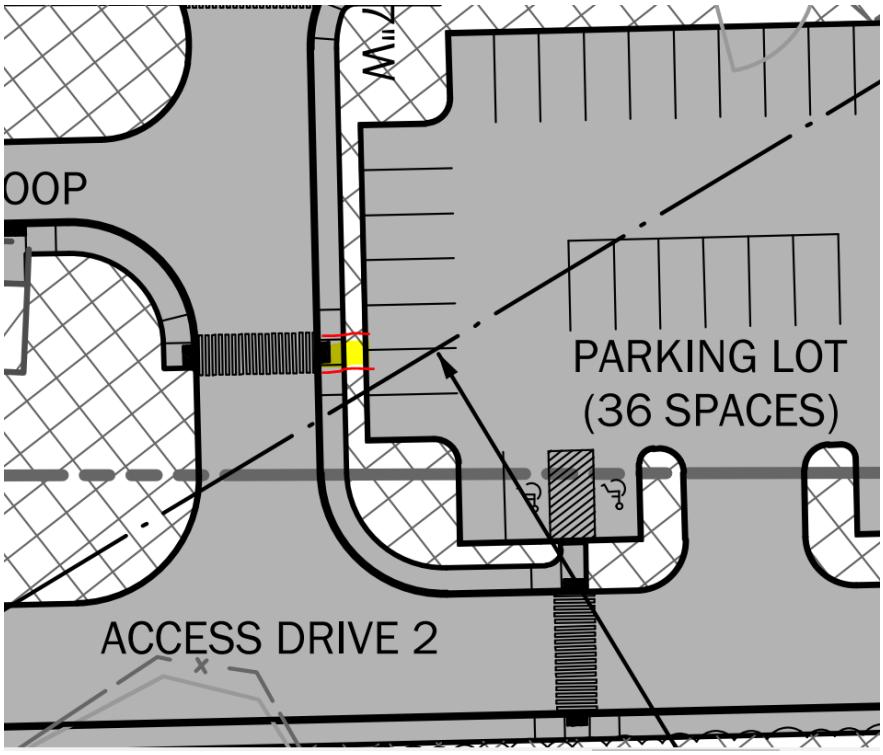


Figure 4 The location of the requested additional pedestrian access.

The City, Portland Trails, and UNE are in communication about a future trail connection through the site that would likely be accessible from the existing carriage road, when it is redeveloped and widened at a later date. The City has recommended that the applicant provide publicly accessible bicycle parking spaces along the Bishop Street right-of-way, north of the 35-space parking lot, that would be available to members of the public utilizing the Portland Trails system. In addition, the City

is recommending that UNE explore opportunities to provide publicly accessible parking spaces for future trail access and use. At this time, the applicant is not proposing any bike parking spaces to support the future trail connection. Staff will continue to work with the applicant to provide enhanced trail connectivity and access in this location as part of the carriage road redevelopment project when that site plan is submitted.

C. Public transit access

This project does not trigger the public transit access requirement as it is not proposing over 20,000 square feet of gross floor area and is not located along an existing public transit route.

D. Parking

This site is an existing parking lot with 600 spaces and is being reduced to 344 spaces. The proposed parking lot is separated into two connected parking lots, one with 309 spaces and one with 35 spaces.

The site is not meeting EV Charging standards. The site is providing 20% of the spaces with Level 1 EV charging outlets, however Level 2 or higher is required. A condition of approval has been added requiring the applicant to demonstrate compliance with the City's EV standards.

Table 19-A of the City's land use code requires that Institutional uses provide two bicycle parking spaces for every 10 vehicle parking spaces for the first 100 vehicles spaces required, and then one additional bicycle parking space for every 20 vehicle parking spaces required thereafter. Based upon the proposed off-street parking count of 344 spaces, the applicant is required to provide a minimum of 32 bicycle parking spaces. The applicant has indicated that there are 135 bicycle spaces campuswide, well in excess of the University's total requirement based upon their total off-street parking count, which is projected to 1,051 in 2024- after the construction of the College of Osteopathic Medicine and the renovations at the Bishop Street parking lot. These existing bicycle parking spaces satisfy the City's bicycle parking site plan requirement.

E. Transportation demand management (TDM)

The University of New England Portland Campus has a Transportation Demand Management Plan, that was last updated in April 2022. As part of the university's strategies to reduce parking demand, free GP Metro, South Portland City Bus Services, and Biddeford, Saco Old Orchard Beach Bus Transit passes are free for all students, faculty, and staff. The City has included a condition of approval which would require that the applicant update their TDM to reflect the new Bishop Street Intermodal Transportation Facility parking capacity.

2. Environmental Quality Standards (Section 14.6.2)

A. Preservation of significant natural features

There are no significant natural features identified in the area of disturbance.

B. Landscape preservation

There are no trees proposed to be removed as part of this application.

C. Site landscaping and buffers

New landscaping is being proposed around the perimeter of the intermodal transportation facility and within internal landscaped islands. In response to city comments, the landscape proposal is

now meeting the parking lot landscaping requirement and the native percentage requirement. The landscaping plan proposes 89 trees and 164 shrubs, which meets the parking lot landscaping tech manual standards.

UNE paid $2,000 into the street tree fund, at a rate of $200 per tree as required in 2012, in order to satisfy the site's street tree requirement when the change of use application was approved by the Planning Board in 2012.

D. Water quality/storm water management/erosion control
Two stormwater basins with sand filters are proposed at the southern edge of the parking lot to collect runoff. An erosion and sedimentation control plan has also been submitted. The City's third-party stormwater engineer has reviewed the submitted plans and has found them to comply with applicable City and Maine DEP Ch. 500 stormwater requirements.

3. Public Infrastructure and Community Safety Standards (Section 14.6.3)

A. Consistency with City Master Plans
The proposed revegetation and stormwater management plan supports environmental goals of Portland's Plan 2030. One of the future strategies to improve water quality for the city is to "minimize impacts to the city's waterways by reducing combined sewer overflows and implementing stormwater management best practices". The proposed stormwater infrastructure is likely to significantly reduce runoff into nearby Fall Brook, and will improve water quality of site runoff.

B. Public safety and fire prevention
The applicant has spoken to utilizing safety measures integrated across the UNE campus such as lighting, blue light call boxes, well maintained landscaping, and CCTV monitors. The parking lot will also be access controlled from Bishop Street.

C. Availability and capacity of public utilities
The applicant will need to submit a letter from CMP demonstrating sufficient utility capacity for the development, which includes substantial new site lighting and EV charging infrastructure. The requirement has been added as a condition of approval.

4. Site Design Standards (Section 14.6.4)

A. Massing, ventilation, and wind impact
Not applicable. A building is not proposed as part of this application.

B. Shadows
Not applicable. A building is not proposed as part of this application.

C. Snow and ice loading
Snow and ice storage have been identified in landscaped areas, between vegetation. The proposed locations meet site plan standards.

D. View corridors
Not applicable. This site is not in a view corridor.

E. Historic resources
Not applicable. The site is not is designated as historic.

F. Exterior lighting
A photometric plan was submitted for this project. The lighting plan shows full cutoff LED mounted lights across the parking lot. In response to city staff, the applicant has adjusted their lighting plan to meet lighting curfew standards. The applicant has requested waivers for the following standards.

Waiver 1:
A waiver is being requested to install lights with a color temperature of 4000K; the maximum allowed via the Land Use Code is 3000K. The city is in support of this waiver. The College of Osteopathic Medicine application sought and was granted the same waiver in 2022 (PL-002017-2022) and the color temperature would be consistent across the campus.

Waiver 2
The plans show a maximum foot candle that is significantly higher than is allowable for parking lots. The site plan shows a foot candle maximum of 10 while the allowable maximum via the Tech Manual is 4. The lighting standards are intended to "encourage the preservation of the natural nighttime outdoor environment." While the City would prefer that site lighting be brought within the allowable range as permitted by the City's Technical Manual, staff would note that the proposed non-compliant lighting is located internal to the site, away from residential areas and environmentally sensitive areas, and that the project fully complies with the City's light trespass requirements. Further, the City acknowledges that the light levels being proposed are intended to ensure a safe, well-lit environment for students and other users of this space, which is distant from other well-trafficked spaces. The City further notes that the applicant would need to provide additional light fixtures to meet this requirement while ensuring safe lighting conditions. For these reasons, staff are supportive of this waiver request.

G. Noise and vibration
This project is not anticipated to create noise or vibration impacts.

H. Signage and wayfinding
In response to comments, signage has been added to signify drivers to one-way movements and bus only entry.

I. Zoning-related design standards
Not applicable. This site plan does not trigger zoning related design standards.

XI. SITE LOCATION OF DEVELOPMENT

The Site Location of Development Act (SLODA), requires that any new 'structure', as defined by the Maine Department of Environmental Protection (DEP), comply with a series of eight review standards and be permitted by Maine DEP or a delegated review authority. For context, the DEP defines a structure as *"as any building, parking lot, road, paved area, wharf or area to be stripped or graded and not to be revegetated that cause a total project to occupy a ground area in excess of 3 acres".*

In the City's May 11, 2023 comment letter to the applicant, the City requested that the applicant determine whether a Site Law permit would be required for the project, stating:

> *Please confirm if a Site Location of Development (SLOD) Permit is required for this work. There have been past discussions about requirement for SLOD, and we recommend that UNE consider this now, and how it may relate to future plans for development as well. MaineDEP has enforced the need for a SLOD permit on redevelopment projects, including parking lots in their definition of impervious "structure". This project is proposing a significant decrease in impervious surface from the existing condition, however upon completion, the project would feature 3.6 acres of redeveloped impervious area. This is greater than the 3 acre "structure" area that would trigger a SLOD permit submission. This application includes Maine DEP's redevelopment calculations, and relating these to the standards for SLOD, a minimum level of treatment required is 50% of the developed area. The stormwater treatment systems have been designed to treat greater than 50% of the impervious surface, and also treat some landscaped area. Based on these values, and the approximate total development size, it appears that the project will achieve the 50% threshold required, but please confirm. The City of Portland has delegated review for SLOD applications, so the permit application would be provided to the City for review (it includes much of the information that is already submitted for Site Plan) and copies of the application are also provided to the DEP for their records.*

In the applicant's response to City review comments (Applicant Submittal L), the applicant stated that the project was not subject to Site Law Review, on account of the proposed work being considered 'maintenance' and based upon a net reduction in total impervious area.

Following the applicant's response to City comments, the City's third-party stormwater engineer Lauren Swett, P.E. with Woodard and Curran, conferred with the DEP to confirm that the site is subject to Site Law as the project surpasses DEP's threshold for being considered a 'structure' The State statute does include a 'maintenance' exemption, which would permit for example, the resurfacing of an existing parking area greater than three acres in size. In this instance however, the City is viewing the proposed work as 'redevelopment' which is subject to Site Law review, on account of the more than six acres of site disturbance, the significant regrading of the site that would occur as part of this project, and the construction of 3.6 acres of redeveloped impervious surface. While the applicant does propose a net reduction in impervious surface of approximately 2.3 acres, the City would note that the statute does not include an exemption for such projects.

The applicant is disputing the City's determination, and has provided email correspondence (Applicant Submittal N) with a member of DEP staff to support their position that the application does not trigger Site Law review. The City maintains that this application does trigger Site Law review, and is asking that the applicant provide a completed Site Law application prior to the public hearing.

The SLODA review standards are listed below.

1. Financial and technical capacity
   Please refer to the site plan review above. The application is meeting this standard.

2. Traffic movement
   The application is not anticipated to generate 100 or more passenger car equivalents at peak hour, and therefore, this standard is not applicable.

3. No adverse impacts on the natural environment
   The application is reducing impervious surface in the post construction condition, adding additional stormwater management, and adding parking lot landscaping. The application is meeting this standard.

4. Soil types
   The predominant soil types in the existing condition are Scantic silt loam, Buxton silt loam, and Lyman-Tunbridge complex and are suitable for the proposed project. The application is meeting this standard.

5. Infrastructure
   Please refer to the site plan review above. The application is meeting this standard.

6. Ground water
   The proposed stormwater infiltration basins are sized appropriately and are meeting site plan and site law standards.

7. Flooding
   The proposed project will decrease the impervious surface by 2.3 acres. The post-development flooding conditions are meeting this standard.

8. Stormwater management and sediment and erosion control
   Please refer to the site plan review above. The application is meeting this standard.

XII. NEIGHBORHOOD MEETING & PUBLIC COMMENT

The applicant held a neighborhood meeting on Thursday, April 13, 2023 via Zoom and in person at 6:00 pm. There were no attendees. No public comments have been submitted on this application.

XIII. STAFF RECOMMENDATION

Subject to the proposed motions and conditions of approval listed below, Planning & Urban Development Department staff recommends that the University of New England intermodal transportation facility at 172 Bishop Street meets the applicable standards of Portland's Land Use Code.

XIV. PROPOSED MOTIONS

A. WAIVERS

On the basis of the application, plans, reports and other information submitted by the applicant, findings and recommendations contained in the Planning Board Report for the public hearing July 11 for application PL-002343-2023 172 Bishop Street relevant to the Site Plan Standards of the Land Use Code and Portland's Technical and Design Standards, and other regulations, and testimony presented at the Planning Board public hearing:

1. Maximum foot candle

The Planning Board [finds/does not find] based upon the city's review, that extraordinary conditions exist or undue hardship may result from strict compliance with the Technical Manual standard 12.3.2 which requires, for lighting plans to have a maximum foot candle of 4, that substantial justice and the public interest are secured with the proposed variation in this standard, and that variation is consistent with the intent of the ordinance. The Planning Board [waives/does not waive] the Technical Manual standard Section 12.3.2 to allow a foot candle of 10 onsite.

2. Maximum color temperature
   The Planning Board [finds/does not find] based upon the city's Review, that extraordinary conditions exist or undue hardship may result from strict compliance with the Technical Manual standard 12.3.5, which requires for lighting plans to not exceed a correlated color temperature of 3000K, that substantial justice and the public interest are secured with the proposed variation in this standard, and that variation is consistent with the intent of the ordinance. The Planning Board [waives/does not waive] the Technical Manual standard Section 12.3.5 to allow a correlated color temperature of 4000K.

B. SITE PLAN REVIEW

On the basis of the application, plans, reports and other information submitted by the applicant; findings and recommendations contained in the Planning Board Report for the public hearing on July 11 for application PL-002343-2023 at 172 Bishop Street relevant to the site plan regulations; and the testimony presented at the Planning Board hearing, the Planning Board [finds/does not find] that the plan is in conformance with the site plan standards of the land use code subject to the following conditions of approval:

PRIOR TO APPLYING FOR A BUILDING PERMIT

1. The applicant shall submit an updated site plan demonstrating compliance with the City's EV infrastructure standards Section 1.14 of the Technical Manual for review and approval by the Planning Authority.

2. The applicant shall submit an updated site plan which includes a direct pedestrian pathway connecting the smaller 35 space parking lot to the proposed walkway/crosswalk for review and approval by the Planning Authority.

3. The applicant shall update their Transportation Demand Management Plan to reflect the proposed changes in the University's off-street parking capacity

4. The applicant shall submit ability to serve confirmation from CMP demonstrating adequate capacity to service this project with the minimum number of Level 2 charging stations as required by the Site Plan ordinance and Section 1 of the Technical Manual.

XV. ATTACHMENTS

1. Applicant Submittal
   A. Cover Letter
   B. Major Site Plan Checklist
   C. Letter of Agent Authorization

D. Evidence of Right, Title, and Interest
E. Zoning Assessment
F. Letter of Financial Capacity
G. Site Plan Standards Assessment
H. Lighting Waiver Request
I. Stormwater Management Plan
J. Stormwater Management Plan
K. Lighting Catalogue Cuts
L. Comment Response Letter 6-9-23
M. Comment Response Letter 4-27-23
N. DEP Email Correspondence

2. Plans
    1. Existing Conditions and Removals
    2. Site Plan
    3. Site Layout and Utility Plan
    4. Overall Grading and Drainage Plan
    5. Access Drive 1
    6. Access Drive 2
    7. Erosion and Sediment Control Specs
    8. Site Details 1
    9. Site Details 2
    10. Site Details 3
    11. Site Details 4
    12. Landscape Plan 04-27-23
    13. Photometry
    14. UNE Boundary Survey

3. Report Attachments
    1. Staff Review Comment Letter 4.4.23
    2. Staff Review Comment Letter 5.11.23
    3. Applicant Response Letter to Staff Comments
    4. University of New England TDM

Site Design Associates
Consulting Engineering and Land Planning

January 19, 2023

Mr. Matthew Grooms
Development Review Services Manager
Planning Division
389 Congress St., Fourth Floor
Portland, ME 04101

RE: University of New England - Portland Campus
Major Site Plan Application for:
Intermodal Transportation Facility Reconstruction
Parcel ID 291 A001, 281 A003
160-172 Bishop Street

Dear Matt:

On behalf of University of New England (UNE), Site Design Associates (SDA) is pleased to submit a major Site Plan Application for the referenced project. We understand the site plan application fee for a project of this size will be invoiced.

The project is located at the end of Bishop Street and was reviewed with staff at a pre-application meeting on December 21, 2022. Based on feedback from staff, the concept remains as discussed at those meetings.

This submission contains the following information:

- Major Site Plan Checklist
- Letter of Agent Authorization
- Evidence of Right, Title, and Interest
- Zoning Assessment
- Letter of Financial Capacity
- Evidence of Technical Capability
- Site Plan Standards Assessment
- Waiver Request
- Stormwater Management Plan
- Construction Management Plan

23 Whitney Way Topsham, Maine 04086
Phone: (207) 449-4275 email: info@sitedesignassociates.biz

- The following project drawings:

    - C-101 Site Demolition Plan
    - C-200 Site Erosion & Sediment Control Notes
    - C-201 Erosion & Sediment Control Plan
    - C-300 Erosion & Sediment Control Details
    - C-401 Site Grading & Drainage Plan
    - C-402 Grading & Drainage Schedule
    - C-500 Connector Road Plan & Profile Sta 02+50 To 26+50 (1 Of 2)
    - C-501 Connector Road Plan & Profile Sta 26+50 To 33+00 (2 Of 2)
    - C-502 Grading & Drainage Details
    - C-503 Grading & Drainage Details
    - C-504 Layout & Materials Plan
    - L-100 Landscape Plan
    - Boundary Survey

The project involves the reconstruction of the existing Intermodal Transportation Facility, including better formalizing the access and parking, resulting in a total of 344 parking spaces, including 72 EV charging stations. Improvements include:

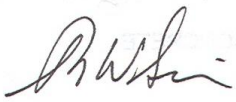
1) Safety enhancements including emergency call boxes and camera upgrades;
2) New lighting;
3) Removal of 96,940 sf of impervious surface;
4) Enhanced vehicular circulation, including for the UNE shuttle between the facility and the main campus;
5) Elimination of trip hazards;
6) The addition of significant landscaping and trees;
7) Construction of stormwater quality enhancement facilities, and;
8) The installation of new EV charging stations;

The Intermodal Facility was originally approved by the city in 2012. Access to the site will be through an existing gate at the end of Bishop Street over a new formalized 24 ft wide access drive, which will also provide access to the Maine Army National Guard (MEARNG) facility on the west end of the site. An existing curb cut onto Bishop Street will be closed. We believe the reconstruction of the facility will result in compliance with applicable city land use codes. One waiver is necessary for the proposed lighting, consistent with the waiver granted for both the MEARNG and College of Osteopathic Medicine projects.

We look forward to working with staff and the planning board toward approval of this project. Please contact me with any questions or comments concerning this conditional use application.

Sincerely,

Site Design Associates



Tom Saucier, P.E.
President

cc: Alan Thibeault, UNE, Vice President for Campus Operations

CITY OF PORTLAND
Planning & Urban Development Department

MAJOR SITE PLAN
GENERAL DOCUMENT AND DRAWINGS CHECKLIST
Please submit each document as a separate PDF file.
Please confirm by electronically checking the boxes in the left-hand column.

**** PLEASE FILL OUT AND UPLOAD THE ZONING ASSESSMENT TABLE AND WAIVER TABLE SEPARATELY AS NOTED BELOW ****

At the time of application submission, please contact the Department of Public Works regarding E-911 addressing for your project.

GENERAL APPLICATION DOCUMENTS		
Yes	NA	**Project Description** • Cover letter with detailed project description
Yes	NA	**Completed Checklist** (this document)
Yes	NA	**Evidence of Right, Title, and Interest** • Deeds, leases, or purchase and sales agreements
Yes	NA	**Evidence of State or Federal Approvals** • Permits or letters of non-jurisdiction, if applicable
Yes	NA	**Zoning Assessment** (see Zoning Assessment Table) Summary of compliance with use and dimensional standards of the land use code
Yes	NA	**Site Plan Standards Assessment** (see Section 14.6 of the land use code) • Summary of project compliance with site plan standards of the land use code
Yes	NA	**Summary of Existing and/or Proposed Easements or Covenants, applicable.** • Evidence of existing easements and any proposed easements, covenants, public or private rights-of-way
Yes	NA	**Waiver Requests** (see Waiver Table) • Written request for waiver describing request and compliance with applicable waiver standards
Yes	NA	**Financial Capability** • Letter or evidence from a financial institution or third party verifying financial capacity to undertake project
Yes	NA	**Technical Capability** • Evidence of technical capability of applicant and consultants – resumes and/or examples of past projects

MAJOR SITE PLAN
STANDARDS AND SUBMISSION CHECKLIST

Provide assessment of compliance with standards and include supplemental documentation, as applicable.
Please submit each document as a separate PDF file.

TRANSPORTATION	
Yes NA	**Impact on Surrounding Street Systems (14-14.6.1(A))** • Describe incremental volume of traffic impacts and mitigation measures. If needed
Yes NA	**Access and Circulation (14-14.6.1(B))** Identify and describe the following: • Site access and internal circulation, including ADA access • Drive-up features, if applicable • Loading and servicing needs, routes, and geometry, providing turning templates for delivery vehicles, if applicable • Sidewalks and condition along street frontages and internal walkways • Engineered details for ADA ramps and public sidewalks, meeting sidewalk material policy and construction requirements (Technical Manual, Section 1)
Yes NA	**Public Transit (14-14.6.1(C)), if applicable** Identify and describe the following: • Existing available transit service and proposed transit improvements, including design details, such as easement, pad base, and shelter
Yes NA	**Off-Street Parking (14-14.6.1(D)), if applicable** Identify and describe the following: • Proposed vehicular and bicycle parking supply (including ADA-compliant parking) in relation to applicable parking requirements in Article 19 of the land use code • Curb cut separation and parking layout (Technical Manual, Section 1) • Construction details for bicycle racks • Management plan for snow storage and removal
Yes NA	**Transportation Demand Management (TDM) (14-14.6.1(E)), if applicable** • Provide TDM plan drafted in accordance with Technical Manual Section 1 requirements

ENVIRONMENTAL	
Yes NA	**Preservation of Significant Natural Features (14-14.6.2(A)), if applicable** Identify and describe the following: • High and moderate value waterfowl and wading habitat • Aquifers (for Casco Bay Islands) • Waterbodies (including wetlands, watercourses, significant vernal pools and floodplains) • Proposed preservation areas and protection measures • Documentation from environmental compliance consultants and determinations from applicable state and federal agencies
Yes NA	**Landscape Preservation (14-14.6.2(B))** Identify and describe the following: • Measures to preserve trees, including within required zoning setbacks (Technical Manual, Section 4) • Measures to protect existing vegetation during construction
Yes NA	**Site Landscaping and Buffers (14-14.6.2(C))** Identify and describe the following: • Overall landscaping approach and consistency with standards • The use of screening and buffering of service areas and between non-residential and residential uses • Existing Heritage or Feature Trees on site and measures to preserve • Compliance with street tree requirements
Yes NA	**Water Quality, Stormwater Management, and Erosion Control (14-14.6.2(D))** Identify and describe the following: • Erosion and sedimentation control plan and measures • Evidence of compliance with Urban Impaired Stream Standards pursuant to DEP Chapter 500 stormwater law, as applicable • Subsurface sanitary sewage disposal and groundwater protection measures

PUBLIC INFRASTRUCTURE AND COMMUNITY SAFETY	
Yes NA	**Consistency with City Master Plans (14-14.6.3(A))** • Describe proposed easements, rights and improvements to connect or continue off-premises public infrastructure, as applicable
Yes NA	**Public Safety and Fire Prevention (14-14.6.3(B))** Identify and describe the following: • Compliance with Crime Prevention through Environmental Design (CPTED) requirements (Technical Manual, Section 3) • Emergency vehicle access • Consistency with public safety standards (Technical Manual, Section 3)
Yes NA	**Availability and Adequacy of Public Utilities (14-14.6.3(C)) (Technical Manual, Sections 2 & 9)** Identify and describe the following: • Electrical services, including providing underground services • Existing and proposed connections for public utilities and required public utility upgrades • Sewer line connections
SITE DESIGN	
Yes NA	**Massing, Ventilations and Wind Impact (14-14.6.4(A))** Identify and describe the following: • Wind and ventilation impacts on adjoining structures and/or adjacent public spaces, including wind study, if applicable • Bulk, location, or height impacts on adjoining structures
Yes NA	**Shadows (14-14.6.4(B)), if applicable** • Provide shadow analysis of impacts on publicly accessible open space (Technical Manual, Section 11)
Yes NA	**Snow and Ice Loading (14-14.6.4(C))** • Describe building design measures to prevent snow and ice from loading or falling onto adjacent properties or public ways
Yes NA	**View Corridors (14-14.6.4(D)), if applicable** • Describe any protection of designated view corridors (Portland Design Manual, Appendix. 1)
Yes NA	**Historic Resources (14-14.6.4(E)), if applicable** Identify and describe the following: • The site's status as a designated landmark, within a historic district or historic landscape district, or within 100 feet of any designated landmark, historic district, or historic landscape district • Compliance with standards for preservation and documentation of archaeological resources

Yes	NA	**Exterior Lighting (14-14.6.4(F))** • Describe how the proposed site lighting will adhere to photometrics requirements as it relates to light trespass and full cutoff fixture design, pursuant to Technical Manual Section 12
Yes	NA	**Noise and Vibration (14-14.6.4(G))** • Provide data on noise levels for HVAC and other mechanical equipment, such as design specifications, to demonstrate consistency with state and federal noise emissions requirements as well as City code
Yes	NA	**Signage and Wayfinding (14-14.6.4(H)), if applicable** • Provide signage plan showing the location, dimensions, height and setback of all existing and proposed signs • Provide drawings of all commercial and directional signage on site
Yes	NA	**Zone-Related Design Standards (14-14.6.4(I))** • Address any applicable design review standards by zone, including compliance with Design Manual

UNIVERSITY OF NEW ENGLAND

Biddeford Campus
11 Hills Beach Road
Biddeford, ME 04005
(207) 283-0171 T

Portland Campus
716 Stevens Avenue
Portland, ME 04103
(207) 797-7261 T

January 13, 2023

Mr. Tom Saucier
SYTDesign Consultants
P.O. Box 86A
160 Longwoods Road
Cumberland, ME 04021

TO WHOM IT MAY CONCERN:

This letter authorizes Tom Saucier to serve as an Agent and Owner's Representative for University of New England for the purpose of permitting the reconstruction of the University's Intermodal Transportation Facility, located on the University of New England's Portland campus, just off Bishop Street

Sincerely,

Alan Thibeault
Vice President for University Operations

WARRANTY DEED
(Maine Statutory Short Form)

KNOW ALL MEN BY THESE PRESENTS, that **PIKE INDUSTRIES, INC.**, a Delaware corporation with a place of business and mailing address at 58 Main Street, Westbrook, Maine 04092 ("Grantor"), for consideration paid, hereby grants to **UNIVERSITY OF NEW ENGLAND**, a Maine non-profit corporation with a mailing address of 11 Hills Beach Road, Biddeford, Maine 04005 ("Grantee"), with **WARRANTY COVENANTS**, those certain lots or parcels of land, together with any buildings and improvements thereon, situated in Portland, Cumberland County, Maine, being more particularly described on **Exhibit A** attached hereto and incorporated herein by reference (the "Premises").

MAINE REAL ESTATE TAX PAID

The following restrictions shall run with the land, shall inure to the benefit of the Grantor, and its successors and assigns, and shall be binding upon the Grantee, and its successors and assigns:

1. The Grantee covenants and agrees that the Premises shall not be used for excavation of earth materials, crushing of rock and other materials, production of hot-mix asphalt or other similar products (e.g., cement, ready mix concrete, etc.), storage of earth materials and/or hot-mix, cement or ready-mix products or the sale (retail or wholesale) and distribution of such materials from the Premises or the use of such material or existing processed material unless such excavation and/or use of such materials is for the benefit of the Grantee on the Premises or on contiguous land in common ownership of the Grantee.

2. In the event of a violation of any or all of this restrictive covenant, the Grantor, in addition to all other remedies available to it, may obtain an injunction against the Grantee issued by a court of competent jurisdiction enjoining such breach and shall be entitled to recover its costs and expenses, including, but not limited to, reasonable attorney's fees in the enforcement or defense of the restrictions or any of them.

Being parcels 2 and 3 in the deed of Oldcastle Materials, Inc. to Pike Industries, Inc. dated March 20, 2002, and recorded in the Cumberland County Registry of Deeds in Book 17835, Page 301.

IN WITNESS WHEREOF, the Grantor has caused this instrument to be signed and sealed this 28th day of February, 2012.

WITNESS:

PIKE INDUSTRIES, INC.

_____

By: Brian J Donovan
Print/type name: Brian J. Donovan
Its: Authorized Agent

STATE OF MAINE
CUMBERLAND, ss.

February 28, 2012

Then personally appeared the above named Brian J. Donovan, its Authorized Agent, of Pike Industries, Inc. who acknowledged the foregoing instrument to be his free act and deed in his said capacity and the free act and deed of said Pike Industries, Inc.

Before me,

P. Van Hemel

~~Notary Public~~ / Maine Attorney-at-Law
Name Printed: Peter J. Van Hemel
My Commission Expires: _____

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EXHIBIT A

TRACT 1

A certain lot or parcel of land in the Morrill's Corner region of Portland, County of Cumberland and State of Maine, bounded and described as follows:

Commencing at a point or stake standing on the old southerly line of the Portland & Rochester Railroad, now the Portland Terminal Company, and at a point where the same intersects with land formerly of Franklin M. Purington,

THENCE South 65 3/4° West 108 Rods 15 Links, more or less, to land now owned by the City of Portland;

THENCE North 24 1/4° West 5 Rods 16 Links, more or less, to a stake;

THENCE South 65 3/4° West 34 Rods 9 Links, more or less, to a stake standing on land owned by said City;

THENCE North 11° West 11 Rods 7 Links, more or less, to a stake, standing on land formerly owned by Hiram Sawyer;

THENCE North 61 1/2° East 107 Rods, more or less, to line of said location of Portland & Rochester Railroad;

THENCE by the line of said Railroad on its southerly side as aforesaid 83 1/4° East 38 1/2 Rods, more or less, to the place of beginning.

EXCEPTING from the above described premises, the premises conveyed by Adam W. Wilson to City of Portland by deed dated March 25, 1889, and recorded in the Cumberland County Registry of Deeds in Book 556, Page 132; and the premises conveyed by Adam W. Wilson to Boston & Maine Railroad by deed dated April 4, 1907, and recorded in said Registry in Book 803, Page 232, and by deed dated August 5, 1910, and recorded in said Registry in Book 863, Page 137.

TRACT II

Another certain lot or parcel of land situated near Morrill's Corner in that part of Portland that was formerly Deering, in the County of Cumberland and State of Maine, lying adjacent to and lying northwesterly of the above described premises, being bounded and described as follows:

Beginning at the northwesterly corner of land formerly of one Smith, on the southerly side of land formerly of Portland & Rochester Railroad, now the Portland Terminal Company, and running South 62° West 106 Rods to land of Portland Cemetery;

THENCE northwesterly by said Cemetery lot 30 Rods to the Old Kenney lot;

THENCE North 52 1/2° East by said Kenney's lot 49 Rods 2 Links to the Portland Terminal Company railroad land, formerly of the Portland & Rochester Railroad;

THENCE southeasterly by said Portland Terminal Company location 70 Rods to the first mentioned bounds or place of beginning.

EXCEPTING, however, from the above described premises two certain pieces or parcels of land, that first being 200 feet in length by 28 feet in width and lying parallel with the above-mentioned railroad, said parcel being conveyed by F.O.J. Bodge to Boston & Maine Railroad by warranty deed November 20, 1907, and recorded in the Cumberland County Registry of Deeds in Book 817, Page 29; and the second being a strip along a portion of the southeasterly and southwesterly side thereof, being conveyed by Lewis Lumber Co. to Central Maine Power Company by deed dated November 23, 1951, and recorded in said Registry in Book 2067, Page 107.

Both tracts are conveyed subject to the rights acquired for a sewer by the City of Portland by taking dated May 26, 1944, and recorded in the office of the City Clerk of the City of Portland, Maine, in Vol. 66, Page 263.

Also excepting the land described in the deed from Tilcon Minerals, Inc. to the City of Portland dated November 22, 1996, recorded in the Cumberland County Registry of Deeds in Book 12886, Page 212.

The premises are conveyed subject to the following rights and easements:

1. Rights and easements granted by Warren Bros. Roads Co. to Central Maine Power Company by instrument dated June 19, 1952, and recorded in the Cumberland County Registry of Deeds in Book 2097, Page 221.

2. Rights and easements granted by Warren Brothers Roads Company to Central Maine Power Company and New England Telephone and Telegraph Company by instrument dated January 27, 1967, and recorded in the Cumberland County Registry of Deeds in Book 2996, Page 102.

3. Rights and easements granted by Warren Brothers Co. to Portland Water District by instrument dated December 15, 1977, and recorded in the Cumberland County Registry of Deeds in Book 4150, Page 72.

4. Rights and easements granted by Warren Bros., a Div. of Ashland-Warren Inc. to Central Maine Power Company and New England Telephone and Telegraph Company by instrument dated January 31, 1978, and recorded in the Cumberland County Registry of Deeds in Book 4239, Page 326.

5. Rights and easements granted by Tilcon Minerals, Inc. to the City of Portland by deed dated November 22, 1996, and recorded in the Cumberland County Registry of Deeds in Book 12886, Page 214.

6. Rights and easements granted by Lewis Lumber Company to Central Maine Power Company by instrument dated November 23, 1951, and recorded in the Cumberland County Registry of Deeds in Book 2067, Page 106.

7. Rights, easements, and exceptions set forth in deed from Rosa Lewis to Warren Brothers Roads Company dated May 26, 1962, recorded in said Registry of Deeds in Book 2676, Page 74.

H:\DOCS\RATTEY\Pike\UNE 39662\EXHIBIT A.docx

Received
Recorded Register of Deeds
Mar 02,2012 11:36:47A
Cumberland County
Pamela E. Lovley

ZONING ANALYSIS Relevant Zone(s) IH, IM, R3

All Projects:

	Required	Proposed
Lot Size	6500 SF	836,442 SF
Area Per Dwelling Unit	NA	NA
Minimum Street Frontage	60	433
Front Yard Minimum	NA	NA
Front Yard Maximum	NA	NA
Rear Yard	NA	NA
Yard Right	NA	NA
Yard Left	NA	NA
Side Street Setback	NA	NA
Step Back	NA	NA
Maximum Lot Coverage	NA	NA
Minimum Lot Coverage	NA	NA
Maximum Height	75 FT	20 FT
Open Space	NA	NA
Maximum Impervious Area	75%	46%
Pavement Setback	10 FT	10 FT
Floor Area Ratio	NA	NA
Off Street Parking Spaces	NA	NA
Loading Bays	NA	NA
Other 1		
Other 2		
Other 3		

Planned Residential Unit Developments (PRUD) Requirements

	Required	Proposed
Minimum Lot Size		
Minimum Lot Area per Dwelling		
Maximum # Units per Building		
Maximum Building Length		
Maximum Accessory Building Length		
Minimum Setbacks		
Minimum Building Separation		
Minimum Open Space		

Affordable Housing Density Bonuses (if applicable)

	Bonus Increase or Decrease	Maximum Allowable With Bonus	Proposed
Density			
Height			
Setback Reduction			
Recreation Space			
Maximum Accessory Building Length			
Minimum Setbacks			
Minimum Building Separation			
Minimum Open Space			
Explanatory Text 1 (optional):			
Explanatory Text 2 (optional):			
Explanatory Text 3 (optional):			

UNIVERSITY OF NEW ENGLAND

INNOVATION FOR A HEALTHIER PLANET

Office of Finance and Administration

Biddeford Campus
11 Hills Beach Road
Biddeford, ME 04005
U.S.A.
(207) 283-0171

Portland Campus
716 Stevens Avenue
Portland, ME 04103
U.S.A.
(207) 797-7261

www.une.edu

January 17, 2023

City of Portland
Planning Board
389 Congress St.
Portland, ME 04101

Dear Planning Board Members,

Please accept this letter as assurance that the University of New England (UNE) has the financial capacity to construct, equip, and operate the proposed Harold and Bibby Alfond Center for Health Sciences and the Bishop Street Intermodal Transportation Facility.

From 2017 to 2022, UNE has experienced a total positive change in net assets of $197 million. These surpluses have improved upon the University's liquidity position and overall financial capacity. Total net assets during the same period increased from $280 million to over $477 million. This demonstrates UNE's continued commitment to sound management practices and financial sustainability.

To date, UNE has raised over $39 million to construct and equip the proposed Harold and Bibby Alfond Center for Health Sciences. These fundraising efforts are continuing. Additionally, UNE holds A-level credit ratings from Moody's Investor Services and Fitch Ratings which has provided access to capital markets for project financing. The University issued the UNE Series 2021AB Revenue Bonds in December 2021 which included $50 million dedicated to the design and construction of the Harold and Bibby Alfond Center for Health Sciences. Long range financial planning and cash flow projections provide further confirmation that the University can readily afford the construction and future direct and indirect operating costs of the proposed project.

Taking into consideration the funds raised, $50 million of debt financing secured, and financial strength of the University, management is confident it has sufficient resources to complete the project.

Respectfully submitted,

Philip Shapiro
Interim Senior Vice President for Finance and Administration
University of New England

Technical Ability

UNE has completed numerous projects on the campus in recent years, including:

- College of Pharmacy
- Innovation Hall
- Oral Health Center

UNE has retained a qualified team to permit, design, and construct the project, including:

Civil Engineer, Permitting & Survey
Site Design Associates
23 Whitney Way
Topsham, Maine 04086

Construction Manager
Ledgewood
27 Main St
South Portland, ME 04106

Applicable Site Plan Standards

University of New England (UNE) is planning on the reconstruction of the existing Intermodal Transportation Facility and parking 160-172 Bishop Street. The existing facility provides parking for students, faculty, and guests, with a regular shuttle service to the main campus, and it will continue to serve the same purpose subsequent to the reconstruction. The goals of the reconstruction project include increase safety though the installation of call boxes and cameras, enhanced circulation, installation of modern and ordinance compliant lighting, and elimination of trip hazards.

Sustainability and environmental stewardship are highly valued by UNE. The reconstruction will result in the removal of 96,940 sf (2.23 acres) of impervious surface, the construction of stormwater quality enhancement facilities meeting current standards, the installation of EV charging stations, and installation of a significant amount of landscaping and green space.

Section 14.6 of the Land Use Ordinance outlines the standards for Site Plan Approval. The following discussion documents compliance with the applicable standards.

14.6.1.A. Impact on Surrounding Street Systems. – No impact anticipated since there is no increase in enrollment associated with this project.

14.6.1.B. Access and Circulation. As presented at the pre-application meeting, the site will continue to be accessed via Bishop Street. A defined access drive will be constructed from Bishop Street into the facility. Access aisles will be defined with landscaped islands. An existing curb cut onto Bishop Street will be closed and a sidewalk constructed.

The new parking lot will have a total of 344 spaces, with 72 EV charging stations, and 10 accessible spaces. Details and cross sections for this work are included in the drawings.

14.6.1.C. Public Transit Access – By its very nature, the Intermodal facility is a parking and transit facility to be utilized by UNE students, faculty, and guests. There are currently public transit facilities on the main campus.

14.6.1.D. Parking – Parking spaces and aisles will be reconstructed to align with the applicable dimensional standards of the city. Bicylce parking is not provided, because it is available on the main campus.

The facility design provides eight dual-port, Level 2 (208V, 40A-60A) and 64 dedicated duplex receptacles for connection of Level 1 (120V, 12A) EV car charges. Duplex receptacles will be mounted to lighting fixtures throughout the parking lot to allow for distributed charging. Between Level 1 and Level 2 charging stations, a total of seventy-two parking spaces have EV charging capabilities.

Snow storage will be as noted on the drawings, and will be removed from the site if necessary.

14.6.1.E. Transportation Demand Management – This was addressed in the previous application for the College of Osteopathic Medicine and the conclusions will not be impacted by the proposed reconstruction of the Intermodal Transportation Facility.

14.6.2.A. Preservation of Significant Natural Features – The project is generally located in a currently developed area. There will be no freshwater wetlands impacted by the project.

140.6.2.B. Landscape Preservation – No significant trees will be removed to construct the project. The project when complete will result in significant reestablishment of vegetated areas which are currently compacted gravel and impervious surfaces. The impervious area on the site will be reduced by over 96,000 sf.

An erosion and sedimentation control plan has been developed which will minimize both sedimentation and runoff.

14.6.2.C. Site Landscaping and Buffers – Street trees were previously planted along Bishop Street as a result of the original approval of the Intermodal Transportation Facility in 2012. Significant landscaping of currently impervious areas is proposed. There are no loading and service areas. The project provides landscaping in excess of the code requirements. See the Landscape Plan.

14.6.2.D. Water Quality, Stormwater Management, and Erosion Control – See the Stormwater Management Plan.

14.6.3.A. Consistency with City Master Plans – We are unaware of any conflicts with city council approved master plans.

This project is in basic harmony with the City's Comprehensive Plan and the City's goals and policies expressed in that plan. UNE has been able to incorporate the City's Comprehensive Plan goals and policies while at the same time supporting the University's priorities for growth and for improving the quality of the education it provides to Portland's residents and the local region. The City's Comprehensive Plan for institutional growth has been put in place to "ensure that the growth of Portland's educational, medical and cultural institutions is integrated into Portland's urban fabric through the use of high-quality design, management of impacts, community partnerships, and innovative planning" (Comprehensive Plan, p.45). UNE has fully embraced this statement and has assimilated this vision into its development plans.

UNE has discussed its key institutional needs -- to upgrade and grow its programs on the Portland campus to support the continued requirements of the University to provide state of the art post-secondary and graduate studies in fields such as healthcare, dentistry and pharmacy to name a few. All of these programs have and will continue to support the growing need to deliver public services to the people of northern New England and in particular the City of Portland along with providing highly trained professionals to the local workforce. The City of Portland's 2030 Comprehensive Plan "promotes the orderly expansion of institutional uses, such as educational and hospital campuses, which are central to workforce development, employment, and the health of the local and regional economies" (City of Portland's Comprehensive Plan, p.45)

14.6.3.B. Public Safety and Fire Prevention – In regards to Crime Prevention Through Environmental Design (CPTED), UNE aims to create a safe environment for all in and around its campus. UNE's Campus Safety and Security Department monitors UNE's campuses through in-person patrols and CCTV cameras and provides response to any situations that may arise, 24 hours a day/7 days a week.

UNE has currently incorporated some or all of the following design strategies on its Portland campus that have been demonstrated to deter criminal activity. It is the intent to continue to integrate these strategies on future developments on the campus:

- Providing a clean and aesthetically pleasing campus environment that is designed with vandal-resistant materials
- Providing clear and properly-sized signs in safe locations to ensure safe wayfinding
- Ensuring that paths from transit stops, bike storage areas, and parking areas to main pedestrian entrances are well-lit, with clear sight lines
- Designing street-level elevations and landscaping areas to minimize potential hideouts
- Call boxes with blue lights for easy identification
- Installation of CCTV to monitor remote areas
- Insure adequate lighting levels on walkways, parking lots and roadways.

UNE's Campus Safety and Security Department provides a yearly Clery Report that reports the past year's offense/crime statistics on each of its campuses. Over the past 3 years there have been no events reported related to issues stemming from CPTED deficiencies on the Portland campus. The University feels that active CPTED during the planning of projects has contributed to this.

14.6.3.C. Public Utilities – There will be no public utilities impacted by the reconstruction of the Intermodal Transportation Facilty.

14.6.4.A. Massing, Ventilation and Wind Impact – Not applicable.

14.6.4.B. Shadow – Not applicable.

14.6.4.C. Snow and Ice Loading – Not applicable.

14.6.4.D. View Corridors – Not applicable.

14.6.4.E. Historic Resources – Not applicable. Proposed work is not within 100 feet of a City of Portland identified Historic District.

No known archaeological resources have been identified within the limit work. If any such resource is discovered during construction, it will be documented and protected according to the City of Portland's Land Use Ordinance. The City of Portland's Historic Preservation Program and Maine Historic Preservation Commission will be notified if any discovery of such a resource is be uncovered.

14.6.4.F. Exterior Lighting – The photometric plan is attached.

Exterior Lighting and Controls:
All new fixtures will utilize LED technology with a color temperature of 4000K and will be full-cutoff type as defined by Illuminating Engineering Society of North America (IESNA), in order to minimize light pollution into the night sky.

While it is understood that the City of Portland requires the use of 3000K color temperature in all exterior fixtures, outdoor lighting, specifically in locations such as college campus parking lots where both vehicular-pedestrian traffic and security are of the utmost concern, is traditionally designed with a color temperature of 4000K-5000K. The higher CCT produces an increased amount of lighting in the blue wavelength range as opposed to the yellow light emitted from a 3000K light source; this leads to an increase in the alertness and visual acuity of the area's occupants, enhancing both the safety and security of the space. IESNA's RP-20 *Lighting for Parking Facilities* agree with the recommendation of using higher CCT, cooler lighting sources for alertness, safer vehicular traffic, and security in parking environments. A waiver from the city standard is requested, and was granted by staff for two recent UNE projects.

14.6.4.G. Noise and Vibration – Not applicable.

14.6.4.H. Signage and Wayfinding – All proposed signage will be provided by the Owner and will be consistent with previously approved University of New England and City of Portland design standards and guidelines.

14.6.4.I. Design Standards – Not applicable.

Waiver Request

Standard to be waived:

Technical Manual Section 12.3.5, General Standards – Luminaire Types

All fixtures must be LED and shall not exceed 3000K Correlated Color Temperature (CCT). Screw in light fixtures must have LED lamps specified to be maximum of 3000K CCT.

Waiver sought and justification:

The 3000 CCT that is currently the Portland standard, will provide a very warm color with a large amount of yellow light emitted from the light fixtures. This CCT is generally used in homes, guest rooms of hotels, hotel lobbies dining areas, etc. where you want to create a warm and calming atmosphere. This CCT will also not provide accurate viewing of any of the primary colors. For example; a red car being lit with 3000 CCT will appear gray, and a blue shirt being viewed under 3000 CCT will appear black. Color distinction is very difficult.

Outdoor lighting, specifically in locations such as college campus parking lots where both vehicular-pedestrian traffic and security are of the utmost concern, is traditionally designed with a color temperature of 4000K-5000K. The higher CCT produces an increased amount of lighting in the blue wavelength range as opposed to the yellow light emitted from a 3000K light source. This leads to an increase in the alertness and visual acuity of the area's occupants, enhancing both the safety and security of the space. IESNA's RP-20 *Lighting for Parking Facilities* agree with the recommendation of using higher CCT, cooler lighting sources for alertness, safer vehicular traffic, and security in parking environments. A waiver from the city standard is requested, and was granted by staff for two recent UNE projects.

STORMWATER MANAGEMENT REPORT

RECONSTRUCTION OF INTERMODAL TRANSPORTATION FACILITY AND PARKING
160-172 Bishop Street, Portland, Maine
January 20, 2023

Introduction

Site Design Associates (SDA) was retained to assist the University of New England (UNE) (Applicant) in the design and permitting for the reconstruction of the intermodal transportation facility and parking at 160-172 Bishop Street in Portland, Maine. The proposed project includes the redevelopment of approximately 6.1± acres of the existing parking lot and shuttle stop at the UNE Intermodal Transportation Facility, and the associated access drive, landscaping, and stormwater amenities.

This Stormwater Management Report assesses both pre-development and post-development peak runoff rates and stormwater treatment practices for the redevelopment area in accordance with the City of Portland land use code.

Methodology

The stormwater runoff analysis has been undertaken utilizing the HydroCAD Stormwater Modeling System software (Version 10.0) developed by the Applied Microcomputer Systems of Chocorua, New Hampshire. The program is based upon the TR-20 computer program and the TR-55 tabular method, both of which are based upon techniques developed by the USDA Soil Conservation Service. The analysis was undertaken for the 2, 10, and 25-year frequencies (3.1, 4.6, and 5.8 inches, respectively). Twenty-four hour storms with a Type III distribution were the basis for the analysis.

All storm drainage piping and stormwater treatment BMPs have been sized for the 25-year, 24-hour storm utilizing the HydroCAD program. Copies of the pre and post development HydroCAD output are included in the Appendix A and Appendix B of this report, respectively.

Pre-Development Conditions

The site of the proposed project is located on 6.1± acres of the existing parking lot and shuttle stop at the Intermodal Facility accessed from Bishop Street. The area is entirely developed with an access drive, parking lot, shuttle bus stop, and two existing buildings. As taken from the website of the *"Natural Resources Conservation Service, United States Department of Agriculture, Web Soil Survey,"* the predominant soil types in the redevelopment area are Scantic silt loam (Sn) (HSG D), Buxton silt loam (Bu) (HSG C/D), and Lyman-Tunbridge complex (Hr) (HSG D). The USDA soil map is included in Appendix D of this report. The soil boundaries are shown on drawings D1.0 Pre-development Drainage Plan and D2.0 Post-development Drainage Plan in Appendix F of this report.

Most of the existing parking lot (SC8.0) drains overland to the offsite wetland to the southwest (Analysis Point AP8). A small section of the eastern portion of the parking lot (SC7.1) drains into the abutting wetland (SC7.0) on the abutting UNE property. Runoff from SC7.0 and SC7.1 flow through a stream (Reach R7.1) to AP8.

Stormwater peak runoff flow rates from the site for the 2, 10, and 25-year storm events were analyzed at analysis point AP8 and are summarized in Table 1 in the Stormwater Quantity section of this report. Pre-development HydroCAD calculations are included in Appendix A. Sheet D1.0 – Pre Development Drainage Plan is included in Appendix F.

Post-Development Conditions

The proposed project includes the redevelopment of approximately 6.9± acres of the existing Intermodal Transportation Facility for the reconstruction of 344 parking spaces, a new shuttle loop, and associated utilities, stormwater and landscaping amenities. The redevelopment will result in a 96,942 square foot (2.23 acre) net reduction in impervious area from the existing condition.

Stormwater will generally be collected in multiple catch basin and storm drain systems throughout the site. Runoff from the easterly 2/3 of the redeveloped site will be directed to two grassed underdrained soil filters to provide stormwater treatment and detention prior to outletting.

Post-development stormwater peak runoff flow rates for the 2, 10, and 25-year storm events at each of the analysis points are summarized in Table 1 in the Stormwater Quantity section of this report

Stormwater Quantity

The overall stormwater runoff volume from the redevelopment site is significantly reduced due to the reduction of 96,942 square feet of impervious area. Additional stormwater detention is provided within the two grassed underdrained soil filters that will treat stormwater runoff from approximately 2/3 of the redeveloped area.

Stormwater runoff peak flow rates for the 2, 10, and 25-year storm events were analyzed at the analysis point for both the pre and post development conditions to verify that the peak flow rates are maintained or reduced in the post development condition. Table 1 below summarizes the peak flow rates at the analysis point.

Table 1
Pre and Post Development Peak Runoff Rates (cfs)

Storm Frequency	2-Year	10-Year	25-Year
AP8			
Pre-Development	22.6	36.2	47.3
Post-Development	11.4	29.6	41.8

As shown in the Table 1, the peak runoff rate at the analysis point under the post-development conditions are below the peak pre-development runoff rates for the 2, 10, and 25-year storm events. Based on this analysis, we do not anticipate any adverse impact on downgradient drainage systems due to the proposed development.

Redevelopment and Stormwater Quality

This project consists of the redevelopment of 6.1 acres of the existing developed Intermodal Transportation Facility. Therefore, the City of Portland Redevelopment Standard is applicable to this project.

The existing impervious area within the redevelopment window is 253,912 square feet. The proposed impervious area within the redevelopment window is 156,970 square feet, which results in a reduction of 96,942 square feet of impervious area in the redeveloped condition. See Sheets I1.0 – Pre Development Impervious Area Plan and I2.0 – Post Development Impervious Area Plan in Appendix F for the redevelopment impervious area calculations.

Pollutant loading calculations have been performed for the pre and post development conditions within the redevelopment window in accordance with Maine DEP Chapter 500 methodology for redevelopment projects. The total impervious area will be significantly reduced, therefore, the Ranked Impact Change (RIC) from the pre to post development condition is -1.22, which would typically mean that stormwater treatment is not required because the RIC is less than 0.0. However, since more than 5,000 square feet of non-roof impervious area will be reconstructed, the City of Portland requires that stormwater treatment is provided for a minimum of 50% of the total redeveloped impervious area. See Sheets R1.0 – Pre Development Pollutant Loading Plan and R2.0 – Post Development Pollutant Loading Plan in Appendix F for the redevelopment pollutant loading calculations.

Two grassed underdrained soil filters will be constructed to provide stormwater treatment at the site. The BMPs have been designed in accordance with the City of Portland and Maine DEP Chapter 500 rules. The soil filters will collect stormwater runoff from the eastern portion of the redeveloped area, which is the area of the site that will have the highest pollutant loading due to it having the most activity. The soil filters are sized to treat 1-inch over the contributing impervious area and 0.4 inches over the contributing landscaped area in accordance with the City of Portland and Maine DEP BMP regulations. The contributing areas to the stormwater filters are shown on Sheet D3.0 – Stormwater Treatment Plan in Appendix F.

The proposed stormwater management plan will collect and treat stormwater runoff from 101,665 square feet of impervious area, which results in treatment of 64.8% of the redeveloped impervious area. Stormwater treatment calculations are summarized below in Table 2.

Table 2 Water Quality Calculations										
Subcatchment Area	Impervious Area (SF)	Landscaped Area (SF)	Developed Area (SF)	Filter Area Required[1] (SF)	Filter Area Provided (SF)	Water Quality Volume Required[2] (CF)	Water Quality Volume Provided (CF)	Sediment Forebay Volume required[3] (CF)	Sediment Forebay Volume Provided (CF)	BMP
TREATED AREAS										
8.1	17,932	4,661	22,593	2953	2,993	4896	5,393	61	81	Soil Filter (SF3)
8.2	15,948	12,948	28,896							
8.3	13,690	1,133	14,823							
8.4	0	9,967	9,967							
8.5	27,395	2,137	29,532	2975	3,128	4936	5,486	69	203	Soil Filter (SF4)
8.6	16,962	1,722	18,684							
8.7	9,738	0	9,738							
8.8	0	9,646	9,646							
TOTAL TREATED	**101,665**	**42,214**	143,879							
TOTAL REDEVELOPED IMPERVIOUS AREA	**156,970**									
PERCENT REDEVELOPED IMPERVIOUS AREA TREATED	**64.8%**									

Notes:
1. Filter area required is calculated at 5% of contributing impervious area and 2% of contributing landscaped area.
2. Water quality volume required is calculated as 1" over the contributing impervious area plus 0.4" over the contributing landscaped area
3. Sediment Volume Required is calculated as Sanded Area (acres) x 500lbs/acre x 90 lbs/CF x 10 storms/year.
4. See Sheet I2.0 for Total Redeveloped Impervious Area.

Urban Impaired Stream Standard

The project is located within the Capisic Brook Urban Impaired Stream (UIS) watershed, as identified by the Maine DEP. Since the project results in a net reduction of 96,942 square feet of impervious area from the existing condition, the UIS Standard is not applicable to this project. However, the proposed design achieves significant UIS mitigation credits due to the reduction of impervious area and treatment of redeveloped impervious and landscaped areas. Since there may be future redevelopment and/or expansions on the UNE campus, it is important to track these mitigation credits and bank them for use on future development within the UIS watershed.

Table 3 below summarizes the UIS mitigation credits achieved for this project based on treatment and elimination of source areas per Maine DEP Chapter 501 standards.

Table 3 Urban Impaired Stream Mitgation Credits Achieved					
Mitigation Activity	**Development Type**	**Area (SF)**	**Area (AC)**	**Credit Per Acre**	**Credit Earned**
Retrofit with General Standards at Required Size*	Medium Use Parking Lot	92,698	2.13	1.2	2.55
	Roof or Other Impervious Areas	8,967	0.21	0.6	0.12
	Landscaped Areas	42,215	0.97	0.3	0.29
Eliminate Impervious Source Area, Replace with Landscaped Area	Medium Use Parking Lot	96,142	2.21	0.7	1.54
	Roof or Other Impervious Areas	800	0.02	0.2	0.00
Cumulative UIS Mitigation Credits Achieved for Parking Improvements Project and Banked for Future Developmen					**4.52**
Previous UIS Mitigation Credits Achieved from CFHS Project and Banked for Future Development					2.78
Total Campus UIS Mitigation Credit Achieved and Banked for Future Development					**7.30**

*Areas treated in grassed underdrained soil filters SF3 and SF4.

As indicated in Table 3 above, the project has achieved 4.52 UIS mitigation credits. The table also shows the 2.78 previously achieved UIS credits from the recently permitted Center for Health Sciences Project. From both projects, there is a total campus credit of 7.30 that will be banked for potential future development projects onsite.

Erosion Control

BMPs such as a stabilized construction entrance, silt fence and/or filter berms of erosion control mix, riprap pipe inlet and outlet protection, turf reinforcement matting, mulch, and permanent seeding will be used to prevent erosion and downstream migration of sediment during construction. The locations of temporary and permanent erosion control measures and erosion and sedimentation control notes and details are shown on the design drawing set.

Inspection & Maintenance

The University of New England will be responsible for maintaining the stormwater facilities for the project. An Inspection and Maintenance Plan is included as Appendix D. The plan includes a draft of a Stormwater Drainage System Maintenance Agreement, to be finalized and recorded as a condition of approval.

Conclusions

The stormwater management for this project includes a variety of BMPs to control both the quantity and quality of stormwater runoff. The HydroCAD calculations show that the peak runoff rates at the analysis points under post-development conditions are estimated to be equal to or less than the peak pre-development runoff rates for the 2, 10, and 25-year storm events. This meets the stormwater quantity requirements of the City of Portland ordinance. Stormwater treatment BMPs have been designed to treat stormwater runoff from more than 50% of the redeveloped impervious area in compliance with the City of Portland ordinance. Based on the information provided, no adverse impacts to downstream receiving bodies are anticipated.

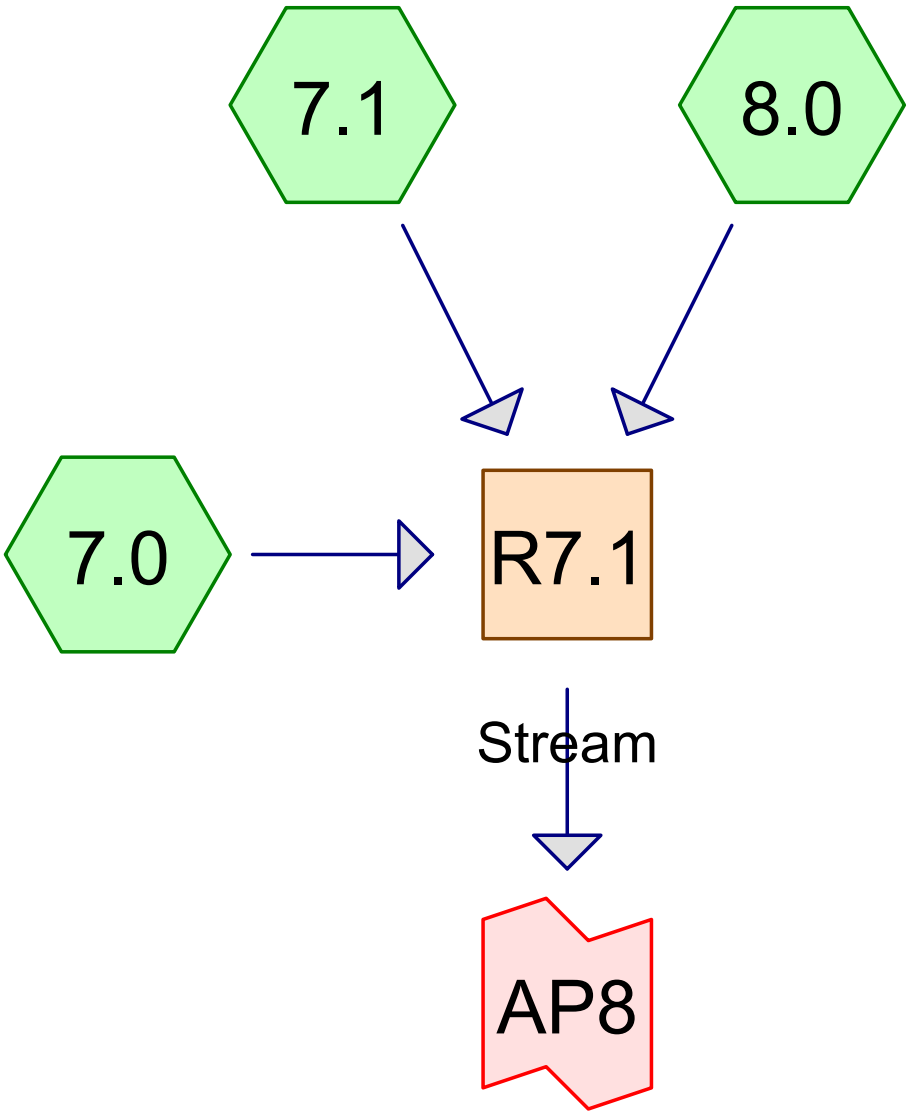


SUPPORTING DATA AND CALCULATIONS

The following material presents calculations and copies of source material used during the analysis for this study.

Appendix A: Pre-Development HydroCAD Calculations
Appendix B: Post-Development HydroCAD Calculations
Appendix C: Stormwater BMP Spillway Calculations
Appendix D: Inspection & Maintenance Plan & City of Portland Maintenance Agreement
Appendix E: USDA NRCS Soil Map
Appendix F: Drainage Plans
- I1.0 – Pre Development Impervious Area Plan
- I2.0 – Post Development Impervious Area Plan
- R1.0 – Pre Development Pollutant Loading Plan
- R2.0 – Post Development Pollutant Loading Plan
- D1.0 – Pre Development Drainage Plan
- D2.0 – Post Development Drainage Plan
- D3.0 – Stormwater Treatment Plan

Appendix A:
Pre-Development HydroCAD Calculations



Subcat Reach Pond Link

Routing Diagram for Pre-Development_PARK
Prepared by Site Design Associates, Printed 12/15/2022
HydroCAD® 10.00-26 s/n 08018 © 2020 HydroCAD Software Solutions LLC

Time span=0.00-24.00 hrs, dt=0.02 hrs, 1201 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 7.0: Runoff Area=332,135 sf 2.58% Impervious Runoff Depth>1.07"
Flow Length=270' Tc=49.4 min CN=76 Runoff=4.07 cfs 0.679 af

Subcatchment 7.1: Runoff Area=23,135 sf 59.74% Impervious Runoff Depth>1.99"
Tc=5.0 min CN=89 Runoff=1.27 cfs 0.088 af

Subcatchment 8.0: Runoff Area=336,062 sf 87.02% Impervious Runoff Depth>2.55"
Tc=5.0 min CN=95 Runoff=22.54 cfs 1.636 af

Reach R7.1: Stream Avg. Flow Depth=1.14' Max Vel=4.77 fps Inflow=24.44 cfs 2.403 af
n=0.025 L=860.0' S=0.0093 '/' Capacity=63.12 cfs Outflow=22.58 cfs 2.397 af

Link AP8: Inflow=22.58 cfs 2.397 af
Primary=22.58 cfs 2.397 af

Total Runoff Area = 15.871 ac Runoff Volume = 2.403 af Average Runoff Depth = 1.82"
54.46% Pervious = 8.643 ac 45.54% Impervious = 7.228 ac

Summary for Subcatchment 7.0:

Runoff = 4.07 cfs @ 12.72 hrs, Volume= 0.679 af, Depth> 1.07"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	8,574	98	Impervious
	1,029	74	>75% Grass cover, Good, HSG C
	19,605	65	Brush, Good, HSG C
	48,667	73	Brush, Good, HSG D
	1,406	70	Woods, Good, HSG C
	252,854	77	Woods, Good, HSG D
	332,135	76	Weighted Average
	323,561		97.42% Pervious Area
	8,574		2.58% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
46.6	150	0.0270	0.05		**Sheet Flow, AB** Woods: Dense underbrush n= 0.800 P2= 3.10"
2.8	120	0.0800	0.71		**Shallow Concentrated Flow, BC** Forest w/Heavy Litter Kv= 2.5 fps
49.4	270	Total			

Summary for Subcatchment 7.1:

Runoff = 1.27 cfs @ 12.07 hrs, Volume= 0.088 af, Depth> 1.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	13,822	98	Impervious
	5,192	74	>75% Grass cover, Good, HSG C
	4,121	80	>75% Grass cover, Good, HSG D
	23,135	89	Weighted Average
	9,313		40.26% Pervious Area
	13,822		59.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 8.0:

Runoff = 22.54 cfs @ 12.07 hrs, Volume= 1.636 af, Depth> 2.55"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	292,441	98	Impervious
	8,405	74	>75% Grass cover, Good, HSG C
	8,516	80	>75% Grass cover, Good, HSG D
	26,700	70	Woods, Good, HSG C
	336,062	95	Weighted Average
	43,621		12.98% Pervious Area
	292,441		87.02% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Reach R7.1: Stream

Inflow Area = 15.871 ac, 45.54% Impervious, Inflow Depth > 1.82" for 2-Yr Storm event
Inflow = 24.44 cfs @ 12.07 hrs, Volume= 2.403 af
Outflow = 22.58 cfs @ 12.11 hrs, Volume= 2.397 af, Atten= 8%, Lag= 2.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Max. Velocity= 4.77 fps, Min. Travel Time= 3.0 min
Avg. Velocity = 1.57 fps, Avg. Travel Time= 9.1 min

Peak Storage= 4,069 cf @ 12.11 hrs
Average Depth at Peak Storage= 1.14'
Bank-Full Depth= 2.00' Flow Area= 10.0 sf, Capacity= 63.12 cfs

3.00' x 2.00' deep channel, n= 0.025 Earth, clean & winding
Side Slope Z-value= 1.0 '/' Top Width= 7.00'
Length= 860.0' Slope= 0.0093 '/'
Inlet Invert= 76.00', Outlet Invert= 68.00'



Summary for Link AP8:

Inflow Area = 15.871 ac, 45.54% Impervious, Inflow Depth > 1.81" for 2-Yr Storm event
Inflow = 22.58 cfs @ 12.11 hrs, Volume= 2.397 af
Primary = 22.58 cfs @ 12.11 hrs, Volume= 2.397 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs

Time span=0.00-24.00 hrs, dt=0.02 hrs, 1201 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 7.0: Runoff Area=332,135 sf 2.58% Impervious Runoff Depth>2.18"
Flow Length=270' Tc=49.4 min CN=76 Runoff=8.66 cfs 1.388 af

Subcatchment 7.1: Runoff Area=23,135 sf 59.74% Impervious Runoff Depth>3.39"
Tc=5.0 min CN=89 Runoff=2.13 cfs 0.150 af

Subcatchment 8.0: Runoff Area=336,062 sf 87.02% Impervious Runoff Depth>4.02"
Tc=5.0 min CN=95 Runoff=34.69 cfs 2.585 af

Reach R7.1: Stream Avg. Flow Depth=1.48' Max Vel=5.44 fps Inflow=38.67 cfs 4.123 af
n=0.025 L=860.0' S=0.0093 '/' Capacity=63.12 cfs Outflow=36.24 cfs 4.115 af

Link AP8: Inflow=36.24 cfs 4.115 af
Primary=36.24 cfs 4.115 af

Total Runoff Area = 15.871 ac Runoff Volume = 4.123 af Average Runoff Depth = 3.12"
54.46% Pervious = 8.643 ac 45.54% Impervious = 7.228 ac

Summary for Subcatchment 7.0:

Runoff = 8.66 cfs @ 12.68 hrs, Volume= 1.388 af, Depth> 2.18"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	8,574	98	Impervious
	1,029	74	>75% Grass cover, Good, HSG C
	19,605	65	Brush, Good, HSG C
	48,667	73	Brush, Good, HSG D
	1,406	70	Woods, Good, HSG C
	252,854	77	Woods, Good, HSG D
	332,135	76	Weighted Average
	323,561		97.42% Pervious Area
	8,574		2.58% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
46.6	150	0.0270	0.05		**Sheet Flow, AB** Woods: Dense underbrush n= 0.800 P2= 3.10"
2.8	120	0.0800	0.71		**Shallow Concentrated Flow, BC** Forest w/Heavy Litter Kv= 2.5 fps
49.4	270	Total			

Summary for Subcatchment 7.1:

Runoff = 2.13 cfs @ 12.07 hrs, Volume= 0.150 af, Depth> 3.39"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	13,822	98	Impervious
	5,192	74	>75% Grass cover, Good, HSG C
	4,121	80	>75% Grass cover, Good, HSG D
	23,135	89	Weighted Average
	9,313		40.26% Pervious Area
	13,822		59.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 8.0:

Runoff = 34.69 cfs @ 12.07 hrs, Volume= 2.585 af, Depth> 4.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	292,441	98	Impervious
	8,405	74	>75% Grass cover, Good, HSG C
	8,516	80	>75% Grass cover, Good, HSG D
	26,700	70	Woods, Good, HSG C
	336,062	95	Weighted Average
	43,621		12.98% Pervious Area
	292,441		87.02% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Reach R7.1: Stream

Inflow Area = 15.871 ac, 45.54% Impervious, Inflow Depth > 3.12" for 10-Yr Storm event
Inflow = 38.67 cfs @ 12.07 hrs, Volume= 4.123 af
Outflow = 36.24 cfs @ 12.10 hrs, Volume= 4.115 af, Atten= 6%, Lag= 1.8 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Max. Velocity= 5.44 fps, Min. Travel Time= 2.6 min
Avg. Velocity = 1.86 fps, Avg. Travel Time= 7.7 min

Peak Storage= 5,727 cf @ 12.10 hrs
Average Depth at Peak Storage= 1.48'
Bank-Full Depth= 2.00' Flow Area= 10.0 sf, Capacity= 63.12 cfs

3.00' x 2.00' deep channel, n= 0.025 Earth, clean & winding
Side Slope Z-value= 1.0 '/' Top Width= 7.00'
Length= 860.0' Slope= 0.0093 '/'
Inlet Invert= 76.00', Outlet Invert= 68.00'



Summary for Link AP8:

Inflow Area = 15.871 ac, 45.54% Impervious, Inflow Depth > 3.11" for 10-Yr Storm event
Inflow = 36.24 cfs @ 12.10 hrs, Volume= 4.115 af
Primary = 36.24 cfs @ 12.10 hrs, Volume= 4.115 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs

Time span=0.00-24.00 hrs, dt=0.02 hrs, 1201 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 7.0: Runoff Area=332,135 sf 2.58% Impervious Runoff Depth>3.17"
Flow Length=270' Tc=49.4 min CN=76 Runoff=12.65 cfs 2.017 af

Subcatchment 7.1: Runoff Area=23,135 sf 59.74% Impervious Runoff Depth>4.54"
Tc=5.0 min CN=89 Runoff=2.81 cfs 0.201 af

Subcatchment 8.0: Runoff Area=336,062 sf 87.02% Impervious Runoff Depth>5.21"
Tc=5.0 min CN=95 Runoff=44.30 cfs 3.349 af

Reach R7.1: Stream Avg. Flow Depth=1.72' Max Vel=5.85 fps Inflow=50.13 cfs 5.567 af
n=0.025 L=860.0' S=0.0093 '/' Capacity=63.12 cfs Outflow=47.31 cfs 5.558 af

Link AP8: Inflow=47.31 cfs 5.558 af
Primary=47.31 cfs 5.558 af

Total Runoff Area = 15.871 ac Runoff Volume = 5.567 af Average Runoff Depth = 4.21"
54.46% Pervious = 8.643 ac 45.54% Impervious = 7.228 ac

Summary for Subcatchment 7.0:

Runoff = 12.65 cfs @ 12.68 hrs, Volume= 2.017 af, Depth> 3.17"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr 25-Yr Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	8,574	98	Impervious
	1,029	74	>75% Grass cover, Good, HSG C
	19,605	65	Brush, Good, HSG C
	48,667	73	Brush, Good, HSG D
	1,406	70	Woods, Good, HSG C
	252,854	77	Woods, Good, HSG D
	332,135	76	Weighted Average
	323,561		97.42% Pervious Area
	8,574		2.58% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
46.6	150	0.0270	0.05		**Sheet Flow, AB** Woods: Dense underbrush n= 0.800 P2= 3.10"
2.8	120	0.0800	0.71		**Shallow Concentrated Flow, BC** Forest w/Heavy Litter Kv= 2.5 fps
49.4	270	Total			

Summary for Subcatchment 7.1:

Runoff = 2.81 cfs @ 12.07 hrs, Volume= 0.201 af, Depth> 4.54"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr 25-Yr Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	13,822	98	Impervious
	5,192	74	>75% Grass cover, Good, HSG C
	4,121	80	>75% Grass cover, Good, HSG D
	23,135	89	Weighted Average
	9,313		40.26% Pervious Area
	13,822		59.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 8.0:

Runoff = 44.30 cfs @ 12.07 hrs, Volume= 3.349 af, Depth> 5.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr 25-Yr Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	292,441	98	Impervious
	8,405	74	>75% Grass cover, Good, HSG C
	8,516	80	>75% Grass cover, Good, HSG D
	26,700	70	Woods, Good, HSG C
	336,062	95	Weighted Average
	43,621		12.98% Pervious Area
	292,441		87.02% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Reach R7.1: Stream

Inflow Area = 15.871 ac, 45.54% Impervious, Inflow Depth > 4.21" for 25-Yr Storm event
Inflow = 50.13 cfs @ 12.07 hrs, Volume= 5.567 af
Outflow = 47.31 cfs @ 12.10 hrs, Volume= 5.558 af, Atten= 6%, Lag= 1.7 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Max. Velocity= 5.85 fps, Min. Travel Time= 2.5 min
Avg. Velocity = 2.04 fps, Avg. Travel Time= 7.0 min

Peak Storage= 6,958 cf @ 12.10 hrs
Average Depth at Peak Storage= 1.72'
Bank-Full Depth= 2.00' Flow Area= 10.0 sf, Capacity= 63.12 cfs

3.00' x 2.00' deep channel, n= 0.025 Earth, clean & winding
Side Slope Z-value= 1.0 '/' Top Width= 7.00'
Length= 860.0' Slope= 0.0093 '/'
Inlet Invert= 76.00', Outlet Invert= 68.00'

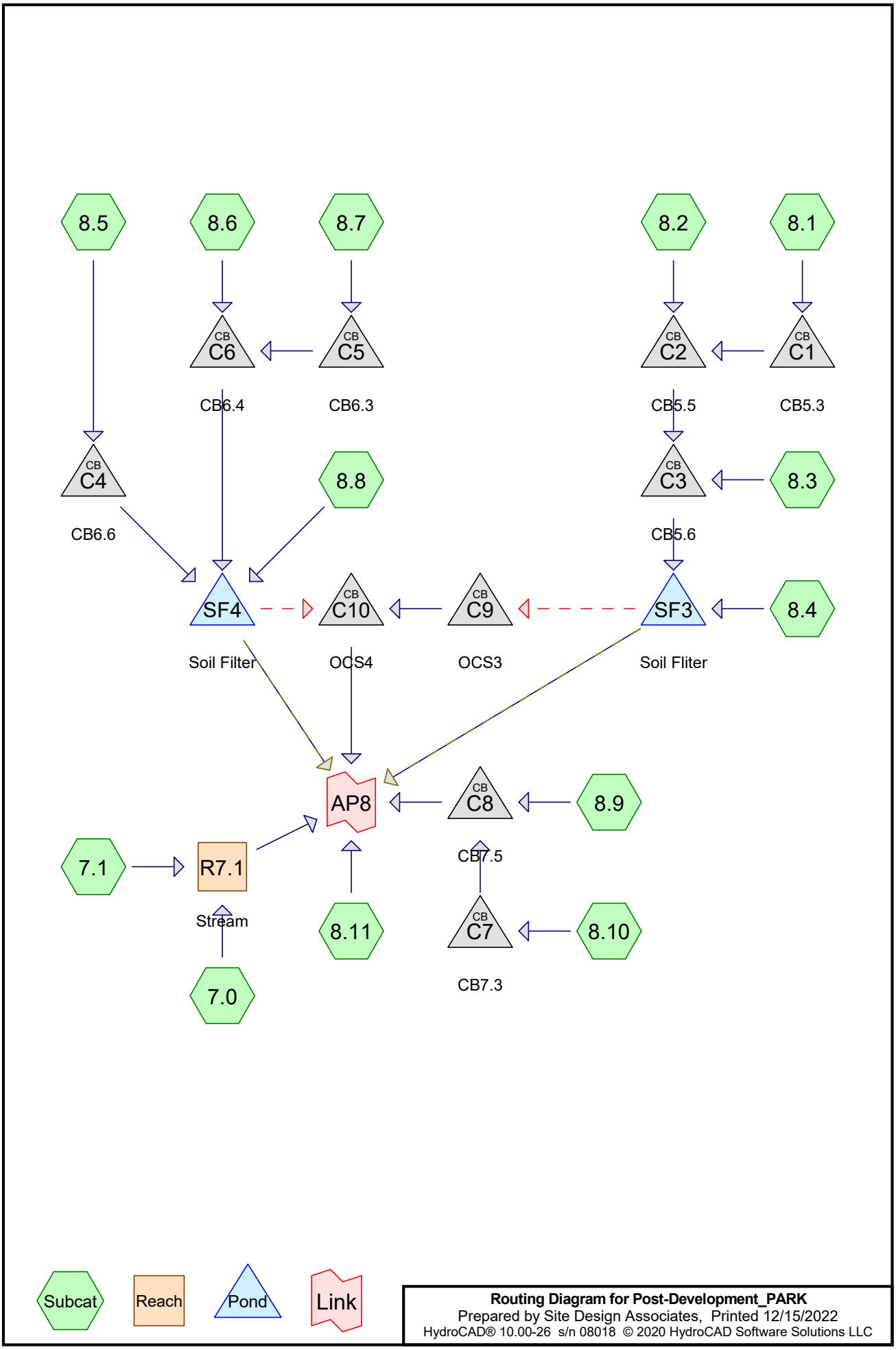


Summary for Link AP8:

Inflow Area = 15.871 ac, 45.54% Impervious, Inflow Depth > 4.20" for 25-Yr Storm event
Inflow = 47.31 cfs @ 12.10 hrs, Volume= 5.558 af
Primary = 47.31 cfs @ 12.10 hrs, Volume= 5.558 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs

Appendix B:
Post-Development HydroCAD Calculations


8.5
8.6
8.7
8.2
8.1
CB C6
CB C5
CB C2
CB C1
CB6.4
CB6.3
CB5.5
CB5.3
CB C4
8.8
CB C3
8.3
CB6.6
CB5.6
SF4
CB C10
CB C9
SF3
8.4
Soil Filter
OCS4
OCS3
Soil Fliter
AP8
CB C8
8.9
7.1
R7.1
CB7.5
Stream
8.11
CB C7
8.10
7.0
CB7.3
Subcat
Reach
Pond
Link
Routing Diagram for Post-Development_PARK
Prepared by Site Design Associates, Printed 12/15/2022
HydroCAD® 10.00-26 s/n 08018 © 2020 HydroCAD Software Solutions LLC

Time span=0.00-24.00 hrs, dt=0.02 hrs, 1201 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 7.0: Runoff Area=332,135 sf 2.58% Impervious Runoff Depth>1.07"
Flow Length=270' Tc=49.4 min CN=76 Runoff=4.07 cfs 0.679 af

Subcatchment 7.1: Runoff Area=14,953 sf 2.15% Impervious Runoff Depth>1.26"
Tc=5.0 min CN=79 Runoff=0.52 cfs 0.036 af

Subcatchment 8.1: Runoff Area=22,593 sf 79.37% Impervious Runoff Depth>2.35"
Tc=5.0 min CN=93 Runoff=1.43 cfs 0.101 af

Subcatchment 8.10: Runoff Area=82,702 sf 61.99% Impervious Runoff Depth>1.91"
Tc=5.0 min CN=88 Runoff=4.38 cfs 0.302 af

Subcatchment 8.11: Runoff Area=73,887 sf 20.41% Impervious Runoff Depth>1.53"
Tc=5.0 min CN=83 Runoff=3.13 cfs 0.216 af

Subcatchment 8.2: Runoff Area=28,897 sf 55.19% Impervious Runoff Depth>1.99"
Tc=5.0 min CN=89 Runoff=1.59 cfs 0.110 af

Subcatchment 8.3: Runoff Area=14,823 sf 92.36% Impervious Runoff Depth>2.65"
Tc=5.0 min CN=96 Runoff=1.02 cfs 0.075 af

Subcatchment 8.4: Runoff Area=9,967 sf 0.00% Impervious Runoff Depth>1.32"
Tc=5.0 min CN=80 Runoff=0.36 cfs 0.025 af

Subcatchment 8.5: Runoff Area=29,532 sf 92.76% Impervious Runoff Depth>2.65"
Tc=5.0 min CN=96 Runoff=2.03 cfs 0.150 af

Subcatchment 8.6: Runoff Area=18,684 sf 90.78% Impervious Runoff Depth>2.65"
Tc=5.0 min CN=96 Runoff=1.28 cfs 0.095 af

Subcatchment 8.7: Runoff Area=9,738 sf 100.00% Impervious Runoff Depth>2.87"
Tc=5.0 min CN=98 Runoff=0.69 cfs 0.053 af

Subcatchment 8.8: Runoff Area=9,646 sf 0.00% Impervious Runoff Depth>1.32"
Tc=5.0 min CN=80 Runoff=0.35 cfs 0.024 af

Subcatchment 8.9: Runoff Area=43,780 sf 92.94% Impervious Runoff Depth>2.65"
Tc=5.0 min CN=96 Runoff=3.01 cfs 0.222 af

Reach R7.1: Stream Avg. Flow Depth=0.42' Max Vel=2.82 fps Inflow=4.14 cfs 0.715 af
n=0.025 L=860.0' S=0.0093 '/' Capacity=63.12 cfs Outflow=4.10 cfs 0.711 af

Pond C1: CB5.3 Peak Elev=76.55' Inflow=1.43 cfs 0.101 af
12.0" Round Culvert n=0.013 L=80.0' S=0.0053 '/' Outflow=1.43 cfs 0.101 af

Pond C10: OCS4 Peak Elev=71.36' Inflow=2.59 cfs 0.201 af
24.0" Round Culvert n=0.013 L=63.0' S=0.0052 '/' Outflow=2.59 cfs 0.201 af

Pond C2: CB5.5 Peak Elev=75.99' Inflow=3.02 cfs 0.211 af
15.0" Round Culvert n=0.013 L=209.0' S=0.0051 '/' Outflow=3.02 cfs 0.211 af

Pond C3: CB5.6 Peak Elev=74.95' Inflow=4.04 cfs 0.287 af
18.0" Round Culvert n=0.013 L=62.0' S=0.0052 '/' Outflow=4.04 cfs 0.287 af

Pond C4: CB6.6 Peak Elev=74.82' Inflow=2.03 cfs 0.150 af
12.0" Round Culvert n=0.013 L=74.0' S=0.0050 '/' Outflow=2.03 cfs 0.150 af

Pond C5: CB6.3 Peak Elev=75.60' Inflow=0.69 cfs 0.053 af
12.0" Round Culvert n=0.013 L=168.0' S=0.0083 '/' Outflow=0.69 cfs 0.053 af

Pond C6: CB6.4 Peak Elev=74.75' Inflow=1.98 cfs 0.148 af
12.0" Round Culvert n=0.013 L=78.0' S=0.0026 '/' Outflow=1.98 cfs 0.148 af

Pond C7: CB7.3 Peak Elev=74.87' Inflow=4.38 cfs 0.302 af
18.0" Round Culvert n=0.013 L=196.0' S=0.0130 '/' Outflow=4.38 cfs 0.302 af

Pond C8: CB7.5 Peak Elev=72.55' Inflow=7.38 cfs 0.523 af
24.0" Round Culvert n=0.013 L=96.0' S=0.0083 '/' Outflow=7.38 cfs 0.523 af

Pond C9: OCS3 Peak Elev=71.67' Inflow=1.23 cfs 0.100 af
18.0" Round Culvert n=0.013 L=77.0' S=0.0053 '/' Outflow=1.23 cfs 0.100 af

Pond SF3: Soil Fliter Peak Elev=74.65' Storage=6,046 cf Inflow=4.40 cfs 0.312 af
Primary=0.08 cfs 0.095 af Secondary=1.23 cfs 0.100 af Tertiary=0.00 cfs 0.000 af Outflow=1.31 cfs 0.194 af

Pond SF4: Soil Filter Peak Elev=74.67' Storage=6,190 cf Inflow=4.36 cfs 0.322 af
Primary=0.07 cfs 0.103 af Secondary=1.39 cfs 0.101 af Tertiary=0.00 cfs 0.000 af Outflow=1.46 cfs 0.204 af

Link AP8: Inflow=11.40 cfs 1.849 af
Primary=11.40 cfs 1.849 af

Total Runoff Area = 15.871 ac Runoff Volume = 2.088 af Average Runoff Depth = 1.58"
68.52% Pervious = 10.876 ac 31.48% Impervious = 4.995 ac

Summary for Subcatchment 7.0:

Runoff = 4.07 cfs @ 12.72 hrs, Volume= 0.679 af, Depth> 1.07"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	8,574	98	Impervious
	1,029	74	>75% Grass cover, Good, HSG C
	19,605	65	Brush, Good, HSG C
	48,667	73	Brush, Good, HSG D
	1,406	70	Woods, Good, HSG C
	252,854	77	Woods, Good, HSG D
	332,135	76	Weighted Average
	323,561		97.42% Pervious Area
	8,574		2.58% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
46.6	150	0.0270	0.05		**Sheet Flow, AB** Woods: Dense underbrush n= 0.800 P2= 3.10"
2.8	120	0.0800	0.71		**Shallow Concentrated Flow, BC** Forest w/Heavy Litter Kv= 2.5 fps
49.4	270	Total			

Summary for Subcatchment 7.1:

Runoff = 0.52 cfs @ 12.08 hrs, Volume= 0.036 af, Depth> 1.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	321	98	Impervious
	4,645	74	>75% Grass cover, Good, HSG C
	9,987	80	>75% Grass cover, Good, HSG D
	14,953	79	Weighted Average
	14,632		97.85% Pervious Area
	321		2.15% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 8.1:

Runoff = 1.43 cfs @ 12.07 hrs, Volume= 0.101 af, Depth> 2.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	17,932	98	Impervious
	3,258	74	>75% Grass cover, Good, HSG C
	1,403	80	>75% Grass cover, Good, HSG D
	22,593	93	Weighted Average
	4,661		20.63% Pervious Area
	17,932		79.37% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 8.10:

Runoff = 4.38 cfs @ 12.07 hrs, Volume= 0.302 af, Depth> 1.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	51,270	98	Impervious
	4,732	74	>75% Grass cover, Good, HSG C
	26,700	70	Woods, Good, HSG C
	82,702	88	Weighted Average
	31,432		38.01% Pervious Area
	51,270		61.99% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 8.11:

Runoff = 3.13 cfs @ 12.08 hrs, Volume= 0.216 af, Depth> 1.53"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	15,081	98	Impervious
	2,598	74	>75% Grass cover, Good, HSG C
	56,208	80	>75% Grass cover, Good, HSG D
	73,887	83	Weighted Average
	58,806		79.59% Pervious Area
	15,081		20.41% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 8.2:

Runoff = 1.59 cfs @ 12.07 hrs, Volume= 0.110 af, Depth> 1.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	15,948	98	Impervious
	6,561	74	>75% Grass cover, Good, HSG C
	6,388	80	>75% Grass cover, Good, HSG D
	28,897	89	Weighted Average
	12,949		44.81% Pervious Area
	15,948		55.19% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 8.3:

Runoff = 1.02 cfs @ 12.07 hrs, Volume= 0.075 af, Depth> 2.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	13,690	98	Impervious
	895	74	>75% Grass cover, Good, HSG C
	238	80	>75% Grass cover, Good, HSG D
	14,823	96	Weighted Average
	1,133		7.64% Pervious Area
	13,690		92.36% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 8.4:

Runoff = 0.36 cfs @ 12.08 hrs, Volume= 0.025 af, Depth> 1.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.10"

Area (sf)	CN	Description
9,967	80	>75% Grass cover, Good, HSG D
9,967		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 8.5:

Runoff = 2.03 cfs @ 12.07 hrs, Volume= 0.150 af, Depth> 2.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	27,395	98	Impervious
	1,533	74	>75% Grass cover, Good, HSG C
	604	80	>75% Grass cover, Good, HSG D
	29,532	96	Weighted Average
	2,137		7.24% Pervious Area
	27,395		92.76% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 8.6:

Runoff = 1.28 cfs @ 12.07 hrs, Volume= 0.095 af, Depth> 2.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	16,962	98	Impervious
	1,216	74	>75% Grass cover, Good, HSG C
	506	80	>75% Grass cover, Good, HSG D
	18,684	96	Weighted Average
	1,722		9.22% Pervious Area
	16,962		90.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 8.7:

Runoff = 0.69 cfs @ 12.07 hrs, Volume= 0.053 af, Depth> 2.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	9,738	98	Impervious
	9,738		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 8.8:

Runoff = 0.35 cfs @ 12.08 hrs, Volume= 0.024 af, Depth> 1.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.10"

Area (sf)	CN	Description
9,646	80	>75% Grass cover, Good, HSG D
9,646		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 8.9:

Runoff = 3.01 cfs @ 12.07 hrs, Volume= 0.222 af, Depth> 2.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	40,689	98	Impervious
	2,672	74	>75% Grass cover, Good, HSG C
	419	80	>75% Grass cover, Good, HSG D
	43,780	96	Weighted Average
	3,091		7.06% Pervious Area
	40,689		92.94% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Reach R7.1: Stream

Inflow Area = 7.968 ac, 2.56% Impervious, Inflow Depth > 1.08" for 2-Yr Storm event
Inflow = 4.14 cfs @ 12.71 hrs, Volume= 0.715 af
Outflow = 4.10 cfs @ 12.78 hrs, Volume= 0.711 af, Atten= 1%, Lag= 3.9 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Max. Velocity= 2.82 fps, Min. Travel Time= 5.1 min
Avg. Velocity = 1.22 fps, Avg. Travel Time= 11.8 min

Peak Storage= 1,248 cf @ 12.78 hrs
Average Depth at Peak Storage= 0.42'
Bank-Full Depth= 2.00' Flow Area= 10.0 sf, Capacity= 63.12 cfs

3.00' x 2.00' deep channel, n= 0.025 Earth, clean & winding
Side Slope Z-value= 1.0 '/' Top Width= 7.00'
Length= 860.0' Slope= 0.0093 '/'
Inlet Invert= 76.00', Outlet Invert= 68.00'



Summary for Pond C1: CB5.3

Inflow Area = 0.519 ac, 79.37% Impervious, Inflow Depth > 2.35" for 2-Yr Storm event
Inflow = 1.43 cfs @ 12.07 hrs, Volume= 0.101 af
Outflow = 1.43 cfs @ 12.07 hrs, Volume= 0.101 af, Atten= 0%, Lag= 0.0 min
Primary = 1.43 cfs @ 12.07 hrs, Volume= 0.101 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Peak Elev= 76.55' @ 12.08 hrs
Flood Elev= 80.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	75.80'	**12.0" Round Culvert** L= 80.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 75.80' / 75.38' S= 0.0053 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.39 cfs @ 12.07 hrs HW=76.54' TW=75.98' (Dynamic Tailwater)
1=Culvert (Outlet Controls 1.39 cfs @ 3.08 fps)

Summary for Pond C10: OCS4

Inflow = 2.59 cfs @ 12.37 hrs, Volume= 0.201 af
Outflow = 2.59 cfs @ 12.37 hrs, Volume= 0.201 af, Atten= 0%, Lag= 0.0 min
Primary = 2.59 cfs @ 12.37 hrs, Volume= 0.201 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Peak Elev= 71.36' @ 12.37 hrs
Flood Elev= 74.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	70.59'	**24.0" Round Culvert** L= 63.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 70.59' / 70.26' S= 0.0052 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=2.58 cfs @ 12.37 hrs HW=71.36' TW=0.00' (Dynamic Tailwater)
1=Culvert (Barrel Controls 2.58 cfs @ 3.43 fps)

Summary for Pond C2: CB5.5

Inflow Area = 1.182 ac, 65.80% Impervious, Inflow Depth > 2.15" for 2-Yr Storm event
Inflow = 3.02 cfs @ 12.07 hrs, Volume= 0.211 af
Outflow = 3.02 cfs @ 12.07 hrs, Volume= 0.211 af, Atten= 0%, Lag= 0.0 min
Primary = 3.02 cfs @ 12.07 hrs, Volume= 0.211 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs

Peak Elev= 75.99' @ 12.08 hrs
Flood Elev= 79.23'

Device	Routing	Invert	Outlet Devices
#1	Primary	74.89'	**15.0" Round Culvert** L= 209.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 74.89' / 73.82' S= 0.0051 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.97 cfs @ 12.07 hrs HW=75.98' TW=74.95' (Dynamic Tailwater)
1=Culvert (Outlet Controls 2.97 cfs @ 3.48 fps)

Summary for Pond C3: CB5.6

Inflow Area = 1.522 ac, 71.74% Impervious, Inflow Depth > 2.26" for 2-Yr Storm event
Inflow = 4.04 cfs @ 12.07 hrs, Volume= 0.287 af
Outflow = 4.04 cfs @ 12.07 hrs, Volume= 0.287 af, Atten= 0%, Lag= 0.0 min
Primary = 4.04 cfs @ 12.07 hrs, Volume= 0.287 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Peak Elev= 74.95' @ 12.07 hrs
Flood Elev= 78.90'

Device	Routing	Invert	Outlet Devices
#1	Primary	73.82'	**18.0" Round Culvert** L= 62.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 73.82' / 73.50' S= 0.0052 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=4.01 cfs @ 12.07 hrs HW=74.95' TW=74.15' (Dynamic Tailwater)
1=Culvert (Barrel Controls 4.01 cfs @ 3.91 fps)

Summary for Pond C4: CB6.6

Inflow Area = 0.678 ac, 92.76% Impervious, Inflow Depth > 2.65" for 2-Yr Storm event
Inflow = 2.03 cfs @ 12.07 hrs, Volume= 0.150 af
Outflow = 2.03 cfs @ 12.07 hrs, Volume= 0.150 af, Atten= 0%, Lag= 0.0 min
Primary = 2.03 cfs @ 12.07 hrs, Volume= 0.150 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Peak Elev= 74.82' @ 12.09 hrs
Flood Elev= 77.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	73.87'	**12.0" Round Culvert** L= 74.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 73.87' / 73.50' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.93 cfs @ 12.07 hrs HW=74.81' TW=74.26' (Dynamic Tailwater)
1=Culvert (Outlet Controls 1.93 cfs @ 3.26 fps)

Summary for Pond C5: CB6.3

Inflow Area = 0.224 ac,100.00% Impervious, Inflow Depth > 2.87" for 2-Yr Storm event
Inflow = 0.69 cfs @ 12.07 hrs, Volume= 0.053 af
Outflow = 0.69 cfs @ 12.07 hrs, Volume= 0.053 af, Atten= 0%, Lag= 0.0 min
Primary = 0.69 cfs @ 12.07 hrs, Volume= 0.053 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Peak Elev= 75.60' @ 12.08 hrs
Flood Elev= 79.10'

Device	Routing	Invert	Outlet Devices
#1	Primary	75.10'	**12.0" Round Culvert** L= 168.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 75.10' / 73.70' S= 0.0083 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.68 cfs @ 12.07 hrs HW=75.60' TW=74.75' (Dynamic Tailwater)
1=Culvert (Outlet Controls 0.68 cfs @ 2.54 fps)

Summary for Pond C6: CB6.4

Inflow Area = 0.652 ac, 93.94% Impervious, Inflow Depth > 2.72" for 2-Yr Storm event
Inflow = 1.98 cfs @ 12.07 hrs, Volume= 0.148 af
Outflow = 1.98 cfs @ 12.07 hrs, Volume= 0.148 af, Atten= 0%, Lag= 0.0 min
Primary = 1.98 cfs @ 12.07 hrs, Volume= 0.148 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Peak Elev= 74.75' @ 12.07 hrs
Flood Elev= 76.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	73.70'	**12.0" Round Culvert** L= 78.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 73.70' / 73.50' S= 0.0026 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.96 cfs @ 12.07 hrs HW=74.75' TW=74.26' (Dynamic Tailwater)
1=Culvert (Barrel Controls 1.96 cfs @ 2.96 fps)

Summary for Pond C7: CB7.3

Inflow Area = 1.899 ac, 61.99% Impervious, Inflow Depth > 1.91" for 2-Yr Storm event
Inflow = 4.38 cfs @ 12.07 hrs, Volume= 0.302 af
Outflow = 4.38 cfs @ 12.07 hrs, Volume= 0.302 af, Atten= 0%, Lag= 0.0 min
Primary = 4.38 cfs @ 12.07 hrs, Volume= 0.302 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Peak Elev= 74.87' @ 12.07 hrs
Flood Elev= 76.85'

Device	Routing	Invert	Outlet Devices
#1	Primary	73.85'	**18.0" Round Culvert** L= 196.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 73.85' / 71.30' S= 0.0130 '/' Cc= 0.900

n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=4.35 cfs @ 12.07 hrs HW=74.86' TW=72.55' (Dynamic Tailwater)
1=Culvert (Inlet Controls 4.35 cfs @ 3.43 fps)

Summary for Pond C8: CB7.5

Inflow Area = 2.904 ac, 72.71% Impervious, Inflow Depth > 2.16" for 2-Yr Storm event
Inflow = 7.38 cfs @ 12.07 hrs, Volume= 0.523 af
Outflow = 7.38 cfs @ 12.07 hrs, Volume= 0.523 af, Atten= 0%, Lag= 0.0 min
Primary = 7.38 cfs @ 12.07 hrs, Volume= 0.523 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Peak Elev= 72.55' @ 12.07 hrs
Flood Elev= 75.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	71.30'	**24.0" Round Culvert** L= 96.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 71.30' / 70.50' S= 0.0083 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=7.33 cfs @ 12.07 hrs HW=72.55' TW=0.00' (Dynamic Tailwater)
1=Culvert (Barrel Controls 7.33 cfs @ 5.09 fps)

Summary for Pond C9: OCS3

Inflow = 1.23 cfs @ 12.40 hrs, Volume= 0.100 af
Outflow = 1.23 cfs @ 12.40 hrs, Volume= 0.100 af, Atten= 0%, Lag= 0.0 min
Primary = 1.23 cfs @ 12.40 hrs, Volume= 0.100 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Peak Elev= 71.67' @ 12.40 hrs
Flood Elev= 74.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	71.00'	**18.0" Round Culvert** L= 77.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 71.00' / 70.59' S= 0.0053 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=1.24 cfs @ 12.40 hrs HW=71.67' TW=71.36' (Dynamic Tailwater)
1=Culvert (Outlet Controls 1.24 cfs @ 2.38 fps)

Summary for Pond SF3: Soil Fliter

Inflow Area = 1.751 ac, 62.36% Impervious, Inflow Depth > 2.14" for 2-Yr Storm event
Inflow = 4.40 cfs @ 12.07 hrs, Volume= 0.312 af
Outflow = 1.31 cfs @ 12.40 hrs, Volume= 0.194 af, Atten= 70%, Lag= 19.5 min
Primary = 0.08 cfs @ 12.40 hrs, Volume= 0.095 af
Secondary = 1.23 cfs @ 12.40 hrs, Volume= 0.100 af
Tertiary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs

Peak Elev= 74.65' @ 12.40 hrs Surf.Area= 4,328 sf Storage= 6,046 cf

Plug-Flow detention time= 189.3 min calculated for 0.194 af (62% of inflow)
Center-of-Mass det. time= 86.4 min (884.9 - 798.5)

Volume	Invert	Avail.Storage	Storage Description
#1	73.00'	18,675 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
73.00	2,993	0	0
74.50	4,198	5,393	5,393
75.00	4,624	2,206	7,599
76.00	5,524	5,074	12,673
77.00	6,481	6,003	18,675

Device	Routing	Invert	Outlet Devices
#1	Primary	73.00'	**0.750 in/hr Exfiltration over Surface area** Phase-In= 0.01'
#2	Secondary	74.50'	**24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Tertiary	75.00'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.08 cfs @ 12.40 hrs HW=74.65' TW=0.00' (Dynamic Tailwater)
1=Exfiltration (Exfiltration Controls 0.08 cfs)

Secondary OutFlow Max=1.23 cfs @ 12.40 hrs HW=74.65' TW=71.67' (Dynamic Tailwater)
2=Orifice/Grate (Weir Controls 1.23 cfs @ 1.28 fps)

Tertiary OutFlow Max=0.00 cfs @ 0.00 hrs HW=73.00' TW=0.00' (Dynamic Tailwater)
3=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond SF4: Soil Filter

Inflow Area = 1.552 ac, 80.02% Impervious, Inflow Depth > 2.49" for 2-Yr Storm event
Inflow = 4.36 cfs @ 12.07 hrs, Volume= 0.322 af
Outflow = 1.46 cfs @ 12.34 hrs, Volume= 0.204 af, Atten= 66%, Lag= 16.2 min
Primary = 0.07 cfs @ 12.34 hrs, Volume= 0.103 af
Secondary = 1.39 cfs @ 12.34 hrs, Volume= 0.101 af
Tertiary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Peak Elev= 74.67' @ 12.34 hrs Surf.Area= 4,312 sf Storage= 6,190 cf

Plug-Flow detention time= 183.5 min calculated for 0.204 af (63% of inflow)
Center-of-Mass det. time= 81.9 min (857.8 - 775.9)

Volume	Invert	Avail.Storage	Storage Description
#1	73.00'	18,442 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
73.00	3,128	0	0
74.50	4,186	5,486	5,486
75.00	4,566	2,188	7,674
76.00	5,370	4,968	12,642
77.00	6,231	5,801	18,442

Device	Routing	Invert	Outlet Devices
#1	Primary	73.00'	**0.750 in/hr Exfiltration over Surface area** Phase-In= 0.01'
#2	Secondary	74.50'	**24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Tertiary	75.00'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.07 cfs @ 12.34 hrs HW=74.67' TW=0.00' (Dynamic Tailwater)
1=Exfiltration (Exfiltration Controls 0.07 cfs)

Secondary OutFlow Max=1.39 cfs @ 12.34 hrs HW=74.67' TW=71.35' (Dynamic Tailwater)
2=Orifice/Grate (Weir Controls 1.39 cfs @ 1.33 fps)

Tertiary OutFlow Max=0.00 cfs @ 0.00 hrs HW=73.00' TW=0.00' (Dynamic Tailwater)
3=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Link AP8:

Inflow Area = 15.871 ac, 31.48% Impervious, Inflow Depth > 1.40" for 2-Yr Storm event
Inflow = 11.40 cfs @ 12.08 hrs, Volume= 1.849 af
Primary = 11.40 cfs @ 12.08 hrs, Volume= 1.849 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs

Time span=0.00-24.00 hrs, dt=0.02 hrs, 1201 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 7.0: Runoff Area=332,135 sf 2.58% Impervious Runoff Depth>2.18"
Flow Length=270' Tc=49.4 min CN=76 Runoff=8.66 cfs 1.388 af

Subcatchment 7.1: Runoff Area=14,953 sf 2.15% Impervious Runoff Depth>2.46"
Tc=5.0 min CN=79 Runoff=1.02 cfs 0.070 af

Subcatchment 8.1: Runoff Area=22,593 sf 79.37% Impervious Runoff Depth>3.80"
Tc=5.0 min CN=93 Runoff=2.26 cfs 0.164 af

Subcatchment 8.10: Runoff Area=82,702 sf 61.99% Impervious Runoff Depth>3.29"
Tc=5.0 min CN=88 Runoff=7.43 cfs 0.520 af

Subcatchment 8.11: Runoff Area=73,887 sf 20.41% Impervious Runoff Depth>2.81"
Tc=5.0 min CN=83 Runoff=5.77 cfs 0.398 af

Subcatchment 8.2: Runoff Area=28,897 sf 55.19% Impervious Runoff Depth>3.39"
Tc=5.0 min CN=89 Runoff=2.66 cfs 0.187 af

Subcatchment 8.3: Runoff Area=14,823 sf 92.36% Impervious Runoff Depth>4.13"
Tc=5.0 min CN=96 Runoff=1.55 cfs 0.117 af

Subcatchment 8.4: Runoff Area=9,967 sf 0.00% Impervious Runoff Depth>2.54"
Tc=5.0 min CN=80 Runoff=0.71 cfs 0.049 af

Subcatchment 8.5: Runoff Area=29,532 sf 92.76% Impervious Runoff Depth>4.13"
Tc=5.0 min CN=96 Runoff=3.09 cfs 0.233 af

Subcatchment 8.6: Runoff Area=18,684 sf 90.78% Impervious Runoff Depth>4.13"
Tc=5.0 min CN=96 Runoff=1.95 cfs 0.148 af

Subcatchment 8.7: Runoff Area=9,738 sf 100.00% Impervious Runoff Depth>4.36"
Tc=5.0 min CN=98 Runoff=1.04 cfs 0.081 af

Subcatchment 8.8: Runoff Area=9,646 sf 0.00% Impervious Runoff Depth>2.54"
Tc=5.0 min CN=80 Runoff=0.68 cfs 0.047 af

Subcatchment 8.9: Runoff Area=43,780 sf 92.94% Impervious Runoff Depth>4.13"
Tc=5.0 min CN=96 Runoff=4.58 cfs 0.346 af

Reach R7.1: Stream Avg. Flow Depth=0.66' Max Vel=3.60 fps Inflow=8.79 cfs 1.459 af
n=0.025 L=860.0' S=0.0093 '/' Capacity=63.12 cfs Outflow=8.71 cfs 1.453 af

Pond C1: CB5.3 Peak Elev=77.45' Inflow=2.26 cfs 0.164 af
12.0" Round Culvert n=0.013 L=80.0' S=0.0053 '/' Outflow=2.26 cfs 0.164 af

Pond C10: OCS4 Peak Elev=72.37' Inflow=10.76 cfs 0.562 af
24.0" Round Culvert n=0.013 L=63.0' S=0.0052 '/' Outflow=10.76 cfs 0.562 af

Pond C2: CB5.5 Peak Elev=76.99' Inflow=4.92 cfs 0.352 af
15.0" Round Culvert n=0.013 L=209.0' S=0.0051 '/' Outflow=4.92 cfs 0.352 af

Pond C3: CB5.6 Peak Elev=75.45' Inflow=6.47 cfs 0.469 af
18.0" Round Culvert n=0.013 L=62.0' S=0.0052 '/' Outflow=6.47 cfs 0.469 af

Pond C4: CB6.6 Peak Elev=75.73' Inflow=3.09 cfs 0.233 af
12.0" Round Culvert n=0.013 L=74.0' S=0.0050 '/' Outflow=3.09 cfs 0.233 af

Pond C5: CB6.3 Peak Elev=75.99' Inflow=1.04 cfs 0.081 af
12.0" Round Culvert n=0.013 L=168.0' S=0.0083 '/' Outflow=1.04 cfs 0.081 af

Pond C6: CB6.4 Peak Elev=75.71' Inflow=2.99 cfs 0.229 af
12.0" Round Culvert n=0.013 L=78.0' S=0.0026 '/' Outflow=2.99 cfs 0.229 af

Pond C7: CB7.3 Peak Elev=75.36' Inflow=7.43 cfs 0.520 af
18.0" Round Culvert n=0.013 L=196.0' S=0.0130 '/' Outflow=7.43 cfs 0.520 af

Pond C8: CB7.5 Peak Elev=73.01' Inflow=12.00 cfs 0.866 af
24.0" Round Culvert n=0.013 L=96.0' S=0.0083 '/' Outflow=12.00 cfs 0.866 af

Pond C9: OCS3 Peak Elev=72.80' Inflow=5.46 cfs 0.290 af
18.0" Round Culvert n=0.013 L=77.0' S=0.0053 '/' Outflow=5.46 cfs 0.290 af

Pond SF3: Soil Fliter Peak Elev=74.91' Storage=7,201 cf Inflow=7.17 cfs 0.517 af
Primary=0.08 cfs 0.103 af Secondary=5.46 cfs 0.290 af Tertiary=0.00 cfs 0.000 af Outflow=5.54 cfs 0.394 af

Pond SF4: Soil Filter Peak Elev=74.91' Storage=7,248 cf Inflow=6.76 cfs 0.509 af
Primary=0.08 cfs 0.112 af Secondary=5.32 cfs 0.272 af Tertiary=0.00 cfs 0.000 af Outflow=5.40 cfs 0.384 af

Link AP8: Inflow=29.56 cfs 3.495 af
Primary=29.56 cfs 3.495 af

Total Runoff Area = 15.871 ac Runoff Volume = 3.749 af Average Runoff Depth = 2.83"
68.52% Pervious = 10.876 ac 31.48% Impervious = 4.995 ac

Summary for Subcatchment 7.0:

Runoff = 8.66 cfs @ 12.68 hrs, Volume= 1.388 af, Depth> 2.18"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	8,574	98	Impervious
	1,029	74	>75% Grass cover, Good, HSG C
	19,605	65	Brush, Good, HSG C
	48,667	73	Brush, Good, HSG D
	1,406	70	Woods, Good, HSG C
	252,854	77	Woods, Good, HSG D
	332,135	76	Weighted Average
	323,561		97.42% Pervious Area
	8,574		2.58% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
46.6	150	0.0270	0.05		**Sheet Flow, AB** Woods: Dense underbrush n= 0.800 P2= 3.10"
2.8	120	0.0800	0.71		**Shallow Concentrated Flow, BC** Forest w/Heavy Litter Kv= 2.5 fps
49.4	270	Total			

Summary for Subcatchment 7.1:

Runoff = 1.02 cfs @ 12.08 hrs, Volume= 0.070 af, Depth> 2.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	321	98	Impervious
	4,645	74	>75% Grass cover, Good, HSG C
	9,987	80	>75% Grass cover, Good, HSG D
	14,953	79	Weighted Average
	14,632		97.85% Pervious Area
	321		2.15% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 8.1:

Runoff = 2.26 cfs @ 12.07 hrs, Volume= 0.164 af, Depth> 3.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	17,932	98	Impervious
	3,258	74	>75% Grass cover, Good, HSG C
	1,403	80	>75% Grass cover, Good, HSG D
	22,593	93	Weighted Average
	4,661		20.63% Pervious Area
	17,932		79.37% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 8.10:

Runoff = 7.43 cfs @ 12.07 hrs, Volume= 0.520 af, Depth> 3.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	51,270	98	Impervious
	4,732	74	>75% Grass cover, Good, HSG C
	26,700	70	Woods, Good, HSG C
	82,702	88	Weighted Average
	31,432		38.01% Pervious Area
	51,270		61.99% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 8.11:

Runoff = 5.77 cfs @ 12.07 hrs, Volume= 0.398 af, Depth> 2.81"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	15,081	98	Impervious
	2,598	74	>75% Grass cover, Good, HSG C
	56,208	80	>75% Grass cover, Good, HSG D
	73,887	83	Weighted Average
	58,806		79.59% Pervious Area
	15,081		20.41% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 8.2:

Runoff = 2.66 cfs @ 12.07 hrs, Volume= 0.187 af, Depth> 3.39"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	15,948	98	Impervious
	6,561	74	>75% Grass cover, Good, HSG C
	6,388	80	>75% Grass cover, Good, HSG D
	28,897	89	Weighted Average
	12,949		44.81% Pervious Area
	15,948		55.19% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 8.3:

Runoff = 1.55 cfs @ 12.07 hrs, Volume= 0.117 af, Depth> 4.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	13,690	98	Impervious
	895	74	>75% Grass cover, Good, HSG C
	238	80	>75% Grass cover, Good, HSG D
	14,823	96	Weighted Average
	1,133		7.64% Pervious Area
	13,690		92.36% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 8.4:

Runoff = 0.71 cfs @ 12.08 hrs, Volume= 0.049 af, Depth> 2.54"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.60"

	Area (sf)	CN	Description
	9,967	80	>75% Grass cover, Good, HSG D
	9,967		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 8.5:

Runoff = 3.09 cfs @ 12.07 hrs, Volume= 0.233 af, Depth> 4.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	27,395	98	Impervious
	1,533	74	>75% Grass cover, Good, HSG C
	604	80	>75% Grass cover, Good, HSG D
	29,532	96	Weighted Average
	2,137		7.24% Pervious Area
	27,395		92.76% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 8.6:

Runoff = 1.95 cfs @ 12.07 hrs, Volume= 0.148 af, Depth> 4.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	16,962	98	Impervious
	1,216	74	>75% Grass cover, Good, HSG C
	506	80	>75% Grass cover, Good, HSG D
	18,684	96	Weighted Average
	1,722		9.22% Pervious Area
	16,962		90.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 8.7:

Runoff = 1.04 cfs @ 12.07 hrs, Volume= 0.081 af, Depth> 4.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	9,738	98	Impervious
	9,738		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 8.8:

Runoff = 0.68 cfs @ 12.08 hrs, Volume= 0.047 af, Depth> 2.54"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.60"

Area (sf)	CN	Description
9,646	80	>75% Grass cover, Good, HSG D
9,646		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 8.9:

Runoff = 4.58 cfs @ 12.07 hrs, Volume= 0.346 af, Depth> 4.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	40,689	98	Impervious
	2,672	74	>75% Grass cover, Good, HSG C
	419	80	>75% Grass cover, Good, HSG D
	43,780	96	Weighted Average
	3,091		7.06% Pervious Area
	40,689		92.94% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Reach R7.1: Stream

Inflow Area = 7.968 ac, 2.56% Impervious, Inflow Depth > 2.20" for 10-Yr Storm event
Inflow = 8.79 cfs @ 12.68 hrs, Volume= 1.459 af
Outflow = 8.71 cfs @ 12.73 hrs, Volume= 1.453 af, Atten= 1%, Lag= 3.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Max. Velocity= 3.60 fps, Min. Travel Time= 4.0 min
Avg. Velocity = 1.47 fps, Avg. Travel Time= 9.7 min

Peak Storage= 2,082 cf @ 12.73 hrs
Average Depth at Peak Storage= 0.66'
Bank-Full Depth= 2.00' Flow Area= 10.0 sf, Capacity= 63.12 cfs

3.00' x 2.00' deep channel, n= 0.025 Earth, clean & winding
Side Slope Z-value= 1.0 '/' Top Width= 7.00'
Length= 860.0' Slope= 0.0093 '/'
Inlet Invert= 76.00', Outlet Invert= 68.00'



Summary for Pond C1: CB5.3

Inflow Area = 0.519 ac, 79.37% Impervious, Inflow Depth > 3.80" for 10-Yr Storm event
Inflow = 2.26 cfs @ 12.07 hrs, Volume= 0.164 af
Outflow = 2.26 cfs @ 12.07 hrs, Volume= 0.164 af, Atten= 0%, Lag= 0.0 min
Primary = 2.26 cfs @ 12.07 hrs, Volume= 0.164 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Peak Elev= 77.45' @ 12.09 hrs
Flood Elev= 80.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	75.80'	**12.0" Round Culvert** L= 80.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 75.80' / 75.38' S= 0.0053 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.58 cfs @ 12.07 hrs HW=77.19' TW=76.94' (Dynamic Tailwater)
↑**1=Culvert** (Outlet Controls 1.58 cfs @ 2.02 fps)

Summary for Pond C10: OCS4

Inflow = 10.76 cfs @ 12.13 hrs, Volume= 0.562 af
Outflow = 10.76 cfs @ 12.13 hrs, Volume= 0.562 af, Atten= 0%, Lag= 0.0 min
Primary = 10.76 cfs @ 12.13 hrs, Volume= 0.562 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Peak Elev= 72.37' @ 12.13 hrs
Flood Elev= 74.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	70.59'	**24.0" Round Culvert** L= 63.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 70.59' / 70.26' S= 0.0052 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=10.71 cfs @ 12.13 hrs HW=72.36' TW=0.00' (Dynamic Tailwater)
↑**1=Culvert** (Barrel Controls 10.71 cfs @ 4.82 fps)

Summary for Pond C2: CB5.5

Inflow Area = 1.182 ac, 65.80% Impervious, Inflow Depth > 3.57" for 10-Yr Storm event
Inflow = 4.92 cfs @ 12.07 hrs, Volume= 0.352 af
Outflow = 4.92 cfs @ 12.07 hrs, Volume= 0.352 af, Atten= 0%, Lag= 0.0 min
Primary = 4.92 cfs @ 12.07 hrs, Volume= 0.352 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs

Peak Elev= 76.99' @ 12.08 hrs
Flood Elev= 79.23'

Device	Routing	Invert	Outlet Devices
#1	Primary	74.89'	**15.0" Round Culvert** L= 209.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 74.89' / 73.82' S= 0.0051 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=4.79 cfs @ 12.07 hrs HW=76.94' TW=75.44' (Dynamic Tailwater)
1=Culvert (Outlet Controls 4.79 cfs @ 3.90 fps)

Summary for Pond C3: CB5.6

Inflow Area = 1.522 ac, 71.74% Impervious, Inflow Depth > 3.70" for 10-Yr Storm event
Inflow = 6.47 cfs @ 12.07 hrs, Volume= 0.469 af
Outflow = 6.47 cfs @ 12.07 hrs, Volume= 0.469 af, Atten= 0%, Lag= 0.0 min
Primary = 6.47 cfs @ 12.07 hrs, Volume= 0.469 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Peak Elev= 75.45' @ 12.08 hrs
Flood Elev= 78.90'

Device	Routing	Invert	Outlet Devices
#1	Primary	73.82'	**18.0" Round Culvert** L= 62.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 73.82' / 73.50' S= 0.0052 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=6.15 cfs @ 12.07 hrs HW=75.44' TW=74.84' (Dynamic Tailwater)
1=Culvert (Outlet Controls 6.15 cfs @ 4.02 fps)

Summary for Pond C4: CB6.6

Inflow Area = 0.678 ac, 92.76% Impervious, Inflow Depth > 4.13" for 10-Yr Storm event
Inflow = 3.09 cfs @ 12.07 hrs, Volume= 0.233 af
Outflow = 3.09 cfs @ 12.07 hrs, Volume= 0.233 af, Atten= 0%, Lag= 0.0 min
Primary = 3.09 cfs @ 12.07 hrs, Volume= 0.233 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Peak Elev= 75.73' @ 12.08 hrs
Flood Elev= 77.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	73.87'	**12.0" Round Culvert** L= 74.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 73.87' / 73.50' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.99 cfs @ 12.07 hrs HW=75.71' TW=74.85' (Dynamic Tailwater)
1=Culvert (Outlet Controls 2.99 cfs @ 3.81 fps)

Summary for Pond C5: CB6.3

Inflow Area = 0.224 ac,100.00% Impervious, Inflow Depth > 4.36" for 10-Yr Storm event
Inflow = 1.04 cfs @ 12.07 hrs, Volume= 0.081 af
Outflow = 1.04 cfs @ 12.07 hrs, Volume= 0.081 af, Atten= 0%, Lag= 0.0 min
Primary = 1.04 cfs @ 12.07 hrs, Volume= 0.081 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Peak Elev= 75.99' @ 12.09 hrs
Flood Elev= 79.10'

Device	Routing	Invert	Outlet Devices
#1	Primary	75.10'	**12.0" Round Culvert** L= 168.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 75.10' / 73.70' S= 0.0083 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.87 cfs @ 12.07 hrs HW=75.94' TW=75.68' (Dynamic Tailwater)
1=Culvert (Outlet Controls 0.87 cfs @ 1.67 fps)

Summary for Pond C6: CB6.4

Inflow Area = 0.652 ac, 93.94% Impervious, Inflow Depth > 4.21" for 10-Yr Storm event
Inflow = 2.99 cfs @ 12.07 hrs, Volume= 0.229 af
Outflow = 2.99 cfs @ 12.07 hrs, Volume= 0.229 af, Atten= 0%, Lag= 0.0 min
Primary = 2.99 cfs @ 12.07 hrs, Volume= 0.229 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Peak Elev= 75.71' @ 12.08 hrs
Flood Elev= 76.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	73.70'	**12.0" Round Culvert** L= 78.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 73.70' / 73.50' S= 0.0026 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.89 cfs @ 12.07 hrs HW=75.68' TW=74.85' (Dynamic Tailwater)
1=Culvert (Outlet Controls 2.89 cfs @ 3.68 fps)

Summary for Pond C7: CB7.3

Inflow Area = 1.899 ac, 61.99% Impervious, Inflow Depth > 3.29" for 10-Yr Storm event
Inflow = 7.43 cfs @ 12.07 hrs, Volume= 0.520 af
Outflow = 7.43 cfs @ 12.07 hrs, Volume= 0.520 af, Atten= 0%, Lag= 0.0 min
Primary = 7.43 cfs @ 12.07 hrs, Volume= 0.520 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Peak Elev= 75.36' @ 12.07 hrs
Flood Elev= 76.85'

Device	Routing	Invert	Outlet Devices
#1	Primary	73.85'	**18.0" Round Culvert** L= 196.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 73.85' / 71.30' S= 0.0130 '/' Cc= 0.900

n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=7.37 cfs @ 12.07 hrs HW=75.35' TW=73.00' (Dynamic Tailwater)
1=Culvert (Inlet Controls 7.37 cfs @ 4.17 fps)

