CITY OF PORTLAND, MAINE
PLANNING BOARD



Maggie Stanley, Chair
Brandon Mazer, Vice Chair
Marpheen Chann
Sean Dundon
Bob Dunfey
David Silk
Austin Smith

AGENDA
PORTLAND PLANNING BOARD MEETING

The Planning Board will hold a remote meeting on Tuesday, January 25, 2022, 4:30 p.m. *This meeting will be held remotely pursuant to the Remote Meeting Policy adopted by the Planning Board and as authorized under 1 M.R.S. 403-B because of the existence of an emergency or urgent issue that requires the committee to meet by remote methods.*

Public comments will be taken for each item on the agenda during the allotted time and written comments should be submitted to planningboard@portlandmaine.gov. Please note that the placement of this item on the agenda is subject to change. Please check the Agenda & Minutes Center prior to the meeting for the item's approximate start time.

When participating via Zoom, allow your computer to install the free Zoom app to get the best meeting experience. If you are not able to attend live, a recording will be available following the meeting.

*For public comment, you will need to use the "raise your hand" feature. To raise your hand via the telephone, please hit *9. You will be unmuted by the host when it is time for public comment.* For more information on how to use Zoom, please go to: https://www.portlandmaine.gov/remotePUD

ZOOM MEETING INSTRUCTIONS
You are invited to a Zoom webinar.
When: Jan 25, 2022 04:30 PM Eastern Time (US and Canada)
Topic: Planning Board Workshop and Public Hearing 1/25/2022

Please click the link below to join the webinar:
https://us02web.zoom.us/j/82535526503
Or One tap mobile :
US: +13126266799,,82535526503# or +19292056099,,82535526503#
Or Telephone:
Dial(for higher quality, dial a number based on your current location):
US: +1 312 626 6799 or +1 929 205 6099 or +1 301 715 8592 or +1 346 248 7799 or +1 669 900 6833 or +1 253 215 8782
Webinar ID: 825 3552 6503
International numbers available: https://us02web.zoom.us/u/kbu1vWyG4

WORKSHOP - 4:30 PM

i. Munjoy Hill Neighborhood Conservation Overlay District (estimated time 4:30 – 6:00 p.m.)The Planning Board will hold a workshop to discuss the Munjoy Hill Neighborhood Conservation Overlay District (MHNCOD). This workshop is an opportunity for Planning Department staff to present development trends in the MHNCOD since adoption in 2018 and share how the MHNCOD interacts with the Munjoy Hill Historic District and base R-6 zoning regulations in an informal session that is open to the public.

ii. Zoning Map and Text Amendment; 716 Stevens Avenue; University of New England, Applicant. (estimated tine 6:00 – 7:00 p.m.) The Planning Board will hold a remote workshop to discuss the creation of an Institutional Development Plan (IDP) and Institutional Overlay Zone (IOZ) for the University of New England's Portland campus. A total of 36 properties are located within the

proposed IOZ area, which is currently zoned R-3 and R-5 Residential as well as I-H High Impact Industrial.

PUBLIC HEARING - 7:00 PM

1. ROLL CALL AND DECLARATION OF QUORUM

2. COMMUNICATION AND REPORTS

3. REPORT OF ATTENDANCE AT THE MEETING HELD ON JANUARY 11, 2022

Afternoon Workshop
ReCode Update: All present.

Evening Hearing
Officer Elections: All Present.
33 McAlister Farm Road: All Present.
50 Bedford Street: All Present.
35 Commercial Street: Chann, Dundon, Dunfey, Mazer, Silk, Stanley present; Smith recused.

4. REPORTS OF DECISIONS AT THE MEETING HELD ON JANUARY 11, 2022

i. Planning Board Officer Elections.
Silk moved and Chann seconded a motion to nominate Brandon Mazer as Vice Chair and Maggie Stanley as Chair, effective at the next regular meeting of the Board. Vote 5-0, Mazer, Stanley abstained.

ii. Subdivision; 33 McAlister Farm Road; PK Real Estate, LLC., Applicant. Dunfey moved and Dundon seconded a motion to table the application until the March 8, 2022 meeting. Vote 7-0.

iii. Major Site Plan; 50 (44) Bedford Street; University of Southern Maine, Applicant. Stanley moved and Dunfey seconded a motion to waive Technical Manual Section 12.3.5, Luminaire Types, to allow fixtures to exceed to the 3,000K Correlated Color Temperature standard. Vote 7-0. Stanley moved and Dunfey seconded a motion to waive Technical Manual Section 1.17, Electric Vehicle Infrastructure, which requires electrical outlets or installed chargers capable of providing Level 2 EV charging or higher for 20% of parking spaces, in order to allow EV charging stations to be provided for 11.5% of parking spaces given that the applicant is providing a substantial number of EV chargers capable of handling current and future demand, proposes to install sufficient capacity for expansion, and also proposes data collection via an addendum to the TDM. Vote 7-0. Stanley moved and Dunfey seconded a motion to find the plan consistent with the site plan and site location of development standards of the Land Use Code. Vote 7-0. Stanley moved and Dunfey seconded a motion to approve the Traffic Movement Permit with six conditions of approval. Vote 7-0.

iv. Zoning Text Amendment; 35 Commercial Street; Maine Public Broadcasting Corporation, Applicant. Stanley moved and Dunfey seconded a motion to find the text amendments consistent with the Comprehensive Plan and recommended their adoption to the City Council. Vote 6-0, Smith recused.

5. NEW BUSINESS

i. Major Site Plan, Master Development Plan Amendment; 65 McAuley Way; DC Baxter Woods IV LLC, Applicant. (estimated time 7:00 – 8:00 p.m.) The Planning Board will hold a remote public hearing to consider an application for Phase 2 of Stevens Square, including 140 multifamily dwelling units to be housed within four new five-story buildings totaling 201,640 square feet of floor area, along with associated site improvements. The subject property, located at 65 McAuley Way, is 7.05 acres in size and is zoned R-5 and R-5a Residential.

ii. Level III Site Plan; 477-481 Congress Street; TT Maine Venture, LLC., Applicant. (estimated time 8:00 p.m.) The Planning Board will hold a remote public hearing to consider a proposal for a change of use at 477-481 Congress Street and 22 Preble Street to include a 196-room hotel, 4,700 square feet of ground floor retail, and a 2,260 square foot restaurant. The structures to be renovated include the 14-story Time and Temperature Building and comprise 202,000 gross square feet in floor area sited on parcels totaling 78,680 square feet in size. The

subject parcels are zoned B-3 Downtown Business and are in the Congress Street Historic District.

CITY OF PORTLAND
Planning & Urban Development
Christine Grimando, AICP, Director

To: Chair Stanley and members of the Portland Planning Board

From: Christine Grimando, Director, Planning & Urban Development Department
Kevin Kraft, Deputy Director, Planning & Urban Development Department

Date: January 21, 2022

RE: Overview of the Munjoy Hill Neighborhood Conservation Overlay

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I. INTRODUCTION

In 2020, during the course of their review of the Munjoy Hill Historic District, the Planning Board requested that the Munjoy Hill Neighborhood Conservation Overlay District (Sec. 8.7 of the City's Land Use Code, and to be referred to as the overlay below), be brought back to the Board for review for potential elimination or revisions. Below is an overview of the overlay, including background on its impetus, how it relates to the base R-6 zone as well as to the Munjoy Hill Historic District. The January workshop does not include proposed amendments, but the below overview concludes with potential changes to the overlay for the Board to consider.

II. PRIOR PLANNING EFFORTS AND MILESTONES

In 2017 a planning initiative began in response to residents' concerns about the scale and character of recent development as well as concern about the number of buildings demolished in the Munjoy Hill neighborhood. On December 4, 2017, to provide time to study and manage the issue, the City Council adopted a moratorium that placed a 180-day pause during which no demolition applications were to be accepted and a 65-day period, during which no development applications were to be accepted, reviewed, or approved. The moratorium further stated that the Department of Planning and Urban Development conduct an analysis of the impacts and effectiveness of then-current zoning and design review standards and develop an interim ordinance to govern development in the R-6 zone on Munjoy Hill for the remaining days of the moratorium.

In response to the moratorium, Planning developed and the Council adopted an Interim Planning Overlay District (IPOD) that continued to prohibit demolitions, but created interim

controls for new development applications in the neighborhood. This IPOD formed the basis of the current overlay district.

In June 2018, the IPOD was replaced and the current overlay district was adopted. The adopted map and text amendments created the overlay district and implemented new dimensional, design, and performance standards related to new construction and demolitions to better manage development in Munjoy Hill. The boundary included all properties in the R-6 zoning district in an area east of Washington Avenue and Mountfort Street, north of Fore Street, and west of the Eastern Promenade.

In 2018, the possibility of the creation of a historic district for a portion of Munjoy Hill was also raised, but due to the need for research and supporting materials for the creation of a district, this was always understood to be a consideration on a different time frame from implementation of the overlay. After an extensive public process, and review by the Historic Preservation Board and the Planning Board, the City Council adopted the Munjoy Hill Historic District on April 12, 2021. The boundaries of the historic district encompass portions of Munjoy Hill that exhibited the strongest concentration of historic structures that retained a sufficient degree of integrity, not the entire neighborhood. In addition to the district itself, five historic structures outside of the boundaries of the historic district were designated as individual landmarks. These include 101-107 Congress Street, 7 Lafayette Street, 8-12 Montreal Street, 51 Monument Street and 28 Waterville Street. Below is a map showing the boundaries of the adopted historic district.

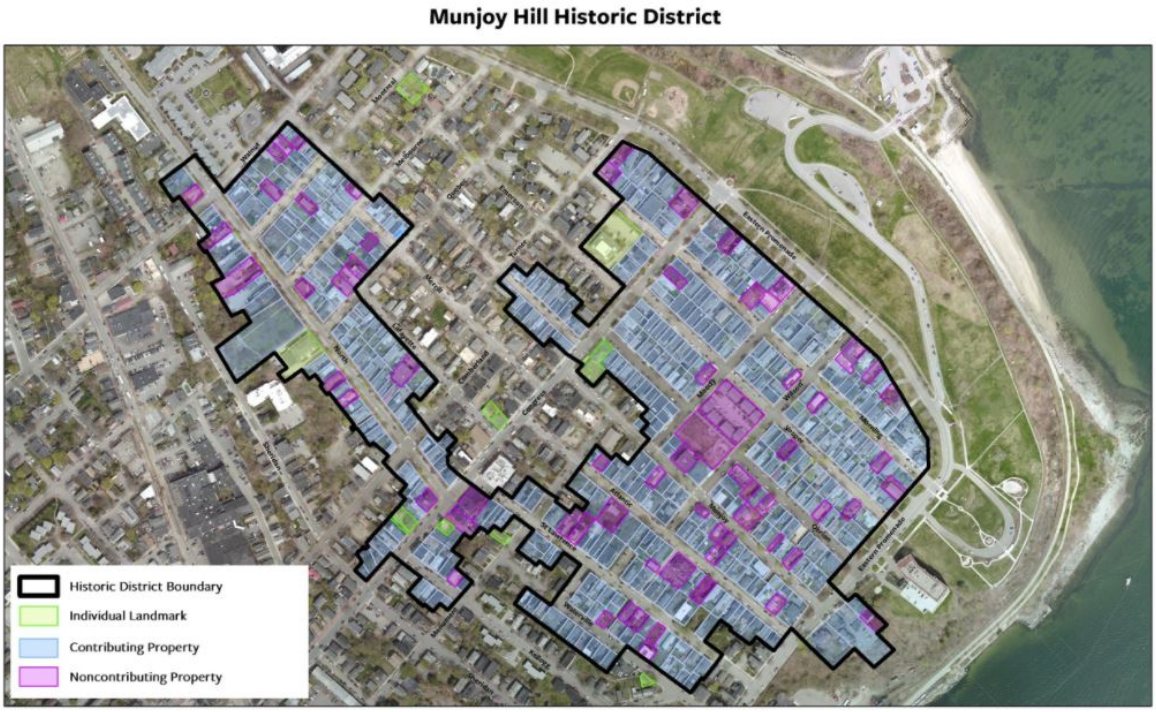


Figure 1: Munjoy Hill Historic District & Designated Landmarks

III. EXISTING CONTEXT

The Munjoy Hill neighborhood is characterized by a mix of residential building types, including single-family, two-family, and multi-family buildings, including triple decker and some larger multi-family elevator buildings. Building heights generally range from one-to-four stories. There are two larger scale residential buildings within the overlay: the Promenade Towers Condominiums and the Portland House. Built in 1975, the Promenade Towers Condominiums are located in the northern portion of the overlay at the corner of Walnut Street and the Eastern Promenade and rises up to approximately 13 stories. Built in 1969, The Portland House is located in the southern portion of the overlay along Fore Street and rises up to approximately 12 stories. Neither of these two larger buildings could be constructed under current zoning regulations.

IV. SUMMARY OF OVERLAY ELEMENTS

The overlay contains standards for building form and dimensional requirements for new construction, with specific standards for maximum building height, roof forms, setbacks, parking placement, rooftop appurtenances, and front façade standards that vary from the base R-6 requirements.

Comparison of Overlay and Base R-6 Zone

In addition to the standards that are applicable to properties in the R-6 zone, all properties within the overlay district shall meet the standards of Section 8.7 of the Land Use Code. Where the overlay district imposes a standard that differs from the base R-6 zone the overlay district standards shall control. The R-6 and overlay district dimensional standards are described in Table 7-A and Table 8-E of the Land Use Code, respectively and a comparison of the two zones is provided below.

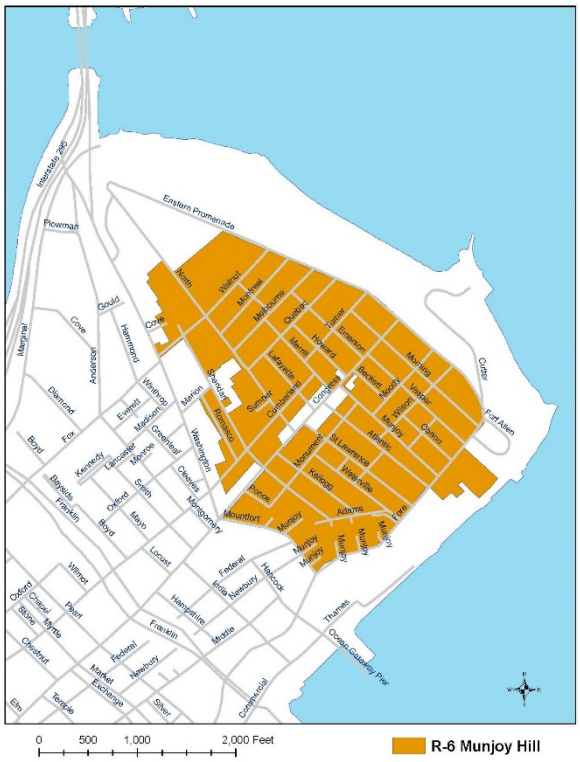


Figure 2 Munjoy Hill Conservation Overlay District

Standard	*Base R-6*	*Munjoy Hill Neighborhood Conservation Overlay District Requirements*
Minimum Lot Area (residential)	2,000 SF	Same as base R-6 standards
Lot Area Per Dwelling Unit (min.)	725 SF	Same as base R-6 standards

Street frontage (min.)	20 ft.	Same as base R-6 standards
Minimum Street Frontage	20 ft.	Same as base R-6 standards
Lot Width (min.)	20 ft.	Same as base R-6 standards
Maximum Structure Height	45 ft.	35 ft.; or 45 ft. for buildings with 3 or more units on lots over 2,000 SF that include at least one workforce housing unit.
Minimum Front Setback	5 ft.	5 feet or the minimum depth of immediately abutting street-facing yard, whichever is less.
Minimum Rear Yard Setback	10 ft.	Buildings up to 35 ft. in height: 10 ft.
		Buildings over 35 ft. in height: 15 ft.
		As measured from rear decks, porches, or similar unenclosed space: 7.5 ft.
		As measured from accessory structures with a ground coverage of 250 SF or less: 5 ft.
Side Yard Setback Minimum	5 ft.	Buildings up to 35 ft. in height: Per underlying zoning
		Buildings over 35 ft. in height: 10 ft. for all side yards, except that a side yard no less than 5 ft. is permitted when used to continue a documented built pattern of the surrounding streetscape, in which case a proportional increase in another side yard must be provided.
Side setback on side street (min.)	none	5 ft. or the minimum depth of the immediately abutting street-facing yard, whichever is less.
		None when demonstrated that reduced setbacks are necessary to facilitate the provision of underground parking.
Structure Stepbacks	Above 35 ft. when property line abuts a residential zone: 10 ft. from side property line and 15 ft. from rear property line.	none
Maximum Lot Coverage	60%	Same as base R-6 standards

Minimum Landscaped Open Area	20%	Same as base R-6 standards
Width of garage opening on front façade (max.)	9 ft. or 40% of the front façade, whichever is greater, and in no case more than 20 ft.	Lots smaller than 2,000 SF, shall be permitted one garage door on the front façade 9 ft. or no wider than 30% of the building width.

Height:

Under the base R-6 zoning regulations, the maximum building height is 45 feet, and in the case of lots where the property line abuts a residential zone, buildings above 35 feet are required to stepback 10 feet from side property lines and 15 feet from the rear property line. For buildings located in the overlay, the maximum permitted building height is up to 35 feet, or 45 feet for buildings with three or more units on lots over 2,000 square feet that include at least one workforce housing unit on-site. Unlike the base R-6 requirements buildings above 35 feet are not required to provide a stepback. The two-tiered height standard in the overlay was implemented to encourage greater residential development in taller buildings, and also in recognition of historic development patterns, where buildings above 35 feet were most often associated with multi-family buildings, with single- and two-family buildings more often occurring in smaller buildings. The addition of the on-site workforce housing unit requirement for 45 foot buildings was an addition made by the City Council before they adopted the overlay, and was intended to compel mixed-income developments beyond and in addition to the City's Inclusionary Zoning requirements.

Rooftop Appurtenances:

Within the overlay rooftop appurtenances other than chimneys are restricted from exceeding permitted building heights, except that HVAC equipment is permitted up to five feet above maximum heights if adequately screened, set back from the building edge, and integrated into the building design, and not visible from the public right-of-way. Alternative energy equipment, such as that used for wind or solar energy generation, is also permitted as regulated elsewhere in the Land Use Code.

In contrast to the overlay district, within the base R-6 zone rooftop appurtenances may be erected above the height limitations.

Roof Forms:

The overlay includes requirements for simple, traditional roof forms, as show in Figure 3, which illustrates roof form permitted for buildings up to 35 feet in height. Flat roofs are also permitted for buildings above 35 feet in height.

While the R-6 zone does not include requirements for simple, traditional roof forms in the zoning, the R-6 Design Standards require roofs to refer to the architectural forms found within a two-block radius of the site. In addition, the R-6 Design Standards specify that gable roofs be symmetrical with a pitch between 7:12 and 12:12 and that hip roofs with a shallow pitch and flat roofs have a cornice of at least 12 inches. There are avenues for applicants for new buildings in the R-6 to pursue in the event a different roof form or alternative style is desired; the overlay creates a more prescriptive standard for roof types than in the base

zone, in an effort to require designs more in keeping with the architectural styles that historically comprised much of the Munjoy Hill neighborhood.

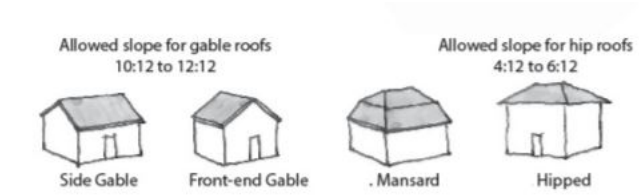


FIGURE 8-F: ROOF FORMS

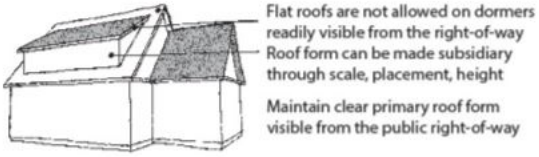


FIGURE 8-G: DORMERS AND SUBSIDIARY ROOFS

Figure 3 Munjoy Hill Conservation District Roof Forms

Front Façade & Parking Placement:

Within the overlay front façade standards require the first floor to contain active living space, such as a living room or bedroom, with windows for at least 50 percent of the width of the front façade in total. The overlay standards require parking to be located on the side or the rear of a building and not within the front 10 feet of depth of the building and tandem parking spaces are encouraged, which is consistent with the built form of the neighborhood.

While the R-6 base zone standards are less prescriptive then the overlay regulations related to front façade and parking placement, the R-6 Design Standards include provisions related to composition of principal facades, relationship to street, garages, and fenestration that encourage building designs that will contribute to and be compatible with the predominant character-defining architectural features of the neighborhood.

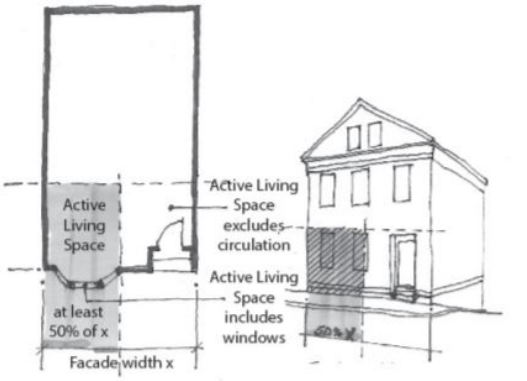


FIGURE 8-H: FRONT FACADE - ACTIVE LIVING SPACE

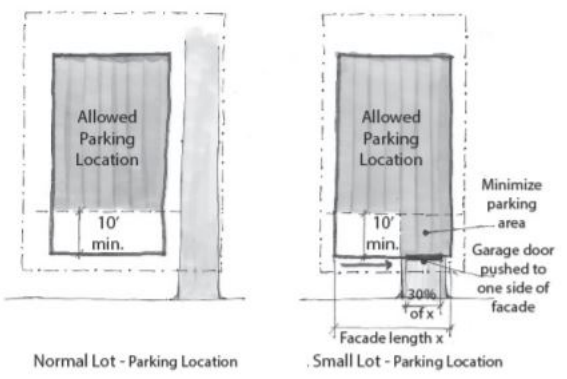


FIGURE 8-I: PARKING LOCATIONS

Figure 4: Munjoy Hill Front Facade & Parking Location Diagrams

Alternative Design Review:

For sites located within the R-6 zone a property owner may propose an alternative design approach and request an Alternative Review Design Certificate. The Alternative Design Review process is intended to allow for flexibility when a property owner desires a more contemporary design or incorporates social or environmental public benefits as part of a project, including the provision of sustainable design, affordable housing units or green technology, and does not meet the R-6 zone's base design standards in Appendix 7 of the *City of Portland Design Manual*. In the case of the overlay, under this process, the Historic Preservation Board is charged with conducting the review. If the Alternative Design Review is not approved, an applicant is able to move forward with a project under the base R-6 design manual standards. Munjoy Hill is the only neighborhood in which the Alternative Design Review authority is under the jurisdiction of the Historic Preservation Board.

Demolition Review

In addition to the dimensional and design standards for new construction, a central component of the overlay includes demolition review standards for existing structures. Under the demolition provisions, applications to demolish existing structures determined by the Planning Authority to be "preferably preserved" within the overlay are subject to a delay of up to 12 months in order to consider alternatives to demolition. A building will be considered Preferably Preserved provided: it was constructed prior to 1930; it is representative of a building type and/or architectural style that contributes to the identifiable historic visual character of Munjoy Hill; it retains sufficient integrity of design, materials, condition, and craftsmanship that adaptive reuse is a viable option.

The demolition review is a delay and not a prohibition on demolition, and the delay period can be reduced if the applicant elects to have their new construction proposal reviewed by the Historic Preservation Board and the Board finds that the design proposal meets the historic preservation ordinance's new construction standards. In that case, the stay is lifted and the preferably preserved building can be demolished and replaced before the end of the 12 month delay. Alternatively, the applicant can wait and move forward with demolition after the 12-month stay. The ordinance also makes allowances for natural disaster or safety hazards. The delay is only applicable to buildings not in a historic district or not designated a landmark. The delay is intended to encourage alternatives to demolition of "preferably preserved" buildings.

V. RELATIONSHIP OF OVERLAY TO HISTORIC DISTRICT

The Munjoy Hill Historic District is comprised of 427 parcels within the larger Munjoy Hill neighborhood, representing approximately 49 percent of Munjoy Hill's building stock. The majority of these properties are located within the R-6 residential zone and the overlay district. The remaining 51 percent of Munjoy Hill's building stock is outside the boundaries of the Historic District. Furthermore, there are 262 parcels that are within 100 feet of the Historic District(s), and designated landmarks, and landscapes.

All of the standards of the overlay are applicable in the historic district, with the exception of the demolition delay provisions. The historic preservation ordinance governs demolition within districts. Districts themselves include properties that are considered contributing or noncontributing. Contributing structures may not be demolished, with rare exceptions (with respect to demolition, landmark or contributing structures cannot be demolished unless 1) the applicant can meet the ordinance's economic hardship test which requires demonstration of "no reasonable use of the structure"; or 2) the Historic Preservation Board, upon request of an applicant, amends or rescinds the original landmark or contributing classification. The ordinance includes a process and review criteria for considering such requests), while non-contributing structures may be demolished. As the demolition delay provision of the overlay explicitly does not apply to historic districts, non-contributing structures in the Munjoy Hall Historic District are not subject to a demolition delay. Within the boundaries of a historic district, the merits and rationale for preservation of each property have already been determined at the time of designation, and so no further, duplicative process for consideration of "preferably preserved" is needed or appropriate. Therefore, non-contributing structures have the same ability to be demolished as any property in the city that is not either designated or subject to the demo delay provisions of the overlay.

In addition to the roof and building form standards of the overlay, the Historic Preservation Ordinance review standards for new construction are applied to new buildings as well as additions and alterations within the historic district. Historic designation does not alter the dimensional standards of the zone, and new construction, additions, inclusion of alternative energy features such as solar panels, and building alterations may all occur within the district. Designation puts in place a mechanism to review such changes to ensure that the overall historic character of the neighborhood is preserved and enhanced over time.

For sites outside of the district, but within 100 feet of a district, landmark, or historic landscape, the historic preservation program provides advisory design review.



Figure 5: Boundary of Munjoy Hill Historic District within the Overlay

Figure 6 below shows the Historic District, designated landmarks, and sites within 100 feet of those designations overlaid on the Overlay District boundary.

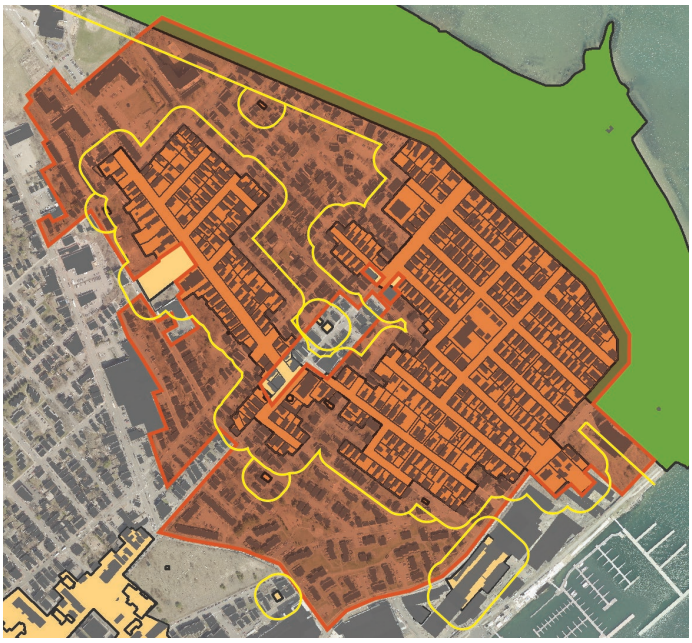


Figure 6: Parcels Within 100' of Historic District/Landscape/Landmark

VI. DEVELOPMENT TRENDS SINCE ADOPTION

Since adoption of the overlay district there have been nine projects approved and one

project currently under review. The nine approved applications have resulted in the approval of 56 total residential units, five workforce units, and four required on-site workforce housing units to take advantage of the 45 foot height allowance. Below is a breakdown of applications currently approved or in review within the overlay.

PROJECT STATUS	PROJECT TYPE	TOTAL # OF RES UNITS	# OF WORKFORCE UNITS	# OF WORKFORCE UNITS PER HEIGHT >35 FT	YEAR APPROVED
Approved					
57 St. Lawerence	Multi-family	16	1.6	1	2019
130 Morning Street	Multi-family	7	0	1	2019
27 Merrill Street	Two-family	2	0	0	2019
128 R North Street	Multi-family	6	1	1	2020
126 North Street	Multi-family	6	1.2	0	2020
19 Willis Street	Multi-family	12	1.2	1	2021
30-32 Atlantic Street	Multi-family	4	0	0	2021
5 Salem Street	Two-family	2	0	0	2021
48 Cumberland Street	Single-family	1	0	0	2021
	TOTAL	**56**	**5**	**4**	
In Review					
7 Marion Street	Multi-family	3	0	0	

PROJECT TYPE	# OF PROJECTS
Multi-family	7
Two-family	2
Single-family	1
TOTAL	**10**

VII. DISCUSSION

The R-6 zone is intended to affirm and foster relatively high density (though the zone is not nearly as high in maximum permitted density than Portland's mixed-use B zones) residential neighborhoods on the peninsula; the overlay was not meant to detract from this goal, but to guide new development to better outcomes, in keeping with the urban fabric of the Munjoy Hill neighborhood. In considering whether the overlay is still needed or whether it is in need of any modifications, there are several options for the Board to consider, outlined below.

The overlay and the district can both continue to be in place without conflict, and leaving the overlay in place is one option. Absent any changes, future development in Munjoy Hill would continue to be reviewed against the various regulations and design standards. Demolition delay provisions would continue to apply to preferably preserved buildings not in historic districts or otherwise designated.

Repealing the overlay altogether is also an alternative, and one suggested as a possibility by Board members previously. In the case of repealing it, the base R-6 zone, with the use and dimensional standards that apply within the rest of the R-6 zone would remain in effect, and

the design standards contained in the *City of Portland Design Manual* would continue to be applied to reviews of new construction outside of the historic district. Within the half of the neighborhood within the historic district, the historic preservation ordinance would govern demolitions, as well as design review of new construction and alterations. It's worth noting that the advisory review within 100 feet of a district, landmark or historic landscape means that some level of historic preservation input is applied to well over half of the neighborhood. Repeal would result in Munjoy Hill being subject to the same standards that govern the majority of residential zoning on the peninsula, which is predominantly zoned R-6, and includes several other historic districts. The R-6 zone occurs on Munjoy Hill, in the West End, in parts of Bayside and East Bayside, and Parkside.

Another approach is to retain the overlay district but amend or repeal specific elements. One simple change would be to have the overlay only applicable outside of the historic district. Currently, both layers of regulation exist in addition to the base standards, making for a particularly complex set of overlapping requirements. Other elements for consideration include:

- On-site workforce housing unit: Consider eliminating this requirement or adding the flexibility for an applicant to pay a fee-in-lieu. This was included for excellent reasons, but Planning staff has repeatedly heard that it is a difficult standard to meet as written, as it lacks of the fee-in-lieu to the City's Housing Trust Fund as an alternative. Inclusionary Zoning, which requires that projects of 10+ dwelling units include workforce housing units or include a contribution to the City's Housing Trust, has significantly increased what is required in terms of percentage of workforce units and levels of affordability, since the overlay was adopted. At the time of adoption, IZ requirements were for 10% of total dwelling units for households earning 100 or 125% of Area Median Income, and have since changed to 25% of total dwelling units in new housing proposals needing to be provided for households earning 80% of Area Median Income. Not many units (four units have been approved through this provision) of workforce housing have been created from this standard, and to the extent that it may be deterring new housing creation, may not be fulfilling its original intent.
- Demolition Delay Process: Currently Munjoy Hill is the only neighborhood subject to a demolition delay. The Historic District adoption process included an evaluation of the neighborhood for historic structures of highest priority. Removal of the demolition delay would remove the lengthened timeframe for the remaining properties in the neighborhood that were not nominated in the rigorous historic designation process; properties not designated would then be subject to the same process for demolition as every other not-designated (including non-contributing properties within historic districts) property in the city. Individually landmarking a property would remain an option for homeowners.
- Rooftop appurtenances: In all other districts rooftop appurtenances are permitted to exceed maximum building heights. The current limitations placed on rooftop

appurtenances creates challenges for accommodating mechanical equipment required in many modern apartment buildings such as elevator overruns, which generally extend above height limitations to serve the top floor. In addition to creating challenges for new construction generally, this raises ADA concerns, as well. If the Board recommended keeping this limitation, another alternative would be to grant flexibility for appurtenances for structures that existed prior to the overlay.

Lastly, another alternative is to recommend repeal of the overlay, but consider elements for inclusion in the R-6 zone. These could include any of the overlay dimensional standards, the 35/45 feet height distinction for multi-family, and certain building form standards if they were deemed successful changes or additions to the base zone. Staff would recommend that any elements of the overlay that the Board wished to consider for wider application within the R-6 be incorporated into the ReCode process.

VIII. CONCLUSION & NEXT STEPS

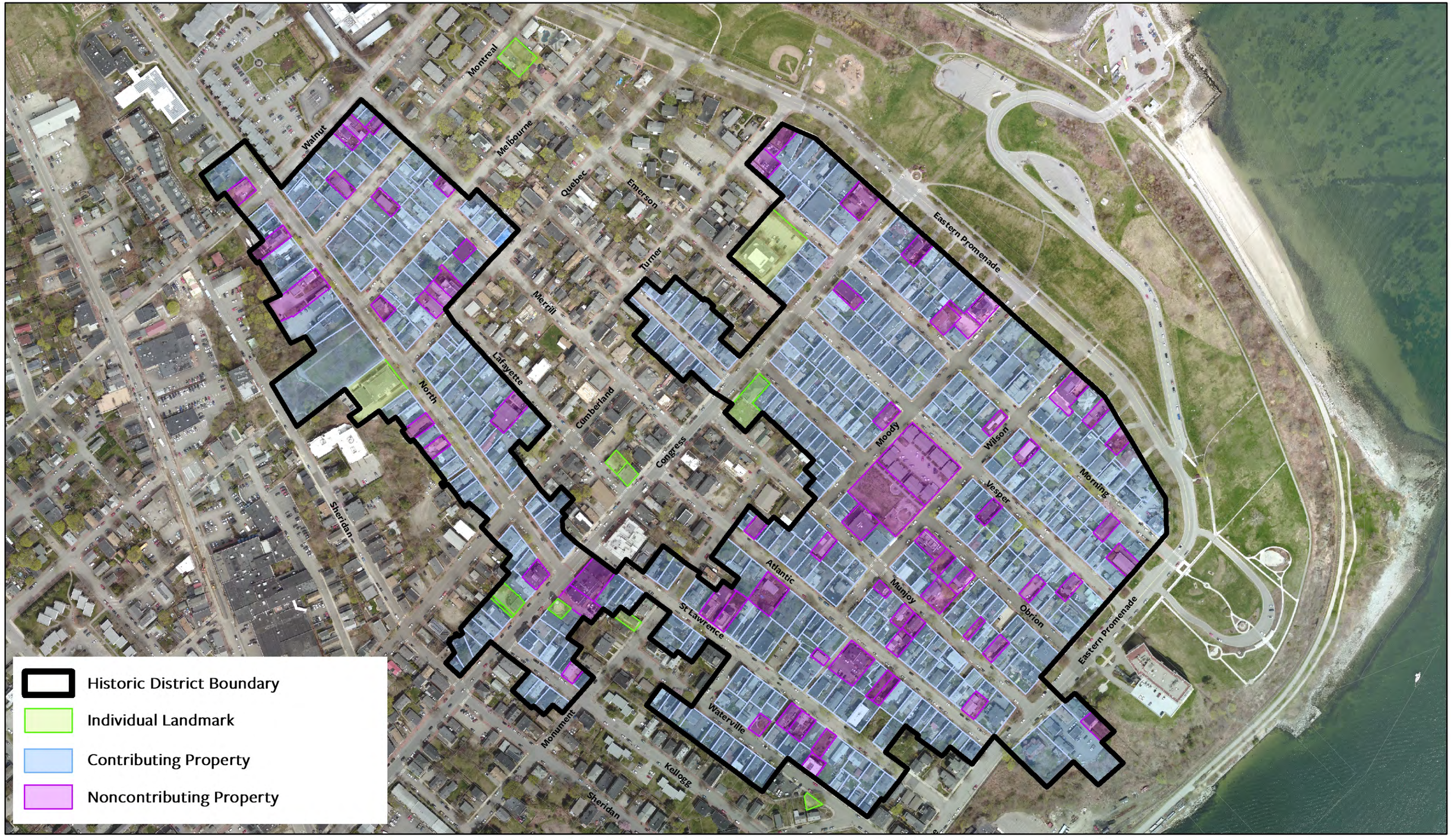
The intention of this initial workshop on the overlay is to provide an overview of its contents as well as to identify potential changes for the Board to consider. Following the January 25th workshop and Planning Board deliberation, staff will follow-up with additional information or amendments for a future Board workshop or public hearing, as needed. Any recommended amendments to the Land Use Code would be forwarded from the Planning Board to the City Council for a decision.

ATTACHMENTS

1. Munjoy Hill Historic District Map
2. Overlay Zones – Chapter 14 Section 8
3. MHNCOD with HD100 ft offset

Munjoy Hill Historic District

Att. 1



0 245 490 980 Feet

(MOU) by and between the MMC, the City of Portland, an identified Community Housing Development Organization and any other community partners that may be identified later establishing a Healthy Neighborhoods program. Such a program shall be designed to fund and execute housing and community improvement and development programs in St. John Valley and the other neighborhoods surrounding MMC's Bramhall Campus.

8.6 ISLAND TRANSFER STATION OVERLAY

8.6.1 Purpose

The purpose of the Island Transfer Station Overlay Zone is to establish a location for a transfer station for municipal solid waste and municipal public works activities. This zone shall be established through a conditional rezoning process in order to ensure the imposition of appropriate conditions for the protection of neighboring properties.

8.6.2 Permitted uses

A. Municipal solid waste facilities, including compactors and storage bins, provided that the compactor shall be located within a fully enclosed structure.
B. Recycling facilities, provided that all recycling areas shall be buffered and screened from neighboring properties.
C. Municipal garages, material storage, and parking for vehicles.
D. Maintenance of municipal vehicles and equipment.
E. Minor wind energy systems co-located with public industrial or utility facilities, subject to the standards of Subsection 6.4.18.

8.6.3 Conditions

Requirements for setbacks and any operational limitations shall be established as part of the conditional rezoning process.

8.7 MUNJOY HILL NEIGHBORHOOD CONSERVATION OVERLAY DISTRICT

The residential neighborhoods on Munjoy Hill are experiencing specific development pressures related to its location and the nature of the existing building stock, further documented in work by the City's Planning & Urban Development Department in the winter of 2018. In order to address the negative impacts of these pressures and create a positive framework for investment in the area, there shall be a Munjoy Hill Neighborhood Conservation Overlay District (the "District").



FIGURE 8-E: MUNJOY HILL NEIGHBORHOOD CONSERVATION DISTRICT BOUNDARIES

8.7.1 Area of effect

This District will apply in the highlighted area depicted on the map in Figure 8-E and includes all properties in the R-6 zoning district in an area east of Washington Avenue and Mountfort Street, north of Fore Street, and west of the Eastern Promenade.

8.7.2 Effect of the district

In addition to the standards contained in this Land Use Code that are applicable to properties in the R-6 zone, all properties within this District shall meet the standards of Section 8.7. Where this section imposes a standard that differs from the standards contained in Articles 6, 7, 14, and 15 of this Land Use Code, the City of Portland *Design Manual* or City of Portland *Technical Manual,* the standards in this section shall control.

8.7.3 Dimensional standards

Within the District, the dimensional requirements in Table 8-E supersede those dimensional standards outlined elsewhere in this Land Use Code.

8.7.4 Design review

A. **Design standards.** In addition to the general R-6 design standards, the following design standards shall apply in the Munjoy Hill Neighborhood Conservation District and shall supersede any conflicting design standards:

1. All buildings shall use simple, traditional roof forms as illustrated in Figure 8-F, except that flat roofs are permitted in buildings of three or more units. This requirement may also be modified through Subsection 8.7.4(B) below. Dormers and cross gables are allowed but where readily visible from the public right-of-way shall be clearly subsidiary to the primary roof form. (See Figure 8-G.)
2. The first floor shall contain active living space, such as a living room or bedroom, with windows for at least 50% of the width of the front façade in total. (See Figure 8-H.) Active living space does not include space intended primarily for circulation or storage.

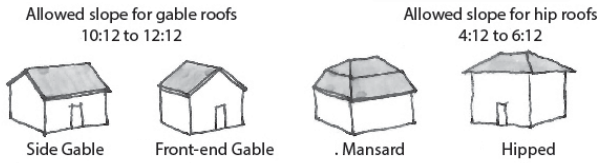


FIGURE 8-F: ROOF FORMS

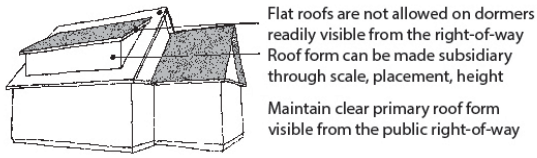


FIGURE 8-G: DORMERS AND SUBSIDIARY ROOFS

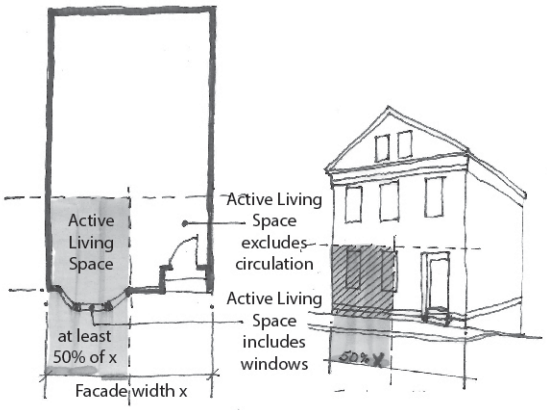
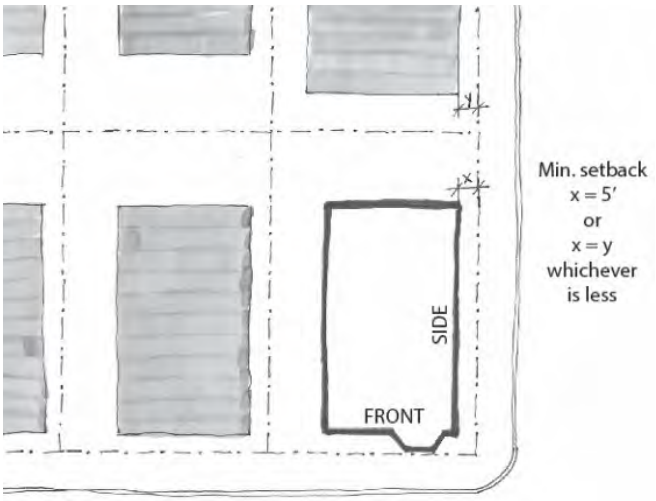


FIGURE 8-H: FRONT FACADE - ACTIVE LIVING SPACE

TABLE 8-E: MUNJOY HILL NEIGHBORHOOD CONSERVATION DISTRICT DIMENSIONAL REQUIREMENTS

	Height (max.)[1]	35 ft. 45 ft. for buildings with 3 or more units on lots over 2,000 SF that include at least one workforce housing unit.[2]
Setbacks (min.)	Rear	Buildings up to 35 ft. in height: 10 ft. Buildings over 35 ft. in height: 15 ft. As measured from rear decks, porches, or similar unenclosed space: 7.5 ft. As measured from accessory structures with a ground coverage of 250 SF or less: 5 ft.
	Side	Buildings up to 35 ft. in height: As per underlying zone. Buildings over 35 ft. in height: 10 ft. for all side yards, except that a side yard no less than 5 ft. is permitted when used to continue a documented built pattern of the surrounding streetscape, in which case a proportional increase in another side yard must be provided.
	Side yard on side street	5 ft. or the minimum depth of the immediately abutting street-facing yard, whichever is less. None when demonstrated that reduced setbacks are necessary to facilitate the provision of underground parking. 
	Stepbacks (min.)	None

[1] Rooftop appurtenances other than chimneys shall not exceed permitted heights, except that HVAC equipment is permitted for up to 5 ft. above these maximum heights if (a) out of view from public rights-of-way, screened adequately, and integrated with the building design and (b) set back at least 5 ft. from the building edge. In addition, height limits and placement of alternative energy equipment is permitted as specified in Articles 6 and 7.

[2] Unit can be for sale or rent, as defined in Article 3. Workforce units shall be no smaller than 50% of the average size of the other units in the development, must meet the definition for such units and only be sold or rented to a household at or below the applicable income levels. These requirements shall be deed restricted for affordability for the longest term possible under state and federal law.

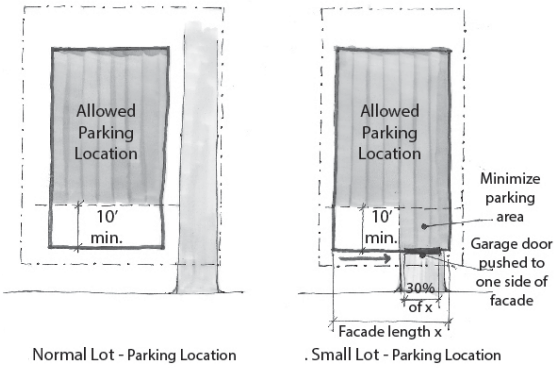


FIGURE 8-I: PARKING LOCATIONS

3. Use of tandem spaces to meet desired parking levels, consistent with the built pattern of the neighborhood, is strongly preferred. Parking shall be located on the side or in the rear of a building, and not within the front 10 feet of depth of the building. The only exception shall be for lots smaller than 2,000 square feet, which shall be permitted one garage door on the front façade no wider than 30% of the building width, but no less than nine feet. In that case, the garage door shall:
   a. Be of high quality design, consistent with the character and pattern of the rest of the façade, including windows as appropriate.
   b. Be located on one side of the façade. (See Figure 8-I.)

B. **Alternative Design Review.** Within the District, developments are only eligible for the R-6 "Alternative Design Review" as outlined by the following process, which shall supersede the process in the City of Portland *Design Manual* in cases of conflict:
   1. Any use of Alternative Design Review must be approved by a majority of the Historic Preservation Board after a required public hearing.
   2. Alternative Design Review does not permit waivers of the additional design requirements in Subsection 8.7.4(A) above except as explicitly stated.
   3. Alternative Design Review is a privilege and is granted at the discretion of the Historic Preservation Board. The applicant has the burden of demonstrating that their proposal meets the criteria for Alternative Design Review Design Certificate.

8.7.5 Demolition review

A. **Purpose.** The purpose of this subsection is to preserve and protect buildings within the District that contribute significantly to one's understanding and appreciation of the architectural, cultural, and/or social history and development pattern of Munjoy Hill and which are outside any designated historic district ("Preferably Preserved Buildings"), encouraging owners of such Preferably Preserved Buildings to explore alternatives to demolition. To achieve this purpose, the issuance of demolition permits for Preferably Preserved Buildings is regulated and may be delayed as provided below.

B. **Definitions.** For the purposes of this subsection, the following words and phrases shall have the meanings set forth below:
   1. *Demolition.* Removal of more than 10% of the front façade of any building, removal of the primary roof line, or removal of 50% or more of the building surface, determined cumulatively over a three-year period. In kind replacement or similar replacement (such as new windows or siding that may differ from the original) is not considered demolition.

2. *Preferably Preserved Building*. Any building which is determined to be in the public interest to be preserved or rehabilitated rather than demolished based on findings that the building meets the following criteria:
    a. It was constructed prior to 1930.
    b. It is representative of a building type and/or architectural style that contributes to the identifiable historic visual character of Munjoy Hill.
    c. It retains sufficient integrity of design, materials, condition, and craftsmanship that adaptive reuse is a viable option.
3. *Voluntarily demolished.* Any act(s) done by design or intention, which is proposed, intended, or not accidental, that result in demolition. Results of weather events or natural hazards are not considered voluntary demolition. For the purposes of this subsection, the destruction of a Preferably Preserved Building for failure to properly secure it or by neglect shall be considered voluntary demolition.

C. **Exclusions.** This subsection shall not apply to:
1. Any building either individually designated as a local landmark or located within the boundaries of any designated historic district.
2. Accessory structures with a ground coverage of 250 square feet or less.
3. Buildings that the Building Authority has determined are dangerous to life or property due to fire, accidental catastrophic damage, or a natural disaster.
4. Buildings that have received a previous determination that they are not Preferably Preserved.

D. **Procedure.** When the Building Authority receives a demolition permit application for a building within the District, the Building Authority shall, within three business days, notify the Planning Authority in writing that a demolition permit application has been received.
1. *Initial determination.* The Planning Authority shall make an initial written determination as to whether the building that is the subject of the demolition permit application is a Preferably Preserved Building within 30 days of receiving a copy of the application. In making this determination, the Planning Authority may request additional information from the applicant, including photos of the existing building and the surrounding context or other data that may be relevant to making an initial determination. If the Planning Authority determines that the building is not Preferably Preserved, this determination shall be transmitted to the Building Authority and the applicant of record. The applicant will not be required to take any further steps and the permit may be reviewed by the Building Authority under the standards in Chapter 6 of the City of Portland Code of Ordinances.
2. If the Planning Authority makes an initial determination that the building is Preferably Preserved, it shall notify the Building Authority and the applicant.
3. If the Planning Authority fails to act in accordance with this subsection or within



the prescribed time periods, the Building Authority may grant the demolition permit, provided that the applicant has met all other required by Chapter 6 for a permit, and shall notify the Planning Authority that the permit has been granted.

4. *Right to appeal Planning Authority determination.* After the Planning Authority's initial determination that a demolition permit application involves a Preferably Preserved Building, the applicant for a demolition permit may appeal the determination to the Historic Preservation Board with any background information regarding the structure and its context that may be deemed relevant to or appropriate for that review. Such material shall include plans for any replacement use of the parcel that may assist in making a determination. Such appeal must be filed with the Planning Authority within thirty days of the Planning Authority's decision.
5. *Public hearing.* The Historic Preservation Board shall conduct a hearing on the appeal of the Planning Authority's decision within 45 days of the Planning Authority's decision. The Board shall give the public notice of the hearing at least 14 days prior to the hearing. The Board shall also mail a notice of the public hearing to the applicant, the building owner, and all property owners within 100 feet of the subject property at least 10 days prior to the hearing.
6. *Final determination of Preferably Preserved Building:* Within 21 days following the conclusion of the public hearing, the Historic Preservation Board shall issue a final determination with the Building Authority. If the Board determines that the demolition of the building would be detrimental to the architectural, cultural, or social heritage of Munjoy Hill, it must uphold the initial determination of the Planning Authority of a Preferably Preserved Building. In a case where the initial decision of the Planning Authority is not timely appealed as outlined in Section 8.7.5(D)(4), that decision shall be considered a final decision with respect to the demolition permit, in which case the Planning Authority shall forward the final decision to the Building Authority.

E. Upon the final determination of Preferably Preserved status, the Building Authority shall not issue a demolition permit for a period of up to 12 months except as specified in (2) below. During this period, the applicant and the owner should actively pursue alternatives to demolition of the Preferably Preserved Building. Should the Historic Preservation Board determine that the building is of sufficient historic and/or architectural significance that it should be designated a landmark or otherwise gain historic designation, that process will proceed as it would for any other building.

1. Upon a determination of Preferably Preserved status, the owner shall be responsible for properly securing the building.
2. Notwithstanding the preceding, the Building Authority may issue a demolition permit for all or any portion of subject building at any time upon authorization from the Planning Authority in the event

the Historic Preservation Board approves a development for the site as consistent with the Historic Resource Design Standards as applied to a new building prior to the conclusion of the 12-month delay period. Examples of such proposals may include but are not limited to:

a. Demolition of a portion of the building while maintaining the principal structure and/or most architecturally significant portion of the building.
b. Demolition of the Preferably Preserved Building but with a replacement proposal that is acceptably contextual in the surrounding neighborhood. In this case, the Board may condition demolition on construction of a project substantively consistent with the approved replacement proposal, and any substantive variation from that plan would be treated as a violation under (G) below.
c. Notwithstanding the initial determination, demonstration by the applicant, substantiated by the written opinion of a licensed engineer with experience in renovation, restoration or rehabilitation and confirmed by the Building Authority, that the structural condition of the building is so severe as to make it infeasible to rehabilitate.

F. **Emergency demolition.** Nothing in this subsection shall interfere with the ability of the Building Authority to permit demolition of buildings determined dangerous to life or property due to a condition that pre-dates the effective date of this subsection or is the result of fire, accidental catastrophic damage, or a natural disaster.

G. **Enforcement**

1. The Planning Authority and Building Authority are each specifically authorized to institute any and all actions and proceedings, in law or in equity, as they deem necessary and appropriate to obtain compliance with the requirements of this subsection, or to prevent a threatened violation thereof.
2. No building permit shall issue for a new building on any premises where a significant building is voluntarily demolished in violation of this ordinance for a period of two years after the date of demolition.

H. **Reporting.** A demolition review shall be reported to the City Council annually as a communication.

8.8 PEDESTRIAN ACTIVITIES DISTRICT (PAD) OVERLAY

The following restrictions shall apply in the Pedestrian Activities District (PAD) Overlay Zone, which shall include street frontages as delineated on the PAD Overlay Zone map.

8.8.1 Permitted uses

A. At least 75% of the street level frontage of a building on a street located within the PAD Overlay Zone must be occupied, and, at minimum, the floor area to be occupied shall be 75% of the street level frontage multiplied by a 20 foot depth, by:

1. Retail as permitted in the B-3 zone.
2. General services.
3. Hotels.



Memorandum
Planning and Urban Development Department

To: Chair Stanley and Members of the Portland Planning Board
From: Matthew Grooms, Senior Planner
Date: January 25, 2022
Re: UNE request for IOZ designation: Draft Institutional Development Plan (IDP)
Applicant: The University of New England (UNE)

I. INTRODUCTION

The University of New England (UNE) has applied for a zoning amendment to create the UNE Institutional Overlay Zone (IOZ) in order to develop an updated and uniform regulatory framework for future development on the University's Portland Campus in Deering Center. This effort is in anticipation of future development planned for the University in the coming years, including a major new academic building, student housing, and recreational facility among others.



Figure 1: Aerial of UNE Portland Campus

The process for designation of an IOZ requires the institution to prepare an Institutional Development Plan, which is a proactive planning document for identifying and addressing anticipated change and growth by an institution. The IOZ also requires that a Regulatory Framework be submitted, to be included in the Land Use Code , which identifies the land area to be included on the zoning map as the Institutional Overlay Zone along with associated use, dimensional and design requirements. The Planning Board is authorized to review and approve an Institutional Development Plan that is consistent with the IDP standards provided in Section 8.5.4.D of the City's Land Use Code . The Planning Board reviews and recommends to City Council the Regulatory Framework and the IOZ boundaries.

To date, Planning staff have met with the applicant on several occasions to provide feedback on the content of the IDP and proposed regulations of the Regulatory Framework. These meetings precede a more thorough review by other City staff and the Planning Board. Therefore, this workshop is intended to introduce the overall proposal with an overview of UNE's short and long-term plans for their campus, and provide the Planning Board with an opportunity to provide early feedback. Subsequent meetings will be scheduled with a focus on one or more specific topic areas, such as design, historic preservation, transportation, environmental mitigation, and zoning framework.

The Planning and Urban Development Department mailed 116 notices advertising this meeting to property owners within 500 feet of the site. A legal advertisement ran in the January 14, and 15, 2022 editions of the *Portland Press Herald*.

II. WHAT IS AN INSTITUTIONAL OVERLAY ZONE?

The Institutional Overlay Zone (IOZ) is a regulatory tool available to four of the City's major institutions, which recognizes that the operational and developmental needs of such institutions are often incongruous with the City's base zoning districts, and which provides an opportunity to create a unique overlay district tailored to the needs of each institution. Section 8.5.2 of the Land Use Code designates Maine Medical Center (MMC), Northern Light Mercy Hospital, the University of Southern Maine, and the University of New England as the four eligible institutions. Maine Medical Center piloted the first IOZ in 2017, immediately following the adoption of the IOZ regulatory tool. The Maine Medical Center IOZ was adopted by the Portland City Council, and the associated Regulatory Framework can be found under Section 8.5.6 of the City's Land Use Code.

Section 8.5 of the Land Use Code requires the following items as part of an IOZ submission:

- *Institutional Development Plan (IDP):* The IDP is a longer-term development or master plan, to be developed by the eligible institutions, which are intended to guide each institution's development over the life of the plan. The IDP is envisioned as the basic building block of the Institutional Overlay Zone. The IDP is intended as a stand-alone document. This would be approved by the Planning Board, subject to a finding that the IDP meets the content and review standards, listed under Sections 8.5.4.(C & D).
- *Regulatory Framework:* The Regulatory Framework is within the Land Use Code as the ordinance requirements for each institution, and is intended to evolve from the IDP. The Regulatory Framework establishes the parameters to allow each institution to grow as envisioned in the IDP, yet also formalize requirements, guidelines, and performance measures that address the major ramifications of institutional growth and change. The Regulatory Framework would be adopted into the Land Use Code by the City Council.
- *IOZ - Zoning Map:* The boundaries of each institution's IOZ would be defined as a geographic element represented as an amendment to the city's zoning map. This would be adopted by the City Council.

III. BACKGROUND AND CONTEXT

The University of New England's Portland Campus occupies a 70-acre site in the Deering Center neighborhood abutting Evergreen Cemetery, a site whose origin as an institution for higher education dates back to 1830, with the founding of Westbrook Seminary. Since then, a number of separate institutions have operated from this site, culminating in the merger between Westbrook College and the University of England in Biddeford in 1996. Today, the college is home to several prominent schools, including the Westbrook College of Health Professions, the College of Pharmacy, College of Dental Medicine, and the College of Graduate and Professional Studies. The Portland Campus also hosts two separate clinics, open to the general public; those being the Oral Health Center and the Dental Hygiene Clinic. As of Fall 2020, the Portland Campus had a daytime student population of 1,162 students, and a faculty population of 442, for a total campus population of 1,604.

The University maintains 23 separate facilities and 11 parking areas containing 1,261 parking spaces, with a historic campus core located in the southeastern quadrant of the Campus, centered around a Campus Quad. Recent additions to the campus include the College of Pharmacy building, built in 2009, the renovations of Goddard Hall in 2011 and Alumni Hall in 2016, and the addition and rehabilitation of the former National Guard Armory Building, now known as Innovation Hall in 2016. In addition to the contiguous campus area, the University also own two separate

off-site properties, those being the property at 1075 Forest Avenue, which houses the UNE North program, and a vacant building that was donated to UNE located at 812 Stevens Avenue, now utilized for additional off-street parking. A substantial portion of the UNE Portland Campus is either undeveloped or currently utilized for passive or active recreational open space, including forest and wetland area abutting Evergreen Cemetery, and Gulliver's Field. At the western most extent of the campus is the Bishop Street lot, a large existing parking area with space for more than 600 vehicles that is linked to the campus by a controlled internal driveway through Campus property.

A portion of the campus is located within the Westbrook College Historic District, one of Portland's 12 locally designated historic districts. The district includes 6 buildings (Alumni Hall, Goddard Hall, Ludke Hall, Hersey Hall, Abplanalp Library, and Proctor Hall) developed between 1834 and 1951 that are located off of College Street, in addition to the Campus Quad. The architectural elements and details found in these buildings are incorporated into new development, including the 'Westbrook College Brick' which is used in new construction.

Today, the Campus is located within four separate zoning districts: the R-3 and R-5 Residential zones and the I-M and I-H Industrial zones - with no overlay zone – in order to create a more consistent zoning framework for future campus development. And while these zones may have been amended over the years to account for some of the

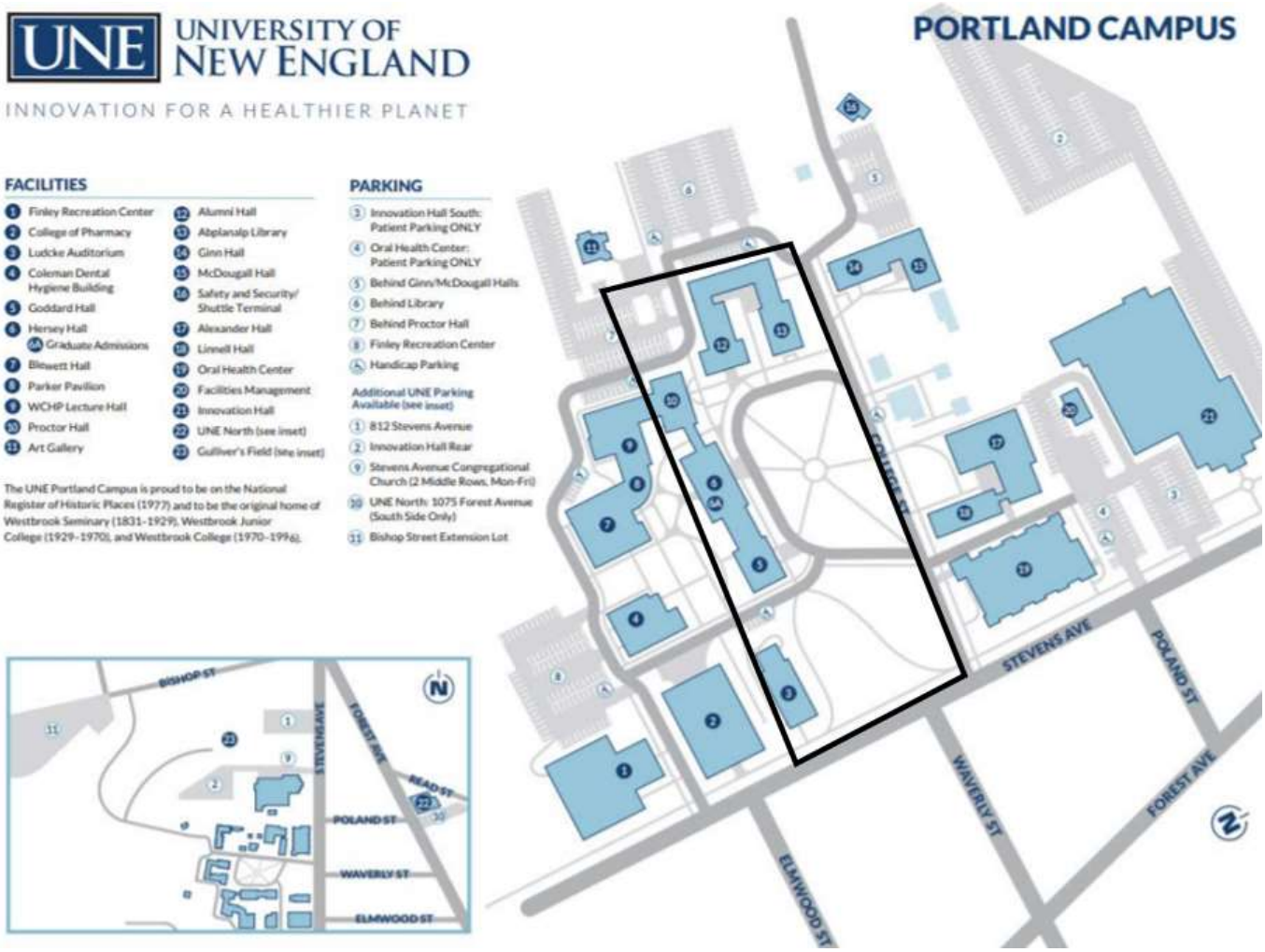


Figure 2: Campus Map. Westbrook College Historic District shown outlined in black.

institutional needs of institutions located in these zones, they are far from ideal as a base regulatory framework, given their intended purpose to support and control for residential and industrial uses. This discrepancy between institutional needs and existing regulations is what prompted the development of the Institutional Overlay Zone as a regulatory tool, and it was always envisioned that institutions such as UNE would take advantage of this tool for this reason.

IV. UNE INSTITUTIONAL DEVELOPMENT PLAN

A. Development Plans

The UNE IDP identifies numerous projects which may be developed at the Portland Campus in the coming years, and in accordance with IOZ regulations, identifies short-, medium, and longer-term priorities. These projects are also categorized by identified campus needs, which include campus reorganization, new building and renovation need, educational improvements, and campus infrastructure needs. Those projects are as follows:

Table 1: Twenty-Year Development Program			
Priority 1: Short-Term Development Plan (0-5 years)			
Project	Square Footage	Height	Estimated Occupancy
New Institute for Inter-Professional Education and College of Osteopathic Medicine	110,000 SF	85 feet	160 offices
Renovation of rear area of Innovation Hall	24,000 SF	50 feet	2 offices
New Facilities Maintenance and Campus Services Building	15,000 SF	35 feet	12 offices
Building Renovation/Expansion of 812 Stevens Avenue	10,000 SF	35 feet	6 offices
Building Renovation of 1075 Forest Avenue	15,000 SF	35 feet	10 offices
Priority 2: Medium-Term Development Plan (5-10 years)			
Project	Square Footage	Height	Notes
Renovation of 79 College Street	720 SF	35 feet	2 offices
Renovation/Expansion of Bishop Street Lot Buildings	1,000 SF	35 feet	12 offices
Priority 3: Long-Term Development Plan (10-20 years)			
Project	Square Footage	Height	Notes
Graduate Housing Residence Hall	100,000 SF	65 feet	200 beds
New Academic Building	60,000 SF	65 feet	20 offices
Building Renovation/Expansion of Finley Gym	50,000 SF	50 feet	4 offices
New Recreation and Athletics Building	60,000 SF	50 feet	12 offices

In support of new anticipated building development, the University is also looking to significantly reconfigure internal circulation on campus, with the majority of vehicle traffic parking at the Bishop Street lot now being directed to access the campus at the northernmost Steven's Avenue entrance, as opposed to from Bishop Street itself, which necessitated traffic flow through Morrill's Corner. With most traffic arriving at the campus from locations south and east, the applicant expects this change to alleviate traffic at the Morrill's Corner intersection. There, change is possible due to an internal driveway between the campus and the Bishop Street lot, which will be improved to enable two-way vehicle traffic. Once parked, a shuttle will run continuously between the Bishop Street lot and Campus core.



Figure 3: Campus Master Plan. Asterisks indicate the type of future development and are proportional to the proposed floor area.

The University is also proposing to close certain internal driveways to create a new open space on campus adjacent to what will be the new College of Osteopathic Medicine and Innovation Hall. This change is intended to improve the pedestrian experience. The IDP also identifies that sufficient utility infrastructure is present to provide service to future development, though on-site improvements will be necessary at each individual phase.

B. Impact Mitigation

1. *Traffic and Parking:* UNE states in their IDP that they have established transportation demand management (TDM) strategies in place that they will continue, which are effective at reducing overall parking demand on campus and trip counts to and from the campus. These include tools to promote car sharing, free transit passes, free parking for carpool vehicles, and raffles for free bicycles. The University provides bicycle parking at a rate of 1 bicycle rack space per 20 students. In addition, during the Covid-19 pandemic, the University has made use of remote work and remote learning to reduce the number of individuals on campus or in enclosed spaces. According to the IDP, remote work and learning will be continued to a certain degree moving forward as a TDM measure. The University is also working with Portland Trails to extend nearby trail connections through the University, which would offer pedestrians additional walking routes. According to the University, there is a TDM coordinator in place currently, who regularly surveys students, staff and faculty to monitor how individuals are accessing the campus, and to determine individual preferences so as to tailor TDM strategies moving forward.

   With respect to traffic impact, the University notes that an existing Traffic Movement Permit (TMP) is in effect for the University, which accounts for significantly higher peak hour trip generation than currently

exists, largely due to lower enrollment numbers over the past several years. While this count is expected to increase by 60 peak hour a.m. and p.m. trips, with the addition of 400 new students associated with the College of Osteopathic Medicine, expected to begin operating within the next five years, the projected trip count is still below the threshold set in the TMP. Citing this, the University states that no additional traffic mitigation is proposed.

The University's parking plan suggests reducing the on-campus capacity from 1,261 parking spaces down to 947 spaces, for a total reduction of 314 spaces. Based upon recent trends in parking demand, the University has calculated a minimum parking ratio of 0.58 spaces per student. This reduction would provide spaces at a rate of 0.61 parking spaces per student.

2. *Natural Resources:* The IDP identifies several sensitive environmental resources to be protected during future development. These include a vernal pool and five separate wetland areas mapped within the undeveloped area between Campus Core and the Bishop Street lot, with an additional two wetland areas and vernal pool located west of the Bishop Street lot. The Evergreen Cemetery, which is a National Historic Landmark, and a significant resource for public recreation, abuts the Campus. The Cemetery contains a network of publicly accessible trails, which are maintained by Portland Trails. The University has indicated that they are interested in extending the trail network through their campus. A separate recreational facility, Gulliver's Field, is also located within the campus boundary. The campus is also located within the Capisic Brook Watershed, designated by Maine DEP as an urban impaired stream.

   Future development is intentionally concentrated away from these sensitive areas, primarily within or adjacent to the campus core. The one exception is Gulliver's field, which in the IDP, is shown to be the location of the future Residence Hall and a new off-street parking area. The IDP does state that a Natural Resource Protection Act (NRPA) permit will likely be necessary for improvements to the connector road between the Campus Core and Bishop Street, and that the University will minimize disturbance of wetlands to the extent possible as part of that work. From a stormwater perspective, on account of the campus being located within the watershed of an urban impaired stream, stormwater requirements are more stringent to ensure higher water quality for runoff that outfalls to such a stream.

3. *Infrastructure:* The IDP contains sections on water and wastewater, natural gas, and energy conservation. With respect to utility infrastructure, the University acknowledges that utilities will need to be extended at each individual development phase to service new buildings, however no major improvements are required to facilitate their development. The IDP states that those improvements will be proposed at time of site plan review. A major element of this section pertains to energy conservation and green building principles. The University has employed a number of strategies to reduce its energy consumption and lower greenhouse gas emissions (GHGs), and closely monitors progress towards the University's goal of becoming carbon neutral. For example, all new buildings are built to US LEED Silver Certification Level. Through the use of clean energy, better conservation of energy, promotion of multi-modal transportation, the introduction of electric vehicle charging stations, and sustainable landscaping practices, the University has steadily lowered its carbon footprint.

4. *Design:* The proposed campus layout is informed by multiple factors, including use of the development, the goal to develop a sustainable and resilient campus, and integration within the surrounding neighborhood context. For example, certain uses such as academic buildings are sited near the campus core, to improve accessibility in and among other core campus facilities. Meanwhile, maintenance facilities are sited at Bishop Street in a less prominent location. Buildings are designed to take advantage of natural light, air, and

views. Neighborhood integration is largely achieved through the use of transition zones, height maximums and building design characteristics, which are intended to help new development relate to the existing surrounding context.

Future building design would be subject to architectural design standards developed for the Campus, which draws inspiration from buildings within the campus historic district, and which would require that new buildings employ universal design principles, use quality building materials, develop energy efficient buildings while accounting for material life cycle costs, follow prescribed building siting and site enhancement requirements, meet scale and proportion requirements, and take into account public safety through crime prevention through environmental design (CPTED) standards.



Figure 4: Advanced example of building and site design for COM project. Architectural details and new open spaces incorporate proposed design standards.

All of the mitigation strategies listed above will be reviewed in detail, and will be the focus of future Planning Board workshops on this proposed IOZ application.

V. REGULATORY FRAMEWORK

Building off of the IDP, the proposed Regulatory Framework would codify a wide-range of uses and activities typically associated with a college or university, and would establish a new, context-based set of dimensional requirements to permit the development identified in the IDP.

As mentioned previously, one of the identified shortcomings of the existing zoning is the lack of clarity around what may be developed under the 'post-secondary school' use permitted conditionally within the R-5 zone, and the even more stringent use requirements of the other three zones found on campus. In response, the proposed framework identifies 33 new uses, which notably includes classrooms, laboratories, dining halls, student and faculty housing,

bookstores, clinics, and recreational facilities among others. Such uses would be permitted by right, as opposed to being conditionally permitted.

The proposed dimensional requirements focus on concentrating larger scale development within the existing campus core, and away from the campus edges where the University abuts residential and/or public areas. Transition zones, which apply to all new campus development within 50 feet of the campus property boundary where the campus abuts a residential zone, are utilized to ensure that the scale and placement of new development is compatible with adjacent development. This is achieved by mirroring the height and setback requirements of the adjoining residential zone.

The Regulatory Framework includes a site-specific height and setback map to account for the University's unique interface with surrounding development. Where the University abuts a residential zone, a 20-foot building setback is required. This setback increases to 25 feet in locations where the campus abuts Evergreen Cemetery. Meanwhile, where the campus abuts less sensitive industrially zoned areas, the setback is reduced to just 10 feet.

Maximum building height limits are similarly organized to limit the height of buildings in more prominent areas of campus, with taller new development to be focused towards the rear of the campus core. This is further achieved through the proposed transition zones, which limit the heights of buildings within 50 feet of the edge of campus. Areas along Stevens Avenue and proximate to Mayfield Street, would feature a maximum building height of 65 feet. Other areas of campus, including certain areas proximate to Evergreen Cemetery, feature a maximum building height of 85 feet. For context, this is the maximum building height currently permitted under the University of Southern Maine's Overlay Zone.

Additional elements of the Regulatory Framework include a requirement that a campus-wide TDM plan be provided at the time the first site plan is submitted following adoption of the IOZ, that a construction

Post-secondary school uses including, but not limited to, the following ancillary and/or supporting uses:

1. Classrooms
2. Laboratory facilities;
3. Research facilities;
4. Student unions;
5. Dining halls;
6. Bookstores;
7. Auditoriums;
8. Concert halls;
9. Lecture halls;
10. Gymnasiums;
11. Indoor recreational facilities;
12. Libraries;
13. Art galleries;
14. Museums;
15. Athletic fields and facilities;
16. Outdoor use areas such as "quads", greens, parks, gardens, art installations, and other active and passive noncommercial recreation spaces;
17. Faculty housing;
18. Student housing;
19. Congregate Care Facility*;
20. Intermediate Care Facility*;
21. Long-term Care Facility*;
22. Parking lots;
23. Parking garages and decks;
24. Community meeting spaces;
25. Administrative offices;
26. Faculty offices;
27. Transportation facilities;
28. Maintenance facilities;
29. Utility buildings;
30. Daycare facilities, nursery schools, and kindergartens operated in conjunction with university programs or serving students, faculty, or staff of the university and their families, with associated outdoor play areas;
31. Medical and dental clinics;
32. Intermodal transportation facilities;
33. Other buildings, structures, and uses customarily incidental to a post-secondary school.

* Any Congregate Care, Intermediate Care or Long-term Care Facility use shall be in conjunction with the post-secondary school use for education purposes, such as direct clinical experience.

Figure 5: Complete list of uses to be permitted within UNE's IOZ

Maximum Building Heights	Maximum building heights for new buildings within the IOZ shall be governed by the Maximum Buildings Heights Map, Figure 4.1 and by the Transition Zones clause of this table (see below) for those buildings located in Transition Zones.
Minimum Building Heights	25 Feet
Minimum Building Setbacks	Minimum building setbacks for new buildings within the IOZ shall be governed by Figure 4.2 or by the Transition Zones clause of this table for buildings and structures located in the Transition Zones.
Transition Zones	Transition Zones apply to new buildings within the IOZ. These Transition Zones are identified inside the IOZ boundary in locations where the IOZ abuts or is located across a public right-of-way from a residential zone. See Figure 4.2 for location of Transition Zones. Transition Zones shall extend fifty (50) feet into the IOZ from the parcel boundary. Transition Zones that abut a Residential zone with or without an intervening public right-of-way shall have a maximum height limit that matches the maximum height permitted within that Residential zone. Where the IOZ abuts a Residential zone without an intervening public right of way, minimum side and rear yard requirements of the abutting Residential zone apply within the IOZ boundary, unless noted otherwise in Figure 4.2.
Minimum Lot Area	N/A
Maximum Lot Coverage	Maximum lot coverage shall be 50%.
Minimum Lot Width	N/A
Maximum Impervious Surface Ratio	Maximum impervious surface ratio shall be 75% of the total land area within the UNE IOZ.
Minimum Street Frontage	N/A

Note – For the purposes of this regulatory framework, "lot" is defined as the contiguous combination of such lots under UNE ownership, including land separated by a public or private right of way. The lot boundary is as shown in Figure 1.1.

Figure 6: General dimensional standards of the UNE IOZ. Note, a separate height map governs building heights within the IOZ.

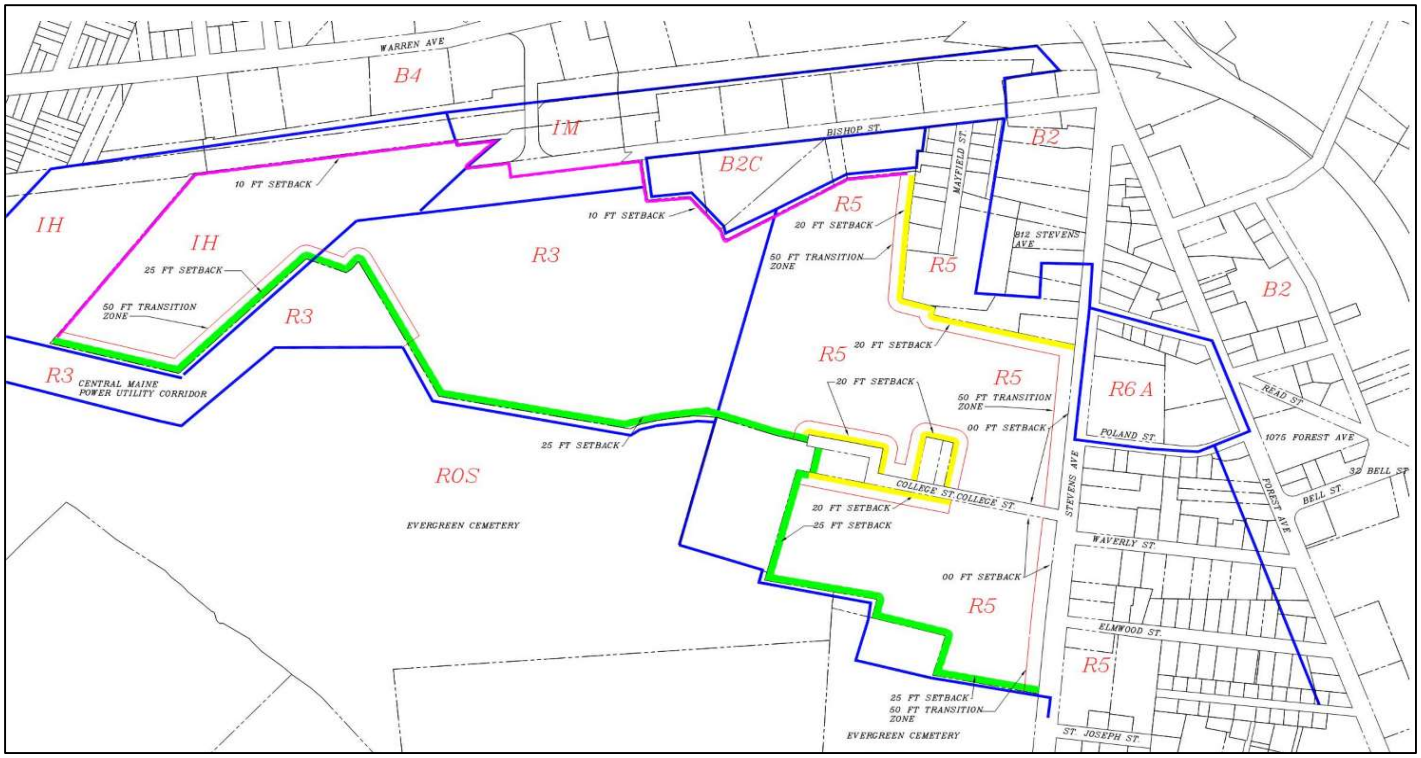


Figure 7: Proposed setback requirements and transition zones

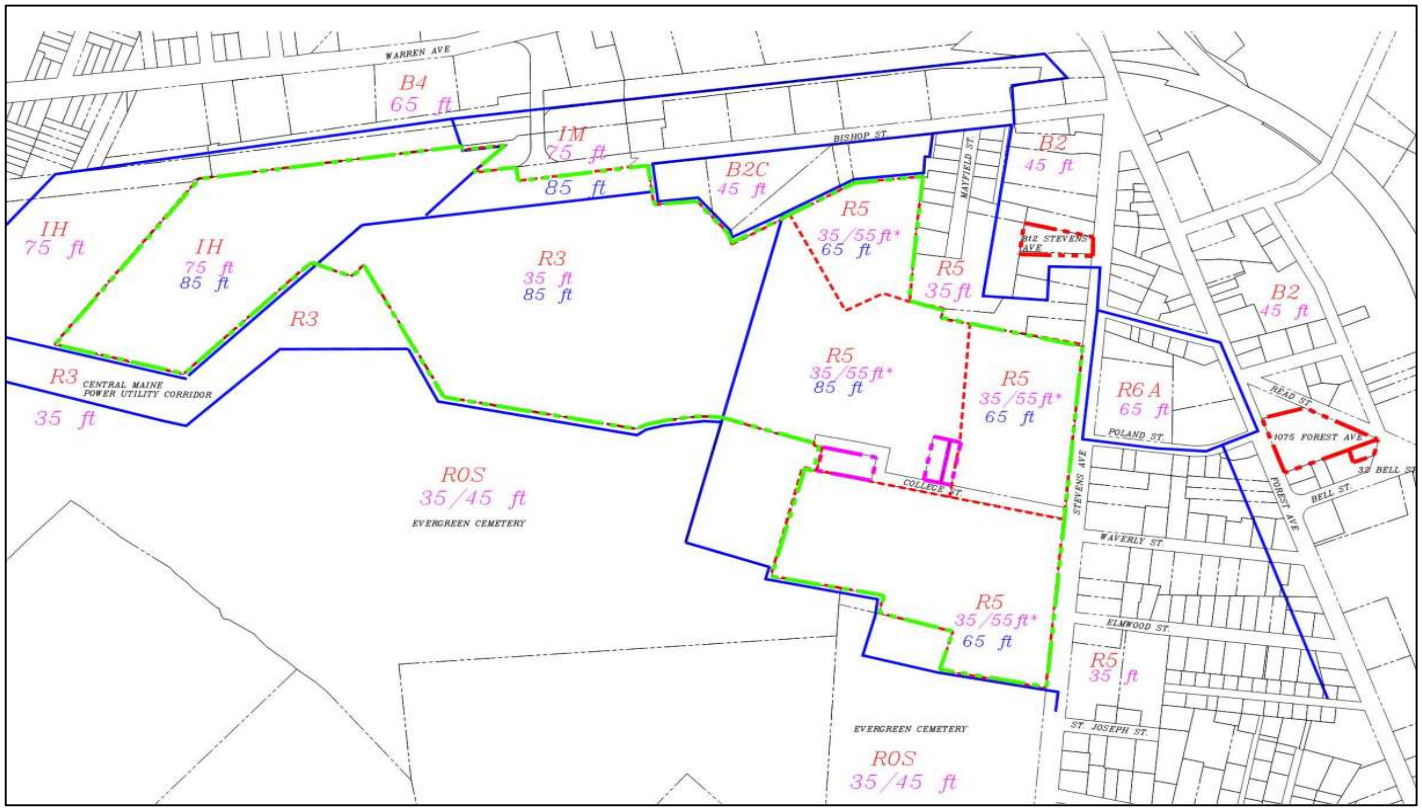


Figure 8: Proposed height limitations. Existing caps for permitted/conditional uses shown in pink, proposed shown in blue.

management plan be developed in accordance with the construction management principles identified in the IDP,

that parking requirements be established using a parking study, and that an analysis of impacts related to traffic, parking and stormwater, along with a mitigation plan, be submitted in conjunction with future site plan applications. The University also commits to ongoing engagement with the Deering Center neighborhood, through regular attendance at neighborhood organization meetings, where the University can share updates on future development proposals and collect feedback.

VI. COMPARISON WITH EXISTING ZONING

As stated above, the UNE Portland Campus is currently located within the R-3, R-5, I-M, and IH zones and does not have an overlay zone specific to this campus, as for example the University of Southern Maine. New development, depending upon location within the campus, is subject to the use, dimensional and performance measures of those four separate zones, which are not calibrated specifically to the needs of an institution. Of these zones, post-secondary schools are only permitted conditionally within the R-5 zone, and the use, 'post-secondary school', is not specifically defined anywhere in the Land Use Code. This use conceivably includes the subset of uses typical to a university or college, such as offices, classroom or meeting spaces, labs, libraries, eating establishments, retail stores and other uses, but the code does not specify. For institutional development outside of the R-5 zone, the use must be reviewed against the use standards for that zone, which for all zones, are not clearly intended to support a post-secondary school.

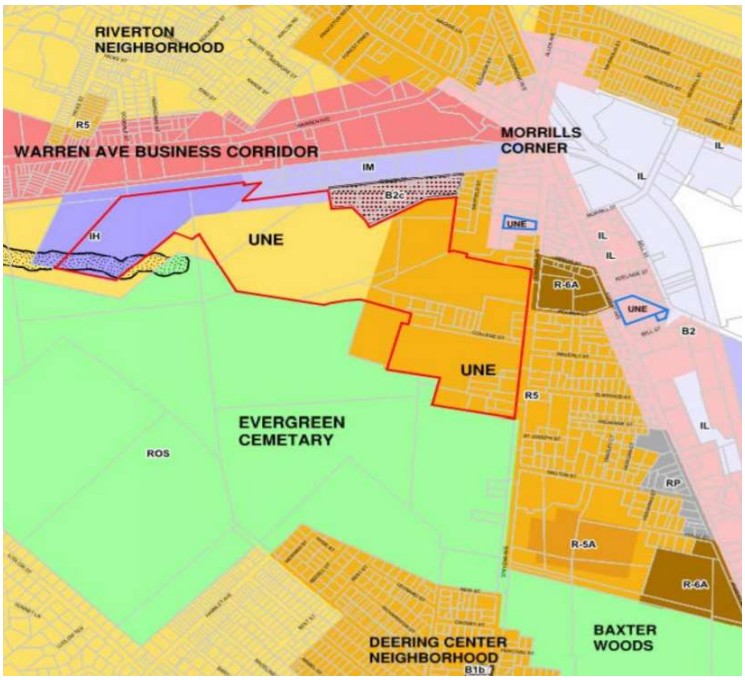


Figure 9: Zoning Map showing UNE Portland Campus

The R-5 zone permits post-secondary schools as a conditional use, with specific rules for any new construction exceeding 35-feet in height. Those requirements are as follows:

Table 2: R-5 Conditional Use Requirements for Post-Secondary School Development Exceeding 35 Feet in Height	
Minimum Lot Size	10 acres, which may include land owned by the institution on either side of a public street
Minimum Setback Between Buildings	20 feet
Minimum Setback from External Lot Lines	30 feet, OR 50 feet for parking garages taller than 35 feet where abutting residential property
Screening	Screening required where development abuts residential uses, to buffer against noise, light and other nuisances.

With respect to the proposed development program, based upon the lack of a definition for 'post-secondary school', it is unclear whether a number of the new developments listed would be permitted within the R-5 zone, which encompasses much of the developed portion of the campus. For uses proposed outside of the R-5, UNE is further restricted, particularly within the R-3 zone, which limits institutional uses to elementary, middle and

secondary schools, governmental uses, a range of care facilities, hospitals, places of assembly, and preschools. The I-M and I-H zones, while more permissive, are still not conducive to new institutional development. Institutional and/or other relevant uses permitted either by right or conditionally within these zones include intermediate care facilities, preschools, places of assembly, general offices, intermodal transportation facilities, and a variety of industrial uses such as labs, studios or manufacturing centers that may be found on a college campus. Still, a number of prevalent uses, such as classroom space, athletic facilities, and residence halls are not permitted, which inhibits the University's ability to develop these facility types across much of their campus and hinders future expansion in Portland.

Aside from use, the other limitation of the existing zones are the dimensional requirements. As much of the proposed development would occur within or adjacent to the primary campus area, most of which is zoned R-5, buildings are limited to a building height of 55 feet, even when taking advantage of the conditional use provisions for post-secondary schools. Three of the buildings proposed, the two academic buildings and the residence hall, are shown as exceeding this height, with heights of either 65 or 85 feet. Height limitations within the R-3, I-M and I-H, along with requirements for setbacks, lot coverage, impervious surface, street frontage, and pavement setbacks within industrial zones, are not generally considered restrictive with respect to the future development proposals outlined within the IDP, though height limitations for these zones are below the limits proposed in this IOZ, with development in the R-3 zone limited to 35 feet, and development in the I-M and I-H zones limited to 75 feet.

VII. NEIGHBORHOOD MEETINGS and Public Comment

As required by the Land Use Code, the applicant has held two separate neighborhood meetings, the first, required to be held prior to submission of an IOZ application, was held in June of 2020. The second meeting, required to be held after submission of the application, was held in April of 2021. Topics raised in these meetings included requests for information on traffic and parking impacts of the new development, proposed lighting and noise mitigation schemes, the potential for area-wide trail improvements, and ongoing public engagement.

As of the writing of this memo, no written public comments have been received on this application.

VIII. STAFF REVIEW

A. Institutional Development Plan Content

The focus of staff's review until this point has primarily been to ensure that the IDP has sufficient content to support the changes in zoning proposed under the Regulatory Framework, and that the impacts of future listed development are well-enough understood to calibrate mitigation strategies. Staff requests (Attachment 1) included data on typical and peak campus daytime population, a survey of campus properties including detailed building characteristics to inform design principles, background on the campus master planning process, projections for future campus population, vehicle trips and parking demand, a more detailed future buildout plan including anticipated changes to open space, programmatic information that determined proposed building footprint and heights, and a massing plan depicting the relationship of new development with the existing campus environment and surrounding neighborhood.

The staff comments reflect two separate rounds of review, with some of these comments having been addressed in the applicant's second submission. Follow-up comments based upon the second submission are also shown, and going into this Planning Board workshop, staff would highlight that the IDP should be updated to include not only projected changes in the campus population as a result of there being an additional 400 students and 160 staff introduced as a result of the College of Osteopathic Medicine's (COM) move from the Biddeford Campus, but also

the resulting impacts on traffic, parking and campus utility infrastructure. Additional information is also being requested to better understand how the proposed building envelopes were arrived at, with that information being supplemented by a massing study to understand the visual impacts of future campus development.

The table below provides a summary view of UNE's IDP content review, with the 'Requirements' column, simplified and consolidated to include one or more sub-requirements of the IOZ ordinance. For a complete list of IOZ content requirements, please see Section 8.5.4.C in the Land Use Code.

Table 3: Required Content of the IDP (8.3.4.C)		
Requirements	Provided	Notes
Mission Statement	Yes	IDP clearly identifies the mission statement and vision of the University, and how future development furthers these aims.
Baseline Institutional Data	Yes	All required baseline data is provided in detail.
Institutional Characteristics	Yes	All required baseline data is provided in detail.
Summary of Public Involvement	Partial	The IDP provides an overview of issues raised during the two required neighborhood meetings and incorporates strategies to mitigate traffic, parking, construction impacts, and lighting nuisance.
Identify Institutional Needs	Partial	While the IDP does indicate population changes resulting from the COM project, the IDP should provide a more tailed projection of the campus population based upon recent trends and strategies around enrollment. The IDP includes no discussion of future property acquisition or disposition, and future development should include narrative outlining need and university objectives met by the development.
Transportation & Access	Partial	The IDP includes future projections on trip generation and parking demand based upon the introduction of 400 additional students with the COM development, however that projection should be refined detail as referenced in the preceding content requirement. The IDP also does not clearly state existing peak hour trips associated with the University. The IDP does include discussion of the current TDM program, however it states that the full campus TDM plan, as described in this IDP, will not be submitted for review until future site plan review, and therefore provides no projections for how individuals will access campus.
Environmental Impacts	Partial	The IDP includes significant baseline data and narrative discussing environmental best practices already being employed on campus, from energy conservation, to composting and recycling, green building requirements, and promotion of alternative transportation options. Staff request that additional information be provided for future green space conversions listed, and whether any additional enhancements are proposed for on-campus or adjacent natural areas.
Infrastructure	Partial	The IDP identifies certain infrastructure improvements that will be required to facilitate the development of the short-term priority projects. However, the IDP does not assess whether additional infrastructure improvements may be necessary to support the medium- and long-term projects listed, and does not include a fully detailed infrastructure plan as required.

Design	Partial	The IDP provides detailed rationale for its design framework, however lacks contextual information on defining characteristics of the surrounding neighborhood, and does not provide analysis or discussion of how future development may or may not impact off-campus property. A limited analysis of Crime Prevention Through Environmental Design (CPTED) deficiencies on campus is included, yet the required conceptual built environment plan is not provided in full detail. Staff would request an aerial view of the overall massing plan.
Neighborhood Engagement	Partial	In general, this content is provided, as the IDP identifies multiple means of ongoing communication with interested parties, and a detailed set of construction management principles. The IDP does not include a property management framework, or strategies for communicating about property acquisition or disposition.

B. Institutional Development Plan Review Standards

The IDP is subject to 13 separate review standards, each of which are intended to ensure first that the IDP contains sufficient information to provide a reasonable, well-calculated depiction of what campus growth will look like in the subsequent 20-year period, providing a strong foundation and basis for the Regulatory Framework. The second principal element of the IDP is to accurately project impacts before development occurs, so as to facilitate timely and strategic improvements to minimize or mitigate those impacts.

As referenced above under the content section, the emphasis of staff's review thus far has primarily been on the content of the IDP, and less on compliance with the IDP review standards. This first Planning Board workshop will focus largely on introducing the proposal, providing an overview of future anticipated development and proposed changes in regulations, and determining the level of detail appropriate within the IDP to support this request. Subsequent workshops will focus on specific topics, such as design, historic preservation, transportation, utility infrastructure, the environment, and proposed regulations. Noting this, the discussion of standards below is limited, and intended only to focus future discussions with the Board and City review team.

1. *Address all content requirements, unless explicitly modified by the planning authority or planning board.*

   Staff Comment: The IDP will need to be revised to incorporate staff's feedback listed under the preceding 'Content' section of this memo, and as needed to address future Board and staff comments.

2. *Reflect the issues/topics identified in the required public process.*

   Staff Comment: The primary concerns raised in the two neighborhood meetings held on this application have largely centered around traffic impacts associated with the new development, notably through Morrill's Corner, and off-site parking in surrounding neighborhoods. There are also two separate private properties located in the center of campus, off of College Street, which have raised concerns with construction impacts, noise, lighting, and building setbacks. The IDP clearly cites the concerns raised, and provides discussion on each topic. Staff have requested that the transportation section be updated to fully project new traffic resulting from future campus development.

3. *Demonstrate consistency with the city's comprehensive plan and the purpose of this ordinance.*

Staff Comment: Portland's Plan 2030 specifically identifies regulatory changes as an important means to support our city's local institutions and their evolving needs, and encourages careful planning to ensure that our institutions are well integrated into Portland's urban fabric. These proposed regulatory changes would replace an ill-suited zoning framework with a purpose-oriented new overlay zone, clearly intended, as seen in the proposed development plan and list of proposed permitted uses, to support the educational mission adopted by the University of New England.

4. *Demonstrate how the property ownership, proposed growth, and requested regulatory framework relate to the institution's mission.*

Staff Comment: According to the applicant, the University's mission is to prepare students to thrive in a rapidly changing world and, in so doing, improve the health of people, communities and our planet. The University has implemented a curriculum that reflects this orientation of the University towards this broad vision of health. The development cited in the IDP, notably the construction of new academic, residential, recreational, and support facilities, are entirely consistent with UNE's mission. Staff have requested additional information on the data used to determine proposed building envelopes, and based on that information, will assess whether the Regulatory Framework as requested is well-supported by the IDP.

5. *Demonstrate that traffic and parking impacts have been anticipated and that the proposed parking provision is justified as based on an assessment of options for reducing traffic and parking demands.*

Staff Comment: The IDP does includes an assessment of both future traffic and parking demand anticipated, though as referenced elsewhere in this memo, staff would request that these counts be updated to reflect all new development and trends in overall enrollment. This information will be necessary to understand what, if any mitigation will be required. Additionally, staff would note that there are currently 1,261 identified parking spaces on campus, and that the Bishop Street lot could potentially accommodate still more parking. Based upon past experience, the University has identified a parking ratio requirement of 0.58 parking spaces per enrolled student, which if including the 400 new students projected, would result in an approximate need of 883 parking spaces. This figure might also be reduced through transportation demand management. Staff have requested that a more robust parking study be provided, to determine whether there are any opportunities to consolidate existing surface parking areas, particularly within the campus core, to create new buildable sites.

6. *Outline an approach to open space, natural, and historic resources that supports preservation and enhancement*

Staff Comment: In general, UNE's approach is to concentrate new development in and around the campus core, and away from existing open spaces and natural areas. This strategy should provide ample separation between new campus development and the various wetland, vernal pool and undeveloped woodland areas, along with Evergreen Cemetery. The one exception to this is the proposal to develop campus housing and off-street parking on Gulliver's Field, a local community open-space resource. Staff have encouraged the applicant to consider alternative locations for this development.

The IDP identifies that the core of UNE's Portland Campus is located within a locally designated historic district. The report details efforts in past years to restore historic buildings on campus, and have

incorporated design features from the historic building stock into the University's broader design guidelines.

7. *Demonstrate that potential cumulative environmental impacts have been anticipated and can be minimized or satisfactorily mitigated.*

   Staff Comment: With new development concentrated away from environmentally sensitive areas, the anticipated impact to such resources is expected to be minimal. However, the IDP does identify that UNE's Portland Campus falls within the Fall Brook watershed, which is listed as an urban impaired stream system by ME DEP. As such, more stringent stormwater measures will be required of new development. Basic information on past stormwater management practices is provided in the IDP, along with a suite of potential options for future mitigation. Staff will review these measures in more detail and provide future comment on the overall strategy.

   Thinking more globally, the IDP includes a considerable amount of information on the University's sustainability goals, and efforts to conserve energy and reduce greenhouse gas (GHG) emissions. This includes an assessment of how successful the University has been over the past five years. This type of analysis should also be projected forward to better understand future trends.

8. *Demonstrate that utility impacts have been anticipated and can be minimized or satisfactorily mitigated.*

   Staff Comment: Information on existing utility infrastructure is provided within this IDP, and is supplemented by information on utility upgrades that will be necessary to develop short-term development, anticipated to occur within the next five years. Utility requirements for longer-term projects however are not provided, and the IDP includes no comprehensive analysis of utility needs, nor strategic assessment of how such upgrades can be installed or constructed most efficiently.

9. *Reflect a comprehensive design approach that ensures appropriate transitions with the existing or future scale and character of the neighboring urban fabric.*

   Staff Comment: The use of transition zones appears to be a simple, yet effective tool to match the massing and disposition of more prominent development around the edge of UNE's campus with adjacent or nearby development in the neighborhood. This finding will need to be confirmed using the conceptual built environment plan, once that is provided. Staff will evaluate the depth and location of transition zones, along with dimensional requirements listed therein.

   Aside from development within transition zones, staff will evaluate height limitations being proposed, which in certain locations, significantly exceed what is currently permitted. While taller development is concentrated away from the campus edges, this development is proximate to the campus historic district. Staff will consider whether the height of proposed buildings would have an adverse impact on either buildings or spaces within this district or the surrounding neighborhood.

10. *Promote compatibility with existing or future uses in adjacent neighborhoods, maintain housing, and support local amenities.*

    Staff Comment: The UNE Portland Campus, while open and accessible to the public, is a self-contained site that is somewhat separated from Deering Center's core, with an established presence on Steven's Avenue.

The location and physical layout of the campus allows for a broad range of uses, typical of a university, to be compatible with the surrounding context, which is predominantly residential, commercial and open space.

Future development listed within the IDP would likely result in more students, staff and faculty on campus, many of whom might choose to live in this neighborhood and patronize local establishments. In the near-term, this would likely increase demand for housing within the neighborhood, though the University has identified campus housing with approximately 200 beds, as a longer-term development priority. An increase in campus population would also likely result in an increase to local traffic, projected at 60 additional peak hour trips.

The University is a valued local resource, providing opportunities for civic engagement, local events, and healthcare services. The IDP commits the University to strengthening its relationship with the neighborhood and maintaining its characteristics as a place that is open and accessible to the public. In addition, UNE proposes regular participation at Deering Center Neighborhood Association meetings to provide project updates and solicit feedback in order to better incorporate the neighborhood in ongoing development planning. Also, the University that it will work to provide better trail connections from Evergreen Cemetery through the UNE campus, and that it is working with Portland Trails to identify these opportunities.

11. *Anticipate future off-site improvements that would support the integration of the institution into the community and citywide infrastructure.*

Staff Comment*:* The IDP does not identify specific off-site improvements that the University sees as being necessary to facilitate the future development listed. UNE notes that a financial contribution of $29,000 was provided in association with a past site plan approval for improvements to Morrill's Corner, and that no additional contributions or improvements were likely necessary. As stated elsewhere in this report, impact projections resulting from future development should be more detailed, to determine whether any off-site improvements are warranted.

As stated under the preceding review standard, UNE has identified an interest in working with Portland Trails to extend trail access from Evergreen Cemetery across the UNE campus. The IDP does not make specific recommendations for these improvements.

12. *Conform with the standards of Article 17 for designated landmarks or for properties within designated historic districts or designated historic landscapes, if applicable. When proposed adjacent to or within 100 feet of designated landmarks, historic districts, or historic landscapes, the IDP shall be generally compatible with the major character-defining elements of the landmark or portion of the district in the immediate vicinity.*

Staff Comment: The IOZ will be reviewed by Historic Preservation staff, and go before the Historic Preservation Board for full review, given that the IOZ encompasses a locally designated historic district. The findings of that review shall be provided to the Planning Board prior to a public hearing on this application.

13. *Incorporate strategies to support clear communication and ongoing public engagement between institutions and nearby neighbors.*

Staff Comment: The IDP commits the University to regular participation at Deering Center Neighborhood Association meetings, the development of a "projects' website where one could find relevant information on new and upcoming development projects, and the creation of a project email address, which interested parties can email to find out more information on development activities. Staff suggest that the University consider facilitating the formation of a neighborhood advisory group, similar in nature to the advisory group formed to coordinate with Maine Medical Center. While not a specific requirement of the community engagement standard, this would provide additional opportunity and structure for the neighborhood to communicate with and inform future planning work.

IX. NEXT STEPS

- Address Staff and Board Comments
- Attend content focused review meetings with City staff
- Schedule future Planning Board workshop

X. ATTACHMENTS

Memo Attachments from staff

1. Preliminary Review Comments

Applicants Submittal

A. UNE IOZ Application
B. Project Description
C. Institutional Development Plan
D. Regulatory Framework
E. Right, Title & Interest
F. Property Description

Zoning Map/Text Amendment Application
Portland, Maine

Planning and Urban Development Department
Planning Division and Planning Board

Portland's Planning and Urban Development Department coordinates the development review process for requests for zoning map amendments, zoning text amendments and contract or conditional re-zoning. The Division also coordinates site plan, subdivision and other applications under the City's Land Use Code. The **Application Process for a Zone Change** is summarized below under Section I and the associated costs for reviews are found under Section II, **Development Review Fees, Public Notices and Guarantees,** and are listed on the fee structure sheet.

I. APPLICATON SUBMITTAL

Pre-application meeting

Prior to submitting a zoning amendment application, the Planning Division recommends that the applicant or the designated representative schedule a pre-application meeting to discuss the review process and applicable standards for a proposal. Please contact Barbara Barhydt, Development Review Services Manager at 874-8699 to schedule a meeting.

Zoning Amendment Application

All plans and written application materials must be uploaded to a website for review. At the time of application, instructions for uploading the plans will be provided to the applicant. One paper set of the plans, written materials and application fee must be submitted to the Planning Division Office to start the review process.

- Submit one (1) complete paper set of the zoning amendment application with a concept plan and a written narrative. Contract and conditional rezoning applications must include site plans and written material that address physical development and operation of the property to ensure that the rezoning and subsequent development are consistent with the comprehensive plan, meet applicable land use regulations, and compatible with the surrounding neighborhood. Applications may be submitted between 8 a.m. and 4:30 p.m. Monday through Friday at the Planning Division on the 4th floor of City Hall, 389 Congress Street, Portland.
- All applications are processed in the order in which they are received.
- In order for the Planning Division's Administrative Staff to accept and log-in an application, the application form must be complete, it shall be signed by the applicant's or the applicant's designated representative, and all applicable fees paid at the time of submittal.
- The Land Use Code is available on the City's website at www.portlandmaine.gov.
- If the application is found to be incomplete, the applicant will be informed in writing of the required plans and materials.

II. DEVELOPMENT REVIEW FEES, PUBLIC NOTICES AND GUARANTEES

Zoning Application Fees

- Each application must be submitted with the applicable fees as listed in the fee structure on page 4. The fees cover general administrative processing costs.
- Application fees may be paid in cash or by check (addressed to the City of Portland).
- An application will not be processed without the required application fees.

Fee for City Review Services

- The City of Portland charges fees for service to cover the cost of reviews by Planning and Legal staff members. The charges will be billed at an hourly rate and will be invoiced monthly for reimbursement.
- Current billing rates: Planning services, $40.00/ hour and Legal services: $75.00/hour.

Fee for Third Party Review

- Portland contracts with local engineering firms to conduct engineering reviews of development proposals. The direct cost of all engineering services or third-party consultant reviews, such as the civil engineering review of stormwater management plans, traffic impact reviews and such other reviews as required under the City's Ordinances, will be included in the monthly invoices for reimbursement.

Public Notices

- Public notices must be sent to property owners within 500 for all proposals at the time an application is received. Zoning map amendments for Industrial zones require notices to be sent to property owners within 1,000 feet.
- In advance of a Planning Board workshop or public hearing, public notices for projects must be sent to property owners and are posted in a legal ad in the Portland Press Herald and on the City's web site.
- In addition, zoning map amendments, text amendments and conditional rezoning agreements require individual notices to be posted in the Portland Press Herald.
- The Planning Division mails public notices and posts notices in the newspaper. The applicant will be billed for actual or apportioned costs for advertising and sending mailed notices.
- The applicant is required to hold a neighborhood meeting under the City's regulations for zone change requests. The mailing labels must be purchased from the Planning Division for the neighborhood meeting invitation. A request for labels requires a minimum of two business days to generate the mailing labels and a charge of $1.00 per sheet will be payable upon receipt of the labels.

Third Party Review Fees

- Engineer and Third Party Review Fees - The fees are assessed by the Consulting Engineers and Third Party Reviewers.
- Inspection Fee - This fee is 2% of the Performance Guarantee or as assessed by Planning or Public Works Engineer with $300.00 being the minimum.

Noticing/Advertisements Planning Board/City Council Review

- Legal Advertisement: Percent of total bill
- Notices: .75 cents each

(notices are sent to neighbors upon receipt of an application, workshop and public hearing meetings for Planning Board and public hearing meeting for City Council)

Planning Division	**Office Hours**
Fourth Floor, City Hall	Monday thru Friday
389 Congress Street	8:00 a.m. – 4:30 p.m.
(207) 874-8721 or 874-8719	

PROJECT ADDRESS: UNE Campus Stevens Avenue/Bishop Street

CHART/BLOCK/LOT: See attached IDP

DESCRIPTION OF PROPOSED ZONE CHANGE AND PROJECT:

Proposed Institutional Overlay Zone

CONTACT INFORMATION:

	Applicant's Contact for electronic plans Name: Tom Saucier e-mail Address tsaucier@sitedesignassociates.biz work # 207-449-4275
Applicant – **must be owner, Lessee or Buyer** Name: University of New England Contact Name, if applicable: Eric Mora Address: 11 Hills Beach Road City/State : Biddeford, ME Zip Code: 04005	**Applicant Contact Information** Work # 207-602-2365 Home# Cell # Fax# e-mail: emora@une.edu
Owner – (if different from Applicant) Name: Applicant Address: City/State : Zip Code:	**Owner Contact Information** Work # Home# Cell # Fax# e-mail:
Agent/ Representative Name: Tom Saucier/Site Design Associates Address: 23 Whitney Way City/State : Topsham, ME Zip Code: 04086	**Agent/Representative Contact information** Work # 207-449-4275 Cell # e-mail: tsaucier@sitedesignassociates.biz
Billing Information Name: Applicant Address: City/State : Zip Code:	**Billing Information** Work # Cell # Fax# e-mail:
Engineer Name: N.A. Address: City/State : Zip Code:	**Engineer Contact Information** Work # Cell # Fax# e-mail:

Surveyor	Surveyor Contact Information
Name: N.A. Address: City/State : Zip Code:	Work # Cell # Fax# e-mail:
Architect	**Architect Contact Information**
Name: N.A. Address: City/State : Zip Code:	Work # Cell # Fax# e-mail:
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Name: James N. Katsiaficas Address: P.O. Box 426 City/State : Portland, ME Zip Code: 04112	Work # 207-774-2635 Cell # Fax# e-mail: jkatsiaficas@perkinsthompson.com

Right, Title, or Interest: Please identify the status of the applicant's right, title, or interest in the subject property:

Owner

Provide documentary evidence, attached to this application, of applicant's right, title, or interest in the subject property. (For example, a deed, option or contract to purchase or lease the subject property.)

Vicinity Map: Attach a map showing the subject parcel and abutting parcels, labeled as to ownership and/or current use. (Applicant may utilize the City Zoning Map or Parcel Map as a source.) See IDP

Existing Use: Describe the existing use of the subject property:

Post secondary school and ancillary and supporting uses.

Current Zoning Designation(s):

R3, R5, I-H, I-M

Proposed Use of Property: Please describe the proposed use of the subject property. If construction or development is proposed, please describe any changes to the physical condition of the property.

Post secondary school and ancillary and supporting uses.

Site Plan: On a separate sheet, please provide a site plan of the property showing existing and proposed improvements, including such features as buildings, parking, driveways, walkways, landscape and property boundaries. This may be a professionally drawn plan, or a carefully drawn plan, to scale, by the applicant. (Scale to suit, range from 1" = 10' to 1' = 50'.) Contract and conditional rezoning applications may require additional site plans and written material that address physical development and operation of the property to ensure that the rezoning and subsequent development are consistent with the comprehensive plan, meet applicable land use regulations, and compatible with the surrounding neighborhood.

APPLICATION FEE:

Check the type of zoning review that applies. Payment may be made in cash or check payable to the City of Portland.

Zoning Map Amendment _x_ $2,000.00 (from ___ zone to IOZ zone)	**Fees Paid** (office use) ___	The City invoices separately for the following: • Notices ($.75 each) (notices are sent to neighbors upon receipt of an application, workshop and public hearing meetings for Planning Board and public hearing meeting for City Council) • Legal Ad (% of total Ad) • Planning Review ($40.00 hour) • Legal Review ($75.00 hour) Third party review is assessed separately.
Zoning Text Amendment ___ $2,000.00 (to Section 14- _____) (For a zoning text amendment, attach on a separate sheet the exact language being proposed, including existing relevant text, in which language to be deleted is depicted as crossed out (~~example~~) and language to be added is depicted as underline (example)	___	
Combination Zoning Text Amendment and Zoning Map Amendment ___ $3,000.00	___	
Conditional or Contract Zone ___ $3,000.00 (A conditional or contract rezoning map be requested by an applicant in cases where limitations, conditions, or special assurances related to the physical development and operation of the property are needed to ensure that the rezoning and subsequent development are consistent with the comprehensive plan, meet applicable land use regulations, and compatible with the surrounding neighborhood. Please refer to Division 1.5, Sections 14-60 to 62.)	___	

Signature of Applicant:	**Date:**
	03-30-21

Further Information

In the event of withdrawal of the zoning amendment application by the applicant, a refund of two-thirds of the amount of the zone change fee will be made to the applicant as long as the request is submitted to the Planning Division prior to the advertisement being submitted to the news paper.

A Guide to Holding Neighborhood Meetings
Portland, Maine

Planning and Urban Development Department
Planning Division and Planning Board

In order to improve communication between development applicants and neighbors, the City of Portland requires applicants, proposing certain types of projects, to hold a neighborhood meeting.

What type of development proposal requires a neighborhood meeting?
Neighborhood meetings, organized and hosted by the applicant, are required for the following development proposals:

- Proposed zone changes, contract zones and zoning text amendments that would result in major development;
- Subdivisions of five or more units or lots; and
- Level III site plan proposals for preliminary or final site plans:
    - Portland's new site plan ordinance went into effect in August, 2010. It now includes provisions for preliminary and final plans. Neighborhood meetings are to be held three weeks after submitting a preliminary plan or within two weeks of submitting a final plan, if a preliminary plan was not submitted.

Who must be invited to a neighborhood meeting?
Property owners within 500 feet of the proposed development (1000 feet for proposed industrial subdivisions and zone changes) as well as those people on a list of interested citizens and neighborhood groups must be invited to the planned neighborhood meeting.

The Planning Division provides the mailing labels for the neighborhood meeting invitation. We require at least 48 hours notice to generate the mailing labels and a charge of $1.00 per sheet will be payable upon receipt of the labels.

When and where must the neighborhood meeting be held?
The neighborhood meeting must be held within three weeks of submitting a preliminary site plan. If an applicant chooses only to submit a final site plan, then the neighborhood meeting must be held within two weeks of submitting the final plan and not less than seven days prior to the Planning Board public hearing.

The meeting should be held in the evening, during the week, at a convenient location within the Portland neighborhood surrounding the proposed site. Community meeting spaces at libraries, schools or other places of assembly are recommended. Neighborhood schools are usually available for evening meetings.

Meetings should not be held on the same day as scheduled Planning Board or City Council meetings. The City Council generally meets on the first and third Monday of each month and the Planning Board generally meets on the second and fourth Tuesday of each month; however additional meetings may be scheduled. An updated schedule may be found on the City's website: www.portlandmaine.gov

When must invitations be sent?
Invitations to a neighborhood meeting must be sent no less than ten days (to include weekends) prior to the neighborhood meeting. If the notice is for a final site plan, then the neighborhood meeting must be held no less than seven days (to include weekends) prior to the public hearing. Notices may be sent by regular mail and do not need to be sent by certified mail.

What information should the invitation include?
A recommended invitation format is included in this packet of material.

Sign-up Sheets and Meeting Minutes
At the meeting, the applicant must circulate a sign-up sheet for those in attendance. The applicant must also keep accurate minutes of the meeting.

After holding the neighborhood meeting, the applicant must submit the sign-up sheet and meeting minutes to the Planning Division. The meeting minutes and sign-up sheet will be attached to the Planning Board report. A public hearing will not be scheduled until the meeting minutes and sign-up sheet are submitted to the Planning Division.

Certification
Included with this packet is a Certification to be completed and signed by the applicant. The applicant is required to certify when the invitations were sent out.

Please call the Planning Division at 874-8721 or 874-8719 if you have any questions.

Attachments
1. Neighborhood Meeting Invitation Format
2. Neighborhood Meeting Certification

~Applicant/Consultant: Please include all of the information listed below in the notice sent to neighbors~

Neighborhood Meeting Invitation Format

Applicant/Consultant
Letterhead

(Date)

Dear Neighbor:

Please join us for a neighborhood meeting to discuss our plans for a (development proposal) located at (location/number and street address).

Meeting Location: _____
Meeting Date: _____
Meeting Time: _____

The City code requires that property owners within 500 feet of the proposed development and residents on an "interested parties list", be invited to participate in a neighborhood meeting. A sign-in sheet will be circulated and minutes of the meeting will be taken. Both the sign-in sheet and minutes will be submitted to the Planning Board.

If you have any questions, please call (telephone number of applicant or consultant).

Sincerely,

(Applicant)

Note:
Under Section 14-32(C) and 14-525 of the City Code of Ordinances, an applicant for a Level III development, subdivision of over five lots/units, or zone change is required to hold a neighborhood meeting within three weeks of submitting a preliminary application or two weeks of submitting a final site plan application, if a preliminary plans was not submit. The neighborhood meeting must be held at least seven days prior to the Planning Board public hearing on the proposal. Should you wish to offer additional comments on this proposed development, you may contact the Planning Division at 874-8721 or send written correspondence to the Planning and Urban Development Department, Planning Division 4th Floor, 389 Congress Street Portland, ME 04101 or by email: to bab@portlandmaine.gov

Neighborhood Meeting Certification

I, (applicant/consultant) hereby certify that a neighborhood meeting was held on (date) at (location) at (time).

I also certify that on (date at least seven days prior to the neighborhood meeting), invitations were mailed to all addresses on the mailing list provided by the Planning Division, including property owners within 500 feet of the proposed development or within 1000 feet of a proposed industrial subdivision or industrial zone change and the residents on the “interested parties” list.

Signed,

_____ _____ (date)

Attached to this certification are:

1. Copy of the invitation sent
2. Sign-in sheet
3. Meeting minutes

University of New England

Institutional Overlay Zone

March 30, 2021

Project Description

University of New England is proposing an institutional overlay zone in accordance with Section 8.5 of the land use code. The parcels included in the zone are shown on the attached Appendix 1.1.

APPENDIX 1.1 List of Properties included in the UNE IOZ

(All properties within the green boundary shown on the IOZ Boundary (Figure 1.1) shall be included in the UNE IOZ)

Chart	Block	Lot	Address	Acreage	Ownership
144	A	005	684 Stevens Ave	0.141	UNE
144	A	006	684 Stevens Ave	0.275	UNE
144	A	007	684 Stevens Ave	0.371	UNE
144	A	008	684 Stevens Ave	0.256	UNE
144	A	009	684 Stevens Ave	0.586	UNE
145	A	001	706 Stevens Ave	0.450	UNE
145	A	002	710 Stevens Ave	0.165	UNE
145	A	003	714 Stevens Ave	9.231	UNE
145	A	006	714 Stevens Ave	0.250	UNE
145	A	007	710 Stevens Ave	0.006	UNE
145	A	008	710 Stevens Ave	0.036	UNE
145	A	009	714 Stevens Ave	0.356	UNE
145	A	010	714 Stevens Ave	0.338	UNE
145	B	001	1 College St	0.207	UNE
145	B	002	1 College St	1.830	UNE
145	B	006	31 College St	0.134	UNE
145	B	007001	33 College St	0.173	Owned by others
145	B	008001	37 College St	0.197	Owned by others
145	A	004	74 College St	0.416	Owned by others
145	B	009	41 College St	0.200	UNE
145	B	010	51 College St	0.383	UNE
145	B	011	63 College St	0.076	UNE
145	B	012	63 College St	0.114	UNE
145	B	013	63 College St	0.048	UNE
145	B	014	83 College St	0.366	UNE
145	B	018	772 Stevens Ave	8.603	UNE
145	B	027	83 College St	3.137	UNE
145	B	029	79 College St	0.258	UNE
145	B	042	1 College St	0.162	UNE
145	B	046	1 College St	0.138	UNE
281	A	003	0 Bishop St	10.555	UNE
290	A	003	83 College St	1.771	UNE
291	A	001	0 Bishop St	8.394	UNE
291	A	005	83 College St	17.972	UNE
291	A	007	83 College St	0.459	UNE
293	C	005	83 College St	1.574	UNE

UNIVERSITY OF NEW ENGLAND

INNOVATION FOR A HEALTHIER PLANET

INSTITUTIONAL DEVELOPMENT PLAN

January 19, 2022



Figure 0.1 – UNE Portland Campus Aerial View

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UNIVERSITY OF NEW ENGLAND

INNOVATION FOR A HEALTHIER PLANET

CHAPTER ONE

INTRODUCTION

The 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.

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 will be 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.

UNE is at an enviable point in our evolution, a point from which we are poised to leap to ever greater heights.

At the center of our new strategic plan, ***Our World, Our Vision***, is a daring and expansive perspective on "health": **We will establish UNE among the premier providers of education, expertise, and innovation for sustaining the health of our world's people, communities, and natural environment.**

We are ready. Even a short list of our achievements demonstrates the force that UNE has become:

- We offer an exceptional return on our students' educational investment. More than 93 percent of UNE undergraduates start a job or enter a graduate program within six months of receiving their diploma. The Brookings Institute ranks us number one among all of Maine's colleges and universities for our ability to increase students' career earnings.

• We prepare students to be culturally fluent members of an increasingly global workforce. UNE undergraduates study abroad at five-times the national average, spending semesters at UNE's very own campus in Tangier, Morocco, as well as at affiliated campuses in Spain, France, and Iceland.

• We are Maine's leading provider of health professionals. Offering our state's only medical school and Northern New England's only dental school, as well as programs in pharmacy, nursing, and a range of other health professions, UNE plays a leading role in meeting the health care needs of underserved communities throughout the Northeast and beyond.

• We are a national leader in interprofessional health care education (IPE). Research clearly demonstrates improved health outcomes when patients are cared for by teams of health care professionals—doctors, nurses, physician assistants, physical therapists, and social workers working side by side. UNE prepares aspiring health professionals for such collaborations by having them learn and work beside other students representing the full range of health professions programs.

• We engage in important research and scholarship. The work of UNE researchers has improved breast cancer detection, led to better understanding of how the Zika virus spreads, demonstrated how dehumanizing speech leads to violence and discrimination, uncovered how psychiatric medications can cause diabetes and bone fractures in children, and even unlocked the secret life of sharks. Our success is demonstrated by 800 percent growth in external funding over the past decade. More importantly, UNE students benefit, too. Just under half of all our undergraduates work with faculty on research projects (compared to 23 percent nationwide).

• We graduate students who possess real world experience. Virtually all UNE students engage in some form of hands-on experiential learning, gaining invaluable disciplinary knowledge and interpersonal skills through internships, clinical rotations, service learning, and countless other opportunities to apply classroom knowledge in community organizations, businesses, government offices, and many other work settings.

• We are committed to fostering a robust marketplace of ideas. In an era when society has found itself increasingly divided along partisan ideological lines, we foster an environment in which the hard conversations essential to a true education still occur, challenging members of our community to reach beyond their intellectual comfort zones. Our Center for Global Humanities, George and Barbara Bush Lecture Series, P.D. Merrill Business Ethics Lecture, and President's Forum, among many other events, offer venues where a diversity of ideas can thrive through civil and respectful discourse.

We are ambitious and restless—an institution that is of the world. Look around, and you will find our students, faculty, and professional staff in places as diverse as Morocco and Iceland, and in clinics and field sites across our nation's cities, villages, forests, and oceans. You will see us learning from experiences in communities representing every form of human difference. These cultural, personal, and geographic connections reflect the profound respect and concern that the UNE community holds for the health of our world— its people, its communities, and its physical

environment. We couple this concern with our nimbleness, flexibility, creativity, and sense of urgency to make UNE a powerful source of innovation for a healthier planet.

We have a strong legacy and a prestigious set of programs in the health sciences. But we are a comprehensive university, and creating a healthier planet requires more than talented health professionals. It requires leaders from all disciplines, including the natural and social sciences, humanities and arts, business, policy and more—bringing their diverse and complementary skills to bear on the most pressing challenges of our world.

We are seizing on our foundational strengths to:

- Expand active and collaborative teaching and learning through pedagogical innovation and enhanced technologies;
- Enhance our commitment to experiential learning;
- Create even more opportunities for students, faculty, and professional staff to work together across academic disciplines and professional programs; and
- Adapt and scale up the solutions we find working on problems in local communities in order to address similar challenges around the globe.

These steps chart a bold new course for UNE:

We will be one of the nation's top providers of education, expertise, and innovation for sustaining the health of our world's natural environment, people, and communities.

This broad perspective on health requires us to focus on interactions among individuals, communities, and the environment. Moreover, it demands that we look for solutions to our world's pressing challenges by drawing knowledge and expertise from many academic disciplines. This means exposing students to discipline-based knowledge, cross disciplinary habits of mind, and professional competencies that are discussed in this strategic plan. With these skills, UNE students will be ready to bring the fullest breadth of understanding and expertise to bear on improving the condition of people, society, and our planet.

Inspired by this vision and guided by this plan, UNE will empower students to anticipate and meet the challenges of this new world and to become active leaders in creating its future.

UNE — *For the health of our world.*

ABOUT UNIVERSITY OF NEW ENGLAND – Portland Campus

CAMPUS HISTORY

Although Westbrook College 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). The college 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.

Westbrook Seminary

Westbrook Seminary, a co-educational boarding school that existed for 91 years, had its beginnings in September, 1830, when the Kennebec Association of Universalists resolved that a school that would promote "piety and morality" be established at the Steven's Plains in Westbrook.

The charter for Westbrook Seminary was signed by Governor Daniel Smith on March 4, 1831. The campus's original eight acres were a gift to the Association from Zachariah Stevens (Steven's Plain and the present Stevens Avenue were named for him) and Oliver Buckley. Three years passed before the first class was held on June 9, 1834 in the newly constructed Seminary Building, which is now called Alumni Hall.



Figure 1.1 - Westbrook Seminary Building, circa 1834.

By the 1890's, the Seminary offered four courses of study: a three year English course and four-year programs titled scientific, ladies' classical, and preparatory. In the last part of the 19th century, the Seminary added chemistry and physics labs to Alumni Hall and promoted a serious interest in athletics that led to the construction of McArthur Gymnasium in 1900.

Other notable buildings constructed during this time support the expanding curriculum were Goddard Hall built in 1856, Ludcke Auditorium (originally a Unitarian Universalist church) built in 1867, and Hersey Hall built in 1869,

Westbrook Junior College

In 1925, the name was changed to Westbrook Junior College and the school became a career oriented women's two-year college which prepared students to transfer as juniors to four-year colleges or universities.

Enrollment increased steadily through the 1930's, 1940's, and 1950's. The college's Proctor Hall was built in 1951. In the 1960's, with the sustained growth and financial support from major grants and federal money, construction of six new buildings occurred. Coleman Hall (1961), Alexander Hall (1962), Linnell Hall (1962), McDougall Hall (1962), Ginn Hall (1962) and Blewett Hall (1967).

Westbrook College

Two major academic changes occurred in the 1970's. Looking toward the future, the college legally changed the institution's name to Westbrook College. Federal legislation mandated that federal funds could not be granted to colleges that practiced gender discrimination so Westbrook College returned to co-educational.

The first Westbrook College male students enrolled in the 1973 fall semester. In 1975, the Art Gallery was constructed and opened. In the 1980's and early 1990's the College continued to build upon the 1970's decisions and made a firm commitment to four-year programs that combined liberal arts with professional education. The new Abplanalp Library was constructed at rear of the existing McArthur Gymnasium and opened in 1986, contributing to the College's academic strength, while the new Finley Recreation Center was completed in 1989, providing sports and leisure opportunities.

University of New England – Portland Campus

In the late 1980's and early 1990's, the college found itself caught in national trend of reduced enrollment that especially hit small colleges hard. By the mid 1990's, the college began looking at other institutions for a possible merger.

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 four of the University's premier Colleges.

The recently renamed **Westbrook College of Health Professions** is a model for interdisciplinary health and wellness. With more than 1,000 students, faculty and staff working in graduate programs in Social Work, Physician Assistant, Occupational Therapy, Physical Therapy and Nurse Anesthesia and with undergraduate students in Nursing and Dental Hygiene, the WCHP honors the academic legacy of Westbrook College.

Westbrook College of Health Professions is also home to the Interprofessional Simulation and Innovation Center, which employs high tech patient simulators that are integrated with computer programs in real time so these "patients" can actually respond to students' actions and can even hold "discussions" surrounding their care. The Interprofessional Simulation and Innovation Center is also training health professionals from the region's healthcare institutions as well.

The **College of Pharmacy** is also housed on the Portland Campus and accepted its first class of 100 students in the fall of 2009 in a newly constructed building on Stevens Avenue. Offering a Pharm.D. Degree, the UNE College of Pharmacy sets itself apart by being heavily focused on research and development.

In the fall of 2013, the UNE **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 Graduate and Professional Studies** is the University's on-line college, whose faculty and staff are also located on the Portland Campus.

The Portland Campus is also home to UNE's **Center for Global Humanities**, which brings to campus some of the leading thinkers of our time to engage with UNE students and members of the surrounding community.

Two important Portland cultural institutions are based on the Portland Campus. The **Maine Women Writers Collection**, a preeminent special collection of literary, cultural and social history sources by and about Maine women, was designated a national Literary Landmark and continues to host local women's studies programs and national conferences. The **Art Gallery** offers a series

of ongoing exhibitions of art and photography, which are open to the public, and houses a distinguished permanent collection.

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, health environments, and thriving economies. Grounded in the United Nations Sustainable Development Goals and with its growing network of regional partnerships including Iceland, Canada, Sweden, Norway, and the U.K, UNE NORTH will train a new generation of leaders, inform policy through research, promote interdisciplinarity and the co-creation of knowledge in all its activities, and support Maine's leadership role in the North Atlantic.

UNE NORTH brings the University of New England's strengths in the life, health, and social sciences to bear on the North Atlantic's shared challenges and opportunities. Demographic, geographic, climatic, and cultural similarities between Maine and North Atlantic/Nordic states have created a need and enthusiasm for impactful regional relationships. Leveraging UNE's research and education strengths and its culture of innovative partnership, UNE NORTH convenes stakeholders from across the region to bring their combined curiosity and creativity to bear on the region's health, social, environmental, and economic challenges.

Current Campus Programming

The University of New England has three distinct campuses that combine to offer students a range of different learning experiences. Our two Maine campuses house our internationally renowned undergraduate, graduate and professional programs, while our campus in Tangier, Morocco is home to an innovative semester abroad program. Currently, the Portland Campus is primarily a graduate campus, focused on educating health professionals.

While the Portland Campus is home to the University's On-line academic offerings, the following programs are currently offered, in person, on the University's Portland Campus:

- Dental Medicine
- Dental Hygiene
- Nursing
- Nurse Anesthesia
- Occupational Therapy
- Pharmacy
- Physical Therapy
- Physician Assistant
- Professional Science Master in Ocean Food Systems
- Public Health
- Social Work

In addition to the academic offerings on campus, the University also operates two clinics on campus. The **Oral Health Center** is the clinical education center for UNE's College of Dental Medicine. At our state-of-the-art clinic, UNE dental students will address all oral health care needs under the supervision of our licensed faculty dentists, at low, affordable fees. The Oral Health Center offers comprehensive oral health care, which encompasses all major dental services, including emergency walk-in services. Our services include: cleanings, checkups, fillings, root canals, crowns, veneers, extractions, X-Rays, Partial Dentures, dentures, bridges, and implants. In 2019, the Oral Health Center provided low cost care totaling 18,400 patient visits.

The **Dental Hygiene Clinic** is the clinical education center for the University's Dental Hygiene program. At this state-of-the-art clinic, UNE dental hygiene students will address oral health care needs under the supervision of our licensed faculty dentists, at low, affordable fees. The Dental Hygiene Clinic offers oral inspections, nutritional counseling, scaling and plaque removal services, sealant placement, personalized oral hygiene instruction, blood pressure screenings, radiographic surveys (x-rays), fluoride treatments, and athletic mouth guard fabrication. In 2019, the Dental Hygiene Clinic provided low cost care totaling 6,600 patient visits.

Current Campus Populations

The 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 out into clinical settings. UNE has approximately 100 clinical affiliations, at 65 sites in Portland, and over 450 statewide.

For the fall of 2019, prior to the Covid-19 pandemic, the Fulltime Equivalent, FTE, student population on the Portland Campus was 1,247 students. During that time period, there were 456 full time faculty and professional staff on campus.

For the fall of 2020, during the Covid-19 pandemic, the Fulltime Equivalent, FTE, student population for the Portland Campus was 1,162 students and the full time faculty and professional staff count was 442. See below notes regarding the Covid-19 pandemic campus protocols adopted.

YEAR	Fulltime Equivalent Student Population	Fulltime Faculty and Professional Staff
Fall 2020	1,162	442
Fall 2019	1,247	456
Fall 2018	1,282	467
Fall 2017	1,304	472
Fall 2016	1,362	470

Figure 1.2 – FTE Student, Faculty and Professional Staff Data

Students generally complete their degree programming on one campus, and faculty and staff are generally assigned to one campus or the other. There is however, some commuting between campuses that occurs. With the advent of the COVID Pandemic, the University has:

- Changed its instructional model to a hybrid model, in which the classes are split in half and the students only come to campus every other class, with the other class being conducted remotely. This has essentially reduced the on campus population to about half the usual number. This should revert back to "normal" after the pandemic.
- Required all non-student facing personnel to work remotely whenever feasible, using telework and flex-work options. This has proven to be extremely effective in some areas, and will continue after the pandemic. Again, the daily population on campus is about half the "normal" expected.
- Extensively employed the use of ZOOM and other virtual meeting platforms. This has been extremely effective in conducting meetings and will continue to be utilized after the Pandemic. This will result in fewer faculty and staff travelling between the campuses for meetings, reducing traffic in the immediate area.

UNE regularly hosts special events and functions on its Portland campus utilizing some of its larger venues such as the large function halls in Innovation Hall, Ludke Hall, Parker Pavilion and at times outdoors on the main campus green. Most of these events and functions take place during non-University operational days and hours to minimize the impact to its core educational operations. Saturdays, Sundays and after 5pm on weekdays are the typical timing for these non-University events.

Projected Campus Populations

The University is projecting future growth in student, faculty and staff in one major area with the relocation of the College of Osteopathic Medicine (COM) from our Biddeford campus to the Portland campus. This is discussed in more detail in Chapter 2 – Campus Master Plan. The development/building to support this relocation is indicated as A1 on the Campus Master Plan (Figure 2.1) and in the Programming Building Blocks (Figure 2.2)

Currently the College of Osteopathic Medicine (COM) has 180 students per class. Years one and two are in-person/on campus curriculums. Years three and four are off campus residency with a participating health care facility and are not on campus. COM is planning to grow each class to a total of 200 students after their relocation to the Portland campus. This will result in an increase of FTE student population on the Portland campus of 400 students. Projected faculty and staff population will increase in Portland by 160.

As stated above, UNE will continue to utilize telework and flex-work options for a portion of its faculty and staff after the Covid-19 pandemic to reduce headcount on the campus. This will assist with reducing parking need, ease traffic around the campus and decrease office space requirement.

With the vast majority of its students enrolled in graduate degree programs, the University does not currently provide on campus housing for the students enrolled on the Portland campus, unlike its traditional aged, undergraduate students enrolled on its Biddeford campus where on campus housing is offered. The University does direct students to facilities offering housing to these typically, non-traditional students. That being said, the University will continue to evaluate if the creation of on campus housing is a viable option.

CAMPUS CONTEXT

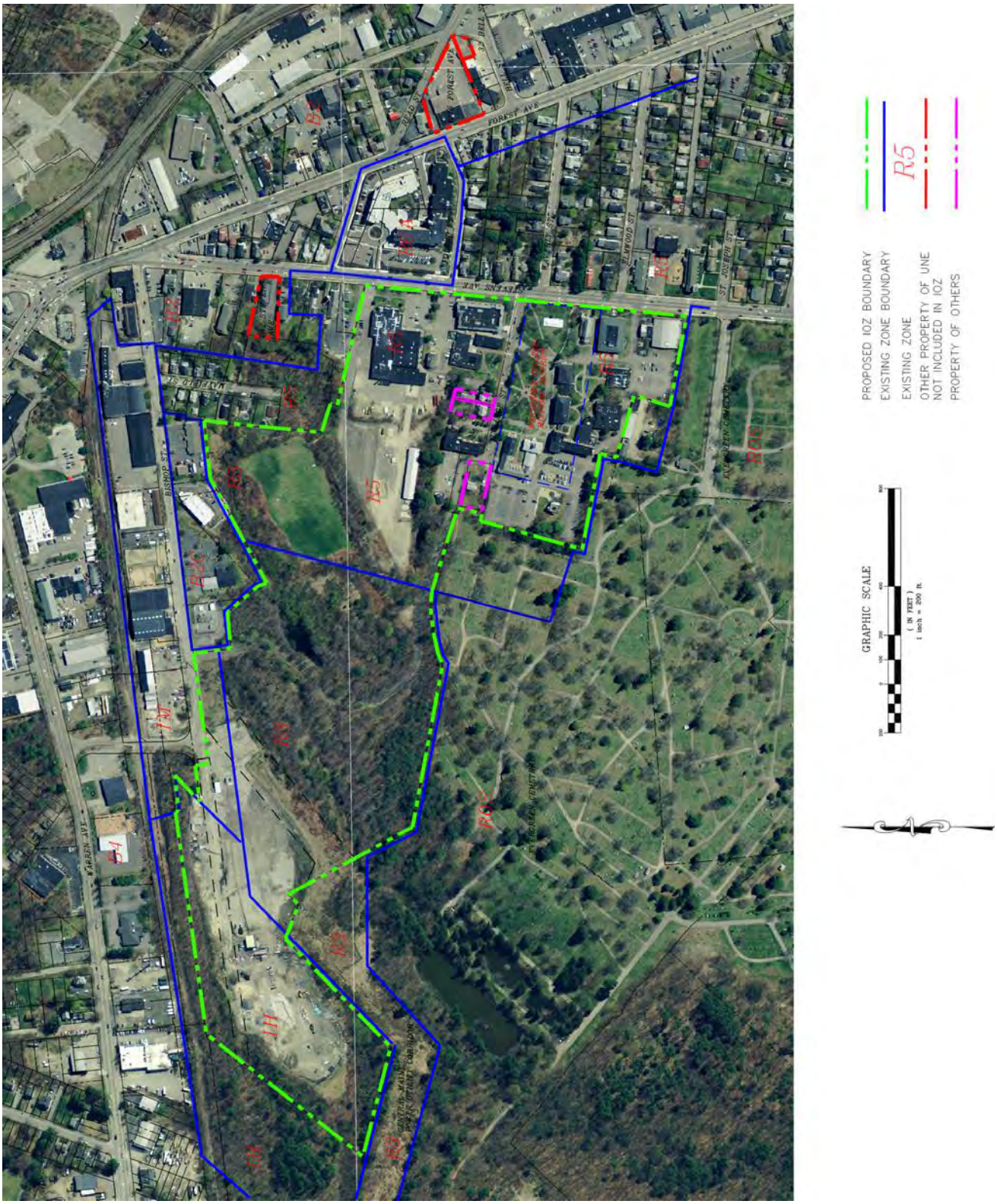


Figure 1.3 – UNE Context Plan

Current Campus Buildings (See Figure 1.4 Campus Map)

1. **Finley Recreation Center** - Constructed in 1990, this 20,000 SF, 36 foot tall, steel frame masonry veneer facility is used for recreational purposes. It contains a gymnasium and weight training and fitness rooms.
2. **College of Pharmacy Building** – This three story, 46,380 SF, 55 foot tall, academic/research facility was completed in 2009 and accepted its first class of pharmacy students in the fall of 2009.
3. **Ludcke Auditorium** - Built in 1867, this former 9,676 SF, 42 foot tall, wooden church, was renovated in 1986, and is currently used by UNE as a multi-function auditorium facility.
4. **Coleman Hall** - This 10,718 SF, 22 foot tall, wood/masonry split level facility is home to the Dental Hygiene Program and contains a Dental Hygiene Clinic, which provides services to the public. It was constructed in 1961 and was added onto in 1968 and 1976. The hygiene clinic was renovated in 2013.
5. **Goddard Hall** – This 12,696 SF, 48 foot tall, 1857 built masonry brick façade, wood framed building was completed renovated in 2011 and is used for academic support with classrooms and faculty offices.
6. **Hersey Hall** - This 22,170 SF, 55 foot tall, four story masonry structure with wood framing was originally built in 1869. The interior was completely renovated to academic offices in 2001.
7. **Blewett Hall** - This 31,650 SF, 32 foot tall, academic facility contains classrooms and laboratories to support all academic programs. This three story masonry facility was constructed in 1967, and had partial interior renovations in 1998 and 2001.
8. **Parker Pavilion** - The 6,600 SF, 22 foot tall, masonry/steel structure building was constructed in 2001, and is used for academic support.
9. **WCHP Lecture Hall** – This lecture hall located adjacent to the Parker Pavilion is a large, lecture style classroom the supports the health professions programs.
10. **Proctor Hall** - Completed in 1951, this 31,074 SF, 56 foot tall, four story masonry brick building is used for academic purposes with classrooms and lecture spaces. Renovations were completed in the late 1990's.
11. **Art Gallery** - Constructed in 1976, this three level, 2,890 SF, 30 foot tall, masonry building is used to exhibit works of fine art.
12. **Alumni Hall** - This 9,809 SF, 40 foot tall, three story brick bearing wall and wood frame masonry building with a rear wood framed addition, was constructed in 1834 and is capped by a bell tower that was relocated from Portland's Market House, which subsequently became the Portland City Hall, at the time of its construction. Alumni was completely renovated, the rear wooden framed addition removed and replaced, and re-opened in 2016 with a total 12,610 SF of space. The renovated facility houses senior administrative offices, meeting rooms and a student study lounge.
13. **Abplanalp Library** - Originally constructed in 1900, as the McArthur Gymnasium, this three level, 38 foot tall, wood frame and masonry building was renovated and expanded into a 26,636 SF library in 1986. A new central HVAC system was installed in 2001.
14. **Ginn and McDougall Halls** - This four story masonry complex of 34,091 SF and 40 foot tall, constructed in 1964 as a residence hall, is currently used for support offices for UNE. The central campus heating facility, completely updated in 2001, is located in its basement.
15. See above
16. **Safety and Security/Bus Terminal Building** – This two story, 720 SF, 20 foot tall building is currently utilized as office space for our Security Department along with a waiting area for our Bishop Street parking lot shuttle bus.

17. **Alexander Hall** - This 13,912 SF, 22 foot tall two story masonry building was constructed in 1962 and serves as the Student Union complex and also houses the Dining Hall and Campus Bookstore. Several interior renovations have taken place over the last several years.
18. **Linnell Hall** - This two story, 12,762 SF, 26 foot tall brick building, is used for support offices, and was originally constructed in 1962 as a residence hall. It currently houses our Student Health Clinic on the first floor and has administrative offices on the second floor.
19. **Oral Health Center** – This 40,300 SF, 42 foot tall, two story facility was completed in 2013. It houses the dental clinic and simulation lab for the College of Dental Medicine. It accepted its first dental students in the fall of 2013.
20. **Facilities Management Building** – This 2,300 SF, 30 foot tall building is currently utilized as offices and maintenance shop for the University's Campus Services Department.
21. **Innovation Hall** – This two story, 66,794 SF, 34 foot tall, former National Guard Armory building was purchased in 2015 and fully renovated in 2016. It now houses several academic support offices, classrooms, student study spaces and a large multi-function meeting space.
22. **1075 Forest Avenue Building** – This 18,000 SF, 20 foot tall building located on Forest Avenue currently houses our UNE NORTH program and is also used for storage. Parking for this facility is provided on the site.
23. **812 Stevens Avenue –** This 3,500 SF, 24 foot tall facility was formerly a dental office, but was damaged in a fire and subsequently donated to UNE. The building is currently vacant, but the associated parking lot is utilized.

Bishop Street Intermodal Transportation Facility, located at the end of Bishop Street is currently used as a remote, free parking facility, with shuttle service to the core campus.

Current Campus Open Space and Natural Areas

The most prominent open space on the UNE campus is the large campus green located at the main entrance off of College Street. This open space is also part of the Westbrook College Historic District and is the main focal point and viewshed onto the campus from Stevens Avenue.

Several freshwater wetland areas are located in the largely undeveloped area located in the center of the campus between College Street and Bishop Street Extension (see Drawing NR-1). Two wetland areas are also located westerly of the parcel off Bishop Street Extension. There are perennial and intermittent streams located within the wetland areas. The wetlands are primarily forested and shrub wetlands

Three vernal pools are located on the campus, one westerly of the Bishop Street Extension parcel and one located southerly of the former armory property. Neither of the vernal pools meet the criteria to be considered as "significant vernal pools" by the regulatory agencies.

Directly abutting the campus is the 239-acre Evergreen Cemetery, a National Historic Landmark established by the city in 1854. The Evergreen Cemetery not only is of historical significance, but it also serves as an important open space resource for this neighborhood, used for walking, jogging and contemplation.

With the potential development identified in the Campus Master Plan, most of the current campus open space will remain as is. UNE is partnering with Portland Trails to extend their network of trails onto the Portland Campus, with the goal of providing more opportunities for the community to access Portland's open spaces including those on UNE property. The new facility, A1, to support the relocation of the College of Osteopathic Medicine to the Portland campus, and in conjuction with the development of the Campus Services Building, S6, the intracampus pedestrian circulation in and around Innovation Hall will be improved and additional green space created, better connecting it to the core historic campus.

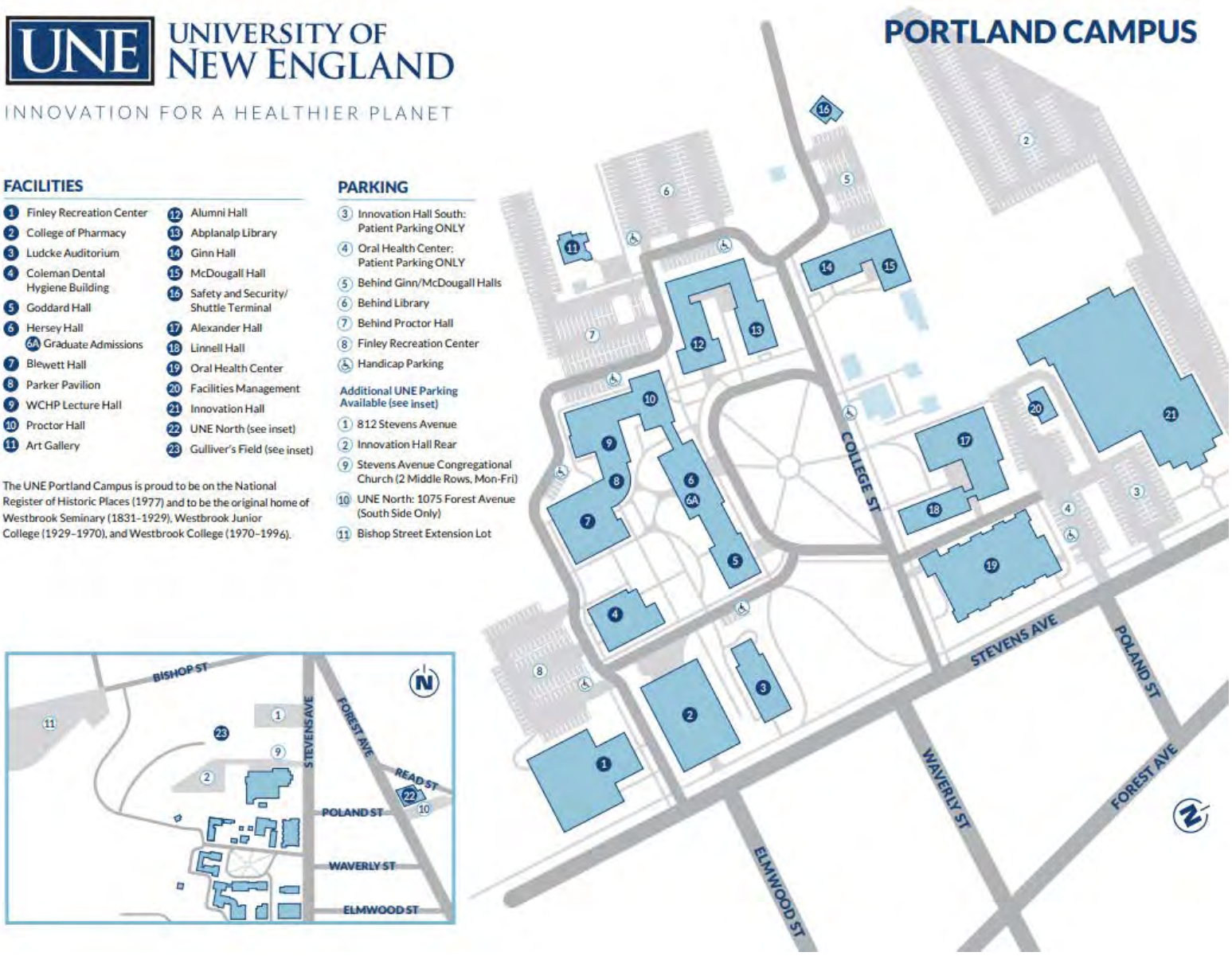


Figure 1.4 - UNE Campus Map

Neighborhood Context

The 70 acre University of New England 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 the Evergreen Cemetery, it is bordered by and in close proximity to 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.

The UNE campus is accessed from Stevens and Forest Avenues from the south and downtown Portland, from Allen and Forest Avenues from the north and Warren Avenue from the west.

Access to the remote UNE parcels is along the city sidewalks. 812 Stevens Avenue, currently vacant but used for parking, can be accessed without crossing any roadways. 1075 Forest Avenue is accessible to the core campus via the sidewalks along Poland Street and across Forest Avenue with aid of a signalized crosswalk. 1075 Forest Avenue currently houses UNE's UNE NORTH program, which operates independently from the healthcare professions on the core campus. Students and staff assigned to that facility do not often spend time on the core campus. No anticipated public way improvements are required to support the use of these facilities.

Zoning Context

While the University's Portland campus remains in its original physical location, the City of Portland's zoning has never included Institutional Uses as permitted uses in the R5 zone that the core campus resides in. Institutional uses are only conditionally allowed in the R5 zone. With the most recent acquisitions of land holdings, abutting and proximal to the core campus, UNE's Portland campus currently resides in five different zoning districts: R3 and R5 which are residential zones; B2 which is a business community zone; IH which is an industrial – high impact zone; and IM which is an industrial – moderate impact zone. Development on the campus has been historically governed by these zones through conditional use. At the request of the City, and with input from its neighbors, UNE has developed this Institutional Development Plan (IDP) to support the new Institutional Overlay Zone (IOZ), see (Figure 1.5).

UNE Campus: Neighborhood and Zoning Context (Data Source: City of Portland GIS)

- UNE Institutional Overlay Zoning (IOZ) District Boundary - UNE Non IOZ Boundary

City of Portland Existing Zoning Districts:

- R3 – Residential
- R5 – Residential
- R6A – Residential
- RP – Residential Professional
- IM – Industrial – Moderate Impact
- ROS– Residential Open Space
- B4 – Business Community
- B2 – Business Community
- B2C – Business Community
- IL – Industrial – Low Impact
- IH – Industrial – High Imp

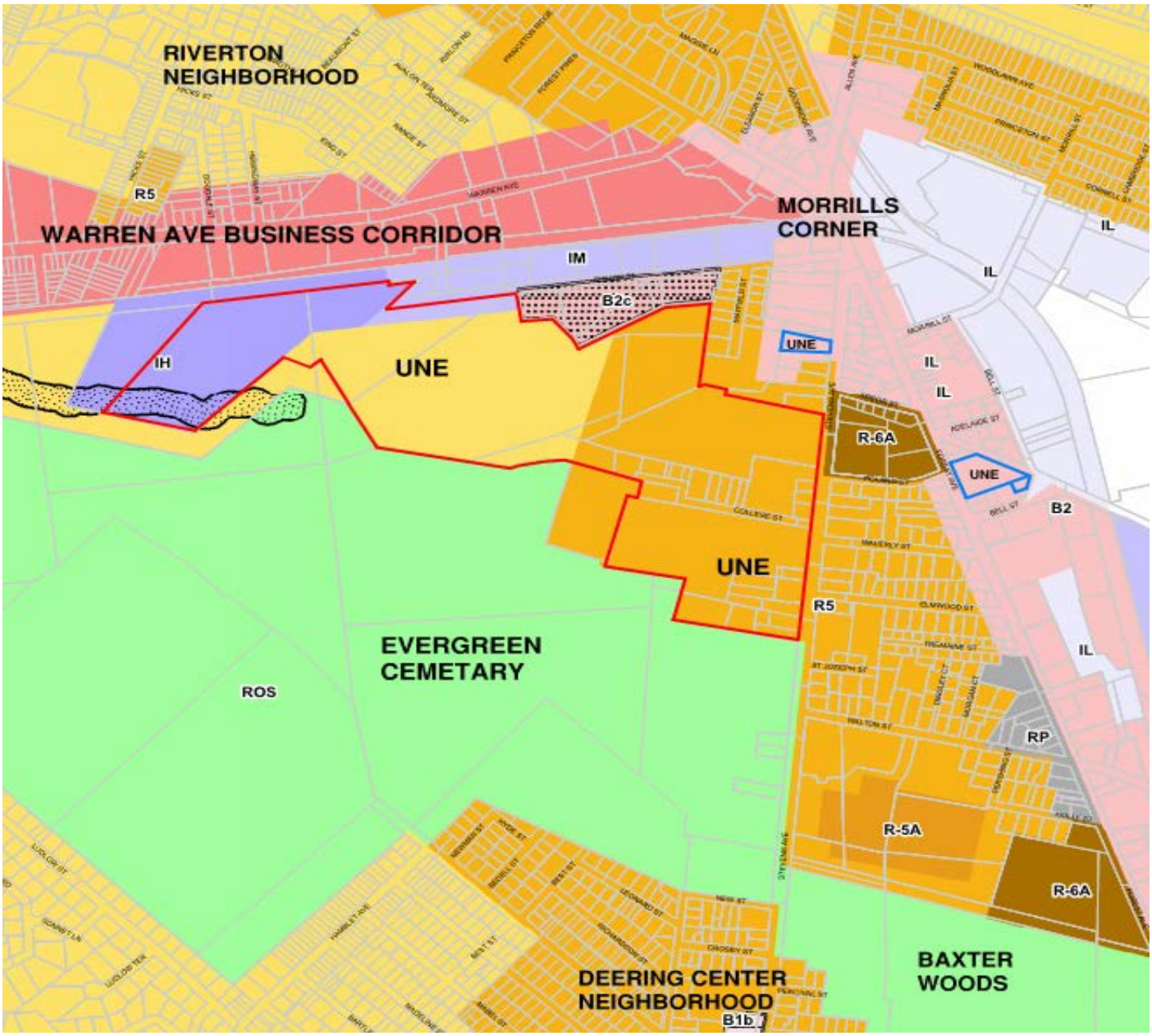


Figure 1.5 – Zoning Context Plan

Historic Resources

UNE's Portland campus includes one of the eleven locally-designated historic districts in the City of Portland that is known as the Westbrook College Historic District (see below for district boundary). This historic district includes six buildings on the UNE Portland Campus that were built between 1834 and 1951. These include Alumni Hall, Goddard Hall, Ludcke Hall, Hersey Hall, Abplanalp Library (Formerly McArthur Gymnasium) and Proctor Hall, as well as the adjacent college green which is bordered by College Street and Stevens Avenue. To date, Goddard Hall, Hersey Hall and Alumni Hall have been rejuvenated through full gut historical renovations permitted through the Historic Preservation Board. The exterior of these facilities have been maintained and or restored to their original grandeur and color. All work done to Ludcke Hall, Proctor Hall and the Abplanalp Library has been done with an effort to preserve the historical nature of these facilities and has also been permitted through the Historic Preservation Board. All other work on the campus considers the historic nature of the campus and is designed and constructed to accent or complement the existing historic district. Towards that end, there is now a "Westbrook College brick" manufactured and used in construction on campus.

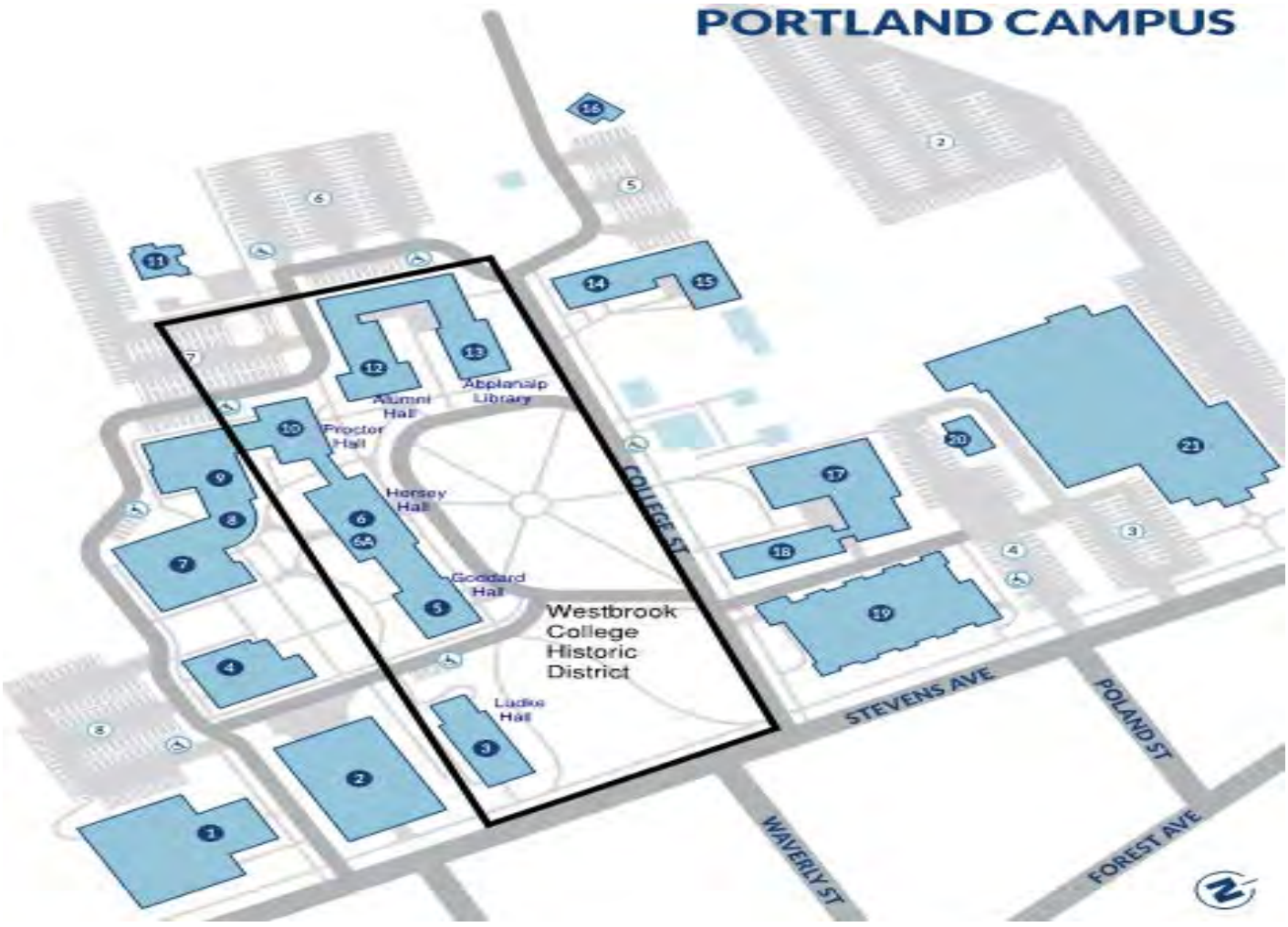


Figure 1.6 – Westbrook College Historic District Boundary Plan

COMPLIANCE WITH THE COMPREHENSIVE PLAN

University of New England has been a long term member of the City of Portland community and understands the overall goals for growth and change that the City has included in its most recent Comprehensive Plan along with the policy directives and goals for development incorporated within it. This Comprehensive Plan addresses areas such as commercial, business and industrial development; transportation resources; and commerce and residential housing plans.

UNE's Institutional Development Plan (IDP) and Regulatory Framework are 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. This incorporation and support is key to the flexibility that the City's recently drafted IOZ ordinance is meant to provide. 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's IDP – Compliance with the City's Comprehensive Plan

UNE has discussed, within this IDP, 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)

Environment

UNE is fully committed to the protection of the environment. It will continue efforts on its Portland campus to maintain and expand its initiatives and objectives to support this commitment. UNE will continue its work to improve water quality on and around its campus and will maintain its efforts to protect natural resources. UNE also will continue to implement stormwater best management practices and reduce impacts to adjacent wetlands. We remain committed to the design and construction of environmentally friendly, sustainable and high-performance buildings along with completing renovations to existing spaces that integrate energy efficient mechanical and electrical systems, such as energy-saving heating and air conditioning units, LED lighting, and water-saving plumbing fixtures. UNE has a Sustainability Department that works continuously to

reduce the University's impact upon the environment. Our Sustainability Department leads the effort to identify projects and processes that aim to reduce UNE's carbon footprint, manages the recycling program which targets the reduction of landfill waste and increases the amount of waste that gets reused and recycled, and promotes the environmental education efforts across all departments of UNE.

Chapter 4 includes more details on UNE's commitment to the environment and programs that are in place.

Historic Resources

The City of Portland's Comprehensive Plan has identified Portland as an **Enduring City** with an extraordinary rich history. The UNE Portland Campus is a prime example of this. With its beginnings in 1830, well before it became part of the Portland fabric, the buildings today look much like they did when they were originally constructed. Thoughtful and intentional planning has been done to maintain this rich past and re-purpose it to meet the needs of today's students. Other more recent buildings on campus have been designed and situated to complement the existing campus, which retains its quintessential New England college campus appeal.

Waterfront

The Portland Harbor and its working waterfront has been identified as a key component to the City's Comprehensive Plan. Ensuring the future of the marine industry through support for emerging marine industries and mitigation of market trends that could compromise the balance between marine industries and competing development is a primary goal, as is the development of public and private partnerships to promote the Port of Portland as an economic engine for the State of Maine. These are the primary reasons that UNE created UNE NORTH.

Economic Growth

The City of Portland's Comprehensive Plan promotes and supports expansion of educational campus uses that are central to workforce development and economic growth. UNE and particularly its Portland campus continues to expand and modernize its educational programs to provide the much needed workforce in Portland and surrounding areas, especially in the medical, dental and pharmaceutical fields, as well as the marine economy. Modernization and expansion of its facilities on the Portland campus is absolutely key to the continuation of its ability to provide highly skilled healthcare professionals to Portland and the surrounding area's workforce which will support the sustained health of its economy.

Chapter 6 of this IDP provides more detail on UNE's community benefits and its impact to the local economy.

Transportation

UNE has considered its transportation needs holistically and has incorporated into its future development planning alternative modes of transportation to and from the campus. UNE has implemented a Transportation Demand Management (TDM) plan since 2010. 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 will positively impact the City's issues with traffic in and around the Morrill's Corner node and routes feeding to it. We are in full support of the City's efforts to ease traffic in this area and believe that UNE's implementation of programs will greatly improve traffic levels.

Chapter 3 of this IDP provides more detailed information on UNE's plans for transportation.

UNE's Regulatory Framework: Compliance with the Comprehensive Plan

UNE's IOZ Regulatory Framework provides a mechanism for thoughtful future development while maintaining the character of our unique and historical campus along with the adjacent Deering neighborhoods. UNE fully understands and appreciates the impacts of future development and has established its Regulatory Framework in keeping with the goals of the City's Comprehensive plan while looking at its key institutional needs for the future.

UNE recognizes that its Portland campus serves as a key element of this important area of the City and is committed to ensuring that its future development takes into account the neighborhood context in which it is situated.

Chapter 5 of this IDP provides more detail regarding design guidelines and neighborhood integration. The Regulatory Framework is also included with this IDP in Chapter 7.

Conclusion

Review of UNE's Institutional Development Plan (IDP) shows that it is consistent with the City's Comprehensive Plan and with the "purposes" stated within the City's Institutional Overlay Zone (IOZ) ordinance.

Analysis of the Regulatory Framework that accompanies UNE's IDP to help implement the IDP demonstrates that the Regulatory Framework is consistent and in "basic harmony" with the City's Comprehensive Plan and with UNE's IDP.

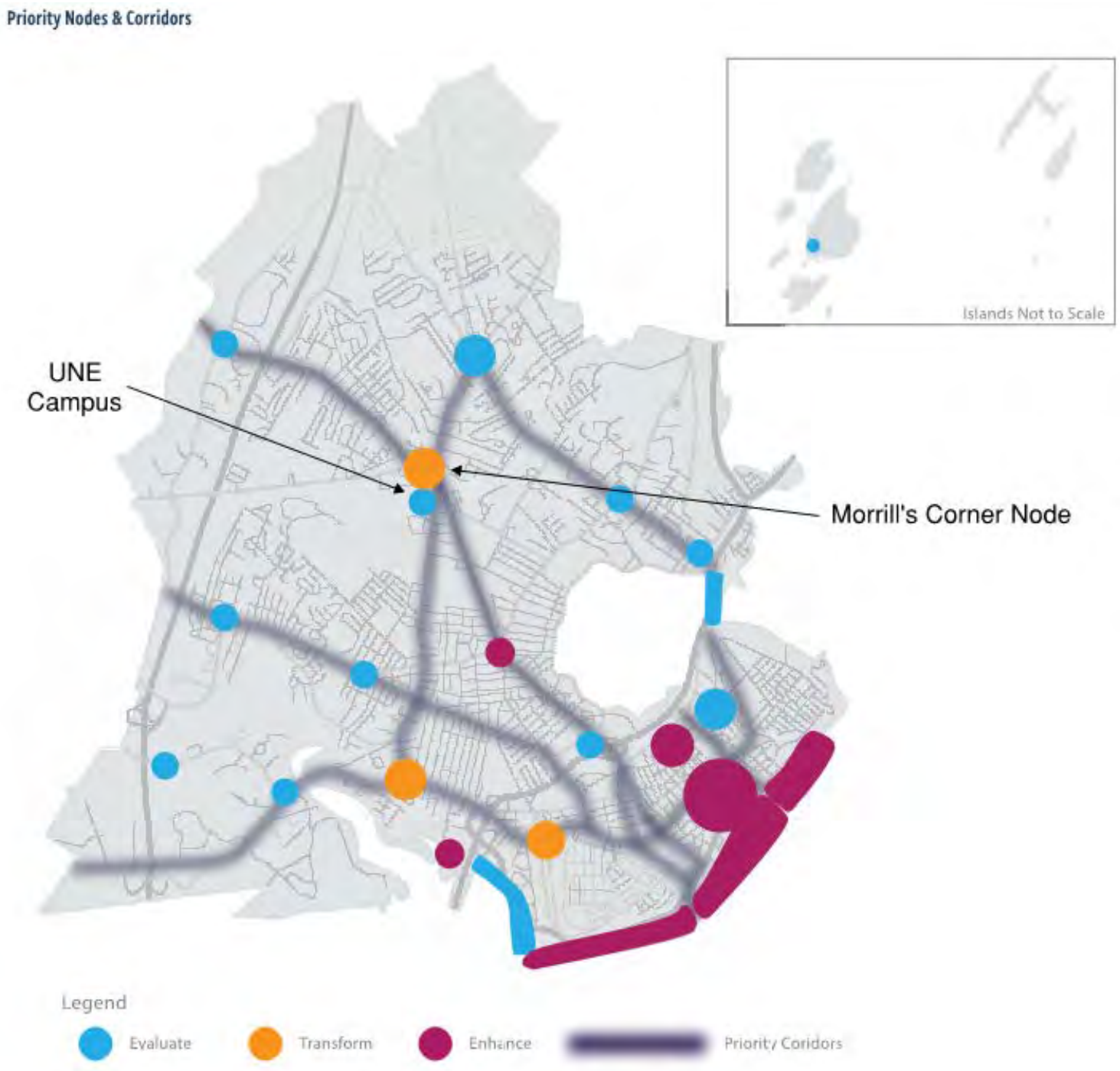


Figure 1.7 – Priority Nodes and Corridors, City of Portland Comprehensive Plan

PUBLIC INPUT ON INSTITUTIONAL DEVELOPMENT PLAN (IDP)

UNE understands the importance of open communication with its surrounding neighborhoods and of keeping its neighbors aware of its evolving development plans at its Portland campus. During earlier development, UNE involved the neighbors in meetings and informational sessions on the new buildings and campus improvements that were implemented. We are committed to continuing with this model and will continue to provide our neighbors with the ability to provide feedback on future projects.

UNE held the first of two neighborhood meetings required by the City of Portland's IOZ ordinance in late June 2020. This meeting was held via Zoom remote online meeting, in light of the on-going Covid-19 pandemic. In this meeting, UNE staff provided an overview of the IOZ process with the City, the key drivers for UNE's plans to implement the IOZ and its current IDP. This meeting provided time for participants to ask questions, voice opinions and receive answers. The minutes of this meeting were submitted for the record to the City.

UNE conducted its second neighborhood meeting in mid-April 2021 following the initial submission of this IDP and Regulatory Framework at the end of March 2021. At this meeting UNE provided further information on its IDP and introduced more details on its Regulatory Framework submission. The minutes of this second meeting were submitted for the record to the City.

Major Areas of Public Concern

UNE recognized that there would be concerns identified by neighbors that would require ongoing open communication and feedback. UNE is committed to working with its neighborhood residents and understand that there will be areas where UNE can implement suggestions from the public and other areas where there will be opinions of difference. UNE and the participants in this process have identified the following areas of major public concern:

1. By far, the largest concern with UNE's IDP revolves around traffic patterns and traffic congestion problems in the general vicinity of the Portland campus. This is also identified as an issue by the City of Portland in its Comprehensive Plan, which indicated the Morrill's Corner node as an area of transformation. Morrill's Corner is an area where the City has and will continue to develop plans to ease traffic issues. Towards this end, UNE has contributed $29,000 to the City, earmarked specifically for improvements at this intersection. UNE's IDP works to ease the impact of future development plans as it relates to traffic load to this area of concern. Chapter 3 of this IDP provides further information on traffic, vehicular access and circulation.

2. The next major area of concern surrounds vehicular parking and in particular on-street parking on public ways in the surrounding neighborhoods. Several neighbors voiced concern about vehicular parking on the public streets they reside on. There were also concerns about the needed parking for increased headcount on the UNE campus with

future developments being shown on the IDP Campus Master Plan, Figure 2.2, especially the creation of the building identified as A1, which is an academic building, on that plan. This building would increase the student FTE headcount on campus by roughly 400. Chapter 3 of this IDP provides further information on future parking plans on the Portland campus.

3. Another area of concern is in regards to exterior lighting levels around the Portland campus and the proposed development areas, along with noise related to building mechanical equipment such as HVAC equipment and exhaust fans. Within Chapter 5 of this IDP we touch upon these concerns and describe how UNE will strive to alleviate both exterior light and noise issues through proper design and equipment usage for each specific building.

4. Several neighbors have asked about walking paths and trails around the campus and if UNE was planning to expand and allow further walking paths and trails with its proposed development plans. More about this will be discussed in Chapter 6 - Neighborhood Engagement, of this IDP, but UNE is actively engaged with Portland Trails on expanding new paths and trails and connecting these with existing paths and trails within the Evergreen Cemetery and potentially linking to other Portland Trails access routes in the area.

5. A neighbor questioned how they will get continued/ongoing communication when projects on the Master Plan proceed. As explained in depth in Chapter 6 – Neighborhood Engagement, UNE proposes to provide multiple ways for neighbors to stay connected and informed on current and upcoming projects. The UNE Campus Planning webpage will be maintained for the public to view information regarding projects, an email address has been setup for neighbors to send in questions, concerns and issues directly to the people that will be managing the projects and finally through this email project updates will be sent directly to the neighbors wishing to be added to the updates and alerts.

CAMPUS MASTER PLAN

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 of health care professionals. UNE has recently announced plans to consolidate its College of Osteopathic Medicine onto its Portland campus to improve its Interprofessional Education (IPE) model to provide an even better prepared and more robust workforce in the future. UNE is engaged in campus master planning work to fully support this effort along with preparing its Portland Campus for future developments.



Figure 2.1 – UNE Master Planning Effort

CAMPUS MASTER PLANNING PROCESS

The objective of any university master planning process is to evaluate the suitability of the campus and its buildings to meet anticipated academic needs to deliver state of the art educational programs to its students. It also includes the ability to provide enough flexibility to be able to make accommodations for future modifications to support educational program changes, new cutting edge technology within the programs, and also the potential for adding new academic programs to its core curriculum. UNE's potential future development opportunities are identified within this IDP, however, UNE does not anticipate realization of all of these visions. If they are not represented here, then they cannot be realized.

Over the past decade or so, UNE's Portland Campus has grown not only in the educational programs it provides, but also in the complexity of how it delivers the education to its students, especially in the healthcare programs it offers. This growth has brought many changes in the infrastructure that is needed to support its mission to provide high level healthcare education here in the State of Maine, especially to the local Portland area. This includes the addition of the Oral Health Center and College of Pharmacy building.

UNE's CAMPUS MASTER PLAN – The Process

The following are facets of the master plan that have been reviewed to determine the projected growth and future requirements of UNE and its educational programs on the Portland campus.

Current Facility Assessment

UNE has evaluated its current campus and buildings to create a baseline for its Campus Master Plan. This evaluation included review of the age and condition of the existing buildings and current layouts within each building, along with the departmental allocation of all space in regards to the ability to support the current and potential future educational programs. The overall current campus infrastructure (utilities, roadways and walkways, parking lots, etc.) also was reviewed. Completing this assessment has allowed UNE to identify areas which must be further evaluated by future facility development.

Current and Future Program Requirements

UNE has continually made efforts to keep its healthcare educational programs on the cutting edge. Anticipating changes and allowing maximum flexibility are necessary to the success of these efforts, and providing a campus and buildings that permit this maximum flexibility to support future change is paramount. Technology, especially in the healthcare industry, is ever changing and improving, and the ability to support future programs, such as telemedicine and virtual simulation, will be vital to the success of UNE in providing the healthcare education that will be required by future healthcare professionals. UNE also has identified the importance of strengthening its Inter-Professional educational model which brings all of the healthcare related

programs together, on one campus, in an environment where there are co-educational opportunities to allow for real life interactions. Students and faculty from the College of Osteopathic Medicine will work and learn with students and faculty from the Westbrook College of Health Professions programs like physician assistant, nursing, physical and occupational therapy, social work and behavioral health, and pharmacy and with students from the oral health programs.

Adjacencies

UNE has identified program adjacencies as a major issue and it is a large driver of this Campus Master Plan, especially in support of strengthening its inter-professional educational model. Currently the College of Osteopathic Medicine is located on UNE's Biddeford campus and the majority of the Westbrook College of Health Professions programs are based on the Portland campus. Both colleges currently utilize space on both campuses, which causes large inefficiencies in the educational model and also requires students and faculty to travel long distances. One of the major aspects of this Campus Master Plan addresses these inefficiencies by bringing both colleges together on one campus and providing more appropriate building spaces to support educational programming for both the COM and WCHP colleges and to advance UNE's Inter-Professional model for into the future.

KEY INSTUTIONAL NEEDS

UNE's current and future facility needs can be summarized into 4 main categories:

1. Campus Reorganization
2. New Building and Renovation Need
3. Educational/Pedagogy Improvements Need
4. Campus Infrastructure Needs (Parking, Access, Utilities, Etc…)

CAMPUS REORGANIZATION

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 and will allow it to establish a world-class academic healthcare campus in Portland, oriented around inter-professional education, will allow UNE to strengthen its collaboration with clinical partners throughout 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.

NEW BUILDING AND RENOVATION NEED

In order to support the transformation discussed above, UNE will need complete renovations to some existing buildings and construction of new facilities to house relocated educational programs and to improve its support departments, such as Information Technology Services, Campus Services and Facilities Management, to name a few. Building a new, state-of-the-art home for the College of Osteopathic Medicine on the Portland campus will "close the loop", 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.

EDUCATIONAL/PEDAGOGY IMPROVEMENTS NEED

UNE continually endeavors to improve the way its faculty provides educational programs to its current and future students. Ever changing technology has also presented challenges for the University as it attempts to stay on the cutting edge in its efforts to provide world-class curriculums. Through its assessment of the current facilities on the Portland campus, it has become evident that UNE will need to undertake future facility projects to upgrade its current classroom, lecture, laboratory, and study spaces and to provide additional spaces with an emphasis on higher technology, such as virtual reality (VR), high definition simulation and media that supports telemedicine and digital health. Projects identified within this IDP reflect and support this need.

CAMPUS INFRASTRUCTURE NEED

Through its extensive evaluation of the existing campus, UNE has identified, along with the need to renovate existing buildings and building new facilities, the need to improve its overall campus infrastructure to support the campus reorganization and pedagogy improvements, which includes utilities such as electrical, water, and gas utilities that feed the campus; storm water systems; access roadways and sidewalks; and parking lots. Parking will be enhanced and expanded to support the additional faculty, staff and students. Further detail is discussed in this IDP in subsequent chapters regarding campus infrastructure improvements.

PROJECT PRIORITIES – Project Identification

This Campus Master Plan identifies the projects that are needed to support the key institutional needs that are outlined above. These projects are broken down to short term, mid-term and long term needs. The projects represent the possible future development on campus, but the realization of these will only occur if the financial and philanthropic plans can support them. Due to the various factors impacting our educational programs along with ever changing pedagogy methods and technology advancements in healthcare education, the priority of these projects proposed within this overall timeframe may vary accordingly. Below are projects currently identified by UNE based on priority (see next page for reference Campus Master Plan):

Priority 1 – Short Term: (0-5 years)

New Institute for Inter-Professional Education and College of Osteopathic Medicine Building
110,000 SF, 4 story academic building. Indicated as **A1** on the master facility plan

Renovation of Rear Area of the Existing Innovation Hall (former Armory Building)
24,000 SF, 2 story academic use area. Indicated as **S2** on the master facility plan

New Facilities Maintenance and Campus Services Building
15,000 SF, 1 story facilities maintenance building. Indicated as **S6** on the master facility plan

Building Renovation/Expansion of Existing 812 Stevens Avenue Building
10,000 SF, 2 story office/administrative building. Indicated as **S3** on the master facility plan

Building Renovation of Existing 1075 Forest Avenue Building
15,000 SF, 1 story office/administrative building. Indicated as **A3** on the master facility plan

Priority 2 - Mid-Range Term: (5-10 years)

Building Renovation of Existing 79 College Street Building
720 SF, 2 story office/administrative building, Indicated as **S4** on the master facility plan

Building Renovations/Expansions of Existing Bishop Street Lot Buildings
1,000 SF, 2 story support buildings, Indicated as **S5** on the master facility plan

Priority 3 - Long Term: (5-20 years)

New Graduate Housing Residence Building
100,000 SF, 4 story residential housing. Indicated as **H1** on the master facility plan

New Academic Building
60,000 SF, 4 story academic use building. Indicated as **A2** on the master facility plan

Building Renovation/Expansion of the Existing Recreation Center (Finley Gym)
50,000 SF, 2 story administrative/academic use building. Indicated as **S1** on the master facility plan

New Recreation and Athletics Building
60,000 SF, 2 story multi-use recreation and athletics building. Indicated as **F1** on the master facility plan

PORTLAND CAMPUS MASTER PLAN



Figure 2.1 – Campus Master Plan

PORTLAND CAMPUS PROGRAMMING BUILDING BLOCKS

University of New England - Portland Campus
Campus Development Plan Projections

Programming Building Blocks

	Description	PRIORITY	APPROXIMATE FOOTPRINT (SQ. FT.)	STORIES	APPROXIMATE TOTAL (SQ. FT.)	ESTIMATED OCCUPANCY	HEIGHT**
HOUSING							
H1	Residence Hall	3	25,000	4	100,000	200 (b)	65'
ACADEMICS							
	Description	PRIORITY	APPROXIMATE FOOTPRINT (SQ. FT.)	STORIES	APPROXIMATE TOTAL (SQ. FT.)	ESTIMATED OCCUPANCY	HEIGHT**
A1	Academic Building	1	27,500	4	110,000	160 (o)	85'
A2	Academic Building	3	15,000	4	60,000	20 (o)	65'
A3	UNE North Renovation - 1075 Forest Avenue	1	15,000	1	15,000	10 (o)	35'
SUPPORT							
	Description	PRIORITY	APPROXIMATE FOOTPRINT (SQ. FT.)	STORIES	APPROXIMATE TOTAL (SQ. FT.)	ESTIMATED OCCUPANCY	HEIGHT**
S1	Recreation Center	3	25,000	2	50,000	4 (o)	50'
S2	Innovation Hall - Rear	1	12,000	2	24,000	2 (o)	50'
S3	812 Stevens Ave. Renovation/Expansion	1	5,000	2	10,000	6 (o)	35'
S4	79 College Street Renovation/Expansion	2	720	1	720	2 (o)	35'
S5	Bishop Street Renovation/Expansion	2	1,000	1	1,000	0 (o)	35'
S6	Campus Services Building	1	15,000	1	15,000	12 (o)	35'
ATHLETICS							
	Description	PRIORITY	APPROXIMATE FOOTPRINT (SQ. FT.)	STORIES	APPROXIMATE TOTAL (SQ. FT.)	ESTIMATED OCCUPANCY	HEIGHT**
F1	Athletic Facility	3	45,000	2	60,000	12 (o)	50'

Occupancy Key:
(b) = Beds
(o) = Offices

** All building heights are approximates

Priority Key:
1. = Short Term
2. = Mid-Range Term
3. = Long Term

3/24/21

Figure 2.2 – Programming Building Blocks

UNIVERSITY OF NEW ENGLAND

INNOVATION FOR A HEALTHIER PLANET

CHAPTER THREE

TRANSPORTATION PLAN

The University of New England's Portland campus Transportation Plan has been developed with its main goal being to reduce vehicle trips and, thus, reduce the demand for on-site parking. UNE hopes to achieve this goal by increasing Transportation Demand Management (TDM) actions through the promotion and encouragement of alternative modes of transportation. Lowering the number of vehicular trips through TDM actions should lead to both a reduction in environmental impacts and in impacts on the area neighborhoods.

Overview

The University of New England is developing this Transportation Plan to reduce vehicle trips to its Portland campus, and to improve campus access and on-site circulation. The University has had a TDM Plan in place since 2010. With the oversight of the University's "Transportation Think Tank" committee, it is regularly updated to respond to changing conditions and campus modifications. It is focused on reducing vehicle trips to the campus and promoting alternative modes of transportation, in turn decreasing the demand for on-site parking. This reduces traffic impact both on campus and off-site, improving traffic flow in the surrounding area, as well as reducing UNE's Tier Three Carbon Emissions.

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 also a minor arterial. This location, within close proximity of these three arterials, provides convenient access to the Maine Turnpike (via Riverside Street), Warren Avenue and Bishop Street. Access to I-295 is provided by Forest Avenue (See Figure 3.1).



Figure 3.1 – Arterials Map

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 majors 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 from using the state of the art robotics and virtual reality health care programming offered there. This results in potentially hundreds of students commuting from Portland to Biddeford, during the day, several times a week.



Figure 3.2 – Site Location Map

ACCESS AND CIRCULATION

VEHICULAR ACCESS

Because the Portland campus currently has no on-campus housing, all students, faculty and staff arrive from Portland and surrounding communities by multiple unsignalized drives from Stevens Avenue, as well as from the Bishop Street Extension to the Bishop Street parking lot. This access point is generally determined by the parking permit acquired by each individual, as it relates to the parking lot they would have authorized access to park in.

TRANSPORTATION DEMAND MANAGEMENT PLAN

The TDM plan includes the provision of free Metro, South Portland City Bus Services, and Biddeford, Saco Old Orchard Beach Bus Transit (BSOOB) passes for all students and staff to encourage transit usage.

UNE utilizes the GoMaine website for both of their campuses to encourage carpooling to each campus as well as between campuses when required. The university provides free parking to carpoolers and dedicates some of the most convenient spaces to them as incentives. Additionally, the GoMaine program offers rewards to encourage participation. Lastly, UNE promotes bicycling and walking as convenient means to access campus for those students and staff that reside within the appropriate range.

UNE has performed several student and staff surveys to determine arrival and departure times and parking usage. The results have guided UNE in making adjustments to its TDM, including bus schedules and start/stop times.

UNE has a TDM coordinator who currently provides students and employees with links to:

- Portland Metro maps and schedules
- Intra-campus shuttle schedules
- GoMaine carpool and rideshare website
- UNE Carpooling and parking updates
- UNE TDM incentives program information

The coordinator, in conjunction with the University's Transportation Think Tank committee, also monitors the effectiveness of the TDM plan through semi-annual parking utilization surveys and observations of alternative mode usage and guides the ongoing revisions to the TDM.

Additionally, UNE provides both educational and promotional material regarding the advantages of alternative modes. The university has also provided employee recognition for efforts to reduce traffic impacts and parking demand.

ALTERNATIVE MODES OF TRANSPORTATION

UNE has continually promoted the use of alternative modes through incentives and promotions. These actions have included:

- Raffling of New Bicycles
- Free coffee and doughnuts to users of the Bishop Street Lot
- Electric vehicle charging stations on campus, FREE to the users
- Free public transit passes

TRANSIT SERVICE

Transit service is provided via Greater Portland Metro Route 9, which connects downtown Portland to North Deering via Stevens Avenue and also by Route 2 which connects downtown Portland to Riverton via Forest Avenue. There are two Route 9 Metro stops located on the Portland campus, both of which are equipped with shelters. The Route 2 stops on Forest Avenue are within 1,000 feet of the core campus and are immediately adjacent to the University's 1075 Forest Avenue property. UNE provides free bus passes to all students and staff to encourage Metro use, including the Metro Breeze from Portland to Brunswick, 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 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 Touch Pass, for all of these transit services, enhanced ridership data will now be available to UNE and can be utilized in future TDM considerations. Previously, the ridership data was recorded manually or only allowed for the number of passes issued, and not actual rides utilized. Previously, UNE would procure and manually distribute hard copy 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. For 2019, UNE purchased and distributed monthly (40 rides per month) and weekly passes (10 rides per week) totaling approximately 10,590 rides. With the enhanced Dirigo Touch Pass enabled to **all** students, faculty and staff, they can now ride the buses for free, without first having to obtain an actual pass. UNE anticipates the ridership to increase, with the added ease and convenience of accessing these transit services.

SHUTTLE SERVICE

A shuttle bus is provided from the Bishop Street parking lot to the campus core to provide for convenient parking access. The overall campus location and existing transportation facilities are shown in Figure 3.3.

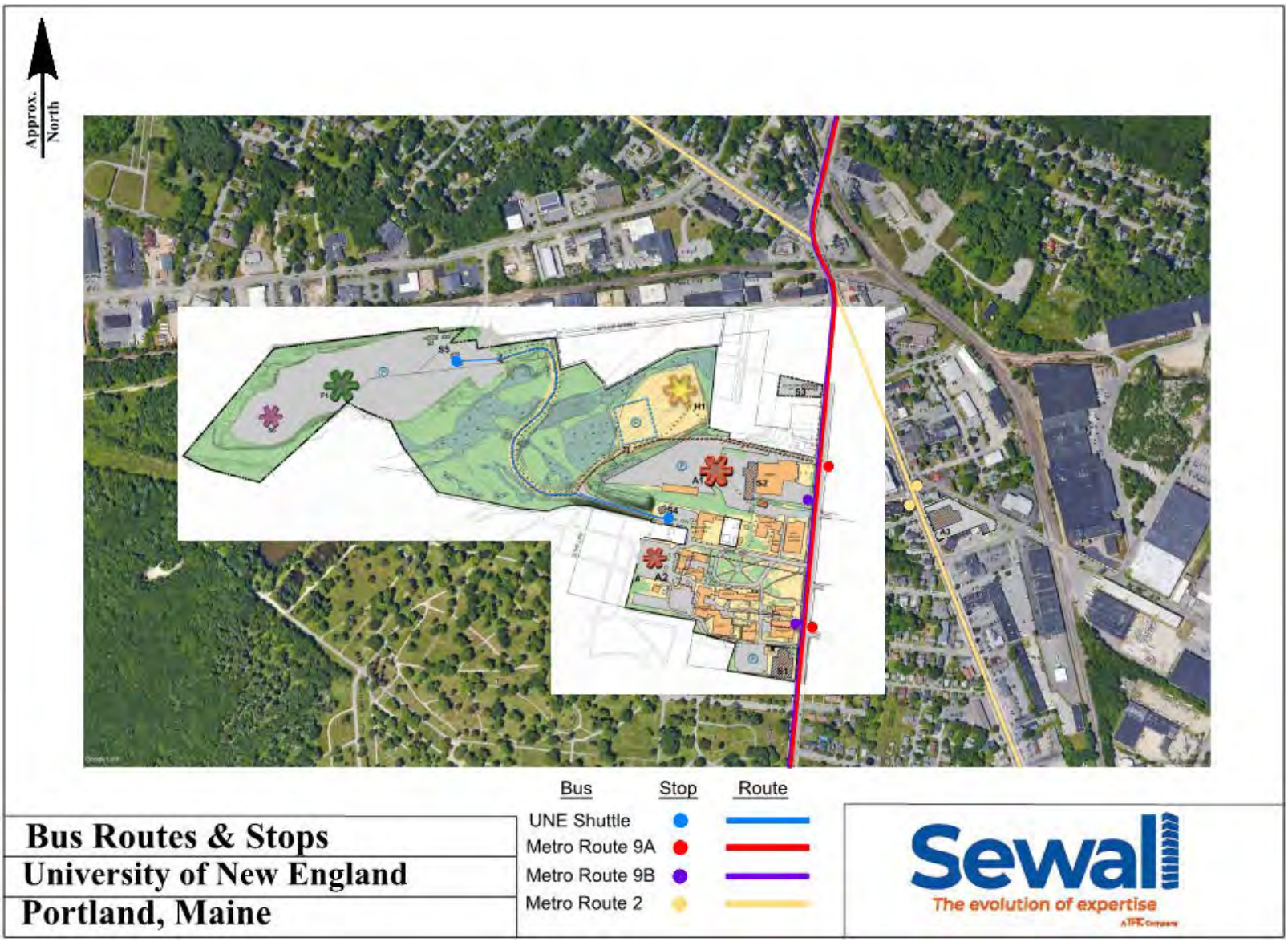


Figure 3.3 – Bus Routes and Stops Map

PEDESTRIAN ACCESS

Pedestrian access is provided by numerous sidewalks both on campus and off campus. Sidewalks are provided 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 area pedestrian facilities also provide for 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 of trails abuts the campus and could be utilized by some local community members to access the campus. UNE is working with Portland Trials to extend this

network across the UNE campus as the new access road is developed, which could provide additional alternative pedestrian access to the 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 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 other 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.

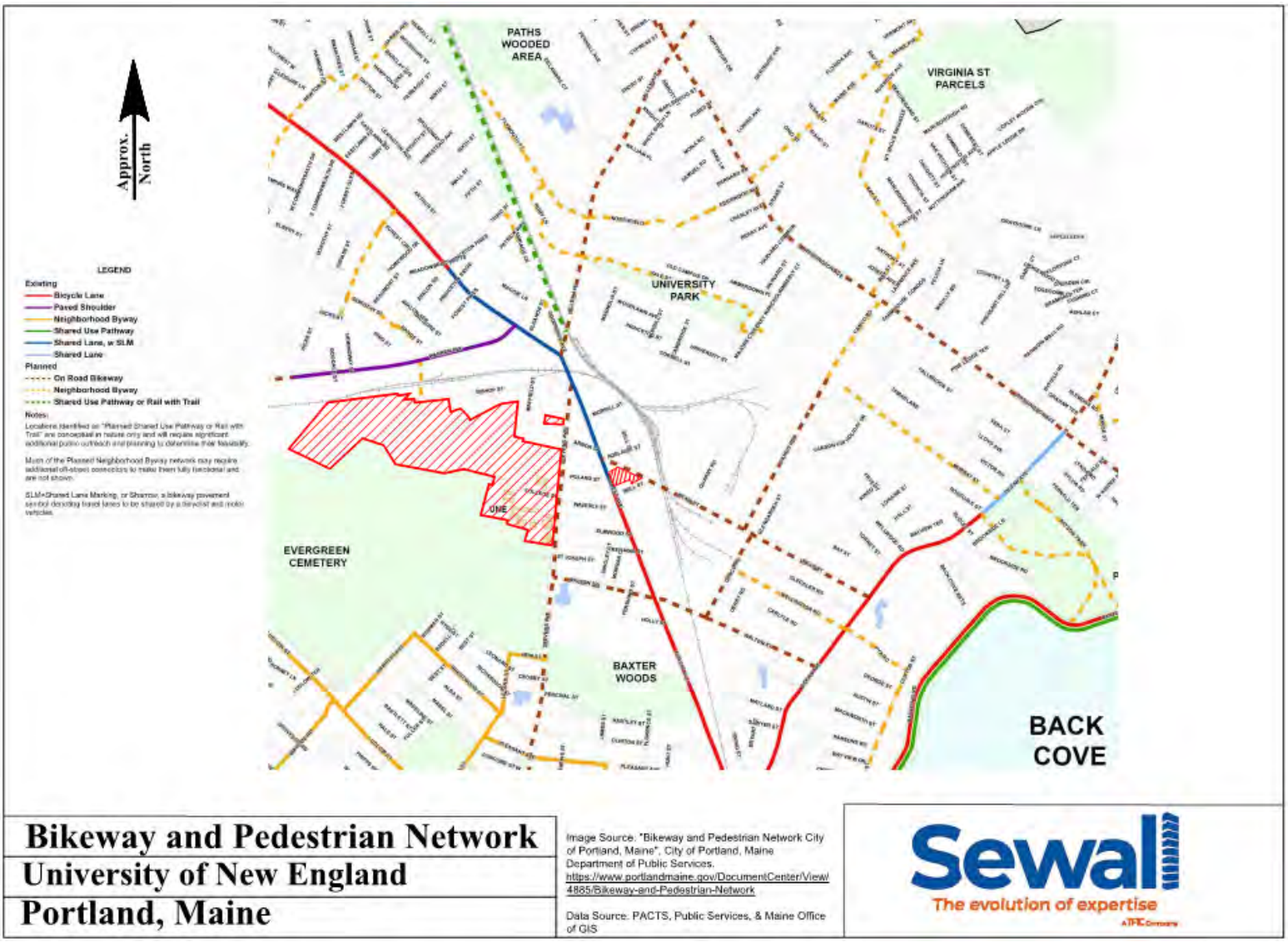


Figure 3.4 –Bikeway and Pedestrian Network Map

PROPOSED ACCESS AND CIRCULATION MODIFICATIONS

VEHICULAR ACCESS

The Campus Master Plan provides for a new road connecting the A1 lot and the Bishop Street lot. This new access road will allow vehicles, and pedestrians, to travel between the core campus on Stevens Avenue, through campus to the Bishop Street parking lot and on to Warren Avenue. This 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 proximate 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.

PEDESTRIAN ACCESS

The Portland Trails network of trails 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 could provide additional alternative pedestrian access to the campus.



Figure 3.5 – Pedestrian Access from Portland Trails Website

ALTERNATIVE MODES OF TRANSPORTATION

UNE will continue to offer free public transportation passes and incentives to encourage alternative modes. Through all of these actions, UNE has shown long-term dedication to reducing their overall single vehicle trips and associated traffic impacts and in being a good neighbor, as well as a reduction in its carbon footprint.

Traffic

EXISTING TRAFFIC VOLUMES

Turning movement and classification counts were conducted at several primary access intersections in the fall of 2019 during both the morning and afternoon/evening peak hour periods to determine existing volumes. These intersections included:

- Signalized Stevens Avenue and Walton Street
- Un-signalized Stevens Avenue and UNE's South Entrance at the Finley Center
- Un-signalized Stevens Avenue and College Street
- Signalized Forest Avenue, Stevens Avenue and Bishop Street
- Un-signalized Warren Avenue and Bishop Street Extension

The AM peak hour consistently occurred from 7:15 – 8:15 AM within the study area. The PM peak hour occurred in the period between 3:15 and 5:30, dependent upon location. The count data was seasonally factored to the first week in September, when peak volumes for a school and universities in Maine occur, using published MaineDOT group mean urban factors. The resulting 2019 peak hour volumes, expected to be representative of peak university volumes in September, are shown in Figures 3.6 and 3.7.

Existing average annual daily traffic (AADT) data for the vicinity of the campus was obtained from "Traffic Volume Counts, 2019, 2014 and 2012 Annual Reports", published by MaineDOT. This data is summarized below:

	Average Annual Daily Traffic				
Location	2008	2010	2013	2016	2019
Bishop Street, West of Forest Avenue	---	---	1650	---	---
Walton Street, West of Forest Avenue	---	2800	3120	2580	---
Forest Avenue, NW of Warren Avenue	20020	19010	19820	18140	---
Forest Avenue, North of Walton Street	---	---	21830	---	---
Forest Avenue, South of Walton Street	---	---	21710	---	---

Stevens Avenue, South of Walton Street	---	12510	11680	11620	---
Stevens Avenue, North of Walton Street	---	11170	10980	11180	---
Stevens Avenue, South of Forest Avenue	---	10360	10050	11230	---
Warren Avenue, SW of Forest Avenue	13370	11560	13130	11390	12380

As demonstrated above, traffic volumes in the vicinity of the campus have generally declined over the longer term 2008 to 2019 period. Over the most recent short term period, 2013 – 2016, traffic generally declined on Forest Avenue and Warren Avenue. Traffic volumes on Stevens Avenue generally remained steady in the area of Walton Street, while increasing slightly just south of Forest Avenue.

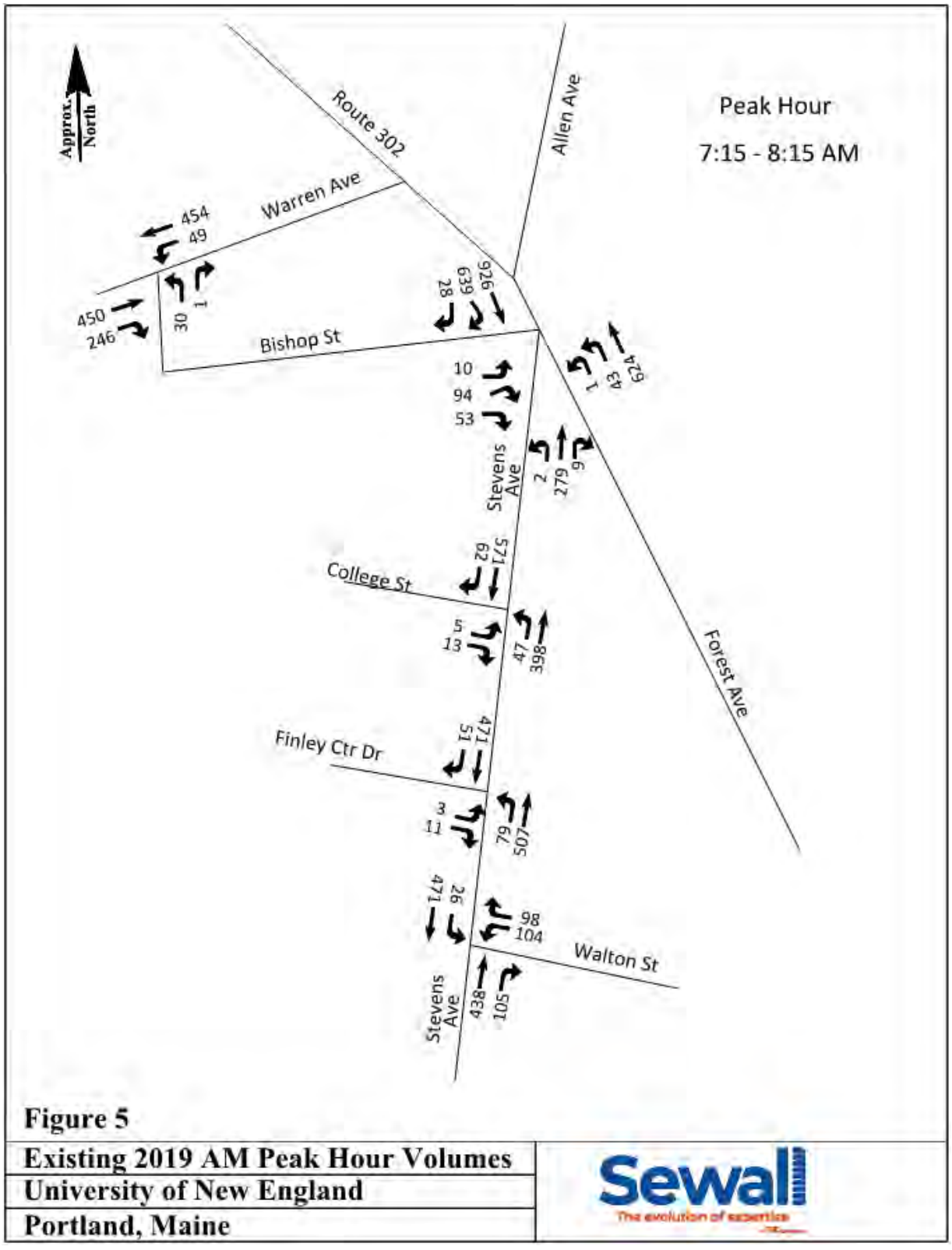


Figure 5

Existing 2019 AM Peak Hour Volumes
University of New England
Portland, Maine

Figure 3.6 – AM Peak Hour Volumes – September 2019

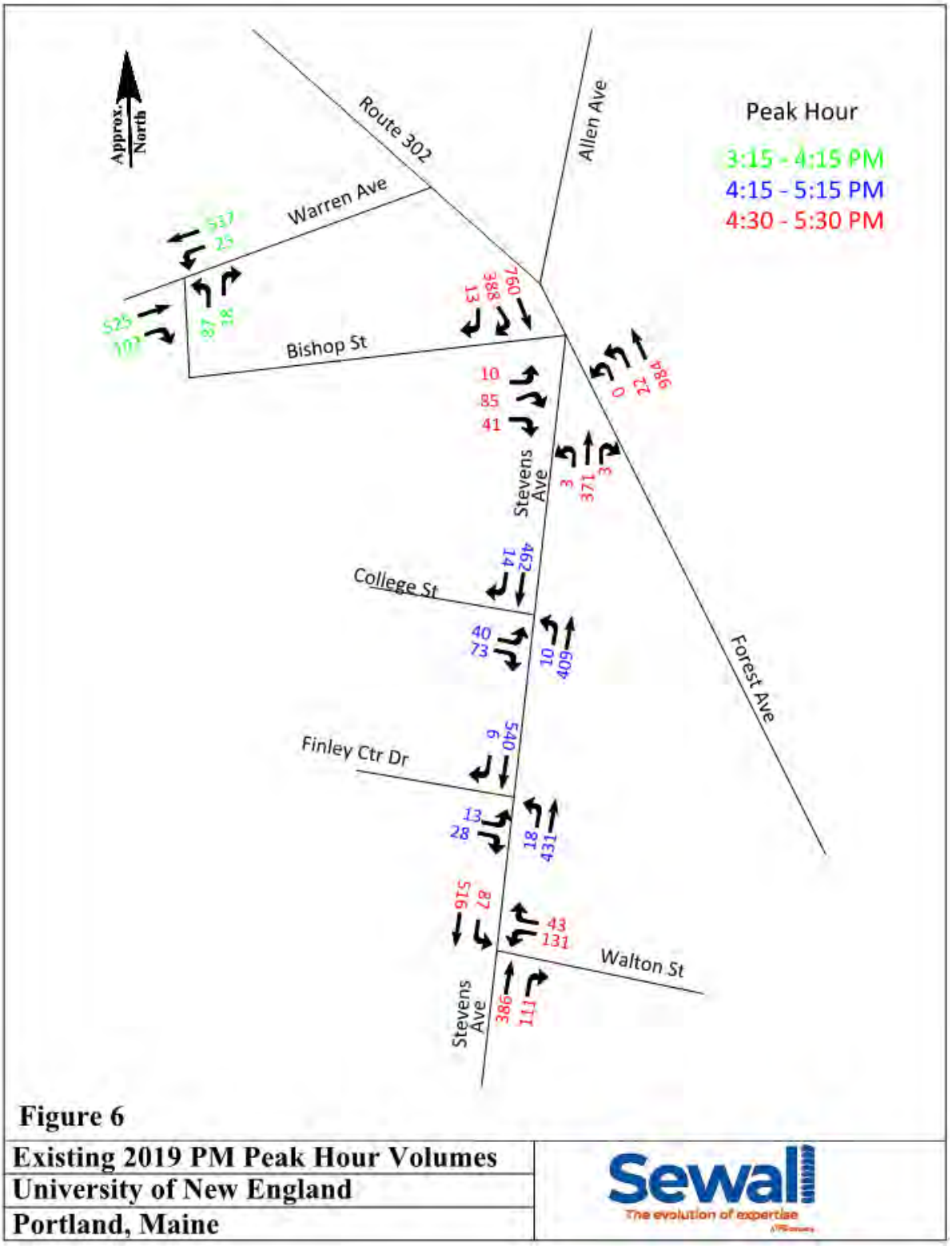


Figure 3.7 – PM Peak Hour Volumes – September 2019

TRAFFIC ANALYSIS

Traffic operations are evaluated in terms of level of service (LOS). Level of service is a qualitative measure that describes operations by letter designation. The levels range from A - very little delay to F - extreme delays. Level of service "D" is generally considered acceptable in urban locations while LOS "E" is generally considered the capacity of a facility and the minimum tolerable level. The level of service for signalized intersections is based upon the average control or signal delay per vehicle. These criteria are defined in the following table excerpted from the 2010 "Highway Capacity Manual"

Signalized Intersection Level of Service

LOS	Delay Range
A	< = 10.0 seconds
B	> 10.0 and <= 20.0
C	> 20.0 and <= 35.0
D	> 35.0 and <= 55.0
E	> 55.0 and <= 80.0
F	> 80.0

The level of service for un-signalized intersections is based upon average control delay per vehicle for each minor, opposed movement, as defined in the following table:

Unsignalized Intersection Level of Service

LOS	Delay Range
A	< = 10.0 seconds
B	> 10.0 and <= 15.0
C	> 15.0 and <= 25.0
D	> 25.0 and <= 35.0
E	> 35.0 and <= 50.0
F	> 50.0

EXISTING LEVELS OF SERVICE

An analysis of existing conditions in the vicinity of the Portland UNE campus was performed by Sewall. The level of service (LOS) was calculated for the two signalized intersections in the immediate vicinity of the campus, as well as for some of the un-signalized primary access drives. The analysis was performed for 2019 conditions using Synchro 10/SimTraffic to determine current operations. Note that traffic volumes are still down in 2020 from 2019 levels due to the Coronavirus pandemic so the 2019 results would be reflective of current conditions (or conservative given the current overall statewide decline of 11 -13 % from 2019). The existing signal timings and phasings were obtained from the City of Portland. Both signals are running under adaptive control, which was best simulated by optimizing timings. The results by approach are summarized in the following table for the AM and PM peak hour periods:

SIGNALIZED INTERSECTION ANALYSIS

EXISTING PEAK HOUR LEVELS OF SERVICE

Stevens Avenue, Forest Avenue & Bishop Street

Approach	AM	PM
Eastbound Bishop Street	C (26.4)	C (32.6)
Northbound Forest Overall	D (53.4)	C (26.6)
Southbound Forest Overall	D (37.1)	C (28.9)
Stevens Overall	C (27.7)	C (29.7)
Intersection Overall	D (37.9)	C (28.4)

Stevens Avenue & Walton Street

Approach	AM	PM
Westbound Walton Overall	C (26.5)	C (29.4)
Northbound Stevens Overall	B (15.2)	B (15.5)
Southbound Stevens Overall	A (8.2)	A (9.7)
Intersection Overall	B (14.7)	B (14.7)

As seen above, the two signalized intersections in the immediate vicinity of the campus on Stevens Avenue are operating acceptably by both approach and overall during both commuter peak hours showing no significant constraints.

UN-SIGNALIZED INTERSECTION ANALYSIS

EXISTING PEAK HOUR LEVELS OF SERVICE

Warren Avenue & Bishop Street Ext.

Approach/Lane	AM	PM
Eastbound Warren Overall	A (4.2)	A (2.0)
Westbound Warren Overall	A (2.7)	A (1.5)
Northbound Bishop St. Ext. Overall	C (23.5)	F (88.7)
Intersection Overall	A (4.2)	B (13.3)

Stevens Avenue & College Street

Approach/Lane	AM	PM
Eastbound College Street	C (19.6)	A (10.0)
Northbound Stevens Avenue	A (4.3)	A (0.8)
Southbound Stevens Avenue	A (3.4)	A (2.2)
Intersection Overall	A (4.1)	A (2.5)

Stevens Avenue & Finley Center Drive

Approach/Lane	AM	PM
Eastbound Finley Center Drive	A (18.8)	A (9.7)
Northbound Stevens Avenue	A (5.8)	A (2.5)
Southbound Stevens Avenue	A (1.6)	A (1.0)
Intersection Overall	A (4.2)	A (2.0)

As seen above, the analysis shows the major un-signalized university drive approaches all operate at LOS “C” or better during the AM peak hour period. Based upon the preliminary analysis the only un-signalized capacity constraint is the Bishop Street Extension approach to Warren Avenue during the PM peak hour. Future traffic impact studies for campus developments will evaluate the impact of any additional trips on this particular intersection and will evaluate potential improvement options to address this existing deficiency.

SAFETY ANALYSIS

The Maine Department of Transportation uses two criteria to determine high crash locations (HCLs). The first is the critical rate factor (CRF), which is a measure of the accident rate. A CRF greater than one indicates a location which has a higher-than-expected crash rate. The expected rate is calculated as a statewide average of similar facilities.

The second criterion, which must also be met, is based upon the number of accidents that occur at a particular location. Eight or more accidents must occur over the three-year study period for the location to be considered a high crash location. Accident data was obtained from MaineDOT for the vicinity of the campus. The CRF and number of accidents are summarized by location for the most recent three-year period, 2017 to 2019, in the following tables:

Stevens Avenue Location Description	# of Acc.	CRF
Intersection of Walton Street	3	0.17
Between Walton and St. Joseph's Streets	1	0.27
Intersection of St. Joseph's Street	2	0.39
Between St. Joseph's and Elmwood Streets	3	0.55
Between Elmwood and Waverly Streets	2	0.45
Intersection of Waverly Street	4	0.76
Between College and Poland Streets	2	0.50
Between Poland and Arbor Streets	3	0.49
Intersection of Arbor Street	2	0.39
Between Arbor Street and 0.03 mile south of Forest Avenue/Bishop	7	1.00
0.03 mile south of Forest Avenue/Bishop Street	1	0.20
Intersection of Forest Avenue and Bishop Street	38	0.92

Warren Avenue Location Description	# of Acc.	CRF
Between Bishop Street Extension and Hicks Street	6	0.33
Intersection of Hicks Street	1	0.19

Bishop Street Location Description	# of Acc.	CRF
Between Morrill's corner and Mayfield Street	1	0.44
Between Mayfield Street and 0.22 mile west	2	0.53

Bishop Street Extension Location Description	# of Acc.	CRF
Between Bishop Street and Warren Avenue	1	0.58

As seen above, there are no high crash locations within the vicinity of the UNE campus.

PROJECTED TRAFFIC IMPACT

Current plans project that student enrollment will increase by 400 due to the relocation of the COM program to the Portland campus in the short term. The following provides UNE's analysis of new trip generation and traffic patterns anticipated over the short term.

The 400 student enrollment increase will result in approximately 60 new one-way trips in the AM and PM peak hours based upon Institute of Transportation (ITE) trip generation rates. Capacity analysis of the impacts of these additional trips for a 2023 study year did not identify any additional capacity concerns. The level of service for the signalized Walton Street and Morrill's Corner intersections, both by approach and overall, with the additional UNE trips will remain at acceptable levels (LOS "D" or better) in 2023 as was reported in this plan for existing conditions. The unsignalized 2023 intersection analyses, with the additional UNE students, similarly did not identify any new capacity concerns. The only unsignalized constraint is northbound exits from Bishop Street Extension during the PM peak hour, as is the case under existing conditions.

The analyses were developed with 2019 volumes, collected pre-pandemic, and projected to 2023 utilizing a historical 0.5 % growth rate. The pandemic has reduced campus volumes as well as most urban arterial volumes in Portland. As a result, both the existing conditions analysis and the future analysis reported for this high-level analysis of the new COM trips are expected to be conversative. Recent 2021 counts indicate that campus volumes are currently down 28 % during the AM peak hour and 19 % during the PM peak hour due to the pandemic from 2019 levels. These decreases in campus trips, due to remote operations and hybrid learning platforms, if sustained, would offset most new trips due to the COM relocation.

While the Morrill's Corner intersection is operating acceptably overall and by approach there are some constraints for northbound left-turn movements off Forest Avenue. The long-term plan to provide an internal campus connector road from the primary campus to the Bishop Street lot will provide for reduced volumes at Morrill's Corner by allowing direct access to Warren Avenue, thus removing those campus trips from Morrill's Corner. The planned connector road will remove trips from the arterials where the only capacity concerns have been identified.

More detailed analysis of the study area intersections will be completed as campus building projects go through the City's site plan approval process. This will allow for the specific long-term pandemic impacts to be evaluated and assessed, such as reduced campus trip generation due to sustained remote learning and work options, and continued decreased arterial volumes. The need for any off-site improvements, such as turn lanes, increased queue storage or traffic signals, will be determined in these more detailed traffic impact studies. These analyses will utilize updated traffic volumes to assure the detailed analyses are reflective of conditions at the time given unknowns in sustained pandemic impacts. However, it is important to repeat, based upon the analyses already performed utilizing higher 2019 volumes, the short-term enrollment growth is not expected to have any significant impact on traffic conditions as no new capacity constraints were identified by the analyses. Hence, the short-term growth that the University anticipates due to the relocation of the COM should have no significant traffic impacts off-site on the surrounding arterials.

PARKING

EXISTING PARKING ANALYSIS

While there are several alternative transportation modes available to access the Portland campus, the majority of students and staff arrive by private vehicle. Based upon the most recent parking counts conducted in fall of 2019, parking demand generally peaks between 11:00 AM and 2:00 PM. There are currently eleven parking lots located on the UNE's Portland campus plus on-street parking along two campus roadways. The lot locations are shown in Figure 3.8. The number of spaces located in these lots is detailed below:

Lot # - Description	# of 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 Avenue Church	36
10 – UNE North – 1075 Forest	77
11 – Bishop St. Extension Lot	600
X – Proctor Access Road	3
Y – Hersey Circle	4
	1,261 TOTAL



Figure 3.8 – Existing Parking Plan

Most campus lots require the display of parking permits, and the lots on the core campus require the purchase of a parking permit on a lottery basis. If a community member doesn't get a permit in the lottery process, they can park for free in more remote lots. The largest number of vehicles recorded during the fall 2019 counts in the university lots was 775. This represents 61.5 % of overall on campus capacity. This highest demand occurred on a Wednesday at 1:00 PM.

There is a shuttle bus provided between the more remote Bishop Street lot and the campus core to increase that lot's usage. There is a heated shelter with Wi-Fi at each end of the shuttle route to encourage ridership. Usage of the Bishop Street lot requires a FREE parking permit, to further encourage its use. The shuttle runs continuously from 7 AM to 7 PM with minimal wait times. With these incentives, parking in this more remote lot has increased significantly from 37 vehicles in 2012 to an average of 217 during the peak period (11:00 to 2:00) in 2019. The average peak daily use in this lot in 2019 was 233 vehicles.

In addition to the on campus parking, there is also on-street parking located on surrounding streets, which is available to UNE community members. This on-street parking includes College Street on campus and parking along both sides of Stevens Avenue off campus. The parking in

these on-street spaces was also recorded on the first days of the biannual parking counts. 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. These users are likely UNE community members. The number of vehicles recorded in the Stevens Avenue spaces during the peak periods ranged from 129 to 140. As previously noted not all of these users are UNE students, 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 permits and one-hour parking restrictions on many side streets in the vicinity of campus, reducing the amount of on-street parking available to UNE community members. As long as there continues to be free on-street parking along Stevens Avenue, in close proximity to the campus core, continued use of these spaces by staff and students is expected given their convenience. UNE has, and will continue to support the city in its parking regulations in this area.

FUTURE PARKING NEEDS AND GOALS

The goals for UNE in terms of parking are to:

- Continue to provide an adequate parking supply on-campus
- Reduce parking needs over time through continued TDM actions
- Reduce neighborhood impact by reducing on-street parking usage by UNE students

In previous projects, as approved by the City, UNE's parking needs have been typically based on the student population, at a rate of 0.58 spaces per student. UNE intends to continue to monitor parking demand, with the goal being to reduce the parking supply rate over time. UNE expects to continue to provide the 0.58 space per student but will work towards reducing the parking supply rate over time.

Based on the potential master plan development, the future rearrangement of parking and addition of green space at Bishop Street and the Innovation Hall sites, and the future non-renewal of the leased parking at the Stevens Avenue church will result in a net loss of 199 spaces, leaving a total of 1062 spaces on campus.

Should building A2 comes online, up to 115 additional parking spaces will be displaced, leaving a total of approximately 947 parking spaces on campus. Based on the projected enrollment of 1562 students, the resulting ratio of parking spaces to student will be 0.61. As noted above, UNE and the city have agreed on a parking generation rate of 0.58 spaces per student. Although this higher is than the ITE parking generation rate for a University, the campus is a graduate student only campus, where its health professions students tend to spend most of their day on campus, resulting in a higher parking generation rate.

As noted, there will be a significant reduction of parking spaces due to the currently envisioned short term projects. Any further reduction in parking will need to be evaluated based on post-

pandemic transportation trends, as well as the development of any additional city programs to minimize on street parking by UNE associated vehicles along Stevens Avenue.

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.

UNIVERSITY OF NEW ENGLAND

INNOVATION FOR A HEALTHIER PLANET

CHAPTER FOUR

ENVIRONMENTAL AND INFRASTRUCTURE PLAN

UNE sees sustainable operations, supported by an effective and resilient system of infrastructure, as key to its efforts to protect natural resources on the campus and in the surrounding neighborhood environment.

Resource Protection

The UNE Portland campus contains and is located near several important existing resources: historic, open space and natural resources. UNE has extensive experience in development in and around these types of sensitive areas.

There are currently no formal plans for future preservation, enhancement, conservation, or mitigation. The projects proposed under this IDP will not result in significant impacts to currently undeveloped areas, and, in fact will occur primarily on existing de-vegetated areas. A strategy will be implemented to further enhance the Capisic Brook Watershed. This will involve revegetation of areas of the existing Bishop Street parcel as future projects are developed.

Natural Resources

With its Biddeford campus located at the mouth of the Saco River, and in the State designated "Biddeford/Kennebunk Vernal Pool Complex", and with its nearby island land holdings, UNE has successfully designed, permitted and constructed many projects in or adjacent to these sensitive areas while minimizing the environmental impacts. UNE has a long standing, compliant track record with the Cities of Portland, Biddeford and Saco, Maine Department of Environmental Protection, Saco River Corridor Commission and the Army Corp of Engineers, be it developmental or operational. UNE's offices for Planning, Facilities Management, Sustainability and Environmental Health and Safety stay current with regulations in all facets of our operations and we monitor and report compliance annually with our Board of Trustees.

On the Portland Campus:

- Several freshwater wetland areas are located in the largely undeveloped area located in the center of the campus between College Street and Bishop Street Extension. See Drawing NR-1. A total of five wetland areas have been mapped on this portion of the campus, shown as wetlands 1-5.

- Additionally, two wetland areas are located westerly of the parcel off Bishop Street Extension, shown as wetlands A and B. There are perennial and intermittent streams located within the wetland areas. The wetlands are primarily forested and shrub wetlands, with some emergent wetlands in wetland areas B and 5.
- Three vernal pools are located on the campus, one westerly of the Bishop Street Extension site, one located southerly of the former armory site, and one located northerly of the former armory site, shown as VP-1 VP-2, and VP-3 on drawing NR-1. None of the vernal pools meet the criteria to be considered as "significant vernal pools" by the regulatory agencies.
- As mentioned previously, directly abutting the campus is the 239-acre Evergreen Cemetery, a National Historic Landmark established by the city in 1854. The Evergreen Cemetery not only is of historical significance, but it also serves as an important open space resource for this neighborhood, used for walking, jogging and contemplation.
- The UNE Portland campus, with its traditional campus atmosphere, provides a transition to busier institutional, business, and residential areas and uses along Forest Avenue.
- With the potential development identified in the Campus Master Plan, most of the current campus open space will remain as is. UNE is partnering with Portland Trails to extend their network of trails onto the Portland Campus, with the goal of providing more opportunities for the community to access Portland's open space.
- No significant impacts to existing forested areas are anticipated as a result of this IDP. As noted on the Master Plan layout all proposed development will take place on non-forested areas. There will be minor clearing associated with the connector road improvements.



Figure 4.4 – Drawing NR-1: Natural Resources Plan

Potential cumulative impacts on historic, natural resources and open spaces will be minimized through careful planning of the location of planned future development, and by working closely with the regulators.

As noted on the Campus Master Plan, the majority of the proposed development will be located on existing developed areas. The proposed access road from the Bishop Street parking lot to the campus will generally follow the alignment of the existing access road, thus minimizing the potential impacts to the adjacent wetlands. Initial discussions with the Maine Department of Environmental Protection (DEP) indicate that a Natural Resources Protection Act (NRPA) permit may be necessary for the road improvements, and UNE will seek to minimize wetland impacts in that process. Aside from these road improvements, it is unlikely that additional wetland impacts and associated NRPA permitting will be required for the development outlined in the master plan.

Stormwater Management

Stormwater runoff from the majority of the developed main campus core is tributary to on-site infiltration systems, with a portion also tributary to the enclosed storm drain system in Stevens Avenue. Continuing with UNE's current practice, it is anticipated that stormwater runoff within

that watershed will likely be reduced as a result of the development through the use of additional infiltration systems.

The northwesterly portion of the campus is located in the Capisic Brook Watershed, which is listed as an urban impaired stream by DEP. See Drawing NR-1. The majority of the proposed development is located within this watershed. However, because the majority of the proposed development is located on existing developed areas, it is not expected that the potential Campus Master Plan development will significantly impact the peak rates of stormwater runoff from the campus. State stormwater runoff quantity and quality standards are more stringent for projects located within the watershed of an urban impaired stream. All development within the watershed will be required to meet the city's and state's stormwater management requirements relative to stormwater quantity and quality. UNE has successfully demonstrated its ability to design, permit, construct and operate these types of facilities, in environmentally sensitive areas and anticipates continuance of this success. The specific measures utilized to meet the regulatory requirements relative to stormwater runoff will be determined during the site plan review process for the specific projects being brought forward at that time. Currentl available Best Management Practices (BMP) will be utilized to fulfill local and state regulatory requirements related to stormwater runoff. Detailed design will be provided at the site plan review stage for each project. Specific measures cannot be identified until site plans are developed. Items in the BMP tool box include revegetation of currently impervious and devegetated areas, infiltration of stormwater where soil conditions permit, green roofs, and underdrained soil filters. UNE will attempt to manage the stormwater on site, whenever feasible, as opposed to introducing it into the city's enclosed stormwater system.

UNE has generally met, or in most cases exceeded the applicable stormwater runoff standards in place at the time of construction for every project that has been developed on the campus, and will endeavor to continue that record.

Infrastructure

Sanitary Sewer Flows

The UNE main campus sanitary waste flows are tributary to a combined sewer system in College Street and Stevens Avenue. UNE is in compliance with the City of Portland's Fats, Oils and Grease Program and actively maintains these systems to insure they are operated effectively. UNE actively manages its water consumption and utilizes only low flow fixtures as its standard. All water cooled systems on campus have been removed from operation. All X-ray equipment is digital, thus no chemical development processes are utilized on campus.

Fiscal year 2020 water/sewer usage on the Portland campus was 6244 ccf. Assuming similar usage, the potential estimated added water/sewer usage for the entire potential development would be 3921 ccf/yr. UNE is unaware of capacity issues in the existing system, and anticipates use of the city combined sewers for sanitary flows associated with the projects proposed. UNE understands that the site plan review process for individual projects may include measures that minimize the impact to the combined sewer system from new sanitary sewer flows. UNE will

request a capacity to serve letter from Portland Water District, for new projects during each site plan review process.

Water

Sufficient water supply is available through a 12" main in Stevens Avenue and a 12" main which runs through the Bishop Street property. An analysis for building A1, a 4 story priority 1 building, indicates that no improvements to the existing system are required to serve the building. Similarly, Portland Water District has indicated that no system improvements will be necessary to serve S6, the priority 1 Campus Services building at Bishop Street. The remaining priority 1 projects involve renovations to existing buildings and will not result in the need for upgraded water service. Each of the remaining projects included in the Building Blocks program are long term and these will be evaluated on a case-by-case basis under the site plan review process.

Natural Gas

Natural gas service exists in both Stevens Avenue and Bishop Street. An evaluation by Unitil has indicated that adequate capacity exists in the existing system to provide service to the proposed near-term projects. A new 4" natural gas service will be installed to provide service to F1 and S6 at Bishop Street. A new 4" service will be installed to provide natural gas service to A1 and H1. The remaining priority 1 projects involve renovations to existing buildings and will not result in the need for upgraded water service. Each of the remaining projects included in the Building Blocks program are long term and these will be evaluated on a case-by-case basis under the site plan review process.

Energy Conservation

UNE has been closely monitoring its Greenhouse Gas (GHG) generation and energy consumption for decades. The University's Carbon Monitoring Task Force has been charged with "making recommendations on energy demand, procurement, production, renewable technology implementation, emissions reductions and conservation". The Carbon Monitoring Task Force is comprised of a Provost Office representative, VP of University Operations, Director of Facilities Management, Director of University Budgeting, Director of Environmental Health and Safety, Director for Campus Planning, Environmental Studies Department faculty member, Environmental Council member, and a student government representative, with group facilitation by the Assistant Director of Sustainability. This cross section of the University is well situated to advise in regards to all aspects of the University's operations.

UNE became a signatory to the Carbon Commitment in 2008. This voluntary commitment is one of the Presidents' Climate Leadership commitments, managed by Second Nature and aimed at higher education to reduce and eventually eliminate greenhouse gas emissions from their operations and induced activities. As part of this commitment, UNE created its Climate Action Plan in 2010.

The UNE Climate Action Plan has set an aggressive carbon neutral goal of 2040, and has updated the Climate Action Plan in 2017. The 2017 CAP update includes goal reductions and activities to help us achieve these goals, including energy efficiency projects, renewable energy projects, building standards development, waste reduction strategies, alternative transportation initiatives, sustainability criteria integration into contracts, offset purchases, community-based marketing strategies aimed at individual sustainable behavior adoption, and integration of climate change and sustainability education across the curriculum.

UNE's Sustainability Office has been conducting GHG emissions inventories since 2008. Inventories are broken down into operational boundaries to include: scope 1 – on-site combustion, scope 2 – purchased electricity, and scope 3 – indirect emissions from travel and waste. Organizational boundaries include both Biddeford and Portland Campuses.

The University's Energy Subcommittee regularly reviews operational efficiencies and monitors energy consumption internally through its direct digital controls and utility statements. Fiscal year 2020 usage for the Portland Campus was as follows: 4,630,955 kWh of electricity, 1,730 gallons of #2 heating oil, 3,911 gallons of propane, and 278,847 CCF of natural gas burned in our central steam plant and natural gas condensing boilers throughout campus.

If the university realizes the full potential development identified in the Campus Master Plan, the potential future usages would be as follows: 5,250,000 kWh of electricity and 288,000 CCF of natural gas burned in our central steam plant and natural gas condensing boilers throughout campus, assuming similar operational conditions. However, with the University's commitment to carbon neutrality, the actual consumption should be significantly less than these projections. UNE is unaware of capacity issues in these existing distribution systems, and anticipates use of these system to supply the future development. UNE will request a capacity to serve letters from CMP and Unitil, for new projects during each site plan review process.

Green Building Design

UNE's Climate Action Plan has identified a strategy around developing a set of building standards to include energy efficiency and sustainable building materials. Over the past decade our building practices overall have become more focused on these criteria. The Sustainability Office and Campus Planning collaborate on elements of building projects to ensure increasing attention to sustainability attributes in building and renovation projects.

UNE has established design standards for new construction. All UNE facilities are designed with the goal of meeting the US Green Building Council's Leadership in Energy and Environmental Design, LEED, Silver Certification level. The process of LEED certification is time consuming and costly, so UNE has set the LEED Silver Certification level as a standard, but does not continue to seek certification. Additionally, the University will work with Efficiency Maine to maximize the energy efficiency in new construction projects, and has successfully been awarded several rebates. For example, during the design of the Oral Health Center, the University successfully partnered with Efficiency Maine to obtain a rebate based on the Core Performance Guidelines, which allowed UNE to maximize its energy efficiency.

The University's College of Pharmacy building earned LEED Silver certification in 2010. While it is a science and research building with high energy demands, the building earned energy efficiency points for its innovative chilled beam HVAC system among other sustainability features. It was the first building in the state known to use this technology.

The Energy Subcommittee also oversees the University's Green Revolving Fund, which was established to fund energy conservation projects. The Green Revolving Fund is funded through philanthropy and capturing incentives, rebates, and operational savings from the conservation projects. The efforts of the GRF are maximized with the application for Efficiency Maine rebate funding.

While UNE has establish the goal of being carbon neutral, progress is difficult to gauge as the campus has grown in both facilities and population. Although consumption has increased, MTCDE/sf has been decreasing year over year, illustrating that our policies are working towards carbon neutrality.

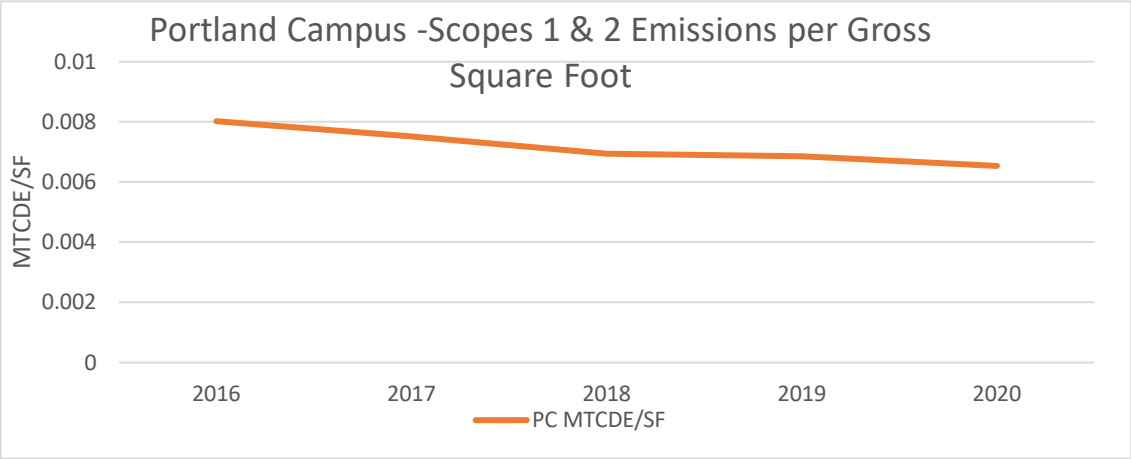


Figure 4.5 - MTCDE/SF

Operational Sustainability

- **Transportation** – UNE offers transportation alternatives designed to preserve the green spaces on our campuses and to practice one of the University's core values: stewardship of our environment.

    - **Public Transit** – UNE faculty, staff, and students can ride Greater Portland Metro for FREE with their UNE identification cards. Through recent collaborative agreements with South Portland buses and Biddeford, Saco, Old Orchard Beach Transit (BSOOB Transit), the UNE community can take advantage of regional bus connections with use of their ID cards. Facilitating seamless and free transfers between transit systems is aimed at encouraging the use of public transit and minimizing single-occupancy vehicle use.

    - **Electric Vehicle Charging Stations** – UNE provides FREE electric vehicle charging that is accessible to faculty, professional staff and students. Electric vehicle owners register for the program with the Sustainability Office, which provides them access to the contact information of the other UNE members in the program, allowing them to coordinate charging time so that charging capacity is maximized. While charging is FREE, drivers will still need the required parking permits.

    - **Bicycles** – UNE's Portland Campus is located in a very bike-able community. We encourage the use of bicycles by providing ample bike racks throughout the campus and the use of showers in our Finley Community Center.

    - **Carpool** – *GO MAINE Commuter Connections* is an online rideshare resource sponsored by the Maine Turnpike Authority and Maine Department of Transportation. These organizations have created a UNE-specific landing page for our faculty, professional staff, and students. The Sustainability Office provides a tip sheet to make registration and ride-matching easy. UNE participates annually in the Way2GoMaine worksite competition as a means to promote carpooling and alternative transportation modes. UNE offers preferential parking spaces for carpoolers.

- **Waste** – Waste minimization, reuse, and recycling reduce overall GHG emissions by decreasing the amount of energy that must be used in the production and transportation of goods and disposal of waste. Appropriate disposal of all forms of waste are a priority of the Sustainability and Environmental Health and Safety Departments at UNE.

    - **Annual Waste Audit** – UNE partners with its contracted waste hauler to conduct annual waste audits of all municipal solid waste (MSW) dumpsters and single-sort recycling containers on campus. The waste audit spans three weeks in October, is weight-based, and is reported through the annual GHG emissions inventory on a fiscal year basis. For the fiscal year 2020, the Portland Campus of UNE disposed of an estimated 74 tons of MSW, and an additional estimated 17 tons of mixed single-sort recycling and cardboard were separated for recycling. If the university realizes the full potential development

identified in the Campus Master Plan, the potential future increases are estimated at 19 tons of MSW and 4.5 tons of mixed single-sort recycling and cardboard to be recycled.

- **Recycling** – UNE encourages students, faculty, and staff to engage in recycling throughout campus operations. Single-sort recycling stations are available in all academic and business buildings and include a three-bin, color coded system: blue for returnable bottles and cans, green for single-sort recycling, and gray for trash. The green, single-sort recycling bins allow for the co-mingling of paper, plastics labeled #1-7, metal, and glass. Returnable bottles and cans are separated from the single-sort stream for the purpose of supporting the recycling program, as the funds collected help to purchase bins, labels, signs, and educational materials aimed at waste minimization.

  Additionally campus recycling includes batteries, fluorescent light bulbs, computers and electronics through the universal waste program. Books and journals are either recycled through the single-sort program, or donated to Better World Books for literacy programs. Waste cooking oil is collected by Maine Standard BioFuels and incorporated into their BioHeat product. Ink and toner cartridges are recycled through our office supply contractor. Facilities staff recycle motor oil, scrap metal, tires, pallets and captured refrigerants as well. Unneeded, lightly used furniture is offered to other non-profits or municipalities.

- **Composting** – Food waste from our dining facility (pre-and post-consumer) on the Portland Campus is collected by Garbage to Garden and brought to Benson Farm in Gorham for composting. In fiscal year 2020 over 7,000 gallons of food waste was composted from the Portland Campus alone. The Green Office certification program also encourages individual offices to participate in the program, and the Communications Department, Library, and College of Graduate and Professional Studies have collection locations for food waste in their kitchenette areas that are routinely collected by office staff and consolidated with the dining service waste.

- **Hazardous Waste** – The University of New England's Portland campus is registered as a Small Quantity Generator (SQG) as defined by Chapter 851 of DEP's hazardous waste regulations. The Portland campus has SQG status because it generates less than 220 lbs. of hazardous waste a month and generates less than 1 pound of acute hazardous waste per month and does not accumulate more than 1 pound of acute hazardous waste at any one time. Most of our hazardous waste is generated gradually in research and academic laboratories in small amounts each time. With no increase in research or wet science laboratories panned, the University does not anticipate any significant increase in the generation of hazardous waste. Additionally, the future relocation of the Maine Army National Guard Vehicle Maintenance Facility, will reduce the presence of hazardous materials stored on campus.

  All hazardous waste is labeled, stored, shipped and managed in accordance with regulations set forth in the DEP hazardous waste regulations, Chapters 850-852, 857,858. Lab managers are responsible for managing hazardous waste at the point of

generation while the school's Environmental Health & Safety Department (EH&S) oversees the program from generation, storage, transportation and ultimate disposal. All paperwork associated with transportation and disposal, including manifests and land disposal restriction forms, is maintained by EH&S.

UNE's EH&S conducts regular lab inspections to ensure that hazardous waste is accumulated in compliance with DEP regulations. EH&S also authors and routinely updates policies and procedures for Hazardous Waste Management, Communication, and Training. These policies and procedures are detailed in the Environmental Health and Safety Manual, Hazardous Waste Management Plan, UNE Exposure Control Plan for blood-borne pathogens, UNE Chemical Hygiene Plan, Spill Prevention Control and Countermeasures Plan.

EH&S is also responsible for maintaining our Hazardous Waste Contingency Plan and implementing it in the event of a hazardous waste spill. The plan lists the names of personnel and details their roles and responsibilities during an emergency and also lists outside state and local agencies and private vendors that may be contacted during an emergency.

UNE uses a web-based Chemical Management Inventory system with Vertere software. All chemicals are added to the software so we have an accurate, up-to-date list of what chemicals are on each campus, where they are located, who ordered them, and the quantity of each that is stored. Once they are added to the system, a unique bar code is created for each container and then affixed to the container for tracking purposes. This helps reduce duplicate orders and storage of unnecessary chemicals.

Oversight and management of the radiation safety program is the responsibility of the Radiation Safety Officer. The Radiation Safety section of UNE's Environmental Health and Safety Manual describes the management of ionizing radiation and establishes procedures related to control and safe use of radioactive materials and facilitates compliance with the University's radioactive material license and applicable state and federal regulations.

- Biomedical Waste - UNE's Portland campus is registered with DEP as a large quantity biomedical waste generator (generates 50 lbs. or more of biomedical waste per month). All biomedical waste is generated, managed and disposed of in accordance of the regulations set forth by the DEP in Chapter 900, the Biomedical Waste Management Rules. Laboratory managers are responsible for the generation and packaging of biomedical waste while EH&S oversees the program from generation, storage, transportation and ultimate disposal. EH&S maintains all paperwork associated with the transportation and disposal of biomedical waste.

  Two types of biomedical waste are generated at UNE. The first, generated from academic and research labs, consists mostly of solid cultures of media, disposable culture containers, and sharps. The second type, generated by medical services, consists of blood-soaked material, PPE, and other potentially infectious material. The

potential future projects identified in the Campus aster Plan should have a negligible impact on the biomedical waste generated on campus.

UNE has developed a biomedical waste management plan for the campus. The plan includes a description of the biomedical waste generated, packaging and handling procedures, training requirements, spill containment and clean up procedures, and contact information for persons responsible for biomedical waste management at the school.

- Sustainable Landscaping - There are two gardens on the Portland Campus of sustainable significance. The Medicinal Herbal Garden is located outside the College of Pharmacy and is a demonstration of the types of medicinal herbs used in phytotherapy. The Community Garden is managed by volunteer faculty and staff and produces vegetables for personal consumption and donation to local charities.

- Noise Generation – As an educational institution, UNE's Portland campus generates noise at low levels that are consistent with the neighborhood, are within current zoning district limits and City of Portland Noise Code. Proposed future growth of facilities and programs should not substantially increase levels of noise generation. The design of future development and buildings will follow these current requirements. The only exception to this will be noise generated during construction, which is addressed in Chapter 6, Neighborhood Engagement.

UNIVERSITY OF NEW ENGLAND

INNOVATION FOR A HEALTHIER PLANET

CHAPTER FIVE

DESIGN

Development Design Impact Considerations

The potential campus development at the University of New England's (UNE) draws its inspiration from its site, history, programmatic needs and most importantly the desire to create a sense of place. Within this framework, UNE aims to preserve the historic character of the existing campus yet provide the opportunity for new identities to develop that represent the modern delivery of healthcare and the future of UNE. The development at UNE will be planned to complement and enhance the community. Emphasis has and will continue to be placed on building siting and the use of buffers to minimize the potential impact to abutters. The majority of the potential development is planned to be internal to the campus, constructed on already developed areas and will have limited visual impact from public ways. This will also limit any issues related to shading or wind, and will allow for more compatible transitions to the neighboring properties. Existing buffers will be maintained, as much as possible, to keep the visual of the campus, from the public ways, in a similar fashion as it is today.

Neighborhood Integration Design Standards

These design standards shall foster the development of a visually and architecturally integrated campus that is safe, environmentally sensitive, and that minimizes the adverse impact of the campus on neighboring residential areas. The standards shall establish an integrated design theme for campus buildings that is harmonious with existing buildings while promoting a high level of design for new buildings. The standards shall address the scale and massing of buildings, appropriate materials and colors, rooflines, locations of building entrances, building linkages, architectural detailing, adjacent open spaces, campus circulation and similar features to create a visually attractive campus while minimizing impacts on surrounding residential communities.

A Sustainable and Resilient Campus

Universities are vital partners within the communities they serve. Due to this relationship, design modifications will further improve UNE's status as a resilient campus that provides a responsive exterior environment. Buildings will be situated and oriented to take advantage of natural light, air and views, coupled with the use of highly efficient building envelopes and mechanical systems. These drivers will reduce the energy necessary to operate the buildings, further increasing resilience in the face of unanticipated events.

Determining Maximum Heights: Overview of Methodology

UNE has used a multi-part methodology to determine the appropriate height profile for potential future development within the IOZ boundary:

1. **Project Definition**. - The *Building Blocks Plan (Figure 2.2)*, located in Chapter Two, has estimated heights for short-term and long- term projects, that reflect UNE's campus modernization needs. These approximate heights, which are expected to be refined through detailed design, were taken as a starting point to determine maximum heights for the proposed building sites.

2. **Design Analysis** - Height zones that are not identified for specific projects were determined using context-sensitive best practices, similar to those used to develop height zones for UNE's Biddeford campus. This included enabling larger and taller buildings within the campus core while providing height transitions, or expanded setbacks, to better align with the scale of residential and historic neighborhoods along campus edges (see "Transition Zones").

   The resulting future height profiles are the basis of the maximum heights requested in the Regulatory Framework.

Transition Zones

UNE has identified "transition zones" along the edges of the IOZ boundary that abut public streets and residential zones where the height of new development can step down to better integrate with the character of local residential streets and neighborhoods.

Transition zones are designed to create a consistent scale of development on either side of a given public street or external property line. To achieve this goal, the transition zones dictate a height limit matching the maximum height allowed by the zone across the public street or external property line. The specific depth of the transition zone where the height limit applies along public ways is typically determined by using the "transitional height plane" test whereby a 45˚ angle line is extended inward from the maximum height line. This test ensures that taller structures on the inner side of the parcel do not negatively impact views from the public street whose character is being preserved.

UNE has used this widely accepted practice to identify and set a 50-ft depth to transition zones as part of the proposed Regulatory Framework.

Architectural Design Guidelines

Introduction

An educational institution's quality is often reflected in its buildings and campuses. To enrich and to provide architectural continuity to the University of New England's campus in Portland, the following Architectural Design Guidelines have been established. These guidelines will preserve and enhance the image of the University's quality, beauty, durability and history.

The University of New England has developed a Master Plan and guidelines to enhance its campuses and help it fulfill its greatest potential. The Master Plan generally locates potential future building sites within similar use groupings, allows for a fairly dense development of the campus while creating/reinforcing outdoor spaces, and creates functional linkages with surrounding facilities. The Architectural Design Guidelines are to be used in conjunction with the master plan to give consistency with the Portland campus in order to enable one to identify the campus buildings at a glance while still allowing for individual design. The Master Plan and the Architectural Design Guidelines incorporate several concepts to give the University a visual identity through building location, mass and consistent use of materials.

The first important step is to hire a qualified architectural and engineering team that is able to deliver a structure within the budget, meet the desirable parameters identified during programming and adhere to the University's established Architectural Design Guidelines. In order to facilitate these requirements, it is important that the design team be familiar with the campus on which they are working. The design team will need to preserve and enhance the architectural concepts, which serve as the basis for design while meeting the goals of University's Master Plan.

These guidelines are intended to assist future development in the IOZ to meet the goals and vision for the UNE campus and create context-sensitive buildings.

General Guidelines

UNE will follow these general guidelines for building design within the IOZ boundary:

Historic Preservation and Impact on Future Designs

UNE's Portland campus includes one of the eleven locally-designated historic districts in the City of Portland that is known as the Westbrook College Historic District. UNE has successfully designed, permitted and renovated several historical facilities on the Portland Campus. To date, Goddard Hall, Hersey Hall and Alumni Hall have been rejuvenated through full historical renovations permitted through the Historic Preservation Board. The exterior of these facilities have been maintained and or restored to their original grandeur and color. All work done to Ludcke Hall, Proctor Hall and the Abplanalp Library has been done with an effort to preserve the historical nature of these facilities and has also been permitted through the Historic Preservation Board. An

example of this would be UNE's renovation of Alumni Hall, which was recognized as an outstanding example of historic preservation by Maine Preservation, with its 2016 Honor Award.

The historic nature of the buildings located within the Westbrook College Historic District has provided guidance on the design characteristics of recently completed buildings such as the College of Pharmacy and College of Dental Medicine buildings located directly on Stevens Avenue. The use of matching College Blend brick and mortar, sizing of windows and doors, building corner and roof edge details on the facades along with the scale of these newer buildings match those within the historic district to compliment and not take away from the viewshed from Stevens Avenue. The University will continue to utilize all of these predominant characteristics of its historic district and the buildings within it to guide its designs for future development and buildings. The recent construction of both the College of Dental Medicine and the College of Pharmacy buildings reflect this commitment.



Figure 4.1 – Alumni Hall, Circa 1834



Figure 4.2 – Alumni Hall, Circa 1930 - 2015



Figure 4.3 - Alumni Hall, 2016 - Present

Universal Design

All new buildings and major renovations will be designed to be in accordance with the American with Disabilities Act. The University is committed to making its spaces accessible to the public, by employing Universal Design. Universal Design is the design and composition of an environment so that it can be accessed, understood and utilized to the greatest extent possible by all people regardless of their age, size, ability or disability.

Quality of Material

The American Society for Testing and Materials (ASTM) is recognized as the industry standard for establishing the performance requirements for various building materials. It is recognized that adherence to ASTM standards for design criteria, material performance and construction made available through the various building trade guidelines, will do much to control quality levels while eliminating untested / unproven materials, products and systems from consideration on future projects. Construction material testing will be utilized to confirm the quality of materials utilized in the construction of these UNE projects.

Healthy Building Design

The University will consider WELL Building design and U.S. Green Building Council, USGBC, design features in its projects. Considerations on eliminating or limiting regulated building products will be given. No asbestos containing materials, lead, PCB's or mercury will be allowed in construction. UNE will strive to eliminate release of volatile organic compounds to the extent practicable. During construction, dust control measures will be implemented, including the utilization of HEPA filtration and covering of ducts to limit contamination, towards maintaining the health of the construction workers and future occupants.

Energy Efficiency

The focus on energy-efficient design will continue to influence the delivery of new and renovated buildings well into the next century. The University has adopted the Maine Energy Code. Whenever economically feasible, new and renovated buildings will be designed with approaches targeting energy conservation and energy efficiency. The baseline UNE utilizes is the USGBC LEED Silver rating for energy efficiencies and sustainability. UNE is a signatory of the Carbon Commitment, and is striving for carbon neutrality.

Life Cycle Costs

Life Cycle Costing (LCC) is a process used to select the most appropriate and durable material based upon the owner's ability to initially purchase it, evaluate the materials' longevity, and its expected maintenance costs. LCC systems principally address mechanical, electrical and plumbing. Analysis of architectural, civil and structural materials is more of a "judgment" call based upon past performance, life, history and/or environmental factors that change from location to location. The University's life cycle expectations are based on a 40-year building.

Scale and Proportion

The concept of scale and proportion is composed of many separate elements, most notably the personal scale, pedestrian orientation of circulation and frequent placement of open spaces and

places to congregate on campus. The perceived proportion of both individual and collective buildings needs to be well balanced, with deliberate designer efforts to avoid architectural competition between neighboring exterior elevations. The Architectural Design Guidelines offer some well-known aids to create and reinforce the concept of human scale on any new building or addition.

Graphics and Signage

The University employs a comprehensive and consistent interior/exterior signage system on campus. All signs comply with ADA Guidelines.

Safety Standards

The safety standards identified in the Architectural Design Guidelines reflect the most recent safety guidelines established for materials and building systems. They also recognize and reference the importance of adhering to building code requirements in the design and construction of campus facilities.

Building Siting and Linkages

The Master Plan identifies potential building sites and maintained open areas. The design team should follow Architectural Design Guidelines to reinforce the University's Master Plan while creating a cohesive campus. Access for emergency and maintenance vehicles, ADA issues, the relationship of new facilities with respect to adjacent facilities and the surrounding natural environment must all be considered and maintained by the individual design teams.

Building sites should carefully maintain the concept of the Master Plan and work to maintain a relationship to existing buildings, as well as, creating systems of pedestrian pathways, which are a part of the University.

Temporary Buildings

Temporary buildings are defined as structures that provide program support space in anticipation of the construction of new buildings. Temporary structures should be sited so as to minimize their view from public streets, to the extent reasonably practical.

Lightning Protection

A UL Master Label lightning protection system will be installed when practical or whenever economically feasible.

ARCHITECTURAL DESIGN GUIDELINES

The Architectural Design Guidelines (ADG) were developed to address the following requirements and needs of the University of New England. These guidelines are intended to provide general guidance and direction and are not intended to supersede any local, state, or federal codes. It is the architect's responsibility to comply with all applicable codes.

1. Building Siting:

The first consideration in building design is the building siting including locations for entrances. While each building will have a primary entrance(s), all entrances should consider connections with neighboring buildings, the orientation to views and protection from inclement weather. The University requires coordination with its Campus Master Plan for new building sites.

- Building Linkages: New structures should respond to connections to existing buildings and to existing circulation paths. Ideally, buildings serving the needs of similar departments or colleges should be located in close proximity to one another with paths linking them to reinforce the concept of the pedestrian campus.
- Enhance Pedestrian Activity Areas: Main entrances of new buildings should be oriented toward pedestrian-oriented activity areas including parking areas to facilitate safe and barrier free access.
- Outdoor spaces: Buildings should reinforce and embrace existing and newly created exterior space.
- Respect Pedestrian Circulation Routes: New buildings should be sited to provide convenient connections for pedestrians. As much as possible, buildings should not be located in such a way as to block pedestrian corridors or compromise the ability to provide safe pedestrian corridors.
- Orient Buildings to Take Advantage of Views: Ideally, buildings should be sited to take advantage of views, and natural lighting.
- Consider Placement of Parking. Parking areas should not detract from the overall visual quality of the campus. As much as possible, parking areas should be sited to help diminish their visual impact from a public way.
- Utility Lines, Connections and Ancillary Equipment: Utility connections, including electric and tele-communications, should be located underground. Ideally, the location of transformers or meters should not be placed on exterior power poles or hung on the outside of a new building located in highly visible locations. Preferably, transformers, pump stations and other utility structures should be placed at grade and screened from view.

- Location of Utilities: The University requires a site analysis for new building sites that includes the availability and proximity of utilities. Potential structure locations may not be feasible due to their distance from existing utilities.
- Service and Material Storage Areas: Ideally, service and material storage areas should be located at the side or rear of buildings in order to be screened from public view. Consideration for the movement of traffic, access to drives and parking areas should be evaluated.
- Loading Docks: Loading docks, where required, should, if practical, be located to minimize their visual impact, or appropriately screened.
- Existing Trees: Existing trees and existing tree canopy that have either historical or sentimental importance to the campus should be respected whenever possible.
- Topography: The site selection requires the designer to evaluate the local topography of a site including the presence of ledge. In some cases, it will not be feasible to build on existing topography, while other locations may be suited for taking advantage of topography to enhance the building and allow two different levels of entrance.
- Soils and Wetland Constraints: Soil and Wetland conditions need to be assessed for every building site in order to comply with State and Local regulations.
- Site Features: There are many existing natural and manmade site features including existing open space that should be retained or reinforced by new structures, if possible, without comprising functional sites that are essential to programs.
- Snow Removal Areas: Care needs to be taken with the design to allow for easy snow removal and adequate space must be provided for the containment of excess snow.

2. Materials:

The materials standards are created to help designers choose acceptable materials for any new or renovated building as they relate to adjacent buildings. In its assessment of any materials the design team will consider the durability, maintainability, and compatibility to the adjacent structures.

- Color and Texture: A material's color and texture can affect a person's perception of a building or of a working environment. Care should be used when selecting finishes to aid in the person's interaction with the space. Colors should also be used to denote similar uses and emphasize entries and special features.
- Detailing: All new or renovated building exteriors should relate to neighboring buildings in the level of detailing while considering current materials and technologies. Detailing may include brick pilasters, high water lines, dentils, and window trim. The following decorative elements may be incorporated where appropriate: brickwork patterning, coursing, window opening and entry rhythms, as well as medallions and reliefs.

- Durability: Materials exposed to weather, harsh cleaning, and physical abuse must be given special consideration and need to be detailed carefully. The design team should review the potential for fading or bleaching by UV exposure and salt air, resistance to acid rain, runoff from staining or corrosive materials, contraction/expansion, as well as vehicular, and pedestrian traffic.
- Maintenance and Cleaning: Consideration should be given where possible to the maintenance and cleaning of materials and fixtures incorporated in a design. For example, wall hung toilets and minimal horizontal surfaces make cleaning more efficient for janitorial staff.
- Materials should remain honest. There are many imitations of various materials. The substitution of materials must be disclosed and supported by a cost benefit analysis showing the rationale for a diminution of quality and substance.
- Energy Efficiency: Lighter, more reflective materials can reduce the heat load of the building. Additionally, lighter colored materials can be used in association with light shelves to bring indirect day lighting into the interior of the building, thereby reducing lighting loads.
- Lights: New or renovated buildings should have adequate exterior lighting to insure that entrances and surrounding areas are safe. See campus lighting standards.
- Standardized interior materials: Standardize interior materials with those that are currently used throughout the campus.

3. Massing:

While each building has its own functional program demands, it must also be sensitive to its neighboring context. Massing, fenestration and entries should be used to create interest and shall be sympathetic to adjoining structures. Building mass should be articulated both horizontally and vertically as much as possible. Fenestration and detailing should emphasize human scale and help to define the use and levels of the building.

- Massing: Building mass should have a ‘base’, ‘building’ and ‘top’. The scale of materials usually diminishes as it is used at each of these points. Changes in material, coursing and fenestration help to define various levels of buildings. Cornices, roof forms, parapets, gables and crenellation add interest to building tops by drawing the eye upward.
- Proportion: New projects, in context with existing buildings, should strive to improve the relationship of fenestration, facades, coursing lines and materials. Buildings and other exterior elements should be scaled and proportioned to human dimension to help to impart a sense of comfort and well-being.
- Height: Where heights are much different than the context, care should be taken to match important horizontal building elements as bases, fenestration, cornices and parapet lines. Any future buildings should also take into consideration the scale of adjacent buildings.

- Roofs: Unless justified by a cost analysis, roofs should be sheathed with forty-year asphalt shingles, EPDM, slate or approved metal roofing.

- Spaces Characteristics: The relationships and the character of spaces should begin from the exterior and move to the interior with similar spaces flowing into each other. The exterior of a building should allude to interior spaces by reinforcing building functions on the facades. Most inhabited spaces should have natural light. Windows are preferred but in some cases, skylights can be substituted. As much as possible, formal and public spaces should have windows that look out on the nicer local features and not at the back of other buildings or parking lots. There should be a hierarchy of spaces that should begin at the entrance and flow down hallways to any space. Formal and informal meeting spaces should be sited in quiet contemplative locations.
- Mechanical equipment: As much a practical or economically feasible, equipment on roofs should be hidden from view from the ground by centering on the roof or hidden by canted parapets or screening as appropriate.
- Façade Treatment: Due to the very public nature of most campus buildings, it is important to give the same quality of design effort to all of a project's facades and to embrace existing building features and historical significance. There should not be a 'rear' elevation per se. New projects should also endeavor to invite the public into the University at all major entrances of the building through design elements.
- Lighting: All new exterior lighting will be selected to provide lighting levels that meet the safety criteria of the Illuminating Engineers Society of North America, IESNA. Consideration will be given to limit light trespass and glare to the extent possible.
- Public Safety: Public spaces should be designed to facilitate building evacuation and maximize accessibility by fire, police and other emergency personnel and equipment. Consideration needs to be made for emergency equipment such as emergency phones.
- Security: All design concepts should be directed to keeping people easily observable. To do this, any structure or feature should not limit visibility of people, parking areas and building entrances, doors and windows should look out on to paths and parking areas; pedestrian-friendly sidewalks and streets; the provision for emergency call boxes: and finally, all these spaces require adequate nighttime lighting.
- Sight Distance: New construction should not be located in areas that will obstruct sight distance clear zones essential for safe vehicular and pedestrian movement. Landscaping and entrance signage should be setback and kept clear of these zones especially at intersections



Figure 4.4 – Example of Building Massing for Proposed A1 Academic Building behind Existing Innovation Hall. View from Stevens Avenue



Figure 4.5 – Example of Building Siting, Materials and Massing for Proposed A1 Academic Building behind Existing Innovation Hall. View from New Proposed Green Space



Figure 4.6 – Example of Building Massing for Proposed A1 Academic Building behind Existing Innovation Hall. View from Stevens Avenue



Figure 4.7 – Example of Building Massing for Proposed A1 Academic Building behind Existing Innovation Hall. View from College Street between Alexander Hall and Residence



Figure 4.4 – Example of Building Massing for Proposed A2 Academic Building behind Abplanalp Library. View from end of College Street.

4. Sustainable Design:

Whenever possible and economically feasible, the University practices Sustainable Design by Reduce Reuse Recycle. The design team should consider: energy efficiency, the removal and replacement of trees, and the use of materials that conserve natural resources during their production and usage. The guidelines also encourage the incorporation of the building siting with respect to the orientation to the sun, wind and the coast to minimize energy use. The University, where possible, follows the criteria set forth by the United States Green Building Council (USGBC) and its LEED Program.

- Sustainable Materials: Materials should be chosen for their value in energy cost savings and renewable ability.
- Orientation: Building orientation, when it can, should be done in such a way as to make the most out of the site in order to gain solar benefits and enhance views, while also considering other issues such as building and pathway relationships etc.
- Building Envelope: A tight building envelope allows for increased energy efficiency and thereby decreases the impact on the environment.
- Proper Insulation: Maintain a standard set of R-values to prevent energy loss and meet or exceed Maine energy codes.
- Recycle Materials: Whenever possible or economically feasible, existing materials should be recycled or reused within the renovation.

5. External circulation:

Internal circulation needs to be coordinated with external access and egress points in order that main entrances to buildings relate to the campus Master Plan.

- Vehicular Circulation and Access: When possible coordinate vehicular access points to individual building sites with existing or proposed median breaks and/or curb cuts on the opposite side of the roadway. Shared access drives between adjacent sites are encouraged.
- Drop-Off Zones and Parking: Drop- off zone and parking should be located near main entrances.
- Parking: Parking areas should be arranged in a logical, efficient manner to minimize the land area dedicated to parking access.
- Curbs and Pavement: All driveways, surface parking and other vehicular use areas should be paved in asphalt concrete in conformance with the University's

Construction Standards. Care should be given in the design and layout of curbs to facilitate snow removal.

- Dimensions and Striping: Parking lot dimensions will meet local code.

- Handicap Parking: All parking lots must conform to federal handicapped accessibility requirements (ADA) Standards. Slopes in the handicap spaces should be 2% maximum in all directions. All handicap spaces must have adequate signage. Handicap spaces should be located near accessible entrances in renovated buildings and the main entrances on new structures.

- Outdoor Spaces: Building designs should strive to include a variety of open spaces and activities ranging from small intimate courtyards for contemplative study to open lawn areas for informal recreation and outdoor classes. Where applicable, provision should be made during the programming and conceptual design of new facilities to provide opportunities for outdoor use of open space as part of the site and for integration within the larger open space/conservation network.

- Natural features: A variety of natural features ranging from conservation areas, passive open space and vegetative areas should be retained as much as practicable on any future development site. Site criteria for proposed new construction should provide early assessments to minimize potential impact and unnecessary work.

6. Buffering:

Various methods of separation may be used to foster compatibility between differing land and building uses within the campus as well as on the perimeter to form separation from the neighbors.

- Visual Separation: Maintain visual separation from neighbors and roadways by means of landscaping and topography.

- Tree Removal: Existing trees and existing tree canopy that have either historical or sentimental importance to the campuses should be respected whenever possible. For more information about which trees need to be preserved, see facilities management. Tree removal must be disclosed as part of any site evaluation process.

- Physical Separation: Maintain physical separation, where possible, between non-compatible buildings or areas.

- Screening of Service and Utility Areas and Waste Containers: Service areas and waste container locations should be located out of public view and in an inconspicuous but accessible location.

7. Crime Prevention Through Environmental Design (CPTED):

UNE aims to create a safe environment for all in and around its campus. Our Campus Safety and Security Department monitors our 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.

UNIVERSITY OF NEW ENGLAND

INNOVATION FOR A HEALTHIER PLANET

CHAPTER SIX

NEIGHBORHOOD ENGAGEMENT

The University of New England makes every effort to be a respectable and understanding neighbor to all of its adjacent and local communities. An open exchange of information, ideas and ongoing dialog is important for the University and its neighbors. It is key to a successful relationship that UNE is looking to build off of in the coming years.



Figure 6.1 – UNE Community Programming Meeting

ONGOING COMMUNITY ENGAGEMENT

UNE's Portland campus is located within a diverse section of the City and in a significant way plays an integral part as a buffer between commercial and industrial businesses in the Forest Avenue, Morrill's Corner and Warren Avenue corridors and the residential neighborhoods of Deering Center, Stevens Avenue and Mayfield Street. UNE understands that its vision of growth depends on its success as a respectable member of the community and this begins with community engagement and communication. UNE values its role with both the local residential communities and the area businesses and strives to be fully supportive of the health and vitality of its neighbors.

UNE is committed to maintaining an open dialog with its neighbors, to quickly and fairly resolve disputes, and to ensure that its growth not only provides a robust, highly educated future workforce but enhances the neighborhood's unique diversity, economy and livability. To do this, UNE is committed to building and maintaining trust by clearly and consistently engaging its neighbors on both the institution's core mission and neighborhood concerns.

UNE proposes the following ongoing community engagement initiatives to ensure the surrounding neighbors are kept apprised of UNE's future development plans and to gather any feedback from the public related to projects or operations on the UNE campus.

- Develop a comprehensive Construction Management Plan utilizing the City of Portland's template to provide information on maintaining normal campus operations, providing continual public safety and minimizing impacts to areas surrounding the campus during project construction. More information on the Construction Management Plan below in this chapter.
- Provide high level monthly project updates for all current/active projects on the Campus Planning page of the University of New England's web page (www.une.edu/campus/campus-planning). This web page will be accessible to the public.
- Creation of a dedicated email address (uneprojects@une.edu) to allow neighbors to forward questions, concerns or feedback directly to UNE's Planning Department and project team members. These emails will be answered in a timely fashion by the people directly involved in the construction activities. This email will also be utilized to send out specific project updates and potential impacts to its neighbors on current projects. Email updates will be sent out to neighbors who request to be included on the updates.
- Attend regularly scheduled local community neighborhood association meetings, like the Deering Center Neighborhood Association (DCNA), to present and review future development plans and receive ideas and feedback.

UNE COMMUNITY BENEFITS

UNE is Maine's largest private university and the state's largest educator of health care professionals. In addition to its leadership in higher education, UNE is a major employer for the state and ranks in the top quartile of Maine workplaces for the size of its workforce. UNE's community impact is broad and deep in Portland, Cumberland County, Maine and the region, with particular impacts in health care services, student and faculty volunteer initiatives for the marginalized and underserved, and educational benefits for residents.

Economic Impact

The University of New England (UNE) is a large, complex and growing enterprise with far-reaching economic and fiscal impacts across the State of Maine. For the academic year 2016, the last year UNE conducted a formal analysis, its total economic impact on the State of Maine exceeded $1 billion. UNE-generated economic activities and their indirect impacts generated sales of nearly $470 million for businesses all across the state. These sales supported the full-time equivalent of 3,800 jobs earning total compensation of nearly $172 million. These activities generated over $22 million in tax and fee revenues for Maine state and local governments. In addition, and perhaps most importantly, the education and skills embodied in the new employees brought to Maine by UNE in 2016 and the graduates beginning careers in Maine in 2016 represent an investment of nearly $500 million in Maine's human capital.

Health Care Education and Health Culture

UNE's Portland Campus is home to the College of Dental Medicine and Westbrook College of Health Professions, as well as the College of Graduate and Professional Studies and Maine Area Health Education Center. The Westbrook College of Health Professions offers degrees in Pharmacy, Physician Assistant, Nursing, Nurse Anesthesia, Social Work, Physical Therapy, Occupational Therapy, and Dental Hygiene on the Portland Campus, as well as Athletic Training, Applied Exercise Science, Nutrition, Health/Wellness/Occupational Studies, and Public Health on the Biddeford Campus. Four of UNE's health-related Research Centers of Excellence — Aging and Health, Collaborative Education, Public Health, and Digital Health, are also housed in Portland. Faculty and students embrace UNE's health culture, demonstrated by over 5,000 monthly visits to UNE's Finley Gymnasium located adjacent to Evergreen Cemetery. With the move of UNE's College of Osteopathic Medicine to the historic Portland Campus, existing benefits to Portland's residents will be strengthened and expanded.

Oral Health Clinical Services

UNE provides reduced cost oral health services to residents in two Portland Campus locations, the College of Dental Medicine Oral Health Center located at 750 Stevens Avenue and the Dental Hygiene Patient Clinic located in the Grace Coleman building. UNE's Dental Hygiene Clinic has been serving Portland and the surrounding community for 60 years, delivering high quality, low-cost oral hygiene care to local residents while also providing essential clinical experiences for over 100 UNE dental hygiene students annually. In addition to oral exams, scaling/plaque removal,

fluoride treatments, sealants, and x-rays, students and their faculty instructors also provide blood pressure screening, nutrition counseling, and athletic mouth guard fabrication. With 20 dental operatories available and hours of operation that include both daytime and evenings, the Dental Hygiene Clinic is an accessible resource that has an active patient base of 11,000, with over 5,000 Portland residents receiving care during the clinic's long history. The patient population includes MaineCare eligible patients, several hundred children, and residents from marginalized and underserved communities. In addition, the UNE Dental Hygiene Clinic offers special reduced cost weeks for veterans and children during the academic year. Dedicated, on-campus patient parking adjacent to the clinic is also available for patients.

UNE's Oral Health Center is a state-of-the-art dental education facility that serves as the clinical home for Maine's only College of Dental Medicine. The dental school enrolls 64 doctoral candidates annually, each of whom provides patient care in the Oral Health Center at the clinical level appropriate for their class year. Dental students are supervised by clinical faculty who serve as instructors and mentors in each student's development. Patients are integral to student education and enjoy a mutually beneficial and reciprocal relationship: the patient receives excellent oral health care at competitive rates in a convenient location with ample parking, and students achieve clinical skills while also fostering relationships with neighbors from the Portland community and beyond. Comprehensive services include cleanings, oral exams, fillings, root canals, crowns, extractions, dentures, bridges, and implants. In addition, an emergency walk-in clinic is available. Since 2015, the Oral Health Center has developed an impressive patient base of over 5,000 people, 1,300 of whom are Portland residents. About one in three patients are MaineCare eligible, and nearly half have no dental insurance. In addition to its lower cost fee structure, the College of Dental Medicine regularly participates in events to expand access to treatment for underserved Mainers, such as Dentists Who Care for ME and Give Kids a Smile. Patients also receive free treatment through student clinical skill examinations through the Commission on Dental Competency Assessments.



Figure 6.2 – UNE Dental Health Clinic

In addition to on-site care in their clinical environments, dental and dental hygiene students and their faculty mentors work closely with community agencies on projects to benefit marginalized community members in Portland and beyond. UNE's Dental Hygiene Program owns portable, suitcase-style equipment that has been used to provide services for children in the Portland area and surrounding communities where access to oral health care is challenged. As part of continuing outreach to the community, the College of Dental Medicine has developed strong service-driven relationships with The Root Cellar, Maine Behavioral Health, Park Danforth, the Cedars, and Preble Street Resource Center, among others. UNE's dental students also complete clinical rotations at Greater Portland Health, a Federally Qualified Health Center serving lower-income residents. Since 2017, UNE dental externs have provided care to over 1,700 Greater Portland Health patients.

Medical and Health Professions Student Clinical Rotations



Figure 6.3 – Student Clinical Rotations

UNE educates approximately 2,500 health professions students annually, nearly all of whom advance their clinical knowledge and skills by completing student practicums with health care affiliates in Portland, across Maine, and throughout New England. UNE has well established, long term academic and clinical partnerships with over 65 organizations in Portland alone, including major health systems, retail pharmacies, elder care facilities, agencies supporting disadvantaged residents, physical therapy businesses, and the Portland School System, among many others. During academic year 2015-16, students in UNE's professional programs provided approximately 1.4 million hours of clinical service worth nearly $44 million.

These complementary relationships serve the University and its students by providing expert, experiential environments for learning, while also facilitating opportunities for employers in the health care and social services systems to observe potential candidates for employment and recruit them to practice. This is an excellent benefit for the Portland, Maine community, given the aging population of Maine's health care workforce and well-documented projected shortages in specific health care professions such as nurses, dentists, and physicians. In one example of annual impact, 65 students in UNE's School of Social Work provided Portland-based social service agencies with over 35,000 hours to help support clients facing behavioral health challenges, intimate partner violence, sexual assault, homelessness, and well as address the needs of immigrants and refugees.

Grant-Funded Initiatives





The University of New England is a competitive applicant for federal and state grants, many of which have a direct impact on members of the Portland community. UNE is the implementing agency for the U.S. Supplemental Nutrition and Obesity Prevention program (SNAP-ED), administered by the Maine Department of Health and Human Services. In this role, the University partners with local community coalitions such as The Opportunity Alliance and City of Portland's Public Health Division to improve nutrition and obesity prevention services to low-income people, providing free classes on budget-conscious purchases and preparation of healthy foods. SNAP-ED also employs a systems approach, creating local policies and seeking changes in the environment to foster healthy behaviors, such as exercise, that contribute to wellness.

UNE's School of Nursing and Population Health has collaborated closely with the City of Portland, Greater Portland Health (formerly Portland Community Health Center), and the Portland Housing Authority to improve the lives and health of Portlanders with limited access to financial resources. Major federally-funded partnerships include a $1.3 million grant through which UNE strengthened its cultural competency education for nursing students while collaborating on development of a new community clinic located in the Riverton neighborhood. The new clinic's opening made healthcare more accessible for Riverton Park – a neighborhood of more than 140 apartments – and better prepared UNE's health professionals to deliver care to the City of Portland's underserved neighbors, including immigrants and refugees. Today, Riverton Health Center is open five days per week and provides an array of primary care and behavioral health services.

In response to the opioid epidemic and dramatic need for evidence-based responses to addiction and addiction prevention, UNE received a three-year federal SBIRT grant (Screening, Brief Intervention, and Referral for Treatment) to identify, reduce and prevent problematic use, abuse, and dependence on alcohol and illicit drugs. The Maine Harm Reduction Conference has been a highlight of this initiative, with over 900 statewide attendees on UNE's Portland Campus, including several hundred representatives from Portland organizations that support some of our most vulnerable residents – the homeless, human trafficking victims, and others who access the City of Portland's social and medical supports. UNE is an active participant in building model solutions for the region's and state's most chronic health care challenges.

UNE's Portland Campus is also home to the Maine Area Health Education Center (AHEC) Network, funded by the U.S. Health Resources and Services Administration. The mission of Maine AHEC Network is to enhance the quality of and access to health care among underserved populations

through experience-based learning, and interprofessional and multidisciplinary partnerships. Specifically in the Portland area, AHEC implements programs including a high school pipeline program, clinical placements, and community based activities. The Maine AHEC Network pipeline program at Deering High School supports students with an interest in a health profession career. The program provides hands-on learning, tutoring, mentoring and other activities to encourage and prepare high school students for further education and training in the health professions. The participants in the pipeline program are diverse, including many students from immigrant and refugee backgrounds. As part of our Care of the Underserved Pathway (CUP) Scholar Program, undergraduate and graduate health profession students participate in a number of service learning experiences including vaccinating residents at community flu vaccine clinics, working with Portland Public Health's needle exchange program, participating in SNAP-Education workshops, helping with Drug Take Back Day, and other community based programs. In addition, we place a number of medical and PA students in healthcare settings throughout Portland for experiences caring for the underserved urban population. AHEC has also coordinated much-needed UNE volunteers to assist with COVID-19 vaccine clinics in Portland.

Private philanthropy has also played a role in UNE's grant-funded initiatives. UNE's Center for Excellence in Aging and Health (CEAH) was launched with the support of a generous donor committed to ensuring older adults maintain a meaningful and vibrant life. One of the Center's key initiatives, the Legacy Scholars Program, engages adults 55+ from Portland, Maine, and the region to participate in research on wellness in aging. Community members become active volunteers in shared scholarship and service, working directly with UNE students and faculty expanding the body of knowledge on healthy aging. In addition to research, Legacy Scholars gather several times a year for fellowship and lifelong learning, discussing topics from Maine's lobster fisheries to spousal loss. During the pandemic, the Center has been an important resource by linking teams of UNE health professions students with older adults via Zoom to interrupt social isolation and examine how tele-wellness contact can be a benefit. This is only a small snapshot of the Center's expansive work. Given Maine's rank as the oldest state in the nation, the Center for Excellence in Aging and Health will continue to be an important resource not only for Portland, but also for the state and region.

Student Service Learning and Volunteerism

Community engagement is a core component of all UNE health professions programs. Through structured service learning and volunteer opportunities, UNE students play an active role in promoting health, with an emphasis on serving Portland's vulnerable citizens. More than 700 health professions students annually provide hundreds of hours to non-profits across the city, often in interdisciplinary team-based groups that maximize the impact to community members. Medical, social work, pharmacy, and physician assistant students collaborated closely with Cumberland County Jail in 2020 to develop training videos for CCJ Corrections Officers on medically assisted treatment for inmates, for example. In response to Covid-19, dental, physical therapy, and physician assistant students and their faculty members procured supplies, assembled, and sewed hundreds of masks for the Greater Portland community over the past year. UNE students also coordinated and collected the donation of thousands of items for Portland residents facing homelessness and addiction, stuffed them into backpacks in an initiative known

as “Cram the Van,” and delivered them to Milestone Recovery. A total of 64 backpacks were delivered, filled with snacks, hand sanitizer, face masks, socks, journals, and notes of encouragement. Located directly across the street from UNE’s Portland Campus, Park Danforth residents also enjoy programming with UNE, such as the “Visual Voices” project that used art to explore social and developmental issues such as identity and aging in collaboration with occupational health and public health students.

Human Capital Impact

UNE has an important human capital and economic impact on Portland and the State of Maine, with approximately 1,100 full-time equivalent employees. More than four in ten UNE employees work on its Portland Campus, and nearly 200 live in the city itself. As a thriving institution of higher education, UNE attracts new, younger, and highly skilled employees to the Portland area from both within Maine and out of state. This pipeline is essential to the vitality of Maine’s workforce as older professionals begin to retire. In addition, UNE’s on-campus Portland Campus enrollment exceeds 1,200 undergraduate, masters, and doctoral level students. Over one quarter of these students indicate a Portland address at the time of application, suggesting UNE serves to both bring new people to the area as well as serve existing residents who aspire to a health professions degree. Both employees and students contribute to Portland’s thriving economy, patronizing local businesses, participating in the real estate market through home ownership and apartment rentals, and engaging in Portland’s wonderful cultural scene. Finally, UNE’s alumni database includes hundreds of graduates who both live and work in Portland and its surrounding suburbs. These include physicians, physician assistants, pharmacists, physical therapists, dentists and dental hygienists, and social workers, among others, making an important difference to and for Portland residents and the region.

Commitment to the Portland Trails System

UNE is committed to partnering with Portland Trails to extend their nearly 70-mile trail system through UNE property in an effort to safely link the Evergreen Cemetery section of walking paths to those in North Deering. Currently, several large sections of the Portland Trail system are adjacent to UNE’s Portland campus in the Baxter Woods Park and Evergreen Cemetery. Hikers and walkers wishing to move from the Evergreen Cemetery area to the North Deering section of Portland must first traverse busy streets like Stevens and Allen Avenues, through Morrill’s Corner, in order to reach the next trailhead. As part of UNE’s initiative to construct the Institute for Interprofessional

Education and Practice on its Portland Campus, the access road that links College Street to UNE's Bishop Street parking lot will be improved, with additional lighting and features to improve safety. This will be an excellent opportunity to plan for and develop the additional trails needed to bridge the Evergreen Cemetery and North Deering areas in collaboration with partners at Portland Trails. In addition, the area has a number of natural features such as a pond and wetlands that support an abundant amount of wildlife, flora, and fauna of interest to walkers and hikers. UNE looks forward to engaging with the Portland Trails System on this next step, in keeping with its commitment to health and wellness and the community in which it operates.

CONSTRUCTION MANAGEMENT PRINCIPLES AND PLAN

The following section provides an overview of the construction management principles that UNE has identified and will implement to minimize impacts to its surrounding neighborhoods from noise, vibrations, ground movement, truck traffic, dust control and other construction related factors. UNE will strive to schedule and undertake construction operations in a way that will minimize, to the extent feasible, the disturbance to the public and occupants of buildings in the adjacent area.

Communication Initiatives

UNE will provide a method of communication between adjacent neighbors, the City of Portland and the construction teams based on the projected impact of future construction projects.

UNE will utilize a dedicated email address to enable communications with its surrounding neighbors so that questions or concerns may be transmitted directly to UNE. These emails will be answered in a time manner by UNE staff responsible for future projects. This email address will also be providing, proactively, monthly updates to neighbors that want to be included on updates on project status and receive important alerts for activities that may impact adjacent roadways, may create dust, vibration and noise, and impact traffic in and around the campus. This information will also be posted on its web site on the Campus Planning page on the UNE web page (www.une.edu)

UNE is also amenable to providing on-going updates to any of its adjacent neighborhood associations, like the Deering Center Neighborhood Association (DCNA), by attending and speaking at regularly scheduled meetings regarding any current or upcoming planned projects.

Construction Schedule

UNE will provide estimated master project schedules at the beginning of any large construction project it moves forward with in the future. Regular updates of this master project schedules will occur during the construction period reflecting any changes to dates. These updates will be provided based on the project's assessed impact on the surrounding neighborhoods and areas. These updates will be provided through the communication initiatives stated above.

Construction Management Plan

During the planning stages and prior to start of construction on any large construction project, UNE will develop an overall Logistics and Safety Plan which will be shared with the neighbors and the City of Portland. The goal of this plan will be to continue and support normal campus operations, maintain public safety and minimize impacts to areas surrounding the campus. UNE will utilize the City's Construction Management Plan template to develop its Construction Management Plan that will be submitted with each future project's Site Plan application.

Project Work Hours

Project construction work hours will be included in the Construction Management Plans that get submitted for each future project. Each project's work hours will be created to minimize the impact on surrounding areas and neighbors while allowing completing the project work expediently while following the City of Portland code of ordinances that regulate noise and work hours.

Public Safety and Access

Safety is the utmost area of concern for UNE and it will be reviewed extensively and be part of its Construction Management Plans for future projects. Pedestrian walkways and vehicular access routes will be clearly marked with appropriate signage and will be maintained throughout the construction duration.

Safety fencing and lockable gates will be utilized to isolate the construction zones from public spaces. Access to these fenced construction zones will be limited to authorized construction personnel, construction deliveries and construction project team members. UNE maintains a Safety and Security Department on its Portland campus and personnel from this group will be utilized to oversee safety and access to these construction zones during non-work hours.

Construction Noise Impacts

UNE is committed to mitigating as much construction noise impacts to surrounding areas as possible. Construction projects inherently have noise as a result of some of the necessary tasks along the duration of the project. UNE and its construction project team members will provide advanced notice of any abnormal noise creating activities, such as blasting or pile driving, through its updates discussed above.

Construction Traffic and Parking Impacts during Projects

Construction Truck Routes and Volume – UNE and its construction project team will create construction vehicle access routes to and from construction zones as far as possible from residential and other sensitive areas. Construction vehicles will be brought directly into the fenced construction areas and not queued on public roadways by managing the frequency and volume of deliveries during the construction timeline. Clear markings and signage will be installed at strategic areas directing construction traffic accordingly. Specifics for each future project will be included in the Construction Management Plans that will be submitted for each project.

Construction Staging Areas – Construction staging areas for material and equipment delivered to the project sites will be within fenced construction zones for each project and kept as far away as possible from residential and other sensitive areas.

Construction Personnel Parking – Jobsite personnel will be directed to park within the fenced construction zones for each project or remotely in UNE's Bishop Street parking lot. The construction project team and its subcontractors shall encourage the use of public transportation by their workers to minimize the impact to the surrounding area.

Construction Air Quality Impacts

To mitigate dust issues and minimize impacts on the local environment from its project sites, UNE and its project team will adhere to several strictly enforced measures. These include the utilization of wetting agents to control airborne dust from construction access drives and construction zones, covering of soil stockpiles as needed, having transport trucks utilize covers while moving materials that are dust creating and construction zones will be periodically swept and cleaned.

City of Portland Construction Management Plan General Template

Below is the standardized City of Portland template that will be used for each future project to establish a clear and concise plan and open lines of communications with the City and its neighbors.

Construction Management Plan
General Template
[Applicant and Project Name]

Construction Management Plans shall depict the overall planning, coordination, and control of a construction site, including phases as applicable, from beginning to completion. The City's goal for a construction management plan is to support a safe construction site and protect the public safety, accessibility (including preserving accessible pedestrian, bicycle, and vehicular modes of transport throughout the city), and welfare during construction. In addition, the construction management plan shall minimize construction impacts in their

duration and magnitude to the surrounding area and develop an effective communication process for resolving concerns and conflicts.

The Construction Management Plan will be submitted as part of the Site Plan Review and it shall address the construction logistics for a project. The Construction Management Plan shall include the following submissions:

1) a construction management site plan;
2) a construction schedule (time frame); and
3) a written narrative addressing the categories below.

A. Construction Management Principles

The following narrative provides an overview of the construction management principles that the [Applicant and Contractor] has identified to minimize impacts from the construction, such as noise, vibrations, ground movement, truck traffic, and other construction related factors to the surrounding building and communities.

B. Development Review of Construction Management Plan

[Applicant and Contractor] shall submit a construction management plan that provides a comprehensive logistics and safety program for the construction project, which will be reviewed and approved as part of the site plan review process. Minimizing impacts to areas surrounding the building/construction site will be primary considerations in the process.

The Planning Authority and the Department of Public Works have the right to seek revisions to an approved Construction Management Plan or require a condition of approval that states an applicant shall coordinate a project's construction schedule with the timing of nearby construction activity, in order to avoid cumulative impacts on a neighborhood. Such a condition may involve a delay in commencement of construction, if necessary.

The following details define the intended approach to the successful management of the project construction and the construction management plan will address the general conditions contained below.

C. Performance Guarantees, Inspection Fees, Preconstruction Meeting, and Permits Prior to scheduling a preconstruction meeting and the issuance of any city required permits, [Applicant and Contractor] shall meet all of the requirements contained in Section 14-530. Development review fees and post approval requirements and 14-532. General requirements and enforcement of Portland's Land Use Code.

Other permits, as applicable, include

1. **Street Opening and Street Occupancy Permits:** Construction activity in the public right-of-way are controlled by Chapter 25 and sewer and stormwater system connections are controlled by Chapters 24 and 32 of the Land Use Code. All required permits shall be obtained through the Department of Public Works and the requests shall conform with the approved construction management plan.
2. **Blasting:** Blasting, if required, shall conform with all measures of Article VIII. Regulation of Explosives in the Land Use Code and Section 3.7 Standards for Blasting and Regulation of Explosives in Portland's Technical Manual.
3. **Building Code:** Employ the best practices, as applicable, of Chapter 33 Safeguards During Construction, from the 2009 International Building Code.

D. Construction Administration and Communication

[Applicant and Contractor] will work diligently to implement a communication strategy as outlined below. The communication strategy is intended to ensure that all construction operations are performed in accordance with all agreements, ordinances and special permits applicable to this project. The Construction

Manager will work closely with adjacent abutters, businesses, nearby construction sites, and all parties informed, as far in advance as possible, of scheduled work, particularly work anticipated to cause significant noise, vibrations, or dust.

The final construction management plan shall provide for the following:

1. Contact Person and contact information for the [applicant and contractor] and who is available 24 hours
2. Construction Signage posted on the site with Contact Information for Contractor
3. Describe any additional communication strategies
4. All construction site signage is temporary and shall be removed at project completion.

E. Construction Schedule

1. The contractor shall submit a schedule or time line for the construction project, including any Phasing.
2. Hours of Construction. Construction may occur during the daytime hours as defined in Section 17-18. Construction Activities for Building permit (Attachment 1) and Section 25-129. Noise, dust and debris (Attachment 2).
3. Extended Hours or Night Work: Pursuant to Section 17-18, this section not apply to emergency utility work or "Situations where the public works authority or the office of building inspections determines that the construction activity is of a unique character which cannot reasonably be completed or performed during the permitted hours and which is not of a recurring nature, provided that prior to engaging in such activity the contractor or his representatives gives notice of the time and scope of such proposed activity, the notice to be given in a manner approved by the public works authority."
4. Material Deliveries: Schedule and designated location for delivery of materials and boxed goods.

F. Security & Public Safety

1. The Construction Management Plan will depict all proposed fencing or other barriers and access gates (with Knox locking devices) with the intent of separating pedestrian and vehicle circulation from the construction site.

2. Structures undergoing construction, alteration, or demolition operations, including those in underground locations, shall comply with NFPA 1 Chapter 16. *Safeguarding Construction, Alteration, and Demolition Operations.*

3. Fire Safety Program. An overall construction of demolition fire safety program shall be developed. Essential items to be emphasized include the following:

- Good Housekeeping o On-site security
- Installation of new fire protection systems as construction progresses o Preservation of existing systems during demolition o Organization and training of an on-site fire brigade o Development of a pre-fire plan with the local fire department o Rapid communication
- Consideration of special hazards resulting from previous occupancies o Protection of existing structures and equipment from exposure fires resulting from construction, alteration, and demolition operations

4. Blasting, if required, shall conform with all measures of Article VIII. Regulation of Explosives in the Land Use Code and Section 3.7 Standards for Blasting and Regulation of Explosives in Portland's Technical Manual.

5. Any proposed temporary security lighting shall be shown on CMP and all fixtures shall be full cutoffs.

G. Construction Permitting and Traffic Control Plans

1. Construction Activity in Public Streets: Construction activity in the public right-of-way is controlled by Chapter 25 Article VII of the City Code of Ordinances. Required licenses and permits, restrictions on activity, and fees & area are outlined in that Chapter. Rules and Regulations for Excavation Activity are available through the Street Opening Clerk at the Department of Public Works. At no time can construction activity including delivery vehicles close or block streets or affect public safety access without prior notice and approval of the Department of Public Works.

2. Sewer and Stormwater: Sewer and stormwater water system connections are controlled by Chapters 24 and 32 of the City Code of Ordinance. Required permits for new connections and/or abandonment of existing connections are available through the Street Opening Clerk at the Department of Public Works. Rules and Regulations for these utility systems are available through the City Engineer's office of the Department of Public Works and in Section II of the Technical Manual.

3. Traffic Control Plans: Construction activity that impacts the existing public street system must be controlled to protect the safety of the construction workers and all modes of the traveling public. Projects are required to submit a satisfactory 'maintenance of traffic" (MOT) plan prior to any site plan, subdivision, or street opening permit approval. MOT plans may be required for projects that have impacts on local streets.

Maintenance of Traffic (MOT) plans shall provide for the safe passage of the public through or along the construction work zone. On a case-by-case basis, applicants may be allowed to close a street and/or detour a mode of traffic when absolutely necessary for safety. MOT plans shall employ the appropriate techniques and devices as called for n the latest edition of the Manual on Uniform Traffic Control Devices (MUTCD). In addition:

- Construction speed signing may be used as needed to slow traffic
- Traffic Control signs shall not be placed where they are an obstruction to bicycles or pedestrians.
- In some situations, flaggers may be required.
- Police details may be required at lighted intersections and may be requested by the City's transportation engineer or his designee.

All existing modes of travel in work zone area shall be accommodated if impacted by the activity. The safe passage of pedestrians, bicyclists, transit providers, and motorists are of equal importance when planning out the work zone; no pre-existing travel mode may be eliminated without the express approval of the Department of Public Works. The MOT should also address on-street parking impacts, including deliveries and parking for adjoining businesses and property owners, analysis of roadway capacity or diversion capacity if street closure or change to roadway capacity is required, and coordination with other on-going or future construction or utility projects in the vicinity.

- Traffic control of bicycle and pedestrian facilities or routes through work zones shall be maintained until the bicycle and pedestrian facilities or routes are ready for safe operation. Traffic control will not be removed to allow auto travel at the expense of bicycle and pedestrians.
- Barrier systems utilized to separate the construction activity from the public street and /or sidewalk shall not inhibit sight distances, particularly for visibility of pedestrians and bicyclists.

- ADA compliance shall be maintained.

Use of public parking spaces or the blockage of any portion of sidewalk for the purpose of construction activity shall require an occupancy permit and appropriate fee as assessed by the Department of Public Works.

H. Site Management and Controls

The final Construction Management Plan will address maintaining the site in a safe condition and will include the following:

1. Regular trash and debris removal
2. Street cleaning and damage controls
3. Dust controls- The construction shall comply with Portland's requirements under Section 25-129 on Noise, dust and debris (Attachment 2).
4. Noise: The construction shall comply with Portland's requirements under Section 1718 of the City Code (Attachment 1) and Section 25-129 on Noise, dust and debris Attachment 2).
5. Rodent Control will be provided, if applicable, by a professional exterminator and consistent with Chapter 22 of the City Code.
6. Snow Removal: Pursuant to Section 25-173 Contractors to ensure a safe means of travel within the work zone.

1) Snow/ice removal or commence automatically from (1" of snow and up) or Ice 2) Remove snow as needed within the work zone, including parking spaces & not to block any driveways or sight lines with the piles of snow.

3) Clear all walks & ramps with the work zone
4) Sand or Salt as needed
5) Clear all basin or drainage to help snow melt
6) This would include Monday-Friday Sat/Sunday/Holidays

I. Erosion Control and Preservation of Trees

1. The [contractor] shall install all erosion and sedimentation controls as depicted on the approved erosion and sedimentation control plan prior to the pre-construction meeting for inspection by the City. The contractor shall regularly inspect the control measures, no less than weekly and after significant storm events, and maintain any installed temporary or permanent stormwater management systems in working order. The contractor shall document all inspection activities and corrective actions and be prepared to provide these documents for inspection by the City, Maine Department of Environmental Protection or the U.S. Environmental Protection Agency upon request.
2. The [contractor] shall maintain all tree and landscaping preservation measures as depicted on the landscaping plan (Exhibit) within the area of construction.
3. The storage of materials shall be identified and avoid being located under/near trees.

J. Construction Staging Area

1. The Construction Management Plan shall depict location of the material staging areas, the location on onsite temporary construction trailers, the location on onsite truck delivery holding areas, the location onsite truck washing stations, masonry mixing stations, the general location of the construction security fence and the general location of temporary construction dumpsters. An open storage areas shall be shown on the plan.
2. Delivery Truck Holding Areas On-Site: The delivery holding area shall be shown on the plan and shall not be blocked during construction. On days when the construction activities require multiple truck deliveries, these deliveries will be carefully scheduled so that there is always adequate on-site area for the holding of the trucks until they can be unloaded. Once at the site all

vehicles well be brought within the fence line and will make every attempt to avoid queueing on public streets.

3. Delivery Truck Holding Areas Off-Site: In the event that adequate on-site area for holding of trucks is not available, an off-site marshalling area will be utilized for trucking. The designated off-site location will be identified in the construction management plan.

K. Parking During Construction

1. Construction Parking: Adequate parking for construction workers shall be provided on site or arrangements for off-street parking at an off-site location shall be provided. The parking arrangements shall be included in the construction management plan.
2. Parking: Where existing facilities are remaining in operation during construction, the construction management plan shall identify how the parking for employees and others shall be managed.
3. Truck Routes and Volumes: The Construction Management Plan shall address the designated truck routes and expected truck volumes.

L. Dewatering Plans

A basic dewatering plan for any construction work is required. The plan must cover construction sites where groundwater is not expected but the impact of rainwater may require dewatering. The plan must include operating procedures, equipment to be used, including filters, erosion and sediment control measures, or other methods of removing sediment from approved discharges.

For construction work that will require frequent dewatering of groundwater from site, a dewatering plan must be prepared and approved by the Department of Public Works. Groundwater and/or soil testing may be required to determine course of action if treatment is necessary. Approval for all discharges to City infrastructure is required.

The proposed plan must address the following:

- Project duration, discharge location, storage equipment on-site, dewatering schematic, and emergency contact.
- General requirements include trained staff on-site for all approve discharges and required site log for documentation of all discharges.
- Storage and/or treatment process should include proper settling time and maintain proper use of filtering medium as required.
- Contingency/maintenance plan for all dewatering equipment devices and filtration mediums.

Any water that is removed from an excavation must be pumped from a perforated device buried in crush stone prior discharge and/or prior to storage and treatment. There will be no discharge allowed during precipitation events.

M. Special Measures as Necessary

For construction work that will take place over a long period (e.g. 12 months or more), involve major demolition/ deep excavation/ piling and/or special construction techniques, or are located near sensitive uses (e.g. medical care facilities, schools), the Construction Management Plan should provide details and demonstrate that all appropriate special measures have been taken to avoid, minimize, or possibly compensate for potential impacts. This may include taking baseline measurements before construction, such as arranging to photograph the foundations of nearby properties upon consent of the owners, in order to assess any future impacts of vibration, noise, etc.

UNE UNIVERSITY OF NEW ENGLAND

INNOVATION FOR A HEALTHIER PLANET

UNE Institutional Overlay Zone (IOZ)

Regulatory Framework

Approved by Portland City Council _____

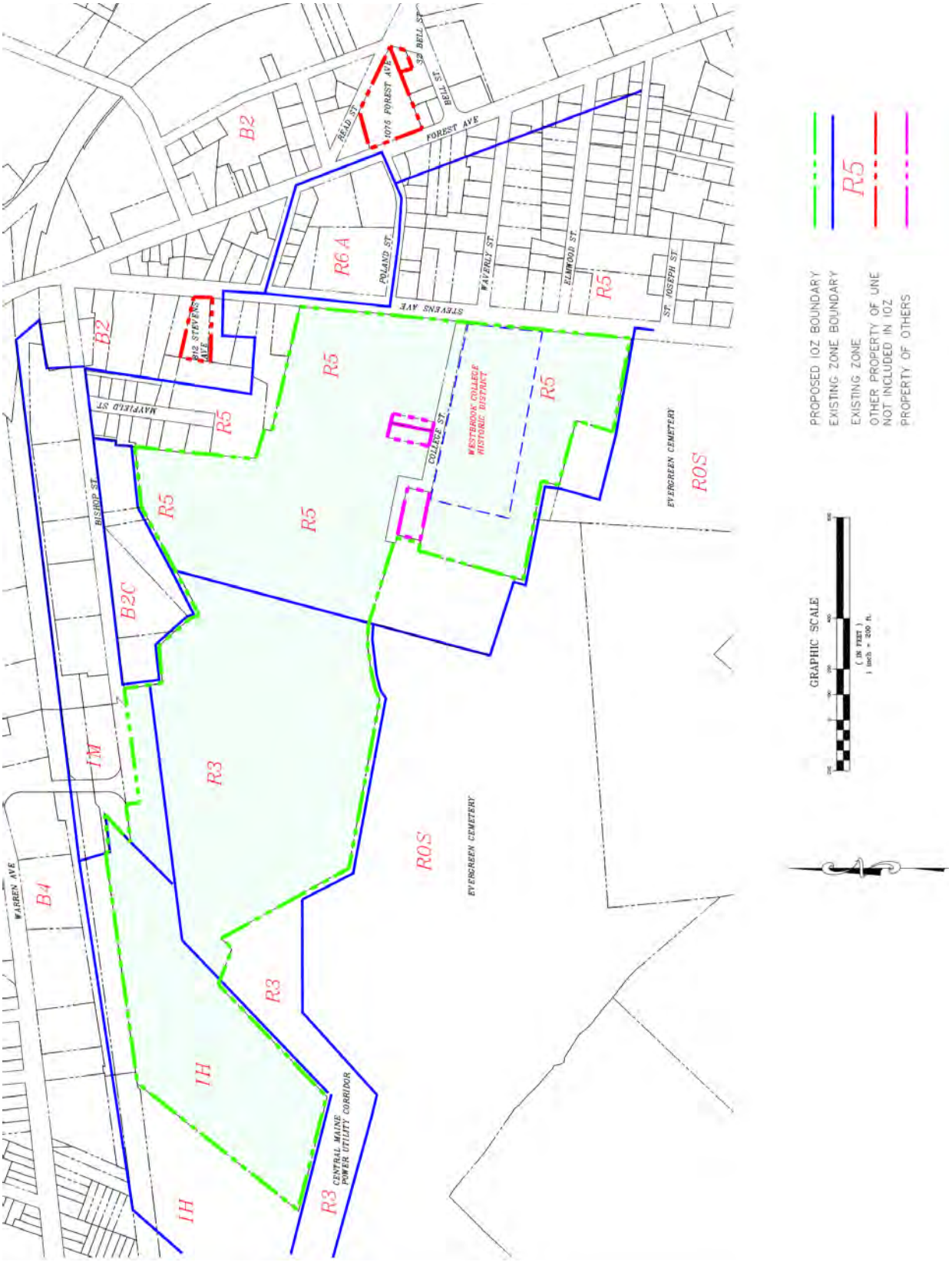
A. APPLICABILITY

All development proposed by University of New England (UNE) within the boundary of the Institutional Overlay Zone (IOZ) shall be consistent with the approved Institutional Development Plan (IDP), consistent with the Comprehensive Plan, and meet applicable standards of the Land Use Code, unless such standards are superseded by the following Regulatory Framework. This Regulatory Framework shall govern future development by UNE within the IOZ unless amended by the Portland City Council upon formal application of UNE.

The UNE IOZ shall have the boundaries depicted in Figure 1.1, and shall include the properties listed in Appendix 1.1.

Under Section 8.5.5B of the Ordinance, "Properties located within the IOZ not subject to right, title or interest of the eligible institution shall continue to be governed by the regulations of the underlying zoning designation."

Figure 1.1 - UNE IOZ Boundary



B. UPDATES, AMENDMENTS and ASSIGNABILITY

1. It is intended that the IDP will be updated on a regular basis to ensure that the data is current and that the document remains accurate. Accordingly, UNE shall file monitoring reports every five (5) years with the Planning Authority and shall include a summary of progress on IDP implementation and progress towards targets established in UNE's Transportation Demand Management Plan (TDM), and of acquisitions and divestment since the date of IDP approval. At the time of the submission of the monitoring report, UNE shall identify any updates to the IDP which may result from updated master planning, changes in baseline information, or changes in the adjacent neighborhoods which affect UNE, to allow the IDP to remain current. Updates and minor amendments not described in Sub-section 2 and 3 below shall be reviewed administratively by the Planning Authority.

2. Minor amendments that impact phasing of the development or change the approach to parking, transportation, neighborhood engagement, or design shall be reviewed by the Planning Board for consistency with the objectives of the IDP. In addition to consistency with the objectives of the IDP, review of phasing and development program amendments shall focus on integration with the campus and impacts on transportation or infrastructure. This review may occur simultaneously with the site plan review of an anticipated project.

3. Major amendments shall be reviewed by the Planning Board and are required under the following circumstances:

a. A change to the IOZ boundary or Regulatory Framework is required;

b. The IDP is no longer representative of the institutional mission or approach to community as a result of redevelopment in the area or City upgrades to neighborhood planning (such as, but not limited to, roadway changes, infrastructure upgrades, community design, lighting); or,

c. Development proposed by UNE is inconsistent with the Campus Master Plan, Transportation Plan intent, Design Plan intent, or Environment and Infrastructure plan intent identified in the IDP.

4. Proposed amendments to the IOZ boundary or regulatory framework must also be adopted by the City Council subject to the provisions of the Land Use Code.

C. USES

In addition to the uses permitted in the underlying zone, the uses in Table 2.1 are permitted as a matter of right. Post-secondary school development fronting onto Stevens Avenue shall, to the extent reasonably possible, include features that also provide public benefit, including but not limited to, landscaped gardens, active building entrances, pocket parks on the ground or other publicly accessible level, consistent with the design intent contained in the approved IDP.

TABLE 2.1 - List of Uses Permitted by Right within the IOZ

Post-secondary school uses including, but not limited to, the following ancillary and/or supporting uses:

1. Classrooms
2. Laboratory facilities;
3. Research facilities;
4. Student unions;
5. Dining halls;
6. Bookstores;
7. Auditoriums;
8. Concert halls;
9. Lecture halls;
10. Gymnasiums;
11. Indoor recreational facilities;
12. Libraries;
13. Art galleries;
14. Museums;
15. Athletic fields and facilities;
16. Outdoor use areas such as “quads”, greens, parks, gardens, art installations, and other active and passive noncommercial recreation spaces;
17. Faculty housing;
18. Student housing;
19. Congregate Care Facility*;
20. Intermediate Care Facility*;
21. Long-term Care Facility*;
22. Parking lots;
23. Parking garages and decks;
24. Community meeting spaces;
25. Administrative offices;
26. Faculty offices;
27. Transportation facilities;
28. Maintenance facilities;
29. Utility buildings;
30. Daycare facilities, nursery schools, and kindergartens operated in conjunction with university programs or serving students, faculty, or staff of the university and their families, with associated outdoor play areas;
31. Medical and dental clinics;
32. Intermodal transportation facilities;
33. Other buildings, structures, and uses customarily incidental to a post-secondary school.

* Any Congregate Care, Intermediate Care or Long-term Care Facility use shall be in conjunction with the post-secondary school use for education purposes, such as direct clinical experience.

D. DIMENSIONAL REQUIREMENTS

The UNE IOZ shall have the dimensional requirements listed in Table 3.1 below:

TABLE 3.1 - List of Dimensional Requirements

Maximum Building Heights	Maximum building heights for new buildings within the IOZ shall be governed by the Maximum Buildings Heights Map, Figure 4.1 and by the Transition Zones clause of this table (see below) for those buildings located in Transition Zones.
Minimum Building Heights	25 Feet
Minimum Building Setbacks	Minimum building setbacks for new buildings within the IOZ shall be governed by Figure 4.2 or by the Transition Zones clause of this table for buildings and structures located in the Transition Zones.
Transition Zones	Transition Zones apply to new buildings within the IOZ. These Transition Zones are identified inside the IOZ boundary in locations where the IOZ abuts or is located across a public right-of-way from a residential zone. See Figure 4.2 for location of Transition Zones. Transition Zones shall extend fifty (50) feet into the IOZ from the parcel boundary. Transition Zones that abut a Residential zone with or without an intervening public right-of-way shall have a maximum height limit that matches the maximum height permitted within that Residential zone. Where the IOZ abuts a Residential zone without an intervening public right of way, minimum side and rear yard requirements of the abutting Residential zone apply within the IOZ boundary, unless noted otherwise in Figure 4.2.
Minimum Lot Area	N/A
Maximum Lot Coverage	Maximum lot coverage shall be 50%.
Minimum Lot Width	N/A
Maximum Impervious Surface Ratio	Maximum impervious surface ratio shall be 75% of the total land area within the UNE IOZ.
Minimum Street Frontage	N/A

Note – For the purposes of this regulatory framework, "lot" is defined as the contiguous combination of such lots under UNE ownership, including land separated by a public or private right of way. The lot boundary is as shown in Figure 1.1.

Figure 4.1 - Maximum Building Heights Map

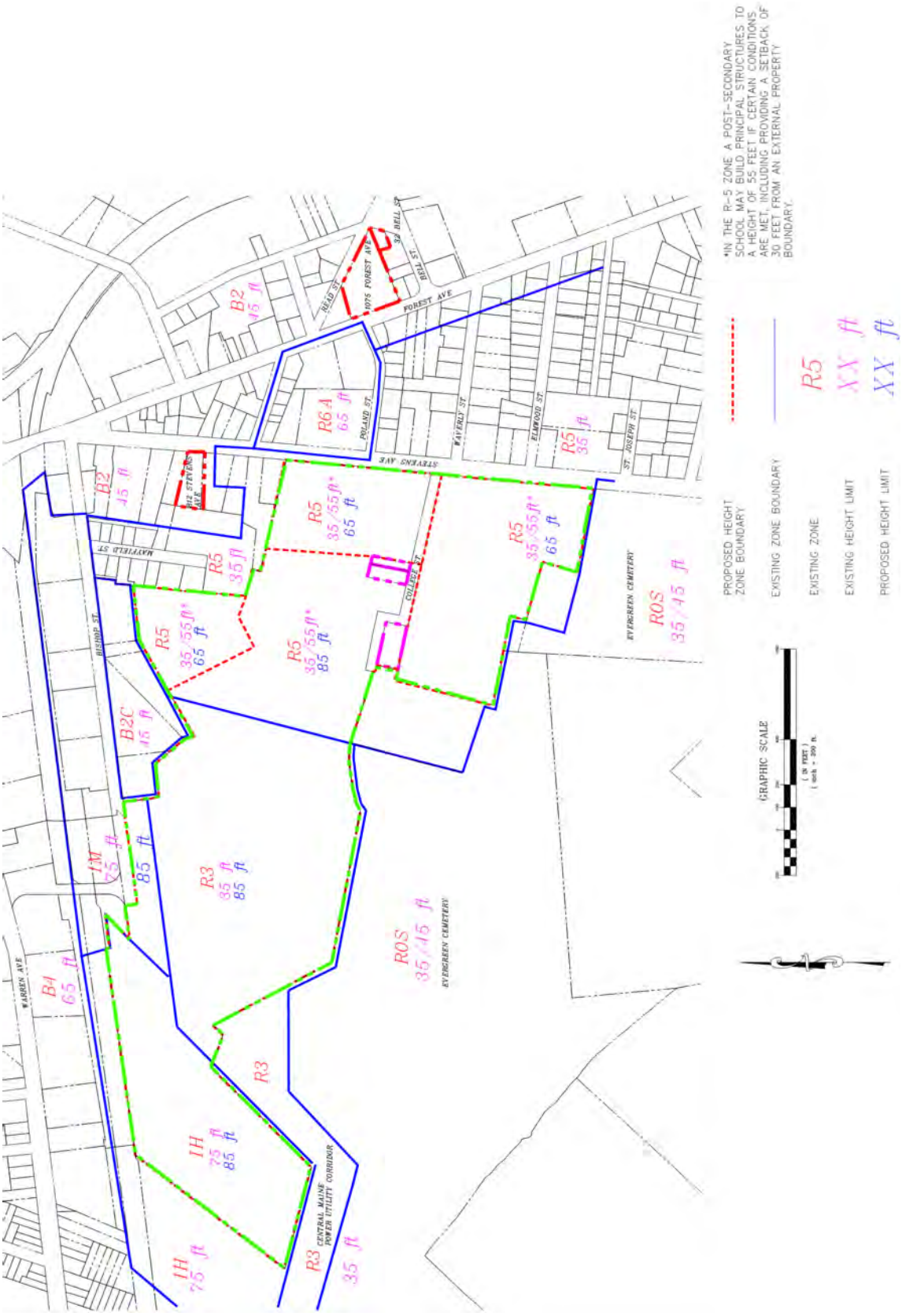
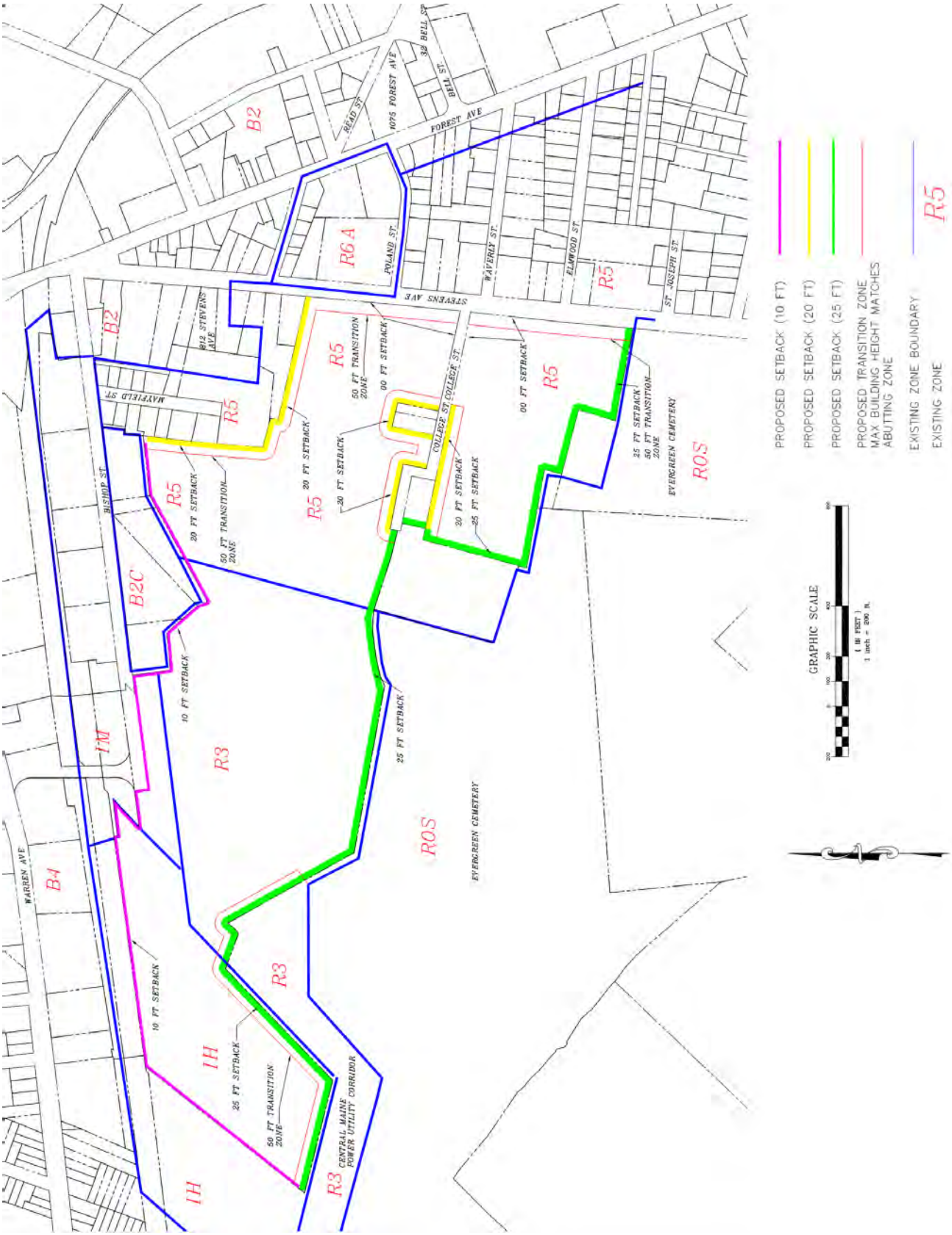


Figure 4.2 - Minimum Setbacks and Transition Zone Map



E. DESIGN

1. New buildings within the IOZ shall adhere to the Design Guidelines set forth in Chapter 5: Design of the IDP and the site plan standards of Article 14.

F. SIGNS

1. At the time of first site plan review following IDP approval, a unified campus-wide Signage Plan shall be submitted for review and approval by the Planning Authority. Any update to such plan due to a change in graphics shall not require amendment to the IDP.

2. Signs shall be designed in accordance with the campus-wide Signage Plan. All signs shall be designed in proportion and character with building facades and adjacent street typology. All signs shall be coordinated with the building and landscaping design and be constructed of appropriate permanent, high quality materials and finishes.

G. TRANSPORTATION

1. Transportation Demand Management (TDM):

a. At the time of the first site plan review following IDP approval, UNE shall submit a campus-wide TDM Plan substantially in accordance with those TDM objectives and strategies identified in the approved IDP. The TDM Plan will be updated with each subsequent application for site plan approval to allow for progressive and responsive implementation over time.

b. The TDM Plan shall be designed to provide transportation choice with the goal of reducing parking demand and single-occupancy vehicle trips to and from UNE by employees, students and visitors.

c. The TDM Plan shall establish parking and trip reduction targets as well as a data collection plan.

The TDM Plan shall include parameters to ensure pedestrian, vehicular, bicycle and public transit access and safety.

2. Parking:

a. Parking requirements in the IOZ shall be established at the time of site plan review based on a parking study that includes a campus-wide analysis of demand and supply. The parking demand study shall determine any additional parking requirements and shall be sufficient to alleviate the subsequent parking pressure on surrounding neighborhoods.

b. Parking studies developed by UNE shall integrate parking and trip reduction achievements and data contained in the TDM Plan.

H. ENVIRONMENT

Development proposed by UNE shall be designed to integrate with and preserve the surrounding context, including open space and pedestrian networks and infrastructure.

I. MITIGATION MEASURES

Neighborhood meetings, meetings with City staff, and UNE's experience in operating the Portland Campus have shown that the particular issues associated with UNE and its surrounding neighborhood are traffic, parking, and stormwater impacts of development and operations. UNE shall assess traffic, parking, and stormwater impacts of development through the site plan process. UNE shall assess operational traffic, parking, and stormwater impacts in the monitoring reports it will provide to the City every 5 years. In the site plan process and in the monitoring reports, UNE shall establish thresholds at which mitigation of these impacts will occur. UNE then shall mitigate those impacts in a manner proportionate to those impacts, with specific mitigation measures to be presented in greater detail in the site plan process.

Mitigation may include financial or in-kind contributions to existing or planned City projects focused on mitigating the traffic, parking, and stormwater impacts of UNE development and operations. Mitigation contribution to such City projects shall be determined based on the City's standard procedure in effect at the time of site plan review. Any impact fees charged as part of the UNE development shall be counted towards any financial or in-kind contributions required under this Section.

J. NEIGHBORHOOD INTEGRATION AND ENGAGEMENT

For the purpose of keeping surrounding residential areas appraised of its future development plans, and to address any neighborhood issues related to the operations of the UNE campus, UNE shall adhere to the ongoing community engagement principles identified in the approved IDP.

UNE shall attend regularly scheduled meetings of the Deering Center Neighborhood Association at least twice per year to present and review future development plans and receive ideas and feedback. UNE shall also create a dedicated email address to allow neighbors to forward questions, concerns or feedback directly to UNE's Planning Department.

K. CONSTRUCTION MANAGEMENT

For each development requiring site plan review, at the time of site plan review, UNE shall submit a Construction Management Plan substantially in accordance with those construction management principles identified in the approved IDP for review and approval by the Planning Authority.

The Construction Management Plan shall include a construction schedule, as well as strategies for managing neighborhood communication and noise, air quality, traffic, and parking impacts associated with the construction as set forth on the Construction Management Plan Template developed by the City and incorporated in the IDP in Chapter 6.

APPENDIX 1.1 List of Properties included in the UNE IOZ

(All properties within the green boundary shown on the IOZ Boundary (Figure 1.1) shall be included in the UNE IOZ)

Chart	Block	Lot	Address	Acreage	Ownership
144	A	005	684 Stevens Ave	0.141	UNE
144	A	006	684 Stevens Ave	0.275	UNE
144	A	007	684 Stevens Ave	0.371	UNE
144	A	008	684 Stevens Ave	0.256	UNE
144	A	009	684 Stevens Ave	0.586	UNE
145	A	001	706 Stevens Ave	0.450	UNE
145	A	002	710 Stevens Ave	0.165	UNE
145	A	003	714 Stevens Ave	9.231	UNE
145	A	006	714 Stevens Ave	0.250	UNE
145	A	007	710 Stevens Ave	0.006	UNE
145	A	008	710 Stevens Ave	0.036	UNE
145	A	009	714 Stevens Ave	0.356	UNE
145	A	010	714 Stevens Ave	0.338	UNE
145	B	001	1 College St	0.207	UNE
145	B	002	1 College St	1.830	UNE
145	B	006	31 College St	0.134	UNE
145	B	007001	33 College St	0.173	Owned by others
145	B	008001	37 College St	0.197	Owned by others
145	A	004	74 College St	0.416	Owned by others
145	B	009	41 College St	0.200	UNE
145	B	010	51 College St	0.383	UNE
145	B	011	63 College St	0.076	UNE
145	B	012	63 College St	0.114	UNE
145	B	013	63 College St	0.048	UNE
145	B	014	83 College St	0.366	UNE
145	B	018	772 Stevens Ave	8.603	UNE
145	B	027	83 College St	3.137	UNE
145	B	029	79 College St	0.258	UNE
145	B	042	1 College St	0.162	UNE
145	B	046	1 College St	0.138	UNE
281	A	003	0 Bishop St	10.555	UNE
290	A	003	83 College St	1.771	UNE
291	A	001	0 Bishop St	8.394	UNE
291	A	005	83 College St	17.972	UNE
291	A	007	83 College St	0.459	UNE
293	C	005	83 College St	1.574	UNE

Doc#: 10603 Bk:29387 Pg: 289

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. J. Van Hemel

~~Notary Public~~ / Maine Attorney-at-Law
Name Printed: Peter J. Van Hemel
My Commission Expires: _____

H:\DOCS\RATTEY\PIKE\UNE 39662\MSFWDEED3.DOC

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

QUITCLAIM DEED

THE STATE OF MAINE DEPARTMENT OF DEFENSE, VETERANS AND EMERGENCY MANAGEMENT successor in interest to the STATE OF MAINE, acting by and through the Acting Adjutant General pursuant to 37-B M.R.S.A. § 264, (the "Grantor"), FOR CONSIDERATION PAID, grants to the **UNIVERSITY OF NEW ENGLAND**, a Maine non-profit corporation, whose mailing address is 716 Stevens Avenue Portland, ME 04103 (the "Grantee"), certain real property, together with any improvements thereon, located at 760-780 Stevens Avenue, in the City of Portland, County of Cumberland and State of Maine, more particularly describes as follows:

A certain lot or parcel of land with the buildings thereon situated on the westerly side of Stevens Avenue in the City of Portland in said County of Cumberland and State of Maine, being the same premises conveyed by Elizur B. Forbes to Portland and Forest Avenue Rail Road Company by deed dated March 22, 1864, and recorded in Cumberland County Registry of Deeds in Book 326, Page 212, in which deed said premises were bounded as follows:

"A certain parcel of land fronting on the principal street at Stevens's Plains in Westbrook aforesaid, bounded as follows; beginning on said street at the southeast corner of land formerly of Jeremiah Beedle, now of Woodbury Polleys; thence running North sixty-four and a half degrees West five hundred seven and a half feet; thence North twenty-five and a half degrees East, thirty three feet; thence North sixty-three degrees West one hundred twenty-five feet; thence South seventy-five degrees forty-five minutes West seven hundred twenty feet; thence South sixty-four degrees east nine hundred ten and a half feet; thence North twenty and a quarter degrees east one hundred forty and a half feet; thence South sixty-six and a half degrees east, three hundred twenty four feet to the street or Stevens's Plains road before mentioned; thence North (by the line of the Street) nineteen degrees and three quarters east, two hundred ninety feet to the place of beginning - estimated to contain about nine and one quarter acres."

Meaning and intending to convey the same premises delineated on the Plan of Property in Portland, Maine made for the Adjutant General, Augusta, Maine prepared by H.I. & E.C. Jordan dated August 22, 1958.

For Grantor's source of title see: Warranty Deed from Portland Rail Road Company to the State of Maine dated October 14, 1940 and recorded at the York County Registry of Deeds in Book 1619, Page 299.

MAINE REAL ESTATE TAX PAID

By his signature hereon, the Acting Adjutant General certifies that the premises being conveyed in compliance with 37-B MRSA § 264, Section 6, Subsection 5 constitutes the Portland Armory, that he has designated an officer to inspect the premises, that he has determined the property to be unfit for military use, and has condemned the premises and furthermore that the premises are not being sold for less than appraised value as determined by a person licensed as a real estate appraiser under Title 32, chapter 123 and that the State of Maine Department of Defense, Veterans and Emergency Management is the successor in interest to the State Military Defense Commission of the State of Maine.

IN WITNESS WHEREOF, the State of Maine has caused this instrument to be executed in its name by Brigadier General Gerard F. Bolduc in his capacity as the Acting Adjutant General of the Maine National Guard, pursuant to 37-B M.R.S.A. § 264, this 11 day of June, 2015.

JA.
Witness

STATE OF MAINE
By: Gerard I. Bolduc

Gerard F. Bolduc
Brigadier General, The Acting Adjutant General

State of Maine
County of Kennebec, ss

June 11, 2015

The personally appeared the above-named Brigadier General Gerard F. Bolduc, The Acting Adjutant General of the Maine National Guard, and acknowledged the foregoing instrument to be his free act and deed and, pursuant to authorization of the Maine Legislature as found in 37-B M.R.S.A. § 264, the free act and deed of the State of Maine.

Before me, under authority of 37-B MRSA 390-C.
ATTORNEY AT LAW
Notary Public/Attorney-at-Law
Commission Expires:
Print Name: STACY M. BRADBURY

Received
Recorded Register of Deeds
Jun 17,2015 08:54:11A
Cumberland County
Nancy A. Lane

Abstract

Abstract of Title to the following described lot:

A certain lot or parcel of land with the building thereon, situated number 374 Stevens Avenue in that part of said Portland formerly Deering, and being bounded and described as follows:

Beginning at a stone post standing on the southerly side of College Street, formerly Seminary Street, one hundred and fifty-eight (158) feet more or less from the northwesterly corner of said College Street and Stevens Avenue, and running north, twenty-four and one-fourth (24 1/4) degrees east, one hundred and forty-eight and one-half (148 1/2) feet to land now or late of Captain Sargent; thence south, seventy (70) degrees east by said Sargent's land one hundred and forty-one and one half (141 1/2) feet more or less to said Stevens Avenue; thence southerly by said Stevens Avenue seventy-four (74) feet to land now or late of Arabella W. Roberts; thence westerly by land now or late of said Roberts in a line parallel with said College Street one hundred (100) feet; thence southerly again by land now or late of said Roberts in a line parallel with said Stevens Avenue ninety (90) feet to said College Street; and thence westerly by said College Street to point of beginning; be any or all of said measurements more or less, or however otherwise bounded, measured or described.

Being the same premises conveyed by Lydia J. Snow to Thalia L. Clement, formerly Thalia L. Scammen, by warranty deed dated April 22, 1902, and recorded in Cumberland County Registry of Deeds, Book 716, Page 386.

bounded, measured or described.

Being the same premises conveyed by Lydia J. Snow to Thalia L. Clement, formerly Thalia L. Scamman, by warranty deed dated April 22, 1902, and recorded in Cumberland County Registry of Deeds, Book 716, Page 386.

Excepting that certain lot or parcel of land conveyed by the said Thalia L. Clement to Victor Brewster by warranty deed dated October 19, 1908, and recorded in Cumberland County Registry of Deeds, Book 831, Page 38.

377-518.
(Elizur)
Eleazer B. Forbes to Joseph C. Snow;

Warranty; July 29, 1870;

Tract embracing lot described.

478-428.

Joseph C. Snow to Lydia J. Snow, wife;

Warranty; December 13,1880;

Same tract as 377-518.

716-326.

Lydia J. Snow to Thalia L. Seaman;

Warranty, April 22, 1902.

721-20.

Thalia L. Seaman to Portland Savings Bank;

Mortgage; September 30, 1902; Discharged on margin

Mar. 2, 1905.

Thalia L. Clement to Portland Savings Bank, June 10,1910.
Mortgage;
Discharged on margin September 22, 1914.

At the present time there are no encumbrances of record.

Dated at Portland, Maine, this fifth day of April,

A.D. 1919.

PAGE 06
UNE WOC FACILITIES

Quit-Claim Deed

CORPORATION — WITH COVENANT

FROM

ALL SOULS UNIVERSALIST CHURCH OF
PORTLAND, MAINE
(ALL SOULS CHURCH PARISH)

TO

WESTBROOK SEMINARY AND JUNIOR COLLEGE

Dated February 9, 1940

State of Maine.

Cumberland ss. **Registry of Deeds**

Received FEB 9 1940

at 3 H., 36 M., P M., and

recorded in Book 1598 Page 276

ATTEST: [signature] REGISTER

FROM THE OFFICE OF

Bradley, Linnell, Nulty & Brown
192 Middle Street
Portland, Maine

MARTIN'S, PORTLAND, MAINE — LAW OFFICE SUPPLIES AND EQUIPMENT

MARTIN'S FORM NO. 9

To have and to hold the same, together with all the privileges and appurtenances thereunto belonging, to it, the said Westbrook Seminary and Junior College, its successors ~~Heirs~~ and Assigns forever.

And the said Grantor Corporation does ~~covenant~~ with the said Westbrook Seminary and Junior College, its successors ~~Heirs~~ and Assigns, that it will **Warrant** and **Forever Defend** the premises to it, the said Grantee, its successors ~~Heirs~~ and Assigns forever, against the lawful claims and demands of all persons claiming by, through, or under it.

In Witness Whereof, the said All Souls Universalist Church of Portland, Maine (All Souls Church Parish) has caused this instrument to be sealed with its ~~corporate~~ seal and signed in its corporate name by Herbert B. Seal, President of its Board of Trustees, ~~thereto~~ thereunto duly authorized, this 9th day of February in the year one thousand nine hundred and forty.

Signed, Sealed and Delivered in presence of

E. P. Perkins

ALL SOULS UNIVERSALIST CHURCH OF PORTLAND, MAINE
(ALL SOULS CHURCH PARISH)

By Herbert B Seal

Its President of Board of Trustees.

~~CORPORATE SEAL~~

State of Maine. }
CUMBERLAND, } ss. February 9, 1940.

Personally appeared the above named Herbert B. Neal, President of the Board of Trustees of said Grantor Corporation 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 corporation.

Before me,
Elliot T. Perkins
Justice of the Peace

Whitman [illegible]
[illegible] Stevens Ave –
[illegible] 9/13/74
[illegible] by College

[illegible] Cent./Ludeke Lot

Warranty Deed

FROM

WALTER G. WHITMAN

TO

WESTBROOK SEMINARY AND JUNIOR COLLEGE

Dated _____, 1940

State of Maine

Cumberland ss. Registry of Deeds

Received MAR 28 1940 [illegible]

at 4 H., 55 M., P M., and

recorded in Book 1603 Page 98

Attest: A. Maude Carville Register.

FROM THE OFFICE OF

Bradley, Linnell, Nulty & Brown
192 Middle Street
Portland, Maine

MARTIN'S, PORTLAND, MAINE — OFFICE FURNITURE AND SUPPLIES
TYPEWRITERS – ADDING MACHINES – FILING CABINETS – SAFES – ETC

MARTIN'S FORM NO. 1 — STANDARD REGISTRY FORM

4-55

Cudeke

Know all Men by these Presents

That ALL SOULS UNIVERSALIST CHURCH OF PORTLAND, MAINE, a religious society duly organized under the laws of the State of Maine and located at Portland, in the County of Cumberland and State of Maine, formerly known as and called ALL SOULS CHURCH PARISH,

~~a corporation organized and existing under the laws of the State~~

~~of~~

~~in the County of~~

in consideration of one dollar and other valuable consideration

paid by WESTBROOK SEMINARY AND JUNIOR COLLEGE, a corporation organized and existing under the laws of the State of Maine and located at said Portland,

the receipt whereof it does hereby acknowledge, does hereby remise, release, bargain, sell and convey, and forever quit-claim unto the said

Westbrook Seminary and Junior College, its successors

~~heirs~~ and assigns forever,

~~the following described premises situated in said Portland:~~

1. A certain lot or parcel of land situated in said Portland and bounded and described as follows: Beginning at an iron stake at the northwesterly corner of the lot of land conveyed by Ella Louise Fernald to Susie Whitman by deed dated May 11, 1908 and recorded in Cumberland County Registry of Deeds in Book 826, Page 72; thence by land conveyed to said Whitman as aforesaid and by land conveyed to said Whitman by Cordelia S. Pierce by deed dated August 3, 1892 and recorded in said Registry of Deeds, Book 595, Page 256, on a course of South sixty-four degrees forty-two minutes East (S. 64° 42' E.) two hundred thirty-three (233) feet to an iron stake; thence by other land of said Grantor on a course of North twenty-one degrees fifty-six minutes East (N. 21° 56' E.) sixty-eight and fifty-five hundredths (68.55) feet to the Southeasterly corner of the lot of land next hereinafter described and conveyed; thence by said lot of land next hereinafter described and conveyed on a course of North sixty-four degrees fifty-five minutes West (N. 64° 55' W.) two hundred twenty-one and three tenths (221.3) feet to other land of said Grantee; thence by land of said Grantee on a course of South thirty-one degrees forty-five minutes West (S. 31° 45' W.) sixty-eight and one tenth (68.1) feet to the point of beginning.

Said above described lot is subject to the life lease to Ella L. Perry as granted to her by All Souls Church Parish by lease dated October 17, 1924 and recorded in said Registry in Book 1204, Page 65.

2. A certain other lot or parcel of land in said Portland, ~~bounded and described as follows:~~ Beginning at a stake on the Northerly line of the lot of land which Cordelia S. Pierce devised to All Souls Universalist Church of Portland, Maine under the name of Society of All Souls Church by her last will and testament

Westbrook Seminary and Junior College, its successors

and assigns forever,

the following described premises situated in said Portland:

1. A certain lot or parcel of land situated in said Portland and bounded and described as follows: Beginning at an iron stake at the northwesterly corner of the lot of land conveyed by Ella Louise Fernald to Susie Whitman by deed dated May 11, 1908 and recorded in Cumberland County Registry of Deeds in Book 826, Page 72; thence by land conveyed to said Whitman as aforesaid and by land conveyed to said Whitman by Cordelia S. Pierce by deed dated August 3, 1892 and recorded in said Registry of Deeds, Book 593, Page 236, on a course of South sixty-four degrees forty-two minutes East (S. 64° 42' E.) two hundred thirty-three (233) feet to an iron stake; thence by other land of said Grantor on a course of North twenty-one degrees fifty-six minutes East (N. 21° 56' E.) sixty-eight and fifty-five hundredths (68.55) feet to the Southeasterly corner of the lot of land next hereinafter described and conveyed; thence by said lot of land next hereinafter described and conveyed on a course of North sixty-four degrees fifty-five minutes West (N. 64° 55' W.) two hundred twenty-one and three tenths (221.3) feet to other land of said Grantee; thence by land of said Grantee on a course of South thirty-one degrees forty-five minutes West (S. 31° 45' W.) sixty-eight and one tenth (68.1) feet to the point of beginning.

Said above described lot is subject to the life lease to Ella L. Perry as granted to her by All Souls Church Parish by lease dated October 17, 1924 and recorded in said Registry in Book 1204, Page 85.

2. A certain other lot or parcel of land in said Portland and bounded and described as follows: Beginning at a stake on the northerly line of the lot of land which Cordelia S. Pierce devised to All Souls Universalist Church of Portland, Maine under the name of Society of All Souls Church by her last will and testament, an abstract of which is recorded in Cumberland County Registry of Deeds in Book 757, Page 186, said stake being distant one hundred forty-five (145) feet westerly of the westerly line of Stevens Avenue as established by deed from Westbrook Seminary to the City of Portland dated May 29, 1917 and recorded in said Registry in Book 1086, Page 449; thence by other land of said Grantor on a course of South twenty-one degrees fifty-six minutes West (S. 21° 56' W.) sixty-eight and fifty-five hundredths (68.55) feet to the northeasterly corner of the lot of land hereinbefore described and conveyed; thence by said lot of land next hereinbefore described and conveyed on a course of North sixty-four degrees fifty-five minutes West (N. 64° 55' W.) two hundred twenty-one and three tenths (221.3) feet to land of said Grantee; thence by land of said Grantee on a course of North thirty-one degrees forty-five minutes East (N. 31° 45' E.) sixty-eight and one tenth (68.1) feet to a stake; thence by land of said Grantee on a course of South sixty-five degrees eight minutes East (S. 65° 08' E.) two hundred nine and sixty-four hundredths (209.64) feet to the point of beginning.

Said aforementioned courses are magnetic and of the date of 1955.

Being a part of the property devised to All Souls Universalist Church of Portland, Maine under the name of Society of All Souls Church by the last will and testament of Cordelia S. Pierce, an abstract thereof being recorded in said Registry of Deeds in Book 757, Page 136.

To Have and to Hold the aforegranted and bargained premises with all the privileges and appurtenances thereof, to the said

Westbrook Seminary and Junior College, its successors and assigns, to its and their use and behoof forever.

And I do covenant with the said Grantee , its successors and assigns, that I am lawfully seized in fee of the premises, that they are free of all incumbrances except as aforesaid;

that I have good right to sell and convey the same to the said Grantee to hold as aforesaid; and that I and my heirs shall and will Warrant and Defend the same to the said Grantee , its successors and assigns forever, against the lawful claims and demands of all persons except as aforesaid.

In Witness Whereof, I, the said Walter G. Whitman,

and I, Grace B. Whitman,

wife of the said Walter G. Whitman,

joining in this deed as Grantor , and relinquishing and conveying all right by descent and all other rights in the above described premises, have hereunto set our hands and seals this 26th day of March in the year of our Lord one thousand nine hundred and forty.

Signed, Sealed and Delivered in presence of

Summer Y. Wheeler

Walter G. Whitman

Grace B Whitman

premises, have hereunto ...

day of March in the year of our Lord one thousand nine hundred and forty.

Signed, Sealed and Delivered in presence of

Summer Y. Wheeler

Walter G. Whitman

Grace B. Whitman

COMMONWEALTH OF MASSACHUSETTS,

Essex, ss. March 26, 1940.

Personally appeared the above named Walter G. Whitman and acknowledged the foregoing instrument to be his free act and deed.

Before me,

Charles N. Metcalf

~~Justice of the Peace~~
Notary Public.
My commission expires Apr. 28, 1944

[redacted]

[illegible]308

KNOW ALL MEN BY THESE PRESENTS, That the CITY OF PORTLAND, a body politic and corporate located in the County of Cumberland and State of Maine, in consideration of One Dollar ($1.00) and other good and valuable considerations, paid by Westbrook College, a corporation organized and existing under the laws of the State of Maine and located at 716 Stevens Avenue in said Portland in said County and State, the receipt whereof it does hereby acknowledge, does hereby give, grant, bargain, sell and convey, unto the said Westbrook College, its successors and assigns forever, certain real estate located in said Portland, lying Westerly of College Street and Southerly of Bishop Street, bounded and described as follows:

Beginning at a point on the Northerly line of the land of Portland Railroad Company where the same intersects with land hereby conveyed and land formerly of George H. Smardon, commonly known as the Smardon Gravel Pit, formerly Read's Gravel Pit; thence from said point North 19° 30' East 28.68 rods; thence North 60° West Seven and thirty-two hundredths (7.32) rods to a point; thence South 74° 45' West Thirty-six and sixty-four hundredths (36.64) rods to a point; thence North 5° West Two and fifty-six hundredths (2.56) rods; thence North 30° West Twenty-four and four tenths (24.4) rods; thence South 65° West Forty-seven and twelve hundredths (47.12) rods to center of ditch; thence up the center of said ditch towards what is known as pasture Two Hundred Ninety-eight (298) feet; thence in a straight line to a point in line of Evergreen Cemetery indicated by a spruce stump, said stump being on the intersection between land of said Cemetery and land conveyed by Luther B. Roberts to the said City of Portland; thence from said stump North 80° 21' East Three Hundred Seventy-one and two tenths (372.2) feet to an angle; thence from said angle North 76° 8' East, Five Hundred Ninety-six and twenty-two hundredths (596.22) feet to an angle; thence from said last named angle at a right angle South 12° 52' East Seventy-five (75) feet to land of said Portland Railroad Company; thence about North 76° 8' East by said Portland Railroad Company's land to the point of beginning.

Also a certain other parcel of land, abutting the above described premises and bounded and described as follows: Beginning at the center of the ditch

Two Hundred Ninety-eight (298) feet; thence in a straight line to a point in line of Evergreen Cemetery indicated by a spruce stump, said stump being at the intersection between land of said Cemetery and land conveyed by Luther B. Roberts to the said City of Portland; thence from said stump North 80° 21' East Three Hundred Seventy-one and two tenths (372.2) feet to an angle; thence from said angle North 76° 8' East, Five Hundred Ninety-six and twenty-two hundredths (596.22) feet to an angle; thence from said last named angle at a right angle South 12° 52' East Seventy-five (75) feet to land of said Portland Railroad Company; thence about North 76° 8' East by said Portland Railroad Company's land to the point of beginning.

Also a certain other parcel of land, abutting the above described premises and bounded and described as follows: Beginning at the center of the ditch between the hereinabove described premises and the land hereby conveyed and in line of land now or formerly owned by Adam Wilson and running Southerly by land of said Wilson to the Westerly corner of land of Evergreen Cemetery; thence South Twenty-four (24°) degrees East by land of said Cemetery One hundred and seventy-five (175) feet to a point; thence by land formerly of Dennis F. Gulliver, and being the premises hereinabove described, in a straight line to a point in the center of said ditch; said point being Two Hundred Ninety-eight (298) feet from the point of beginning; thence down the center of said ditch to the point of beginning.

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Excepting and reserving from the above described premises that portion thereof conveyed by the Grantor to Central Maine Power Company by deed dated February 26, 1967, recorded in said Registry of Deeds in Book 2989, Page 13.

This conveyance is made subject to the right-of-way or easement granted by the Grantor to Central Maine Power Company by deed dated December 13, 1951, recorded in said Registry of Deeds in Book 2055, Page 463.

Reserving to the Grantor, its successors and assigns, the right perpetually to enter at any and all times upon a strip of land fifty (50) feet in width lying equally on either side of the storm drain and upon a strip of land fifty (50) feet in width lying equally on either side of the brook presently located on the premises herein conveyed and the right perpetually to maintain, repair, rebuild, relocate, or remove said storm drain and brook with all necessary fixtures and appurtenances within said strips of land, granting to the Grantee, its successors and assigns, the use and enjoyment of said strips of land for such purposes only as will in no way interfere with the perpetual use thereof by the Grantor, its successors and assigns, for the purposes above mentioned, except that no buildings or structures may be erected within said strips of land. Also reserving to the Grantor, its successors and assigns, the right perpetually to enter at any and all times upon the premises herein conveyed for the purpose of access and egress by itself, its servants and/or agents to and from said strips of land.

Being the same premises conveyed to the Grantor by deed of James Gulliver, Administrator, d.b.n.c.t.a., of the Estate of Stephen Gulliver by deed dated August 23, 1935, recorded in said Registry of Deeds in Book 1476, Page 441.

Also a certain lot of land lying in the rear of College Street, in the City of Portland, bounded and described as follows, to wit:

Beginning at a point on the Northerly side line of College Street and at the Westerly corner of land belonging to Francis L. Stone; thence North 25° 22' east by land of said Stone eighty-seven and nineteen one hundredths (87.19) feet to land of the Portland Railroad Company; thence North 62° 26' west by land of said Portland Railroad Company four hundred and thirty-one and ninety three one hundredths (431.93) feet

Seventy-one and two tenths (372.2) feet to an angle; thence from said angle North 76° 8' East, Five Hundred Ninety-six and twenty-two hundredths (596.22) feet to an angle; thence from said last named angle at a right angle South 12° 52' East Seventy-five (75) feet to land of said Portland Railroad Company; thence about North 76° 8' East by said Portland Railroad Company's land to the point of beginning.

Also a certain other parcel of land, abutting the above described premises and bounded and described as follows: Beginning at the center of the ditch between the hereinabove described premises and the land hereby conveyed and in line of land now or formerly owned by Adam Wilson and running Southerly by land of said Wilson to the Westerly corner of land of Evergreen Cemetery; thence South Twenty-four (24°) degrees East by land of said Cemetery One hundred and seventy-five (175) feet to a point; thence by land formerly of Dennis F. Gulliver, and being the premises hereinabove described, in a straight line to a point in the center of said ditch; said point being Two Hundred Ninety-eight (298) feet from the point of beginning; thence down the center of said ditch to the point of beginning.

APPENDIX 1.1 List of Properties included in the UNE IOZ

(All properties within the green boundary shown on the IOZ Boundary (Figure 1.1) shall be included in the UNE IOZ)

Chart	Block	Lot	Address	Acreage	Ownership
144	A	005	684 Stevens Ave	0.141	UNE
144	A	006	684 Stevens Ave	0.275	UNE
144	A	007	684 Stevens Ave	0.371	UNE
144	A	008	684 Stevens Ave	0.256	UNE
144	A	009	684 Stevens Ave	0.586	UNE
145	A	001	706 Stevens Ave	0.450	UNE
145	A	002	710 Stevens Ave	0.165	UNE
145	A	003	714 Stevens Ave	9.231	UNE
145	A	006	714 Stevens Ave	0.250	UNE
145	A	007	710 Stevens Ave	0.006	UNE
145	A	008	710 Stevens Ave	0.036	UNE
145	A	009	714 Stevens Ave	0.356	UNE
145	A	010	714 Stevens Ave	0.338	UNE
145	B	001	1 College St	0.207	UNE
145	B	002	1 College St	1.830	UNE
145	B	006	31 College St	0.134	UNE
145	B	007001	33 College St	0.173	Owned by others
145	B	008001	37 College St	0.197	Owned by others
145	A	004	74 College St	0.416	Owned by others
145	B	009	41 College St	0.200	UNE
145	B	010	51 College St	0.383	UNE
145	B	011	63 College St	0.076	UNE
145	B	012	63 College St	0.114	UNE
145	B	013	63 College St	0.048	UNE
145	B	014	83 College St	0.366	UNE
145	B	018	772 Stevens Ave	8.603	UNE
145	B	027	83 College St	3.137	UNE
145	B	029	79 College St	0.258	UNE
145	B	042	1 College St	0.162	UNE
145	B	046	1 College St	0.138	UNE
281	A	003	0 Bishop St	10.555	UNE
290	A	003	83 College St	1.771	UNE
291	A	001	0 Bishop St	8.394	UNE
291	A	005	83 College St	17.972	UNE
291	A	007	83 College St	0.459	UNE
293	C	005	83 College St	1.574	UNE

University of New England – Institutional Overlay Zone Preliminary Review Comments

Initial comments are written in black, follow-up or second round comments are written in blue.

Institutional Development Plan

1. Current Campus Population - Report includes data around FTE students and faculty for 2019. There should be data from past 5 years as well, in addition to a more detailed breakdown of part-time students/faculty/staff. Also, is the university host to any non-university groups or organizations that meet or convene regularly on campus? Similarly, does the University regularly host any special events that draw in non-university personnel? Oral Health Center and Dental Hygiene Clinic are already accounted for. Addressed.
2. Current Campus Properties - Does the University have a land survey of its property, that included building footprints and dimensions? Also, the campus description should include existing building height and massing information. Addressed.
3. Campus Open Space, Circulation, and Natural Areas - The report should include as part of its campus overview discussion, a detailed description of non-building areas, and programming associated with these spaces. While this information is provided under the Environment section, it should also be provided under the Campus Context section of the IDP as general information.
4. Campus Master Planning Process - This section outlines a University led process to plan for and accommodate future growth and program changes, that has resulted in the Campus Master Plan. The applicant should provide any reports related to this process, that highlight the data and feedback that inform the findings listed in the IDP. How were the locations, and future anticipated development scale arrived at? Was this work completed as an internal exercise or was there public involvement in developing the master plan?
5. Projected Growth - An integral component of the IOZ framework is the projected census of users. Analyzing existing trends, aspirations for program development/reorganization, how does the University anticipate the daily population on campus to grow or change going forward? Related to this, what are the anticipated impacts of that growth? Does the University assist with finding housing, or have any data on where students are living, to inform an impact assessment? The submitted materials state that 400 additional students and 160 additional staff and faculty will be on campus, representing a 30% increase in overall campus population from the peak in 2016. These figures should be factored into projected traffic volumes analysis, with additional thought given to how precisely remote work and hybrid learning platforms will continue to impact traffic demand beyond the pandemic. Additionally, staff understand that UNE has been in discussions with Rock Row to develop off-site housing for students. The plan should include discussion of this.
6. Plans for Future Campus Cohesion - The Campus Master Plan includes general locations for new uses and anticipated building renovations, along with routes for future circulation. Are there any plans to improve campus open spaces? In particular, Innovation Hall feels disconnected from the historic core of the campus, which may be improved by condensing vehicular circulation to the extent possible to eliminate one or more driveways and augmenting with new pedestrian focused pathways and green space. The COM project is expected to substantially increase open space within the heart of campus, improve pedestrian circulation and eliminate some existing conflict between pedestrians and vehicles. A campus open space plan should be provided as part of the IDP outlining these improvements. UNE should also evaluate whether or not there are other open space and connectivity improvements that may be made longer term to improve campus cohesion.

7. **Future Property Acquisition/Disposition** - Has the University identified any property to be acquired or sold within the vicinity of the campus? If so these properties should be included within the IOZ boundaries.

Transportation

1. **Future Parking Demand -** The IDP should provide a model for future parking demand, based upon anticipated new uses, student population/faculty/staff growth. This information has not been provided. While figures may not be precise, the analysis should include estimates based upon the proposed buildout.
2. **TDM** - In addition to existing strategies employed by the University around TDM, what, if any, new strategies will the University employ to reduce parking demand? Not addressed. In the event that the University develops new housing at Rock Row, will there be a shuttle provided for residents?
3. **Future Transportation Impacts** - The IDP does not include a projection of future transportation impacts (vehicle, transit, pedestrian, bicycle), citing that those impacts would be modeled as future phases of the campus build-out come in for site plan review. The IOZ framework requires that some projection of future transportation impact be provided in the IDP. This helps account for long-term improvements within the vicinity of the campus related to access. Not addressed.
4. **Bishop Street Lot -** The Bishop Street lot will provide ample parking, likely in excess of demand. That said, it is mentioned in the IDP that by transitioning parking to Bishop Street, that this will result in fewer impacts to Morrill's Corner. This should be substantiated through traffic analysis. The IDP also states that traffic conditions are expected to improve through development of the access road. Is the Bishop Street lot currently being utilized by UNE students/staff/faculty, with access through Morrill's Corner? By implementing this change, will new traffic patterns significantly impact LOS on other streets? The traffic analysis should include pre- and post implementation conditions.
5. **Transportation, Access and Circulation Plan** - Subsequent to the compilation of projected traffic data, the plan shall include a future transportation, access and circulation plan to facilitate improved access to and flow in and around the campus. Based upon the data collected and presented as described in the preceding comment, UNE should confirm that the proposed traffic patterns continue to be the most effective approach.
6. Future Parking Needs - The IDP identifies that there is substantially more parking supply than demand. The IDP shall assess future parking needs, accounting for trip reductions incurred through TDM, and identify whether all existing parking is necessary for long-term operations. The City would encourage existing surface lots, if underutilized, to be consolidated, so as to reduce on-site impervious surface, and provide for future buildable sites within and immediately adjacent to the campus core.

Environmental and Infrastructure Plan

1. **Historic Resources -** The section on Historic Resources may be better suited in the Design Section of the IDP, given its role in directly informing design for new development. Predominant design characteristics of historic property and resources (i.e. materiality, scale, orientation, etc..) should be included to provide better baseline information in informing design principles. Some of this is listed in general terms, however this section should include a more detailed evaluation of the existing historic building stock.

2. **Natural Resources Impact** - The IDP only lists wetland and vernal pools in its section on natural resource impacts. Are there any impacts to other forested areas that are anticipated? The Campus Master Plan shows two buildings potentially being sited on the playing field for example. Partially addressed. As has been mentioned previously, staff understand that a number of the projects listed under mid-long term growth are highly conceptual and may ultimately not occur. Noting this, we'd advise that the University evaluate alternative locations for future development away from Gulliver's Field. Also, the IDP should provide more detail on the strategy to enhance Capisis Brook Watershed as alluded to.
3. **Stormwater Impact -** What specific steps if any will be taken to reduce stormwater impacts of future development? The IDP identifies that additional infiltration will be introduced with future phases, and that most new development will occur on existing developed land. Are there any additional strategies that the University will employ, such as eliminating impervious surface (i.e. surface parking), or commitments to utilize green infrastructure such as rain gardens, green roofs, etc..?
4. Environmental Plan - The IDP does not include the specified environmental plan as specified in the Land Use Code. The plan shall identify programs or guidelines for future preservation, enhancement, conservation and/or environmental mitigation.
5. **Utilities -** The IDP indicates that there should be sufficient utility capacity to service future development. The IDP should include a discussion of water and or natural gas, and provide an overview with specific strategies for conserving and reducing utility usage. The IDP should also include a master utility plan, outlining what utility improvements will be necessary to serve future development. Addressed,

<u>Design</u>

1. **Building Height -** The IDP includes estimates for future building heights. The IDP should include the exact methodology used in determining those heights. How were the specific envelopes arrived at, and what data informed those decisions? In the case of the COM project, given that the design phase is well underway, figures should be updated to reflect the latest dimensional details. Also, the IDP includes a section on 'Design Analysis', which discusses how the transition zone depth was arrived at. The IDP should include a massing diagram with perspective views of the building envelopes, to highlight the anticipated impact of those developments, and to justify additional height allowances within the IOZ.
2. **Shadow, Wind, Light Impacts** - The IDP shall identify the extent to which future development is anticipated to have a discernible shadow, wind or light impact on adjacent property. Addressed.
3. **Transition Areas** - The IDP shall include an analysis of transition areas as described in the Land Use Code. Addressed.
4. **CPTED -** Provide analysis of CPTED conditions currently on the UNE Portland campus. Addressed.
5. **Conceptual Built Environment/Public Realm Plan** - The IDP shall include a conceptual built environment/Public Realm Plan to highlight the development under full build-out, illustrating how the development is compatible with its transitions to adjoining neighborhoods and development. The massing plan may be included as part of this plan. While staff understand that the majority of proposed development cited in this IDP is highly conceptual, the IDP should at a minimum include a high level massing diagram illustrating based upon the information submitted in the table for proposed new development, showing the approximate location and scale of new development in the context of the existing development on campus and surrounding neighborhood.

Neighborhood Engagement

1. **Master Planning Process -** Identify what additional public engagement occurred as part of the Campus Master Planning process that preceded the IOZ application submission.

Regulatory Framework

1. List of Permitted Uses - Staff will coordinate with the zoning administrator to consolidate the list of permitted uses so as to be consistent with uses found elsewhere in the Code. For example, faculty and administrative offices likely don't require separate line items. Same with maintenance and transportation facilities. The IDP should provide a brief narrative describing why UNE is seeking to have new uses permitted as part of the regulatory framework, linked with long-term development goals.
2. Proposed Height Limits - Height limits, where in excess of current allowances, should be closely tied to the anticipated future development scheme. For example, 85 feet is requested to accommodate the COM project, however now that that development is in the advanced design phase, the zoning requests should be revised so as to better reflect that project. Similarly, the applicant has identified that a number of projects are highly conceptual in nature, including H1 and A2 buildings, both of which are estimated at 65 feet. Additional evaluation of future operational needs should be provided which clearly illustrates the need for these dimensional standards. This should be further informed by a height and massing study with representative views from adjacent streets and public spaces.
3. Impervious Surface - Significant areas of the UNE campus are undeveloped natural space. The proposed ratio of 75% seems very high for the overall campus. This figure should be reduced to the extent possible.
4. Redundant Information - Elements required of all new development, such as TDM for significantly sized development, impact fees, conformance with environmental standards, etc... need not be listed as specific measures under the Regulatory Framework.
5. Mitigation Measures - The Regulatory Framework outlines a concept for assessing mitigation requirements based upon a measurement of impacts every five years from existing and new development. Specific thresholds should be identified.
6. Design Standards - Staff will provide follow-up comments from the City's Urban Designer and Historic Preservation staff regarding the proposed design standards.

PLANNING BOARD REPORT
PORTLAND, MAINE

Stevens Square Phase 2
65 McAuley Way
Master Development Plan Amendment, Major Site Plan
PL-001649-2021; PL-001662-2021
DC Baxter Woods IV, LLC., Applicant

Submitted to:	Portland Planning Board	**Prepared By:**	Jimmy Dealaman, Planner
Public Hearing Date:	January 25, 2022	**Date:**	January 21, 2022

I. INTRODUCTION

DC Baxter Woods, LLC is seeking approval for a Master Development Plan (MDP) amendment and Major Site Plan to facilitate Phase 2 of Stevens Square, a phased senior housing project located adjacent to Baxter Woods on a block that includes the Motherhouse and McAuley Girls School in the Deering Center neighborhood. The project before the Board during this phase of the project includes 140 multifamily condominium units housed within four new multistory buildings with 201,640 net square feet of floor area, along with 260 structured and surface parking spaces.



Figure 1: Development Site in context

The nine-acre assemblage of lots on which the project is located has been the site of a number actions before the Planning Board over the last five years, including the 2015 approval for renovation of the Motherhouse building with 88 dwelling units; the 2016 approval of an MDP to facilitate a future buildout of the development to include 161 units spread among five buildings, and the 2018 approval of the five-story, 21-unit Stevens Square Building 1. The MDP does not encumber the entire block; the St. Catherine's Hall and McAuley School buildings lie outside of the MDP area, while the Motherhouse, Building 1, and the current development site lie within it.

This application is being referred to the Planning Board for compliance with the Site Plan and Master Development Plan standards within the City's Land Use Code along with delegated review of a Maine Site Location of Development Act (SLODA) permit. The proposed MDP amendment is intended to modify the approved site circulation patterns to reflect a new common open space sited between the four new buildings and to extend the term of the MDP approvals for an additional two years. As the 2016 Master Development Plan conferred pending proceeding status upon subsequent phases of this project, it is subject to the legacy Land Use Code that was in effect at that time in lieu of the current code, with all code citations made accordingly.

The Planning Board held a workshop on August 10, 2021 (See Section VI for more information.)

Applicant: DC Baxter Woods, LLC; Kevin Bunker
Applicant Team: Steve Bushey, Gorrill Palmer Consulting Engineers; Devin Cough, Archetype PA; Nick Aceto, Aceto Landscape Architects

II. REQUIRED REVIEWS

Applicant's Proposal	Applicable Standards
Major Site Plan	Article V - Site Plan (Sec 14-521)
Master Development Plan Amendment	Article V - Site Plan (Sec 14-521)
Maine Site Location of Development (SLODA) Amendment	Delegated Review from Maine DEP, Technical Manual Section 14

III. PROJECT DATA

SUBJECT	*DATA*
Total area of the site	9.05 acres
Area of new lot to be created (Lot 5)	7.05 acres
Total Disturbed Area	243,064 square feet
Existing Zoning	R-5 Residential & R-5a Residential
Existing Use	Athletic fields (decommissioned)
Proposed Use	Multifamily Condominium Units for individuals 55+ in age
Impervious Surface Area --Existing --Proposed --Net Change	 17,021 sq ft 150,041 sq ft +133,020 sq ft
Building Footprint --Existing --Proposed --Net Change	 0 sq ft 31,990 square feet +31,990 square feet
Building Floor Area --Existing --Proposed -Net Change	 0 sq ft 201,640 square feet +201,640 square feet
Number of Units	140
Parking Spaces	260
Bicycle parking Spaces	64

IV. BACKGROUND AND EXISTING CONDITIONS

Site conditions

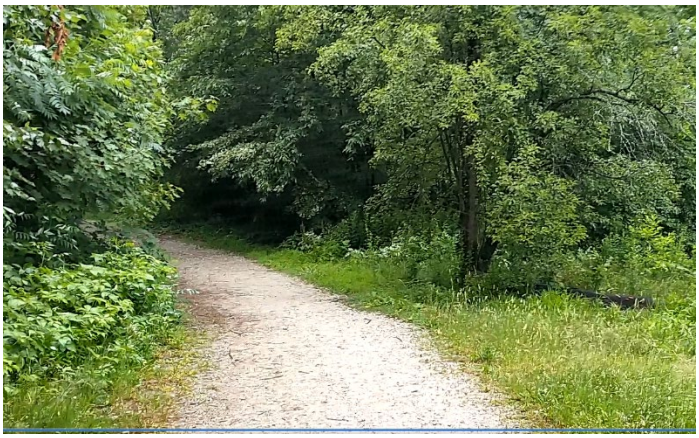

Figure 2: Baxter Woods

The block on which the proposed project would be constructed is bounded by Walton Street to the north, McAuley Way to the east and south, and Stevens Avenue to the west - a priority corridor identified in the City's Comprehensive Plan, *Portland's Plan 2030*. This enclave, approximately 19 acres in size, was originally the home of the Sisters of Mercy convent and is framed to the south and east by the Mayor Baxter Woods nature preserve, which is comprised of 30 acres of City parkland. Baxter Woods is the subject of an ongoing assessment and improvement program in association with the developer of this project. To the west of the site is Stevens Avenue with Evergreen Cemetery across the street, and to the east is the remainder of Lot #4 (currently decommissioned athletic fields).

Site History

Legacy Historic Development



Figure 3: Motherhouse

- The Maine Girls' Academy: Built in 1881 and redesignated as the Catherine McAuley High School in 1971; this site was recently renovated and reprogrammed as a new community center by the applicant. The building itself lies outside of the MDP area, while the athletic fields located to the east of this building are within the MDP area and are the site on which the proposed development will be constructed.

- St Catherine's Hall: Originally constructed in 1888 as St Joseph's Home for Aged Women, this structure now houses 18 apartments operated by the Sisters of Mercy. It lies outside of the MDP area.

- The Motherhouse: completed in sections between 1909 and 1921 to serve as housing for up to 300 nuns, this National Register-designated landmark now contains 88 dwelling units, of which 66 are affordable. This building is included within the MDP area.

Recent Development & City Approvals



Figure 4: Stevens Square Building 1

In 2005, the Sisters of Mercy vacated the buildings on the block; the buildings, now in a disused state, were acquired by Sea Coast at Baxter Woods Associated, LLC, who re-envisioned the block as a master-planned senior housing community with the Motherhouse as the centerpiece; new, contextual multifamily housing would be developed on the inward side of the block, proximate to Baxter Woods, with the existing historic buildings renovated and preserved. The Stevens Square portion of the block was brought forward by DC Baxter Woods LLC, with Building 1 as the first structure built within the MDP area.

The subject block has been the site of a series of actions over the last six years that were intended to provide zoning relief and to create a framework for the future buildout of the inner part of the block under the auspices of an MDP. Below is a history of these actions:

Subject of application	Application Date	PB Workshop(s)	PB Hearing approval	City Council approval
Rezoning of a portion of the block to R-5A, with R-5 buffer surrounding R-5a zone	February 2015	April 2015	May 2015	July 2015
R-5A Text Amendment	April 2015	April 2015	May 2015	June 2015
Level III Approval for Motherhouse, incl. 88 units (66 units affordable)	June 2015	July 2015	August 2015	--
Subdivision of the entire 20-acre site into 4 lots	June 2015	July 2015	August 2015	--
Master Development Plan for Stevens Square (161-unit buildout/13.5 acre site)	February 2016	Marc, 2016	June 2016	--
Level III Approval for Stevens Square Building 1 (21 units approved/20 constructed)	August 2017	October 2017	January 2018	--
Major Site Plan + related actions for Stevens Square Phase 2 (140 units)	Filed July 2021, workshop #1 August 10, 2021, public hearing January 25, 2022			--

Prior Subdivision Approvals

In August of 2015, the Planning Board approved a plan for the reconfiguration of parcels within the subject block to define four lots within the Sisters of Mercy campus (The plan at right shows the R-5A zoning in yellow dots, Lot #3 in red outline, and Lot#4 is the southern part of the purple outlined area).



Figure 5: Lot configuration

- Lot 1: St Catherine's Hall (2.36 acres)
- Lot 2: The former Catherine McAuley High School site (3.18 acres)
- Lot 3: Motherhouse (4.39 acres)
- Lot 4: Open area and fields (9.05 acres)

The Master Development Plan applies to Lot 3 (Motherhouse building) and Lot 4 (land to south and east of Motherhouse building). St. Catherine's Hall and the McAuley School property are not encumbered by the MDP.

Zoning Framework

The zoning assessment is framed by a City Council decision to rezone a section of the interior of the block from R-5 to R-5A. At the public hearing for the map amendment application, the Planning Board had recommended that the entirety of Lots 3 and 4 be rezoned to R-5A. In response to public comment, the City Council approved a smaller final boundary of the R-5A zone (shown right) which allows for a maximum of 249 dwellings on Lot 3 (Motherhouse) and Lot 4 (land to south and east of Motherhouse) of the site. The R-5A zoning boundaries on this block are not coterminous with property or lot boundaries and extend to a point approximately 570 feet to the east and 150 feet to the south of the Motherhouse.

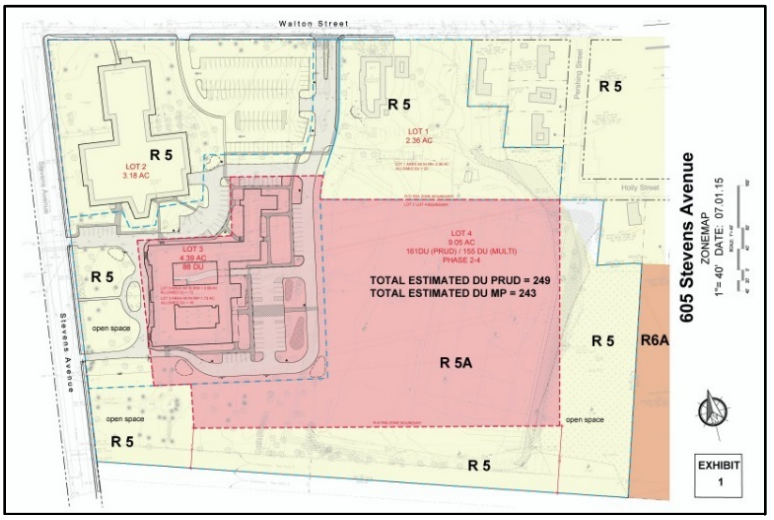

Figure 6: R-5a zoning area

The applicant has submitted a zoning analysis that references both R-5 and R-5A, as a small portion of the development site is within R-5. All four of the new buildings are located on the R-5A portion of the block.

V. PROPOSED DEVELOPMENT

Phase 2 of Stevens Square proposes four five-story multifamily buildings arrayed around a central greenspace, with 140 units housed within 201,640 square feet of new floor area; these buildings, numbered in a counterclockwise fashion as Building 2 through Building 5, employ two variants of Building 1's development typology (one L shaped and one roughly rectangular), with enclosed ground floor parking beneath four residential floors; each building is approximately 55 feet in height. Associated site improvements proposed in connection with the new buildings include surface parking for guests and residents located to the north of each of the buildings, as well as open space, a perimeter walking trail, and interior walkways totaling 0.62 acres in size. Approximately 2.88 acres of new impervious area are proposed in connection with this project; 5.07 acres of the site are proposed to be developed.

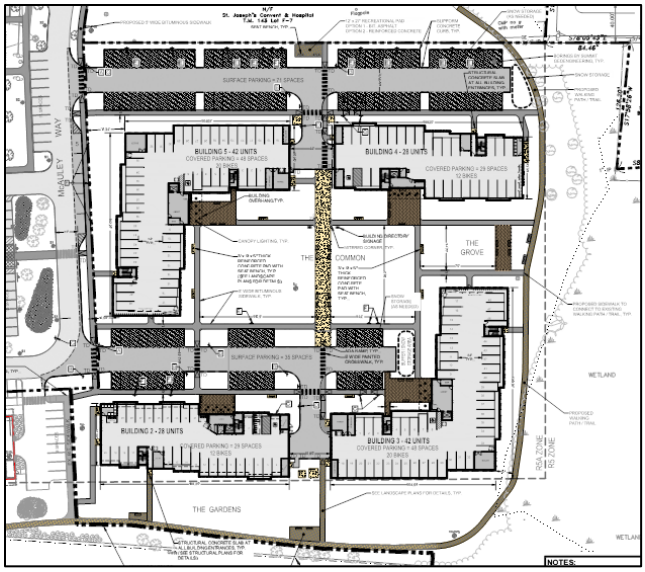

Figure 7: Site Layout Plan

Building #	No. of Dwelling Units	No. of Parking Spaces at Ground Level Within the Building Footprint
2	28	29 (plus 12 bikes)
3	42	48 (plus 20 bikes)
4	28	29 (plus 12 bikes)
5	42	48 (plus 20 bikes)
Total	140 units	154 spaces (plus 64 bikes)

Figure 8: Unit breakdown

A summary of the specific actions included within this application are below:

Major Site Plan

As a large-scale multifamily housing development, this proposal is subject to Major Site Plan review to address conformance with Article V – Site Plan Section 14-521. While this is a Major Site Plan application, given the pending proceeding status of the project through the 2016 MDP, Level III Site Plan standards apply to this project.

Since the last workshop the applicant has withdrawn the subdivision plat amendment component of the application which originally intended to split the 9.05 acre Lot 4 into two new parcels; this does not impact the proposed development program. The existing lot will now include Building 1 in addition to the four new buildings that are under this application.

Master Development Plan Amendment

In order to reconcile proposed changes in circulation patterns within the central area of the site with the approved 2016 MDP, the applicant seeks a determination from the City that the changes are in alignment with the original intent of the MDP. Under the revised plan (Plan 4), the central parking area between the four buildings has been removed in favor of a common greenspace bisected north-south by a walking path.

New parking areas located to the north of each building also deviate from the proposal set forth by the original MDP; the northernmost of these surface lots encroach on the McAuley School playing fields in a manner not originally contemplated by the MDP.

In addition to an amendment of the MDP, the applicant also seeks an extension of the MDP approvals for an additional two years; as a 2016 approval, the original expiration date was to have been June 14, 2022. An extension of two years, to June 14, 2024, is sought at this time.

It should be noted that the 2016 MDP included a number of conditions related to the effect of the phased project on Baxter Woods, as well as on the provision of parking and on transportation-related impacts, with requirements that these conditions be reassessed under future Major Site Plans. Compliance with these conditions is addressed within the Master Development Plan subsection of the Staff Review section of this memo.



Figure 9: 2016 MDP Conceptual Master Plan

VI. PREVIOUS WORKSHOP – August 10, 2021

At the workshop, staff and the applicant provided an overview of the proposal. The Board asked questions related to drainage, open space, and design as well as EV charging. The Board expressed interest in understanding the project phasing, design choices for the building base, and materials along the mansard roof, and questioned why more bicycle parking wasn't being proposed and encouraged the applicant to consider adding more. In response, the applicant shared information about design choices as well as the infrastructure being installed, including utilizing porous pavers, and that they intend to install conduit to ensure EV readiness, although EV charging is not requirement under the old code.

VII. RIGHT, TITLE AND INTEREST AND FINANCIAL/TECHNICAL CAPACITY

The owner of the property is DC Baxter Woods, LLC. The applicant has provided a copy of quitclaim deed, recorded at the Cumberland County Registry of Deeds (Book 36065 Page 326), which demonstrates their right, title and interest in the property.

The applicant has submitted a Statement of Financial Capacity letter from their financial institution, as demonstration of their financial capacity (Attachment F). A Statement of Technical Capacity has been provided by the applicant's representative, Gorrill Palmer Consulting Engineers, along with a summary of key members of the applicant team for the project. (Attachment G).

VIII. ZONING ANALYSIS

A. DIMENSIONAL AND USE REQUIREMENTS

The subject parcel, Lot 4, is split between R-5 and R-5a Residential zoning. As the 2016 MDP granted this project pending proceeding status under the prior Land Use Code, the dimensional and use standards in effect at that time govern this application. The proposed development for this phase of the project is located within the R-5A portion of the block. As per Sec. 14-127 of the City's previous Land Use Code, the proposed use of multifamily dwelling is permitted in this zone.

The following table is provided to show the dimensional requirements of the R-5a zone which are met by this proposal. As R-5a applies PRUD standards for all projects of four units or greater, the table references PRUD dimensional requirements.

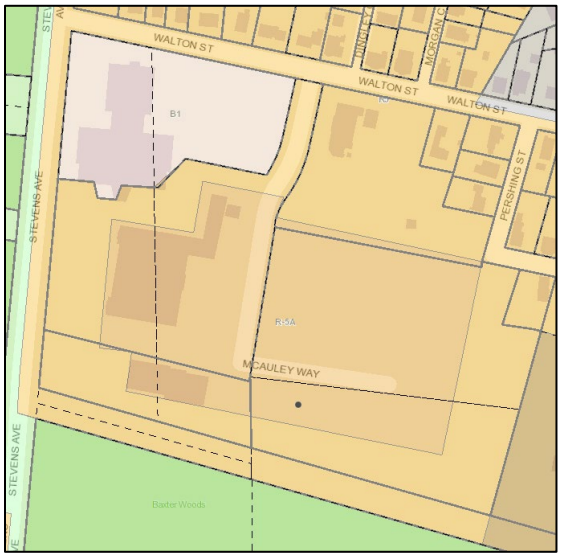

Figure 10: Existing Zoning

Standard	*R-5a Zoning Requirement*	*Proposed*
Minimum Lot Area	2 acres	9.05 acres
Minimum Lot Area Per Dwelling Unit	1,600 square feet	2,463 sq. feet
Minimum Street Frontage	50 feet	356 feet
Minimum Front Setback	25 feet	96 feet
Minimum Rear Setback	25 feet	176 feet
Minimum Side Setback (>2.5 stories)	16 feet	16.58 feet
Minimum Setback from External Subdivision Property Line	35 feet	96 feet

Maximum Lot Coverage	30%	17.60%
Minimum Lot Width	60 feet	341 feet
Maximum Structure Height	55 feet	55 feet
Minimum common recreational open space area	200 square feet per dwelling unit (27,200 square feet in this case)	28,000 square feet
Minimum off-street parking	2 spaces per unit	1.86 spaces per unit

B. INCLUSIONARY ZONING COMPLIANCE

The 140 proposed units will be market rate. The Inclusionary Zoning requirement for Stevens Square was met in an earlier phase of the project with the creation of 66 units of affordable rental housing. The Master Development Plan, approved for 249 dwelling units, carried with it a requirement for 10 percent of the units to meet the definition of workforce housing unit (i.e. 25 workforce units site overall, at 100% of Area Median Income (AMI) for units for rent, and 120% AMI for units for sale). Of the 66 affordable units, 40 were for households earning 50% AMI, and 26 for households earning 60% AMI, exceeding both the number of required units and required affordability levels. The 2018 site plan and subdivision approval (#2017-188) for lot 4 affirmed that that the previous provision of 66 affordable housing units contributed to the Inclusionary Zoning for that phase of the site, as well. The Housing Program Manager has confirmed that the applicant is creating affordable housing beyond the provisions of Division 30, Section 14-487 (Attachment 6).

Current Inclusionary Zoning has since changed, requiring 25% rather than 10% of total units be workforce housing, and 80% of AMI for both rental and sale dwelling units. As a new phase of a previous approval, the application is not subject to the current standards. §14.3.2.B of the City's Land Use Code states, in regard to Master Development Plans, that "*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*". In the event the applicant were to propose additional housing for the site beyond what has previously been approved, the new housing development would be subject to the current Inclusionary Zoning standards.

IX. DEVELOPMENT REVIEW

A. MASTER DEVELOPMENT PLAN

1. MASTER DEVELOPMENT PLAN OBJECTIVES

The Site Plan ordinance outlines that an approved Master Development Plan (MDP) 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. It is not a final authorization for development, but it does confer pending proceeding status upon the development with the effect of maintaining the applicability of regulations in effect at the time of the approval for as long as the MDP approval remains valid (6 years initially), including permissible extensions up to 10 years. All major site plans for each phase shall be in general conformance with the approved MDP. The required review is pursuant to *Section 14-524(a)3c(iii) Master Development Plan Review including Standards for Review.* The proposed MDP amendment must demonstrate compliance with what was approved under the 2016 MDP, and with MDP standards generally.

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

Section 14-527 of the Land Use Code outlines Master Development Plan submission requirements. The Planning Authority or Planning Board may give direction regarding the form of the information required for the MDP review. In general, the submission requirements have been met, with updates to MDP plan sheets related to project phasing and internal circulation now submitted . Staff have reviewed these materials and believe they provide adequate information necessary for reviewing an amendment to the MDP.

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

Section 14-524 of the Land Use Code establishes standards under which Master Development Plan applications must be reviewed. Pursuant to this, section, Master Development Plans 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;

Staff comments: The 13.5 acre site meets this requirement.

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

Staff comments: The buildings proposed for this phase of the project largely adhere to the approved MDP building footprints, with deviations to internal circulation patterns that are the subject of the current amendment request. With the exception of the new central greenspace, the various spaces within the development site have been programmed and depicted on the plans in accordance with the original MDP.

c. Consistent with the objectives of this ordinance; and *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);

Staff comments: There are no formal City Council approved plans in the vicinity except for the Evergreen Cemetery Master Plan. In 2019 and 2020, the applicant worked with staff on the design and siting of a new METRO bus shelter on Stevens Avenue, along with a related path through the Motherhouse site. These improvements required coordination with the Maine Historic Preservation Office and METRO and have since been constructed. MDP conditions related to monitoring of environmental conditions and preservation efforts within the adjacent Baxter Woods, including provision of funds by the applicant for improvements to City park facilities and water quality monitoring in the Woods, have been undertaken in collaboration with Parks staff in the years since the original MDP approval.

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;

Staff comments: The development site for this phase of the project is a former athletic field associated with the McAuley School and does not include significant natural features; additionally, the four new buildings have been sited within the same footprints as shown on the 2016 MDP.

f. 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;

Staff comments: The four buildings proposed under Stevens Square Phase 2 are all located at a distance greater than 100 feet from the Motherhouse, and all four use the same basic design as the existing Building 1, the closest of the five structures to the Motherhouse that was previously reviewed and approved in 2018. This standard does not apply.

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;

Staff comments: The use of the land under this phase of the project is consistent with what was proposed under the 2016 MDP; building footprints, as well as the general site layout, relate to Mayor Baxter Woods and adjacent significant natural features in the manner that was contemplated under the 2016 MDP.

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; and

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; and

Staff comments: The 2016 MDP included a number of approval conditions intended to mitigate the short- and long-term impact of Stevens Square's development on Baxter Woods, as well as its effects on local trip and parking generation, infrastructure usage, and pedestrian circulation within the wider neighborhood. These are addressed in Subsection 4 below.

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

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

Staff comments: Under the 2016 MDP, the applicant proposed a full turn access on Walton Street and a one-way system in front of the Motherhouse that allows a right in and right out only with the egress being to the north. This was proposed to address concerns about congestion and safety on Stevens Avenue and direct vehicles to the signaled turn locations. The circulation pattern proposed in the 2016 MDP is shown in the figure to the right (Figure 11), and an updated circulation plan has been submitted (Plan 37 & Figure 12). Under the revised plan, each of the new buildings is accessed via its own driveway, with the central traffic circle done away with. Other components of the proposed project are consistent with what was proposed and approved under the MDP, with additional information provided within the Major Site Plan subsection of the memo's Staff Review section.

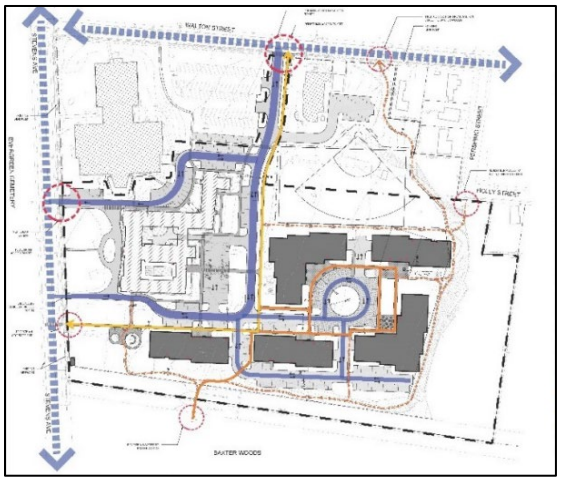


Figure 11: 2016 MDP Circulation Plan

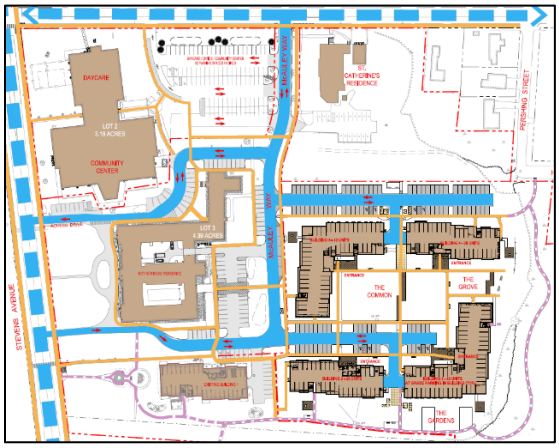


Figure 12: Proposed MDP Circulation Plan

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;

Staff comments: All new phases of the project are subject to design review to determine consistency with the MDP's Architectural Characteristics Statement. Please see the Design Review section of this memo for staff's findings on this topic.

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

Staff comments: The 2016 MDP submission included draft Condominium Documents that outlined the management arrangements for the MDP area, including the open space. In accordance with the conditions of approval set by the MDP and Phase I the applicant has since finalized the condominium documents for Phase I (building 1) which are recorded at the Registry of Deeds (Book 37808 Page 14). The recorded Declaration, used for Building #1, included the four (4) additional buildings and 140 units under Phase II.

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.

Staff comments: The applicant proposes to develop the current project in three separate phases (Phases 2-4).The phasing plan proposes completing the four (4) buildings in one or more phases (Plans 13-17). Staff have reviewed the applicant's phasing plan, and find that the interim conditions proposed are adequately managed and maintained to ensure stable, safe and attractive site conditions.

4. 2016 MASTER DEVELOPMENT PLAN CONDITIONS

Approval conditions within the 2016 MDP included the following:

- Overall Site Plan and Phasing
- Traffic and Parking
- Transit/Bus Shelter Provision
- Baxter Woods Preservation & Monitoring
- Lighting
- Conservation Easements
- Design

As stated elsewhere in the memo, the bus shelter was installed along the Stevens Avenue frontage of the Motherhouse in 2020 and is now operational. The status of the project's compliance with the remaining conditions are currently under review by staff.

B. SITE PLAN STANDARDS (14-526)

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

a) Transportation Standards

1. Impact on Surrounding Street Systems and Access and Circulation

The proposed development is located on the inner side of the former Sisters of Mercy block and has access points to the City street network via site driveways that connect to Stevens Avenue and

Walton Street. The applicant contemplates a circulation scheme in which vehicles primarily enter the site via Walton Street and exit via Stevens Avenue in order to manage vehicle throughout and turning movements at each of the access points.

In 2016, the MDP approval conditioned the applicant to conduct traffic monitoring studies after the first and second buildings were completed to confirm the trip levels are below the Traffic Movement Permit threshold of 100 peak hour vehicle trips (Attachment 7). With Building 1 now occupied, the applicant has submitted a traffic study (Attachment N) which collected site data and identified peak hours of trip generation.

The City Consulting Traffic Engineer has reviewed the proposed project materials and finds the methods and conclusions to be reasonable, noting that the reported site trip generation rate was slightly higher than ITE rates for a Senior Housing Residential development (Attachment 2). Given the limited size of the land use sampled, it is suggested that the determination of a TMP occur after future phases or building occupancies, in accordance with the MDP condition of approval. Staff concur with this approach and that upon the completion of the second building the applicant is required to submit another traffic monitoring study. At that time the TMP threshold will be assessed by improved sample data.

2. Access and Circulation

This project will make use of the existing site driveways, with a two-way access point to Walton Street provided via McAuley Way and a secondary access point to Stevens Avenue through site driveways adjacent to the Motherhouse. Planning staff have reviewed the application in conjunction with Public Works and the City's Consulting Traffic Engineer and find the project provides safe and reasonable access and internal circulation and meets all applicable standards of this section.

3. Public Transit Access

In fulfillment of one of the 2016 MDP conditions, a bus shelter was installed along the Stevens Avenue frontage in 2020. The project is within a quarter mile of several existing bus stops (Routes 9A and 9B). This standard has been met.

4. Parking

This project proposes 260 vehicle and 64 bicycle parking spaces, including both surface and structured, first-floor parking spaces within the buildings. For the vehicle parking portion, this yields a parking ratio of 1.86 spaces per unit, an amount that aligns with the 2.0 spaces per unit required for multifamily residential uses under the Land Use Code that was in effect at the time of the 2016 MDP approval.

Due to the project exceeding 50,000 square feet in new floor area, the Planning Board, based on a recommendation from the City's Transportation Engineer and parking study, must determine the parking requirement.

As required under the 2016 MDP approval, which required parking monitoring studies to confirm the parking supply and that circulation conditions are safe and acceptable, the applicant has submitted a parking study (Attachment N) which reported on Building 1 parking during peak demand time periods. The applicant's study (Attachment N) determined that the peak for parking

areas equates to 1.90 spaces. The City's Consulting Traffic Engineer has reviewed the applicant's study and finds the methods and conclusions to be reasonable and that the site will provide sufficient parking supply. Staff agree with this conclusion and believe that the 1.86 spaces proposed is closely aligned with the rates concluded by the study and that the amount of 260 parking spaces is sufficient.

5. Transportation Demand Management (TDM):

The proposal did not require a TDM Plan. This standard is not applicable.

b) Environmental Quality Standards

1. Preservation of Significant Natural Features

Potential impacts to significant natural features were reviewed in depth in connection with the 2016 MDP, and conditions related to the monitoring of the health of Baxter Woods via an agreement between the applicant and the City were included within the approvals.

During the current review Planning staff have confirmed with DPW Water Resources staff that all outstanding concerns have been addressed and based on the submitted materials that all standards under this section have been met.

2. Landscaping and Landscape Preservation

The tree preservation proposals were reviewed in depth during the review of the MDP and the site plan proposals are in line with the MDP tree removal and planting proposals, with the exception of the surface parking lots located north of buildings 4 and 5, as at that time, surface parking was to have been provided within the space between the four buildings rather than via perimeter surface lots.

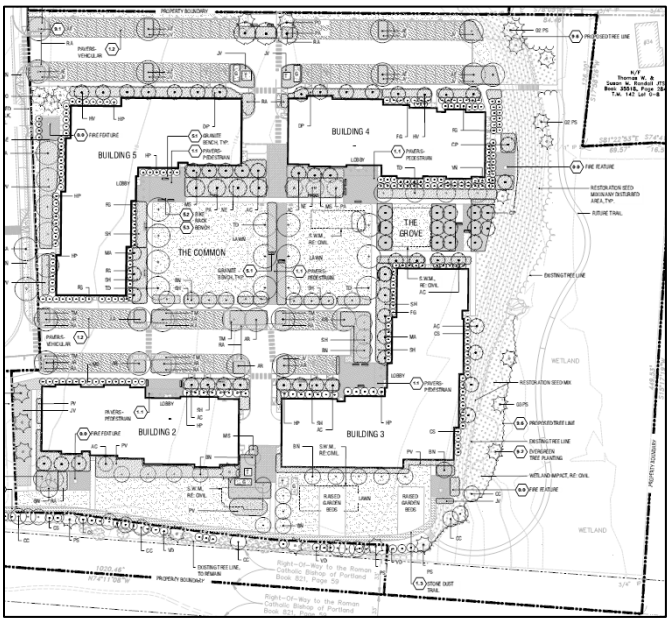


Figure 13: Landscape Plan

The applicant proposes planting 160 trees. Section 4 of the City's Technical Manual requires multi-family residential developments to provide a minimum of one tree per unit, which equates to 140

street trees. The City Arborist has given extensive feedback on the proposed landscape plan and street trees and is satisfied with the landscaping for this proposal.

City staff have reviewed the proposed project materials and finds that all other requirements of this section have been met.

3. Water Quality, Storm Water Management and Erosion Control

Staff have determined that the project is required to comply with Maine DEP Chapter 500 regulations as well as Section 5 of the Technical Manual for stormwater management. This requires compliance with the Basic, General, and Flooding Standards.

The Applicant has provided a detailed Erosion and Sedimentation Control plan as well as phasing plans which outline each of the stormwater management system components that will be installed as each building and parking area is constructed. The applicant has stated that *"the systems will be designed to achieve compliance with water quality treatment and quantity control standards as each phase is built out. The existing outfalls basically remain unchanged from the predevelopment conditions and as each phase is constructed there will be various Stormwater Management BMP's installed to handle runoff generated by each development area."*

The City's Consulting Stormwater Engineer has reviewed the proposal and has found the project is meeting all applicable standards (Attachment 3). Final review comments confirm that the phased construction plans are acceptable given that the stormwater maintenance agreement for the site will be in place which must report annually documenting any incomplete phases and particular systems not yet installed. Planning staff have confirmed with the Water Resources Division this approach is acceptable. Based on peer reviewer feedback Planning staff conclude the project meets all applicable standards of this section.

c) Public Infrastructure and Community Safety Standards

1. Consistency with City Master Plans

The proposed project supports a number of goals identified in *Portland's Plan 2030*, particularly the Housing Section. Those goals include increasing the overall supply of housing city-wide to meet the needs, preferences, and financial capabilities of all Portland residents, to encourage contextually appropriate housing density, and to enable people who work in Portland to live in Portland. Comprehensive Plan goals relevant to the application are included below:

Housing: A Livable City

State Goals: To encourage and promote affordable decent, housing opportunities for all Maine citizens

Local Goals:

- Increase, preserve, and modify the overall supply of housing City-wide to meet the needs, preferences and financial capabilities of all Portland households.
- Encourage additional contextually-appropriate housing density in and proximate to neighborhood centers, concentrations of services, and transit nodes and corridors as a means of supporting complete neighborhoods.
- Pursue policies to enable people who work in Portland to have the option to live in Portland.

- Encourage quality, sustainable design in new housing development.

Goals from Future Strategies:
3. Remove Housing Barriers

- Identify priority growth areas.
- Allow for a range of housing models in City codes, whether small units, co-housing, or others that may suit changing needs and demographics.

2. Public Safety and Fire Prevention (CPTED and Fire)

The Crime Prevention through Environmental Design (CPTED) standards in the site plan ordinance addresses the principles of natural surveillance, access control and territorial reinforcement so that the design of developments enhance the security of public and private spaces and reduce the potential for crime. The general concept for the site's layout was reviewed and approved under the 2016 MDP, with building footprints, drive aisles, and curb radii largely in accordance with those plans.

The applicant has resubmitted plans in response to the Fire Department's comments on access, which includes new paved surfaces between buildings 2 & 3 and 4 & 5 that will accommodate fire apparatus access to the rear of the buildings as well as adjusting the paved area approaching the building #3 entrance to shift the pavement closer to the entry.

Jason Grant, Life Safety Reviewer, has reviewed the project and finds the modifications are acceptable and all outstanding Fire Department comments are now addressed. Planning staff find the project adequately addresses the standards under this section.

3. Availability and Adequate Capacity of Public Utilities

The Applicant has obtained confirmation from the Portland Water District and Department of Public Works (Attachments L & U) demonstrating ability to serve for water and sewer and have provided all necessary documentation to comply with the standards of this section.

d) Site Design Standards

1. Massing, Ventilation and Wind Impact

The four new buildings proposed under this phase are not anticipated to impact any adjacent structures as it relates to their bulk, or diminution of available light and air to abutting properties. The closest structures to the new buildings are Stevens Square Building 1 and the Motherhouse, with the former building more than 50 feet from building 2 and the latter more than 100 feet from buildings 2 and 4. Rooftop HVAC mechanicals have been shown on the plans for each of the buildings.

2. Shadows

This standard was addressed during the 2016 MDP review and has not changed via this phase.

3. Snow and Ice Loading

The applicant is proposing on-site snow storage; and in response to staff comment has shifted all snow storage zones off of the porous pavement parking areas. Planning staff have reviewed the proposal and find it meets all applicable standards under this section.

4. View Corridors

This standard was addressed during the 2016 MDP review and has not changed via this phase.

5. Historic Resources

The site is not within a historic district or within 100 feet of a historic district and is greater than 100 feet from the National Register-listed Motherhouse. No impacts to historic resources are anticipated.

6. Exterior Lighting

The applicant has submitted a site lighting and photometric plan and accompanying cut sheets which have been reviewed by staff for conformance with the standards of this section. The lighting plan provides fixture types that are full cutoff, and do not exceed the maximum requirements found in Section 12 of the City's Technical Manual, which include but are not limited to: lumen, color temperature and height. Planning staff find the proposed project materials are meeting the requirements of this section. At the time of writing this report staff have not yet received a lighting plan in order to confirm lighting levels within the structured parking garage areas. Staff are recommending a condition of approval that the applicant submit a lighting plan for parking garage spaces prior to issuance of a building permit.

7. Noise and Vibration

All heating, ventilation and air conditioning equipment (HVAC), air handling units (AHU), emergency generators, and similar equipment will be required to meet state and federal emissions requirements. This mechanical equipment should be located to the interior of the site, away from abutting residential properties and be screened from view from any public street and from adjacent sites by structure walls, evergreen landscaping, fencing, masonry wall or a combination thereof.

8. Signage and Wayfinding

The proposal provides traffic signage (Plan 6) which includes stop signs, exit only, pedestrian crossing, parking signage, etc. The project is not proposing any other types of signage at this time and will apply for a sign permit as needed in the future.

9. Zoning Related Design Standards

A design review according to the City of Portland Design Manual Standards was performed for the four buildings proposed under this phase. The review was performed by Caitlin Cameron, Urban Designer, Kevin Kraft, Deputy Director, and James Rather, Development Review Manager (Attachment 5). The project was reviewed against the adopted Architectural Characteristics Summary from the 2016 MDP (Attachment 8). Staff finds that the final building design meet the intent of the MDP's Architectural Characteristics Statement.



Figure 14: Building 2 Rendering

X. SITE LOCATION OF DEVELOPMENT ACT (SLODA) REVIEW

In connection with the Major Site Plan application, the applicant also prepared a SLODA Application which Planning Staff have submitted to MaineDEP (Attachment Q) in accordance with the Chapter 500 Rules.

The City of Portland has delegated review authority from the MaineDEP for large projects that trigger SLODA review. According to the standards for this review listed under Section 14 of the City's Technical Manual, sections are responded to below which overlap with a number of site plan standards:

- Financial & Technical Capacity: see Section VII above.
- Traffic Movement: see site plan standards, IX.B.a.1. above.
- No Adverse Effect on the Natural Environment, Ground Water, Flooding, Storm Water Management & Erosion and Sedimentation Control: see site plan standards, IX.B.b.3. above. The development is not located within a flood hazard zone, as shown on the FEMA Flood Insurance Rate Map. The proposed development is not anticipated to cause or increase flooding or cause an unreasonable hazard to any adjacent structures (Attachments Q).
- Soil Types: The applicant has conducted a geotechnical investigation (Attachment Q).
- Infrastructure: see site plan standards, IX.B.c.3 above.

XI. PUBLIC COMMENT

The Planning and Urban Development Department mailed 134 notices advertising this meeting to property owners within 500 feet of the site and interested parties. A legal advertisement ran in the January 14th and 15th, 2021 editions of the *Portland Press Herald*.

A remote Neighborhood Meeting was held on July 28, 2021 with 19 members in attendance. Concerns raised included traffic impacts, impacts to Motherhouse residents during construction, requests for EV charging, and potential impacts to Baxter Woods.

At the time of writing this memo, the Planning Department has received three public comments (PC 1-3). Public feedback at the neighborhood meeting and written comments submitted include support for new housing being created. Other comments included concerns about the modern looking aesthetics of the

building and relationship to the neighborhood, lighting, traffic/safety, loss of natural rain absorption in soil, and measures to improve public safety in the recreational lawn area at night. Feedback submitted since the last workshop (PC3) expressed included concerns about the height of the proposed structure and potential for shadows impacting the property, impacts of parking lot lighting, traffic noise, drainage, and tree removal.

XII. STAFF RECOMMENDATION

Subject to the proposed motions and conditions of approval listed below, Planning Department staff recommends that the Planning Board approve application #PL-001662-2021 and PL-001649-2021 to (i) modify the approved MDP site circulation patterns to reflect a new common open space sited between the four new buildings and to extend the term of the MDP approvals for an additional two years and; (ii) construct four new multistory buildings totaling 140 multifamily condominium units, with 260 structured and surface parking spaces at 65 McAuley Way which meets the applicable standards of Portland's Land Use Code.

XIII. PROPOSED MOTIONS

A. MASTER DEVELOPMENT PLAN AMENDMENT

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 public hearing on January 25, 2022 for application PL-001662-2021 and 65 McAuley Way relevant to the Master Development Plan regulations; and testimony presented at the Planning Board hearing:

The Planning Board finds that the plan **[is/is not]** in conformance with the Master Development Plan standards of the Land Use Code.

B. SITE PLAN REVIEW & SITE LOCATION OF DEVELOPMENT

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 January 25, 2022 for application #PL-001649-2021 and 65 McAuley Way relevant to the site plan and Site Location of Development Act 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 and the Site Location of Development Act standards subject to the following conditions of approval:

PRIOR TO ISSUANCE OF A BUILDING PERMIT

1. The applicant shall submit an updated lighting plan providing all lighting fixtures located within the structured parking garage to the Planning Authority for review and approval.

XIV. ATTACHMENTS

PLANNING BOARD REPORT ATTACHMENTS

1. DPW Comments (dated 12.23.2022)
2. Consulting Traffic Engineer Comments (dated 1.21.2022)
3. Consulting Civil Engineer (dated 12.23.2022)
4. Fire Dept. Confirmation (dated 1.5.2022)
5. Design Review Comments

6. Housing Prog. Manager Comments (dated 1.20.2022)
7. 2016 Master Development Plan Approval Letter and Report
8. 2016 MDP Architectural Characteristics Summary

APPLICANT'S SUBMITTAL

A. Cover Letter & Project Description
B. Major Site Plan Checklist
C. Right, Title, and Interest
D. Zoning Analysis
E. Waiver Requests
F. Financial Capacity
G. Technical Ability
H. Transportation Standards Compliance
I. Environmental Standards Compliance & Stormwater Management
J. Public Infrastructure and Community Safety
K. Site Design Standards Compliance
L. Wastewater Capacity Authorization
M. Neighborhood Meeting Certification
N. Trip Generation and Parking Demand Memo
O. Draft Stormwater Maintenance Agreement
P. Amended Stormwater Management Report
Q. SLODA Application
R. Lighting Cut Sheets
S. Draft Stormwater Maintenance Agreement
T. Condominium Documents
U. Portland Water District Ability to Serve
V. Response to Comments (dated 12.7.2021)
W. Response to Comments (dated 1.7.2022)
X. Response to Comments (dated 1.19.2022)

PLANS

Plan 1 – Cover Sheet
Plan 2 – General Notes
Plan 3 – Boundary & Topographic Survey
Plan 4 – Stevens Square Amended Master Plan
Plan 5 – Overall Site Plan
Plan 6 – Site Layout Plan
Plan 7 – Building 2 Layout Plan
Plan 8 – Building 3 Layout Plan
Plan 9 – Building 4 Layout Plan
Plan 10 – Building 5 Layout Plan
Plan 11 – Grading & Drainage Plan
Plan 12 – Erosion Control Plan
Plan 13 – Phasing Plan

Plan 14 – Building 2 Grading Plan
Plan 15 – Building 3 Grading Plan 1
Plan 16 – Building 3 Grading Plan 2
Plan 17 – Buildings 4-5 Grading Plan
Plan 18 – Utility Plan
Plan 19 – Existing Conditions & Removals Plan
Plan 20 – Building 1 - Parking Elevation
Plan 21 – Building 1 - Building Elevation
Plan 22 – Building 1 - Building Elevations
Plan 23 – Building 2 - Floor Plans
Plan 24 – Building 2 - Building Elevations 1
Plan 25 – Building 2 - Building Elevations 2
Plan 26 – Building 3 - Plans & Elevations
Plan 27 – Landscape Plan & Details
Plan 28 – Water Quality Plan and Details
Plan 29 – Details
Plan 30 – Access Drive, Stormdrain & Utility Profiles
Plan 31 – Construction Management Plan
Plan 32 – Lighting & Photometric Plans
Plan 33 – Pre-Development Watershed Plan
Plan 34 – Post Development Watershed Plan
Plan 35 – Amended Circulation Plan

PUBLIC COMMENT

PC1 – Elizabeth Duffy 7-21-2021
PC2 – Tom Randall 7-26-2021
PC3 – Tom Randall 8-27-2021

GORRILL PALMER

707 Sable Oaks Drive, Suite 30
South Portland, Maine 04106
207.772.2515

May 27, 2021

Ms. Christine Grimando
Planning and Development Department
City of Portland, Maine
389 Congress Street
Portland, Maine 04101-3509

Subject: Stevens Square at Baxter Woods
583 Stevens Avenue
Major Site Plan Application (New Development) – Lot 4 Phase 2 – 140 units
Amended Subdivision and Master Development Applications
Applicant: DC Baxter Woods IV, LLC

Dear Christine:

On behalf of **DC Baxter Woods IV, LLC,** we are pleased to provide the accompanying Major Site Plan, Amended Subdivision, and Amended Master Plan Application package related to the proposed Phase 2 development of Lot 4 of the previously approved Master Development Plan for Sea Coast at Baxter Woods, LLC. This submission package is intended to meet the City's Submission Requirements as outlined in the Major Site Plan Application procedures. This submittal provides information in support of the Portland Land Use Code Article 15 – Subdivision and Article 14 – Major Site Plan Standards. Ultimately, we are seeking Major site plan approval, An Amended Subdivision approval, and Amended Master Development Plan approval.

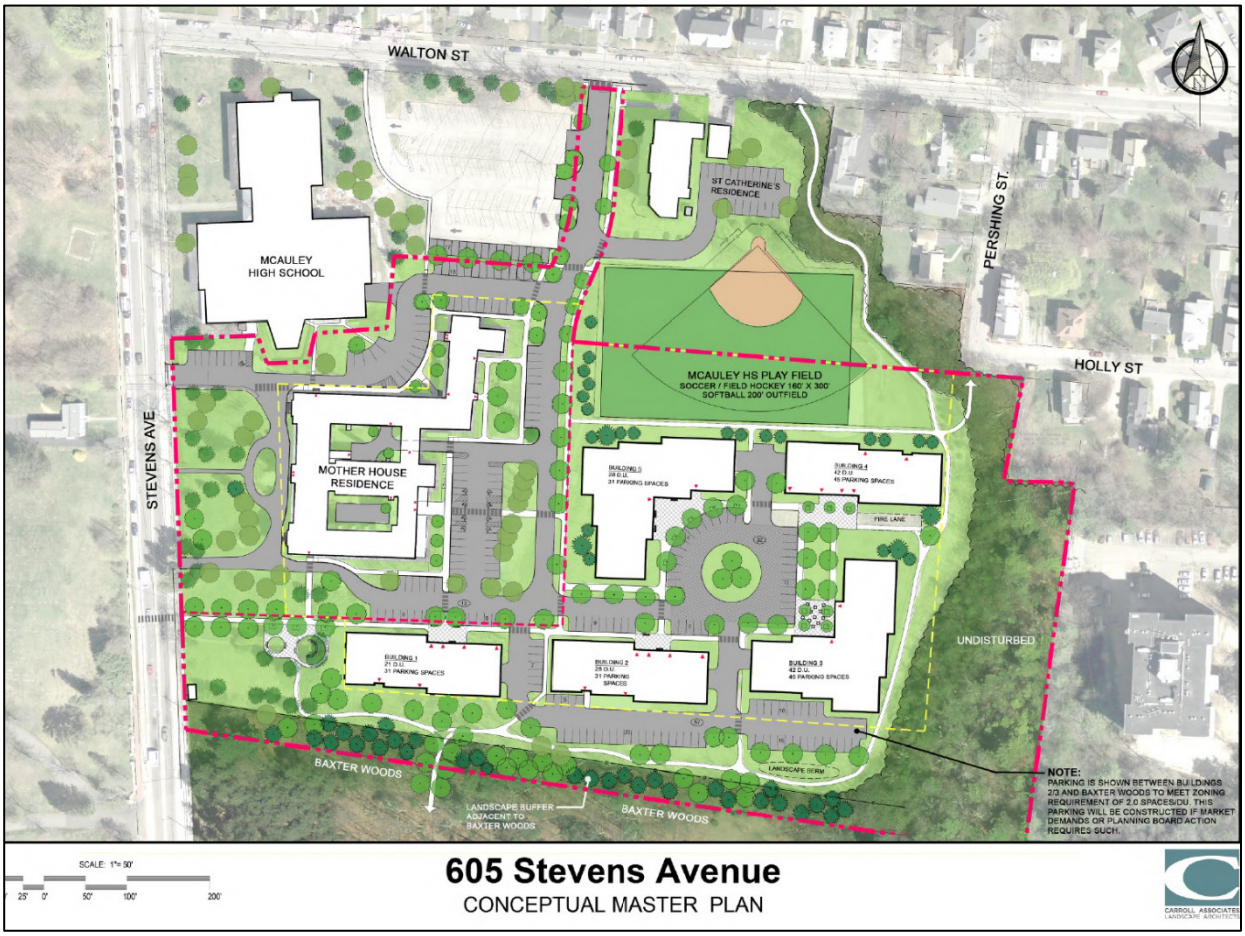
The current proposal was originally contemplated and approved as a Master Development Plan[1] (MDP) in accordance with the figure on the next page. The MDP included within the proposed Lot 4 development area five residential buildings containing a total of 161 dwelling units as outlined below. In 2018, the Planning Board granted a Site Plan approval to the first of the five buildings, known as Building #1 containing 21 dwelling units[2]. That project has been constructed and is nearly fully occupied. The current proposal includes the following elements:

- An Amended Subdivision Plan to subdivide the previously approved Lot 4 into two lots (Lots 4 & 5). Building #1 which was previously approved and under construction will occupy a 2-acre parcel area which will be identified as Lot 4 on the plan. The proposed new development of Buildings #2-5 will occupy the remaining 7.05-acre parcel and Lot 5 to be created as part of the Second Amended Subdivision plan. Property and building ownership considerations are the basis for the Lot 4 division into two lots.

[1] See Master Development Plan approval letter dated June 16, 2106 for Project ID #2016-033
[2] Building #1 now has only 20 units as two units have been combined into one.

- A Major Site Plan to include four multi-story structures containing a total of 140 Senior Adult housing units and 260 parking spaces. Site amenities for active outdoor space and connectivity to surrounding pedestrian infrastructure will provide vibrancy for residents and the surrounding community in general. This development will be a phased site plan which will include the following:
    - First Phase – Building 2
    - Second Phase – Building 3
    - Final Phase – Buildings 4 and 5
- Proposed Buildings 2-5 will include the following:

Building #	No. of Dwelling Units	No. of Parking Spaces at Ground Level Within the Building Footprint
2	28	29 (plus 12 bikes)
3	42	48 (plus 20 bikes)
4	28	29 (plus 12 bikes)
5	42	48 (plus 20 bikes)
Total	140 units	154 spaces (plus 64 bikes)



Original Approved Master Development Plan

EXISTING CONDITIONS

The existing site is located off McAuley Way to the east of the existing 88-unit Motherhouse Residence Senior Apartment Building (53 McAuley Way). The existing 9.05-acre site is currently developed with the recently completed 20 unit Building #1 as well as the former MGA athletic fields consisting of a soccer field, and two baseball fields. The field complex contains some drainage infrastructure and an irrigation system. The site's east side contains some mapped forested wetland that will largely remain unchanged as part of the proposed development. Surrounding land uses are described as follows:

- Building #1 on the west side of Lot 4 was recently completed;
- The Deering Pavilion is located to the east of the property;
- St. Catherine's Residence is located to the north side of the site within the Lot 1 of the Subdivision;
- The former Maine Girls Academy School and 92 space parking lot are on Lot 2. Recent renovations to the building have allowed for new uses including a daycare, offices, a café, and a community fitness center;
- The Motherhouse containing 88 apartments are located on Lot 3, west of the site; and
- Baxter Woods is located south of the site.

The existing buildings are served by various public utilities along Stevens Avenue and Walton Street. The Building 1 construction included utility improvements for water, sewer, gas and power/communications infrastructure within the subdivision. Water main extensions for Fire and Domestic service were completed during the Building #1 construction to serve proposed Buildings #2-5. Similarly, services for gas and power are ready for extension to serve the proposed buildings. There is an existing private sewer extending through the middle of the property that ties into the Walton Street system. There is also an existing 8" sewer main in Holly Street that will be used for three of the proposed buildings. Drainage from the development basically is collected in a closed drainage system with two small pipe discharge points on the east side of the property. This runoff flow ultimately drains towards Forest Avenue further to the east and is captured in the City's municipal drainage systems for conveyance down to Back Cove.

PROPOSED PROJECT

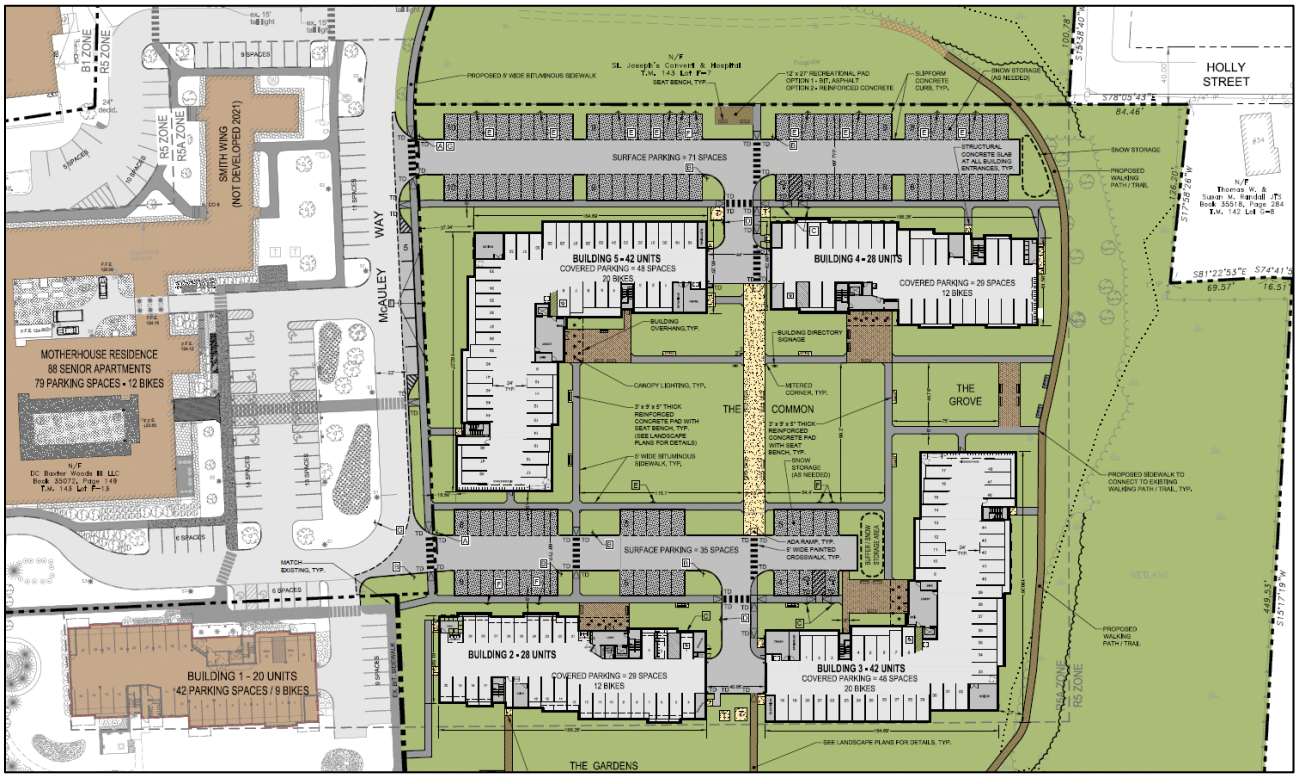
The Applicant is proposing to subdivide Lot 4 into two new lots; the remaining Lot 4 area will contain 2 acres and the existing Building 1. A proposed Lot 5 will be divided from Lot 4 and it will contain 7.05 acres and the four proposed structures. The project is generally consistent with the MDP issued June 14, 2016, #2016-033. The proposed layout contemplates four multistory buildings as presented on the previous page. The buildings will include ground level parking within the building footprints and four levels of apartments on the floors above. Unlike the MDP, the proposed layout is punctuated by a large common area that the four buildings will surround. Surface parking for residents and guests will be located on the north side of each of the buildings. Additional common areas will aid with the

robust landscaping/ pedestrian aspects of the site. A perimeter walking path will interconnect with multiple sidewalks within the Lot 5 area and these will also connect to a broader area of pedestrian sidewalks and pathways within the full subdivision. Ultimately, these sidewalks and paths will offer nearly a mile of onsite length and also several connections to various offsite pedestrian routes along Stevens Avenue, Baxter Woods and numerous others in this area of the City. The site will also have convenient access to the METRO as shown to the right. A total of 260 parking spaces are currently proposed. Vehicular access will be provided from either the existing Stevens Avenue one-way driveways or McAuley Way off Walton Street.



Figure 2 – METRO Route Map

Team Members involved in the project include Kevin Bunker of Developers Collaborative, David Lloyd, Archetype PA, Nick Aceto ALA Landscape Architects and Gorrill Palmer Consulting Engineers.



Stevens Square Phase 2 - Proposed Development Plan

CLOSURE

As outlined in the Major Site Plan and Amended Subdivision submission requirements and checklists, we will upload the following materials upon authorization by City staff:

- General Application Documents
    - Cover Letter/Project Description
    - Major Site Plan Application Checklist
    - Right, Title and Interest
    - Zoning Assessment
    - Existing and/or Proposed Easements (please see Survey Plan)
    - Waiver Request and Waiver Table
    - Financial Capacity
    - Technical Capability
- Transportation
    - Transportation Narrative
- Environmental and Landscape Features & Stormwater
    - Narrative to Address Standards
- Public Infrastructure and Safety
    - Narrative to Address Standards
- Site Design
    - Narrative to Address Standards
- Construction Management Plan
- Site Plans, Second Amended Subdivision Plan, and Architectural Plans

On behalf of **DC Baxter Woods IV, LLC,** we look forward to your continued assistance on the project and we look forward to the next available workshop meeting with the Planning Board. As is required, once we complete the Planning Board workshop, the applicant will be conducting a Neighborhood Meeting. We anticipate this meeting will be conducted prior to the Public Hearing.

If you have any questions regarding the materials being submitted, please contact this office.

Sincerely,

GORRILL-PALMER

Stephen Bushey, PE
Senior Associate
sbushey@gorrillpalmer.com

Attachments

c: Kevin Bunker, DC Baxter Woods IV, LLC

U:\3564.03_Stevens Square-Lot 4 - Portland, ME\P Applications\Local\Major Site Plan\app\1_ltr_grimando_major site plan_05.27.2021.docx

Att. B

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

RIGHT, TITLE & INTEREST

DC Baxter Woods IV, LLC currently owns the property as evidenced in the deed recorded in CCRD Book 36065; Page 326 attached to this section.

DLN 1001940075069

SHORT FORM QUITCLAIM DEED WITH COVENANT

KNOW ALL PERSONS BY THESE PRESENTS, that DC BAXTER WOODS LLC, a Maine limited liability company, in consideration of One Dollar and other valuable consideration paid by DC BAXTER WOODS IV LLC, a Maine limited liability company, whose mailing address is 100 Commercial Street, Suite 414, Portland, Maine 04101, its successors and assigns forever (collectively "Grantee"), the receipt whereof is hereby acknowledged, does hereby GRANT unto the Grantee, WITH QUITCLAIM COVENANT, the following described real estate:

A certain lot or parcel of land together with any buildings and improvements thereon, located in the City of Portland, County of Cumberland and State of Maine, being Lot #4 as shown on the Overall Subdivision Plan 605 Stevens Avenue, Stevens Avenue and Walton Street, Portland, Maine, made for Sea Coast at Baxter Woods Associates, LLC by Titcomb Associates, dated June 24, 2015, as revised through June 15, 2016, and recorded in the Cumberland County Registry of Deeds, Plan Book 216, Page 433, as amended by the First Amended Overall Subdivision Plan 605 Stevens Avenue, Stevens Avenue and Walton Street, Portland, Maine, made for Sea Coast at Baxter Woods Associates, LLC by Titcomb Associates, dated April 10, 2017, and recorded in the Cumberland County Registry of Deeds, Plan Book 217, Page 151 (collectively the "Plan").

Said #4 as described and conveyed above is conveyed subject to and with the benefit of:

1. Title to and rights of the public and others entitled thereto in and to those portions of the insured premises lying within the bounds of Stevens Avenue and Walton Street.

2. Such state of facts as shown on the Plan.

3. City of Portland Certificate of Subdivision Waiver Approval, dated September 8, 2015 and recorded in the Cumberland County Registry of Deeds, Book 32584, Page 153.

4. Rights and easements excepted and reserved by St. Joseph's Convent and Hospital in its deed to Sea Coast at Baxter Woods Associates, LLC, dated December 16, 2016 and recorded in the Cumberland County Registry of Deeds, Book 33698, Page 187.

5. Rights, covenants and easements set forth in the Stormwater Drainage System Maintenance Agreement from Sea Coast at Baxter Woods Associates, LLC to the City of Portland, dated December 23, 2016 and recorded in the Cumberland County Registry of Deeds, Book 33752, Page 170, as amended by an Addendum, dated June 1, 2017 and recorded in said Registry, Book 34050, Page 80.

6. Rights, easements and covenants set forth or references in the Declaration of Covenants and Easements dated May 5, 2017 and recorded in the Cumberland County Registry of Deeds, Book 33992, Page 172.

7. Subject to rights and easements reserved and set forth in the deeds from James P. Baxter to the Roman Catholic Bishop of Portland, dated March 10, 1908 and recorded in said Registry of Deeds in Book 821, Pages 58 and 59.

8. Stormwater Drainage System Maintenance Agreement entered into by Sea Coast at Baxter Woods Associates, LLC for the benefit of the City of Portland dated August 11, 2015, recorded in said Registry of Deeds in Book 33752, Page 170, as affected by Addendum to Stormwater Drainage System Maintenance Agreement dated December 23, 2016, recorded in said Registry of Deeds in Book 34050, Page 80.

9. Underground utility easement granted by Sea Coast at Baxter Woods Associates LLC to Central Maine Power Company and Northern New England Telephone Operations, LLC dated September 5, 2017, recorded in said Registry of Deeds in Book 34616, Page 110.

10. Underground utility easement granted by Sea Coast at Baxter Woods Associates LLC to Central Maine Power Company and Northern New England Telephone Operations, LLC dated September 5, 2017, recorded in said Registry of Deeds in Book 34616, Page 110.

11. Subject to rights and easements reserved and set forth in the deeds from James P. Baxter to the Roman Catholic Bishop of Portland, dated March 10, 1908 and recorded in said Registry of Deeds in Book 821, Pages 58 and 59.

12. Easement Agreement (Bus Stop) in favor of City of Portland to be recorded in said Registry of Deeds.

13. Rights of others in and to the appurtenant easements in favor of said Lot # 4.

TO HAVE AND TO HOLD, the same, together with all the privileges and appurtenances thereunto belonging, to the said DC Baxter Woods IV LLC, its successors and assigns forever, to use and behoof forever.

IN WITNESS WHEREOF, the said DC Baxter Woods LLC has caused this instrument to be executed by Kevin R. Bunker, its Manager thereunto duly authorized, as of the 8th day of October, 2019.

WITNESS:

DC BAXTER WOODS LLC

By: _____
Kevin R. Bunker, its Manager

STATE OF MAINE
Cumberland, ss.

October 8, 2019

Then personally appeared the above-named Kevin R. Bunker, Manager of DC Baxter Woods LLC as aforesaid and acknowledged the foregoing instrument to be his free act and deed in said capacity and the free act and deed of said limited liability company.

SEAL

Before me,

Patricia A. Smith

Notary Public/Attorney-at-Law
Print Name:_____
My Commission Expires:_____

PATRICIA A. SMITH
NOTARY PUBLIC
State of Maine
My Comm. Expires August 07, 2026

O:\DC Predevelopment LLC (20981)\Baxter Woods (331)\Lot 4\Transfer documents\Deed_QCWC_Lot 4.docx

Received
Recorded Register of Deeds
Oct 11,2019 12:57:40P
Cumberland County
Nancy A. Lane

ZONING ANALYSIS

See attached Zoning Analysis Table and project site plans for additional information.

ZONING ANALYSIS TABLE

STANDARD	R-5	R-5A	LOT 4 Building 1 (20 DU)	LOT 5 Buildings 2-5 (140 DU)
Lot Area (min)	2 AC	2 AC	2.00 AC	7.05 AC
Net Land Area per Dwelling Unit (min.)	3,000 SF	1,600 SF	4,356 SF	2,194 SF
Units per Building (max.)	NA	NA	NA	NA
Lot Area per Multiplex Unit	4,500 SF	NA	NA	NA
Street Frontage (min)	50'	50'	140'	84.5'
Lot Width (min)	60'/90' Multiplex	60'	140'	525'
Front Setback (min)	20'	25'	196'	80'
Rear Setback (min)	20'	25'	58'	107'
Side Setback (min) >2.5 stories	14'	16'	78'	18'
Structure Height	35'	55'	43'-3"	55'
Stepbacks	NA	NA	NA	NA
Building Length	140	NA	NA	NA
Lot Coverage (max.)	40%	30%	17%	20%
Building Setback from External Subdivision Property Lines (min). >100'	35'	35'	84'	96'
Common Recreation Open Space Area (min.) (136 DU x 200 = 27,200 SF)	300 SF/DU	200 SF/DU	4,000 SF	28,000 SF
Off street Parking Spaces (136 DU/SP)	1 Space/DU	1 Space/DU 136	42 Spaces	260 Spaces
Loading Bays	NA	NA	NA	NA
Pavement Setback	NA	NA	NA	NA
Floor Area Ratio	NA	NA	NA	NA
Maximum Impervious Area	NA	NA	NA	NA

*No Dwelling Units proposed in the R-5 zone.

WAIVER REQUESTS

The Applicant is not requesting waivers at this time.

FINANCIAL CAPACITY

The Applicant has the means at its disposal for financing the proposed Stevens Square at Baxter Woods – Lot 4 Phase 2 project. A letter from Kennebec Savings Bank is attached to this section as evidence of the applicant's financial capacity to undertake the development.

A breakdown of the preliminary project cost for Lot 4-Phase 2 includes the following:

- Site Work: <$1,000,000
- Structures: $70 million; approximately $14 million each for buildings 2 and 4 and approximately $21 million each for buildings 3 and 5.

These values are considered preliminary and approximate and are subject to change as building design and project layout is refined.

Kennebec Savings Bank
181 Lower Main Street | Freeport, Maine 04032 | Telephone: (207) 402-1218

May 26, 2021

City of Portland
389 Congress Street
Portland, Maine 04101

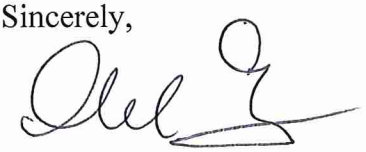
Re: Kevin Bunker condo projects

To Whom It May Concern,

This letter is to confirm that Kevin Bunker possesses the financial resources to accommodate the continued development of condo buildings located at 631 Stevens Avenue in Portland, Maine.

Should you have any further questions or concerns, please feel free to contact me via e-mail at deldridge@kennebecsavings.bank or by cell phone at (207) 402-1218.

Sincerely,



David M. Eldridge
Regional VP & Commercial Banking Officer

TECHNICAL CAPABILITY

The applicant has retained a highly qualified team of professionals to undertake planning, permitting and design tasks on this project. Services will be provided by the following companies and their respective team leaders:

Civil Engineer	Stephen Bushey, P.E. Gorrill-Palmer Consulting Engineers 707 Sable Oaks Drive South Portland, Maine 04106 (207) 772-2515 sbushey@gorrillpalmer.com
Architect	Devin Cough Archetype PA 48 Union Wharf Portland, ME 04101 (207) 772-6022 https://www.archetype-architects.com/
Surveyor	Rex Croteau Titcomb Associates 133 Gray Road Falmouth, ME 04105 (207) 797-9199 rcroteau@titcombsurvey.com
Geotechnical	Bill Peterlein, PE Summit Geoengineering Services, Inc. 145 Lisbon Street, Suite 701 Lewiston, ME 04240 (207) 576-3313
Landscape Architecture	Nick Aceto, PLA ASLA Aceto Landscape Architects PO Box 3787 Portland, ME 04104 (207) 221-3390 na@acetola.com

The team of consultants retained by developer has expertise and experience in the design of similar commercial projects. Resumes of key personnel for development team can be provided upon request.

The Applicant also has significant experience in the development and management of large commercial projects having managed the previous phases of this Master Plan Development as well as similar projects throughout southern Maine for many years.

TRANSPORTATION

The following statements are provided in accordance with the Section 14.6 Site plan review standards of the ordinance.

TRANSPORTATION

14.6.1 Transportation Standards

Impact on Surrounding Street Systems 14.6.1(A)

- *Describe incremental volume of traffic impacts and mitigation measures. If needed*

The development will fit in with the existing street system as it will use the primary existing site driveway off Walton Street onto McAuley Way. During the Master Development Plan process, Diane Morabito, PE, then of Maine Traffic Resources (now Sewell) completed a Traffic impact Study[1]. That study included trip generation associated with the 88 Unit Motherhouse apartments and another 161 additional Senior Adult Housing units proposed in five buildings on Lot 5. The following table summarizes the expected trip generation for the development:

"

Time Period	ITE Trip Generation One-way Trip-Ends
Weekday	856
AM Peak Hour – adjacent street	50
Entering Site	17
Exiting Site	33
AM Peak Hour – generator	97
Entering Site	45
Exiting Site	52
PM Peak Hour – adjacent street	62
Entering Site	33
Exiting Site	29
PM Peak Hour – generator	87
Entering Site	48
Exiting Site	39

"

Excerpt from Traffic Impact study March 2016

On the basis of these calculations the Lot 5 development will not trigger a Traffic Movement Permit. We note that the closure of the Maine Girls Academy influenced overall traffic conditions for the site. Recent Change of use approvals for the School building are in transition as new occupants of that site continue to transition into place. Overall, there remain conditions tied to the Master development Plan approval that include future traffic and parking data collection.

[1] See Traffic Impact Study 605 Stevens Avenue, March 15, 2016 and subsequent May 27, 2016 letter responding to Staff comments as part of the MDP.

Access and Circulation 14.6.1(B)

- *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)*

(i) The development provides primary two-way access via McAuley Way off Walton Street. Secondary access via a one-way entering drive and one-way exiting drive onto Stevens Avenue in front of the Motherhouse is also available. Two driveways from Lot 4 onto McAuley Way provide access to the parking lots and interior parking within each building. Ample turning movement is provided at each street entrance. Internal circulation has been reviewed and designed to accommodate the typical use of passenger vehicles. ADA Parking is provided within the ground level parking zones in each building and additional ADA parking will be provided for visitors/guests on the outside parking.

(ii) There are no drive-up features proposed.

(iii) Access and egress have been designed to avoid conflict with existing turning movements and traffic flows. Please see AutoTURN diagrams included in Section 10.

(iv) Public sidewalks exist along both Walton and Stevens Avenue frontage and several connections into the site are provided. The applicant recently completed the installation of a public crosswalk and pedestrian signal beacons at the Walton/Stevens intersection in accordance with previous conditions of approval. Onsite connecting sidewalks are proposed for access around the site and to connect to the neighboring Motherhouse residential and Building 1 development. The Applicant is proposing to connect to the existing sidewalk on the easterly side of the Building 1 parking area to the existing walking trail south of the project. Additional internal connections are proposed to access the existing walking trail to the east of the site near Baxter Woods. Finally sidewalk access will be provided from the site directly to a new Bus shelter on the East (outbound) side of Stevens Avenue. This will provide excellent access to public transit.

Public Transit Access 14.6.1(C), if applicable

- *Existing available transit service and proposed transit improvements, including design details, such as easement, pad base, and shelter*

The site is served by nearby public bus shelters on Stevens Avenue. The applicant has previously installed a new bus shelter on the Stevens Square Lot 4 property. The City also previously installed a shelter on the west (inbound) side of Stevens Avenue along with a crosswalk for pedestrians/Transit users to gain access to the METRO service along that route.

Parking 14.6.1(D)

- *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*

1. Vehicular Parking

The proposed project will include covered parking as well as surface parking area. Based upon the minimum required Zoning standard of 1 space/dwelling unit, the applicant is proposing the following parking spaces:

Use	Units	Total Spaces
Building 2 Covered Parking	28	29
Building 3 Covered Parking	42	48
Building 4 Covered Parking	28	29
Building 5 Covered Parking	42	48
Surface Parking Areas	--	106
Total Onsite Parking (Lot 5)	--	**260**
ADA Spaces (included in total above)		8 (2 standard, 6 van accessible)*

* Seven ADA spaces required for Total spaces of 201-300 per ADA Standards for Accessible Design 4.1.2(5)

2. Bicycle Parking

The site plan currently identifies 64 bikes required (2 spaces/5 units) which will be accommodated by an inside bike storage system. Buildings 2 and 4 will contain 12 bike spaces and Buildings 3 and 5 will contain 20 bike spaces each. Additional bike parking will also be provided outside of each building. See the Landscape plans by ALA for further information on the outside bike parking locations.

3. Snow Storage.

a. Snow storage management will employ two strategies:

1. On-site snow storage around the perimeter of the site as shown on the site plans; and
2. Snow removal and off-site storage.

4. Electric Vehicle (EV) Charging

The Applicant will be providing conduit for EV Charging stations for all covered parking spaces and installation will be subject to user demand, as units are intended to be sold as condominiums

Traffic Demand Management (TDM) 14.6.1(E), if applicable

- *Provide TDM plan drafted in accordance with Technical Manual Section 1 requirements*

A TDM plan is not required for the proposed residential project.

ENVIRONMENTAL

The following statements are provided in accordance with the Section 14 of the Ordinance.

14.6.2 Environmental Quality Standards

A. Preservation of Significant Natural Features 14-14.6.2(A), if applicable

- *Populations of trees and plants that are endangered or threatened*
- *Habitat for species*
- *High and moderate value waterfowl and wading habitat*
- *Aquifers on 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*

1. *Preservation of Significant Natural Features:*

    a. The development site does not contain any significant natural features including wetlands of special significance, vernal pools or other protected resources. A forested wetland was identified on the east side of the property, along low-lying area. Several drainage outlets from the site's drainage systems provide water to the east side and likely support the prevalence of forested wetland. The existing ballfield area has no trees or shrubs that might be considered for protection. During the Master Development Phase various resource agencies were contacted regarding the site's potential to contain significant wildlife habitat, historic or archaeological resources. Findings from each of the agencies has been previously provided to the City. No further evidence will be provided for the current application, unless requested.

B. Landscape Preservation 14-14.6.2(B)

- *Measures to preserve trees, including within required zoning setbacks (Technical Manual, Section 4)*
- *Measures to protect existing vegetation during construction*

1. The applicant is committed to preserving existing trees and providing supplemental plantings.
2. The majority of the development footprint lies within the former ballfield area, where there are no trees to be preserved.
3. Existing trees along the south side of the property facing Baxter Woods will be substantially preserved.
4. The applicant is not seeking a waiver at this time.
5. Due to the site's current use as a ballfield, there is little to no effect on existing vegetation. At the southeast corner of Building 2, some invasive plant material on the existing slope will be cleared for construction of the loop trail. Existing trees at this forest edge will have protection measures, detailed in the landscape plans, and erosion control measures, detailed in the civil plans.

The applicant is not seeking to replace trees, however a robust planting plan will be provided to increase the tree and shrub plantings on the property.

C. Site Landscaping and Buffers 14-14.6.2(C)

- *Overall landscape 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*

1. Landscaping

The proposed landscape plan meets (and exceeds) the site plan review standards in Section C of the technical manual. The applicant is proposing shade and flowering trees—as well as shrubs, ornamental grasses, and perennials—along development frontage and at the site's interior that will add aesthetic interest, ecological value, and scale to the proposed development. All proposed trees are listed in the City of Portland Recommended Tree List. Due to the site's current use as a ballfield, there are no existing trees or vegetation that need preservation. The proposed landscape plan has carried select plant species from the existing development to the proposed in order to give the final campus a cohesive design language. Along building frontages, the applicant is proposing shade or flowering tree in addition to the planting of ornamental grass, perennials, or shrubs at the understory level.

2. Buffers:

There are no service or loading areas observable from nearby sidewalks or residential properties and trash and recycling are internal to the proposed building. Various existing trees, at the edge of the site and in Baxter Woods, provide a significant buffer to the surrounding properties.

(a) The applicant is the owner of all the land within these zoning boundaries. The existing woods on site will remain undisturbed and serves as a significant buffer to the proposed development. The proposed landscape plan further enhances the vegetated buffer with Baxter Woods, south of buildings 2 and 3. The applicant prefers to use vegetation to maintain connectivity within the campus and trail connections with Baxter Woods. The applicant reserves the right to monitor and address any buffering needs with vegetative screening in the future, if needed.

(b) Not applicable

(c) The applicant is avoiding any disturbance with the existing, mature evergreen and deciduous trees along the southern site border with Baxter Woods. Plantings south of Buildings 2 and 3 will further enhance the existing buffer with Baxter Woods.

3. Parking and Vehicle Display Lot Landscaping

The applicant is proposing a mix of shade trees, ornamental trees, and shrubs in raised landscape islands to screen, shade, and break up surface parking lots. Landscape islands (containing trees and shrubs or ornamental grasses) are also proposed.

4. Street Trees

The proposed development dose not border any public streets. At the western edge of the development, shade trees and shrubs are proposed along the access road to buffer the residential development from vehicular traffic. All trees on site were selected using the City of Portland Recommended Tree List.

D. Water Quality, Stormwater Management and Erosion Control 14-14.6.2(D)

1. The proposed development results in 125,453± SF (2.88 ac) of proposed impervious area. A full Stormwater Management study including an analysis of predevelopment vs post development conditions has been prepared and accompanies this application. The design includes Stormwater Management measures to comply with both the flooding standards and water quality treatment standards. On the basis of the proposed Stormwater Water Management designs, we believe there will be no impacts to downstream or adjacent properties.
2. As evidenced in the accompanying Stormwater, Management Report, the proposed project will comply with the City's stormwater management standards of the Technical Manual. The project will employ various Best Management Practices including pervious pavers in the parking lots and proprietary devices with underground storage systems.
3. The development will include some amount of runoff infiltration into the underlying ground. This is due to the absorption capacity of the onsite soils and the depth to groundwater. This is a benefit/advantage of the site and the ability to provide some amount of infiltration practices as part of the Stormwater Management regime.

STORMWATER MANAGEMENT REPORT

STEVENS SQUARE AT BAXTER WOODS – PHASE 2
PORTLAND, MAINE

Prepared for

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MAY 2021

STORMWATER MANAGEMENT REPORT

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Figure

1 USGS Project Location Map

Attachments

A Watershed Maps:
WS1 Pre-Development Watershed Map
WS2 Post-Development Watershed Map
C-7.0 Water Quality Map

B Pre and Post Development HydroCAD Model

C Water Quality Calculations

D Operation & Maintenance Manual

1.0 INTRODUCTION

DC Baxter Woods IV LLC is proposing Phase 2 development of Lot 4 of the Stevens Square site at Baxter Woods. The Phase 2 proposal includes the redevelopment of the former athletic field complex associated with the former Maine Girls Academy. The proposed project includes the construction of four (4) new apartment buildings that will contain 140 new living units. The site development includes 260 parking spaces, access drives, and open spaces with walking trails. The site includes 154 parking spaces located within the ground floors of the proposed buildings, the remaining 106 surface parking spaces will be exterior spaces constructed with pervious pavers as the primary surface material. Figure 1 is a map showing the project location.

The purpose of this analysis and report is to document the following:

- The measures that will be implemented to provide stormwater management for the project,
- what is required to control the peak rate of discharge during large storm events, and
- to provide treatment to stormwater runoff as determined by Maine DEP's Chapter 500 Rules and City of Portland Technical Standards for Stormwater Management.

Both the impact on peak rates of runoff and water quality measures are considered in this evaluation.

Erosion and Sedimentation Controls satisfying the MDEP Basic Standards will be employed during the construction of this project and are summarized in the Erosion and Sedimentation Control Plans provided on Sheets C-8.6, and C-8.7 of the plan set.

2.0 EXISTING SITE CONDITIONS

The project site is located at 583 Stevens Avenue, to the north of Baxter Woods, and west of the Deering Pavilion as shown on the Location Map. The Phase 2 Lot area is 7.05 acres in size containing 5.07 acres of athletic fields, a vegetated side slope at the edge of the athletic fields and wooded wetlands to the east of the athletic fields.

Abutting land uses include:

- North – Residential
- East – Woods and Residential
- South – Open Space/Baxter Woods
- West – Residential consisting of the Motherhouse development

Stormwater runoff from the majority of the site is conveyed through overland flow into two storm drain/underdrain systems that drain to a wetland located on the eastern edge of the project site. Stormwater runoff from smaller vegetated areas of the site flow overland to the northeast and ultimately to properties to the south of Holly Street. Runoff from the Motherhouse to the west, and St. Josephs to the north, and the northern portion of the athletic field is collected and conveyed across the site via a 12" stormdrain. These flows ultimately discharge into a drainage channel within the wetland along the

eastern property line. The existing athletic field also contains an underdrain system which is connected to the stormdrain system that discharges to the wetland. Additionally, runoff from Building 1 to the southeast is conveyed via a 12" stormdrain, and ultimately discharges into a secondary channel (to the south of the previously mentioned channel) within the wetland to the southeast property line. The stormwater runoff to these existing stormdrain systems from the surrounding land uses was evaluated as part of previously approved site plans.

The site is currently developed with inactive athletic fields consisting of a soccer field, and two softball fields. Topography is relatively flat across the proposed construction area, with slopes of 1% to 2%. To the east-northeast of the proposed construction area is a steep embankment down to a forested wetland, with slopes ranging from 5% to 33%. Elevations range from elev. 95' (NGVD29) along the eastern property line, to elev. 117' along McAuley Way.

The soils on the site are shown on the watershed maps and are from the USDA NRCS Medium Intensity Soil Survey. The soils range from hydrologic soil group A to D. Runoff over the athletic fields is collected via several catch basin inlets and an underdrained pipe network. Since the underdrains collect some of the rainfall and convey the runoff to the outfall at the wetlands, the field area does not function as a vegetated HSG A soil would. For this analysis, the athletic field soils were assumed to be HSG C. Wetland areas were assumed HSG D.

There are no lakes located on, adjacent to or downstream of the project site. Stormwater runoff from the project site is tributary to Back Cove. Runoff from the site is not tributary to an Urban Impaired Stream. Based upon the FEMA maps, no part of the proposed development is located within the Zone A 100-year floodplain.

3.0 DEVELOPMENT DESCRIPTION

The proposed project includes the construction of two new apartment buildings each with a footprint of 19,410 SF, and two new apartment buildings with a footprint of 12,580 SF each. Two access drives will be constructed to provide access to tenant parking areas on the ground floor of the buildings, and the exterior parking for guests. The guest parking stalls will be constructed with pervious pavers to provide stormwater storage and treatment for runoff from the access drives. Approximately 0.62 acres of open space and walking trails are also incorporated in the site plans.

Changes in land cover will include removal of impervious surfaces to the north of the site and grassed areas within portions of the site, and the addition of roof, paved surfaces, and lawn areas. **Overall, the proposed project will create approximately 2.88 acres of impervious area within the site boundary. The developed area within the property boundary is approximately 5.07 acres.**

4.0 REFERENCES

The following reference sources were reviewed during preparation of the stormwater analysis:

1. Maine Erosion and Sedimentation Control Handbook for Construction: Best Management Practices, MaineDEP, current edition.
2. Stormwater Management for Maine, Volume III BMPS Technical Design Manual, MeDEP, May 2016.
3. Original Master Development Plan Stormwater Analysis May 2016, prepared by Stantec.

The following sources were used for preparation of the stormwater quality analysis:

1. Stormwater Management for Maine, Volume III BMPS Technical Design Manual, MaineDEP, May 2016
2. MeDEP Chapter 500, Stormwater Management Rules.

Computer programs used to assist in the various components of this analysis include:

1. HydroCAD 10.00, HydroCAD Software Solutions LLC – used for modeling watersheds for pre and post development conditions.
2. Microsoft Excel, Microsoft Corporation – used for spreadsheet computations.
3. AutoCAD Civil 3D 2010, 2011, and 2019, Autodesk - used to determine areas and graphical representation of design.

Data resources used to obtain the hydrologic input data for the stormwater models are identified later in this report.

5.0 OVERVIEW OF STORMWATER RUNOFF MODELING

The stormwater analysis evaluates the following elements:

- Predevelopment and post development stormwater runoff and peak discharge rates;
- The impacts of the proposed development and subsequent modification to site discharge rates;
- The effect of land cover modifications within the site, especially those that are expected to increase site runoff rates;
- The requirements for stormwater management including compliance with Chapter 500 flooding standards as compared to existing conditions;
- Storm drainage requirements for parking areas and other improvements; and
- Requirements for water quality measures based upon MDEP General Standards.

6.0 METHODS OF ANALYSIS – STORMWATER QUANTITY

6.1.1 Stormwater Quantity

The hydrologic analyses for predevelopment and post development conditions have been conducted based upon the methodology contained in the USDA Soil Conservation Service's Technical Releases No. 20 and 55 (SCS TR-20 and TR-55) as modified for special site conditions. For this section of Cumberland County SE, Maine, a 24-hour SCS Type III Storm distribution was used for the analysis using the following storm frequencies and rainfall amounts:

Storm Event	24-Hour Rainfall (Post 2014)
2-Year Storm	3.1
10-Year Storm	4.6
25-Year Storm	5.8

The SCS TR-20 methodology, using the HydroCAD computer program, was employed by Gorrill Palmer to analyze the pre- and post-development watersheds.

Land use, cover, delineation of watershed subcatchments, hydraulic flow paths, and hydrologic soil types were obtained using the following data:

1. Portland, Maine USGS 7.5-minute Quadrangle Maps.
2. USDA NRCS Web Soil Survey.
3. Onsite Topographic Survey with 1-foot contour intervals prepared by Titcomb Associates.
4. Previously approved plans for the Master Development Plan, the Motherhouse Expansion and Building 1.
5. Field reconnaissance.

6.1.2 Stormwater Quality

Water quality treatment for the development has been designed to meet the Stormwater Management Rules (Chapter 500) General Standard, which requires the treatment of at least 95% of impervious area and at least 80% of developed area generated. Treatment requirements were analyzed within the site area to meet the General Standard.

7.0 DESCRIPTION OF SITE WATERSHED MODEL

The watershed model was developed to predict peak discharge rates at the Points of Interest (POI) depicted on the watershed maps. The following sections describe the pre-development and the post-development conditions.

8.0 PRE-DEVELOPMENT CONDITIONS

The predevelopment conditions for this analysis were considered to be the current condition of the site as described in the Existing Site Conditions section above.

The predevelopment condition was analyzed as 21 subcatchments with two points of interest (POI) as shown in Figure W-1. The majority of the 21 subcatchments are from the approved stormwater analysis for the Motherhouse and Building 1 projects. Subcatchments 19A, B, C and Subcatchment 20 encompass the currently proposed project. POI 1 and POI 2 are points within the wetland at the east side property line.

To account for off-site runoff tributary to the two POIs, Gorrill Palmer was able to obtain previously completed stormwater analyses and HydroCAD models for stormwater management systems from the Motherhouse, and Building 1 to the east of the project site. Four of the 21 subcatchments encompass the currently proposed development area. The following table summarizes the pre-development watershed characteristics:

PRE-DEVELOPMENT WATERSHEDS HYDRAULIC CHARACTERISTICS			
Watershed ID	**Area (ac)**	**CN**	**Hydraulic Time of Concentration (min.)**
1S	0.364	49	20.7
2S	0.033	80	6.0
3S	0.050	87	6.0
4S	0.077	98	6.0
5S	0.204	49	9.2
6S	0.269	98	6.0
7S	0.503	44	14.0
9S	0.059	49	6.0
10S	0.282	88	6.0
11S	0.258	69	6.0
12S	0.168	74	6.0
13S	0.360	81	6.0
14S	0.140	98	6.0
15S	0.220	93	6.0
16S	0.220	93	6.0
17S	0.399	93	6.0
18S	1.028	69	6.0
19A	1.059	76	21.0
19B	1.474	74	25.0
19C	0.471	75	21.6
20S	2.920	74	31.2
Total	**10.558**		

The following is a brief description of each predevelopment subcatchment:

- Subcatchment 1S-9S consists of off-site areas tributary to POI 1. These areas and stormwater management systems are obtained from the previously approved plans for Building 1.

- Subcatchment 10S-18S consists of off-site areas tributary to pond 8P which conveys runoff to POI 2 via a 12" pipe. These areas and stormwater management systems were obtained from the previously approved plans for the Motherhouse parking expansion.

- Subcatchments 19A-20S encompass the currently proposed development area.

- Subcatchment 19A is the off-site area of St. Joseph's roof and parking lot tributary to the existing stormdrain which conveys runoff to POI 2.

- Subcatchment 19B is athletic field area tributary to a field inlet, which ultimately ties into the existing pipe network which conveys runoff to POI 2. Since the field is underdrained, the hydrologic soil group is assumed to be C.

- Subcatchment 19C consists of wooded area and grassed playing fields. The runoff from this subcatchment is tributary to a channel within the wetland which conveys runoff to POI 2. Since the field is underdrained, the hydrologic soil group is assumed to be C for areas within the athletic field.

- Subcatchment 20S is grassed area tributary to the pipe network labeled 15R, which conveys runoff to POI 1. Since the field is underdrained, the hydrologic soil group is assumed to be C.

There is no impervious area onsite in the existing condition. The onsite developed area consisting of the athletic fields, is approximately 5.07 acres.

A watershed map for the predevelopment condition is attached to this section as drawing number WS1 in Attachment A. Attachment B contains the TR-20 calculations.

Per the Master Development Plan SWM analysis, the predevelopment watershed was originally analyzed as a single 13.30 acre watershed with a CN of 55.

Table 1 presents the peak flow rates at the POI for the design storms.

Table 1– Pre-Development Peak Flow Rates (cfs)

Point of Interest	Peak Flow (cfs)		
	2 Year	10 Year	25 Year
POI # 1	1.77	3.90	6.97
POI # 2	2.99	7.55	11.40

9.0 POST DEVELOPMENT CONDITION

Analysis for the post development condition consists of determining post development peak flows and limiting the post development flows to predevelopment levels at each point of interest. Temporary runoff storage will be provided within the pervious pavers reservoir course, and also within several below grade manufactured storage chambers systems. The proposed sidewalk along McAuley Way will be constructed over an existing infiltration trench drain, however the existing piping to the infiltration trench drain will remain. To account for uncaptured surface runoff from McAuley Way, a 6x10 Filterra tree box filter system module is proposed to provide treatment for the 0.36 acre area currently draining to the infiltration trench.

The predevelopment subcatchments affected by the proposed development have been modified to reflect the post development conditions. The post development conditions contain 16 subcatchments tributary to the same two points of interest in addition to the subcatchments from outside the development area. The existing 12" storm drain running through the center of the site will be rerouted along the northern property boundary and will discharge at the same location. The overall watershed area slightly increases in the post development condition to collect the developed area that would otherwise discharge to Holly Street. The area draining to Holly Street is reduced in the post-development condition and was not included in the pre-development analysis and watershed model, since, by inspection, the runoff to Holly Street will be reduced in the post development condition. The following table summarizes the post-development watershed characteristics:

Post Development Watersheds Hydraulic Characteristics			
Watershed ID	**Area (ac)**	**CN**	**Hydraulic Time of Concentration (min.)**
1S	0.364	49	20.7
2S	0.033	80	6
3S	0.050	87	6
4S	0.077	98	6
5S	0.204	49	9.2
6S	0.269	98	6
7S	0.503	44	14
9S	0.041	69	6
10S	0.282	88	6
11S	0.258	69	6
12S	0.168	74	6
13S	0.356	85	6
14S	0.140	98	6
15S	0.220	93	6
16S	0.220	93	6
17S	0.399	93	6
18S	1.028	69	6
19A	1.319	60	19.8
20A	0.440	82	6

Post Development Watersheds Hydraulic Characteristics			
Watershed ID	**Area (ac)**	**CN**	**Hydraulic Time of Concentration (min.)**
20B	0.366	82	6
21A	0.446	98	6
21B	0.289	98	6
22A	0.812	46	23
22B	0.203	47	6
23A	0.432	77	6
23B	0.227	76	6
24A	0.289	98	6
24B	0.446	98	6
25A	0.514	65	25
25B	0.208	76	6
25C	0.055	79	6
26S	0.241	62	22.1
27S	0.318	76	27.3
28S	0.108	39	13.2
Total	**11.324**		

The following is a brief description of each post development subcatchment.

- Subcatchment 1S-7S were not affected by the proposed development and are unchanged.
- Subcatchment 9S was modified from the existing conditions and consists of landscaped area and access entrance.
- Subcatchment 10S-12S were not affected by the proposed development and are unchanged.
- Subcatchment 13S is the area within McAuley Way tributary to the proposed Filterra treatment system.
- Subcatchment 14S-18S were not affected by the proposed development and are unchanged.
- Subcatchment 20A consists of grassed and paved areas tributary to the pervious pavers which are tributary to the proposed stormdrain system which conveys runoff to POI 2.
- Subcatchment 20B consists of grassed and paved areas tributary to the pervious pavers which are tributary to the proposed stormdrain system which conveys runoff to POI 2.
- Subcatchment 21A consists of the roof drain from the proposed building 5, which is tributary to Detention Pond 1, which outlets to the proposed stormdrain system that conveys runoff to POI 2.

- Subcatchment 21B consists of the roof drain from the proposed building 4, which is tributary to Detention Pond 1, which outlets to the proposed stormdrain system that conveys runoff to POI 2.

- Subcatchment 22B consists of the vegetated area tributary to the proposed stormdrain system, which conveys runoff to POI 2.

- Subcatchment 22A is the grassed and paved areas tributary to Focal Point Filter 1, which outlets to the proposed stormdrain system that conveys runoff to POI 2.

- Subcatchment 23A consists of grassed and paved areas tributary to the pervious pavers which are tributary to the proposed stormdrain system which conveys runoff to POI 2.

- Subcatchment 23B consists of grassed and paved areas tributary to the pervious pavers which are tributary to the proposed stormdrain system which conveys runoff to POI 2.

- Subcatchment 24A consists of the roof drain from the proposed building 2, which is tributary to Detention Pond 2, which outlets to the stormdrain system that conveys runoff to POI 1.

- Subcatchment 24B consists of the roof drain from the proposed building 3, which is tributary to Detention Pond 2, which outlets to the stormdrain system that conveys runoff to POI 1.

- Subcatchment 25A is the grassed and paved areas tributary to Focal Point Filter 2, which outlets to the stormdrain system that conveys runoff to POI 1.

- Subcatchment 25B consists of the vegetated area which is tributary to the proposed stormdrain system which conveys runoff to POI 1.

- Subcatchment 25C consists of an untreated open space area which is tributary to the stormdrain system that conveys runoff to POI 1.

- Subcatchment 26S consists of grassed, paved, and wooded areas tributary to the channel labeled 44R which conveys runoff to POI 2.

- Subcatchment 27S consists of grassed, paved, and wooded areas tributary to the channel labeled 28R which conveys runoff to POI 2.

- Subcatchment 28S consists of grassed and paved areas tributary to the proposed stormdrain network that conveys runoff to POI 2.

The total impervious area onsite in the proposed condition is 2.88 acres, and the total developed area onsite in the proposed condition is 5.07 acres. The total watershed area analyzed contains 5.39 acres including 2.86 acres of impervious and 2.54 acres of non-impervious.

A watershed map for the post development condition is attached as drawing number WS2 in Attachment A. Attachment B contains the TR-20 calculations.

The following table reflects the pre- and post-development peak flow rates comparison at the two points of interest:

Table 2 – Comparison of Peak flows (cfs)						
Point of Interest	Peak Flow (cfs)					
	2 Year		10 Year		25 Year	
	Pre	Post	Pre	Post	Pre	Post
POI #1	1.77	1.72	3.90	2.60	6.97	4.55
POI #2	2.99	2.77	7.55	6.75	11.40	11.37

As shown in Table 2 above, the Post development peak flows for the 2, 10, and 25-yr storm events are less than the pre-development peak flows at POI 1 and POI 2. Thus, we conclude that the proposed onsite management of stormwater runoff will result in no impacts to the downstream conditions.

10.0 STORMWATER MANAGEMENT SUMMARY

Under the General Standards, the project is required to meet the BMP water quality Standards, as the development site is not tributary to a lake watershed. As part of the original Master Development Plan various SWM BMP's had been suggested for use including the following:

- Filtering roof drip strips
- Four small bioretention cells
- An infiltration trench
- Areas of porous pavement

The filtering roof drip strips have not been used due to changes in building design and roof architecture. The MDP also contemplated extensive infiltration capacity of runoff into the site's underlying soils. We have reduced the effects of infiltration on the model in order to arrive at a conservative estimate of onsite storage capacity need and peak discharge release.

The following sections summarize the BMP's that are being employed to meet the water quantity and quality standards for the proposed development.

10.1.1 Pervious Pavers

Underdrained pervious pavers will be installed in all exterior parking stalls throughout the project. Direct absorption or sheet flow from adjacent areas will flow down through the pervious pavers and through a sand filter treatment section before being collected in underdrain pipes that will connect to the closed collection system that ultimately outfalls to POI 2. The pervious paver filter section was designed in accordance with Section 7.7 of the MDEP Stormwater BMPS Technical Design Manual dated May 2016.

The pervious paver section consists of the pavers, a choker course, a reservoir course with a 40% void ratio, a sand filter layer, and an underdrain course. The reservoir course has been sized to store the runoff generated by the 25-year storm for controlled release through the outlet

control structures. The outlet control structure for each pervious paver storage volume allows for a 24-48 hour release of the channel protection volume, which is filtered through the sand section for treatment. Runoff from larger storms is temporarily stored within the reservoir course and released from the storage volume through the outlet control structure.

In the HydroCAD model, the pervious paver filters are broken down into four main subcatchment areas that can be seen on the Post-Development Watershed Map. These areas are identified as storage volumes identified as PP1, PP2, PP3, and PP4. Although they are broken into four areas, each section of parking has been sized individually to be at least 20% of the contributing impervious area running onto it. It should be noted that in all cases, the pervious paver surface areas are oversized, for flood control purposes, compared to the area draining to it. Sizing calculations are provided in Attachment C.

In total, the pervious pavers will provide treatment for 43,950 SF of impervious area and 63,810 SF of developed area. This accounts for 35% of the total impervious and 29% of the total developed area. Design calculations for the pervious pavers are included in Attachment C. The pavers are expected to look like below once installed:



Fig. 1 Pervious Pavers

10.1.2 Focal Point Filters

Focal Point filters will be installed in the center of the open space area to the south of Building 4, and to the south of Building 2. Two separate filters will be used primarily to treat surface runoff resulting from paved and landscaped areas throughout the site. Direct absorption or sheet flow from adjacent areas will flow to the Focal Points and through the filter section before being collected in R-Tanks that will ultimately discharge to the two points of interest via existing and proposed stormdrain networks. The Focal Point Filters are designed in accordance with the MDEP approval letter dated February 2, 2017.

The approval letter requires that the treated runoff and the overflow runoff be directed to a treatment row. The treatment row needs to be sized to treat the peak flow from the 1-year storm event. Additional storage downstream of the treatment row is required to store the water quality volume and release the volume over a 24-48 hour period.

The tributary area to Focal Point #1 consists of a small, paved area and HSG A lawn. The subcatchment does not produce any runoff for storms up to the 2-year storm, so the water quality volume typically generated by smaller storms will not be present. Larger storms will generate runoff that produces a volume equal to or greater than the water quality volume,

therefore the required water quality volume storage has been provided. The treatment row sizing is based upon the flow from the 1-year storm which will be zero for this subcatchment. A single treatment R-Tank has been provided for this filter.

The tributary area to Focal Point #2 produces the typical runoff from smaller storms, and the required treatment and storage have been provided.

The outflow from the R-Tanks will be controlled by outlet control structures that will limit the outflow of the water quality volume to 24-48 hours and allow for bypass of larger flows.

In total, the Focal Point filters will provide treatment for 13,085 SF of impervious area and 57,750 SF of developed area. This accounts for 10% of the total impervious area and 26% of the total developed area. Design calculations for the Focal Point filters are included in Attachment C.

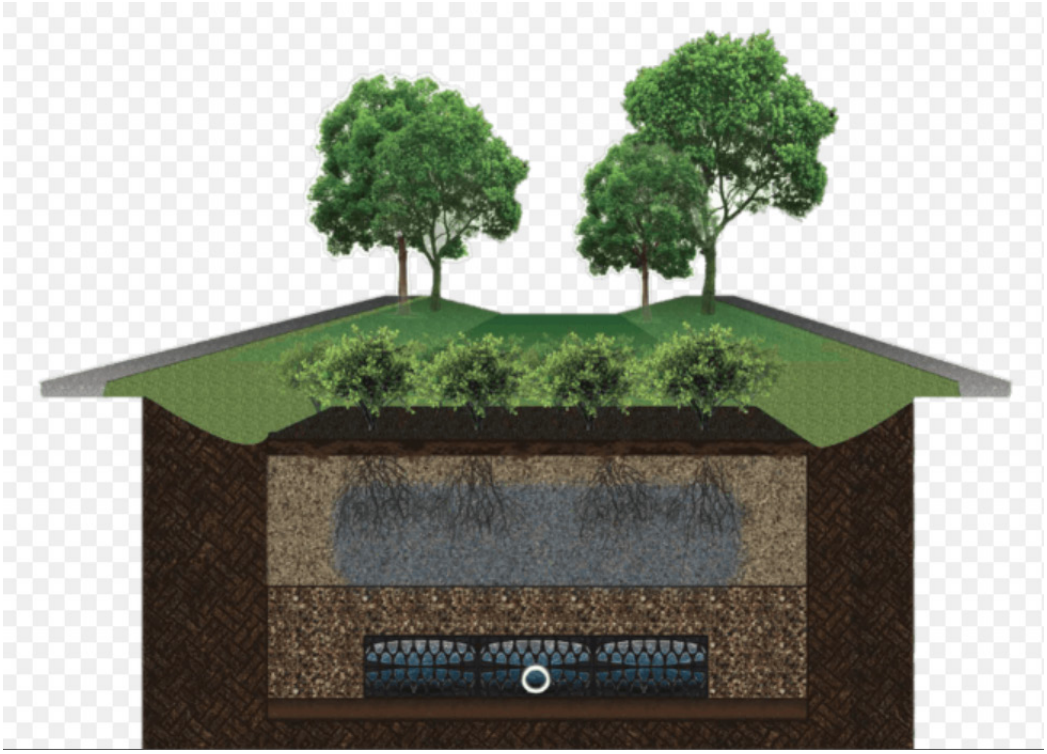


Fig 2 Focal Point System

10.1.3 Detention Ponds

Underground Storage volumes will be installed to the north and south of Building 3. The roof drains from the buildings will be tributary to these storage areas. In the post-development HydroCAD model, these BMP's are labeled as Detention Pond 1 & 2 (R1 & R2). The two separate ponds will be used primarily to provide treatment for thermal impact from the roof runoff in accordance with Chapter 500 Part 4.C(5)(f). The detention ponds will consist of subsurface storage using R-Tanks. The ponds and outlet control structures have been sized to provide a 24-48 hour outflow for the runoff generated by the 2-year storm. The subsurface storage and slow discharge will provide cooling of the roof runoff before it is conveyed to the

outlet points. The Chapter 500 Roof exception from the General Standard is applicable for the runoff from the roofs. The exception states that runoff from sloped non-asphalt roofs needs to be treated for thermal impact and channel protection only. The proposed non-asphalt roofs will slope to roof drains that will convey the runoff to the subsurface detention ponds. The roof area has been included in the treatment summary since the thermal and channel protection provisions have been met in accordance with Chapter 500.

In total, the underground storage volumes will provide treatment for 63,980 SF of impervious area and 63,980 SF of developed area. This accounts for 51% of the total impervious area and 29% of the total developed area. It should be noted that all landscaped and impervious areas draining to the detention ponds (with the exception of roof areas) are not considered to be "treated" in treatment calculations. Design calculations for the detention ponds are included in Attachment C.



Fig 3. R Tank Underground Storage

10.1.4 Filterra Bioretention System (FBS)

A 6x10 Filterra Bioretention System will be installed along the eastern edge of McAuley Way to replace the treatment of surface runoff provided by the existing infiltration trench. The FBS was sized in accordance with the MDEP Approval Letter dated February 2017.

In total, the FBS will provide treatment for 12,000 SF of impervious area and 15,500 SF of developed area. This accounts for the developed and impervious surface runoff that was draining to the infiltration trench. The total area draining to the FBS is 0.36 acres, which requires a 6'x10' Filterra Module. Since this treatment is occurring off-site, it should be noted that all landscaped and impervious areas draining to the FBS are not considered a treated area in treatment calculations for the project.



Fig 4. Filterra System

11.0 WATER QUALITY SUMMARY

The construction of BMPs employed as part of the development will allow the project to meet the standards set forth in Chapter 500 and the City's stormwater management standards. The pervious pavers, Focal Point filters, and detention ponds successfully treat approximately 2.78 acres of impervious area and 4.26 acres of developed area. This equates to overall treatment percentages of 96% and 84% for impervious and developed area, respectively. A summary of the calculations is provided below:

Treatment Summary

Treatment Method	Impervious		Developed	
	sf	%	sf	%
Pervious Pavers	45,890	35	89,310	29
Focal Point Filter	13,085	10	57,750	26
Detention Ponds	63,980	51	63,980	29
Total:	**125,638**	**96**	**220,670**	**84**

Water Quality Calculations that demonstrate compliance with The Chapter 500 General Standards for the development are provided in Attachment C. A summary of the calculations is provided below:

Treatment Summary

Total Impervious Area =	2.88 acres
Total Developed Area =	5.07 acres
Impervious Area Treated =	2.78 acres
Percent Impervious Area Treated =	96%
Developed Area Treated =	4.26 acres
Percent Developed Area Treated =	84%

12.0 MASTER DEVELOPMENT PLAN

This stormwater management report is a detailed analysis of the stormwater impacts for Lot 5 Phase 2 of Stevens Square at Baxter Woods. The original Master Development Plan (MDP) was an overall concept which included the conceptual development of Lot 5 Phase 2. In accordance with the City of Portland requirements, this proposed development has been designed to conform to MDEP Chapter 500 Stormwater Management Law for general and flooding standards. The basic standard is presented in the erosion and sedimentation control plan for the project. The proposed development of Lot 5 Phase 2 meets the MDP overall stormwater framework by providing a design in compliance with Chapter 500.

13.0 MAINTENANCE OF FACILITIES

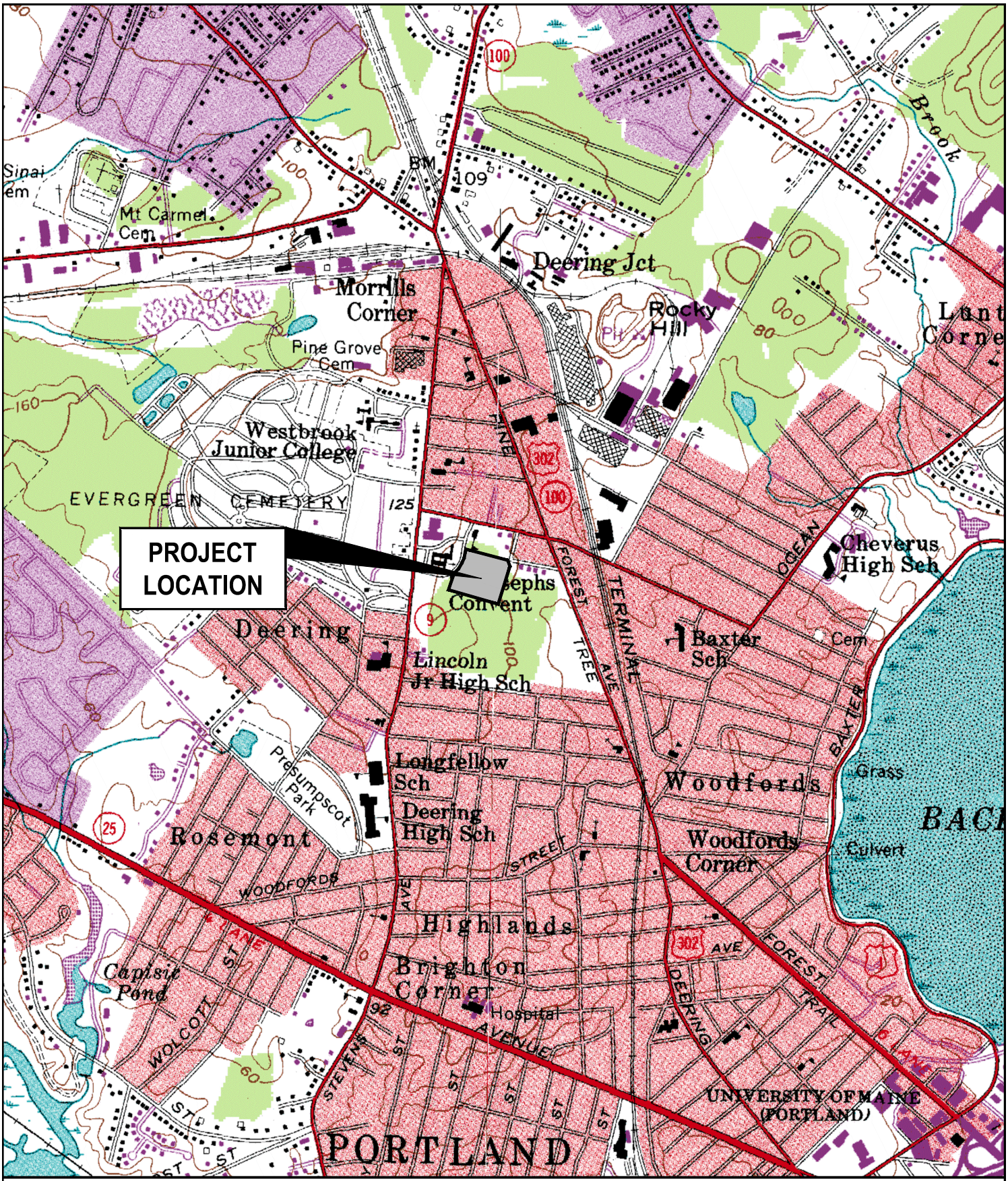
The stormwater management facilities will be maintained by the Applicant or their assigns after construction is completed. The general contractor will be responsible for maintenance during construction. The contract documents will require that the contractor designate a person for maintenance of the facilities during construction as required by this application. Long-term operation/maintenance schedules for the facilities are provided in the O&M Manual included in Attachment D of this report. A draft maintenance agreement is also included in the O&M Manual.

The owner will be required to hire a qualified post-construction stormwater inspector to at least annually, inspect the BMPs. In addition, the qualified post-construction stormwater inspector shall, on or by June 30 of each year, provide a completed and signed certification to DPW in a form provided by DPW certifying that the person has inspected the BMPs and they are adequately maintained and functioning as intended.

14.0 CONCLUSION

The Stormwater Management Plan for this project outlines the measures proposed to achieve compliance with the Chapter 500 Stormwater Management standards for water quality treatment. The design includes stormwater quantity controls including storage components within the pervious paver cross section, and within the detention ponds.

Based on the proposed design, the runoff from the proposed development will be captured and conveyed in a manner that will not have an adverse impact to the surrounding stormwater systems or the environment.



USGS LOCATION MAP

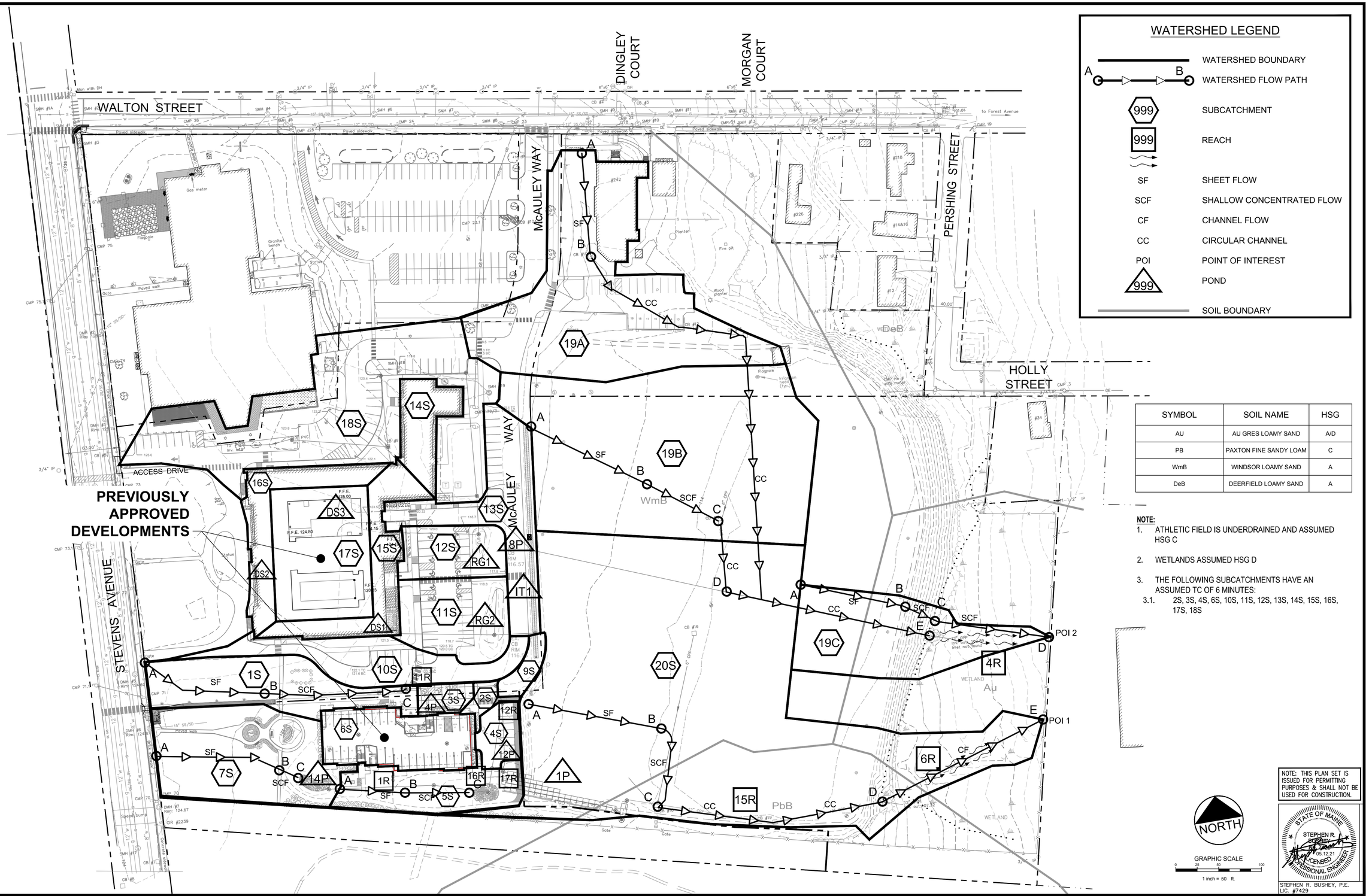
STEVENS SQUARE AT BAXTER WOODS - LOT 4 PHASE 2
583 Stevens Avenue, Portland, Maine

NORTH

Design: SRB	Date: APRIL 2021	GORRILL PALMER	Figure 1
Draft: CDD	Job No.: 3564.03	Relationships. Responsiveness. Results. www.gorrillpalmer.com 207.772.2515	
Checked: SRB	Scale: NOT TO SCALE		
File Name: 356403–COVER.dwg			

ATTACHMENT A

WATERSHED MAPS



WATERSHED LEGEND

- WATERSHED BOUNDARY
- A — B: WATERSHED FLOW PATH
- 999: SUBCATCHMENT
- 999: REACH
- SF: SHEET FLOW
- SCF: SHALLOW CONCENTRATED FLOW
- CF: CHANNEL FLOW
- CC: CIRCULAR CHANNEL
- POI: POINT OF INTEREST
- 999: POND
- SOIL BOUNDARY

SYMBOL	SOIL NAME	HSG
AU	AU GRES LOAMY SAND	A/D
PB	PAXTON FINE SANDY LOAM	C
WmB	WINDSOR LOAMY SAND	A
DeB	DEERFIELD LOAMY SAND	A

NOTE:

1. ATHLETIC FIELD IS UNDERDRAINED AND ASSUMED HSG C
2. WETLANDS ASSUMED HSG D
3. THE FOLLOWING SUBCATCHMENTS HAVE AN ASSUMED TC OF 6 MINUTES:
   - 3.1. 2S, 3S, 4S, 6S, 10S, 11S, 12S, 13S, 14S, 15S, 16S, 17S, 18S

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES & SHALL NOT BE USED FOR CONSTRUCTION.

NORTH

GRAPHIC SCALE
0 25 50 100
1 inch = 50 ft.

STATE OF MAINE — STEPHEN R. BUSHEY — 05.12.21 — LICENSED PROFESSIONAL ENGINEER

STEPHEN R. BUSHEY, P.E.
LIC. #7429

Rev.	Date	Revision

Rev.	Date	Revision
1	2021.05.12	SUBMITTED TO CITY FOR REVIEW

Design: SRB	Draft: CDD	Date: MAY 2021
Checked: SRB	Scale: AS NOTED	Job No.: 3564.03
File Name: 356403-WSHED.dwg		

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Drawing Name: PREDEVELOPMENT WATERSHED PLAN

Project: **Stevens Square at Baxter Woods – Phase 2**
583 Stevens Avenue, Portland, Maine

Client/Owner: **DC BAXTER WOODS LLC**
100 COMMERCIAL STREET, SUITE 414, PORTLAND, ME 04101 PH. 207.766.6696

Drawing No. WS1

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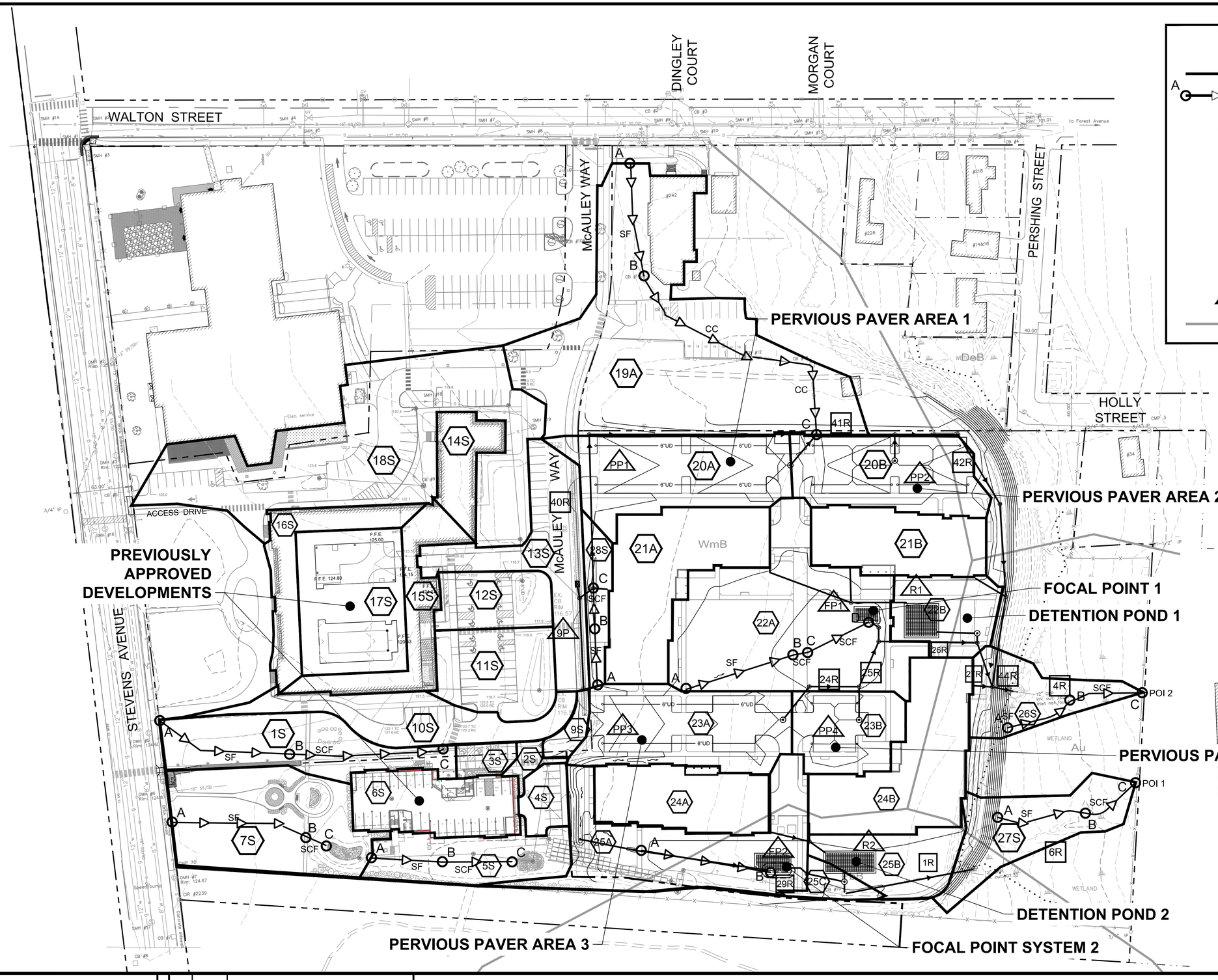

WATERSHED LEGEND

- WATERSHED BOUNDARY
- A — B: WATERSHED FLOW PATH
- 999: SUBCATCHMENT
- 999: REACH
- SF: SHEET FLOW
- SCF: SHALLOW CONCENTRATED FLOW
- CF: CHANNEL FLOW
- CC: CIRCULAR CHANNEL
- POI: POINT OF INTEREST
- 999: POND
- SOIL BOUNDARY

SYMBOL	SOIL NAME	HSG
AU	AU GRES LOAMY SAND	A/D
PB	PAXTON FINE SANDY LOAM	C
WmB	WINDSOR LOAMY SAND	A
DeB	DEERFIELD LOAMY SAND	A

NOTE:

1. ATHLETIC FIELD IS UNDERDRAINED AND ASSUMED HSG C
2. WETLANDS ASSUMED HSG D
3. THE FOLLOWING SUBCATCHMENTS HAVE AN ASSUMED TC OF 6 MINUTES:
   - 3.1. 2S, 3S, 4S, 6S, 10S, 11S, 12S, 13S, 14S, 15S, 16S, 17S, 18S, 20A, 20B, 21A, 21B, 22B, 23A, 23B, 24A, 24B, 25B

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES & SHALL NOT BE USED FOR CONSTRUCTION.

STATE OF MAINE — STEPHEN R BUSHEY — 05.12.21 — LICENSED PROFESSIONAL ENGINEER

STEPHEN R. BUSHEY, P.E.
LIC. #7429

Rev.	Date	Revision

Rev.	Date	Revision
1	2021.05.12	SUBMITTED TO CITY FOR REVIEW

Design: SRB	Draft: CDD	Date: MAY 2021
Checked: SRB	Scale: AS NOTED	Job No.: 3564.03
File Name: 356403-WSHED.dwg		

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Drawing Name: POSTDEVELOPMENT WATERSHED PLAN

Project: **Stevens Square at Baxter Woods – Phase 2**
583 Stevens Avenue, Portland, Maine

Client/Owner: **DC BAXTER WOODS LLC**
100 COMMERCIAL STREET, SUITE 414, PORTLAND, ME 04101 PH. 207.766.6696

Drawing No. WS2

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STORMWATER QUALITY TREATMENT											
		IMPERVIOUS AREA				DEVELOPED AREA				TREATMENT BMP
SUBCATCHMENT	COVER TYPE	AREA (SF)	% TREATED	% AREA	% TREATED	AREA (SF)	% TREATED	% AREA	% TREATED	
20A	PAVEMENT	13,856	100%	11%	11%	19,180	100%	9%	9%	PERVIOUS PAVERS 1
20B	PAVEMENT	11,726	100%	9%	9%	15,935	100%	7%	7%	PERVIOUS PAVERS 2
21A, 21B	ROOFS *	31,990	100%	25%	25%	31,990	100%	14%	14%	R-TANK SYSTEM 1
22A	PAVEMENT	8,175	100%	7%	7%	35,370	100%	16%	16%	FOCAL POINT 1
23A	PAVEMENT	12,134	100%	10%	10%	18,825	100%	9%	9%	PERVIOUS PAVERS 3
23B	PAVEMENT	6,230	100%	5%	5%	9,870	100%	4%	4%	PERVIOUS PAVERS 4
24A, 24B	ROOFS *	31,990	100%	25%	25%	31,990	100%	14%	14%	R-TANK SYSTEM 2
25A	PAVEMENT	4,910	100%	4%	4%	22,380	100%	10%	10%	FOCAL POINT 2
UNTREATED	WALKWAYS	4,627	0%	4%	0%	35,130	0%	16%	0%	
TOTAL AREA		125,638		100%		220,670		100%		
TOTAL % TREATED					96%				84%	

WATERSHED LEGEND

- DEVELOPED AREA BOUNDARY
- 999 — SUBCATCHMENT
- AREA TREATED BY PERVIOUS PAVER AREA 1
- AREA TREATED BY PERVIOUS PAVER AREA 2
- AREA TREATED BY PERVIOUS PAVER AREA 3
- AREA TREATED BY PERVIOUS PAVER AREA 4
- AREA TREATED BY FOCAL POINT 1
- AREA TREATED BY FOCAL POINT 2
- AREA TREATED BY DETENTION POND 1
- AREA TREATED BY DETENTION POND 2
- UNTREATED

*ROOF AREA TREATED FOR THERMAL IMPACTS IN ACCORDANCE WITH CHAPTER 500 ROOF EXCEPTION FROM THE GENERAL STANDARDS.

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES & SHALL NOT BE USED FOR CONSTRUCTION.

STEPHEN R. BUSHEY, P.E.
LIC. #7429

NORTH

GRAPHIC SCALE
0 15 30 60
1 inch = 30 ft.

Rev.	Date	Revision

Rev.	Date	Revision
1	2021.05.12	SUBMITTED TO CITY FOR REVIEW

Design: SRB	Draft: CDD	Date: MAY 2021
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Drawing Name: WATER QUALITY PLAN

Project: **Stevens Square at Baxter Woods – Phase 2**
583 Stevens Avenue, Portland, Maine

Client/Owner: **DC BAXTER WOODS LLC**
100 COMMERCIAL STREET, SUITE 414, PORTLAND, ME 04101 PH. 207.766.6696

Drawing No. C-7.0

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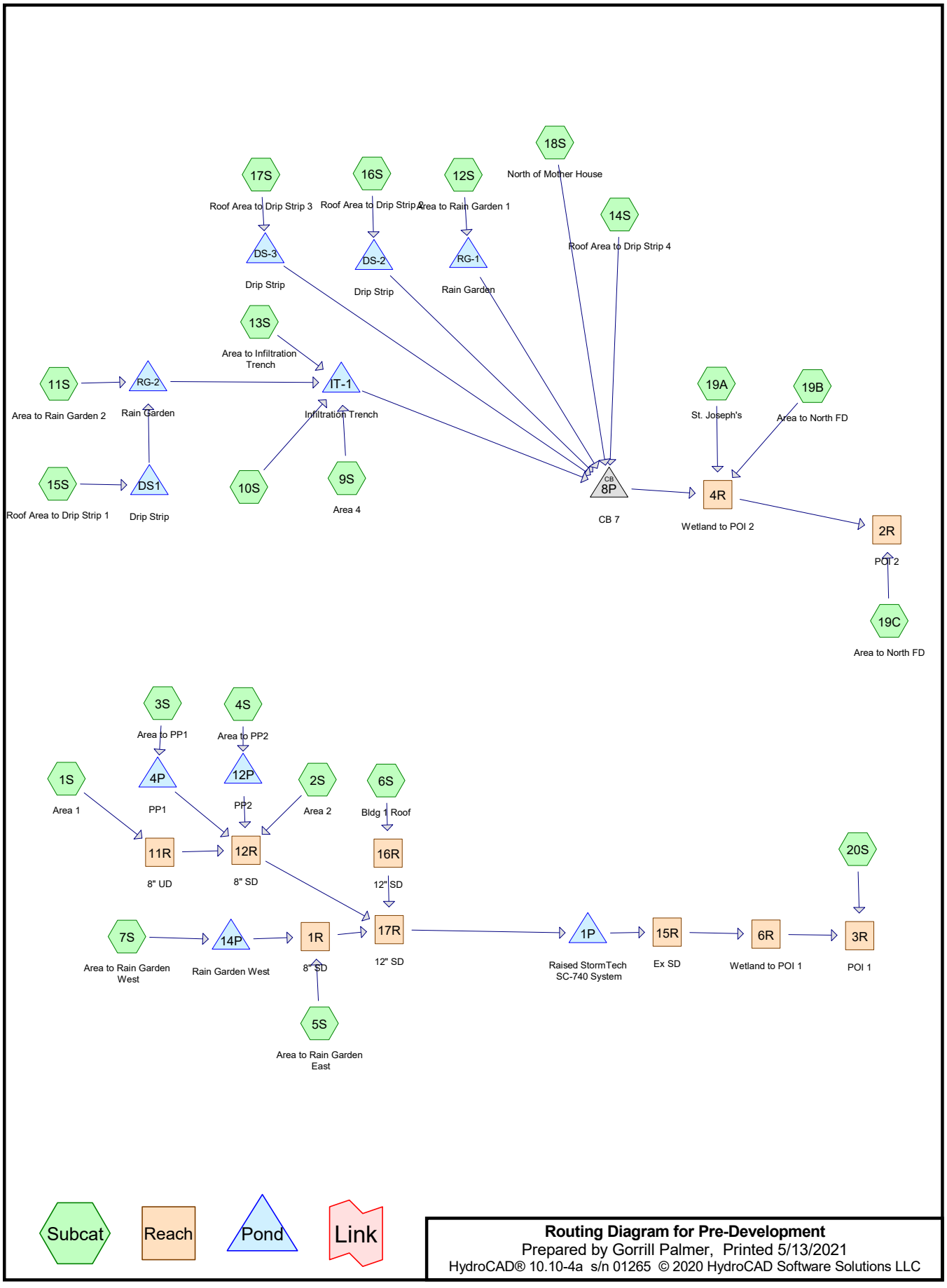
ATTACHMENT B

PRE AND POST DEVELOPMENT HYDROCAD MODEL



Routing Diagram for Pre-Development
Prepared by Gorrill Palmer, Printed 5/13/2021
HydroCAD® 10.10-4a s/n 01265 © 2020 HydroCAD Software Solutions LLC

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Area 1 Runoff Area=15,851 sf 17.16% Impervious Runoff Depth=0.09"
Flow Length=300' Tc=20.7 min CN=49 Runoff=0.00 cfs 0.003 af

Subcatchment 2S: Area 2 Runoff Area=1,429 sf 70.05% Impervious Runoff Depth=1.33"
Tc=6.0 min CN=80 Runoff=0.05 cfs 0.004 af

Subcatchment 3S: Area to PP1 Runoff Area=2,173 sf 81.59% Impervious Runoff Depth=1.83"
Tc=6.0 min CN=87 Runoff=0.11 cfs 0.008 af

Subcatchment 4S: Area to PP2 Runoff Area=3,345 sf 100.00% Impervious Runoff Depth=2.87"
Tc=6.0 min CN=98 Runoff=0.23 cfs 0.018 af

Subcatchment 5S: Area to Rain Garden East Runoff Area=8,904 sf 17.46% Impervious Runoff Depth=0.09"
Flow Length=150' Slope=0.0200 '/' Tc=9.2 min CN=49 Runoff=0.00 cfs 0.002 af

Subcatchment 6S: Bldg 1 Roof Runoff Area=11,717 sf 100.00% Impervious Runoff Depth=2.87"
Tc=6.0 min CN=98 Runoff=0.81 cfs 0.064 af

Subcatchment 7S: Area to Rain Garden Runoff Area=21,901 sf 7.99% Impervious Runoff Depth=0.02"
Flow Length=170' Tc=14.0 min CN=44 Runoff=0.00 cfs 0.001 af

Subcatchment 9S: Area 4 Runoff Area=2,569 sf 17.32% Impervious Runoff Depth=0.09"
Tc=6.0 min CN=49 Runoff=0.00 cfs 0.000 af

Subcatchment 10S: Runoff Area=12,293 sf 82.32% Impervious Runoff Depth=1.91"
Tc=6.0 min CN=88 Runoff=0.63 cfs 0.045 af

Subcatchment 11S: Area to Rain Garden 2 Runoff Area=11,240 sf 51.56% Impervious Runoff Depth=0.72"
Tc=6.0 min CN=69 Runoff=0.19 cfs 0.016 af

Subcatchment 12S: Area to Rain Garden 1 Runoff Area=7,303 sf 58.87% Impervious Runoff Depth=0.97"
Tc=6.0 min CN=74 Runoff=0.18 cfs 0.014 af

Subcatchment 13S: Area to Infiltration Runoff Area=15,676 sf 71.60% Impervious Runoff Depth=1.39"
Tc=6.0 min CN=81 Runoff=0.58 cfs 0.042 af

Subcatchment 14S: Roof Area to Drip Runoff Area=6,080 sf 100.00% Impervious Runoff Depth=2.87"
Tc=6.0 min CN=98 Runoff=0.42 cfs 0.033 af

Subcatchment 15S: Roof Area to Drip Strip Runoff Area=9,600 sf 79.17% Impervious Runoff Depth=2.35"
Tc=6.0 min CN=93 Runoff=0.59 cfs 0.043 af

Subcatchment 16S: Roof Area to Drip Strip Runoff Area=9,600 sf 79.17% Impervious Runoff Depth=2.35"
Tc=6.0 min CN=93 Runoff=0.59 cfs 0.043 af

Subcatchment 17S: Roof Area to Drip Runoff Area=17,390 sf 76.31% Impervious Runoff Depth=2.35"
Tc=6.0 min CN=93 Runoff=1.07 cfs 0.078 af

Subcatchment 18S: North of Mother House Runoff Area=44,775 sf 50.92% Impervious Runoff Depth=0.72"
Tc=6.0 min CN=69 Runoff=0.75 cfs 0.062 af

Subcatchment 19A: St. Joseph's Runoff Area=46,128 sf 40.42% Impervious Runoff Depth=1.08"
Flow Length=842' Tc=21.0 min CN=76 Runoff=0.85 cfs 0.096 af

Subcatchment 19B: Area to North FD Runoff Area=64,219 sf 1.18% Impervious Runoff Depth=0.97"
Flow Length=566' Tc=25.0 min CN=74 Runoff=0.96 cfs 0.119 af

Subcatchment 19C: Area to North FD Runoff Area=20,520 sf 0.00% Impervious Runoff Depth=1.03"
Flow Length=300' Tc=21.6 min CN=75 Runoff=0.35 cfs 0.040 af

Subcatchment 20S: Runoff Area=127,215 sf 0.00% Impervious Runoff Depth=0.97"
Flow Length=735' Tc=31.2 min CN=74 Runoff=1.74 cfs 0.237 af

Reach 1R: 8" SD Avg. Flow Depth=0.02' Max Vel=0.69 fps Inflow=0.00 cfs 0.002 af
8.0" Round Pipe n=0.013 L=28.0' S=0.0100 '/' Capacity=1.21 cfs Outflow=0.00 cfs 0.002 af

Reach 2R: POI 2 Inflow=2.99 cfs 0.359 af
Outflow=2.99 cfs 0.359 af

Reach 3R: POI 1 Inflow=1.77 cfs 0.333 af
Outflow=1.77 cfs 0.333 af

Reach 4R: Wetland to POI 2 Avg. Flow Depth=0.13' Max Vel=2.33 fps Inflow=2.65 cfs 0.318 af
n=0.035 L=145.0' S=0.0500 '/' Capacity=57.05 cfs Outflow=2.64 cfs 0.318 af

Reach 6R: Wetland to POI 1 Avg. Flow Depth=0.01' Max Vel=0.47 fps Inflow=0.04 cfs 0.097 af
n=0.035 L=210.0' S=0.0500 '/' Capacity=57.05 cfs Outflow=0.04 cfs 0.097 af

Reach 11R: 8" UD Avg. Flow Depth=0.03' Max Vel=0.68 fps Inflow=0.00 cfs 0.003 af
8.0" Round Pipe n=0.012 L=104.0' S=0.0050 '/' Capacity=0.93 cfs Outflow=0.00 cfs 0.003 af

Reach 12R: 8" SD Avg. Flow Depth=0.22' Max Vel=2.81 fps Inflow=0.28 cfs 0.031 af
8.0" Round Pipe n=0.013 L=76.0' S=0.0100 '/' Capacity=1.21 cfs Outflow=0.28 cfs 0.031 af

Reach 15R: Ex SD Avg. Flow Depth=0.08' Max Vel=1.31 fps Inflow=0.04 cfs 0.097 af
12.0" Round Pipe n=0.013 L=268.0' S=0.0069 '/' Capacity=2.95 cfs Outflow=0.04 cfs 0.097 af

Reach 16R: 12" SD Avg. Flow Depth=0.36' Max Vel=3.21 fps Inflow=0.81 cfs 0.064 af
12.0" Round Pipe n=0.012 L=17.0' S=0.0059 '/' Capacity=2.96 cfs Outflow=0.81 cfs 0.064 af

Reach 17R: 12" SD Avg. Flow Depth=0.33' Max Vel=4.55 fps Inflow=1.03 cfs 0.097 af
12.0" Round Pipe n=0.013 L=12.0' S=0.0150 '/' Capacity=4.36 cfs Outflow=1.03 cfs 0.097 af

Pond 1P: Raised StormTech SC-740 System Peak Elev=112.96' Storage=0.058 af Inflow=1.03 cfs 0.097 af
Outflow=0.04 cfs 0.097 af

Pond 4P: PP1 Peak Elev=115.89' Storage=110 cf Inflow=0.11 cfs 0.008 af
Outflow=0.06 cfs 0.006 af

Pond 8P: CB 7 Peak Elev=112.71' Inflow=1.17 cfs 0.103 af
12.0" Round Culvert n=0.012 L=465.0' S=0.0199 '/' Outflow=1.17 cfs 0.103 af

Pond 12P: PP2 Peak Elev=115.86' Storage=106 cf Inflow=0.23 cfs 0.018 af
Outflow=0.18 cfs 0.018 af

Pond 14P: Rain Garden West Peak Elev=120.09' Storage=42 cf Inflow=0.00 cfs 0.001 af
Outflow=0.00 cfs 0.000 af

Pond DS-2: Drip Strip Peak Elev=115.29' Storage=187 cf Inflow=0.59 cfs 0.043 af
Discarded=0.28 cfs 0.043 af Primary=0.00 cfs 0.000 af Outflow=0.28 cfs 0.043 af

Pond DS-3: Drip Strip Peak Elev=116.05' Storage=665 cf Inflow=1.07 cfs 0.078 af
Discarded=0.28 cfs 0.077 af Primary=0.06 cfs 0.001 af Outflow=0.34 cfs 0.078 af

Pond DS1: Drip Strip Peak Elev=115.29' Storage=187 cf Inflow=0.59 cfs 0.043 af
Discarded=0.28 cfs 0.043 af Primary=0.00 cfs 0.000 af Outflow=0.28 cfs 0.043 af

Pond IT-1: Infiltration Trench Peak Elev=113.34' Storage=644 cf Inflow=1.21 cfs 0.087 af
Discarded=0.28 cfs 0.080 af Primary=0.28 cfs 0.007 af Outflow=0.56 cfs 0.087 af

Pond RG-1: Rain Garden Peak Elev=114.92' Storage=63 cf Inflow=0.18 cfs 0.014 af
Discarded=0.08 cfs 0.014 af Primary=0.00 cfs 0.000 af Outflow=0.08 cfs 0.014 af

Pond RG-2: Rain Garden Peak Elev=114.51' Storage=8 cf Inflow=0.19 cfs 0.016 af
Discarded=0.17 cfs 0.016 af Primary=0.00 cfs 0.000 af Outflow=0.17 cfs 0.016 af

Total Runoff Area = 10.558 ac Runoff Volume = 0.967 af Average Runoff Depth = 1.10"
71.19% Pervious = 7.517 ac 28.81% Impervious = 3.042 ac

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Area 1 Runoff Area=15,851 sf 17.16% Impervious Runoff Depth=0.49"
Flow Length=300' Tc=20.7 min CN=49 Runoff=0.08 cfs 0.015 af

Subcatchment 2S: Area 2 Runoff Area=1,429 sf 70.05% Impervious Runoff Depth=2.55"
Tc=6.0 min CN=80 Runoff=0.10 cfs 0.007 af

Subcatchment 3S: Area to PP1 Runoff Area=2,173 sf 81.59% Impervious Runoff Depth=3.19"
Tc=6.0 min CN=87 Runoff=0.18 cfs 0.013 af

Subcatchment 4S: Area to PP2 Runoff Area=3,345 sf 100.00% Impervious Runoff Depth=4.36"
Tc=6.0 min CN=98 Runoff=0.35 cfs 0.028 af

Subcatchment 5S: Area to Rain Garden East Runoff Area=8,904 sf 17.46% Impervious Runoff Depth=0.49"
Flow Length=150' Slope=0.0200 '/' Tc=9.2 min CN=49 Runoff=0.05 cfs 0.008 af

Subcatchment 6S: Bldg 1 Roof Runoff Area=11,717 sf 100.00% Impervious Runoff Depth=4.36"
Tc=6.0 min CN=98 Runoff=1.21 cfs 0.098 af

Subcatchment 7S: Area to Rain Garden Runoff Area=21,901 sf 7.99% Impervious Runoff Depth=0.29"
Flow Length=170' Tc=14.0 min CN=44 Runoff=0.04 cfs 0.012 af

Subcatchment 9S: Area 4 Runoff Area=2,569 sf 17.32% Impervious Runoff Depth=0.49"
Tc=6.0 min CN=49 Runoff=0.02 cfs 0.002 af

Subcatchment 10S: Runoff Area=12,293 sf 82.32% Impervious Runoff Depth=3.29"
Tc=6.0 min CN=88 Runoff=1.07 cfs 0.077 af

Subcatchment 11S: Area to Rain Garden 2 Runoff Area=11,240 sf 51.56% Impervious Runoff Depth=1.67"
Tc=6.0 min CN=69 Runoff=0.49 cfs 0.036 af

Subcatchment 12S: Area to Rain Garden 1 Runoff Area=7,303 sf 58.87% Impervious Runoff Depth=2.05"
Tc=6.0 min CN=74 Runoff=0.40 cfs 0.029 af

Subcatchment 13S: Area to Infiltration Runoff Area=15,676 sf 71.60% Impervious Runoff Depth=2.63"
Tc=6.0 min CN=81 Runoff=1.11 cfs 0.079 af

Subcatchment 14S: Roof Area to Drip Runoff Area=6,080 sf 100.00% Impervious Runoff Depth=4.36"
Tc=6.0 min CN=98 Runoff=0.63 cfs 0.051 af

Subcatchment 15S: Roof Area to Drip Strip Runoff Area=9,600 sf 79.17% Impervious Runoff Depth=3.81"
Tc=6.0 min CN=93 Runoff=0.93 cfs 0.070 af

Subcatchment 16S: Roof Area to Drip Strip Runoff Area=9,600 sf 79.17% Impervious Runoff Depth=3.81"
Tc=6.0 min CN=93 Runoff=0.93 cfs 0.070 af

Subcatchment 17S: Roof Area to Drip Runoff Area=17,390 sf 76.31% Impervious Runoff Depth=3.81"
Tc=6.0 min CN=93 Runoff=1.68 cfs 0.127 af

Subcatchment 18S: North of Mother House Runoff Area=44,775 sf 50.92% Impervious Runoff Depth=1.67"
Tc=6.0 min CN=69 Runoff=1.95 cfs 0.143 af

Subcatchment 19A: St. Joseph's Runoff Area=46,128 sf 40.42% Impervious Runoff Depth=2.21"
Flow Length=842' Tc=21.0 min CN=76 Runoff=1.80 cfs 0.195 af

Subcatchment 19B: Area to North FD Runoff Area=64,219 sf 1.18% Impervious Runoff Depth=2.05"
Flow Length=566' Tc=25.0 min CN=74 Runoff=2.15 cfs 0.252 af

Subcatchment 19C: Area to North FD Runoff Area=20,520 sf 0.00% Impervious Runoff Depth=2.13"
Flow Length=300' Tc=21.6 min CN=75 Runoff=0.76 cfs 0.084 af

Subcatchment 20S: Runoff Area=127,215 sf 0.00% Impervious Runoff Depth=2.05"
Flow Length=735' Tc=31.2 min CN=74 Runoff=3.86 cfs 0.499 af

Reach 1R: 8" SD Avg. Flow Depth=0.09' Max Vel=1.70 fps Inflow=0.05 cfs 0.017 af
8.0" Round Pipe n=0.013 L=28.0' S=0.0100 '/' Capacity=1.21 cfs Outflow=0.05 cfs 0.017 af

Reach 2R: POI 2 Inflow=7.55 cfs 0.790 af
Outflow=7.55 cfs 0.790 af

Reach 3R: POI 1 Inflow=3.90 cfs 0.663 af
Outflow=3.90 cfs 0.663 af

Reach 4R: Wetland to POI 2 Avg. Flow Depth=0.23' Max Vel=3.26 fps Inflow=6.79 cfs 0.706 af
n=0.035 L=145.0' S=0.0500 '/' Capacity=57.05 cfs Outflow=6.79 cfs 0.706 af

Reach 6R: Wetland to POI 1 Avg. Flow Depth=0.03' Max Vel=0.98 fps Inflow=0.27 cfs 0.165 af
n=0.035 L=210.0' S=0.0500 '/' Capacity=57.05 cfs Outflow=0.27 cfs 0.164 af

Reach 11R: 8" UD Avg. Flow Depth=0.13' Max Vel=1.61 fps Inflow=0.08 cfs 0.015 af
8.0" Round Pipe n=0.012 L=104.0' S=0.0050 '/' Capacity=0.93 cfs Outflow=0.08 cfs 0.015 af

Reach 12R: 8" SD Avg. Flow Depth=0.30' Max Vel=3.32 fps Inflow=0.51 cfs 0.062 af
8.0" Round Pipe n=0.013 L=76.0' S=0.0100 '/' Capacity=1.21 cfs Outflow=0.51 cfs 0.062 af

Reach 15R: Ex SD Avg. Flow Depth=0.20' Max Vel=2.35 fps Inflow=0.27 cfs 0.165 af
12.0" Round Pipe n=0.013 L=268.0' S=0.0069 '/' Capacity=2.95 cfs Outflow=0.27 cfs 0.165 af

Reach 16R: 12" SD Avg. Flow Depth=0.45' Max Vel=3.58 fps Inflow=1.21 cfs 0.098 af
12.0" Round Pipe n=0.012 L=17.0' S=0.0059 '/' Capacity=2.96 cfs Outflow=1.21 cfs 0.098 af

Reach 17R: 12" SD Avg. Flow Depth=0.43' Max Vel=5.19 fps Inflow=1.68 cfs 0.177 af
12.0" Round Pipe n=0.013 L=12.0' S=0.0150 '/' Capacity=4.36 cfs Outflow=1.68 cfs 0.177 af

Pond 1P: Raised StormTech SC-740 System Peak Elev=113.78' Storage=0.084 af Inflow=1.68 cfs 0.177 af
Outflow=0.27 cfs 0.165 af

Pond 4P: PP1 Peak Elev=115.97' Storage=138 cf Inflow=0.18 cfs 0.013 af
Outflow=0.15 cfs 0.012 af

Pond 8P: CB 7 Peak Elev=113.79' Inflow=4.04 cfs 0.259 af
12.0" Round Culvert n=0.012 L=465.0' S=0.0199 '/' Outflow=4.04 cfs 0.259 af

Pond 12P: PP2 Peak Elev=115.94' Storage=137 cf Inflow=0.35 cfs 0.028 af
Outflow=0.28 cfs 0.028 af

Pond 14P: Rain Garden West Peak Elev=120.27' Storage=143 cf Inflow=0.04 cfs 0.012 af
Outflow=0.02 cfs 0.009 af

Pond DS-2: Drip Strip Peak Elev=115.82' Storage=522 cf Inflow=0.93 cfs 0.070 af
Discarded=0.28 cfs 0.070 af Primary=0.00 cfs 0.000 af Outflow=0.28 cfs 0.070 af

Pond DS-3: Drip Strip Peak Elev=116.55' Storage=903 cf Inflow=1.68 cfs 0.127 af
Discarded=0.28 cfs 0.107 af Primary=0.70 cfs 0.020 af Outflow=0.98 cfs 0.127 af

Pond DS1: Drip Strip Peak Elev=115.82' Storage=522 cf Inflow=0.93 cfs 0.070 af
Discarded=0.28 cfs 0.070 af Primary=0.00 cfs 0.000 af Outflow=0.28 cfs 0.070 af

Pond IT-1: Infiltration Trench Peak Elev=114.25' Storage=1,122 cf Inflow=2.19 cfs 0.160 af
Discarded=0.28 cfs 0.120 af Primary=0.95 cfs 0.040 af Outflow=1.22 cfs 0.160 af

Pond RG-1: Rain Garden Peak Elev=115.42' Storage=139 cf Inflow=0.40 cfs 0.029 af
Discarded=0.08 cfs 0.023 af Primary=0.21 cfs 0.005 af Outflow=0.29 cfs 0.029 af

Pond RG-2: Rain Garden Peak Elev=115.15' Storage=208 cf Inflow=0.49 cfs 0.036 af
Discarded=0.17 cfs 0.035 af Primary=0.05 cfs 0.001 af Outflow=0.21 cfs 0.036 af

Total Runoff Area = 10.558 ac Runoff Volume = 1.894 af Average Runoff Depth = 2.15"
71.19% Pervious = 7.517 ac 28.81% Impervious = 3.042 ac

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Area 1 Runoff Area=15,851 sf 17.16% Impervious Runoff Depth=0.98"
Flow Length=300' Tc=20.7 min CN=49 Runoff=0.21 cfs 0.030 af

Subcatchment 2S: Area 2 Runoff Area=1,429 sf 70.05% Impervious Runoff Depth=3.60"
Tc=6.0 min CN=80 Runoff=0.14 cfs 0.010 af

Subcatchment 3S: Area to PP1 Runoff Area=2,173 sf 81.59% Impervious Runoff Depth=4.33"
Tc=6.0 min CN=87 Runoff=0.25 cfs 0.018 af

Subcatchment 4S: Area to PP2 Runoff Area=3,345 sf 100.00% Impervious Runoff Depth=5.56"
Tc=6.0 min CN=98 Runoff=0.44 cfs 0.036 af

Subcatchment 5S: Area to Rain Garden East Runoff Area=8,904 sf 17.46% Impervious Runoff Depth=0.98"
Flow Length=150' Slope=0.0200 '/' Tc=9.2 min CN=49 Runoff=0.15 cfs 0.017 af

Subcatchment 6S: Bldg 1 Roof Runoff Area=11,717 sf 100.00% Impervious Runoff Depth=5.56"
Tc=6.0 min CN=98 Runoff=1.53 cfs 0.125 af

Subcatchment 7S: Area to Rain Garden Runoff Area=21,901 sf 7.99% Impervious Runoff Depth=0.66"
Flow Length=170' Tc=14.0 min CN=44 Runoff=0.16 cfs 0.028 af

Subcatchment 9S: Area 4 Runoff Area=2,569 sf 17.32% Impervious Runoff Depth=0.98"
Tc=6.0 min CN=49 Runoff=0.05 cfs 0.005 af

Subcatchment 10S: Runoff Area=12,293 sf 82.32% Impervious Runoff Depth=4.43"
Tc=6.0 min CN=88 Runoff=1.42 cfs 0.104 af

Subcatchment 11S: Area to Rain Garden 2 Runoff Area=11,240 sf 51.56% Impervious Runoff Depth=2.56"
Tc=6.0 min CN=69 Runoff=0.77 cfs 0.055 af

Subcatchment 12S: Area to Rain Garden 1 Runoff Area=7,303 sf 58.87% Impervious Runoff Depth=3.02"
Tc=6.0 min CN=74 Runoff=0.59 cfs 0.042 af

Subcatchment 13S: Area to Infiltration Runoff Area=15,676 sf 71.60% Impervious Runoff Depth=3.70"
Tc=6.0 min CN=81 Runoff=1.55 cfs 0.111 af

Subcatchment 14S: Roof Area to Drip Runoff Area=6,080 sf 100.00% Impervious Runoff Depth=5.56"
Tc=6.0 min CN=98 Runoff=0.79 cfs 0.065 af

Subcatchment 15S: Roof Area to Drip Strip Runoff Area=9,600 sf 79.17% Impervious Runoff Depth=4.99"
Tc=6.0 min CN=93 Runoff=1.20 cfs 0.092 af

Subcatchment 16S: Roof Area to Drip Strip Runoff Area=9,600 sf 79.17% Impervious Runoff Depth=4.99"
Tc=6.0 min CN=93 Runoff=1.20 cfs 0.092 af

Subcatchment 17S: Roof Area to Drip Runoff Area=17,390 sf 76.31% Impervious Runoff Depth=4.99"
Tc=6.0 min CN=93 Runoff=2.17 cfs 0.166 af

Subcatchment 18S: North of Mother House Runoff Area=44,775 sf 50.92% Impervious Runoff Depth=2.56"
Tc=6.0 min CN=69 Runoff=3.05 cfs 0.219 af

Subcatchment 19A: St. Joseph's Runoff Area=46,128 sf 40.42% Impervious Runoff Depth=3.21"
Flow Length=842' Tc=21.0 min CN=76 Runoff=2.63 cfs 0.283 af

Subcatchment 19B: Area to North FD Runoff Area=64,219 sf 1.18% Impervious Runoff Depth=3.02"
Flow Length=566' Tc=25.0 min CN=74 Runoff=3.19 cfs 0.371 af

Subcatchment 19C: Area to North FD Runoff Area=20,520 sf 0.00% Impervious Runoff Depth=3.11"
Flow Length=300' Tc=21.6 min CN=75 Runoff=1.12 cfs 0.122 af

Subcatchment 20S: Runoff Area=127,215 sf 0.00% Impervious Runoff Depth=3.02"
Flow Length=735' Tc=31.2 min CN=74 Runoff=5.74 cfs 0.734 af

Reach 1R: 8" SD Avg. Flow Depth=0.18' Max Vel=2.57 fps Inflow=0.20 cfs 0.041 af
8.0" Round Pipe n=0.013 L=28.0' S=0.0100 '/' Capacity=1.21 cfs Outflow=0.20 cfs 0.041 af

Reach 2R: POI 2 Inflow=11.40 cfs 1.194 af
Outflow=11.40 cfs 1.194 af

Reach 3R: POI 1 Inflow=6.97 cfs 0.978 af
Outflow=6.97 cfs 0.978 af

Reach 4R: Wetland to POI 2 Avg. Flow Depth=0.29' Max Vel=3.76 fps Inflow=10.29 cfs 1.072 af
n=0.035 L=145.0' S=0.0500 '/' Capacity=57.05 cfs Outflow=10.28 cfs 1.072 af

Reach 6R: Wetland to POI 1 Avg. Flow Depth=0.08' Max Vel=1.76 fps Inflow=1.26 cfs 0.244 af
n=0.035 L=210.0' S=0.0500 '/' Capacity=57.05 cfs Outflow=1.23 cfs 0.244 af

Reach 11R: 8" UD Avg. Flow Depth=0.21' Max Vel=2.13 fps Inflow=0.21 cfs 0.030 af
8.0" Round Pipe n=0.012 L=104.0' S=0.0050 '/' Capacity=0.93 cfs Outflow=0.20 cfs 0.030 af

Reach 12R: 8" SD Avg. Flow Depth=0.37' Max Vel=3.63 fps Inflow=0.73 cfs 0.092 af
8.0" Round Pipe n=0.013 L=76.0' S=0.0100 '/' Capacity=1.21 cfs Outflow=0.73 cfs 0.092 af

Reach 15R: Ex SD Avg. Flow Depth=0.46' Max Vel=3.61 fps Inflow=1.28 cfs 0.244 af
12.0" Round Pipe n=0.013 L=268.0' S=0.0069 '/' Capacity=2.95 cfs Outflow=1.26 cfs 0.244 af

Reach 16R: 12" SD Avg. Flow Depth=0.51' Max Vel=3.80 fps Inflow=1.53 cfs 0.125 af
12.0" Round Pipe n=0.012 L=17.0' S=0.0059 '/' Capacity=2.96 cfs Outflow=1.53 cfs 0.125 af

Reach 17R: 12" SD Avg. Flow Depth=0.51' Max Vel=5.62 fps Inflow=2.28 cfs 0.258 af
12.0" Round Pipe n=0.013 L=12.0' S=0.0150 '/' Capacity=4.36 cfs Outflow=2.28 cfs 0.258 af

Pond 1P: Raised StormTech SC-740 System Peak Elev=113.90' Storage=0.088 af Inflow=2.28 cfs 0.258 af
Outflow=1.28 cfs 0.244 af

Pond 4P: PP1 Peak Elev=116.01' Storage=152 cf Inflow=0.25 cfs 0.018 af
Outflow=0.20 cfs 0.017 af

Pond 8P: CB 7 Peak Elev=116.63' Inflow=6.03 cfs 0.418 af
12.0" Round Culvert n=0.012 L=465.0' S=0.0199 '/' Outflow=6.03 cfs 0.418 af

Pond 12P: PP2 Peak Elev=115.99' Storage=160 cf Inflow=0.44 cfs 0.036 af
Outflow=0.36 cfs 0.036 af

Pond 14P: Rain Garden West Peak Elev=120.32' Storage=174 cf Inflow=0.16 cfs 0.028 af
Outflow=0.13 cfs 0.025 af

Pond DS-2: Drip Strip Peak Elev=116.14' Storage=706 cf Inflow=1.20 cfs 0.092 af
Discarded=0.28 cfs 0.087 af Primary=0.26 cfs 0.005 af Outflow=0.54 cfs 0.092 af

Pond DS-3: Drip Strip Peak Elev=117.08' Storage=1,168 cf Inflow=2.17 cfs 0.166 af
Discarded=0.28 cfs 0.129 af Primary=0.98 cfs 0.036 af Outflow=1.26 cfs 0.166 af

Pond DS1: Drip Strip Peak Elev=116.14' Storage=706 cf Inflow=1.20 cfs 0.092 af
Discarded=0.28 cfs 0.087 af Primary=0.26 cfs 0.005 af Outflow=0.54 cfs 0.092 af

Pond IT-1: Infiltration Trench Peak Elev=115.23' Storage=1,748 cf Inflow=3.07 cfs 0.233 af
Discarded=0.28 cfs 0.151 af Primary=1.33 cfs 0.082 af Outflow=1.61 cfs 0.233 af

Pond RG-1: Rain Garden Peak Elev=115.86' Storage=206 cf Inflow=0.59 cfs 0.042 af
Discarded=0.08 cfs 0.031 af Primary=0.35 cfs 0.012 af Outflow=0.43 cfs 0.042 af

Pond RG-2: Rain Garden Peak Elev=115.78' Storage=408 cf Inflow=0.77 cfs 0.060 af
Discarded=0.17 cfs 0.047 af Primary=0.33 cfs 0.012 af Outflow=0.50 cfs 0.060 af

Total Runoff Area = 10.558 ac Runoff Volume = 2.723 af Average Runoff Depth = 3.09"
71.19% Pervious = 7.517 ac 28.81% Impervious = 3.042 ac

Summary for Subcatchment 1S: Area 1

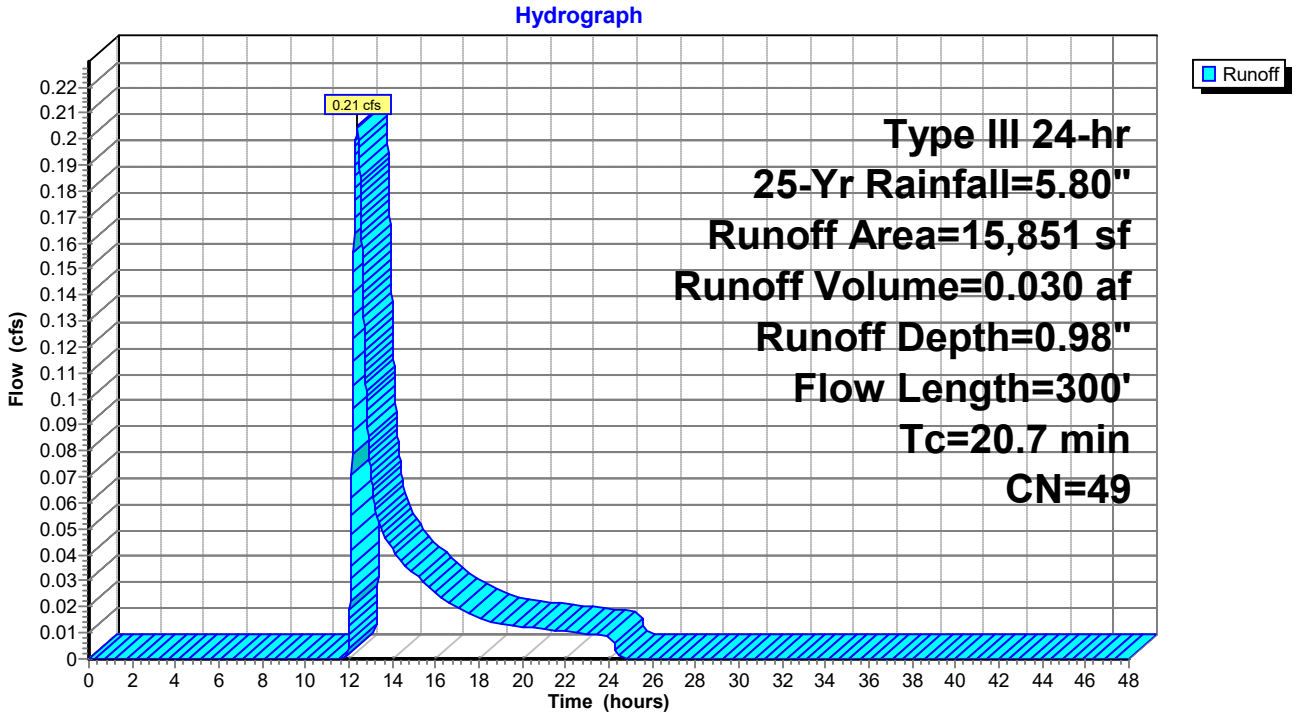
Runoff = 0.21 cfs @ 12.37 hrs, Volume= 0.030 af, Depth= 0.98"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Yr Rainfall=5.80"

Area (sf)	CN	Description
2,720	98	Paved parking, HSG A
13,131	39	>75% Grass cover, Good, HSG A
15,851	49	Weighted Average
13,131		82.84% Pervious Area
2,720		17.16% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.2	150	0.0100	0.14		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.10"
2.5	150	0.0200	0.99		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
20.7	300	Total			

Subcatchment 1S: Area 1



Summary for Subcatchment 2S: Area 2

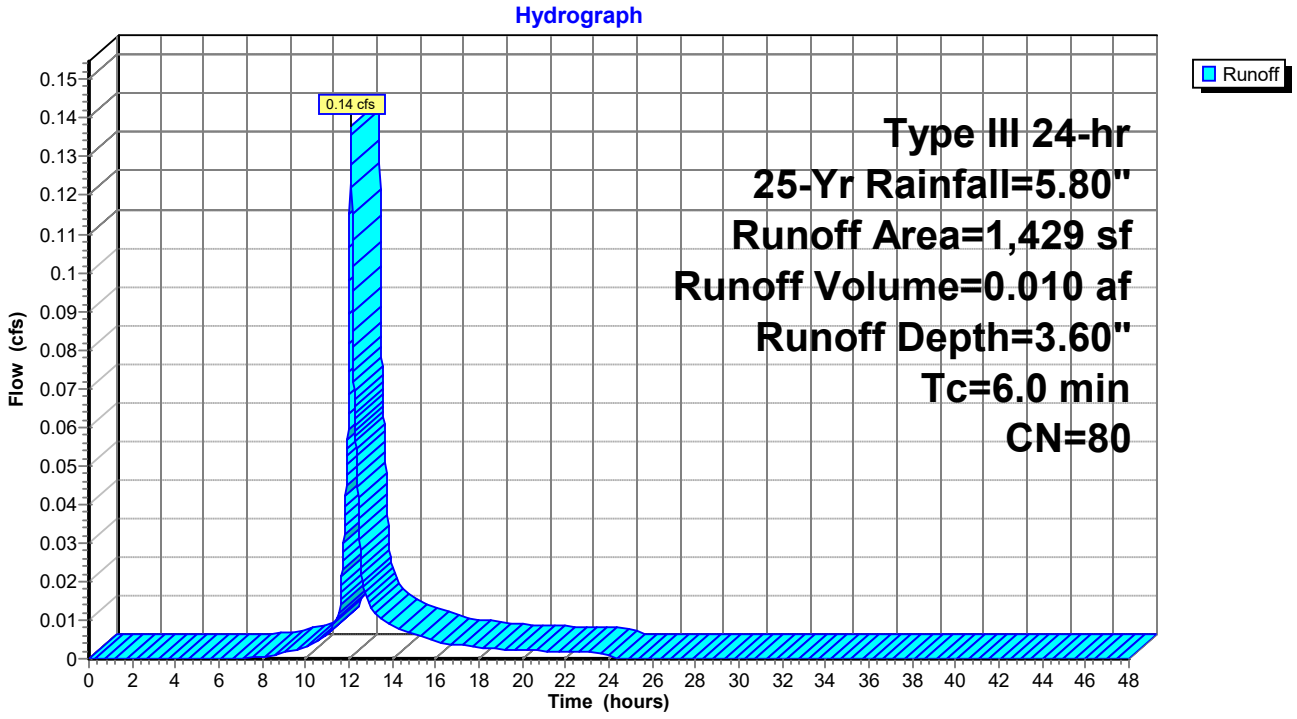
Runoff = 0.14 cfs @ 12.09 hrs, Volume= 0.010 af, Depth= 3.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Yr Rainfall=5.80"

Area (sf)	CN	Description
428	39	>75% Grass cover, Good, HSG A
1,001	98	Paved parking, HSG A
1,429	80	Weighted Average
428		29.95% Pervious Area
1,001		70.05% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 2S: Area 2



Summary for Subcatchment 3S: Area to PP1

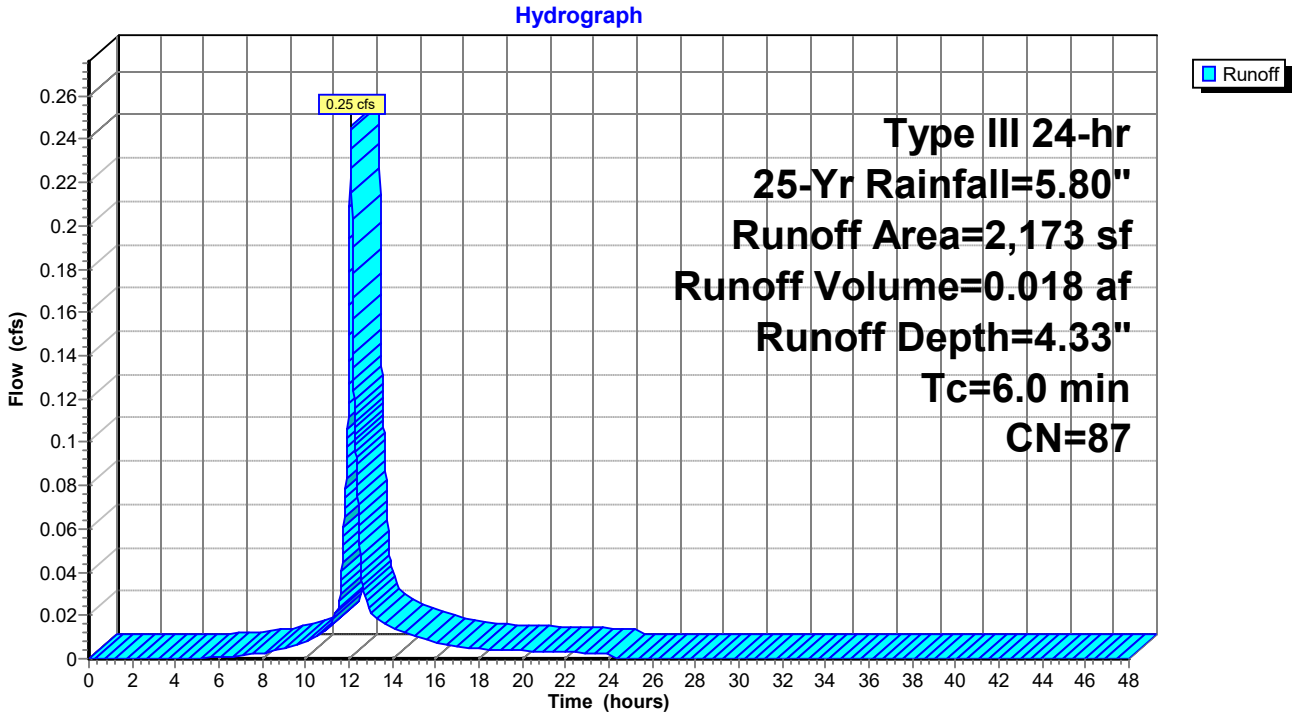
Runoff = 0.25 cfs @ 12.09 hrs, Volume= 0.018 af, Depth= 4.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Yr Rainfall=5.80"

Area (sf)	CN	Description
400	39	>75% Grass cover, Good, HSG A
1,773	98	Paved parking, HSG A
2,173	87	Weighted Average
400		18.41% Pervious Area
1,773		81.59% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 3S: Area to PP1



Summary for Subcatchment 4S: Area to PP2

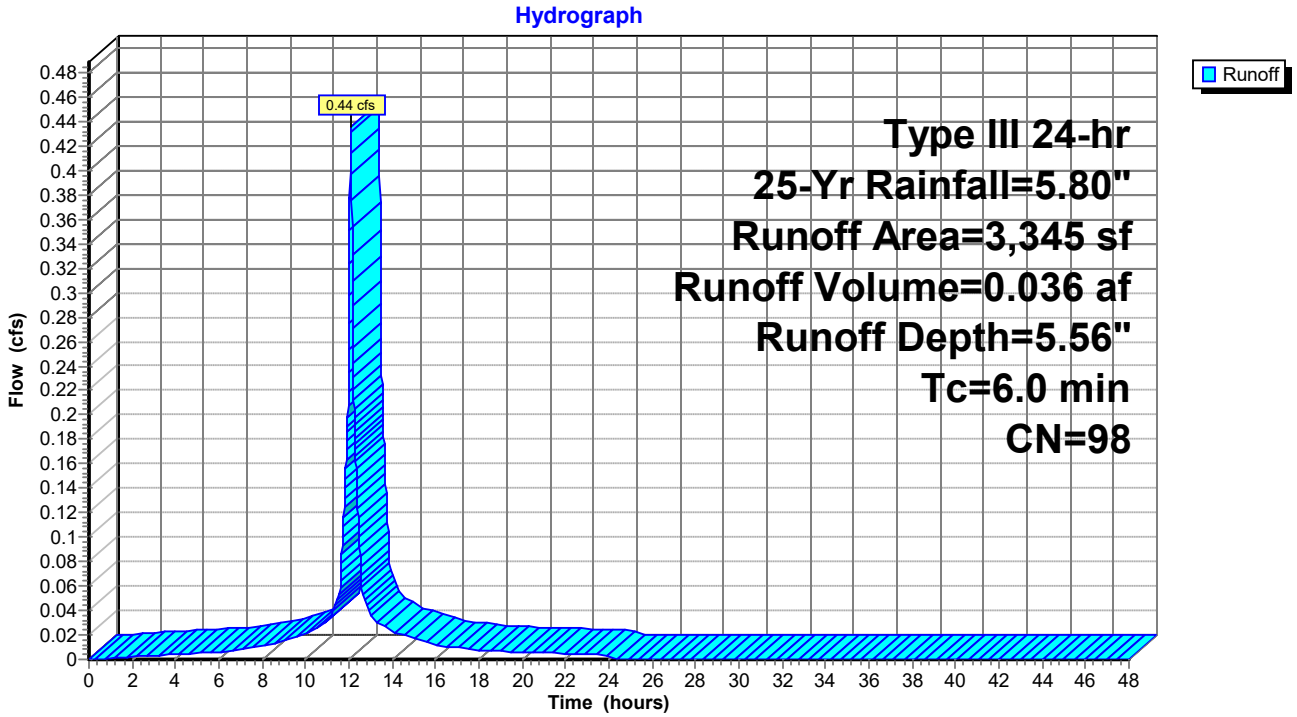
Runoff = 0.44 cfs @ 12.08 hrs, Volume= 0.036 af, Depth= 5.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Yr Rainfall=5.80"

Area (sf)	CN	Description
3,345	98	Paved parking, HSG A
3,345		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 4S: Area to PP2



Summary for Subcatchment 5S: Area to Rain Garden East

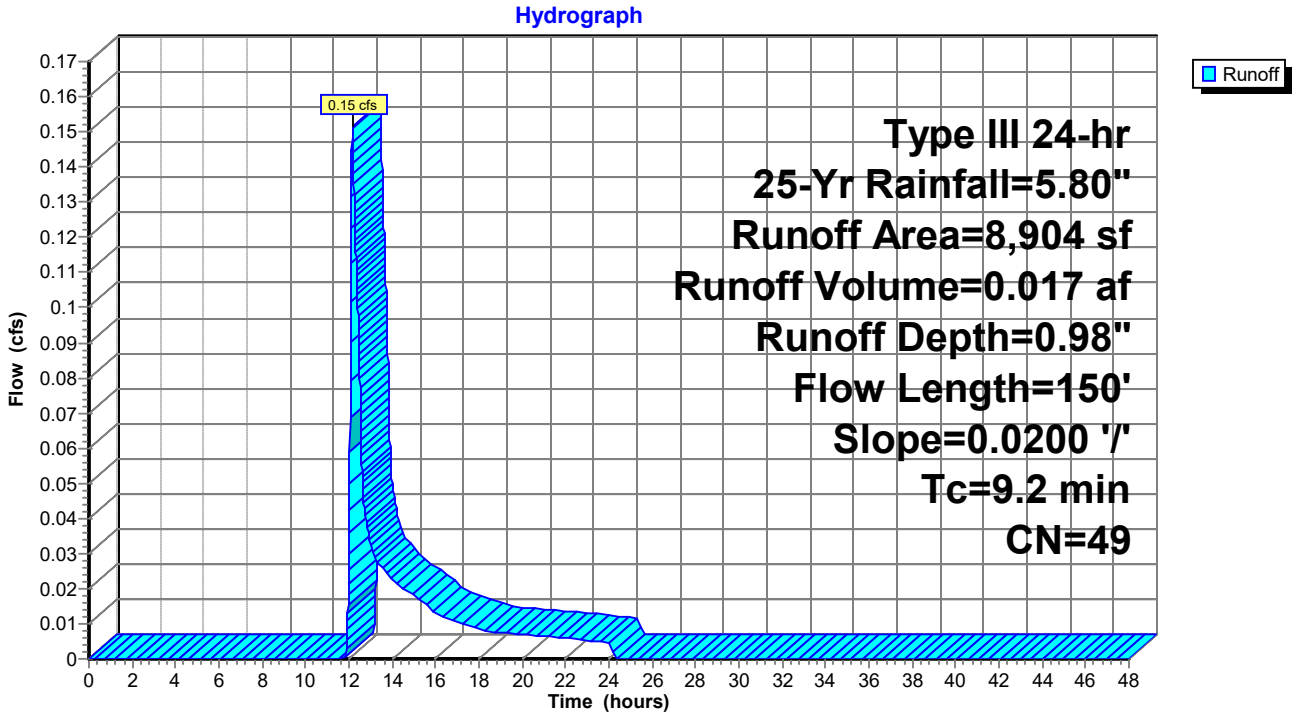
Runoff = 0.15 cfs @ 12.16 hrs, Volume= 0.017 af, Depth= 0.98"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Yr Rainfall=5.80"

	Area (sf)	CN	Description
*	1,555	98	
	7,349	39	>75% Grass cover, Good, HSG A
	8,904	49	Weighted Average
	7,349		82.54% Pervious Area
	1,555		17.46% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.9	75	0.0200	0.16		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.10"
1.3	75	0.0200	0.99		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
9.2	150	Total			

Subcatchment 5S: Area to Rain Garden East



Summary for Subcatchment 6S: Bldg 1 Roof

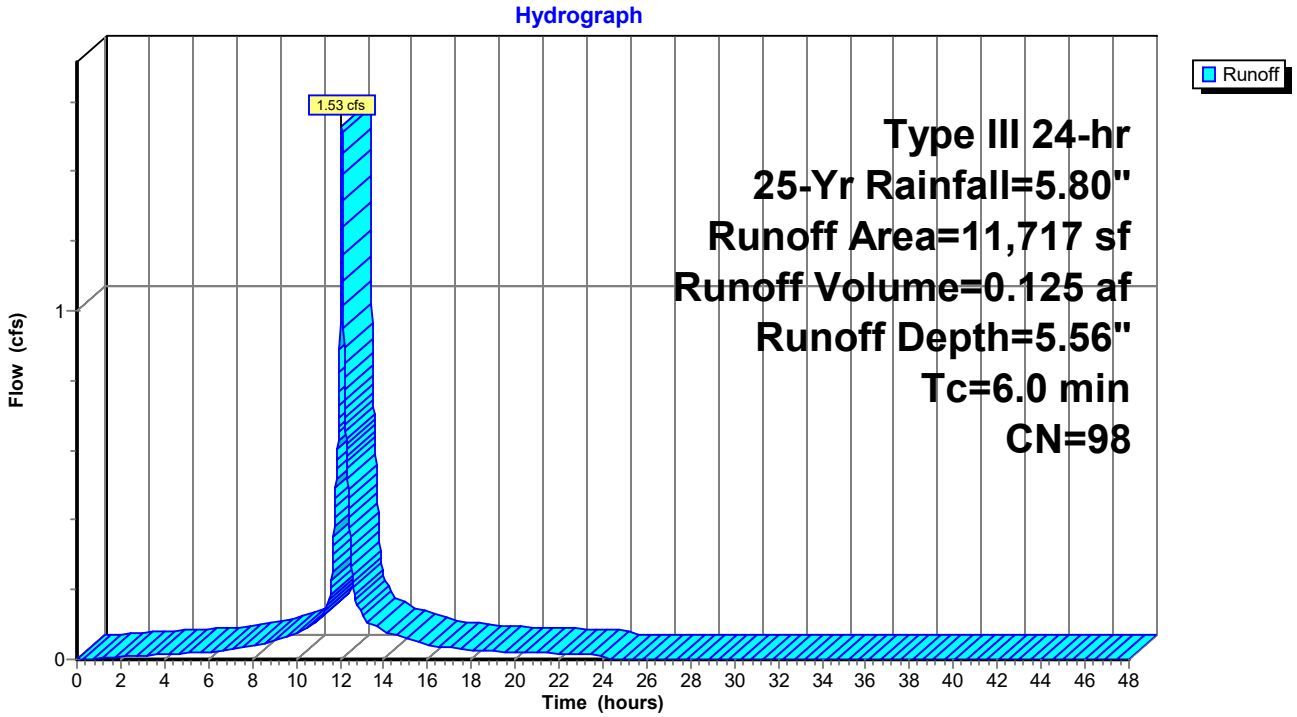
Runoff = 1.53 cfs @ 12.08 hrs, Volume= 0.125 af, Depth= 5.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Yr Rainfall=5.80"

Area (sf)	CN	Description
11,717	98	Roofs, HSG A
11,717		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 6S: Bldg 1 Roof



Summary for Subcatchment 7S: Area to Rain Garden West

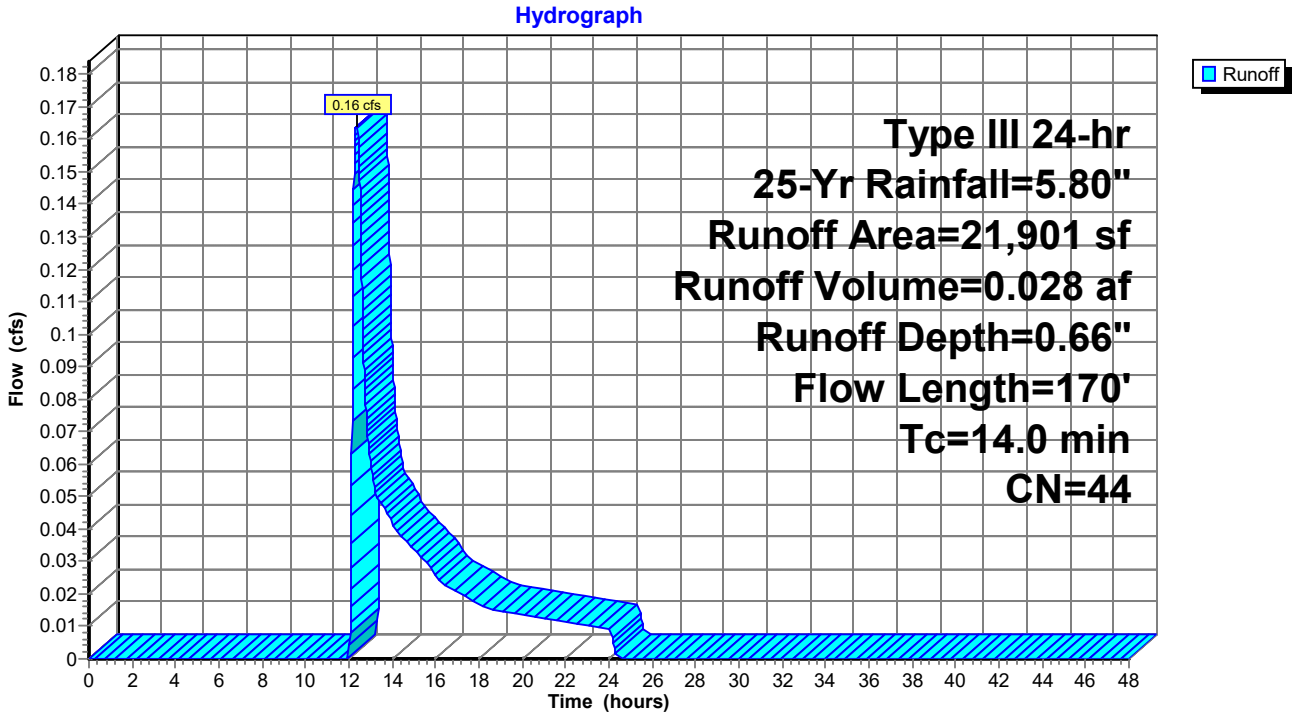
Runoff = 0.16 cfs @ 12.36 hrs, Volume= 0.028 af, Depth= 0.66"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Yr Rainfall=5.80"

Area (sf)	CN	Description
1,750	98	Paved parking, HSG A
20,151	39	>75% Grass cover, Good, HSG A
21,901	44	Weighted Average
20,151		92.01% Pervious Area
1,750		7.99% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.8	150	0.0200	0.18		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.10"
0.2	20	0.0600	1.71		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
14.0	170	Total			

Subcatchment 7S: Area to Rain Garden West



Summary for Subcatchment 9S: Area 4

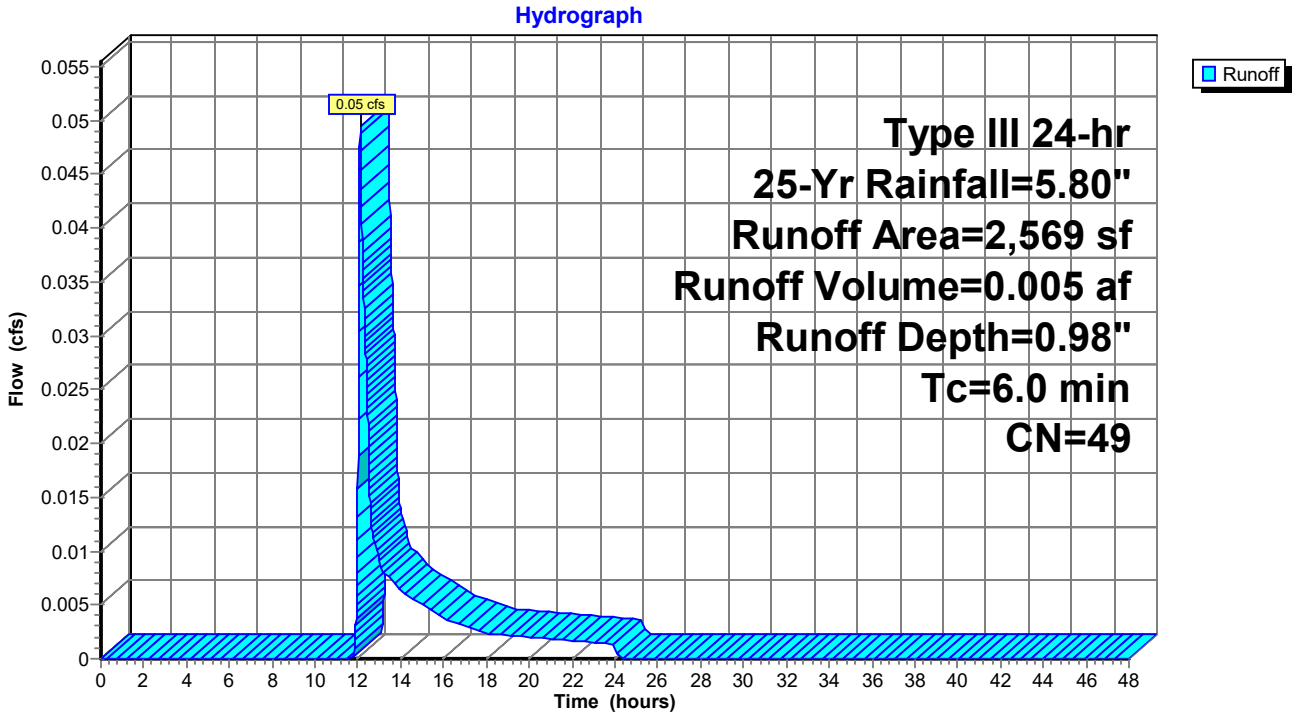
Runoff = 0.05 cfs @ 12.11 hrs, Volume= 0.005 af, Depth= 0.98"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Yr Rainfall=5.80"