Summary for Pond C8: CB7.5

Inflow Area = 2.904 ac, 72.71% Impervious, Inflow Depth > 3.58" for 10-Yr Storm event
Inflow = 12.00 cfs @ 12.07 hrs, Volume= 0.866 af
Outflow = 12.00 cfs @ 12.07 hrs, Volume= 0.866 af, Atten= 0%, Lag= 0.0 min
Primary = 12.00 cfs @ 12.07 hrs, Volume= 0.866 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Peak Elev= 73.01' @ 12.07 hrs
Flood Elev= 75.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	71.30'	**24.0" Round Culvert** L= 96.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 71.30' / 70.50' S= 0.0083 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=11.91 cfs @ 12.07 hrs HW=73.00' TW=0.00' (Dynamic Tailwater)
1=Culvert (Barrel Controls 11.91 cfs @ 5.62 fps)

Summary for Pond C9: OCS3

Inflow = 5.46 cfs @ 12.13 hrs, Volume= 0.290 af
Outflow = 5.46 cfs @ 12.13 hrs, Volume= 0.290 af, Atten= 0%, Lag= 0.0 min
Primary = 5.46 cfs @ 12.13 hrs, Volume= 0.290 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Peak Elev= 72.80' @ 12.14 hrs
Flood Elev= 74.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	71.00'	**18.0" Round Culvert** L= 77.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 71.00' / 70.59' S= 0.0053 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=5.31 cfs @ 12.13 hrs HW=72.78' TW=72.37' (Dynamic Tailwater)
1=Culvert (Outlet Controls 5.31 cfs @ 3.20 fps)

Summary for Pond SF3: Soil Fliter

Inflow Area = 1.751 ac, 62.36% Impervious, Inflow Depth > 3.55" for 10-Yr Storm event
Inflow = 7.17 cfs @ 12.07 hrs, Volume= 0.517 af
Outflow = 5.54 cfs @ 12.13 hrs, Volume= 0.394 af, Atten= 23%, Lag= 3.7 min
Primary = 0.08 cfs @ 12.13 hrs, Volume= 0.103 af
Secondary = 5.46 cfs @ 12.13 hrs, Volume= 0.290 af
Tertiary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs

Peak Elev= 74.91' @ 12.13 hrs Surf.Area= 4,550 sf Storage= 7,201 cf

Plug-Flow detention time= 129.7 min calculated for 0.393 af (76% of inflow)
Center-of-Mass det. time= 46.7 min (832.6 - 785.9)

Volume	Invert	Avail.Storage	Storage Description
#1	73.00'	18,675 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
73.00	2,993	0	0
74.50	4,198	5,393	5,393
75.00	4,624	2,206	7,599
76.00	5,524	5,074	12,673
77.00	6,481	6,003	18,675

Device	Routing	Invert	Outlet Devices
#1	Primary	73.00'	**0.750 in/hr Exfiltration over Surface area** Phase-In= 0.01'
#2	Secondary	74.50'	**24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Tertiary	75.00'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.08 cfs @ 12.13 hrs HW=74.91' TW=0.00' (Dynamic Tailwater)
1=Exfiltration (Exfiltration Controls 0.08 cfs)

Secondary OutFlow Max=5.43 cfs @ 12.13 hrs HW=74.91' TW=72.78' (Dynamic Tailwater)
2=Orifice/Grate (Weir Controls 5.43 cfs @ 2.10 fps)

Tertiary OutFlow Max=0.00 cfs @ 0.00 hrs HW=73.00' TW=0.00' (Dynamic Tailwater)
3=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond SF4: Soil Filter

Inflow Area = 1.552 ac, 80.02% Impervious, Inflow Depth > 3.94" for 10-Yr Storm event
Inflow = 6.76 cfs @ 12.07 hrs, Volume= 0.509 af
Outflow = 5.40 cfs @ 12.13 hrs, Volume= 0.384 af, Atten= 20%, Lag= 3.4 min
Primary = 0.08 cfs @ 12.13 hrs, Volume= 0.112 af
Secondary = 5.32 cfs @ 12.13 hrs, Volume= 0.272 af
Tertiary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Peak Elev= 74.91' @ 12.13 hrs Surf.Area= 4,495 sf Storage= 7,248 cf

Plug-Flow detention time= 133.6 min calculated for 0.384 af (75% of inflow)
Center-of-Mass det. time= 48.9 min (815.2 - 766.3)

Volume	Invert	Avail.Storage	Storage Description
#1	73.00'	18,442 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
73.00	3,128	0	0
74.50	4,186	5,486	5,486
75.00	4,566	2,188	7,674
76.00	5,370	4,968	12,642
77.00	6,231	5,801	18,442

Device	Routing	Invert	Outlet Devices
#1	Primary	73.00'	**0.750 in/hr Exfiltration over Surface area** Phase-In= 0.01'
#2	Secondary	74.50'	**24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Tertiary	75.00'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.08 cfs @ 12.13 hrs HW=74.90' TW=0.00' (Dynamic Tailwater)
1=Exfiltration (Exfiltration Controls 0.08 cfs)

Secondary OutFlow Max=5.29 cfs @ 12.13 hrs HW=74.90' TW=72.36' (Dynamic Tailwater)
2=Orifice/Grate (Weir Controls 5.29 cfs @ 2.08 fps)

Tertiary OutFlow Max=0.00 cfs @ 0.00 hrs HW=73.00' TW=0.00' (Dynamic Tailwater)
3=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Link AP8:

Inflow Area = 15.871 ac, 31.48% Impervious, Inflow Depth > 2.64" for 10-Yr Storm event
Inflow = 29.56 cfs @ 12.10 hrs, Volume= 3.495 af
Primary = 29.56 cfs @ 12.10 hrs, Volume= 3.495 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs

Time span=0.00-24.00 hrs, dt=0.02 hrs, 1201 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 7.0: Runoff Area=332,135 sf 2.58% Impervious Runoff Depth>3.17"
Flow Length=270' Tc=49.4 min CN=76 Runoff=12.65 cfs 2.017 af

Subcatchment 7.1: Runoff Area=14,953 sf 2.15% Impervious Runoff Depth>3.50"
Tc=5.0 min CN=79 Runoff=1.45 cfs 0.100 af

Subcatchment 8.1: Runoff Area=22,593 sf 79.37% Impervious Runoff Depth>4.98"
Tc=5.0 min CN=93 Runoff=2.91 cfs 0.215 af

Subcatchment 8.10: Runoff Area=82,702 sf 61.99% Impervious Runoff Depth>4.43"
Tc=5.0 min CN=88 Runoff=9.87 cfs 0.701 af

Subcatchment 8.11: Runoff Area=73,887 sf 20.41% Impervious Runoff Depth>3.90"
Tc=5.0 min CN=83 Runoff=7.94 cfs 0.552 af

Subcatchment 8.2: Runoff Area=28,897 sf 55.19% Impervious Runoff Depth>4.54"
Tc=5.0 min CN=89 Runoff=3.51 cfs 0.251 af

Subcatchment 8.3: Runoff Area=14,823 sf 92.36% Impervious Runoff Depth>5.32"
Tc=5.0 min CN=96 Runoff=1.97 cfs 0.151 af

Subcatchment 8.4: Runoff Area=9,967 sf 0.00% Impervious Runoff Depth>3.60"
Tc=5.0 min CN=80 Runoff=1.00 cfs 0.069 af

Subcatchment 8.5: Runoff Area=29,532 sf 92.76% Impervious Runoff Depth>5.32"
Tc=5.0 min CN=96 Runoff=3.93 cfs 0.301 af

Subcatchment 8.6: Runoff Area=18,684 sf 90.78% Impervious Runoff Depth>5.32"
Tc=5.0 min CN=96 Runoff=2.48 cfs 0.190 af

Subcatchment 8.7: Runoff Area=9,738 sf 100.00% Impervious Runoff Depth>5.56"
Tc=5.0 min CN=98 Runoff=1.31 cfs 0.104 af

Subcatchment 8.8: Runoff Area=9,646 sf 0.00% Impervious Runoff Depth>3.60"
Tc=5.0 min CN=80 Runoff=0.96 cfs 0.066 af

Subcatchment 8.9: Runoff Area=43,780 sf 92.94% Impervious Runoff Depth>5.32"
Tc=5.0 min CN=96 Runoff=5.82 cfs 0.446 af

Reach R7.1: Stream Avg. Flow Depth=0.82' Max Vel=4.04 fps Inflow=12.83 cfs 2.117 af
n=0.025 L=860.0' S=0.0093 '/' Capacity=63.12 cfs Outflow=12.73 cfs 2.111 af

Pond C1: CB5.3 Peak Elev=79.35' Inflow=2.91 cfs 0.215 af
12.0" Round Culvert n=0.013 L=80.0' S=0.0053 '/' Outflow=2.91 cfs 0.215 af

Pond C10: OCS4 Peak Elev=72.90' Inflow=15.23 cfs 0.869 af
24.0" Round Culvert n=0.013 L=63.0' S=0.0052 '/' Outflow=15.23 cfs 0.869 af

Pond C2: CB5.5 Peak Elev=78.58' Inflow=6.42 cfs 0.466 af
15.0" Round Culvert n=0.013 L=209.0' S=0.0051 '/' Outflow=6.42 cfs 0.466 af

Pond C3: CB5.6 Peak Elev=75.93' Inflow=8.39 cfs 0.617 af
18.0" Round Culvert n=0.013 L=62.0' S=0.0052 '/' Outflow=8.39 cfs 0.617 af

Pond C4: CB6.6 Peak Elev=76.41' Inflow=3.93 cfs 0.301 af
12.0" Round Culvert n=0.013 L=74.0' S=0.0050 '/' Outflow=3.93 cfs 0.301 af

Pond C5: CB6.3 Peak Elev=76.63' Inflow=1.31 cfs 0.104 af
12.0" Round Culvert n=0.013 L=168.0' S=0.0083 '/' Outflow=1.31 cfs 0.104 af

Pond C6: CB6.4 Peak Elev=76.36' Inflow=3.80 cfs 0.294 af
12.0" Round Culvert n=0.013 L=78.0' S=0.0026 '/' Outflow=3.80 cfs 0.294 af

Pond C7: CB7.3 Peak Elev=75.94' Inflow=9.87 cfs 0.701 af
18.0" Round Culvert n=0.013 L=196.0' S=0.0130 '/' Outflow=9.87 cfs 0.701 af

Pond C8: CB7.5 Peak Elev=73.39' Inflow=15.69 cfs 1.147 af
24.0" Round Culvert n=0.013 L=96.0' S=0.0083 '/' Outflow=15.69 cfs 1.147 af

Pond C9: OCS3 Peak Elev=73.78' Inflow=7.89 cfs 0.452 af
18.0" Round Culvert n=0.013 L=77.0' S=0.0053 '/' Outflow=7.89 cfs 0.452 af

Pond SF3: Soil Fliter Peak Elev=75.03' Storage=7,731 cf Inflow=9.39 cfs 0.686 af
Primary=0.08 cfs 0.109 af Secondary=7.89 cfs 0.452 af Tertiary=0.12 cfs 0.000 af Outflow=8.09 cfs 0.561 af

Pond SF4: Soil Filter Peak Elev=75.00' Storage=7,689 cf Inflow=8.69 cfs 0.661 af
Primary=0.08 cfs 0.117 af Secondary=7.34 cfs 0.417 af Tertiary=0.00 cfs 0.000 af Outflow=7.42 cfs 0.535 af

Link AP8: Inflow=41.75 cfs 4.905 af
Primary=41.75 cfs 4.905 af

Total Runoff Area = 15.871 ac Runoff Volume = 5.163 af Average Runoff Depth = 3.90"
68.52% Pervious = 10.876 ac 31.48% Impervious = 4.995 ac

Summary for Subcatchment 7.0:

Runoff = 12.65 cfs @ 12.68 hrs, Volume= 2.017 af, Depth> 3.17"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr 25-Yr Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	8,574	98	Impervious
	1,029	74	>75% Grass cover, Good, HSG C
	19,605	65	Brush, Good, HSG C
	48,667	73	Brush, Good, HSG D
	1,406	70	Woods, Good, HSG C
	252,854	77	Woods, Good, HSG D
	332,135	76	Weighted Average
	323,561		97.42% Pervious Area
	8,574		2.58% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
46.6	150	0.0270	0.05		**Sheet Flow, AB** Woods: Dense underbrush n= 0.800 P2= 3.10"
2.8	120	0.0800	0.71		**Shallow Concentrated Flow, BC** Forest w/Heavy Litter Kv= 2.5 fps
49.4	270	Total			

Summary for Subcatchment 7.1:

Runoff = 1.45 cfs @ 12.07 hrs, Volume= 0.100 af, Depth> 3.50"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr 25-Yr Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	321	98	Impervious
	4,645	74	>75% Grass cover, Good, HSG C
	9,987	80	>75% Grass cover, Good, HSG D
	14,953	79	Weighted Average
	14,632		97.85% Pervious Area
	321		2.15% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 8.1:

Runoff = 2.91 cfs @ 12.07 hrs, Volume= 0.215 af, Depth> 4.98"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr 25-Yr Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	17,932	98	Impervious
	3,258	74	>75% Grass cover, Good, HSG C
	1,403	80	>75% Grass cover, Good, HSG D
	22,593	93	Weighted Average
	4,661		20.63% Pervious Area
	17,932		79.37% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 8.10:

Runoff = 9.87 cfs @ 12.07 hrs, Volume= 0.701 af, Depth> 4.43"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr 25-Yr Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	51,270	98	Impervious
	4,732	74	>75% Grass cover, Good, HSG C
	26,700	70	Woods, Good, HSG C
	82,702	88	Weighted Average
	31,432		38.01% Pervious Area
	51,270		61.99% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 8.11:

Runoff = 7.94 cfs @ 12.07 hrs, Volume= 0.552 af, Depth> 3.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr 25-Yr Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	15,081	98	Impervious
	2,598	74	>75% Grass cover, Good, HSG C
	56,208	80	>75% Grass cover, Good, HSG D
	73,887	83	Weighted Average
	58,806		79.59% Pervious Area
	15,081		20.41% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 8.2:

Runoff = 3.51 cfs @ 12.07 hrs, Volume= 0.251 af, Depth> 4.54"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr 25-Yr Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	15,948	98	Impervious
	6,561	74	>75% Grass cover, Good, HSG C
	6,388	80	>75% Grass cover, Good, HSG D
	28,897	89	Weighted Average
	12,949		44.81% Pervious Area
	15,948		55.19% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 8.3:

Runoff = 1.97 cfs @ 12.07 hrs, Volume= 0.151 af, Depth> 5.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr 25-Yr Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	13,690	98	Impervious
	895	74	>75% Grass cover, Good, HSG C
	238	80	>75% Grass cover, Good, HSG D
	14,823	96	Weighted Average
	1,133		7.64% Pervious Area
	13,690		92.36% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 8.4:

Runoff = 1.00 cfs @ 12.07 hrs, Volume= 0.069 af, Depth> 3.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr 25-Yr Storm Rainfall=5.80"

Area (sf)	CN	Description
9,967	80	>75% Grass cover, Good, HSG D
9,967		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 8.5:

Runoff = 3.93 cfs @ 12.07 hrs, Volume= 0.301 af, Depth> 5.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr 25-Yr Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	27,395	98	Impervious
	1,533	74	>75% Grass cover, Good, HSG C
	604	80	>75% Grass cover, Good, HSG D
	29,532	96	Weighted Average
	2,137		7.24% Pervious Area
	27,395		92.76% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 8.6:

Runoff = 2.48 cfs @ 12.07 hrs, Volume= 0.190 af, Depth> 5.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr 25-Yr Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	16,962	98	Impervious
	1,216	74	>75% Grass cover, Good, HSG C
	506	80	>75% Grass cover, Good, HSG D
	18,684	96	Weighted Average
	1,722		9.22% Pervious Area
	16,962		90.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 8.7:

Runoff = 1.31 cfs @ 12.07 hrs, Volume= 0.104 af, Depth> 5.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr 25-Yr Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	9,738	98	Impervious
	9,738		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 8.8:

Runoff = 0.96 cfs @ 12.07 hrs, Volume= 0.066 af, Depth> 3.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr 25-Yr Storm Rainfall=5.80"

Area (sf)	CN	Description
9,646	80	>75% Grass cover, Good, HSG D
9,646		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 8.9:

Runoff = 5.82 cfs @ 12.07 hrs, Volume= 0.446 af, Depth> 5.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr 25-Yr Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	40,689	98	Impervious
	2,672	74	>75% Grass cover, Good, HSG C
	419	80	>75% Grass cover, Good, HSG D
	43,780	96	Weighted Average
	3,091		7.06% Pervious Area
	40,689		92.94% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Reach R7.1: Stream

Inflow Area = 7.968 ac, 2.56% Impervious, Inflow Depth > 3.19" for 25-Yr Storm event
Inflow = 12.83 cfs @ 12.68 hrs, Volume= 2.117 af
Outflow = 12.73 cfs @ 12.72 hrs, Volume= 2.111 af, Atten= 1%, Lag= 2.3 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Max. Velocity= 4.04 fps, Min. Travel Time= 3.5 min
Avg. Velocity = 1.62 fps, Avg. Travel Time= 8.8 min

Peak Storage= 2,711 cf @ 12.72 hrs
Average Depth at Peak Storage= 0.82'
Bank-Full Depth= 2.00' Flow Area= 10.0 sf, Capacity= 63.12 cfs

3.00' x 2.00' deep channel, n= 0.025 Earth, clean & winding
Side Slope Z-value= 1.0 '/' Top Width= 7.00'
Length= 860.0' Slope= 0.0093 '/'
Inlet Invert= 76.00', Outlet Invert= 68.00'



Summary for Pond C1: CB5.3

Inflow Area = 0.519 ac, 79.37% Impervious, Inflow Depth > 4.98" for 25-Yr Storm event
Inflow = 2.91 cfs @ 12.07 hrs, Volume= 0.215 af
Outflow = 2.91 cfs @ 12.07 hrs, Volume= 0.215 af, Atten= 0%, Lag= 0.0 min
Primary = 2.91 cfs @ 12.07 hrs, Volume= 0.215 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Peak Elev= 79.35' @ 12.09 hrs
Flood Elev= 80.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	75.80'	**12.0" Round Culvert** L= 80.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 75.80' / 75.38' S= 0.0053 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.11 cfs @ 12.07 hrs HW=78.93' TW=78.48' (Dynamic Tailwater)
1=Culvert (Outlet Controls 2.11 cfs @ 2.69 fps)

Summary for Pond C10: OCS4

Inflow = 15.23 cfs @ 12.12 hrs, Volume= 0.869 af
Outflow = 15.23 cfs @ 12.12 hrs, Volume= 0.869 af, Atten= 0%, Lag= 0.0 min
Primary = 15.23 cfs @ 12.12 hrs, Volume= 0.869 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Peak Elev= 72.90' @ 12.12 hrs
Flood Elev= 74.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	70.59'	**24.0" Round Culvert** L= 63.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 70.59' / 70.26' S= 0.0052 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=15.20 cfs @ 12.12 hrs HW=72.90' TW=0.00' (Dynamic Tailwater)
1=Culvert (Barrel Controls 15.20 cfs @ 5.26 fps)

Summary for Pond C2: CB5.5

Inflow Area = 1.182 ac, 65.80% Impervious, Inflow Depth > 4.73" for 25-Yr Storm event
Inflow = 6.42 cfs @ 12.07 hrs, Volume= 0.466 af
Outflow = 6.42 cfs @ 12.07 hrs, Volume= 0.466 af, Atten= 0%, Lag= 0.0 min
Primary = 6.42 cfs @ 12.07 hrs, Volume= 0.466 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs

Peak Elev= 78.58' @ 12.08 hrs
Flood Elev= 79.23'

Device	Routing	Invert	Outlet Devices
#1	Primary	74.89'	**15.0" Round Culvert** L= 209.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 74.89' / 73.82' S= 0.0051 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=6.25 cfs @ 12.07 hrs HW=78.48' TW=75.92' (Dynamic Tailwater)
1=Culvert (Outlet Controls 6.25 cfs @ 5.09 fps)

Summary for Pond C3: CB5.6

Inflow Area = 1.522 ac, 71.74% Impervious, Inflow Depth > 4.87" for 25-Yr Storm event
Inflow = 8.39 cfs @ 12.07 hrs, Volume= 0.617 af
Outflow = 8.39 cfs @ 12.07 hrs, Volume= 0.617 af, Atten= 0%, Lag= 0.0 min
Primary = 8.39 cfs @ 12.07 hrs, Volume= 0.617 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Peak Elev= 75.93' @ 12.07 hrs
Flood Elev= 78.90'

Device	Routing	Invert	Outlet Devices
#1	Primary	73.82'	**18.0" Round Culvert** L= 62.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 73.82' / 73.50' S= 0.0052 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=8.21 cfs @ 12.07 hrs HW=75.92' TW=74.99' (Dynamic Tailwater)
1=Culvert (Inlet Controls 8.21 cfs @ 4.65 fps)

Summary for Pond C4: CB6.6

Inflow Area = 0.678 ac, 92.76% Impervious, Inflow Depth > 5.32" for 25-Yr Storm event
Inflow = 3.93 cfs @ 12.07 hrs, Volume= 0.301 af
Outflow = 3.93 cfs @ 12.07 hrs, Volume= 0.301 af, Atten= 0%, Lag= 0.0 min
Primary = 3.93 cfs @ 12.07 hrs, Volume= 0.301 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Peak Elev= 76.41' @ 12.07 hrs
Flood Elev= 77.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	73.87'	**12.0" Round Culvert** L= 74.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 73.87' / 73.50' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=3.85 cfs @ 12.07 hrs HW=76.39' TW=74.96' (Dynamic Tailwater)
1=Culvert (Outlet Controls 3.85 cfs @ 4.90 fps)

Summary for Pond C5: CB6.3

Inflow Area = 0.224 ac,100.00% Impervious, Inflow Depth > 5.56" for 25-Yr Storm event
Inflow = 1.31 cfs @ 12.07 hrs, Volume= 0.104 af
Outflow = 1.31 cfs @ 12.07 hrs, Volume= 0.104 af, Atten= 0%, Lag= 0.0 min
Primary = 1.31 cfs @ 12.07 hrs, Volume= 0.104 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Peak Elev= 76.63' @ 12.09 hrs
Flood Elev= 79.10'

Device	Routing	Invert	Outlet Devices
#1	Primary	75.10'	**12.0" Round Culvert** L= 168.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 75.10' / 73.70' S= 0.0083 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.90 cfs @ 12.07 hrs HW=76.47' TW=76.34' (Dynamic Tailwater)
1=Culvert (Outlet Controls 0.90 cfs @ 1.14 fps)

Summary for Pond C6: CB6.4

Inflow Area = 0.652 ac, 93.94% Impervious, Inflow Depth > 5.41" for 25-Yr Storm event
Inflow = 3.80 cfs @ 12.07 hrs, Volume= 0.294 af
Outflow = 3.80 cfs @ 12.07 hrs, Volume= 0.294 af, Atten= 0%, Lag= 0.0 min
Primary = 3.80 cfs @ 12.07 hrs, Volume= 0.294 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Peak Elev= 76.36' @ 12.07 hrs
Flood Elev= 76.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	73.70'	**12.0" Round Culvert** L= 78.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 73.70' / 73.50' S= 0.0026 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=3.72 cfs @ 12.07 hrs HW=76.34' TW=74.96' (Dynamic Tailwater)
1=Culvert (Outlet Controls 3.72 cfs @ 4.73 fps)

Summary for Pond C7: CB7.3

Inflow Area = 1.899 ac, 61.99% Impervious, Inflow Depth > 4.43" for 25-Yr Storm event
Inflow = 9.87 cfs @ 12.07 hrs, Volume= 0.701 af
Outflow = 9.87 cfs @ 12.07 hrs, Volume= 0.701 af, Atten= 0%, Lag= 0.0 min
Primary = 9.87 cfs @ 12.07 hrs, Volume= 0.701 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Peak Elev= 75.94' @ 12.07 hrs
Flood Elev= 76.85'

Device	Routing	Invert	Outlet Devices
#1	Primary	73.85'	**18.0" Round Culvert** L= 196.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 73.85' / 71.30' S= 0.0130 '/' Cc= 0.900

n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=9.79 cfs @ 12.07 hrs HW=75.92' TW=73.38' (Dynamic Tailwater)
1=Culvert (Inlet Controls 9.79 cfs @ 5.54 fps)

Summary for Pond C8: CB7.5

Inflow Area = 2.904 ac, 72.71% Impervious, Inflow Depth > 4.74" for 25-Yr Storm event
Inflow = 15.69 cfs @ 12.07 hrs, Volume= 1.147 af
Outflow = 15.69 cfs @ 12.07 hrs, Volume= 1.147 af, Atten= 0%, Lag= 0.0 min
Primary = 15.69 cfs @ 12.07 hrs, Volume= 1.147 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Peak Elev= 73.39' @ 12.07 hrs
Flood Elev= 75.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	71.30'	**24.0" Round Culvert** L= 96.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 71.30' / 70.50' S= 0.0083 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=15.57 cfs @ 12.07 hrs HW=73.38' TW=0.00' (Dynamic Tailwater)
1=Culvert (Barrel Controls 15.57 cfs @ 5.92 fps)

Summary for Pond C9: OCS3

Inflow = 7.89 cfs @ 12.12 hrs, Volume= 0.452 af
Outflow = 7.89 cfs @ 12.12 hrs, Volume= 0.452 af, Atten= 0%, Lag= 0.0 min
Primary = 7.89 cfs @ 12.12 hrs, Volume= 0.452 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Peak Elev= 73.78' @ 12.13 hrs
Flood Elev= 74.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	71.00'	**18.0" Round Culvert** L= 77.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 71.00' / 70.59' S= 0.0053 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=7.68 cfs @ 12.12 hrs HW=73.75' TW=72.90' (Dynamic Tailwater)
1=Culvert (Outlet Controls 7.68 cfs @ 4.35 fps)

Summary for Pond SF3: Soil Fliter

Inflow Area = 1.751 ac, 62.36% Impervious, Inflow Depth > 4.70" for 25-Yr Storm event
Inflow = 9.39 cfs @ 12.07 hrs, Volume= 0.686 af
Outflow = 8.09 cfs @ 12.12 hrs, Volume= 0.561 af, Atten= 14%, Lag= 2.7 min
Primary = 0.08 cfs @ 12.12 hrs, Volume= 0.109 af
Secondary = 7.89 cfs @ 12.12 hrs, Volume= 0.452 af
Tertiary = 0.12 cfs @ 12.12 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs

Peak Elev= 75.03' @ 12.12 hrs Surf.Area= 4,650 sf Storage= 7,731 cf

Plug-Flow detention time= 112.2 min calculated for 0.561 af (82% of inflow)
Center-of-Mass det. time= 40.6 min (819.6 - 779.0)

Volume	Invert	Avail.Storage	Storage Description
#1	73.00'	18,675 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
73.00	2,993	0	0
74.50	4,198	5,393	5,393
75.00	4,624	2,206	7,599
76.00	5,524	5,074	12,673
77.00	6,481	6,003	18,675

Device	Routing	Invert	Outlet Devices
#1	Primary	73.00'	**0.750 in/hr Exfiltration over Surface area** Phase-In= 0.01'
#2	Secondary	74.50'	**24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Tertiary	75.00'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.08 cfs @ 12.12 hrs HW=75.03' TW=0.00' (Dynamic Tailwater)
1=Exfiltration (Exfiltration Controls 0.08 cfs)

Secondary OutFlow Max=7.87 cfs @ 12.12 hrs HW=75.03' TW=73.75' (Dynamic Tailwater)
2=Orifice/Grate (Weir Controls 7.87 cfs @ 2.38 fps)

Tertiary OutFlow Max=0.11 cfs @ 12.12 hrs HW=75.03' TW=0.00' (Dynamic Tailwater)
3=Broad-Crested Rectangular Weir (Weir Controls 0.11 cfs @ 0.41 fps)

Summary for Pond SF4: Soil Filter

Inflow Area = 1.552 ac, 80.02% Impervious, Inflow Depth > 5.11" for 25-Yr Storm event
Inflow = 8.69 cfs @ 12.07 hrs, Volume= 0.661 af
Outflow = 7.42 cfs @ 12.12 hrs, Volume= 0.535 af, Atten= 15%, Lag= 2.8 min
Primary = 0.08 cfs @ 12.12 hrs, Volume= 0.117 af
Secondary = 7.34 cfs @ 12.12 hrs, Volume= 0.417 af
Tertiary = 0.00 cfs @ 12.12 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Peak Elev= 75.00' @ 12.12 hrs Surf.Area= 4,569 sf Storage= 7,689 cf

Plug-Flow detention time= 119.2 min calculated for 0.535 af (81% of inflow)
Center-of-Mass det. time= 44.7 min (805.9 - 761.2)

Volume	Invert	Avail.Storage	Storage Description
#1	73.00'	18,442 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
73.00	3,128	0	0
74.50	4,186	5,486	5,486
75.00	4,566	2,188	7,674
76.00	5,370	4,968	12,642
77.00	6,231	5,801	18,442

Device	Routing	Invert	Outlet Devices
#1	Primary	73.00'	**0.750 in/hr Exfiltration over Surface area** Phase-In= 0.01'
#2	Secondary	74.50'	**24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Tertiary	75.00'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.08 cfs @ 12.12 hrs HW=75.00' TW=0.00' (Dynamic Tailwater)
1=Exfiltration (Exfiltration Controls 0.08 cfs)

Secondary OutFlow Max=7.32 cfs @ 12.12 hrs HW=75.00' TW=72.90' (Dynamic Tailwater)
2=Orifice/Grate (Weir Controls 7.32 cfs @ 2.32 fps)

Tertiary OutFlow Max=0.00 cfs @ 12.12 hrs HW=75.00' TW=0.00' (Dynamic Tailwater)
3=Broad-Crested Rectangular Weir (Weir Controls 0.00 cfs @ 0.14 fps)

Summary for Link AP8:

Inflow Area = 15.871 ac, 31.48% Impervious, Inflow Depth > 3.71" for 25-Yr Storm event
Inflow = 41.75 cfs @ 12.09 hrs, Volume= 4.905 af
Primary = 41.75 cfs @ 12.09 hrs, Volume= 4.905 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs

Appendix C:
Stormwater BMP Spillway Calculations

SOIL FILTER SF3 SPILLWAY CALCULATION - 25-YEAR

Summary for Pond SF3: Soil Fliter

Inflow Area = 1.751 ac, 62.36% Impervious, Inflow Depth > 4.70" for 25-Yr Storm event
Inflow = 9.39 cfs @ 12.07 hrs, Volume= 0.686 af
Outflow = 8.17 cfs @ 12.12 hrs, Volume= 0.509 af, Atten= 13%, Lag= 2.6 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Tertiary = 8.17 cfs @ 12.12 hrs, Volume= 0.509 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Peak Elev= 75.46' @ 12.12 hrs Surf.Area= 5,040 sf Storage= 9,830 cf

Plug-Flow detention time= 151.8 min calculated for 0.509 af (74% of inflow)
Center-of-Mass det. time= 65.8 min (844.8 - 779.0)

Volume	Invert	Avail.Storage	Storage Description
#1	73.00'	18,675 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
73.00	2,993	0	0
74.50	4,198	5,393	5,393
75.00	4,624	2,206	7,599
76.00	5,524	5,074	12,673
77.00	6,481	6,003	18,675

1' of freeboard with primary outlets clogged

Device	Routing	Invert	Outlet Devices
#1	Primary	73.00'	**0.750 in/hr Exfiltration X 0.00 over Surface area** Phase-In= 0.01'
#2	Secondary	74.50'	**24.0" Horiz. Orifice/Grate X 0.00** C= 0.600 Limited to weir flow at low heads
#3	Tertiary	75.00'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=73.00' TW=0.00' (Dynamic Tailwater)
└**1=Exfiltration** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=73.00' TW=71.00' (Dynamic Tailwater)
└**2=Orifice/Grate** (Controls 0.00 cfs)

Tertiary OutFlow Max=8.13 cfs @ 12.12 hrs HW=75.46' TW=0.00' (Dynamic Tailwater)
└**3=Broad-Crested Rectangular Weir** (Weir Controls 8.13 cfs @ 1.77 fps)

SOIL FILTER SF3 SPILLWAY CALCULATION - 100-YEAR

Summary for Pond SF3: Soil Fliter

Inflow Area = 1.751 ac, 62.36% Impervious, Inflow Depth > 6.94" for 100-Yr Storm event
Inflow = 13.61 cfs @ 12.07 hrs, Volume= 1.013 af
Outflow = 12.25 cfs @ 12.11 hrs, Volume= 0.836 af, Atten= 10%, Lag= 2.2 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Tertiary = 12.25 cfs @ 12.11 hrs, Volume= 0.836 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Peak Elev= 75.59' @ 12.11 hrs Surf.Area= 5,156 sf Storage= 10,491 cf

Plug-Flow detention time= 124.8 min calculated for 0.836 af (82% of inflow)
Center-of-Mass det. time= 54.9 min (824.9 - 770.0)

Volume	Invert	Avail.Storage	Storage Description
#1	73.00'	18,675 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
73.00	2,993	0	0
74.50	4,198	5,393	5,393
75.00	4,624	2,206	7,599
76.00	5,524	5,074	12,673
77.00	6,481	6,003	18,675

Filter does not overtop in 100-year with primary outlets clogged.

Device	Routing	Invert	Outlet Devices
#1	Primary	73.00'	**0.750 in/hr Exfiltration X 0.00 over Surface area** Phase-In= 0.01'
#2	Secondary	74.50'	**24.0" Horiz. Orifice/Grate X 0.00** C= 0.600 Limited to weir flow at low heads
#3	Tertiary	75.00'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=73.00' TW=0.00' (Dynamic Tailwater)
└**1=Exfiltration** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=73.00' TW=71.00' (Dynamic Tailwater)
└**2=Orifice/Grate** (Controls 0.00 cfs)

Tertiary OutFlow Max=12.17 cfs @ 12.11 hrs HW=75.59' TW=0.00' (Dynamic Tailwater)
└**3=Broad-Crested Rectangular Weir** (Weir Controls 12.17 cfs @ 2.07 fps)

SOIL FILTER SF4 SPILLWAY CALCULATION - 25-YEAR

Summary for Pond SF4: Soil Filter

Inflow Area = 1.552 ac, 80.02% Impervious, Inflow Depth > 5.11" for 25-Yr Storm event
Inflow = 8.69 cfs @ 12.07 hrs, Volume= 0.661 af
Outflow = 7.59 cfs @ 12.11 hrs, Volume= 0.483 af, Atten= 13%, Lag= 2.6 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Tertiary = 7.59 cfs @ 12.11 hrs, Volume= 0.483 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Peak Elev= 75.44' @ 12.11 hrs Surf.Area= 4,921 sf Storage= 9,767 cf

Plug-Flow detention time= 166.3 min calculated for 0.483 af (73% of inflow)
Center-of-Mass det. time= 77.2 min (838.4 - 761.2)

Volume	Invert	Avail.Storage	Storage Description
#1	73.00'	18,442 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
73.00	3,128	0	0
74.50	4,186	5,486	5,486
75.00	4,566	2,188	7,674
76.00	5,370	4,968	12,642
77.00	6,231	5,801	18,442

1' of freeboard with primary outlets clogged

Device	Routing	Invert	Outlet Devices
#1	Primary	73.00'	**0.750 in/hr Exfiltration X 0.00 over Surface area** Phase-In= 0.01'
#2	Secondary	74.50'	**24.0" Horiz. Orifice/Grate X 0.00** C= 0.600 Limited to weir flow at low heads
#3	Tertiary	75.00'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=73.00' TW=0.00' (Dynamic Tailwater)
└**1=Exfiltration** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=73.00' TW=70.59' (Dynamic Tailwater)
└**2=Orifice/Grate** (Controls 0.00 cfs)

Tertiary OutFlow Max=7.55 cfs @ 12.11 hrs HW=75.44' TW=0.00' (Dynamic Tailwater)
└**3=Broad-Crested Rectangular Weir** (Weir Controls 7.55 cfs @ 1.72 fps)

SOIL FILTER SF4 SPILLWAY CALCULATION - 100-YEAR

Summary for Pond SF4: Soil Filter

Inflow Area = 1.552 ac, 80.02% Impervious, Inflow Depth > 7.38" for 100-Yr Storm event
Inflow = 12.37 cfs @ 12.07 hrs, Volume= 0.954 af
Outflow = 11.11 cfs @ 12.11 hrs, Volume= 0.775 af, Atten= 10%, Lag= 2.3 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Tertiary = 11.11 cfs @ 12.11 hrs, Volume= 0.775 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Peak Elev= 75.56' @ 12.11 hrs Surf.Area= 5,014 sf Storage= 10,343 cf

Plug-Flow detention time= 138.6 min calculated for 0.775 af (81% of inflow)
Center-of-Mass det. time= 65.3 min (819.9 - 754.6)

Volume	Invert	Avail.Storage	Storage Description
#1	73.00'	18,442 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
73.00	3,128	0	0
74.50	4,186	5,486	5,486
75.00	4,566	2,188	7,674
76.00	5,370	4,968	12,642
77.00	6,231	5,801	18,442

Filter does not overtop in 100-year with primary outlets clogged.

Device	Routing	Invert	Outlet Devices
#1	Primary	73.00'	**0.750 in/hr Exfiltration X 0.00 over Surface area** Phase-In= 0.01'
#2	Secondary	74.50'	**24.0" Horiz. Orifice/Grate X 0.00** C= 0.600 Limited to weir flow at low heads
#3	Tertiary	75.00'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=73.00' TW=0.00' (Dynamic Tailwater)
└**1=Exfiltration** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=73.00' TW=70.59' (Dynamic Tailwater)
└**2=Orifice/Grate** (Controls 0.00 cfs)

Tertiary OutFlow Max=11.04 cfs @ 12.11 hrs HW=75.56' TW=0.00' (Dynamic Tailwater)
└**3=Broad-Crested Rectangular Weir** (Weir Controls 11.04 cfs @ 1.99 fps)

Appendix D:
USDA Soil Map



Map Scale: 1:2,670 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 35 70 140 210

Feet
0 100 200 400 600

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Cumberland County and Part of Oxford County, Maine
Survey Area Data: Version 19, Aug 30, 2022

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jun 19, 2020—Sep 20, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
BgB	Nicholville very fine sandy loam, 0 to 8 percent slopes	C	7.8	22.3%
BuB	Lamoine silt loam, 3 to 8 percent slopes	C/D	0.0	0.1%
BuC2	Buxton silt loam, 8 to 15 percent slopes	C/D	5.8	16.5%
HrB	Lyman-Tunbridge complex, 0 to 8 percent slopes, rocky	D	0.9	2.7%
Sn	Scantic silt loam, 0 to 3 percent slopes	D	19.9	56.9%
W	Water		0.5	1.5%
Totals for Area of Interest			**35.0**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Appendix E:
Inspection & Maintenance Plan &
City of Portland Stormwater Maintenance Agreement

Inspection and Maintenance Plan
For Stormwater Management Facilities

University of New England
Intermodal Transportation Facility
Bishop Street, Portland, Maine
January 20, 2023

Stormwater management facilities include paved surfaces, catch basins and drainage manholes, culverts, storm drain pipe, ditches/swales, and grassed underdrain soil filters. During construction activities and upon completion of construction, the operation and maintenance of all stormwater management facilities, the establishment of any contract services required to implement the program, and the keeping of records and maintenance log book will be the responsibility of the University of New England.

The University of New England shall enter into a Stormwater Drainage System Maintenance Agreement with the City of Portland to be recorded at the Cumberland County Registry of Deeds. A template for this agreement is included in this section and shall be completed upon final approval of the project.

At a minimum, the following maintenance activities for each stormwater management system shall be performed on a prescribed schedule.

Paved Surfaces

Accumulations of winter sand along paved surfaces shall be cleared at least once a year, preferably in the spring, and periodically during the year on an as-needed basis, to minimize transportation of sediment during rainfall events. Accumulations on pavement may be removed by pavement sweeping or vacuuming. Accumulations of sand along road shoulders may be removed by grading excess sand to the pavement edge and removing it manually or by a front-end loader.

Ditches and Swales

Open swales and ditches shall be inspected twice per year (in spring and fall) to assure that debris and/or sediments do not reduce the effectiveness of the system. Debris and sediments shall be removed at that time. Any sign of erosion or blockage shall be immediately repaired to assure a vigorous growth of vegetation for the stability of the ditches and slopes proper function. Maintenance shall include, but not be limited to, mowing, trimming and removal vegetation in the ditches and slopes as required in order to prevent vegetation from blocking or diverting storm flows, replacement of riprap channel lining to prevent scour of the channel invert, removing vegetation and debris from the culverts.

Vegetated ditches should be mowed at least monthly during the growing season. Larger brush or trees must not be allowed to become established in the channel. Any areas where

the vegetation fails will be subject to erosion and should be reseeded and mulched immediately.

Riprap ditches and aprons where stone is displaced should be replaced and chinked to assure stability. With time, additional riprap may be added. Vegetation growing through riprap should be removed on an annual basis.

Catch Basins, Field Inlets, and Drainage Manholes

All catch basins, field inlets, and drainage manholes throughout the collection system shall be inspected twice per year (in spring and fall) to assure that the inlet entry and grates are clear of debris and will accept the intended flows. Any debris and sediments shall be cleared. Sediment should be removed from these structures when it accumulates within 12 inches of the lowest pipe invert. At a minimum, remove floating debris and hydrocarbons at the time of the inspection. The removed material must be disposed of in accordance with the Maine Solid Waste Disposal Rules. Confined space entry safety procedures shall be practiced should entry into these structures be required

Culverts and Storm Drainage Pipes

Culverts and piped drainage systems shall be inspected on an annual basis to remove any obstructions to flow; remove accumulated sediments and debris at the inlet, at the outlet, and within the conduit; and to repair any erosion damage at the pipe inlet and outlet. Sediment should be removed when its level exceeds 20% of the pipe diameter. This may be accomplished by hydraulic flushing or any mechanical means; however, care should be taken to contain the sediment at the pipe outlet, and not flush the sediments into the stormwater filter or wetland areas as this will reduce the ponds capacity and ability to infiltrate runoff, and will hasten the time when the pond must be cleaned or rehabilitated.

Riprap aprons where stone is displaced should be replaced and chinked to assure stability. With time, additional riprap may be added. Vegetation growing through riprap should be removed on an annual basis.

Grassed Underdrained Soil Filters

Mowing and removal of woody growth – underdrained soil filters are designed to grow water tolerant plantings and mowing is not required in the interior of the structure. However, the external and top slopes of earthen embankments will be mowed up to three times per growing season to control over growth.

Outlet inspection and cleaning – The soil filter outlet consists of a layer of planting loam and sand with a stone and perforated pipe underdrain. Influx of sediments will be limited by sumps on all upstream catch basin structures and vegetated swales. Outlet inspections shall include flushing of the underdrain through the cleanout at the end of the pipe. Trash, sediment and debris shall be removed from the vicinity of the outlet and disposed of at a

licensed off-site facility. The basin shall be inspected bi-annually for evidence of excessive retention or rapid release of flow.

If the filter fails to drain within 72 hours, the surface of the pond shall be rototilled to promote aeration of the filter media and vegetation shall be re-established. If aeration of the surface soil fails to promote filtration of impounded water within 72 hours, then the filter media shall be replaced as necessary. The stone underdrain shall also be replaced at this time, along with the perforated pipe.

If the filter drains too rapidly, (i.e. prior to 24 hours), then an adjustable orifice shall be installed on the underdrain outlet pipe. The orifice shall be adjusted such that the filter completely drains within 24 to 72 hours.

Underdrained soil filters shall not be used for snow storage areas.

Vehicular equipment used to maintain or rehabilitate underdrained soil filters should work from the basin perimeter and not enter the basin area, as this will compact the soil surface and reduce the design infiltration rate.

Disposal

Any sediment or debris removed during maintenance of the stormwater system must be disposed of in accordance with the Maine Solid Waste Disposal Rules.

Recordkeeping

University of New England will keep a written maintenance log that summarizes inspections, maintenance, and any corrective actions taken. The log shall include the date on which each inspection or maintenance task was performed, a description of the inspection findings or maintenance completed, and the name of the inspector or maintenance personnel performing the task. If a maintenance task requires the clean-out of any sediment or debris, the location where the sediment or debris was disposed after removal will be indicated. This log shall be made available to the City of Portland upon request.

UNE Intermodal Transportation Facility Bishop Street, Portland, Maine			
INSPECTION / MAINTENANCE LOG			
SWALES, DITCHES, PAVED SURFACES AND RIPRAP APRONS			
I: INSPECTED - C: CLEANED - S: SWEPT - R: REPAIRED			
DATE	**INITIALS**	**ACTION**	**COMMENT**
3/28/22	GHI	I, C	EXAMPLE: removed sand along the edge of the road near lots 7 & 8. Heavy rain over the weekend.

UNE Intermodal Transportation Facility
Bishop Street, Portland, Maine

INSPECTION / MAINTENANCE LOG

OUTLET STRUCTURES, CATCH BASINS, AND DRAIN PIPES

I: INSPECTED - C: CLEANED - R: REPAIRED

DATE	INITIALS	ACTION	COMMENT
3/28/22	JKL	I, C	EXAMPLE: Called ACME to clean the outlet structure in pond 1, cleaned debris from culvert inlet in pond 2.

UNE Intermodal Transportation Facility
Bishop Street, Portland, Maine

INSPECTION / MAINTENANCE LOG

UNDERDRAINED SOIL FILTERS

I: INSPECTED - C: CLEANED - S: SWEPT - R: REPAIRED

DATE	INITIALS	ACTION	COMMENT
3/28/22	RST	I	EXAMPLE: Cleared sediment and plant debris from inlet area, mowed filter area, crest, and sideslopes.

UNE Intermodal Transportation Facility Bishop Street, Portland, Maine					
STORMWATER MANAGEMENT SYSTEM MAINTENANCE PROGRAM SUMMARY CHECKLIST					
Item	**Commentary**	**Frequency**			
		Month	**Semi-Annual**	**Annual**	**Long-Term**
Pavement	Review for damage and buildup of debris and sand.	**X**	**X Sweep**		
Swales, Ditches, and Riprap Aprons	Inspect for debris accumulation, erosion and excessive vegetation. Mow monthly, remove debris, repair and revegetate any area of erosion	**X Mow**		**X**	
Outlet Structures, Catch Basins, and Drain Pipes	Inspect for sediment buildup in pipe. Flush and remove as required.			**X**	
Underdrained Soil Filter	Mow twice per year. Inspect for erosion.		**X**		

STORMWATER DRAINAGE SYSTEM
MAINTENANCE AGREEMENT
DRAFT

For SITE PLANS (THAT ARE NOT SUBDIVISIONS)

IN CONSIDERATION OF the site plan approval granted by the Planning Board/Planning Authority of the City of Portland for the proposed Intermodal Transportation Facility Parking Improvements project, project number TBD, and the associated Site Grading and Drainage Site Erosion and Sediment Control Plan (Exhibit A) submitted by University of New England, prepared by Site Design Associates, Inc. of 23 Whitney Way, Topsham, Maine 04086, dated TBD, and pursuant to a condition thereof, University of New England with a principal place of business in Portland, Maine, and having a mailing address of 11 Hills Beach Road, Biddeford, Maine 04005, the owner of the subject premises, does hereby agree, for itself, its successors and assigns (the "Owner"), as follows:

Maintenance Agreement

That it, its successors and assigns, will, at its own cost and expense and at all times in perpetuity, maintain in good repair and in proper working order the underdrained soil filters, vegetated areas, catch basins, stormdrain piping, and level spreader, (hereinafter collectively referred to as the "stormwater system"), as shown on the plans in Exhibit A and in strict compliance with the approved University of New England Inspection and Maintenance Plan of Stormwater Management Facilities prepared for the Owner by Site Design Associates (copy attached as Exhibit B) and Chapter 32 of the Portland City Code.

Owner of the subject premises further agrees, at its own cost, to keep a Stormwater Maintenance Log. Such log shall be made available for inspection by the City of Portland upon reasonable notice and request.

Said agreement is for the benefit of the said City of Portland and all persons in lawful possession of said premises and abutters thereto; further, that the said City of Portland and said persons in lawful possession may enforce this Agreement by an action at law or in equity in any court of competent jurisdiction; further, that after giving the Owner written notice and a stated time to perform, the said City of Portland, by its authorized agents or representatives, may, but is not obligated to, enter upon said premises to maintain, repair, or replace said stormwater system in the event of any failure or neglect thereof, the cost and expense thereof to be reimbursed in full to the said City of Portland by the Owner upon written demand. Any funds owed to the City under this paragraph shall be secured by a lien on the property.

This Agreement shall also not be construed to allow any change or deviation from the requirements of the site plan most recently and formally approved by the Planning Board/Planning Authority of the City of Portland.

This agreement shall bind the undersigned only so long as it retains any interest in said premises, and shall run with the land and be binding upon the Owner's successors and assigns as their interests may from time to time appear.

The Owner agrees to record a copy of this Agreement in the Cumberland County Registry of Deeds within thirty (30) days of final execution of this Agreement. The Owner further agrees to provide a copy of this Agreement to any Condominium Association or management company, and to any successor or assign and to forward to the City an Addendum signed by any successor or assign in which the successor or assign states that the successor or assign has read the Agreement, agrees to all its terms and conditions and the successor or assign will obtain and forward to the City's Department of Public Services and Department of Planning and Urban Development a similar Addendum from any other successor or assign.

For the purpose of this agreement and release "Owner" is any person or entity who is a successor or assign and has a legal interest in part, or all, of the real estate and any building. The real estate shown by chart, block and lot number in the records on file in the City Assessor's office shall constitute "the property" that may be entered by the City and liened if the City is not paid all of its costs and charges following the mailing of a written demand for payment to the owner pursuant to the process and with the same force and effect as that established by 36 M.R.S.A. §§ 942 and 943 for real estate tax liens.

Any written notices or demands required by the agreement shall be complete on the date the notice is attached to one or more doors providing entry to any buildings and mailed by certified mail, return receipt requested or ordinary mail or both to the owner of record as shown on the tax roles on file in the City Assessor's Office.

If the property has more than one owner on the tax rolls, service shall be complete by mailing it to only the first listed owner. The failure to receive any written notice required by this agreement shall not prevent the City from entering the property and performing maintenance or repairs on the stormwater system, or any component thereof, or liening it or create a cause of action against the City.

Dated at Portland, Maine this _____ day of _____, 2021.

_____
University of New England

_____
Alan Thibeault, Vice President for University Operations

STATE OF MAINE
CUMBERLAND, ss. Date: _____

Personally appeared the above-named _____(*name and title*), and acknowledged the foregoing instrument to be his free act and deed in his said capacity.

Before me,

_____
Notary Public/Attorney at Law

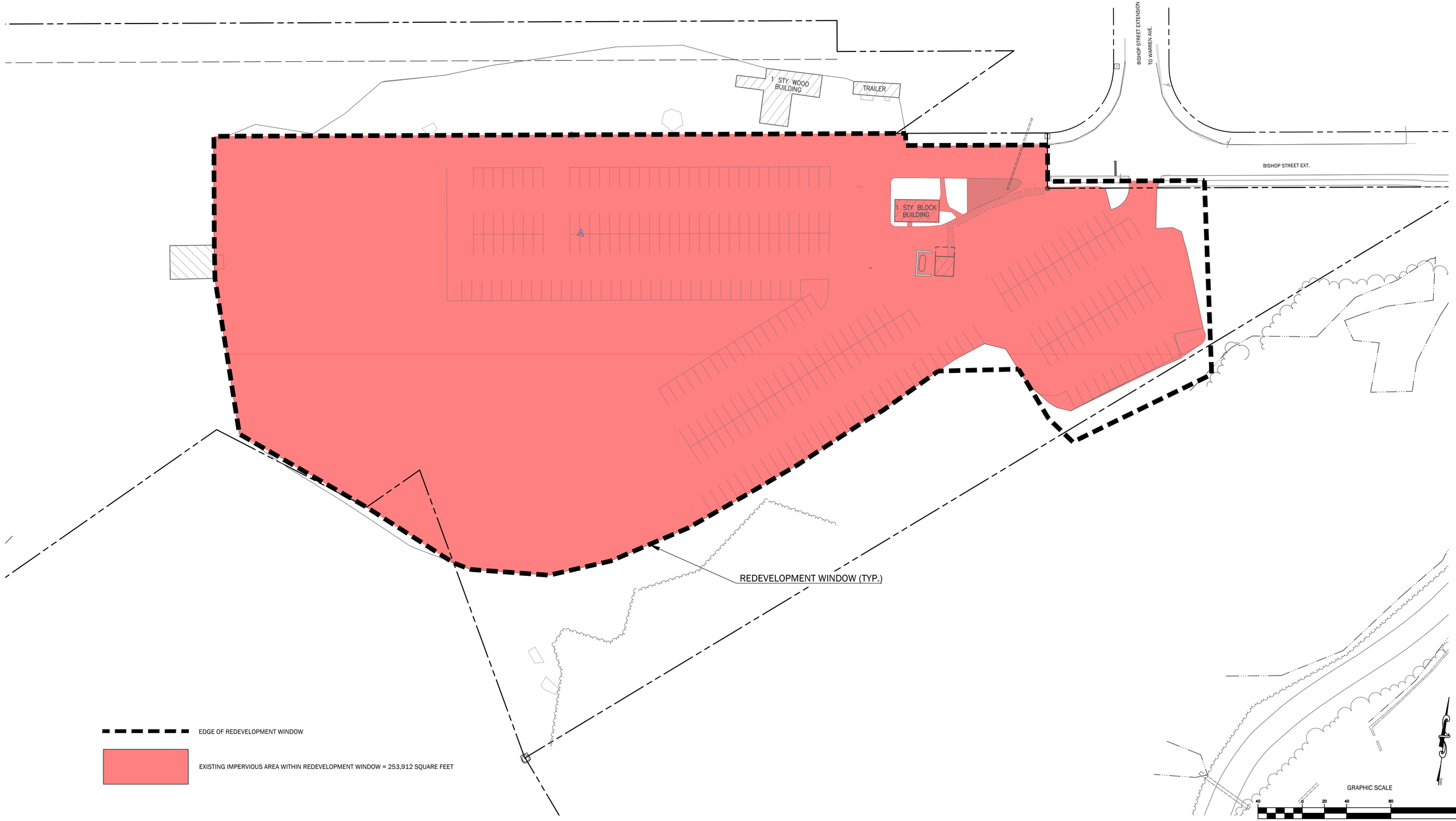
Print name: _____

Exhibit A: Approved Grading, Drainage, and Erosion Control Plan

Exhibit B: University of New England Inspection and Maintenance Plan of Stormwater Management Facilities

Appendix F
Drainage Plans

I1.0 – Pre Development Impervious Area Plan
I2.0 – Post Development Impervious Area Plan
R1.0 – Pre Development Pollutant Loading Plan
R2.0 – Post Development Pollutant Loading Plan
D1.0 – Pre Development Drainage Plan
D2.0 – Post Development Drainage Plan
D3.0 – Stormwater Treatment Plan



TAX MAP I.D.
291 A001
281 A003

THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM SITE DESIGN ASSOCIATES, ANY ALTERATIONS, OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO SITE DESIGN ASSOCIATES.

REV.	DATE	STATUS	BY	CHKD.	APPD.
A	1/20/2023	FOR CITY REVIEW	DEPT.	TWS	TWS

STATE OF MAINE
THOMAS W. SIRLUCIER
NO. 6008
LICENSED
PROFESSIONAL ENGINEER
1/20/2023

Site Design Associates
Consulting Engineering & Land Planning
23 Whitney Way Topsham, Maine 04086 Tel: (207) 449-4275

CLIENT:
UNIVERSITY OF NEW ENGLAND
11 HILLS BEACH ROAD BIDDEFORD, MAINE 04005

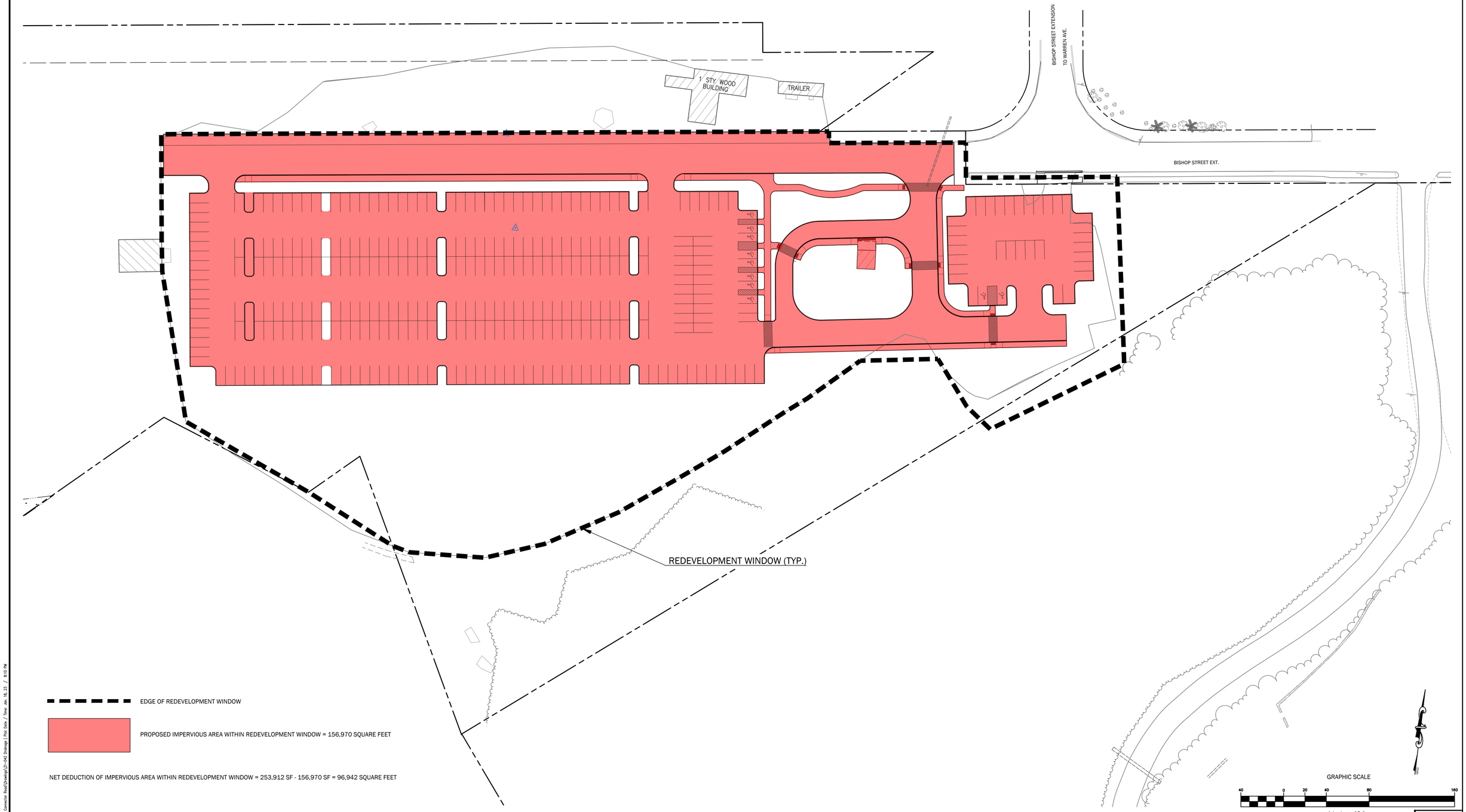
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DRAWN: DEPT.
CHKD: TWS
DATE: DEC. 2022
SCALE: 1" = 40'

PROJECT: RECONSTRUCTION OF INTERMODAL TRANSPORTATION FACILITY AND PARKING
160–172 BISHOP STREET PORTLAND, MAINE

PRE DEVELOPMENT
IMPERVIOUS AREA PLAN

PROJ. NO. 21–216–00
DWG. NO. I1.0
REV. A

Drawing Name: C:\Users\tsirlucier\Desktop\Desktop Drawings\21-042 UNE Connector Road\Drawings\21-042 Drainage | Plot Date / Time: Jan. 18, 23 / 8:10 PM



THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM SITE DESIGN ASSOCIATES, ANY ALTERATIONS, OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO SITE DESIGN ASSOCIATES.

REV.	DATE	STATUS	BY	CHKD.	APPD.
A	1/20/2023	FOR CITY REVIEW	DEPT.	TWS	TWS

STATE OF MAINE THOMAS W. SAUCIER NO. 6086 LICENSED PROFESSIONAL ENGINEER
1/20/2023

Site Design Associates
Consulting Engineering & Land Planning
23 Whitney Way Topsham, Maine 04086 Tel: (207) 449-4275

CLIENT:
UNIVERSITY OF NEW ENGLAND
11 HILLS BEACH ROAD BIDDEFORD, MAINE 04005

DESIGN: DEPT.
DRAWN: DEPT.
CHKD: TWS
DATE: DEC. 2022
SCALE: 1" = 40'

PROJECT: RECONSTRUCTION OF INTERMODAL TRANSPORTATION FACILITY AND PARKING
160–172 BISHOP STREET PORTLAND, MAINE

POST DEVELOPMENT IMPERVIOUS AREA PLAN

PROJ. NO. 21–216–00
DWG. NO. 12.0
REV. A

TAX MAP I.D.
291 A001
281 A003

Drawing Name: C:\Users\Jlaw\Documents\Desktop Drawings\21-042 UNE Connector Road\Drawings\21-042 Drainage | Plot Date / Time: Jan. 19, 23 / 8:10 PM

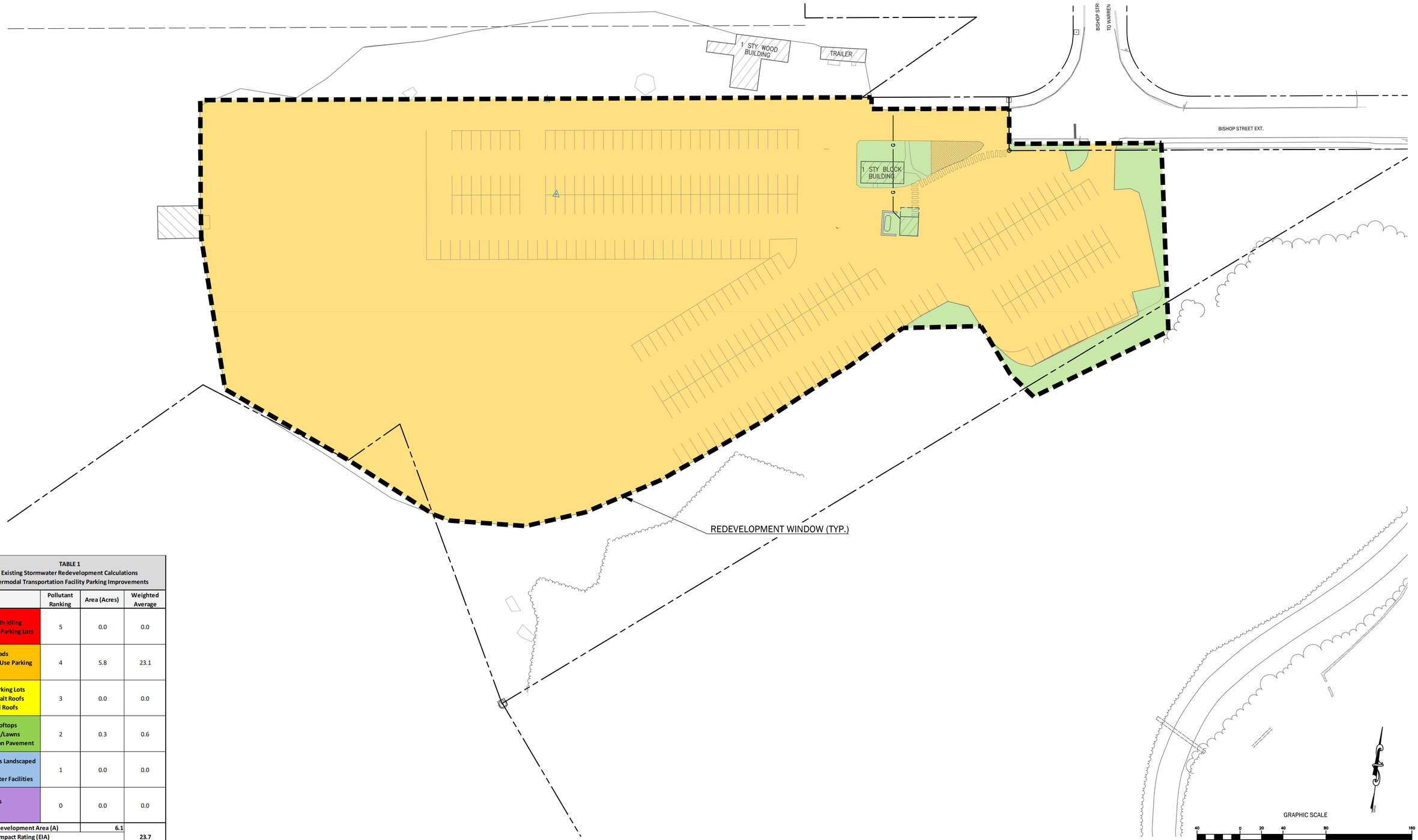


TABLE 1
Existing Stormwater Redevelopment Calculations
Intermodal Transportation Facility Parking Improvements

Land Use	Pollutant Ranking	Area (Acres)	Weighted Average
Roads with Idling High Use Parking Lots	5	0.0	0.0
Other Roads Medium Use Parking Lots	4	5.8	23.1
Other Parking Lots Flat Asphalt Roofs Industrial Roofs	3	0.0	0.0
Other Rooftops Bikeways/Lawns Pedestrian Pavement	2	0.3	0.6
Non-grass Landscaped areas Stormwater Facilities	1	0.0	0.0
Meadows Forest	0	0.0	0.0
Total Redevelopment Area (A)		6.1	
Existing Impact Rating (EIA)			23.7
Existing Pollutant Ranking (EPR) =	EIA/A =		3.90

TAX MAP I.D.
291 A001
281 A003

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REV.	DATE	STATUS	BY	CHKD.	APPD.
A	1/20/2023	FOR CITY REVIEW	DEPT.	TWS	TWS

STATE OF MAINE
THOMAS W. SKUCIER
NO. 8078
LICENSED
PROFESSIONAL ENGINEER
1/20/2023

Site Design Associates
Consulting Engineering & Land Planning
23 Whitney Way Topsham, Maine 04086 Tel: (207) 449-4275

CLIENT:
UNIVERSITY OF NEW ENGLAND
11 HILLS BEACH ROAD BIDDEFORD, MAINE 04005

DESIGN: DEPT.
DRAWN: DEPT.
CHKD: TWS
DATE: DEC. 2022
SCALE: 1" = 40'

PROJECT:
RECONSTRUCTION OF INTERMODAL TRANSPORTATION FACILITY AND PARKING
160–172 BISHOP STREET PORTLAND, MAINE

PRE DEVELOPMENT
POLLUTANT LOADING PLAN

PROJ. NO. 21–216–00
DWG. NO. R1.0
REV. A

Drawing Name: C:\Users\Skuc\Desktop\Desktop Drawings\21-042 UNE Connector Road\Drawings\21-042 Drainage | Plot Date / Time: Jan. 19, 23 / 2:09 PM

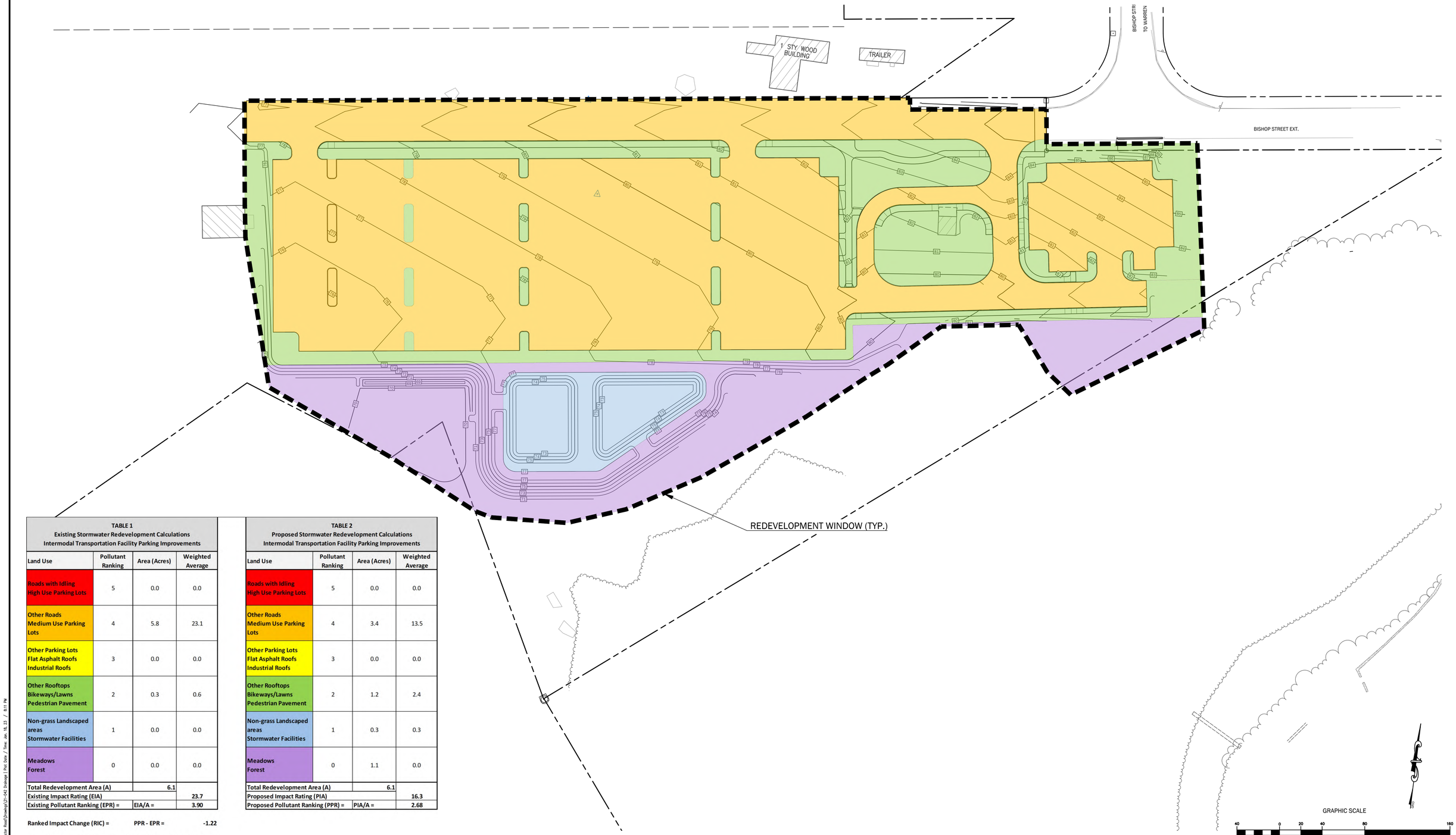


TABLE 1
Existing Stormwater Redevelopment Calculations
Intermodal Transportation Facility Parking Improvements

Land Use	Pollutant Ranking	Area (Acres)	Weighted Average
Roads with Idling High Use Parking Lots	5	0.0	0.0
Other Roads Medium Use Parking Lots	4	5.8	23.1
Other Parking Lots Flat Asphalt Roofs Industrial Roofs	3	0.0	0.0
Other Rooftops Bikeways/Lawns Pedestrian Pavement	2	0.3	0.6
Non-grass Landscaped areas Stormwater Facilities	1	0.0	0.0
Meadows Forest	0	0.0	0.0
Total Redevelopment Area (A)		6.1	
Existing Impact Rating (EIA)			23.7
Existing Pollutant Ranking (EPR) =	EIA/A =		3.90

TABLE 2
Proposed Stormwater Redevelopment Calculations
Intermodal Transportation Facility Parking Improvements

Land Use	Pollutant Ranking	Area (Acres)	Weighted Average
Roads with Idling High Use Parking Lots	5	0.0	0.0
Other Roads Medium Use Parking Lots	4	3.4	13.5
Other Parking Lots Flat Asphalt Roofs Industrial Roofs	3	0.0	0.0
Other Rooftops Bikeways/Lawns Pedestrian Pavement	2	1.2	2.4
Non-grass Landscaped areas Stormwater Facilities	1	0.3	0.3
Meadows Forest	0	1.1	0.0
Total Redevelopment Area (A)		6.1	
Proposed Impact Rating (PIA)			16.3
Proposed Pollutant Ranking (PPR) =	PIA/A =		2.68

Ranked Impact Change (RIC) = **PPR - EPR =** **-1.22**

RIC < 0.0 => 50% Impervious Area Treatment Required (City Standard)

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REV.	DATE	STATUS	BY	CHKD.	APPD.
A	1/20/2023	FOR CITY REVIEW	DEPT.	TWS	TWS

STATE OF MAINE — THOMAS W. SAUCIER NO. 6086 — REGISTERED PROFESSIONAL ENGINEER
1/20/2023

Site Design Associates
Consulting Engineering & Land Planning
23 Whitney Way Topsham, Maine 04086 Tel: (207) 449-4275

CLIENT:
UNIVERSITY OF NEW ENGLAND
11 HILLS BEACH ROAD BIDDEFORD, MAINE 04005

DESIGN: DEPT.
DRAWN: DEPT.
CHKD: TWS
DATE: DEC. 2022
SCALE: 1" = 40'

PROJECT: RECONSTRUCTION OF INTERMODAL TRANSPORTATION FACILITY AND PARKING
160–172 BISHOP STREET PORTLAND, MAINE

POST DEVELOPMENT
POLLUTANT LOADING PLAN

PROJ. NO. 21–216–00
DWG. NO. R2.0
REV. A

TAX MAP I.D.
291 A001
281 A003

Drawing Name: C:\Users\Shan\Desktop\Desktop Drawings\21-042 UNE Connector Road\Drawings\21-042 Drainage | Plot Date / Time: Jan. 19, 23 / 8:11 PM

SOIL NOTES

SOIL TYPES AND BOUNDARIES OBTAINED FROM SOIL SURVEY STAFF, NATURAL RESOURCES CONSERVATION SERVICE, UNITED STATES DEPARTMENT OF AGRICULTURE. WEB SOIL SURVEY. AVAILABLE ONLINE AT THE FOLLOWING LINK: HTTP://WEBSOILSURVEY.SC.EGOV.USDA.GOV/. ACCESSED 12/15/2022.

HrB (HSG D)

BuC2 (HSG C/D)

Sn (HSG D)

1 STY. WOOD BUILDING

TRAILER

1 STY. BLOCK BUILDING

BUILDING

HYDRANT

BISHOP STREET EXTENSION

TO WARREN AVE.

BISHOP STREET EXT.

CONTROL BOX

GATE

STONE & MORTAR WALL

8.0

7.1

7.0

R7.1

AP8

DRAINAGE LEGEND

- SUBCATCHMENT BOUNDARY
- 1 — SUBCATCHMENT DESIGNATION
- A — TIME OF CONCENTRATION FLOW
- REACH
- R1 — REACH DESIGNATION
- AP#1 — ANALYSIS POINT
- 1 — POND TEXT

Tc FLOW LINE DATA:

SUBCATCHMENT 7.0

SEGMENT	TIME (MIN.)	LENGTH	SLOPE	FLOW TYPE
AB	46.6	150'	0.027	SHEET FLOW
BC	2.8	120'	0.080	SHALLOW CONCENTRATED FLOW

Tc FOR ALL REMAINING SUBCATCHMENTS = 5 MINUTES.

GRAPHIC SCALE

40 0 20 40 80 160

1 inch = 40 ft.

TAX MAP I.D.
291 A001
281 A003

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REV.	DATE	STATUS	BY	CHKD.	APPD.
A	1/20/2023	FOR CITY REVIEW	DEPT.	TWS	TWS

STATE OF MAINE — THOMAS W. SAUCIER NO. 6026 — LICENSED PROFESSIONAL ENGINEER
1/20/2023

Site Design Associates
Consulting Engineering & Land Planning
23 Whitney Way Topsham, Maine 04086 Tel: (207) 449-4275

CLIENT:
UNIVERSITY OF NEW ENGLAND
11 HILLS BEACH ROAD BIDDEFORD, MAINE 04005

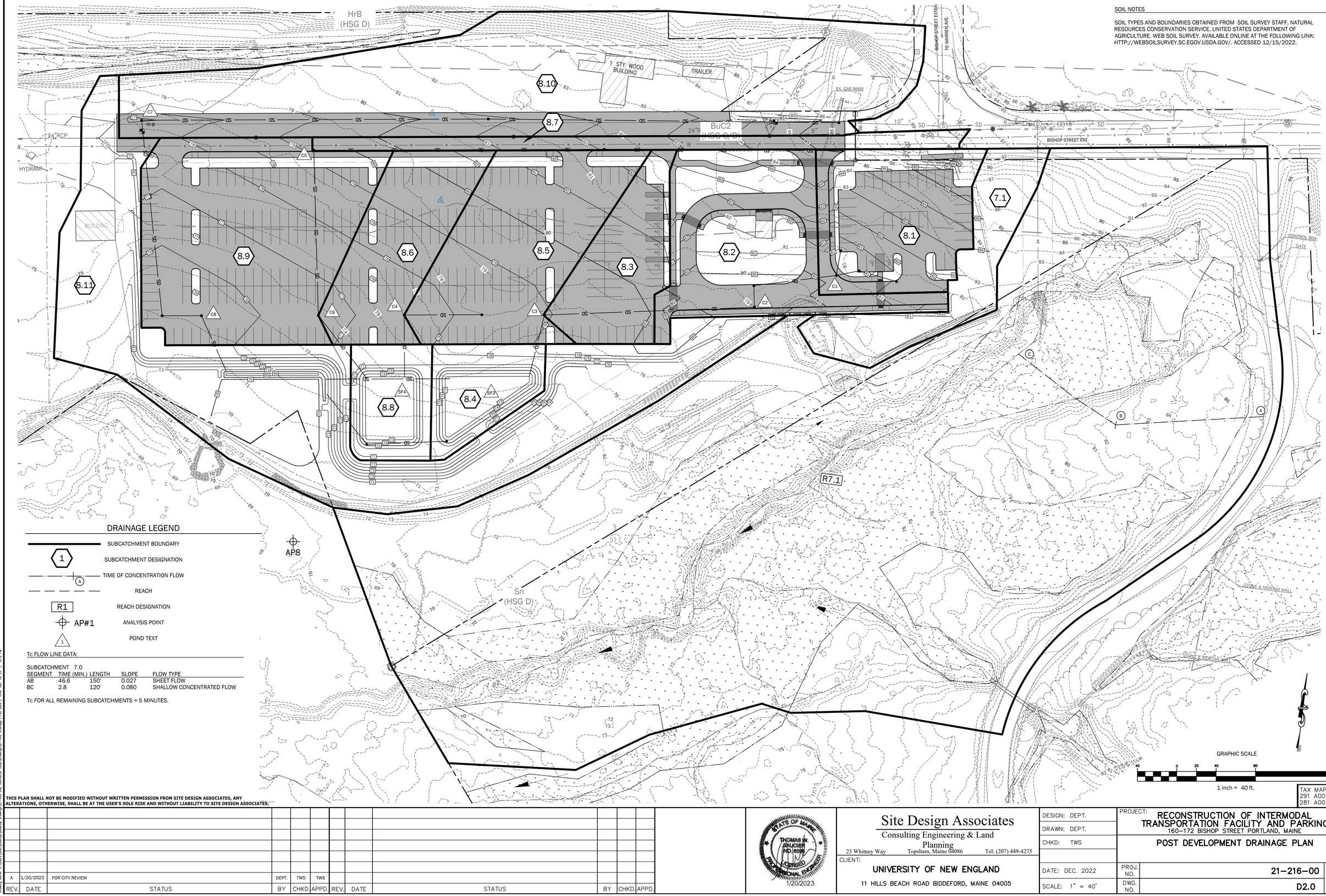
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DRAWN: DEPT.
CHKD: TWS
DATE: DEC. 2022
SCALE: 1" = 40'

PROJECT:
RECONSTRUCTION OF INTERMODAL TRANSPORTATION FACILITY AND PARKING
160-172 BISHOP STREET PORTLAND, MAINE

PRE DEVELOPMENT DRAINAGE PLAN

PROJ. NO. 21-216-00
DWG. NO. D1.0
REV. A

Drawing Name: C:\Users\JStein\Desktop\Desktop Drawings\21-042 UNE Connector Road\Drawings\21-042 Drainage | Plot Date / Time: Jan. 18, 23 / 8:12 PM



SOIL NOTES

SOIL TYPES AND BOUNDARIES OBTAINED FROM SOIL SURVEY STAFF, NATURAL RESOURCES CONSERVATION SERVICE, UNITED STATES DEPARTMENT OF AGRICULTURE. WEB SOIL SURVEY. AVAILABLE ONLINE AT THE FOLLOWING LINK: HTTP://WEBSOILSURVEY.SC.EGOV.USDA.GOV/. ACCESSED 12/15/2022.

DRAINAGE LEGEND

- SUBCATCHMENT BOUNDARY
- 1 — SUBCATCHMENT DESIGNATION
- A — TIME OF CONCENTRATION FLOW
- REACH
- R1 — REACH DESIGNATION
- AP#1 — ANALYSIS POINT
- 1 — POND TEXT

Tc FLOW LINE DATA:

SUBCATCHMENT 7.0

SEGMENT	TIME (MIN.)	LENGTH	SLOPE	FLOW TYPE
AB	46.6	150'	0.027	SHEET FLOW
BC	2.8	120'	0.080	SHALLOW CONCENTRATED FLOW

Tc FOR ALL REMAINING SUBCATCHMENTS = 5 MINUTES.

TAX MAP I.D.
291 A001
281 A003

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REV.	DATE	STATUS	BY	CHKD.	APPD.
A	1/20/2023	FOR CITY REVIEW	DEPT.	TWS	TWS

STATE OF MAINE — THOMAS W. SAUCIER NO. 8026 — LICENSED PROFESSIONAL ENGINEER
1/20/2023

Site Design Associates
Consulting Engineering & Land Planning
23 Whitney Way Topsham, Maine 04086 Tel: (207) 449-4275

CLIENT:
UNIVERSITY OF NEW ENGLAND
11 HILLS BEACH ROAD BIDDEFORD, MAINE 04005

DESIGN: DEPT.
DRAWN: DEPT.
CHKD: TWS
DATE: DEC. 2022
SCALE: 1" = 40'

PROJECT: RECONSTRUCTION OF INTERMODAL TRANSPORTATION FACILITY AND PARKING
160–172 BISHOP STREET PORTLAND, MAINE

POST DEVELOPMENT DRAINAGE PLAN

PROJ. NO. 21–216–00
DWG. NO. D2.0
REV. A

Drawing Name: C:\Users\Gina\Desktop\Desktop Drawings\21-042 UNE Connector Road\Drawings\21-042 Drainage | Plot Date / Time: Jan. 18, 23 / 8:12 PM

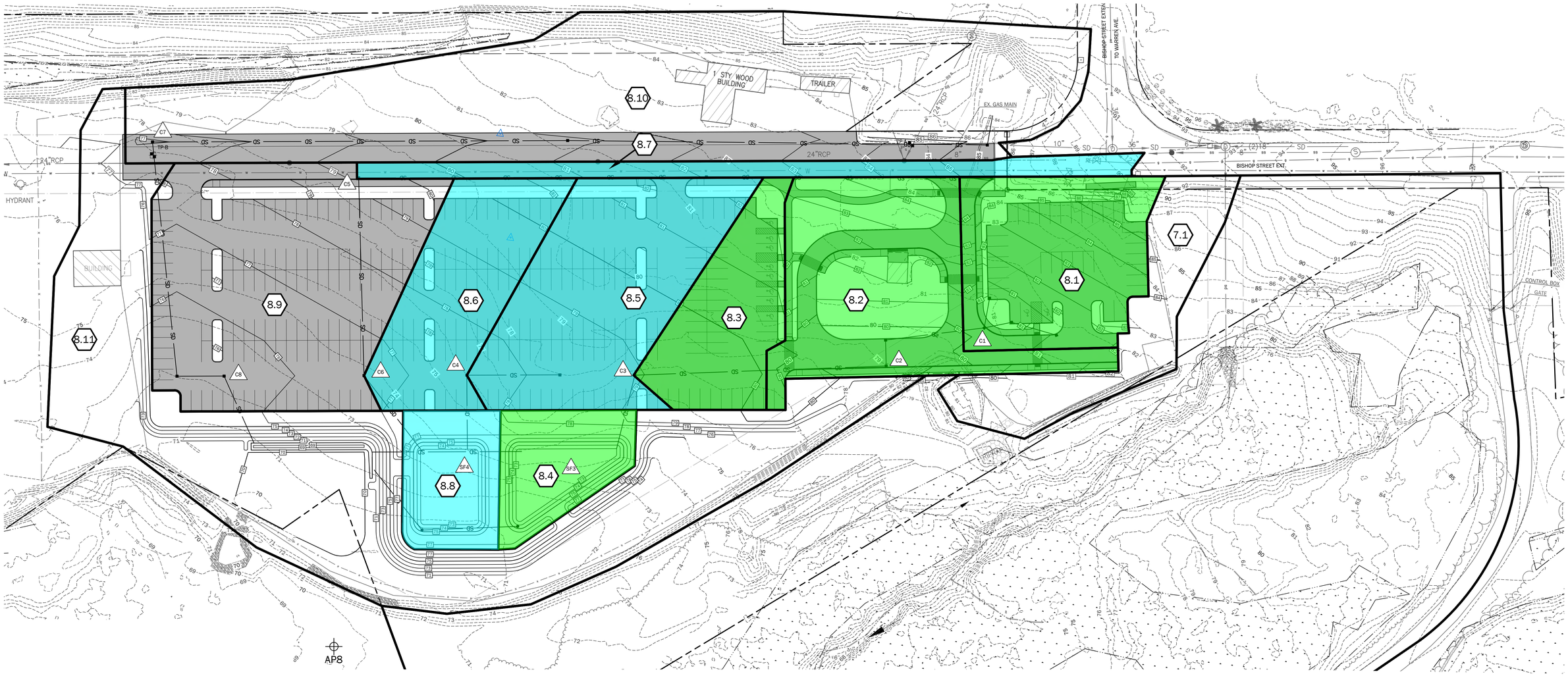


Table 2
Water Quality Calculations

Subcatchment Area	Impervious Area (SF)	Landscaped Area (SF)	Developed Area (SF)	Filter Area Required[1] (SF)	Filter Area Provided (SF)	Water Quality Volume Required[2] (CF)	Water Quality Volume Provided (CF)	Sediment Forebay Volume required[3] (CF)	Sediment Forebay Volume Provided (CF)	BMP
TREATED AREAS										
8.1	17,932	4,661	22,593	2953	2,993	4896	5,393	61	81	Soil Filter (SF3)
8.2	15,948	12,948	28,896							
8.3	13,690	1,133	14,823							
8.4	0	9,967	9,967							
8.5	27,395	2,137	29,532	2975	3,128	4936	5,486	69	203	Soil Filter (SF4)
8.6	16,962	1,722	18,684							
8.7	9,738	0	9,738							
8.8	0	9,646	9,646							
TOTAL TREATED	**101,665**	**42,214**	143,879							
TOTAL REDEVELOPED IMPERVIOUS AREA	**156,970**									
PERCENT REDEVELOPED IMPERVIOUS AREA TREATED	**64.8%**									

Notes:
1. Filter area required is calculated at 5% of contributing impervious area and 2% of contributing landscaped area.
2. Water quality volume required is calculated as 1" over the contributing impervious area plus 0.4" over the contributing landscaped area
3. Sediment Volume Required is calculated as Sanded Area (acres) x 500lbs/acre x 90 lbs/CF x 10 storms/year.
4. See Sheet I2.0 for Total Redeveloped Impervious Area.

AREA TREATED IN SOIL FILTER SF3

AREA TREATED IN SOIL FILTER SF4

GRAPHIC SCALE
40 0 20 40 80 160
1 inch = 40 ft.

TAX MAP I.D.
291 A001
281 A003

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REV.	DATE	STATUS	BY	CHKD.	APPD.	REV.	DATE	STATUS	BY	CHKD.	APPD.
A	1/20/2023	FOR CITY REVIEW	DEPT.	TWS	TWS						

STATE OF MAINE
THOMAS W. SAUCIER
NO. 8078
LICENSED
PROFESSIONAL ENGINEER
1/20/2023

Site Design Associates
Consulting Engineering & Land Planning
23 Whitney Way Topsham, Maine 04086 Tel: (207) 449-4275

CLIENT:
UNIVERSITY OF NEW ENGLAND
11 HILLS BEACH ROAD BIDDEFORD, MAINE 04005

DESIGN: DEPT.
DRAWN: DEPT.
CHKD: TWS
DATE: DEC. 2022
SCALE: 1" = 40'

PROJECT:
RECONSTRUCTION OF INTERMODAL TRANSPORTATION FACILITY AND PARKING
160–172 BISHOP STREET PORTLAND, MAINE

STORMWATER TREATMENT PLAN

PROJ. NO. 21–216–00
DWG. NO. D3.0
REV. A

Drawing Name: C:\Users\SAra\Desktop\Desktop Drawings\21-042 UNE Connector Road\Drawings\21-042 Drainage | Plot Date / Time: Jan. 18, 23 / 8:11 PM

PROJECT:
UNE Harold and Bibby Alfond Center for Health Services
Bishop Street

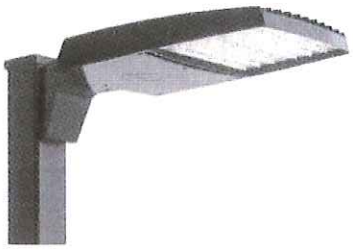
DATA:
Site Lighting

FAVREAU ELECTRIC
37 JORDAN AVENUE
BRUNSWICK, MAINE 04011
VOICE (207) 725-2005
FAX (207) 725-2920

DATE: 1/13/23

SUBMITTED BY: Tobie A. Kay

Submitted by:	Job Name:	Catalog Number:	Type:
VISIBLELIGHT MANUFACTURERS' REPRESENTATIVE	UNE ALFOND CENTER SITE LIGHTING	RSX2 LED P1 40K R3 MVOLT SPA PER7 DBLXD / DLL127F 1.5 JU	AA



RSX2 LED
Area Luminaire

Buy American

Catalog Number

Notes

Type

Hit the tab key or mouse over the page to see all interactive elements.

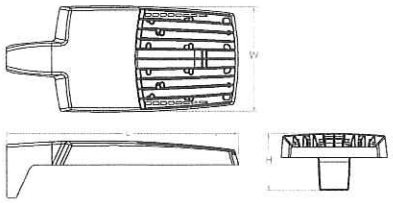
Introduction

The new RSX LED Area family delivers maximum value by providing significant energy savings, long life and outstanding photometric performance at an affordable price. The RSX2 delivers 11,000 to 31,000 lumens allowing it to replace 250W to 1000W HID luminaires.

The RSX features an integral universal mounting mechanism that allows the luminaire to be mounted on most existing drill hole patterns. This "no-drill" solution provides significant labor savings. An easy-access door on the bottom of mounting arm allows for wiring without opening the electrical compartment. A mast arm adaptor, adjustable integral slipfitter and other mounting configurations are available.

Specifications

EPA (ft²@0°):	0.69 ft² (0.06 m²)
Length:	29.3" (74.4 cm) (SPA mount)
Width:	13.4" (34.0 cm)
Height:	3.0" (7.6 cm) Main Body 7.2" (18.3 cm) Arm
Weight: (SPA mount)	30.0 lbs (13.6 kg)



Ordering Information

EXAMPLE: RSX2 LED P6 40K R3 MVOLT SPA DDBXD

RSX2 LED	P1	40K	R3	MVOLT	SPA

Series	Performance Package	Color Temperature	Distribution	Voltage	Mounting
RSX2 LED	P1	30K 3000K	R2 Type 2 Wide	MVOLT (120V-277V) [2]	SPA Square pole mounting (3.0" min. SQ pole for 1 at 90°, 3.5" min. SQ pole for 2, 3, 4 at 90°)
	P2	40K 4000K	R3 Type 3 Wide	HVOLT (347V-480V) [3]	RPA Round pole mounting (3.2" min. dia. RND pole for 2, 3, 4 at 90°, 3.0" min. dia. RND pole for 1 at 90°, 2 at 180°, 3 at 120°)
	P3	50K 5000K	R3S Type 3 Short	XVOLT (277V-480V) [4]	MA Mast arm adaptor (fits 2-3/8" OD horizontal tenon)
	P4		R4 Type 4 Wide	(use specific voltage for options as noted)	IS Adjustable slipfitter (fits 2-3/8" OD tenon) [6]
	P5		R4S Type 4 Short	120 [3] 277 [5]	WBA Wall bracket [1]
	P6		R5 Type 5 Wide [1]	208 [3] 347 [5]	WBASC Wall bracket with surface conduit box
			R5S Type 5 Short [1]	240 [3] 480 [5]	AASP Adjustable tilt arm square pole mounting [6]
			AFR Automotive Front Row		AARP Adjustable tilt arm round pole mounting [6]
			AFRR90 Automotive Front Row Right Rotated		AAWB Adjustable tilt arm with wall bracket [6]
			AFRL90 Automotive Front Row Left Rotated		AAWSC Adjustable tilt arm wall bracket and surface conduit box [6]

PER7 **DBLXD**

Options

Shipped Installed

HS	House-side shield [7]
PE	Photocontrol, button style [8,9]
PEX	Photocontrol external threaded, adjustable [9,11]
PER7	Seven-wire twist-lock receptacle only (no controls) [9,11,12,31]
CE34	Conduit entry 3/4" NPT (Qty 2)
SF	Single fuse (120, 277, 347) [5]
DF	Double fuse (208, 240, 480) [5]
SPD20KV	20KV Surge pack (10KV standard)
FAO	Field adjustable output [9,11]
DMG	0-10V dimming extend out back of housing for external control (control ordered separate) [9,11]
DS	Dual switching [9,14]

Shipped Installed

***Standalone and Networked Sensors/Controls (factory default settings, see table page 9)**

NLTAIR2	nLight AIR generation 2 [13,16,35]
PIRHN	Networked, Bi-Level motion/ambient sensor (for use with NLTAIR2) [13,16,17]
BAA	Buy America(n) Act Compliant

***Note: PIRHN with nLight Air can be used as a standalone dimming sensor with out-of-box settings or as a wireless networked solution. See factory default settings table. Sensor coverage pattern is affected when luminaire is tilted.**

Shipped Separately (requires some field assembly)

EGS	External glare shield [6]
EGFV	External glare full visor (360° around light aperture) [7]
BS	Bird spikes [18]

Finish

DDBXD	Dark Bronze
DBLXD	Black
DNAXD	Natural Aluminum
DWHXD	White
DDBTXD	Textured Dark Bronze
DBLBXD	Textured Black
DNATXD	Textured Natural Aluminum
DWHGXD	Textured White

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Submitted by:	Job Name:	Catalog Number:	Type:
VISIBLELIGHT	UNE ALFOND CENTER SITE LIGHTING	RSX2 LED P1 40K R3 MVOLT SPA PER7 DBLXD / DLL127F 1.5 JU	AA

Ordering Information

Accessories
Ordered and shipped separately.

RSX2HS	RSX2 House side shield (includes 2 shields)
RSX2EGS (FINISH) U	External glare shield (specify finish)
RSX2HSAFRR (FINISH) U	RSX2 House side shields for AFR rotated optics (includes 2 shields)
RSX2EGFV (FINISH) U	External glare full visor (specify finish)
RSXRPA (FINISH) U	RSX Universal round pole adaptor plate (specify finish)
RSXWBA (FINISH) U	RSX WBA wall bracket (specify finish) [1]
RSXSCB (FINISH) U	RSX Surface conduit box (specify finish, for use with WBA, WBA not included)
DLL127F 1.5 JU	Photocell - SSL twist-lock (120-277V) [11]
DLL347F 1.5 CUL JU	Photocell - SSL twist-lock (347V) [11]
DLL480F 1.5 CUL JU	Photocell - SSL twist-lock (480V) [11]
DSHORT SBK U	Shorting cap [11]

NOTES
1. Any Type 5 distribution, is not available with WBA.
2. MVOLT driver operates on any line voltage from 120-277V (50/60 Hz).
3. HVOLT driver operates on any line voltage from 347-480V (50/60 Hz).
4. XVOLT driver not available with P1. XVOLT driver operates on any line voltage from 277V-480V (50/60 Hz). XVOLT not available with fusing (SF or DF) and not available with PE or PEX.
5. Single fuse (SF) requires 120V, 277V or 347V. Double fuse (DF) requires 208V, 240V or 480V.
6. Maximum tilt is 90° above horizontal.
7. It may be ordered as an accessory.
8. Requires MVOLT or 347V.
9. Not available in combination with other light sensing control options (following options cannot be combined: PE, PEX, PER7, FAO, DMG, DS, PIRHN). Exception: PE or PEX and FAO can be combined).
10. Requires 120V, 208V, 240V, or 277V.
11. Twistlock photocell ordered and shipped as a separate line item from Acuity Brands Controls. See accessories. Shorting Cap included. Dimming leads capped for future use.
12. For units with option PER7, the mounting must be restricted to +/- 45° from horizontal aim per ANSI C136.10-2010.
13. Two or more of the following options cannot be combined including DMG, DS, PER7, FAO and PIRHN.
14. DS only available on performance package P5 and P6.
15. Must be ordered with PIRHN.
16. Requires MVOLT or HVOLT.
17. Must be ordered with NLTAIR2. For additional information on PIRHN visit here.
18. Must be ordered with fixture for factory pre-drilling.
19. Requires luminaire to be specified with PER7 option. Ordered and shipped as a separate line item from Acuity Brands Controls.

External Shields



House Side Shield



External Glare Shield

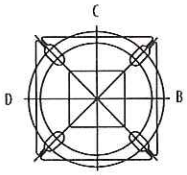


External 360 Full Visor

Pole/Mounting Informatiion

Accessories including bullhorns, cross arms and other adpaters are available under the accessories tab at Lithonia's Outdoor Poles and Arms product page. Click here to visit Accessories.

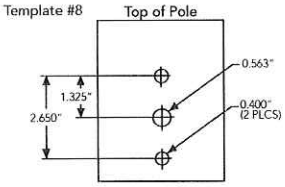
HANDHOLE ORIENTATION



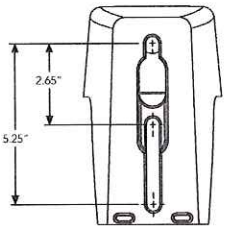
Handhole

RSX POLE DRILLING

Template #8



RSX STANDARD ARM & ADJUSTABLE ARM



Round Tenon Mount - Pole Top Slipfitters

Tenon O.D.	RSX Mounting	Single	2 at 180°	2 at 90°	3 at 120°	3 at 90°	4 at 90°
2 - 3/8"	RPA, AARP	AS3-5 190	AS3-5 280	AS3-5 290	AS3-5 320	AS3-5 390	AS3-5 490
2 - 7/8"	RPA, AARP	AST2S-190	AST2S-280	AST2S-290	AST2S-320	AST2S-390	AST2S-490
4"	RPA, AARP	AST3S-190	AST3S-280	AST3S-290	AST3S-320	AST3S-390	AST3S-490

Drill/Side Location by Configuration Type

Drilling Template	Mounting Option	Single	2 @ 180	2 @ 90	3 @ 120	3 @ 90	4 @ 90
	Head Location	Side B	Side B & D	Side B & C	Round Pole Only	Side B, C & D	Side A, B, C & D
#8	Drill Nomenclature	DM19AS	DM28AS	DM29AS	DM32AS	DM39AS	DM49AS

RSX2 - Luminaire EPA

*Includes luminaire and integral mounting arm. Other tenons, arms, brackets or other accessories are not included in this EPA data.

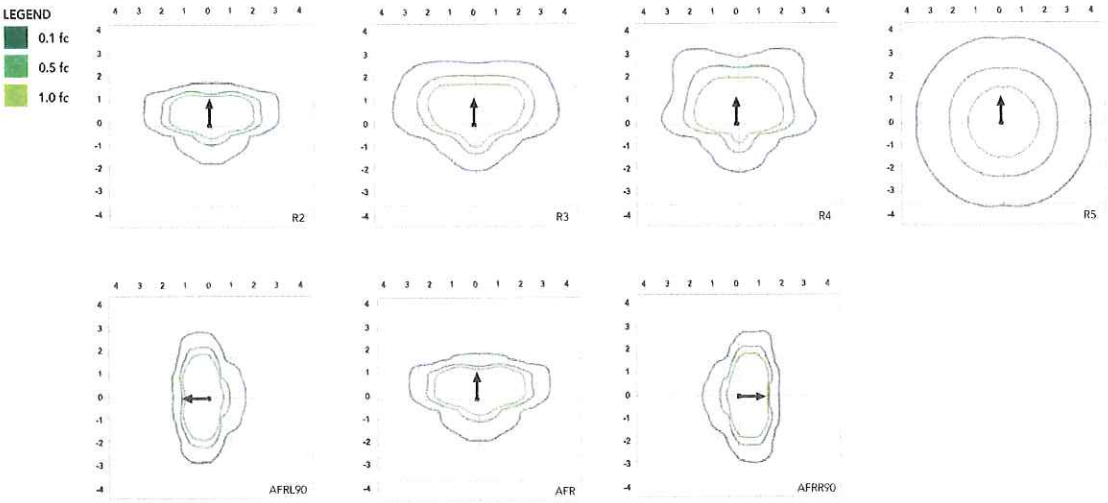
Fixture Quantity & Mounting Configuration		Single	2 @ 90	2 @ 180	3 @ 90	3 @ 120	4 @ 90	2 Side by Side	3 Side by Side	4 Side by Side
Mounting Type	Tilt									
SPA - Square Pole Adaptor	0°	0.69	1.22	1.27	1.8	1.61	2.39	1.37	2.06	2.74
RPA - Round Pole Adaptor		0.74	1.27	1.37	1.9	1.71	2.49	1.42	2.16	2.84
MA - Mast Arm Adaptor		0.61	1.14	1.11	1.64	1.45	2.23	1.29	1.9	2.58
IS - Integral Slipfitter AASP/AARP - Adjustable Arm Square/Round Pole	0°	0.69	1.22	1.27	1.8	1.61	2.39	1.37	2.06	2.74
	10°	0.53	1.06	1.05	1.58	1.37	2.08	1.06	1.59	2.12
	20°	0.52	1.02	1.03	1.52	1.33	2.02	1.03	1.55	2.07
	30°	0.64	1.11	1.18	1.63	1.45	2.21	1.27	1.91	2.54
	40°	0.81	1.21	1.35	1.74	1.65	2.39	1.62	2.43	3.23
	45°	0.91	1.25	1.5	1.81	1.75	2.48	1.82	2.73	3.64
	50°	1.34	1.83	2.17	2.61	2.56	3.62	2.68	4.02	5.36
	60°	2.2	2.97	3.57	4.24	4.17	5.89	4.41	6.61	8.82
	70°	2.86	4.13	4.7	5.89	5.71	8.21	5.71	8.57	11.42
	80°	3.4	5.13	5.67	7.34	7.09	10.21	6.79	10.19	13.59
	90°	3.85	5.96	6.55	8.58	8.31	11.88	7.70	11.56	15.41

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Photometric Diagrams

To see complete photometric reports or download .ies files for this product, visit Lithonia Lighting's RSX Area homepage.

Isofootcandle plots for the RSX2 LED P6 40K. Distances are in units of mounting height (30').



Performance Data

Lumen Ambient Temperature (LAT) Multipliers

Use these factors to determine relative lumen output for average ambient temperatures from 0-50°C (32-122°F).

Ambient	Ambient	Lumen Multiplier
0°C	32°F	1.05
5°C	41°F	1.04
10°C	50°F	1.03
15°C	59°F	1.02
20°C	68°F	1.01
25°C	77°F	1.00
30°C	86°F	0.99
35°C	95°F	0.98
40°C	104°F	0.97
45°C	113°F	0.96
50°C	122°F	0.95

Electrical Load

		Current (A)					
Performance Package	System Watts (W)	120V	208V	240V	277V	347V	480V
P1	71W	0.59	0.34	0.30	0.26	0.20	0.15
P2	111W	0.93	0.53	0.46	0.40	0.32	0.23
P3	147W	1.23	0.70	0.61	0.53	0.42	0.31
P4	187W	1.55	0.90	0.78	0.68	0.53	0.38
P5	210W	1.75	1.01	0.87	0.76	0.60	0.44
P6	244W	2.03	1.17	1.01	0.88	0.70	0.51

Projected LED Lumen Maintenance

Operating Hours	50,000	75,000	100,000
Lumen Maintenance Factor	>0.97	>0.95	>0.92

Values calculated according to IESNA TM-21-11 methodology and valid up to 40°C.

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Performance Data

Lumen Output

Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of the configurations shown, within the tolerances allowed by Lighting Facts. Contact factory for performance data on any configurations not shown here.

Performance Package	System Watts	Distribution Type	70K (3000K, 70 CRI)					40K (4000K, 70 CRI)					50K (5000K, 70 CRI)				
			Lumens	B	U	G	LPW	Lumens	B	U	G	LPW	Lumens	B	U	G	LPW
P1	71W	R2	10,040	2	0	1	139	11,031	2	0	1	153	11,031	2	0	1	153
		R3	10,005	2	0	2	141	10,992	2	0	2	155	10,992	2	0	2	155
		R3S	10,271	2	0	2	143	11,285	2	0	2	157	11,285	2	0	2	157
		R4	10,136	2	0	2	143	11,136	2	0	2	157	11,136	2	0	2	157
		R4S	9,779	2	0	2	138	10,744	2	0	2	151	10,744	2	0	2	151
		R5	10,271	4	0	2	145	11,285	4	0	2	159	11,285	4	0	2	159
		R5S	10,544	3	0	1	149	11,585	3	0	2	163	11,585	3	0	2	163
		AFR	10,026	2	0	1	141	11,016	2	0	1	155	11,016	2	0	1	155
		AFRR90	10,122	3	0	2	140	11,121	3	0	2	154	11,121	3	0	2	154
		AFRL90	10,164	3	0	2	141	11,167	3	0	2	155	11,167	3	0	2	155
P2	111W	R2	15,712	2	0	2	138	17,263	2	0	2	151	17,263	2	0	2	151
		R3	15,657	2	0	3	141	17,202	3	0	3	155	17,202	3	0	3	155
		R3S	16,075	2	0	2	141	17,661	2	0	2	155	17,661	2	0	2	155
		R4	15,862	2	0	3	143	17,427	2	0	3	157	17,427	2	0	3	157
		R4S	15,304	2	0	2	138	16,815	2	0	2	151	16,815	2	0	2	151
		R5	16,075	4	0	2	145	17,661	5	0	3	159	17,661	5	0	3	159
		R5S	16,502	4	0	2	149	18,130	4	0	2	163	18,130	4	0	2	163
		AFR	15,691	2	0	2	141	17,240	2	0	2	155	17,240	2	0	2	155
		AFRR90	15,841	3	0	3	139	17,404	4	0	3	153	17,404	4	0	3	153
		AFRL90	15,907	3	0	3	139	17,477	4	0	3	153	17,477	4	0	3	153
P3	147W	R2	19,855	3	0	2	132	21,814	3	0	2	145	21,814	3	0	2	145
		R3	19,785	3	0	3	135	21,737	3	0	4	148	21,737	3	0	4	148
		R3S	20,312	3	0	3	135	22,317	3	0	3	149	22,317	3	0	3	149
		R4	20,044	3	0	3	136	22,022	3	0	4	150	22,022	3	0	4	150
		R4S	19,339	3	0	3	132	21,247	3	0	3	145	21,247	3	0	3	145
		R5	20,313	5	0	3	138	22,317	5	0	3	152	22,317	5	0	3	152
		R5S	20,852	4	0	2	142	22,910	4	0	2	156	22,910	4	0	2	156
		AFR	19,828	3	0	2	135	21,785	3	0	2	148	21,785	3	0	2	148
		AFRR90	20,017	4	0	3	133	21,992	4	0	3	147	21,992	4	0	3	147
		AFRL90	20,101	4	0	3	134	22,084	4	0	3	147	22,084	4	0	3	147
P4	187W	R2	22,836	3	0	2	120	25,090	3	0	2	132	25,090	3	0	2	132
		R3	22,756	3	0	4	122	25,002	3	0	4	134	25,002	3	0	4	134
		R3S	23,363	3	0	3	123	25,668	3	0	3	135	25,668	3	0	3	135
		R4	23,054	3	0	4	123	25,329	3	0	4	135	25,329	3	0	4	135
		R4S	22,243	3	0	3	119	25,059	3	0	3	134	25,059	3	0	3	134
		R5	23,363	5	0	3	125	25,669	5	0	4	137	25,669	5	0	4	137
		R5S	23,983	4	0	2	128	26,350	4	0	2	141	26,350	4	0	2	141
		AFR	22,806	3	0	2	122	25,056	3	0	2	134	25,056	3	0	2	134
		AFRR90	23,023	4	0	3	121	25,295	4	0	3	133	25,295	4	0	3	133
		AFRL90	23,120	4	0	3	122	25,401	4	0	3	134	25,401	4	0	3	134
P5	210W	R2	26,141	3	0	2	122	28,721	3	0	2	135	28,721	3	0	2	135
		R3	26,049	3	0	4	124	28,620	3	0	4	136	28,620	3	0	4	136
		R3S	26,744	3	0	3	125	29,383	3	0	4	138	29,383	3	0	4	138
		R4	26,390	3	0	4	126	28,994	3	0	4	138	28,994	3	0	4	138
		R4S	25,462	3	0	3	121	27,974	3	0	3	133	27,974	3	0	3	133
		R5	26,744	5	0	4	127	29,383	5	0	4	140	29,383	5	0	4	140
		R5S	27,454	4	0	2	131	30,163	4	0	2	144	30,163	4	0	2	144
		AFR	26,106	3	0	2	124	28,682	3	0	2	137	28,682	3	0	2	137
		AFRR90	26,354	4	0	3	123	28,955	5	0	3	136	28,955	5	0	3	136
		AFRL90	26,465	4	0	3	124	29,077	5	0	3	136	29,077	5	0	3	136
P6	244W	R2	27,646	3	0	2	112	30,374	3	0	2	123	30,374	3	0	2	123
		R3	27,549	3	0	4	113	30,267	3	0	4	124	30,267	3	0	4	124
		R3S	28,283	3	0	3	115	31,075	3	0	4	126	31,075	3	0	4	126
		R4	27,909	3	0	4	114	30,663	3	0	4	126	30,663	3	0	4	126
		R4S	26,928	3	0	3	110	29,585	3	0	3	121	29,585	3	0	3	121
		R5	28,284	5	0	4	116	31,075	5	0	4	127	31,075	5	0	4	127
		R5S	29,035	4	0	2	119	31,900	5	0	3	131	31,900	5	0	3	131
		AFR	27,608	3	0	2	112	30,332	3	0	2	123	30,332	3	0	2	123
		AFRR90	27,872	4	0	3	113	30,622	5	0	3	124	30,622	5	0	3	124
		AFRL90	27,989	4	0	3	113	30,751	5	0	3	125	30,751	5	0	3	125

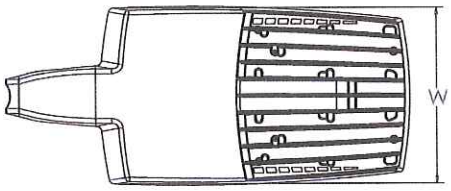
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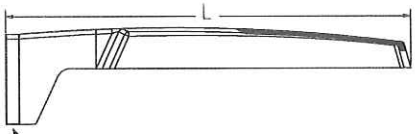
Dimensions & Weights

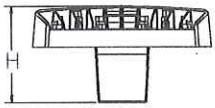
Luminaire Weight by Mounting Type

Mounting Configuration	Total Luminaire Weight
SPA	30 lbs
RPA	32 lbs
MA	30 lbs
WBA	33 lbs
WBASC	36 lbs
IS	33 lbs
AASP	33 lbs
AARP	35 lbs
AAWB	36 lbs
AAWSC	39 lbs

RSX2 with Round Pole Adapter (RPA)





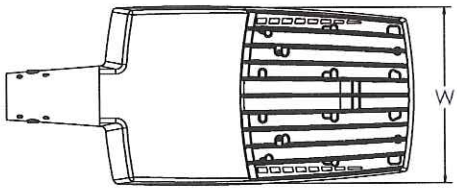


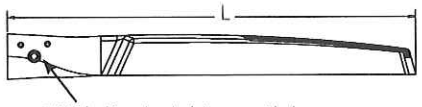
Length: 30.3" (77.0 cm)
Width: 13.4" (34.0 cm)
Height: 3.0" (7.6 cm) Main Body
7.2" (18.3 cm) Arm

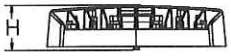
Note: RPA — Round Pole mount can also be used to mount on square poles by omitting the round pole adapter plate shown here.



RSX2 with Mast Arm Adapter (MA)



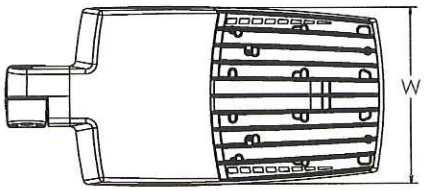


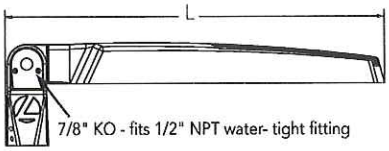


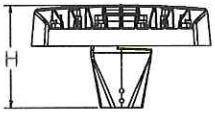
7/16" locking thru bolt/nut provided

Length: 30.6" (77.7 cm)
Width: 13.4" (34.0 cm)
Height: 3.0" (7.6 cm) Main Body
3.5" (8.9 cm) Arm

RSX2 with Adjustable Slipfitter (IS)







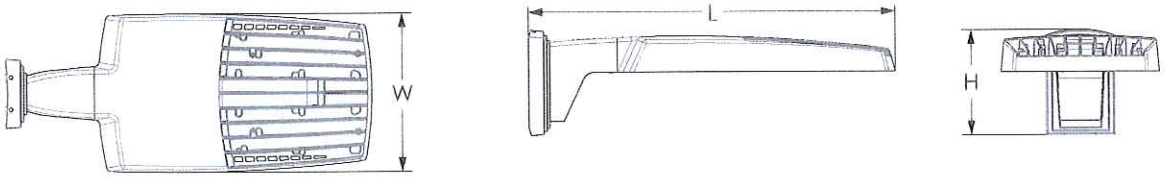
7/8" KO - fits 1/2" NPT water- tight fitting

Length: 28.3" (71.9 cm)
Width: 13.4" (34.0 cm)
Height: 3.0" (7.6 cm) Main Body
7.6" (19.3 cm) Arm

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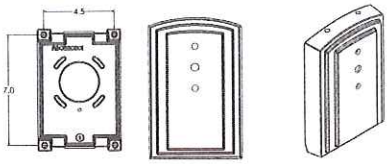
Dimensions

RSX2 with Wall Bracket (WBA)

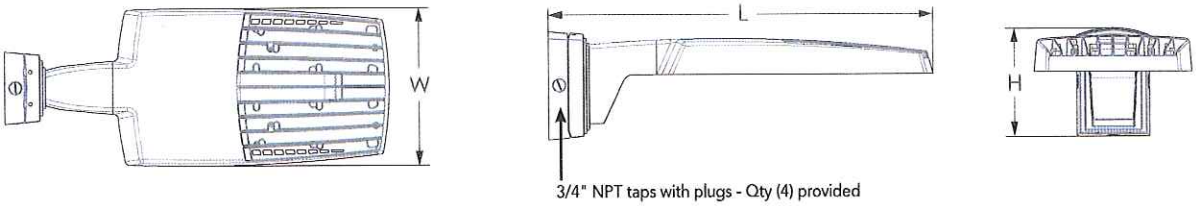


Length: 31.2" (79.2 cm)
Width: 13.4" (41.7 cm)
Height: 3.0" (7.6 cm) Main Body
8.9" (22.6 cm) Arm

Wall Bracket (WBA) Mounting Detail

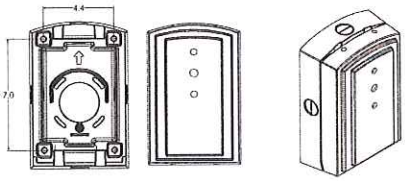


RSX2 with Wall Bracket with Surface Conduit Box (WBASC)



Length: 32.8" (83.3 cm)
Width: 13.4" (41.7 cm)
Height: 3.0" (7.6 cm) Main Body
9.2" (23.4 cm) Arm

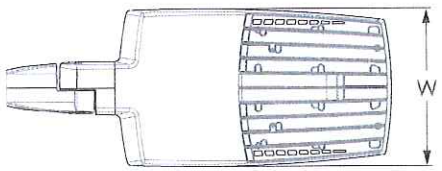
Surface Conduit Box (SCB) Mounting Detail

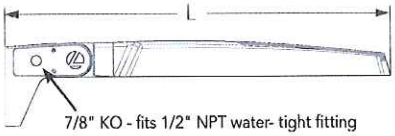


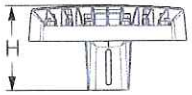
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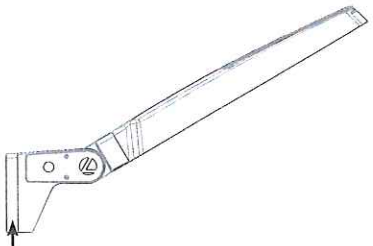
Dimensions

RSX2 with Adjustable Tilt Arm - Square or Round Pole (AASP or AARP)









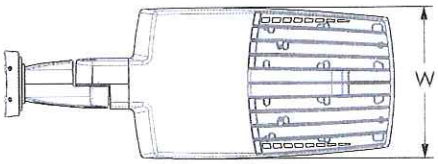
Length: 32.8" (83.3 cm) **AASP**
33.8" (85.9 cm) **AARP**
Width: 13.4" (34.0 cm)
Height: 3.0" (7.6 cm) Main Body
7.2" (18.2 cm) Arm

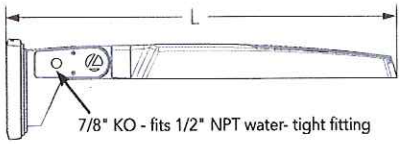
NOTE:
RPA - Round Pole mount can also be used to mount on square poles by omitting the round pole adapter plate shown here.

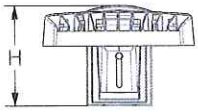


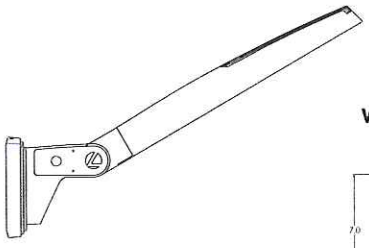
Notes
AASP: Requires 3.0" min. square pole for 1 at 90°. Requires 3.5" min. square pole for mounting 2, 3, 4 at 90°.
AARP: Requires 3.2" min. dia. round pole for 2, 3, 4 at 90°. Requires 3.0" min. dia. round pole for mounting 1 at 90°, 2 at 180°, 3 at 120°.

RSX2 with Adjustable Tilt Arm with Wall Bracket (AAWB)

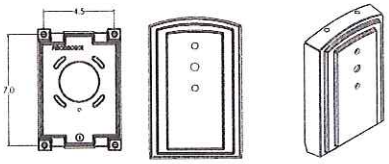








Wall Bracket (WBA) Mounting Detail

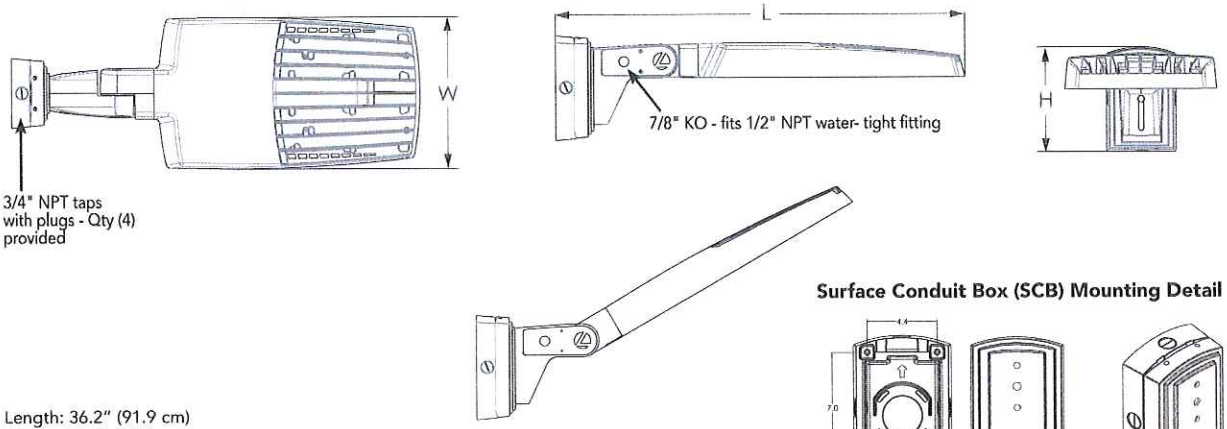


Length: 34.7" (88.0 cm)
Width: 13.4" (34.0 cm)
Height: 3.0" (7.6 cm) Main Body
8.9" (22.6 cm) Arm

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Dimensions

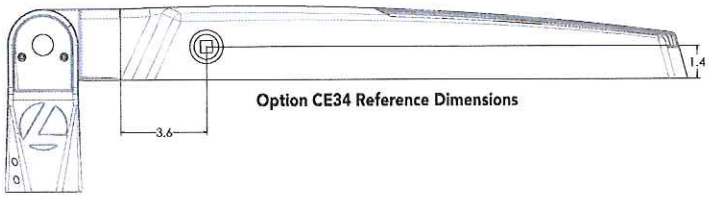
RSX2 with Adjustable Tilt Arm with Wall Bracket and Surface Conduit Box (AAWSC)



Length: 36.2" (91.9 cm)
Width: 13.4" (40.0 cm)
Height: 3.0" (7.6 cm) Main Body
9.2" (23.4 cm) Arm

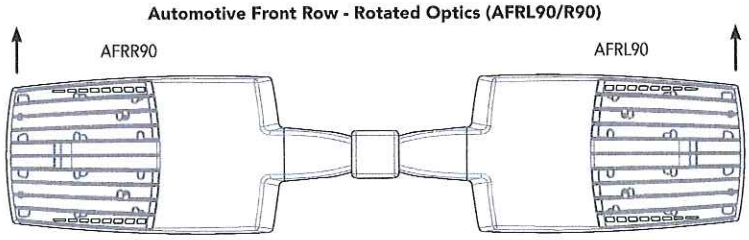
Surface Conduit Box (SCB) Mounting Detail

Additional Reference Drawings



Option CE34 Reference Dimensions

Automotive Front Row - Rotated Optics (AFRL90/R90)

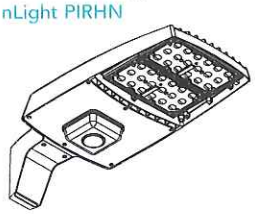


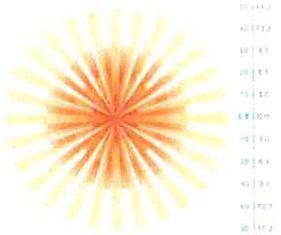
(Example: 2@180 - arrows indicate direction of light exiting the luminaire)

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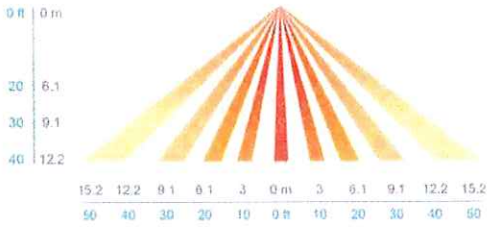
nLight Control - Sensor Coverage and Settings

NLTAIR2 PIRHN nLight
Sensor Coverage Pattern
nLight PIRHN





Top



Side

Motion Sensor Default Settings - Option PIRHN						
Option	Dimmed State (unoccupied)	High Level (when occupied)	Photocell Operation	Dwell Time (occupancy time delay)	Ramp-up Time (from unoccupied to occupied)	Ramp-down Time (from occupied to unoccupied)
NLTAIR2 PIRHN	Approx. 30% Output	100% Output	Enabled @ 1.5FC	7.5 minutes	3 seconds	5 minutes

*Note: NLTAIR2 PIRHN default settings including photocell set-point, high/low dim rates, and occupancy sensor time delay are all configurable using the Clairity Pro App. Sensor coverage pattern shown with luminaire at 0°. Sensor coverage pattern is affected when luminaire is tilted.

FEATURES & SPECIFICATIONS

INTENDED USE
The RSX LED area family is designed to provide a long-lasting, energy-efficient solution for the one-for-one replacement of existing metal halide or high pressure sodium lighting. The RSX2 delivers 11,000 to 31,000 lumens and is ideal for replacing 250W to 1000W HID pole-mounted luminaires in parking lots and other area lighting applications.

CONSTRUCTION AND DESIGN
The RSX LED area luminaire features a rugged die-cast aluminum main body that uses heat-dissipating fins and flow-through venting to provide optimal thermal management that both enhances LED performance and extends component life. Integral "no drill" mounting arm allows the luminaire to be mounted on existing pole drillings, greatly reducing installation labor. The light engines and housing are sealed against moisture and environmental contaminants to IP66. The low-profile design results in a low EPA, allowing pole optimization. Vibration rated per ANSI C136.31: 3G Mountings: Include SPA, RPA, MA, IS, AASP, AARP rated for 3G vibration. 1.5G Mountings: Include WBA, WBASC, AAWB and AAWSC rated for 1.5G vibration.

FINISH
Exterior parts are protected by a zinc-infused Super Durable TGIC thermoset powder coat finish that provides superior resistance to corrosion and weathering. A tightly controlled multi-stage process ensures superior adhesion as well as a minimum finish thickness of 3 mils. The result is a high-quality finish that is warrantied not to crack or peel.

OPTICS
Precision acrylic refractive lenses are engineered for superior application efficiency, distributing the light to where it is needed most. Available in short and wide pattern distributions including Type 2, Type 3, Type 3S, Type 4, Type 4S, Type 5, Type 5S, AFR (Automotive Front Row) and AFR rotated AFRR90 and ARFL90.

ELECTRICAL
Light engine(s) configurations consist of high-efficacy LEDs mounted on metal-core circuit boards and aluminum heat sinks to maximize heat dissipation. Light engines are IP66 rated. LED lumen maintenance is >L92/100,000 hours. CCT's of 3000K, 4000K and 5000K (minimum 70 CRI) are available. Fixtures ship standard with 0-10v dimming driver. Class 1 electronic drivers ensure system power factor >90% and THD <20%. Easily serviceable 10kV surge protection device meets a minimum Category C Low operation (per ANSI/IEEE C62.41.2).

STANDARD CONTROLS
The RSX LED area luminaire has a wide assortment of control options. Dusk to dawn controls include MVOLT and 347V button-type photocells and NEMA twist-lock photocell receptacles.

nLIGHT AIR CONTROLS
The RSX LED area luminaire is also available with nLight® AIR for the ultimate in wireless control. This powerful controls platform provides out-of-the-box basic motion sensing with photocontrol functionality and is suitable for mounting heights up to 40 feet. No commissioning is required when using factory default settings that provide basic stand-alone motion occupancy dimming that is switched on and off with a built-in photocell. See chart above for motion sensor default out-of-box settings. For more advanced wireless functionality, such as group dimming, nLight AIR can be commissioned using a smartphone and the easy-to-use CLAIRITY app. nLight AIR equipped luminaries can be grouped, resulting in motion sensor and photocell group response without the need for additional equipment. Scheduled dimming with motion sensor over-ride can be achieved when used with the nLight Eclypse. Additional information about nLight Air can be found here.

INSTALLATION
Integral "no-drill" mounting arm allows for fast, easy mounting using existing pole drillings. Select the "SPA" option for square poles and the "RPA" option to mount to round poles. Note, the RPA mount can also be used for mounting to square poles by omitting the RPA adapter plate. Select the "MA" option to attach the luminaire to a 2 3/8" horizontal mast arm or the "IS" option for an adjustable slipfitter that mounts on a 2 3/8" OD tenon. The adjustable slipfitter has an integral junction box and offers easy installation. Can be tilted up to 90° above horizontal. Additional mountings are available including a wall bracket, adjustable tilt arm for direct-to-pole and wall and a surface conduit box for wall mount applications.

LISTINGS
CSA Certified to meet U.S. and Canadian standards. Suitable for wet locations. Rated for -40°C minimum ambient. DesignLights Consortium® (DLC) Premium qualified product and DLC qualified product. Not all versions of this product may be DLC Premium qualified or DLC qualified. Please check the DLC Qualified Products List at www.designlights.org/QPL to confirm which versions are qualified.
International Dark-Sky Association (IDA) Fixture Seal of Approval (FSA) is available for all products on this page utilizing 3000K color temperature only. US Patent No. D882, 146S

BUY AMERICAN
Product with the BAA option is assembled in the USA and meets the Buy America(n) government procurement requirements under FAR, DFARS and DOT.
Please refer to www.acuitybrands.com/buy-american for additional information.

WARRANTY
5-year limited warranty. This is the only warranty provided and no other statements in this specification sheet create any warranty of any kind. All other express and implied warranties are disclaimed. Complete warranty terms located at:
www.acuitybrands.com/support/warranty/terms-and-conditions

Note: Actual performance may differ as a result of end-user environment and application.
All values are design or typical values, measured under laboratory conditions at 25 °C.
Specifications subject to change without notice.

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Submitted by:	Job Name:	Catalog Number:	Type:
VISIBLELIGHT MANUFACTURERS' REPRESENTATIVES	UNE ALFOND CENTER SITE LIGHTING	SSP27-5.0-11-BLK-DM10-BC	AA

KW

SSP

Square Non-Tapered Steel Poles



Pole Shaft

The pole shaft is one piece construction, being fabricated from a weldable grade carbon steel structural tubing which has a uniform wall thickness of 11 gauge (0.1196"). The pole shaft material shall conform to ASTM A500 Grade C with a minimum yield strength of 50,000 psi. The pole shaft has a full length longitudinal resistance weld and is uniformly square in cross-section with flat sides, small corner radii and excellent torsional properties.

Base Plate

The anchor base is fabricated from a structural quality hot rolled carbon steel plate that meets or exceeds a minimum yield strength of 36,000 psi. The anchor base telescopes the pole shaft and is circumferentially welded top and bottom. All welds are performed in accordance with the American Welding Society specification AWS D1.1, latest edition.
Bolt Circle: 1.00 (in.) **Dimension :** 12.0 (in.) **Thickness:** 1.00 (in.) **Conduit Opening:** 4 (in.)
Consult KW representative for non-standard dimensions.

Anchor Bolts

Anchor bolts are fabricated from commercial quality hot rolled carbon steel bar that meets or exceeds a minimum yield strength of 55,000 psi. Four properly sized anchor bolts, each with two regular hex nuts and washers, are furnished and shipped with all poles unless otherwise specified. Anchor bolts shall have the threaded end galvanized a minimum of 8 inches in accordance with ASTM A153. Fully galvanized anchor bolts are available upon request.

Handhole

An oval reinforced gasketed handhole, having a nominal 3 " x 5 " inside opening, located 1' - 6" above base, is standard on all poles. A grounding provision is located inside the handhole ring.

Finish

Standard - The exterior surface is cleaned with an alkaline rinse to remove surface contaminants and shot blasted to specifications as published by the Steel Structures Painting Council Standards SSPC-SP10 (near white). The exterior surface is chemically pretreated with an iron phosphate conversion coating then rinsed with ambient fresh water containing special surfactants and sealers forming a dry tight micro-crystalline coating. A polyester thermosetting powder coating applied to the surface of the substrate to a minimum of 3 mils is standard on all color finishes. The internal surface including the powder coated area at the base-end is coated with K-SPC., a thermoplastic hydrocarbon resin system specially formulated for application over untreated steel surfaces, to a thickness of 3 mils. The internal coating shall contain special corrosion inhibitors and is capable of passing 1000 hours of salt spray exposure (ASTM B117).

Series: **SSP** - *Square Non-Tapered Steel Poles*
Nominal Height: **27'** Base Diameter: **5.0"** Gauge: **11**
Finish: **BLK** - *Standard - Black*
Mounting Designation: **DM10** - *Drilled for 1 Luminaire*
Options: **BC** - *Base Cover*

Height (ft.)	Pole Shaft (in.) x (ft.)	Gauge	Handhole Size (in.)	Anchor Bolt (in.) x (in.) x (in.)	Bolt Circle (in.)	80 MPH (ft.)	90 MPH (ft.)	100 MPH (ft.)	Ship WT. (lbs.)
27	5.0 x 27.0	11	3 x 5	1.00 x 36 x 4	11	9.8	6.1	3.2	300
SSP27-5.0-11-BLK-DM10-BC									

Submitted by:	Job Name:	Catalog Number:	Type:
VISIBLELIGHT MANUFACTURERS' REPRESENTATIVE	UNE ALFOND CENTER SITE LIGHTING	RSX2 LED P1 40K R4 MVOLT SPA PER7 DBLXD / DLL127F 1.5 JU	AB



RSX2 LED
Area Luminaire

Buy American

Catalog Number

Notes

Type

Hit the tab key or mouse over the page to see all interactive elements

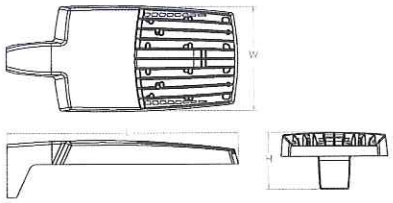
Introduction

The new RSX LED Area family delivers maximum value by providing significant energy savings, long life and outstanding photometric performance at an affordable price. The RSX2 delivers 11,000 to 31,000 lumens allowing it to replace 250W to 1000W HID luminaires.

The RSX features an integral universal mounting mechanism that allows the luminaire to be mounted on most existing drill hole patterns. This "no-drill" solution provides significant labor savings. An easy-access door on the bottom of mounting arm allows for wiring without opening the electrical compartment. A mast arm adaptor, adjustable integral slipfitter and other mounting configurations are available.

Specifications

EPA (ft²@0°):	0.69 ft² (0.06 m²)
Length:	29.3" (74.4 cm) (SPA mount)
Width:	13.4" (34.0 cm)
Height:	3.0" (7.6 cm) Main Body 7.2" (18.3 cm) Arm
Weight: (SPA mount)	30.0 lbs (13.6 kg)



Ordering Information

EXAMPLE: RSX2 LED P6 40K R3 MVOLT SPA DDBXD

RSX2 LED	P1	40K	R4	MVOLT	SPA

Series	Performance Package	Color Temperature	Distribution	Voltage	Mounting
RSX2 LED	P1	30K 3000K	R2 Type 2 Wide	MVOLT (120V-277V) [2]	SPA Square pole mounting (3.0" min. SQ pole for 1 at 90°, 3.5" min. SQ pole for 2, 3, 4 at 90°)
	P2	40K 4000K	R3 Type 3 Wide	HVOLT (347V-480V) [3]	RPA Round pole mounting (3.2" min. dia. RND pole for 2, 3, 4 at 90°, 3.0" min. dia. RND pole for 1 at 90°, 2 at 180°, 3 at 120°)
	P3	50K 5000K	R3S Type 3 Short	XVOLT (277V-480V) [4]	MA Mast arm adaptor (fits 2-3/8" OD horizontal tenon)
	P4		R4 Type 4 Wide	(use specific voltage for options as noted)	IS Adjustable slipfitter (fits 2-3/8" OD tenon) [6]
	P5		R4S Type 4 Short	120 [3] 277 [5]	WBA Wall bracket [1]
	P6		R5 Type 5 Wide [1]	208 [3] 347 [5]	WBASC Wall bracket with surface conduit box
			R5S Type 5 Short [1]	240 [3] 480 [5]	AASP Adjustable tilt arm square pole mounting [6]
			AFR Automotive Front Row		AARP Adjustable tilt arm round pole mounting [6]
			AFRR90 Automotive Front Row Right Rotated		AAWB Adjustable tilt arm with wall bracket [6]
			AFRL90 Automotive Front Row Left Rotated		AAWSC Adjustable tilt arm wall bracket and surface conduit box [6]

PER7 **DBLXD**

Options			Finish	
Shipped Installed		**Shipped Installed**	DDBXD	Dark Bronze
HS	House-side shield [7]	*Standalone and Networked Sensors/Controls (factory default settings, see table page 9)	DBLXD	Black
PE	Photocontrol, button style [8,9]	NLTAIR2 nLight AIR generation 2 [13,15,16]	DNAXD	Natural Aluminum
PEX	Photocontrol external threaded, adjustable [9,11]	PIRHN Networked, Bi-Level motion/ambient sensor (for use with NLTAIR2) [13,16,17]	DWHXD	White
PER7	Seven-wire twist-lock receptacle only (no controls) [9,11,12,13]	BAA Buy America(n) Act Compliant	DDBTXD	Textured Dark Bronze
CE34	Conduit entry 3/4" NPT (Qty 2)	*Note: PIRHN with nLight Air can be used as a standalone dimming sensor with out-of-box settings or as a wireless networked solution. See factory default settings table. Sensor coverage pattern is affected when luminaire is tilted.	DBLBXD	Textured Black
SF	Single fuse (120, 277, 347) [5]	**Shipped Separately (requires some field assembly)**	DNATXD	Textured Natural Aluminum
DF	Double fuse (208, 240, 480) [5]	EGS External glare shield [6]	DWHGXD	Textured White
SPD20KV	20KV Surge pack (10KV standard)	EGFV External glare full visor (360° around light aperture) [7]		
FAO	Field adjustable output [9,13]	BS Bird spikes [14]		
DMG	0-10V dimming extend out back of housing for external control (control ordered separate) [9,13]			
DS	Dual switching [9,14]			

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Ordering Information

Accessories
Ordered and shipped separately.

RSX2HS	RSX2 House side shield (includes 2 shields)
RSX2EGS (FINISH) U	External glare shield (specify finish)
RSX2HSAFRR (FINISH) U	RSX2 House side shields for AFR rotated optics (includes 2 shields)
RSX2EGFV (FINISH) U	External glare full visor (specify finish)
RSXRPA (FINISH) U	RSX Universal round pole adaptor plate (specify finish)
RSXWBA (FINISH) U	RSX WBA wall bracket (specify finish) [1]
RSXSCB (FINISH) U	RSX Surface conduit box (specify finish, for use with WBA, WBA not included)
DLL127F 1.5 JU	Photocell -SSL twist-lock (120-277V) [11]
DLL347F 1.5 CUL JU	Photocell -SSL twist-lock (347V) [11]
DLL480F 1.5 CUL JU	Photocell -SSL twist-lock (480V) [11]
DSHORT SBK U	Shorting cap [11]

NOTES
1. Any Type 5 distribution, is not available with WBA.
2. MVOLT driver operates on any line voltage from 120-277V (50/60 Hz).
3. HVOLT driver operates on any line voltage from 347-480V (50/60 Hz).
4. XVOLT driver not available with P1. XVOLT driver operates on any line voltage from 277V-480V (50/60 Hz). XVOLT not available with fusing (SF or DF) and not available with PE or PEX.
5. Single fuse (SF) requires 120V, 277V or 347V. Double fuse (DF) requires 208V, 240V or 480V.
6. Maximum tilt is 90° above horizontal.
7. It may be ordered as an accessory.
8. Requires MVOLT or 347V.
9. Not available in combination with other light sensing control options (following options cannot be combined: PE, PEX, PER7, FAO, DMG, DS, PIRHN). Exception: PE or PEX and FAO can be combined).
10. Requires 120V, 208V, 240V, or 277V.
11. Twistlock photocell ordered and shipped as a separate line item from Acuity Brands Controls. See accessories. Shorting Cap included. Dimming leads capped for future use.
12. For units with option PER7, the mounting must be restricted to +/- 45° from horizontal aim per ANSI C136.10-2010.
13. Two or more of the following options cannot be combined including DMG, DS, PER7, FAO and PIRHN.
14. DS only available on performance package P5 and P6.
15. Must be ordered with PIRHN.
16. Requires MVOLT or HVOLT.
17. Must be ordered with NLTAIR2. For additional information on PIRHN visit here.
18. Must be ordered with fixture for factory pre-drilling.
19. Requires luminaire to be specified with PER7 option. Ordered and shipped as a separate line item from Acuity Brands Controls.

External Shields



House Side Shield



External Glare Shield

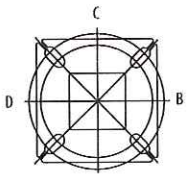


External 360 Full Visor

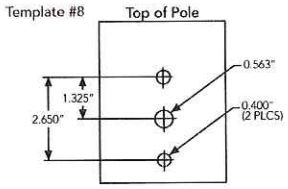
Pole/Mounting Informatiion

Accessories including bullhorns, cross arms and other adpaters are available under the accessories tab at Lithonia's Outdoor Poles and Arms product page. Click here to visit Accessories.

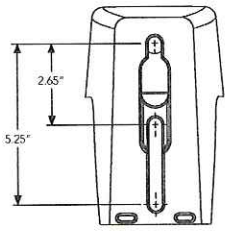
HANDHOLE ORIENTATION



RSX POLE DRILLING



RSX STANDARD ARM & ADJUSTABLE ARM



Round Tenon Mount - Pole Top Slipfitters

Tenon O.D.	RSX Mounting	Single	2 at 180°	2 at 90°	3 at 120°	3 at 90°	4 at 90°
2 - 3/8"	RPA, AARP	AS3-5 190	AS3-5 280	AS3-5 290	AS3-5 320	AS3-5 390	AS3-5 490
2 - 7/8"	RPA, AARP	AST25-190	AST25-280	AST25-290	AST25-320	AST25-390	AST25-490
4"	RPA, AARP	AST35-190	AST35-280	AST35-290	AST35-320	AST35-390	AST35-490

Drill/Side Location by Configuration Type

Drilling Template	Mounting Option	Single	2 @ 180	2 @ 90	3 @ 120	3 @ 90	4 @ 90
	Head Location	Side B	Side B & D	Side B & C	Round Pole Only	Side B, C & D	Side A, B, C & D
#8	Drill Nomenclature	DM19AS	DM28AS	DM29AS	DM32AS	DM39AS	DM49AS

RSX2 - Luminaire EPA

*Includes luminaire and integral mounting arm. Other tenons, arms, brackets or other accessories are not included in this EPA data.

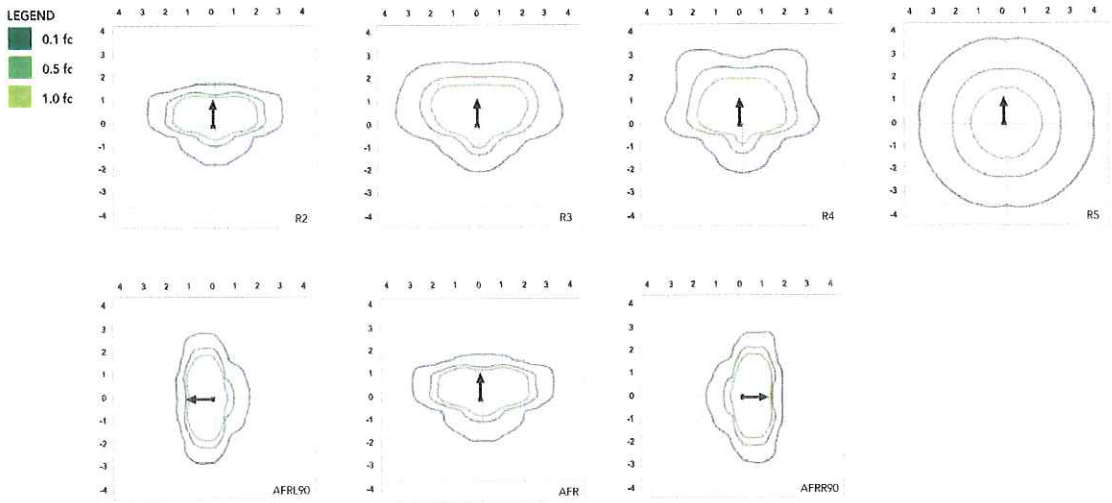
Fixture Quantity & Mounting Configuration		Single	2 @ 90	2 @ 180	3 @ 90	3 @ 120	4 @ 90	2 Side by Side	3 Side by Side	4 Side by Side
Mounting Type	Tilt									
SPA - Square Pole Adaptor	0°	0.69	1.22	1.27	1.8	1.61	2.39	1.37	2.06	2.74
RPA - Round Pole Adaptor		0.74	1.27	1.37	1.9	1.71	2.49	1.42	2.16	2.84
MA - Mast Arm Adaptor		0.61	1.14	1.11	1.64	1.45	2.23	1.29	1.9	2.58
IS - Integral Slipfitter AASP/AARP - Adjustable Arm Square/Round Pole	0°	0.69	1.22	1.27	1.8	1.61	2.39	1.37	2.06	2.74
	10°	0.53	1.06	1.05	1.58	1.37	2.08	1.06	1.59	2.12
	20°	0.52	1.02	1.03	1.52	1.33	2.02	1.03	1.55	2.07
	30°	0.64	1.11	1.18	1.63	1.45	2.21	1.27	1.91	2.54
	40°	0.81	1.21	1.35	1.74	1.65	2.39	1.62	2.43	3.23
	45°	0.91	1.25	1.5	1.81	1.75	2.48	1.82	2.73	3.64
	50°	1.34	1.83	2.17	2.61	2.56	3.62	2.68	4.02	5.36
	60°	2.2	2.97	3.57	4.24	4.17	5.89	4.41	6.61	8.82
	70°	2.86	4.13	4.7	5.89	5.71	8.21	5.71	8.57	11.42
	80°	3.4	5.13	5.67	7.34	7.09	10.21	6.79	10.19	13.59
	90°	3.85	5.96	6.55	8.58	8.31	11.88	7.70	11.56	15.41

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Photometric Diagrams

To see complete photometric reports or download .ies files for this product, visit Lithonia Lighting's RSX Area homepage.

Isofootcandle plots for the RSX2 LED P6 40K. Distances are in units of mounting height (30').



Performance Data

Lumen Ambient Temperature (LAT) Multipliers

Use these factors to determine relative lumen output for average ambient temperatures from 0-50°C (32-122°F).

Ambient	Ambient	Lumen Multiplier
0°C	32°F	1.05
5°C	41°F	1.04
10°C	50°F	1.03
15°C	59°F	1.02
20°C	68°F	1.01
25°C	77°F	1.00
30°C	86°F	0.99
35°C	95°F	0.98
40°C	104°F	0.97
45°C	113°F	0.96
50°C	122°F	0.95

Electrical Load

		Current (A)					
Performance Package	System Watts (W)	120V	208V	240V	277V	347V	480V
P1	71W	0.59	0.34	0.30	0.26	0.20	0.15
P2	111W	0.93	0.53	0.46	0.40	0.32	0.23
P3	147W	1.23	0.70	0.61	0.53	0.42	0.31
P4	187W	1.55	0.90	0.78	0.68	0.53	0.38
P5	210W	1.75	1.01	0.87	0.76	0.60	0.44
P6	244W	2.03	1.17	1.01	0.88	0.70	0.51

Projected LED Lumen Maintenance

Operating Hours	50,000	75,000	100,000
Lumen Maintenance Factor	>0.97	>0.95	>0.92

Values calculated according to IESNA TM-21-11 methodology and valid up to 40°C.

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Performance Data

Lumen Output

Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of the configurations shown, within the tolerances allowed by Lighting Facts. Contact factory for performance data on any configurations not shown here.

Performance Package	System Watts	Distribution Type	30K (3000K, 70 CRI)					40K (4000K, 70 CRI)					50K (5000K, 70 CRI)				
			Lumens	B	U	G	LPW	Lumens	B	U	G	LPW	Lumens	B	U	G	LPW
P1	71W	R2	10,040	2	0	1	139	11,031	2	0	1	153	11,031	2	0	1	153
		R3	10,005	2	0	2	141	10,992	2	0	2	155	10,992	2	0	2	155
		R3S	10,271	2	0	2	143	11,285	2	0	2	157	11,285	2	0	2	157
		R4	10,136	2	0	2	143	11,136	2	0	2	157	11,136	2	0	2	157
		R4S	9,779	2	0	2	138	10,744	2	0	2	151	10,744	2	0	2	151
		R5	10,271	4	0	2	145	11,285	4	0	2	159	11,285	4	0	2	159
		R5S	10,544	3	0	1	149	11,585	3	0	2	163	11,585	3	0	2	163
		AFR	10,026	2	0	1	141	11,016	2	0	1	155	11,016	2	0	1	155
		AFRR90	10,122	3	0	2	140	11,121	3	0	2	154	11,121	3	0	2	154
		AFRL90	10,164	3	0	2	141	11,167	3	0	2	155	11,167	3	0	2	155
P2	111W	R2	15,712	2	0	2	138	17,263	2	0	2	151	17,263	2	0	2	151
		R3	15,657	2	0	3	141	17,202	3	0	3	155	17,202	3	0	3	155
		R3S	16,075	2	0	2	141	17,661	2	0	2	155	17,661	2	0	2	155
		R4	15,862	2	0	3	143	17,427	2	0	3	157	17,427	2	0	3	157
		R4S	15,304	2	0	2	138	16,815	2	0	2	151	16,815	2	0	2	151
		R5	16,075	4	0	2	145	17,661	5	0	3	159	17,661	5	0	3	159
		R5S	16,502	4	0	2	149	18,130	4	0	2	163	18,130	4	0	2	163
		AFR	15,691	2	0	2	141	17,240	2	0	2	155	17,240	2	0	2	155
		AFRR90	15,841	3	0	3	139	17,404	4	0	3	153	17,404	4	0	3	153
		AFRL90	15,907	3	0	3	139	17,477	4	0	3	153	17,477	4	0	3	153
P3	147W	R2	19,855	3	0	2	132	21,814	3	0	2	145	21,814	3	0	2	145
		R3	19,785	3	0	3	135	21,737	3	0	4	148	21,737	3	0	4	148
		R3S	20,312	3	0	3	135	22,317	3	0	3	149	22,317	3	0	3	149
		R4	20,044	3	0	3	136	22,022	3	0	4	150	22,022	3	0	4	150
		R4S	19,339	3	0	3	132	21,247	3	0	3	145	21,247	3	0	3	145
		R5	20,313	5	0	3	138	22,317	5	0	3	152	22,317	5	0	3	152
		R5S	20,852	4	0	2	142	22,910	4	0	2	156	22,910	4	0	2	156
		AFR	19,828	3	0	2	135	21,785	3	0	2	148	21,785	3	0	2	148
		AFRR90	20,017	4	0	3	133	21,992	4	0	3	147	21,992	4	0	3	147
		AFRL90	20,101	4	0	3	134	22,084	4	0	3	147	22,084	4	0	3	147
P4	187W	R2	22,836	3	0	2	120	25,090	3	0	2	132	25,090	3	0	2	132
		R3	22,756	3	0	4	122	25,002	3	0	4	134	25,002	3	0	4	134
		R3S	23,363	3	0	3	123	25,668	3	0	3	135	25,668	3	0	3	135
		R4	23,054	3	0	4	123	25,329	3	0	4	135	25,329	3	0	4	135
		R4S	22,243	3	0	3	119	25,059	3	0	3	134	25,059	3	0	3	134
		R5	23,363	5	0	3	125	25,669	5	0	4	137	25,669	5	0	4	137
		R5S	23,983	4	0	2	128	26,350	4	0	2	141	26,350	4	0	2	141
		AFR	22,806	3	0	2	122	25,056	3	0	2	134	25,056	3	0	2	134
		AFRR90	23,023	4	0	3	121	25,295	4	0	3	133	25,295	4	0	3	133
		AFRL90	23,120	4	0	3	122	25,401	4	0	3	134	25,401	4	0	3	134
P5	210W	R2	26,141	3	0	2	122	28,721	3	0	2	135	28,721	3	0	2	135
		R3	26,049	3	0	4	124	28,620	3	0	4	136	28,620	3	0	4	136
		R3S	26,744	3	0	3	125	29,383	3	0	4	138	29,383	3	0	4	138
		R4	26,390	3	0	4	126	28,994	3	0	4	138	28,994	3	0	4	138
		R4S	25,462	3	0	3	121	27,974	3	0	3	133	27,974	3	0	3	133
		R5	26,744	5	0	4	127	29,383	5	0	4	140	29,383	5	0	4	140
		R5S	27,454	4	0	2	131	30,163	4	0	2	144	30,163	4	0	2	144
		AFR	26,106	3	0	2	124	28,682	3	0	2	137	28,682	3	0	2	137
		AFRR90	26,354	4	0	3	123	28,955	5	0	3	136	28,955	5	0	3	136
		AFRL90	26,465	4	0	3	124	29,077	5	0	3	136	29,077	5	0	3	136
P6	244W	R2	27,646	3	0	2	112	30,374	3	0	2	123	30,374	3	0	2	123
		R3	27,549	3	0	4	113	30,267	3	0	4	124	30,267	3	0	4	124
		R3S	28,283	3	0	3	115	31,075	3	0	4	126	31,075	3	0	4	126
		R4	27,909	3	0	4	114	30,663	3	0	4	126	30,663	3	0	4	126
		R4S	26,928	3	0	3	110	29,585	3	0	3	121	29,585	3	0	3	121
		R5	28,284	5	0	4	116	31,075	5	0	4	127	31,075	5	0	4	127
		R5S	29,035	4	0	2	119	31,900	5	0	3	131	31,900	5	0	3	131
		AFR	27,608	3	0	2	112	30,332	3	0	2	123	30,332	3	0	2	123
		AFRR90	27,872	4	0	3	113	30,622	5	0	3	124	30,622	5	0	3	124
		AFRL90	27,989	4	0	3	113	30,751	5	0	3	125	30,751	5	0	3	125

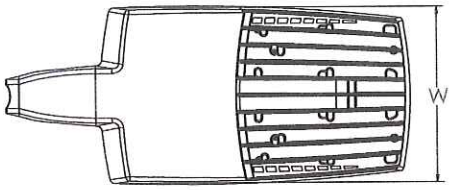
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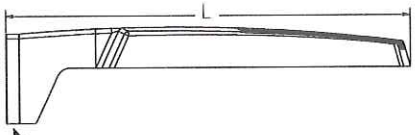
Dimensions & Weights

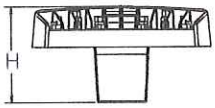
Luminaire Weight by Mounting Type

Mounting Configuration	Total Luminaire Weight
SPA	30 lbs
RPA	32 lbs
MA	30 lbs
WBA	33 lbs
WBASC	36 lbs
IS	33 lbs
AASP	33 lbs
AARP	35 lbs
AAWB	36 lbs
AAWSC	39 lbs

RSX2 with Round Pole Adapter (RPA)





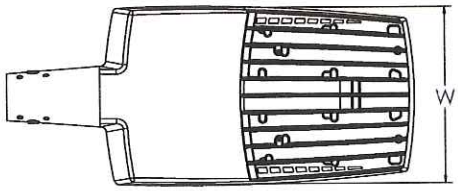


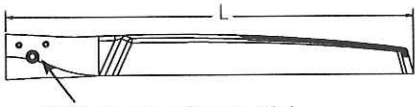
Length: 30.3" (77.0 cm)
Width: 13.4" (34.0 cm)
Height: 3.0" (7.6 cm) Main Body
7.2" (18.3 cm) Arm

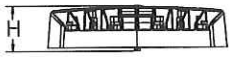
Note: RPA — Round Pole mount can also be used to mount on square poles by omitting the round pole adapter plate shown here.



RSX2 with Mast Arm Adapter (MA)



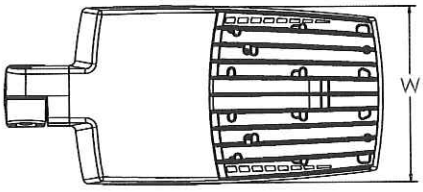


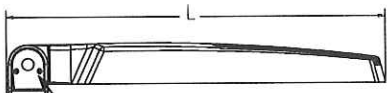


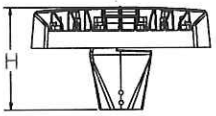
7/16" locking thru bolt/nut provided

Length: 30.6" (77.7 cm)
Width: 13.4" (34.0 cm)
Height: 3.0" (7.6 cm) Main Body
3.5" (8.9 cm) Arm

RSX2 with Adjustable Slipfitter (IS)







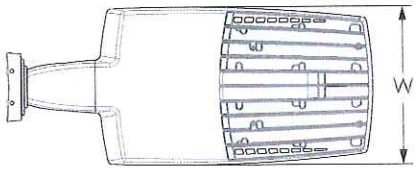
7/8" KO - fits 1/2" NPT water- tight fitting

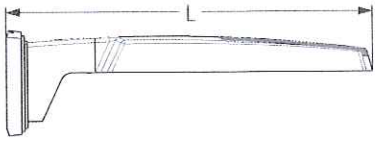
Length: 28.3" (71.9 cm)
Width: 13.4" (34.0 cm)
Height: 3.0" (7.6 cm) Main Body
7.6" (19.3 cm) Arm

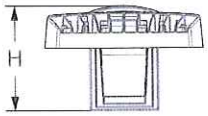
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Dimensions

RSX2 with Wall Bracket (WBA)

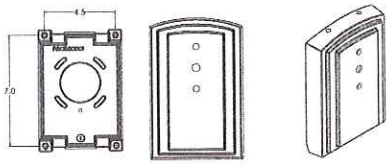




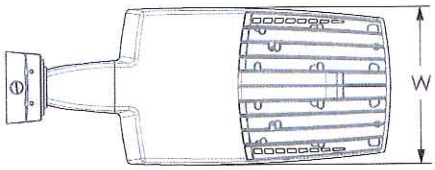


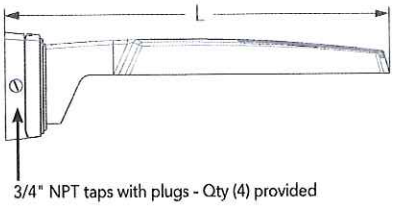
Length: 31.2" (79.2 cm)
Width: 13.4" (41.7 cm)
Height: 3.0" (7.6 cm) Main Body
8.9" (22.6 cm) Arm

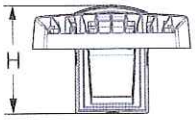
Wall Bracket (WBA) Mounting Detail



RSX2 with Wall Bracket with Surface Conduit Box (WBASC)

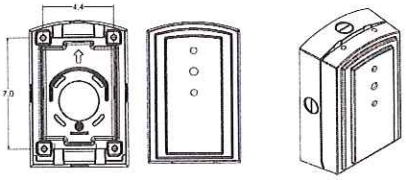






Length: 32.8" (83.3 cm)
Width: 13.4" (41.7 cm)
Height: 3.0" (7.6 cm) Main Body
9.2" (23.4 cm) Arm

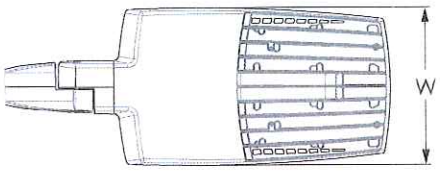
Surface Conduit Box (SCB) Mounting Detail

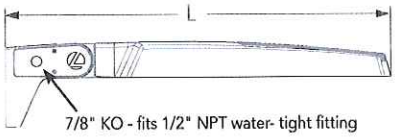


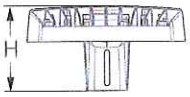
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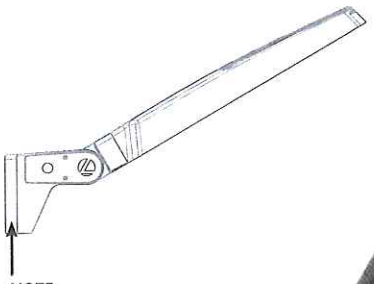
Dimensions

RSX2 with Adjustable Tilt Arm - Square or Round Pole (AASP or AARP)









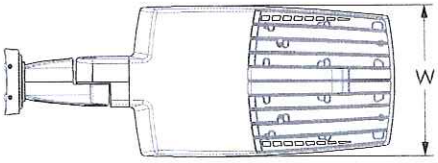
Length: 32.8" (83.3 cm) **AASP**
33.8" (85.9 cm) **AARP**
Width: 13.4" (34.0 cm)
Height: 3.0" (7.6 cm) Main Body
7.2" (18.2 cm) Arm

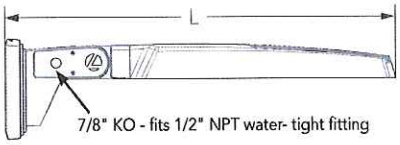
NOTE:
RPA - Round Pole mount can also be used to mount on square poles by omitting the round pole adapter plate shown here.

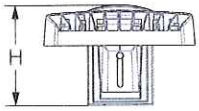


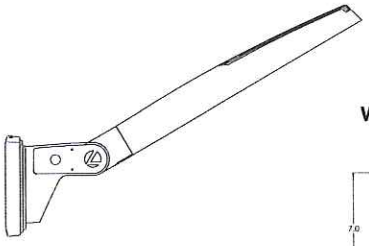
Notes
AASP: Requires 3.0" min. square pole for 1 at 90°. Requires 3.5" min. square pole for mounting 2, 3, 4 at 90°.
AARP: Requires 3.2" min. dia. round pole for 2, 3, 4 at 90°. Requires 3.0" min. dia. round pole for mounting 1 at 90°, 2 at 180°, 3 at 120°.

RSX2 with Adjustable Tilt Arm with Wall Bracket (AAWB)



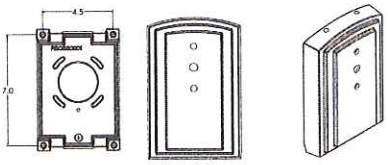






Length: 34.7" (88.0 cm)
Width: 13.4" (34.0 cm)
Height: 3.0" (7.6 cm) Main Body
8.9" (22.6 cm) Arm

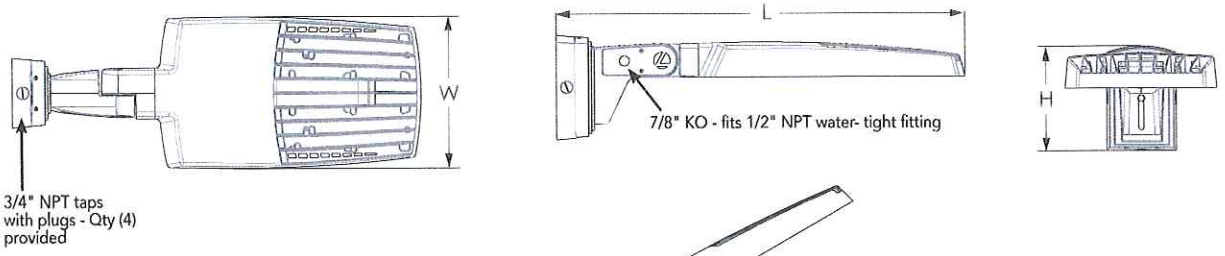
Wall Bracket (WBA) Mounting Detail

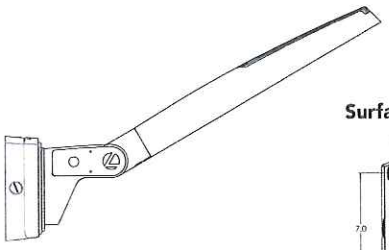


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Dimensions

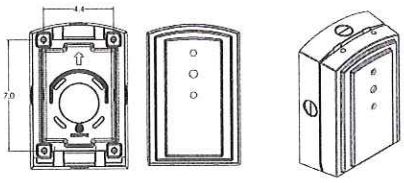
RSX2 with Adjustable Tilt Arm with Wall Bracket and Surface Conduit Box (AAWSC)



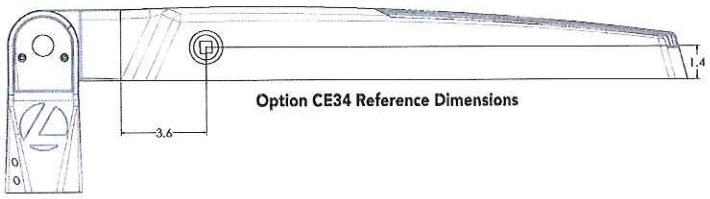


Length: 36.2" (91.9 cm)
Width: 13.4" (40.0 cm)
Height: 3.0" (7.6 cm) Main Body
9.2" (23.4 cm) Arm

Surface Conduit Box (SCB) Mounting Detail

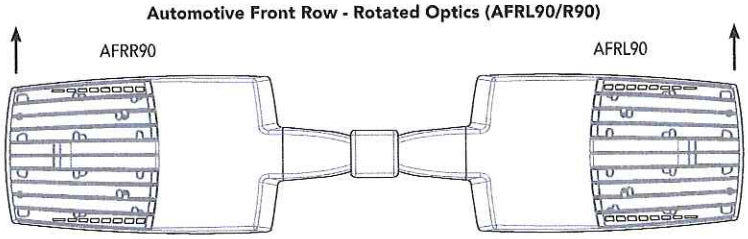


Additional Reference Drawings



Option CE34 Reference Dimensions

Automotive Front Row - Rotated Optics (AFRL90/R90)

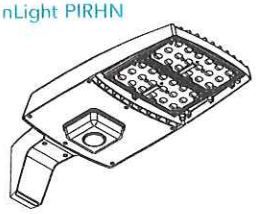


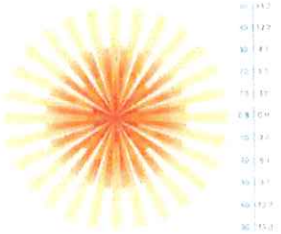
(Example: 2@180 - arrows indicate direction of light exiting the luminaire)

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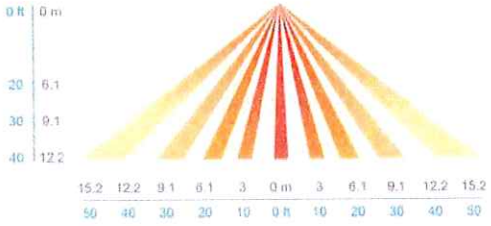
nLight Control - Sensor Coverage and Settings

NLTAIR2 PIRHN nLight
Sensor Coverage Pattern
nLight PIRHN





Top



Side

Motion Sensor Default Settings - Option PIRHN						
Option	Dimmed State (unoccupied)	High Level (when occupied)	Photocell Operation	Dwell Time (occupancy time delay)	Ramp-up Time (from unoccupied to occupied)	Ramp-down Time (from occupied to unoccupied)
NLTAIR2 PIRHN	Approx. 30% Output	100% Output	Enabled @ 1.5FC	7.5 minutes	3 seconds	5 minutes

*Note: NLTAIR2 PIRHN default settings including photocell set-point, high/low dim rates, and occupancy sensor time delay are all configurable using the Clairity Pro App. Sensor coverage pattern shown with luminaire at 0°. Sensor coverage pattern is affected when luminaire is tilted.

FEATURES & SPECIFICATIONS

INTENDED USE
The RSX LED area family is designed to provide a long-lasting, energy-efficient solution for the one-for-one replacement of existing metal halide or high pressure sodium lighting. The RSX2 delivers 11,000 to 31,000 lumens and is ideal for replacing 250W to 1000W HID pole-mounted luminaires in parking lots and other area lighting applications.

CONSTRUCTION AND DESIGN
The RSX LED area luminaire features a rugged die-cast aluminum main body that uses heat-dissipating fins and flow-through venting to provide optimal thermal management that both enhances LED performance and extends component life. Integral "no drill" mounting arm allows the luminaire to be mounted on existing pole drillings, greatly reducing installation labor. The light engines and housing are sealed against moisture and environmental contaminants to IP66. The low-profile design results in a low EPA, allowing pole optimization. Vibration rated per ANSI C136.31: 3G Mountings: Include SPA, RPA, MA, IS, AASP, AARP rated for 3G vibration. 1.5G Mountings: Include WBA, WBASC, AAWB and AAWSC rated for 1.5G vibration.

FINISH
Exterior parts are protected by a zinc-infused Super Durable TGIC thermoset powder coat finish that provides superior resistance to corrosion and weathering. A tightly controlled multi-stage process ensures superior adhesion as well as a minimum finish thickness of 3 mils. The result is a high-quality finish that is warrantied not to crack or peel.

OPTICS
Precision acrylic refractive lenses are engineered for superior application efficiency, distributing the light to where it is needed most. Available in short and wide pattern distributions including Type 2, Type 3, Type 3S, Type 4, Type 4S, Type 5, Type 5S, AFR (Automotive Front Row) and AFR rotated AFRR90 and ARFL90.

ELECTRICAL
Light engine(s) configurations consist of high-efficacy LEDs mounted on metal-core circuit boards and aluminum heat sinks to maximize heat dissipation. Light engines are IP66 rated. LED lumen maintenance is >L92/100,000 hours. CCT's of 3000K, 4000K and 5000K (minimum 70 CRI) are available. Fixtures ship standard with 0-10v dimming driver. Class 1 electronic drivers ensure system power factor >90% and THD <20%. Easily serviceable 10kV surge protection device meets a minimum Category C Low operation (per ANSI/IEEE C62.41.2).

STANDARD CONTROLS
The RSX LED area luminaire has a wide assortment of control options. Dusk to dawn controls include MVOLT and 347V button-type photocells and NEMA twist-lock photocell receptacles.

nLIGHT AIR CONTROLS
The RSX LED area luminaire is also available with nLight® AIR for the ultimate in wireless control. This powerful controls platform provides out-of-the-box basic motion sensing with photocontrol functionality and is suitable for mounting heights up to 40 feet. No commissioning is required when using factory default settings that provide basic stand-alone motion occupancy dimming that is switched on and off with a built-in photocell. See chart above for motion sensor default out-of-box settings. For more advanced wireless functionality, such as group dimming, nLight AIR can be commissioned using a smartphone and the easy-to-use CLAIRITY app. nLight AIR equipped luminaries can be grouped, resulting in motion sensor and photocell group response without the need for additional equipment. Scheduled dimming with motion sensor over-ride can be achieved when used with the nLight Eclypse. Additional information about nLight Air can be found here.

INSTALLATION
Integral "no-drill" mounting arm allows for fast, easy mounting using existing pole drillings. Select the "SPA" option for square poles and the "RPA" option to mount to round poles. Note, the RPA mount can also be used for mounting to square poles by omitting the RPA adapter plate. Select the "MA" option to attach the luminaire to a 2 3/8" horizontal mast arm or the "IS" option for an adjustable slipfitter that mounts on a 2 3/8" OD tenon. The adjustable slipfitter has an integral junction box and offers easy installation. Can be tilted up to 90° above horizontal. Additional mountings are available including a wall bracket, adjustable tilt arm for direct-to-pole and wall and a surface conduit box for wall mount applications.

LISTINGS
CSA Certified to meet U.S. and Canadian standards. Suitable for wet locations. Rated for -40°C minimum ambient. DesignLights Consortium® (DLC) Premium qualified product and DLC qualified product. Not all versions of this product may be DLC Premium qualified or DLC qualified. Please check the DLC Qualified Products List at www.designlights.org/QPL to confirm which versions are qualified.
International Dark-Sky Association (IDA) Fixture Seal of Approval (FSA) is available for all products on this page utilizing 3000K color temperature only. US Patent No. D882, 146S

BUY AMERICAN
Product with the BAA option is assembled in the USA and meets the Buy America(n) government procurement requirements under FAR, DFARS and DOT.
Please refer to www.acuitybrands.com/buy-american for additional information.

WARRANTY
5-year limited warranty. This is the only warranty provided and no other statements in this specification sheet create any warranty of any kind. All other express and implied warranties are disclaimed. Complete warranty terms located at:
www.acuitybrands.com/support/warranty/terms-and-conditions

Note: Actual performance may differ as a result of end-user environment and application.
All values are design or typical values, measured under laboratory conditions at 25 °C.
Specifications subject to change without notice.

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Submitted by:	Job Name:	Catalog Number:	Type:
VISIBLELIGHT MANUFACTURERS' REPRESENTATIVE	UNE ALFOND CENTER SITE LIGHTING	SSP27-5.0-11-BLK-DM2180-BC	AB

SSP

Square Non-Tapered Steel Poles



Pole Shaft

The pole shaft is one piece construction, being fabricated from a weldable grade carbon steel structural tubing which has a uniform wall thickness of 11 gauge (0.1196"). The pole shaft material shall conform to ASTM A500 Grade C with a minimum yield strength of 50,000 psi. The pole shaft has a full length longitudinal resistance weld and is uniformly square in cross-section with flat sides, small corner radii and excellent torsional properties.

Base Plate

The anchor base is fabricated from a structural quality hot rolled carbon steel plate that meets or exceeds a minimum yield strength of 36,000 psi. The anchor base telescopes the pole shaft and is circumferentially welded top and bottom. All welds are performed in accordance with the American Welding Society specification AWS D1.1, latest edition.
Bolt Circle: 1.00 (in.) **Dimension :** 12.0 (in.) **Thickness:** 1.00 (in.) **Conduit Opening:** 4 (in.)
Consult KW representative for non-standard dimensions.

Anchor Bolts

Anchor bolts are fabricated from commercial quality hot rolled carbon steel bar that meets or exceeds a minimum yield strength of 55,000 psi. Four properly sized anchor bolts, each with two regular hex nuts and washers, are furnished and shipped with all poles unless otherwise specified. Anchor bolts shall have the threaded end galvanized a minimum of 8 inches in accordance with ASTM A153. Fully galvanized anchor bolts are available upon request.

Handhole

An oval reinforced gasketed handhole, having a nominal 3 " x 5 " inside opening, located 1' - 6" above base, is standard on all poles. A grounding provision is located inside the handhole ring.

Finish

Standard - The exterior surface is cleaned with an alkaline rinse to remove surface contaminants and shot blasted to specifications as published by the Steel Structures Painting Council Standards SSPC-SP10 (near white). The exterior surface is chemically pretreated with an iron phosphate conversion coating then rinsed with ambient fresh water containing special surfactants and sealers forming a dry tight micro-crystalline coating. A polyester thermosetting powder coating applied to the surface of the substrate to a minimum of 3 mils is standard on all color finishes. The internal surface including the powder coated area at the base-end is coated with [illegible], a thermoplastic hydrocarbon resin system specially formulated for application over untreated steel surfaces, to a thickness of 3 mils. The internal coating shall contain special corrosion inhibitors and is capable of passing 1000 hours of salt spray exposure (ASTM B117).

Series:**SSP** - *Square Non-Tapered Steel Poles*
Nominal Height: **27'** Base Diameter: **5.0"** Gauge: **11**
Finish: **BLK** - *Standard - Black*
Mounting Designation: **DM2180** - *Drilled for 2 Luminaires @ 180°*
Options: **BC** - *Base Cover*

Height (ft.)	Pole Shaft (in.) x (ft.)	Gauge	Handhole Size (in.)	Anchor Bolt (in.) x (in.) x (in.)	Bolt Circle (in.)	80 MPH (ft.)	90 MPH (ft.)	100 MPH (ft.)	Ship WT. (lbs.)
27	5.0 x 27.0	11	3 x 5	1.00 x 36 x 4	11	9.8	6.1	3.2	300
SSP27-5.0-11-BLK-DM2180-BC									

Submitted by:	Job Name:	Catalog Number:	Type:
VISIBLELIGHT MANUFACTURERS' REPRESENTATIVES	UNE ALFOND CENTER SITE LIGHTING	RSX2 LED P1 40K R2 MVOLT SPA PER7 DBLXD / DLL127F 1.5 JU	AC



RSX2 LED
Area Luminaire

Buy American

Catalog Number

Notes

Type

Hit the tab key or mouse over the page to see all interactive elements

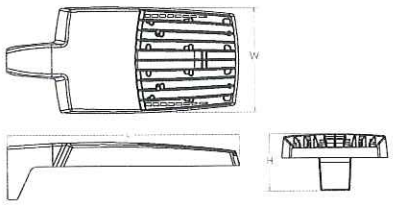
Introduction

The new RSX LED Area family delivers maximum value by providing significant energy savings, long life and outstanding photometric performance at an affordable price. The RSX2 delivers 11,000 to 31,000 lumens allowing it to replace 250W to 1000W HID luminaires.

The RSX features an integral universal mounting mechanism that allows the luminaire to be mounted on most existing drill hole patterns. This "no-drill" solution provides significant labor savings. An easy-access door on the bottom of mounting arm allows for wiring without opening the electrical compartment. A mast arm adaptor, adjustable integral slipfitter and other mounting configurations are available.

Specifications

EPA (ft²@0°):	0.69 ft² (0.06 m²)
Length:	29.3" (74.4 cm) (SPA mount)
Width:	13.4" (34.0 cm)
Height:	3.0" (7.6 cm) Main Body 7.2" (18.3 cm) Arm
Weight: (SPA mount)	30.0 lbs (13.6 kg)



Ordering Information

EXAMPLE: RSX2 LED P6 40K R3 MVOLT SPA DDBXD

RSX2 LED	P1	40K	R2	MVOLT	SPA

Series	Performance Package	Color Temperature	Distribution	Voltage	Mounting
RSX2 LED	P1	30K 3000K	R2 Type 2 Wide	MVOLT (120V-277V) [2]	SPA Square pole mounting (3.0" min. SQ pole for 1 at 90°, 3.5" min. SQ pole for 2, 3, 4 at 90°)
	P2	40K 4000K	R3 Type 3 Wide	HVOLT (347V-480V) [3]	RPA Round pole mounting (3.2" min. dia. RND pole for 1 at 90°, 2 at 180°, 3 at 120°)
	P3	50K 5000K	R3S Type 3 Short	XVOLT (277V-480V) [4]	MA Mast arm adaptor (fits 2-3/8" OD horizontal tenon)
	P4		R4 Type 4 Wide	(use specific voltage for options as noted)	IS Adjustable slipfitter (fits 2-3/8" OD tenon) [6]
	P5		R4S Type 4 Short	120 [3] 277 [5]	WBA Wall bracket [1]
	P6		R5 Type 5 Wide [1]	208 [3] 347 [5]	WBASC Wall bracket with surface conduit box
			R5S Type 5 Short [1]	240 [3] 480 [5]	AASP Adjustable tilt arm square pole mounting [6]
			AFR Automotive Front Row		AARP Adjustable tilt arm round pole mounting [6]
			AFRR90 Automotive Front Row Right Rotated		AAWB Adjustable tilt arm with wall bracket [6]
			AFRL90 Automotive Front Row Left Rotated		AAWSC Adjustable tilt arm wall bracket and surface conduit box [6]

PER7 **DBLXD**

Options

Shipped Installed

HS	House-side shield [7]
PE	Photocontrol, button style [8,9]
PEX	Photocontrol external threaded, adjustable [9,11]
PER7	Seven-wire twist-lock receptacle only (no controls) [9,11,12,13]
CE34	Conduit entry 3/4" NPT (Qty 2)
SF	Single fuse (120, 277, 347) [5]
DF	Double fuse (208, 240, 480) [5]
SPD20KV	20KV Surge pack (10KV standard)
FAO	Field adjustable output [9,13]
DMG	0-10V dimming extend out back of housing for external control (control ordered separate) [9,11]
DS	Dual switching [9,14]

Shipped Installed

***Standalone and Networked Sensors/Controls (factory default settings, see table page 9)**

NLTAIR2	nLight AIR generation 2 [13,15,16]
PIRHN	Networked, Bi-Level motion/ambient sensor (for use with NLTAIR2) [13,15,17]
BAA	Buy America(n) Act Compliant

*Note: PIRHN with nLight Air can be used as a standalone dimming sensor with out-of-box settings or as a wireless networked solution. See factory default settings table. Sensor coverage pattern is affected when luminaire is tilted.

Shipped Separately (requires some field assembly)

EGS	External glare shield [6]
EGFV	External glare full visor (360° around light aperture) [7]
BS	Bird spikes [11]

Finish

DDBXD	Dark Bronze
DBLXD	Black
DNAXD	Natural Aluminum
DWHXD	White
DDBTXD	Textured Dark Bronze
DBLBXD	Textured Black
DNATXD	Textured Natural Aluminum
DWHGXD	Textured White

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Submitted by:	Job Name:	Catalog Number:	Type:
VISIBLELIGHT MANUFACTURERS' REPRESENTATIVE	UNE ALFOND CENTER SITE LIGHTING	RSX2 LED P1 40K R2 MVOLT SPA PER7 DBLXD / DLL127F 1.5 JU	AC

Ordering Information

Accessories
Ordered and shipped separately

RSX2HS	RSX2 House side shield (includes 2 shields)
RSX2EGS (FINISH) U	External glare shield (specify finish)
RSX2HSAFRR (FINISH) U	RSX2 House side shields for AFR rotated optics (includes 2 shields)
RSX2EGFV (FINISH) U	External glare full visor (specify finish)
RSXRPA (FINISH) U	RSX Universal round pole adaptor plate (specify finish)
RSXWBA (FINISH) U	RSX WBA wall bracket (specify finish) [1]
RSXSCB (FINISH) U	RSX Surface conduit box (specify finish, for use with WBA, WBA not included)
DLL127F 1.5 JU	Photocell -SSL twist-lock (120-277V) [11]
DLL347F 1.5 CUL JU	Photocell -SSL twist-lock (347V) [11]
DLL480F 1.5 CUL JU	Photocell -SSL twist-lock (480V) [11]
DSHORT SBK U	Shorting cap [11]

NOTES
1. Any Type 5 distribution, is not available with WBA.
2. MVOLT driver operates on any line voltage from 120-277V (50/60 Hz).
3. HVOLT driver operates on any line voltage from 347-480V (50/60 Hz).
4. XVOLT driver not available with P1. XVOLT driver operates on any line voltage from 277V-480V (50/60 Hz). XVOLT not available with fusing (SF or DF) and not available with PE or PEX.
5. Single fuse (SF) requires 120V, 277V or 347V. Double fuse (DF) requires 208V, 240V or 480V.
6. Maximum tilt is 90° above horizontal.
7. It may be ordered as an accessory.
8. Requires MVOLT or 347V.
9. Not available in combination with other light sensing control options (following options cannot be combined: PE, PEX, PER7, FAO, DMG, DS, PIRHN). Exception: PE or PEX and FAO can be combined).
10. Requires 120V, 208V, 240V, or 277V.
11. Twistlock photocell ordered and shipped as a separate line item from Acuity Brands Controls. See accessories. Shorting Cap included. Dimming leads capped for future use.
12. For units with option PER7, the mounting must be restricted to +/- 45° from horizontal aim per ANSI C136.10-2010.
13. Two or more of the following options cannot be combined including DMG, DS, PER7, FAO and PIRHN.
14. DS only available on performance package P5 and P6.
15. Must be ordered with PIRHN.
16. Requires MVOLT or HVOLT.
17. Must be ordered with NLTAIR2. For additional information on PIRHN visit here.
18. Must be ordered with fixture for factory pre-drilling.
19. Requires luminaire to be specified with PER7 option. Ordered and shipped as a separate line item from Acuity Brands Controls.

External Shields



House Side Shield



External Glare Shield

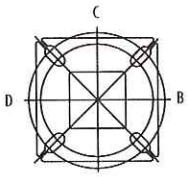


External 360 Full Visor

Pole/Mounting Informatiion

Accessories including bullhorns, cross arms and other adpaters are available under the accessories tab at Lithonia's Outdoor Poles and Arms product page. Click here to visit Accessories.

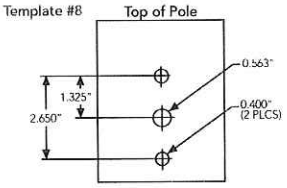
HANDHOLE ORIENTATION



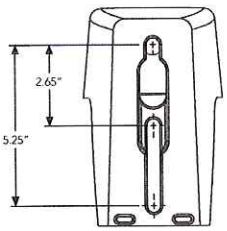
Handhole

RSX POLE DRILLING

Template #8



RSX STANDARD ARM & ADJUSTABLE ARM



Round Tenon Mount - Pole Top Slipfitters

Tenon O.D.	RSX Mounting	Single	2 at 180°	2 at 90°	3 at 120°	3 at 90°	4 at 90°
2 - 3/8"	RPA, AARP	AS3-5 190	AS3-5 280	AS3-5 290	AS3-5 320	AS3-5 390	AS3-5 490
2 - 7/8"	RPA, AARP	AST25-190	AST25-280	AST25-290	AST25-320	AST25-390	AST25-490
4"	RPA, AARP	AST35-190	AST35-280	AST35-290	AST35-320	AST35-390	AST35-490

Drill/Side Location by Configuration Type

Drilling Template	Mounting Option	Single	2 @ 180	2 @ 90	3 @ 120	3 @ 90	4 @ 90
	Head Location	Side B	Side B & D	Side B & C	Round Pole Only	Side B, C & D	Side A, B, C & D
#8	Drill Nomenclature	DM19AS	DM28AS	DM29AS	DM32AS	DM39AS	DM49AS

RSX2 - Luminaire EPA

*Includes luminaire and integral mounting arm. Other tenons, arms, brackets or other accessories are not included in this EPA data.

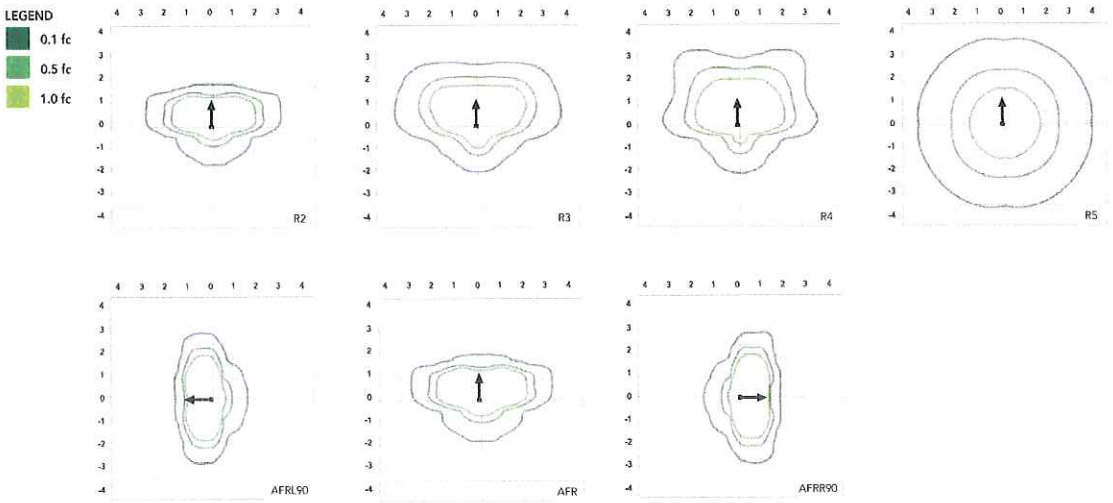
Fixture Quantity & Mounting Configuration		Single	2 @ 90	2 @ 180	3 @ 90	3 @ 120	4 @ 90	2 Side by Side	3 Side by Side	4 Side by Side
Mounting Type	Tilt									
SPA - Square Pole Adaptor	0°	0.69	1.22	1.27	1.8	1.61	2.39	1.37	2.06	2.74
RPA - Round Pole Adaptor		0.74	1.27	1.37	1.9	1.71	2.49	1.42	2.16	2.84
MA - Mast Arm Adaptor		0.61	1.14	1.11	1.64	1.45	2.23	1.29	1.9	2.58
IS - Integral Slipfitter AASP/AARP - Adjustable Arm Square/Round Pole	0°	0.69	1.22	1.27	1.8	1.61	2.39	1.37	2.06	2.74
	10°	0.53	1.06	1.05	1.58	1.37	2.08	1.06	1.59	2.12
	20°	0.52	1.02	1.03	1.52	1.33	2.02	1.03	1.55	2.07
	30°	0.64	1.11	1.18	1.63	1.45	2.21	1.27	1.91	2.54
	40°	0.81	1.21	1.35	1.74	1.65	2.39	1.62	2.43	3.23
	45°	0.91	1.25	1.5	1.81	1.75	2.48	1.82	2.73	3.64
	50°	1.34	1.83	2.17	2.61	2.56	3.62	2.68	4.02	5.36
	60°	2.2	2.97	3.57	4.24	4.17	5.89	4.41	6.61	8.82
	70°	2.86	4.13	4.7	5.89	5.71	8.21	5.71	8.57	11.42
	80°	3.4	5.13	5.67	7.34	7.09	10.21	6.79	10.19	13.59
	90°	3.85	5.96	6.55	8.58	8.31	11.88	7.70	11.56	15.41

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Photometric Diagrams

To see complete photometric reports or download .ies files for this product, visit Lithonia Lighting's RSX Area homepage.

Isofootcandle plots for the RSX2 LED P6 40K. Distances are in units of mounting height (30').



Performance Data

Lumen Ambient Temperature (LAT) Multipliers

Use these factors to determine relative lumen output for average ambient temperatures from 0-50°C (32-122°F).

Ambient	Ambient	Lumen Multiplier
0°C	32°F	1.05
5°C	41°F	1.04
10°C	50°F	1.03
15°C	59°F	1.02
20°C	68°F	1.01
25°C	77°F	1.00
30°C	86°F	0.99
35°C	95°F	0.98
40°C	104°F	0.97
45°C	113°F	0.96
50°C	122°F	0.95

Electrical Load

		Current (A)					
Performance Package	System Watts (W)	120V	208V	240V	277V	347V	480V
P1	71W	0.59	0.34	0.30	0.26	0.20	0.15
P2	111W	0.93	0.53	0.46	0.40	0.32	0.23
P3	147W	1.23	0.70	0.61	0.53	0.42	0.31
P4	187W	1.55	0.90	0.78	0.68	0.53	0.38
P5	210W	1.75	1.01	0.87	0.76	0.60	0.44
P6	244W	2.03	1.17	1.01	0.88	0.70	0.51

Projected LED Lumen Maintenance

Operating Hours	50,000	75,000	100,000
Lumen Maintenance Factor	>0.97	>0.95	>0.92

Values calculated according to IESNA TM-21-11 methodology and valid up to 40°C.

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Performance Data

Lumen Output

Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of the configurations shown, within the tolerances allowed by Lighting Facts. Contact factory for performance data on any configurations not shown here.

Performance Package	System Watts	Distribution Type	30K (3000K, 70 CRI)					40K (4000K, 70 CRI)					50K (5000K, 70 CRI)				
			Lumens	B	U	G	LPW	Lumens	B	U	G	LPW	Lumens	B	U	G	LPW
P1	71W	R2	10,040	2	0	1	139	11,031	2	0	1	153	11,031	2	0	1	153
		R3	10,005	2	0	2	141	10,992	2	0	2	155	10,992	2	0	2	155
		R3S	10,271	2	0	2	143	11,285	2	0	2	157	11,285	2	0	2	157
		R4	10,136	2	0	2	143	11,136	2	0	2	157	11,136	2	0	2	157
		R4S	9,779	2	0	2	138	10,744	2	0	2	151	10,744	2	0	2	151
		R5	10,271	4	0	2	145	11,285	4	0	2	159	11,285	4	0	2	159
		R5S	10,544	3	0	1	149	11,585	3	0	2	163	11,585	3	0	2	163
		AFR	10,026	2	0	1	141	11,016	2	0	1	155	11,016	2	0	1	155
		AFRR90	10,122	3	0	2	140	11,121	3	0	2	154	11,121	3	0	2	154
		AFRL90	10,164	3	0	2	141	11,167	3	0	2	155	11,167	3	0	2	155
P2	111W	R2	15,712	2	0	2	138	17,263	2	0	2	151	17,263	2	0	2	151
		R3	15,657	2	0	3	141	17,202	3	0	3	155	17,202	3	0	3	155
		R3S	16,075	2	0	2	141	17,661	2	0	2	155	17,661	2	0	2	155
		R4	15,862	2	0	3	143	17,427	2	0	3	157	17,427	2	0	3	157
		R4S	15,304	2	0	2	138	16,815	2	0	2	151	16,815	2	0	2	151
		R5	16,075	4	0	2	145	17,661	5	0	3	159	17,661	5	0	3	159
		R5S	16,502	4	0	2	149	18,130	4	0	2	163	18,130	4	0	2	163
		AFR	15,691	2	0	2	141	17,240	2	0	2	155	17,240	2	0	2	155
		AFRR90	15,841	3	0	3	139	17,404	4	0	3	153	17,404	4	0	3	153
		AFRL90	15,907	3	0	3	139	17,477	4	0	3	153	17,477	4	0	3	153
P3	147W	R2	19,855	3	0	2	132	21,814	3	0	2	145	21,814	3	0	2	145
		R3	19,785	3	0	3	135	21,737	3	0	4	148	21,737	3	0	4	148
		R3S	20,312	3	0	3	135	22,317	3	0	3	149	22,317	3	0	3	149
		R4	20,044	3	0	3	136	22,022	3	0	4	150	22,022	3	0	4	150
		R4S	19,339	3	0	3	132	21,247	3	0	3	145	21,247	3	0	3	145
		R5	20,313	5	0	3	138	22,317	5	0	3	152	22,317	5	0	3	152
		R5S	20,852	4	0	2	142	22,910	4	0	2	156	22,910	4	0	2	156
		AFR	19,828	3	0	2	135	21,785	3	0	2	148	21,785	3	0	2	148
		AFRR90	20,017	4	0	3	133	21,992	4	0	3	147	21,992	4	0	3	147
		AFRL90	20,101	4	0	3	134	22,084	4	0	3	147	22,084	4	0	3	147
P4	187W	R2	22,836	3	0	2	120	25,090	3	0	2	132	25,090	3	0	2	132
		R3	22,756	3	0	4	122	25,002	3	0	4	134	25,002	3	0	4	134
		R3S	23,363	3	0	3	123	25,668	3	0	3	135	25,668	3	0	3	135
		R4	23,054	3	0	4	123	25,329	3	0	4	135	25,329	3	0	4	135
		R4S	22,243	3	0	3	119	25,059	3	0	3	134	25,059	3	0	3	134
		R5	23,363	5	0	3	125	25,669	5	0	4	137	25,669	5	0	4	137
		R5S	23,983	4	0	2	128	26,350	4	0	2	141	26,350	4	0	2	141
		AFR	22,806	3	0	2	122	25,056	3	0	2	134	25,056	3	0	2	134
		AFRR90	23,023	4	0	3	121	25,295	4	0	3	133	25,295	4	0	3	133
		AFRL90	23,120	4	0	3	122	25,401	4	0	3	134	25,401	4	0	3	134
P5	210W	R2	26,141	3	0	2	122	28,721	3	0	2	135	28,721	3	0	2	135
		R3	26,049	3	0	4	124	28,620	3	0	4	136	28,620	3	0	4	136
		R3S	26,744	3	0	3	125	29,383	3	0	4	138	29,383	3	0	4	138
		R4	26,390	3	0	4	126	28,994	3	0	4	138	28,994	3	0	4	138
		R4S	25,462	3	0	3	121	27,974	3	0	3	133	27,974	3	0	3	133
		R5	26,744	5	0	4	127	29,383	5	0	4	140	29,383	5	0	4	140
		R5S	27,454	4	0	2	131	30,163	4	0	2	144	30,163	4	0	2	144
		AFR	26,106	3	0	2	124	28,682	3	0	2	137	28,682	3	0	2	137
		AFRR90	26,354	4	0	3	123	28,955	5	0	3	136	28,955	5	0	3	136
		AFRL90	26,465	4	0	3	124	29,077	5	0	3	136	29,077	5	0	3	136
P6	244W	R2	27,646	3	0	2	112	30,374	3	0	2	123	30,374	3	0	2	123
		R3	27,549	3	0	4	113	30,267	3	0	4	124	30,267	3	0	4	124
		R3S	28,283	3	0	3	115	31,075	3	0	4	126	31,075	3	0	4	126
		R4	27,909	3	0	4	114	30,663	3	0	4	126	30,663	3	0	4	126
		R4S	26,928	3	0	3	110	29,585	3	0	3	121	29,585	3	0	3	121
		R5	28,284	5	0	4	116	31,075	5	0	4	127	31,075	5	0	4	127
		R5S	29,035	4	0	2	119	31,900	5	0	3	131	31,900	5	0	3	131
		AFR	27,608	3	0	2	112	30,332	3	0	2	123	30,332	3	0	2	123
		AFRR90	27,872	4	0	3	113	30,622	5	0	3	124	30,622	5	0	3	124
		AFRL90	27,989	4	0	3	113	30,751	5	0	3	125	30,751	5	0	3	125

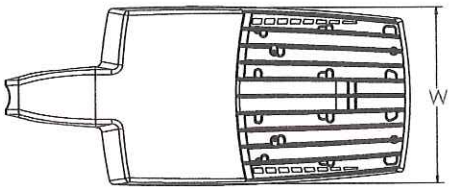
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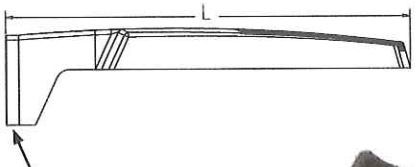
Dimensions & Weights

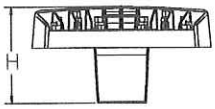
Luminaire Weight by Mounting Type

Mounting Configuration	Total Luminaire Weight
SPA	30 lbs
RPA	32 lbs
MA	30 lbs
WBA	33 lbs
WBASC	36 lbs
IS	33 lbs
AASP	33 lbs
AARP	35 lbs
AAWB	36 lbs
AAWSC	39 lbs

RSX2 with Round Pole Adapter (RPA)





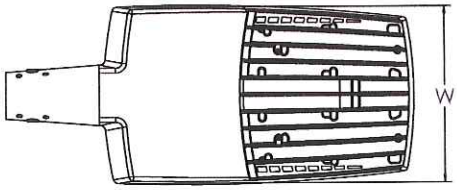


Length: 30.3" (77.0 cm)
Width: 13.4" (34.0 cm)
Height: 3.0" (7.6 cm) Main Body
7.2" (18.3 cm) Arm

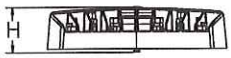
Note: RPA — Round Pole mount can also be used to mount on square poles by omitting the round pole adapter plate shown here.



RSX2 with Mast Arm Adapter (MA)

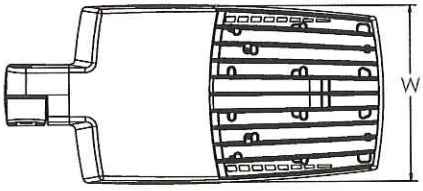


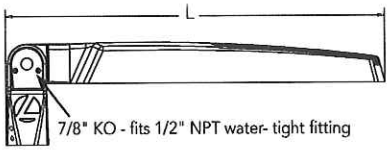


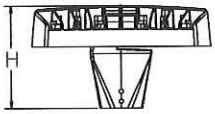


Length: 30.6" (77.7 cm)
Width: 13.4" (34.0 cm)
Height: 3.0" (7.6 cm) Main Body
3.5" (8.9 cm) Arm

RSX2 with Adjustable Slipfitter (IS)





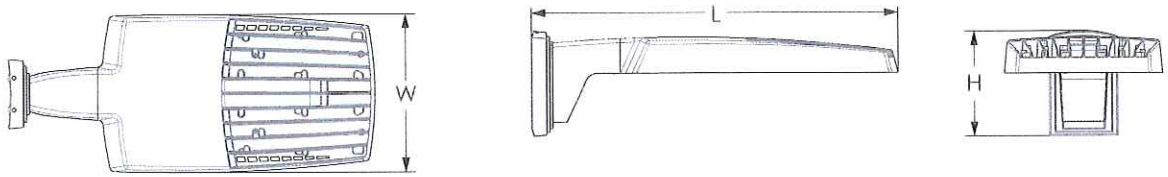


Length: 28.3" (71.9 cm)
Width: 13.4" (34.0 cm)
Height: 3.0" (7.6 cm) Main Body
7.6" (19.3 cm) Arm

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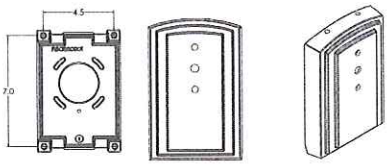
Dimensions

RSX2 with Wall Bracket (WBA)

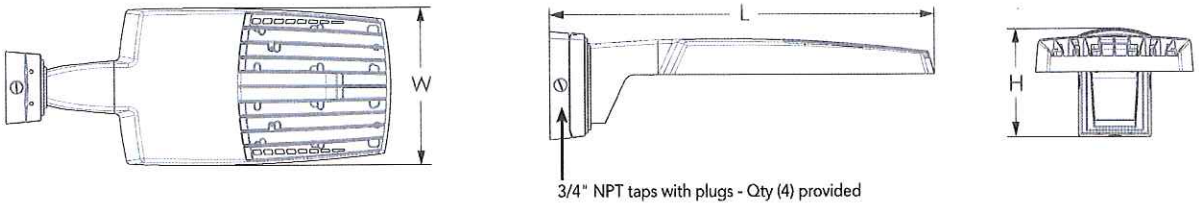


Length: 31.2" (79.2 cm)
Width: 13.4" (41.7 cm)
Height: 3.0" (7.6 cm) Main Body
8.9" (22.6 cm) Arm

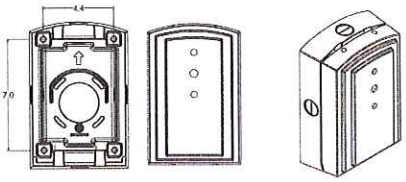
Wall Bracket (WBA) Mounting Detail



RSX2 with Wall Bracket with Surface Conduit Box (WBASC)



Surface Conduit Box (SCB) Mounting Detail

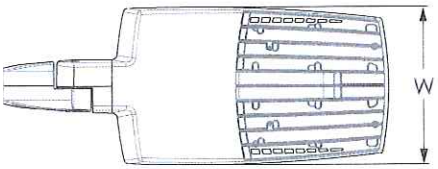


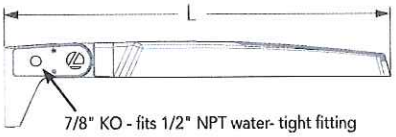
Length: 32.8" (83.3 cm)
Width: 13.4" (41.7 cm)
Height: 3.0" (7.6 cm) Main Body
9.2" (23.4 cm) Arm

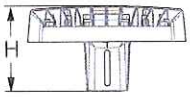
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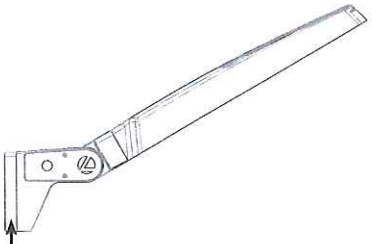
Dimensions

RSX2 with Adjustable Tilt Arm - Square or Round Pole (AASP or AARP)









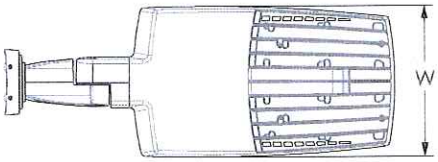
Length: 32.8" (83.3 cm) **AASP**
33.8" (85.9 cm) **AARP**
Width: 13.4" (34.0 cm)
Height: 3.0" (7.6 cm) Main Body
7.2" (18.2 cm) Arm

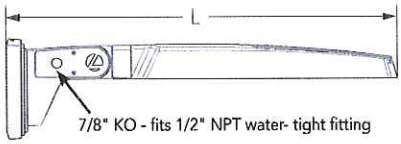
NOTE:
RPA - Round Pole mount can also be used to mount on square poles by omitting the round pole adapter plate shown here.

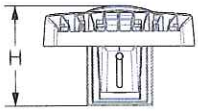


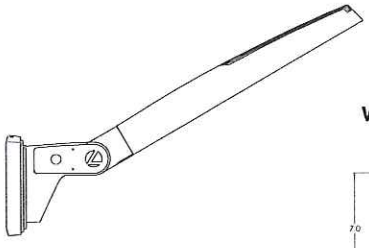
Notes
AASP: Requires 3.0" min. square pole for 1 at 90°. Requires 3.5" min. square pole for mounting 2, 3, 4 at 90°.
AARP: Requires 3.2" min. dia. round pole for 2, 3, 4 at 90°. Requires 3.0" min. dia. round pole for mounting 1 at 90°, 2 at 180°, 3 at 120°.

RSX2 with Adjustable Tilt Arm with Wall Bracket (AAWB)

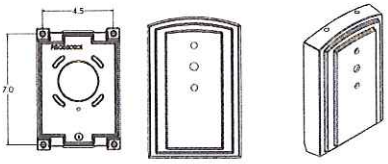








Wall Bracket (WBA) Mounting Detail

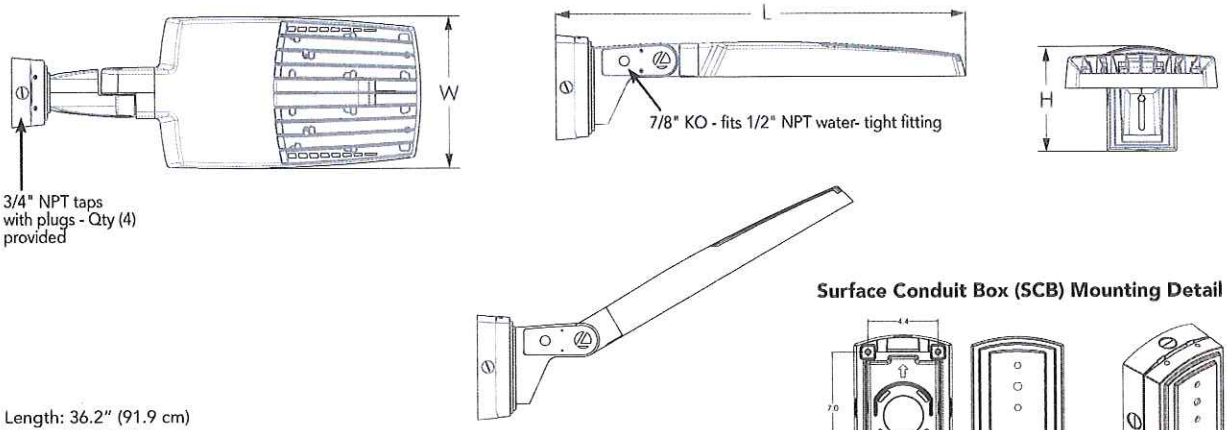


Length: 34.7" (88.0 cm)
Width: 13.4" (34.0 cm)
Height: 3.0" (7.6 cm) Main Body
8.9" (22.6 cm) Arm

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Dimensions

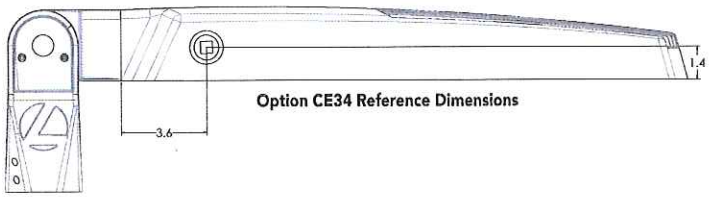
RSX2 with Adjustable Tilt Arm with Wall Bracket and Surface Conduit Box (AAWSC)



Length: 36.2" (91.9 cm)
Width: 13.4" (40.0 cm)
Height: 3.0" (7.6 cm) Main Body
9.2" (23.4 cm) Arm

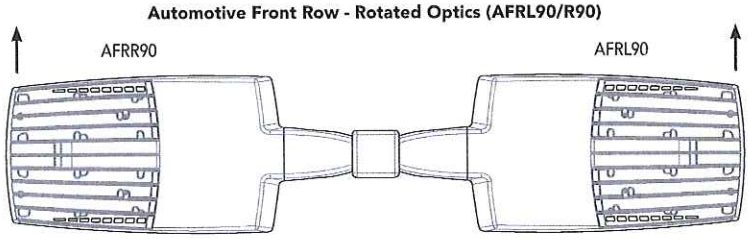
Surface Conduit Box (SCB) Mounting Detail

Additional Reference Drawings



Option CE34 Reference Dimensions

Automotive Front Row - Rotated Optics (AFRL90/R90)

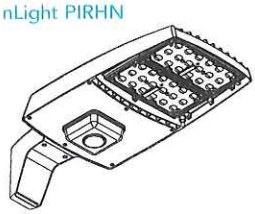


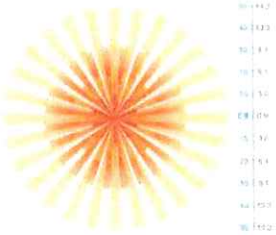
(Example: 2@180 - arrows indicate direction of light exiting the luminaire)

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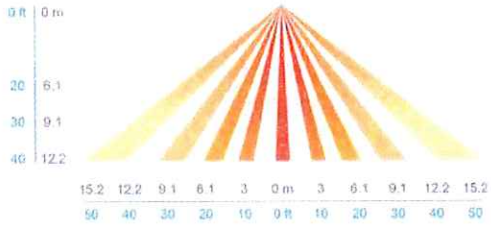
nLight Control - Sensor Coverage and Settings

NLTAIR2 PIRHN nLight
Sensor Coverage Pattern
nLight PIRHN





Top



Side

Motion Sensor Default Settings - Option PIRHN						
Option	Dimmed State (unoccupied)	High Level (when occupied)	Photocell Operation	Dwell Time (occupancy time delay)	Ramp-up Time (from unoccupied to occupied)	Ramp-down Time (from occupied to unoccupied)
NLTAIR2 PIRHN	Approx. 30% Output	100% Output	Enabled @ 1.5FC	7.5 minutes	3 seconds	5 minutes

*Note: NLTAIR2 PIRHN default settings including photocell set-point, high/low dim rates, and occupancy sensor time delay are all configurable using the Clairity Pro App. Sensor coverage pattern shown with luminaire at 0°. Sensor coverage pattern is affected when luminaire is titled.

FEATURES & SPECIFICATIONS

INTENDED USE
The RSX LED area family is designed to provide a long-lasting, energy-efficient solution for the one-for-one replacement of existing metal halide or high pressure sodium lighting. The RSX2 delivers 11,000 to 31,000 lumens and is ideal for replacing 250W to 1000W HID pole-mounted luminaires in parking lots and other area lighting applications.

CONSTRUCTION AND DESIGN
The RSX LED area luminaire features a rugged die-cast aluminum main body that uses heat-dissipating fins and flow-through venting to provide optimal thermal management that both enhances LED performance and extends component life. Integral "no drill" mounting arm allows the luminaire to be mounted on existing pole drillings, greatly reducing installation labor. The light engines and housing are sealed against moisture and environmental contaminants to IP66. The low-profile design results in a low EPA, allowing pole optimization. Vibration rated per ANSI C136.31: 3G Mountings: Include SPA, RPA, MA, IS, AASP, AARP rated for 3G vibration. 1.5G Mountings: Include WBA, WBASC, AAWB and AAWSC rated for 1.5G vibration.

FINISH
Exterior parts are protected by a zinc-infused Super Durable TGIC thermoset powder coat finish that provides superior resistance to corrosion and weathering. A tightly controlled multi-stage process ensures superior adhesion as well as a minimum finish thickness of 3 mils. The result is a high-quality finish that is warrantied not to crack or peel.

OPTICS
Precision acrylic refractive lenses are engineered for superior application efficiency, distributing the light to where it is needed most. Available in short and wide pattern distributions including Type 2, Type 3, Type 3S, Type 4, Type 4S, Type 5, Type 5S, AFR (Automotive Front Row) and AFR rotated AFRR90 and ARFL90.

ELECTRICAL
Light engine(s) configurations consist of high-efficacy LEDs mounted on metal-core circuit boards and aluminum heat sinks to maximize heat dissipation. Light engines are IP66 rated. LED lumen maintenance is >L92/100,000 hours. CCT's of 3000K, 4000K and 5000K (minimum 70 CRI) are available. Fixtures ship standard with 0-10v dimming driver. Class 1 electronic drivers ensure system power factor >90% and THD <20%. Easily serviceable 10kV surge protection device meets a minimum Category C Low operation (per ANSI/IEEE C62.41.2).

STANDARD CONTROLS
The RSX LED area luminaire has a wide assortment of control options. Dusk to dawn controls include MVOLT and 347V button-type photocells and NEMA twist-lock photocell receptacles.

nLIGHT AIR CONTROLS
The RSX LED area luminaire is also available with nLight® AIR for the ultimate in wireless control. This powerful controls platform provides out-of-the-box basic motion sensing with photocontrol functionality and is suitable for mounting heights up to 40 feet. No commissioning is required when using factory default settings that provide basic stand-alone motion occupancy dimming that is switched on and off with a built-in photocell. See chart above for motion sensor default out-of-box settings. For more advanced wireless functionality, such as group dimming, nLight AIR can be commissioned using a smartphone and the easy-to-use CLAIRITY app. nLight AIR equipped luminaries can be grouped, resulting in motion sensor and photocell group response without the need for additional equipment. Scheduled dimming with motion sensor over-ride can be achieved when used with the nLight Eclypse. Additional information about nLight Air can be found here.

INSTALLATION
Integral "no-drill" mounting arm allows for fast, easy mounting using existing pole drillings. Select the "SPA" option for square poles and the "RPA" option to mount to round poles. Note, the RPA mount can also be used for mounting to square poles by omitting the RPA adapter plate. Select the "MA" option to attach the luminaire to a 2 3/8" horizontal mast arm or the "IS" option for an adjustable slipfitter that mounts on a 2 3/8" OD tenon. The adjustable slipfitter has an integral junction box and offers easy installation. Can be tilted up to 90° above horizontal. Additional mountings are available including a wall bracket, adjustable tilt arm for direct-to-pole and wall and a surface conduit box for wall mount applications.

LISTINGS
CSA Certified to meet U.S. and Canadian standards. Suitable for wet locations. Rated for -40°C minimum ambient. DesignLights Consortium® (DLC) Premium qualified product and DLC qualified product. Not all versions of this product may be DLC Premium qualified or DLC qualified. Please check the DLC Qualified Products List at www.designlights.org/QPL to confirm which versions are qualified.
International Dark-Sky Association (IDA) Fixture Seal of Approval (FSA) is available for all products on this page utilizing 3000K color temperature only. US Patent No. D882, 146S

BUY AMERICAN
Product with the BAA option is assembled in the USA and meets the Buy America(n) government procurement requirements under FAR, DFARS and DOT.
Please refer to www.acuitybrands.com/buy-american for additional information.

WARRANTY
5-year limited warranty. This is the only warranty provided and no other statements in this specification sheet create any warranty of any kind. All other express and implied warranties are disclaimed. Complete warranty terms located at:
www.acuitybrands.com/support/warranty/terms-and-conditions

Note: Actual performance may differ as a result of end-user environment and application.
All values are design or typical values, measured under laboratory conditions at 25 °C.
Specifications subject to change without notice.

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Submitted by:	Job Name:	Catalog Number:	Type:
VISIBLELIGHT MANUFACTURERS' REPRESENTATIVE	UNE ALFOND CENTER SITE LIGHTING	SSP17-5.0-11-BLK-DM10-BC	AC

KW

SSP

Square Non-Tapered Steel Poles



Pole Shaft

The pole shaft is one piece construction, being fabricated from a weldable grade carbon steel structural tubing which has a uniform wall thickness of 11 gauge (0.1196"). The pole shaft material shall conform to ASTM A500 Grade C with a minimum yield strength of 50,000 psi. The pole shaft has a full length longitudinal resistance weld and is uniformly square in cross-section with flat sides, small corner radii and excellent torsional properties.

Base Plate

The anchor base is fabricated from a structural quality hot rolled carbon steel plate that meets or exceeds a minimum yield strength of 36,000 psi. The anchor base telescopes the pole shaft and is circumferentially welded top and bottom. All welds are performed in accordance with the American Welding Society specification AWS D1.1, latest edition.

Bolt Circle: 11 **Rd. Dim. :** 12 **Thickness:** 1 **Conduit Opening:** 4.25

Consult KW representative for non-standard dimensions.

Anchor Bolts

Anchor bolts are fabricated from commercial quality hot rolled carbon steel bar that meets or exceeds a minimum yield strength of 55,000 psi. Four properly sized anchor bolts, each with two regular hex nuts and washers, are furnished and shipped with all poles unless otherwise specified. Anchor bolts shall have the threaded end galvanized a minimum of 8 inches in accordance with ASTM A153. Fully galvanized anchor bolts are available upon request.

Handhole

An oval reinforced gasketed handhole, having a nominal 3 " x 5 " inside opening, located 1' - 6" above base, is standard on all poles. A grounding provision is located inside the handhole ring.

Finish

Standard - The exterior surface is cleaned with an alkaline rinse to remove surface contaminants and shot blasted to specifications as published by the Steel Structures Painting Council Standards SSPC-SP10 (near white). The exterior surface is chemically pretreated with an iron phosphate conversion coating then rinsed with ambient fresh water containing special surfactants and sealers forming a dry tight micro-crystalline coating. A polyester thermosetting powder coating applied to the surface of the substrate to a minimum of 3 mils is standard on all color finishes. The internal surface including the powder coated area at the base-end is coated with H-SPL, a thermoplastic hydrocarbon resin system specially formulated for application over untreated steel surfaces, to a thickness of 3 mils. The internal coating shall contain special corrosion inhibitors and is capable of passing 1000 hours of salt spray exposure (ASTM B117).

Series:**SSP** - *Square Non-Tapered Steel Poles*
Nominal Height: **17'** Base Diameter: **5.0"** Gauge: **11**
Finish: **BLK** - *Standard - Black*
Mounting Designation: **DM10** *Drilled for 1 Luminaire*
Options: **BC** - *Base Cover*

Height (ft.)	Pole Shaft (in.) x (ft.)	Gauge	Handhole Size (in.)	Anchor Bolt (in.) x (in.) x (in.)	Bolt Circle (in.)	80 MPH (ft.)	90 MPH (ft.)	100 MPH (ft.)	Ship WT. (lbs.)
17	5.0 x 17.0	11	3 x 5	1.00 x 36 x 4	11	27	19.5	15	218
SSP17-5.0-11-BLK-DM10-BC									

Submitted by:	Job Name:	Catalog Number:	Type:
VISIBLELIGHT MANUFACTURERS' REPRESENTATIVE	UNE ALFOND CENTER SITE LIGHTING	DSXB LED 12C 350 40K ASY MVOLT H36 DBLXD	BB



d"series

D-Series
LED Bollard

NIGHTTIME FRIENDLY · LED lighting facts · Buy American

Catalog Number

Notes

Type

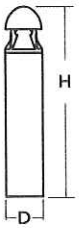
Hit the Tab key or mouse over the page to see all interactive elements

Specifications

Diameter: 8" Round (20.3 cm)

Height: 42" (106.7 cm)

Weight (max): 27 lbs (12.25 kg)



Introduction

The D-Series LED Bollard is a stylish, energy-saving, long-life solution designed to perform the way a bollard should—with zero uplight. An optical leap forward, this full cut-off luminaire will meet the most stringent of lighting codes. The D-Series LED Bollard's rugged construction, durable finish and long-lasting LEDs will provide years of maintenance-free service.

Ordering Information

EXAMPLE: DSXB LED 16C 700 40K SYM MVOLT DDBXD

DSXB LED	12C	350	40K	ASY	MVOLT		H36	DBLXD
Series	**LEDs**	**Drive current**	**Color temperature**	**Distribution**	**Voltage**	**Control options**	**Other options**	**Finish** (required)
DSXB LED	Asymmetric 12C 12 LEDs[2] Symmetric 16C 16 LEDs[2]	350 350 mA 450 450 mA [3,4] 530 530 mA 700 700 mA	30K 3000 K 40K 4000 K 50K 5000 K AMBPC Amber phosphor converted AMBLW Amber limited wavelength [3,4]	ASY Asymmetric [1] SYM Symmetric [2]	MVOLT [5] 120 [5] 208 [5] 240 [5] 277 [5] 347 [4]	**Shipped installed** PE Photoelectric cell, button type DMG 0(1)-10v dimming wires pulled outside fixture (for use with an external control, ordered separately) ELCW Emergency battery backup[6]	**Shipped installed** SF Single fuse (120, 277, 347V) [4,7] DF Double fuse (208, 240V) [4,7] H24 24" overall height H30 30" overall height H36 36" overall height FG Ground-fault festoon outlet L/AB Without anchor bolts L/AB4 4-bolt retrofit base without anchor bolts [8]	DWHXD White DNAXD Natural aluminum DDBXD Dark bronze DBLXD Black DDBTXD Textured dark bronze DBLBXD Textured black DNATXD Textured natural aluminum DWHGXD Textured white

Accessories

Ordered and shipped separately.

MRAB U Anchor bolts for DSXB [8]

NOTES

1. Only available in the 12C, ASY version.
2. Only available in the 16C, SYM version.
3. Only available with 450 AMBLW version.
4. Not available with ELCW.
5. MVOLT driver operates on any line voltage from 120-277V (50/60 Hz). Specify 120, 208, 240 or 277 options only when ordering with fusing (SF, DF options), or photocontrol (PE option).
6. Not available with 347V. Not available with fusing. Not available with 450 AMBLW.
7. Single fuse (SF) requires 120, 277, or 347 voltage option. Double fuse (DF) requires 208 or 240 voltage option.
8. MRAB U not available with L/AB4 option.

LITHONIA LIGHTING
One Lithonia Way • Conyers, Georgia 30012 • Phone: 800.279.8041 • www.lithonia.com
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Submitted by:	Job Name:	Catalog Number:	Type:
VISIBLELIGHT MANUFACTURERS' REPRESENTATIVES	UNE ALFOND CENTER SITE LIGHTING	DSXB LED 12C 350 40K ASY MVOLT H36 DBLXD	BB

Performance Data

Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of the configurations shown, within the tolerances allowed by Lighting Facts. Actual performance may differ as a result of end-user environment and application. Actual wattage may differ by +/- 8% when operating between 120-480V +/- 10%.

Light Engines	Drive Current	System Watts	3000 K					4000 K					5000 K					Limited Wavelength Amber				
			Lumens	LPW	B	U	G	Lumens	LPW	B	U	G	Lumens	LPW	B	U	G	Lumens	LPW	B	U	G
Asymmetric (12 LEDs)	350	16	1,194	75	1	0	1	1,283	80	1	0	1	1,291	81	1	0	1					
	530	22	1,719	78	1	0	1	1,847	84	1	0	1	1,859	85	1	0	1					
	700	31	2,173	70	1	0	1	2,335	75	1	0	1	2,349	76	1	0	1					
	Amber 450	16																348	22	1	0	1
Symmetric (16 LEDs)	350	20	1,558	78	1	0	0	1,674	84	1	0	0	1,685	84	1	0	0					
	530	28	2,232	80	2	0	1	2,397	86	2	0	1	2,412	86	2	0	1					
	700	39	2,802	72	2	0	1	3,009	77	2	0	1	3,028	78	2	0	1					
	Amber 450	20																419	21	1	0	1

Note: Available with phosphor-converted amber LED's (nomenclature AMBPC). These LED's produce light with 97+% >530 nm. Output can be calculated by applying a 0.7 factor to 4000 K lumen values and photometric files.

Projected LED Lumen Maintenance

Data references the extrapolated performance projections for the platforms noted in a **25°C ambient**, based on 10,000 hours of LED testing (tested per IESNA LM-80-08 and projected per IESNA TM-21-11).

To calculate LLF, use the lumen maintenance factor that corresponds to the desired number of operating hours below. For other lumen maintenance values, contact factory.

Operating Hours	0	25,000	50,000	100,000
Lumen Maintenance Factor	1.00	0.98	0.97	0.95

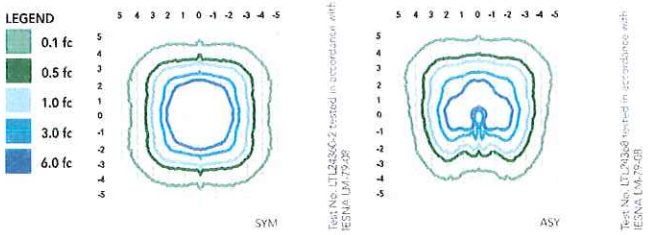
Electrical Load

Light Engines	Drive Current (mA)	System Watts	Current (A) 120	208	240	277	347
12C	350	16W	0.158	0.118	0.114	0.109	0.105
	530	22W	0.217	0.146	0.136	0.128	0.118
	700	31W	0.296	0.185	0.168	0.153	0.139
	Amber 450	16W	0.161	0.120	0.115	0.110	0.106
16C	350	20W	0.197	0.137	0.128	0.121	0.114
	530	28W	0.282	0.178	0.162	0.148	0.135
	700	39W	0.385	0.231	0.207	0.185	0.163
	Amber 450	20W	0.199	0.139	0.130	0.123	0.116

Photometric Diagrams

To see complete photometric reports or download .ies files for this product, visit Lithonia Lighting's D-Series Bollard homepage.

Isofootcandle plots for the DSXB LED 700 40K. Distances are in units of mounting height (3').



FEATURES & SPECIFICATIONS

INTENDED USE
The rugged construction and maintenance-free performance of the D-Series LED Bollard is ideal for illuminating building entryways, walking paths and pedestrian plazas, as well as any other location requiring a low-mounting-height light source.

CONSTRUCTION
One-piece 8-inch-round extruded aluminum shaft with thick side walls for extreme durability, and die-cast aluminum reflector and top cap. Die-cast aluminum mounting ring allows for easy leveling even in uneven areas and full 360-degree rotation for precise alignment during installation. Three ½" x 11" anchor bolts with double nuts and washers and 3-5/8" max. bolt circle template ensure stability. Overall height is 42" standard.

FINISH
Exterior parts are protected by a zinc-infused super durable TGIC thermoset powder coat finish that provides superior resistance to corrosion and weathering for maximum retention of gloss and luster. A tightly controlled multi-stage process ensures a minimum 3-mil thickness for a finish that can withstand the elements without cracking or peeling. Available in both textured and non-textured finishes.

OPTICS
Two 0% uplight optical distributions are available: symmetrical and asymmetrical. IP66 sealed LED light engine provides smoothly graduated illumination without uplight. Light engines are available in standard 4000 K (>70 CRI) or optional 3000 K (>80 CRI) or 5000 K (67 CRI). Limited-wavelength amber LEDs are also available.

ELECTRICAL
Light engines consist of high-efficacy LEDs mounted to metal-core circuit boards to maximize heat dissipation and promote long life (L95/100,000 hours at 700mA at 25°C). Class 2 electronic drivers are designed for an expected life of 100,000 hours with < 1% failure rate. Electrical components are mounted on a removable power tray.

LISTINGS
CSA certified to U.S. and Canadian standards. Light engines are IP66 rated. Rated for -40°C minimum ambient. Cold-weather emergency battery backup rated for -20°C minimum ambient.

BUY AMERICAN
This product is assembled in the USA and meets the Buy America(n) government procurement requirements under FARS, DFARS and DOT. Please refer to www.acuitybrands.com/resources/buy-american for additional information.

WARRANTY
Five-year limited warranty. This is the only warranty provided and no other statements in this specification sheet create any warranty of any kind. All other express and implied warranties are disclaimed. Complete warranty terms located at:
www.acuitybrands.com/CustomerResources/Terms_and_conditions.aspx.

Note: Actual performance may differ as a result of end-user environment and application. All values are design or typical values, measured under laboratory conditions at 25 °C. Specifications subject to change without notice.

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Site Design Associates
Consulting Engineering and Land Planning

June 9, 2023

Maya Balassa, Planner
City of Portland
Via email

RE: University of New England - Portland Campus
Major Site Plan Application for:
Intermodal Transportation Facility Reconstruction
Parcel ID 291 A001, 281 A003
160-172 Bishop Street
Responses to May 11 Staff Comments

Dear Maya;

On behalf of University of New England (UNE), Site Design Associates (SDA) is pleased to provide this response to review comments provided by the city in your May 11, 2023 review memorandum. We have listed each of your comments in the order they were presented in your memorandum followed by our responses.

1. **Lighting**

   Comment: *Please update the lighting plan to meet the lighting curfew standard.*

   Response: The lighting now includes bi-level motion/ambient sensors for dimming in an unoccupied state. Please see the attached memorandum from our lighting engineer.

   Comment: *Please update the photometric plan to reduce the foot candle to meet parking lot foot candle maximum.*

   Response: Please see the attached letter from our lighting engineer. They have indicated that a fixture has been relocated to reduce the level at a "hot spot" in the lot, although they were not able to reduce it to meet the maximum standard. They have expressed concern that what the city is requiring would actually result in an unsafe condition for the users of the lot. This is a remote facility, with known transient/homeless persons residing in the abutting woods. There will be no off-site light trespass and no negative impact on the natural outdoor environments beyond the parking areas. The nature of the abutting properties is industrial, commercial, and university uses, with no residential uses. Based on this, we believe it is our obligation to accept this expert opinion and request that the current design be approved to avoid future liability. Therefore, we request a waiver of these technical manual standards.

23 Whitney Way Topsham, Maine 04086
Phone: (207) 449-4275 email: info@sitedesignassociates.biz

2. Traffic/Transportation:

Comment*: Please adjust the site plan to include an internal walkway for pedestrian safety. We are happy to send examples in the city for reference. The city and third-party traffic engineer are in support of a waiver to reduce the driveway aisle to 22 feet and the addition of compact parking spaces to accommodate internal walkways without increasing the imperviousness.*

Response: Per the planning board's suggestion, we reviewed the layout of the parking and walks at the Portland Transportation Center. Based on our review, users of that parking lot must walk through the parking lot to the walk system for distances of up to 224 ft. Using this as a basis for our design, we have added walks as shown on the attached plans. Based on this design, the maximum distance users must walk through the UNE parking lot to a sidewalk is 210 ft. The aisles were narrowed to 22 ft per staff's suggestion.

Comment: *The standard requires that the EV charging stations be Level 2 to 20% of the parking spaces, please update the plan to meet this standard.*

Response: The standard in the technical manual states that the parking lot "shall include energized electrical outlets or installed chargers capable of providing Level 2 EV charging or higher to 20% of parking spaces (rounded down to the nearest whole number). This is the same standard that was used for the recently approved College of Osteopathic Medicine (COM) parking on the UNE campus. The staff at that time agreed that 20% of the parking spaces needed to be provided with charging capability, and that level 1 and 2 chargers met the standard for spaces to be served by electric chargers. The parking lot design meets that standard. The design provides for future charging capabilities at 100% of the spaces should the need arise.

At this point in time, there are 16 registered users of EV spaces on the campus. The COM project will add 36 EV spaces, including 10 level 2 spaces, providing a total of 13 level 2 and 31 level 1 EV spaces on the campus. The Bishop Street lot will add another 72 EV spaces, including 8 level 2 spaces. Subsequent to the completion of both projects, the campus will have a total of 21 level 2 and 93 level 1 EV spaces, with 16 registered users. The demand simply is not high enough to warrant installation of more chargers.

However, as noted above, the infrastructure in both the approved COM project and the proposed parking lot improvement project will support further expansion of EV charging capabilities on campus. If needed, charging capabilities could be expanded in both lots to 100% of the spaces, whereas the new ordinance requires 50%. This would provide a total of 519 EV spaces on the campus.

Comment: *Please confirm if 50% of the parking spaces are EV ready.*

Response: Conduit and the electrical service will be in place to serve 100% of the spaces if the demand suggests that it is warranted.

3. Landscaping

Comment: *The landscaping standard requiring at least 50% native plantings is not being met. The previous comment letter offered several native alternatives to help meet this standard.*

Response: The standard is now met. The plant list has been revised to include the required number of native plantings. A column has been added to the plant list showing plants we believe are native, variety of a native or hybrid of natives. A table has been added to the plan showing the native plant calculation.

Comment: *Parking lot landscaping requirements are not being met. The standard requires two trees per five spaces (or one tree and three shrubs).*

Response: This requirement is currently met. See the calculation on the landscape plan. As is the case with the approved adjacent COM project and the approved Portland Transportation Center project, not all of the vegetation is planted in the interior of the lot. In conjunction with the added walks, several of the islands were widened as well.

Comment: *The street tree requirement is not being met. Three additional trees are needed along Bishop Street. Street tree alternative options are available in the Tech Manual.*

Response: We assume this comment is in reference to the trees in the esplanade along Bishop Street. If so, as a condition of the original approval, UNE provided funds to the city to install 10 trees along Bishop Street to meet the street tree requirement. There currently are 7 trees along the Bishop Street frontage.

Comment: *Please provide more information on the ground story of the revegetated areas.*

Response: The revegetated areas are to be seeded with a conservation/wildlife seed mix from New England Wetland Plants. This mix provides a permanent cover of grasses, wildflowers, and legumes, for both good erosion control and wildlife habitat value. The mix is designed to be a no-maintenance seeding, and is appropriate for cut and fill slopes, detention basin side slopes, and disturbed areas adjacent to commercial and residential projects. In the stormwater area these plants can be mowed once a year to keep woody vegetation out, and in the revegetated areas outside the stormwater areas it can be left to let nature take its course and grow together with the local plant species. The plants comprising the mix are listed

in note 12 on the landscape plan.

4. <u>Stormwater</u>

Comment: *Please confirm if a Site Location of Development permit is required for this work.*

Response: The project involves the reconstruction of the existing parking lot, with a reduction in impervious area and no change in use. The same drainage opattern and outlet point will be maintained. It appears the next project, which is reconstruction and widening of the Connecter Road between the Bishop Street parking lot and the COM building will likely trigger the need for a SLODA permit application.

Comment: *The MaineDEP BMP for this type of system includes some sizing thresholds, noting that the maximum filter area should be 3,000 SF. The second soil filter is provided with an area that is slightly greater than 3,000 SF.*

Response: It is our opinion that soil filter SF4, which is 3,124 square feet (slightly larger than the arbitrary 3,000 SF DEP size *recommendation*) is easily constructable and easily maintainable. DEP has approved increases in the filter area size for past projects. Building a third basin for this small area would be impractical.

Comment: *The underdrain soil filter detail appears to show the filters' underdrain piping connecting into the outlet control structure, however the plan view shows that the underdrain system discharges separately, and does not connect to the outlet control structure. Please consider connecting the OCS to the underdrain system, or provide further clarification on the detail.*

Response: Detail 3/C-503 shows the underdrain tying into the header pipe on the left side of the detail. The reviewer may be confusing the OCS with the underdrain valve box on the left side of the detail. We believe the detail is correct as currently shown.

Comment: *The header pipe that drains the underdrain systems from both soil filters has a very shallow slope. Please consider whether the outlet may back up one or both of the filter systems. Ball valves are provided in each filter – are these intended to be backflow preventers as well? We would also recommend updating the stormwater maintenance agreement to clarify that the adjustable orifice for this project will be a ball valve, such that maintenance can be planned for appropriately.*

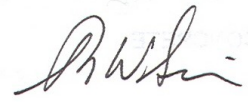
Response: We have increased the header pipe slope to 0.5% and corrected the size on the plan view to an 8" header pipe to match the header pipe shown on detail 3/C-503. Modeling of the 8" header pipe indicates that the pipe has excess capacity to carry the combined 0.16 CFS peak flow from both soil filter underdrains. The ball valve is not intended to act as a backflow preventer. We do not believe a backflow preventer is necessary for this scenario. We will add some language to the maintenance plan discussing the valve operation.

In closing, we would like to remind staff and the planning board that UNE is implementing these improvements at a significant cost. If approved, the improvements will provide a significant environmental benefit in the Capisic Brook watershed, with the removal of 96,000 sf of impervious area and the installation of stormwater quality enhancement facilities to collect runoff from impervious areas.

Further, recall we had a very productive meeting with city staff and Portland Trails on April 26 to discuss the vision for a 30-mile bike path system and walking path connectivity in the city. It was apparent to all that a component crucial to both will require access through and improvements on UNE's property. In the spirit of cooperation UNE committed to working with all parties to facilitate this vision. We are in hopes that this spirit of cooperation and need for compromise will extend to this project.

If you have any questions, or require additional information, please do not hesitate to contact me.

Sincerely,
Site Design Associates



Tom Saucier, P.E.
President

c: Andrew Philippe, Director for Campus Planning

VINCENT A. DiIORIO, INC.
CONSULTING ENGINEERS
89 Access Road, Suite 18
Norwood, Massachusetts, 02062

50 Years
1972-2022

June 9, 2023

Favreau Electric
37 Jordan Avenue
Brunswick, Maine 04011
Attention: Neal H. Favreau
nealf@favreau-electric.com

RE: University of New England
Bishop Street Intermodal Parking Lot
Portland, ME

SUBJECT: City of Portland Workshop Responses for the Site Lighting component

Dear Neal,

The current site lighting design for the proposed Bishop Street parking lot has an average footcandle value of 2.9 with a maximum of 4.6 and a minimum of 1.0 foot-candles with little to no light trespass. These lighting levels are recommended by the Illuminating Engineering Society of North America (IESNA) standards for safe parking lots.

The UNE standard lighting fixtures are the Lithonia Lighting RSX2 LED family of site lighting fixtures. These lighting fixtures are full cut-off luminaires that are Dark Skies compliant, DLC Premium listed and are considered night-time and environmentally friendly. These fixtures and their respective light distribution will have no negative impact on the natural nighttime outdoor environments beyond the parking areas.

Each lighting fixture will be equipped with bi-level motion/ambient sensor that will reduce the levels to 30% output in the unoccupied state when there is no motion within the lot.

There is a single location directly under one of the smaller 20'-0" tall lighting fixtures near the turnaround where the footcandle level is 10.0. This is due to a measurement taken directly beneath a light along with some contribution from surrounding lighting fixtures and is an anomaly across the remainder of the lot. This office has relocated this fixture to reduce this value to 8.6.

There are over 2,500 calculations points on our photometric calculation plan and the higher foot-candle levels that are being pointed out are either under or near the fixtures. Site lighting of any kind needs to be looked at, as an average level. It's only natural to have higher levels under or near the fixtures while the levels drop off as you move away from the lights. Anyone or any agency should not focus on a single point but look at the plan wholistically.

Overall if we reduce the average footcandle levels any further, this office feels it would create an unsafe condition for students, faculty, staff, and visitors using the lot.

The lot will be equipped with 64, Level I, wired Electric Vehicle Charging Stations (EVCS) and 8, Level II EVCS's. Electrical infrastructure will be in place to support EVCS's in 100% of the parking spaces if they become necessary.

If you have any questions regarding the topic above, please do not hesitate to contact this office.

Very Truly Yours,
VINCENT A. DIIORIO INC.

Vincent A. Dilorio Jr.
President

tel: (781) 255-9754, *email:* vadjr@vadeng.com

Site Design Associates
Consulting Engineering and Land Planning

April 27, 2023

Maya Balassa, Planner
City of Portland
Via email

RE: University of New England - Portland Campus
Major Site Plan Application for:
Intermodal Transportation Facility Reconstruction
Parcel ID 291 A001, 281 A003
160-172 Bishop Street
Responses to Staff Comments

Dear Maya;

On behalf of University of New England (UNE), Site Design Associates (SDA) is pleased to provide this response to review comments provided by the city in your April 4, 2023 review memorandum. We have listed each of your comments in the order they were presented in your memorandum followed by our responses.

1. **General comments:**

   Comment *The maximum foot candle allowable for surface parking lot is 4, per Tech Manual standards. The value shown is 10.2. The average foot candle shall not be above .5 FC. Please adjust the photometric plan per Tech Manual Standards.*

   Response: Please see the attached memorandum from our lighting engineer. They have expressed concern that the city is requiring what is generally considered an outdated standard, that would actually result in a less safe environment and significantly reduces the quality of CCTV monitoring. The city standard does not provide the safety and security UNE requires. This is a remote facility, with known transient/homeless persons residing in the abutting woods. There will be no off-site light trespass. The nature of the abutting properties is industrial, commercial, and university uses, with no residential uses. We prefer to keep the lighting as designed in the interest of the user safety and facility security, particularly given the somewhat remote location of this facility. Therefore, we request a waiver of these technical manual standards.

   Comment: *Please confirm the lighting is full cut-off.*

   Response: The fixtures are full cut-off luminaires that are Dark Skies compliant, DLC Premium listed and night-time friendly.

23 Whitney Way Topsham, Maine 04086
Phone: (207) 449-4275 email: info@sitedesignassociates.biz

Comment: *Please confirm that the lighting is conforming to the lighting curfew standard, "For surface and structured parking, lighting in vehicle parking areas containing twenty or more spaces shall be reduced to 50% of permitted levels from one hour after the business (school) closing to one hour before business (school) opening.*

Response: Given the graduate student population of the campus, the intermodal facility will be open and active 24 hours a day, seven days per week. Therefore, it appears this standard is not applicable.

2. **Transportation:**

Comment: *In the 35-space parking lot the aisle width exceeds the 24-foot dimensional city standard. A waiver request is required. I would note that one additional parking space could be added to the middle row (from 5 to 6 spaces), and a waiver could be requested for a reduced aisle width (22.75-foot aisle width). Given low parking space turnover, I would support a reduced aisle width in this area. Wide aisle widths also exist where Access Drive 2 intersects with the main parking lot., where 30 feet and 40 feet of pavement is provided. A waiver from the city's technical standards shall be provided.*

Response: If a waiver is required for aisle widths that are wider than the city minimum, please consider this a request for the waiver.

Comment: *Additional information should be provided on the sidewalk connection between the new and existing sidewalk on the main access road near Station 0+50.*

Response: The new sidewalk will tie into the existing sidewalk on the Bishop Street side of the existing pedestrian gate. Additional notes and spot grades have been provided on drawing C-300. We have also attached a photo sketch of the area.

Comment: *Regulatory signage should be provided for the Shuttle Loop given that it is restricted to one-way flow.*

Response: "Bus only" and "Do not enter" signage has been added to drawing C-201.

Comment: *Access Drive 2 dead ends near the entrance to the 35-space parking lot. The design appears to consider extension of the roadway and sidewalk. The applicant should provide information that document future conditions.*

Response: The design provides for a future internal connection to the campus. This would eliminate the need for the shuttle, Campus Service vehicles, and graduate students to travel on Bishop Street. This will also provide for travel from the campus and the new College of Osteopathic Medicine parking to the intermodal facility and the Campus Services structures on the site, without travel through Morrill's Corner. The access would be controlled through the use of gates at each end to prevent unauthorized users from utilizing the access to avoid Morrill's Corner. General public bicycle and pedestrian traffic would be permitted.

Comment: *Access Drive 1 has a typical section with 28-feet of travel width and a 11-foot paved shoulder. The applicant should note the functional purpose of the paved 11-foot shoulder.*

Response: There is a grade transition between the proposed edge of road and the existing grade. This entire area is currently paved. The paved swale is an integral part of the stormwater management plan, collecting and diverting upgradient runoff. The paved area also provides vehicular access to the existing adjacent paved area and Campus Services structures.

Comment: *The applicant shall provide internal pedestrian circulation (walkways for the users) throughout the entire parking lot.*

Comment: *Provide a raised pedestrian walkway for each parking aisle. The overall width shall account for vehicle overhang resulting in a 5 ft min clearance at all times.*

Response: UNE respectfully declines to implement these suggestions. We are unaware of any requirement in the code or technical manual which would be the basis for these requests. The technical manual transportation standard section 1.10.2. is "all spaces provided shall be safely accessible". We do not interpret this to mean all users need a sidewalk. All spaces are safely accessible and the layout of the spaces are typical for any parking lot of this nature throughout the city. The users of this lot will be graduate students and faculty, who generally will be in attendance for a much longer period of time during the day than the typical college student would be. The turnover on the spaces will be low. There is no history of vehicle/pedestrian conflicts in any UNE campus parking lot in Portland or Biddeford. Adding the walkways as suggested would result in a significant increase in impervious area in the Capisic Brook watershed, which directly contradicts the city goals for this area. Additionally, the walkways would be a hindrance to snow removal. Lastly, the additional cost of $200-250,000 associated with these requests will jeopardize some of the associated benefits that come with the improvements, including:

1) Safety enhancements including emergency call boxes and camera upgrades;
2) New lighting;

3) Removal of 96,940 sf of impervious surface;
4) Enhanced vehicular circulation, including for the UNE shuttle between the facility and the main campus;
5) Elimination of trip hazards;
6) The addition of significant landscaping and trees;
7) Construction of stormwater quality enhancement facilities, and;
8) The installation of new EV charging stations;

It is our opinion that the sidewalk along Access Drive 1 and along the easterly edge of the parking lot (adjacent to the ADA spaces) provide adequate internal pedestrian circulation within the site from the parking lot to the bus stop.

Further, recall we had a very productive meeting with city staff and Portland Trails on April 26 to discuss the vision for a 30-mile bike path system and walking path connectivity in the city. It was apparent to all that a component crucial to both will require access through and improvements on UNE's property. In the spirit of cooperation UNE committed to working with all parties to facilitate this vision. We are in hopes that this spirit of cooperation and need for compromise will extend to this project.

3. Water Quality, Stormwater, & Infrastructure

Comment: *There are several sanitary sewer manholes that are currently inaccessible. These manholes need to be raised to grade prior to paving.*

Response: This was previously addressed on drawing C-401.

Comment: *The areas to be revegetated need to be tilled 9" before loam and seed; prefer a mix of woody vegetation and conservation seed mix.*

Response: A note has been added to sheet C-201 indicating the tilling requirement. See the landscape plan for revegetation information.