Area (sf)	CN	Description
445	98	Paved parking, HSG A
2,124	39	>75% Grass cover, Good, HSG A
2,569	49	Weighted Average
2,124		82.68% Pervious Area
445		17.32% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 9S: Area 4



Summary for Subcatchment 10S:

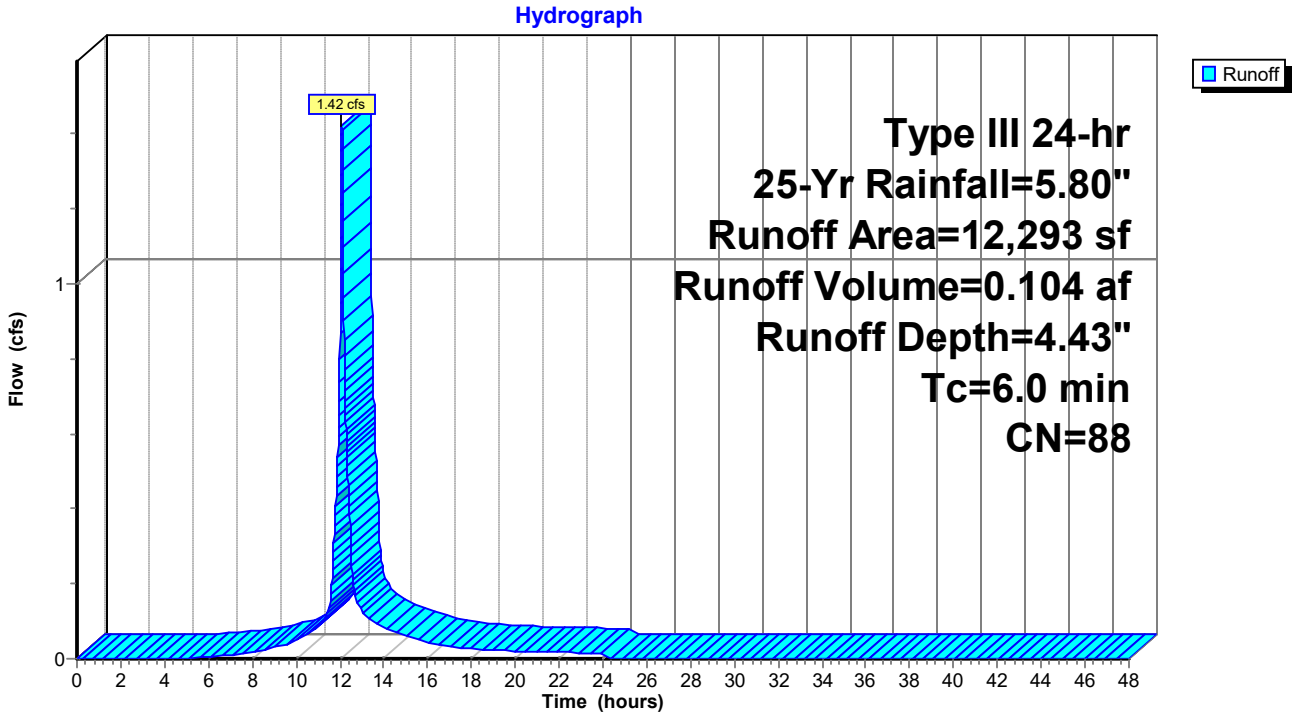
Runoff = 1.42 cfs @ 12.09 hrs, Volume= 0.104 af, Depth= 4.43"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Yr Rainfall=5.80"

Area (sf)	CN	Description
10,120	98	Paved parking & roofs
2,173	39	>75% Grass cover, Good, HSG A
12,293	88	Weighted Average
2,173		17.68% Pervious Area
10,120		82.32% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum Tc**

Subcatchment 10S:



Summary for Subcatchment 11S: Area to Rain Garden 2

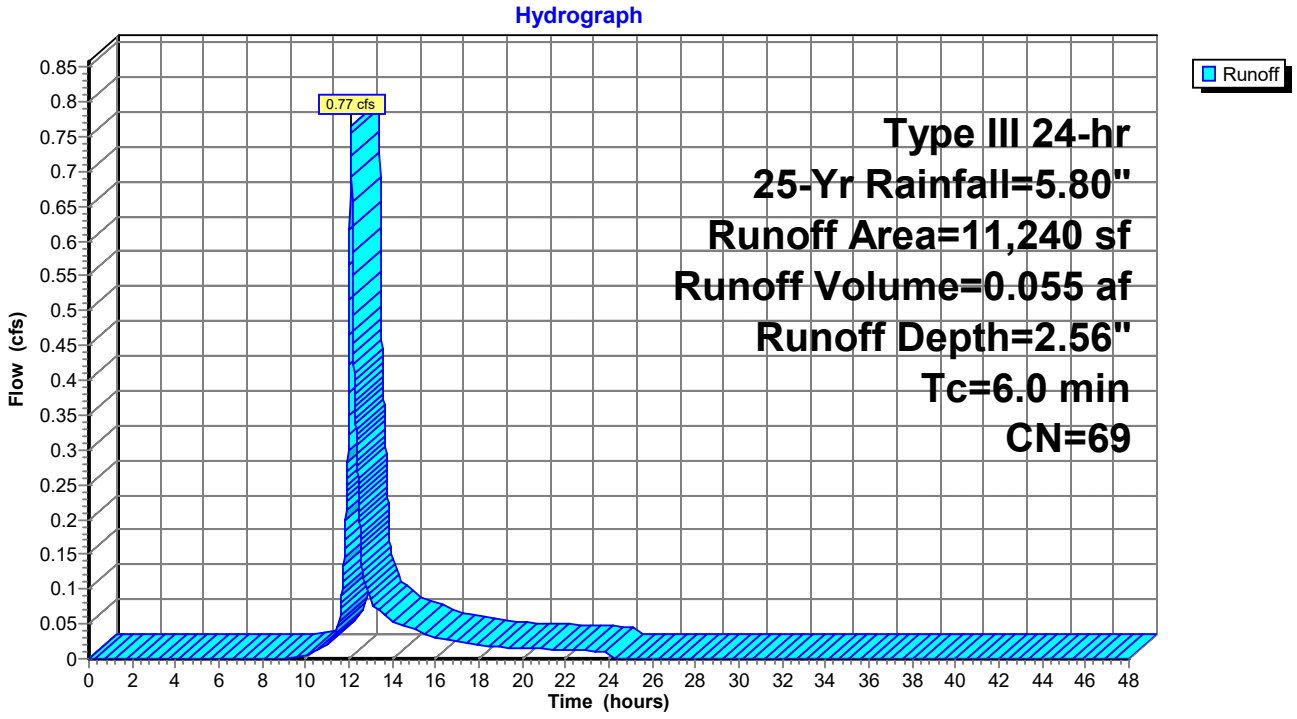
Runoff = 0.77 cfs @ 12.09 hrs, Volume= 0.055 af, Depth= 2.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Yr Rainfall=5.80"

Area (sf)	CN	Description
5,795	98	Paved parking & roofs
5,445	39	>75% Grass cover, Good, HSG A
11,240	69	Weighted Average
5,445		48.44% Pervious Area
5,795		51.56% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum Tc**

Subcatchment 11S: Area to Rain Garden 2



Summary for Subcatchment 12S: Area to Rain Garden 1

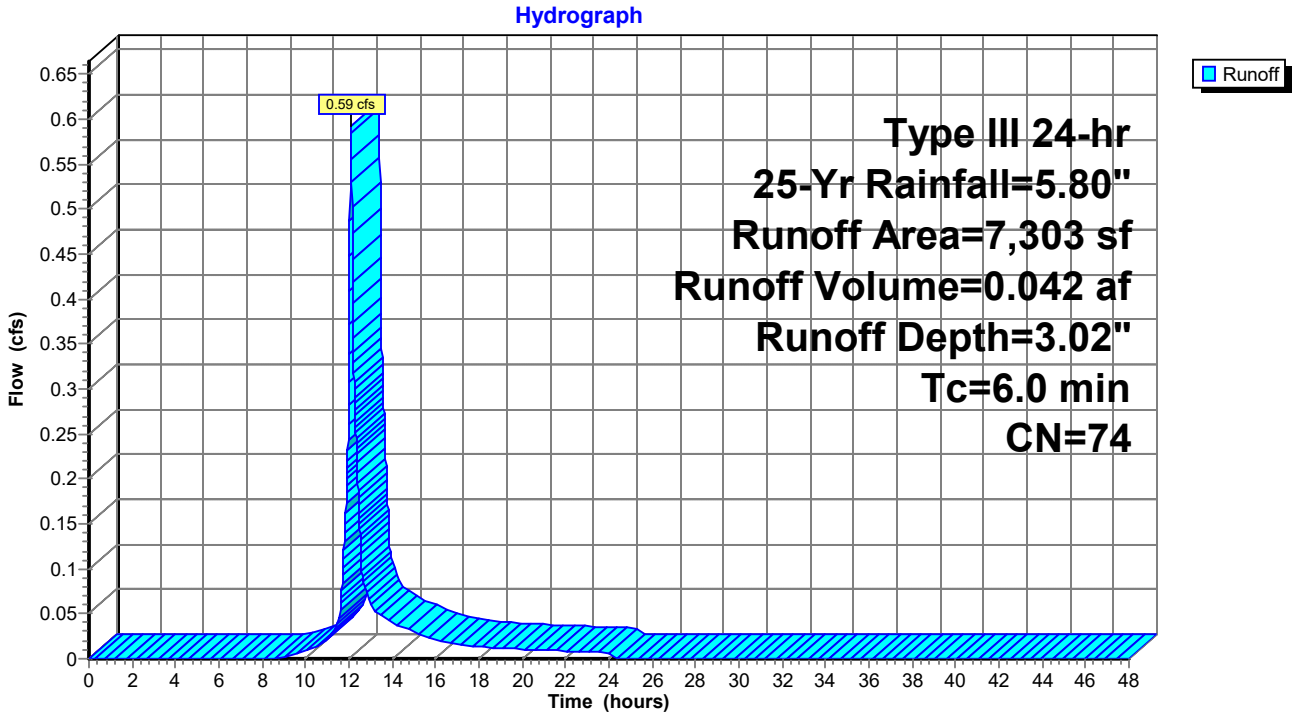
Runoff = 0.59 cfs @ 12.09 hrs, Volume= 0.042 af, Depth= 3.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Yr Rainfall=5.80"

Area (sf)	CN	Description
4,299	98	Paved parking & roofs
3,004	39	>75% Grass cover, Good, HSG A
7,303	74	Weighted Average
3,004		41.13% Pervious Area
4,299		58.87% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum Tc**

Subcatchment 12S: Area to Rain Garden 1



Summary for Subcatchment 13S: Area to Infiltration Trench

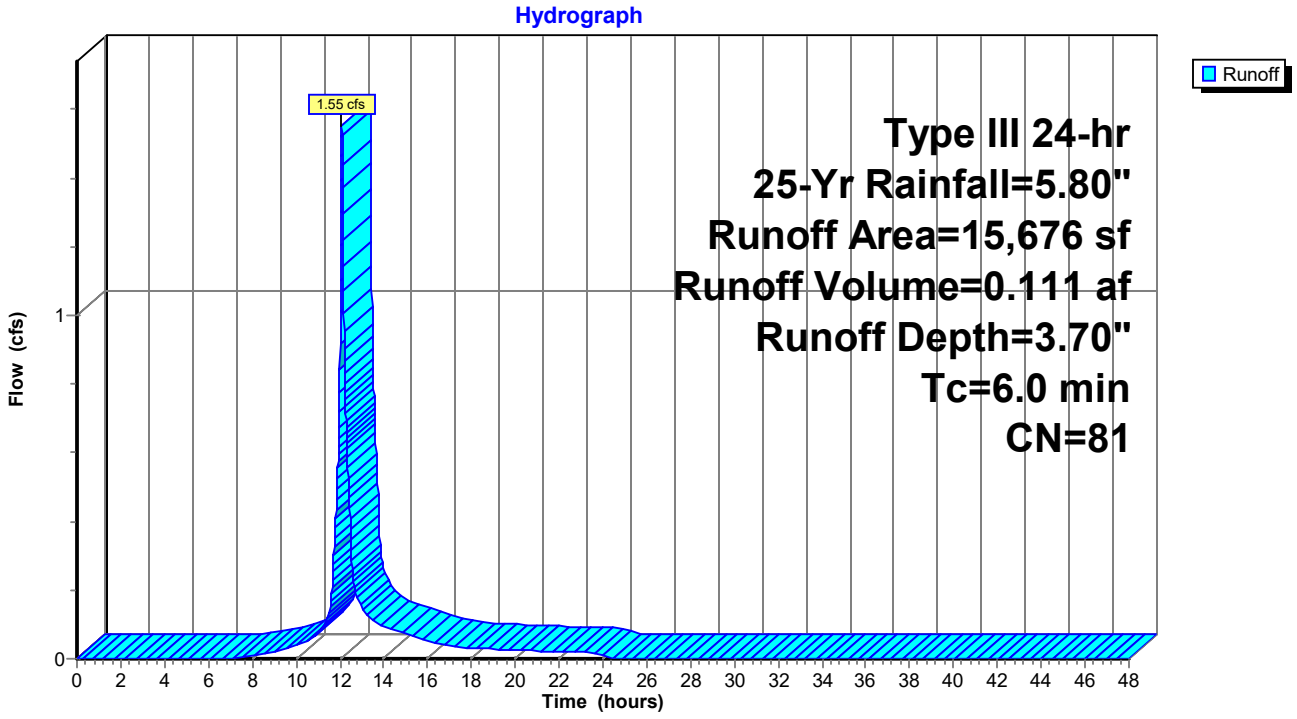
Runoff = 1.55 cfs @ 12.09 hrs, Volume= 0.111 af, Depth= 3.70"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Yr Rainfall=5.80"

Area (sf)	CN	Description
11,224	98	Paved parking & roofs
4,452	39	>75% Grass cover, Good, HSG A
15,676	81	Weighted Average
4,452		28.40% Pervious Area
11,224		71.60% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum Tc**

Subcatchment 13S: Area to Infiltration Trench



Summary for Subcatchment 14S: Roof Area to Drip Strip 4

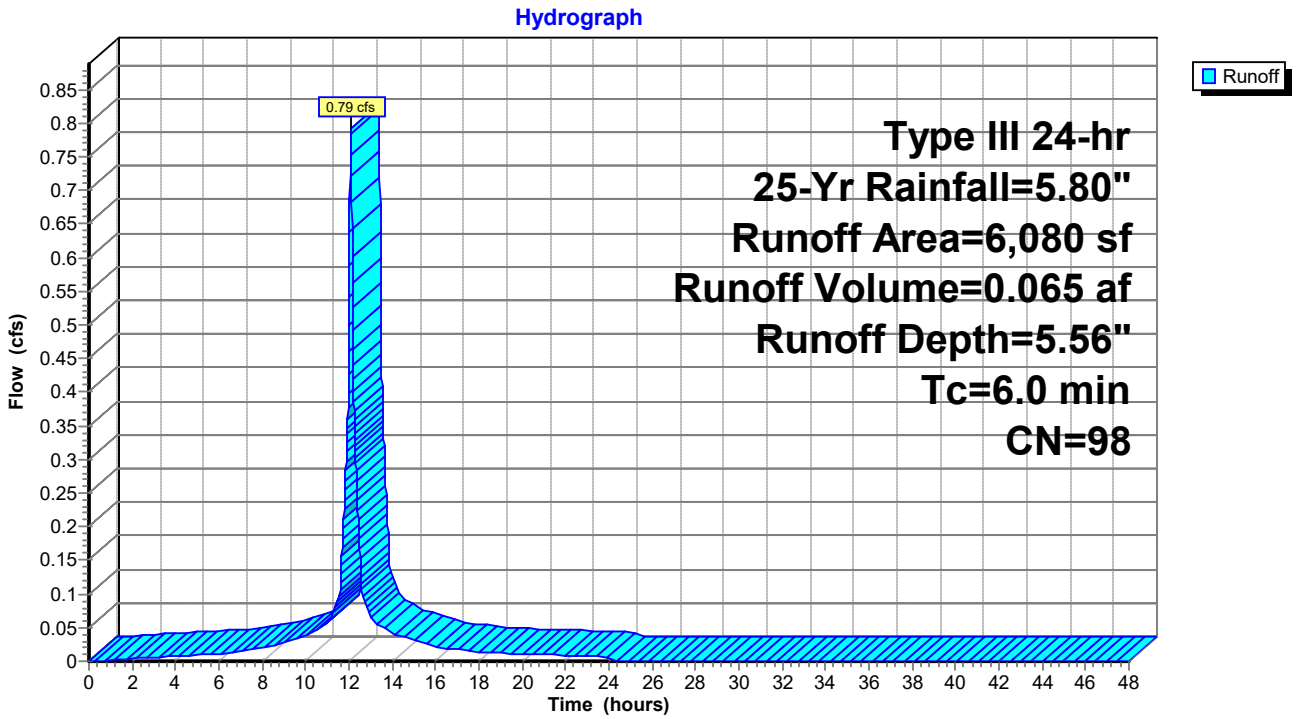
Runoff = 0.79 cfs @ 12.08 hrs, Volume= 0.065 af, Depth= 5.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Yr Rainfall=5.80"

	Area (sf)	CN	Description
*	6,080	98	Roofs
*	0	76	Drip stone, HSG A
	6,080	98	Weighted Average
	6,080		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum Tc**

Subcatchment 14S: Roof Area to Drip Strip 4



Summary for Subcatchment 15S: Roof Area to Drip Strip 1

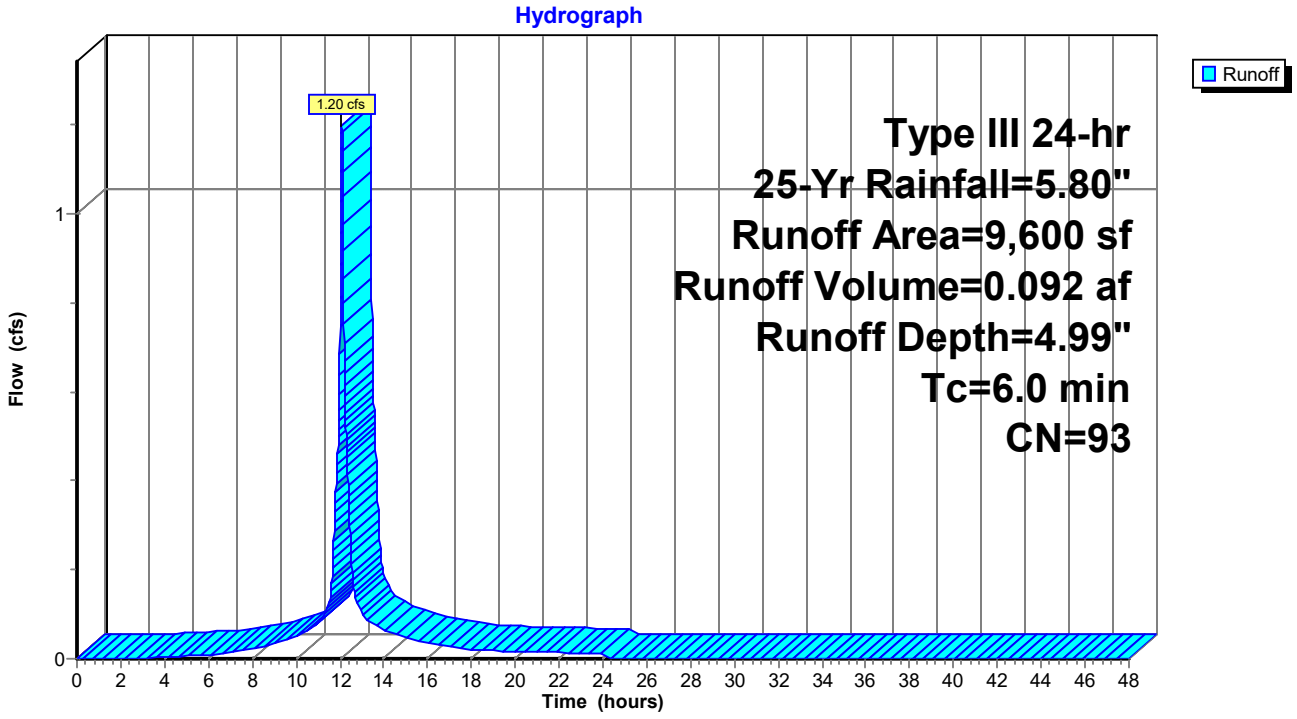
Runoff = 1.20 cfs @ 12.08 hrs, Volume= 0.092 af, Depth= 4.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Yr Rainfall=5.80"

	Area (sf)	CN	Description
*	7,600	98	Roofs
*	2,000	76	Drip stone, HSG A
	9,600	93	Weighted Average
	2,000		20.83% Pervious Area
	7,600		79.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum Tc**

Subcatchment 15S: Roof Area to Drip Strip 1



Summary for Subcatchment 16S: Roof Area to Drip Strip 2

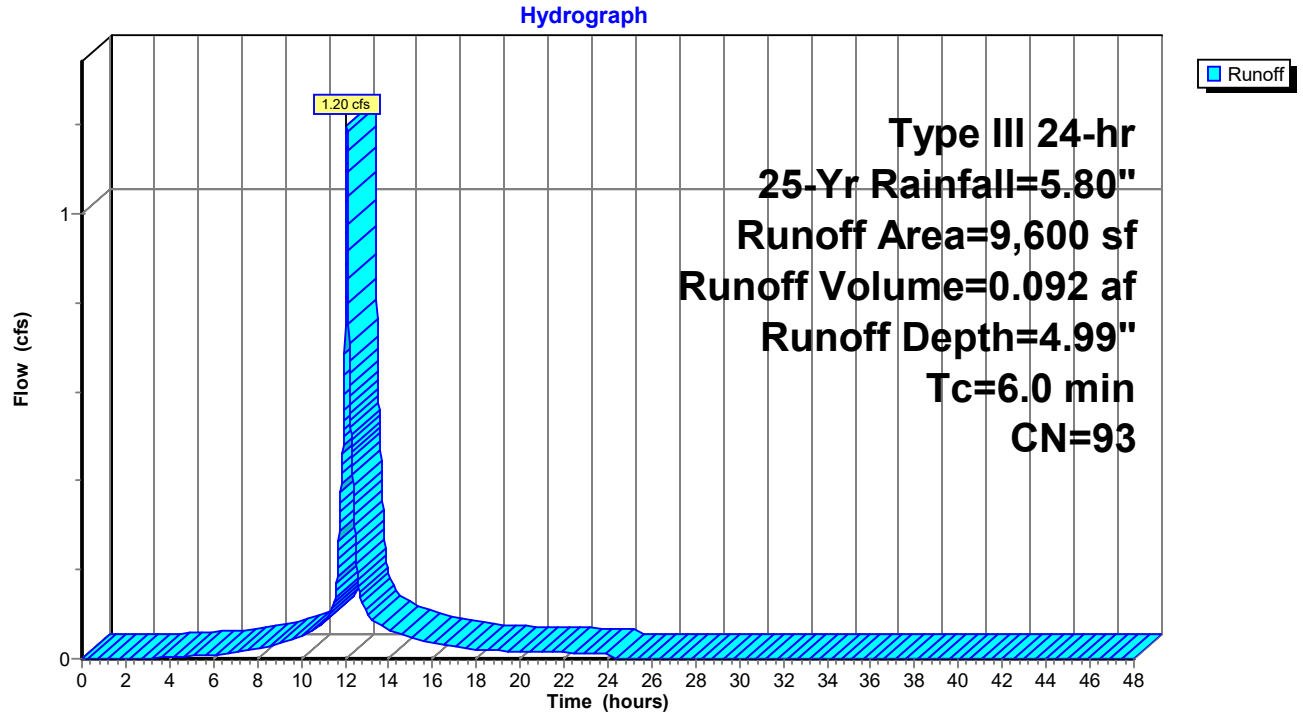
Runoff = 1.20 cfs @ 12.08 hrs, Volume= 0.092 af, Depth= 4.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Yr Rainfall=5.80"

	Area (sf)	CN	Description
*	7,600	98	Roofs
*	2,000	76	Drip stone, HSG A
	9,600	93	Weighted Average
	2,000		20.83% Pervious Area
	7,600		79.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum Tc**

Subcatchment 16S: Roof Area to Drip Strip 2



Summary for Subcatchment 17S: Roof Area to Drip Strip 3

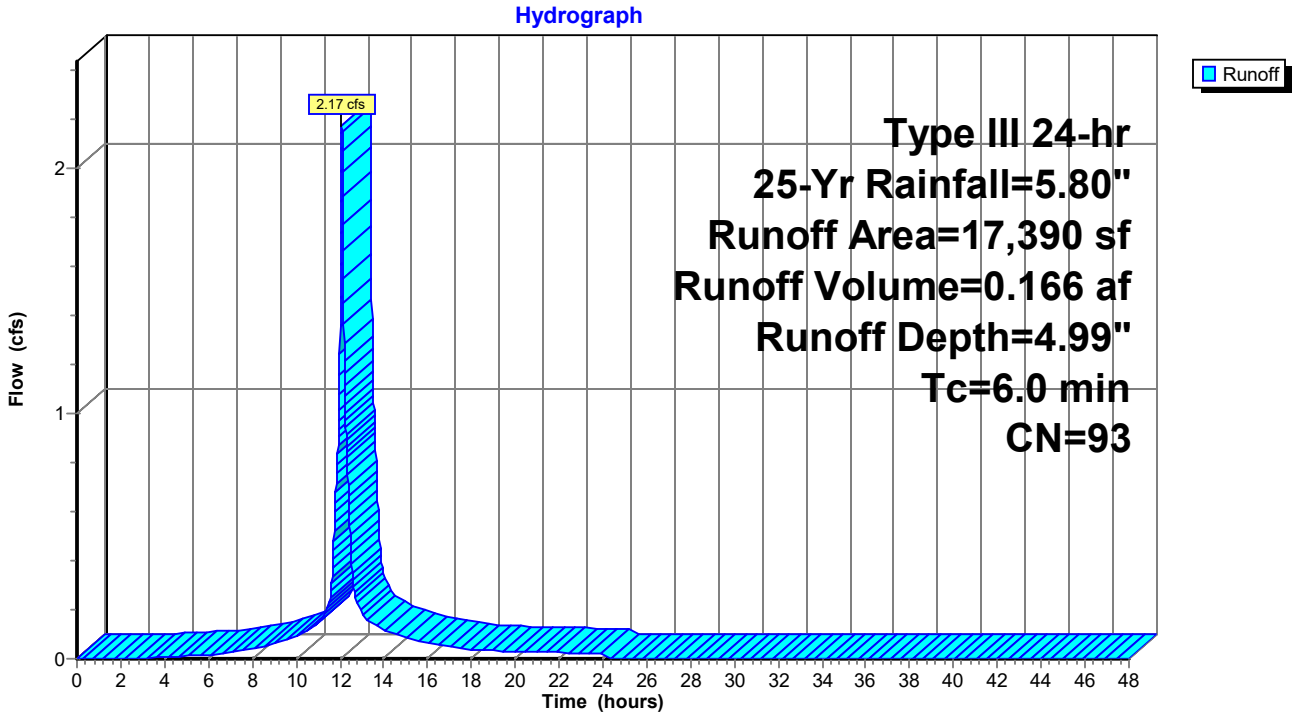
Runoff = 2.17 cfs @ 12.08 hrs, Volume= 0.166 af, Depth= 4.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Yr Rainfall=5.80"

	Area (sf)	CN	Description
*	13,270	98	Roofs
*	4,120	76	Drip stone, HSG A
	17,390	93	Weighted Average
	4,120		23.69% Pervious Area
	13,270		76.31% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum Tc**

Subcatchment 17S: Roof Area to Drip Strip 3



Summary for Subcatchment 18S: North of Mother House

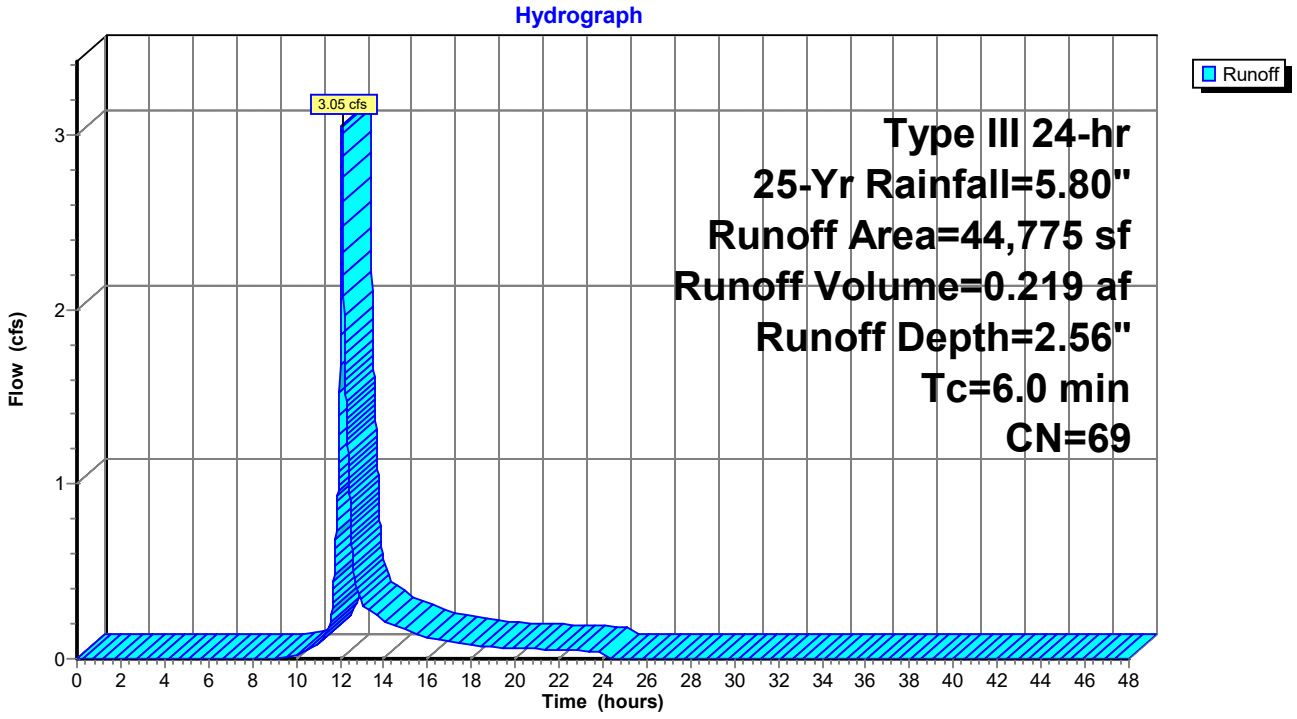
Runoff = 3.05 cfs @ 12.09 hrs, Volume= 0.219 af, Depth= 2.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Yr Rainfall=5.80"

Area (sf)	CN	Description
21,975	39	>75% Grass cover, Good, HSG A
22,800	98	Paved parking, HSG A
44,775	69	Weighted Average
21,975		49.08% Pervious Area
22,800		50.92% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 18S: North of Mother House



Summary for Subcatchment 19A: St. Joseph's

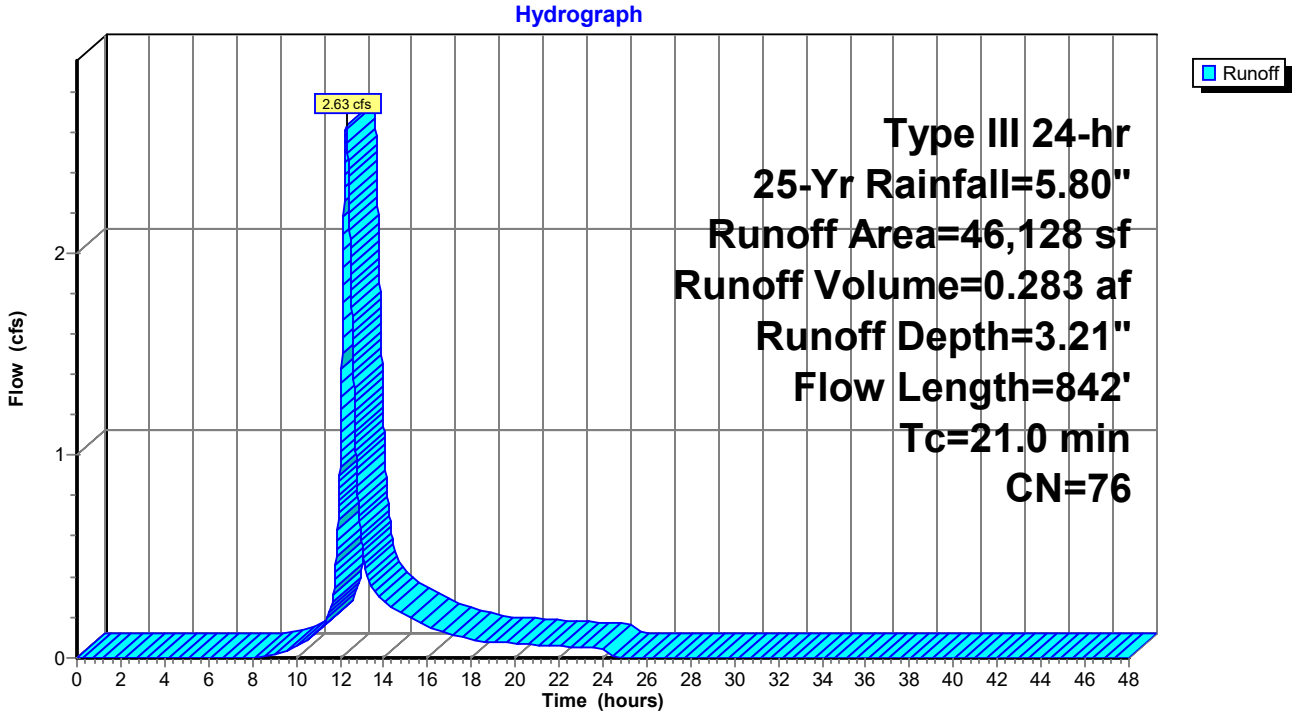
Runoff = 2.63 cfs @ 12.29 hrs, Volume= 0.283 af, Depth= 3.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Yr Rainfall=5.80"

Area (sf)	CN	Description
18,644	98	Paved parking, HSG A
10,071	39	>75% Grass cover, Good, HSG A
17,413	74	>75% Grass cover, Good, HSG C
46,128	76	Weighted Average
27,484		59.58% Pervious Area
18,644		40.42% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.6	122	0.0160	0.11		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.10"
2.4	720	0.0100	4.91	3.86	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Corrugated PP, smooth interior
21.0	842	Total			

Subcatchment 19A: St. Joseph's



Summary for Subcatchment 19B: Area to North FD

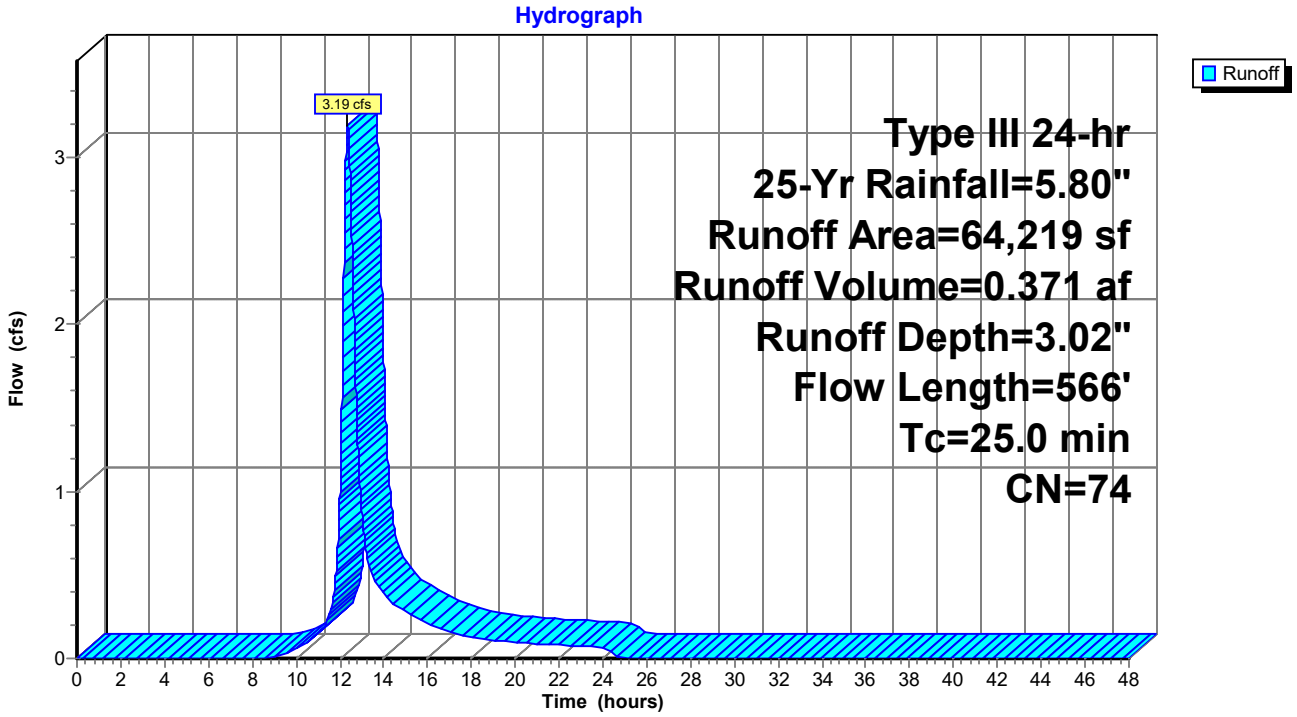
Runoff = 3.19 cfs @ 12.36 hrs, Volume= 0.371 af, Depth= 3.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Yr Rainfall=5.80"

Area (sf)	CN	Description
63,459	74	>75% Grass cover, Good, HSG C
760	98	Paved parking, HSG A
64,219	74	Weighted Average
63,459		98.82% Pervious Area
760		1.18% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.5	150	0.0150	0.11		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.10"
1.8	94	0.0150	0.86		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.1	80	0.0650	12.53	9.84	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Corrugated PP, smooth interior
0.6	242	0.0200	6.95	5.46	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Corrugated PP, smooth interior
25.0	566	Total			

Subcatchment 19B: Area to North FD



Summary for Subcatchment 19C: Area to North FD

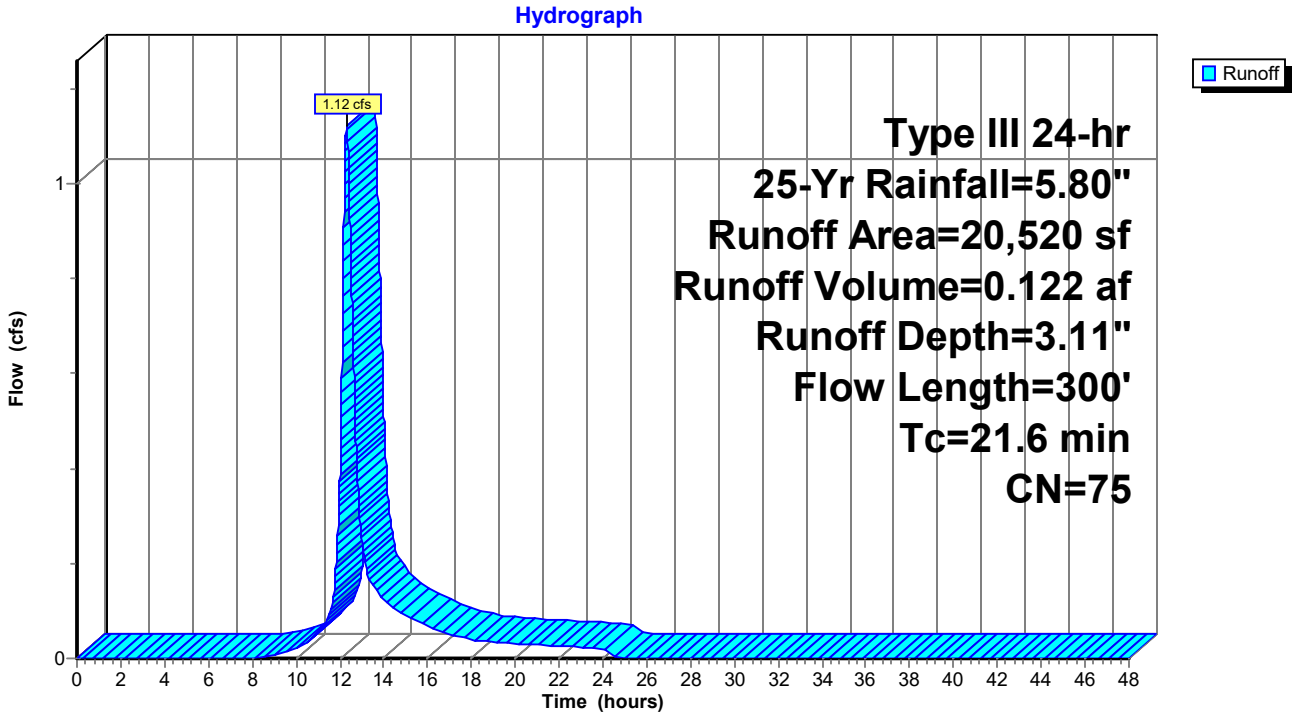
Runoff = 1.12 cfs @ 12.31 hrs, Volume= 0.122 af, Depth= 3.11"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Yr Rainfall=5.80"

Area (sf)	CN	Description
15,128	74	>75% Grass cover, Good, HSG C
5,392	77	Woods, Good, HSG D
20,520	75	Weighted Average
20,520		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.4	125	0.0150	0.11		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.10"
0.2	40	0.3300	2.87		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.0	135	0.0500	1.12		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
21.6	300	Total			

Subcatchment 19C: Area to North FD



Summary for Subcatchment 20S:

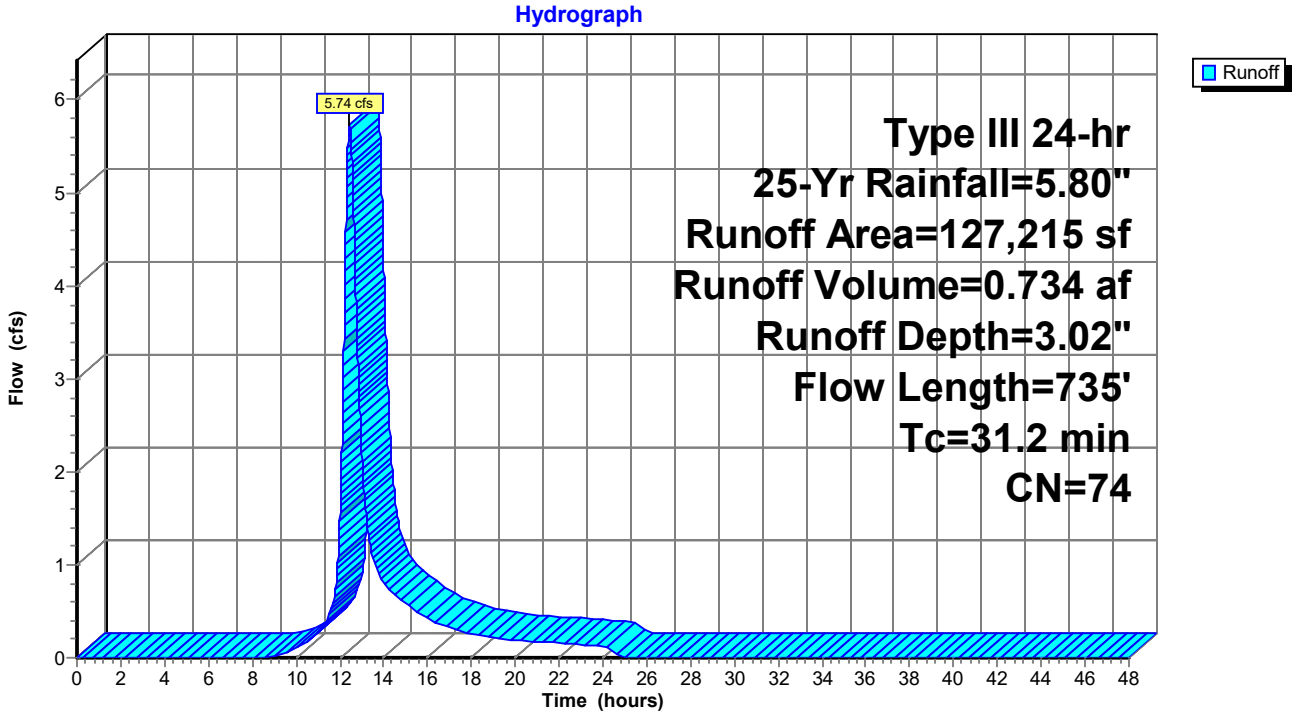
Runoff = 5.74 cfs @ 12.44 hrs, Volume= 0.734 af, Depth= 3.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Yr Rainfall=5.80"

Area (sf)	CN	Description
9,282	77	Woods, Good, HSG D
117,933	74	>75% Grass cover, Good, HSG C
127,215	74	Weighted Average
127,215		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
23.8	150	0.0130	0.10		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.10"
3.7	110	0.0050	0.49		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.6	265	0.0200	6.95	5.46	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Corrugated PP, smooth interior
3.1	210	0.0500	1.12		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
31.2	735	Total			

Subcatchment 20S:



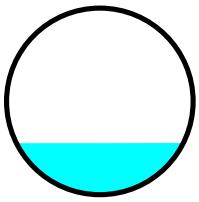
Summary for Reach 1R: 8" SD

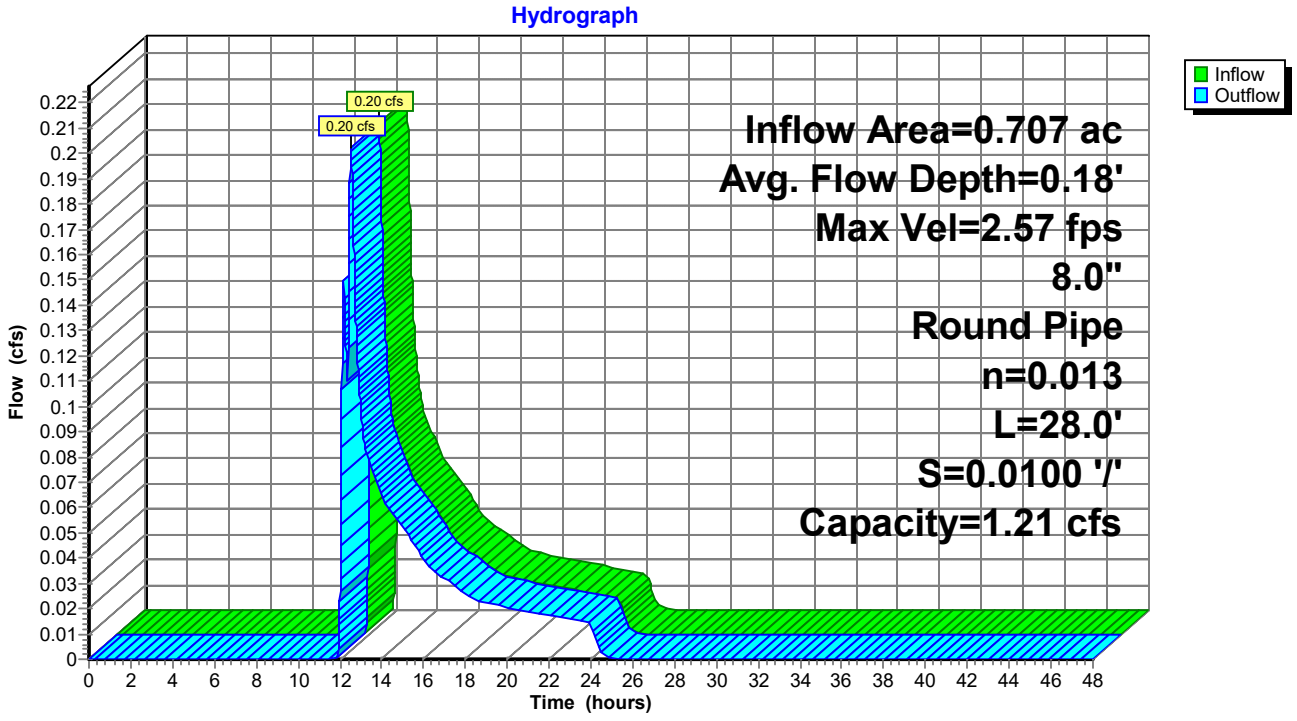
Inflow Area = 0.707 ac, 10.73% Impervious, Inflow Depth = 0.70" for 25-Yr event
Inflow = 0.20 cfs @ 12.52 hrs, Volume= 0.041 af
Outflow = 0.20 cfs @ 12.52 hrs, Volume= 0.041 af, Atten= 0%, Lag= 0.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.57 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 1.40 fps, Avg. Travel Time= 0.3 min

Peak Storage= 2 cf @ 12.52 hrs
Average Depth at Peak Storage= 0.18' , Surface Width= 0.60'
Bank-Full Depth= 0.67' Flow Area= 0.3 sf, Capacity= 1.21 cfs

8.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 28.0' Slope= 0.0100 '/'
Inlet Invert= 115.15', Outlet Invert= 114.87'



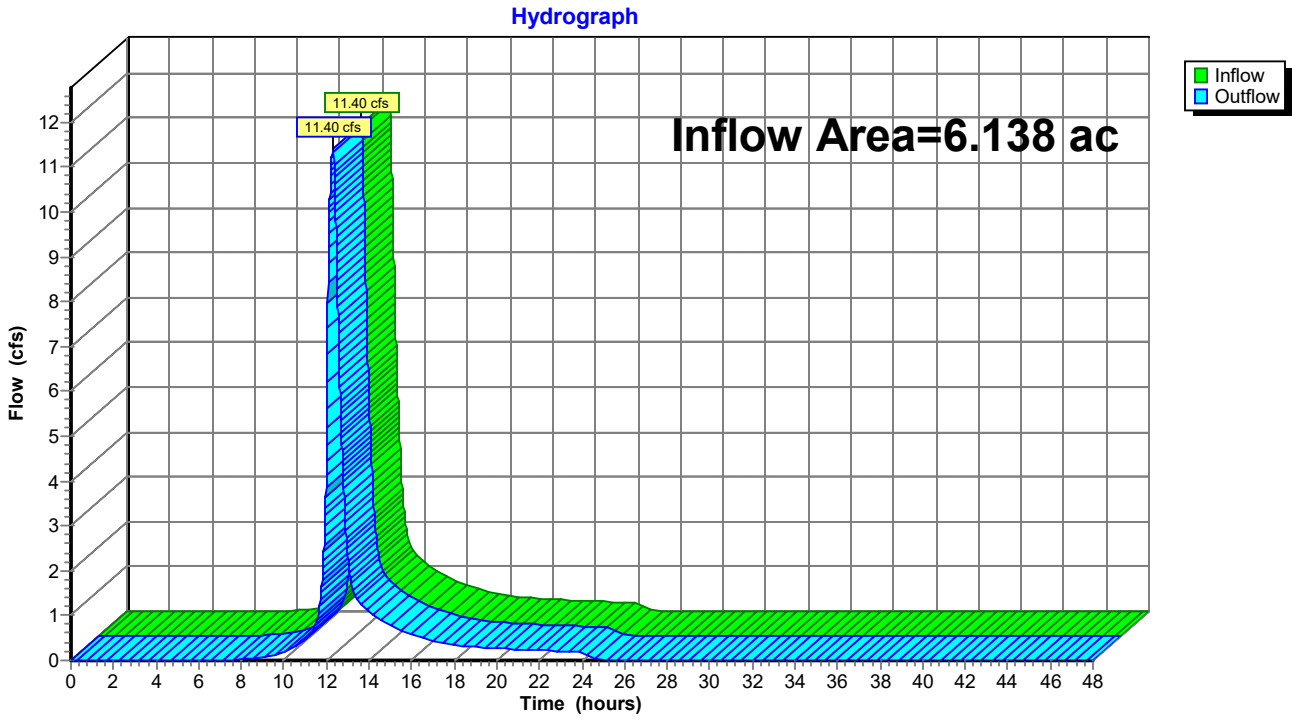


Summary for Reach 2R: POI 2

Inflow Area = 6.138 ac, 40.63% Impervious, Inflow Depth = 2.33" for 25-Yr event
Inflow = 11.40 cfs @ 12.29 hrs, Volume= 1.194 af
Outflow = 11.40 cfs @ 12.29 hrs, Volume= 1.194 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Reach 2R: POI 2

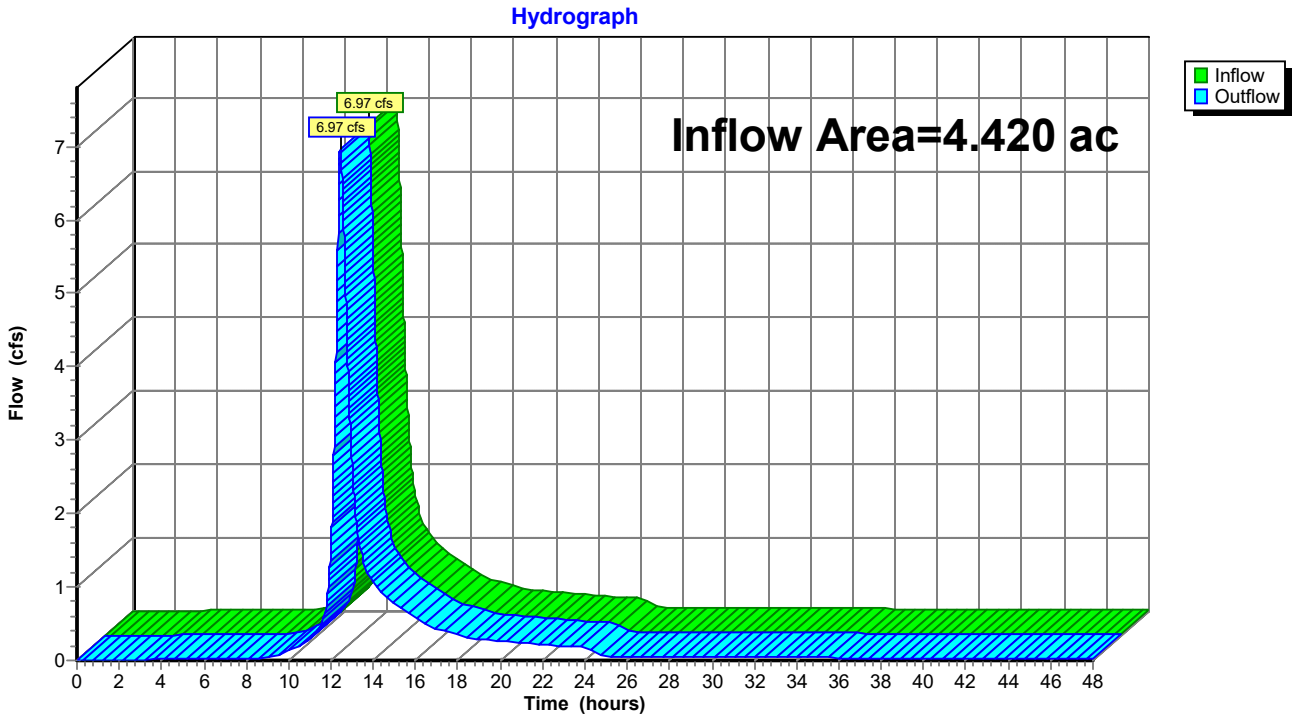


Summary for Reach 3R: POI 1

Inflow Area = 4.420 ac, 12.39% Impervious, Inflow Depth > 2.66" for 25-Yr event
Inflow = 6.97 cfs @ 12.44 hrs, Volume= 0.978 af
Outflow = 6.97 cfs @ 12.44 hrs, Volume= 0.978 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Reach 3R: POI 1



Summary for Reach 4R: Wetland to POI 2

Inflow Area = 5.667 ac, 44.01% Impervious, Inflow Depth = 2.27" for 25-Yr event
Inflow = 10.29 cfs @ 12.27 hrs, Volume= 1.072 af
Outflow = 10.28 cfs @ 12.29 hrs, Volume= 1.072 af, Atten= 0%, Lag= 1.1 min

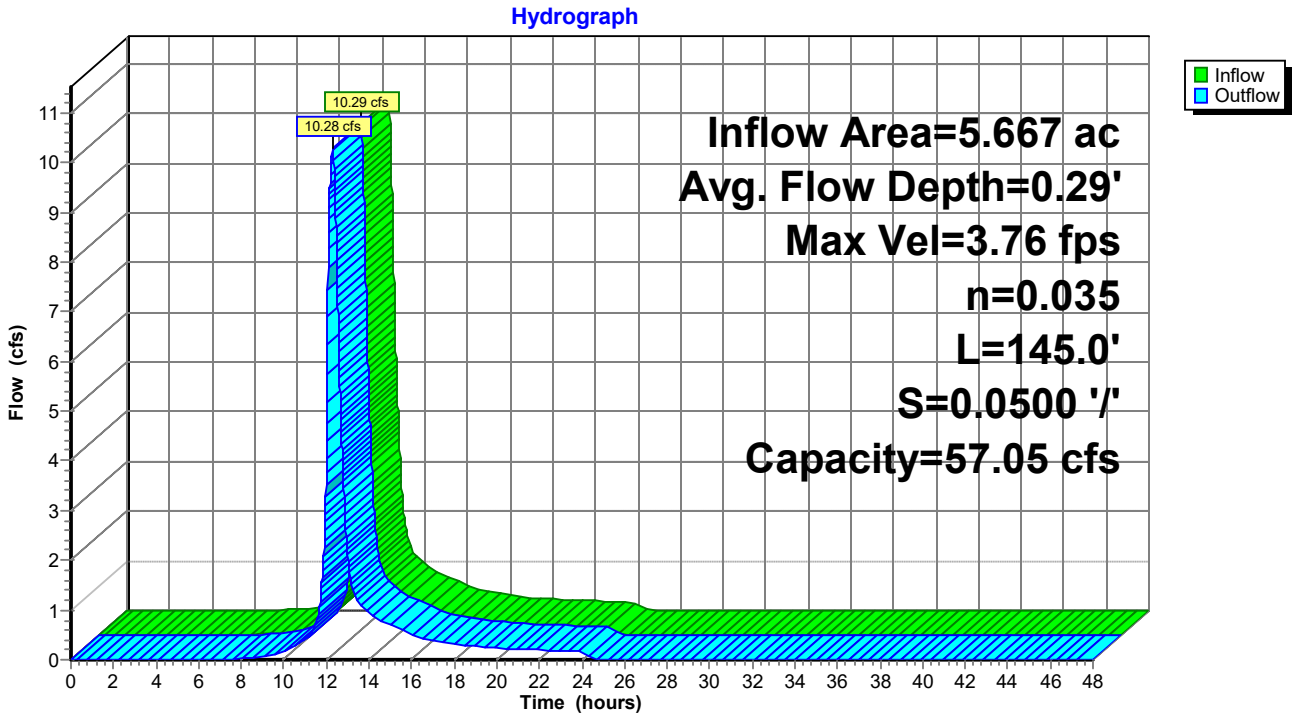
Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.76 fps, Min. Travel Time= 0.6 min
Avg. Velocity = 0.91 fps, Avg. Travel Time= 2.7 min

Peak Storage= 396 cf @ 12.28 hrs
Average Depth at Peak Storage= 0.29' , Surface Width= 10.89'
Bank-Full Depth= 0.75' Flow Area= 8.8 sf, Capacity= 57.05 cfs

8.00' x 0.75' deep channel, n= 0.035 Earth, dense weeds
Side Slope Z-value= 5.0 '/' Top Width= 15.50'
Length= 145.0' Slope= 0.0500 '/'
Inlet Invert= 102.89', Outlet Invert= 95.64'



‡



Summary for Reach 6R: Wetland to POI 1

Inflow Area = 1.500 ac, 36.53% Impervious, Inflow Depth > 1.95" for 25-Yr event
Inflow = 1.26 cfs @ 12.37 hrs, Volume= 0.244 af
Outflow = 1.23 cfs @ 12.43 hrs, Volume= 0.244 af, Atten= 2%, Lag= 3.9 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 1.76 fps, Min. Travel Time= 2.0 min
Avg. Velocity = 0.51 fps, Avg. Travel Time= 6.9 min

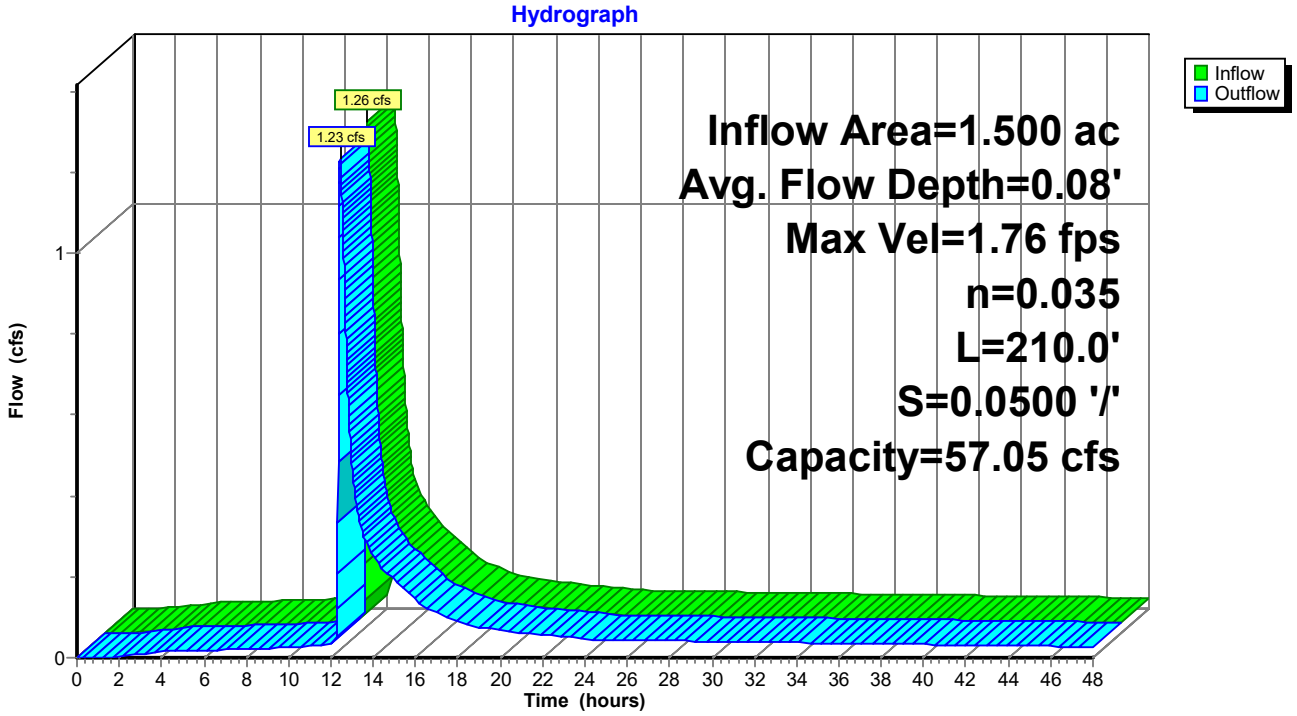
Peak Storage= 148 cf @ 12.40 hrs
Average Depth at Peak Storage= 0.08' , Surface Width= 8.84'
Bank-Full Depth= 0.75' Flow Area= 8.8 sf, Capacity= 57.05 cfs

8.00' x 0.75' deep channel, n= 0.035 Earth, dense weeds
Side Slope Z-value= 5.0 '/' Top Width= 15.50'
Length= 210.0' Slope= 0.0500 '/'
Inlet Invert= 107.32', Outlet Invert= 96.82'



‡

Reach 6R: Wetland to POI 1



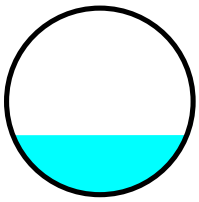
Summary for Reach 11R: 8" UD

Inflow Area = 0.364 ac, 17.16% Impervious, Inflow Depth = 0.98" for 25-Yr event
Inflow = 0.21 cfs @ 12.37 hrs, Volume= 0.030 af
Outflow = 0.20 cfs @ 12.40 hrs, Volume= 0.030 af, Atten= 0%, Lag= 1.5 min

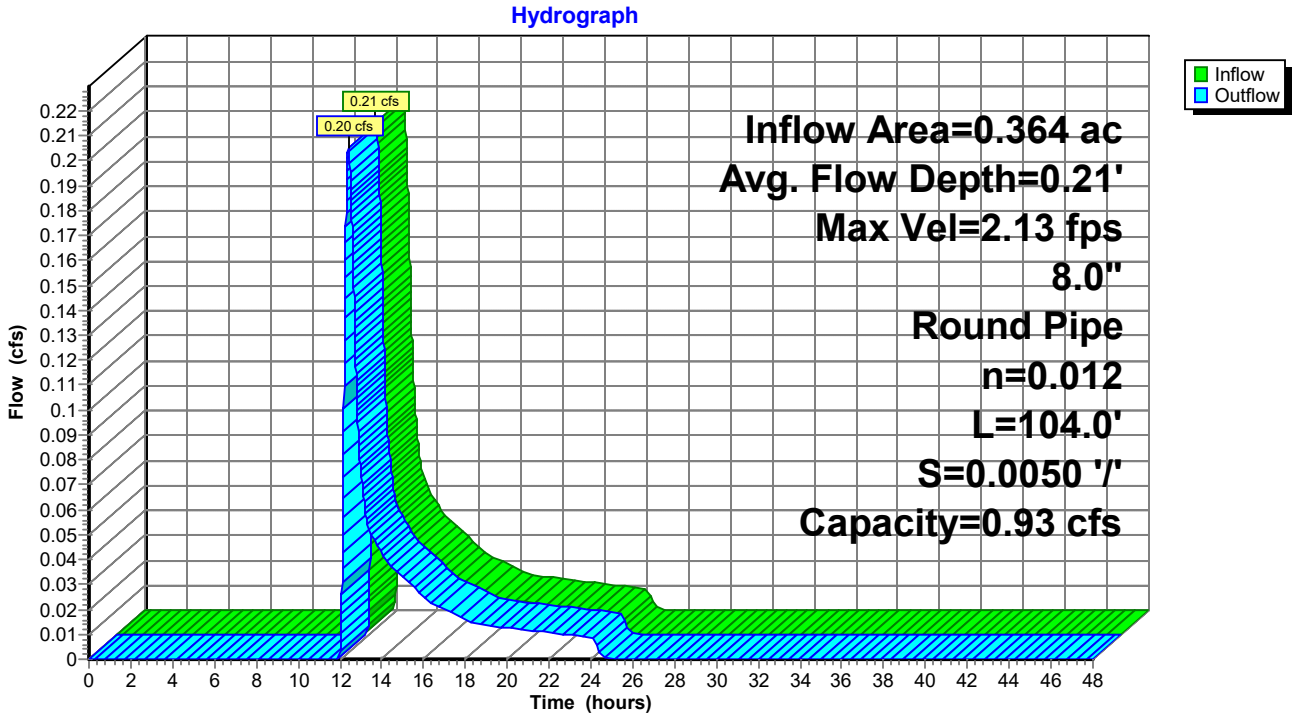
Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.13 fps, Min. Travel Time= 0.8 min
Avg. Velocity = 1.05 fps, Avg. Travel Time= 1.7 min

Peak Storage= 10 cf @ 12.38 hrs
Average Depth at Peak Storage= 0.21' , Surface Width= 0.62'
Bank-Full Depth= 0.67' Flow Area= 0.3 sf, Capacity= 0.93 cfs

8.0" Round Pipe
n= 0.012 Corrugated PP, smooth interior
Length= 104.0' Slope= 0.0050 '/'
Inlet Invert= 116.28', Outlet Invert= 115.76'



Reach 11R: 8" UD



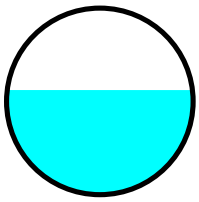
Summary for Reach 12R: 8" SD

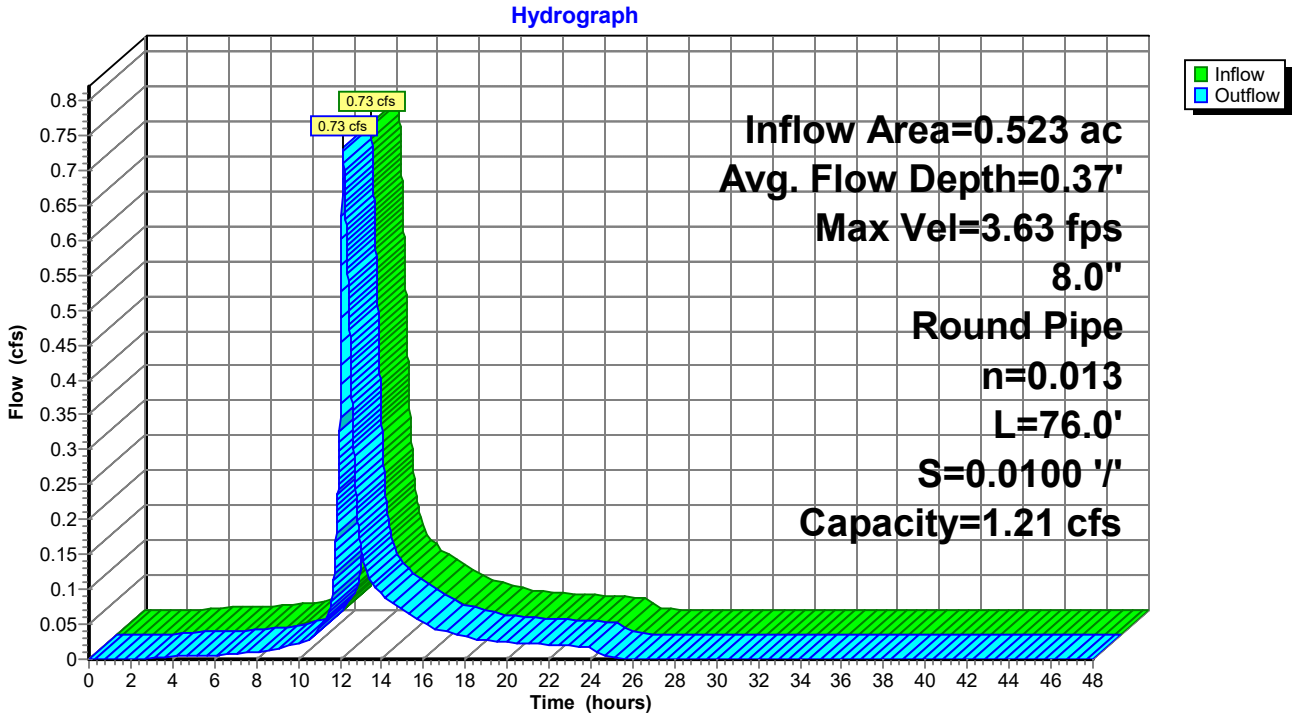
Inflow Area = 0.523 ac, 38.77% Impervious, Inflow Depth = 2.10" for 25-Yr event
Inflow = 0.73 cfs @ 12.14 hrs, Volume= 0.092 af
Outflow = 0.73 cfs @ 12.15 hrs, Volume= 0.092 af, Atten= 0%, Lag= 0.6 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.63 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 1.19 fps, Avg. Travel Time= 1.1 min

Peak Storage= 15 cf @ 12.15 hrs
Average Depth at Peak Storage= 0.37' , Surface Width= 0.66'
Bank-Full Depth= 0.67' Flow Area= 0.3 sf, Capacity= 1.21 cfs

8.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 76.0' Slope= 0.0100 '/'
Inlet Invert= 115.48', Outlet Invert= 114.72'





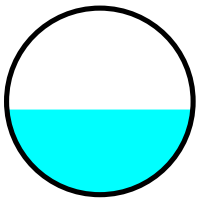
Summary for Reach 15R: Ex SD

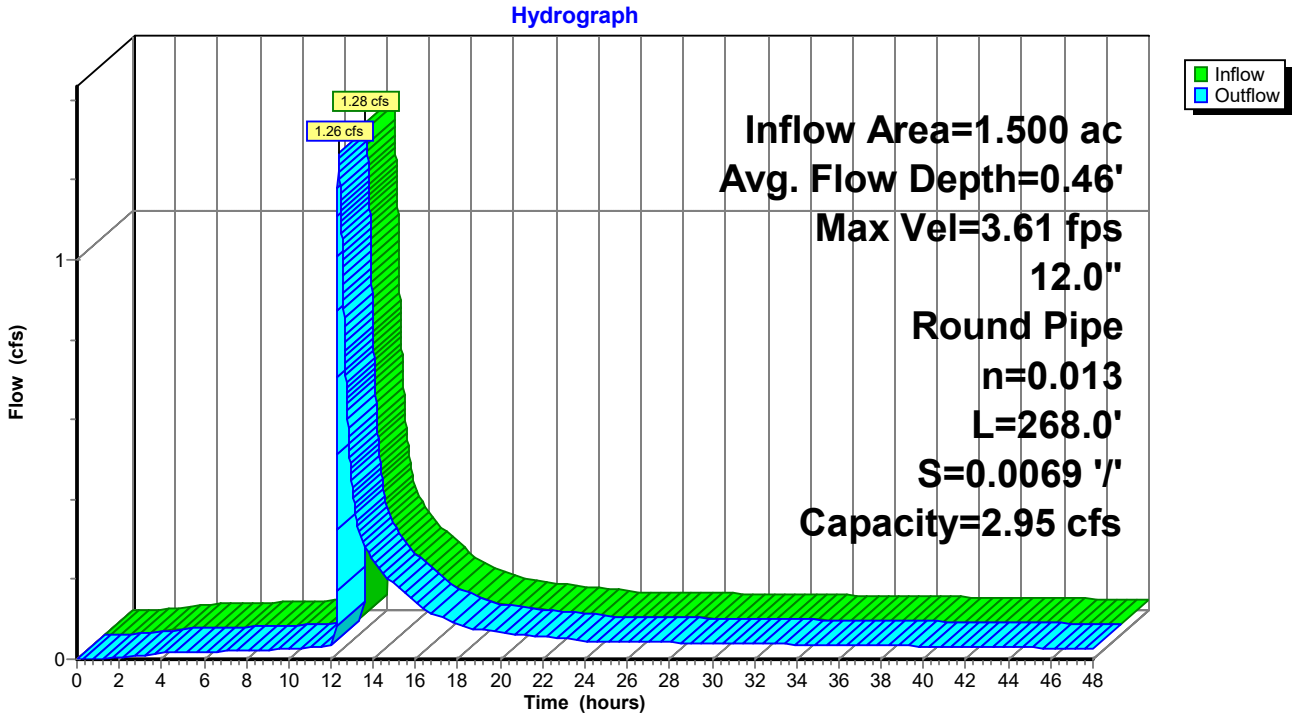
Inflow Area = 1.500 ac, 36.53% Impervious, Inflow Depth > 1.96" for 25-Yr event
Inflow = 1.28 cfs @ 12.33 hrs, Volume= 0.244 af
Outflow = 1.26 cfs @ 12.37 hrs, Volume= 0.244 af, Atten= 1%, Lag= 2.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.61 fps, Min. Travel Time= 1.2 min
Avg. Velocity = 1.36 fps, Avg. Travel Time= 3.3 min

Peak Storage= 94 cf @ 12.35 hrs
Average Depth at Peak Storage= 0.46' , Surface Width= 1.00'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.95 cfs

12.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 268.0' Slope= 0.0069 '/'
Inlet Invert= 109.16', Outlet Invert= 107.32'





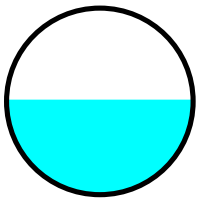
Summary for Reach 16R: 12" SD

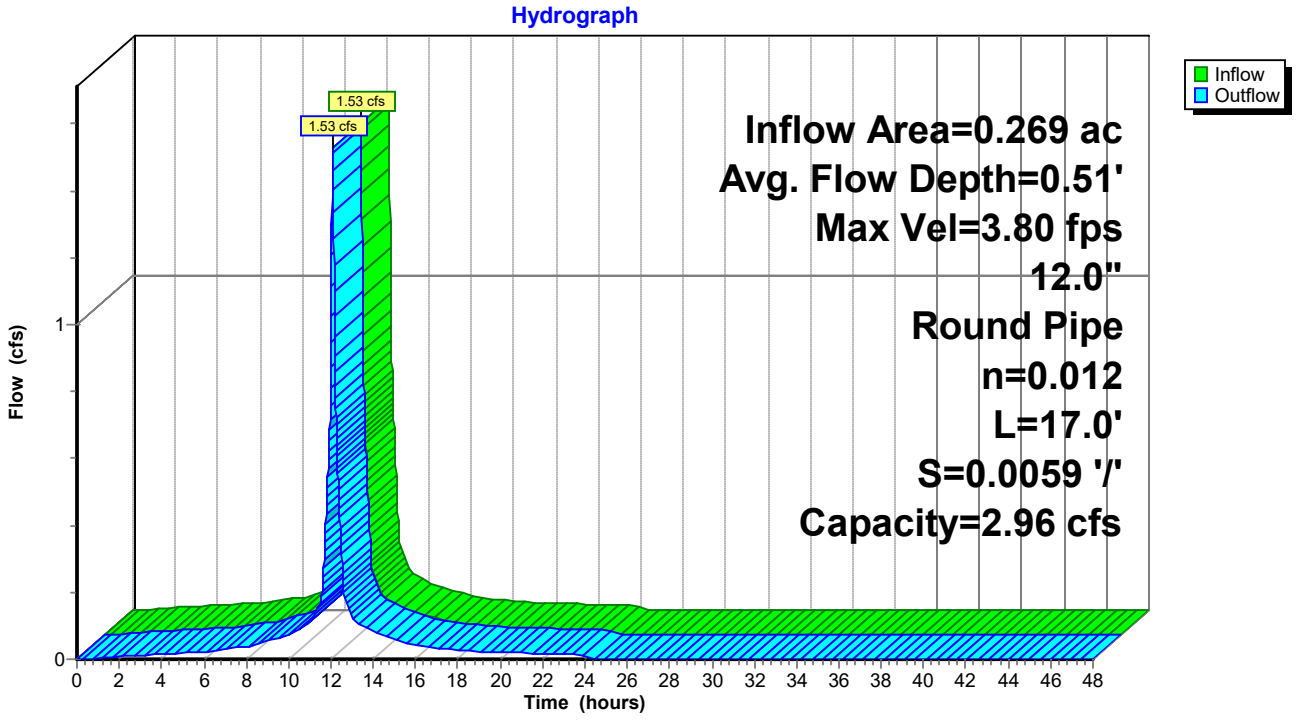
Inflow Area = 0.269 ac,100.00% Impervious, Inflow Depth = 5.56" for 25-Yr event
Inflow = 1.53 cfs @ 12.08 hrs, Volume= 0.125 af
Outflow = 1.53 cfs @ 12.09 hrs, Volume= 0.125 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.80 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 1.29 fps, Avg. Travel Time= 0.2 min

Peak Storage= 7 cf @ 12.08 hrs
Average Depth at Peak Storage= 0.51' , Surface Width= 1.00'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.96 cfs

12.0" Round Pipe
n= 0.012 Corrugated PP, smooth interior
Length= 17.0' Slope= 0.0059 '/'
Inlet Invert= 114.75', Outlet Invert= 114.65'





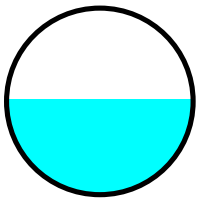
Summary for Reach 17R: 12" SD

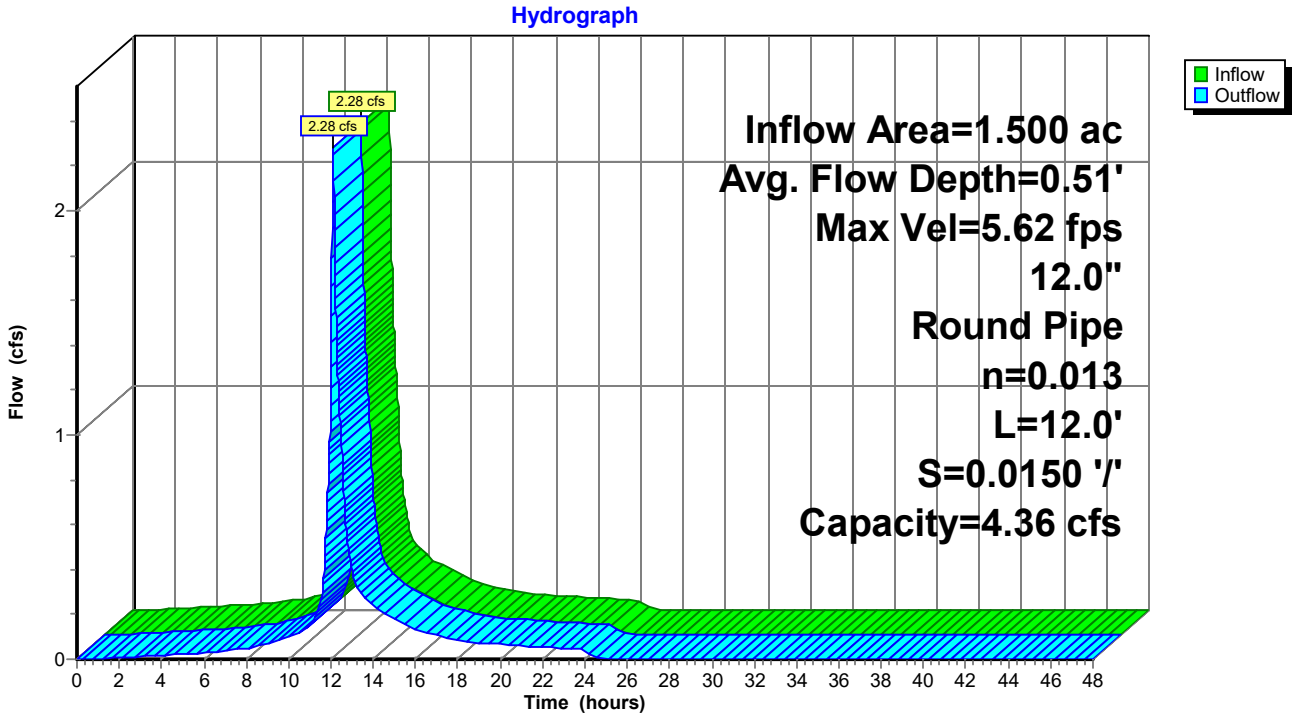
Inflow Area = 1.500 ac, 36.53% Impervious, Inflow Depth = 2.06" for 25-Yr event
Inflow = 2.28 cfs @ 12.10 hrs, Volume= 0.258 af
Outflow = 2.28 cfs @ 12.10 hrs, Volume= 0.258 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 5.62 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 1.82 fps, Avg. Travel Time= 0.1 min

Peak Storage= 5 cf @ 12.10 hrs
Average Depth at Peak Storage= 0.51' , Surface Width= 1.00'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 4.36 cfs

12.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 12.0' Slope= 0.0150 '/'
Inlet Invert= 113.40', Outlet Invert= 113.22'





Summary for Pond 1P: Raised StormTech SC-740 System

Inflow Area = 1.500 ac, 36.53% Impervious, Inflow Depth = 2.06" for 25-Yr event
Inflow = 2.28 cfs @ 12.10 hrs, Volume= 0.258 af
Outflow = 1.28 cfs @ 12.33 hrs, Volume= 0.244 af, Atten= 44%, Lag= 13.4 min
Primary = 1.28 cfs @ 12.33 hrs, Volume= 0.244 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 113.90' @ 12.33 hrs Surf.Area= 0.053 ac Storage= 0.088 af

Plug-Flow detention time= 447.8 min calculated for 0.244 af (95% of inflow)
Center-of-Mass det. time= 417.6 min (1,227.3 - 809.7)

Volume	Invert	Avail.Storage	Storage Description
#1A	111.22'	0.007 af	**6.25'W x 46.34'L x 3.50'H Field A** 0.023 af Overall - 0.006 af Embedded = 0.017 af x 40.0% Voids
#2A	111.72'	0.006 af	**ADS_StormTech SC-740 +Cap** x 6 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap
#3B	111.22'	0.010 af	**6.25'W x 67.70'L x 3.50'H Field B** 0.034 af Overall - 0.009 af Embedded = 0.025 af x 40.0% Voids
#4B	111.72'	0.009 af	**ADS_StormTech SC-740 +Cap** x 9 Inside #3 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap
#5C	111.22'	0.018 af	**6.25'W x 124.66'L x 3.50'H Field C** 0.063 af Overall - 0.018 af Embedded = 0.045 af x 40.0% Voids
#6C	111.72'	0.018 af	**ADS_StormTech SC-740 +Cap** x 17 Inside #5 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap
#7D	111.22'	0.019 af	**6.25'W x 131.78'L x 3.50'H Field D** 0.066 af Overall - 0.019 af Embedded = 0.047 af x 40.0% Voids
#8D	111.72'	0.019 af	**ADS_StormTech SC-740 +Cap** x 18 Inside #7 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap
		0.106 af	Total Available Storage

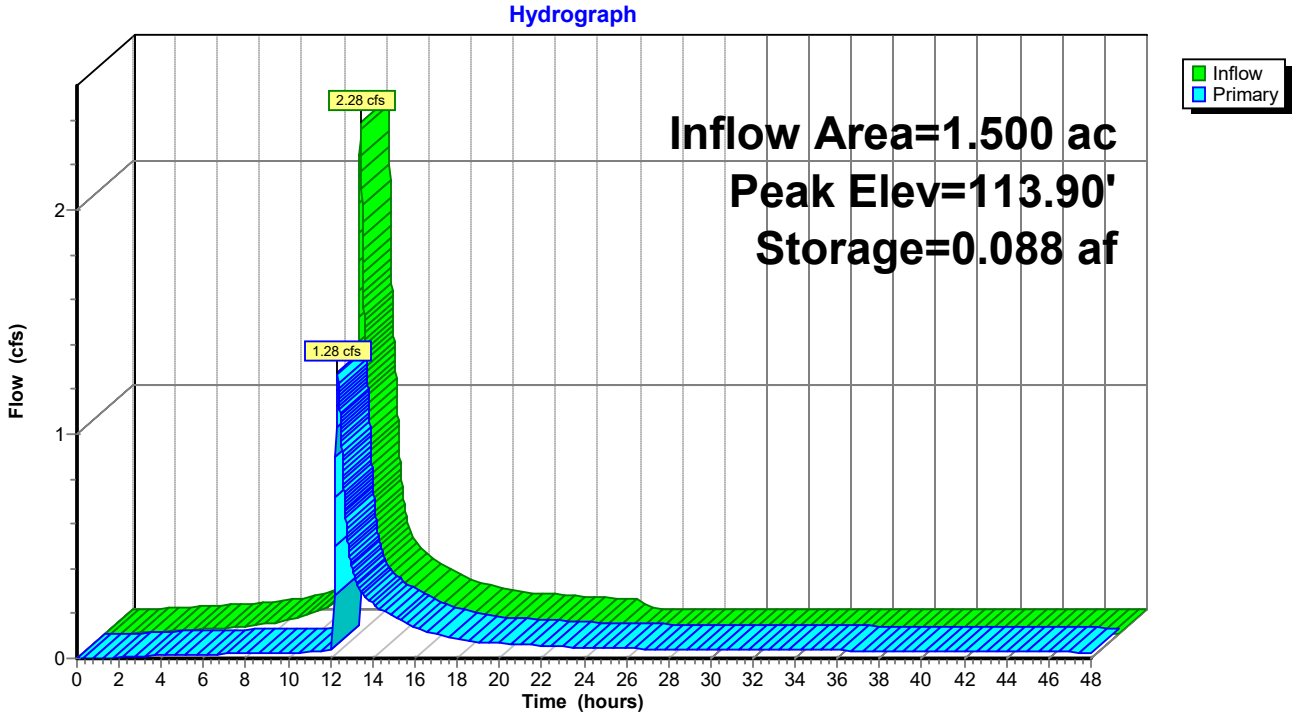
Storage Group A created with Chamber Wizard
Storage Group B created with Chamber Wizard
Storage Group C created with Chamber Wizard
Storage Group D created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Device 3	110.72'	**1.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#2	Device 3	113.72'	**6.0' long x 0.7' 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 Coef. (English) 2.76 2.82 2.93 3.09 3.18 3.22 3.27 3.30 3.32 3.31 3.32
#3	Primary	110.72'	**12.0" Round Culvert** L= 3.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 110.72' / 110.69' S= 0.0100 '/' Cc= 0.900

n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.28 cfs @ 12.33 hrs HW=113.90' (Free Discharge)
└**3=Culvert** (Passes 1.28 cfs of 4.88 cfs potential flow)
└**1=Orifice/Grate** (Orifice Controls 0.05 cfs @ 8.53 fps)
└**2=Broad-Crested Rectangular Weir** (Weir Controls 1.23 cfs @ 1.16 fps)

Pond 1P: Raised StormTech SC-740 System



Summary for Pond 4P: PP1

Inflow Area = 0.050 ac, 81.59% Impervious, Inflow Depth = 4.33" for 25-Yr event
Inflow = 0.25 cfs @ 12.09 hrs, Volume= 0.018 af
Outflow = 0.20 cfs @ 12.14 hrs, Volume= 0.017 af, Atten= 17%, Lag= 3.2 min
Primary = 0.20 cfs @ 12.14 hrs, Volume= 0.017 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 116.01' @ 12.14 hrs Surf.Area= 1,110 sf Storage= 152 cf

Plug-Flow detention time= 83.2 min calculated for 0.017 af (92% of inflow)
Center-of-Mass det. time= 43.0 min (838.8 - 795.9)

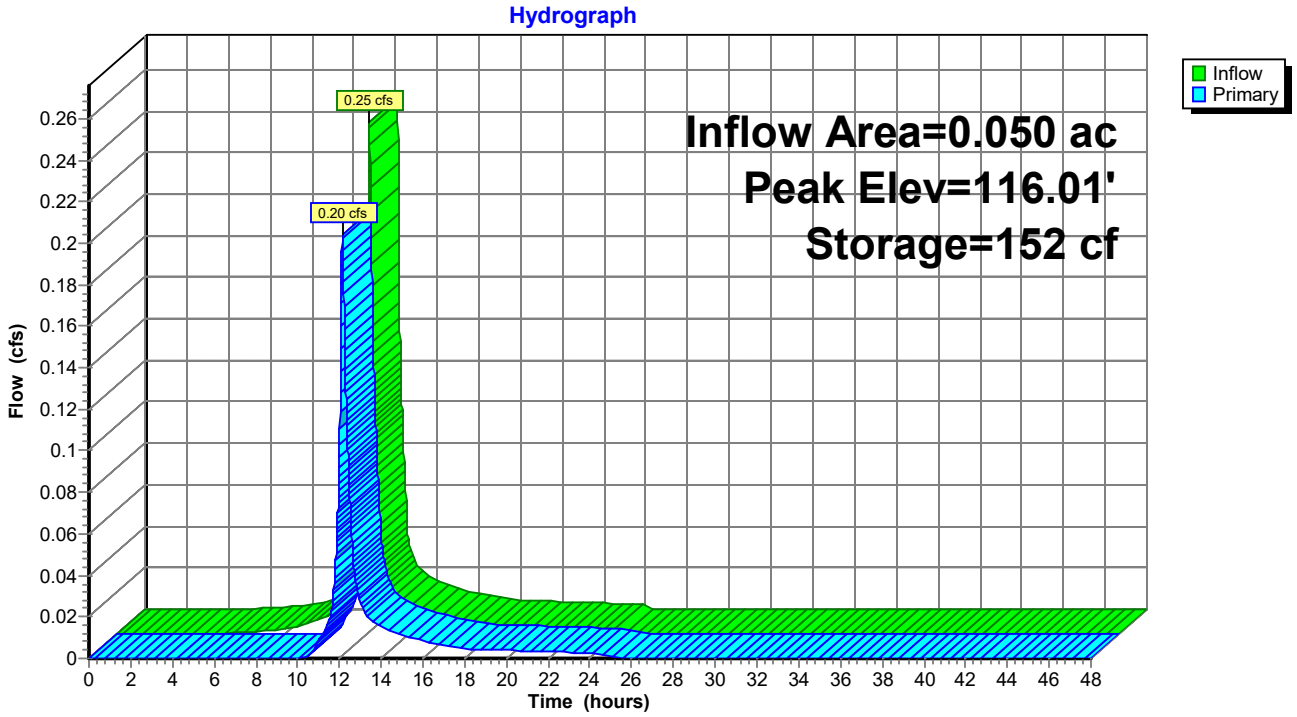
Volume	Invert	Avail.Storage	Storage Description
#1	115.59'	939 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
115.59	1,110	0.0	0	0
115.60	1,110	20.0	2	2
116.35	1,110	33.0	275	277
116.68	1,110	40.0	147	423
117.00	1,110	20.0	71	495
119.00	1,110	20.0	444	939

Device	Routing	Invert	Outlet Devices
#1	Primary	115.76'	**7.500 in/hr Exfiltration over Surface area above 115.76'** Excluded Surface area = 1,110 sf
#2	Primary	115.76'	**8.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.20 cfs @ 12.14 hrs HW=116.01' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.00 cfs)
2=Orifice/Grate (Orifice Controls 0.20 cfs @ 1.70 fps)

Pond 4P: PP1


Hydrograph
Inflow
Primary
0.25 cfs
0.20 cfs
Inflow Area=0.050 ac
Peak Elev=116.01'
Storage=152 cf
Flow (cfs)
0
0.02
0.04
0.06
0.08
0.1
0.12
0.14
0.16
0.18
0.2
0.22
0.24
0.26
Time (hours)
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48

Summary for Pond 8P: CB 7

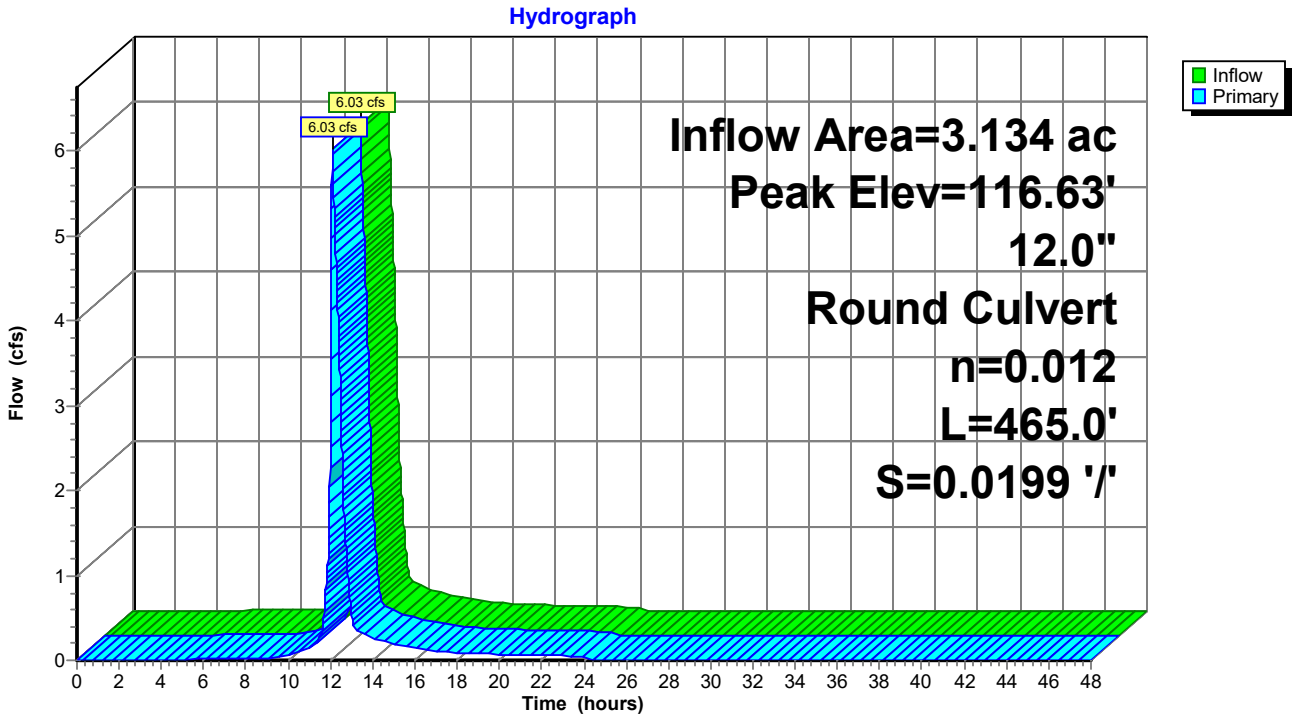
Inflow Area = 3.134 ac, 65.36% Impervious, Inflow Depth = 1.60" for 25-Yr event
Inflow = 6.03 cfs @ 12.11 hrs, Volume= 0.418 af
Outflow = 6.03 cfs @ 12.11 hrs, Volume= 0.418 af, Atten= 0%, Lag= 0.0 min
Primary = 6.03 cfs @ 12.11 hrs, Volume= 0.418 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 116.63' @ 12.11 hrs
Flood Elev= 117.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	112.15'	**12.0" Round Culvert** L= 465.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 112.15' / 102.89' S= 0.0199 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=6.02 cfs @ 12.11 hrs HW=116.61' (Free Discharge)
1=Culvert (Barrel Controls 6.02 cfs @ 7.66 fps)

Pond 8P: CB 7



Summary for Pond 12P: PP2

Inflow Area = 0.077 ac,100.00% Impervious, Inflow Depth = 5.56" for 25-Yr event
Inflow = 0.44 cfs @ 12.08 hrs, Volume= 0.036 af
Outflow = 0.36 cfs @ 12.14 hrs, Volume= 0.036 af, Atten= 18%, Lag= 3.4 min
Primary = 0.36 cfs @ 12.14 hrs, Volume= 0.036 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 115.99' @ 12.14 hrs Surf.Area= 1,212 sf Storage= 160 cf

Plug-Flow detention time= 24.6 min calculated for 0.036 af (100% of inflow)
Center-of-Mass det. time= 23.6 min (769.2 - 745.7)

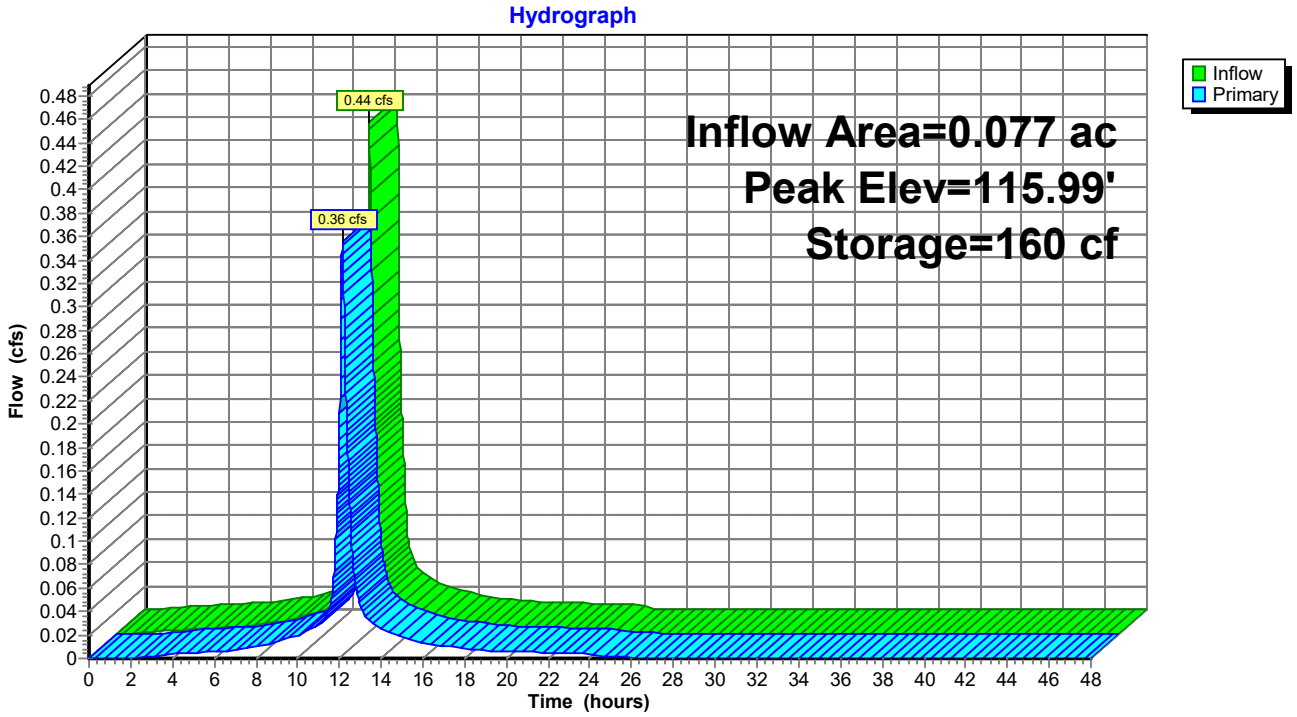
Volume	Invert	Avail.Storage	Storage Description
#1	115.59'	1,025 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
115.59	1,212	0.0	0	0
115.60	1,212	20.0	2	2
116.35	1,212	33.0	300	302
116.68	1,212	40.0	160	462
117.00	1,212	20.0	78	540
119.00	1,212	20.0	485	1,025

Device	Routing	Invert	Outlet Devices
#1	Primary	115.76'	**7.500 in/hr Exfiltration over Surface area above 115.76'** Excluded Surface area = 1,212 sf
#2	Primary	115.60'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.36 cfs @ 12.14 hrs HW=115.99' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.00 cfs)
2=Orifice/Grate (Orifice Controls 0.36 cfs @ 2.14 fps)

Pond 12P: PP2


Hydrograph
Inflow
Primary
0.44 cfs
0.36 cfs
Inflow Area=0.077 ac
Peak Elev=115.99'
Storage=160 cf
Flow (cfs)
Time (hours)

Summary for Pond 14P: Rain Garden West

Inflow Area = 0.503 ac, 7.99% Impervious, Inflow Depth = 0.66" for 25-Yr event
Inflow = 0.16 cfs @ 12.36 hrs, Volume= 0.028 af
Outflow = 0.13 cfs @ 12.56 hrs, Volume= 0.025 af, Atten= 20%, Lag= 11.9 min
Primary = 0.13 cfs @ 12.56 hrs, Volume= 0.025 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 120.32' @ 12.56 hrs Surf.Area= 631 sf Storage= 174 cf

Plug-Flow detention time= 83.0 min calculated for 0.025 af (89% of inflow)
Center-of-Mass det. time= 33.1 min (968.5 - 935.4)

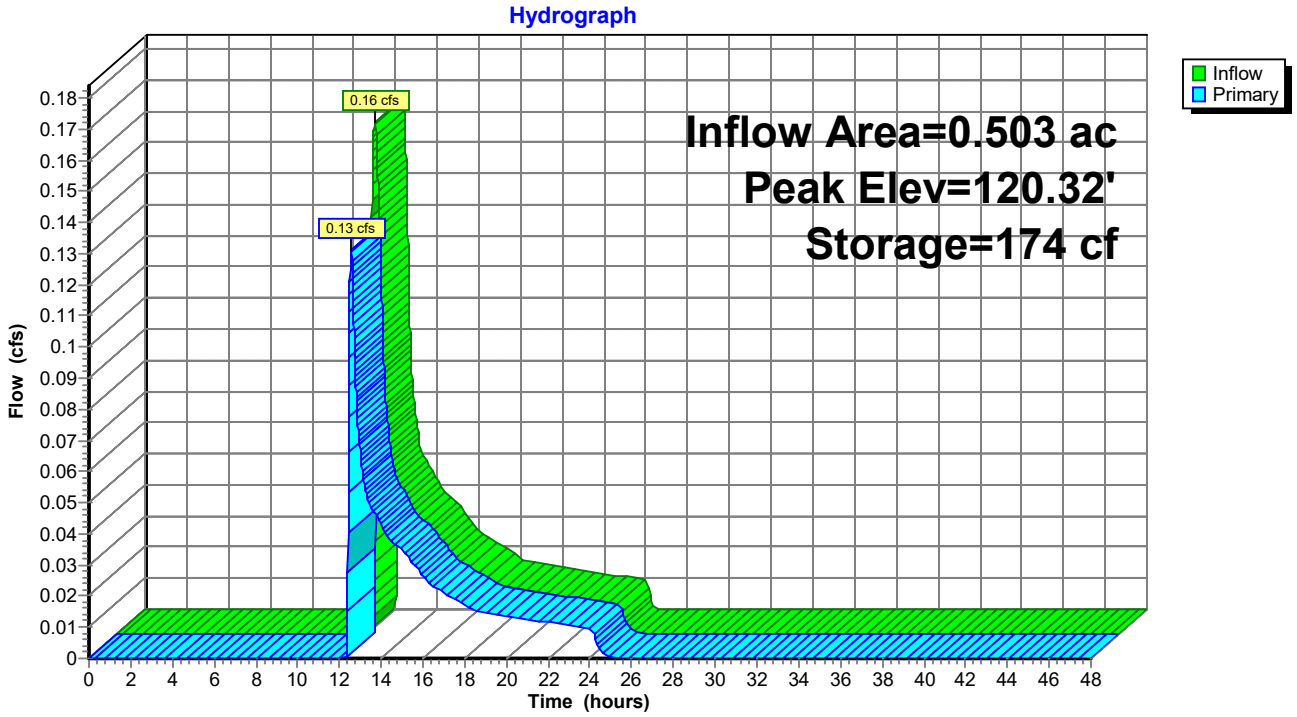
Volume	Invert	Avail.Storage	Storage Description
#1	120.00'	729 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
120.00	453	0	0
121.00	1,005	729	729

Device	Routing	Invert	Outlet Devices
#1	Device 2	120.25'	**8.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#2	Primary	117.25'	**8.0" Round Culvert** L= 187.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 117.25' / 115.25' S= 0.0107 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.13 cfs @ 12.56 hrs HW=120.32' (Free Discharge)
↑—**2=Culvert** (Passes 0.13 cfs of 1.71 cfs potential flow)
↑—**1=Orifice/Grate** (Weir Controls 0.13 cfs @ 0.87 fps)

Pond 14P: Rain Garden West



Summary for Pond DS-2: Drip Strip

Inflow Area = 0.220 ac, 79.17% Impervious, Inflow Depth = 4.99" for 25-Yr event
Inflow = 1.20 cfs @ 12.08 hrs, Volume= 0.092 af
Outflow = 0.54 cfs @ 12.26 hrs, Volume= 0.092 af, Atten= 55%, Lag= 10.4 min
Discarded = 0.28 cfs @ 11.76 hrs, Volume= 0.087 af
Primary = 0.26 cfs @ 12.26 hrs, Volume= 0.005 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 116.14' @ 12.26 hrs Surf.Area= 1,600 sf Storage= 706 cf

Plug-Flow detention time= 11.7 min calculated for 0.092 af (100% of inflow)
Center-of-Mass det. time= 11.7 min (785.7 - 774.0)

Volume	Invert	Avail.Storage	Storage Description
#1	115.00'	3,040 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

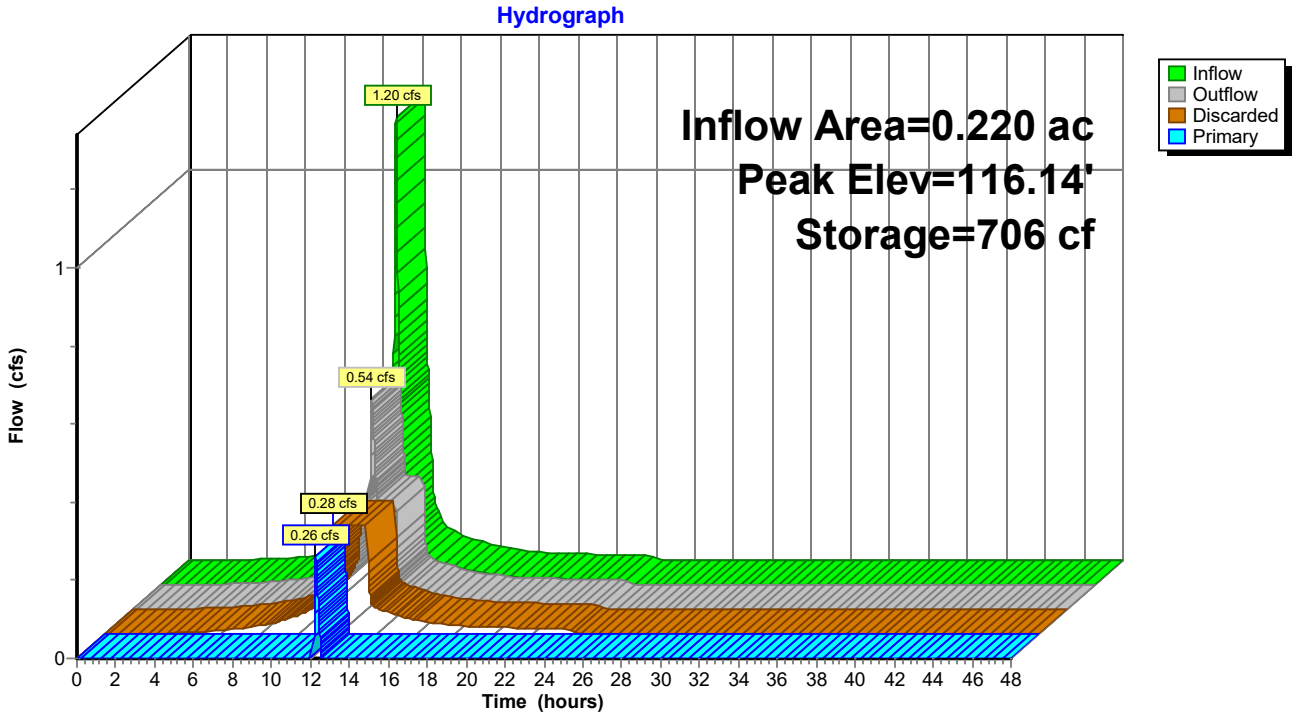
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
115.00	1,600	0.0	0	0
116.00	1,600	40.0	640	640
117.00	1,600	30.0	480	1,120
118.00	1,600	40.0	640	1,760
119.00	1,600	40.0	640	2,400
120.00	1,600	40.0	640	3,040

Device	Routing	Invert	Outlet Devices
#1	Discarded	115.00'	**7.500 in/hr Exfiltration over Surface area**
#2	Primary	116.00'	**6.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.28 cfs @ 11.76 hrs HW=115.05' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.28 cfs)

Primary OutFlow Max=0.26 cfs @ 12.26 hrs HW=116.14' (Free Discharge)
↑—**2=Orifice/Grate** (Weir Controls 0.26 cfs @ 1.21 fps)

Pond DS-2: Drip Strip



Summary for Pond DS-3: Drip Strip

Inflow Area = 0.399 ac, 76.31% Impervious, Inflow Depth = 4.99" for 25-Yr event
Inflow = 2.17 cfs @ 12.08 hrs, Volume= 0.166 af
Outflow = 1.26 cfs @ 12.19 hrs, Volume= 0.166 af, Atten= 42%, Lag= 6.6 min
Discarded = 0.28 cfs @ 11.62 hrs, Volume= 0.129 af
Primary = 0.98 cfs @ 12.19 hrs, Volume= 0.036 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 117.08' @ 12.19 hrs Surf.Area= 1,600 sf Storage= 1,168 cf

Plug-Flow detention time= 11.5 min calculated for 0.166 af (100% of inflow)
Center-of-Mass det. time= 11.5 min (785.4 - 774.0)

Volume	Invert	Avail.Storage	Storage Description
#1	115.00'	3,040 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

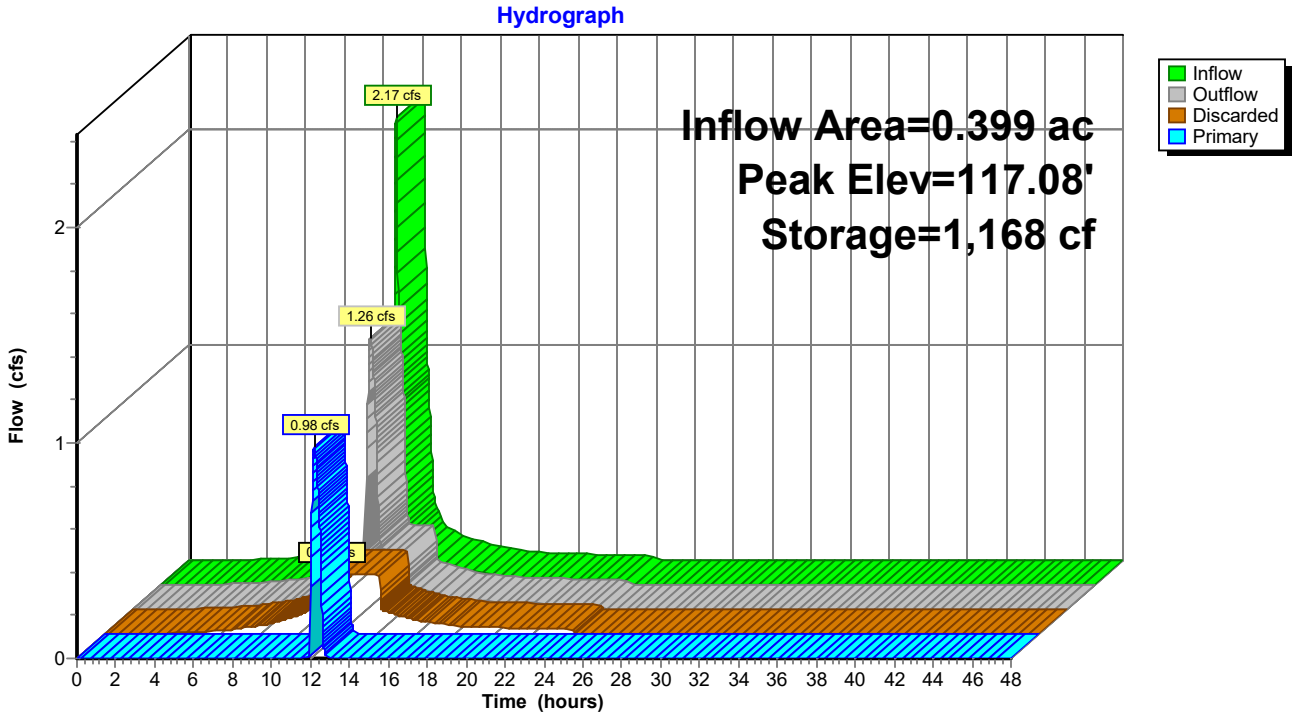
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
115.00	1,600	0.0	0	0
116.00	1,600	40.0	640	640
117.00	1,600	30.0	480	1,120
118.00	1,600	40.0	640	1,760
119.00	1,600	40.0	640	2,400
120.00	1,600	40.0	640	3,040

Device	Routing	Invert	Outlet Devices
#1	Discarded	115.00'	**7.500 in/hr Exfiltration over Surface area**
#2	Primary	116.00'	**6.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.28 cfs @ 11.62 hrs HW=115.05' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.28 cfs)

Primary OutFlow Max=0.98 cfs @ 12.19 hrs HW=117.07' (Free Discharge)
↑—**2=Orifice/Grate** (Orifice Controls 0.98 cfs @ 4.99 fps)

Pond DS-3: Drip Strip



Summary for Pond DS1: Drip Strip

Inflow Area = 0.220 ac, 79.17% Impervious, Inflow Depth = 4.99" for 25-Yr event
Inflow = 1.20 cfs @ 12.08 hrs, Volume= 0.092 af
Outflow = 0.54 cfs @ 12.26 hrs, Volume= 0.092 af, Atten= 55%, Lag= 10.4 min
Discarded = 0.28 cfs @ 11.76 hrs, Volume= 0.087 af
Primary = 0.26 cfs @ 12.26 hrs, Volume= 0.005 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 116.14' @ 12.26 hrs Surf.Area= 1,600 sf Storage= 706 cf

Plug-Flow detention time= 11.7 min calculated for 0.092 af (100% of inflow)
Center-of-Mass det. time= 11.7 min (785.7 - 774.0)

Volume	Invert	Avail.Storage	Storage Description
#1	115.00'	3,040 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

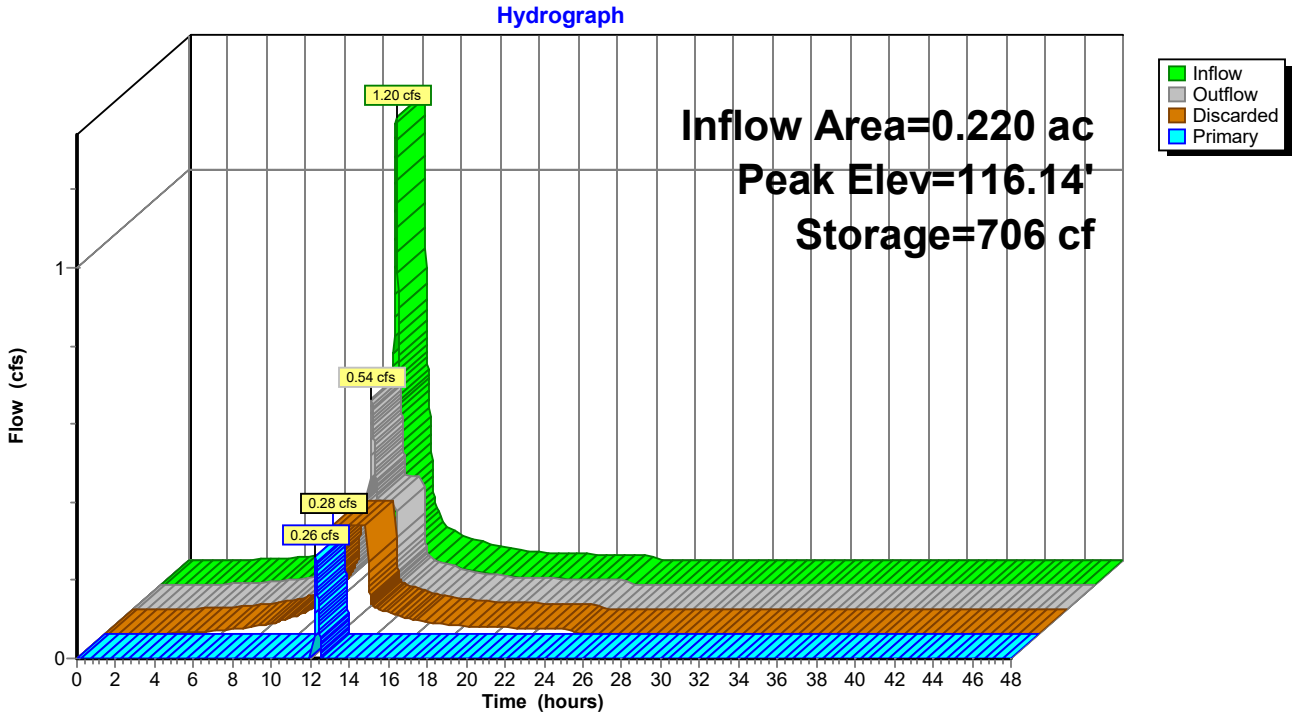
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
115.00	1,600	0.0	0	0
116.00	1,600	40.0	640	640
117.00	1,600	30.0	480	1,120
118.00	1,600	40.0	640	1,760
119.00	1,600	40.0	640	2,400
120.00	1,600	40.0	640	3,040

Device	Routing	Invert	Outlet Devices
#1	Discarded	115.00'	**7.500 in/hr Exfiltration over Surface area**
#2	Primary	116.00'	**6.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.28 cfs @ 11.76 hrs HW=115.05' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.28 cfs)

Primary OutFlow Max=0.26 cfs @ 12.26 hrs HW=116.14' (Free Discharge)
↑—**2=Orifice/Grate** (Weir Controls 0.26 cfs @ 1.21 fps)

Pond DS1: Drip Strip



Summary for Pond IT-1: Infiltration Trench

Inflow Area = 1.179 ac, 68.48% Impervious, Inflow Depth = 2.37" for 25-Yr event
Inflow = 3.07 cfs @ 12.10 hrs, Volume= 0.233 af
Outflow = 1.61 cfs @ 12.29 hrs, Volume= 0.233 af, Atten= 48%, Lag= 11.9 min
Discarded = 0.28 cfs @ 11.56 hrs, Volume= 0.151 af
Primary = 1.33 cfs @ 12.29 hrs, Volume= 0.082 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 115.23' @ 12.29 hrs Surf.Area= 1,600 sf Storage= 1,748 cf

Plug-Flow detention time= 12.1 min calculated for 0.233 af (100% of inflow)
Center-of-Mass det. time= 12.1 min (814.0 - 801.9)

Volume	Invert	Avail.Storage	Storage Description
#1	112.00'	2,880 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

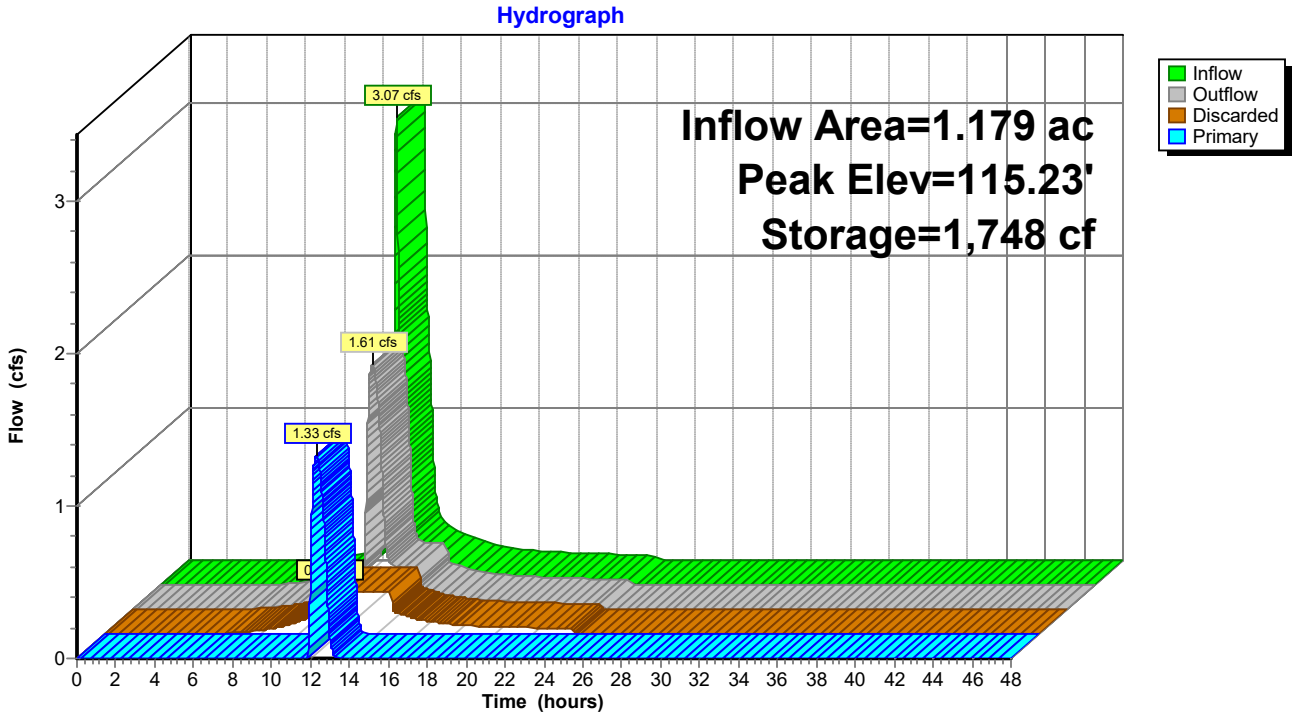
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
112.00	1,600	0.0	0	0
113.00	1,600	30.0	480	480
114.00	1,600	30.0	480	960
115.00	1,600	40.0	640	1,600
116.00	1,600	40.0	640	2,240
117.00	1,600	40.0	640	2,880

Device	Routing	Invert	Outlet Devices
#1	Discarded	112.00'	**7.500 in/hr Exfiltration over Surface area**
#2	Primary	113.00'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.28 cfs @ 11.56 hrs HW=112.05' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.28 cfs)

Primary OutFlow Max=1.33 cfs @ 12.29 hrs HW=115.23' (Free Discharge)
↑—**2=Orifice/Grate** (Orifice Controls 1.33 cfs @ 6.78 fps)

Pond IT-1: Infiltration Trench



Summary for Pond RG-1: Rain Garden

Inflow Area = 0.168 ac, 58.87% Impervious, Inflow Depth = 3.02" for 25-Yr event
Inflow = 0.59 cfs @ 12.09 hrs, Volume= 0.042 af
Outflow = 0.43 cfs @ 12.17 hrs, Volume= 0.042 af, Atten= 28%, Lag= 4.6 min
Discarded = 0.08 cfs @ 11.70 hrs, Volume= 0.031 af
Primary = 0.35 cfs @ 12.17 hrs, Volume= 0.012 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 115.86' @ 12.17 hrs Surf.Area= 460 sf Storage= 206 cf

Plug-Flow detention time= 5.8 min calculated for 0.042 af (100% of inflow)
Center-of-Mass det. time= 5.8 min (836.2 - 830.4)

Volume	Invert	Avail.Storage	Storage Description
#1	114.50'	1,185 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

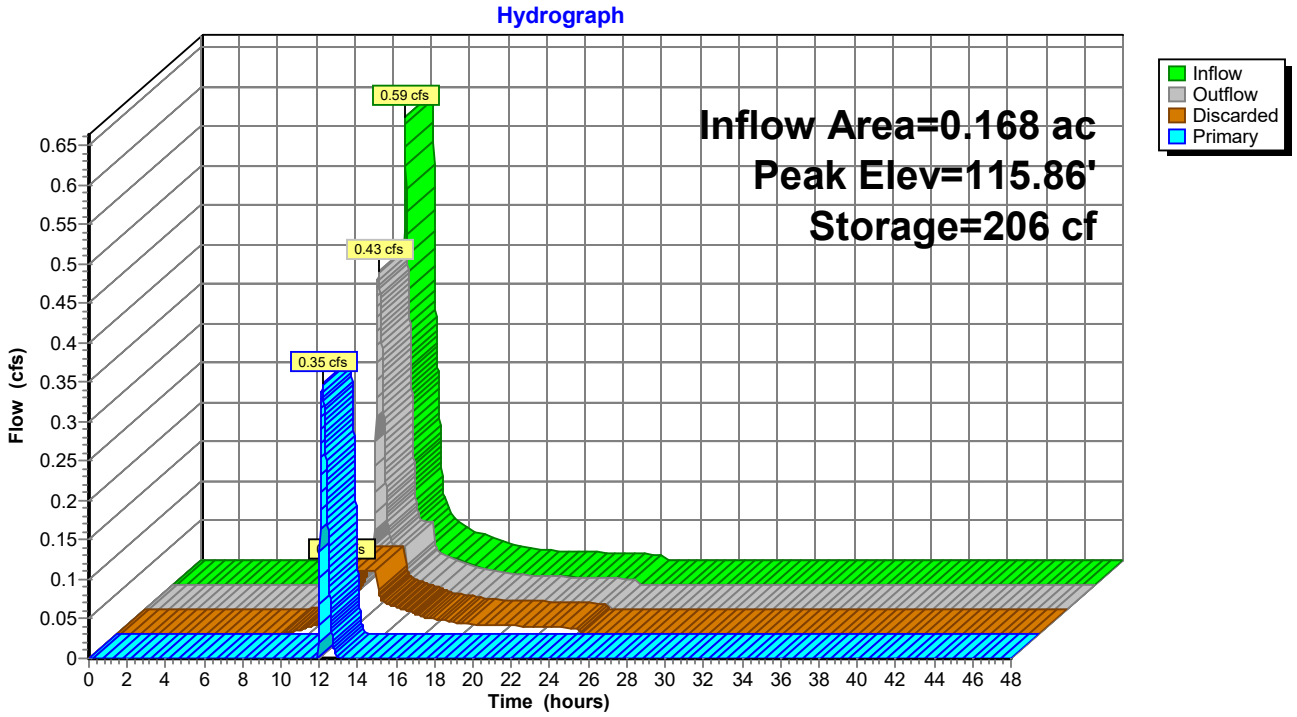
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
114.50	460	33.0	0	0
115.00	460	33.0	76	76
115.50	460	33.0	76	152
116.00	460	33.0	76	228
116.50	460	100.0	230	458
117.00	460	100.0	230	688
117.50	505	100.0	241	929
118.00	520	100.0	256	1,185

Device	Routing	Invert	Outlet Devices
#1	Discarded	114.50'	**7.500 in/hr Exfiltration over Surface area**
#2	Device 3	115.00'	**4.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Primary	114.50'	**8.0" Round Culvert** L= 150.0' Ke= 0.500 Inlet / Outlet Invert= 114.50' / 112.15' S= 0.0157 '/' Cc= 0.900 n= 0.012, Flow Area= 0.35 sf
#4	Device 3	117.50'	**10.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.08 cfs @ 11.70 hrs HW=114.54' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.08 cfs)

Primary OutFlow Max=0.35 cfs @ 12.17 hrs HW=115.86' (Free Discharge)
└**3=Culvert** (Passes 0.35 cfs of 1.69 cfs potential flow)
  ├**2=Orifice/Grate** (Orifice Controls 0.35 cfs @ 4.00 fps)
  └**4=Orifice/Grate** (Controls 0.00 cfs)

Pond RG-1: Rain Garden



Summary for Pond RG-2: Rain Garden

Inflow Area = 0.478 ac, 64.28% Impervious, Inflow Depth = 1.50" for 25-Yr event
Inflow = 0.77 cfs @ 12.09 hrs, Volume= 0.060 af
Outflow = 0.50 cfs @ 12.36 hrs, Volume= 0.060 af, Atten= 35%, Lag= 15.9 min
Discarded = 0.17 cfs @ 11.82 hrs, Volume= 0.047 af
Primary = 0.33 cfs @ 12.36 hrs, Volume= 0.012 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 115.78' @ 12.36 hrs Surf.Area= 960 sf Storage= 408 cf

Plug-Flow detention time= 6.8 min calculated for 0.060 af (100% of inflow)
Center-of-Mass det. time= 6.8 min (841.0 - 834.2)

Volume	Invert	Avail.Storage	Storage Description
#1	114.49'	2,177 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

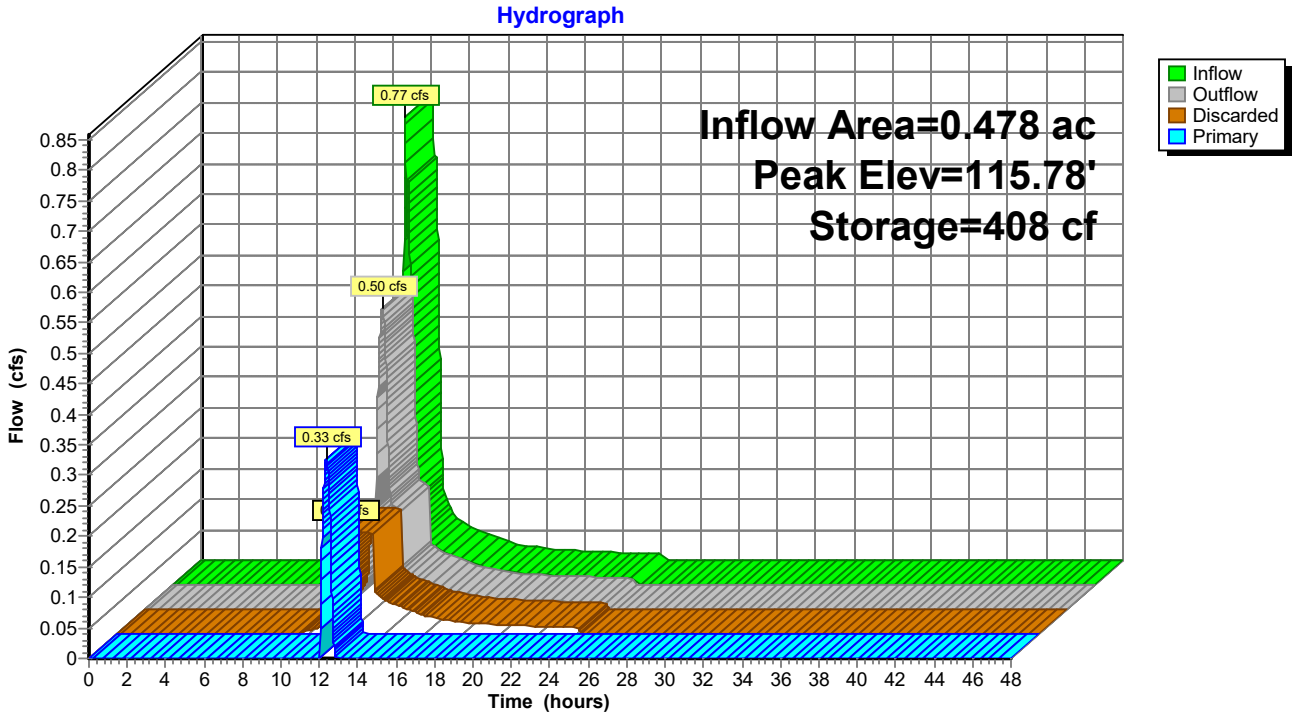
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
114.49	960	0.0	0	0
114.50	960	33.0	3	3
115.00	960	33.0	158	162
115.50	960	33.0	158	320
116.00	960	33.0	158	478
116.50	960	33.0	158	637
117.00	960	100.0	480	1,117
117.50	1,040	100.0	500	1,617
118.00	1,200	100.0	560	2,177

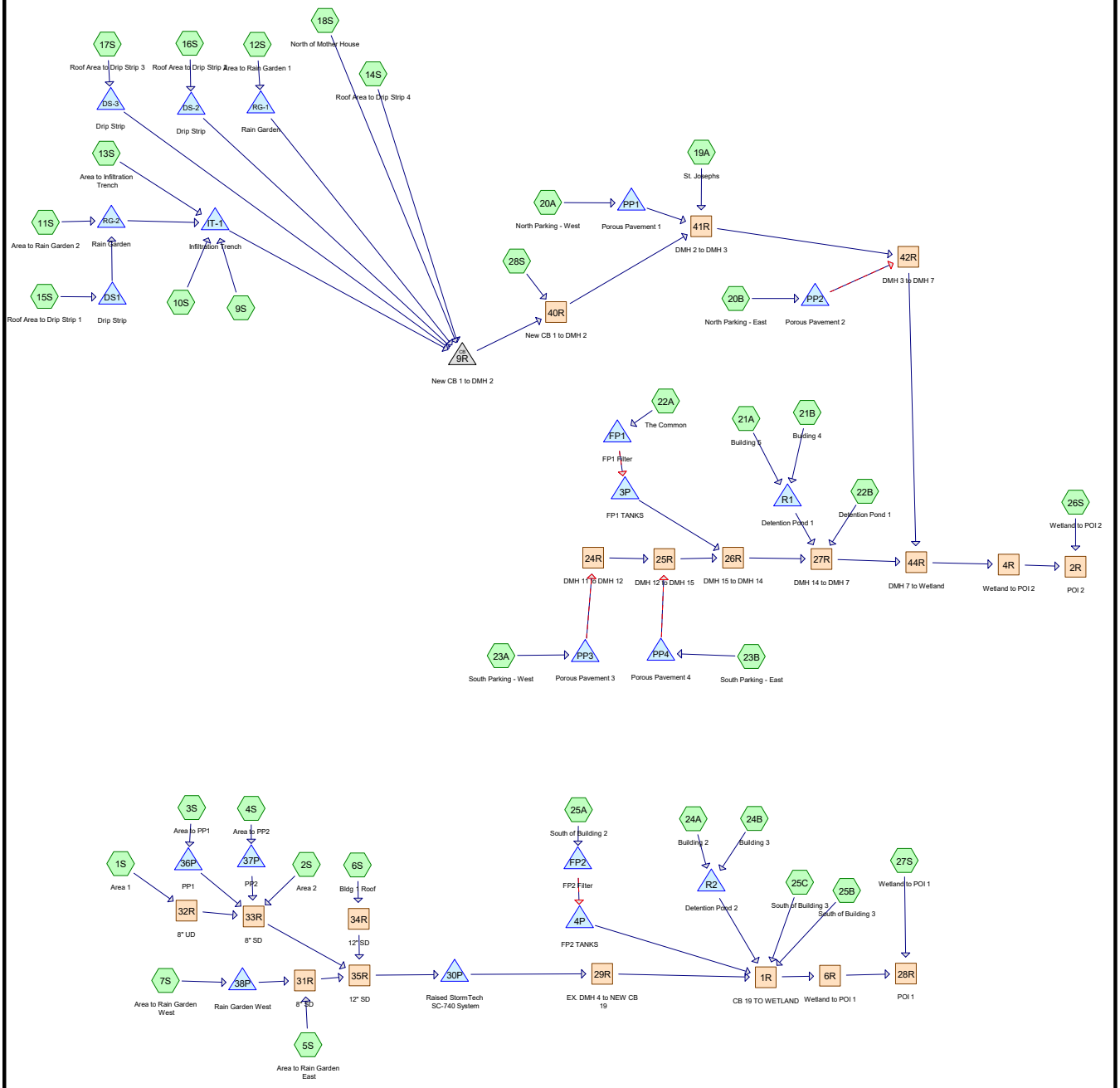
Device	Routing	Invert	Outlet Devices
#1	Discarded	114.49'	**7.500 in/hr Exfiltration over Surface area**
#2	Device 3	115.00'	**4.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Primary	114.50'	**8.0" Round Culvert** L= 150.0' Ke= 0.500 Inlet / Outlet Invert= 114.50' / 113.00' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 0.35 sf
#4	Device 3	117.50'	**10.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.17 cfs @ 11.82 hrs HW=114.50' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.17 cfs)

Primary OutFlow Max=0.33 cfs @ 12.36 hrs HW=115.78' (Free Discharge)
└**3=Culvert** (Passes 0.33 cfs of 1.41 cfs potential flow)
  ├**2=Orifice/Grate** (Orifice Controls 0.33 cfs @ 3.76 fps)
  └**4=Orifice/Grate** (Controls 0.00 cfs)

Pond RG-2: Rain Garden





Routing Diagram for Post-Development
Prepared by Gorrill Palmer, Printed 5/13/2021
HydroCAD® 10.10-4a s/n 01265 © 2020 HydroCAD Software Solutions LLC

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Subcatchment 1S: Area 1 Runoff Area=15,851 sf 17.16% Impervious Runoff Depth=0.09"
Flow Length=300' Tc=20.7 min CN=49 Runoff=0.00 cfs 0.003 af

Subcatchment 2S: Area 2 Runoff Area=1,429 sf 70.05% Impervious Runoff Depth=1.33"
Tc=6.0 min CN=80 Runoff=0.05 cfs 0.004 af

Subcatchment 3S: Area to PP1 Runoff Area=2,173 sf 81.59% Impervious Runoff Depth=1.83"
Tc=6.0 min CN=87 Runoff=0.11 cfs 0.008 af

Subcatchment 4S: Area to PP2 Runoff Area=3,345 sf 100.00% Impervious Runoff Depth=2.87"
Tc=6.0 min CN=98 Runoff=0.23 cfs 0.018 af

Subcatchment 5S: Area to Rain Garden East Runoff Area=8,904 sf 17.46% Impervious Runoff Depth=0.09"
Flow Length=150' Slope=0.0200 '/' Tc=9.2 min CN=49 Runoff=0.00 cfs 0.002 af

Subcatchment 6S: Bldg 1 Roof Runoff Area=11,717 sf 100.00% Impervious Runoff Depth=2.87"
Tc=6.0 min CN=98 Runoff=0.81 cfs 0.064 af

Subcatchment 7S: Area to Rain Garden Runoff Area=21,901 sf 7.99% Impervious Runoff Depth=0.02"
Flow Length=170' Tc=14.0 min CN=44 Runoff=0.00 cfs 0.001 af

Subcatchment 9S: Runoff Area=1,785 sf 50.98% Impervious Runoff Depth=0.72"
Tc=6.0 min CN=69 Runoff=0.03 cfs 0.002 af

Subcatchment 10S: Runoff Area=12,293 sf 82.32% Impervious Runoff Depth=1.91"
Tc=6.0 min CN=88 Runoff=0.63 cfs 0.045 af

Subcatchment 11S: Area to Rain Garden 2 Runoff Area=11,240 sf 51.56% Impervious Runoff Depth=0.72"
Tc=6.0 min CN=69 Runoff=0.19 cfs 0.016 af

Subcatchment 12S: Area to Rain Garden 1 Runoff Area=7,303 sf 58.87% Impervious Runoff Depth=0.97"
Tc=6.0 min CN=74 Runoff=0.18 cfs 0.014 af

Subcatchment 13S: Area to Infiltration Runoff Area=15,495 sf 77.47% Impervious Runoff Depth=1.67"
Tc=6.0 min CN=85 Runoff=0.70 cfs 0.050 af

Subcatchment 14S: Roof Area to Drip Runoff Area=6,080 sf 100.00% Impervious Runoff Depth=2.87"
Tc=6.0 min CN=98 Runoff=0.42 cfs 0.033 af

Subcatchment 15S: Roof Area to Drip Strip Runoff Area=9,600 sf 79.17% Impervious Runoff Depth=2.35"
Tc=6.0 min CN=93 Runoff=0.59 cfs 0.043 af

Subcatchment 16S: Roof Area to Drip Strip Runoff Area=9,600 sf 79.17% Impervious Runoff Depth=2.35"
Tc=6.0 min CN=93 Runoff=0.59 cfs 0.043 af

Subcatchment 17S: Roof Area to Drip Runoff Area=17,390 sf 76.31% Impervious Runoff Depth=2.35"
Tc=6.0 min CN=93 Runoff=1.07 cfs 0.078 af

Subcatchment 18S: North of Mother House Runoff Area=44,775 sf 50.92% Impervious Runoff Depth=0.72"
Tc=6.0 min CN=69 Runoff=0.75 cfs 0.062 af

Subcatchment 19A: St. Josephs Runoff Area=57,470 sf 35.07% Impervious Runoff Depth=0.37"
Flow Length=407' Tc=19.8 min CN=60 Runoff=0.23 cfs 0.041 af

Subcatchment 20A: North Parking - West Runoff Area=19,180 sf 72.24% Impervious Runoff Depth=1.46"
Tc=6.0 min CN=82 Runoff=0.75 cfs 0.054 af

Subcatchment 20B: North Parking - East Runoff Area=15,935 sf 73.59% Impervious Runoff Depth=1.46"
Tc=6.0 min CN=82 Runoff=0.62 cfs 0.044 af

Subcatchment 21A: Building 5 Runoff Area=19,410 sf 100.00% Impervious Runoff Depth=2.87"
Tc=6.0 min CN=98 Runoff=1.34 cfs 0.106 af

Subcatchment 21B: Buiding 4 Runoff Area=12,580 sf 100.00% Impervious Runoff Depth=2.87"
Tc=6.0 min CN=98 Runoff=0.87 cfs 0.069 af

Subcatchment 22A: The Common Runoff Area=35,370 sf 23.11% Impervious Runoff Depth=0.05"
Flow Length=209' Slope=0.0100 '/' Tc=23.0 min UI Adjusted CN=46 Runoff=0.00 cfs 0.003 af

Subcatchment 22B: Detention Pond 1 Runoff Area=8,850 sf 13.39% Impervious Runoff Depth=0.06"
Tc=6.0 min CN=47 Runoff=0.00 cfs 0.001 af

Subcatchment 23A: South Parking - West Runoff Area=18,825 sf 64.46% Impervious Runoff Depth=1.14"
Tc=6.0 min CN=77 Runoff=0.56 cfs 0.041 af

Subcatchment 23B: South Parking - East Runoff Area=9,870 sf 63.12% Impervious Runoff Depth=1.08"
Tc=6.0 min CN=76 Runoff=0.28 cfs 0.020 af

Subcatchment 24A: Building 2 Runoff Area=12,580 sf 100.00% Impervious Runoff Depth=2.87"
Tc=6.0 min CN=98 Runoff=0.87 cfs 0.069 af

Subcatchment 24B: Building 3 Runoff Area=19,410 sf 100.00% Impervious Runoff Depth=2.87"
Tc=6.0 min CN=98 Runoff=1.34 cfs 0.106 af

Subcatchment 25A: South of Building 2 Runoff Area=22,380 sf 21.94% Impervious Runoff Depth=0.55"
Flow Length=140' Slope=0.0100 '/' Tc=25.0 min CN=65 Runoff=0.16 cfs 0.024 af

Subcatchment 25B: South of Building 3 Runoff Area=9,075 sf 8.10% Impervious Runoff Depth=1.08"
Tc=6.0 min CN=76 Runoff=0.25 cfs 0.019 af

Subcatchment 25C: South of Building 3 Runoff Area=2,390 sf 19.25% Impervious Runoff Depth=1.26"
Tc=6.0 min CN=79 Runoff=0.08 cfs 0.006 af

Subcatchment 26S: Wetland to POI 2 Runoff Area=10,500 sf 5.52% Impervious Runoff Depth=0.44"
Flow Length=155' Slope=0.0500 '/' Tc=22.1 min CN=62 Runoff=0.05 cfs 0.009 af

Subcatchment 27S: Wetland to POI 1 Runoff Area=13,833 sf 3.43% Impervious Runoff Depth=1.08"
Flow Length=165' Slope=0.0500 '/' Tc=27.3 min CN=76 Runoff=0.23 cfs 0.029 af

Subcatchment 28S: Runoff Area=4,725 sf 0.00% Impervious Runoff Depth=0.00"
Flow Length=105' Slope=0.0100 '/' Tc=13.2 min CN=39 Runoff=0.00 cfs 0.000 af

Reach 1R: CB 19 TO WETLAND Avg. Flow Depth=0.46' Max Vel=3.88 fps Inflow=1.60 cfs 0.307 af
15.0" Round Pipe n=0.012 L=126.0' S=0.0062 '/' Capacity=5.51 cfs Outflow=1.59 cfs 0.307 af

Reach 2R: POI 2 Inflow=2.77 cfs 0.465 af
Outflow=2.77 cfs 0.465 af

Reach 4R: Wetland to POI 2 Avg. Flow Depth=0.21' Max Vel=3.16 fps Inflow=2.75 cfs 0.457 af
n=0.035 L=145.0' S=0.0500 '/' Capacity=24.99 cfs Outflow=2.75 cfs 0.457 af

Reach 6R: Wetland to POI 1 Avg. Flow Depth=0.10' Max Vel=1.93 fps Inflow=1.59 cfs 0.307 af
n=0.035 L=210.0' S=0.0500 '/' Capacity=57.05 cfs Outflow=1.58 cfs 0.307 af

Reach 24R: DMH 11 to DMH 12 Avg. Flow Depth=0.05' Max Vel=1.20 fps Inflow=0.01 cfs 0.031 af
8.0" Round Pipe n=0.012 L=59.0' S=0.0100 '/' Capacity=1.31 cfs Outflow=0.01 cfs 0.031 af

Reach 25R: DMH 12 to DMH 15 Avg. Flow Depth=0.06' Max Vel=1.37 fps Inflow=0.02 cfs 0.051 af
8.0" Round Pipe n=0.012 L=48.0' S=0.0100 '/' Capacity=1.31 cfs Outflow=0.02 cfs 0.051 af

Reach 26R: DMH 15 to DMH 14 Avg. Flow Depth=0.05' Max Vel=1.29 fps Inflow=0.02 cfs 0.052 af
12.0" Round Pipe n=0.012 L=105.0' S=0.0100 '/' Capacity=3.86 cfs Outflow=0.02 cfs 0.052 af

Reach 27R: DMH 14 to DMH 7 Avg. Flow Depth=0.38' Max Vel=4.49 fps Inflow=1.44 cfs 0.223 af
15.0" Round Pipe n=0.012 L=42.0' S=0.0100 '/' Capacity=7.00 cfs Outflow=1.44 cfs 0.223 af

Reach 28R: POI 1 Inflow=1.72 cfs 0.335 af
Outflow=1.72 cfs 0.335 af

Reach 29R: EX. DMH 4 to NEW CB 19 Avg. Flow Depth=0.08' Max Vel=1.31 fps Inflow=0.04 cfs 0.097 af
12.0" Round Pipe n=0.012 L=172.0' S=0.0058 '/' Capacity=2.93 cfs Outflow=0.04 cfs 0.097 af

Reach 31R: 8" SD Avg. Flow Depth=0.02' Max Vel=0.69 fps Inflow=0.00 cfs 0.002 af
8.0" Round Pipe n=0.013 L=28.0' S=0.0100 '/' Capacity=1.21 cfs Outflow=0.00 cfs 0.002 af

Reach 32R: 8" UD Avg. Flow Depth=0.03' Max Vel=0.68 fps Inflow=0.00 cfs 0.003 af
8.0" Round Pipe n=0.012 L=104.0' S=0.0050 '/' Capacity=0.93 cfs Outflow=0.00 cfs 0.003 af

Reach 33R: 8" SD Avg. Flow Depth=0.22' Max Vel=2.81 fps Inflow=0.28 cfs 0.031 af
8.0" Round Pipe n=0.013 L=76.0' S=0.0100 '/' Capacity=1.21 cfs Outflow=0.28 cfs 0.031 af

Reach 34R: 12" SD Avg. Flow Depth=0.36' Max Vel=3.21 fps Inflow=0.81 cfs 0.064 af
12.0" Round Pipe n=0.012 L=17.0' S=0.0059 '/' Capacity=2.96 cfs Outflow=0.81 cfs 0.064 af

Reach 35R: 12" SD Avg. Flow Depth=0.33' Max Vel=4.56 fps Inflow=1.04 cfs 0.097 af
12.0" Round Pipe n=0.013 L=12.0' S=0.0150 '/' Capacity=4.36 cfs Outflow=1.04 cfs 0.097 af

Reach 40R: New CB 1 to DMH 2 Avg. Flow Depth=0.35' Max Vel=4.29 fps Inflow=1.24 cfs 0.108 af
15.0" Round Pipe n=0.012 L=410.0' S=0.0100 '/' Capacity=7.00 cfs Outflow=1.23 cfs 0.108 af

Reach 41R: DMH 2 to DMH 3 Avg. Flow Depth=0.35' Max Vel=4.20 fps Inflow=1.32 cfs 0.197 af
18.0" Round Pipe n=0.012 L=80.0' S=0.0094 '/' Capacity=11.02 cfs Outflow=1.32 cfs 0.197 af

Reach 42R: DMH 3 to DMH 7 Avg. Flow Depth=0.35' Max Vel=4.16 fps Inflow=1.33 cfs 0.234 af
18.0" Round Pipe n=0.012 L=382.0' S=0.0091 '/' Capacity=10.86 cfs Outflow=1.32 cfs 0.234 af

Reach 44R: DMH 7 to Wetland Avg. Flow Depth=0.45' Max Vel=5.16 fps Inflow=2.75 cfs 0.457 af
24.0" Round Pipe n=0.012 L=30.0' S=0.0100 '/' Capacity=24.51 cfs Outflow=2.75 cfs 0.457 af

Pond 3P: FP1 TANKS Peak Elev=108.52' Storage=119 cf Inflow=0.00 cfs 0.003 af
Outflow=0.00 cfs 0.001 af

Pond 4P: FP2 TANKS Peak Elev=109.49' Storage=762 cf Inflow=0.16 cfs 0.024 af
Outflow=0.01 cfs 0.017 af

Pond 9R: New CB 1 to DMH 2 Peak Elev=112.76' Inflow=1.24 cfs 0.108 af
15.0" Round Culvert n=0.012 L=10.0' S=0.0100 '/' Outflow=1.24 cfs 0.108 af

Pond 30P: Raised StormTech SC-740 Peak Elev=112.96' Storage=0.058 af Inflow=1.04 cfs 0.097 af
Outflow=0.04 cfs 0.097 af

Pond 36P: PP1 Peak Elev=115.89' Storage=110 cf Inflow=0.11 cfs 0.008 af
Outflow=0.06 cfs 0.006 af

Pond 37P: PP2 Peak Elev=115.86' Storage=106 cf Inflow=0.23 cfs 0.018 af
Outflow=0.18 cfs 0.018 af

Pond 38P: Rain Garden West Peak Elev=120.09' Storage=42 cf Inflow=0.00 cfs 0.001 af
Outflow=0.00 cfs 0.000 af

Pond DS-2: Drip Strip Peak Elev=115.29' Storage=187 cf Inflow=0.59 cfs 0.043 af
Discarded=0.28 cfs 0.043 af Primary=0.00 cfs 0.000 af Outflow=0.28 cfs 0.043 af

Pond DS-3: Drip Strip Peak Elev=116.05' Storage=665 cf Inflow=1.07 cfs 0.078 af
Discarded=0.28 cfs 0.077 af Primary=0.06 cfs 0.001 af Outflow=0.34 cfs 0.078 af

Pond DS1: Drip Strip Peak Elev=115.29' Storage=187 cf Inflow=0.59 cfs 0.043 af
Discarded=0.28 cfs 0.043 af Primary=0.00 cfs 0.000 af Outflow=0.28 cfs 0.043 af

Pond FP1: FP1 Filter Peak Elev=111.84' Storage=0 cf Inflow=0.00 cfs 0.003 af
Primary=0.00 cfs 0.003 af Secondary=0.00 cfs 0.000 af Outflow=0.00 cfs 0.003 af

Pond FP2: FP2 Filter Peak Elev=110.58' Storage=1 cf Inflow=0.16 cfs 0.024 af
Primary=0.16 cfs 0.024 af Secondary=0.00 cfs 0.000 af Outflow=0.16 cfs 0.024 af

Pond IT-1: Infiltration Trench Peak Elev=113.45' Storage=697 cf Inflow=1.36 cfs 0.097 af
Discarded=0.28 cfs 0.085 af Primary=0.43 cfs 0.012 af Outflow=0.70 cfs 0.097 af

Pond PP1: Porous Pavement 1 Peak Elev=113.50' Storage=1,485 cf Inflow=0.75 cfs 0.054 af
Outflow=0.03 cfs 0.049 af

Pond PP2: Porous Pavement 2 Peak Elev=113.35' Storage=1,233 cf Inflow=0.62 cfs 0.044 af
Outflow=0.03 cfs 0.037 af

Pond PP3: Porous Pavement 3 Peak Elev=112.66' Storage=1,287 cf Inflow=0.56 cfs 0.041 af
Outflow=0.01 cfs 0.031 af

Pond PP4: Porous Pavement 4 Peak Elev=112.73' Storage=602 cf Inflow=0.28 cfs 0.020 af
Outflow=0.01 cfs 0.019 af

Pond R1: Detention Pond 1 Peak Elev=111.97' Storage=2,151 cf Inflow=2.21 cfs 0.176 af
Outflow=1.42 cfs 0.170 af

Pond R2: Detention Pond 2 Peak Elev=112.05' Storage=2,358 cf Inflow=2.21 cfs 0.176 af
Outflow=1.31 cfs 0.169 af

Pond RG-1: Rain Garden Peak Elev=114.92' Storage=63 cf Inflow=0.18 cfs 0.014 af
Discarded=0.08 cfs 0.014 af Primary=0.00 cfs 0.000 af Outflow=0.08 cfs 0.014 af

Pond RG-2: Rain Garden Peak Elev=114.51' Storage=8 cf Inflow=0.19 cfs 0.016 af
Discarded=0.17 cfs 0.016 af Primary=0.00 cfs 0.000 af Outflow=0.17 cfs 0.016 af

Total Runoff Area = 11.324 ac Runoff Volume = 1.126 af Average Runoff Depth = 1.19"
47.50% Pervious = 5.379 ac 52.50% Impervious = 5.944 ac

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Subcatchment 1S: Area 1 Runoff Area=15,851 sf 17.16% Impervious Runoff Depth=0.49"
Flow Length=300' Tc=20.7 min CN=49 Runoff=0.08 cfs 0.015 af

Subcatchment 2S: Area 2 Runoff Area=1,429 sf 70.05% Impervious Runoff Depth=2.55"
Tc=6.0 min CN=80 Runoff=0.10 cfs 0.007 af

Subcatchment 3S: Area to PP1 Runoff Area=2,173 sf 81.59% Impervious Runoff Depth=3.19"
Tc=6.0 min CN=87 Runoff=0.18 cfs 0.013 af

Subcatchment 4S: Area to PP2 Runoff Area=3,345 sf 100.00% Impervious Runoff Depth=4.36"
Tc=6.0 min CN=98 Runoff=0.35 cfs 0.028 af

Subcatchment 5S: Area to Rain Garden East Runoff Area=8,904 sf 17.46% Impervious Runoff Depth=0.49"
Flow Length=150' Slope=0.0200 '/' Tc=9.2 min CN=49 Runoff=0.05 cfs 0.008 af

Subcatchment 6S: Bldg 1 Roof Runoff Area=11,717 sf 100.00% Impervious Runoff Depth=4.36"
Tc=6.0 min CN=98 Runoff=1.21 cfs 0.098 af

Subcatchment 7S: Area to Rain Garden Runoff Area=21,901 sf 7.99% Impervious Runoff Depth=0.29"
Flow Length=170' Tc=14.0 min CN=44 Runoff=0.04 cfs 0.012 af

Subcatchment 9S: Runoff Area=1,785 sf 50.98% Impervious Runoff Depth=1.67"
Tc=6.0 min CN=69 Runoff=0.08 cfs 0.006 af

Subcatchment 10S: Runoff Area=12,293 sf 82.32% Impervious Runoff Depth=3.29"
Tc=6.0 min CN=88 Runoff=1.07 cfs 0.077 af

Subcatchment 11S: Area to Rain Garden 2 Runoff Area=11,240 sf 51.56% Impervious Runoff Depth=1.67"
Tc=6.0 min CN=69 Runoff=0.49 cfs 0.036 af

Subcatchment 12S: Area to Rain Garden 1 Runoff Area=7,303 sf 58.87% Impervious Runoff Depth=2.05"
Tc=6.0 min CN=74 Runoff=0.40 cfs 0.029 af

Subcatchment 13S: Area to Infiltration Runoff Area=15,495 sf 77.47% Impervious Runoff Depth=3.00"
Tc=6.0 min CN=85 Runoff=1.24 cfs 0.089 af

Subcatchment 14S: Roof Area to Drip Runoff Area=6,080 sf 100.00% Impervious Runoff Depth=4.36"
Tc=6.0 min CN=98 Runoff=0.63 cfs 0.051 af

Subcatchment 15S: Roof Area to Drip Strip Runoff Area=9,600 sf 79.17% Impervious Runoff Depth=3.81"
Tc=6.0 min CN=93 Runoff=0.93 cfs 0.070 af

Subcatchment 16S: Roof Area to Drip Strip Runoff Area=9,600 sf 79.17% Impervious Runoff Depth=3.81"
Tc=6.0 min CN=93 Runoff=0.93 cfs 0.070 af

Subcatchment 17S: Roof Area to Drip Runoff Area=17,390 sf 76.31% Impervious Runoff Depth=3.81"
Tc=6.0 min CN=93 Runoff=1.68 cfs 0.127 af

Subcatchment 18S: North of Mother House Runoff Area=44,775 sf 50.92% Impervious Runoff Depth=1.67"
Tc=6.0 min CN=69 Runoff=1.95 cfs 0.143 af

Subcatchment 19A: St. Josephs Runoff Area=57,470 sf 35.07% Impervious Runoff Depth=1.07"
Flow Length=407' Tc=19.8 min CN=60 Runoff=0.96 cfs 0.118 af

Subcatchment 20A: North Parking - West Runoff Area=19,180 sf 72.24% Impervious Runoff Depth=2.72"
Tc=6.0 min CN=82 Runoff=1.41 cfs 0.100 af

Subcatchment 20B: North Parking - East Runoff Area=15,935 sf 73.59% Impervious Runoff Depth=2.72"
Tc=6.0 min CN=82 Runoff=1.17 cfs 0.083 af

Subcatchment 21A: Building 5 Runoff Area=19,410 sf 100.00% Impervious Runoff Depth=4.36"
Tc=6.0 min CN=98 Runoff=2.00 cfs 0.162 af

Subcatchment 21B: Buiding 4 Runoff Area=12,580 sf 100.00% Impervious Runoff Depth=4.36"
Tc=6.0 min CN=98 Runoff=1.30 cfs 0.105 af

Subcatchment 22A: The Common Runoff Area=35,370 sf 23.11% Impervious Runoff Depth=0.36"
Flow Length=209' Slope=0.0100 '/' Tc=23.0 min UI Adjusted CN=46 Runoff=0.10 cfs 0.025 af

Subcatchment 22B: Detention Pond 1 Runoff Area=8,850 sf 13.39% Impervious Runoff Depth=0.40"
Tc=6.0 min CN=47 Runoff=0.04 cfs 0.007 af

Subcatchment 23A: South Parking - West Runoff Area=18,825 sf 64.46% Impervious Runoff Depth=2.29"
Tc=6.0 min CN=77 Runoff=1.16 cfs 0.083 af

Subcatchment 23B: South Parking - East Runoff Area=9,870 sf 63.12% Impervious Runoff Depth=2.21"
Tc=6.0 min CN=76 Runoff=0.59 cfs 0.042 af

Subcatchment 24A: Building 2 Runoff Area=12,580 sf 100.00% Impervious Runoff Depth=4.36"
Tc=6.0 min CN=98 Runoff=1.30 cfs 0.105 af

Subcatchment 24B: Building 3 Runoff Area=19,410 sf 100.00% Impervious Runoff Depth=4.36"
Tc=6.0 min CN=98 Runoff=2.00 cfs 0.162 af

Subcatchment 25A: South of Building 2 Runoff Area=22,380 sf 21.94% Impervious Runoff Depth=1.39"
Flow Length=140' Slope=0.0100 '/' Tc=25.0 min CN=65 Runoff=0.48 cfs 0.060 af

Subcatchment 25B: South of Building 3 Runoff Area=9,075 sf 8.10% Impervious Runoff Depth=2.21"
Tc=6.0 min CN=76 Runoff=0.54 cfs 0.038 af

Subcatchment 25C: South of Building 3 Runoff Area=2,390 sf 19.25% Impervious Runoff Depth=2.46"
Tc=6.0 min CN=79 Runoff=0.16 cfs 0.011 af

Subcatchment 26S: Wetland to POI 2 Runoff Area=10,500 sf 5.52% Impervious Runoff Depth=1.20"
Flow Length=155' Slope=0.0500 '/' Tc=22.1 min CN=62 Runoff=0.20 cfs 0.024 af

Subcatchment 27S: Wetland to POI 1 Runoff Area=13,833 sf 3.43% Impervious Runoff Depth=2.21"
Flow Length=165' Slope=0.0500 '/' Tc=27.3 min CN=76 Runoff=0.48 cfs 0.058 af

Subcatchment 28S: Runoff Area=4,725 sf 0.00% Impervious Runoff Depth=0.13"
Flow Length=105' Slope=0.0100 '/' Tc=13.2 min CN=39 Runoff=0.00 cfs 0.001 af

Reach 1R: CB 19 TO WETLAND Avg. Flow Depth=0.57' Max Vel=4.30 fps Inflow=2.33 cfs 0.526 af
15.0" Round Pipe n=0.012 L=126.0' S=0.0062 '/' Capacity=5.51 cfs Outflow=2.33 cfs 0.526 af

Reach 2R: POI 2 Inflow=6.75 cfs 0.974 af
Outflow=6.75 cfs 0.974 af

Reach 4R: Wetland to POI 2 Avg. Flow Depth=0.36' Max Vel=4.36 fps Inflow=6.62 cfs 0.951 af
n=0.035 L=145.0' S=0.0500 '/' Capacity=24.99 cfs Outflow=6.62 cfs 0.950 af

Reach 6R: Wetland to POI 1 Avg. Flow Depth=0.12' Max Vel=2.22 fps Inflow=2.33 cfs 0.526 af
n=0.035 L=210.0' S=0.0500 '/' Capacity=57.05 cfs Outflow=2.31 cfs 0.526 af

Reach 24R: DMH 11 to DMH 12 Avg. Flow Depth=0.17' Max Vel=2.69 fps Inflow=0.19 cfs 0.072 af
8.0" Round Pipe n=0.012 L=59.0' S=0.0100 '/' Capacity=1.31 cfs Outflow=0.19 cfs 0.072 af

Reach 25R: DMH 12 to DMH 15 Avg. Flow Depth=0.23' Max Vel=3.12 fps Inflow=0.33 cfs 0.111 af
8.0" Round Pipe n=0.012 L=48.0' S=0.0100 '/' Capacity=1.31 cfs Outflow=0.33 cfs 0.111 af

Reach 26R: DMH 15 to DMH 14 Avg. Flow Depth=0.20' Max Vel=3.00 fps Inflow=0.33 cfs 0.128 af
12.0" Round Pipe n=0.012 L=105.0' S=0.0100 '/' Capacity=3.86 cfs Outflow=0.33 cfs 0.128 af

Reach 27R: DMH 14 to DMH 7 Avg. Flow Depth=0.45' Max Vel=4.90 fps Inflow=1.98 cfs 0.396 af
15.0" Round Pipe n=0.012 L=42.0' S=0.0100 '/' Capacity=7.00 cfs Outflow=1.98 cfs 0.396 af

Reach 28R: POI 1 Inflow=2.60 cfs 0.584 af
Outflow=2.60 cfs 0.584 af

Reach 29R: EX. DMH 4 to NEW CB 19 Avg. Flow Depth=0.21' Max Vel=2.33 fps Inflow=0.27 cfs 0.165 af
12.0" Round Pipe n=0.012 L=172.0' S=0.0058 '/' Capacity=2.93 cfs Outflow=0.27 cfs 0.165 af

Reach 31R: 8" SD Avg. Flow Depth=0.09' Max Vel=1.70 fps Inflow=0.05 cfs 0.017 af
8.0" Round Pipe n=0.013 L=28.0' S=0.0100 '/' Capacity=1.21 cfs Outflow=0.05 cfs 0.017 af

Reach 32R: 8" UD Avg. Flow Depth=0.13' Max Vel=1.61 fps Inflow=0.08 cfs 0.015 af
8.0" Round Pipe n=0.012 L=104.0' S=0.0050 '/' Capacity=0.93 cfs Outflow=0.08 cfs 0.015 af

Reach 33R: 8" SD Avg. Flow Depth=0.30' Max Vel=3.32 fps Inflow=0.51 cfs 0.062 af
8.0" Round Pipe n=0.013 L=76.0' S=0.0100 '/' Capacity=1.21 cfs Outflow=0.51 cfs 0.062 af

Reach 34R: 12" SD Avg. Flow Depth=0.45' Max Vel=3.58 fps Inflow=1.21 cfs 0.098 af
12.0" Round Pipe n=0.012 L=17.0' S=0.0059 '/' Capacity=2.96 cfs Outflow=1.21 cfs 0.098 af

Reach 35R: 12" SD Avg. Flow Depth=0.43' Max Vel=5.20 fps Inflow=1.69 cfs 0.177 af
12.0" Round Pipe n=0.013 L=12.0' S=0.0150 '/' Capacity=4.36 cfs Outflow=1.69 cfs 0.177 af

Reach 40R: New CB 1 to DMH 2 Avg. Flow Depth=0.68' Max Vel=5.92 fps Inflow=4.13 cfs 0.267 af
15.0" Round Pipe n=0.012 L=410.0' S=0.0100 '/' Capacity=7.00 cfs Outflow=4.07 cfs 0.267 af

Reach 41R: DMH 2 to DMH 3 Avg. Flow Depth=0.68' Max Vel=5.97 fps Inflow=4.64 cfs 0.479 af
18.0" Round Pipe n=0.012 L=80.0' S=0.0094 '/' Capacity=11.02 cfs Outflow=4.64 cfs 0.479 af

Reach 42R: DMH 3 to DMH 7 Avg. Flow Depth=0.69' Max Vel=5.91 fps Inflow=4.68 cfs 0.554 af
18.0" Round Pipe n=0.012 L=382.0' S=0.0091 '/' Capacity=10.86 cfs Outflow=4.65 cfs 0.554 af

Reach 44R: DMH 7 to Wetland Avg. Flow Depth=0.71' Max Vel=6.63 fps Inflow=6.62 cfs 0.951 af
24.0" Round Pipe n=0.012 L=30.0' S=0.0100 '/' Capacity=24.51 cfs Outflow=6.62 cfs 0.951 af

Pond 3P: FP1 TANKS Peak Elev=109.63' Storage=816 cf Inflow=0.10 cfs 0.025 af
Outflow=0.01 cfs 0.017 af

Pond 4P: FP2 TANKS Peak Elev=109.71' Storage=893 cf Inflow=0.48 cfs 0.060 af
Outflow=0.24 cfs 0.051 af

Pond 9R: New CB 1 to DMH 2 Peak Elev=113.44' Inflow=4.13 cfs 0.266 af
15.0" Round Culvert n=0.012 L=10.0' S=0.0100 '/' Outflow=4.13 cfs 0.266 af

Pond 30P: Raised StormTech SC-740 Peak Elev=113.78' Storage=0.084 af Inflow=1.69 cfs 0.177 af
Outflow=0.27 cfs 0.165 af

Pond 36P: PP1 Peak Elev=115.97' Storage=138 cf Inflow=0.18 cfs 0.013 af
Outflow=0.15 cfs 0.012 af

Pond 37P: PP2 Peak Elev=115.94' Storage=137 cf Inflow=0.35 cfs 0.028 af
Outflow=0.28 cfs 0.028 af

Pond 38P: Rain Garden West Peak Elev=120.27' Storage=143 cf Inflow=0.04 cfs 0.012 af
Outflow=0.02 cfs 0.009 af

Pond DS-2: Drip Strip Peak Elev=115.82' Storage=522 cf Inflow=0.93 cfs 0.070 af
Discarded=0.28 cfs 0.070 af Primary=0.00 cfs 0.000 af Outflow=0.28 cfs 0.070 af

Pond DS-3: Drip Strip Peak Elev=116.55' Storage=903 cf Inflow=1.68 cfs 0.127 af
Discarded=0.28 cfs 0.107 af Primary=0.70 cfs 0.020 af Outflow=0.98 cfs 0.127 af

Pond DS1: Drip Strip Peak Elev=115.82' Storage=522 cf Inflow=0.93 cfs 0.070 af
Discarded=0.28 cfs 0.070 af Primary=0.00 cfs 0.000 af Outflow=0.28 cfs 0.070 af

Pond FP1: FP1 Filter Peak Elev=111.86' Storage=1 cf Inflow=0.10 cfs 0.025 af
Primary=0.10 cfs 0.025 af Secondary=0.00 cfs 0.000 af Outflow=0.10 cfs 0.025 af

Pond FP2: FP2 Filter Peak Elev=112.64' Storage=93 cf Inflow=0.48 cfs 0.060 af
Primary=0.21 cfs 0.052 af Secondary=0.27 cfs 0.008 af Outflow=0.48 cfs 0.060 af

Pond IT-1: Infiltration Trench Peak Elev=114.44' Storage=1,242 cf Inflow=2.39 cfs 0.173 af
Discarded=0.28 cfs 0.126 af Primary=1.03 cfs 0.047 af Outflow=1.31 cfs 0.173 af

Pond PP1: Porous Pavement 1 Peak Elev=113.74' Storage=2,062 cf Inflow=1.41 cfs 0.100 af
Outflow=0.23 cfs 0.094 af

Pond PP2: Porous Pavement 2 Peak Elev=113.57' Storage=1,702 cf Inflow=1.17 cfs 0.083 af
Outflow=0.21 cfs 0.075 af

Pond PP3: Porous Pavement 3 Peak Elev=112.91' Storage=1,661 cf Inflow=1.16 cfs 0.083 af
Outflow=0.19 cfs 0.072 af

Pond PP4: Porous Pavement 4 Peak Elev=113.01' Storage=783 cf Inflow=0.59 cfs 0.042 af
Outflow=0.14 cfs 0.039 af

Pond R1: Detention Pond 1 Peak Elev=112.53' Storage=2,708 cf Inflow=3.30 cfs 0.267 af
Outflow=1.93 cfs 0.262 af

Pond R2: Detention Pond 2 Peak Elev=112.66' Storage=2,994 cf Inflow=3.30 cfs 0.267 af
Outflow=1.76 cfs 0.260 af

Pond RG-1: Rain Garden Peak Elev=115.42' Storage=139 cf Inflow=0.40 cfs 0.029 af
Discarded=0.08 cfs 0.023 af Primary=0.21 cfs 0.005 af Outflow=0.29 cfs 0.029 af

Pond RG-2: Rain Garden Peak Elev=115.15' Storage=208 cf Inflow=0.49 cfs 0.036 af
Discarded=0.17 cfs 0.035 af Primary=0.05 cfs 0.001 af Outflow=0.21 cfs 0.036 af

Total Runoff Area = 11.324 ac Runoff Volume = 2.062 af Average Runoff Depth = 2.19"
47.50% Pervious = 5.379 ac 52.50% Impervious = 5.944 ac

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Subcatchment 1S: Area 1 Runoff Area=15,851 sf 17.16% Impervious Runoff Depth=0.00"
Flow Length=300' Tc=20.7 min CN=49 Runoff=0.00 cfs 0.000 af

Subcatchment 2S: Area 2 Runoff Area=1,429 sf 70.05% Impervious Runoff Depth=0.07"
Tc=6.0 min CN=80 Runoff=0.00 cfs 0.000 af

Subcatchment 3S: Area to PP1 Runoff Area=2,173 sf 81.59% Impervious Runoff Depth=0.20"
Tc=6.0 min CN=87 Runoff=0.01 cfs 0.001 af

Subcatchment 4S: Area to PP2 Runoff Area=3,345 sf 100.00% Impervious Runoff Depth=0.74"
Tc=6.0 min CN=98 Runoff=0.06 cfs 0.005 af

Subcatchment 5S: Area to Rain Garden East Runoff Area=8,904 sf 17.46% Impervious Runoff Depth=0.00"
Flow Length=150' Slope=0.0200 '/' Tc=9.2 min CN=49 Runoff=0.00 cfs 0.000 af

Subcatchment 6S: Bldg 1 Roof Runoff Area=11,717 sf 100.00% Impervious Runoff Depth=0.74"
Tc=6.0 min CN=98 Runoff=0.23 cfs 0.017 af

Subcatchment 7S: Area to Rain Garden Runoff Area=21,901 sf 7.99% Impervious Runoff Depth=0.00"
Flow Length=170' Tc=14.0 min CN=44 Runoff=0.00 cfs 0.000 af

Subcatchment 9S: Runoff Area=1,785 sf 50.98% Impervious Runoff Depth=0.00"
Tc=6.0 min CN=69 Runoff=0.00 cfs 0.000 af

Subcatchment 10S: Runoff Area=12,293 sf 82.32% Impervious Runoff Depth=0.22"
Tc=6.0 min CN=88 Runoff=0.06 cfs 0.005 af

Subcatchment 11S: Area to Rain Garden 2 Runoff Area=11,240 sf 51.56% Impervious Runoff Depth=0.00"
Tc=6.0 min CN=69 Runoff=0.00 cfs 0.000 af

Subcatchment 12S: Area to Rain Garden 1 Runoff Area=7,303 sf 58.87% Impervious Runoff Depth=0.02"
Tc=6.0 min CN=74 Runoff=0.00 cfs 0.000 af

Subcatchment 13S: Area to Infiltration Runoff Area=15,495 sf 77.47% Impervious Runoff Depth=0.15"
Tc=6.0 min CN=85 Runoff=0.04 cfs 0.004 af

Subcatchment 14S: Roof Area to Drip Runoff Area=6,080 sf 100.00% Impervious Runoff Depth=0.74"
Tc=6.0 min CN=98 Runoff=0.12 cfs 0.009 af

Subcatchment 15S: Roof Area to Drip Strip Runoff Area=9,600 sf 79.17% Impervious Runoff Depth=0.41"
Tc=6.0 min CN=93 Runoff=0.11 cfs 0.008 af

Subcatchment 16S: Roof Area to Drip Strip Runoff Area=9,600 sf 79.17% Impervious Runoff Depth=0.41"
Tc=6.0 min CN=93 Runoff=0.11 cfs 0.008 af

Subcatchment 17S: Roof Area to Drip Runoff Area=17,390 sf 76.31% Impervious Runoff Depth=0.41"
Tc=6.0 min CN=93 Runoff=0.19 cfs 0.014 af

Subcatchment 18S: North of Mother House Runoff Area=44,775 sf 50.92% Impervious Runoff Depth=0.00"
Tc=6.0 min CN=69 Runoff=0.00 cfs 0.000 af

Subcatchment 19A: St. Josephs Runoff Area=57,470 sf 35.07% Impervious Runoff Depth=0.00"
Flow Length=407' Tc=19.8 min CN=60 Runoff=0.00 cfs 0.000 af

Subcatchment 20A: North Parking - West Runoff Area=19,180 sf 72.24% Impervious Runoff Depth=0.10"
Tc=6.0 min CN=82 Runoff=0.02 cfs 0.004 af

Subcatchment 20B: North Parking - East Runoff Area=15,935 sf 73.59% Impervious Runoff Depth=0.10"
Tc=6.0 min CN=82 Runoff=0.02 cfs 0.003 af

Subcatchment 21A: Building 5 Runoff Area=19,410 sf 100.00% Impervious Runoff Depth=0.74"
Tc=6.0 min CN=98 Runoff=0.37 cfs 0.028 af

Subcatchment 21B: Buiding 4 Runoff Area=12,580 sf 100.00% Impervious Runoff Depth=0.74"
Tc=6.0 min CN=98 Runoff=0.24 cfs 0.018 af

Subcatchment 22A: The Common Runoff Area=35,370 sf 23.11% Impervious Runoff Depth=0.00"
Flow Length=209' Slope=0.0100 '/' Tc=23.0 min UI Adjusted CN=46 Runoff=0.00 cfs 0.000 af

Subcatchment 22B: Detention Pond 1 Runoff Area=8,850 sf 13.39% Impervious Runoff Depth=0.00"
Tc=6.0 min CN=47 Runoff=0.00 cfs 0.000 af

Subcatchment 23A: South Parking - West Runoff Area=18,825 sf 64.46% Impervious Runoff Depth=0.04"
Tc=6.0 min CN=77 Runoff=0.00 cfs 0.001 af

Subcatchment 23B: South Parking - East Runoff Area=9,870 sf 63.12% Impervious Runoff Depth=0.03"
Tc=6.0 min CN=76 Runoff=0.00 cfs 0.001 af

Subcatchment 24A: Building 2 Runoff Area=12,580 sf 100.00% Impervious Runoff Depth=0.74"
Tc=6.0 min CN=98 Runoff=0.24 cfs 0.018 af

Subcatchment 24B: Building 3 Runoff Area=19,410 sf 100.00% Impervious Runoff Depth=0.74"
Tc=6.0 min CN=98 Runoff=0.37 cfs 0.028 af

Subcatchment 25A: South of Building 2 Runoff Area=22,380 sf 21.94% Impervious Runoff Depth=0.00"
Flow Length=140' Slope=0.0100 '/' Tc=25.0 min CN=65 Runoff=0.00 cfs 0.000 af

Subcatchment 25B: South of Building 3 Runoff Area=9,075 sf 8.10% Impervious Runoff Depth=0.03"
Tc=6.0 min CN=76 Runoff=0.00 cfs 0.001 af

Subcatchment 25C: South of Building 3 Runoff Area=2,390 sf 19.25% Impervious Runoff Depth=0.06"
Tc=6.0 min CN=79 Runoff=0.00 cfs 0.000 af

Subcatchment 26S: Wetland to POI 2 Runoff Area=10,500 sf 5.52% Impervious Runoff Depth=0.00"
Flow Length=155' Slope=0.0500 '/' Tc=22.1 min CN=62 Runoff=0.00 cfs 0.000 af

Subcatchment 27S: Wetland to POI 1 Runoff Area=13,833 sf 3.43% Impervious Runoff Depth=0.03"
Flow Length=165' Slope=0.0500 '/' Tc=27.3 min CN=76 Runoff=0.00 cfs 0.001 af

Subcatchment 28S: Runoff Area=4,725 sf 0.00% Impervious Runoff Depth=0.00"
Flow Length=105' Slope=0.0100 '/' Tc=13.2 min CN=39 Runoff=0.00 cfs 0.000 af

Reach 1R: CB 19 TO WETLAND Avg. Flow Depth=0.09' Max Vel=1.48 fps Inflow=0.06 cfs 0.061 af
15.0" Round Pipe n=0.012 L=126.0' S=0.0062 '/' Capacity=5.51 cfs Outflow=0.06 cfs 0.061 af

Reach 2R: POI 2 Inflow=0.16 cfs 0.057 af
Outflow=0.16 cfs 0.057 af

Reach 4R: Wetland to POI 2 Avg. Flow Depth=0.04' Max Vel=1.06 fps Inflow=0.16 cfs 0.057 af
n=0.035 L=145.0' S=0.0500 '/' Capacity=24.99 cfs Outflow=0.16 cfs 0.057 af

Reach 6R: Wetland to POI 1 Avg. Flow Depth=0.01' Max Vel=0.55 fps Inflow=0.06 cfs 0.061 af
n=0.035 L=210.0' S=0.0500 '/' Capacity=57.05 cfs Outflow=0.06 cfs 0.061 af

Reach 24R: DMH 11 to DMH 12 Avg. Flow Depth=0.02' Max Vel=0.77 fps Inflow=0.00 cfs 0.001 af
8.0" Round Pipe n=0.012 L=59.0' S=0.0100 '/' Capacity=1.31 cfs Outflow=0.00 cfs 0.001 af

Reach 25R: DMH 12 to DMH 15 Avg. Flow Depth=0.02' Max Vel=0.80 fps Inflow=0.00 cfs 0.002 af
8.0" Round Pipe n=0.012 L=48.0' S=0.0100 '/' Capacity=1.31 cfs Outflow=0.00 cfs 0.002 af

Reach 26R: DMH 15 to DMH 14 Avg. Flow Depth=0.02' Max Vel=0.76 fps Inflow=0.00 cfs 0.002 af
12.0" Round Pipe n=0.012 L=105.0' S=0.0100 '/' Capacity=3.86 cfs Outflow=0.00 cfs 0.002 af

Reach 27R: DMH 14 to DMH 7 Avg. Flow Depth=0.08' Max Vel=1.73 fps Inflow=0.06 cfs 0.042 af
15.0" Round Pipe n=0.012 L=42.0' S=0.0100 '/' Capacity=7.00 cfs Outflow=0.06 cfs 0.042 af

Reach 28R: POI 1 Inflow=0.06 cfs 0.062 af
Outflow=0.06 cfs 0.062 af

Reach 29R: EX. DMH 4 to NEW CB 19 Avg. Flow Depth=0.06' Max Vel=1.14 fps Inflow=0.02 cfs 0.022 af
12.0" Round Pipe n=0.012 L=172.0' S=0.0058 '/' Capacity=2.93 cfs Outflow=0.02 cfs 0.022 af

Reach 31R: 8" SD Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af
8.0" Round Pipe n=0.013 L=28.0' S=0.0100 '/' Capacity=1.21 cfs Outflow=0.00 cfs 0.000 af

Reach 32R: 8" UD Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af
8.0" Round Pipe n=0.012 L=104.0' S=0.0050 '/' Capacity=0.93 cfs Outflow=0.00 cfs 0.000 af

Reach 33R: 8" SD Avg. Flow Depth=0.08' Max Vel=1.59 fps Inflow=0.04 cfs 0.005 af
8.0" Round Pipe n=0.013 L=76.0' S=0.0100 '/' Capacity=1.21 cfs Outflow=0.04 cfs 0.005 af

Reach 34R: 12" SD Avg. Flow Depth=0.19' Max Vel=2.22 fps Inflow=0.23 cfs 0.017 af
12.0" Round Pipe n=0.012 L=17.0' S=0.0059 '/' Capacity=2.96 cfs Outflow=0.23 cfs 0.017 af

Reach 35R: 12" SD Avg. Flow Depth=0.16' Max Vel=3.03 fps Inflow=0.25 cfs 0.022 af
12.0" Round Pipe n=0.013 L=12.0' S=0.0150 '/' Capacity=4.36 cfs Outflow=0.25 cfs 0.022 af

Reach 40R: New CB 1 to DMH 2 Avg. Flow Depth=0.11' Max Vel=2.09 fps Inflow=0.12 cfs 0.009 af
15.0" Round Pipe n=0.012 L=410.0' S=0.0100 '/' Capacity=7.00 cfs Outflow=0.11 cfs 0.009 af

Reach 41R: DMH 2 to DMH 3 Avg. Flow Depth=0.11' Max Vel=2.06 fps Inflow=0.12 cfs 0.012 af
18.0" Round Pipe n=0.012 L=80.0' S=0.0094 '/' Capacity=11.02 cfs Outflow=0.12 cfs 0.012 af

Reach 42R: DMH 3 to DMH 7 Avg. Flow Depth=0.11' Max Vel=2.04 fps Inflow=0.13 cfs 0.015 af
18.0" Round Pipe n=0.012 L=382.0' S=0.0091 '/' Capacity=10.86 cfs Outflow=0.12 cfs 0.015 af

Reach 44R: DMH 7 to Wetland Avg. Flow Depth=0.12' Max Vel=2.22 fps Inflow=0.16 cfs 0.057 af
24.0" Round Pipe n=0.012 L=30.0' S=0.0100 '/' Capacity=24.51 cfs Outflow=0.16 cfs 0.057 af

Pond 3P: FP1 TANKS Peak Elev=108.21' Storage=0 cf Inflow=0.00 cfs 0.000 af
Outflow=0.00 cfs 0.000 af

Pond 4P: FP2 TANKS Peak Elev=108.13' Storage=0 cf Inflow=0.00 cfs 0.000 af
Outflow=0.00 cfs 0.000 af

Pond 9R: New CB 1 to DMH 2 Peak Elev=112.32' Inflow=0.12 cfs 0.009 af
15.0" Round Culvert n=0.012 L=10.0' S=0.0100 '/' Outflow=0.12 cfs 0.009 af

Pond 30P: Raised StormTech SC-740 Peak Elev=111.64' Storage=0.009 af Inflow=0.25 cfs 0.022 af
Outflow=0.02 cfs 0.022 af

Pond 36P: PP1 Peak Elev=115.69' Storage=36 cf Inflow=0.01 cfs 0.001 af
Outflow=0.00 cfs 0.000 af

Pond 37P: PP2 Peak Elev=115.71' Storage=48 cf Inflow=0.06 cfs 0.005 af
Outflow=0.04 cfs 0.005 af

Pond 38P: Rain Garden West Peak Elev=120.00' Storage=0 cf Inflow=0.00 cfs 0.000 af
Outflow=0.00 cfs 0.000 af

Pond DS-2: Drip Strip Peak Elev=115.02' Storage=11 cf Inflow=0.11 cfs 0.008 af
Discarded=0.10 cfs 0.008 af Primary=0.00 cfs 0.000 af Outflow=0.10 cfs 0.008 af

Pond DS-3: Drip Strip Peak Elev=115.03' Storage=21 cf Inflow=0.19 cfs 0.014 af
Discarded=0.18 cfs 0.014 af Primary=0.00 cfs 0.000 af Outflow=0.18 cfs 0.014 af

Pond DS1: Drip Strip Peak Elev=115.02' Storage=11 cf Inflow=0.11 cfs 0.008 af
Discarded=0.10 cfs 0.008 af Primary=0.00 cfs 0.000 af Outflow=0.10 cfs 0.008 af

Pond FP1: FP1 Filter Peak Elev=111.84' Storage=0 cf Inflow=0.00 cfs 0.000 af
Primary=0.00 cfs 0.000 af Secondary=0.00 cfs 0.000 af Outflow=0.00 cfs 0.000 af

Pond FP2: FP2 Filter Peak Elev=110.56' Storage=0 cf Inflow=0.00 cfs 0.000 af
Primary=0.00 cfs 0.000 af Secondary=0.00 cfs 0.000 af Outflow=0.00 cfs 0.000 af

Pond IT-1: Infiltration Trench Peak Elev=112.02' Storage=9 cf Inflow=0.11 cfs 0.010 af
Discarded=0.10 cfs 0.010 af Primary=0.00 cfs 0.000 af Outflow=0.10 cfs 0.010 af

Pond PP1: Porous Pavement 1 Peak Elev=112.90' Storage=11 cf Inflow=0.02 cfs 0.004 af
Outflow=0.01 cfs 0.004 af

Pond PP2: Porous Pavement 2 Peak Elev=112.78' Storage=12 cf Inflow=0.02 cfs 0.003 af
Outflow=0.01 cfs 0.003 af

Pond PP3: Porous Pavement 3 Peak Elev=110.34' Storage=0 cf Inflow=0.00 cfs 0.001 af
Outflow=0.00 cfs 0.001 af

Pond PP4: Porous Pavement 4 Peak Elev=110.19' Storage=0 cf Inflow=0.00 cfs 0.001 af
Outflow=0.00 cfs 0.001 af

Pond R1: Detention Pond 1 Peak Elev=110.96' Storage=1,135 cf Inflow=0.62 cfs 0.045 af
Outflow=0.05 cfs 0.040 af

Pond R2: Detention Pond 2 Peak Elev=111.05' Storage=1,302 cf Inflow=0.62 cfs 0.045 af
Outflow=0.03 cfs 0.039 af

Pond RG-1: Rain Garden Peak Elev=114.50' Storage=0 cf Inflow=0.00 cfs 0.000 af
Discarded=0.00 cfs 0.000 af Primary=0.00 cfs 0.000 af Outflow=0.00 cfs 0.000 af

Pond RG-2: Rain Garden Peak Elev=114.49' Storage=0 cf Inflow=0.00 cfs 0.000 af
Discarded=0.00 cfs 0.000 af Primary=0.00 cfs 0.000 af Outflow=0.00 cfs 0.000 af

Total Runoff Area = 11.324 ac Runoff Volume = 0.171 af Average Runoff Depth = 0.18"
47.50% Pervious = 5.379 ac 52.50% Impervious = 5.944 ac

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Subcatchment 1S: Area 1 Runoff Area=15,851 sf 17.16% Impervious Runoff Depth=0.98"
Flow Length=300' Tc=20.7 min CN=49 Runoff=0.21 cfs 0.030 af

Subcatchment 2S: Area 2 Runoff Area=1,429 sf 70.05% Impervious Runoff Depth=3.60"
Tc=6.0 min CN=80 Runoff=0.14 cfs 0.010 af

Subcatchment 3S: Area to PP1 Runoff Area=2,173 sf 81.59% Impervious Runoff Depth=4.33"
Tc=6.0 min CN=87 Runoff=0.25 cfs 0.018 af

Subcatchment 4S: Area to PP2 Runoff Area=3,345 sf 100.00% Impervious Runoff Depth=5.56"
Tc=6.0 min CN=98 Runoff=0.44 cfs 0.036 af

Subcatchment 5S: Area to Rain Garden East Runoff Area=8,904 sf 17.46% Impervious Runoff Depth=0.98"
Flow Length=150' Slope=0.0200 '/' Tc=9.2 min CN=49 Runoff=0.15 cfs 0.017 af

Subcatchment 6S: Bldg 1 Roof Runoff Area=11,717 sf 100.00% Impervious Runoff Depth=5.56"
Tc=6.0 min CN=98 Runoff=1.53 cfs 0.125 af

Subcatchment 7S: Area to Rain Garden Runoff Area=21,901 sf 7.99% Impervious Runoff Depth=0.66"
Flow Length=170' Tc=14.0 min CN=44 Runoff=0.16 cfs 0.028 af

Subcatchment 9S: Runoff Area=1,785 sf 50.98% Impervious Runoff Depth=2.56"
Tc=6.0 min CN=69 Runoff=0.12 cfs 0.009 af

Subcatchment 10S: Runoff Area=12,293 sf 82.32% Impervious Runoff Depth=4.43"
Tc=6.0 min CN=88 Runoff=1.42 cfs 0.104 af

Subcatchment 11S: Area to Rain Garden 2 Runoff Area=11,240 sf 51.56% Impervious Runoff Depth=2.56"
Tc=6.0 min CN=69 Runoff=0.77 cfs 0.055 af

Subcatchment 12S: Area to Rain Garden 1 Runoff Area=7,303 sf 58.87% Impervious Runoff Depth=3.02"
Tc=6.0 min CN=74 Runoff=0.59 cfs 0.042 af

Subcatchment 13S: Area to Infiltration Runoff Area=15,495 sf 77.47% Impervious Runoff Depth=4.11"
Tc=6.0 min CN=85 Runoff=1.69 cfs 0.122 af

Subcatchment 14S: Roof Area to Drip Runoff Area=6,080 sf 100.00% Impervious Runoff Depth=5.56"
Tc=6.0 min CN=98 Runoff=0.79 cfs 0.065 af

Subcatchment 15S: Roof Area to Drip Strip Runoff Area=9,600 sf 79.17% Impervious Runoff Depth=4.99"
Tc=6.0 min CN=93 Runoff=1.20 cfs 0.092 af

Subcatchment 16S: Roof Area to Drip Strip Runoff Area=9,600 sf 79.17% Impervious Runoff Depth=4.99"
Tc=6.0 min CN=93 Runoff=1.20 cfs 0.092 af

Subcatchment 17S: Roof Area to Drip Runoff Area=17,390 sf 76.31% Impervious Runoff Depth=4.99"
Tc=6.0 min CN=93 Runoff=2.17 cfs 0.166 af

Subcatchment 18S: North of Mother House Runoff Area=44,775 sf 50.92% Impervious Runoff Depth=2.56"
Tc=6.0 min CN=69 Runoff=3.05 cfs 0.219 af

Subcatchment 19A: St. Josephs Runoff Area=57,470 sf 35.07% Impervious Runoff Depth=1.79"
Flow Length=407' Tc=19.8 min CN=60 Runoff=1.75 cfs 0.197 af

Subcatchment 20A: North Parking - West Runoff Area=19,180 sf 72.24% Impervious Runoff Depth=3.80"
Tc=6.0 min CN=82 Runoff=1.95 cfs 0.140 af

Subcatchment 20B: North Parking - East Runoff Area=15,935 sf 73.59% Impervious Runoff Depth=3.80"
Tc=6.0 min CN=82 Runoff=1.62 cfs 0.116 af

Subcatchment 21A: Building 5 Runoff Area=19,410 sf 100.00% Impervious Runoff Depth=5.56"
Tc=6.0 min CN=98 Runoff=2.53 cfs 0.207 af

Subcatchment 21B: Buiding 4 Runoff Area=12,580 sf 100.00% Impervious Runoff Depth=5.56"
Tc=6.0 min CN=98 Runoff=1.64 cfs 0.134 af

Subcatchment 22A: The Common Runoff Area=35,370 sf 23.11% Impervious Runoff Depth=0.78"
Flow Length=209' Slope=0.0100 '/' Tc=23.0 min UI Adjusted CN=46 Runoff=0.31 cfs 0.053 af

Subcatchment 22B: Detention Pond 1 Runoff Area=8,850 sf 13.39% Impervious Runoff Depth=0.85"
Tc=6.0 min CN=47 Runoff=0.13 cfs 0.014 af

Subcatchment 23A: South Parking - West Runoff Area=18,825 sf 64.46% Impervious Runoff Depth=3.31"
Tc=6.0 min CN=77 Runoff=1.68 cfs 0.119 af

Subcatchment 23B: South Parking - East Runoff Area=9,870 sf 63.12% Impervious Runoff Depth=3.21"
Tc=6.0 min CN=76 Runoff=0.85 cfs 0.061 af

Subcatchment 24A: Building 2 Runoff Area=12,580 sf 100.00% Impervious Runoff Depth=5.56"
Tc=6.0 min CN=98 Runoff=1.64 cfs 0.134 af

Subcatchment 24B: Building 3 Runoff Area=19,410 sf 100.00% Impervious Runoff Depth=5.56"
Tc=6.0 min CN=98 Runoff=2.53 cfs 0.207 af

Subcatchment 25A: South of Building 2 Runoff Area=22,380 sf 21.94% Impervious Runoff Depth=2.21"
Flow Length=140' Slope=0.0100 '/' Tc=25.0 min CN=65 Runoff=0.79 cfs 0.094 af

Subcatchment 25B: South of Building 3 Runoff Area=9,075 sf 8.10% Impervious Runoff Depth=3.21"
Tc=6.0 min CN=76 Runoff=0.78 cfs 0.056 af

Subcatchment 25C: South of Building 3 Runoff Area=2,390 sf 19.25% Impervious Runoff Depth=3.50"
Tc=6.0 min CN=79 Runoff=0.22 cfs 0.016 af

Subcatchment 26S: Wetland to POI 2 Runoff Area=10,500 sf 5.52% Impervious Runoff Depth=1.95"
Flow Length=155' Slope=0.0500 '/' Tc=22.1 min CN=62 Runoff=0.34 cfs 0.039 af

Subcatchment 27S: Wetland to POI 1 Runoff Area=13,833 sf 3.43% Impervious Runoff Depth=3.21"
Flow Length=165' Slope=0.0500 '/' Tc=27.3 min CN=76 Runoff=0.70 cfs 0.085 af

Subcatchment 28S: Runoff Area=4,725 sf 0.00% Impervious Runoff Depth=0.39"
Flow Length=105' Slope=0.0100 '/' Tc=13.2 min CN=39 Runoff=0.01 cfs 0.004 af

Reach 1R: CB 19 TO WETLAND Avg. Flow Depth=0.82' Max Vel=4.95 fps Inflow=4.29 cfs 0.736 af
15.0" Round Pipe n=0.012 L=126.0' S=0.0062 '/' Capacity=5.51 cfs Outflow=4.25 cfs 0.736 af

Reach 2R: POI 2 Inflow=11.37 cfs 1.451 af
Outflow=11.37 cfs 1.451 af

Reach 4R: Wetland to POI 2 Avg. Flow Depth=0.49' Max Vel=5.23 fps Inflow=11.15 cfs 1.412 af
n=0.035 L=145.0' S=0.0500 '/' Capacity=24.99 cfs Outflow=11.13 cfs 1.411 af

Reach 6R: Wetland to POI 1 Avg. Flow Depth=0.17' Max Vel=2.74 fps Inflow=4.25 cfs 0.736 af
n=0.035 L=210.0' S=0.0500 '/' Capacity=57.05 cfs Outflow=4.12 cfs 0.735 af

Reach 24R: DMH 11 to DMH 12 Avg. Flow Depth=0.32' Max Vel=3.68 fps Inflow=0.61 cfs 0.108 af
8.0" Round Pipe n=0.012 L=59.0' S=0.0100 '/' Capacity=1.31 cfs Outflow=0.61 cfs 0.108 af

Reach 25R: DMH 12 to DMH 15 Avg. Flow Depth=0.43' Max Vel=4.11 fps Inflow=0.97 cfs 0.166 af
8.0" Round Pipe n=0.012 L=48.0' S=0.0100 '/' Capacity=1.31 cfs Outflow=0.97 cfs 0.166 af

Reach 26R: DMH 15 to DMH 14 Avg. Flow Depth=0.34' Max Vel=4.10 fps Inflow=0.97 cfs 0.195 af
12.0" Round Pipe n=0.012 L=105.0' S=0.0100 '/' Capacity=3.86 cfs Outflow=0.97 cfs 0.195 af

Reach 27R: DMH 14 to DMH 7 Avg. Flow Depth=0.63' Max Vel=5.72 fps Inflow=3.55 cfs 0.544 af
15.0" Round Pipe n=0.012 L=42.0' S=0.0100 '/' Capacity=7.00 cfs Outflow=3.55 cfs 0.544 af

Reach 28R: POI 1 Inflow=4.55 cfs 0.820 af
Outflow=4.55 cfs 0.820 af

Reach 29R: EX. DMH 4 to NEW CB 19 Avg. Flow Depth=0.46' Max Vel=3.61 fps Inflow=1.29 cfs 0.244 af
12.0" Round Pipe n=0.012 L=172.0' S=0.0058 '/' Capacity=2.93 cfs Outflow=1.29 cfs 0.244 af

Reach 31R: 8" SD Avg. Flow Depth=0.18' Max Vel=2.57 fps Inflow=0.20 cfs 0.041 af
8.0" Round Pipe n=0.013 L=28.0' S=0.0100 '/' Capacity=1.21 cfs Outflow=0.20 cfs 0.041 af

Reach 32R: 8" UD Avg. Flow Depth=0.21' Max Vel=2.13 fps Inflow=0.21 cfs 0.030 af
8.0" Round Pipe n=0.012 L=104.0' S=0.0050 '/' Capacity=0.93 cfs Outflow=0.21 cfs 0.030 af

Reach 33R: 8" SD Avg. Flow Depth=0.38' Max Vel=3.64 fps Inflow=0.74 cfs 0.092 af
8.0" Round Pipe n=0.013 L=76.0' S=0.0100 '/' Capacity=1.21 cfs Outflow=0.74 cfs 0.092 af

Reach 34R: 12" SD Avg. Flow Depth=0.51' Max Vel=3.80 fps Inflow=1.53 cfs 0.125 af
12.0" Round Pipe n=0.012 L=17.0' S=0.0059 '/' Capacity=2.96 cfs Outflow=1.53 cfs 0.125 af

Reach 35R: 12" SD Avg. Flow Depth=0.52' Max Vel=5.63 fps Inflow=2.31 cfs 0.258 af
12.0" Round Pipe n=0.013 L=12.0' S=0.0150 '/' Capacity=4.36 cfs Outflow=2.31 cfs 0.258 af

Reach 40R: New CB 1 to DMH 2 Avg. Flow Depth=0.89' Max Vel=6.41 fps Inflow=6.10 cfs 0.430 af
15.0" Round Pipe n=0.012 L=410.0' S=0.0100 '/' Capacity=7.00 cfs Outflow=6.03 cfs 0.430 af

Reach 41R: DMH 2 to DMH 3 Avg. Flow Depth=0.89' Max Vel=6.67 fps Inflow=7.34 cfs 0.760 af
18.0" Round Pipe n=0.012 L=80.0' S=0.0094 '/' Capacity=11.02 cfs Outflow=7.34 cfs 0.760 af

Reach 42R: DMH 3 to DMH 7 Avg. Flow Depth=0.92' Max Vel=6.65 fps Inflow=7.62 cfs 0.868 af
18.0" Round Pipe n=0.012 L=382.0' S=0.0091 '/' Capacity=10.86 cfs Outflow=7.59 cfs 0.867 af

Reach 44R: DMH 7 to Wetland Avg. Flow Depth=0.95' Max Vel=7.62 fps Inflow=11.14 cfs 1.412 af
24.0" Round Pipe n=0.012 L=30.0' S=0.0100 '/' Capacity=24.51 cfs Outflow=11.15 cfs 1.412 af

Pond 3P: FP1 TANKS Peak Elev=111.34' Storage=1,875 cf Inflow=0.29 cfs 0.053 af
Outflow=0.02 cfs 0.029 af

Pond 4P: FP2 TANKS Peak Elev=109.77' Storage=934 cf Inflow=0.79 cfs 0.094 af
Outflow=0.73 cfs 0.086 af

Pond 9R: New CB 1 to DMH 2 Peak Elev=113.95' Inflow=6.10 cfs 0.426 af
15.0" Round Culvert n=0.012 L=10.0' S=0.0100 '/' Outflow=6.10 cfs 0.426 af

Pond 30P: Raised StormTech SC-740 Peak Elev=113.90' Storage=0.088 af Inflow=2.31 cfs 0.258 af
Outflow=1.29 cfs 0.244 af

Pond 36P: PP1 Peak Elev=116.01' Storage=152 cf Inflow=0.25 cfs 0.018 af
Outflow=0.20 cfs 0.017 af

Pond 37P: PP2 Peak Elev=115.99' Storage=160 cf Inflow=0.44 cfs 0.036 af
Outflow=0.36 cfs 0.036 af

Pond 38P: Rain Garden West Peak Elev=120.32' Storage=174 cf Inflow=0.16 cfs 0.028 af
Outflow=0.13 cfs 0.025 af

Pond DS-2: Drip Strip Peak Elev=116.14' Storage=706 cf Inflow=1.20 cfs 0.092 af
Discarded=0.28 cfs 0.087 af Primary=0.26 cfs 0.005 af Outflow=0.54 cfs 0.092 af

Pond DS-3: Drip Strip Peak Elev=117.08' Storage=1,168 cf Inflow=2.17 cfs 0.166 af
Discarded=0.28 cfs 0.129 af Primary=0.98 cfs 0.036 af Outflow=1.26 cfs 0.166 af

Pond DS1: Drip Strip Peak Elev=116.14' Storage=706 cf Inflow=1.20 cfs 0.092 af
Discarded=0.28 cfs 0.087 af Primary=0.26 cfs 0.005 af Outflow=0.54 cfs 0.092 af

Pond FP1: FP1 Filter Peak Elev=113.98' Storage=98 cf Inflow=0.31 cfs 0.053 af
Primary=0.21 cfs 0.052 af Secondary=0.08 cfs 0.001 af Outflow=0.29 cfs 0.053 af

Pond FP2: FP2 Filter Peak Elev=112.70' Storage=98 cf Inflow=0.79 cfs 0.094 af
Primary=0.21 cfs 0.071 af Secondary=0.58 cfs 0.023 af Outflow=0.79 cfs 0.094 af

Pond IT-1: Infiltration Trench Peak Elev=115.45' Storage=1,890 cf Inflow=3.28 cfs 0.247 af
Discarded=0.28 cfs 0.157 af Primary=1.40 cfs 0.090 af Outflow=1.68 cfs 0.247 af

Pond PP1: Porous Pavement 1 Peak Elev=113.96' Storage=2,617 cf Inflow=1.95 cfs 0.140 af
Outflow=0.57 cfs 0.133 af

Pond PP2: Porous Pavement 2 Peak Elev=113.81' Storage=2,138 cf Inflow=1.62 cfs 0.116 af
Outflow=0.59 cfs 0.108 af

Pond PP3: Porous Pavement 3 Peak Elev=113.17' Storage=2,051 cf Inflow=1.68 cfs 0.119 af
Outflow=0.61 cfs 0.108 af

Pond PP4: Porous Pavement 4 Peak Elev=113.22' Storage=917 cf Inflow=0.85 cfs 0.061 af
Outflow=0.39 cfs 0.058 af

Pond R1: Detention Pond 1 Peak Elev=113.01' Storage=3,125 cf Inflow=4.17 cfs 0.340 af
Outflow=2.92 cfs 0.335 af

Pond R2: Detention Pond 2 Peak Elev=112.90' Storage=3,236 cf Inflow=4.17 cfs 0.340 af
Outflow=3.39 cfs 0.334 af

Pond RG-1: Rain Garden Peak Elev=115.86' Storage=206 cf Inflow=0.59 cfs 0.042 af
Discarded=0.08 cfs 0.031 af Primary=0.35 cfs 0.012 af Outflow=0.43 cfs 0.042 af

Pond RG-2: Rain Garden Peak Elev=115.78' Storage=408 cf Inflow=0.77 cfs 0.060 af
Discarded=0.17 cfs 0.047 af Primary=0.33 cfs 0.012 af Outflow=0.50 cfs 0.060 af

Total Runoff Area = 11.324 ac Runoff Volume = 2.901 af Average Runoff Depth = 3.07"
47.50% Pervious = 5.379 ac 52.50% Impervious = 5.944 ac

Summary for Subcatchment 1S: Area 1

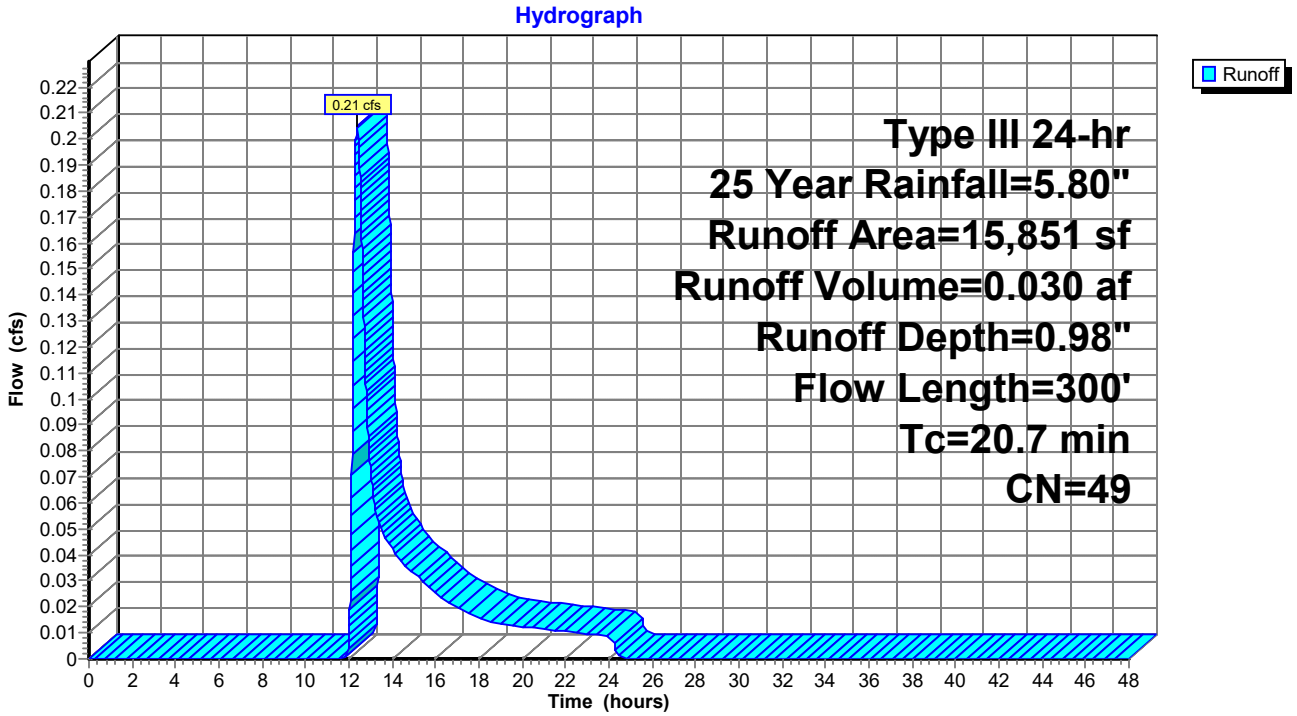
Runoff = 0.21 cfs @ 12.37 hrs, Volume= 0.030 af, Depth= 0.98"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year Rainfall=5.80"

Area (sf)	CN	Description
2,720	98	Paved parking, HSG A
13,131	39	>75% Grass cover, Good, HSG A
15,851	49	Weighted Average
13,131		82.84% Pervious Area
2,720		17.16% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.2	150	0.0100	0.14		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.10"
2.5	150	0.0200	0.99		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
20.7	300	Total			

Subcatchment 1S: Area 1



Summary for Subcatchment 2S: Area 2

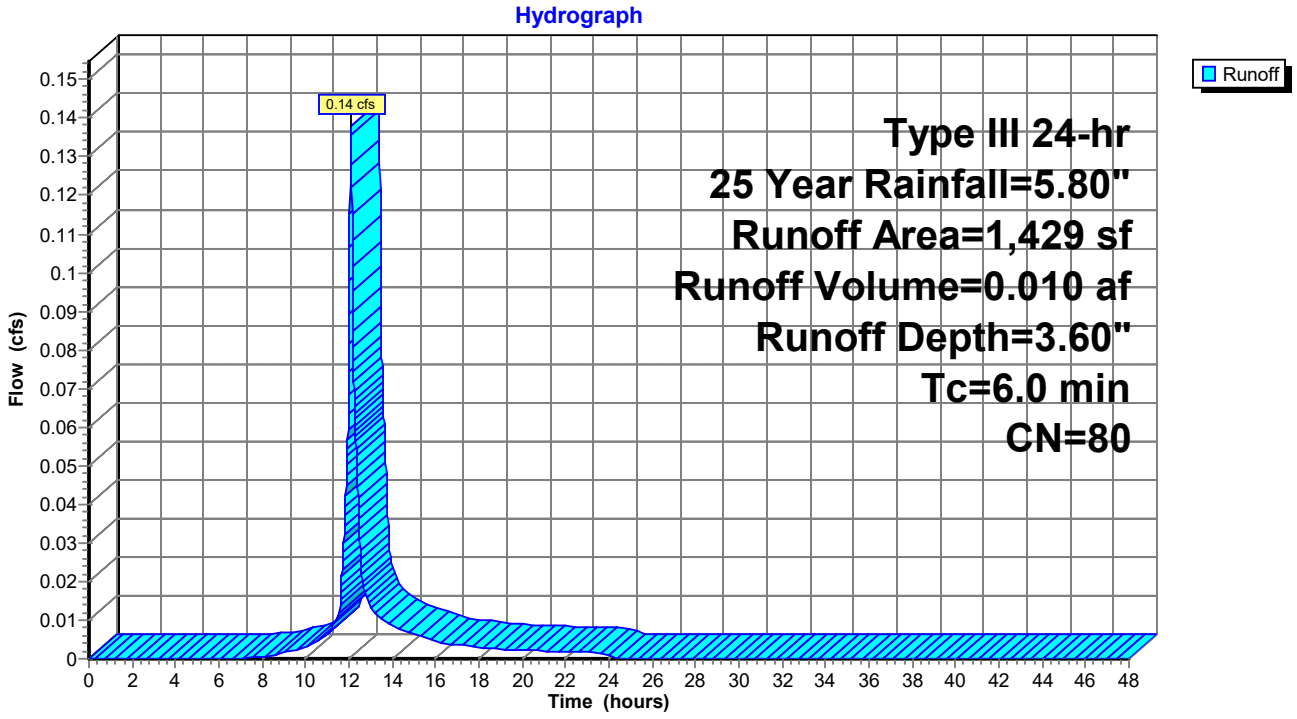
Runoff = 0.14 cfs @ 12.09 hrs, Volume= 0.010 af, Depth= 3.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year Rainfall=5.80"

Area (sf)	CN	Description
428	39	>75% Grass cover, Good, HSG A
1,001	98	Paved parking, HSG A
1,429	80	Weighted Average
428		29.95% Pervious Area
1,001		70.05% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 2S: Area 2



Summary for Subcatchment 3S: Area to PP1

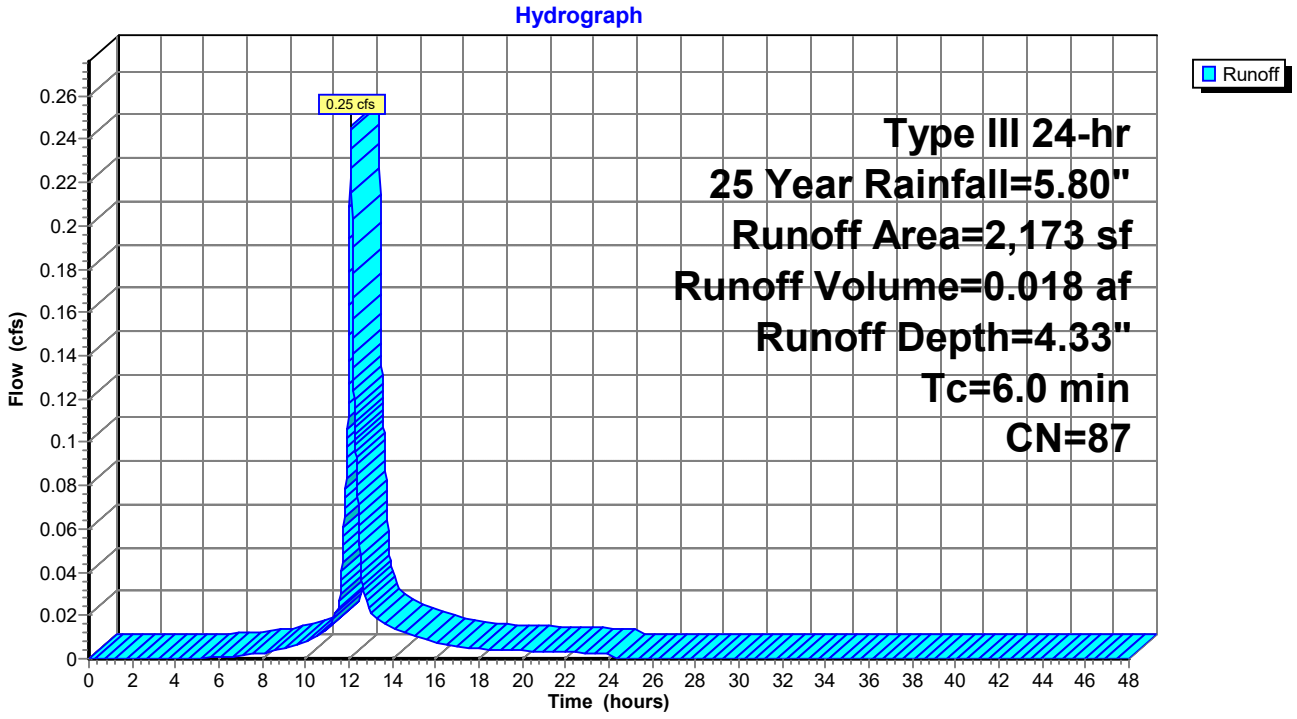
Runoff = 0.25 cfs @ 12.09 hrs, Volume= 0.018 af, Depth= 4.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year Rainfall=5.80"

Area (sf)	CN	Description
400	39	>75% Grass cover, Good, HSG A
1,773	98	Paved parking, HSG A
2,173	87	Weighted Average
400		18.41% Pervious Area
1,773		81.59% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 3S: Area to PP1



Summary for Subcatchment 4S: Area to PP2

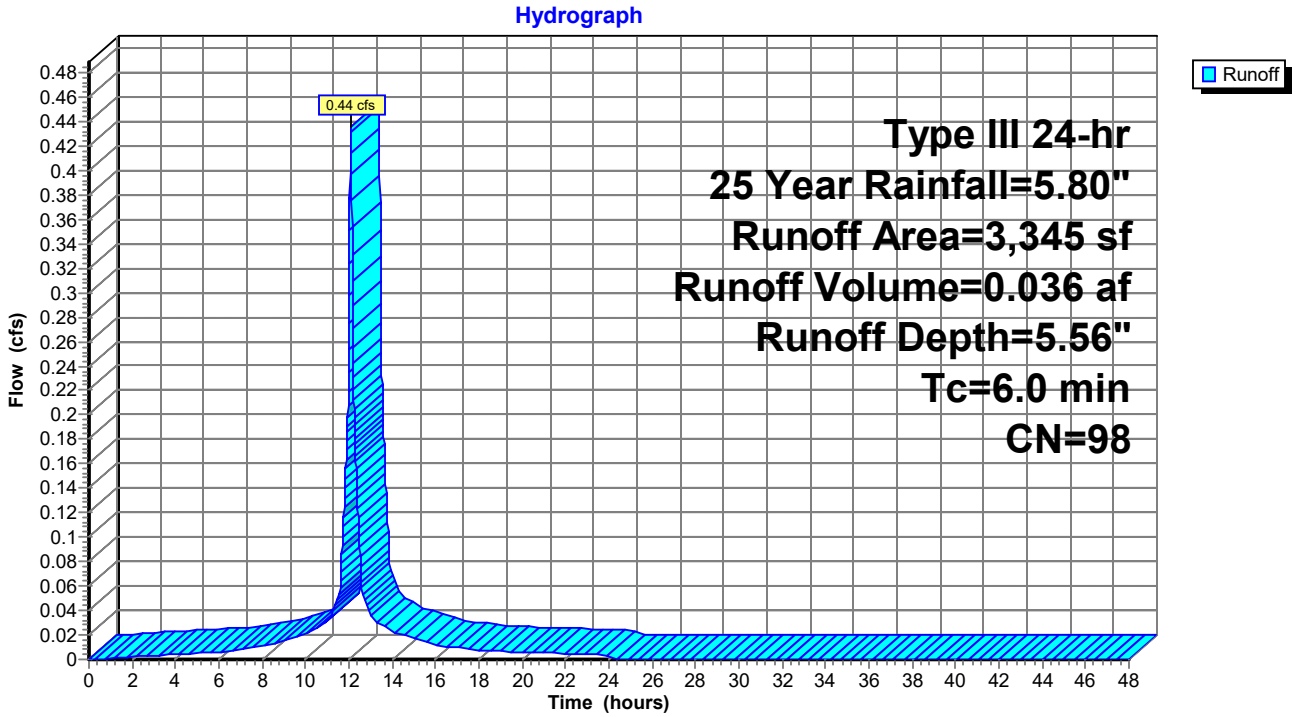
Runoff = 0.44 cfs @ 12.08 hrs, Volume= 0.036 af, Depth= 5.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year Rainfall=5.80"

Area (sf)	CN	Description
3,345	98	Paved parking, HSG A
3,345		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 4S: Area to PP2



Summary for Subcatchment 5S: Area to Rain Garden East

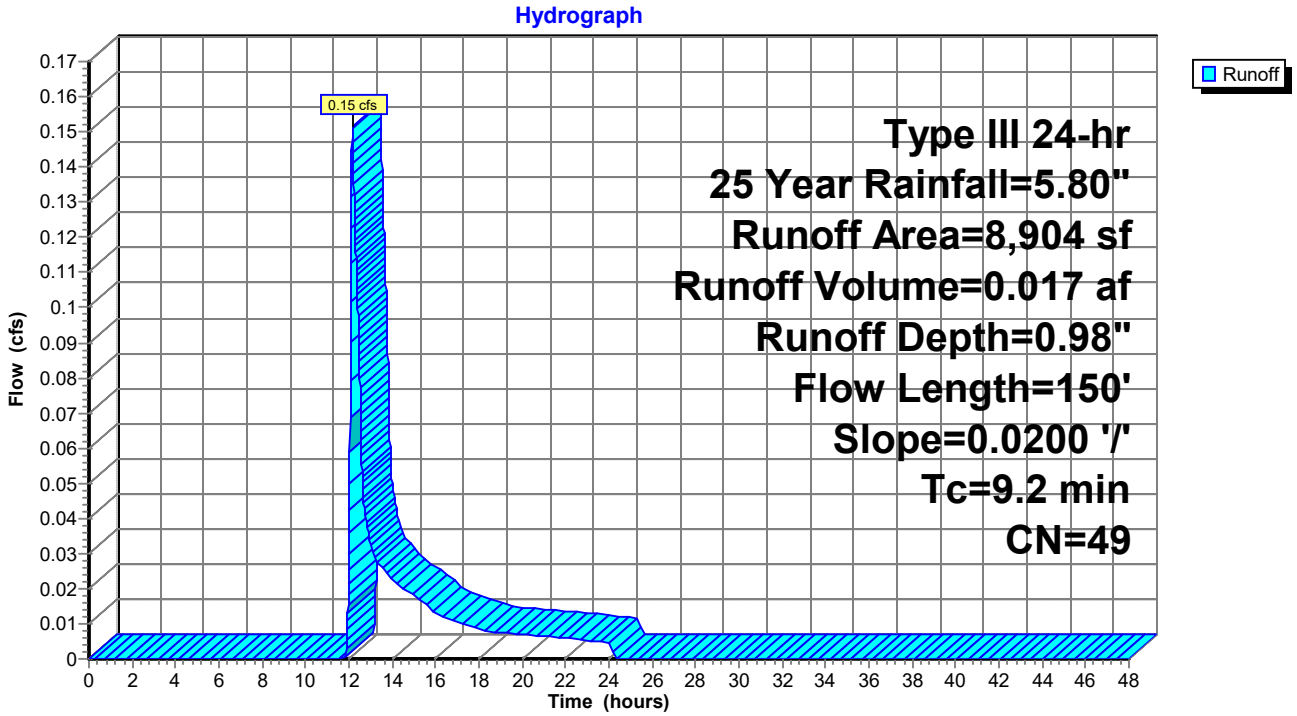
Runoff = 0.15 cfs @ 12.16 hrs, Volume= 0.017 af, Depth= 0.98"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year Rainfall=5.80"

	Area (sf)	CN	Description
*	1,555	98	
	7,349	39	>75% Grass cover, Good, HSG A
	8,904	49	Weighted Average
	7,349		82.54% Pervious Area
	1,555		17.46% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.9	75	0.0200	0.16		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.10"
1.3	75	0.0200	0.99		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
9.2	150	Total			

Subcatchment 5S: Area to Rain Garden East



Summary for Subcatchment 6S: Bldg 1 Roof

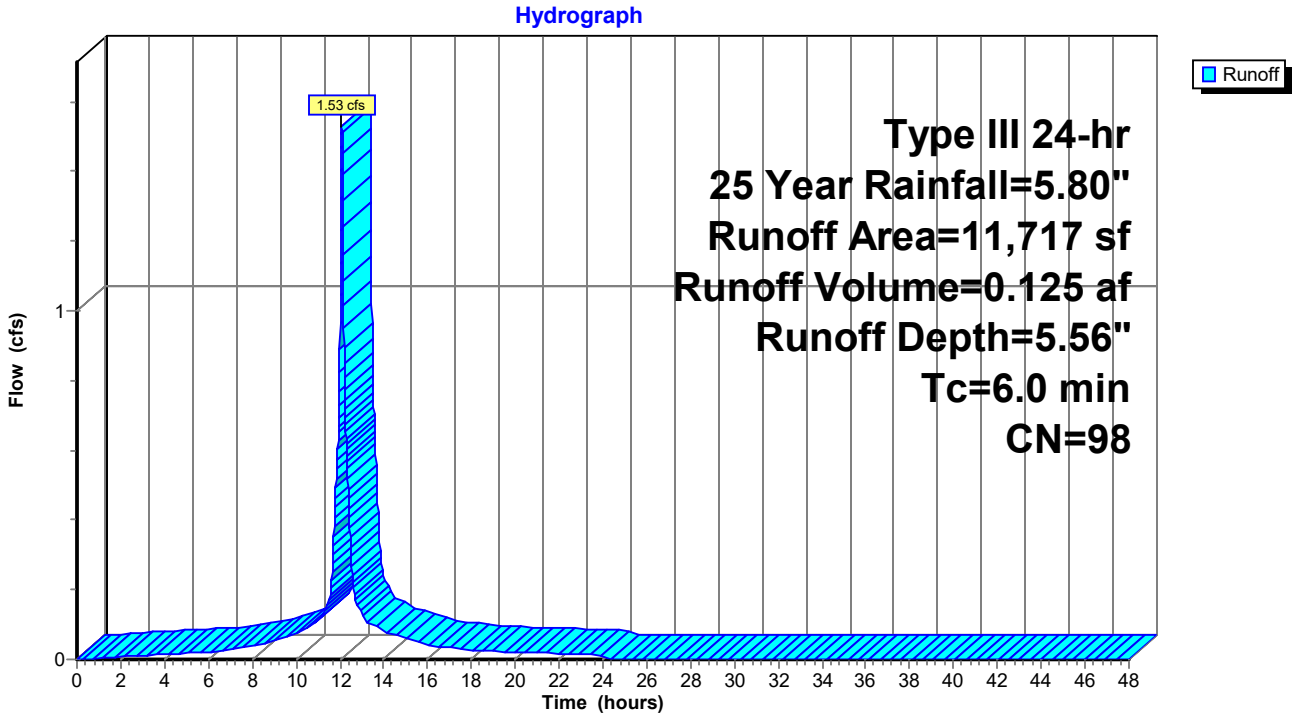
Runoff = 1.53 cfs @ 12.08 hrs, Volume= 0.125 af, Depth= 5.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year Rainfall=5.80"

Area (sf)	CN	Description
11,717	98	Roofs, HSG A
11,717		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 6S: Bldg 1 Roof



Summary for Subcatchment 7S: Area to Rain Garden West

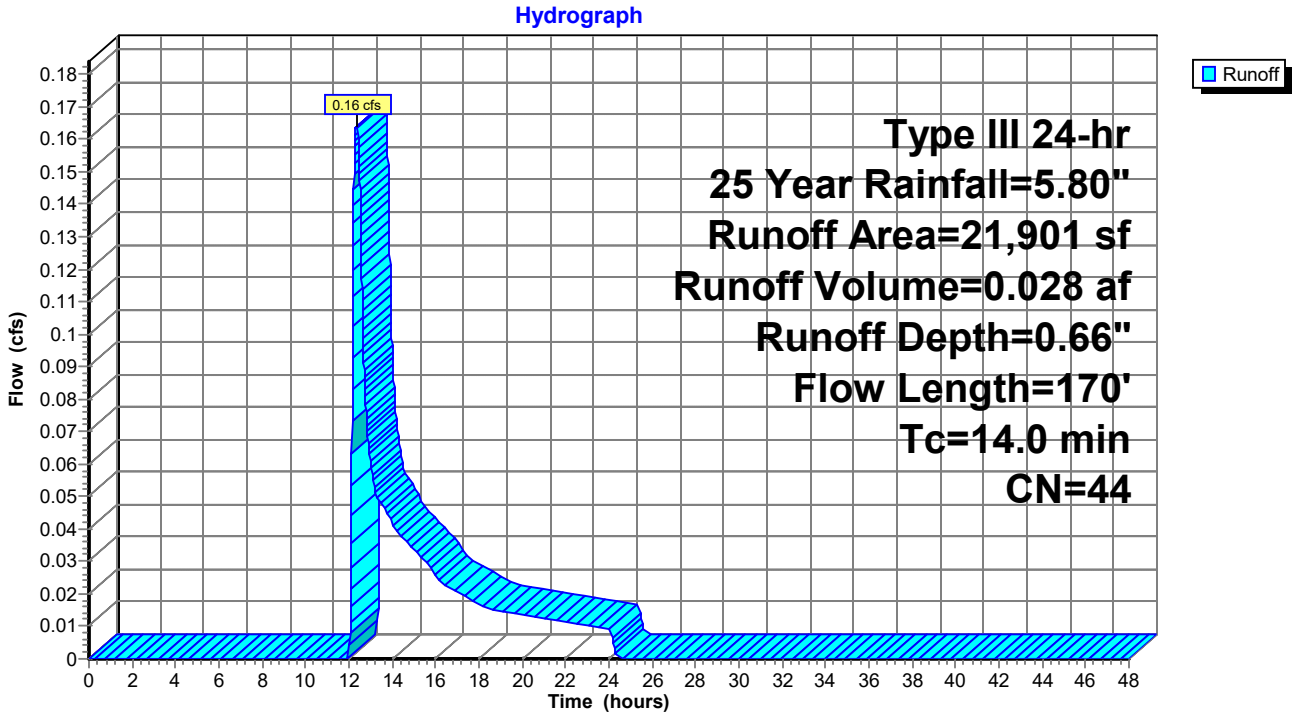
Runoff = 0.16 cfs @ 12.36 hrs, Volume= 0.028 af, Depth= 0.66"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year Rainfall=5.80"

Area (sf)	CN	Description
1,750	98	Paved parking, HSG A
20,151	39	>75% Grass cover, Good, HSG A
21,901	44	Weighted Average
20,151		92.01% Pervious Area
1,750		7.99% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.8	150	0.0200	0.18		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.10"
0.2	20	0.0600	1.71		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
14.0	170	Total			

Subcatchment 7S: Area to Rain Garden West



Summary for Subcatchment 9S:

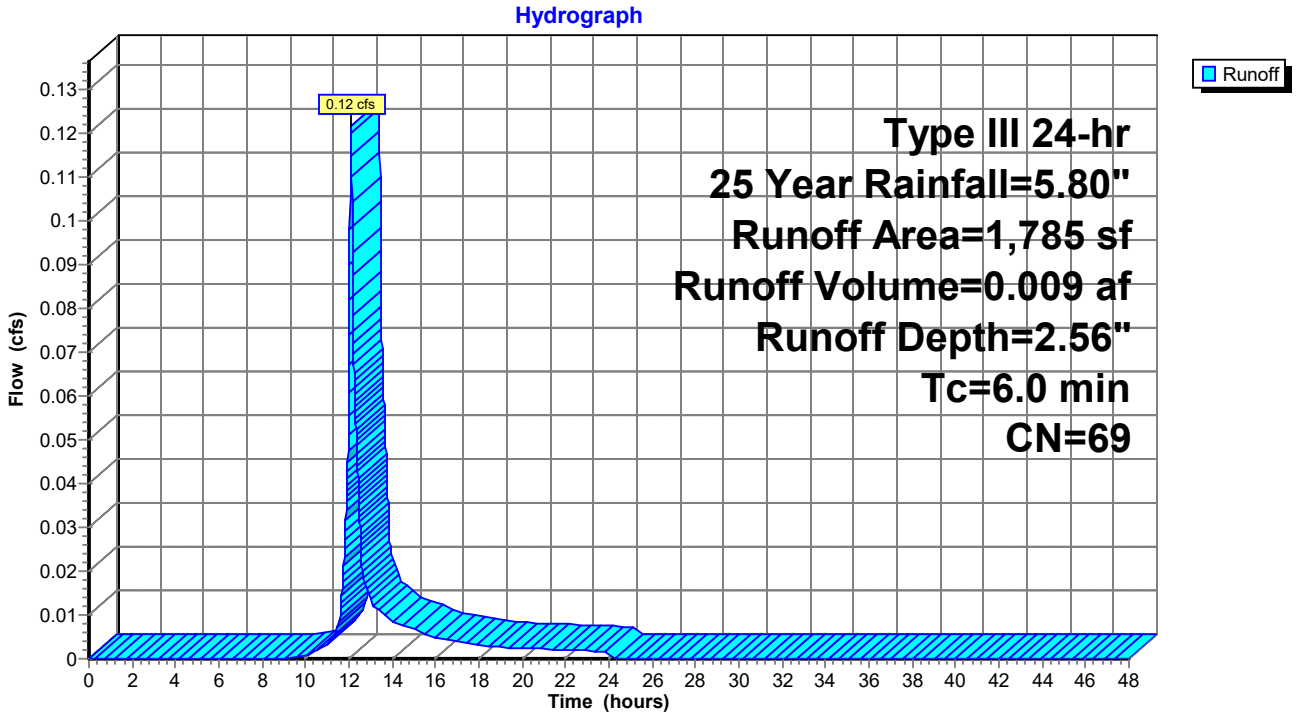
Runoff = 0.12 cfs @ 12.09 hrs, Volume= 0.009 af, Depth= 2.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year Rainfall=5.80"

Area (sf)	CN	Description
875	39	>75% Grass cover, Good, HSG A
910	98	Paved parking, HSG A
1,785	69	Weighted Average
875		49.02% Pervious Area
910		50.98% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 9S:



Summary for Subcatchment 10S:

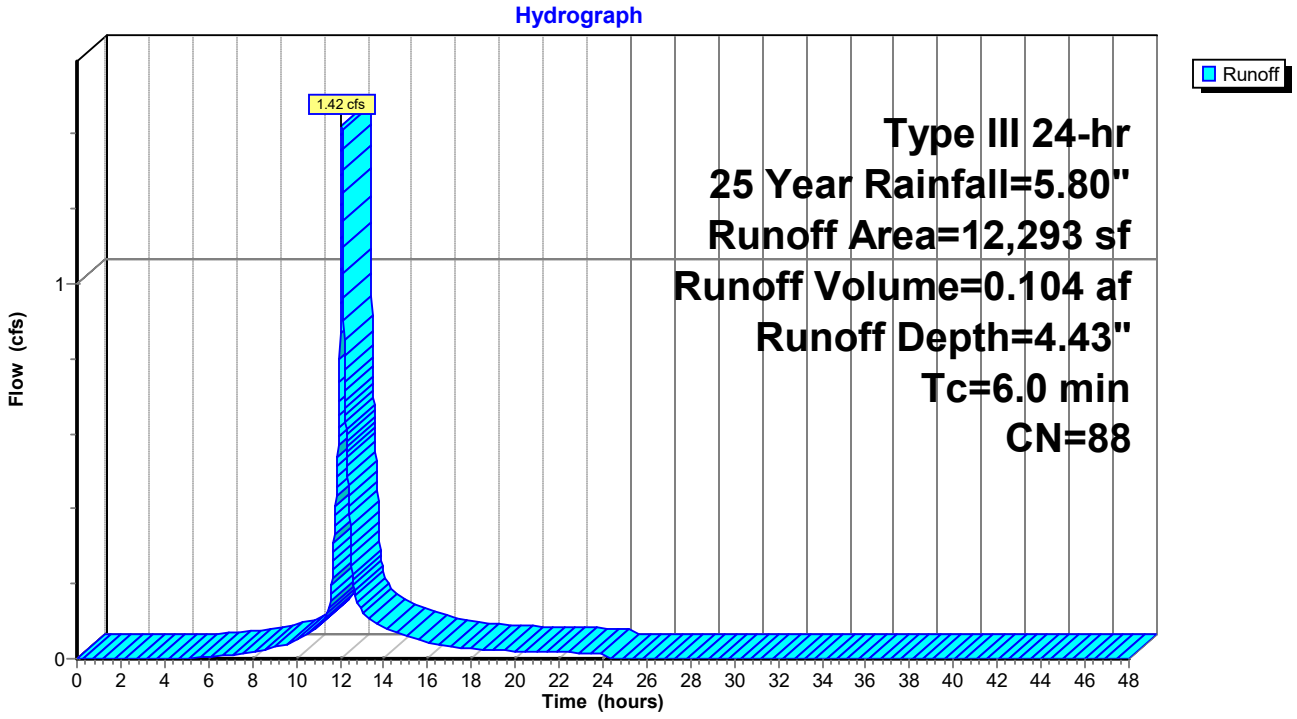
Runoff = 1.42 cfs @ 12.09 hrs, Volume= 0.104 af, Depth= 4.43"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year Rainfall=5.80"

Area (sf)	CN	Description
10,120	98	Paved parking & roofs
2,173	39	>75% Grass cover, Good, HSG A
12,293	88	Weighted Average
2,173		17.68% Pervious Area
10,120		82.32% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum Tc**

Subcatchment 10S:



Summary for Subcatchment 11S: Area to Rain Garden 2

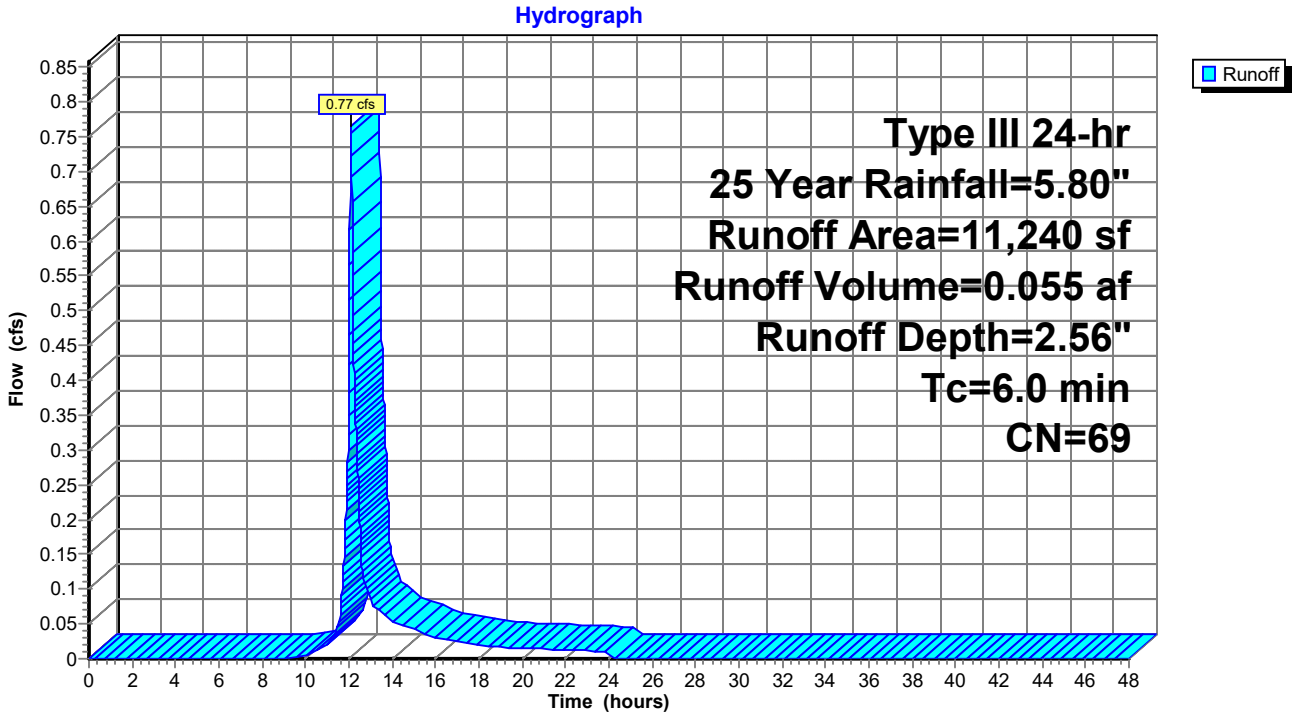
Runoff = 0.77 cfs @ 12.09 hrs, Volume= 0.055 af, Depth= 2.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year Rainfall=5.80"

Area (sf)	CN	Description
5,795	98	Paved parking & roofs
5,445	39	>75% Grass cover, Good, HSG A
11,240	69	Weighted Average
5,445		48.44% Pervious Area
5,795		51.56% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum Tc**

Subcatchment 11S: Area to Rain Garden 2



Summary for Subcatchment 12S: Area to Rain Garden 1

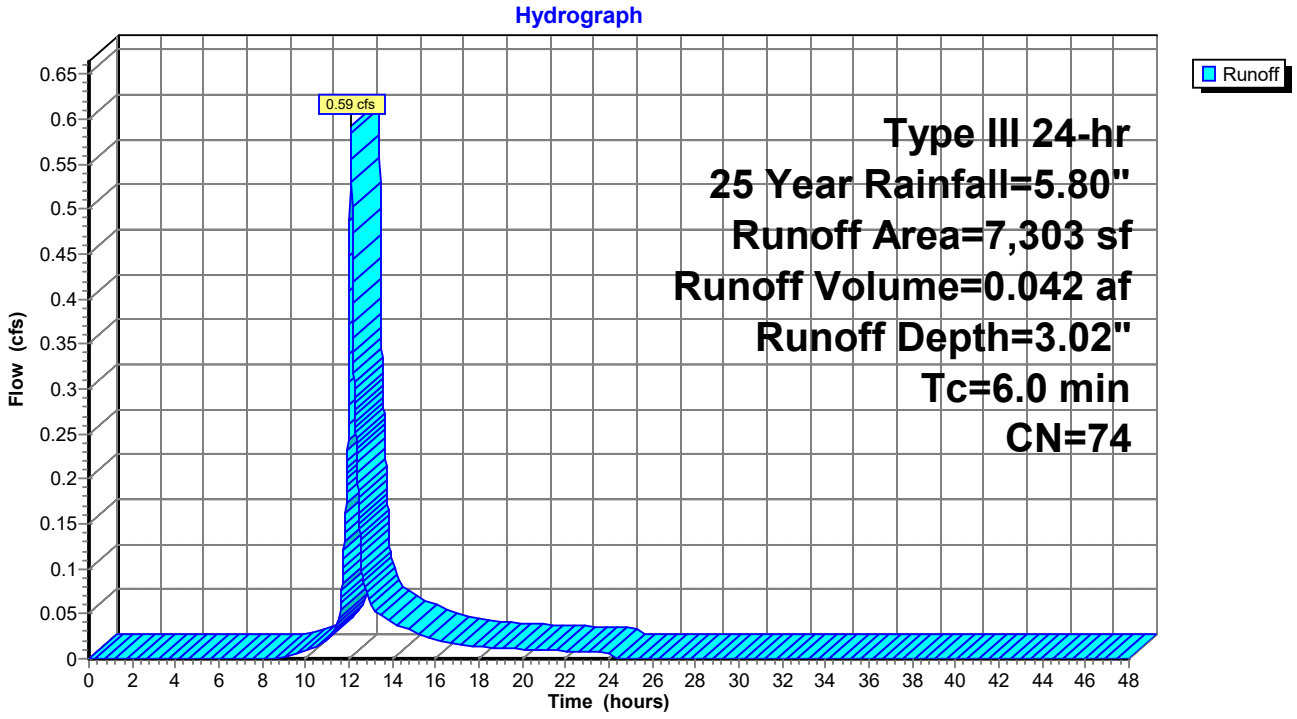
Runoff = 0.59 cfs @ 12.09 hrs, Volume= 0.042 af, Depth= 3.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year Rainfall=5.80"

Area (sf)	CN	Description
4,299	98	Paved parking & roofs
3,004	39	>75% Grass cover, Good, HSG A
7,303	74	Weighted Average
3,004		41.13% Pervious Area
4,299		58.87% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum Tc**

Subcatchment 12S: Area to Rain Garden 1



Summary for Subcatchment 13S: Area to Infiltration Trench

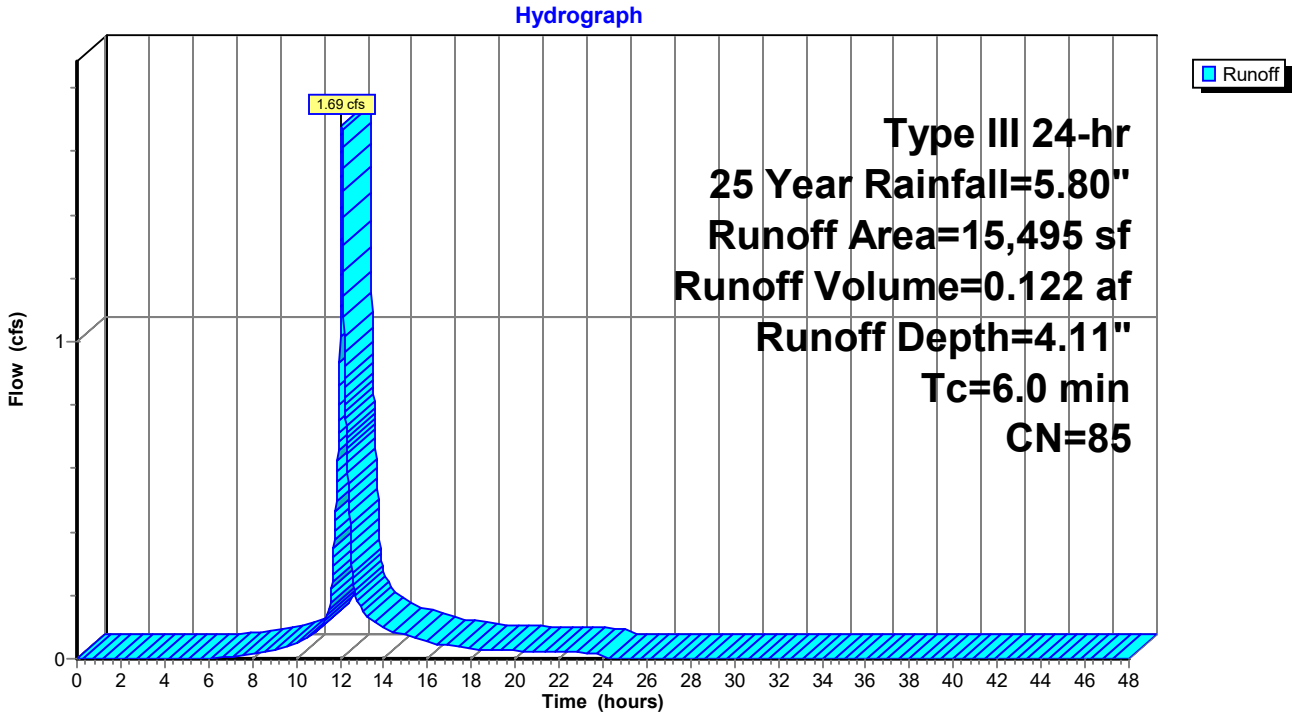
Runoff = 1.69 cfs @ 12.09 hrs, Volume= 0.122 af, Depth= 4.11"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year Rainfall=5.80"

Area (sf)	CN	Description
12,004	98	Paved parking & roofs
3,491	39	>75% Grass cover, Good, HSG A
15,495	85	Weighted Average
3,491		22.53% Pervious Area
12,004		77.47% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum Tc**

Subcatchment 13S: Area to Infiltration Trench



Summary for Subcatchment 14S: Roof Area to Drip Strip 4

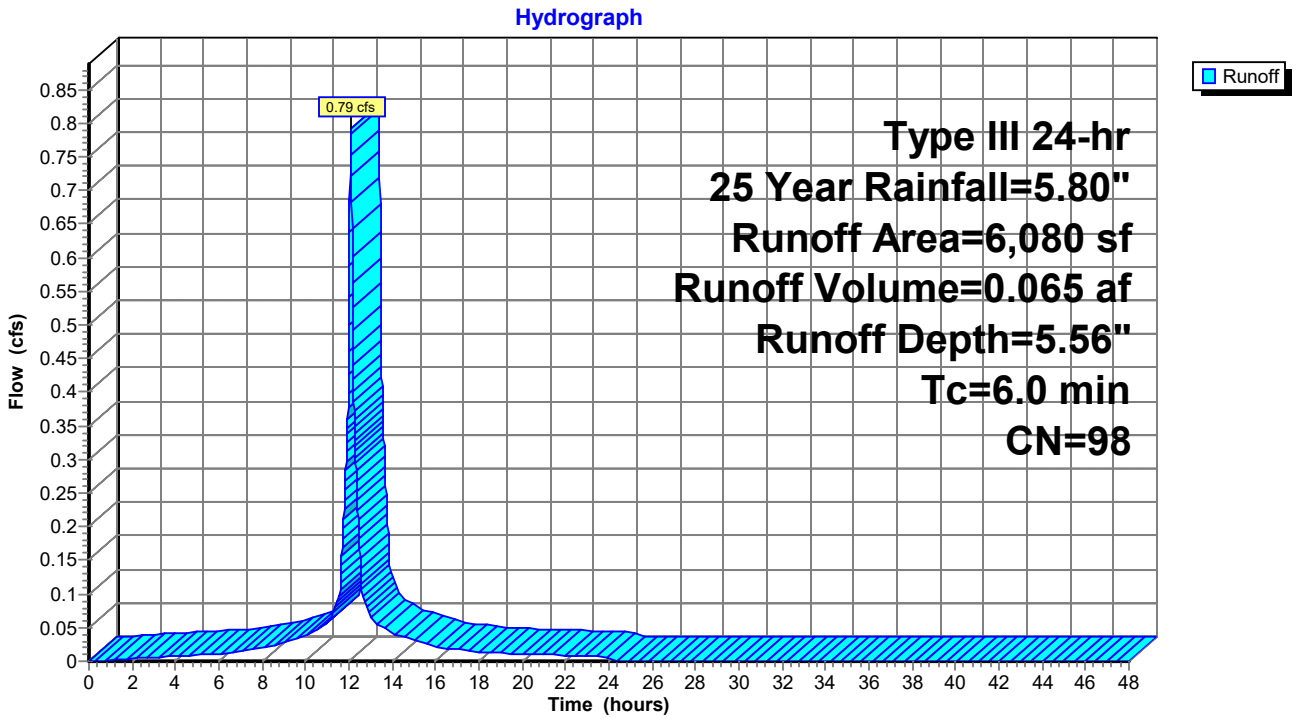
Runoff = 0.79 cfs @ 12.08 hrs, Volume= 0.065 af, Depth= 5.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year Rainfall=5.80"

	Area (sf)	CN	Description
*	6,080	98	Roofs
*	0	76	Drip stone, HSG A
	6,080	98	Weighted Average
	6,080		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum Tc**

Subcatchment 14S: Roof Area to Drip Strip 4



Summary for Subcatchment 15S: Roof Area to Drip Strip 1

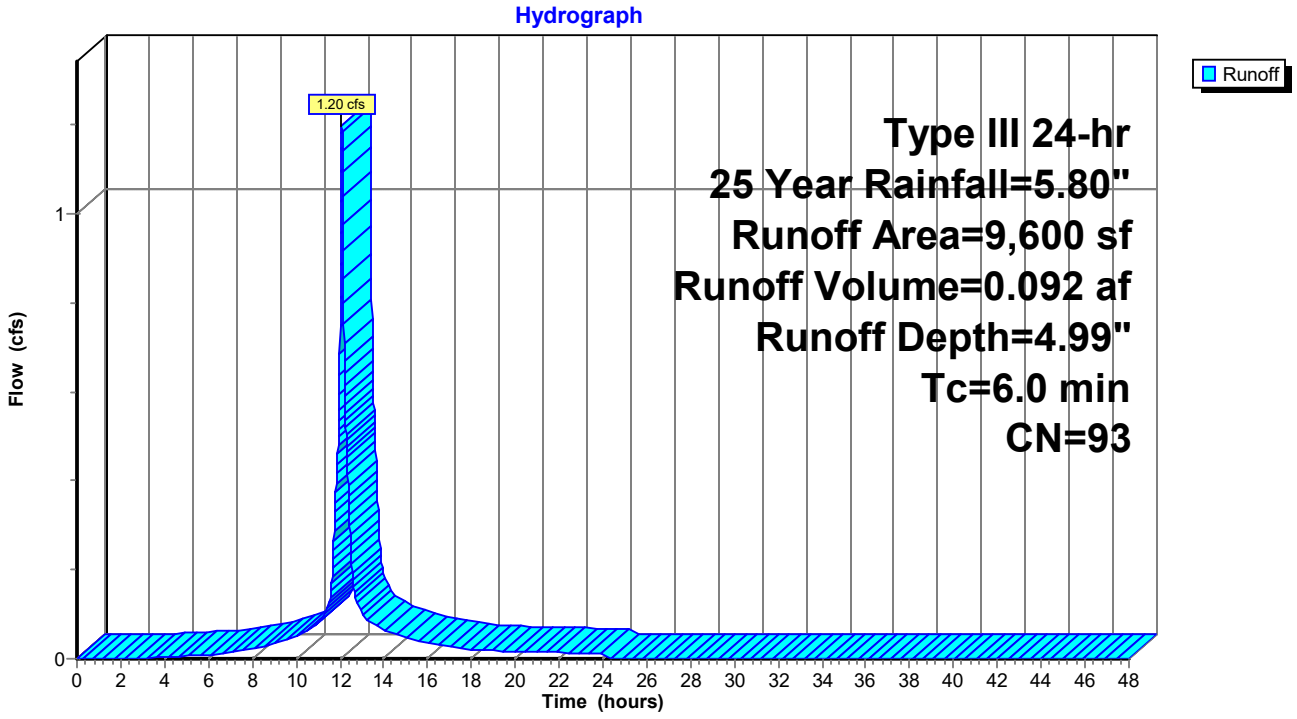
Runoff = 1.20 cfs @ 12.08 hrs, Volume= 0.092 af, Depth= 4.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year Rainfall=5.80"

	Area (sf)	CN	Description
*	7,600	98	Roofs
*	2,000	76	Drip stone, HSG A
	9,600	93	Weighted Average
	2,000		20.83% Pervious Area
	7,600		79.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum Tc**

Subcatchment 15S: Roof Area to Drip Strip 1



Summary for Subcatchment 16S: Roof Area to Drip Strip 2

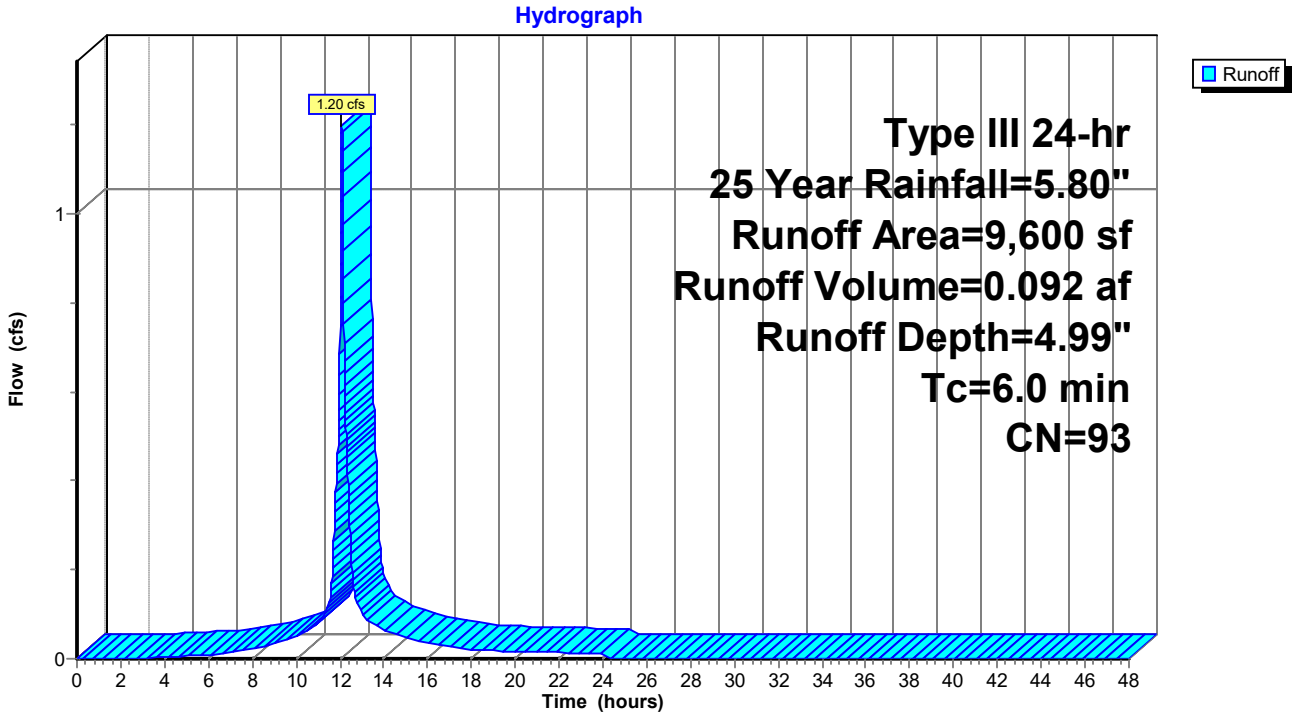
Runoff = 1.20 cfs @ 12.08 hrs, Volume= 0.092 af, Depth= 4.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year Rainfall=5.80"

	Area (sf)	CN	Description
*	7,600	98	Roofs
*	2,000	76	Drip stone, HSG A
	9,600	93	Weighted Average
	2,000		20.83% Pervious Area
	7,600		79.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum Tc**

Subcatchment 16S: Roof Area to Drip Strip 2



Summary for Subcatchment 17S: Roof Area to Drip Strip 3

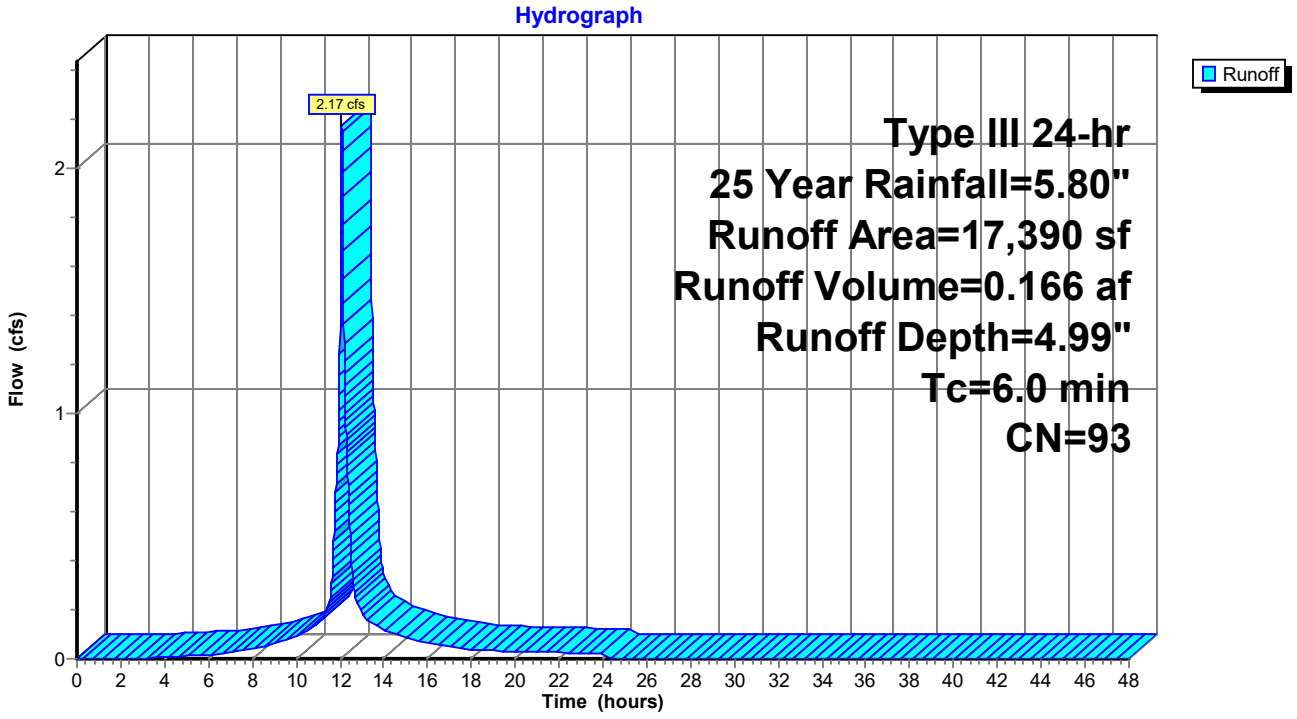
Runoff = 2.17 cfs @ 12.08 hrs, Volume= 0.166 af, Depth= 4.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year Rainfall=5.80"

	Area (sf)	CN	Description
*	13,270	98	Roofs
*	4,120	76	Drip stone, HSG A
	17,390	93	Weighted Average
	4,120		23.69% Pervious Area
	13,270		76.31% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum Tc**

Subcatchment 17S: Roof Area to Drip Strip 3



Summary for Subcatchment 18S: North of Mother House

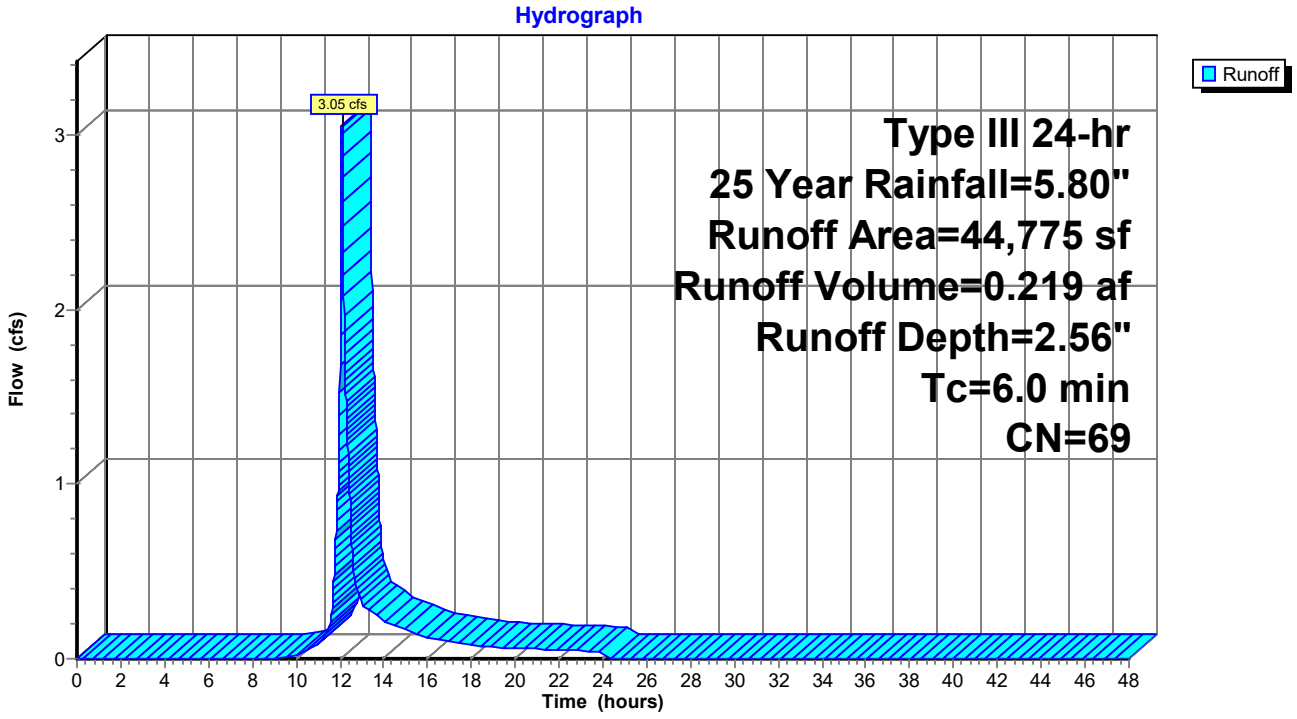
Runoff = 3.05 cfs @ 12.09 hrs, Volume= 0.219 af, Depth= 2.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year Rainfall=5.80"

Area (sf)	CN	Description
21,975	39	>75% Grass cover, Good, HSG A
22,800	98	Paved parking, HSG A
44,775	69	Weighted Average
21,975		49.08% Pervious Area
22,800		50.92% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 18S: North of Mother House



Summary for Subcatchment 19A: St. Josephs

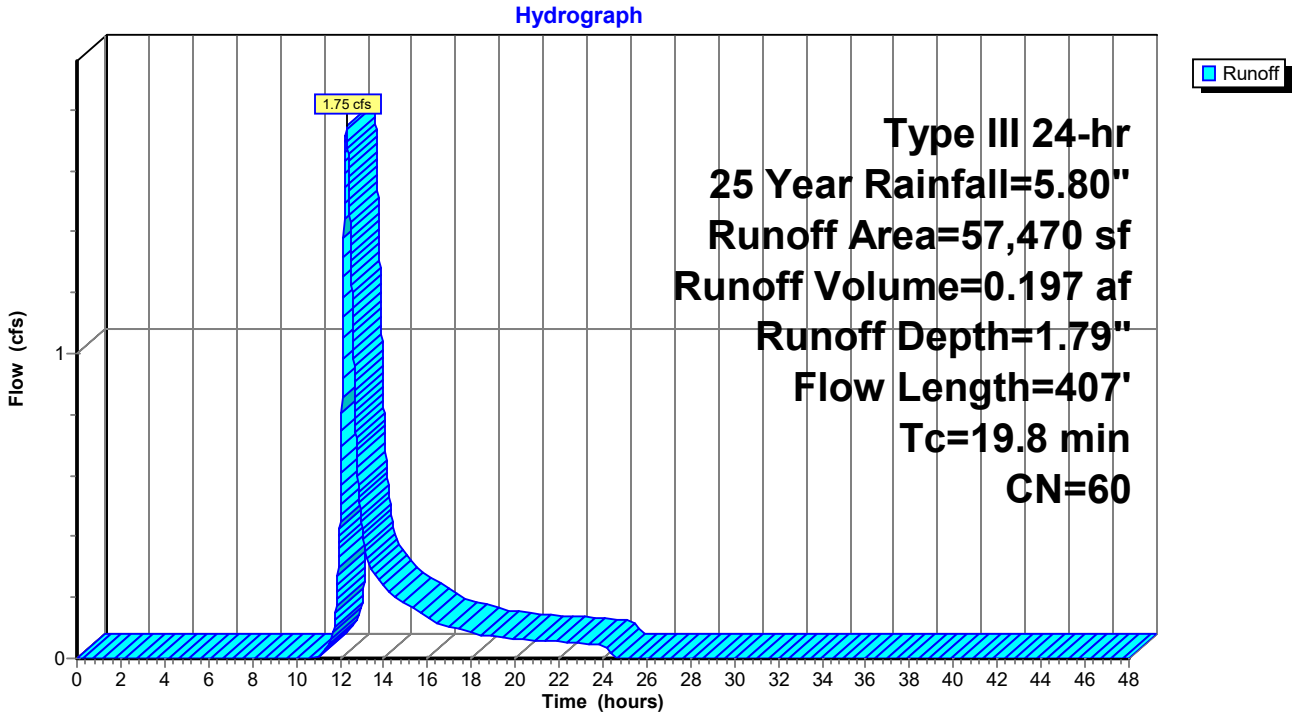
Runoff = 1.75 cfs @ 12.30 hrs, Volume= 0.197 af, Depth= 1.79"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year Rainfall=5.80"

	Area (sf)	CN	Description
*	20,155	98	Impervious
	37,315	39	>75% Grass cover, Good, HSG A
	57,470	60	Weighted Average
	37,315		64.93% Pervious Area
	20,155		35.07% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.6	122	0.0160	0.11		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.10"
1.2	285	0.0064	3.93	3.09	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Corrugated PP, smooth interior
19.8	407	Total			

Subcatchment 19A: St. Josephs



Summary for Subcatchment 20A: North Parking - West

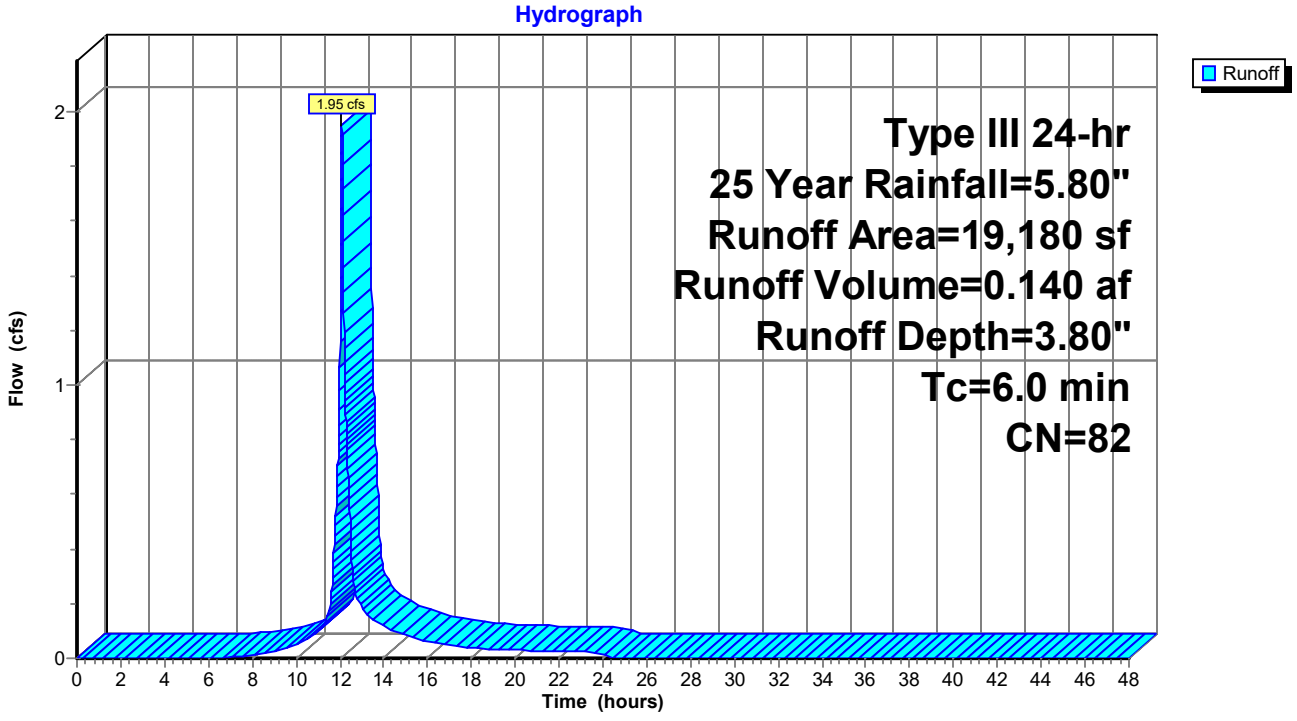
Runoff = 1.95 cfs @ 12.09 hrs, Volume= 0.140 af, Depth= 3.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year Rainfall=5.80"

	Area (sf)	CN	Description
*	7,700	98	Paved parking, HSG A
*	6,156	98	Porous pavement
	5,324	39	>75% Grass cover, Good, HSG A
	19,180	82	Weighted Average
	5,324		27.76% Pervious Area
	13,856		72.24% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 20A: North Parking - West



Summary for Subcatchment 20B: North Parking - East

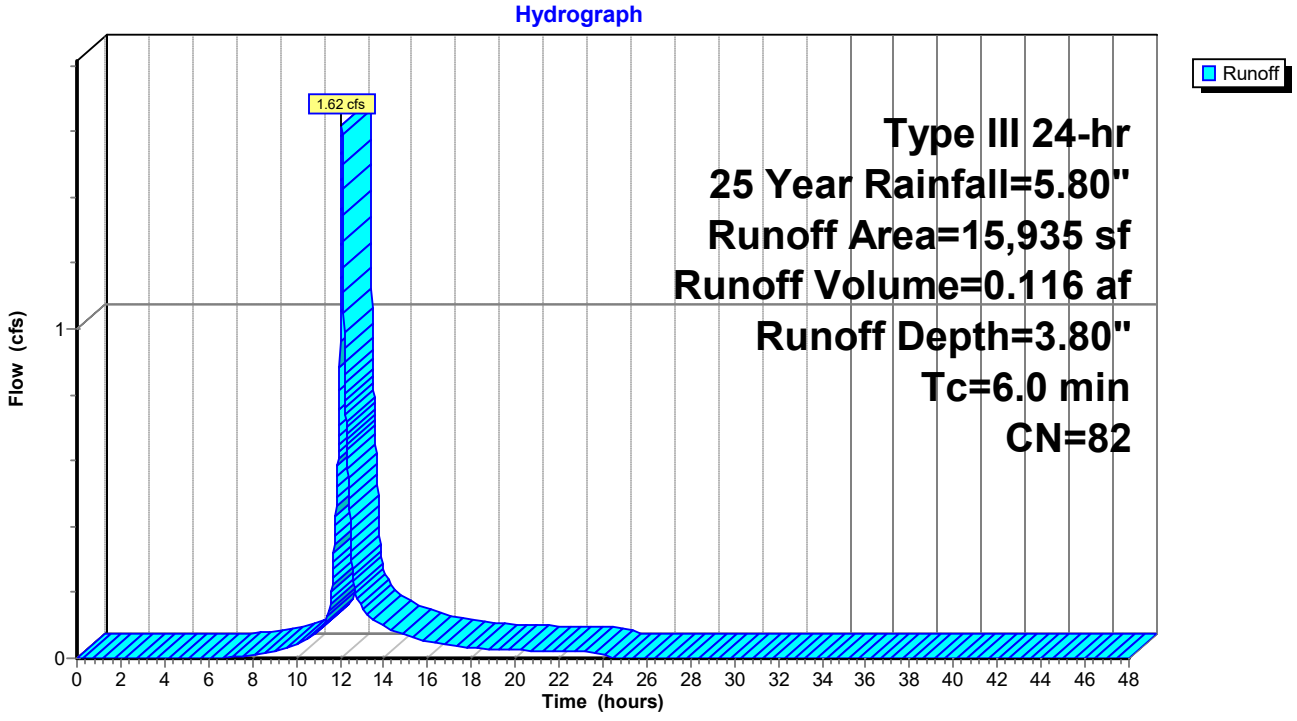
Runoff = 1.62 cfs @ 12.09 hrs, Volume= 0.116 af, Depth= 3.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year Rainfall=5.80"

	Area (sf)	CN	Description
*	6,380	98	Paved parking, HSG A
*	5,346	98	Porous pavement
	4,209	39	>75% Grass cover, Good, HSG A
	15,935	82	Weighted Average
	4,209		26.41% Pervious Area
	11,726		73.59% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 20B: North Parking - East



Summary for Subcatchment 21A: Building 5

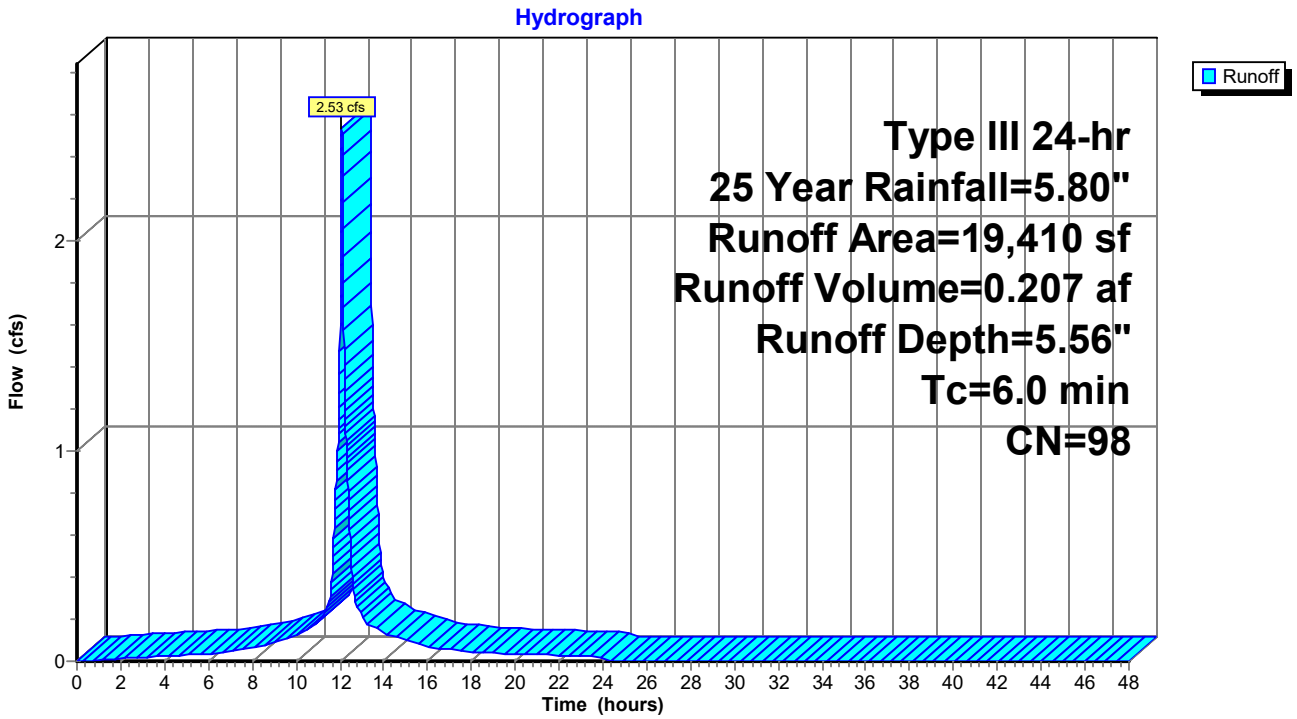
Runoff = 2.53 cfs @ 12.08 hrs, Volume= 0.207 af, Depth= 5.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year Rainfall=5.80"

	Area (sf)	CN	Description
*	19,410	98	Roof & Sidewalk
	0	39	>75% Grass cover, Good, HSG A
	19,410	98	Weighted Average
	19,410		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 21A: Building 5



Summary for Subcatchment 21B: Buiding 4

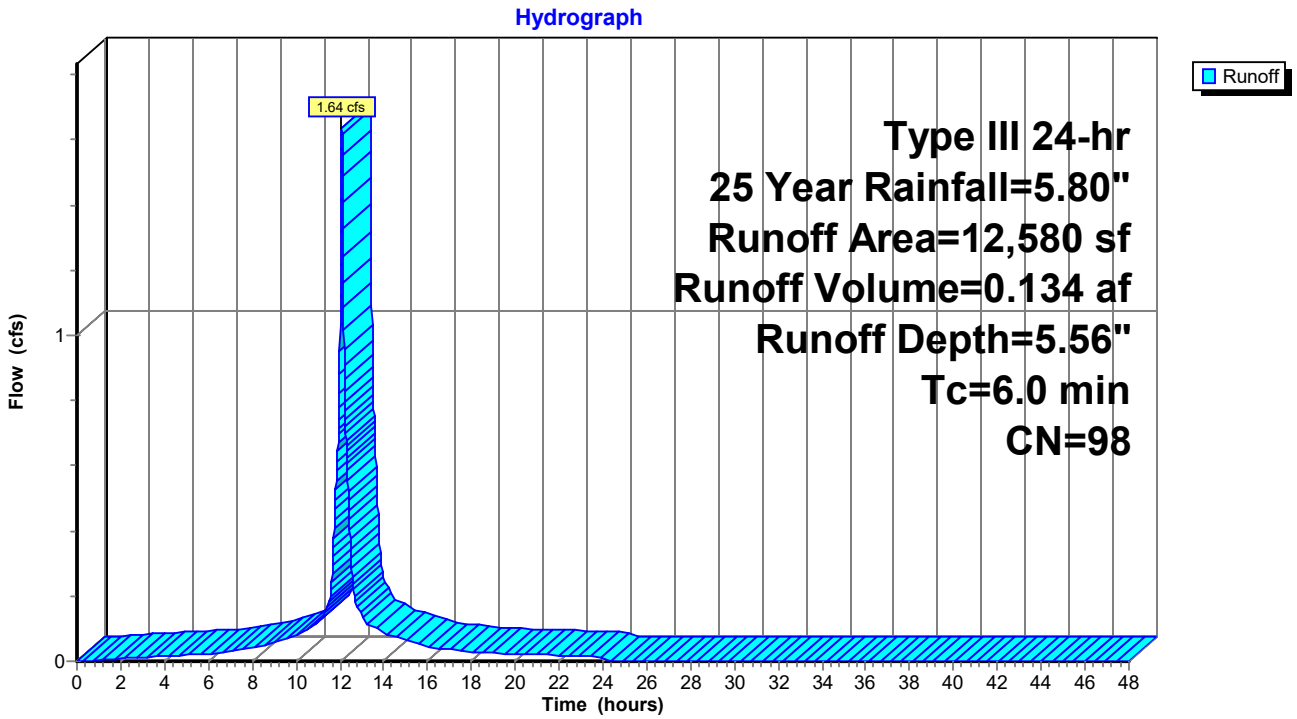
Runoff = 1.64 cfs @ 12.08 hrs, Volume= 0.134 af, Depth= 5.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year Rainfall=5.80"

	Area (sf)	CN	Description
*	12,580	98	Roof & Sidewalk
	0	39	>75% Grass cover, Good, HSG A
	12,580	98	Weighted Average
	12,580		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 21B: Buiding 4



Summary for Subcatchment 22A: The Common

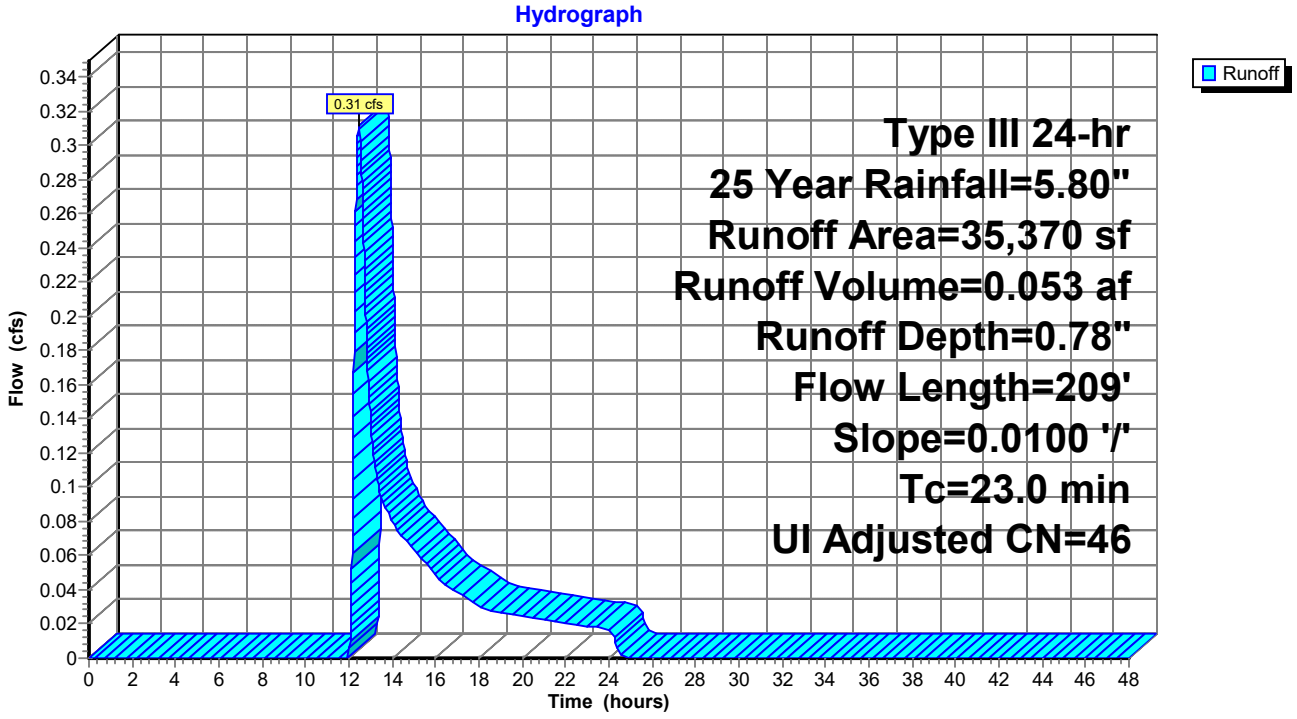
Runoff = 0.31 cfs @ 12.45 hrs, Volume= 0.053 af, Depth= 0.78"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year Rainfall=5.80"

Area (sf)	CN	Adj	Description
8,175	98		Unconnected pavement, HSG A
27,195	39		>75% Grass cover, Good, HSG A
35,370	53	46	Weighted Average, UI Adjusted
27,195			76.89% Pervious Area
8,175			23.11% Impervious Area
8,175			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.1	120	0.0100	0.09		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.10"
0.1	15	0.0100	2.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.8	74	0.0100	1.50		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
23.0	209	Total			

Subcatchment 22A: The Common



Summary for Subcatchment 22B: Detention Pond 1

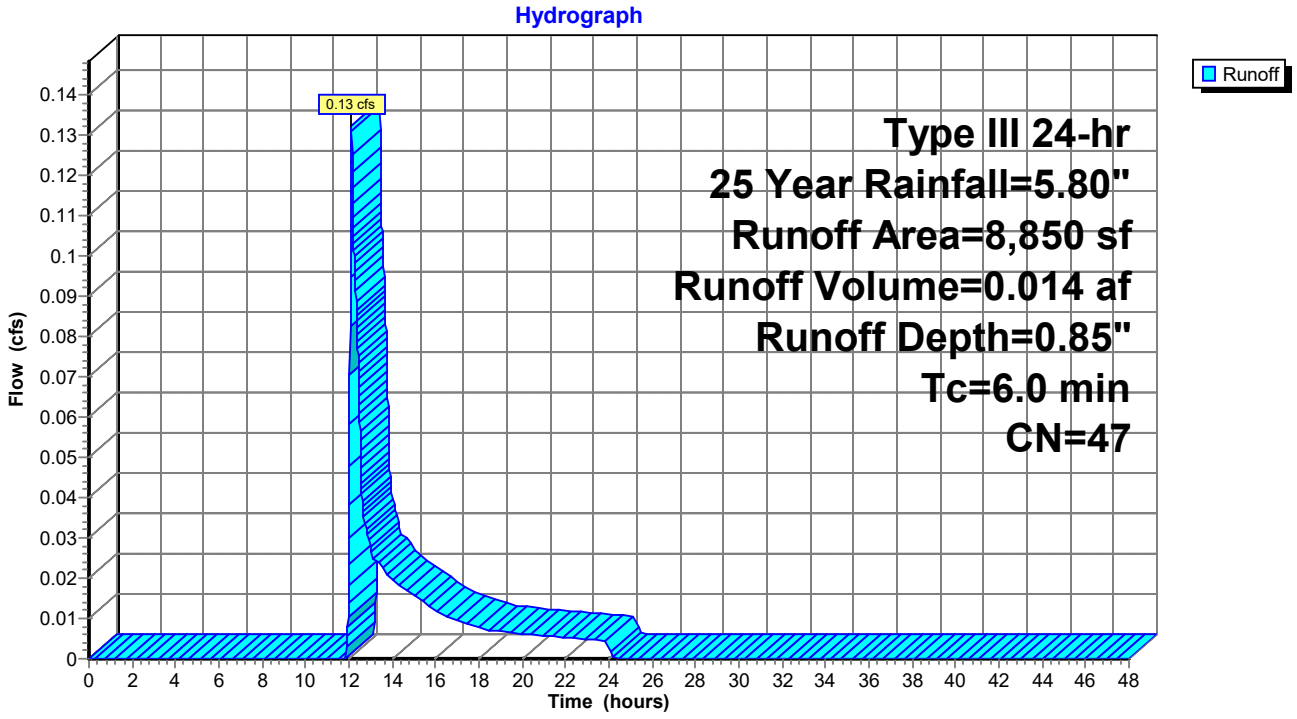
Runoff = 0.13 cfs @ 12.12 hrs, Volume= 0.014 af, Depth= 0.85"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year Rainfall=5.80"

	Area (sf)	CN	Description
*	1,185	98	Walkways
	7,665	39	>75% Grass cover, Good, HSG A
	8,850	47	Weighted Average
	7,665		86.61% Pervious Area
	1,185		13.39% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 22B: Detention Pond 1



Summary for Subcatchment 23A: South Parking - West

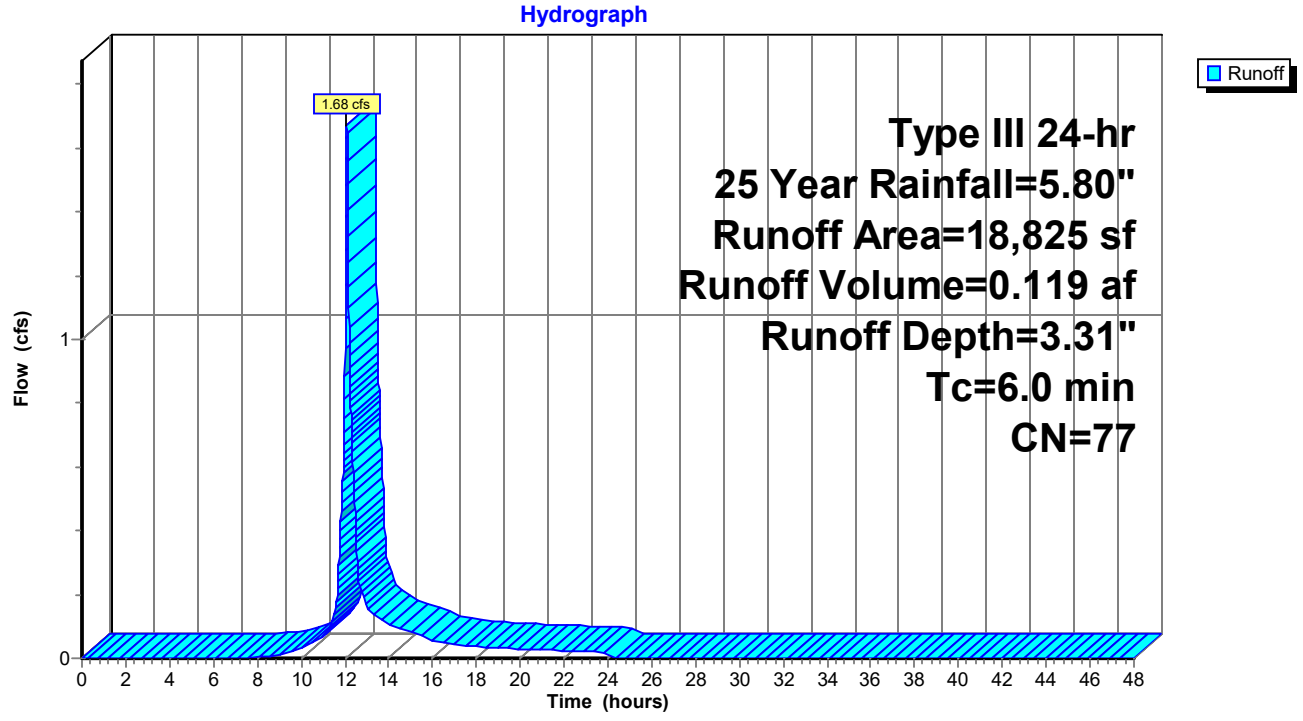
Runoff = 1.68 cfs @ 12.09 hrs, Volume= 0.119 af, Depth= 3.31"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year Rainfall=5.80"

	Area (sf)	CN	Description
*	8,390	98	Paved parking, HSG A
*	3,744	98	Porous pavement
	6,691	39	>75% Grass cover, Good, HSG A
	18,825	77	Weighted Average
	6,691		35.54% Pervious Area
	12,134		64.46% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 23A: South Parking - West



Summary for Subcatchment 23B: South Parking - East

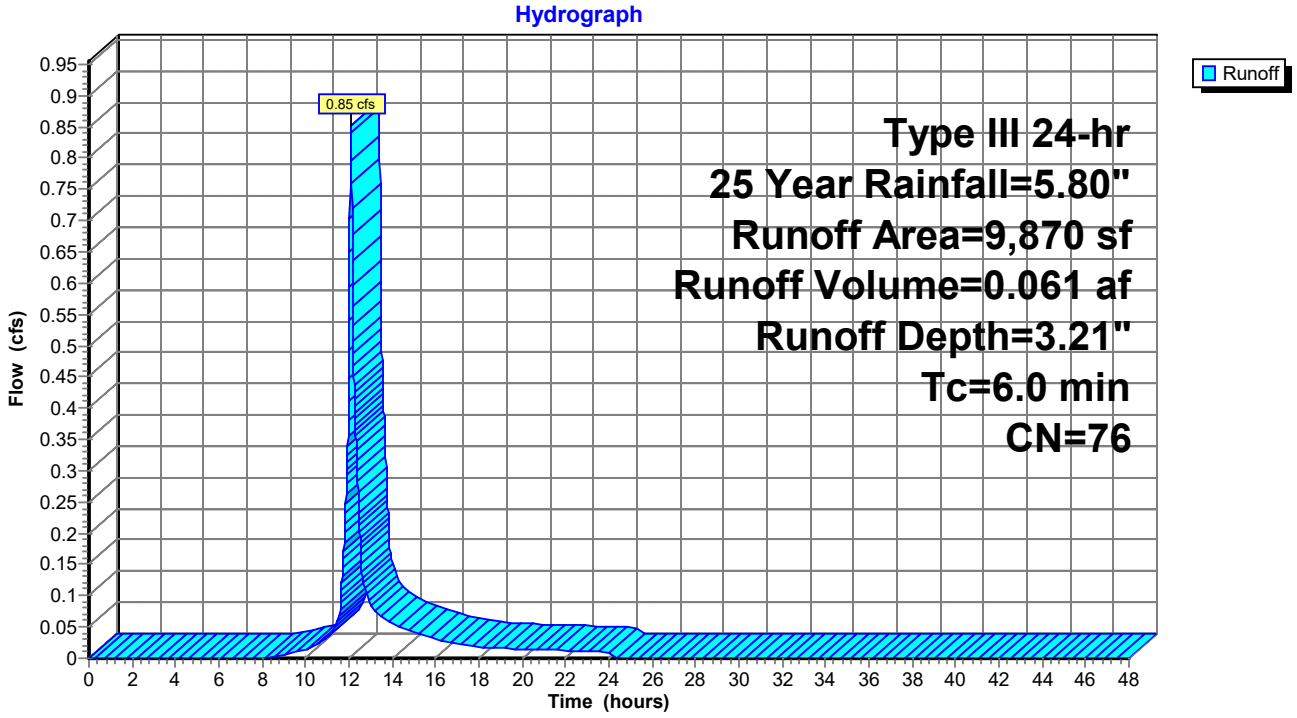
Runoff = 0.85 cfs @ 12.09 hrs, Volume= 0.061 af, Depth= 3.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year Rainfall=5.80"

	Area (sf)	CN	Description
*	4,610	98	Paved parking, HSG A
*	1,620	98	Porous pavement
	3,640	39	>75% Grass cover, Good, HSG A
	9,870	76	Weighted Average
	3,640		36.88% Pervious Area
	6,230		63.12% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 23B: South Parking - East



Summary for Subcatchment 24A: Building 2

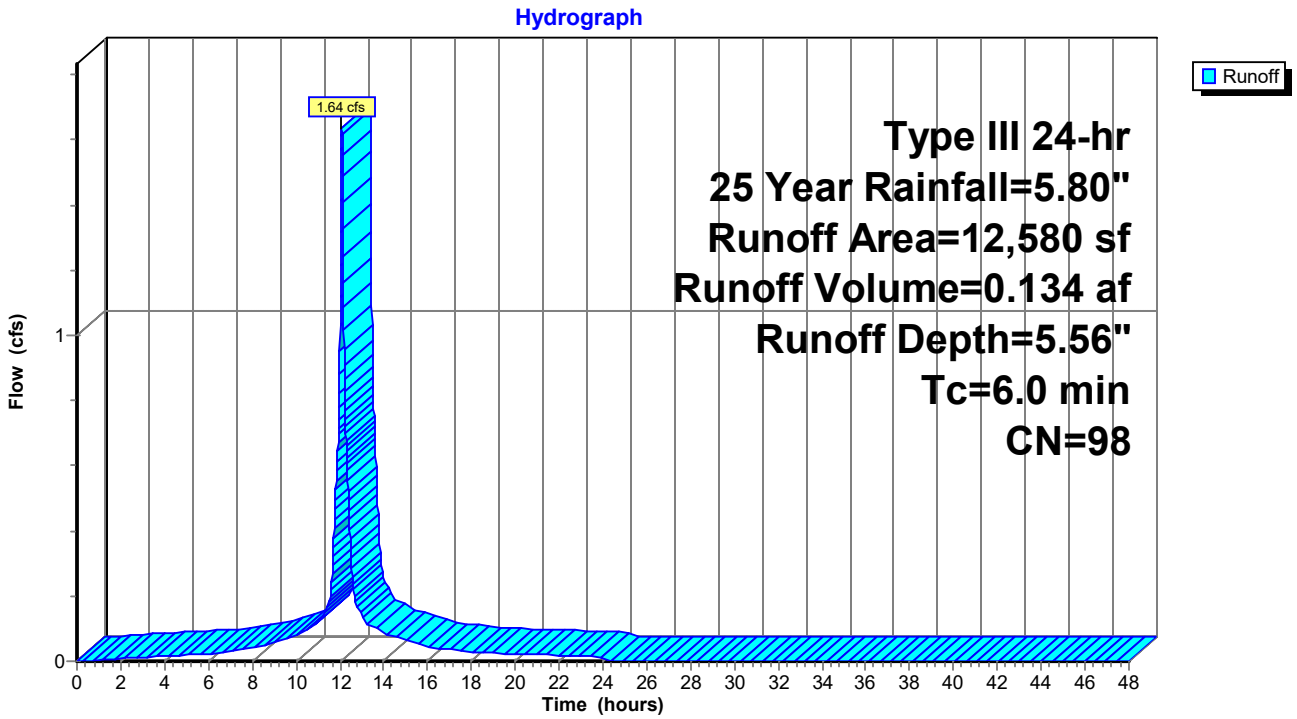
Runoff = 1.64 cfs @ 12.08 hrs, Volume= 0.134 af, Depth= 5.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year Rainfall=5.80"

	Area (sf)	CN	Description
*	12,580	98	Roof & Pavement
	0	39	>75% Grass cover, Good, HSG A
	12,580	98	Weighted Average
	12,580		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 24A: Building 2



Summary for Subcatchment 24B: Building 3

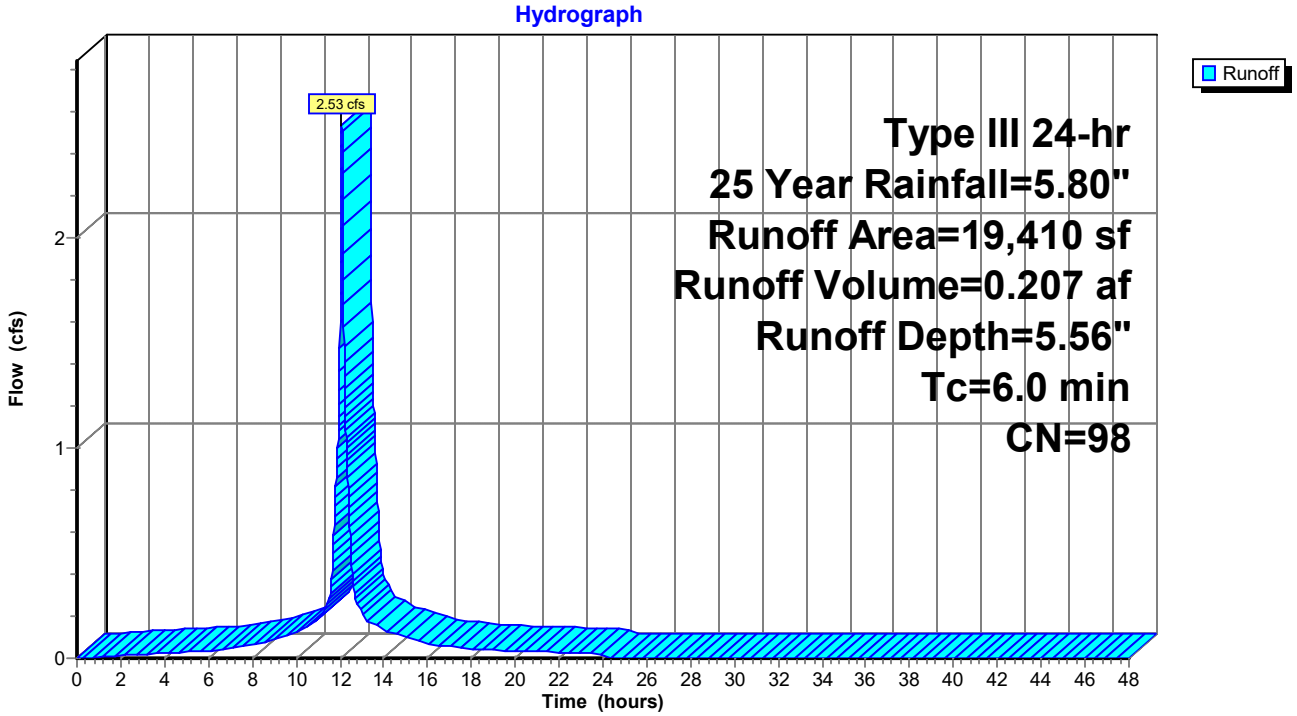
Runoff = 2.53 cfs @ 12.08 hrs, Volume= 0.207 af, Depth= 5.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year Rainfall=5.80"

	Area (sf)	CN	Description
*	19,410	98	Roof & Sidewalk
	0	74	>75% Grass cover, Good, HSG C
	19,410	98	Weighted Average
	19,410		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 24B: Building 3



Summary for Subcatchment 25A: South of Building 2

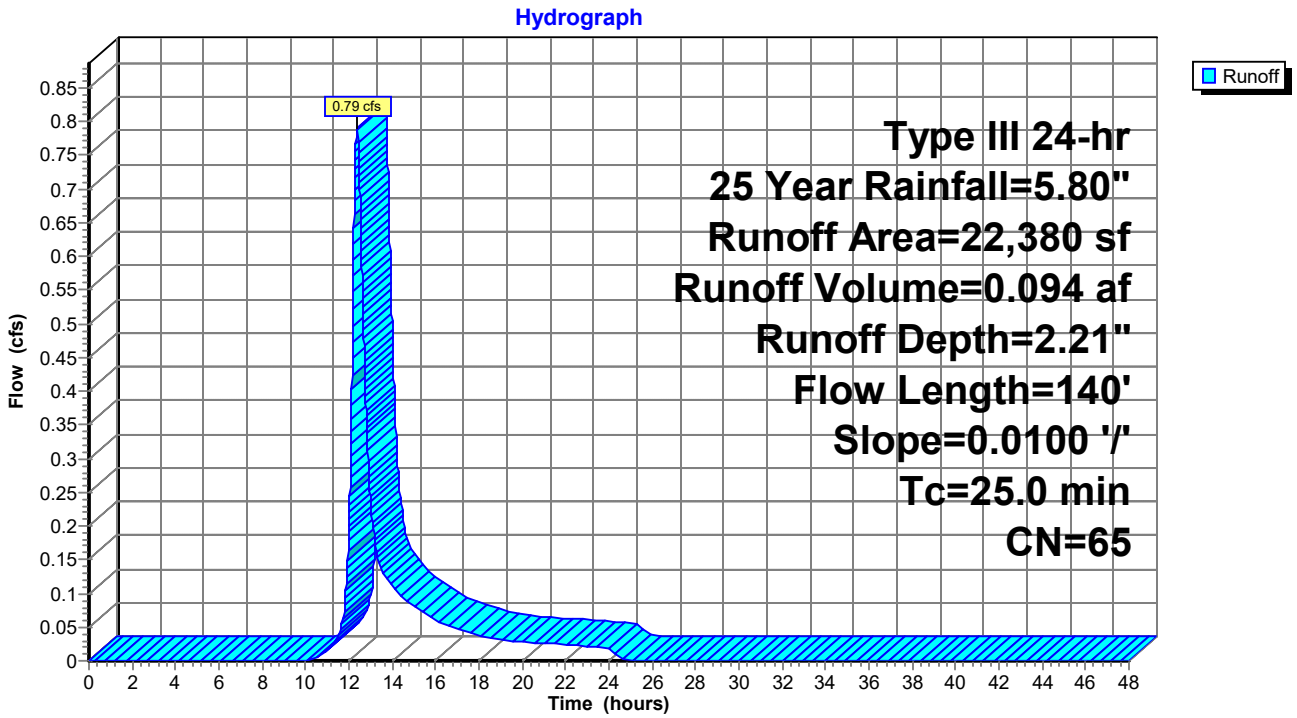
Runoff = 0.79 cfs @ 12.36 hrs, Volume= 0.094 af, Depth= 2.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year Rainfall=5.80"

Area (sf)	CN	Description
8,900	39	>75% Grass cover, Good, HSG A
4,910	98	Paved parking, HSG A
8,570	74	>75% Grass cover, Good, HSG C
22,380	65	Weighted Average
17,470		78.06% Pervious Area
4,910		21.94% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
25.0	140	0.0100	0.09		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.10"

Subcatchment 25A: South of Building 2



Summary for Subcatchment 25B: South of Building 3

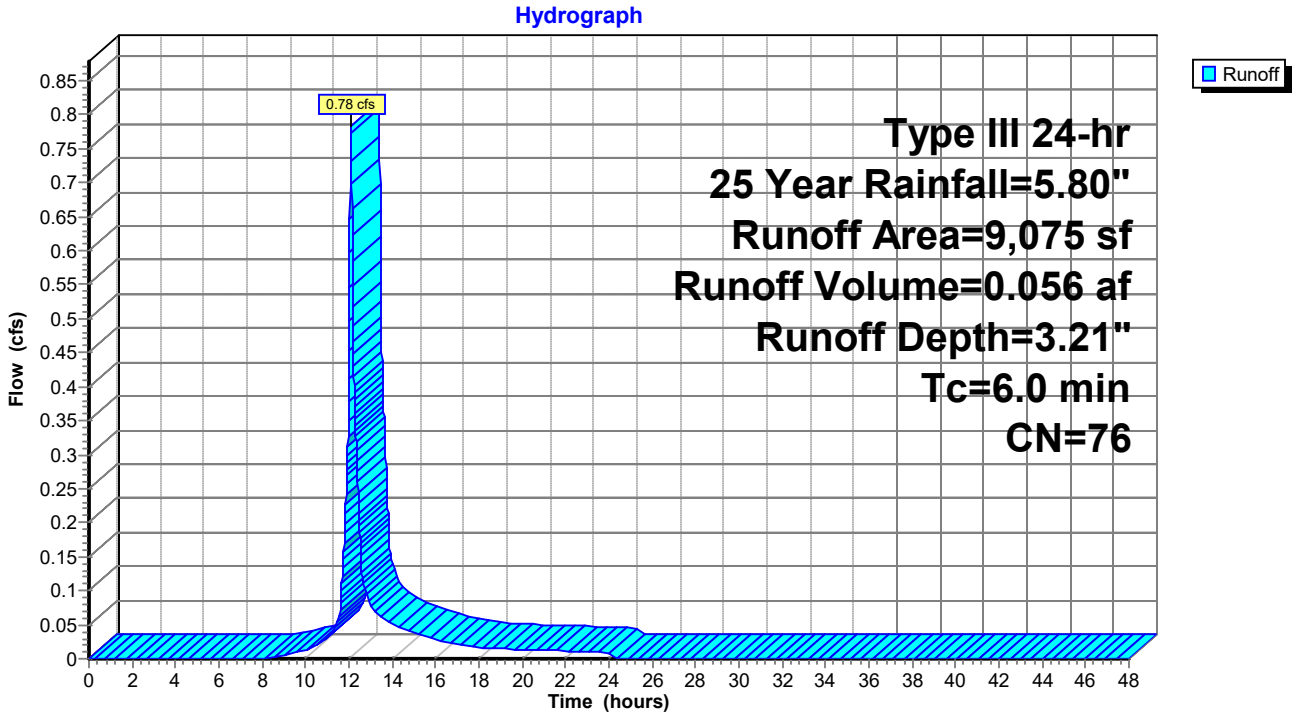
Runoff = 0.78 cfs @ 12.09 hrs, Volume= 0.056 af, Depth= 3.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year Rainfall=5.80"

	Area (sf)	CN	Description
	8,340	74	>75% Grass cover, Good, HSG C
*	735	98	Walkways
	9,075	76	Weighted Average
	8,340		91.90% Pervious Area
	735		8.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 25B: South of Building 3



Summary for Subcatchment 25C: South of Building 3

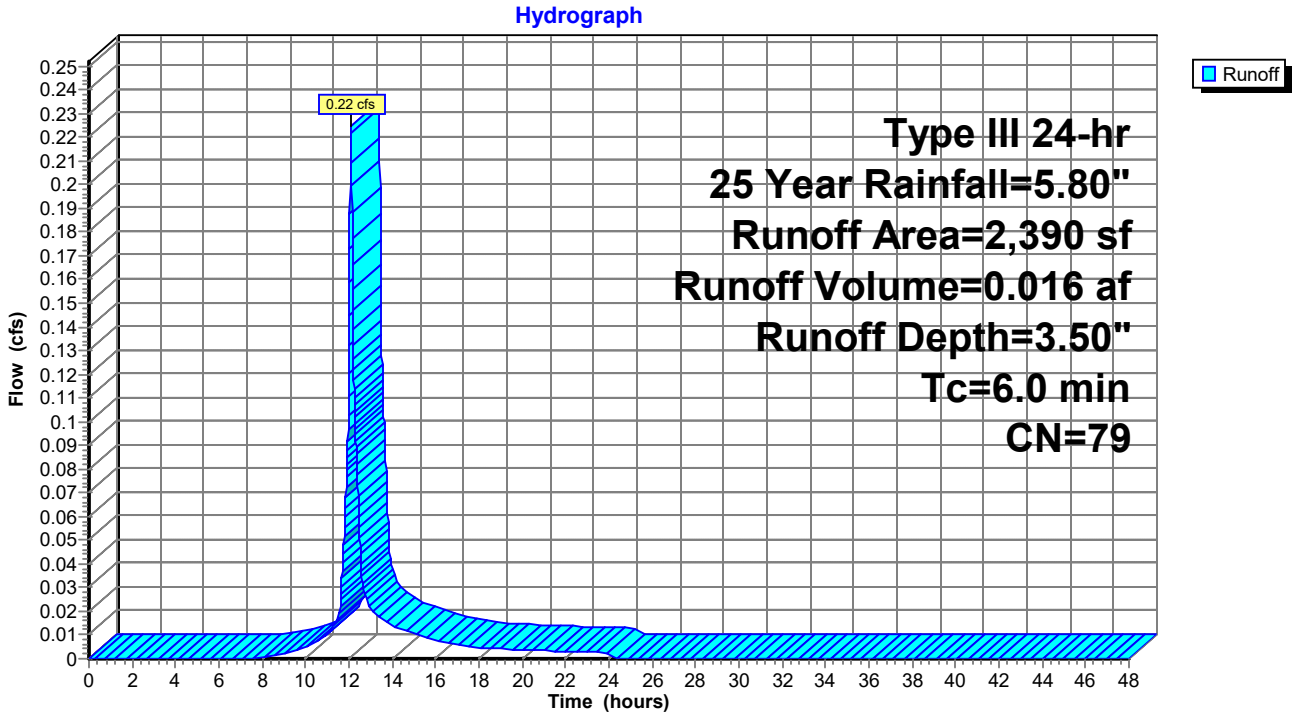
Runoff = 0.22 cfs @ 12.09 hrs, Volume= 0.016 af, Depth= 3.50"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year Rainfall=5.80"

	Area (sf)	CN	Description
	1,930	74	>75% Grass cover, Good, HSG C
*	460	98	Walkways
	2,390	79	Weighted Average
	1,930		80.75% Pervious Area
	460		19.25% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 25C: South of Building 3



Summary for Subcatchment 26S: Wetland to POI 2

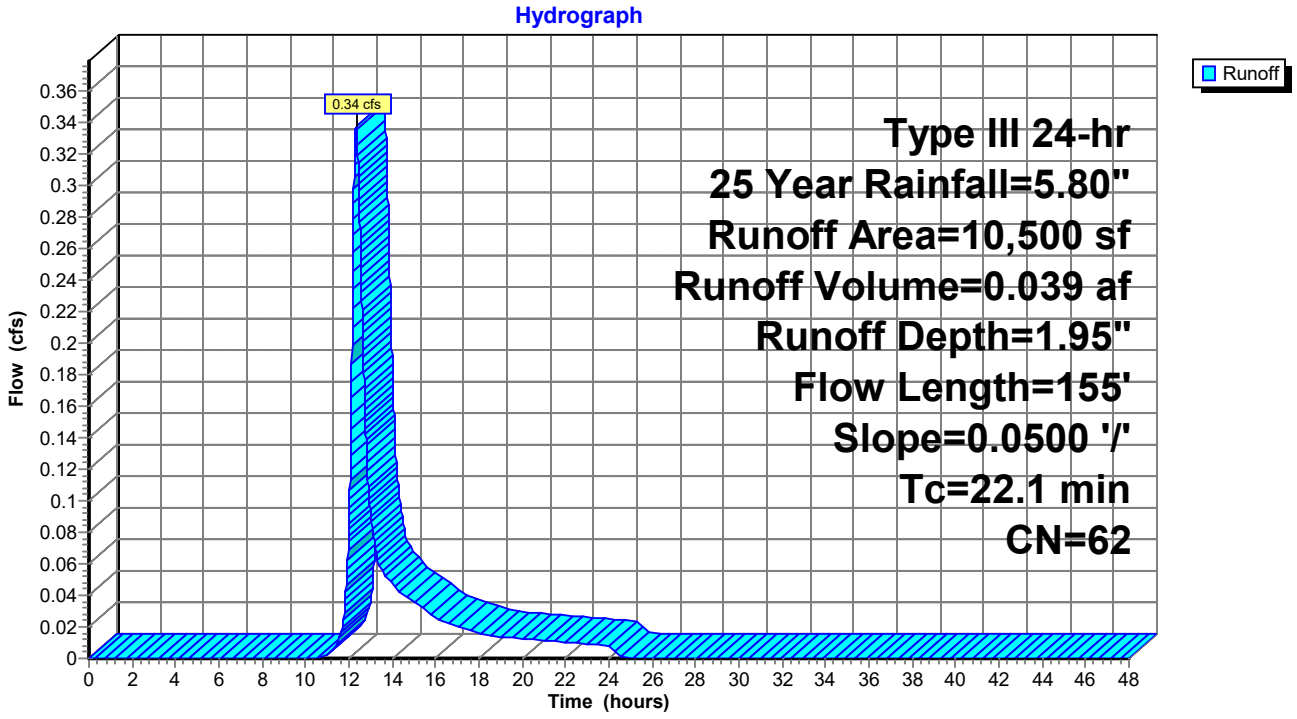
Runoff = 0.34 cfs @ 12.33 hrs, Volume= 0.039 af, Depth= 1.95"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year Rainfall=5.80"

	Area (sf)	CN	Description
	4,528	39	>75% Grass cover, Good, HSG A
	5,392	77	Woods, Good, HSG D
*	580	98	Walking Path
	10,500	62	Weighted Average
	9,920		94.48% Pervious Area
	580		5.52% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.9	75	0.0500	0.06		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.10"
1.2	80	0.0500	1.12		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
22.1	155	Total			

Subcatchment 26S: Wetland to POI 2



Summary for Subcatchment 27S: Wetland to POI 1

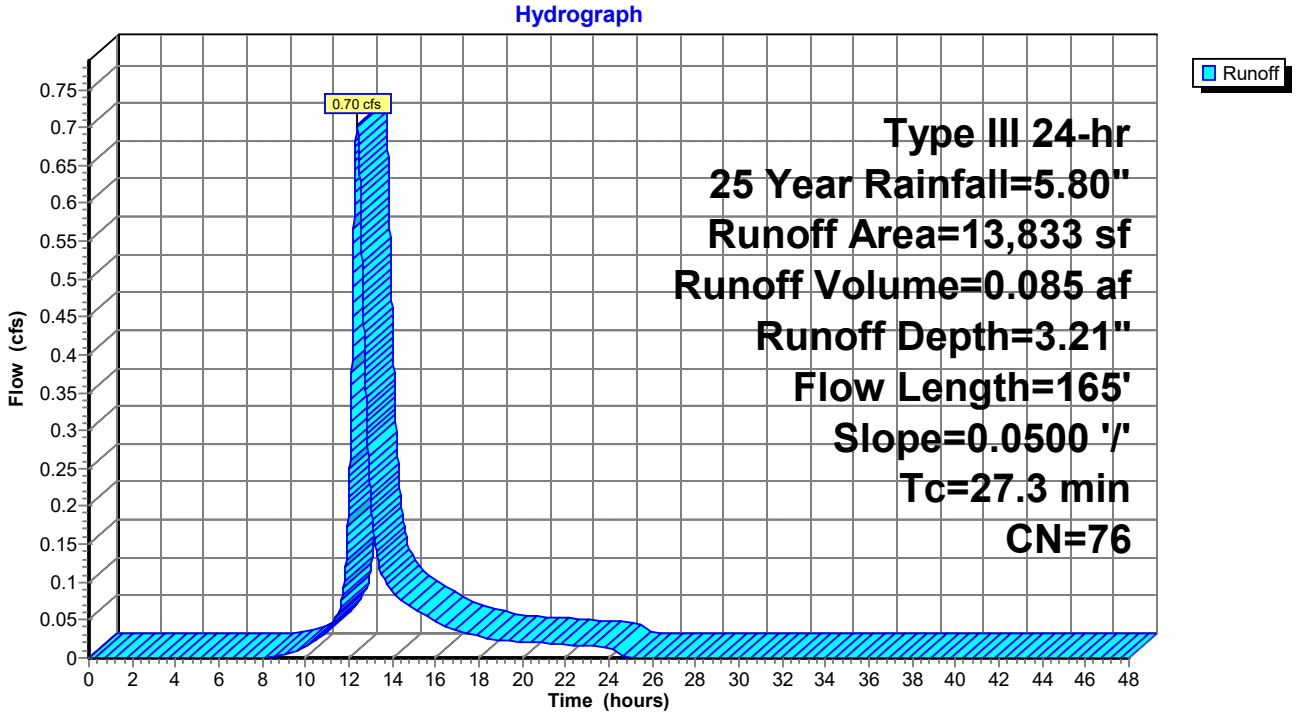
Runoff = 0.70 cfs @ 12.38 hrs, Volume= 0.085 af, Depth= 3.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year Rainfall=5.80"

	Area (sf)	CN	Description
	3,935	74	>75% Grass cover, Good, HSG C
	9,282	77	Woods, Good, HSG D
	141	39	>75% Grass cover, Good, HSG A
*	475	98	Walking Path
	13,833	76	Weighted Average
	13,358		96.57% Pervious Area
	475		3.43% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
26.3	100	0.0500	0.06		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.10"
1.0	65	0.0500	1.12		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
27.3	165	Total			

Subcatchment 27S: Wetland to POI 1



Summary for Subcatchment 28S:

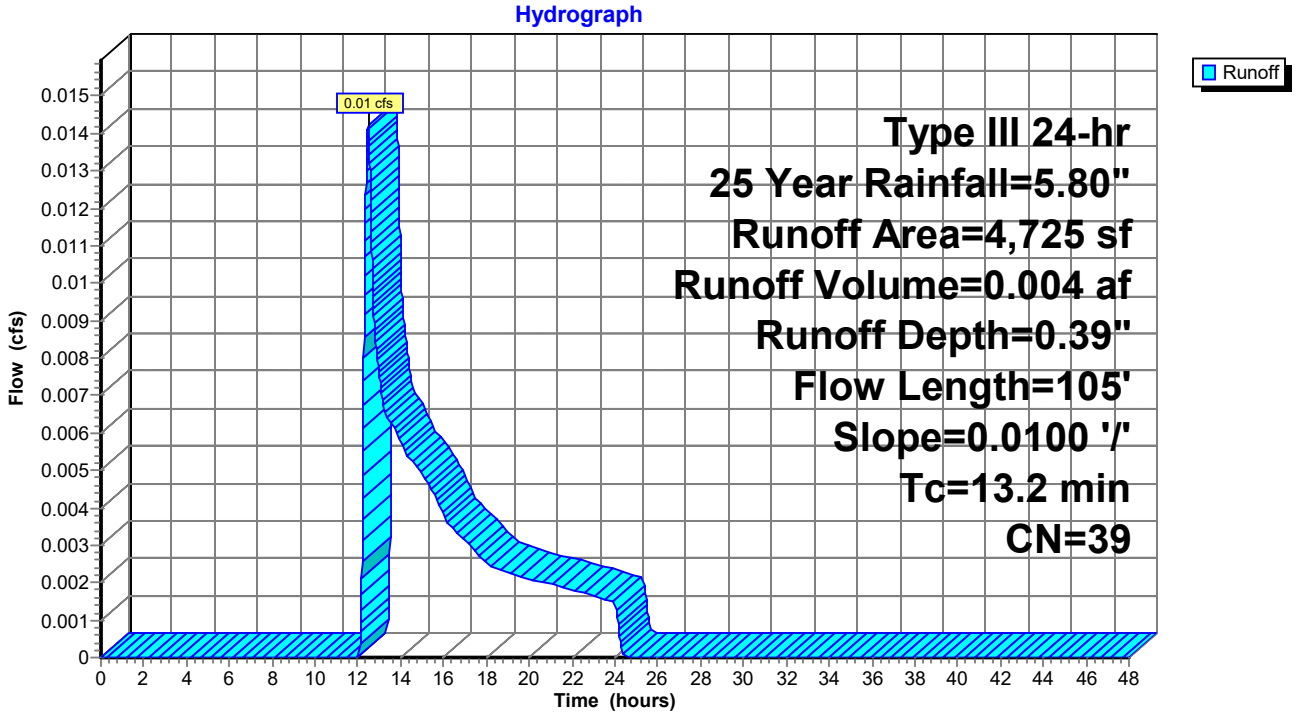
Runoff = 0.01 cfs @ 12.48 hrs, Volume= 0.004 af, Depth= 0.39"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year Rainfall=5.80"

Area (sf)	CN	Description
4,725	39	>75% Grass cover, Good, HSG A
4,725		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.7	60	0.0100	0.08		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.10"
0.5	45	0.0100	1.50		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
13.2	105	Total			

Subcatchment 28S:



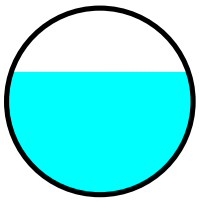
Summary for Reach 1R: CB 19 TO WETLAND

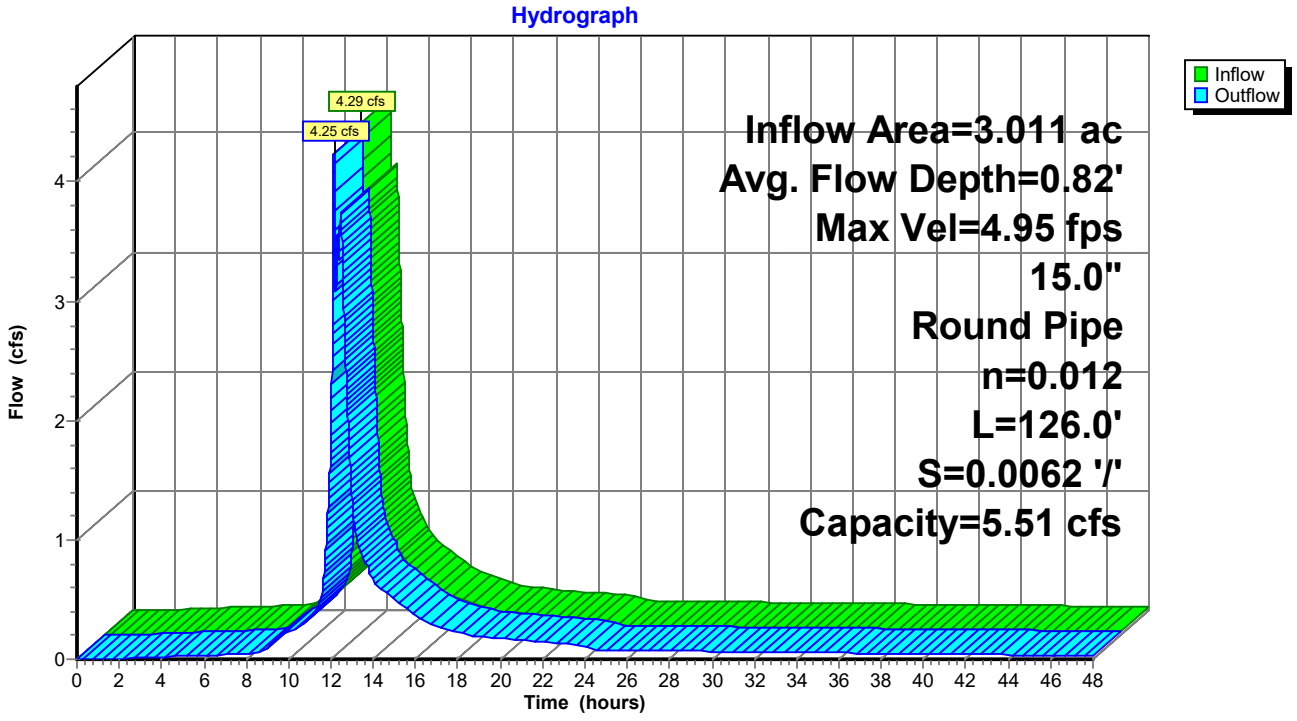
Inflow Area = 3.011 ac, 47.24% Impervious, Inflow Depth > 2.93" for 25 Year event
Inflow = 4.29 cfs @ 12.14 hrs, Volume= 0.736 af
Outflow = 4.25 cfs @ 12.14 hrs, Volume= 0.736 af, Atten= 1%, Lag= 0.3 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 4.95 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 1.70 fps, Avg. Travel Time= 1.2 min

Peak Storage= 108 cf @ 12.14 hrs
Average Depth at Peak Storage= 0.82' , Surface Width= 1.18'
Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 5.51 cfs

15.0" Round Pipe
n= 0.012 Corrugated PP, smooth interior
Length= 126.0' Slope= 0.0062 '/'
Inlet Invert= 108.10', Outlet Invert= 107.32'



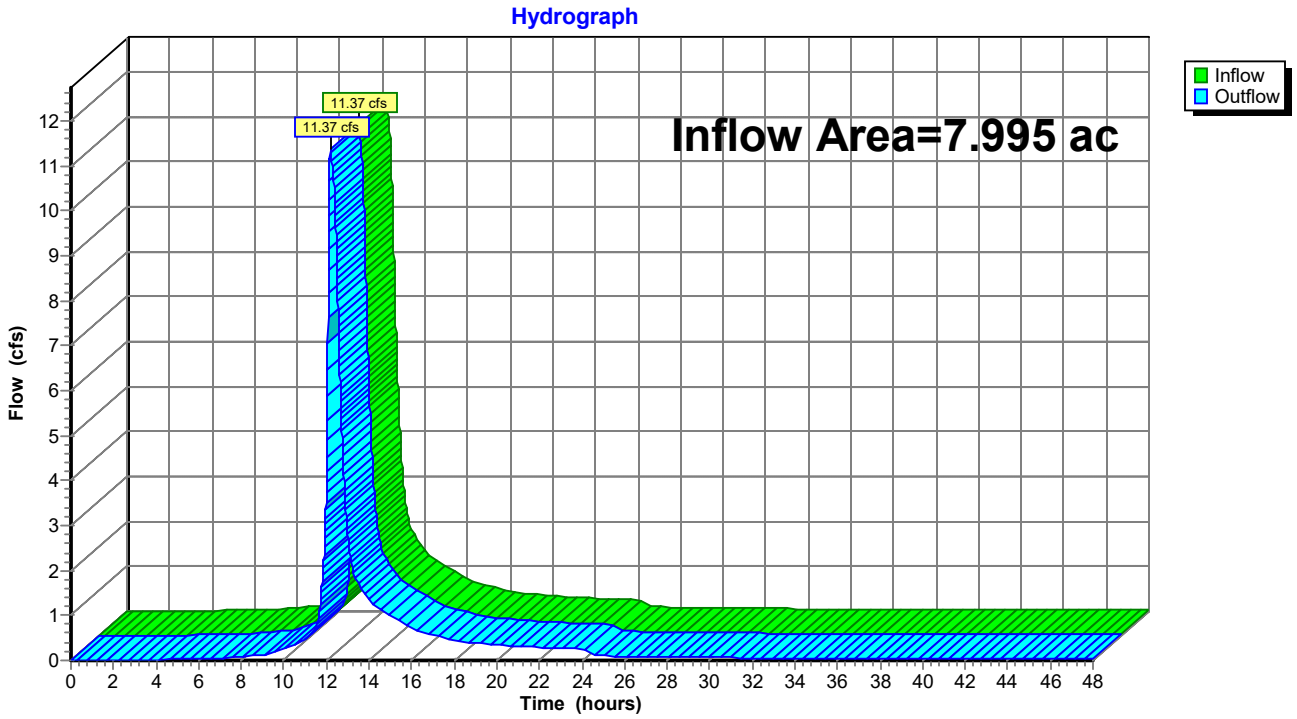


Summary for Reach 2R: POI 2

Inflow Area = 7.995 ac, 56.42% Impervious, Inflow Depth > 2.18" for 25 Year event
Inflow = 11.37 cfs @ 12.18 hrs, Volume= 1.451 af
Outflow = 11.37 cfs @ 12.18 hrs, Volume= 1.451 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Reach 2R: POI 2



Summary for Reach 4R: Wetland to POI 2

Inflow Area = 7.754 ac, 58.01% Impervious, Inflow Depth > 2.18" for 25 Year event
Inflow = 11.15 cfs @ 12.17 hrs, Volume= 1.412 af
Outflow = 11.13 cfs @ 12.18 hrs, Volume= 1.411 af, Atten= 0%, Lag= 0.3 min

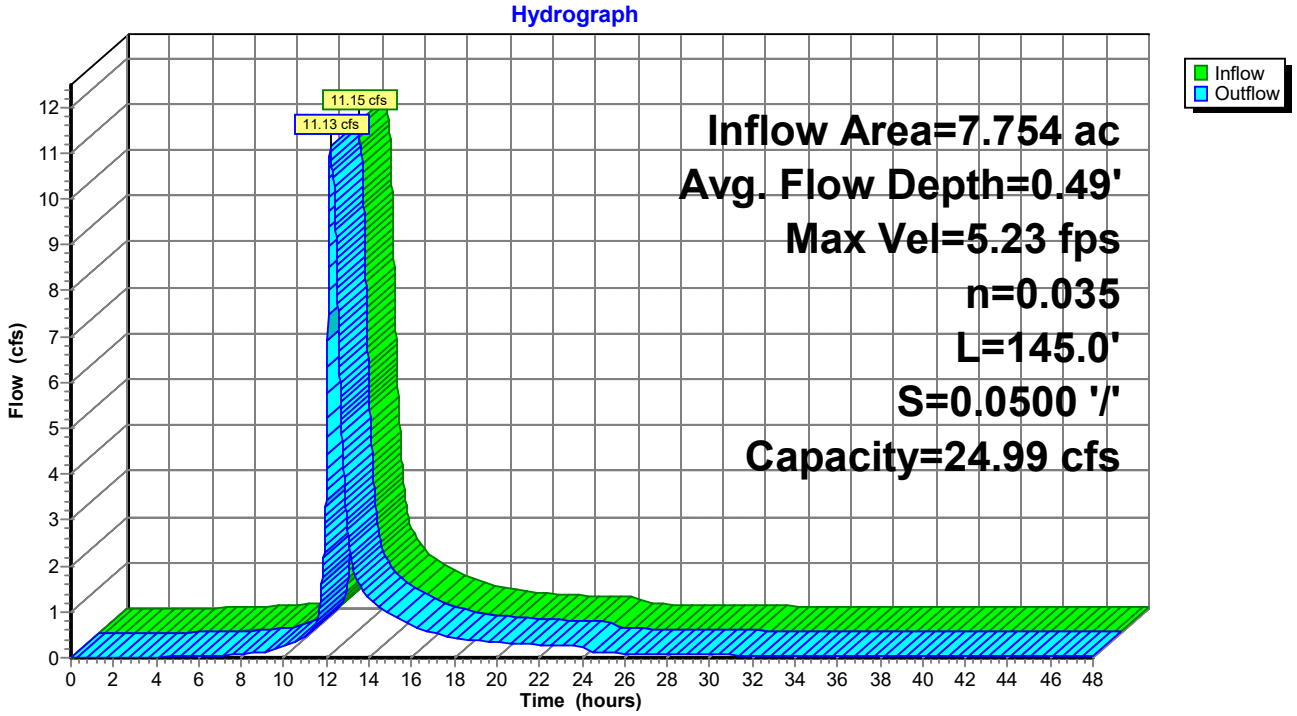
Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 5.23 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 1.05 fps, Avg. Travel Time= 2.3 min

Peak Storage= 308 cf @ 12.18 hrs
Average Depth at Peak Storage= 0.49' , Surface Width= 4.69'
Bank-Full Depth= 0.80' Flow Area= 3.6 sf, Capacity= 24.99 cfs

4.00' x 0.80' deep channel, n= 0.035 Earth, dense weeds
Side Slope Z-value= 0.7 '/' Top Width= 5.12'
Length= 145.0' Slope= 0.0500 '/'
Inlet Invert= 102.89', Outlet Invert= 95.64'



Reach 4R: Wetland to POI 2



Summary for Reach 6R: Wetland to POI 1

Inflow Area = 3.011 ac, 47.24% Impervious, Inflow Depth > 2.93" for 25 Year event
Inflow = 4.25 cfs @ 12.14 hrs, Volume= 0.736 af
Outflow = 4.12 cfs @ 12.16 hrs, Volume= 0.735 af, Atten= 3%, Lag= 0.9 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.74 fps, Min. Travel Time= 1.3 min
Avg. Velocity = 0.69 fps, Avg. Travel Time= 5.1 min

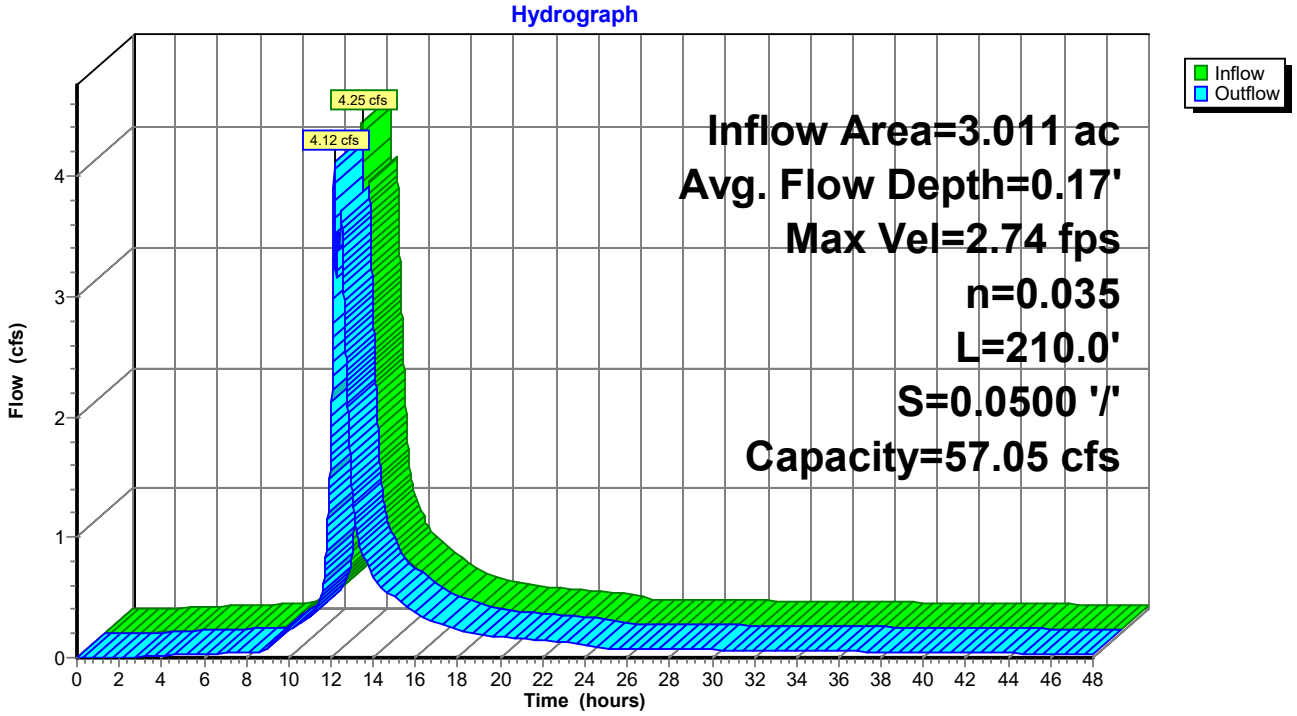
Peak Storage= 316 cf @ 12.16 hrs
Average Depth at Peak Storage= 0.17' , Surface Width= 9.70'
Bank-Full Depth= 0.75' Flow Area= 8.8 sf, Capacity= 57.05 cfs

8.00' x 0.75' deep channel, n= 0.035 Earth, dense weeds
Side Slope Z-value= 5.0 '/' Top Width= 15.50'
Length= 210.0' Slope= 0.0500 '/'
Inlet Invert= 107.32', Outlet Invert= 96.82'



‡

Reach 6R: Wetland to POI 1



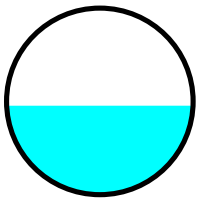
Summary for Reach 24R: DMH 11 to DMH 12

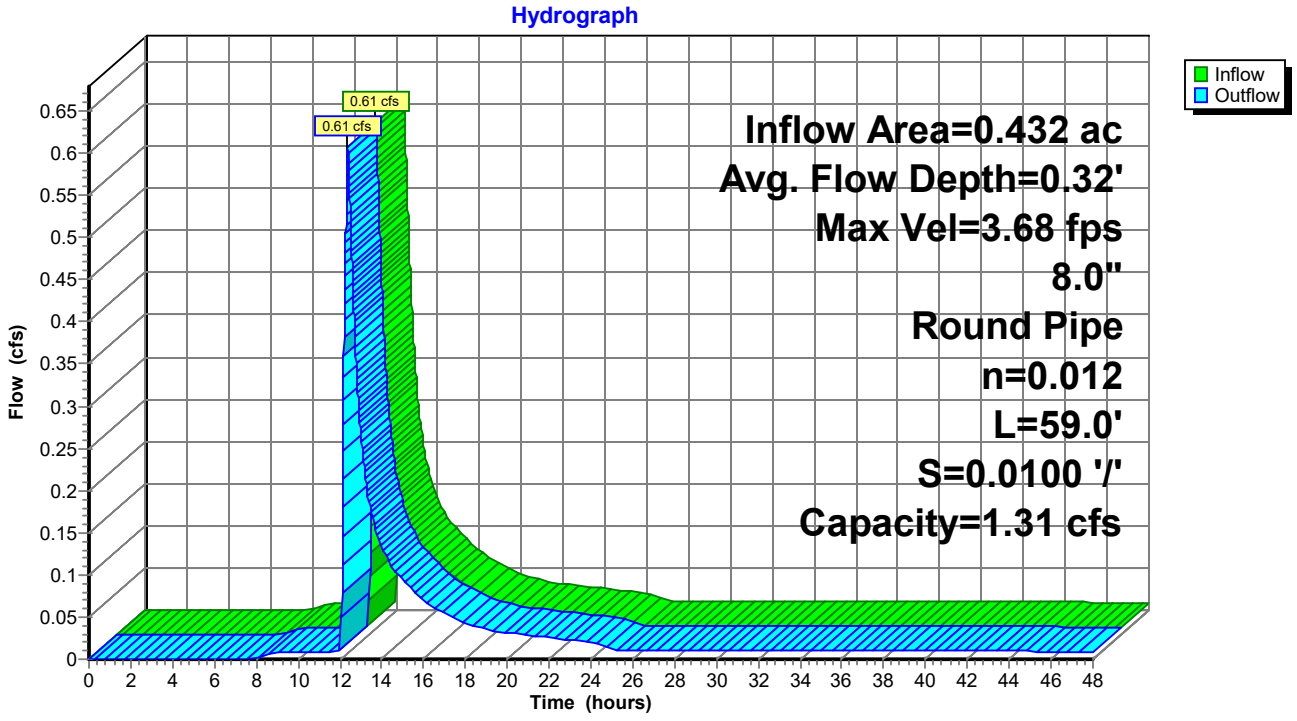
Inflow Area = 0.432 ac, 64.46% Impervious, Inflow Depth > 3.01" for 25 Year event
Inflow = 0.61 cfs @ 12.37 hrs, Volume= 0.108 af
Outflow = 0.61 cfs @ 12.38 hrs, Volume= 0.108 af, Atten= 0%, Lag= 0.2 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.68 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 1.34 fps, Avg. Travel Time= 0.7 min

Peak Storage= 10 cf @ 12.38 hrs
Average Depth at Peak Storage= 0.32' , Surface Width= 0.67'
Bank-Full Depth= 0.67' Flow Area= 0.3 sf, Capacity= 1.31 cfs

8.0" Round Pipe
n= 0.012 Corrugated PP, smooth interior
Length= 59.0' Slope= 0.0100 '/'
Inlet Invert= 109.67', Outlet Invert= 109.08'





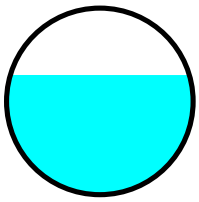
Summary for Reach 25R: DMH 12 to DMH 15

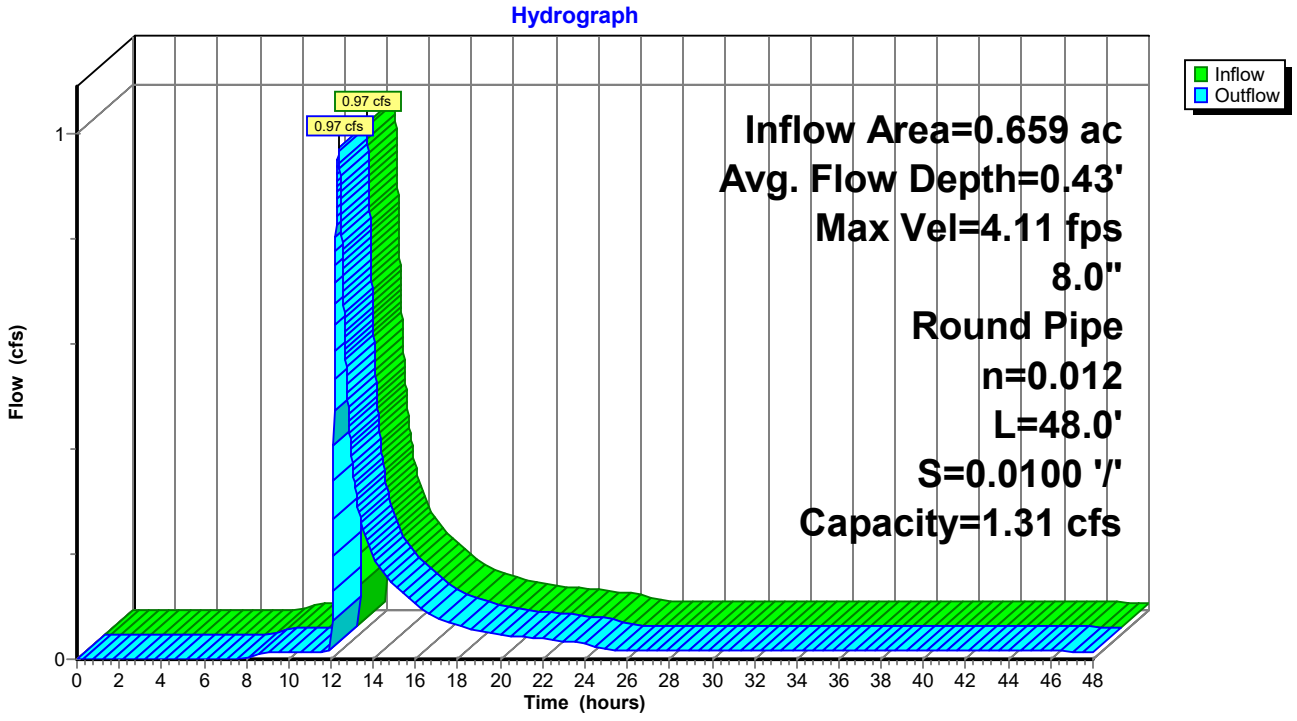
Inflow Area = 0.659 ac, 64.00% Impervious, Inflow Depth > 3.03" for 25 Year event
Inflow = 0.97 cfs @ 12.36 hrs, Volume= 0.166 af
Outflow = 0.97 cfs @ 12.36 hrs, Volume= 0.166 af, Atten= 0%, Lag= 0.2 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 4.11 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 1.53 fps, Avg. Travel Time= 0.5 min

Peak Storage= 11 cf @ 12.36 hrs
Average Depth at Peak Storage= 0.43' , Surface Width= 0.64'
Bank-Full Depth= 0.67' Flow Area= 0.3 sf, Capacity= 1.31 cfs

8.0" Round Pipe
n= 0.012 Corrugated PP, smooth interior
Length= 48.0' Slope= 0.0100 '/'
Inlet Invert= 108.98', Outlet Invert= 108.50'





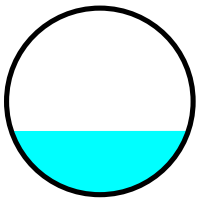
Summary for Reach 26R: DMH 15 to DMH 14

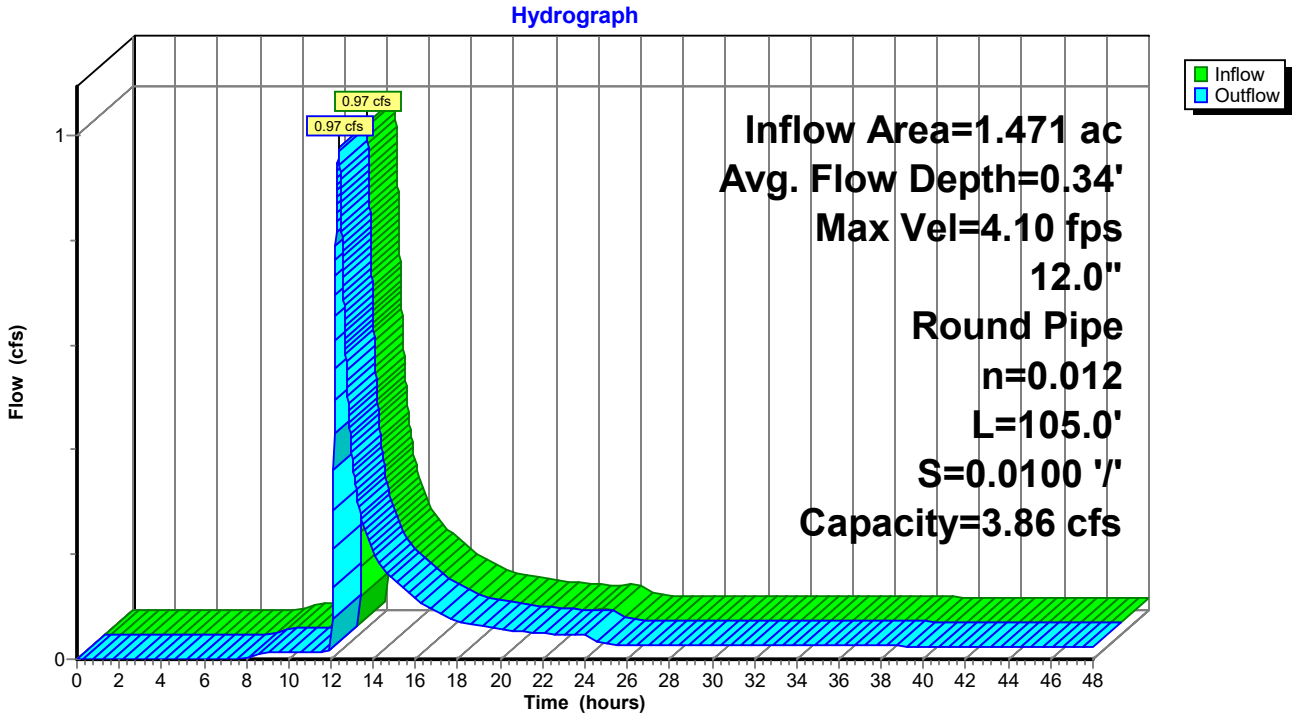
Inflow Area = 1.471 ac, 41.43% Impervious, Inflow Depth > 1.59" for 25 Year event
Inflow = 0.97 cfs @ 12.37 hrs, Volume= 0.195 af
Outflow = 0.97 cfs @ 12.37 hrs, Volume= 0.195 af, Atten= 0%, Lag= 0.3 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 4.10 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 1.59 fps, Avg. Travel Time= 1.1 min

Peak Storage= 25 cf @ 12.37 hrs
Average Depth at Peak Storage= 0.34' , Surface Width= 0.95'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 3.86 cfs

12.0" Round Pipe
n= 0.012 Corrugated PP, smooth interior
Length= 105.0' Slope= 0.0100 '/'
Inlet Invert= 108.40', Outlet Invert= 107.35'





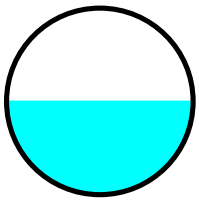
Summary for Reach 27R: DMH 14 to DMH 7

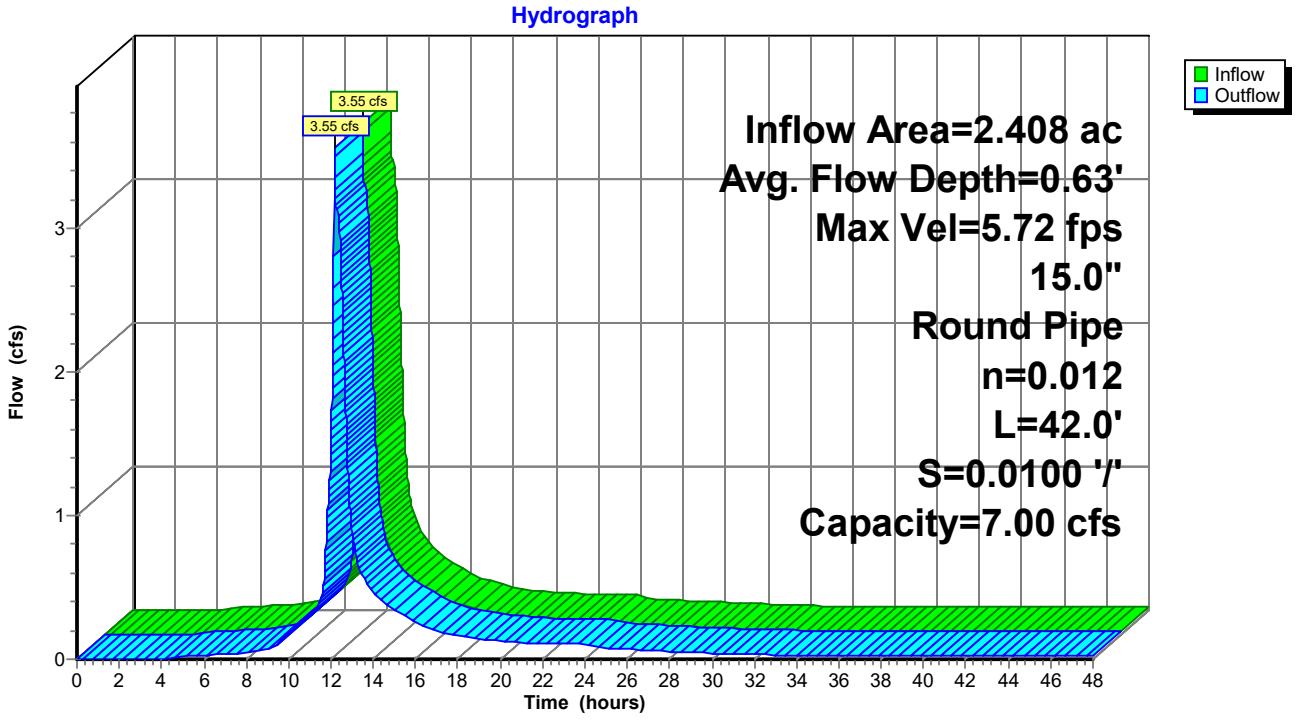
Inflow Area = 2.408 ac, 56.92% Impervious, Inflow Depth > 2.71" for 25 Year event
Inflow = 3.55 cfs @ 12.17 hrs, Volume= 0.544 af
Outflow = 3.55 cfs @ 12.17 hrs, Volume= 0.544 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 5.72 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 1.88 fps, Avg. Travel Time= 0.4 min

Peak Storage= 26 cf @ 12.17 hrs
Average Depth at Peak Storage= 0.63' , Surface Width= 1.25'
Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 7.00 cfs

15.0" Round Pipe
n= 0.012 Corrugated PP, smooth interior
Length= 42.0' Slope= 0.0100 '/'
Inlet Invert= 107.25', Outlet Invert= 106.83'



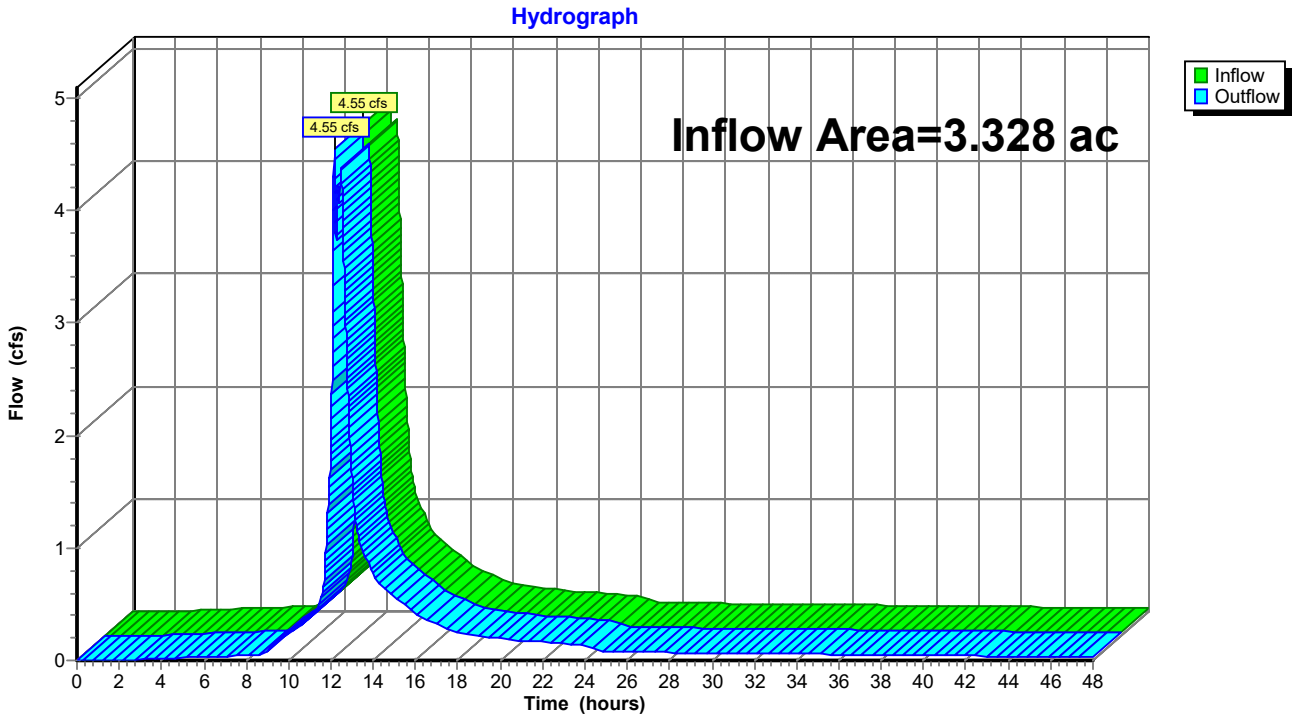


Summary for Reach 28R: POI 1

Inflow Area = 3.328 ac, 43.06% Impervious, Inflow Depth > 2.96" for 25 Year event
Inflow = 4.55 cfs @ 12.16 hrs, Volume= 0.820 af
Outflow = 4.55 cfs @ 12.16 hrs, Volume= 0.820 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Reach 28R: POI 1



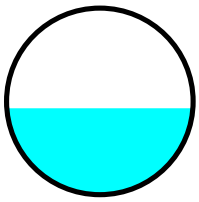
Summary for Reach 29R: EX. DMH 4 to NEW CB 19

Inflow Area = 1.500 ac, 36.53% Impervious, Inflow Depth > 1.96" for 25 Year event
Inflow = 1.29 cfs @ 12.32 hrs, Volume= 0.244 af
Outflow = 1.29 cfs @ 12.33 hrs, Volume= 0.244 af, Atten= 0%, Lag= 0.7 min

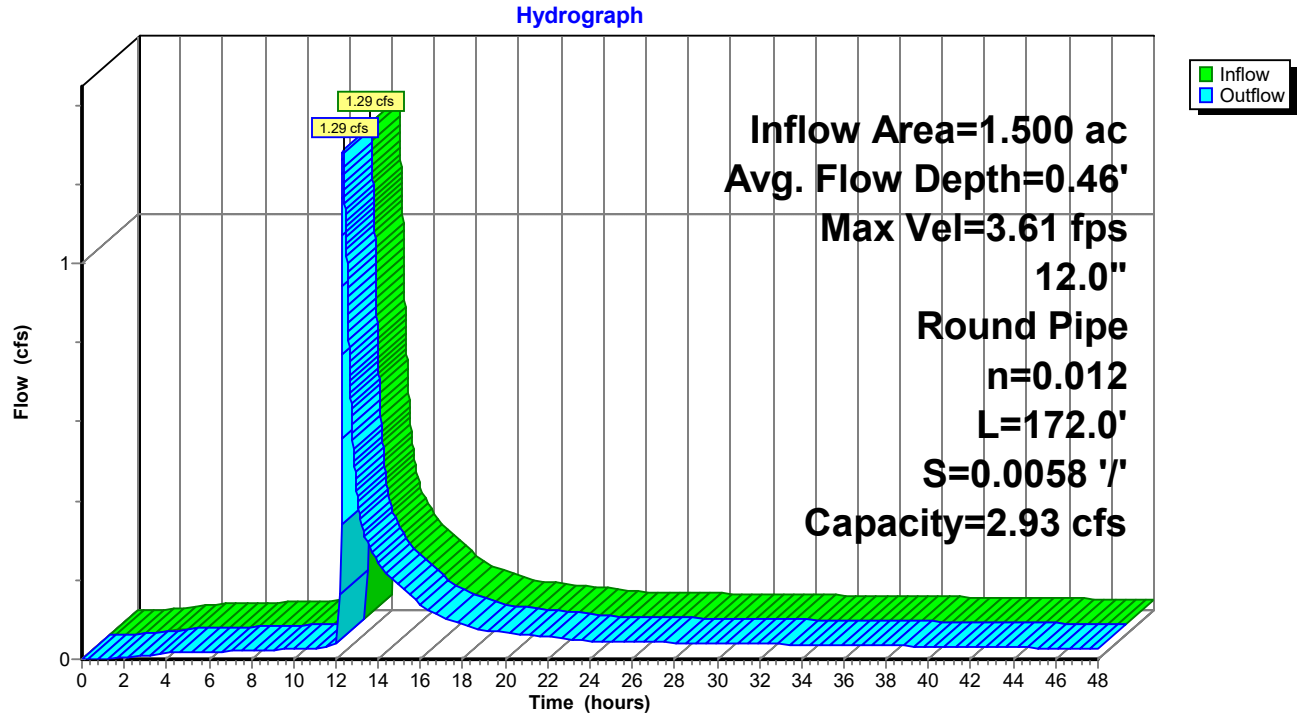
Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.61 fps, Min. Travel Time= 0.8 min
Avg. Velocity = 1.35 fps, Avg. Travel Time= 2.1 min

Peak Storage= 61 cf @ 12.33 hrs
Average Depth at Peak Storage= 0.46' , Surface Width= 1.00'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.93 cfs

12.0" Round Pipe
n= 0.012 Corrugated PP, smooth interior
Length= 172.0' Slope= 0.0058 '/'
Inlet Invert= 109.09', Outlet Invert= 108.10'



Reach 29R: EX. DMH 4 to NEW CB 19



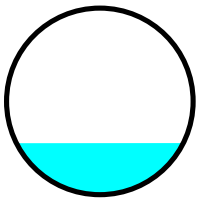
Summary for Reach 31R: 8" SD

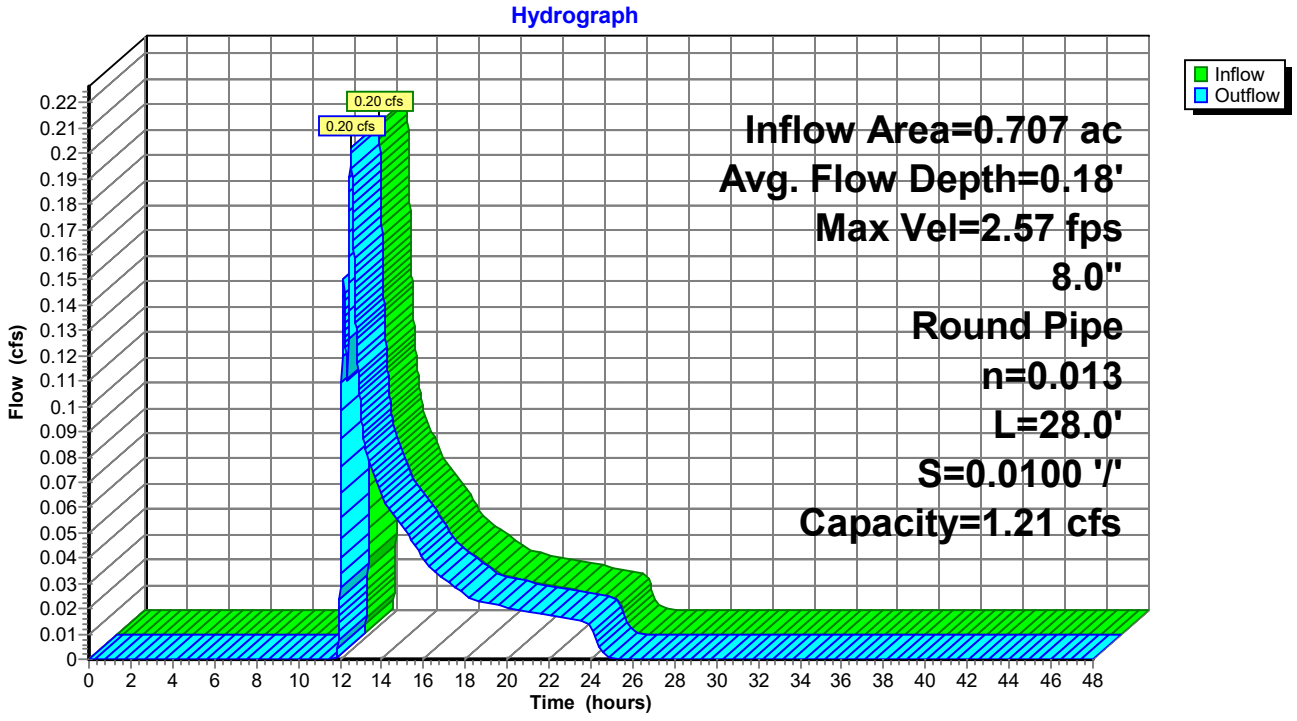
Inflow Area = 0.707 ac, 10.73% Impervious, Inflow Depth = 0.70" for 25 Year event
Inflow = 0.20 cfs @ 12.52 hrs, Volume= 0.041 af
Outflow = 0.20 cfs @ 12.52 hrs, Volume= 0.041 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.57 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 1.40 fps, Avg. Travel Time= 0.3 min

Peak Storage= 2 cf @ 12.52 hrs
Average Depth at Peak Storage= 0.18' , Surface Width= 0.60'
Bank-Full Depth= 0.67' Flow Area= 0.3 sf, Capacity= 1.21 cfs

8.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 28.0' Slope= 0.0100 '/'
Inlet Invert= 115.15', Outlet Invert= 114.87'





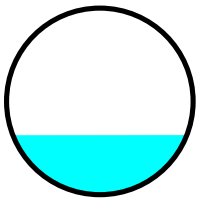
Summary for Reach 32R: 8" UD

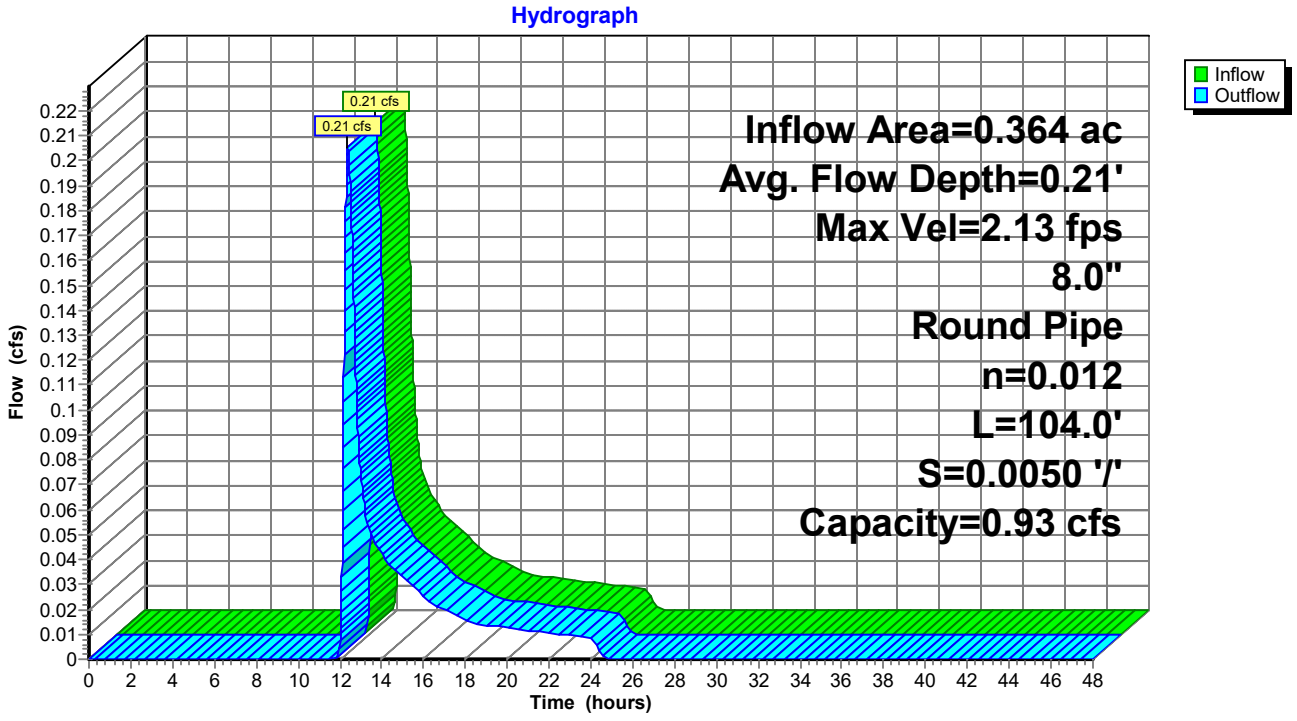
Inflow Area = 0.364 ac, 17.16% Impervious, Inflow Depth = 0.98" for 25 Year event
Inflow = 0.21 cfs @ 12.37 hrs, Volume= 0.030 af
Outflow = 0.21 cfs @ 12.38 hrs, Volume= 0.030 af, Atten= 0%, Lag= 0.7 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.13 fps, Min. Travel Time= 0.8 min
Avg. Velocity = 1.05 fps, Avg. Travel Time= 1.7 min

Peak Storage= 10 cf @ 12.38 hrs
Average Depth at Peak Storage= 0.21' , Surface Width= 0.62'
Bank-Full Depth= 0.67' Flow Area= 0.3 sf, Capacity= 0.93 cfs

8.0" Round Pipe
n= 0.012 Corrugated PP, smooth interior
Length= 104.0' Slope= 0.0050 '/'
Inlet Invert= 116.28', Outlet Invert= 115.76'





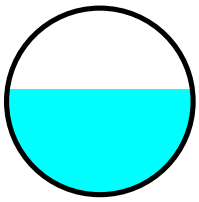
Summary for Reach 33R: 8" SD

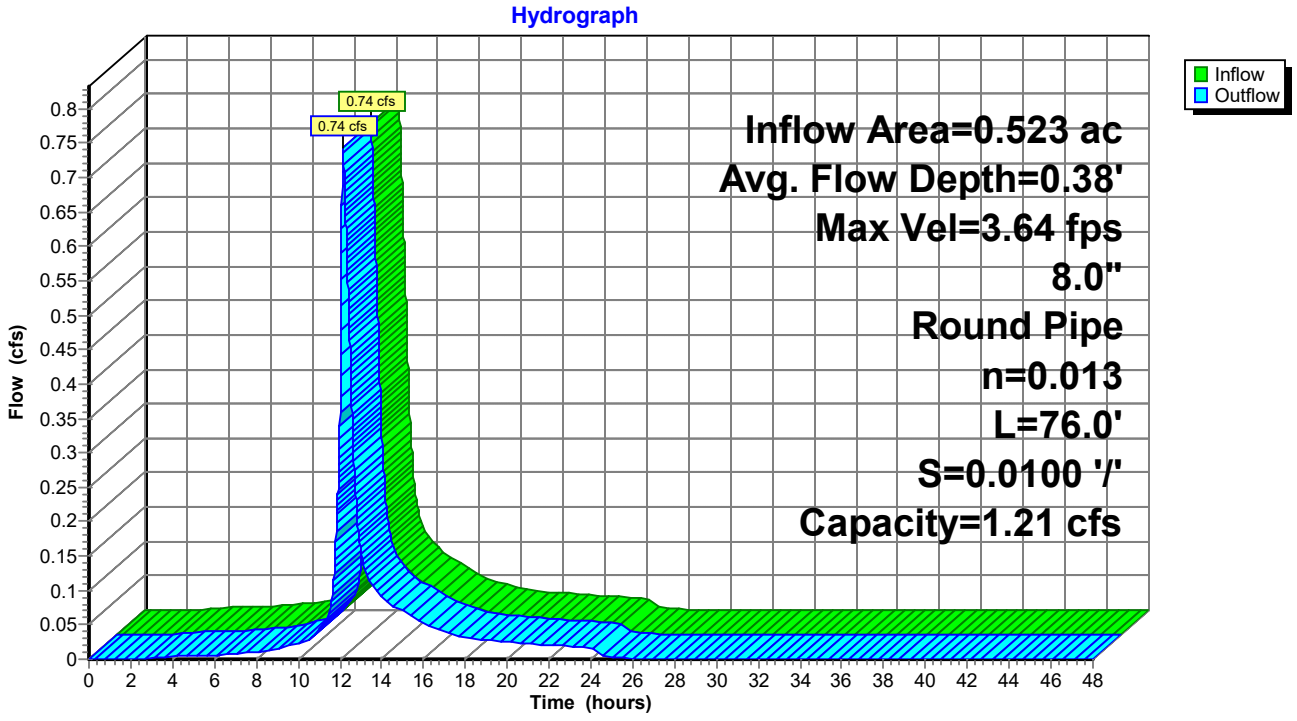
Inflow Area = 0.523 ac, 38.77% Impervious, Inflow Depth = 2.10" for 25 Year event
Inflow = 0.74 cfs @ 12.14 hrs, Volume= 0.092 af
Outflow = 0.74 cfs @ 12.15 hrs, Volume= 0.092 af, Atten= 0%, Lag= 0.3 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.64 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 1.19 fps, Avg. Travel Time= 1.1 min

Peak Storage= 16 cf @ 12.15 hrs
Average Depth at Peak Storage= 0.38' , Surface Width= 0.66'
Bank-Full Depth= 0.67' Flow Area= 0.3 sf, Capacity= 1.21 cfs

8.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 76.0' Slope= 0.0100 '/'
Inlet Invert= 115.48', Outlet Invert= 114.72'





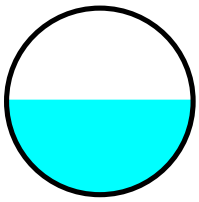
Summary for Reach 34R: 12" SD

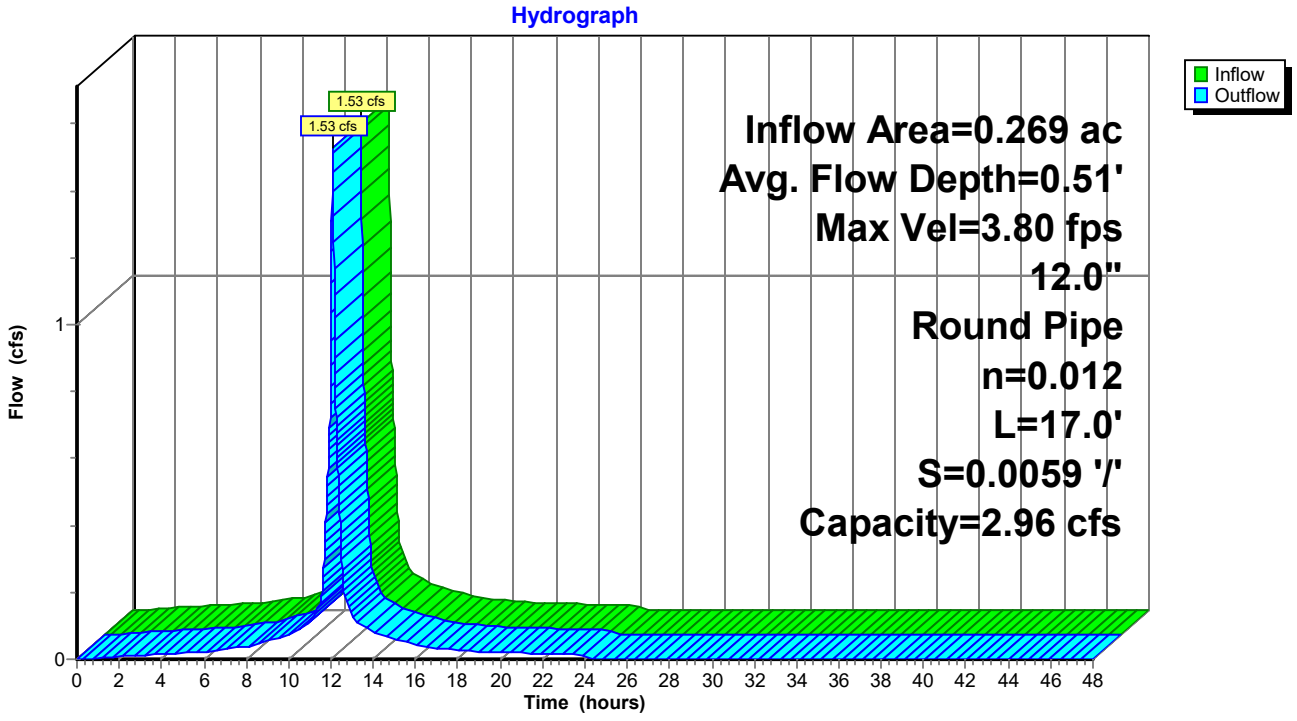
Inflow Area = 0.269 ac,100.00% Impervious, Inflow Depth = 5.56" for 25 Year event
Inflow = 1.53 cfs @ 12.08 hrs, Volume= 0.125 af
Outflow = 1.53 cfs @ 12.08 hrs, Volume= 0.125 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.80 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 1.29 fps, Avg. Travel Time= 0.2 min

Peak Storage= 7 cf @ 12.08 hrs
Average Depth at Peak Storage= 0.51' , Surface Width= 1.00'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.96 cfs

12.0" Round Pipe
n= 0.012 Corrugated PP, smooth interior
Length= 17.0' Slope= 0.0059 '/'
Inlet Invert= 114.75', Outlet Invert= 114.65'





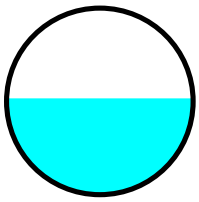
Summary for Reach 35R: 12" SD

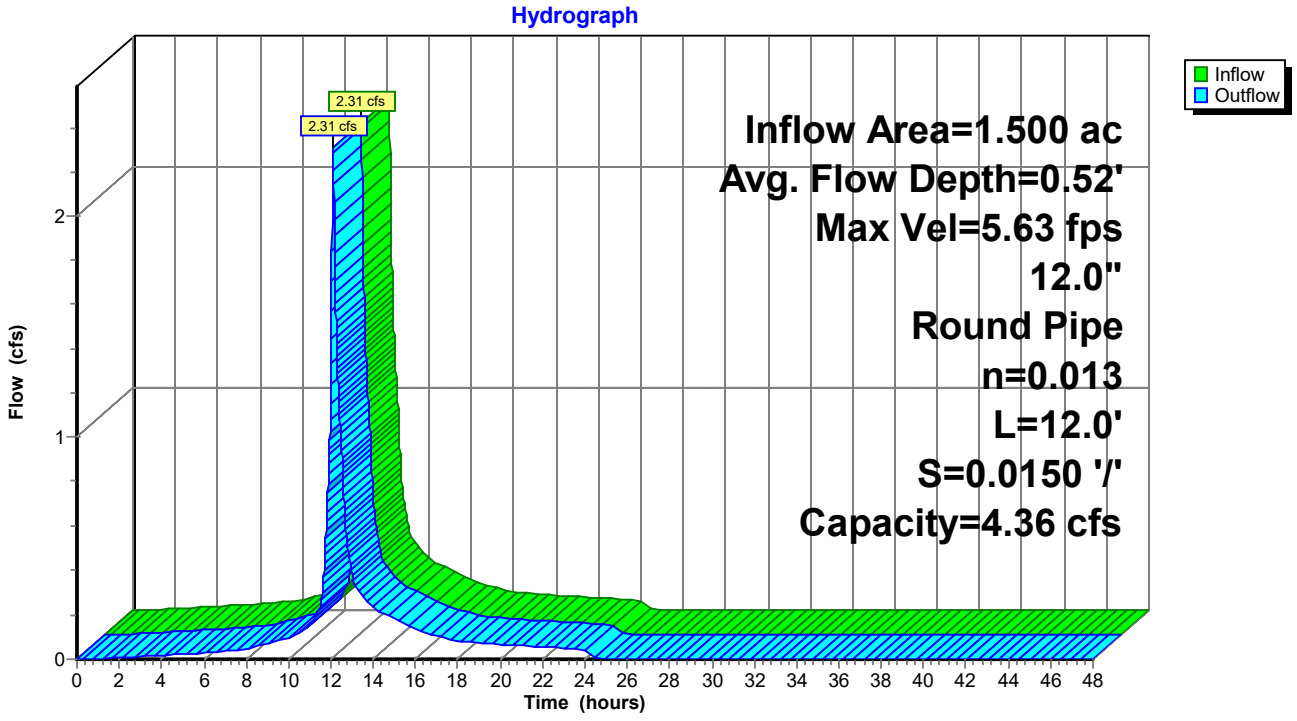
Inflow Area = 1.500 ac, 36.53% Impervious, Inflow Depth = 2.06" for 25 Year event
Inflow = 2.31 cfs @ 12.10 hrs, Volume= 0.258 af
Outflow = 2.31 cfs @ 12.10 hrs, Volume= 0.258 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 5.63 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 1.82 fps, Avg. Travel Time= 0.1 min

Peak Storage= 5 cf @ 12.10 hrs
Average Depth at Peak Storage= 0.52' , Surface Width= 1.00'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 4.36 cfs

12.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 12.0' Slope= 0.0150 '/'
Inlet Invert= 113.40', Outlet Invert= 113.22'





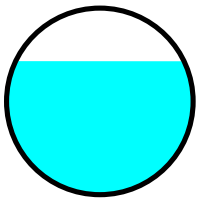
Summary for Reach 40R: New CB 1 to DMH 2

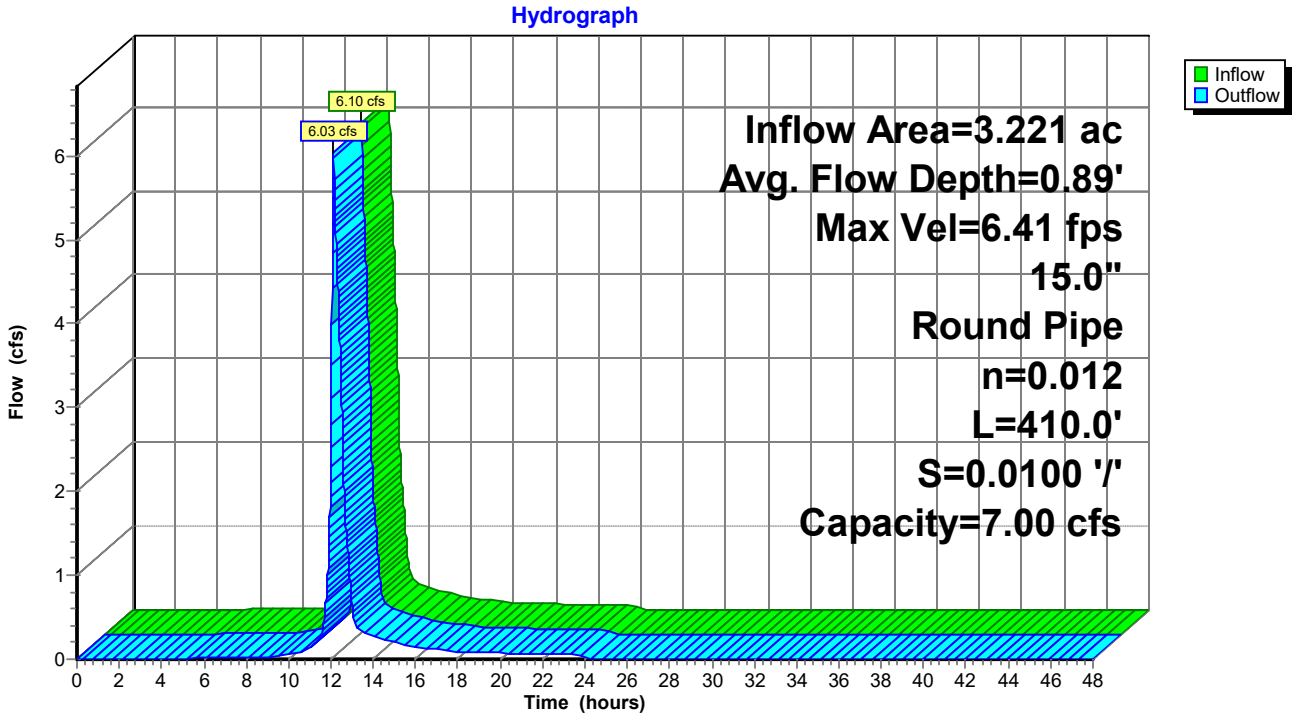
Inflow Area = 3.221 ac, 64.50% Impervious, Inflow Depth = 1.60" for 25 Year event
Inflow = 6.10 cfs @ 12.11 hrs, Volume= 0.430 af
Outflow = 6.03 cfs @ 12.12 hrs, Volume= 0.430 af, Atten= 1%, Lag= 1.0 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 6.41 fps, Min. Travel Time= 1.1 min
Avg. Velocity = 1.80 fps, Avg. Travel Time= 3.8 min

Peak Storage= 385 cf @ 12.12 hrs
Average Depth at Peak Storage= 0.89' , Surface Width= 1.13'
Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 7.00 cfs

15.0" Round Pipe
n= 0.012 Corrugated PP, smooth interior
Length= 410.0' Slope= 0.0100 '/'
Inlet Invert= 111.96', Outlet Invert= 107.86'





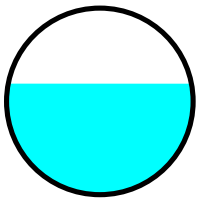
Summary for Reach 41R: DMH 2 to DMH 3

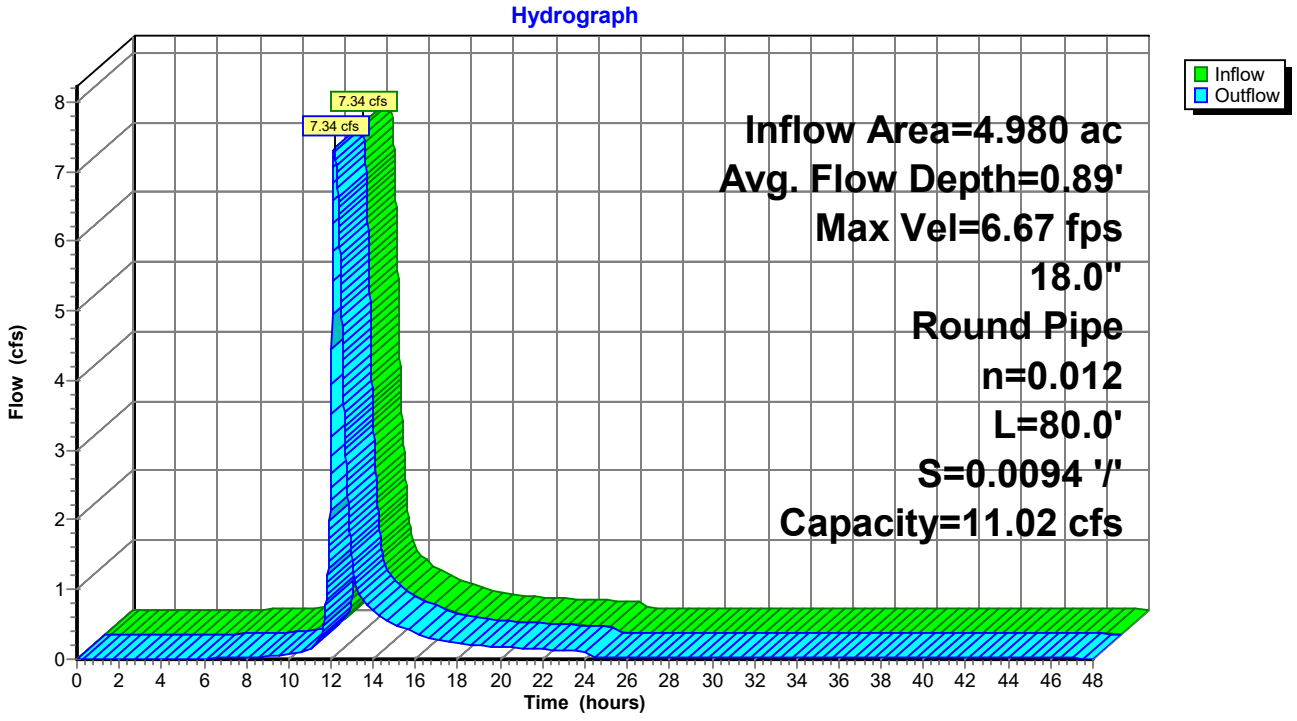
Inflow Area = 4.980 ac, 57.39% Impervious, Inflow Depth > 1.83" for 25 Year event
Inflow = 7.34 cfs @ 12.14 hrs, Volume= 0.760 af
Outflow = 7.34 cfs @ 12.15 hrs, Volume= 0.760 af, Atten= 0%, Lag= 0.2 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 6.67 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 1.60 fps, Avg. Travel Time= 0.8 min

Peak Storage= 88 cf @ 12.15 hrs
Average Depth at Peak Storage= 0.89' , Surface Width= 1.47'
Bank-Full Depth= 1.50' Flow Area= 1.8 sf, Capacity= 11.02 cfs

18.0" Round Pipe
n= 0.012 Corrugated PP, smooth interior
Length= 80.0' Slope= 0.0094 '/'
Inlet Invert= 107.97', Outlet Invert= 107.22'





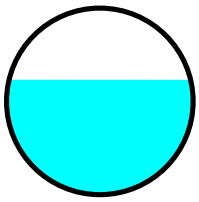
Summary for Reach 42R: DMH 3 to DMH 7

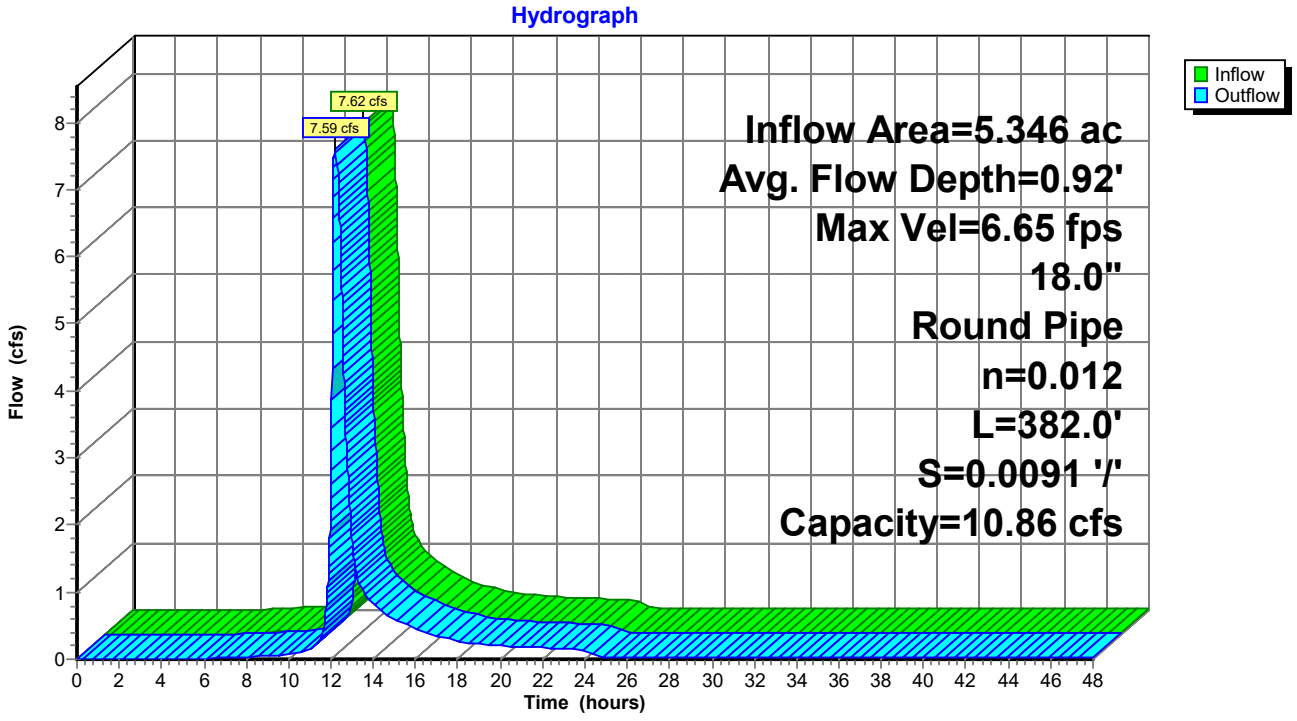
Inflow Area = 5.346 ac, 58.49% Impervious, Inflow Depth > 1.95" for 25 Year event
Inflow = 7.62 cfs @ 12.15 hrs, Volume= 0.868 af
Outflow = 7.59 cfs @ 12.17 hrs, Volume= 0.867 af, Atten= 0%, Lag= 1.0 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 6.65 fps, Min. Travel Time= 1.0 min
Avg. Velocity = 1.71 fps, Avg. Travel Time= 3.7 min

Peak Storage= 436 cf @ 12.17 hrs
Average Depth at Peak Storage= 0.92' , Surface Width= 1.46'
Bank-Full Depth= 1.50' Flow Area= 1.8 sf, Capacity= 10.86 cfs

18.0" Round Pipe
n= 0.012 Corrugated PP, smooth interior
Length= 382.0' Slope= 0.0091 '/'
Inlet Invert= 107.12', Outlet Invert= 103.64'





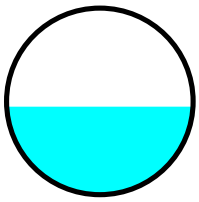
Summary for Reach 44R: DMH 7 to Wetland

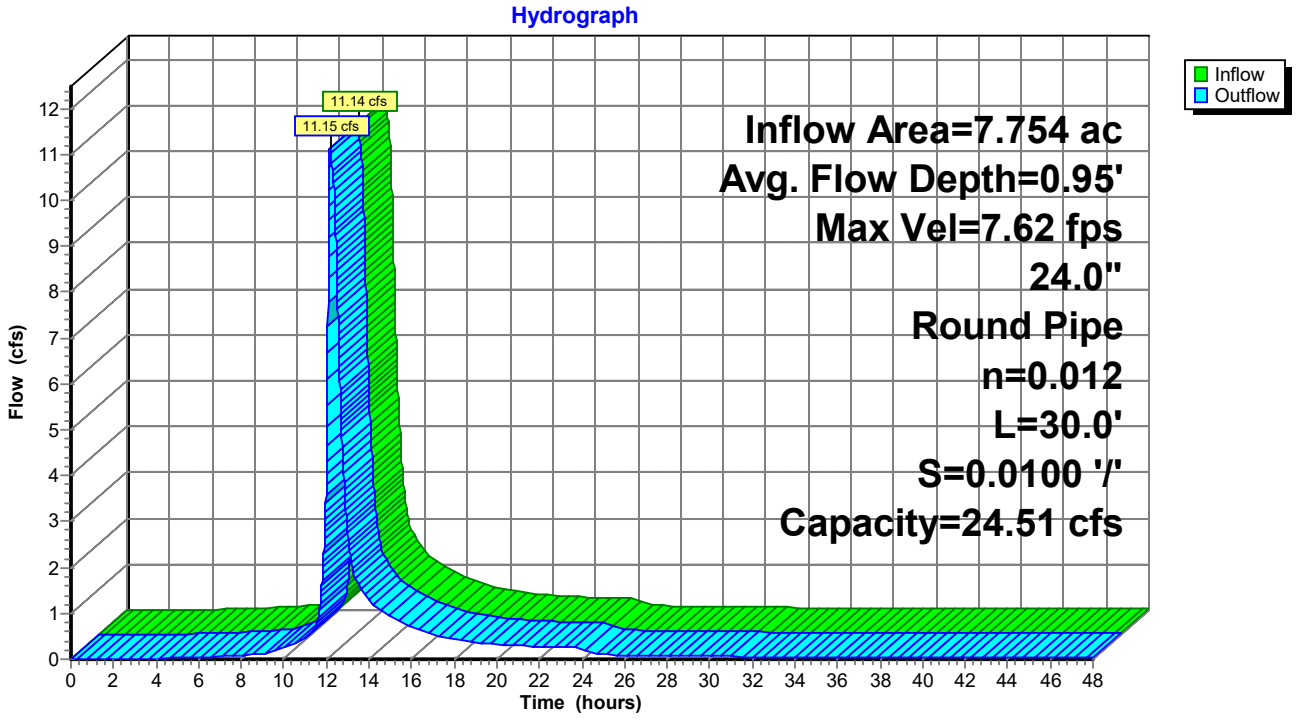
Inflow Area = 7.754 ac, 58.01% Impervious, Inflow Depth > 2.18" for 25 Year event
Inflow = 11.14 cfs @ 12.17 hrs, Volume= 1.412 af
Outflow = 11.15 cfs @ 12.17 hrs, Volume= 1.412 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 7.62 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 2.11 fps, Avg. Travel Time= 0.2 min

Peak Storage= 44 cf @ 12.17 hrs
Average Depth at Peak Storage= 0.95' , Surface Width= 2.00'
Bank-Full Depth= 2.00' Flow Area= 3.1 sf, Capacity= 24.51 cfs

24.0" Round Pipe
n= 0.012 Corrugated PP, smooth interior
Length= 30.0' Slope= 0.0100 '/'
Inlet Invert= 103.58', Outlet Invert= 103.28'





Summary for Pond 3P: FP1 TANKS

Inflow Area = 0.812 ac, 23.11% Impervious, Inflow Depth = 0.78" for 25 Year event
Inflow = 0.29 cfs @ 12.57 hrs, Volume= 0.053 af
Outflow = 0.02 cfs @ 23.61 hrs, Volume= 0.029 af, Atten= 94%, Lag= 662.2 min
Primary = 0.02 cfs @ 23.61 hrs, Volume= 0.029 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 111.34' @ 23.61 hrs Surf.Area= 798 sf Storage= 1,875 cf
Flood Elev= 111.84' Surf.Area= 798 sf Storage= 2,017 cf

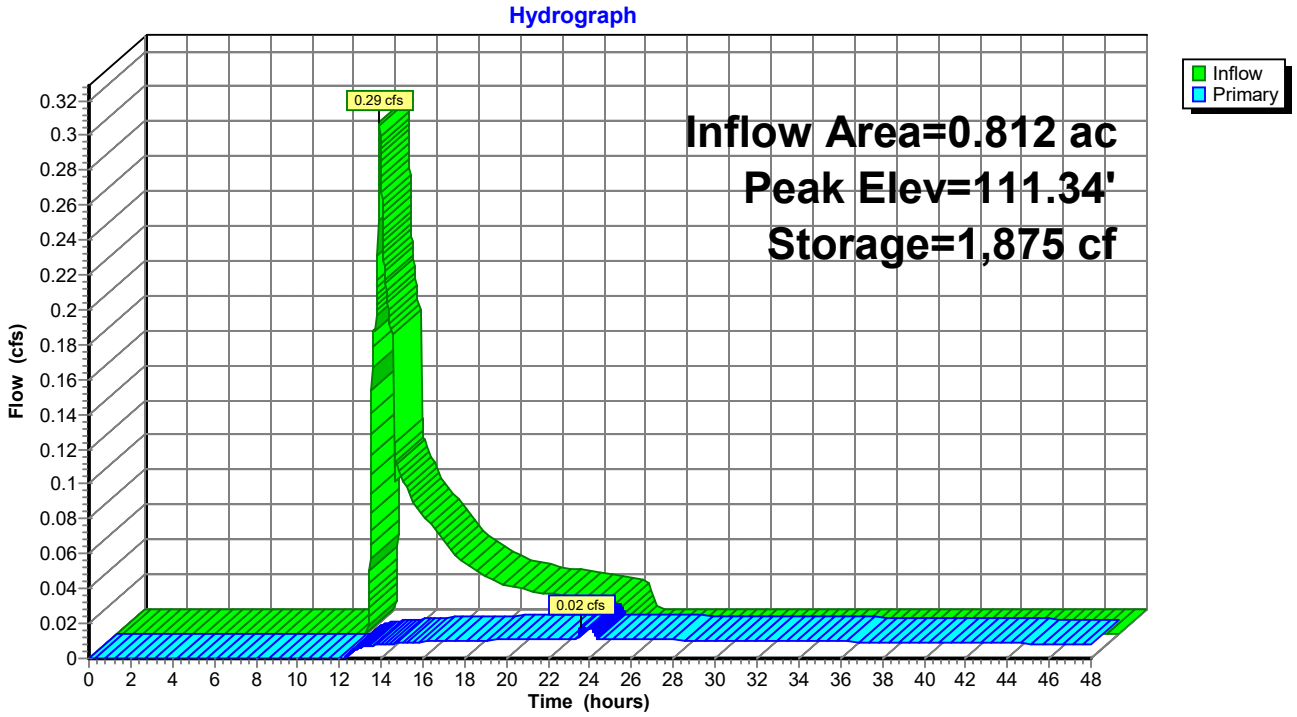
Plug-Flow detention time= 1,002.6 min calculated for 0.029 af (54% of inflow)
Center-of-Mass det. time= 856.7 min (1,790.7 - 934.0)

Volume	Invert	Avail.Storage	Storage Description
#1	109.90'	4 cf	**ACF R-Tank HD 1** Inside #3 Inside= 15.7"W x 17.3"H => 1.80 sf x 2.35'L = 4.2 cf Outside= 15.7"W x 17.3"H => 1.89 sf x 2.35'L = 4.4 cf 4 cf Overall x 95.0% Voids
#2	108.46'	1,568 cf	**ACF R-Tank HD 2** x 200 Inside #3 Inside= 15.7"W x 33.9"H => 3.52 sf x 2.35'L = 8.3 cf Outside= 15.7"W x 33.9"H => 3.70 sf x 2.35'L = 8.7 cf 200 Chambers in 10 Rows 1,737 cf Overall x 95.0% Voids
#3	108.21'	445 cf	**27.50'W x 29.00'L x 3.58'H Prismatoid** 2,855 cf Overall - 1,742 cf Embedded = 1,113 cf x 40.0% Voids
		2,017 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Device 3	108.46'	**0.5" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#2	Device 3	111.34'	**6.0' long x 0.7' 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 Coef. (English) 2.76 2.82 2.93 3.09 3.18 3.22 3.27 3.30 3.32 3.31 3.32
#3	Primary	108.46'	**12.0" Round Culvert** L= 10.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 108.46' / 108.41' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.02 cfs @ 23.61 hrs HW=111.34' (Free Discharge)
└**3=Culvert** (Passes 0.02 cfs of 5.84 cfs potential flow)
  ├**1=Orifice/Grate** (Orifice Controls 0.01 cfs @ 8.15 fps)
  └**2=Broad-Crested Rectangular Weir** (Weir Controls 0.01 cfs @ 0.19 fps)

Pond 3P: FP1 TANKS



Summary for Pond 4P: FP2 TANKS

Inflow Area = 0.514 ac, 21.94% Impervious, Inflow Depth = 2.21" for 25 Year event
Inflow = 0.79 cfs @ 12.37 hrs, Volume= 0.094 af
Outflow = 0.73 cfs @ 12.47 hrs, Volume= 0.086 af, Atten= 8%, Lag= 6.3 min
Primary = 0.73 cfs @ 12.47 hrs, Volume= 0.086 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 109.77' @ 12.47 hrs Surf.Area= 840 sf Storage= 934 cf
Flood Elev= 111.76' Surf.Area= 840 sf Storage= 1,208 cf

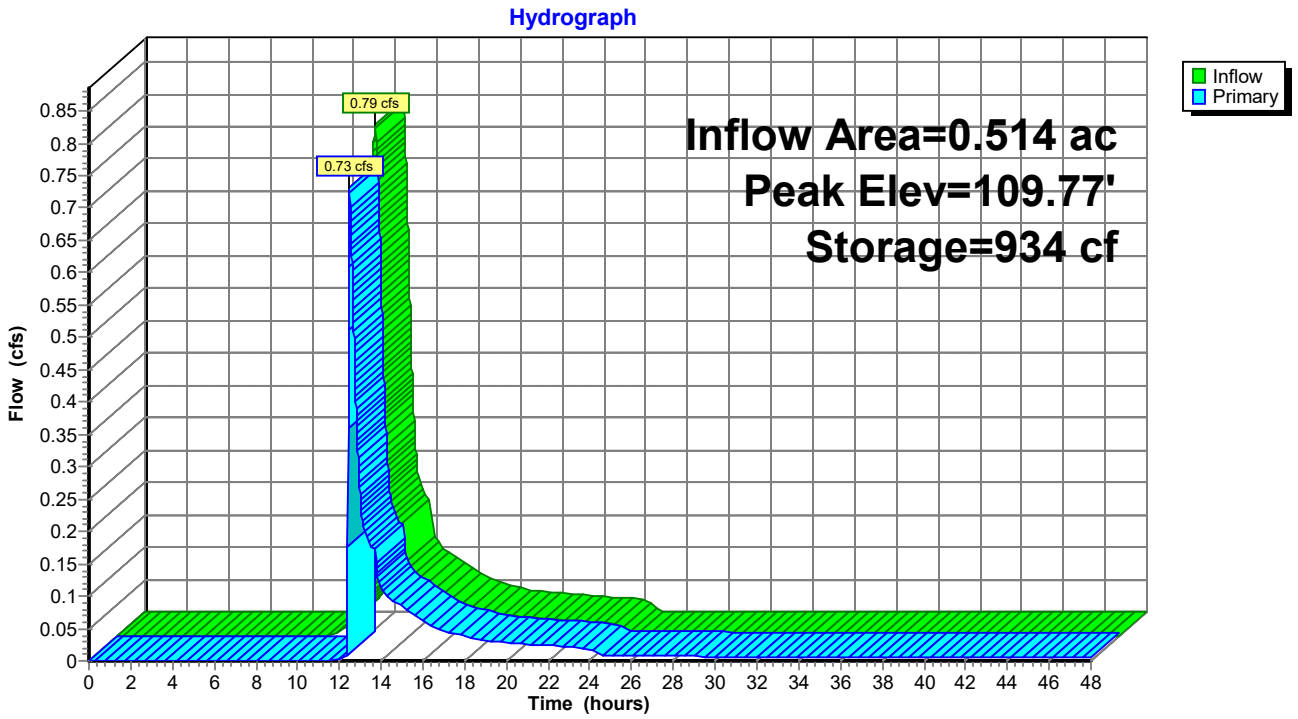
Plug-Flow detention time= 243.2 min calculated for 0.086 af (91% of inflow)
Center-of-Mass det. time= 199.5 min (1,071.0 - 871.5)

Volume	Invert	Avail.Storage	Storage Description
#1	108.38'	24 cf	**ACF R-Tank HD 1** x 6 Inside #5 Inside= 15.7"W x 17.3"H => 1.80 sf x 2.35'L = 4.2 cf Outside= 15.7"W x 17.3"H => 1.89 sf x 2.35'L = 4.4 cf 27 cf Overall x 95.0% Voids
#2	108.38'	24 cf	**ACF R-Tank HD 1** x 6 Inside #5 Inside= 15.7"W x 17.3"H => 1.80 sf x 2.35'L = 4.2 cf Outside= 15.7"W x 17.3"H => 1.89 sf x 2.35'L = 4.4 cf 27 cf Overall x 95.0% Voids
#3	108.38'	481 cf	**ACF R-Tank HD 1** x 120 Inside #5 Inside= 15.7"W x 17.3"H => 1.80 sf x 2.35'L = 4.2 cf Outside= 15.7"W x 17.3"H => 1.89 sf x 2.35'L = 4.4 cf 120 Chambers in 8 Rows 533 cf Overall x 95.0% Voids
#4	108.38'	180 cf	**ACF R-Tank HD 1** x 45 Inside #5 Inside= 15.7"W x 17.3"H => 1.80 sf x 2.35'L = 4.2 cf Outside= 15.7"W x 17.3"H => 1.89 sf x 2.35'L = 4.4 cf 45 Chambers in 3 Rows 200 cf Overall x 95.0% Voids
#5	108.13'	498 cf	**21.00'W x 40.00'L x 2.42'H Prismatoid** 2,033 cf Overall - 787 cf Embedded = 1,246 cf x 40.0% Voids
		1,208 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Device 3	108.38'	**0.5" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#2	Device 3	109.65'	**6.0' long x 0.7' 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 Coef. (English) 2.76 2.82 2.93 3.09 3.18 3.22 3.27 3.30 3.32 3.31 3.32
#3	Primary	108.38'	**12.0" Round Culvert** L= 70.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 108.38' / 108.10' S= 0.0040 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.73 cfs @ 12.47 hrs HW=109.77' (Free Discharge)
└**3=Culvert** (Passes 0.73 cfs of 2.82 cfs potential flow)
└**1=Orifice/Grate** (Orifice Controls 0.01 cfs @ 5.64 fps)
└**2=Broad-Crested Rectangular Weir** (Weir Controls 0.72 cfs @ 0.97 fps)

Pond 4P: FP2 TANKS



Summary for Pond 9R: New CB 1 to DMH 2

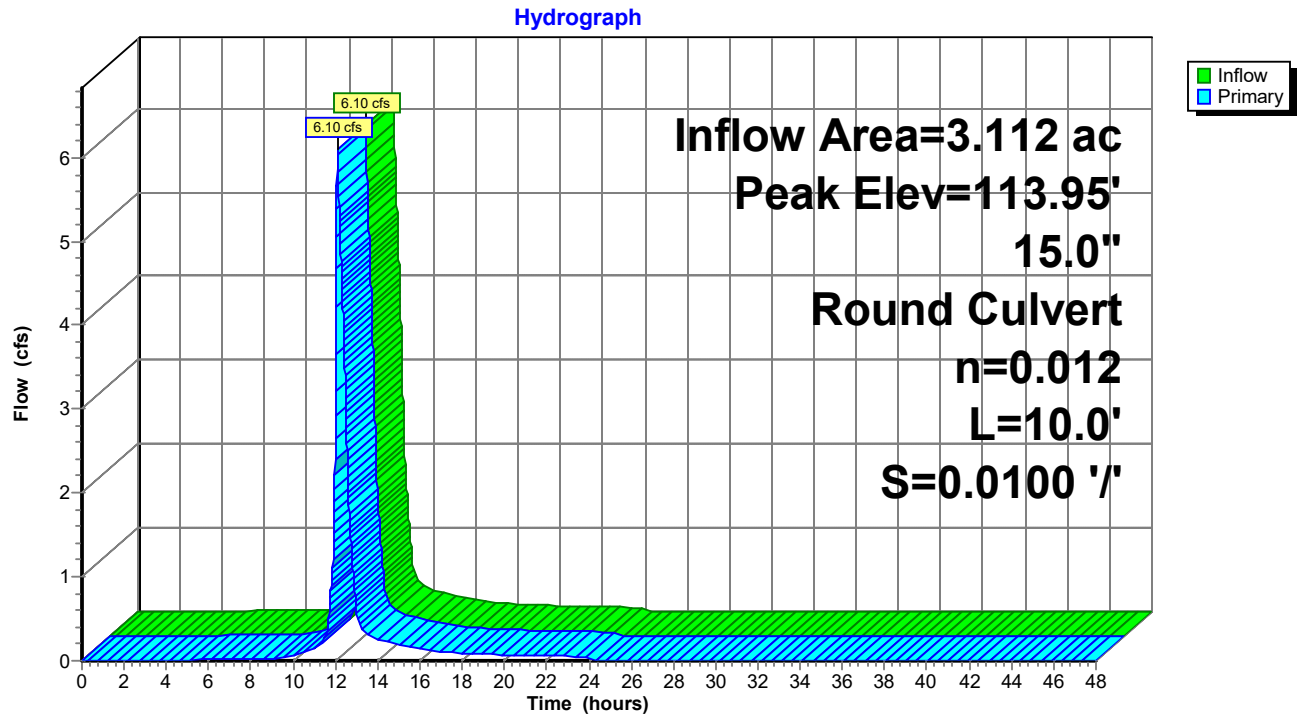
Inflow Area = 3.112 ac, 66.74% Impervious, Inflow Depth = 1.64" for 25 Year event
Inflow = 6.10 cfs @ 12.11 hrs, Volume= 0.426 af
Outflow = 6.10 cfs @ 12.11 hrs, Volume= 0.426 af, Atten= 0%, Lag= 0.0 min
Primary = 6.10 cfs @ 12.11 hrs, Volume= 0.426 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 113.95' @ 12.11 hrs
Flood Elev= 117.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	112.15'	**15.0" Round Culvert** L= 10.0' Ke= 0.500 Inlet / Outlet Invert= 112.15' / 112.05' S= 0.0100 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=6.09 cfs @ 12.11 hrs HW=113.95' (Free Discharge)
1=Culvert (Barrel Controls 6.09 cfs @ 4.96 fps)

Pond 9R: New CB 1 to DMH 2



Summary for Pond 30P: Raised StormTech SC-740 System

Inflow Area = 1.500 ac, 36.53% Impervious, Inflow Depth = 2.06" for 25 Year event
Inflow = 2.31 cfs @ 12.10 hrs, Volume= 0.258 af
Outflow = 1.29 cfs @ 12.32 hrs, Volume= 0.244 af, Atten= 44%, Lag= 13.2 min
Primary = 1.29 cfs @ 12.32 hrs, Volume= 0.244 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 113.90' @ 12.32 hrs Surf.Area= 0.053 ac Storage= 0.088 af

Plug-Flow detention time= 448.0 min calculated for 0.244 af (95% of inflow)
Center-of-Mass det. time= 417.6 min (1,227.1 - 809.4)

Volume	Invert	Avail.Storage	Storage Description
#1A	111.22'	0.007 af	**6.25'W x 46.34'L x 3.50'H Field A** 0.023 af Overall - 0.006 af Embedded = 0.017 af x 40.0% Voids
#2A	111.72'	0.006 af	**ADS_StormTech SC-740 +Cap** x 6 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap
#3B	111.22'	0.010 af	**6.25'W x 67.70'L x 3.50'H Field B** 0.034 af Overall - 0.009 af Embedded = 0.025 af x 40.0% Voids
#4B	111.72'	0.009 af	**ADS_StormTech SC-740 +Cap** x 9 Inside #3 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap
#5C	111.22'	0.018 af	**6.25'W x 124.66'L x 3.50'H Field C** 0.063 af Overall - 0.018 af Embedded = 0.045 af x 40.0% Voids
#6C	111.72'	0.018 af	**ADS_StormTech SC-740 +Cap** x 17 Inside #5 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap
#7D	111.22'	0.019 af	**6.25'W x 131.78'L x 3.50'H Field D** 0.066 af Overall - 0.019 af Embedded = 0.047 af x 40.0% Voids
#8D	111.72'	0.019 af	**ADS_StormTech SC-740 +Cap** x 18 Inside #7 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap
		0.106 af	Total Available Storage

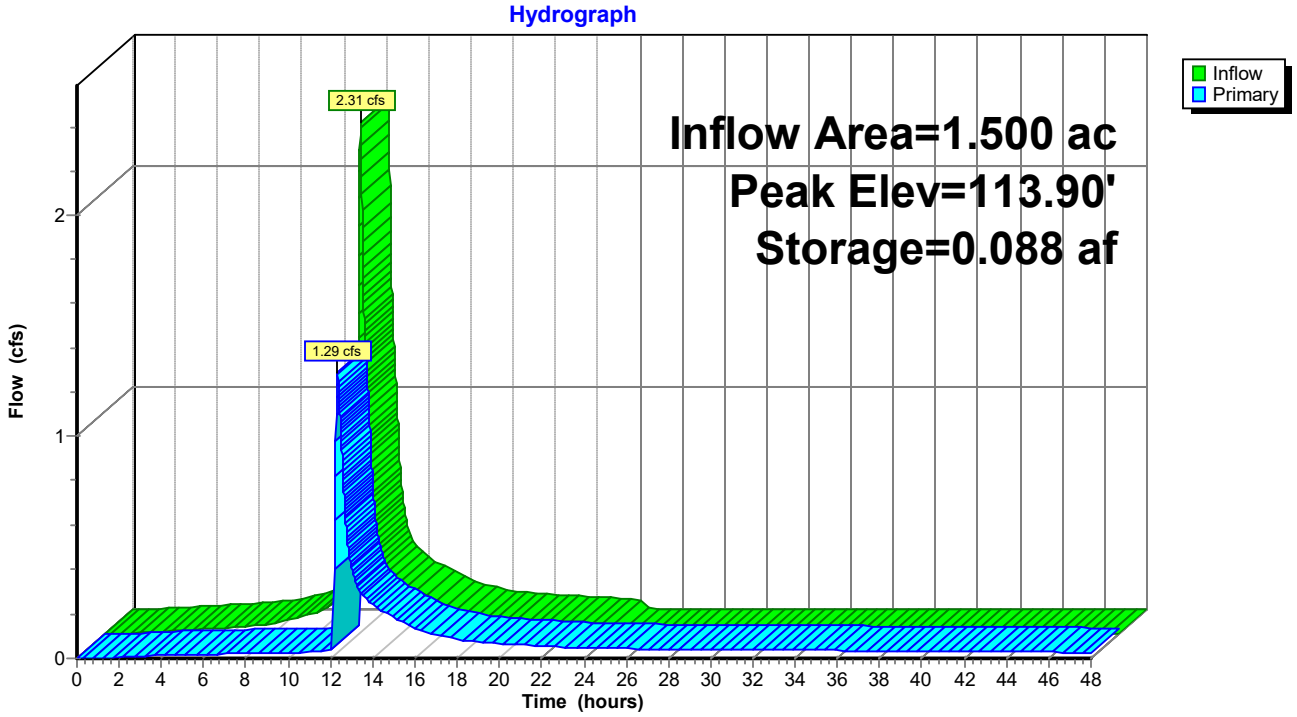
Storage Group A created with Chamber Wizard
Storage Group B created with Chamber Wizard
Storage Group C created with Chamber Wizard
Storage Group D created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Device 3	110.72'	**1.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#2	Device 3	113.72'	**6.0' long x 0.7' 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 Coef. (English) 2.76 2.82 2.93 3.09 3.18 3.22 3.27 3.30 3.32 3.31 3.32
#3	Primary	110.72'	**12.0" Round Culvert** L= 3.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 110.72' / 110.69' S= 0.0100 '/' Cc= 0.900

n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.29 cfs @ 12.32 hrs HW=113.90' (Free Discharge)
└**3=Culvert** (Passes 1.29 cfs of 4.89 cfs potential flow)
  └**1=Orifice/Grate** (Orifice Controls 0.05 cfs @ 8.53 fps)
  └**2=Broad-Crested Rectangular Weir** (Weir Controls 1.24 cfs @ 1.16 fps)

Pond 30P: Raised StormTech SC-740 System



Summary for Pond 36P: PP1

Inflow Area = 0.050 ac, 81.59% Impervious, Inflow Depth = 4.33" for 25 Year event
Inflow = 0.25 cfs @ 12.09 hrs, Volume= 0.018 af
Outflow = 0.20 cfs @ 12.14 hrs, Volume= 0.017 af, Atten= 17%, Lag= 3.2 min
Primary = 0.20 cfs @ 12.14 hrs, Volume= 0.017 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 116.01' @ 12.14 hrs Surf.Area= 1,110 sf Storage= 152 cf

Plug-Flow detention time= 83.2 min calculated for 0.017 af (92% of inflow)
Center-of-Mass det. time= 43.0 min (838.8 - 795.9)

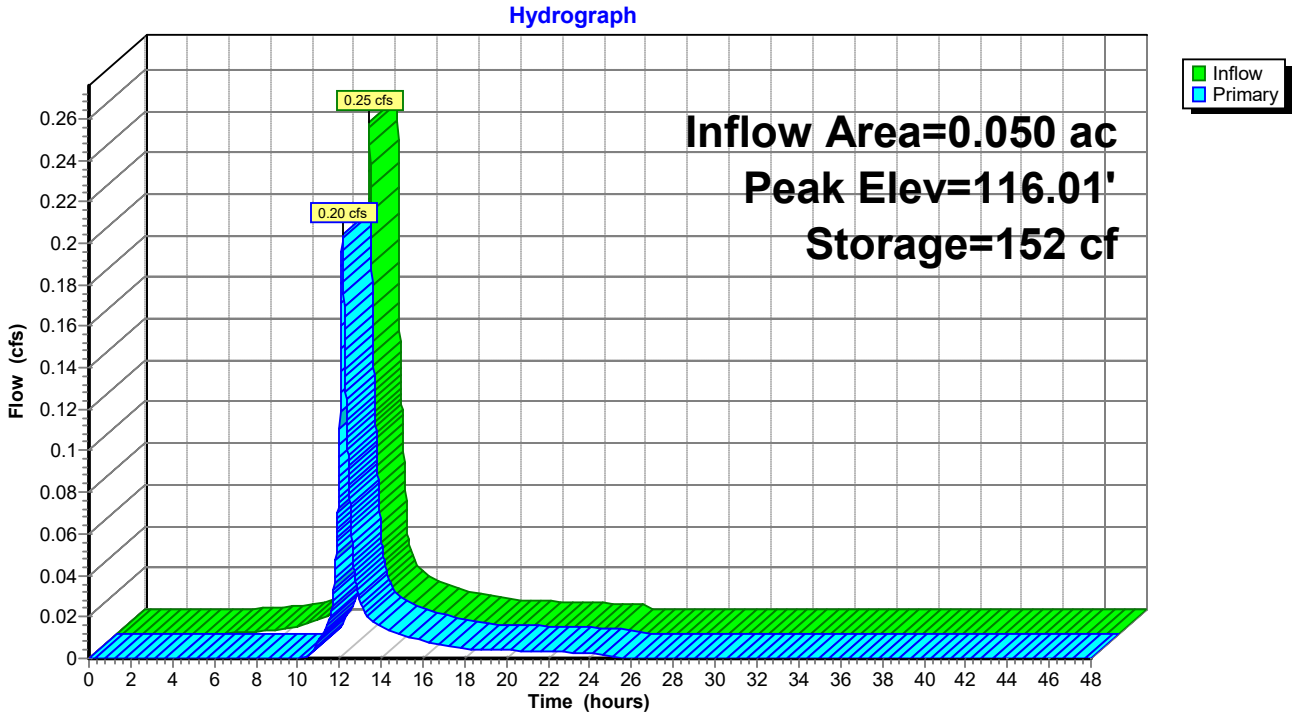
Volume	Invert	Avail.Storage	Storage Description
#1	115.59'	939 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
115.59	1,110	0.0	0	0
115.60	1,110	20.0	2	2
116.35	1,110	33.0	275	277
116.68	1,110	40.0	147	423
117.00	1,110	20.0	71	495
119.00	1,110	20.0	444	939

Device	Routing	Invert	Outlet Devices
#1	Primary	115.76'	**7.500 in/hr Exfiltration over Surface area above 115.76'** Excluded Surface area = 1,110 sf
#2	Primary	115.76'	**8.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.20 cfs @ 12.14 hrs HW=116.01' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.00 cfs)
2=Orifice/Grate (Orifice Controls 0.20 cfs @ 1.70 fps)

Pond 36P: PP1


Hydrograph
Inflow
Primary
0.25 cfs
0.20 cfs
Inflow Area=0.050 ac
Peak Elev=116.01'
Storage=152 cf
Flow (cfs)
0
0.02
0.04
0.06
0.08
0.1
0.12
0.14
0.16
0.18
0.2
0.22
0.24
0.26
Time (hours)
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48

Summary for Pond 37P: PP2

Inflow Area = 0.077 ac,100.00% Impervious, Inflow Depth = 5.56" for 25 Year event
Inflow = 0.44 cfs @ 12.08 hrs, Volume= 0.036 af
Outflow = 0.36 cfs @ 12.14 hrs, Volume= 0.036 af, Atten= 18%, Lag= 3.4 min
Primary = 0.36 cfs @ 12.14 hrs, Volume= 0.036 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 115.99' @ 12.14 hrs Surf.Area= 1,212 sf Storage= 160 cf

Plug-Flow detention time= 24.6 min calculated for 0.036 af (100% of inflow)
Center-of-Mass det. time= 23.6 min (769.2 - 745.7)

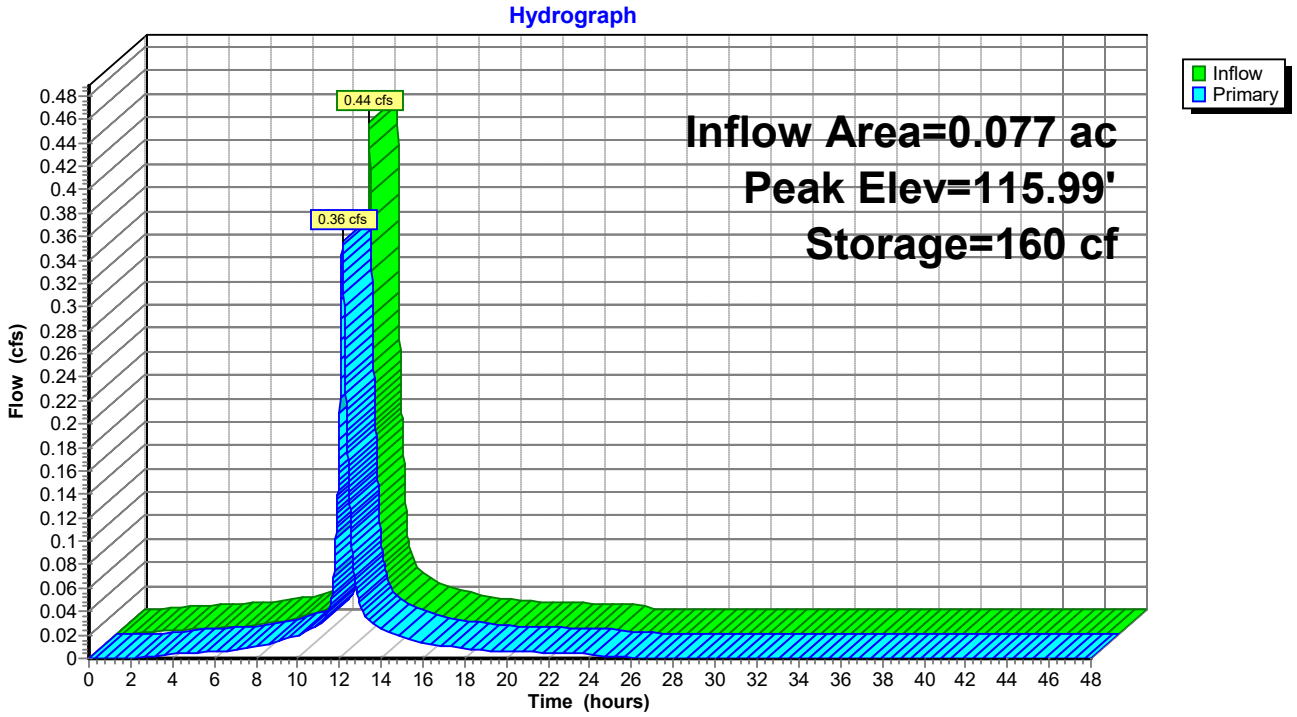
Volume	Invert	Avail.Storage	Storage Description
#1	115.59'	1,025 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
115.59	1,212	0.0	0	0
115.60	1,212	20.0	2	2
116.35	1,212	33.0	300	302
116.68	1,212	40.0	160	462
117.00	1,212	20.0	78	540
119.00	1,212	20.0	485	1,025

Device	Routing	Invert	Outlet Devices
#1	Primary	115.76'	**7.500 in/hr Exfiltration over Surface area above 115.76'** Excluded Surface area = 1,212 sf
#2	Primary	115.60'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.36 cfs @ 12.14 hrs HW=115.99' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.00 cfs)
2=Orifice/Grate (Orifice Controls 0.36 cfs @ 2.14 fps)

Pond 37P: PP2


Hydrograph
Inflow
Primary
0.44 cfs
0.36 cfs
Inflow Area=0.077 ac
Peak Elev=115.99'
Storage=160 cf
Flow (cfs)
Time (hours)

Summary for Pond 38P: Rain Garden West

Inflow Area = 0.503 ac, 7.99% Impervious, Inflow Depth = 0.66" for 25 Year event
Inflow = 0.16 cfs @ 12.36 hrs, Volume= 0.028 af
Outflow = 0.13 cfs @ 12.56 hrs, Volume= 0.025 af, Atten= 20%, Lag= 11.9 min
Primary = 0.13 cfs @ 12.56 hrs, Volume= 0.025 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 120.32' @ 12.56 hrs Surf.Area= 631 sf Storage= 174 cf

Plug-Flow detention time= 83.0 min calculated for 0.025 af (89% of inflow)
Center-of-Mass det. time= 33.1 min (968.5 - 935.4)

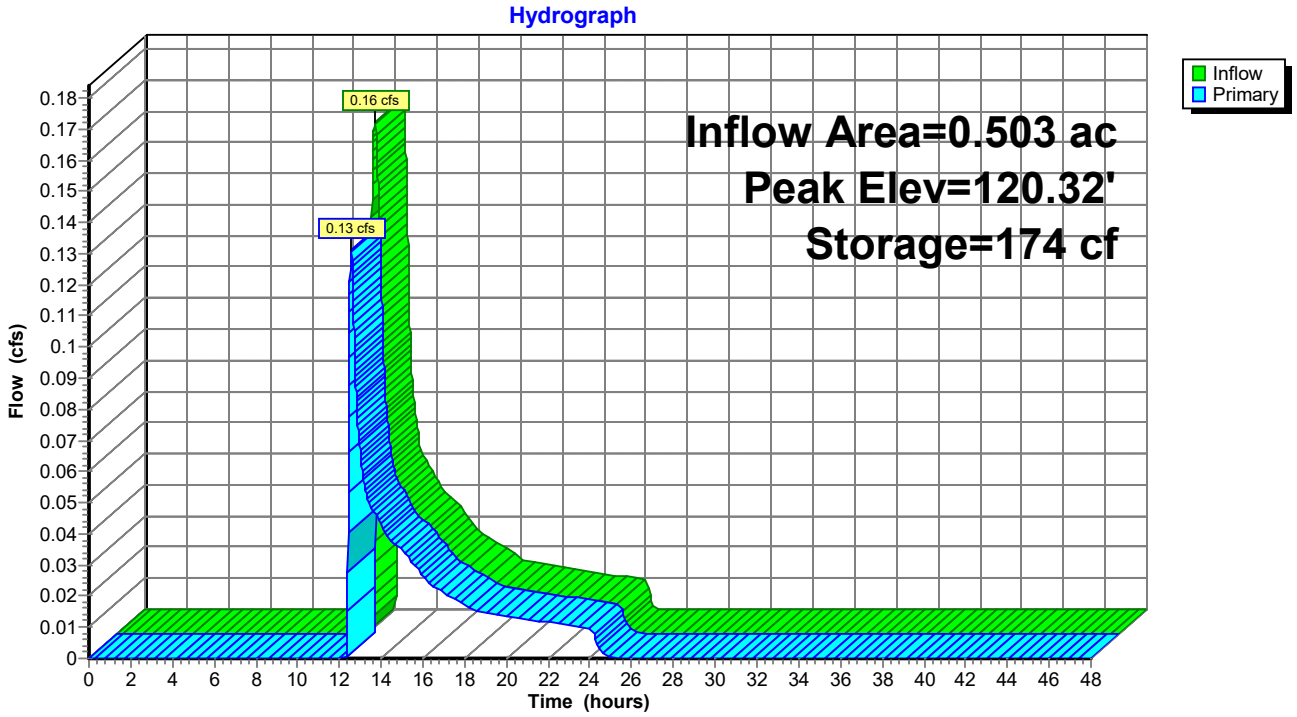
Volume	Invert	Avail.Storage	Storage Description
#1	120.00'	729 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
120.00	453	0	0
121.00	1,005	729	729

Device	Routing	Invert	Outlet Devices
#1	Device 2	120.25'	**8.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#2	Primary	117.25'	**8.0" Round Culvert** L= 187.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 117.25' / 115.25' S= 0.0107 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.13 cfs @ 12.56 hrs HW=120.32' (Free Discharge)
↑—**2=Culvert** (Passes 0.13 cfs of 1.71 cfs potential flow)
↑—**1=Orifice/Grate** (Weir Controls 0.13 cfs @ 0.87 fps)

Pond 38P: Rain Garden West



Summary for Pond DS-2: Drip Strip

Inflow Area = 0.220 ac, 79.17% Impervious, Inflow Depth = 4.99" for 25 Year event
Inflow = 1.20 cfs @ 12.08 hrs, Volume= 0.092 af
Outflow = 0.54 cfs @ 12.26 hrs, Volume= 0.092 af, Atten= 55%, Lag= 10.4 min
Discarded = 0.28 cfs @ 11.76 hrs, Volume= 0.087 af
Primary = 0.26 cfs @ 12.26 hrs, Volume= 0.005 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 116.14' @ 12.26 hrs Surf.Area= 1,600 sf Storage= 706 cf

Plug-Flow detention time= 11.7 min calculated for 0.092 af (100% of inflow)
Center-of-Mass det. time= 11.7 min (785.7 - 774.0)

Volume	Invert	Avail.Storage	Storage Description
#1	115.00'	3,040 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

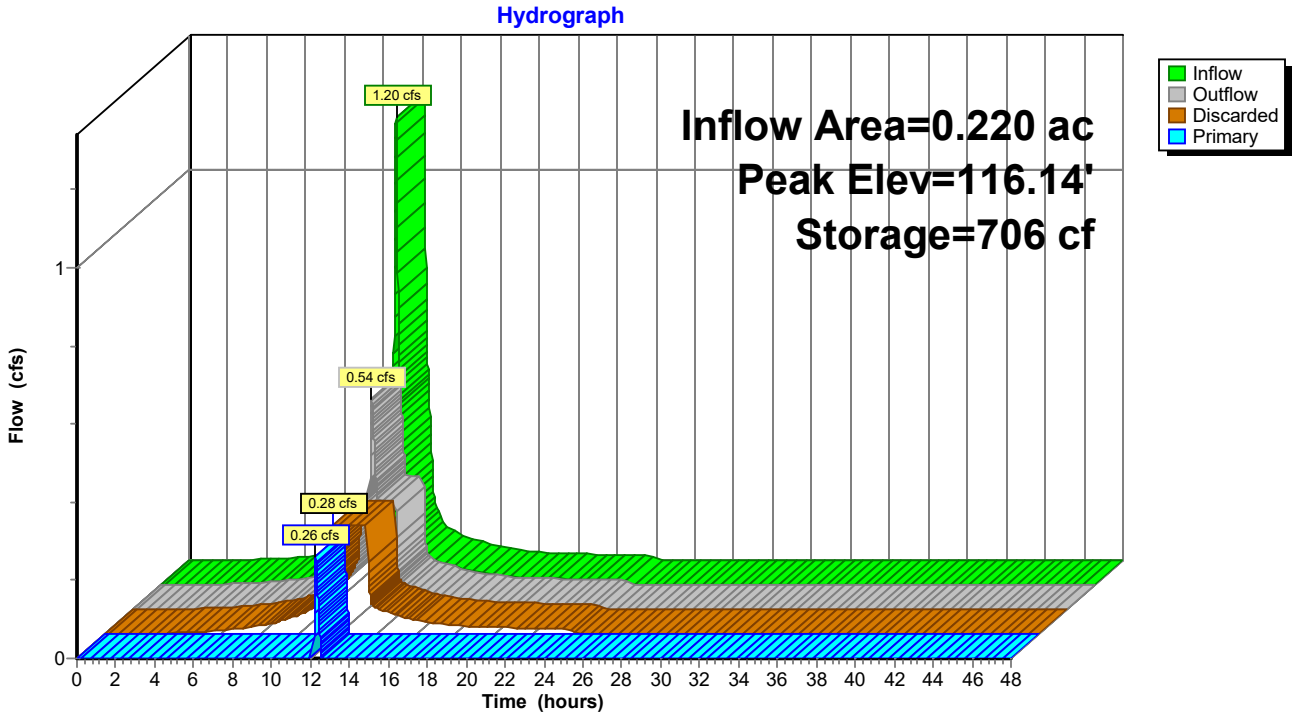
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
115.00	1,600	0.0	0	0
116.00	1,600	40.0	640	640
117.00	1,600	30.0	480	1,120
118.00	1,600	40.0	640	1,760
119.00	1,600	40.0	640	2,400
120.00	1,600	40.0	640	3,040

Device	Routing	Invert	Outlet Devices
#1	Discarded	115.00'	**7.500 in/hr Exfiltration over Surface area**
#2	Primary	116.00'	**6.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.28 cfs @ 11.76 hrs HW=115.05' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.28 cfs)

Primary OutFlow Max=0.26 cfs @ 12.26 hrs HW=116.14' (Free Discharge)
↑—**2=Orifice/Grate** (Weir Controls 0.26 cfs @ 1.21 fps)

Pond DS-2: Drip Strip



Summary for Pond DS-3: Drip Strip

Inflow Area = 0.399 ac, 76.31% Impervious, Inflow Depth = 4.99" for 25 Year event
Inflow = 2.17 cfs @ 12.08 hrs, Volume= 0.166 af
Outflow = 1.26 cfs @ 12.19 hrs, Volume= 0.166 af, Atten= 42%, Lag= 6.6 min
Discarded = 0.28 cfs @ 11.62 hrs, Volume= 0.129 af
Primary = 0.98 cfs @ 12.19 hrs, Volume= 0.036 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 117.08' @ 12.19 hrs Surf.Area= 1,600 sf Storage= 1,168 cf

Plug-Flow detention time= 11.5 min calculated for 0.166 af (100% of inflow)
Center-of-Mass det. time= 11.5 min (785.4 - 774.0)

Volume	Invert	Avail.Storage	Storage Description
#1	115.00'	3,040 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

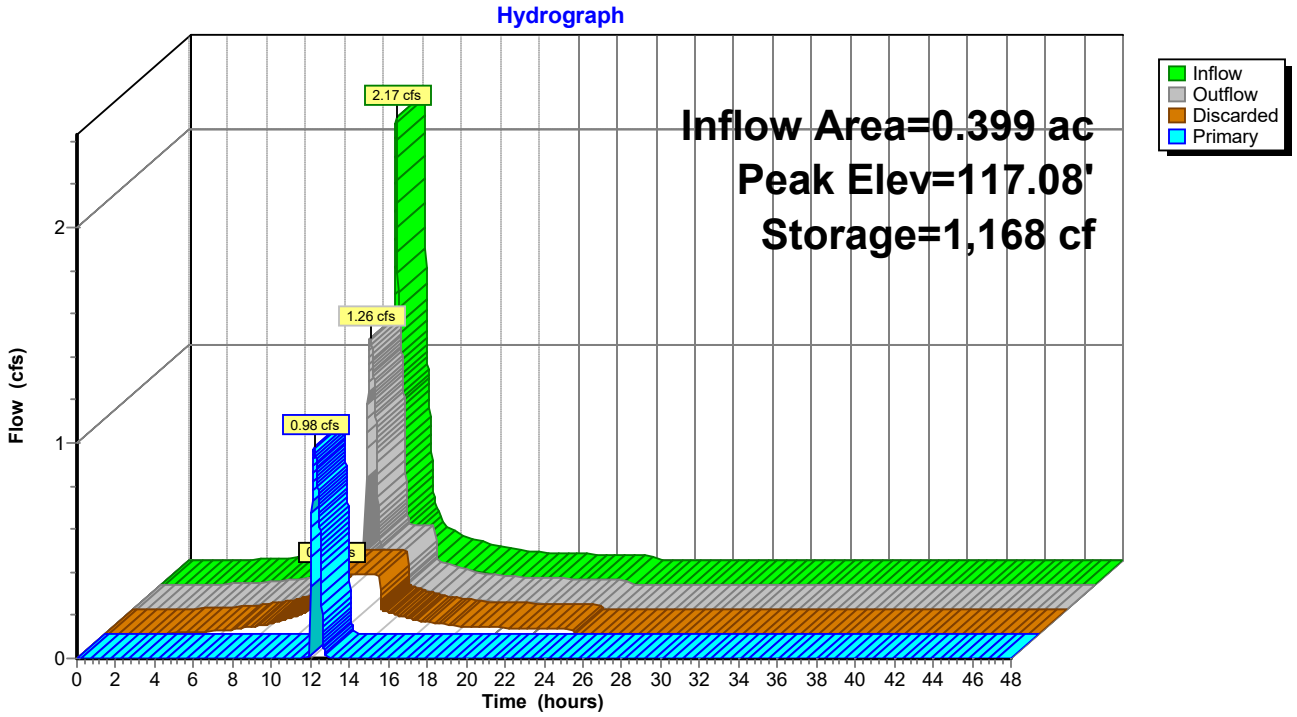
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
115.00	1,600	0.0	0	0
116.00	1,600	40.0	640	640
117.00	1,600	30.0	480	1,120
118.00	1,600	40.0	640	1,760
119.00	1,600	40.0	640	2,400
120.00	1,600	40.0	640	3,040

Device	Routing	Invert	Outlet Devices
#1	Discarded	115.00'	**7.500 in/hr Exfiltration over Surface area**
#2	Primary	116.00'	**6.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.28 cfs @ 11.62 hrs HW=115.05' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.28 cfs)

Primary OutFlow Max=0.98 cfs @ 12.19 hrs HW=117.07' (Free Discharge)
↑—**2=Orifice/Grate** (Orifice Controls 0.98 cfs @ 4.99 fps)

Pond DS-3: Drip Strip



Summary for Pond DS1: Drip Strip

Inflow Area = 0.220 ac, 79.17% Impervious, Inflow Depth = 4.99" for 25 Year event
Inflow = 1.20 cfs @ 12.08 hrs, Volume= 0.092 af
Outflow = 0.54 cfs @ 12.26 hrs, Volume= 0.092 af, Atten= 55%, Lag= 10.4 min
Discarded = 0.28 cfs @ 11.76 hrs, Volume= 0.087 af
Primary = 0.26 cfs @ 12.26 hrs, Volume= 0.005 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 116.14' @ 12.26 hrs Surf.Area= 1,600 sf Storage= 706 cf

Plug-Flow detention time= 11.7 min calculated for 0.092 af (100% of inflow)
Center-of-Mass det. time= 11.7 min (785.7 - 774.0)

Volume	Invert	Avail.Storage	Storage Description
#1	115.00'	3,040 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

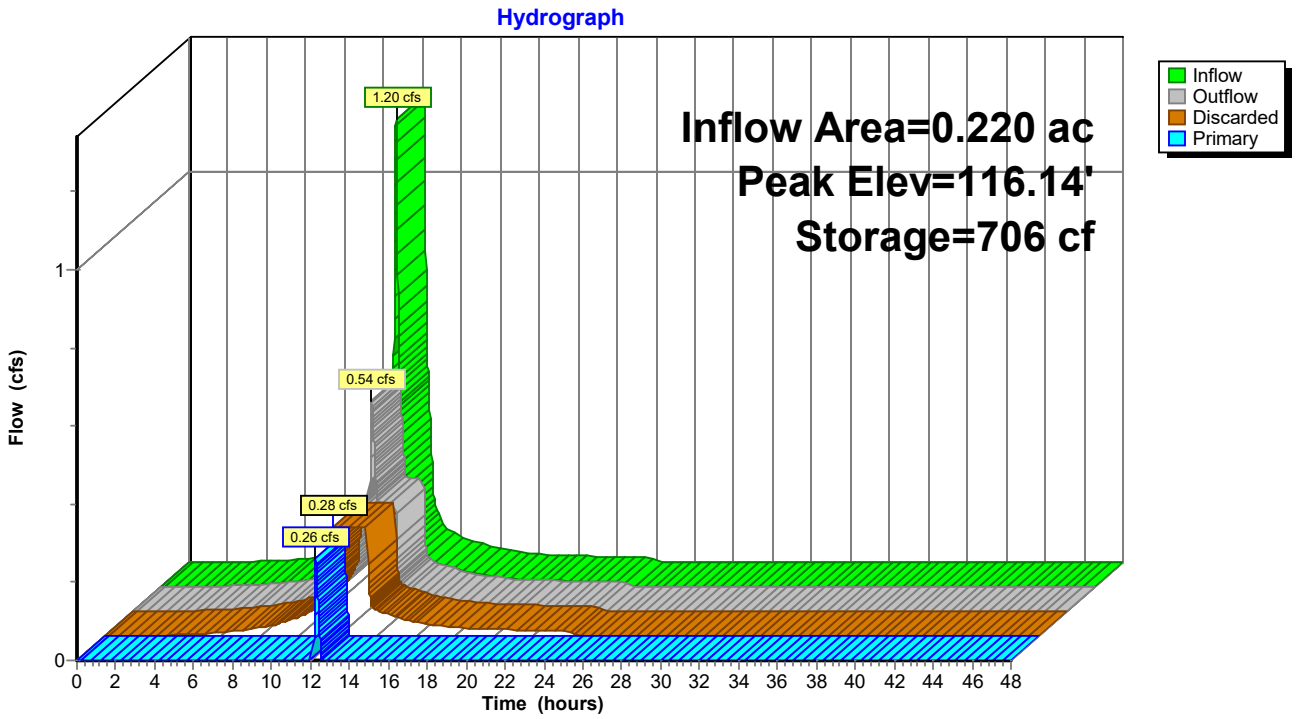
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
115.00	1,600	0.0	0	0
116.00	1,600	40.0	640	640
117.00	1,600	30.0	480	1,120
118.00	1,600	40.0	640	1,760
119.00	1,600	40.0	640	2,400
120.00	1,600	40.0	640	3,040

Device	Routing	Invert	Outlet Devices
#1	Discarded	115.00'	**7.500 in/hr Exfiltration over Surface area**
#2	Primary	116.00'	**6.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.28 cfs @ 11.76 hrs HW=115.05' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.28 cfs)

Primary OutFlow Max=0.26 cfs @ 12.26 hrs HW=116.14' (Free Discharge)
↑—**2=Orifice/Grate** (Weir Controls 0.26 cfs @ 1.21 fps)

Pond DS1: Drip Strip



Summary for Pond FP1: FP1 Filter

Inflow Area = 0.812 ac, 23.11% Impervious, Inflow Depth = 0.78" for 25 Year event
Inflow = 0.31 cfs @ 12.45 hrs, Volume= 0.053 af
Outflow = 0.29 cfs @ 12.57 hrs, Volume= 0.053 af, Atten= 6%, Lag= 7.0 min
Primary = 0.21 cfs @ 12.57 hrs, Volume= 0.052 af
Secondary = 0.08 cfs @ 12.57 hrs, Volume= 0.001 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 113.98' @ 12.57 hrs Surf.Area= 91 sf Storage= 98 cf

Plug-Flow detention time= 1.7 min calculated for 0.053 af (100% of inflow)
Center-of-Mass det. time= 1.7 min (934.0 - 932.2)

Volume	Invert	Avail.Storage	Storage Description
#1	111.84'	133 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

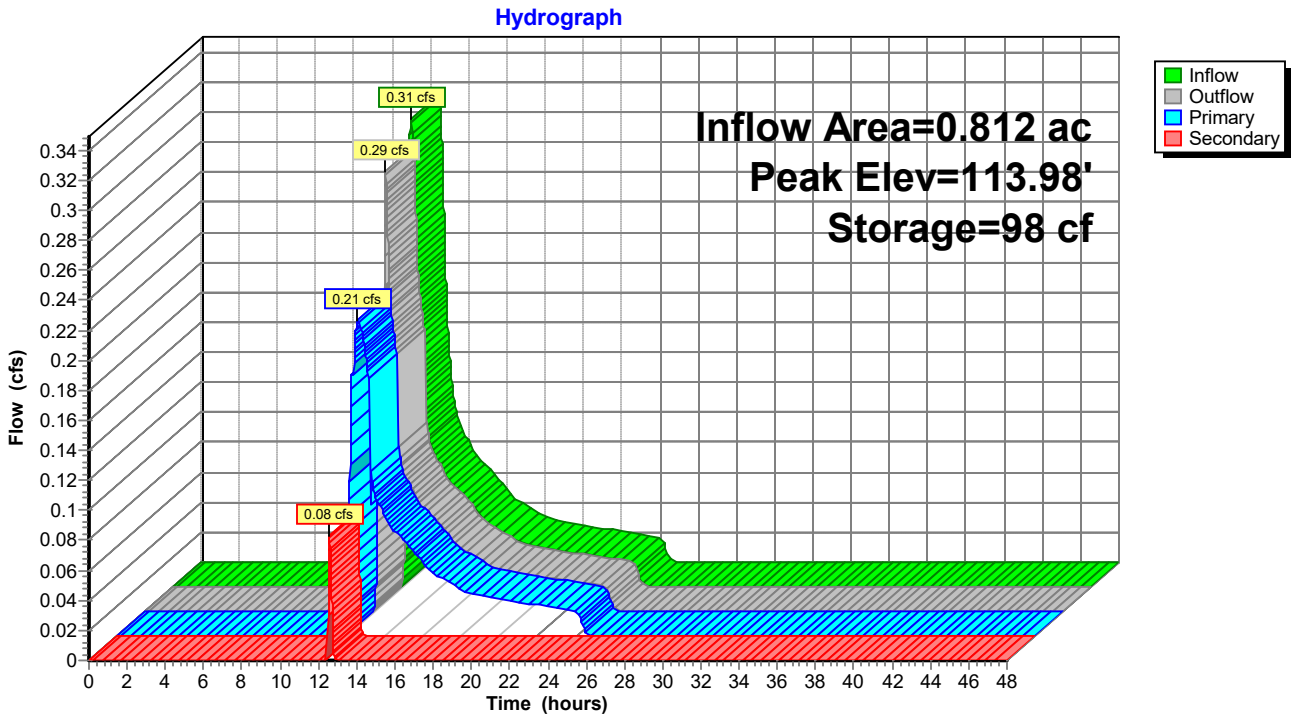
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
111.84	75	0.0	0	0
113.34	75	40.0	45	45
114.34	100	100.0	88	133

Device	Routing	Invert	Outlet Devices
#1	Primary	111.84'	**100.000 in/hr Exfiltration over Surface area**
#2	Secondary	113.84'	**12.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.21 cfs @ 12.57 hrs HW=113.98' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.21 cfs)

Secondary OutFlow Max=0.08 cfs @ 12.57 hrs HW=113.98' (Free Discharge)
2=Orifice/Grate (Orifice Controls 0.08 cfs @ 1.26 fps)

Pond FP1: FP1 Filter



Summary for Pond FP2: FP2 Filter

Inflow Area = 0.514 ac, 21.94% Impervious, Inflow Depth = 2.21" for 25 Year event
Inflow = 0.79 cfs @ 12.36 hrs, Volume= 0.094 af
Outflow = 0.79 cfs @ 12.37 hrs, Volume= 0.094 af, Atten= 0%, Lag= 0.4 min
Primary = 0.21 cfs @ 12.37 hrs, Volume= 0.071 af
Secondary = 0.58 cfs @ 12.37 hrs, Volume= 0.023 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 112.70' @ 12.37 hrs Surf.Area= 91 sf Storage= 98 cf

Plug-Flow detention time= 1.9 min calculated for 0.094 af (100% of inflow)
Center-of-Mass det. time= 1.9 min (871.5 - 869.7)

Volume	Invert	Avail.Storage	Storage Description
#1	110.56'	133 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

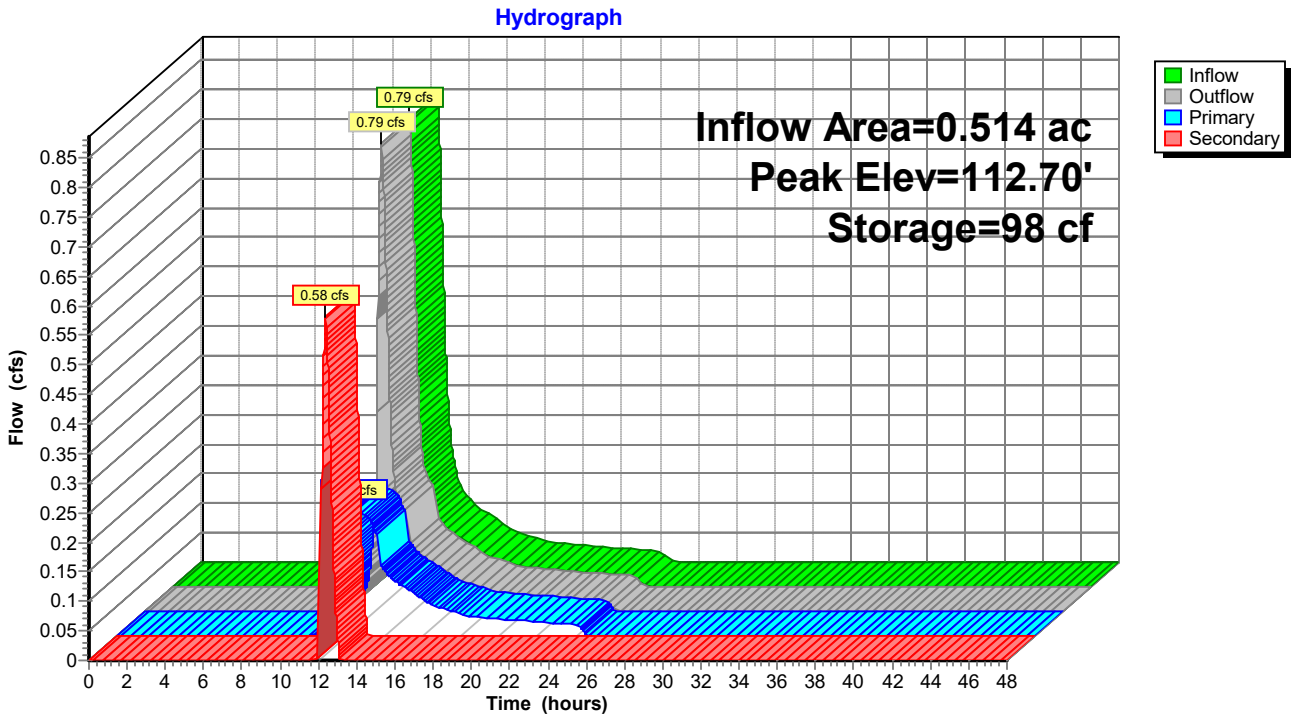
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
110.56	75	0.0	0	0
112.06	75	40.0	45	45
113.06	100	100.0	88	133

Device	Routing	Invert	Outlet Devices
#1	Primary	110.56'	**100.000 in/hr Exfiltration over Surface area**
#2	Secondary	112.55'	**12.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.21 cfs @ 12.37 hrs HW=112.70' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.21 cfs)

Secondary OutFlow Max=0.58 cfs @ 12.37 hrs HW=112.70' (Free Discharge)
2=Orifice/Grate (Weir Controls 0.58 cfs @ 1.25 fps)

Pond FP2: FP2 Filter



Summary for Pond IT-1: Infiltration Trench

Inflow Area = 1.157 ac, 72.26% Impervious, Inflow Depth = 2.57" for 25 Year event
Inflow = 3.28 cfs @ 12.09 hrs, Volume= 0.247 af
Outflow = 1.68 cfs @ 12.29 hrs, Volume= 0.247 af, Atten= 49%, Lag= 11.9 min
Discarded = 0.28 cfs @ 11.46 hrs, Volume= 0.157 af
Primary = 1.40 cfs @ 12.29 hrs, Volume= 0.090 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 115.45' @ 12.29 hrs Surf.Area= 1,600 sf Storage= 1,890 cf

Plug-Flow detention time= 12.3 min calculated for 0.247 af (100% of inflow)
Center-of-Mass det. time= 12.3 min (808.8 - 796.5)

Volume	Invert	Avail.Storage	Storage Description
#1	112.00'	2,880 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

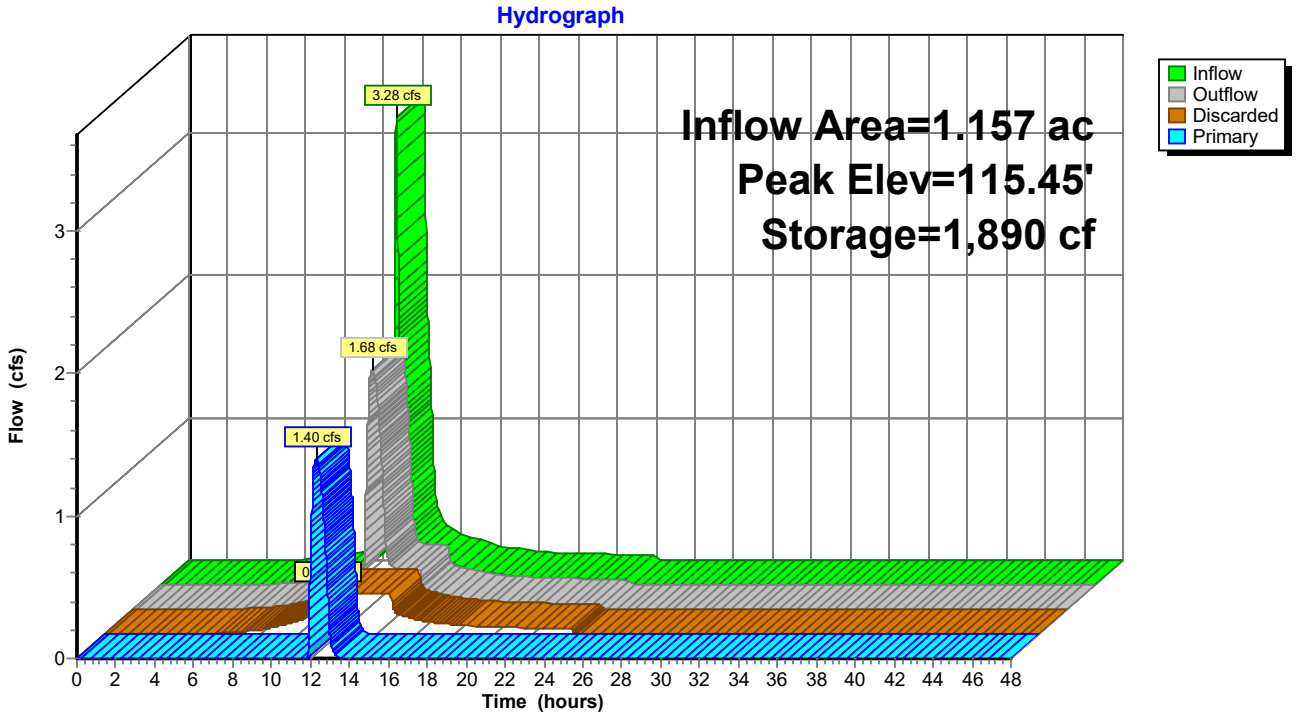
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
112.00	1,600	0.0	0	0
113.00	1,600	30.0	480	480
114.00	1,600	30.0	480	960
115.00	1,600	40.0	640	1,600
116.00	1,600	40.0	640	2,240
117.00	1,600	40.0	640	2,880

Device	Routing	Invert	Outlet Devices
#1	Discarded	112.00'	**7.500 in/hr Exfiltration over Surface area**
#2	Primary	113.00'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.28 cfs @ 11.46 hrs HW=112.05' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.28 cfs)

Primary OutFlow Max=1.40 cfs @ 12.29 hrs HW=115.45' (Free Discharge)
↑—**2=Orifice/Grate** (Orifice Controls 1.40 cfs @ 7.15 fps)

Pond IT-1: Infiltration Trench



Summary for Pond PP1: Porous Pavement 1

Inflow Area = 0.440 ac, 72.24% Impervious, Inflow Depth = 3.80" for 25 Year event
Inflow = 1.95 cfs @ 12.09 hrs, Volume= 0.140 af
Outflow = 0.57 cfs @ 12.43 hrs, Volume= 0.133 af, Atten= 71%, Lag= 20.6 min
Primary = 0.57 cfs @ 12.43 hrs, Volume= 0.133 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 113.96' @ 12.43 hrs Surf.Area= 6,156 sf Storage= 2,617 cf
Flood Elev= 114.67' Surf.Area= 6,156 sf Storage= 4,358 cf

Plug-Flow detention time= 354.3 min calculated for 0.133 af (95% of inflow)
Center-of-Mass det. time= 328.7 min (1,139.0 - 810.3)

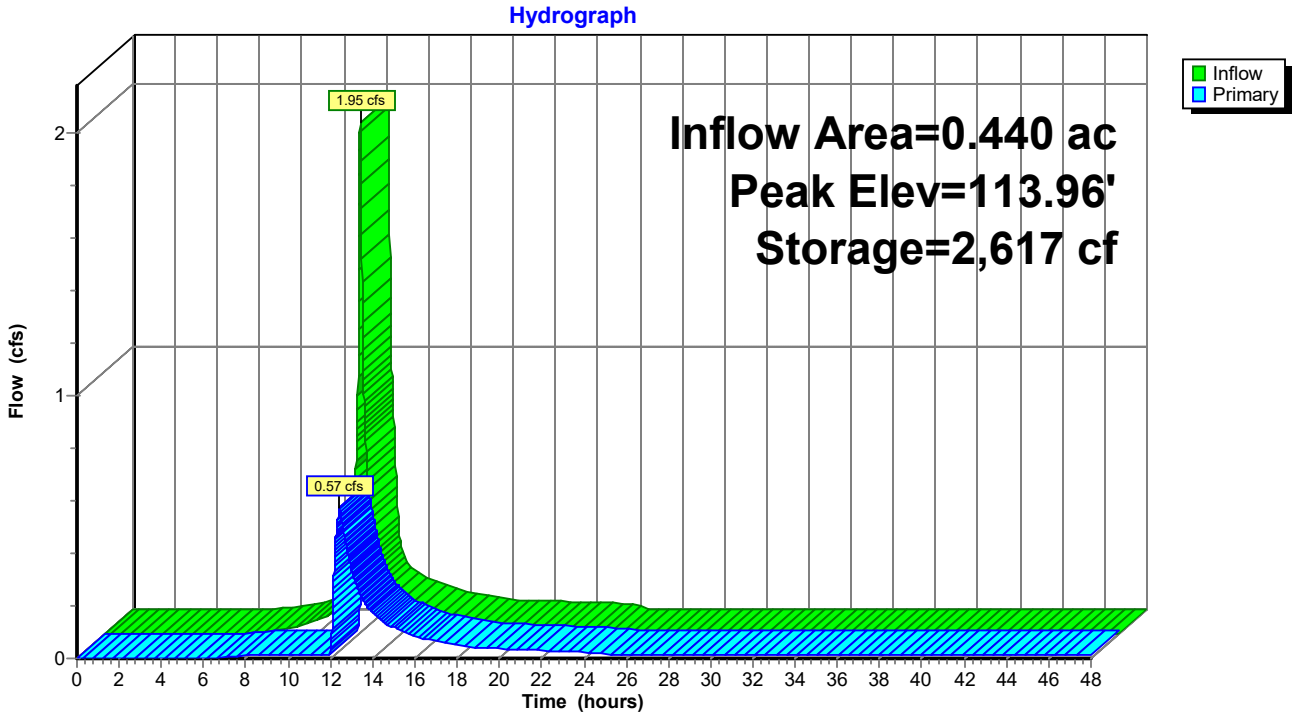
Volume	Invert	Avail.Storage	Storage Description
#1	111.22'	4,358 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
111.22	6,156	0.0	0	0
112.90	6,156	0.0	0	0
114.67	6,156	40.0	4,358	4,358
115.25	6,156	0.0	0	4,358

Device	Routing	Invert	Outlet Devices
#1	Primary	111.23'	**8.0" Round Culvert** L= 35.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 111.23' / 110.88' S= 0.0100 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.35 sf
#2	Device 1	111.23'	**0.6" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	113.45'	**0.5' long x 0.7' 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 Coef. (English) 2.76 2.82 2.93 3.09 3.18 3.22 3.27 3.30 3.32 3.31 3.32
#4	Device 1	113.95'	**6.0' long x 0.7' 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 Coef. (English) 2.76 2.82 2.93 3.09 3.18 3.22 3.27 3.30 3.32 3.31 3.32

Primary OutFlow Max=0.57 cfs @ 12.43 hrs HW=113.96' (Free Discharge)
└**1=Culvert** (Passes 0.57 cfs of 2.47 cfs potential flow)
  ├**2=Orifice/Grate** (Orifice Controls 0.02 cfs @ 7.92 fps)
  ├**3=Broad-Crested Rectangular Weir** (Weir Controls 0.53 cfs @ 2.06 fps)
  └**4=Broad-Crested Rectangular Weir** (Weir Controls 0.02 cfs @ 0.31 fps)

Pond PP1: Porous Pavement 1



Summary for Pond PP2: Porous Pavement 2

Inflow Area = 0.366 ac, 73.59% Impervious, Inflow Depth = 3.80" for 25 Year event
Inflow = 1.62 cfs @ 12.09 hrs, Volume= 0.116 af
Outflow = 0.59 cfs @ 12.38 hrs, Volume= 0.108 af, Atten= 63%, Lag= 17.5 min
Primary = 0.59 cfs @ 12.38 hrs, Volume= 0.108 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 113.81' @ 12.38 hrs Surf.Area= 5,346 sf Storage= 2,138 cf
Flood Elev= 114.27' Surf.Area= 5,346 sf Storage= 2,138 cf

Plug-Flow detention time= 331.8 min calculated for 0.108 af (93% of inflow)
Center-of-Mass det. time= 293.8 min (1,104.1 - 810.3)

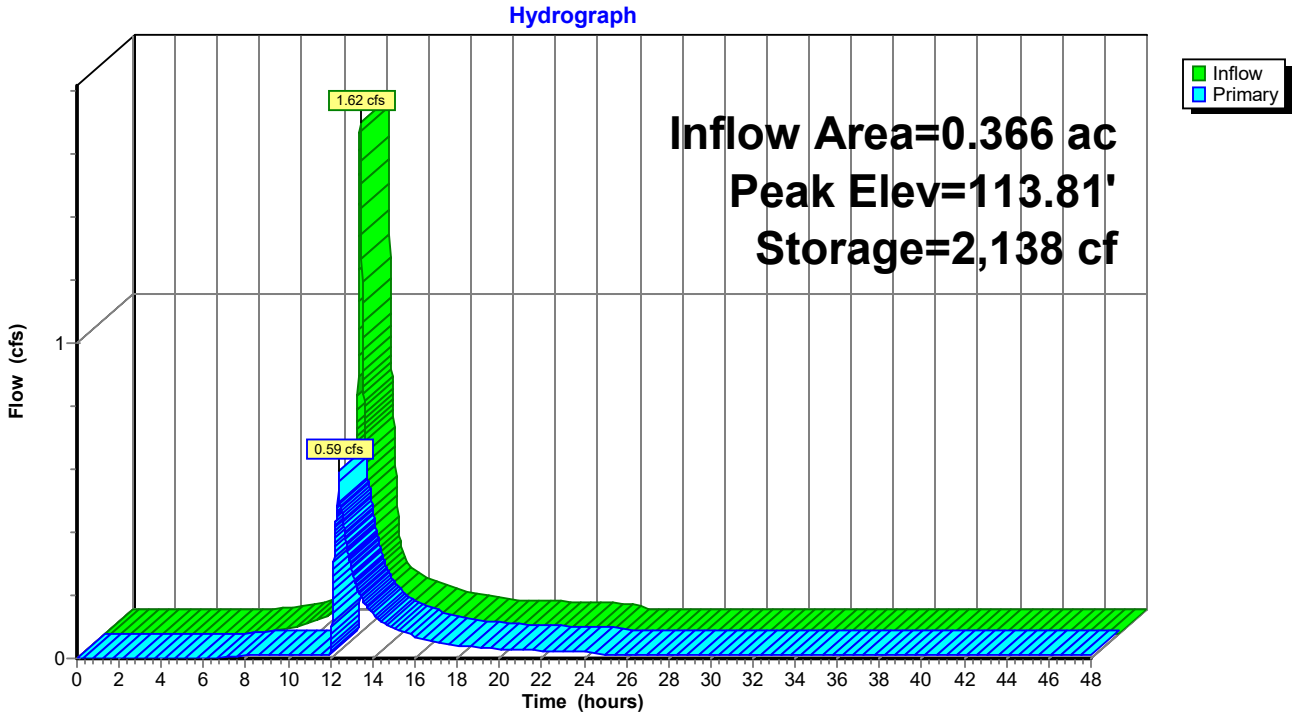
Volume	Invert	Avail.Storage	Storage Description
#1	111.10'	2,138 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
111.10	5,346	0.0	0	0
112.77	5,346	0.0	0	0
113.77	5,346	40.0	2,138	2,138
114.35	5,346	0.0	0	2,138

Device	Routing	Invert	Outlet Devices
#1	Primary	111.10'	**8.0" Round Culvert** L= 25.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 111.10' / 110.70' S= 0.0160 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.35 sf
#2	Device 1	111.10'	**0.5" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	113.29'	**0.5' long x 0.7' 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 Coef. (English) 2.76 2.82 2.93 3.09 3.18 3.22 3.27 3.30 3.32 3.31 3.32
#4	Device 1	113.79'	**6.0' long x 0.7' 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 Coef. (English) 2.76 2.82 2.93 3.09 3.18 3.22 3.27 3.30 3.32 3.31 3.32

Primary OutFlow Max=0.58 cfs @ 12.38 hrs HW=113.81' (Free Discharge)
└**1=Culvert** (Passes 0.58 cfs of 2.59 cfs potential flow)
  ├**2=Orifice/Grate** (Orifice Controls 0.01 cfs @ 7.89 fps)
  ├**3=Broad-Crested Rectangular Weir** (Weir Controls 0.53 cfs @ 2.07 fps)
  └**4=Broad-Crested Rectangular Weir** (Weir Controls 0.03 cfs @ 0.34 fps)

Pond PP2: Porous Pavement 2



Summary for Pond PP3: Porous Pavement 3

Inflow Area = 0.432 ac, 64.46% Impervious, Inflow Depth = 3.31" for 25 Year event
Inflow = 1.68 cfs @ 12.09 hrs, Volume= 0.119 af
Outflow = 0.61 cfs @ 12.37 hrs, Volume= 0.108 af, Atten= 64%, Lag= 17.1 min
Primary = 0.61 cfs @ 12.37 hrs, Volume= 0.108 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 113.17' @ 12.37 hrs Surf.Area= 3,744 sf Storage= 2,051 cf

Plug-Flow detention time= 339.4 min calculated for 0.108 af (91% of inflow)
Center-of-Mass det. time= 294.8 min (1,117.9 - 823.1)

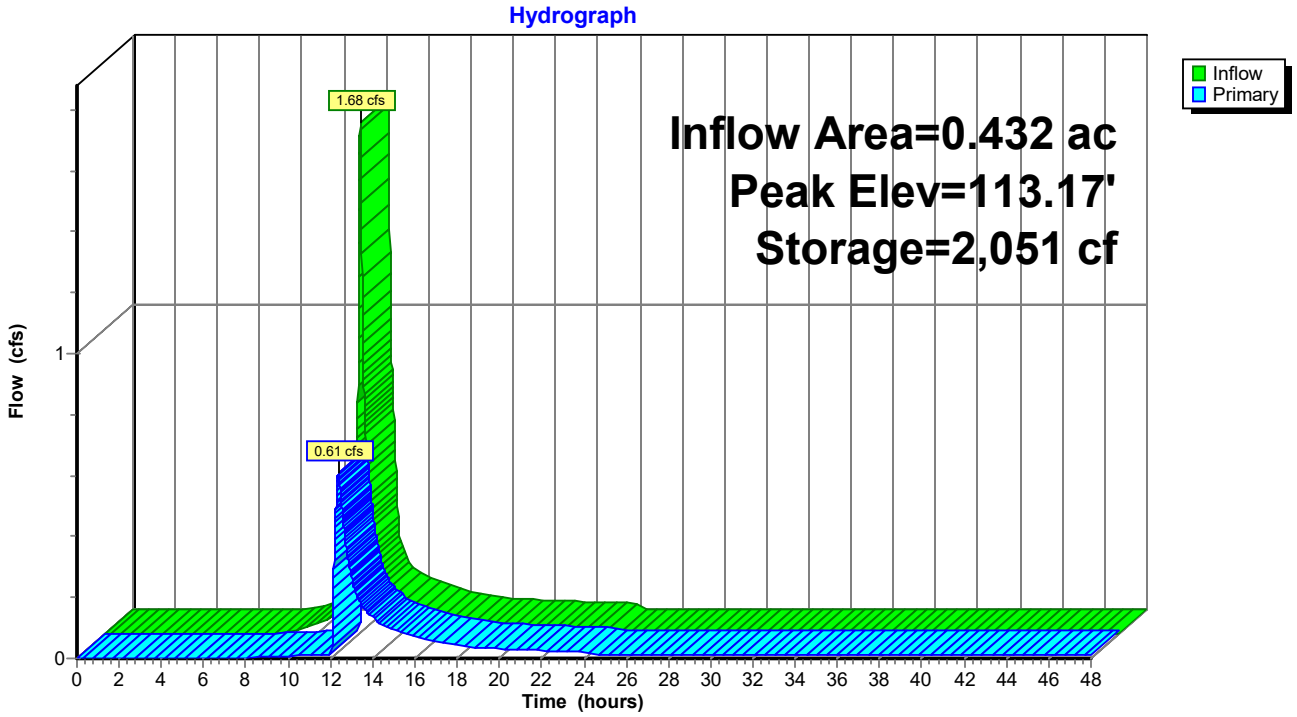
Volume	Invert	Avail.Storage	Storage Description
#1	110.13'	3,025 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
110.13	3,744	0.0	0	0
111.10	3,744	0.0	0	0
111.80	3,744	0.0	0	0
113.82	3,744	40.0	3,025	3,025
114.40	3,744	0.0	0	3,025

Device	Routing	Invert	Outlet Devices
#1	Primary	110.13'	**8.0" Round Culvert** L= 40.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 110.13' / 109.73' S= 0.0100 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.35 sf
#2	Device 1	110.13'	**0.5" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	112.65'	**0.5' long x 0.7' 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 Coef. (English) 2.76 2.82 2.93 3.09 3.18 3.22 3.27 3.30 3.32 3.31 3.32
#4	Device 1	113.15'	**6.0' long x 0.7' 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 Coef. (English) 2.76 2.82 2.93 3.09 3.18 3.22 3.27 3.30 3.32 3.31 3.32

Primary OutFlow Max=0.60 cfs @ 12.37 hrs HW=113.17' (Free Discharge)
└**1=Culvert** (Passes 0.60 cfs of 2.55 cfs potential flow)
  ├**2=Orifice/Grate** (Orifice Controls 0.01 cfs @ 8.37 fps)
  ├**3=Broad-Crested Rectangular Weir** (Weir Controls 0.54 cfs @ 2.08 fps)
  └**4=Broad-Crested Rectangular Weir** (Weir Controls 0.04 cfs @ 0.38 fps)

Pond PP3: Porous Pavement 3



Summary for Pond PP4: Porous Pavement 4

Inflow Area = 0.227 ac, 63.12% Impervious, Inflow Depth = 3.21" for 25 Year event
Inflow = 0.85 cfs @ 12.09 hrs, Volume= 0.061 af
Outflow = 0.39 cfs @ 12.29 hrs, Volume= 0.058 af, Atten= 55%, Lag= 11.9 min
Primary = 0.39 cfs @ 12.29 hrs, Volume= 0.058 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 113.22' @ 12.29 hrs Surf.Area= 1,620 sf Storage= 917 cf
Flood Elev= 113.60' Surf.Area= 1,620 sf Storage= 1,166 cf

Plug-Flow detention time= 349.9 min calculated for 0.058 af (96% of inflow)
Center-of-Mass det. time= 325.5 min (1,151.0 - 825.5)

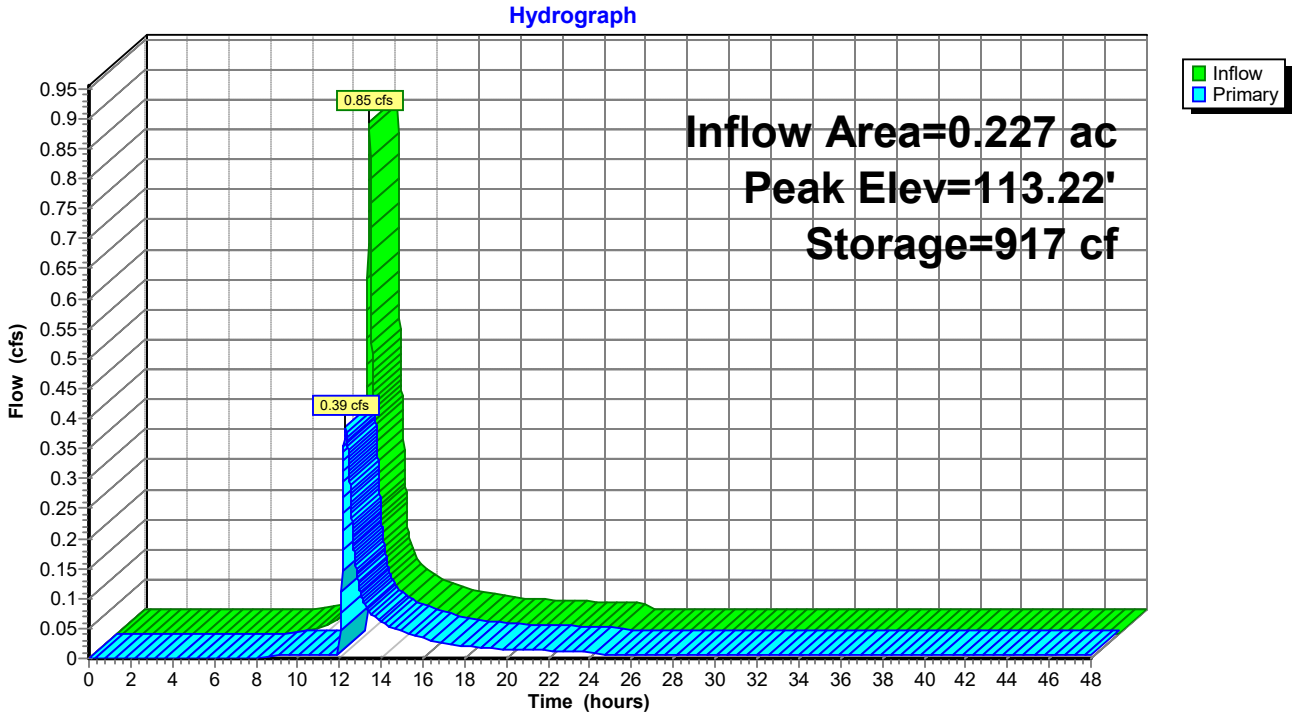
Volume	Invert	Avail.Storage	Storage Description
#1	110.10'	1,166 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
110.10	1,620	0.0	0	0
111.80	1,620	0.0	0	0
113.60	1,620	40.0	1,166	1,166
114.14	1,620	0.0	0	1,166

Device	Routing	Invert	Outlet Devices
#1	Primary	110.13'	**8.0" Round Culvert** L= 35.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 110.13' / 109.78' S= 0.0100 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.35 sf
#2	Device 1	110.13'	**0.4" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	112.80'	**0.5' long x 0.7' 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 Coef. (English) 2.76 2.82 2.93 3.09 3.18 3.22 3.27 3.30 3.32 3.31 3.32
#4	Device 1	113.30'	**6.0' long x 0.7' 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 Coef. (English) 2.76 2.82 2.93 3.09 3.18 3.22 3.27 3.30 3.32 3.31 3.32

Primary OutFlow Max=0.39 cfs @ 12.29 hrs HW=113.22' (Free Discharge)
└**1=Culvert** (Passes 0.39 cfs of 2.64 cfs potential flow)
  ├**2=Orifice/Grate** (Orifice Controls 0.01 cfs @ 8.43 fps)
  ├**3=Broad-Crested Rectangular Weir** (Weir Controls 0.38 cfs @ 1.82 fps)
  └**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond PP4: Porous Pavement 4



Summary for Pond R1: Detention Pond 1

Inflow Area = 0.734 ac,100.00% Impervious, Inflow Depth = 5.56" for 25 Year event
Inflow = 4.17 cfs @ 12.08 hrs, Volume= 0.340 af
Outflow = 2.92 cfs @ 12.16 hrs, Volume= 0.335 af, Atten= 30%, Lag= 4.8 min
Primary = 2.92 cfs @ 12.16 hrs, Volume= 0.335 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 113.01' @ 12.16 hrs Surf.Area= 1,156 sf Storage= 3,125 cf

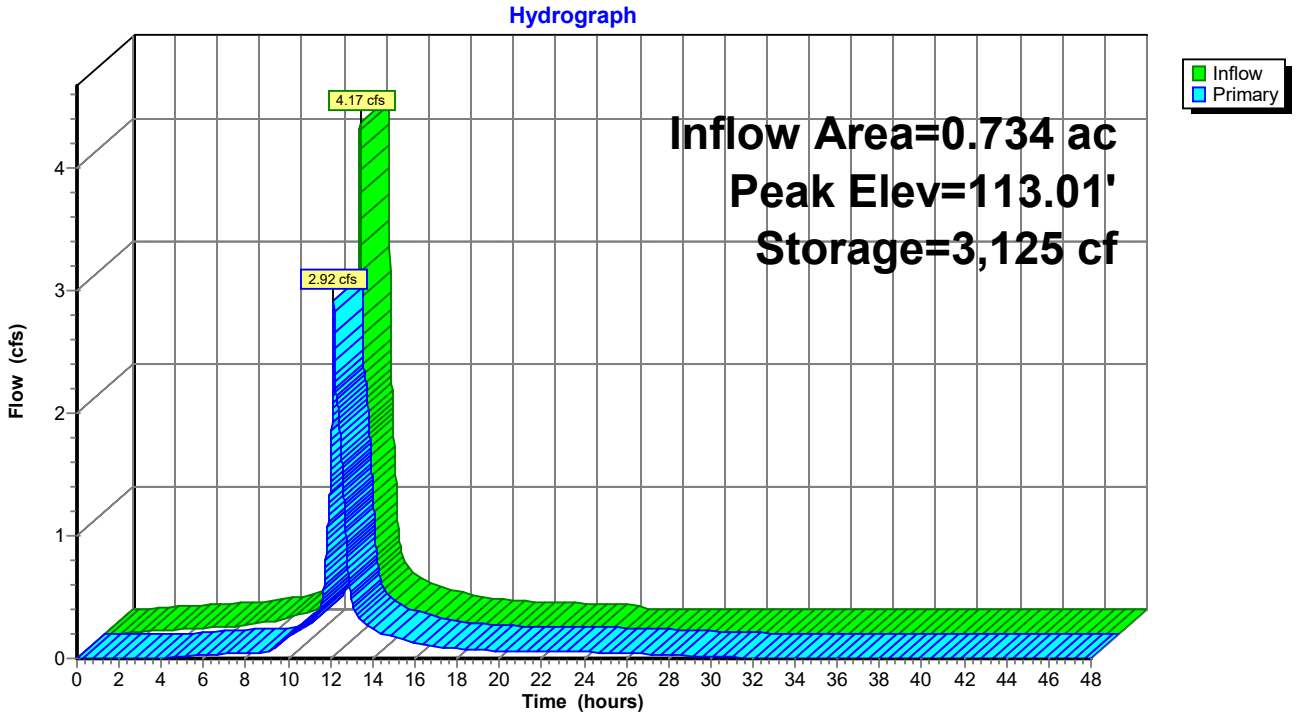
Plug-Flow detention time= 108.9 min calculated for 0.335 af (98% of inflow)
Center-of-Mass det. time= 98.8 min (844.4 - 745.7)

Volume	Invert	Avail.Storage	Storage Description
#1	110.06'	2,744 cf	**ACF R-Tank HD 2** x 350 Inside #2 Inside= 15.7"W x 33.9"H => 3.52 sf x 2.35'L = 8.3 cf Outside= 15.7"W x 33.9"H => 3.70 sf x 2.35'L = 8.7 cf 350 Chambers in 14 Rows 3,040 cf Overall x 95.0% Voids
#2	109.56'	555 cf	**34.00'W x 34.00'L x 3.83'H Prismatoid** 4,427 cf Overall - 3,040 cf Embedded = 1,387 cf x 40.0% Voids
		3,299 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	110.06'	**10.0" Round Culvert** L= 10.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 110.06' / 109.68' S= 0.0380 '/' Cc= 0.900 n= 0.012, Flow Area= 0.55 sf
#2	Device 1	110.06'	**1.5" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	112.90'	**6.0' long x 0.7' 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 Coef. (English) 2.76 2.82 2.93 3.09 3.18 3.22 3.27 3.30 3.32 3.31 3.32
#4	Device 1	111.00'	**8.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=2.90 cfs @ 12.16 hrs HW=113.01' (Free Discharge)
└**1=Culvert** (Passes 2.90 cfs of 4.18 cfs potential flow)
  ├**2=Orifice/Grate** (Orifice Controls 0.10 cfs @ 8.18 fps)
  ├**3=Broad-Crested Rectangular Weir** (Weir Controls 0.62 cfs @ 0.92 fps)
  └**4=Orifice/Grate** (Orifice Controls 2.18 cfs @ 6.24 fps)

Pond R1: Detention Pond 1



Summary for Pond R2: Detention Pond 2

Inflow Area = 0.734 ac,100.00% Impervious, Inflow Depth = 5.56" for 25 Year event
Inflow = 4.17 cfs @ 12.08 hrs, Volume= 0.340 af
Outflow = 3.39 cfs @ 12.14 hrs, Volume= 0.334 af, Atten= 19%, Lag= 3.5 min
Primary = 3.39 cfs @ 12.14 hrs, Volume= 0.334 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 112.90' @ 12.14 hrs Surf.Area= 1,344 sf Storage= 3,236 cf

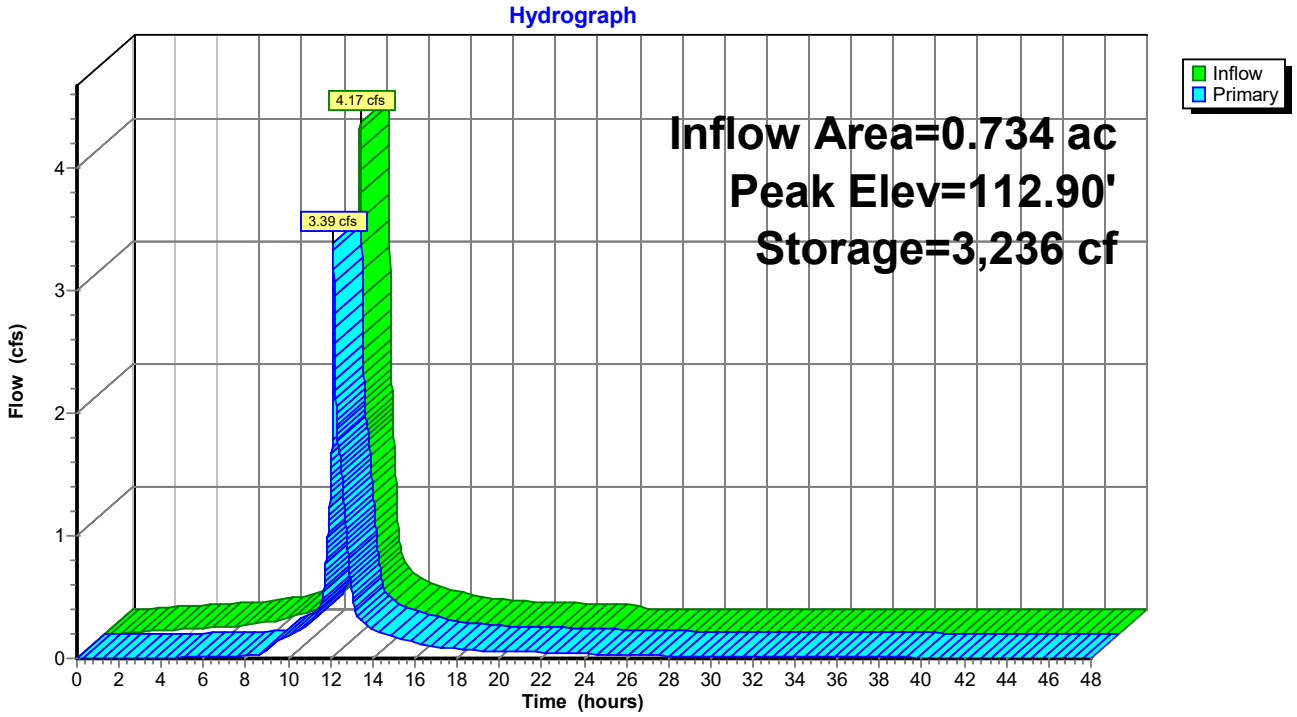
Plug-Flow detention time= 139.8 min calculated for 0.334 af (98% of inflow)
Center-of-Mass det. time= 127.1 min (872.8 - 745.7)

Volume	Invert	Avail.Storage	Storage Description
#1	110.06'	2,587 cf	**ACF R-Tank HD 2** x 330 Inside #2 Inside= 15.7"W x 33.9"H => 3.52 sf x 2.35'L = 8.3 cf Outside= 15.7"W x 33.9"H => 3.70 sf x 2.35'L = 8.7 cf 330 Chambers in 15 Rows 2,866 cf Overall x 95.0% Voids
#2	109.56'	912 cf	**24.00'W x 56.00'L x 3.83'H Prismatoid** 5,148 cf Overall - 2,866 cf Embedded = 2,281 cf x 40.0% Voids
		3,499 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	108.14'	**12.0" Round Culvert** L= 10.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 108.14' / 108.10' S= 0.0040 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#2	Device 1	110.06'	**1.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	112.70'	**6.0' long x 0.7' 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 Coef. (English) 2.76 2.82 2.93 3.09 3.18 3.22 3.27 3.30 3.32 3.31 3.32
#4	Device 1	111.00'	**7.5" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=3.37 cfs @ 12.14 hrs HW=112.90' (Free Discharge)
└**1=Culvert** (Passes 3.37 cfs of 7.80 cfs potential flow)
  ├**2=Orifice/Grate** (Orifice Controls 0.04 cfs @ 8.05 fps)
  ├**3=Broad-Crested Rectangular Weir** (Weir Controls 1.47 cfs @ 1.23 fps)
  └**4=Orifice/Grate** (Orifice Controls 1.86 cfs @ 6.06 fps)

Pond R2: Detention Pond 2



Summary for Pond RG-1: Rain Garden

Inflow Area = 0.168 ac, 58.87% Impervious, Inflow Depth = 3.02" for 25 Year event
Inflow = 0.59 cfs @ 12.09 hrs, Volume= 0.042 af
Outflow = 0.43 cfs @ 12.17 hrs, Volume= 0.042 af, Atten= 28%, Lag= 4.6 min
Discarded = 0.08 cfs @ 11.70 hrs, Volume= 0.031 af
Primary = 0.35 cfs @ 12.17 hrs, Volume= 0.012 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 115.86' @ 12.17 hrs Surf.Area= 460 sf Storage= 206 cf

Plug-Flow detention time= 5.8 min calculated for 0.042 af (100% of inflow)
Center-of-Mass det. time= 5.8 min (836.2 - 830.4)

Volume	Invert	Avail.Storage	Storage Description
#1	114.50'	1,185 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

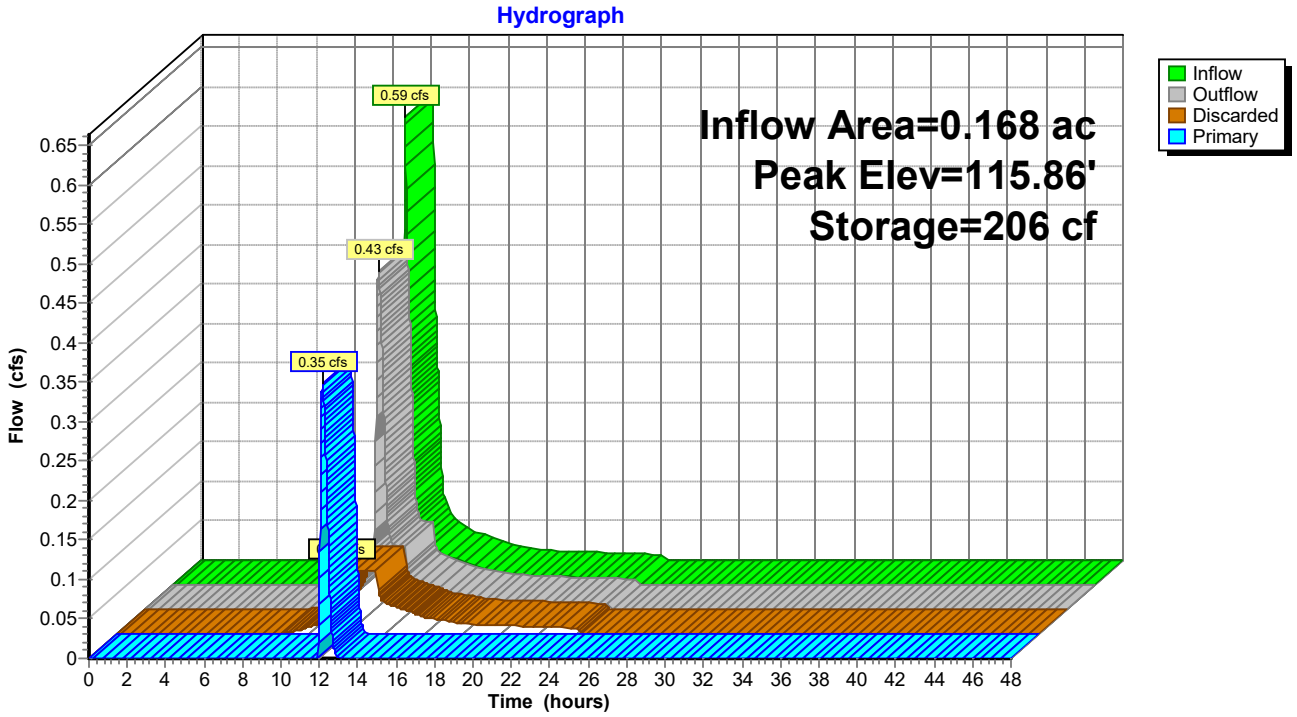
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
114.50	460	33.0	0	0
115.00	460	33.0	76	76
115.50	460	33.0	76	152
116.00	460	33.0	76	228
116.50	460	100.0	230	458
117.00	460	100.0	230	688
117.50	505	100.0	241	929
118.00	520	100.0	256	1,185

Device	Routing	Invert	Outlet Devices
#1	Discarded	114.50'	**7.500 in/hr Exfiltration over Surface area**
#2	Device 3	115.00'	**4.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Primary	114.50'	**8.0" Round Culvert** L= 150.0' Ke= 0.500 Inlet / Outlet Invert= 114.50' / 112.15' S= 0.0157 '/' Cc= 0.900 n= 0.012, Flow Area= 0.35 sf
#4	Device 3	117.50'	**10.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.08 cfs @ 11.70 hrs HW=114.54' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.08 cfs)

Primary OutFlow Max=0.35 cfs @ 12.17 hrs HW=115.86' (Free Discharge)
└**3=Culvert** (Passes 0.35 cfs of 1.69 cfs potential flow)
  ├**2=Orifice/Grate** (Orifice Controls 0.35 cfs @ 4.00 fps)
  └**4=Orifice/Grate** (Controls 0.00 cfs)

Pond RG-1: Rain Garden



Summary for Pond RG-2: Rain Garden

Inflow Area = 0.478 ac, 64.28% Impervious, Inflow Depth = 1.50" for 25 Year event
Inflow = 0.77 cfs @ 12.09 hrs, Volume= 0.060 af
Outflow = 0.50 cfs @ 12.36 hrs, Volume= 0.060 af, Atten= 35%, Lag= 15.9 min
Discarded = 0.17 cfs @ 11.82 hrs, Volume= 0.047 af
Primary = 0.33 cfs @ 12.36 hrs, Volume= 0.012 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 115.78' @ 12.36 hrs Surf.Area= 960 sf Storage= 408 cf

Plug-Flow detention time= 6.8 min calculated for 0.060 af (100% of inflow)
Center-of-Mass det. time= 6.8 min (841.0 - 834.2)

Volume	Invert	Avail.Storage	Storage Description
#1	114.49'	2,177 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

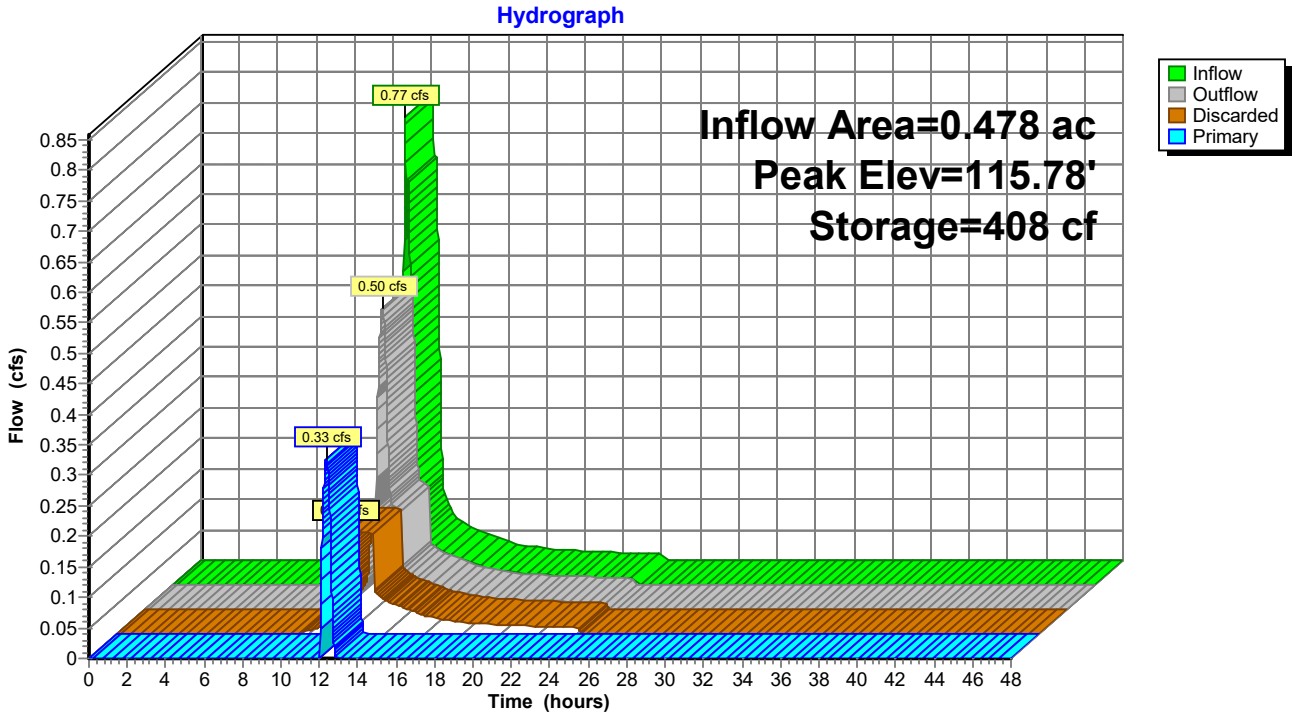
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
114.49	960	0.0	0	0
114.50	960	33.0	3	3
115.00	960	33.0	158	162
115.50	960	33.0	158	320
116.00	960	33.0	158	478
116.50	960	33.0	158	637
117.00	960	100.0	480	1,117
117.50	1,040	100.0	500	1,617
118.00	1,200	100.0	560	2,177

Device	Routing	Invert	Outlet Devices
#1	Discarded	114.49'	**7.500 in/hr Exfiltration over Surface area**
#2	Device 3	115.00'	**4.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Primary	114.50'	**8.0" Round Culvert** L= 150.0' Ke= 0.500 Inlet / Outlet Invert= 114.50' / 113.00' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 0.35 sf
#4	Device 3	117.50'	**10.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.17 cfs @ 11.82 hrs HW=114.50' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.17 cfs)

Primary OutFlow Max=0.33 cfs @ 12.36 hrs HW=115.78' (Free Discharge)
└**3=Culvert** (Passes 0.33 cfs of 1.41 cfs potential flow)
  ├**2=Orifice/Grate** (Orifice Controls 0.33 cfs @ 3.76 fps)
  └**4=Orifice/Grate** (Controls 0.00 cfs)

Pond RG-2: Rain Garden



Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Subcatchment 1S: Area 1 Runoff Area=15,851 sf 17.16% Impervious Runoff Depth=0.00"
Flow Length=300' Tc=20.7 min CN=49 Runoff=0.00 cfs 0.000 af

Subcatchment 2S: Area 2 Runoff Area=1,429 sf 70.05% Impervious Runoff Depth=0.07"
Tc=6.0 min CN=80 Runoff=0.00 cfs 0.000 af

Subcatchment 3S: Area to PP1 Runoff Area=2,173 sf 81.59% Impervious Runoff Depth=0.20"
Tc=6.0 min CN=87 Runoff=0.01 cfs 0.001 af

Subcatchment 4S: Area to PP2 Runoff Area=3,345 sf 100.00% Impervious Runoff Depth=0.74"
Tc=6.0 min CN=98 Runoff=0.06 cfs 0.005 af

Subcatchment 5S: Area to Rain Garden East Runoff Area=8,904 sf 17.46% Impervious Runoff Depth=0.00"
Flow Length=150' Slope=0.0200 '/' Tc=9.2 min CN=49 Runoff=0.00 cfs 0.000 af

Subcatchment 6S: Bldg 1 Roof Runoff Area=11,717 sf 100.00% Impervious Runoff Depth=0.74"
Tc=6.0 min CN=98 Runoff=0.23 cfs 0.017 af

Subcatchment 7S: Area to Rain Garden Runoff Area=21,901 sf 7.99% Impervious Runoff Depth=0.00"
Flow Length=170' Tc=14.0 min CN=44 Runoff=0.00 cfs 0.000 af

Subcatchment 9S: Runoff Area=1,785 sf 50.98% Impervious Runoff Depth=0.00"
Tc=6.0 min CN=69 Runoff=0.00 cfs 0.000 af

Subcatchment 10S: Runoff Area=12,293 sf 82.32% Impervious Runoff Depth=0.22"
Tc=6.0 min CN=88 Runoff=0.06 cfs 0.005 af

Subcatchment 11S: Area to Rain Garden 2 Runoff Area=11,240 sf 51.56% Impervious Runoff Depth=0.00"
Tc=6.0 min CN=69 Runoff=0.00 cfs 0.000 af

Subcatchment 12S: Area to Rain Garden 1 Runoff Area=7,303 sf 58.87% Impervious Runoff Depth=0.02"
Tc=6.0 min CN=74 Runoff=0.00 cfs 0.000 af

Subcatchment 13S: Area to Infiltration Runoff Area=15,495 sf 77.47% Impervious Runoff Depth=0.15"
Tc=6.0 min CN=85 Runoff=0.04 cfs 0.004 af

Subcatchment 14S: Roof Area to Drip Runoff Area=6,080 sf 100.00% Impervious Runoff Depth=0.74"
Tc=6.0 min CN=98 Runoff=0.12 cfs 0.009 af

Subcatchment 15S: Roof Area to Drip Strip Runoff Area=9,600 sf 79.17% Impervious Runoff Depth=0.41"
Tc=6.0 min CN=93 Runoff=0.11 cfs 0.008 af

Subcatchment 16S: Roof Area to Drip Strip Runoff Area=9,600 sf 79.17% Impervious Runoff Depth=0.41"
Tc=6.0 min CN=93 Runoff=0.11 cfs 0.008 af

Subcatchment 17S: Roof Area to Drip Runoff Area=17,390 sf 76.31% Impervious Runoff Depth=0.41"
Tc=6.0 min CN=93 Runoff=0.19 cfs 0.014 af

Subcatchment 18S: North of Mother House Runoff Area=44,775 sf 50.92% Impervious Runoff Depth=0.00"
Tc=6.0 min CN=69 Runoff=0.00 cfs 0.000 af

Subcatchment 19A: St. Josephs Runoff Area=57,470 sf 35.07% Impervious Runoff Depth=0.00"
Flow Length=407' Tc=19.8 min CN=60 Runoff=0.00 cfs 0.000 af

Subcatchment 20A: North Parking - West Runoff Area=19,180 sf 72.24% Impervious Runoff Depth=0.10"
Tc=6.0 min CN=82 Runoff=0.02 cfs 0.004 af

Subcatchment 20B: North Parking - East Runoff Area=15,935 sf 73.59% Impervious Runoff Depth=0.10"
Tc=6.0 min CN=82 Runoff=0.02 cfs 0.003 af

Subcatchment 21A: Building 5 Runoff Area=19,410 sf 100.00% Impervious Runoff Depth=0.74"
Tc=6.0 min CN=98 Runoff=0.37 cfs 0.028 af

Subcatchment 21B: Buiding 4 Runoff Area=12,580 sf 100.00% Impervious Runoff Depth=0.74"
Tc=6.0 min CN=98 Runoff=0.24 cfs 0.018 af

Subcatchment 22A: The Common Runoff Area=35,370 sf 23.11% Impervious Runoff Depth=0.00"
Flow Length=209' Slope=0.0100 '/' Tc=23.0 min UI Adjusted CN=46 Runoff=0.00 cfs 0.000 af

Subcatchment 22B: Detention Pond 1 Runoff Area=8,850 sf 13.39% Impervious Runoff Depth=0.00"
Tc=6.0 min CN=47 Runoff=0.00 cfs 0.000 af

Subcatchment 23A: South Parking - West Runoff Area=18,825 sf 64.46% Impervious Runoff Depth=0.04"
Tc=6.0 min CN=77 Runoff=0.00 cfs 0.001 af

Subcatchment 23B: South Parking - East Runoff Area=9,870 sf 63.12% Impervious Runoff Depth=0.03"
Tc=6.0 min CN=76 Runoff=0.00 cfs 0.001 af

Subcatchment 24A: Building 2 Runoff Area=12,580 sf 100.00% Impervious Runoff Depth=0.74"
Tc=6.0 min CN=98 Runoff=0.24 cfs 0.018 af

Subcatchment 24B: Building 3 Runoff Area=19,410 sf 100.00% Impervious Runoff Depth=0.74"
Tc=6.0 min CN=98 Runoff=0.37 cfs 0.028 af

Subcatchment 25A: South of Building 2 Runoff Area=22,380 sf 21.94% Impervious Runoff Depth=0.00"
Flow Length=140' Slope=0.0100 '/' Tc=25.0 min CN=65 Runoff=0.00 cfs 0.000 af

Subcatchment 25B: South of Building 3 Runoff Area=9,075 sf 8.10% Impervious Runoff Depth=0.03"
Tc=6.0 min CN=76 Runoff=0.00 cfs 0.001 af

Subcatchment 25C: South of Building 3 Runoff Area=2,390 sf 19.25% Impervious Runoff Depth=0.06"
Tc=6.0 min CN=79 Runoff=0.00 cfs 0.000 af

Subcatchment 26S: Wetland to POI 2 Runoff Area=10,500 sf 5.52% Impervious Runoff Depth=0.00"
Flow Length=155' Slope=0.0500 '/' Tc=22.1 min CN=62 Runoff=0.00 cfs 0.000 af

Subcatchment 27S: Wetland to POI 1 Runoff Area=13,833 sf 3.43% Impervious Runoff Depth=0.03"
Flow Length=165' Slope=0.0500 '/' Tc=27.3 min CN=76 Runoff=0.00 cfs 0.001 af

Subcatchment 28S: Runoff Area=4,725 sf 0.00% Impervious Runoff Depth=0.00"
Flow Length=105' Slope=0.0100 '/' Tc=13.2 min CN=39 Runoff=0.00 cfs 0.000 af

Reach 1R: CB 19 TO WETLAND Avg. Flow Depth=0.09' Max Vel=1.48 fps Inflow=0.06 cfs 0.061 af
15.0" Round Pipe n=0.012 L=126.0' S=0.0062 '/' Capacity=5.51 cfs Outflow=0.06 cfs 0.061 af

Reach 2R: POI 2 Inflow=0.16 cfs 0.057 af
Outflow=0.16 cfs 0.057 af

Reach 4R: Wetland to POI 2 Avg. Flow Depth=0.04' Max Vel=1.06 fps Inflow=0.16 cfs 0.057 af
n=0.035 L=145.0' S=0.0500 '/' Capacity=24.99 cfs Outflow=0.16 cfs 0.057 af

Reach 6R: Wetland to POI 1 Avg. Flow Depth=0.01' Max Vel=0.55 fps Inflow=0.06 cfs 0.061 af
n=0.035 L=210.0' S=0.0500 '/' Capacity=57.05 cfs Outflow=0.06 cfs 0.061 af

Reach 24R: DMH 11 to DMH 12 Avg. Flow Depth=0.02' Max Vel=0.77 fps Inflow=0.00 cfs 0.001 af
8.0" Round Pipe n=0.012 L=59.0' S=0.0100 '/' Capacity=1.31 cfs Outflow=0.00 cfs 0.001 af

Reach 25R: DMH 12 to DMH 15 Avg. Flow Depth=0.02' Max Vel=0.80 fps Inflow=0.00 cfs 0.002 af
8.0" Round Pipe n=0.012 L=48.0' S=0.0100 '/' Capacity=1.31 cfs Outflow=0.00 cfs 0.002 af

Reach 26R: DMH 15 to DMH 14 Avg. Flow Depth=0.02' Max Vel=0.76 fps Inflow=0.00 cfs 0.002 af
12.0" Round Pipe n=0.012 L=105.0' S=0.0100 '/' Capacity=3.86 cfs Outflow=0.00 cfs 0.002 af

Reach 27R: DMH 14 to DMH 7 Avg. Flow Depth=0.08' Max Vel=1.73 fps Inflow=0.06 cfs 0.042 af
15.0" Round Pipe n=0.012 L=42.0' S=0.0100 '/' Capacity=7.00 cfs Outflow=0.06 cfs 0.042 af

Reach 28R: POI 1 Inflow=0.06 cfs 0.062 af
Outflow=0.06 cfs 0.062 af

Reach 29R: EX. DMH 4 to NEW CB 19 Avg. Flow Depth=0.06' Max Vel=1.14 fps Inflow=0.02 cfs 0.022 af
12.0" Round Pipe n=0.012 L=172.0' S=0.0058 '/' Capacity=2.93 cfs Outflow=0.02 cfs 0.022 af

Reach 31R: 8" SD Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af
8.0" Round Pipe n=0.013 L=28.0' S=0.0100 '/' Capacity=1.21 cfs Outflow=0.00 cfs 0.000 af

Reach 32R: 8" UD Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af
8.0" Round Pipe n=0.012 L=104.0' S=0.0050 '/' Capacity=0.93 cfs Outflow=0.00 cfs 0.000 af

Reach 33R: 8" SD Avg. Flow Depth=0.08' Max Vel=1.59 fps Inflow=0.04 cfs 0.005 af
8.0" Round Pipe n=0.013 L=76.0' S=0.0100 '/' Capacity=1.21 cfs Outflow=0.04 cfs 0.005 af

Reach 34R: 12" SD Avg. Flow Depth=0.19' Max Vel=2.22 fps Inflow=0.23 cfs 0.017 af
12.0" Round Pipe n=0.012 L=17.0' S=0.0059 '/' Capacity=2.96 cfs Outflow=0.23 cfs 0.017 af

Reach 35R: 12" SD Avg. Flow Depth=0.16' Max Vel=3.03 fps Inflow=0.25 cfs 0.022 af
12.0" Round Pipe n=0.013 L=12.0' S=0.0150 '/' Capacity=4.36 cfs Outflow=0.25 cfs 0.022 af

Reach 40R: New CB 1 to DMH 2 Avg. Flow Depth=0.11' Max Vel=2.09 fps Inflow=0.12 cfs 0.009 af
15.0" Round Pipe n=0.012 L=410.0' S=0.0100 '/' Capacity=7.00 cfs Outflow=0.11 cfs 0.009 af

Reach 41R: DMH 2 to DMH 3 Avg. Flow Depth=0.11' Max Vel=2.06 fps Inflow=0.12 cfs 0.012 af
18.0" Round Pipe n=0.012 L=80.0' S=0.0094 '/' Capacity=11.02 cfs Outflow=0.12 cfs 0.012 af

Reach 42R: DMH 3 to DMH 7 Avg. Flow Depth=0.11' Max Vel=2.04 fps Inflow=0.13 cfs 0.015 af
18.0" Round Pipe n=0.012 L=382.0' S=0.0091 '/' Capacity=10.86 cfs Outflow=0.12 cfs 0.015 af

Reach 44R: DMH 7 to Wetland Avg. Flow Depth=0.12' Max Vel=2.22 fps Inflow=0.16 cfs 0.057 af
24.0" Round Pipe n=0.012 L=30.0' S=0.0100 '/' Capacity=24.51 cfs Outflow=0.16 cfs 0.057 af

Pond 3P: FP1 TANKS Peak Elev=108.21' Storage=0 cf Inflow=0.00 cfs 0.000 af
Outflow=0.00 cfs 0.000 af

Pond 4P: FP2 TANKS Peak Elev=108.13' Storage=0 cf Inflow=0.00 cfs 0.000 af
Outflow=0.00 cfs 0.000 af

Pond 9R: New CB 1 to DMH 2 Peak Elev=112.32' Inflow=0.12 cfs 0.009 af
15.0" Round Culvert n=0.012 L=10.0' S=0.0100 '/' Outflow=0.12 cfs 0.009 af

Pond 30P: Raised StormTech SC-740 Peak Elev=111.64' Storage=0.009 af Inflow=0.25 cfs 0.022 af
Outflow=0.02 cfs 0.022 af

Pond 36P: PP1 Peak Elev=115.69' Storage=36 cf Inflow=0.01 cfs 0.001 af
Outflow=0.00 cfs 0.000 af

Pond 37P: PP2 Peak Elev=115.71' Storage=48 cf Inflow=0.06 cfs 0.005 af
Outflow=0.04 cfs 0.005 af

Pond 38P: Rain Garden West Peak Elev=120.00' Storage=0 cf Inflow=0.00 cfs 0.000 af
Outflow=0.00 cfs 0.000 af

Pond DS-2: Drip Strip Peak Elev=115.02' Storage=11 cf Inflow=0.11 cfs 0.008 af
Discarded=0.10 cfs 0.008 af Primary=0.00 cfs 0.000 af Outflow=0.10 cfs 0.008 af

Pond DS-3: Drip Strip Peak Elev=115.03' Storage=21 cf Inflow=0.19 cfs 0.014 af
Discarded=0.18 cfs 0.014 af Primary=0.00 cfs 0.000 af Outflow=0.18 cfs 0.014 af

Pond DS1: Drip Strip Peak Elev=115.02' Storage=11 cf Inflow=0.11 cfs 0.008 af
Discarded=0.10 cfs 0.008 af Primary=0.00 cfs 0.000 af Outflow=0.10 cfs 0.008 af

Pond FP1: FP1 Filter Peak Elev=111.84' Storage=0 cf Inflow=0.00 cfs 0.000 af
Primary=0.00 cfs 0.000 af Secondary=0.00 cfs 0.000 af Outflow=0.00 cfs 0.000 af

Pond FP2: FP2 Filter Peak Elev=110.56' Storage=0 cf Inflow=0.00 cfs 0.000 af
Primary=0.00 cfs 0.000 af Secondary=0.00 cfs 0.000 af Outflow=0.00 cfs 0.000 af

Pond IT-1: Infiltration Trench Peak Elev=112.02' Storage=9 cf Inflow=0.11 cfs 0.010 af
Discarded=0.10 cfs 0.010 af Primary=0.00 cfs 0.000 af Outflow=0.10 cfs 0.010 af

Pond PP1: Porous Pavement 1 Peak Elev=112.90' Storage=11 cf Inflow=0.02 cfs 0.004 af
Outflow=0.01 cfs 0.004 af

Pond PP2: Porous Pavement 2 Peak Elev=112.78' Storage=12 cf Inflow=0.02 cfs 0.003 af
Outflow=0.01 cfs 0.003 af

Pond PP3: Porous Pavement 3 Peak Elev=110.34' Storage=0 cf Inflow=0.00 cfs 0.001 af
Outflow=0.00 cfs 0.001 af

Pond PP4: Porous Pavement 4 Peak Elev=110.19' Storage=0 cf Inflow=0.00 cfs 0.001 af
Outflow=0.00 cfs 0.001 af

Pond R1: Detention Pond 1 Peak Elev=110.96' Storage=1,135 cf Inflow=0.62 cfs 0.045 af
Outflow=0.05 cfs 0.040 af

Pond R2: Detention Pond 2 Peak Elev=111.05' Storage=1,302 cf Inflow=0.62 cfs 0.045 af
Outflow=0.03 cfs 0.039 af

Pond RG-1: Rain Garden Peak Elev=114.50' Storage=0 cf Inflow=0.00 cfs 0.000 af
Discarded=0.00 cfs 0.000 af Primary=0.00 cfs 0.000 af Outflow=0.00 cfs 0.000 af

Pond RG-2: Rain Garden Peak Elev=114.49' Storage=0 cf Inflow=0.00 cfs 0.000 af
Discarded=0.00 cfs 0.000 af Primary=0.00 cfs 0.000 af Outflow=0.00 cfs 0.000 af

Total Runoff Area = 11.324 ac Runoff Volume = 0.171 af Average Runoff Depth = 0.18"
47.50% Pervious = 5.379 ac 52.50% Impervious = 5.944 ac

Summary for Subcatchment 1S: Area 1

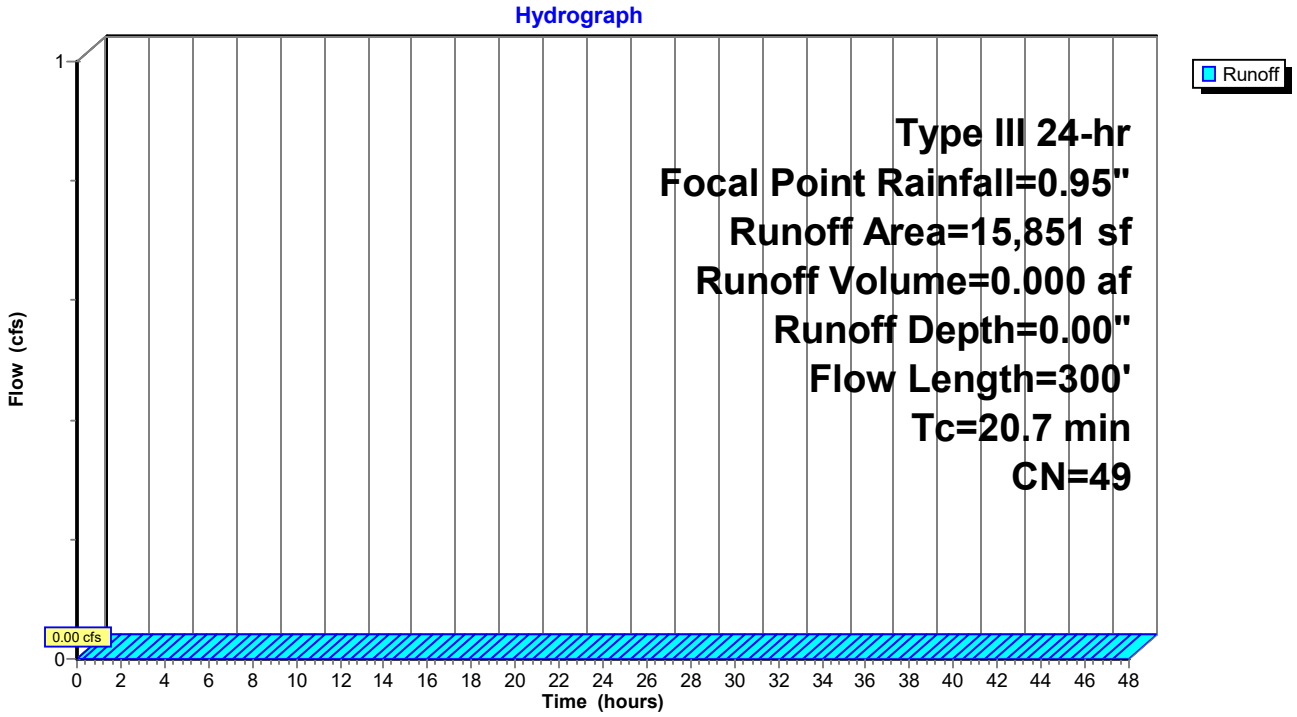
Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr Focal Point Rainfall=0.95"

Area (sf)	CN	Description
2,720	98	Paved parking, HSG A
13,131	39	>75% Grass cover, Good, HSG A
15,851	49	Weighted Average
13,131		82.84% Pervious Area
2,720		17.16% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.2	150	0.0100	0.14		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.10"
2.5	150	0.0200	0.99		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
20.7	300	Total			

Subcatchment 1S: Area 1



Summary for Subcatchment 2S: Area 2

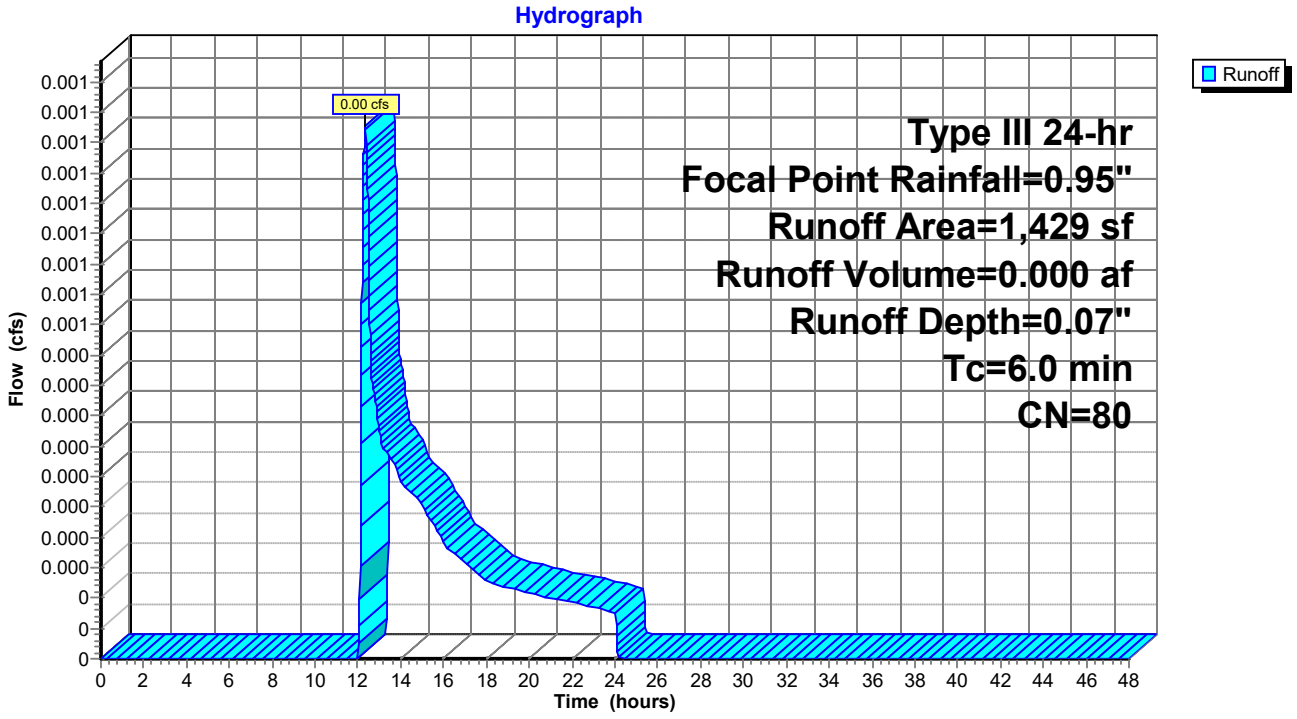
Runoff = 0.00 cfs @ 12.35 hrs, Volume= 0.000 af, Depth= 0.07"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr Focal Point Rainfall=0.95"

Area (sf)	CN	Description
428	39	>75% Grass cover, Good, HSG A
1,001	98	Paved parking, HSG A
1,429	80	Weighted Average
428		29.95% Pervious Area
1,001		70.05% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 2S: Area 2



Summary for Subcatchment 3S: Area to PP1

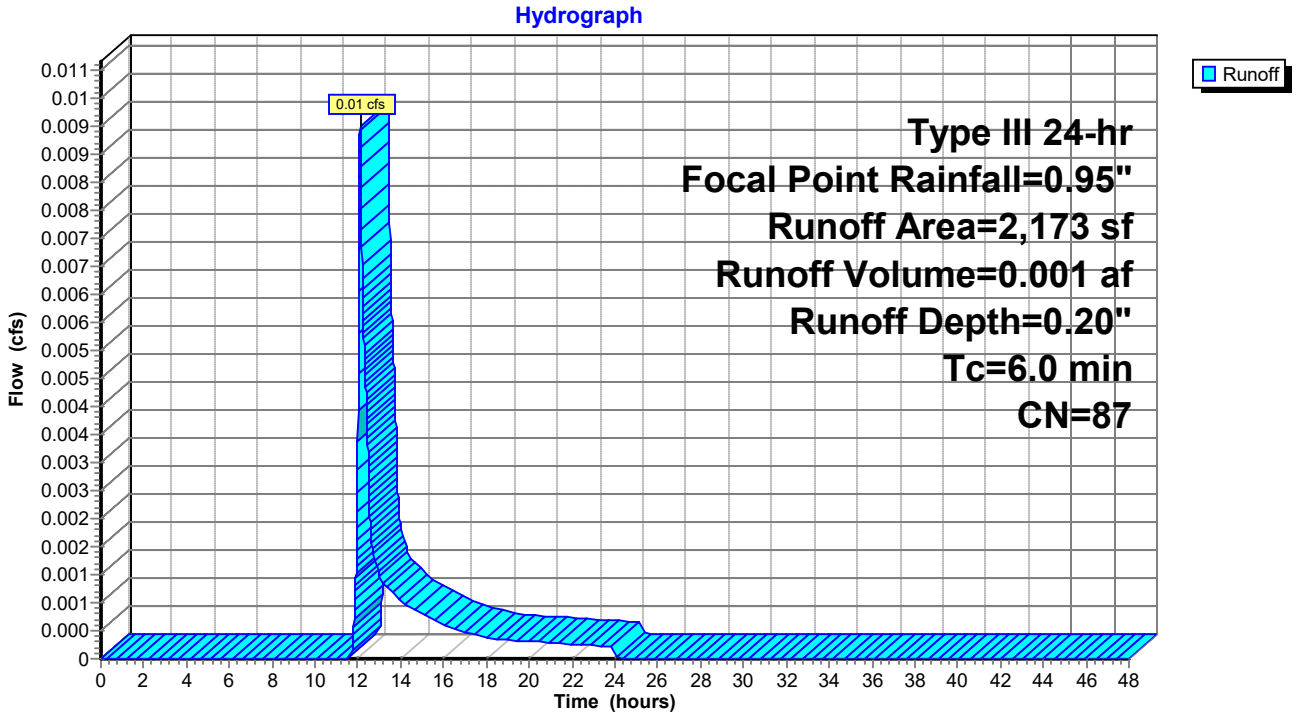
Runoff = 0.01 cfs @ 12.11 hrs, Volume= 0.001 af, Depth= 0.20"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr Focal Point Rainfall=0.95"

Area (sf)	CN	Description
400	39	>75% Grass cover, Good, HSG A
1,773	98	Paved parking, HSG A
2,173	87	Weighted Average
400		18.41% Pervious Area
1,773		81.59% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 3S: Area to PP1



Summary for Subcatchment 4S: Area to PP2

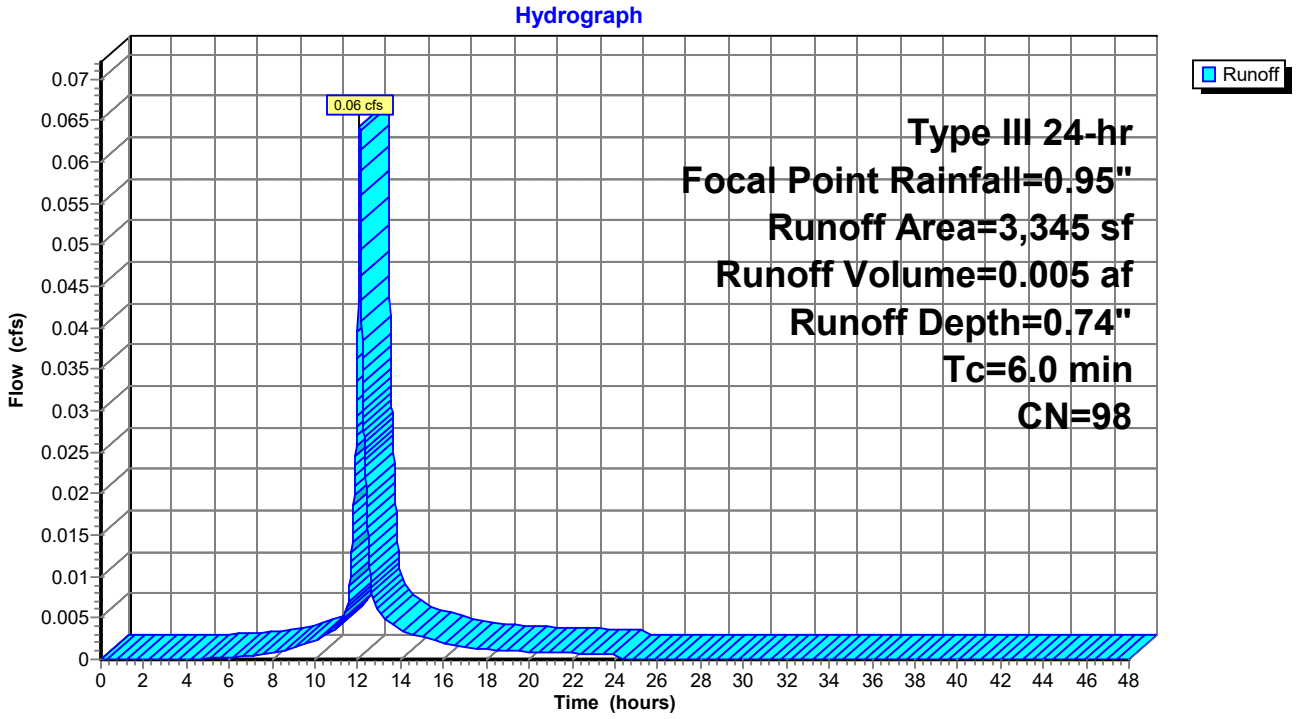
Runoff = 0.06 cfs @ 12.08 hrs, Volume= 0.005 af, Depth= 0.74"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr Focal Point Rainfall=0.95"

Area (sf)	CN	Description
3,345	98	Paved parking, HSG A
3,345		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 4S: Area to PP2



Summary for Subcatchment 5S: Area to Rain Garden East

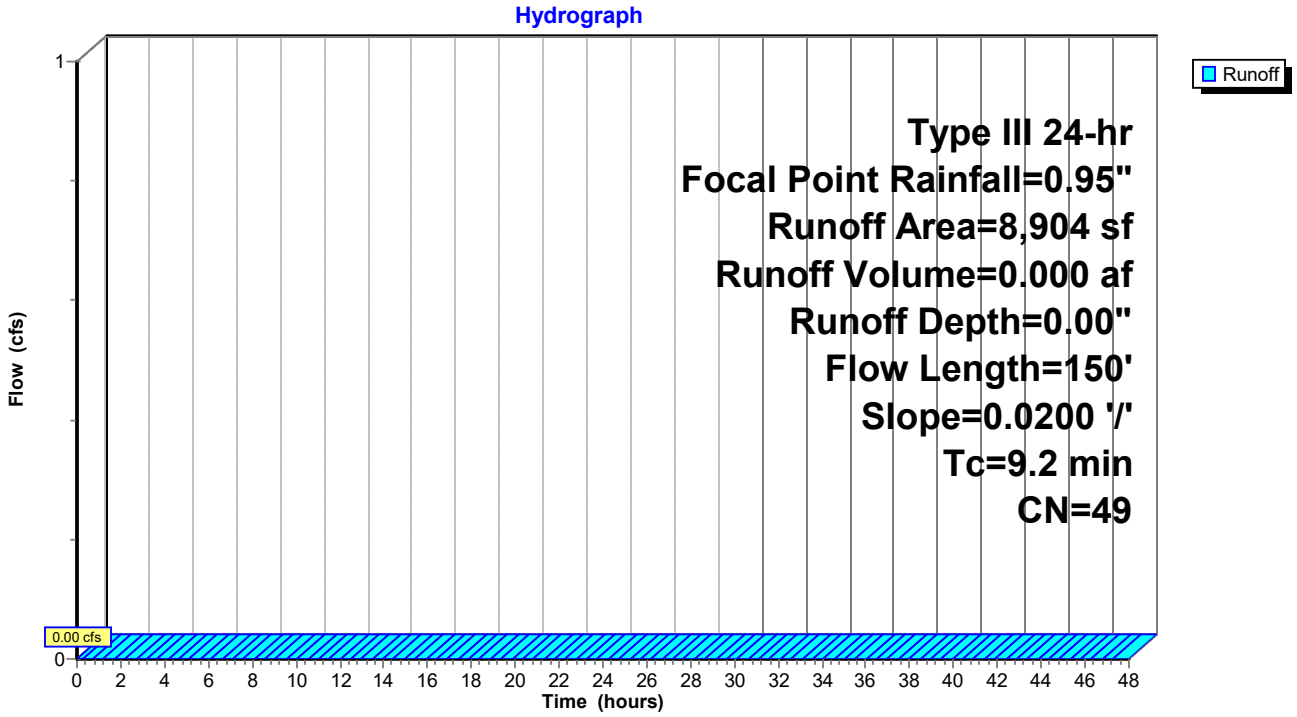
Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr Focal Point Rainfall=0.95"

	Area (sf)	CN	Description
*	1,555	98	
	7,349	39	>75% Grass cover, Good, HSG A
	8,904	49	Weighted Average
	7,349		82.54% Pervious Area
	1,555		17.46% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.9	75	0.0200	0.16		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.10"
1.3	75	0.0200	0.99		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
9.2	150	Total			

Subcatchment 5S: Area to Rain Garden East



Summary for Subcatchment 6S: Bldg 1 Roof

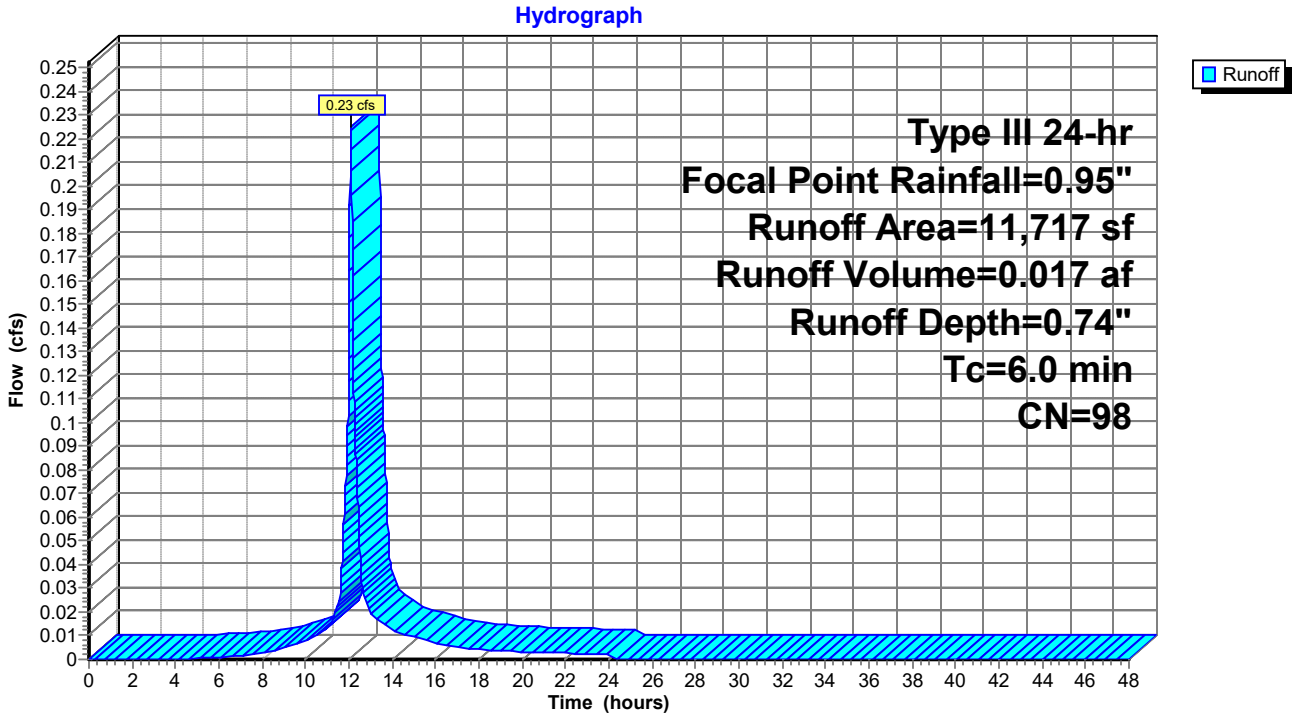
Runoff = 0.23 cfs @ 12.08 hrs, Volume= 0.017 af, Depth= 0.74"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr Focal Point Rainfall=0.95"

Area (sf)	CN	Description
11,717	98	Roofs, HSG A
11,717		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 6S: Bldg 1 Roof