Comment: *Design information for the level spreaders should be provided to ensure they are designed per DEP manual*

Response: There is only one level spreader proposed for this project.
A detail for the level spreader was provided on sheet C-503.
The 10-year flow to level spreader is 21.6 CFS. DEP requires a length of 1 foot per 0.25 CFS, which would require a length of 87' feet for this level spreader. The proposed level spreader is 96 feet long.

4. Landscaping and Environmental Quality

Comment: This project is located along the proposed Riverton Neighborhood Byway and is well positioned to promote multi-model connectivity to neighboring trail systems at Evergreen Cemetery. A meeting between Portland Trails, Bruce Hyman and a representative of Parks, Recreation and Facilities would be very helpful for exploring opportunities to promote pedestrian connectivity between the proposed facility and the UNE campus as well as surrounding trails (both existing and proposed).

Response: A meeting has been scheduled for April 25.

Comment: *On sheet C-200 a long stretch of parking-lot adjacent land is designated "Snow Storage Area". On Sheet L-100, this area is also identified to host dozens of new trees. There is a conflict of use with this zone- trees will not survive if the area is being used for snow storage. In order to maintain some shading of the parking lot and the desired amount of tree canopy, the City's recommendation is to cluster the trees in focused areas along the southern edge of the parking lot, leaving some continuous gaps between plantings to serve as snow-storage areas. Some proposed trees may be shifted downslope of the parking lot. Larches and Black Gum may thrive in the wetter conditions in these lower-lying areas. See notes on L-100.*

Response: The landscape plan has been revised to show the trees along the south side of the parking area clustered and pulled back off the edge of pavement to allow for snow storage with minimal conflict with trees. American Larch trees have been used in the area just below the level spreader.

Comment: *Maples make up a disproportionately large proportion of the City's tree canopy currently, so alternative species would be preferred where they are appropriate. Greater species diversity allows Portland's urban canopy to be more resilient to new pests and diseases.*

Response: We have revised the plant list to reduce the percentage of proposed Maple trees.

Comment: *City arborists advise against clumping form birches because of its proclivity for splitting after several years of growth. This tendency makes these trees short-lived, irregular in appearance (due to cut/broken limbs) and costly to maintain as they mature. Single leader form of this tree is recommended.*

Response: The clump birch trees have been changed to single leader trees.

Comment: *Suggest replacing Tilia tomentosa with Tilia americana. See notes on L-100.*

Response: We have not changed the Sterling Linden to the American Linden due to what we believe is the American Linden's greater susceptibility to the Japanese Beetle.

Comment: *'Princeton' and 'Liberty' cultivars of American Elm have proven more resilient to disease and are better cultivar alternatives to 'Valley Forge' which has poor structure.*

Response: We were unaware of the issues with the structure of the 'Valley Forge' Elm. We have changed the Valley Forge Elm to the 'Princeton' American Elm.

Comment: *Hostas will not survive in the parking lot, especially the large-leafed variety specified. The variety specified requires sheltered, part sun conditions. Suggest replacing this plant selection with a more tolerant native shrub or perennial.*

Response: We have changed the 18 Hosta plants to daylilies to match the other islands.

Comment: *Thuja occidentalis 'Mr. Bowling Ball' does not tolerate road salt and will exhibit significant foliage die-back in the proposed location.*

Response: We have replaced the 9 'Mr. Bowling Ball' shrubs with the 'Gold Lace' Juniper.

Comment: *Native species are preferred.*

Response: We try to use native species where possible, but sometimes the site challenges, design and maintenance considerations requird the use of non-natives to give us the best overall outcome.

Comment: *Several native plants that have proven themselves resilient in parking lot islands include Prunus pumila var. Depressa, Diervilla lonicera, Comptonia peregrina, Myrica gale, Eubotrys racemosa.*

Response: We will investigate these plants for possible use in the future.

Comment: *Others that could be good candidates for plantbeds not surrounded by parking: Ilex verticillata, Viburnum dentatum, Juniperus horizontalis cultivars, Arctostaphylos uva-ursi (straight species).*

Response: We will investigate these plants for possible use in the future.

Comment: *Low-lying areas such as the stormwater filtration facilities could benefit from groundcover/shrub planting: Aronia melanocrpa, Azalea viscosum, Cephalanthus occidentalis, Cornus sericea, Clethra alnifolia, Ilex verticillata, Viburnum cassinoides, Panicum virgatum, Deschampsia cespitosa, Monarda fistulosa.*

Response: We agree the addition of the above groundcover and shrubs may be of benefit. However, we have had success with the meadow mix we have specified and it allows the stormwater areas to be mowed once a year which helps keep the invasives out.

Comment: *Please add detail to landscaping plan to show plant selection, planting placement, grade changes, etc for further review.*

Response: The layers showing the proposed and existing contours have been turned on.

A revised landscape plan is attached.

If you have any questions, or require additional information, please do not hesitate to contact me.

Sincerely,
Site Design Associates

Tom Saucier, P.E.
President

c: Alan Thibeault, Vice President for Campus Operations

Tom Saucier

From: Tom Saucier
Sent: Wednesday, July 5, 2023 2:53 PM
To: Green, Robert L
Subject: RE: Question

Thanks Bob. No new impervious area, and as I indicated, stormwater will be covered under municipal capacity anyway.

From: Green, Robert L <Robert.l.Green@maine.gov>
Sent: Wednesday, July 5, 2023 2:37 PM
To: Tom Saucier <tsaucier@sitedesignassociates.biz>
Subject: RE: Question

Hello,

I would agree that Site Law is not required. Depending on the amount of new impervious area, if more than 1 acre (or 20,000 SF in an UIS watershed), then individual stormwater ; otherwise, SW PBR for disturbing greater than 1 acre.

Bob.

Robert L. Green, Jr.
Regional Licensing Manager, Central Maine
Bureau of Land Resources
Maine Department of Environmental Protection
(207) 615-2214 / robert.l.green@maine.gov

From: Tom Saucier <tsaucier@sitedesignassociates.biz>
Sent: Wednesday, July 5, 2023 2:32 PM
To: Green, Robert L <Robert.l.Green@maine.gov>
Subject: RE: Question

EXTERNAL: This email originated from outside of the State of Maine Mail System. Do not click links or open attachments unless you recognize the sender and know the content is safe.
Hi Bob

Just following up on this. It seems this work would not trigger a SLODA, and at most stormwater. Is that correct?

Thanks
Tom

Tom Saucier, P.E.
Site Design Associates
23 Whitney Way
Topsham, Maine 04086
207-449-4275

From: Tom Saucier
Sent: Monday, July 3, 2023 1:57 PM
To: Green, Robert L <Robert.l.Green@maine.gov>
Subject: RE: Question

Thanks Bob. I appreciate it.

I have never heard of changing impervious area back to vegetated being counted toward any site law thresholds?

The entire impervious area was in place very pre-1975 based on the best available information.

We have prepared a MCGP for submission.

As far as stormwater, the city has capacity for that, and delegated authority for Site Law.

Thanks

Tom

Tom Saucier, P.E.
Site Design Associates
23 Whitney Way
Topsham, Maine 04086
207-449-4275

From: Green, Robert L <Robert.l.Green@maine.gov>
Sent: Monday, July 3, 2023 1:24 PM
To: Tom Saucier <tsaucier@sitedesignassociates.biz>
Subject: RE: Question

Hello,

First, I'd like to know when the parcel reached 6.1 acres of impervious area. We'll need to determine pre- and post-1974 development areas because that was when the Site Law-Structure definition kicked in. Assuming that all 6.1 acres were constructed before 1974, then we are probably looking at a Stormwater project. Because the proposed project will eliminate 2.23 acres of impervious area, then they are disturbing more than an acre. Consequently, MCGP and some level of stormwater review (individual permit or PBR) are triggered. Note: "change of use" applies to the area that is disturbed, so changing from impervious surface to landscape is a change of use.

If any of the 6.1 acres of impervious was built post-1974, then we'll need to learn how much was done when in order to determine if the 3 acre (unrevegetated land) threshold is met/exceeded. If so, then the project site should have received a Site Law permit. Another unknown is: with the proposed reduction of 2.23 acres of impervious area, will they now fall below the 3 acre threshold, if so, then it may be possible to overlook the fact that a Site Law permit should have been obtained.

Lacking more details, this is the best answer I can give right now.

Good luck,
Bob.

Robert L. Green, Jr.
Regional Licensing Manager, Central Maine
Bureau of Land Resources
Maine Department of Environmental Protection
(207) 615-2214 / robert.l.green@maine.gov

From: Tom Saucier <tsaucier@sitedesignassociates.biz>
Sent: Monday, July 3, 2023 12:57 PM
To: Green, Robert L <Robert.l.Green@maine.gov>
Subject: RE: Question

EXTERNAL: This email originated from outside of the State of Maine Mail System. Do not click links or open attachments unless you recognize the sender and know the content is safe.
Hi Bob

Just following up on this. Are you in this week?

Thanks
Tom

Tom Saucier, P.E.
Site Design Associates
23 Whitney Way
Topsham, Maine 04086
207-449-4275

From: Tom Saucier
Sent: Friday, June 30, 2023 3:25 PM
To: Green, Robert L <Robert.l.Green@maine.gov>
Subject: Question

Hi Bob

Hope all is well. Another question for you since you are the guy with the answers…

A project involves the reconstruction of an existing parking lot to install landscaping, new lighting, eliminate trip hazards, etc. The existing lot is 6.1 acres of impervious area. The reconstruction of the lot results in a reduction of 2.23 acres of impervious area and the installation of stormwater treatment facilities. Stormwater runoff flows to the same point as existing. No change of use. Based on our previous discussions regarding thresholds, this would not count toward a SLODA threshold, correct?

Thanks
Tom

Tom Saucier, P.E.
Site Design Associates
23 Whitney Way
Topsham, Maine 04086
207-449-4275

PAVEMENT REMAINS

SAWCUT PAVEMENT

SAWCUT PAVEMENT AT EASEMENT LINE (TYP.)

LIMIT OF WORK (TYP.)

#20

#19

#18

MH BURIED

MH BURIED

TP-2

TP-3

TP-4

TP-5

TP-6

TP-7

TP-8

TP-9

TP-10

TP-11

TP-12

TP-13

TP-14

TP-15

1 STY WOOD BUILDING

TRAILER

EX SMH-2
RIM=83.59
4"INV.IN=82.4±
8"INV.IN=75.3±
24"INV.IN (DROP INLET)
EXTERIOR=78.8±
INTERIOR= 74.6±
24"INV.OUT=74.5±

CATCH BASIN
CURB INLET
RIM 85.31
INV OUT 12" PVC 81.2±

EX. GAS MAIN

DRAIN MH
RIM 90.71
INV IN (A) 24" RCP 83.7±
INV OUT (B) 24" RCP 80.3±
INV IN (C) 12" PVC 83.7±
INV IN (D) 12" PVC 80.7±

RIM=90.48 (CITY DATUM) BENCHMARK MANHOLE RIM

EX. SMH-1
RIM 91.82

EXISTING GATE TO REMAIN

SAWCUT AND REMOVE DRIVEWAY APRON AND TIPDOWNS

CONC. RIB

10" SD

36" SD

6" SD

12" SD

CATCH BASIN
CURB INLET
RIM 90.32
INV OUT 12" PVC 85.62±

SAWCUT PAVEMENT 1' INSIDE OF GATE

CONTROL BOX

UTILITY POLES TO BE PROTECTED AND REMAIN

24" RCP

8"

12" W

CATCH BASIN TO BE PROTECTED AND REMAIN

CUT AND CAP EX. 4" SS SERVICE AT MANHOLE

BUILDING TO BE REMOVED INCLUDING SLABS AND FOUNDATIONS

1 STY BLOCK BUILDING

BLOCK

ABANDONED 15" CMP CULVERT TO BE REMOVED (DEPTH = 3'±)

REMOVE GATE

DRAIN MH
RIM 92.75
INV IN (A) 13" PVC 84.4±
INV IN (B) 12" PVC 76.6±
INV OUT (C) 36" RCP 76.3±
INV IN (D) 24" PVC 78.8±
INV IN (E) 12" PVC 85.2±

CMP

Pole 116

Pole 115

LIGHT POLES AND UTILITIES TO BE REMOVED (TYP.)

ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR REMOVAL AND REROUTING OF UTILITIES AS REQUIRED (TYP.)

PROPANE TANK AND JERSEY BARRIES TO BE REMOVED

INTERMODAL BUILDING TO BE PROTECTED AND REMAIN

ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR REMOVAL AND REROUTING OF UTILITIES AS REQUIRED (TYP.)

REMOVE AND DISPOSE OF EXISTING FENCE

EXISTING BUILDING TO BE PROTECTED AND REMAIN

BUILDING

REMOVE EXISTING PAVEMENT, COCNRETE AND CURB IN WORK AREA (TYP.)

TRIPARK

RCP
INV OUT 75.5±

N/F
CENTRAL MAINE POWER CO.

GENERAL NOTES:

1. REFER TO SHEET C-200 FOR GENERAL NOTES AND PLAN REFERENCES.

LEGEND

EXISTING

- PROPERTY LINE
- ROAD — RIGHT-OF-WAY LINE
- ABUTTERS PROPERTY LINE
- PROPERTY SETBACK
- IRON ROD OR PIN FOUND
- WETLANDS
- STORM DRAIN MANHOLE
- STORM DRAIN CATCH BASIN
- SANITARY SEWER MANHOLE
- ss — SANITARY SEWER LINE
- w — WATERLINE
- g — GAS LINE
- sd — STORM DRAIN LINE
- WV — WATER LINE GATE VALVE
- GAS LINE GATE VALVE
- BOLLARD LIGHT
- UTILITY POLE
- HYDRANT
- BUILDING
- EDGE OF PAVEMENT
- CURB
- 100 — INDEX CONTOUR
- 101 — INTERMEDIATE CONTOUR

GRAPHIC SCALE

30 0 15 30 60 120

1 inch =30 ft.

TAX MAP I.D.
291 A001
281 A003

THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM SITE DESIGN ASSOCIATES, ANY ALTERATIONS, OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO SITE DESIGN ASSOCIATES.

REV.	DATE	STATUS	BY	CHKD.	APPD.
C	1/20/2023	FOR CITY REVIEW	DEPT.	TWS	TWS
B	12/21/2022	FOR PRICING ADDENDUM 1 ONLY - NOT FOR CONSTRUCTION	DEPT.	TWS	TWS
A	12/5/2022	FOR PRICING ONLY - NOT FOR CONSTRUCTION	DEPT.	TWS	TWS

STATE OF MAINE
THOMAS W. SKLUCIER
NO. 9026
LICENSED
PROFESSIONAL ENGINEER
1/20/2023

Site Design Associates
Consulting Engineering & Land Planning
23 Whitney Way Topsham, Maine 04086 Tel: (207) 449-4275

CLIENT:
UNIVERSITY OF NEW ENGLAND
11 HILLS BEACH ROAD BIDDEFORD, MAINE 04005

DESIGN: DEPT.
DRAWN: DEPT.
CHKD: TWS
DATE: DEC. 2022
SCALE: 1" = 30'

PROJECT: RECONSTRUCTION OF INTERMODAL TRANSPORTATION FACILITY AND PARKING
160–172 BISHOP STREET PORTLAND, MAINE

EXISTING CONDITIONS AND REMOVALS PLAN

PROJ. NO. 21–216–00
REV. C
DWG. NO. C–101

Drawing Name: C:\Users\Chris\Desktop\Desktop Drawings\21-042 UNE Connector Road\Drawings\21-042 Base_Updated | Plot Date / Time: Jan. 19, 23 / 12:20 PM

ZONING INFORMATION

ZONING STANDARDS FROM CITY OF PORTLAND LAND USE ORDINANCE, AMENDED MARCH 7, 2022

1.	CLASSIFICATION:	IH - HIGH IMPACT INDUSTRIAL ZONE IM - MODERATE IMPACT INDUSTRIAL ZONE R3 - RESIDENTIAL ZONE
2.	PERMITTED USES:	INTERMODAL TRANSPORTATION FACILITY (IM/IH) OFF-STREET PARKING (R3)

IH & IM INDUSTRIAL ZONE STANDARDS*

1.	MIN. STREET FRONTAGE:	60 FEET
	EXISTING = 433 FEET	
	PROPOSED = NO CHANGE	
2.	MAX. IMPERVIOUS SURFACE RATIO:	IM ZONE = 75% IH ZONE = 85%
	EXISTING = 57%	
	PROPOSED = 46%	
3.	MIN. PAVEMENT SETBACK:	10 FEET
	EXISTING = 0 FEET	
	PROPOSED = 10 FEET	

R3 RESIDENTIAL ZONE STANDARDS*

1.	MIN. LOT SIZE:	6,500 SQUARE FEET
	EXISTING = 836,442 SQUARE FEET	
	PROPOSED = NO CHANGE	
2.	MIN. STREET FRONTAGE:	50 FEET
	EXISTING = 433 FEET	
	PROPOSED = NO CHANGE	

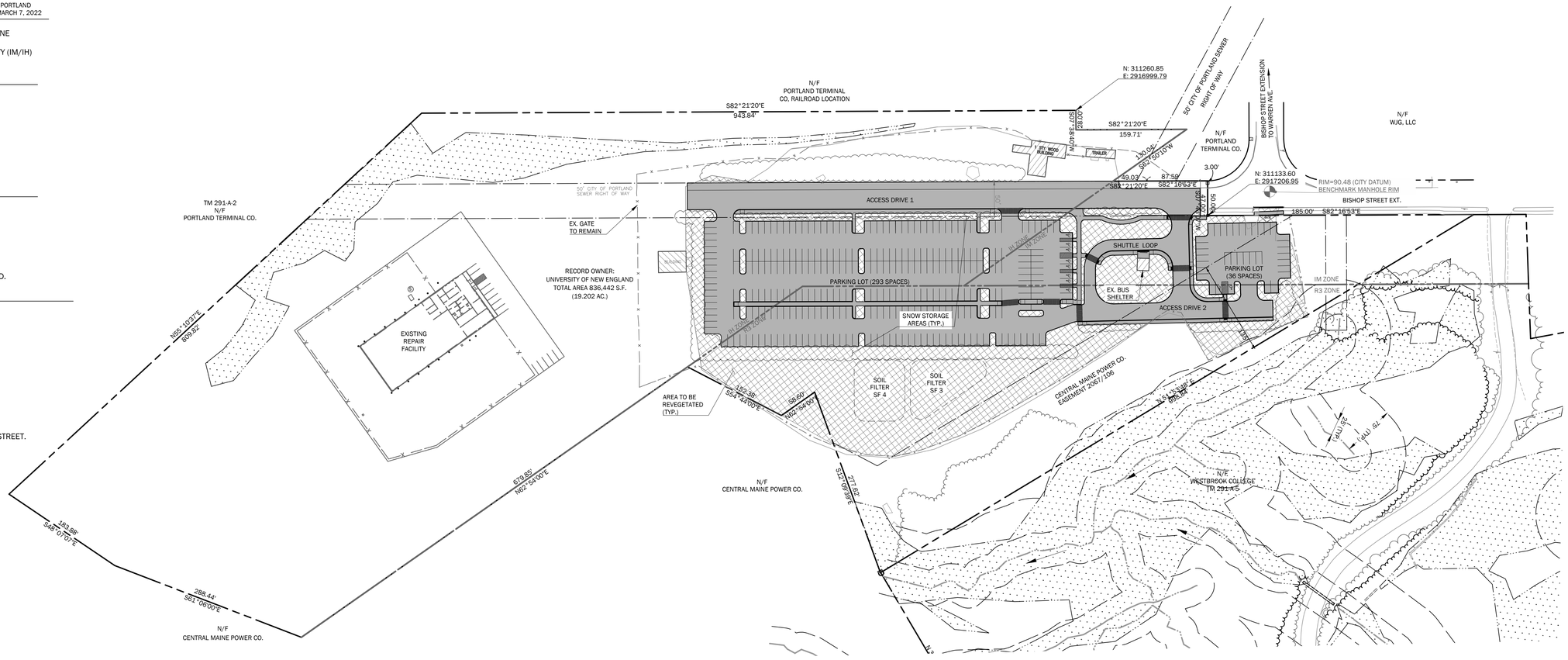
*STRUCTURE SETBACKS NOT SHOWN BECAUSE NO NEW BUILDINGS ARE PROPOSED.

PARCEL INFORMATION:

1.	OWNER OF RECORD:	UNIVERSITY OF NEW ENGLAND 11 HILLS BEACH ROAD BIDDEFORD, MAINE 04005 CCRD BOOK 36396, PAGE 323
2.	STREET ADDRESS:	160-172 BISHOP STREET, PORTLAND, MAINE
3.	PARCELS:	CITY OF PORTLAND TAX MAPS MAP 281 BLOCK A LOT 3 MAP 291 BLOCK A, LOT 1
4.	TOTAL AREA OF PARCEL:	836,442 SF (19.202 AC.)
SITE BENCHMARK:		PROJECT BENCHMARK IS A MANHOLE RIM IN BISHOP STREET.

PLAN REFERENCES

1. TOPOGRAPHIC INFORMATION OBTAINED BY GROUND SURVEY CONDUCTED IN SPRING OF 2021 AND SPRING 2022 BY STATEWIDE SURVEYS, INC. OF CAPE ELIZABETH, MAINE.
2. ELEVATIONS SHOWN ON THIS PLAN ARE ON THE CITY OF PORTLAND VERTICAL DATUM (NGVD29). PROJECT BENCHMARK IS A MANHOLE RIM IN BISHOP STREET.
3. HORIZONTAL DATUM IS BASED ON NAD83 STATE PLANE GRID WEST ZONE IN FEET.
4. UNDERGROUND UTILITIES WERE OBTAINED FROM SURFACE OBSERVATIONS AND TAKEN FROM PLANS OF SEVERAL SOURCES. SEE SURVEY PLAN REFERENCES.



GENERAL NOTES:

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING "DIG SAFE" AND LOCAL UTILITY COMPANIES AT LEAST THREE (3) BUSINESS DAYS, BUT NOT MORE THAN 30 CALENDAR DAYS, PRIOR TO THE COMMENCEMENT OF ANY EXCAVATION, IN ACCORDANCE WITH MAINE STATE LAW. "DIG SAFE" TELEPHONE NUMBER IS 1-888-344-7233.
2. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL AND ANY MEANS, METHODS, AND TECHNIQUES EMPLOYED TO PERFORM THE WORK SHOWN ON THE PLANS.
3. ALL WORK SHALL COMPLY WITH ALL LOCAL, STATE, AND FEDERAL REGULATIONS INCLUDING ALL SAFETY REGULATIONS (OSHA).
4. ALL WORK SHALL BE IN CONFORMANCE ALL UTILITY COMPANIES STANDARDS.
5. THE CONTRACTOR SHALL SECURE ALL NECESSARY PERMITS FOR THE WORK SHOWN ON THESE PLANS PRIOR TO CONSTRUCTION.
6. ALL PAVEMENT/CONCRETE CUTS SHALL BE SAW CUT TO RESULT IN CLEAN EDGES. A TACK COAT SHALL BE APPLIED ALONG THE PAVEMENT CUT EDGES AND THE NEW PAVEMENT BUTTED TO IT, UNLESS OTHERWISE DIRECTED BY THE OWNER OR OWNER'S REPRESENTATIVE.
7. ALL WORK SHALL COMPLY WITH THE CITY OF PORTLAND STREET OPENING PERMIT REQUIREMENTS.
8. ALL WORK SHALL COMPLY WITH THE CITY OF PORTLAND TECHNICAL MANUAL.
9. ALL EROSION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO ANY SITE EXCAVATION OR REGRADING. REFER TO THE EROSION CONTROL PLAN NOTSE AND DRAWINGS FOR FURTHER EROSION CONTROL GUIDELINES.
10. CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS SHOWN ON THE DRAWINGS. IF ANY DISCREPANCIES ARE FOUND, THE OWNER OR OWNER'S REPRESENTATIVE SHALL BE NOTIFIED IMMEDIATELY.
11. CONSTRUCTION METHODS AND MATERIALS SHALL CONFORM TO MDOT SPECIFICATIONS, LATEST EDITION.
12. A GEOTECHNICAL REPORT HAS BEEN PREPARED FOR THIS PROJECT BY SUMMIT GEOENGINEERING, DATED DECEMBER 2021.
13. THE OWNER REQUIRES THAT THE PROJECT BE CONSTRUCTED IN TWO PHASES TO ALLOW FOR USE OF HALF OF THE PARKING LOT DURING CONSTRUCTION. THE PHASING PLAN SHALL BE PROVIDED TO THE OWNER FOR REVIEW AND COMMENT PRIOR TO CONSTRUCTION.

SNOW STORAGE:

1. SNOW IS TO BE STORED WITHIN THE SNOW STORAGE AREAS.
2. SNOW MAY BE PHYSICALLY REMOVED AND TRANSPORTED OFFSITE IF NECESSARY.
3. SNOW TRANSPORTED OFFSITE SHALL BE BROUGHT TO A MAINE DEP APPROVED "SNOW DUMP" OR MEET THE EXEMPTION REQUIREMENTS SPECIFIED WITHIN CHAPTER 573 WHEN THE ABOVE REQUIREMENTS CANNOT BE MET DUE TO AN ABUNDANCE OF SNOW.

PARKING SUMMARY:

HANDICAP SPACES:	10
LEVEL 2 EV CHARGING SPACES:	8
LEVEL 1 EV CHARGING SPACES:	62
TOTAL SPACES:	329

LEGEND

EXISTING		PROPOSED
	PROPERTY LINE	
ROAD	RIGHT-OF-WAY LINE	
	ABUTTERS PROPERTY LINE	
	ZONING LINE	
	IRON ROD OR PIN FOUND	
	WETLANDS	
	BOLLARD LIGHT	
	UTILITY POLE	
	HYDRANT	
	BUILDING	
	BITUMINOUS PAVEMENT	
	CURB	
	TREELINE	
	REVEGETATION AREA	
	SNOW STORAGE AREA	

GRAPHIC SCALE

80 0 40 80 160 320

1 inch =80 ft.

TAX MAP I.D.
291 A001
281 A003

THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM SITE DESIGN ASSOCIATES, ANY ALTERATIONS, OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO SITE DESIGN ASSOCIATES.

REV.	DATE	STATUS	BY	CHKD.	APPD.
D	6/5/2023	REVISED PER CITY COMMENTS	DEPT.	TWS	TWS
C	1/20/2023	FOR CITY REVIEW	DEPT.	TWS	TWS
B	12/21/2022	FOR PRICING ADDENDUM 1 ONLY - NOT FOR CONSTRUCTION	DEPT.	TWS	TWS
A	12/5/2022	FOR PRICING ONLY - NOT FOR CONSTRUCTION	DEPT.	TWS	TWS

STATE OF MAINE · THOMAS W. SAUCIER NO. 6085 · REGISTERED PROFESSIONAL ENGINEER
6/5/2023

Site Design Associates
Consulting Engineering & Land Planning
23 Whitney Way Topsham, Maine 04086 Tel: (207) 449-4275

CLIENT:
UNIVERSITY OF NEW ENGLAND
11 HILLS BEACH ROAD BIDDEFORD, MAINE 04005

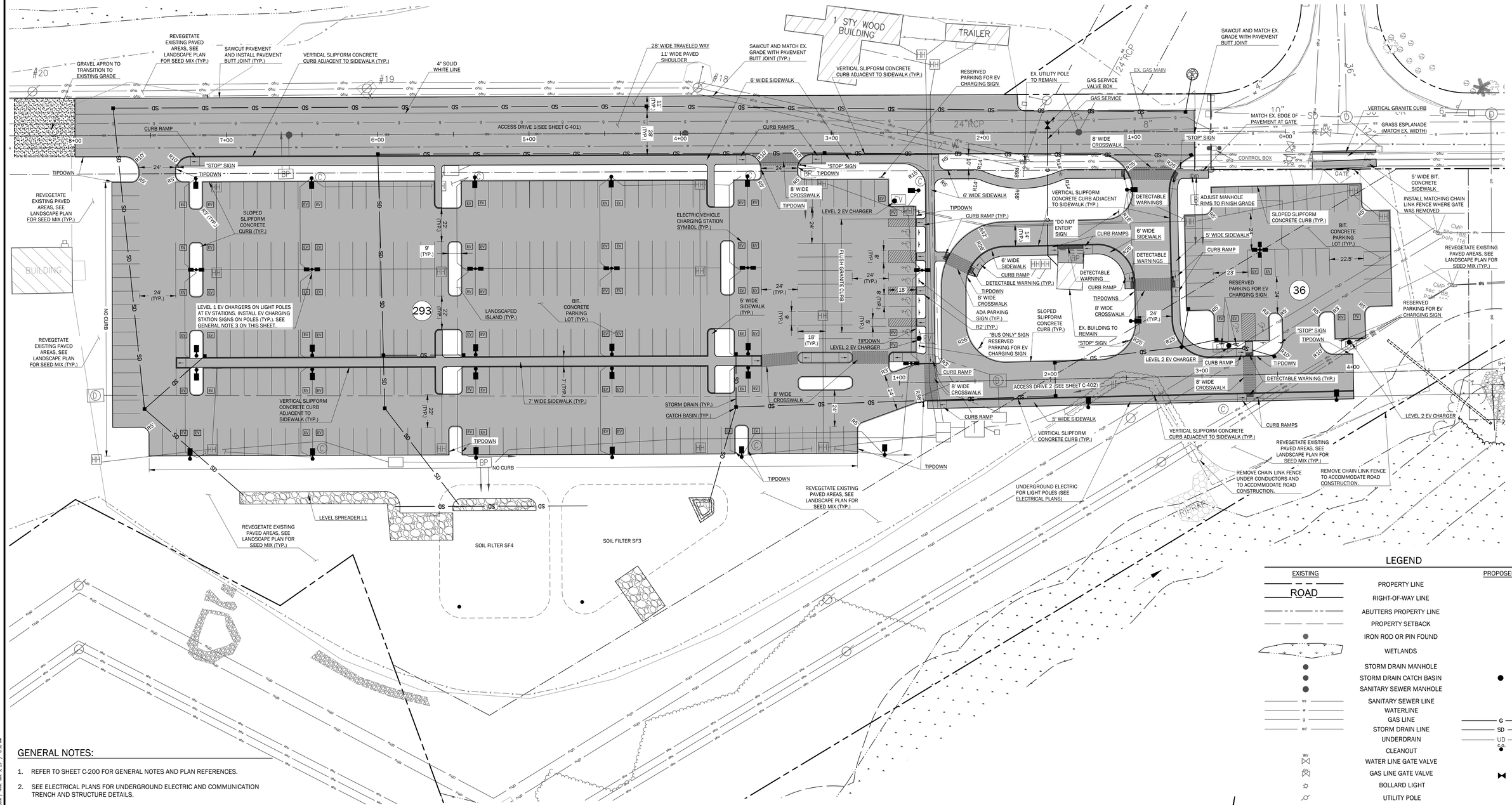
DESIGN: DEPT.
DRAWN: DEPT.
CHKD: TWS
DATE: DEC. 2022
SCALE: 1" = 80'

PROJECT: RECONSTRUCTION OF INTERMODAL TRANSPORTATION FACILITY AND PARKING
160–172 BISHOP STREET PORTLAND, MAINE

SITE PLAN

PROJ. NO. 21–216–00
DWG. NO. C–200
REV. D

Drawing Name: C:\Users\SMatyka\Desktop\Desktop Drawings\21-042 BNE Connector Road\Drawings\21-042 Base_Updated | Plot Date / Time: Jan. 5, 23 / 8:59 AM



GENERAL NOTES:

1. REFER TO SHEET C-200 FOR GENERAL NOTES AND PLAN REFERENCES.
2. SEE ELECTRICAL PLANS FOR UNDERGROUND ELECTRIC AND COMMUNICATION TRENCH AND STRUCTURE DETAILS.
3. "EV" PAINT MARKINGS FOR LEVEL 1 CHARGING STATIONS IS FOR GRAPHICAL PLAN PURPOSES ONLY. PAVEMENT MARKINGS SHALL NOT BE INSTALLED AT LEVEL 1 CHARGING STATIONS. SIGNAGE FOR LEVEL 1 CHARGING STATIONS SHALL BE INSTALLED ON THE ADJACENT LIGHT POLES USING ONE SIGN FOR TWO SPOTS WITH DOUBLE ARROW.
4. LEVEL 2 EV CHARGERS SHALL BE PROVIDED WITH SIGNAGE AND "EV" PAINT MARKINGS.
5. AREAS OF EXISTING GRAVEL AND PAVEMENT THAT ARE TO BE REVEGETATED SHALL BE TILLED TO A DEPTH OF 9" BEFORE SPREADING LOAM AND APPLYING SEED MIXTURE.

LEGEND

EXISTING		PROPOSED
	PROPERTY LINE	
ROAD	RIGHT-OF-WAY LINE	
	ABUTTERS PROPERTY LINE	
	PROPERTY SETBACK	
	IRON ROD OR PIN FOUND	
	WETLANDS	
	STORM DRAIN MANHOLE	
	STORM DRAIN CATCH BASIN	
	SANITARY SEWER MANHOLE	
ss	SANITARY SEWER LINE	
w	WATERLINE	
g	GAS LINE	G
sd	STORM DRAIN LINE	SD
	UNDERDRAIN	UD
	CLEANOUT	c.o.
WV	WATER LINE GATE VALVE	
GV	GAS LINE GATE VALVE	
	BOLLARD LIGHT	
	UTILITY POLE	
	HYDRANT	
	BUILDING	
	EDGE OF PAVEMENT	
	CURB	
100	INDEX CONTOUR	100
101	INTERMEDIATE CONTOUR	101
	EDGE OF GRAVEL	
	RIPRAP	

GRAPHIC SCALE

30 0 15 30 60 120

1 inch = 30 ft.

TAX MAP I.D.
291 A001
281 A003

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REV.	DATE	STATUS	BY	CHKD.	APPD.
F	6/5/2023	REVISED PER CITY COMMENTS	DEPT.	TWS	TWS
E	4/25/2023	REVISED PER CITY COMMENTS	DEPT.	TWS	TWS
D	3/28/2023	REVISED PER CMP COMMENTS	DEPT.	TWS	TWS
C	1/20/2023	FOR CITY REVIEW	DEPT.	TWS	TWS
B	12/21/2022	FOR PRICING ADDENDUM 1 ONLY - NOT FOR CONSTRUCTION	DEPT.	TWS	TWS
A	12/5/2022	FOR PRICING ONLY - NOT FOR CONSTRUCTION	DEPT.	TWS	TWS

STATE OF MAINE
THOMAS W. SAUCIER
NO. 9009
LICENSED
PROFESSIONAL ENGINEER
6/5/2023

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CLIENT:
UNIVERSITY OF NEW ENGLAND
11 HILLS BEACH ROAD BIDDEFORD, MAINE 04005

DESIGN: DEPT.
DRAWN: DEPT.
CHKD: TWS
DATE: DEC. 2022
SCALE: 1" = 30'

PROJECT: RECONSTRUCTION OF INTERMODAL TRANSPORTATION FACILITY AND PARKING
160–172 BISHOP STREET PORTLAND, MAINE

SITE LAYOUT AND UTILITY PLAN

PROJ. NO. 21–216–00
DWG. NO. C–201
REV. F

Drawing Name: C:\Users\Dlee\Desktop\Desktop Drawings\21-042 UNE Connector Road\Drawings\21-042 Base_Updated | Plot Date / Time: Jun 5, 23 / 8:38 AM

GRADING AND DRAINAGE NOTES:

1. REFER TO SHEET C-200 FOR GENERAL NOTES AND PLAN REFERENCES.
2. PRIOR TO ANY CONSTRUCTION ACTIVITIES, CONTRACTOR SHALL VERIFY ALL AFFECTED GRADES. ANY DISCREPANCIES SHALL BE REPORTED IMMEDIATELY TO THE OWNER OR OWNER'S REPRESENTATIVE.
3. ALL AREAS NOT REQUIRING GRADING SHALL BE LEFT UNDISTURBED. CONTRACTOR SHALL NOT DISTURB THESE AREAS AND PRESERVE EXISTING VEGETATION.
4. GRADE ALL NEW WORK FOR POSITIVE DRAINAGE AND NO PUDDLING. MATCH EXISTING GRADES SMOOTHLY AND CONTINUOUSLY.

EROSION CONTROL LEGEND

	PROPOSED
SILT FENCE	SF
STABILIZED CONSTRUCTION ENTRANCE	
CATCH BASIN INLET PROTECTION	

GRAPHIC SCALE

30 0 15 30 60 120

1 inch =30 ft.

LEGEND

EXISTING		PROPOSED
	PROPERTY LINE	
ROAD	RIGHT-OF-WAY LINE	
	ABUTTERS PROPERTY LINE	
	PROPERTY SETBACK	
	IRON ROD OR PIN FOUND	
	WETLANDS	
	STORM DRAIN MANHOLE	
	STORM DRAIN CATCH BASIN	
	SANITARY SEWER MANHOLE	
ss	SANITARY SEWER LINE	
w	WATERLINE	
g	GAS LINE	G
sd	STORM DRAIN LINE	SD
	UNDERDRAIN	UD
	CLEANOUT	C.O.
WV	WATER LINE GATE VALVE	
GV	GAS LINE GATE VALVE	
	BOLLARD LIGHT	
	UTILITY POLE	
	HYDRANT	
	BUILDING	
	EDGE OF PAVEMENT	
	CURB	
100	INDEX CONTOUR	100
101	INTERMEDIATE CONTOUR	101
	EDGE OF GRAVEL	
	RIPRAP	

TAX MAP I.D.
291 A001
281 A003

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A	12/5/2022	FOR PRICING ONLY - NOT FOR CONSTRUCTION	DEPT.	TWS	TWS

STATE OF MAINE — THOMAS W. SAUCIER — NO. 6086 — LICENSED PROFESSIONAL ENGINEER — 6/5/2023

Site Design Associates
Consulting Engineering & Land Planning
23 Whitney Way Topsham, Maine 04086 Tel: (207) 449-4275

CLIENT:
UNIVERSITY OF NEW ENGLAND
11 HILLS BEACH ROAD BIDDEFORD, MAINE 04005

DESIGN: DEPT.
DRAWN: DEPT.
CHKD: TWS
DATE: DEC. 2022
SCALE: 1" = 30'

PROJECT: RECONSTRUCTION OF INTERMODAL TRANSPORTATION FACILITY AND PARKING
160–172 BISHOP STREET PORTLAND, MAINE

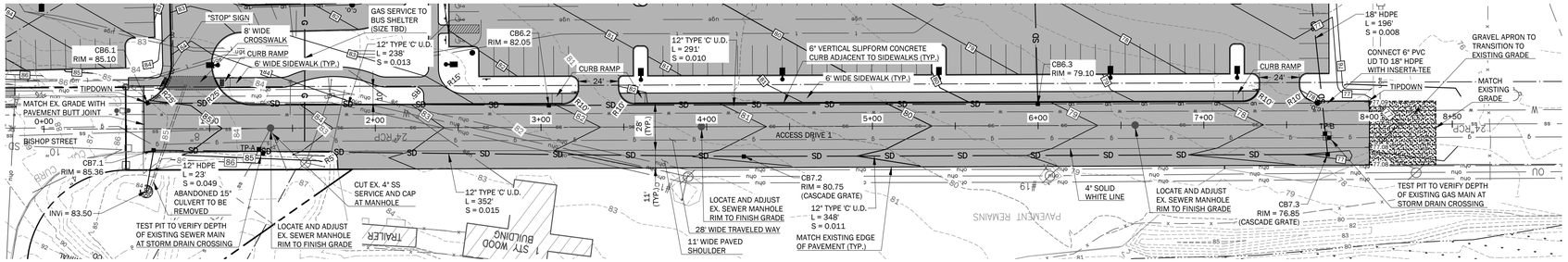
OVERALL GRADING, DRAINAGE, AND EROSION AND SEDIMENTATION CONTROL PLAN

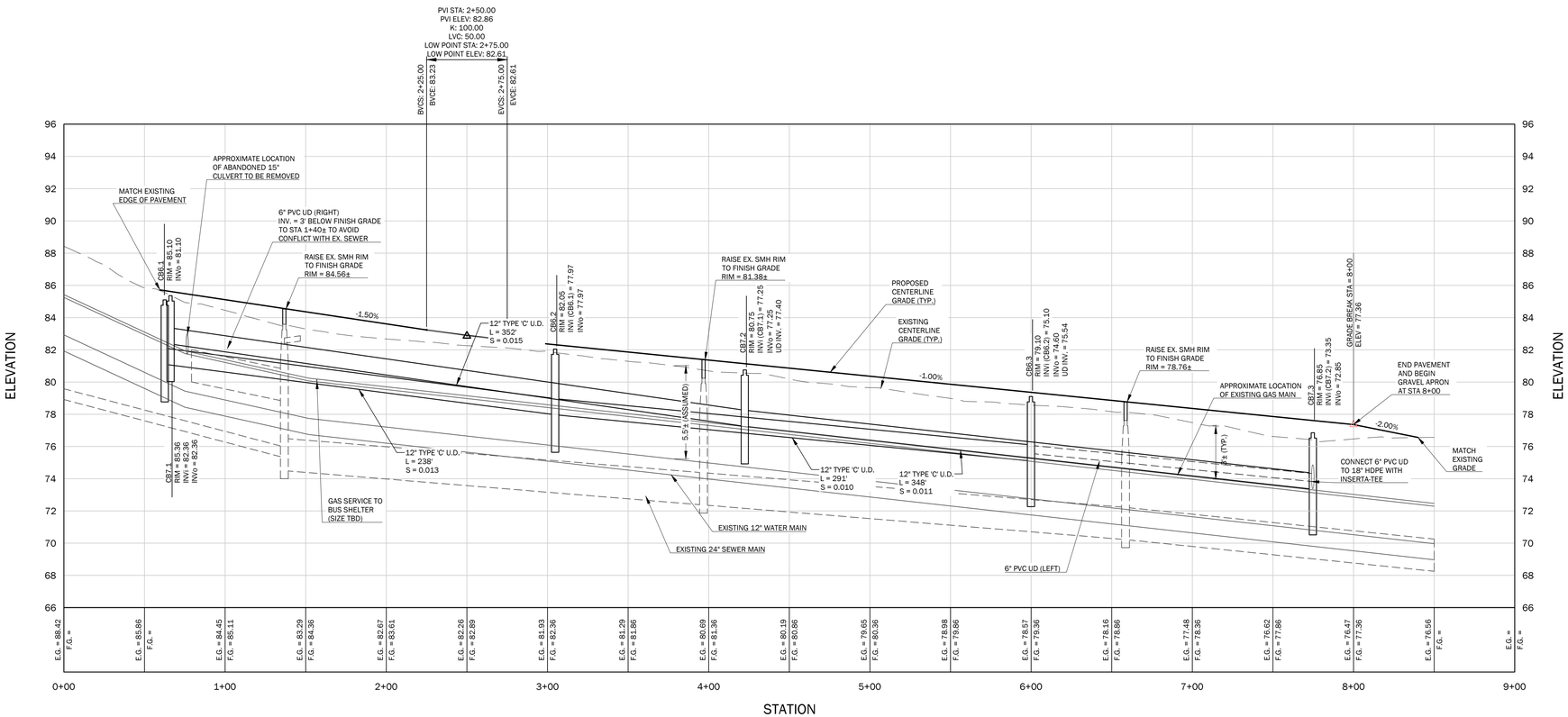
PROJ. NO. 21–216–00
DWG. NO. C–300
REV. F

Drawing Name: C:\Users\tbas\Desktop\Desktop Drawings\21-042 UNE Connector Road\Drawings\21-042 Base_Updated | Plot Date / Time: Jun 5, 23 / 8:39 AM

GENERAL NOTES:

1. REFER TO SHEET C-200 FOR GENERAL NOTES AND PLAN REFERENCES.
2. REFER TO SHEET C-300 FOR GRADING AND DRAINAGE NOTES AND LEGEND.





ACCESS DRIVE 1 PROFILE

LEGEND

EXISTING		PROPOSED
	PROPERTY LINE	
ROAD	RIGHT-OF-WAY LINE	
	ABUTTERS PROPERTY LINE	
	PROPERTY SETBACK	
	IRON ROD OR PIN FOUND	
	WETLANDS	
	STORM DRAIN MANHOLE	
	STORM DRAIN CATCH BASIN	
	SANITARY SEWER MANHOLE	
ss	SANITARY SEWER LINE	
w	WATERLINE	
g	GAS LINE	G
sd	STORM DRAIN LINE	SD
	UNDERDRAIN	UD
	CLEANOUT	C.O.
WV	WATER LINE GATE VALVE	
GV	GAS LINE GATE VALVE	
	BOLLARD LIGHT	
	UTILITY POLE	
	HYDRANT	
	BUILDING	
	EDGE OF PAVEMENT	
	CURB	
100	INDEX CONTOUR	100
101	INTERMEDIATE CONTOUR	101
	EDGE OF GRAVEL	

1 inch = 4 ft. VERT.
1 inch = 40 ft. HORIZ.

TAX MAP I.D.
291 A001
281 A003

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STATE OF MAINE — THOMAS W. SAUCIER NO. 6086 — LICENSED PROFESSIONAL ENGINEER
1/20/2023

Site Design Associates
Consulting Engineering & Land Planning
23 Whitney Way Topsham, Maine 04086 Tel: (207) 449-4275

CLIENT:
UNIVERSITY OF NEW ENGLAND
11 HILLS BEACH ROAD BIDDEFORD, MAINE 04005

DESIGN: DEPT.
DRAWN: DEPT.
CHKD: TWS
DATE: DEC. 2022
SCALE: 1" = 40 FT

PROJECT:
RECONSTRUCTION OF INTERMODAL TRANSPORTATION FACILITY AND PARKING
160-172 BISHOP STREET PORTLAND, MAINE

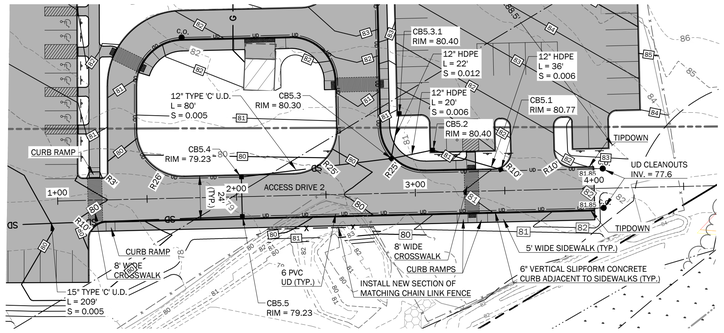
ACCESS DRIVE 1 PLAN & PROFILE

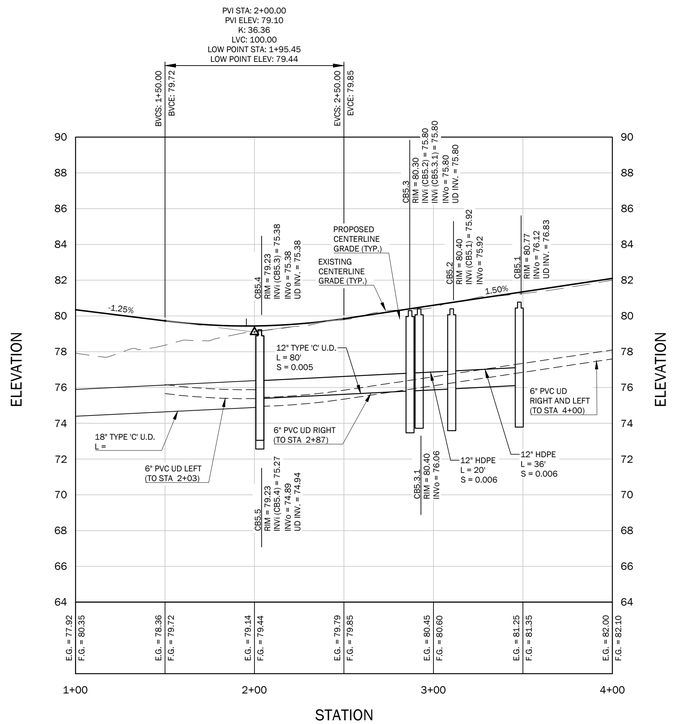
PROJ. NO. 21-216-00
DWG. NO. C-401
REV. C

Drawing Name: C:\Users\tbks\Desktop\Desktop Drawings\21-042 UNE Connector Road\Drawings\21-042 Base_Updated | Plot Date / Time: Jan. 19, 23 / 12:21 PM

GENERAL NOTES:

1. REFER TO SHEET C-200 FOR GENERAL NOTES AND PLAN REFERENCES.
2. REFER TO SHEET C-300 FOR GRADING AND DRAINAGE NOTES AND LEGEND.





ACCESS DRIVE 2 PROFILE

LEGEND

EXISTING		PROPOSED
	PROPERTY LINE	
ROAD	RIGHT-OF-WAY LINE	
	ABUTTERS PROPERTY LINE	
	PROPERTY SETBACK	
	IRON ROD OR PIN FOUND	
	WETLANDS	
	STORM DRAIN MANHOLE	
	STORM DRAIN CATCH BASIN	
	SANITARY SEWER MANHOLE	
ss	SANITARY SEWER LINE	
w	WATERLINE	
g	GAS LINE	G
sd	STORM DRAIN LINE	SD
	UNDERDRAIN	UD
	CLEANOUT	C.O.
WV	WATER LINE GATE VALVE	
GV	GAS LINE GATE VALVE	
	BOLLARD LIGHT	
	UTILITY POLE	
	HYDRANT	
	BUILDING	
	EDGE OF PAVEMENT	
	CURB	
100	INDEX CONTOUR	100
101	INTERMEDIATE CONTOUR	101

1 inch = 4 ft. VERT.
1 inch = 40 ft. HORIZ.

TAX MAP I.D.
291 A001
281 A003

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STATE OF MAINE
THOMAS W. SAUCIER
NO. 6086
REGISTERED
PROFESSIONAL ENGINEER
1/20/2023

Site Design Associates
Consulting Engineering & Land Planning
23 Whitney Way Topsham, Maine 04086 Tel: (207) 449-4275

CLIENT:
UNIVERSITY OF NEW ENGLAND
11 HILLS BEACH ROAD BIDDEFORD, MAINE 04005

DESIGN: DEPT.
DRAWN: DEPT.
CHKD: TWS
DATE: DEC. 2022
SCALE: 1" = 40'

PROJECT:
RECONSTRUCTION OF INTERMODAL TRANSPORTATION FACILITY AND PARKING
160–172 BISHOP STREET PORTLAND, MAINE

ACCESS DRIVE 2 PLAN & PROFILE
STA 1+00 TO 4+00

PROJ. NO. 21–216–00
DWG. NO. C–402
REV. C

Drawing Name: C:\Users\Sitex\Desktop\Desktop Drawings\21-042 UNE Connector Road\Drawings\21-042 Base_Updated | Plot Date / Time: Jan. 19, 23 / 12:21 PM

EROSION AND SEDIMENTATION CONTROL NOTES:

INTRODUCTION

THE FOLLOWING PLAN FOR CONTROLLING SEDIMENTATION AND EROSION IN THIS PROJECT IS BASED ON CONSERVATION PRACTICES FOUND IN THE MAINE EROSION & SEDIMENT CONTROL BMPS MANUAL, OCTOBER 2016, AND MAINE EROSION AND SEDIMENT CONTROL PRACTICE FIELD GUIDE FOR CONTRACTORS, REVISED 2014, MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION. THE CONTRACTOR WHO IMPLEMENTS THIS PLAN SHALL BE FAMILIAR WITH THESE PUBLICATIONS AND ADHERE TO THEM AND THE PRACTICES PRESENTED HEREIN

REFERENCE IS MADE TO THE GRADING AND DRAINAGE PLANS (C-301 AND C-302) WITHIN THE PLAN SET, SHOWING THE LOCATIONS AND TYPES OF PROPOSED MEASURES TO BE IMPLEMENTED.

GENERAL EROSION AND SEDIMENTATION CONTROL PRACTICES

THE FOLLOWING IS A LIST OF GENERAL EROSION CONTROL PRACTICES THAT WILL BE USED TO PREVENT EROSION AND SEDIMENTATION BEFORE, DURING AND AFTER THE CONSTRUCTION OF THIS PROJECT. IN ADDITION, SPECIAL CARE SHALL BE USED AT ALL TIMES TO:
LIMIT DISTURBANCE AND, HENCE, EROSION
1) CORRECT ANY EROSION PROBLEMS IMMEDIATELY
2) REGULARLY MONITOR THE IMPLEMENTED PRACTICES, ESPECIALLY AFTER EVERY RAINFALL
3) REVEGETATE DISTURBED AREAS AS SOON AS POSSIBLE AFTER CONSTRUCTION
4) CONFORM TO ALL REQUIREMENTS/STANDARDS OF THE SITE'S MAINE DEP EROSION & SEDIMENT CONTROL BMP MANUAL.

SILT FENCE AND/OR EROSION CONTROL MIX SEDIMENT BARRIERS

SILT FENCE AND/OR EROSION CONTROL MIX SEDIMENT BARRIERS WILL BE INSTALLED ALONG THE DOWN GRADIENT SIDE OF THE PROPOSED GROUND DISTURBANCE AREAS PRIOR TO ANY CONSTRUCTION ACTIVITIES WHERE SLOPES EXCEED 8% OR THERE IS FLOWING WATER BOTH SILT FENCE AND EROSION CONTROL MATTING BERMS SHALL BE USED.

CATCH BASIN PROTECTION

CATCH BASIN PROTECTION WILL BE INSTALLED AT THE FIRST DOWNGRADIENT CATCH BASIN IN STREET ADJACENT TO ANY CONSTRUCTION ACTIVITIES AND IN ALL ONSITE CATCH BASINS UNTIL SITE HAS BEEN COMPLETELY STABILIZED.

CONSTRUCTION PHASE

THE FOLLOWING GENERAL PRACTICES WILL BE IMPLEMENTED TO PREVENT EROSION DURING CONSTRUCTION ON THIS PROJECT:

1. EROSION AND SEDIMENTATION CONTROL BMPS SHALL BE INTALLED PRIOR TO THE COMMENCEMENT OF EARTHWORK ACTIVITIES.
2. ONLY THOSE AREAS UNDER ACTIVE CONSTRUCTION WILL BE CLEARED AND LEFT IN AN UNTREATED OR UNVEGETATED CONDITION. AN AREA NO LARGER THAN WHAT CAN BE MULCHED IN ONE DAY MAY BE OPEN AT ONCE. ONCE CONSTRUCTION OF AN AREA IS COMPLETE, FINAL GRADING, LOAMING AND SEEDING SHALL OCCUR IMMEDIATELY (REFER TO "POST CONSTRUCTION REVEGETATION" SECTION). IF DURING FINAL GRADING, LOAMING AND SEEDING CAN NOT OCCUR IMMEDIATELY, IT SHALL BE DONE PRIOR TO ANY STORM EVENT AND WITHIN 15 DAYS OF COMPLETING CONSTRUCTION IN THE AREA. IF FINAL GRADING, LOAMING AND SEEDING CANNOT OCCUR WITHIN 7 DAYS, OR IF THE AREA IS NOT UNDER ACTIVE CONSTRUCTION FOR A PERIOD LONGER THAN 7 DAYS, SEE ITEM NO. 4 BELOW.
3. PRIOR TO THE START OF CONSTRUCTION IN A SPECIFIC AREA, SILT FENCING SHALL BE INSTALLED ON DOWNGRADIENT PORTIONS OF THE SITE AS LOCATED ON THE PLANS TO PROTECT AGAINST ANY CONSTRUCTION RELATED EROSION.
4. TOPSOIL WILL BE STOCKPILED WHEN NECESSARY IN AREAS WHICH HAVE MINIMUM POTENTIAL FOR EROSION AND WILL BE KEPT AS FAR AS POSSIBLE FROM EXISTING DRAINAGE AREAS AND WETLANDS. ALL STOCKPILES EXPECTED TO REMAIN LONGER THAN 7 DAYS SHALL BE:
   A. TREATED WITH ANCHORED MULCH (WITHIN 5 DAYS OF THE LAST DEPOSIT OF STOCKPILED SOIL).
   B. SEEDED WITH CONSERVATION MIX AND MULCHED IMMEDIATELY.
   C. STOCKPILES SHALL BE EITHER PLACED UPHILL OF AN EXISTING SEDIMENT BARRIER ON THE SITE OR ENCIRCLED BY A HAY BALE OR SILT FENCE BARRIER THE FIRST DAY THAT STOCKPILING COMMENCES.
5. ALL DISTURBED AREAS EXPECTED TO REMAIN LONGER THAN 7 DAYS SHALL BE:
   A. TREATED WITH STRAW AT A RATE OF 70-90 LBS. PER 1000 SQUARE FEET FROM 4/16 TO 10/1, OR AT A RATE OF 150-200 LBS. PER 1000 SQUARE FEET FROM 10/1 TO 4/15.
   B. SEEDED WITH CONSERVATION MIX OF PERENNIAL RYE GRASS (1.0 LBS/1000 SQ.FT.) AND MULCHED IMMEDIATELY. FROM 10/1 TO 4/15, FOLLOW THE SEEDING RATES AS OUTLINED BELOW IN SUB-SECTION 4.D. OF THE "POST CONSTRUCTION REVEGETATION" SECTION.
   C. MONITORED EVERY TWO WEEKS UNTIL SEEDING CAN OCCUR AND REMULCHED AS NEEDED TO PROTECT SLOPES.
6. ALL GRADING WILL BE HELD TO A MAXIMUM 3:1 SLOPE WHERE PRACTICAL. GREATER SLOPES MAY BE USED WHERE THE BANKS ARE PROTECTED WITH SOFT ARMOUR MATTING, EROSION CONTROL MATTING, OR RIPRAP. ALL SLOPES WILL BE STABILIZED WITH PERMANENT SEEDING IMMEDIATELY AFTER FINAL GRADING IS COMPLETE. (IT IS UNDERSTOOD THAT IMMEDIATELY MEANS WITHIN 5 DAYS OF THE COMPLETION OF WORK. SEE POST-CONSTRUCTION REVEGETATION FOR SEEDING SPECIFICATION).
7. APPLICATION RATE MUST BE 2 BALES (70-90 LBS.) PER 1,000 SQUARE FEET OR 1.5 TO 2 TONS (90-100 BALES) PER ACRE TO COVER 75 TO 90% OF THE GROUND SURFACE. DRIVE OVER WITH TRACKED CONSTRUCTION EQUIPMENT ON GRADES OF 5% AND LESS.
8. CONSTRUCTION TRAFFIC WILL BE DIRECTED OVER THE EXISTING SITE ENTRANCE. THE ROAD SHALL BE SWEPT AND VACUUMED DAILY SHOULD SEDIMENT BE TRACKED ONTO IT.
9. ALL AREAS DRAINING TO A STORMWATER FILTER OR BMP SHALL BE STABILIZED PRIOR TO CONSTRUCTION OF FILTER MEDIA TO PREVENT SEDIMENT FROM CLOGGING MEDIA.
10. THE UNDERDRAINED SOIL FILTERS WILL BE CONSTRUCTED SIMULTANEOUSLY WITH YOUNG'S LANE. THE FILTERS WILL BE USED AS TEMPORARY SEDIMENT TRAPS UNTIL THEIR DRAINAGE AREA IS PERMANENTLY STABILIZED.
11. THE AREAS ASSOCIATED WITH THE BUILDINGS AND THEIR DRIVEWAYS CAN BE DISTURBED BY GRUBBING NO EARLIER THAN TWO WEEKS BEFORE THE STARTING DATE OF THEIR CONSTRUCTION.
12. IN AREAS SLOPED 8% OR MORE, TEMPORARY ROCK CHECK DAMS AND WATER BARS WILL BE USED IN THE ROADSIDE SWALES AND THE ROAD, RESPECTIVELY, UNTIL THE SWALES AND THE ROAD ARE STABILIZED.

DEWATERING

1. ALL DEWATERING DISCHARGE LOCATIONS SHALL BE LOCATED ON RELATIVELY FLAT GROUND AT LEAST 75' FROM STREAMS AND 25' FROM WETLANDS. THE CONTRACTOR SHALL UTILIZE DIRTBAGS, EROSION CONTROL MIX BERMS, OR SIMILAR METHODS FOR FILTRATION OF DEWATERING AND SHALL CONFORM TO THE MAINE EROSION AND SEDIMENT CONTROL BMPS G-1, G-2, AND G-3.

POST CONSTRUCTION REVEGETATION

THE FOLLOWING GENERAL PRACTICES WILL BE IMPLEMENTED TO PREVENT EROSION AS SOON AS AN AREA IS READY TO UNDERGO FINAL GRADING:

1. A MINIMUM OF 6" OF LOAM WILL BE SPREAD OVER DISTURBED AREAS AND GRADED TO A UNIFORM DEPTH AND NATURAL APPEARANCE.
2. LAWN AREAS: "PARK MIX" GRASS SEED BY ALLEN, STERLING & LOTHROP (FALMOUTH, MAINE), OR APPROVED EQUAL.
3. MULCH SHALL BE HAY OR STRAW MULCHES THAT ARE DRY AND FREE FROM UNDESIRABLE SEEDS AND COURSE MATERIALS.
   A. APPLICATION RATE MUST BE 2 BALES (70-90 LBS.) PER 1,000 SQUARE FEET OR 1.5 TO 2 TONS (90-100 BALES) PER ACRE TO COVER 75 TO 90% OF THE GROUND SURFACE.
   B. DRIVE OVER WITH TRACKED CONSTRUCTION EQUIPMENT ON GRADES OF 5% AND LESS.
   C. BLANKET WITH TACKED PHOTODEGRADABLE/BIODEGRADABLE NETTING ON GRADES GREATER THAN 5%.
4. HYDRO-MULCH SHALL CONSIST OF A MIXTURE OF ASPHALT, WOOD FIBRE OR PAPER FIBRE AND WATER, WHICH IS SPRAYED OVER A SEEDED AREA. HYDRO-MULCH SHALL NOT BE USED BETWEEN 10/1 AND 4/15.
5. CONSTRUCTION SHALL BE PLANNED TO ELIMINATE THE NEED FOR SEEDING BETWEEN OCTOBER 1ST AND APRIL 15TH. SHOULD SEEDING BE NECESSARY BETWEEN THESE DATES, THE FOLLOWING PROCEDURE SHALL BE FOLLOWED:
   A. ONLY UNFROZEN LOAM SHALL BE USED.
   B. LOAMING, SEEDING AND MULCHING WILL NOT BE DONE OVER SNOW OR ICE COVER. IF SNOW EXISTS, IT MUST BE REMOVED PRIOR TO PLACEMENT OF SEED.
   C. WHERE PERMANENT SEEDING IS NECESSARY, ANNUAL WINTER RYE (1.2 LBS/1000 S.F.) SHALL BE SOWN INSTEAD OF THE PREVIOUSLY NOTED SEEDING RATE.
   D. WHERE TEMPORARY SEEDING IS REQUIRED, ANNUAL WINTER RYE (2.5 LBS/1000 S.F.) SHALL BE SOWN INSTEAD OF THE PREVIOUSLY NOTED SEEDING RATE.
   E. FERTILIZING, SEEDING AND MULCHING SHALL BE DONE ON LOAM THE DAY THE LOAM IS SPREAD.
   F. HAY MULCH SHALL BE SECURED WITH PHOTODEGRADABLE/BIODEGRADABLE NETTING. TRACKING BY MACHINERY ALONE WILL NOT SUFFICE. WINTER MULCHING RATES, SHALL BE DOUBLE AS SPECIFIED ABOVE IN SUBSECTION 3.A OF THE "POST CONSTRUCTION REVEGETATION" SECTION, SHOULD BE APPLIED DURING THIS PERIOD.
6. FOLLOWING FINAL SEEDING, THE SITE WILL BE INSPECTED EVERY 30 DAYS UNTIL 90% COVER HAS BEEN ESTABLISHED. RESEEDING WILL BE CARRIED OUT BY THE CONTRACTOR WITHIN 10 DAYS OF NOTIFICATION BY THE DESIGN PROFESSIONAL THAT THE EXISTING CATCH IS INADEQUATE.

MONITORING SCHEDULE

THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING, MONITORING, MAINTAINING, REPAIRING, REPLACING AND REMOVING ALL OF THE EROSION AND SEDIMENTATION CONTROLS OR APPOINTING A QUALIFIED SUBCONTRACTOR TO DO SO. MAINTENANCE MEASURES WILL BE APPLIED AS NEEDED DURING THE ENTIRE CONSTRUCTION CYCLE. IMMEDIATELY FOLLOWING ANY SIGNIFICANT RAINFALL, AND AT LEAST ONCE A WEEK, A VISUAL INSPECTION WILL BE MADE OF ALL EROSION AND SEDIMENTATION CONTROLS AS FOLLOWS:

1. SILT FENCE SHALL BE INSPECTED AND REPAIRED. SEDIMENT TRAPPED BEHIND THESE BARRIERS SHALL BE EXCAVATED WHEN IT REACHES A DEPTH OF 6" AND REDISTRIBUTED TO AREAS UNDERGOING FINAL GRADING.
2. CONSTRUCTION ENTRANCE SHALL BE VISUALLY INSPECTED AND REPAIRED AS NEEDED. ANY AREAS SUBJECT TO RUTTING SHALL BE STABILIZED IMMEDIATELY. IF THE VOIDS OF THE CONSTRUCTION ENTRANCE BECOME FILLED WITH MUD, MORE CRUSHED STONE SHALL BE ADDED AS NEEDED. THE PUBLIC ROADWAY SHALL BE SWEPT AND VACUUMED SHOULD MUD BE DEPOSITED/TRACKED ONTO THEM.

STANDARDS FOR STABILIZING SITES FOR THE WINTER

THE FOLLOWING STANDARDS AND METHODOLOGIES SHALL BE USED FOR STABILIZING THE SITE DURING THE WINTER CONSTRUCTION PERIOD:

1. STANDARD FOR THE TIMELY STABILIZATION OF DISTURBED SLOPES (ANY AREA HAVING A GRADE GREATER THAN 25%) - THE CONTRACTOR WILL SEED AND MULCH ALL SLOPES TO BE VEGETATED BY SEPTEMBER 15TH. IF THE CONTRACTOR FAILS TO STABILIZE ANY SLOPE TO BE VEGETATED BY SEPTEMBER 15TH, THEN THE CONTRACTOR WILL TAKE ONE OF THE FOLLOWING ACTIONS TO STABILIZE THE SLOPE FOR LATE FALL AND WINTER.
   A. STABILIZE THE SOIL WITH TEMPORARY VEGETATION AND EROSION CONTROL MATS: BY OCTOBER 1ST THE CONTRACTOR WILL SEED THE DISTURBED SLOPE WITH WINTER RYE AT A RATE OF 3 POUNDS PER 1000 SQUARE FEET AND THEN INSTALL EROSION CONTROL MATS OR ANCHORED HAY MULCH OVER THE SEEDING AT TWICE THE RATE AS SPECIFIED ABOVE IN SUBSECTION 3.A OF THE "POST CONSTRUCTION REVEGETATION" SECTION. THE CONTRACTOR WILL MONITOR GROWTH OF THE RYE OVER THE NEXT 30 DAYS.
   B. STABILIZE THE SLOPE WITH WOOD-WASTE COMPOST: THE CONTRACTOR WILL PLACE A SIX-INCH LAYER OF WOOD-WASTE COMPOST ON THE SLOPE BY NOVEMBER 15TH. THE CONTRACTOR WILL NOT USE WOOD-WASTE COMPOST TO STABILIZE SLOPES HAVING GRADES GREATER THAN 50% (2H:1V) OR HAVING GROUNDWATER SEEPS ON THE SLOPE FACE.
   C. STABILIZE THE SLOPE WITH STONE RIPRAP: THE CONTRACTOR WILL PLACE A LAYER OF STONE RIPRAP ON THE SLOPE BY NOVEMBER 15TH. THE DEVELOPMENT'S OWNER WILL HIRE A REGISTERED PROFESSIONAL ENGINEER TO DETERMINE THE STONE SIZE NEEDED FOR STABILITY ON THE SLOPE AND TO DESIGN A FILTER LAYER FOR UNDERNEATH THE RIPRAP.

STANDARD FOR THE TIMELY STABILIZATION OF DISTURBED SOILS - BY SEPTEMBER 15TH THE CONTRACTOR WILL SEED AND MULCH ALL DISTURBED SOILS ON THE SITE. IF THE CONTRACTOR FAILS TO STABILIZE THESE SOILS BY THIS DATE, THEN THE CONTRACTOR WILL TAKE ON OF THE FOLLOWING ACTIONS TO STABILIZE THE SOIL FOR LATE FALL AND WINTER.

   A. STABILIZE THE SOIL WITH TEMPORARY VEGETATION: BY OCTOBER 1ST THE CONTRACTOR WILL SEED THE DISTURBED SOIL WITH WINTER RYE AT A SEEDING RATE OF 3 POUNDS PER 1000 SQUARE FEET, LIGHTLY MULCH THE SEEDED SOIL WITH HAY OR STRAW AT 75 POUNDS PER 1000 SQUARE FEET, AND ANCHOR THE MULCH WITH PLASTIC NETTING. THE CONTRACTOR WILL MONITOR GROWTH OF THE RYE OVER THE NEXT 30 DAYS. IF THE RYE FAILS TO GROW AT LEAST THREE INCHES OR FAILS TO COVER AT LEAST 75% OF THE DISTURBED SOIL BEFORE NOVEMBER, 1, THEN THE CONTRACTOR WILL MULCH THE AREA FOR OVER-WINTER PROTECTION AS DESCRIBED IN ITEM III OF THIS STANDARD.
   B. STABILIZE THE SOIL WITH SOD: THE CONTRACTOR WILL STABILIZE THE DISTURBED SOIL WITH PROPERLY INSTALLED SOD BY OCTOBER 1ST. PROPER INSTALLATION INCLUDES THE CONTRACTOR PINNING THE SOD ONTO THE SOIL WITH WIRE PINS, ROLLING THE SOD TO GUARANTEE CONTACT BETWEEN THE SOD AND UNDERLYING SOIL, AND WATERING THE SOD TO PROMOTE ROOT GROWTH INTO THE DISTURBED SOIL.
   C. STABILIZE THE SOIL WITH MULCH: BY NOVEMBER 15TH THE CONTRACTOR WILL MULCH THE DISTURBED SOIL BY SPREADING HAY OR STRAW AT A RATE OF AT LEAST 150 POUNDS PER 1000 SQUARE FEET ON THE AREA SO THAT NO SOIL IS VISIBLE THROUGH THE MULCH. IMMEDIATELY AFTER APPLYING THE MULCH, THE CONTRACTOR WILL ANCHOR THE MULCH WITH NETTING OR OTHER METHOD TO PREVENT WIND FROM MOVING THE MULCH OFF THE DISTURBED SOIL.

EROSION CONTROL REMOVAL

AN AREA IS CONSIDERED STABLE IF IT IS PAVED OR IF 90% GROWTH OF PLANTED SEEDS IS ESTABLISHED. ONCE AN AREA IS CONSIDERED STABLE, THE EROSION CONTROL MEASURES CAN BE REMOVED AS FOLLOWS:

1. SILT FENCE: SILT FENCE SHALL BE DISPOSED OF LEGALLY AND PROPERLY OFF-SITE. ALL SEDIMENT TRAPPED BEHIND THESE CONTROLS SHALL BE DISTRIBUTED TO AN AREA UNDERGOING FINAL GRADING OR REMOVED AND RELOCATED OFF-SITE.
2. STABILIZED CONSTRUCTION ENTRANCE: THE STABILIZED CONSTRUCTION ENTRANCE SHALL BE REMOVED ONCE THE COMPACTED ROADWAY BASE IN IN PLACE. STONE AND SEDIMENT FROM THE CONSTRUCTION ENTRANCE SHALL BE REDISTRIBUTED TO AN AREA UNDERGOING GRADING OR REMOVED AND RELOCATED OFFSITE.
3. MISCELLANEOUS: ONCE ALL THE TRAPPED SEDIMENTS HAVE BEEN REMOVED FROM THE TEMPORARY SEDIMENTATION DEVICES THE DISTURBED AREAS MUST BE REGRADED IN AN AESTHETIC MANNER TO CONFORM TO THE SURROUNDING TOPOGRAPHY. ONCE GRADED THESE DISTURBED AREAS MUST BE LOAMED (IF NECESSARY), FERTILIZED, SEEDED AND MULCHED IN ACCORDANCE WITH THE RATES PREVIOUSLY STATED.

THE ABOVE EROSION CONTROLS MUST BE REMOVED WITHIN 30 DAYS OF FINAL STABILIZATION OF THE SITE.
CONFORMANCE WITH THIS PLAN AND FOLLOWING THESE PRACTICES WILL RESULT IN A PROJECT THAT COMPLIES WITH THE STATE REGULATIONS AND THE STANDARDS OF THE NATURAL RESOURCES PROTECTION ACT, AND WILL PROTECT WATER QUALITY IN AREAS DOWNSTREAM FROM THE PROJECT.

MAINE CONSTRUCTION GENERAL PERMIT REQUIRED

SUBMISSION OF A MAINE CONSTRUCTION GENERAL PERMIT (MCGP) IS REQUIRED PRIOR TO COMMENCEMENT OF ANY EXCAVATION ACTIVITIES.

INSPECTION AND MAINTENANCE (APPENDIX B)

1. INSPECTION AND MAINTENANCE REQUIREMENTS: INSPECT DISTURBED AND IMPERVIOUS AREAS, EROSION AND STORMWATER CONTROL MEASURES, AREAS USED FOR STORAGE THAT ARE EXPOSED TO PRECIPITATION, AND LOCATIONS WHERE VEHICLES ENTER OR EXIT THE SITE. INSPECT THESE AREAS AT LEAST ONCE A WEEK AS WELL AS BEFORE AND AFTER A SIGNIFICANT STORM EVENT (0.5 INCHES OF RAINFALL IN A 24-HOUR PERIOD) AND PRIOR TO COMPLETION OF PERMANENT STABILIZATION MEASURES. A PERSON WITH KNOWLEDGE OF EROSION AND STORMWATER CONTROL, INCLUDING THE STANDARDS IN THE MCGP AND ANY DEPARTMENTAL COMPANION DOCUMENT TO THE MCGP, MUST CONDUCT THE INSPECTION. THIS PERSON MUST BE IDENTIFIED IN THE INSPECTION LOG. IF BEST MANAGEMENT PRACTICES (BMPS) NEED TO BE MODIFIED OR IF ADDITIONAL BMPS ARE NECESSARY, IMPLEMENTATION MUST BE STARTED BY THE END OF THE NEXT WORKIN DAY AND COMPLETED WITHIN 7 CALENDAR DAYS AND PRIOR TO ANY STORM EVENT (RAINFALL). ALL MEASURES MUST BE MAINTAINED IN EFFECTIVE OPERATING CONDITION UNTIL AREAS AREA PERMANENTLY STABILIZED. DOCUMENTATION OF CORRECTION ACTIONS SHALL BE MAINTAINED WITH THE INSPECTION FORMS.
2. INSPECTION LOG (REPORT): A LOG (REPORT) MUST BE KEPT SUMMARIZING THE SCOPE OF THE INSPECTION, NAME(S) AND QUALIFICATIONS OF THE PERSONNEL MAKING THE INSPECTION, THE DATE(S) OF THE INSPECTION, AND MAJOR OBSERVATIONS RELATING TO OPERATION OF EROSION AND SEDIMENTATION CONTROLS AND POLLUTION PREVENTION MEASURES. MAJOR OBSERVATIONS MUST INCLUDE BMPS THAT NEED MAINTENANCE, BMPS THAT FAILED TO OPERATE AS DESIGNED OR PROVED INADEQUATE FOR A PARTICULAR LOCATION, AND LOCATIONS(S) WHERE ADDITIONAL BMPS ARE NEEDED. FOR EACH BMP REQUIRING MAINTENANCE, BMP NEEDING REPLACEMENT, AND LOCATION NEEDING ADDITIONAL BMPS, NOTE IN THE INSPECTION LOG THE CORRECT ACTION TAKEN AND WHEN IT WAS TAKEN. THE LOG MUST BE MADE ACCESSIBLE TO THE DEPARTMENT STAFF AND A COPY MUST BE PROVIDED UPON REQUEST. THE PERMITTEE SHALL RETAIN A COPY OF THE LOG FOR A PERIOD OF AT LEAST THREE YEARS FROM THE COMPLETION OF THE PERMANENT STABILIZATION.

HOUSEKEEPING (APPENDIX C)

1. SPILL PREVENTION: CONTROLS MUST BE USED TO PREVENT POLLUTANTS FROM CONSTRUCTION AND WASTE MATERIALS STORED ON SITE TO ENTER STORMWATER. WHICH INCLUDES STORAGE PRACTICES TO MINIMIZE EXPOSURE OF THE MATERIALS TO STORMWATER. THE SITE CONTRACTOR OR OPERATOR MUST DEVELOP, AND IMPLEMENT AS NECESSARY, APPROPRIATE SPILL PREVENTION, CONTAINMENT, AND RESPONSE PLANNING MEASURES.

NOTE: ANY SPILL OR RELEASE OF TOXIC OR HAZARDOUS SUBSTANCES MUST BE REPORTED TO THE DEPARTMENT. FOR OIL SPILLS, CALL 1-800-482-0777 WHICH IS AVAILABLE 24 HOURS A DAY. FOR SPILLS OF TOXIC OR HAZARDOUS MATERIAL, CALL 1-800-452-4664 WHICH IS AVAILABLE 24 HOURS A DAY. FOR MORE INFORMATION, VISIT THE DEPARTMENT'S WEBSITE AT: HTTP://WWW.MAINE.GOV/DEP/SPILLS/EMERGSPILLRESP/

2. GROUNDWATER PROTECTION: DURING CONSTRUCTION, LIQUID PETROLEUM PRODUCTS AND OTHER HAZARDOUS MATERIALS WITH THE POTENTIAL TO CONTAMINATE GROUNDWATER MAY NOT BE STORED OR HANDLED IN AREAS OF THE SITE DRAINING TO AN INFILTRATION AREA. AN "INFILTRATION AREA" IS ANY AREA OF THE SITE THAT BY DESIGN OR AS A RESULT OF SOILS, TOPOGRAPHY AND OTHER RELEVANT FACTORS ACCUMULATES RUNOFF THAT INFILTRATES INTO THE SOIL. DIKES, BERMS, SUMPS, AND OTHER FORMS OF SECONDARY CONTAINMENT THAT PREVENT DISCHARGE TO GROUNDWATER MAY BE USED TO ISOLATE PORTIONS OF THE SITE FOR THE PURPOSES OF STORAGE AND HANDLING OF THESE MATERIALS. ANY PROJECT PROPOSING INFILTRATION OF STORMWATER MUST PROVIDE ADEQUATE PRE-TREATMENT OF STORMWATER PRIOR TO DISCHARGE OF STORMWATER TO THE INFILTRATION AREA, OR PROVIDE FOR TREATMENT WITHIN THE INFILTRATION AREA, IN ORDER TO PREVENT THE ACCUMULATION OF FINES, REDUCTION IN INFILTRATION RATE, AND CONSEQUENT FLOODING AND DESTABILIZATION.

NOTE: LACK OF APPROPRIATE POLLUTANT REMOVAL BEST MANAGEMENT PRACTICES (BMPS) MAY RESULT IN VIOLATIONS OF THE GROUNDWATER QUALITY STANDARD ESTABLISHED BY 38 M.R.S.A. §465-C(1).

3. FUGITIVE SEDIMENT AND DUST: ACTIONS MUST BE TAKEN TO ENSURE THAT ACTIVITIES DO NOT RESULT IN NOTICEABLE EROSION OF SOILS OR FUGITIVE DUST EMISSIONS DURING OR AFTER CONSTRUCTION. OIL MAY NOT BE USED FOR DUST CONTROL, BUT OTHER WATER ADDITIVES MAY BE CONSIDERED AS NEEDED. A STABILIZED CONSTRUCTION ENTRANCE (SCE) SHOULD BE INCLUDED TO MINIMIZE TRACKING OF MUD AND SEDIMENT. IF OFF-SITE TRACKING OCCURS, PUBLIC ROADS SHOULD BE SWEPT IMMEDIATELY AND NO LESS THAN ONCE A WEEK AND PRIOR TO SIGNIFICANT STORM EVENTS. OPERATIONS DURING DRY MONTHS, THAT EXPERIENCE FUGITIVE DUST PROBLEMS, SHOULD WET DOWN UNPAVED ACCESS ROADS ONCE A WEEK OR MORE FREQUENTLY AS NEEDED WITH A WATER ADDITIVE TO SUPPRESS FUGITIVE SEDIMENT AND DUST.

NOTE: DEWATERING A STREAM WITHOUT A PERMIT FROM THE DEPARTMENT MAY VIOLATE STATE WATER QUALITY STANDARDS AND THE NATURAL RESOURCES PROTECTION ACT.

4. DEBRIS AND OTHER MATERIALS: MINIMIZE THE EXPOSURE OF CONSTRUCTION DEBRIS, BUILDING AND LANDSCAPING MATERIALS, TRASH, FERTILIZERS, PESTICIDES, HERBICIDES, DETERGENTS, SANITARY WASTE AND OTHER MATERIALS TO PRECIPITATION AND STORMWATER RUNOFF. THESE MATERIALS MUST BE PREVENTED FROM BECOMING A POLLUTANT SOURCE.

NOTE: TO PREVENT THESE MATERIALS FROM BECOMING A SOURCE OF POLLUTANTS, CONSTRUCTION AND POST-CONSTRUCTION ACTIVITIES RELATED TO A PROJECT MAY BE REQUIRED TO COMPLY WITH APPLICABLE PROVISION OF RULES RELATED TO SOLID, UNIVERSAL AND HAZARDOUS WASTE, INCLUDING, BUT NOT LIMITED TO, THE MAINE SOLID WASTE AND HAZARDOUS WASTE MANAGEMENT RULES; MAINE HAZARDOUS WASTE MANAGEMENT RULES; MAINE OIL CONVEYANCE AND STORAGE RULES; AND MAINE PESTICIDE REQUIREMENTS.

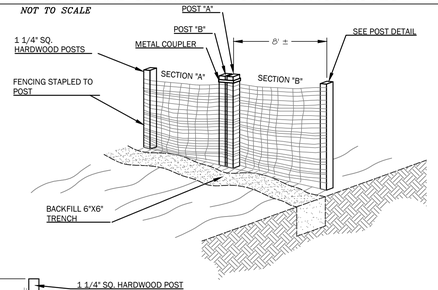
5. EXCAVATION DEWATERING: EXCAVATION DEWATERING IS THE REMOVAL OF WATER FROM TRENCHES, FOUNDATIONS. COFFER DAMS, PONDS, AND OTHER AREAS WITHIN THE CONSTRUCTION AREA THAT RETAIN WATER AFTER EXCAVATION. IN MOST CASES THE COLLECTED WATER IS HEAVILY SILTED AND HINDERS CORRECT AND SAFE CONSTRUCTION PRACTICES. THE COLLECTED WATER REMOVED FROM THE PONDED AREA, EITHER THROUGH GRAVITY OR PUMPING, MUST BE SPREAD THROUGH NATURAL WOODED BUFFERS OR REMOVED TO AREAS THAT ARE SPECIFICALLY DESIGNED TO COLLECT THE MAXIMUM AMOUNT OF SEDIMENT POSSIBLE, LIKE A COFFERDAM SEDIMENTATION BASIN. AVOID ALLOWING THE WATER TO FLOW OVER DISTURBED AREAS OF THE SITE. EQUIVALENT MEASURES MAY BE TAKEN IF APPROVED BY THE DEPARTMENT.

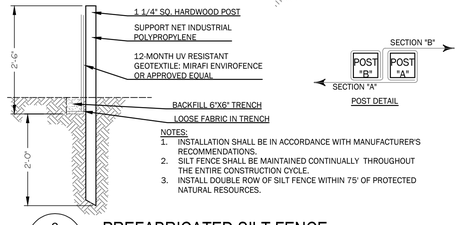
NOTE: DEWATERING CONTROLS ARE DISCUSSED IN THE "MAINE EROSION AND SEDIMENT CONTROL BMPS, MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION."

6. AUTHORIZED NON-STORMWATER DISCHARGES: IDENTIFY AND PREVENT CONTAMINATION BY NON-STORMWATER DISCHARGES. WHERE ALLOWED NON-STORMWATER DISCHARGES EXIST, THEY MUST BE IDENTIFIED AND STEPS SHOULD BE TAKEN TO ENSURE THE IMPLEMENTATION OF APPROPRIATE POLLUTION PREVENTION MEASURES FOR THE NON-STORMWATER COMPONENT(S) OF THE DISCHARGE. AUTHORIZED NON-STORMWATER DISCHARGES ARE:.
   - DISCHARGES FROM FIREFIGHTING ACTIVITY;
   - FIRE HYDRANT FLUSHINGS;
   - VEHICLE WASHWATER IF DETERGENTS ARE NOT USED AND WASHING IS LIMITED TO THE EXTERIOR OF VEHICLES (ENGINE, UNDERCARRIAGE, AND TRANSMISSION WASHING IS PROHIBITED);
   - DUST CONTROL RUNOFF IN ACCORDANCE WITH PERMIT CONDITIONS AND APPENDIX (C)(3);
   - ROUTINE EXTERNAL BUILDING WASHDOWN, NOT INCLUDING SURFACE PAINT REMOVAL, THAT DOES NOT INVOLVE DETERGENTS;
   - PAVEMENT WASHWATER WHERE SPILLS/LEAKS OF TOXIC OR HAZARDOUS MATERIALS HAVE NOT OCCURRED, UNLESS ALL SPILLED MATERIAL HAD BEEN REMOVED) IF DETERGENTS ARE NOT USED;
   - UNCONTAMINATED AIR CONDITIONING OR COMPRESSOR CONDENSATE;
   - UNCONTAMINATED GROUNDWATER OR SPRING WATER;
   - FOUNDATION OR FOOTER DRAIN-WATER WHERE FLOWS ARE NOT CONTAMINATED;
   - UNCONTAMINATED EXCAVATION DEWATERING (SEE REQUIREMENTS IN APPENDIX C(5));
   - POTABLE WATER SOURCES INCLUDING WATERLINE FLUSHINGS; AND
   - LANDSCAPE IRRIGATION
7. UNAUTHORIZED NON-STORMWATER DISCHARGES: THE DEPARTMENT'S APPROVAL UNDER THIS CHAPTER DOES NOT AUTHORIZE A DISCHARGE THAT IS MIXED WITH A SOURCE OF NON-STORMWATER, OTHER THAN THOSE DISCHARGES IN COMPLIANCE WITH APPENDIX C (6). SPECIFICALLY, THE DEPARTMENT'S APPROVAL DOES NOT AUTHORIZE DISCHARGES OF THE FOLLOWING:
   - WASTEWATER FROM THE WASHOUT OR CLEANOUT OF CONCRETE, STUCCO, PAINT, FORM RELEASE OILS, CURING COMPOUNDS OR OTHER CONSTRUCTION MATERIALS;
   - FUELS, OILS OR OTHER POLLUTANTS USED IN VEHICLE AND EQUIPMENT OPERATION AND MAINTENANCE;
   - SOAPS, SOLVENTS, OR DETERGENTS USED IN VEHICLE AND EQUIPMENT WASHING; AND
   - TOXIC OR HAZARDOUS SUBSTANCES FROM A SPILL OR OTHER RELEASE.
8. ADDITIONAL REQUIREMENTS: ADDITIONAL REQUIREMENTS MAY BE APPLIED ON A SITE-SPECIFIC BASIS.

1 C-500 EROSION AND SEDIMENTATION CONTROL NOTES

NOT TO SCALE

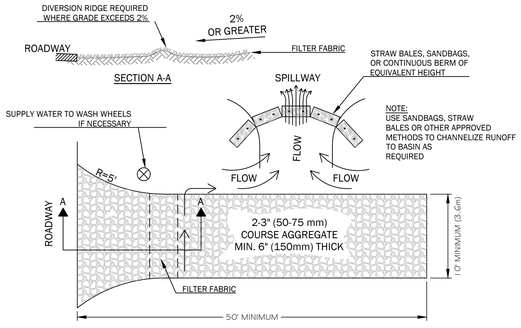


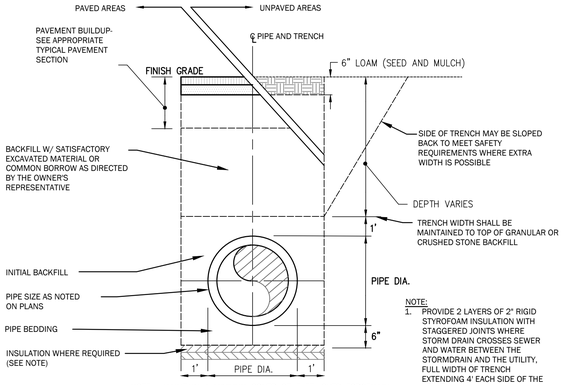


NOTES:
1. INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
2. SILT FENCE SHALL BE MAINTAINED CONTINUALLY THROUGHOUT THE ENTIRE CONSTRUCTION CYCLE.
3. INSTALL DOUBLE ROW OF SILT FENCE WITHIN 75' OF PROTECTED NATURAL RESOURCES.

2 C-500 PREFABRICATED SILT FENCE

NOT TO SCALE


DIVERSION RIDGE REQUIRED WHERE GRADE EXCEEDS 2%
2% OR GREATER
ROADWAY
FILTER FABRIC
STRAW BALES, SANDBAGS, OR CONTINUOUS BERM OF EQUIVALENT HEIGHT
SECTION A-A
SPILLWAY
SUPPLY WATER TO WASH WHEELS IF NECESSARY
NOTE: USE SANDBAGS, STRAW BALES OR OTHER APPROVED METHODS TO CHANNELIZE RUNOFF TO BASIN AS REQUIRED
R=5'
FLOW
FLOW
FLOW
ROADWAY
A
A
2-3" (50-75 mm) COURSE AGGREGATE MIN. 6" (150mm) THICK
10' MINI



NOTE: 1. PROVIDE 2 LAYERS OF 2" RIGID STYROFOAM INSULATION WITH STAGGERED JOINTS WHERE STORM DRAIN CROSSES SEWER AND WATER BETWEEN THE STORMDRAIN AND THE UTILITY, FULL WIDTH OF TRENCH EXTENDING 4' EACH SIDE OF THE UTILITY.

NOTE: MAINTAIN A MINIMUM COVER OF 5 FT. OVER FORCEMAIN.

TRENCH BACKFILL SCHEDULE

PIPE MATERIAL	BEDDING MATERIAL	INITIAL BACKFILL	BACKFILL MATERIAL
HDPE	3/4" CRUSHED STONE	3/4" CRUSHED STONE	***EXCAVATED MATERIAL OR GRANULAR BORROW
PVC	SAND	3/4" CRUSHED STONE	***EXCAVATED MATERIAL OR GRANULAR BORROW
CMP	***EXCAVATED MATERIAL OR GRANULAR BORROW	***EXCAVATED MATERIAL OR GRANULAR BORROW	***EXCAVATED MATERIAL OR GRANULAR BORROW
DUCTILE IRON	GRANULAR MATERIAL	GRANULAR MATERIAL	***EXCAVATED MATERIAL OR GRANULAR BORROW

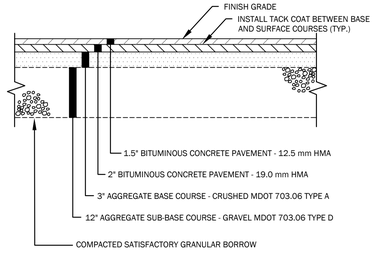
*** EXCAVATED MATERIAL MUST BE REVIEWED AND APPROVED BY THE OWNER'S REPRESENTATIVE PRIOR TO INSTALLATION.

GRANULAR MATERIAL TO BE SAND OR GRAVEL.

1 C-501 **TYPICAL TRENCH SECTION**
NOT TO SCALE

NOTES:

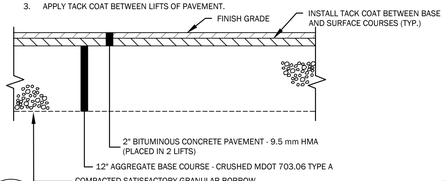
1. ADDITIONAL SUBBASE GRAVEL AND/OR GEOTEXTILES MAY BE REQUIRED DURING CONSTRUCTION IF SOIL CONDITIONS WARRANT.
2. BASE AND SUBBASE GRAVELS TO BE COMPACTED TO 95% MINIMUM OF THEIR MAXIMUM DRY DENSITY IN ACCORDANCE WITH ASTM D-1557.
3. APPLY TACK COAT BETWEEN LIFTS OF PAVEMENT.



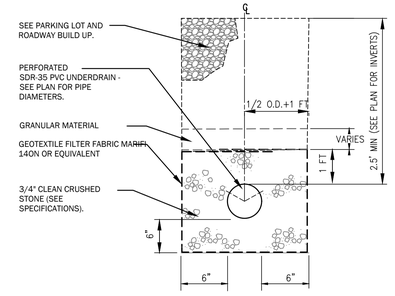
9 C-501 **DRIVE AND PARKING AREAS**
NOT TO SCALE

NOTES:

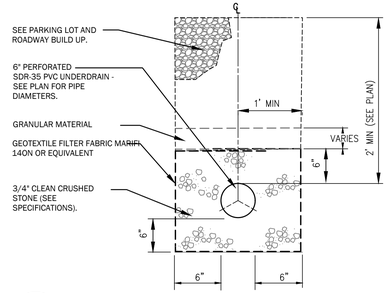
1. ADDITIONAL SUBBASE GRAVEL AND/OR GEOTEXTILES MAY BE REQUIRED DURING CONSTRUCTION IF SOIL CONDITIONS WARRANT.
2. BASE AND SUBBASE GRAVELS TO BE COMPACTED TO 95% MINIMUM OF THEIR MAXIMUM DRY DENSITY IN ACCORDANCE WITH ASTM D-1557.
3. APPLY TACK COAT BETWEEN LIFTS OF PAVEMENT.



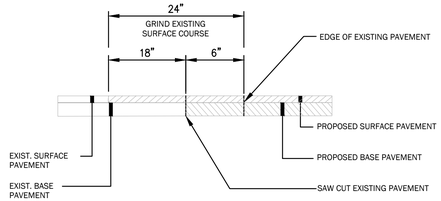
10 C-501 **PAVED WALKWAY DETAIL**
NOT TO SCALE



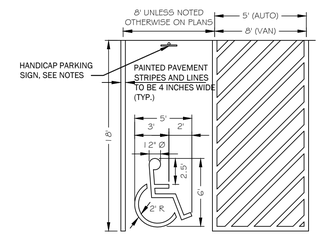
2 C-501 **PERF. STORMDRAIN AND TRENCH (TYPE C)**
NOT TO SCALE



3 C-501 **6" DIA. UNDERDRAIN TRENCH (TYPE B)**
NOT TO SCALE

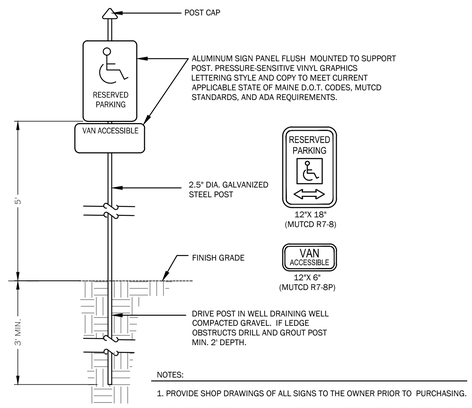


4 C-501 **HMA PAVEMENT BUTT JOINT**
NOT TO SCALE



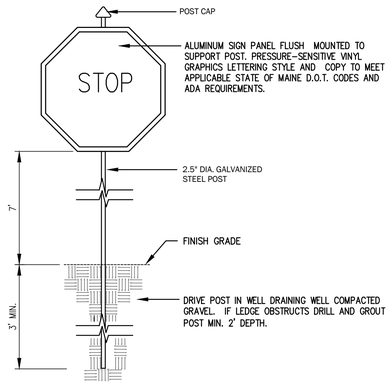
NOTES:
1. ALL ACCESSIBLE PARKING SPACE SIGNS SHALL BE MUTCD R7-8.
2. VAN ACCESSIBLE PLAQUES (MUTCD R7-8P) SHALL BE PROVIDED FOR ALL SPACES WITH AN 8' WIDE (OR WIDER) AISLE

5 C-501 **ACCESSIBLE PARKING STALL DETAIL**
NOT TO SCALE

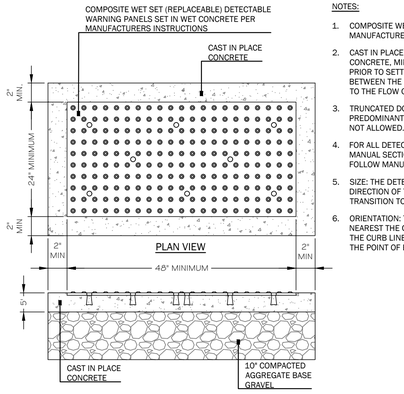


NOTES:
1. PROVIDE SHOP DRAWINGS OF ALL SIGNS TO THE OWNER PRIOR TO PURCHASING.
2. OWNER TO APPROVE ALL SIGN LOCATIONS IN THE FIELD PRIOR TO INSTALLATION.

6 C-501 **ADA SIGNAGE DETAIL**
NOT TO SCALE

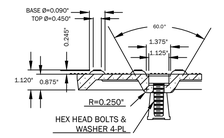


7 C-501 **STOP SIGN DETAIL**
NOT TO SCALE



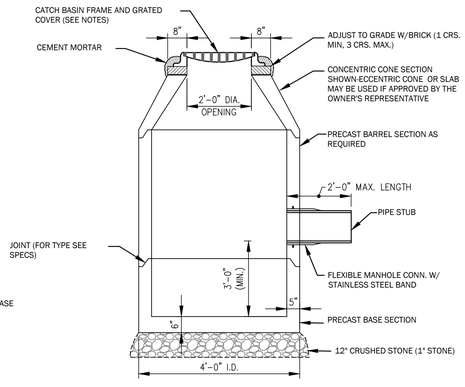
SECTION VIEW

NOTES:
1. COMPOSITE WET SET (REPLACEABLE) DETECTABLE WARNING PANELS SHALL BE AS MANUFACTURED BY ADA SOLUTIONS, INC. (WWW.ADATILE.COM), OR APPROVED EQUAL.
2. CAST IN PLACE CONCRETE SHALL MEET SPECIFICATIONS FOR MAINE D.O.T. CLASS A STRUCTURAL CONCRETE, MINIMUM COMPRESSIVE STRENGTH 4,000 PSI. THE CONCRETE SHALL BE SEALED PRIOR TO SETTING PANELS. THE EXPOSED CONCRETE BORDER SHALL RECEIVE A GROOVED EDGE BETWEEN THE PANEL AND CONCRETE, ALONG WITH A UNIFORM BROOM FINISH PERPENDICULAR TO THE FLOW OF PEDESTRIAN TRAFFIC.
3. TRUNCATED DOMES SHALL BE ALIGNED IN ROWS, PARALLEL AND PERPENDICULAR TO THE PREDOMINANT DIRECTION OF TRAVEL. TRUNCATED DOME BRICKS AND GRANITE PAVERS ARE NOT ALLOWED.
4. FOR ALL DETECTABLE WARNING PANELS (EXCEPT AS SPECIFIED IN FIGURE I-7A AND TECHNICAL MANUAL SECTION 1.8.4.), FEDERAL YELLOW COLORED (#33538) PANELS SHALL BE USED. FOLLOW MANUFACTURER'S INSTRUCTIONS FOR INSTALLATION.
5. SIZE: THE DETECTABLE WARNING PANEL(S) SHALL EXTEND 24 INCHES MINIMUM IN THE DIRECTION OF TRAVEL AND THE FULL WIDTH OF THE CURB RAMP, LANDING, OR BLENDED TRANSITION TO THE STREET.
6. ORIENTATION: THE DETECTABLE WARNING PANEL SHALL BE LOCATED SO THAT THE EDGE NEAREST THE CURB LINE IS 2 INCHES MINIMUM AND 4 INCHES MAXIMUM FROM THE BACK OF THE CURB LINE. THE PANEL SHALL BE ORIENTED TO THE DIRECTION OF TRAVEL AS IDENTIFIED BY THE POINT OF EGRESS.



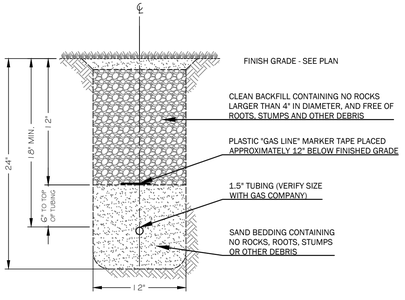
BOLT DETAIL

8 C-501 **SIDEWALK RAMP DETECTABLE WARNING PANEL**
NOT TO SCALE

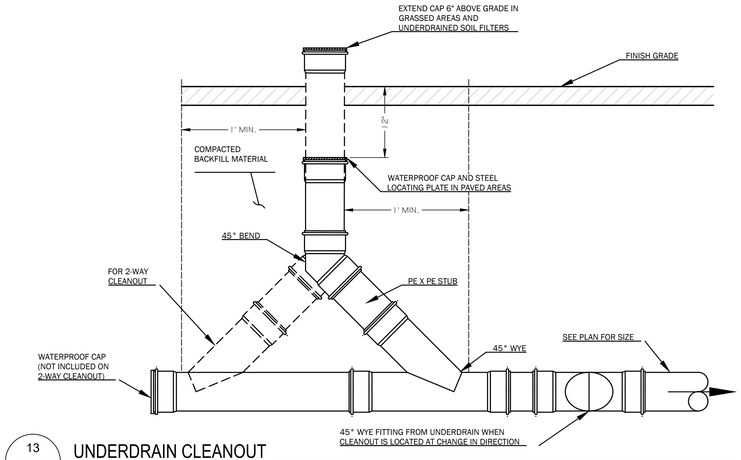


NOTES
1. USE STANDARD PEDESTRIAN/BICYCLE SAFE H20 RATED FRAME AND GRATE FOR CATCH BASINS AT LOW POINTS
2. USE H20 RATED CASCADE GRATE FOR CATCH BASINS WHERE INDICATED ON PLAN.
3. USE HIGH CAPACITY GRATE FOR CATCH BASINS WHERE INDICATED ON PLAN (NEENAH R-1878-6G, OR APPROVED EQUAL).
4. USE BEEHIVE GRATE FOR OUTLET CONTROL STRUCTURES (OCS) IN SOIL FILTERS.

11 C-501 **CATCH BASIN, OCS, AND DMH**
NOT TO SCALE



12 C-501 **GAS LINE TRENCH SECTION**
NOT TO SCALE



13 C-501 **UNDERDRAIN CLEANOUT**
NOT TO SCALE

THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM SITE DESIGN ASSOCIATES, ANY ALTERATIONS, OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO SITE DESIGN ASSOCIATES.

TAX MAP I.D.
291 A001
281 A003

REV.	DATE	STATUS	BY	CHKD.	APPD.
D	6/5/2023	REVISED PER CITY COMMENTS	DEPT.	TWS	TWS
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STATE OF MAINE — THOMAS W. SAUCIER — NO. 9008 — LICENSED PROFESSIONAL ENGINEER
6/5/2023

Site Design Associates
Consulting Engineering & Land Planning
23 Whitney Way Topsham, Maine 04086 Tel: (207) 449-4275

CLIENT:
UNIVERSITY OF NEW ENGLAND
11 HILLS BEACH ROAD BIDDEFORD, MAINE 04005

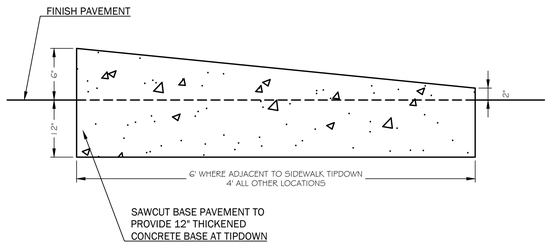
DESIGN: DEPT.
DRAWN: DEPT.
CHKD: TWS
DATE: DEC. 2022
SCALE: AS NOTED

PROJECT: RECONSTRUCTION OF INTERMODAL TRANSPORTATION FACILITY AND PARKING
160-172 BISHOP STREET PORTLAND, MAINE

SITE DETAILS

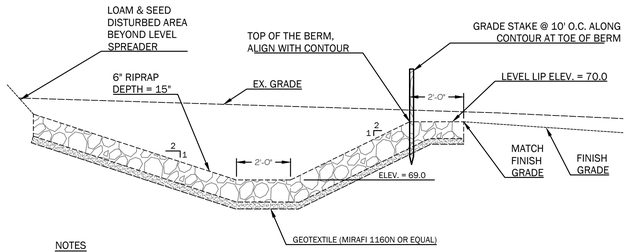
PROJ. NO. 21-216-00
DWG. NO. C-501
REV. D

Drawing Name: C:\Users\Dlee\Desktop\Desktop_Drawings\21-042 UNE Connector Road\Drawings\21-042 Details_PARK | Plot Date / Time: Jan. 5, 23 / 8:39 AM



1 C503 — SLIPFORM CURB TIPDOWN

NOT TO SCALE

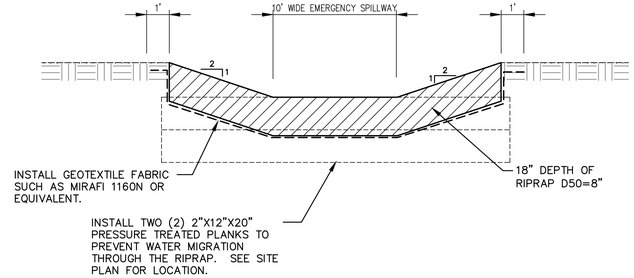


NOTES

1. CONSTRUCT LEVEL LIP AND SPREADER ON ZERO PERCENT GRADE.
2. DO NOT CONSTRUCT LEVEL SPREADER ON FILL.
3. STORM RUNOFF CONVERTED TO SHEET FLOW SHALL OUTLET ONTO STABILIZED AREA. WATER SHALL NOT BE CHANNELIZED IMMEDIATELY BELOW POINT OF DISCHARGE.
4. THE LAYOUT AND CONSTRUCTION OF THE LEVEL SPREADER IS CRITICAL TO IT'S SUCCESS. CLEAR THE AREA AND STAKE OUT LEVEL LIP ELEVATION WITH STAKES EVERY 10'. WORK THE STONE BELOW THE STAKES AND THEN EXCAVATE AND GRADE THE UPHILL SECTION. REMOVE THE STAKES AFTER THE STONE IS INSTALLED.

2 C-503 — LEVEL SPREADER

NOT TO SCALE



5 C-503 — EMERGENCY SPILLWAY DETAIL

NOT TO SCALE

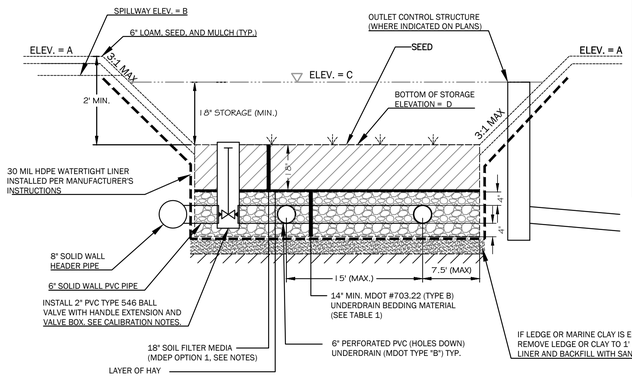


Table 1
MDOT Specifications for Underdrains (MDOT #703.22)

Sieve Size	% by Weight
Underdrain Type B	
1"	90-100
1/2"	75-100
#4	50-100
#20	15-80
#50	0-15
#200	0-5

SOIL FILTER MEDIA NOTES:

SOIL FILTER MEDIA SHALL CONFORM TO MAINE DEP *SOIL FILTER MEDIA OPTION 1*, PER MAINE DEP STORMWATER BMP MANUAL CHAPTER 7.1. AS FOLLOWS:

1.1. SOIL FILTER MEDIA SHALL CONSIST OF A SILTY SAND SOIL OR SOIL MIXTURE COMBINED WITH A MATURE, MODERATELY FINE SHREDDED BARK OR WOOD FIBER MULCH.
1.2. THE RESULTING MIX SHALL CONTAIN NO LESS THAN 10% BY DRY WEIGHT ORGANIC MATERIAL.
1.3. THE RESULTING MIX SHALL CONTAIN 8% TO 12% PASSING THE NO. 200 SIEVE.
1.4. THE RESULTING MIX SHALL CONTAIN A MAXIMUM CLAY CONTENT OF 2%.

UNDERDRAIN OUTLET VALVE CALIBRATION NOTES:

AFTER THE COMPLETION OF INSTALLATION OF THE SOIL FILTER MEDIA, THE CONTRACTOR SHALL PERFORM THE FOLLOWING PROCEDURE TO CALIBRATE THE UNDERDRAIN OUTLET VALVE TO ACHIEVE THE 0.75"/HOUR DESIGN FLOW RATE.

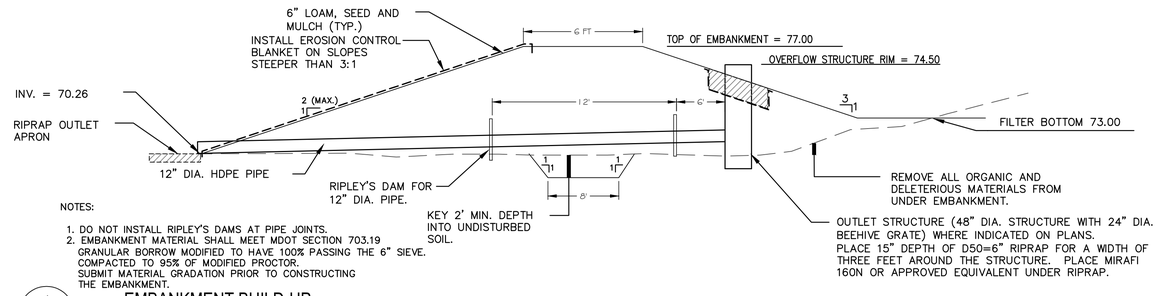
1. BEGIN WITH VALVE HALF-OPEN.
2. CAREFULLY FLOOD THE BASIN UNTIL THERE IS 18" OF WATER STORED ABOVE THE SOIL FILTER MEDIA (UP TO THE HEIGHT OF OUTLET STRUCTURE RIM) WITHOUT CAUSING EROSION OF THE SOIL FILTER MEDIA.
3. RECORD THE TIME IT TAKES FOR THE 18" OF WATER TO DRAIN TO THE TOP OF THE SOIL FILTER MEDIA. THE TARGET DRAINDOWN TIME IS 24 HOURS.
4. IF THE 18" OF WATER DRAINS IN LESS THAN 24 HOURS, CLOSE THE VALVE SLIGHTLY AND REPEAT STEPS 2 & 3 ABOVE.
5. IF THE 18" OF WATER DRAINS IN MORE THAN 24 HOURS, OPEN THE VALVE SLIGHTLY AND REPEAT STEPS 2 & 3 ABOVE.
6. REPEAT THIS PROCESS UNTIL THE 18" OF WATER DRAINS IN 24 HOURS.

GRASSED UNDERDRAINED SOIL FILTER SCHEDULE

GRASSED UNDERDRAINED SOIL FILTER FILTER #	EMBKMT. ELEV. (A)	SPILLWAY ELEV. (B)	TOP OF OUTLET STRUCT ELEV. (C)	BOTTOM OF STORAGE ELEV. (D)	INTERIOR UNDERDRAIN INVERT (START)	UNDERDRAIN OUTLET INVERT	FILTER AREA (SQ. FT.)
SF3	77.00	75.00	74.50	73.00	70.70	70.00	3,078
SF4	77.00	75.00	74.50	73.00	70.70	70.00	3,128

3 C-503 — GRASSED UNDERDRAIN SOIL FILTER TYPICAL CROSS SECTION

NOT TO SCALE

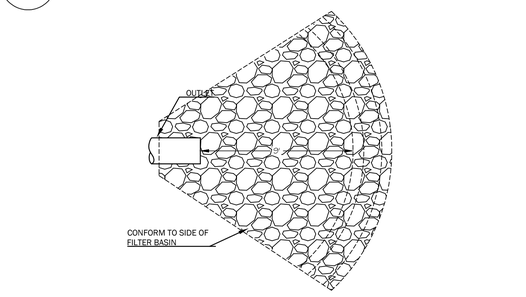


NOTES:

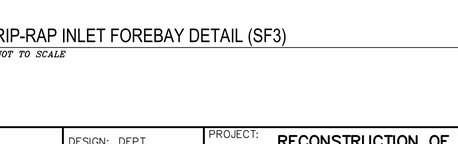
1. DO NOT INSTALL RIPLEY'S DAMS AT PIPE JOINTS.
2. EMBANKMENT MATERIAL SHALL MEET MDOT SECTION 703.19 GRANULAR BORROW MODIFIED TO HAVE 100% PASSING THE 6" SIEVE. COMPACTED TO 95% OF MODIFIED PROCTOR. SUBMIT MATERIAL GRADATION PRIOR TO CONSTRUCTING THE EMBANKMENT.

4 C-503 — EMBANKMENT BUILD-UP

NOT TO SCALE



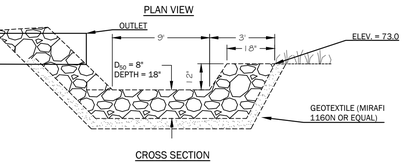
PLAN VIEW



CROSS SECTION

6 C-503 — RIP-RAP INLET FOREBAY DETAIL (SF4)

NOT TO SCALE



PLAN VIEW

CROSS SECTION

7 C-503 — RIP-RAP INLET FOREBAY DETAIL (SF3)

NOT TO SCALE

TAX MAP I.D.
291 A001
281 A003

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STATE OF MAINE — THOMAS W. SAUCIER NO. 6018 — REGISTERED PROFESSIONAL ENGINEER
6/5/2023

Site Design Associates
Consulting Engineering & Land Planning
23 Whitney Way Topsham, Maine 04086 Tel: (207) 449-4275

CLIENT:
UNIVERSITY OF NEW ENGLAND
11 HILLS BEACH ROAD BIDDEFORD, MAINE 04005

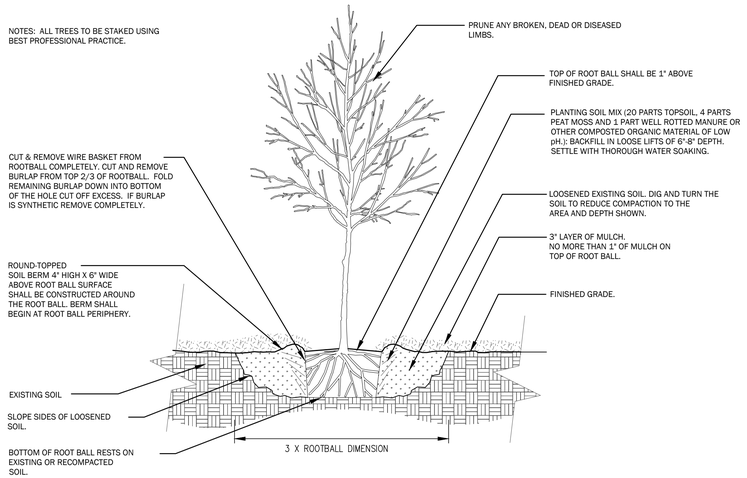
DESIGN: DEPT.
DRAWN: DEPT.
CHKD: TWS
DATE: DEC. 2022
SCALE: AS NOTED

PROJECT: RECONSTRUCTION OF INTERMODAL TRANSPORTATION FACILITY AND PARKING
160–172 BISHOP STREET PORTLAND, MAINE

SITE DETAILS

PROJ. NO. 21–216–00
DWG. NO. C–503
REV. D

Drawing Name: C:\Users\Chris\Desktop\Desktop Drawings\21-042 UNE Connector Road\Drawings\21-042 Details_FARM | Plot Date / Time: Jan. 5, 23 / 8:40 AM

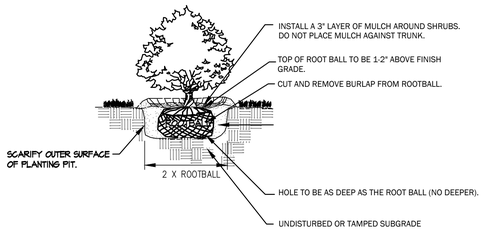


1 C-504 DECIDUOUS TREE PLANTING DETAIL

NOT TO SCALE

NOTES:

1. CONSTRUCT TEMPORARY PLANT SAUCIER FROM MULCH TO ASSIST WITH WATER RETENTION. SAUCER NOT REQUIRED WHEN SHRUB OCCURS IN A PLANT BED.
2. WHEN PLANTING CONTAINER GROWN PLANTS-REMOVE THE BALL FROM THE CONTAINER AND LOOSEN THE OUTSIDE LAYER OF THE ROOT SYSTEM BY SCORING WITH A CLEAN KNIFE. DIVIDE ALL CIRCLING ROOTS.
3. SHRUBS TO BE WATERED IMMEDIATELY AFTER PLANTING.



2 C-504 SHRUB PLANTING DETAIL

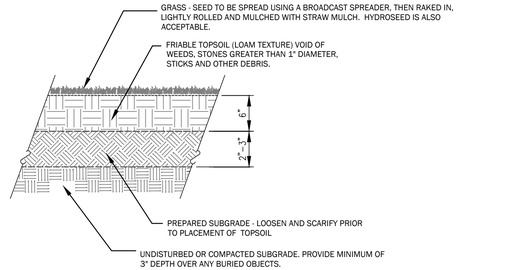
NOT TO SCALE

NOTES:

1. THE CONTRACTOR SHALL PROVIDE TOPSOIL (LOAM) MEETING THE FOLLOWING SPECIFICATIONS.

- NATURAL, FERTILE LOAM TYPICAL OF CULTIVATED TOPSOIL OF THE LOCALITY, CONTAINING NOT LESS THAN 3.5 PERCENT OR MORE THAN 8 PERCENT BY WEIGHT, OF DECAYED ORGANIC MATTER (HUMUS) AS DETERMINED BY ASTM F.1647.
- OBTAIN FROM A WELL DRAINED ARABLE SITE, FREE OF SUBSOIL, EARTH CLODS, LARGE STONES, STICKS, STUMPS, CLAY LUMPS, ROOTS, OR OTHER OBJECTIONABLE, EXTRANEOUS MATTER OR DEBRIS. SCREEN TOPSOIL TO A MAXIMUM STONE SIZE OF ONE INCH.
- TOPSOIL SHALL BE FREE OF QUACK-GRASS RHIZONES, AGROPYRON REPENS, AND THE NUT-LIKE TUBERS OF NUTGRASS, CYPERUS ESCULENTUS, AND ALL OTHER PRIMARY NOXIOUS WEEDS.
- TOPSOIL SHALL HAVE A PH OF NOT LESS THAN 6.0 OR GREATER THAN 6.8. AMEND WITH LIME AS REQUIRED.
- TOPSOIL SHALL HAVE A LOAM TEXTURE CLASSIFICATION. TOPSOIL (LOAM) SHALL CONFORM TO THE FOLLOWING PARTICLE SIZE DISTRIBUTION, AS DETERMINED BY PIPETTE METHOD IN COMPLIANCE WITH ASTM F.1632.
  - a. SAND: 40-60 PERCENT.
  - b. SILT: 30-40 PERCENT.
  - c. CLAY: 5-20 PERCENT.
- DO NOT DELIVER OR USE TOPSOIL WHILE IN A FROZEN OR MUDDY CONDITION.

IN LIEU OF PROVIDING AND FOLLOWING THE SOIL ANALYSIS REQUIRED IN NOTE 1 ABOVE THE CONTRACTOR CAN INSTEAD ELECT TO INCORPORATE THE FOLLOWING INTO THE TOP 6 INCHES OF TOPSOIL: 20 LBS. OF 10-20-10 FERTILIZER PER 1,000 S.F., 70 LBS. OF MAGNESIUM LIME PER 1,000 S.F., AND 3 CUBIC YARDS OF COMPOST PER 1,000 S.F.



3 C-504 LAWN INSTALLATION DETAIL

NOT TO SCALE



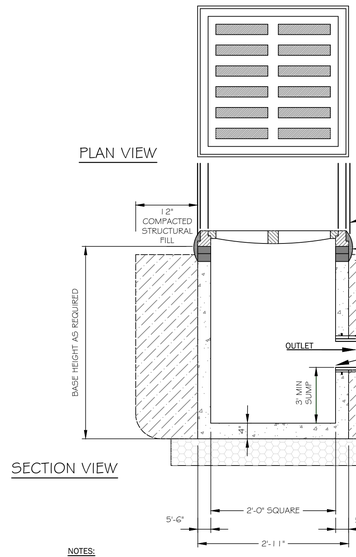
4 C-504 ELECTRIC VEHICLE CHARGING STATION SIGN

NOT TO SCALE



5 C-504 LEVEL 2 ELECTRIC VEHICLE CHARGING STATION PAVEMENT MARKING

NOT TO SCALE



NOTES:

1. CONCRETE 5000 PSI AFTER 28 DAYS.
2. REINFORCING: 1 LAYER 4x4 / 4x4 WWM.
3. USE STANDARD PEDESTRIAN/BICYCLE SAFE H20 RATED FRAME AND GRATE FOR CATCH BASINS AT LOW POINTS
4. USE HIGH CAPACITY GRATE FOR CATCH BASINS WHERE INDICATED ON PLAN (NEENAH R-1878-6G, OR APPROVED EQUAL).

6 C-504 TYPE 'F' CATCH BASIN

NOT TO SCALE

THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM SITE DESIGN ASSOCIATES, ANY ALTERATIONS, OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO SITE DESIGN ASSOCIATES.

TAX MAP I.D.
291 A001
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A	12/5/2022	FOR PRICING ONLY - NOT FOR CONSTRUCTION	DEPT.	TWS	TWS

STATE OF MAINE — THOMAS W. SAUCIER — NO. 6096 — LICENSED PROFESSIONAL ENGINEER — 6/5/2023

LICENSED LANDSCAPE ARCHITECT — PETER B. BIEGEL — No. 2624 — STATE OF MAINE — 6/5/23

Site Design Associates
Consulting Engineering & Land Planning
23 Whitney Way Topsham, Maine 04086 Tel: (207) 449-4275

CLIENT:
UNIVERSITY OF NEW ENGLAND
11 HILLS BEACH ROAD BIDDEFORD, MAINE 04005

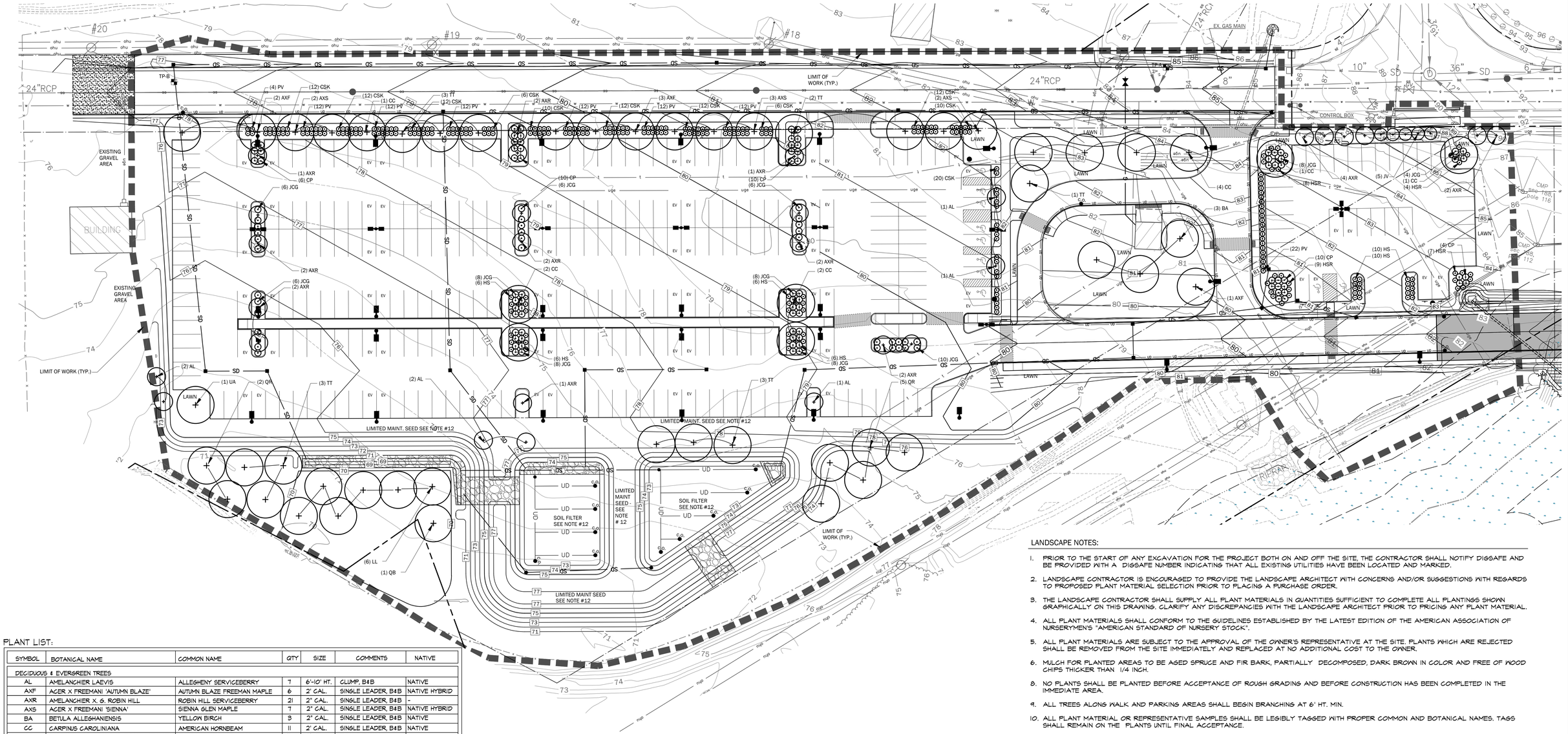
DESIGN: DEPT.
DRAWN: DEPT.
CHKD: TWS
DATE: DEC. 2022
SCALE: AS NOTED

PROJECT: RECONSTRUCTION OF INTERMODAL TRANSPORTATION FACILITY AND PARKING
160–172 BISHOP STREET PORTLAND, MAINE

SITE DETAILS

PROJ. NO. 21–216–00
DWG. NO. C–504
REV. D

Drawing Name: C:\Users\TSmith\Desktop\Desktop Drawings\21-142 UNE Connector Road\Drawings\21-142 Details_PARK | Plot Date / Time: Jun. 5, 23 / 8:40 AM



LANDSCAPE NOTES:

1. PRIOR TO THE START OF ANY EXCAVATION FOR THE PROJECT BOTH ON AND OFF THE SITE, THE CONTRACTOR SHALL NOTIFY DIGSAFE AND BE PROVIDED WITH A DIGSAFE NUMBER INDICATING THAT ALL EXISTING UTILITIES HAVE BEEN LOCATED AND MARKED.
2. LANDSCAPE CONTRACTOR IS ENCOURAGED TO PROVIDE THE LANDSCAPE ARCHITECT WITH CONCERNS AND/OR SUGGESTIONS WITH REGARDS TO PROPOSED PLANT MATERIAL SELECTION PRIOR TO PLACING A PURCHASE ORDER.
3. THE LANDSCAPE CONTRACTOR SHALL SUPPLY ALL PLANT MATERIALS IN QUANTITIES SUFFICIENT TO COMPLETE ALL PLANTINGS SHOWN GRAPHICALLY ON THIS DRAWING. CLARIFY ANY DISCREPANCIES WITH THE LANDSCAPE ARCHITECT PRIOR TO PRICING ANY PLANT MATERIAL.
4. ALL PLANT MATERIALS SHALL CONFORM TO THE GUIDELINES ESTABLISHED BY THE LATEST EDITION OF THE AMERICAN ASSOCIATION OF NURSERYMEN'S "AMERICAN STANDARD OF NURSERY STOCK".
5. ALL PLANT MATERIALS ARE SUBJECT TO THE APPROVAL OF THE OWNER'S REPRESENTATIVE AT THE SITE. PLANTS WHICH ARE REJECTED SHALL BE REMOVED FROM THE SITE IMMEDIATELY AND REPLACED AT NO ADDITIONAL COST TO THE OWNER.
6. MULCH FOR PLANTED AREAS TO BE AGED SPRUCE AND FIR BARK, PARTIALLY DECOMPOSED, DARK BROWN IN COLOR AND FREE OF WOOD CHIPS THICKER THAN 1/4 INCH.
8. NO PLANTS SHALL BE PLANTED BEFORE ACCEPTANCE OF ROUGH GRADING AND BEFORE CONSTRUCTION HAS BEEN COMPLETED IN THE IMMEDIATE AREA.
9. ALL TREES ALONG WALK AND PARKING AREAS SHALL BEGIN BRANCHING AT 6' HT. MIN.
10. ALL PLANT MATERIAL OR REPRESENTATIVE SAMPLES SHALL BE LEGIBLY TAGGED WITH PROPER COMMON AND BOTANICAL NAMES. TAGS SHALL REMAIN ON THE PLANTS UNTIL FINAL ACCEPTANCE.
11. CONTRACTOR SHALL LOAM DISTURBED AREAS AS FOLLOWS:
    - LAWN AREAS 6" DEPTH OF TOPSOIL (LOAM)
    - SHRUB BEDS IN CURBED PARKING LOT ISLANDS AND FILL AREAS 18" DEPTH OF TOPSOIL (LOAM).
    - TREE AREAS (10'X10') AROUND EACH TREE INSTALL 24" DEPTH OF TOPSOIL (LOAM).
12. SEED MIXTURES FOR AREAS TO BE SEEDED SHALL BE AS FOLLOWS.

    - LIMITED MAINTENANCE AREAS AND SOIL FILTERS ARE TO BE SEEDED WITH NEW ENGLAND CONSERVATION/WILDLIFE MIX AS DISTRIBUTED BY NEW ENGLAND WETLAND PLANTS, INC. 800 MAIN STREET, AMHERST, MA 01002 (413) 256-1752. APPLY AT A RATE OF 1LB PER 1750 SF. OR APPROVED EQUAL. SPECIES INCLUDED IN SEED MIX: Virginia Wild Rye (Elymus virginicus), Little Bluestem (Schizachyrium scoparium), Big Bluestem (Andropogon gerardii), Red Fescue (Festuca rubra), Switch Grass (Panicum virgatum), Partridge Pea (Chamaecrista fasciculata), Panicledleaf Tick Trefoil (Desmodium paniculatum), Indian Grass (Sorghastrum nutans), Blue Vervain (Verbena hastata), Butterfly Milkweed (Asclepias tuberosa), Black Eyed Susan (Rudbeckia hirta), Common Sneezeweed (Helenium autunale), Heath Aster (Asteriplosus/Symphyotrichum pilosum), Early Goldenrod (Solidago juncea), Upland Bentgrass (Agrostis perennans).

    - LAWN AREAS SHALL BE SEEDED WITH "PARK MIX" AS DISTRIBUTED BY ALLEN, STERLING AND LOTHRUP OF FALMOUTH MAINE. SEEDING RATE TO BE 5 LBS PER 1,000 S.F.
13. CONTRACTOR SHALL BEGIN MAINTENANCE IMMEDIATELY AFTER PLANTING AND WILL CONTINUE UNTIL FINAL ACCEPTANCE. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL MEANS AND METHODS OF WATERING AND MAINTENANCE.
14. THE LANDSCAPE CONTRACTOR SHALL GUARANTEE ALL PLANT MATERIALS FOR ONE (1) FULL YEAR FROM DATE OF FINAL ACCEPTANCE.
15. SCREENED IMAGES SHOW EXISTING CONDITIONS. WHERE EXISTING CONDITIONS LIE UNDER OR ARE IMPINGED UPON BY PROPOSED BUILDINGS AND OR SITE ELEMENTS, THE EXISTING CONDITION WILL BE REMOVED, ABANDONED AND OR CAPPED OR DEMOLISHED AS REQUIRED.
16. SEE CIVIL DRAWINGS FOR ADDITIONAL INFORMATION.
17. THE CONTRACTOR SHALL INSTALL WATERING BAGS SUCH AS THE TREEGATOR ON ALL TREES AT THE TIME OF INSTALLATION. THESE BAGS SHALL REMAIN ON THE TREES UNTIL FREEZING TEMPERATURES.

PLANT LIST:

SYMBOL	BOTANICAL NAME	COMMON NAME	QTY	SIZE	COMMENTS	NATIVE
DECIDUOUS & EVERGREEN TREES						
AL	AMELANCHIER LAEVIS	ALLEGHENY SERVICEBERRY	7	6'-10' HT.	CLUMP, B&B	NATIVE
AXF	ACER X FREEMANI 'AUTUMN BLAZE'	AUTUMN BLAZE FREEMAN MAPLE	6	2" CAL.	SINGLE LEADER, B&B	NATIVE HYBRID
AXR	AMELANCHIER X. G. ROBIN HILL	ROBIN HILL SERVICEBERRY	21	2" CAL.	SINGLE LEADER, B&B	-
AXS	ACER X FREEMANI 'SIENNA'	SIENNA GLEN MAPLE	7	2" CAL.	SINGLE LEADER, B&B	NATIVE HYBRID
BA	BETULA ALLEGHANIENSIS	YELLOW BIRCH	3	2" CAL.	SINGLE LEADER, B&B	NATIVE
CC	CARPINUS CAROLINIANA	AMERICAN HORNBEAM	11	2' CAL.	SINGLE LEADER, B&B	NATIVE
JV	JUNIPERUS VIRGINIANA 'EMERALD SENTINEL'	EMERALD SENTINEL JUNIPER	5	6' HT.	FULL & BUSHY	-
LL	LARIX LARCINA	TAMARACK	6	5' HT.	SINGLE LEADER, B&B	NATIVE
QB	QUERCUS BICOLOR	SWAMP WHITE OAK	1	2" CAL.	SINGLE LEADER, B&B	NATIVE
QR	QUERCUS RUBRA	RED OAK	7	2" CAL.	SINGLE LEADER, B&B	NATIVE
TT	TILIA TOMENTOSA 'STERLING'	SILVER LINDEN	12	2" CAL.	SINGLE LEADER, B&B	-
UA	ULMUS AMERICANA 'PRINCETON'	PRINCETON AMERICAN ELM	1	2" CAL.	SINGLE LEADER, B&B	-
SHRUBS, GROUNDCOVERS & HERBACEOUS MATERIALS						
CP	COMPTONIA PEREGRINA	SWEET FERN	40	2 GAL.	FULL & BUSHY	NATIVE
CSK	CORNUS SERICEA 'KELSEY1'	KELSEY RED TWIG DOGWOOD	124	24" SPD.	FULL & BUSHY	NATIVE VARIETY
HS	HEMEROCALLIS 'STELLA D' ORO'	STELLA D' ORO DAYLILY	44	1 GAL.		-
HSR	HEMEROCALLIS 'ROSY RETURNS'	ROSY RETURNS DAYLILY	28	1 GAL.	-	-
JCG	JUNIPERUS CHINENSIS 'GASINO GOLD'	GASINO GOLD JUNIPER	78	24" SPD.	FULL & BUSHY	-
PV	PANICUM VIRGATUM 'SHENANDOAH'	SHENANDOAH SWITCH GRASS	98	1 GAL.	-	NATIVE CULTIVAR

NATIVE SPECIES SUMMARY (50% REQUIRED):

DESCRIPTION	TREES	SHRUBS	PERENNIALS & GRASSES	TOTAL / %
TOTAL NUMBER OF PLANTS	87	242	170	499
NATIVE, NATIVE HYBRID & NATIVE CULTIVARS	48	164	98	310 (62%)

PLANT CALCULATION TABLE:

1 TREE AND 3 SHRUBS REQUIRED FOR EVERY 5 PARKING SPACES
329 PARKING SPACES PROPOSED / 5 = 65.8

PLANTS	REQUIRED	PROPOSED
TREES 65.8 X 1	66 TREES REQUIRED	87 PROPOSED
SHRUBS 65.8 X 3	198 SHRUBS REQUIRED	242 PROPOSED

GRAPHIC SCALE

30 0 15 30 60 120

1 inch =30 ft.

THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM SITE DESIGN ASSOCIATES, ANY ALTERATIONS, OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO SITE DESIGN ASSOCIATES.

REV.	DATE	STATUS	BY	CHKD.	APPD.
D	6-5-23	REVISED PER CITY COMMENTS	PBB	PBB	TWS
C	4-11-23	REVISED PER CITY STAFF COMMENTS	PBB	PBB	TWS
B	1-3-23	REVISED PLANT QUANTITIES – NOT FOR CONSTRUCTION	PBB	PBB	TWS
A	12-5-22	ISSUED FOR PRICING ONLY – NOT FOR CONSTRUCTION	PBB	PBB	TWS

LICENSED LANDSCAPE ARCHITECT
PETER B. BIEGEL
No. 2624
STATE OF MAINE
6/5/23

Site Design Associates
Consulting Engineering & Land Planning
23 Whitney Way Topsham, Maine 04086 Tel: (207) 449-4275

CLIENT:
UNIVERSITY OF NEW ENGLAND
11 HILLS BEACH ROAD BIDDEFORD, MAINE 04005

DESIGN: DEPT.
DRAWN: DEPT.
CHKD: TWS
DATE: OCT. 2022
SCALE: 1" = 30'

PROJECT:
PARKING IMPROVEMENTS
INTERMODAL TRANSPORTATION FACILITY
BISHOP STREET PORTLAND, MAINE

LANDSCAPE PLAN

PROJ. NO. 21-216-00
DWG. NO. L-100
REV. D

Statistics						
Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min
Calc Zone	+	0.9 fc	8.6 fc	0.0 fc	N/A	N/A
Stat Zone	X	2.9 fc	5.0 fc	0.3 fc	16.7:1	9.7:1

Schedule												
Symbol	Label	Image	Quantity	Manufacturer	Catalog Number	Description	Emitter Count	Lumens Per Lamp	Light Loss Factor	Wattage	Plot
	A			Lithonia Lighting	DSX0 LED P1 40K T4M MVOLT	DSX0 LED P1 40K T4M MVOLT Area Luminaire, Size 0, P1 Performance Package, 4000K CCT, Type 4 Medium, Square Pole Mounted	1	10000	1	75.6345	
	B			Lithonia Lighting	DSX0 LED P1 40K T4M MVOLT	DSX0 LED P1 40K T4M MVOLT Area Luminaire, Size 0, P1 Performance Package, 4000K CCT, Type 4 Medium, Square Pole Mounted	1	10000	1	75.6345	
	C			Lithonia Lighting	DSX0 LED P1 40K T4M MVOLT	DSX0 LED P1 40K T4M MVOLT Area Luminaire, Size 0, P1 Performance Package, 4000K CCT, Type 4 Medium, Square Pole Mounted	1	10000	1	75.6345	
	D		6	Lithonia Lighting	DSX0 LED P1 40K T4M MVOLT	DSX0 LED P1 40K T4M MVOLT Area Luminaire, Size 0, P1 Performance Package, 4000K CCT, Type 4 Medium, Square Pole Mounted	1	10000	1	75.6345	

MOUNTED @30'-0", 27" POLE W/ A 3' BASE

MOUNTED @20'-0", 17" POLE W/ A 3' BASE

#20

#19

#18

1 STY WOOD BUILDING

BUILDING

PART "A"

PART "B"

PHOTOMETRY PART "A"

SCALE: 1"=20'-0"

VINCENT A. DiIORIO, INC.
CONSULTING ENGINEERS
89 Access Rd. Suite 18
Norwood, MA 02062
(781)255-9754 | vadjr@vadeng.com
www.vadeng.com

REVISIONS:

REV.:	DATE:	DESCRIPTION:

Favreau ELECTRIC
37 Jordan Avenue, Brunswick, ME 04011 * PH: 207-725-2005

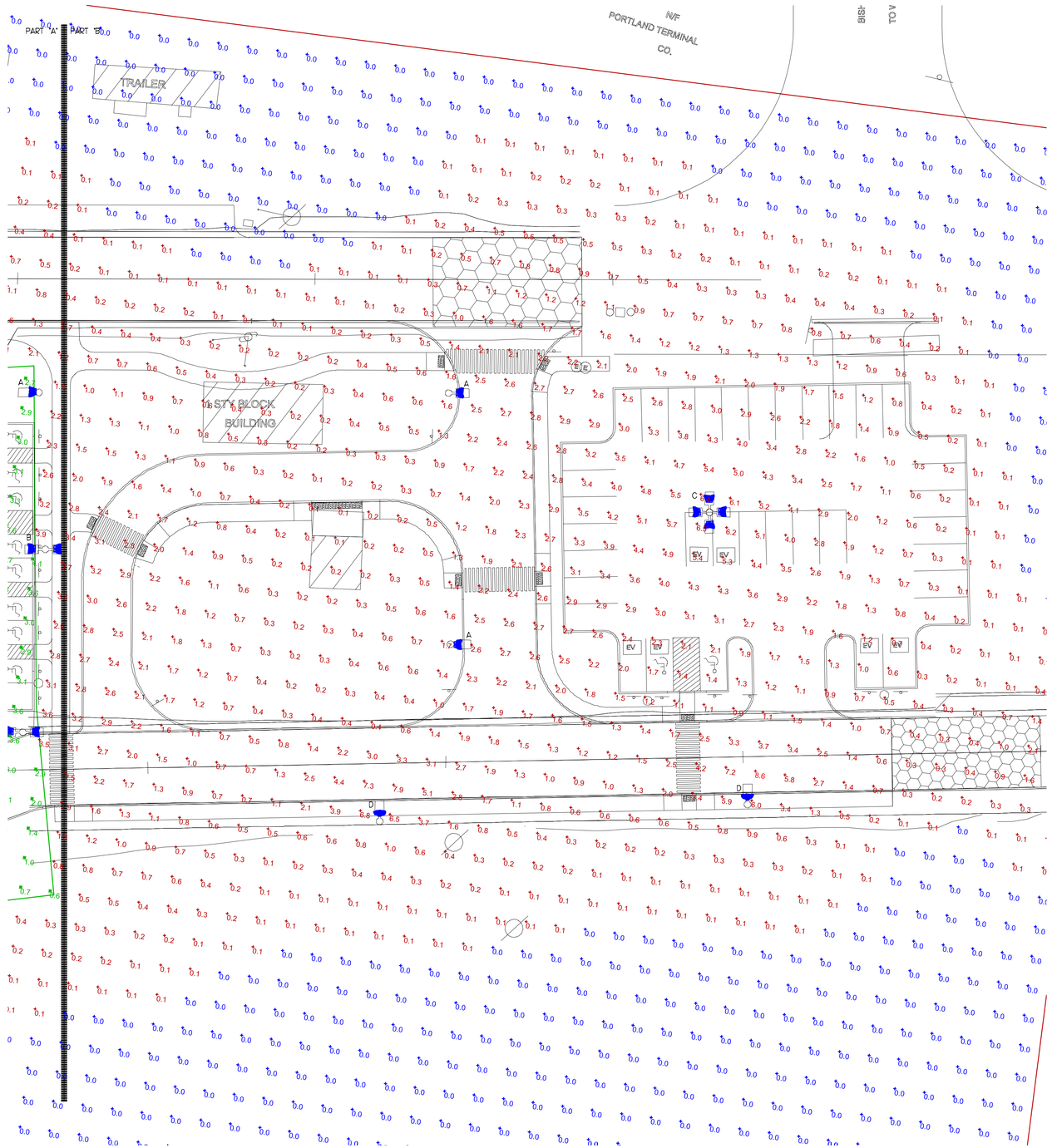
CLIENT:
UNIVERSITY OF NEW ENGLAND

PROJECT:
Intermodal Transportation, Facility, Parking Lot Improvements

DRAWING TITLE
PHOTOMETRY PART "A"

DRAWN:	CWQ
CHECKED:	VAD Jr
SCALE:	1"=20'=0"
DATE:	JUNE 06, 2023

PH1.1A



PHOTOMETRY PART "B"

SCALE: 1"=20'-0"

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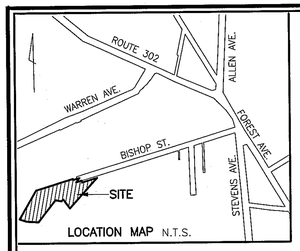
CLIENT:
UNIVERSITY OF NEW ENGLAND

PROJECT:
Intermodal Transportation, Facility, Parking Lot Improvements

DRAWING TITLE
PHOTOMETRY PART "B"

DRAWN:	CWQ
CHECKED:	VAD Jr
SCALE:	1"=20'=0"
DATE:	JUNE 06, 2023

PH1.1B



LOCATION MAP N.T.S.

LEGEND:

- IRON PIPE OR ROD FOUND
- GAS VALVE
- WATER VALVE
- HYDRANT
- UTILITY POLE
- LIGHT POLE
- MANHOLE
- CATCH BASIN
- SIGN
- FENCE
- CURB
- OU — OVERHEAD UTILITIES
- W — WATER MAIN
- G — GAS MAIN
- SS — SANITARY SEWER
- SD — STORM DRAIN
- 70 — EXISTING 1' CONTOUR
- WETLANDS

N:311260.76
E:2917000.01

5/8" IRON ROD

S07°38'40"W
28.00'

S82°21'20"E
159.71'

1/2" IRON ROD

50' CITY OF PORTLAND SEWER RIGHT OF WAY

BISHOP STREET EXTENSION TO WARREN AVE.

RIM=90.48 (CITY DATUM)
BENCHMARK MANHOLE
RIM AS SHOWN ON
PLAN REFERENCE 7

383.52'
S82°16'00"E
2.00'
1000.00'
S89°49'00"W
3/4" IPF BURIED 8"

BISHOP STREET EXT.

CONC. CURB

150.04'
S82°21'20"E

87.58'
S82°16'53"E

49.03'
S82°21'20"E

3.00'

50.00'

S07°43'07"W
57.00'

185.00'
S82°16'53"E
383.52'

WOOD PLATFORM

RR SPIKE

5' WOOD BUILDING

CONC.

PAVEMENT REMAINS

CENTERLINE CITY OF PORTLAND 30' DRAINAGE EASEMENT BOOK 12886 PAGE 214

N/F
PORTLAND TERMINAL CO,
RAILROAD LOCATION

S82°21'20"E
843.84'

STONE CURB

N:311141.80
E:2916063.70

3/4"IPF

50' CITY OF PORTLAND SEWER RIGHT OF WAY

PAVEMENT REMAINS

BUILDING

TOTAL AREA
836,442 S.F.
19.2202 AC.

CENTRAL MAINE POWER CO. EASEMENT BOOK 1108 PAGE 100

1000.95'
N86°49'00"E

N/F
WESTBROOK COLLEGE
TM 291-A-5

0.7'
3/4"IPF

TM 291-A-2
N/F
PORTLAND TERMINAL CO.

RECLAIMED PAVEMENT

152.38'
S54°44'00"E

58.60'
N82°54'00"E

271.62'
S12°09'58"E

N/F
CENTRAL MAINE POWER CO.

TWO 6"PVC

679.85'
N82°54'00"E

MON FOUND LEANING

N:310564.43
E:2916801.67

N55°10'07"E
808.62'

STANDING WATER

APPROXIMATE LOCATION OF MEANDERING BROOK

BROOK

5/8" IRON ROD

183.88'
S48°07'07"E

3/4"IPF

288.44'
S61°06'00"E

N:310370.79
E:2915983.69

5/8" IRON ROD

N/F
CENTRAL MAINE POWER CO.

GRAPHIC SCALE
0 30' 60' 120' 240'

NOTES:

1. OWNER OF RECORD: UNIVERSITY OF NEW ENGLAND, 11 HILLS BEACH ROAD, BIDDEFORD, MAINE C.C.R.D. BOOK 29387 PAGE 289.
2. THE SURVEYED PREMISES IS SHOWN AS LOT 1 ON THE CITY OF PORTLANDS ASSESSORS MAP 291 BLOCK A AND LOT 3 ON THE CITY OF PORTLAND ASSESSORS MAP 281 BLOCK A.
3. LOCATION OF UNDERGROUND UTILITIES SHOWN HEREON ARE APPROXIMATE AND SHOULD BE CONFIRMED PRIOR TO EXCAVATION OR CRITICAL DESIGN.
4. WETLANDS DELINEATED BY MARK HAMPTON AND SURVEY LOCATED BY OWEN HASKELL, INC.
5. BEARINGS SHOWN ARE PER PLAN REFERENCE 1, COORDINATES LISTED ARE MAINE STATE PLANE NAD 83 OBTAINED WITH STATIC GPS.

PLAN REFERENCES:

1. TOPOGRAPHIC SURVEY ON BISHOP STREET, PORTLAND, MAINE MADE FOR PIKE INDUSTRIES, INC. DATED JUNE 17, 1999 BY OWEN HASKELL, INC.
2. STANDARD BOUNDARY SURVEY OF BISHOP STREET EXTENSION DATED NOV. 1995 BY CITY OF PORTLAND PUBLIC WORKS DEPARTMENT.
3. RIGHT OF WAY AND TRACK MAP PORTLAND TERMINAL COMPANY STATION 135+04.0 TO STATION 187+84.0 DATED JUNE 30, 1916 VALUATION SHEET NUMBER V1-B/1.
4. PLAN OF LAND AND FARM CROSSING DATED FEBRUARY 1904 RECORDED IN REGISTRY OF DEEDS IN DEED BOOK 747 PAGE 58.
5. PLAN OF PROPERTY LOCATED IN PORTLAND, MAINE MADE FOR WARREN BROS. ROADS CO. DATED JUNE 22 1962.
6. PLANS ON FILE AT CENTRAL MAINE POWER COMPANY & SEWER PLANS AT CITY OF PORTLAND PUBLIC WORKS ENGINEERING DEPARTMENT.
7. CITY OF PORTLAND BISHOP STREET CONNECTOR STA. 0-100 TO STA. 3+50 AS-BUILT PLAN CITY TITLE 944/8.
8. PLAN OF LAND ON BISHOP STREET, PORTLAND, MAINE MADE FOR SITE DESIGN ASSOCIATES JUNE 15, 2012 BY OWEN HASKELL, INC.

CERTIFICATION:

OWEN HASKELL, INC. HEREBY CERTIFIES THAT THIS PLAN IS BASED ON, AND THE RESULT OF, AN ON THE GROUND FIELD SURVEY AND THAT TO THE BEST OF OUR KNOWLEDGE, INFORMATION AND BELIEF, IT CONFORMS TO THE BOARD OF LICENSURE FOR PROFESSIONAL LAND SURVEYORS CURRENT STANDARDS OF PRACTICE.

7/24/12
DATE

JOHN W. SWAN, PLS NO. 1038

STATE OF MAINE
JOHN W. SWAN
No. 1038
PROFESSIONAL LAND SURVEYOR

BOUNDARY SURVEY
ON
BISHOP STREET, PORTLAND, MAINE
MADE FOR RECORD OWNER
UNIVERSITY OF NEW ENGLAND
11 HILLS BEACH ROAD, BIDDEFORD, MAINE 04005

OWEN HASKELL, INC.
390 U.S. ROUTE ONE, FALMOUTH, ME 04105 (207)774-0424
PROFESSIONAL LAND SURVEYORS

Drwn By	RS	Date	Job No.
Trace By	JLW/SG	JULY 24, 2012	2012-059P
Check By	JWS	Scale	Drwg. No.
Book No.	1107	1" = 60'	1BND

Review Criteria:

- Portland's Site Plan Ordinance

GENERAL

- The maximum foot candle allowable for surface parking lot is 4, per Tech Manual standards. The value shown is 10.2. The average foot candle shall not be above .5 FC. Please adjust the photometric plan per Tech Manual Standards.
- Please confirm the lighting is full cut-off.
- Please confirm that the lighting is conforming to the lighting curfew standard, "For surface and structured parking, lighting in vehicle parking areas containing twenty or more spaces shall be reduced to 50% of permitted levels from one hour after the business (school) closing to one hour before business (school) opening."

TRANSPORTATION

- In the 35-space parking lot the aisle width exceeds the 24-foot dimensional city standard. A waiver request is required. I would note that one additional parking space could be added to the middle row (from 5 to 6 spaces), and a waiver could be requested for a reduced aisle width (22.75-foot aisle width). Given low parking space turnover, I would support a reduced aisle width in this area. Wide aisle widths also exist where Access Drive 2 intersects with the main parking lot., where 30 feet and 40 feet of pavement is provided. A waiver from the city's technical standards shall be provided.
- Additional information should be provided on the sidewalk connection between the new and existing sidewalk on the main access road near Station 0+50.
- Regulatory signage should be provided for the Shuttle Loop given that it is restricted to one-way flow.
- Access Drive 2 dead ends near the entrance to the 35-space parking lot. The design appears to consider extension of the roadway and sidewalk. The applicant should provide information that document future conditions.
- Access Drive 1 has a typical section with 28-feet of travel width and a 11-foot paved shoulder. The applicant should note the functional purpose of the paved 11-foot shoulder.
- The applicant shall provide internal pedestrian circulation (walkways for the users) throughout the entire parking lot.
- Provide a raised pedestrian walkway for each parking aisle. The overall width shall account for vehicle overhang resulting in a 5 ft min clearance at all times.

WATER QUALITY, STORMWATER, & INFRASTRUCTURE

- There are several sanitary sewer manholes that are currently inaccessible. These manholes need to be raised to grade prior to paving.
- The areas to be revegetated need to be tilled 9" before loam and seed; prefer a mix of woody vegetation and conservation seed mix.
- Design information for the level spreaders should be provided to ensure they are designed per DEP manual

LANDSCAPING & ENVIRONMENTAL QUALITY

- Trail Connectivity:
- This project is located along the proposed Riverton Neighborhood Byway and is well positioned to promote multi-model connectivity to neighboring trail systems at Evergreen Cemetery.
- A meeting between Portland Trails, Bruce Hyman and a representative of Parks, Recreation and Facilities would be very helpful for exploring opportunities to promote pedestrian connectivity between the proposed facility and the UNE campus as well as surrounding trails (both existing and proposed).
- Planting Design/Selection:
- On sheet C-200 a long stretch of parking-lot adjacent land is designated "Snow Storage Area". On Sheet L-100, this area is also identified to host dozens of new trees. There is a conflict of use with this zone- trees will not survive if the area is being used for snow storage. In order to maintain some shading of the parking lot and the desired amount of tree canopy, the City's recommendation is to cluster the trees in focused areas along the southern edge of the parking lot, leaving some continuous gaps between plantings to serve as snow-storage areas. Some proposed trees may be shifted downslope of the parking lot. Larches and Black Gum may thrive in the wetter conditions in these lower-lying areas. See notes on L-100.
- Maples make up a disproportionately large proportion of the City's tree canopy currently, so alternative species would be preferred where they are appropriate. Greater species diversity allows Portland's urban canopy to be more resilient to new pests and diseases.
- City arborists advise against clumping form birches because of its proclivity for splitting after several years of growth. This tendency makes these trees short-lived, irregular in appearance (due to cut/broken limbs) and costly to maintain as they mature. Single leader form of this tree is recommended.
- Suggest replacing Tilia tomentosa with Tilia americana. See notes on L-100
- 'Princeton' and 'Liberty' cultivars of American Elm have proven more resilient to disease and are better cultivar alternatives to 'Valley Forge' which has poor structure.
- Hostas will not survive in the parking lot, especially the large-leafed variety specified. The variety specified requires sheltered, part sun conditions. Suggest replacing this plant selection with a more tolerant native shrub or perennial.
- Thuja occientallis 'Mr. Bowling Ball' does not tolerate road salt and will exhibit significant foliage die-back in the proposed location.
- General Planting Selection Notes:
- Native species are preferred.
- Several native plants that have proven themselves resilient in parking lot islands include Prunus pumila var. Depressa, Diervilla lonicera, Comptonia peregrina, Myrica gale, Eubotrys racemosa.
- Others that could be good candidates for plantbeds not surrounded by parking: Ilex verticillata, Viburnum dentatum, Juniperus horizontalis cultivars, Arctostaphylos uva-ursi (straight species).
- Low-lying areas such as the stormwater filtration facilities could benefit from groundcover/shrub planting: Aronia melanocrpa, Azalea viscosum, Cephalanthus occidentalis, Cornus sericea, Clethra alnifolia, Ilex verticillata, Viburnum cassinoides, Panicum virgatum, Deschampsia cespitosa, Monarda fistulosa.

- Please add detail to landscaping plan to show plant selection, planting placement, grade changes, etc for further review.

LIGHTING

- Please update the lighting plan to meet the lighting curfew standard.
- Please update the photometric plan to reduce the foot candle to meet parking lot foot candle maximum.

TRAFFIC/TRANSPORTATION

- Please adjust the site plan to include an internal walkway for pedestrian safety. We are happy to send examples in the city for reference. The city and third-party traffic engineer are in support of a waiver to reduce the driveway aisle to 22 feet and the addition of compact parking spaces to accommodate internal walkways without increasing the imperviousness.
- The standard requires that the EV charging stations be Level 2 to 20% of the parking spaces, please update the plan to meet this standard.
- Please confirm if 50% of the parking spaces are EV ready.

LANDSCAPING

- The landscaping standard requiring at least 50% native plantings is not being met. The previous comment letter offered several native alternatives to help meet this standard.
- Parking lot landscaping requirements are not being met. The standard requires two trees per five spaces (or one tree and three shrubs).
- The street tree requirement is not being met. Three additional trees are needed along Bishop Street. Street tree alternative options are available in the Tech Manual.
- Please provide more information on the ground story of the revegetated areas.

STORMWATER

- The project is required to account for stormwater management in conformance with MaineDEP Chapter 500 and Section 5 of the City of Portland's Technical Manual. The site plan is proposing to provide two underdrained soil filters to provide treatment for a portion of the redeveloped parking lot. Here are the following comments:
    - Please confirm if a Site Location of Development Permit is required for this work. There have been past discussions about requirement for SLOD, and we recommend UNE consider that now, and how it may relate to future plans for development as well. MaineDEP has enforced the need for a SLOD on redevelopment projects based on thresholds redeveloped impervious area, including parking lots in their definition of impervious "structure". The project is proposing a significant decrease in impervious surface from the existing condition, but notes that the total proposed impervious area within the redevelopment is approximately 3.6 acres. This is greater than the 3 acre "structure" area that would trigger a SLOD permit submission. The application has completed the Maine DEP's redevelopment calculations, and relating these to the standards for SLOD, a minimum level of treatment required is 50% of the developed area. The stormwater treatment systems have been designed to treat greater than 50% of the impervious surface, and also treat some landscaped area. Based on these values, and the approximate total development size, it appears that the project will achieve the 50% threshold required, but please confirm. The City of Portland has delegated review for

SLOD applications, so the permit application would be provided to the City for review (it includes much of the information that is already submitted for Site Plan) and copies of the application are also provided to the DEP for their records.

- The MaineDEP BMP for this type of system includes some sizing thresholds, noting that the maximum filter area should be 3,000 SF. The second soil filter is provided with an area that is slightly greater than 3,000 SF.
- The underdrain soil filter detail appears to show the filters' underdrain piping connecting into the outlet control structure, however the plan view shows that the underdrain system discharges separately, and does not connect to the outlet control structure. Please consider connecting the OCS to the underdrain system, or provide further clarification on the detail.
- The header pipe that drains the underdrain systems from both soil filters has a very shallow slope. Please consider whether the outlet may back up one or both of the filter systems. Ball valves are provided in each filter – are these intended to be backflow preventers as well? We would also recommend updating the stormwater maintenance agreement to clarify that the adjustable orifice for this project will be a ball valve, such that maintenance can be planned for appropriately.

Site Design Associates
Consulting Engineering and Land Planning

April 27, 2023

Maya Balassa, Planner
City of Portland
Via email

RE: University of New England - Portland Campus
Major Site Plan Application for:
Intermodal Transportation Facility Reconstruction
Parcel ID 291 A001, 281 A003
160-172 Bishop Street
Responses to Staff Comments

Dear Maya;

On behalf of University of New England (UNE), Site Design Associates (SDA) is pleased to provide this response to review comments provided by the city in your April 4, 2023 review memorandum. We have listed each of your comments in the order they were presented in your memorandum followed by our responses.

1. **General comments:**

   Comment *The maximum foot candle allowable for surface parking lot is 4, per Tech Manual standards. The value shown is 10.2. The average foot candle shall not be above .5 FC. Please adjust the photometric plan per Tech Manual Standards.*

   Response: Please see the attached memorandum from our lighting engineer. They have expressed concern that the city is requiring what is generally considered an outdated standard, that would actually result in a less safe environment and significantly reduces the quality of CCTV monitoring. The city standard does not provide the safety and security UNE requires. This is a remote facility, with known transient/homeless persons residing in the abutting woods. There will be no off-site light trespass. The nature of the abutting properties is industrial, commercial, and university uses, with no residential uses. We prefer to keep the lighting as designed in the interest of the user safety and facility security, particularly given the somewhat remote location of this facility. Therefore, we request a waiver of these technical manual standards.

   Comment: *Please confirm the lighting is full cut-off.*

   Response: The fixtures are full cut-off luminaires that are Dark Skies compliant, DLC Premium listed and night-time friendly.

23 Whitney Way Topsham, Maine 04086
Phone: (207) 449-4275 email: info@sitedesignassociates.biz

Comment: *Please confirm that the lighting is conforming to the lighting curfew standard, "For surface and structured parking, lighting in vehicle parking areas containing twenty or more spaces shall be reduced to 50% of permitted levels from one hour after the business (school) closing to one hour before business (school) opening.*

Response: Given the graduate student population of the campus, the intermodal facility will be open and active 24 hours a day, seven days per week. Therefore, it appears this standard is not applicable.

2. **Transportation:**

Comment: *In the 35-space parking lot the aisle width exceeds the 24-foot dimensional city standard. A waiver request is required. I would note that one additional parking space could be added to the middle row (from 5 to 6 spaces), and a waiver could be requested for a reduced aisle width (22.75-foot aisle width). Given low parking space turnover, I would support a reduced aisle width in this area. Wide aisle widths also exist where Access Drive 2 intersects with the main parking lot., where 30 feet and 40 feet of pavement is provided. A waiver from the city's technical standards shall be provided.*

Response: If a waiver is required for aisle widths that are wider than the city minimum, please consider this a request for the waiver.

Comment: *Additional information should be provided on the sidewalk connection between the new and existing sidewalk on the main access road near Station 0+50.*

Response: The new sidewalk will tie into the existing sidewalk on the Bishop Street side of the existing pedestrian gate. Additional notes and spot grades have been provided on drawing C-300. We have also attached a photo sketch of the area.

Comment: *Regulatory signage should be provided for the Shuttle Loop given that it is restricted to one-way flow.*

Response: "Bus only" and "Do not enter" signage has been added to drawing C-201.

Comment: *Access Drive 2 dead ends near the entrance to the 35-space parking lot. The design appears to consider extension of the roadway and sidewalk. The applicant should provide information that document future conditions.*

Response: The design provides for a future internal connection to the campus. This would eliminate the need for the shuttle, Campus Service vehicles, and graduate students to travel on Bishop Street. This will also provide for travel from the campus and the new College of Osteopathic Medicine parking to the intermodal facility and the Campus Services structures on the site, without travel through Morrill's Corner. The access would be controlled through the use of gates at each end to prevent unauthorized users from utilizing the access to avoid Morrill's Corner. General public bicycle and pedestrian traffic would be permitted.

Comment: *Access Drive 1 has a typical section with 28-feet of travel width and a 11-foot paved shoulder. The applicant should note the functional purpose of the paved 11-foot shoulder.*

Response: There is a grade transition between the proposed edge of road and the existing grade. This entire area is currently paved. The paved swale is an integral part of the stormwater management plan, collecting and diverting upgradient runoff. The paved area also provides vehicular access to the existing adjacent paved area and Campus Services structures.

Comment: *The applicant shall provide internal pedestrian circulation (walkways for the users) throughout the entire parking lot.*

Comment: *Provide a raised pedestrian walkway for each parking aisle. The overall width shall account for vehicle overhang resulting in a 5 ft min clearance at all times.*

Response: UNE respectfully declines to implement these suggestions. We are unaware of any requirement in the code or technical manual which would be the basis for these requests. The technical manual transportation standard section 1.10.2. is "all spaces provided shall be safely accessible". We do not interpret this to mean all users need a sidewalk. All spaces are safely accessible and the layout of the spaces are typical for any parking lot of this nature throughout the city. The users of this lot will be graduate students and faculty, who generally will be in attendance for a much longer period of time during the day than the typical college student would be. The turnover on the spaces will be low. There is no history of vehicle/pedestrian conflicts in any UNE campus parking lot in Portland or Biddeford. Adding the walkways as suggested would result in a significant increase in impervious area in the Capisic Brook watershed, which directly contradicts the city goals for this area. Additionally, the walkways would be a hindrance to snow removal. Lastly, the additional cost of $200-250,000 associated with these requests will jeopardize some of the associated benefits that come with the improvements, including:

1) Safety enhancements including emergency call boxes and camera upgrades;
2) New lighting;

3) Removal of 96,940 sf of impervious surface;
4) Enhanced vehicular circulation, including for the UNE shuttle between the facility and the main campus;
5) Elimination of trip hazards;
6) The addition of significant landscaping and trees;
7) Construction of stormwater quality enhancement facilities, and;
8) The installation of new EV charging stations;

It is our opinion that the sidewalk along Access Drive 1 and along the easterly edge of the parking lot (adjacent to the ADA spaces) provide adequate internal pedestrian circulation within the site from the parking lot to the bus stop.

Further, recall we had a very productive meeting with city staff and Portland Trails on April 26 to discuss the vision for a 30-mile bike path system and walking path connectivity in the city. It was apparent to all that a component crucial to both will require access through and improvements on UNE's property. In the spirit of cooperation UNE committed to working with all parties to facilitate this vision. We are in hopes that this spirit of cooperation and need for compromise will extend to this project.

3. Water Quality, Stormwater, & Infrastructure

Comment: *There are several sanitary sewer manholes that are currently inaccessible. These manholes need to be raised to grade prior to paving.*

Response: This was previously addressed on drawing C-401.

Comment: *The areas to be revegetated need to be tilled 9" before loam and seed; prefer a mix of woody vegetation and conservation seed mix.*

Response: A note has been added to sheet C-201 indicating the tilling requirement. See the landscape plan for revegetation information.

Comment: *Design information for the level spreaders should be provided to ensure they are designed per DEP manual*

Response: There is only one level spreader proposed for this project.
A detail for the level spreader was provided on sheet C-503.
The 10-year flow to level spreader is 21.6 CFS. DEP requires a length of 1 foot per 0.25 CFS, which would require a length of 87' feet for this level spreader. The proposed level spreader is 96 feet long.

4. Landscaping and Environmental Quality

Comment: This project is located along the proposed Riverton Neighborhood Byway and is well positioned to promote multi-model connectivity to neighboring trail systems at Evergreen Cemetery. A meeting between Portland Trails, Bruce Hyman and a representative of Parks, Recreation and Facilities would be very helpful for exploring opportunities to promote pedestrian connectivity between the proposed facility and the UNE campus as well as surrounding trails (both existing and proposed).

Response: A meeting has been scheduled for April 25.

Comment: *On sheet C-200 a long stretch of parking-lot adjacent land is designated "Snow Storage Area". On Sheet L-100, this area is also identified to host dozens of new trees. There is a conflict of use with this zone- trees will not survive if the area is being used for snow storage. In order to maintain some shading of the parking lot and the desired amount of tree canopy, the City's recommendation is to cluster the trees in focused areas along the southern edge of the parking lot, leaving some continuous gaps between plantings to serve as snow-storage areas. Some proposed trees may be shifted downslope of the parking lot. Larches and Black Gum may thrive in the wetter conditions in these lower-lying areas. See notes on L-100.*

Response: The landscape plan has been revised to show the trees along the south side of the parking area clustered and pulled back off the edge of pavement to allow for snow storage with minimal conflict with trees. American Larch trees have been used in the area just below the level spreader.

Comment: *Maples make up a disproportionately large proportion of the City's tree canopy currently, so alternative species would be preferred where they are appropriate. Greater species diversity allows Portland's urban canopy to be more resilient to new pests and diseases.*

Response: We have revised the plant list to reduce the percentage of proposed Maple trees.

Comment: *City arborists advise against clumping form birches because of its proclivity for splitting after several years of growth. This tendency makes these trees short-lived, irregular in appearance (due to cut/broken limbs) and costly to maintain as they mature. Single leader form of this tree is recommended.*

Response: The clump birch trees have been changed to single leader trees.

Comment: *Suggest replacing Tilia tomentosa with Tilia americana. See notes on L-100.*

Response: We have not changed the Sterling Linden to the American Linden due to what we believe is the American Linden's greater susceptibility to the Japanese Beetle.

Comment: *'Princeton' and 'Liberty' cultivars of American Elm have proven more resilient to disease and are better cultivar alternatives to 'Valley Forge' which has poor structure.*

Response: We were unaware of the issues with the structure of the 'Valley Forge' Elm. We have changed the Valley Forge Elm to the 'Princeton' American Elm.

Comment: *Hostas will not survive in the parking lot, especially the large-leafed variety specified. The variety specified requires sheltered, part sun conditions. Suggest replacing this plant selection with a more tolerant native shrub or perennial.*

Response: We have changed the 18 Hosta plants to daylilies to match the other islands.

Comment: *Thuja occidentalis 'Mr. Bowling Ball' does not tolerate road salt and will exhibit significant foliage die-back in the proposed location.*

Response: We have replaced the 9 'Mr. Bowling Ball' shrubs with the 'Gold Lace' Juniper.

Comment: *Native species are preferred.*

Response: We try to use native species where possible, but sometimes the site challenges, design and maintenance considerations requird the use of non-natives to give us the best overall outcome.

Comment: *Several native plants that have proven themselves resilient in parking lot islands include Prunus pumila var. Depressa, Diervilla lonicera, Comptonia peregrina, Myrica gale, Eubotrys racemosa.*

Response: We will investigate these plants for possible use in the future.

Comment: *Others that could be good candidates for plantbeds not surrounded by parking: Ilex verticillata, Viburnum dentatum, Juniperus horizontalis cultivars, Arctostaphylos uva-ursi (straight species).*

Response: We will investigate these plants for possible use in the future.

Comment: *Low-lying areas such as the stormwater filtration facilities could benefit from groundcover/shrub planting: Aronia melanocrpa, Azalea viscosum, Cephalanthus occidentalis, Cornus sericea, Clethra alnifolia, Ilex verticillata, Viburnum cassinoides, Panicum virgatum, Deschampsia cespitosa, Monarda fistulosa.*

Response: We agree the addition of the above groundcover and shrubs may be of benefit. However, we have had success with the meadow mix we have specified and it allows the stormwater areas to be mowed once a year which helps keep the invasives out.

Comment: *Please add detail to landscaping plan to show plant selection, planting placement, grade changes, etc for further review.*

Response: The layers showing the proposed and existing contours have been turned on.

A revised landscape plan is attached.

If you have any questions, or require additional information, please do not hesitate to contact me.

Sincerely,
Site Design Associates

Tom Saucier, P.E.
President

c: Alan Thibeault, Vice President for Campus Operations

VINCENT A. DiIORIO, INC.
CONSULTING ENGINEERS
89 Access Road, Suite 18
Norwood, Massachusetts, 02062

April 21, 2023

Saucier Design Associates
23 Whitney Way
Topsham, Maine 04086
Attention: Tom Saucier
tsaucier@sitedesignassociates.biz

RE: University of New England
Intermodal Parking Lot
Bishop Street
Portland, ME

SUBJECT: Site Lighting

Dear Tom,

The proposed parking lot area is approximately 95,500 square feet and our current design consists of 30'-0" poles with single lighting fixtures around the perimeter of the parking lot and dual lighting fixtures located on the inboard islands within the lot.

The University standard lighting fixture is the Lithonia Lighting RSX2 LED family of site lighting fixtures. The fixtures that are being used are a full cut-off luminaire that is Dark Skies compliant, DLC Premium listed and night-time friendly.

Each lighting fixture delivers 11,285 lumens and consumes 71 watts of power, uses a Type 3 lighting distribution and the Correlated Color Temperature (CCT) is 4000 Kelvin.

This system delivers an average footcandle value of 2.5 with a maximum of 10.2 and a minimum of 0.1 foot-candles with minimal light trespass. The maximum value is directly under the light fixture.

In accordance with the recommendations from the Illuminating Engineering Society of North America (IES-NA) publication RP-20, outdoor lighting, parking garages and security lighting levels are between 2-5 footcandles and is generally designed with 4000 – 5000 CCT. This CCT combined with the illumination levels, provides a safer environment for both pedestrian and vehicle traffic and allows viewing of the full color spectrum whenever the lighting is activated.

This lighting design is also consistent with the previous design that was approved by the City of Portland for the Harold and Bibby Alfond Center for Health and Sciences on Stevens Avenue.

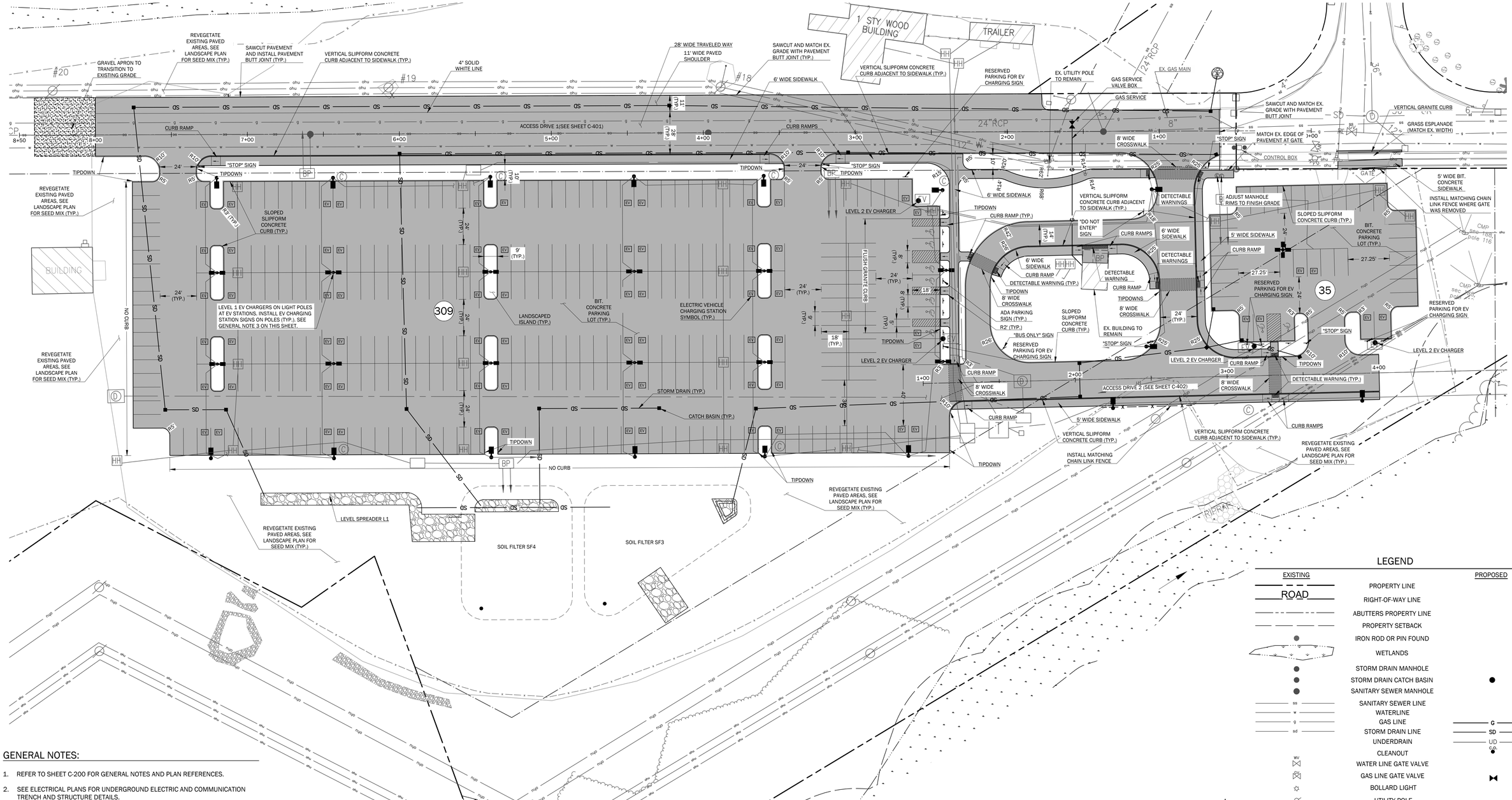
Based on the above-mentioned information, this office would request that the design be accepted as designed.

If you any questions regarding the topic above, please do not hesitate to contact this office.

Very Truly Yours,
VINCENT A. DIIORIO INC.

Vincent A. Dilorio Jr.
President

tel: (781) 255-9754, *email:* vadjr@vadeng.com



GENERAL NOTES:

1. REFER TO SHEET C-200 FOR GENERAL NOTES AND PLAN REFERENCES.
2. SEE ELECTRICAL PLANS FOR UNDERGROUND ELECTRIC AND COMMUNICATION TRENCH AND STRUCTURE DETAILS.
3. "EV" PAINT MARKINGS FOR LEVEL 1 CHARGING STATIONS IS FOR GRAPHICAL PLAN PURPOSES ONLY. PAVEMENT MARKINGS SHALL NOT BE INSTALLED AT LEVEL 1 CHARGING STATIONS. SIGNAGE FOR LEVEL 1 CHARGING STATIONS SHALL BE INSTALLED ON THE ADJACENT LIGHT POLES USING ONE SIGN FOR TWO SPOTS WITH DOUBLE ARROW.
4. LEVEL 2 EV CHARGERS SHALL BE PROVIDED WITH SIGNAGE AND "EV" PAINT MARKINGS.
5. AREAS OF EXISTING GRAVEL AND PAVEMENT THAT ARE TO BE REVEGETATED SHALL BE TILLED TO A DEPTH OF 9" BEFORE SPREADING LOAM AND APPLYING SEED MIXTURE.

LEGEND

EXISTING		PROPOSED
	PROPERTY LINE	
ROAD	RIGHT-OF-WAY LINE	
	ABUTTERS PROPERTY LINE	
	PROPERTY SETBACK	
	IRON ROD OR PIN FOUND	
	WETLANDS	
	STORM DRAIN MANHOLE	
	STORM DRAIN CATCH BASIN	
	SANITARY SEWER MANHOLE	
ss	SANITARY SEWER LINE	
w	WATERLINE	
g	GAS LINE	G
sd	STORM DRAIN LINE	SD
	UNDERDRAIN	UD
	CLEANOUT	CO
WV	WATER LINE GATE VALVE	
	GAS LINE GATE VALVE	
	BOLLARD LIGHT	
	UTILITY POLE	
	HYDRANT	
	BUILDING	
	EDGE OF PAVEMENT	
	CURB	
100	INDEX CONTOUR	100
101	INTERMEDIATE CONTOUR	101
	EDGE OF GRAVEL	
	RIPRAP	

GRAPHIC SCALE

30 0 15 30 60 120

1 inch = 30 ft.

TAX MAP I.D.
291 A001
281 A003

THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM SITE DESIGN ASSOCIATES, ANY ALTERATIONS, OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO SITE DESIGN ASSOCIATES.

REV.	DATE	STATUS	BY	CHKD.	APPD.
D	4/25/2023	REVISED PER CITY COMMENTS	DEPT.	TWS	TWS
C	1/20/2023	FOR CITY REVIEW	DEPT.	TWS	TWS
B	12/21/2022	FOR PRICING ADDENDUM 1 ONLY - NOT FOR CONSTRUCTION	DEPT.	TWS	TWS
A	12/5/2022	FOR PRICING ONLY - NOT FOR CONSTRUCTION	DEPT.	TWS	TWS

STATE OF MAINE — THOMAS W. SAUCIER NO. 6026 — LICENSED PROFESSIONAL ENGINEER — 4/25/2023

Site Design Associates
Consulting Engineering & Land Planning
23 Whitney Way Topsham, Maine 04086 Tel: (207) 449-4275

CLIENT:
UNIVERSITY OF NEW ENGLAND
11 HILLS BEACH ROAD BIDDEFORD, MAINE 04005

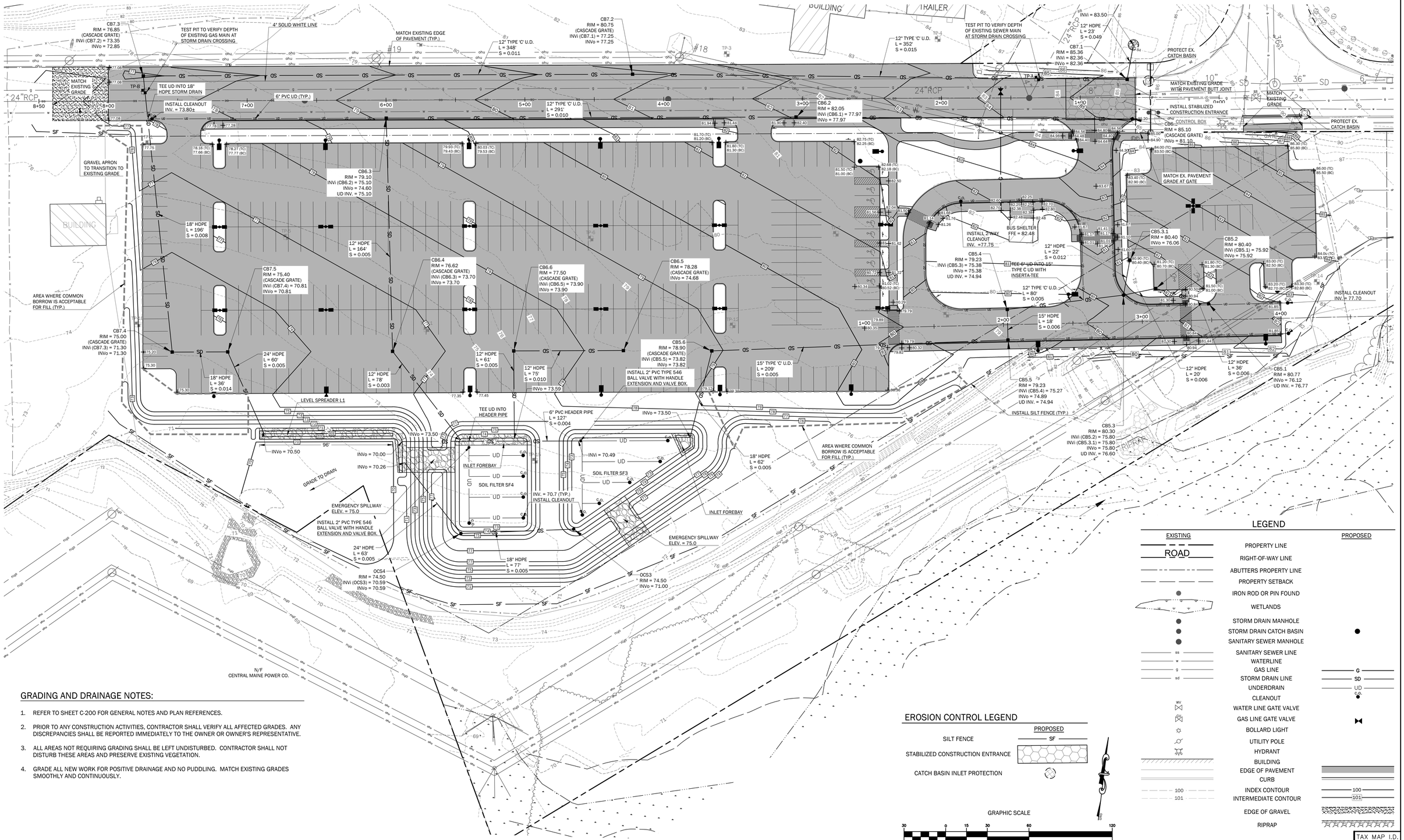
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DRAWN: DEPT.
CHKD: TWS
DATE: DEC. 2022
SCALE: 1" = 30'

PROJECT: RECONSTRUCTION OF INTERMODAL TRANSPORTATION FACILITY AND PARKING
160–172 BISHOP STREET PORTLAND, MAINE

SITE LAYOUT AND UTILITY PLAN

PROJ. NO. 21–216–00
DWG. NO. C–201
REV. D

Drawing Name: C:\Users\tSaucier\Desktop\Desktop Drawings\21-042 UNE Connector Road\Drawings\21-042 Base_Updated_City | Plot Date / Time: Apr. 25, 23 / 1:55 PM



GRADING AND DRAINAGE NOTES:

1. REFER TO SHEET C-200 FOR GENERAL NOTES AND PLAN REFERENCES.
2. PRIOR TO ANY CONSTRUCTION ACTIVITIES, CONTRACTOR SHALL VERIFY ALL AFFECTED GRADES. ANY DISCREPANCIES SHALL BE REPORTED IMMEDIATELY TO THE OWNER OR OWNER'S REPRESENTATIVE.
3. ALL AREAS NOT REQUIRING GRADING SHALL BE LEFT UNDISTURBED. CONTRACTOR SHALL NOT DISTURB THESE AREAS AND PRESERVE EXISTING VEGETATION.
4. GRADE ALL NEW WORK FOR POSITIVE DRAINAGE AND NO PUDDLING. MATCH EXISTING GRADES SMOOTHLY AND CONTINUOUSLY.

EROSION CONTROL LEGEND

	PROPOSED
SILT FENCE	SF
STABILIZED CONSTRUCTION ENTRANCE	
CATCH BASIN INLET PROTECTION	

GRAPHIC SCALE

30 0 15 30 60 120

1 inch =30 ft.

LEGEND

EXISTING		PROPOSED
	PROPERTY LINE	
ROAD	RIGHT-OF-WAY LINE	
	ABUTTERS PROPERTY LINE	
	PROPERTY SETBACK	
	IRON ROD OR PIN FOUND	
	WETLANDS	
	STORM DRAIN MANHOLE	
	STORM DRAIN CATCH BASIN	
	SANITARY SEWER MANHOLE	
ss	SANITARY SEWER LINE	
w	WATERLINE	
g	GAS LINE	G
sd	STORM DRAIN LINE	SD
	UNDERDRAIN	UD
	CLEANOUT	C.O.
wv	WATER LINE GATE VALVE	
gv	GAS LINE GATE VALVE	
	BOLLARD LIGHT	
	UTILITY POLE	
	HYDRANT	
	BUILDING	
	EDGE OF PAVEMENT	
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100	INDEX CONTOUR	100
101	INTERMEDIATE CONTOUR	101
	EDGE OF GRAVEL	
	RIPRAP	

TAX MAP I.D.
291 A001
281 A003

THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM SITE DESIGN ASSOCIATES, ANY ALTERATIONS, OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO SITE DESIGN ASSOCIATES.

REV.	DATE	STATUS	BY	CHKD.	APPD.
D	4/25/2023	REVISED PER CITY COMMENTS	DEPT.	TWS	TWS
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STATE OF MAINE — THOMAS W. SAUCIER NO. 6026 — LICENSED PROFESSIONAL ENGINEER
4/25/2023

Site Design Associates
Consulting Engineering & Land Planning
23 Whitney Way Topsham, Maine 04086 Tel: (207) 449-4275

CLIENT:
UNIVERSITY OF NEW ENGLAND
11 HILLS BEACH ROAD BIDDEFORD, MAINE 04005

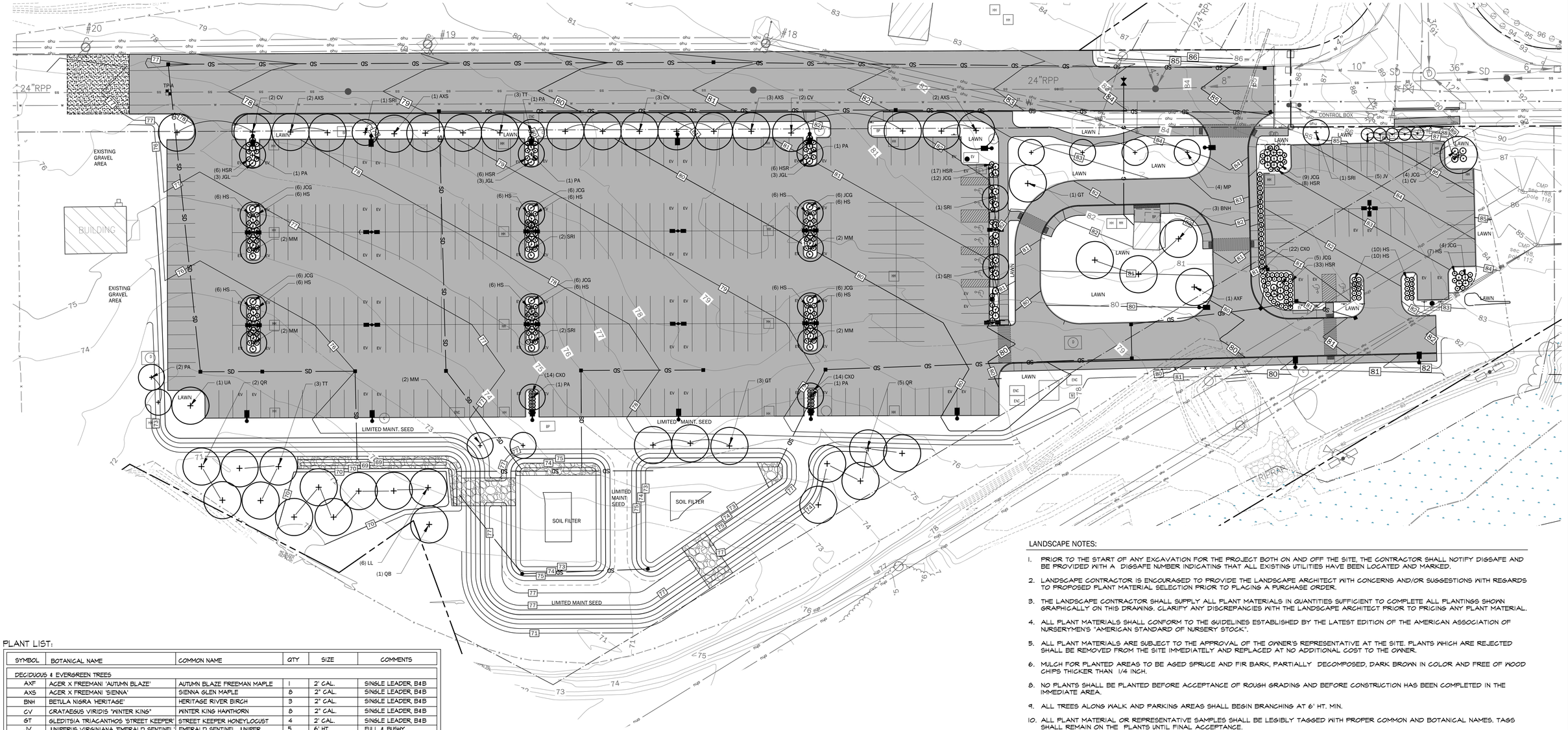
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DRAWN: DEPT.
CHKD: TWS
DATE: DEC. 2022
SCALE: 1" = 30'

PROJECT:
RECONSTRUCTION OF INTERMODAL TRANSPORTATION FACILITY AND PARKING
160–172 BISHOP STREET PORTLAND, MAINE

OVERALL GRADING, DRAINAGE, AND EROSION AND SEDIMENTATION CONTROL PLAN

PROJ. NO. 21–216–00
DWG. NO. C–300
REV. D

Drawing Name: C:\Users\Staci\Desktop\Desktop Drawings\21-042 UNE Connector Road\Drawings\21-042 Base_Updated_City | Plot Date / Time: Apr. 25, 23 / 1:54 PM



LANDSCAPE NOTES:

1. PRIOR TO THE START OF ANY EXCAVATION FOR THE PROJECT BOTH ON AND OFF THE SITE, THE CONTRACTOR SHALL NOTIFY DIGSAFE AND BE PROVIDED WITH A DIGSAFE NUMBER INDICATING THAT ALL EXISTING UTILITIES HAVE BEEN LOCATED AND MARKED.
2. LANDSCAPE CONTRACTOR IS ENCOURAGED TO PROVIDE THE LANDSCAPE ARCHITECT WITH CONCERNS AND/OR SUGGESTIONS WITH REGARDS TO PROPOSED PLANT MATERIAL SELECTION PRIOR TO PLACING A PURCHASE ORDER.
3. THE LANDSCAPE CONTRACTOR SHALL SUPPLY ALL PLANT MATERIALS IN QUANTITIES SUFFICIENT TO COMPLETE ALL PLANTINGS SHOWN GRAPHICALLY ON THIS DRAWING. CLARIFY ANY DISCREPANCIES WITH THE LANDSCAPE ARCHITECT PRIOR TO PRICING ANY PLANT MATERIAL.
4. ALL PLANT MATERIALS SHALL CONFORM TO THE GUIDELINES ESTABLISHED BY THE LATEST EDITION OF THE AMERICAN ASSOCIATION OF NURSERYMEN'S "AMERICAN STANDARD OF NURSERY STOCK".
5. ALL PLANT MATERIALS ARE SUBJECT TO THE APPROVAL OF THE OWNER'S REPRESENTATIVE AT THE SITE. PLANTS WHICH ARE REJECTED SHALL BE REMOVED FROM THE SITE IMMEDIATELY AND REPLACED AT NO ADDITIONAL COST TO THE OWNER.
6. MULCH FOR PLANTED AREAS TO BE AGED SPRUCE AND FIR BARK, PARTIALLY DECOMPOSED, DARK BROWN IN COLOR AND FREE OF WOOD CHIPS THICKER THAN 1/4 INCH.
8. NO PLANTS SHALL BE PLANTED BEFORE ACCEPTANCE OF ROUGH GRADING AND BEFORE CONSTRUCTION HAS BEEN COMPLETED IN THE IMMEDIATE AREA.
9. ALL TREES ALONG WALK AND PARKING AREAS SHALL BEGIN BRANCHING AT 6' HT. MIN.
10. ALL PLANT MATERIAL OR REPRESENTATIVE SAMPLES SHALL BE LEGIBLY TAGGED WITH PROPER COMMON AND BOTANICAL NAMES. TAGS SHALL REMAIN ON THE PLANTS UNTIL FINAL ACCEPTANCE.
11. CONTRACTOR SHALL LOAM DISTURBED AREAS AS FOLLOWS:
    - LAWN AREAS 6" DEPTH OF TOPSOIL (LOAM)
    - SHRUB BEDS IN CURBED PARKING LOT ISLANDS AND FILL AREAS 18" DEPTH OF TOPSOIL (LOAM).
    - TREE AREAS (10'X10') AROUND EACH TREE INSTALL 24" DEPTH OF TOPSOIL (LOAM).
12. SEED MIXTURES FOR AREAS TO BE SEEDED SHALL BE AS FOLLOWS.

    - LIMITED MAINTENANCE AREAS AND SOIL FILTERS ARE TO BE SEEDED WITH NEW ENGLAND CONSERVATION/WILDLIFE MIX AS DISTRIBUTED BY NEW ENGLAND WETLAND PLANTS, INC. 800 MAIN STREET, AMHERST, MA 01002 (413) 256-1752. APPLY AT A RATE OF 1LB PER 1745 SF. OR APPROVED EQUAL.

    - LAWN AREAS SHALL BE SEEDED WITH "PARK MIX" AS DISTRIBUTED BY ALLEN, STERLING AND LOTHRUP OF FALMOUTH MAINE. SEEDING RATE TO BE 5 LBS PER 1,000 S.F.
13. CONTRACTOR SHALL BEGIN MAINTENANCE IMMEDIATELY AFTER PLANTING AND WILL CONTINUE UNTIL FINAL ACCEPTANCE. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL MEANS AND METHODS OF WATERING AND MAINTENANCE.
14. THE LANDSCAPE CONTRACTOR SHALL GUARANTEE ALL PLANT MATERIALS FOR ONE (1) FULL YEAR FROM DATE OF FINAL ACCEPTANCE.
15. SCREENED IMAGES SHOW EXISTING CONDITIONS. WHERE EXISTING CONDITIONS LIE UNDER OR ARE IMPINGED UPON BY PROPOSED BUILDINGS AND OR SITE ELEMENTS, THE EXISTING CONDITION WILL BE REMOVED, ABANDONED AND OR CAPPED OR DEMOLISHED AS REQUIRED.
16. SEE CIVIL DRAWINGS FOR ADDITIONAL INFORMATION.
17. THE CONTRACTOR SHALL INSTALL WATERING BAGS SUCH AS THE TREEGATOR ON ALL TREES AT THE TIME OF INSTALLATION. THESE BAGS SHALL REMAIN ON THE TREES UNTIL FREEZING TEMPERATURES.

PLANT LIST:

SYMBOL	BOTANICAL NAME	COMMON NAME	QTY	SIZE	COMMENTS
DECIDUOUS & EVERGREEN TREES					
AXF	ACER X FREEMANI 'AUTUMN BLAZE'	AUTUMN BLAZE FREEMAN MAPLE	1	2" CAL.	SINGLE LEADER, B&B
AXS	ACER X FREEMANI 'SIENNA'	SIENNA GLEN MAPLE	8	2" CAL.	SINGLE LEADER, B&B
BNH	BETULA NIGRA 'HERITAGE'	HERITAGE RIVER BIRCH	3	2" CAL.	SINGLE LEADER, B&B
CV	CRATAEGUS VIRIDIS 'WINTER KING'	WINTER KING HAWTHORN	8	2" CAL.	SINGLE LEADER, B&B
GT	GLEDITSIA TRIACANTHOS 'STREET KEEPER'	STREET KEEPER HONEYLOCUST	4	2" CAL.	SINGLE LEADER, B&B
JV	JUNIPERUS VIRGINIANA 'EMERALD SENTINEL'	EMERALD SENTINEL JUNIPER	5	6' HT.	FULL & BUSHY
LL	LARIX LARCINA	TAMARACK	6	5' HT.	SINGLE LEADER, B&B
MP	MALUS PRAIRIE ROSE	PRAIRIE ROSE CRABAPPLE	4	2" CAL.	SINGLE LEADER, B&B
MM	MALUS MARILEE	MARILEE CRABAPPLE	10	2" CAL.	SINGLE LEADER, B&B
PA	PRUNUS X ACCOLADE	ACCOLADE CHERRY	8	2" CAL.	SINGLE LEADER, B&B
QB	QUERCUS BICOLOR	SWAMP WHITE OAK	1	2" CAL.	SINGLE LEADER, B&B
QR	QUERCUS RUBRA	RED OAK	7	2" CAL.	SINGLE LEADER, B&B
SRI	SYRINGA RETICULATA 'IVORY SILK'	IVORY SILK JAPANESE TREE LILAC	8	2" CAL.	SINGLE LEADER, B&B
TT	TILIA TOMENTOSA 'STERLING'	SILVER LINDEN	6	2" CAL.	SINGLE LEADER, B&B
UA	ULMUS AMERICANA 'PRINCETON'	PRINCETON AMERICAN ELM	1	2" CAL.	SINGLE LEADER, B&B
SHRUBS, GROUNDCOVERS & HERBACEOUS MATERIALS					
CXO	CALAMAGROSTIS A. 'OVERDAM'	OVERDAM FEATHER REED GRASS	50	1 GAL.	-
HS	HEMEROCALLIS 'STELLA D' ORO'	STELLA D' ORO DAYLILY	99	1 GAL.	
HSR	HEMEROCALLIS 'ROSY RETURNS'	ROSY RETURNS DAYLILY	76	1 GAL.	-
JCG	JUNIPERUS CHINENSIS 'CASINO GOLD'	CASINO GOLD JUNIPER	70	24" SPD.	FULL & BUSHY
JGL	JUNIPERUS CHINESIS 'GOLD LACE'	GOLD LACE JUNIPER	9	24" HT.	FULL & BUSHY

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REV.	DATE	STATUS	BY	CHKD.	APPD.
C	4-11-23	REVISED PER CITY STAFF COMMENTS	PBB	PBB	TWS
B	1-3-23	REVISED PLANT QUANTITIES - NOT FOR CONSTRUCTION	PBB	PBB	TWS
A	12-5-22	ISSUED FOR PRICING ONLY - NOT FOR CONSTRUCTION	PBB	PBB	TWS

LICENSED LANDSCAPE ARCHITECT
PETER B. BIEGEL
No. 2624
STATE OF MAINE
4/11/23

Site Design Associates
Consulting Engineering & Land Planning
23 Whitney Way Topsham, Maine 04086 Tel: (207) 449-4275

CLIENT:
UNIVERSITY OF NEW ENGLAND
11 HILLS BEACH ROAD BIDDEFORD, MAINE 04005

DESIGN: DEPT.
DRAWN: DEPT.
CHKD: TWS
DATE: OCT. 2022
SCALE: 1" = 30'

PROJECT:
PARKING IMPROVEMENTS
INTERMODAL TRANSPORTATION FACILITY
BISHOP STREET PORTLAND, MAINE

LANDSCAPE PLAN

PROJ. NO. 21-216-00 REV. C
DWG. NO. L-100

UNIVERSITY OF NEW ENGLAND

INNOVATION FOR A HEALTHIER PLANET

Transportation Demand Management Plan

Updated April 2022



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UNIVERSITY OF NEW ENGLAND

INNOVATION FOR A HEALTHIER PLANET

Introduction

University of New England's Portland Campus has been a member of the Portland community and a provider of quality and inclusive education since its inception in 1831 as the Westbrook Seminary. The campus has been strategically transformed since its modest beginning, in both size and curriculum, to meet the secondary educational and work force needs of the Portland, Maine area and beyond.

Purpose of the TDM Plan

University of New England's, UNE's, Transportation Demand Management Plan, in effect since 2010, is intended to provide a comprehensive strategy towards reducing the amount of single-occupancy vehicles coming to campus and seeks to promote multimodal accessibility to and from the University's Portland campus. UNE is continually updating the plan and is always considering enhancements to encourage more walking, cycling and public transportation use by its students, faculty and staff.

UNE believes that its promotion of alternative modes of transportation and success in transportation demand management has and will continue to positively impact the City's issues with traffic in and around the Morrill's Corner node and routes feeding to it.

UNE offers transportation alternatives designed to preserve the green spaces on campus and to reduce our carbon footprint, in concert with one of the University's Core Values; Stewardship of Our Planet.

Mission, Vision and Core Values

The University of New England is directed by its Mission, Vision Statement and Core Values. These were utilized to create the Strategic Plan 2018-2023, *Our World, Our Future*.

MISSION

The University of New England prepares students to thrive in a rapidly changing world and, in so doing, to improve the health of people, communities, and our planet.

VISION

We will realize this mission by committing to a distinctive approach to education that will make UNE among the most experientially driven institutions of higher education in the nation. We will provide teaching and learning that conjoins problem-based and hands-on learning, liberal education, and professional training to immerse students in an educational experience that prepares them with:

• Habits of mind, such as cultural, quantitative, and information literacy, critical thinking, tolerance for ambiguity, and problem solving;

• Discipline-based knowledge in their chosen programs of study; and

• Professional competencies, including emotional intelligence, the ability to collaborate in diverse teams, communicate persuasively, and be a thoughtful leader.

We are an institution that challenges students to learn broadly, master their professional skills, and ask probing questions. In this way, they will prepare themselves for further study and successful careers, deeply rewarding lives, and meaningful contributions to their communities and the world.

CORE VALUES

We are guided by the following values, essential to the culture of the UNE community.

Student Centeredness - We put the aspirations, needs, and success of our students at the center of all we do.

Diversity, Inclusion, Connection - We believe the benefits of a richly varied campus community arise not only from the diversity of its people but also from a sense of belonging and the context this creates to explore and celebrate differences in backgrounds, experiences, and perspectives, underpinned by a sense of cultural humility and a commitment to ethical ideals.

Relentless Inquiry - We take nothing for granted and view thoughtful—even uncomfortable—questioning as essential to the pursuit of knowledge, contribution to society, and a life worth living. Our commitment to University-wide academic freedom is fundamental to this value.

Boundary Crossing - Solutions to the complex and varied challenges we face in our personal and professional lives, our communities, and society will not be found in any single discipline, college, physical location, or individual. Thus, our ability to move easily across such boundaries in order to collaborate with colleagues makes us better problem solvers and more likely of success in whatever ventures we undertake.

Learning Everywhere - We believe that teaching and learning should occur beyond traditional classrooms and laboratories—in any place ripe for inquiry and experimentation, including clinics, environmental and field-study sites, online forums, libraries, museums, theaters, and places of civic engagement, among many others.

Progressive Change - We are not afraid to take thoughtful risks in the pursuit of our shared goals.

Stewardship of Our Planet - We recognize that the health of individuals, communities, and the natural environment is essential to the survival of the planet and its inhabitants and to a well-functioning society.

Portland Campus History and Programs

Although UNE's 70 acre campus has always been located in the same geographic place, the neighborhood where it is located has been part of three different municipalities over the years: Westbrook (1831-1870), Deering (1871-1898), and Portland (1899-present). UNE itself has had five name changes – Westbrook Seminary, Westbrook Junior College, Westbrook College, the Westbrook College Campus of the University of New England, and its current name the Portland Campus of the University of New England.

In July 1996, Westbrook College and the University of New England in Biddeford merged, creating a larger, more diverse institution of higher learning. The merger took place under the original 1831 Westbrook College charter. When the documents were signed, the combined institutions became Westbrook College and Westbrook College changed its name to the University of New England.

Today the University of New England Portland Campus is home to three of the UNE's premier Colleges.

The Westbrook College of Health Professions (WCHP) is a model for interdisciplinary health and wellness. With students, faculty and staff working in graduate programs in Social Work, Physician Assistant, Occupational Therapy, Physical Therapy, Pharmacy and Nurse Anesthesia and with undergraduate students in Nursing and Dental Hygiene, the WCHP honors the academic legacy of Westbrook College.

In the fall of 2013, the College of Dental Medicine unveiled a state-of-the-art Oral Health Center, built on Stevens Avenue, as it welcomed its inaugural class of dental students on the Portland Campus.

The College of Professional Studies is the University's on-line college, whose faculty and staff are also located on the Portland Campus, but whose students do not travel to campus.

Additionally, UNE NORTH is housed at 1075 Forest Avenue. UNE NORTH – the Institute for North Atlantic Studies of the University of New England — connects researchers, educators, policymakers, and industry leaders from across Maine and the North Atlantic region to implement collaborative approaches to building resilient communities, healthy environments, and thriving economies.

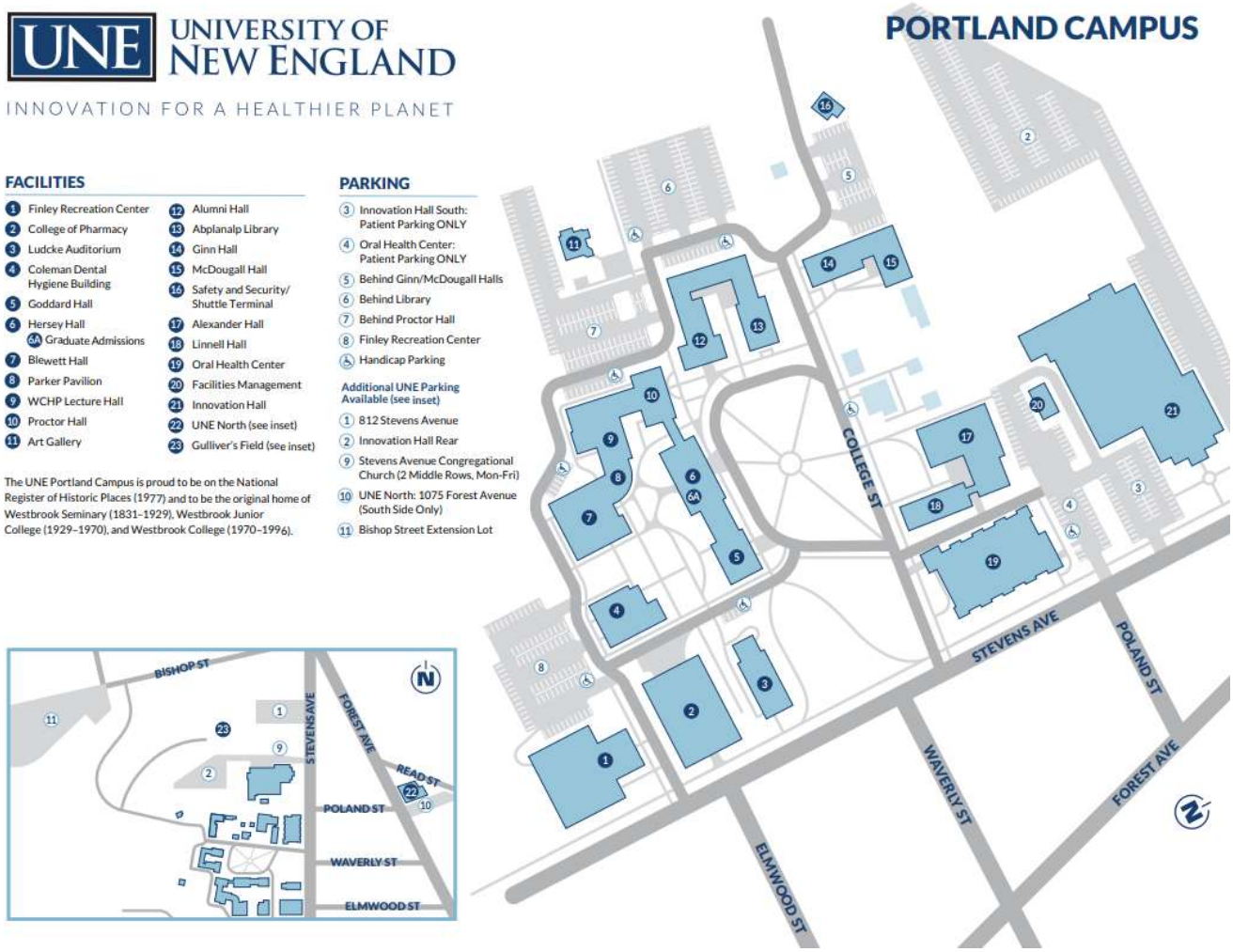


Figure 1 – Site Location Map

UNE's Portland Campus is essentially a graduate, commuter (non-residential) campus, supporting health professions programs. All of these academic programs require clinical experience towards the awarding of a degree. Each program has different clinical criteria, in regards to timing and duration, and thus the student population on campus can fluctuate during the course of an academic year as the students rotate into clinical settings. UNE has approximately 100 clinical affiliations, at 65 sites in Portland, and over 450 statewide. UNE

students generally complete their degree programming on either the Biddeford or Portland campus, and faculty and staff are generally assigned to one campus or the other. There is, however, some commuting between campuses that occurs.

Facility Planning

University of New England continues to improve its ability to provide state of the art post-secondary and graduate studies in fields such as healthcare, dentistry and pharmacy in order to provide a highly skilled and much needed workforce to the City of Portland and local areas. UNE is Maine's leader in providing health care professionals. UNE has recently announced plans to consolidate its College of Osteopathic Medicine onto its Portland campus to improve its Inter-professional Education (IPE) model to provide an even better prepared and more robust workforce in the future.

The establishment of a unique, nationally recognized Institute for Professional Education and Practice in Portland can only be achieved with the relocation of the College of Osteopathic Medicine from its current home on the Biddeford campus to the Portland campus. This reorganization is UNE's highest priority which will establish a world-class academic healthcare campus in Portland, oriented around inter-professional education, and will allow UNE to strengthen its collaboration with clinical partners throughout Portland and the state. By introducing, strengthening and supporting Inter-professional Practice with hospitals and healthcare networks such as Maine General, Maine Health, Northern Light and others, UNE will develop a distributed teaching hospital model, using telemedicine and digital health technologies to transform healthcare access and delivery across Maine, with a particular focus on Maine's underserved, rural population.

In order to support the transformation discussed above, UNE will be building a new, state-of-the-art home for the College of Osteopathic Medicine on the Portland campus, creating a comprehensive, fully integrated educational institution that can efficiently and effectively tackle Maine's deepest healthcare problems through systemic, coordinated education and clinical practice. Moving the College of Osteopathic Medicine to the Portland campus also will afford the opportunity to repurpose spaces on the Biddeford campus to expand existing undergraduate programs and to develop new ones to address critical workforce needs for the State.

Additionally, anticipated short term improvements to the campus parking and parking access road will be undertaken in support of this project, and will positively impact the university's TDM Plan.

Mobility Context

Neighborhood Context

UNE's Portland campus is located in the Deering Center area of the City of Portland, along the northern end of Stevens Avenue. The campus abuts the 239 acre Evergreen Cemetery, a National Historic Landmark, which was established by the city in 1854. The campus serves, in many ways, as a transitional zone between areas with diverse character, land uses, and demographics. Along with Evergreen Cemetery, it is bordered by residential neighborhoods (Mayfield Street off of Bishop Street, Stevens Avenue and the streets off of Stevens Avenue: College Street, Poland Street, Waverly Street, Elmwood Street and St. Joseph Street), an assisted living and senior housing complex (Park Danforth) across Stevens Avenue, two churches: (Stevens Avenue Congregational Church and St. Joseph Catholic Church), a Catholic elementary school (St. Brigid), and several small businesses.

Pedestrian Access

Pedestrian access is provided by numerous sidewalks both on campus and off campus. Sidewalks exist on both sides of Stevens Avenue and on both sides of Forest Avenue, as well as on the primary side streets between these arterials, including Poland Street, which allows access to UNE's property at 1075 Forest Avenue. There are crosswalks across Stevens Avenue and Forest Avenue in the vicinity of the campus at both signalized and un-signalized locations, including direct signalized access to UNE's property at 1075 Forest Avenue. These pedestrian facilities also provide contiguous pedestrian access to other educational facilities, namely Longfellow Elementary School, Lincoln Middle School, and Deering High School, as well as the local businesses frequented by UNE community members.

The Portland Trails network abuts the campus and could be utilized by some local community members to access the campus. UNE is working with Portland Trails to extend this network across the UNE campus as the new access road is developed, which would provide additional alternative pedestrian access to the campus. See Figure 2.

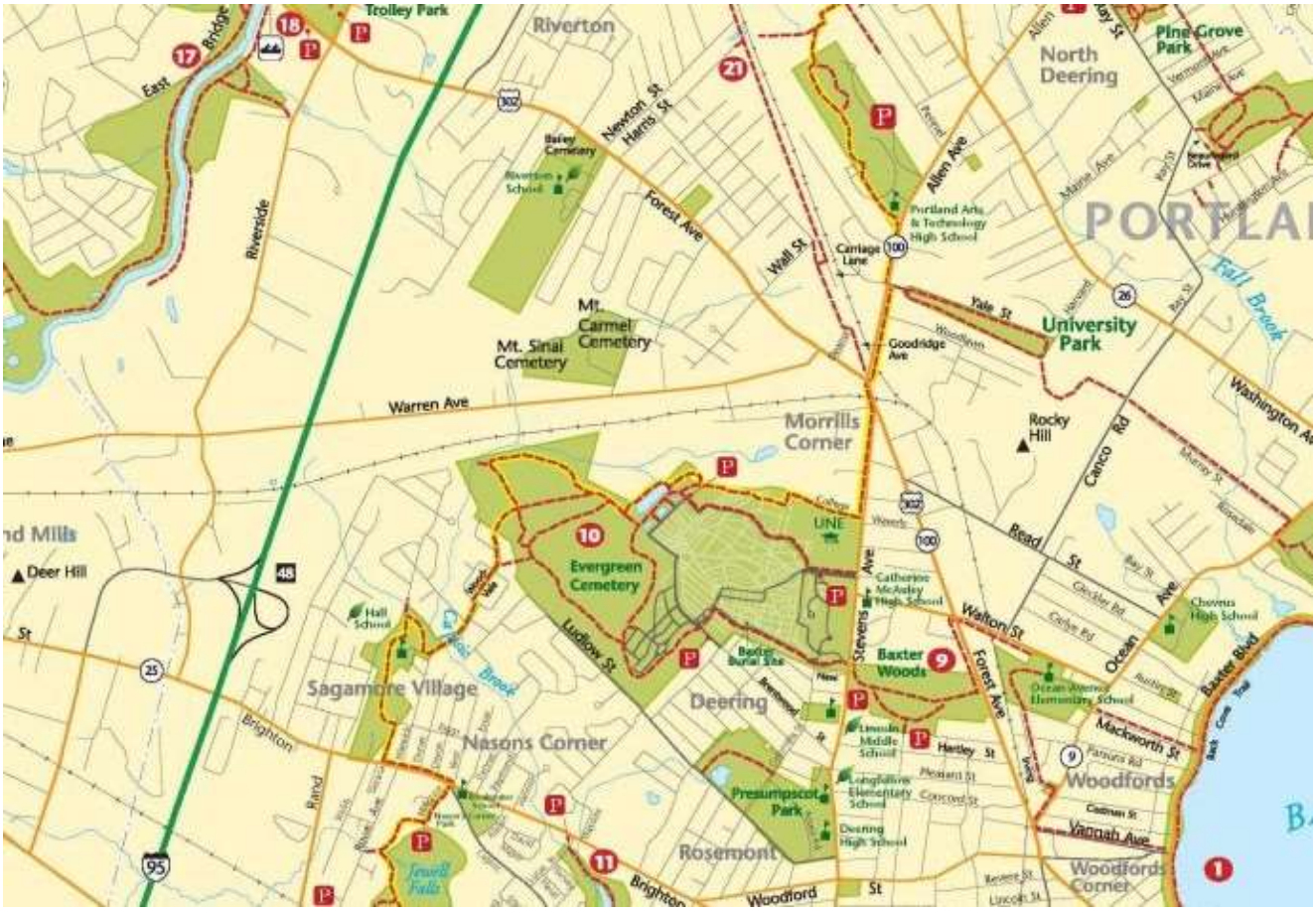


Figure 2 – Portland Trails trail map adjacent to the UNE Campus

Walkscore.com, a real estate website that evaluates walkability and transportation when choosing where to live, scores the Portland Campus as a 69 out of 100 and considers the campus location to be “Somewhat Walkable”, indicating “some errands can be accomplished on foot”. Their walking Travel Time Map, in Figure 3 below, illustrates this.

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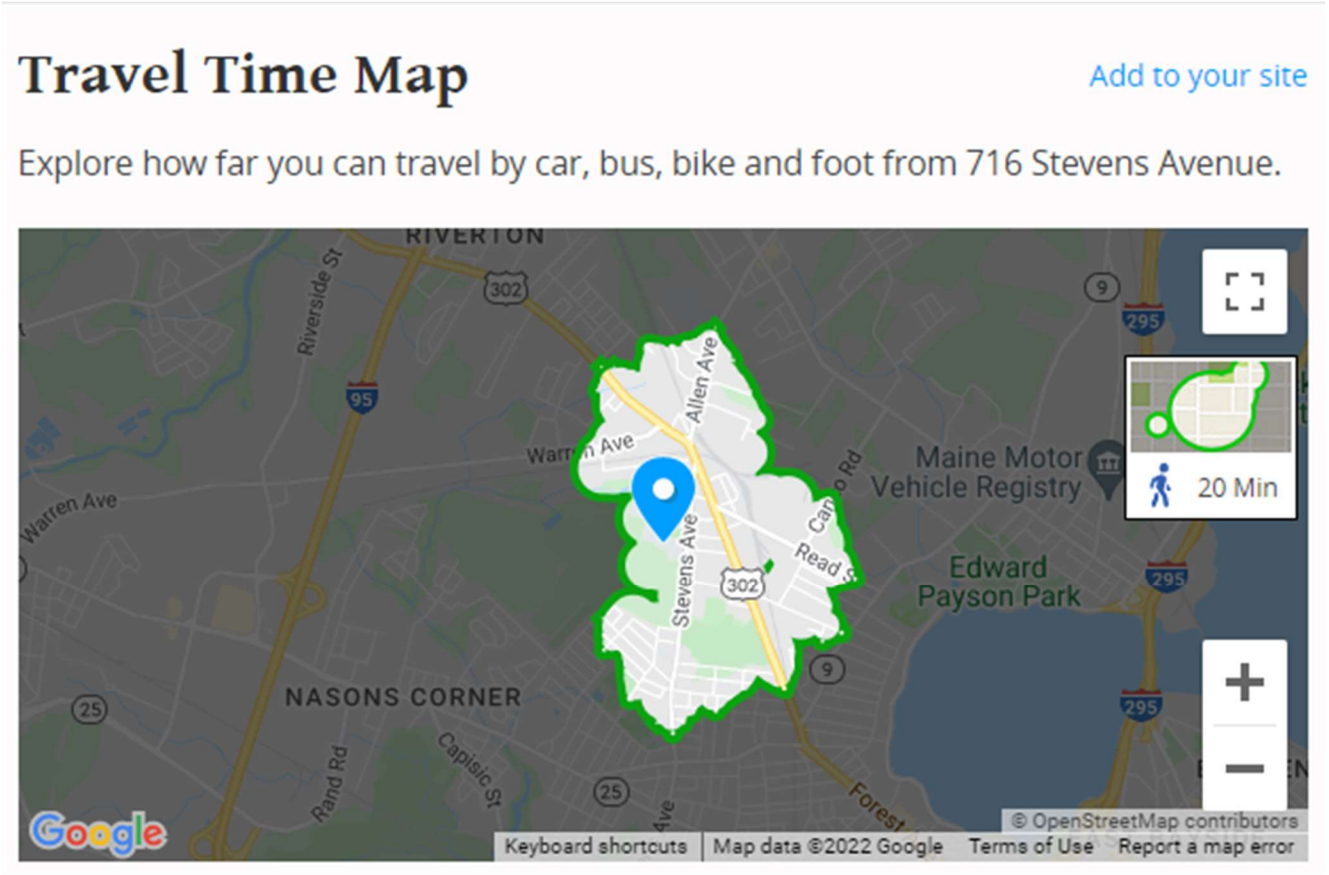


Figure 3 – Pedestrian Travel Time Map from Walkscore.com

Data analysis of current student and employee home addresses indicate 13% of the of the UNE Portland Campus community live within a walkable 1.5 miles radius and a bikeable 1.5 - 5 mile radius of the campus, as indicated in Figure 4 and Figure 5. A recent survey of faculty, students, and staff of the Portland campus revealed that 11.5% of the survey respondents walk to campus 1-9% of the time. Comments indicate that 31% of the survey respondents desire using an alternative mode of transportation, but are unable due to external commitments, such as work, daycare pickups and clinical requirements. Opportunities to increase the alternative modes of transportation percentage exist, and efforts will continue to be made to identify incentives that would increase these modes of commuting, including potential extension of the Portland Trails network through the campus, which might allow additional Deering Center or Riverton residents to more easily walk to campus.

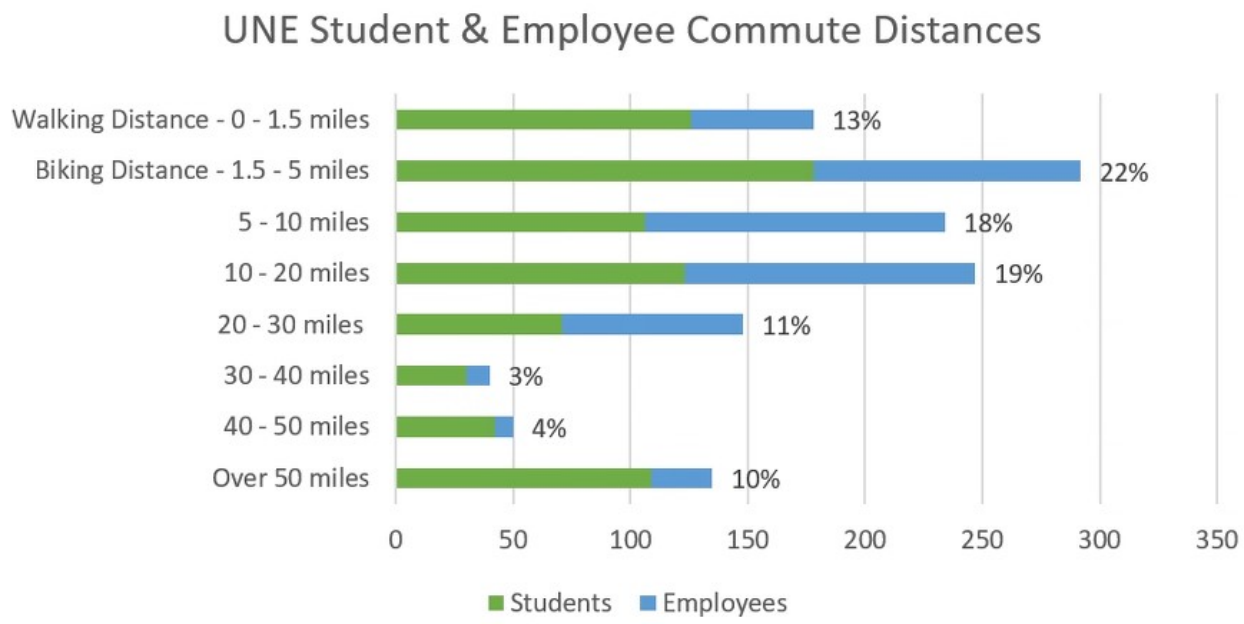


Figure 4 – Commute distances from UNE Portland Campus

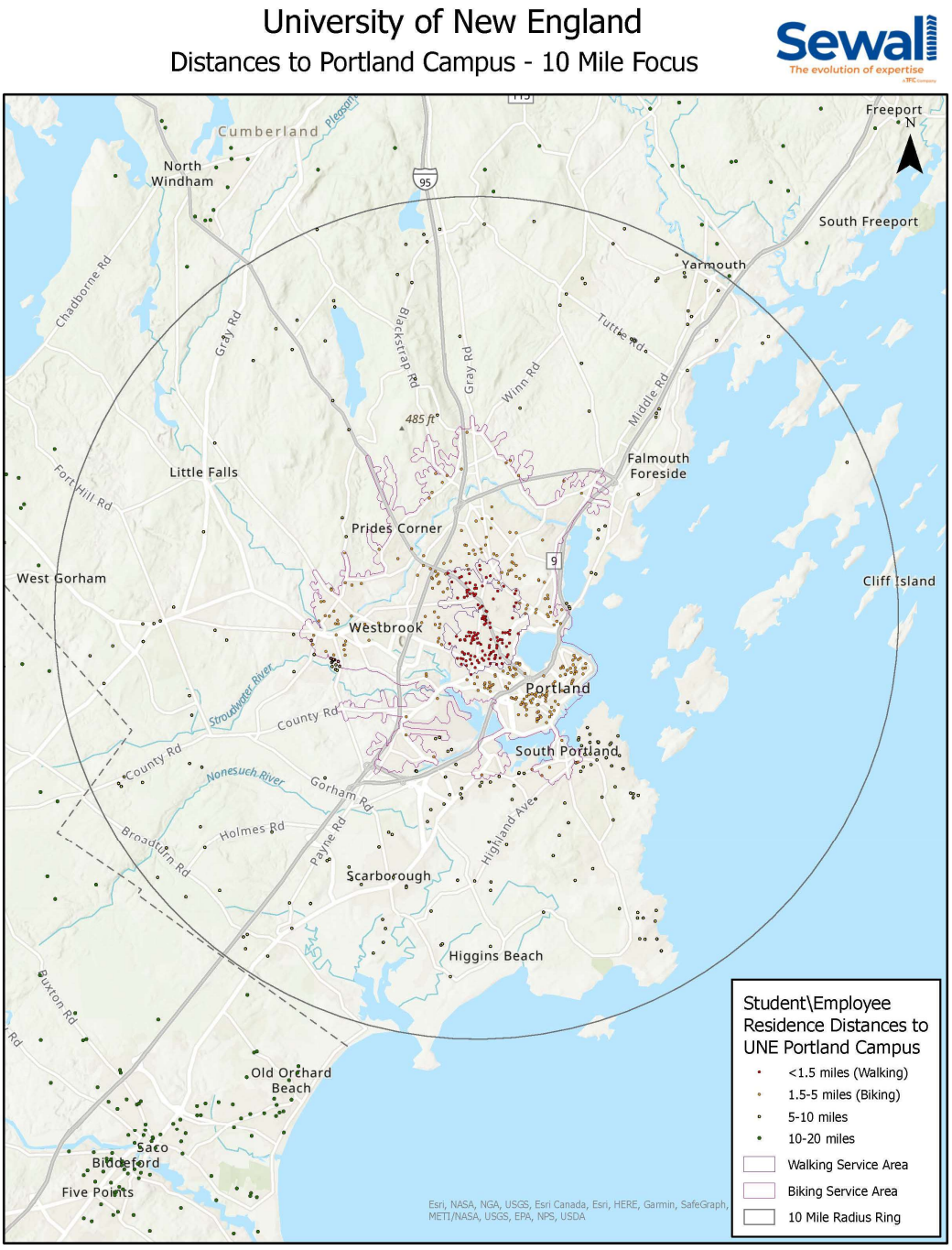


Figure 5 - Home Address Distances to Campus

Bicycle Access

Stevens Avenue is a designated bicycle route in the City of Portland, providing direct access to the campus. UNE provides bicycle racks at a ratio of 1 bicycle rack space per every 20 UNE Portland Campus community members. Additionally, there is access to showers and lockers in the Finley Recreation Center, further facilitating bicycle commuting.

The Stevens Avenue on-road bike route connects to multiple nearby bike routes, including Allen Avenue, Walton Street, Read Street, Woodford Street and Congress Street. These bike routes then connect to facilities

with dedicated bicycle lanes, such as Forest Avenue. See Figure 6 - City of Portland Bikeway and Pedestrian Network map.

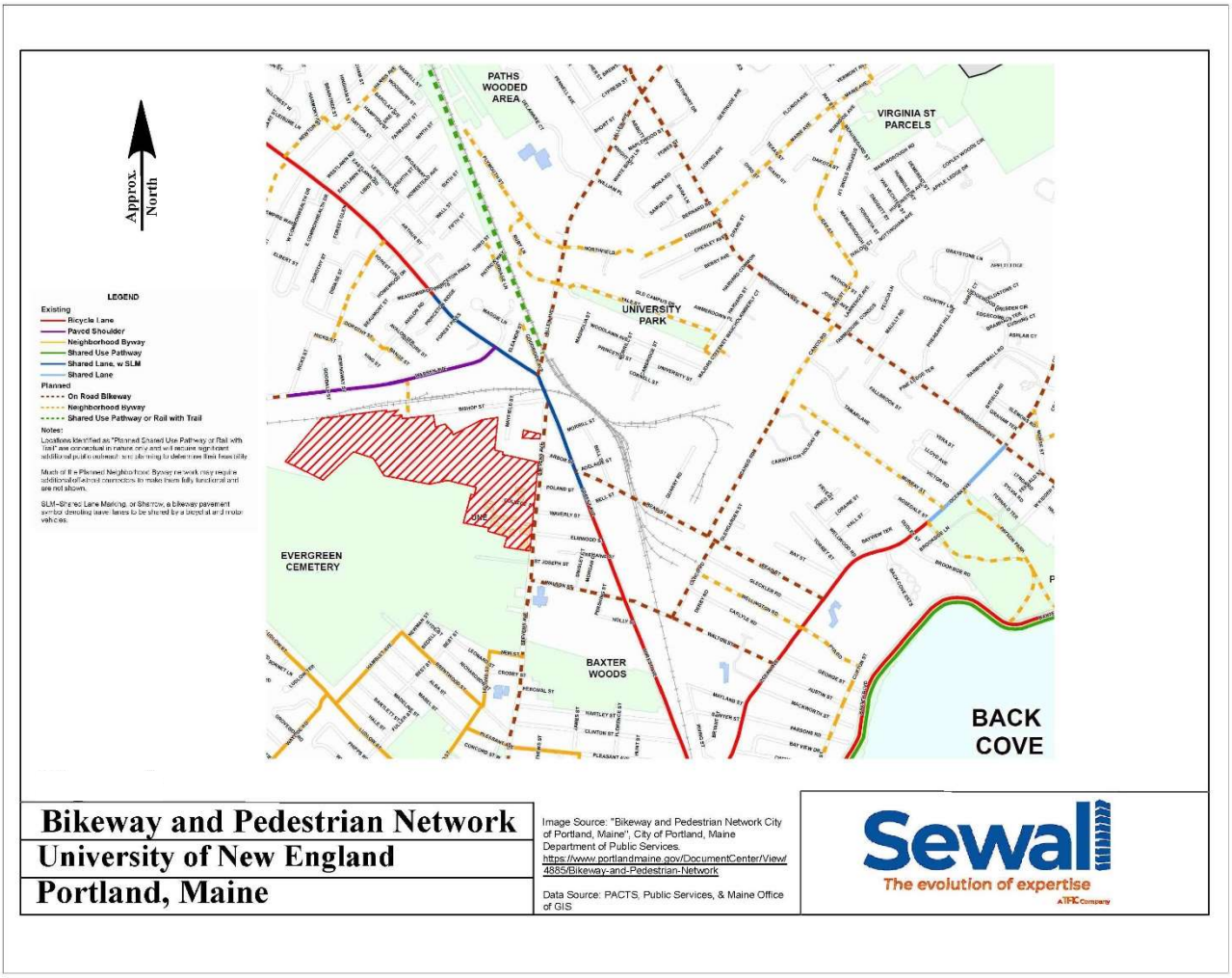


Figure 6 – City of Portland Local Bikeway and Pedestrian Network

Walkscore.com scores the Portland Campus as a 65 out of 100 for bicycle commuting and designates the campus location to be “Bikeable”, indicating “some bike infrastructure” in the vicinity of the campus. Their Travel Time map, in Figure 7 below, illustrates this.

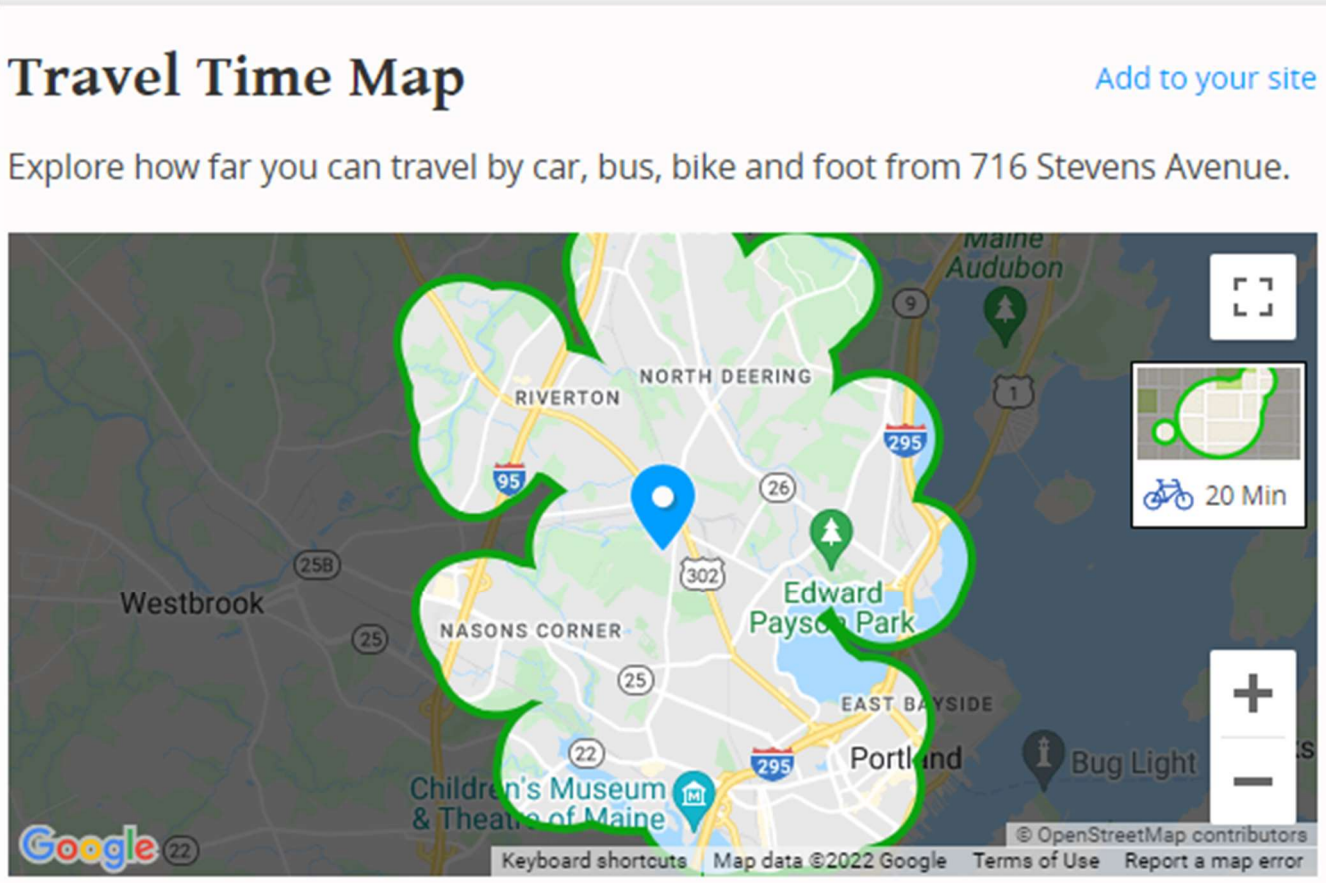


Figure 7 – Bicycle Travel Time Map from Walkscore.com

Transit Service

Transit service is available via Greater Portland Metro's Route 9, which connects downtown Portland to North Deering via Stevens Avenue and also by Metro Route 2, which connects downtown Portland to Riverton via Forest Avenue. There are two Route 9 Metro stops located at the Portland campus, both of which are equipped with ADA complaint shelters and are located in well lit, conveniently located areas of the campus. The Route 2 stops on Forest Avenue are within 1,000 feet of the core campus and are immediately adjacent to the UNE's 1075 Forest Avenue property (UNE North). UNE provides free bus passes to all students and employees to encourage Metro use, including the Metro Breeze from Portland to Brunswick, and the Route 2 bus route to the Metro Pulse (the downtown hub). Additionally, the University provides free bus passes to the South Portland City Bus Services as well as the Biddeford, Saco, Old Orchard Beach Transit (BSOOB Transit) including the ZOOM Express between Portland and Biddeford. Free public transportation is thus offered between the University's two Maine campuses, as well as to/from the Portland Transportation Center, the Saco Transportation Center, the Greyhound Bus terminal, and the Portland International Jetport.

With UNE's recent (January 2021) upgrade to the centralized automated fare payment system, Dirigo TouchPass, for all of these transit services, enhanced ridership data is now available to UNE and can be utilized in future TDM considerations. Previously, the ridership data was recorded manually or only available for the number of passes issued, and not actual rides utilized. Previously, UNE would procure and manually distribute hardcopy passes, as community members requested them from the Student Affairs office. Thus, UNE community members were required to conscientiously obtain these in advance of their use, and there was no way to track whether or not all passes in the packet were used. For 2019, UNE purchased and distributed

monthly passes (40 rides per month) and weekly passes (10 rides per week) totaling approximately 10,590 rides, or 882 ride passes per month. During the academic year 2021-2022 actual average ridership, now tracked electronically through the Dirigo TouchPass system, is averaging approximately 107 rides per month. While the pandemic has undoubtedly impacted ridership, it is unlikely that the significantly lower ridership in 2021-2022 is only due to this cause. We believe the manually distributed hardcopy passes artificially inflated the ridership data, and the Dirigo TouchPass system will provide better data sets moving forward.

Additionally, the Dirigo TouchPass has improved convenience and removed barriers for all students, faculty, and staff to ride the buses for free, without first having to obtain a hardcopy pass. Now that the pandemic is entering an endemic phase, UNE anticipates the ridership to increase with the added ease and convenience of accessing these transit services. Current survey results indicate 10.5% of the respondents ride the bus between 1-20% of the time. Enhanced promotional activities are underway to highlight this free transit option, and ridership is anticipated to rebound and expand to at least double the current rate within the next year.

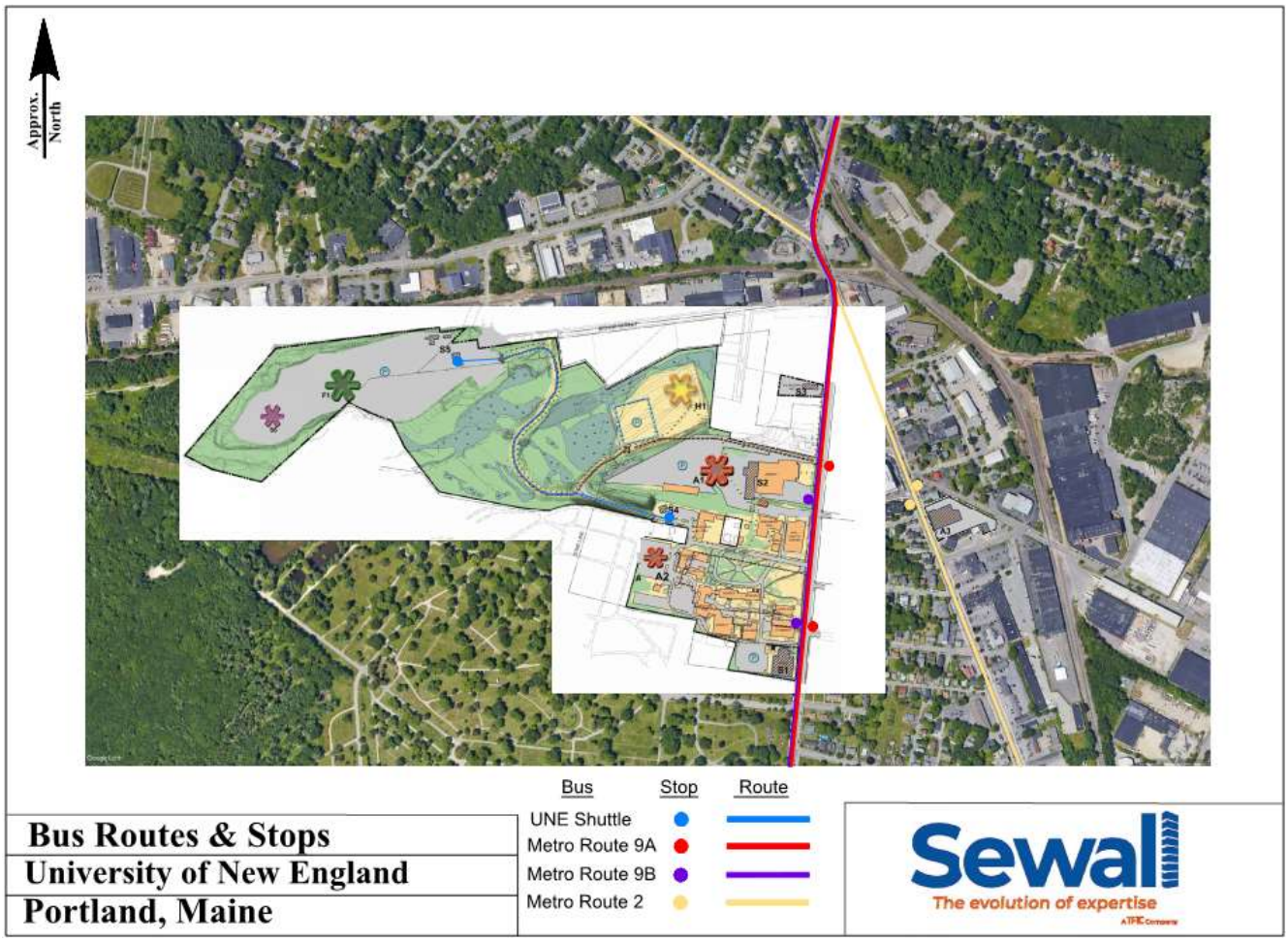


Figure 8 - Greater Portland Metro routes servicing the Portland Campus

Vehicle Access

The campus is located off of Stevens Avenue, which is classified as a minor arterial. Nearby Forest Avenue is a principal arterial, and Warren Avenue to the north is a minor arterial. The campus, located within close

proximity of these three arterials, provides convenient access to the Maine Turnpike, I-95 and to Interstate I-295.

The Portland campus has no on-campus housing, so all students, faculty, and staff arrive from Portland and surrounding communities, and utilize multiple unsignalized access drives from Stevens Avenue, or from the Bishop Street Extension to the Bishop Street parking lot. The access point is generally determined by the parking permit acquired by each individual, as it relates to the parking lot in which they are authorized to park. Access points are depicted in Figure 9.

Recent survey results indicate approximately 68% of the respondents drive alone to campus most of the time and 19% carpool occasionally. This results in approximately 13 percent of persons utilizing alternative methods to arrive to campus.