Summary for Subcatchment 7S: Area to Rain Garden West

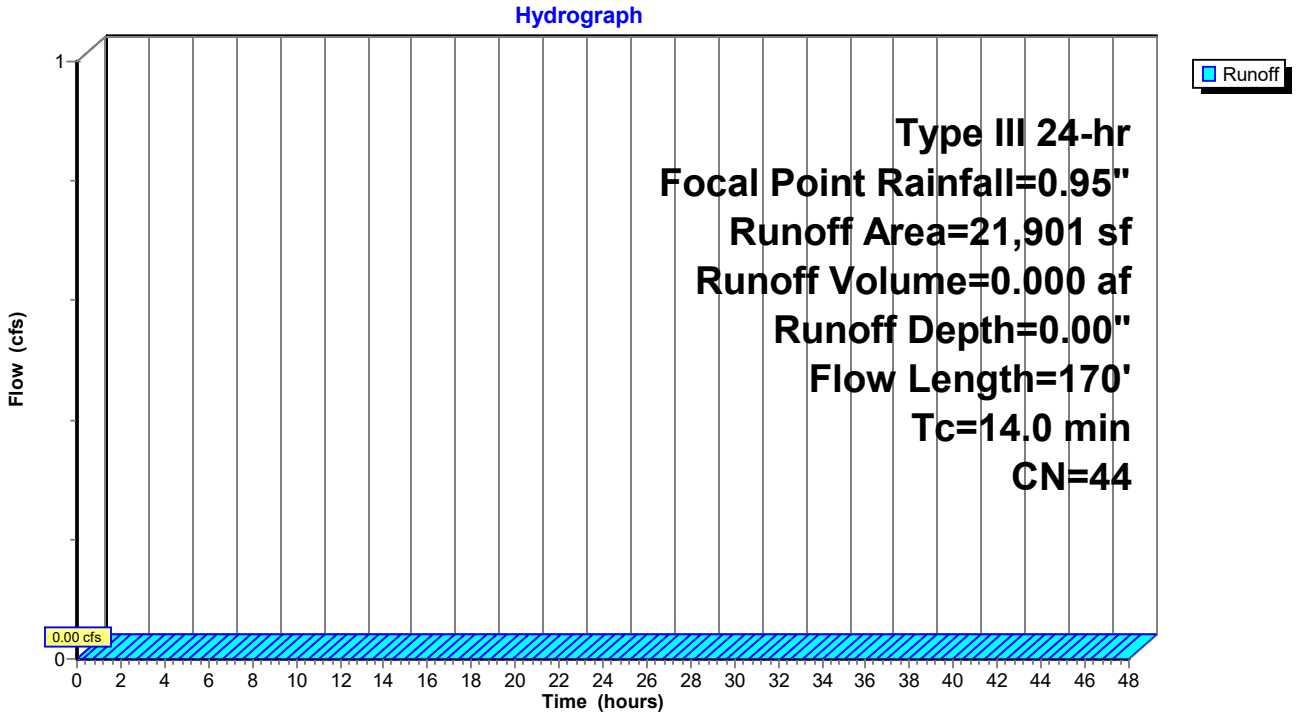
Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr Focal Point Rainfall=0.95"

Area (sf)	CN	Description
1,750	98	Paved parking, HSG A
20,151	39	>75% Grass cover, Good, HSG A
21,901	44	Weighted Average
20,151		92.01% Pervious Area
1,750		7.99% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.8	150	0.0200	0.18		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.10"
0.2	20	0.0600	1.71		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
14.0	170	Total			

Subcatchment 7S: Area to Rain Garden West



Summary for Subcatchment 9S:

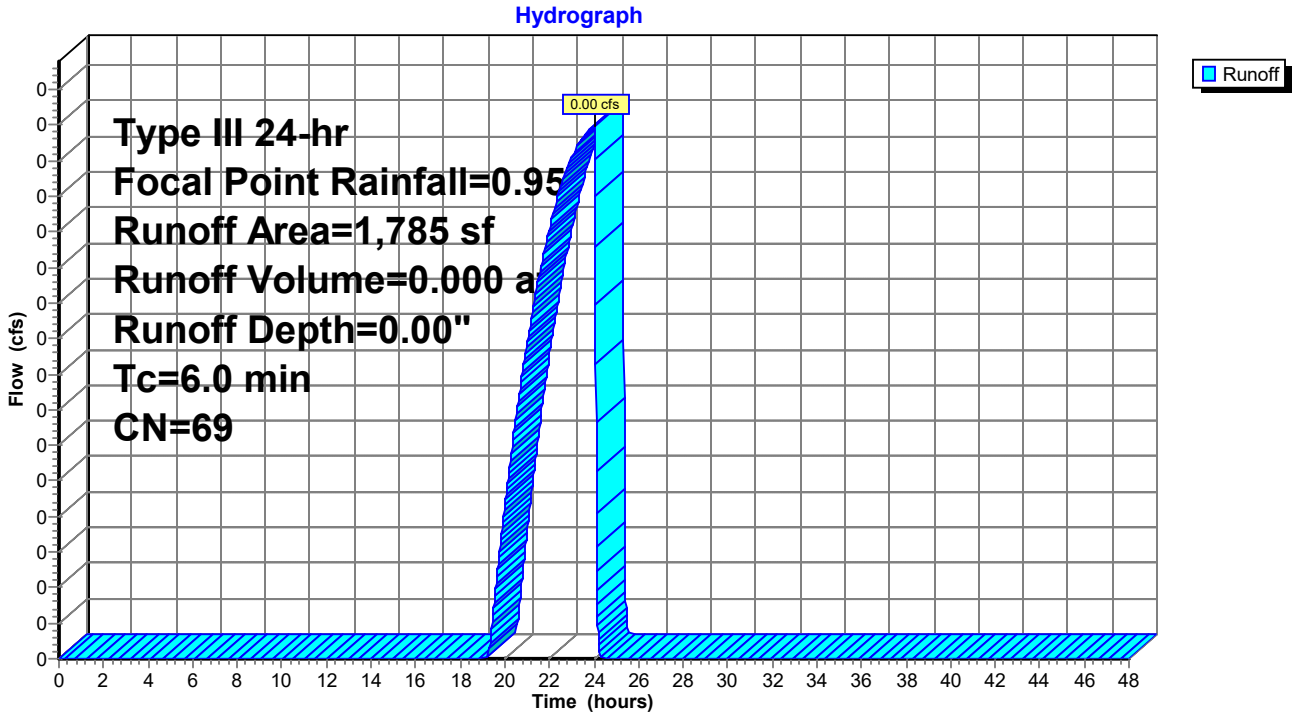
Runoff = 0.00 cfs @ 24.01 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr Focal Point Rainfall=0.95"

Area (sf)	CN	Description
875	39	>75% Grass cover, Good, HSG A
910	98	Paved parking, HSG A
1,785	69	Weighted Average
875		49.02% Pervious Area
910		50.98% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 9S:



Summary for Subcatchment 10S:

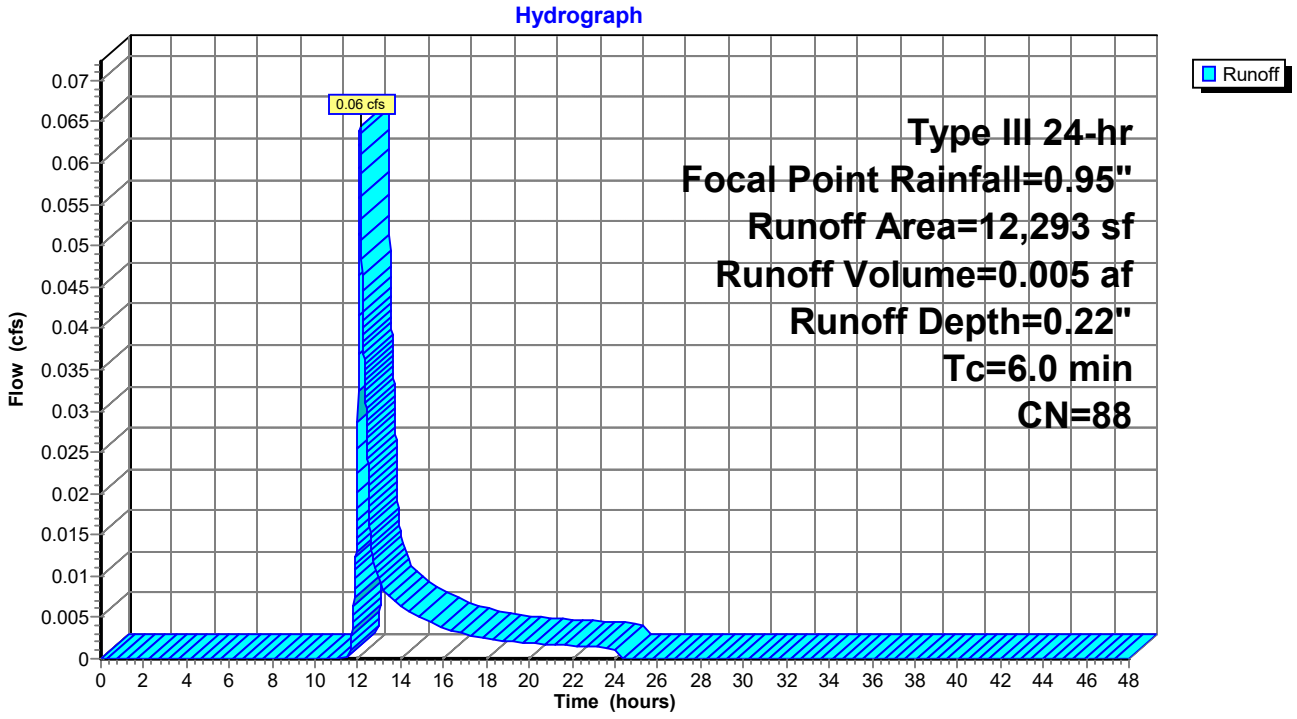
Runoff = 0.06 cfs @ 12.10 hrs, Volume= 0.005 af, Depth= 0.22"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr Focal Point Rainfall=0.95"

Area (sf)	CN	Description
10,120	98	Paved parking & roofs
2,173	39	>75% Grass cover, Good, HSG A
12,293	88	Weighted Average
2,173		17.68% Pervious Area
10,120		82.32% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum Tc**

Subcatchment 10S:



Summary for Subcatchment 11S: Area to Rain Garden 2

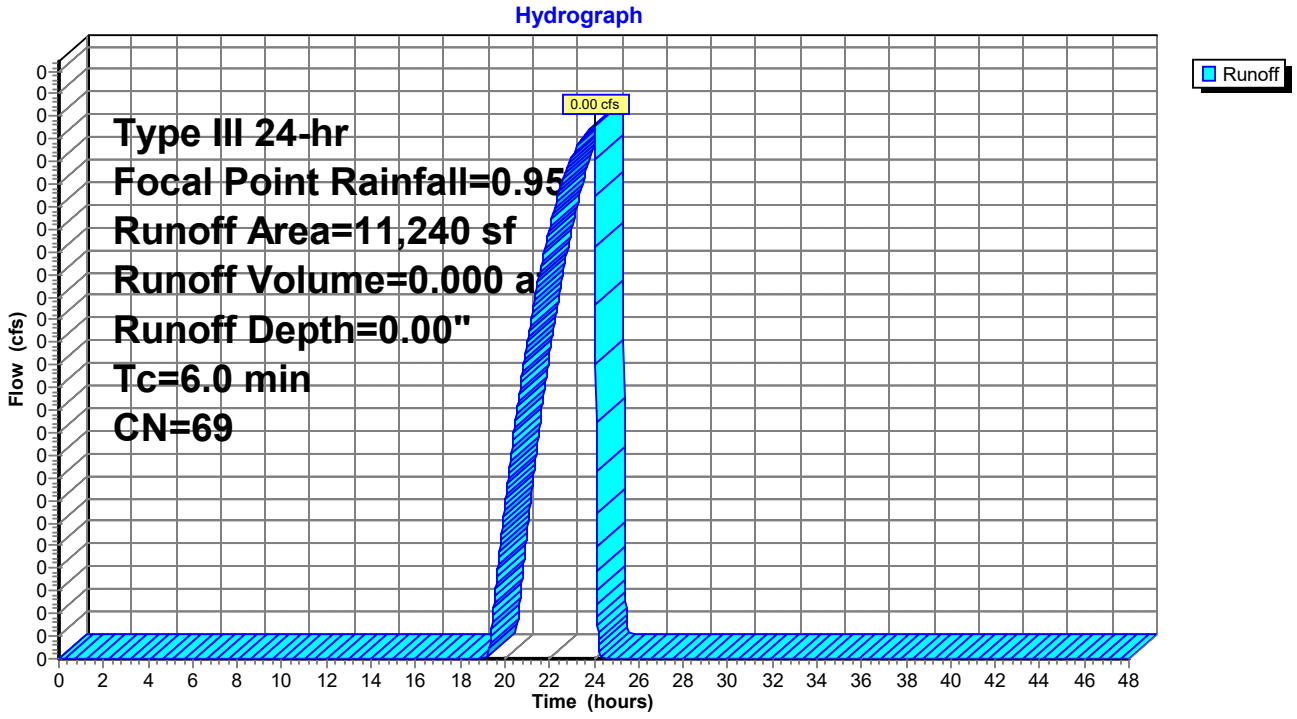
Runoff = 0.00 cfs @ 24.01 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr Focal Point Rainfall=0.95"

Area (sf)	CN	Description
5,795	98	Paved parking & roofs
5,445	39	>75% Grass cover, Good, HSG A
11,240	69	Weighted Average
5,445		48.44% Pervious Area
5,795		51.56% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum Tc**

Subcatchment 11S: Area to Rain Garden 2



Summary for Subcatchment 12S: Area to Rain Garden 1

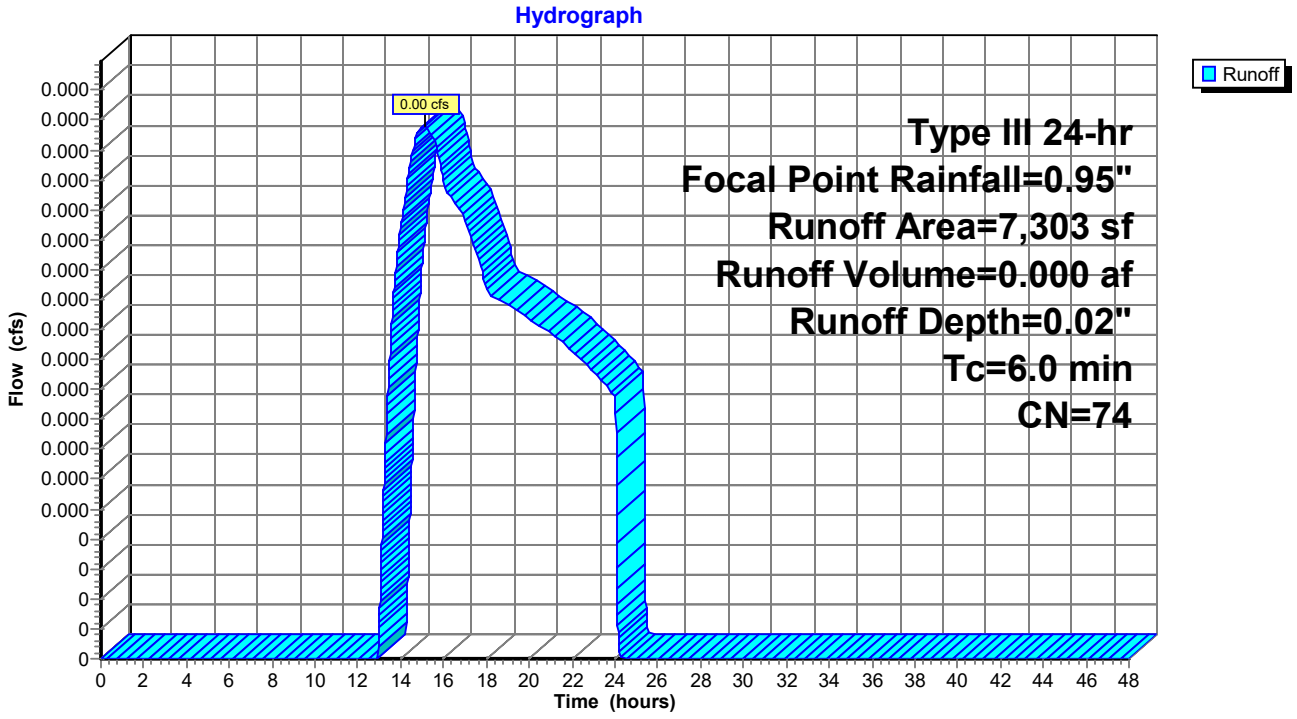
Runoff = 0.00 cfs @ 15.10 hrs, Volume= 0.000 af, Depth= 0.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr Focal Point Rainfall=0.95"

Area (sf)	CN	Description
4,299	98	Paved parking & roofs
3,004	39	>75% Grass cover, Good, HSG A
7,303	74	Weighted Average
3,004		41.13% Pervious Area
4,299		58.87% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum Tc**

Subcatchment 12S: Area to Rain Garden 1



Summary for Subcatchment 13S: Area to Infiltration Trench

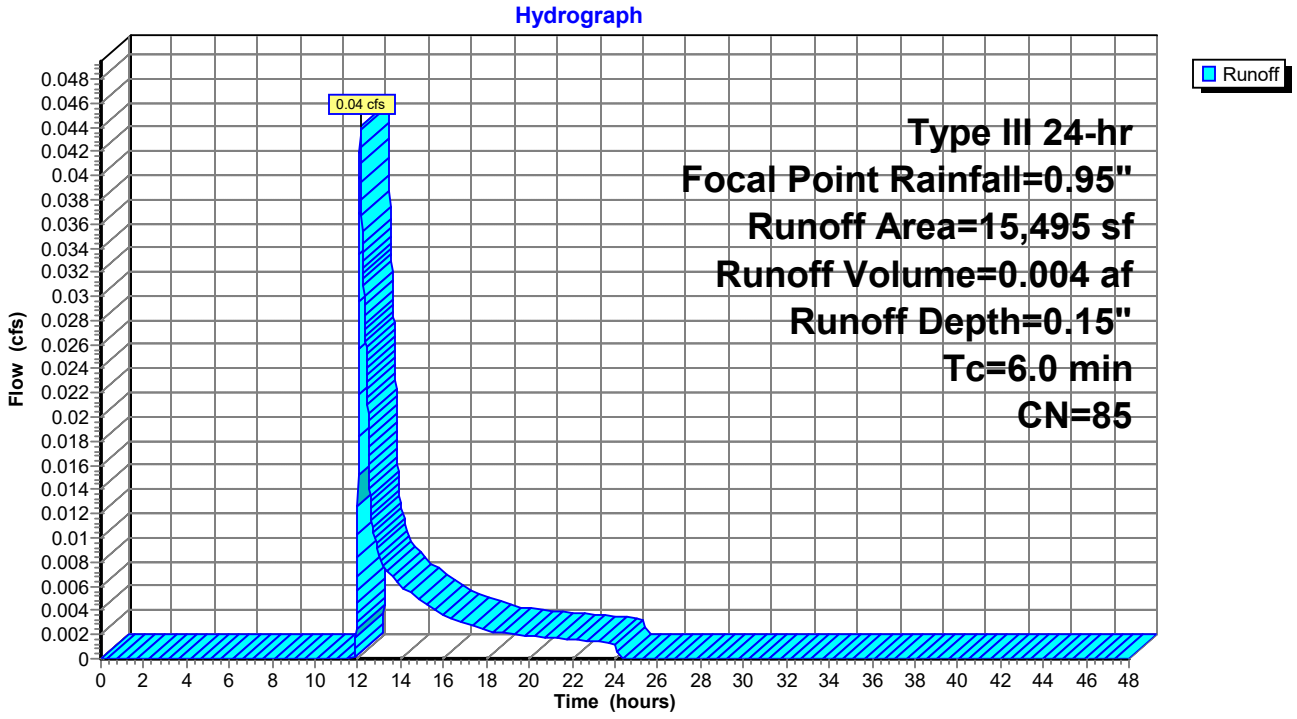
Runoff = 0.04 cfs @ 12.11 hrs, Volume= 0.004 af, Depth= 0.15"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr Focal Point Rainfall=0.95"

Area (sf)	CN	Description
12,004	98	Paved parking & roofs
3,491	39	>75% Grass cover, Good, HSG A
15,495	85	Weighted Average
3,491		22.53% Pervious Area
12,004		77.47% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum Tc**

Subcatchment 13S: Area to Infiltration Trench



Summary for Subcatchment 14S: Roof Area to Drip Strip 4

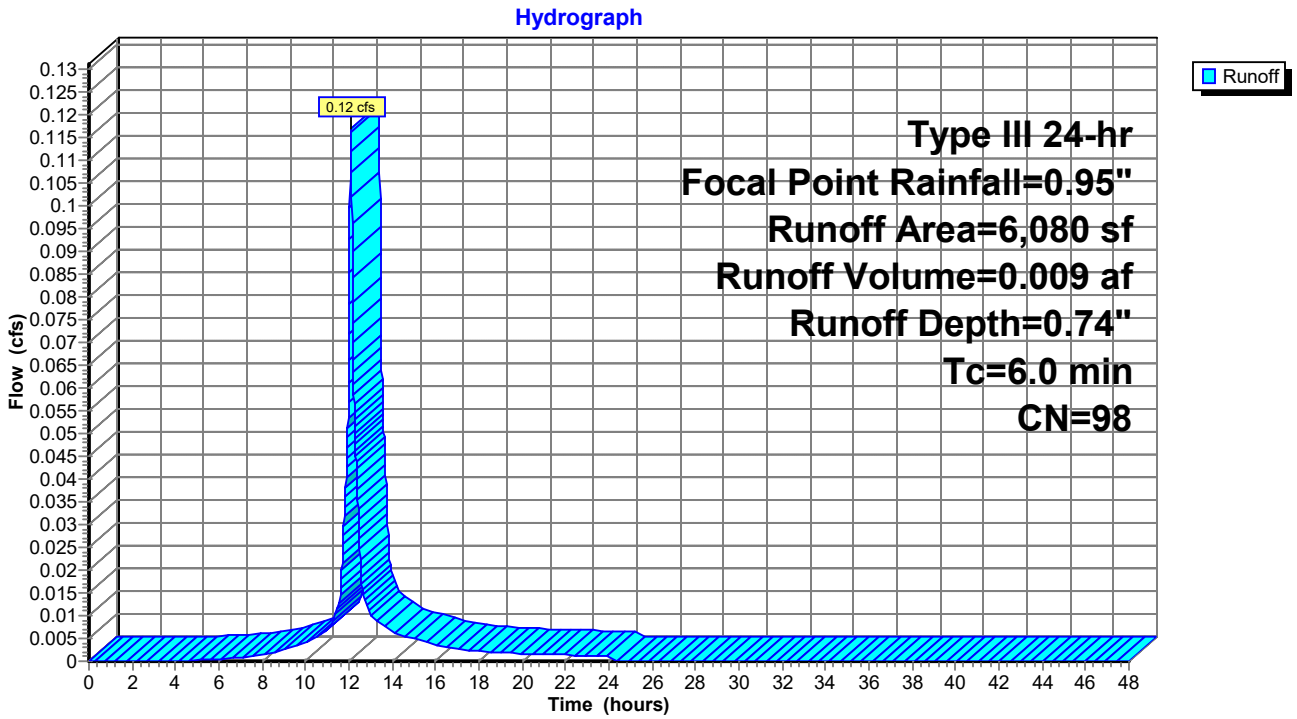
Runoff = 0.12 cfs @ 12.08 hrs, Volume= 0.009 af, Depth= 0.74"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr Focal Point Rainfall=0.95"

	Area (sf)	CN	Description
*	6,080	98	Roofs
*	0	76	Drip stone, HSG A
	6,080	98	Weighted Average
	6,080		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum Tc**

Subcatchment 14S: Roof Area to Drip Strip 4



Summary for Subcatchment 15S: Roof Area to Drip Strip 1

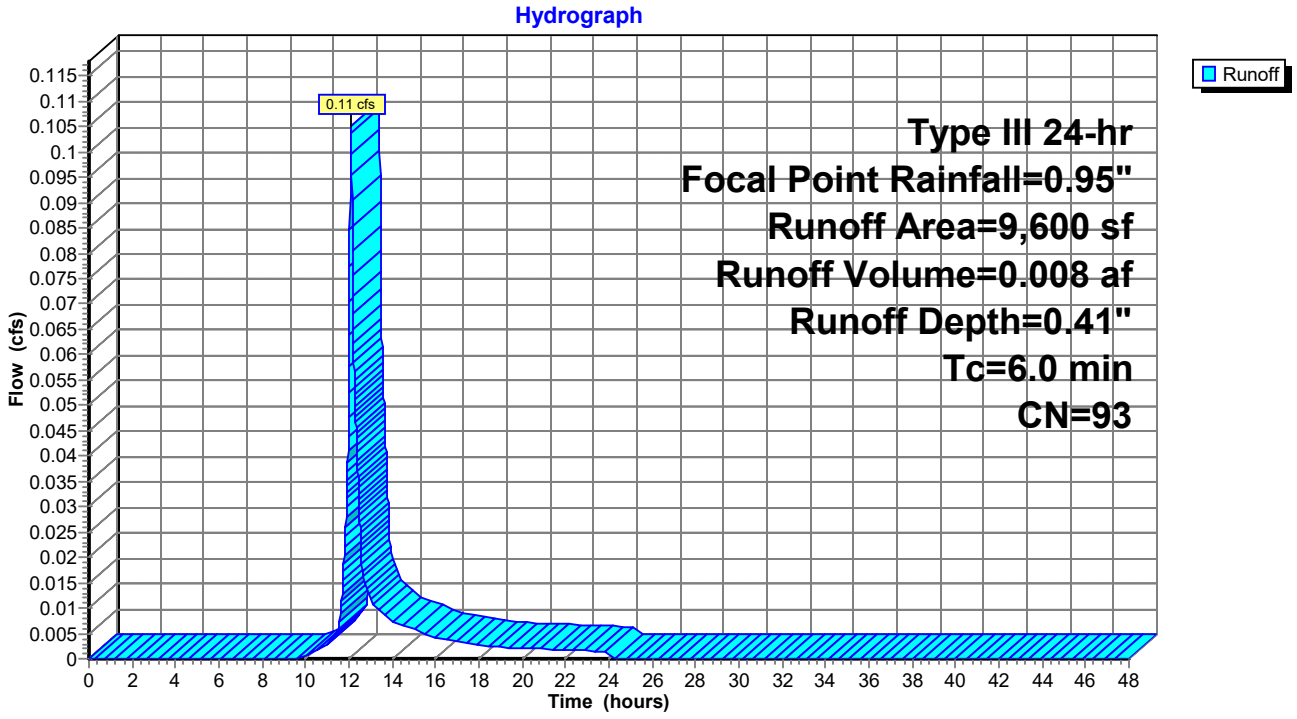
Runoff = 0.11 cfs @ 12.09 hrs, Volume= 0.008 af, Depth= 0.41"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr Focal Point Rainfall=0.95"

	Area (sf)	CN	Description
*	7,600	98	Roofs
*	2,000	76	Drip stone, HSG A
	9,600	93	Weighted Average
	2,000		20.83% Pervious Area
	7,600		79.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum Tc**

Subcatchment 15S: Roof Area to Drip Strip 1



Summary for Subcatchment 16S: Roof Area to Drip Strip 2

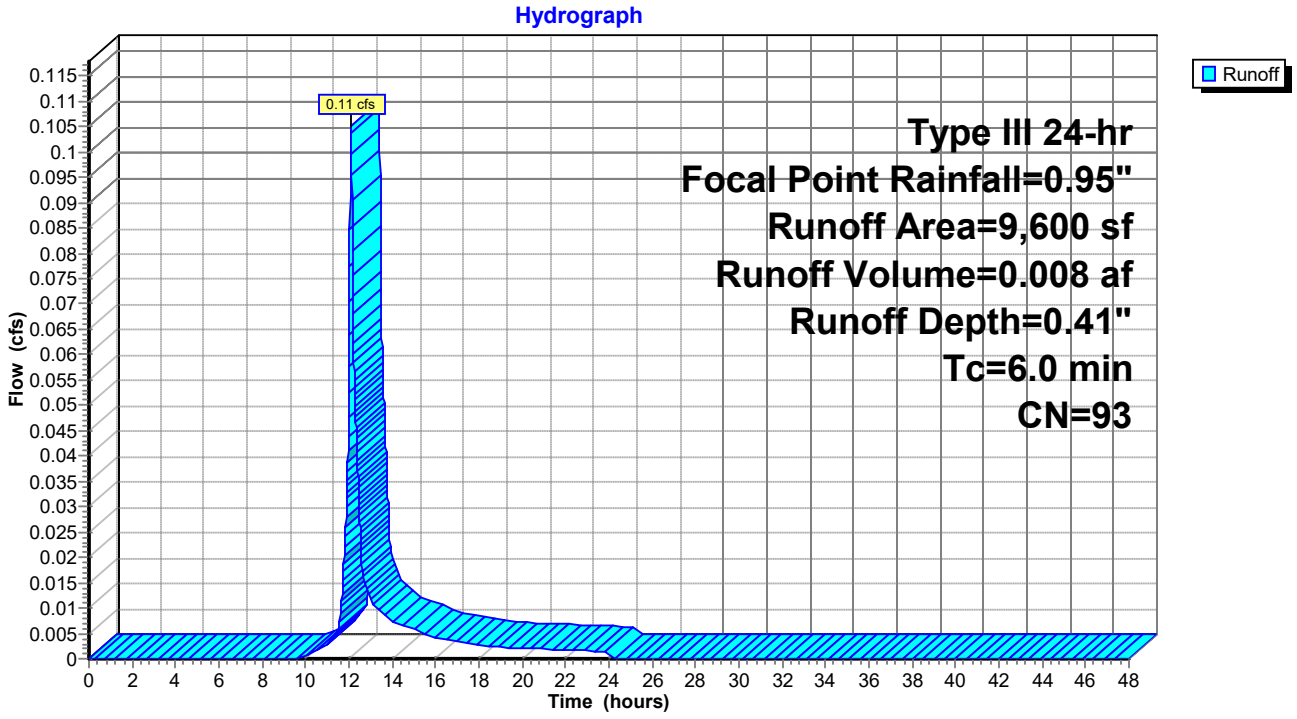
Runoff = 0.11 cfs @ 12.09 hrs, Volume= 0.008 af, Depth= 0.41"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr Focal Point Rainfall=0.95"

	Area (sf)	CN	Description
*	7,600	98	Roofs
*	2,000	76	Drip stone, HSG A
	9,600	93	Weighted Average
	2,000		20.83% Pervious Area
	7,600		79.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum Tc**

Subcatchment 16S: Roof Area to Drip Strip 2



Summary for Subcatchment 17S: Roof Area to Drip Strip 3

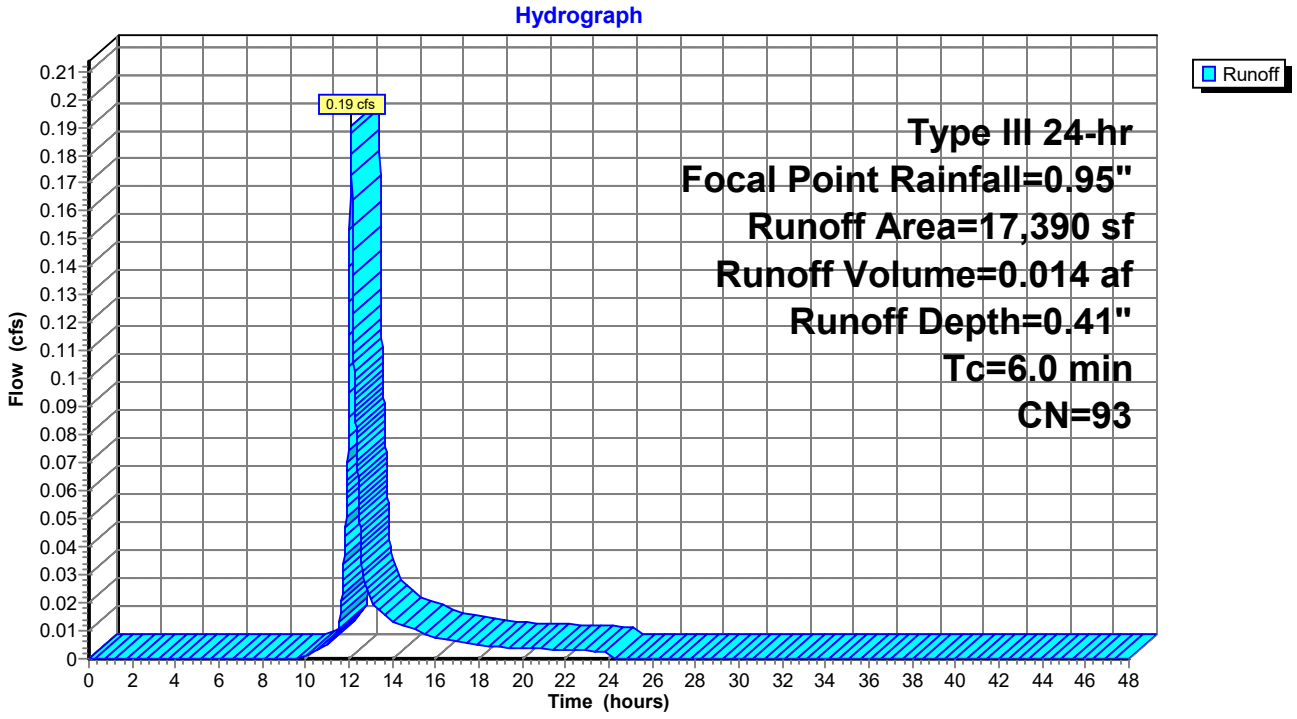
Runoff = 0.19 cfs @ 12.09 hrs, Volume= 0.014 af, Depth= 0.41"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr Focal Point Rainfall=0.95"

	Area (sf)	CN	Description
*	13,270	98	Roofs
*	4,120	76	Drip stone, HSG A
	17,390	93	Weighted Average
	4,120		23.69% Pervious Area
	13,270		76.31% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum Tc**

Subcatchment 17S: Roof Area to Drip Strip 3



Summary for Subcatchment 18S: North of Mother House

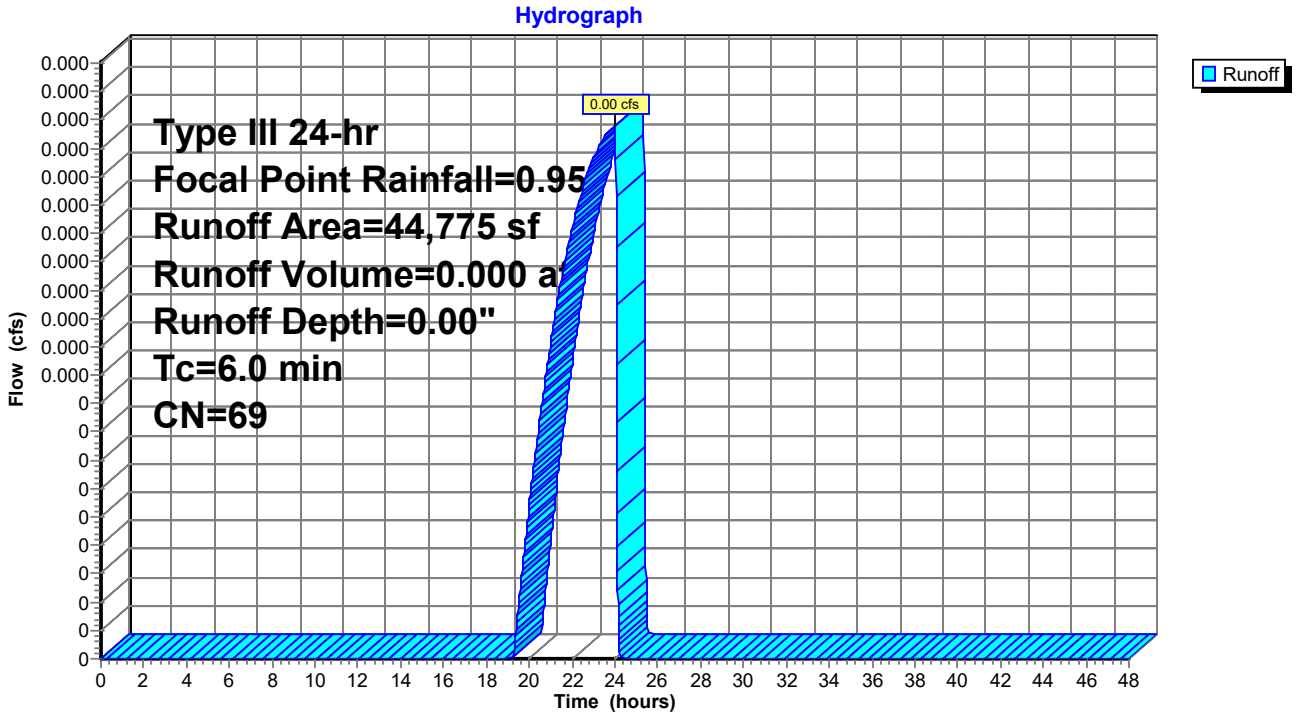
Runoff = 0.00 cfs @ 24.01 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr Focal Point Rainfall=0.95"

Area (sf)	CN	Description
21,975	39	>75% Grass cover, Good, HSG A
22,800	98	Paved parking, HSG A
44,775	69	Weighted Average
21,975		49.08% Pervious Area
22,800		50.92% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 18S: North of Mother House



Summary for Subcatchment 19A: St. Josephs

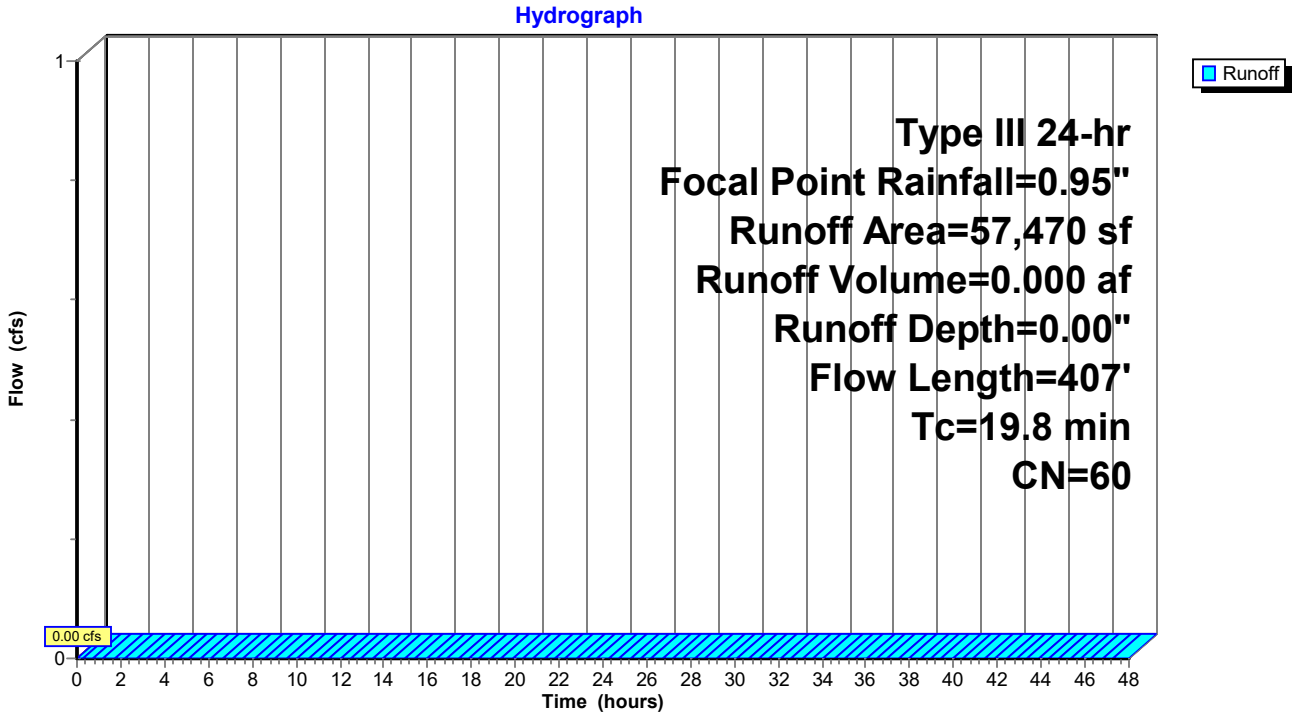
Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr Focal Point Rainfall=0.95"

	Area (sf)	CN	Description
*	20,155	98	Impervious
	37,315	39	>75% Grass cover, Good, HSG A
	57,470	60	Weighted Average
	37,315		64.93% Pervious Area
	20,155		35.07% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.6	122	0.0160	0.11		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.10"
1.2	285	0.0064	3.93	3.09	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Corrugated PP, smooth interior
19.8	407	Total			

Subcatchment 19A: St. Josephs



Summary for Subcatchment 20A: North Parking - West

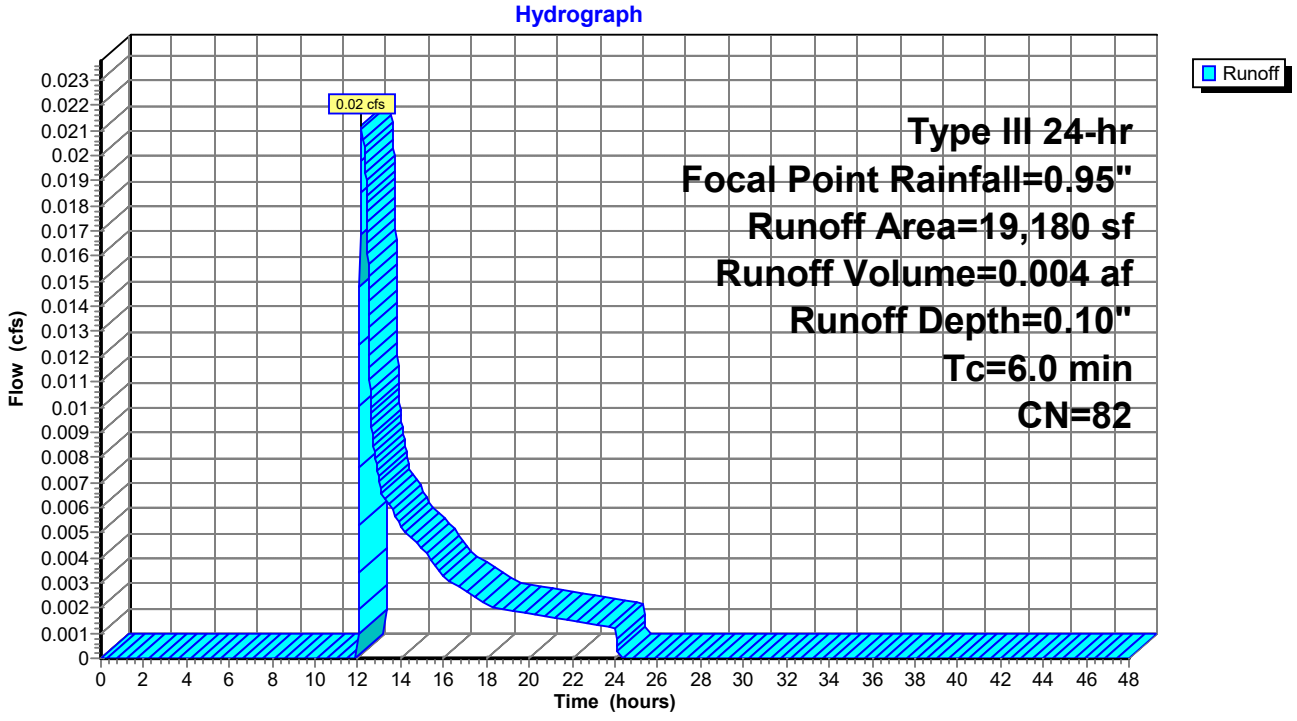
Runoff = 0.02 cfs @ 12.15 hrs, Volume= 0.004 af, Depth= 0.10"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr Focal Point Rainfall=0.95"

	Area (sf)	CN	Description
*	7,700	98	Paved parking, HSG A
*	6,156	98	Porous pavement
	5,324	39	>75% Grass cover, Good, HSG A
	19,180	82	Weighted Average
	5,324		27.76% Pervious Area
	13,856		72.24% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 20A: North Parking - West



Summary for Subcatchment 20B: North Parking - East

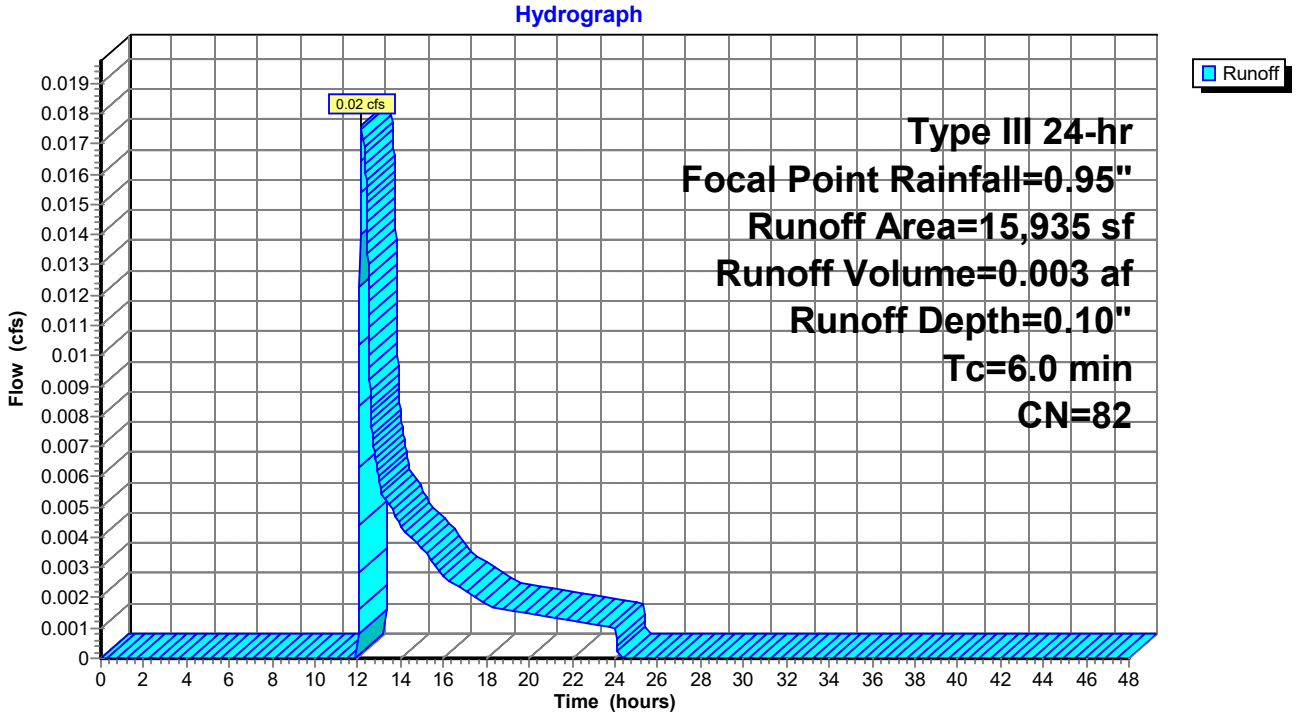
Runoff = 0.02 cfs @ 12.15 hrs, Volume= 0.003 af, Depth= 0.10"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr Focal Point Rainfall=0.95"

	Area (sf)	CN	Description
*	6,380	98	Paved parking, HSG A
*	5,346	98	Porous pavement
	4,209	39	>75% Grass cover, Good, HSG A
	15,935	82	Weighted Average
	4,209		26.41% Pervious Area
	11,726		73.59% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 20B: North Parking - East



Summary for Subcatchment 21A: Building 5

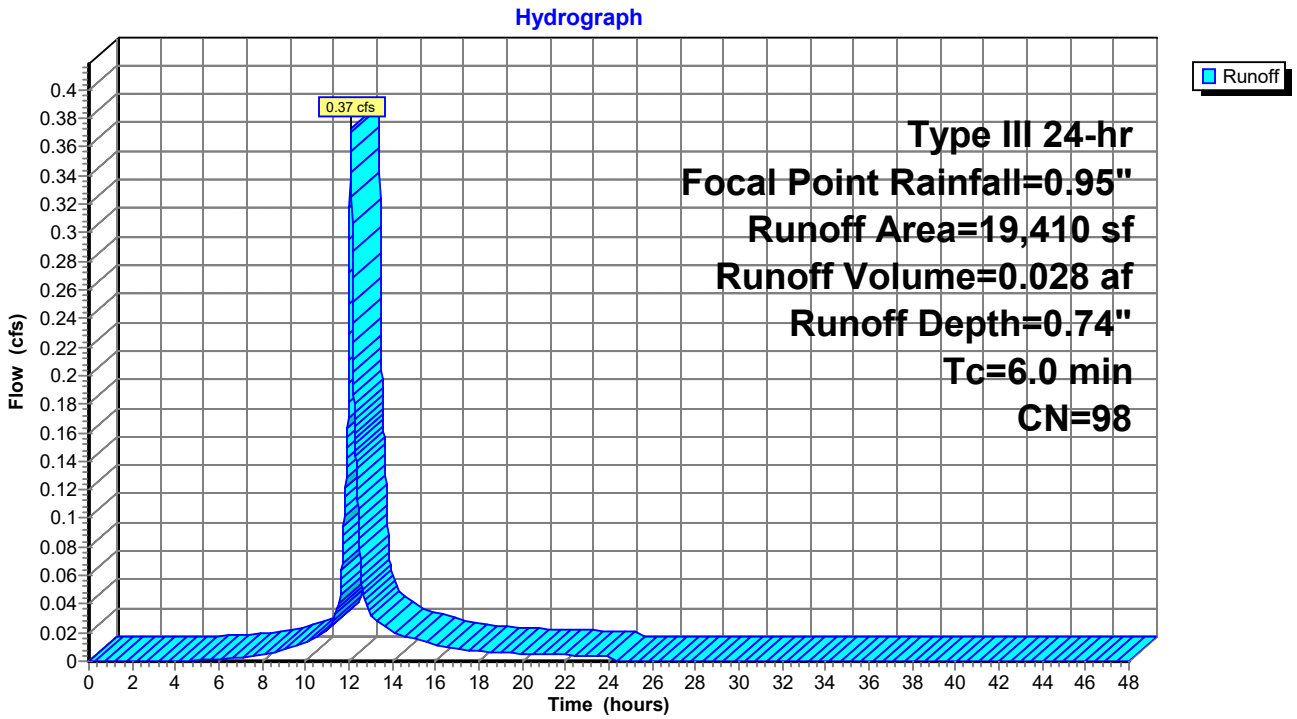
Runoff = 0.37 cfs @ 12.08 hrs, Volume= 0.028 af, Depth= 0.74"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr Focal Point Rainfall=0.95"

	Area (sf)	CN	Description
*	19,410	98	Roof & Sidewalk
	0	39	>75% Grass cover, Good, HSG A
	19,410	98	Weighted Average
	19,410		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 21A: Building 5



Summary for Subcatchment 21B: Buiding 4

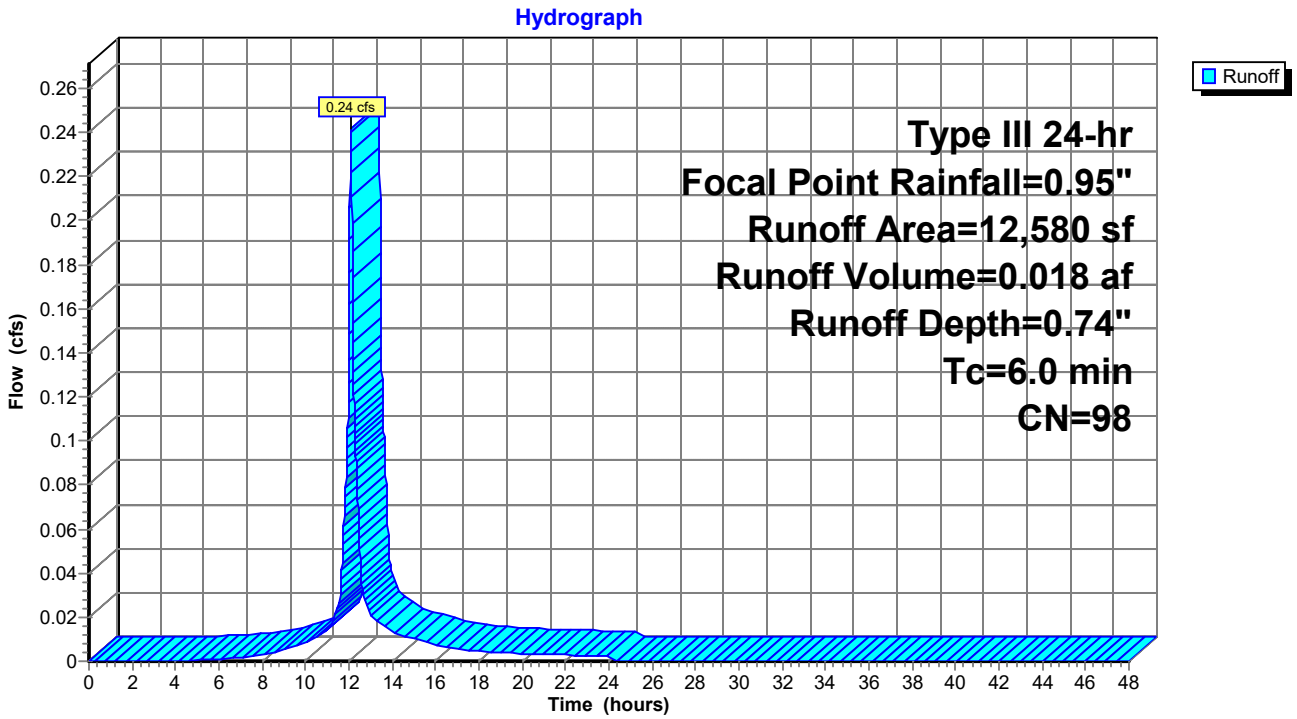
Runoff = 0.24 cfs @ 12.08 hrs, Volume= 0.018 af, Depth= 0.74"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr Focal Point Rainfall=0.95"

	Area (sf)	CN	Description
*	12,580	98	Roof & Sidewalk
	0	39	>75% Grass cover, Good, HSG A
	12,580	98	Weighted Average
	12,580		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 21B: Buiding 4



Summary for Subcatchment 22A: The Common

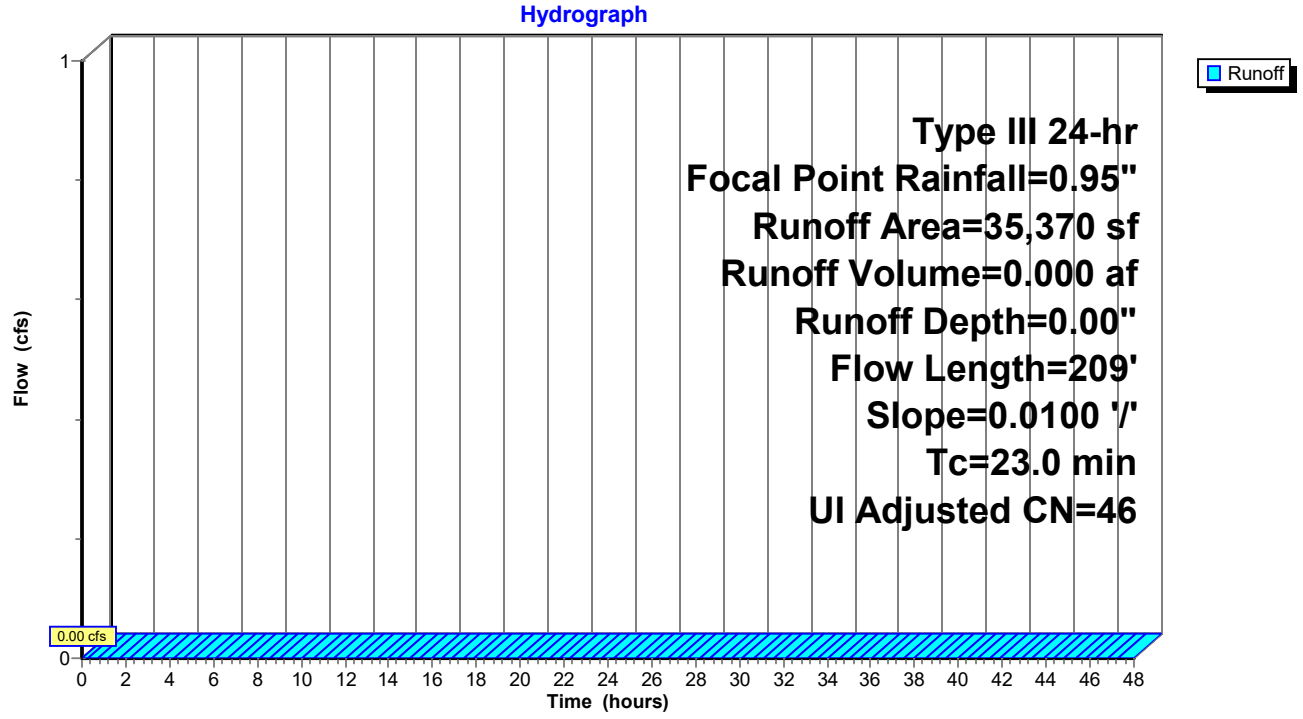
Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr Focal Point Rainfall=0.95"

Area (sf)	CN	Adj	Description
8,175	98		Unconnected pavement, HSG A
27,195	39		>75% Grass cover, Good, HSG A
35,370	53	46	Weighted Average, UI Adjusted
27,195			76.89% Pervious Area
8,175			23.11% Impervious Area
8,175			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.1	120	0.0100	0.09		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.10"
0.1	15	0.0100	2.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.8	74	0.0100	1.50		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
23.0	209	Total			

Subcatchment 22A: The Common



Summary for Subcatchment 22B: Detention Pond 1

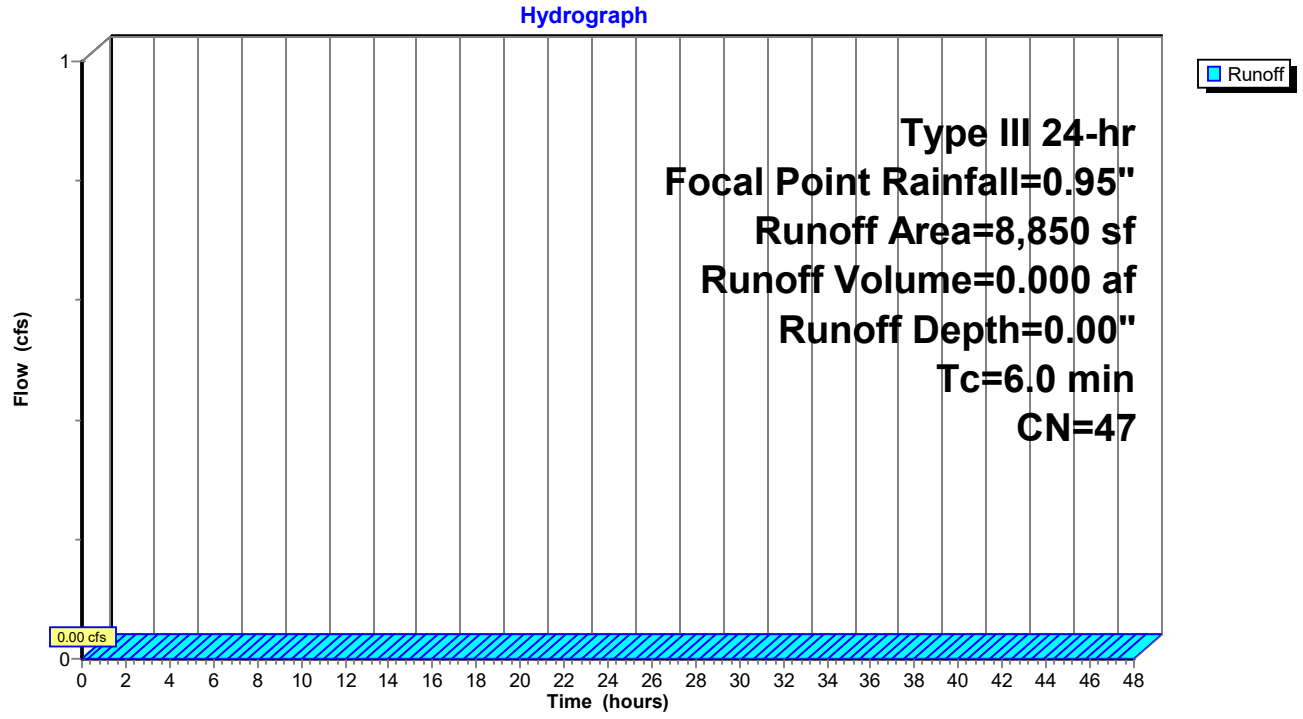
Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr Focal Point Rainfall=0.95"

	Area (sf)	CN	Description
*	1,185	98	Walkways
	7,665	39	>75% Grass cover, Good, HSG A
	8,850	47	Weighted Average
	7,665		86.61% Pervious Area
	1,185		13.39% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 22B: Detention Pond 1



Summary for Subcatchment 23A: South Parking - West

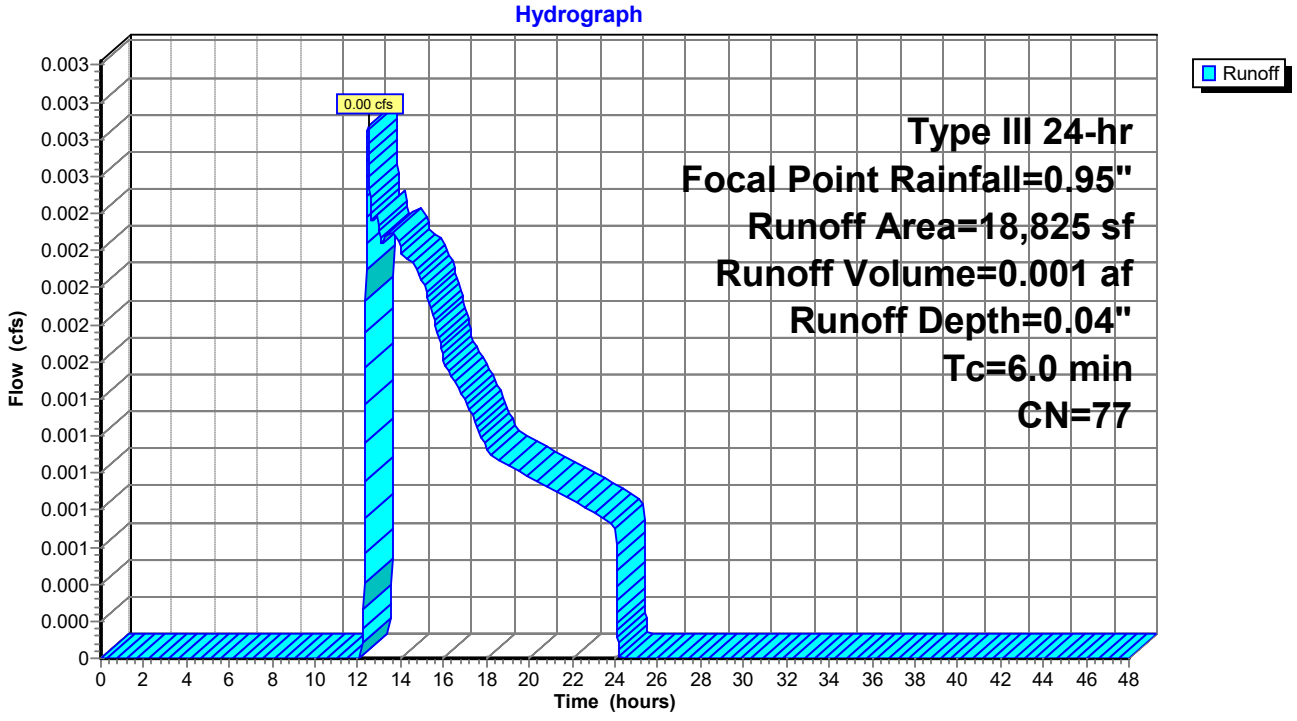
Runoff = 0.00 cfs @ 12.48 hrs, Volume= 0.001 af, Depth= 0.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr Focal Point Rainfall=0.95"

	Area (sf)	CN	Description
*	8,390	98	Paved parking, HSG A
*	3,744	98	Porous pavement
	6,691	39	>75% Grass cover, Good, HSG A
	18,825	77	Weighted Average
	6,691		35.54% Pervious Area
	12,134		64.46% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 23A: South Parking - West



Summary for Subcatchment 23B: South Parking - East

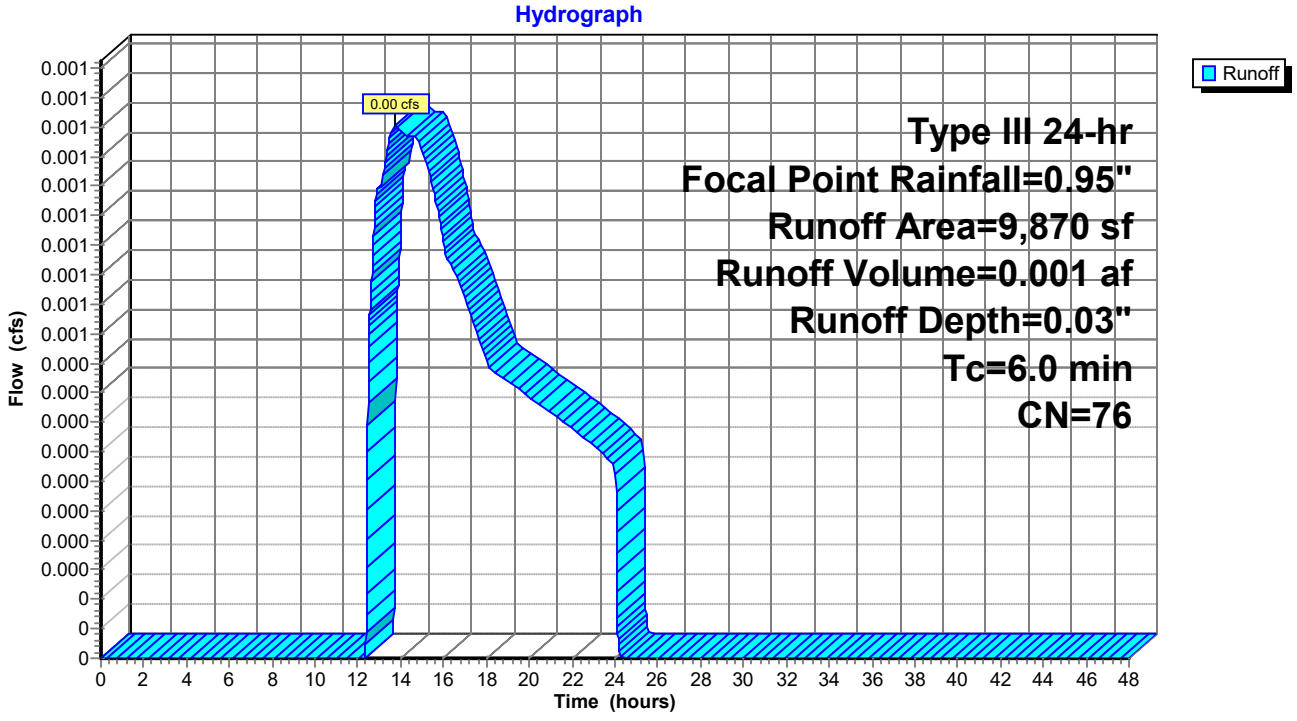
Runoff = 0.00 cfs @ 13.74 hrs, Volume= 0.001 af, Depth= 0.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr Focal Point Rainfall=0.95"

	Area (sf)	CN	Description
*	4,610	98	Paved parking, HSG A
*	1,620	98	Porous pavement
	3,640	39	>75% Grass cover, Good, HSG A
	9,870	76	Weighted Average
	3,640		36.88% Pervious Area
	6,230		63.12% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 23B: South Parking - East



Summary for Subcatchment 24A: Building 2

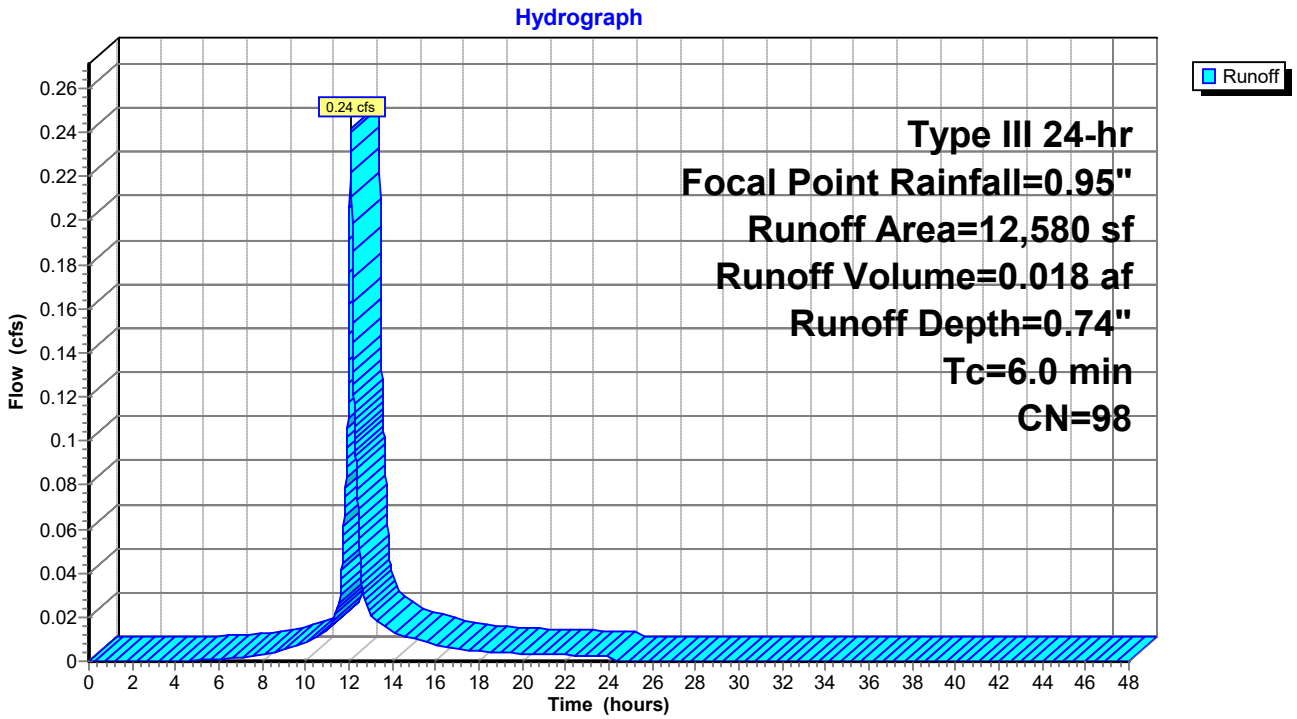
Runoff = 0.24 cfs @ 12.08 hrs, Volume= 0.018 af, Depth= 0.74"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr Focal Point Rainfall=0.95"

	Area (sf)	CN	Description
*	12,580	98	Roof & Pavement
	0	39	>75% Grass cover, Good, HSG A
	12,580	98	Weighted Average
	12,580		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 24A: Building 2



Summary for Subcatchment 24B: Building 3

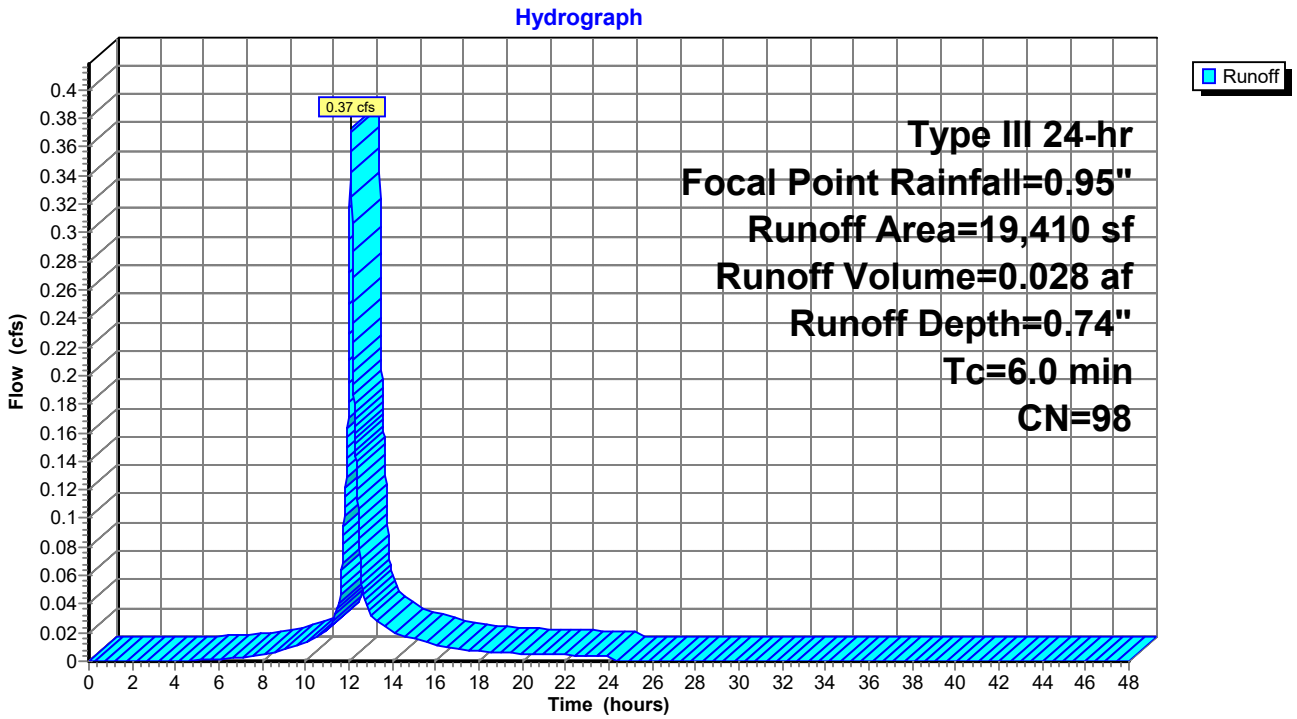
Runoff = 0.37 cfs @ 12.08 hrs, Volume= 0.028 af, Depth= 0.74"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr Focal Point Rainfall=0.95"

	Area (sf)	CN	Description
*	19,410	98	Roof & Sidewalk
	0	74	>75% Grass cover, Good, HSG C
	19,410	98	Weighted Average
	19,410		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 24B: Building 3



Summary for Subcatchment 25A: South of Building 2

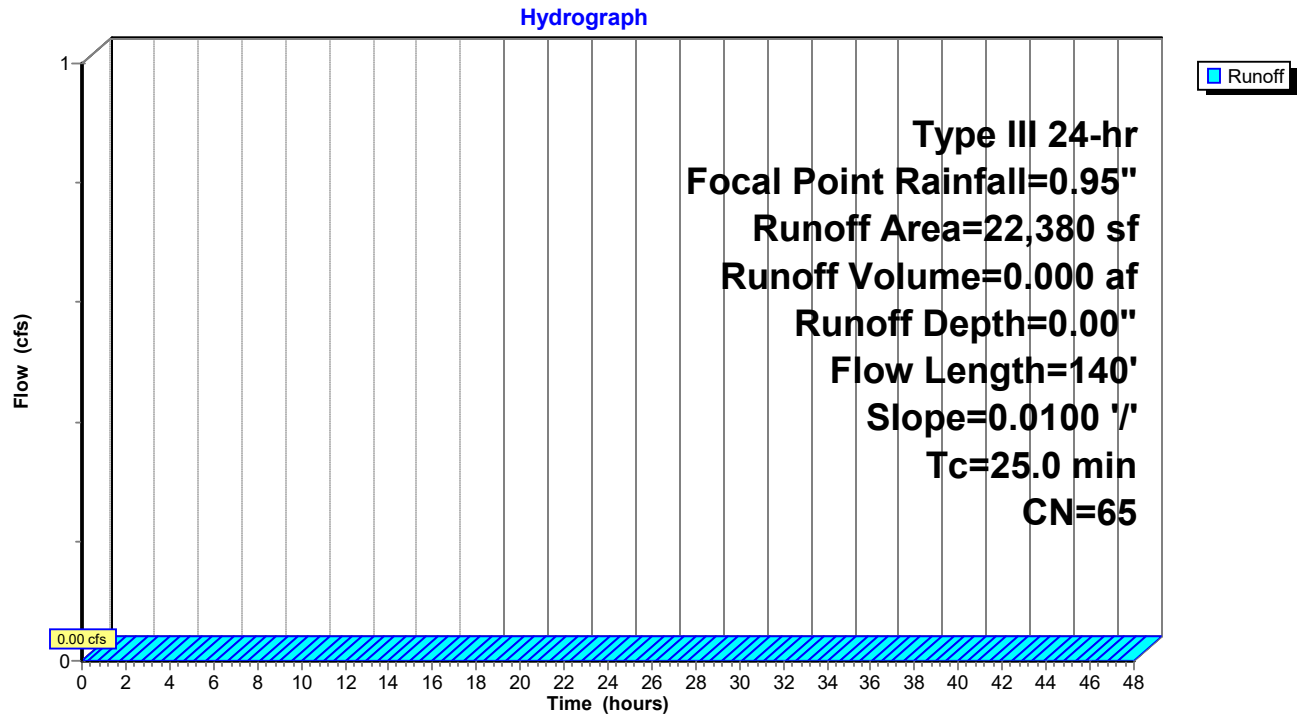
Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr Focal Point Rainfall=0.95"

Area (sf)	CN	Description
8,900	39	>75% Grass cover, Good, HSG A
4,910	98	Paved parking, HSG A
8,570	74	>75% Grass cover, Good, HSG C
22,380	65	Weighted Average
17,470		78.06% Pervious Area
4,910		21.94% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
25.0	140	0.0100	0.09		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.10"

Subcatchment 25A: South of Building 2



Summary for Subcatchment 25B: South of Building 3

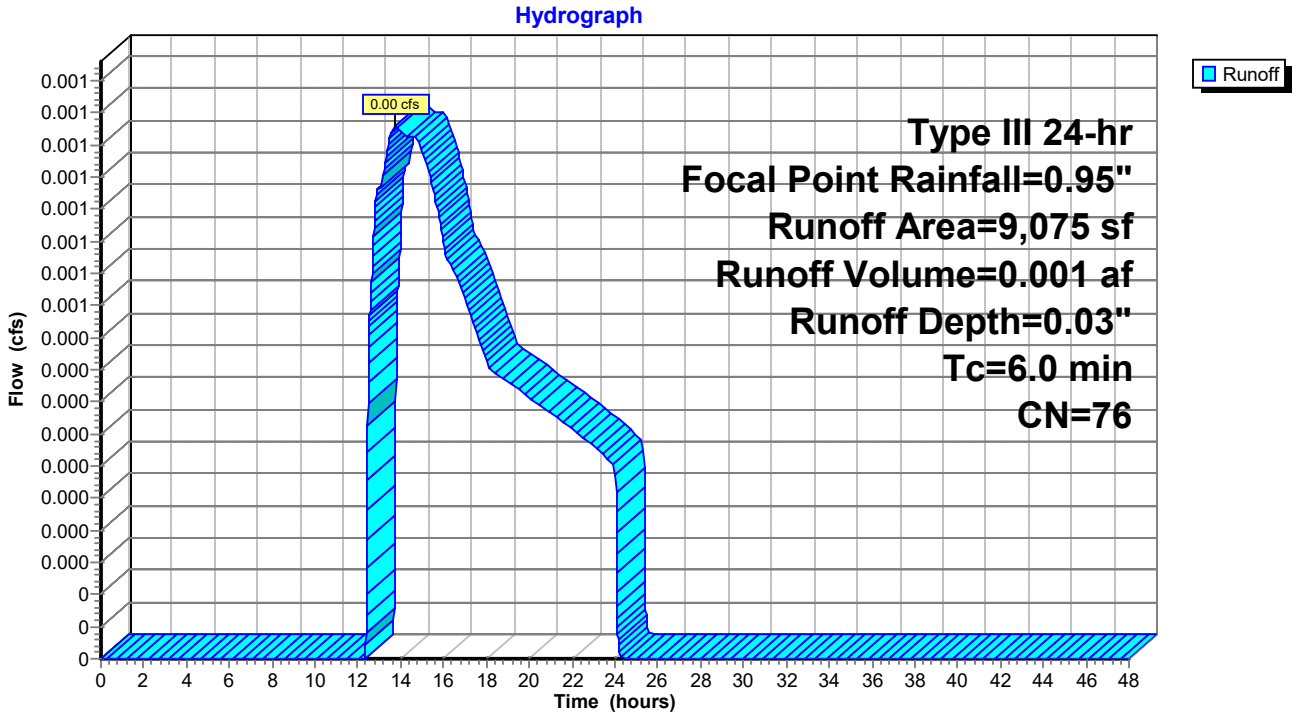
Runoff = 0.00 cfs @ 13.74 hrs, Volume= 0.001 af, Depth= 0.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr Focal Point Rainfall=0.95"

	Area (sf)	CN	Description
	8,340	74	>75% Grass cover, Good, HSG C
*	735	98	Walkways
	9,075	76	Weighted Average
	8,340		91.90% Pervious Area
	735		8.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 25B: South of Building 3



Summary for Subcatchment 25C: South of Building 3

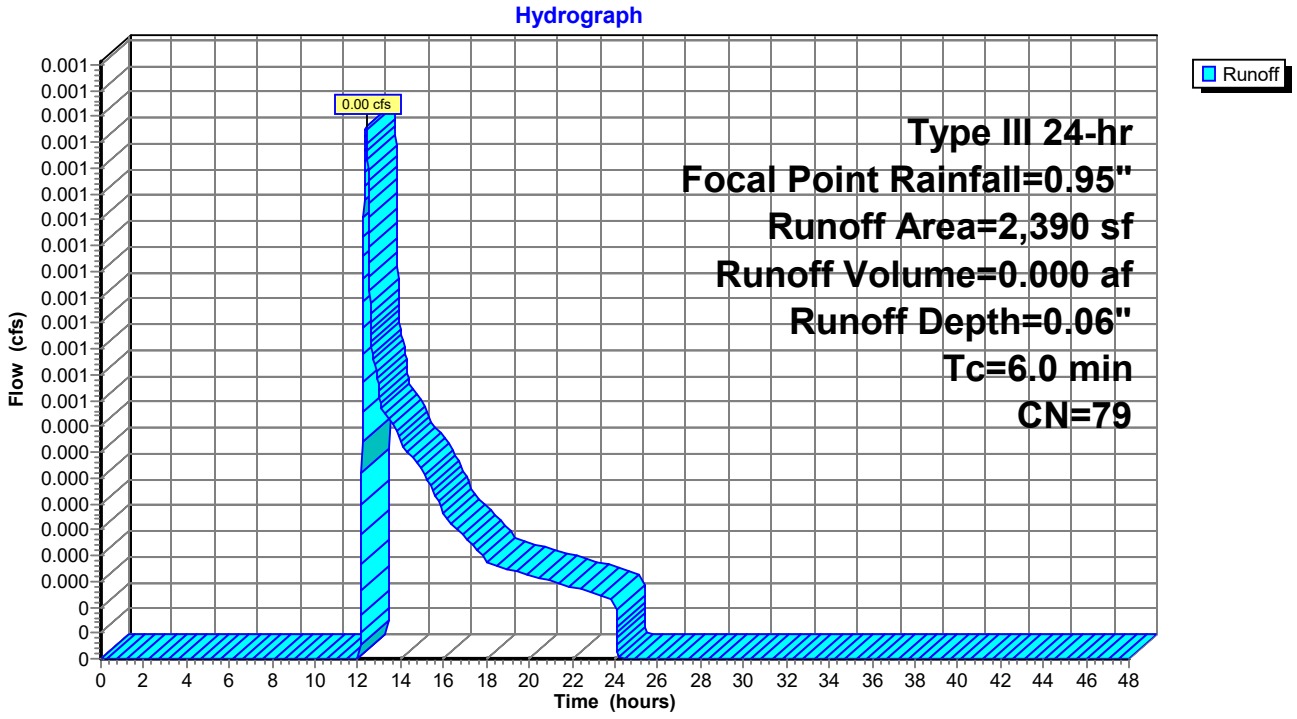
Runoff = 0.00 cfs @ 12.39 hrs, Volume= 0.000 af, Depth= 0.06"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr Focal Point Rainfall=0.95"

	Area (sf)	CN	Description
	1,930	74	>75% Grass cover, Good, HSG C
*	460	98	Walkways
	2,390	79	Weighted Average
	1,930		80.75% Pervious Area
	460		19.25% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 25C: South of Building 3



Summary for Subcatchment 26S: Wetland to POI 2

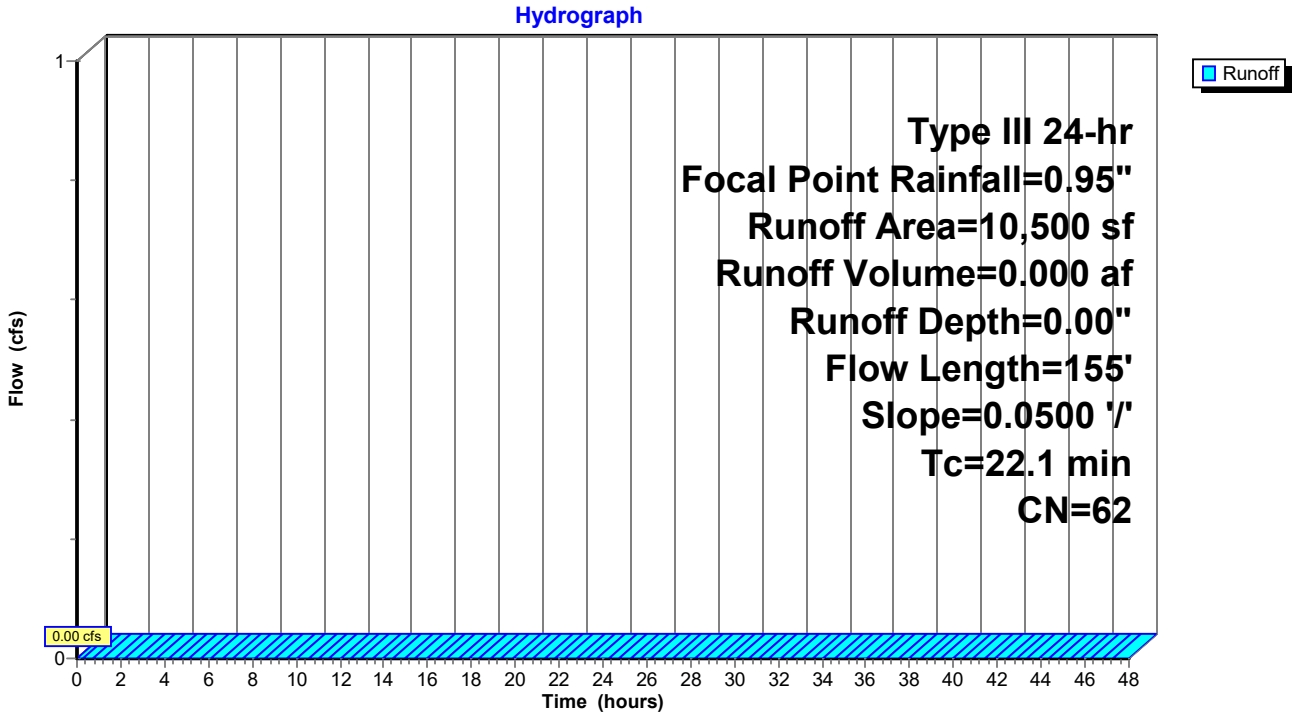
Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr Focal Point Rainfall=0.95"

	Area (sf)	CN	Description
	4,528	39	>75% Grass cover, Good, HSG A
	5,392	77	Woods, Good, HSG D
*	580	98	Walking Path
	10,500	62	Weighted Average
	9,920		94.48% Pervious Area
	580		5.52% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.9	75	0.0500	0.06		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.10"
1.2	80	0.0500	1.12		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
22.1	155	Total			

Subcatchment 26S: Wetland to POI 2



Summary for Subcatchment 27S: Wetland to POI 1

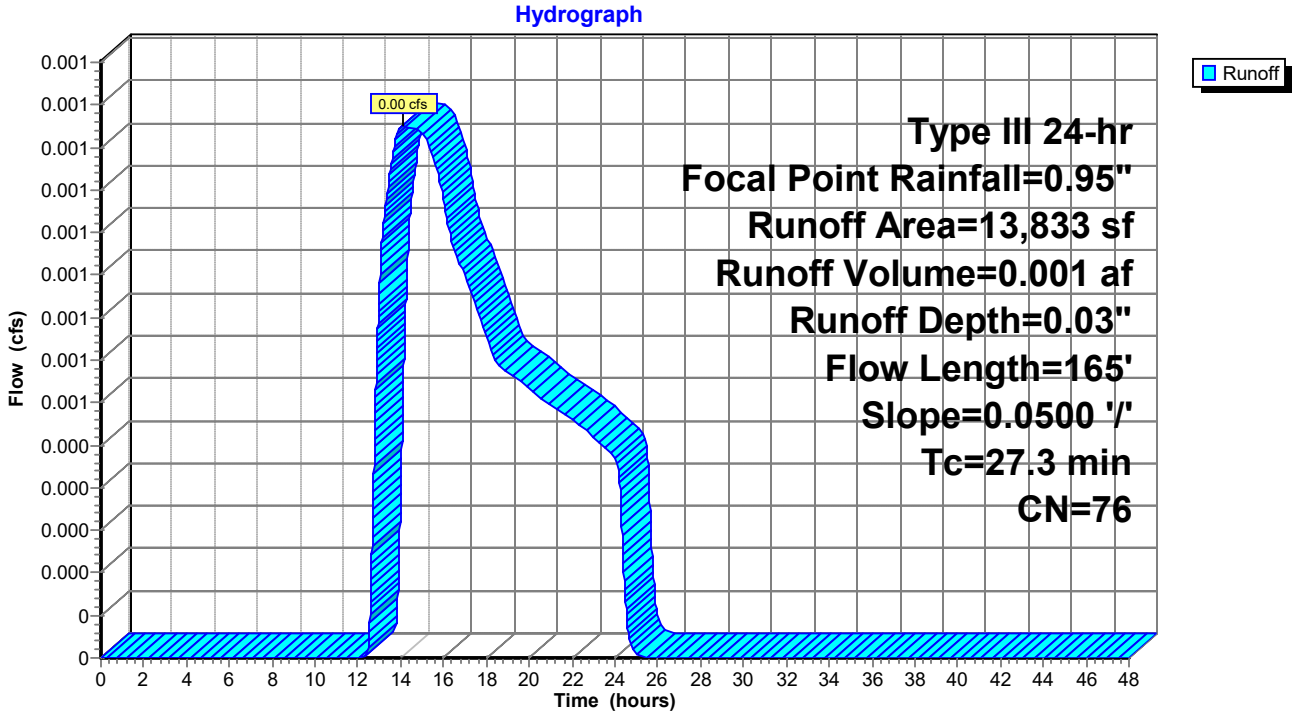
Runoff = 0.00 cfs @ 14.10 hrs, Volume= 0.001 af, Depth= 0.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr Focal Point Rainfall=0.95"

	Area (sf)	CN	Description
	3,935	74	>75% Grass cover, Good, HSG C
	9,282	77	Woods, Good, HSG D
	141	39	>75% Grass cover, Good, HSG A
*	475	98	Walking Path
	13,833	76	Weighted Average
	13,358		96.57% Pervious Area
	475		3.43% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
26.3	100	0.0500	0.06		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.10"
1.0	65	0.0500	1.12		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
27.3	165	Total			

Subcatchment 27S: Wetland to POI 1



Summary for Subcatchment 28S:

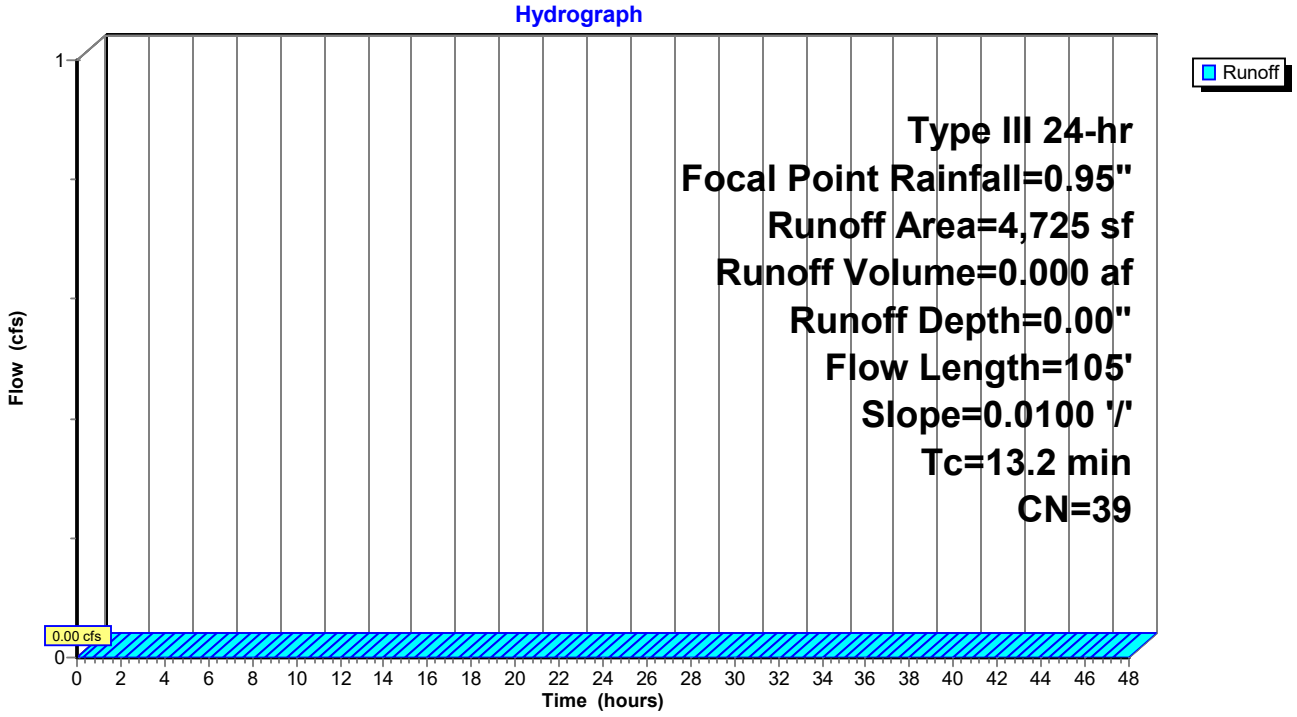
Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr Focal Point Rainfall=0.95"

Area (sf)	CN	Description
4,725	39	>75% Grass cover, Good, HSG A
4,725		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.7	60	0.0100	0.08		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.10"
0.5	45	0.0100	1.50		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
13.2	105	Total			

Subcatchment 28S:



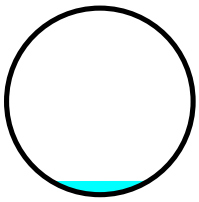
Summary for Reach 1R: CB 19 TO WETLAND

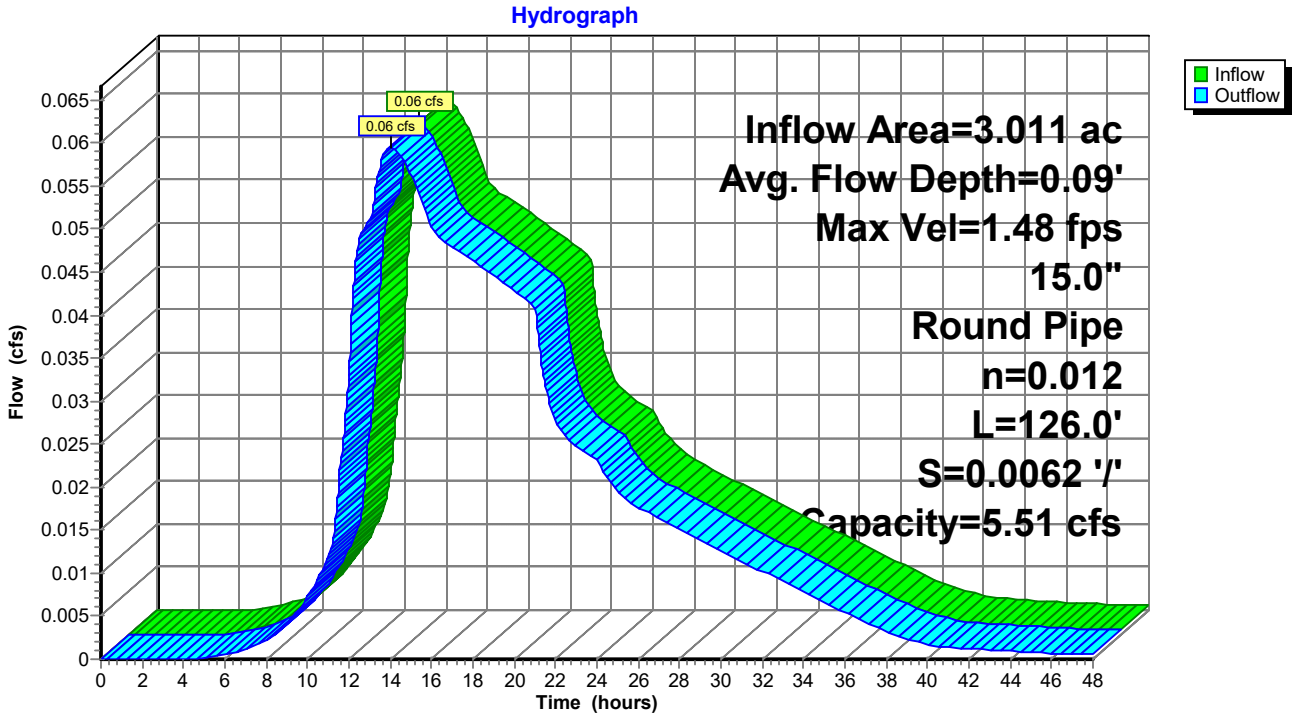
Inflow Area = 3.011 ac, 47.24% Impervious, Inflow Depth > 0.24" for Focal Point event
Inflow = 0.06 cfs @ 13.99 hrs, Volume= 0.061 af
Outflow = 0.06 cfs @ 14.01 hrs, Volume= 0.061 af, Atten= 0%, Lag= 1.1 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 1.48 fps, Min. Travel Time= 1.4 min
Avg. Velocity = 0.87 fps, Avg. Travel Time= 2.4 min

Peak Storage= 5 cf @ 14.01 hrs
Average Depth at Peak Storage= 0.09' , Surface Width= 0.65'
Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 5.51 cfs

15.0" Round Pipe
n= 0.012 Corrugated PP, smooth interior
Length= 126.0' Slope= 0.0062 '/'
Inlet Invert= 108.10', Outlet Invert= 107.32'



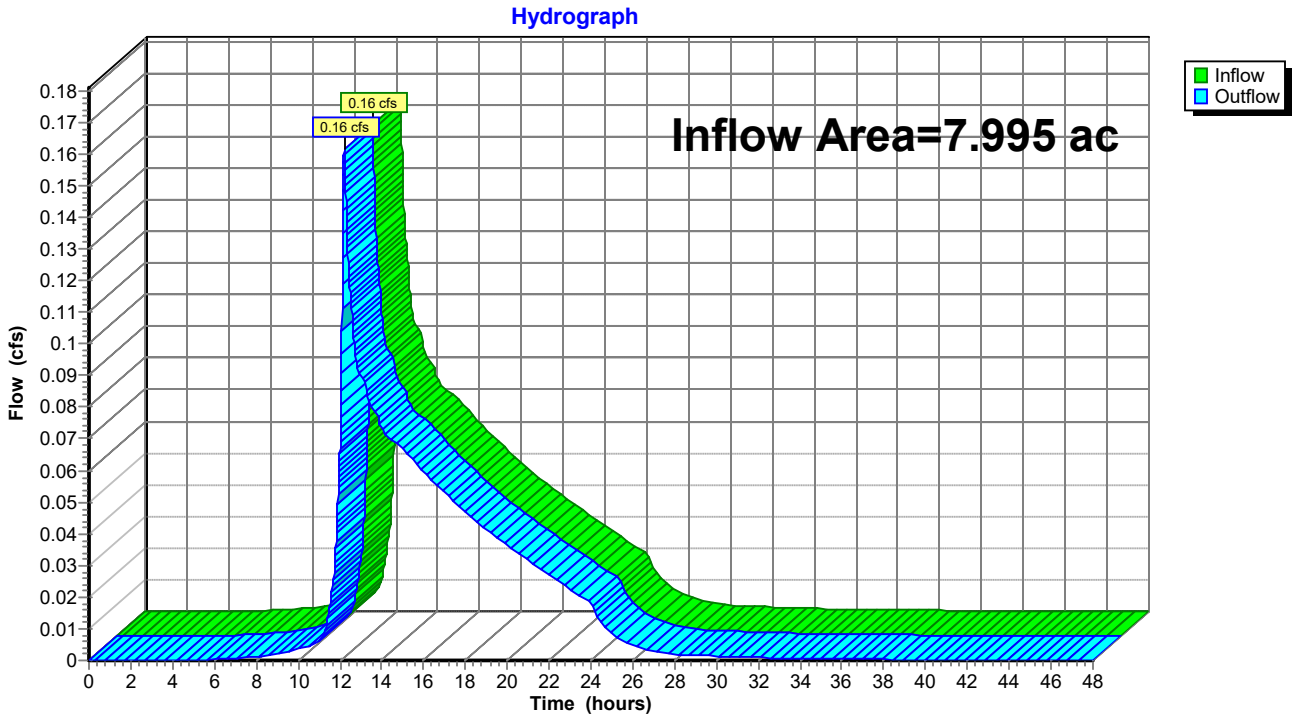


Summary for Reach 2R: POI 2

Inflow Area = 7.995 ac, 56.42% Impervious, Inflow Depth > 0.09" for Focal Point event
Inflow = 0.16 cfs @ 12.20 hrs, Volume= 0.057 af
Outflow = 0.16 cfs @ 12.20 hrs, Volume= 0.057 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Reach 2R: POI 2



Summary for Reach 4R: Wetland to POI 2

Inflow Area = 7.754 ac, 58.01% Impervious, Inflow Depth > 0.09" for Focal Point event
Inflow = 0.16 cfs @ 12.17 hrs, Volume= 0.057 af
Outflow = 0.16 cfs @ 12.20 hrs, Volume= 0.057 af, Atten= 2%, Lag= 1.6 min

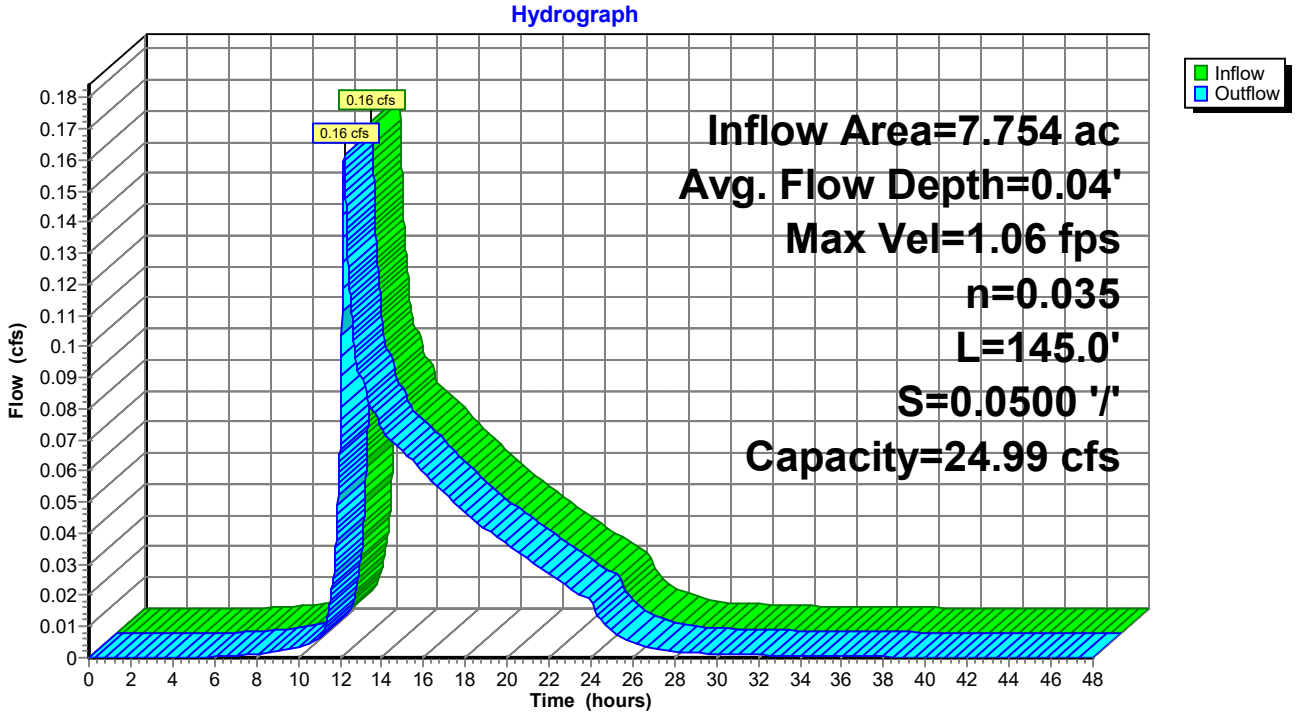
Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 1.06 fps, Min. Travel Time= 2.3 min
Avg. Velocity = 0.46 fps, Avg. Travel Time= 5.2 min

Peak Storage= 22 cf @ 12.20 hrs
Average Depth at Peak Storage= 0.04' , Surface Width= 4.05'
Bank-Full Depth= 0.80' Flow Area= 3.6 sf, Capacity= 24.99 cfs

4.00' x 0.80' deep channel, n= 0.035 Earth, dense weeds
Side Slope Z-value= 0.7 '/' Top Width= 5.12'
Length= 145.0' Slope= 0.0500 '/'
Inlet Invert= 102.89', Outlet Invert= 95.64'



Reach 4R: Wetland to POI 2



Summary for Reach 6R: Wetland to POI 1

Inflow Area = 3.011 ac, 47.24% Impervious, Inflow Depth > 0.24" for Focal Point event
Inflow = 0.06 cfs @ 14.01 hrs, Volume= 0.061 af
Outflow = 0.06 cfs @ 14.09 hrs, Volume= 0.061 af, Atten= 0%, Lag= 4.8 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.55 fps, Min. Travel Time= 6.4 min
Avg. Velocity = 0.40 fps, Avg. Travel Time= 8.8 min

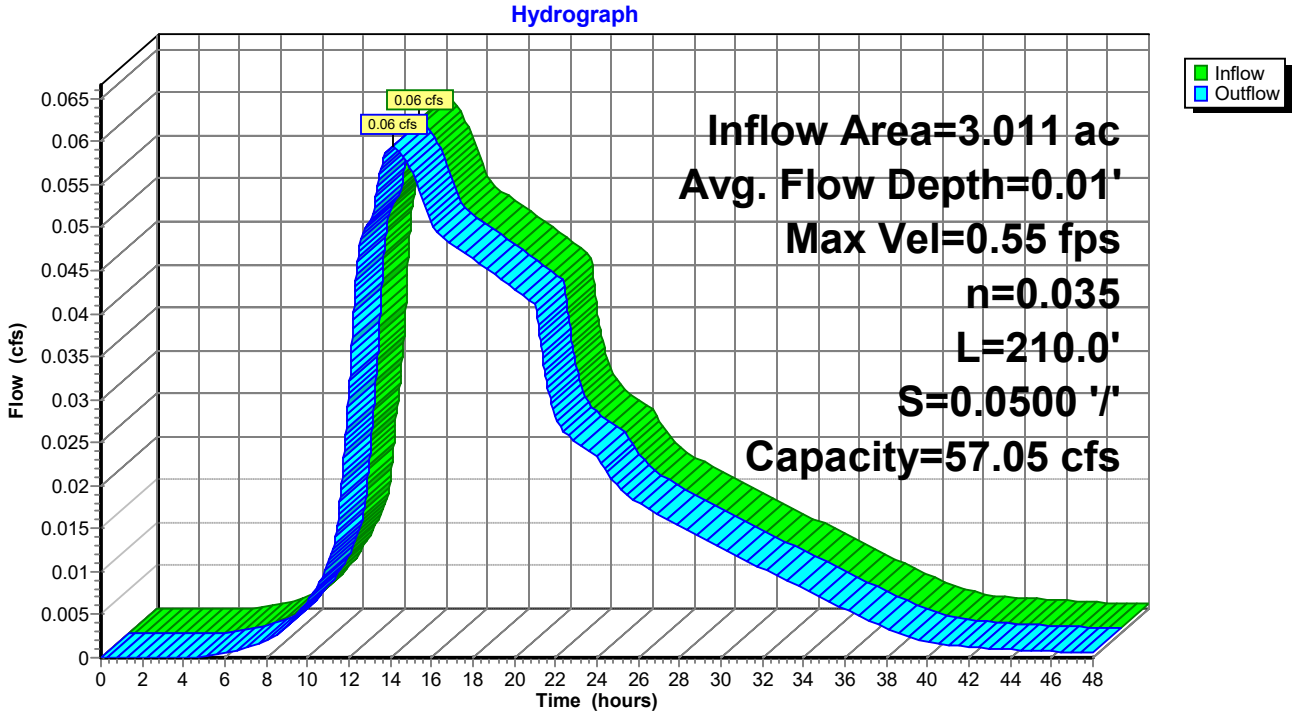
Peak Storage= 23 cf @ 14.09 hrs
Average Depth at Peak Storage= 0.01' , Surface Width= 8.13'
Bank-Full Depth= 0.75' Flow Area= 8.8 sf, Capacity= 57.05 cfs

8.00' x 0.75' deep channel, n= 0.035 Earth, dense weeds
Side Slope Z-value= 5.0 '/' Top Width= 15.50'
Length= 210.0' Slope= 0.0500 '/'
Inlet Invert= 107.32', Outlet Invert= 96.82'



‡

Reach 6R: Wetland to POI 1



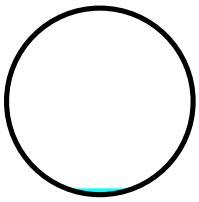
Summary for Reach 24R: DMH 11 to DMH 12

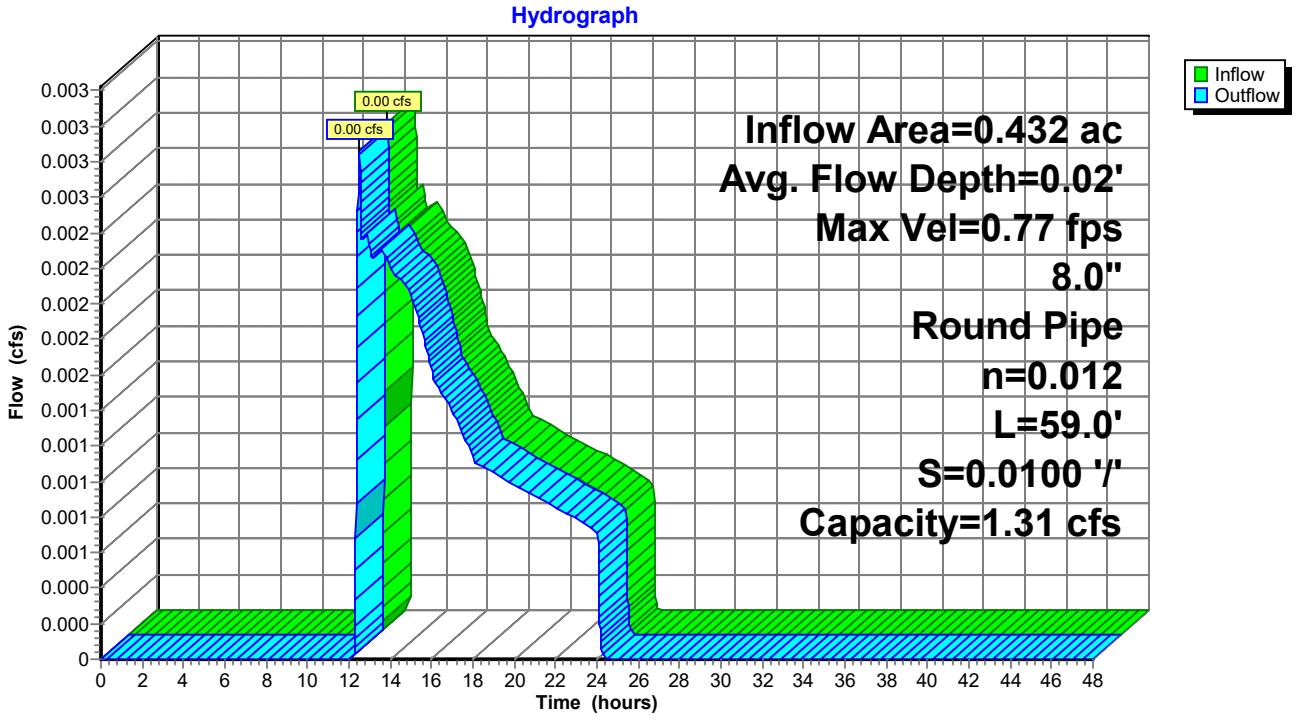
Inflow Area = 0.432 ac, 64.46% Impervious, Inflow Depth = 0.04" for Focal Point event
Inflow = 0.00 cfs @ 12.48 hrs, Volume= 0.001 af
Outflow = 0.00 cfs @ 12.50 hrs, Volume= 0.001 af, Atten= 1%, Lag= 0.9 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.77 fps, Min. Travel Time= 1.3 min
Avg. Velocity = 0.60 fps, Avg. Travel Time= 1.6 min

Peak Storage= 0 cf @ 12.50 hrs
Average Depth at Peak Storage= 0.02' , Surface Width= 0.24'
Bank-Full Depth= 0.67' Flow Area= 0.3 sf, Capacity= 1.31 cfs

8.0" Round Pipe
n= 0.012 Corrugated PP, smooth interior
Length= 59.0' Slope= 0.0100 '/'
Inlet Invert= 109.67', Outlet Invert= 109.08'





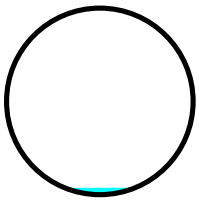
Summary for Reach 25R: DMH 12 to DMH 15

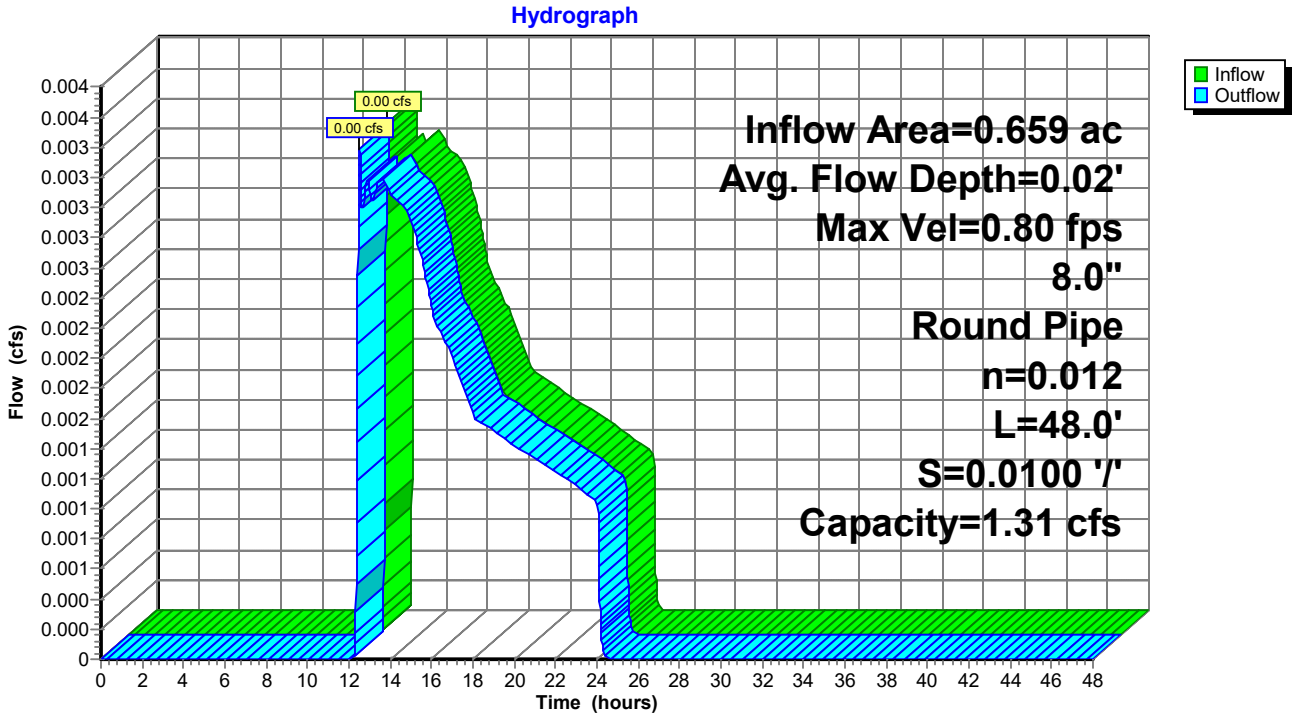
Inflow Area = 0.659 ac, 64.00% Impervious, Inflow Depth = 0.03" for Focal Point event
Inflow = 0.00 cfs @ 12.51 hrs, Volume= 0.002 af
Outflow = 0.00 cfs @ 12.52 hrs, Volume= 0.002 af, Atten= 0%, Lag= 0.7 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.80 fps, Min. Travel Time= 1.0 min
Avg. Velocity = 0.66 fps, Avg. Travel Time= 1.2 min

Peak Storage= 0 cf @ 12.52 hrs
Average Depth at Peak Storage= 0.02' , Surface Width= 0.25'
Bank-Full Depth= 0.67' Flow Area= 0.3 sf, Capacity= 1.31 cfs

8.0" Round Pipe
n= 0.012 Corrugated PP, smooth interior
Length= 48.0' Slope= 0.0100 '/'
Inlet Invert= 108.98', Outlet Invert= 108.50'





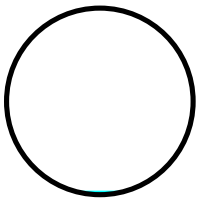
Summary for Reach 26R: DMH 15 to DMH 14

Inflow Area = 1.471 ac, 41.43% Impervious, Inflow Depth = 0.02" for Focal Point event
Inflow = 0.00 cfs @ 12.52 hrs, Volume= 0.002 af
Outflow = 0.00 cfs @ 12.55 hrs, Volume= 0.002 af, Atten= 2%, Lag= 1.8 min

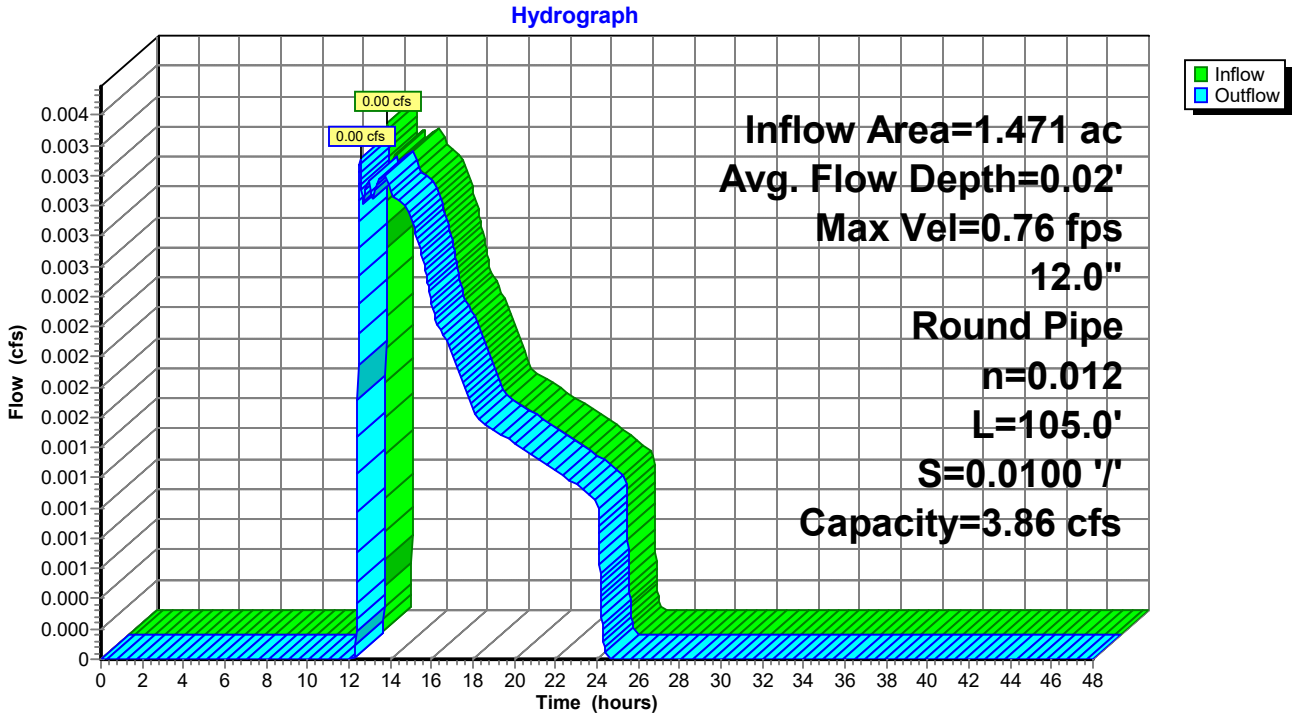
Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.76 fps, Min. Travel Time= 2.3 min
Avg. Velocity = 0.64 fps, Avg. Travel Time= 2.7 min

Peak Storage= 0 cf @ 12.55 hrs
Average Depth at Peak Storage= 0.02' , Surface Width= 0.29'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 3.86 cfs

12.0" Round Pipe
n= 0.012 Corrugated PP, smooth interior
Length= 105.0' Slope= 0.0100 '/'
Inlet Invert= 108.40', Outlet Invert= 107.35'



Reach 26R: DMH 15 to DMH 14



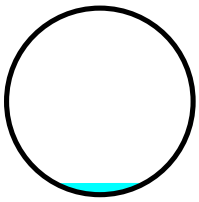
Summary for Reach 27R: DMH 14 to DMH 7

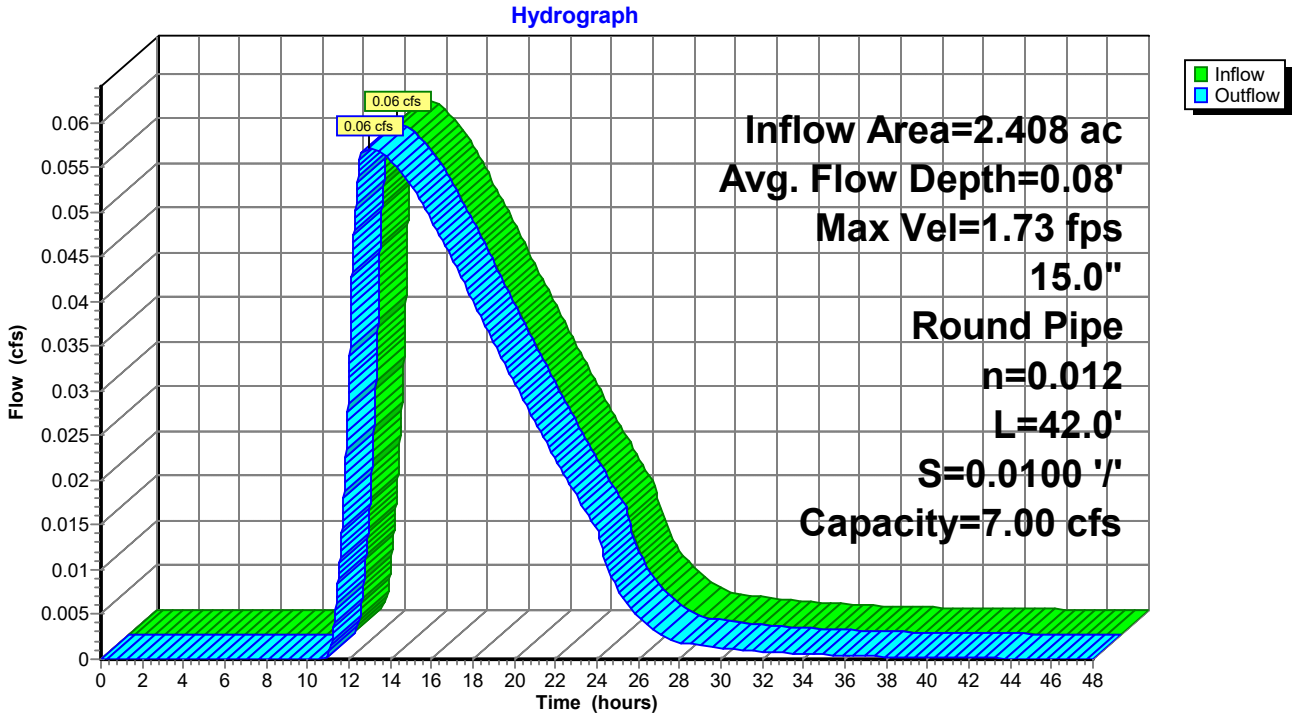
Inflow Area = 2.408 ac, 56.92% Impervious, Inflow Depth > 0.21" for Focal Point event
Inflow = 0.06 cfs @ 12.96 hrs, Volume= 0.042 af
Outflow = 0.06 cfs @ 12.96 hrs, Volume= 0.042 af, Atten= 0%, Lag= 0.3 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 1.73 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 0.90 fps, Avg. Travel Time= 0.8 min

Peak Storage= 1 cf @ 12.96 hrs
Average Depth at Peak Storage= 0.08' , Surface Width= 0.61'
Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 7.00 cfs

15.0" Round Pipe
n= 0.012 Corrugated PP, smooth interior
Length= 42.0' Slope= 0.0100 '/'
Inlet Invert= 107.25', Outlet Invert= 106.83'



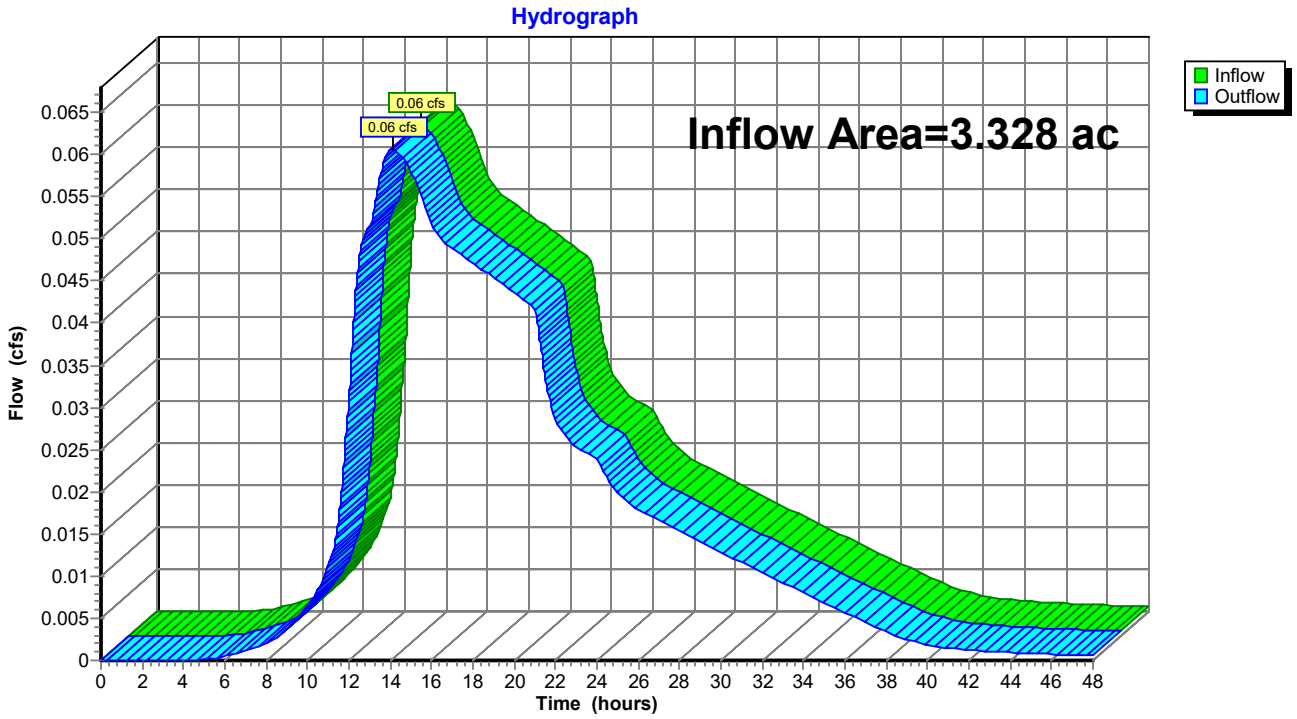


Summary for Reach 28R: POI 1

Inflow Area = 3.328 ac, 43.06% Impervious, Inflow Depth > 0.22" for Focal Point event
Inflow = 0.06 cfs @ 14.10 hrs, Volume= 0.062 af
Outflow = 0.06 cfs @ 14.10 hrs, Volume= 0.062 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Reach 28R: POI 1



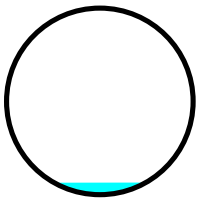
Summary for Reach 29R: EX. DMH 4 to NEW CB 19

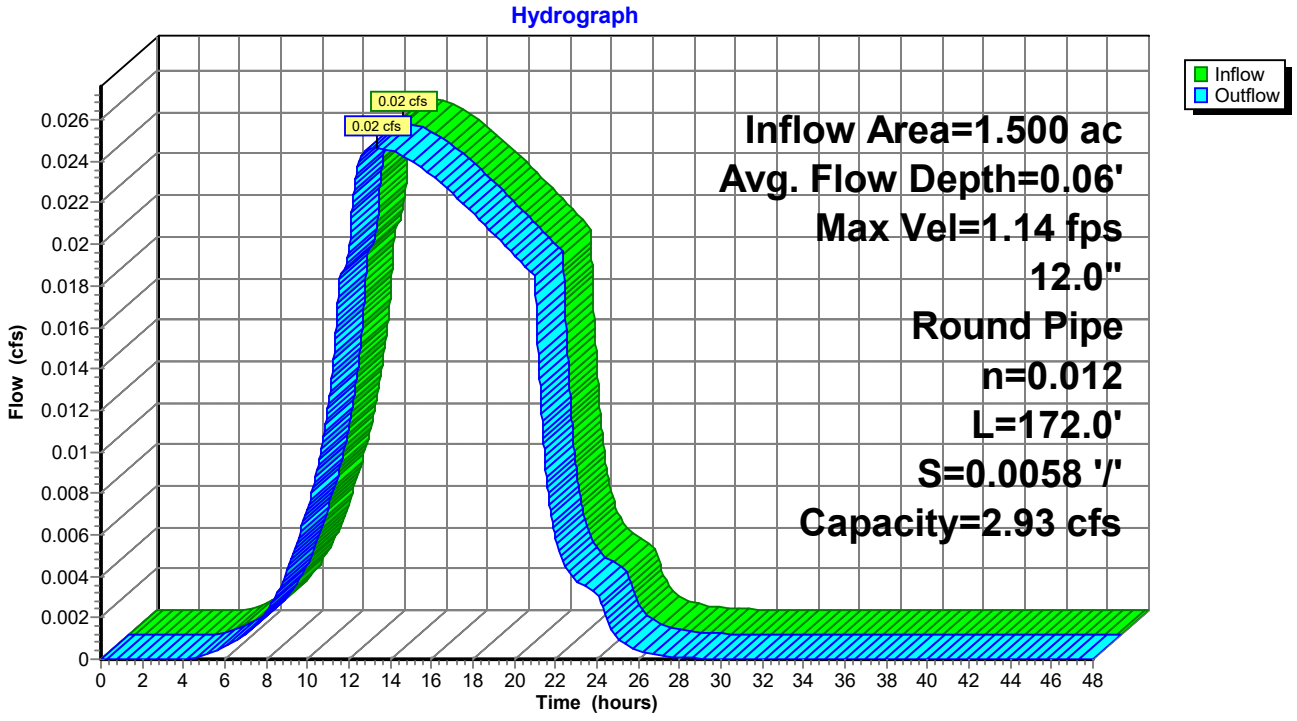
Inflow Area = 1.500 ac, 36.53% Impervious, Inflow Depth = 0.17" for Focal Point event
Inflow = 0.02 cfs @ 13.29 hrs, Volume= 0.022 af
Outflow = 0.02 cfs @ 13.32 hrs, Volume= 0.022 af, Atten= 0%, Lag= 1.8 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 1.14 fps, Min. Travel Time= 2.5 min
Avg. Velocity = 0.76 fps, Avg. Travel Time= 3.8 min

Peak Storage= 4 cf @ 13.32 hrs
Average Depth at Peak Storage= 0.06' , Surface Width= 0.49'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.93 cfs

12.0" Round Pipe
n= 0.012 Corrugated PP, smooth interior
Length= 172.0' Slope= 0.0058 '/'
Inlet Invert= 109.09', Outlet Invert= 108.10'





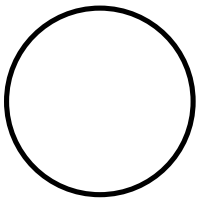
Summary for Reach 31R: 8" SD

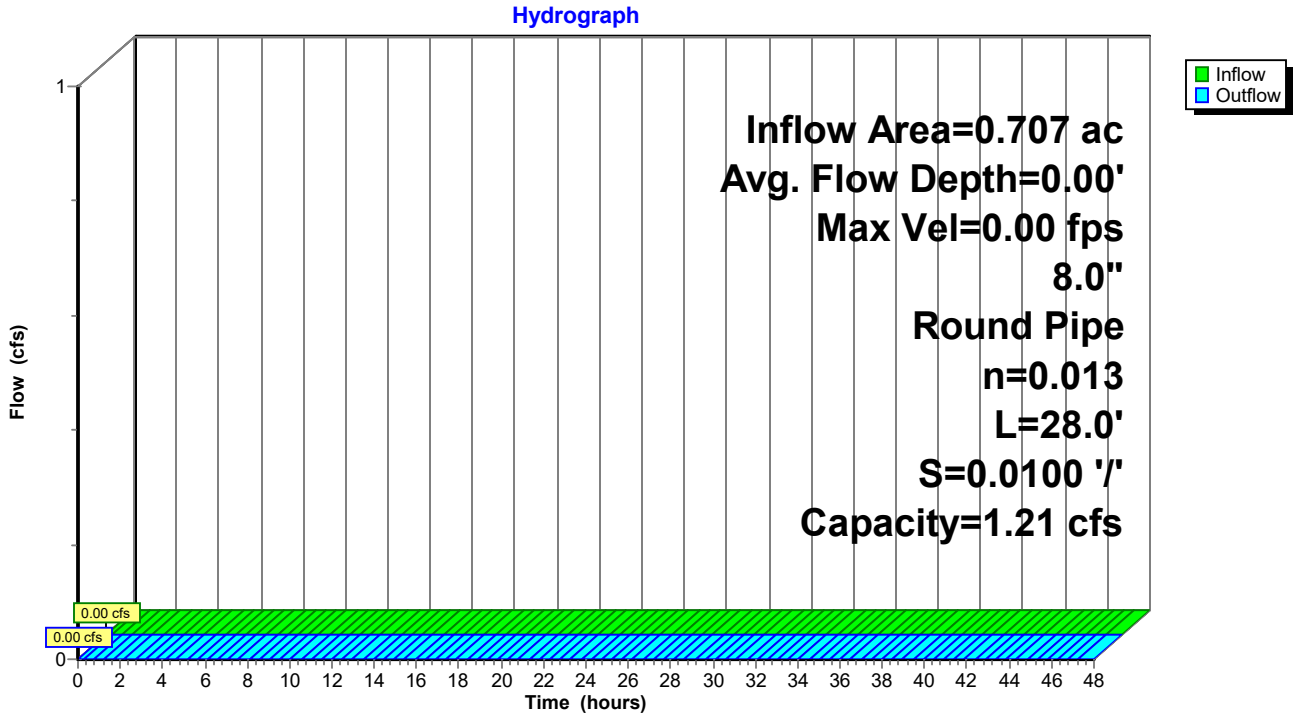
Inflow Area = 0.707 ac, 10.73% Impervious, Inflow Depth = 0.00" for Focal Point event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 0.00 fps, Avg. Travel Time= 0.0 min

Peak Storage= 0 cf @ 0.00 hrs
Average Depth at Peak Storage= 0.00'
Bank-Full Depth= 0.67' Flow Area= 0.3 sf, Capacity= 1.21 cfs

8.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 28.0' Slope= 0.0100 '/'
Inlet Invert= 115.15', Outlet Invert= 114.87'





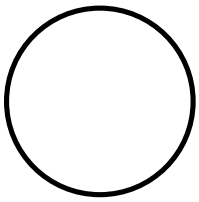
Summary for Reach 32R: 8" UD

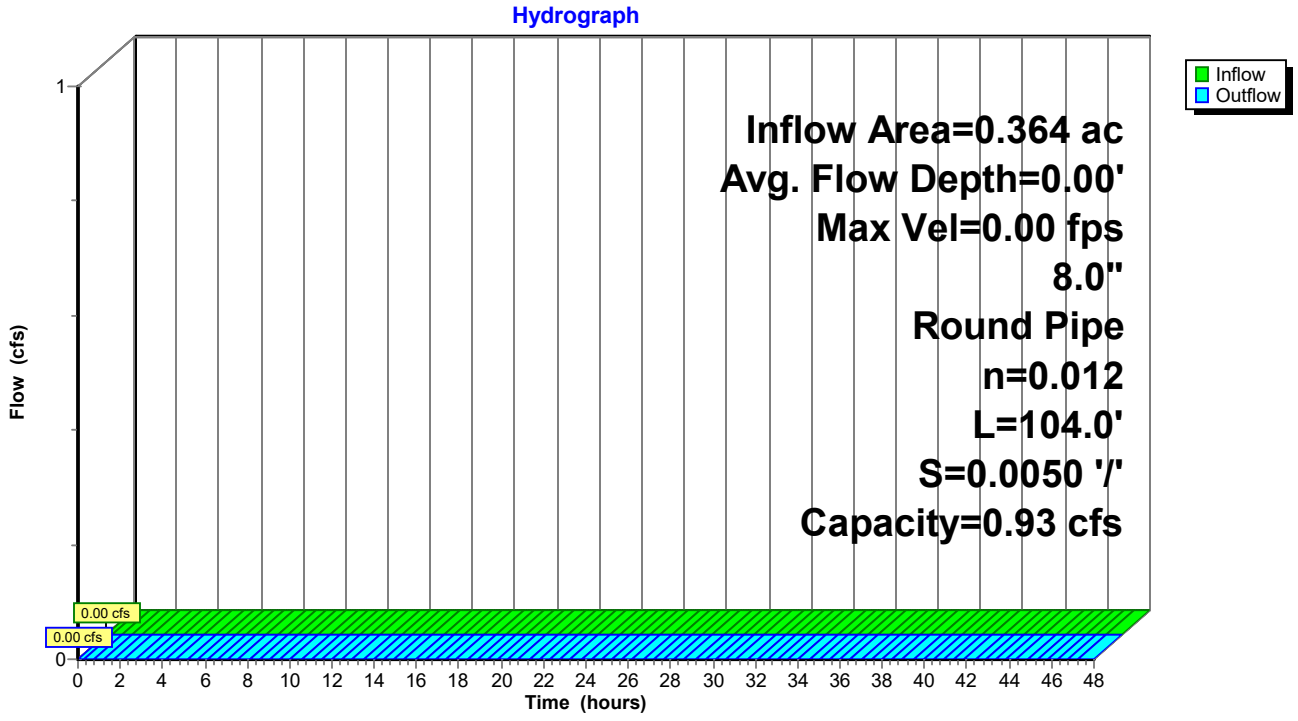
Inflow Area = 0.364 ac, 17.16% Impervious, Inflow Depth = 0.00" for Focal Point event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 0.00 fps, Avg. Travel Time= 0.0 min

Peak Storage= 0 cf @ 0.00 hrs
Average Depth at Peak Storage= 0.00'
Bank-Full Depth= 0.67' Flow Area= 0.3 sf, Capacity= 0.93 cfs

8.0" Round Pipe
n= 0.012 Corrugated PP, smooth interior
Length= 104.0' Slope= 0.0050 '/'
Inlet Invert= 116.28', Outlet Invert= 115.76'





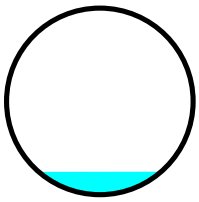
Summary for Reach 33R: 8" SD

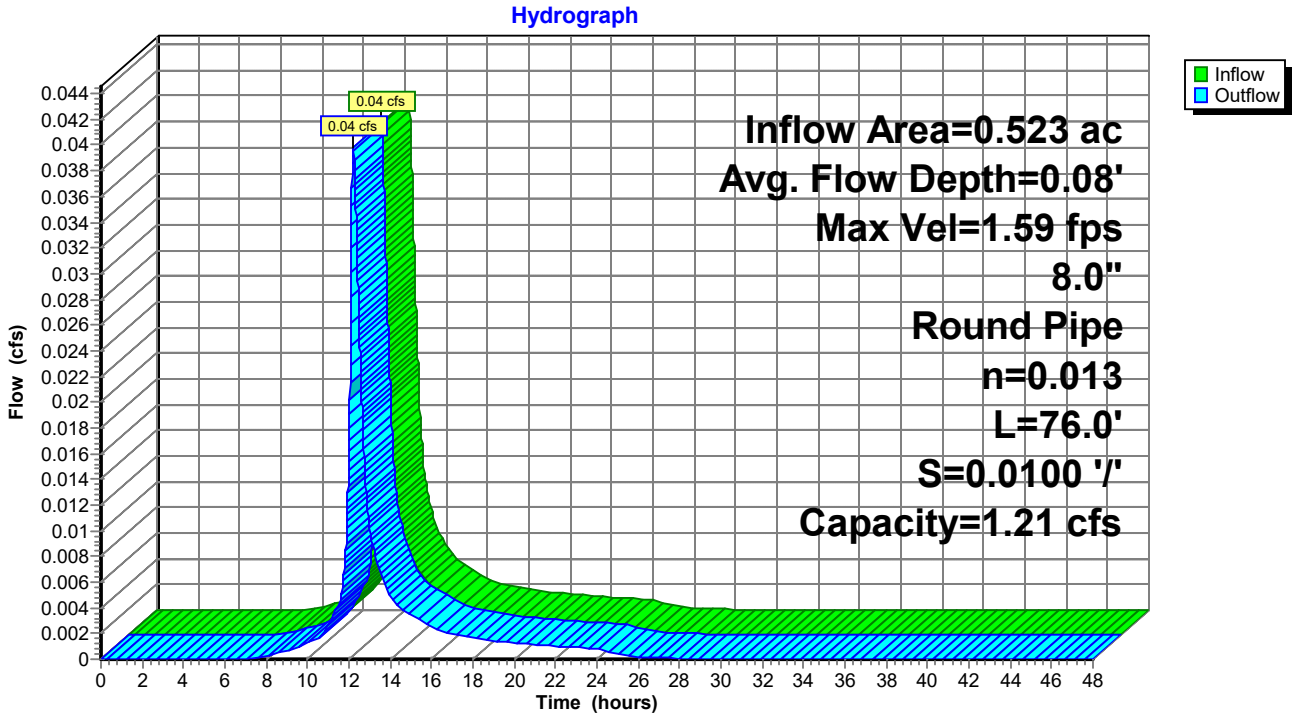
Inflow Area = 0.523 ac, 38.77% Impervious, Inflow Depth = 0.11" for Focal Point event
Inflow = 0.04 cfs @ 12.19 hrs, Volume= 0.005 af
Outflow = 0.04 cfs @ 12.20 hrs, Volume= 0.005 af, Atten= 0%, Lag= 0.6 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 1.59 fps, Min. Travel Time= 0.8 min
Avg. Velocity = 0.59 fps, Avg. Travel Time= 2.1 min

Peak Storage= 2 cf @ 12.20 hrs
Average Depth at Peak Storage= 0.08' , Surface Width= 0.44'
Bank-Full Depth= 0.67' Flow Area= 0.3 sf, Capacity= 1.21 cfs

8.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 76.0' Slope= 0.0100 '/'
Inlet Invert= 115.48', Outlet Invert= 114.72'





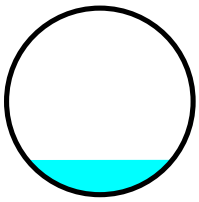
Summary for Reach 34R: 12" SD

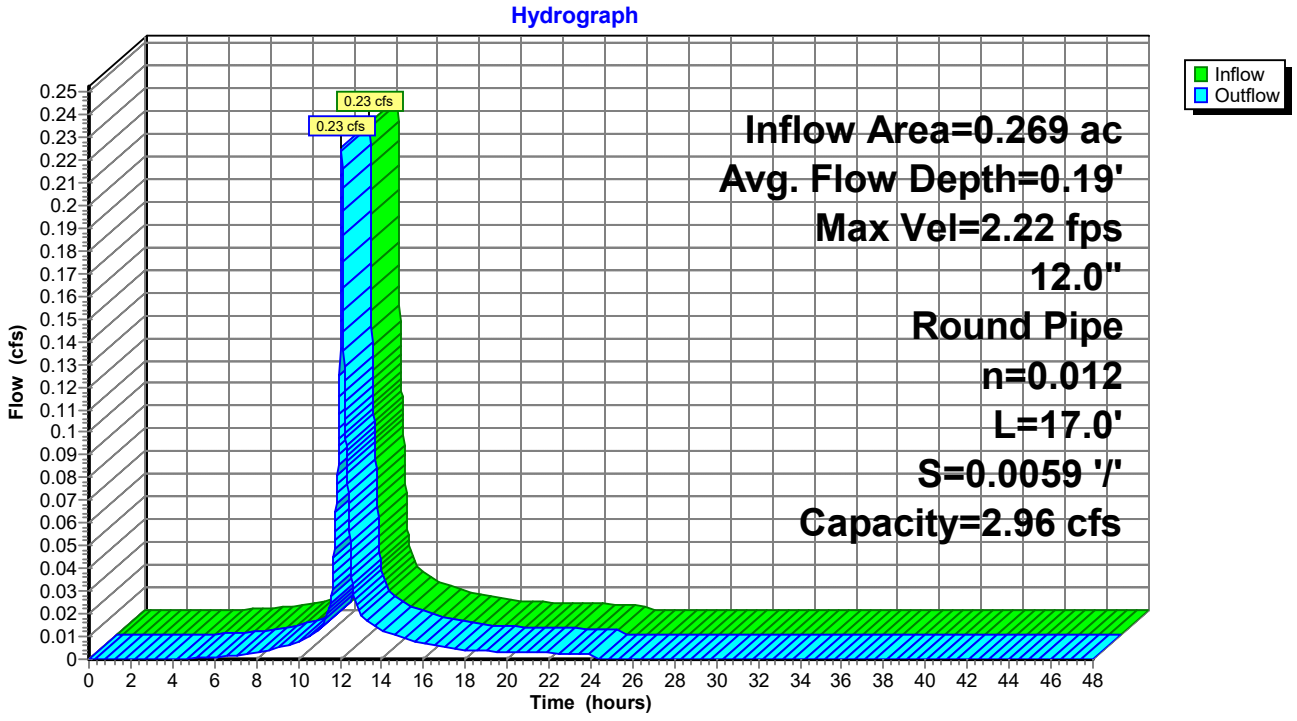
Inflow Area = 0.269 ac,100.00% Impervious, Inflow Depth = 0.74" for Focal Point event
Inflow = 0.23 cfs @ 12.08 hrs, Volume= 0.017 af
Outflow = 0.23 cfs @ 12.09 hrs, Volume= 0.017 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.22 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 0.73 fps, Avg. Travel Time= 0.4 min

Peak Storage= 2 cf @ 12.09 hrs
Average Depth at Peak Storage= 0.19' , Surface Width= 0.78'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.96 cfs

12.0" Round Pipe
n= 0.012 Corrugated PP, smooth interior
Length= 17.0' Slope= 0.0059 '/'
Inlet Invert= 114.75', Outlet Invert= 114.65'





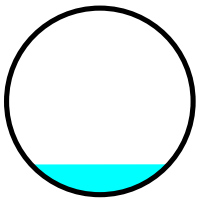
Summary for Reach 35R: 12" SD

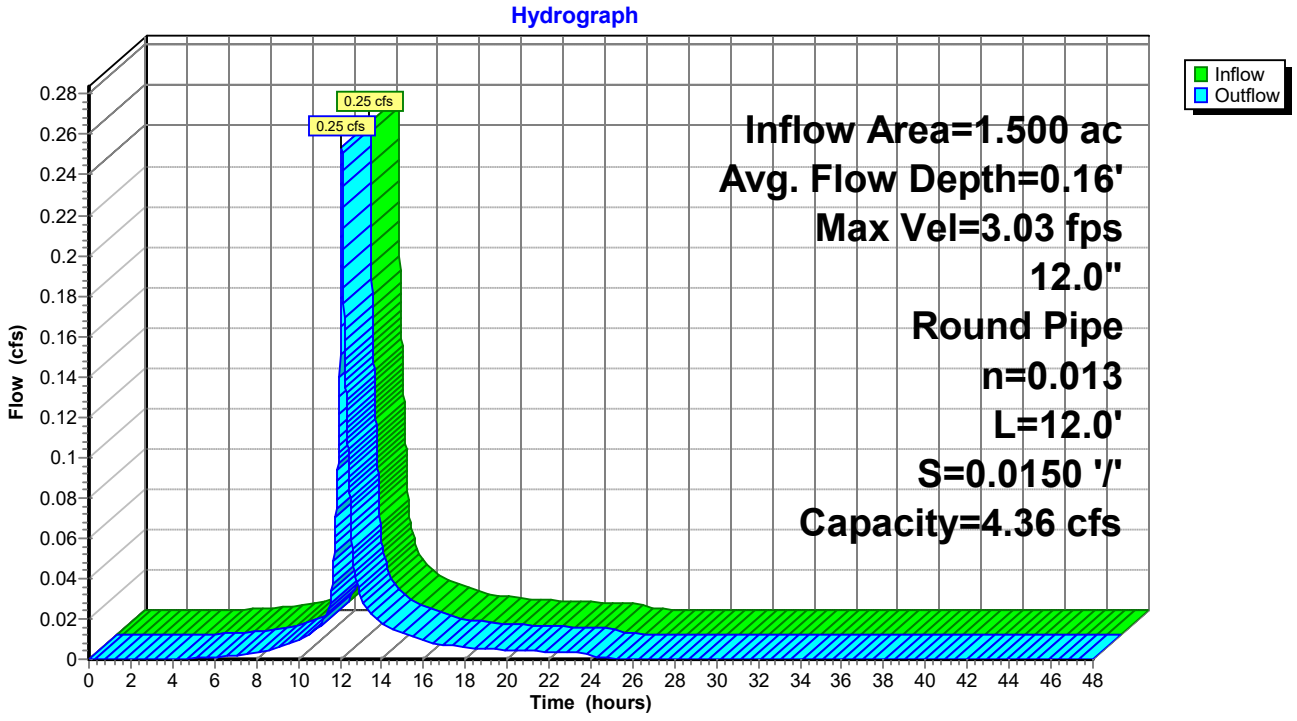
Inflow Area = 1.500 ac, 36.53% Impervious, Inflow Depth = 0.17" for Focal Point event
Inflow = 0.25 cfs @ 12.09 hrs, Volume= 0.022 af
Outflow = 0.25 cfs @ 12.09 hrs, Volume= 0.022 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.03 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 0.95 fps, Avg. Travel Time= 0.2 min

Peak Storage= 1 cf @ 12.09 hrs
Average Depth at Peak Storage= 0.16' , Surface Width= 0.74'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 4.36 cfs

12.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 12.0' Slope= 0.0150 '/'
Inlet Invert= 113.40', Outlet Invert= 113.22'





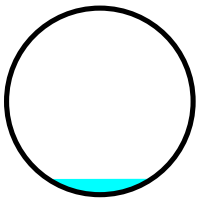
Summary for Reach 40R: New CB 1 to DMH 2

Inflow Area = 3.221 ac, 64.50% Impervious, Inflow Depth = 0.03" for Focal Point event
Inflow = 0.12 cfs @ 12.08 hrs, Volume= 0.009 af
Outflow = 0.11 cfs @ 12.12 hrs, Volume= 0.009 af, Atten= 8%, Lag= 2.1 min

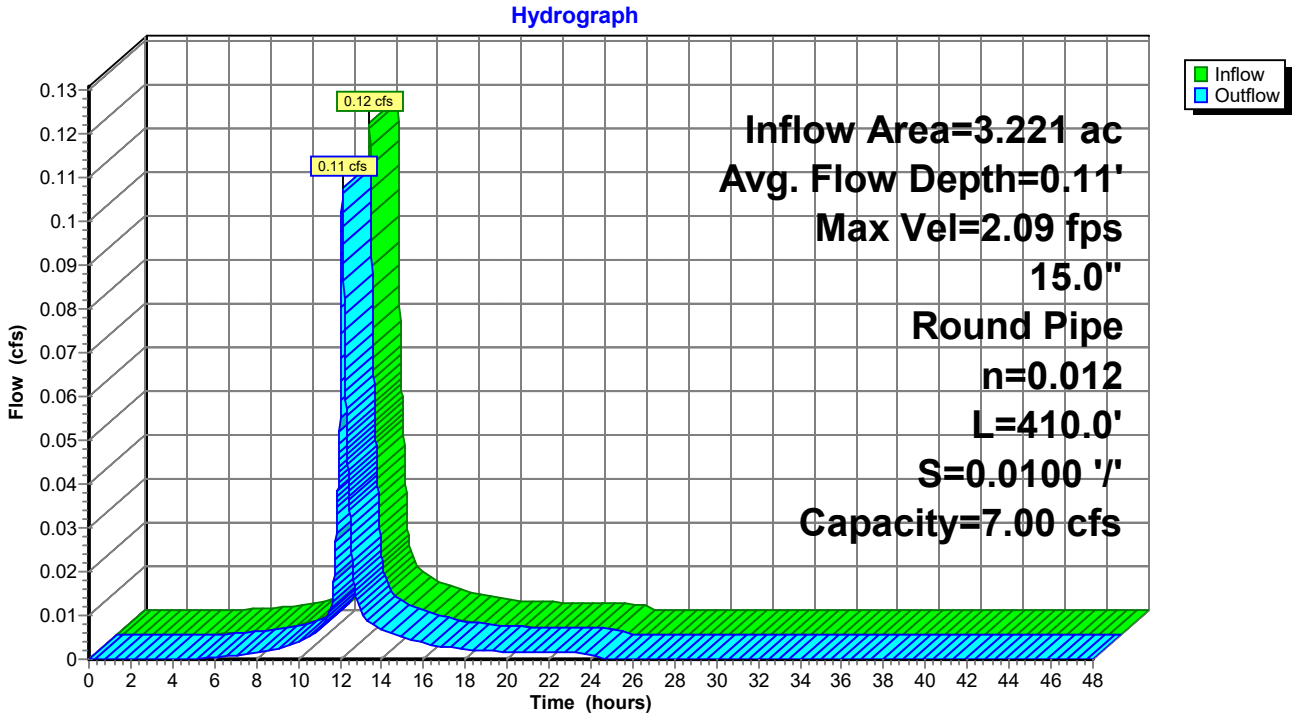
Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.09 fps, Min. Travel Time= 3.3 min
Avg. Velocity = 0.73 fps, Avg. Travel Time= 9.4 min

Peak Storage= 21 cf @ 12.12 hrs
Average Depth at Peak Storage= 0.11' , Surface Width= 0.70'
Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 7.00 cfs

15.0" Round Pipe
n= 0.012 Corrugated PP, smooth interior
Length= 410.0' Slope= 0.0100 '/'
Inlet Invert= 111.96', Outlet Invert= 107.86'



Reach 40R: New CB 1 to DMH 2



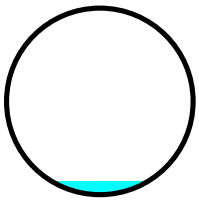
Summary for Reach 41R: DMH 2 to DMH 3

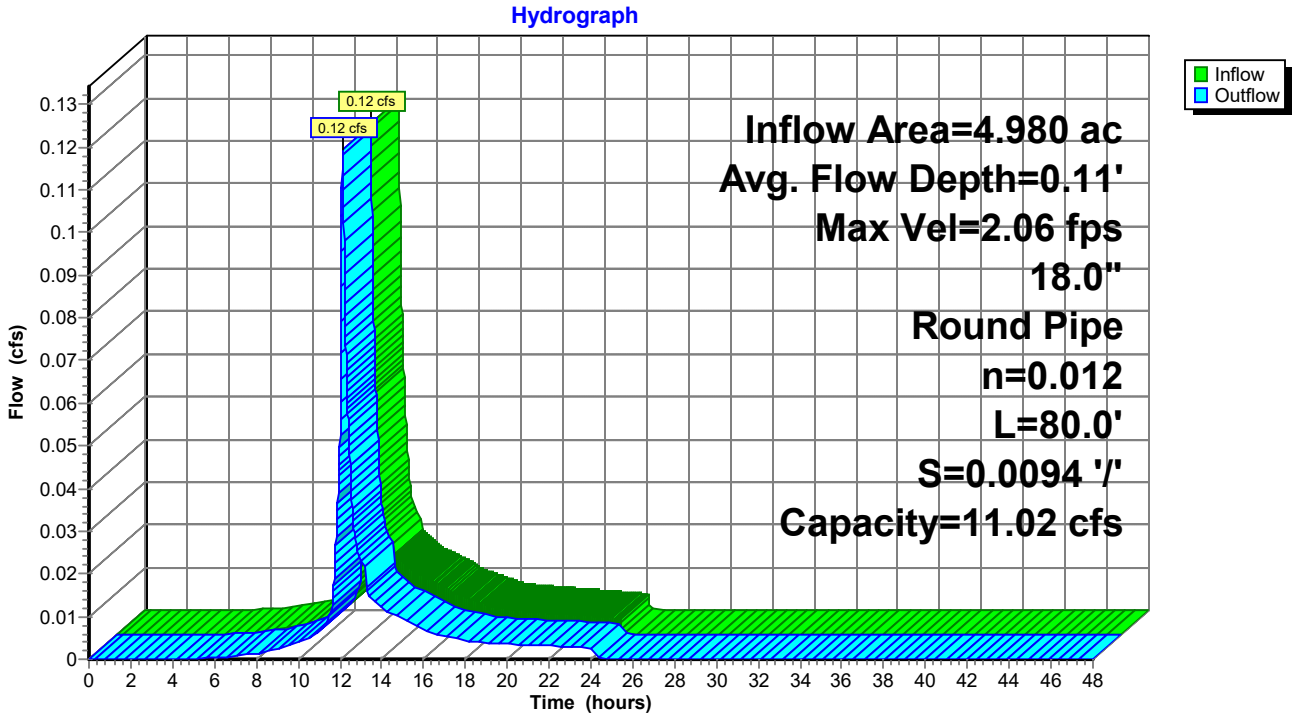
Inflow Area = 4.980 ac, 57.39% Impervious, Inflow Depth = 0.03" for Focal Point event
Inflow = 0.12 cfs @ 12.12 hrs, Volume= 0.012 af
Outflow = 0.12 cfs @ 12.13 hrs, Volume= 0.012 af, Atten= 0%, Lag= 0.5 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.06 fps, Min. Travel Time= 0.6 min
Avg. Velocity = 0.80 fps, Avg. Travel Time= 1.7 min

Peak Storage= 5 cf @ 12.13 hrs
Average Depth at Peak Storage= 0.11' , Surface Width= 0.78'
Bank-Full Depth= 1.50' Flow Area= 1.8 sf, Capacity= 11.02 cfs

18.0" Round Pipe
n= 0.012 Corrugated PP, smooth interior
Length= 80.0' Slope= 0.0094 '/'
Inlet Invert= 107.97', Outlet Invert= 107.22'





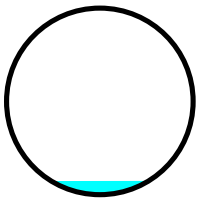
Summary for Reach 42R: DMH 3 to DMH 7

Inflow Area = 5.346 ac, 58.49% Impervious, Inflow Depth = 0.03" for Focal Point event
Inflow = 0.13 cfs @ 12.13 hrs, Volume= 0.015 af
Outflow = 0.12 cfs @ 12.17 hrs, Volume= 0.015 af, Atten= 6%, Lag= 2.4 min

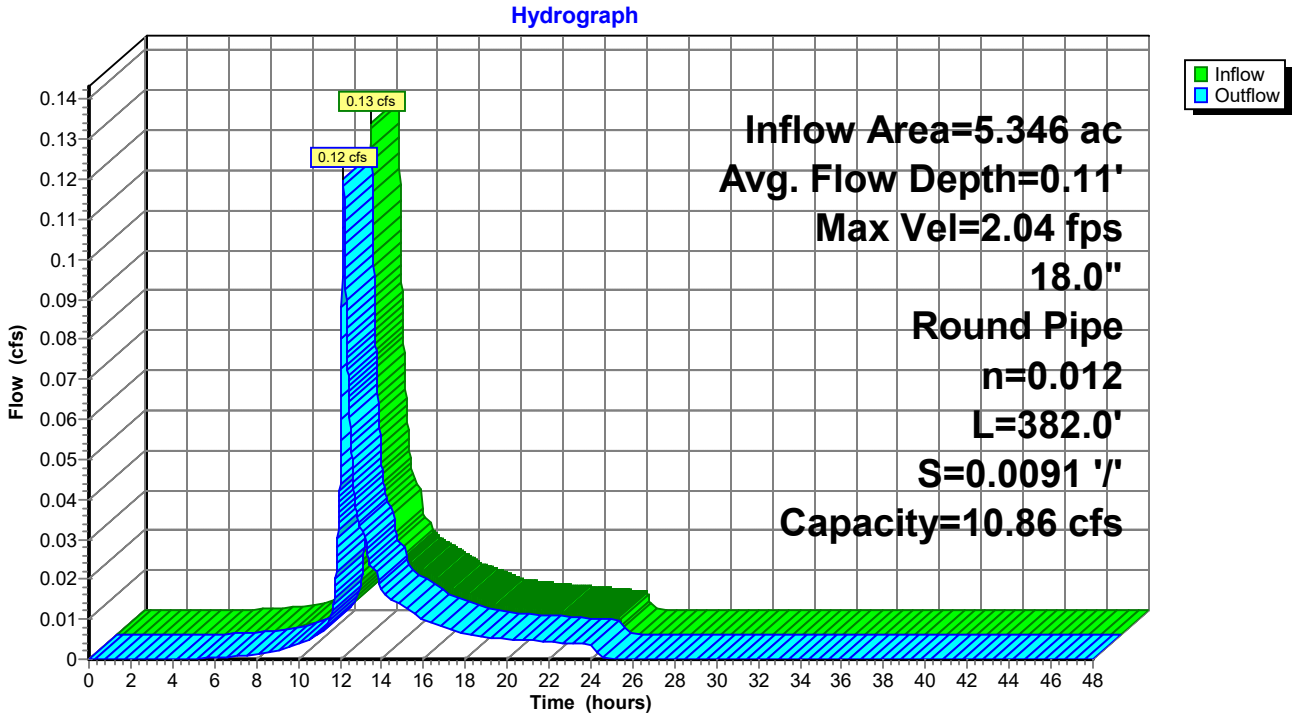
Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.04 fps, Min. Travel Time= 3.1 min
Avg. Velocity = 0.84 fps, Avg. Travel Time= 7.6 min

Peak Storage= 22 cf @ 12.17 hrs
Average Depth at Peak Storage= 0.11' , Surface Width= 0.78'
Bank-Full Depth= 1.50' Flow Area= 1.8 sf, Capacity= 10.86 cfs

18.0" Round Pipe
n= 0.012 Corrugated PP, smooth interior
Length= 382.0' Slope= 0.0091 '/'
Inlet Invert= 107.12', Outlet Invert= 103.64'



Reach 42R: DMH 3 to DMH 7



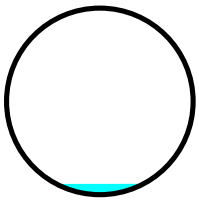
Summary for Reach 44R: DMH 7 to Wetland

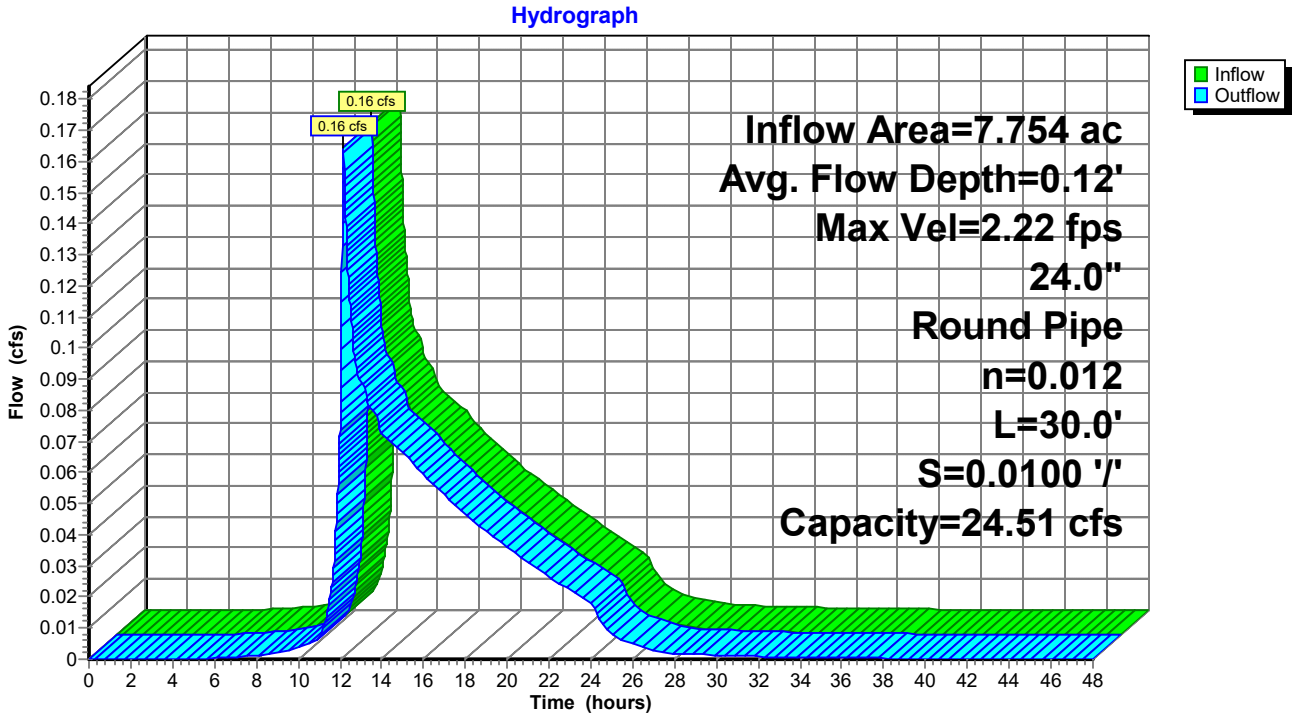
Inflow Area = 7.754 ac, 58.01% Impervious, Inflow Depth > 0.09" for Focal Point event
Inflow = 0.16 cfs @ 12.17 hrs, Volume= 0.057 af
Outflow = 0.16 cfs @ 12.17 hrs, Volume= 0.057 af, Atten= 0%, Lag= 0.2 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.22 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 0.97 fps, Avg. Travel Time= 0.5 min

Peak Storage= 2 cf @ 12.17 hrs
Average Depth at Peak Storage= 0.12' , Surface Width= 0.94'
Bank-Full Depth= 2.00' Flow Area= 3.1 sf, Capacity= 24.51 cfs

24.0" Round Pipe
n= 0.012 Corrugated PP, smooth interior
Length= 30.0' Slope= 0.0100 '/'
Inlet Invert= 103.58', Outlet Invert= 103.28'





Summary for Pond 3P: FP1 TANKS

Inflow Area = 0.812 ac, 23.11% Impervious, Inflow Depth = 0.00" for Focal Point event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 108.21' @ 0.00 hrs Surf.Area= 798 sf Storage= 0 cf
Flood Elev= 111.84' Surf.Area= 798 sf Storage= 2,017 cf

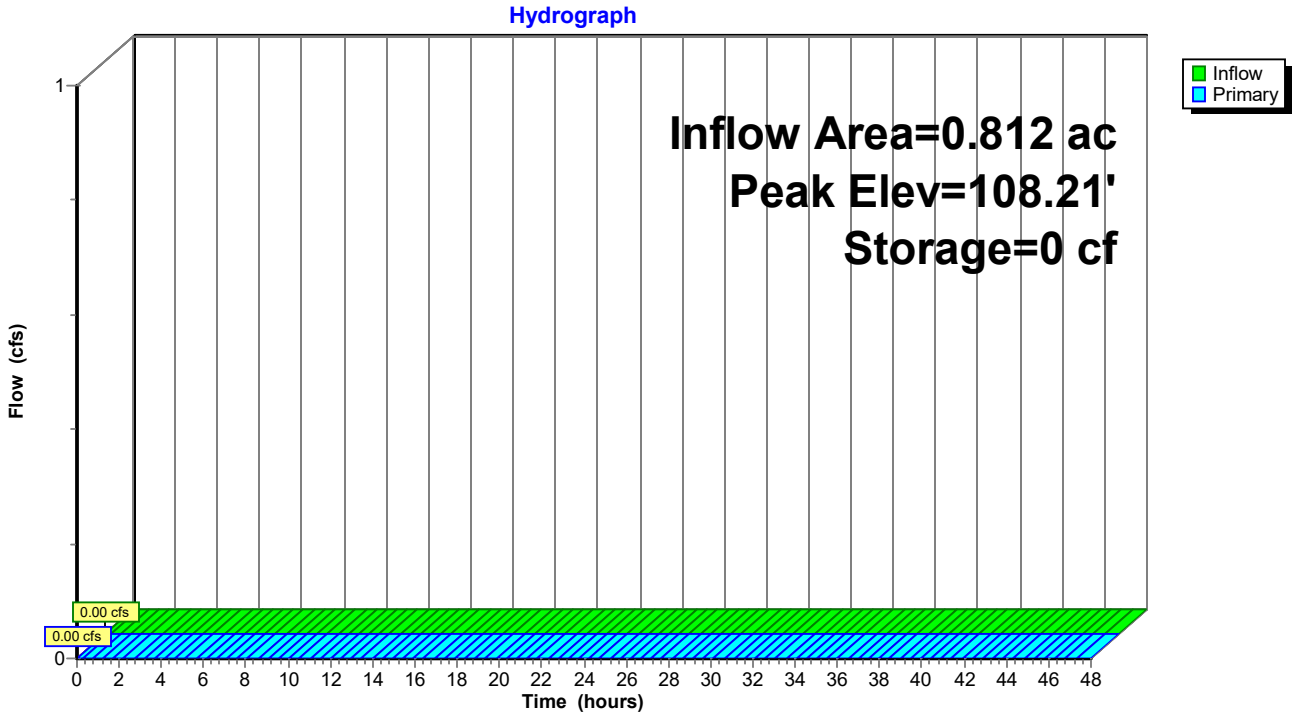
Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no inflow)

Volume	Invert	Avail.Storage	Storage Description
#1	109.90'	4 cf	**ACF R-Tank HD 1** Inside #3 Inside= 15.7"W x 17.3"H => 1.80 sf x 2.35'L = 4.2 cf Outside= 15.7"W x 17.3"H => 1.89 sf x 2.35'L = 4.4 cf 4 cf Overall x 95.0% Voids
#2	108.46'	1,568 cf	**ACF R-Tank HD 2** x 200 Inside #3 Inside= 15.7"W x 33.9"H => 3.52 sf x 2.35'L = 8.3 cf Outside= 15.7"W x 33.9"H => 3.70 sf x 2.35'L = 8.7 cf 200 Chambers in 10 Rows 1,737 cf Overall x 95.0% Voids
#3	108.21'	445 cf	**27.50'W x 29.00'L x 3.58'H Prismatoid** 2,855 cf Overall - 1,742 cf Embedded = 1,113 cf x 40.0% Voids
		2,017 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Device 3	108.46'	**0.5" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#2	Device 3	111.34'	**6.0' long x 0.7' 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 Coef. (English) 2.76 2.82 2.93 3.09 3.18 3.22 3.27 3.30 3.32 3.31 3.32
#3	Primary	108.46'	**12.0" Round Culvert** L= 10.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 108.46' / 108.41' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=108.21' (Free Discharge)
└**3=Culvert** (Controls 0.00 cfs)
  ├**1=Orifice/Grate** (Controls 0.00 cfs)
  └**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 3P: FP1 TANKS



Summary for Pond 4P: FP2 TANKS

Inflow Area = 0.514 ac, 21.94% Impervious, Inflow Depth = 0.00" for Focal Point event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 108.13' @ 0.00 hrs Surf.Area= 840 sf Storage= 0 cf
Flood Elev= 111.76' Surf.Area= 840 sf Storage= 1,208 cf

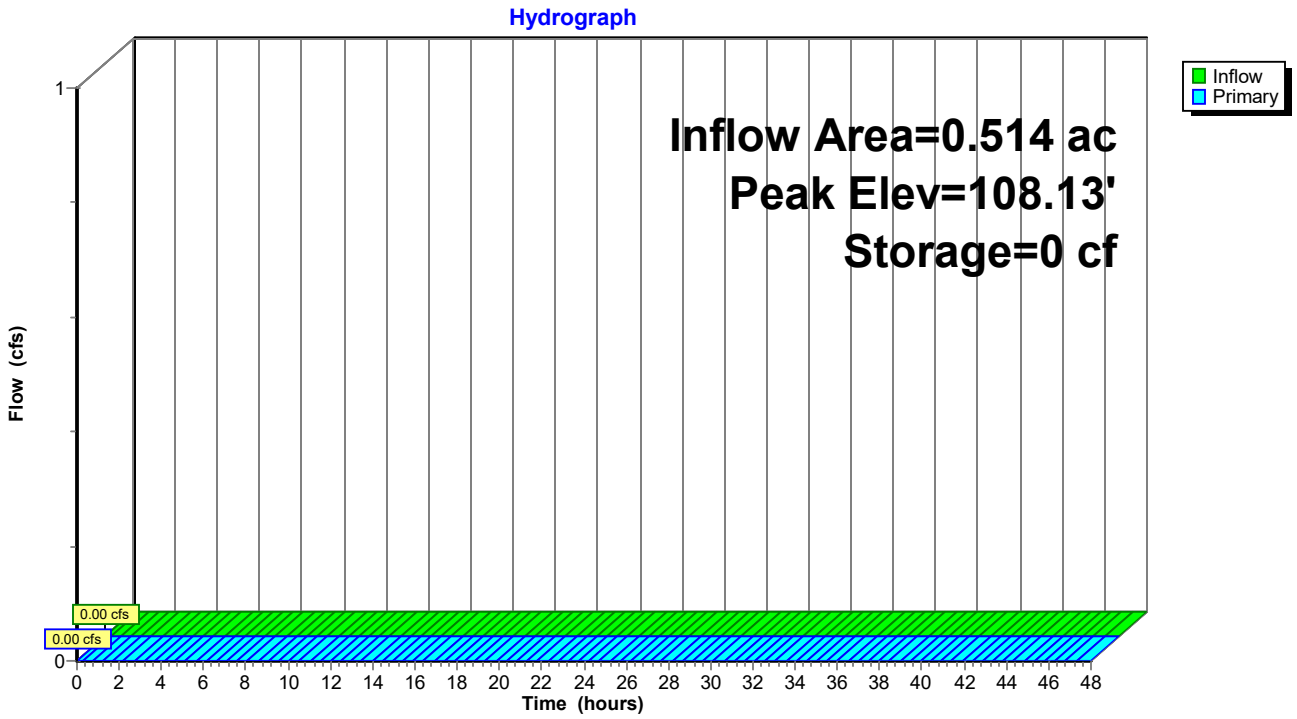
Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no inflow)

Volume	Invert	Avail.Storage	Storage Description
#1	108.38'	24 cf	**ACF R-Tank HD 1** x 6 Inside #5 Inside= 15.7"W x 17.3"H => 1.80 sf x 2.35'L = 4.2 cf Outside= 15.7"W x 17.3"H => 1.89 sf x 2.35'L = 4.4 cf 27 cf Overall x 95.0% Voids
#2	108.38'	24 cf	**ACF R-Tank HD 1** x 6 Inside #5 Inside= 15.7"W x 17.3"H => 1.80 sf x 2.35'L = 4.2 cf Outside= 15.7"W x 17.3"H => 1.89 sf x 2.35'L = 4.4 cf 27 cf Overall x 95.0% Voids
#3	108.38'	481 cf	**ACF R-Tank HD 1** x 120 Inside #5 Inside= 15.7"W x 17.3"H => 1.80 sf x 2.35'L = 4.2 cf Outside= 15.7"W x 17.3"H => 1.89 sf x 2.35'L = 4.4 cf 120 Chambers in 8 Rows 533 cf Overall x 95.0% Voids
#4	108.38'	180 cf	**ACF R-Tank HD 1** x 45 Inside #5 Inside= 15.7"W x 17.3"H => 1.80 sf x 2.35'L = 4.2 cf Outside= 15.7"W x 17.3"H => 1.89 sf x 2.35'L = 4.4 cf 45 Chambers in 3 Rows 200 cf Overall x 95.0% Voids
#5	108.13'	498 cf	**21.00'W x 40.00'L x 2.42'H Prismatoid** 2,033 cf Overall - 787 cf Embedded = 1,246 cf x 40.0% Voids
		1,208 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Device 3	108.38'	**0.5" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#2	Device 3	109.65'	**6.0' long x 0.7' 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 Coef. (English) 2.76 2.82 2.93 3.09 3.18 3.22 3.27 3.30 3.32 3.31 3.32
#3	Primary	108.38'	**12.0" Round Culvert** L= 70.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 108.38' / 108.10' S= 0.0040 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=108.13' (Free Discharge)
└**3=Culvert** (Controls 0.00 cfs)
└**1=Orifice/Grate** (Controls 0.00 cfs)
└**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 4P: FP2 TANKS



Summary for Pond 9R: New CB 1 to DMH 2

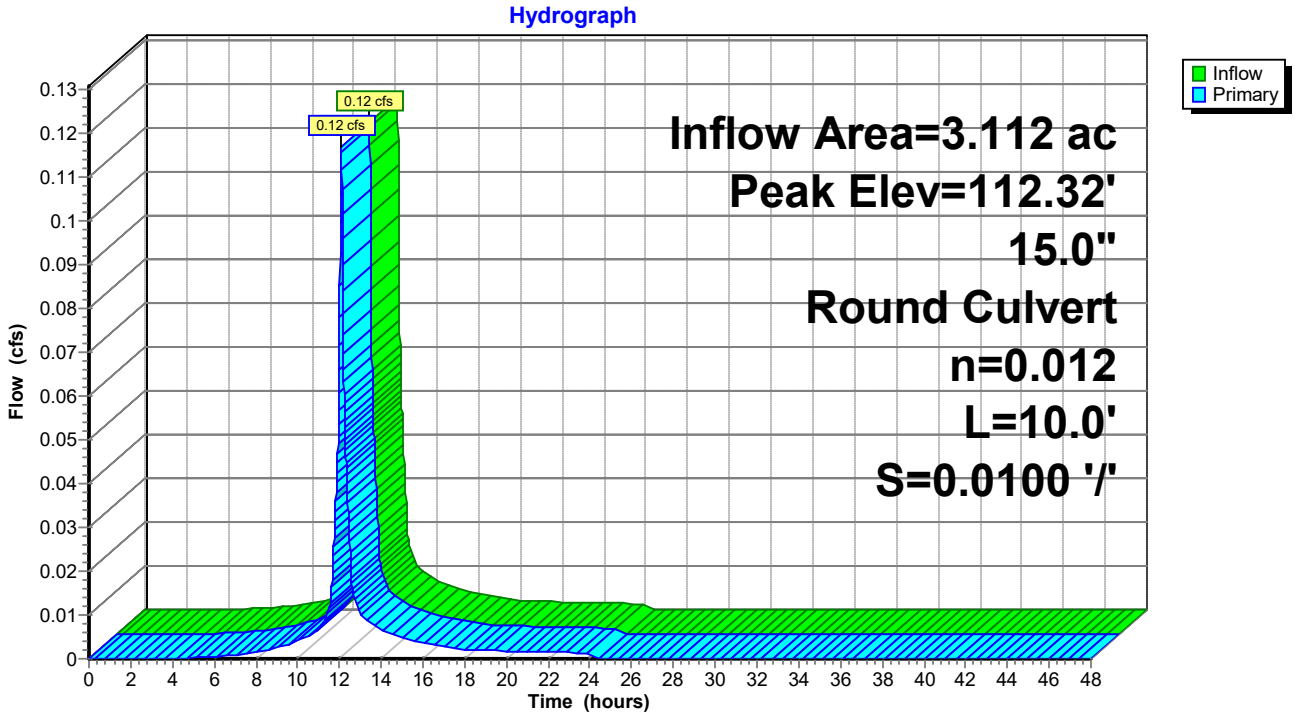
Inflow Area = 3.112 ac, 66.74% Impervious, Inflow Depth = 0.03" for Focal Point event
Inflow = 0.12 cfs @ 12.08 hrs, Volume= 0.009 af
Outflow = 0.12 cfs @ 12.08 hrs, Volume= 0.009 af, Atten= 0%, Lag= 0.0 min
Primary = 0.12 cfs @ 12.08 hrs, Volume= 0.009 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 112.32' @ 12.08 hrs
Flood Elev= 117.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	112.15'	**15.0" Round Culvert** L= 10.0' Ke= 0.500 Inlet / Outlet Invert= 112.15' / 112.05' S= 0.0100 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.11 cfs @ 12.08 hrs HW=112.32' (Free Discharge)
1=Culvert (Barrel Controls 0.11 cfs @ 1.82 fps)

Pond 9R: New CB 1 to DMH 2



Summary for Pond 30P: Raised StormTech SC-740 System

Inflow Area = 1.500 ac, 36.53% Impervious, Inflow Depth = 0.17" for Focal Point event
Inflow = 0.25 cfs @ 12.09 hrs, Volume= 0.022 af
Outflow = 0.02 cfs @ 13.29 hrs, Volume= 0.022 af, Atten= 90%, Lag= 71.6 min
Primary = 0.02 cfs @ 13.29 hrs, Volume= 0.022 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 111.64' @ 13.29 hrs Surf.Area= 0.053 ac Storage= 0.009 af

Plug-Flow detention time= 150.9 min calculated for 0.022 af (100% of inflow)
Center-of-Mass det. time= 150.9 min (954.3 - 803.4)

Volume	Invert	Avail.Storage	Storage Description
#1A	111.22'	0.007 af	**6.25'W x 46.34'L x 3.50'H Field A** 0.023 af Overall - 0.006 af Embedded = 0.017 af x 40.0% Voids
#2A	111.72'	0.006 af	**ADS_StormTech SC-740 +Cap** x 6 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap
#3B	111.22'	0.010 af	**6.25'W x 67.70'L x 3.50'H Field B** 0.034 af Overall - 0.009 af Embedded = 0.025 af x 40.0% Voids
#4B	111.72'	0.009 af	**ADS_StormTech SC-740 +Cap** x 9 Inside #3 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap
#5C	111.22'	0.018 af	**6.25'W x 124.66'L x 3.50'H Field C** 0.063 af Overall - 0.018 af Embedded = 0.045 af x 40.0% Voids
#6C	111.72'	0.018 af	**ADS_StormTech SC-740 +Cap** x 17 Inside #5 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap
#7D	111.22'	0.019 af	**6.25'W x 131.78'L x 3.50'H Field D** 0.066 af Overall - 0.019 af Embedded = 0.047 af x 40.0% Voids
#8D	111.72'	0.019 af	**ADS_StormTech SC-740 +Cap** x 18 Inside #7 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap
		0.106 af	Total Available Storage

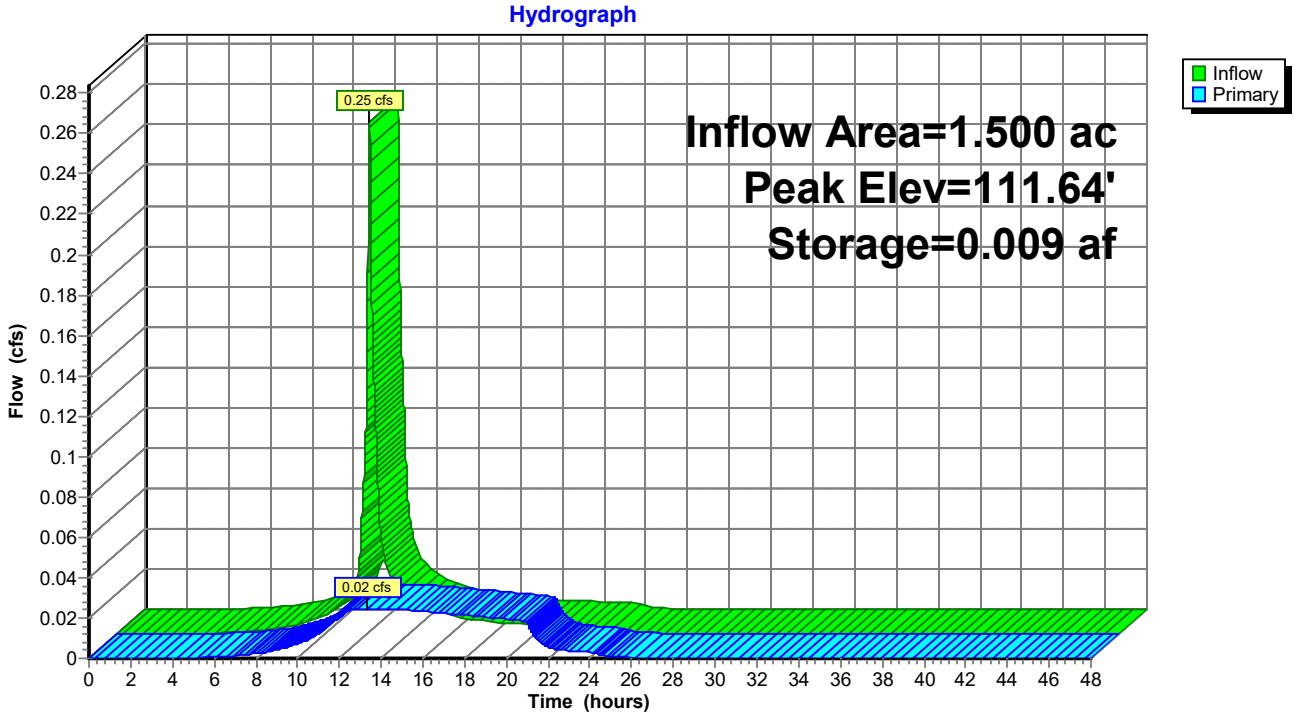
Storage Group A created with Chamber Wizard
Storage Group B created with Chamber Wizard
Storage Group C created with Chamber Wizard
Storage Group D created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Device 3	110.72'	**1.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#2	Device 3	113.72'	**6.0' long x 0.7' 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 Coef. (English) 2.76 2.82 2.93 3.09 3.18 3.22 3.27 3.30 3.32 3.31 3.32
#3	Primary	110.72'	**12.0" Round Culvert** L= 3.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 110.72' / 110.69' S= 0.0100 '/' Cc= 0.900

n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.02 cfs @ 13.29 hrs HW=111.64' (Free Discharge)
└**3=Culvert** (Passes 0.02 cfs of 1.69 cfs potential flow)
└**1=Orifice/Grate** (Orifice Controls 0.02 cfs @ 4.52 fps)
└**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 30P: Raised StormTech SC-740 System



Summary for Pond 36P: PP1

Inflow Area = 0.050 ac, 81.59% Impervious, Inflow Depth = 0.20" for Focal Point event
Inflow = 0.01 cfs @ 12.11 hrs, Volume= 0.001 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 115.69' @ 24.34 hrs Surf.Area= 1,110 sf Storage= 36 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

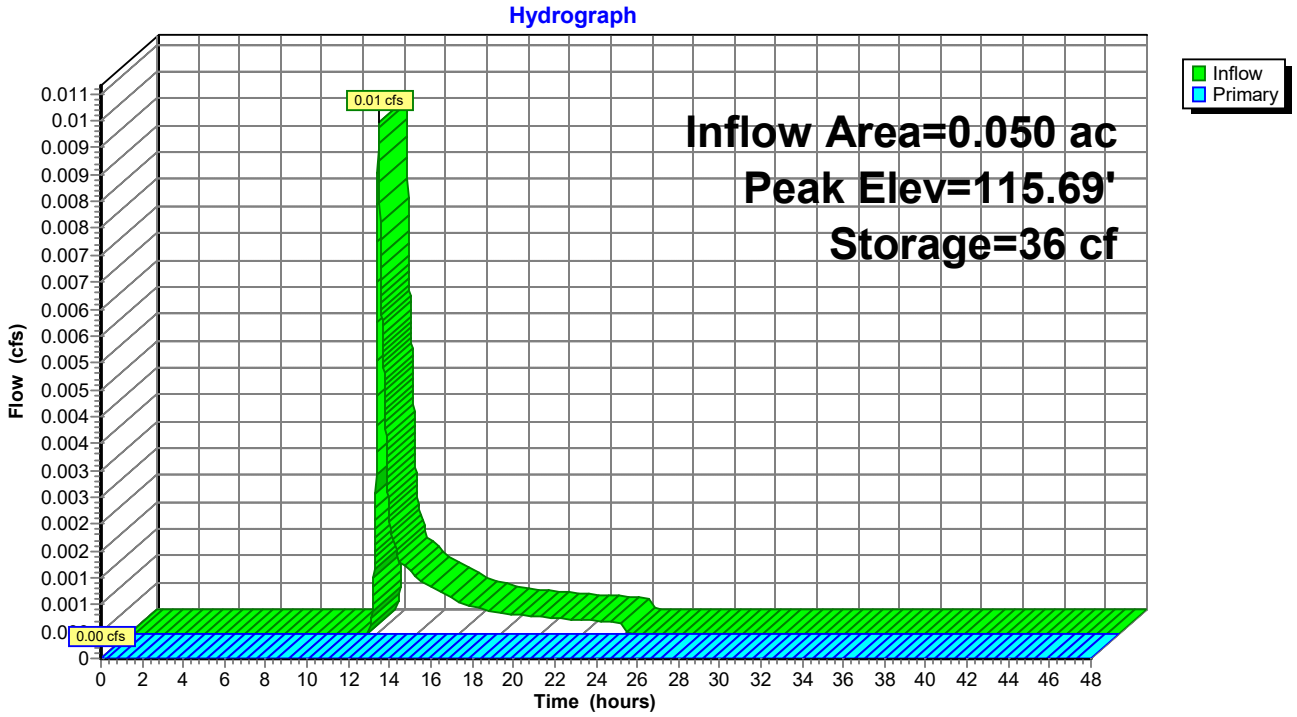
Volume	Invert	Avail.Storage	Storage Description
#1	115.59'	939 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
115.59	1,110	0.0	0	0
115.60	1,110	20.0	2	2
116.35	1,110	33.0	275	277
116.68	1,110	40.0	147	423
117.00	1,110	20.0	71	495
119.00	1,110	20.0	444	939

Device	Routing	Invert	Outlet Devices
#1	Primary	115.76'	**7.500 in/hr Exfiltration over Surface area above 115.76'** Excluded Surface area = 1,110 sf
#2	Primary	115.76'	**8.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=115.59' (Free Discharge)
1=Exfiltration (Controls 0.00 cfs)
2=Orifice/Grate (Controls 0.00 cfs)

Pond 36P: PP1


Hydrograph
Inflow
Primary
0.01 cfs
0.00 cfs
Inflow Area=0.050 ac
Peak Elev=115.69'
Storage=36 cf
Flow (cfs)
Time (hours)
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48

Summary for Pond 37P: PP2

Inflow Area = 0.077 ac,100.00% Impervious, Inflow Depth = 0.74" for Focal Point event
Inflow = 0.06 cfs @ 12.08 hrs, Volume= 0.005 af
Outflow = 0.04 cfs @ 12.19 hrs, Volume= 0.005 af, Atten= 39%, Lag= 6.1 min
Primary = 0.04 cfs @ 12.19 hrs, Volume= 0.005 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 115.71' @ 12.19 hrs Surf.Area= 1,212 sf Storage= 48 cf

Plug-Flow detention time= 61.0 min calculated for 0.005 af (99% of inflow)
Center-of-Mass det. time= 53.5 min (843.1 - 789.6)

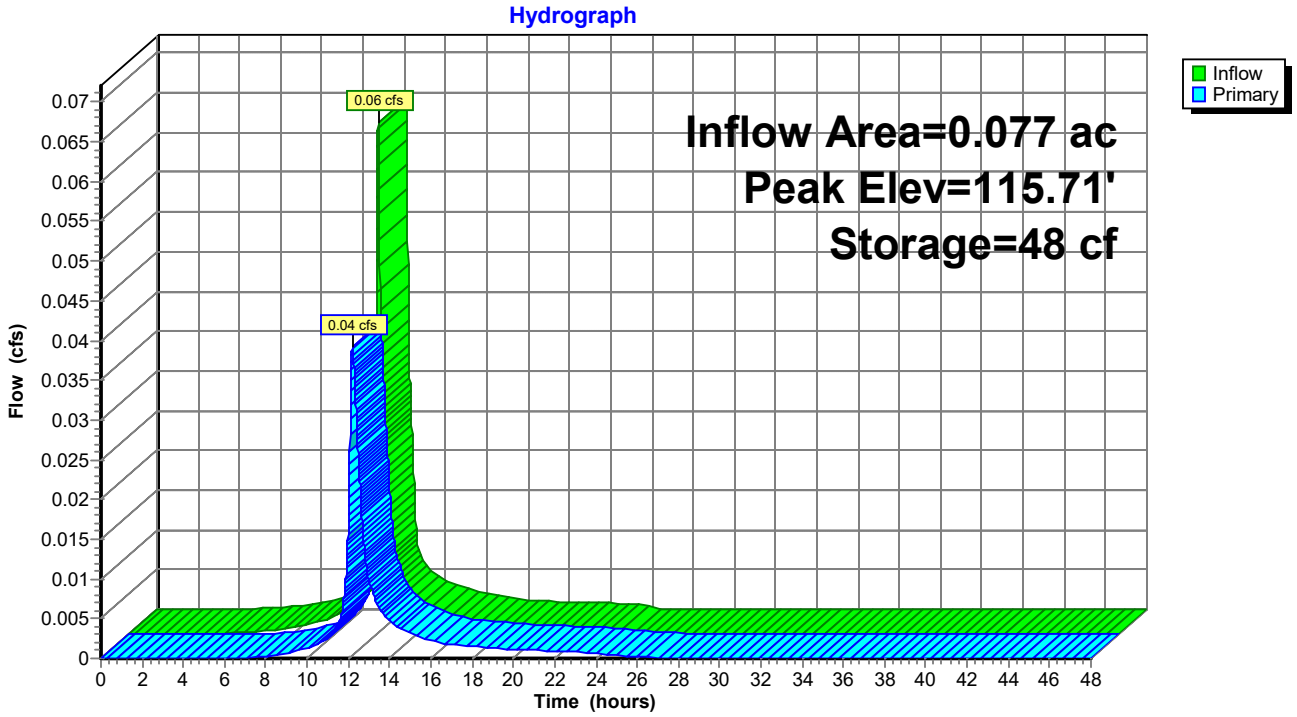
Volume	Invert	Avail.Storage	Storage Description
#1	115.59'	1,025 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
115.59	1,212	0.0	0	0
115.60	1,212	20.0	2	2
116.35	1,212	33.0	300	302
116.68	1,212	40.0	160	462
117.00	1,212	20.0	78	540
119.00	1,212	20.0	485	1,025

Device	Routing	Invert	Outlet Devices
#1	Primary	115.76'	**7.500 in/hr Exfiltration over Surface area above 115.76'** Excluded Surface area = 1,212 sf
#2	Primary	115.60'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.04 cfs @ 12.19 hrs HW=115.71' (Free Discharge)
1=Exfiltration (Controls 0.00 cfs)
2=Orifice/Grate (Orifice Controls 0.04 cfs @ 1.15 fps)

Pond 37P: PP2


Hydrograph
Inflow
Primary
0.06 cfs
0.04 cfs
Inflow Area=0.077 ac
Peak Elev=115.71'
Storage=48 cf
Flow (cfs)
0.07
0.065
0.06
0.055
0.05
0.045
0.04
0.035
0.03
0.025
0.02
0.015
0.01
0.005
0
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48
Time (hours)

Summary for Pond 38P: Rain Garden West

Inflow Area = 0.503 ac, 7.99% Impervious, Inflow Depth = 0.00" for Focal Point event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 120.00' @ 0.00 hrs Surf.Area= 453 sf Storage= 0 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no inflow)

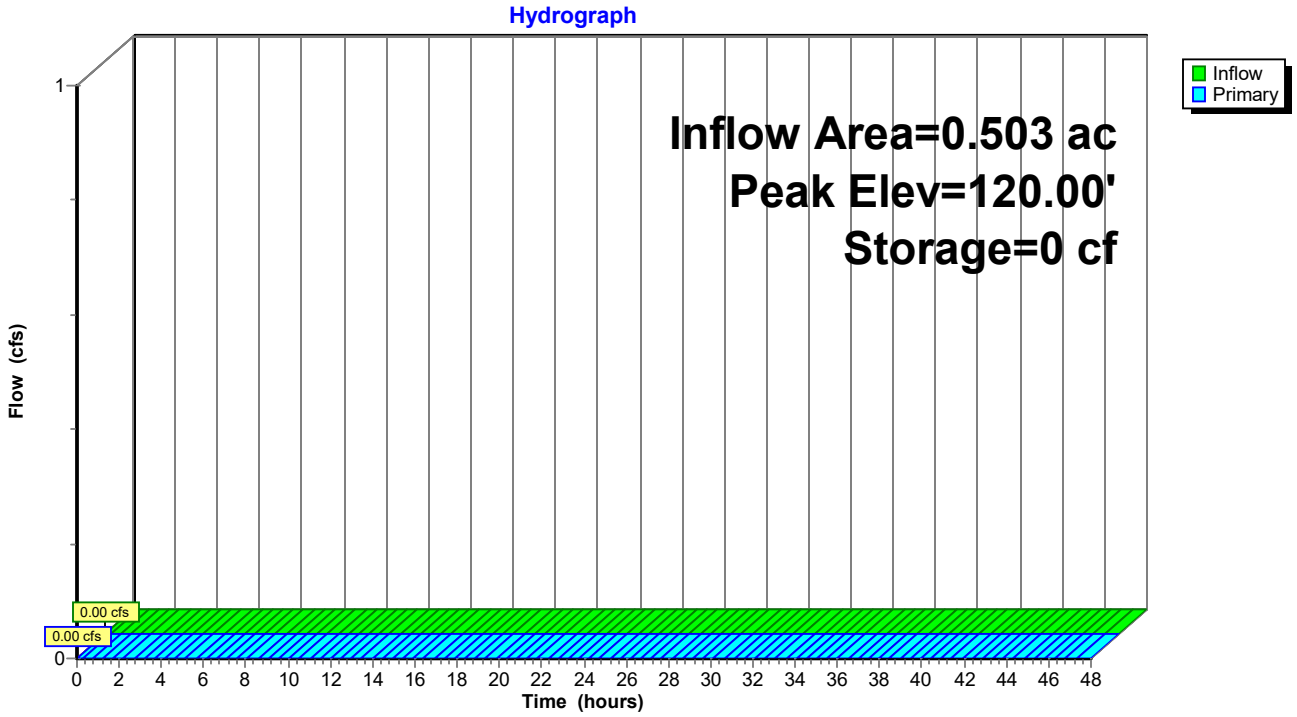
Volume	Invert	Avail.Storage	Storage Description
#1	120.00'	729 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
120.00	453	0	0
121.00	1,005	729	729

Device	Routing	Invert	Outlet Devices
#1	Device 2	120.25'	**8.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#2	Primary	117.25'	**8.0" Round Culvert** L= 187.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 117.25' / 115.25' S= 0.0107 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=120.00' (Free Discharge)
↑—**2=Culvert** (Passes 0.00 cfs of 1.65 cfs potential flow)
↑—**1=Orifice/Grate** (Controls 0.00 cfs)

Pond 38P: Rain Garden West



Summary for Pond DS-2: Drip Strip

Inflow Area = 0.220 ac, 79.17% Impervious, Inflow Depth = 0.41" for Focal Point event
Inflow = 0.11 cfs @ 12.09 hrs, Volume= 0.008 af
Outflow = 0.10 cfs @ 12.12 hrs, Volume= 0.008 af, Atten= 6%, Lag= 1.8 min
Discarded = 0.10 cfs @ 12.12 hrs, Volume= 0.008 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 115.02' @ 12.12 hrs Surf.Area= 1,600 sf Storage= 11 cf

Plug-Flow detention time= 1.9 min calculated for 0.008 af (100% of inflow)
Center-of-Mass det. time= 1.9 min (845.4 - 843.5)

Volume	Invert	Avail.Storage	Storage Description
#1	115.00'	3,040 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

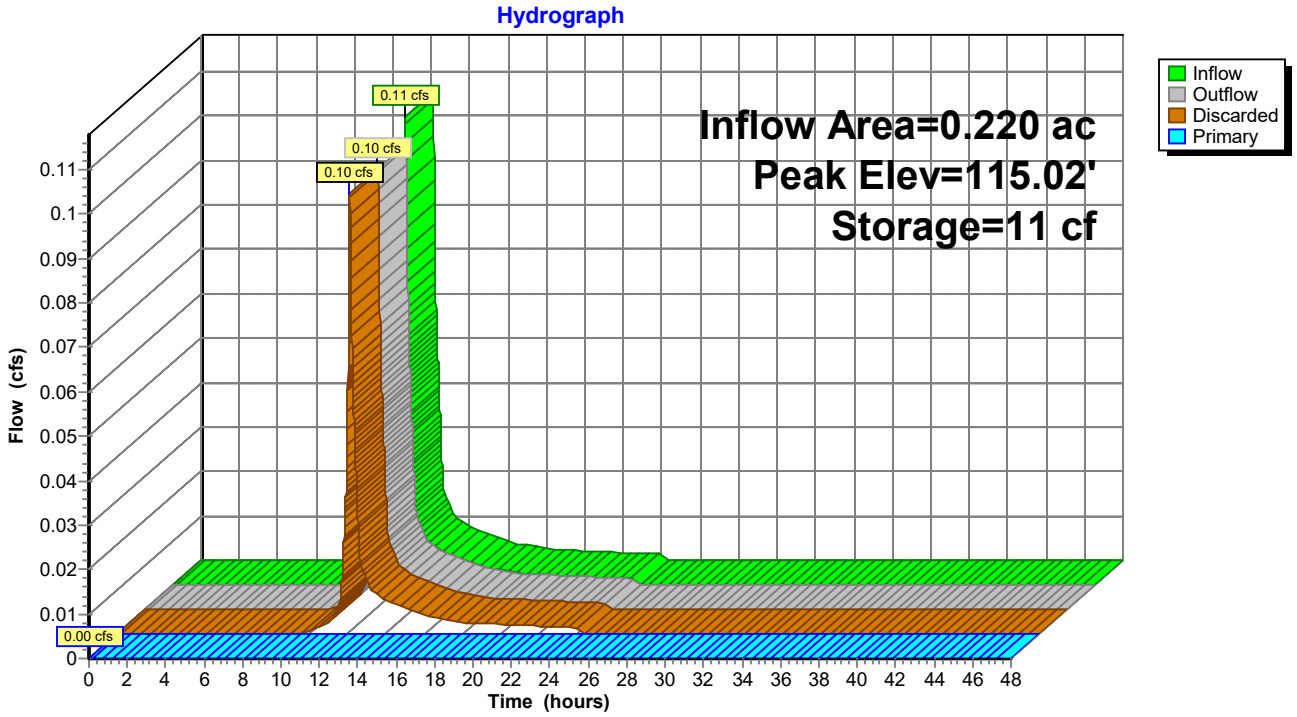
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
115.00	1,600	0.0	0	0
116.00	1,600	40.0	640	640
117.00	1,600	30.0	480	1,120
118.00	1,600	40.0	640	1,760
119.00	1,600	40.0	640	2,400
120.00	1,600	40.0	640	3,040

Device	Routing	Invert	Outlet Devices
#1	Discarded	115.00'	**7.500 in/hr Exfiltration over Surface area**
#2	Primary	116.00'	**6.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.28 cfs @ 12.12 hrs HW=115.02' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.28 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=115.00' (Free Discharge)
↑—**2=Orifice/Grate** (Controls 0.00 cfs)

Pond DS-2: Drip Strip



Summary for Pond DS-3: Drip Strip

Inflow Area = 0.399 ac, 76.31% Impervious, Inflow Depth = 0.41" for Focal Point event
Inflow = 0.19 cfs @ 12.09 hrs, Volume= 0.014 af
Outflow = 0.18 cfs @ 12.12 hrs, Volume= 0.014 af, Atten= 6%, Lag= 1.8 min
Discarded = 0.18 cfs @ 12.12 hrs, Volume= 0.014 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 115.03' @ 12.12 hrs Surf.Area= 1,600 sf Storage= 21 cf

Plug-Flow detention time= 1.9 min calculated for 0.014 af (100% of inflow)
Center-of-Mass det. time= 1.9 min (845.4 - 843.5)

Volume	Invert	Avail.Storage	Storage Description
#1	115.00'	3,040 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

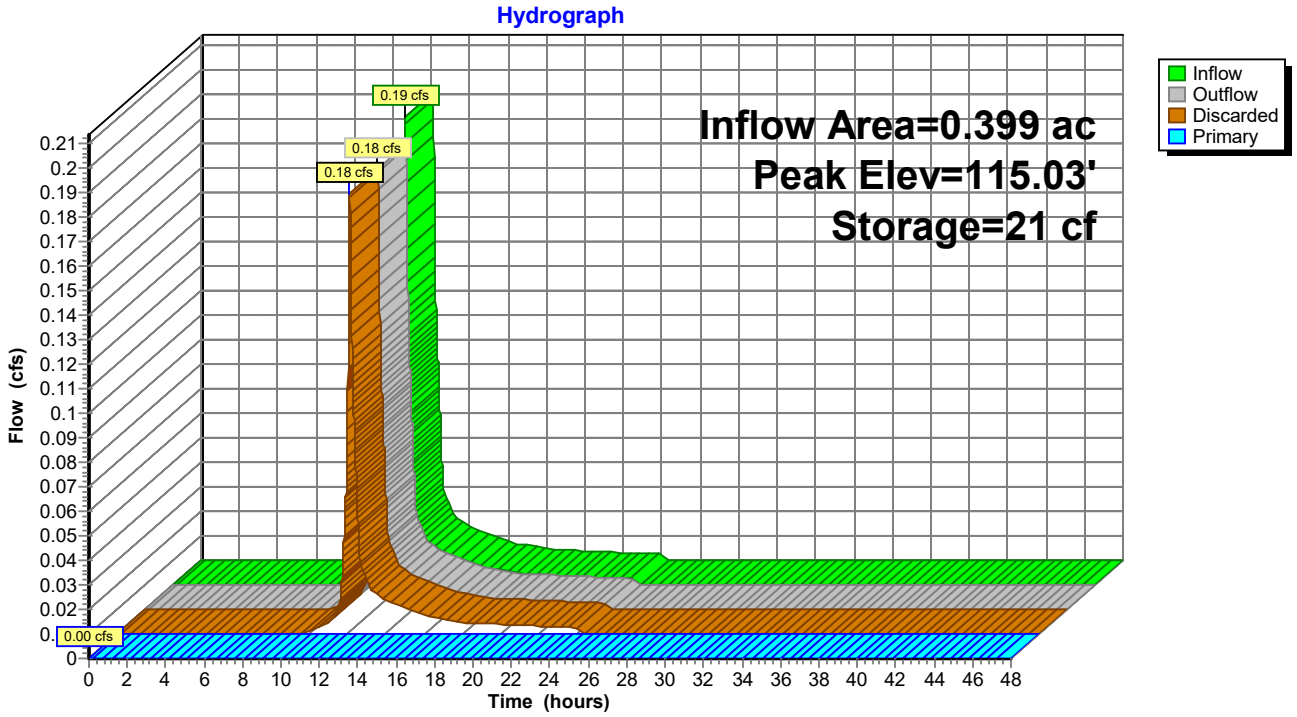
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
115.00	1,600	0.0	0	0
116.00	1,600	40.0	640	640
117.00	1,600	30.0	480	1,120
118.00	1,600	40.0	640	1,760
119.00	1,600	40.0	640	2,400
120.00	1,600	40.0	640	3,040

Device	Routing	Invert	Outlet Devices
#1	Discarded	115.00'	**7.500 in/hr Exfiltration over Surface area**
#2	Primary	116.00'	**6.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.28 cfs @ 12.12 hrs HW=115.03' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.28 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=115.00' (Free Discharge)
↑—**2=Orifice/Grate** (Controls 0.00 cfs)

Pond DS-3: Drip Strip



Summary for Pond DS1: Drip Strip

Inflow Area = 0.220 ac, 79.17% Impervious, Inflow Depth = 0.41" for Focal Point event
Inflow = 0.11 cfs @ 12.09 hrs, Volume= 0.008 af
Outflow = 0.10 cfs @ 12.12 hrs, Volume= 0.008 af, Atten= 6%, Lag= 1.8 min
Discarded = 0.10 cfs @ 12.12 hrs, Volume= 0.008 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 115.02' @ 12.12 hrs Surf.Area= 1,600 sf Storage= 11 cf

Plug-Flow detention time= 1.9 min calculated for 0.008 af (100% of inflow)
Center-of-Mass det. time= 1.9 min (845.4 - 843.5)

Volume	Invert	Avail.Storage	Storage Description
#1	115.00'	3,040 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

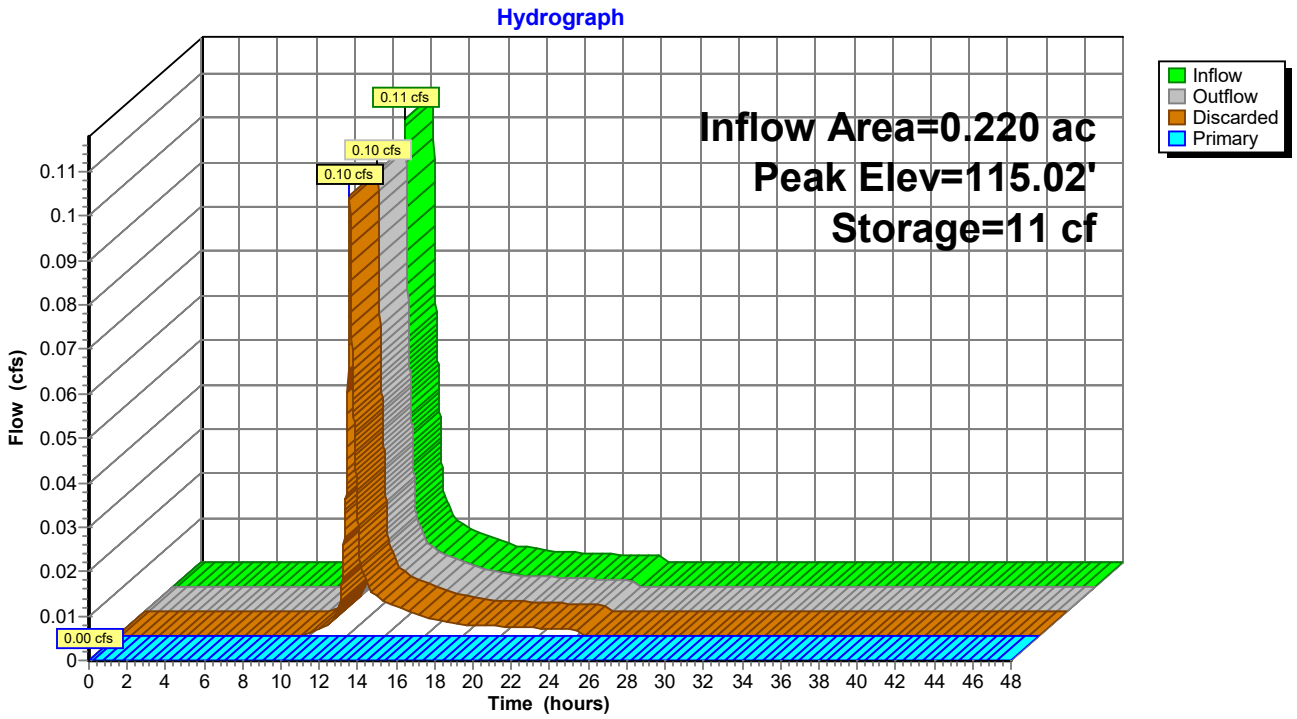
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
115.00	1,600	0.0	0	0
116.00	1,600	40.0	640	640
117.00	1,600	30.0	480	1,120
118.00	1,600	40.0	640	1,760
119.00	1,600	40.0	640	2,400
120.00	1,600	40.0	640	3,040

Device	Routing	Invert	Outlet Devices
#1	Discarded	115.00'	**7.500 in/hr Exfiltration over Surface area**
#2	Primary	116.00'	**6.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.28 cfs @ 12.12 hrs HW=115.02' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.28 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=115.00' (Free Discharge)
↑—**2=Orifice/Grate** (Controls 0.00 cfs)

Pond DS1: Drip Strip



Summary for Pond FP1: FP1 Filter

Inflow Area = 0.812 ac, 23.11% Impervious, Inflow Depth = 0.00" for Focal Point event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 111.84' @ 0.00 hrs Surf.Area= 75 sf Storage= 0 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no inflow)

Volume	Invert	Avail.Storage	Storage Description
#1	111.84'	133 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

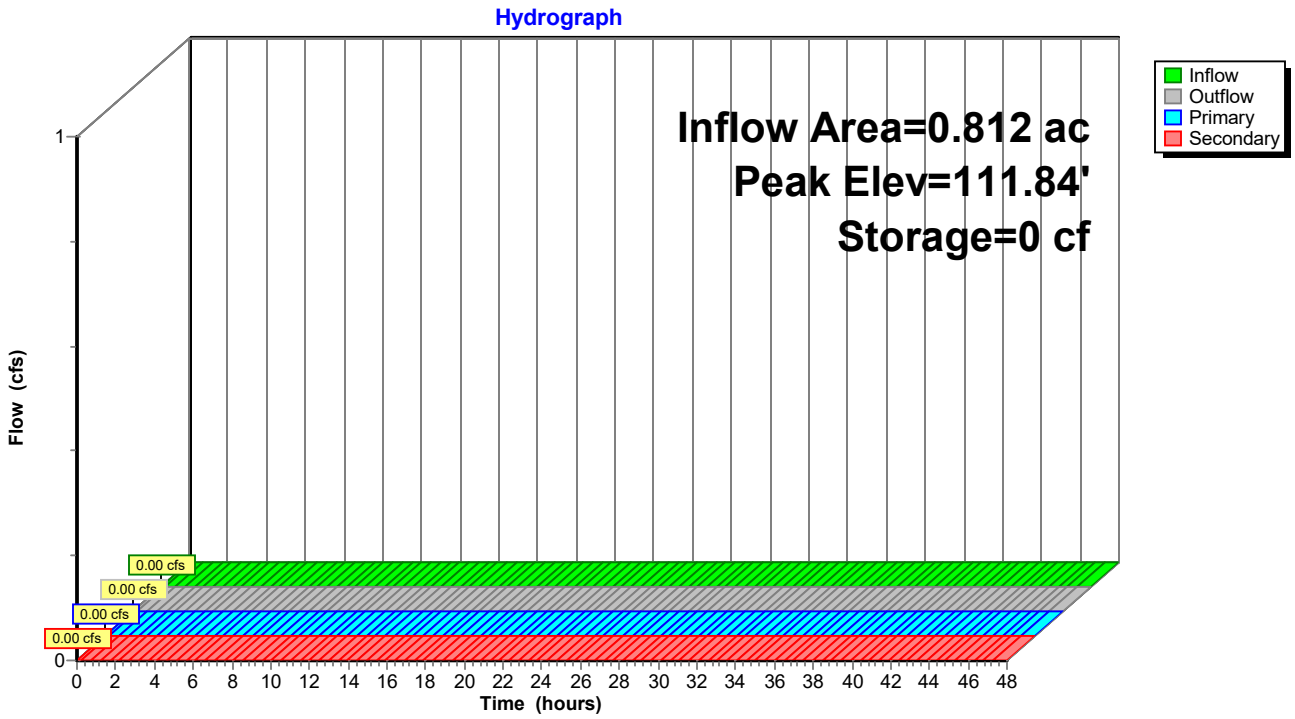
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
111.84	75	0.0	0	0
113.34	75	40.0	45	45
114.34	100	100.0	88	133

Device	Routing	Invert	Outlet Devices
#1	Primary	111.84'	**100.000 in/hr Exfiltration over Surface area**
#2	Secondary	113.84'	**12.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=111.84' (Free Discharge)
↑—**1=Exfiltration** (Passes 0.00 cfs of 0.17 cfs potential flow)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=111.84' (Free Discharge)
↑—**2=Orifice/Grate** (Controls 0.00 cfs)

Pond FP1: FP1 Filter



Summary for Pond FP2: FP2 Filter

Inflow Area = 0.514 ac, 21.94% Impervious, Inflow Depth = 0.00" for Focal Point event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 110.56' @ 0.00 hrs Surf.Area= 75 sf Storage= 0 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no inflow)

Volume	Invert	Avail.Storage	Storage Description
#1	110.56'	133 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

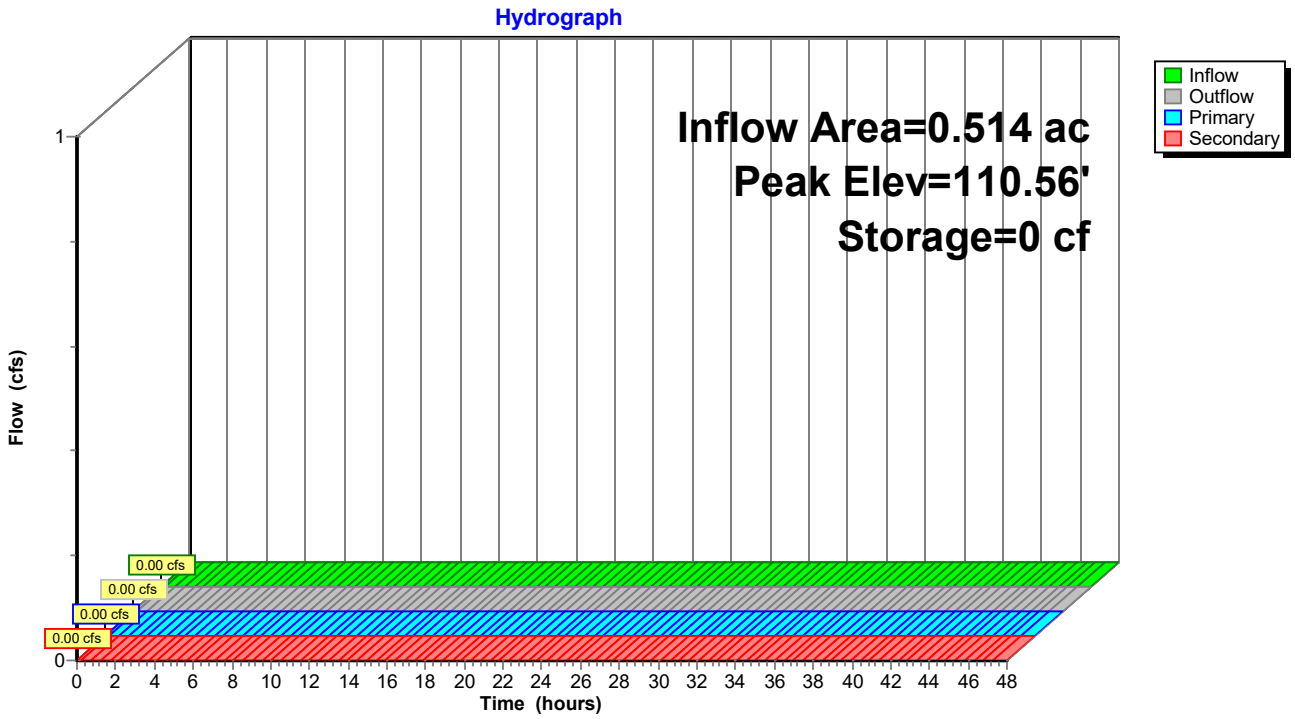
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
110.56	75	0.0	0	0
112.06	75	40.0	45	45
113.06	100	100.0	88	133

Device	Routing	Invert	Outlet Devices
#1	Primary	110.56'	**100.000 in/hr Exfiltration over Surface area**
#2	Secondary	112.55'	**12.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=110.56' (Free Discharge)
1=Exfiltration (Passes 0.00 cfs of 0.17 cfs potential flow)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=110.56' (Free Discharge)
2=Orifice/Grate (Controls 0.00 cfs)

Pond FP2: FP2 Filter



Summary for Pond IT-1: Infiltration Trench

Inflow Area = 1.157 ac, 72.26% Impervious, Inflow Depth = 0.10" for Focal Point event
Inflow = 0.11 cfs @ 12.11 hrs, Volume= 0.010 af
Outflow = 0.10 cfs @ 12.13 hrs, Volume= 0.010 af, Atten= 4%, Lag= 1.5 min
Discarded = 0.10 cfs @ 12.13 hrs, Volume= 0.010 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 112.02' @ 12.13 hrs Surf.Area= 1,600 sf Storage= 9 cf

Plug-Flow detention time= 1.4 min calculated for 0.010 af (100% of inflow)
Center-of-Mass det. time= 1.4 min (894.0 - 892.6)

Volume	Invert	Avail.Storage	Storage Description
#1	112.00'	2,880 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

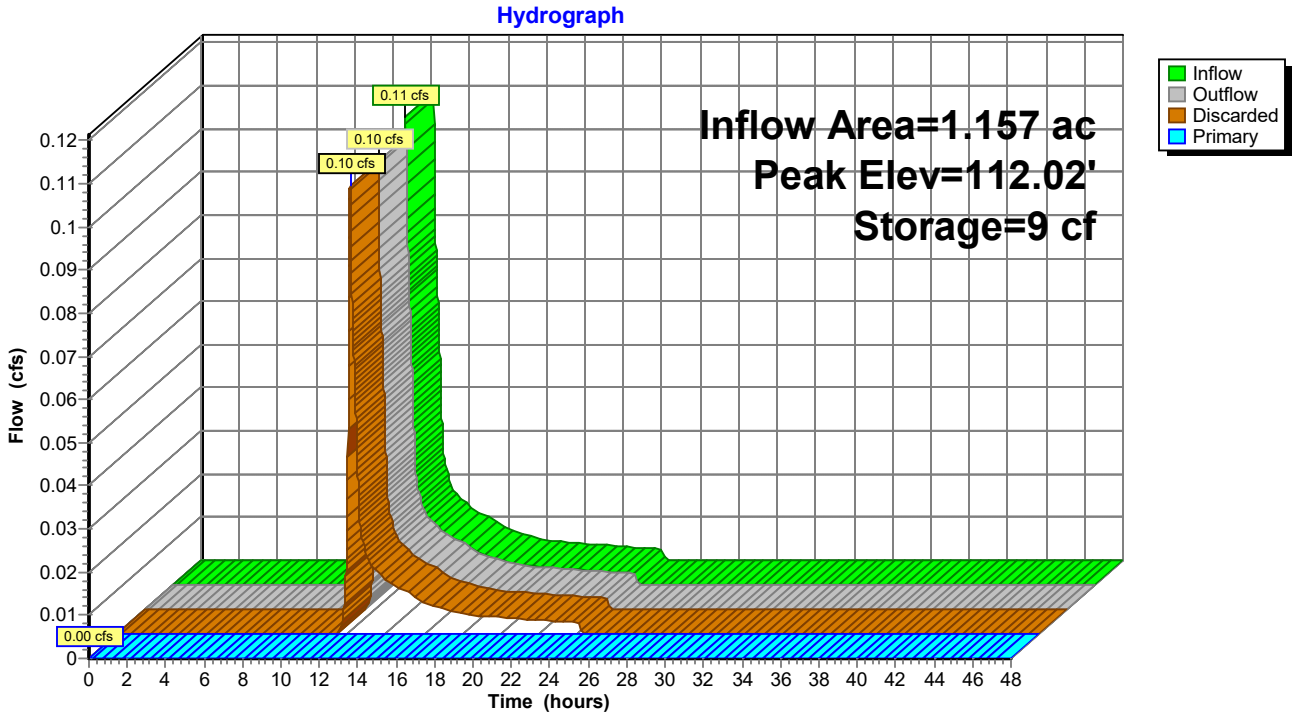
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
112.00	1,600	0.0	0	0
113.00	1,600	30.0	480	480
114.00	1,600	30.0	480	960
115.00	1,600	40.0	640	1,600
116.00	1,600	40.0	640	2,240
117.00	1,600	40.0	640	2,880

Device	Routing	Invert	Outlet Devices
#1	Discarded	112.00'	**7.500 in/hr Exfiltration over Surface area**
#2	Primary	113.00'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.28 cfs @ 12.13 hrs HW=112.02' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.28 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=112.00' (Free Discharge)
↑—**2=Orifice/Grate** (Controls 0.00 cfs)

Pond IT-1: Infiltration Trench



Summary for Pond PP1: Porous Pavement 1

Inflow Area = 0.440 ac, 72.24% Impervious, Inflow Depth = 0.10" for Focal Point event
Inflow = 0.02 cfs @ 12.15 hrs, Volume= 0.004 af
Outflow = 0.01 cfs @ 12.54 hrs, Volume= 0.004 af, Atten= 43%, Lag= 23.2 min
Primary = 0.01 cfs @ 12.54 hrs, Volume= 0.004 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 112.90' @ 12.54 hrs Surf.Area= 6,156 sf Storage= 11 cf
Flood Elev= 114.67' Surf.Area= 6,156 sf Storage= 4,358 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 2.9 min (939.1 - 936.3)

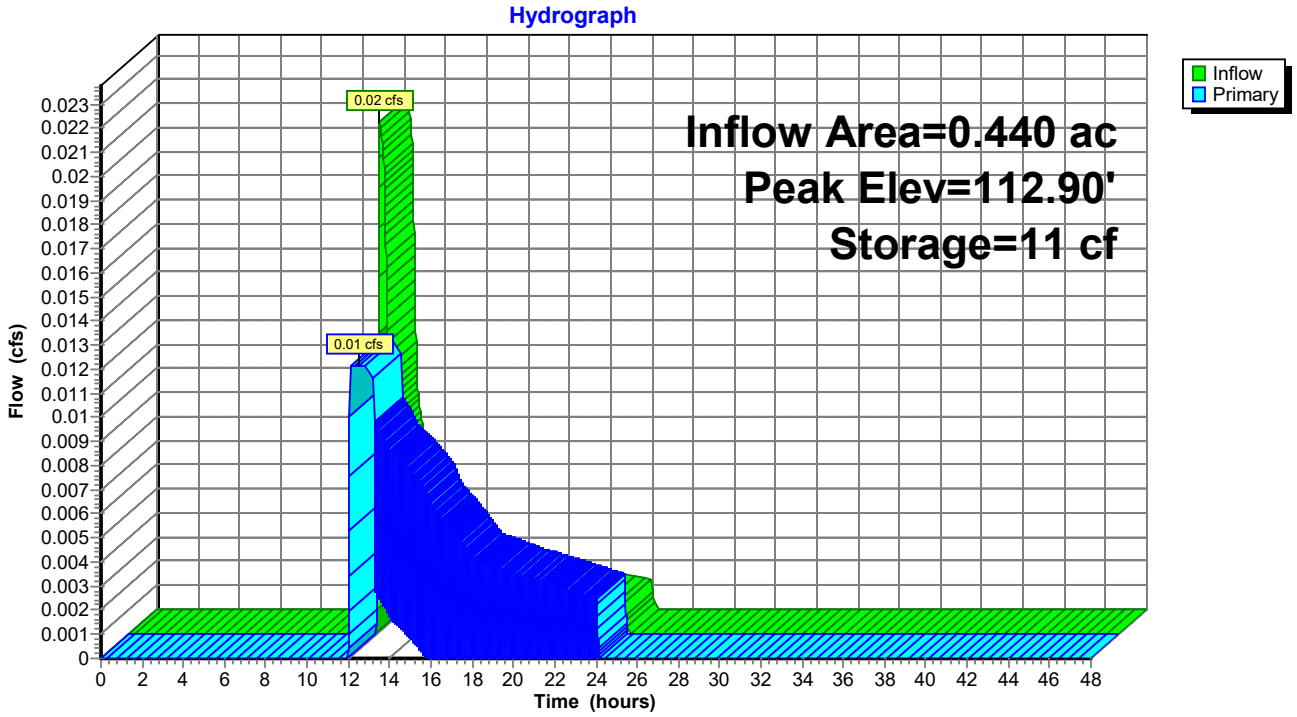
Volume	Invert	Avail.Storage	Storage Description
#1	111.22'	4,358 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
111.22	6,156	0.0	0	0
112.90	6,156	0.0	0	0
114.67	6,156	40.0	4,358	4,358
115.25	6,156	0.0	0	4,358

Device	Routing	Invert	Outlet Devices
#1	Primary	111.23'	**8.0" Round Culvert** L= 35.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 111.23' / 110.88' S= 0.0100 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.35 sf
#2	Device 1	111.23'	**0.6" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	113.45'	**0.5' long x 0.7' 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 Coef. (English) 2.76 2.82 2.93 3.09 3.18 3.22 3.27 3.30 3.32 3.31 3.32
#4	Device 1	113.95'	**6.0' long x 0.7' 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 Coef. (English) 2.76 2.82 2.93 3.09 3.18 3.22 3.27 3.30 3.32 3.31 3.32

Primary OutFlow Max=0.01 cfs @ 12.54 hrs HW=112.90' (Free Discharge)
└**1=Culvert** (Passes 0.01 cfs of 1.85 cfs potential flow)
  ├**2=Orifice/Grate** (Orifice Controls 0.01 cfs @ 6.18 fps)
  ├**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
  └**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond PP1: Porous Pavement 1



Summary for Pond PP2: Porous Pavement 2

Inflow Area = 0.366 ac, 73.59% Impervious, Inflow Depth = 0.10" for Focal Point event
Inflow = 0.02 cfs @ 12.15 hrs, Volume= 0.003 af
Outflow = 0.01 cfs @ 12.58 hrs, Volume= 0.003 af, Atten= 52%, Lag= 25.9 min
Primary = 0.01 cfs @ 12.58 hrs, Volume= 0.003 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 112.78' @ 12.58 hrs Surf.Area= 5,346 sf Storage= 12 cf
Flood Elev= 114.27' Surf.Area= 5,346 sf Storage= 2,138 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 5.6 min (941.9 - 936.3)

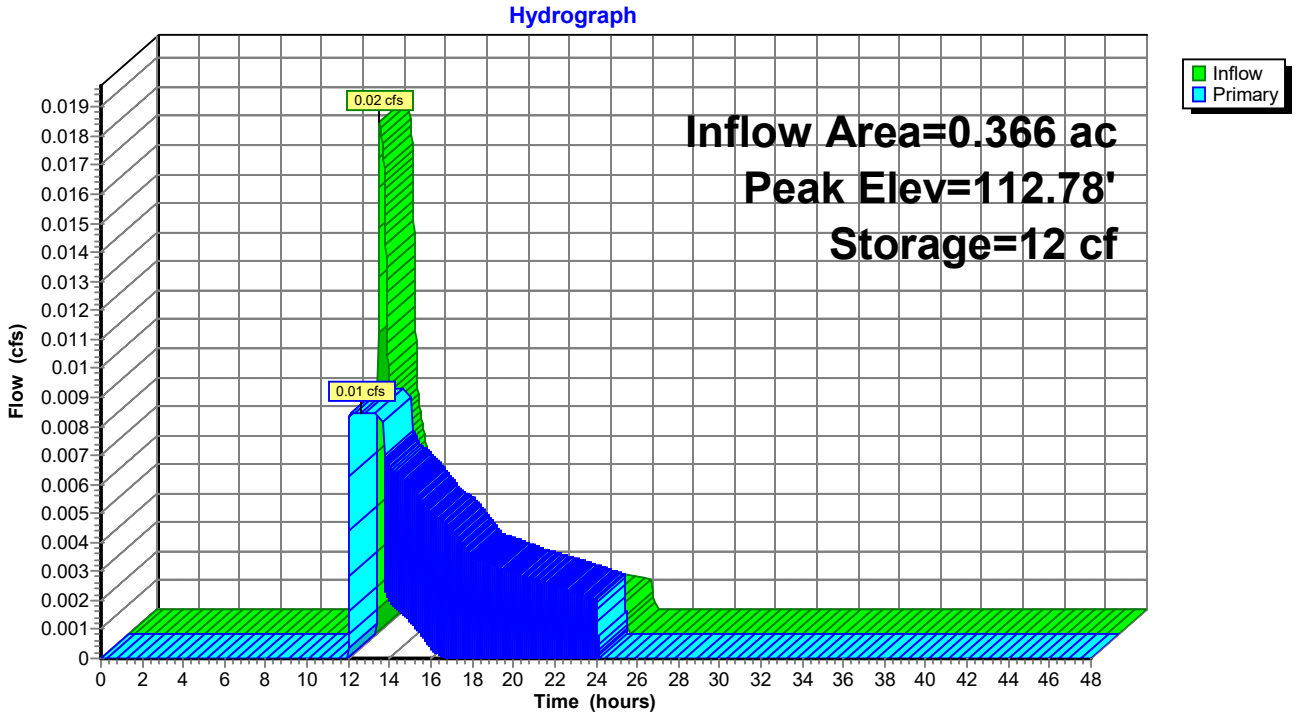
Volume	Invert	Avail.Storage	Storage Description
#1	111.10'	2,138 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
111.10	5,346	0.0	0	0
112.77	5,346	0.0	0	0
113.77	5,346	40.0	2,138	2,138
114.35	5,346	0.0	0	2,138

Device	Routing	Invert	Outlet Devices
#1	Primary	111.10'	**8.0" Round Culvert** L= 25.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 111.10' / 110.70' S= 0.0160 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.35 sf
#2	Device 1	111.10'	**0.5" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	113.29'	**0.5' long x 0.7' 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 Coef. (English) 2.76 2.82 2.93 3.09 3.18 3.22 3.27 3.30 3.32 3.31 3.32
#4	Device 1	113.79'	**6.0' long x 0.7' 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 Coef. (English) 2.76 2.82 2.93 3.09 3.18 3.22 3.27 3.30 3.32 3.31 3.32

Primary OutFlow Max=0.01 cfs @ 12.58 hrs HW=112.78' (Free Discharge)
└**1=Culvert** (Passes 0.01 cfs of 1.95 cfs potential flow)
  ├**2=Orifice/Grate** (Orifice Controls 0.01 cfs @ 6.19 fps)
  ├**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
  └**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond PP2: Porous Pavement 2



Summary for Pond PP3: Porous Pavement 3

Inflow Area = 0.432 ac, 64.46% Impervious, Inflow Depth = 0.04" for Focal Point event
Inflow = 0.00 cfs @ 12.48 hrs, Volume= 0.001 af
Outflow = 0.00 cfs @ 12.48 hrs, Volume= 0.001 af, Atten= 0%, Lag= 0.0 min
Primary = 0.00 cfs @ 12.48 hrs, Volume= 0.001 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 110.34' @ 12.48 hrs Surf.Area= 3,744 sf Storage= 0 cf

Plug-Flow detention time= (not calculated: no plugs found)
Center-of-Mass det. time= 0.0 min (1,012.1 - 1,012.1)

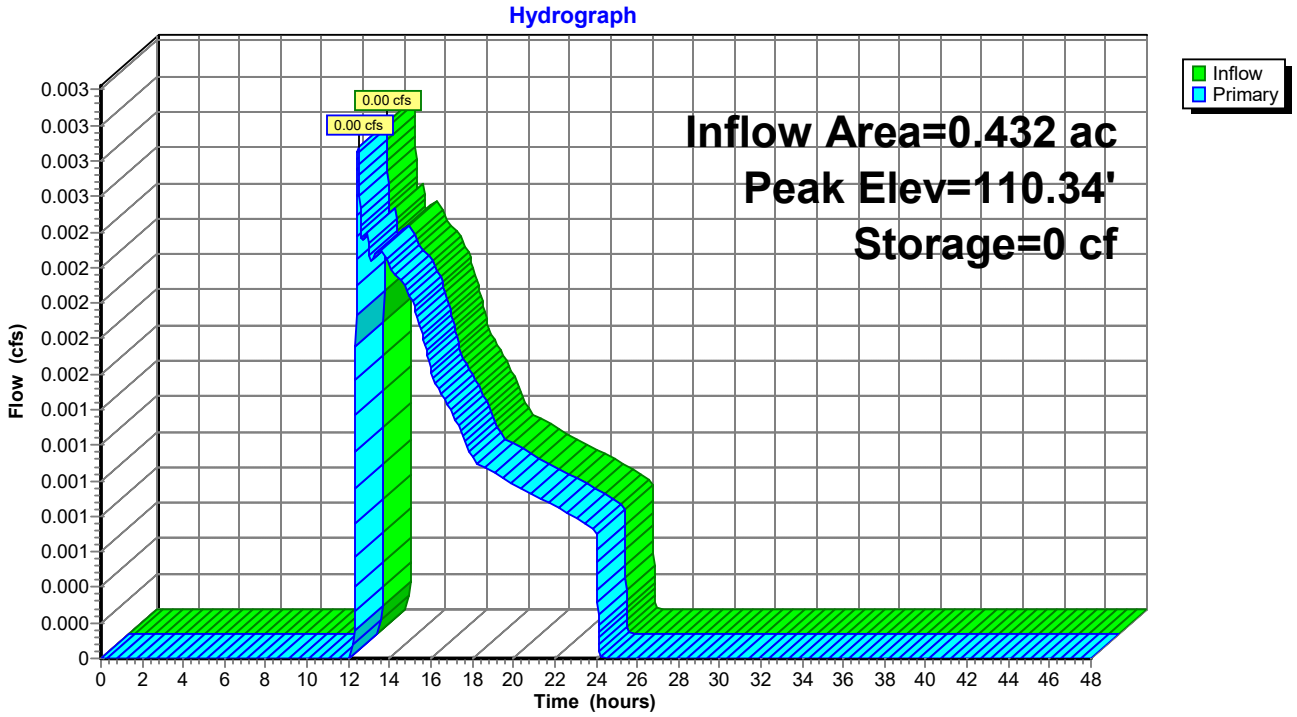
Volume	Invert	Avail.Storage	Storage Description
#1	110.13'	3,025 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
110.13	3,744	0.0	0	0
111.10	3,744	0.0	0	0
111.80	3,744	0.0	0	0
113.82	3,744	40.0	3,025	3,025
114.40	3,744	0.0	0	3,025

Device	Routing	Invert	Outlet Devices
#1	Primary	110.13'	**8.0" Round Culvert** L= 40.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 110.13' / 109.73' S= 0.0100 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.35 sf
#2	Device 1	110.13'	**0.5" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	112.65'	**0.5' long x 0.7' 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 Coef. (English) 2.76 2.82 2.93 3.09 3.18 3.22 3.27 3.30 3.32 3.31 3.32
#4	Device 1	113.15'	**6.0' long x 0.7' 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 Coef. (English) 2.76 2.82 2.93 3.09 3.18 3.22 3.27 3.30 3.32 3.31 3.32

Primary OutFlow Max=0.00 cfs @ 12.48 hrs HW=110.34' (Free Discharge)
└**1=Culvert** (Passes 0.00 cfs of 0.15 cfs potential flow)
  ├**2=Orifice/Grate** (Orifice Controls 0.00 cfs @ 2.11 fps)
  ├**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
  └**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond PP3: Porous Pavement 3



Summary for Pond PP4: Porous Pavement 4

Inflow Area = 0.227 ac, 63.12% Impervious, Inflow Depth = 0.03" for Focal Point event
Inflow = 0.00 cfs @ 13.74 hrs, Volume= 0.001 af
Outflow = 0.00 cfs @ 13.74 hrs, Volume= 0.001 af, Atten= 0%, Lag= 0.0 min
Primary = 0.00 cfs @ 13.74 hrs, Volume= 0.001 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 110.19' @ 13.74 hrs Surf.Area= 1,620 sf Storage= 0 cf
Flood Elev= 113.60' Surf.Area= 1,620 sf Storage= 1,166 cf

Plug-Flow detention time= 0.0 min calculated for 0.001 af (100% of inflow)
Center-of-Mass det. time= 0.0 min (1,033.7 - 1,033.7)

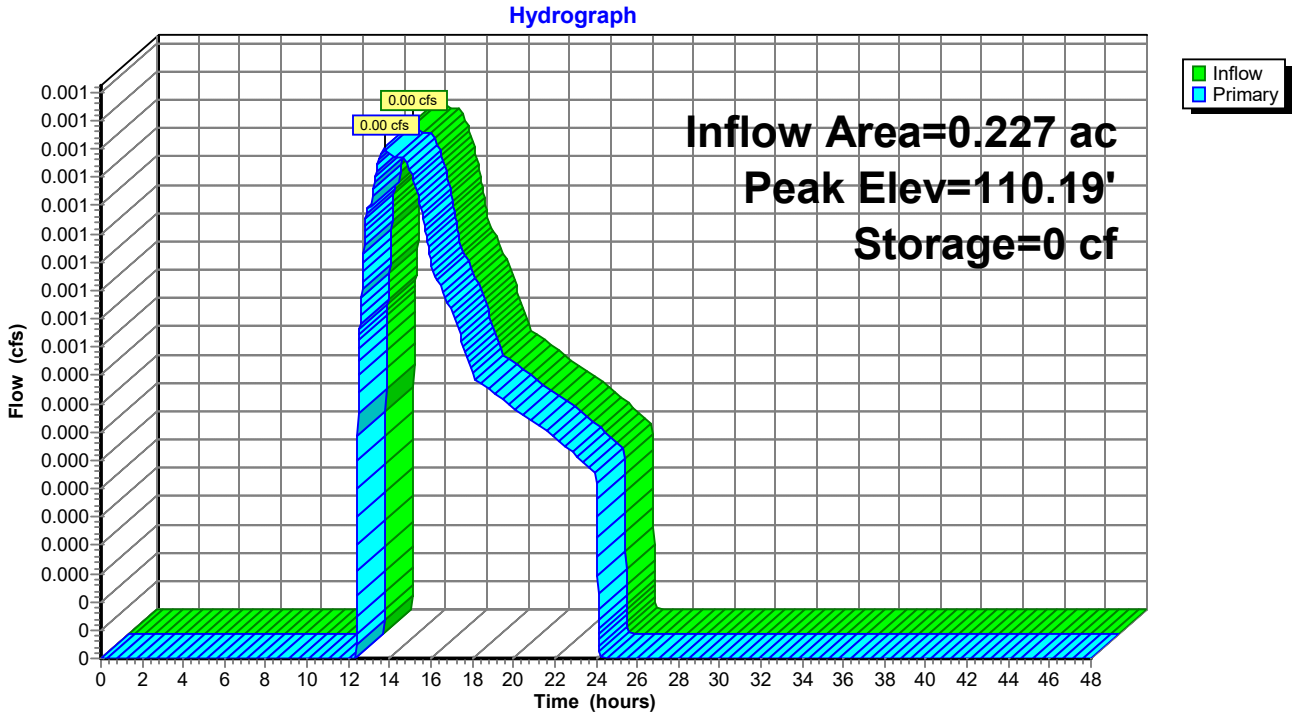
Volume	Invert	Avail.Storage	Storage Description
#1	110.10'	1,166 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
110.10	1,620	0.0	0	0
111.80	1,620	0.0	0	0
113.60	1,620	40.0	1,166	1,166
114.14	1,620	0.0	0	1,166

Device	Routing	Invert	Outlet Devices
#1	Primary	110.13'	**8.0" Round Culvert** L= 35.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 110.13' / 109.78' S= 0.0100 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.35 sf
#2	Device 1	110.13'	**0.4" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	112.80'	**0.5' long x 0.7' 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 Coef. (English) 2.76 2.82 2.93 3.09 3.18 3.22 3.27 3.30 3.32 3.31 3.32
#4	Device 1	113.30'	**6.0' long x 0.7' 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 Coef. (English) 2.76 2.82 2.93 3.09 3.18 3.22 3.27 3.30 3.32 3.31 3.32

Primary OutFlow Max=0.00 cfs @ 13.74 hrs HW=110.19' (Free Discharge)
└**1=Culvert** (Passes 0.00 cfs of 0.01 cfs potential flow)
  ├**2=Orifice/Grate** (Orifice Controls 0.00 cfs @ 1.05 fps)
  ├**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
  └**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond PP4: Porous Pavement 4



Summary for Pond R1: Detention Pond 1

Inflow Area = 0.734 ac,100.00% Impervious, Inflow Depth = 0.74" for Focal Point event
Inflow = 0.62 cfs @ 12.08 hrs, Volume= 0.045 af
Outflow = 0.05 cfs @ 13.00 hrs, Volume= 0.040 af, Atten= 91%, Lag= 55.0 min
Primary = 0.05 cfs @ 13.00 hrs, Volume= 0.040 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 110.96' @ 13.00 hrs Surf.Area= 1,156 sf Storage= 1,135 cf

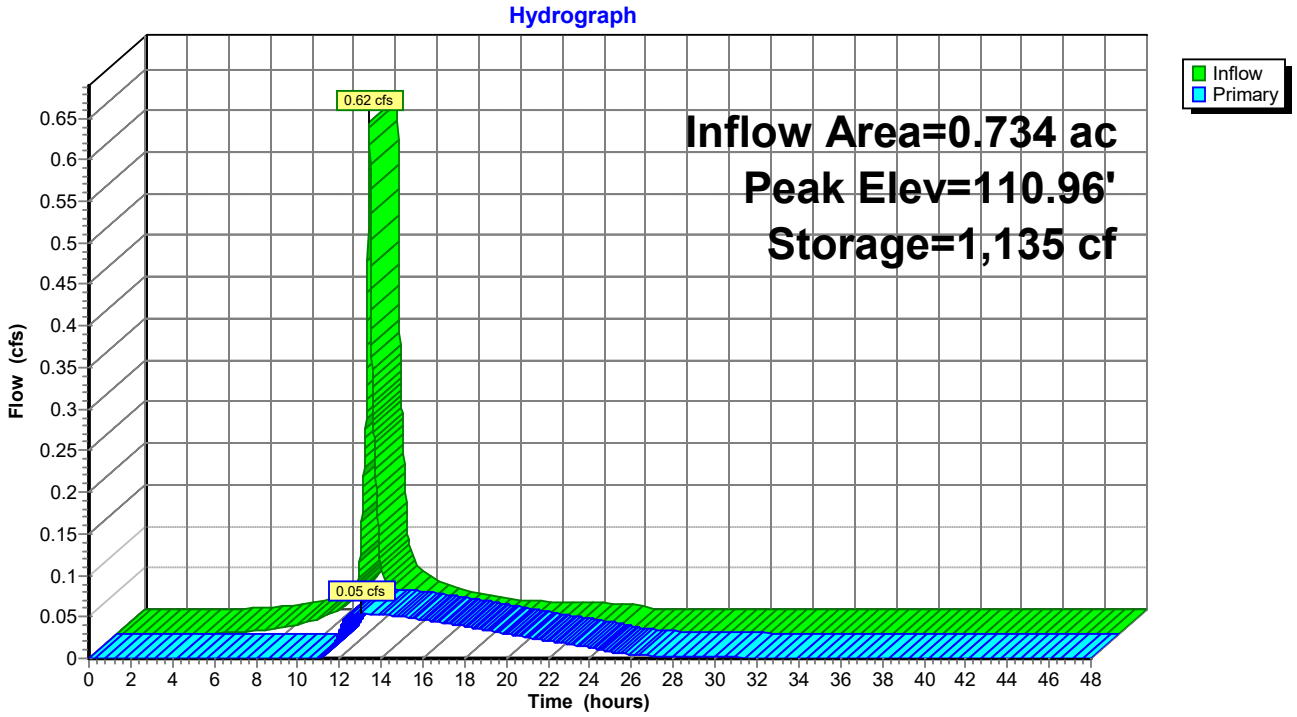
Plug-Flow detention time= 309.1 min calculated for 0.040 af (88% of inflow)
Center-of-Mass det. time= 255.1 min (1,044.7 - 789.6)

Volume	Invert	Avail.Storage	Storage Description
#1	110.06'	2,744 cf	**ACF R-Tank HD 2** x 350 Inside #2 Inside= 15.7"W x 33.9"H => 3.52 sf x 2.35'L = 8.3 cf Outside= 15.7"W x 33.9"H => 3.70 sf x 2.35'L = 8.7 cf 350 Chambers in 14 Rows 3,040 cf Overall x 95.0% Voids
#2	109.56'	555 cf	**34.00'W x 34.00'L x 3.83'H Prismatoid** 4,427 cf Overall - 3,040 cf Embedded = 1,387 cf x 40.0% Voids
		3,299 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	110.06'	**10.0" Round Culvert** L= 10.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 110.06' / 109.68' S= 0.0380 '/' Cc= 0.900 n= 0.012, Flow Area= 0.55 sf
#2	Device 1	110.06'	**1.5" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	112.90'	**6.0' long x 0.7' 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 Coef. (English) 2.76 2.82 2.93 3.09 3.18 3.22 3.27 3.30 3.32 3.31 3.32
#4	Device 1	111.00'	**8.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.05 cfs @ 13.00 hrs HW=110.96' (Free Discharge)
└**1=Culvert** (Passes 0.05 cfs of 1.83 cfs potential flow)
  ├**2=Orifice/Grate** (Orifice Controls 0.05 cfs @ 4.41 fps)
  ├**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
  └**4=Orifice/Grate** (Controls 0.00 cfs)

Pond R1: Detention Pond 1



Summary for Pond R2: Detention Pond 2

Inflow Area = 0.734 ac,100.00% Impervious, Inflow Depth = 0.74" for Focal Point event
Inflow = 0.62 cfs @ 12.08 hrs, Volume= 0.045 af
Outflow = 0.03 cfs @ 14.04 hrs, Volume= 0.039 af, Atten= 95%, Lag= 117.2 min
Primary = 0.03 cfs @ 14.04 hrs, Volume= 0.039 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 111.05' @ 14.04 hrs Surf.Area= 1,344 sf Storage= 1,302 cf

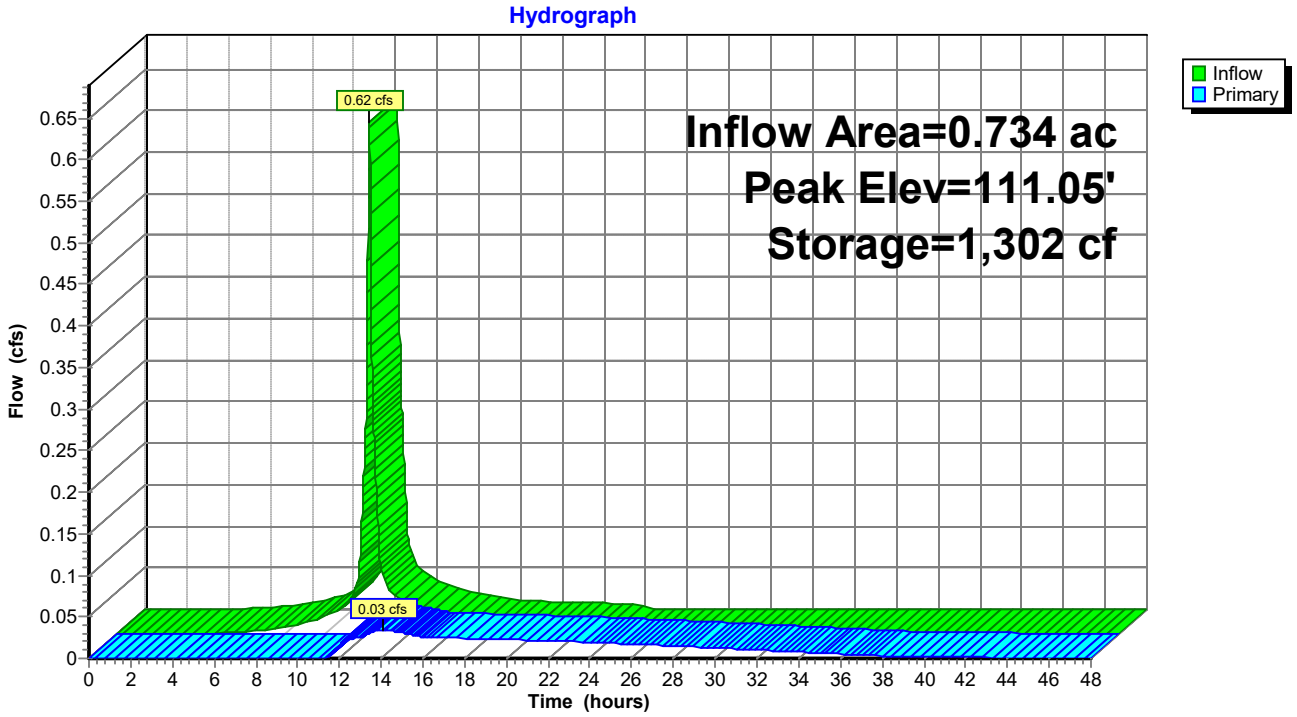
Plug-Flow detention time= 600.2 min calculated for 0.039 af (86% of inflow)
Center-of-Mass det. time= 538.7 min (1,328.3 - 789.6)

Volume	Invert	Avail.Storage	Storage Description
#1	110.06'	2,587 cf	**ACF R-Tank HD 2** x 330 Inside #2 Inside= 15.7"W x 33.9"H => 3.52 sf x 2.35'L = 8.3 cf Outside= 15.7"W x 33.9"H => 3.70 sf x 2.35'L = 8.7 cf 330 Chambers in 15 Rows 2,866 cf Overall x 95.0% Voids
#2	109.56'	912 cf	**24.00'W x 56.00'L x 3.83'H Prismatoid** 5,148 cf Overall - 2,866 cf Embedded = 2,281 cf x 40.0% Voids
		3,499 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	108.14'	**12.0" Round Culvert** L= 10.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 108.14' / 108.10' S= 0.0040 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#2	Device 1	110.06'	**1.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	112.70'	**6.0' long x 0.7' 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 Coef. (English) 2.76 2.82 2.93 3.09 3.18 3.22 3.27 3.30 3.32 3.31 3.32
#4	Device 1	111.00'	**7.5" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.03 cfs @ 14.04 hrs HW=111.05' (Free Discharge)
└**1=Culvert** (Passes 0.03 cfs of 5.87 cfs potential flow)
  ├**2=Orifice/Grate** (Orifice Controls 0.03 cfs @ 4.68 fps)
  ├**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
  └**4=Orifice/Grate** (Orifice Controls 0.01 cfs @ 0.73 fps)

Pond R2: Detention Pond 2



Summary for Pond RG-1: Rain Garden

Inflow Area = 0.168 ac, 58.87% Impervious, Inflow Depth = 0.02" for Focal Point event
Inflow = 0.00 cfs @ 15.10 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 15.14 hrs, Volume= 0.000 af, Atten= 0%, Lag= 2.6 min
Discarded = 0.00 cfs @ 15.14 hrs, Volume= 0.000 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 114.50' @ 15.14 hrs Surf.Area= 460 sf Storage= 0 cf

Plug-Flow detention time= 1.1 min calculated for 0.000 af (100% of inflow)
Center-of-Mass det. time= 1.1 min (1,088.1 - 1,086.9)

Volume	Invert	Avail.Storage	Storage Description
#1	114.50'	1,185 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

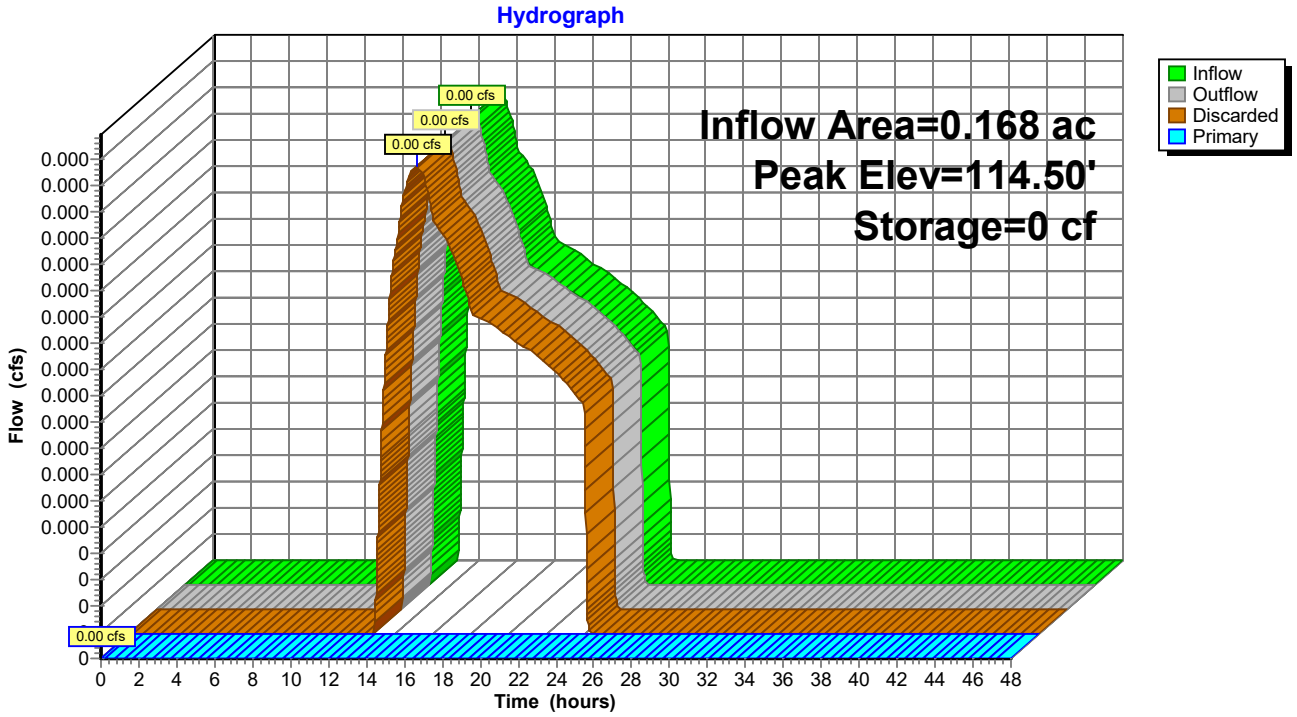
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
114.50	460	33.0	0	0
115.00	460	33.0	76	76
115.50	460	33.0	76	152
116.00	460	33.0	76	228
116.50	460	100.0	230	458
117.00	460	100.0	230	688
117.50	505	100.0	241	929
118.00	520	100.0	256	1,185

Device	Routing	Invert	Outlet Devices
#1	Discarded	114.50'	**7.500 in/hr Exfiltration over Surface area**
#2	Device 3	115.00'	**4.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Primary	114.50'	**8.0" Round Culvert** L= 150.0' Ke= 0.500 Inlet / Outlet Invert= 114.50' / 112.15' S= 0.0157 '/' Cc= 0.900 n= 0.012, Flow Area= 0.35 sf
#4	Device 3	117.50'	**10.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.08 cfs @ 15.14 hrs HW=114.50' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.08 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=114.50' (Free Discharge)
└**3=Culvert** (Controls 0.00 cfs)
  ├**2=Orifice/Grate** (Controls 0.00 cfs)
  └**4=Orifice/Grate** (Controls 0.00 cfs)

Pond RG-1: Rain Garden



Summary for Pond RG-2: Rain Garden

Inflow Area = 0.478 ac, 64.28% Impervious, Inflow Depth = 0.00" for Focal Point event
Inflow = 0.00 cfs @ 24.01 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 24.01 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
Discarded = 0.00 cfs @ 24.01 hrs, Volume= 0.000 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 114.49' @ 24.01 hrs Surf.Area= 960 sf Storage= 0 cf

Plug-Flow detention time= 0.3 min calculated for 0.000 af (100% of inflow)
Center-of-Mass det. time= 0.3 min (1,336.8 - 1,336.5)

Volume	Invert	Avail.Storage	Storage Description
#1	114.49'	2,177 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

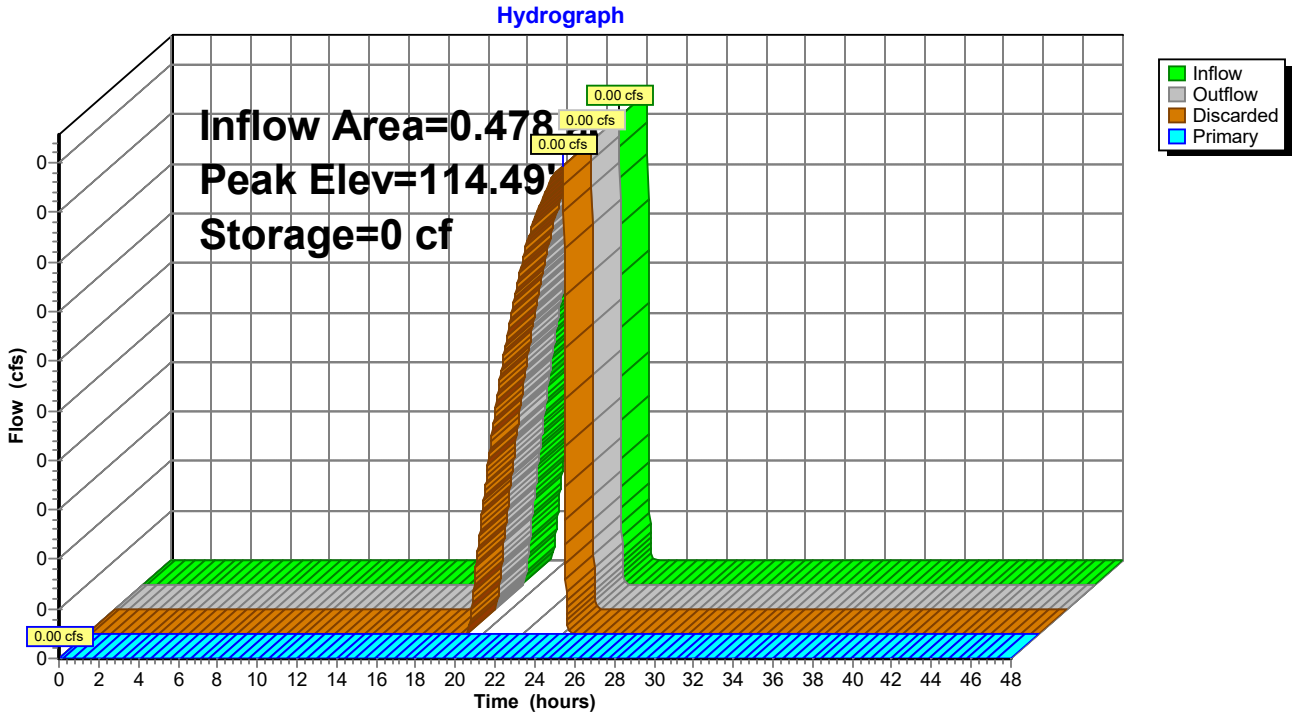
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
114.49	960	0.0	0	0
114.50	960	33.0	3	3
115.00	960	33.0	158	162
115.50	960	33.0	158	320
116.00	960	33.0	158	478
116.50	960	33.0	158	637
117.00	960	100.0	480	1,117
117.50	1,040	100.0	500	1,617
118.00	1,200	100.0	560	2,177

Device	Routing	Invert	Outlet Devices
#1	Discarded	114.49'	**7.500 in/hr Exfiltration over Surface area**
#2	Device 3	115.00'	**4.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Primary	114.50'	**8.0" Round Culvert** L= 150.0' Ke= 0.500 Inlet / Outlet Invert= 114.50' / 113.00' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 0.35 sf
#4	Device 3	117.50'	**10.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.17 cfs @ 24.01 hrs HW=114.49' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.17 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=114.49' (Free Discharge)
└**3=Culvert** (Controls 0.00 cfs)
  ├**2=Orifice/Grate** (Controls 0.00 cfs)
  └**4=Orifice/Grate** (Controls 0.00 cfs)

Pond RG-2: Rain Garden



ATTACHMENT C

WATER QUALITY CALCULATIONS

STORMWATER QUALITY TREATMENT SUMMARY										
	IMPERVIOUS AREA					DEVELOPED AREA				TREATMENT BMP
SUBCATCHMENT	COVER TYPE	AREA (SF)	% TREATED	% AREA	% TREATED	AREA (SF)	% TREATED	% AREA	% TREATED	
20A	PAVEMENT	13,856	100%	11%	11%	19,180	100%	9%	9%	PERVIOUS PAVERS 1
20B	PAVEMENT	11,726	100%	9%	9%	15,935	100%	7%	7%	PERVIOUS PAVERS 2
21A, 21B	ROOFS	31,990	100%	25%	25%	31,990	100%	14%	14%	R-TANK SYSTEM 1
22A	PAVEMENT	8,175	100%	7%	7%	35,370	100%	16%	16%	FOCAL POINT 1
23A	PAVEMENT	12,134	100%	10%	10%	18,825	100%	9%	9%	PERVIOUS PAVERS 3
23B	PAVEMENT	6,230	100%	5%	5%	9,870	100%	4%	4%	PERVIOUS PAVERS 4
24A, 24B	ROOFS	31,990	100%	25%	25%	31,990	100%	14%	14%	R-TANK SYSTEM 2
25A	PAVEMENT	4,910	100%	4%	4%	22,380	100%	10%	10%	FOCAL POINT 2
UNTREATED	WALKWAYS	4,627	0%	4%	0%	35,130	0%	16%	0%	
TOTAL AREA		125,638		100%		220,670		100%		
TOTAL % TREATED					96%				84%	

Sizing Calculations

DETENTION POND 1		
Area	Area (SF)	WQV (CF)
Buildings 4 & 5	31,990	2,666
Total	31,990	**2,666**
# "Double" R-Tank Chambers		350
Storage Provided		2,905

DETENTION POND 2		
Area	Area (SF)	WQV (CF)
Buildings 2 & 3	31,990	2,666
Total	31,990	**2,666**
# "Double" R-Tank Chambers		330
Storage Provided		2,739

FOCAL POINT 1					
Area	Area (SF)	WQV (CF)	Required Filter Area (SF)	Filter Area Provided (CF)	Ponding Volume Provided (CF)
Paved Areas	8175	681	33		
Landscaped areas	27195	907	4		
Total	35370	1588	37	100	50
# Chambers for Treatment Row		1			
# Chambers for Expanded Volume		200	Expanded Volume Provided		1,660

*Treatment row consists of R-Tank "single" HD chambers sized to handle 0.02 cfs per chamber in the 1 year 24-hour storm

*Expanded volume consists of R-Tank "double" chambers, with a storage capacity of 8.3 cf per chamber, sized to store the WQV

FOCAL POINT 2					
Area	Area (SF)	WQV (CF)	Required Filter Area (SF)	Storage Provided (CF)	Ponding Volume Provided (CF)
Paved Areas	4910	409	20		
Landscaped areas	8175	273	1		
Total	22380	682	21	100	50
# Chambers for Treatment Row		4			
# Chambers for Expanded Volume		84	Expanded Volume Provided		697

*Treatment row consists of R-Tank "single" HD chambers sized to handle 0.02 cfs per chamber in the 1 year 24-hour storm

*Expanded volume consists of R-Tank "double" chambers, with a storage capacity of 8.3 cf per chamber, sized to store the WQV

POROUS PAVER AREA 1				
Area	Area (SF)	WQV (CF)	Storage Provided (CF)	Elevation
Pavement Areas	7,700	642	-	112.5
Paver Area	6,156	513		
Landscaped areas	5,324	177	1,527	113.5
Total	13,024	**1,332**	4,358	114.7
		WQV Elevation		113.5
		Pavement : Paver Ratio		80%
		Filter Thickness (in.)		5
		Reservoir Thickness (in.)		26

POROUS PAVER AREA 2				
Area	Area (SF)	WQV (CF)	Storage Provided (CF)	Elevation
Pavement Areas	6,380	532	-	112.7
Paver Area	5,346	446		
Landscaped areas	4,209	140	1,133	113.3
Total	10,589	**1,117**	2,138	113.8
		WQV Elevation		113.3
		Pavement : Paver Ratio		84%
		Filter Thickness (in.)		5
		Reservoir Thickness (in.)		13

POROUS PAVER AREA 3				
Area	Area (SF)	WQV (CF)	Storage Provided (CF)	Elevation
Pavement Areas	8,390	699	-	111.7
Paver Area	3,744	312		
Landscaped areas	6,691	223	1,393	112.7
Total	15,081	**1,234**	3,025	113.8
		WQV Elevation		112.7
		Pavement : Paver Ratio		45%
		Filter Thickness (in.)		9
		Reservoir Thickness (in.)		25

POROUS PAVER AREA 4				
Area	Area (SF)	WQV (CF)	Storage Provided (CF)	Elevation
Pavement Areas	4,610	384	-	111.8
Paver Area	1,620	135		
Landscaped areas	3,640	121	648	112.8
Total	8,250	**641**	1,166	113.6
		WQV Elevation		112.8
		Pavement : Paver Ratio		35%
		Filter Thickness (in.)		12
		Reservoir Thickness (in.)		22

Pavement: Paver Ratio	Required Filter Thickness (in.)
20%	18
30%	12
40%	9
50%	7
60%	6
70%	5
80%	5
90%	4
100%	4

Stevens Square - Drawdown Calcs

Drawdown Calculation - Porous Pavement Area 1

Orifice Diameter =0.625 in

Elev. (ft)	Depth (ft)	Surface Area (sq.ft)	Ave. End Area (sq.ft)	End Area Depth (ft)	Incremental Volume (cf)	Head, h (ft)	Orifice Flow (cfs)	Drawdown Time (secs)	Drawdown Time (hours)
113.45	0.65	6,156	6156.00	0.65	1600.56	2.48	0.0161	99115.12	27.532
112.80	0.00	6,156	0.00	0.00	0.00	1.83	0.0139	0.00	0.000
								TOTAL	***27.532***

Orifice Formula	$CA(2gh)^{1/2}$	
Orifice Diameter:	**0.625**	inch
A:	0.002131	sq.ft
Filter Thickness:	1.83	feet
g:	32.174	ft/s^2
C:	0.6	Orifice/Grate

Drawdown Calculation - Porous Pavement Area 2

Orifice Diameter =0.5 in

Elev. (ft)	Depth (ft)	Surface Area (sq.ft)	Ave. End Area (sq.ft)	End Area Depth (ft)	Incremental Volume (cf)	Head, h (ft)	Orifice Flow (cfs)	Drawdown Time (secs)	Drawdown Time (hours)
113.30	0.60	5,346	5346.00	0.60	1283.04	2.43	0.0102	125415.40	34.838
112.70	0.00	5,346	0.00	0.00	0.00	1.83	0.0089	0.00	0.000
								TOTAL	***34.838***

Orifice Formula	$CA(2gh)^{1/2}$	
Orifice Diameter:	**0.5**	inch
A:	0.001364	sq.ft
Filter Thickness:	1.83	feet
g:	32.174	ft/s^2
C:	0.6	Orifice/Grate

Drawdown Calculation - Porous Pavement Area 3

Orifice Diameter =0.5 in

Elev. (ft)	Depth (ft)	Surface Area (sq.ft)	Ave. End Area (sq.ft)	End Area Depth (ft)	Incremental Volume (cf)	Head, h (ft)	Orifice Flow (cfs)	Drawdown Time (secs)	Drawdown Time (hours)
112.65	0.95	3,744	3744.00	0.95	1422.72	2.78	0.0109	130020.21	36.117
111.70	0.00	3,744	0.00	0.00	0.00	1.83	0.0089	0.00	0.000
								TOTAL	***36.117***

Orifice Formula	**$CA(2gh)^{1/2}$**	
Orifice Diameter:	**0.5**	inch
A:	0.001364	sq.ft
Filter Thickness:	1.83	feet
g:	32.174	ft/s^2
C:	0.6	Orifice/Grate

Drawdown Calculation - Porous Pavement Area 4

Orifice Diameter =0.375 in

Elev. (ft)	Depth (ft)	Surface Area (sq.ft)	Ave. End Area (sq.ft)	End Area Depth (ft)	Incremental Volume (cf)	Head, h (ft)	Orifice Flow (cfs)	Drawdown Time (secs)	Drawdown Time (hours)
112.80	1.00	1,620	1620.00	1.00	648.00	2.83	0.0062	104345.35	28.985
111.80	0.00	1,620	0.00	0.00	0.00	1.83	0.0050	0.00	0.000
								TOTAL	***28.985***

Orifice Formula	**$CA(2gh)^{1/2}$**	
Orifice Diameter:	**0.375**	inch
A:	0.000767	sq.ft
Filter Thickness:	1.83	feet
g:	32.174	ft/s^2
C:	0.6	Orifice/Grate

Drawdown Calculation - FocalPoint Filter 1

Orifice Diameter =0.5 in

Elev. (ft)	Depth (ft)	Surface Area (sq.ft)	Ave. End Area (sq.ft)	End Area Depth (ft)	Incremental Volume (cf)	Head, h (ft)	Orifice Flow (cfs)	Drawdown Time (secs)	Drawdown Time (hours)
111.80	0.50	615	615.00	0.50	123.00	1.00	0.0066	18742.13	5.206
111.30	2.84	615	615.00	2.84	1659.27	2.84	0.0111	149991.79	41.664
108.46	0.00	615	0.00	0.00	0.00	0.00	0.0002	0.00	0.000
								TOTAL	***46.871***

Orifice Formula	**$CA\ (2gh)^{1/2}$**	
Orifice Diameter:	**0.5**	inch
A:	0.001364	sq.ft
Filter Thickness:	0	feet
g:	32.174	ft/s^2
C:	0.6	Orifice/Grate

Drawdown Calculation - FocalPoint Filter 2

Orifice Diameter =0.5 in

Elev. (ft)	Depth (ft)	Surface Area (sq.ft)	Ave. End Area (sq.ft)	End Area Depth (ft)	Incremental Volume (cf)	Head, h (ft)	Orifice Flow (cfs)	Drawdown Time (secs)	Drawdown Time (hours)
110.32	0.50	535	535.00	0.50	107.00	1.00	0.0066	16304.13	4.529
109.82	1.44	535	535.00	1.44	731.88	1.44	0.0079	92889.57	25.803
108.38	0.00	535	0.00	0.00	0.00	0.00	0.0002	0.00	0.000
								TOTAL	***30.332***

Orifice Formula	**$CA\ (2gh)^{1/2}$**	
Orifice Diameter:	**0.5**	inch
A:	0.001364	sq.ft
Filter Thickness:	0.83	feet
g:	32.174	ft/s^2
C:	0.6	Orifice/Grate

ATTACHMENT D

OPERATION & MAINTENANCE MANUAL

STEVENS SQUARE AT BAXTER WOODS PHASE 2
PORTLAND, MAINE

STORMWATER MANAGEMENT SYSTEM OPERATION AND MAINTENANCE MANUAL FOR STORMWATER FACILITIES

PREPARED FOR

DC BAXTER WOODS LLC
100 COMMERCIAL STREET, SUITE 414
PORTLAND, ME 04101

PREPARED BY

GORRILL PALMER
707 SABLE OAKS DRIVE – SUITE 30
SOUTH PORTLAND, MAINE 04106
207.772.2515

May 2021

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APPENDICES

Appendix A – Summary Checklist for Inspection and Maintenance

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I. INTRODUCTION

Runoff from developed areas may contain a number of contaminants especially when emanating from rooftops, paved or lawn areas. This runoff can contain a significant amount of non-point contaminants, which can have an adverse impact on the receiving waters. The installation of soil media filters can significantly reduce the non-point pollution discharge from the developed area.