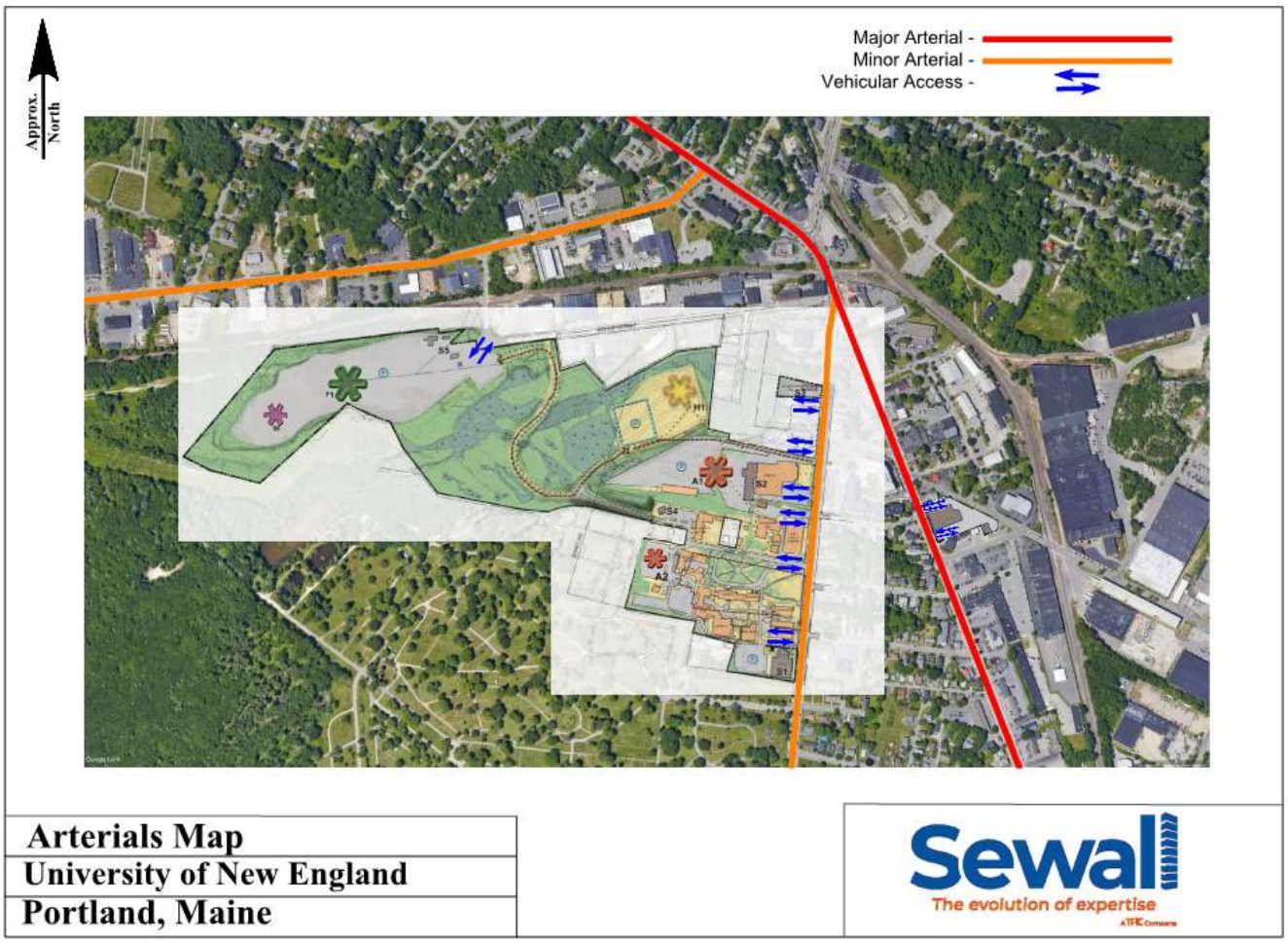


Figure 9 – Vehicle access points

Parking

There are currently eleven parking lots located at UNE's Portland campus, plus on-street parking along two campus roadways. The lot locations are depicted in yellow dashes in Figure 10 below. The number of spaces located in each of these lots is detailed below in Table 1. All campus parking lots require the display of parking decals, and the lots on the core campus require the purchase of a parking permit through a lottery process. If a UNE community member isn't successful in obtaining a permit in the lottery process, they can park for free in

the remote lots, which include Bishop Street parking, 1075 Forest Avenue, 812 Stevens Avenue, the leased lot at the neighboring Congregational Church, or the dirt parking lot behind Innovation Hall.

In addition to the on-campus parking, there is also on-street parking located on some of the surrounding streets, which is available to UNE community members. This on-street parking includes College Street on the core campus and parking along both sides of Stevens Avenue off-campus.



Figure 10 - Portland Campus parking lot diagram

Lot # & Description	# of Parking Spaces
1 – 812 Stevens	30
2 – Innovation Hall, Upper/Lower	101
3 – Innovation Hall, Front	34
4 – Oral Health Center/Alexander	38
5 – Ginn/McDougal	28
6 – Library	104
7 – Proctor	121
8 – Finley Rec Center	85
9 – Stevens Ave. Church	36
10 – UNE North, 1075 Forest Ave.	77
11 – Bishop St., Extension Lot	600

X – Proctor Access Road	3
Y – Hersey Circle	4
Total	1,261

Table 1- Current parking lot and space inventory

Existing Parking Analysis

While there are several alternative transportation modes available to access the Portland campus, the majority, 87%, of students and employees arrive by private vehicle, based on the most recent transportation survey. The UNE Office of Safety and Security conducts biannual parking lot counts in October and April in all campus lots. Security Officers count the open spaces daily for one week between the hours of 8 am and 5 pm. Based upon the most recent parking counts conducted in fall of 2021, parking demand generally peaks between 11:00 am and 2:00 pm. The largest number of vehicles recorded during the fall 2021 counts in the university lots was 651. This highest demand occurred on a Wednesday at 1:00 PM. This represents 51.5% of current overall on-campus capacity. The overall capacity will decrease when the Repair Facility building, currently under construction on the Bishop Street lot, is opened.

On-street parking census counts are included in the biannual parking analysis; however, these on-street vehicles counts are informational only, as the parking along these streets is also utilized by the general public with no UNE connection. The number of vehicles parked along College Avenue during the peak periods ranged from 18 to 22. The majority of these users are likely UNE community members. The number of vehicles recorded in the Stevens Avenue spaces during the 2021 peak period was 109. As previously noted, not all of these users are UNE community members, as there are private single and multifamily residences, local businesses, a daycare center, a school, a couple of churches, and a couple of larger housing complexes located along this stretch of road.

The City of Portland has implemented residential parking permit requirements and one-hour parking restrictions on most side streets in the vicinity of campus, reducing the amount of on-street parking available to UNE community members. However, as long as there continues to be free on-street parking along Stevens Avenue, proximal to the campus core, continued use of these spaces by UNE community member is expected, given their convenience. UNE will continue to support the city in its parking regulations in this area, and will consider these parking needs in the total on-campus parking capacity.

Shuttle Service

A free shuttle bus, outfitted with Wi-Fi, is provided from the Bishop Street parking lot to the campus core to provide for convenient parking access. There is a heated shelter with Wi-Fi at each end of the shuttle route to encourage ridership. The shuttle runs continuously from 7 am to 7 pm with minimal wait times. With these incentives, parking in this remote lot has increased significantly from 37 vehicles in October 2012, to 179 during the peak period (11:00 am to 2:00 pm) in October 2021.

Transportation Demand Management Plan

Overview

The University has had a Transportation Demand Management (TDM) Plan in place since 2010. This 2022 TDM Plan revision has been developed with the primary goal of reducing vehicle trips to campus and, thus, reducing the demand for on-site parking. The plan further aims to reduce traffic impacts, both on-campus and off-site, improve traffic flow in the surrounding area, and reduce UNE's Scope 3 carbon emissions.

UNE hopes to achieve these goals by implementing TDM strategies that promote and encourage alternative modes of transportation. In June 2019 a "Transportation Think Tank" (TTT) committee formed, with representation from Campus Planning, Student Affairs, Safety and Security, Undergraduate and COM Student Governments, Sustainability Office, and the Environmental Council. With oversight from the TTT committee, the Transportation Demand Management (TDM) strategies are regularly reviewed and updated to respond to changing conditions and needs. The TTT committee is actively engaged in implementing the TDM strategies outlined below.

TDM Strategies

EDUCATION & PROMOTION

UNE provides both educational and promotional material regarding the advantages of alternative transportation modes. The TDM Coordinator regularly publishes the "*Movements*" newsletter, which is hung in all bathroom stalls throughout the campus, ensuring visibility and contemplation. The newsletter informs the UNE community about ongoing, new, or revised transportation programs, events and resources, like bus maps and schedules, GoMaine carpool and rideshare information, parking updates, bike infrastructure updates, incentive program information and safety practices for pedestrians, among other topics. Additionally the university regularly provides specific TDM-related information to the campus community through various methods and media formats, including bulletin boards, strategically placed bus schedule brochure holders, weekly community-wide emails, digital screens, and website.

GOMAINE

UNE utilizes the GoMaine service to encourage "greener commuting" to each campus as well as between campuses when required. UNE has its own landing page on the GoMaine website, which helps users find carpool partners, map out alternative transportation methods with transit, walking and biking routes, incentivizes users with rewards, and offers emergency "ride home guarantee" for regular users. Additionally UNE takes advantage of the expertise of GoMaine staff for educational and promotional events with informational tabling, swag give-aways, and educational presentations.

WAY-2-GO COMPETITION

During the last Way-2-Go, GoMaine competition in 2019, UNE won two awards: Most New Members in the XXL Company Category and the Team Spirit Awards. There was significant momentum developing in the alternative transportation realm and the university is eager to return to this pre-pandemic activity and progress. The TTT committee plans to participate in and support future Way-2-Go competitions.

CARPOOLING

The university provides free parking to carpoolers and dedicates some of the most convenient parking spaces as incentives. The carpool program is not widely publicized, as it is administered manually and challenging to enforce. The TTT committee has identified the need to streamline carpool permitting procedures, which would make the incentive more desirable while making administration of the program less cumbersome. This update is a goal for the 2022-2023 academic year.

TRANSIT SERVICE

The TDM plan includes the continuation of the provision of free GP Metro, South Portland City Bus Services, and Biddeford, Saco Old Orchard Beach Bus Transit (BSOOB) passes for all students, faculty, and staff to encourage transit usage. Each of these services provides GPS trackers with mobile apps for cell phones, which aid riders in knowing exactly where the bus is located and how close it is to their stop. The TTT committee actively engages with administration from these transit providers to update materials and promote ridership.

INCENTIVES

Since 2008, UNE has continually promoted the use of alternative modes of transportation through incentives, including: raffling of new bicycles and iPads for transportation competitions, providing free coffee and doughnuts to users of the Bishop Street parking lot, free use of electric vehicle charging stations, and free public transit passes. The TTT committee will continue to evaluate the effectiveness of incentives, and implement when warranted.

ON-GOING ASSESSMENTS OF EFFECTIVENESS

UNE has performed several student and employee surveys to determine arrival and departure times, transportation modality and parking usage, as well as to gauge interest in various alternative transportation and incentive programs. The results have guided UNE in making adjustments to its TDM plan, including infrastructure upgrades, and bus schedule changes, among others.

Recent hot mapping of faculty, staff, and student home addresses is being utilized to identify additional measures for enhanced promotional activities towards fostering alternative transportation modes and programs.

The Director of Safety and Security monitors the effectiveness of the TDM plan through biannual parking utilization studies. The TDM Coordinator and TTT Committee use the data collected from these parking studies to continually review and anticipate parking demand on campus and guide ongoing revisions to the TDM plan.

EV CHARGING INFRASTRUCTURE

UNE provides free charging for electric vehicles. There are three EV charging stations located at the Bishop Street parking lot behind the bus shelter. These charging stations are powered by grid-tied solar panels on the roof of the bus shelter. Additionally, there are five outlets on campus designated for EV slow-charging. Expanded EV infrastructure is planned with the development of the Harold and Bibby Alfond Center of Health Sciences, as described later. The TTT Committee will continue to monitor the growth of EV adoption in the campus community and will advise administration regarding further expansion of charging infrastructure as needed.

BICYCLE INFRASTRUCTURE

UNE promotes bicycling as a convenient means to access campus for those students and employees that reside within the appropriate range, and for exercise and wellness benefits. The university has several bikes on campus that the UNE community members can borrow to utilize during the day. Bike racks are conveniently located across campus for campus community members to store their personal bikes as well. Additional bikes and racks will be added with the anticipated development of the Harold and Bibby Alfond Center of Health Sciences, as described later. UNE has previously discussed, and would consider, being a site for a city-wide bike share program.

CAMPUS PLANNING

The University has traditionally located its programs so that it limits the travel between campuses by its community members. Thus, faculty and staff are generally assigned to only one campus and student degree programs are generally offered/completed on one campus or the other. However, there are several programs that are currently required to travel between campuses to access the highly specific and state-of-the-art facilities housed only on one of the two Maine campuses. For example, graduate students studying Dental Medicine in Portland are required to learn Gross Anatomy on the Biddeford Campus. Conversely, the Osteopathic Medicine students, located in Biddeford, are required to access the Simulation Center on the Portland Campus to learn using hi-tech robotics and virtual reality health care programming offered there. This

results in potentially hundreds of students commuting between Portland and Biddeford, during the day, several times a week. Development of the Harold and Bibby Alfond Center of Health Sciences, described below will further limit this intercampus travel.

Proposed Access and Circulation Modifications

VEHICLE ACCESS AND PARKING

The Harold and Bibby Alfond Center of Health Sciences (HBACHS) project will reconfigure the access point on Stevens Avenue at Innovation Hall, extending beyond the HBACHS, to the expanded parking area behind this new facility. The current drive will be widened and installed with a sidewalk from Stevens Avenue to the renovated parking area. The parking lot capacity will be approximately doubled. Pavement and lighting will be installed that meets the University's enhanced safety standards. Charging stations, a combination of Level 2 and 110v outlets, will be installed for free and convenient electric vehicle charging.

The Campus Master Plan provides for additional improvements to the parking access road connecting the proposed HBACHS facility parking lot, College Street, and the Bishop Street lot. This future access road will allow vehicles, bicycles and pedestrians, to travel between the core campus on Stevens Avenue, through to the Bishop Street parking lot and on to Warren Avenue. This future access road will eliminate unnecessary trips on Stevens Avenue, Forest Avenue, Bishop Street and Warren Avenue by allowing UNE community members to enter and exit the campus at the location most proximal to their origin/destination by either Bishop Street Extension or Stevens Avenue. More importantly, it will eliminate traffic that is currently routed through Morrill's Corner. The University is currently discussing its design with the Maine Department of Transportation and Portland Trails. Additional information related to this proposed development will be made available as it is developed.

PEDESTRIAN AND BICYCLE ACCESS

The Harold and Bibby Alfond Center for Health Sciences building will include men's, women's and gender-neutral locker room facilities, complete with showers. These additional facilities encourage and support additional active transportation commuting modes to campus.

The Portland Trails network of trails abuts the campus and could be utilized by some local community members to access the campus. UNE is actively working with Portland Trails to extend this network across the UNE campus as the future access road is developed, which could provide additional alternative pedestrian access to the campus, as well as rerouting the Portland Trails route away from Morrill's Corner.

Additionally, the University anticipates the UNE community utilizing this future access road for increased bicycle access to campus. This would provide additional opportunities for UNE community members to bike to campus, without having to bike through Morrill's Corner, with its intimidating shared vehicle and bicycle lanes.

City Planning staff have suggested that the University consider allowing bike access to the general public along this future access drive. See Figure 11, below. However, the current design and anticipated funding sources limit the access road to two shared travel lanes and a sidewalk, and would not support significant additional traffic, including bicycles. The Maine DOT has also expressed interest in this alternative pedestrian and bicycle route away from Morrill's Corner. They are seeking grant opportunities to assist with the addition of bike lanes, which would allow for this potential increased usage. This expanded infrastructure would aid in connecting pedestrians and bicyclists from the Riverton Neighborhood to the Deering Center Neighborhood, without traveling through Morrill's Corner. If external funding is available, UNE may be able to consider the addition of bike lanes to the access road to accommodate this additional bicycle traffic.



Figure 11 – City of Portland - Riverton Neighborhood Byway Conceptual Plan

Future Parking Needs

Through all of these actions, UNE has shown long-term dedication to reducing overall single-occupancy vehicle trips to campus and the associated traffic impacts to the area, and in being a good neighbor, as well as reducing its carbon footprint. Alternative transportation goals remain focused on realizing further reductions in these areas.

The goals for UNE in terms of parking are to:

- Continue to provide an adequate on-campus parking supply
- Reduce parking needs over time through continued TDM strategies
- Reduce neighborhood impact by reducing on-street parking usage by UNE community members

In previous projects, as approved by the City, UNE's parking needs, based on actual data, has been typically based on the student population, at an actual rate of 0.58 spaces per student. With a campus dominated by health professions graduate students, who often spend their entire day and week on campus, the parking demand is significantly more than the Institute of Transportation Engineers (ITE) would predict for a typical college or university. UNE intends to continue to monitor parking demand, twice a year, with the goal being to reduce the parking supply rate over time. With the construction of the HBACHS, the development will result in a net gain of 92 spaces in this area of campus. The recently approved Repair Facility near the Bishop Street parking lot, results in the loss of 256 spaces, while adding additional green space, resulting in a total of 1086 spaces on campus. With completion of these projects, the resultant parking need would be estimated at 0.54 spaces per student. This projected need does not include UNE community vehicles legally parked on adjacent public streets.

Lot # & Description	# of Parking Spaces
1 – 812 Stevens	30
2 – Innovation Hall, Upper/Lower	193
3 – Innovation Hall, Front	34
4 – Oral Health Center/Alexander	27
5 – Ginn/McDougal	28
6 – Library	104
7 – Proctor	121
8 – Finley Rec Center	85
9 – Stevens Ave. Church	36
10 – UNE North, 1075 Forest Ave.	77
11 – Bishop St., Extension Lot	344
X – Proctor Access Road	3
Y – Hersey Circle	4
Total	1,086

Table 2 - Anticipated parking availability with the development of HBACHS

Reduction Goals

With the ongoing efforts to increase transit ridership and increase carpooling and other alternative means of transportation, UNE anticipates a reduction in parking demand of approximately 4% over the next couple of years. With the completion of the HBACHS facility, UNE aims to increase on-campus parking and begin to reduce the on-street parking demand. This would be achieved through the addition of more on-campus parking within the campus core and incentivizing the use of alternative methods of transportation, primarily transit and carpooling. Survey results indicate options for carpooling could be enhanced with additional promotional events. The Go Maine Programs are featured prominently and regularly in the UNE Movements Newsletter, and a GO Maine informational event was recently held on campus.

Future Planning Efforts

UNE will continue to work with neighbors and neighborhood groups as campus development projects are planned to identify any neighborhood transportation issues and concerns so that they can be considered in the planning and design process. This will ensure that UNE will continue to be a good neighbor and minimize the impact on surrounding roadways as much as possible.

Additionally, UNE will continue to work with the City of Portland, the Maine Department of Transportation, Portland trails and other stakeholders to review and consider options for increasing active transportation to, from, and through the campus.

Appendix A: TDM Roles & Responsibilities

TDM COORDINATOR/ASSISTANT DIRECTOR OF SUSTAINABILITY

- Promote non-SOV transportation choices to faculty, staff, and commuter and resident students.
- Review potential new alternative transportation technology or SOV reduction technology and coordinate implementation efforts associated with them.
- Champion the implementation of new TDM strategies to reduce parking demand and increase the use of non-SOV transportation modes.
- Recruit and engage participants for any outreach events or campaigns associated with the TDM program over time.
- Conduct/provide information for new student/new employee orientation to educate incoming affiliates regarding their transportation options to and from the campus.
- Maintain the transportation webpage (https://www.une.edu/studentlife/security/transportation) content to include TDM strategies outlined in the TDM plan.
- Coordinate the implementation of TDM strategies with Student Affairs, Registrar, Human Resources, Safety and Security, Campus Planning, and any other departments as necessary.
- Work with the City of Portland, GP Metro, GoMaine, and other potential partners to improve non-SOV transportation access to the campus and to gain support for program implementation.
- Coordinate all monitoring and evaluation activities necessary to measure the effectiveness of the TDM program in achieving the targets.
- Facilitate collaborative, representative Transportation Think Tank Committee reviews.
- Co-develop with the Transportation Think Tank Committee financial parking incentives or disincentives as identified by the TDM plan.
- Update annual TDM Report, which will provide an assessment of strategies implemented to date and outline the activities to be implemented in the upcoming year.

VICE PRESIDENT OF CAMPUS OPERATIONS

- Maintain regular membership with the Transportation Think Tank Committee.
- Assist in the coordination of all monitoring and evaluation activities necessary to measure the effectiveness of the TDM program in achieving the targets.
- Review annual TDM Report, which will provide an assessment of strategies implemented to date and outline the activities to be implemented in the upcoming year.
- Provide consultation on TDM strategies that impact parking supply, services, and technology.
- Provide up-to-date data on parking lot inventories.
- Provide support for conducting additional parking assessments and measurements annually.
- Co-develop with the Transportation Think Tank Committee financial parking incentives or disincentives as identified by the TDM plan.
- Maintain existing parking infrastructure and technology, with support of Facilities Management and Campus Planning.
- Maintain parking services, including payments, campus notifications, and website updates.

DIRECTOR OF SAFETY AND SECURITY

- Maintain regular membership with the Transportation Think Tank Committee.
- Administer the parking permit process.
- Carry-out parking enforcement.
- Maintain interactive parking maps on transportation website.

- Conduct parking assessments in October and April annually, and report data to Transportation Think Tank Committee.

DIRECTOR OF INSTITUTIONAL RESEARCH AND DATA ANALYTICS

- Assist with annual transportation survey to faculty, students and professional staff.
- Provide data to assist with affiliate population density mapping to develop non-SOV transportation programming.

Planning Board Report
Planning and Urban Development Department

Rock Row North + South Campus
1190 Brighton Avenue
Subdivision Amendment
PL-002553-2023
Dirigo Center Developers LLC and Waterstone Properties Group, Inc.

Submitted to:	Portland Planning Board	**Prepared By:**	Charles Tetelman
Public Hearing Date:	July 11, 2023	**Date:**	July 7, 2023

I. INTRODUCTION

Dirigo Center Developers, LLC and Waterstone Properties Group, Inc. have submitted a Subdivision Amendment application to amend the previous subdivision approved by the Portland and Westbrook Planning Boards in 2022. The portions of the North campus in Portland are located at 1190 Brighton Avenue and the South campus has been previously addressed at 300 Rand Road. The parcels are bisected by the Portland-Westbrook municipal border. The applications will facilitate future development and operation of both the North and South Rock Row campuses. This application is being referred to the Planning Board for compliance with the City of Portland's Land Use Code Subdivision Standards, Section 15.4.



Figure 1 – Aerial of Rock Row Development

Given the administrative nature of the subdivision without any proposed development, these applications were scheduled for a Planning Board public hearing without an initial workshop.

The Planning and Urban Development Department mailed 32 notices advertising this meeting to property owners within 500 feet of the site. A legal advertisement ran in the June 30, 2023 and July 1, 2023 editions of the *Portland Press Herald*.

Applicants: Dirigo Center Developers, LLC.
Waterstone Properties Group, Inc.

Applicant Representatives: Perkins Thompson, P.A.

II. REQUIRED REVIEWS

Review	*Applicable Standards*
Subdivision	Section 15.4

III. PROJECT DATA

Existing Zoning	B-4 Commercial Corridor I-L Low-Impact Industrial
Property Size	Parcel 1 – 300 Rand Road: 3,173,388 sq. ft. (56.84 ac.) Parcel 2 – 1190 Brighton Avenue: 2,726,334 sq. ft. (62.85 ac.)
Existing Use	Industrial, Mixed-Use

Proposed Use	Mixed-Use

IV. BACKGROUND

In 2016, the Portland Planning Board approved a subdivision application (Project # 2016-073) from Dirigo Center Developers, LLC to subdivide the Rock Row North Campus (Parcel 2) at 1190 Brighton Avenue into three lots shown in Figure 2. This application also included a four-phased development plan on both campuses (Parcel 1 and Parcel 2). The Rock Row development consists of two parcels separated by an existing railroad. Phase 1 consists of development in the Westbrook portion of the North Campus that now includes tenants such as Market Basket and REI as well as a variety of restaurants and commercial businesses. Phase 2 development will occur on the remainder of the North Campus and building the crossing between the two campuses (through an easement across the railroad). Phase 3 and 4 will consist of development on the Rock Row South Campus (Parcel 1) with potential uses including a medical office building, transit center, parking garage, retail, and service opportunities. With no development located in Portland, the Planning Board approval and City Staff review focused primarily on stormwater and traffic impacts.

In 2020, the Portland Planning Board approved a Subdivision Amendment (PL-000910-2019) to the 2016 Subdivision. The amendment created three additional lots in the North Campus bringing the total to six lots as shown in Figure 3. This amendment defined new lots based off of the Phase 1 development. In 2022, the Portland Planning Board approved a Subdivision Amendment (PL-002021-2022) for the North Campus and a Subdivision (PL-002022-2022) for the South Campus.

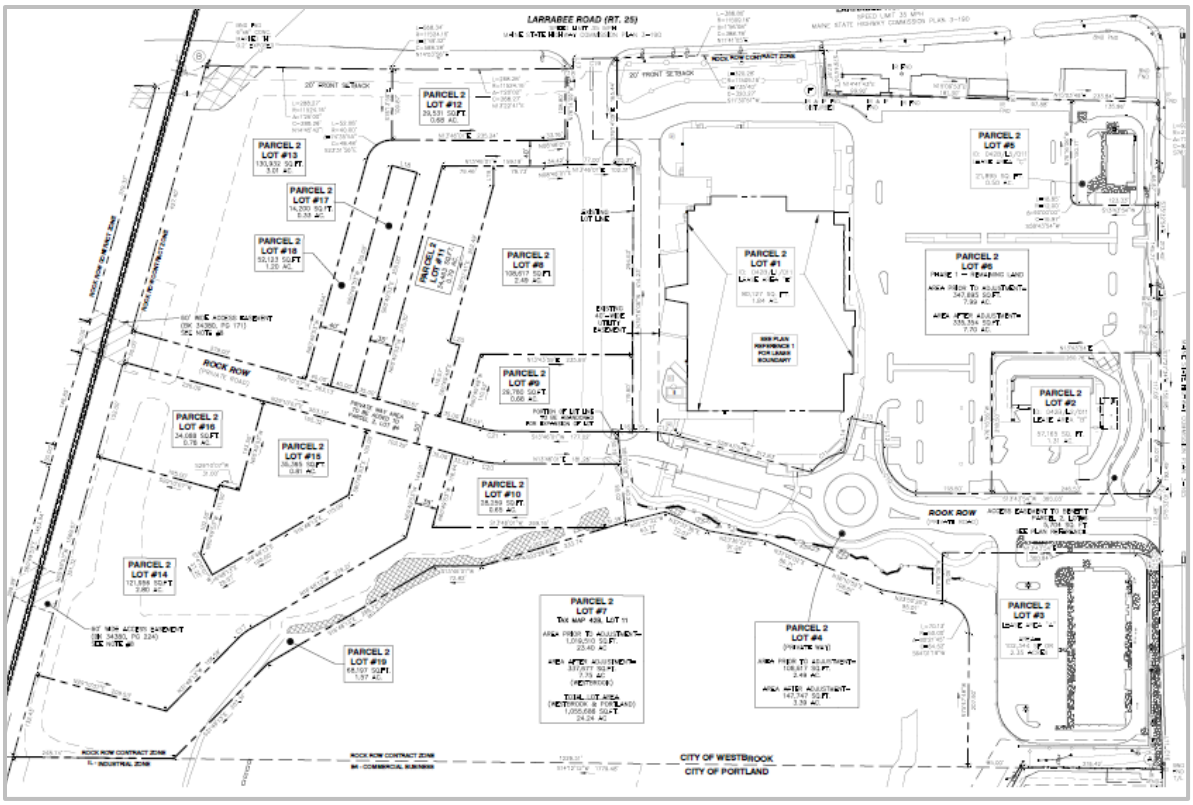
Under the State of Maine's subdivision statute, 30-A M.R.S. §4403 (1-A), "If any portion of a subdivision crosses municipal boundaries, all meetings and hearings to review the application must be held jointly by the reviewing authorities from each municipality... The reviewing authorities in each municipality, upon written agreement, may waive the requirement under this subsection for any joint meeting or hearing." As part of the 2016 Subdivision approval, the Cities of Portland and Westbrook agreed to waive the state subdivision joint meeting requirement and all future joint meeting requirements related to the Rock Row development. This standing joint meeting waiver applied to the 2020 and 2022 approvals and applies to these actions as well.

V. PROPOSEED SUBDIVISION AMENDMENT

The proposed subdivision amendment only impacts parcels in Westbrook. The Portland parcels are not impacted by these changes. The proposed subdivision amendment includes the following:

- Reconfigure the internal road parcels;
- Reconfigure Lots 7 and 8 into Lots 7, 8, 9, and 10 on the South Campus;
- Create a new Lot 11 in Westbrook on the South Campus from existing Parcel 1, Lot 1 to be used for the location of a CMP substation;
- Show remaining land on the South Campus as Parcel 1, Lot 12
- Create new Lots 8 through 19 within Phase 2 area of the development on the North Campus

The proposed subdivision amendment plat is shown below:



VI. RIGHT, TITLE, & INTEREST

Dirigo Center Developers, LLC and Waterstone Properties Group, Inc. have provided deeds demonstrating right, title, and interest for Parcel 1 that includes Portland Lots 252-A001 and 253-A001. The documentation also includes agreements between the applicants and Maine Department of Transportation to establish new boundaries between Parcel 1 Lot 9 and the Interstate 95 right-of-way. The documentation demonstrates ownership of the remainder of Parcel 1 that includes Westbrook parcels (Attachment D).

Dirigo Center Developers, LLC has provided deeds demonstrating right, title, and interest for Parcel 2 that includes Portland Lots 264-A002, 264-A004, 265-A003, and 265-A0055. The deeds also demonstrate ownership of the remainder of Parcel 2 that includes Westbrook parcels (Attachment D).

VII. FINANCIAL & TECHNICAL CAPACITY

The applicants have have provided financial statements as of March 31, 2021 (Attachment J). Through these submissions, the applicants have demonstrated adequate financial capacity.

Dirigo Center Developers, LLC and Waterstone Rock Row Medical Campus, LLC are both owned and controlled by Waterstone Properties Group, Inc. (a real estate development company located in Needham, Massachusetts). Waterstone's portfolio includes a variety of large developments in Maine and Massachusetts. Additionally, the applicants have worked with and plan to work with a variety of consultants, legal attorneys, and other professionals for the planning and development of Rock Row (Attachment K). The ownership and team of professionals listed demonstrate adequate technical capacity.

VIII. ZONING ANALYSIS

Currently, the Portland portion of Parcel 1 is located entirely in the I-L Low-Impact Industrial zone. As proposed, Parcel 1, Lot 9 will remain in the I-L Low-impact Industrial zone and will meet the zone's

dimensional requirements. Dimensional requirements for this zone can be found in *Table 7-G: Industrial & Airport Zone Dimensional Standards:*

Dimensional Standard	Required	Proposed
Lot area (min.)	None	531,561 square feet
Street Frontage (min.)	60 feet	140 feet
Structure Height (max.)	45 feet	None
Impervious surface ratio (max.)	65%	None

The Portland portion of Parcel 2 is located in both the I-L Low-Impact Industrial zone and the B-4 Commercial Corridor zone. As proposed, Parcel 2, Lot 7 will remain in both the I-L Low-Impact Industrial zone and the B-4 Commercial Corridor zone and meets the dimensional standards. The dimensional standards for the B-4 Commercial Corridor zone can be found in *Table 7-E: Mixed-Use Zone Dimensional Standards:*

Dimensional Standard	Required	Proposed
Lot area (min.)	10,000 square feet	1,019,510 square feet
Street Frontage (min.)	60 feet	>400 feet (along Larrabee Road)
Structure Height (max.)	65 feet	None
Impervious surface ratio (max.)	80%	None

IX. SUBDIVISION REVIEW STANDARDS (Section 15.4)

The proposed development has been reviewed by staff for conformance with the relevant review standards of Portland's Subdivision Ordinance and applicable regulations. Staff comments are listed below:

1. Will Not Result in Undue Water and Air Pollution (Section 15.4.1.A), and will not result in undue soil erosion (Section 15.4.1.D)
   Staff Finding: The stormwater for the site flows into the Nason's Brook Watershed, which is one of Portland's Urban Impaired Streams. Although no development is being considered as part of either Subdivision or Subdivision Amendment application, future development would need to meet permitting requirements as part of the Maine Department of Environmental Protection review of SLODA, NRPA, and Stormwater Management plan.

2. Has sufficient water available and will not cause unreasonable burden on existing water supply (Section 15.4.1.B and C)
   Staff Finding: Portland Water District has issued an Ability to Serve letter stating that the municipal water system will support future development of both Rock Row campuses. Additionally, the Portland Water District approved the plans for Rock Row Phase 1 development.

3. Will not cause unreasonable highway or public road congestion or unsafe conditions with respect to use of the highway or public roads existing or proposed (Section 15.4.1.E)

Staff Finding: The Maine Department of Transportation (MaineDOT) issued a Traffic Movement Permit (TMP) for Phase 1 development of Rock Row. MaineDOT is the review authority for this TMP because the Rock Row development crosses the Portland-Westbrook municipal border (normally MaineDOT delegates review authority to Portland).

4. Will provide for adequate sanitary sewer and stormwater disposal (Section 15.4.1.F) and will not cause an unreasonable burden on municipal solid waste and sewage (Section 15.4.1.G)
Staff Finding: The proposed Subdivision and Subdivision Amendment applications do not alter the previously approved sewer designs and approvals associated with Phase 1 development. Future development will need to receive approval for any changes or increase to the Portland sewer or water systems.

   Rock Row Phase 1 development utilizes private solid waste removal for all recyclable and non-recyclable solid waste.

5. Will not have an undue adverse effect on the scenic or natural beauty of the area, aesthetics, historic sites, significant wildlife habitat (Section 15.4.1.H)
Staff Finding: The NRPA and SLODA Maine DEP reviews involve reviewing impact on the scenic beauty, natural beauty, aesthetics, historic sites, and significant wildlife habitat at the Rock Row campuses. As a former quarry, the site contains limited landscape features and wildlife elements. DEP found that future development would not result in an unreasonable adverse effect on the surrounding area.

6. Is in conformance with the Comprehensive Plan (Section 15.4.1.I)
Staff Finding: No development is currently proposed within the City Limits of Portland, and proposed lots conform with applicable zoning dimensional requirements.

7. Adequate financial and technical capacity (Section 15.4.1.J)
Staff Finding: As mentioned in sections VI and VII of this report, the applicants have demonstrated adequate financial and technical capacity.

8. Whenever situated, in whole or in part, within the watershed of any pond or lake or within 250 feet of any wetland, great pond, or river, will not adversely affect the quality of such body of water or unreasonably affect the shoreline of such body of water (Section 15.4.1.K)
Staff Finding: The applicants have stated that the Portland Planning Board previously approved the stormwater design, which demonstrated no adverse effect to Nasons Brook (designated urban impaired stream) located on Parcel 1. With no future development currently proposed, the amended subdivision will not result in any impact to wetlands or water bodies.

9. Will not, adversely affect the quality and quantity of groundwater (Section 15.4.1.L)
Staff Finding: DEP's SLODA review established a stormwater design that will not adversely affect the quality and quantity of groundwater in the development or surrounding lots. No development is proposed at this time.

10. Is or is not in a flood-prone area (Section 15.4.1.M)
Staff Finding: The Rock Row development is not located within any designated flood zones.

11. Will provide for adequate stormwater management (Section 15.4.1.N)

Staff Finding: Stormwater management is encompassed by the DEP SLODA review and meets the basic, general, urban impaired stream, and flood standards.

12. Will not have lots with a lot depth-to-shore frontage ratio greater than 5 to 1 if any lots in the proposed subdivision have shore frontage on a river, stream brook, great pond, or coastal wetland (Section 15.4.1.O)
Staff Finding: The Rock Row development does not have shore frontage on any lots.

13. For any proposed subdivision that crosses municipal boundaries, will not cause unreasonable traffic congestion or unsafe conditions with respect to the use of existing public ways in an adjoining municipality in which part of the subdivision is located (Section 15.4.1.P)
Staff Finding: The Maine Department of Transportation (MaineDOT) issued a Traffic Movement Permit (TMP) for Phase 1 development of Rock Row. MaineDOT is the review authority for this TMP because the Rock Row development crosses the Portland-Westbrook municipal border (normally MaineDOT delegates review authority to Portland). The applicant intends to revise the approved TMP and is working with MaineDOT with input from Portland City Staff. . The applicant will need to provide an updated TMP approved by the MaineDOT as a condition of approval.

X. PUBLIC COMMENT

No public comment has been submitted to the Planning & Urban Development Department.

XI. STAFF RECOMMENDATION

Subject to the proposed motions and conditions of approval listed below, Planning Department staff recommends to the Planning Board that the proposed project meets the applicable standards of Portland's Land Use Code.

XII. PROPOSED MOTIONS

A. SUBDIVISION REVIEW

On the basis of the application, plans, reports and other information submitted by the applicant, findings and recommendations contained in the Planning Board Report for the public hearing on June 28, 2022 for application #PL-002553-2023 relevant to the subdivision regulations, and the testimony presented at the Planning Board hearing, the Planning Board [finds/does not find] that the plan is in conformance with the subdivision standards of the Land Use Code subject to the following conditions of approval:

PRIOR TO THE SUBMISSION OF THE PLAT FOR PLANNING BOARD SIGNATURE

1. The subdivision plat shall be finalized to the satisfaction of the Planning Authority, Corporation Counsel and Department of Public Works and include clear descriptions of the number, location, type and size of all subdivided units, along with relevant notes and conditions.
2. The applicant shall provide a revised Site Location of Development permit approved by the Maine Department of Environmental Protection.

XIII. ATTACHMENTS

APPLICANT SUBMITTAL

A. Cover Letter
B. Project Description 1
C. Project Description 2
D. Application Checklist

E. RTI 1
F. RTI 2
G. State and Federal Approvals
H. Zoning Assessment North
I. Zoning Assessment South
J. Subdivision Standards North
K. Subdivision Standards South
L. Easements North
M. Easements South
N. Waiver Requests
O. Financial Capacity
P. Technical Capacity
Q. Plans
R. Drainage Analysis and ESC

PLANS

Plan 1. Overall Subdivision Plat
Plan 2. Portland North Campus Lot
Plan 3. Portland South Campus Lot

JONES&BEACH
ENGINEERS INC.
85 Portsmouth Avenue, PO Box 219, Stratham, NH 03885
603.772.4746 - JonesandBeach.com

May 26, 2023

Portland Planning Board
Attn.: Charles Tetelman, Planner
City of Portland
389 Congress Street
Portland, ME 04101

Re: Rock Row: Application for North and South Campus Subdivision Amendment,
58 & 80 Main Street (North); 1, 11, & 15 Rock Row, and 59 Westbrook Arterial (South)
CBL: 252-A-001; 253-A-001 (the "Property")
JBE 14110.26

Dear Charles:

On behalf of our clients, Dirigo Center Developers, LLC ("Dirigo") and Waterstone Properties Group, Inc. ("Waterstone"), together the "Applicants," we are submitting the enclosed Application for Amended Subdivision Approval (North and South Campus) which is summarized below.

Through this Application, the Applicants propose to amend the Subdivision approvals for the North and South Campus issued in 2022 by the Portland and Westbrook Planning Boards to:

- Reconfigure the roads shown on the approved South Campus Subdivision plans recorded in the Cumberland County Registry of Deeds Plan Book 222, Pages 388, 389;
- Reconfigure Lots 7 and 8 into Lots 7, 8, 9, and 10 on the South Campus;
- Create a new lot 11 (in Westbrook) on the South Campus from existing Parcel 1, Lot 1, to be used for the location of a CMP substation;
- Show remaining land on the South Campus as Parcel 1, Lot 12
- Create new Lots 8 through 19 within Phase 2 area of the development on the North Campus

In support of this Subdivision Application, enclosed please find a completed Subdivision Checklist and Application with all supporting documentation and a plan set.

The requested amendments do not affect any Lot or portion of any Lots located in Portland, and no new structures or development of roads is being proposed on the Portland portions of the Rock Row properties as part of this Application.

No covenants, deed restrictions, easements, or rights of way are required as part of these Applications. No variances are requested. As explained below, if deemed necessary despite the current standing order of the Portland and Westbrook Planning Boards, Applicants request a waiver of the requirement to hold joint meetings and hearings to review this application.

C. Development Permitting History

The project has received several other approvals to date, including a Maine DEP Site Location of Development (SLODA) Permit (with Amendments and Minor Revisions) and Natural Resources Protection Act (NRPA) Permit; a Maine DOT Traffic Movement Permit (TMP); coverage under the Maine General Permit issued by the U.S. Army Corps of Engineers, as well as Site Plan, Subdivision and Conditional Use approvals from the City of Westbrook. As to Portland:

- The Rock Row project received initial subdivision approval from the City of Portland Planning Board October 18, 2016.

- Portland's Planning and Urban Development Director approved minor changes to the North Campus subdivision plan on October 25, 2018 in accordance with Section 14-496(c) of the Portland City Code of Ordinances (the "Code"), which permits the Planning Authority (the Director of Planning and Urban Development) to approve a subdivision amendment that: only affects lot lines and does not increase the number of lots; does not affect any street, alley, utility easement or drainage easement; meets codes; and is approved by the public works authority and the fire department.

- On January 20, 2020, the Portland Planning Board approved an application to amend the subdivision approval to increase the number of lots on the North Campus from three to six.

- Finally, on June 28, 2022, the Portland Planning Board approved: 1) an amendment to the North Campus to create one additional lot (for a total of 7 lots), and 2) a 9-lot subdivision of the South Campus.

Because the subdivision tracts or parcels cross city boundaries, the subdivision and subdivision amendments would require both Westbrook and Portland Planning Board approvals; however, under a standing order by both Boards, the Boards have waived joint review and will review subdivision and subdivision amendment applications separately. Therefore, Applicants request a waiver of the requirement to hold joint meetings and hearings to review this application.

The Westbrook Planning Board approved these subdivision amendments on May 2, 2023. Once we have obtained approval of the subdivision amendments from Portland's Planning Board, we will seek approval from DEP for incorporation of the new lot lines into the developments SLODA approval.

D. Conclusion

We look forward to presenting this Application to the Portland Planning Board. In the meantime, if you have any questions or need additional information, please let me know.

Very truly yours,

JONES & BEACH ENGINEERS, INC.

Wayne G. Morrill
President

cc: Josh Levy, Waterstone Properties Group
Scott Haley, Waterstone Properties Group
Tom Godfrey, Granite Development
Kelli Burke, Wilder Co.
Jim Katsiaficas, Esq., Perkins Thompson

Amended Subdivision Application
City of Portland, ME

Project:

"Rock Row" (North Campus)
58 & 80 Main Street, 903 & 905 Rock Row & 53 Westbrook Arterial
Westbrook, ME 04092

Applicant:

Dirigo Center Developers, LLC
250 First Avenue
Suite 202
Needham, MA 02494

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Section 1 - Project Description

As summarized in the cover letter submitted with this Application, Dirigo Center Developers, LLC ("Dirigo") and Waterstone Properties Group, Inc. ("Waterstone") (together, the "Applicants"), are proposing to amend the previously approved subdivision approval for the North Campus of Rock Row (hereinafter, the "Project" or the "Development") to create new Lots 8 through 19 within Phase 2 area of the development on the North Campus.

Section 1 - Project Description

As summarized in the cover letter submitted with this Application, Dirigo Center Developers, LLC ("Dirigo") and Waterstone Properties Group, Inc. ("Waterstone") (together, the "Applicants"), are proposing to amend the previously approved subdivision approval for the South Campus of Rock Row (hereinafter, the "Project" or the "Development"), as follows:

- Reconfigure the roads shown on the approved South Campus Subdivision plans recorded in the Cumberland County Registry of Deeds Plan Book 222, Pages 388, 389.
- Reconfigure Lots 7 and 8 into Lots 7, 8, 9, and 10 on the South Campus.
- Create a new Lot 11 (in Westbrook) on the South Campus from existing Parcel 1, Lot 1, to be used for the location of a CMP substation.
- Show the remaining land on the South Campus as Parcel 1, Lot 12.

Section 2 - Completed Checklist

Attached: Completed Subdivision General Document and Drawings Checklist.

CITY OF PORTLAND
Planning & Urban Development Department

SUBDIVISION
GENERAL DOCUMENT AND DRAWINGS CHECKLIST
Please submit each document as a separate PDF file.
Please confirm by electronically checking the boxes in the left-hand column.

** PLEASE FILL OUT AND UPLOAD THE ZONING ASSESSMENT TABLE AND WAIVER TABLE SEPARATELY AS NOTED BELOW **

At the time of application submission, please contact the Department of Public Works regarding E-911 addressing of your project.

		GENERAL APPLICATION DOCUMENTS
Yes	NA	**Project Description** • Cover letter with detailed project description
Yes	NA	**Completed Checklist** (this document)
Yes	NA	**Evidence of Right, Title, and Interest** • Deeds, leases, or purchase and sales agreements
Yes	NA	**Evidence of State or Federal Approvals** • Permits or letters of non-jurisdiction, if applicable
Yes	NA	**Zoning Assessment** (see Zoning Assessment Table) Summary of compliance with use and dimensional standards of the land use code
Yes	NA	**Subdivision Standards Assessment** (see Article 15.4 of the land use code) • Summary of compliance with subdivision review standards of the land use code
Yes	NA	**Existing and/or Proposed Easements or Covenants, applicable.** • Evidence of existing easements and any proposed easements
Yes	NA	**Waiver Requests** (see Waiver Table) • Written request for waiver describing request and compliance with applicable waiver standards
Yes	NA	**Financial Capability** • Letter or evidence from a financial institution or third party verifying financial capacity to undertake project
Yes	NA	**Technical Capability** • Evidence of technical capability of applicant and consultants – resumes and/or examples of past projects

SUBDIVISION
SUPPLEMENTAL SUBMISSIONS CHECKLIST

Provide assessment of compliance with standards and include supplemental documentation, as applicable.
Please submit each document as a separate PDF file.

Yes NA	• When private sewage systems are used, the results and supporting data of a soil test of each lot in the subdivision conducted by a soil evaluator licensed in the state.
Yes NA	• When the adequacy of the subdivision's load bearing capacity is in question, a geotechnical report with supporting data that includes the result of test borings shall be prepared by a professional engineer registered in the state and submitted.
Yes NA	• Price range of houses that will be built in the subdivision.
Yes NA	• Traffic impact analysis.
Yes NA	• High intensity soil survey, if required by the Planning Authority.
Yes NA	• Types and estimated quantities of solid waste to be generated by the development.
Yes NA	• A narrative describing all proposed buffer strips, their dimensions, and maintenance plans and responsibilities.
Yes NA	• A description of any wetlands, wildlife and fisheries habitats, archaeological sites or unusual natural areas located on or near the project site and a description of the methods that will be used to protect such area.
Yes NA Yes NA	• Construction plan outlining the anticipated sequence of construction of the major features of the project including without limitation roads, retention basins, sewer lines, seeding and other erosion and sedimentation control measures, and pollution abatement measures and also setting forth the approximate dates for commencement and completion of the project.
Yes NA	• When conditions warrant, a program to control dust, erosion and sedimentation and/or vehicular traffic during construction.
Yes NA	• At the option of the subdivider, any other information that may be necessary for the full and proper consideration of the subdivision shall be submitted in writing.

SUBDIVISION
DRAWINGS CHECKLIST

Please submit each document as a separate PDF file.
All drawings must be submitted in a 24 x 36 sheet size.

SUBDIVISION PLAT (at a scale not more than 1"=60', unless lots are more than one acre in size)

1. Date, north point, title and graphic scale.
2. Names, addresses and stamp or certification, if applicable, of registered professional engineer, subdivider, and owner
3. Vicinity sketch (may be shown on separate plan);
4. Names of adjacent property owners with parcels over 25,000 square feet or names of adjacent subdivision;
5. Location and designation of any zoning district boundaries affecting the subdivision;
6. Total site data, including total area of the subdivision, total area in streets, total area in recreation or open space and number of house lots;
7. Based on a recent survey by the subdivider, existing contours at two foot intervals or as otherwise required by the Public Works Authority. Existing structures which are to remain will shall be delineated;
8. Tract boundary lines and property lines of lots, with accurate dimensions and either bearings or deflection angles. All lots shall be numbered;
9. Names of proposed streets, width of rights of way, typical cross section reservation, and depth of construction materials;
10. Locations, widths and purposes of other rights of way or easements to be recorded;
11. All appropriate street geometry information, including point of curvature, point of tangency, tangent distance, radii and interior angle, in standard engineering format;
12. Location of those utilities existing on or adjacent to the tract to be subdivided, including size and elevation of buried or underground utilities (may be shown on separate plan);
13. Designation of flood hazard areas, as defined by the National Flood Insurance Program and shown on the city flood hazard boundary map, as well as any other areas in the subdivision subject to inundation by stormwater or storm sewer overflow;
14. All potential wetlands within the proposed subdivision, regardless of the size of those wetlands;

15. Any river, stream or brook within or abutting the proposed subdivision. For purposes of this section, "river, stream or brook" has the same meaning as in 38 M.R.S. § 480 B, Subsection 9.

16. Existing historic sites and structures which either appear on the National Register or are nominated to the National Register by the state historic preservation officer;

17. Proposed private and public utility system including water, gas, telephone, fire hydrants, and any other services which shall supply the area (may be shown on separate plan);

18. Sanitary sewer and storm drain plans and profiles showing size, kind and slope of pipe, proposed manhole rim and invert elevations and catch basin locations and drains (may be shown on separate plan);

19. Lighting plan showing the location, design, height and spacing from each other of the support poles, in accordance with standards and specifications established by the Public Works Authority (may be shown on separate plan);

20. Tree plan showing groups of existing, sizeable trees which the subdivider intends to preserve (may be shown on separate plan);

21. A detailed plan of the entire subdivision and the immediate vicinity showing all existing and proposed drainage both on- and off-site including drainage swales, ditches, etc., with directional flow arrows and approximate slope grades, and showing proposed finished "spot elevations" around the perimeter of the subdivision. Proposed drainage shall be shown as it may affect or restrict development on individual lots and with reference to improvements for which a performance guarantee is required under this article. Where deemed feasible by the Public Works Authority, proposed finished contours at intervals of two feet shall be provided on the drainage plan upon request (may be shown on separate plan);

22. All future phases and sections of the subdivision proposed by the subdivider (may be shown on separate plan);

23. Proposed parks and school sites, or other public open space that the developer proposes to convey to the city;

24. Streets and right of way monuments and property line markers;

25. Profiles of each street or way in the subdivision shall be shown on the subdivision plat. They shall be drawn to a longitudinal scale of 40 feet to one foot and a vertical scale of four feet to one inch. Such profiles shall include separate profiles of each side line and center line of the street or way. Any buildings abutting on the street shall be shown in standard engineering format as requested by the Public Works Authority.

26. Where submission drawings are available in electronic form, the applicant shall submit any available electronic CAD files with final plans.

Section 3 - Right, Title, and Interest

Enclosed are the following deeds evidencing Dirigo Center Developers, LLC's right, title and interest in the subject property:

- Book 34380, Page 164:
  - Westbrook Tax Map 42B, Lots 10 & 11* (described as Parcel 1 in the deed)
  - **Portland Tax Map 264, Lots A002 & A004 and Tax Map 265, Lots A003 & A005 (Parcel 3)**

- Book 34161, Page 294
  - Westbrook Tax Map 42B, Lot 9*

*Lots formerly identified as Westbrook Tax Map 42, Lots 9, 10, 11 have been consolidated into a single Lot 11 according to City of Westbrook Assessor's records.

Attachments: Deeds

MAINE REAL ESTATE TAX PAID

LIMITED WARRANTY DEED

Know all persons by these presents, that **PIKE INDUSTRIES, INC.**, a Delaware corporation, also known as Pike Industries (the "Grantor"), whose address is 3 Eastgate Park Road, Belmont, New Hampshire 03220, in consideration of the sum of Ten Dollars ($10.00), cash in hand and other good and valuable consideration paid by **DIRIGO CENTER DEVELOPERS, LLC**, a Maine limited liability company ("Grantee"), whose mailing address is One Canal Plaza, Portland, Maine 04101, the receipt of which is hereby acknowledged by Grantor, do hereby give, grant, bargain, sell and convey unto the said Grantee, its heirs and assigns forever, the following described real estate, to wit:

SEE SCHEDULE A ATTACHED HERETO AND MADE A PART HEREOF, (the "Premises").

To have and to hold the aforegranted and bargained Premises, with all the privileges and appurtenances thereof, unto the said Grantee, its heirs and assigns, to their use and behoof forever.

And the said Grantor does covenant with the said Grantee, its heirs and assigns, that Grantor is lawfully seized in fee of the Premises, that Premises are free of all encumbrances, that Grantor has good right to sell and convey the same to the said Grantee to hold as aforesaid; and that Grantor and its heirs shall and will warrant and defend the same unto the said Grantee, its heirs and assigns forever, against the lawful claims and demands of all persons by through and under Grantee, but no other. Grantor hereby quitclaims to Grantee all right, title and interest in and to the approximately 9 foot by 103 foot strip of land shown on the ALTA/NSPS Land Survey of 80 Main Street, Westbrook, ME, dated April 6, 2016 by Jones & Beach Engineers, Inc.

[Signature appears on following page]

IN WITNESS WHEREOF, this 22nd day of September, 2017.

Signed, sealed and delivered
in the presence of:

Witness

Witness

GRANTOR:

PIKE INDUSTRIES, INC.

By:
Name: David M. Toolan
Title: Assistant Secretary

State of Georgia
County of DeKalb ss:

Personally appeared before me, this 22nd day of September, 2017, David M. Toolan, as the Assistant Secretary of Pike Industries, Inc., a Delaware corporation, and acknowledged the foregoing instrument as the official act and deed of Pike Industries, Inc.

[AFFIX SEAL]

Kathryn Davis
My Commission Expires
Notary Public
February 12, 2020
DeKalb County, Georgia

Notary Public
Printed Name: Kathryn Davis

My Commission Expires: 2/12/20

SCHEDULE A
LEGAL DESCRIPTION

PARCEL 1: WESTBROOK TAX MAP 42B, LOTS 10 & 11

A CERTAIN LOT OR PARCEL OF LAND LOCATED ON THE EASTERLY SIDE OF LARRABEE ROAD AND THE SOUTHERLY SIDE OF MAIN STREET IN THE CITY OF WESTBROOK BOUNDED AND DESCRIBED AS FOLLOWS:

BEGINNING AT AN IRON ROD, ON THE SOUTHERLY SIDELINE OF MAIN STREET, SO-CALLED, ON THE TOWN LINE OF WESTBROOK AND PORTLAND, SAID POINT BEING S 14° 03' 36" W 5.39 FEET FROM A STONE BOUND ON SAID TOWN LINE, AND BEING THE MOST SOUTHEASTERLY CORNER OF THE WITHIN DESCRIBED PARCEL;

THENCE, S 14° 03' 36" W A DISTANCE OF 1779.47 FEET TO A POINT ON THE NORTHERLY SIDE OF LAND NOW OR FORMERLY OF THE PORTLAND TERMINAL COMPANY RAILROAD;

THENCE, TURNING AND RUNNING N 60°58'29" W ALONG THE NORTHERLY SIDELINE OF THE PORTLAND TERMINAL COMPANY RAILROAD A DISTANCE OF 1113.15 FEET TO A POINT ON THE EASTERLY SIDE OF LARRABEE ROAD, SAID POINT BEING N 15°02'03" E 1.67 FEET FROM A CONCRETE HIGHWAY BOUND;

THENCE: ALONG A CURVE TO THE LEFT WITH A RADIUS OF 11524.16 FEET, A DISTANCE OF 561.11 FEET, MAKING AN INCLUDED ANGLE OF 2° 47' 23", SAID CURVE HAVING A CHORD WITH A BEARING OF N 13° 56' 24" E AND A LENGTH OF 561.06 FEET, TO A POINT;

THENCE: ALONG A CURVE TO THE LEFT WITH A RADIUS OF 11524.16 FEET, A DISTANCE OF 7.23 FEET, MAKING AN INCLUDED ANGLE OF 0° 02' 09", SAID CURVE HAVING A CHORD WITH A BEARING OF N 12° 31' 38" E AND A LENGTH OF 7.23 FEET, TO A POINT;

THENCE: N 77° 29' 27" W A DISTANCE OF 15.00 FEET TO A POINT ON THE EASTERLY SIDE OF LARRABEE ROAD;

THENCE: ALONG A CURVE TO THE LEFT WITH A RADIUS OF 11509.16 FEET, A DISTANCE OF 388.80 FEET, MAKING AN INCLUDED ANGLE OF 1° 56' 08", SAID CURVE HAVING A CHORD WITH A BEARING OF N 11° 32' 29" E AND A LENGTH OF 388.78 FEET, TO A POINT;

THENCE: S 79° 53' 31" E A DISTANCE OF 68.91 FEET TO A POINT;

THENCE: N 14° 33' 07" E A DISTANCE OF 99.92 FEET TO AN IRON ROD;

THENCE: N 15° 01' 17" E A DISTANCE OF 181.30 FEET TO AN IRON ROD;

THENCE: N 79° 58' 26" W A DISTANCE OF 1.45 FEET TO A POINT;

THENCE: N 14° 55' 10" E A DISTANCE OF 233.84 FEET TO A POINT, SAID POINT BEING N 14° 55' 10" E 1.21 FEET FROM A IRON PIPE;

THENCE: ALONG A CURVE TO THE RIGHT WITH A RADIUS OF 2782.76 FEET, A DISTANCE OF 26.79 FEET, MAKING AN INCLUDED ANGLE OF 0° 33' 06", SAID CURVE HAVING A CHORD WITH A BEARING OF

S 77° 14' 34" E AND A LENGTH OF 26.79 FEET, TO A POINT, SAID POINT BEING N 15° 15' 17" E 0.19 FEET FROM AN IRON ROD;

THENCE: S 15° 15' 17" W A DISTANCE OF 413.14 FEET TO AN IRON ROD;

THENCE: S 79° 40' 48" E A DISTANCE OF 74.64 FEET TO AN IRON PIPE;

THENCE: N 15° 08' 31" E A DISTANCE OF 408.62 FEET TO A POINT, SAID POINT BEING N 15° 08' 31" E 0.13' FROM AN IRON PIPE;

THENCE: S 75° 41' 30" E A DISTANCE OF 204.97 FEET TO A CONCRETE BOUND;

THENCE: N 13° 44' 59" E A DISTANCE OF 4.90 FEET TO A CONCRETE BOUND;

THENCE: S 76° 01' 52" E A DISTANCE OF 50.23 FEET TO A CONCRETE BOUND;

THENCE: S 77° 36' 10" E A DISTANCE OF 150.08 FEET TO A POINT;

THENCE: S 75° 41' 37" E A DISTANCE OF 192.49 FEET TO A POINT;

THENCE: ALONG A CURVE TO THE LEFT WITH A RADIUS OF 5774.65 FEET, A DISTANCE OF 290.59 FEET, MAKING AN INCLUDED ANGLE OF 2° 53' 00", SAID CURVE HAVING A CHORD WITH A BEARING OF S 77° 08' 07" E AND A LENGTH OF 290.56 FEET, TO A POINT;

THENCE: S 78° 34' 17" E A DISTANCE OF 3.12 FEET TO A POINT;

THENCE: ALONG A TANGENT CURVE TO THE RIGHT WITH A RADIUS OF 1387.69 FEET, A DISTANCE OF 42.50 FEET, MAKING AN INCLUDED ANGLE OF 1° 45' 17", SAID CURVE HAVING A CHORD WITH A BEARING OF S 77° 41' 59" E AND A LENGTH OF 42.49 FEET, TO THE POINT OF BEGINNING.

CONTAINING 39.19 ACRES

PARCEL 2: WESTBROOK TAX MAP 42B, LOT 14

A CERTAIN LOT OR PARCEL OF LAND LOCATED ON THE EASTERLY SIDE OF LARRABEE ROAD AND THE NORTHERLY SIDE OF WESTBROOK ARTERIAL IN THE CITY OF WESTBROOK BOUNDED AND DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT, AT THE MOST NORTHWESTERLY CORNER OF THE WITHIN DESCRIBED PARCEL, BEING THE INTERSECTION OF THE EASTERLY SIDELINE OF LARRABEE ROAD, SO-CALLED, AND THE SOUTHERLY SIDELINE OF THE PORTLAND TERMINAL COMPANY RAILROAD;

THENCE, RUNNING S 60°58'29" E ALONG THE SAID SOUTHERLY SIDELINE OF THE PORTLAND TERMINAL COMPANY RAILROAD A DISTANCE OF 1078.76 FEET TO A POINT ON THE TOWN LINE BETWEEN WESTBROOK AND PORTLAND, SAID POINT BEING N 60°58'29" W 0.89 FEET FROM AN IRON PIPE;

THENCE, TURNING AND RUNNING S 14°03'36" W BY THE SAID TOWN LINE BETWEEN WESTBROOK AND PORTLAND A DISTANCE OF 864.32 FEET TO AN IRON ROD ON THE NORTHERLY SIDELINE OF THE WESTBROOK ARTERIAL, SO-CALLED;

THENCE, TURNING AND RUNNING S 57°12'11" W ALONG THE NORTHERLY SIDELINE OF THE WESTBROOK ARTERIAL, SO-CALLED A DISTANCE OF 147.65 FEET TO A CONCRETE BOUND;

THENCE, RUNNING WESTERLY, ALONG A NON-TANGENT CURVE TO THE RIGHT, CONTINUING ALONG THE NORTHERLY SIDELINE OF THE WESTBROOK ARTERIAL, SO-CALLED, HAVING A RADIUS OF 305.00 FEET, AN INCLUDED ANGLE OF 43°29'50", A DISTANCE OF 231.55 FEET, A CHORD OF S 78°58'25" W 226.03 FEET TO A CONCRETE BOUND;

THENCE, RUNNING WESTERLY, ALONG A NON-TANGENT CURVE TO THE RIGHT, CONTINUING ALONG THE NORTHERLY SIDELINE OF THE WESTBROOK ARTERIAL, SO-CALLED, HAVING A RADIUS OF 595.00 FEET, AN INCLUDED ANGLE OF 22°50'02", A DISTANCE OF 237.12 FEET, A CHORD OF N 68°00'01" W 235.56 FEET TO A POINT;

THENCE, RUNNING N 67°33'48" W, CONTINUING ALONG THE NORTHERLY SIDELINE OF THE WESTBROOK ARTERIAL, SO-CALLED, A DISTANCE OF 104.20 FEET TO A CONCRETE BOUND;

THENCE, RUNNING N 55°21'41' W, CONTINUING ALONG THE NORTHERLY SIDELINE OF THE WESTBROOK ARTERIAL, SO-CALLED, A DISTANCE OF 187.24 FEET TO A POINT, SAID POINT BEING S 18°12'52" W 0.48 FEET FROM AN IRON ROD AT THE CORNER OF LAND NOW OR FORMERLY OF THE DEVISEES OF LLEWELLYN A. RANDALL SR;

THENCE, TURNING AND RUNNING N 18°12'52" E A DISTANCE OF 123.29 FEET TO A POINT;

THENCE, RUNNING N 14°44'46" E A DISTANCE OF 84.56 FEET TO A POINT;

THENCE, RUNNING N 13°21'04" E A DISTANCE OF 189.80 FEET TO AN IRON PIPE;

THENCE, TURNING AND RUNNING N 78°40'14" W A DISTANCE OF 139.26 FEET TO A POINT;

THENCE, RUNNING N 67°42'19" W A DISTANCE OF 88.28 FEET TO A CONCRETE BOUND;

THENCE, RUNNING N 68°25'34" W A DISTANCE OF 25.35 FEET TO A CONCRETE BOUND ON THE EASTERLY SIDELINE OF LARRABEE ROAD, SO-CALLED;

THENCE, TURNING AND RUNNING N 15°23'23" E ALONG THE EASTERLY SIDELINE OF SAID LARRABEE ROAD, SO-CALLED, A DISTANCE OF 826.52 FEET TO THE POINT OF BEGINNING.

CONTAINING 25.41 ACRES

PARCEL 3: PORTLAND TAX MAP 264, LOTS A002 & A004. AND PORTLAND TAX MAP 265, LOTS A003 & A005

A CERTAIN LOT OR PARCEL OF LAND LOCATED ON THE SOUTHERLY SIDE OF MAIN STREET IN THE CITY OF PORTLAND BOUNDED AND DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT, AT THE MOST NORTHERLY CORNER OF THE WITHIN DESCRIBED PARCEL AND BEING ON THE TOWN LINE OF WESTBROOK AND PORTLAND, SAID POINT BEING S 14° 03' 36" W 216.42 FEET FROM AN IRON ROD ON SAID TOWN LINE AND ON THE SOUTHERLY SIDELINE OF MAIN STREET, SO-CALLED;

THENCE, RUNNING S 48°15'15" E A DISTANCE OF 273.48 FEET TO A POINT;

THENCE, RUNNING S 22°23'45" E A DISTANCE OF 252.50 FEET TO AN IRON ROD FOUND;

THENCE, TURNING AND RUNNING S 71°36'48" E A DISTANCE OF 111.65 FEET TO AN IRON ROD FOUND;

THENCE, TURNING AND RUNNING N 18°23'09" E A DISTANCE OF 168.44 FEET TO A POINT;

THENCE, TURNING AND RUNNING S 75°32'48" E A DISTANCE OF 31.32 FEET TO A POINT ON THE WESTERLY SIDE OF THE MAINE TURNPIKE;

THENCE, TURNING AND RUNNING S 18°07'11" W ALONG THE WESTERLY SIDE OF THE SAID MAINE TURNPIKE A DISTANCE OF 1513.73 FEET TO A POINT ON THE NORTHERLY SIDE OF LAND NOW OR FORMERLY OF THE PORTLAND TERMINAL COMPANY RAILROAD;

THENCE, TURNING AND RUNNING N 60°58'29" W ALONG THE NORTHERLY SIDELINE OF THE PORTLAND TERMINAL COMPANY RAILROAD A DISTANCE OF 455.86 FEET TO A POINT ON THE TOWN LINE BETWEEN PORTLAND AND WESTBROOK;

THENCE, TURNING AND RUNNING N 14°03'36" E ALONG SAID TOWN LINE A DISTANCE OF 1563.05 FEET TO THE POINT OF BEGINNING.

CONTAINING 16.48 ACRES

ALSO INCLUDING

A CERTAIN LOT OR PARCEL OF LAND, SITUATED ON THE SOUTHERLY SIDE OF MAIN STREET IN THE CITY OF WESTBROOK CUMBERLAND COUNTY, MAINE, BOUNDED AND DESCRIBED AS FOLLOWS:

BEGINNING AT A IRON PIPE ON SAID SOUTHERLY SIDE OF SAID STREET, SAID IRON PIPE BEING THE NORTHEASTERLY CORNER OF THE WITHIN DESCRIBED PARCEL;

THENCE: N 75°41'30" W ON THE SOUTHERLY SIDE OF SAID STREET A DISTANCE OF 7.48 FEET TO A BOUND;

THENCE: WESTERLY ON THE SOUTHERLY SIDE OF SAID STREET, ALONG A NON-TANGENT CURVE TO THE LEFT WITH A RADIUS OF 2782.76 FEET, HAVING A CENTRAL ANGLE OF 00°01'20", AN ARC LENGTH OF 1.08 FEET, A CHORD OF N 75°37'02" W 1.08 FEET TO A POINT;

THENCE: S 15°15'17" W A DISTANCE OF 103.26 FEET TO A POINT;

THENCE: S 75°40'56" E A DISTANCE OF 8.76 FEET TO A POINT;

THENCE: N 15°08'31" E A DISTANCE OF 103.25 FEET TO THE POINT OF BEGINNING.

CONTAINING 0.02 ACRES

Received
Recorded Register of Deeds
Oct 11,2017 03:06:56P
Cumberland County
Nancy A. Lane

WARRANTY DEED

KNOW ALL PERSONS BY THESE PRESENTS, that **L.L. LATHROP, INC.**, a Maine corporation whose mailing address is 10 Moulton Street, 4th Floor, Portland, ME 04101, for and in consideration of one dollar and other valuable consideration paid by **DIRIGO CENTERS DEVELOPERS, LLC** ("Grantee") whose mailing address is c/o Waterstone Retail Development, Inc., 322 Reservoir Street, Needham, MA 02494, does hereby grant to the said Grantee, its successors and assigns with **WARRANTY COVENANTS**, a certain lot and parcel of land, with the buildings thereon more particularly described as follows:

A certain lot or parcel of land, with the buildings thereon, situated on the southerly side of Main Street in the City of Westbrook, Cumberland County, Maine, bounded and described as follows, to wit:

BEGINNING at a point on said southerly side of said street, said point being 26 feet easterly from land of one Lufkin; thence southerly along a line parallel with said Lufkin, 125 feet to a point; thence easterly on a line parallel with said street 65 feet to a point; thence northerly on a line parallel with the first named bounds 125 feet to said Main Street; thence westerly along the line of said street 65 feet to the point of beginning.

Also another certain lot or parcel of land adjoining the southerly boundary line of the above-described parcel, said lot being 74 feet wide, and being all that land contained between the easterly and westerly boundary line of the above described parcel extended southerly to a point which is 435 feet distant southerly from said southerly side line of Main Street and the land now or formerly of Franz M. Hansen.

This conveyance is made subject to the following:

1. Rights and easements set forth in conveyance from Hans Nyholm Hansen to Franz M. Hansen and Eva Hansen by deed dated May 14, 1947 and recorded in Book 1868, Page 483.

2. Rights and easements granted from Hans Nyholm Hansen to Socony-Vacuum Oil Company, Incorporated, by deed dated August 20, 1947 and recorded in Book 1891, Page 16.

3. Rights and easement of Central Maine Power excepted in conveyance from the City of Portland to Blue Rock Quarry by deed dated July 13, 1948 and recorded in Book 1921, Page 59.

MAINE REAL ESTATE TAX PAID

4. Rights and easements granted from Blue Rock Quarry to Central Maine Power Company by deed dated October 28, 1950 and recorded in Book 2024, Page 115.

5. Rights and easements of Central Maine Power Company, Portland Pipe Line Corporation, Portland Water District, and New England Telephone and Telegraph Company excepted in conveyance from the City ofPortland to the Maine Turnpike Authority by deed dated April 8, 1955 and recorded in Book 2244, Page 15.

6. Rights and easements granted from Blue Rock Quarry to Central Maine Power Company by deed dated September 20, 1963 and recorded in Book 2783, Page 216; as affected Indenture between Blue Rock Industries and Central Maine Power Company dated December 10, 1971 and recorded in Book 3204, Page 758.

7. Rights and easements granted from Blue Rock Quarry to the State of Maine by deed dated April 13, 1964 and recorded in Book 2817, Page 85; and as depicted on Right of Way Map State Highway "12", Westbrook dated August 1963 and recorded in Plan Book 74, Page 4.

8. Rights and easements granted from Blue Rock Quarry to Portland Pipe Line Corporation by deed dated February 8, 1965 and recorded in Book 2881, Page 459.

9. State of facts shown on a plan of survey entitled "Engineering Laboratory Service Westbrook, Maine Property of Blue Rock Quarry, Westbrook Maine" by Charles F. Pander Chief Engineer, dated February 24, 1965 and recorded in Plan Book 68, Page 40.

10. Notice of Layout and Taking by the State of Maine Highway Commission dated February 19, 1969 and recorded in Book 3079, Page 107; and as depicted on Right of Way Maps State Highway "127", Westbrook dated May 1968 and recorded in Plan Book 103, Pages 25, 26, 27 and 28, including, without limitation, noted controlled access limitations.

11. Rights and easements granted from Blue Rock Quarry to Central Maine Power Company by deed dated March 8, 1969 and recorded in Book 3079, Page 702.

12. State of facts as shown on Right of Way Maps, State Highway "12" dated October 1972 and recorded in Plan Book 127, Pages 24, 25, 26, 27 and 28, including, without limitation, noted controlled access limitations.

13. State of facts shown on a plan of survey entitled "Subdivision-Lot Consolidation Plat, Dirigo Plaza, 80 Main St. & 11 Larrabee Rd, Westbrook, ME" dated February 23, 2015, revised through October 17, 2016 by Jones & Beach Engineers, Inc., including: i) 40' Access crossing land of Portland Terminal Company, to be recorded; ii) Utility lines & substation; iii) Wetlands; iv) Petroleum easement; v) Portland Pipe Line easement (2881/759); vi) CMP Utility easement (3204/758); vii) Proposed 50' easement; and, viii) Notes thereon.

Also quitclaiming and releasing unto the Grantee, without warranty covenants or title representations of any type or description, such rights, if any, as Grantor may have in and to an approximately 9 foot by 103 foot strip of land on the easterly boundary of the property above described as may be shown on an "ALTA/NSPS Land Title Survey, 80 Main Street, Westbrook, Maine" dated April 6, 2016 by Jones & Beach Engineers, Inc.

Reference is made to a Warranty Deed to L.L. Lathrop, Inc. dated August 2, 2004 recorded in the Cumberland County Registry of Deeds in Book 21632, Page 224.

IN WITNESS WHEREOF, the said Grantor has caused this instrument to be signed this 11 day of July, 2017.

Witness

L. L. Lathrop, Inc.

By: L. L. Lathrop
Lloyd L. Lathrop, Jr.
Its: President

State of Maine
Cumberland, ss.

July 11, 2017

Personally appeared the above-named Lloyd L. Lathrop and acknowledged the foregoing instrument to be his free act and deed in his said capacity and the free act and deed of L.L. Lathrop, Inc.. Before me,

Melissa Hansen
Notary Public/Attorney-at-Law

Melissa Hansen
Printed Name

SEAL

MELISSA HANSEN
NOTARY PUBLIC
State of Maine
My Commission Expires
April 1, 2024

Received
Recorded Register of Deeds
Jul 17,2017 11:54:34A
Cumberland County
Nancy A. Lane

Section 3 - Right, Title, and Interest

Enclosed are the following deeds evidencing Dirigo Center Developers, LLC's right, title and interest in the subject property:

- Book 34380, Page 164:
    - Westbrook Tax Map 42B, Lot 14 (described as Parcel 2 in the deed)

- Book 36192, Page 297:
    - Additional land adjacent to Route 25 purchased from the State of Maine (Department of Transportation) in 2019

- Book 36260, Page 301:
    - Additional land within South Campus purchased from the City of Portland in 2019.

Attachments: Deeds

MAINE REAL ESTATE TAX PAID

LIMITED WARRANTY DEED

Know all persons by these presents, that **PIKE INDUSTRIES, INC.**, a Delaware corporation, also known as Pike Industries (the "Grantor"), whose address is 3 Eastgate Park Road, Belmont, New Hampshire 03220, in consideration of the sum of Ten Dollars ($10.00), cash in hand and other good and valuable consideration paid by **DIRIGO CENTER DEVELOPERS, LLC**, a Maine limited liability company ("Grantee"), whose mailing address is One Canal Plaza, Portland, Maine 04101, the receipt of which is hereby acknowledged by Grantor, do hereby give, grant, bargain, sell and convey unto the said Grantee, its heirs and assigns forever, the following described real estate, to wit:

SEE SCHEDULE A ATTACHED HERETO AND MADE A PART HEREOF, (the "Premises").

To have and to hold the aforegranted and bargained Premises, with all the privileges and appurtenances thereof, unto the said Grantee, its heirs and assigns, to their use and behoof forever.

And the said Grantor does covenant with the said Grantee, its heirs and assigns, that Grantor is lawfully seized in fee of the Premises, that Premises are free of all encumbrances, that Grantor has good right to sell and convey the same to the said Grantee to hold as aforesaid; and that Grantor and its heirs shall and will warrant and defend the same unto the said Grantee, its heirs and assigns forever, against the lawful claims and demands of all persons by through and under Grantee, but no other. Grantor hereby quitclaims to Grantee all right, title and interest in and to the approximately 9 foot by 103 foot strip of land shown on the ALTA/NSPS Land Survey of 80 Main Street, Westbrook, ME, dated April 6, 2016 by Jones & Beach Engineers, Inc.

[Signature appears on following page]

IN WITNESS WHEREOF, this 22nd day of September, 2017.

Signed, sealed and delivered
in the presence of:

Witness

Witness

GRANTOR:

PIKE INDUSTRIES, INC.

By: _____
Name: David M. Toolan
Title: Assistant Secretary

State of Georgia
County of DeKalb ss:

Personally appeared before me, this 22nd day of September, 2017, David M. Toolan, as the Assistant Secretary of Pike Industries, Inc., a Delaware corporation, and acknowledged the foregoing instrument as the official act and deed of Pike Industries, Inc.

[AFFIX SEAL]

Kathryn Davis
My Commission Expires
Notary Public
February 12, 2020
DeKalb County, Georgia

_____
Notary Public
Printed Name: Kathryn Davis

My Commission Expires: 2/12/20

SCHEDULE A
LEGAL DESCRIPTION

PARCEL 1: WESTBROOK TAX MAP 42B, LOTS 10 & 11

A CERTAIN LOT OR PARCEL OF LAND LOCATED ON THE EASTERLY SIDE OF LARRABEE ROAD AND THE SOUTHERLY SIDE OF MAIN STREET IN THE CITY OF WESTBROOK BOUNDED AND DESCRIBED AS FOLLOWS:

BEGINNING AT AN IRON ROD, ON THE SOUTHERLY SIDELINE OF MAIN STREET, SO-CALLED, ON THE TOWN LINE OF WESTBROOK AND PORTLAND, SAID POINT BEING S 14° 03' 36" W 5.39 FEET FROM A STONE BOUND ON SAID TOWN LINE, AND BEING THE MOST SOUTHEASTERLY CORNER OF THE WITHIN DESCRIBED PARCEL;

THENCE, S 14° 03' 36" W A DISTANCE OF 1779.47 FEET TO A POINT ON THE NORTHERLY SIDE OF LAND NOW OR FORMERLY OF THE PORTLAND TERMINAL COMPANY RAILROAD;

THENCE, TURNING AND RUNNING N 60°58'29" W ALONG THE NORTHERLY SIDELINE OF THE PORTLAND TERMINAL COMPANY RAILROAD A DISTANCE OF 1113.15 FEET TO A POINT ON THE EASTERLY SIDE OF LARRABEE ROAD, SAID POINT BEING N 15°02'03" E 1.67 FEET FROM A CONCRETE HIGHWAY BOUND;

THENCE: ALONG A CURVE TO THE LEFT WITH A RADIUS OF 11524.16 FEET, A DISTANCE OF 561.11 FEET, MAKING AN INCLUDED ANGLE OF 2° 47' 23", SAID CURVE HAVING A CHORD WITH A BEARING OF N 13° 56' 24" E AND A LENGTH OF 561.06 FEET, TO A POINT;

THENCE: ALONG A CURVE TO THE LEFT WITH A RADIUS OF 11524.16 FEET, A DISTANCE OF 7.23 FEET, MAKING AN INCLUDED ANGLE OF 0° 02' 09", SAID CURVE HAVING A CHORD WITH A BEARING OF N 12° 31' 38" E AND A LENGTH OF 7.23 FEET, TO A POINT;

THENCE: N 77° 29' 27" W A DISTANCE OF 15.00 FEET TO A POINT ON THE EASTERLY SIDE OF LARRABEE ROAD;

THENCE: ALONG A CURVE TO THE LEFT WITH A RADIUS OF 11509.16 FEET, A DISTANCE OF 388.80 FEET, MAKING AN INCLUDED ANGLE OF 1° 56' 08", SAID CURVE HAVING A CHORD WITH A BEARING OF N 11° 32' 29" E AND A LENGTH OF 388.78 FEET, TO A POINT;

THENCE: S 79° 53' 31" E A DISTANCE OF 68.91 FEET TO A POINT;

THENCE: N 14° 33' 07" E A DISTANCE OF 99.92 FEET TO AN IRON ROD;

THENCE: N 15° 01' 17" E A DISTANCE OF 181.30 FEET TO AN IRON ROD;

THENCE: N 79° 58' 26" W A DISTANCE OF 1.45 FEET TO A POINT;

THENCE: N 14° 55' 10" E A DISTANCE OF 233.84 FEET TO A POINT, SAID POINT BEING N 14° 55' 10" E 1.21 FEET FROM A IRON PIPE;

THENCE: ALONG A CURVE TO THE RIGHT WITH A RADIUS OF 2782.76 FEET, A DISTANCE OF 26.79 FEET, MAKING AN INCLUDED ANGLE OF 0° 33' 06", SAID CURVE HAVING A CHORD WITH A BEARING OF

S 77° 14' 34" E AND A LENGTH OF 26.79 FEET, TO A POINT, SAID POINT BEING N 15° 15' 17" E 0.19 FEET FROM AN IRON ROD;

THENCE: S 15° 15' 17" W A DISTANCE OF 413.14 FEET TO AN IRON ROD;

THENCE: S 79° 40' 48" E A DISTANCE OF 74.64 FEET TO AN IRON PIPE;

THENCE: N 15° 08' 31" E A DISTANCE OF 408.62 FEET TO A POINT, SAID POINT BEING N 15° 08' 31" E 0.13' FROM AN IRON PIPE;

THENCE: S 75° 41' 30" E A DISTANCE OF 204.97 FEET TO A CONCRETE BOUND;

THENCE: N 13° 44' 59" E A DISTANCE OF 4.90 FEET TO A CONCRETE BOUND;

THENCE: S 76° 01' 52" E A DISTANCE OF 50.23 FEET TO A CONCRETE BOUND;

THENCE: S 77° 36' 10" E A DISTANCE OF 150.08 FEET TO A POINT;

THENCE: S 75° 41' 37" E A DISTANCE OF 192.49 FEET TO A POINT;

THENCE: ALONG A CURVE TO THE LEFT WITH A RADIUS OF 5774.65 FEET, A DISTANCE OF 290.59 FEET, MAKING AN INCLUDED ANGLE OF 2° 53' 00", SAID CURVE HAVING A CHORD WITH A BEARING OF S 77° 08' 07" E AND A LENGTH OF 290.56 FEET, TO A POINT;

THENCE: S 78° 34' 17" E A DISTANCE OF 3.12 FEET TO A POINT;

THENCE: ALONG A TANGENT CURVE TO THE RIGHT WITH A RADIUS OF 1387.69 FEET, A DISTANCE OF 42.50 FEET, MAKING AN INCLUDED ANGLE OF 1° 45' 17", SAID CURVE HAVING A CHORD WITH A BEARING OF S 77° 41' 59" E AND A LENGTH OF 42.49 FEET, TO THE POINT OF BEGINNING.

CONTAINING 39.19 ACRES

PARCEL 2: WESTBROOK TAX MAP 42B, LOT 14

A CERTAIN LOT OR PARCEL OF LAND LOCATED ON THE EASTERLY SIDE OF LARRABEE ROAD AND THE NORTHERLY SIDE OF WESTBROOK ARTERIAL IN THE CITY OF WESTBROOK BOUNDED AND DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT, AT THE MOST NORTHWESTERLY CORNER OF THE WITHIN DESCRIBED PARCEL, BEING THE INTERSECTION OF THE EASTERLY SIDELINE OF LARRABEE ROAD, SO-CALLED, AND THE SOUTHERLY SIDELINE OF THE PORTLAND TERMINAL COMPANY RAILROAD;

THENCE, RUNNING S 60°58'29" E ALONG THE SAID SOUTHERLY SIDELINE OF THE PORTLAND TERMINAL COMPANY RAILROAD A DISTANCE OF 1078.76 FEET TO A POINT ON THE TOWN LINE BETWEEN WESTBROOK AND PORTLAND, SAID POINT BEING N 60°58'29" W 0.89 FEET FROM AN IRON PIPE;

THENCE, TURNING AND RUNNING S 14°03'36" W BY THE SAID TOWN LINE BETWEEN WESTBROOK AND PORTLAND A DISTANCE OF 864.32 FEET TO AN IRON ROD ON THE NORTHERLY SIDELINE OF THE WESTBROOK ARTERIAL, SO-CALLED;

THENCE, TURNING AND RUNNING S 57°12'11" W ALONG THE NORTHERLY SIDELINE OF THE WESTBROOK ARTERIAL, SO-CALLED A DISTANCE OF 147.65 FEET TO A CONCRETE BOUND;

THENCE, RUNNING WESTERLY, ALONG A NON-TANGENT CURVE TO THE RIGHT, CONTINUING ALONG THE NORTHERLY SIDELINE OF THE WESTBROOK ARTERIAL, SO-CALLED, HAVING A RADIUS OF 305.00 FEET, AN INCLUDED ANGLE OF 43°29'50", A DISTANCE OF 231.55 FEET, A CHORD OF S 78°58'25" W 226.03 FEET TO A CONCRETE BOUND;

THENCE, RUNNING WESTERLY, ALONG A NON-TANGENT CURVE TO THE RIGHT, CONTINUING ALONG THE NORTHERLY SIDELINE OF THE WESTBROOK ARTERIAL, SO-CALLED, HAVING A RADIUS OF 595.00 FEET, AN INCLUDED ANGLE OF 22°50'02", A DISTANCE OF 237.12 FEET, A CHORD OF N 68°00'01" W 235.56 FEET TO A POINT;

THENCE, RUNNING N 67°33'48" W, CONTINUING ALONG THE NORTHERLY SIDELINE OF THE WESTBROOK ARTERIAL, SO-CALLED, A DISTANCE OF 104.20 FEET TO A CONCRETE BOUND;

THENCE, RUNNING N 55°21'41' W, CONTINUING ALONG THE NORTHERLY SIDELINE OF THE WESTBROOK ARTERIAL, SO-CALLED, A DISTANCE OF 187.24 FEET TO A POINT, SAID POINT BEING S 18°12'52" W 0.48 FEET FROM AN IRON ROD AT THE CORNER OF LAND NOW OR FORMERLY OF THE DEVISEES OF LLEWELLYN A. RANDALL SR;

THENCE, TURNING AND RUNNING N 18°12'52" E A DISTANCE OF 123.29 FEET TO A POINT;

THENCE, RUNNING N 14°44'46" E A DISTANCE OF 84.56 FEET TO A POINT;

THENCE, RUNNING N 13°21'04" E A DISTANCE OF 189.80 FEET TO AN IRON PIPE;

THENCE, TURNING AND RUNNING N 78°40'14" W A DISTANCE OF 139.26 FEET TO A POINT;

THENCE, RUNNING N 67°42'19" W A DISTANCE OF 88.28 FEET TO A CONCRETE BOUND;

THENCE, RUNNING N 68°25'34" W A DISTANCE OF 25.35 FEET TO A CONCRETE BOUND ON THE EASTERLY SIDELINE OF LARRABEE ROAD, SO-CALLED;

THENCE, TURNING AND RUNNING N 15°23'23" E ALONG THE EASTERLY SIDELINE OF SAID LARRABEE ROAD, SO-CALLED, A DISTANCE OF 826.52 FEET TO THE POINT OF BEGINNING.

CONTAINING 25.41 ACRES

PARCEL 3: PORTLAND TAX MAP 264, LOTS A002 & A004. AND PORTLAND TAX MAP 265, LOTS A003 & A005

A CERTAIN LOT OR PARCEL OF LAND LOCATED ON THE SOUTHERLY SIDE OF MAIN STREET IN THE CITY OF PORTLAND BOUNDED AND DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT, AT THE MOST NORTHERLY CORNER OF THE WITHIN DESCRIBED PARCEL AND BEING ON THE TOWN LINE OF WESTBROOK AND PORTLAND, SAID POINT BEING S 14° 03' 36" W 216.42 FEET FROM AN IRON ROD ON SAID TOWN LINE AND ON THE SOUTHERLY SIDELINE OF MAIN STREET, SO-CALLED;

THENCE, RUNNING S 48°15'15" E A DISTANCE OF 273.48 FEET TO A POINT;

THENCE, RUNNING S 22°23'45" E A DISTANCE OF 252.50 FEET TO AN IRON ROD FOUND;

THENCE, TURNING AND RUNNING S 71°36'48" E A DISTANCE OF 111.65 FEET TO AN IRON ROD FOUND;

THENCE, TURNING AND RUNNING N 18°23'09" E A DISTANCE OF 168.44 FEET TO A POINT;

THENCE, TURNING AND RUNNING S 75°32'48" E A DISTANCE OF 31.32 FEET TO A POINT ON THE WESTERLY SIDE OF THE MAINE TURNPIKE;

THENCE, TURNING AND RUNNING S 18°07'11" W ALONG THE WESTERLY SIDE OF THE SAID MAINE TURNPIKE A DISTANCE OF 1513.73 FEET TO A POINT ON THE NORTHERLY SIDE OF LAND NOW OR FORMERLY OF THE PORTLAND TERMINAL COMPANY RAILROAD;

THENCE, TURNING AND RUNNING N 60°58'29" W ALONG THE NORTHERLY SIDELINE OF THE PORTLAND TERMINAL COMPANY RAILROAD A DISTANCE OF 455.86 FEET TO A POINT ON THE TOWN LINE BETWEEN PORTLAND AND WESTBROOK;

THENCE, TURNING AND RUNNING N 14°03'36" E ALONG SAID TOWN LINE A DISTANCE OF 1563.05 FEET TO THE POINT OF BEGINNING.

CONTAINING 16.48 ACRES

ALSO INCLUDING

A CERTAIN LOT OR PARCEL OF LAND, SITUATED ON THE SOUTHERLY SIDE OF MAIN STREET IN THE CITY OF WESTBROOK CUMBERLAND COUNTY, MAINE, BOUNDED AND DESCRIBED AS FOLLOWS:

BEGINNING AT A IRON PIPE ON SAID SOUTHERLY SIDE OF SAID STREET, SAID IRON PIPE BEING THE NORTHEASTERLY CORNER OF THE WITHIN DESCRIBED PARCEL;

THENCE: N 75°41'30" W ON THE SOUTHERLY SIDE OF SAID STREET A DISTANCE OF 7.48 FEET TO A BOUND;

THENCE: WESTERLY ON THE SOUTHERLY SIDE OF SAID STREET, ALONG A NON-TANGENT CURVE TO THE LEFT WITH A RADIUS OF 2782.76 FEET, HAVING A CENTRAL ANGLE OF 00°01'20", AN ARC LENGTH OF 1.08 FEET, A CHORD OF N 75°37'02" W 1.08 FEET TO A POINT;

THENCE: S 15°15'17" W A DISTANCE OF 103.26 FEET TO A POINT;

THENCE: S 75°40'56" E A DISTANCE OF 8.76 FEET TO A POINT;

THENCE: N 15°08'31" E A DISTANCE OF 103.25 FEET TO THE POINT OF BEGINNING.

CONTAINING 0.02 ACRES

Received
Recorded Register of Deeds
Oct 11,2017 03:06:56P
Cumberland County
Nancy A. Lane

GOVERNOR'S DEED

The **STATE OF MAINE**, acting by and through its Governor, on recommendation of the Commissioner of the Department of Transportation ("Grantor"), having a mailing address of 16 State House Station, Augusta, ME 04333-0016, for consideration paid, pursuant to 23 M.R.S. Section 61(2), as amended, releases to **DIRIGO CENTER DEVELOPERS, LLC**, Maine limited liability company, their successors and assigns forever ("Grantee"), having a mailing address of 322 Reservoir Street, Needham, MA 02494, all Grantor's right, title and interest in and to certain land situated on the northeasterly side of State Route 25 also known as Westbrook Arterial, Rand Road and State Highway "12", in the City of Westbrook, County of Cumberland, State of Maine, as shown on a Maine Department of Transportation Right of Way Map entitled "State Highway "12", Westbrook-Portland, Cumberland County, Federal Aid Project No. QF-012-1(10)", dated October 1972, Sheets 36-38, S.H.C. File No. 3-189, and on file at the Property Office of the Maine Department of Transportation (the "Plan") and more particularly described on the attached **Exhibit A, Legal Description** (the "Premises").

MAINE REAL ESTATE TAX PAID

RESERVING TO THE STATE OF MAINE from this conveyance the perpetual right to enter upon the Premises to maintain any state or state-aid highway slopes and drainage facilities or installations that may exist.

THIS CONVEYANCE IS ALSO MADE subject to all above-ground and underground utility easements and installations, if any, located on the Premises, including but not limited to those shown on the Plan and those rights which any utility enjoys over the above-described Premises for maintenance, location or relocation of poles or other installations.

GRANTOR MAKES NO REPRESENTATIONS or warranties with respect to the above-described Premises. The representations and warranties so excluded encompass, but are not limited to, those pertaining to: land use and environmental matters; fitness of the Premises or any portion thereof for any particular purpose; water quality or quantity; the condition or quality of the soil; inchoate or unrecorded liens; or the existence, status, or condition of access to, public utilities serving the Premises. Any subsequent use of, improvement to, or construction on the Premises is subject to all applicable laws, regulations, ordinances, and permitting requirements.

[SIGNATURE ON THE FOLLOWING PAGE]

IN WITNESS WHEREOF, I, Janet T. Mills, Governor of the State of Maine, has executed this Release and caused the name and great seal of the State of Maine to be hereto affixed this 21 day of October, in the year two thousand nineteen.

STATE OF MAINE

By: _____, Governor
Janet T. Mills

Affixed by: _____
Secretary of State

STATE OF MAINE
County of Kennebec

Date Oct. 21, 2019

Personally appeared before me the above-named Janet T. Mills, Governor of the State of Maine and acknowledged the foregoing instrument to be her free act and deed in her said capacity and the free act and deed of the State of Maine.

Before me,

_____
~~Notary Public~~/Attorney at Law
Print Name: DEREK LANGHILL
My commission expires: N/A

EXHIBIT A
Legal Description

A certain lot or parcel of land located on the northeasterly side of Route 25, also known as State Highway "12" and Westbrook Arterial and Rand Road, and on the northwesterly side of, but not adjacent to Interstate 95, also known as the Maine Turnpike, in the Cities of Westbrook and Portland, County of Cumberland, State of Maine, being more particularly bounded and described as follows:

BEGINNING AT A POINT on the northeasterly right of way line of Route 25 in the City of Westbrook, 110.80 feet northeasterly from and as measured along a line normal to the baseline of said Route 25 at station 987+43, more or less, as said baseline is shown on a highway plan of the Maine Turnpike Authority entitled "Westbrook Interchange – Connector Road, Station 982+50 to 996+50, Contract: 2001.02", dated July 2001, sheet 33 of 198, said point also being 150 feet, more or less, northeasterly from and as measured along a line normal to another baseline of said Route 25 at station 71+95.56, as said other baseline is shown on a right of way map of the Maine State Highway Commission entitled "State Highway "12", Westbrook – Portland, Cumberland County, Federal Aid Project No. QF-012-1(10)", dated October 1972, sheet nos. 36 through 38 (or temporary sheet nos. 12 through 14), recorded at the Cumberland County Registry of Deeds in Plan Book 127, Page 26 through 28, respectively, S.H.C. File No. 3-189, revised and updated copies of which are on file at the Property Office of the State of Maine Department of Transportation;

THENCE southeasterly, along land now or formerly (N/F) of Dirigo Center Developers, LLC (Dirigo) as described in a deed recorded in Book 34380, Page 164 at the Cumberland County Registry of Deeds, a distance of 104.20' to a non-tangent point of curvature 125 feet northeasterly from and as measured along a line normal to the baseline of Ramp 95-3, so called, at station 21+14.218, as said baseline is also shown on the aforementioned plan;

THENCE easterly, adjoining land of said Dirigo, along a curve to the left concentric with and maintaining always a distance of 125 feet northerly from the baseline of said Ramp 95-3, said curve having a radius of 595.0 feet and an arc length of 237.01 feet, to a point of compound curvature 125 feet northerly from and as measured along a line normal to the baseline of said Ramp 95-3 at P.C.C. station 18+27.415;

THENCE easterly, along land of said Dirigo, along a curve to the left concentric with and maintaining always a distance of 125 feet northerly from the baseline of said Ramp 95-3, said curve having a radius of 305.0 feet and an arc distance of 231.66 feet, to a point 125 feet northerly from and as measured along a line normal to the baseline of said Ramp 95-3 at P.C. station 15+00.81;

THENCE northeasterly, along land of said Dirigo and land N/F of the City of Portland, along a line parallel with and maintaining always a distance of 125 feet northwesterly from the baseline of said Ramp 95-3, a distance of 300.81 feet to a point in the City of Portland, 125 feet northwesterly from and as measured along a line normal to the baseline of said Ramp 95-3 at station 12+00;

THENCE northerly, along land N/F of said City of Portland ("City"), a distance of 56.03 feet to a point 150 feet northwesterly from and as measured along a line normal to the baseline of said Ramp 95-3 at station 11+50;

THENCE northeasterly, along land of said City, along a line parallel with and maintaining always a distance of 150 feet northwesterly from the baseline of said Ramp 95-3, a distance of 198.78 feet to a point of curvature 150 feet northwesterly from and as measured along a line normal to the baseline of said Ramp 95-3 at P.T. station 9+51.22;

THENCE northeasterly, along land of said City, along a curve to the left concentric with and maintaining always a distance of 150 feet northwesterly from the baseline of said Ramp 95-3, said curve having a radius of 280 feet and an arc length of 177.84 feet, to a point 150 feet westerly from and as measured along a line normal to the baseline of said Ramp 95-3 at P.C. station 6+88.11;

THENCE northerly, along land of said City, along a line parallel with and maintaining always a distance of 150 feet northwesterly from the baseline of said Ramp 95-3, a distance of 137 feet, more or less, to a point 150 feet westerly from and as measured along a line normal to the baseline of said Ramp 95-3 at station 5+46, more or less, said point also being 225.00 feet westerly from and as measure along a line normal to the baseline of the Maine Turnpike, also known as Interstate 95 (I-95), at station 2376+77, as said baseline is shown on a property plan of the Maine Turnpike Authority entitled "Maine Turnpike, Section 2 – Portland to Augusta", dated January 1955, revised April 1963, supplemental sheet no. 14;

THENCE southerly, along a line parallel with and maintaining always a distance of 225.0 feet westerly from the baseline of said I-95, a distance of 1,144.4 feet, to a point 225.0 feet westerly from and as measured along a line normal to said baseline at station 2365+32.5, said point also being 110.80 feet northeasterly from and as measured along a line normal to that baseline of Route 25 shown on the aforementioned highway plan of 2001 by the Maine Turnpike Authority, at station 997+25.6;

THENCE northwesterly, along a new right of way line of Route 25, along a line parallel with and maintaining always a distance of 110.80 feet northeasterly from the baseline of said Route 25 as shown on said highway plan of 2001 by the Maine Turnpike Authority, a distance of 753.6 feet, to a point of curvature 110.80 feet northeasterly from and as measured along a line normal to said baseline at P.T. station 989+72.03;

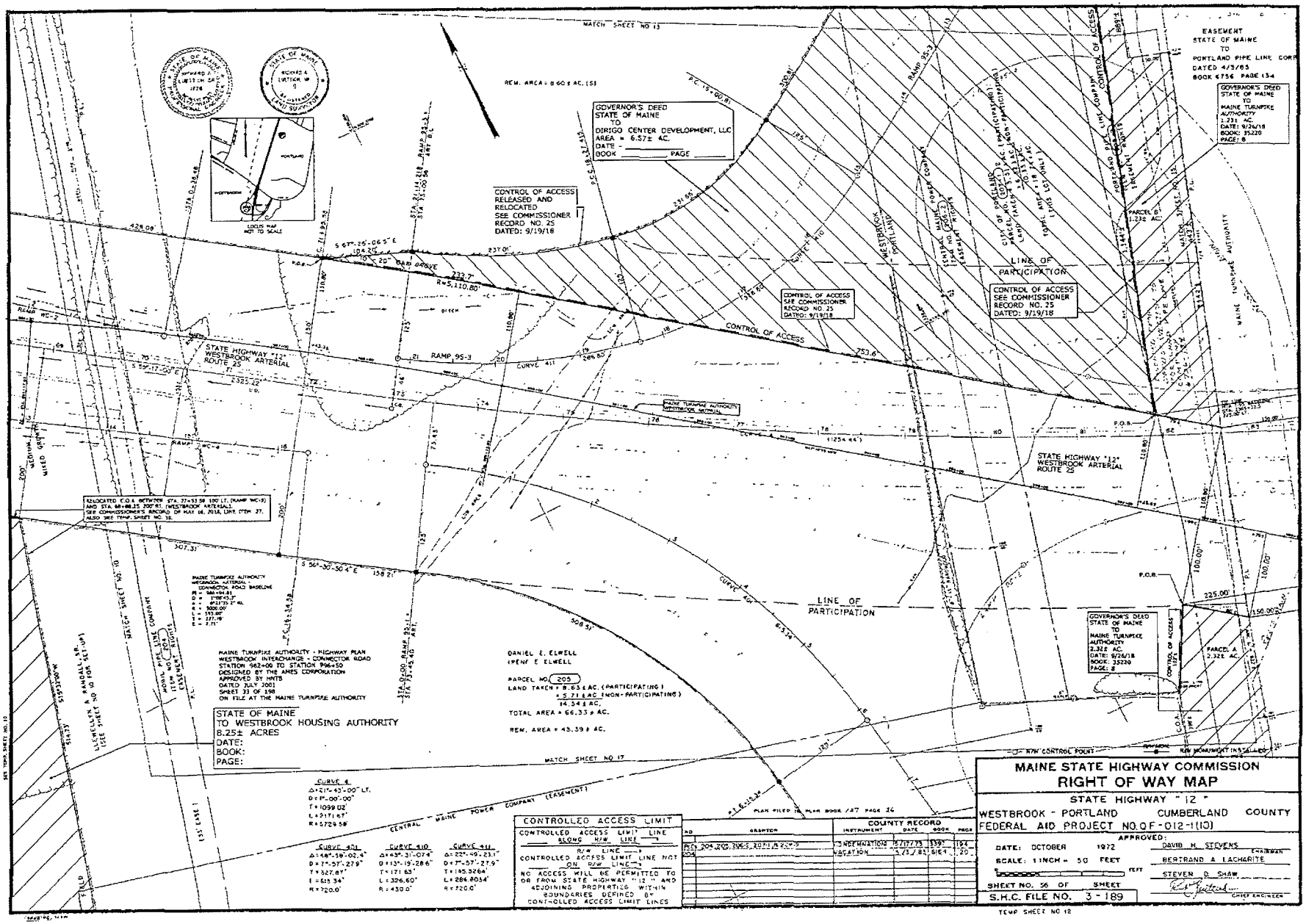
THENCE northwesterly, along a new right of way line of Route 25, along a curve to the left concentric with and maintaining always a distance of 110.80 feet northeasterly from and as measured along a line normal to the baseline of said Route 25 as shown on said highway plan of 2001 by the Maine Turnpike Authority, having a radius of 5,110.80 feet and an arc length of 233.7 feet, to the POINT OF BEGINNING.

The above described parcel of land contains 6.57 acres, more or less.

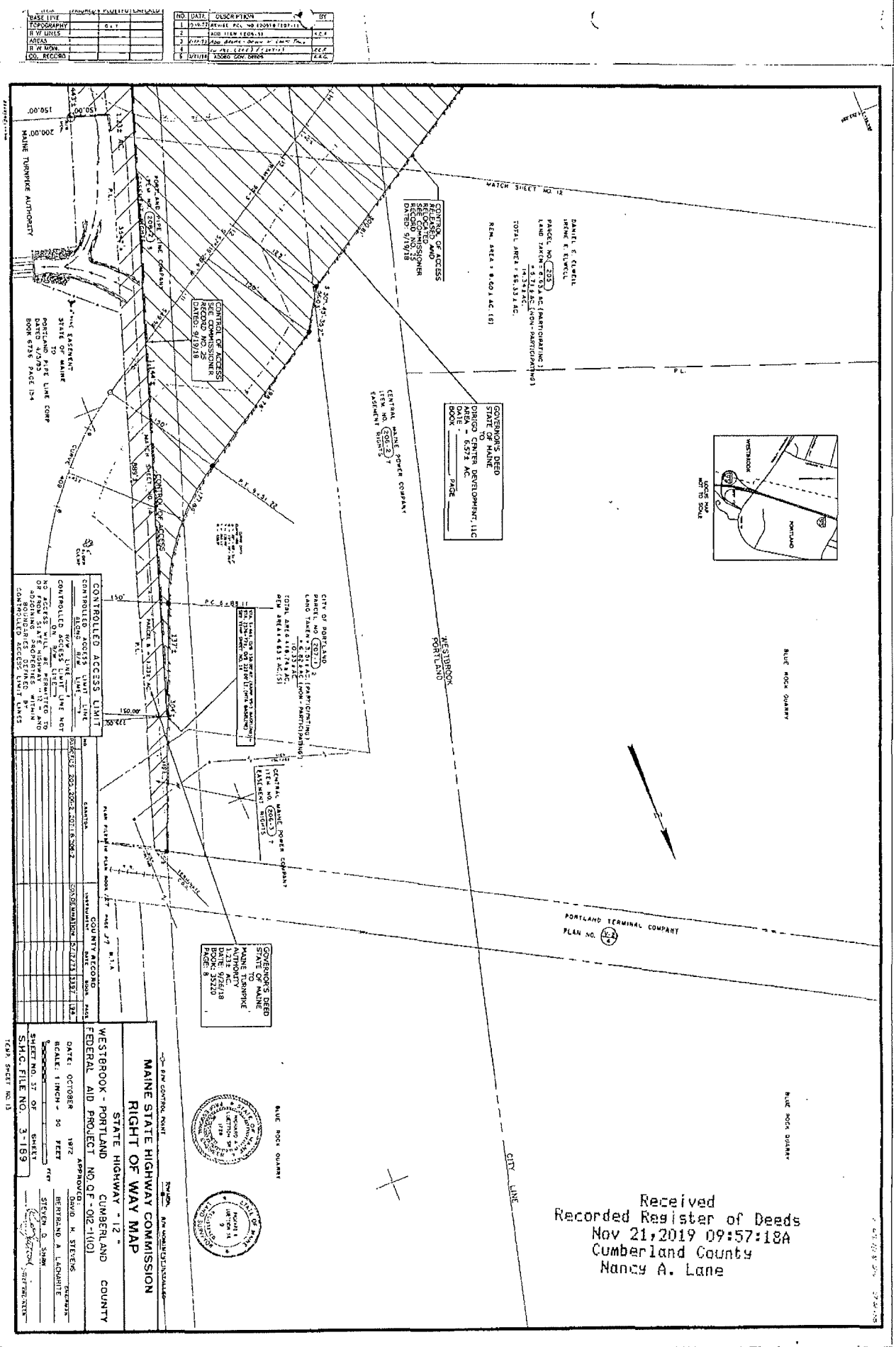
Meaning and intending to convey a portion of the right of way of State Route 25 as was acquired by condemnation by the State of Maine by way of a Notice of Layout and Taking recorded in Book 3397, Page 194, as said condemnation area is shown on the right of way map of S.H.C. File No. 3-189 described above.

The parcel described above is subject to a Control of Access as relocated per the Commissioner of the State of Maine Department of Transportation on September 19, 2018, Commissioner's Record Item No. 25, and as shown on the revised right of way map of S.H.C. File No. 3-189 described above, which constitutes a prohibition against driveway entrances and vehicular or other access along the designated portion of the Westbrook Arterial, also known as Route 25 and State Highway "12". Any entrance allowed pursuant to said notes on the aforementioned right of way maps shall not be permitted along said relocated Control of Access along said Westbrook Arterial.

This conveyance is made subject to any rights, interests, or easements that others may have in the above described parcel of land, including but not limited to any easements or rights of the Portland Pipe Line Company and Central Maine Power Company.



Doc#: 9994 Bk: 26192 Pg: 302
Page 1988


MAINE STATE HIGHWAY COMMISSION
RIGHT OF WAY MAP
STATE HIGHWAY - 12 "
WESTBROOK - PORTLAND CUMBERLAND COUNTY
FEDERAL AID PROJECT NO.F-012-1(10)
DATE: OCTOBER 1972
SCALE: 1 INCH = 50 FEET
APPROVED: DAVID M. STEVENS
BERTRAND A. LAFRANCE
STEVEN D. SHAW
SHEET NO. 37 OF SHEETS
S.H.C. FILE NO. 3-169
MAINE TURNPIKE AUTHORITY
PORTLAND PIPE LINE COMPANY
STATE OF MAINE
PORTLAND TERMINAL COMPANY
PLAN NO. X-2
CENTRAL MAINE POWER COMPANY
CITY OF PORTLAND
DANIEL E. DUNCIL
MAINE R. DUNCIL
CONTROL OF ACCESS RELEASED AND RELOCATED SEE COMMISSIONER RECORD NO. 25 DATED: 9/19/18
CONTROL OF ACCESS SEE COMMISSIONER RECORD NO. 25 DATED: 9/19/18
GOVERNORS DEED STATE OF MAINE TO CENTER DEVELOPMENT, LLC
GOVERNORS DEED STATE OF MAINE TO MAINE TURNPIKE AUTHORITY
CONTROLLED ACCESS LIMIT
WESTBROOK
PORTLAND
BLUE ROCK QUARRY
CITY LINE
MATCH SHEET NO. 12
TERMINAL
Received
Recorded Register of Deeds
Nov 21,2019 09:57:18A
Cumberland County
Nancy A. Lane

DLN#-1001940082008

MAINE REAL ESTATE TAX-Paid

QUITCLAIM DEED WITHOUT COVENANT

CITY OF PORTLAND, a body corporate and politic and Maine municipal corporation ("Grantor"), FOR CONSIDERATION PAID, releases to **DIRIGO CENTER DEVELOPERS, LLC**, a Maine limited liability company having a mailing address of 322 Reservoir Street, Needham, MA 02494 ("Grantee"), certain real property, together with any improvements thereon, lying on the westerly side of Interstate Route 95 in the City of Portland, County of Cumberland and State of Maine (the "Premises"), more particularly described on Exhibit A attached hereto and made part hereof.

Grantee covenants and agrees by acceptance of this Deed that the Premises herein conveyed is subject to the Declaration of Covenants set forth in Exhibit B attached hereto and hereby made a part hereof.

IN WITNESS WHEREOF, Grantor has caused this instrument to be executed on its behalf by Jon P. Jennings, its City Manager, duly authorized, on this 13th day of December, 2019.

WITNESS:

CITY OF PORTLAND

Jon P. Jennings
Its City Manager

STATE OF MAINE
COUNTY OF CUMBERLAND

December 12, 2019

Personally appeared the above-named Jon P. Jennings, City Manager of the City of Portland, as aforesaid, and acknowledged the foregoing to be his free act and deed in his said capacity, and the free act and deed of said City of Portland.

Before me,

~~Attorney-at-Law~~/Notary Public
Commission Expires:
Print Name:

SONIA T. BEAN
NOTARY PUBLIC
State of Maine
My Commission Expires
April 8, 2024

1

Exhibit A

A CERTAIN TRACT OR PARCEL OF LAND LOCATED IN PORTLAND MAINE, LYING ON THE WESTERLY SIDE OF INTERSTATE ROUTE 95, SO CALLED, BUT NOT DIRECTLY ADJACENT THERETO, AND MORE PARTICULARLY BOUNDED AS FOLLOWS:

BEGINNING AT AN IRON ROD IN THE DIVIDING LINE BETWEEN THE CITIES OF PORTLAND AND WESTBROOK, AT LAND NOW OR FORMERLY OF DIRIGO CENTER DEVELOPERS, SAID POINT BEING N57°12'11"W A DISTANCE OF 147.65 FEET FROM A CONCRETE BOUND;

THENCE RUNNING N57°12'11"E A DISTANCE OF 153.39 FEET TO A CONCRETE BOUND;

THENCE RUNNING N30°21'28"E A DISTANCE OF 55.46 FEET TO A POINT;

THENCE RUNNING N57°13'57"E A DISTANCE OF 198.67 FEET TO A CONCRETE BOUND;

THENCE RUNNING ALONG A CURVE TO THE LEFT, SAID CURVE HAVING A RADIUS OF 280.00 FEET, A LENGTH OF 171.82 FEET, A CHORD BEARING OF N39°37'35"E, A CHORD LENGTH OF 169.14 FEET, AND MAKING AN INCLUDED ANGLE OF 35°09'32" TO A CONCRETE BOUND;

THENCE RUNNING N22°06'29"E A DISTANCE OF 305.24 FEET TO A POINT AT LAND NOW OR FORMERLY OF PORTLAND TERMINAL COMPANY, SAID POINT BEING S22°06'29"W A DISTANCE OF 1.31 FEET FROM A CONCRETE BOUND; THE PRECEDING FIVE COURSES BEING ALONG SAID INTERSTATE ROUTE 95;

THENCE TURNING AND RUNNING N60°58'29"W ALONG LAND NOW OR FORMERLY OF SAID PORTLAND TERMINAL COMPANY A DISTANCE OF 385.18 FEET TO A POINT AT LAND NOW OR FORMERLY OF SAID DIRIGO CENTER DEVELOPERS, SAID POINT BEING N60°58'29"W A DISTANCE OF 0.89 FEET FROM AN IRON PIPE;

THENCE TURNING AND RUNNING S14°03'36"W ALONG LAND NOW OR FORMERLY OF SAID DIRIGO CENTER DEVELOPERS A DISTANCE OF 864.32 FEET TO THE POINT OF BEGINNING;

CONTAINING 209,850 SQUARE FEET.

DOC :64786 BK:36260 PG:303
RECEIVED - RECORDED, CUMBERLAND COUNTY REGISTER OF DEEDS
12/16/2019, 09:16:38A
Register of Deeds Nancy A. Lane E-RECORDED

EXHIBIT B

Declaration of Covenants

1. Payment In Lieu Of Property Taxes. Grantee covenants and agrees in the event that the Premises or any portion thereof shall be exempt from real or personal property taxes, by transfer, conversion, or otherwise, then the then-owner of the exempt portion shall make annual payments to the Grantor in lieu of taxes in the amount equal to the amount of property taxes that would have been assessed on the exempt portion of the real and personal property situated on the Premises had such property remained taxable. Grantee shall possess and be vested with all rights and privileges as to abatement and appeal of valuations, rates, and the like as are accorded owners of real and personal property in Maine. All of the laws and regulations applicable to the payment of real estate and personal property taxes, except those governing property tax exemptions, shall apply to any such payments in lieu of taxes including, without limitation, how such taxes are calculated and the right to said abatements and appeals.

2. Environmental Indemnification. Grantee covenants and agrees to indemnify, defend, and hold Grantor harmless from and against any and all claims, damages, losses, liabilities, obligations, settlement payments, penalties, assessments, citations, directives, claims, litigation, demands, defenses, judgments, costs, or expenses of any kind, including, without limitation, reasonable attorneys', consultants', and experts' fees incurred in investigating, defending, settling, or prosecuting any claim, litigation or proceeding, that may at any time be imposed upon, incurred by or asserted or awarded against Grantee or Grantor and relating directly or indirectly to the violation of or compliance with any federal, state, or local environmental laws, rules, or regulations governing the release, handling or storage of hazardous wastes or hazardous materials and affecting all or any portion of the Premises, except to the extent that such a claim results directly from the Grantor's release, handling or storage of hazardous wastes or hazardous materials on the Premises.

3. The covenants and agreements set forth herein may be amended or modified in whole or in part only by written agreement of Grantee and Grantor.

4. The Covenants set forth herein are intended to be and shall be considered covenants that run with the Premises and shall bind Grantee's successors and assigns and all subsequent owners of the Premises.

5. Except as specifically set forth herein, the Covenants set forth herein shall survive a sale, transfer, foreclosure or transfer of title in lieu of foreclosure, or other disposition of the Premises.

6. The Covenants set forth herein are enforceable by Grantor as a contract and shall inure to the benefit of and be enforceable by Grantor, its successors, and assigns.

7. The validity of any clause, part or provision of the covenants, restrictions, and option to repurchase herein shall not affect the validity of the remaining portions of thereof.

Section 4 – Evidence of State and Federal Approvals

The Project has received the following State and Federal Approvals to-date:

Maine DEP Natural Resources Protection Act ("NRPA") and Site Location of Development Act ("SLODA") Permit.

The entire Rock Row development (consisting of both the North Campus and the South Campus) first received combined NRPA/SLODA approval on October 7, 2016, which approval authorized the construction of a commercial and retail center creating approximately 52.6 acres of new development, of which approximately 43.3 acres was impervious. The SLODA/NRPA Permit has since been amended several times to reflect changes in the proposed development of the site (all such development to-date has occurred in Westbrook). On March 28, 2019, the DEP (through Order L-02734-26-G-A) approved the development of so-called "Phase I" on the North Campus of Rock Row, consisting of mixed-use retail and restaurant space that includes eight buildings with a total building footprint of 153,889 square feet. Phase I approved the development 18 acres of developed area, of which 16.2 acres will be impervious area. The 2019 Amendment also approved a second project, known as the Amphitheater, on the South Campus of Rock Row in Westbrook. The amphitheater has since been abandoned and instead the Applicants are currently redeveloping the South Campus as part of Rock Row Phase 4, consisting of a medical office campus to be located on the Westbrook portion of the South Campus.

The most recent amendment to the SLODA/NRPA Permit, approved June 28, 2022, is included with this application and includes additional details regarding the history of DEP approvals relating to the development of both the South and North Campuses.

Maine DOT Traffic Movement Permit

The entire Project – North and South Campuses -- has been approved by the Maine Department of Transportation (MDOT) under a Traffic Movement Permit (TMP) and an amended TMP. The TMP was developed and managed, on behalf of the developer, by Sebago Technics. The Application will have no impact to the existing TMP and amended TMP, as it only seeks approval of revised and new lot lines and road layouts to accommodate the buildings, improvements, and infrastructure already reviewed and approved by the Westbrook Planning Board and recognized by MDOT in the TMP process. Instead of there being one road, Quarry Drive, from Larrabee Road to the proposed residential development, there will be a separate road, Blue Rock Avenue, from Larrabee Road to Rock Row Boulevard, with Quarry Drive beginning at Rock Row Boulevard.

Army Corps of Engineers Maine General Permit

On June 15, 2016, the development received approval from the Army Corps of Engineers to place temporary fill in 1,319 square feet of wetlands and permanent fill in 64,218 square feet of wetlands in conjunction with the development of a retail shopping center and associated infrastructure. On May 7, 2021, the Army Corps of Engineers amended the approval and authorized an additional 12,275 square feet of wetland impact. Copies of the Maine General Permit Authorization Letter and later amendment are enclosed.

Attachments:

1. DEP SLODA/NRPA Order L-02743-23-P-A, dated June 28, 2022
2. Maine DOT Traffic Movement Permit, dated September 20, 2018
3. Maine DOT Traffic Movement Permit Amendment, dated December 6, 2022
4. U.S. Army Corps of Engineers Maine General Permit, dated May 7, 2021

STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION
17 STATE HOUSE STATION AUGUSTA, MAINE 04333-0017

DEPARTMENT ORDER

IN THE MATTER OF

DIRIGO CENTER DEVELOPERS, LLC	) SITE LOCATION OF DEVELOPMENT ACT
ROCK ROW MEDICAL CAMPUS LLC	)
Westbrook, Cumberland County	)
PHASE 4 REDESIGN	)
L-02743-23-P-A (approval)	) FINDINGS OF FACT AND ORDER

Pursuant to the provisions of 38 M.R.S. §§ 481–489-E and Chapters 375, and 500 of Department rules, the Department of Environmental Protection (Department) has considered the application of DIRIGO CENTER DEVELOPERS, LLC and ROCK ROW MEDICAL CAMPUS LLC (applicants) with the supportive data, agency review comments, and other related materials on file and FINDS THE FOLLOWING FACTS:

1. PROJECT DESCRIPTION:

A. History of Project: In Department Order #L-02734-14-A-X, dated October 10, 1971, the Department approved the development of a quartzite stone quarry. In Department Order #L-02734-80-B-T dated May 25, 2006, the Department approved the transfer of the quarry from Blue Rock Industries to Pike Industries, Inc. The development covers an area of approximately 82 acres. Activities that were conducted on site include open pit mining, rock crushing, asphalt recycling, and concrete mixing. The quarry pit lies along the municipal boundaries of the Cities of Westbrook and Portland. Development on the parcel is located within the City of Westbrook and bounded by the Westbrook Arterial, Larrabee Road, Main Street (Westbrook) and Interstate I-95.

In Department Order #L-02734-23-C-N/L-02734-TG-D-N, dated October 7, 2016, the Department approved the development of Dirigo Plaza, a commercial and retail center located on the former quarry site, commonly known as Rock Row. The project was authorized to create approximately 52.6 acres of new development, of which approximately 43.3 acres will be impervious area. The Department has subsequently approved several modifications and amendments related to the current development plans for this site. In Department Order #L-02743-23-N-M, dated September 3, 2021, the Department approved a change in the general concept design for Phase 4 and the construction of pre-load surcharge pads over future building footprints at the site. Phase 4 of the Rock Row development is located on Lot 14 of the City of Westbrook's tax map 42B, adjacent to the Westbrook Arterial.

B. Summary: The applicants propose to construct a medical campus consisting of three separate buildings (retail/restaurant, cancer treatment center and medical office tower, and a parking garage) with associated access roads and parking areas in the Phase 4 area of the Rock Row development. Most of the proposed development, with the exception of a couple of retaining walls, a walkway and two outfall pipes, will be located

100 feet away from Nasons Brook and an unnamed stream. The project is shown on a set of plans the first of which is entitled "Rock Row Medical Campus," prepared by Jones & Beach Engineers, Inc., and dated June 10, 2021, with a last revision date of February 17, 2022. The project site is located on the east side of the Westbrook Arterial and north of Rock Row in the City of Westbrook.

C. Current Use of Site: Phase 4 contains two pre-load pads which are located between Nasons Brook to the north and a small stream and associated wetlands to the south. The remainder of the site is wooded. The site is bound by Nasons Brook to the north, Interstate 95 to the east, the Westbrook Arterial to the south and Rock Row Boulevard to the west.

2. FINANCIAL CAPACITY:

The total cost of the project is estimated to be $68,149,833. The applicants propose to fund the project through a combination of self-funding, and submitted financial statements of Waterstone Properties, Ltd., the parent company of Dirigo Center Developer, LLC, and a loan from Machias Savings Bank. The financial documents show that Waterstone Properties, Ltd. has secured adequate financing to fund the project.

The Department finds that the applicants have demonstrated adequate financial capacity to comply with Department standards.