The effectiveness of ponds and other components of the system are dependent on their upkeep and maintenance to assure they meet their design function over an extended period of years. It is critical that the stormwater management facilities are inspected on a regularly scheduled basis, and that maintenance is performed on an as needed basis. It must also be recognized that the effectiveness of these facilities, and their maintenance requirements, are related to the stormwater drainage facilities that transport the flow to the ponds or treatment measures. Thus, maintenance should be directed to the total system, not just the ponds.

The purpose of this document is to define in detail the inspection and maintenance requirements deemed necessary to assure that the stormwater management facilities function as intended on a long-term basis for Stevens Square, Lot 5. This Operations and Maintenance Manual is specific to the existing and proposed stormwater measures utilized to execute a successful stormwater management plan. Subsequent sections identify individual maintenance items; give a brief commentary of the function and need of the item, a description of the work required, and a suggested frequency of accomplishment. While the suggested programs and schedules must be adapted to specific projects, the material presented should provide guidance for a successful long-term program.

A. Guidelines Overview

A summary of the individual components of stormwater management facilities for this project has been prepared. The format used in the summary is as follows:

Preface: A general description of what function/benefit the element is intended to provide. This is a short summary and not intended to provide the design basis, which can be found in other sources.

Inspection: This section provides the inspection requirements for the individual component.

Maintenance: The section provides general information on the routine maintenance requirements of this element.

Frequency: This section outlines the best judgment of the designer on the system to the frequency of maintenance.

Comments: This section provides any particular comment on the site-specific features of this element. This is a summary only. The owner/operator should review the design drawings and documents carefully to understand the particular elements of the project. The end of this section should allow the owner/operator to make notes on the specific program. This may include the selected maintenance procedure, cross-references to applicable design drawings, etc.

A list of the individual inspection/maintenance elements is provided in the table of contents. The guidelines are proposed for initial use with adjustments made as appropriate based upon specific project experience.

This report includes the Operation and Maintenance requirements for any potential BMP identified in the Stormwater Management Report for this project.

B. Responsible Party

The responsible party for operation and maintenance of the stormwater and other site infrastructure will be the Applicant or their agents or assigns.

II. PROJECT OVERVIEW

Key permits issued (or applied for) on the project include:

- City of Portland Site Plan Approval
- Maine Construction General Permit Stormwater General Permit
- Stormwater Service Charge Program

A copy of the permits and Stormwater Management Report should be appended to this manual as Appendix C. The Owner/Operator of the stormwater management system should review these permits for a general description and background of the project, as well as any specific permit conditions or requirements of the project.

The applicant has retained Gorrill Palmer for civil engineering for the development project. Gorrill Palmer has prepared the design for the stormwater management facilities and may be contacted at:

Gorrill Palmer
707 Sable Oaks Drive – Suite 30
South Portland, Maine 04106
207.772.2515

The applicable plans and design documents which apply to the project are:

1. Civil Site Plans Prepared by Gorrill Palmer
2. The Erosion Control/Sedimentation Control Plan for the project
3. The Stormwater Management Plan for the project

A copy of these documents should be retained with this manual.

The proposed design includes inlets, stormwater conveyance lines, Focal Point filters, pervious pavers, detention ponds, and outlet control structures.

The key receiving water for this project is Back Cove that is located to the east of the project site.

The manual is intended for general guidance; however, any substituted deviations from the manual should be reviewed with respect to provisions of Appendix C.

III. STANDARD INSPECTION/MAINTENANCE DESCRIPTIONS

The following narratives describe the inspection/maintenance provisions for the Stormwater Management system. Proper O&M is necessary to make sure the system will provide its intended purpose of conveying runoff, removing a substantial amount of the suspended solids, and other contaminants in the stormwater runoff.

A. Stormwater Inlets

Preface: The success of any stormwater facility relies on the ability to intercept stormwater runoff at the design locations. Stormwater inlets include catch basins, open culverts, and field inlets. Field inlets exist to the south of Building 2 and Focal Points as overflow structures.

Inspection: The inspection of inlet points will need to be coordinated with other maintenance items, these include:

- Building maintenance areas
- Grounds maintenance

The key elements of the inspection are to assure the inlet entry point is clear of debris and will allow the intended water entry.

Maintenance: The key maintenance is the removal of any blockage which restricts the entry of stormwater to the inlet. The removed material should be taken out of the area of the inlet and placed where it will not reenter the runoff collection system. Snow should be removed from inlets on parking lots. Grass clippings and leaves should be bagged and removed particularly near the yard inlets near the buildings.

Frequency: All inlets should be inspected on a quarterly basis, and after/during significant storm events i.e. >1" rainfall).

Maintenance Personnel: The maintenance personnel will perform the normal maintenance/ inspections of the inlets and tributary drainage system.

Comments: Maintenance of inlets is critical on this project.

B. Tributary Drainage System

Preface: Stormwater from most of the project will be directed through a conveyance (tributary) system which transports the flow to the Focal Point Filters, detention ponds and ultimately to the wetland to the east. This conveyance system will be principally overland flow discharging to piped drain systems. Most of the sediment carried by the drainage system is intended to be trapped in structures. Maintenance of this system can play a major role in the long-term maintenance costs and the effectiveness of the onsite systems. The primary pretreatment measure for the site will be through flow travel over vegetated buffers.

Inspection: The tributary drainage system should be periodically inspected to assure that it is operating as intended, and that the carrying capacity has not been diminished by accumulations of debris and sediment or other hydraulic impediments. On piped systems, the inlets must be

inspected to ensure the rims are set at the proper elevation to optimize flow entry and are not clogged with debris.

The level of sediment in the sumps should be checked to assure their effectiveness. Pipelines connecting the inlets should be checked to determine if siltation is occurring. This will be most critical on drain lines laid at minimal slopes. This can usually be accomplished by a light and mirror procedure.

Maintenance: Maintenance of the storm drainage system must assure that it continues to serve its design function on a long-term basis, and that its operation does not transport excessive sediments to any downstream treatment device or the receiving waters. Elevations on the rim of catch basins should be adjusted as needed to assure optimal water entry. Depending on the frost susceptibility of the soil, the rims may become elevated over time causing flow to circumvent the inlet. If a temporary filter bag has been designated for the inlet during construction, silt or other deleterious materials, can significantly reduce capacity and the bags should be removed with the sediment and replaced during construction. Catch basin cleaning would normally be accomplished with vacuum trucks contracted as a maintenance service for the Development. The removed material must be disposed of at an approved site for such materials.

If sediment in the pipeline is observed, it should be removed. This may be accomplished by hydraulic flushing, or by mechanical means. If hydraulic flushing is used the downstream conditions should be analyzed.

Frequency: The tributary drainage system should be inspected on an annual basis. Adjustment of inlet rim elevations should be on an as needed basis. Cleaning catch basin sumps and pipelines will depend on the rate of accumulation.

C. Pervious Pavers

Preface: The pervious pavers collect stormwater runoff from the surface before passing it through a treatment section and discharging into a closed drainage system.

Inspection/Monitoring: The pavers should be inspected regularly to ensure that the surface is not clogged, and that runoff can pass freely through the pervious section. The pervious pavers must be inspected for integrity and to ensure rutting or deformation of the surface is minimized.

Maintenance: Any debris should be removed from the paver surface. If the pervious paver area is holding water in excess of 48-72 hours, corrective action is needed. To correct a standing water problem, the following remedial actions are recommended.

1. Vacuum any sediment or debris from the paver surface on a semi-annual basis.
2. Ensure the underdrain system or outlet pipe orifice is not clogged with any silt or other materials.
3. Ensure that the pervious pavers can pass water freely or drain quickly while handling large amounts of water.

Frequency: The pervious pavers should be inspected and vacuumed semi-annually and maintained as necessary.

Maintenance/Inspection Responsibility: The Owner or an outside agent is responsible for inspection and maintenance of the pervious paver areas.

Comments: Proper maintenance is critical for the pervious pavers as it plays a large role in the overall stormwater management plan for the development. Limit salt use for deicing and no not use sand.

D. Proprietary Treatment Devices (FocalPoint®)

Preface: FocalPoint® systems will be used on site to treat surface runoff from impervious and landscaped areas.

Inspection: Inspection of the filter should be performed after each major rainfall event to ensure that stormwater runoff is able to pass through the filters. The vegetation should be inspected and maintained regularly similar to other landscape features on site. The underdrain outlet should be inspected regularly.

Maintenance: Clear inlets and pretreatment devices of debris and sediment. Maintain as instructed by manufacturer.

Frequency: The system should be inspected semi-annually and maintained as required by the manufacturer.

Comments: The manufacturer typically commits to the first year of maintenance if their strict guidelines are followed for installation, which is highly encouraged to achieve peak performance. It is recommended that an outside agent who is familiar with the product be retained for future maintenance.

E. Proprietary Device (R-Tanks)

Inspection of the outlet control structure should be performed after each major rainfall event to ensure that stormwater runoff is able to pass through the system. The system should be inspected semi-annually and maintained as required by the manufacturer.

F. Orifice Control Devices

Preface: Orifices of assorted sizes are commonly utilized to control discharge from stormwater management features. This project uses orifice controls to control discharge from the four pervious paver areas, detention ponds, and the Focal Point filters.

Inspection: Inspection of orifices should be performed after each major rainfall event to ensure that stormwater runoff is able to discharge through the orifice and that it is not clogged.

Maintenance: The orifice cap should be removed and all debris flushed from the pipe prior to reinstalling the orifice cap. An orifice in a weir wall should be cleared of debris by hand.

Frequency: The orifice control devices should be inspected semi-annually and maintained as needed.

Comments: None.

G. Proprietary Device (Filterra)

The first year of maintenance shall be performed by the Supplier or a supplier approved contractor. Subsequent maintenance shall be performed at least 2 times per year (preferably in Spring and Fall). At a minimum, the maintenance shall consist of the following:

1. Filterra Unit Inspection
2. Foreign debris, silt, mulch & trash removal
3. Filter media evaluation and recharge as necessary
4. Plant health evaluation and pruning or replacement as necessary
5. Replacement of mulch
6. Disposal of all maintenance refuse items

H. Ditches, Swales, and Other Open Stormwater Channels

Inspect 2 times per year (preferably in Spring and Fall) to ensure they are working in their intended fashion and that they are free of sediment and debris. Remove any obstructions to flow, including accumulated sediments and debris and vegetated growth. Repair any erosion of the ditch lining. Vegetated ditches will be mowed at least annually or otherwise maintained to control the growth of woody vegetation and maintain flow capacity. Any woody vegetation growing through riprap linings must also be removed. Repair any slumping side slopes as soon as practicable. If the ditch has a riprap lining, replace riprap on areas where any underlying filter fabric or underdrain gravel is showing through the stone or where stones have dislodged. Correct any erosion of the channel's bottom or side slopes. The facilities shall be inspected after major storms and any identified deficiencies shall be corrected.

I. Roadways and Parking Surfaces

Clear accumulations of winter sand in parking lots and along roadways at least once a year, preferably in the spring. Accumulations on pavement may be removed by pavement sweeping. 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. Repair potholes and other roadway obstructions and hazards. Plowing and sanding of paved areas shall be performed as necessary to maintain vehicular traffic safety.

J. Litter

Litter should be removed as a matter of course by workers and as part of the ground's maintenance contract.

IV. PROGRAM ADMINISTRATION

A. General

A reliable administrative structure must be established to assure implementation of the maintenance programs described in the foregoing section. Key factors that must be considered in establishing a responsive administrative structure include:

1. Administrative body must be responsible for long-term operation and maintenance of the facilities. (Maintenance continues for the lifespan of the development in accordance with this document)

2. Administrative body must have the financial resources to accomplish the inspection and maintenance program over the life of the facility.

3. The administrative body must have a responsible administrator to manage the inspection and maintenance programs.

4. The administrative body must have the staff to accomplish the inspection and maintenance programs or must have authority to contract for the required services.

5. The administrative body must have a management information system sufficient to file, retain, and retrieve all inspection and maintenance records associated with the inspection and maintenance programs.

6. A qualified post construction inspector shall be retained by the Owner. His/her duties shall include preparing schedules for the Owner's maintenance, summarizing the results of this maintenance and preparing an annual report on the operation, maintenance, and repair of the stormwater system which must be copied to the City. (The Owner shall be responsible for retaining a separate entity to perform maintenance which cannot be performed by the management of building and property grounds.) This person shall also participate in troubleshooting of the stormwater management system if a problem develops.

If any of the above criteria cannot be met by the entity assigned inspection and maintenance responsibilities, it is likely that the system will fail to meet its water quality objectives at some point during its life. While each of the above criteria may be met by a variety of formats, it is critical to clearly establish the assigned administrative body in a responsible and sustainable manner.

B. Record Keeping

Records of all inspections and maintenance work accomplished must be kept and maintained to document facility operations. These records should be filed and retained in accordance with the City of Portland Code of Ordinances, Chapter 32. The filing system should be capable of ready retrieval of data for periodic reviews by appropriate regulatory bodies. Where possible, copies of such records should also be filed with the designated primary regulatory agency for their review for compliance with permit conditions. Typical inspection and maintenance record forms are attached hereto as Appendix B.

The owner will be required to hire a qualified post-construction stormwater inspector to at least annually, inspect the BMPs. In addition, the qualified post-construction stormwater inspector shall, on or by June 30 of each year, provide a completed and signed certification to DPW in a form provided by DPW certifying that the person has inspected the BMPs and they are adequately maintained and functioning as intended.

C. Contract Services

In some instances, or at specific times, the Maintenance Personnel may not have the staff to conduct the required inspection and/or maintenance programs as outlined in this document. In such cases, the work should be accomplished on a contractual basis with a firm or organization that has the staff and equipment to accomplish the required work.

The service contract for inspection and maintenance should be formal, well written legal document which clearly defines the services to be provided, the contractual conditions that will apply, and detailed payment schedules. Liability insurance should be required in all contracts.

APPENDIX A

SUMMARY CHECKLIST
INSPECTION AND MAINTENANCE

Stormwater Management System Maintenance Program Summary Checklist						
Item	**Commentary**	**Frequency**				
		Monthly	**Quarterly**	**Semi-Annual**	**Annual**	**Long Term**
Stormwater Inlets	Stormwater inlets allow flow entry from a surface swale to a piped system. Inspect entry for debris accumulation. Remove debris to allow unimpeded entry. Lawn clippings and leaves should be removed from yard areas.		X		X Clearing	
Tributary Drainage System	Inspect to assure that the carrying capacity has not been diminished by debris, sediment or other hydraulic impediments.				X	
Pervious Pavers	Inspect after major storm events ensure the pavers are not plugged with debris. Vacuum semi-annually.			X		
Focal Point Filters	Filters should be inspected semi-annually and maintained as needed. Snow Storage within the filter should be prohibited by Maintenance Personnel.			X		X
Orifice Control Devices	Inspect after major storm events and clear debris from orifice. May require flushing of pipes.			X		
Ditches, Swales, and Other Open Stormwater Channels	Inspect twice annually (spring and fall), remove any obstructions to flow, repair any erosion			X		
Roadways and Parking Surfaces	Pavements should be swept at least twice annually, once in the spring.			X		
Filterra Module	Check for signs of clogging, remove trash, unwanted vegetation, and sediment as needed			X		
Litter	Litter should be removed daily.					

APPENDIX B

SAMPLE INSPECTION LOGS

STEVENS SQUARE AT BAXTER WOODS, LOT 5
PORTLAND, MAINE

STORMWATER MANAGEMENT
SAMPLE STORMWATER INSPECTION & MAINTENANCE LOG

This log is intended to accompany the Operation and Maintenance Manual for Stormwater Management and Related Facilities. All stormwater BMPs shall be maintained in effective operating condition. A person with knowledge of erosion and stormwater control, including the standards and conditions of the City of Portland's Post Construction Stormwater Management Monitoring Ordinance, shall conduct inspections of the facilities as described in the O&M Manual and on this form, and identified deficiencies must be corrected. This log shall be kept on file for a minimum of five (5) years.

A. General Information			
Project Name:		**Inspection Date:**	
Parcel/Lot:		**Current Weather:**	
BMP Owner:		**Date/Amount Last Precip.:**	
Owner Mailing Address:		**Inspection Company:**	
Owner Phone #:		**Inspection Co. Mailing Address:**	
Owner Email:		**Inspector Name:**	
		Inspector Phone #:	
		Inspector Email:	

B. Stormwater Inlets (Catchbasins)	**Observations**
Frequency: Annually in the spring	
Accumulated sediments from inflow channels and pipes between basins have been removed and legally disposed of	☐ Yes ☐ No ☐ NA
Floating debris and large sediment particles have been removed from inlets.	☐ Yes ☐ No ☐ NA
Stormwater Inlet Notes:	

C. Tributary Drainage System	**Observations**
Frequency: Annually spring or late fall and after heavy rains	
Remove and legally dispose of sediments	☐ Yes ☐ No ☐ NA
Remove floatables and other objects	☐ Yes ☐ No ☐ NA
Check for overgrown vegetation impeding flow	☐ Yes ☐ No ☐ NA
Check pipelines for siltation and clogging	☐ Yes ☐ No ☐ NA
Repair any slumping side slopes or erosion	☐ Yes ☐ No ☐ NA
Replace any riprap on areas where any underlying fabric or underlying gravel is exposed.	☐ Yes ☐ No ☐ NA
Tributary Drainage System Notes:	

D. Pervious Pavers	Observations					
Frequency: Semi-Annually						
Vacuum any sediment and debris from paver surface	☐	Yes	☐	No	☐	NA
Check that underdrain system is functioning properly	☐	Yes	☐	No	☐	NA
Check for pooling or signs that pavers are clogged and doesn't pass water	☐	Yes	☐	No	☐	NA
Pervious Paver Notes:						

E. Proprietary Device (FocalPoint®)	Observations					
Frequency: Semi-annually						
Check for debris blocking orifice	☐	Yes	☐	No	☐	NA
Check overflow structure and clear debris	☐	Yes	☐	No	☐	NA
Check for signs of clogging, or water is not draining freely through filter media	☐	Yes	☐	No	☐	NA
If applicable, flush underdrain pipe	☐	Yes	☐	No	☐	NA
Proprietary Device Notes:						

F. Detention Pond	Observations					
Frequency: Semi-Annually						
Inspect pond for unwanted vegetation.	☐	Yes	☐	No	☐	NA
Inspect pond for trash and debris. Dispose of properly.	☐	Yes	☐	No	☐	NA
Remove unwanted vegetation and dispose of properly.	☐	Yes	☐	No	☐	NA
Repair any eroded areas.	☐	Yes	☐	No	☐	NA
Remove and properly dispose of any accumulated sediment.	☐	Yes	☐	No	☐	NA
Reseed areas without 90% grass catch.	☐	Yes	☐	No	☐	NA
Detention Pond Notes:						

G. Orifice Control Devices	Observations
Frequency: Semi-Annually	
Check for debris blocking orifice	☐ Yes ☐ No ☐ NA
If applicable, flush underdrain pipe	☐ Yes ☐ No ☐ NA
Orifice Control Devices Notes:	

H. Ditches, Swales, and Other Open Stormwater Channels	Observations
Frequency: Semi Annually spring and late fall and after heavy rains	
Remove and legally dispose of sediments	☐ Yes ☐ No ☐ NA
Remove floatables and other objects	☐ Yes ☐ No ☐ NA
Check for overgrown vegetation impeding flow.	☐ Yes ☐ No ☐ NA
Mow to control growth and maintain flow capacity.	☐ Yes ☐ No ☐ NA
Repair any slumping side slopes or erosion	☐ Yes ☐ No ☐ NA
Replace any riprap on areas where any underlying fabric or underlying gravel is exposed.	☐ Yes ☐ No ☐ NA
Ditches Swales and Other Channel Notes:	

I. Roadways and Parking Surfaces	Observations
Frequency: Annually preferably in spring	
Remove and legally dispose of accumulated winter sand	☐ Yes ☐ No ☐ NA
Repair potholes and other roadway obstructions and hazards.	☐ Yes ☐ No ☐ NA
Roadways and Parking Surfaces Notes:	

J. Proprietary Device (Filterra Module)	Observations
Frequency: Semi-Annually	
Remove foreign debris, silt, mulch & trash	☐ Yes ☐ No ☐ NA
Evaluate filter media and recharge	☐ Yes ☐ No ☐ NA
Evaluate plant health and prune/replace as necessary	☐ Yes ☐ No ☐ NA
Replace mulch	☐ Yes ☐ No ☐ NA
Proprietary Device Notes:	

APPENDIX C

PERMITS FOR PROJECT
(TO BE PROVIDED)

APPENDIX D

DRAFT STORMWATER MAINTENANCE AGREEMENT

DRAFT - STORMWATER DRAINAGE SYSTEM MAINTENANCE AGREEMENT

DC Baxter Woods, LLC
Stevens Square at Baxter Woods – Phase 2 at 605 Stevens Avenue

IN CONSIDERATION OF the site plan and subdivision approval granted by the Planning Board of the City of Portland to the proposed **Stevens Square at Baxter Woods – Phase 2 Project ID _____** shown on the Subdivision Plat (Exhibit A) recorded in Cumberland Registry of Deeds in Plan Book __, Page __ submitted by _____ and associated Overall Site Layout Plan and Grading & Drainage Plan (Exhibits B and C) prepared by Gorrill Palmer Consulting Engineers of 707 Sable Oaks Drive, South Portland, Maine dated last revised _____ and pursuant to a condition thereof, DC Baxter Woods LLC, a Maine limited liability company with a principal place of business in Portland, Maine, and having a mailing address of 100 Commercial Street, Suite 414, Portland, ME 04101, 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 pervious pavement systems, Focal Point filter systems, R-Tank underground detention ponds, roof drains, Oil-Water Separator, Filterra Module, and related onsite drainage infrastructure, (hereinafter collectively referred to as the "stormwater system"), as shown on the Grading & Drainage Plan in Exhibit C and in strict compliance with the approved Stormwater Inspection and Maintenance Manual prepared for the Owner by Gorrill Palmer Consulting Engineers (copy attached in Exhibit D) 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 subdivision and/or site plan most recently and formally approved by the Planning Board 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 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.

_____
(*name of company*)

_____
(*representative of owner, name and title*)

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 Subdivision Plat
Exhibit B: Approved Site Layout Plan
Exhibit C: Approved Grading & Drainage Plan
Exhibit D: Approved Stormwater Inspection and Maintenance Manual

EROSION AND SEDIMENTATION CONTROL
BASIC STANDARDS

1.1 OVERVIEW

This Exhibit demonstrates the developer has made adequate provision for controlling erosion and sedimentation.

1.2 INTRODUCTION

Gorrill Palmer has been retained by DC Baxter Woods LLC to prepare an Erosion and Sedimentation Control Report for the construction of new buildings, new parking, and associated infrastructure at Stevens Square in Portland Maine. Figure 1 is a map showing the project location. Gorrill Palmer has prepared an Erosion and Sedimentation Control Plan for the proposed development. This narrative contains the general erosion and sedimentation control measures, which are appropriate for the construction of the project.

1.3 NARRATIVE

1.3.1 Existing Conditions and Soil Types

The proposed development includes the construction of approximately 63,980 sf of new roof area and new exterior parking areas consisting of 106 spaces in Portland, Maine. The site is currently developed as an athletic field. Abutting land uses include:

- North – Residential
- East – Residential
- South – Open Space/Baxter Woods
- West – Residential

Topography in the area of the proposed construction varies from moderately flat slopes of approximately 5% to steep slopes of 33%.

The NRCS medium intensity soil survey was utilized in identifying the on-site soils. The soils are shown on the predevelopment and post development watershed plans contained in the stormwater report for this project. The susceptibility of soils to erosion is indicated on a relative "K" scale of values over a range of 0.02 to 0.69. The higher values are indicative of the more erodible soils. The following table lists the soils found on site and their K values:

K VALUE		
Type	**Subsurface**	**Substratum**
Au Gres	0.15	0.25
Deerfield	0.17	0.17
Paxton	0.32	0.2
Windsor	0.17	0.17

Based on a review of the K Values, the on-site soils have low to medium susceptibility to erosion.

1.3.2 Existing Erosion Problems

Gorrill-Palmer Consulting Engineers, Inc. is not aware of any existing erosion problems on site.

1.3.3 Critical Areas

Critical areas that would require special attention during construction would be side slopes adjacent to wetlands.

1.3.4 Protected Natural Resources

Wetlands on-site have been delineated by Mark Hampton Associates, Inc., and are shown on project plans. The project will impact approximately 4,196 SF of wetlands.

Based upon the FEMA maps, the proposed development is not located within a Zone A 100-year floodplain.

1.3.5 Erosion Control Measures and Site Stabilization

The primary emphasis of the erosion/sedimentation control plan, which will be implemented for this project, is as follows:

- Development of a careful construction sequence.
- Rapid revegetation of denuded areas to minimize the period of soil exposure.
- Rapid stabilization of drainage paths to avoid rill and gully erosion.
- The use of on-site measures to capture sediment (hay bales/ stone check dams/silt fence, etc.)

The following temporary and permanent erosion and sediment control devices will be implemented as part of the site development. These devices shall be installed as indicated on the plans or as described within this report. For further reference, see the latest edition of the Maine Erosion and Sediment Control Practices Field Guide for Contractors.

A. <u>Dewatering</u>

Water from construction trench dewatering shall pass first through a filter bag or secondary containment structure (e.g. hay bale lined pool) prior to discharge. The discharge site shall be selected to avoid flooding, icing, and sediment discharges to a protected resource. In no case shall the filter bag or containment structure be located within 50 feet of a protected natural resource. Dewatering discharge shall not be directed across adjacent properties in a concentrated manner.

B. <u>Inspection and Monitoring</u>

Maintenance measures shall be applied as needed during the entire construction season. After each rainfall, snow storm or period of thawing and runoff, the site contractor shall perform a visual inspection of all installed erosion control measures and perform repairs as needed to insure their continuous function. Following the temporary and/or final seeding and mulching, the contractor shall in the spring inspect and repair any damages and/or unestablished spots. Established vegetative cover means a minimum of 90% of areas vegetated with vigorous growth.

The following standards must be met during construction.

(a) **Inspection and corrective action**. Inspect disturbed and impervious areas, erosion control measures, materials storage areas 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 within 24 hours after a storm event (rainfall), and prior to completing permanent stabilization measures. A person with knowledge of erosion and stormwater control, including the standards and conditions in the permit, shall conduct the inspections.

(b) **Maintenance**. If best management practices (BMPs) need to be repaired, the repair work should be initiated upon discovery of the problem but no later than the end of the next workday. If additional BMPs or significant repair of BMPs are necessary, implementation must be completed within 7 calendar days and prior to any storm event (rainfall). All measures must be maintained in effective operating condition until areas are permanently stabilized.

(c) **Documentation**. Keep a log (report) summarizing the inspections and any corrective action taken. The log must include the name(s) and qualifications of the person making the inspections, the date(s) of the inspections, and major observations about the operation and maintenance of erosion and sedimentation controls, materials storage areas, and vehicle access points to the parcel. Major observations must include BMPs that need maintenance, BMPs that failed to operate as designed or proved inadequate for a particular location, and location(s) where additional BMPs are needed. For each BMP requiring maintenance, BMP needing replacement, and location needing additional BMPs, note in the log the corrective action taken and when it was taken.

The log must be made accessible to City 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 permanent stabilization.

C. Temporary Erosion Control Measures

Temporary erosion control measures shall be installed by the Contractor as required by this report and as shown on the plan set for the project. Additional erosion control measures shall be installed if deemed necessary by on-site inspections of the Owner, the City of Portland, or their representatives at no additional cost to the owner.

The following measures are planned as temporary erosion/sedimentation control measures during construction:

1. Crushed stone-stabilized construction entrance shall be placed at the entrance to each construction area.

2. Siltation fence or wood waste compost berms shall be installed downstream of any disturbed areas to trap runoff- borne sediments until grass areas are revegetated. The silt fence and/or wood waste compost berms shall be installed per the details provided in this package and inspected at least once a week and before and immediately after a storm event of 0.5 inches or greater, and at least daily during prolonged rainfall. Repairs shall be made if there are any signs of erosion or sedimentation below the fence or berm line. If there are signs of undercutting at the center or the edges, or impounding of large volumes of water behind the fence or berm, the barrier shall be replaced with a stone check dam. Wood waste compost berms are not to be used adjacent to wetland areas that are not to be disturbed.

3. Straw or hay mulch including hydroseeding is intended to provide cover for denuded or seeded areas until revegetation is established. Mulch placed between April 15th and October 15th on slopes of less then 15 percent shall be anchored by applying water; mulch placed on slopes of equal to or steeper than 15 percent shall be covered by a fabric netting and anchored with staples in accordance with manufacturer's recommendation. Fabric netting and staples shall be used on disturbed areas within 50' of lakes, streams, and wetlands regardless of the upstream slope. Mulch placed between October 15th and April 15th on slopes equal to or steeper than 8 percent shall be covered with a fabric netting and anchored with staples in accordance with the manufacturer's recommendations. Slopes steeper than 3:1 and equal to or flatter than 2:1, which are to be revegetated, shall receive curlex blankets by American Excelsior or equal. Slopes steeper than 2:1 shall receive riprap as noted on the plans. The mulch application rate for both temporary and permanent seeding is 75 lbs per 1000 sf as identified in Attachment A of this section. Mulch shall not be placed over snow.

4. Temporary stockpiles of stumps, grubbings, or common excavation will be protected as follows:

    a) Temporary stockpiles shall not be located within 100 feet of any wetlands which will not be disturbed and shall be located away from drainage swales.

    b) Stockpiles shall be stabilized within 7 days by either temporarily seeding the stockpile by a hydroseed method containing an emulsified mulch tackifier or by covering the stockpile with mulch, such as hay, straw, or erosion control mix.

    c) Stockpiles shall be surrounded by sedimentation barrier at the time of formation.

5. All denuded areas that are within 100 feet of an undisturbed wetland, which have been rough graded and are not located within a building pad, parking area, or access drive subbase area, shall receive mulch or erosion control mesh fabric within 48 hours of initial disturbance of soil. All areas within 100 feet of an undisturbed wetland shall be mulched prior to any predicted rain event regardless of the 48 hour window. In other areas, the time period may be extended to 7 days.

6. For work, which is conducted between October 15th and April 15th of any calendar year, all denuded areas, shall be covered with hay mulch or erosion control mix, applied at twice the normal application rate and anchored with a fabric netting. The time period for applying mulch shall be limited to 2 days for all areas.

7. McAuley Way shall be swept to control mud and dust as necessary. Additional stone shall be added to the stabilized construction entrance to minimize the tracking of material off the site and onto the surrounding roadways.

8. During grubbing operations stone check dams shall be installed at any evident concentrated flow discharge points and as directed on the Erosion Control Plans.

9. Silt fencing with a minimum stake spacing of 6 feet shall be used, unless the fence is supported by wire fence reinforcement of minimum 14 gauge and with a maximum mesh spacing of 6 inches, in which case stakes may be spaced a maximum of 10 feet apart. The bottom of the fence shall be anchored. A double row of silt fence shall be used adjacent to wetlands.

10. Wood waste compost/bark berms may be used in lieu of siltation fencing. Berms shall be removed and spread in a layer not to exceed 3" thick once upstream areas are completed and a 90% catch of vegetation is attained.

11. Storm drain catch basin inlet protection shall be provided through the use of stone sediment barriers or approved sediment bags (such as Silt Sack). Installation details are provided in the plan set. The barriers shall be inspected after each rainfall and repairs made as necessary. Sediment shall be removed and the barrier restored to its original dimensions when the sediment has accumulated to ½ the design depth of the barrier. The barrier shall be removed when the tributary drainage area has been stabilized.

12. Water and/or calcium chloride shall be furnished and applied in accordance with MDOT specifications – Section 637 – Dust Control.

13. Loam and seed are intended to serve, as the primary permanent revegetative measure for all denuded areas not provided with other erosion control measures, such as riprap. Application rates are provided in Attachment A of this section. Seeding shall not occur over snow.

D. Permanent Erosion Control Measures

The following permanent erosion control measures have been designed as part of the Erosion/Sedimentation Control Plan:

1. All areas disturbed during construction, but not subject to other restoration (paving, riprap, etc.) will be loamed, limed, fertilized, mulched, and seeded. Fabric netting, anchored with staples, shall be placed over the mulch in areas as noted in **Temporary Erosion Control Measures** paragraph 3 of this report. All areas within 100 feet of an undisturbed wetland shall be mulched prior to any predicted rain event regardless of the 48 hour window. Native topsoil shall be stockpiled and reused for final restoration when it is of sufficient quality.

2. All storm drain pipe outlets shall have riprap aprons at their outlet to protect the outlet and receiving channel from scour and deterioration. Installation details are provided in the plan set. The aprons shall be installed and stabilized to the extent practicable prior to directing runoff to the tributary pipe or culvert.

1.4 Implementation Schedule

The following construction sequence shall be required to ensure the effectiveness of the erosion and sedimentation control measures are optimized:

It is anticipated that construction of Buildings 2-5 and related infrastructure will commence in Fall of 2021.

Note: For all grading activities, the contractor shall exercise extreme caution not to overexpose the site, this shall be accomplished by limiting the disturbed area.

1. Install stabilized construction entrance at construction access points from paved roadways.

2. Install catch basin inlet protection, and perimeter silt fence/wood waste berms prior to grubbing respective areas.

3. Clear and grub area to be developed. Install stone check dams at any evident concentrated flow discharge points.

4. Foundation preparation area shall be excavated for installation of the building footings. Building work will be on going through the remainder of the project.

5. Commence installation of drainage appurtenances.

6. Commence construction of pervious paver filter/reservoir up to choker course, Focal Point filters and subsurface detention ponds.

7. Commence earthwork and grading to subgrade.

8. Commence installation of utilities.

9. Continue earthwork and grading to subgrade as necessary for construction.

10. Complete installation of underground utilities to within 5' of the buildings.

11. Install light pole foundations and light poles.

12. Complete remaining earthwork operations.

13. Complete installation of catch basins and appurtenances.

14. Install sub-base and base gravel within parking fields, walkways, and all driveways.

15. Install base course paving for access drive and parking area as well as concrete surfaces.

16. Install curbing in parking fields, driveways, and along the streets as needed.

17. Loam, lime, fertilize, seed and mulch disturbed areas and complete all landscaping.

18. Install pervious pavers and infill stone, surface course paving for access drive and parking areas. Stripe per plan.

19. Once the site is stabilized and a 90% catch of vegetation has been obtained, remove all temporary erosion control measures.

20. Touch up loam and seed.

    Note: All denuded areas not subject to final paving, riprap, or gravel shall be revegetated.

Prior to construction of the project, the contractor shall submit to the owner a schedule for the completion of the work, which will satisfy the following criteria:

1. The above construction sequence should generally be completed in the specified order; however, several separate items may be constructed simultaneously. Work must also be scheduled or phased to reduce the extent of the exposed areas as specified below. The intent of this sequence is to provide for erosion control and to have structural measures such as silt fence and construction entrances in place before large areas of land are denuded.

2. The work shall be conducted in sections which shall:

   a) Limit the amount of exposed area to those areas in which work is expected to be undertaken during the proceeding 30 days.

   b) Revegetate disturbed areas as rapidly as possible. All areas shall be permanently stabilized within 7 days of final grading or before a storm event; or temporarily stabilized within 48 hours of initial disturbance of soil for areas within 100 feet of an undisturbed wetland and 7 days for all other areas. Areas within 100 feet of an undisturbed wetland shall be mulched prior to any predicted rain event regardless of the 48 hour window.

   c) Incorporate planned inlets and drainage system as early as possible into the construction phase. The ditches shall be immediately lined or revegetated as soon as their installation is complete.

1.5 Erosion, Sedimentation and Stabilization Control Plan

The Erosion Control Plan is included in the plan set.

1.6 Details and Specifications

The Erosion Control details and specifications are included in the plan set.

1.7 Winter Stabilization Plan

The winter construction period is from November 1 through April 15. If the construction site is not stabilized with pavement, a road gravel base, 75% mature vegetation cover or riprap by November 15 then the site needs to be protected with over-winter stabilization. An area considered open is any area not stabilized with pavement; vegetation, mulching, erosion control mats, riprap or gravel base on a road.

Winter excavation and earthwork shall be completed such that any area left exposed can be controlled by the contractor. Limit the exposed area to those areas in which work is expected to be undertaken during the proceeding 15 days and that can be mulched in one day prior to any snow event.

All areas shall be considered to be denuded until the subbase gravel is installed in roadway/parking areas or the areas of future loam and seed have been loamed, seeded and mulched. Hay and straw mulch rate shall be a minimum of 150 lbs./1,000 s.f. (3 tons/acre) and shall be properly anchored.

The contractor shall install any added measures which may be necessary to control erosion/sedimentation from the site dependent upon the actual site and weather conditions. Continuation of earthwork operations on additional areas shall not begin until the exposed soil surface on the area being worked has been stabilized, in order to minimize areas without erosion control protection.

1. Soil Stockpiles

Stockpiles of soil or subsoil shall be mulched for over winter protection with hay or straw at twice the normal rate or at 150 lbs/1,000 s.f. (3 tons per acre) or with a four-inch layer of woodwaste erosion control mix. This shall be done within 24 hours of stocking and re-established prior to any rainfall or

snowfall. Any soil stockpile shall not be placed (even covered with hay or straw) within 100 feet from any natural resources.

2. Natural Resource Protection

Any areas within 100 feet from any natural resources, if not stabilized with a minimum of 75% mature vegetation catch, shall be mulched by December 1 and anchored with plastic netting or protected with erosion control mats. During winter construction, a double line of sediment barriers (i.e. silt fence backed with hay bales or erosion control mix) shall be placed between any natural resource and the disturbed area. Projects crossing the natural resource shall be protected a minimum distance of 100 feet on either side from the resource. Existing projects not stabilized by December 1 shall be protected with the second line of sediment barrier to ensure functionality during the spring thaw and rains.

3. Sediment Barriers

During frozen conditions, sediment barriers shall consist of woodwaste filter berms as frozen soil prevents the proper installation of hay bales and sediment silt fences.

4. Mulching

An area shall be considered denuded until areas of future loam and seed have been loamed, seeded and mulched. Hay and straw mulch shall be applied at a rate of 150 lb. per 1,000 square feet or 3 tons/acre (twice the normal accepted rate of 75-lbs./1,000 s.f. or 1.5 tons/acre) and shall be properly anchored. Mulch shall not be spread on top of snow. The snow shall be removed down to a one-inch depth or less prior to application. After each day of final grading, the area shall be properly stabilized with anchored hay or straw or erosion control matting. An area shall be considered to have been stabilized when exposed surfaces have been either mulched with straw or hay at a rate of 150 lb. per 1,000 square feet (3 tons/acre) and adequately anchored that ground surface is not visible though the mulch.

Between the dates of November 1 and April 15, all mulch shall be anchored by peg line, mulch netting, asphalt emulsion chemical, or wood cellulose fiber. When ground surface is not visible through the mulch then cover is sufficient. After November 1st, mulch and anchoring of all bare soil shall occur at the end of each final grading workday.

5. Mulching on Slopes and Ditches

Slopes shall not be left exposed for any extended time of work suspension unless fully mulched and anchored with peg and netting or with erosion control blankets. Mulching shall be applied at a rate of 230 lbs/1,000 s.f. on all slopes greater than 8%.

Mulch netting shall be used to anchor mulch in all drainage ways with a slope greater than 3% for slopes exposed to direct winds and for all other slopes greater that 8%. Erosion control blankets shall be used in lieu of mulch in all drainage ways with slopes greater than 8%. Erosion control mix can be used to substitute erosion control blankets on all slopes except ditches.

6. Seeding

Between the dates of October 15 and April 1st, loam or seed will not be required. During periods of above freezing temperatures finished areas shall be fine graded and either protected with mulch or temporarily seeded and mulched until such time as the final treatment can be applied. If the date is after November 1st and if the exposed area has been loamed, final graded with a uniform surface, then the area may be dormant seeded at a rate of 3 times higher than specified for permanent seed and

then mulched. Dormant seeding may be selected to be placed prior to the placement of mulch and fabric netting anchored with staples. If dormant seeding is used for the site, all disturbed areas shall receive 4" of loam and seed at an application rate of 5 lbs/1,000 s.f. All areas seeded during the winter shall be inspected in the spring for adequate catch. All areas insufficiently vegetated (less than 75% catch) shall be revegetated by replacing loam, seed and mulch. If dormant seeding is not used for the site, all disturbed areas shall be revegetated in the spring.

Standards for Timely Stabilization of Construction Sites During Winter

1. Standard for the timely stabilization of ditches and channels -- The applicant shall construct and stabilize all stone-lined ditches and channels on the site by November 15. The applicant shall construct and stabilize all grass-lined ditches and channels on the site by September 1. If the applicant fails to stabilize a ditch or channel to be grass-lined by September 1, then the applicant will take one of the following actions to stabilize the ditch for late fall and winter.

Install a sod lining in the ditch -- The applicant shall line the ditch with properly installed sod by October 1. Proper installation includes the applicant pinning the sod onto the soil with wire pins, rolling the sod to guarantee contact between the sod and underlying soil, watering the sod to promote root growth into the disturbed soil, and anchoring the sod with jute or plastic mesh to prevent the sod strips from sloughing during flow conditions.

Install a stone lining in the ditch --The applicant shall line the ditch with stone riprap by November 15. The applicant shall hire a registered professional engineer to determine the stone size and lining thickness needed to withstand the anticipated flow velocities and flow depths within the ditch. If necessary, the applicant shall regrade the ditch prior to placing the stone lining so to prevent the stone lining from reducing the ditch's cross-sectional area.

2. Standard for the timely stabilization of disturbed slopes -- The applicant shall construct and stabilize stone-covered slopes by November 15. The applicant shall seed and mulch all slopes to be vegetated by September 1. The department shall consider any area having a grade greater than 15% to be a slope. If the applicant fails to stabilize any slope to be vegetated by September 1, then the applicant shall take one of the following actions to stabilize the slope for late fall and winter.

Stabilize the soil with temporary vegetation and erosion control mats -- By September 1 the applicant shall seed the disturbed slope with winter rye at a seeding rate of 3 pounds per 1,000 square feet and apply erosion control mats over the mulched slope. The applicant shall monitor growth of the rye over the next 30 days. If the rye fails to grow at least three inches or cover at least 75% of the disturbed slope by November 1, then the applicant shall cover the slope with a layer of woodwaste compost as described in item iii of this standard or with stone riprap as described in item iv of this standard.

Stabilize the slope with sod -- The applicant shall stabilize the disturbed slope with properly installed sod by September 1. Proper installation includes the applicant pinning the sod onto the slope 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. The applicant shall not use late-season sod installation to stabilize slopes having a grade greater than 33% (3H:1V).

Stabilize the slope with woodwaste compost -- The applicant shall place a six-inch layer of woodwaste compost on the slope by November 15. Prior to placing the woodwaste compost, the applicant shall remove any snow accumulation on the disturbed slope. The applicant shall not use woodwaste compost to stabilize slopes having grades greater than 50% (2H:1V) or having groundwater seeps on the slope face.

Stabilize the slope with stone riprap -- The applicant shall place a layer of stone riprap on the slope by November 15. The applicant shall hire a registered professional engineer to determine the stone size needed for stability and to design a filter layer for underneath the riprap.

3. Standard for the timely stabilization of disturbed soils -- By September 15 the applicant shall seed and mulch all disturbed soils on areas having a slope less than 15%. If the applicant fails to stabilize these soils by this date, then the applicant shall take one of the following actions to stabilize the soil for late fall and winter.

Stabilize the soil with temporary vegetation -- By September 1 the applicant shall 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 applicant shall monitor growth of the rye over the next 30 days. If the rye fails to grow at least three inches or cover at least 75% of the disturbed soil before November 1, then the applicant shall mulch the area for over-winter protection as described below.

Stabilize the soil with sod -- The applicant shall stabilize the disturbed soil with properly installed sod by September 15. Proper installation includes the applicant 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.

Stabilize the soil with mulch -- By November 15 the applicant shall 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. Prior to applying the mulch, the applicant shall remove any snow accumulation on the disturbed area. Immediately after applying the mulch, the applicant will anchor the mulch with plastic netting to prevent wind from moving the mulch off the disturbed soil.

1.8 Maintenance of facilities

The stormwater facilities will be maintained by the Applicant, DC Baxter Woods, LLC or their assigned heirs. The contract documents will require the contractor to designate a person responsible for maintenance of the sedimentation control features during construction as required by the Erosion Control Report. Long-term operation/maintenance recommended for the stormwater facilities is presented below.

The responsible party may contract with such professionals, as may be necessary in order to comply with this provision and may rely on the advice of such professionals in carrying out its duty hereunder, provided, that the following operation and maintenance procedures are hereby established as a minimum for compliance with this section. A maintenance log of the inspections shall be kept by the responsible party.

A construction inspection log is included in Attachment B. An Operation and Maintenance manual including an inspection log is attached to the Stormwater Report for this project.

Inspection and Maintenance Frequency and Corrective Measures:
The following areas, facilities, and measures will be inspected and the identified deficiencies will be corrected. Clean-out must include the removal and legal disposal of any accumulated sediments and debris.

Catch Basins:

Inspect catch basins 2 times per year (preferably in Spring and Fall) to ensure that the catch basins are working in their intended fashion and that they are free of debris. Clean structures when sediment depths reach 12" from invert of outlet. If the basin outlet is designed with a hood to trap floatable materials (i.e. Snout), check to ensure watertight seal is working. At a minimum, remove floating debris and hydrocarbons at the time of the inspection.

Culverts:
Inspect culverts 2 times per year (preferably in Spring and Fall) to ensure that the culverts are working in their intended fashion and that they are free of debris. Remove any obstructions to flow; remove accumulated sediments and debris at the inlet, at the outlet, and within the conduit and repair any erosion damage at the culvert's inlet and outlet.

Inlet/Outlet Control Structures:
Inspect structures and piping 2 times per year (preferably in Spring and Fall) to ensure that the structures are working in their intended fashion and that they are free of debris. Remove any obstructions to flow; remove accumulated sediments and debris within the structure.

Stormdrain Outlets:
Inspect outlets 2 times per year (preferably in Spring and Fall) to ensure that the outlets are working in their intended fashion and that they are free of debris. Remove any obstructions to flow; remove accumulated sediments and debris at the outlet and within the conduit Repair any erosion damage at the stormdrain outlet.

Proprietary Treatment Devices (FocalPoint®)
Inspect the filter after each major rainfall event to ensure that stormwater runoff is able to pass through the filters. The vegetation should be inspected and maintained regularly similar to other landscape features on site. The underdrain outlet should be inspected regularly. Clear inlets and pretreatment devices of debris and sediment. Maintain as instructed by manufacturer. The system should be inspected semi-annually and maintained as required by the manufacturer. The manufacturer typically commits to the first year of maintenance if their strict guidelines are followed for installation, which is highly encouraged to achieve peak performance. It is recommended that an outside agent who is familiar with the product be retained for future maintenance.

Vegetated Areas:
Inspect slopes and embankments early in the growing season to identify active or potential erosion problems. Replant bare areas or areas with sparse growth. Where rill erosion is evident, armor the area with an appropriate lining or divert the erosive flows to on-site areas able to withstand the concentrated flows. The facilities will be inspected after major storms and any identified deficiencies will be corrected.

Ditches, Swales and other Open Stormwater Channels:
Inspect 2 times per year (preferably in Spring and Fall) to ensure they are working in their intended fashion and that they are free of sediment and debris. Remove any obstructions to flow, including accumulated sediments and debris and vegetated growth. Repair any erosion of the ditch lining. Vegetated ditches will be mowed at least annually or otherwise maintained to control the growth of woody vegetation and maintain flow capacity. Any woody vegetation growing through riprap linings must also be removed. Repair any slumping side slopes as soon as practicable. If the ditch has a riprap lining, replace riprap on areas where any underlying filter fabric or underdrain gravel is showing through the stone or where stones have dislodged. Correct any erosion of the channel's bottom or sideslopes. The facilities shall be inspected after major storms and any identified deficiencies shall be corrected.

Filterra Unit:
The first year of maintenance shall be performed by the Supplier or a supplier approved contractor. Subsequent maintenance shall be performed at least 2 times per year (preferably in Spring and Fall). At a minimum, the maintenance shall consist of the following:

1. Filterra Unit Inspection
2. Foreign debris, silt, mulch & trash removal
3. Filter media evaluation and recharge as necessary
4. Plant health evaluation and pruning or replacement as necessary
5. Replacement of mulch
6. Disposal of all maintenance refuse items

Pervious Pavers:
Do not use sand on pervious pavers. Inspect the pervious pavers during a rainstorm during the first few months following construction to ensure that the pavers are draining. After initial inspections, inspect 2 times per year (preferably in Spring and Fall) after a significant storm, to ensure the pavers are working in their intended fashion and that they are free of sediment and debris. Remove leaves and organic debris regularly to maintain infiltration. Plowing, with the plow blade raised up to 1 inch to avoid damaging pavers, shall be performed as necessary to maintain vehicular traffic safety. Vacuuming of the pavers shall be performed if the infiltration is diminished. If vacuuming does not restore infiltration, remove pavers and clean or replace reservoir stone.

Roadways and Parking Surfaces:
Clear accumulations of winter sand in parking lots and along roadways at least once a year, preferably in the spring. Accumulations on pavement may be removed by pavement sweeping. 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. Repair potholes and other roadway obstructions and hazards. Plowing and sanding of paved areas shall be performed as necessary to maintain vehicular traffic safety.

Recertification

The owner will be required to hire a qualified post-construction stormwater inspector to at least annually, inspect the BMPs. In addition, the qualified post-construction stormwater inspector shall, on or by June 30 of each year, provide a completed and signed certification to DPW in a form provided by DPW certifying that the person has inspected the BMPs and they are adequately maintained and functioning as intended.

Records of all inspections and maintenance work accomplished must be kept and maintained to document facility operations. These records should be filed and retained in accordance with the City of Portland Code of Ordinances, Chapter 32. The filing system should be capable of ready retrieval of data for periodic reviews by appropriate regulatory bodies. Where possible, copies of such records should also be filed with the designated primary regulatory agency for their review for compliance with permit conditions.

Housekeeping

As part of the Stormwater Permit, the applicant is required to meet the standards in Appendix C of the Chapter 500 Rules. The following procedures are hereby established as a minimum for compliance

with this section. For further information on the procedures listed below, refer to Chapter 500 rules – Appendix C.

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.

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.

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.

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.

Trench or Foundation De-watering:
Excavation de-watering 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.

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:

(a) Discharges from firefighting activity;

(b) Fire hydrant flushings;

(c) Vehicle wash water if detergents are not used and washing is limited to the exterior of vehicles (engine, undercarriage and transmission washing is prohibited);

(d) Dust control runoff in accordance with permit conditions and Appendix (C)(3);

(e) Routine external building washdown, not including surface paint removal, that does not involve detergents;

(f) Pavement wash water (where spills/leaks of toxic or hazardous materials have not occurred, unless all spilled material had been removed) if detergents are not used;

(g) Uncontaminated air conditioning or compressor condensate;

(h) Uncontaminated groundwater or spring water;

(i) Foundation or footer drain-water where flows are not contaminated;

(j) Uncontaminated excavation dewatering (see requirements in Appendix C(5));

(k) Potable water sources including waterline flushings; and

(l) Landscape irrigation.

Unauthorized Non-stormwater Discharges:

Identify and prevent contamination by non-stormwater discharges. Specifically, the Department's approval does not authorize discharges of the following:

(a) Wastewater from the washout or cleanout of concrete, stucco, paint, form release oils, curing compounds or other construction materials;

(b) Fuels, oils or other pollutants used in vehicle and equipment operation and maintenance;

(c) Soaps, solvents, or detergents used in vehicle and equipment washing; and

(d) Toxic or hazardous substances from a spill or other release.

Conclusion

The Applicant has provided temporary and permanent erosion control measures as well as specifying a sequence of construction as measures to minimize erosion and sedimentation.

Attachments

Attachment A – Seeding Plan

Attachment B – Inspection Report

SEEDING PLAN

Project: Stevens Square, Phase 2 – Lot 5

Site Location: Portland, ME

☐ Permanent Seeding ☒ Temporary Seeding

1. Instruction on preparation of soil: Prepare a good seed bed for planting method used.
2. Apply lime as follows: _____# / acres, OR 138 # /M Sq. Ft.
3. Fertilize with _____ pounds of _____ N-P-K/ac. OR 13.8 pounds of 10-10-10 N-P-K/M Sq. Ft.
4. Method of applying lime and fertilizer: Spread and work into the soil before seeding.
5. Seed with the following mixture:

   50% Winter Rye

   50% Annual Rye

6. Mulching instructions: Apply at the rate of _____per acre, OR 75 pounds per M. Sq. Ft.

Amount	Unit # Tons. Etc.	
7. TOTAL LIME	138	#/1000 sq. ft.
8. TOTAL FERTILIZER	13.8	#/1000 sq. ft.
9. TOTAL SEED	1.03	#/1000 sq. ft.
10. TOTAL MULCH	75	#/1000 sq. ft.
11. TOTAL other materials, seeds, etc.		
12. REMARKS		

Spring seeding is recommended; however, late summer (prior to September 1) seeding can be made. Permanent seeding should be made prior to August 5 or as a dormant seeding after the first killing frost and before the first snowfall. If seeding cannot be done within these seeding dates, temporary seeding and mulching shall be used to protect the site. Permanent seeding shall be delayed until the next recommended seeding period.

SEEDING PLAN

Project: Stevens Square, Phase 2 – Lot 5

Site Location: Portland, ME

☒ Permanent Seeding ☐ Temporary Seeding

13. Instruction on preparation of soil: Prepare a good seed bed for planting method used.
14. Apply lime as follows: _____# / acres, OR 138 # /M Sq. Ft.
15. Fertilize with _____ pounds of _____ N-P-K/ac. OR 18.4 pounds of 10-20-20 N-P-K/M Sq. Ft.
16. Method of applying lime and fertilizer: Spread and work into the soil before seeding.
17. Seed with the following mixture:

    40% Creeping Red Fescue

    30% Charger II Perennial Ryegrass

    20% KenBlue Kentucky Bluegrass

    10% Tiffany Chewings Fescue
18. Mulching instructions: Apply at the rate of _____per acre, OR 75 pounds per M. Sq. Ft.

Amount	Unit # Tons. Etc.	
19. TOTAL LIME	138	#/1000 sq. ft.
20. TOTAL FERTILIZER	18.4	#/1000 sq. ft.
21. TOTAL SEED	1.03	#/1000 sq. ft.
22. TOTAL MULCH	75	#/1000 sq. ft.
23. TOTAL other materials, seeds, etc.		
24. REMARKS		

Spring seeding is recommended, however, late summer (prior to September 1) seeding can be made. Permanent seeding should be made prior to August 5 or as a dormant seeding after the first killing frost and before the first snowfall. If seeding cannot be done within these seeding dates, temporary seeding and mulching shall be used to protect the site. Permanent seeding shall be delayed until the next recommended seeding period.

STORMWATER POLLUTION PREVENTION PLAN

INSPECTION REPORT

PROJECT INFORMATION

Project Name: Stevens Square, Phase 2 – Lot 5

Address: 583 Stevens Avenue
Portland, Maine

CONTRACTOR/SUBCONTRACTOR INFORMATION

Inspector Name: _____

Firm: _____

Title: _____

Qualifications: _____

INSPECTION SUMMARY

Date of Inspection: _____

Major Observations: _____

_____

_____

_____

THE FACILITY IS IN COMPLIANCE WITH THE STORMWATER POLLUTION PREVENTION PLAN WITH THE FOLLOWING EXCEPTIONS:

_____

_____

_____

_____

_____

ACTIONS NECESSARY TO BRING FACILITY INTO COMPLIANCE:

_____

_____

REQUIRED MODIFICATIONS TO STORMWATER POLLUTION PREVENTION PLAN
(MUST BE IMPLEMENTED WITHIN 7 DAYS OF INSPECTION):

_____

_____

_____

_____

CERTIFICATION STATEMENT:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the systems, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

_____
Signature

_____
Typed Name

_____
Title

_____
Date

PUBLIC INFRASTRUCTURE AND COMMUNITY SAFETY

The following statements are provided in accordance with the submission and Section 14.6.3 of the ordinance.

Public Infrastructure and Community Safety Standards

A. Consistency with City Master Plans 14.6.3.A

1. The proposed development is consistent with the previously approved Master Development Plan as shown below. There have been subtle adjustments to the layout that we believe improve the overall proposal. These include the reduction of parking in the central core of the development and increased open space to provide greater pedestrian/aesthetic opportunities on the site. As determined during the MDP process the site is ideally situated to benefit from public infrastructure for utilities, vehicular and pedestrian access as well as nearby public transit.

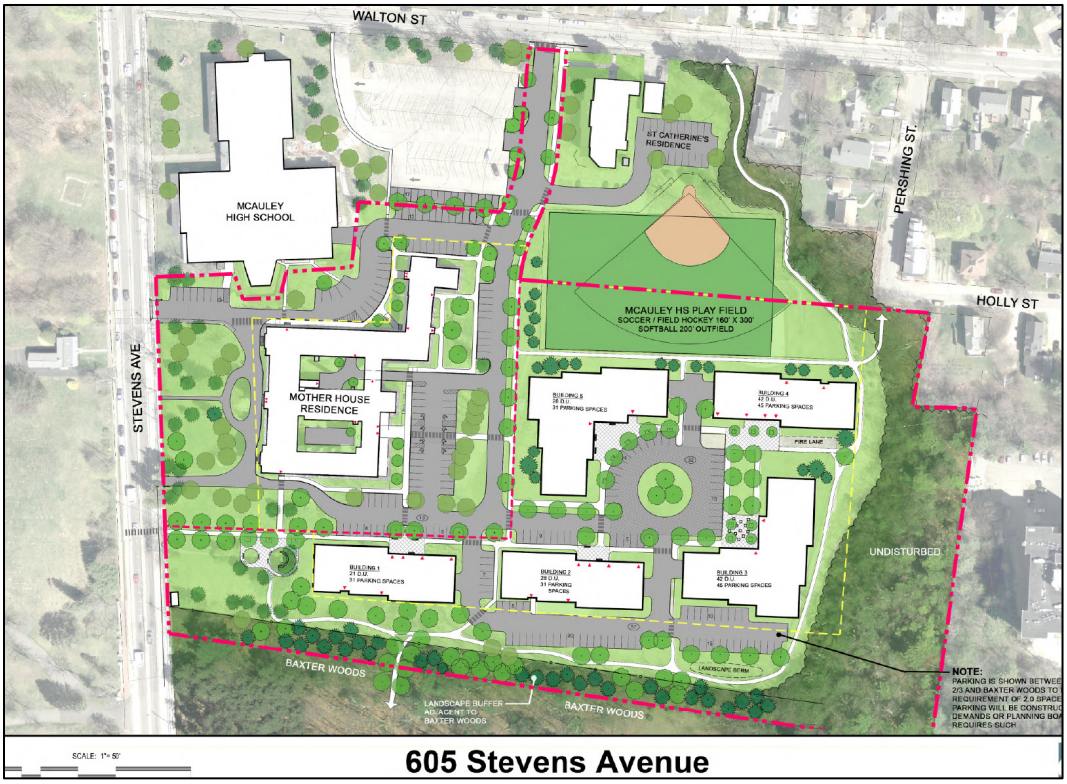


Fig 1. 2016 Approved Master Development Plan

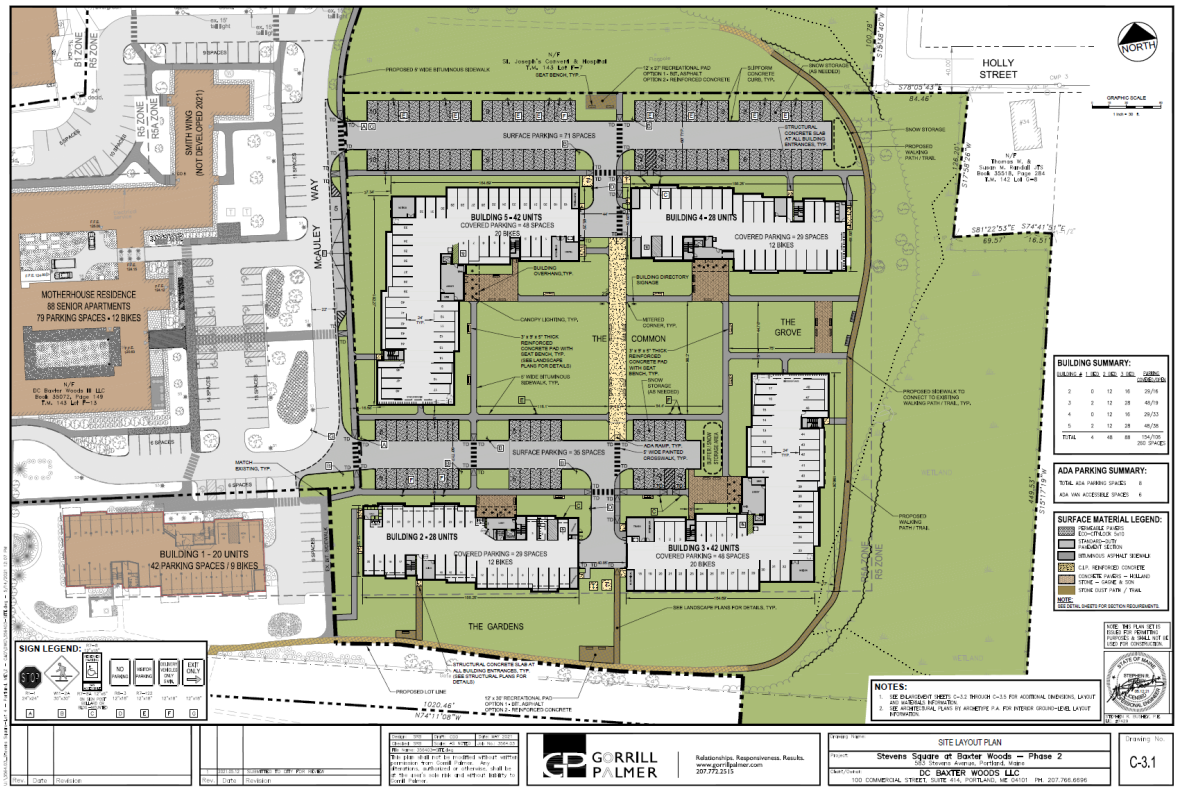


Fig. 2 Proposed Development Plan

2. The Applicant has coordinated with utility representatives for the maintenance of easements related to utility infrastructure crossing the site. A 50' wide access, utility and drainage easement crosses Lot 3 of the subdivision and this easement benefits Lot 4 and the proposed Lot 5. This easement will remain in place as will several others that will remain unchanged and in force. A 30' wide drainage easement through Lot 4 that benefits Lots 2 and 3 will be rerouted through Lot 5 as part of the updated drainage system on the site. Titcomb Associates is preparing the Second Amended Subdivision plan that will be uploaded to Eplan upon completion.

B. Public Safety and Fire Prevention 14-14.6.3(B)

- *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)*

a. The site has been designed to promote a safe and inviting visitor experience. All pedestrian paths and outside gathering spaces have been positioned to maintain visibility and consider safety for the users.

b. The primary site access will be off Walton Street. One direction access is provided via single entry and exiting driveways off Stevens Avenue. Observations of current use patterns for Motherhouse occupants indicate that the primary access route is the Walton Street Driveway (McAuley Way) and not Stevens Avenue. This likely is due to the lesser traffic volumes on Walton Street compared to Stevens Avenue. Two full service driveways will allow access to the four

proposed buildings. These driveways will not be interconnected except for emergency vehicle access, thus reducing any proclivity for through traffic.

The site plan includes emergency vehicle access as evidenced by the AutoTURN diagram accompanying this section and shown below.

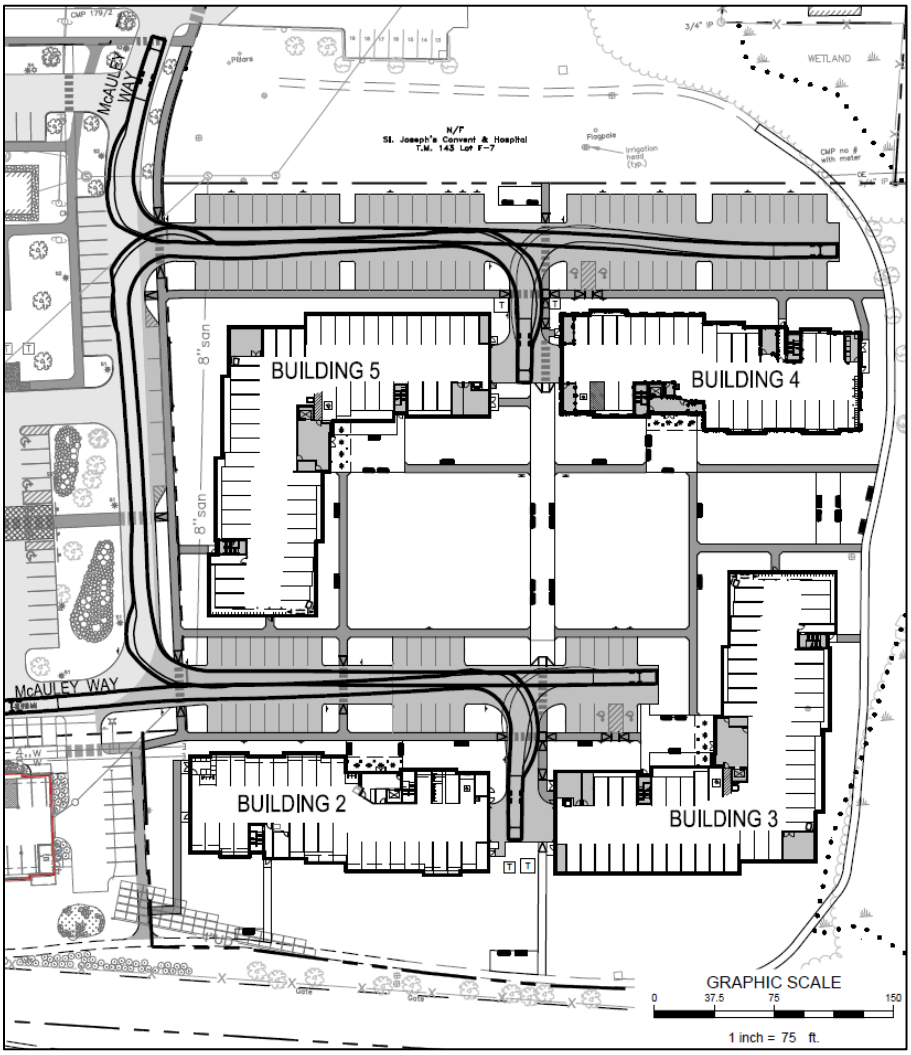


Fig. 3 AutoTURN Plan

C. Availability and Adequacy of Public Utilities 14.6.3(C) (Technical Manual, Sections 2 & 9 9)

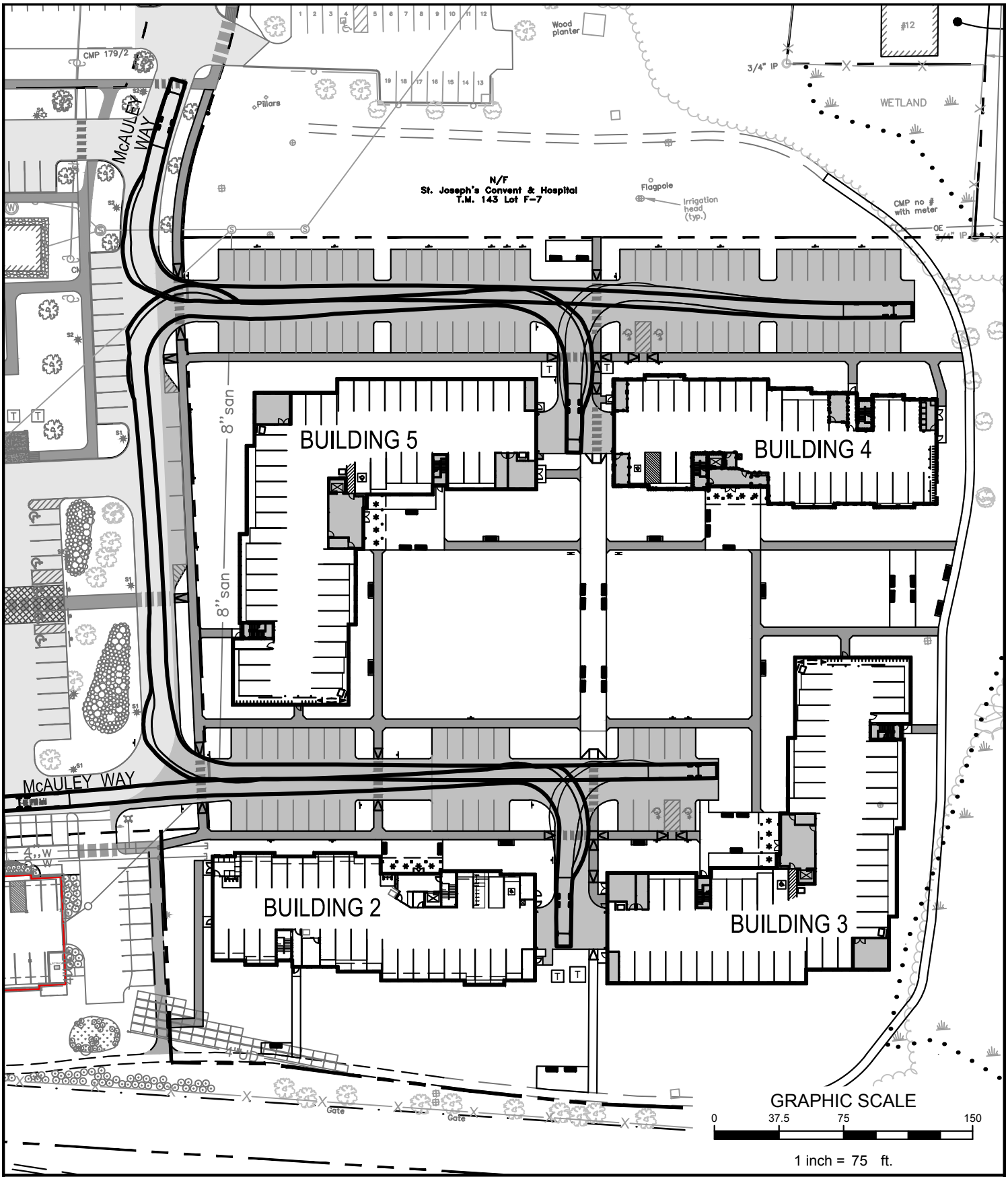
- *Electrical services, including providing underground services*
- *Identify existing and proposed connections for public utilities and required public utility upgrades*
- *Sewer line connections are required, if there is a main within 200 feet*

a. The Applicant is coordinating with the onsite utility providers and will forward capacity to serve letters upon receipt. All utilities were previously determined to have adequate capacity during the MDP process and no significant changes to the project's needs have occurred as part of the current design process.

b. All electrical and communications feeds are underground on the property.

c. A new sewer connection to the existing 8" main in Holly Street is proposed for the sanitary flows from Buildings 2-4. Building #5 will connect to an existing onsite sewer main that ultimately connects to the system in Walton Street. The wastewater collection system design has been prepared to comply with the City's technical standards.

d. The buildings will contain trash rooms for the placement of collection totes for waste and recyclable materials. The buildings will have routine (weekly at a minimum) pickup by a contracted waste hauler. The totes will typically be wheeled from the interior trash room for disposal into the waste hauling vehicle. There will be no outside solid waste enclosures on Lot 4 or 5.



VEHICLE TURNING - HP-100 AERIAL FIRE TRUCK

STEVENS SQUARE AT BAXTER WOODS - PHASE 2

583 Stevens Avenue, Portland, Maine

Design: SRB	Date: MAY 2021
Draft: CDD	Job No.: 3564.03
Checked: SRB	Scale: AS NOTED
File Name: 356403-PBASE.dwg	

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Figure 1

SITE DESIGN

The following statements are provided in accordance with the submission and Section 14 of the ordinance.

Site Design Standards 14.6.4

A. Massing, Ventilations and Wind Impact 14.14.6.4(A)

- *Wind and ventilation impacts on adjoining structures and/or adjacent public spaces. Wind study, if applicable.*
- *Bulk, location or height impacts on adjoining structures*

a. The bulk, location, and height of the proposed buildings will not result in any impacts to adjacent sites or buildings. The proposed buildings are relatively modest in height and they are positioned away from nearby structures. The closest structures are the Motherhouse which is greater than 100 feet west of the site and the recently constructed Building #1 which is greater than 50' west of the site.

b. Based on the positioning of the four new buildings there is expected to be no diminution in value or utility of nearby properties. The proposal is consistent with the previously approved Master Development Plan.

c. HVAC venting will be directed through building roof top mounted units and does not impact any adjacent public spaces or residential properties.

B. Shadows 14-14.6.4(B), if applicable

- *Shadow analysis of impacts on publicly accessible open space (Technical Manual, Section 11)*

a. The proposed buildings will not cast significant shadows onto neighboring properties, or block access to direct sunlight for structures utilizing solar energy.

C. Snow and Ice Loading 14-14.6.4.(C)

- *Building design to prevent snow and ice from loading or falling onto adjacent properties or public ways.*

a. The proposed buildings have been designed and located such that accumulated snow and ice will not fall onto adjacent properties or public ways. Snow will be removed from the parking lots and stockpiled within the site perimeter or if necessary, removed from the site.

D. View Corridors 14-14.6.4(D), if applicable

- *Protection of designated view corridors (Portland Design Manual, Appendix 1)*

a. The project site is located outside the Downtown Vision Corridor Protection Plan.

E. Historic Resources 14-14.6.4(E), if applicable

- *Identify developments within Historic Districts or affecting Designated Landmarks*
- *Certificate of Appropriateness or other evidence*
- *Identify Developments within 100 feet of Historic Districts or affecting Designated Landmarks. Advisory HP review may be required*
- *Address preservation and documentation of Archaeological Resources*

During the Master Development and Building 1 Site Plan Review process the applicant proposed addition of and adjustments in various site pathways. Only one opening/gate at the Baxter Woods fence is now shown connecting to the historical Baxter Woods allée off the corner of Building 1.

F. Exterior Lighting (14-14.6.4(F))

- *Cut sheets of on-site light fixtures and any architectural or specialty lights (Technical Manual, Section 12)*
- *Engineered details for any lights proposed in street right-of-way (Technical Manual, Section 10)*

a. Site Lighting

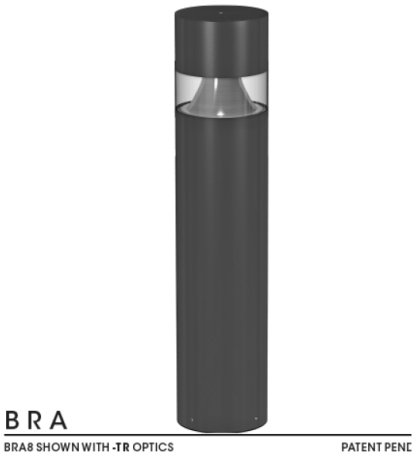
The proposed site parking lot lighting will be consistent with the lighting provided for Building #1. This includes 12-foot residential scale LED fixtures, with 90 degree cutoff shields. (Mozart Series by US architectural Lighting & Sun Valley Lighting)



b. Architectural and Specialty Lighting

(i) Architectural and specialty lighting may include Bollard lights along walkways. Main entrances will utilize recessed ceiling LED lights by Fail Safe®.
(ii) The garage doors will be provided with down lot LED wall lights by Lumark®





c. Street Lighting

There are existing streetlights along Walton Street and Stevens Avenue. No new street lighting is proposed.

G. Noise and Vibration 14-14.6.4(G)

- *Evidence of noise levels for equipment, such as equipment specifications, to demonstrate consistency with zoning requirements*

All new HVAC equipment will be located greater than 100 feet from any nearby residential uses. No equipment will be located within 50 feet of a property line. All new equipment will meet the City standards for noise at the property lines.

H. Signage and Wayfinding 14-14.6.4(H), if applicable

- *Signage plan showing the location, dimensions, height and setback of all existing and proposed signs*
- *Proposed commercial and directional signage on site*

1. All street and wayfinding signage shall meet the requirements of the Manual on Uniform Traffic Devices (MUTCD) and Division 22 of the City Code.

I. Design Standards 14-14.6.4(I)

- *Address any applicable design review standards by zone - Residential developments, shall integrate with and respect the character of surrounding residential development in terms of architectural form, landscaping and open space, façade materials, roof pitch, massing, and height.*

The site is located in the R5 & R5A Zoning District. The buildings are oriented to provide a primary entrance from Walton Street and secondary access from Stevens Avenue. The site has

been previously approved under a Master Development Plan and the current proposal is consistent with the original MDP.

- Building 1, now near completion, sets the overall tone and concept for the remaining buildings to be designed . As Building #1 was adjacent to the Motherhouse, and most prominent to Stevens Avenue, it came under the jurisdiction of review by the State Historical commission and the National Park Service. Portland planning staff and HP also had design input with one of the major changes was from sloped pitched roofs to flat roofs.
- The remaining buildings will generally follow through with the same design consensus.
- The exceptions being that the remaining Buildings will be 5 stories vs. 4 and some, not all, of the brick façade will be substituted with Clapboard.
- The colors the new buildings will remain all natural toned, brick, stone, metal shingle, and clapboard.
- The entry ways into each building are clearly defined with porch designs and large glass areas, yielding them a transparent and welcoming feel.
- Each unit will have its own private exterior deck.
- The majority of parking is located below the structures allowing more green space and a campus feel . The facades of the garage are enclosed and fenestrated to resemble the residential quality of the building.

PROGRESS PRINT

GENERAL NOTES- SITE ELECTRICAL

1. THE COMPLETE INSTALLATION SHALL CONFORM WITH ALL APPLICABLE FEDERAL, STATE AND LOCAL LAWS, CODES AND ORDINANCES, INCLUDED BUT NOT LIMITED TO APPROVED EDITIONS OF THE FOLLOWING: NATIONAL ELECTRICAL SAFETY CODE (ANSI C2): NATIONAL ELECTRICAL CODE (NFPA 70): OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA) AND ALL AMENDMENTS THERETO. NOTHING CONTAINED IN THE DRAWINGS AND SPECIFICATIONS SHALL BE CONSTRUED TO CONFLICT WITH THESE LAWS, CODES, AND ORDINANCES, AND THEY ARE THEREBY INCLUDED IN THESE SPECIFICATIONS. OBTAIN PERMITS AND REQUEST INSPECTIONS FROM ALL AUTHORITIES HAVING JURISDICTION. COMPLY WITH ALL POWER, TELEPHONE, CABLE TELEVISION PROVIDER REGULATIONS AND STANDARDS.

2. THE FOLLOWING ELECTRICAL WORK SHALL BE PERFORMED UNDER THIS CONTRACT: UNDERGROUND CONDUIT, FITTINGS, AND ALL DEVICES: PROVISION OF HAND HOLES, NEW LIGHTING FIXTURES, POLES WITH ALL ACCESSORIES INCLUDING ANCHOR BOLTS AND POLE BASES: PROVISION OF UNDERGROUND CONDUIT AND WIRE TO SERVE NEW LIGHTING EQUIPMENT AND RECEPTACLES: PROVISION OF SERVICE EQUIPMENT, INCLUDING OUTDOOR CABINETS, INGROUND SPLICE BOXES, GROUNDING, METER ENCLOSURES, AND WEATHERPROOF RECEPTACLES.

3. ELECTRICAL UTILITY SHALL PROVIDE ALL ASSOCIATED OVERHEAD AND UNDERGROUND PRIMARY WIRING, PRIMARY TERMINATIONS, TRANSFORMERS, AND CONNECTIONS TO EXISTING OVERHEAD LINES. CONTRACTOR SHALL PROVIDE UNDERGROUND CONDUIT.

4. PROVIDE UNDERGROUND ELECTRICAL WARNING TAPE: 6" WIDE PLASTIC TAPE, COLORED RED WITH SUITABLE LEGEND DESCRIBING BURIED ELECTRICAL LINES FOR ALL UNDERGROUND CONDUITS. LOCATE 6 INCHES BELOW FINISHED GRADE.

5. REFER TO CIVIL DRAWINGS FOR EXCAVATION AND BACKFILL OF ALL UNDERGROUND WORK.

6. EXISTING UTILITY LOCATIONS ARE APPROXIMATE AND SHALL BE FIELD VERIFIED. CONTRACTORS SHALL CONTACT DIG SAFE BEFORE BEGINNING ANY EXCAVATIONS.

7. FINAL LOCATION OF NEW UTILITIES MAY VARY FROM PLANS PENDING UTILITY COMPANY FIELD COORDINATION.

8. THE LOCAL TELEPHONE AND CABLE TELEVISION SERVICE PROVIDERS SHALL PROVIDE AND INSTALL ALL THE SITE UTILITY SERVICE CABLE TO NEW BACKBOARD IN THE CONDUITS PROVIDED BY THE CONTRACTOR AS PART OF THE SITE WORK.

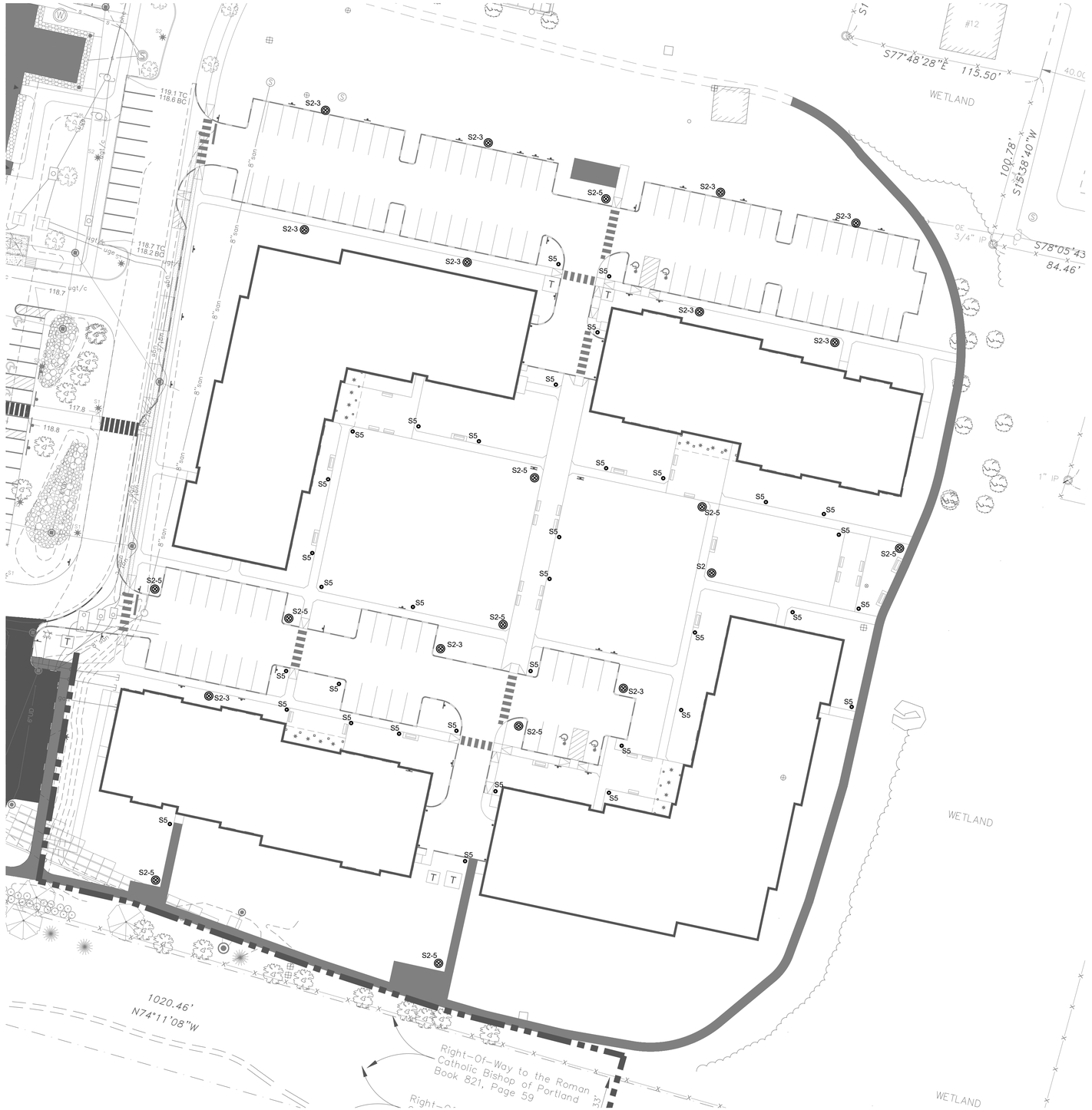
9. UNDERGROUND CONDUIT SHALL BE SCHED 40 PVC. ABOVE GRADE CONDUIT SHALL BE RGS. ALL CONDUIT SWEEPS SHALL BE RGS LONG SWEEPS.

10. PROVIDE EXPANSION FITTINGS FOR ALL UNDERGROUND CONDUIT CONNECTED TO FIXED ABOVE GROUND STRUCTURES.

11. PROVIDE A LISTED INTERSYSTEM BONDING TERMINAL AT THE SERVICE ENTRANCE. INSTALL IN ACCORDANCE WITH NFPA 70,250.94

LEGEND

S5	U.S ARCHITECTURAL LIGHTING BRA6-LED-IL-24LED[350MA]-NW-120-GI-RAL9005T-36IN OAH
S2-3	SUN VALLEY LIGHTING MOZ20LED-VLED-III-48LED-350MA-NW-120-PT-HS-VLED-RAL9005T
S2-5	SUN VALLEY LIGHTING MOZ20LED-VLED-V-SQ-48LED-350MA-NW-120-PT-HS-VLED-RAL9005T POLE LIGHTS MOUNTED AT 10'-0"



1 / E1.1 STEVEN'S SQUARE SITE LIGHTING

SCALE: 1/32" = 1'-0"

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STEVEN'S SQUARE AT BAXTER WOODS - PHASE 2

583 STEVENS AVENUE, PORTLAND MAINE

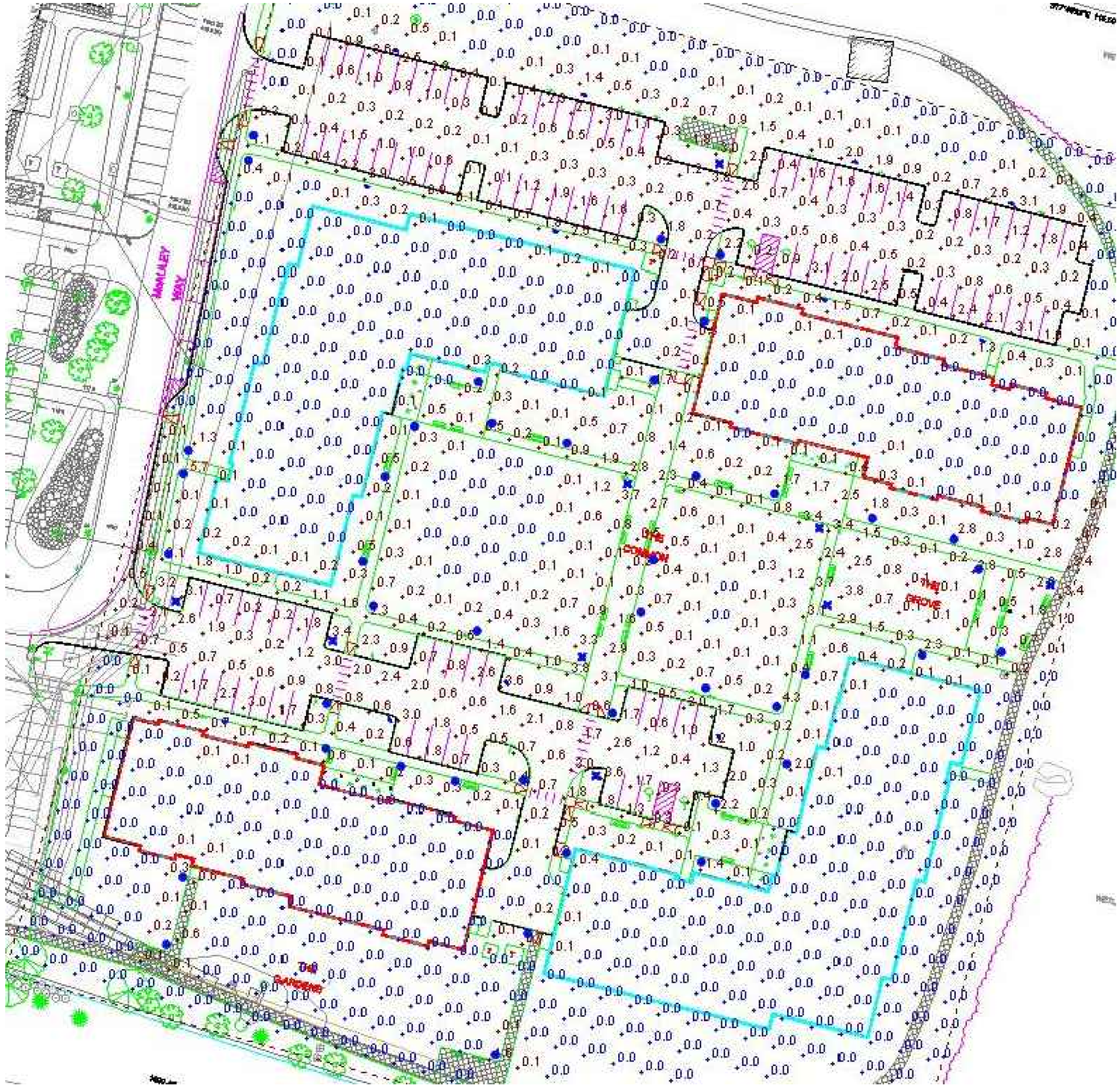
Date Drawn -	05/21/21
Drawn By -	MJM
Project #	
Scale -	AS NOTED
Revised -	

SHEET TITLE

SITE LIGHTING PLAN

E1.0

PROGRESS PRINT



1 E1.1 STEVEN'S SQUARE PRELMINARY PHOTOMETRICS

SCALE: 1/32" = 1'-0"

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STEVEN'S SQUARE AT BAXTER WOODS - PHASE 2

583 STEVENS AVENUE, PORTLAND MAINE

Date Drawn -	05/21/21
Drawn By -	MJM
Project #	
Scale -	AS NOTED
Revised -	

SHEET TITLE

SITE PHOTOMETRICS PLAN

E1.1

CITY OF PORTLAND
Department of Public Works
Christopher C. Branch, P.E., Director

Date: December 10, 2021

Re: Wastewater Capacity Authorization

Address: 583 Stevens Avenue – Phase 4
Applicant: DC Baxter Woods IV, LLC – Kevin Bunker

Planner: James Rather, Development Review Manager

Anticipated Wastewater Flow:

Estimate of Anticipated Design Flows				
Development	Unit Size	Number of Units	Gallons per Day per Unit	Total Gallons per Day
Existing flow to be removed				
Vacant				0
Proposed flow				
Walton Street				
Multiple Family Dwelling Units Building #5	# Bedrooms	110	90 GPD	9900
Holly Street				
Multiple Family Dwelling Units Building #2, 3 & 4	# Bedrooms	254	90 GPD	22860
			Net Change	**+ 32,760**
*Values based on STATE OF MAINE: SUBSURFACE WASTEWATER DISPOSAL RULES, most recent edition				

Comments:
The Department of Public Works, which includes the Water Resource Division, have reviewed and determined that the downstream sewers from the project address have the capacity to convey the estimated dry weather wastewater flows which will be generated from this development.

If the City can be of further assistance, please contact me at all 874-8840 or brad@portlandmaine.gov
Sincerely,

Bradley A. Roland, P.E.
Senior Project Engineer

212 Canco Road, Ste B · Portland, ME 04103 · 207-874-8801
cbranch@portlandmaine.gov · www.portlandmaine.gov

GORRILL PALMER

707 Sable Oaks Drive, Suite 30
South Portland, Maine 04106
207.772.2515

I, Celina Daniell, of Gorrill Palmer, hereby certify that a Neighborhood Meeting was held on Monday, July 28, 2020 at 5:30 P.M. via Zoom Videoconference for the proposed Stevens Square Development located off McAuley Way to the east of the Mother House Senior Residential Building in Portland, ME.

I also certify that on July 12, 2021 (which is at least ten (10) days prior to the Neighborhood Meeting) invitations were mailed to the following:

1. All addresses on the mailing list provided by the Planning Division which includes property owners within 500 feet of the proposed development or within 1,000 feet of a proposed industrial subdivision or industrial zone change.
2. Residents on the "interested parties" list.

Signed,

Celina M. Daniell, Sr. Technical Advisor

August 4, 2021
Date

Attached to this certification are:

1. Copy of the Invitation Sent
2. Meeting Minutes

U:\3564.03_Stevens Square-Lot 4 - Portland, ME\G Abutters\Neighborhood Meeting\certification_neighborhood-meeting.docx

GORRILL PALMER

707 Sable Oaks Drive, Suite 30
South Portland, Maine 04106
207.772.2515

NEIGHBORHOOD MEETING MINUTES

Project: **Phase 2 Development of Lot 4 of the Master Development Plan**
Sea Coast at Baxter Woods, LLC

Date: **July 28, 2021 – 5:30 PM to 7:00 PM**

Location: **Zoom Video Conference**

Attendees: **Steve Bushey & Celina Daniell – Gorrill Palmer**
Kevin Bunker – DC Predevelopment (Applicant)
Nick Aceto – ALA
Members of Public (see list below)

In accordance with the City of Portland Planning Board Requirements, a Neighborhood Meeting was held to discuss the proposed development of a Phase 2 of Lot 4 of the Stevens Square Campus at Stevens Square in Portland, ME. The meeting was held on Wednesday, July 28, 2021 at 5:30 PM via Zoom Conferencing. Steve Bushey, PE and Celina Daniell, representatives from Gorrill Palmer and Kevin Bunker, Applicant were available on via Zoom from 5:30 PM–6:30 PM.

Kevin Bunker started the meeting and gave a brief overview to discuss the Major Site Plan development and where the project is headed. Kevin gave a brief overview of the history of development and then introduced project slides which showed the existing Building 1 (occupied).

Kevin proceeded to describe the regulatory aspects of the permitting procedures and how it works with the City Planning Department. Also described the original Master Development Plan and what has changed since the original submission this included the parking shifted from south to north due to the requests of the City on the impacts on Baxter Woods; modified proposed parking in the center court to open space in the courtyard; created additional open space and gardens near Baxter Woods. The new buildings 2-5 will be similar floor plan/layout of existing Building 1 (4 floors over parking) 21 unit to 28 unit; less brick and more clapboards.

Questions from Public

Diane Caracci from the MH – concerned traffic only one entrance from McAuley Way. How will the traffic flow? There are some parking spaces for MH near the garden and concerned about backing out onto McAuley way and cause congestion.

Kevin responded that as part of MDP we will be looking closely at the traffic since the last development. There are requirements as part of the original COA from the City that Traffic and Analysis will need to be revisited We are required to take a fresh look at traffic counts and movement.

Gail had the same question re: traffic; Asked if the road near Holly street could be opened up and not a dead. This could affect travel and plowing.

Kevin indicated that is not an option as that is a City street and the decisions were made by the City to keep the dead-end. Kevin mentioned that this 55 plus development which has a lot of retires and have the flexibility when they come and go within the development. The new traffic will look at all these factors.

Margaret Munsch – Unit 206; Building 1 – Was excited about the dog park when the purchased their condo which the RE agent promoted – is that going to happen.

Kevin indicated that if demand dictates that residents want a park – he will provide a fenced in area; but no decisions as of yet. Would like to hear from others that this is important he will be responsive.

Dick – Dick would like notices given to residents that trucks, construction, etc. will be working on the site. Kevin indicated he will add this notation to the Construction Management Plan and that monthly/weekly notifications will be given for residents and neighbors.

Caroline Savage – Recent resident of MH. Will all the designed spaces, grove, etc. be accessible to all residents of the Campus.

Kevin indicated that residents have easement rights to the entire Campus so residents will have access to all amenities. He indicated this is set up as an integrated campus.

CS – What the distance between the edge of tree line and the front of MH. Why the buildings seem to be close to the MH and noticed the wetlands on the easterly side. Concerned about light quality will change.

Kevin – Campus was previously designed in 2016 Master Plan which potential residents were notified. This was done before the MH went under construction and then units were sold. There was community and City concern to stay away from Baxter Woods as much as possible. They are using the same building envelope.

CS – Concern with traffic access off Walton and the angle is a little tricky to maneuver and wanted a larger opening as Walton is busy. Kevin has no opposition to that but would need to defer to traffic engineer. Nick indicated that the tighter entrance offers slowing the traffic down.

Betty – Resident of Holly Street. Wanted to know the significance of the yellow line. Kevin indicated that it shows the zoning boundary.

Are you going to put in dark sky lighting? Steve B indicated that is correct and we will match what is in Building 1.

Katherine Bourque –

1) Considering installing electric car charging stations;
2) solar panels with flat roofs; and
3) potential of the soccer field.

Kevin addressed 20% of spaces will provide conduit for EV Chargers; possibly may add install an EV actual charger. The conduit is put in to give condo owners the option to have EV charging since. Kevin is open to installing a charging station at MH if the majority of residents feel it is needed.

Solar panels – During MDP process there was a to the visual effects on Baxter Woods. Which extensive studies were conducted that determined no panels due to glare, etc.?

No soccer field being proposed as a fixture. Kevin has been renting to the City and will continue until development of the area occurs.

Elizabeth – Building 1 in 301 has the EV charger and loves her unit. Appreciates hard work we are doing and dealing with the permitting process.

Holly – same issues with traffic as others. Concerned about footprint and decrease of the green and that the residents of MH are being blocked in on all sides. Feeling overwhelmed. They feel like a less important part of the community.

Kevin acknowledged her concerns. He indicated with this design there are more acres of green space but unfortunately not on the MH side. He also indicated that this was originally depicted on the Master Plan which was provided to all residents before purchase of their condos. He did acknowledge the importance of everyone at the MH as this project couldn't have happened without the residents at the MH. The residents are a key component at the MH as this is a community he wanted to create. Also was open for anyone to speak to him directly to address these concerns.

Dick – Will the chapel be reopened soon?

Kevin – reevaluating the opening of the chapel but due to covid will not be open as of right now

John Thibodeau – any interest in adding workforce and affordable housing to the project. Would Kevin entertain the idea if there were federal assistance were available.

Kevin indicated that he has built and worked on numerous affordable housing project throughout the area and understand the need for it. Kevin indicated that unfortunately this doesn't work with the programming for this site. He also indicated that during the MH development he actually built all of the affordable housing required by the City instead of paying the in lieu fee.

Kevin thanked everyone and adjourned the meeting at 7:00 p.m.

Attendees: List Above
Teresa Valliere
Betty Caton
Caroline Savage
David MacDonald
Diane Caracci
Dick Woodbury
Gail
Janie Freedman
John Thibodeau
Kate Walsh
Katherine Bourque
Kelley Craig
Margaret Munsch
Miriam Callnan
Ruth Conlogue
Susan MacDonald
Elizabeth
James Patefield

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GORRILL PALMER

707 Sable Oaks Drive, Suite 30
South Portland, Maine 04106
207.772.2515

July 12, 2021

Dear Neighbor:

Please join us for a Neighborhood Meeting via Zoom to discuss the proposed Phase 2 development of Lot 4 of the previously approved Master Development Plan for Sea Coast at Baxter Woods, LLC located off Stevens Avenue in Portland, ME. The proposed development will include four multi-story structures containing a total of 140 Senior Adult housing units which includes parking and outdoor activity space. Pursuant to the City of Portland's COVID guidelines, this meeting is to be held by video conference.

Meeting Location: Join Zoom Meeting
https://us02web.zoom.us/j/82488818000
Meeting ID: 824 8881 8000
Dial by your location:
+1 312 626 6799; 82488818000# US (Chicago)
+1 929 205 6099; 82488818000# US (New York)

Meeting Date: **July 28, 2021**

Meeting Time: **5:30 PM – 6:15 PM**

The City Code requires that property owners within 500 feet (except notices must be sent to property owners within 1,000 feet for industrial zoning map amendments and industrial subdivisions) of the proposed development and residents on an "interested parties list", be invited to participate in a neighborhood meeting. We will take attendance and submit a sign-in sheet to the Planning Board. The meeting will last no more than 30 – 45 minutes.

If you have any questions, please feel free to contact Celina Daniell 207.772.2515 x294.

Sincerely,

GORRILL PALMER

Celina Daniell
Sr. Permitting
cdaniell@gorrillpalmer.com

Note: Under Section 14-32(C) and 14-525 of the City Code of Ordinances, an applicant for a Level III development, subdivision of over five lots/units, or zone change is required to hold a neighborhood meeting within three weeks of submitting a preliminary application or two weeks of submitting a final site plan application, if a preliminary plan was not submitted. The neighborhood meeting must be held at least seven days prior to the Planning Board public hearing on the proposal. Should you wish to offer additional comments on this proposed development, you may contact the Planning Division at 874-8721 or send written correspondence to the Planning and Urban Development Department, Planning Division 4th Floor, 389 Congress Street, Portland, ME 04101.

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COMPANY	FIRST NAME	LAST NAME	ADDRESS	CITY	STATE	ZIP
546 STEVENS AVE LLC			PO BOX 361	LYNNFIELD	MA	01940
835 FOREST LLC			460 BAXTER BLVD	PORTLAND	ME	04103
929 FOREST AVENUE LLC			21 LOWER FALLS RD	FALMOUTH	ME	04105
949 FOREST AVENUE LLC			782 FOREST AVE	PORTLAND	ME	04103
970 FOREST LLC			460 BAXTER BLVD	PORTLAND	ME	04103
973 FOREST AVENUE LLC			975 FOREST AVE	PORTLAND	ME	04103
	VAIKKO	ALLEN	1853 COUNTRY PL	OJAI	CA	93023
	ORIANNA	BAILEY	124 WALTON ST	PORTLAND	ME	04103
	REBECCA	BEAN	54 LOWER BEACH RD	WINDHAM	ME	04062
	LEROY	BICKFORD	130 WALTON ST	PORTLAND	ME	04103
	JOSHUA	BJERRUM	68 HADLOCK RD	FALMOUTH	ME	04105
BJFC LLC			915 FOREST AVE	PORTLAND	ME	04103
	MELISSA	BRENNAN	19 CROSBY ST	PORTLAND	ME	04103
	RETA	BROWN	26 VICTORY LN	HOLLIS CENTER	ME	04042
	BRIEN	CARLETON	9 DINGLEY CT	PORTLAND	ME	04103
	DONALD	CATON	14 HOLLY ST	PORTLAND	ME	04103
CHAN MANAGEMENT LLC			927 FOREST AVE	PORTLAND	ME	04103
	RUTH	CHARLESWORTH	210 WALTON ST	PORTLAND	ME	04103
	SINUON	CHAU	89 ARCADIA ST	PORTLAND	ME	04103
CHAYA LLC			24 WILDWOOD DR	CAPE ELIZABETH	ME	04107
	CHRISTOPHER	CODDING	1221 VENICE BLVD # 9	VENICE	CA	90291
	KATHERINE	COLEMAN	275 WALTON ST	PORTLAND	ME	04103
COMMUNITY HOUSING OF MAINE INC			ONE CITY CENTER 4TH FLOOR	PORTLAND	ME	04101
	JAMES	CRADOCK	219 WALTON ST	PORTLAND	ME	04103
	RICHARD	CROCKER	40 TREMAINE ST	PORTLAND	ME	04103
	BREANNA	CURRAN	5 DINGLEY CT	PORTLAND	ME	04103
	FRANCINE	D'ALFONSO	25 HURRICANE RD	FALMOUTH	ME	04105
DC BAXTER WOODS II LLC			100 COMMERCIAL ST STE 414	PORTLAND	ME	04101
	JOSHUA	DENNIS	542 STEVENS AVE	PORTLAND	ME	04103
DIOCESAN BUREAU OF HOUSING			880 FOREST AVE	PORTLAND	ME	04103
	RACHEL	DOE	187 MIDDLE RD	FALMOUTH	ME	04105
	JOHN	DOUGHERTY	285 WALTON ST	PORTLAND	ME	04103
	GLENN	DOYLE	146 COLLEGE AVE	WATERVILLE	ME	04901
	ELIZABETH	DUFFY	12 PERSHING ST	PORTLAND	ME	04103
	ELLA	DURAN	203 WALTON ST	PORTLAND	ME	04103
	AMY	EDEN	33 HOLLY ST	PORTLAND	ME	04103
	LAWRENCE	ESTEY	53 MCAULEY WAY # 302	PORTLAND	ME	04103
F IS IN LLC			16 STURBRIDGE LN	CUMBERLAND CENTER	ME	04021

FAGAN REAL ESTATE HOLDINGS LLC			13 INDIAN WOODS RD	SCARBOROUGH	ME	04074
	SEAN	FENNESSY	32 TREMAINE ST	PORTLAND	ME	04103
	TIMOTHY	FISHER	535 STEVENS AVE	PORTLAND	ME	04103
FIVE STAR PROPERTIES INC			PO BOX 3793	PORTLAND	ME	04104
	PATRICIA	FOLAN	11 CROSBY ST	PORTLAND	ME	04103
	RONALD	FOLEY	37 PLEASANT ST # 2	PORTLAND	ME	04101
FOREST AVENUE BUILDING LLC			849 FOREST AVE	PORTLAND	ME	04103
	LEEELLEN	FRIEDLAND	301 TINGEY ST SE 216	WASHINGTON	DC	20003
	THOMAS	GAUDET	213 WALTON ST	PORTLAND	ME	04103
	RICHARD	GEBHARDT	20 NEW ST	PORTLAND	ME	04103
	RONALD	GIROUX	20 MAYFIELD DR	WESTBROOK	ME	04092
	MERRITT	GOODING	12 TREMAINE ST	PORTLAND	ME	04103
	PATRICK	GRAVES	293 WALTON ST	PORTLAND	ME	04103
	BENJAMIN	GUERETTE	17 CROSBY ST	PORTLAND	ME	04103
	BRUCE	HAMILTON	14 MANOOGIAN CIR	MILFORD	MA	01757
	JOHN	HERRIGEL	47 WALLACE CIR	PHIPPSBURG	ME	04562
	JENNIFER	HIGGINS	209 WALTON ST	PORTLAND	ME	04103
	LINNEA	JOHNSON	250 BRONXVILLE RD # 5C	BRONXVILLE	NY	10708
	KENNETH	JONES	127 LELAND ST	PORTLAND	ME	04103
	MIROSLAW	KRYSINSKI	173 WALTON ST	PORTLAND	ME	04103
	KATHRYN	LAVOIE	17 MORGAN CT	PORTLAND	ME	04103
	THUY	LE	21 DEMEREST ST	PORTLAND	ME	04103
LMG PROPERTIES LLC			PO BOX 4182	PORTLAND	ME	04101
	TED	LOEFFLER	27 HASTINGS ST	PORTLAND	ME	04102
MAINE SAVINGS FEDERAL CREDIT UNION			PO BOX 347	HAMPDEN	ME	04444
	MICHAEL	MARCHETTA	1509 VONPHISTER ST	KEY WEST	FL	33040
	JOSEPH	MENDELL	16 PERSHING ST	PORTLAND	ME	04103
	TIMOTHY	MERRITT	6 MORGAN CT	PORTLAND	ME	04103
	MATTHEW	MONTGOMERY	259 WALTON ST	PORTLAND	ME	04103
MOTHERHOUSE ASSOCIATES LP			100 COMMERCIAL ST STE 414	PORTLAND	ME	04101
	JOHN	MUCCIARONE	16 NEW ST	PORTLAND	ME	04103
	JESSIE	MULLEN	18 TREMAINE ST	PORTLAND	ME	04103
	RAYMOND	MUNSCH	PO BOX 124	OXFORD	MD	21654
	ARTHUR	MURDOCK	253 WALTON ST	PORTLAND	ME	04103
	TONI	NAPPI	24 NEW ST	PORTLAND	ME	04103
	CHRISTOPHER	NELSON	23 ST JOSEPH ST	PORTLAND	ME	04103
NEW HERITAGE BUILDERS INC			198 SACO AVE	OLD ORCHARD BEACH	ME	04064
	KEVIN	NGUYEN	756 US RT 1	YARMOUTH	ME	04096
	DONNA	PALOMAKI	53 MCAULEY WAY # 303	PORTLAND	ME	04103

PAN HOLDINGS LLC			8 SUMMER BREEZE LN	KENNEBUNKPORT	ME	04046
	JAMES	PATEFIELD	54 TREMAINE ST	PORTLAND	ME	04103
	TOJI	PEARLMAN	53 HARTLEY ST	PORTLAND	ME	04103
	RICHARD	PERKINS	258 EMMONS RD	KENNEBUNK	ME	04043
	ELIZABETH	POPE	53 MCAULEY WAY # 301	PORTLAND	ME	04103
PORTLAND 930 LLC			29 IDLEWOOD DR	CUMBERLAND CENTER	ME	04021
	VANNY	POV	964 FOREST AVE	PORTLAND	ME	04103
	KATHLEEN	PRATT	241 WALTON ST	PORTLAND	ME	04103
	THOMAS	RANDALL	39 TYLER AVE	MEDFORD	MA	02155
	JASPER	RICE	8006 SYCAMORE ST	NEW ORLEANS	LA	70118
	DEBORAH	ROBB	48 TREMAINE ST	PORTLAND	ME	04103
	OSCAR	RODRIGUEZ	53 MCAULEY WAY # 205	PORTLAND	ME	04103
ROMAN CATHOLIC BISHOP OF PORTLAND			510 OCEAN AVE	PORTLAND	ME	04103
	VICTOR	ROSS	612 STEVENS AVE	PORTLAND	ME	04103
	ERNEST	ROULEAU	132 OCEAN AVE	PORTLAND	ME	04103
	JOSE	SALAZAR	17 DINGLEY CT	PORTLAND	ME	04103
	JOHN	SCHABERG	53 MCAULEY WAY # 204	PORTLAND	ME	04103
	WILLIAM	SCHOEN	16 TREMAINE ST	PORTLAND	ME	04103
	JOHN	SCHRECK	25 HOLLY ST	PORTLAND	ME	04103
	BRIAN	SEGAL	223 WALTON ST	PORTLAND	ME	04103
	KAREN	SMITH	19 HOLLY ST	PORTLAND	ME	04103
SPE-AD INC			PO BOX 1047	SCARBOROUGH	ME	04070
ST JOSEPH'S CONVENT & HOSPITAL			605 STEVENS AVE	PORTLAND	ME	04103
	SARAH	STARBIRD	198 WALTON ST	PORTLAND	ME	04103
SULLYS' REAL ESTATE LLC			887 FOREST AVE	PORTLAND	ME	04103
	STEPHEN	TIETJEN	16 US ROUTE 1	FALMOUTH	ME	04105
	JEREMY	URQUHART	166 WALTON ST	PORTLAND	ME	04103
	WILLIE	URQUHART	34 HERSEY ST	PORTLAND	ME	04103
	SETH	VIGUE	22 NEW ST	PORTLAND	ME	04103
	DEBORAH	VIOLA	205 SMITH RD	WINDHAM	ME	04062
WALTON 196 LLC			29 IDLEWOOD DR	CUMBERLAND CENTER	ME	04021
	DAVID	WARREN	53 MCAULEY WAY # 304	PORTLAND	ME	04103
	ERIN	WHEATON	28 TREMAINE ST	PORTLAND	ME	04103
	THOMAS	WILSBACH	227 WALTON ST	PORTLAND	ME	04103
	CARLETON	WINSLOW	51 A BURNHAM ST	PORTLAND	ME	04102
	JOSEPH	WOJCIK	211 FALMOUTH RD	FALMOUTH	ME	04105
	SANDRA	WYMAN	8 BAYSIDE LN	FALMOUTH	ME	04105
	ANTHONY	DONOVAN	27 RIVERVIEW STREET	PORTLAND	ME	04102
	BARBARA	WOOD	125 EMERY STREET	PORTLAND	ME	04102

	DAVID	NOWLIN	215 OXFORD STREET	PORTLAND	ME	04102
	DEB	KEENAN	28 DOROTHY STREET	PORTLAND	ME	04103
	DEVON	PLATTE	26 NORTH STREET, 33	PORTLAND	ME	04101
DISTRICT 3	EDWARD	SUSLOVIC	46 KENWOOD STREET	PORTLAND	ME	04103
	JANICE	CARPENTER	9 W. COMMONWEALTH DRIVE	PORTLAND	ME	04103
	JENNIFER	MUNSON	389 CONGRESS STREET, 4TH FLC	PORTLAND	ME	04101
KAPLAN THOMPSON ARCHITECTS	JESSE	THOMPSON	100 EXCHANGE STREET	PORTLAND	ME	04103
	LYNN	CLARKSON	145 MARLBOROUGH ROAD	PORTLAND	ME	04103
	MARY	GRIFFITY	6 E. PROM, UNIT 2	PORTLAND	ME	04103
	NANCY	BARTLETT	PO BOX 7965	PORTLAND	ME	04112
	PAM	BURNSIDE	64 LESTER DRIVE	PORTLAND	ME	04103
	PAUL	DUBOIS	1915 CONGRESS STREET	PORTLAND	ME	04102
	PEGGY	MORIN	66 FARNHAM STREET	PORTLAND	ME	04101
	PHILIP	HAUGHEY	1660 SOLDIERS FIELD ROAD	BOSTON	MA	02135
	PRISCILLA	LAVALLEE	190 US ROUTE 1, UNIT 2	FALMOUTH	ME	04105
WASTE MANAGEMENT OF MAINE	REBECCA	HALLA	2000 FOREST AVENUE	PORTLAND	ME	04103
DISTRICT 37	REP GLENN	CUMMINGS	24 NEVENS STREET	PORTLAND	ME	04103
	ROBERT	HAINS	250 HOLM AVENUE	PORTLAND	ME	04102-1208

November 9, 2021

Mr. Kevin Bunker
Developers Collaborative
631 Stevens Ave. Suite 203
Portland, ME 04103

RE: STEVENS SQUARE – TRIP GENERATION AND PARKING DEMAND

INTRODUCTION

Trip generation and parking demand observations were conducted at Building 1 of Stevens Square, as outlined in our meeting with Portland City staff on August 5, 2021, regarding permitting of the remaining condominium buildings. Building 1 of Stevens Square has been completed and all 20 dwelling units are fully occupied. You are now seeking approval for the remainder of Stevens Square, an additional 140 dwelling units, restricted to seniors 55+. The City requested specific trip generation and parking demand data for Building 1 to evaluate the needs for the remaining units.

TRIP GENERATION

Trip generation counts were performed by Sewall during the weekday AM (7:00 – 9:00 AM) and PM (3:00 – 6:00) peak hour periods on August 17th and August 18th, respectively. Trip rates were calculated for peak hours of the facility for the 20 dwelling units. The AM peak hour occurred from 7:00 AM to 8:00 with a total of 8 trips, 3 entering and 5 exiting. The PM peak hour occurred from 3:45 to 4:45 with 10 trips, 6 entering and 4 exiting. The Institute of Transportation Engineers (ITE) 10th Edition data for land use code 252 – Senior Adult Housing – Attached is contrasted with the measured site data below:

Time Period	ITE Rate	Measured Rate
Weekday AM - Generator	0.33	0.40
Weekday PM - Generator	0.31	0.50

As seen above, the measured rates were slightly higher than the ITE rates but note that this was derived from a small sample. Therefore, the ITE data may be a better indicator since it was based upon a much larger sample size. Hence, the trip generation results based upon both sets of rates, ITE and measured, for a completed Stevens Square with 160 units is as follows:

TRIP GENERATION – STEVENS SQUARE BUILD OUT

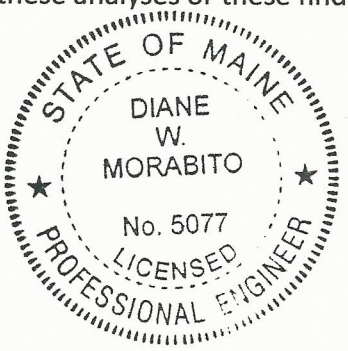
	One-Way Trip Ends	
	Measured	*ITE*
AM Peak Hour – Generator	64	53
Entering	24	25
Exiting	40	28
PM Peak Hour – Generator	80	50
Entering	48	27
Exiting	32	23

As seen above, during the peak hours of Stevens Square, the condominiums are projected to generate between 53 and 64 one-way trips in the AM peak hour and between 50 and 80 trips in the PM peak hour at full build out. This level of traffic would not require a traffic movement permit (TMP).

PARKING OBSERVATIONS

Parking observations to determine peak parking demand were performed by Sewall during the AM period on August 17th and during the PM period on August 18th. The observations were performed in the L-shaped parking lot surrounding building one, which provides 15 parking spaces. Additionally, there are 28 deeded parking spaces in a garage below the building. The AM observations began at 6:00 AM and extended until 10:00 AM. The PM observations were performed from 2:00 PM until 7:00 PM. The maximum AM parking observation was 10 vehicles while the maximum PM observation was 8 vehicles. Including the garage spaces (assuming they are all utilized since they are deeded) equates to a parking demand of 1.90 spaces

As always, do not hesitate to contact me if you or the City of Portland have any questions or concerns regarding these analyses or these findings.



Sincerely,

Diane W. Morabito, P.E. PTOE
Vice President Traffic Engineering

DRAFT - STORMWATER DRAINAGE SYSTEM MAINTENANCE AGREEMENT

DC Baxter Woods, LLC
Stevens Square at Baxter Woods – Phase 2 at 605 Stevens Avenue

IN CONSIDERATION OF the site plan and subdivision approval granted by the Planning Board of the City of Portland to the proposed **Stevens Square at Baxter Woods – Phase 2 Project ID PL-001649-2021** shown on the Subdivision Plat (Exhibit A) recorded in Cumberland Registry of Deeds in Plan Book __, Page __ submitted by Titcomb Associates and associated Overall Site Layout Plan Drawing C-3.0, Grading & Drainage Plan Drawing C-4.0 and Phasing Plans C-4.3 thru C-4.5 (Exhibits B, C and D) prepared by Gorrill Palmer Consulting Engineers of 707 Sable Oaks Drive, South Portland, Maine dated last revised 2021/11/23 and pursuant to a condition thereof, DC Baxter Woods LLC, a Maine limited liability company with a principal place of business in Portland, Maine, and having a mailing address of 631 Stevens Avenue, Suite 203, Portland, ME 04103, 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 pervious pavement systems, Focal Point filter systems, R-Tank underground detention ponds, roof drains, Oil-Water Separator, Filterra Module, and related onsite drainage infrastructure, (hereinafter collectively referred to as the "stormwater system"), as shown on the overall Grading & Drainage Plan in Exhibit C and phased construction plans and in strict compliance with the approved Stormwater Inspection and Maintenance Manual prepared for the Owner by Gorrill Palmer Consulting Engineers (copy attached in Exhibit E) 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 subdivision and/or site plan most recently and formally approved by the Planning Board 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 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.

_____
(*name of company*)

_____
(*representative of owner, name and title*)

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 Subdivision Plat
Exhibit B: Approved Site Layout Plan
Exhibit C: Approved Grading & Drainage Plan
Exhibit D: Approved Phasing plans
Exhibit E: Approved Stormwater Inspection and Maintenance Manual

EXHIBIT E

STEVENS SQUARE AT BAXTER WOODS PHASE 2
PORTLAND, MAINE

STORMWATER MANAGEMENT SYSTEM OPERATION AND MAINTENANCE MANUAL FOR STORMWATER FACILITIES

PREPARED FOR

DC BAXTER WOODS LLC
100 COMMERCIAL STREET, SUITE 414
PORTLAND, ME 04101

PREPARED BY

GORRILL PALMER
707 SABLE OAKS DRIVE – SUITE 30
SOUTH PORTLAND, MAINE 04106
207.772.2515

May 2021

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APPENDICES

Appendix A – Summary Checklist for Inspection and Maintenance

Appendix B – Inspection Logs

Appendix C –Permits for Project

Appendix D – Stormwater Maintenance Agreement (DRAFT)

I. INTRODUCTION

Runoff from developed areas may contain a number of contaminants especially when emanating from rooftops, paved or lawn areas. This runoff can contain a significant amount of non-point contaminants, which can have an adverse impact on the receiving waters. The installation of soil media filters can significantly reduce the non-point pollution discharge from the developed area.

The effectiveness of ponds and other components of the system are dependent on their upkeep and maintenance to assure they meet their design function over an extended period of years. It is critical that the stormwater management facilities are inspected on a regularly scheduled basis, and that maintenance is performed on an as needed basis. It must also be recognized that the effectiveness of these facilities, and their maintenance requirements, are related to the stormwater drainage facilities that transport the flow to the ponds or treatment measures. Thus, maintenance should be directed to the total system, not just the ponds.

The purpose of this document is to define in detail the inspection and maintenance requirements deemed necessary to assure that the stormwater management facilities function as intended on a long-term basis for Stevens Square, Lot 5. This Operations and Maintenance Manual is specific to the existing and proposed stormwater measures utilized to execute a successful stormwater management plan. Subsequent sections identify individual maintenance items; give a brief commentary of the function and need of the item, a description of the work required, and a suggested frequency of accomplishment. While the suggested programs and schedules must be adapted to specific projects, the material presented should provide guidance for a successful long-term program.

A. Guidelines Overview

A summary of the individual components of stormwater management facilities for this project has been prepared. The format used in the summary is as follows:

Preface: A general description of what function/benefit the element is intended to provide. This is a short summary and not intended to provide the design basis, which can be found in other sources.

Inspection: This section provides the inspection requirements for the individual component.

Maintenance: The section provides general information on the routine maintenance requirements of this element.

Frequency: This section outlines the best judgment of the designer on the system to the frequency of maintenance.

Comments: This section provides any particular comment on the site-specific features of this element. This is a summary only. The owner/operator should review the design drawings and documents carefully to understand the particular elements of the project. The end of this section should allow the owner/operator to make notes on the specific program. This may include the selected maintenance procedure, cross-references to applicable design drawings, etc.

A list of the individual inspection/maintenance elements is provided in the table of contents. The guidelines are proposed for initial use with adjustments made as appropriate based upon specific project experience.

This report includes the Operation and Maintenance requirements for any potential BMP identified in the Stormwater Management Report for this project.

B. Responsible Party

The responsible party for operation and maintenance of the stormwater and other site infrastructure will be the Applicant or their agents or assigns.

II. PROJECT OVERVIEW

Key permits issued (or applied for) on the project include:

- City of Portland Site Plan Approval
- Maine Construction General Permit Stormwater General Permit
- Stormwater Service Charge Program

A copy of the permits and Stormwater Management Report should be appended to this manual as Appendix C. The Owner/Operator of the stormwater management system should review these permits for a general description and background of the project, as well as any specific permit conditions or requirements of the project.

The applicant has retained Gorrill Palmer for civil engineering for the development project. Gorrill Palmer has prepared the design for the stormwater management facilities and may be contacted at:

Gorrill Palmer
707 Sable Oaks Drive – Suite 30
South Portland, Maine 04106
207.772.2515

The applicable plans and design documents which apply to the project are:

1. Civil Site Plans Prepared by Gorrill Palmer
2. The Erosion Control/Sedimentation Control Plan for the project
3. The Stormwater Management Plan for the project

A copy of these documents should be retained with this manual.

The proposed design includes inlets, stormwater conveyance lines, Focal Point filters, pervious pavers, detention ponds, and outlet control structures.

The key receiving water for this project is Back Cove that is located to the east of the project site.

The manual is intended for general guidance; however, any substituted deviations from the manual should be reviewed with respect to provisions of Appendix C.

III. STANDARD INSPECTION/MAINTENANCE DESCRIPTIONS

The following narratives describe the inspection/maintenance provisions for the Stormwater Management system. Proper O&M is necessary to make sure the system will provide its intended purpose of conveying runoff, removing a substantial amount of the suspended solids, and other contaminants in the stormwater runoff.

A. Stormwater Inlets

Preface: The success of any stormwater facility relies on the ability to intercept stormwater runoff at the design locations. Stormwater inlets include catch basins, open culverts, and field inlets. Field inlets exist to the south of Building 2 and Focal Points as overflow structures.

Inspection: The inspection of inlet points will need to be coordinated with other maintenance items, these include:

- Building maintenance areas
- Grounds maintenance

The key elements of the inspection are to assure the inlet entry point is clear of debris and will allow the intended water entry.

Maintenance: The key maintenance is the removal of any blockage which restricts the entry of stormwater to the inlet. The removed material should be taken out of the area of the inlet and placed where it will not reenter the runoff collection system. Snow should be removed from inlets on parking lots. Grass clippings and leaves should be bagged and removed particularly near the yard inlets near the buildings.

Frequency: All inlets should be inspected on a quarterly basis, and after/during significant storm events i.e. >1" rainfall).

Maintenance Personnel: The maintenance personnel will perform the normal maintenance/ inspections of the inlets and tributary drainage system.

Comments: Maintenance of inlets is critical on this project.

B. Tributary Drainage System

Preface: Stormwater from most of the project will be directed through a conveyance (tributary) system which transports the flow to the Focal Point Filters, detention ponds and ultimately to the wetland to the east. This conveyance system will be principally overland flow discharging to piped drain systems. Most of the sediment carried by the drainage system is intended to be trapped in structures. Maintenance of this system can play a major role in the long-term maintenance costs and the effectiveness of the onsite systems. The primary pretreatment measure for the site will be through flow travel over vegetated buffers.

Inspection: The tributary drainage system should be periodically inspected to assure that it is operating as intended, and that the carrying capacity has not been diminished by accumulations of debris and sediment or other hydraulic impediments. On piped systems, the inlets must be

inspected to ensure the rims are set at the proper elevation to optimize flow entry and are not clogged with debris.

The level of sediment in the sumps should be checked to assure their effectiveness. Pipelines connecting the inlets should be checked to determine if siltation is occurring. This will be most critical on drain lines laid at minimal slopes. This can usually be accomplished by a light and mirror procedure.

Maintenance: Maintenance of the storm drainage system must assure that it continues to serve its design function on a long-term basis, and that its operation does not transport excessive sediments to any downstream treatment device or the receiving waters. Elevations on the rim of catch basins should be adjusted as needed to assure optimal water entry. Depending on the frost susceptibility of the soil, the rims may become elevated over time causing flow to circumvent the inlet. If a temporary filter bag has been designated for the inlet during construction, silt or other deleterious materials, can significantly reduce capacity and the bags should be removed with the sediment and replaced during construction. Catch basin cleaning would normally be accomplished with vacuum trucks contracted as a maintenance service for the Development. The removed material must be disposed of at an approved site for such materials.

If sediment in the pipeline is observed, it should be removed. This may be accomplished by hydraulic flushing, or by mechanical means. If hydraulic flushing is used the downstream conditions should be analyzed.

Frequency: The tributary drainage system should be inspected on an annual basis. Adjustment of inlet rim elevations should be on an as needed basis. Cleaning catch basin sumps and pipelines will depend on the rate of accumulation.

C. Pervious Pavers

Preface: The pervious pavers collect stormwater runoff from the surface before passing it through a treatment section and discharging into a closed drainage system.

Inspection/Monitoring: The pavers should be inspected regularly to ensure that the surface is not clogged, and that runoff can pass freely through the pervious section. The pervious pavers must be inspected for integrity and to ensure rutting or deformation of the surface is minimized.

Maintenance: Any debris should be removed from the paver surface. If the pervious paver area is holding water in excess of 48-72 hours, corrective action is needed. To correct a standing water problem, the following remedial actions are recommended.

1. Vacuum any sediment or debris from the paver surface on a semi-annual basis.
2. Ensure the underdrain system or outlet pipe orifice is not clogged with any silt or other materials.
3. Ensure that the pervious pavers can pass water freely or drain quickly while handling large amounts of water.

Frequency: The pervious pavers should be inspected and vacuumed semi-annually and maintained as necessary.

Maintenance/Inspection Responsibility: The Owner or an outside agent is responsible for inspection and maintenance of the pervious paver areas.

Comments: Proper maintenance is critical for the pervious pavers as it plays a large role in the overall stormwater management plan for the development. Limit salt use for deicing and no not use sand.

D. Proprietary Treatment Devices (FocalPoint®)

Preface: FocalPoint® systems will be used on site to treat surface runoff from impervious and landscaped areas.

Inspection: Inspection of the filter should be performed after each major rainfall event to ensure that stormwater runoff is able to pass through the filters. The vegetation should be inspected and maintained regularly similar to other landscape features on site. The underdrain outlet should be inspected regularly.

Maintenance: Clear inlets and pretreatment devices of debris and sediment. Maintain as instructed by manufacturer.

Frequency: The system should be inspected semi-annually and maintained as required by the manufacturer.

Comments: The manufacturer typically commits to the first year of maintenance if their strict guidelines are followed for installation, which is highly encouraged to achieve peak performance. It is recommended that an outside agent who is familiar with the product be retained for future maintenance.

E. Proprietary Device (R-Tanks)

Inspection of the outlet control structure should be performed after each major rainfall event to ensure that stormwater runoff is able to pass through the system. The system should be inspected semi-annually and maintained as required by the manufacturer.

F. Orifice Control Devices

Preface: Orifices of assorted sizes are commonly utilized to control discharge from stormwater management features. This project uses orifice controls to control discharge from the four pervious paver areas, detention ponds, and the Focal Point filters.

Inspection: Inspection of orifices should be performed after each major rainfall event to ensure that stormwater runoff is able to discharge through the orifice and that it is not clogged.

Maintenance: The orifice cap should be removed and all debris flushed from the pipe prior to reinstalling the orifice cap. An orifice in a weir wall should be cleared of debris by hand.

Frequency: The orifice control devices should be inspected semi-annually and maintained as needed.

Comments: None.

G. Proprietary Device (Filterra)

The first year of maintenance shall be performed by the Supplier or a supplier approved contractor. Subsequent maintenance shall be performed at least 2 times per year (preferably in Spring and Fall). At a minimum, the maintenance shall consist of the following:

1. Filterra Unit Inspection
2. Foreign debris, silt, mulch & trash removal
3. Filter media evaluation and recharge as necessary
4. Plant health evaluation and pruning or replacement as necessary
5. Replacement of mulch
6. Disposal of all maintenance refuse items

H. Ditches, Swales, and Other Open Stormwater Channels

Inspect 2 times per year (preferably in Spring and Fall) to ensure they are working in their intended fashion and that they are free of sediment and debris. Remove any obstructions to flow, including accumulated sediments and debris and vegetated growth. Repair any erosion of the ditch lining. Vegetated ditches will be mowed at least annually or otherwise maintained to control the growth of woody vegetation and maintain flow capacity. Any woody vegetation growing through riprap linings must also be removed. Repair any slumping side slopes as soon as practicable. If the ditch has a riprap lining, replace riprap on areas where any underlying filter fabric or underdrain gravel is showing through the stone or where stones have dislodged. Correct any erosion of the channel's bottom or side slopes. The facilities shall be inspected after major storms and any identified deficiencies shall be corrected.

I. Roadways and Parking Surfaces

Clear accumulations of winter sand in parking lots and along roadways at least once a year, preferably in the spring. Accumulations on pavement may be removed by pavement sweeping. 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. Repair potholes and other roadway obstructions and hazards. Plowing and sanding of paved areas shall be performed as necessary to maintain vehicular traffic safety.

J. Litter

Litter should be removed as a matter of course by workers and as part of the ground's maintenance contract.

IV. PROGRAM ADMINISTRATION

A. General

A reliable administrative structure must be established to assure implementation of the maintenance programs described in the foregoing section. Key factors that must be considered in establishing a responsive administrative structure include:

1. Administrative body must be responsible for long-term operation and maintenance of the facilities. (Maintenance continues for the lifespan of the development in accordance with this document)

2. Administrative body must have the financial resources to accomplish the inspection and maintenance program over the life of the facility.

3. The administrative body must have a responsible administrator to manage the inspection and maintenance programs.

4. The administrative body must have the staff to accomplish the inspection and maintenance programs or must have authority to contract for the required services.

5. The administrative body must have a management information system sufficient to file, retain, and retrieve all inspection and maintenance records associated with the inspection and maintenance programs.

6. A qualified post construction inspector shall be retained by the Owner. His/her duties shall include preparing schedules for the Owner's maintenance, summarizing the results of this maintenance and preparing an annual report on the operation, maintenance, and repair of the stormwater system which must be copied to the City. (The Owner shall be responsible for retaining a separate entity to perform maintenance which cannot be performed by the management of building and property grounds.) This person shall also participate in troubleshooting of the stormwater management system if a problem develops.

If any of the above criteria cannot be met by the entity assigned inspection and maintenance responsibilities, it is likely that the system will fail to meet its water quality objectives at some point during its life. While each of the above criteria may be met by a variety of formats, it is critical to clearly establish the assigned administrative body in a responsible and sustainable manner.

B. Record Keeping

Records of all inspections and maintenance work accomplished must be kept and maintained to document facility operations. These records should be filed and retained in accordance with the City of Portland Code of Ordinances, Chapter 32. The filing system should be capable of ready retrieval of data for periodic reviews by appropriate regulatory bodies. Where possible, copies of such records should also be filed with the designated primary regulatory agency for their review for compliance with permit conditions. Typical inspection and maintenance record forms are attached hereto as Appendix B.

The owner will be required to hire a qualified post-construction stormwater inspector to at least annually, inspect the BMPs. In addition, the qualified post-construction stormwater inspector shall, on or by June 30 of each year, provide a completed and signed certification to DPW in a form provided by DPW certifying that the person has inspected the BMPs and they are adequately maintained and functioning as intended.

C. Contract Services

In some instances, or at specific times, the Maintenance Personnel may not have the staff to conduct the required inspection and/or maintenance programs as outlined in this document. In such cases, the work should be accomplished on a contractual basis with a firm or organization that has the staff and equipment to accomplish the required work.

The service contract for inspection and maintenance should be formal, well written legal document which clearly defines the services to be provided, the contractual conditions that will apply, and detailed payment schedules. Liability insurance should be required in all contracts.

APPENDIX A

SUMMARY CHECKLIST
INSPECTION AND MAINTENANCE

Stormwater Management System Maintenance Program Summary Checklist						
Item	**Commentary**	**Frequency**				
		Monthly	**Quarterly**	**Semi-Annual**	**Annual**	**Long Term**
Stormwater Inlets	Stormwater inlets allow flow entry from a surface swale to a piped system. Inspect entry for debris accumulation. Remove debris to allow unimpeded entry. Lawn clippings and leaves should be removed from yard areas.		X		X Clearing	
Tributary Drainage System	Inspect to assure that the carrying capacity has not been diminished by debris, sediment or other hydraulic impediments.				X	
Pervious Pavers	Inspect after major storm events ensure the pavers are not plugged with debris. Vacuum semi-annually.			X		
Focal Point Filters	Filters should be inspected semi-annually and maintained as needed. Snow Storage within the filter should be prohibited by Maintenance Personnel.			X		X
Orifice Control Devices	Inspect after major storm events and clear debris from orifice. May require flushing of pipes.			X		
Ditches, Swales, and Other Open Stormwater Channels	Inspect twice annually (spring and fall), remove any obstructions to flow, repair any erosion			X		
Roadways and Parking Surfaces	Pavements should be swept at least twice annually, once in the spring.			X		
Filterra Module	Check for signs of clogging, remove trash, unwanted vegetation, and sediment as needed			X		
Litter	Litter should be removed daily.					

APPENDIX B

SAMPLE INSPECTION LOGS

STEVENS SQUARE AT BAXTER WOODS, LOT 5
PORTLAND, MAINE

STORMWATER MANAGEMENT
SAMPLE STORMWATER INSPECTION & MAINTENANCE LOG

This log is intended to accompany the Operation and Maintenance Manual for Stormwater Management and Related Facilities. All stormwater BMPs shall be maintained in effective operating condition. A person with knowledge of erosion and stormwater control, including the standards and conditions of the City of Portland's Post Construction Stormwater Management Monitoring Ordinance, shall conduct inspections of the facilities as described in the O&M Manual and on this form, and identified deficiencies must be corrected. This log shall be kept on file for a minimum of five (5) years.

A. General Information			
Project Name:		**Inspection Date:**	
Parcel/Lot:		**Current Weather:**	
BMP Owner:		**Date/Amount Last Precip.:**	
Owner Mailing Address:		**Inspection Company:**	
Owner Phone #:		**Inspection Co. Mailing Address:**	
Owner Email:		**Inspector Name:**	
		Inspector Phone #:	
		Inspector Email:	

B. Stormwater Inlets (Catchbasins)	**Observations**
Frequency: Annually in the spring	
Accumulated sediments from inflow channels and pipes between basins have been removed and legally disposed of	☐ Yes ☐ No ☐ NA
Floating debris and large sediment particles have been removed from inlets.	☐ Yes ☐ No ☐ NA
Stormwater Inlet Notes:	

C. Tributary Drainage System	**Observations**
Frequency: Annually spring or late fall and after heavy rains	
Remove and legally dispose of sediments	☐ Yes ☐ No ☐ NA
Remove floatables and other objects	☐ Yes ☐ No ☐ NA
Check for overgrown vegetation impeding flow	☐ Yes ☐ No ☐ NA
Check pipelines for siltation and clogging	☐ Yes ☐ No ☐ NA
Repair any slumping side slopes or erosion	☐ Yes ☐ No ☐ NA
Replace any riprap on areas where any underlying fabric or underlying gravel is exposed.	☐ Yes ☐ No ☐ NA
Tributary Drainage System Notes:	

D. Pervious Pavers	Observations					
Frequency: Semi-Annually						
Vacuum any sediment and debris from paver surface	☐	Yes	☐	No	☐	NA
Check that underdrain system is functioning properly	☐	Yes	☐	No	☐	NA
Check for pooling or signs that pavers are clogged and doesn't pass water	☐	Yes	☐	No	☐	NA
Pervious Paver Notes:						

E. Proprietary Device (FocalPoint®)	Observations					
Frequency: Semi-annually						
Check for debris blocking orifice	☐	Yes	☐	No	☐	NA
Check overflow structure and clear debris	☐	Yes	☐	No	☐	NA
Check for signs of clogging, or water is not draining freely through filter media	☐	Yes	☐	No	☐	NA
If applicable, flush underdrain pipe	☐	Yes	☐	No	☐	NA
Proprietary Device Notes:						

F. Detention Pond	Observations					
Frequency: Semi-Annually						
Inspect pond for unwanted vegetation.	☐	Yes	☐	No	☐	NA
Inspect pond for trash and debris. Dispose of properly.	☐	Yes	☐	No	☐	NA
Remove unwanted vegetation and dispose of properly.	☐	Yes	☐	No	☐	NA
Repair any eroded areas.	☐	Yes	☐	No	☐	NA
Remove and properly dispose of any accumulated sediment.	☐	Yes	☐	No	☐	NA
Reseed areas without 90% grass catch.	☐	Yes	☐	No	☐	NA
Detention Pond Notes:						

G. Orifice Control Devices	Observations
Frequency: Semi-Annually	
Check for debris blocking orifice	☐ Yes ☐ No ☐ NA
If applicable, flush underdrain pipe	☐ Yes ☐ No ☐ NA
Orifice Control Devices Notes:	

H. Ditches, Swales, and Other Open Stormwater Channels	Observations
Frequency: Semi Annually spring and late fall and after heavy rains	
Remove and legally dispose of sediments	☐ Yes ☐ No ☐ NA
Remove floatables and other objects	☐ Yes ☐ No ☐ NA
Check for overgrown vegetation impeding flow.	☐ Yes ☐ No ☐ NA
Mow to control growth and maintain flow capacity.	☐ Yes ☐ No ☐ NA
Repair any slumping side slopes or erosion	☐ Yes ☐ No ☐ NA
Replace any riprap on areas where any underlying fabric or underlying gravel is exposed.	☐ Yes ☐ No ☐ NA
Ditches Swales and Other Channel Notes:	

I. Roadways and Parking Surfaces	Observations
Frequency: Annually preferably in spring	
Remove and legally dispose of accumulated winter sand	☐ Yes ☐ No ☐ NA
Repair potholes and other roadway obstructions and hazards.	☐ Yes ☐ No ☐ NA
Roadways and Parking Surfaces Notes:	

J. Proprietary Device (Filterra Module)	Observations
Frequency: Semi-Annually	
Remove foreign debris, silt, mulch & trash	☐ Yes ☐ No ☐ NA
Evaluate filter media and recharge	☐ Yes ☐ No ☐ NA
Evaluate plant health and prune/replace as necessary	☐ Yes ☐ No ☐ NA
Replace mulch	☐ Yes ☐ No ☐ NA
Proprietary Device Notes:	

APPENDIX C

PERMITS FOR PROJECT
(TO BE PROVIDED)

APPENDIX D

DRAFT STORMWATER MAINTENANCE AGREEMENT

Appended Above

AMMENDED STORMWATER MANAGEMENT REPORT

STEVENS SQUARE AT BAXTER WOODS – PHASE 2
PORTLAND, MAINE

Prepared for

DC BAXTER WOODS LLC
100 COMMERCIAL STREET, SUITE 414
PORTLAND, ME 04101

PREPARED BY

GORRILL PALMER
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207.772.2515

~~MAY~~ NOVEMBER 2021

STORMWATER MANAGEMENT REPORT

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Figure

1 USGS Project Location Map

Attachments

A Watershed Maps:
WS1 Pre-Development Watershed Map
WS2 Post-Development Watershed Map
C-7.0 Water Quality Map

B Pre and Post Development HydroCAD Model

C Water Quality Calculations

D Operation & Maintenance Manual

1.0 INTRODUCTION

DC Baxter Woods IV LLC is proposing Phase 2 development of Lot 4 of the Stevens Square site at Baxter Woods. The Phase 2 proposal includes the redevelopment of the former athletic field complex associated with the former Maine Girls Academy. The proposed project includes the construction of four (4) new apartment buildings that will contain 140 new living units. The site development includes 260 parking spaces, access drives, and open spaces with walking trails. The site includes 154 parking spaces located within the ground floors of the proposed buildings, the remaining 106 surface parking spaces will be exterior spaces constructed with pervious pavers as the primary surface material. Figure 1 is a map showing the project location.

The purpose of this analysis and report is to document the following:

- The measures that will be implemented to provide stormwater management for the project,
- what is required to control the peak rate of discharge during large storm events, and
- to provide treatment to stormwater runoff as determined by Maine DEP's Chapter 500 Rules and City of Portland Technical Standards for Stormwater Management.

Both the impact on peak rates of runoff and water quality measures are considered in this evaluation.

Erosion and Sedimentation Controls satisfying the MDEP Basic Standards will be employed during the construction of this project and are summarized in the Erosion and Sedimentation Control Plans provided on Sheets C-8.6, and C-8.7 of the plan set.

2.0 EXISTING SITE CONDITIONS

The project site is located at 583 Stevens Avenue, to the north of Baxter Woods, and west of the Deering Pavilion as shown on the Location Map. The Phase 2 Lot area is 7.05 acres in size containing 5.07 acres of athletic fields, a vegetated side slope at the edge of the athletic fields and wooded wetlands to the east of the athletic fields.

Abutting land uses include:

- North – Residential
- East – Woods and Residential
- South – Open Space/Baxter Woods
- West – Residential consisting of the Motherhouse development

Stormwater runoff from the majority of the site is conveyed through overland flow into two storm drain/underdrain systems that drain to a wetland located on the eastern edge of the project site. Stormwater runoff from smaller vegetated areas of the site flow overland to the northeast and ultimately to properties to the south of Holly Street. Runoff from the Motherhouse to the west, and St. Josephs to the north, and the northern portion of the athletic field is collected and conveyed across the site via a 12" stormdrain. These flows ultimately discharge into a drainage channel within the wetland along the

eastern property line. The existing athletic field also contains an underdrain system which is connected to the stormdrain system that discharges to the wetland. Additionally, runoff from Building 1 to the southeast is conveyed via a 12" stormdrain, and ultimately discharges into a secondary channel (to the south of the previously mentioned channel) within the wetland to the southeast property line. The stormwater runoff to these existing stormdrain systems from the surrounding land uses was evaluated as part of previously approved site plans.

The site is currently developed with inactive athletic fields consisting of a soccer field, and two softball fields. Topography is relatively flat across the proposed construction area, with slopes of 1% to 2%. To the east-northeast of the proposed construction area is a steep embankment down to a forested wetland, with slopes ranging from 5% to 33%. Elevations range from elev. 95' (NGVD29) along the eastern property line, to elev. 117' along McAuley Way.

The soils on the site are shown on the watershed maps and are from the USDA NRCS Medium Intensity Soil Survey. The soils range from hydrologic soil group A to D. Runoff over the athletic fields is collected via several catch basin inlets and an underdrained pipe network. Since the underdrains collect some of the rainfall and convey the runoff to the outfall at the wetlands, the field area does not function as a vegetated HSG A soil would. For this analysis, the athletic field soils were assumed to be HSG C. Wetland areas were assumed HSG D.

There are no lakes located on, adjacent to or downstream of the project site. Stormwater runoff from the project site is tributary to Back Cove. Runoff from the site is not tributary to an Urban Impaired Stream. Based upon the FEMA maps, no part of the proposed development is located within the Zone A 100-year floodplain.

3.0 DEVELOPMENT DESCRIPTION

The proposed project includes the construction of two new apartment buildings each with a footprint of 19,410 SF, and two new apartment buildings with a footprint of 12,580 SF each. Two access drives will be constructed to provide access to tenant parking areas on the ground floor of the buildings, and the exterior parking for guests. The guest parking stalls will be constructed with pervious pavers to provide stormwater storage and treatment for runoff from the access drives. Approximately 0.62 acres of open space and walking trails are also incorporated in the site plans.

Changes in land cover will include removal of impervious surfaces to the north of the site and grassed areas within portions of the site, and the addition of roof, paved surfaces, and lawn areas. **Overall, the proposed project will create approximately 2.88 acres of impervious area within the site boundary. The developed area within the property boundary is approximately 5.07 acres.**

4.0 REFERENCES

The following reference sources were reviewed during preparation of the stormwater analysis:

1. Maine Erosion and Sedimentation Control Handbook for Construction: Best Management Practices, MaineDEP, current edition.
2. Stormwater Management for Maine, Volume III BMPS Technical Design Manual, MeDEP, May 2016.
3. Original Master Development Plan Stormwater Analysis May 2016, prepared by Stantec.

The following sources were used for preparation of the stormwater quality analysis:

1. Stormwater Management for Maine, Volume III BMPS Technical Design Manual, MaineDEP, May 2016
2. MeDEP Chapter 500, Stormwater Management Rules.

Computer programs used to assist in the various components of this analysis include:

1. HydroCAD 10.00, HydroCAD Software Solutions LLC – used for modeling watersheds for pre and post development conditions.
2. Microsoft Excel, Microsoft Corporation – used for spreadsheet computations.
3. AutoCAD Civil 3D 2010, 2011, and 2019, Autodesk - used to determine areas and graphical representation of design.

Data resources used to obtain the hydrologic input data for the stormwater models are identified later in this report.

5.0 OVERVIEW OF STORMWATER RUNOFF MODELING

The stormwater analysis evaluates the following elements:

- Predevelopment and post development stormwater runoff and peak discharge rates;
- The impacts of the proposed development and subsequent modification to site discharge rates;
- The effect of land cover modifications within the site, especially those that are expected to increase site runoff rates;
- The requirements for stormwater management including compliance with Chapter 500 flooding standards as compared to existing conditions;
- Storm drainage requirements for parking areas and other improvements; and
- Requirements for water quality measures based upon MDEP General Standards.

6.0 METHODS OF ANALYSIS – STORMWATER QUANTITY

6.1.1 Stormwater Quantity

The hydrologic analyses for predevelopment and post development conditions have been conducted based upon the methodology contained in the USDA Soil Conservation Service's Technical Releases No. 20 and 55 (SCS TR-20 and TR-55) as modified for special site conditions. For this section of Cumberland County SE, Maine, a 24-hour SCS Type III Storm distribution was used for the analysis using the following storm frequencies and rainfall amounts:

Storm Event	24-Hour Rainfall (Post 2014)
2-Year Storm	3.1
10-Year Storm	4.6
25-Year Storm	5.8

The SCS TR-20 methodology, using the HydroCAD computer program, was employed by Gorrill Palmer to analyze the pre- and post-development watersheds.

Land use, cover, delineation of watershed subcatchments, hydraulic flow paths, and hydrologic soil types were obtained using the following data:

1. Portland, Maine USGS 7.5-minute Quadrangle Maps.
2. USDA NRCS Web Soil Survey.
3. Onsite Topographic Survey with 1-foot contour intervals prepared by Titcomb Associates.
4. Previously approved plans for the Master Development Plan, the Motherhouse Expansion and Building 1.
5. Field reconnaissance.

6.1.2 Stormwater Quality

Water quality treatment for the development has been designed to meet the Stormwater Management Rules (Chapter 500) General Standard, which requires the treatment of at least 95% of impervious area and at least 80% of developed area generated. Treatment requirements were analyzed within the site area to meet the General Standard.

7.0 DESCRIPTION OF SITE WATERSHED MODEL

The watershed model was developed to predict peak discharge rates at the Points of Interest (POI) depicted on the watershed maps. The following sections describe the pre-development and the post-development conditions.

8.0 PRE-DEVELOPMENT CONDITIONS

The predevelopment conditions for this analysis were considered to be the current condition of the site as described in the Existing Site Conditions section above.

The predevelopment condition was analyzed as 21 subcatchments with two points of interest (POI) as shown in Figure W-1. The majority of the 21 subcatchments are from the approved stormwater analysis for the Motherhouse and Building 1 projects. Subcatchments 19A, B, C and Subcatchment 20 encompass the currently proposed project. POI 1 and POI 2 are points within the wetland at the east side property line.

To account for off-site runoff tributary to the two POIs, Gorrill Palmer was able to obtain previously completed stormwater analyses and HydroCAD models for stormwater management systems from the Motherhouse, and Building 1 to the east of the project site. Four of the 21 subcatchments encompass the currently proposed development area. The following table summarizes the pre-development watershed characteristics:

PRE-DEVELOPMENT WATERSHEDS HYDRAULIC CHARACTERISTICS			
Watershed ID	**Area (ac)**	**CN**	**Hydraulic Time of Concentration (min.)**
1S	0.364	49	20.7
2S	0.033	80	6.0
3S	0.050	87	6.0
4S	0.077	98	6.0
5S	0.204	49	9.2
6S	0.269	98	6.0
7S	0.503	44	14.0
9S	0.059	49	6.0
10S	0.282	88	6.0
11S	0.258	69	6.0
12S	0.168	74	6.0
13S	0.360	81	6.0
14S	0.140	98	6.0
15S	0.220	93	6.0
16S	0.220	93	6.0
17S	0.399	93	6.0
18S	1.028	69	6.0
19A	1.059	76	21.0
19B	1.474	74	25.0
19C	0.471	75	21.6
20S	2.920	74	31.2
Total	**10.558**		

The following is a brief description of each predevelopment subcatchment:

- Subcatchment 1S-9S consists of off-site areas tributary to POI 1. These areas and stormwater management systems are obtained from the previously approved plans for Building 1.

- Subcatchment 10S-18S consists of off-site areas tributary to pond 8P which conveys runoff to POI 2 via a 12" pipe. These areas and stormwater management systems were obtained from the previously approved plans for the Motherhouse parking expansion.

- Subcatchments 19A-20S encompass the currently proposed development area.

- Subcatchment 19A is the off-site area of St. Joseph's roof and parking lot tributary to the existing stormdrain which conveys runoff to POI 2.

- Subcatchment 19B is athletic field area tributary to a field inlet, which ultimately ties into the existing pipe network which conveys runoff to POI 2. Since the field is underdrained, the hydrologic soil group is assumed to be C.

- Subcatchment 19C consists of wooded area and grassed playing fields. The runoff from this subcatchment is tributary to a channel within the wetland which conveys runoff to POI 2. Since the field is underdrained, the hydrologic soil group is assumed to be C for areas within the athletic field.

- Subcatchment 20S is grassed area tributary to the pipe network labeled 15R, which conveys runoff to POI 1. Since the field is underdrained, the hydrologic soil group is assumed to be C.

There is no impervious area onsite in the existing condition. The onsite developed area consisting of the athletic fields, is approximately 5.07 acres.

A watershed map for the predevelopment condition is attached to this section as drawing number WS1 in Attachment A. Attachment B contains the TR-20 calculations.

Per the Master Development Plan SWM analysis, the predevelopment watershed was originally analyzed as a single 13.30 acre watershed with a CN of 55.

Table 1 presents the peak flow rates at the POI for the design storms.

Table 1– Pre-Development Peak Flow Rates (cfs)

Point of Interest	Peak Flow (cfs)		
	2 Year	10 Year	25 Year
POI # 1	1.77	3.90	6.97
POI # 2	2.99	7.55	11.40

9.0 POST DEVELOPMENT CONDITION

Analysis for the post development condition consists of determining post development peak flows and limiting the post development flows to predevelopment levels at each point of interest. Temporary runoff storage will be provided within the pervious pavers reservoir course, and also within several below grade manufactured storage chambers systems. The proposed sidewalk along McAuley Way will be constructed over an existing infiltration trench drain, however the existing piping to the infiltration trench drain will remain. To account for uncaptured surface runoff from McAuley Way, ~~a~~ two 6x10 Filterra tree box filter system modules are ~~is~~ proposed to provide treatment for the ~~0.36~~ 0.68 acre area currently draining to the infiltration trench. The subsurface portion of the infiltration trench will be preserved and the Filterra Systems will outlet to the underdrain pipe within the infiltration trench. Instead of the infiltration trench receiving flow via surface runoff, the infiltration trench will receive flow from the perforated underdrain pipe which will distribute water within the trench. The proposed design will utilize the storage and infiltration provided by the existing trench which was previously sized water quality storage and infiltration of these areas.

The predevelopment subcatchments affected by the proposed development have been modified to reflect the post development conditions. The post development conditions contain 16 subcatchments tributary to the same two points of interest in addition to the subcatchments from outside the development area. The existing 12" storm drain running through the center of the site will be rerouted along the northern property boundary and will discharge at the same location. The overall watershed area slightly increases in the post development condition to collect the developed area that would otherwise discharge to Holly Street. The area draining to Holly Street is reduced in the post-development condition and was not included in the pre-development analysis and watershed model, since, by inspection, the runoff to Holly Street will be reduced in the post development condition. The following table summarizes the post-development watershed characteristics:

Post Development Watersheds Hydraulic Characteristics			
Watershed ID	**Area (ac)**	**CN**	**Hydraulic Time of Concentration (min.)**
1S	0.364	49	20.7
2S	0.033	80	6
3S	0.050	87	6
4S	0.077	98	6
5S	0.204	49	9.2
6S	0.269	98	6
7S	0.503	44	14
9S	0.041	69	6
10S	0.282	88	6
11S	0.258	69	6
12S	0.168	74	6
13S	0.356	85	6
14S	0.140	98	6

Post Development Watersheds Hydraulic Characteristics			
Watershed ID	**Area (ac)**	**CN**	**Hydraulic Time of Concentration (min.)**
15S	0.220	93	6
16S	0.220	93	6
17S	0.399	93	6
18S	1.028	69	6
19A	1.319	60	19.8
20A	0.440	82	6
20B	0.366	82	6
21A	0.446	98	6
21B	0.289	98	6
22A	0.812	46	23
22B	0.203	47	6
23A	0.432	77	6
23B	0.227	76	6
24A	0.289	98	6
24B	0.446	98	6
25A	0.514	65	25
25B	0.208	76	6
25C	0.055	79	6
26S	0.241	62	22.1
27S	0.318	76	27.3
28S	0.108	39	13.2
Total	**11.324**		

The following is a brief description of each post development subcatchment.

- Subcatchment 1S-7S were not affected by the proposed development and are unchanged.

- ~~Subcatchment 9S was modified from the existing conditions and consists of landscaped area and access entrance.~~

- ~~Subcatchment 10S-12S were not affected by the proposed development and are unchanged.~~

- Subcatchment 9S was modified from the existing conditions and consists of landscaped area and access entrance tributary to the proposed Filterra treatment system.

- Subcatchment 10S was not affected by the proposed development and is now tributary to the proposed Filterra treatment system.

- Subcatchment 11S-12S were not affected by the proposed development and are unchanged.

- Subcatchment 13S is the area within McAuley Way tributary to the proposed Filterra treatment system.

- Subcatchment 14S-18S were not affected by the proposed development and are unchanged.

- Subcatchment 20A consists of grassed and paved areas tributary to the pervious pavers which are tributary to the proposed stormdrain system which conveys runoff to POI 2.

- Subcatchment 20B consists of grassed and paved areas tributary to the pervious pavers which are tributary to the proposed stormdrain system which conveys runoff to POI 2.

- Subcatchment 21A consists of the roof drain from the proposed building 5, which is tributary to Detention Pond 1, which outlets to the proposed stormdrain system that conveys runoff to POI 2.

- Subcatchment 21B consists of the roof drain from the proposed building 4, which is tributary to Detention Pond 1, which outlets to the proposed stormdrain system that conveys runoff to POI 2.

- Subcatchment 22B consists of the vegetated area tributary to the proposed stormdrain system, which conveys runoff to POI 2.

- Subcatchment 22A is the grassed and paved areas tributary to Focal Point Filter 1, which outlets to the proposed stormdrain system that conveys runoff to POI 2.

- Subcatchment 23A consists of grassed and paved areas tributary to the pervious pavers which are tributary to the proposed stormdrain system which conveys runoff to POI 2.

- Subcatchment 23B consists of grassed and paved areas tributary to the pervious pavers which are tributary to the proposed stormdrain system which conveys runoff to POI 2.

- Subcatchment 24A consists of the roof drain from the proposed building 2, which is tributary to Detention Pond 2, which outlets to the stormdrain system that conveys runoff to POI 1.

- Subcatchment 24B consists of the roof drain from the proposed building 3, which is tributary to Detention Pond 2, which outlets to the stormdrain system that conveys runoff to POI 1.

- Subcatchment 25A is the grassed and paved areas tributary to Focal Point Filter 2, which outlets to the stormdrain system that conveys runoff to POI 1.

- Subcatchment 25B consists of the vegetated area which is tributary to the proposed stormdrain system which conveys runoff to POI 1.

- Subcatchment 25C consists of an untreated open space area which is tributary to the stormdrain system that conveys runoff to POI 1.

- Subcatchment 26S consists of grassed, paved, and wooded areas tributary to the channel labeled 44R which conveys runoff to POI 2.

- Subcatchment 27S consists of grassed, paved, and wooded areas tributary to the channel labeled 28R which conveys runoff to POI 2.

- Subcatchment 28S consists of grassed and paved areas tributary to the proposed stormdrain network that conveys runoff to POI 2.

The total impervious area onsite in the proposed condition is 2.88 acres, and the total developed area onsite in the proposed condition is 5.07 acres. The total watershed area analyzed contains 5.39 acres including 2.86 acres of impervious and 2.54 acres of non-impervious.

A watershed map for the post development condition is attached as drawing number WS2 in Attachment A. Attachment B contains the TR-20 calculations.

The following table reflects the pre- and post-development peak flow rates comparison at the two points of interest:

Table 2 – Comparison of Peak flows (cfs)						
Point of Interest	**Peak Flow (cfs)**					
	2 Year		**10 Year**		**25 Year**	
	Pre	**Post**	**Pre**	**Post**	**Pre**	**Post**
POI #1	1.77	1.72	3.90	2.60	6.97	4.55
POI #2	2.99	~~2.77~~ 2.60	7.55	~~6.75~~ 6.69	11.40	~~11.37~~ 11.32

As shown in Table 2 above, the Post development peak flows for the 2, 10, and 25-yr storm events are less than the pre-development peak flows at POI 1 and POI 2. Thus, we conclude that the proposed onsite management of stormwater runoff will result in no impacts to the downstream conditions.

10.0 STORMWATER MANAGEMENT SUMMARY

Under the General Standards, the project is required to meet the BMP water quality Standards, as the development site is not tributary to a lake watershed. As part of the original Master Development Plan various SWM BMP's had been suggested for use including the following:

- Filtering roof drip strips
- Two Filterra Bioretention Systems
- An infiltration trench
- Two Focal Point Filters
- Areas of porous pavement

The filtering roof drip strips have not been used due to changes in building design and roof architecture. The MDP also contemplated extensive infiltration capacity of runoff into the site's underlying soils. We have reduced the effects of infiltration on the model in order to arrive at a conservative estimate of onsite storage capacity need and peak discharge release.

The following sections summarize the BMP's that are being employed to meet the water quantity and quality standards for the proposed development.

10.1.1 Pervious Pavers

Underdrained pervious pavers will be installed in all exterior parking stalls throughout the project. Direct absorption or sheet flow from adjacent areas will flow down through the pervious pavers and through a sand filter treatment section before being collected in underdrain pipes that will connect to the closed collection system that ultimately outfalls to POI 2. The pervious paver filter section was designed in accordance with Section 7.7 of the MDEP Stormwater BMPS Technical Design Manual dated May 2016.

The pervious paver section consists of the pavers, a choker course, a reservoir course with a 40% void ratio, a sand filter layer, and an underdrain course. The reservoir course has been sized to store the runoff generated by the 25-year storm for controlled release through the outlet control structures. The outlet control structure for each pervious paver storage volume allows for a 24-48 hour release of the channel protection volume, which is filtered through the sand section for treatment. Runoff from larger storms is temporarily stored within the reservoir course and released from the storage volume through the outlet control structure.

In the HydroCAD model, the pervious paver filters are broken down into four main subcatchment areas that can be seen on the Post-Development Watershed Map. These areas are identified as storage volumes identified as PP1, PP2, PP3, and PP4. Although they are broken into four areas, each section of parking has been sized individually to be at least 20% of the contributing impervious area running onto it. It should be noted that in all cases, the pervious paver surface areas are oversized, for flood control purposes, compared to the area draining to it. Sizing calculations are provided in Attachment C.

In total, the pervious pavers will provide treatment for 43,950 SF of impervious area and 63,810 SF of developed area. This accounts for 35% of the total impervious and 29% of the total developed area. Design calculations for the pervious pavers are included in Attachment C. The pavers are expected to look like below once installed:

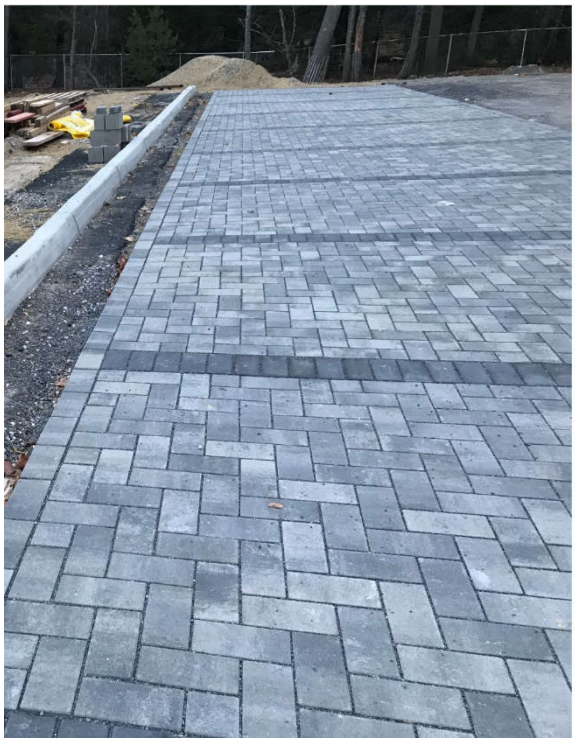


Fig. 1 Pervious Pavers

10.1.2 Focal Point Filters

Focal Point filters will be installed in the center of the open space area to the south of Building 4, and to the south of Building 2. Two separate filters will be used primarily to treat surface

runoff resulting from paved and landscaped areas throughout the site. Direct absorption or sheet flow from adjacent areas will flow to the Focal Points and through the filter section before being collected in R-Tanks that will ultimately discharge to the two points of interest via existing and proposed stormdrain networks. The Focal Point Filters are designed in accordance with the MDEP approval letter dated February 2, 2017.

The approval letter requires that the treated runoff and the overflow runoff be directed to a treatment row. The treatment row needs to be sized to treat the peak flow from the 1-year storm event. Additional storage downstream of the treatment row is required to store the water quality volume and release the volume over a 24-48 hour period.

The tributary area to Focal Point #1 consists of a small, paved area and HSG A lawn. The subcatchment does not produce any runoff for storms up to the 2-year storm, so the water quality volume typically generated by smaller storms will not be present. Larger storms will generate runoff that produces a volume equal to or greater than the water quality volume, therefore the required water quality volume storage has been provided. The treatment row sizing is based upon the flow from the 1-year storm which will be zero for this subcatchment. A single treatment R-Tank has been provided for this filter.

The tributary area to Focal Point #2 produces the typical runoff from smaller storms, and the required treatment and storage have been provided.

The outflow from the R-Tanks will be controlled by outlet control structures that will limit the outflow of the water quality volume to 24-48 hours and allow for bypass of larger flows.

In total, the Focal Point filters will provide treatment for 13,085 SF of impervious area and 57,750 SF of developed area. This accounts for 10% of the total impervious area and 26% of the total developed area. Design calculations for the Focal Point filters are included in Attachment C.

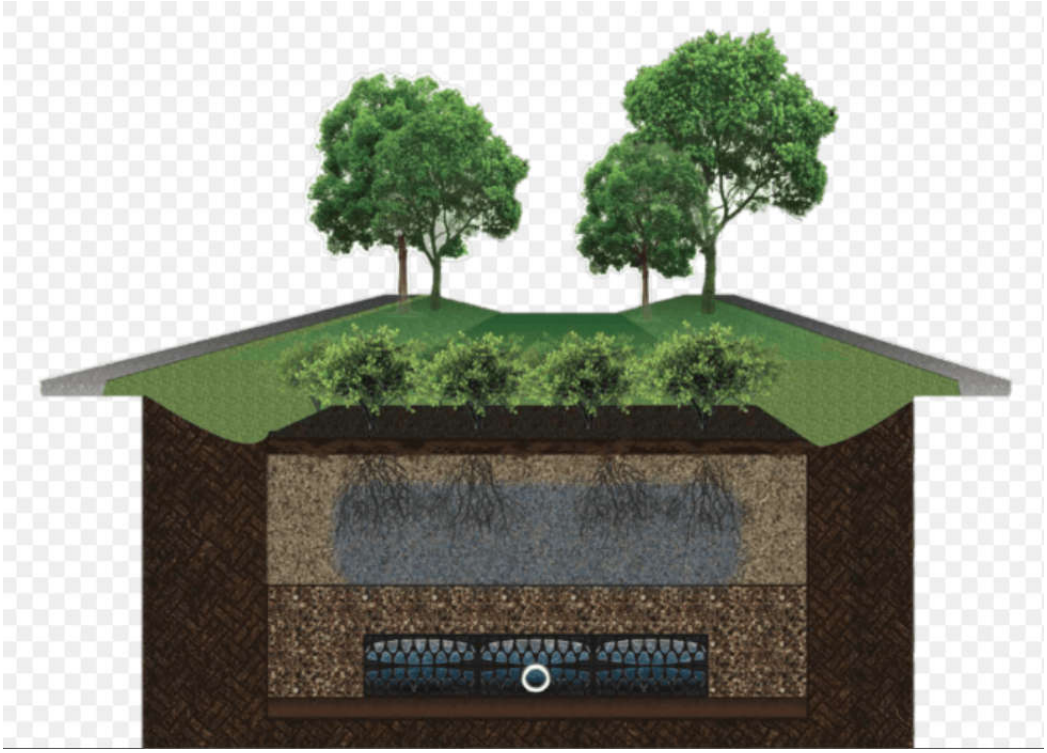


Fig 2 Focal Point System

10.1.3 Detention Ponds

Underground Storage volumes will be installed to the north and south of Building 3. The roof drains from the buildings will be tributary to these storage areas. In the post-development HydroCAD model, these BMP's are labeled as Detention Pond 1 & 2 (R1 & R2). The two separate ponds will be used primarily to provide treatment for thermal impact from the roof runoff in accordance with Chapter 500 Part 4.C(5)(f). The detention ponds will consist of subsurface storage using R-Tanks. The ponds and outlet control structures have been sized to provide a 24-48 hour outflow for the runoff generated by the 2-year storm. The subsurface storage and slow discharge will provide cooling of the roof runoff before it is conveyed to the outlet points. The Chapter 500 Roof exception from the General Standard is applicable for the runoff from the roofs. The exception states that runoff from sloped non-asphalt roofs needs to be treated for thermal impact and channel protection only. The proposed non-asphalt roofs will slope to roof drains that will convey the runoff to the subsurface detention ponds. The roof area has been included in the treatment summary since the thermal and channel protection provisions have been met in accordance with Chapter 500.

In total, the underground storage volumes will provide treatment for 63,980 SF of impervious area and 63,980 SF of developed area. This accounts for 51% of the total impervious area and 29% of the total developed area. It should be noted that all landscaped and impervious areas draining to the detention ponds (with the exception of roof areas) are not considered to be "treated" in treatment calculations. Design calculations for the detention ponds are included in Attachment C.



Fig 3. R Tank Underground Storage

10.1.4 Filterra Bioretention System (FBS)

~~A~~ Two 6x10 Filterra Bioretention Systems will be installed along the eastern edge of McAuley Way to replace the treatment of surface runoff provided by the existing infiltration trench. The FBS was sized in accordance with the MDEP Approval Letter dated February 2017.

The subsurface portion of the infiltration trench will be preserved to allow the Filterra Systems to outlet to the underdrain pipe in the infiltration trench. Instead of the infiltration trench receiving flow via surface runoff, the underdrain pipe will distribute water within the trench which was previously sized water quality storage and infiltration.

In total, the Filterra Systems will provide treatment for ~~12,000~~ 23,034 SF of impervious area and ~~15,500~~ 29,573 SF of developed area. This accounts for the developed and impervious surface runoff that was draining to the infiltration trench. The area draining to FBS #1 is 0.36 acres (Subcatchment 13), and the area draining to FBS #2 is 0.32 acres, both of which requires a 6'x10' Filterra Module. Since this treatment is occurring off-site, it should be noted that all landscaped and impervious areas draining to the FBS are not considered a treated area in treatment calculations for the project.



Fig 4. Filterra System

11.0 WATER QUALITY SUMMARY

The construction of BMPs employed as part of the development will allow the project to meet the standards set forth in Chapter 500 and the City's stormwater management standards. The pervious pavers, Focal Point filters, and detention ponds successfully treat approximately 2.78 acres of impervious area and 4.26 acres of developed area. This equates to overall treatment percentages of 96% and 84% for impervious and developed area, respectively. A summary of the calculations is provided below:

Treatment Summary

Treatment Method	Impervious		Developed	
	sf	%	sf	%
Pervious Pavers	45,890	35	89,310	29
Focal Point Filters	13,085	10	57,750	26
Detention Ponds	63,980	51	63,980	29
Total:	**125,638**	**96**	**220,670**	**84**

Water Quality Calculations that demonstrate compliance with The Chapter 500 General Standards for the development are provided in Attachment C. A summary of the calculations is provided below:

Treatment Summary

Total Impervious Area =	2.88 acres
Total Developed Area =	5.07 acres
Impervious Area Treated =	2.78 acres
Percent Impervious Area Treated =	96%
Developed Area Treated =	4.26 acres
Percent Developed Area Treated =	84%

12.0 MASTER DEVELOPMENT PLAN

This stormwater management report is a detailed analysis of the stormwater impacts for Lot 5 Phase 2 of Stevens Square at Baxter Woods. The original Master Development Plan (MDP) was an overall concept which included the conceptual development of Lot 5 Phase 2. In accordance with the City of Portland requirements, this proposed development has been designed to conform to MDEP Chapter 500 Stormwater Management Law for general and flooding standards. The basic standard is presented in the erosion and sedimentation control plan for the project. The proposed development of Lot 5 Phase 2 meets the MDP overall stormwater framework by providing a design in compliance with Chapter 500.

13.0 MAINTENANCE OF FACILITIES

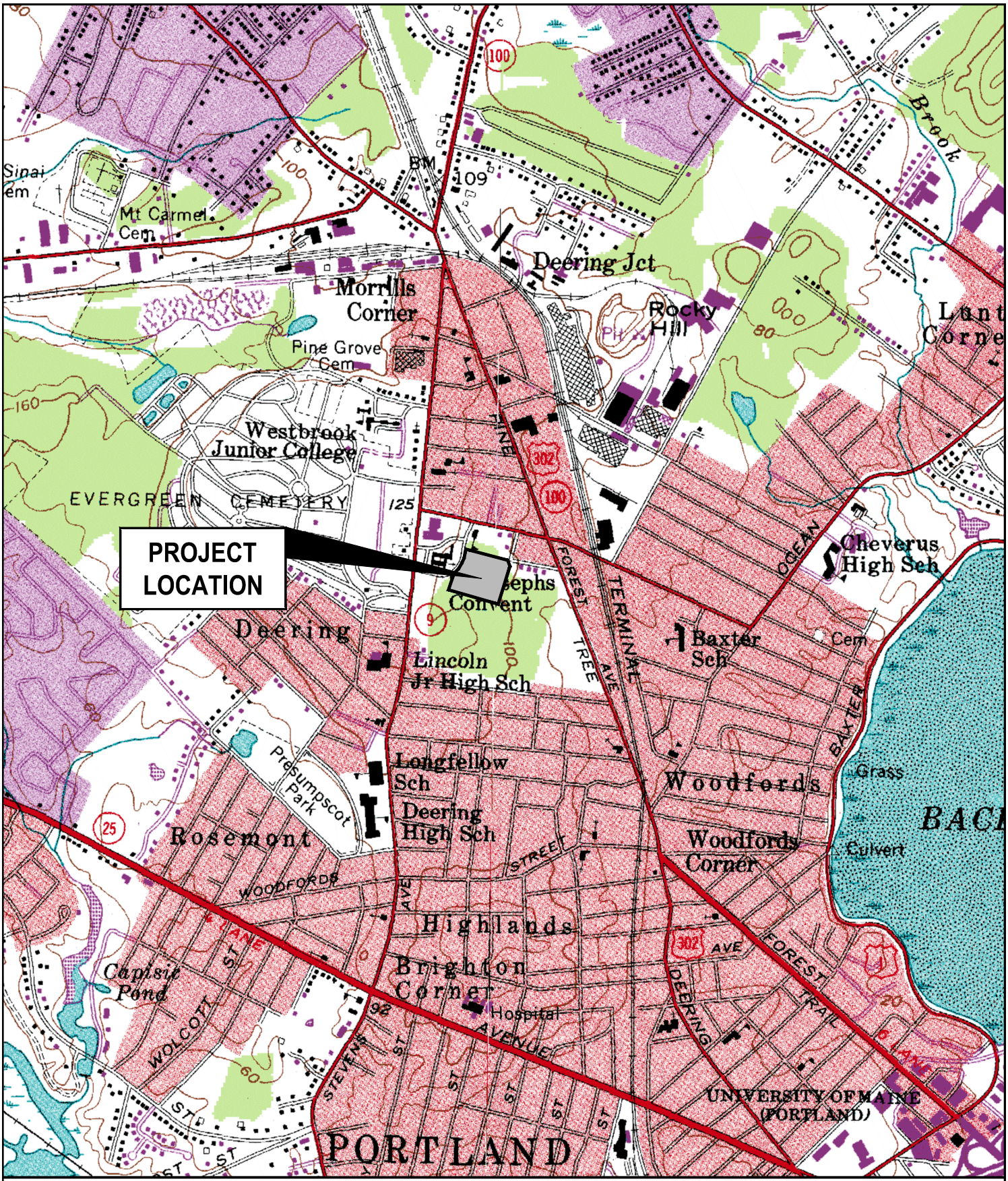
The stormwater management facilities will be maintained by the Applicant or their assigns after construction is completed. The general contractor will be responsible for maintenance during construction. The contract documents will require that the contractor designate a person for maintenance of the facilities during construction as required by this application. Long-term operation/maintenance schedules for the facilities are provided in the O&M Manual included in Attachment D of this report. A draft maintenance agreement is also included in the O&M Manual.

The owner will be required to hire a qualified post-construction stormwater inspector to at least annually, inspect the BMPs. In addition, the qualified post-construction stormwater inspector shall, on or by June 30 of each year, provide a completed and signed certification to DPW in a form provided by DPW certifying that the person has inspected the BMPs and they are adequately maintained and functioning as intended.

14.0 CONCLUSION

The Stormwater Management Plan for this project outlines the measures proposed to achieve compliance with the Chapter 500 Stormwater Management standards for water quality treatment. The design includes stormwater quantity controls including storage components within the pervious paver cross section, and within the detention ponds.

Based on the proposed design, the runoff from the proposed development will be captured and conveyed in a manner that will not have an adverse impact to the surrounding stormwater systems or the environment.



USGS LOCATION MAP

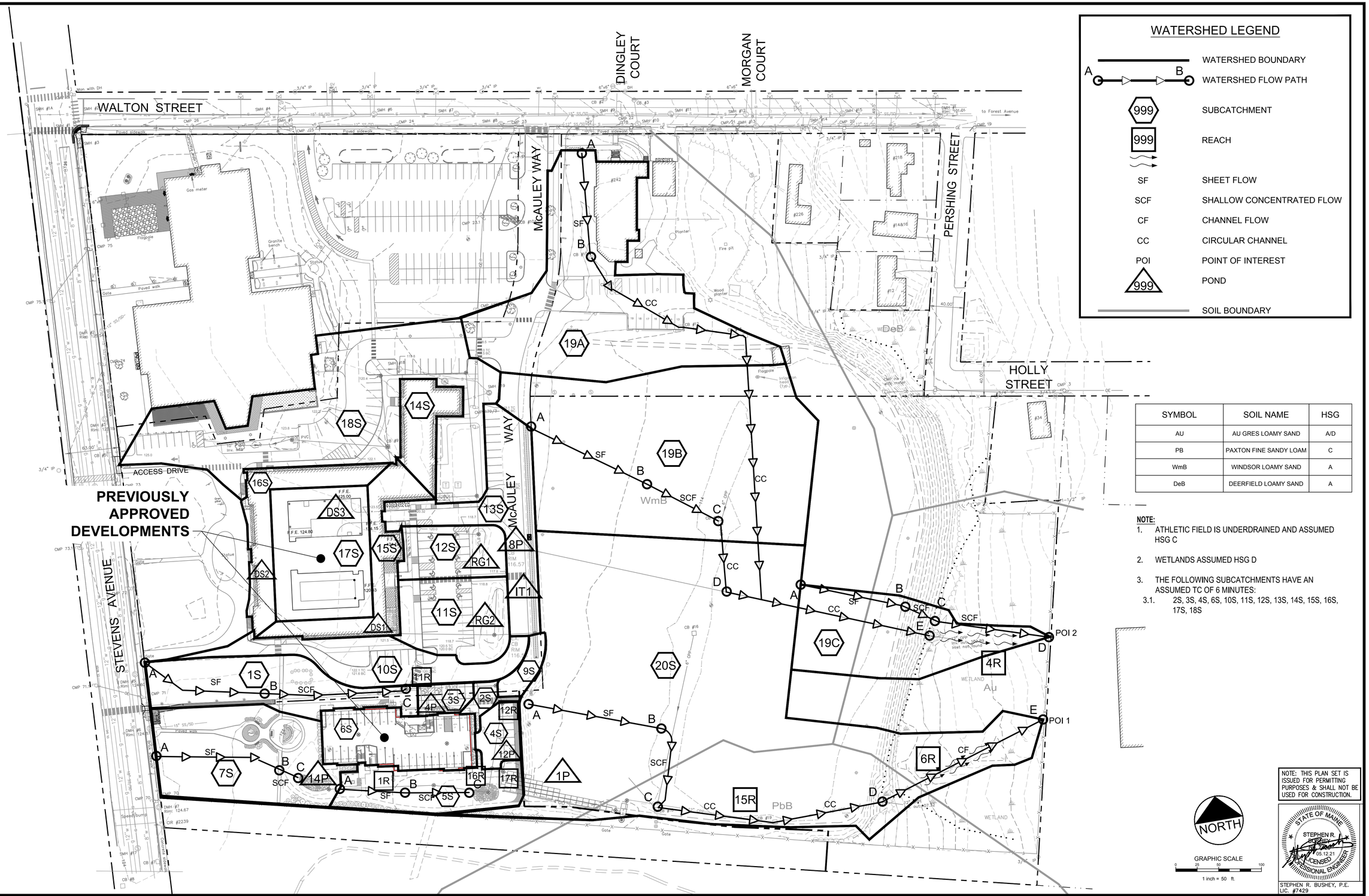
STEVENS SQUARE AT BAXTER WOODS - LOT 4 PHASE 2
583 Stevens Avenue, Portland, Maine

NORTH

Design: SRB	Date: APRIL 2021	GORRILL PALMER	Figure 1
Draft: CDD	Job No.: 3564.03	Relationships. Responsiveness. Results. www.gorrillpalmer.com 207.772.2515	
Checked: SRB	Scale: NOT TO SCALE		
File Name: 356403–COVER.dwg			

ATTACHMENT A

WATERSHED MAPS



WATERSHED LEGEND

- WATERSHED BOUNDARY
- A — B: WATERSHED FLOW PATH
- 999: SUBCATCHMENT
- 999: REACH
- SF: SHEET FLOW
- SCF: SHALLOW CONCENTRATED FLOW
- CF: CHANNEL FLOW
- CC: CIRCULAR CHANNEL
- POI: POINT OF INTEREST
- 999: POND
- SOIL BOUNDARY

SYMBOL	SOIL NAME	HSG
AU	AU GRES LOAMY SAND	A/D
PB	PAXTON FINE SANDY LOAM	C
WmB	WINDSOR LOAMY SAND	A
DeB	DEERFIELD LOAMY SAND	A

NOTE:

1. ATHLETIC FIELD IS UNDERDRAINED AND ASSUMED HSG C
2. WETLANDS ASSUMED HSG D
3. THE FOLLOWING SUBCATCHMENTS HAVE AN ASSUMED TC OF 6 MINUTES:
   - 3.1. 2S, 3S, 4S, 6S, 10S, 11S, 12S, 13S, 14S, 15S, 16S, 17S, 18S

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES & SHALL NOT BE USED FOR CONSTRUCTION.

NORTH

GRAPHIC SCALE
0 25 50 100
1 inch = 50 ft.

STATE OF MAINE — STEPHEN R. BUSHEY — 05.12.21 — LICENSED PROFESSIONAL ENGINEER

STEPHEN R. BUSHEY, P.E.
LIC. #7429

Rev.	Date	Revision

Rev.	Date	Revision
1	2021.05.12	SUBMITTED TO CITY FOR REVIEW

Design: SRB	Draft: CDD	Date: MAY 2021
Checked: SRB	Scale: AS NOTED	Job No.: 3564.03
File Name: 356403-WSHED.dwg		

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Drawing Name: PREDEVELOPMENT WATERSHED PLAN

Project: **Stevens Square at Baxter Woods – Phase 2**
583 Stevens Avenue, Portland, Maine

Client/Owner: **DC BAXTER WOODS LLC**
100 COMMERCIAL STREET, SUITE 414, PORTLAND, ME 04101 PH. 207.766.6696

Drawing No. WS1

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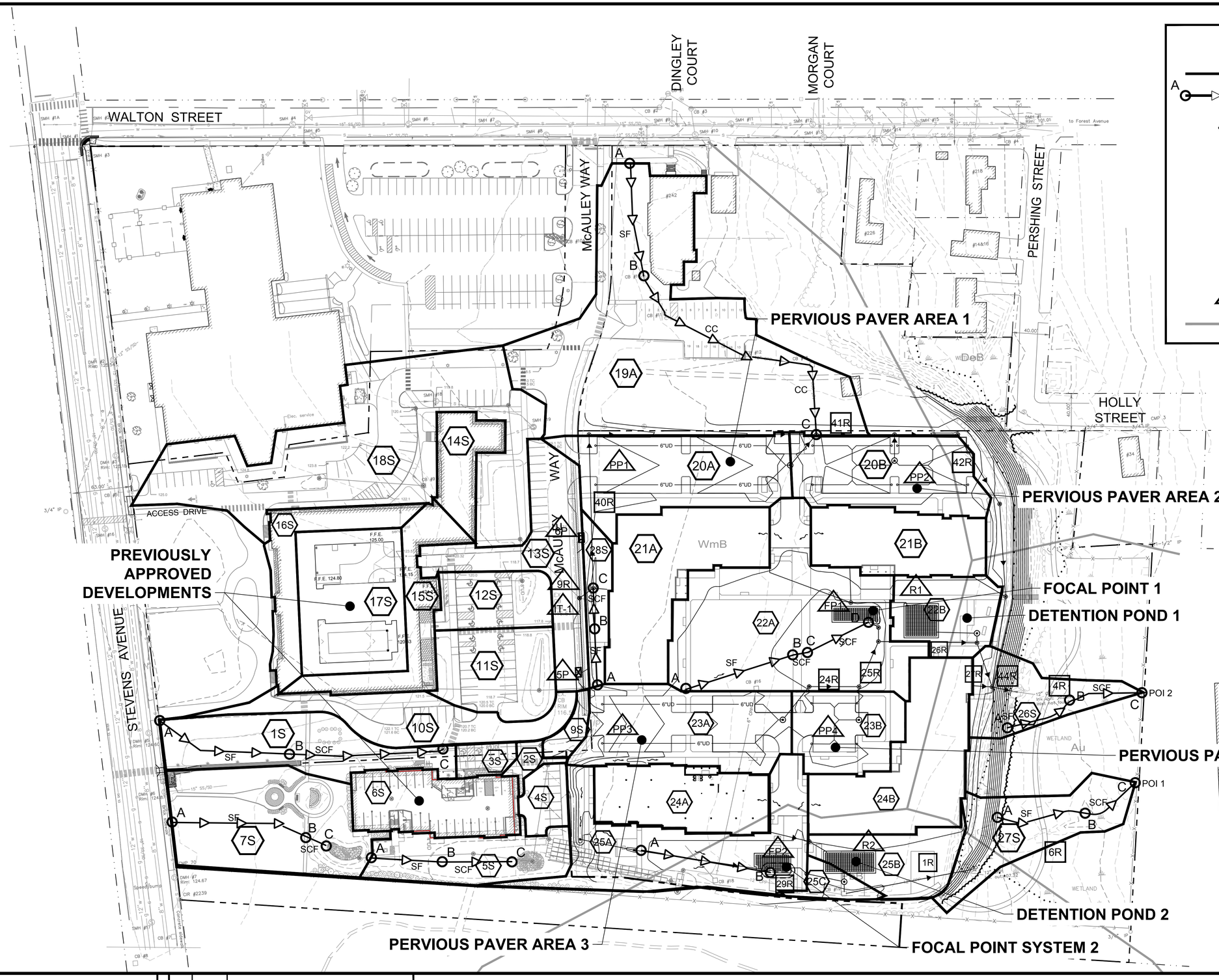

WATERSHED LEGEND

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- 999: SUBCATCHMENT
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- POI: POINT OF INTEREST
- 999: POND
- SOIL BOUNDARY

SYMBOL	SOIL NAME	HSG
AU	AU GRES LOAMY SAND	A/D
PB	PAXTON FINE SANDY LOAM	C
WmB	WINDSOR LOAMY SAND	A
DeB	DEERFIELD LOAMY SAND	A

NOTE:

1. ATHLETIC FIELD IS UNDERDRAINED AND ASSUMED HSG C
2. WETLANDS ASSUMED HSG D
3. THE FOLLOWING SUBCATCHMENTS HAVE AN ASSUMED TC OF 6 MINUTES:
   - 3.1. 2S, 3S, 4S, 6S, 10S, 11S, 12S, 13S, 14S, 15S, 16S, 17S, 18S, 20A, 20B, 21A, 21B, 22B, 23A, 23B, 24A, 24B, 25B

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES & SHALL NOT BE USED FOR CONSTRUCTION.

NORTH

GRAPHIC SCALE
0 25 50 100
1 inch = 50 ft.

STATE OF MAINE — STEPHEN R. BUSHEY — 11.23.21 — LICENSED PROFESSIONAL ENGINEER

STEPHEN R. BUSHEY, P.E.
LIC. #7429

Rev.	Date	Revision

Rev.	Date	Revision
2	2021.11.23	RESUBMITTED PER LOR #1 FOR FINAL REVIEW
1	2021.05.12	SUBMITTED TO CITY FOR REVIEW

Design: SRB	Draft: CDD	Date: MAY 2021
Checked: SRB	Scale: AS NOTED	Job No.: 3564.03
File Name: 356403-WSHED.dwg		

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Drawing Name: POSTDEVELOPMENT WATERSHED PLAN

Project: **Stevens Square at Baxter Woods – Phase 2–4**
583 Stevens Avenue, Portland, Maine

Client/Owner: **DC BAXTER WOODS IV LLC**
100 COMMERCIAL STREET, SUITE 414, PORTLAND, ME 04101 PH. 207.772.7673

Drawing No. WS2

U:\3564.03_Stevens Square-Lot 4 - Portland, ME\Z - CAD\DWG\356403-WSHED.dwg - 11/22/2021 2:08 PM

STORMWATER QUALITY TREATMENT										
		IMPERVIOUS AREA				DEVELOPED AREA				TREATMENT BMP
SUBCATCHMENT	COVER TYPE	AREA (SF)	% TREATED	% AREA	% TREATED	AREA (SF)	% TREATED	% AREA	% TREATED	
20A	PAVEMENT	13,856	100%	11%	11%	19,180	100%	9%	9%	PERVIOUS PAVERS 1
20B	PAVEMENT	11,726	100%	9%	9%	15,935	100%	7%	7%	PERVIOUS PAVERS 2
21A, 21B	ROOFS *	31,990	100%	25%	25%	31,990	100%	14%	14%	R-TANK SYSTEM 1
22A	PAVEMENT	8,175	100%	7%	7%	35,370	100%	16%	16%	FOCAL POINT 1
23A	PAVEMENT	12,134	100%	10%	10%	18,825	100%	9%	9%	PERVIOUS PAVERS 3
23B	PAVEMENT	6,230	100%	5%	5%	9,870	100%	4%	4%	PERVIOUS PAVERS 4
24A, 24B	ROOFS *	31,990	100%	25%	25%	31,990	100%	14%	14%	R-TANK SYSTEM 2
25A	PAVEMENT	4,910	100%	4%	4%	22,380	100%	10%	10%	FOCAL POINT 2
UNTREATED	WALKWAYS	4,627	0%	4%	0%	35,130	0%	16%	0%	
TOTAL AREA		125,638		100%		220,670		100%		
TOTAL % TREATED					96%				84%	

WATERSHED LEGEND

- DEVELOPED AREA BOUNDARY
- 999 — SUBCATCHMENT
- AREA TREATED BY PERVIOUS PAVER AREA 1
- AREA TREATED BY PERVIOUS PAVER AREA 2
- AREA TREATED BY PERVIOUS PAVER AREA 3
- AREA TREATED BY PERVIOUS PAVER AREA 4
- AREA TREATED BY FOCAL POINT 1
- AREA TREATED BY FOCAL POINT 2
- AREA TREATED BY DETENTION POND 1
- AREA TREATED BY DETENTION POND 2
- UNTREATED

*ROOF AREA TREATED FOR THERMAL IMPACTS IN ACCORDANCE WITH CHAPTER 500 ROOF EXCEPTION FROM THE GENERAL STANDARDS.

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES & SHALL NOT BE USED FOR CONSTRUCTION.

STEPHEN R. BUSHEY, P.E.
LIC. #7429

Rev.	Date	Revision

Rev.	Date	Revision
1	2021.05.12	SUBMITTED TO CITY FOR REVIEW

Design: SRB	Draft: CDD	Date: MAY 2021
Checked: SRB	Scale: AS NOTED	Job No.: 3564.03
File Name: 356403-WSHED.dwg		

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Drawing Name: WATER QUALITY PLAN

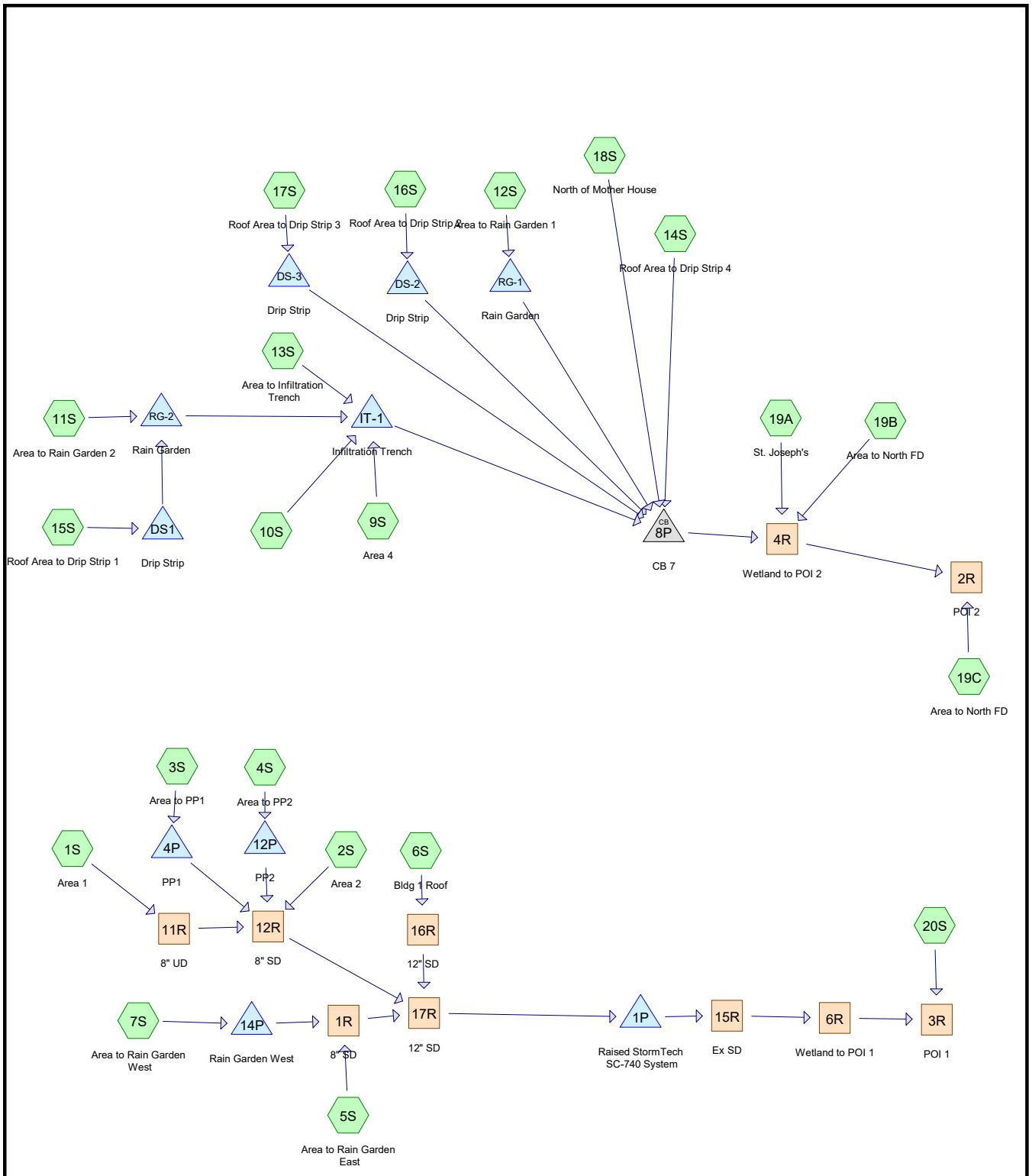
Project: **Stevens Square at Baxter Woods – Phase 2**
583 Stevens Avenue, Portland, Maine

Client/Owner: **DC BAXTER WOODS LLC**
100 COMMERCIAL STREET, SUITE 414, PORTLAND, ME 04101 PH. 207.766.6696

Drawing No. C-7.0

ATTACHMENT B

PRE AND POST DEVELOPMENT HYDROCAD MODEL



Routing Diagram for Pre-Development
Prepared by Gorrill Palmer, Printed 5/13/2021
HydroCAD® 10.10-4a s/n 01265 © 2020 HydroCAD Software Solutions LLC

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Area 1 Runoff Area=15,851 sf 17.16% Impervious Runoff Depth=0.09"
Flow Length=300' Tc=20.7 min CN=49 Runoff=0.00 cfs 0.003 af

Subcatchment 2S: Area 2 Runoff Area=1,429 sf 70.05% Impervious Runoff Depth=1.33"
Tc=6.0 min CN=80 Runoff=0.05 cfs 0.004 af

Subcatchment 3S: Area to PP1 Runoff Area=2,173 sf 81.59% Impervious Runoff Depth=1.83"
Tc=6.0 min CN=87 Runoff=0.11 cfs 0.008 af

Subcatchment 4S: Area to PP2 Runoff Area=3,345 sf 100.00% Impervious Runoff Depth=2.87"
Tc=6.0 min CN=98 Runoff=0.23 cfs 0.018 af

Subcatchment 5S: Area to Rain Garden East Runoff Area=8,904 sf 17.46% Impervious Runoff Depth=0.09"
Flow Length=150' Slope=0.0200 '/' Tc=9.2 min CN=49 Runoff=0.00 cfs 0.002 af

Subcatchment 6S: Bldg 1 Roof Runoff Area=11,717 sf 100.00% Impervious Runoff Depth=2.87"
Tc=6.0 min CN=98 Runoff=0.81 cfs 0.064 af

Subcatchment 7S: Area to Rain Garden Runoff Area=21,901 sf 7.99% Impervious Runoff Depth=0.02"
Flow Length=170' Tc=14.0 min CN=44 Runoff=0.00 cfs 0.001 af

Subcatchment 9S: Area 4 Runoff Area=2,569 sf 17.32% Impervious Runoff Depth=0.09"
Tc=6.0 min CN=49 Runoff=0.00 cfs 0.000 af

Subcatchment 10S: Runoff Area=12,293 sf 82.32% Impervious Runoff Depth=1.91"
Tc=6.0 min CN=88 Runoff=0.63 cfs 0.045 af

Subcatchment 11S: Area to Rain Garden 2 Runoff Area=11,240 sf 51.56% Impervious Runoff Depth=0.72"
Tc=6.0 min CN=69 Runoff=0.19 cfs 0.016 af

Subcatchment 12S: Area to Rain Garden 1 Runoff Area=7,303 sf 58.87% Impervious Runoff Depth=0.97"
Tc=6.0 min CN=74 Runoff=0.18 cfs 0.014 af

Subcatchment 13S: Area to Infiltration Runoff Area=15,676 sf 71.60% Impervious Runoff Depth=1.39"
Tc=6.0 min CN=81 Runoff=0.58 cfs 0.042 af

Subcatchment 14S: Roof Area to Drip Runoff Area=6,080 sf 100.00% Impervious Runoff Depth=2.87"
Tc=6.0 min CN=98 Runoff=0.42 cfs 0.033 af

Subcatchment 15S: Roof Area to Drip Strip Runoff Area=9,600 sf 79.17% Impervious Runoff Depth=2.35"
Tc=6.0 min CN=93 Runoff=0.59 cfs 0.043 af

Subcatchment 16S: Roof Area to Drip Strip Runoff Area=9,600 sf 79.17% Impervious Runoff Depth=2.35"
Tc=6.0 min CN=93 Runoff=0.59 cfs 0.043 af

Subcatchment 17S: Roof Area to Drip Runoff Area=17,390 sf 76.31% Impervious Runoff Depth=2.35"
Tc=6.0 min CN=93 Runoff=1.07 cfs 0.078 af

Subcatchment 18S: North of Mother House Runoff Area=44,775 sf 50.92% Impervious Runoff Depth=0.72"
Tc=6.0 min CN=69 Runoff=0.75 cfs 0.062 af

Subcatchment 19A: St. Joseph's Runoff Area=46,128 sf 40.42% Impervious Runoff Depth=1.08"
Flow Length=842' Tc=21.0 min CN=76 Runoff=0.85 cfs 0.096 af

Subcatchment 19B: Area to North FD Runoff Area=64,219 sf 1.18% Impervious Runoff Depth=0.97"
Flow Length=566' Tc=25.0 min CN=74 Runoff=0.96 cfs 0.119 af

Subcatchment 19C: Area to North FD Runoff Area=20,520 sf 0.00% Impervious Runoff Depth=1.03"
Flow Length=300' Tc=21.6 min CN=75 Runoff=0.35 cfs 0.040 af

Subcatchment 20S: Runoff Area=127,215 sf 0.00% Impervious Runoff Depth=0.97"
Flow Length=735' Tc=31.2 min CN=74 Runoff=1.74 cfs 0.237 af

Reach 1R: 8" SD Avg. Flow Depth=0.02' Max Vel=0.69 fps Inflow=0.00 cfs 0.002 af
8.0" Round Pipe n=0.013 L=28.0' S=0.0100 '/' Capacity=1.21 cfs Outflow=0.00 cfs 0.002 af

Reach 2R: POI 2 Inflow=2.99 cfs 0.359 af
Outflow=2.99 cfs 0.359 af

Reach 3R: POI 1 Inflow=1.77 cfs 0.333 af
Outflow=1.77 cfs 0.333 af

Reach 4R: Wetland to POI 2 Avg. Flow Depth=0.13' Max Vel=2.33 fps Inflow=2.65 cfs 0.318 af
n=0.035 L=145.0' S=0.0500 '/' Capacity=57.05 cfs Outflow=2.64 cfs 0.318 af

Reach 6R: Wetland to POI 1 Avg. Flow Depth=0.01' Max Vel=0.47 fps Inflow=0.04 cfs 0.097 af
n=0.035 L=210.0' S=0.0500 '/' Capacity=57.05 cfs Outflow=0.04 cfs 0.097 af

Reach 11R: 8" UD Avg. Flow Depth=0.03' Max Vel=0.68 fps Inflow=0.00 cfs 0.003 af
8.0" Round Pipe n=0.012 L=104.0' S=0.0050 '/' Capacity=0.93 cfs Outflow=0.00 cfs 0.003 af

Reach 12R: 8" SD Avg. Flow Depth=0.22' Max Vel=2.81 fps Inflow=0.28 cfs 0.031 af
8.0" Round Pipe n=0.013 L=76.0' S=0.0100 '/' Capacity=1.21 cfs Outflow=0.28 cfs 0.031 af

Reach 15R: Ex SD Avg. Flow Depth=0.08' Max Vel=1.31 fps Inflow=0.04 cfs 0.097 af
12.0" Round Pipe n=0.013 L=268.0' S=0.0069 '/' Capacity=2.95 cfs Outflow=0.04 cfs 0.097 af

Reach 16R: 12" SD Avg. Flow Depth=0.36' Max Vel=3.21 fps Inflow=0.81 cfs 0.064 af
12.0" Round Pipe n=0.012 L=17.0' S=0.0059 '/' Capacity=2.96 cfs Outflow=0.81 cfs 0.064 af

Reach 17R: 12" SD Avg. Flow Depth=0.33' Max Vel=4.55 fps Inflow=1.03 cfs 0.097 af
12.0" Round Pipe n=0.013 L=12.0' S=0.0150 '/' Capacity=4.36 cfs Outflow=1.03 cfs 0.097 af

Pond 1P: Raised StormTech SC-740 System Peak Elev=112.96' Storage=0.058 af Inflow=1.03 cfs 0.097 af
Outflow=0.04 cfs 0.097 af

Pond 4P: PP1 Peak Elev=115.89' Storage=110 cf Inflow=0.11 cfs 0.008 af
Outflow=0.06 cfs 0.006 af

Pond 8P: CB 7 Peak Elev=112.71' Inflow=1.17 cfs 0.103 af
12.0" Round Culvert n=0.012 L=465.0' S=0.0199 '/' Outflow=1.17 cfs 0.103 af

Pond 12P: PP2 Peak Elev=115.86' Storage=106 cf Inflow=0.23 cfs 0.018 af
Outflow=0.18 cfs 0.018 af

Pond 14P: Rain Garden West Peak Elev=120.09' Storage=42 cf Inflow=0.00 cfs 0.001 af
Outflow=0.00 cfs 0.000 af

Pond DS-2: Drip Strip Peak Elev=115.29' Storage=187 cf Inflow=0.59 cfs 0.043 af
Discarded=0.28 cfs 0.043 af Primary=0.00 cfs 0.000 af Outflow=0.28 cfs 0.043 af

Pond DS-3: Drip Strip Peak Elev=116.05' Storage=665 cf Inflow=1.07 cfs 0.078 af
Discarded=0.28 cfs 0.077 af Primary=0.06 cfs 0.001 af Outflow=0.34 cfs 0.078 af

Pond DS1: Drip Strip Peak Elev=115.29' Storage=187 cf Inflow=0.59 cfs 0.043 af
Discarded=0.28 cfs 0.043 af Primary=0.00 cfs 0.000 af Outflow=0.28 cfs 0.043 af

Pond IT-1: Infiltration Trench Peak Elev=113.34' Storage=644 cf Inflow=1.21 cfs 0.087 af
Discarded=0.28 cfs 0.080 af Primary=0.28 cfs 0.007 af Outflow=0.56 cfs 0.087 af

Pond RG-1: Rain Garden Peak Elev=114.92' Storage=63 cf Inflow=0.18 cfs 0.014 af
Discarded=0.08 cfs 0.014 af Primary=0.00 cfs 0.000 af Outflow=0.08 cfs 0.014 af

Pond RG-2: Rain Garden Peak Elev=114.51' Storage=8 cf Inflow=0.19 cfs 0.016 af
Discarded=0.17 cfs 0.016 af Primary=0.00 cfs 0.000 af Outflow=0.17 cfs 0.016 af

Total Runoff Area = 10.558 ac Runoff Volume = 0.967 af Average Runoff Depth = 1.10"
71.19% Pervious = 7.517 ac 28.81% Impervious = 3.042 ac

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Area 1 Runoff Area=15,851 sf 17.16% Impervious Runoff Depth=0.49"
Flow Length=300' Tc=20.7 min CN=49 Runoff=0.08 cfs 0.015 af

Subcatchment 2S: Area 2 Runoff Area=1,429 sf 70.05% Impervious Runoff Depth=2.55"
Tc=6.0 min CN=80 Runoff=0.10 cfs 0.007 af

Subcatchment 3S: Area to PP1 Runoff Area=2,173 sf 81.59% Impervious Runoff Depth=3.19"
Tc=6.0 min CN=87 Runoff=0.18 cfs 0.013 af

Subcatchment 4S: Area to PP2 Runoff Area=3,345 sf 100.00% Impervious Runoff Depth=4.36"
Tc=6.0 min CN=98 Runoff=0.35 cfs 0.028 af

Subcatchment 5S: Area to Rain Garden East Runoff Area=8,904 sf 17.46% Impervious Runoff Depth=0.49"
Flow Length=150' Slope=0.0200 '/' Tc=9.2 min CN=49 Runoff=0.05 cfs 0.008 af

Subcatchment 6S: Bldg 1 Roof Runoff Area=11,717 sf 100.00% Impervious Runoff Depth=4.36"
Tc=6.0 min CN=98 Runoff=1.21 cfs 0.098 af

Subcatchment 7S: Area to Rain Garden Runoff Area=21,901 sf 7.99% Impervious Runoff Depth=0.29"
Flow Length=170' Tc=14.0 min CN=44 Runoff=0.04 cfs 0.012 af

Subcatchment 9S: Area 4 Runoff Area=2,569 sf 17.32% Impervious Runoff Depth=0.49"
Tc=6.0 min CN=49 Runoff=0.02 cfs 0.002 af

Subcatchment 10S: Runoff Area=12,293 sf 82.32% Impervious Runoff Depth=3.29"
Tc=6.0 min CN=88 Runoff=1.07 cfs 0.077 af

Subcatchment 11S: Area to Rain Garden 2 Runoff Area=11,240 sf 51.56% Impervious Runoff Depth=1.67"
Tc=6.0 min CN=69 Runoff=0.49 cfs 0.036 af

Subcatchment 12S: Area to Rain Garden 1 Runoff Area=7,303 sf 58.87% Impervious Runoff Depth=2.05"
Tc=6.0 min CN=74 Runoff=0.40 cfs 0.029 af

Subcatchment 13S: Area to Infiltration Runoff Area=15,676 sf 71.60% Impervious Runoff Depth=2.63"
Tc=6.0 min CN=81 Runoff=1.11 cfs 0.079 af

Subcatchment 14S: Roof Area to Drip Runoff Area=6,080 sf 100.00% Impervious Runoff Depth=4.36"
Tc=6.0 min CN=98 Runoff=0.63 cfs 0.051 af

Subcatchment 15S: Roof Area to Drip Strip Runoff Area=9,600 sf 79.17% Impervious Runoff Depth=3.81"
Tc=6.0 min CN=93 Runoff=0.93 cfs 0.070 af

Subcatchment 16S: Roof Area to Drip Strip Runoff Area=9,600 sf 79.17% Impervious Runoff Depth=3.81"
Tc=6.0 min CN=93 Runoff=0.93 cfs 0.070 af

Subcatchment 17S: Roof Area to Drip Runoff Area=17,390 sf 76.31% Impervious Runoff Depth=3.81"
Tc=6.0 min CN=93 Runoff=1.68 cfs 0.127 af

Subcatchment 18S: North of Mother House Runoff Area=44,775 sf 50.92% Impervious Runoff Depth=1.67"
Tc=6.0 min CN=69 Runoff=1.95 cfs 0.143 af

Subcatchment 19A: St. Joseph's Runoff Area=46,128 sf 40.42% Impervious Runoff Depth=2.21"
Flow Length=842' Tc=21.0 min CN=76 Runoff=1.80 cfs 0.195 af

Subcatchment 19B: Area to North FD Runoff Area=64,219 sf 1.18% Impervious Runoff Depth=2.05"
Flow Length=566' Tc=25.0 min CN=74 Runoff=2.15 cfs 0.252 af

Subcatchment 19C: Area to North FD Runoff Area=20,520 sf 0.00% Impervious Runoff Depth=2.13"
Flow Length=300' Tc=21.6 min CN=75 Runoff=0.76 cfs 0.084 af

Subcatchment 20S: Runoff Area=127,215 sf 0.00% Impervious Runoff Depth=2.05"
Flow Length=735' Tc=31.2 min CN=74 Runoff=3.86 cfs 0.499 af

Reach 1R: 8" SD Avg. Flow Depth=0.09' Max Vel=1.70 fps Inflow=0.05 cfs 0.017 af
8.0" Round Pipe n=0.013 L=28.0' S=0.0100 '/' Capacity=1.21 cfs Outflow=0.05 cfs 0.017 af

Reach 2R: POI 2 Inflow=7.55 cfs 0.790 af
Outflow=7.55 cfs 0.790 af

Reach 3R: POI 1 Inflow=3.90 cfs 0.663 af
Outflow=3.90 cfs 0.663 af

Reach 4R: Wetland to POI 2 Avg. Flow Depth=0.23' Max Vel=3.26 fps Inflow=6.79 cfs 0.706 af
n=0.035 L=145.0' S=0.0500 '/' Capacity=57.05 cfs Outflow=6.79 cfs 0.706 af

Reach 6R: Wetland to POI 1 Avg. Flow Depth=0.03' Max Vel=0.98 fps Inflow=0.27 cfs 0.165 af
n=0.035 L=210.0' S=0.0500 '/' Capacity=57.05 cfs Outflow=0.27 cfs 0.164 af

Reach 11R: 8" UD Avg. Flow Depth=0.13' Max Vel=1.61 fps Inflow=0.08 cfs 0.015 af
8.0" Round Pipe n=0.012 L=104.0' S=0.0050 '/' Capacity=0.93 cfs Outflow=0.08 cfs 0.015 af

Reach 12R: 8" SD Avg. Flow Depth=0.30' Max Vel=3.32 fps Inflow=0.51 cfs 0.062 af
8.0" Round Pipe n=0.013 L=76.0' S=0.0100 '/' Capacity=1.21 cfs Outflow=0.51 cfs 0.062 af

Reach 15R: Ex SD Avg. Flow Depth=0.20' Max Vel=2.35 fps Inflow=0.27 cfs 0.165 af
12.0" Round Pipe n=0.013 L=268.0' S=0.0069 '/' Capacity=2.95 cfs Outflow=0.27 cfs 0.165 af

Reach 16R: 12" SD Avg. Flow Depth=0.45' Max Vel=3.58 fps Inflow=1.21 cfs 0.098 af
12.0" Round Pipe n=0.012 L=17.0' S=0.0059 '/' Capacity=2.96 cfs Outflow=1.21 cfs 0.098 af

Reach 17R: 12" SD Avg. Flow Depth=0.43' Max Vel=5.19 fps Inflow=1.68 cfs 0.177 af
12.0" Round Pipe n=0.013 L=12.0' S=0.0150 '/' Capacity=4.36 cfs Outflow=1.68 cfs 0.177 af

Pond 1P: Raised StormTech SC-740 System Peak Elev=113.78' Storage=0.084 af Inflow=1.68 cfs 0.177 af
Outflow=0.27 cfs 0.165 af

Pond 4P: PP1 Peak Elev=115.97' Storage=138 cf Inflow=0.18 cfs 0.013 af
Outflow=0.15 cfs 0.012 af

Pond 8P: CB 7 Peak Elev=113.79' Inflow=4.04 cfs 0.259 af
12.0" Round Culvert n=0.012 L=465.0' S=0.0199 '/' Outflow=4.04 cfs 0.259 af

Pond 12P: PP2 Peak Elev=115.94' Storage=137 cf Inflow=0.35 cfs 0.028 af
Outflow=0.28 cfs 0.028 af

Pond 14P: Rain Garden West Peak Elev=120.27' Storage=143 cf Inflow=0.04 cfs 0.012 af
Outflow=0.02 cfs 0.009 af

Pond DS-2: Drip Strip Peak Elev=115.82' Storage=522 cf Inflow=0.93 cfs 0.070 af
Discarded=0.28 cfs 0.070 af Primary=0.00 cfs 0.000 af Outflow=0.28 cfs 0.070 af

Pond DS-3: Drip Strip Peak Elev=116.55' Storage=903 cf Inflow=1.68 cfs 0.127 af
Discarded=0.28 cfs 0.107 af Primary=0.70 cfs 0.020 af Outflow=0.98 cfs 0.127 af

Pond DS1: Drip Strip Peak Elev=115.82' Storage=522 cf Inflow=0.93 cfs 0.070 af
Discarded=0.28 cfs 0.070 af Primary=0.00 cfs 0.000 af Outflow=0.28 cfs 0.070 af

Pond IT-1: Infiltration Trench Peak Elev=114.25' Storage=1,122 cf Inflow=2.19 cfs 0.160 af
Discarded=0.28 cfs 0.120 af Primary=0.95 cfs 0.040 af Outflow=1.22 cfs 0.160 af

Pond RG-1: Rain Garden Peak Elev=115.42' Storage=139 cf Inflow=0.40 cfs 0.029 af
Discarded=0.08 cfs 0.023 af Primary=0.21 cfs 0.005 af Outflow=0.29 cfs 0.029 af

Pond RG-2: Rain Garden Peak Elev=115.15' Storage=208 cf Inflow=0.49 cfs 0.036 af
Discarded=0.17 cfs 0.035 af Primary=0.05 cfs 0.001 af Outflow=0.21 cfs 0.036 af

Total Runoff Area = 10.558 ac Runoff Volume = 1.894 af Average Runoff Depth = 2.15"
71.19% Pervious = 7.517 ac 28.81% Impervious = 3.042 ac

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Area 1 Runoff Area=15,851 sf 17.16% Impervious Runoff Depth=0.98"
Flow Length=300' Tc=20.7 min CN=49 Runoff=0.21 cfs 0.030 af

Subcatchment 2S: Area 2 Runoff Area=1,429 sf 70.05% Impervious Runoff Depth=3.60"
Tc=6.0 min CN=80 Runoff=0.14 cfs 0.010 af

Subcatchment 3S: Area to PP1 Runoff Area=2,173 sf 81.59% Impervious Runoff Depth=4.33"
Tc=6.0 min CN=87 Runoff=0.25 cfs 0.018 af

Subcatchment 4S: Area to PP2 Runoff Area=3,345 sf 100.00% Impervious Runoff Depth=5.56"
Tc=6.0 min CN=98 Runoff=0.44 cfs 0.036 af

Subcatchment 5S: Area to Rain Garden East Runoff Area=8,904 sf 17.46% Impervious Runoff Depth=0.98"
Flow Length=150' Slope=0.0200 '/' Tc=9.2 min CN=49 Runoff=0.15 cfs 0.017 af

Subcatchment 6S: Bldg 1 Roof Runoff Area=11,717 sf 100.00% Impervious Runoff Depth=5.56"
Tc=6.0 min CN=98 Runoff=1.53 cfs 0.125 af

Subcatchment 7S: Area to Rain Garden Runoff Area=21,901 sf 7.99% Impervious Runoff Depth=0.66"
Flow Length=170' Tc=14.0 min CN=44 Runoff=0.16 cfs 0.028 af

Subcatchment 9S: Area 4 Runoff Area=2,569 sf 17.32% Impervious Runoff Depth=0.98"
Tc=6.0 min CN=49 Runoff=0.05 cfs 0.005 af

Subcatchment 10S: Runoff Area=12,293 sf 82.32% Impervious Runoff Depth=4.43"
Tc=6.0 min CN=88 Runoff=1.42 cfs 0.104 af

Subcatchment 11S: Area to Rain Garden 2 Runoff Area=11,240 sf 51.56% Impervious Runoff Depth=2.56"
Tc=6.0 min CN=69 Runoff=0.77 cfs 0.055 af

Subcatchment 12S: Area to Rain Garden 1 Runoff Area=7,303 sf 58.87% Impervious Runoff Depth=3.02"
Tc=6.0 min CN=74 Runoff=0.59 cfs 0.042 af

Subcatchment 13S: Area to Infiltration Runoff Area=15,676 sf 71.60% Impervious Runoff Depth=3.70"
Tc=6.0 min CN=81 Runoff=1.55 cfs 0.111 af

Subcatchment 14S: Roof Area to Drip Runoff Area=6,080 sf 100.00% Impervious Runoff Depth=5.56"
Tc=6.0 min CN=98 Runoff=0.79 cfs 0.065 af

Subcatchment 15S: Roof Area to Drip Strip Runoff Area=9,600 sf 79.17% Impervious Runoff Depth=4.99"
Tc=6.0 min CN=93 Runoff=1.20 cfs 0.092 af

Subcatchment 16S: Roof Area to Drip Strip Runoff Area=9,600 sf 79.17% Impervious Runoff Depth=4.99"
Tc=6.0 min CN=93 Runoff=1.20 cfs 0.092 af

Subcatchment 17S: Roof Area to Drip Runoff Area=17,390 sf 76.31% Impervious Runoff Depth=4.99"
Tc=6.0 min CN=93 Runoff=2.17 cfs 0.166 af

Subcatchment 18S: North of Mother House Runoff Area=44,775 sf 50.92% Impervious Runoff Depth=2.56"
Tc=6.0 min CN=69 Runoff=3.05 cfs 0.219 af

Subcatchment 19A: St. Joseph's Runoff Area=46,128 sf 40.42% Impervious Runoff Depth=3.21"
Flow Length=842' Tc=21.0 min CN=76 Runoff=2.63 cfs 0.283 af

Subcatchment 19B: Area to North FD Runoff Area=64,219 sf 1.18% Impervious Runoff Depth=3.02"
Flow Length=566' Tc=25.0 min CN=74 Runoff=3.19 cfs 0.371 af

Subcatchment 19C: Area to North FD Runoff Area=20,520 sf 0.00% Impervious Runoff Depth=3.11"
Flow Length=300' Tc=21.6 min CN=75 Runoff=1.12 cfs 0.122 af

Subcatchment 20S: Runoff Area=127,215 sf 0.00% Impervious Runoff Depth=3.02"
Flow Length=735' Tc=31.2 min CN=74 Runoff=5.74 cfs 0.734 af

Reach 1R: 8" SD Avg. Flow Depth=0.18' Max Vel=2.57 fps Inflow=0.20 cfs 0.041 af
8.0" Round Pipe n=0.013 L=28.0' S=0.0100 '/' Capacity=1.21 cfs Outflow=0.20 cfs 0.041 af

Reach 2R: POI 2 Inflow=11.40 cfs 1.194 af
Outflow=11.40 cfs 1.194 af

Reach 3R: POI 1 Inflow=6.97 cfs 0.978 af
Outflow=6.97 cfs 0.978 af

Reach 4R: Wetland to POI 2 Avg. Flow Depth=0.29' Max Vel=3.76 fps Inflow=10.29 cfs 1.072 af
n=0.035 L=145.0' S=0.0500 '/' Capacity=57.05 cfs Outflow=10.28 cfs 1.072 af

Reach 6R: Wetland to POI 1 Avg. Flow Depth=0.08' Max Vel=1.76 fps Inflow=1.26 cfs 0.244 af
n=0.035 L=210.0' S=0.0500 '/' Capacity=57.05 cfs Outflow=1.23 cfs 0.244 af

Reach 11R: 8" UD Avg. Flow Depth=0.21' Max Vel=2.13 fps Inflow=0.21 cfs 0.030 af
8.0" Round Pipe n=0.012 L=104.0' S=0.0050 '/' Capacity=0.93 cfs Outflow=0.20 cfs 0.030 af

Reach 12R: 8" SD Avg. Flow Depth=0.37' Max Vel=3.63 fps Inflow=0.73 cfs 0.092 af
8.0" Round Pipe n=0.013 L=76.0' S=0.0100 '/' Capacity=1.21 cfs Outflow=0.73 cfs 0.092 af

Reach 15R: Ex SD Avg. Flow Depth=0.46' Max Vel=3.61 fps Inflow=1.28 cfs 0.244 af
12.0" Round Pipe n=0.013 L=268.0' S=0.0069 '/' Capacity=2.95 cfs Outflow=1.26 cfs 0.244 af

Reach 16R: 12" SD Avg. Flow Depth=0.51' Max Vel=3.80 fps Inflow=1.53 cfs 0.125 af
12.0" Round Pipe n=0.012 L=17.0' S=0.0059 '/' Capacity=2.96 cfs Outflow=1.53 cfs 0.125 af

Reach 17R: 12" SD Avg. Flow Depth=0.51' Max Vel=5.62 fps Inflow=2.28 cfs 0.258 af
12.0" Round Pipe n=0.013 L=12.0' S=0.0150 '/' Capacity=4.36 cfs Outflow=2.28 cfs 0.258 af

Pond 1P: Raised StormTech SC-740 System Peak Elev=113.90' Storage=0.088 af Inflow=2.28 cfs 0.258 af
Outflow=1.28 cfs 0.244 af

Pond 4P: PP1 Peak Elev=116.01' Storage=152 cf Inflow=0.25 cfs 0.018 af
Outflow=0.20 cfs 0.017 af

Pond 8P: CB 7 Peak Elev=116.63' Inflow=6.03 cfs 0.418 af
12.0" Round Culvert n=0.012 L=465.0' S=0.0199 '/' Outflow=6.03 cfs 0.418 af

Pond 12P: PP2 Peak Elev=115.99' Storage=160 cf Inflow=0.44 cfs 0.036 af
Outflow=0.36 cfs 0.036 af

Pond 14P: Rain Garden West Peak Elev=120.32' Storage=174 cf Inflow=0.16 cfs 0.028 af
Outflow=0.13 cfs 0.025 af

Pond DS-2: Drip Strip Peak Elev=116.14' Storage=706 cf Inflow=1.20 cfs 0.092 af
Discarded=0.28 cfs 0.087 af Primary=0.26 cfs 0.005 af Outflow=0.54 cfs 0.092 af

Pond DS-3: Drip Strip Peak Elev=117.08' Storage=1,168 cf Inflow=2.17 cfs 0.166 af
Discarded=0.28 cfs 0.129 af Primary=0.98 cfs 0.036 af Outflow=1.26 cfs 0.166 af

Pond DS1: Drip Strip Peak Elev=116.14' Storage=706 cf Inflow=1.20 cfs 0.092 af
Discarded=0.28 cfs 0.087 af Primary=0.26 cfs 0.005 af Outflow=0.54 cfs 0.092 af

Pond IT-1: Infiltration Trench Peak Elev=115.23' Storage=1,748 cf Inflow=3.07 cfs 0.233 af
Discarded=0.28 cfs 0.151 af Primary=1.33 cfs 0.082 af Outflow=1.61 cfs 0.233 af

Pond RG-1: Rain Garden Peak Elev=115.86' Storage=206 cf Inflow=0.59 cfs 0.042 af
Discarded=0.08 cfs 0.031 af Primary=0.35 cfs 0.012 af Outflow=0.43 cfs 0.042 af

Pond RG-2: Rain Garden Peak Elev=115.78' Storage=408 cf Inflow=0.77 cfs 0.060 af
Discarded=0.17 cfs 0.047 af Primary=0.33 cfs 0.012 af Outflow=0.50 cfs 0.060 af

Total Runoff Area = 10.558 ac Runoff Volume = 2.723 af Average Runoff Depth = 3.09"
71.19% Pervious = 7.517 ac 28.81% Impervious = 3.042 ac

Summary for Subcatchment 1S: Area 1

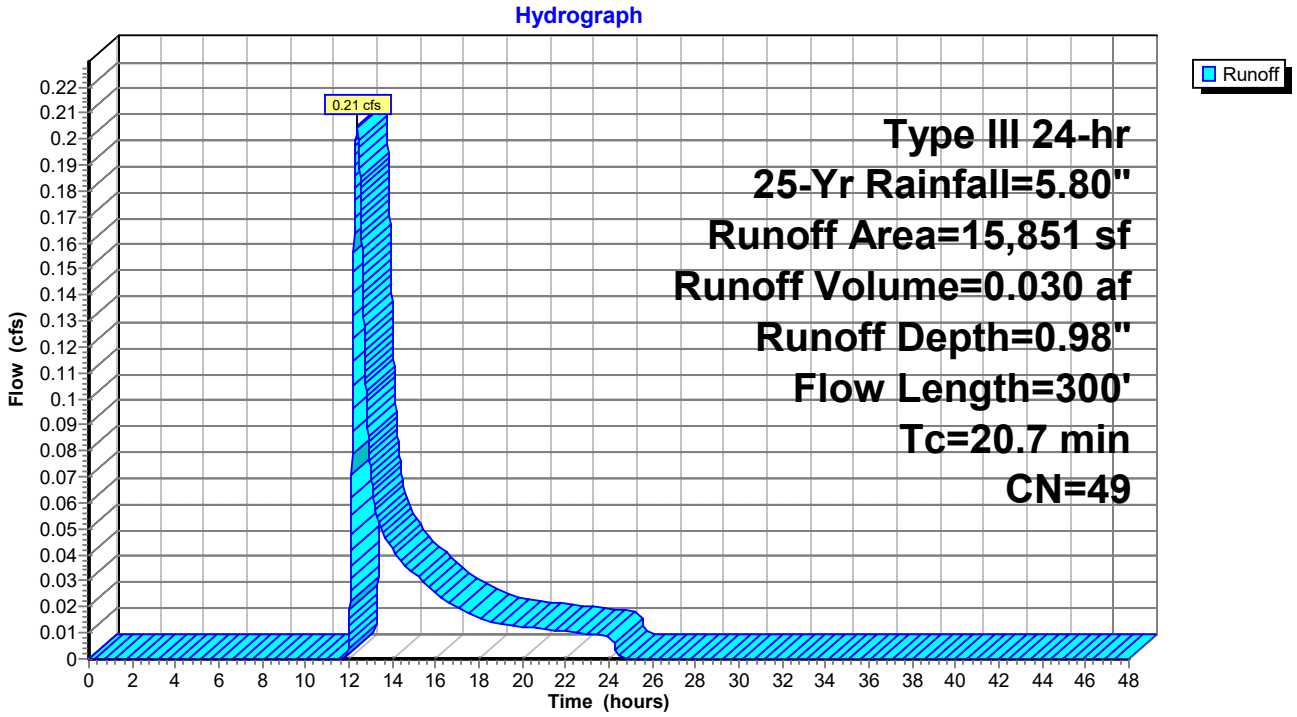
Runoff = 0.21 cfs @ 12.37 hrs, Volume= 0.030 af, Depth= 0.98"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Yr Rainfall=5.80"

Area (sf)	CN	Description
2,720	98	Paved parking, HSG A
13,131	39	>75% Grass cover, Good, HSG A
15,851	49	Weighted Average
13,131		82.84% Pervious Area
2,720		17.16% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.2	150	0.0100	0.14		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.10"
2.5	150	0.0200	0.99		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
20.7	300	Total			

Subcatchment 1S: Area 1



Summary for Subcatchment 2S: Area 2

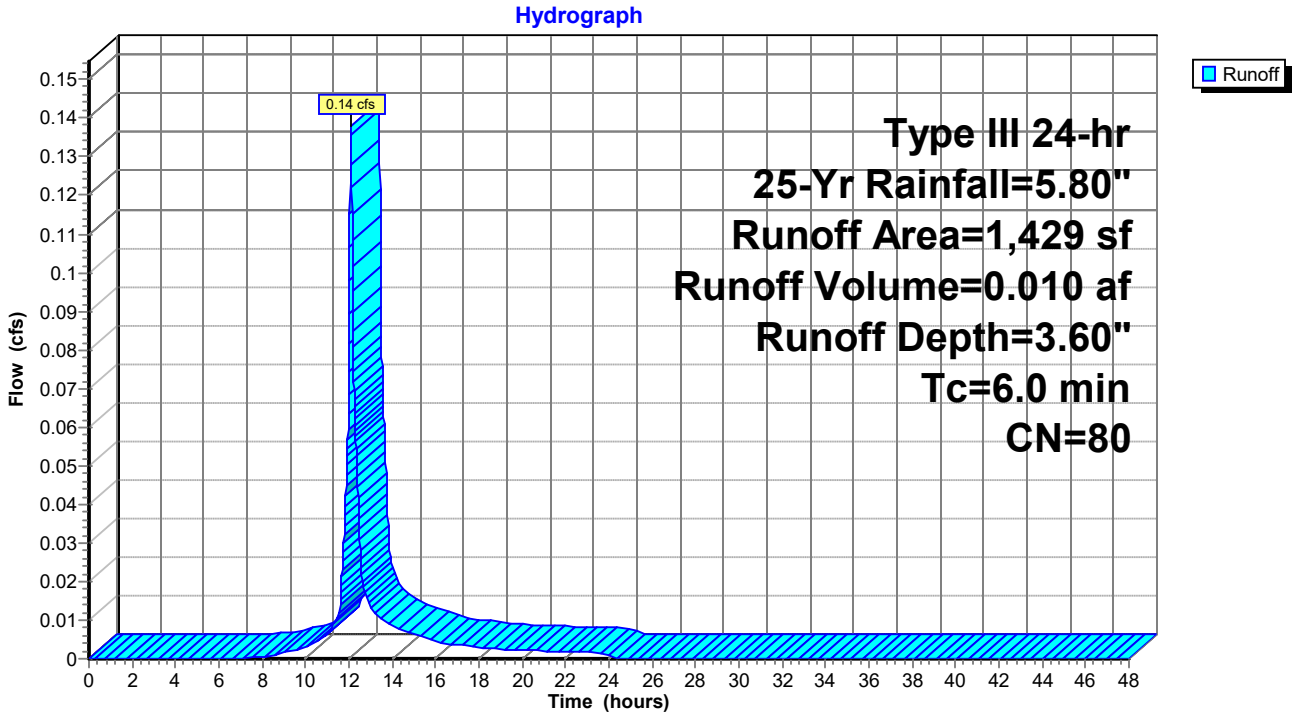
Runoff = 0.14 cfs @ 12.09 hrs, Volume= 0.010 af, Depth= 3.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Yr Rainfall=5.80"

Area (sf)	CN	Description
428	39	>75% Grass cover, Good, HSG A
1,001	98	Paved parking, HSG A
1,429	80	Weighted Average
428		29.95% Pervious Area
1,001		70.05% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 2S: Area 2



Summary for Subcatchment 3S: Area to PP1

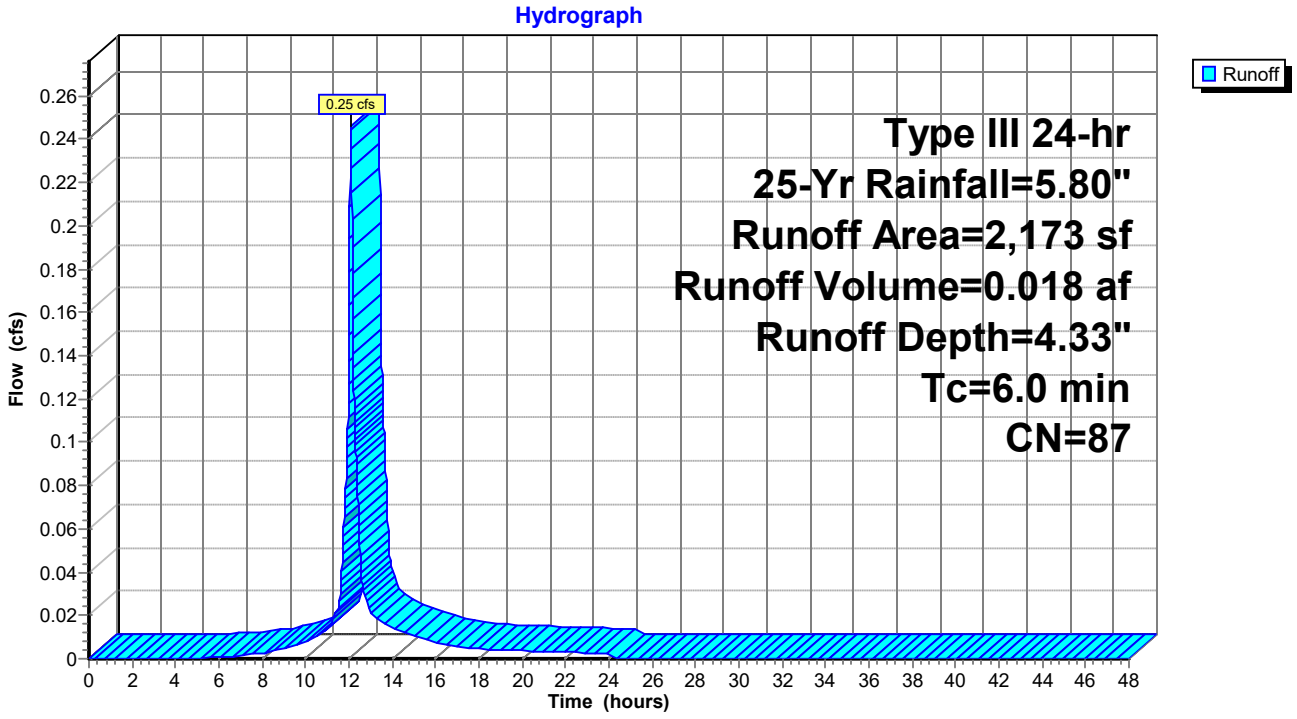
Runoff = 0.25 cfs @ 12.09 hrs, Volume= 0.018 af, Depth= 4.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Yr Rainfall=5.80"

Area (sf)	CN	Description
400	39	>75% Grass cover, Good, HSG A
1,773	98	Paved parking, HSG A
2,173	87	Weighted Average
400		18.41% Pervious Area
1,773		81.59% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 3S: Area to PP1



Summary for Subcatchment 4S: Area to PP2

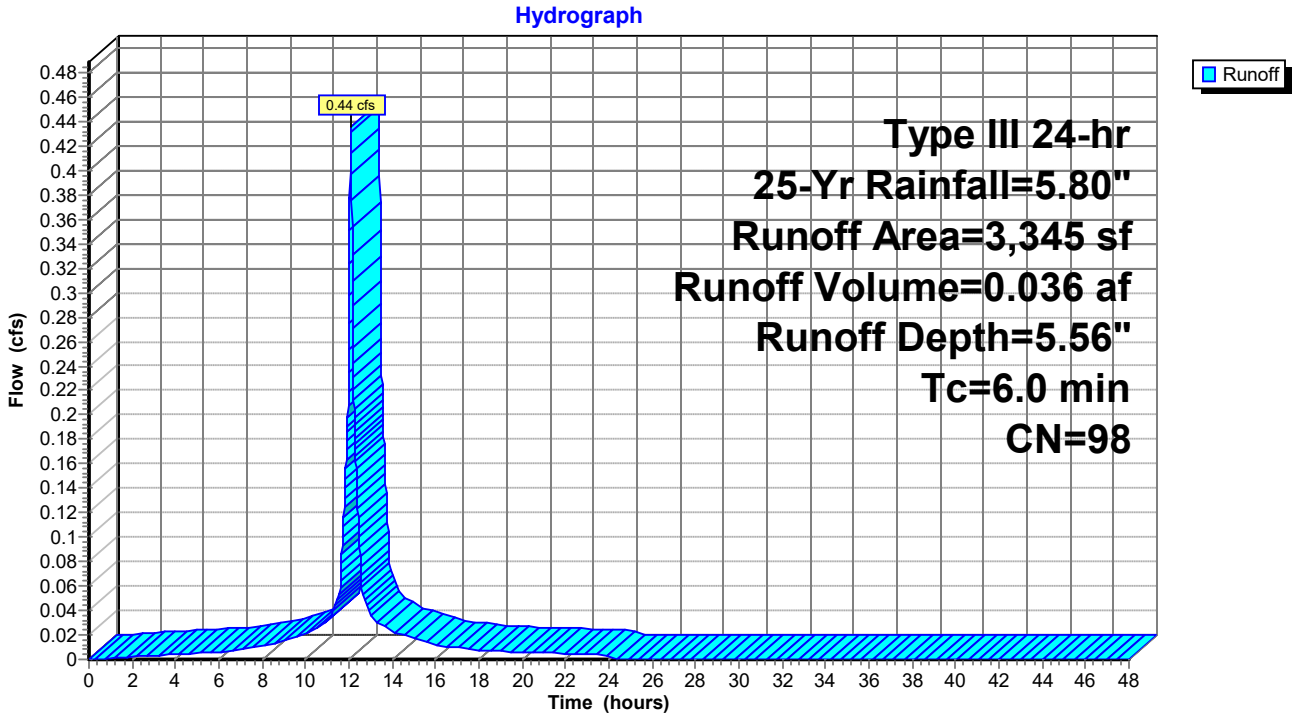
Runoff = 0.44 cfs @ 12.08 hrs, Volume= 0.036 af, Depth= 5.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Yr Rainfall=5.80"

Area (sf)	CN	Description
3,345	98	Paved parking, HSG A
3,345		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 4S: Area to PP2



Summary for Subcatchment 5S: Area to Rain Garden East

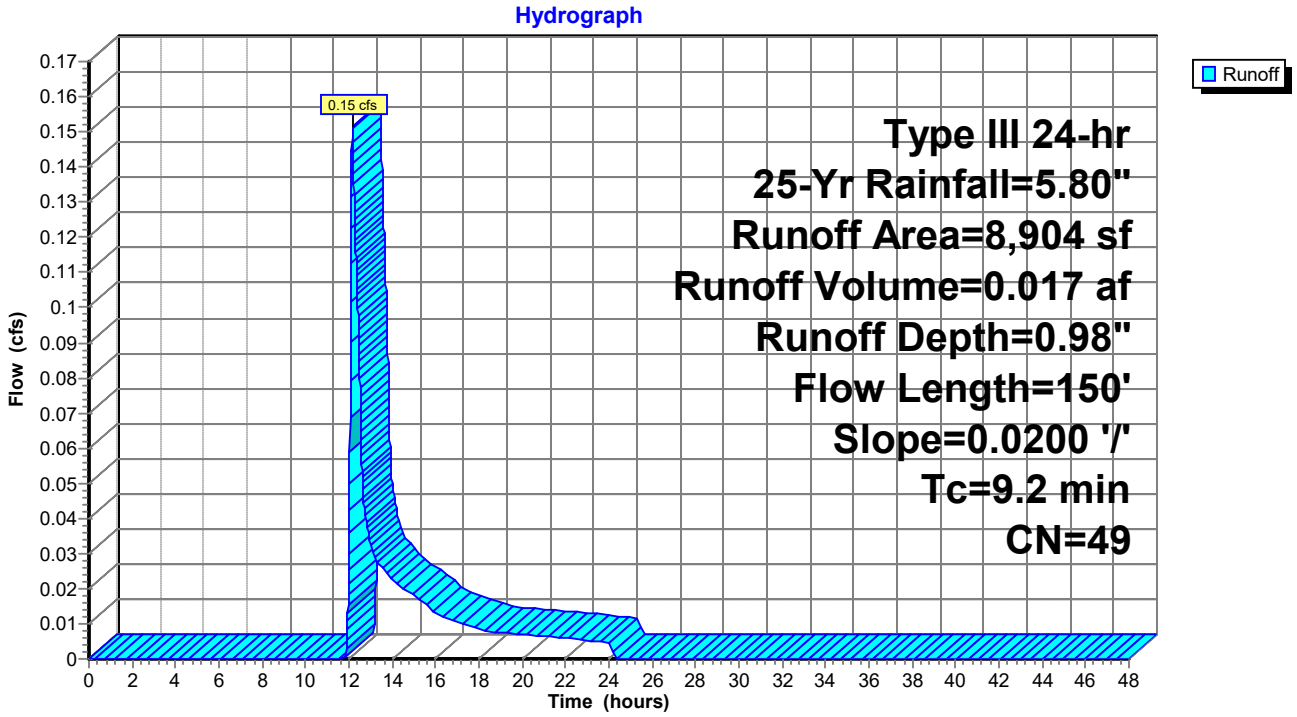
Runoff = 0.15 cfs @ 12.16 hrs, Volume= 0.017 af, Depth= 0.98"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Yr Rainfall=5.80"

	Area (sf)	CN	Description
*	1,555	98	
	7,349	39	>75% Grass cover, Good, HSG A
	8,904	49	Weighted Average
	7,349		82.54% Pervious Area
	1,555		17.46% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.9	75	0.0200	0.16		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.10"
1.3	75	0.0200	0.99		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
9.2	150	Total			

Subcatchment 5S: Area to Rain Garden East



Summary for Subcatchment 6S: Bldg 1 Roof

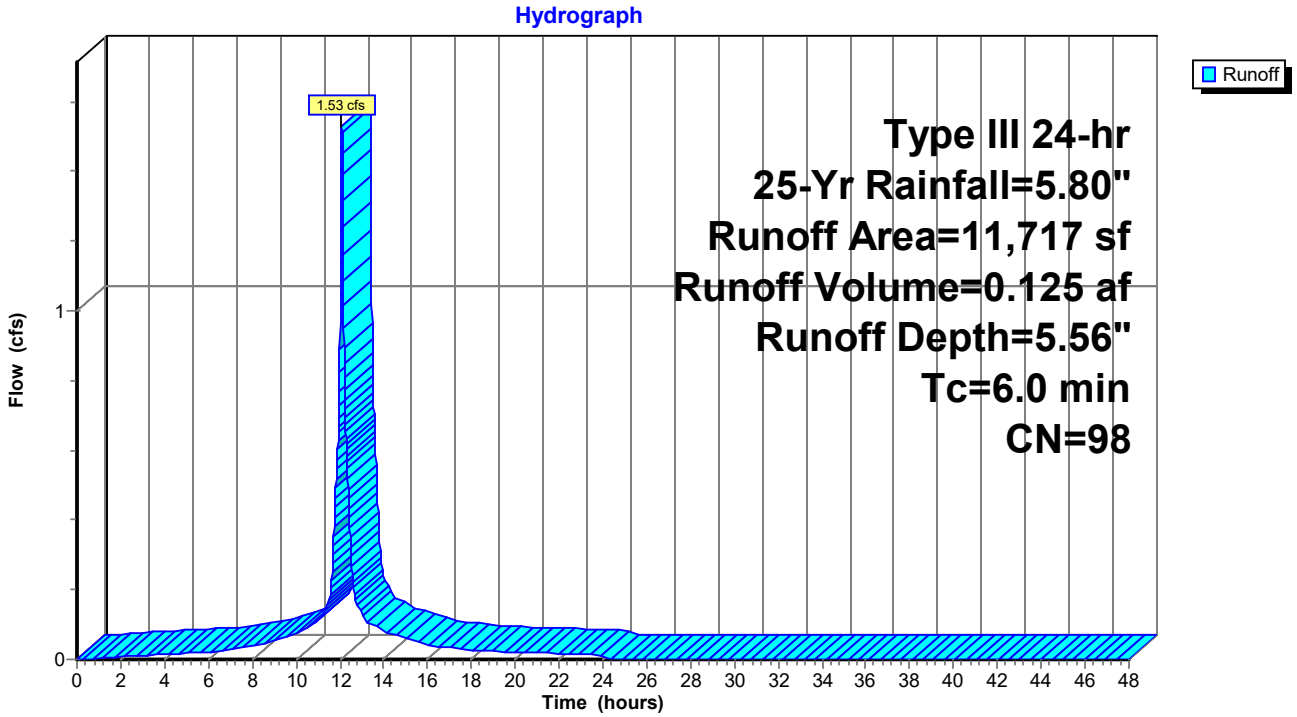
Runoff = 1.53 cfs @ 12.08 hrs, Volume= 0.125 af, Depth= 5.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Yr Rainfall=5.80"

Area (sf)	CN	Description
11,717	98	Roofs, HSG A
11,717		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 6S: Bldg 1 Roof



Summary for Subcatchment 7S: Area to Rain Garden West

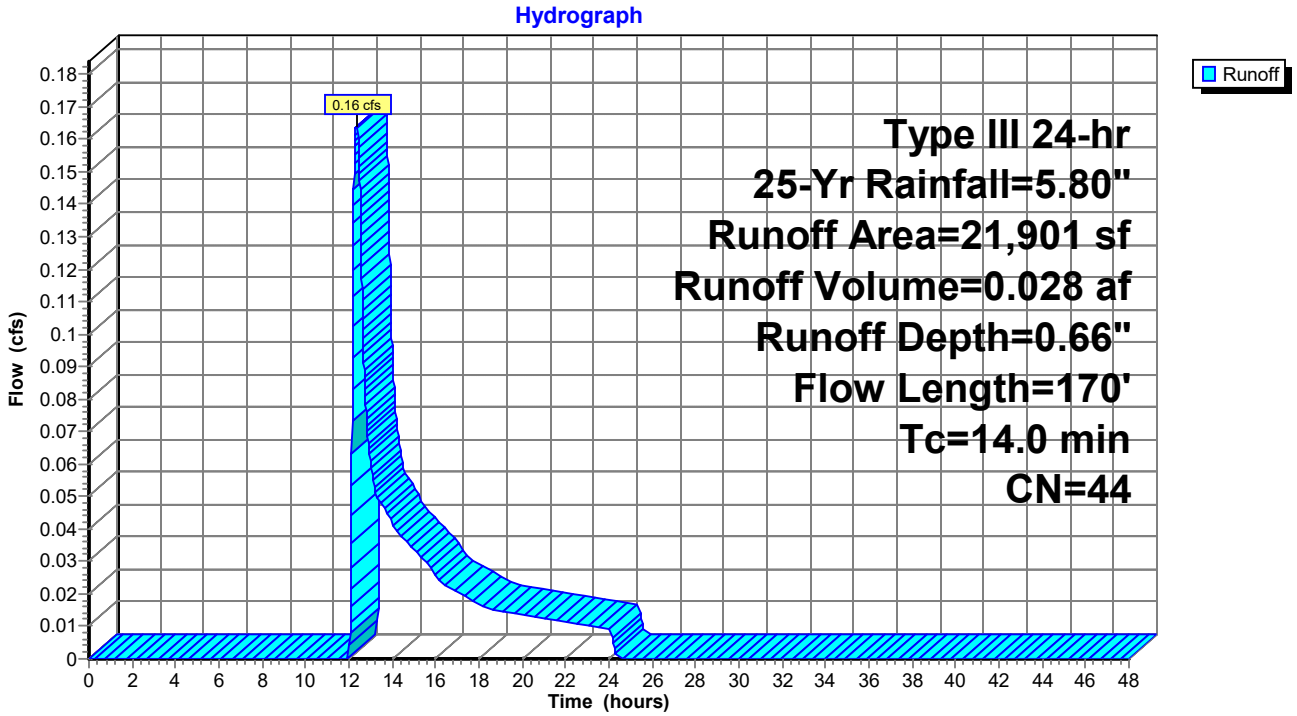
Runoff = 0.16 cfs @ 12.36 hrs, Volume= 0.028 af, Depth= 0.66"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Yr Rainfall=5.80"

Area (sf)	CN	Description
1,750	98	Paved parking, HSG A
20,151	39	>75% Grass cover, Good, HSG A
21,901	44	Weighted Average
20,151		92.01% Pervious Area
1,750		7.99% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.8	150	0.0200	0.18		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.10"
0.2	20	0.0600	1.71		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
14.0	170	Total			

Subcatchment 7S: Area to Rain Garden West



Summary for Subcatchment 9S: Area 4

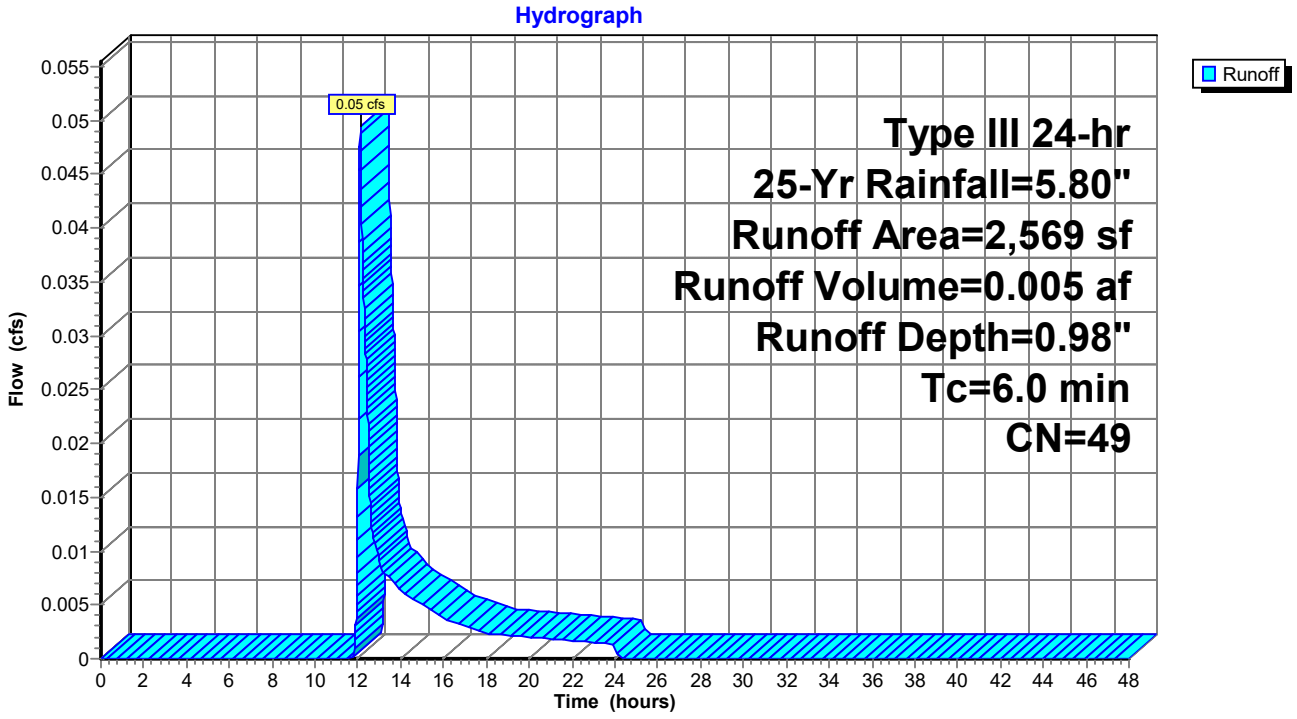
Runoff = 0.05 cfs @ 12.11 hrs, Volume= 0.005 af, Depth= 0.98"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Yr Rainfall=5.80"

Area (sf)	CN	Description
445	98	Paved parking, HSG A
2,124	39	>75% Grass cover, Good, HSG A
2,569	49	Weighted Average
2,124		82.68% Pervious Area
445		17.32% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 9S: Area 4



Summary for Subcatchment 10S:

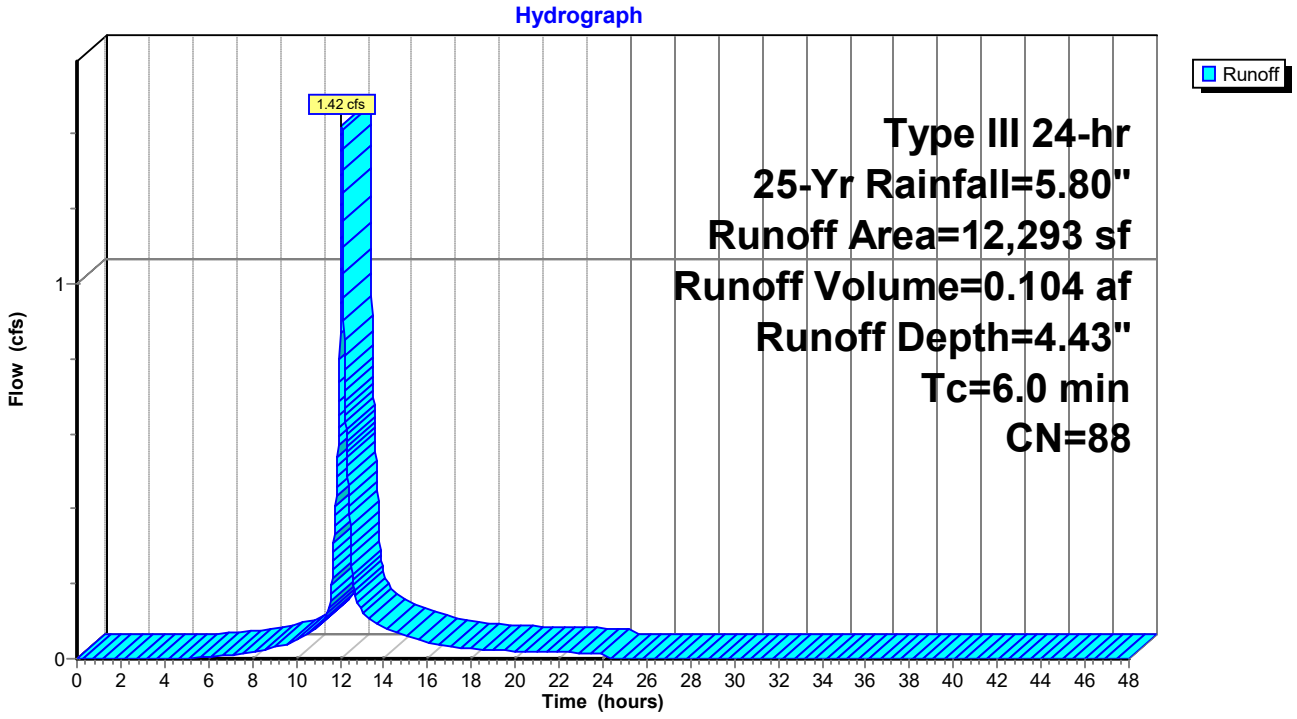
Runoff = 1.42 cfs @ 12.09 hrs, Volume= 0.104 af, Depth= 4.43"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Yr Rainfall=5.80"

Area (sf)	CN	Description
10,120	98	Paved parking & roofs
2,173	39	>75% Grass cover, Good, HSG A
12,293	88	Weighted Average
2,173		17.68% Pervious Area
10,120		82.32% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum Tc**

Subcatchment 10S:



Summary for Subcatchment 11S: Area to Rain Garden 2

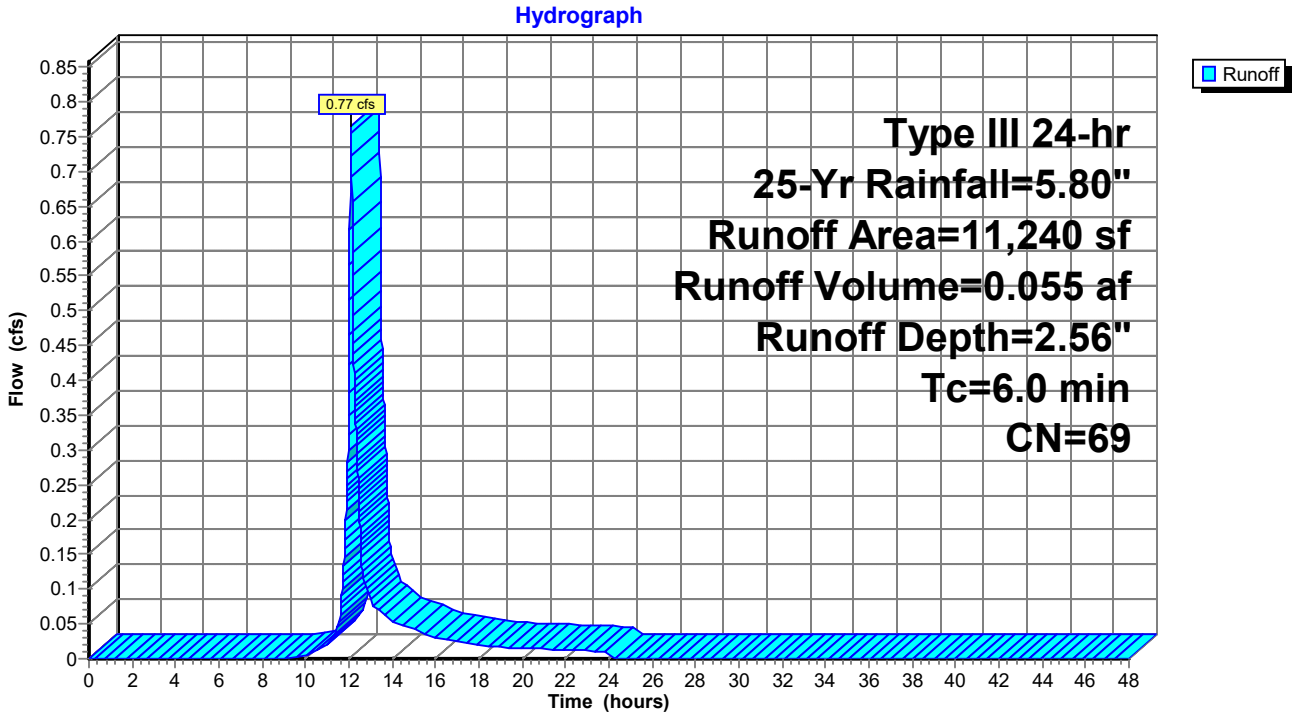
Runoff = 0.77 cfs @ 12.09 hrs, Volume= 0.055 af, Depth= 2.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Yr Rainfall=5.80"

Area (sf)	CN	Description
5,795	98	Paved parking & roofs
5,445	39	>75% Grass cover, Good, HSG A
11,240	69	Weighted Average
5,445		48.44% Pervious Area
5,795		51.56% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum Tc**

Subcatchment 11S: Area to Rain Garden 2



Summary for Subcatchment 12S: Area to Rain Garden 1

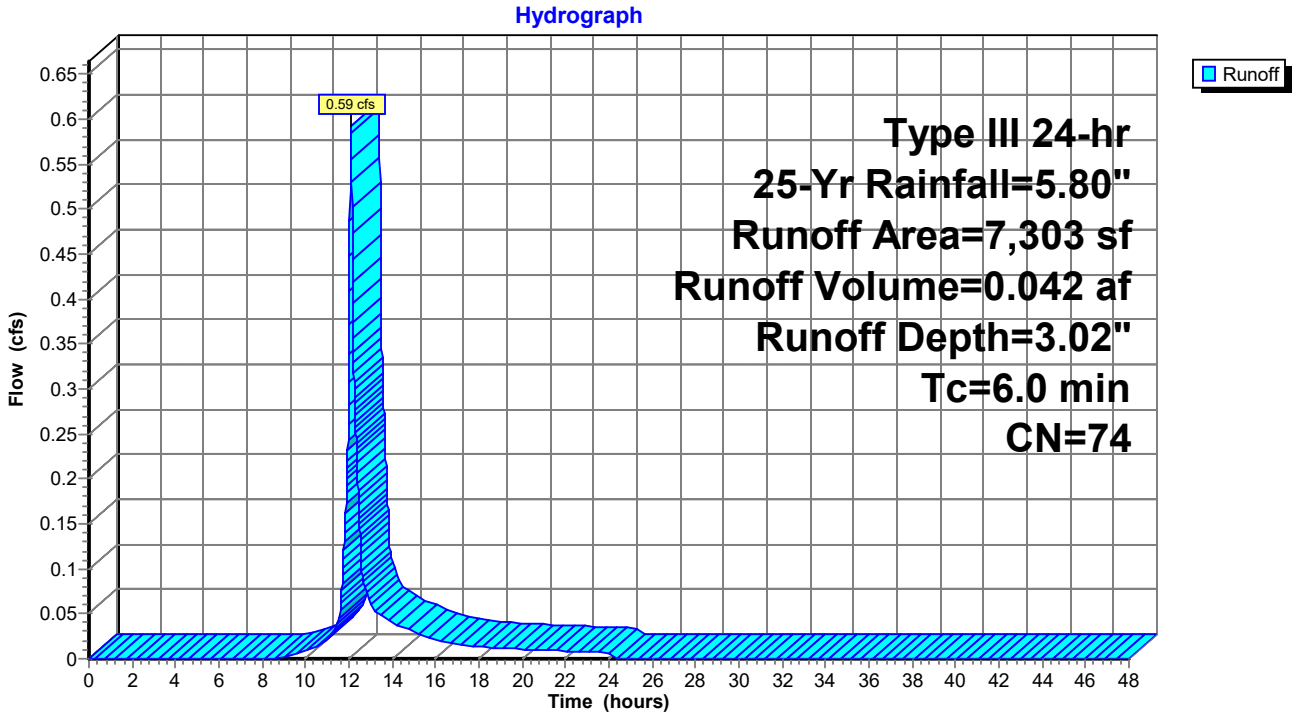
Runoff = 0.59 cfs @ 12.09 hrs, Volume= 0.042 af, Depth= 3.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Yr Rainfall=5.80"

Area (sf)	CN	Description
4,299	98	Paved parking & roofs
3,004	39	>75% Grass cover, Good, HSG A
7,303	74	Weighted Average
3,004		41.13% Pervious Area
4,299		58.87% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum Tc**