3. TECHNICAL ABILITY:

The applicants provided resume information for key persons involved with the project and a list of projects successfully constructed by the applicants. The applicants also retained the services of Jones & Beach Engineers, Inc., a professional engineering firm; Sebago technics, Inc., environmental consultant; Hayley & Aldrich, geotechnical engineer; Perkins Thompson, land use attorney; Michael Cuomo, soil scientist; and Scalora Consulting Group, owner's project manager, to assist in the design and engineering of the project.

The Department finds that the applicants have demonstrated adequate technical ability to comply with Department standards.

4. NOISE:

The project site is located adjacent to the Westbrook Arterial, in a commercially developed section of Westbrook. The proposed project will generate minor noise sources associated with heating/cooling units and other equipment supporting the proposed cancer center. The applicants propose to comply with the City of Westbrook's Noise Ordinance, including during construction of the project.

Based on the information contained in the application, the Department anticipates that the project will have a minor sound impact and will be in compliance with the Department's Noise Rules, Chapter 375, § 10.

5. SCENIC CHARACTER:

The project site is located adjacent to the Westbrook Arterial and Phase 3 of the Rock Row development (the amphitheater which is no longer in use). Adjacent land uses are commercial in nature. A 75-foot wide vegetated buffer will be retained adjacent to Nasons Brook, with the exceptions of two outfall pipes.

Based on the project's location and design, the Department finds that the proposed project will not have an unreasonable adverse effect on the scenic character of the surrounding area.

6. BUFFER STRIPS:

As a requirement of Department Order #L-02734-23-C-N/L-02734-TG-D-N, the applicants recorded a 75-foot wide stream buffer along Nasons Brook. The development of Phase 4 will require two stormwater outfall pipes to be located within this buffer. These outfalls were shown on the previously approved plan set associated with Department Order #L-02734-23-C-N/L-02734-TG-D-N.

There are no other buffers proposed within Phase 4 of the development.

The Department finds that the applicants have made adequate provision for buffer strips.

7. SOILS:

The applicants submitted a soil survey map and report, prepared by a certified soils scientist and a geotechnical report prepared by a registered professional engineer, based on the soils found at the project site. This material was reviewed by a geologist from the Division of Land Resources (DLR).

The applicants indicated that blasting associated with construction of the project may be necessary and submitted a generic blasting plan in the application. DLR also reviewed a Blasting Plan (last revised August 2, 2016) submitted by the applicants and outlining the proposed procedures for removing ledge and recommended that the applicants be required to submit a site-specific Blasting Plan for blasting that occurs within 500 feet of non-owned off-site structures such as buildings and wells. Prior to the start of any blasting on the project site, the applicants must submit a site map showing blast areas and a blasting plan to the BLR for review and approval. The blasting plan must be prepared by a qualified blaster and include the blasting standards contained in 38 M.R.S. § 490-Z(14), and the plan must include an anticipated blast design/shot pattern specifically tailored to the project.

If a rock crusher is being utilized on site, the applicants must ensure that the crusher is licensed by the Department's Bureau of Air Quality (BAQ) and is being operated in accordance with that license.

The Department finds that, based on this reports and Blasting Plan, and DEA's review, the soils on the project site present no limitations to the proposed project that cannot be overcome through standard engineering practices provided that prior to the start of any blasting on the project site, the applicants submit a site map showing blast areas and a blasting plan to the BLR for review and approval and any rock crushers are operated and maintained in accordance with its BAQ license.

8. STORMWATER MANAGEMENT:

The proposed project includes approximately 4.19 acres of developed area, of which 2.87 acres is impervious area. It lies within the watershed of Nasons Brook, which is an urban impaired stream. The applicants submitted a stormwater management plan based on the Basic, General, Urban Impaired Stream, and Flooding Standards contained in Chapter 500 Stormwater Management rules (06-096 C.M.R. ch. 500, effective August 12, 2015). The proposed stormwater management system consists of two detention basins (labeled #1 and #2 on the plan sheet), two Storm filters (labeled #1 and #2), five Filtera units (labeled #6, #7, #8, #9 and #10), three Focal Points (labeled #1, #2 and #3) and three subsurface chamber systems (labeled #4, #5 and #6) along with associated piping and outlets. The proposed stormwater management system is shown on Sheet C3-1 of the plans referenced in Finding 1.

A. Basic Standards:

(1) Erosion and Sedimentation Control: The applicants submitted an Erosion and Sedimentation Control Plan (Section 14 of the application) that is based on the performance standards contained in Appendix A of Chapter 500 and the Best Management Practices outlined in the Maine Erosion and Sediment Control BMPs, which were developed by the Department. This plan and plan sheets containing erosion control details were reviewed by, and revised in response to the comments of, the Bureau of Land Resources (BLR).

Erosion control details will be included on the final construction plans and the erosion control narrative will be included in the project specifications to be provided to the construction contractor. The applicants must continue to employ the third party inspector currently working at the development (or an alternate approved by the Department) to oversee the construction of Phase 4 (as outlined in Department Order #L-02734-23-C-N/L-02734-TG-D-N).

(2) Inspection and Maintenance: The applicants submitted a maintenance plan that addresses both short and long-term maintenance requirements. The maintenance plan is based on the standards contained in Appendix B of Chapter 500. This plan was reviewed by, and revised in response to the comments of, BLR. The applicants will be responsible

for the maintenance of all common facilities including the stormwater management system. The applicants are in the process of updating the existing long-term maintenance contract for the on-going maintenance of the stormwater control structures. Prior to the occupancy of any structure in Phase 4, the applicants must submit a copy of an updated, executed long-term maintenance contract that includes the on-going maintenance of the stormwater control structures.

Storm sewer grit and sediment materials removed from stormwater control structures during maintenance activities must be disposed of in compliance with the Maine Solid Waste Management Rules.

(3) Housekeeping: The proposed project will comply with the performance standards outlined in Appendix C of Chapter 500.

Based on BLR's review of the erosion and sedimentation control plan and the maintenance plan, the Department finds that the proposed project meets the Basic Standards contained in Chapter 500, § 4(B) provided that applicants retain the services of a third-party inspector; prior to occupancy of any structure in Phase 4, the applicants submit a copy of an updated and executed long-term maintenance contract for proposed stormwater management structures, and storm sewer grit and sediment materials removed from stormwater control structures during maintenance activities must be disposed of in compliance with the Maine Solid Waste Management Rules.

B. General Standards:

The applicants' stormwater management plan includes general treatment measures that will mitigate for the increased frequency and duration of channel erosive flows due to runoff from smaller storms, provide for effective treatment of pollutants in stormwater, and mitigate potential temperature impacts. This mitigation is being achieved by using Best Management Practices (BMPs) that will control runoff from no less than 95% of the impervious area and no less than 80% of the developed area. The proposed project will treat 95.4% of the impervious area and 92.1% of the developed area.

The stormwater management system proposed by the applicants was reviewed by, and revised in response to comments from, BLR. After a final review, BLR commented that the proposed stormwater management system is designed in accordance with the General Standards contained in Chapter 500, § 4(C) and recommended that the applicants retain its design engineer or other qualified professional engineer to oversee the construction of the stormwater management structures according to the details and notes specified on the approved plans. Within 30 days of completion of the whole system or at least once per year, the applicants shall submit a log of inspection reports detailing the items inspected, photographs taken, and dates of each inspection to the BLR for review. Within six months of project completion the applicants must submit as-built drawings for stormwater control structures, including all stormwater BMPs, to the BLR.

Based on the stormwater system's design and BLR's review, the Department finds that the applicants have made adequate provision to ensure that the proposed project will meet the General Standards contained in Chapter 500, § 4(C) provided that a professional engineer is retained to oversee construction of the stormwater management structures and submit a log of inspection reports and submits as-built drawings as described above.

C. Urban Impaired Stream Standard:

The proposed project is in the watershed of Nasons Brook, an urban impaired stream. In Department Order #L-02734-23-C-N/L-02734-TG-D-N, the Department approved full build out of the site, including Phase 4. Associated with that approval, the applicants submitted a compensation fee utilization plan (CFUP) payment to the City of Portland to be used to reduce the impact of stormwater pollution in the watershed of Nasons Brook. This project revises Phase 4 of the Rock Row development, however the footprint of this redesign remains the same as the development originally approved in Department Order #L-02734-23-C-N/L-02734-TG-D-N, therefore no new CFUP payment is required at this time.

Based on the prior payment of a compensation fee, the Department finds that the applicants have made adequate provision to ensure that the proposed project will meet the Chapter 500 Urban Impaired Stream Standard.

D. Flooding Standard:

The applicants are proposing to utilize a stormwater management system based on estimates of pre- and post-development stormwater runoff flows obtained by using Hydrocad, a stormwater modeling software that utilizes the methodologies outlined in Technical Releases #55 and #20, U.S.D.A., Soil Conservation Service and detains stormwater from 24-hour storms of 2-, 10-, and 25-year frequency. The post-development peak flow from the site will not exceed the pre-development peak flow from the site.

BLR commented that the proposed system is designed in accordance with the Flooding Standard contained in Chapter 500, § 4(F).

Based on the system's design and BLR's review, the Department finds that the applicants have made adequate provision to ensure that the proposed project will meet the Flooding Standard contained in Chapter 500, § 4(F) for peak flow from the project site, and channel limits and runoff areas.

The Department further finds that the proposed project will meet the Chapter 500 standards for: (1) management of stormwater discharges, and (2) discharge to freshwater wetlands.

9. GROUNDWATER:

The project site is not located over a mapped sand and gravel aquifer. The proposed project does not propose any withdrawal from, or discharge to, the groundwater.

The Department finds that the proposed project will not have an unreasonable adverse effect on ground water quality.

10. WATER SUPPLY:

When completed, the proposed project is anticipated to use 21,200 gallons of water per day. The applicants estimates that all four phases of Rock Row development would cumulatively consume 418,400 gallons of water. Water will be supplied by the Portland Water District. The applicants submitted a letter from the District, dated March 25, 2021, indicating that it will be capable of servicing the Phase 4 project.

The Department finds that the applicants have made adequate provision for securing and maintaining a sufficient and healthful water supply.

11. WASTEWATER DISPOSAL:

When completed, the proposed project is anticipated to discharge 21,200 gallons of wastewater per day to the Westbrook Wastewater Treatment Plant (Westbrook WWTP). The applicants estimates that all four phases of the Rock Row development would cumulatively discharge 418,400 gallons of wastewater per day to the Westbrook WWTP. The applicants and the City of Westbrook agreed to extend the sewer lines and construct a pump station to serve this project. The applicants submitted a letter dated January 20, 2022 from the Department of Engineering and Public Services, City of Westbrook, Maine stating that the Westbrook WWTP has the ability to serve this project.

This project was reviewed by the Division of Water Quality Management (DWQM) of the BWQ, which commented that the Westbrook WWTP has the capacity to treat these flows and is operating in compliance with the water quality laws of the State of Maine. DWQM also noted that wastewater from future development at Rock Row will require additional review by the Department's combined sewer overflow coordinator because the Department is waiting for a long term control plan update from the Westbrook WWTP and the City of Westbrook (which are joint applicants) concerning its discharge license.

Based on DWQM's comments, the Department finds that the applicants have made adequate provision for wastewater disposal at a facility that has the capacity to ensure satisfactory treatment.

12. SOLID WASTE:

When completed, the proposed project is anticipated to generate 177 tons of commercial and medical office solid waste per year. All general solid wastes from the proposed

project will be transported by Waste Management, Inc. and disposed of at the Crossroads landfill facility in Norridgewock, ME, which is currently in substantial compliance with the Maine Solid Waste Management Rules.

The project is expected to generate medical waste which will be disposed of by a third party vendor on a regular basis. The primary tenant of the medical facility currently uses Stericycle as a medical waste vendor at its other facilities. It is expected that Stericycle will continue to collect and dispose of medical waste for this facility in compliance with all applicable laws.

The proposed project will generate minimal amounts of stumps and grubbings. All stumps and grubbings generated will be disposed of on site, either chipped or burned, with the remainder to be worked into the soil, in compliance with the Maine Solid Waste Management Rules.

The proposed project will generate approximately 1,082 cubic yards of construction debris and demolition debris. All construction and demolition debris generated will be transported by Waste Management, Inc. and disposed of at the Crossroads landfill facility in Norridgewock, ME, which is currently in substantial compliance with the Maine Solid Waste Management Rules.

Based on the above information, the Department finds that the applicants have made adequate provision for solid waste disposal.

13. FLOODING:

The proposed project is not located within the 100-year flood plain of any river or stream.

The Department finds that the proposed project is unlikely to cause or increase flooding or cause an unreasonable flood hazard to any structure.

14. ALL OTHER:

All other Findings of Fact, Conclusions and Conditions remain as approved in Department Order #L-02734-23-C-N/L-02734-TG-D-N, and subsequent Orders.

BASED on the above findings of fact, and subject to the conditions listed below, the Department makes the following conclusions pursuant to 38 M.R.S. §§ 481–489-E:

A. The applicants have provided adequate evidence of financial capacity and technical ability to develop the project in a manner consistent with state environmental standards.

B. The applicants have made adequate provision for fitting the development harmoniously into the existing natural environment and the development will not adversely affect

existing uses, scenic character, air quality, water quality or other natural resources in the municipality or in neighboring municipalities.

C. The proposed development will be built on soil types which are suitable to the nature of the undertaking and will not cause unreasonable erosion of soil or sediment nor inhibit the natural transfer of soil provided that prior to the start of any blasting, the applicants submit a blasting plan and map, and that rock crushers are operated and maintained as stated in Finding 7.

D. The proposed development meets the standards for storm water management in 38 M.R.S. § 420-D and the standard for erosion and sedimentation control in 38 M.R.S. § 420-C provided that the applicants employ a third party inspector to oversee construction of Phase 4; prior to the occupancy of any structure in Phase 4, the applicants submit a copy of an updated, executed long-term maintenance contract that includes the on-going maintenance of the proposed stormwater control structures; storm sewer grit and sediment materials removed from stormwater control structures during maintenance activities must be disposed of in compliance with the Maine Solid Waste Management Rules, and the applicants retain an engineer to oversee construction of the stormwater management system, submit inspection logs and as-built drawings all as described in Finding 8.

E. The proposed development will not pose an unreasonable risk that a discharge to a significant groundwater aquifer will occur.

F. The applicants have made adequate provision of utilities, including water supplies, sewerage facilities and solid waste disposal required for the development and the development will not have an unreasonable adverse effect on the existing or proposed utilities in the municipality or area served by those services.

G. The activity will not unreasonably cause or increase the flooding of the alteration area or adjacent properties nor create an unreasonable flood hazard to any structure.

THEREFORE, the Department APPROVES the application of DIRIGO CENTER DEVELOPERS, LLC, and ROCK ROW MEDICAL CAMPUS LLC to develop Phase 4 of the Rock Row development as described in Finding 1, SUBJECT TO THE FOLLOWING CONDITIONS and all applicable standards and regulations:

1. The Standard Conditions of Approval, a copy attached.

2. In addition to any specific erosion control measures described in this or previous orders, the applicants shall take all necessary actions to ensure that its activities or those of its agents do not result in noticeable erosion of soils or fugitive dust emissions on the site during the construction and operation of the project covered by this approval.

3. Severability. The invalidity or unenforceability of any provision, or part thereof, of this License shall not affect the remainder of the provision or any other provisions. This License shall be construed and enforced in all respects as if such invalid or unenforceable provision or part thereof had been omitted.

4. The applicants shall continue to employ the third party inspector currently working at the development (or an alternate approved by the Department) to oversee the construction of Phase 4 (as outlined in Department Order #L-02734-23-C-N/L-02734-TG-D-N).

5. Prior the start of construction, the applicants shall conduct a pre-construction meeting. This meeting shall be attended by the applicants' representative, Department staff, the design engineer, the contractor, and the third-party inspector.

6. Prior to the occupancy of any structure in Phase 4, the applicants shall submit a copy of an updated, executed long-term maintenance contract that includes the on-going maintenance of the proposed stormwater control structures.

7. Storm sewer grit and sediment materials removed from stormwater control structures during maintenance activities must be disposed of in compliance with the Maine Solid Waste Management Rules.

8. The applicants shall retain its design engineer, or other qualified professional engineer, to oversee the construction of the stormwater management structures according to the details and notes specified on the approved plans. Within 30 days of completion of the whole system or at least once per year, the applicants shall submit a log of inspection reports detailing the items inspected, photographs taken, and dates of each inspection to the BLR for review. Within six months of project completion the applicants must submit as-built drawings for stormwater control structures, including all stormwater BMPs, to the BLR.

9. All other Findings of Fact, Conclusions and Conditions remain as approved in Department Order #L-02734-23-C-N/L-02734-TG-D-N, and subsequent Orders, and are incorporated herein.

THIS APPROVAL DOES NOT CONSTITUTE OR SUBSTITUTE FOR ANY OTHER REQUIRED STATE, FEDERAL OR LOCAL APPROVALS NOR DOES IT VERIFY COMPLIANCE WITH ANY APPLICABLE SHORELAND ZONING ORDINANCES.

DONE AND DATED IN AUGUSTA, MAINE, THIS 28TH DAY OF JUNE, 2022.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY:_____
For: Melanie Loyzim, Commissioner

PLEASE NOTE THE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES.

DH/L02734PA/ATS#88084

FILED
June 28th, 2022
State of Maine
Board of Environmental Protection

Department of Environmental Protection

SITE LOCATION OF DEVELOPMENT (SITE)
STANDARD CONDITIONS

A. Approval of Variations from Plans. The granting of this approval is dependent upon and limited to the proposals and plans contained in the application and supporting documents submitted and affirmed to by the applicant. Any variation from these plans, proposals, and supporting documents is subject to review and approval prior to implementation. Further subdivision of proposed lots by the applicant or future owners is specifically prohibited without prior approval of the Board, and the applicant shall include deed restrictions to that effect.

B. Compliance with All Applicable Laws. The applicant shall secure and comply with all applicable federal, state, and local licenses, permits, authorizations, conditions, agreements, and orders prior to or during construction and operation, as appropriate.

C. Compliance with All Terms and Conditions of Approval. The applicant shall submit all reports and information requested by the Board or the Department demonstrating that the applicant has complied or will comply with all preconstruction terms and conditions of this approval. All preconstruction terms and conditions must be met before construction begins.

D. Advertising. Advertising relating to matters included in this application shall refer to this approval only if it notes that the approval has been granted WITH CONDITIONS, and indicates where copies of those conditions may be obtained.

E. Transfer of Development. Unless otherwise provided in this approval, the applicant shall not sell, lease, assign or otherwise transfer the development or any portion thereof without prior written approval of the Board where the purpose or consequence of the transfer is to transfer any of the obligations of the developer as incorporated in this approval. Such approval shall be granted only if the applicant or transferee demonstrates to the Board that the transferee has the technical capacity and financial ability to comply with conditions of this approval and the proposals and plans contained in the application and supporting documents submitted by the applicant.

F. Time frame for approvals. If the construction or operation of the activity is not begun within four years, this approval shall lapse and the applicant shall reapply to the Board for a new approval. The applicant may not begin construction or operation of the development until a new approval is granted. A reapplication for approval may include information submitted in the initial application by reference. This approval, if construction is begun within the four-year time frame, is valid for seven years. If construction is not completed within the seven-year time frame, the applicant must reapply for, and receive, approval prior to continuing construction.

G. Approval Included in Contract Bids. A copy of this approval must be included in or attached to all contract bid specifications for the development.

H. Approval Shown to Contractors. Work done by a contractor pursuant to this approval shall not begin before the contractor has been shown by the developer a copy of this approval.

STORMWATER STANDARD CONDITIONS

STRICT CONFORMANCE WITH THE STANDARD AND SPECIAL CONDITIONS OF THIS APPROVAL IS NECESSARY FOR THE PROJECT TO MEET THE STATUTORY CRITERIA FOR APPROVAL

Standard conditions of approval. Unless otherwise specifically stated in the approval, a department approval is subject to the following standard conditions pursuant to Chapter 500 Stormwater Management Law.

(1) Approval of variations from plans. The granting of this approval is dependent upon and limited to the proposals and plans contained in the application and supporting documents submitted and affirmed to by the permittee. Any variation from these plans, proposals, and supporting documents must be reviewed and approved by the department prior to implementation. Any variation undertaken without approval of the department is in violation of 38 M.R.S. §420-D(8) and is subject to penalties under 38 M.R.S.. §349.

(2) Compliance with all terms and conditions of approval. The applicant shall submit all reports and information requested by the department demonstrating that the applicant has complied or will comply with all terms and conditions of this approval. All preconstruction terms and conditions must be met before construction begins.

(3) Advertising. Advertising relating to matters included in this application may not refer to this approval unless it notes that the approval has been granted WITH CONDITIONS, and indicates where copies of those conditions may be obtained.

(4) Transfer of project. Unless otherwise provided in this approval, the applicant may not sell, lease, assign, or otherwise transfer the project or any portion thereof without written approval by the department where the purpose or consequence of the transfer is to transfer any of the obligations of the developer as incorporated in this approval. Such approval may only be granted if the applicant or transferee demonstrates to the department that the transferee agrees to comply with conditions of this approval and the proposals and plans contained in the application and supporting documents submitted by the applicant. Approval of a transfer of the permit must be applied for no later than two weeks after any transfer of property subject to the license.

(5) Time frame for approvals. If the construction or operation of the activity is not begun within four years, this approval shall lapse and the applicant shall reapply to the department for a new approval. The applicant may not begin construction or operation of the project until a new approval is granted. A reapplication for approval may include information submitted in the initial application by reference. This approval, if construction is begun within the four-year time frame, is valid for seven years. If construction is not completed within the seven-year time frame, the applicant must reapply for, and receive, approval prior to continuing construction.

(6) Certification. Contracts must specify that “all work is to comply with the conditions of the Stormwater Permit.” Work done by a contractor or subcontractor pursuant to this approval may not begin before the contractor and any subcontractors have been shown a copy of this approval with the conditions by the permittee, and the permittee and each contractor and sub-contractor has certified, on a form provided by the department, that the approval and conditions have been received and read, and that the work will be carried out in accordance with the approval and conditions. Completed certification forms must be forwarded to the department.

(7) Maintenance. The components of the stormwater management system must be adequately maintained to ensure that the system operates as designed, and as approved by the Department. If maintenance responsibility is to be transferred from the permittee to another entity, a transfer request must be filed with the Department which includes the name and contact information for the person or entity responsible for this maintenance. The form must be signed by the responsible person or agent of the responsible entity.

(8) Recertification requirement. Within three months of the expiration of each five-year interval from the date of issuance of the permit, the permittee shall certify the following to the department.

(a) All areas of the project site have been inspected for areas of erosion, and appropriate steps have been taken to permanently stabilize these areas.

(b) All aspects of the stormwater control system are operating as approved, have been inspected for damage, wear, and malfunction, and appropriate steps have been taken to repair or replace the system, or portions of the system, as necessary.

(c) The stormwater maintenance plan for the site is being implemented as approved by the Department, and the maintenance log is being maintained.

(d) All proprietary systems have been maintained according to the manufacturer's recommendations. Where required by the Department, the permittee shall execute a 5-year maintenance contract with a qualified professional for the coming 5-year interval. The maintenance contract must include provisions for routine inspections, cleaning and general maintenance.

(e) The Department may waive some or all of these recertification requirements on a case-by-case basis for permittees subject to the Department's Multi-Sector General Permit ("MSGP") and/or Maine Pollutant Discharge Elimination System ("MEPDES") programs where it is demonstrated that these programs are providing stormwater control that is at least as effective as required pursuant to this Chapter.

(9) Transfer of property subject to the license. If any portion of the property subject to the license containing areas of flow or areas that are flooded are transferred to a new property owner, restrictive covenants protecting these areas must be included in any deeds or leases, and recorded at the appropriate county registry of deeds. Also, in all transfers of such areas and areas containing parts of the stormwater management system, deed restrictions must be included making the property transfer subject to all applicable terms and conditions of the permit. These terms and conditions must be incorporated by specific and prominent reference to the permit in the deed. All transfers must include in the restrictions the requirement that any subsequent transfer must specifically include the same restrictions unless their removal or modification is approved by the Department. These restrictions must be written to be enforceable by the Department, and must reference the permit number.

(10) Severability. The invalidity or unenforceability of any provision, or part thereof, of this permit shall not affect the remainder of the provision or any other provisions. This permit shall be construed and enforced in all respects as if such invalid or unenforceable provision or part thereof had been omitted.

November 16, 2005 (revised August 15, 2015)

DEP INFORMATION SHEET

Appealing a Department Licensing Decision

Dated: August 2021 **Contact: (207) 314-1458**

SUMMARY

This document provides information regarding a person's rights and obligations in filing an administrative or judicial appeal of a licensing decision made by the Department of Environmental Protection's (DEP) Commissioner.

Except as provided below, there are two methods available to an aggrieved person seeking to appeal a licensing decision made by the DEP Commissioner: (1) an administrative process before the Board of Environmental Protection (Board); or (2) a judicial process before Maine's Superior Court. An aggrieved person seeking review of a licensing decision over which the Board had original jurisdiction may seek judicial review in Maine's Superior Court.

A judicial appeal of final action by the Commissioner or the Board regarding an application for an expedited wind energy development (35-A M.R.S. § 3451(4)) or a general permit for an offshore wind energy demonstration project (38 M.R.S. § 480-HH(1)) or a general permit for a tidal energy demonstration project (38 M.R.S. § 636-A) must be taken to the Supreme Judicial Court sitting as the Law Court.

I. ADMINISTRATIVE APPEALS TO THE BOARD

LEGAL REFERENCES

A person filing an appeal with the Board should review Organization and Powers, 38 M.R.S. §§ 341-D(4) and 346; the Maine Administrative Procedure Act, 5 M.R.S. § 11001; and the DEP's *Rule Concerning the Processing of Applications and Other Administrative Matters* (Chapter 2), 06-096 C.M.R. ch. 2.

DEADLINE TO SUBMIT AN APPEAL TO THE BOARD

Not more than 30 days following the filing of a license decision by the Commissioner with the Board, an aggrieved person may appeal to the Board for review of the Commissioner's decision. The filing of an appeal with the Board, in care of the Board Clerk, is complete when the Board receives the submission by the close of business on the due date (5:00 p.m. on the 30th calendar day from which the Commissioner's decision was filed with the Board, as determined by the received time stamp on the document or electronic mail). Appeals filed after 5:00 p.m. on the 30th calendar day from which the Commissioner's decision was filed with the Board will be dismissed as untimely, absent a showing of good cause.

HOW TO SUBMIT AN APPEAL TO THE BOARD

An appeal to the Board may be submitted via postal mail or electronic mail and must contain all signatures and required appeal contents. An electronic filing must contain the scanned original signature of the appellant(s). The appeal documents must be sent to the following address.

Chair, Board of Environmental Protection
c/o Board Clerk
17 State House Station
Augusta, ME 04333-0017
ruth.a.burke@maine.gov

The DEP may also request the submittal of the original signed paper appeal documents when the appeal is filed electronically. The risk of material not being received in a timely manner is on the sender, regardless of the method used.

At the time an appeal is filed with the Board, the appellant must send a copy of the appeal to: (1) the Commissioner of the DEP (Maine Department of Environmental Protection, 17 State House Station, Augusta, Maine 04333-0017); (2) the licensee; and if a hearing was held on the application, (3) any intervenors in that hearing proceeding. **Please contact the DEP at 207-287-7688 with questions or for contact information regarding a specific licensing decision.**

REQUIRED APPEAL CONTENTS

A complete appeal must contain the following information at the time the appeal is submitted.

1. *Aggrieved status*. The appeal must explain how the appellant has standing to bring the appeal. This requires an explanation of how the appellant may suffer a particularized injury as a result of the Commissioner's decision.
2. *The findings, conclusions, or conditions objected to or believed to be in error.* The appeal must identify the specific findings of fact, conclusions of law, license conditions, or other aspects of the written license decision or of the license review process that the appellant objects to or believes to be in error.
3. *The basis of the objections or challenge.* For the objections identified in Item #2, the appeal must state why the appellant believes that the license decision is incorrect and should be modified or reversed. If possible, the appeal should cite specific evidence in the record or specific licensing criteria that the appellant believes were not properly considered or fully addressed.
4. *The remedy sought.* This can range from reversal of the Commissioner's decision on the license to changes in specific license conditions.
5. *All the matters to be contested*. The Board will limit its consideration to those matters specifically raised in the written notice of appeal.
6. *Request for hearing.* If the appellant wishes the Board to hold a public hearing on the appeal, a request for hearing must be filed as part of the notice of appeal, and it must include an offer of proof regarding the testimony and other evidence that would be presented at the hearing. The offer of proof must consist of a statement of the substance of the evidence, its relevance to the issues on appeal, and whether any witnesses would testify. The Board will hear the arguments in favor of and in opposition to a hearing on the appeal and the presentations on the merits of an appeal at a regularly scheduled meeting. If the Board decides to hold a public hearing on an appeal, that hearing will then be scheduled for a later date.
7. *New or additional evidence to be offered.* If an appellant wants to provide evidence not previously provided to DEP staff during the DEP's review of the application, the request and the proposed supplemental evidence must be submitted with the appeal. The Board may allow new or additional evidence to be considered in an appeal only under limited circumstances. The proposed supplemental evidence must be relevant and material, and (a) the person seeking to add information to the record must show due diligence in bringing the evidence to the DEP's attention at the earliest possible time in the licensing process; or (b) the evidence itself must be newly discovered and therefore unable to have been presented earlier in the process. Requirements for supplemental evidence are set forth in Chapter 2 § 24.

OTHER CONSIDERATIONS IN APPEALING A DECISION TO THE BOARD

1. *Be familiar with all relevant material in the DEP record.* A license application file is public information, subject to any applicable statutory exceptions, and is made accessible by the DEP. Upon request, the DEP will make application materials available to review and photocopy during normal working hours. There may be a charge for copies or copying services.

2. *Be familiar with the regulations and laws under which the application was processed, and the procedural rules governing the appeal.* DEP staff will provide this information upon request and answer general questions regarding the appeal process.
3. *The filing of an appeal does not operate as a stay to any decision.* If a license has been granted and it has been appealed, the license normally remains in effect pending the processing of the appeal. Unless a stay of the decision is requested and granted, a licensee may proceed with a project pending the outcome of an appeal, but the licensee runs the risk of the decision being reversed or modified as a result of the appeal.

WHAT TO EXPECT ONCE YOU FILE A TIMELY APPEAL WITH THE BOARD

The Board will acknowledge receipt of an appeal, and it will provide the name of the DEP project manager assigned to the specific appeal. The notice of appeal, any materials admitted by the Board as supplementary evidence, any materials admitted in response to the appeal, relevant excerpts from the DEP's administrative record for the application, and the DEP staff's recommendation, in the form of a proposed Board Order, will be provided to Board members. The appellant, the licensee, and parties of record are notified in advance of the date set for the Board's consideration of an appeal or request for a hearing. The appellant and the licensee will have an opportunity to address the Board at the Board meeting. The Board will decide whether to hold a hearing on appeal when one is requested before deciding the merits of the appeal. The Board's decision on appeal may be to affirm all or part, affirm with conditions, order a hearing to be held as expeditiously as possible, reverse all or part of the decision of the Commissioner, or remand the matter to the Commissioner for further proceedings. The Board will notify the appellant, the licensee, and parties of record of its decision on appeal.

II. JUDICIAL APPEALS

Maine law generally allows aggrieved persons to appeal final Commissioner or Board licensing decisions to Maine's Superior Court (see 38 M.R.S. § 346(1); 06-096 C.M.R. ch. 2; 5 M.R.S. § 11001; and M.R. Civ. P. 80C). A party's appeal must be filed with the Superior Court within 30 days of receipt of notice of the Board's or the Commissioner's decision. For any other person, an appeal must be filed within 40 days of the date the decision was rendered. An appeal to court of a license decision regarding an expedited wind energy development, a general permit for an offshore wind energy demonstration project, or a general permit for a tidal energy demonstration project may only be taken directly to the Maine Supreme Judicial Court. See 38 M.R.S. § 346(4).

Maine's Administrative Procedure Act, DEP statutes governing a particular matter, and the Maine Rules of Civil Procedure must be consulted for the substantive and procedural details applicable to judicial appeals.

ADDITIONAL INFORMATION

If you have questions or need additional information on the appeal process, for administrative appeals contact the Board Clerk at 207-287-2811 or the Board Executive Analyst at 207-314-1458 bill.hinkel@maine.gov, or for judicial appeals contact the court clerk's office in which the appeal will be filed.

Note: This information sheet, in conjunction with a review of the statutory and regulatory provisions referred to herein, is provided to help a person to understand their rights and obligations in filing an administrative or judicial appeal. The DEP provides this information sheet for general guidance only; it is not intended for use as a legal reference. Maine law governs an appellant's rights.

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION
16 STATE HOUSE STATION
AUGUSTA, MAINE 04333-0016

Paul R. LePage
GOVERNOR

David Bernhardt
COMMISSIONER

Applicant:	Dirigo Center Developments, LLC 322 Resevoir Street Needham, MA 02494
Project Location:	Main Street / Larrabee Road / Westbrook Arterial, Westbrook, ME Westbrook Tax Map #32 Lot(s) #46-47
Project:	Commercial Shopping Center
Identification #:	Reg. 01-00185-A-M
Permit Category:	200 Plus PCE
Traffic Engineer:	Vanasse & Associates, Inc. Attn: Jeffrey S. Dirk, PE 35 New England Business Center Drive, Suite 140 Andover, MA 01810-1071
	Sebago Technics, Inc. Attn: Derek H. Caldwll, P.E., PTOE 75 John Roberts Road, Suite 4A South Portland, ME 04106

Pursuant to the provision of 23 M.R.S.A. § 704-A and Chapter 305 of the MaineDOT's Regulations, the Maine Department of Transportation has considered the application of Dirigo Center Developments, LLC with supportive data, agency review and other related materials on file.

PROJECT DESCRIPTION

The project consists of 500,000 SF of mixed-use retail development. Access to the site is via four full movement entrances, one signalized entrance on Main Street, two stop-controlled entrances on Larrabee Road and one signalized entrance on the Westbrook Arterial. The project is estimated to generate 1,853 trip ends during a typical Saturday peak hour and 1,217 trips during a typical weekday PM peak hour.

The project is to be built in phases, with Phase 1 consisting of 155,224 SF of mixed-use retail development. Phase 1 of the project is estimated to generate 860 trip ends during a typical Saturday peak hour and 530 trip ends during a typical weekday PM peak hour. Phase 2 is to consist of the remainder of the full build development.

Findings

Based on a review of the files and related information, MaineDOT approves the Traffic Movement Permit Application of Dirigo Center Developments, LLC subject to the following conditions:

MITIGATION

The mitigation is intended to describe that conceptually shown on the following plans provided by Vanasse & Associates, Inc. and Jones & Beach Engineers, Inc.:

1. "Conceptual Improvement Plan Riverside Street Corridor" Last Rev 9-15-16
2. "Conceptual Improvement Plan Riverside Street At Larrabee Road and I-95 Exit 48 Ramps" Last Rev 9-22-16
3. "Rand Road At I-95 Exit 47 Ramps Conceptual Improvement Plan" Last Rev 9-13-16
4. "Figure 14 Conceptual Improvement Plan" Sheets 1 thru 5, Last Rev 9-22-16
5. "Stroudwater Street At Forest Street Conceptual Improvement Plan" Last Rev 9-13-16
6. "Site Plan Rock Row 80 Main St & 11 Larrabee Rd., Westbrook, ME 04092" Last Rev 7-12-18

If the descriptions contained herein conflict with the plans, these descriptions shall take precedence over the plans. Not all of the mitigation discussed herein maybe shown on those or any plan. The following mitigation shall be constructed or implemented to MaineDOT's satisfaction prior to the opening of the facility, unless otherwise approved by MaineDOT.

All proposed traffic signals and traffic signal upgrades shall be designed and specified to be in compliance with the PACTS, City of Westbrook, City of Portland and MaineDOT traffic signal specifications. All traffic signals will be fully-functional, integrated and have full communications with the PACTS existing Streetwise ATMS.

On-Site Mitigation

Site Entrance / Main Street (Signalized)

The site entrance shall consist of one ingress lane and two egress lanes. The entrance shall have all appropriate lane, center line, and directional pavement markings. All markings shall be supplied, installed/painted and maintained yearly.

Modify raised median to accommodate dedicated left-turn pocket on Main Street to the site entrance with appropriate storage lengths and tapers.

Reconstruct sidewalks to meet ADA requirements.

Install new fully actuated traffic signal and design and implement an optimal traffic signal timing, phasing and coordination plan. Install a hardwire (fiber optic) interconnect to the signal at Main and Larrabee Rd. and the signal at Main St. and Riverside St.

Site Entrance / Larrabee @ Terminal Street (Unsignalized)

The site entrance shall consist of one ingress lane and one egress lane. The entrance shall have all appropriate lane, center line, and directional pavement markings and shall be supplied, installed/painted and maintained yearly.

Construct a dedicated left-turn pocket into site entrance and Terminal Street with appropriate storage lengths and tapers.

Widen Larrabee Road to provide five-foot shoulders to accommodate bicycle travel for both directions of travel.

Provide six-foot sidewalks along both sides of Larrabee Road.

A MUTCD traffic signal warrant analysis shall be conducted for this intersection after occupancy of Phase 2. If a signal is warranted, design and implement an optimal traffic signal timing, phasing and coordination plan, and install the hardwire interconnect to the signal at Main Street and Larrabee Road, and the signal at Larrabee Road and Westbrook Arterial.

Site Entrance / Larrabee @ Saunders Way (Unsignalized)
The site entrance shall consist of one ingress lane and two egress lanes. The entrance shall have a STOP bar and all appropriate lane, center line, and directional pavement markings and shall be supplied, installed/painted and maintained yearly.

Construct a dedicated left-turn pocket into site entrance and Saunders Way with appropriate storage lengths and tapers.

This entrance is to be constructed prior to occupancy of Phase 2 of the development.

Site Entrance / Westbrook Arterial (Signalized)

The site entrance shall consist of one ingress lane and two egress lanes. The entrance shall have all appropriate lane, center line, and directional pavement markings and shall be supplied, installed/painted and maintained yearly.

Construct a dedicated left-turn pocket into site entrance with appropriate storage lengths and tapers. Construct a dedicated right-turn pocket into the site entrance with appropriate storage lengths and tapers.

Install new traffic signal and design and implement an optimal traffic signal timing, phasing and coordination plan. Install a hardwire interconnect to the signal at Westbrook Arterial and Larrabee Rd.

This entrance as well as the interconnect to the signal at Westbrook Arterial and Larrabee Road is to be constructed prior to occupancy of Phase 2 of the development.

General Requirements For All Entrances

A. The entrances shall provide overhead illumination, if not existing, to illuminate the intersections per MaineDOT standards at a minimum. Overhead lighting shall have an average of 0.6 to 1.0 foot candles, with the maximum to minimum lighting ratio of not more than 10:1 and an average to minimum light level of not more than 4:1.

Off-Site Mitigation

Optimize traffic signal timings in the coordinated system on Riverside St / Main St / Brighton Ave. New signal timings to be implemented within six months of occupancy of Phase 1.

Riverside Street

Intersection of Riverside St / Larrabee Rd (Exit 48)

Construct a second dedicated left-turn lane on the Riverside southbound approach to Exit 48. Restripe the southbound approach to include two dedicated left-turn lanes, a dedicated thru lane and a share thru-right lane. Lane widths shall be a minimum of 11 feet.

Install appropriate overhead lane-usage signs for the Riverside southbound approach both in advance of the intersection and at the intersection. Install appropriate lane-use signs at the intersection for the other intersection approaches.

Construct a second left-turn lane on Larrabee Road with appropriate storage length and taper.

Remove channelizing island for the right-turn movements from the Riverside Street northbound approach and the I-95 exit ramp. Construct a right turn lane with appropriate length and Taper

Reconstruct the traffic signal system to accommodate the new geometry and installation of conduit to the toll plaza to facilitate ramp pre-emption. Provide overlap phasing when possible.

Design and implement an optimal traffic signal timing, phasing and coordination plan. Install a hardwire (fiber optic) interconnect to the signal at Main and Larrabee Rd, as well as the adjacent intersections on Riverside Street. Provide signal heads with reflective back plates and install thermal detection in accordance with City standards.

Note: Work on Maine Turnpike Authority (MTA) property requires an MTA work permit and MTA review and approval.

Intersection of Riverside St / Forest Ave

Design and implement an optimal traffic signal timing, phasing and coordination plan. New signal timings to be implemented within six months of occupancy of Phase 1.

Intersection of Riverside St / Warren Ave

Design and implement an optimal traffic signal timing, phasing and coordination plan. Ensure there is a hardwire (fibre optic) interconnect between adjacent intersections. New signal timings to be implemented within six months of occupancy of Phase 1.

Provide design plans to the City of Portland for minor geometric and traffic signal improvements.

Intersection of Riverside St / Home Depot

Design and implement an optimal traffic signal timing, phasing and coordination plan. Ensure there is a hardwire (fiber optic) interconnect between adjacent intersections. New signal timings to be implemented within six months of occupancy of Phase 1.

Provide design plans to the City of Portland for minor geometric and traffic signal improvements.

Intersection of Riverside St / Brighton Ave / Main St

Design and implement an optimal traffic signal timing, phasing and coordination plan. Ensure there is a hardwire (fiber optic) interconnect between adjacent intersections. Install thermal detection in accordance with City of Portland standards.

Segment between Riverside Court (Berlin City) and Exit 48

Restripe to provide a two-way left-turn lane.

Construct sidewalk along the west side of Riverside, eliminating existing sidewalk gaps.

Segment between Exit 48 / Brighton Ave

Construct sidewalk along the east side of Riverside, eliminating existing sidewalk gaps.

Main Street

Intersection of Main St / Larrabee Rd

Remove existing raised triangular islands from Larrabee approaches to Main Street. Construct a dedicated right-turn pocket on the Larrabee Road southbound approach to Main Street with appropriate storage length and taper.

Provide ADA improvements to the sidewalks and signal equipment. Provide a hardwire (fiber optic) interconnect between adjacent intersections.

Upgrade traffic signal equipment, design and implement an optimal traffic signal timing, phasing and coordination plan.

Westbrook Arterial

Intersection of Rand Rd / Westbrook Arterial (Exit 47)

Widen I-95 ramp to provide a second left-turn lane to the Westbrook Arterial. Widen Rand Road to accept the dual-left turn lanes.

Install a raised median along the Rand Road eastbound approach to the intersection.

Upgrade traffic signal equipment, design and implement an optimal traffic signal timing, phasing and coordination plan.

The applicant shall contribute to the Maine Turnpike Authority (MTA) for improvements at Exit 47 as outlined in the agreement titled "Agreement Relating to the Construction of Transportation Improvements in the Vicinity of Maine Turnpike Exit 47" dated March 2018. This contribution shall constitute completion of the above listed mitigation for the intersection of Rand Road and Westbrook Arterial (Exit 47).

William Clarke Drive

The applicant should design and implement an optimal traffic signal timing, phasing and coordination plan for the weekday and weekend. New signal timings to be implemented within six months of occupancy of Phase 1.

Stroudwater Street

Construct a dedicated left-turn lane on Stroudwater Street to Forest Street and reconstruct the sidewalk and crosswalk for crossing Stroudwater Street at Forest Street as necessary to provide an ADA compliant crossing at the intersection.

Overall Requirements

A. Provide all necessary auxiliary signs, striping and pavement markings to implement the improvements described herein according to MaineDOT and/or National standards.

B. All plantings and signs (existing and/or proposed; permanent and/or temporary) shall be placed and maintained such that they do not block available sight distances and do not violate the State's "Installations and Obstructions" law. No signage, plantings or structures shall be allowed within the "clear zone" if they constitute a deadly fixed object as determined by MaineDOT. All signs shall meet MRSA Title 23, Chapter 21, Section 1914: "On-Premise Signs".

C. If any of the supporting data or representations for which this permit is based changes in any way or is found to be incorrect / inaccurate, the applicant shall request in writing from MaineDOT a decision of what impacts those changes will have on the permit. The applicant will then be required to submit those changes for review and approval and additional mitigation as a result of those changes may be required at the expense of the applicant.

D. Because the proposed project affects the State Highway and drainage systems and requires improvement to that system, the applicant must obtain approval of the design plans and coordinate work through MaineDOT's State Traffic Engineer or Assistant State Traffic Engineer, who can be reached at (207) 624-3620 in Augusta.

By:

Stephen Landry, P.E.
State Traffic Engineer

Date: 9/20/18

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION
16 STATE HOUSE STATION
AUGUSTA, MAINE 04333-0016

Janet T. Mills
GOVERNOR

Bruce A. Van Note
COMMISSIONER

Applicant:	Dirigo Center Developers, LLC c/o Waterstone Properties Group, Inc. 117 Kendrick Street, Suite 325 Needham, MA 02494
Project Location:	Larrabee Road / Westbrook Arterial, Westbrook Westbrook Tax Map #42B Lot(s) #11 & 14
Project:	Medical Office Building and Residential Mixed Use
Identification #:	Reg. 01-000400-A-N
Permit Category:	200 Plus PCE
Traffic Engineer:	Sebago Technics, Inc. Attn: Derek H. Caldwell, P.E., PTOE 75 John Roberts Road, Suite 4A South Portland, ME 04106 (207) 200-2100

Pursuant to the provision of 23 M.R.S.A. § 704-A and Chapter 305 of the MaineDOT's Regulations, the Maine Department of Transportation has considered the application of Dirigo Center Developers, LLC with supportive data, agency review and other related materials on file.

PROJECT DESCRIPTION

Referred to as Phase 3 and 4 of the Rock Row Development in Westbrook, the site currently houses the former/discontinued Maine Savings Pavilion concert venue and associated parking area. Phase 3 consists of two separate four-story buildings housing a total of 350 residential multi-family dwelling units and a total of 3,000 square feet of retail space partially comprising the first-floor space. Phase 4 consists of a five-story medical office building housing a total of 202,632 square feet of leasable space programmed to have 298 employees, a 9,305 square foot retail strip building, and a 653-space parking garage.

Access to the site is proposed via two full movement entrances, one on the Westbrook Arterial east of Larrabee Road, and one on Larrabee Road opposite Saunders Way. Limited access entrances have been constructed at these locations as part of the temporary Maine Savings Pavilion concert venue in 2019. The intent of the development is to construct the Medical Office Building (Phase 4) in advance of the mixed-use residential campus (Phase 3). With this it is proposed to construct only the site roadway providing access to Westbrook Arterial in tandem with the Medical Office Building, and delay constructing the connection to Larrabee Road until the residential campus is built.

Phases 3 and 4 are estimated to generate a total of 467 AM and 790 PM Peak Hour Adjacent Street vehicular trips, and 672 Saturday Peak Hour Generator vehicular trips.

Findings

Based on a review of the files and related information, MaineDOT approves the Traffic Movement Permit Application of Dirigo Center Developers, LLC subject to the following conditions:

MITIGATION

The mitigation is intended to describe that conceptually shown on the following plans provided by Jones & Beach Engineers, Inc., and Sebago Technics, Inc.

1. "Master Plan – Traffic Exhibit" Sheet MP-T, Rev 5 dated 7/15/22
2. "Concept Plan of Rock Row", Sheets 1 – 3, Rev 2 dated 9/02/22
3. "Conceptual Traffic Signal Plan" Sheet 1 of 1, Rev 1 dated 9/08/22
4. "Concept Plan Westbrook Arterial", Sheet 1 of 1, Rev 1 dated 10/11/2022
5. "Conceptual Pedestrian Hybrid Beacon Plan", Sheet 1 of 1, Rev 1 dated 10/11/2022
6. "Phase 1 Sidewalk Modification", Sheet 1 of 1, Rev 1 dated 11/14/2022

If the descriptions contained herein conflict with the plans, these descriptions shall take precedence over the plans. Not all the mitigation discussed herein maybe shown on those or any plan. The following mitigation shall be constructed or implemented to MaineDOT's satisfaction prior to the opening of the facility, unless otherwise approved by MaineDOT.

All proposed traffic signals and traffic signal upgrades shall be designed and specified to be in compliance with the PACTS, City of Westbrook, and MaineDOT traffic signal specifications. All traffic signals will be fully-functional, integrated and have full communications with the existing central management system for the Region.

On-Site Mitigation

Access to the site is proposed via two full movement entrances, one on the Westbrook Arterial east of Larrabee Road, and one on Larrabee Road opposite Saunders Way. Both entrances were constructed at these locations as part of the temporary Maine Savings Pavilion concert venue in 2019, and currently provide limited authorized access to the site.

Site Entrance / Westbrook Arterial (Signalized)

The proposed entrance is located approximately 540 feet to the east of the intersection of Westbrook Arterial and Larrabee Road. The entrance shall be 54 feet wide consisting of two egress lanes, a raised median and one ingress lane. The entrance shall have a STOP bar and all appropriate lane, center line, and directional pavement markings, which shall be supplied, installed/painted, and maintained yearly.

This intersection to be signalized in line with occupancy of the Medical Office Building. Design and implement an optimal traffic signal timing, phasing and coordination plan, and install a communications interconnect from the existing signal, Westbrook Arterial at Larrabee Road, and the proposed signal at Westbrook Arterial and Rock Row. Reference "Conceptual Traffic Signal Plan".

After the Medical Office Building (MOB) is open to the public for business, the applicant is authorized to fully activate the approved signal system at this intersection. Once the signal system is activated, the

applicant shall conduct a MUTCD traffic signal warrant analysis within 6 weeks of activation. The signal shall be set to flash if the analysis determines a signal is not warranted or the signal is not approved by the MaineDOT. The signal shall remain on flash until such time that a warrant analysis shows that the signal is warranted, and the signal is approved by the MaineDOT.

Site Entrance "Quarry Drive" / Larrabee @ Saunders Way (Unsignalized)

The proposed entrance is located opposite Saunders Way, approximately 810 feet to the north of the intersection of Westbrook Arterial and Larrabee Road. The entrance shall be is 35 feet wide consisting of one egress lane and one ingress lane. The entrance shall have a STOP bar and all appropriate lane, center line and directional pavement markings, which shall be supplied, installed/painted, and maintained yearly.

Construct a dedicated left-turn pocket into Quarry Drive and Saunders Way with appropriate storage lengths and tapers. Reference "Concept Plan of Rock Row".

A Performance Guarantee for offsite improvements at this entrance shall be held by the City of Westbrook, in the form of an escrow agreement, for 150% of the current estimates, and the work shall be completed by the Applicant prior to issuance of the Certificate of Occupancy for any Phase 3 building.

Pedestrian Accommodations

On the East side of Larrabee Road:

- Provide a pedestrian connection from Quarry Drive to the existing Phase 1 retail. Reference "Concept Plan of Rock Row"
  An Impact Fee in the amount of $218,000 shall be paid to the City of Westbrook towards a potential future pedestrian sidewalk from Quarry Drive south to the Westbrook Arterial. If the City of Westbrook and the MaineDOT determine that the pedestrian connection from Quarry Drive south to the Westbrook Arterial is not warranted, this fee may be applied to other off-site pedestrian improvements along Larrabee Road.

The existing Larrabee Road pedestrian access to Phase 1 shall be closed and routed to the intersection of Larrabee Road and Terminal Street along the site driveway. Unless otherwise directed, by the MaineDOT or the City of Westbrook, this internal pedestrian connection shall be completed in conjunction with a signalization, pedestrian hybrid beacon, or any Larrabee Road pedestrian crossing project at the Terminal Street intersection. Reference "Phase 1 Sidewalk Modification".

Provide infrastructure within the site to accommodate pedestrian movements between all facilities in Phase 3 and Phase 4.

General Requirements for All Entrances

A. The entrances shall provide overhead illumination, if not existing, to illuminate the intersections per MaineDOT standards at a minimum. Overhead lighting shall have an average of 0.6 to 1.0 foot candles, with the maximum to minimum lighting ratio of not more than 10:1 and an average to minimum light level of not more than 4:1.

Off-Site Mitigation - Reference the Concept Plans

Westbrook Arterial

Modify the eastbound travel lanes to maintain the merge area east of the intersection with the Medical Office Building entrance. Install overhead alternating merge signs. Reference "Concept Plan of Westbrook Arterial".

Larrabee Road

An Impact Fee in the amount of $250,000 shall be paid to the City of Westbrook and held in an escrow account. If approved by the City of Westbrook, this fee shall be applied to the installation of a Pedestrian Hybrid Beacon (PHB) crossing Larrabee Road at Terminal Street. The installation of the PHB shall be the responsibility of the City of Westbrook. Pedestrian facilities, signs and markings shall meet ADA criteria and MUTCD standards. Reference "Conceptual Pedestrian Hybrid Beacon Plan".

If this Impact Fee is not applied to the installation of a PHB and future development warrants the signalization of this intersection, this Impact Fee shall be applied to a signal project for this intersection.

See also Pedestrian Accommodations (above).

Safety Impact Fees

The Applicant shall pay the MaineDOT a total Safety Impact Fee of $35,200 towards future improvements to address safety concerns given the additional vehicular traffic volumes through the study area from the project. Fee to be paid prior to initial occupancy of the development.

Safety Impact Fees (paid to MaineDOT before any occupancy associated with this TMP):

1. Intersection of Brighton Avenue / Devon Street / Capisic Street in Portland - $12,200
2. Intersection of Larrabee Road and Riverside Street in Portland - $9,900
3. Intersection of Main Street and Larrabee Road in Westbrook - $9,900
4. Main Street segment west of Larrabee Road in Westbrook - $3,200

Signal Retiming

Conduct post-occupancy signal retiming at the intersections outlined in the required mitigation of the original TMP issued to Rock Row. The following corridors and intersections were included in this mitigation item:

Main Street (Westbrook/Portland)

- Main Street at Larrabee Road (Westbrook)
- Main Street at Rock Row/Westbrook Crossing (Westbrook)
- Main Street/Brighton Avenue at Riverside Street (Portland)

Westbrook Arterial (Westbrook)
- Westbrook Arterial at Larrabee Road
- Westbrook Arterial at Rock Row (Proposed Signal)

Riverside Street (Portland)
- Riverside Street at Westbrook Crossing
- Riverside Street at Exit 48
- Riverside Street at Home Depot
- Riverside Street at Warren Avenue
- Riverside Street at Forest Avenue

William Clarke Drive (Westbrook)
- William Clarke Drive at Westbrook Arterial/Bill Hartley Ave
- William Clarke Drive at Hannaford
- William Clarke Drive at Stroudwater Street
- William Clarke Drive at Spring Street
- William Clarke Drive at Mechanic Street
- William Clarke Drive at Saco Street
- William Clarke Drive at New Gorham Road

Complete retiming following the full occupancy of the Medical-Office Building and following the full occupancy of the Residential Campus based on traffic count data collected between April 15 and November 15 for the area roadways.

Overall Requirements

A. Provide all necessary auxiliary signs, striping and pavement markings to implement the improvements described herein according to MaineDOT and/or National standards.

B. All plantings and signs (existing and/or proposed; permanent and/or temporary) shall be placed and maintained such that they do not block available sight distances and do not violate the State's "Installations and Obstructions" law. No signage, plantings or structures shall be allowed within the "clear zone" if they constitute a deadly fixed object as determined by MaineDOT. All signs shall meet MRSA Title 23, Chapter 21, Section 1914: "On-Premise Signs".

C. If any of the supporting data or representations for which this permit is based changes in any way or is found to be incorrect / inaccurate, the applicant shall request in writing from MaineDOT a decision of what impacts those changes will have on the permit. The applicant will then be required to submit those changes for review and approval and additional mitigation as a result of those changes may be required at the expense of the applicant.

D. Because the proposed project affects the State Highway and drainage systems and requires improvement to that system, the applicant must obtain approval of the design plans and coordinate work through MaineDOT's Region Engineer in Scarborough, who can be reached by phone at (207) 885-7000.

E. This permit will lapse 5 years from the date signed for those lots which building permits have not been issued. This permit will lapse 7 year from the date signed for those lots which occupancy permits have not been issued.

By:

Stephen Landry, P.E.
State Traffic Engineer

Date:12/6/2022

DEPARTMENT OF THE ARMY
NEW ENGLAND DISTRICT, CORPS OF ENGINEERS
696 VIRGINIA ROAD
CONCORD, MASSACHUSETTS 01742-2751

REPLY TO
ATTENTION OF

Regulatory Division
CENAE-RDC

May 7, 2021

Rebecca Gabryszewski
Sebago Technics, Inc.
75 John Roberts Road, Suite 4A
South Portland, Maine 04106

Dear Ms. Gabryszewski:

This concerns Department of the Army general permit, number NAE-2015-01814, issued on June 13, 2016, which authorized the filling of freshwater wetlands off Main Street and Larrabee Road at Westbrook, Maine in order to develop a retail center and associated infrastructure.

In accordance with your request on behalf of your client, Dirigo Center Developers, LLC, the permit is hereby amended to authorize an additional 12,275 s.f. of wetland impact in order to make improvements to the site access off Larrabee Road. Cumulative wetland impacts now total 76,493 s.f. (1.756 acres). This work is shown on the attached plans entitled "LOCATION MAP, DIRIGO CENTER DEVELOPERS, LLC" in one sheet dated "11/5/2020" and "ROCK ROW, WESTBROOK ARTERIAL/BACK DOOR ENTRANCE, WESTBROOK, MAINE" in 21 sheets dated "09/17/20".

All conditions of the original permit remain in full force and effect. For this amendment, please note the following additional condition:

1. Compensatory mitigation will be as indicated in ME DEP Permit No. L-02734-TG-L-N, dated May 3, 2021, Condition No. 4 to secure 0.282 acre compensation credits (see attached ILF worksheet). The completed ILF Project Data Worksheet which must be mailed with a cashier's check or bank draft, made out to "Treasurer, State of Maine", with the permit number noted on the check. The check and worksheet should be mailed to: ME DEP, Attn: ILF Program Administrator, State House Station 17, Augusta, ME 04333. **No project construction may begin until the permittee provides the Corps with a copy of the check, with the permit number noted on the check.** The ILF amount is only valid for a period of one year from the date on the authorization letter. After that time, the project would need to be reevaluated and a new amount determined.

We continually strive to improve our customer service. In order for us to better serve you, we would appreciate your completing our Customer Service Survey located at http://per2.nwp.usace.army.mil/survey.html

BY AUTHORITY OF THE SECRETARY OF THE ARMY:

FOR Frank J. Del Giudice
Chief, Permits & Enforcement Section
Regulatory Division

MAINE IN-LIEU-FEE (ILF)
PROJECT IMPACT WORKSHEET

DEP Invoice # *Filled in by ILF Administrator in Augusta*

Project name: Dirigo Center Developers, LLC; Larrabee Road Site Access Improvements

Permittee(s): Dirigo Center Developers, LLC

DEP/Corps permit #: L-02734-TG-L-N/NAE-2015-01814-MOD *Attach a copy of the permit*

DEP/Corps Project Manager: R. Green/J. Clement

ILF Fee Amount: $66,899.00

Check Date: *Filled in by ILF Administrator in Augusta*

Project address: Larrabee Road; Westbrook, Maine *Attach a locus map*

Biophysical region - Section: Southern Maine

Biophysical region - Subsection: Gulf of Maine Coastal Lowland

Total impact area subject to compensatio: 12,275 SF

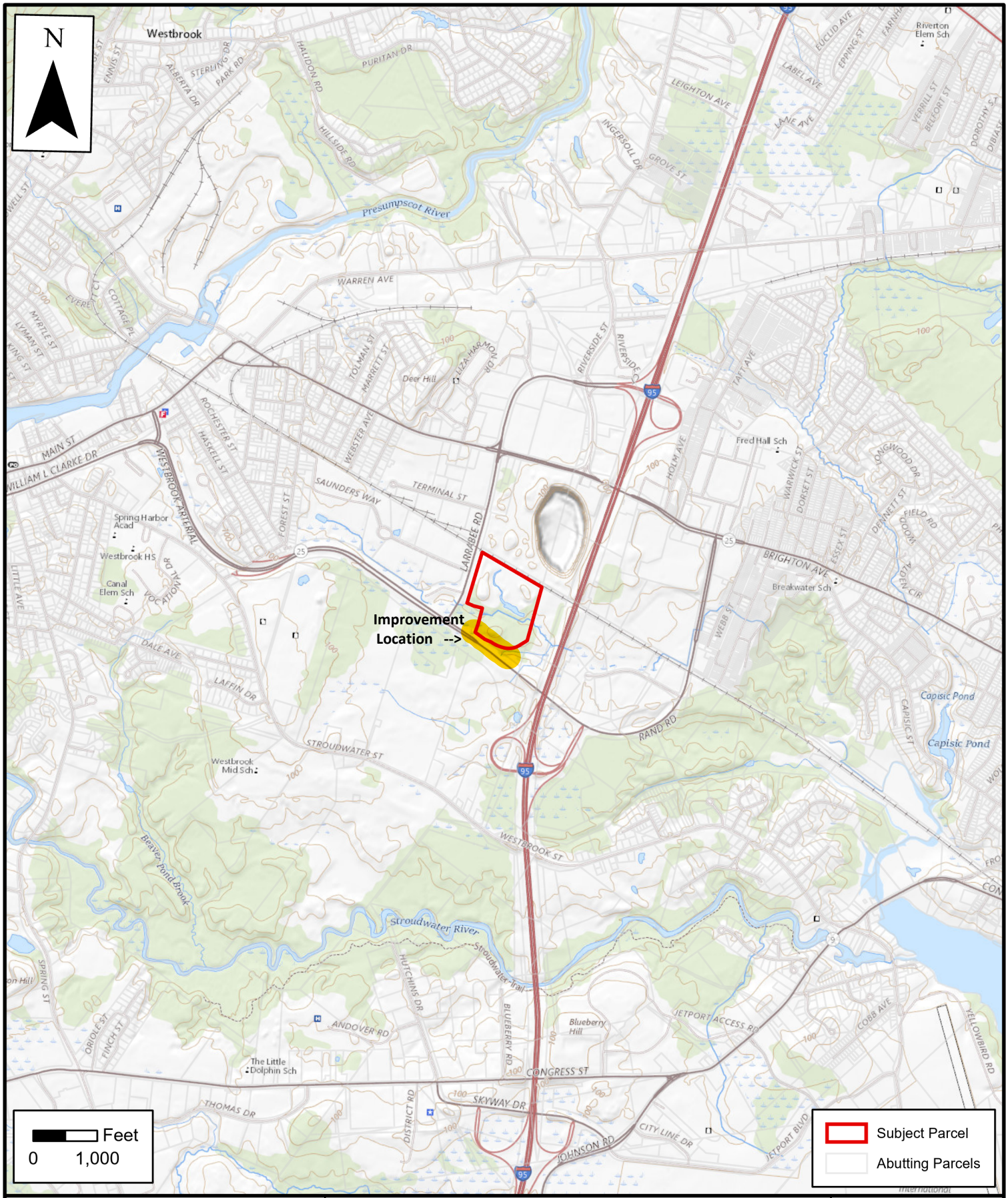
Resource(s) impacted:

Resource Types (list all that apply)	**Functions & Values** (for wetland impacts) (list all that apply, by resource type)	**Types of Impacts** (list all that apply, by resource type)	**SF Impacted** (by resource type)	**Linear FT of Streams Impacted (for Corps use)**
PFO	NR, WH, STR, GWR, FF	Filling	12,275	
		Total impacts:	12,275	NA

Resource Types: Wetlands by NWI Type (PEM, PFO, PSS, PUB, M1, M2, E1, E2, etc), significant vernal pool depression (SVP), significant vernal pool critical terrestrial habitat (VPCTH), shorebird feeding & staging habitat (shorebird), inland waterfowl & wading bird habitat (IWWH), Tidal waterfowl & wading bird habitat (TWWH), lake or pond (L1, L2), river/stream/brook (RSB)

Wetland Functions & Values: Groundwater recharge/discharge (GWR); floodflow alteration (FF); fish & shellfish habitat (FSH); sediment toxicant retention (STR); nutrient removal (NR); production export (PE); sediment/shoreline stabilization (SS); recreation (R); education/scientific value (ESV); uniqueness/heritage (UH); and visual quality/aesthetics (VQ); wildlife habitat (WH)

Types of Impacts: May include: filling, dredging, vegetation conversion (e.g. forested to shrub/scrub), excavation with associated discharge, etc.



LOCATION MAP

DIRIGO CENTER DEVELOPERS, LLC

SCALE: 1:24,000

DATE: 11/5/2020

SEBAGO TECHNICS
WWW.SEBAGOTECHNICS.COM
75 John Roberts Rd. - Suite 4A
South Portland, ME 04106
Tel. 207-200-2100

LOCATION:
WESTBROOK ARTERIAL
WESTBROOK, ME

INFORMATION:
PARCEL LINES - MAINE ORGANIZED TOWNS
USGS QUADRANGLE

Section 5 – Zoning Assessment

A Zoning Assessment is not applicable to this amendment application. The land comprising the Portland portion of the North Campus is located in the B-4 (Commercial Corridor) and I-L (Industrial and Airport) zones and is currently undeveloped. There is no development presently planned on the Portland side of the Project. Improvements on the Westbrook portion of the Project are under review by the City of Westbrook.

Section 5 – Zoning Assessment

A Zoning Assessment is not applicable to this amendment application. The land comprising the Portland portion of the South Campus is located in the I-L (Industrial and Airport) zone and is currently undeveloped. There is no development presently planned on the Portland side of the Project. Improvements on the Westbrook portion of the Project are under review by the City of Westbrook.

Section 6 – Subdivision Standards Assessment

The Project meets the review standards set forth in Section 15.4.1 of the City of Portland's Land Use Code. Those review standards are set forth below, along with the Applicant's corresponding responses.

Section 15.4.1 requires that before granting approval, the Planning Board shall determine that the proposed subdivision:

A. Will not result in undue water or air pollution. In making this determination the Planning Board shall at least consider the elevation of land above sea level and its relation to the floodplains, the nature of soils and subsoils and their ability to adequately support waste disposal, the slope of the land and its effect on effluents, the availability of streams for disposal of effluents, and the conformity to the applicable state and local health and water resources regulations.

   Response: The Applicant proposes amending the North Campus Subdivision approval, granted October 19, 2016 and amended September 25, 2018 and February 6, 2020, specifically to create new Lots 8 through 19 within Phase 2 area of the development on the North Campus. Since no new buildings or development are proposed as part of this Application, which solely is for purposes of lot division, the proposed Application will have no impact on the air and water pollution impacts and findings previously made by the Planning Board. As part of the review of the original applications and associated amendments, the Planning Board examined the environmental impacts of those buildings and uses. The entire Rock Row project, both South and North Campus parcels (the "Project") also has been approved by the Maine Department of Environmental Protection (DEP) under a Site Location of Development Act (SLODA) permit process that reviewed the overall development's environmental impact. DEP approved the Project, confirming that the design, at a minimum, meets the State's water and air pollution requirements which are as strict or stricter than the City of Portland's subdivision review standards.

B. Has sufficient water available for the reasonably foreseeable needs of the subdivision.

   Response: The Project will be supplied by the municipal water system, managed by the Portland Water District (PWD). An ability to serve letter issued by PWD has previously been submitted.

C. Will not cause unreasonable burden on an existing water supply.

   Response: The Project is not intended to have any impact on the current water supply design, as it was designed to serve all of the contemplated buildings and uses. The Application does not propose additional water supply design, as this will occur during roadway site plan review.

D. Will not cause unreasonable soil erosion or reduction in the capacity of the land to hold water so that a dangerous or unhealthy condition may result.

Response: The Application covers the same Rock Row Phase 1 area previously reviewed and approved by the Portland Planning Board under this standard, and the Applicant provided extensive erosion and sedimentation plans during those review processes. The Rock Row Phase 1 area also was approved by Maine DEP under a SLODA permit that reviews the overall Project's erosion impact. The State has approved the proposed sediment and erosion control plans. As the proposed Application is intended only to create lot line divisions to accommodate the buildings, improvements and infrastructure already reviewed and approved by the Planning Board, it will have no impact to the current erosion & sediment control plans.

E. Will not cause unreasonable highway or public road congestion or unsafe conditions with respect to use of the highway or public roads existing or proposed.

Response: The entire Project – North and South Campuses -- has been approved by the Maine Department of Transportation (MDOT) under a Traffic Movement Permit (TMP) and an amended TMP. The TMP and its amendment were developed and managed, on behalf of the developer, by Sebago Technics. The Application will have no impact to the existing and amended TMPs, as it only seeks approval of revised and new lot lines to accommodate future buildings, improvements, and infrastructure that will be reviewed and approved by the Westbrook Planning Board and recognized by MDOT in the TMP process.

F. Will provide for adequate sanitary waste and storm water disposal and will not cause an unreasonable burden on municipal services if they are utilized.

Response: The Application will have no impact on sewage disposal, as it only seeks approval of revised and new lot lines to accommodate the buildings, improvements, and infrastructure that will be reviewed and approved by the Westbrook Planning Board.

G. Will not cause an unreasonable burden on the ability of the City to dispose of solid waste and sewage if municipal services are to be utilized.

Response: The Project will utilize private solid waste companies to remove all recyclable and non-recyclable solid waste.

H. Will not have an undue adverse effect on the scenic or natural beauty of the area, aesthetics, historic sites, significant wildlife habitat identified by the Department of Inland Fisheries and Wildlife or by the City, rare and irreplaceable natural areas, or any public rights for physical or visual access to the shoreline. For subdivisions within local historic districts, the Planning Board shall apply the standards of Subsection 17.8.3(C). The Planning Board may request that the Historic Preservation Board prepare an evaluation of the proposed subdivision based upon the standards of Subsection 17.8.3(C).

Response: As summarized in Section 4 of this Application, the Development has received approval from the DEP under the Natural Resources Protection Act (NRPA) and the Site Location of Development Act (SLODA). These review processes involved an examination of the impacts of the Development on the scenic or natural beauty of the area, aesthetics, historic sites, significant wildlife habitat identified by the Department of Inland Fisheries and Wildlife, and rare and irreplaceable natural areas or any public rights

for physical or visual access to the shoreline. Notably, the SLODA/NRPA permit issued by the DEP provides as follows:

> *The proposed projects are located within the Rock Row development and alongside the existing quarry. Historically, the project area had limited landscape features with highly visible paved and gravel areas related to an asphalt plant and quarry operations. The applicant submitted a landscape plan and site rendering plan detailing the proposed project.*
>
> *Based on the project's location and design, the Department finds that the proposed project will not have an unreasonable adverse effect on the scenic character of the surrounding area.*
>
> *The Property is not located within a local historic district and accordingly, the standards of Subsection 17.8.3(C) of the Land Use Code do not apply.*

I. Is in conformance with the Comprehensive Plan or its successor.

Response: No development is currently proposed on the Portland portion of the North Campus. The adjacent development in Westbrook is consistent with (and less intense than) the permitted uses authorized in the B-4 and I-L zoning districts in Portland.

J. The subdivider has adequate financial and technical capacity to meet the standards of this subsection.

Response: The Applicant has adequate financial and technical capacity to complete this Project. Please see Sections 9 and 10 of this Application for more detailed information regarding financial and technical capacity. We also note that, as part of the DEP's review of the Development and multiple amendments, the DEP found that Dirigo had the financial capacity and technical ability to complete the work authorized under the SLODA/NRPA permit.

K. Whenever situated, in whole or in part, within the watershed of any pond or lake or within 250 feet of any wetland, great pond, or river as defined in Title 38, Chapter 3, Subchapter I, Article 2B, will not adversely affect the quality of such body of water or unreasonably affect the shoreline of such body of water.

Response: The Portland Planning Board, during its subdivision review of the initial subdivision of the North Campus, reviewed the Project's proposed stormwater design to confirm that there will be no adverse effect to Nasons Brook, a designated urban impaired stream located on the South Campus. As the current Application only creates additional lots on which no development is currently proposed, the Project will not result in any additional impacts to wetlands or water bodies.

L. Will not, alone or in conjunction with existing activities, adversely affect the quality or quantity of groundwater.

Response: The proposed stormwater design seeks to treat all stormwater runoff to the requirements set forth by the SLODA permit, so as not to adversely affect the quality of the groundwater.

M. Is or is not in a flood prone area, based on the Federal Emergency Management Agency's flood boundary and floodway maps and flood insurance rate maps, and information presented by the applicant. If the subdivision, or any part of it, is in such an area, the subdivider shall determine the 100-year flood elevation and flood hazard boundaries within the subdivision. The proposed subdivision plan must include a condition of plan approval requiring that principal structures in the subdivision will be constructed with their lowest floor, including the basement, at least one foot above the 100-year flood elevation.

Response: Not applicable; the Project is not impacted by any designated flood zones.

N. Will provide for adequate stormwater management.

Response: Stormwater management was, and will continue to be, extensively reviewed by the DEP as part of the SLODA permitting process. Please see DEP Order L-02734-23-P-A submitted with this Application, in which the DEP found that the most recent amendments to the Development meet applicable stormwater basic, general, urban impaired stream, and flooding standards.

O. Will not have lots with a lot depth-to-shore frontage ratio greater than 5 to 1 if any lots in the proposed subdivision have shore frontage on a river, stream, brook, great pond, or coastal wetland as these features are defined in Title 38 § 480-B.

Response: Not applicable. None of the lots have shore frontage.

P. For any proposed subdivision that crosses municipal boundaries, will not cause unreasonable traffic congestion or unsafe conditions with respect to the use of existing public ways in an adjoining municipality in which part of the subdivision is located.

Response: The overall Project – North and South Campuses – received an amended Traffic Movement Permit (TMP) from the Maine DOT on December 6, 2022. A copy of the amended TMP is included with this application.

Section 6 – Subdivision Standards Assessment

The Project meets the review standards set forth in Section 15.4.1 of the City of Portland's Land Use Code. Those review standards are set forth below, along with the Applicant's corresponding responses.

Section 15.4.1 requires that before granting approval, the Planning Board shall determine that the proposed subdivision:

A. Will not result in undue water or air pollution. In making this determination the Planning Board shall at least consider the elevation of land above sea level and its relation to the floodplains, the nature of soils and subsoils and their ability to adequately support waste disposal, the slope of the land and its effect on effluents, the availability of streams for disposal of effluents, and the conformity to the applicable state and local health and water resources regulations.

   Response: The Applicants are proposing to reconfigure the roads shown on the approved South Campus Subdivision; reconfigure Lots 7 and 8 into Lots 7,8,9, and 10 on the South Campus; create a new lot 11 from the exiting Parcel 1, Lot 1 (which is proposed to be used for the location of a CMP substation); and show the remaining land on the South Campus as Parcel 1, Lot 12. No new buildings or development are proposed as part of this Application, which solely is for purposes of lot division. The entire Rock Row project, both South and North Campus parcels (the "Development"), also has been approved by the Maine Department of Environmental Protection ("DEP") under a Site Location of Development Act ("SLODA") permit process that reviewed the Development's environmental impact. The DEP approved the Development and several amendments, each confirming that the design, at a minimum, meets the State's water and air pollution requirements which are as strict or stricter than the City of Portland's subdivision review standards.

B. Has sufficient water available for the reasonably foreseeable needs of the subdivision.

   Response: The Project will be supplied by the municipal water system, managed by the Portland Water District ("PWD"). An ability to serve letter was issued by the PWD for the medical office building on Lot 1 and the applicant will be pursuing the approval for Rock Row water infrastructure. The proposed Lot 11 and its potential electrical substation will have no impact on water needs for this Project.

C. Will not cause unreasonable burden on an existing water supply.

   Response: The Project is not intended to have any impact on the current water supply design, as it was designed to serve all of the contemplated buildings and uses.

D. Will not cause unreasonable soil erosion or reduction in the capacity of the land to hold water so that a dangerous or unhealthy condition may result.

Response: The Project's grading and drainage plans incorporate numerous erosion and sedimentation controls, both during construction and post-construction. The same controls used and approved on previous phases of the Project will be utilized as part of this Subdivision Application.

E. Will not cause unreasonable highway or public road congestion or unsafe conditions with respect to use of the highway or public roads existing or proposed.

Response: The entire Project – North and South Campuses -- has been approved by the Maine Department of Transportation (MDOT) under a Traffic Movement Permit (TMP) and an amended TMP. The TMP was developed and managed, on behalf of the developer, by Sebago Technics. The Application will have no impact to the existing TMP and amended TMP, as it only seeks approval of revised and new lot lines and road layouts to accommodate the buildings, improvements, and infrastructure already reviewed and approved by the Westbrook Planning Board and recognized by MDOT in the TMP process. Instead of there being one road, Quarry Drive, from Larrabee Road to the proposed residential development, there will be a separate road, Blue Rock Avenue, from Larrabee Road to Rock Row Boulevard, with Quarry Drive beginning at Rock Row Boulevard.

F. Will provide for adequate sanitary waste and storm water disposal and will not cause an unreasonable burden on municipal services if they are utilized.

Response: Future development of the Project will connect to the Rock Row Lift station that will transmit effluent along Saunders Way to the gravity sewer near Forest Street. As part of the larger Rock Row project, a section of gravity sewer has been replaced on Forest Street in the location of the railroad tracks to provide capacity for Rock Row, and Waterstone is carrying out a project to improve the effluent force main along Saunders Way. Addition of a Lot 11 for utility purposes will not create additional sewage disposal needs.

G. Will not cause an unreasonable burden on the ability of the City to dispose of solid waste and sewage if municipal services are to be utilized.

Response: The Rock Row project will utilize private solid waste companies to remove all recyclable and non-recyclable solid waste. Addition of a Lot 11 for utility purposes will not create additional solid waste disposal needs.

H. Will not have an undue adverse effect on the scenic or natural beauty of the area, aesthetics, historic sites, significant wildlife habitat identified by the Department of Inland Fisheries and Wildlife or by the City, rare and irreplaceable natural areas, or any public rights for physical or visual access to the shoreline. For subdivisions within local historic districts, the Planning Board shall apply the standards of Subsection 17.8.3(C). The Planning Board may request that the Historic Preservation Board prepare an evaluation of the proposed subdivision based upon the standards of Subsection 17.8.3(C).

Response: As summarized in Section 4 of this Application, the Development has received approval from the DEP under the Natural Resources Protection Act (NRPA) and the Site Location of Development Act (SLODA). These review processes involved an examination of the impacts of the Development on the scenic or natural beauty of the area, aesthetics, historic sites, significant wildlife habitat identified by the Department of Inland Fisheries and Wildlife, and rare and irreplaceable natural areas or any public rights for physical or visual access to the shoreline. Notably, the SLODA/NRPA permit issued by the DEP provides as follows:

> *The proposed projects are located within the Rock Row development and alongside the existing quarry. Historically, the project area had limited landscape features with highly visible paved and gravel areas related to an asphalt plant and quarry operations. The applicant submitted a landscape plan and site rendering plan detailing the proposed project.*
>
> *Based on the project's location and design, the Department finds that the proposed project will not have an unreasonable adverse effect on the scenic character of the surrounding area.*
>
> *The Property is not located within a local historic district and accordingly, the standards of Subsection 17.8.3(C) of the Land Use Code do not apply.*

I. Is in conformance with the Comprehensive Plan or its successor.

Response: No development is currently proposed on the Portland portion of the South Campus. The adjacent development in Westbrook is consistent with (and less intense than) the permitted uses authorized in the I-L zoning district in Portland.

J. The subdivider has adequate financial and technical capacity to meet the standards of this subsection.

Response: The Applicants have adequate financial and technical capacity to complete this Project. Please see Sections 9 and 10 of this Application for more detailed information regarding financial and technical capacity. We also note that, as part of the DEP's review of the Development and multiple amendments, the DEP found that Dirigo had the financial capacity and technical ability to complete the work authorized under the SLODA/NRPA permit.

K. Whenever situated, in whole or in part, within the watershed of any pond or lake or within 250 feet of any wetland, great pond, or river as defined in Title 38, Chapter 3, Subchapter I, Article 2B, will not adversely affect the quality of such body of water or unreasonably affect the shoreline of such body of water.

Response: The Westbrook Planning Board, during its site plan review process for the Medical Office Building and Parking Garage, and DEP, during the SLODA and NRPA permit processes, have reviewed the Project's proposed stormwater management design to confirm that there will be no adverse effect to Nasons Brook, a designated urban impaired stream. As this Subdivision Application only creates additional lots in furtherance with the larger Rock Row Project and site plan approvals already granted by the City of Westbrook, it will have no additional impact on Nasons Brook.

L. Will not, alone or in conjunction with existing activities, adversely affect the quality or quantity of groundwater.

Response: The proposed stormwater design seeks to treat all stormwater runoff to the requirements set forth by the SLODA permit, so as not to adversely affect the quality of the groundwater.

M. Is or is not in a flood prone area, based on the Federal Emergency Management Agency's flood boundary and floodway maps and flood insurance rate maps, and information presented by the applicant. If the subdivision, or any part of it, is in such an area, the subdivider shall determine the 100-year flood elevation and flood hazard boundaries within the subdivision. The proposed subdivision plan must include a condition of plan approval requiring that principal structures in the subdivision will be constructed with their lowest floor, including the basement, at least one foot above the 100-year flood elevation.

Response: Not applicable; the Project is not impacted by any designated flood zones.

N. Will provide for adequate stormwater management.

Response: Stormwater management was, and will continue to be, extensively reviewed by the DEP as part of the SLODA permitting process. Please see DEP Order L-02743-23-P-A submitted with this Application, in which the DEP found that the most recent amendments to the Development meet applicable stormwater basic, general, urban impaired stream, and flooding standards.

O. Will not have lots with a lot depth-to-shore frontage ratio greater than 5 to 1 if any lots in the proposed subdivision have shore frontage on a river, stream, brook, great pond, or coastal wetland as these features are defined in Title 38 § 480-B.

Response: All proposed lots meet depth-to-shore frontage ratio requirements.

P. For any proposed subdivision that crosses municipal boundaries, will not cause unreasonable traffic congestion or unsafe conditions with respect to the use of existing public ways in an adjoining municipality in which part of the subdivision is located.

Response: The overall Project – North and South Campuses – received an amended Traffic Movement Permit (TMP) from the Maine DOT on December 6, 2022. A copy of the amended TMP is included with this application.

Section 7 – Existing and/or Proposed Easements or Covenants

The land constituting the North Campus is subject to the easements listed in the table below, all of which are shown on the plans submitted with this Application. A railroad line owned in fee by the Portland Terminal Company bisects the site and separates the North and South Campuses of the development. Thus, the North and South Campuses are each considered separate tracts for subdivision purposes. The present application is limited to the North Campus.

Table of Easements

Easement	Book/Page	Location
30’ Wide Pipeline Easement	2881/459	Portland
60’ Wide Transmission Line Easement	3204/758	Portland /Westbrook
Unspecified-Width Transmission Line Easement	2024/115	Portland
60’ Wide Transmission Line Easement	2783/216	Portland /Westbrook
Unspecified-Width Pipeline Easement	1891/16	Westbrook
60’ Wide Access Easement**	34380/171	Westbrook
60’ Wide Access Easement**	34380/224	Westbrook
50’ Pipeline Easement	34286/255	Westbrook

**As described in Note 8 on Plan Sheet A7 submitted with this application, the location of these access easements (providing for two crossings of the railroad line owned in fee by the Portland Terminal Company) will be revised and shown on a separate plan.

Section 7 – Existing and/or Proposed Easements or Covenants

The land comprising the South Campus is subject to the easements listed in the table below, all of which are shown on the plans submitted with this application. A railroad line owned in fee by the Portland Terminal Company bisects the site and separates the North and South Campuses of the development. Thus, the North and South Campuses are each considered separate tracts for subdivision purposes. The present application is limited to the South Campus.

Table of Easements

Easement	Book/Page	Location
60’ Easement to Portland Pipe Line Corporation	2891/413	Portland
100’ Easement to CMP Co.	2365/181	Portland
Easement to Central Maine Power	2104/279	Portland
29’ Easement to Portland Lighting and Power Company	878/166	Portland
60’ Wide Access Easement**	34380/171	Westbrook
60’ Wide Access Easement**	34380/224	Westbrook
50’ Oil Line Easement	34286/255	Westbrook

**As described in Note 8 on Plan Sheet A9 submitted with this application, the location of these access easements (providing for two crossings of the railroad line owned in fee by the Portland Terminal Company) will be revised and shown on a separate plan.

Section 8 – Waiver Requests

Under Maine's subdivision law, if any portion of a subdivision crosses municipal boundaries, all meetings and hearings to review the application must be held jointly by the reviewing authorities from each municipality. 30-A M.R.S. § 4403(1-A). The reviewing authorities in each municipality may waive this requirement upon written agreement. Pursuant to a standing order applicable to this Project, the Westbrook and Portland Planning Boards have agreed to waive the requirement to hold joint meetings and have elected to review the Project separately. *See* Subdivision Plan A4 recorded in Cumberland County Registry of Deeds Plan Book 220, Page 67 with note: "Waiver Granted." Therefore, Applicant believes no specific waiver request is necessary as part of this Application. If, however, the Planning staff deems otherwise, consistent with Applicant's initial subdivision application approved by the Portland Planning Board on October 18, 2016 and the minor amendment approved by City Staff on October 25, 2018, and the amendment approved by the Planning Board in January 21, 2020, Applicant requests a waiver of the requirement to hold joint meetings and hearings to review this application.

Section 9 – Financial Capability

Waterstone Properties Group, Inc. ("Waterstone") owns and controls Dirigo Center Developers, LLC. The DEP has previously determined that Waterstone has the financial capability to complete the entire Development (both North and South Campuses) as part of its review under the Site Location of Development Act. Attached please find Waterstone's latest Consolidated Interim Financial Statements. The same evidence has been submitted to the DEP in support of Applicant's application for an amendment to its SLODA permit.

Attachment: Consolidated Interim Financial Statements

Section 10 – Technical Capability

Dirigo Center Developers, LLC – Developer

Dirigo Center Developers, LLC is owned and controlled by Waterstone Properties Group, Inc., a real estate development company headquartered in Needham, Massachusetts. As the second largest retail developer in New England, Waterstone's portfolio includes office, residential, medical and warehousing/logistics facilities with a strong focus on mixed use and retail developments. With a portfolio of more than 300 national and local businesses across 14 states, Waterstone prides itself on maintaining longstanding, collaborative relationships with our tenants and community partners.

Waterstone's portfolio totals more than seven million square feet of existing space and an additional 3+ million square feet under development. In addition to Rock Row, Waterstone's Maine properties include the Kittery Outlet Center, 340 U.S. Route 1 Kittery, ME and the Scarborough Gallery, 700 Gallery Boulevard Scarborough, ME.

Waterstone has engaged a skilled team of professionals to assist in the permitting and development of Rock Row, including:

Jones & Beach Engineers, Inc. – Civil Engineer and Surveyor

Hayley & Aldrich – Geotechnical/Environmental Engineer

Michael Cuomo – Soil Scientist

Perkins Thompson, PA – Legal/Permitting Counsel

Sebago Technics – Environmental engineering, wetlands evaluations

Attachment:

- Summary of relevant professional experience and professional resumes



JONES & BEACH ENGINEERS INC.

Company Qualifications

Rock Row
Westbrook & Portland, ME

Prepared for:

Maine Department of
Environmental Protection
Bureau of Land Resources
312 Canco Road
Portland, ME 04103

August 2021

Jones & Beach Engineers, Inc.
85 Portsmouth Avenue
PO Box 219
Stratham, NH 03885

jbe@jonesandbeach.com
www.jonesandbeach.com

JONES & BEACH ENGINEERS INC.

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V. PERSONNEL QUALIFICATIONS

- **Wayne G. Morrill –** President / Senior Project Manager
- **Bradford A. Jones** – Vice President / Construction Services Manager
- **Barry W. Gier, P.E.** – Vice President / Senior Project Manager
- **Joseph A. Coronati** – Vice President / Senior Project Manager
- **David M. Collier, LLS** – Survey Manager
- **Matthew Salvucci, LLS, PLS, EIT** – Associate / Assistant Survey Manager
- **Ian MacKinnon, P.E., CPESC-IT** – Associate / Project Manager

APPENDIX I.

- Hourly Rate Schedule

I. COMPANY INTRODUCTION

Since 1977, Jones & Beach Engineers, Inc., has provided a wide variety of engineering and surveying services to industrial, municipal, commercial, and residential clients. We have expertise and experience with site development including hotels, large and small commercial establishments, water and sewer improvements, and numerous residential and condominium projects. We have years of extensive experience with Town Zoning Ordinances, Site Plan and Subdivision Regulations, Stormwater design and management, surface water quality, wetland resource protection, innovative design (such as porous pavement), constructability, and inspecting contractor work.

Frequently, our staff becomes involved first with a property site walk, followed by mobilization of field survey crews to develop an existing conditions plan, which is the base for conceptual layouts. Our designers meet with the client to balance the maximum yield of the property with local and environmental concerns. Final design plans are prepared and submitted for the review and approval phase. Construction services are provided for full client support to ensure that the contractor completes the work according to the intent of the design plans. Cost saving measures are considered throughout the process.

Here at Jones & Beach Engineers, we work with many different clients and perform a wide variety of services to our clients. We have licensed engineers, surveyors, wetland scientist, septic system designers, and sediment and erosion control and stormwater quality professionals working here. We often collaborate with local structural and geotechnical engineers on projects. We are a full-service firm and often times manage projects from conceptual ideas through to approvals and finally construction management. All of our projects have a principal owner as a project manager in order to facilitate client input directly to the design engineers.

The firm has completed thousands of projects in the seacoast New Hampshire region, as well as Massachusetts and Maine. Specific Project experience and resumés are included for reference. Every one of our projects involves working with the utility companies and we have many years of experience with this. We have relocated many utility poles for subdivision roadway and site entrance construction, coordinated underground utility designs with power companies and surveyed many of the existing right-of-ways.

We look forward to consulting with you to assess your professional needs and to explore the ways in which we might be of service.

II. MUNICIPAL & PROJECT EXPERIENCE

Hampton Falls, NH – Town Engineer

Jones & Beach Engineers, Inc., has been the Town Engineer for Hampton Falls, NH, since 1994. Our involvement as Town Engineer begins at the Planning Board level with projects submitted by developers.

We are involved with projects that range from two-lot subdivisions up to the largest ones proposed with roadways, as well as all site plans for commercial uses along Route 1. We provide engineering review of plans, construction cost estimates, and construction field inspections with written reports. We have also provided the Town with NHDES Wetlands Bureau design and permitting services for culvert extensions, replacement culverts, roadway drainage improvements, and land survey for Right-of-Way plans on existing roads. We periodically encourage and work with the Town to update the Regulations for clarification and design improvements.

We have always provided quick response time and usually are able to review plans within one to two weeks from the date we receive them. Since we have two construction field inspectors, we can usually be on-site within 24 hours, if necessary.

Reference: Town of Hampton Falls
Attn. Lori Ruest, Acting Town Manager
1 Drinkwater Road
Hampton Falls, NH 03844
(603) 926-4618 Ext. 3

Derry, NH – Town Engineer

As the Town Engineer for Derry from 2008 to 2011, Jones & Beach Engineers, Inc., confirmed that all plans and materials submitted by applicants conformed with applicable ordinances, submittal procedures, regulations, and RSAs. The submissions must be prepared in accordance with sound engineering, design and construction practices. Occasionally we recommended additional studies that would be prudent to help the Board make an informed decision with regard to the application. Our written report identifies any missing, incorrect, incomplete or questionable information that was, or should have been, supplied with the application. We also performed reviews of any revised submissions and respond accordingly. Review of the submissions included, but was not limited to, field inspections of the proposed site, detailed review of the wetlands and soils information, stormwater drainage, roadway design, utility layout and design, and review of sedimentation and erosion control plans. Prior to final approval of a project, we assisted the Town in reviewing the Construction Cost Estimate amount for performance guarantee purposes. Keach-Nordstrom Associates also reviewed projects in Derry.

Reference: Community Development Department
Attn. George Sioras, AICP, Director
14 Manning Street
Derry, NH 03038
(603) 432-6110

Seabrook, NH – Sewer System

Jones & Beach Engineers, Inc., along with Stearns & Wheeler, of Cazenovia, New York, were awarded the contract to perform the engineering design and construction services for a town-wide sewage collection and treatment facility. This project was initiated with an existing conditions survey in 1987. The design consisted of 50 miles of gravity sewer and forcemain, in addition to 25 miles of individual house services, two wetwell/drywell pump stations, sixteen suction lift pump stations, treatment facilities and 45 miles of drainage improvements. This project entailed jacking under I-95 and NHDOT Coordination. During the spring of 1993, construction was initiated and all ten individual contracts are now completed. Jones & Beach provided construction inspection services for the Town of Seabrook and had a full-time Professional Engineer with four full-time Construction Inspectors assigned to the project. Total construction cost of the project was 55 million dollars.

Reference: Russell Bailey (Currently at the Town of Alton: (603) 875-2161)
Town of Seabrook
Lafayette Road
PO Box 456
Seabrook, NH 03874
(603) 474-3152

Auburn, NH – Chester Road & Bridge Improvements, Boundary Survey of Town Landfill, and & Town Hall Renovation

Jones & Beach Engineers, Inc., was retained by the Town of Auburn to perform Boundary Survey for the Town Landfill. We assisted in the upgrade of Chester Road by conducting a Route Survey and Wetland Delineation. Technical assistance has been provided for the upgrade to the Town Hall.

Reference: Town of Auburn
Attn. Mr. William Herman, CPM
Town Administrator
PO Box 309
Auburn, NH 03032
(603) 483-5052 Ext. 111

Epping, NH – Water and Sewer Commission Engineer

The Epping Board of Selectman and the Water and Sewer Commission have retained Jones & Beach for numerous projects in the Town of Epping. Key projects are listed below:

- **Water and Sewer Design:** Jones & Beach has assisted the Water and Sewer Commission on two Stimulus Projects as part of the Federal American Recovery and Reinvestment Act (ARRA), the Mill Street Sewer Pump Station upgrade and the extension of water and sewer mains north on Route 125. The projects are fully designed and were constructed in 2010. The Water and Sewer Project entailed NHDOT Review and Inspections and jacking under NH Route 125. JBE provide construction management and inspection services for the installation of more than 5,000 feet of 12" watermain along the State Highway. The Mill Street Sewer Pump Station improvements included the demolition of the existing pump station and installation of a new duplex-self priming suction pump lift station with back-up LPG generator. The project included design of new wetwell, pump house, pump station, electrical panels and connections, and LPG generator to supply the duplex 20-HP station. JBE has also been retained by the Water and Sewer Commission to upgrade the Town's water distribution maps.

- **Prescott Road Drainage Analysis:** A hydraulic analysis study along with preliminary construction plans

and Engineer's cost estimate were completed for the Prescott Road culvert replacement. The project is a result of the recent flooding over the past few years and wash out of the roadway. The project is awaiting final approval and grant assistance from FEMA.

The existing cross culvert was a 3' x 3' stone box, which appeared to be historic. The area of the watershed crossing the road was determined to contain approximately 1,026 acres. The watershed area and the roadway crossing were evaluated using HydroCAD software and were analyzed for 50-year and 100-year storm events, which resulted in flows of 524 cubic feet per second (cfs) and 676 cfs respectively. The two major storm events of 2006 and 2007 fell into these categories causing roadway damage and flooding across the road.

An eight (8') foot wide by four (4') foot high arch culvert with a natural bottom was sized parallel to the existing box culvert to handle the 50-year and 100-year storm events. The down slope embankment retaining wall along with the guardrail on that side of the road were severely destroyed during the flooding and need to be replaced.

- **Downtown Epping Core Project:** Jones & Beach designed plans for the Revitalization of the Downtown Epping Core Project. The project entailed drainage improvements along the Lamprey River.

Reference: Town of Epping
Attn. Dennis Koch, Public Works Coordinator
Epping Planning Board
157 Main Street
Epping, NH 03042
(603) 679-5441, Ext. 108

Raymond, NH – Epping Street Road Reconstruction

Jones & Beach Engineers, Inc., was retained by the Town of Raymond for the redesign of Epping Street. The roadway is approximately 4,000 linear feet long and required reclamation of the existing roadway, design of a new vertical and horizontal alignment, new drainage system, curbing and green space. The first phase of the project went to construction in 2010, and was funded through the CIP and possible Federal Stimulus funds.

Reference: Attn. Dennis McCarthy, Former Raymond Department of Public Works Director
Currently Rye Director of Public Works
309 Grove Road
Rye, NH 03870
(603) 964-5300

Candia, NH – Hillcrest Manor Apartment Complex Water System Pump House & Storage Upgrade

Jones & Beach Engineers, Inc. (JBE) worked on this Water System Pumphouse and Storage Upgrade Project for the Hillcrest Manor Apartments in Candia, NH. This is a DWSRF 2012 funded project and included Conceptual & Final Plans for this new water distribution, tank, and controls, Design-Build Specifications, Electrical Design (Subcontracted), and Pre-Bid Meeting and Bid Solicitation and Evaluation. This project has been awarded to a Contractor and construction is set to commence in the summer of 2012. JBE will be providing Construction Management services for the project as well.

Reference: Dube Investment Properties, LLC
Attn. Bill Dube
25 Riverside Street, Suite 101
Nashua, NH 03062
(603) 883-1313

Allenstown, NH – Old Towne Homeowner's Co-op Uranium Treatment and Second Source Well

Jones & Beach Engineers, Inc. worked on this Uranium Treatment and Second Source Well Stimulus Project for the Old Towne Homeowners Co-op located in Allenstown, NH. This was an ARRA 2009 funded project and included Topographic Survey, Existing Conditions Plan, Well Siting Plan, Bidding Documents and Specifications and Hydrogeotechnical Design. Construction for this project is complete and we are in the final stages of close-out with the State.

Reference: Olde Towne Homeowner's Cooperative
Attn. Dennis Fowler
1 Woodlawn Drive
Allenstown, NH 03275
(603) 485-5437

Newfields, NH – Route 85 Water and Sewer Extension

Jones & Beach Engineers, Inc is currently working on conceptual design plans for a 1700 linear foot water extension on NH Route 85. The work will entail the design of the water system of a stone box culvert, assessing system pressures and placement of hydrants for fire suppression needs and blow offs.

Reference: Town of Newfields, Water and Sewer Commission
Attn. Ray Buxton, Chairman
65 Main Street
Newfields, NH 03856
(603) 772-5651

Warren, NH – Studio Road Drainage Design & Baker River Bank Stabilization

Project 1: Jones & Beach has completed the Design Build Project for the Drainage Improvements along Studio Road. The project entailed survey, design and permitting for approximately 300 linear feet of drainage improvements along Studio Road with stormwater discharge into the Baker River. NHDES Wetland and Shoreline Permits were required for the project. JBE provided construction inspection for the project.

Project 2: Baker River Emergency slope stabilization at the Bixby Road. Jones & Beach completed the emergency design and permitting to prevent erosion on approximately 175 linear feet of stream bank. JBE will be assisting the Town to solicit bids for the construction of the work in the spring of 2010.

Project 3: Jones & Beach has been awarded the Restoration Design and Permitting for a section of the Baker River in Warren. The project will involve evaluating sediment transport and accelerated fluvial erosion, improvement of aquatic and riparian habitats, and floodplain restoration. The project will require a Hec-Ras Stormwater analysis. The project team includes John Field, PhD, a Fluvial Geomorphologist, and Gerald Lang, Hec-Ras. The project will require final design plans and construction cost estimates. A U.S. Army Corps. of Engineers and NHDES wetlands permit will be required.

Project 4: Jones & Beach is currently assisting the Town of Warren with Emergency Repairs to the Studio and Bixby Lane bridges for damage caused by Hurricane Irene.

Reference: Attn. Andrew Dorsett, Town Administrator
Town of Warren
8 Water Street
PO Box 40
Warren, NH 03279
(603) 764-5780

Bow, NH – Bow Bog Road Drainage Improvement Project

Jones & Beach Engineers, Inc. designed, permitted, and provided construction administrative services for this Drainage Improvement on Bow Bog Road at Center Brook for the Town of Bow. This included evaluating the Center Brook Watershed to determine the tier classification according to the new NHDES Stream Rule Regulations. The designed box culvert contains a closed bottom with stream in-bed for a tier 2 River. The project was completed in the summer of 2011.

Reference: Town of Bow
Attn. Timothy Sweeney, Director of Public Works
10 Grandview Road
Bow, NH 03304
(603) 228-2207

Barrington, NH – Pavement Management Program

Jones & Beach completed an Inventory and Assessment of road surfaces for the Town of Barrington. More than 70 miles of roadway were observed and the condition of the pavement was determined based on the UNH T2 Road Surface Management System (RSMS) software. The software develops a Pavement Condition Inventory (PCI) for each roadway system. The information prioritized the roadway system and determined the cost for roadway repairs.

Reference: Dawn Hatch and Peter Cook, Road Agent
Town of Barrington
333 Calef Highway, PO Box 660
Barrington, NH 03825
(603) 664-9007

Stratham, NH – The Cooperative Middle School

Working with Frank P. Marinace Architects, Jones & Beach Engineers, Inc., developed the site design package for local and state review and approvals. This 150,000 square foot building was designed with 256 parking spaces and 4,000 linear feet of roadway on 50 acres. Public water and sewer were brought to the site from the Town of Exeter. Great care was exercised to save as many existing mature trees as possible, while still providing desired parking and athletic fields. The stormwater design system incorporated a 36,000 square foot pond network with wetland enhancement.

Reference: Exeter Region Co-operative School District
Attn. Mr. Walter Pierce
24 Linden Street
Exeter, NH 03833
(603) 778-7772

Stratham, NH – Fire Station

Jones & Beach assisted in the Engineering design and permitting for the new Fire Station. The project was a fast track Design-Build project between the Town of Stratham, the General Contractor, Site Contractor with Jones & Beach Engineers preparing the Engineering Site Plan and permitting responsibilities.

Reference: Paul Deschaine, Town Administrator
Town of Stratham
10 Bunker Hill Avenue
Stratham, NH 03885
(603) 772-7391

Hampton Falls, NH – Sanborn Road

Subject to frequent flooding from the Taylor River, Sanborn Road in Hampton Falls, NH was a continual maintenance concern and a potential detriment to public safety. As the Town Engineer, Jones & Beach designed, permitted, and inspected a complete replacement of the existing concrete and stone box culvert. The cross culvert was upgraded with a new precast structure, the crossing also featured three additional culverts to provide additional discharge capacity above bank full elevation. With the placement of new granite retaining walls, the vertical alignment was raised out of the floodplain and a dry hydrant installed to service the surrounding neighborhood's fire protection needs. Together, these improvements reduced flooding so significantly that the characteristically inundated crossing was not overtopped during the epic "Mother's Day Storm" that overwhelmed southeastern New Hampshire in the spring of 2006.



Sanborn Road, Hampton Falls, NH

Exeter, NH – Exeter Hospital Site Plans

Jones & Beach has provided consulting services for the Exeter Hospital Campus since 1995. The most recent project highlight was the use of Porous Asphalt for the new 12,700 SF Dental Clinic located on Hampton Road. The use of porous asphalt was used as a stormwater management and water quality tool. The project was designed to take all stormwater runoff generated onsite by the new construction and infiltrate it through the pavement into a gravel medium below the pavement for storage, treatment, and temperature control.

Other key projects on the Campus have included four parking lots, a 250,000 square foot building addition and expansion, with a new 60,000 square foot parking garage. Relocation of existing utilities and design of new parking were keys to the success of the Campus.

Reference: Robert Corson, AIA
Exeter Hospital, Inc.
5 Alumni Drive
Exeter, NH 03833
(603) 580-7288

Exeter Hospital Campus - Alumni Drive, Exeter, NH



Working closely with Exeter Hospital since 1995, Jones & Beach has designed and implemented eight major facility improvement and expansion efforts on the campus. Including four parking lots, a four-story parking garage, and over 250,000 sf of new building space, this multi-phase undertaking demanded a masterwork of advance planning and construction sequencing. With the hospital in operation through the duration of the project, complex utility relocation and refurbishment had to be coordinated so as to maintain uninterrupted service. Adequate parking and access also needed to be preserved, requiring that work be carefully staged so as to not interfere with the day-to-day functions of the facility. An integrated pedestrian circulation plan was also included in the design to encourage safe walking passage throughout the campus. With the completion of this vast scope of improvements, including the new Center for Ambulatory Care shown here, Jones & Beach has diligently worked to provide this regional medical center with the tools it needs to meet the challenges and opportunities of 21st century medicine.

JONES&BEACH ENGINEERS INC.

Exeter, NH - Exeter Health Reach Dental Site Plan

Jones & Beach teamed with Bruce Ronayne Hamilton Architect to provide civil/site and architectural services for a new 12,700 square foot dental clinic located on Hampton Road in Exeter, NH. Exeter Health Reach Dental is an expansion of services offered by Exeter Hospital.

Jones & Beach provided the site design which included:

- Site Grading
- Stormwater design and management plan
- Sanitary sewer design with pump station upgrades
- Design and coordination for utility connections
- Parking and pedestrian access

The project highlight would be the design and installation of Porous Asphalt used as a stormwater management and water quality tool. The project was designed to take all stormwater runoff generated onsite by the new construction and infiltrate it through the pavement into a gravel medium below the pavement for storage, treatment, and temperature control.

Reference: Robert Corson, AIA
Exeter Hospital, Inc.
5 Alumni Drive
Exeter, NH 03833
(603) 580-7288

Meredith, NH – 560-Acre Tract Survey

Jones & Beach Engineers, Inc., surveyed a 560-acre tract of land owned by The Wilds Christian Association, Inc., for The Trust for Public Lands in Meredith, New Hampshire. This contract was completed in June of 2008.

Stoddard, NH – 1740-Acre Tract Survey

Jones & Beach Engineers, Inc., surveyed a 1740-acre tract of land owned by The Trust for Public Lands, for The Trust for Public Lands in Stoddard, New Hampshire. This contract was completed in December of 2007.

III. SITE/CIVIL ENGINEERING EXPERIENCE

Westbrook, ME – Rock Row

Located on the Westbrook/Portland city lines, the Rock Row project has transitioned from an 87± acre mixed-use development with a focus on retail & restaurant uses to a 93± acre mixed-use development that will be comprised of retail, restaurant, office, medical, residential, entertainment, and personal care uses. The project began construction in Spring 2019 with the construction of an 8,000-seat outdoor amphitheater which hosted 16 events in its first season. In Summer 2019 construction began on Phase 1 of the project which covers the northernmost 20± acres of the project site. Phase 1 will resemble a standard mixed-use retail/restaurant site but will act as the gateway to the future phases which will seek to create an intimate pedestrian-focused development with multi-story structures that will host a variety of uses. The existing 20-acre quarry will be utilized as a visual feature that may be developed into an entertainment feature. Jones & Beach Engineers handled local site plan and subdivision approvals with the City of Westbrook and City of Portland, a contract zone approval from the City of Westbrook City Council, a Tier III NRPA Permit, Existing Conditions and As-Built Surveys, Construction Survey and Supervision, and a Maine Department of Environmental Protection - Site Location of Development Act Permit.

Epping, NH – Brickyard Square

Located at the intersection of Routes 101 and 125, this 48.67 acre parcel was developed with 277,000 square feet of retail space and a 5,200 square foot restaurant. The proposed retail development impacted 7.31 acres of forested wetlands within 29 acres of on-site disturbance, mitigation included a 12.87 acre conservation easement on-site and off-site mitigation of 109 acres. Jones & Beach Engineers handled the NHDES WQC, Town Planning Board and Zoning Board of Adjustment Approvals, NHDES Dam Permit, NHDES Site Specific Permit, Existing Conditions Survey, Construction Survey and Construction Supervision.

Seabrook, NH – Lowes Home Improvement Warehouse

Located on Lafayette Road (Route 1), this 17.45 acre parcel was developed for a 130,000 square foot Lowes Home Improvement Warehouse and a 5,000 square foot restaurant pad. The parcel was adjacent to Mary's Brook, which is a tributary river to the Cains Mill watershed. Mitigation for the project included preservation of a one acre lot on Cains Mill Pond and river sampling/monitoring before, during and after construction. Jones & Beach Engineers was responsible for Town Planning Board and Zoning Board of Adjustment approvals, NHDES Dam Permit, NHDES Site Specific Permit, Existing Conditions Survey, Construction Survey and Construction Supervision.

Plymouth, NH – Lowes Home Improvement Warehouse

This 120,000 square foot Lowe's Home Improvement Warehouse, 13,205 square foot Pharmacy and 5,000 square foot restaurant located on Tenney Mountain Highway (Routes 3A & 25) is adjacent to the Baker River to the North. This 77 acre parcel was located in the Shoreland Protection Zone, FEMA 100-Year Flood Plan and Regulatory Floodway, and within the Town's Environmentally Sensitive Zone. The development was on 15% of the entire parcel and a large portion of the remaining upland area was altered for floodplain compensation area. A Phase II Archaelogical Investigation, Comprehensive Environmental Assessment, Geo-Fluvial Morphology and Hec-Ras Studies were performed to prove that there would be non degredation of the Baker River with the development. Jones & Beach Engineers' responsibilities included Town Planning Board and Zoning Board of Adjustment Approvals, NHDES Site Specific Permits and NHDOT Roadway Design.

Plymouth, NH – Lowes – Offsite Improvements

The site is located on Tenney Mountain Highway (Routes 3A & 25) and is adjacent to the Baker River to the North. The parcel is located in the Shoreland Protection Zone, FEMA 100-Year Flood Plain and Regulatory Floodway, and within the Town's Environmentally Sensitive Zone. A NHDOT Permit for the Water System and Roadway Design was an integral part of the project.

Seabrook, NH – The Home Depot

This 135,000 square foot Home Depot was designed on a 21 acre parcel on the southerly end of Lafayette Road (Route 1). The project was adjacent to Mill Pond and Boston & Maine Railroad, mitigation for the project included an on-site constructed wetland, wet pond, design of a town park for access to Mill Pond and Route 1 box culvert design with a fish ladder. Jones & Beach Engineers' responsibilities included town Planning Board and Zoning Board of Adjustment Approvals, NHDOT roadway design, NHDES Dam Permit, NHDES Site Specific Permit, Existing Conditions Survey and Construction Survey and Construction Supervision.

Epping, NH – New England Dragway

New England Dragway is located on a 300+ acre site on the north side of Route 27. Jones & Beach Engineers has been the site engineer for the track since 1977. Past approvals have included NHDES Site Specific Permits and Subsurface Disposal Designs. In 2008, the track constructed a parking area on a nine acre section of land and filled approximately two acres of wetlands without permits. Working in conjunction with West Environmental, Jones & Beach Engineers permitted the fill of the wetland with mitigation of a 24 acre conservation easement and 13 acre wetland mitigation area. The design of a gravel wetland and conversion of a section of the pit area to porous pavement were key components of the design that obtained NHDES WQC, Army Corps of Engineers, and NHDES Alteration of Terrain Permits.

Epping, NH – Prescott Orchards Residential Subdivision

This 119-lot open space subdivision currently under construction is located on Prescott Road in Epping, NH. This project consists of 9 conventional frontage lots, 110 open space lots, 15,000 linear feet of road and 220 acres of open space. Offsite improvements were made to the Dearborn / Prescott Road Intersection.

Phase 1 of Prescott Orchards consisted of survey and construction work for the seven (7) frontage lots on Prescott Road. The scope of work involved topography survey, existing conditions plan, test pits, underdrain design, subdivision design engineering, construction inspection services, meeting representation, construction stakeout, building stakeout, foundation certificates, monumentation, SWPPP reports and inspections, leachfield design, lot line stakeout and construction services.

Phase 2 of Prescott Orchards consisted of survey and construction work for the twenty-eight (28) lots on Orchard Hill Road, which was the first proposed street. The scope of work involved topography survey, existing conditions plan, test pits, underdrain design, subdivision design engineering, construction inspection services, meeting representation, construction stakeout, building stakeout, foundation certificates, monumentation, SWPPP reports and inspections, leachfield design, lot line stakeout and construction services.

Reference: Tim Matte
Prescott Orchards Land Development, LLC
PO Box 837
Epping, NH 03042
(603) 396-6270

Seabrook, NH – Kohl's Department Store

This 89,911 s.f. Kohl's Department Store is located on Lafayette Road (Route 1) in Seabrook, NH. Jones & Beach provided survey, site plan engineering design, stormwater management, local and state permitting, meeting representation, and construction inspection. The project was completed in 2008.

Reference: Robert Korff
Mark Investments, Inc.
54 Jaconnet Street
Newton, MA 02461
(617) 332-8140

Hooksett, NH – Medical Office Building – Routes 3 & 28

Originally intended to be a supermarket and retail component of a larger project that Jones & Beach Engineers, Inc., completed in 1995, the site's remaining land now hosts a two-story medical office building. Together with the TD Bank, Monro Muffler Shop, and Wendy's Restaurant already in place, this latest component significantly broadens the scope of this multi-use development. Totaling 56,000 square feet, the new complex provides not only professional office space, but outpatient care and emergency services as well, bringing a wide range of health care options to the local community.

Reference: Alex Vailas
Phoenix Realty Group
103 Whitford Street
Manchester, NH 03104
(603) 628-6844 Ext. 5

DRAINAGE SYSTEMS

Exeter, NH – Forest Ridge Residential Subdivision

This 63-lot/90-unit cluster subdivision on a 265± acre parcel of land is located on the east side of Watson Road in Exeter, NH. The site development consisted of the aforementioned subdivision, featuring single and multi-family dwellings along with the construction of approximately 9,900 feet of roadway.

Reference: Eric Chinburg
Chinburg Builders
8 Newmarket Road, Suite 2
Durham, NH 03824
(603) 868-5995 Ext. 11

Exeter, NH – Forest Ridge

Sandy Brook Corporation proposes to construct a 63-lot/90-unit cluster subdivision on a 265± acre parcel of land located on the east side of Watson Road in Exeter, NH. A drainage analysis of the entire site and its offsite contributing watershed areas was conducted for the purpose of estimating the peak rate of stormwater runoff and to subsequently design adequate drainage structures. Two models were compiled, one for the area in its existing (pre-construction) condition, and a second for its proposed (post-construction) condition.

The subject parcel is located in Zone RU – rural residential open space. The subject parcel consisted primarily of woodlands, with minimal open space. The site was primarily undeveloped save for a 225-foot power line easement and numerous trail systems. The existing topography was such that the existing conditions site analysis required 24 subcatchments. The entire site, combined with approximately 36.23 acres of offsite runoff, drained northerly to an existing 24-inch RCP (Pond #5P), offsite into a large swamp at the southern property line (Reach #60), and offsite to the southeast (Reach #70).

The site development consisted of the aforementioned 63-lot/90-unit subdivision, featuring single- and multi-family dwellings. The construction of approximately 9,900 feet of roadway, driveways, and homes, in addition to site grading and curbing, divided the existing drainage basins into 103 subcatchments. The runoff from these subcatchments increased from that of the existing conditions due to the addition of the impervious buildings and paving. This runoff was directed via catch basins and overland flow to various treatment methods.

Epping, NH - Prescott Road Culvert Replacement

The existing cross culvert was a 3’ x 3’ stone box, which appeared to be historic. The area of the watershed crossing the road was determined to contain approximately 1,026 acres. The watershed area and the roadway crossing were evaluated using HydroCAD software and were analyzed for a 50-year and 100-year storm events, which resulted in flows of 524 cubic feet per second (cfs) and 676 cfs respectively. The two major storm events of the past two years fell into these categories causing roadway damage and flooding across the road.

An eight (8) foot wide by four (4) high arch culvert with a natural bottom was sized parallel to the existing box culvert to handle the 50 and 100 years storm events. The down slope embankment retaining wall along with the guardrail on that side of the road were severely destroyed during the flooding and need to be replaced.

Amesbury, MA – Merrimac Landing

A drainage analysis of the Proposed 62 Lot Subdivision and roadway was conducted with 8,000 linear feet of roadway. The entire roadway system included a closed drainage system with over 100 catch basins and drain manholes, which directed stormwater to one of three large detention and treatment ponds. The project was reviewed and approved by the Planning Board, Conservation Commission, Massachusetts Department of Environmental Protection (MADEP) and Massachusetts Environmental Protection Agency (MEPA). This project was designed in accordance with the Massachusetts Stormwater Management Policy guidelines for detention, infiltration, TSS removal and pollutant loading removal.

Hampton Falls, NH – Brown Road Culvert

The town of Hampton Falls proposed to install an additional 48" culvert at the Grapevine Run stream crossing located on Brown Road. Jones & Beach Engineers, Inc., reviewed and inspected the three Wetland Crossings off of Brown Road as requested by the Town. The existing topography was such that the existing conditions drainage analysis required only one subcatchment. This subcatchment was a 900-acre section of land extending back to Lamprey Road and New Road.

The proposed site improvements consisted of repairing and cleaning the existing culvert, as well as adding an additional 48" RCP culvert. This crossing had failed during a recent rain event, causing damage to the roadway. The additional culvert increased the flow capacity of this crossing. The proposed conditions did not handle the entire inflow for the 100-year storm event. However, there was sufficient attenuation to ensure that the two 48-inch culverts will adequately handle major storm events. In turn, the water levels will not reach the height of the road, preventing any further damage. The potential for increased sedimentation and erosion was handled using riprap outlet protection aprons.

Hampton, NH – Retail Plaza on Lafayette Road

Jones & Beach Engineers, Inc., performed professional surveying and engineering services for a Major Site Plan of property located on 845 Lafayette Road in Hampton, New Hampshire. The parcel consisted of approximately 2.02 +/- acres. We designed a retail plaza consisting of 8 retail spaces and a 200-seat Restaurant with patio for outdoor seating, the total building being 24,664 square feet. The site design of the project consisted of 122 parking spaces and the retail plaza. All the stormwater from the parking lot is caught and treated with catch basins and a StormTech system under the parking lot. The StormTech systems have an isolator row and trap any sediment that makes it past the catch basins. The isolator row requires annual maintenance for optimal performance. The site has catch basins and drain manholes that direct water into the underground detention structure. Independent leaching catch basins recharge stormwater from two grassed areas.

ROADWAY DESIGN

Raymond, NH – Epping Street Road Reconstruction for Municipality

Jones & Beach Engineers, Inc., is currently being retained by the Town of Raymond for the redesign of Epping Street. The roadway is approximately 4000 linear feet long and will require the reclamation of the existing roadway, design of a new vertical and horizontal alignment, new drainage system, curbing and green space. The project is anticipated to go to construction this spring and is being funded through CIP and possible Federal Stimulus funds.

Barrington, NH – Pavement Management Program

Jones & Beach Engineers, Inc., is currently completing the pavement management system for the Town of Barrington. More than 70 miles of roadway have been observed and the condition of the pavement has been determined based on the RSMS format. The project is an update from the last RSMS survey that was conducted in 2000 by UNH students.

Litchfield, NH - Gilcrest Farms

Jones & Beach Engineers, Inc., designed a 40 unit elderly housing complex along the Merrimack River. The project involved full roadway and drainage design and environmental restraints dealing with the Merrimack River.

SEWER SYSTEMS

Seabrook, NH – Sewer System

Jones & Beach Engineers, Inc., along with Stearns & Wheeler, of Cazenovia, New York, were awarded the contract to perform the engineering design and construction services for a Town wide sewage collection and treatment facility. This project was initiated with an existing conditions survey in 1987. The design consisted of 50 miles of gravity sewer and forcemain, in addition to 25 miles of individual house services, two wetwell/drywell pump stations, sixteen suction lift pump stations, treatment facilities and 45 miles of drainage improvements. During the spring of 1993, construction was initiated and all ten individual contracts are now completed. Jones & Beach provided construction inspection services for the Town of Seabrook and had a full time Professional Engineer with four full time Construction Inspectors assigned to the project. Total construction cost of the project was 55 million dollars.

SWPPPS (STORMWATER POLLUTION PREVENTION PLANS)

Portsmouth, NH – Oxford Road

This project involves pavement rehabilitation and drainage improvements on Oxford Road in Portsmouth, NH. The rehabilitation phase will consist of reclamation of the existing roadway surface. The drainage improvements include new catch basins with new piping between two existing homes that will outlet behind #130 Oxford Road. The stormwater will then travel through a vegetated treatment swale. During construction, appropriate BMP's will be applied so as to negate the potential for sediment-laden run-off to discharge into wetlands or any other existing waterways and structures prior to the final stabilization of the proposed grading.

Inspections were completed every 7-14 days and within 24 hours of a significant rain event of 0.5 inches or more and records were submitted as required with the EPA-NPDES-SWPPP

Spaulding Turnpike – 3 Stormwater Pollution Prevention Plan Projects

Jones & Beach Engineers, Inc., worked with NHDOT and Pike Industries on Stormwater Pollution Prevention Plans for 3 projects along the Spaulding Turnpike, this work included Engineering and routine Construction Inspections.

Epping, NH – Longmeadow Farms

Stormwater Pollution Prevention Plan and permit for a 33-lot subdivision on a 123-acre site. Environmental concerns due to the site location abutting the Hoar Pond and the Town of Epping drinking water supply.

Seabrook, NH - Lowe's Home Improvement Store

SWPPP permitting and construction management.

Epping, NH - Hamilton Heights Subdivision

SWPPP permit to construct a 38 lot subdivision on a ±137-acre parcel of land located on the west side of Nottingham Square Road.

Deerfield, NH - High Meadows Subdivision

Construct a subdivision on South Road.

Hampton, NH - Seacoast Woods Residential Condominium

Construct 23 condominiums on 8 acres of wooded property at the end of Walker Circle on Drakeside Road.

Lee, NH - Thurston Woods Cluster Development

Construct a forty-lot cluster development on a ±115.40-acre parcel of land located between NH 125 and NH 152.

Hampton, NH - Page's Meadow Condominium Complex

Construct a 48-unit condominium complex on a ±25.50-acre parcel of land located on the south side of Drakeside Road.

Epping, NH - Epping Self Storage

To add four self-storage units on a 14.5-acre parcel of land located on the north side of Calef Highway (Route 125).

Hampton, NH - 6 Lot Subdivision

Construct a 6-lot subdivision on a ±4.2-acre parcel of land located at 89 Woodland Road.

Hampton, NH - Retail Development

Construct a 24,664 square foot retail plaza with 6 retail stores and a 200-seat restaurant on Lafayette Road (Route 1).

Hampton, NH – Motor Court Condominiums

Construct 6 unit condominiums on a ±1.81-acre parcel of land located on the north side of Winnacunnet Road.

Salisbury, MA – Marsh Landing Condominiums

Proposed construction of condominium development on ±0.92-acre parcel located off of Beach Road.

Stratham, NH – Fire Station

SWPPP and drainage design. Coordination with NHDOT.

Exeter, NH – Forest Ridge Subdivision

Construct a 63-lot/90-unit cluster subdivision on a ±265-acre parcel of land located on the east side of Watson Road.