Subcatchment 12S: Area to Rain Garden 1



Summary for Subcatchment 13S: Area to Infiltration Trench

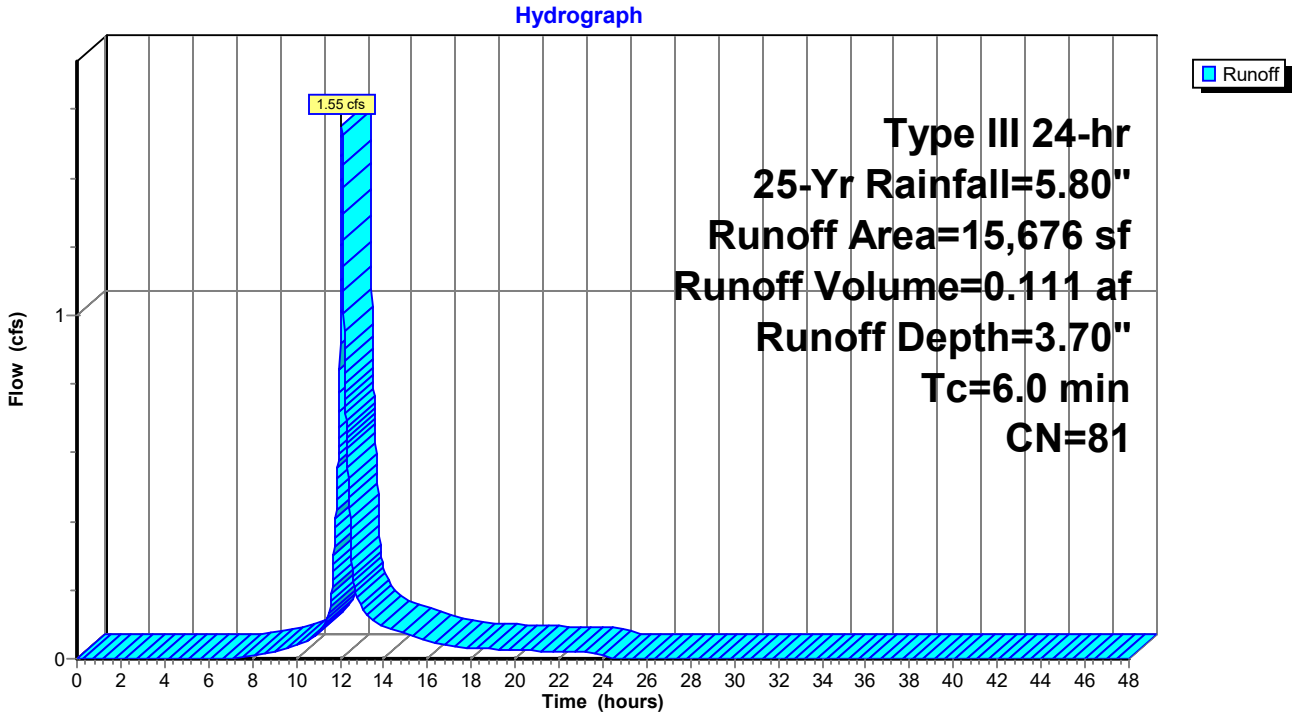
Runoff = 1.55 cfs @ 12.09 hrs, Volume= 0.111 af, Depth= 3.70"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Yr Rainfall=5.80"

Area (sf)	CN	Description
11,224	98	Paved parking & roofs
4,452	39	>75% Grass cover, Good, HSG A
15,676	81	Weighted Average
4,452		28.40% Pervious Area
11,224		71.60% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum Tc**

Subcatchment 13S: Area to Infiltration Trench



Summary for Subcatchment 14S: Roof Area to Drip Strip 4

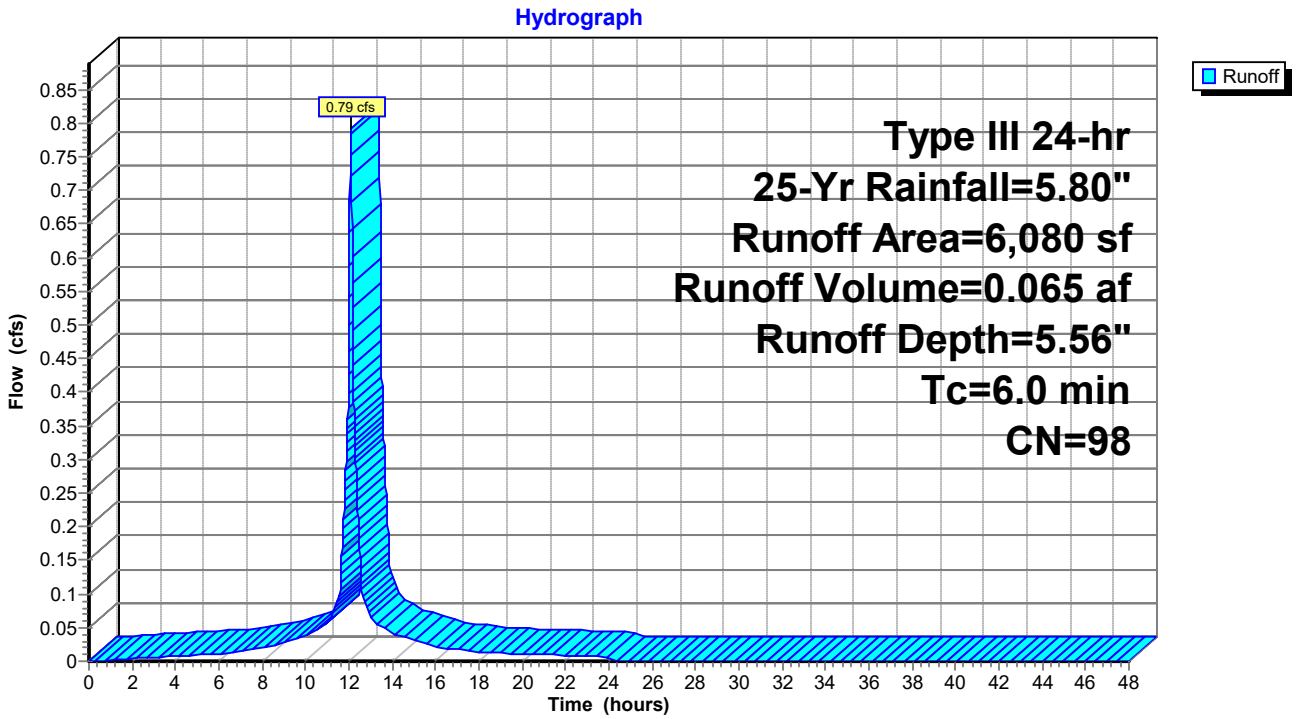
Runoff = 0.79 cfs @ 12.08 hrs, Volume= 0.065 af, Depth= 5.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Yr Rainfall=5.80"

	Area (sf)	CN	Description
*	6,080	98	Roofs
*	0	76	Drip stone, HSG A
	6,080	98	Weighted Average
	6,080		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum Tc**

Subcatchment 14S: Roof Area to Drip Strip 4



Summary for Subcatchment 15S: Roof Area to Drip Strip 1

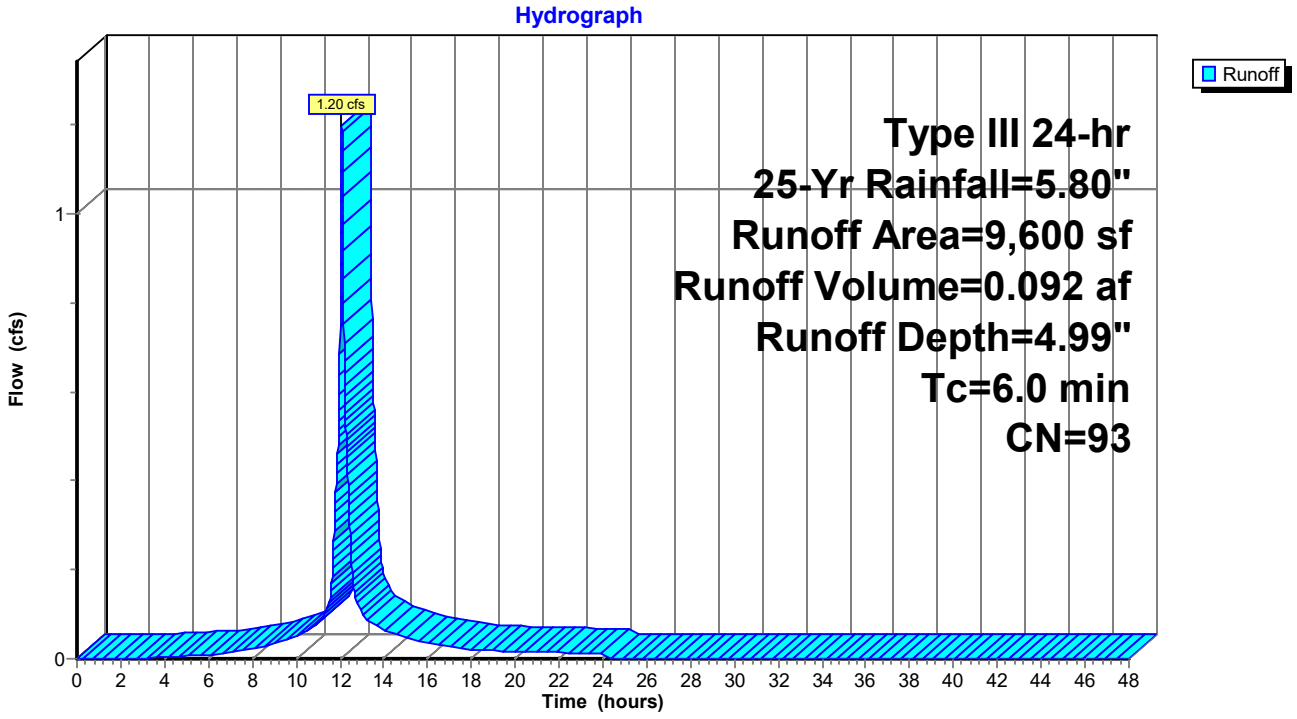
Runoff = 1.20 cfs @ 12.08 hrs, Volume= 0.092 af, Depth= 4.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Yr Rainfall=5.80"

	Area (sf)	CN	Description
*	7,600	98	Roofs
*	2,000	76	Drip stone, HSG A
	9,600	93	Weighted Average
	2,000		20.83% Pervious Area
	7,600		79.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum Tc**

Subcatchment 15S: Roof Area to Drip Strip 1



Summary for Subcatchment 16S: Roof Area to Drip Strip 2

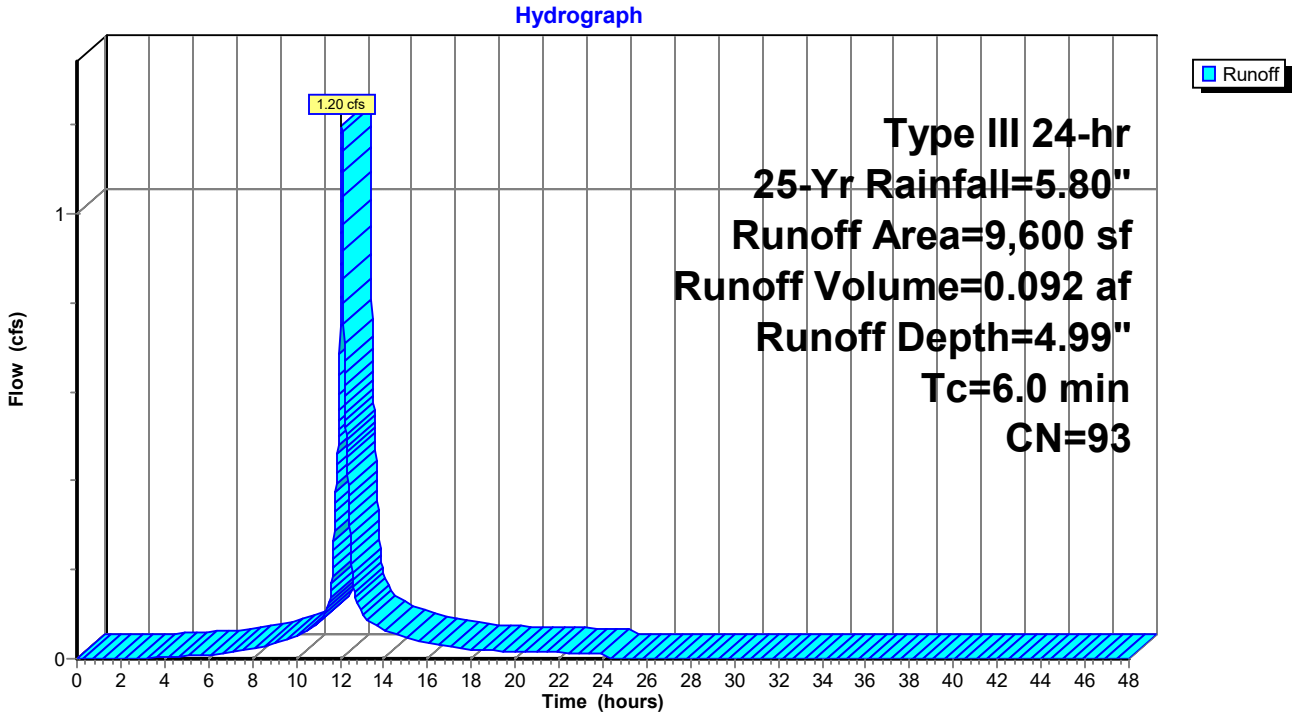
Runoff = 1.20 cfs @ 12.08 hrs, Volume= 0.092 af, Depth= 4.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Yr Rainfall=5.80"

	Area (sf)	CN	Description
*	7,600	98	Roofs
*	2,000	76	Drip stone, HSG A
	9,600	93	Weighted Average
	2,000		20.83% Pervious Area
	7,600		79.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum Tc**

Subcatchment 16S: Roof Area to Drip Strip 2



Summary for Subcatchment 17S: Roof Area to Drip Strip 3

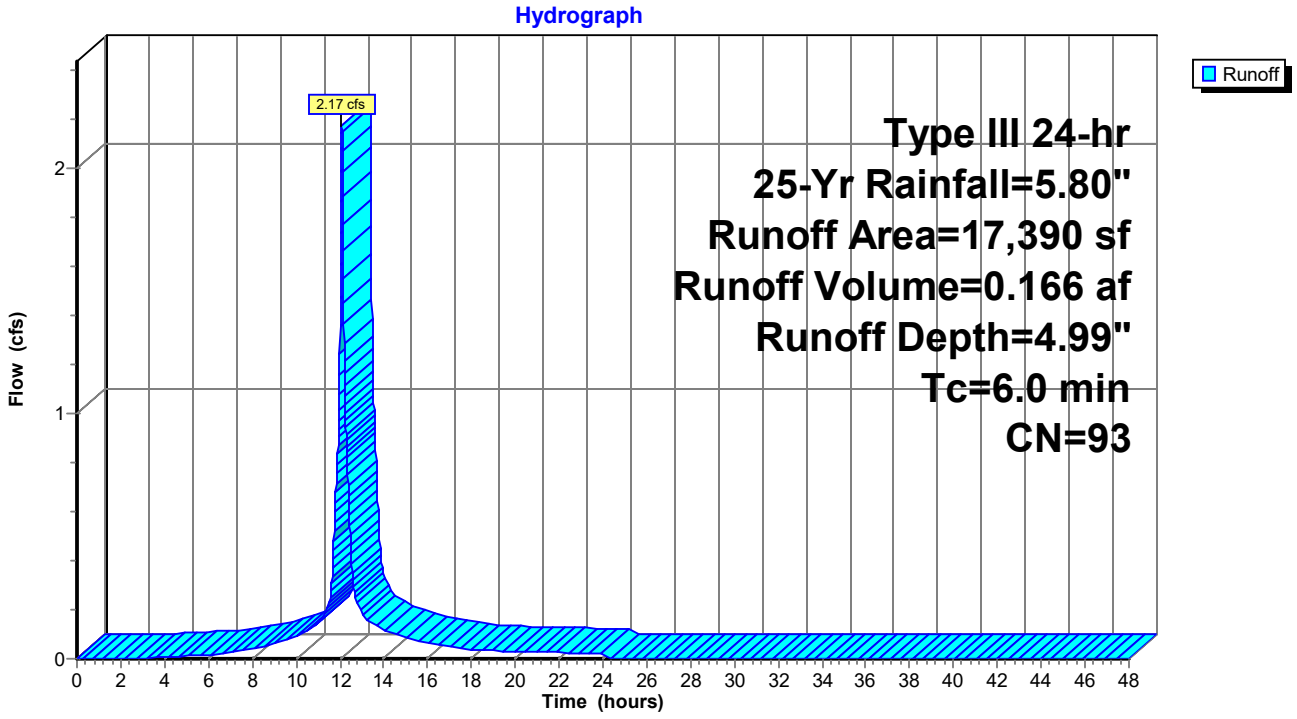
Runoff = 2.17 cfs @ 12.08 hrs, Volume= 0.166 af, Depth= 4.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Yr Rainfall=5.80"

	Area (sf)	CN	Description
*	13,270	98	Roofs
*	4,120	76	Drip stone, HSG A
	17,390	93	Weighted Average
	4,120		23.69% Pervious Area
	13,270		76.31% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum Tc**

Subcatchment 17S: Roof Area to Drip Strip 3



Summary for Subcatchment 18S: North of Mother House

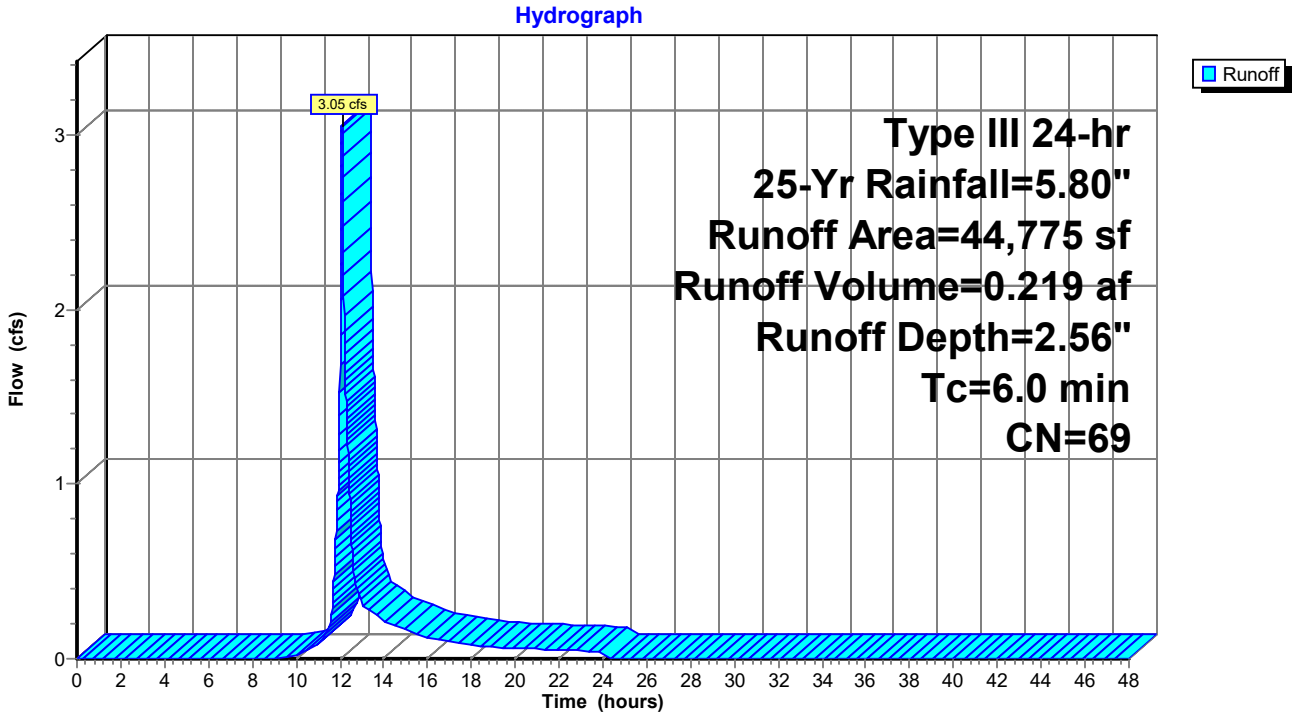
Runoff = 3.05 cfs @ 12.09 hrs, Volume= 0.219 af, Depth= 2.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Yr Rainfall=5.80"

Area (sf)	CN	Description
21,975	39	>75% Grass cover, Good, HSG A
22,800	98	Paved parking, HSG A
44,775	69	Weighted Average
21,975		49.08% Pervious Area
22,800		50.92% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 18S: North of Mother House



Summary for Subcatchment 19A: St. Joseph's

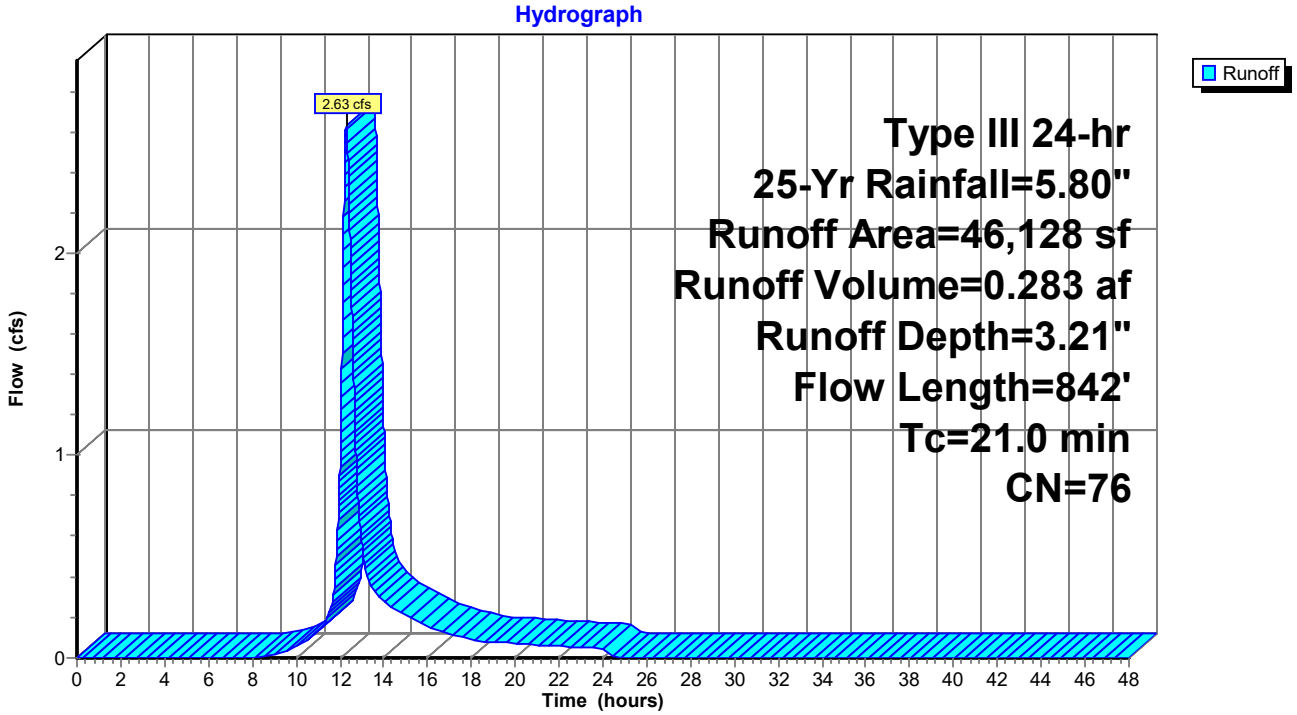
Runoff = 2.63 cfs @ 12.29 hrs, Volume= 0.283 af, Depth= 3.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Yr Rainfall=5.80"

Area (sf)	CN	Description
18,644	98	Paved parking, HSG A
10,071	39	>75% Grass cover, Good, HSG A
17,413	74	>75% Grass cover, Good, HSG C
46,128	76	Weighted Average
27,484		59.58% Pervious Area
18,644		40.42% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.6	122	0.0160	0.11		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.10"
2.4	720	0.0100	4.91	3.86	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Corrugated PP, smooth interior
21.0	842	Total			

Subcatchment 19A: St. Joseph's



Summary for Subcatchment 19B: Area to North FD

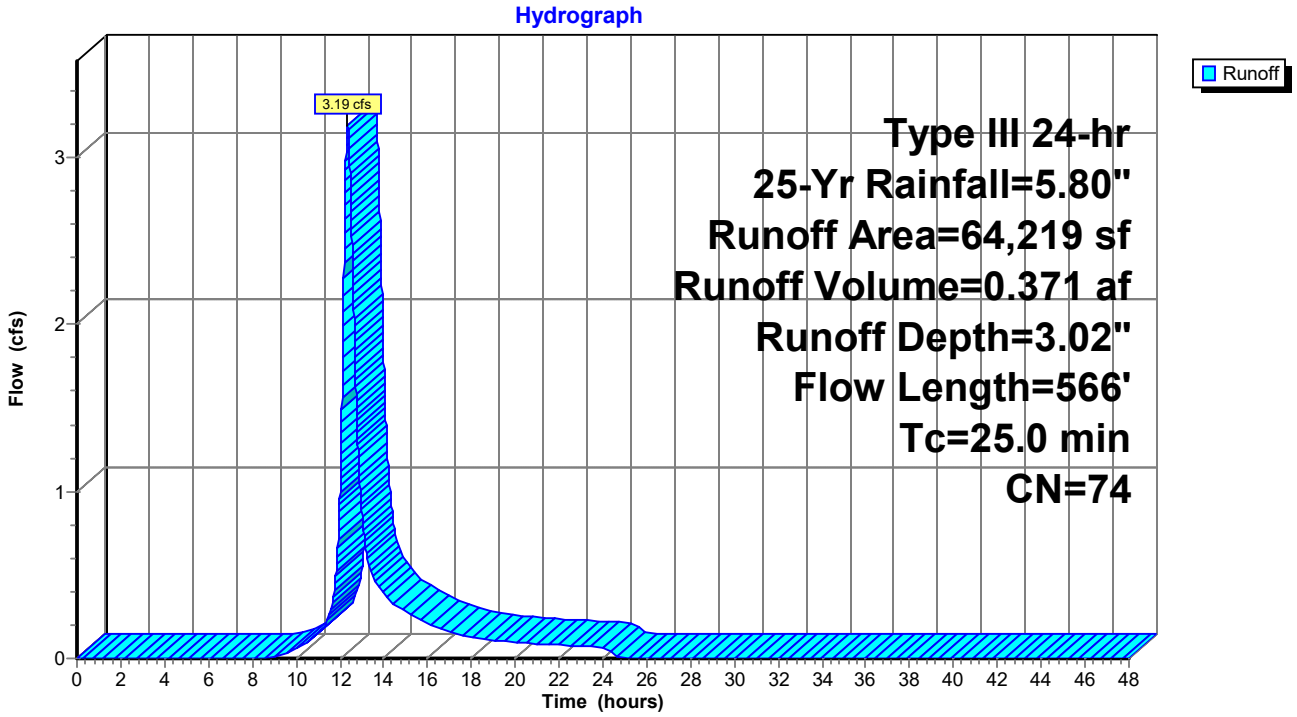
Runoff = 3.19 cfs @ 12.36 hrs, Volume= 0.371 af, Depth= 3.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Yr Rainfall=5.80"

Area (sf)	CN	Description
63,459	74	>75% Grass cover, Good, HSG C
760	98	Paved parking, HSG A
64,219	74	Weighted Average
63,459		98.82% Pervious Area
760		1.18% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.5	150	0.0150	0.11		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.10"
1.8	94	0.0150	0.86		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.1	80	0.0650	12.53	9.84	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Corrugated PP, smooth interior
0.6	242	0.0200	6.95	5.46	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Corrugated PP, smooth interior
25.0	566	Total			

Subcatchment 19B: Area to North FD



Summary for Subcatchment 19C: Area to North FD

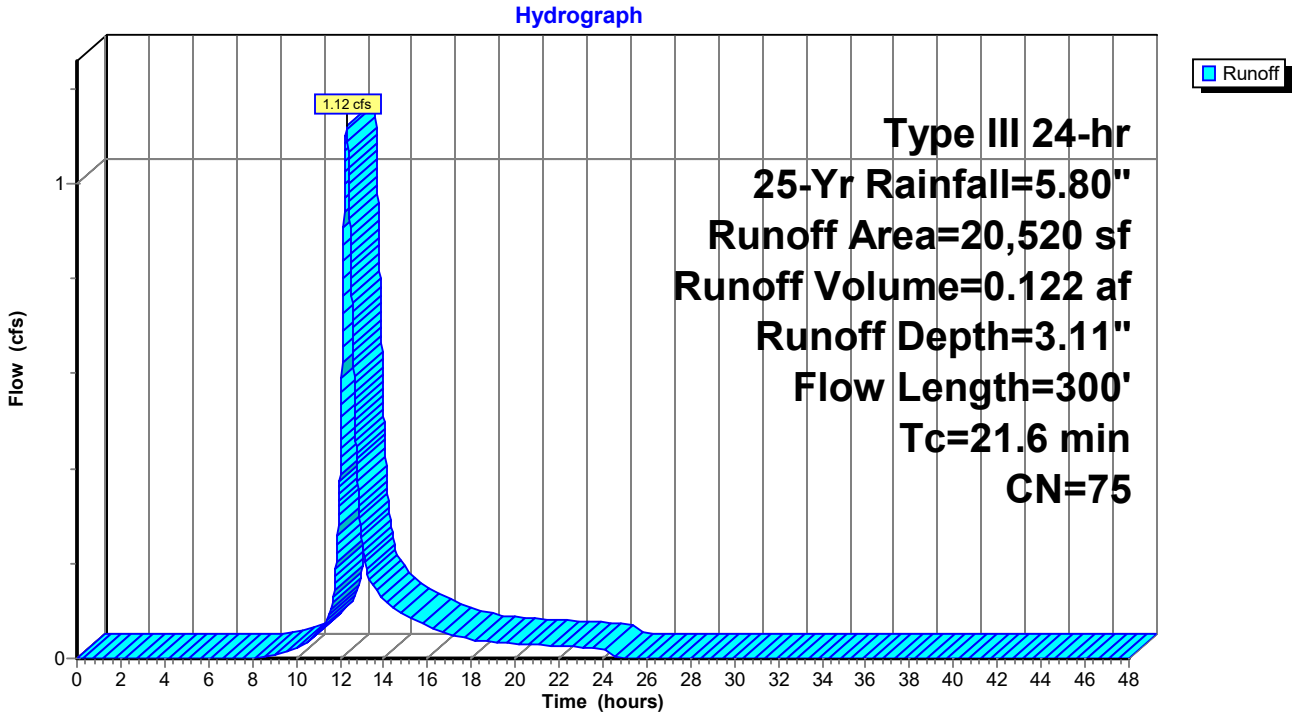
Runoff = 1.12 cfs @ 12.31 hrs, Volume= 0.122 af, Depth= 3.11"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Yr Rainfall=5.80"

Area (sf)	CN	Description
15,128	74	>75% Grass cover, Good, HSG C
5,392	77	Woods, Good, HSG D
20,520	75	Weighted Average
20,520		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.4	125	0.0150	0.11		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.10"
0.2	40	0.3300	2.87		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.0	135	0.0500	1.12		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
21.6	300	Total			

Subcatchment 19C: Area to North FD



Summary for Subcatchment 20S:

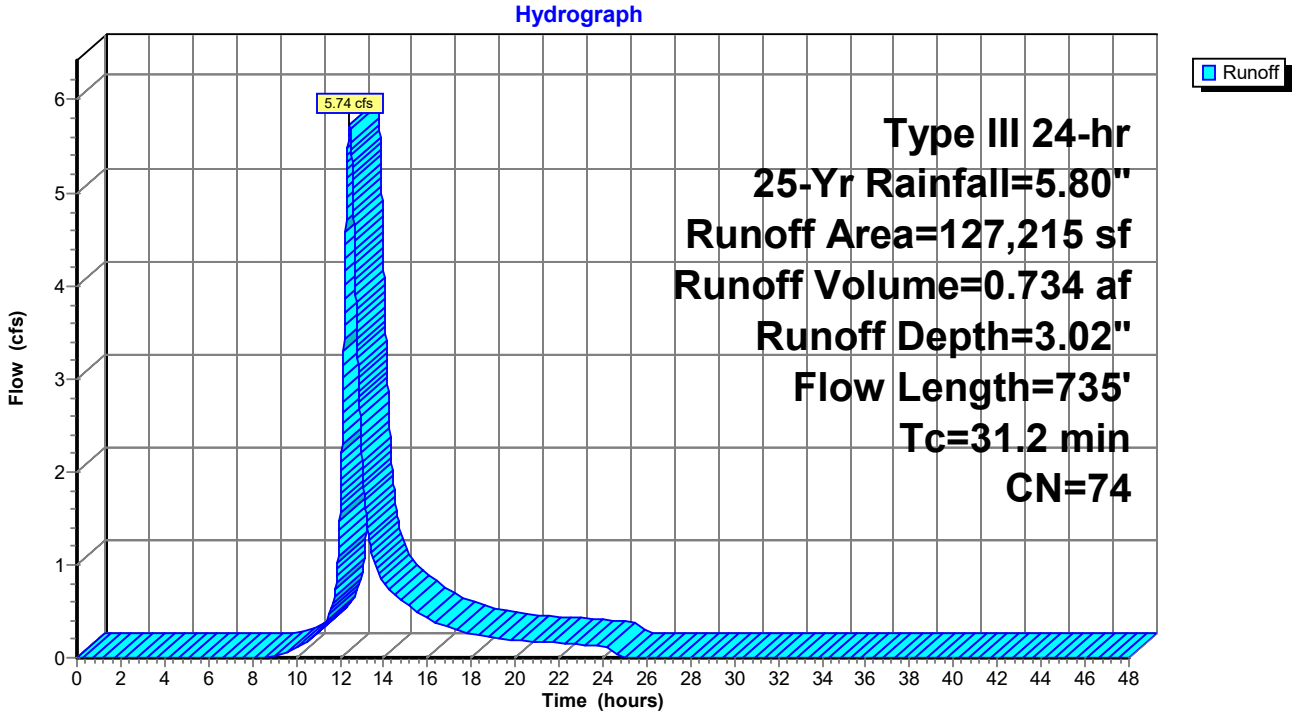
Runoff = 5.74 cfs @ 12.44 hrs, Volume= 0.734 af, Depth= 3.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Yr Rainfall=5.80"

Area (sf)	CN	Description
9,282	77	Woods, Good, HSG D
117,933	74	>75% Grass cover, Good, HSG C
127,215	74	Weighted Average
127,215		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
23.8	150	0.0130	0.10		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.10"
3.7	110	0.0050	0.49		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.6	265	0.0200	6.95	5.46	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Corrugated PP, smooth interior
3.1	210	0.0500	1.12		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
31.2	735	Total			

Subcatchment 20S:



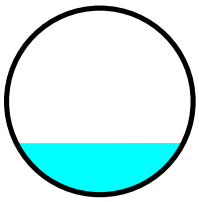
Summary for Reach 1R: 8" SD

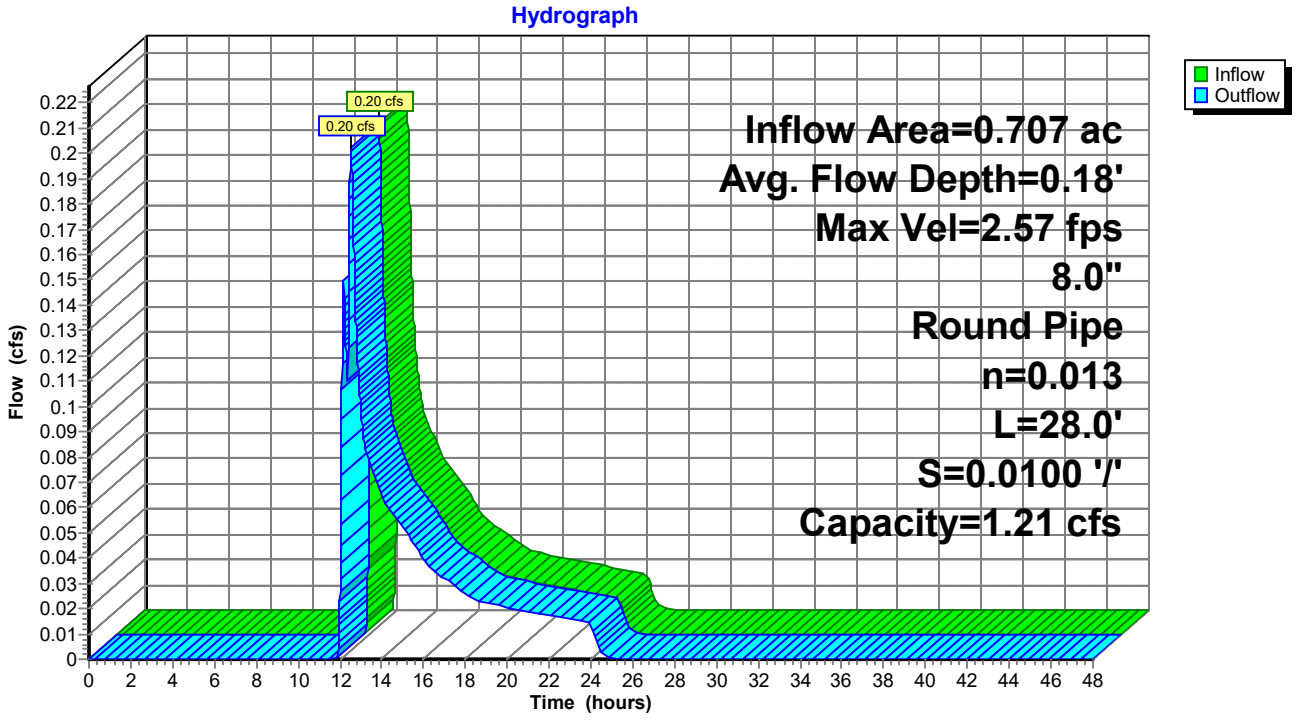
Inflow Area = 0.707 ac, 10.73% Impervious, Inflow Depth = 0.70" for 25-Yr event
Inflow = 0.20 cfs @ 12.52 hrs, Volume= 0.041 af
Outflow = 0.20 cfs @ 12.52 hrs, Volume= 0.041 af, Atten= 0%, Lag= 0.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.57 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 1.40 fps, Avg. Travel Time= 0.3 min

Peak Storage= 2 cf @ 12.52 hrs
Average Depth at Peak Storage= 0.18' , Surface Width= 0.60'
Bank-Full Depth= 0.67' Flow Area= 0.3 sf, Capacity= 1.21 cfs

8.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 28.0' Slope= 0.0100 '/'
Inlet Invert= 115.15', Outlet Invert= 114.87'



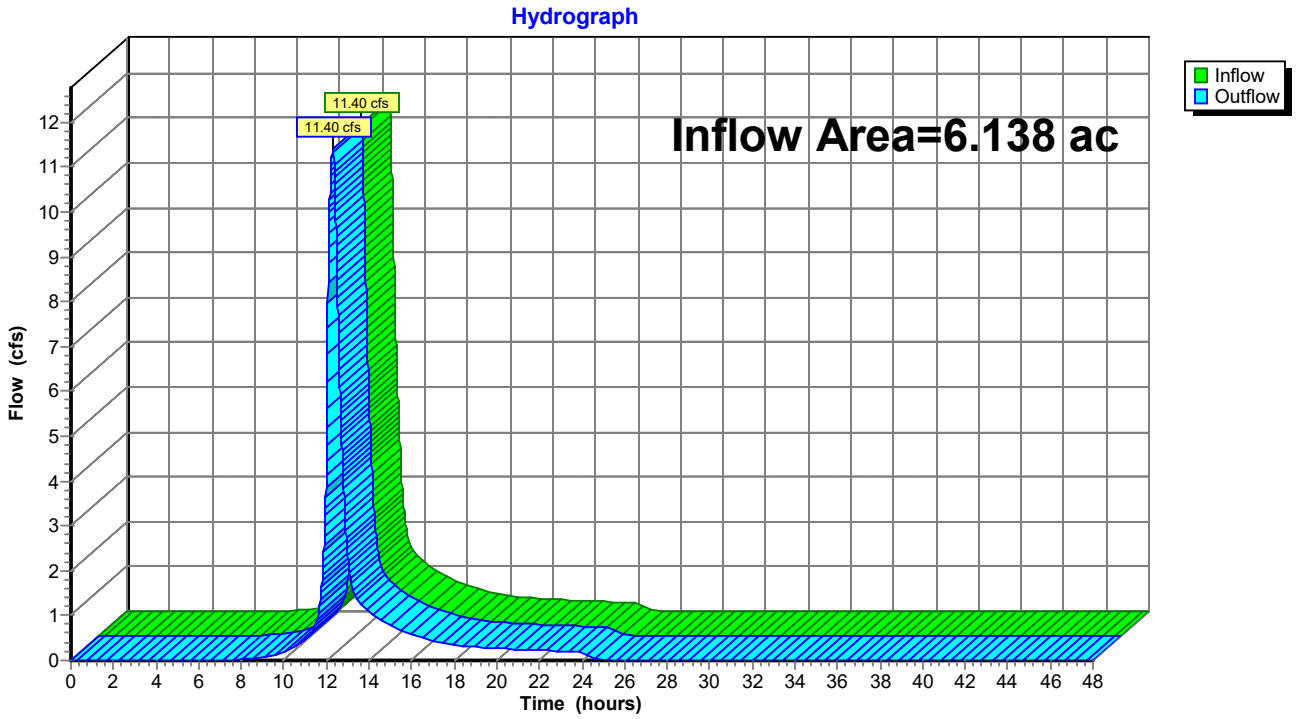


Summary for Reach 2R: POI 2

Inflow Area = 6.138 ac, 40.63% Impervious, Inflow Depth = 2.33" for 25-Yr event
Inflow = 11.40 cfs @ 12.29 hrs, Volume= 1.194 af
Outflow = 11.40 cfs @ 12.29 hrs, Volume= 1.194 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Reach 2R: POI 2

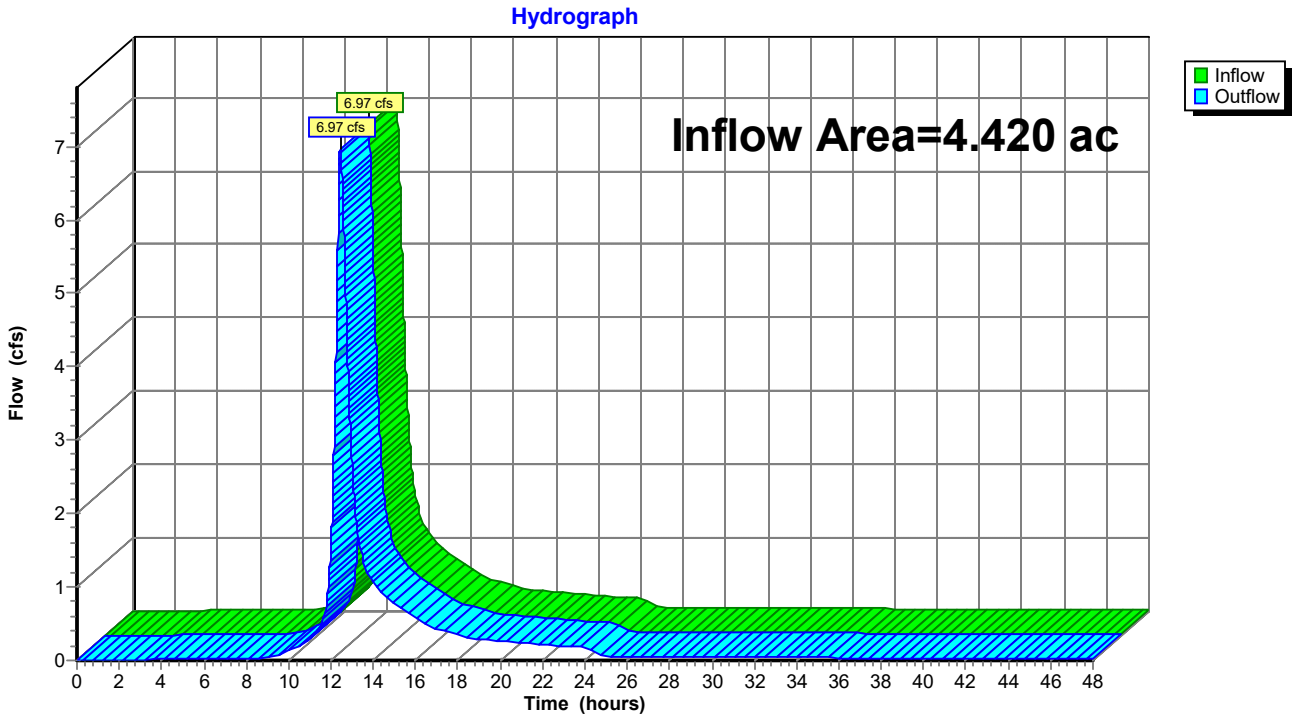


Summary for Reach 3R: POI 1

Inflow Area = 4.420 ac, 12.39% Impervious, Inflow Depth > 2.66" for 25-Yr event
Inflow = 6.97 cfs @ 12.44 hrs, Volume= 0.978 af
Outflow = 6.97 cfs @ 12.44 hrs, Volume= 0.978 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Reach 3R: POI 1



Summary for Reach 4R: Wetland to POI 2

Inflow Area = 5.667 ac, 44.01% Impervious, Inflow Depth = 2.27" for 25-Yr event
Inflow = 10.29 cfs @ 12.27 hrs, Volume= 1.072 af
Outflow = 10.28 cfs @ 12.29 hrs, Volume= 1.072 af, Atten= 0%, Lag= 1.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.76 fps, Min. Travel Time= 0.6 min
Avg. Velocity = 0.91 fps, Avg. Travel Time= 2.7 min

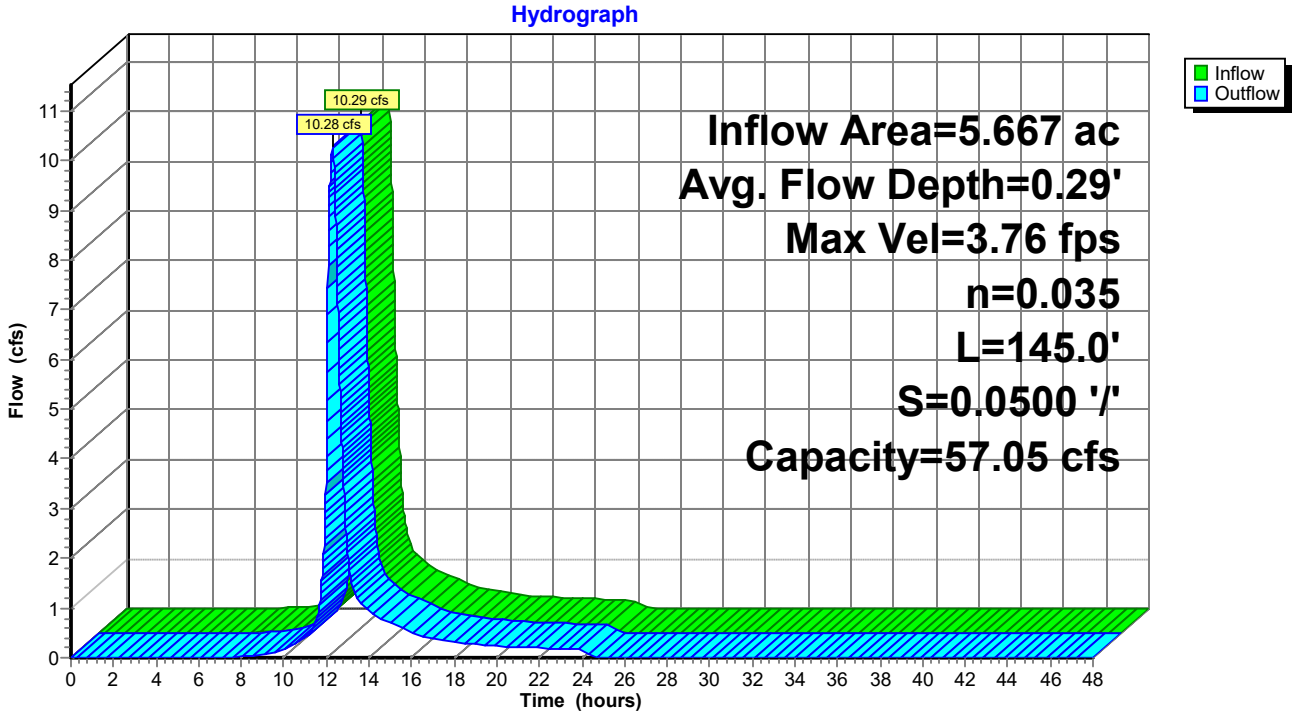
Peak Storage= 396 cf @ 12.28 hrs
Average Depth at Peak Storage= 0.29' , Surface Width= 10.89'
Bank-Full Depth= 0.75' Flow Area= 8.8 sf, Capacity= 57.05 cfs

8.00' x 0.75' deep channel, n= 0.035 Earth, dense weeds
Side Slope Z-value= 5.0 '/' Top Width= 15.50'
Length= 145.0' Slope= 0.0500 '/'
Inlet Invert= 102.89', Outlet Invert= 95.64'



‡

Reach 4R: Wetland to POI 2



Summary for Reach 6R: Wetland to POI 1

Inflow Area = 1.500 ac, 36.53% Impervious, Inflow Depth > 1.95" for 25-Yr event
Inflow = 1.26 cfs @ 12.37 hrs, Volume= 0.244 af
Outflow = 1.23 cfs @ 12.43 hrs, Volume= 0.244 af, Atten= 2%, Lag= 3.9 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 1.76 fps, Min. Travel Time= 2.0 min
Avg. Velocity = 0.51 fps, Avg. Travel Time= 6.9 min

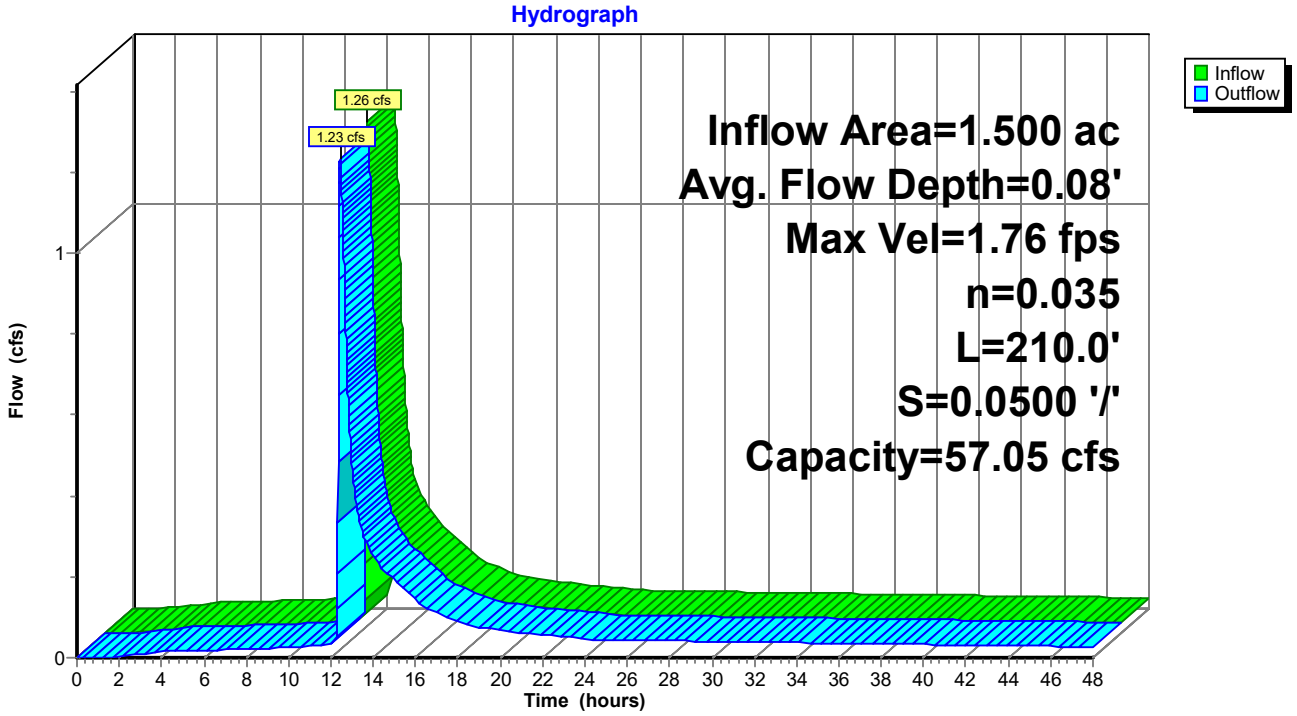
Peak Storage= 148 cf @ 12.40 hrs
Average Depth at Peak Storage= 0.08' , Surface Width= 8.84'
Bank-Full Depth= 0.75' Flow Area= 8.8 sf, Capacity= 57.05 cfs

8.00' x 0.75' deep channel, n= 0.035 Earth, dense weeds
Side Slope Z-value= 5.0 '/' Top Width= 15.50'
Length= 210.0' Slope= 0.0500 '/'
Inlet Invert= 107.32', Outlet Invert= 96.82'



‡

Reach 6R: Wetland to POI 1



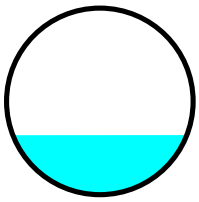
Summary for Reach 11R: 8" UD

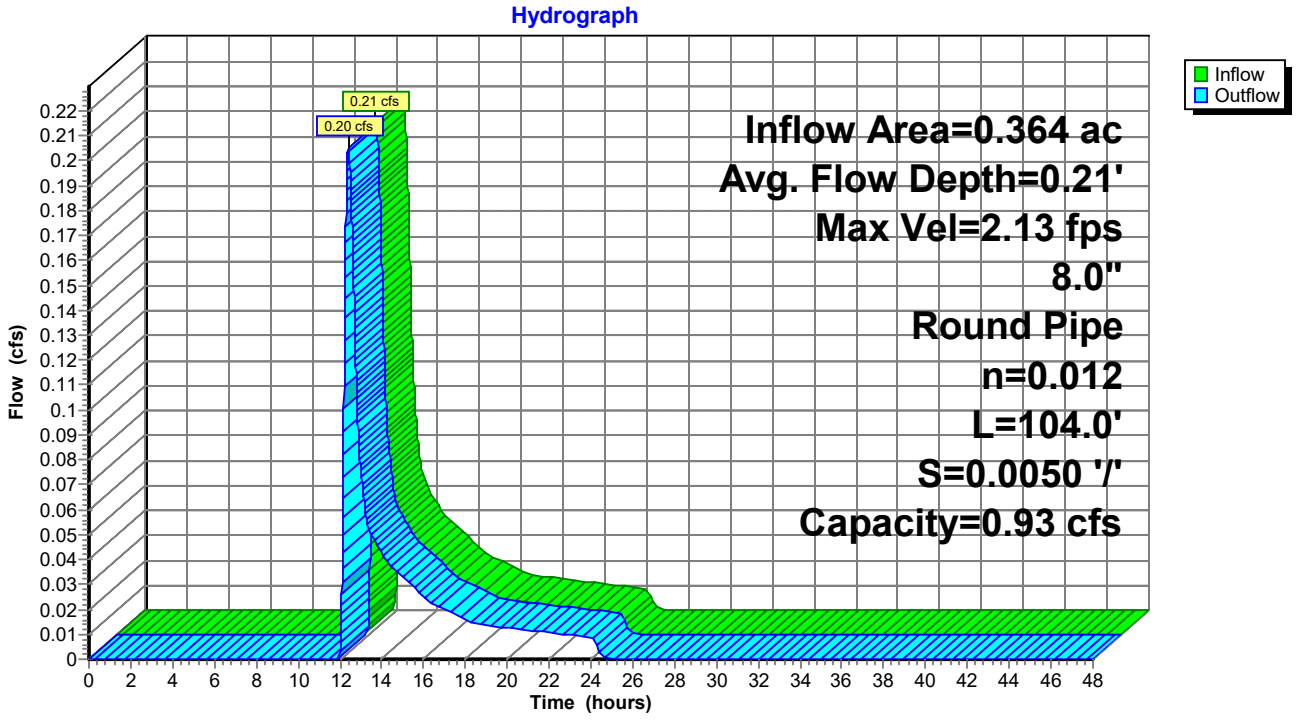
Inflow Area = 0.364 ac, 17.16% Impervious, Inflow Depth = 0.98" for 25-Yr event
Inflow = 0.21 cfs @ 12.37 hrs, Volume= 0.030 af
Outflow = 0.20 cfs @ 12.40 hrs, Volume= 0.030 af, Atten= 0%, Lag= 1.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.13 fps, Min. Travel Time= 0.8 min
Avg. Velocity = 1.05 fps, Avg. Travel Time= 1.7 min

Peak Storage= 10 cf @ 12.38 hrs
Average Depth at Peak Storage= 0.21' , Surface Width= 0.62'
Bank-Full Depth= 0.67' Flow Area= 0.3 sf, Capacity= 0.93 cfs

8.0" Round Pipe
n= 0.012 Corrugated PP, smooth interior
Length= 104.0' Slope= 0.0050 '/'
Inlet Invert= 116.28', Outlet Invert= 115.76'





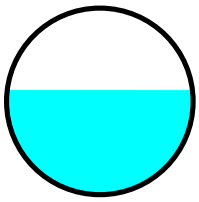
Summary for Reach 12R: 8" SD

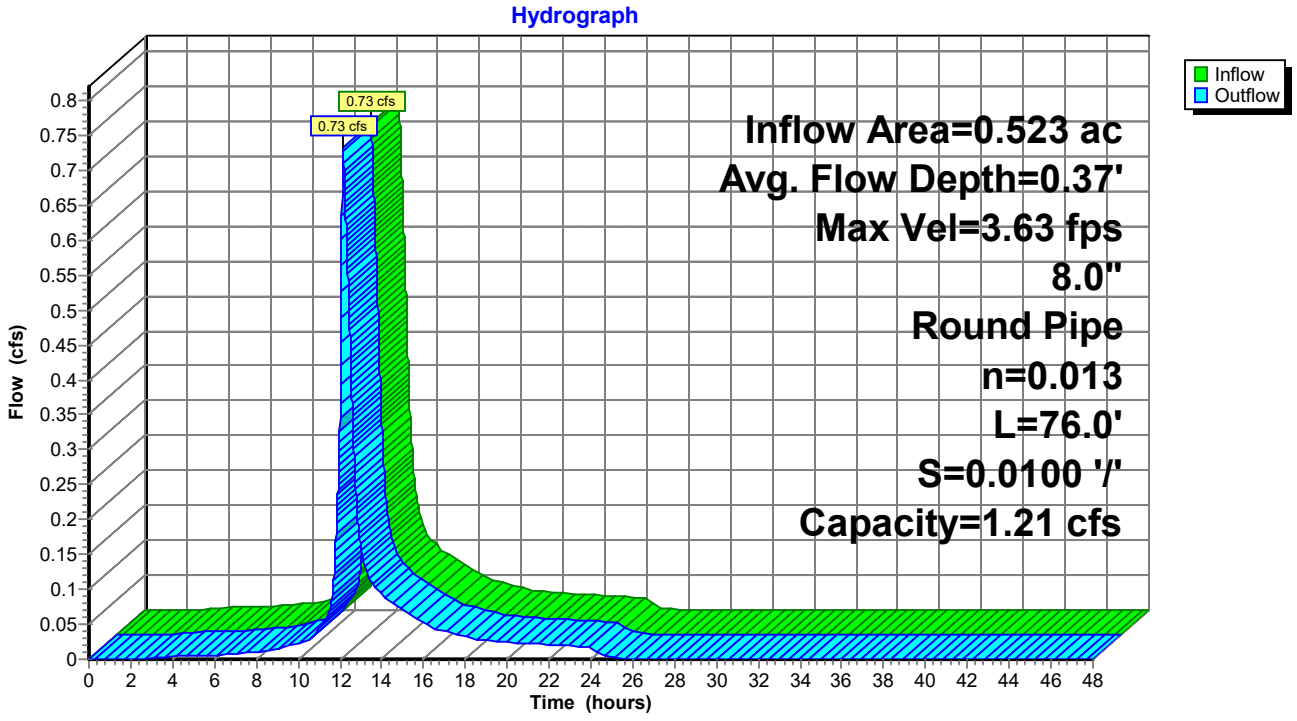
Inflow Area = 0.523 ac, 38.77% Impervious, Inflow Depth = 2.10" for 25-Yr event
Inflow = 0.73 cfs @ 12.14 hrs, Volume= 0.092 af
Outflow = 0.73 cfs @ 12.15 hrs, Volume= 0.092 af, Atten= 0%, Lag= 0.6 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.63 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 1.19 fps, Avg. Travel Time= 1.1 min

Peak Storage= 15 cf @ 12.15 hrs
Average Depth at Peak Storage= 0.37' , Surface Width= 0.66'
Bank-Full Depth= 0.67' Flow Area= 0.3 sf, Capacity= 1.21 cfs

8.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 76.0' Slope= 0.0100 '/'
Inlet Invert= 115.48', Outlet Invert= 114.72'





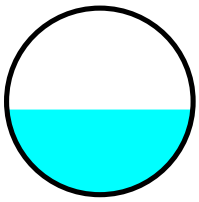
Summary for Reach 15R: Ex SD

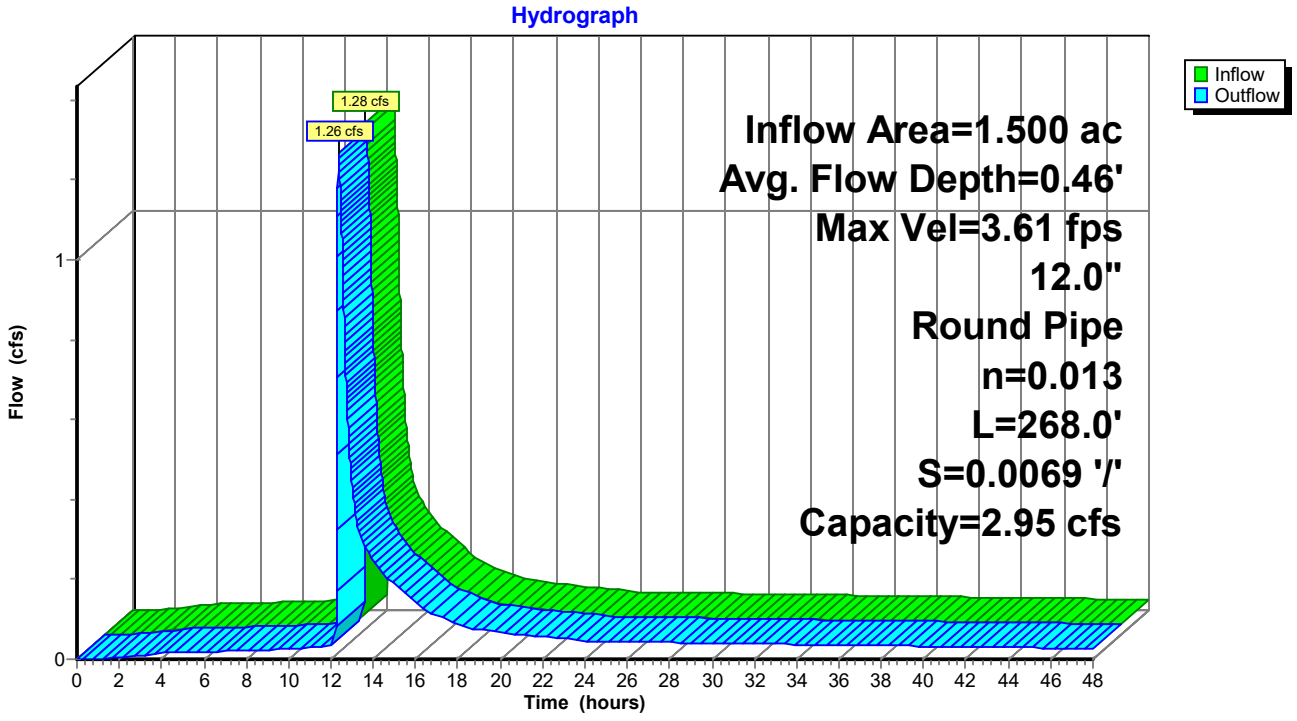
Inflow Area = 1.500 ac, 36.53% Impervious, Inflow Depth > 1.96" for 25-Yr event
Inflow = 1.28 cfs @ 12.33 hrs, Volume= 0.244 af
Outflow = 1.26 cfs @ 12.37 hrs, Volume= 0.244 af, Atten= 1%, Lag= 2.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.61 fps, Min. Travel Time= 1.2 min
Avg. Velocity = 1.36 fps, Avg. Travel Time= 3.3 min

Peak Storage= 94 cf @ 12.35 hrs
Average Depth at Peak Storage= 0.46' , Surface Width= 1.00'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.95 cfs

12.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 268.0' Slope= 0.0069 '/'
Inlet Invert= 109.16', Outlet Invert= 107.32'





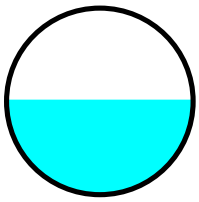
Summary for Reach 16R: 12" SD

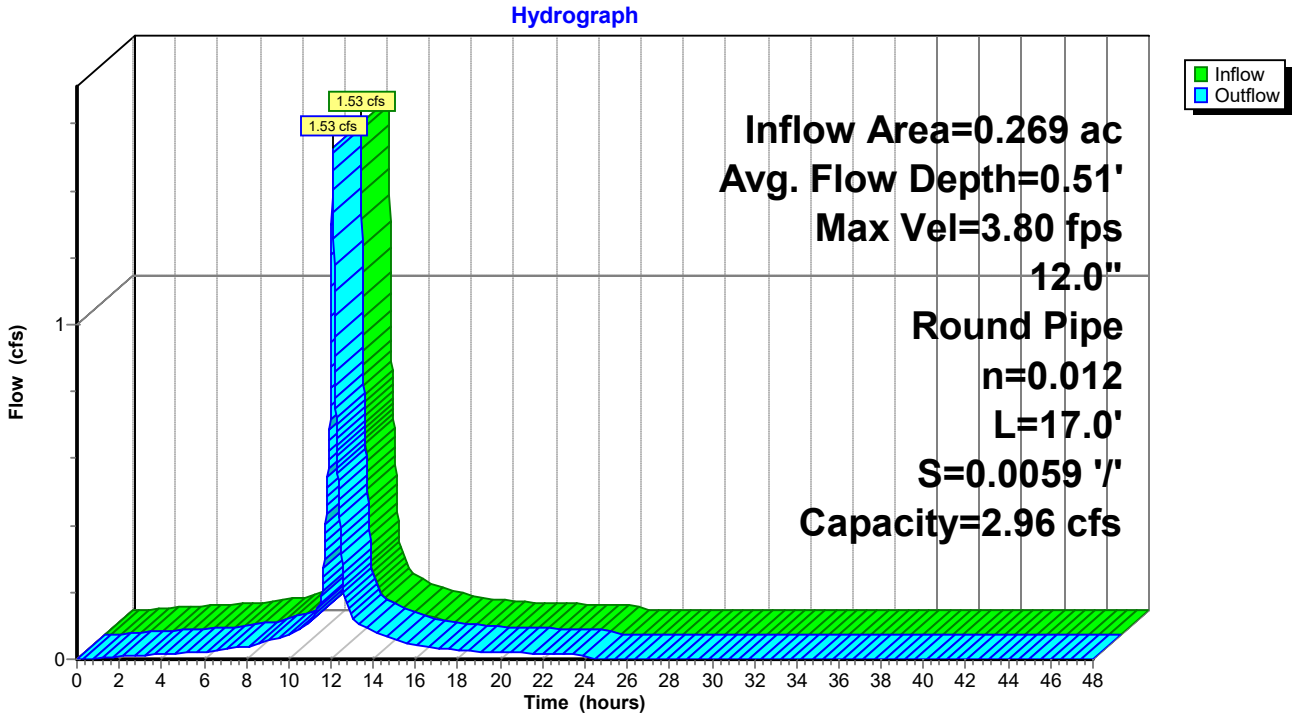
Inflow Area = 0.269 ac,100.00% Impervious, Inflow Depth = 5.56" for 25-Yr event
Inflow = 1.53 cfs @ 12.08 hrs, Volume= 0.125 af
Outflow = 1.53 cfs @ 12.09 hrs, Volume= 0.125 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.80 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 1.29 fps, Avg. Travel Time= 0.2 min

Peak Storage= 7 cf @ 12.08 hrs
Average Depth at Peak Storage= 0.51' , Surface Width= 1.00'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.96 cfs

12.0" Round Pipe
n= 0.012 Corrugated PP, smooth interior
Length= 17.0' Slope= 0.0059 '/'
Inlet Invert= 114.75', Outlet Invert= 114.65'





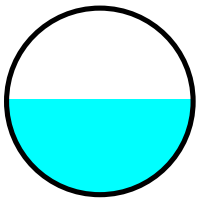
Summary for Reach 17R: 12" SD

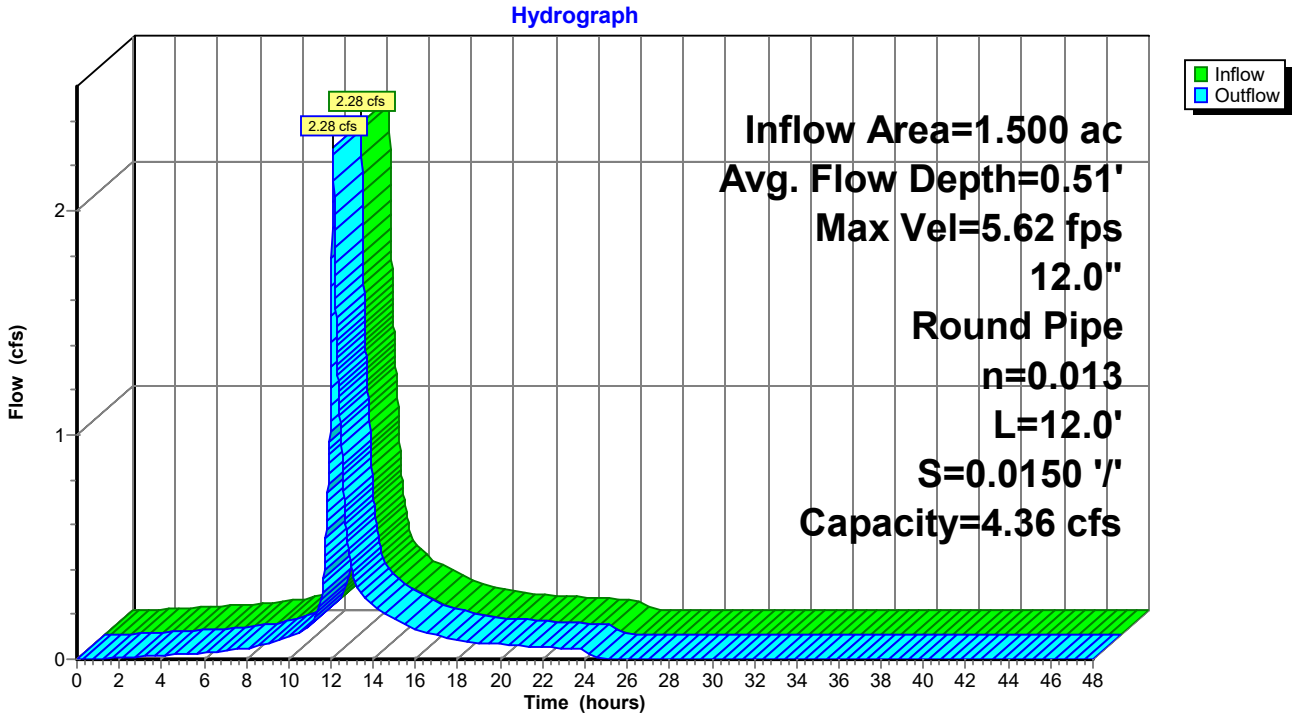
Inflow Area = 1.500 ac, 36.53% Impervious, Inflow Depth = 2.06" for 25-Yr event
Inflow = 2.28 cfs @ 12.10 hrs, Volume= 0.258 af
Outflow = 2.28 cfs @ 12.10 hrs, Volume= 0.258 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 5.62 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 1.82 fps, Avg. Travel Time= 0.1 min

Peak Storage= 5 cf @ 12.10 hrs
Average Depth at Peak Storage= 0.51' , Surface Width= 1.00'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 4.36 cfs

12.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 12.0' Slope= 0.0150 '/'
Inlet Invert= 113.40', Outlet Invert= 113.22'





Summary for Pond 1P: Raised StormTech SC-740 System

Inflow Area = 1.500 ac, 36.53% Impervious, Inflow Depth = 2.06" for 25-Yr event
Inflow = 2.28 cfs @ 12.10 hrs, Volume= 0.258 af
Outflow = 1.28 cfs @ 12.33 hrs, Volume= 0.244 af, Atten= 44%, Lag= 13.4 min
Primary = 1.28 cfs @ 12.33 hrs, Volume= 0.244 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 113.90' @ 12.33 hrs Surf.Area= 0.053 ac Storage= 0.088 af

Plug-Flow detention time= 447.8 min calculated for 0.244 af (95% of inflow)
Center-of-Mass det. time= 417.6 min (1,227.3 - 809.7)

Volume	Invert	Avail.Storage	Storage Description
#1A	111.22'	0.007 af	**6.25'W x 46.34'L x 3.50'H Field A** 0.023 af Overall - 0.006 af Embedded = 0.017 af x 40.0% Voids
#2A	111.72'	0.006 af	**ADS_StormTech SC-740 +Cap** x 6 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap
#3B	111.22'	0.010 af	**6.25'W x 67.70'L x 3.50'H Field B** 0.034 af Overall - 0.009 af Embedded = 0.025 af x 40.0% Voids
#4B	111.72'	0.009 af	**ADS_StormTech SC-740 +Cap** x 9 Inside #3 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap
#5C	111.22'	0.018 af	**6.25'W x 124.66'L x 3.50'H Field C** 0.063 af Overall - 0.018 af Embedded = 0.045 af x 40.0% Voids
#6C	111.72'	0.018 af	**ADS_StormTech SC-740 +Cap** x 17 Inside #5 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap
#7D	111.22'	0.019 af	**6.25'W x 131.78'L x 3.50'H Field D** 0.066 af Overall - 0.019 af Embedded = 0.047 af x 40.0% Voids
#8D	111.72'	0.019 af	**ADS_StormTech SC-740 +Cap** x 18 Inside #7 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap
		0.106 af	Total Available Storage

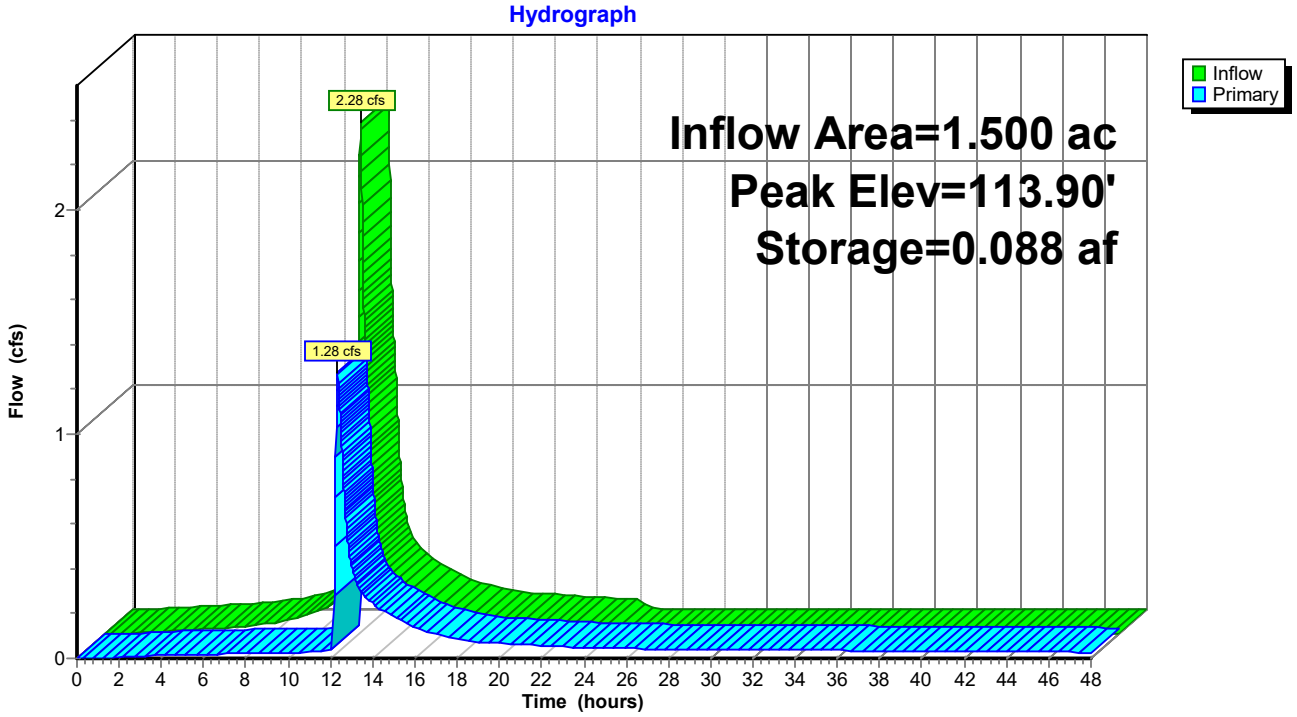
Storage Group A created with Chamber Wizard
Storage Group B created with Chamber Wizard
Storage Group C created with Chamber Wizard
Storage Group D created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Device 3	110.72'	**1.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#2	Device 3	113.72'	**6.0' long x 0.7' 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 Coef. (English) 2.76 2.82 2.93 3.09 3.18 3.22 3.27 3.30 3.32 3.31 3.32
#3	Primary	110.72'	**12.0" Round Culvert** L= 3.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 110.72' / 110.69' S= 0.0100 '/' Cc= 0.900

n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.28 cfs @ 12.33 hrs HW=113.90' (Free Discharge)
└**3=Culvert** (Passes 1.28 cfs of 4.88 cfs potential flow)
└**1=Orifice/Grate** (Orifice Controls 0.05 cfs @ 8.53 fps)
└**2=Broad-Crested Rectangular Weir** (Weir Controls 1.23 cfs @ 1.16 fps)

Pond 1P: Raised StormTech SC-740 System



Summary for Pond 4P: PP1

Inflow Area = 0.050 ac, 81.59% Impervious, Inflow Depth = 4.33" for 25-Yr event
Inflow = 0.25 cfs @ 12.09 hrs, Volume= 0.018 af
Outflow = 0.20 cfs @ 12.14 hrs, Volume= 0.017 af, Atten= 17%, Lag= 3.2 min
Primary = 0.20 cfs @ 12.14 hrs, Volume= 0.017 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 116.01' @ 12.14 hrs Surf.Area= 1,110 sf Storage= 152 cf

Plug-Flow detention time= 83.2 min calculated for 0.017 af (92% of inflow)
Center-of-Mass det. time= 43.0 min (838.8 - 795.9)

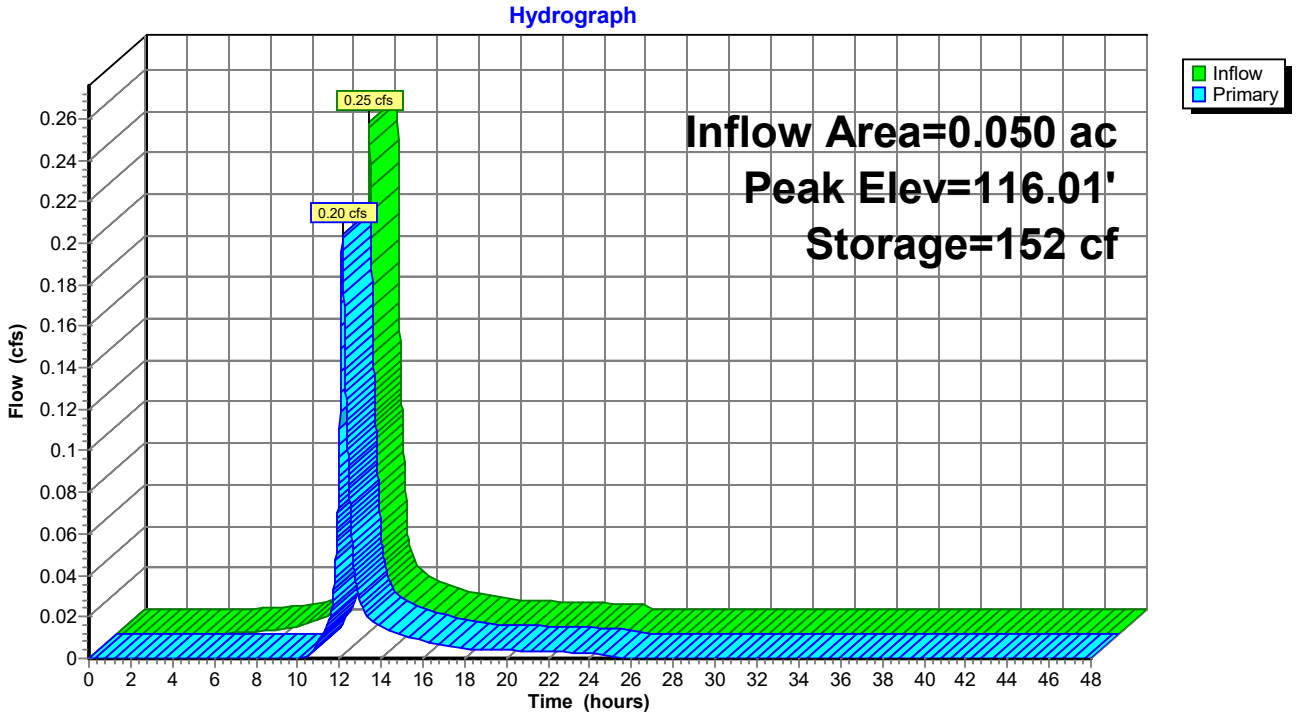
Volume	Invert	Avail.Storage	Storage Description
#1	115.59'	939 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
115.59	1,110	0.0	0	0
115.60	1,110	20.0	2	2
116.35	1,110	33.0	275	277
116.68	1,110	40.0	147	423
117.00	1,110	20.0	71	495
119.00	1,110	20.0	444	939

Device	Routing	Invert	Outlet Devices
#1	Primary	115.76'	**7.500 in/hr Exfiltration over Surface area above 115.76'** Excluded Surface area = 1,110 sf
#2	Primary	115.76'	**8.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.20 cfs @ 12.14 hrs HW=116.01' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.00 cfs)
2=Orifice/Grate (Orifice Controls 0.20 cfs @ 1.70 fps)

Pond 4P: PP1


Hydrograph
Inflow
Primary
0.25 cfs
0.20 cfs
Inflow Area=0.050 ac
Peak Elev=116.01'
Storage=152 cf
Flow (cfs)
0
0.02
0.04
0.06
0.08
0.1
0.12
0.14
0.16
0.18
0.2
0.22
0.24
0.26
Time (hours)
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48

Summary for Pond 8P: CB 7

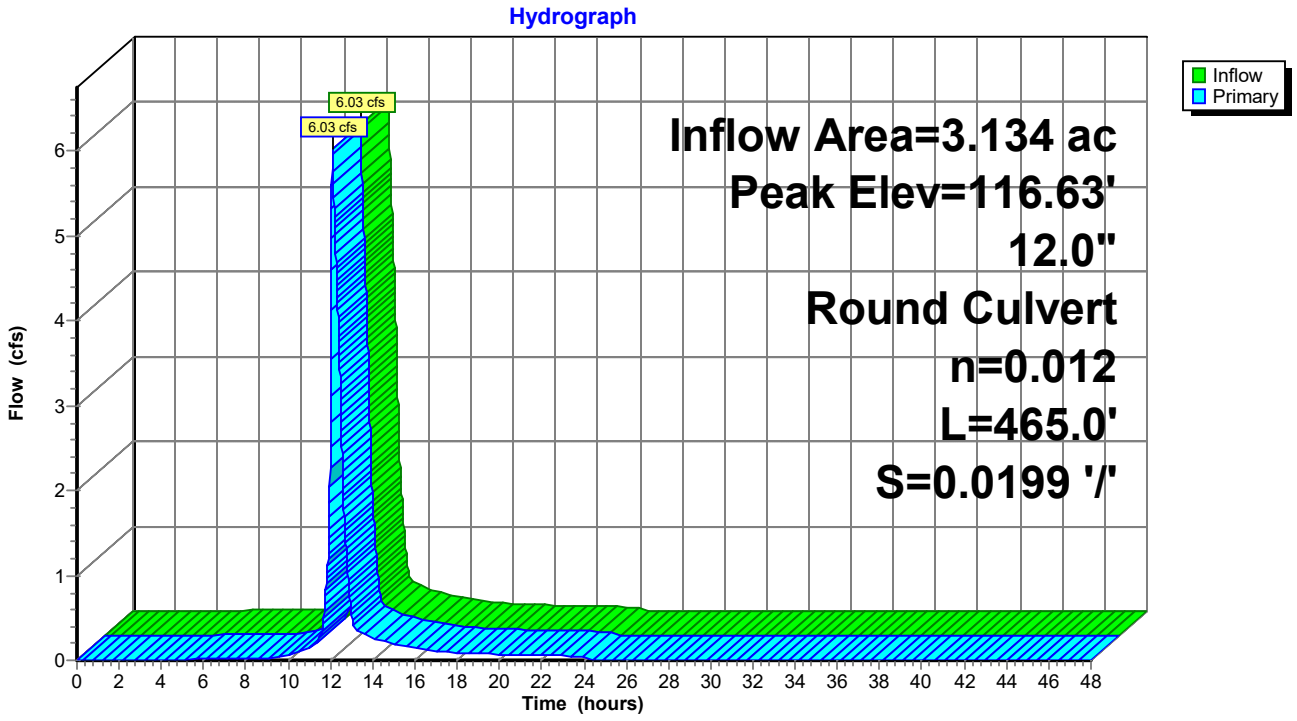
Inflow Area = 3.134 ac, 65.36% Impervious, Inflow Depth = 1.60" for 25-Yr event
Inflow = 6.03 cfs @ 12.11 hrs, Volume= 0.418 af
Outflow = 6.03 cfs @ 12.11 hrs, Volume= 0.418 af, Atten= 0%, Lag= 0.0 min
Primary = 6.03 cfs @ 12.11 hrs, Volume= 0.418 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 116.63' @ 12.11 hrs
Flood Elev= 117.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	112.15'	**12.0" Round Culvert** L= 465.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 112.15' / 102.89' S= 0.0199 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=6.02 cfs @ 12.11 hrs HW=116.61' (Free Discharge)
1=Culvert (Barrel Controls 6.02 cfs @ 7.66 fps)

Pond 8P: CB 7



Summary for Pond 12P: PP2

Inflow Area = 0.077 ac,100.00% Impervious, Inflow Depth = 5.56" for 25-Yr event
Inflow = 0.44 cfs @ 12.08 hrs, Volume= 0.036 af
Outflow = 0.36 cfs @ 12.14 hrs, Volume= 0.036 af, Atten= 18%, Lag= 3.4 min
Primary = 0.36 cfs @ 12.14 hrs, Volume= 0.036 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 115.99' @ 12.14 hrs Surf.Area= 1,212 sf Storage= 160 cf

Plug-Flow detention time= 24.6 min calculated for 0.036 af (100% of inflow)
Center-of-Mass det. time= 23.6 min (769.2 - 745.7)

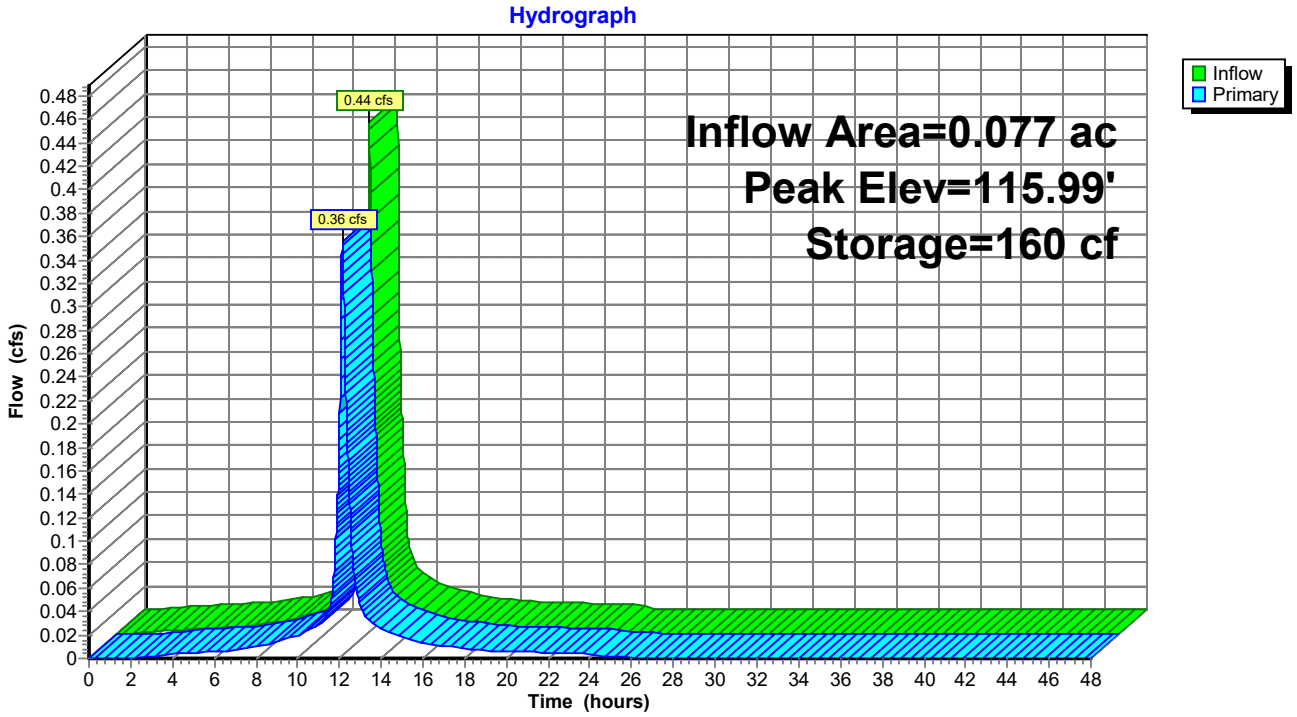
Volume	Invert	Avail.Storage	Storage Description
#1	115.59'	1,025 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
115.59	1,212	0.0	0	0
115.60	1,212	20.0	2	2
116.35	1,212	33.0	300	302
116.68	1,212	40.0	160	462
117.00	1,212	20.0	78	540
119.00	1,212	20.0	485	1,025

Device	Routing	Invert	Outlet Devices
#1	Primary	115.76'	**7.500 in/hr Exfiltration over Surface area above 115.76'** Excluded Surface area = 1,212 sf
#2	Primary	115.60'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.36 cfs @ 12.14 hrs HW=115.99' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.00 cfs)
2=Orifice/Grate (Orifice Controls 0.36 cfs @ 2.14 fps)

Pond 12P: PP2


Hydrograph
Inflow
Primary
0.44 cfs
0.36 cfs
Inflow Area=0.077 ac
Peak Elev=115.99'
Storage=160 cf
Flow (cfs)
Time (hours)

Summary for Pond 14P: Rain Garden West

Inflow Area = 0.503 ac, 7.99% Impervious, Inflow Depth = 0.66" for 25-Yr event
Inflow = 0.16 cfs @ 12.36 hrs, Volume= 0.028 af
Outflow = 0.13 cfs @ 12.56 hrs, Volume= 0.025 af, Atten= 20%, Lag= 11.9 min
Primary = 0.13 cfs @ 12.56 hrs, Volume= 0.025 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 120.32' @ 12.56 hrs Surf.Area= 631 sf Storage= 174 cf

Plug-Flow detention time= 83.0 min calculated for 0.025 af (89% of inflow)
Center-of-Mass det. time= 33.1 min (968.5 - 935.4)

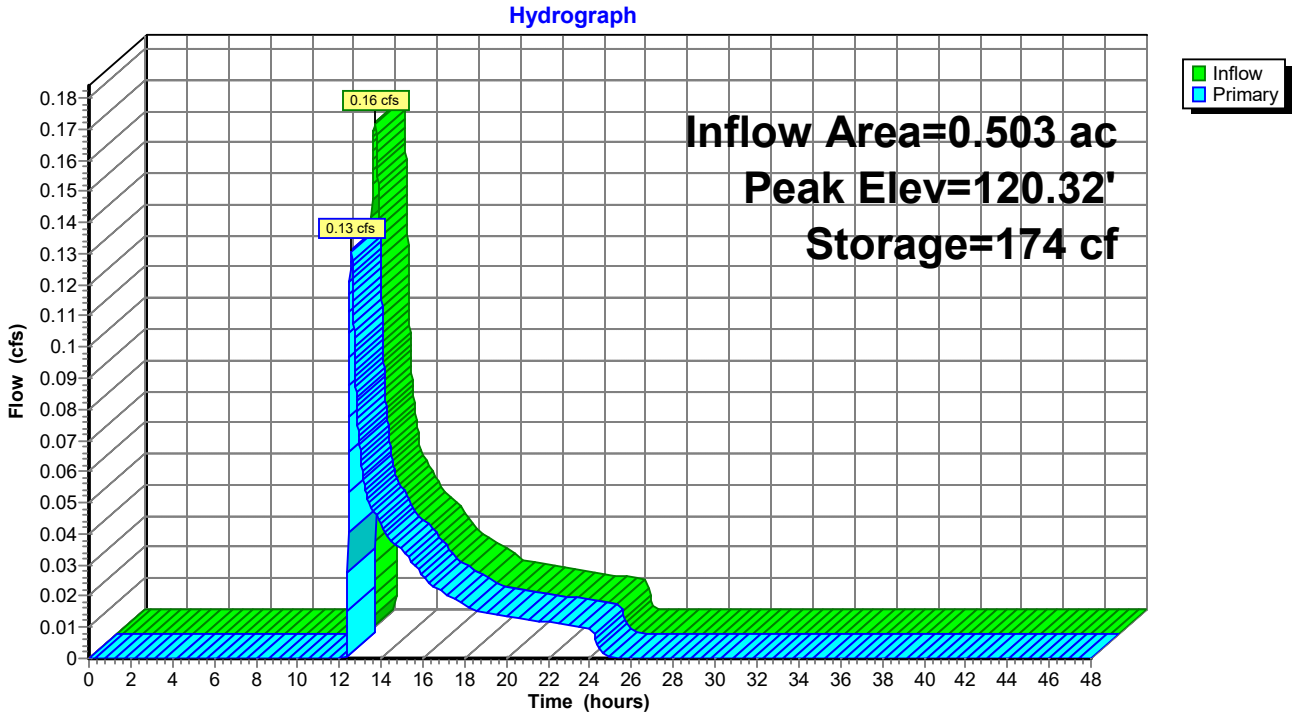
Volume	Invert	Avail.Storage	Storage Description
#1	120.00'	729 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
120.00	453	0	0
121.00	1,005	729	729

Device	Routing	Invert	Outlet Devices
#1	Device 2	120.25'	**8.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#2	Primary	117.25'	**8.0" Round Culvert** L= 187.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 117.25' / 115.25' S= 0.0107 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.13 cfs @ 12.56 hrs HW=120.32' (Free Discharge)
↑—**2=Culvert** (Passes 0.13 cfs of 1.71 cfs potential flow)
↑—**1=Orifice/Grate** (Weir Controls 0.13 cfs @ 0.87 fps)

Pond 14P: Rain Garden West



Summary for Pond DS-2: Drip Strip

Inflow Area = 0.220 ac, 79.17% Impervious, Inflow Depth = 4.99" for 25-Yr event
Inflow = 1.20 cfs @ 12.08 hrs, Volume= 0.092 af
Outflow = 0.54 cfs @ 12.26 hrs, Volume= 0.092 af, Atten= 55%, Lag= 10.4 min
Discarded = 0.28 cfs @ 11.76 hrs, Volume= 0.087 af
Primary = 0.26 cfs @ 12.26 hrs, Volume= 0.005 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 116.14' @ 12.26 hrs Surf.Area= 1,600 sf Storage= 706 cf

Plug-Flow detention time= 11.7 min calculated for 0.092 af (100% of inflow)
Center-of-Mass det. time= 11.7 min (785.7 - 774.0)

Volume	Invert	Avail.Storage	Storage Description
#1	115.00'	3,040 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

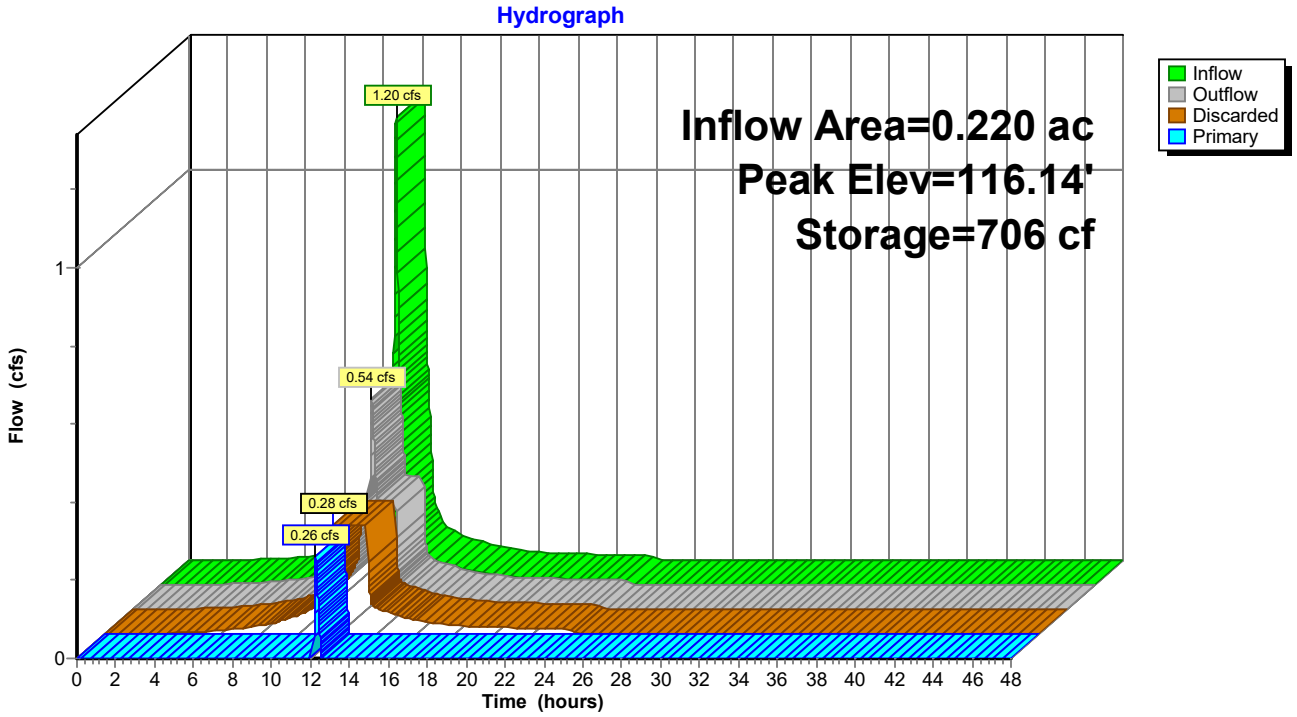
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
115.00	1,600	0.0	0	0
116.00	1,600	40.0	640	640
117.00	1,600	30.0	480	1,120
118.00	1,600	40.0	640	1,760
119.00	1,600	40.0	640	2,400
120.00	1,600	40.0	640	3,040

Device	Routing	Invert	Outlet Devices
#1	Discarded	115.00'	**7.500 in/hr Exfiltration over Surface area**
#2	Primary	116.00'	**6.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.28 cfs @ 11.76 hrs HW=115.05' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.28 cfs)

Primary OutFlow Max=0.26 cfs @ 12.26 hrs HW=116.14' (Free Discharge)
↑**2=Orifice/Grate** (Weir Controls 0.26 cfs @ 1.21 fps)

Pond DS-2: Drip Strip



Summary for Pond DS-3: Drip Strip

Inflow Area = 0.399 ac, 76.31% Impervious, Inflow Depth = 4.99" for 25-Yr event
Inflow = 2.17 cfs @ 12.08 hrs, Volume= 0.166 af
Outflow = 1.26 cfs @ 12.19 hrs, Volume= 0.166 af, Atten= 42%, Lag= 6.6 min
Discarded = 0.28 cfs @ 11.62 hrs, Volume= 0.129 af
Primary = 0.98 cfs @ 12.19 hrs, Volume= 0.036 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 117.08' @ 12.19 hrs Surf.Area= 1,600 sf Storage= 1,168 cf

Plug-Flow detention time= 11.5 min calculated for 0.166 af (100% of inflow)
Center-of-Mass det. time= 11.5 min (785.4 - 774.0)

Volume	Invert	Avail.Storage	Storage Description
#1	115.00'	3,040 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

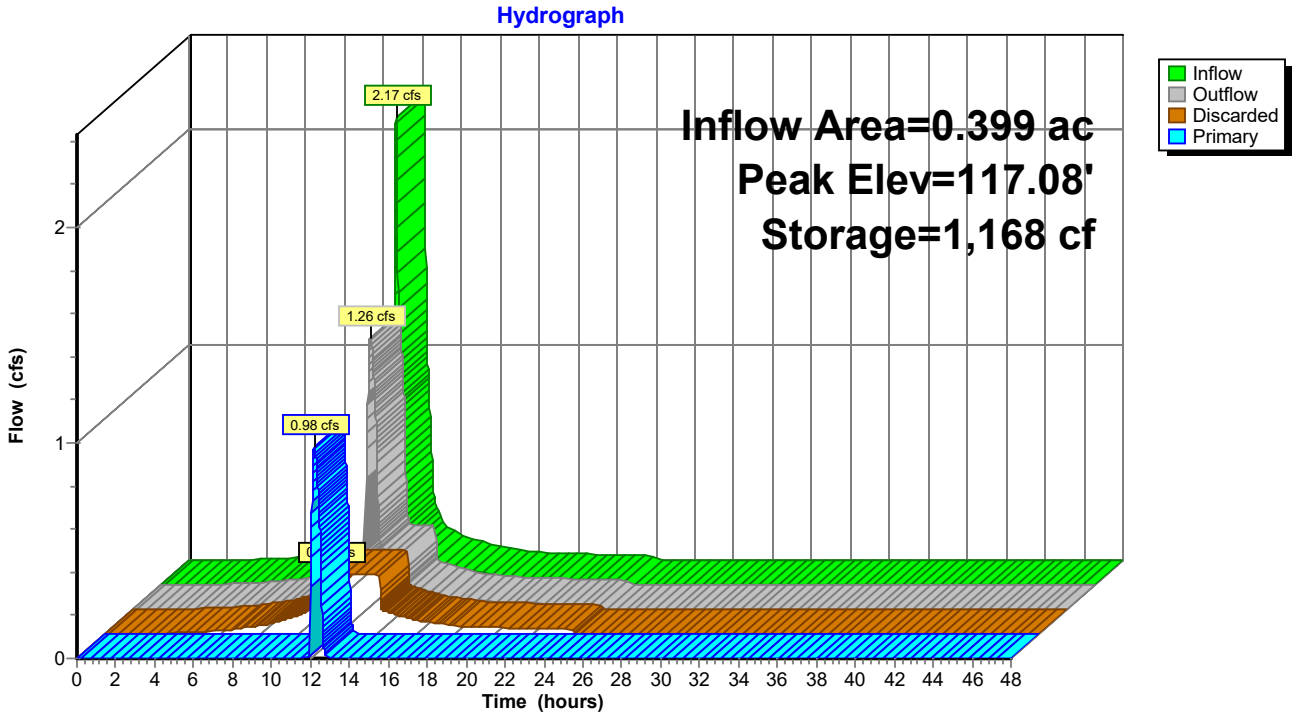
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
115.00	1,600	0.0	0	0
116.00	1,600	40.0	640	640
117.00	1,600	30.0	480	1,120
118.00	1,600	40.0	640	1,760
119.00	1,600	40.0	640	2,400
120.00	1,600	40.0	640	3,040

Device	Routing	Invert	Outlet Devices
#1	Discarded	115.00'	**7.500 in/hr Exfiltration over Surface area**
#2	Primary	116.00'	**6.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.28 cfs @ 11.62 hrs HW=115.05' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.28 cfs)

Primary OutFlow Max=0.98 cfs @ 12.19 hrs HW=117.07' (Free Discharge)
↑—**2=Orifice/Grate** (Orifice Controls 0.98 cfs @ 4.99 fps)

Pond DS-3: Drip Strip



Summary for Pond DS1: Drip Strip

Inflow Area = 0.220 ac, 79.17% Impervious, Inflow Depth = 4.99" for 25-Yr event
Inflow = 1.20 cfs @ 12.08 hrs, Volume= 0.092 af
Outflow = 0.54 cfs @ 12.26 hrs, Volume= 0.092 af, Atten= 55%, Lag= 10.4 min
Discarded = 0.28 cfs @ 11.76 hrs, Volume= 0.087 af
Primary = 0.26 cfs @ 12.26 hrs, Volume= 0.005 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 116.14' @ 12.26 hrs Surf.Area= 1,600 sf Storage= 706 cf

Plug-Flow detention time= 11.7 min calculated for 0.092 af (100% of inflow)
Center-of-Mass det. time= 11.7 min (785.7 - 774.0)

Volume	Invert	Avail.Storage	Storage Description
#1	115.00'	3,040 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

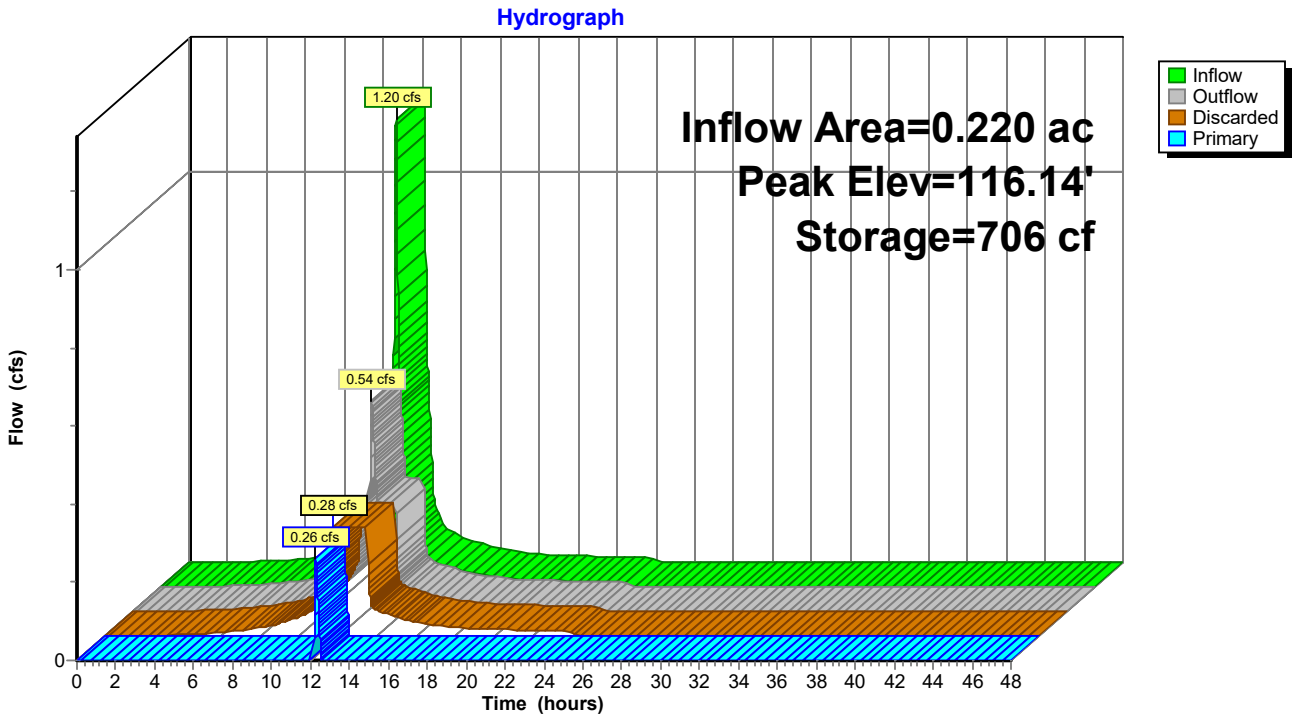
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
115.00	1,600	0.0	0	0
116.00	1,600	40.0	640	640
117.00	1,600	30.0	480	1,120
118.00	1,600	40.0	640	1,760
119.00	1,600	40.0	640	2,400
120.00	1,600	40.0	640	3,040

Device	Routing	Invert	Outlet Devices
#1	Discarded	115.00'	**7.500 in/hr Exfiltration over Surface area**
#2	Primary	116.00'	**6.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.28 cfs @ 11.76 hrs HW=115.05' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.28 cfs)

Primary OutFlow Max=0.26 cfs @ 12.26 hrs HW=116.14' (Free Discharge)
↑—**2=Orifice/Grate** (Weir Controls 0.26 cfs @ 1.21 fps)

Pond DS1: Drip Strip



Summary for Pond IT-1: Infiltration Trench

Inflow Area = 1.179 ac, 68.48% Impervious, Inflow Depth = 2.37" for 25-Yr event
Inflow = 3.07 cfs @ 12.10 hrs, Volume= 0.233 af
Outflow = 1.61 cfs @ 12.29 hrs, Volume= 0.233 af, Atten= 48%, Lag= 11.9 min
Discarded = 0.28 cfs @ 11.56 hrs, Volume= 0.151 af
Primary = 1.33 cfs @ 12.29 hrs, Volume= 0.082 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 115.23' @ 12.29 hrs Surf.Area= 1,600 sf Storage= 1,748 cf

Plug-Flow detention time= 12.1 min calculated for 0.233 af (100% of inflow)
Center-of-Mass det. time= 12.1 min (814.0 - 801.9)

Volume	Invert	Avail.Storage	Storage Description
#1	112.00'	2,880 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

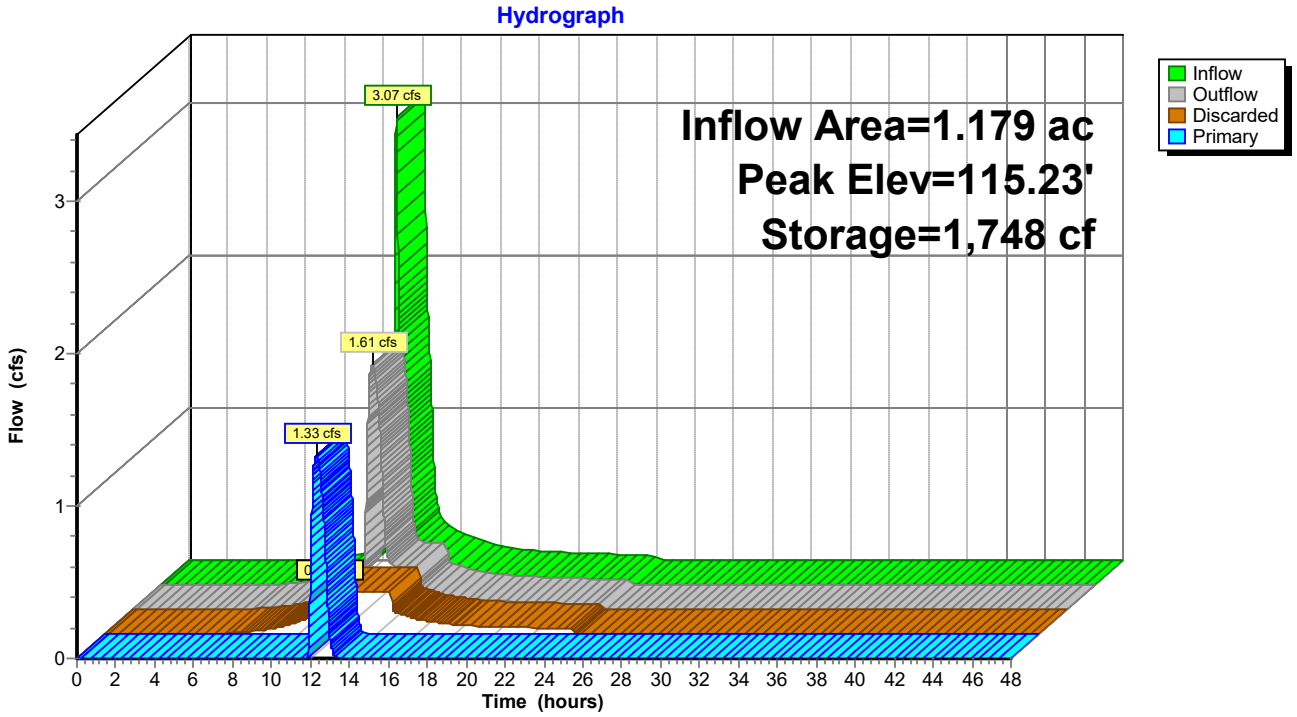
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
112.00	1,600	0.0	0	0
113.00	1,600	30.0	480	480
114.00	1,600	30.0	480	960
115.00	1,600	40.0	640	1,600
116.00	1,600	40.0	640	2,240
117.00	1,600	40.0	640	2,880

Device	Routing	Invert	Outlet Devices
#1	Discarded	112.00'	**7.500 in/hr Exfiltration over Surface area**
#2	Primary	113.00'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.28 cfs @ 11.56 hrs HW=112.05' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.28 cfs)

Primary OutFlow Max=1.33 cfs @ 12.29 hrs HW=115.23' (Free Discharge)
↑—**2=Orifice/Grate** (Orifice Controls 1.33 cfs @ 6.78 fps)

Pond IT-1: Infiltration Trench



Summary for Pond RG-1: Rain Garden

Inflow Area = 0.168 ac, 58.87% Impervious, Inflow Depth = 3.02" for 25-Yr event
Inflow = 0.59 cfs @ 12.09 hrs, Volume= 0.042 af
Outflow = 0.43 cfs @ 12.17 hrs, Volume= 0.042 af, Atten= 28%, Lag= 4.6 min
Discarded = 0.08 cfs @ 11.70 hrs, Volume= 0.031 af
Primary = 0.35 cfs @ 12.17 hrs, Volume= 0.012 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 115.86' @ 12.17 hrs Surf.Area= 460 sf Storage= 206 cf

Plug-Flow detention time= 5.8 min calculated for 0.042 af (100% of inflow)
Center-of-Mass det. time= 5.8 min (836.2 - 830.4)

Volume	Invert	Avail.Storage	Storage Description
#1	114.50'	1,185 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

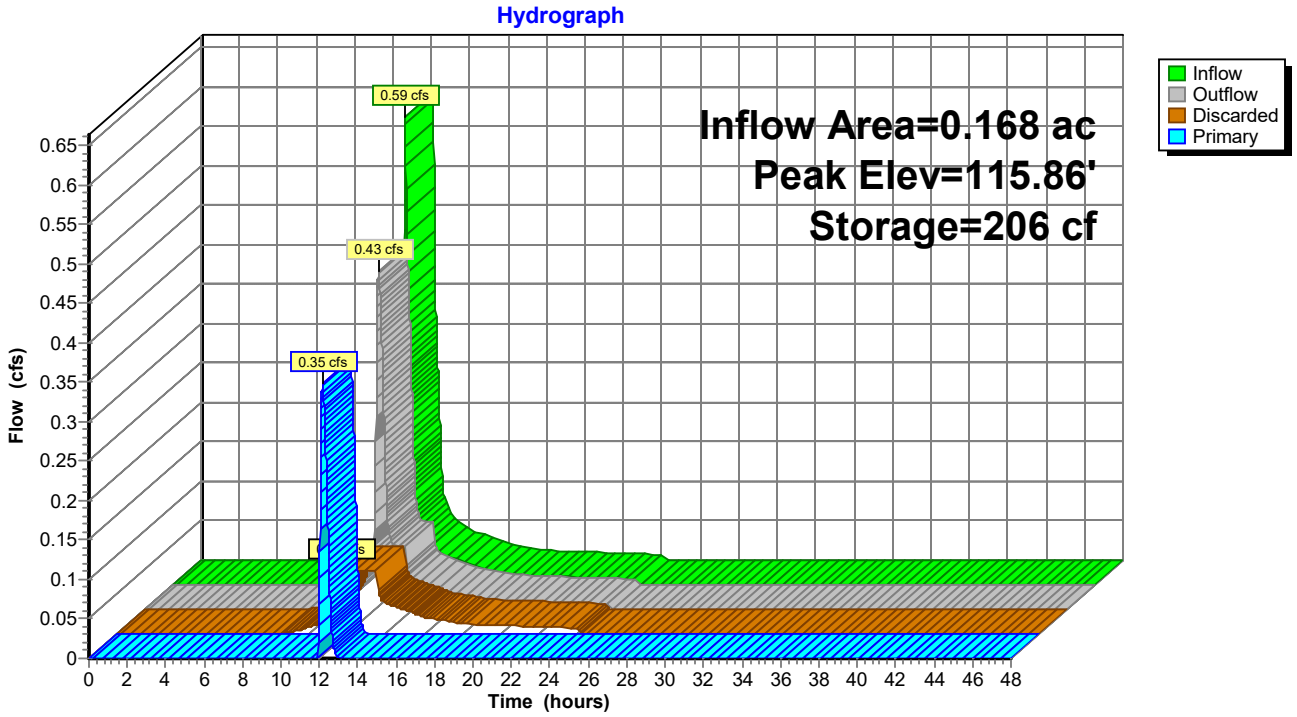
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
114.50	460	33.0	0	0
115.00	460	33.0	76	76
115.50	460	33.0	76	152
116.00	460	33.0	76	228
116.50	460	100.0	230	458
117.00	460	100.0	230	688
117.50	505	100.0	241	929
118.00	520	100.0	256	1,185

Device	Routing	Invert	Outlet Devices
#1	Discarded	114.50'	**7.500 in/hr Exfiltration over Surface area**
#2	Device 3	115.00'	**4.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Primary	114.50'	**8.0" Round Culvert** L= 150.0' Ke= 0.500 Inlet / Outlet Invert= 114.50' / 112.15' S= 0.0157 '/' Cc= 0.900 n= 0.012, Flow Area= 0.35 sf
#4	Device 3	117.50'	**10.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.08 cfs @ 11.70 hrs HW=114.54' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.08 cfs)

Primary OutFlow Max=0.35 cfs @ 12.17 hrs HW=115.86' (Free Discharge)
└**3=Culvert** (Passes 0.35 cfs of 1.69 cfs potential flow)
  ├**2=Orifice/Grate** (Orifice Controls 0.35 cfs @ 4.00 fps)
  └**4=Orifice/Grate** (Controls 0.00 cfs)

Pond RG-1: Rain Garden



Summary for Pond RG-2: Rain Garden

Inflow Area = 0.478 ac, 64.28% Impervious, Inflow Depth = 1.50" for 25-Yr event
Inflow = 0.77 cfs @ 12.09 hrs, Volume= 0.060 af
Outflow = 0.50 cfs @ 12.36 hrs, Volume= 0.060 af, Atten= 35%, Lag= 15.9 min
Discarded = 0.17 cfs @ 11.82 hrs, Volume= 0.047 af
Primary = 0.33 cfs @ 12.36 hrs, Volume= 0.012 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 115.78' @ 12.36 hrs Surf.Area= 960 sf Storage= 408 cf

Plug-Flow detention time= 6.8 min calculated for 0.060 af (100% of inflow)
Center-of-Mass det. time= 6.8 min (841.0 - 834.2)

Volume	Invert	Avail.Storage	Storage Description
#1	114.49'	2,177 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

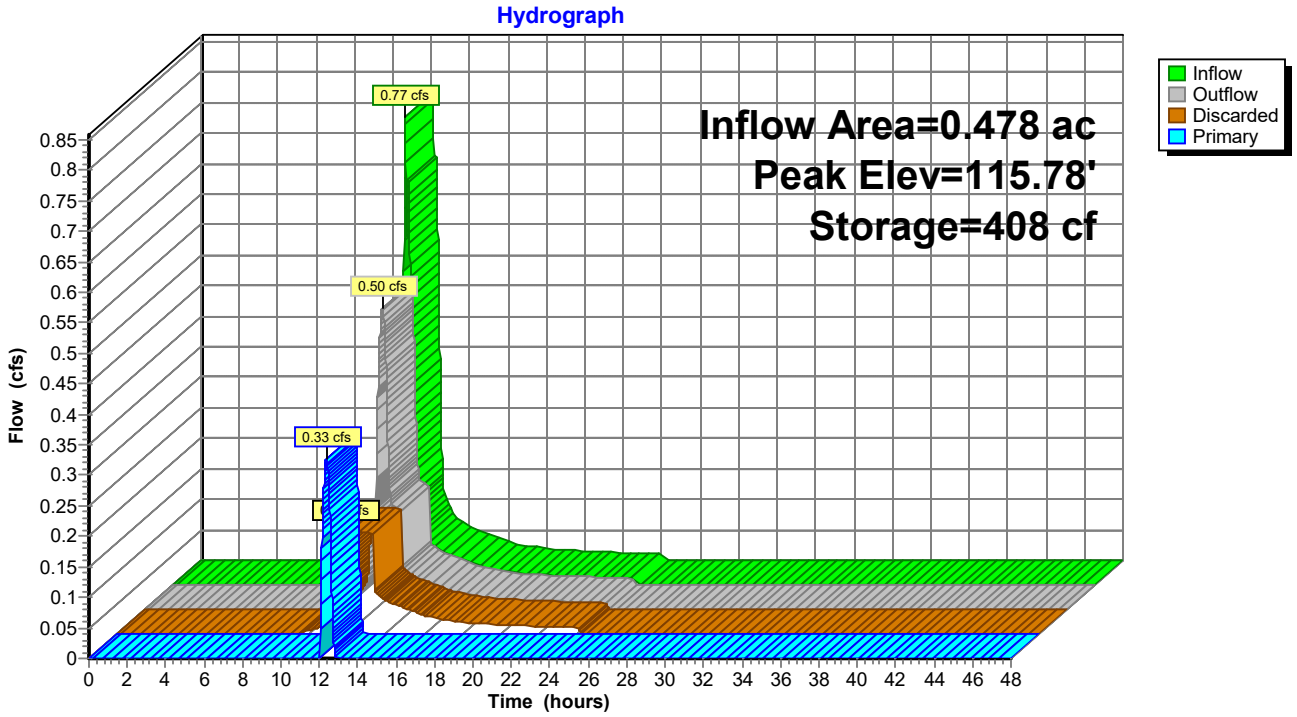
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
114.49	960	0.0	0	0
114.50	960	33.0	3	3
115.00	960	33.0	158	162
115.50	960	33.0	158	320
116.00	960	33.0	158	478
116.50	960	33.0	158	637
117.00	960	100.0	480	1,117
117.50	1,040	100.0	500	1,617
118.00	1,200	100.0	560	2,177

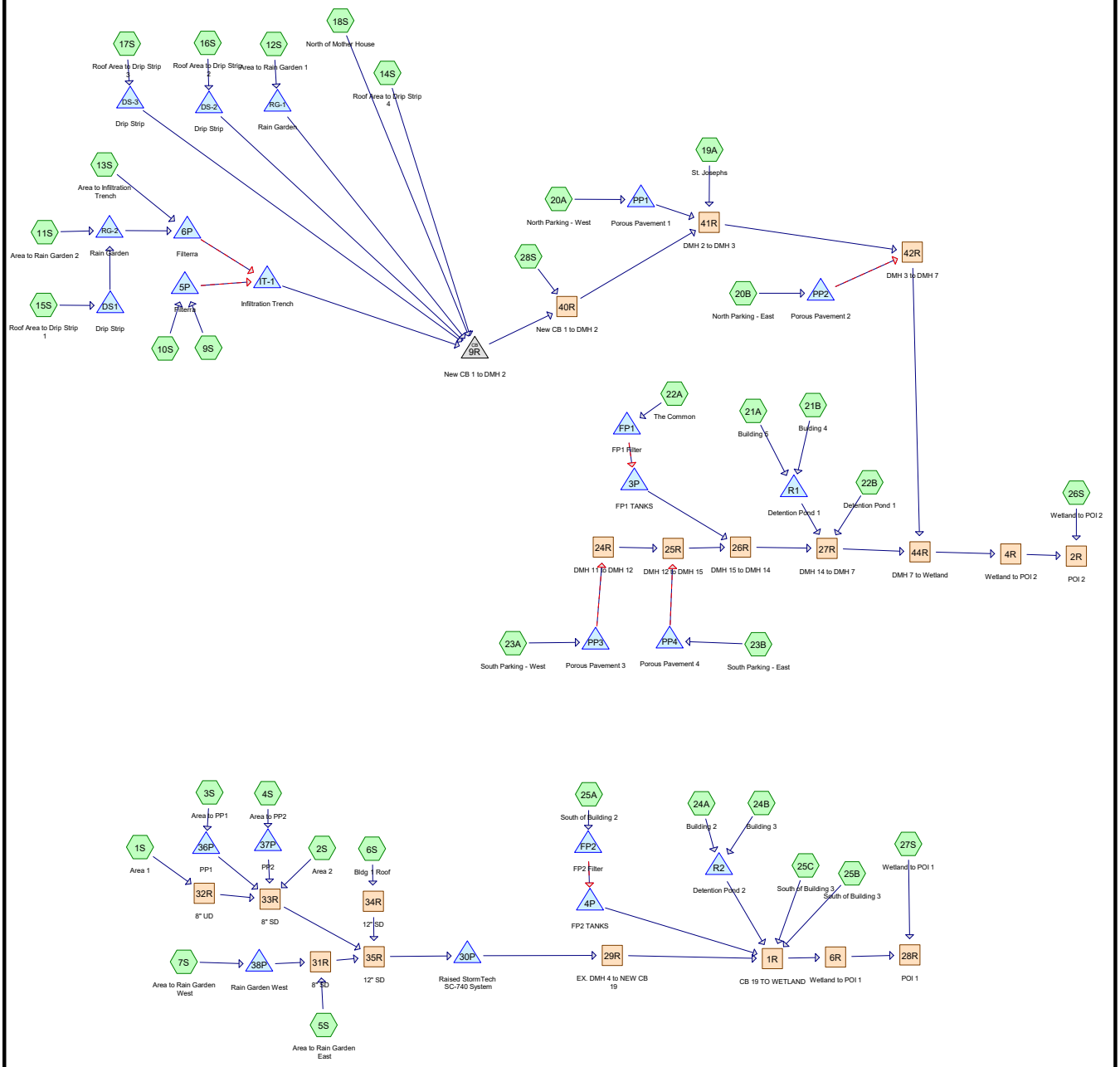
Device	Routing	Invert	Outlet Devices
#1	Discarded	114.49'	**7.500 in/hr Exfiltration over Surface area**
#2	Device 3	115.00'	**4.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Primary	114.50'	**8.0" Round Culvert** L= 150.0' Ke= 0.500 Inlet / Outlet Invert= 114.50' / 113.00' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 0.35 sf
#4	Device 3	117.50'	**10.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.17 cfs @ 11.82 hrs HW=114.50' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.17 cfs)

Primary OutFlow Max=0.33 cfs @ 12.36 hrs HW=115.78' (Free Discharge)
└**3=Culvert** (Passes 0.33 cfs of 1.41 cfs potential flow)
  ├**2=Orifice/Grate** (Orifice Controls 0.33 cfs @ 3.76 fps)
  └**4=Orifice/Grate** (Controls 0.00 cfs)

Pond RG-2: Rain Garden





Routing Diagram for Post-Development
Prepared by Gorrill Palmer, Printed 11/5/2021
HydroCAD® 10.10-4a s/n 01265 © 2020 HydroCAD Software Solutions LLC

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Subcatchment 1S: Area 1 Runoff Area=15,851 sf 17.16% Impervious Runoff Depth=0.09"
Flow Length=300' Tc=20.7 min CN=49 Runoff=0.00 cfs 0.003 af

Subcatchment 2S: Area 2 Runoff Area=1,429 sf 70.05% Impervious Runoff Depth=1.33"
Tc=6.0 min CN=80 Runoff=0.05 cfs 0.004 af

Subcatchment 3S: Area to PP1 Runoff Area=2,173 sf 81.59% Impervious Runoff Depth=1.83"
Tc=6.0 min CN=87 Runoff=0.11 cfs 0.008 af

Subcatchment 4S: Area to PP2 Runoff Area=3,345 sf 100.00% Impervious Runoff Depth=2.87"
Tc=6.0 min CN=98 Runoff=0.23 cfs 0.018 af

Subcatchment 5S: Area to Rain Garden East Runoff Area=8,904 sf 17.46% Impervious Runoff Depth=0.09"
Flow Length=150' Slope=0.0200 '/' Tc=9.2 min CN=49 Runoff=0.00 cfs 0.002 af

Subcatchment 6S: Bldg 1 Roof Runoff Area=11,717 sf 100.00% Impervious Runoff Depth=2.87"
Tc=6.0 min CN=98 Runoff=0.81 cfs 0.064 af

Subcatchment 7S: Area to Rain Garden Runoff Area=21,901 sf 7.99% Impervious Runoff Depth=0.02"
Flow Length=170' Tc=14.0 min CN=44 Runoff=0.00 cfs 0.001 af

Subcatchment 9S: Runoff Area=1,785 sf 50.98% Impervious Runoff Depth=0.72"
Tc=6.0 min CN=69 Runoff=0.03 cfs 0.002 af

Subcatchment 10S: Runoff Area=12,293 sf 82.32% Impervious Runoff Depth=1.91"
Tc=6.0 min CN=88 Runoff=0.63 cfs 0.045 af

Subcatchment 11S: Area to Rain Garden 2 Runoff Area=11,240 sf 51.56% Impervious Runoff Depth=0.72"
Tc=6.0 min CN=69 Runoff=0.19 cfs 0.016 af

Subcatchment 12S: Area to Rain Garden 1 Runoff Area=7,303 sf 58.87% Impervious Runoff Depth=0.97"
Tc=6.0 min CN=74 Runoff=0.18 cfs 0.014 af

Subcatchment 13S: Area to Infiltration Runoff Area=15,495 sf 77.47% Impervious Runoff Depth=1.67"
Tc=6.0 min CN=85 Runoff=0.70 cfs 0.050 af

Subcatchment 14S: Roof Area to Drip Runoff Area=6,080 sf 100.00% Impervious Runoff Depth=2.87"
Tc=6.0 min CN=98 Runoff=0.42 cfs 0.033 af

Subcatchment 15S: Roof Area to Drip Strip Runoff Area=9,600 sf 79.17% Impervious Runoff Depth=2.35"
Tc=6.0 min CN=93 Runoff=0.59 cfs 0.043 af

Subcatchment 16S: Roof Area to Drip Strip Runoff Area=9,600 sf 79.17% Impervious Runoff Depth=2.35"
Tc=6.0 min CN=93 Runoff=0.59 cfs 0.043 af

Subcatchment 17S: Roof Area to Drip Runoff Area=17,390 sf 76.31% Impervious Runoff Depth=2.35"
Tc=6.0 min CN=93 Runoff=1.07 cfs 0.078 af

Subcatchment 18S: North of Mother House Runoff Area=44,775 sf 50.92% Impervious Runoff Depth=0.72"
Tc=6.0 min CN=69 Runoff=0.75 cfs 0.062 af

Subcatchment 19A: St. Josephs Runoff Area=57,470 sf 35.07% Impervious Runoff Depth=0.37"
Flow Length=407' Tc=19.8 min CN=60 Runoff=0.23 cfs 0.041 af

Subcatchment 20A: North Parking - West Runoff Area=19,180 sf 72.24% Impervious Runoff Depth=1.46"
Tc=6.0 min CN=82 Runoff=0.75 cfs 0.054 af

Subcatchment 20B: North Parking - East Runoff Area=15,935 sf 73.59% Impervious Runoff Depth=1.46"
Tc=6.0 min CN=82 Runoff=0.62 cfs 0.044 af

Subcatchment 21A: Building 5 Runoff Area=19,410 sf 100.00% Impervious Runoff Depth=2.87"
Tc=6.0 min CN=98 Runoff=1.34 cfs 0.106 af

Subcatchment 21B: Buiding 4 Runoff Area=12,580 sf 100.00% Impervious Runoff Depth=2.87"
Tc=6.0 min CN=98 Runoff=0.87 cfs 0.069 af

Subcatchment 22A: The Common Runoff Area=35,370 sf 23.11% Impervious Runoff Depth=0.05"
Flow Length=209' Slope=0.0100 '/' Tc=23.0 min UI Adjusted CN=46 Runoff=0.00 cfs 0.003 af

Subcatchment 22B: Detention Pond 1 Runoff Area=8,850 sf 13.39% Impervious Runoff Depth=0.06"
Tc=6.0 min CN=47 Runoff=0.00 cfs 0.001 af

Subcatchment 23A: South Parking - West Runoff Area=18,825 sf 64.46% Impervious Runoff Depth=1.14"
Tc=6.0 min CN=77 Runoff=0.56 cfs 0.041 af

Subcatchment 23B: South Parking - East Runoff Area=9,870 sf 63.12% Impervious Runoff Depth=1.08"
Tc=6.0 min CN=76 Runoff=0.28 cfs 0.020 af

Subcatchment 24A: Building 2 Runoff Area=12,580 sf 100.00% Impervious Runoff Depth=2.87"
Tc=6.0 min CN=98 Runoff=0.87 cfs 0.069 af

Subcatchment 24B: Building 3 Runoff Area=19,410 sf 100.00% Impervious Runoff Depth=2.87"
Tc=6.0 min CN=98 Runoff=1.34 cfs 0.106 af

Subcatchment 25A: South of Building 2 Runoff Area=22,380 sf 21.94% Impervious Runoff Depth=0.55"
Flow Length=140' Slope=0.0100 '/' Tc=25.0 min CN=65 Runoff=0.16 cfs 0.024 af

Subcatchment 25B: South of Building 3 Runoff Area=9,075 sf 8.10% Impervious Runoff Depth=1.08"
Tc=6.0 min CN=76 Runoff=0.25 cfs 0.019 af

Subcatchment 25C: South of Building 3 Runoff Area=2,390 sf 19.25% Impervious Runoff Depth=1.26"
Tc=6.0 min CN=79 Runoff=0.08 cfs 0.006 af

Subcatchment 26S: Wetland to POI 2 Runoff Area=10,500 sf 5.52% Impervious Runoff Depth=0.44"
Flow Length=155' Slope=0.0500 '/' Tc=22.1 min CN=62 Runoff=0.05 cfs 0.009 af

Subcatchment 27S: Wetland to POI 1 Runoff Area=13,833 sf 3.43% Impervious Runoff Depth=1.08"
Flow Length=165' Slope=0.0500 '/' Tc=27.3 min CN=76 Runoff=0.23 cfs 0.029 af

Subcatchment 28S: Runoff Area=4,725 sf 0.00% Impervious Runoff Depth=0.00"
Flow Length=105' Slope=0.0100 '/' Tc=13.2 min CN=39 Runoff=0.00 cfs 0.000 af

Reach 1R: CB 19 TO WETLAND Avg. Flow Depth=0.46' Max Vel=3.88 fps Inflow=1.60 cfs 0.307 af
15.0" Round Pipe n=0.012 L=126.0' S=0.0062 '/' Capacity=5.51 cfs Outflow=1.59 cfs 0.307 af

Reach 2R: POI 2 Inflow=2.60 cfs 0.464 af
Outflow=2.60 cfs 0.464 af

Reach 4R: Wetland to POI 2 Avg. Flow Depth=0.20' Max Vel=3.09 fps Inflow=2.58 cfs 0.455 af
n=0.035 L=145.0' S=0.0500 '/' Capacity=24.99 cfs Outflow=2.58 cfs 0.455 af

Reach 6R: Wetland to POI 1 Avg. Flow Depth=0.10' Max Vel=1.93 fps Inflow=1.59 cfs 0.307 af
n=0.035 L=210.0' S=0.0500 '/' Capacity=57.05 cfs Outflow=1.58 cfs 0.307 af

Reach 24R: DMH 11 to DMH 12 Avg. Flow Depth=0.05' Max Vel=1.20 fps Inflow=0.01 cfs 0.031 af
8.0" Round Pipe n=0.012 L=59.0' S=0.0100 '/' Capacity=1.31 cfs Outflow=0.01 cfs 0.031 af

Reach 25R: DMH 12 to DMH 15 Avg. Flow Depth=0.06' Max Vel=1.37 fps Inflow=0.02 cfs 0.051 af
8.0" Round Pipe n=0.012 L=48.0' S=0.0100 '/' Capacity=1.31 cfs Outflow=0.02 cfs 0.051 af

Reach 26R: DMH 15 to DMH 14 Avg. Flow Depth=0.05' Max Vel=1.29 fps Inflow=0.02 cfs 0.052 af
12.0" Round Pipe n=0.012 L=105.0' S=0.0100 '/' Capacity=3.86 cfs Outflow=0.02 cfs 0.052 af

Reach 27R: DMH 14 to DMH 7 Avg. Flow Depth=0.38' Max Vel=4.49 fps Inflow=1.44 cfs 0.223 af
15.0" Round Pipe n=0.012 L=42.0' S=0.0100 '/' Capacity=7.00 cfs Outflow=1.44 cfs 0.223 af

Reach 28R: POI 1 Inflow=1.72 cfs 0.335 af
Outflow=1.72 cfs 0.335 af

Reach 29R: EX. DMH 4 to NEW CB 19 Avg. Flow Depth=0.08' Max Vel=1.31 fps Inflow=0.04 cfs 0.097 af
12.0" Round Pipe n=0.012 L=172.0' S=0.0058 '/' Capacity=2.93 cfs Outflow=0.04 cfs 0.097 af

Reach 31R: 8" SD Avg. Flow Depth=0.02' Max Vel=0.69 fps Inflow=0.00 cfs 0.002 af
8.0" Round Pipe n=0.013 L=28.0' S=0.0100 '/' Capacity=1.21 cfs Outflow=0.00 cfs 0.002 af

Reach 32R: 8" UD Avg. Flow Depth=0.03' Max Vel=0.68 fps Inflow=0.00 cfs 0.003 af
8.0" Round Pipe n=0.012 L=104.0' S=0.0050 '/' Capacity=0.93 cfs Outflow=0.00 cfs 0.003 af

Reach 33R: 8" SD Avg. Flow Depth=0.22' Max Vel=2.81 fps Inflow=0.28 cfs 0.031 af
8.0" Round Pipe n=0.013 L=76.0' S=0.0100 '/' Capacity=1.21 cfs Outflow=0.28 cfs 0.031 af

Reach 34R: 12" SD Avg. Flow Depth=0.36' Max Vel=3.21 fps Inflow=0.81 cfs 0.064 af
12.0" Round Pipe n=0.012 L=17.0' S=0.0059 '/' Capacity=2.96 cfs Outflow=0.81 cfs 0.064 af

Reach 35R: 12" SD Avg. Flow Depth=0.33' Max Vel=4.56 fps Inflow=1.04 cfs 0.097 af
12.0" Round Pipe n=0.013 L=12.0' S=0.0150 '/' Capacity=4.36 cfs Outflow=1.04 cfs 0.097 af

Reach 40R: New CB 1 to DMH 2 Avg. Flow Depth=0.34' Max Vel=4.19 fps Inflow=1.17 cfs 0.106 af
15.0" Round Pipe n=0.012 L=410.0' S=0.0100 '/' Capacity=7.00 cfs Outflow=1.13 cfs 0.106 af

Reach 41R: DMH 2 to DMH 3 Avg. Flow Depth=0.33' Max Vel=4.06 fps Inflow=1.18 cfs 0.196 af
18.0" Round Pipe n=0.012 L=80.0' S=0.0094 '/' Capacity=11.02 cfs Outflow=1.18 cfs 0.196 af

Reach 42R: DMH 3 to DMH 7 Avg. Flow Depth=0.33' Max Vel=4.01 fps Inflow=1.19 cfs 0.233 af
18.0" Round Pipe n=0.012 L=382.0' S=0.0091 '/' Capacity=10.86 cfs Outflow=1.16 cfs 0.233 af

Reach 44R: DMH 7 to Wetland Avg. Flow Depth=0.44' Max Vel=5.07 fps Inflow=2.58 cfs 0.455 af
24.0" Round Pipe n=0.012 L=30.0' S=0.0100 '/' Capacity=24.51 cfs Outflow=2.58 cfs 0.455 af

Pond 3P: FP1 TANKS Peak Elev=108.52' Storage=119 cf Inflow=0.00 cfs 0.003 af
Outflow=0.00 cfs 0.001 af

Pond 4P: FP2 TANKS Peak Elev=109.49' Storage=762 cf Inflow=0.16 cfs 0.024 af
Outflow=0.01 cfs 0.017 af

Pond 5P: Filterra Peak Elev=117.42' Storage=95 cf Inflow=0.66 cfs 0.047 af
Primary=0.19 cfs 0.041 af Secondary=0.47 cfs 0.007 af Outflow=0.66 cfs 0.047 af

Pond 6P: Filterra Peak Elev=117.43' Storage=95 cf Inflow=0.70 cfs 0.050 af
Primary=0.19 cfs 0.042 af Secondary=0.50 cfs 0.007 af Outflow=0.70 cfs 0.050 af

Pond 9R: New CB 1 to DMH 2 Peak Elev=112.74' Inflow=1.17 cfs 0.106 af
15.0" Round Culvert n=0.012 L=10.0' S=0.0100 '/' Outflow=1.17 cfs 0.106 af

Pond 30P: Raised StormTech SC-740 Peak Elev=112.96' Storage=0.058 af Inflow=1.04 cfs 0.097 af
Outflow=0.04 cfs 0.097 af

Pond 36P: PP1 Peak Elev=115.89' Storage=110 cf Inflow=0.11 cfs 0.008 af
Outflow=0.06 cfs 0.006 af

Pond 37P: PP2 Peak Elev=115.86' Storage=106 cf Inflow=0.23 cfs 0.018 af
Outflow=0.18 cfs 0.018 af

Pond 38P: Rain Garden West Peak Elev=120.09' Storage=42 cf Inflow=0.00 cfs 0.001 af
Outflow=0.00 cfs 0.000 af

Pond DS-2: Drip Strip Peak Elev=115.29' Storage=187 cf Inflow=0.59 cfs 0.043 af
Discarded=0.28 cfs 0.043 af Primary=0.00 cfs 0.000 af Outflow=0.28 cfs 0.043 af

Pond DS-3: Drip Strip Peak Elev=116.05' Storage=665 cf Inflow=1.07 cfs 0.078 af
Discarded=0.28 cfs 0.077 af Primary=0.06 cfs 0.001 af Outflow=0.34 cfs 0.078 af

Pond DS1: Drip Strip Peak Elev=115.29' Storage=187 cf Inflow=0.59 cfs 0.043 af
Discarded=0.28 cfs 0.043 af Primary=0.00 cfs 0.000 af Outflow=0.28 cfs 0.043 af

Pond FP1: FP1 Filter Peak Elev=111.84' Storage=0 cf Inflow=0.00 cfs 0.003 af
Primary=0.00 cfs 0.003 af Secondary=0.00 cfs 0.000 af Outflow=0.00 cfs 0.003 af

Pond FP2: FP2 Filter Peak Elev=110.58' Storage=1 cf Inflow=0.16 cfs 0.024 af
Primary=0.16 cfs 0.024 af Secondary=0.00 cfs 0.000 af Outflow=0.16 cfs 0.024 af

Pond IT-1: Infiltration Trench Peak Elev=113.36' Storage=652 cf Inflow=1.36 cfs 0.097 af
Discarded=0.28 cfs 0.087 af Primary=0.31 cfs 0.010 af Outflow=0.59 cfs 0.097 af

Pond PP1: Porous Pavement 1 Peak Elev=113.50' Storage=1,485 cf Inflow=0.75 cfs 0.054 af
Outflow=0.03 cfs 0.049 af

Pond PP2: Porous Pavement 2 Peak Elev=113.35' Storage=1,233 cf Inflow=0.62 cfs 0.044 af
Outflow=0.03 cfs 0.037 af

Pond PP3: Porous Pavement 3 Peak Elev=112.66' Storage=1,287 cf Inflow=0.56 cfs 0.041 af
Outflow=0.01 cfs 0.031 af

Pond PP4: Porous Pavement 4 Peak Elev=112.73' Storage=602 cf Inflow=0.28 cfs 0.020 af
Outflow=0.01 cfs 0.019 af

Pond R1: Detention Pond 1 Peak Elev=111.97' Storage=2,151 cf Inflow=2.21 cfs 0.176 af
Outflow=1.42 cfs 0.170 af

Pond R2: Detention Pond 2 Peak Elev=112.05' Storage=2,358 cf Inflow=2.21 cfs 0.176 af
Outflow=1.31 cfs 0.169 af

Pond RG-1: Rain Garden Peak Elev=114.92' Storage=63 cf Inflow=0.18 cfs 0.014 af
Discarded=0.08 cfs 0.014 af Primary=0.00 cfs 0.000 af Outflow=0.08 cfs 0.014 af

Pond RG-2: Rain Garden Peak Elev=114.51' Storage=8 cf Inflow=0.19 cfs 0.016 af
Discarded=0.17 cfs 0.016 af Primary=0.00 cfs 0.000 af Outflow=0.17 cfs 0.016 af

Total Runoff Area = 11.324 ac Runoff Volume = 1.126 af Average Runoff Depth = 1.19"
47.50% Pervious = 5.379 ac 52.50% Impervious = 5.944 ac

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Subcatchment 1S: Area 1 Runoff Area=15,851 sf 17.16% Impervious Runoff Depth=0.49"
Flow Length=300' Tc=20.7 min CN=49 Runoff=0.08 cfs 0.015 af

Subcatchment 2S: Area 2 Runoff Area=1,429 sf 70.05% Impervious Runoff Depth=2.55"
Tc=6.0 min CN=80 Runoff=0.10 cfs 0.007 af

Subcatchment 3S: Area to PP1 Runoff Area=2,173 sf 81.59% Impervious Runoff Depth=3.19"
Tc=6.0 min CN=87 Runoff=0.18 cfs 0.013 af

Subcatchment 4S: Area to PP2 Runoff Area=3,345 sf 100.00% Impervious Runoff Depth=4.36"
Tc=6.0 min CN=98 Runoff=0.35 cfs 0.028 af

Subcatchment 5S: Area to Rain Garden East Runoff Area=8,904 sf 17.46% Impervious Runoff Depth=0.49"
Flow Length=150' Slope=0.0200 '/' Tc=9.2 min CN=49 Runoff=0.05 cfs 0.008 af

Subcatchment 6S: Bldg 1 Roof Runoff Area=11,717 sf 100.00% Impervious Runoff Depth=4.36"
Tc=6.0 min CN=98 Runoff=1.21 cfs 0.098 af

Subcatchment 7S: Area to Rain Garden Runoff Area=21,901 sf 7.99% Impervious Runoff Depth=0.29"
Flow Length=170' Tc=14.0 min CN=44 Runoff=0.04 cfs 0.012 af

Subcatchment 9S: Runoff Area=1,785 sf 50.98% Impervious Runoff Depth=1.67"
Tc=6.0 min CN=69 Runoff=0.08 cfs 0.006 af

Subcatchment 10S: Runoff Area=12,293 sf 82.32% Impervious Runoff Depth=3.29"
Tc=6.0 min CN=88 Runoff=1.07 cfs 0.077 af

Subcatchment 11S: Area to Rain Garden 2 Runoff Area=11,240 sf 51.56% Impervious Runoff Depth=1.67"
Tc=6.0 min CN=69 Runoff=0.49 cfs 0.036 af

Subcatchment 12S: Area to Rain Garden 1 Runoff Area=7,303 sf 58.87% Impervious Runoff Depth=2.05"
Tc=6.0 min CN=74 Runoff=0.40 cfs 0.029 af

Subcatchment 13S: Area to Infiltration Runoff Area=15,495 sf 77.47% Impervious Runoff Depth=3.00"
Tc=6.0 min CN=85 Runoff=1.24 cfs 0.089 af

Subcatchment 14S: Roof Area to Drip Runoff Area=6,080 sf 100.00% Impervious Runoff Depth=4.36"
Tc=6.0 min CN=98 Runoff=0.63 cfs 0.051 af

Subcatchment 15S: Roof Area to Drip Strip Runoff Area=9,600 sf 79.17% Impervious Runoff Depth=3.81"
Tc=6.0 min CN=93 Runoff=0.93 cfs 0.070 af

Subcatchment 16S: Roof Area to Drip Strip Runoff Area=9,600 sf 79.17% Impervious Runoff Depth=3.81"
Tc=6.0 min CN=93 Runoff=0.93 cfs 0.070 af

Subcatchment 17S: Roof Area to Drip Runoff Area=17,390 sf 76.31% Impervious Runoff Depth=3.81"
Tc=6.0 min CN=93 Runoff=1.68 cfs 0.127 af

Subcatchment 18S: North of Mother House Runoff Area=44,775 sf 50.92% Impervious Runoff Depth=1.67"
Tc=6.0 min CN=69 Runoff=1.95 cfs 0.143 af

Subcatchment 19A: St. Josephs Runoff Area=57,470 sf 35.07% Impervious Runoff Depth=1.07"
Flow Length=407' Tc=19.8 min CN=60 Runoff=0.96 cfs 0.118 af

Subcatchment 20A: North Parking - West Runoff Area=19,180 sf 72.24% Impervious Runoff Depth=2.72"
Tc=6.0 min CN=82 Runoff=1.41 cfs 0.100 af

Subcatchment 20B: North Parking - East Runoff Area=15,935 sf 73.59% Impervious Runoff Depth=2.72"
Tc=6.0 min CN=82 Runoff=1.17 cfs 0.083 af

Subcatchment 21A: Building 5 Runoff Area=19,410 sf 100.00% Impervious Runoff Depth=4.36"
Tc=6.0 min CN=98 Runoff=2.00 cfs 0.162 af

Subcatchment 21B: Buiding 4 Runoff Area=12,580 sf 100.00% Impervious Runoff Depth=4.36"
Tc=6.0 min CN=98 Runoff=1.30 cfs 0.105 af

Subcatchment 22A: The Common Runoff Area=35,370 sf 23.11% Impervious Runoff Depth=0.36"
Flow Length=209' Slope=0.0100 '/' Tc=23.0 min UI Adjusted CN=46 Runoff=0.10 cfs 0.025 af

Subcatchment 22B: Detention Pond 1 Runoff Area=8,850 sf 13.39% Impervious Runoff Depth=0.40"
Tc=6.0 min CN=47 Runoff=0.04 cfs 0.007 af

Subcatchment 23A: South Parking - West Runoff Area=18,825 sf 64.46% Impervious Runoff Depth=2.29"
Tc=6.0 min CN=77 Runoff=1.16 cfs 0.083 af

Subcatchment 23B: South Parking - East Runoff Area=9,870 sf 63.12% Impervious Runoff Depth=2.21"
Tc=6.0 min CN=76 Runoff=0.59 cfs 0.042 af

Subcatchment 24A: Building 2 Runoff Area=12,580 sf 100.00% Impervious Runoff Depth=4.36"
Tc=6.0 min CN=98 Runoff=1.30 cfs 0.105 af

Subcatchment 24B: Building 3 Runoff Area=19,410 sf 100.00% Impervious Runoff Depth=4.36"
Tc=6.0 min CN=98 Runoff=2.00 cfs 0.162 af

Subcatchment 25A: South of Building 2 Runoff Area=22,380 sf 21.94% Impervious Runoff Depth=1.39"
Flow Length=140' Slope=0.0100 '/' Tc=25.0 min CN=65 Runoff=0.48 cfs 0.060 af

Subcatchment 25B: South of Building 3 Runoff Area=9,075 sf 8.10% Impervious Runoff Depth=2.21"
Tc=6.0 min CN=76 Runoff=0.54 cfs 0.038 af

Subcatchment 25C: South of Building 3 Runoff Area=2,390 sf 19.25% Impervious Runoff Depth=2.46"
Tc=6.0 min CN=79 Runoff=0.16 cfs 0.011 af

Subcatchment 26S: Wetland to POI 2 Runoff Area=10,500 sf 5.52% Impervious Runoff Depth=1.20"
Flow Length=155' Slope=0.0500 '/' Tc=22.1 min CN=62 Runoff=0.20 cfs 0.024 af

Subcatchment 27S: Wetland to POI 1 Runoff Area=13,833 sf 3.43% Impervious Runoff Depth=2.21"
Flow Length=165' Slope=0.0500 '/' Tc=27.3 min CN=76 Runoff=0.48 cfs 0.058 af

Subcatchment 28S: Runoff Area=4,725 sf 0.00% Impervious Runoff Depth=0.13"
Flow Length=105' Slope=0.0100 '/' Tc=13.2 min CN=39 Runoff=0.00 cfs 0.001 af

Reach 1R: CB 19 TO WETLAND Avg. Flow Depth=0.57' Max Vel=4.30 fps Inflow=2.33 cfs 0.526 af
15.0" Round Pipe n=0.012 L=126.0' S=0.0062 '/' Capacity=5.51 cfs Outflow=2.33 cfs 0.526 af

Reach 2R: POI 2 Inflow=6.69 cfs 0.974 af
Outflow=6.69 cfs 0.974 af

Reach 4R: Wetland to POI 2 Avg. Flow Depth=0.35' Max Vel=4.35 fps Inflow=6.55 cfs 0.950 af
n=0.035 L=145.0' S=0.0500 '/' Capacity=24.99 cfs Outflow=6.55 cfs 0.949 af

Reach 6R: Wetland to POI 1 Avg. Flow Depth=0.12' Max Vel=2.22 fps Inflow=2.33 cfs 0.526 af
n=0.035 L=210.0' S=0.0500 '/' Capacity=57.05 cfs Outflow=2.31 cfs 0.526 af

Reach 24R: DMH 11 to DMH 12 Avg. Flow Depth=0.17' Max Vel=2.69 fps Inflow=0.19 cfs 0.072 af
8.0" Round Pipe n=0.012 L=59.0' S=0.0100 '/' Capacity=1.31 cfs Outflow=0.19 cfs 0.072 af

Reach 25R: DMH 12 to DMH 15 Avg. Flow Depth=0.23' Max Vel=3.12 fps Inflow=0.33 cfs 0.111 af
8.0" Round Pipe n=0.012 L=48.0' S=0.0100 '/' Capacity=1.31 cfs Outflow=0.33 cfs 0.111 af

Reach 26R: DMH 15 to DMH 14 Avg. Flow Depth=0.20' Max Vel=3.00 fps Inflow=0.33 cfs 0.128 af
12.0" Round Pipe n=0.012 L=105.0' S=0.0100 '/' Capacity=3.86 cfs Outflow=0.33 cfs 0.128 af

Reach 27R: DMH 14 to DMH 7 Avg. Flow Depth=0.45' Max Vel=4.90 fps Inflow=1.98 cfs 0.396 af
15.0" Round Pipe n=0.012 L=42.0' S=0.0100 '/' Capacity=7.00 cfs Outflow=1.98 cfs 0.396 af

Reach 28R: POI 1 Inflow=2.60 cfs 0.584 af
Outflow=2.60 cfs 0.584 af

Reach 29R: EX. DMH 4 to NEW CB 19 Avg. Flow Depth=0.21' Max Vel=2.33 fps Inflow=0.27 cfs 0.165 af
12.0" Round Pipe n=0.012 L=172.0' S=0.0058 '/' Capacity=2.93 cfs Outflow=0.27 cfs 0.165 af

Reach 31R: 8" SD Avg. Flow Depth=0.09' Max Vel=1.70 fps Inflow=0.05 cfs 0.017 af
8.0" Round Pipe n=0.013 L=28.0' S=0.0100 '/' Capacity=1.21 cfs Outflow=0.05 cfs 0.017 af

Reach 32R: 8" UD Avg. Flow Depth=0.13' Max Vel=1.61 fps Inflow=0.08 cfs 0.015 af
8.0" Round Pipe n=0.012 L=104.0' S=0.0050 '/' Capacity=0.93 cfs Outflow=0.08 cfs 0.015 af

Reach 33R: 8" SD Avg. Flow Depth=0.30' Max Vel=3.32 fps Inflow=0.51 cfs 0.062 af
8.0" Round Pipe n=0.013 L=76.0' S=0.0100 '/' Capacity=1.21 cfs Outflow=0.51 cfs 0.062 af

Reach 34R: 12" SD Avg. Flow Depth=0.45' Max Vel=3.58 fps Inflow=1.21 cfs 0.098 af
12.0" Round Pipe n=0.012 L=17.0' S=0.0059 '/' Capacity=2.96 cfs Outflow=1.21 cfs 0.098 af

Reach 35R: 12" SD Avg. Flow Depth=0.43' Max Vel=5.20 fps Inflow=1.69 cfs 0.177 af
12.0" Round Pipe n=0.013 L=12.0' S=0.0150 '/' Capacity=4.36 cfs Outflow=1.69 cfs 0.177 af

Reach 40R: New CB 1 to DMH 2 Avg. Flow Depth=0.68' Max Vel=5.89 fps Inflow=4.05 cfs 0.266 af
15.0" Round Pipe n=0.012 L=410.0' S=0.0100 '/' Capacity=7.00 cfs Outflow=3.99 cfs 0.266 af

Reach 41R: DMH 2 to DMH 3 Avg. Flow Depth=0.67' Max Vel=5.94 fps Inflow=4.57 cfs 0.479 af
18.0" Round Pipe n=0.012 L=80.0' S=0.0094 '/' Capacity=11.02 cfs Outflow=4.57 cfs 0.479 af

Reach 42R: DMH 3 to DMH 7 Avg. Flow Depth=0.68' Max Vel=5.88 fps Inflow=4.60 cfs 0.553 af
18.0" Round Pipe n=0.012 L=382.0' S=0.0091 '/' Capacity=10.86 cfs Outflow=4.58 cfs 0.553 af

Reach 44R: DMH 7 to Wetland Avg. Flow Depth=0.71' Max Vel=6.61 fps Inflow=6.55 cfs 0.950 af
24.0" Round Pipe n=0.012 L=30.0' S=0.0100 '/' Capacity=24.51 cfs Outflow=6.55 cfs 0.950 af

Pond 3P: FP1 TANKS Peak Elev=109.63' Storage=816 cf Inflow=0.10 cfs 0.025 af
Outflow=0.01 cfs 0.017 af

Pond 4P: FP2 TANKS Peak Elev=109.71' Storage=893 cf Inflow=0.48 cfs 0.060 af
Outflow=0.24 cfs 0.051 af

Pond 5P: Filterra Peak Elev=117.57' Storage=104 cf Inflow=1.15 cfs 0.083 af
Primary=0.19 cfs 0.062 af Secondary=0.95 cfs 0.021 af Outflow=1.14 cfs 0.083 af

Pond 6P: Filterra Peak Elev=117.63' Storage=108 cf Inflow=1.24 cfs 0.090 af
Primary=0.19 cfs 0.065 af Secondary=1.04 cfs 0.025 af Outflow=1.23 cfs 0.090 af

Pond 9R: New CB 1 to DMH 2 Peak Elev=113.42' Inflow=4.05 cfs 0.265 af
15.0" Round Culvert n=0.012 L=10.0' S=0.0100 '/' Outflow=4.05 cfs 0.265 af

Pond 30P: Raised StormTech SC-740 Peak Elev=113.78' Storage=0.084 af Inflow=1.69 cfs 0.177 af
Outflow=0.27 cfs 0.165 af

Pond 36P: PP1 Peak Elev=115.97' Storage=138 cf Inflow=0.18 cfs 0.013 af
Outflow=0.15 cfs 0.012 af

Pond 37P: PP2 Peak Elev=115.94' Storage=137 cf Inflow=0.35 cfs 0.028 af
Outflow=0.28 cfs 0.028 af

Pond 38P: Rain Garden West Peak Elev=120.27' Storage=143 cf Inflow=0.04 cfs 0.012 af
Outflow=0.02 cfs 0.009 af

Pond DS-2: Drip Strip Peak Elev=115.82' Storage=522 cf Inflow=0.93 cfs 0.070 af
Discarded=0.28 cfs 0.070 af Primary=0.00 cfs 0.000 af Outflow=0.28 cfs 0.070 af

Pond DS-3: Drip Strip Peak Elev=116.55' Storage=903 cf Inflow=1.68 cfs 0.127 af
Discarded=0.28 cfs 0.107 af Primary=0.70 cfs 0.020 af Outflow=0.98 cfs 0.127 af

Pond DS1: Drip Strip Peak Elev=115.82' Storage=522 cf Inflow=0.93 cfs 0.070 af
Discarded=0.28 cfs 0.070 af Primary=0.00 cfs 0.000 af Outflow=0.28 cfs 0.070 af

Pond FP1: FP1 Filter Peak Elev=111.86' Storage=1 cf Inflow=0.10 cfs 0.025 af
Primary=0.10 cfs 0.025 af Secondary=0.00 cfs 0.000 af Outflow=0.10 cfs 0.025 af

Pond FP2: FP2 Filter Peak Elev=112.64' Storage=93 cf Inflow=0.48 cfs 0.060 af
Primary=0.21 cfs 0.052 af Secondary=0.27 cfs 0.008 af Outflow=0.48 cfs 0.060 af

Pond IT-1: Infiltration Trench Peak Elev=114.34' Storage=1,180 cf Inflow=2.37 cfs 0.173 af
Discarded=0.28 cfs 0.127 af Primary=0.99 cfs 0.046 af Outflow=1.27 cfs 0.173 af

Pond PP1: Porous Pavement 1 Peak Elev=113.74' Storage=2,062 cf Inflow=1.41 cfs 0.100 af
Outflow=0.23 cfs 0.094 af

Pond PP2: Porous Pavement 2 Peak Elev=113.57' Storage=1,702 cf Inflow=1.17 cfs 0.083 af
Outflow=0.21 cfs 0.075 af

Pond PP3: Porous Pavement 3 Peak Elev=112.91' Storage=1,661 cf Inflow=1.16 cfs 0.083 af
Outflow=0.19 cfs 0.072 af

Pond PP4: Porous Pavement 4 Peak Elev=113.01' Storage=783 cf Inflow=0.59 cfs 0.042 af
Outflow=0.14 cfs 0.039 af

Pond R1: Detention Pond 1 Peak Elev=112.53' Storage=2,708 cf Inflow=3.30 cfs 0.267 af
Outflow=1.93 cfs 0.262 af

Pond R2: Detention Pond 2 Peak Elev=112.66' Storage=2,994 cf Inflow=3.30 cfs 0.267 af
Outflow=1.76 cfs 0.260 af

Pond RG-1: Rain Garden Peak Elev=115.42' Storage=139 cf Inflow=0.40 cfs 0.029 af
Discarded=0.08 cfs 0.023 af Primary=0.21 cfs 0.005 af Outflow=0.29 cfs 0.029 af

Pond RG-2: Rain Garden Peak Elev=115.15' Storage=208 cf Inflow=0.49 cfs 0.036 af
Discarded=0.17 cfs 0.035 af Primary=0.05 cfs 0.001 af Outflow=0.21 cfs 0.036 af

Total Runoff Area = 11.324 ac Runoff Volume = 2.062 af Average Runoff Depth = 2.19"
47.50% Pervious = 5.379 ac 52.50% Impervious = 5.944 ac

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Subcatchment 1S: Area 1 Runoff Area=15,851 sf 17.16% Impervious Runoff Depth=0.00"
Flow Length=300' Tc=20.7 min CN=49 Runoff=0.00 cfs 0.000 af

Subcatchment 2S: Area 2 Runoff Area=1,429 sf 70.05% Impervious Runoff Depth=0.07"
Tc=6.0 min CN=80 Runoff=0.00 cfs 0.000 af

Subcatchment 3S: Area to PP1 Runoff Area=2,173 sf 81.59% Impervious Runoff Depth=0.20"
Tc=6.0 min CN=87 Runoff=0.01 cfs 0.001 af

Subcatchment 4S: Area to PP2 Runoff Area=3,345 sf 100.00% Impervious Runoff Depth=0.74"
Tc=6.0 min CN=98 Runoff=0.06 cfs 0.005 af

Subcatchment 5S: Area to Rain Garden East Runoff Area=8,904 sf 17.46% Impervious Runoff Depth=0.00"
Flow Length=150' Slope=0.0200 '/' Tc=9.2 min CN=49 Runoff=0.00 cfs 0.000 af

Subcatchment 6S: Bldg 1 Roof Runoff Area=11,717 sf 100.00% Impervious Runoff Depth=0.74"
Tc=6.0 min CN=98 Runoff=0.23 cfs 0.017 af

Subcatchment 7S: Area to Rain Garden Runoff Area=21,901 sf 7.99% Impervious Runoff Depth=0.00"
Flow Length=170' Tc=14.0 min CN=44 Runoff=0.00 cfs 0.000 af

Subcatchment 9S: Runoff Area=1,785 sf 50.98% Impervious Runoff Depth=0.00"
Tc=6.0 min CN=69 Runoff=0.00 cfs 0.000 af

Subcatchment 10S: Runoff Area=12,293 sf 82.32% Impervious Runoff Depth=0.22"
Tc=6.0 min CN=88 Runoff=0.06 cfs 0.005 af

Subcatchment 11S: Area to Rain Garden 2 Runoff Area=11,240 sf 51.56% Impervious Runoff Depth=0.00"
Tc=6.0 min CN=69 Runoff=0.00 cfs 0.000 af

Subcatchment 12S: Area to Rain Garden 1 Runoff Area=7,303 sf 58.87% Impervious Runoff Depth=0.02"
Tc=6.0 min CN=74 Runoff=0.00 cfs 0.000 af

Subcatchment 13S: Area to Infiltration Runoff Area=15,495 sf 77.47% Impervious Runoff Depth=0.15"
Tc=6.0 min CN=85 Runoff=0.04 cfs 0.004 af

Subcatchment 14S: Roof Area to Drip Runoff Area=6,080 sf 100.00% Impervious Runoff Depth=0.74"
Tc=6.0 min CN=98 Runoff=0.12 cfs 0.009 af

Subcatchment 15S: Roof Area to Drip Strip Runoff Area=9,600 sf 79.17% Impervious Runoff Depth=0.41"
Tc=6.0 min CN=93 Runoff=0.11 cfs 0.008 af

Subcatchment 16S: Roof Area to Drip Strip Runoff Area=9,600 sf 79.17% Impervious Runoff Depth=0.41"
Tc=6.0 min CN=93 Runoff=0.11 cfs 0.008 af

Subcatchment 17S: Roof Area to Drip Runoff Area=17,390 sf 76.31% Impervious Runoff Depth=0.41"
Tc=6.0 min CN=93 Runoff=0.19 cfs 0.014 af

Subcatchment 18S: North of Mother House Runoff Area=44,775 sf 50.92% Impervious Runoff Depth=0.00"
Tc=6.0 min CN=69 Runoff=0.00 cfs 0.000 af

Subcatchment 19A: St. Josephs Runoff Area=57,470 sf 35.07% Impervious Runoff Depth=0.00"
Flow Length=407' Tc=19.8 min CN=60 Runoff=0.00 cfs 0.000 af

Subcatchment 20A: North Parking - West Runoff Area=19,180 sf 72.24% Impervious Runoff Depth=0.10"
Tc=6.0 min CN=82 Runoff=0.02 cfs 0.004 af

Subcatchment 20B: North Parking - East Runoff Area=15,935 sf 73.59% Impervious Runoff Depth=0.10"
Tc=6.0 min CN=82 Runoff=0.02 cfs 0.003 af

Subcatchment 21A: Building 5 Runoff Area=19,410 sf 100.00% Impervious Runoff Depth=0.74"
Tc=6.0 min CN=98 Runoff=0.37 cfs 0.028 af

Subcatchment 21B: Buiding 4 Runoff Area=12,580 sf 100.00% Impervious Runoff Depth=0.74"
Tc=6.0 min CN=98 Runoff=0.24 cfs 0.018 af

Subcatchment 22A: The Common Runoff Area=35,370 sf 23.11% Impervious Runoff Depth=0.00"
Flow Length=209' Slope=0.0100 '/' Tc=23.0 min UI Adjusted CN=46 Runoff=0.00 cfs 0.000 af

Subcatchment 22B: Detention Pond 1 Runoff Area=8,850 sf 13.39% Impervious Runoff Depth=0.00"
Tc=6.0 min CN=47 Runoff=0.00 cfs 0.000 af

Subcatchment 23A: South Parking - West Runoff Area=18,825 sf 64.46% Impervious Runoff Depth=0.04"
Tc=6.0 min CN=77 Runoff=0.00 cfs 0.001 af

Subcatchment 23B: South Parking - East Runoff Area=9,870 sf 63.12% Impervious Runoff Depth=0.03"
Tc=6.0 min CN=76 Runoff=0.00 cfs 0.001 af

Subcatchment 24A: Building 2 Runoff Area=12,580 sf 100.00% Impervious Runoff Depth=0.74"
Tc=6.0 min CN=98 Runoff=0.24 cfs 0.018 af

Subcatchment 24B: Building 3 Runoff Area=19,410 sf 100.00% Impervious Runoff Depth=0.74"
Tc=6.0 min CN=98 Runoff=0.37 cfs 0.028 af

Subcatchment 25A: South of Building 2 Runoff Area=22,380 sf 21.94% Impervious Runoff Depth=0.00"
Flow Length=140' Slope=0.0100 '/' Tc=25.0 min CN=65 Runoff=0.00 cfs 0.000 af

Subcatchment 25B: South of Building 3 Runoff Area=9,075 sf 8.10% Impervious Runoff Depth=0.03"
Tc=6.0 min CN=76 Runoff=0.00 cfs 0.001 af

Subcatchment 25C: South of Building 3 Runoff Area=2,390 sf 19.25% Impervious Runoff Depth=0.06"
Tc=6.0 min CN=79 Runoff=0.00 cfs 0.000 af

Subcatchment 26S: Wetland to POI 2 Runoff Area=10,500 sf 5.52% Impervious Runoff Depth=0.00"
Flow Length=155' Slope=0.0500 '/' Tc=22.1 min CN=62 Runoff=0.00 cfs 0.000 af

Subcatchment 27S: Wetland to POI 1 Runoff Area=13,833 sf 3.43% Impervious Runoff Depth=0.03"
Flow Length=165' Slope=0.0500 '/' Tc=27.3 min CN=76 Runoff=0.00 cfs 0.001 af

Subcatchment 28S: Runoff Area=4,725 sf 0.00% Impervious Runoff Depth=0.00"
Flow Length=105' Slope=0.0100 '/' Tc=13.2 min CN=39 Runoff=0.00 cfs 0.000 af

Reach 1R: CB 19 TO WETLAND Avg. Flow Depth=0.09' Max Vel=1.48 fps Inflow=0.06 cfs 0.061 af
15.0" Round Pipe n=0.012 L=126.0' S=0.0062 '/' Capacity=5.51 cfs Outflow=0.06 cfs 0.061 af

Reach 2R: POI 2 Inflow=0.16 cfs 0.057 af
Outflow=0.16 cfs 0.057 af

Reach 4R: Wetland to POI 2 Avg. Flow Depth=0.04' Max Vel=1.06 fps Inflow=0.16 cfs 0.057 af
n=0.035 L=145.0' S=0.0500 '/' Capacity=24.99 cfs Outflow=0.16 cfs 0.057 af

Reach 6R: Wetland to POI 1 Avg. Flow Depth=0.01' Max Vel=0.55 fps Inflow=0.06 cfs 0.061 af
n=0.035 L=210.0' S=0.0500 '/' Capacity=57.05 cfs Outflow=0.06 cfs 0.061 af

Reach 24R: DMH 11 to DMH 12 Avg. Flow Depth=0.02' Max Vel=0.77 fps Inflow=0.00 cfs 0.001 af
8.0" Round Pipe n=0.012 L=59.0' S=0.0100 '/' Capacity=1.31 cfs Outflow=0.00 cfs 0.001 af

Reach 25R: DMH 12 to DMH 15 Avg. Flow Depth=0.02' Max Vel=0.80 fps Inflow=0.00 cfs 0.002 af
8.0" Round Pipe n=0.012 L=48.0' S=0.0100 '/' Capacity=1.31 cfs Outflow=0.00 cfs 0.002 af

Reach 26R: DMH 15 to DMH 14 Avg. Flow Depth=0.02' Max Vel=0.76 fps Inflow=0.00 cfs 0.002 af
12.0" Round Pipe n=0.012 L=105.0' S=0.0100 '/' Capacity=3.86 cfs Outflow=0.00 cfs 0.002 af

Reach 27R: DMH 14 to DMH 7 Avg. Flow Depth=0.08' Max Vel=1.73 fps Inflow=0.06 cfs 0.042 af
15.0" Round Pipe n=0.012 L=42.0' S=0.0100 '/' Capacity=7.00 cfs Outflow=0.06 cfs 0.042 af

Reach 28R: POI 1 Inflow=0.06 cfs 0.062 af
Outflow=0.06 cfs 0.062 af

Reach 29R: EX. DMH 4 to NEW CB 19 Avg. Flow Depth=0.06' Max Vel=1.14 fps Inflow=0.02 cfs 0.022 af
12.0" Round Pipe n=0.012 L=172.0' S=0.0058 '/' Capacity=2.93 cfs Outflow=0.02 cfs 0.022 af

Reach 31R: 8" SD Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af
8.0" Round Pipe n=0.013 L=28.0' S=0.0100 '/' Capacity=1.21 cfs Outflow=0.00 cfs 0.000 af

Reach 32R: 8" UD Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af
8.0" Round Pipe n=0.012 L=104.0' S=0.0050 '/' Capacity=0.93 cfs Outflow=0.00 cfs 0.000 af

Reach 33R: 8" SD Avg. Flow Depth=0.08' Max Vel=1.59 fps Inflow=0.04 cfs 0.005 af
8.0" Round Pipe n=0.013 L=76.0' S=0.0100 '/' Capacity=1.21 cfs Outflow=0.04 cfs 0.005 af

Reach 34R: 12" SD Avg. Flow Depth=0.19' Max Vel=2.22 fps Inflow=0.23 cfs 0.017 af
12.0" Round Pipe n=0.012 L=17.0' S=0.0059 '/' Capacity=2.96 cfs Outflow=0.23 cfs 0.017 af

Reach 35R: 12" SD Avg. Flow Depth=0.16' Max Vel=3.03 fps Inflow=0.25 cfs 0.022 af
12.0" Round Pipe n=0.013 L=12.0' S=0.0150 '/' Capacity=4.36 cfs Outflow=0.25 cfs 0.022 af

Reach 40R: New CB 1 to DMH 2 Avg. Flow Depth=0.11' Max Vel=2.09 fps Inflow=0.12 cfs 0.009 af
15.0" Round Pipe n=0.012 L=410.0' S=0.0100 '/' Capacity=7.00 cfs Outflow=0.11 cfs 0.009 af

Reach 41R: DMH 2 to DMH 3 Avg. Flow Depth=0.11' Max Vel=2.06 fps Inflow=0.12 cfs 0.012 af
18.0" Round Pipe n=0.012 L=80.0' S=0.0094 '/' Capacity=11.02 cfs Outflow=0.12 cfs 0.012 af

Reach 42R: DMH 3 to DMH 7 Avg. Flow Depth=0.11' Max Vel=2.04 fps Inflow=0.13 cfs 0.015 af
18.0" Round Pipe n=0.012 L=382.0' S=0.0091 '/' Capacity=10.86 cfs Outflow=0.12 cfs 0.015 af

Reach 44R: DMH 7 to Wetland Avg. Flow Depth=0.12' Max Vel=2.22 fps Inflow=0.16 cfs 0.057 af
24.0" Round Pipe n=0.012 L=30.0' S=0.0100 '/' Capacity=24.51 cfs Outflow=0.16 cfs 0.057 af

Pond 3P: FP1 TANKS Peak Elev=108.21' Storage=0 cf Inflow=0.00 cfs 0.000 af
Outflow=0.00 cfs 0.000 af

Pond 4P: FP2 TANKS Peak Elev=108.13' Storage=0 cf Inflow=0.00 cfs 0.000 af
Outflow=0.00 cfs 0.000 af

Pond 5P: Filterra Peak Elev=114.59' Storage=4 cf Inflow=0.06 cfs 0.005 af
Primary=0.06 cfs 0.005 af Secondary=0.00 cfs 0.000 af Outflow=0.06 cfs 0.005 af

Pond 6P: Filterra Peak Elev=114.56' Storage=3 cf Inflow=0.04 cfs 0.004 af
Primary=0.04 cfs 0.004 af Secondary=0.00 cfs 0.000 af Outflow=0.04 cfs 0.004 af

Pond 9R: New CB 1 to DMH 2 Peak Elev=112.32' Inflow=0.12 cfs 0.009 af
15.0" Round Culvert n=0.012 L=10.0' S=0.0100 '/' Outflow=0.12 cfs 0.009 af

Pond 30P: Raised StormTech SC-740 Peak Elev=111.64' Storage=0.009 af Inflow=0.25 cfs 0.022 af
Outflow=0.02 cfs 0.022 af

Pond 36P: PP1 Peak Elev=115.69' Storage=36 cf Inflow=0.01 cfs 0.001 af
Outflow=0.00 cfs 0.000 af

Pond 37P: PP2 Peak Elev=115.71' Storage=48 cf Inflow=0.06 cfs 0.005 af
Outflow=0.04 cfs 0.005 af

Pond 38P: Rain Garden West Peak Elev=120.00' Storage=0 cf Inflow=0.00 cfs 0.000 af
Outflow=0.00 cfs 0.000 af

Pond DS-2: Drip Strip Peak Elev=115.02' Storage=11 cf Inflow=0.11 cfs 0.008 af
Discarded=0.10 cfs 0.008 af Primary=0.00 cfs 0.000 af Outflow=0.10 cfs 0.008 af

Pond DS-3: Drip Strip Peak Elev=115.03' Storage=21 cf Inflow=0.19 cfs 0.014 af
Discarded=0.18 cfs 0.014 af Primary=0.00 cfs 0.000 af Outflow=0.18 cfs 0.014 af

Pond DS1: Drip Strip Peak Elev=115.02' Storage=11 cf Inflow=0.11 cfs 0.008 af
Discarded=0.10 cfs 0.008 af Primary=0.00 cfs 0.000 af Outflow=0.10 cfs 0.008 af

Pond FP1: FP1 Filter Peak Elev=111.84' Storage=0 cf Inflow=0.00 cfs 0.000 af
Primary=0.00 cfs 0.000 af Secondary=0.00 cfs 0.000 af Outflow=0.00 cfs 0.000 af

Pond FP2: FP2 Filter Peak Elev=110.56' Storage=0 cf Inflow=0.00 cfs 0.000 af
Primary=0.00 cfs 0.000 af Secondary=0.00 cfs 0.000 af Outflow=0.00 cfs 0.000 af

Pond IT-1: Infiltration Trench Peak Elev=112.02' Storage=9 cf Inflow=0.11 cfs 0.010 af
Discarded=0.10 cfs 0.010 af Primary=0.00 cfs 0.000 af Outflow=0.10 cfs 0.010 af

Pond PP1: Porous Pavement 1 Peak Elev=112.90' Storage=11 cf Inflow=0.02 cfs 0.004 af
Outflow=0.01 cfs 0.004 af

Pond PP2: Porous Pavement 2 Peak Elev=112.78' Storage=12 cf Inflow=0.02 cfs 0.003 af
Outflow=0.01 cfs 0.003 af

Pond PP3: Porous Pavement 3 Peak Elev=110.34' Storage=0 cf Inflow=0.00 cfs 0.001 af
Outflow=0.00 cfs 0.001 af

Pond PP4: Porous Pavement 4 Peak Elev=110.19' Storage=0 cf Inflow=0.00 cfs 0.001 af
Outflow=0.00 cfs 0.001 af

Pond R1: Detention Pond 1 Peak Elev=110.96' Storage=1,135 cf Inflow=0.62 cfs 0.045 af
Outflow=0.05 cfs 0.040 af

Pond R2: Detention Pond 2 Peak Elev=111.05' Storage=1,302 cf Inflow=0.62 cfs 0.045 af
Outflow=0.03 cfs 0.039 af

Pond RG-1: Rain Garden Peak Elev=114.50' Storage=0 cf Inflow=0.00 cfs 0.000 af
Discarded=0.00 cfs 0.000 af Primary=0.00 cfs 0.000 af Outflow=0.00 cfs 0.000 af

Pond RG-2: Rain Garden Peak Elev=114.49' Storage=0 cf Inflow=0.00 cfs 0.000 af
Discarded=0.00 cfs 0.000 af Primary=0.00 cfs 0.000 af Outflow=0.00 cfs 0.000 af

Total Runoff Area = 11.324 ac Runoff Volume = 0.171 af Average Runoff Depth = 0.18"
47.50% Pervious = 5.379 ac 52.50% Impervious = 5.944 ac

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Subcatchment 1S: Area 1 Runoff Area=15,851 sf 17.16% Impervious Runoff Depth=0.98"
Flow Length=300' Tc=20.7 min CN=49 Runoff=0.21 cfs 0.030 af

Subcatchment 2S: Area 2 Runoff Area=1,429 sf 70.05% Impervious Runoff Depth=3.60"
Tc=6.0 min CN=80 Runoff=0.14 cfs 0.010 af

Subcatchment 3S: Area to PP1 Runoff Area=2,173 sf 81.59% Impervious Runoff Depth=4.33"
Tc=6.0 min CN=87 Runoff=0.25 cfs 0.018 af

Subcatchment 4S: Area to PP2 Runoff Area=3,345 sf 100.00% Impervious Runoff Depth=5.56"
Tc=6.0 min CN=98 Runoff=0.44 cfs 0.036 af

Subcatchment 5S: Area to Rain Garden East Runoff Area=8,904 sf 17.46% Impervious Runoff Depth=0.98"
Flow Length=150' Slope=0.0200 '/' Tc=9.2 min CN=49 Runoff=0.15 cfs 0.017 af

Subcatchment 6S: Bldg 1 Roof Runoff Area=11,717 sf 100.00% Impervious Runoff Depth=5.56"
Tc=6.0 min CN=98 Runoff=1.53 cfs 0.125 af

Subcatchment 7S: Area to Rain Garden Runoff Area=21,901 sf 7.99% Impervious Runoff Depth=0.66"
Flow Length=170' Tc=14.0 min CN=44 Runoff=0.16 cfs 0.028 af

Subcatchment 9S: Runoff Area=1,785 sf 50.98% Impervious Runoff Depth=2.56"
Tc=6.0 min CN=69 Runoff=0.12 cfs 0.009 af

Subcatchment 10S: Runoff Area=12,293 sf 82.32% Impervious Runoff Depth=4.43"
Tc=6.0 min CN=88 Runoff=1.42 cfs 0.104 af

Subcatchment 11S: Area to Rain Garden 2 Runoff Area=11,240 sf 51.56% Impervious Runoff Depth=2.56"
Tc=6.0 min CN=69 Runoff=0.77 cfs 0.055 af

Subcatchment 12S: Area to Rain Garden 1 Runoff Area=7,303 sf 58.87% Impervious Runoff Depth=3.02"
Tc=6.0 min CN=74 Runoff=0.59 cfs 0.042 af

Subcatchment 13S: Area to Infiltration Runoff Area=15,495 sf 77.47% Impervious Runoff Depth=4.11"
Tc=6.0 min CN=85 Runoff=1.69 cfs 0.122 af

Subcatchment 14S: Roof Area to Drip Runoff Area=6,080 sf 100.00% Impervious Runoff Depth=5.56"
Tc=6.0 min CN=98 Runoff=0.79 cfs 0.065 af

Subcatchment 15S: Roof Area to Drip Strip Runoff Area=9,600 sf 79.17% Impervious Runoff Depth=4.99"
Tc=6.0 min CN=93 Runoff=1.20 cfs 0.092 af

Subcatchment 16S: Roof Area to Drip Strip Runoff Area=9,600 sf 79.17% Impervious Runoff Depth=4.99"
Tc=6.0 min CN=93 Runoff=1.20 cfs 0.092 af

Subcatchment 17S: Roof Area to Drip Runoff Area=17,390 sf 76.31% Impervious Runoff Depth=4.99"
Tc=6.0 min CN=93 Runoff=2.17 cfs 0.166 af

Subcatchment 18S: North of Mother House Runoff Area=44,775 sf 50.92% Impervious Runoff Depth=2.56"
Tc=6.0 min CN=69 Runoff=3.05 cfs 0.219 af

Subcatchment 19A: St. Josephs Runoff Area=57,470 sf 35.07% Impervious Runoff Depth=1.79"
Flow Length=407' Tc=19.8 min CN=60 Runoff=1.75 cfs 0.197 af

Subcatchment 20A: North Parking - West Runoff Area=19,180 sf 72.24% Impervious Runoff Depth=3.80"
Tc=6.0 min CN=82 Runoff=1.95 cfs 0.140 af

Subcatchment 20B: North Parking - East Runoff Area=15,935 sf 73.59% Impervious Runoff Depth=3.80"
Tc=6.0 min CN=82 Runoff=1.62 cfs 0.116 af

Subcatchment 21A: Building 5 Runoff Area=19,410 sf 100.00% Impervious Runoff Depth=5.56"
Tc=6.0 min CN=98 Runoff=2.53 cfs 0.207 af

Subcatchment 21B: Buiding 4 Runoff Area=12,580 sf 100.00% Impervious Runoff Depth=5.56"
Tc=6.0 min CN=98 Runoff=1.64 cfs 0.134 af

Subcatchment 22A: The Common Runoff Area=35,370 sf 23.11% Impervious Runoff Depth=0.78"
Flow Length=209' Slope=0.0100 '/' Tc=23.0 min UI Adjusted CN=46 Runoff=0.31 cfs 0.053 af

Subcatchment 22B: Detention Pond 1 Runoff Area=8,850 sf 13.39% Impervious Runoff Depth=0.85"
Tc=6.0 min CN=47 Runoff=0.13 cfs 0.014 af

Subcatchment 23A: South Parking - West Runoff Area=18,825 sf 64.46% Impervious Runoff Depth=3.31"
Tc=6.0 min CN=77 Runoff=1.68 cfs 0.119 af

Subcatchment 23B: South Parking - East Runoff Area=9,870 sf 63.12% Impervious Runoff Depth=3.21"
Tc=6.0 min CN=76 Runoff=0.85 cfs 0.061 af

Subcatchment 24A: Building 2 Runoff Area=12,580 sf 100.00% Impervious Runoff Depth=5.56"
Tc=6.0 min CN=98 Runoff=1.64 cfs 0.134 af

Subcatchment 24B: Building 3 Runoff Area=19,410 sf 100.00% Impervious Runoff Depth=5.56"
Tc=6.0 min CN=98 Runoff=2.53 cfs 0.207 af

Subcatchment 25A: South of Building 2 Runoff Area=22,380 sf 21.94% Impervious Runoff Depth=2.21"
Flow Length=140' Slope=0.0100 '/' Tc=25.0 min CN=65 Runoff=0.79 cfs 0.094 af

Subcatchment 25B: South of Building 3 Runoff Area=9,075 sf 8.10% Impervious Runoff Depth=3.21"
Tc=6.0 min CN=76 Runoff=0.78 cfs 0.056 af

Subcatchment 25C: South of Building 3 Runoff Area=2,390 sf 19.25% Impervious Runoff Depth=3.50"
Tc=6.0 min CN=79 Runoff=0.22 cfs 0.016 af

Subcatchment 26S: Wetland to POI 2 Runoff Area=10,500 sf 5.52% Impervious Runoff Depth=1.95"
Flow Length=155' Slope=0.0500 '/' Tc=22.1 min CN=62 Runoff=0.34 cfs 0.039 af

Subcatchment 27S: Wetland to POI 1 Runoff Area=13,833 sf 3.43% Impervious Runoff Depth=3.21"
Flow Length=165' Slope=0.0500 '/' Tc=27.3 min CN=76 Runoff=0.70 cfs 0.085 af

Subcatchment 28S: Runoff Area=4,725 sf 0.00% Impervious Runoff Depth=0.39"
Flow Length=105' Slope=0.0100 '/' Tc=13.2 min CN=39 Runoff=0.01 cfs 0.004 af

Reach 1R: CB 19 TO WETLAND Avg. Flow Depth=0.82' Max Vel=4.95 fps Inflow=4.29 cfs 0.736 af
15.0" Round Pipe n=0.012 L=126.0' S=0.0062 '/' Capacity=5.51 cfs Outflow=4.25 cfs 0.736 af

Reach 2R: POI 2 Inflow=11.32 cfs 1.450 af
Outflow=11.32 cfs 1.450 af

Reach 4R: Wetland to POI 2 Avg. Flow Depth=0.49' Max Vel=5.22 fps Inflow=11.09 cfs 1.411 af
n=0.035 L=145.0' S=0.0500 '/' Capacity=24.99 cfs Outflow=11.08 cfs 1.411 af

Reach 6R: Wetland to POI 1 Avg. Flow Depth=0.17' Max Vel=2.74 fps Inflow=4.25 cfs 0.736 af
n=0.035 L=210.0' S=0.0500 '/' Capacity=57.05 cfs Outflow=4.12 cfs 0.735 af

Reach 24R: DMH 11 to DMH 12 Avg. Flow Depth=0.32' Max Vel=3.68 fps Inflow=0.61 cfs 0.108 af
8.0" Round Pipe n=0.012 L=59.0' S=0.0100 '/' Capacity=1.31 cfs Outflow=0.61 cfs 0.108 af

Reach 25R: DMH 12 to DMH 15 Avg. Flow Depth=0.43' Max Vel=4.11 fps Inflow=0.97 cfs 0.166 af
8.0" Round Pipe n=0.012 L=48.0' S=0.0100 '/' Capacity=1.31 cfs Outflow=0.97 cfs 0.166 af

Reach 26R: DMH 15 to DMH 14 Avg. Flow Depth=0.34' Max Vel=4.10 fps Inflow=0.97 cfs 0.195 af
12.0" Round Pipe n=0.012 L=105.0' S=0.0100 '/' Capacity=3.86 cfs Outflow=0.97 cfs 0.195 af

Reach 27R: DMH 14 to DMH 7 Avg. Flow Depth=0.63' Max Vel=5.72 fps Inflow=3.55 cfs 0.544 af
15.0" Round Pipe n=0.012 L=42.0' S=0.0100 '/' Capacity=7.00 cfs Outflow=3.55 cfs 0.544 af

Reach 28R: POI 1 Inflow=4.55 cfs 0.820 af
Outflow=4.55 cfs 0.820 af

Reach 29R: EX. DMH 4 to NEW CB 19 Avg. Flow Depth=0.46' Max Vel=3.61 fps Inflow=1.29 cfs 0.244 af
12.0" Round Pipe n=0.012 L=172.0' S=0.0058 '/' Capacity=2.93 cfs Outflow=1.29 cfs 0.244 af

Reach 31R: 8" SD Avg. Flow Depth=0.18' Max Vel=2.57 fps Inflow=0.20 cfs 0.041 af
8.0" Round Pipe n=0.013 L=28.0' S=0.0100 '/' Capacity=1.21 cfs Outflow=0.20 cfs 0.041 af

Reach 32R: 8" UD Avg. Flow Depth=0.21' Max Vel=2.13 fps Inflow=0.21 cfs 0.030 af
8.0" Round Pipe n=0.012 L=104.0' S=0.0050 '/' Capacity=0.93 cfs Outflow=0.21 cfs 0.030 af

Reach 33R: 8" SD Avg. Flow Depth=0.38' Max Vel=3.64 fps Inflow=0.74 cfs 0.092 af
8.0" Round Pipe n=0.013 L=76.0' S=0.0100 '/' Capacity=1.21 cfs Outflow=0.74 cfs 0.092 af

Reach 34R: 12" SD Avg. Flow Depth=0.51' Max Vel=3.80 fps Inflow=1.53 cfs 0.125 af
12.0" Round Pipe n=0.012 L=17.0' S=0.0059 '/' Capacity=2.96 cfs Outflow=1.53 cfs 0.125 af

Reach 35R: 12" SD Avg. Flow Depth=0.52' Max Vel=5.63 fps Inflow=2.31 cfs 0.258 af
12.0" Round Pipe n=0.013 L=12.0' S=0.0150 '/' Capacity=4.36 cfs Outflow=2.31 cfs 0.258 af

Reach 40R: New CB 1 to DMH 2 Avg. Flow Depth=0.89' Max Vel=6.40 fps Inflow=6.03 cfs 0.429 af
15.0" Round Pipe n=0.012 L=410.0' S=0.0100 '/' Capacity=7.00 cfs Outflow=5.96 cfs 0.429 af

Reach 41R: DMH 2 to DMH 3 Avg. Flow Depth=0.89' Max Vel=6.66 fps Inflow=7.28 cfs 0.760 af
18.0" Round Pipe n=0.012 L=80.0' S=0.0094 '/' Capacity=11.02 cfs Outflow=7.28 cfs 0.760 af

Reach 42R: DMH 3 to DMH 7 Avg. Flow Depth=0.92' Max Vel=6.64 fps Inflow=7.56 cfs 0.867 af
18.0" Round Pipe n=0.012 L=382.0' S=0.0091 '/' Capacity=10.86 cfs Outflow=7.54 cfs 0.867 af

Reach 44R: DMH 7 to Wetland Avg. Flow Depth=0.94' Max Vel=7.61 fps Inflow=11.09 cfs 1.411 af
24.0" Round Pipe n=0.012 L=30.0' S=0.0100 '/' Capacity=24.51 cfs Outflow=11.09 cfs 1.411 af

Pond 3P: FP1 TANKS Peak Elev=111.34' Storage=1,875 cf Inflow=0.29 cfs 0.053 af
Outflow=0.02 cfs 0.029 af

Pond 4P: FP2 TANKS Peak Elev=109.77' Storage=934 cf Inflow=0.79 cfs 0.094 af
Outflow=0.73 cfs 0.086 af

Pond 5P: Filterra Peak Elev=117.87' Storage=122 cf Inflow=1.54 cfs 0.113 af
Primary=0.19 cfs 0.078 af Secondary=1.33 cfs 0.035 af Outflow=1.52 cfs 0.113 af

Pond 6P: Filterra Peak Elev=118.16' Storage=130 cf Inflow=1.75 cfs 0.134 af
Primary=0.19 cfs 0.083 af Secondary=1.60 cfs 0.052 af Outflow=1.80 cfs 0.134 af

Pond 9R: New CB 1 to DMH 2 Peak Elev=113.94' Inflow=6.03 cfs 0.426 af
15.0" Round Culvert n=0.012 L=10.0' S=0.0100 '/' Outflow=6.03 cfs 0.426 af

Pond 30P: Raised StormTech SC-740 Peak Elev=113.90' Storage=0.088 af Inflow=2.31 cfs 0.258 af
Outflow=1.29 cfs 0.244 af

Pond 36P: PP1 Peak Elev=116.01' Storage=152 cf Inflow=0.25 cfs 0.018 af
Outflow=0.20 cfs 0.017 af

Pond 37P: PP2 Peak Elev=115.99' Storage=160 cf Inflow=0.44 cfs 0.036 af
Outflow=0.36 cfs 0.036 af

Pond 38P: Rain Garden West Peak Elev=120.32' Storage=174 cf Inflow=0.16 cfs 0.028 af
Outflow=0.13 cfs 0.025 af

Pond DS-2: Drip Strip Peak Elev=116.14' Storage=706 cf Inflow=1.20 cfs 0.092 af
Discarded=0.28 cfs 0.087 af Primary=0.26 cfs 0.005 af Outflow=0.54 cfs 0.092 af

Pond DS-3: Drip Strip Peak Elev=117.08' Storage=1,168 cf Inflow=2.17 cfs 0.166 af
Discarded=0.28 cfs 0.129 af Primary=0.98 cfs 0.036 af Outflow=1.26 cfs 0.166 af

Pond DS1: Drip Strip Peak Elev=116.14' Storage=706 cf Inflow=1.20 cfs 0.092 af
Discarded=0.28 cfs 0.087 af Primary=0.26 cfs 0.005 af Outflow=0.54 cfs 0.092 af

Pond FP1: FP1 Filter Peak Elev=113.98' Storage=98 cf Inflow=0.31 cfs 0.053 af
Primary=0.21 cfs 0.052 af Secondary=0.08 cfs 0.001 af Outflow=0.29 cfs 0.053 af

Pond FP2: FP2 Filter Peak Elev=112.70' Storage=98 cf Inflow=0.79 cfs 0.094 af
Primary=0.21 cfs 0.071 af Secondary=0.58 cfs 0.023 af Outflow=0.79 cfs 0.094 af

Pond IT-1: Infiltration Trench Peak Elev=115.40' Storage=1,856 cf Inflow=3.31 cfs 0.247 af
Discarded=0.28 cfs 0.158 af Primary=1.39 cfs 0.089 af Outflow=1.66 cfs 0.247 af

Pond PP1: Porous Pavement 1 Peak Elev=113.96' Storage=2,617 cf Inflow=1.95 cfs 0.140 af
Outflow=0.57 cfs 0.133 af

Pond PP2: Porous Pavement 2 Peak Elev=113.81' Storage=2,138 cf Inflow=1.62 cfs 0.116 af
Outflow=0.59 cfs 0.108 af

Pond PP3: Porous Pavement 3 Peak Elev=113.17' Storage=2,051 cf Inflow=1.68 cfs 0.119 af
Outflow=0.61 cfs 0.108 af

Pond PP4: Porous Pavement 4 Peak Elev=113.22' Storage=917 cf Inflow=0.85 cfs 0.061 af
Outflow=0.39 cfs 0.058 af

Pond R1: Detention Pond 1 Peak Elev=113.01' Storage=3,125 cf Inflow=4.17 cfs 0.340 af
Outflow=2.92 cfs 0.335 af

Pond R2: Detention Pond 2 Peak Elev=112.90' Storage=3,236 cf Inflow=4.17 cfs 0.340 af
Outflow=3.39 cfs 0.334 af

Pond RG-1: Rain Garden Peak Elev=115.86' Storage=206 cf Inflow=0.59 cfs 0.042 af
Discarded=0.08 cfs 0.031 af Primary=0.35 cfs 0.012 af Outflow=0.43 cfs 0.042 af

Pond RG-2: Rain Garden Peak Elev=115.78' Storage=408 cf Inflow=0.77 cfs 0.060 af
Discarded=0.17 cfs 0.047 af Primary=0.33 cfs 0.012 af Outflow=0.50 cfs 0.060 af

Total Runoff Area = 11.324 ac Runoff Volume = 2.901 af Average Runoff Depth = 3.07"
47.50% Pervious = 5.379 ac 52.50% Impervious = 5.944 ac

Summary for Subcatchment 1S: Area 1

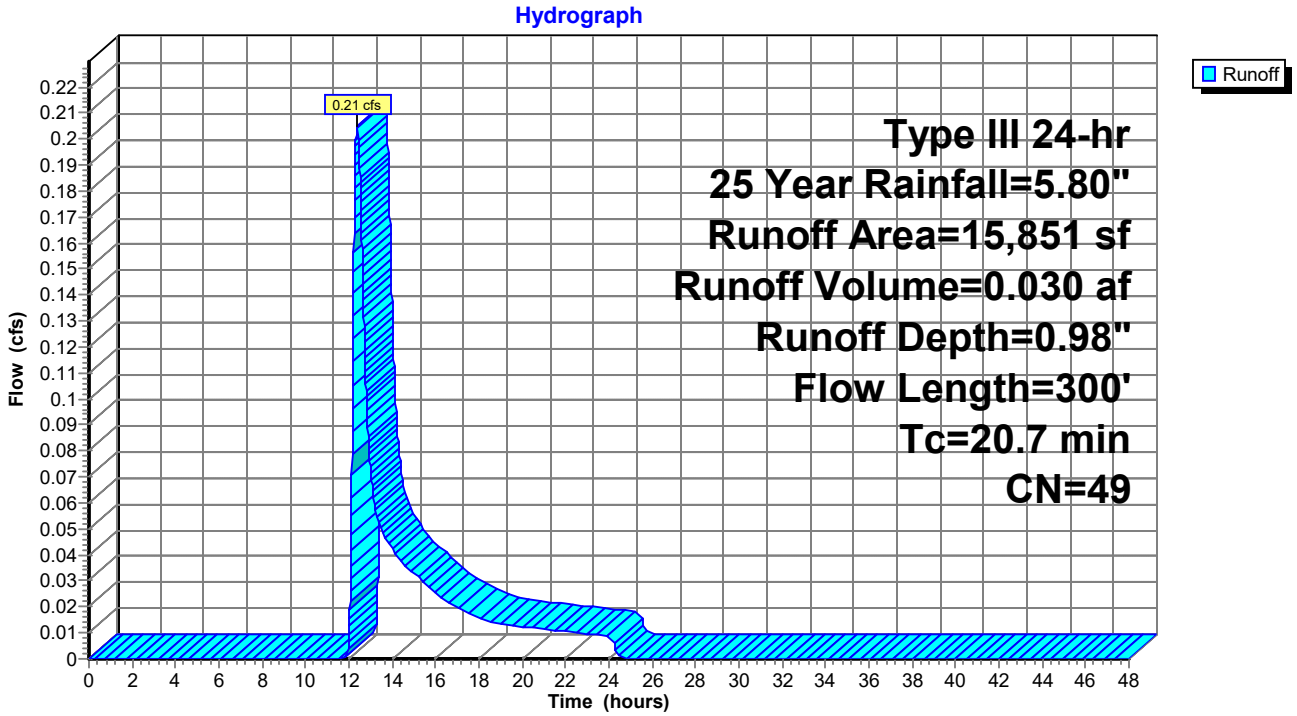
Runoff = 0.21 cfs @ 12.37 hrs, Volume= 0.030 af, Depth= 0.98"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year Rainfall=5.80"

Area (sf)	CN	Description
2,720	98	Paved parking, HSG A
13,131	39	>75% Grass cover, Good, HSG A
15,851	49	Weighted Average
13,131		82.84% Pervious Area
2,720		17.16% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.2	150	0.0100	0.14		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.10"
2.5	150	0.0200	0.99		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
20.7	300	Total			

Subcatchment 1S: Area 1



Summary for Subcatchment 2S: Area 2

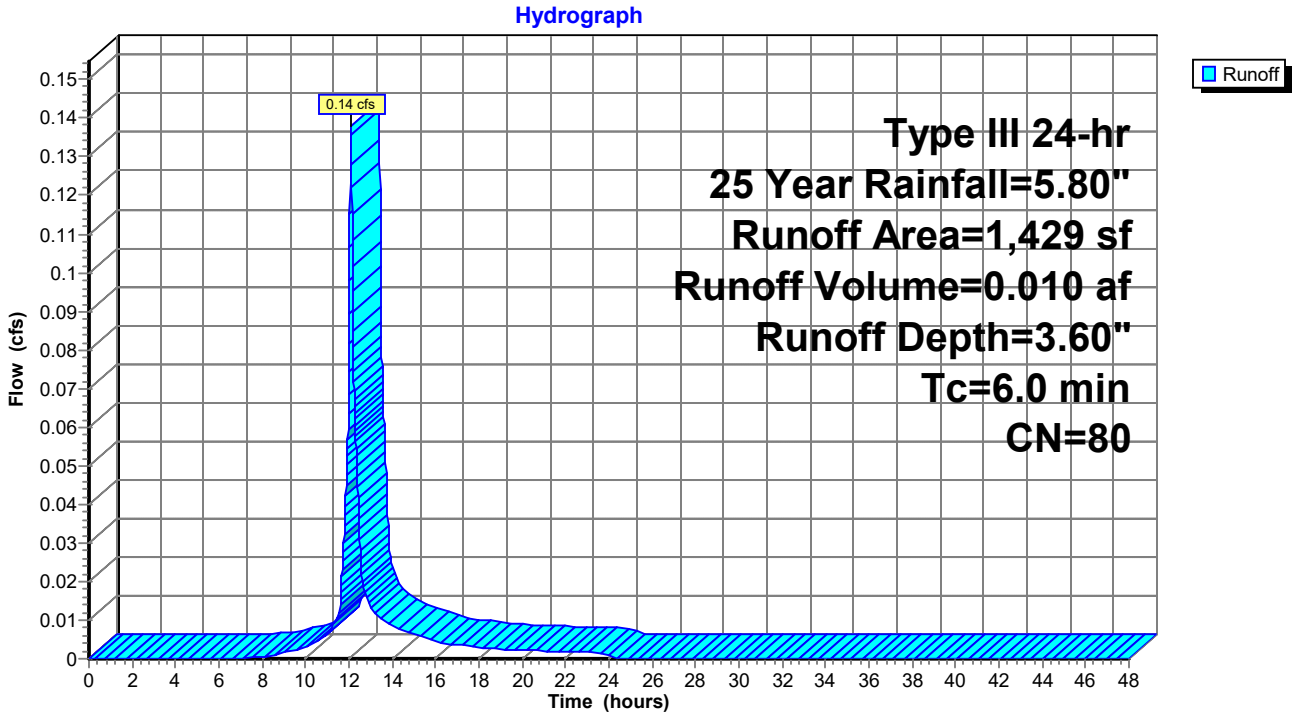
Runoff = 0.14 cfs @ 12.09 hrs, Volume= 0.010 af, Depth= 3.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year Rainfall=5.80"

Area (sf)	CN	Description
428	39	>75% Grass cover, Good, HSG A
1,001	98	Paved parking, HSG A
1,429	80	Weighted Average
428		29.95% Pervious Area
1,001		70.05% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 2S: Area 2



Summary for Subcatchment 3S: Area to PP1

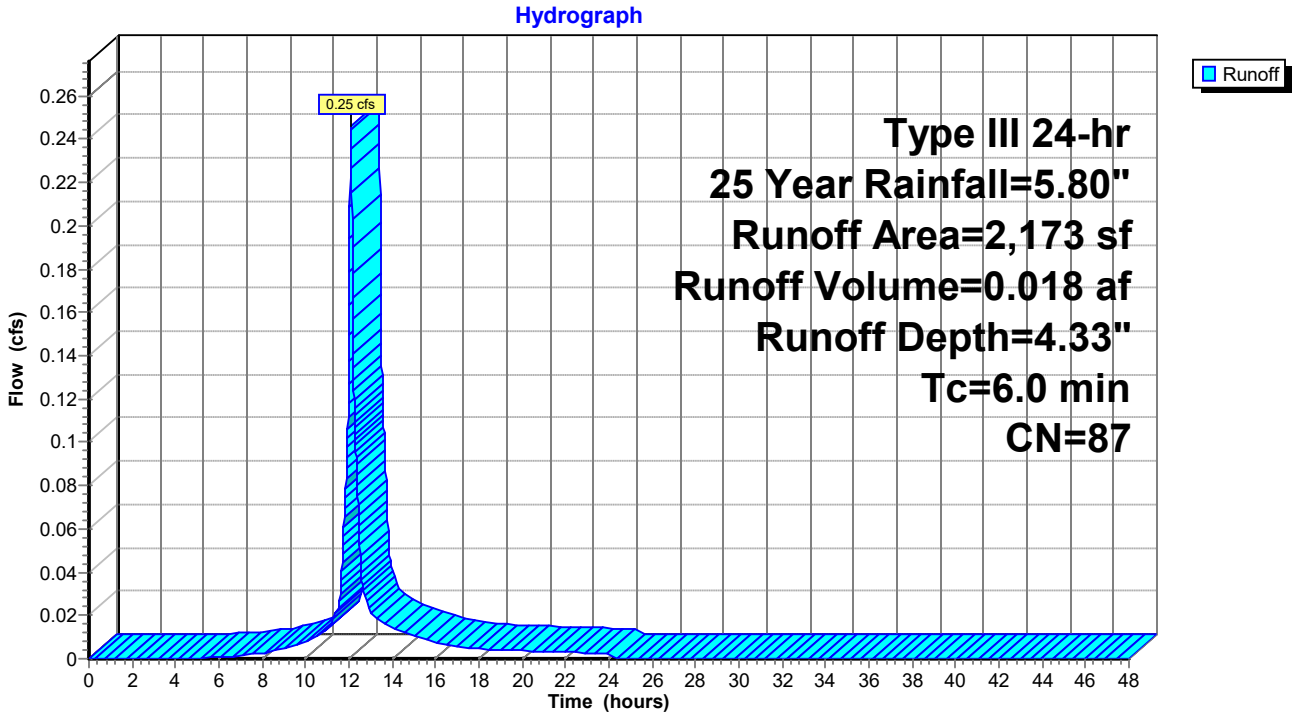
Runoff = 0.25 cfs @ 12.09 hrs, Volume= 0.018 af, Depth= 4.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year Rainfall=5.80"

Area (sf)	CN	Description
400	39	>75% Grass cover, Good, HSG A
1,773	98	Paved parking, HSG A
2,173	87	Weighted Average
400		18.41% Pervious Area
1,773		81.59% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 3S: Area to PP1



Summary for Subcatchment 4S: Area to PP2

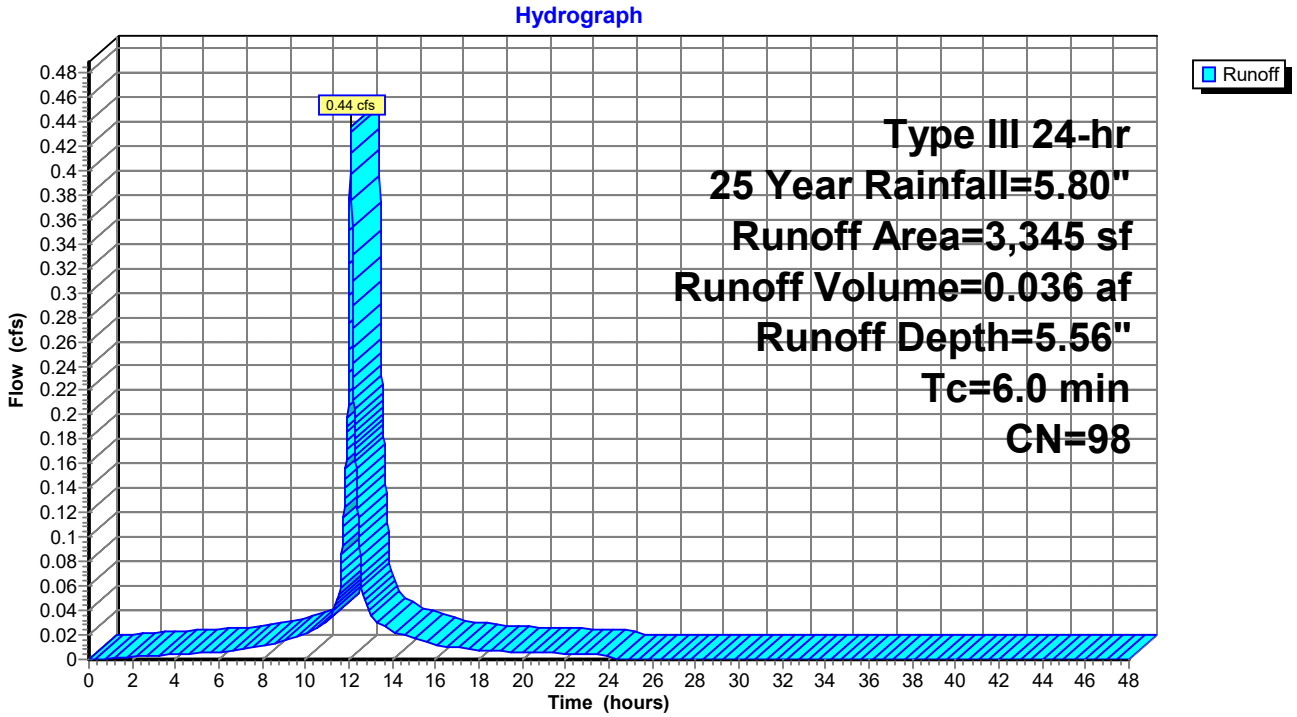
Runoff = 0.44 cfs @ 12.08 hrs, Volume= 0.036 af, Depth= 5.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year Rainfall=5.80"

Area (sf)	CN	Description
3,345	98	Paved parking, HSG A
3,345		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 4S: Area to PP2



Summary for Subcatchment 5S: Area to Rain Garden East

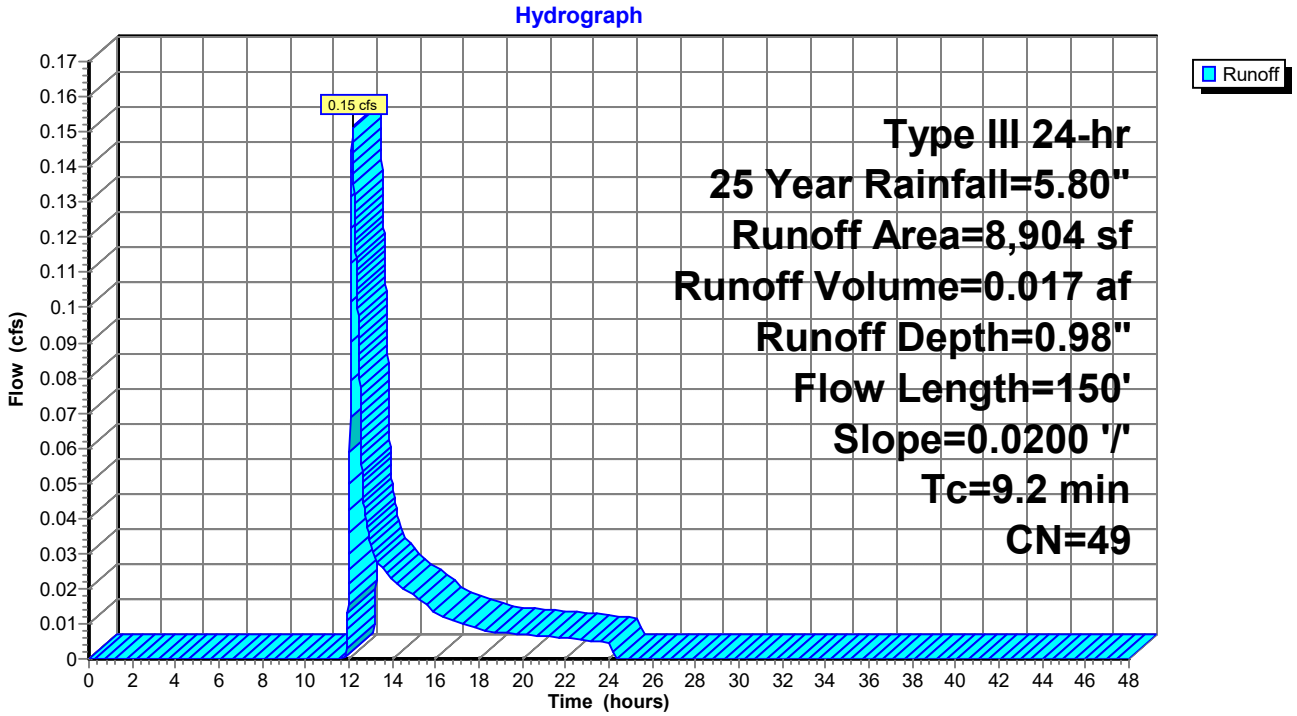
Runoff = 0.15 cfs @ 12.16 hrs, Volume= 0.017 af, Depth= 0.98"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year Rainfall=5.80"

	Area (sf)	CN	Description
*	1,555	98	
	7,349	39	>75% Grass cover, Good, HSG A
	8,904	49	Weighted Average
	7,349		82.54% Pervious Area
	1,555		17.46% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.9	75	0.0200	0.16		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.10"
1.3	75	0.0200	0.99		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
9.2	150	Total			

Subcatchment 5S: Area to Rain Garden East



Summary for Subcatchment 6S: Bldg 1 Roof

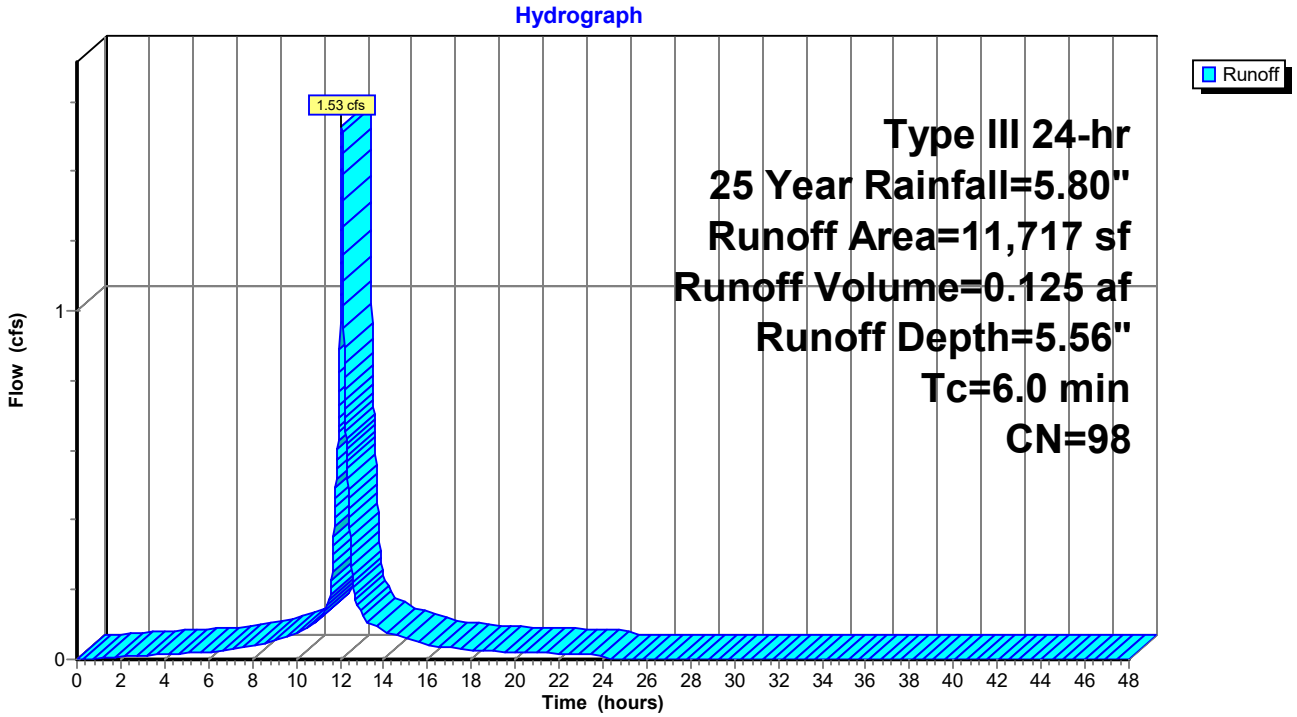
Runoff = 1.53 cfs @ 12.08 hrs, Volume= 0.125 af, Depth= 5.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year Rainfall=5.80"

Area (sf)	CN	Description
11,717	98	Roofs, HSG A
11,717		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 6S: Bldg 1 Roof



Summary for Subcatchment 7S: Area to Rain Garden West

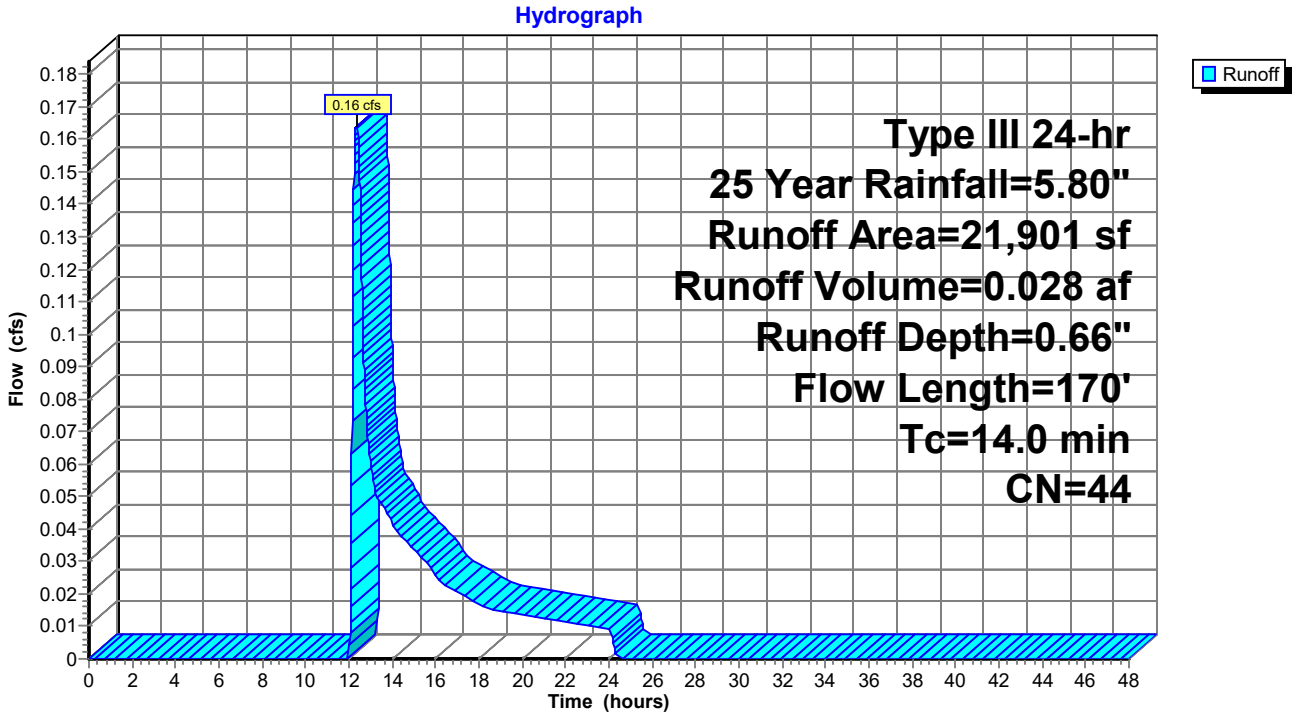
Runoff = 0.16 cfs @ 12.36 hrs, Volume= 0.028 af, Depth= 0.66"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year Rainfall=5.80"

Area (sf)	CN	Description
1,750	98	Paved parking, HSG A
20,151	39	>75% Grass cover, Good, HSG A
21,901	44	Weighted Average
20,151		92.01% Pervious Area
1,750		7.99% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.8	150	0.0200	0.18		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.10"
0.2	20	0.0600	1.71		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
14.0	170	Total			

Subcatchment 7S: Area to Rain Garden West



Summary for Subcatchment 9S:

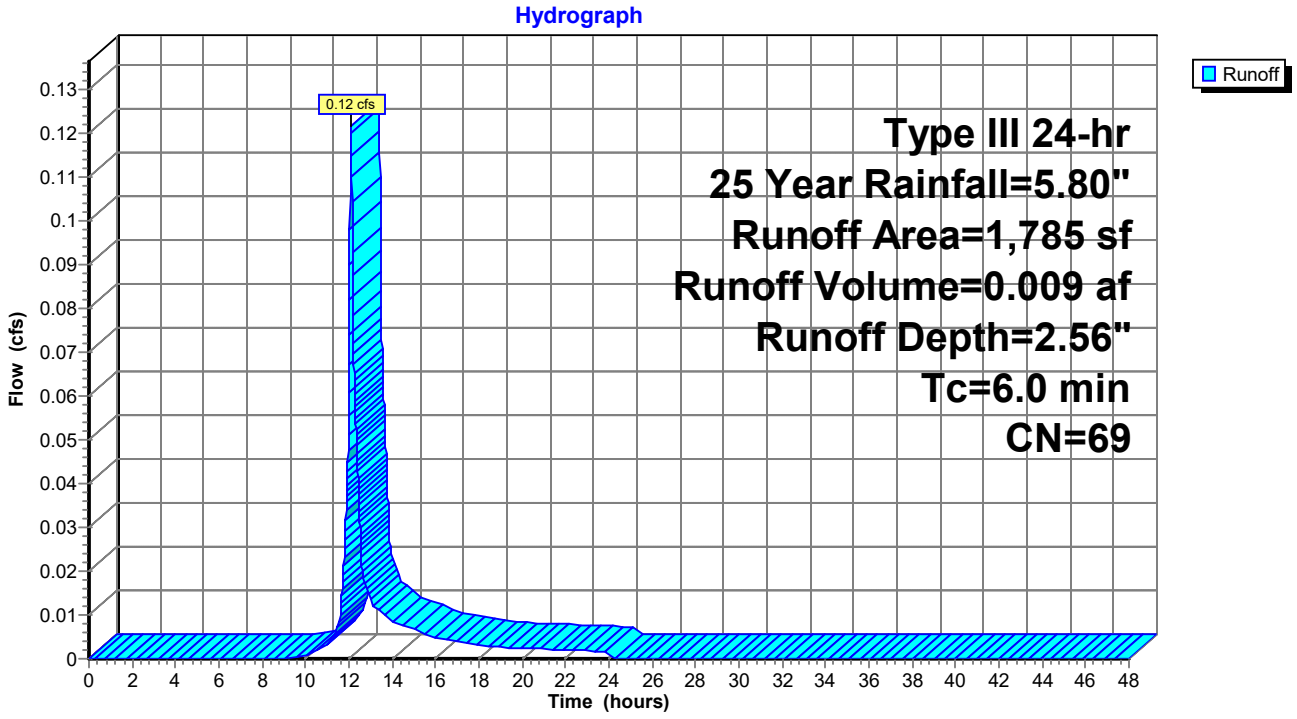
Runoff = 0.12 cfs @ 12.09 hrs, Volume= 0.009 af, Depth= 2.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year Rainfall=5.80"

Area (sf)	CN	Description
875	39	>75% Grass cover, Good, HSG A
910	98	Paved parking, HSG A
1,785	69	Weighted Average
875		49.02% Pervious Area
910		50.98% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 9S:



Summary for Subcatchment 10S:

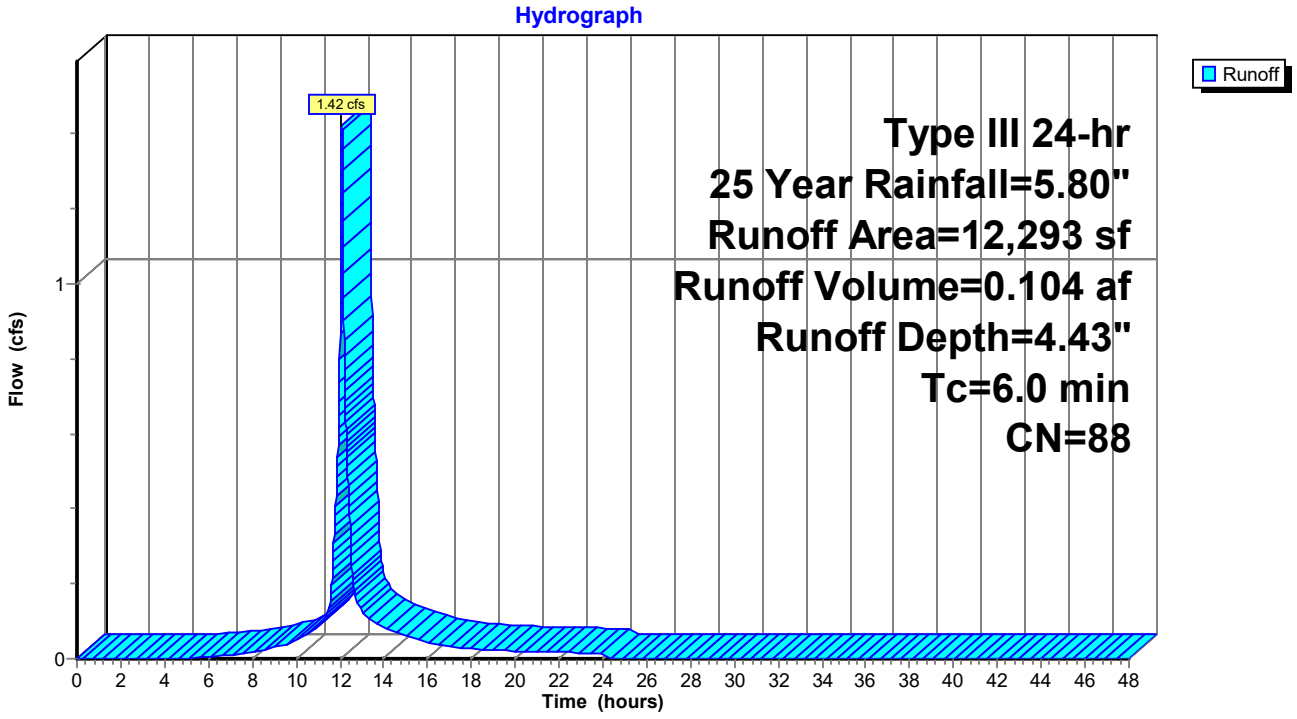
Runoff = 1.42 cfs @ 12.09 hrs, Volume= 0.104 af, Depth= 4.43"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year Rainfall=5.80"

Area (sf)	CN	Description
10,120	98	Paved parking & roofs
2,173	39	>75% Grass cover, Good, HSG A
12,293	88	Weighted Average
2,173		17.68% Pervious Area
10,120		82.32% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum Tc**

Subcatchment 10S:



Summary for Subcatchment 11S: Area to Rain Garden 2

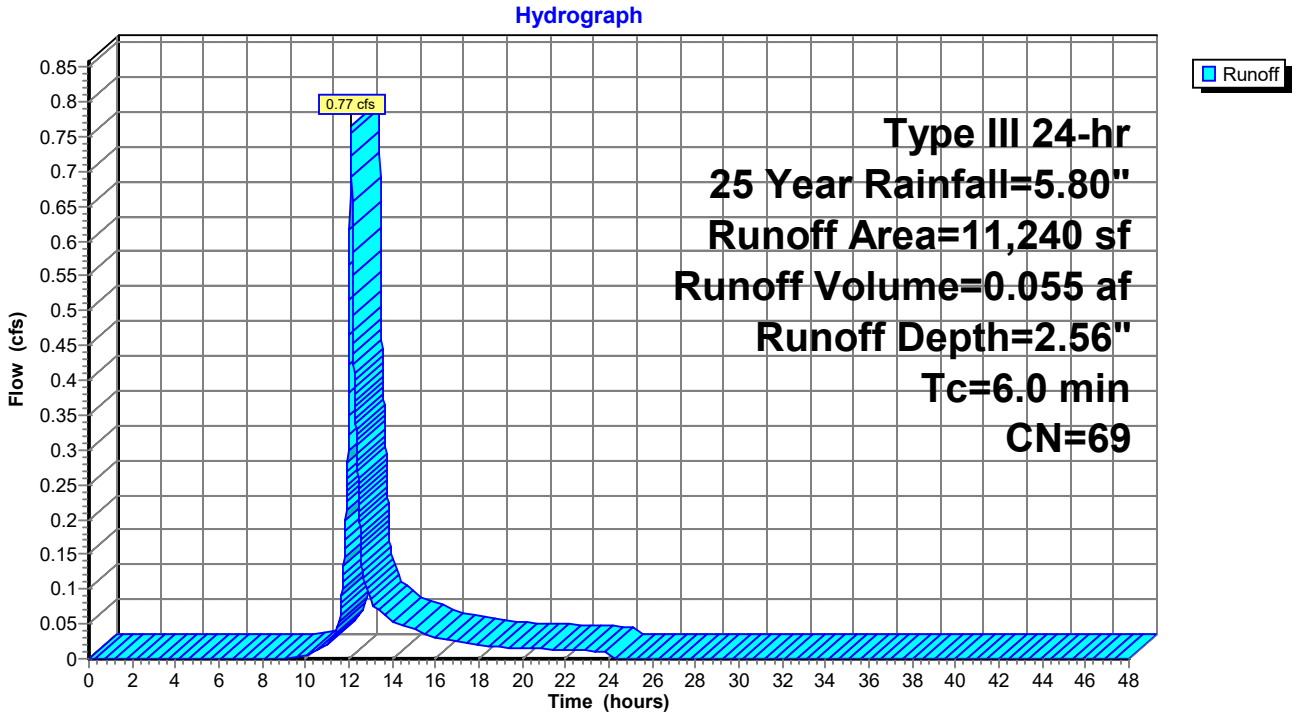
Runoff = 0.77 cfs @ 12.09 hrs, Volume= 0.055 af, Depth= 2.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year Rainfall=5.80"

Area (sf)	CN	Description
5,795	98	Paved parking & roofs
5,445	39	>75% Grass cover, Good, HSG A
11,240	69	Weighted Average
5,445		48.44% Pervious Area
5,795		51.56% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum Tc**

Subcatchment 11S: Area to Rain Garden 2



Summary for Subcatchment 12S: Area to Rain Garden 1

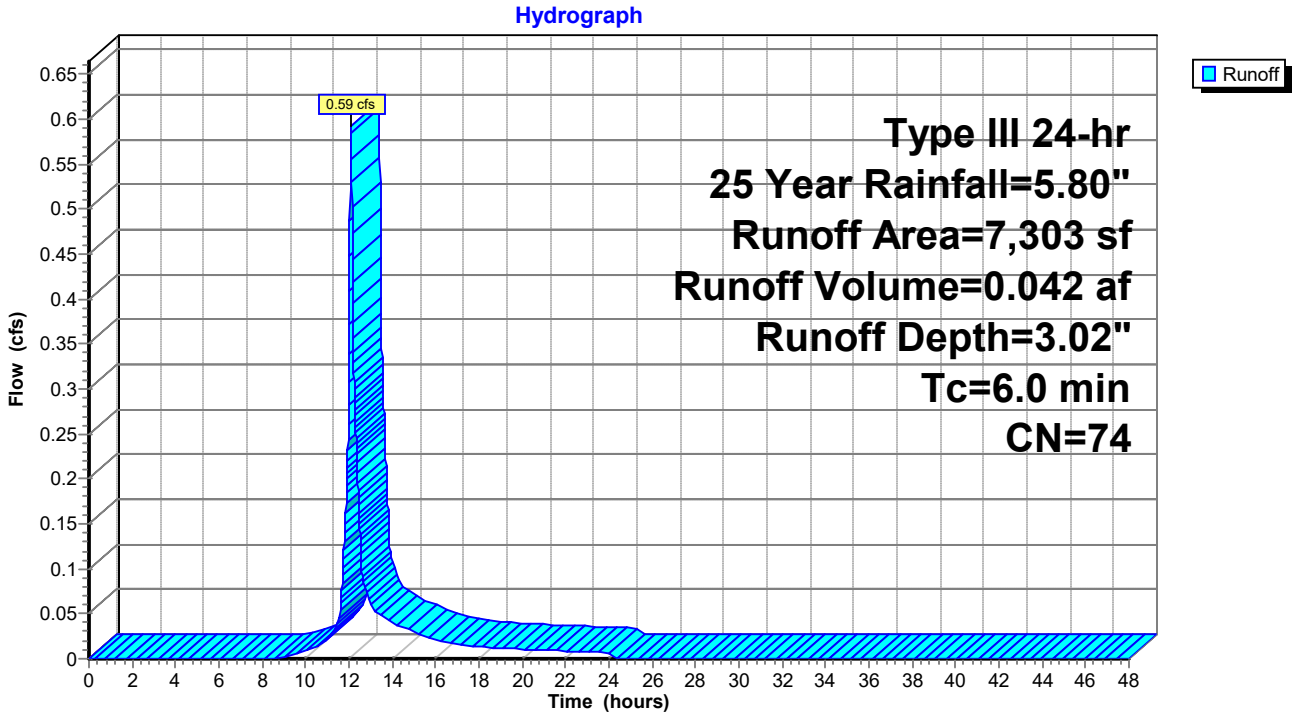
Runoff = 0.59 cfs @ 12.09 hrs, Volume= 0.042 af, Depth= 3.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year Rainfall=5.80"

Area (sf)	CN	Description
4,299	98	Paved parking & roofs
3,004	39	>75% Grass cover, Good, HSG A
7,303	74	Weighted Average
3,004		41.13% Pervious Area
4,299		58.87% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum Tc**

Subcatchment 12S: Area to Rain Garden 1



Summary for Subcatchment 13S: Area to Infiltration Trench

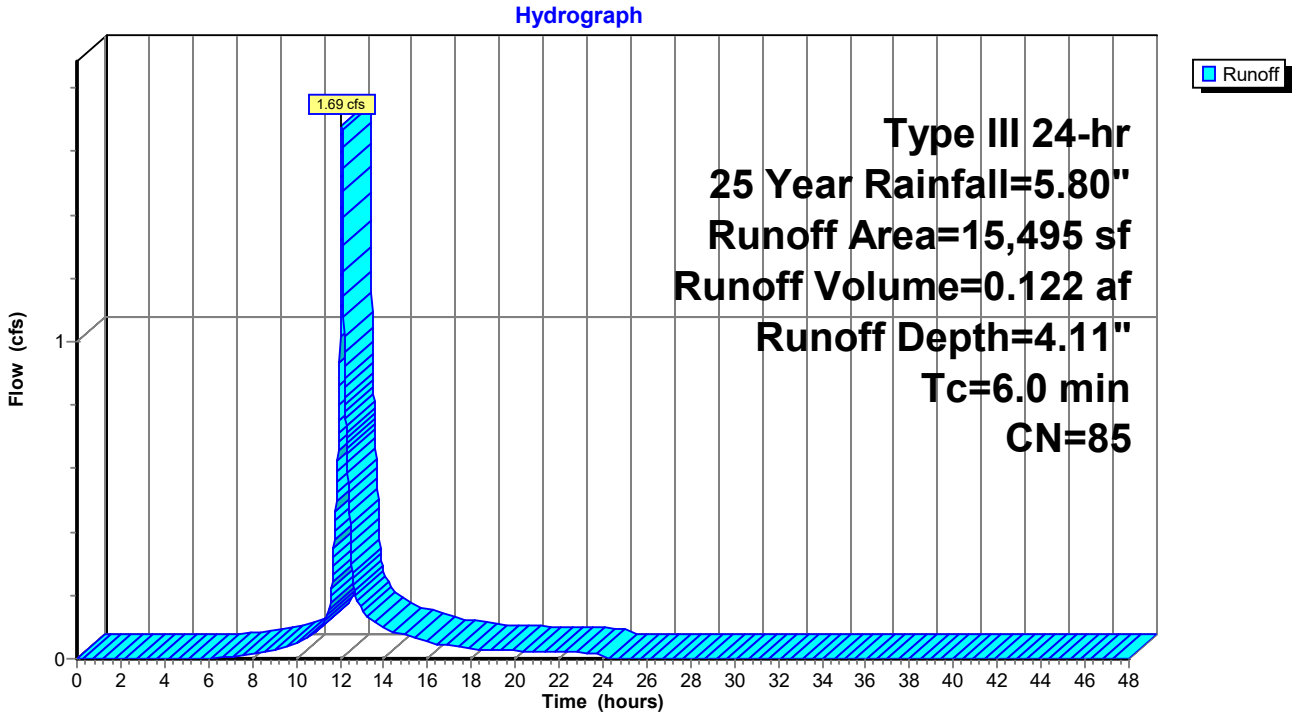
Runoff = 1.69 cfs @ 12.09 hrs, Volume= 0.122 af, Depth= 4.11"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year Rainfall=5.80"

Area (sf)	CN	Description
12,004	98	Paved parking & roofs
3,491	39	>75% Grass cover, Good, HSG A
15,495	85	Weighted Average
3,491		22.53% Pervious Area
12,004		77.47% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum Tc**

Subcatchment 13S: Area to Infiltration Trench



Summary for Subcatchment 14S: Roof Area to Drip Strip 4

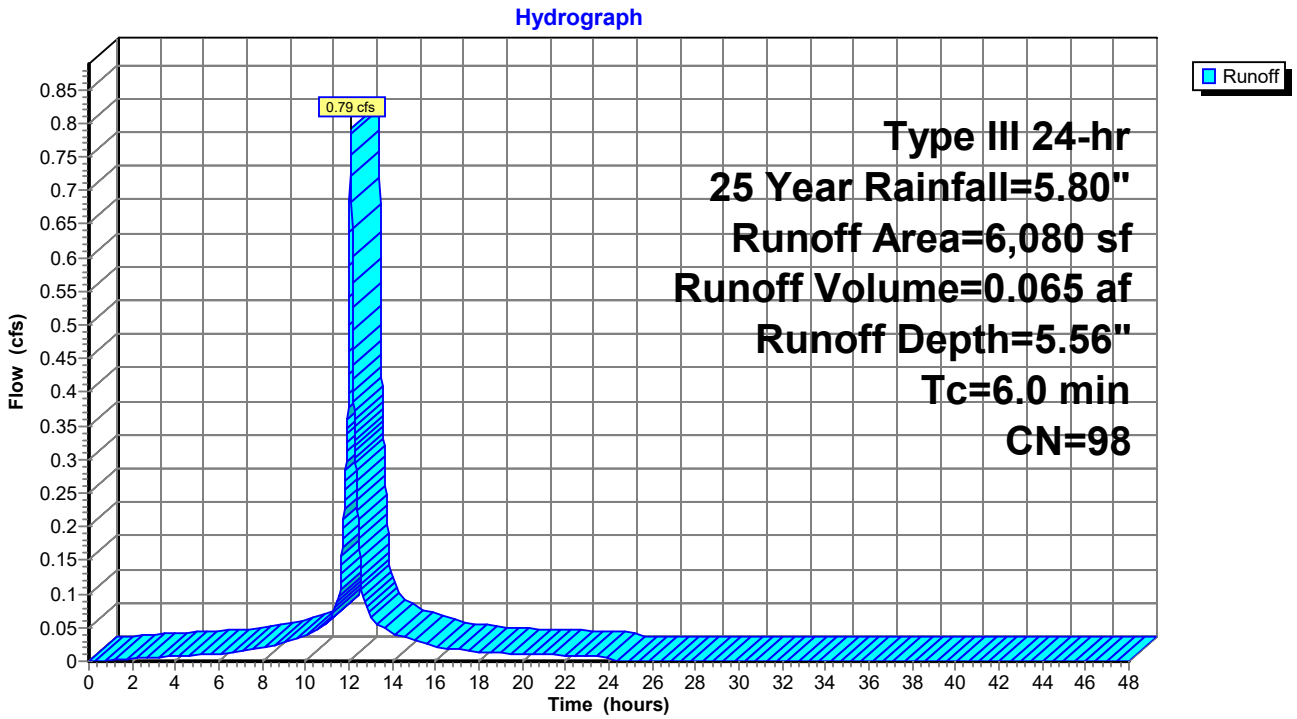
Runoff = 0.79 cfs @ 12.08 hrs, Volume= 0.065 af, Depth= 5.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year Rainfall=5.80"

	Area (sf)	CN	Description
*	6,080	98	Roofs
*	0	76	Drip stone, HSG A
	6,080	98	Weighted Average
	6,080		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum Tc**

Subcatchment 14S: Roof Area to Drip Strip 4



Summary for Subcatchment 15S: Roof Area to Drip Strip 1

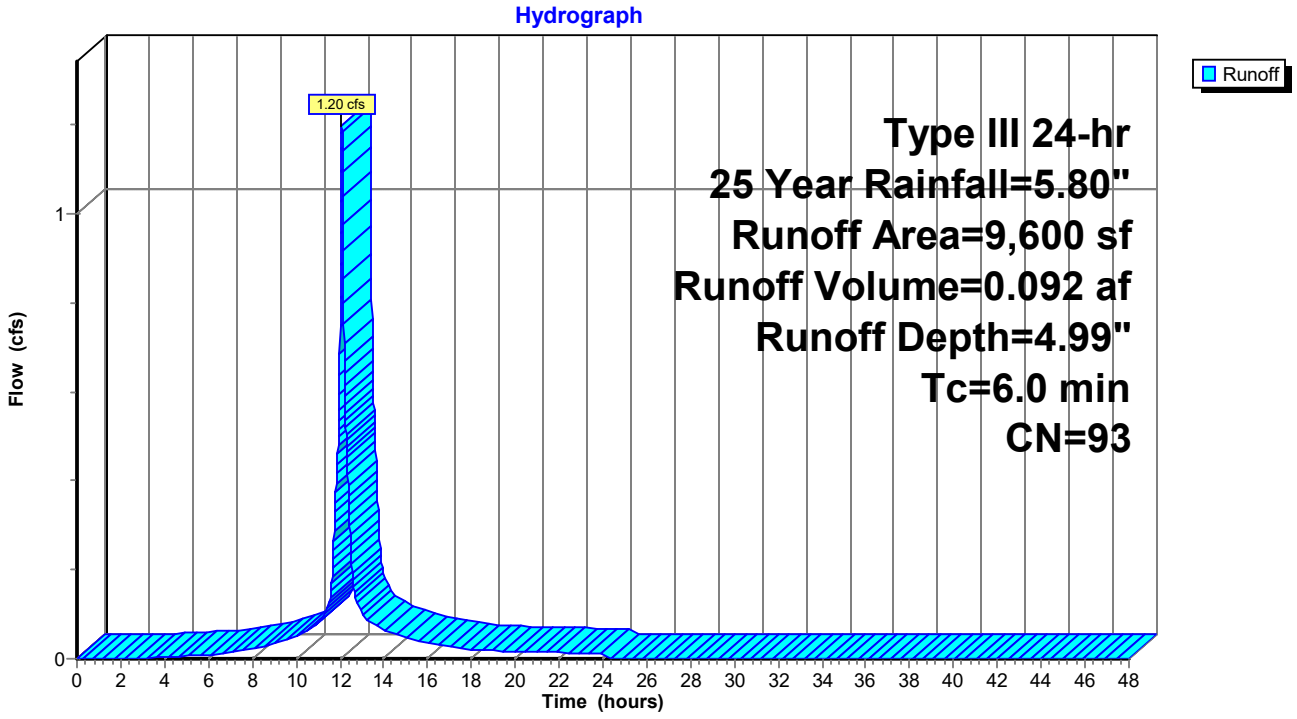
Runoff = 1.20 cfs @ 12.08 hrs, Volume= 0.092 af, Depth= 4.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year Rainfall=5.80"

	Area (sf)	CN	Description
*	7,600	98	Roofs
*	2,000	76	Drip stone, HSG A
	9,600	93	Weighted Average
	2,000		20.83% Pervious Area
	7,600		79.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum Tc**

Subcatchment 15S: Roof Area to Drip Strip 1



Summary for Subcatchment 16S: Roof Area to Drip Strip 2

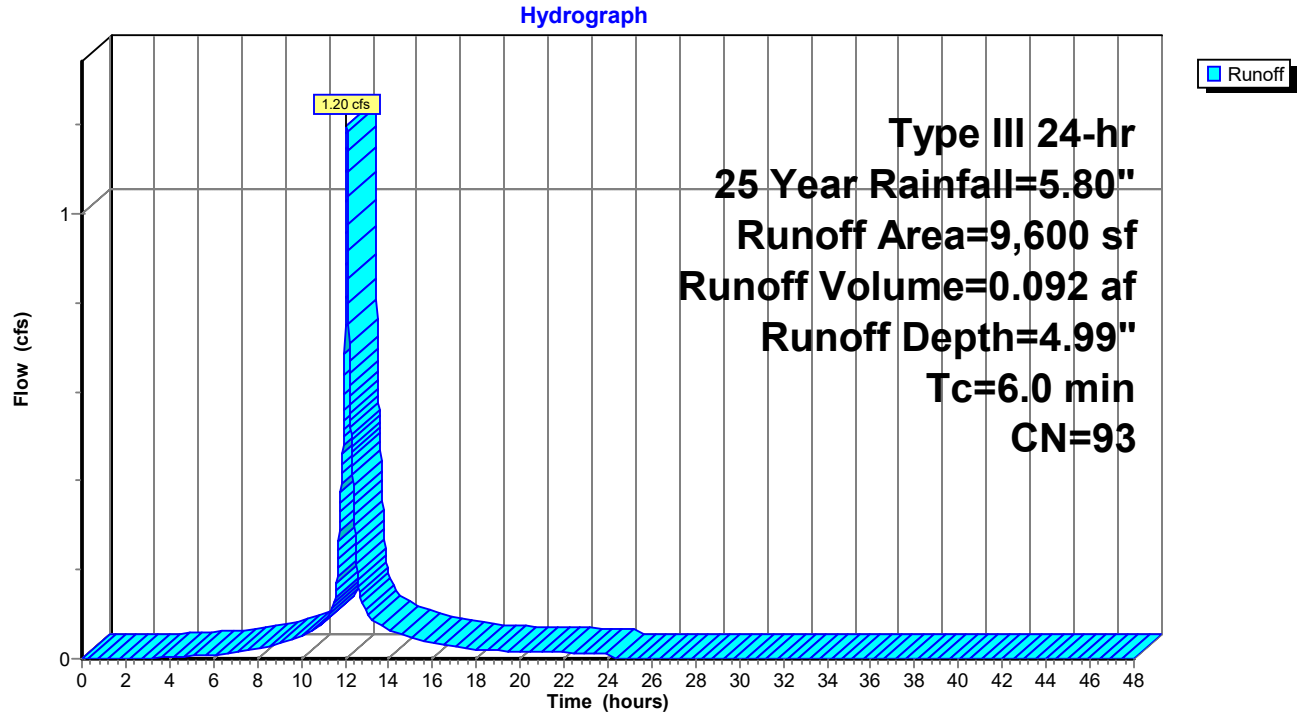
Runoff = 1.20 cfs @ 12.08 hrs, Volume= 0.092 af, Depth= 4.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year Rainfall=5.80"

	Area (sf)	CN	Description
*	7,600	98	Roofs
*	2,000	76	Drip stone, HSG A
	9,600	93	Weighted Average
	2,000		20.83% Pervious Area
	7,600		79.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum Tc**

Subcatchment 16S: Roof Area to Drip Strip 2



Summary for Subcatchment 17S: Roof Area to Drip Strip 3

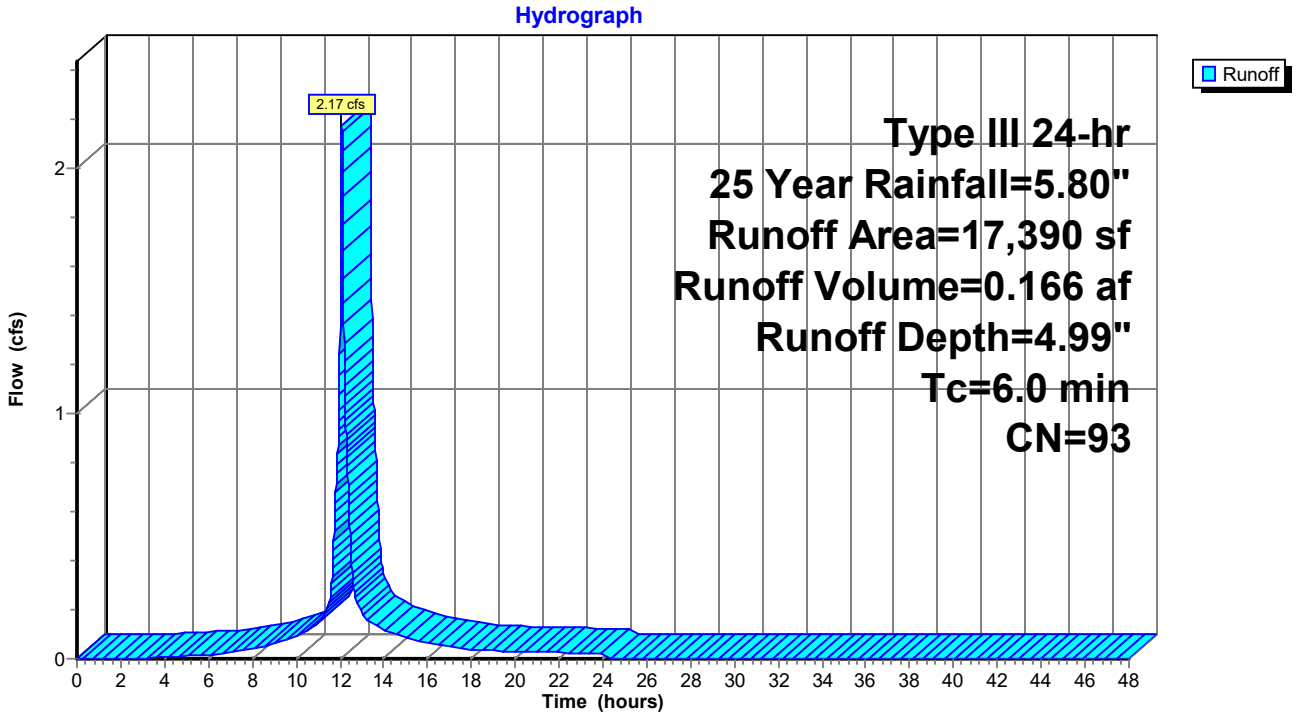
Runoff = 2.17 cfs @ 12.08 hrs, Volume= 0.166 af, Depth= 4.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year Rainfall=5.80"

	Area (sf)	CN	Description
*	13,270	98	Roofs
*	4,120	76	Drip stone, HSG A
	17,390	93	Weighted Average
	4,120		23.69% Pervious Area
	13,270		76.31% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum Tc**

Subcatchment 17S: Roof Area to Drip Strip 3



Summary for Subcatchment 18S: North of Mother House

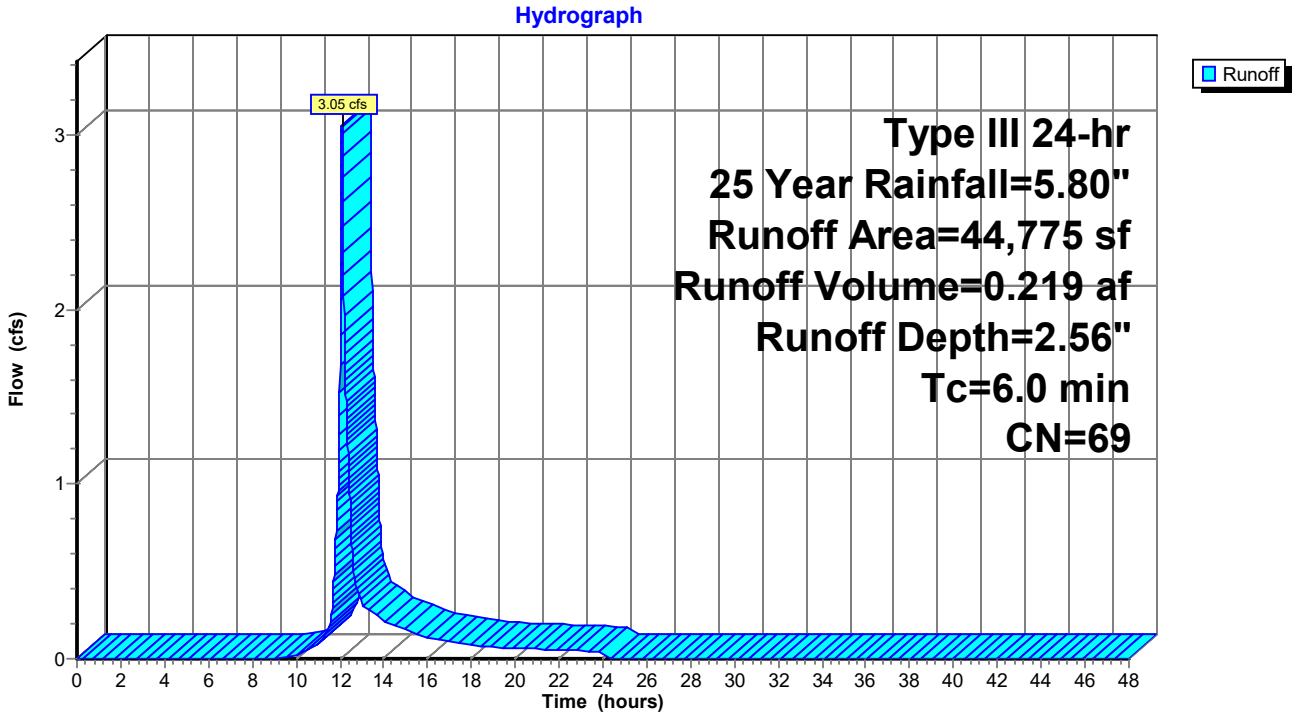
Runoff = 3.05 cfs @ 12.09 hrs, Volume= 0.219 af, Depth= 2.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year Rainfall=5.80"

Area (sf)	CN	Description
21,975	39	>75% Grass cover, Good, HSG A
22,800	98	Paved parking, HSG A
44,775	69	Weighted Average
21,975		49.08% Pervious Area
22,800		50.92% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 18S: North of Mother House



Summary for Subcatchment 19A: St. Josephs

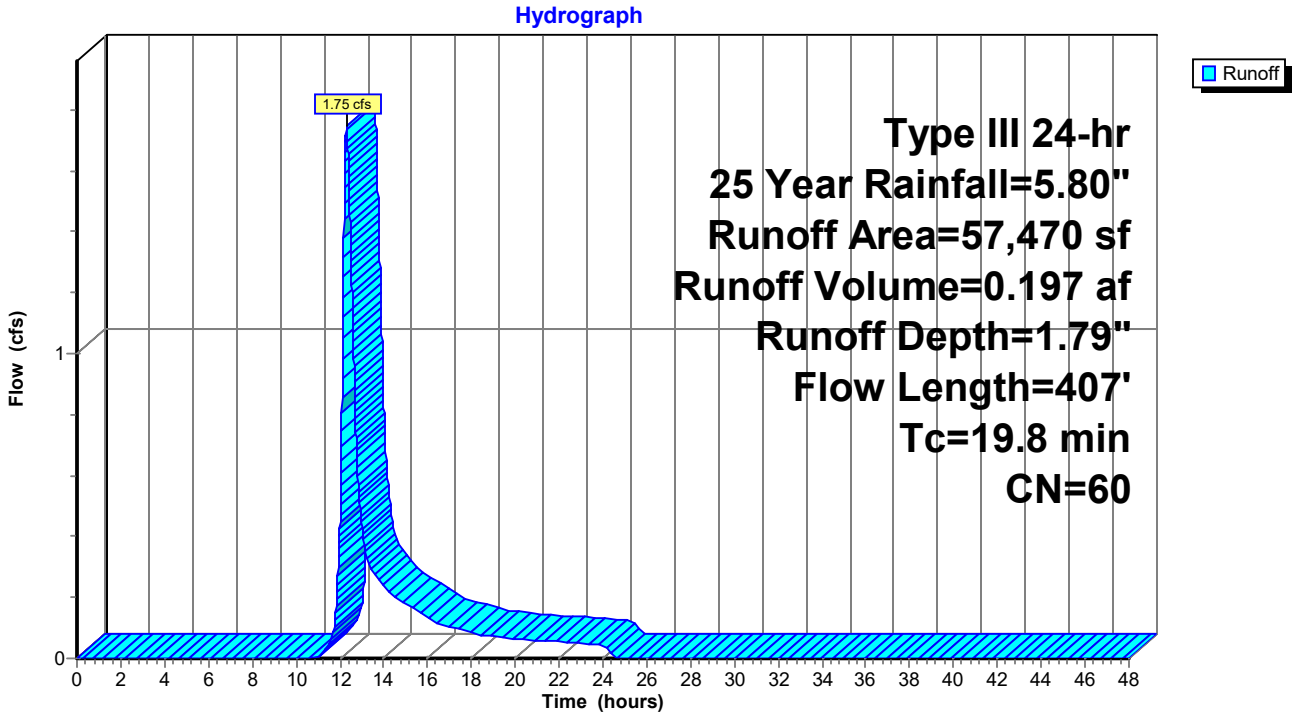
Runoff = 1.75 cfs @ 12.30 hrs, Volume= 0.197 af, Depth= 1.79"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year Rainfall=5.80"

	Area (sf)	CN	Description
*	20,155	98	Impervious
	37,315	39	>75% Grass cover, Good, HSG A
	57,470	60	Weighted Average
	37,315		64.93% Pervious Area
	20,155		35.07% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.6	122	0.0160	0.11		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.10"
1.2	285	0.0064	3.93	3.09	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Corrugated PP, smooth interior
19.8	407	Total			

Subcatchment 19A: St. Josephs



Summary for Subcatchment 20A: North Parking - West

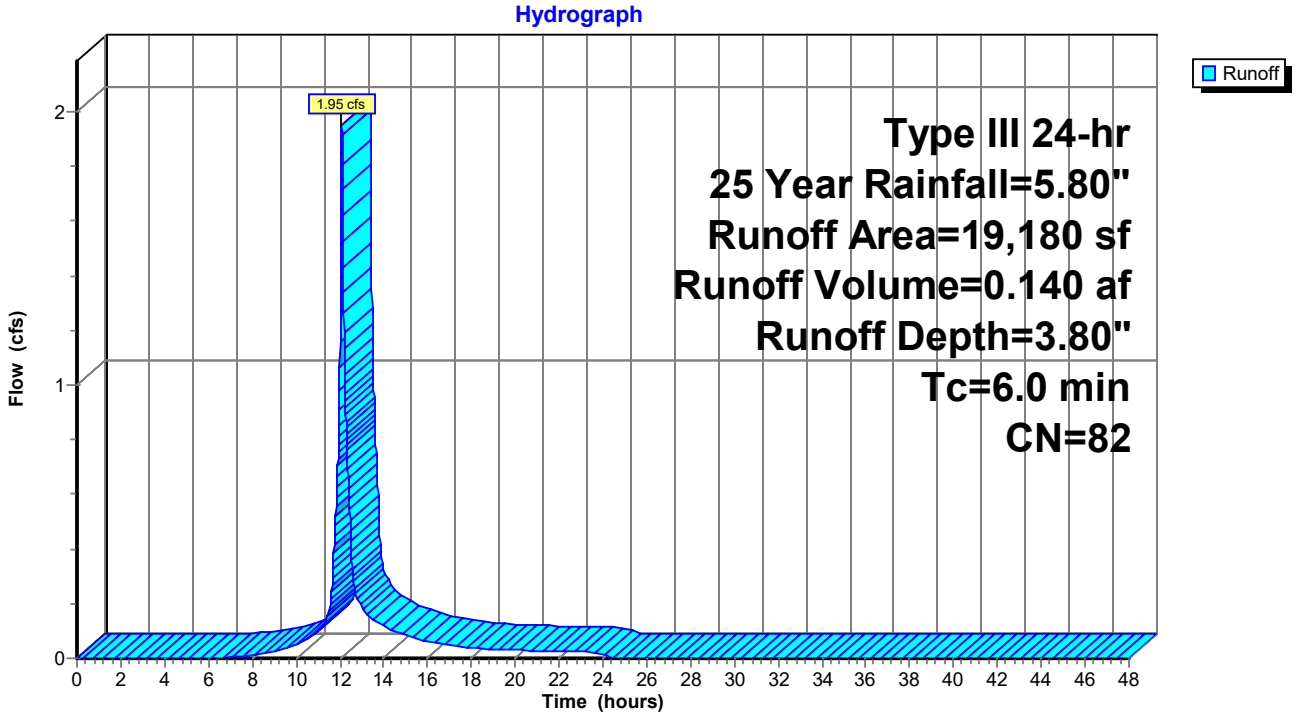
Runoff = 1.95 cfs @ 12.09 hrs, Volume= 0.140 af, Depth= 3.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year Rainfall=5.80"

	Area (sf)	CN	Description
*	7,700	98	Paved parking, HSG A
*	6,156	98	Porous pavement
	5,324	39	>75% Grass cover, Good, HSG A
	19,180	82	Weighted Average
	5,324		27.76% Pervious Area
	13,856		72.24% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 20A: North Parking - West



Summary for Subcatchment 20B: North Parking - East

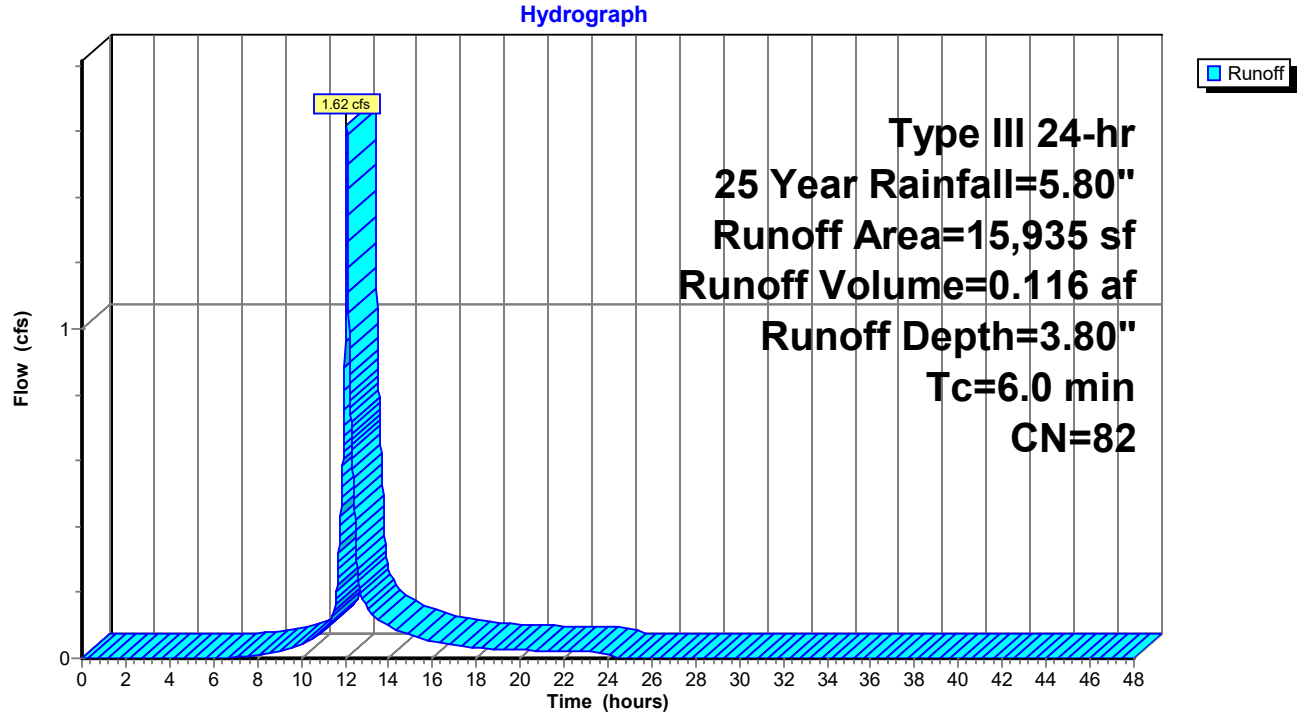
Runoff = 1.62 cfs @ 12.09 hrs, Volume= 0.116 af, Depth= 3.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year Rainfall=5.80"

	Area (sf)	CN	Description
*	6,380	98	Paved parking, HSG A
*	5,346	98	Porous pavement
	4,209	39	>75% Grass cover, Good, HSG A
	15,935	82	Weighted Average
	4,209		26.41% Pervious Area
	11,726		73.59% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 20B: North Parking - East



Summary for Subcatchment 21A: Building 5

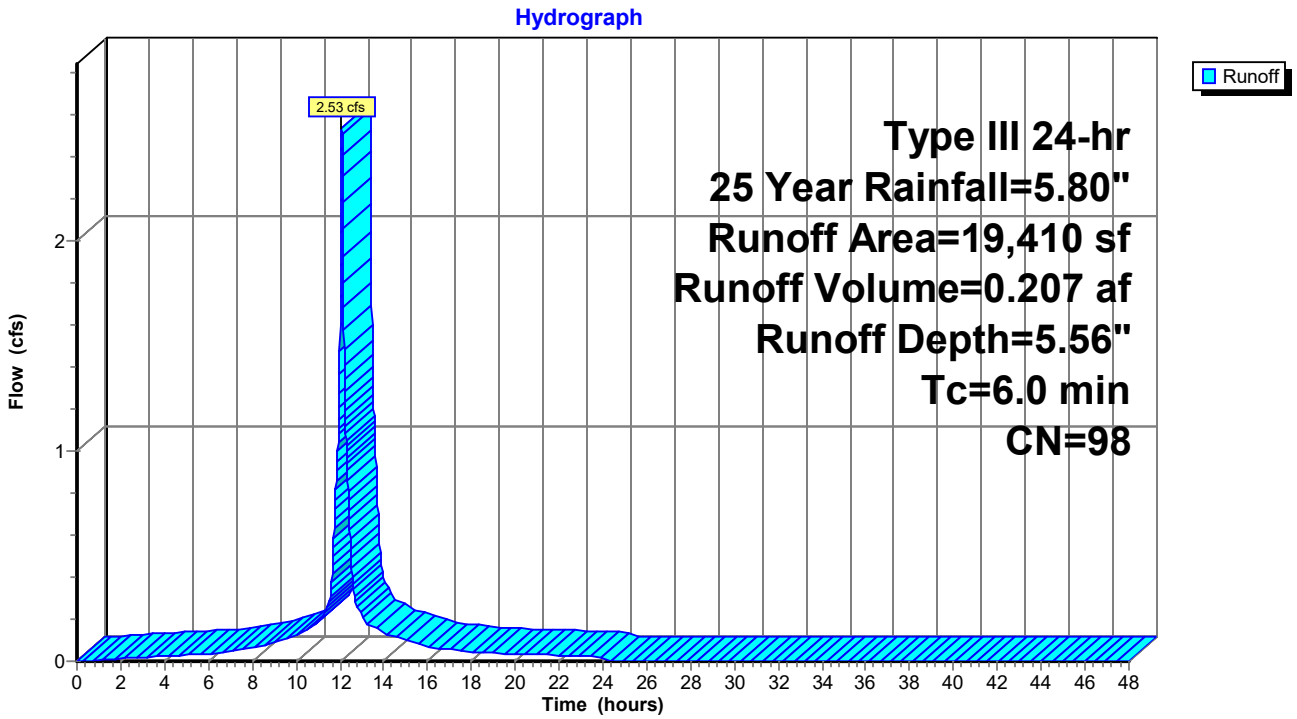
Runoff = 2.53 cfs @ 12.08 hrs, Volume= 0.207 af, Depth= 5.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year Rainfall=5.80"