Amherst, NH – Granite Hills Subdivision

Construct a 21-lot subdivision on a ±66-acre parcel of land located on the south side of Walnut Hill Road.

Exeter, NH – Exeter Health Reach Dental Clinic

Construct a new dental complex with a footprint of 6,900 S.F. on ±3.76-acre parcel of land located on the southwest side of Hampton Road (Route 27).

Stratham, NH – CVS

Redevelop its existing facility located on the north side of Portsmouth Ave. (Routes 108 & 33). Located on a ±7.79-acre parcel of land, the proposal consists of the reconfiguration and repaving of an existing parking lot and the addition of a 13,000 S.F. retail building with associated access-ways, parking areas, and other infrastructure.

Salisbury, MA – CVS

Once the home of an unsightly abandoned gas station on a highly visible site at the center of Salisbury, on Lafayette Road (Route 1) & Beach Road, this development was afforded the utmost attention to aesthetic sensibilities during the planning process. Adjacent to the town hall and a congregational church, Jones & Beach Engineers, Inc., took every measure to complement the colonial feel exuded by this quaint New England village. Based on a "street-scape" motif, period architectural treatments and extensive landscaping were worked into the plan to ensure a harmonious blend with the surrounding area. With vehicular and pedestrian cross-connections to both the town hall and church, the site serves to further integrate the community's core and accentuate the small town feel one would expect to find along the coast of Massachusetts.

Seabrook, NH – Kohl's Department Store

Project consisted of an 89,911 s.f. Kohl's department store, an attached 12,500 s.f. retail space, and a 5,500 s.f. restaurant out parcel. With a new traffic signal on Route 1 and additional offsite improvements to Boynton Lane and an adjoining shopping center. The site required the design of a looped water system tieing in the abutting Lowe's Site and a gravity sewer system out to Route 1. Working with Municipal, State, and Federal Regulators, the project team incorporated a number of design elements to minimize impacts to the nearby resource areas of Mary's Brook and Mary's Pond. With steep slopes, retaining walls, and a comprehensive water sampling program, Jones & Beach took every possible care to reduce and monitor the project's environmental footprint.

Ellsworth, ME – Lowe's Home Improvement Store

Located on a 17.70-acre site comprising a portion of a previously approved commercial subdivision, Lowe's of Ellsworth presented a number of engineering challenges during the design phase of the project. In addition to the necessary minimization of wetland impacts, topographical and groundwater considerations played important roles in shaping the layout of the development. With the inclusion of a retaining wall over 1,800 feet long and over 25' in height in some locations, potential wetland fills were reduced by nearly two acres. This structure came with the added benefit of allowing the Lowe's building to remain in a position directly visible from the nearby U.S. Route
3, a busy commercial corridor. As mitigation, the project has enabled the preservation of over 25 acres of land adjacent to a nearby private wildlife refuge and the restoration and preservation of another degraded site elsewhere in the City. Combined with an extensive stormwater management and treatment system and a detailed landscaping plan, these efforts demonstrate the abilities of Jones & Beach to effectively balance ecological concerns and local interests with the economic realities of modern commercial development.

N. Windham, ME – Lowe's Home Improvement Store

Placed on a hill behind the local Wal-Mart in N. Windham's busy Route 3 corridor, this 169,793 sf Lowe's Home Improvement Center afforded a challenging engineering opportunity. Sitting astride three crude oil transmission lines, the 23.75-acre parcel also abutted a major interstate natural gas pipeline. Complicating this, the project required extensive blasting and the removal of 115,000 cubic yards of ledge. Working with the contractor and the respective utility service providers, Jones & Beach Engineers, Inc., was able to orchestrate a flawless phasing sequence that allowed this potentially catastrophic mix of elements to be negotiated without incident. Permitted through a Maine DEP Site Location of Development Application, the project included a thorough environmental analysis and stormwater mitigation plan. Throughout construction, the firm's diligent inspectors ensured that all work was done in complete accordance with the plans and specifications while keeping to an accelerated work schedule. With the knowledge that only experience can bring, Jones & Beach's guided the development through the site's difficult conditions and enabled on-time pad delivery and key turn over.

Plymouth, NH – Lowe's Home Improvement Store

Jones & Beach Engineers designed the proposed 111,724 s.f. Lowe's Home Center located along the Tenney Mountain Highway corridor in Plymouth. The project is at the epicenter of an area the Town's Master Plan has targeted for commercial growth. Due to its location near the Baker River's floodway and entirely in the 100-year floodplain, the development required the assistance from John Field. In 2007 a Fluvial Geomorphology Study of the Baker River was completed. The work included a complete HEC-RAS analysis, a Phase II Archaeological Investigation, and a comprehensive environmental assessment, the project team prepared countless individual studies evaluating the potential impact to the site and its surroundings. Resultant of this careful consideration of the site's environmental context, only 12.5 acres of the 77.46-acre parcel will be developed and more than three-quarters of the total area will be placed in permanent conservation easement. To accommodate aesthetic concerns, Jones & Beach worked with the Town of Plymouth to adjust the site's landscaping and architecture to harmonize with the character of the community.

Lee, NH – North East Credit Union

The site plan design and approval of the Northeast Credit Union located on Route 125 & Steppingstones Road in Lee, NH consisted of a 2,880 S.F. building with drive-through lanes and associated parking, access drives, drainage, utilities and on-site subsurface effluent disposal system.

Reference: Northeast Credit Union
Attn. Devin Parker
100 Borthwick Avenue
Portsmouth, NH 03801
(603) 422-9937

Stratham, NH – Shaw's Supermarket

Shaw's at Stratham Crossing is a 80,000 square foot Shaw's Supermarket that anchors this commercial development, which includes pad sites for a restaurant and bank. The stormwater detention facilities double for on-site fire protection requirements. The adjacent brook and nearby tidal river were permanently protected with conservation easements totaling 70 acres.

Seabrook, NH – Town Fair Tire

Jones & Beach Engineers, Inc., designed a 6,000 S.F. retail building with 24 parking spaces on a L-shaped lot on Route 1 in Seabrook, NH. This corner lot presented many design obstacles which were overcome by using underground detention of stormwater and integrating the site into the new highway construction.

Seabrook, NH – The Home Depot

A 135,000 square foot retail store and garden center were designed on 21 acres in Seabrook. Connection to Municipal water and sewer with improvements and widening of US Route 1 were completed. An extensive wetland creation and stormwater detention system were required.

Developer:	Topsfield Associates Attn: Mr. Jeff Gove 20 Burlington Mall Road Burlington, MA 01803 (781) 229-9939	Home Depot Attn: Butch Fuller 15 Dan Road Canton, MA 02021 (781) 830-4412

SUBDIVISIONS

Alton, NH – Alton Mountain Estates

The project involved subdividing the existing 80-acre parcel into 17 lots, with approximately 2,100 linear feet of roadway. The total amount of disturbance for the project is approximately 201,500 square feet with approximately 2,500 square feet of wetland impact. The stormwater is treated by filter strips and controlled by a detention pond.

Epping, NH – Hamilton Heights

Hamilton Heights conventional subdivision consists of 40 single-family lots with 6,000 linear feet of road situated on 130-acres. The project is located on Nottingham Square Road and was later tied into Long Meadow Farms West subdivision. A 26-acre parcel was donated to the Town in order to provide protective well radius easements. The land is situated so that an additional Municipal well can be drilled.

Epping, NH – Prescott Orchards

This 119-lot open space subdivision, which is currently under construction, is located on Prescott Road in Epping, NH. This project consists of 9 conventional frontage lots, 15,000 L.F. of road and 220 acres of open space. Offsite improvements were made to the Dearborn / Prescott Road Intersection.

Phase 1 of Prescott Orchards consisted of survey and construction work for the seven (7) frontage lots on Prescott Road. The scope of work involved topography survey, existing conditions plan, test pits, underdrain design, construction inspection services, meeting representation, construction stakeout, building stakeout, foundation certificates, monumentation, SWPPP reports and inspections, leachfield design, lot line stakeout and construction services.

Phase 2 of Prescott Orchards consisted of survey and construction work for the twenty-eight (28) lots on Orchard Hill Road, which is the first proposed street. The scope of work involved topography survey, existing conditions plan, test pits, underdrain design, construction inspection services, meeting representation, construction stakeout, building stakeout, foundation certificates, monumentation, SWPPP reports and inspections, leachfield design, lot line stakeout and construction services.

Epping, NH – Longmeadow Farms East & West

Longmeadow Farms consists of 33 single-family lots in an open space subdivision. The properties are located on either side of Plummer Road in Epping , NH. The existing farmstead, stables, horse paddocks and trails were preserved through deed restriction and conservation easement. The 80-acre open space, along with the land from Hamilton Heights, provided the protective well radius area necessary to activate the Town wells on Beniah Lane. The north end of Hoar Pond is protected within the conservation easement.

Greenland, NH - Barrett Green Subdivision - Great Bay Road

Project involved a lot line adjustment prior to the subdivision of subject parcel into sixteen (16) single-family residential lots with onsite water and septic.

Seabrook, NH - Pineo Farms Subdivision - Stard Road

Pineo Farms is a 23-lot subdivision located on 72.05 acres in Seabrook, NH. Just south of the Hampton Falls town line. Project involved subdividing the subject parcel into 23 residential building lots serviced by municipal water and sewer and 2,119 LF of roadway construction.

Lee, NH – Thurston Woods

Thurston Woods cluster subdivision is located on Route 155 & 125 in Lee, NH. It consists of 155-acres. A total of 46-units comprised of 34 single-family lots with 4,000 linear feet of road and 12 units in 6 duplexes on 700 linear feet of road. The open space is approximately 100 acres for passive recreation.

Stratham, NH – The Vineyards Retirement Community

This over 55 Community consists of 76, two-bedroom, residential, detached units on 78 acres off Guinea Road in Stratham. Jones & Beach Engineers, Inc., designed the project with 7,000 feet of roadway, onsite community leach fields and water system.

Exeter, NH – Blackford Place Subdivision

This open space cluster development is located on 102 acres of woodlands with 35 single-family residential lots and 5,300 linear feet of roadway. The project provided over 40 acres of the land as open space to be left in its natural condition. In addition, 350 feet of existing roadway was reconstructed to improve vehicular safety.

East Kingston, NH – Maplevale Estates

This subdivision consists of 22 single-family lots and 66 elderly housing condominiums located on two separate parcels. This project includes 5,000 L.F. of public road and 3,500 L.F. of private road to access the condominium development. A community water system and individual septic system design are required to provide utilities in this rural turkey farm and orchard. This centrally located project includes conservation land and offsite roadway improvements, and a donation of land to a local church and public library.

Brentwood, NH – The Meadows

This project was designed in five phases and consists of over 60 lots for single family development, with onsite wells and leach fields. Out of the total tract area of 215 acres, significant areas have been set aside as open space conservation. This project included crossing a stream with a large box culvert along with many other environmental considerations.

Seabrook, NH – Industrial Subdivision

The Stard Road development involved six lots with minimum building size of 15,000 square foot area, on municipal water and sewer, for industrial development.

MULTI-FAMILY CONDOS

Hampton, NH – Tidemeadow Condominiums

This 18-unit beach community residential condominium project is placed on one acre of land with municipal services. The developer restored 7,300 square feet of salt marsh habitat reclaimed from past disturbance. State approvals required NHDES Wetland Permit, Shoreland Protection Variance, NHDOT Driveway Permit, Wastewater Discharge Permit, Special Use Permit, and multiple variances from local regulations.

INSTITUTIONAL EXPERIENCE

Exeter, NH – Exeter Hospital

Exeter Hospital consists of eight projects constructed and designed on the Campus since Jones & Beach Engineers, Inc., began working for the facility in 1995, including four parking lots, 250,000 square foot building additions and expansions, with a new 60,000 square foot parking garage. Existing utilities required relocation and replacement parking has been developed in conjunction with other design consultants.

POROUS PAVEMENT

Exeter, Hospital, Hampton Road Dental Clinic

Jones & Beach Engineers, Inc., teamed Bruce Ronayne Hamilton Architect to provide civil/site and architectural services for a new 12,700 SF dental clinic located on Hampton Road in Exeter, NH. Exeter Health Reach Dental is an expansion of services offered by Exeter Hospital.

Jones & Beach Engineers provided the site design which included:

- Site Grading
- Stormwater design and management plan
- Sanitary sewer design with pump station upgrades
- Design and coordination for utility connections
- Parking and pedestrian access

The project highlight would be the design and installation of Porous Asphalt used as a stormwater management and water quality tool. The project was designed to take all stormwater runoff generated onsite by the new construction and infiltrate it through the pavement into a gravel medium below the pavement for storage, treatment, and temperature control.

CEMETERIES

Exeter, NH – Linden Street Cemetery

This project involved surveying and engineering services for under-drain design (approximately 2,000 linear feet) and construction work. This project consisted of multiple cemetery plots, service roads, and several buildings on approximately 46 +/- acres.

Reference: Exeter Cemetery Association
Attn: Robert Rowe or Judy Dufour
PO Box 29
Exeter, NH 03833
(603) 778-6167

Alton, NH – Riverside Cemetery

Alton Riverside Cemetery project was an expansion of the existing cemetery located off of Route 28 in Alton, NH. Jones & Beach completed a topographical survey of the existing conditions of the site including the first phase of the active cemetery. Based on the existing layout of the first phase of the site the second phase was designed including individual burial plots, crematorium site and small detention pond. After the second phase of the site was cut and filled Jones & Beach Engineers staked out the roadways and all of the reference monument locations. Final plans were submitted at the end of the project to be used for marketing and burial records.

Reference: Alton Riverside Cemetery
Attn: Shirley Lane
PO Box 659A
Alton, NH 03809
(603) 875-2162

IV. COMPANY SERVICES

Jones & Beach Engineers, Inc., is a full-service Civil Engineering and Land Surveying Company providing a wide range of services, including the following:

- Site Plan & Subdivision Approvals from Cities and Towns.
- Wetland Delineations and Assessments.
- State and Federal Permit Applications and Approvals for Wetland Impacts, Stormwater Design, Sanitary Sewer Discharges, State Highway Permits and USEPA Phase I and II Permits.
- Roadway and Stormwater Drainage Analysis and Design.
- Property Condition Assessment & Reports for Mobile Home Communities.
- State Highway Erosion Control Inspections.
- Stormwater Management and Hydraulic Studies.
- Wastewater & Water System Design and Modeling.
- Porous Pavement and Water Quality Design.
- Town Engineer Services (Hampton Falls, NH).
- Municipal Building and School Site Design and Review Services.
- Residential and Commercial On-Site Effluent Disposal Systems.
- Grant Writing and Application Submissions.
- Phase I and II Hydrogeologic Studies, Landfill Closure Design, and Permitting.
- Boundary Surveys.
- Existing Conditions Surveys.
- GPS Control for Aerial Photography Mapping.
- ALTA/ACSM Title Surveys.
- As-Built Surveys.
- Utility Route Surveys.
- Robotic and Global Positioning System (GPS) Instrumentation to Sub-Centimeter Accuracy.
- Plot Plans, Flood Elevation and Foundation Certificates.
- Construction Services, Survey Layout, Inspections and Cost Estimating.
- Solicitation and Preparation of Construction Documents and Specifications.

V. PERSONNEL QUALIFICATIONS

- **Wayne G. Morrill -** President / Senior Project Manager
- **Bradford A. Jones** – Vice President / Construction Services Manager
- **Barry W. Gier, PE** – Vice President / Project Manager
- **Joseph A. Coronati** – Vice President / Project Manager
- **David M. Collier, LLS** – Survey Manager
- **Matthew Salvuccis, LLS, PLS, EIT** – Associate / Assistant Survey Manager
- **Ian MacKinnon, P.E, CPESC-IT** – Associate / Project Manager

WAYNE G. MORRILL, JR.
PRESIDENT / SENIOR PROJECT MANAGER

Mr. Morrill attended the New Hampshire Technical Institute in Stratham and received his Associates Degree in Electro-Mechanical Drafting in 1988. He is proficient in the use of computer programs such as AutoCAD and Land Desktop Development. He is a NH Licensed Septic System Designer, Evaluator and Installer.

In 1988, Mr. Morrill joined Jones & Beach Engineers, Inc. (JBE) as a CAD Technician. As a Project Supervisor his responsibilities include, but are not limited to, project management, cost analysis, site inspection, design of subdivisions and commercial development plans, and municipal and state presentations. In 2001, he became an owner of the firm and was named a Vice President.

Mr. Morrill is extremely competent in all areas of project management and development. He is innovative, bright, dependable and thorough, paying close attention to detail. He has excellent rapport with clients, working closely with them, and quickly gaining their trust. He acts as a representative for clients at Planning Board Meetings, Zoning Board Hearings and during project negotiations.

Project Highlights:

- Seabrook, NH: 135,318 S.F. Home Depot Retail Development on Route 1 ~ Project Manager and Site Designer
- Ellsworth and Thomaston, ME: 165,000 S.F. Lowe's Home Improvement Stores ~ Principal-In-Charge
- Seabrook, NH: 150,000 S.F. Lowe's Home Improvement Warehouse Development on Route 1 ~ Project Manager and Site Designer
- Seabrook, NH: 12-lot Industrial Park with 1,025 L.F. of roadway on Ledge Road ~ Project Manager and Site Designer
- Seabrook, NH: 90,000 S.F. Kohl's Department Store, an attached 12,500 S.F. Retail Space, a 5,495 S.F. Restaurant, and associated access-ways and parking ~ Principal-In-Charge
- Lynn, MA: 13,013 S.F. CVS Pharmacy with associated parking, drainage and utilities ~ Principal-In-Charge
- Epping, NH: Brickyard Square of Epping was completed in three phases. Phase 1 was a 77,232 S.F. Retail Building with associated parking, drainage and utilities. Phase 2 was a total of 89,040 S.F. comprised of 20-Retail Building Units with associated parking, drainage and utilities. Phase 3 was a total of 110,676 S.F. comprised of 3 Retail Buildings and a Cinema with associated parking, drainage and utilities ~ Principal-In-Charge
- Concord, NH: 13,225 S.F. CVS Pharmacy and a 2,598 S.F. Burger King Restaurant with associated driveway, drive-thrus, parking, drainage and utilities ~ Principal-In-Charge
- Amesbury, MA: 13,225 S.F. CVS Pharmacy with associated parking, prescription drive-thru, drainage and utilities and 2,500 S.F. Mansard Mixed Use Building ~ Principal-In-Charge
- Brentwood, NH: 19,097 S.F. Tractor Supply Building and 15,000 S.F. Outdoor Fenced Merchandise Display Area, with associated parking, utilities and drainage ~ Principal-In-Charge

BRADFORD A. JONES
VICE PRESIDENT / SENIOR CONSTRUCTION SERVICES MANAGER

Mr. Jones attended the University of New Hampshire Thompson School for two years of Civil Engineering Technology. He holds a NH Installer's License for Septic Systems.

Mr. Jones began working in the engineering field at the age of 18 as a survey rod man, moved rapidly to crew chief, designer, and construction inspection. He spent five years at Midway Excavators gaining valuable experience in the field. In 1987, Mr. Jones began full-time employment at the family business bringing expertise in design review for constructability, cost estimation, site inspection, and field survey. In 2000, he became an owner of the firm and was named a Vice President.

Mr. Jones is extremely competent in the areas of road and site construction management and inspection, land development including roadway, drainage, fire cisterns, water and sewer systems, and subsurface disposal septic systems. Construction and contract maintenance provide invaluable tools for clients.

Project Highlights:

- Seabrook, NH: Sewer Main Contracts 3, 8 and 10, and PSNH Seabrook Power Station sewer connection. This work included 6 sewage pumping stations ~ Resident Construction Inspector
- Merrimack, NH: 150K GPD sewage pumping station and a 200+ unit residential development located in Bedford, NH ~ Construction Inspector
- Newfields, NH: Dunlin Woods 21 lot Residential Subdivision with 2,600 feet of road, 3,200 feet of gravity sewer and 3,600 feet of water main and drainage ~ Construction Inspector
- Acton, MA: Sewer Main and Pump Station of a 72 unit Condominium and Elderly Center project ~ Designer & Inspector
- Portsmouth, NH Residential Subdivisions: Tucker's Cove Estates, Wholey Way and Nathaniel Way ~ Construction Inspector
- Hampton Falls, NH: Spring Hill Subdivision, Field Stone Estates, The River at Heron Landing, Starvish Lane, and Linden Road Subdivision ~ Construction Inspector
- Maplevale 36 lot Subdivision in East Kingston, NH, Mitchell Road Residential Subdivision in Nottingham, NH, Home Depot in Seabrook, NH, Chisholm Farms Subdivision in Stratham, NH, and Windsor Meadows Condominiums ~ Construction Manager & Inspector

BARRY W. GIER, P.E.
VICE PRESIDENT/ SENIOR PROJECT MANAGER

Mr. Gier graduated from the University of Kansas in 1997 with a BS Degree in Civil Engineering. He is a Licensed Professional Civil Engineer in the State of New Hampshire.

Mr. Gier joined Jones & Beach Engineers, Inc. (JBE) in 2011 bringing more than fifteen years of experience with him. Given his level of expertise, accuracy and attention to detail, he is an extremely valuable resource. He began his career working with Civil Engineering firms developing site plans and subdivisions. He also worked on numerous Regional Airport projects involving Runway Designs and Construction, Safety Area Construction, and Wildlife Area Mitigation. He has extensive knowledge and experience with Roadway Design, Stormwater Design, Sanitary Sewer Design, Water Distribution System Design, Airport Design, Waste Water Treatment Plant Design, Construction Specifications and Construction Monitoring, and Stormwater Field Inspections. He has also handled Federal, State, and Local permitting for various public and private projects in addition to coordination with Regulatory Agencies, Municipal Officials, Commissions and Boards. His duties include the planning, designing and permitting of site development and subdivision projects, including parking areas, water and sewer systems, and drainage facilities, as well as handling environmental permitting.

Project Highlights:

- Westbrook, ME: Dirigo Plaza Retail Development, 400,000 S.F. of multi-building retail development including re-utilization of existing quarry as detention. ~ Lead Project Engineer and Site Designer
- Stratham, NH: Sanctuary Drive Subdivision – 8 Lot Subdivision including 850'+ roadway. ~ Project Manager and Project Engineer
- Hillsborough, NH: Weatherstone Crossing Retail Development – Wal-Mart Retail Development. Design included new pump station design, water booster pump station, flood plain mitigation, wetland mitigation with 600,000 cu. of earthwork. ~ Lead Project Engineer and Site Designer
- Nashua, NH: Amherst Street Retail Development – Multi-Building retail development on existing contaminated site. ~ Project Engineer
- Hooksett, NH: Java Joes – In-fill retail development within existing commercial plaza. ~ Project Manager and Project Engineer
- Barrington, NH: 93,000 S.F. Turbo Cam International Corporate Headquarters and manufacturing facility with associated parking, utilities and drainage ~ Project Manager and Project Engineer
- Barrington, NH: Convenience Store/Gas Station Site Design, Engineering and Permitting ~ Project Manager and Project Engineer
- Portsmouth, NH: Seacoast Helicopter – Site Design for helicopter and fixed wing aircraft hanger/office/and apron at Pease Airport ~ Project Manager and Project Engineer
- Durham, NH: Commercial Site Design of vehicle service station on a 0.25 acre redevelopment lot ~ Project Manager and Project Engineer

JOSEPH A. CORONATI
VICE PRESIDENT / SENIOR PROJECT MANAGER

Mr. Coronati graduated from Clarkson University in 1997, with a degree in Civil Engineering and concentration in transportation. After a summer internship, Mr. Coronati began working full-time at Jones & Beach Engineers, Inc. During his first two years of employment, he engineered site plans, subdivisions and municipal utilities. Specialties included drainage design, construction cost estimates and site inspections. Planning Board meetings quickly became a regular part of the job.

In order to gain construction experience, Mr. Coronati took a position with Modern Continental Construction Company on the Boston Central Artery project. He worked at solving construction problems with the use of AutoCAD, focused on design. Mr. Coronati left Modern to partner with a licensed engineer in a small civil/structural firm and managed projects through Local, State, and Federal approvals.

In the fall of 2000, Mr. Coronati returned to Jones & Beach, and in 2001 he became an owner of the firm and was named a Vice President. In his position as Project Manager, he is responsible for projects from condominium and commercial site plans to single family subdivisions with the Zoning Board of Adjustment and Planning Board approval. He pays close attention to detail within a timely manner and follows projects through to design completion and construction.

Project Highlights:

- Amesbury, MA: 63 unit Condominium & Single-Family Residential Subdivision with 9,000 LF of road with municipal water, sewer and drainage ~ Project Manager

- Epping, NH: 380 Single-Family Residential lots in 11 Subdivisions with a total of 52,000 L.F. of road. Projects included NHDES Site Specific, State Subdivision, Wetlands Bureau, Dam Bureau & EPA Phase II Permits ~ Project Manager & Site Designer

- Hampton, NH: 45 separate Condominium Developments and Subdivisions, Commercial Site Plans, and Town Municipal projects, which required variances, wetland special use permits and Planning Board approval. All sites have municipal sewer, water and drainage and require State permits ~ Project Manager & Site Designer

- Amherst, NH: 22 lot Single-Family Residential Subdivision with 2,600 L.F. of road and 3,000 L.F. of common driveways, on 90 acres with on-site leach fields and wells ~ Principal-In-Charge

- Nashua, NH: 45 unit, 4-story Condominium project with underground parking and stormwater detention, offsite roadway improvements, and municipal utilities ~ Principal-In-Charge

- North Andover, MA: 8-lot Single-Family Residential Subdivision with 1,000 L.F. of roadway on 14.43 acres with drainage and utility design including on-site leachfields and municipal water ~ Principal-In-Charge

- Epping, NH: 30,092 S.F. Exeter Hospital Medical Office Building including associated parking, drainage and utilities ~ Principal-In-Charge

DAVID M. COLLIER, L.L.S.
SURVEY MANAGER

Mr. Collier attended Old Dominion University-College of Engineering and Technology where he studied Land Surveying and he continued his studies at the University of New Hampshire. He became a Licensed Land Surveyor in the State of New Hampshire in 2001. His professional affiliations include the New Hampshire Land Surveyor's Association, where he has served as President, as a member of the Executive Committee, and as Liaison to New Hampshire Register of Deeds Association and the New Hampshire Planners Association. He is a member of the New Hampshire GPS Consortium, where he served as Director from 2004-2005, and of the Alton Planning Board, where he currently serves as Chairman. He also received the New Hampshire Land Surveyor's Association Survey Excellence Award in 2009.

Mr. Collier joined Jones & Beach Engineers, Inc. (JBE) in 2011 bringing with him more than twenty years of surveying experience while working at Richard D. Bartlett & Associates. While there he served as Project Manager and Vice President overseeing many different projects involving all types of surveying including Boundary Surveys, Topographic Surveys, Subdivisions, Lot Line Adjustments, Construction Layouts, and Elevation Certifications. The City of Concord exclusively used the firm as the surveyor for the City and Mr. Collier oversaw several of these projects and worked directly with City Officials to provide existing conditions plans for on-staff City Engineers to prepare designs.

Mr. Collier has first-hand experience and understanding of the Land Survey process from the initial research and field survey work, to the drafting and preparation of final documents for recording. He also has experience managing day to day field and office operations.

Project Highlights:

- Seabrook, NH: Kohl's Department Store, ALTA Land Title Survey of 13-acres ~ Project Manager, Land Surveyor.
- Epping, NH: Brickyard Square at Epping, Construction Layout, Coordination of Horizontal and Vertical Control ~ Project Manager, Land Surveyor.
- Hooksett, NH: Wal-Mart ACSM/ALTA Land Title Survey of 21-acres and corridor survey of 2,000 L.F. of roadway ~ Project Manager, Land Surveyor.
- Concord, NH: Topographic and Right-of-Way Survey for 4-mile Roadway Improvement Project ~ Project Manager, Land Surveyor.
- Isles of Shoals, White Island, NH: As-Built Survey of Piling Locations for Catwalk Restoration ~ Project Manager, Land Surveyor.
- Hampton, NH: Boundary Survey of 8.56-Acre parcels on Juniper Lane ~ Land Surveyor.
- Gilford, NH: Boundary and Topographic Survey of 21.56-Acre parcel and 1,700 L.F. Right-of-Way Survey ~ Land Surveyor.
- Seabrook, NH: Boundary, Topographic, and ACSM/ALTA Land Title Survey of 1.08-Acre parcel along Route 1 ~ Land Surveyor.
- Allenstown, NH: Boundary and Topographic Survey of 5.03-Acre NHDOT surplus parcel ~ Land Surveyor.

MATTHEW J. SALVUCCI, LLS, PLS, EIT
ASSOCIATE / ASSISTANT SURVEY MANAGER

Mr. Salvucci graduated from The University of New Hampshire in 2006 with a BS in Civil Engineering. He is a Licensed Land Surveyor in the State of New Hampshire, and a Professional Land Surveyor in the State of Maine.

Mr. Salvucci was first employed with Tritech Engineering in Dover, NH as a project engineer, with projects ranging from municipal road design to residential and commercial subdivisions, and NHDES shoreland and wetland permitting.

Mr. Salvucci joined Jones & Beach Engineers, Inc. in 2014 to focus on Land Surveying. He began in the position of survey crew chief, and eventually worked to become Assistant Survey Manager in 2019.

Project Highlights:

- Epping, NH: Pleasant View Farm Development – Boundary Survey and Existing Conditions plan for 200+ acre residential development
- Seabrook, NH: Cimarron Apartments – ALTA / NSPS Land Title Survey on 37 acres
- Westbrook, ME: Rock Row – Subdivision Plans, ALTA / NSPS Land Title Survey, and construction layout coordination on 95 acre commercial site

IAN S. MACKINNON, P.E., CPESC-IT
ASSOCIATE / PROJECT MANAGER

Mr. MacKinnon is an Associate and Project Manager at Jones & Beach Engineers, Inc. (JBE). He joined JBE in December 2015 as a part-time engineering intern while attending the University of New Hampshire (UNH). During his time as an intern, he was able to work on a wide variety of projects at varying stages and gained invaluable experience in preparation for a full-time position. Mr. MacKinnon graduated from UNH in 2015 with a B.S. in Civil Engineering and Minor in Architectural Studies. Since joining the company, he has worked on numerous large-scale commercial projects that involved all aspects of site, utility & stormwater design. In July 2020 he became a Project Manager and in December 2020 he obtained his Professional Engineer (P.E.) licensure and is licensed in New Hampshire and Maine.

As a Project Manager, Mr. MacKinnon handles all aspects of a project through the planning, design, and permitting phases. He works with clients, municipalities, and state agencies throughout the design and permitting process. Mr. MacKinnon has completed designs for many small to large-scale commercial and residential projects responsible for stormwater management/treatment design and analysis, utility design and coordination, roadway design, construction inspections, review of local and state regulations, and the submission and coordination of local, state, and federal permits. The added responsibility of project management includes client consultations, project budgeting and timelines, overseeing Project Engineers on design elements, managing subconsultants, technical plan review, and presenting project applications before public review boards.

Project Highlights:

- Westbrook, ME: Rock Row Multi-Use Development, 2,500,000± sq.ft. multi-use development spread over multiple phases and 80+ acres with a focus on utilizing the existing 20-acre quarry on the site as a recreation/visual amenity and stormwater feature. ~ Project Manager/Engineer

- North Conway, NH: Ridgeline Community Multi-Use Development, 9-lot residential/commercial/medical development spread over 120+ acres. Uses consist of a commercial tenants fronted on a state highway, studio-style residential cottage clusters, medical office buildings, a daycare facility, an assisted living, rehab and memory care building, an age-restricted cottage neighborhood, and two residential condominium buildings with views of Mt. Washington and other nearby panoramas. ~ Project Manager/Engineer

- Westbrook, ME: Dirigo Plaza Retail Development, 400,000 S.F. of multi-building retail development including re-utilization of existing quarry as detention. ~ Project Engineer

- Hudson, NH: Morgan Rd Commercial Development – CVS Pharmacy development with design for a future convenience store & fueling station and future restaurant. Design included water & sewer design, stormwater design, and state permitting ~ Lead Project Engineer

- Somersworth, NH: NH Liquor Store –New state liquor store involving the renovation and expansion of an existing historic carriage house. Consisted of state & local permitting to mitigate impact to adjacent municipal water source through innovative stormwater management. ~ Lead Project Engineer

- Wrentham, MA: Commercial Development – Design of a re-development project to construct a CVS Pharmacy and Cumberland Farms on land previously occupied by an existing gas station & vehicle repair shop. Coordinated with environmental consultant to mitigate the spread & disturbance of contaminated soils. ~ Lead Project Engineer

SEBAGO TECHNICS

AN INTRODUCTION

Welcome to the Sebago Way!



WELCOME TO

SEBAGO TECHNICS!

100% EMPLOYEE-OWNED

Sebago Technics and its employee-owners are committed to our vision **"To be the best, employee-owned, engineering-land development services company – now and always."** We support that vision with a mission **"To build relationships and projects for the success of our clients, our company and our employee-owners."** We firmly believe that our ownership culture, collaborative approach, professional expertise and dedication to client needs sets us apart. We pledge to work hard on every project to provide the best services we can and to build a strong relationship with our clients based on trust and success. It's all what we call "the Sebago Way".

We hope that we have an opportunity to serve you.



Mark Adams
President/CEO

ABOUT US

Founded in 1981, Sebago Technics, Inc. is a consulting firm of more than 75 design professionals and technical staff providing services throughout New England. From the start, our business plan was simple: "To provide quality, cost-effective civil engineering services that are responsive to a customer's goals, schedule and budget." Our One Company capabilities and resources provide clients with experience and solutions to respond to their planning, permitting and design needs. Guided by integrity, experience and teamwork we understand that we can only succeed when quality, responsive and cost-effective service is provided to our customers.



We engineer SOLUTIONS

Our design professionals employ the latest engineering and technological methods to develop practical, cost-effective solutions.



We stand for EXCELLENCE

Sebago Technics is recognized as a firm that excels in the permitting of projects through experienced knowledge and excellent reputation.



We do amazing PROJECTS

Sebago Technics' resources, services, and experience combined with our reputation and project team approach allow us to work on a wide range of projects for a diverse group of clients.



And we do it ON TIME

Our approach to project delivery provides a single point of contact, responsive scheduling, cost efficiency, and results.

ONE TEAM
FOR ALL YOUR NEEDS

OUR VISION
To be the best, employee-owned, engineering-land development services company – now and always.

OUR MISSION
Company: To build relationships and projects for the success of our clients, company and employee-owners.
Employees: To embrace our culture and enhance our reputation through our demonstrated commitment and abilities.

EMPLOYEE DISCIPLINES
Professional Engineers, Civil Engineers, Landscape Architects, Professional Land Surveyors, Survey Technicians, CAD Designers, Wetland Scientists, Soil Scientists, Construction Inspectors, Environmental Scientists, 3D Modelers, Community Planner, GIS Specialists, Information Technology, and Administrative, Marketing & Financial Professionals

OUR FIRM IN NUMBERS

75+ EMPLOYEE-OWNERS WORKING AS A TEAM

38 YEARS IN BUSINESS

30+ PROGRAMS & TECHNOLOGIES THAT WE UTILIZE EVERY DAY

16 AWARD-WINNING DISCIPLINES

2019 Best Places to Work in ME

WHAT SETS US APART?



ONE COMPANY - FIELD TO FINISH

Sebago Technics provides engineering, surveying, landscape architecture, environmental, transportation, permitting and planning services to both public and private sector clients. We believe our full-service abilities provide clients with improved delivery of services, responsiveness and an ability to adapt schedules to meet individual project needs. Over the years we have found this approach provides enhanced customer service, cost efficiencies and more successful project outcomes.



REPUTATION MATTERS

Built on a long history of success, Sebago Technics is recognized as a firm who understands design and the permitting process. Our employee-owners understand land use regulations, zoning ordinances and building codes. We perform hundreds of projects every year and consistently have multiple projects in various permitting phases. We enjoy excellent relationships state and federal agencies and regulators as well as dozens of local community planning boards and staff. Our knowledge and relationships allow us to meet project design goals and procure required permits in a timely, cost-effective fashion.



LOCAL EXPERIENCE & PRESENCE

Since 1981, Sebago Technics and our dedicated staff has amassed invaluable local experience. Our knowledge of the communities we work in, projects we've designed and relationships we've developed all work to contribute to and benefit every project we do. Our ongoing relationships with local contractors, builders, developers, real estate professionals, financing institutions, lawyers and others forms a basis of common understating, trust and confidence.



EVERY EMPLOYEE IS AN OWNER

Sebago Technics became an employee-owned firm with the institution of an Employee Stock Ownership Plan (ESOP) in 1998 and achieved 100% employee ownership in 2007. The culture fostered by employee-ownership reinforces our multidisciplinary team approach to projects and results in improved responsiveness, quality and accountability throughout the organization.



OUR APPROACH

As a 100% employee-owned company our employees set us apart through commitment and integrity. Our team-based approach to services provides each client with the expertise and input of multiple disciplines. Whether an engineer, surveyor, landscape architect or environmental scientist each project benefits from the perspective and skills of varied professionals. The combined experience and knowledge, all under one roof, benefits each project and customer for better results.

Clients rely on Sebago Technics to guide their projects through design, permitting and construction processes utilizing either traditional or design-build delivery. Our licensed professionals remain current in the latest engineering practices and are certified in LEED, Erosion, Sedimentation and Stormwater Control & Inspection, Wetlands, Soils, Septic Design, and Traffic Operations. Our One Company range of services and expertise allows us to assist projects from concept through construction.

CIVIL & SITE ENGINEERING

Civil Engineering is a broad based profession that deals with the design, construction and maintenance of the physical and naturally built environment. Civil and Site Engineering projects may include regulatory permitting at all levels of government, technical studies and evaluations, planning and implementation, feasibility assessments, stormwater modeling, infrastructure design, site and subdivision planning/design. Often, the Civil Engineer will take the lead on a project coordinating other disciplines such as environmental, geotechnical, survey and transportation components that comprise a complete project approach.

From the beginning, Sebago Technics, Inc. has focused on offering a broad range of Civil Engineering services to the public and private sector. Our diverse Civil Engineering staff provides customers the experience and expertise to evaluate, design and permit projects covering a broad spectrum. As technology advances and regulatory processes evolve, our Civil Engineering staff has remained flexible and adaptive with a focus on customer service. Our Civil Engineers work together in teams of experienced professionals to assist customers on a variety of projects. Our staff works from inception to completion to plan, design, permit and construct projects. Throughout a project, we strive to be attentive to the customer's goals and seek solutions that are cost-effective and responsive to regulatory requirements.

OUR SOLUTIONS,
YOUR SUCCESS



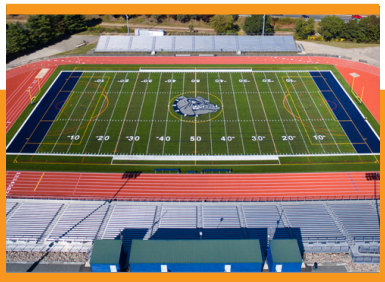
SOUTH PORTLAND MUNICIPAL SERVICES
South Portland, ME

NEVER COMPROMISE
ON QUALITY



ORONO PUBLIC WORKS FACILITY
Orono, ME

BEING RESPONSIVE
IS WHO WE ARE



FITZPATRICK STADIUM FIELD
Portland, ME

LAND SURVEYING & GIS

Land Survey is a fundamental data and design component required by almost every project. We believe maintaining a qualified in-house staff of survey professionals and technicians provides enhanced project coordination and responsive customer service. With one of the largest survey staffs in Maine, we are able to respond promptly to client and project needs. We can produce multiple survey crews on any given day with state of the art technical equipment including GPS systems, robotic instruments, total stations and technical support. Sebago Technics maintains our own GPS base station allowing us to complete real time kinematic GPS within a supporting network. Data collected in the field is processed electronically by survey technicians and professional land surveyors to produce quality final products whether it is a stand-alone survey plan or engineering data to be used in design and construction.

Our GIS team can work with all of today's mapping technologies to deliver superior spatial services to public and private clients. Through the use of today's spatial data sources like real time GPS (sub-meter and survey-grade), photogrammetry, orthoimagery, LIDAR, remote sensing, web mapping services (WMS), and mobile mapping we have been able to build and maintain geospatial datasets for local and state government throughout Maine and New England. Our staff is also involved with many state/ regional projects such as orthoimagery acquisition and can assist municipalities navigate the best solution for specific applications.

OUR SOLUTIONS,
YOUR SUCCESS



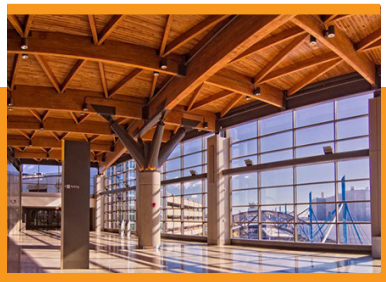
PENOBSCOT NARROWS BRIDGE
Verona Island - Prospect, ME

NEVER COMPROMISE
ON QUALITY



KITTERY SHOREZONE MAPPING
Kittery, ME

BEING RESPONSIVE
IS WHO WE ARE



PORTLAND JETPORT TERMINAL EXPANSION
Portland, ME

HIGH DEFINITION LASER SCANNING & 3D MODELING

High Definition 3D Laser Scanning

Whether it's surveying a roadway, analyzing bridge components, documenting a historic building, quantifying material volumes or retrofitting an existing structure, High Definition 3D Laser Scanning is a highly efficient and accurate solution. Sebago Technics has been scanning since 2013 and has successfully completed a multitude of projects over a wide array of project disciplines. With a scan rate of 1,000,000 points per second, Sebago Technics can supply the highly-accurate and cost-effective dataset required to fully utilize today's 3D design software. Once point cloud data is processed, surfaces and 3D objects can be created through Leica Cyclone, Cloudworx and Revit software. The resulting deliverable can be viewed in AutoCAD, Revit, MicroStation, Sketchup & Solidworks. We can even create 3 dimensional views and videos for use in presentations and marketing.

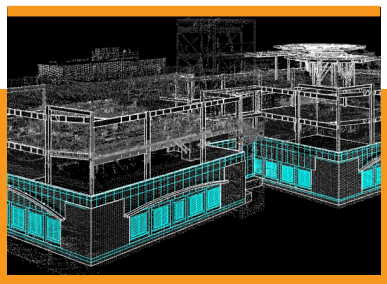
3D Modeling

Design is complex, presenting it shouldn't be. Rendering your projects for presentations, Sebago Technics can take your design and produce graphic materials for company meetings, public events, or any other presentation for ease of understanding. Many large-scale projects such as civil design, public works projects, and buildings can be hard to describe with a plan. Instead, projects are modeled in full 3D, allowing any view of your project to be presented. We can deliver static images, video walkthroughs, and slideshows that will help show others your design and help ensure approval. Our team has the experience to understand your project's vision and present it realistically and accurately for your presentation requirements.

OUR SOLUTIONS, YOUR SUCCESS

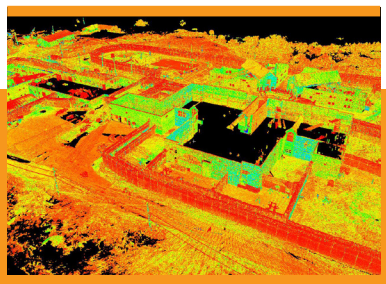
NEVER COMPROMISE ON QUALITY

BEING RESPONSIVE IS WHO WE ARE



MAINE MEDICAL CENTER - EAST WING EXPANSION

Portland, ME



MAINE CORRECTIONAL CENTER

Windham, ME



BLISS HALL - UNIVERSITY OF RHODE ISLAND

South Kingston, RI

LANDSCAPE ARCHITECTURE

Landscape Architecture was integrated into Sebago Technics' practice in 1988, bringing a creative design focus to the company and complementing its civil engineering capability. Landscape architects lead the design effort on all projects, working closely with our natural resource scientists and engineers. We listen closely to the needs of our clients, their goals for each project, and strive to accomplish their objectives, accounting for the environmental, site, and regulatory constraints affecting each project. Having practiced throughout the United States and overseas, observing regional and international design vocabulary, we bring diverse knowledge to each project. Our landscape architects focus on innovative design practices yet remain grounded by a strong technical knowledge that produces cost-effective, constructible solutions. A high standard of quality is our trademark. As LEED Accredited Professionals, we are committed to the principles of sustainable design practices. Embracing technology, we believe people understand design in a visual context therefore reflecting our designs through quality graphic communication and presentation.

OUR SOLUTIONS,
YOUR SUCCESS

NEVER COMPROMISE
ON QUALITY

BEING RESPONSIVE
IS WHO WE ARE



AVITA STROUDWATER LANDING
Westbrook, ME



BOOTHBAY HARBOR COUNTRY CLUB
Boothbay, ME



L.L. BEAN RETAIL CAMPUS
Freeport, ME

ENVIRONMENTAL SERVICES

Our environmental engineers and technical staff provide customers with planning, assessments, design, project management and permit acquisition for a variety of projects. Sebago Technics assists with the design of municipal and private water, wastewater and stormwater conveyance systems. Our experienced team has completed miles of sewer separation projects, designed numerous sanitary pump stations and solid waste facilities. We also support businesses, financing institutions, and landowners with the completion of Environmental Site Assessments (ESA's) and remediation prior to land transfers or project development. We complete high intensity soil surveys for development projects and environmental studies along with wetland and vernal pool assessments and mapping. Our licensed site evaluators and engineers work together to design subsurface wastewater disposal systems for both small and large engineered systems including local and state permits. Our engineering staff completes assessments and watershed modeling to develop stormwater design solutions along with Stormwater Pollution Prevention Plans (SWPP) and Spill Prevention Control and Countermeasure (SPCC) plans. We are also experienced in hydrologic modeling and flood plain mapping including FEMA permit applications. Our technical staff assists with compliance monitoring and permitting under the National Pollutant Discharge Eliminations System (NPDES) and Multi-Sector permitting.

OUR SOLUTIONS,
YOUR SUCCESS

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ON QUALITY

BEING RESPONSIVE
IS WHO WE ARE



FUEL STATIONS ESA
Central & Midcoast, ME



MUNICIPAL ENVIRONMENTAL SERVICES
South Portland, ME



YORK TOLL PLAZA
York, ME

TRANSPORTATION/TRAFFIC ENGINEERING

Achieving the proper balance between mobility; pedestrian, bicycle and vehicular safety; and preservation of community character, is often the challenge we face today as transportation engineers in the urban environment. In addressing the efficient movement of people and goods for the vitality of our local and regional economies, we can no longer afford to solve our congestion concerns by solely constructing more system capacity. Today's fiscal realities demand more creative approaches that consider more fully the interrelationships between land use and transportation. Our solutions need to explore a wide range of alternatives that can make our current roadway networks more efficient and better able to accommodate a broader range of users beyond just motorized vehicles, i.e. pedestrians, bicyclists, and transit riders. What began 10-12 years ago as Context Sensitive Design, has now evolved into the Complete Streets and Green Streets movements – both of which are transforming our transportation facilities into more community friendly and environmentally responsible infrastructure systems.

At Sebago we embrace a holistic approach to transportation planning, engineering, and operations in urban settings. Our transportation engineers routinely collaborate with in-house land use planners and landscape architects to develop designs that achieve superior results in terms of mobility, safety, aesthetics, and environmental quality. We are passionate about developing design solutions that meet the needs of a wide variety of system users. Large or small – state level or community level – Sebago is equipped and experienced to offer you sage advice with regard to your transportation needs. While our talents are predominantly focused on planning and design activities, our skills don't end there. We also have a post-construction traffic signal system operations practice that is "unique" to the industry. Our Traffic Engineers are skilled in operating centrally controlled traffic signal systems for optimizing traffic flow and minimizing system maintenance costs.

OUR SOLUTIONS,
YOUR SUCCESS

NEVER COMPROMISE
ON QUALITY

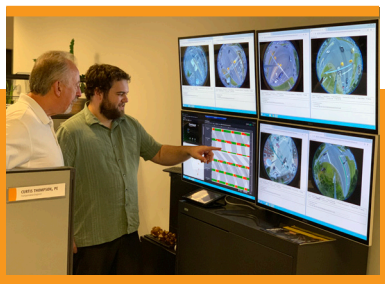
BEING RESPONSIVE
IS WHO WE ARE



ROUTE 27 IMPROVEMENTS
Boothbay, ME



SARAH MILDRED LONG BRIDGE
Kittery, ME - Portsmouth, NH



TRAFFIC SIGNAL OPERATIONS
Ellsworth, ME

PLANNING SERVICES

Development Proposals Review

- Review development proposals for compliance with local ordinances, and state regulations,
- Communicate with applicants, peer firms and municipal staff,
- Provide engineering review of proposed site features, road and/or parking lot construction, stormwater management and erosion control,
- Identify state and/or federal permits that will be necessary,
- Prepare background material for Planning Boards including findings of fact and conditions of approval.

Comprehensive Planning

- Develop Comprehensive Plans, including public participation processes for communities that are eligible for certification by the state.

Community Development Block Program

- Provide assistance to the Citizen Committees,
- Coordinate approved projects through design, implementation and compliance,
- Develop requests for proposals to select contractors for approved projects,
- Assist in selecting contractors.

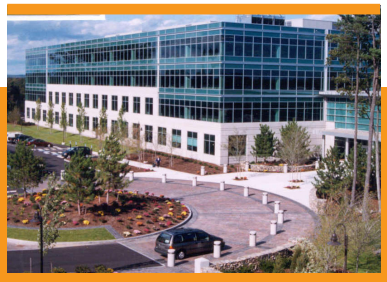
Strategic Planning and Ordinance Development

- Develop plans such as Bicycle and Pedestrian Plans, Crosswalk Plans, Energy Plans etc.,
- Develop new ordinances that meet established goals of the community,
- Propose amendments to existing ordinances as requested,
- Facilitate public input.

OUR SOLUTIONS,
YOUR SUCCESS

NEVER COMPROMISE
ON QUALITY

BEING RESPONSIVE
IS WHO WE ARE



UNUM HEADQUARTERS
Portland, ME



TOWN OF FREEPORT
Freeport, ME



CENTRAL MAINE MEDICAL CENTER
Lewiston, ME

SITE EVALUATION & REGULATORY PERMITTING

The site alternatives and selection process is often an evolutionary one that begins with defining the project needs and objectives. Over the past 35 plus years Sebago Technics, Inc. has participated in site selection and permitting for projects ranging in size and complexity. While there are commonalities in the process, no two projects are exactly the same. As a result, we apply our knowledge and depth of experience to develop specific solutions to each and every project.

We have gained a tremendous amount of experience over the years with permitting projects in many regulatory environments. In the development of a design we strive to anticipate the regulatory issues and address them in the design process so that they do not become obstacles later in the process. When considering alternative sites or alternative site designs we are able to quickly analyze the permitting considerations as well as the cost and design considerations.

When it comes to permitting we have a great reputation and experience with the Maine Department of Environmental Protection (MDEP) and the Army Corps of Engineers (ACOE). We have developed working relationships with the project analysts at the MDEP and the ACOE and as a result have been able to get projects through the permitting process with successful outcomes for our clients.

OUR SOLUTIONS,
YOUR SUCCESS



SANFORD HIGH SCHOOL & REGIONAL TECHNICAL CENTER
Sanford, ME

NEVER COMPROMISE
ON QUALITY



CLIFF ISLAND BARGE LANDING
Portland, ME

BEING RESPONSIVE
IS WHO WE ARE



BREWER BUSINESS PARK
Brewer, ME

LEADERSHIP TEAM



Mark Adams
President/CEO



Owens McCullough, PE, LEED-AP
Senior Vice President,
Strategy & Client Development



Shawn Frank, PE
Senior Vice President,
Commercial Development



Steven Sawyer, Jr., PE
Senior Vice President,
Transportation Services



Will Conway, RLA, LEED-AP
Senior Vice President,
Landscape Architecture



Keith McAlary
Chief Financial Officer



Kylie Mason, RLA, LEED-AP
Vice President,
Project Delivery



Dan Riley, PE
Vice President,
Engineering



Charlie Marchese, PLS
Director,
Survey Operations



Matt Ek, PLS
Director,
Survey/GIS Advancement



Seth Goucher
Director,
Geomatics



Gary Fullerton, CSS, LSE
Director,
Natural Resources



Bradley Lyon, PE, PTOE
Director,
Transportation Services

GARY M. FULLERTON, CSS, LSE

Director, Natural Resources



Mr. Fullerton joined Sebago Technics in 2000 as a Soil Scientist. Gary is a Licensed Site Evaluator and Certified Soil Scientist in Maine. He is a Certified Wetland Scientist and Subsurface Disposal System Designer in New Hampshire. He has designed septic systems for single-family residential dwellings, campgrounds and large commercial facilities. He performs vernal pool surveys, wetland delineations, stream determinations and peer reviews as a contractor for the Maine Department of Environmental Protection. As a soil scientist, Gary prepares High Intensity Soil Surveys for subdivisions and commercial projects and determines soil classification for stormwater treatment ponds.

As the Director of Natural Resources, Mr. Fullerton is responsible for managing the environmental aspects of all projects within the company. He works with his staff to prepare wetland reports and supporting documentation for state and federal applications for wetland, stream and vernal pool impacts.

EXPERIENCE

- **New England Clean Energy Connect:** Contracted by DEP to review streams, vernal pools, and wetlands on 54 miles of the proposed transmission line in Northwestern Maine.
- **Maine Turnpike Authority**: Seven mile stretch of vernal pools and wetlands.
- **Sanford High School & Regional Technical Center - Sanford, Maine:** Wetlands and vernal pools mapping on a 69-acre site.
- **Brewer Business Park - Brewer, Maine**: Natural resource mapping, surveying, preliminary planning and design.
- **Bigelow Laboratory - East Boothbay, Maine**: Soils and subsurface conditions investigation.
- **Thornton Heights and Pleasantdale Sewer Separation, City of South Portland, ME:** Residential sewer inspections for illicit connections as part of the Thornton Heights Sewer Separation project.
- **Scott Dyer Road Phase 2 Improvements – Cape Elizabeth, Maine:** Conducted natural resource mapping and prepared a wetland report to support local, State, and Federal permitting for a road improvement project.
- **Pollack Brook Bridge and Trail – Cape Elizabeth, Maine:** Conducted natural resource mapping of tidal and freshwater wetlands with a stream crossing and prepared a wetland report to support local and State permitting for a pedestrian trail.

EDUCATION

University of Rhode Island
Kingston, RI
Bachelor of Science
Soil and Water Resources, 1998

CERTIFICATIONS

Licensed Site Evaluator:
Maine #355

Certified Soil Scientist:
Maine #462

Certified Subsurface Wastewater Disposal System Inspector:
Maine #291

Certified Wetland Scientist:
New Hampshire #246

Certified Designer of Subsurface Disposal Systems:
New Hampshire #1796

MEMBERSHIPS

Maine Association of Professional Soil Scientists

Maine Association of Site Evaluators

Maine Association of Wetland Scientists

NH Granite State Designer and Installers Association

TRAINING

U.S.A.C.O.E. Wetland Delineation Training Course

SEBAGO TECHNICS

Civil Engineering
Site Plans
Grading & Drainage Design
Utility Design (Water, Sewer)
Stormwater Management
Permitting (Local, State & Federal)
Quarry/Gravel Pit Studies & Permitting
Technical Review
Construction Inspection

Environmental Services
NRPA/NEPA Studies
Site Assessments (ESAs, VRAPs)
Septic Design & Analysis
Floodplain Studies & Permitting

Transportation Engineering
Signal Analysis, Design & Management
Traffic Analysis & Permitting
Intersection, Road & Highway Design
Alternatives Analysis & Route Design
Bicycle and Pedestrian Facilities

Landscape Architecture
Conceptual & Site Design
Park & Public Space Design
Urban Design
Master and Campus Planning
Waterfront Planning
Planting Design

Land Surveying
Technical Deed Research
Boundary & Topographic Survey
ROW Survey & Mapping
Land Title Survey
Subdivisions
GPS Survey & Mapping
Construction Layout (Vertical & Horizontal)
As-Built Surveys
High Definition 3D Laser Scanning
Hydrographic Surveying
Forensic Surveying
Aerial Photogrammetry
Tax Map Updates
Zoning & Shoreland Zoning Map Updates

Soil Sciences
Soil Surveys & Testing
Wetland Assessment & Permitting
Vernal Pool Mapping

Planning & Permitting
Industrial/Business Parks
Feasibility Assessments
Sand, Gravel and Quarry Mining
Wetland Assessments and Mitigation
NHDES and USACOE Permitting
NRPA/NEPA Studies
Local Permitting
Ordinance Development & Amendments

SEBAGO TECHNICS

CIVIL ENGINEERING ▪ SURVEYING ▪ LANDSCAPE ARCHITECTURE

75 John Roberts Road, Suite 4A
South Portland, Maine 04106
(207) 200.2100



FIRM OVERVIEW

We look inside and outside the box to deliver **value**.

Haley & Aldrich's scientists, engineers, and constructors think creatively to deliver greater value for your capital, operations, or environmental project. We build the right team for you from our nationwide staff known for their expertise in finding new sources of value. Often, our clients are able to reduce their overall operational costs because we work with them to consider the whole system and stakeholders that impact their project.

WE LISTEN AND RESPOND WITH CREATIVE SOLUTIONS.

Only a team that asks the right questions, truly listens—and considers novel and unexpected approaches—will create more value for you. For years, we have invested seriously in training our team to be active listeners and creative thinkers. A big part of that creative thinking—which in turn is the driver of value—is helping you get results more efficiently, and results that endure.

WE BRING THE RIGHT EXPERIENCE TO CREATE THE RIGHT SOLUTION FOR YOU.

We started out nearly 60 years ago in geotechnical engineering, and have built on that foundation nationally with services spanning the entire built environment lifecycle from initial conception through adaptive reuse to meet a new need. Our clients span U.S. Fortune 500 organizations, top higher-education institutions, and government agencies. And we bring this deep and varied experience to your opportunity as one team—our experts throughout the Haley & Aldrich nationwide network work together. We thrive with a culture of collaboration.

But that's just the foundation. We bring much more than our bench strength to the table. We leverage and adapt operational excellence principles from Lean manufacturing to balance conflicting and complex needs to create higher value at lower cost. We bring a whole-system approach to traditional engineering and environmental services that considers the needs of multiple stakeholders. Similarly, we take emerging technologies and apply them in innovative ways to deliver the best solution for you.

> "You can count on the Haley & Aldrich team to deliver outstanding—and enduring—results."

FIRM FACT SHEET

About us

Haley & Aldrich, Inc. is committed to delivering the value our clients need from their capital, operations, and environmental projects. Our one-team approach allows us to draw from our 600 engineers, scientists, and constructors in nationwide offices for creative collaboration and expert perspectives. Since our founding in 1957, we have one goal in all we do: deliver long-term value efficiently, no matter how straightforward or complex the challenge.

BY THE NUMBERS

- Nearly 60 years of national and international project experience
- 50,000+ consulting projects
- 600+ employees
- Employee owned; one company, one team

MARKETS WE SERVE

Aerospace
CERCLA/Superfund & Environmental Trusts
Educational, Healthcare & Cultural Institutions
Electric, Gas & Energy
Heavy Industry
Infrastructure
Manufacturing
Mining
Real Estate Developers

OUR SERVICE AREAS

ENGINEERING
Environmental Remediation Engineering
Civil & Geotechnical Engineering
Mining Engineering
System Design
Trenchless Engineering

ENVIRONMENT
Characterization of Soil, Groundwater, Surface Water, Sediment & Air
Natural Resources Assessment & Impact Mitigation
Stormwater Assessment & Management
Groundwater Fate & Transport Modeling
Vapor Intrusion
Remediation of Soil, Groundwater & Sediment

PLANNING, PERMITTING, & COMPLIANCE
Planning
Permitting
Risk Assessment
Regulatory Strategies
Closure & Post-Closure
Due Diligence
Operations Business Risk & Compliance
Air Quality

SPECIALTY SERVICES
Operational Excellence
Forensics & Litigation Support
Sustainability & Resilience
Haley & Aldrich Construction Services, Inc.

OFFICES

ANN ARBOR, MI	CLEVELAND, OH	DENVER, CO	MANCHESTER, NH	PHOENIX, AZ	SAN DIEGO, CA	WALNUT CREEK, CA
BOISE, ID	COLUMBUS, OH	GREENVILLE, SC	MCLEAN, VA	PORTLAND, ME	SAN JOSE, CA	WOODLAND HILLS, CA
BOSTON, MA	COSTA MESA, CA	HARTFORD, CT	OAKLAND, CA	ROCHESTER, NY	SANTA BARBARA, CA	
BURLINGTON, MA	DAYTON, OH	KANSAS CITY, KS	PARSIPPANY, NJ	ROCKFORD, MI	TUCSON, AZ	



WAYNE A. CHADBOURNE, P.E.

Lead Geotechnical Engineer | Vice President

EDUCATION

M.S., Geotechnical Engineering, Tufts University, 1994
B.S., Civil Engineering, University of Vermont, 1992

PROFESSIONAL REGISTRATIONS

1998/MA: Professional Engineer (Reg. No. 40695)
2004/ME: Professional Engineer (Reg. No. 10620)
2012/NH: Professional Engineer (Reg. No. 13710)
2012/GA: Professional Engineer (Reg. No. 037456)

During his 21 years with Haley & Aldrich, Mr. Chadbourne has been involved in a wide variety of projects dealing with geotechnical, environmental and geothermal aspects of design and construction, for both private and public clients. His responsibilities have included performing site investigations, foundation analyses/design, report and contract document preparation, contractor submittal review, and owner's representative services during construction for a variety of geotechnical projects. Mr. Chadbourne's geotechnical project experience includes aspects of foundation design for building projects, bridges and other infrastructure and using drilled shaft, mat, spread footing and various types of pile foundations; lateral support systems for deep excavations including slurry walls, soil-mix walls, steel and polyvinyl chloride sheeting, soil nails, soil tiebacks/rock anchors and soldier piles/lagging. Mr. Chadbourne's project experience also includes deep excavations, horizontal directional drilling, underpinning of structures, ground improvement, preload/surcharge/prefabricated vertical drain design and use of various types of light weight fills for building and embankment support. Mr. Chadbourne served as the geotechnical officer-in-charge or the geotechnical project manager for the following, recent higher education, capital development projects:

RELEVANT PROJECT EXPERIENCE

Thompson's Point Mixed Use Development, Portland, ME. Officer-in-charge responsible for the completion of geotechnical due diligence level subsurface investigations, laboratory testing and design evaluations for the proposed mixed use development. Responsible for coordinating and overseeing multiple subsurface investigation and laboratory testing programs and completion of technical evaluations to determine preliminary foundation support requirements for several proposed buildings located on different portions of the peninsula. Participated in discussions with potential tenants to discuss foundation support requirements for their facilities.

midtown Development, Portland, ME. Officer-in-charge responsible for providing geotechnical design and construction document preparation services for a mixed use development in the Bayside area of Portland. Currently in the process of providing foundation support and geotechnical design recommendations for the above ground parking- a 7-story, above ground parking garage and three, 6-story mixed use buildings. Deep, end-bearing piles will be used to support all of the structures due to the combination of the high column loads and presence of soft, compressible marine clay soil present at the site. Coordinated design efforts with a multi-disciplined team of engineers, architects and contractors and was responsible for preparation of geotechnical contract documents.

Ocean Gateway Parking Garage, Riverwalk, LLC, Portland ME. Officer-in-charge/project manager responsible for providing geotechnical design and construction phase services for a $40-million garage/retail development in the Old Port section of Portland. Provided geotechnical engineering services related to the design of pile and spread footing foundation elements, excavation/blasting and foundation drain systems, contract document preparation, consultation with the construction manager regarding pricing of geotechnical aspects of construction, and owner's representative services during installation of foundation elements, foundation drain and excavation of the in-situ soil and rock.

Mercy at the Fore Development, Mercy Hospital/KLMK, Portland, ME. Officer-in-charge/project manager responsible for providing geotechnical design and construction phase services for a $90-million institutional development of the new main hospital building and Fore River Campus in Portland. Provided geotechnical engineering services related to the design of the spread footing foundation elements and foundation drain, contract document preparation, consultation with the construction manager regarding pricing of geotechnical aspects of construction, and owner's representative services during installation of foundation elements, foundation drain, retaining walls and earthwork.

University of Southern Maine University Commons, USM Facilities Group, Portland, ME. Officer-in-charge responsible for providing geotechnical design and construction phase services for a $20-million institutional development in the Back Cove section of Portland. Provided geotechnical engineering services related to design of the foundation elements and use of geofoam lightweight fill and foundation piles, contract document preparation, review of estimator pricing of geotechnical aspects of construction, and owner's representative services during installation of foundation elements, foundation drain system, and lightweight fill.

Bayside/Maine Health United Way Development, City of Portland, Portland, ME. Officer-in-charge responsible for providing geotechnical design and construction document preparation services for a mixed use development in the Back Cove section of Portland. Provided geotechnical engineering services related to design of the parking garage and office tower foundation elements. Deep, end-bearing foundation piles were recommended due to the combination of the high column loads and the presence of soft marine clay at the site. Responsible for preparation of geotechnical and environmental contract documents.

The Waterview Apartments at Bayside, Portland, ME. Officer-in-charge responsible for determining foundation support recommendations for the 12-story residential condominium in the Bayside area Portland. Responsibilities included the design of 2, 3, and 4-ft diameter rock socketed drilled shafts, rock-supported spread footings and permanent rock anchors to resist uplift forces. Ultimate solution called for design and implementation of a preload/ surcharge program to meet post-construction settlement requirements of the building. Responsibilities also included the preparation and review of contract documents and specifications, and engineering oversight during foundation testing and construction.

Baker Library/Academic Center, Harvard Business School, Boston, MA. Project manager responsible for providing design and construction phase services for the five-story addition to a historic library building. Designed and executed the subsurface exploration program, provided foundation design recommendations and underslab drain system design, assisted in development of the pre-characterization program for excavated soil management, collaborated with subcontractors to determine feasibility of excavation support system types, prepared contract documents, evaluated construction related impacts to the adjacent library structure, assisted and reviewed contractor submittals during construction, and provided owner's representative services during construction. The two levels of below-grade space extended about 25 ft below grade and 15 ft below the groundwater level. A soil-mix wall and external (tiebacks) bracing system was used to construct the below grade space. The soil-mix wall was also used as a permanent groundwater cutoff system and permanent membrane waterproofing was placed around the below grade envelope.

PUBLICATIONS AND PRESENTATIONS

"Overview of Campus Geothermal Systems," presented to the Bowdoin College Board of Trustees, May 2010.

"Concrete Diaphragm Walls… One Size Does Not Fit All," with D.W. Finocchio, Structure Magazine, December 2006.

"Urban Parking Concepts for Planning Developments in Portland, Maine," presented to the Maine Real Estate & Development Association (MEREDA), Portland, Maine, December 2005.

"Factors Effecting the Performance of Deep Excavations," Proceedings from the 12th Pan-American Conference on Soil Mechanics and Geotechnical Engineering, Cambridge, Massachusetts, 2003.

HALEY ALDRICH



BRYAN C. STEINERT, P.E.

Geotechnical Project Manager

EDUCATION

M.S., Geotechnical Engineering, University of Maine, 2005
B.S., Civil Engineering, University of Maine, 2002

PROFESSIONAL REGISTRATIONS

2009/ME: Professional Engineer (Reg. No. 12008)

Since joining Haley & Aldrich, Inc. in 2005, Mr. Steinert's project experience includes geotechnical analyses, foundation design and installation, ground improvement assessment, and implementation for a variety of transportation infrastructure projects. His responsibilities range from planning, coordinating and executing site investigations and laboratory testing programs to completing settlement and embankment stability evaluations, liquefaction analyses, deep and shallow foundation design and temporary/permanent lateral earth support analyses and design in accordance with multiple design codes. His experience also includes data and interpretive geotechnical report and contract document (plans and specifications) preparation for mixed-use and institutional development projects involving the use of lightweight fill, ground improvement, deep foundation systems as well as well as performance of quality assurance/quality control during design and construction.

RELEVANT PROJECT EXPERIENCE

Thompson's Point Mixed Use Development, Portland, ME. Project Manager and Project Engineer for the completion of geotechnical due diligence level subsurface investigations, laboratory testing and design evaluations for the proposed mixed use development. Responsible for coordinating and overseeing multiple subsurface investigation and laboratory testing programs and completion of technical evaluations to determine preliminary foundation support requirements for several proposed buildings located on different portions of the peninsula.

midtown Development, Portland, ME. Project Manager and Project Engineer responsible for providing geotechnical design and construction document preparation services for a mixed use development in the Bayside area of Portland. Currently in the process of providing foundation support and geotechnical design recommendations for the above ground parking a 7-story, above ground parking garage and three, 6-story mixed use buildings. Deep, end-bearing piles will be used to support all of the structures due to the combination of the high column loads and presence of soft, compressible marine clay soil present at the site. Coordinated design efforts with a multi-disciplined team of engineers, architects and contractors and was responsible for preparation of geotechnical contract documents.

Mercy at the Fore Development, Portland, ME. Resident geotechnical engineer providing full-time on site construction monitoring during earthwork and foundation excavation activities for the $90-million institutional development of the new main hospital building and Fore River Campus. Prepared, reviewed, and managed documentation including weekly field reports and soil density forms. Responsibilities included monitoring and observation of excavation and preparation of foundation bearing surfaces and dewatering activities. Made judgments regarding the need to over-excavate substantially disturbed or otherwise unsuitable material below footings. Observed placement and compaction of marine clay fill and judged the suitability of on-site and off-site materials for reuse as compacted fill. Observed the placement and compaction of soil fills adjacent to foundation elements and beneath the floor slab and beneath parking lots/roadways and performed in-situ density tests using a Humboldt B5001 EZ nuclear density gauge.

Ocean Gateway Garage and Watermark Development, Portland, ME. Project Engineer responsible for providing geotechnical design and construction phase services for a $80-million parking garage/mixed-use development in the Eastern Waterfront area of Portland. Provided geotechnical engineering services related to the design of driven pile and spread footing foundation elements, excavation/blasting and foundation drain systems, contract document

preparation, consultation with the construction manager regarding pricing of geotechnical aspects of construction. Resident Geotechnical Engineer providing construction oversight for parking garage construction including demolition monitoring and monitoring the installation of approximately 9,000 linear feet of driven HP14x102 and HP12x53 steel piles. Additional responsibilities included monitoring earthwork, fill/backfill placement and compaction testing. Interacted daily with client and subcontractors to insure compliance with design specifications. Prepared, reviewed, and managed documentation including weekly field reports and pile installation reports.

Bayside Parking Garage & Master Planning, Portland, ME. Project Engineer for exploration and design phases of a five-story parking garage located in the Bayside area of Portland. Responsibilities included design of high capacity steel H-piles driven through soft marine clay to support the 6-story garage and preparation/review of contract documents and specifications.

MaineHealth/United Way Development, Portland, ME. Project Engineer responsible for providing geotechnical design and construction document preparation services for a mixed use development in the Bayside area of Portland. Provided geotechnical engineering services related to design of parking garage and office tower foundation elements. Deep, end-bearing foundation piles were recommended due to the combination of the high column loads and the presence of soft marine clay at the site. Responsible for preparation of geotechnical and environmental contract documents.

The Waterview Apartments At Bayside, Portland, ME. Project Engineer for the design phase of a 12-story residential condominium in the Bayside area Portland. Responsibilities included the design of 2, 3 and 4-ft diameter rock socketed drilled shafts, rock-supported spread footings and permanent rock anchors to resist uplift forces. Responsibilities also included the preparation and review of contract documents and specifications.

University Commons, Portland, ME. Project Engineer responsible for providing geotechnical design and construction phase services for a $20-million institutional development at the University of Southern Maine campus in Portland. Provided geotechnical engineering services related to design of the foundation elements and use of geofoam lightweight fill, contract document preparation, review of estimator pricing of geotechnical aspects of construction, and owner's representative services during installation of foundation elements, foundation drain system and lightweight fill placement.

PUBLICATIONS

"Portland Internal Jetport Runway18-36 Extension Project," with James W. Weaver, proceedings of the 2nd Presumpscot Formation Symposium, Portland, Maine, October 2015.

"Three Low-Cost Techniques for Determining When to Place and Remove Spring Load Restrictions on Low Volume Roads," with M.A. Kestler, et al., proceedings of the Ninth International Conference on Low Volume Roads, Austin, Texas, 24-27 June 2007.

"Monitoring Stiffness of Gravel Surfaced Roads During Spring Thaw Using a Portable Falling Weight Deflectometer," with M.A. Kestler, and D.N. Humphrey, proceedings of the Thirteenth International Conference on Cold Regions Engineers, Orono, Maine, 23-26 July 2006.

"PFWDs for Tracking Seasonal Stiffness Variations in Asphalt Surfaced Roads," with D.N. Humphrey, and M.A. Kestler, CD from the 85th Annual TRB Meeting, Washington D.C., 2006.

PERKINS | THOMPSON
ATTORNEYS & COUNSELORS AT LAW

ESTABLISHED 1871

ONE CANAL PLAZA
PO BOX 426
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PERKINS THOMPSON has been providing legal services to U.S. and Canadian businesses, institutions and individuals for nearly 150 years. We represent major banking, utilities, energy, manufacturing, hospitality, oil and gas, real estate, forest products, and retail and wholesale distribution businesses, as well as innovative start-ups, emerging companies, entrepreneurs, private foundations, non-profit organizations, and families and individuals.

Our attorneys are dedicated to producing timely, quality legal services efficiently. Our moderate size assures personal attention to clients' needs by experienced, knowledgeable practitioners, and permits careful control of the quality of services, in addition to avoiding the dissipation of client resources through over-lawyering. We regularly discuss budgets for legal services with existing and potential clients and provides estimates of probable charges for specific projects.

Legal issues and legal problems no longer stop at the border. As clients increasingly operate in multiple states, the firm now actively provides legal counsel and litigation services to its clients on matters of New Hampshire law and on legal issues in other New England states. In addition to Maine, Perkins Thompson attorneys are registered to practice in other jurisdictions, including New Hampshire, Massachusetts, Connecticut, and New York.

LAND USE & ENVIRONMENTAL LAW SERVICES

PERMITTING

Our attorneys have extensive experience in helping our clients navigate the complex web of local, state, and federal permitting requirements, and their applicability to development projects large and small. We frequently represent developers, individual landowners, and businesses of all sizes in obtaining approvals from local planning boards and zoning boards of appeal, the Maine Department of Environmental Protection, the Land Use Planning Commission, and a host of other state and federal government agencies. Our expertise extends to a broad range of matters, including:

- Local Site Plan, Subdivision, Conditional Use, and Special Exception Approvals and Amendments
- Variances
- Zoning ordinance amendments and Contract Zones
- Shoreland Zoning
- Maine's Subdivision Law
- Site Location of Development Act
- Natural Resources Protection Act
- Submerged Lands Leases
- FEMA Floodplain regulation
- Stormwater regulation
- Wetlands Dredge and Fill Permits (Army Corps)

Our in-depth knowledge and strategic counsel serve as an invaluable asset to any development project, whether you are a developer seeking approval of a large-scale mixed use development, a business owner seeking expansion of a nonconforming (grandfathered) use, or a landowner seeking to develop property in the shoreland zone. Every project is different, and while we often find ourselves in a lead role, we frequently collaborate with engineers, architects, consultants, and surveyors to achieve timely, cost-effective solutions for our clients.

LAND USE ISSUES & DISPUTES

Land use issues come in all varieties, and sometimes the solution is not as straightforward as obtaining a permit. You might have questions regarding an easement on your property, or alternatively, your right to use an easement on another's property. You might be embroiled in a boundary dispute with your neighbor. Whatever the issue, we have a proven track record of finding creative solutions to challenging problems involving real property.

Our goal is to find the most practical, cost-effective solution for our client, which frequently means avoiding litigation. We don't shy away from conflict, however, and have the experience to skillfully represent our clients in the courtroom. We have represented developers, businesses, landowners, and abutters in appeals from and in defense of local zoning and planning and State land use law decisions. We have also defended individuals and business owners against land use violation claims by local and State government agencies. We have filed, argued, and defended dozens of appeals from local and State land use decisions and have briefed and argued many land use and municipal cases before the Maine Supreme Judicial Court.

ENVIRONMENTAL DUE DILIGENCE & COMPLIANCE

Environmental and land use permitting questions often arise in the context of an acquisition or major redevelopment of an ongoing business. The stakes are higher when the property involved has a history of soil or groundwater contamination. We frequently advise both lenders and businesses on permitting due diligence matters, permit transfers, and strategies to minimize environmental liability. Using our in-depth knowledge of the law and our strong working relationships with regulatory agencies, we also provide strategic counsel to our clients on a broad range of environmental matters, spanning from regulatory compliance to enforcement actions, negotiating the cleanup of contaminated sites, including petroleum, hazardous waste, and brownfield sites, with governmental authorities and third party landowners, and minimizing our clients' potential future liability.

We also spend much of our time evaluating and minimizing our clients' environmental risks as they pursue and complete real estate and business transactions that involve the transfer of contaminated or potentially contaminated properties.

Our expertise extends to a host of federal environmental laws, including CERCLA (also known as the "Superfund" law), the Resource Conservation and Recovery Act (RCRA), the Toxic Substances Control Act (TSCA), and the Clean Water Act, including federal point source discharge laws, and their Maine law counterparts, including the Maine Uncontrolled Sites Law, the Maine Oil Pollution Liability Act, the Maine hazardous waste laws, and the Maine Pollutant Discharge Elimination System (MPDES). We regularly assist clients with environmental due diligence in connection with acquisitions, mergers, and the sales of commercial and industrial properties. We advocate for our clients in connection with sale or lease agreements in which there are complicated allocations of environmental liability, and advise clients on a range of environmental issues including the closing out of environmental escrow accounts or the exercise of indemnification provisions.

It is our specialized knowledge of environmental law, coupled with our commitment to personal service, efficiency, and relationship-building, that makes us effective representatives for our clients.

REPRESENTATIVE MATTERS

Some recent matters we have handled illustrate the scope of our work:

- On behalf of a developer client, successfully obtained municipal and state permits and approvals required for a large-scale mixed use development spanning across the boundary between two municipalities.
- Successfully achieved the re-zoning of commercial property through the amendment of a local zoning ordinance by contract zone.
- Provided strategic counsel to an intervenor in a proceeding before the Maine Land Use Commission involving a hydropower permitting matter.
- Provided permitting and environmental due diligence counsel in connection with the financing of a grid-scale wind energy project.
- Successfully obtained approvals from the City Harbor Commission, Maine DEP, and U.S. Army Corps of Engineers in connection with a complex redevelopment project involving contaminated property.
- Successfully appealed a propane and natural gas inspector's decision to the Propane and Natural Gas Board of Maine, enabling the client to install an engineered, state of the art greenhouse heating and CO_2 production system.
- Represented a natural gas public utility in land asset disposition before the Maine Public Utilities Commission.
- Obtained a favorable decision from the Maine Law Court on behalf of Maine Rivers, Trout Unlimited, the Appalachian Mountain Club and the Natural Resources Council of Maine, intervenors in the case of *FPL Energy Maine Hydro v. DEP,* which affirmed a decision by the Maine Board of Environmental Protection.
- Obtained municipal approvals required in order for client to redevelop an existing building in the shoreland zone into retail and restaurant space, while simultaneously resolving a property dispute with an abutting landowner.

ATTORNEYS

JAMES N. KATSIAFICAS



Jim Katsiaficas, a shareholder and director of Perkins Thompson, practices environmental, land use, municipal, administrative, and real estate law.

Jim represents municipalities; water, sewer, and other special districts; counties; State agencies; and other public entities, as well as individuals, groups and businesses appearing before governmental agencies. His practice includes representation of clients before Maine's courts and administrative agencies, local and county boards, and the Maine Legislature. Some of the issues he assists clients with include: planning and zoning, environmental permitting, environmental and land use due diligence, property taxation and abatement, stormwater regulation, oil and hazardous substance site remediation, solid waste management, energy regulation, eminent domain, road law, and legislation/lobbying.

JOSEPH C. SIVISKI



Joe Siviski maintains a diverse administrative law practice that extends to environmental, land use, and business immigration matters. He regularly advises individuals, municipalities, banks, utilities, and local and international companies of all sizes on general business law matters and frequently represents those clients before municipal boards, state court, and state and federal agencies. Joe prides himself on finding the most practical solution to his clients' most challenging problems.

Prior to attending law school, Joe worked as an environmental consultant, and brings this experience to bear when advising clients on environmental liability, due diligence, and permitting issues.

BRANDON J. MAZER



Brandon Mazer is an associate attorney who joined Perkins Thompson in 2018 as part of the Business Practice and Craft Beverage Practice Groups. He was general counsel for a multi-state brewery for nearly a decade and has extensive knowledge of alcohol regulations and compliance across the U.S. and internationally. He also has significant experience advising clients with alcohol distribution agreements.

Having worked as general counsel for a variety of small businesses, Brandon brings an understanding of the unique needs of his business clients and approaches each of their issues in a solution-oriented way. His business practice focuses on advising clients on all aspects of their operation, including entity formation, sales and acquisitions, contract negotiations, real estate transactions and general, day-to-day business advice.

Experience

Perkins Thompson, Portland, Maine (September, 2005 to present).
Director and Shareholder. Representing municipal, quasi-municipal and private clients, with practice focus on municipal, land use, administrative and environmental law.

Maine Municipal Association, Augusta, Maine (March 1998 to September, 2005).
Senior Staff Attorney. Provided legal advice to 492 member municipalities and training for municipal officials; prepared training manuals and articles on municipal law topics and *amicus curiae* briefs in municipal appellate proceedings before Maine Supreme Judicial Court.
Assistant Director of State and Federal Relations (1985 - 1986). As lobbyist, represented municipal interests before State Legislature and administrative agencies.

James N. Katsiaficas, Esq., Portland Maine (December 1999 to 2005).
Part-time contract attorney; represented Town of Sanford in closure of uncontrolled hazardous substances site; represented City of Portland Zoning Board of Appeals; various projects.

Jensen Baird Gardner & Henry, Portland, Maine (1987 to March 1998).
Director, Associate. As associate and then as director, represented municipal, quasi-municipal and private clients, with focus on municipal, administrative and environmental law and litigation.

City of Portland, Maine (1986 to 1987).
Associate Corporation Counsel. Advised City departments and boards; defended City in litigation.

Robinson, Kriger & McCallum, Portland, Maine (1984 to 1985).

Education

University of Southern Maine, Certificate Program in Mediation, October 1999.

University of Maine School of Law, J.D. 1984.

University of Vermont, B.S. Biological Sciences, 1978.

Professional Activities

E2Tech (Environmental and Energy Technology Council of Maine) Member, 2005-present; Board of Directors, 2010-present; Chair Program Committee, 2010–2012; Chair, 2012–2016.

Maine State Bar Association, Member Municipal; Administrative; Government and Public Sector (Chair, 2003); Environmental and Energy Law (Chair, 2004); and Real Estate Sections.

International Municipal Lawyers Association (IMLA), State Chair 1990-1997; Section Chair, Health and Environment Section, 1996-1997.

Listed in **Best Lawyers in America** (Administrative and Municipal Law)

EXPERIENCE

Perkins Thompson, Portland, Maine
Associate Attorney (2012-Present); *Summer Associate* (2011). Wide ranging administrative law practice that includes advising clients on environmental enforcement, permitting, and due diligence matters as well as assisting international clients with business immigration matters; Provide general regulatory counsel to municipalities, quasi-governmental entities, small and large businesses, banks, and utilities; General commercial litigation.

Summit Environmental Consultants, Augusta, Maine
Staff Scientist (2006 - 2009). Assisted clients in environmental due diligence matters; Drafted Phase I and Phase II Environmental Site Assessment reports regarding a variety of residential, commercial and industrial properties; designed soil sampling plan to determine the extent of contamination at a paint storage facility and developed a suitable remediation plan for the facility once contamination was delineated.

Ota English School, Ota, Japan
English Instructor (2004-2005). Taught English reading, writing, and conversation to Japanese students of all ages and abilities.

Maine Department of Environmental Protection, Augusta, Maine (Summers 2003 & 2004).
Conservation Aide. Provided technical and administrative support to the Department's Voluntary Response Action Program (VRAP) unit; conducted soil and groundwater sampling in support of environmental site investigations.

EDUCATION

University of Maine School of Law, Portland, Maine, J.D., *summa cum laude*, 2012.
Daniel E. Wathen Legal Writing Prize
Faculty Significant Achievement Award
Case Note & Comment Editor, Maine Law Review

Colby College, Waterville, Maine, B.A., *cum laude*, Environmental Studies, 2004
Minor: Japanese

PROFESSIONAL AND COMMUNITY ACTIVITIES

Portland Water District. Serve as an elected member of the Portland Water District's Board of Trustees, representing the City of South Portland and Town of Cape Elizabeth.
The Nathan & Henry B. Cleaves Law Library. Member, Board of Directors.
Yarmouth Alumni Association. Member, Board of Directors.
Maine State Bar Association. Member and Former Chair of the Environmental & Energy Law Section.

Michael Cuomo, Soil Scientist

6 York Pond Road, York, Maine 03909
(207) 363-4532
mcuomosoil@gmail.com

Education

Bachelor of Science in Soil Science, Univ. of New Hampshire, Magna Cum Laude, 1985. Minors: Resource Economics and Geography.

Master of Science in Soil Science, Univ. of New Hampshire, 1992. Thesis: *Analysis of Subjectivity in a Multiple Parameter Wetland Evaluation Method.*

Publication:

Keys to the Taxonomic Classification of New England Soils; Sidney A.L. Pilgrim and Michael Cuomo, editors; Dec. 2000.

Professional Licenses

Maine Cert. Soil Scientist #211;
Maine Lic. Site Evaluator #211;
New Hampshire Cert. Soil Scientist #006;
New Hampshire Cert. Wetland Scientist #004; and
New Hampshire Lic. Designer of Subsurface Wastewater Disposal Systems #788.

Professional Organizations

Society of Soil Scientists of Northern New England; Current President, past Vice Pres., Secretary, and Treasurer.
Maine Assoc. of Wetland Scientists; founding member and past Secretary/Treasurer.
Maine Association of Professional Soil Scientists.
Maine Association of Site Evaluators.
New Hampshire Association of Natural Resource Scientists; founding member, past Secretary/Treasurer; currently serving on Professional Ethics and Standards Committee.

Work Experience

1985 - 1989	Soil Scientist, The Barwick Companies, South Berwick, ME. Primary responsibility: high intensity soil survey.
1989 - 1990	Wetland/Soil Scientist, Eco-Analysts, Bath, ME. Primary responsibility: wetland delineation.
1990 - present	Self-employed. Primary focus: wetland delineation and high intensity soil survey for private landowners, developers, and industry. Site evaluation. Secondary focus: providing technical assistance to towns.

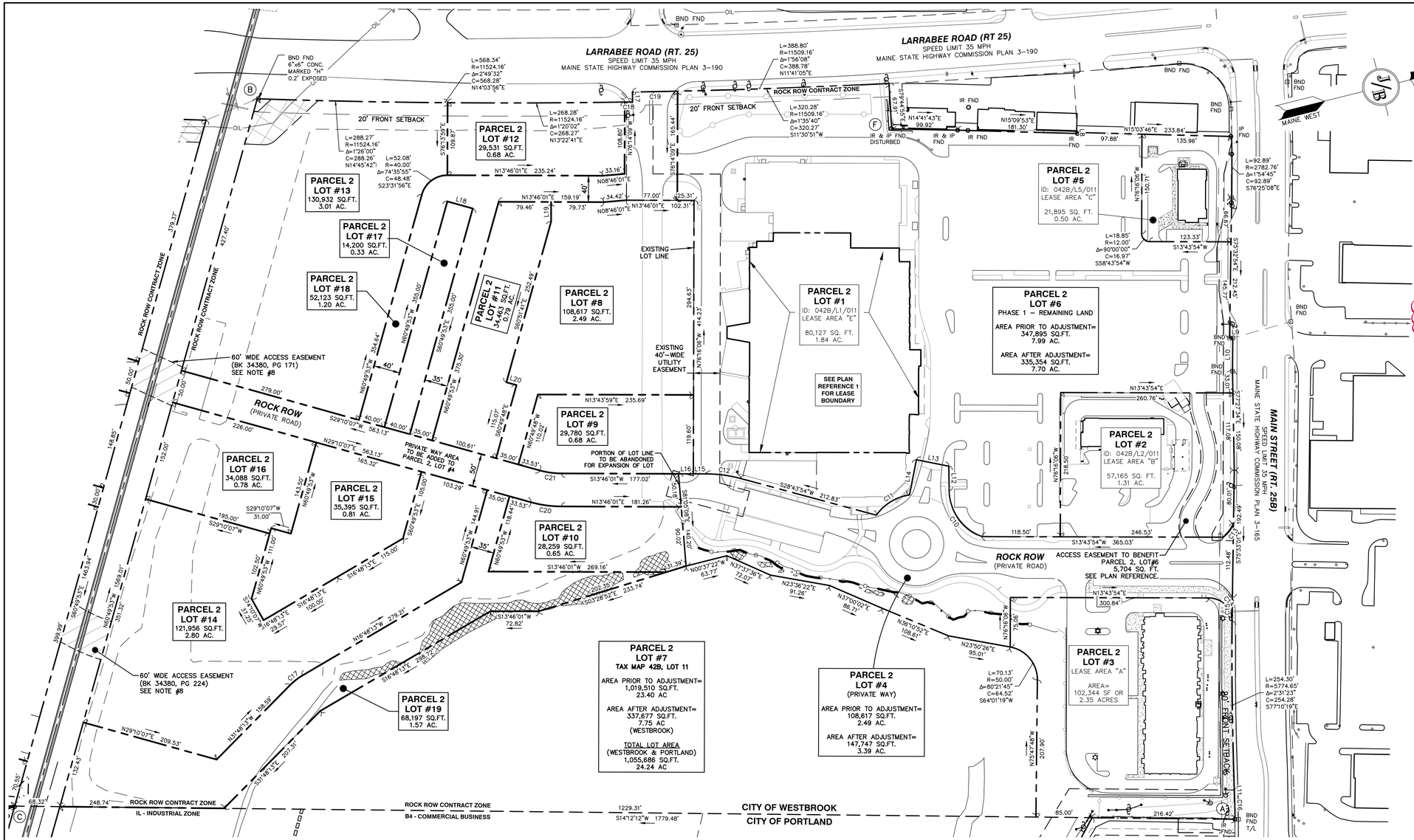
Current scope of services: identifying and delineating regulated wetlands; assessment of wetland functions and values; high intensity soil survey; environmental feasibility of development studies; on-site wastewater disposal feasibility studies; and project management.

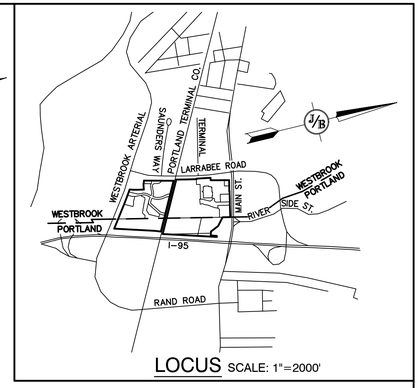
Section 11 - Plans

Attachment: Jones & Beach Amended Subdivision Plat

Section 12 – Drainage Analysis and Erosion and Sediment Control Plan

This Application covers the same Rock Row Phase 1 area previously reviewed and approved by the City of Portland under the City's standards, and the Applicant provided extensive erosion and sedimentation plans during those review processes. The Rock Row Phase 1 area also was approved by Maine DEP under a SLODA permit that reviews the overall Project's erosion impact. The State has approved the proposed sediment and erosion control plans. As the proposed Application is intended only to create lot line divisions to accommodate the buildings, improvements and infrastructure already reviewed and approved by the Planning Board, it will have no impact to the approved erosion & sediment control plans.





NOTES:

1. THE INTENT OF THIS PLAN IS TO SHOW THE AMENDED SUBDIVISION OF TAX MAP 42B, LOT 11 IN THE CITY OF WESTBROOK. THIS PROPOSAL CREATES TWELVE (12) NEW LOTS ON PARCEL 2 (LOTS #8 – #19). PARCEL 2, LOT #4 WILL BE ENLARGED AS PART OF THIS PROPOSAL. A PORTION OF PARCEL 2, LOT #6 NEAR THE PROJECT'S LARRABEE ROAD SITE ENTRANCE WILL BE COME PART OF THE NEW PARCEL 2, LOT #18.
2. THE UTILITY LOCATIONS SHOWN HEREON WERE DETERMINED BY OBSERVED ABOVE GROUND EVIDENCE AND SHOULD BE CONSIDERED APPROXIMATE IN LOCATION ONLY. LOCATION, DEPTH, SIZE, TYPE, EXISTENCE OR NONEXISTENCE OF UNDERGROUND UTILITIES AND/OR UNDERGROUND STORAGE TANKS WAS NOT VERIFIED BY THIS SURVEY. ALL CONTRACTORS SHOULD NOTIFY IN WRITING ALL UTILITY COMPANIES AND GOVERNMENT AGENCIES PRIOR TO ANY EXCAVATION WORK OR CALL DIG-SAFE AT 1-888-DIG-SAFE.
3. THE SUBJECT PROPERTY IN WESTBROOK IS LOCATED WITHIN FEDERALLY DESIGNATED ZONE "C" – AREAS OF MINIMAL FLOODING. REFERENCE FEMA COMMUNITY PANEL NOs. 230054 0006 B, DATED JANUARY 2, 1981; THE SUBJECT PROPERTY IN PORTLAND IS LOCATED WITHIN FEDERALLY DESIGNATED ZONE "X" (UNSHADED) – AREAS DETERMINED TO BE OUTSIDE 500 YEAR FLOOD PLAIN. REFERENCE FEMA COMMUNITY PANEL NOs. 230051 006 C, DATED DECEMBER 8, 1998; AND 230051 0012C, DATED DECEMBER 8, 1999.
4. BASIS OF BEARING: HORIZONTAL – MAINE STATE PLANE WEST ZONE. VERTICAL – NGVD29. BEARINGS SHOWN ON THIS PLAN WILL NOT MATCH PREVIOUSLY ISSUED PLANS BY THIS OFFICE. THE PROJECT DATUM WAS REVISED FROM ME2000 COORDINATES TO MAINE STATE PLANE IN APRIL 2023.
5. THE TAX MAP AND LOT NUMBERS ARE BASED ON ASSESSORS' INFORMATION FROM THE CITIES OF PORTLAND AND WESTBROOK, AND ARE SUBJECT TO CHANGE.
6. THIS SURVEY IS NOT A CERTIFICATION TO OWNERSHIP OR TITLE OF LANDS SHOWN. OWNERSHIP AND ENCUMBRANCES ARE MATTERS OF TITLE EXAMINATION NOT OF A BOUNDARY SURVEY. THE INTENT OF THIS PLAN IS TO RETRACE THE BOUNDARY LINES OF DEEDS REFERENCED HEREON. OWNERSHIP OF ADJOINING PROPERTIES IS ACCORDING TO ASSESSOR'S RECORDS. THIS PLAN MAY OR MAY NOT INDICATE ALL ENCUMBRANCES EXPRESSED, IMPLIED OR PRESCRIPTIVE.
7. ANY USE OF THIS PLAN AND OR ACCOMPANYING DESCRIPTIONS SHOULD BE DONE WITH LEGAL COUNSEL, TO BE CERTAIN THAT TITLES ARE CLEAR, THAT INFORMATION IS CURRENT, AND THAT ANY NECESSARY CERTIFICATES ARE IN PLACE FOR A PARTICULAR CONVEYANCE, OR OTHER USES.
8. THE EXISTING EASEMENTS IN PLACE FOR CROSSING LAND OF PORTLAND TERMINAL COMPANY WILL BE REVISED ON A SEPARATE PLAN.
9. FOLLOWING THE COMPLETION OF CONSTRUCTION ON THE NORTH CAMPUS, THE PROJECT SURVEYOR WILL SET MONUMENTS AT NECESSARY PROPERTY CORNERS.

DIMENSIONAL REQUIREMENTS

CITY OF WESTBROOK	
ZONING DISTRICT: ROCK ROW CONTRACT ZONE	REQUIRED
LOT AREA MINIMUM	N/A
MIN. FRONTAGE	N/A
BUILDING SETBACKS (MINIMUM):	
FROM MAIN STREET	20'
FROM LARRABEE ROAD	20'
FROM WESTBROOK ARTERIAL	20'
SIDE/REAR SETBACK	0'
FROM INTERNAL LOT LINES	0'
MAX. BUILDING HEIGHT	150' (12-STORIES)
MAX. FOOTPRINT	160,000
MAX. FOOTPRINT FACTOR (PHASE 1)	85%
MAX. GROSS DENSITY FACTOR (PHASE 1)	85%
MIN. LANDSCAPE FACTOR (PHASE 1)	15%
MAX. FOOTPRINT FACTOR (PHASE 2)	100%
MAX. GROSS DENSITY FACTOR (PHASE 2)	100%
MIN. LANDSCAPE FACTOR (PHASE 2)	N/A

CITY OF PORTLAND	
ZONING DISTRICT: INDUSTRIAL ZONE I-L	REQUIRED
LOT AREA MINIMUM	N/A
MIN. FRONTAGE	60'
BUILDING SETBACKS (MINIMUM):	
FRONT SETBACK	25'
SIDE/REAR SETBACK	25'
MAX. BUILDING HEIGHT	45'
MAX. IMPERVIOUS SURFACE	65%
MIN. PAVEMENT SETBACK	15'

ZONING DISTRICT: BUSINESS ZONE B-4	REQUIRED
LOT AREA MINIMUM	10,000 SQ.FT.
MIN. FRONTAGE	60'
BUILDING SETBACKS:	
MAX. FRONT SETBACK	20'
MIN. SIDE SETBACK	10' (5'-ACCESSORY)
MIN. REAR SETBACK	20' (7'-ACCESSORY)
MAX. BUILDING HEIGHT	65'
MAX. IMPERVIOUS SURFACE	80%

GENERAL LEGEND

- EXISTING PROPERTY LINES
- PROPOSED BOUNDARY LINES
- BOUNDARY LINES TO BE VACATED
- EXISTING ABUTTER LINES
- EXISTING EASEMENT
- SURVEY TIE LINES
- EXISTING EDGE OF PAVEMENT
- EXISTING STREAM
- FOUND IRON PIPE/IRON ROD
- FOUND CONCRETE BOUND
- EXISTING UTILITY POLE

PLAN REFERENCE:

"AMENDED SUBDIVISION PLAT, ROCK ROW, 80 MAIN STREET & 11 LARRABEE ROAD, WESTBROOK, ME." DATED AUGUST 13, 2019. PREPARED BY JONES & BEACH ENGINEERS, INC. C.C.R.D. PLAN BOOK 220 PAGES 67 & 68.

DEED REFERENCES:

BOOK 34161, PAGE 294
BOOK 34380, PAGE 164
BOOK 36192, PAGE 297
BOOK 36260, PAGE 301

CERTIFICATION:

I CERTIFY THAT THIS SURVEY PLAT CONFORMS TO THE STANDARDS OF PRACTICE OF THE MAINE BOARD OF LICENSURE FOR PROFESSIONAL LAND SURVEYORS, CHAPTER 90, PARTS 1 & 2, WITH THE FOLLOWING EXCEPTIONS: MONUMENTATION HAS NOT BEEN SET AT ALL CORNERS
A WRITTEN BOUNDARY REPORT HAS NOT BEEN ISSUED

MATTHEW J. SALVUCCI, PLS 2569 DATE:
ON BEHALF OF JONES & BEACH ENGINEERS, INC.

PROJECT PARCELS
CITY OF WESTBROOK TAX MAP 42B, LOTS 11 CITY OF PORTLAND PARCEL 264-A-2 (265-A-3) PARCEL 264-A-4 (265-A-5)
OWNER OF RECORD
DIRIGO CENTER DEVELOPERS, LLC c/o WATERSTONE PROPERTIES GROUP, INC 250 FIRST AVENUE, SUITE 202 NEEDHAM, MA 02494
TOTAL LOT AREA
2,455,416± SQ. FT. 56.37± ACRES

APPROVED - WESTBROOK, ME PLANNING BOARD	APPROVED - CITY OF PORTLAND PLANNING BOARD
DATE:	DATE:

Design: ISM	Draft: ISM	Date: 3/30/23	
Checked: MJS	Scale: AS NOTED	Project No.: 14110	
Drawing Name: 14110-SUBDIVISION_v4.dwg			

THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM JONES & BEACH ENGINEERS, INC. (JBE). ANY ALTERATIONS, AUTHORIZED OR OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO JBE.

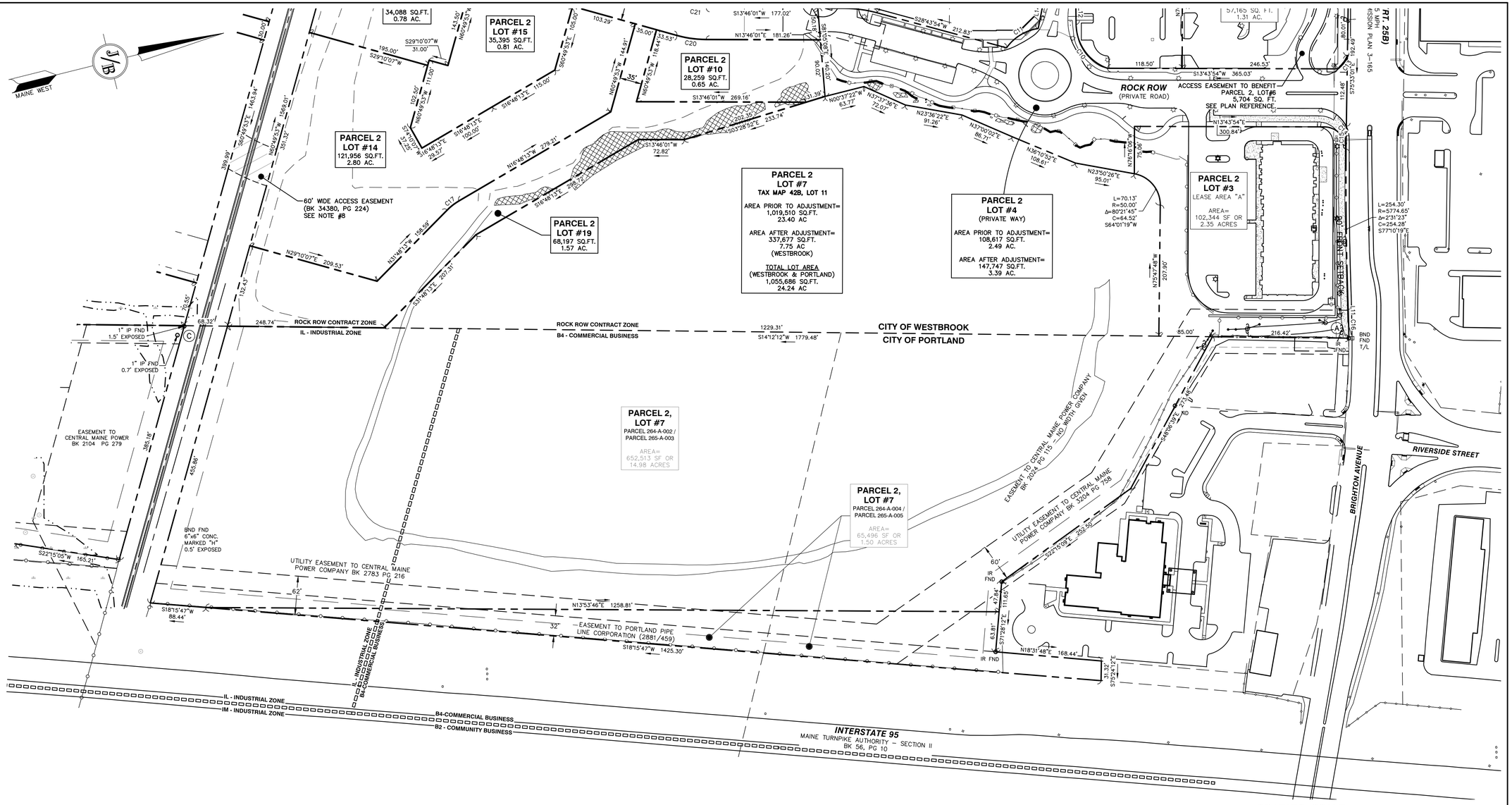
REV.	DATE	REVISION	BY
1	4/24/23	MINOR PLAN MODIFICATIONS	MJS
0	4/6/23	ISSUED FOR REVIEW	MJS

Jones & Beach Engineers, Inc.
85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885
Civil Engineering Services
603-772-4746
FAX: 603-772-0227
E-Mail: JBE@JONESANDBEACH.COM

Plan Name:	SECOND AMENDED SUBDIVISION PLAT
Project:	"ROCK ROW - SUBDIVISION" ROCK ROW & WESTBROOK ARTERIAL, WESTBROOK, ME
Owner of Record:	DIRIGO CENTER DEVELOPERS, LLC. c/o WATERSTONE PROPERTIES, LLC 250 FIRST AVENUE, SUITE 202, NEEDHAM, MA 02494

DRAWING No.
A7
SHEET 1 OF 2
JBE PROJECT NO. 14110

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CURVE	ARC LENGTH	RADIUS	DELTA ANGLE	CHORD BEARING	CHORD LENGTH
C1	13.78'	9.50'	83°07'25"	N25°22'41"W	12.61'
C2	42.27'	25.00'	96°52'35"	N64°37'19"E	37.41'
C3	12.57'	8.00'	90°00'00"	N28°48'59"W	11.31'
C4	18.06'	11.50'	90°00'00"	N61°11'01"E	16.26'
C5	50.09'	221.00'	12°59'06"	S22°40'34"W	49.98'
C6	38.75'	171.00'	12°59'06"	N22°40'34"E	38.67'
C7	48.73'	215.00'	12°59'06"	N67°19'26"W	48.62'
C8	47.93'	211.50'	12°59'06"	N67°19'26"W	47.83'
C9	17.28'	11.00'	90°00'00"	N74°10'07"E	15.56'
C10	91.01'	75.00'	69°31'24"	S67°59'30"W	85.52'
C11	60.48'	75.00'	46°12'16"	S17°49'07"E	58.86'
C12	52.24'	200.00'	14°57'53"	S21°14'58"W	52.09'
C13	26.83'	54.00'	28°28'18"	S40°07'40"E	26.56'
C14	55.20'	35.00'	90°21'29"	N58°54'39"E	49.65'
C15	36.30'	5774.65'	0°21'36"	S75°43'49"E	36.30'
C16	42.50'	1387.69'	1°45'17"	S77°33'22"E	42.49'
C17	23.69'	90.50'	15°00'00"	S24°18'13"E	23.63'
C18	11.79'	11524.16'	0°03'31"	N12°40'55"E	11.79'
C19	68.52'	11509.16'	0°20'28"	N12°28'55"E	68.52'
C20	47.04'	175.00'	15°24'05"	N21°28'04"E	46.90'
C21	33.60'	125.00'	15°24'05"	S21°28'04"W	33.50'

LINE	BEARING	DISTANCE
L1	N86°35'57"E	35.00'
L2	N26°44'30"E	56.75'
L3	N57°42'43"E	38.77'
L4	S86°36'37"E	40.16'
L5	S87°23'43"E	25.82'
L6	N78°59'24"W	25.71'
L7	S73°48'59"E	23.75'
L8	N79°49'50"W	1.45'
L9	N13°53'36"E	4.90'
L10	S75°53'16"E	50.23'
L11	S78°26'01"E	3.12'
L12	N77°14'47"W	37.16'
L13	S24°45'17"W	50.00'
L14	S65°14'43"E	54.29'
L15	S13°46'01"W	19.97'
L16	S13°46'01"W	22.45'
L17	N77°20'51"W	15.00'
L18	N29°10'07"E	40.00'
L19	S76°16'06"E	29.92'
L20	N29°10'12"E	15.91'

CERTIFICATION:

I CERTIFY THAT THIS SURVEY PLAT CONFORMS TO THE STANDARDS OF PRACTICE OF THE MAINE BOARD OF LICENSURE FOR PROFESSIONAL LAND SURVEYORS, CHAPTER 90, PARTS 1 & 2, WITH THE FOLLOWING EXCEPTIONS: MONUMENTATION HAS NOT BEEN SET AT ALL CORNERS A WRITTEN BOUNDARY REPORT HAS NOT BEEN ISSUED

MATTHEW J. SALVUCCI, PLS 2569 DATE:
ON BEHALF OF JONES & BEACH ENGINEERS, INC.

GENERAL LEGEND

- EXISTING PROPERTY LINES
- PROPOSED BOUNDARY LINES
- BOUNDARY LINES TO BE VACATED
- EXISTING ABUTTER LINES
- EXISTING EASEMENT
- SURVEY TIE LINES
- EXISTING EDGE OF PAVEMENT
- EXISTING STREAM
- FOUND IRON PIPE/IRON ROD
- FOUND CONCRETE BOUND
- EXISTING UTILITY POLE

PROJECT PARCELS

CITY OF WESTBROOK
TAX MAP 42B, LOTS 11

CITY OF PORTLAND
PARCEL 264-A-2 (265-A-3)
PARCEL 264-A-4 (265-A-5)

OWNER OF RECORD

DIRIGO CENTER DEVELOPERS, LLC
c/o WATERSTONE PROPERTIES GROUP, INC
250 FIRST AVENUE, SUITE 202
NEEDHAM, MA 02494

TOTAL LOT AREA

2,455,416± SQ. FT.
56.37± ACRES

APPROVED - WESTBROOK, ME PLANNING BOARD

DATE:

APPROVED - CITY OF PORTLAND PLANNING BOARD

DATE:

Design: ISM	Draft: ISM	Date: 3/30/23
Checked: MJS	Scale: AS NOTED	Project No.: 14110
Drawing Name: 14110-SUBDIVISION_v4.dwg		

THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM JONES & BEACH ENGINEERS, INC. (JBE). ANY ALTERATIONS, AUTHORIZED OR OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO JBE.

REV.	DATE	REVISION	BY
1	4/24/23	MINOR PLAN MODIFICATIONS	MJS
0	4/6/23	ISSUED FOR REVIEW	MJS

Jones & Beach Engineers, Inc.
Civil Engineering Services
85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885
603-772-4746
FAX: 603-772-0227
E-Mail: JBE@JONESANDBEACH.COM

Plan Name:	SECOND AMENDED SUBDIVISION PLAT
Project:	"ROCK ROW - SUBDIVISION" ROCK ROW & WESTBROOK ARTERIAL, WESTBROOK, ME
Owner of Record:	DIRIGO CENTER DEVELOPERS, LLC. c/o WATERSTONE PROPERTIES, LLC 250 FIRST AVENUE, SUITE 202, NEEDHAM, MA 02494

DRAWING No.
A8
SHEET 2 OF 2
JBE PROJECT NO. 14110

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CERTIFICATION:

I CERTIFY THAT THIS SURVEY PLAT CONFORMS TO THE STANDARDS OF PRACTICE OF THE MAINE BOARD OF LICENSURE FOR PROFESSIONAL LAND SURVEYORS, CHAPTER 90, PARTS 1 & 2, WITH THE FOLLOWING EXCEPTIONS: MONUMENTATION HAS NOT BEEN SET AT ALL CORNERS
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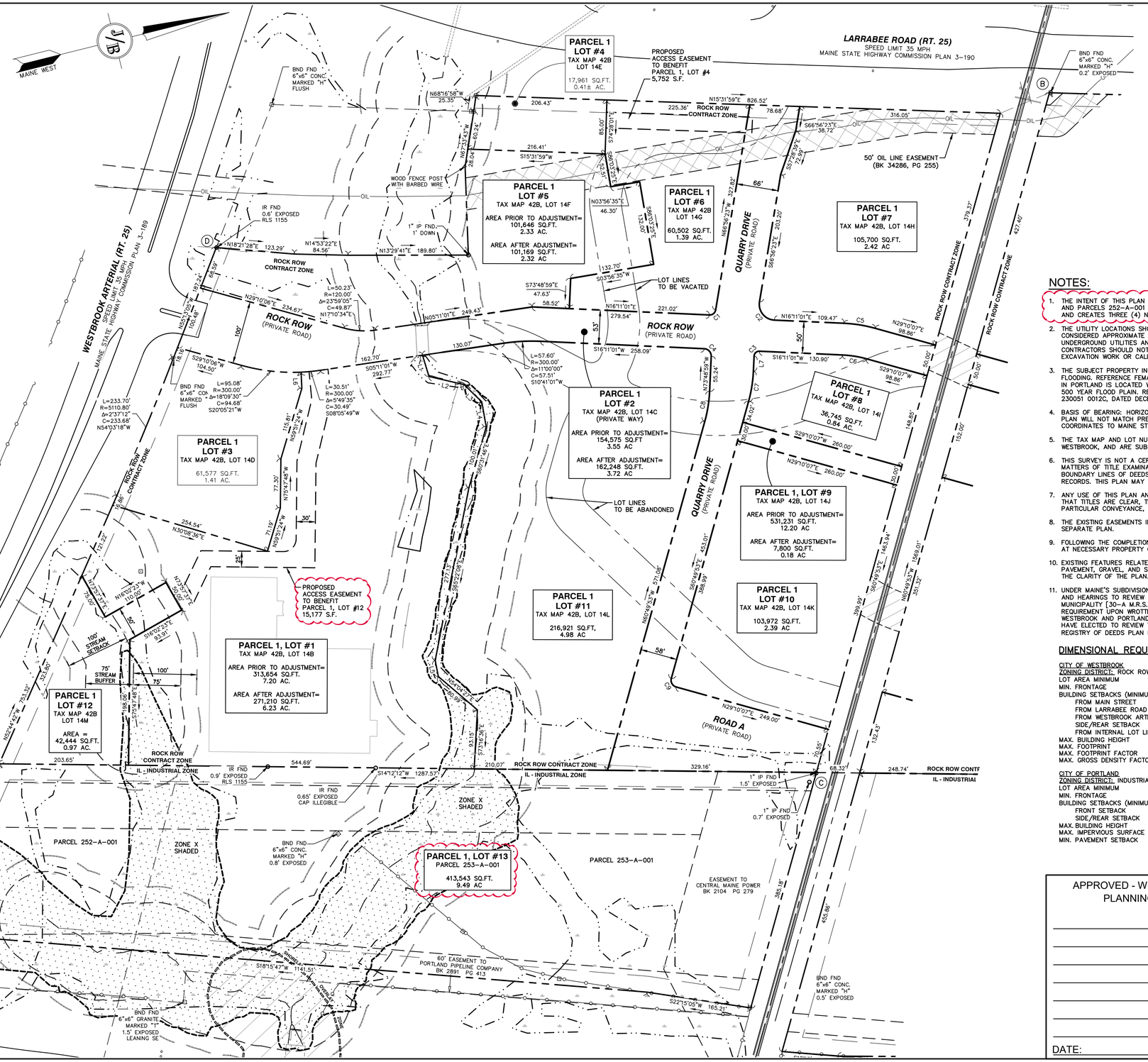
MATTHEW J. SALVUCCI, PLS 2569 DATE:
ON BEHALF OF JONES & BEACH ENGINEERS, INC.

LEGEND

EXISTING	DESCRIPTION
	PROPERTY LINES
	SETBACK LINES
	FRESHWATER WETLANDS LINE
	STREAM CHANNEL
	FENCE
	FLOOD PLAIN LINE
	ZONELINE
	EASEMENT
	IRON PIPE/IRON ROD
	DRILL HOLE
	STONE/GRANITE BOUND
	FRESHWATER WETLANDS

DETAIL "C"
NOT TO SCALE

DETAIL "D"
NOT TO SCALE


MAINE WEST
WESTBROOK ARTERIAL (RT. 25)
MAINE STATE HIGHWAY COMMISSION PLAN 3-189
SPEED LIMIT 35 MPH
LARRABEE ROAD (RT. 25)
SPEED LIMIT 35 MPH
MAINE STATE HIGHWAY COMMISSION PLAN 3-190
PARCEL 1 LOT #4
TAX MAP 42B LOT 14E
17,961 SQ.FT. 0.41± AC.
PROPOSED ACCESS EASEMENT TO BENEFIT PARCEL 1, LOT #4 5,752 S.F.
PARCEL 1 LOT #5
TAX MAP 42B, LOT 14F
AREA PRIOR TO ADJUSTMENT= 101,646 SQ.FT. 2.33 AC.
AREA AFTER ADJUSTMENT= 101,169 SQ.FT. 2.32 AC
PARCEL 1 LOT #6
TAX MAP 42B LOT 14G
60,502 SQ.FT. 1.39 AC.
PARCEL 1 LOT #7
TAX MAP 42B, LOT 14H
105,700 SQ.FT. 2.42 AC
PARCEL 1 LOT #8
TAX MAP 42B, LOT 14I
36,745 SQ.FT. 0.84 AC.
PARCEL 1, LOT #9
TAX MAP 42B, LOT 14J
AREA PRIOR TO ADJUSTMENT= 531,231 SQ.FT. 12.20 AC
AREA AFTER ADJUSTMENT= 7,800 SQ.FT. 0.18 AC
PARCEL 1 LOT #10
TAX MAP 42B, LOT 14K
103,972 SQ.FT. 2.39 AC
PARCEL 1 LOT #11
TAX MAP 42B, LOT 14L
216,921 SQ.FT. 4.98 AC
PARCEL 1 LOT #2
TAX MAP 42B, LOT 14C
(PRIVATE WAY)
AREA PRIOR TO ADJUSTMENT= 154,575 SQ.FT 3.55 AC
AREA AFTER ADJUSTMENT= 162,248 SQ.FT. 3.72 AC
PARCEL 1 LOT #3
TAX MAP 42B, LOT 14D
61,577 SQ.FT. 1.41 AC.
PARCEL 1 LOT #12
TAX MAP 42B LOT 14M
AREA = 42,444 SQ.FT. 0.97 AC.
PARCEL 1, LOT #1
TAX MAP 42B, LOT 14B
AREA PRIOR TO ADJUSTMENT= 313,654 SQ.FT. 7.20 AC.
AREA AFTER ADJUSTMENT= 271,210 SQ.FT. 6.23 AC.
PROPOSED ACCESS EASEMENT TO BENEFIT PARCEL 1, LOT #12 15,177 S.F.
PARCEL 1, LOT #13
PARCEL 253-A-001
413,543 SQ.FT. 9.49 AC
ROCK ROW (PRIVATE ROAD)
ROCK ROW CONTRACT ZONE
QUARRY DRIVE (PRIVATE ROAD)
ROAD A (PRIVATE ROAD)
LOT LINES TO BE VACATED
LOT LINES TO BE ABANDONED
50' OIL LINE EASEMENT (BK 34286, PG 255)
CITY OF WESTBROOK
CITY OF PORTLAND
IL - INDUSTRIAL ZONE
ZONE X SHADED
PARCEL 252-A-001
PARCEL 253-A-001
EASEMENT TO CENTRAL MAINE POWER BK 2104 PG 279
60' EASEMENT TO PORTLAND PIPELINE COMPANY BK 2891 PG 413
BROOK
BND FND 6"x6" CONC. MARKED "H" FLUSH
BND FND 6"x6" CONC. MARKED "H" 0.2' EXPOSED
BND FND 6"x6" CONC. MARKED "H" 0.8' EXPOSED
BND FND 6"x6" GRANITE MARKED "I" 1.5' EXPOSED LEANING SE
BND FND 6"x6" CONC. MARKED "H" 0.5' EXPOSED
IR FND 0.6' EXPOSED RLS 1155
IR FND 0.9' EXPOSED RLS 1155
IR FND 0.65' EXPOSED CAP ILLEGIBLE
1" IP FND 1" DOWN
1" IP FND 1.5' EXPOSED
1" IP FND 0.7' EXPOSED
WOOD FENCE POST WITH BARBED WIRE
OIL
N68°16'58"W 25.35'
206.43'
N15°31'59"E 826.52'
225.36' ROCK ROW CONTRACT ZONE
78.68'
S66°56'23"E 38.72'
316.05'
S74°28'01"E 85.00'
S15°31'59"W 216.41'
N67°31'41"E 60.24'
28.04'
S74°28'01"E 30.00'
S37°28'39"E 72.99'
66'
N03°56'35"E 46.30'
327.82'
N68°26'23"W 203.20'
S03°56'35"W 132.70'
S73°48'59"E 47.63'
58.52'
N16°11'01"E 279.54'
221.02'
N05°11'01"E 249.43'
S16°11'01"W 258.09'
130.07'
L=57.60' R=300.00' Δ=11°00'00" C=57.51' S10°41'01"W
N16°11'01"E 109.47'
C5
N29°10'07"E 98.86'
S16°11'01"W 130.90'
C6
S29°10'07"W 98.86'
N29°10'07"E 260.00'
S29°10'07"W 260.00'
N18°21'28"E 123.29'
N14°53'22"E 84.56'
N13°29'41"E 189.80'
N29°10'06"E 234.67'
L=50.23' R=120.00' Δ=23°59'05" C=49.87' N17°10'34"E
N05°11'01"E 100.48'
S29°10'06"W 104.50'
L=95.08' R=300.00' Δ=18°09'30" C=94.68' S20°05'21"W
BND FND 6"x6" CONC. MARKED "H" FLUSH
L=30.51' R=300.00' Δ=5°49'35" C=30.49' S08°05'49"W
L=233.70' R=5110.80' Δ=2°37'12" C=233.68' N54°03'18"W
N25°25'24"W 115.61'
N75°47'48"W 77.30'
N09°53'24"W 71.19'
254.54' N30°08'36"E
N16°02'23"W 75.00'
N73°57'37"E 50.00'
S16°02'23"E 93.91'
100' STREAM SETBACK
75' STREAM BUFFER
100'
75'
50'
30'
N52°14'42"W 253.32'
333.66'
S79°47'48"E 198.06'
N10°04'22"E 83.15'
S73°16'36"E
544.69'
S14°12'12"W 1287.57'
210.07'
329.16'
68.32'
248.74'
391.44'
385.18'
455.86'
N29°10'07"E 249.00'
132.43'
379.37'
427.40'
155.66'
148.85'
100.00'
50.00'
34.02'
50.00'
50'
53'
58'
S22°15'05"W 165.21'
S18°15'47"W 1141.51'
N60°49'53"E 463.94'
N60°49'53"E 1589.01'
N60°49'53"E 351.32'
N60°49'53"E 399.99'
N60°49'53"E 453.01'
N60°49'53"E 388.99'
N60°49'53"E 671.08'
N68°22'08"E 100.07'
S68°22'08"E 100.07'
S68°22'08"E 100.07'
N68°22'08"E 100.07