	Area (sf)	CN	Description
*	19,410	98	Roof & Sidewalk
	0	39	>75% Grass cover, Good, HSG A
	19,410	98	Weighted Average
	19,410		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 21A: Building 5



Summary for Subcatchment 21B: Buiding 4

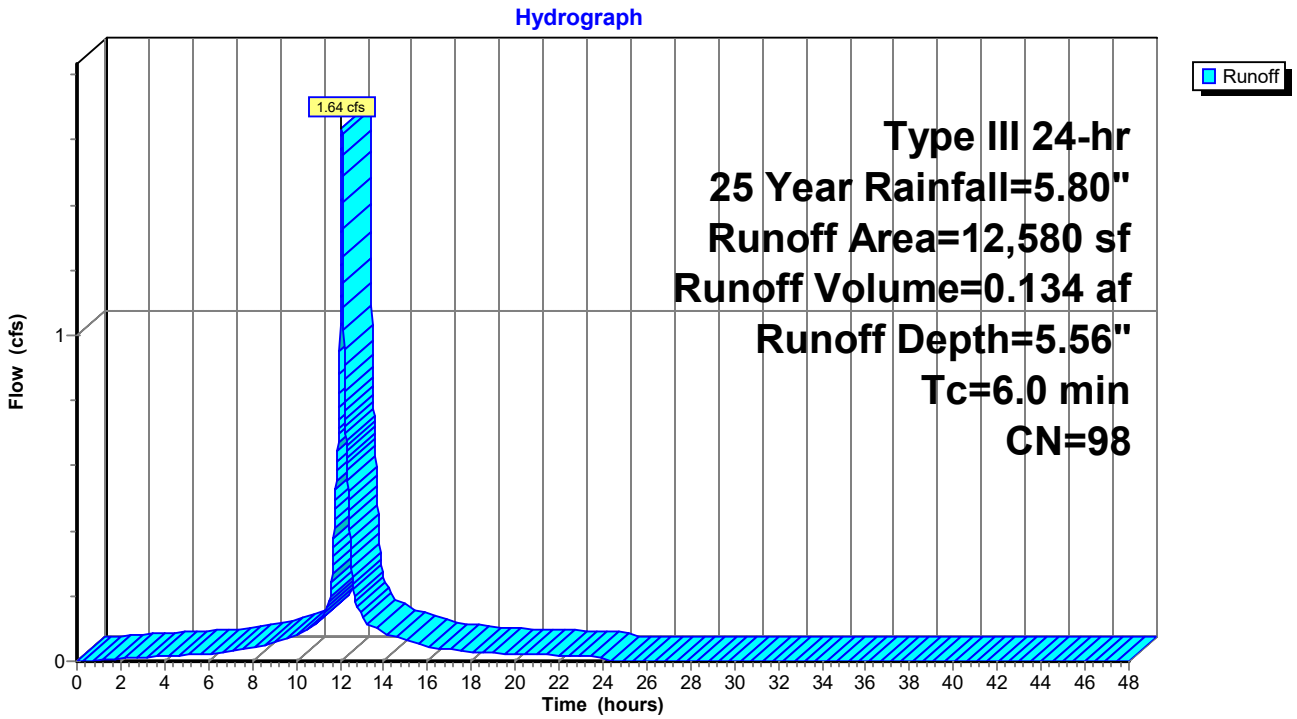
Runoff = 1.64 cfs @ 12.08 hrs, Volume= 0.134 af, Depth= 5.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year Rainfall=5.80"

	Area (sf)	CN	Description
*	12,580	98	Roof & Sidewalk
	0	39	>75% Grass cover, Good, HSG A
	12,580	98	Weighted Average
	12,580		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 21B: Buiding 4



Summary for Subcatchment 22A: The Common

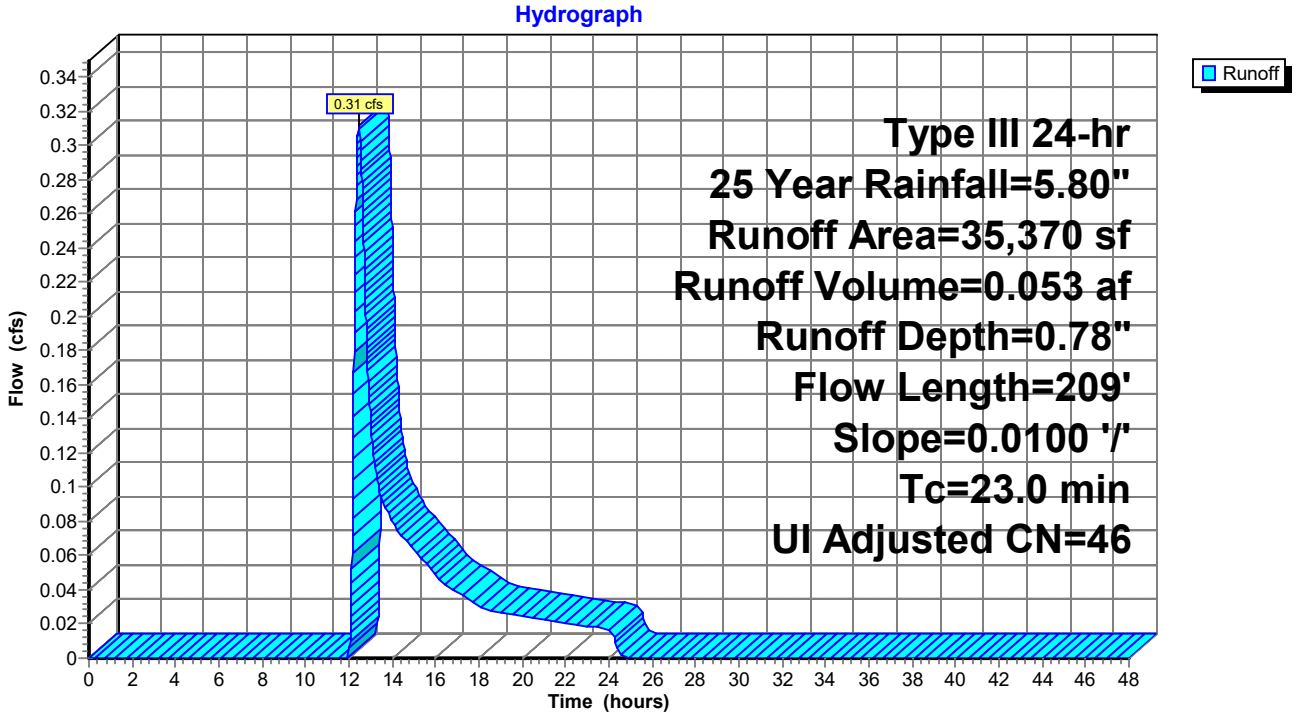
Runoff = 0.31 cfs @ 12.45 hrs, Volume= 0.053 af, Depth= 0.78"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year Rainfall=5.80"

Area (sf)	CN	Adj	Description
8,175	98		Unconnected pavement, HSG A
27,195	39		>75% Grass cover, Good, HSG A
35,370	53	46	Weighted Average, UI Adjusted
27,195			76.89% Pervious Area
8,175			23.11% Impervious Area
8,175			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.1	120	0.0100	0.09		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.10"
0.1	15	0.0100	2.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.8	74	0.0100	1.50		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
23.0	209	Total			

Subcatchment 22A: The Common



Summary for Subcatchment 22B: Detention Pond 1

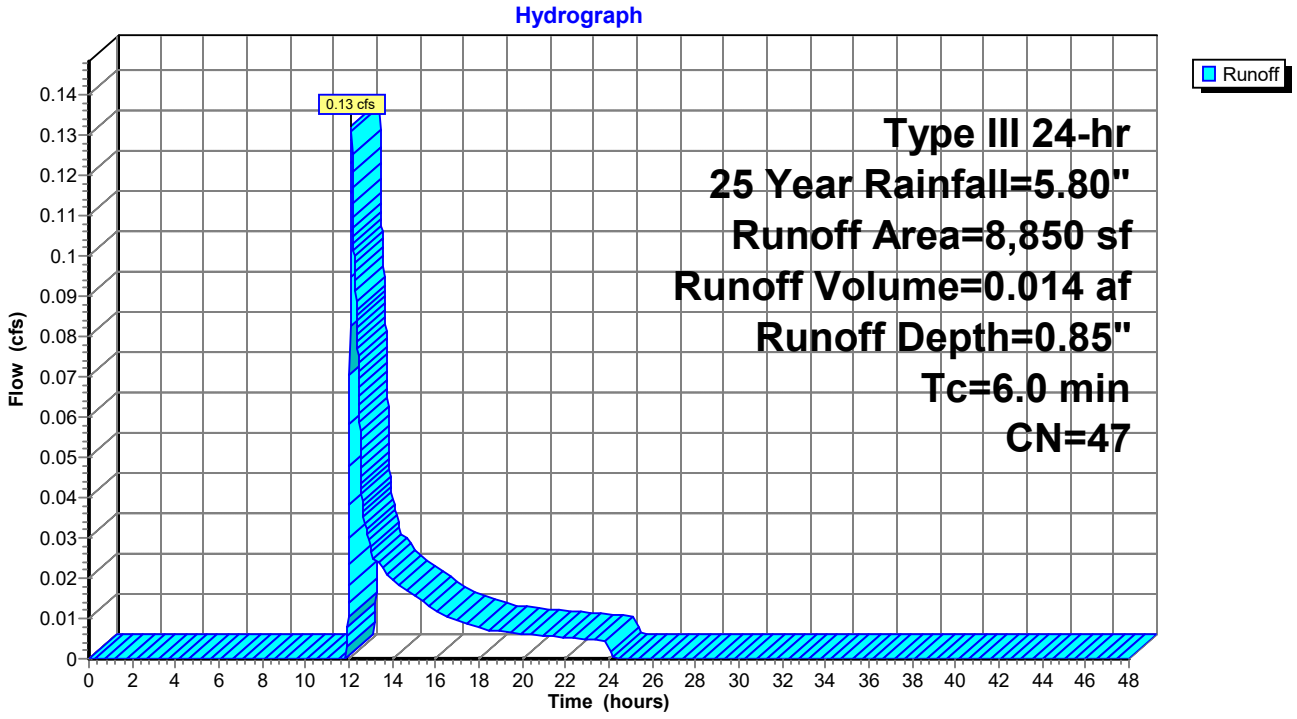
Runoff = 0.13 cfs @ 12.12 hrs, Volume= 0.014 af, Depth= 0.85"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year Rainfall=5.80"

	Area (sf)	CN	Description
*	1,185	98	Walkways
	7,665	39	>75% Grass cover, Good, HSG A
	8,850	47	Weighted Average
	7,665		86.61% Pervious Area
	1,185		13.39% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 22B: Detention Pond 1



Summary for Subcatchment 23A: South Parking - West

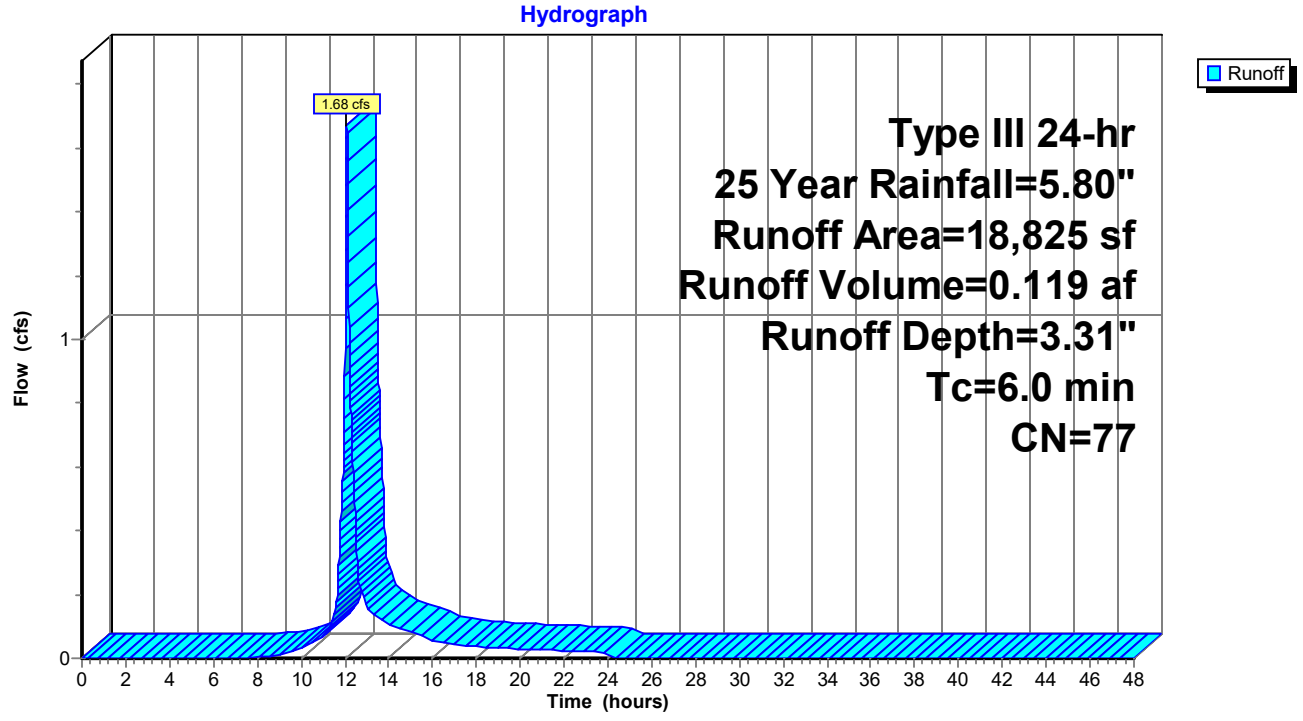
Runoff = 1.68 cfs @ 12.09 hrs, Volume= 0.119 af, Depth= 3.31"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year Rainfall=5.80"

	Area (sf)	CN	Description
*	8,390	98	Paved parking, HSG A
*	3,744	98	Porous pavement
	6,691	39	>75% Grass cover, Good, HSG A
	18,825	77	Weighted Average
	6,691		35.54% Pervious Area
	12,134		64.46% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 23A: South Parking - West



Summary for Subcatchment 23B: South Parking - East

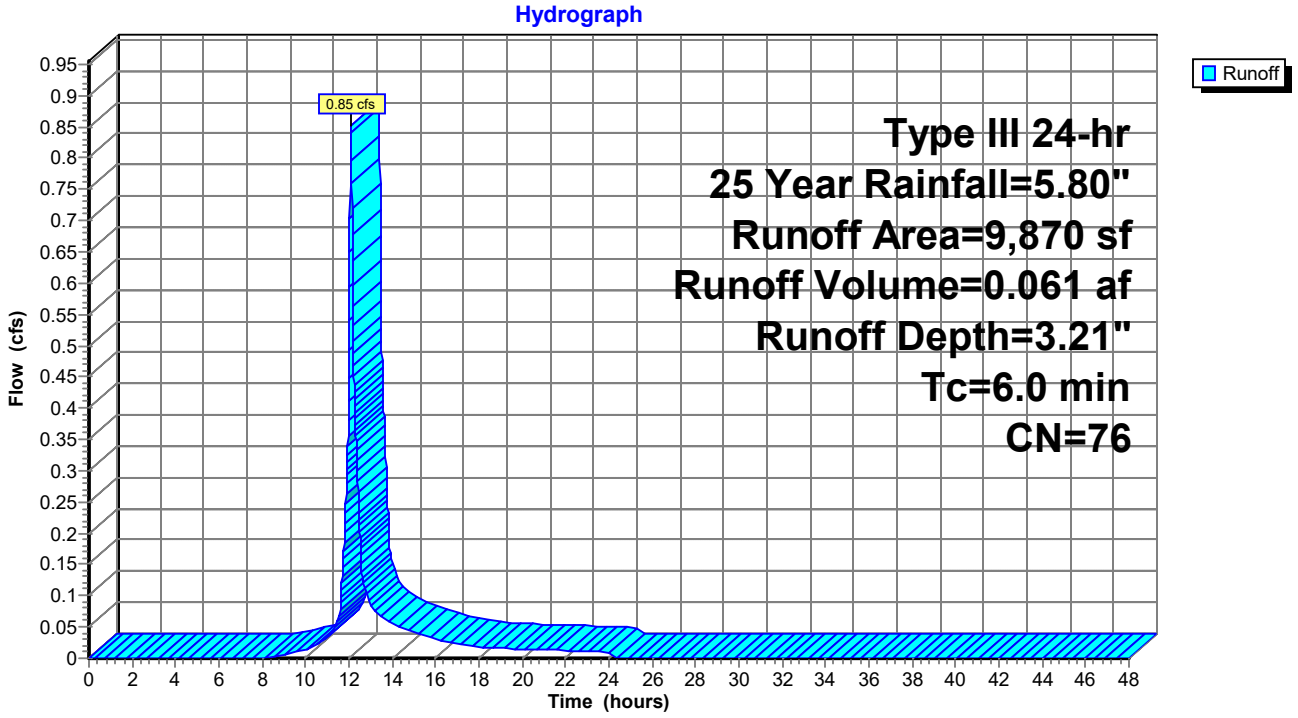
Runoff = 0.85 cfs @ 12.09 hrs, Volume= 0.061 af, Depth= 3.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year Rainfall=5.80"

	Area (sf)	CN	Description
*	4,610	98	Paved parking, HSG A
*	1,620	98	Porous pavement
	3,640	39	>75% Grass cover, Good, HSG A
	9,870	76	Weighted Average
	3,640		36.88% Pervious Area
	6,230		63.12% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 23B: South Parking - East



Summary for Subcatchment 24A: Building 2

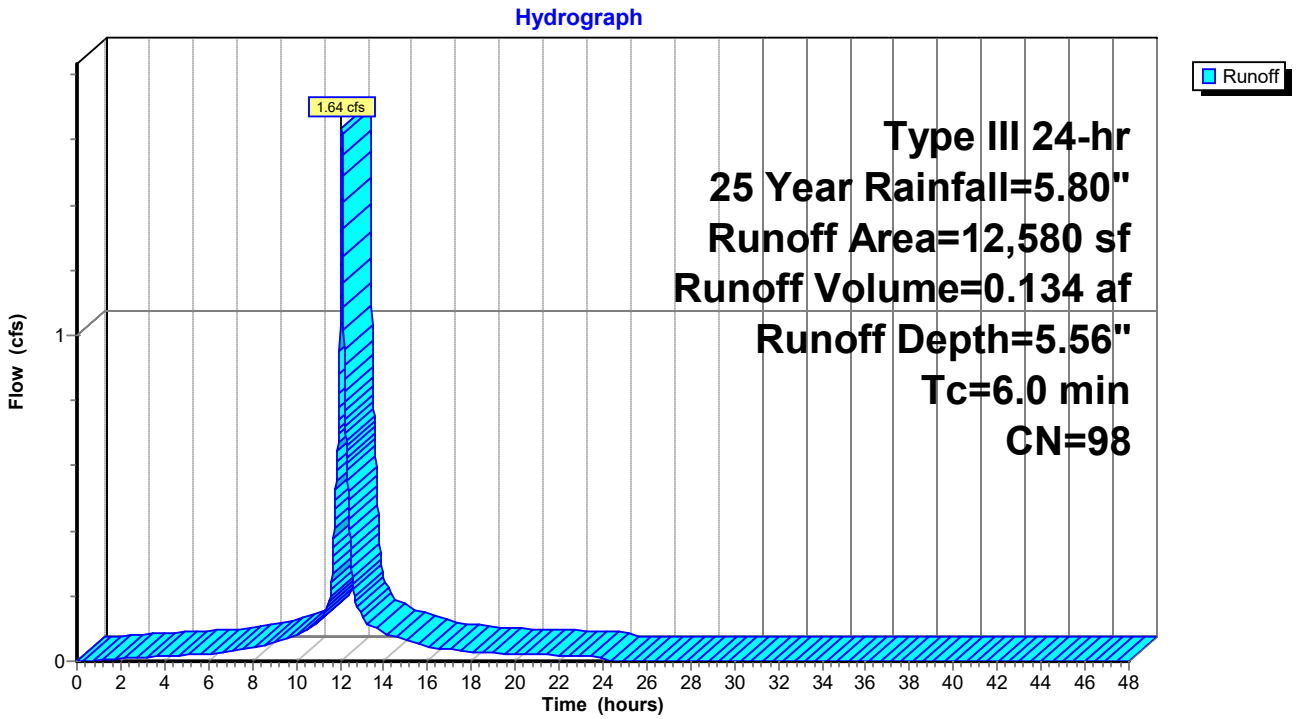
Runoff = 1.64 cfs @ 12.08 hrs, Volume= 0.134 af, Depth= 5.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year Rainfall=5.80"

	Area (sf)	CN	Description
*	12,580	98	Roof & Pavement
	0	39	>75% Grass cover, Good, HSG A
	12,580	98	Weighted Average
	12,580		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 24A: Building 2



Summary for Subcatchment 24B: Building 3

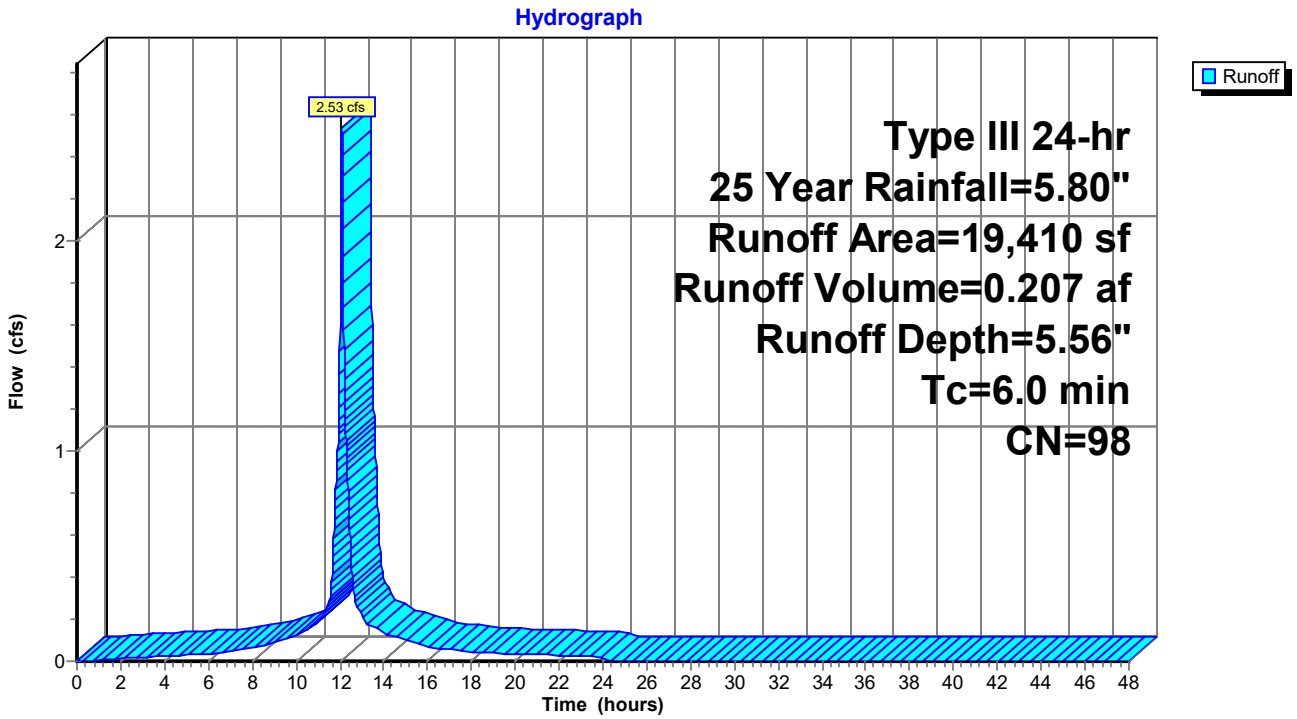
Runoff = 2.53 cfs @ 12.08 hrs, Volume= 0.207 af, Depth= 5.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year Rainfall=5.80"

	Area (sf)	CN	Description
*	19,410	98	Roof & Sidewalk
	0	74	>75% Grass cover, Good, HSG C
	19,410	98	Weighted Average
	19,410		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 24B: Building 3



Summary for Subcatchment 25A: South of Building 2

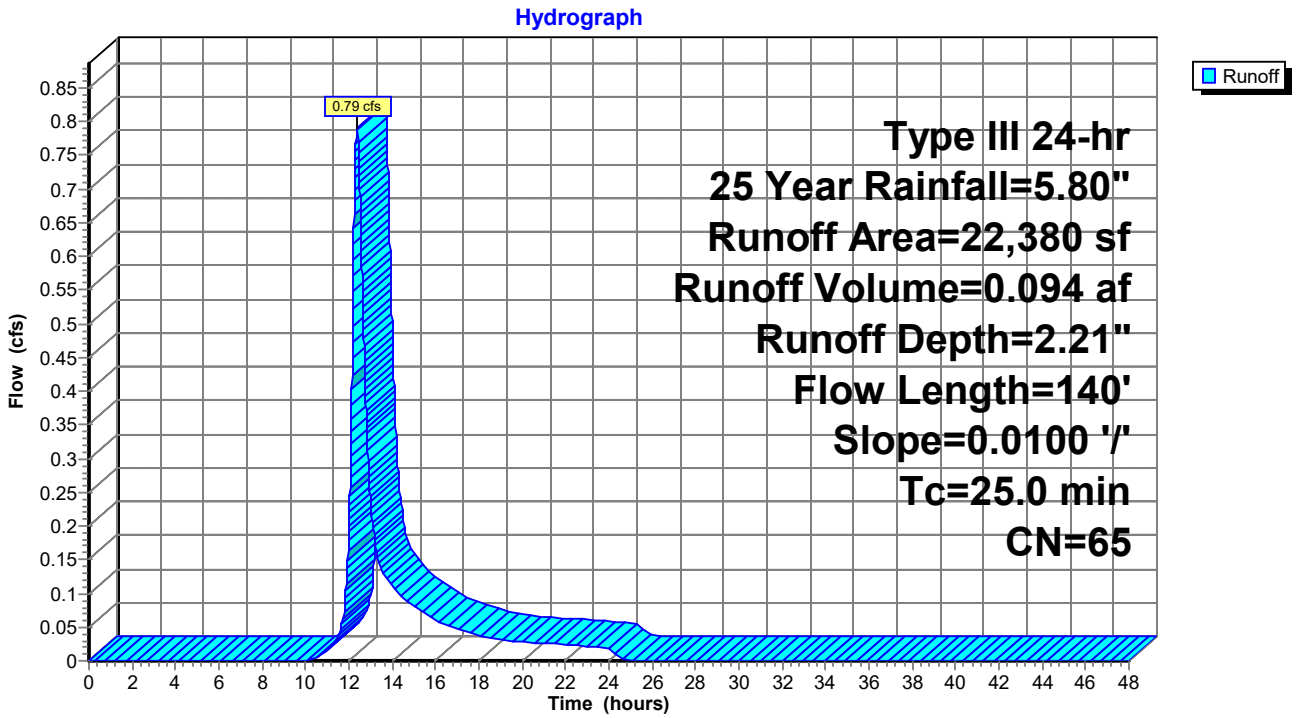
Runoff = 0.79 cfs @ 12.36 hrs, Volume= 0.094 af, Depth= 2.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year Rainfall=5.80"

Area (sf)	CN	Description
8,900	39	>75% Grass cover, Good, HSG A
4,910	98	Paved parking, HSG A
8,570	74	>75% Grass cover, Good, HSG C
22,380	65	Weighted Average
17,470		78.06% Pervious Area
4,910		21.94% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
25.0	140	0.0100	0.09		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.10"

Subcatchment 25A: South of Building 2



Summary for Subcatchment 25B: South of Building 3

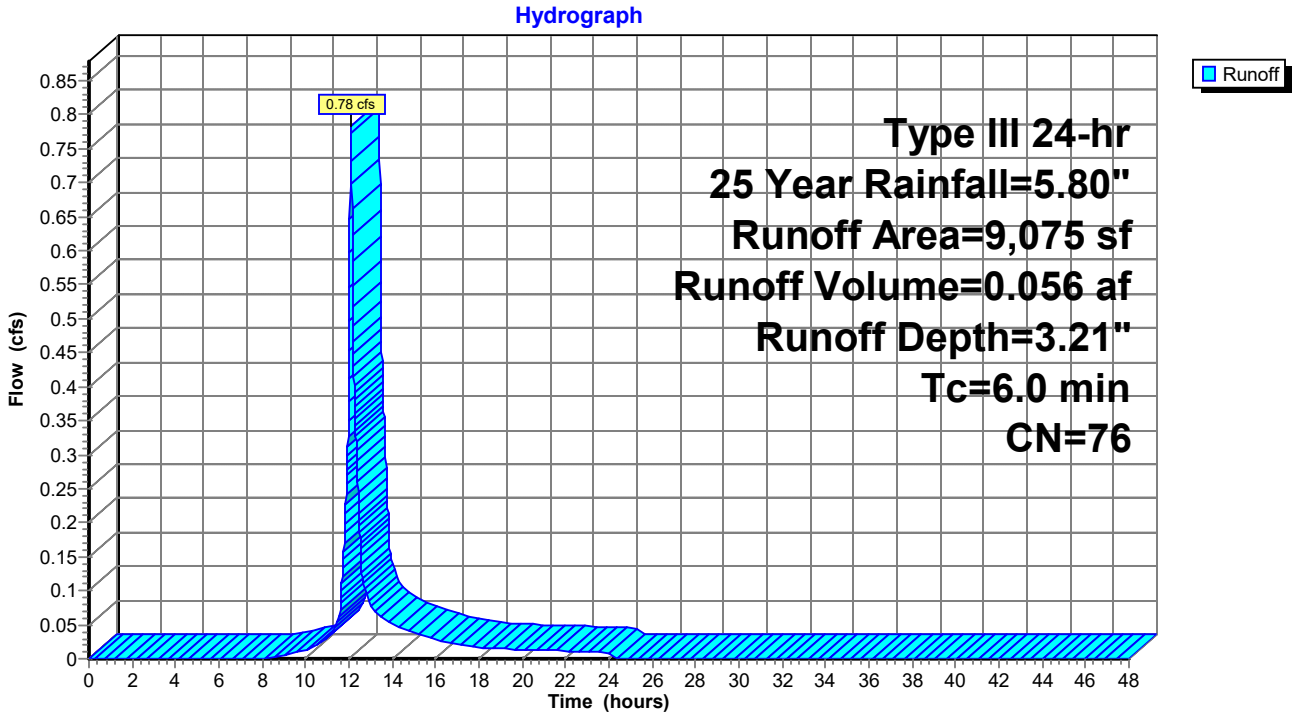
Runoff = 0.78 cfs @ 12.09 hrs, Volume= 0.056 af, Depth= 3.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year Rainfall=5.80"

	Area (sf)	CN	Description
	8,340	74	>75% Grass cover, Good, HSG C
*	735	98	Walkways
	9,075	76	Weighted Average
	8,340		91.90% Pervious Area
	735		8.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 25B: South of Building 3



Summary for Subcatchment 25C: South of Building 3

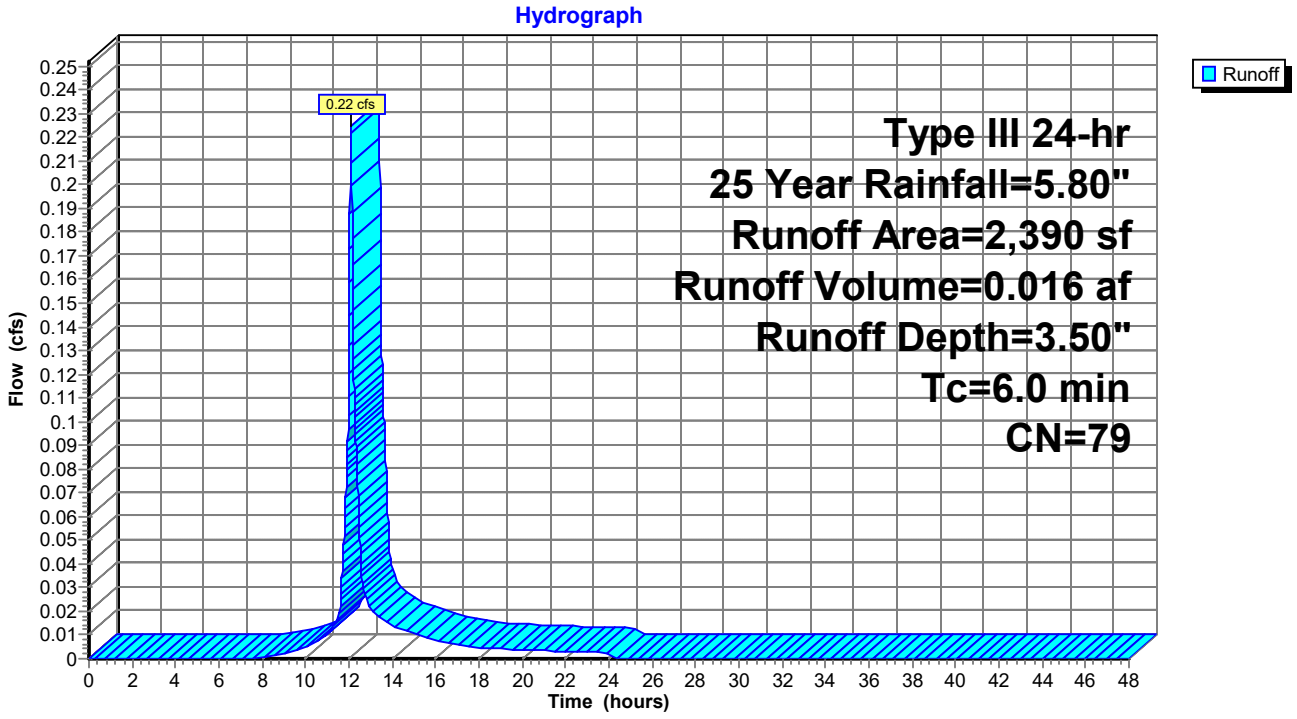
Runoff = 0.22 cfs @ 12.09 hrs, Volume= 0.016 af, Depth= 3.50"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year Rainfall=5.80"

	Area (sf)	CN	Description
	1,930	74	>75% Grass cover, Good, HSG C
*	460	98	Walkways
	2,390	79	Weighted Average
	1,930		80.75% Pervious Area
	460		19.25% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 25C: South of Building 3



Summary for Subcatchment 26S: Wetland to POI 2

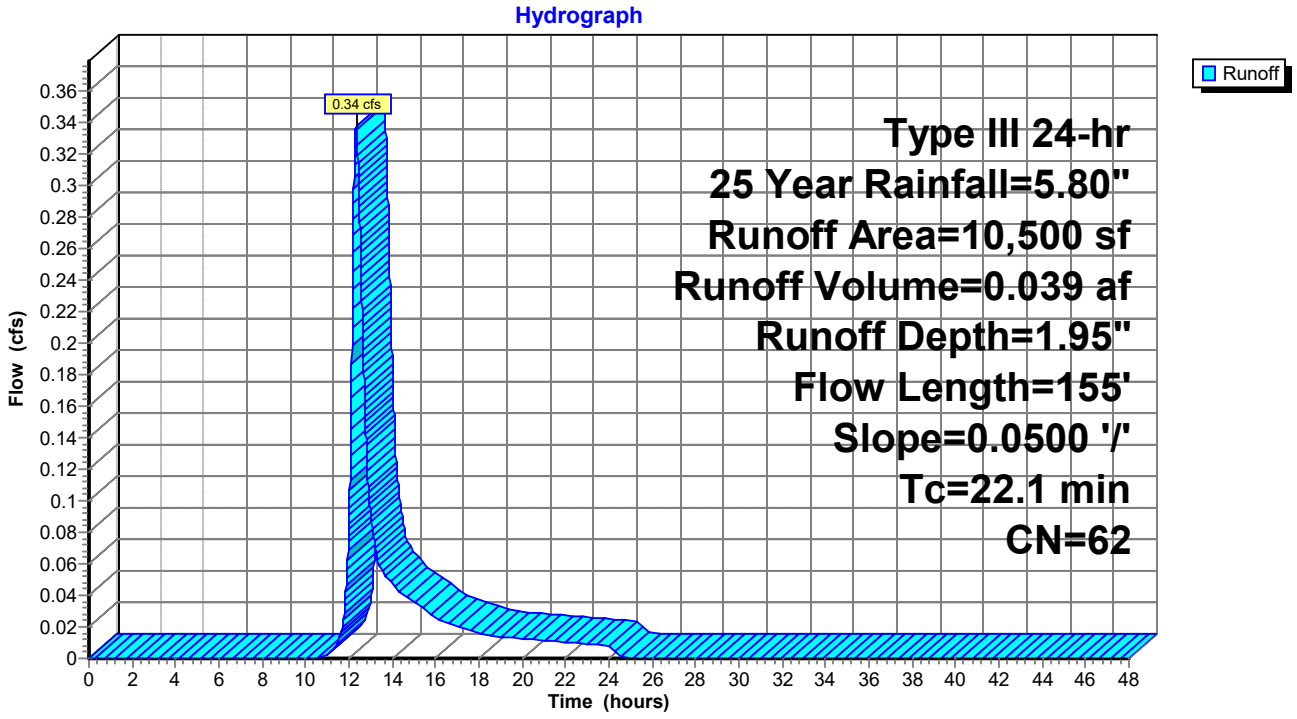
Runoff = 0.34 cfs @ 12.33 hrs, Volume= 0.039 af, Depth= 1.95"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year Rainfall=5.80"

	Area (sf)	CN	Description
	4,528	39	>75% Grass cover, Good, HSG A
	5,392	77	Woods, Good, HSG D
*	580	98	Walking Path
	10,500	62	Weighted Average
	9,920		94.48% Pervious Area
	580		5.52% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.9	75	0.0500	0.06		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.10"
1.2	80	0.0500	1.12		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
22.1	155	Total			

Subcatchment 26S: Wetland to POI 2



Summary for Subcatchment 27S: Wetland to POI 1

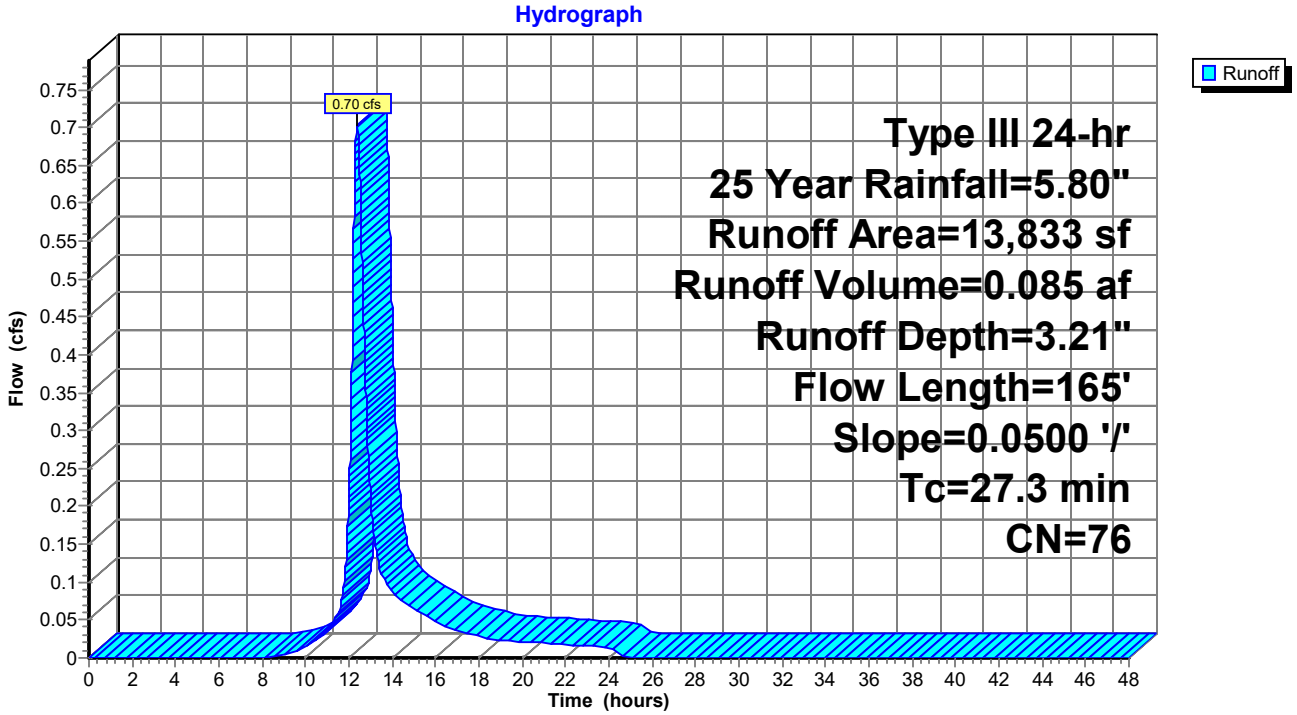
Runoff = 0.70 cfs @ 12.38 hrs, Volume= 0.085 af, Depth= 3.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year Rainfall=5.80"

	Area (sf)	CN	Description
	3,935	74	>75% Grass cover, Good, HSG C
	9,282	77	Woods, Good, HSG D
	141	39	>75% Grass cover, Good, HSG A
*	475	98	Walking Path
	13,833	76	Weighted Average
	13,358		96.57% Pervious Area
	475		3.43% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
26.3	100	0.0500	0.06		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.10"
1.0	65	0.0500	1.12		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
27.3	165	Total			

Subcatchment 27S: Wetland to POI 1



Summary for Subcatchment 28S:

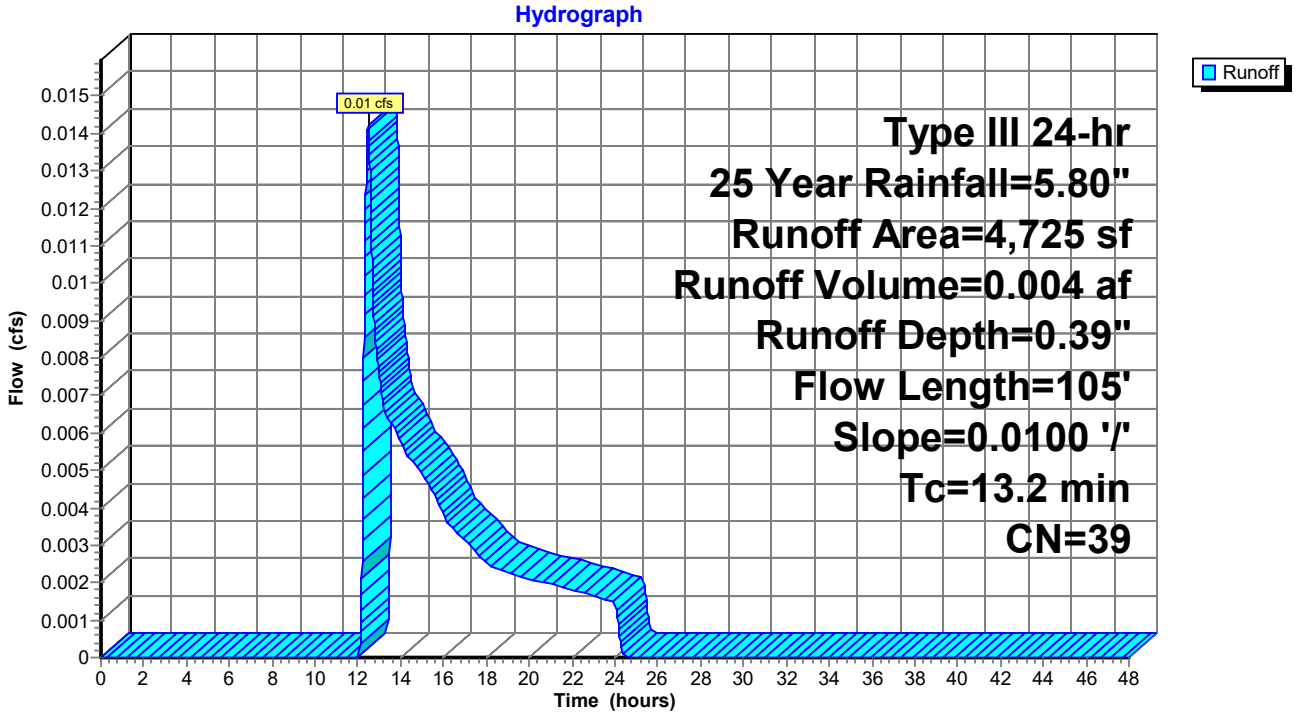
Runoff = 0.01 cfs @ 12.48 hrs, Volume= 0.004 af, Depth= 0.39"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year Rainfall=5.80"

Area (sf)	CN	Description
4,725	39	>75% Grass cover, Good, HSG A
4,725		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.7	60	0.0100	0.08		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.10"
0.5	45	0.0100	1.50		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
13.2	105	Total			

Subcatchment 28S:



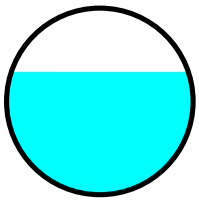
Summary for Reach 1R: CB 19 TO WETLAND

Inflow Area = 3.011 ac, 47.24% Impervious, Inflow Depth > 2.93" for 25 Year event
Inflow = 4.29 cfs @ 12.14 hrs, Volume= 0.736 af
Outflow = 4.25 cfs @ 12.14 hrs, Volume= 0.736 af, Atten= 1%, Lag= 0.3 min

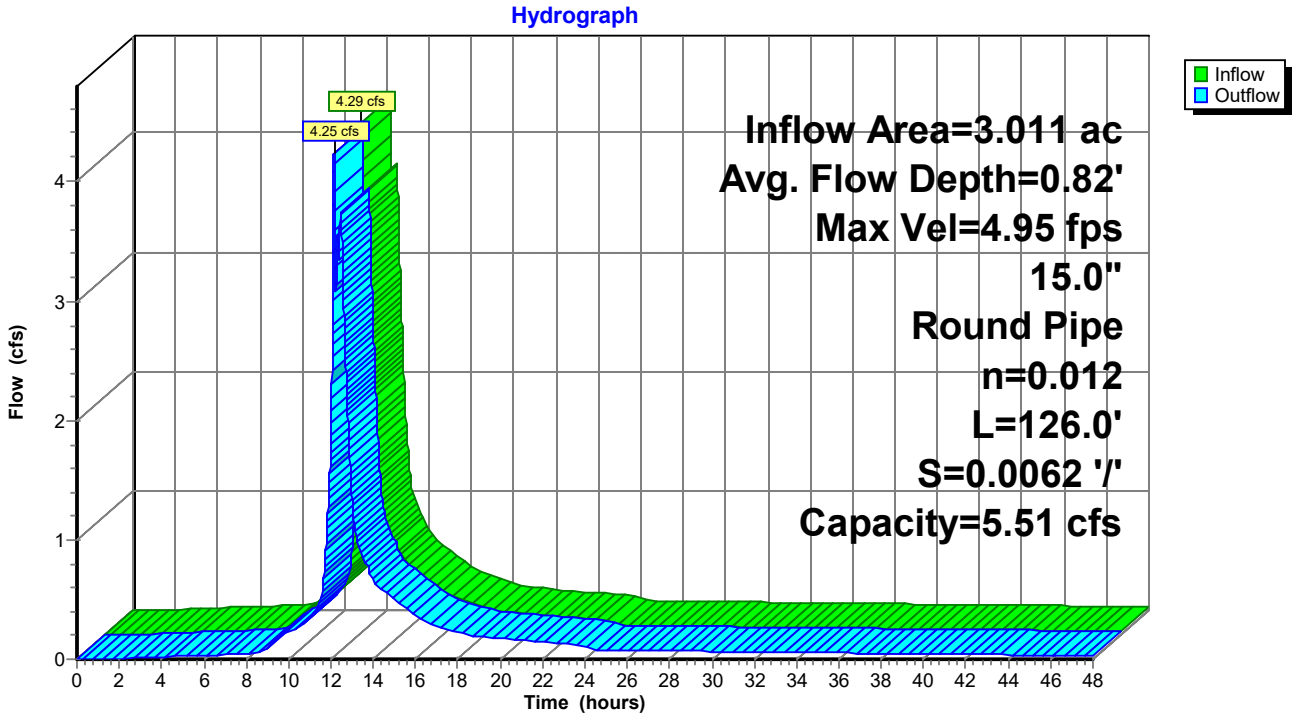
Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 4.95 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 1.70 fps, Avg. Travel Time= 1.2 min

Peak Storage= 108 cf @ 12.14 hrs
Average Depth at Peak Storage= 0.82' , Surface Width= 1.18'
Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 5.51 cfs

15.0" Round Pipe
n= 0.012 Corrugated PP, smooth interior
Length= 126.0' Slope= 0.0062 '/'
Inlet Invert= 108.10', Outlet Invert= 107.32'



Reach 1R: CB 19 TO WETLAND

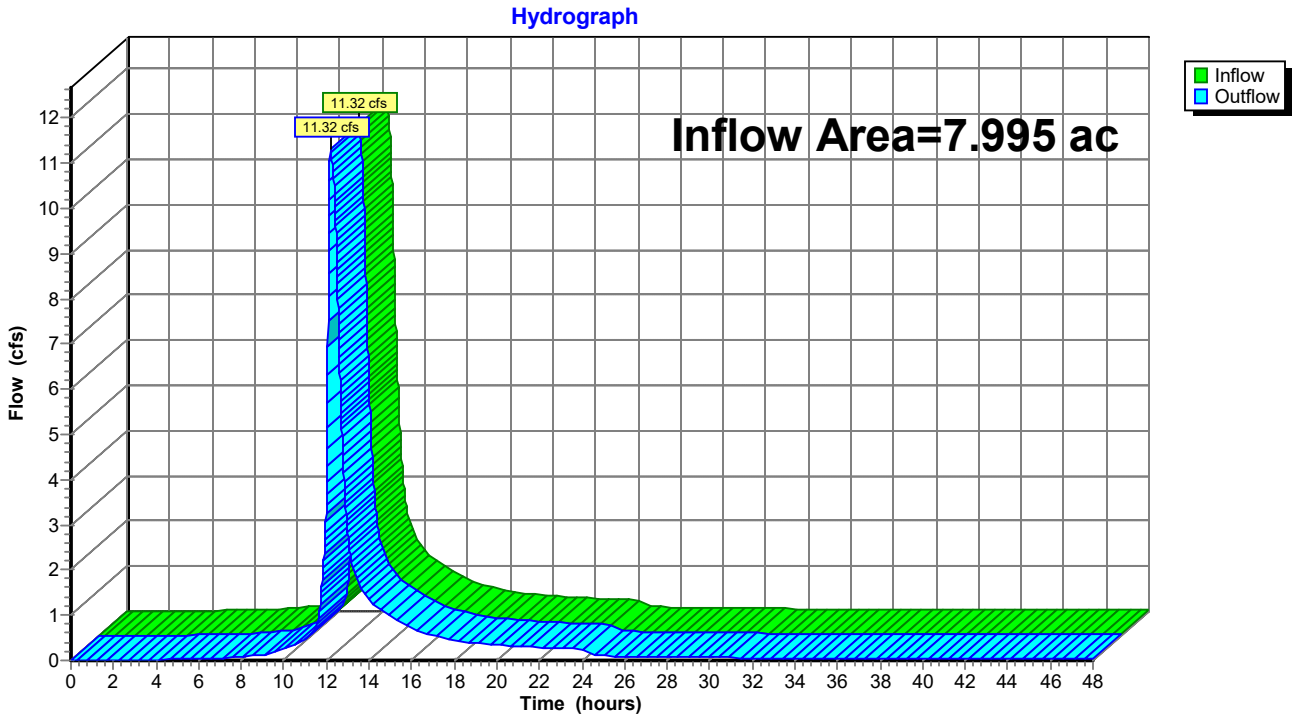


Summary for Reach 2R: POI 2

Inflow Area = 7.995 ac, 56.42% Impervious, Inflow Depth > 2.18" for 25 Year event
Inflow = 11.32 cfs @ 12.18 hrs, Volume= 1.450 af
Outflow = 11.32 cfs @ 12.18 hrs, Volume= 1.450 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Reach 2R: POI 2



Summary for Reach 4R: Wetland to POI 2

Inflow Area = 7.754 ac, 58.01% Impervious, Inflow Depth > 2.18" for 25 Year event
Inflow = 11.09 cfs @ 12.17 hrs, Volume= 1.411 af
Outflow = 11.08 cfs @ 12.18 hrs, Volume= 1.411 af, Atten= 0%, Lag= 0.3 min

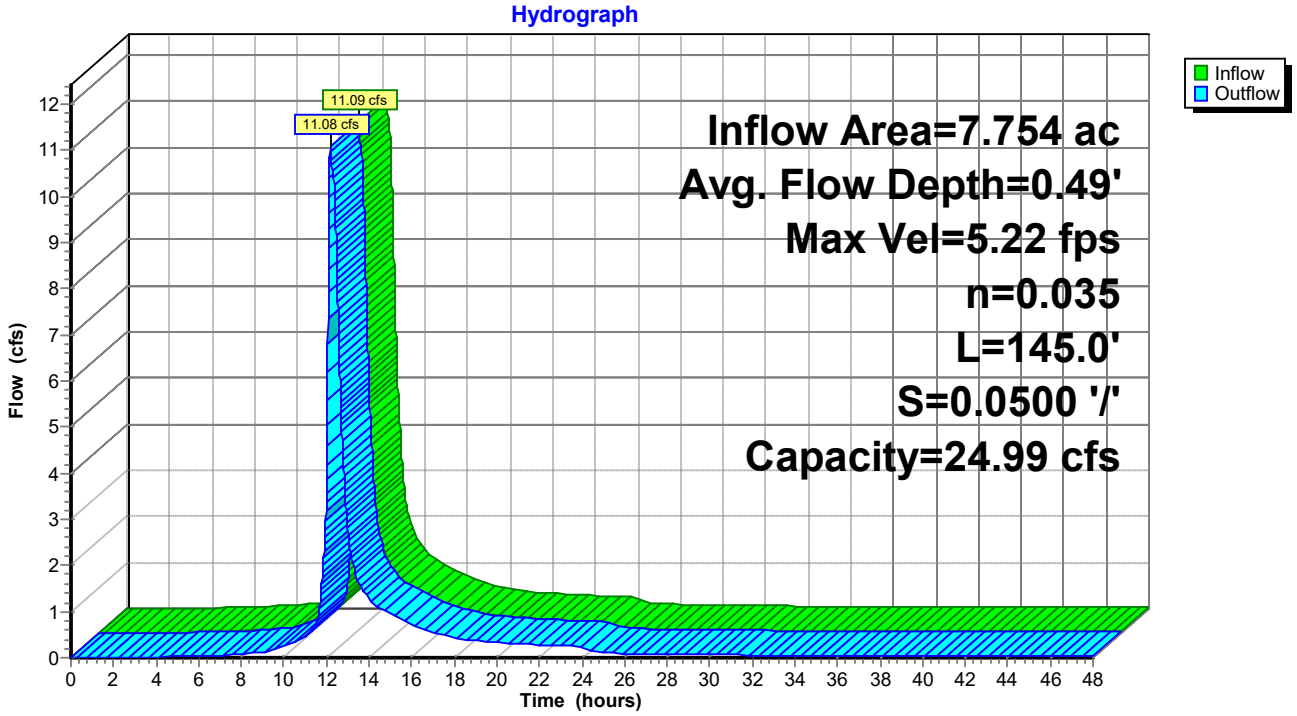
Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 5.22 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 1.05 fps, Avg. Travel Time= 2.3 min

Peak Storage= 307 cf @ 12.18 hrs
Average Depth at Peak Storage= 0.49' , Surface Width= 4.68'
Bank-Full Depth= 0.80' Flow Area= 3.6 sf, Capacity= 24.99 cfs

4.00' x 0.80' deep channel, n= 0.035 Earth, dense weeds
Side Slope Z-value= 0.7 '/' Top Width= 5.12'
Length= 145.0' Slope= 0.0500 '/'
Inlet Invert= 102.89', Outlet Invert= 95.64'



Reach 4R: Wetland to POI 2



Summary for Reach 6R: Wetland to POI 1

Inflow Area = 3.011 ac, 47.24% Impervious, Inflow Depth > 2.93" for 25 Year event
Inflow = 4.25 cfs @ 12.14 hrs, Volume= 0.736 af
Outflow = 4.12 cfs @ 12.16 hrs, Volume= 0.735 af, Atten= 3%, Lag= 0.9 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.74 fps, Min. Travel Time= 1.3 min
Avg. Velocity = 0.69 fps, Avg. Travel Time= 5.1 min

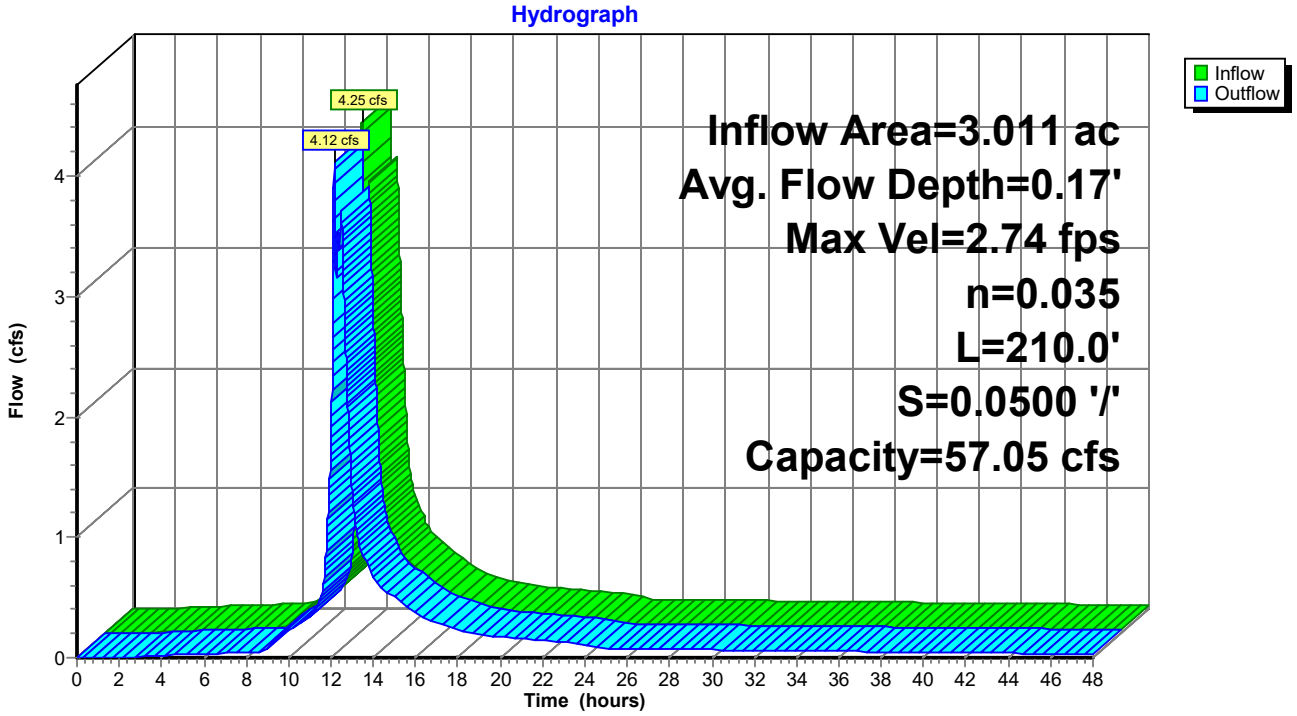
Peak Storage= 316 cf @ 12.16 hrs
Average Depth at Peak Storage= 0.17' , Surface Width= 9.70'
Bank-Full Depth= 0.75' Flow Area= 8.8 sf, Capacity= 57.05 cfs

8.00' x 0.75' deep channel, n= 0.035 Earth, dense weeds
Side Slope Z-value= 5.0 '/' Top Width= 15.50'
Length= 210.0' Slope= 0.0500 '/'
Inlet Invert= 107.32', Outlet Invert= 96.82'



‡

Reach 6R: Wetland to POI 1



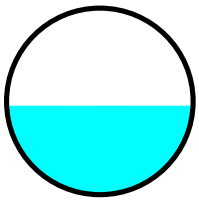
Summary for Reach 24R: DMH 11 to DMH 12

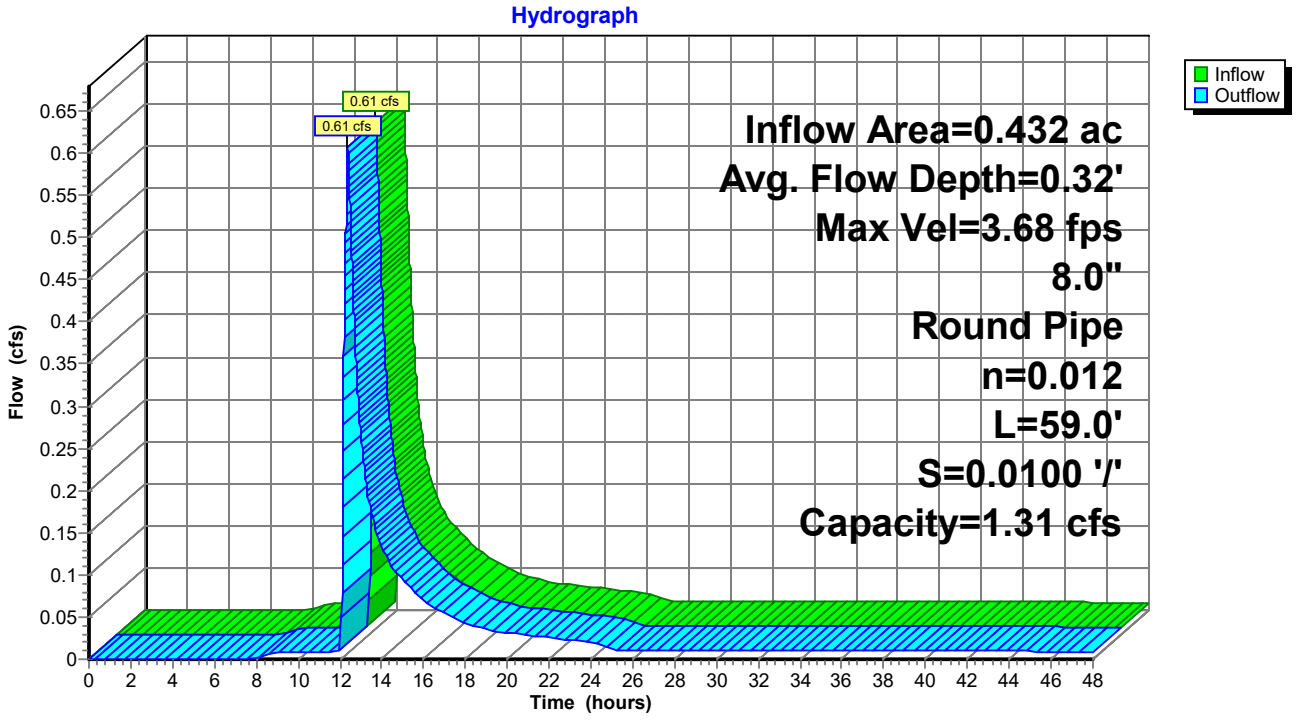
Inflow Area = 0.432 ac, 64.46% Impervious, Inflow Depth > 3.01" for 25 Year event
Inflow = 0.61 cfs @ 12.37 hrs, Volume= 0.108 af
Outflow = 0.61 cfs @ 12.38 hrs, Volume= 0.108 af, Atten= 0%, Lag= 0.2 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.68 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 1.34 fps, Avg. Travel Time= 0.7 min

Peak Storage= 10 cf @ 12.38 hrs
Average Depth at Peak Storage= 0.32' , Surface Width= 0.67'
Bank-Full Depth= 0.67' Flow Area= 0.3 sf, Capacity= 1.31 cfs

8.0" Round Pipe
n= 0.012 Corrugated PP, smooth interior
Length= 59.0' Slope= 0.0100 '/'
Inlet Invert= 109.67', Outlet Invert= 109.08'





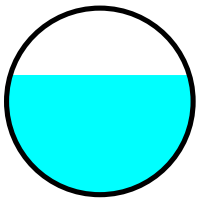
Summary for Reach 25R: DMH 12 to DMH 15

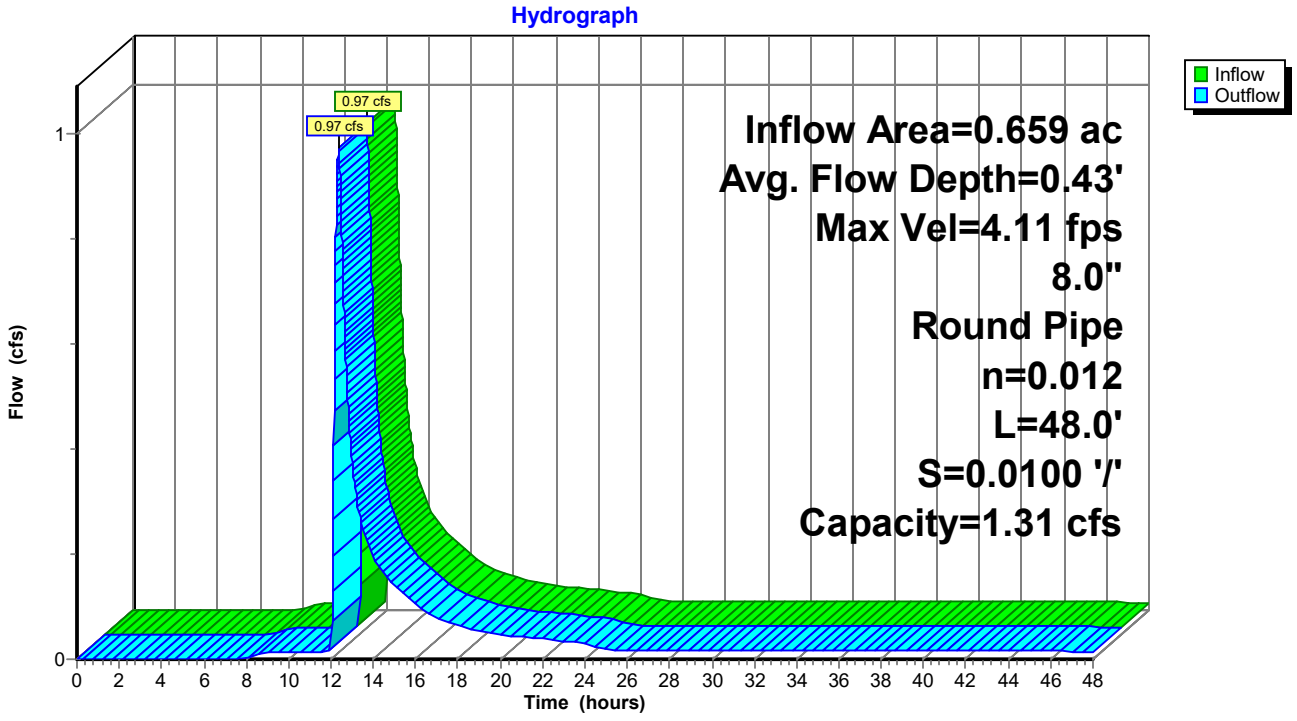
Inflow Area = 0.659 ac, 64.00% Impervious, Inflow Depth > 3.03" for 25 Year event
Inflow = 0.97 cfs @ 12.36 hrs, Volume= 0.166 af
Outflow = 0.97 cfs @ 12.36 hrs, Volume= 0.166 af, Atten= 0%, Lag= 0.2 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 4.11 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 1.53 fps, Avg. Travel Time= 0.5 min

Peak Storage= 11 cf @ 12.36 hrs
Average Depth at Peak Storage= 0.43' , Surface Width= 0.64'
Bank-Full Depth= 0.67' Flow Area= 0.3 sf, Capacity= 1.31 cfs

8.0" Round Pipe
n= 0.012 Corrugated PP, smooth interior
Length= 48.0' Slope= 0.0100 '/'
Inlet Invert= 108.98', Outlet Invert= 108.50'





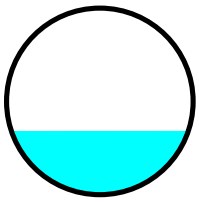
Summary for Reach 26R: DMH 15 to DMH 14

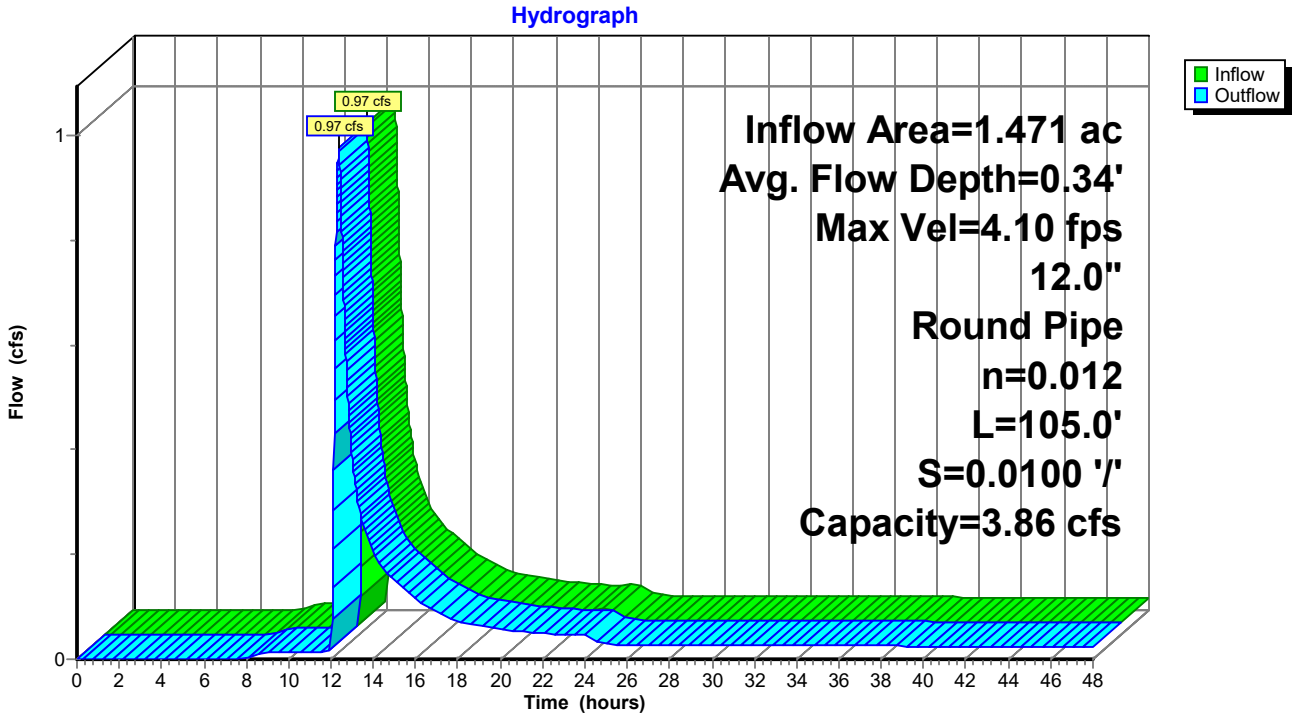
Inflow Area = 1.471 ac, 41.43% Impervious, Inflow Depth > 1.59" for 25 Year event
Inflow = 0.97 cfs @ 12.37 hrs, Volume= 0.195 af
Outflow = 0.97 cfs @ 12.37 hrs, Volume= 0.195 af, Atten= 0%, Lag= 0.3 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 4.10 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 1.59 fps, Avg. Travel Time= 1.1 min

Peak Storage= 25 cf @ 12.37 hrs
Average Depth at Peak Storage= 0.34' , Surface Width= 0.95'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 3.86 cfs

12.0" Round Pipe
n= 0.012 Corrugated PP, smooth interior
Length= 105.0' Slope= 0.0100 '/'
Inlet Invert= 108.40', Outlet Invert= 107.35'





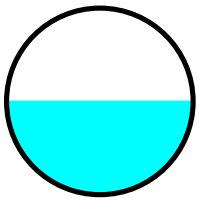
Summary for Reach 27R: DMH 14 to DMH 7

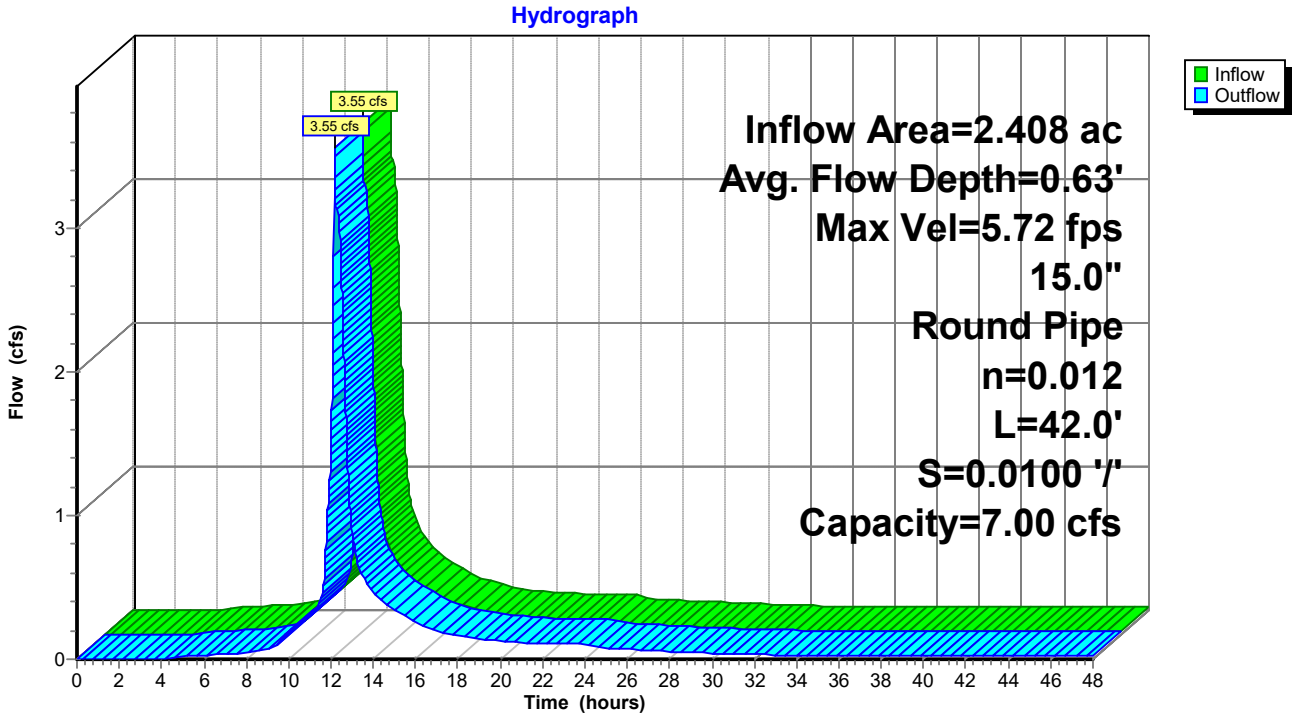
Inflow Area = 2.408 ac, 56.92% Impervious, Inflow Depth > 2.71" for 25 Year event
Inflow = 3.55 cfs @ 12.17 hrs, Volume= 0.544 af
Outflow = 3.55 cfs @ 12.17 hrs, Volume= 0.544 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 5.72 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 1.88 fps, Avg. Travel Time= 0.4 min

Peak Storage= 26 cf @ 12.17 hrs
Average Depth at Peak Storage= 0.63' , Surface Width= 1.25'
Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 7.00 cfs

15.0" Round Pipe
n= 0.012 Corrugated PP, smooth interior
Length= 42.0' Slope= 0.0100 '/'
Inlet Invert= 107.25', Outlet Invert= 106.83'



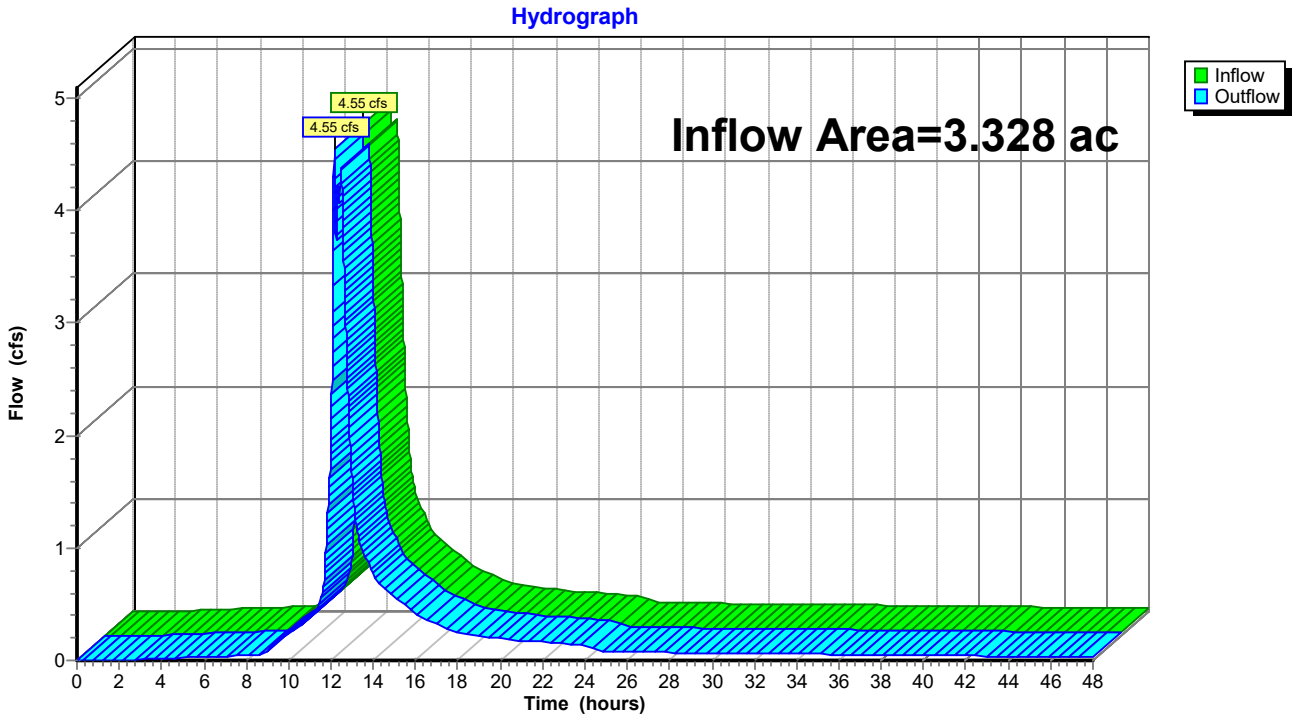


Summary for Reach 28R: POI 1

Inflow Area = 3.328 ac, 43.06% Impervious, Inflow Depth > 2.96" for 25 Year event
Inflow = 4.55 cfs @ 12.16 hrs, Volume= 0.820 af
Outflow = 4.55 cfs @ 12.16 hrs, Volume= 0.820 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Reach 28R: POI 1



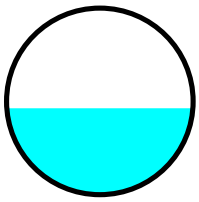
Summary for Reach 29R: EX. DMH 4 to NEW CB 19

Inflow Area = 1.500 ac, 36.53% Impervious, Inflow Depth > 1.96" for 25 Year event
Inflow = 1.29 cfs @ 12.32 hrs, Volume= 0.244 af
Outflow = 1.29 cfs @ 12.33 hrs, Volume= 0.244 af, Atten= 0%, Lag= 0.7 min

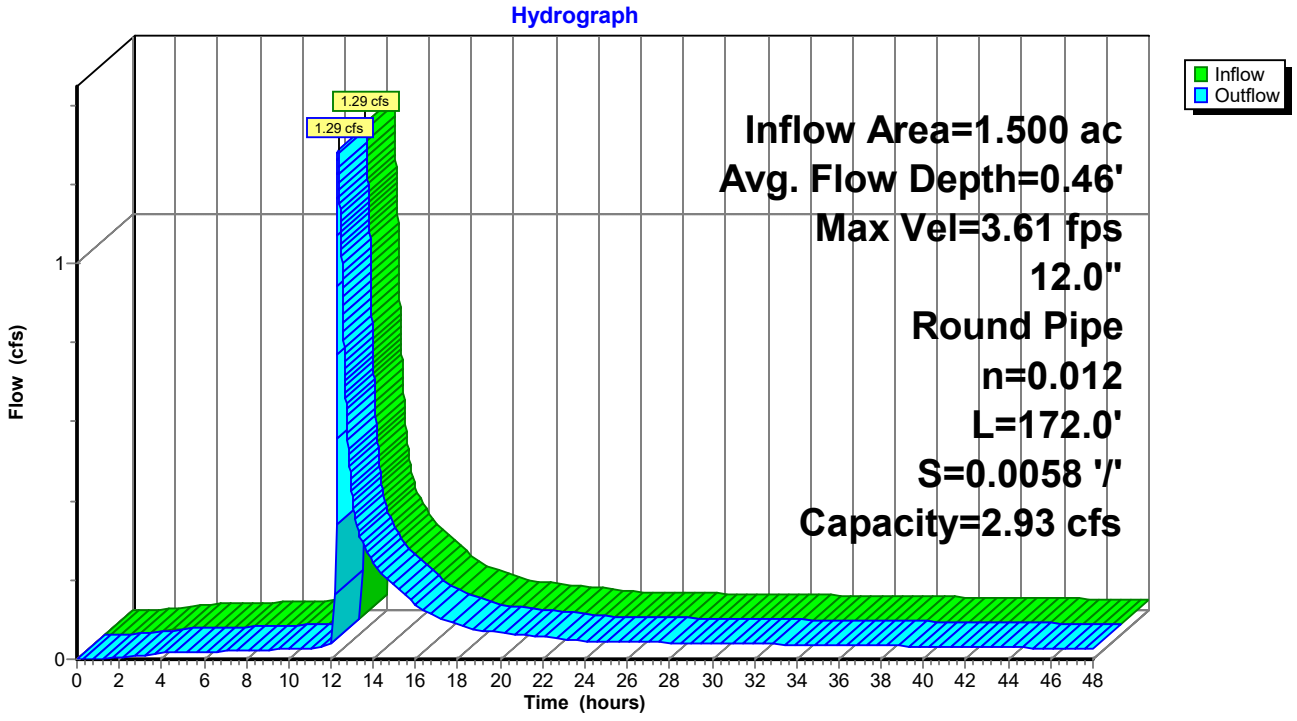
Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.61 fps, Min. Travel Time= 0.8 min
Avg. Velocity = 1.35 fps, Avg. Travel Time= 2.1 min

Peak Storage= 61 cf @ 12.33 hrs
Average Depth at Peak Storage= 0.46' , Surface Width= 1.00'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.93 cfs

12.0" Round Pipe
n= 0.012 Corrugated PP, smooth interior
Length= 172.0' Slope= 0.0058 '/'
Inlet Invert= 109.09', Outlet Invert= 108.10'



Reach 29R: EX. DMH 4 to NEW CB 19



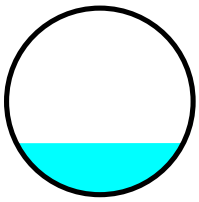
Summary for Reach 31R: 8" SD

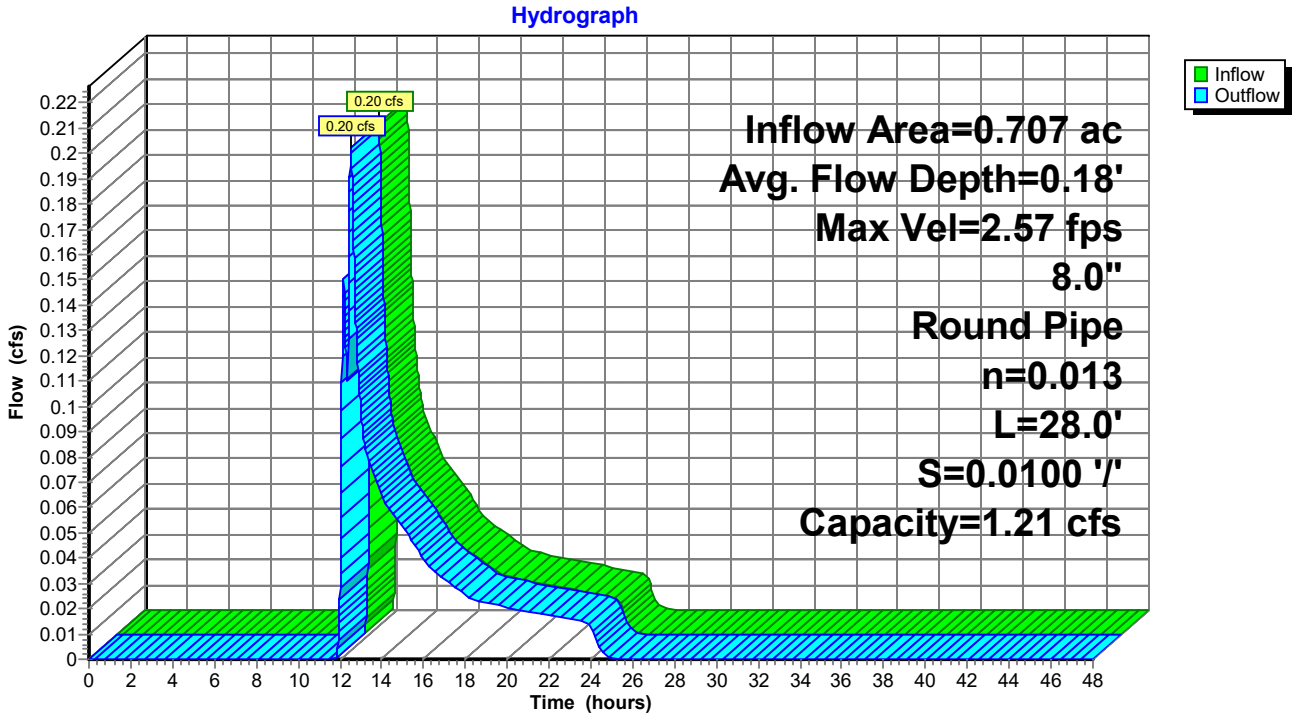
Inflow Area = 0.707 ac, 10.73% Impervious, Inflow Depth = 0.70" for 25 Year event
Inflow = 0.20 cfs @ 12.52 hrs, Volume= 0.041 af
Outflow = 0.20 cfs @ 12.52 hrs, Volume= 0.041 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.57 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 1.40 fps, Avg. Travel Time= 0.3 min

Peak Storage= 2 cf @ 12.52 hrs
Average Depth at Peak Storage= 0.18' , Surface Width= 0.60'
Bank-Full Depth= 0.67' Flow Area= 0.3 sf, Capacity= 1.21 cfs

8.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 28.0' Slope= 0.0100 '/'
Inlet Invert= 115.15', Outlet Invert= 114.87'





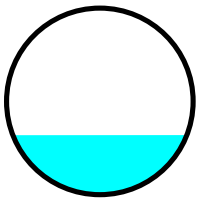
Summary for Reach 32R: 8" UD

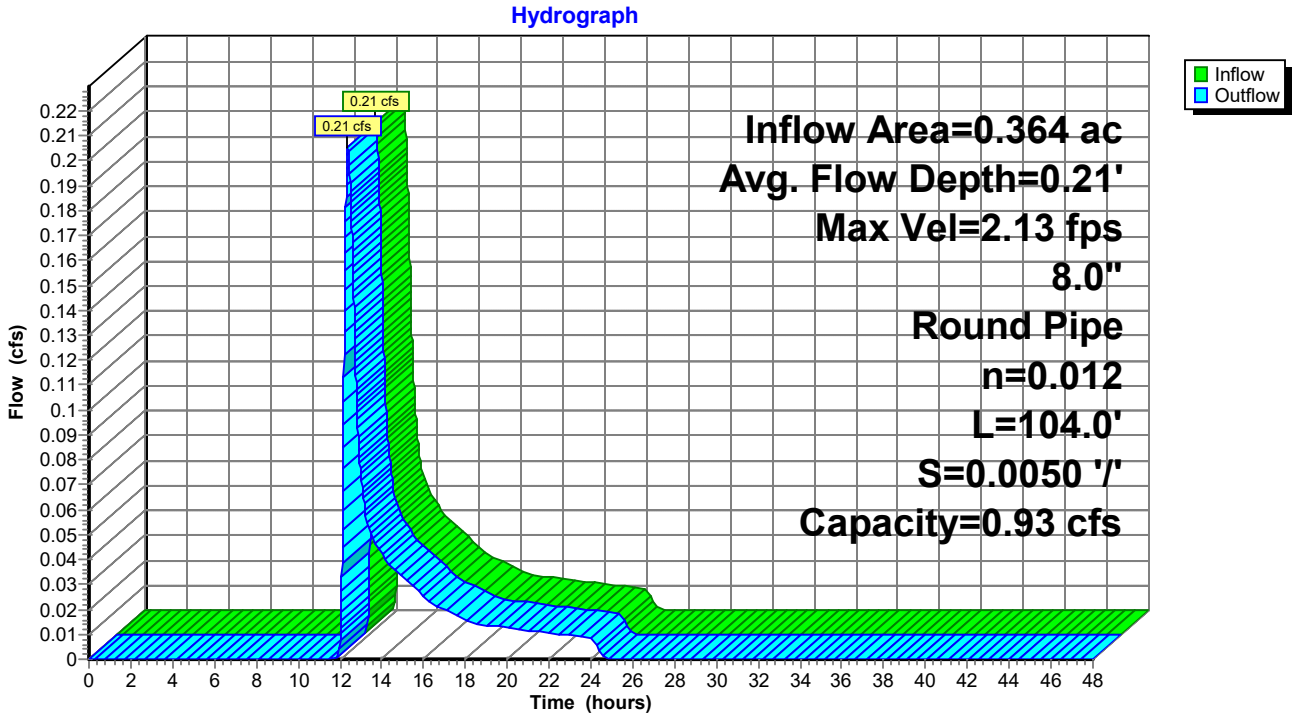
Inflow Area = 0.364 ac, 17.16% Impervious, Inflow Depth = 0.98" for 25 Year event
Inflow = 0.21 cfs @ 12.37 hrs, Volume= 0.030 af
Outflow = 0.21 cfs @ 12.38 hrs, Volume= 0.030 af, Atten= 0%, Lag= 0.7 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.13 fps, Min. Travel Time= 0.8 min
Avg. Velocity = 1.05 fps, Avg. Travel Time= 1.7 min

Peak Storage= 10 cf @ 12.38 hrs
Average Depth at Peak Storage= 0.21' , Surface Width= 0.62'
Bank-Full Depth= 0.67' Flow Area= 0.3 sf, Capacity= 0.93 cfs

8.0" Round Pipe
n= 0.012 Corrugated PP, smooth interior
Length= 104.0' Slope= 0.0050 '/'
Inlet Invert= 116.28', Outlet Invert= 115.76'





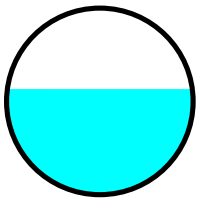
Summary for Reach 33R: 8" SD

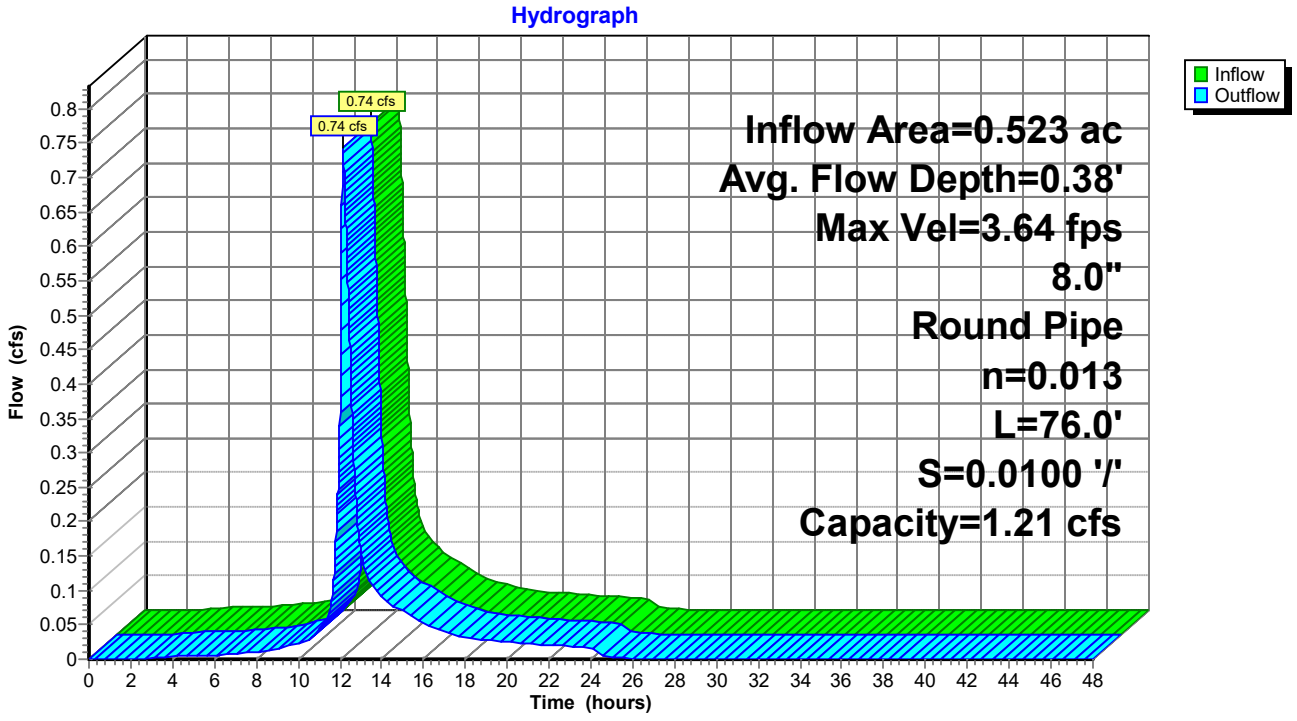
Inflow Area = 0.523 ac, 38.77% Impervious, Inflow Depth = 2.10" for 25 Year event
Inflow = 0.74 cfs @ 12.14 hrs, Volume= 0.092 af
Outflow = 0.74 cfs @ 12.15 hrs, Volume= 0.092 af, Atten= 0%, Lag= 0.3 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.64 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 1.19 fps, Avg. Travel Time= 1.1 min

Peak Storage= 16 cf @ 12.15 hrs
Average Depth at Peak Storage= 0.38' , Surface Width= 0.66'
Bank-Full Depth= 0.67' Flow Area= 0.3 sf, Capacity= 1.21 cfs

8.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 76.0' Slope= 0.0100 '/'
Inlet Invert= 115.48', Outlet Invert= 114.72'





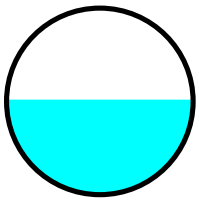
Summary for Reach 34R: 12" SD

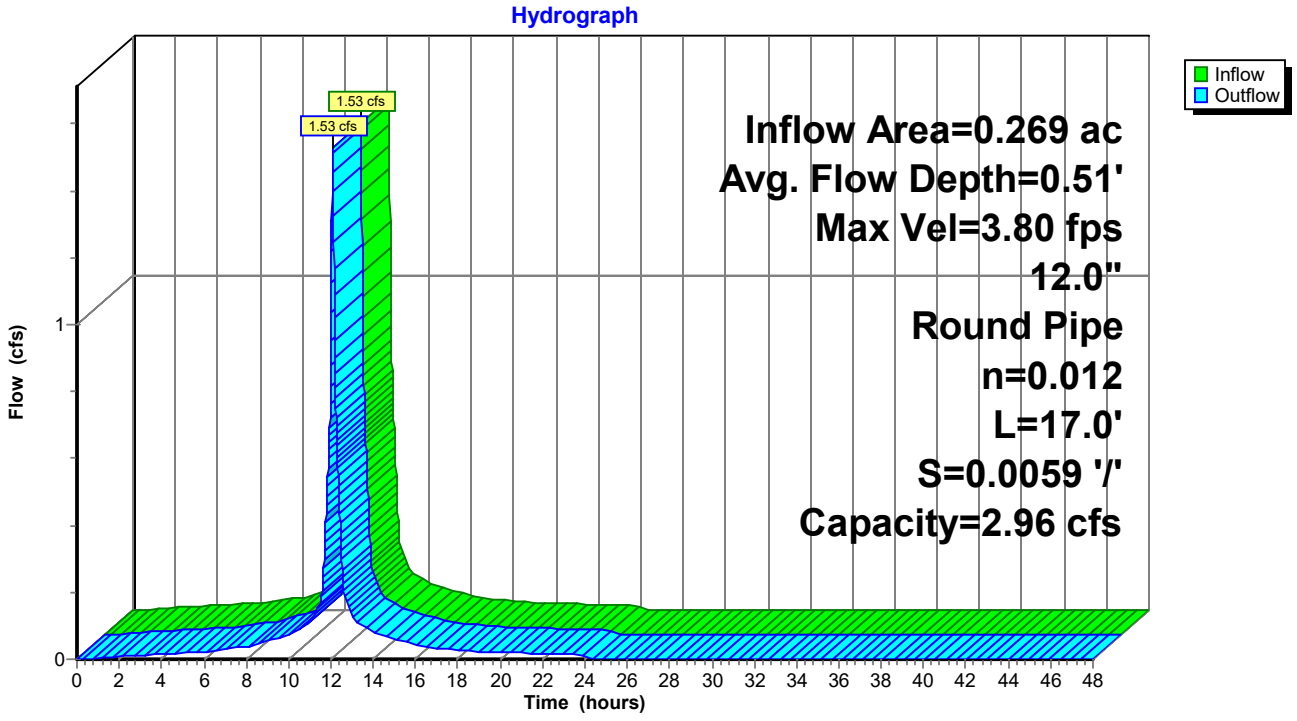
Inflow Area = 0.269 ac,100.00% Impervious, Inflow Depth = 5.56" for 25 Year event
Inflow = 1.53 cfs @ 12.08 hrs, Volume= 0.125 af
Outflow = 1.53 cfs @ 12.08 hrs, Volume= 0.125 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.80 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 1.29 fps, Avg. Travel Time= 0.2 min

Peak Storage= 7 cf @ 12.08 hrs
Average Depth at Peak Storage= 0.51' , Surface Width= 1.00'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.96 cfs

12.0" Round Pipe
n= 0.012 Corrugated PP, smooth interior
Length= 17.0' Slope= 0.0059 '/'
Inlet Invert= 114.75', Outlet Invert= 114.65'





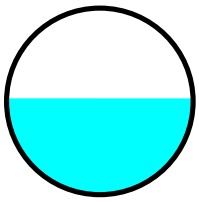
Summary for Reach 35R: 12" SD

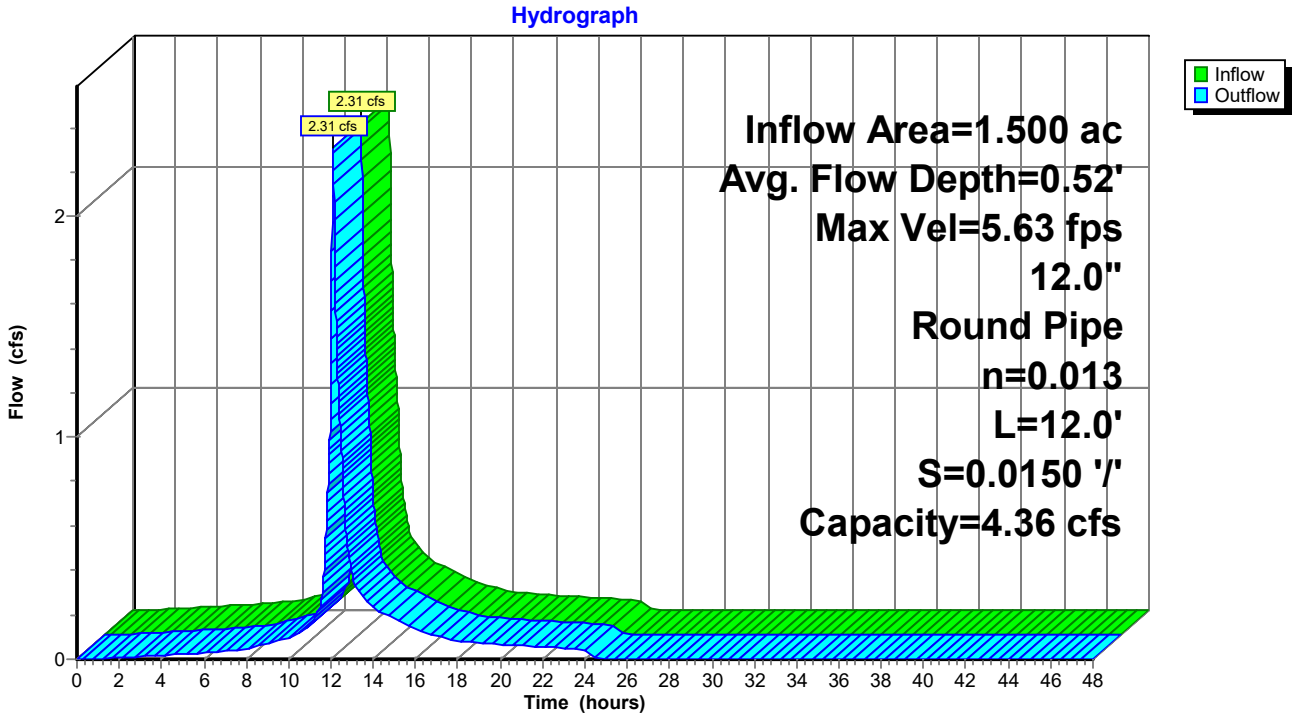
Inflow Area = 1.500 ac, 36.53% Impervious, Inflow Depth = 2.06" for 25 Year event
Inflow = 2.31 cfs @ 12.10 hrs, Volume= 0.258 af
Outflow = 2.31 cfs @ 12.10 hrs, Volume= 0.258 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 5.63 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 1.82 fps, Avg. Travel Time= 0.1 min

Peak Storage= 5 cf @ 12.10 hrs
Average Depth at Peak Storage= 0.52' , Surface Width= 1.00'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 4.36 cfs

12.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 12.0' Slope= 0.0150 '/'
Inlet Invert= 113.40', Outlet Invert= 113.22'





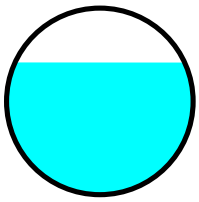
Summary for Reach 40R: New CB 1 to DMH 2

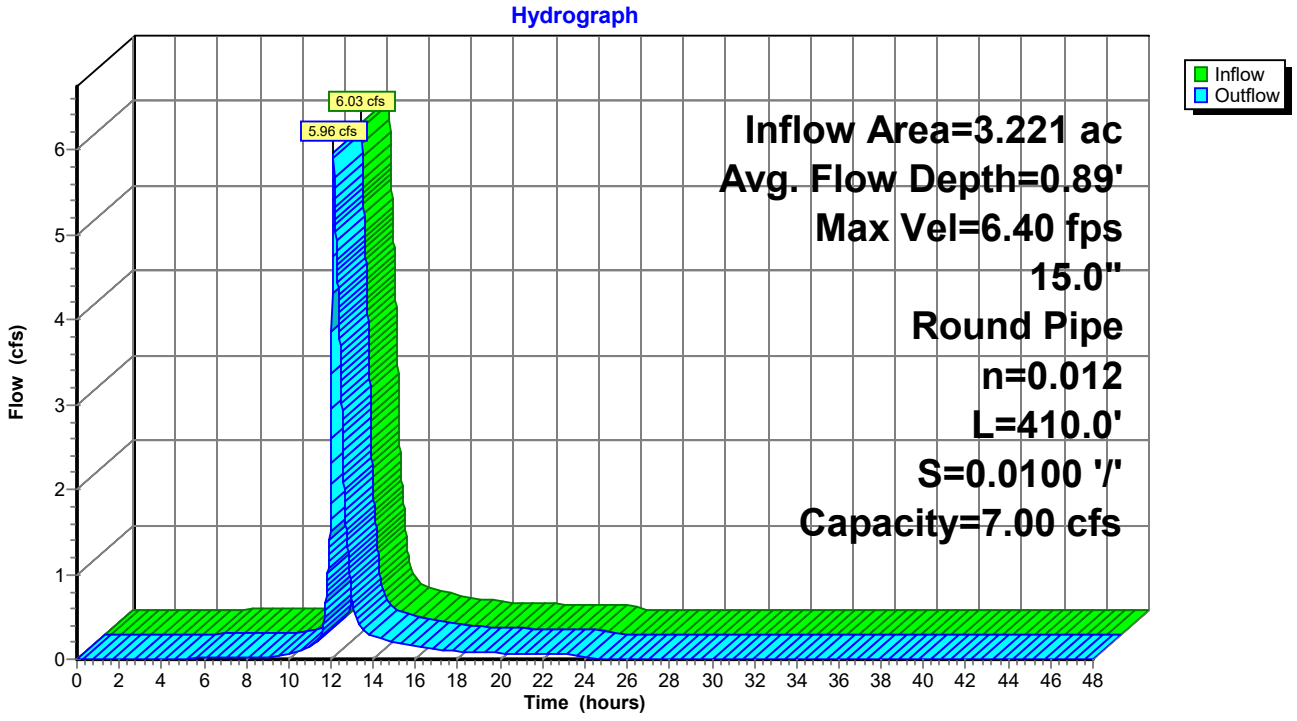
Inflow Area = 3.221 ac, 64.50% Impervious, Inflow Depth = 1.60" for 25 Year event
Inflow = 6.03 cfs @ 12.11 hrs, Volume= 0.429 af
Outflow = 5.96 cfs @ 12.12 hrs, Volume= 0.429 af, Atten= 1%, Lag= 1.0 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 6.40 fps, Min. Travel Time= 1.1 min
Avg. Velocity = 1.81 fps, Avg. Travel Time= 3.8 min

Peak Storage= 382 cf @ 12.12 hrs
Average Depth at Peak Storage= 0.89' , Surface Width= 1.14'
Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 7.00 cfs

15.0" Round Pipe
n= 0.012 Corrugated PP, smooth interior
Length= 410.0' Slope= 0.0100 '/'
Inlet Invert= 111.96', Outlet Invert= 107.86'





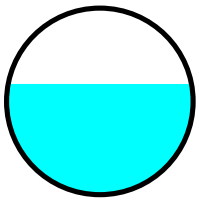
Summary for Reach 41R: DMH 2 to DMH 3

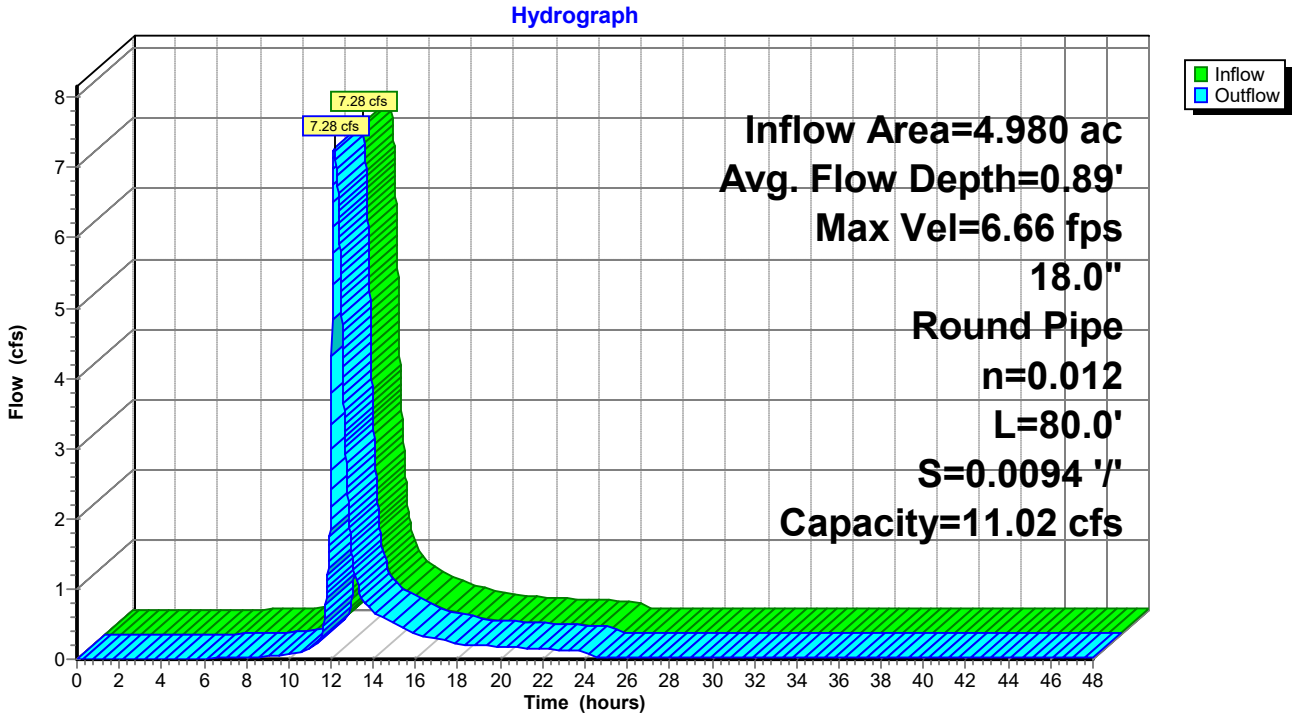
Inflow Area = 4.980 ac, 57.39% Impervious, Inflow Depth > 1.83" for 25 Year event
Inflow = 7.28 cfs @ 12.14 hrs, Volume= 0.760 af
Outflow = 7.28 cfs @ 12.15 hrs, Volume= 0.760 af, Atten= 0%, Lag= 0.2 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 6.66 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 1.60 fps, Avg. Travel Time= 0.8 min

Peak Storage= 87 cf @ 12.15 hrs
Average Depth at Peak Storage= 0.89' , Surface Width= 1.47'
Bank-Full Depth= 1.50' Flow Area= 1.8 sf, Capacity= 11.02 cfs

18.0" Round Pipe
n= 0.012 Corrugated PP, smooth interior
Length= 80.0' Slope= 0.0094 '/'
Inlet Invert= 107.97', Outlet Invert= 107.22'





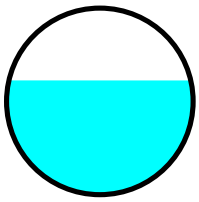
Summary for Reach 42R: DMH 3 to DMH 7

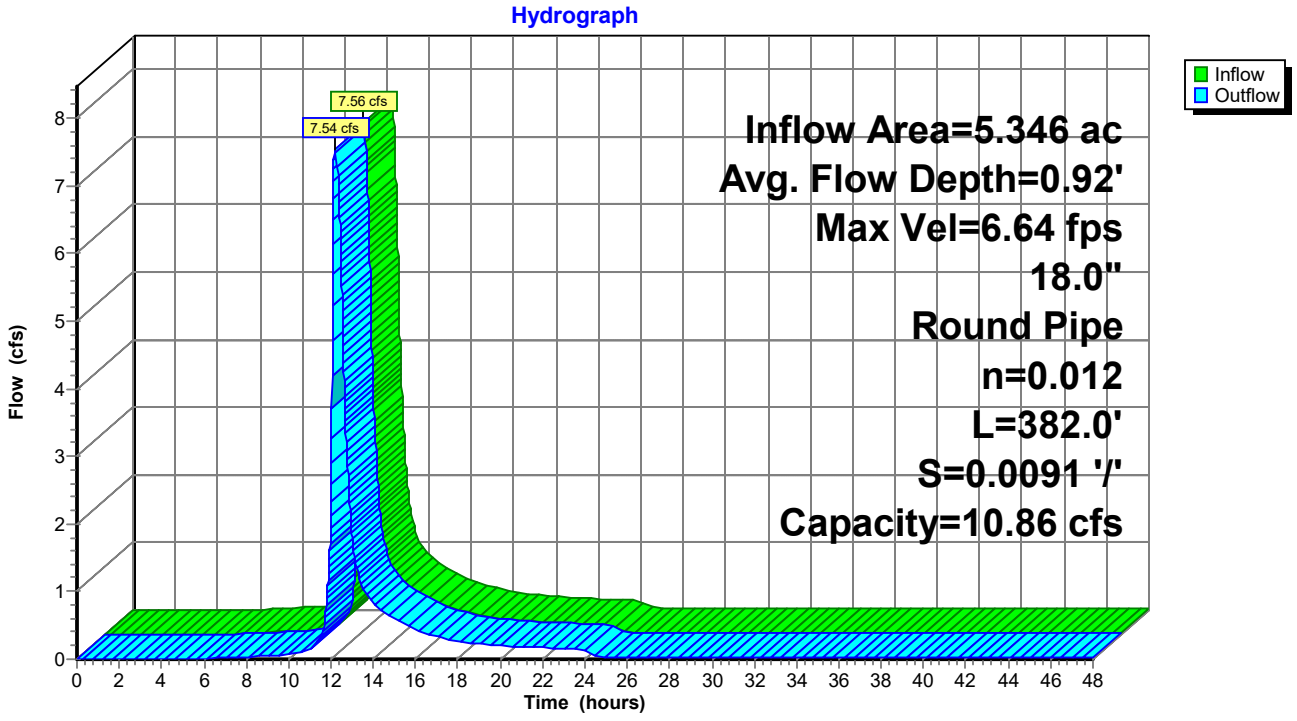
Inflow Area = 5.346 ac, 58.49% Impervious, Inflow Depth > 1.95" for 25 Year event
Inflow = 7.56 cfs @ 12.15 hrs, Volume= 0.867 af
Outflow = 7.54 cfs @ 12.17 hrs, Volume= 0.867 af, Atten= 0%, Lag= 1.0 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 6.64 fps, Min. Travel Time= 1.0 min
Avg. Velocity = 1.71 fps, Avg. Travel Time= 3.7 min

Peak Storage= 434 cf @ 12.17 hrs
Average Depth at Peak Storage= 0.92' , Surface Width= 1.46'
Bank-Full Depth= 1.50' Flow Area= 1.8 sf, Capacity= 10.86 cfs

18.0" Round Pipe
n= 0.012 Corrugated PP, smooth interior
Length= 382.0' Slope= 0.0091 '/'
Inlet Invert= 107.12', Outlet Invert= 103.64'





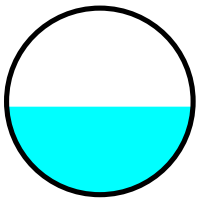
Summary for Reach 44R: DMH 7 to Wetland

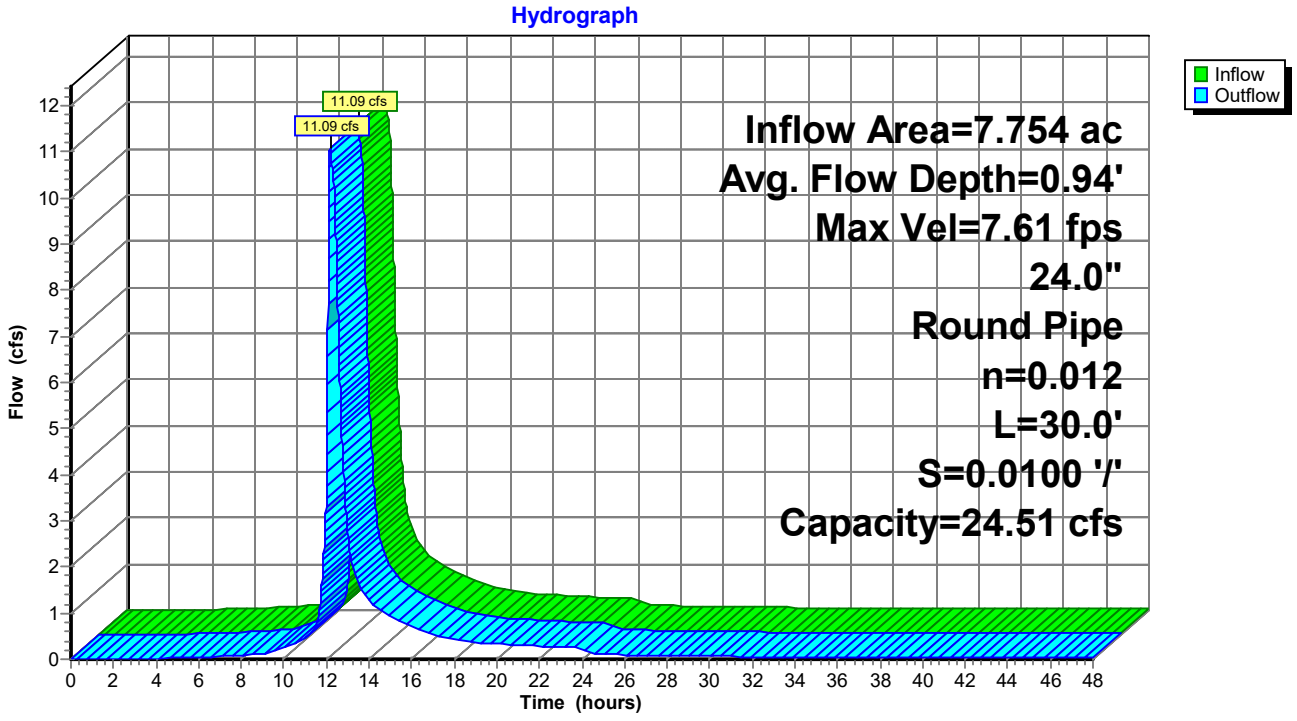
Inflow Area = 7.754 ac, 58.01% Impervious, Inflow Depth > 2.18" for 25 Year event
Inflow = 11.09 cfs @ 12.17 hrs, Volume= 1.411 af
Outflow = 11.09 cfs @ 12.17 hrs, Volume= 1.411 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 7.61 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 2.11 fps, Avg. Travel Time= 0.2 min

Peak Storage= 44 cf @ 12.17 hrs
Average Depth at Peak Storage= 0.94' , Surface Width= 2.00'
Bank-Full Depth= 2.00' Flow Area= 3.1 sf, Capacity= 24.51 cfs

24.0" Round Pipe
n= 0.012 Corrugated PP, smooth interior
Length= 30.0' Slope= 0.0100 '/'
Inlet Invert= 103.58', Outlet Invert= 103.28'





Summary for Pond 3P: FP1 TANKS

Inflow Area = 0.812 ac, 23.11% Impervious, Inflow Depth = 0.78" for 25 Year event
Inflow = 0.29 cfs @ 12.57 hrs, Volume= 0.053 af
Outflow = 0.02 cfs @ 23.61 hrs, Volume= 0.029 af, Atten= 94%, Lag= 662.2 min
Primary = 0.02 cfs @ 23.61 hrs, Volume= 0.029 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 111.34' @ 23.61 hrs Surf.Area= 798 sf Storage= 1,875 cf
Flood Elev= 111.84' Surf.Area= 798 sf Storage= 2,017 cf

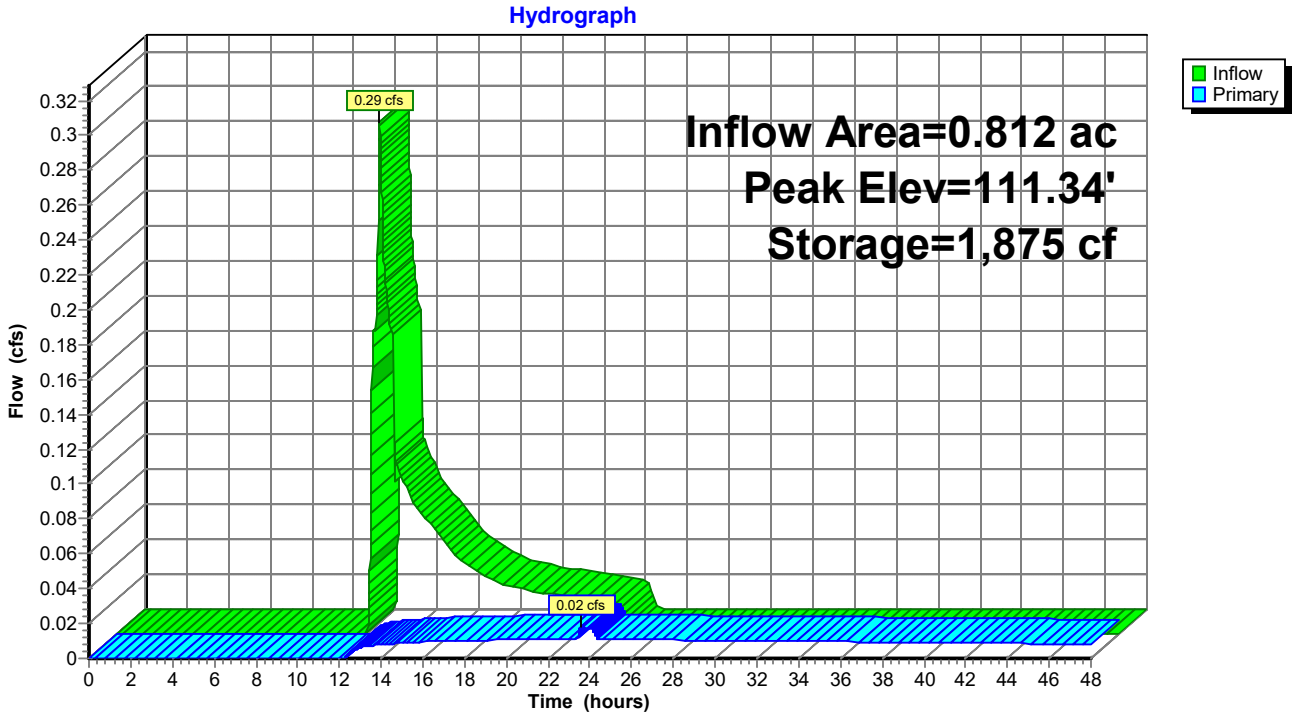
Plug-Flow detention time= 1,002.6 min calculated for 0.029 af (54% of inflow)
Center-of-Mass det. time= 856.7 min (1,790.7 - 934.0)

Volume	Invert	Avail.Storage	Storage Description
#1	109.90'	4 cf	**ACF R-Tank HD 1** Inside #3 Inside= 15.7"W x 17.3"H => 1.80 sf x 2.35'L = 4.2 cf Outside= 15.7"W x 17.3"H => 1.89 sf x 2.35'L = 4.4 cf 4 cf Overall x 95.0% Voids
#2	108.46'	1,568 cf	**ACF R-Tank HD 2** x 200 Inside #3 Inside= 15.7"W x 33.9"H => 3.52 sf x 2.35'L = 8.3 cf Outside= 15.7"W x 33.9"H => 3.70 sf x 2.35'L = 8.7 cf 200 Chambers in 10 Rows 1,737 cf Overall x 95.0% Voids
#3	108.21'	445 cf	**27.50'W x 29.00'L x 3.58'H Prismatoid** 2,855 cf Overall - 1,742 cf Embedded = 1,113 cf x 40.0% Voids
		2,017 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Device 3	108.46'	**0.5" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#2	Device 3	111.34'	**6.0' long x 0.7' 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 Coef. (English) 2.76 2.82 2.93 3.09 3.18 3.22 3.27 3.30 3.32 3.31 3.32
#3	Primary	108.46'	**12.0" Round Culvert** L= 10.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 108.46' / 108.41' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.02 cfs @ 23.61 hrs HW=111.34' (Free Discharge)
└**3=Culvert** (Passes 0.02 cfs of 5.84 cfs potential flow)
  ├**1=Orifice/Grate** (Orifice Controls 0.01 cfs @ 8.15 fps)
  └**2=Broad-Crested Rectangular Weir** (Weir Controls 0.01 cfs @ 0.19 fps)

Pond 3P: FP1 TANKS



Summary for Pond 4P: FP2 TANKS

Inflow Area = 0.514 ac, 21.94% Impervious, Inflow Depth = 2.21" for 25 Year event
Inflow = 0.79 cfs @ 12.37 hrs, Volume= 0.094 af
Outflow = 0.73 cfs @ 12.47 hrs, Volume= 0.086 af, Atten= 8%, Lag= 6.3 min
Primary = 0.73 cfs @ 12.47 hrs, Volume= 0.086 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 109.77' @ 12.47 hrs Surf.Area= 840 sf Storage= 934 cf
Flood Elev= 111.76' Surf.Area= 840 sf Storage= 1,208 cf

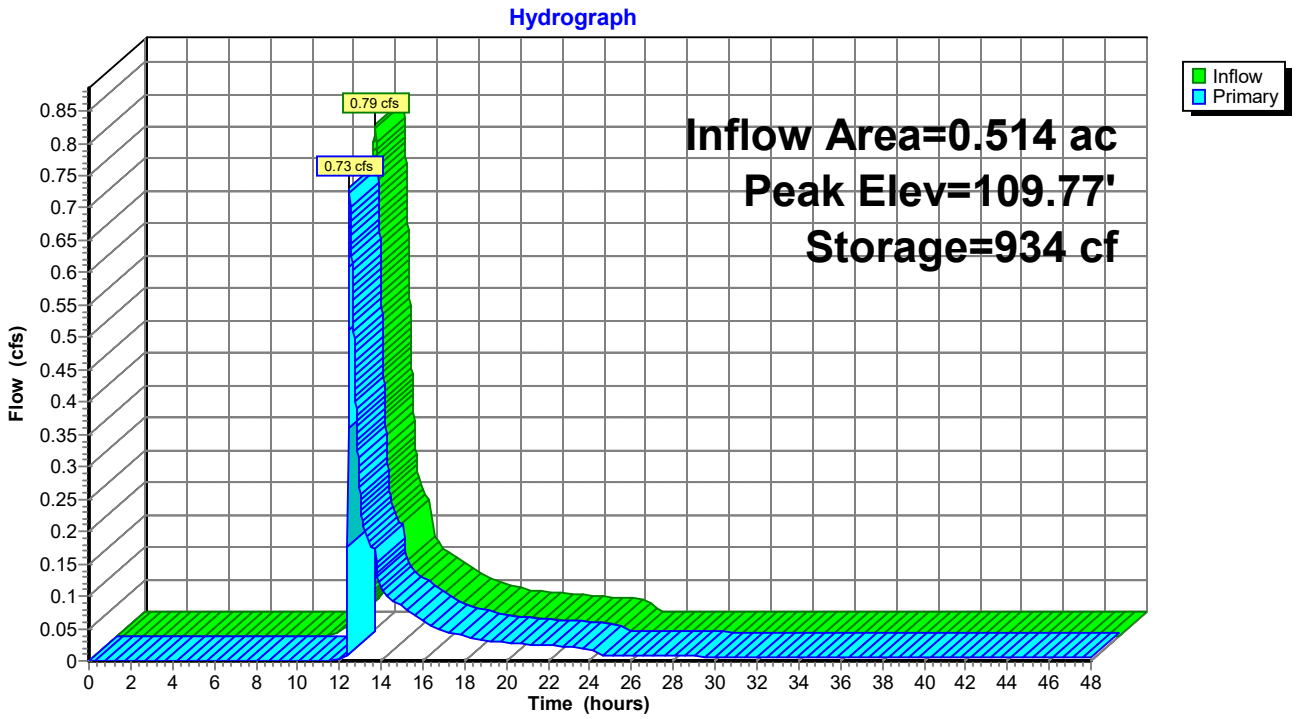
Plug-Flow detention time= 243.2 min calculated for 0.086 af (91% of inflow)
Center-of-Mass det. time= 199.5 min (1,071.0 - 871.5)

Volume	Invert	Avail.Storage	Storage Description
#1	108.38'	24 cf	**ACF R-Tank HD 1** x 6 Inside #5 Inside= 15.7"W x 17.3"H => 1.80 sf x 2.35'L = 4.2 cf Outside= 15.7"W x 17.3"H => 1.89 sf x 2.35'L = 4.4 cf 27 cf Overall x 95.0% Voids
#2	108.38'	24 cf	**ACF R-Tank HD 1** x 6 Inside #5 Inside= 15.7"W x 17.3"H => 1.80 sf x 2.35'L = 4.2 cf Outside= 15.7"W x 17.3"H => 1.89 sf x 2.35'L = 4.4 cf 27 cf Overall x 95.0% Voids
#3	108.38'	481 cf	**ACF R-Tank HD 1** x 120 Inside #5 Inside= 15.7"W x 17.3"H => 1.80 sf x 2.35'L = 4.2 cf Outside= 15.7"W x 17.3"H => 1.89 sf x 2.35'L = 4.4 cf 120 Chambers in 8 Rows 533 cf Overall x 95.0% Voids
#4	108.38'	180 cf	**ACF R-Tank HD 1** x 45 Inside #5 Inside= 15.7"W x 17.3"H => 1.80 sf x 2.35'L = 4.2 cf Outside= 15.7"W x 17.3"H => 1.89 sf x 2.35'L = 4.4 cf 45 Chambers in 3 Rows 200 cf Overall x 95.0% Voids
#5	108.13'	498 cf	**21.00'W x 40.00'L x 2.42'H Prismatoid** 2,033 cf Overall - 787 cf Embedded = 1,246 cf x 40.0% Voids
		1,208 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Device 3	108.38'	**0.5" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#2	Device 3	109.65'	**6.0' long x 0.7' 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 Coef. (English) 2.76 2.82 2.93 3.09 3.18 3.22 3.27 3.30 3.32 3.31 3.32
#3	Primary	108.38'	**12.0" Round Culvert** L= 70.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 108.38' / 108.10' S= 0.0040 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.73 cfs @ 12.47 hrs HW=109.77' (Free Discharge)
└**3=Culvert** (Passes 0.73 cfs of 2.82 cfs potential flow)
└**1=Orifice/Grate** (Orifice Controls 0.01 cfs @ 5.64 fps)
└**2=Broad-Crested Rectangular Weir** (Weir Controls 0.72 cfs @ 0.97 fps)

Pond 4P: FP2 TANKS



Summary for Pond 5P: Filterra

Inflow Area = 0.323 ac, 78.35% Impervious, Inflow Depth = 4.20" for 25 Year event
Inflow = 1.54 cfs @ 12.09 hrs, Volume= 0.113 af
Outflow = 1.52 cfs @ 12.10 hrs, Volume= 0.113 af, Atten= 2%, Lag= 0.9 min
Primary = 0.19 cfs @ 11.62 hrs, Volume= 0.078 af
Secondary = 1.33 cfs @ 12.10 hrs, Volume= 0.035 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 117.87' @ 12.10 hrs Surf.Area= 60 sf Storage= 122 cf

Plug-Flow detention time= 2.1 min calculated for 0.113 af (100% of inflow)
Center-of-Mass det. time= 2.1 min (798.6 - 796.5)

Volume	Invert	Avail.Storage	Storage Description
#1	114.43'	130 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

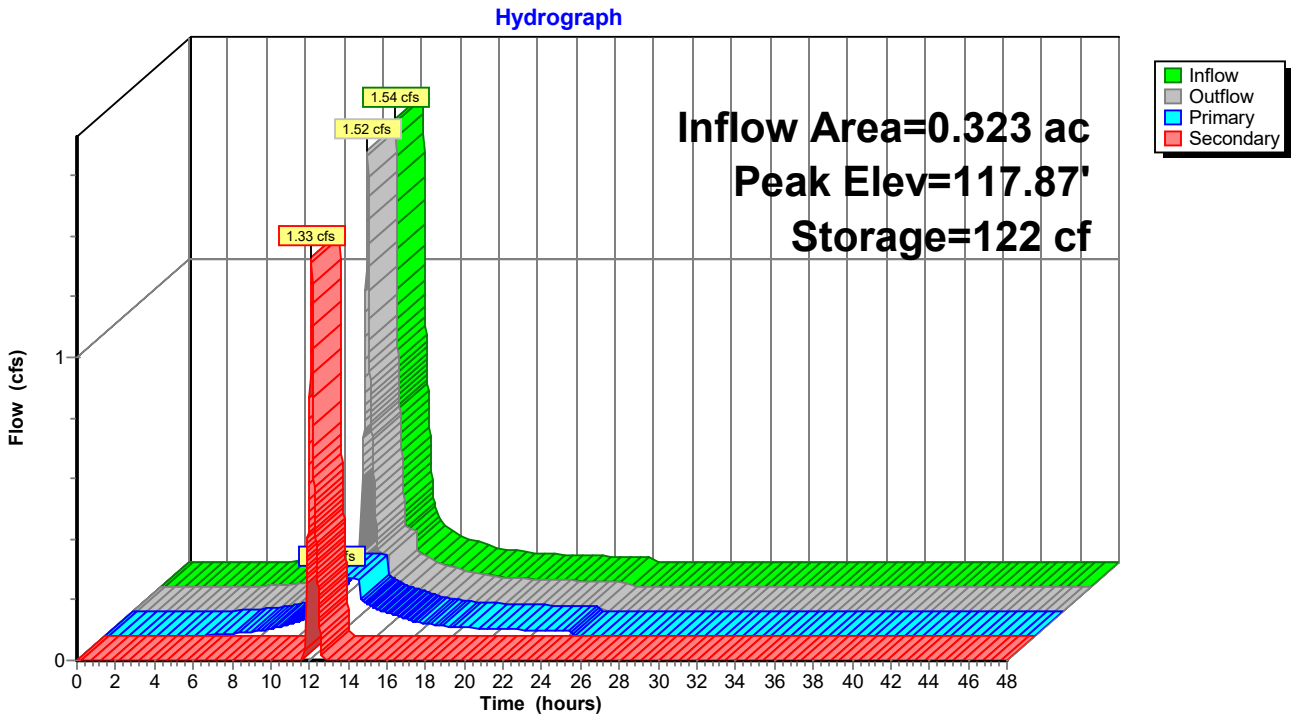
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
114.43	60	0.0	0	0
114.44	60	33.0	0	0
114.94	60	44.0	13	13
116.69	60	44.0	46	60
116.94	60	44.0	7	66
116.95	60	100.0	1	67
118.00	60	100.0	63	130

Device	Routing	Invert	Outlet Devices
#1	Primary	114.44'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#2	Device 1	114.43'	**0.19 cfs Exfiltration at all elevations**
#3	Secondary	117.25'	**8.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.19 cfs @ 11.62 hrs HW=114.72' (Free Discharge)
└**1=Orifice/Grate** (Passes 0.19 cfs of 0.21 cfs potential flow)
└**2=Exfiltration** (Exfiltration Controls 0.19 cfs)

Secondary OutFlow Max=1.33 cfs @ 12.10 hrs HW=117.87' (Free Discharge)
└**3=Orifice/Grate** (Orifice Controls 1.33 cfs @ 3.80 fps)

Pond 5P: Filterra



Summary for Pond 6P: Filterra

Inflow Area = 0.834 ac, 69.90% Impervious, Inflow Depth = 1.93" for 25 Year event
Inflow = 1.75 cfs @ 12.10 hrs, Volume= 0.134 af
Outflow = 1.80 cfs @ 12.10 hrs, Volume= 0.134 af, Atten= 0%, Lag= 0.0 min
Primary = 0.19 cfs @ 11.61 hrs, Volume= 0.083 af
Secondary = 1.60 cfs @ 12.10 hrs, Volume= 0.052 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 118.16' @ 12.10 hrs Surf.Area= 60 sf Storage= 130 cf

Plug-Flow detention time= 1.9 min calculated for 0.134 af (100% of inflow)
Center-of-Mass det. time= 1.9 min (798.3 - 796.4)

Volume	Invert	Avail.Storage	Storage Description
#1	114.43'	130 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

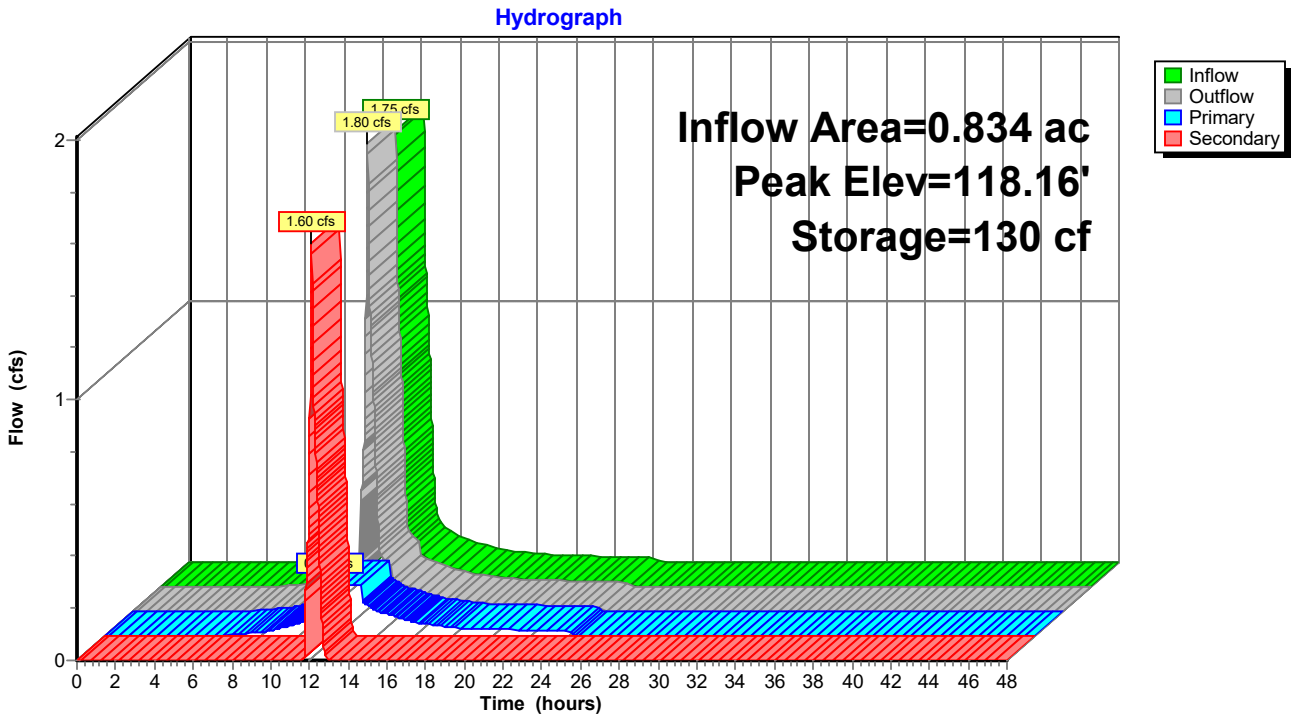
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
114.43	60	0.0	0	0
114.44	60	33.0	0	0
114.94	60	44.0	13	13
116.69	60	44.0	46	60
116.94	60	44.0	7	66
116.95	60	100.0	1	67
118.00	60	100.0	63	130

Device	Routing	Invert	Outlet Devices
#1	Primary	114.44'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#2	Device 1	114.43'	**140.000 in/hr Exfiltration over Surface area**
#3	Secondary	117.25'	**8.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.19 cfs @ 11.61 hrs HW=114.72' (Free Discharge)
└**1=Orifice/Grate** (Passes 0.19 cfs of 0.21 cfs potential flow)
└**2=Exfiltration** (Exfiltration Controls 0.19 cfs)

Secondary OutFlow Max=1.60 cfs @ 12.10 hrs HW=118.16' (Free Discharge)
└**3=Orifice/Grate** (Orifice Controls 1.60 cfs @ 4.58 fps)

Pond 6P: Filterra



Summary for Pond 9R: New CB 1 to DMH 2

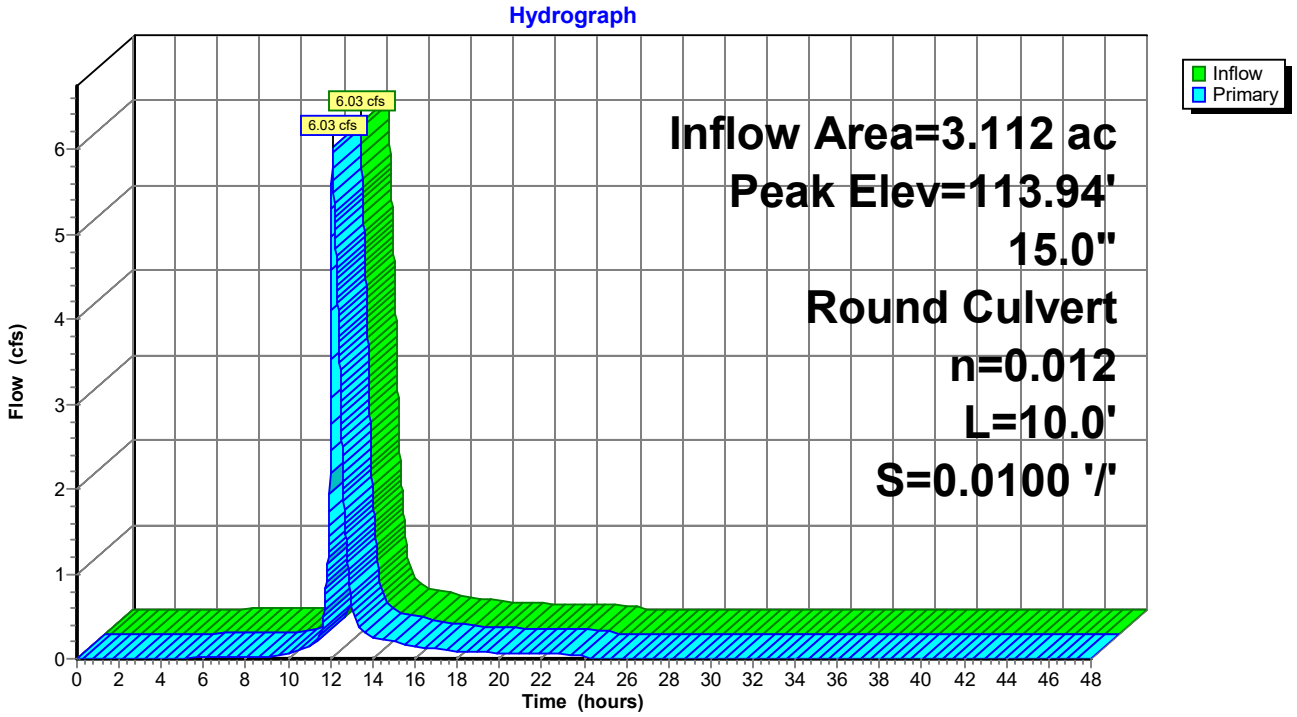
Inflow Area = 3.112 ac, 66.74% Impervious, Inflow Depth = 1.64" for 25 Year event
Inflow = 6.03 cfs @ 12.11 hrs, Volume= 0.426 af
Outflow = 6.03 cfs @ 12.11 hrs, Volume= 0.426 af, Atten= 0%, Lag= 0.0 min
Primary = 6.03 cfs @ 12.11 hrs, Volume= 0.426 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 113.94' @ 12.11 hrs
Flood Elev= 117.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	112.15'	**15.0" Round Culvert** L= 10.0' Ke= 0.500 Inlet / Outlet Invert= 112.15' / 112.05' S= 0.0100 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=6.02 cfs @ 12.11 hrs HW=113.94' (Free Discharge)
1=Culvert (Barrel Controls 6.02 cfs @ 4.91 fps)

Pond 9R: New CB 1 to DMH 2



Summary for Pond 30P: Raised StormTech SC-740 System

Inflow Area = 1.500 ac, 36.53% Impervious, Inflow Depth = 2.06" for 25 Year event
Inflow = 2.31 cfs @ 12.10 hrs, Volume= 0.258 af
Outflow = 1.29 cfs @ 12.32 hrs, Volume= 0.244 af, Atten= 44%, Lag= 13.2 min
Primary = 1.29 cfs @ 12.32 hrs, Volume= 0.244 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 113.90' @ 12.32 hrs Surf.Area= 0.053 ac Storage= 0.088 af

Plug-Flow detention time= 448.0 min calculated for 0.244 af (95% of inflow)
Center-of-Mass det. time= 417.6 min (1,227.1 - 809.4)

Volume	Invert	Avail.Storage	Storage Description
#1A	111.22'	0.007 af	**6.25'W x 46.34'L x 3.50'H Field A** 0.023 af Overall - 0.006 af Embedded = 0.017 af x 40.0% Voids
#2A	111.72'	0.006 af	**ADS_StormTech SC-740 +Cap** x 6 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap
#3B	111.22'	0.010 af	**6.25'W x 67.70'L x 3.50'H Field B** 0.034 af Overall - 0.009 af Embedded = 0.025 af x 40.0% Voids
#4B	111.72'	0.009 af	**ADS_StormTech SC-740 +Cap** x 9 Inside #3 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap
#5C	111.22'	0.018 af	**6.25'W x 124.66'L x 3.50'H Field C** 0.063 af Overall - 0.018 af Embedded = 0.045 af x 40.0% Voids
#6C	111.72'	0.018 af	**ADS_StormTech SC-740 +Cap** x 17 Inside #5 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap
#7D	111.22'	0.019 af	**6.25'W x 131.78'L x 3.50'H Field D** 0.066 af Overall - 0.019 af Embedded = 0.047 af x 40.0% Voids
#8D	111.72'	0.019 af	**ADS_StormTech SC-740 +Cap** x 18 Inside #7 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap
		0.106 af	Total Available Storage

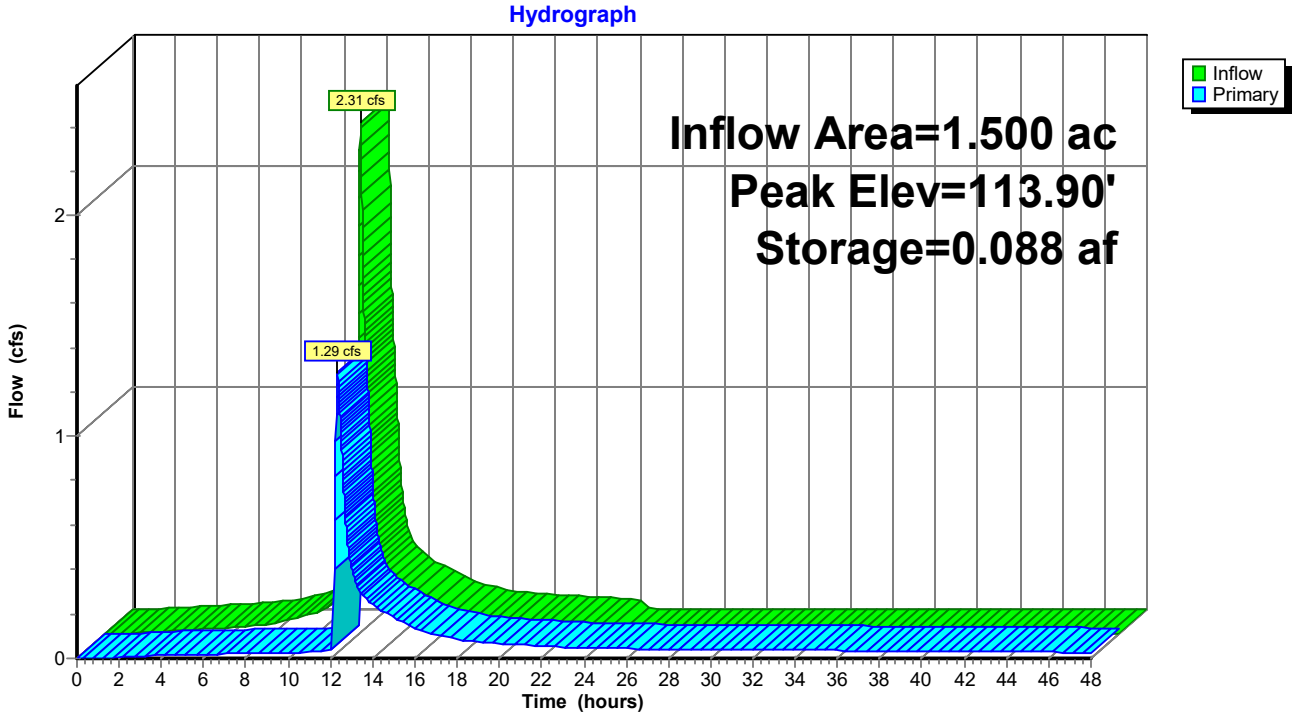
Storage Group A created with Chamber Wizard
Storage Group B created with Chamber Wizard
Storage Group C created with Chamber Wizard
Storage Group D created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Device 3	110.72'	**1.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#2	Device 3	113.72'	**6.0' long x 0.7' 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 Coef. (English) 2.76 2.82 2.93 3.09 3.18 3.22 3.27 3.30 3.32 3.31 3.32
#3	Primary	110.72'	**12.0" Round Culvert** L= 3.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 110.72' / 110.69' S= 0.0100 '/' Cc= 0.900

n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.29 cfs @ 12.32 hrs HW=113.90' (Free Discharge)
└**3=Culvert** (Passes 1.29 cfs of 4.89 cfs potential flow)
  └**1=Orifice/Grate** (Orifice Controls 0.05 cfs @ 8.53 fps)
  └**2=Broad-Crested Rectangular Weir** (Weir Controls 1.24 cfs @ 1.16 fps)

Pond 30P: Raised StormTech SC-740 System



Summary for Pond 36P: PP1

Inflow Area = 0.050 ac, 81.59% Impervious, Inflow Depth = 4.33" for 25 Year event
Inflow = 0.25 cfs @ 12.09 hrs, Volume= 0.018 af
Outflow = 0.20 cfs @ 12.14 hrs, Volume= 0.017 af, Atten= 17%, Lag= 3.2 min
Primary = 0.20 cfs @ 12.14 hrs, Volume= 0.017 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 116.01' @ 12.14 hrs Surf.Area= 1,110 sf Storage= 152 cf

Plug-Flow detention time= 83.2 min calculated for 0.017 af (92% of inflow)
Center-of-Mass det. time= 43.0 min (838.8 - 795.9)

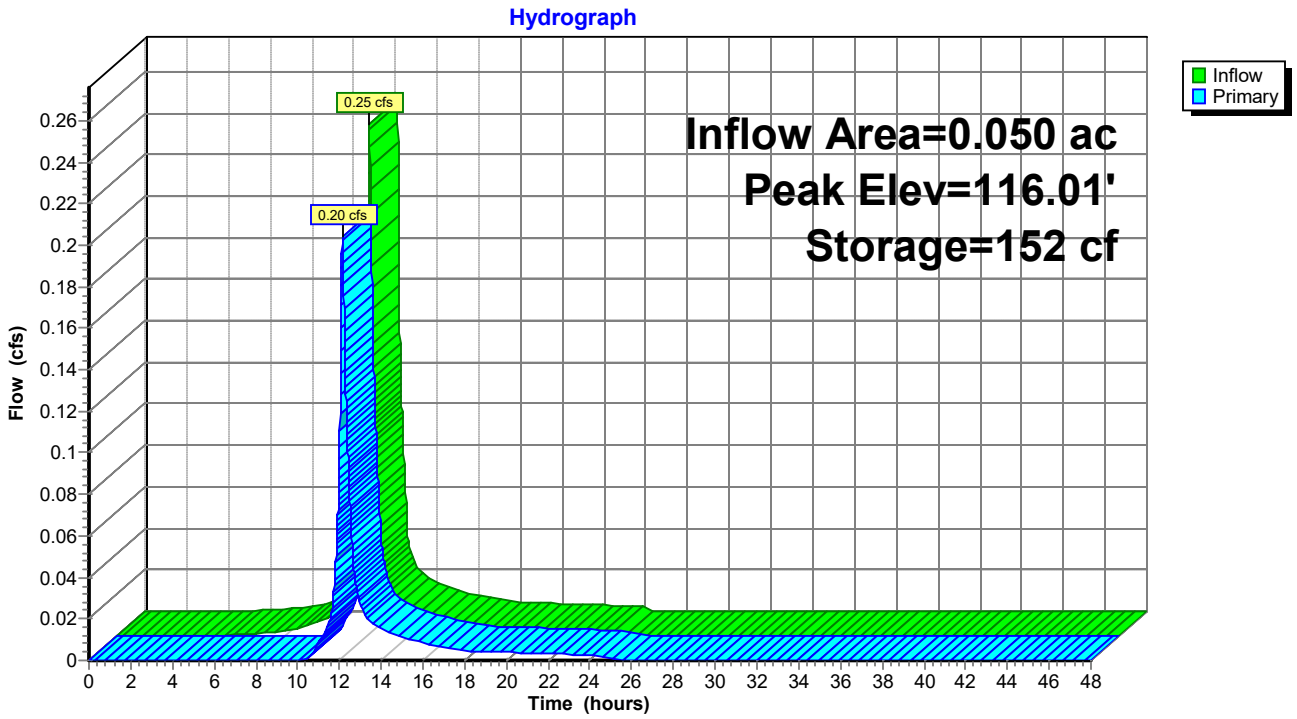
Volume	Invert	Avail.Storage	Storage Description
#1	115.59'	939 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
115.59	1,110	0.0	0	0
115.60	1,110	20.0	2	2
116.35	1,110	33.0	275	277
116.68	1,110	40.0	147	423
117.00	1,110	20.0	71	495
119.00	1,110	20.0	444	939

Device	Routing	Invert	Outlet Devices
#1	Primary	115.76'	**7.500 in/hr Exfiltration over Surface area above 115.76'** Excluded Surface area = 1,110 sf
#2	Primary	115.76'	**8.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.20 cfs @ 12.14 hrs HW=116.01' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.00 cfs)
2=Orifice/Grate (Orifice Controls 0.20 cfs @ 1.70 fps)

Pond 36P: PP1


Hydrograph
Inflow
Primary
0.25 cfs
0.20 cfs
Inflow Area=0.050 ac
Peak Elev=116.01'
Storage=152 cf
Flow (cfs)
0
0.02
0.04
0.06
0.08
0.1
0.12
0.14
0.16
0.18
0.2
0.22
0.24
0.26
Time (hours)
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48

Summary for Pond 37P: PP2

Inflow Area = 0.077 ac,100.00% Impervious, Inflow Depth = 5.56" for 25 Year event
Inflow = 0.44 cfs @ 12.08 hrs, Volume= 0.036 af
Outflow = 0.36 cfs @ 12.14 hrs, Volume= 0.036 af, Atten= 18%, Lag= 3.4 min
Primary = 0.36 cfs @ 12.14 hrs, Volume= 0.036 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 115.99' @ 12.14 hrs Surf.Area= 1,212 sf Storage= 160 cf

Plug-Flow detention time= 24.6 min calculated for 0.036 af (100% of inflow)
Center-of-Mass det. time= 23.6 min (769.2 - 745.7)

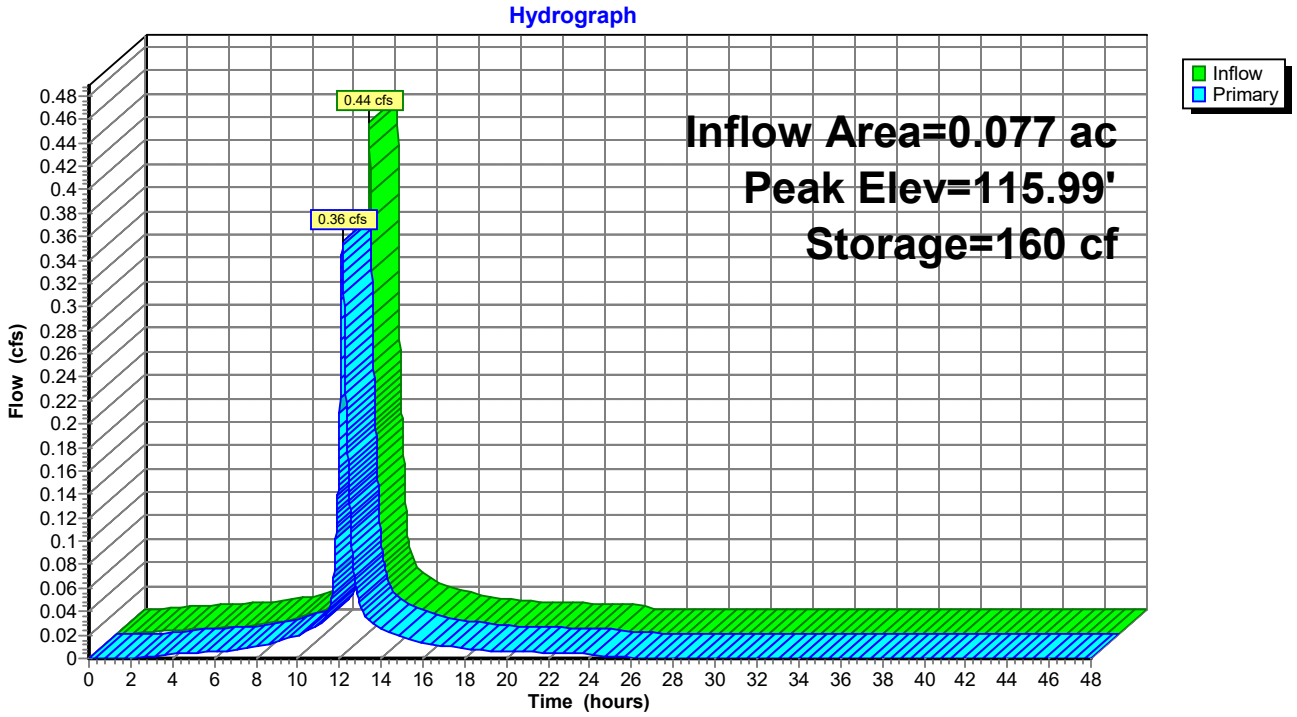
Volume	Invert	Avail.Storage	Storage Description
#1	115.59'	1,025 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
115.59	1,212	0.0	0	0
115.60	1,212	20.0	2	2
116.35	1,212	33.0	300	302
116.68	1,212	40.0	160	462
117.00	1,212	20.0	78	540
119.00	1,212	20.0	485	1,025

Device	Routing	Invert	Outlet Devices
#1	Primary	115.76'	**7.500 in/hr Exfiltration over Surface area above 115.76'** Excluded Surface area = 1,212 sf
#2	Primary	115.60'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.36 cfs @ 12.14 hrs HW=115.99' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.00 cfs)
2=Orifice/Grate (Orifice Controls 0.36 cfs @ 2.14 fps)

Pond 37P: PP2


Hydrograph
Inflow
Primary
0.44 cfs
0.36 cfs
Inflow Area=0.077 ac
Peak Elev=115.99'
Storage=160 cf
Flow (cfs)
Time (hours)
0 0.02 0.04 0.06 0.08 0.1 0.12 0.14 0.16 0.18 0.2 0.22 0.24 0.26 0.28 0.3 0.32 0.34 0.36 0.38 0.4 0.42 0.44 0.46 0.48
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48

Summary for Pond 38P: Rain Garden West

Inflow Area = 0.503 ac, 7.99% Impervious, Inflow Depth = 0.66" for 25 Year event
Inflow = 0.16 cfs @ 12.36 hrs, Volume= 0.028 af
Outflow = 0.13 cfs @ 12.56 hrs, Volume= 0.025 af, Atten= 20%, Lag= 11.9 min
Primary = 0.13 cfs @ 12.56 hrs, Volume= 0.025 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 120.32' @ 12.56 hrs Surf.Area= 631 sf Storage= 174 cf

Plug-Flow detention time= 83.0 min calculated for 0.025 af (89% of inflow)
Center-of-Mass det. time= 33.1 min (968.5 - 935.4)

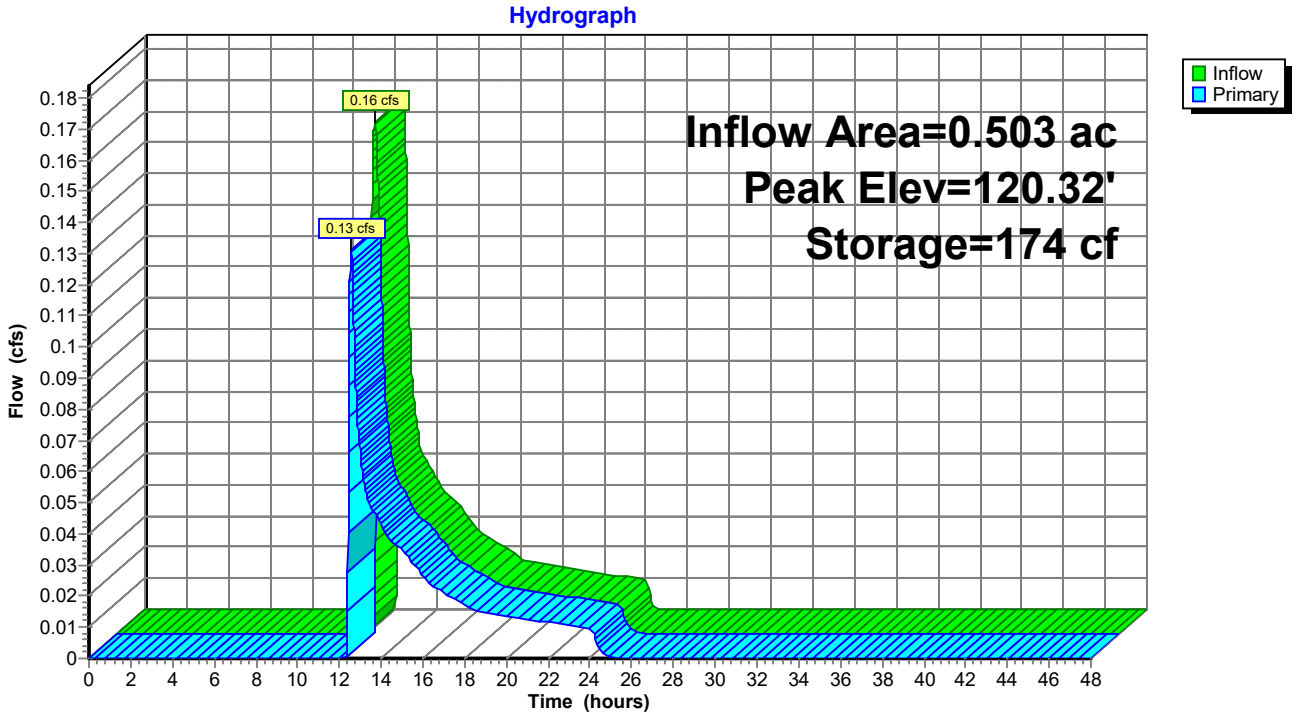
Volume	Invert	Avail.Storage	Storage Description
#1	120.00'	729 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
120.00	453	0	0
121.00	1,005	729	729

Device	Routing	Invert	Outlet Devices
#1	Device 2	120.25'	**8.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#2	Primary	117.25'	**8.0" Round Culvert** L= 187.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 117.25' / 115.25' S= 0.0107 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.13 cfs @ 12.56 hrs HW=120.32' (Free Discharge)
↑—**2=Culvert** (Passes 0.13 cfs of 1.71 cfs potential flow)
↑—**1=Orifice/Grate** (Weir Controls 0.13 cfs @ 0.87 fps)

Pond 38P: Rain Garden West



Summary for Pond DS-2: Drip Strip

Inflow Area = 0.220 ac, 79.17% Impervious, Inflow Depth = 4.99" for 25 Year event
Inflow = 1.20 cfs @ 12.08 hrs, Volume= 0.092 af
Outflow = 0.54 cfs @ 12.26 hrs, Volume= 0.092 af, Atten= 55%, Lag= 10.4 min
Discarded = 0.28 cfs @ 11.76 hrs, Volume= 0.087 af
Primary = 0.26 cfs @ 12.26 hrs, Volume= 0.005 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 116.14' @ 12.26 hrs Surf.Area= 1,600 sf Storage= 706 cf

Plug-Flow detention time= 11.7 min calculated for 0.092 af (100% of inflow)
Center-of-Mass det. time= 11.7 min (785.7 - 774.0)

Volume	Invert	Avail.Storage	Storage Description
#1	115.00'	3,040 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

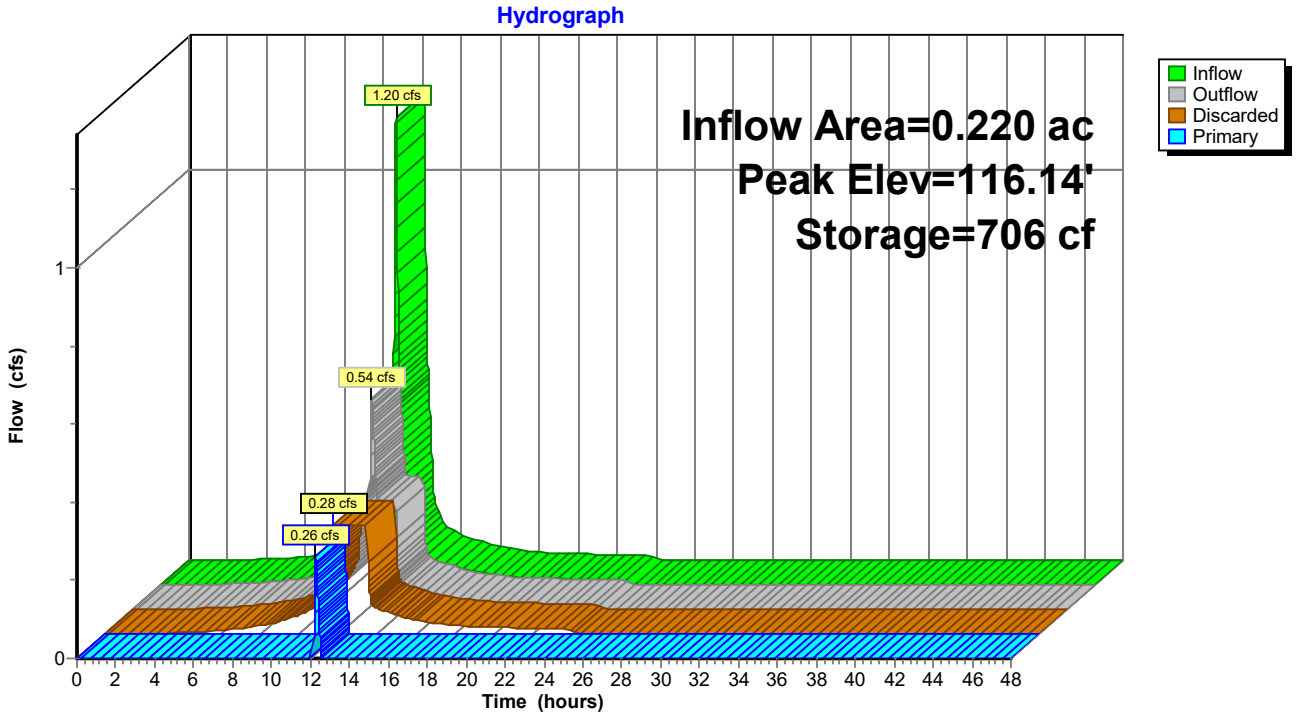
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
115.00	1,600	0.0	0	0
116.00	1,600	40.0	640	640
117.00	1,600	30.0	480	1,120
118.00	1,600	40.0	640	1,760
119.00	1,600	40.0	640	2,400
120.00	1,600	40.0	640	3,040

Device	Routing	Invert	Outlet Devices
#1	Discarded	115.00'	**7.500 in/hr Exfiltration over Surface area**
#2	Primary	116.00'	**6.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.28 cfs @ 11.76 hrs HW=115.05' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.28 cfs)

Primary OutFlow Max=0.26 cfs @ 12.26 hrs HW=116.14' (Free Discharge)
↑—**2=Orifice/Grate** (Weir Controls 0.26 cfs @ 1.21 fps)

Pond DS-2: Drip Strip



Summary for Pond DS-3: Drip Strip

Inflow Area = 0.399 ac, 76.31% Impervious, Inflow Depth = 4.99" for 25 Year event
Inflow = 2.17 cfs @ 12.08 hrs, Volume= 0.166 af
Outflow = 1.26 cfs @ 12.19 hrs, Volume= 0.166 af, Atten= 42%, Lag= 6.6 min
Discarded = 0.28 cfs @ 11.62 hrs, Volume= 0.129 af
Primary = 0.98 cfs @ 12.19 hrs, Volume= 0.036 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 117.08' @ 12.19 hrs Surf.Area= 1,600 sf Storage= 1,168 cf

Plug-Flow detention time= 11.5 min calculated for 0.166 af (100% of inflow)
Center-of-Mass det. time= 11.5 min (785.4 - 774.0)

Volume	Invert	Avail.Storage	Storage Description
#1	115.00'	3,040 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

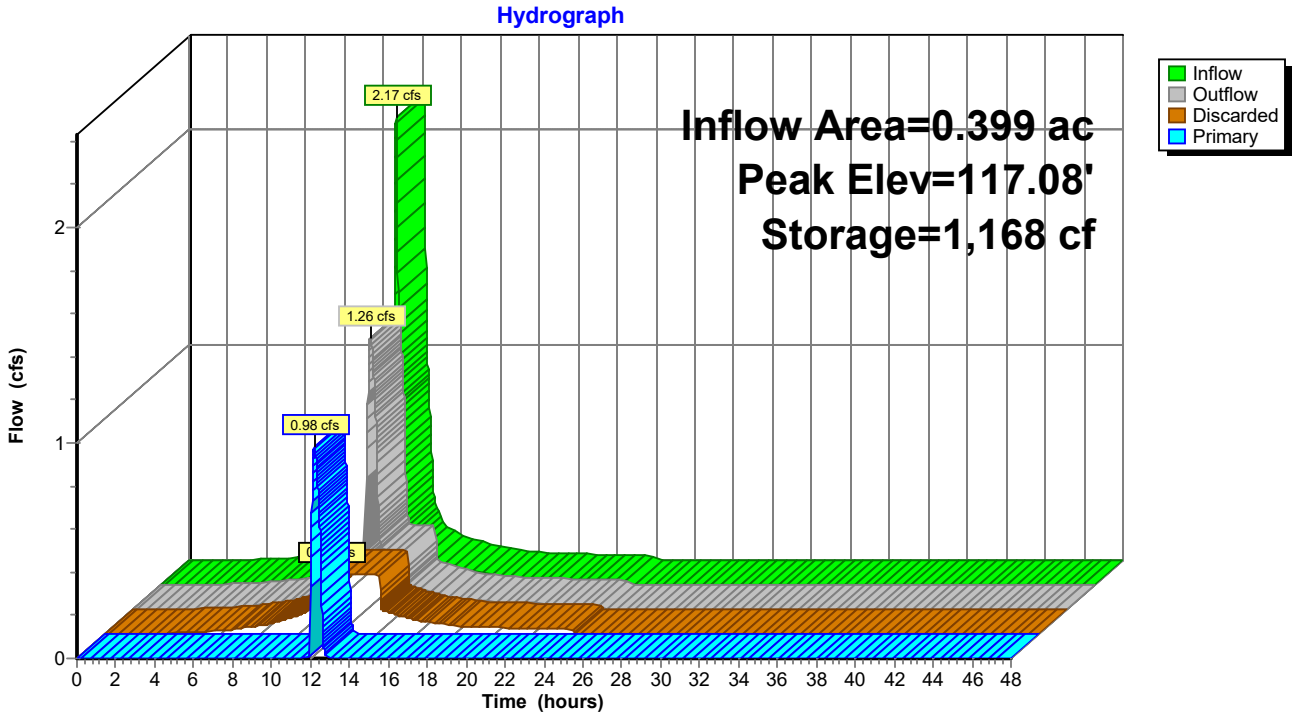
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
115.00	1,600	0.0	0	0
116.00	1,600	40.0	640	640
117.00	1,600	30.0	480	1,120
118.00	1,600	40.0	640	1,760
119.00	1,600	40.0	640	2,400
120.00	1,600	40.0	640	3,040

Device	Routing	Invert	Outlet Devices
#1	Discarded	115.00'	**7.500 in/hr Exfiltration over Surface area**
#2	Primary	116.00'	**6.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.28 cfs @ 11.62 hrs HW=115.05' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.28 cfs)

Primary OutFlow Max=0.98 cfs @ 12.19 hrs HW=117.07' (Free Discharge)
↑—**2=Orifice/Grate** (Orifice Controls 0.98 cfs @ 4.99 fps)

Pond DS-3: Drip Strip



Summary for Pond DS1: Drip Strip

Inflow Area = 0.220 ac, 79.17% Impervious, Inflow Depth = 4.99" for 25 Year event
Inflow = 1.20 cfs @ 12.08 hrs, Volume= 0.092 af
Outflow = 0.54 cfs @ 12.26 hrs, Volume= 0.092 af, Atten= 55%, Lag= 10.4 min
Discarded = 0.28 cfs @ 11.76 hrs, Volume= 0.087 af
Primary = 0.26 cfs @ 12.26 hrs, Volume= 0.005 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 116.14' @ 12.26 hrs Surf.Area= 1,600 sf Storage= 706 cf

Plug-Flow detention time= 11.7 min calculated for 0.092 af (100% of inflow)
Center-of-Mass det. time= 11.7 min (785.7 - 774.0)

Volume	Invert	Avail.Storage	Storage Description
#1	115.00'	3,040 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

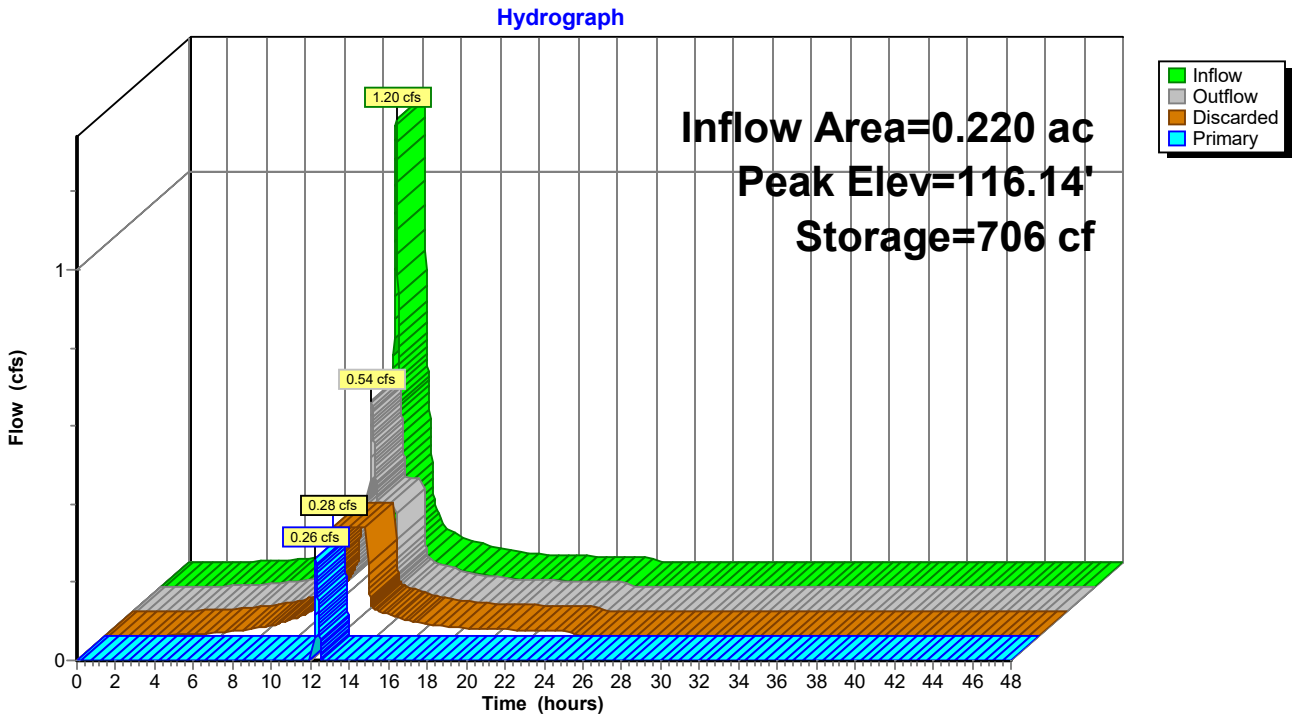
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
115.00	1,600	0.0	0	0
116.00	1,600	40.0	640	640
117.00	1,600	30.0	480	1,120
118.00	1,600	40.0	640	1,760
119.00	1,600	40.0	640	2,400
120.00	1,600	40.0	640	3,040

Device	Routing	Invert	Outlet Devices
#1	Discarded	115.00'	**7.500 in/hr Exfiltration over Surface area**
#2	Primary	116.00'	**6.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.28 cfs @ 11.76 hrs HW=115.05' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.28 cfs)

Primary OutFlow Max=0.26 cfs @ 12.26 hrs HW=116.14' (Free Discharge)
↑—**2=Orifice/Grate** (Weir Controls 0.26 cfs @ 1.21 fps)

Pond DS1: Drip Strip



Summary for Pond FP1: FP1 Filter

Inflow Area = 0.812 ac, 23.11% Impervious, Inflow Depth = 0.78" for 25 Year event
Inflow = 0.31 cfs @ 12.45 hrs, Volume= 0.053 af
Outflow = 0.29 cfs @ 12.57 hrs, Volume= 0.053 af, Atten= 6%, Lag= 7.0 min
Primary = 0.21 cfs @ 12.57 hrs, Volume= 0.052 af
Secondary = 0.08 cfs @ 12.57 hrs, Volume= 0.001 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 113.98' @ 12.57 hrs Surf.Area= 91 sf Storage= 98 cf

Plug-Flow detention time= 1.7 min calculated for 0.053 af (100% of inflow)
Center-of-Mass det. time= 1.7 min (934.0 - 932.2)

Volume	Invert	Avail.Storage	Storage Description
#1	111.84'	133 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

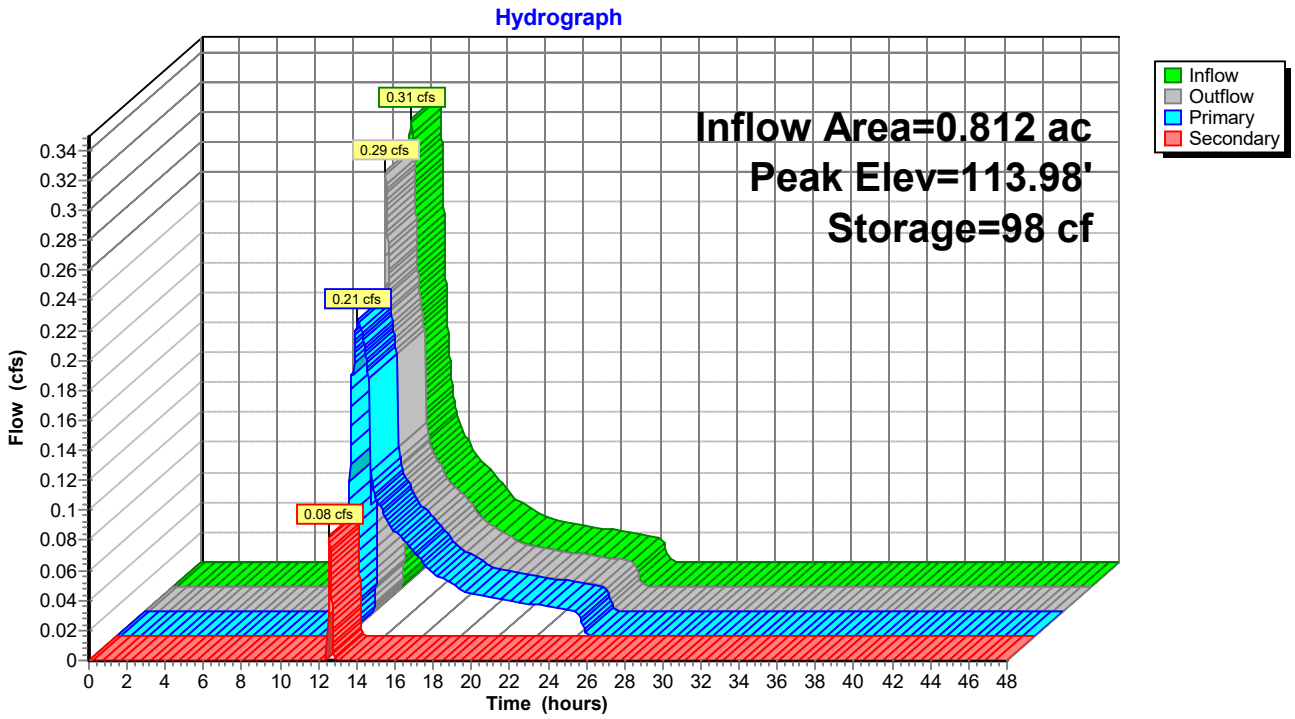
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
111.84	75	0.0	0	0
113.34	75	40.0	45	45
114.34	100	100.0	88	133

Device	Routing	Invert	Outlet Devices
#1	Primary	111.84'	**100.000 in/hr Exfiltration over Surface area**
#2	Secondary	113.84'	**12.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.21 cfs @ 12.57 hrs HW=113.98' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.21 cfs)

Secondary OutFlow Max=0.08 cfs @ 12.57 hrs HW=113.98' (Free Discharge)
2=Orifice/Grate (Orifice Controls 0.08 cfs @ 1.26 fps)

Pond FP1: FP1 Filter



Summary for Pond FP2: FP2 Filter

Inflow Area = 0.514 ac, 21.94% Impervious, Inflow Depth = 2.21" for 25 Year event
Inflow = 0.79 cfs @ 12.36 hrs, Volume= 0.094 af
Outflow = 0.79 cfs @ 12.37 hrs, Volume= 0.094 af, Atten= 0%, Lag= 0.4 min
Primary = 0.21 cfs @ 12.37 hrs, Volume= 0.071 af
Secondary = 0.58 cfs @ 12.37 hrs, Volume= 0.023 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 112.70' @ 12.37 hrs Surf.Area= 91 sf Storage= 98 cf

Plug-Flow detention time= 1.9 min calculated for 0.094 af (100% of inflow)
Center-of-Mass det. time= 1.9 min (871.5 - 869.7)

Volume	Invert	Avail.Storage	Storage Description
#1	110.56'	133 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

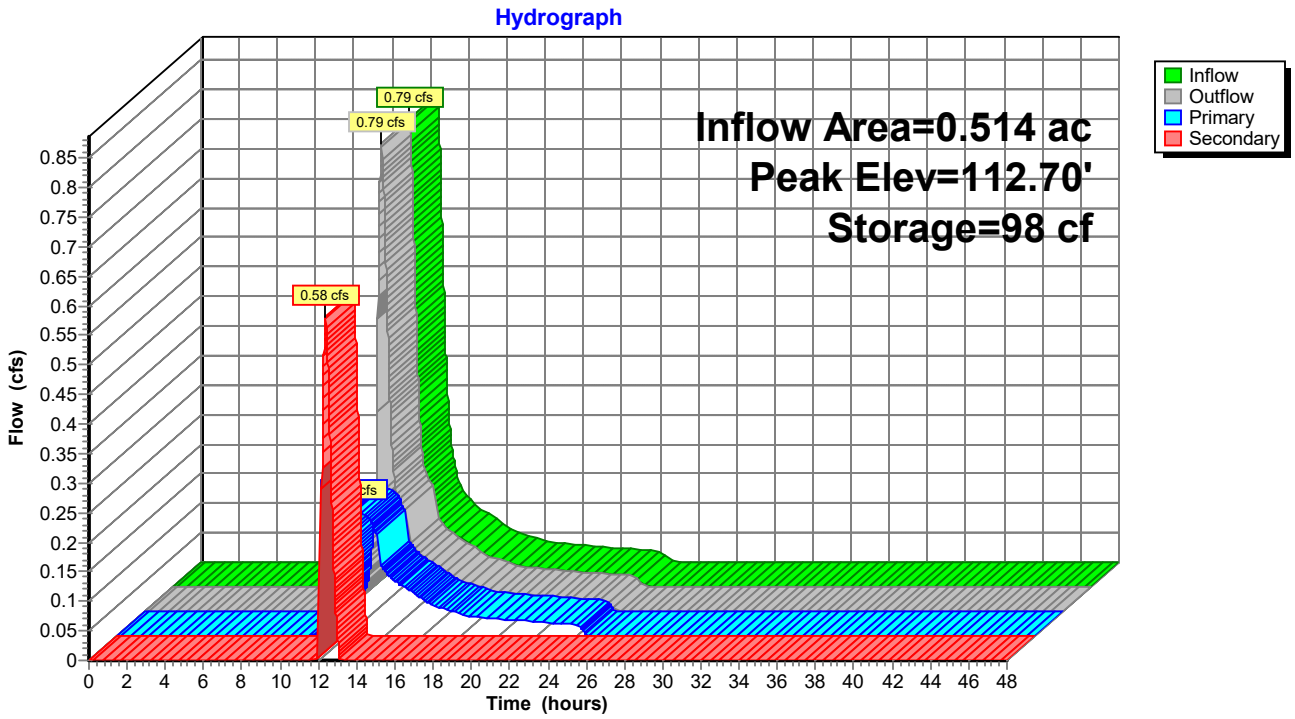
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
110.56	75	0.0	0	0
112.06	75	40.0	45	45
113.06	100	100.0	88	133

Device	Routing	Invert	Outlet Devices
#1	Primary	110.56'	**100.000 in/hr Exfiltration over Surface area**
#2	Secondary	112.55'	**12.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.21 cfs @ 12.37 hrs HW=112.70' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.21 cfs)

Secondary OutFlow Max=0.58 cfs @ 12.37 hrs HW=112.70' (Free Discharge)
2=Orifice/Grate (Weir Controls 0.58 cfs @ 1.25 fps)

Pond FP2: FP2 Filter



Summary for Pond IT-1: Infiltration Trench

Inflow Area = 1.157 ac, 72.26% Impervious, Inflow Depth = 2.57" for 25 Year event
Inflow = 3.31 cfs @ 12.10 hrs, Volume= 0.247 af
Outflow = 1.66 cfs @ 12.30 hrs, Volume= 0.247 af, Atten= 50%, Lag= 12.1 min
Discarded = 0.28 cfs @ 11.46 hrs, Volume= 0.158 af
Primary = 1.39 cfs @ 12.30 hrs, Volume= 0.089 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 115.40' @ 12.30 hrs Surf.Area= 1,600 sf Storage= 1,856 cf

Plug-Flow detention time= 12.2 min calculated for 0.247 af (100% of inflow)
Center-of-Mass det. time= 12.2 min (810.7 - 798.4)

Volume	Invert	Avail.Storage	Storage Description
#1	112.00'	2,880 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

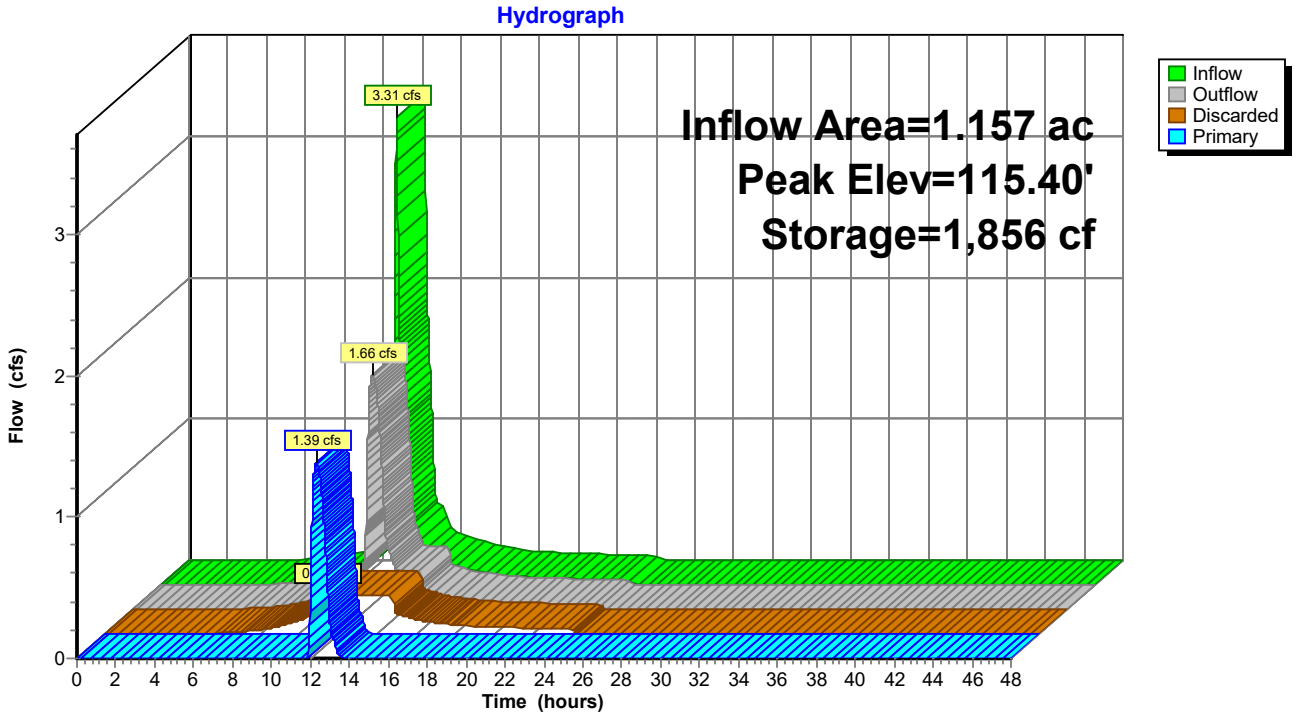
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
112.00	1,600	0.0	0	0
113.00	1,600	30.0	480	480
114.00	1,600	30.0	480	960
115.00	1,600	40.0	640	1,600
116.00	1,600	40.0	640	2,240
117.00	1,600	40.0	640	2,880

Device	Routing	Invert	Outlet Devices
#1	Discarded	112.00'	**7.500 in/hr Exfiltration over Surface area**
#2	Primary	113.00'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.28 cfs @ 11.46 hrs HW=112.05' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.28 cfs)

Primary OutFlow Max=1.39 cfs @ 12.30 hrs HW=115.40' (Free Discharge)
↑—**2=Orifice/Grate** (Orifice Controls 1.39 cfs @ 7.06 fps)

Pond IT-1: Infiltration Trench



Summary for Pond PP1: Porous Pavement 1

Inflow Area = 0.440 ac, 72.24% Impervious, Inflow Depth = 3.80" for 25 Year event
Inflow = 1.95 cfs @ 12.09 hrs, Volume= 0.140 af
Outflow = 0.57 cfs @ 12.43 hrs, Volume= 0.133 af, Atten= 71%, Lag= 20.6 min
Primary = 0.57 cfs @ 12.43 hrs, Volume= 0.133 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 113.96' @ 12.43 hrs Surf.Area= 6,156 sf Storage= 2,617 cf
Flood Elev= 114.67' Surf.Area= 6,156 sf Storage= 4,358 cf

Plug-Flow detention time= 354.3 min calculated for 0.133 af (95% of inflow)
Center-of-Mass det. time= 328.7 min (1,139.0 - 810.3)

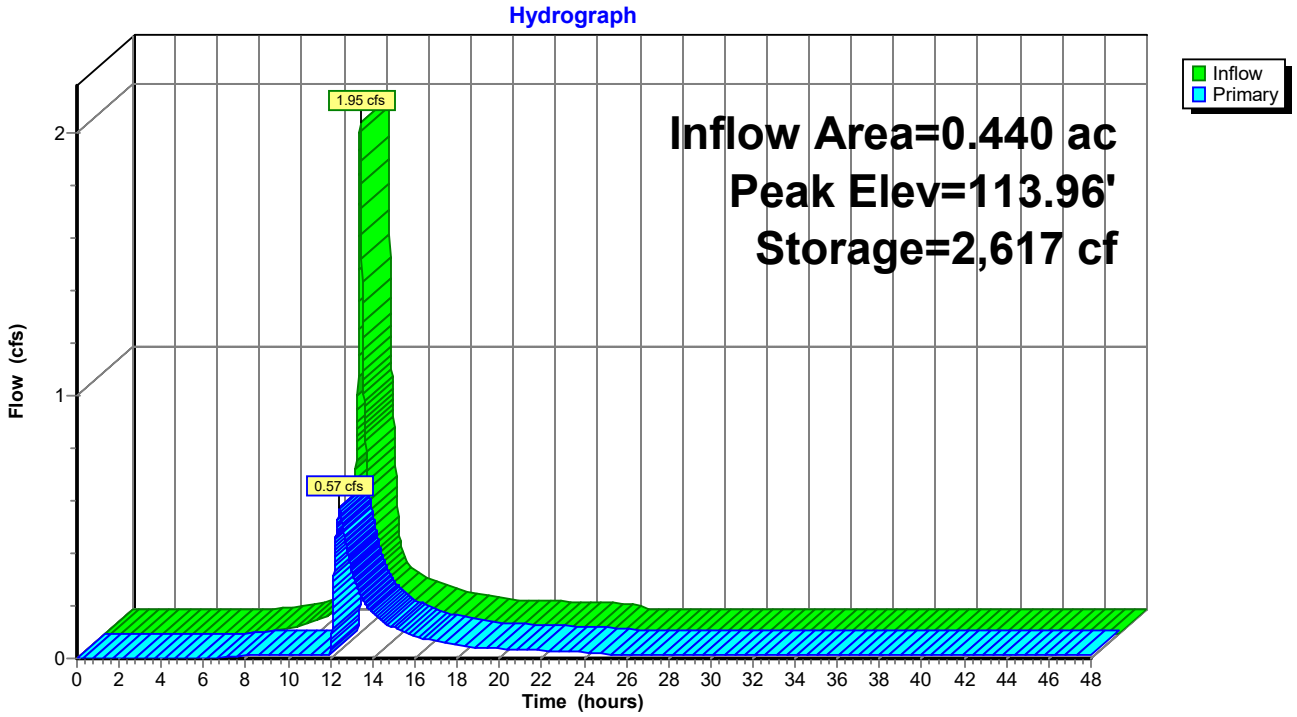
Volume	Invert	Avail.Storage	Storage Description
#1	111.22'	4,358 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
111.22	6,156	0.0	0	0
112.90	6,156	0.0	0	0
114.67	6,156	40.0	4,358	4,358
115.25	6,156	0.0	0	4,358

Device	Routing	Invert	Outlet Devices
#1	Primary	111.23'	**8.0" Round Culvert** L= 35.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 111.23' / 110.88' S= 0.0100 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.35 sf
#2	Device 1	111.23'	**0.6" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	113.45'	**0.5' long x 0.7' 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 Coef. (English) 2.76 2.82 2.93 3.09 3.18 3.22 3.27 3.30 3.32 3.31 3.32
#4	Device 1	113.95'	**6.0' long x 0.7' 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 Coef. (English) 2.76 2.82 2.93 3.09 3.18 3.22 3.27 3.30 3.32 3.31 3.32

Primary OutFlow Max=0.57 cfs @ 12.43 hrs HW=113.96' (Free Discharge)
└**1=Culvert** (Passes 0.57 cfs of 2.47 cfs potential flow)
  ├**2=Orifice/Grate** (Orifice Controls 0.02 cfs @ 7.92 fps)
  ├**3=Broad-Crested Rectangular Weir** (Weir Controls 0.53 cfs @ 2.06 fps)
  └**4=Broad-Crested Rectangular Weir** (Weir Controls 0.02 cfs @ 0.31 fps)

Pond PP1: Porous Pavement 1



Summary for Pond PP2: Porous Pavement 2

Inflow Area = 0.366 ac, 73.59% Impervious, Inflow Depth = 3.80" for 25 Year event
Inflow = 1.62 cfs @ 12.09 hrs, Volume= 0.116 af
Outflow = 0.59 cfs @ 12.38 hrs, Volume= 0.108 af, Atten= 63%, Lag= 17.5 min
Primary = 0.59 cfs @ 12.38 hrs, Volume= 0.108 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 113.81' @ 12.38 hrs Surf.Area= 5,346 sf Storage= 2,138 cf
Flood Elev= 114.27' Surf.Area= 5,346 sf Storage= 2,138 cf

Plug-Flow detention time= 331.8 min calculated for 0.108 af (93% of inflow)
Center-of-Mass det. time= 293.8 min (1,104.1 - 810.3)

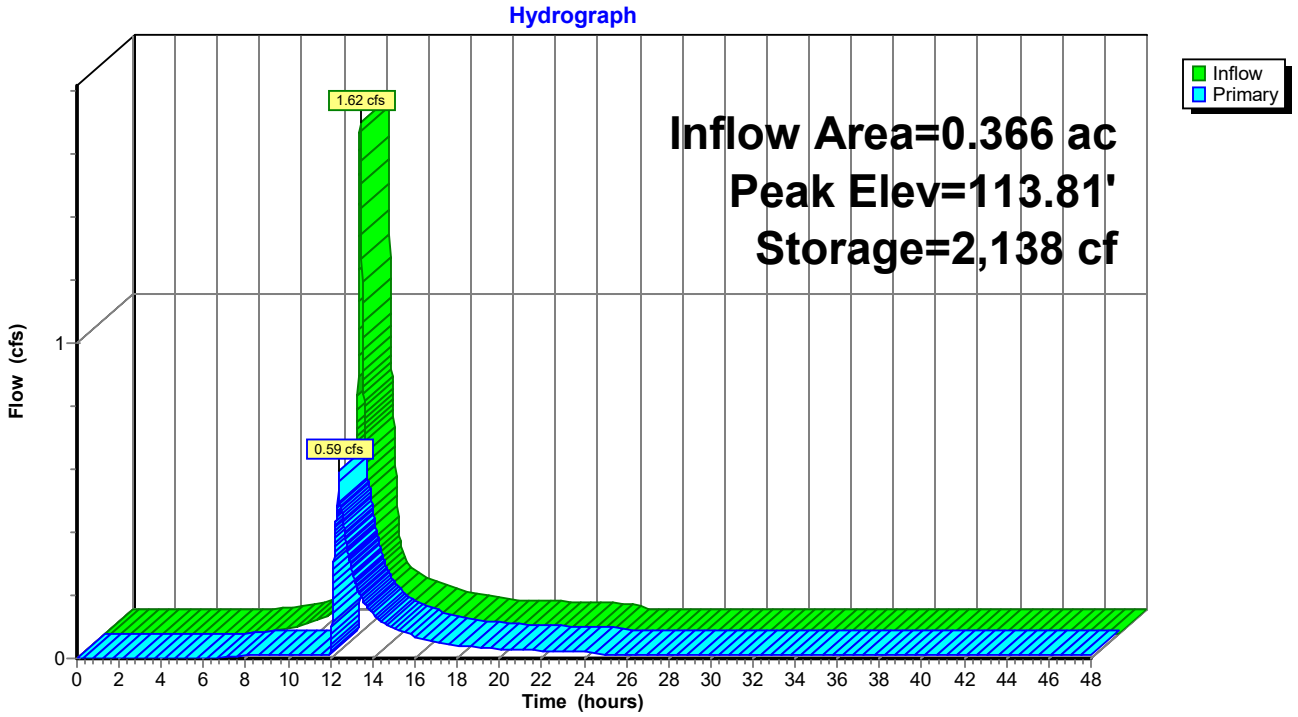
Volume	Invert	Avail.Storage	Storage Description
#1	111.10'	2,138 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
111.10	5,346	0.0	0	0
112.77	5,346	0.0	0	0
113.77	5,346	40.0	2,138	2,138
114.35	5,346	0.0	0	2,138

Device	Routing	Invert	Outlet Devices
#1	Primary	111.10'	**8.0" Round Culvert** L= 25.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 111.10' / 110.70' S= 0.0160 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.35 sf
#2	Device 1	111.10'	**0.5" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	113.29'	**0.5' long x 0.7' 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 Coef. (English) 2.76 2.82 2.93 3.09 3.18 3.22 3.27 3.30 3.32 3.31 3.32
#4	Device 1	113.79'	**6.0' long x 0.7' 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 Coef. (English) 2.76 2.82 2.93 3.09 3.18 3.22 3.27 3.30 3.32 3.31 3.32

Primary OutFlow Max=0.58 cfs @ 12.38 hrs HW=113.81' (Free Discharge)
└**1=Culvert** (Passes 0.58 cfs of 2.59 cfs potential flow)
  ├**2=Orifice/Grate** (Orifice Controls 0.01 cfs @ 7.89 fps)
  ├**3=Broad-Crested Rectangular Weir** (Weir Controls 0.53 cfs @ 2.07 fps)
  └**4=Broad-Crested Rectangular Weir** (Weir Controls 0.03 cfs @ 0.34 fps)

Pond PP2: Porous Pavement 2



Summary for Pond PP3: Porous Pavement 3

Inflow Area = 0.432 ac, 64.46% Impervious, Inflow Depth = 3.31" for 25 Year event
Inflow = 1.68 cfs @ 12.09 hrs, Volume= 0.119 af
Outflow = 0.61 cfs @ 12.37 hrs, Volume= 0.108 af, Atten= 64%, Lag= 17.1 min
Primary = 0.61 cfs @ 12.37 hrs, Volume= 0.108 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 113.17' @ 12.37 hrs Surf.Area= 3,744 sf Storage= 2,051 cf

Plug-Flow detention time= 339.4 min calculated for 0.108 af (91% of inflow)
Center-of-Mass det. time= 294.8 min (1,117.9 - 823.1)

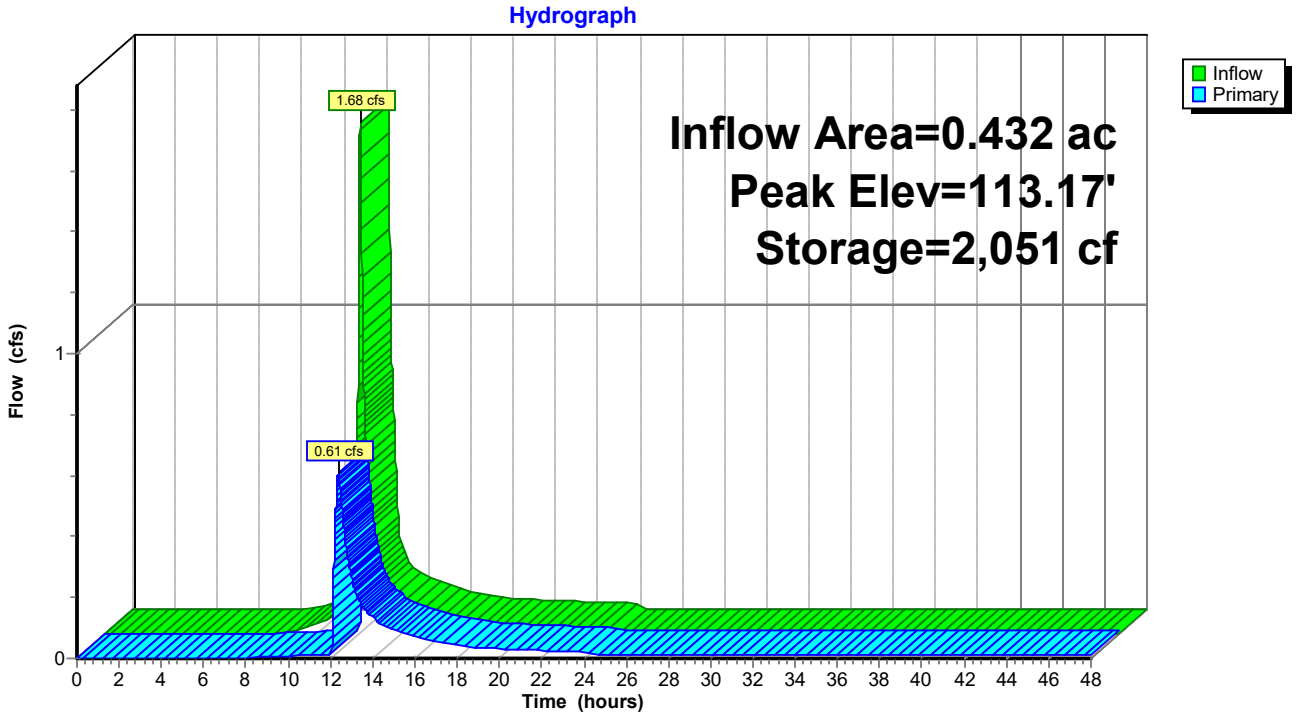
Volume	Invert	Avail.Storage	Storage Description
#1	110.13'	3,025 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
110.13	3,744	0.0	0	0
111.10	3,744	0.0	0	0
111.80	3,744	0.0	0	0
113.82	3,744	40.0	3,025	3,025
114.40	3,744	0.0	0	3,025

Device	Routing	Invert	Outlet Devices
#1	Primary	110.13'	**8.0" Round Culvert** L= 40.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 110.13' / 109.73' S= 0.0100 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.35 sf
#2	Device 1	110.13'	**0.5" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	112.65'	**0.5' long x 0.7' 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 Coef. (English) 2.76 2.82 2.93 3.09 3.18 3.22 3.27 3.30 3.32 3.31 3.32
#4	Device 1	113.15'	**6.0' long x 0.7' 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 Coef. (English) 2.76 2.82 2.93 3.09 3.18 3.22 3.27 3.30 3.32 3.31 3.32

Primary OutFlow Max=0.60 cfs @ 12.37 hrs HW=113.17' (Free Discharge)
└**1=Culvert** (Passes 0.60 cfs of 2.55 cfs potential flow)
  ├**2=Orifice/Grate** (Orifice Controls 0.01 cfs @ 8.37 fps)
  ├**3=Broad-Crested Rectangular Weir** (Weir Controls 0.54 cfs @ 2.08 fps)
  └**4=Broad-Crested Rectangular Weir** (Weir Controls 0.04 cfs @ 0.38 fps)

Pond PP3: Porous Pavement 3



Summary for Pond PP4: Porous Pavement 4

Inflow Area = 0.227 ac, 63.12% Impervious, Inflow Depth = 3.21" for 25 Year event
Inflow = 0.85 cfs @ 12.09 hrs, Volume= 0.061 af
Outflow = 0.39 cfs @ 12.29 hrs, Volume= 0.058 af, Atten= 55%, Lag= 11.9 min
Primary = 0.39 cfs @ 12.29 hrs, Volume= 0.058 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 113.22' @ 12.29 hrs Surf.Area= 1,620 sf Storage= 917 cf
Flood Elev= 113.60' Surf.Area= 1,620 sf Storage= 1,166 cf

Plug-Flow detention time= 349.9 min calculated for 0.058 af (96% of inflow)
Center-of-Mass det. time= 325.5 min (1,151.0 - 825.5)

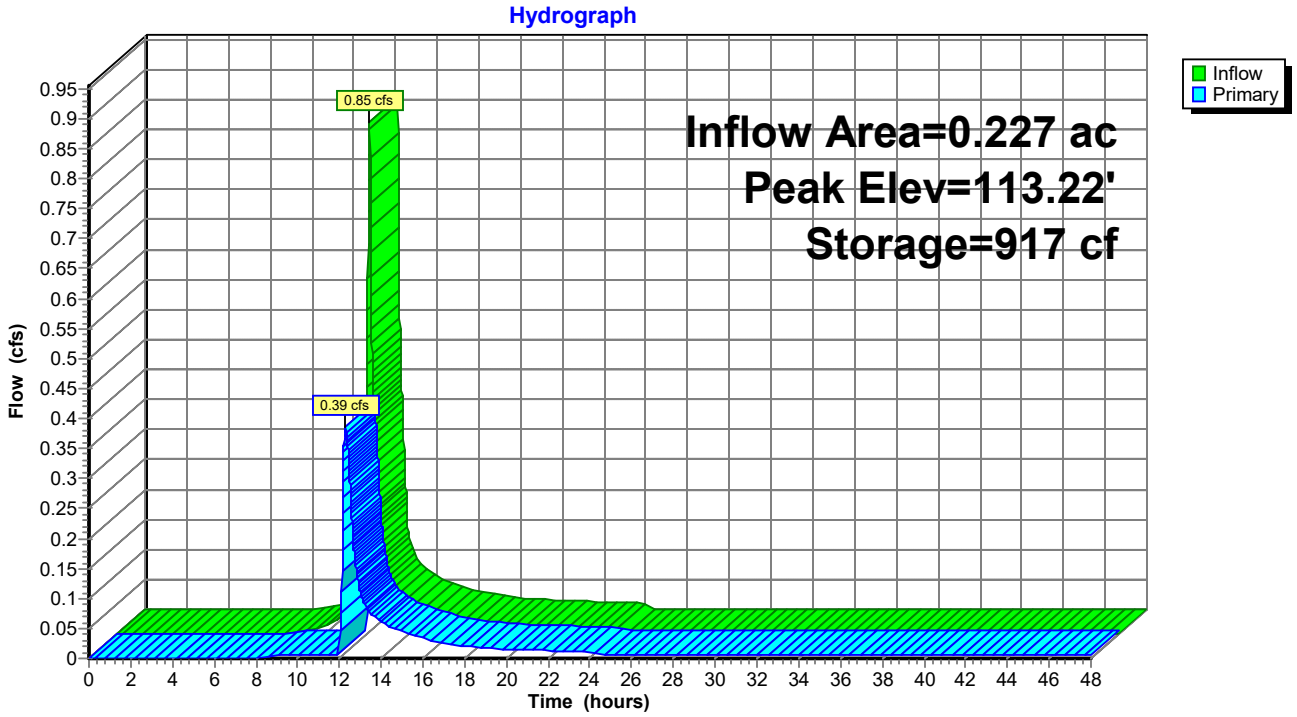
Volume	Invert	Avail.Storage	Storage Description
#1	110.10'	1,166 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
110.10	1,620	0.0	0	0
111.80	1,620	0.0	0	0
113.60	1,620	40.0	1,166	1,166
114.14	1,620	0.0	0	1,166

Device	Routing	Invert	Outlet Devices
#1	Primary	110.13'	**8.0" Round Culvert** L= 35.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 110.13' / 109.78' S= 0.0100 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.35 sf
#2	Device 1	110.13'	**0.4" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	112.80'	**0.5' long x 0.7' 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 Coef. (English) 2.76 2.82 2.93 3.09 3.18 3.22 3.27 3.30 3.32 3.31 3.32
#4	Device 1	113.30'	**6.0' long x 0.7' 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 Coef. (English) 2.76 2.82 2.93 3.09 3.18 3.22 3.27 3.30 3.32 3.31 3.32

Primary OutFlow Max=0.39 cfs @ 12.29 hrs HW=113.22' (Free Discharge)
└**1=Culvert** (Passes 0.39 cfs of 2.64 cfs potential flow)
  ├**2=Orifice/Grate** (Orifice Controls 0.01 cfs @ 8.43 fps)
  ├**3=Broad-Crested Rectangular Weir** (Weir Controls 0.38 cfs @ 1.82 fps)
  └**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond PP4: Porous Pavement 4



Summary for Pond R1: Detention Pond 1

Inflow Area = 0.734 ac,100.00% Impervious, Inflow Depth = 5.56" for 25 Year event
Inflow = 4.17 cfs @ 12.08 hrs, Volume= 0.340 af
Outflow = 2.92 cfs @ 12.16 hrs, Volume= 0.335 af, Atten= 30%, Lag= 4.8 min
Primary = 2.92 cfs @ 12.16 hrs, Volume= 0.335 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 113.01' @ 12.16 hrs Surf.Area= 1,156 sf Storage= 3,125 cf

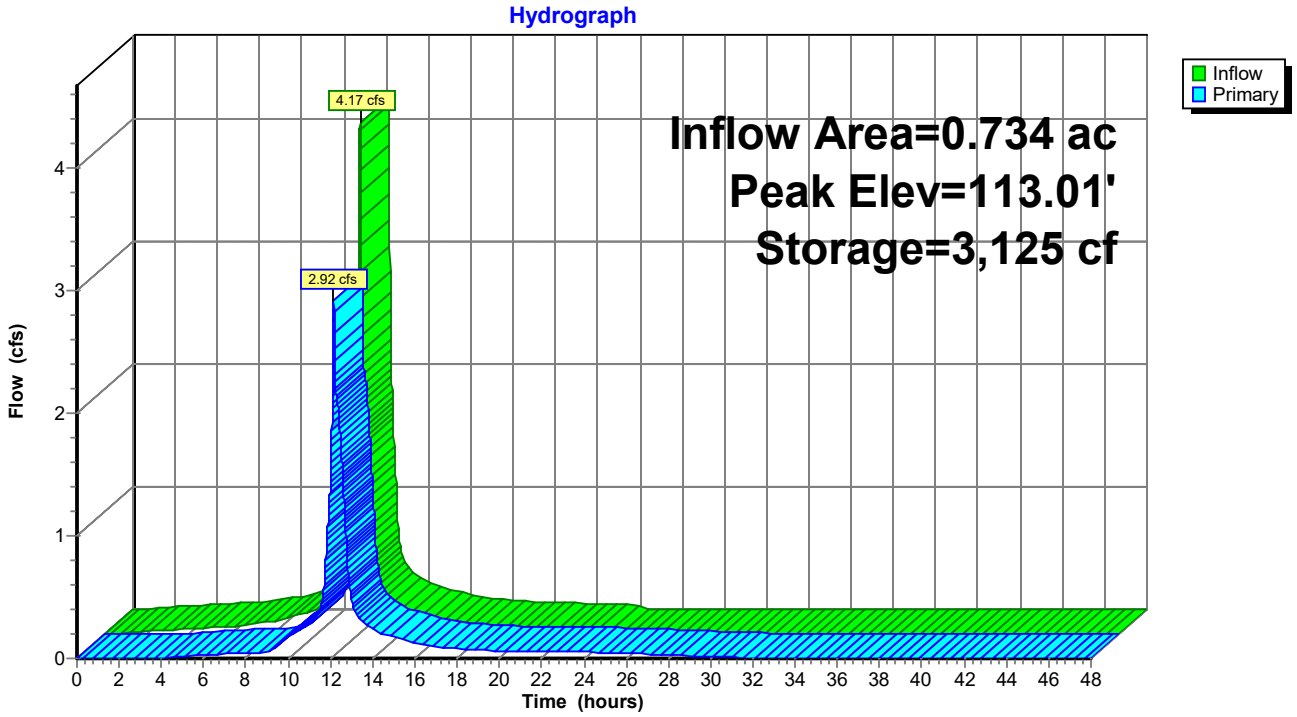
Plug-Flow detention time= 108.9 min calculated for 0.335 af (98% of inflow)
Center-of-Mass det. time= 98.8 min (844.4 - 745.7)

Volume	Invert	Avail.Storage	Storage Description
#1	110.06'	2,744 cf	**ACF R-Tank HD 2** x 350 Inside #2 Inside= 15.7"W x 33.9"H => 3.52 sf x 2.35'L = 8.3 cf Outside= 15.7"W x 33.9"H => 3.70 sf x 2.35'L = 8.7 cf 350 Chambers in 14 Rows 3,040 cf Overall x 95.0% Voids
#2	109.56'	555 cf	**34.00'W x 34.00'L x 3.83'H Prismatoid** 4,427 cf Overall - 3,040 cf Embedded = 1,387 cf x 40.0% Voids
		3,299 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	110.06'	**10.0" Round Culvert** L= 10.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 110.06' / 109.68' S= 0.0380 '/' Cc= 0.900 n= 0.012, Flow Area= 0.55 sf
#2	Device 1	110.06'	**1.5" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	112.90'	**6.0' long x 0.7' 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 Coef. (English) 2.76 2.82 2.93 3.09 3.18 3.22 3.27 3.30 3.32 3.31 3.32
#4	Device 1	111.00'	**8.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=2.90 cfs @ 12.16 hrs HW=113.01' (Free Discharge)
└**1=Culvert** (Passes 2.90 cfs of 4.18 cfs potential flow)
  ├**2=Orifice/Grate** (Orifice Controls 0.10 cfs @ 8.18 fps)
  ├**3=Broad-Crested Rectangular Weir** (Weir Controls 0.62 cfs @ 0.92 fps)
  └**4=Orifice/Grate** (Orifice Controls 2.18 cfs @ 6.24 fps)

Pond R1: Detention Pond 1



Summary for Pond R2: Detention Pond 2

Inflow Area = 0.734 ac,100.00% Impervious, Inflow Depth = 5.56" for 25 Year event
Inflow = 4.17 cfs @ 12.08 hrs, Volume= 0.340 af
Outflow = 3.39 cfs @ 12.14 hrs, Volume= 0.334 af, Atten= 19%, Lag= 3.5 min
Primary = 3.39 cfs @ 12.14 hrs, Volume= 0.334 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 112.90' @ 12.14 hrs Surf.Area= 1,344 sf Storage= 3,236 cf

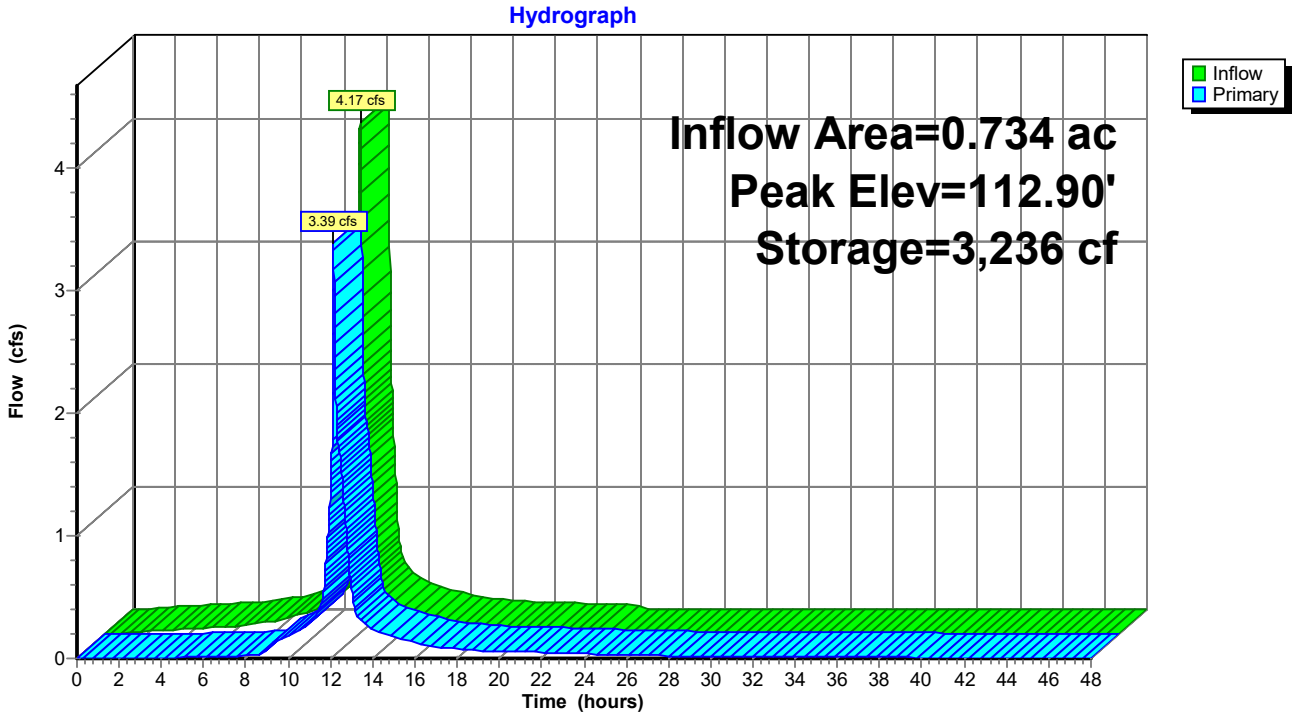
Plug-Flow detention time= 139.8 min calculated for 0.334 af (98% of inflow)
Center-of-Mass det. time= 127.1 min (872.8 - 745.7)

Volume	Invert	Avail.Storage	Storage Description
#1	110.06'	2,587 cf	**ACF R-Tank HD 2** x 330 Inside #2 Inside= 15.7"W x 33.9"H => 3.52 sf x 2.35'L = 8.3 cf Outside= 15.7"W x 33.9"H => 3.70 sf x 2.35'L = 8.7 cf 330 Chambers in 15 Rows 2,866 cf Overall x 95.0% Voids
#2	109.56'	912 cf	**24.00'W x 56.00'L x 3.83'H Prismatoid** 5,148 cf Overall - 2,866 cf Embedded = 2,281 cf x 40.0% Voids
		3,499 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	108.14'	**12.0" Round Culvert** L= 10.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 108.14' / 108.10' S= 0.0040 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#2	Device 1	110.06'	**1.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	112.70'	**6.0' long x 0.7' 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 Coef. (English) 2.76 2.82 2.93 3.09 3.18 3.22 3.27 3.30 3.32 3.31 3.32
#4	Device 1	111.00'	**7.5" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=3.37 cfs @ 12.14 hrs HW=112.90' (Free Discharge)
└**1=Culvert** (Passes 3.37 cfs of 7.80 cfs potential flow)
  ├**2=Orifice/Grate** (Orifice Controls 0.04 cfs @ 8.05 fps)
  ├**3=Broad-Crested Rectangular Weir** (Weir Controls 1.47 cfs @ 1.23 fps)
  └**4=Orifice/Grate** (Orifice Controls 1.86 cfs @ 6.06 fps)

Pond R2: Detention Pond 2



Summary for Pond RG-1: Rain Garden

Inflow Area = 0.168 ac, 58.87% Impervious, Inflow Depth = 3.02" for 25 Year event
Inflow = 0.59 cfs @ 12.09 hrs, Volume= 0.042 af
Outflow = 0.43 cfs @ 12.17 hrs, Volume= 0.042 af, Atten= 28%, Lag= 4.6 min
Discarded = 0.08 cfs @ 11.70 hrs, Volume= 0.031 af
Primary = 0.35 cfs @ 12.17 hrs, Volume= 0.012 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 115.86' @ 12.17 hrs Surf.Area= 460 sf Storage= 206 cf

Plug-Flow detention time= 5.8 min calculated for 0.042 af (100% of inflow)
Center-of-Mass det. time= 5.8 min (836.2 - 830.4)

Volume	Invert	Avail.Storage	Storage Description
#1	114.50'	1,185 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

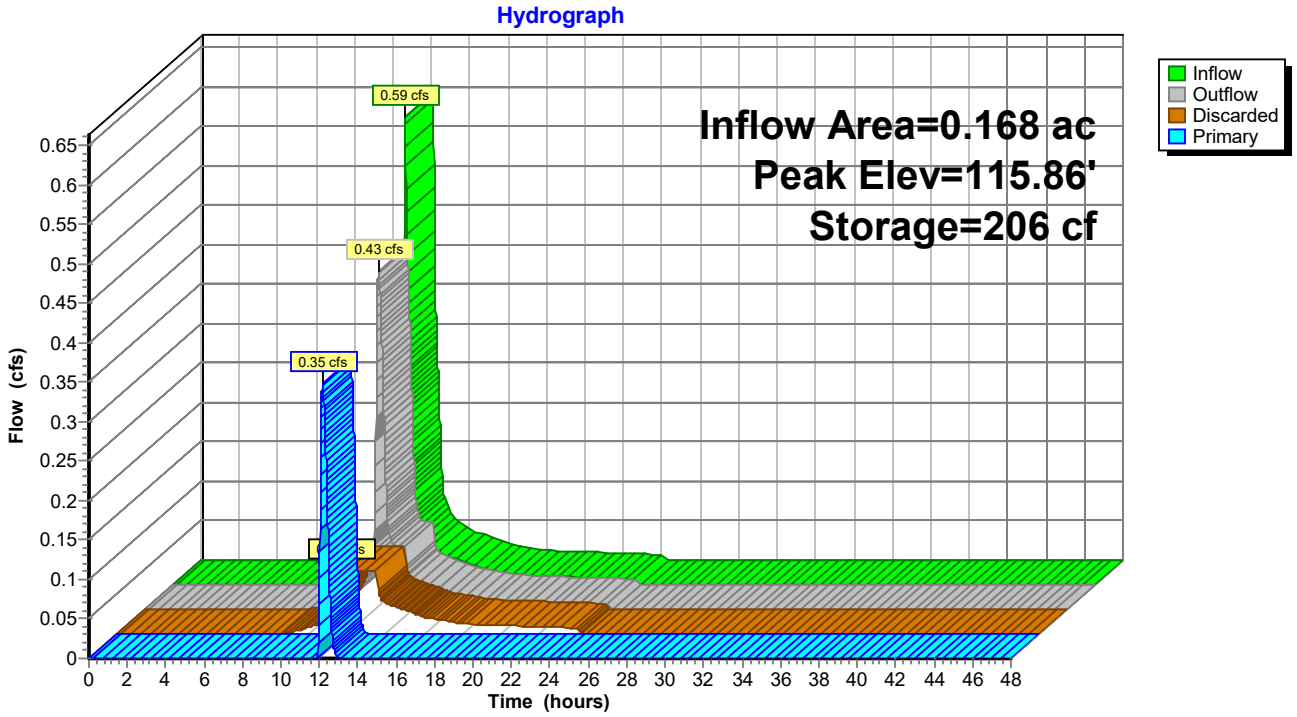
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
114.50	460	33.0	0	0
115.00	460	33.0	76	76
115.50	460	33.0	76	152
116.00	460	33.0	76	228
116.50	460	100.0	230	458
117.00	460	100.0	230	688
117.50	505	100.0	241	929
118.00	520	100.0	256	1,185

Device	Routing	Invert	Outlet Devices
#1	Discarded	114.50'	**7.500 in/hr Exfiltration over Surface area**
#2	Device 3	115.00'	**4.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Primary	114.50'	**8.0" Round Culvert** L= 150.0' Ke= 0.500 Inlet / Outlet Invert= 114.50' / 112.15' S= 0.0157 '/' Cc= 0.900 n= 0.012, Flow Area= 0.35 sf
#4	Device 3	117.50'	**10.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.08 cfs @ 11.70 hrs HW=114.54' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.08 cfs)

Primary OutFlow Max=0.35 cfs @ 12.17 hrs HW=115.86' (Free Discharge)
└**3=Culvert** (Passes 0.35 cfs of 1.69 cfs potential flow)
  ├**2=Orifice/Grate** (Orifice Controls 0.35 cfs @ 4.00 fps)
  └**4=Orifice/Grate** (Controls 0.00 cfs)

Pond RG-1: Rain Garden



Summary for Pond RG-2: Rain Garden

Inflow Area = 0.478 ac, 64.28% Impervious, Inflow Depth = 1.50" for 25 Year event
Inflow = 0.77 cfs @ 12.09 hrs, Volume= 0.060 af
Outflow = 0.50 cfs @ 12.36 hrs, Volume= 0.060 af, Atten= 35%, Lag= 15.9 min
Discarded = 0.17 cfs @ 11.82 hrs, Volume= 0.047 af
Primary = 0.33 cfs @ 12.36 hrs, Volume= 0.012 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 115.78' @ 12.36 hrs Surf.Area= 960 sf Storage= 408 cf

Plug-Flow detention time= 6.8 min calculated for 0.060 af (100% of inflow)
Center-of-Mass det. time= 6.8 min (841.0 - 834.2)

Volume	Invert	Avail.Storage	Storage Description
#1	114.49'	2,177 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

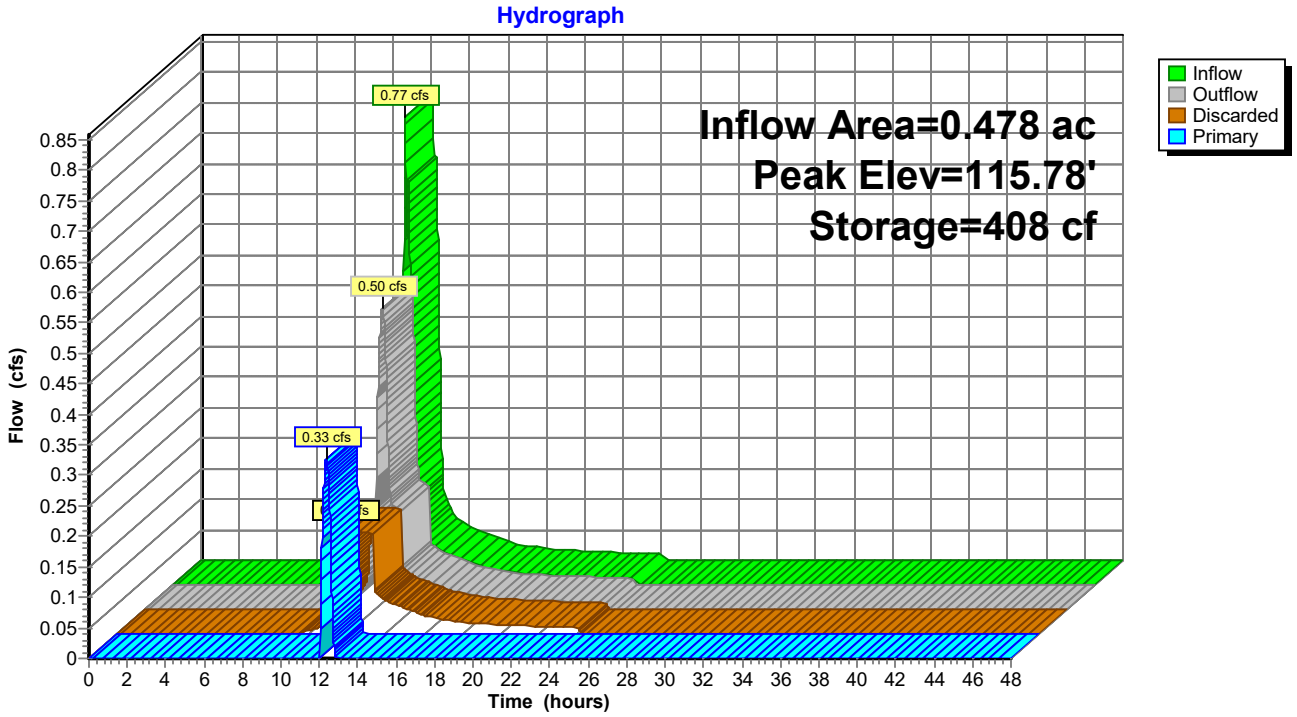
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
114.49	960	0.0	0	0
114.50	960	33.0	3	3
115.00	960	33.0	158	162
115.50	960	33.0	158	320
116.00	960	33.0	158	478
116.50	960	33.0	158	637
117.00	960	100.0	480	1,117
117.50	1,040	100.0	500	1,617
118.00	1,200	100.0	560	2,177

Device	Routing	Invert	Outlet Devices
#1	Discarded	114.49'	**7.500 in/hr Exfiltration over Surface area**
#2	Device 3	115.00'	**4.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Primary	114.50'	**8.0" Round Culvert** L= 150.0' Ke= 0.500 Inlet / Outlet Invert= 114.50' / 113.00' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 0.35 sf
#4	Device 3	117.50'	**10.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.17 cfs @ 11.82 hrs HW=114.50' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.17 cfs)

Primary OutFlow Max=0.33 cfs @ 12.36 hrs HW=115.78' (Free Discharge)
└**3=Culvert** (Passes 0.33 cfs of 1.41 cfs potential flow)
  ├**2=Orifice/Grate** (Orifice Controls 0.33 cfs @ 3.76 fps)
  └**4=Orifice/Grate** (Controls 0.00 cfs)

Pond RG-2: Rain Garden



Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Subcatchment 1S: Area 1 Runoff Area=15,851 sf 17.16% Impervious Runoff Depth=0.00"
Flow Length=300' Tc=20.7 min CN=49 Runoff=0.00 cfs 0.000 af

Subcatchment 2S: Area 2 Runoff Area=1,429 sf 70.05% Impervious Runoff Depth=0.07"
Tc=6.0 min CN=80 Runoff=0.00 cfs 0.000 af

Subcatchment 3S: Area to PP1 Runoff Area=2,173 sf 81.59% Impervious Runoff Depth=0.20"
Tc=6.0 min CN=87 Runoff=0.01 cfs 0.001 af

Subcatchment 4S: Area to PP2 Runoff Area=3,345 sf 100.00% Impervious Runoff Depth=0.74"
Tc=6.0 min CN=98 Runoff=0.06 cfs 0.005 af

Subcatchment 5S: Area to Rain Garden East Runoff Area=8,904 sf 17.46% Impervious Runoff Depth=0.00"
Flow Length=150' Slope=0.0200 '/' Tc=9.2 min CN=49 Runoff=0.00 cfs 0.000 af

Subcatchment 6S: Bldg 1 Roof Runoff Area=11,717 sf 100.00% Impervious Runoff Depth=0.74"
Tc=6.0 min CN=98 Runoff=0.23 cfs 0.017 af

Subcatchment 7S: Area to Rain Garden Runoff Area=21,901 sf 7.99% Impervious Runoff Depth=0.00"
Flow Length=170' Tc=14.0 min CN=44 Runoff=0.00 cfs 0.000 af

Subcatchment 9S: Runoff Area=1,785 sf 50.98% Impervious Runoff Depth=0.00"
Tc=6.0 min CN=69 Runoff=0.00 cfs 0.000 af

Subcatchment 10S: Runoff Area=12,293 sf 82.32% Impervious Runoff Depth=0.22"
Tc=6.0 min CN=88 Runoff=0.06 cfs 0.005 af

Subcatchment 11S: Area to Rain Garden 2 Runoff Area=11,240 sf 51.56% Impervious Runoff Depth=0.00"
Tc=6.0 min CN=69 Runoff=0.00 cfs 0.000 af

Subcatchment 12S: Area to Rain Garden 1 Runoff Area=7,303 sf 58.87% Impervious Runoff Depth=0.02"
Tc=6.0 min CN=74 Runoff=0.00 cfs 0.000 af

Subcatchment 13S: Area to Infiltration Runoff Area=15,495 sf 77.47% Impervious Runoff Depth=0.15"
Tc=6.0 min CN=85 Runoff=0.04 cfs 0.004 af

Subcatchment 14S: Roof Area to Drip Runoff Area=6,080 sf 100.00% Impervious Runoff Depth=0.74"
Tc=6.0 min CN=98 Runoff=0.12 cfs 0.009 af

Subcatchment 15S: Roof Area to Drip Strip Runoff Area=9,600 sf 79.17% Impervious Runoff Depth=0.41"
Tc=6.0 min CN=93 Runoff=0.11 cfs 0.008 af

Subcatchment 16S: Roof Area to Drip Strip Runoff Area=9,600 sf 79.17% Impervious Runoff Depth=0.41"
Tc=6.0 min CN=93 Runoff=0.11 cfs 0.008 af

Subcatchment 17S: Roof Area to Drip Runoff Area=17,390 sf 76.31% Impervious Runoff Depth=0.41"
Tc=6.0 min CN=93 Runoff=0.19 cfs 0.014 af

Subcatchment 18S: North of Mother House Runoff Area=44,775 sf 50.92% Impervious Runoff Depth=0.00"
Tc=6.0 min CN=69 Runoff=0.00 cfs 0.000 af

Subcatchment 19A: St. Josephs Runoff Area=57,470 sf 35.07% Impervious Runoff Depth=0.00"
Flow Length=407' Tc=19.8 min CN=60 Runoff=0.00 cfs 0.000 af

Subcatchment 20A: North Parking - West Runoff Area=19,180 sf 72.24% Impervious Runoff Depth=0.10"
Tc=6.0 min CN=82 Runoff=0.02 cfs 0.004 af

Subcatchment 20B: North Parking - East Runoff Area=15,935 sf 73.59% Impervious Runoff Depth=0.10"
Tc=6.0 min CN=82 Runoff=0.02 cfs 0.003 af

Subcatchment 21A: Building 5 Runoff Area=19,410 sf 100.00% Impervious Runoff Depth=0.74"
Tc=6.0 min CN=98 Runoff=0.37 cfs 0.028 af

Subcatchment 21B: Buiding 4 Runoff Area=12,580 sf 100.00% Impervious Runoff Depth=0.74"
Tc=6.0 min CN=98 Runoff=0.24 cfs 0.018 af

Subcatchment 22A: The Common Runoff Area=35,370 sf 23.11% Impervious Runoff Depth=0.00"
Flow Length=209' Slope=0.0100 '/' Tc=23.0 min UI Adjusted CN=46 Runoff=0.00 cfs 0.000 af

Subcatchment 22B: Detention Pond 1 Runoff Area=8,850 sf 13.39% Impervious Runoff Depth=0.00"
Tc=6.0 min CN=47 Runoff=0.00 cfs 0.000 af

Subcatchment 23A: South Parking - West Runoff Area=18,825 sf 64.46% Impervious Runoff Depth=0.04"
Tc=6.0 min CN=77 Runoff=0.00 cfs 0.001 af

Subcatchment 23B: South Parking - East Runoff Area=9,870 sf 63.12% Impervious Runoff Depth=0.03"
Tc=6.0 min CN=76 Runoff=0.00 cfs 0.001 af

Subcatchment 24A: Building 2 Runoff Area=12,580 sf 100.00% Impervious Runoff Depth=0.74"
Tc=6.0 min CN=98 Runoff=0.24 cfs 0.018 af

Subcatchment 24B: Building 3 Runoff Area=19,410 sf 100.00% Impervious Runoff Depth=0.74"
Tc=6.0 min CN=98 Runoff=0.37 cfs 0.028 af

Subcatchment 25A: South of Building 2 Runoff Area=22,380 sf 21.94% Impervious Runoff Depth=0.00"
Flow Length=140' Slope=0.0100 '/' Tc=25.0 min CN=65 Runoff=0.00 cfs 0.000 af

Subcatchment 25B: South of Building 3 Runoff Area=9,075 sf 8.10% Impervious Runoff Depth=0.03"
Tc=6.0 min CN=76 Runoff=0.00 cfs 0.001 af

Subcatchment 25C: South of Building 3 Runoff Area=2,390 sf 19.25% Impervious Runoff Depth=0.06"
Tc=6.0 min CN=79 Runoff=0.00 cfs 0.000 af

Subcatchment 26S: Wetland to POI 2 Runoff Area=10,500 sf 5.52% Impervious Runoff Depth=0.00"
Flow Length=155' Slope=0.0500 '/' Tc=22.1 min CN=62 Runoff=0.00 cfs 0.000 af

Subcatchment 27S: Wetland to POI 1 Runoff Area=13,833 sf 3.43% Impervious Runoff Depth=0.03"
Flow Length=165' Slope=0.0500 '/' Tc=27.3 min CN=76 Runoff=0.00 cfs 0.001 af

Subcatchment 28S: Runoff Area=4,725 sf 0.00% Impervious Runoff Depth=0.00"
Flow Length=105' Slope=0.0100 '/' Tc=13.2 min CN=39 Runoff=0.00 cfs 0.000 af

Reach 1R: CB 19 TO WETLAND Avg. Flow Depth=0.09' Max Vel=1.48 fps Inflow=0.06 cfs 0.061 af
15.0" Round Pipe n=0.012 L=126.0' S=0.0062 '/' Capacity=5.51 cfs Outflow=0.06 cfs 0.061 af

Reach 2R: POI 2 Inflow=0.16 cfs 0.057 af
Outflow=0.16 cfs 0.057 af

Reach 4R: Wetland to POI 2 Avg. Flow Depth=0.04' Max Vel=1.06 fps Inflow=0.16 cfs 0.057 af
n=0.035 L=145.0' S=0.0500 '/' Capacity=24.99 cfs Outflow=0.16 cfs 0.057 af

Reach 6R: Wetland to POI 1 Avg. Flow Depth=0.01' Max Vel=0.55 fps Inflow=0.06 cfs 0.061 af
n=0.035 L=210.0' S=0.0500 '/' Capacity=57.05 cfs Outflow=0.06 cfs 0.061 af

Reach 24R: DMH 11 to DMH 12 Avg. Flow Depth=0.02' Max Vel=0.77 fps Inflow=0.00 cfs 0.001 af
8.0" Round Pipe n=0.012 L=59.0' S=0.0100 '/' Capacity=1.31 cfs Outflow=0.00 cfs 0.001 af

Reach 25R: DMH 12 to DMH 15 Avg. Flow Depth=0.02' Max Vel=0.80 fps Inflow=0.00 cfs 0.002 af
8.0" Round Pipe n=0.012 L=48.0' S=0.0100 '/' Capacity=1.31 cfs Outflow=0.00 cfs 0.002 af

Reach 26R: DMH 15 to DMH 14 Avg. Flow Depth=0.02' Max Vel=0.76 fps Inflow=0.00 cfs 0.002 af
12.0" Round Pipe n=0.012 L=105.0' S=0.0100 '/' Capacity=3.86 cfs Outflow=0.00 cfs 0.002 af

Reach 27R: DMH 14 to DMH 7 Avg. Flow Depth=0.08' Max Vel=1.73 fps Inflow=0.06 cfs 0.042 af
15.0" Round Pipe n=0.012 L=42.0' S=0.0100 '/' Capacity=7.00 cfs Outflow=0.06 cfs 0.042 af

Reach 28R: POI 1 Inflow=0.06 cfs 0.062 af
Outflow=0.06 cfs 0.062 af

Reach 29R: EX. DMH 4 to NEW CB 19 Avg. Flow Depth=0.06' Max Vel=1.14 fps Inflow=0.02 cfs 0.022 af
12.0" Round Pipe n=0.012 L=172.0' S=0.0058 '/' Capacity=2.93 cfs Outflow=0.02 cfs 0.022 af

Reach 31R: 8" SD Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af
8.0" Round Pipe n=0.013 L=28.0' S=0.0100 '/' Capacity=1.21 cfs Outflow=0.00 cfs 0.000 af

Reach 32R: 8" UD Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af
8.0" Round Pipe n=0.012 L=104.0' S=0.0050 '/' Capacity=0.93 cfs Outflow=0.00 cfs 0.000 af

Reach 33R: 8" SD Avg. Flow Depth=0.08' Max Vel=1.59 fps Inflow=0.04 cfs 0.005 af
8.0" Round Pipe n=0.013 L=76.0' S=0.0100 '/' Capacity=1.21 cfs Outflow=0.04 cfs 0.005 af

Reach 34R: 12" SD Avg. Flow Depth=0.19' Max Vel=2.22 fps Inflow=0.23 cfs 0.017 af
12.0" Round Pipe n=0.012 L=17.0' S=0.0059 '/' Capacity=2.96 cfs Outflow=0.23 cfs 0.017 af

Reach 35R: 12" SD Avg. Flow Depth=0.16' Max Vel=3.03 fps Inflow=0.25 cfs 0.022 af
12.0" Round Pipe n=0.013 L=12.0' S=0.0150 '/' Capacity=4.36 cfs Outflow=0.25 cfs 0.022 af

Reach 40R: New CB 1 to DMH 2 Avg. Flow Depth=0.11' Max Vel=2.09 fps Inflow=0.12 cfs 0.009 af
15.0" Round Pipe n=0.012 L=410.0' S=0.0100 '/' Capacity=7.00 cfs Outflow=0.11 cfs 0.009 af

Reach 41R: DMH 2 to DMH 3 Avg. Flow Depth=0.11' Max Vel=2.06 fps Inflow=0.12 cfs 0.012 af
18.0" Round Pipe n=0.012 L=80.0' S=0.0094 '/' Capacity=11.02 cfs Outflow=0.12 cfs 0.012 af

Reach 42R: DMH 3 to DMH 7 Avg. Flow Depth=0.11' Max Vel=2.04 fps Inflow=0.13 cfs 0.015 af
18.0" Round Pipe n=0.012 L=382.0' S=0.0091 '/' Capacity=10.86 cfs Outflow=0.12 cfs 0.015 af

Reach 44R: DMH 7 to Wetland Avg. Flow Depth=0.12' Max Vel=2.22 fps Inflow=0.16 cfs 0.057 af
24.0" Round Pipe n=0.012 L=30.0' S=0.0100 '/' Capacity=24.51 cfs Outflow=0.16 cfs 0.057 af

Pond 3P: FP1 TANKS Peak Elev=108.21' Storage=0 cf Inflow=0.00 cfs 0.000 af
Outflow=0.00 cfs 0.000 af

Pond 4P: FP2 TANKS Peak Elev=108.13' Storage=0 cf Inflow=0.00 cfs 0.000 af
Outflow=0.00 cfs 0.000 af

Pond 5P: Filterra Peak Elev=114.59' Storage=4 cf Inflow=0.06 cfs 0.005 af
Primary=0.06 cfs 0.005 af Secondary=0.00 cfs 0.000 af Outflow=0.06 cfs 0.005 af

Pond 6P: Filterra Peak Elev=114.56' Storage=3 cf Inflow=0.04 cfs 0.004 af
Primary=0.04 cfs 0.004 af Secondary=0.00 cfs 0.000 af Outflow=0.04 cfs 0.004 af

Pond 9R: New CB 1 to DMH 2 Peak Elev=112.32' Inflow=0.12 cfs 0.009 af
15.0" Round Culvert n=0.012 L=10.0' S=0.0100 '/' Outflow=0.12 cfs 0.009 af

Pond 30P: Raised StormTech SC-740 Peak Elev=111.64' Storage=0.009 af Inflow=0.25 cfs 0.022 af
Outflow=0.02 cfs 0.022 af

Pond 36P: PP1 Peak Elev=115.69' Storage=36 cf Inflow=0.01 cfs 0.001 af
Outflow=0.00 cfs 0.000 af

Pond 37P: PP2 Peak Elev=115.71' Storage=48 cf Inflow=0.06 cfs 0.005 af
Outflow=0.04 cfs 0.005 af

Pond 38P: Rain Garden West Peak Elev=120.00' Storage=0 cf Inflow=0.00 cfs 0.000 af
Outflow=0.00 cfs 0.000 af

Pond DS-2: Drip Strip Peak Elev=115.02' Storage=11 cf Inflow=0.11 cfs 0.008 af
Discarded=0.10 cfs 0.008 af Primary=0.00 cfs 0.000 af Outflow=0.10 cfs 0.008 af

Pond DS-3: Drip Strip Peak Elev=115.03' Storage=21 cf Inflow=0.19 cfs 0.014 af
Discarded=0.18 cfs 0.014 af Primary=0.00 cfs 0.000 af Outflow=0.18 cfs 0.014 af

Pond DS1: Drip Strip Peak Elev=115.02' Storage=11 cf Inflow=0.11 cfs 0.008 af
Discarded=0.10 cfs 0.008 af Primary=0.00 cfs 0.000 af Outflow=0.10 cfs 0.008 af

Pond FP1: FP1 Filter Peak Elev=111.84' Storage=0 cf Inflow=0.00 cfs 0.000 af
Primary=0.00 cfs 0.000 af Secondary=0.00 cfs 0.000 af Outflow=0.00 cfs 0.000 af

Pond FP2: FP2 Filter Peak Elev=110.56' Storage=0 cf Inflow=0.00 cfs 0.000 af
Primary=0.00 cfs 0.000 af Secondary=0.00 cfs 0.000 af Outflow=0.00 cfs 0.000 af

Pond IT-1: Infiltration Trench Peak Elev=112.02' Storage=9 cf Inflow=0.11 cfs 0.010 af
Discarded=0.10 cfs 0.010 af Primary=0.00 cfs 0.000 af Outflow=0.10 cfs 0.010 af

Pond PP1: Porous Pavement 1 Peak Elev=112.90' Storage=11 cf Inflow=0.02 cfs 0.004 af
Outflow=0.01 cfs 0.004 af

Pond PP2: Porous Pavement 2 Peak Elev=112.78' Storage=12 cf Inflow=0.02 cfs 0.003 af
Outflow=0.01 cfs 0.003 af

Pond PP3: Porous Pavement 3 Peak Elev=110.34' Storage=0 cf Inflow=0.00 cfs 0.001 af
Outflow=0.00 cfs 0.001 af

Pond PP4: Porous Pavement 4 Peak Elev=110.19' Storage=0 cf Inflow=0.00 cfs 0.001 af
Outflow=0.00 cfs 0.001 af

Pond R1: Detention Pond 1 Peak Elev=110.96' Storage=1,135 cf Inflow=0.62 cfs 0.045 af
Outflow=0.05 cfs 0.040 af

Pond R2: Detention Pond 2 Peak Elev=111.05' Storage=1,302 cf Inflow=0.62 cfs 0.045 af
Outflow=0.03 cfs 0.039 af

Pond RG-1: Rain Garden Peak Elev=114.50' Storage=0 cf Inflow=0.00 cfs 0.000 af
Discarded=0.00 cfs 0.000 af Primary=0.00 cfs 0.000 af Outflow=0.00 cfs 0.000 af

Pond RG-2: Rain Garden Peak Elev=114.49' Storage=0 cf Inflow=0.00 cfs 0.000 af
Discarded=0.00 cfs 0.000 af Primary=0.00 cfs 0.000 af Outflow=0.00 cfs 0.000 af

Total Runoff Area = 11.324 ac Runoff Volume = 0.171 af Average Runoff Depth = 0.18"
47.50% Pervious = 5.379 ac 52.50% Impervious = 5.944 ac

Summary for Subcatchment 1S: Area 1

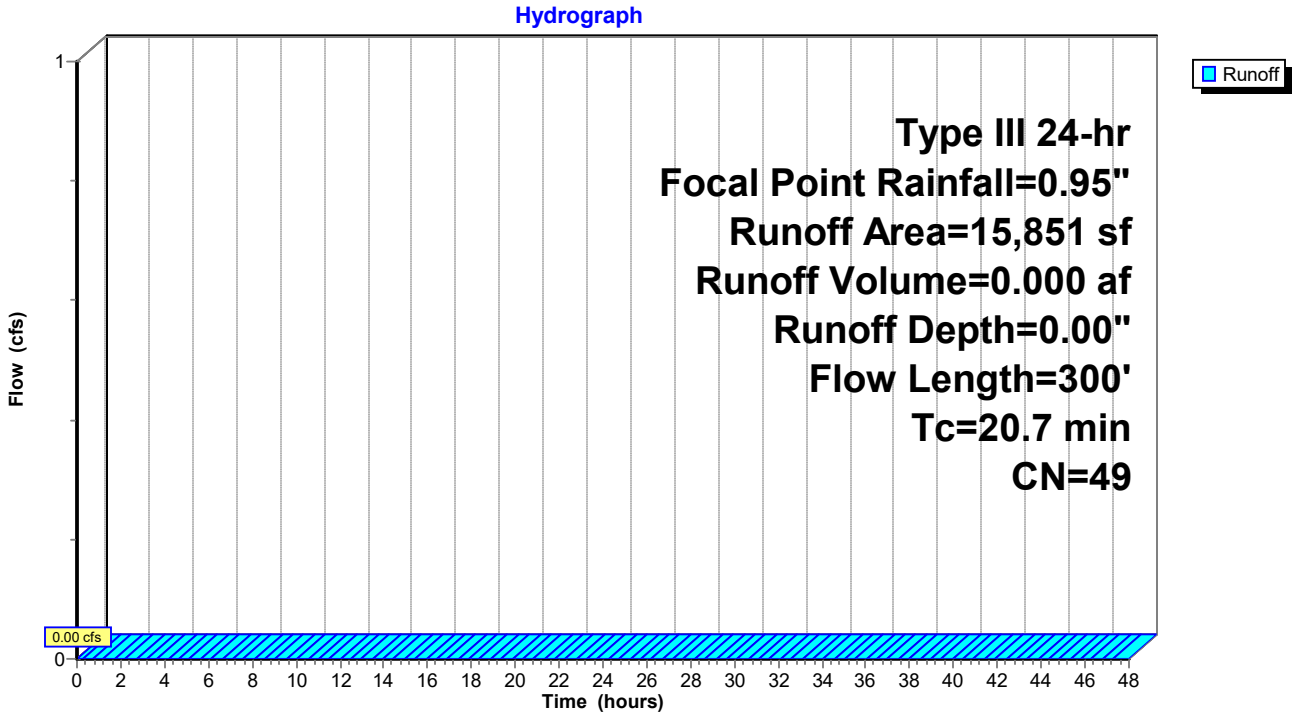
Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr Focal Point Rainfall=0.95"

Area (sf)	CN	Description
2,720	98	Paved parking, HSG A
13,131	39	>75% Grass cover, Good, HSG A
15,851	49	Weighted Average
13,131		82.84% Pervious Area
2,720		17.16% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.2	150	0.0100	0.14		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.10"
2.5	150	0.0200	0.99		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
20.7	300	Total			

Subcatchment 1S: Area 1



Summary for Subcatchment 2S: Area 2

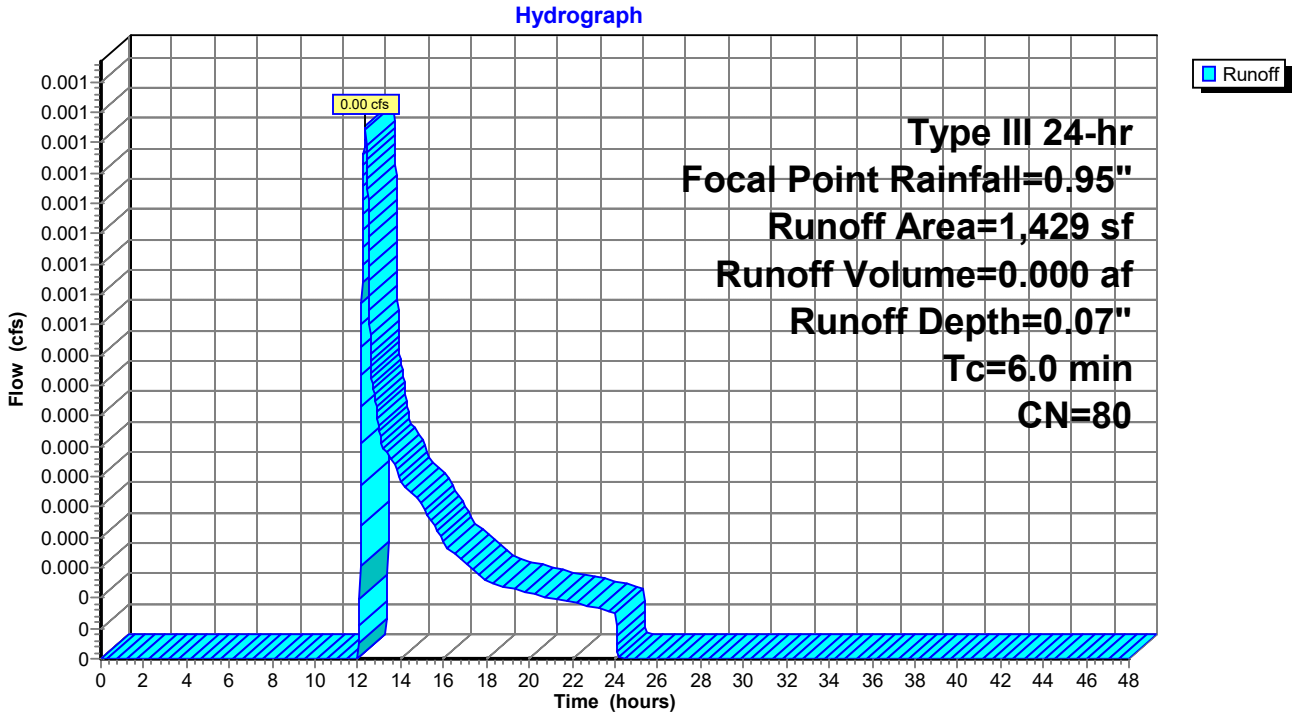
Runoff = 0.00 cfs @ 12.35 hrs, Volume= 0.000 af, Depth= 0.07"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr Focal Point Rainfall=0.95"

Area (sf)	CN	Description
428	39	>75% Grass cover, Good, HSG A
1,001	98	Paved parking, HSG A
1,429	80	Weighted Average
428		29.95% Pervious Area
1,001		70.05% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 2S: Area 2



Summary for Subcatchment 3S: Area to PP1

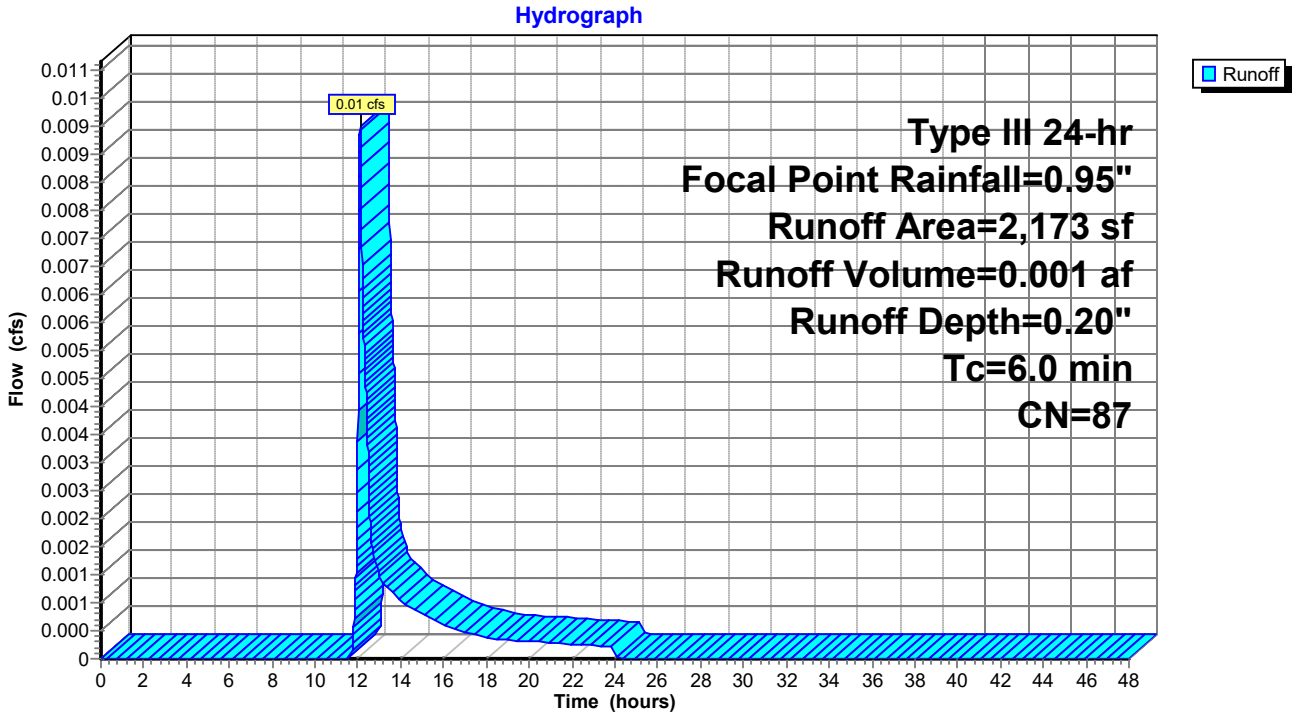
Runoff = 0.01 cfs @ 12.11 hrs, Volume= 0.001 af, Depth= 0.20"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr Focal Point Rainfall=0.95"

Area (sf)	CN	Description
400	39	>75% Grass cover, Good, HSG A
1,773	98	Paved parking, HSG A
2,173	87	Weighted Average
400		18.41% Pervious Area
1,773		81.59% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 3S: Area to PP1



Summary for Subcatchment 4S: Area to PP2

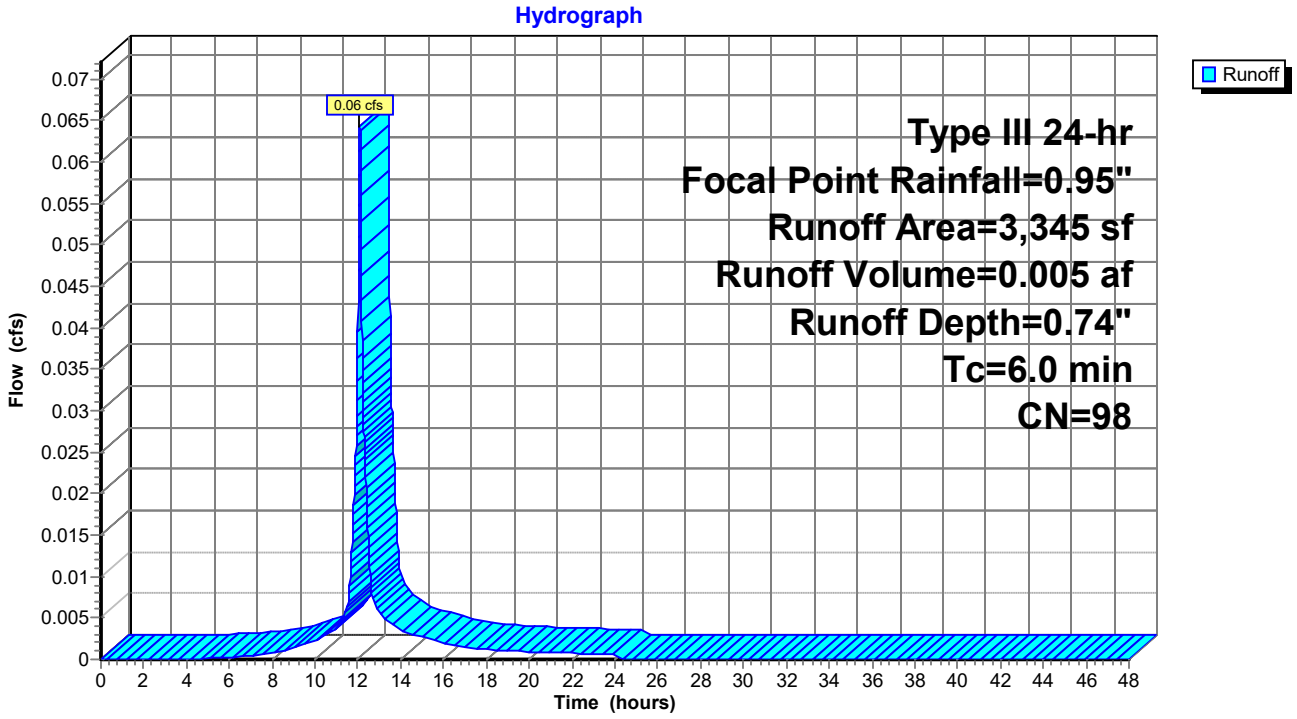
Runoff = 0.06 cfs @ 12.08 hrs, Volume= 0.005 af, Depth= 0.74"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr Focal Point Rainfall=0.95"

Area (sf)	CN	Description
3,345	98	Paved parking, HSG A
3,345		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 4S: Area to PP2



Summary for Subcatchment 5S: Area to Rain Garden East

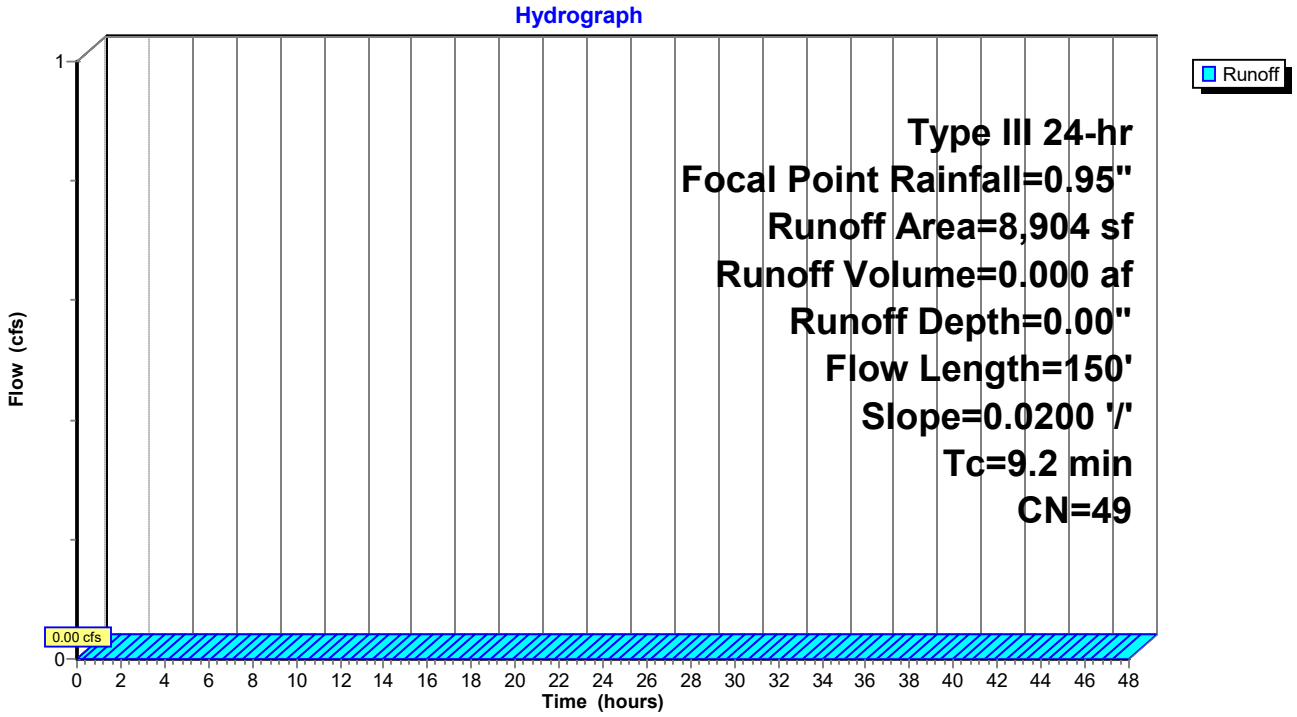
Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr Focal Point Rainfall=0.95"

	Area (sf)	CN	Description
*	1,555	98	
	7,349	39	>75% Grass cover, Good, HSG A
	8,904	49	Weighted Average
	7,349		82.54% Pervious Area
	1,555		17.46% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.9	75	0.0200	0.16		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.10"
1.3	75	0.0200	0.99		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
9.2	150	Total			

Subcatchment 5S: Area to Rain Garden East



Summary for Subcatchment 6S: Bldg 1 Roof

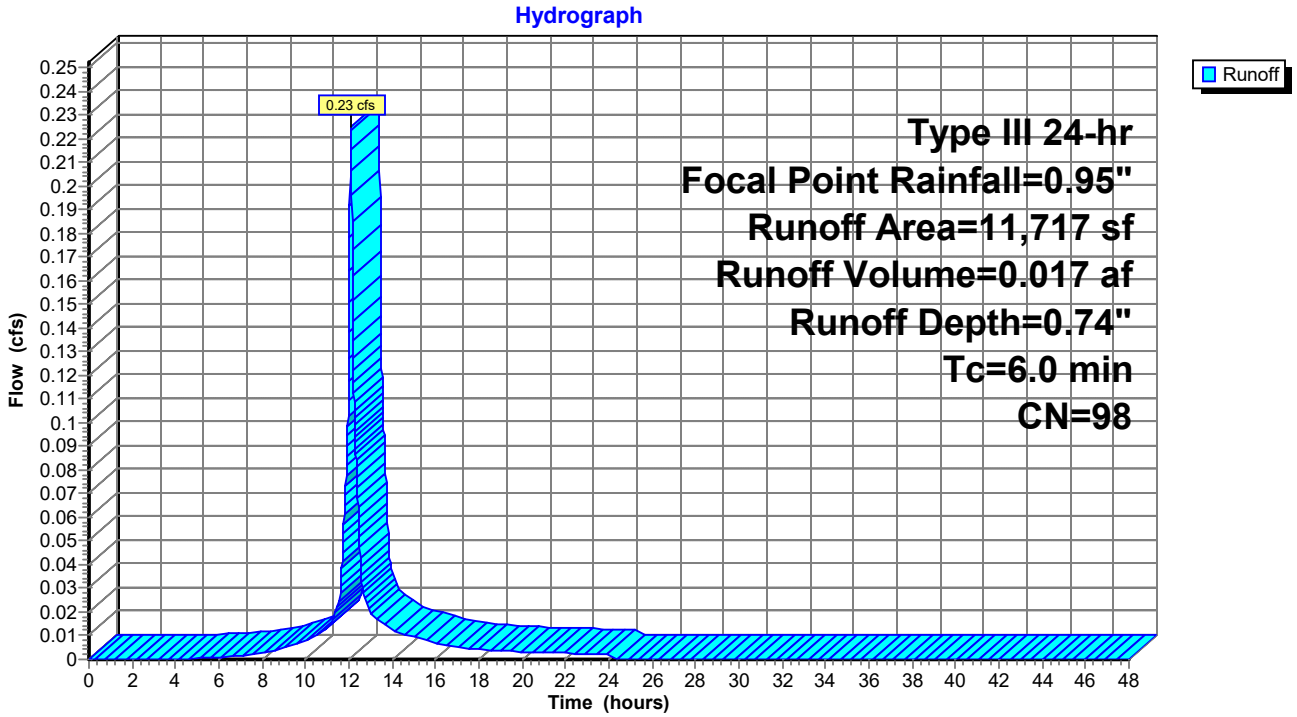
Runoff = 0.23 cfs @ 12.08 hrs, Volume= 0.017 af, Depth= 0.74"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr Focal Point Rainfall=0.95"

Area (sf)	CN	Description
11,717	98	Roofs, HSG A
11,717		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 6S: Bldg 1 Roof



Summary for Subcatchment 7S: Area to Rain Garden West

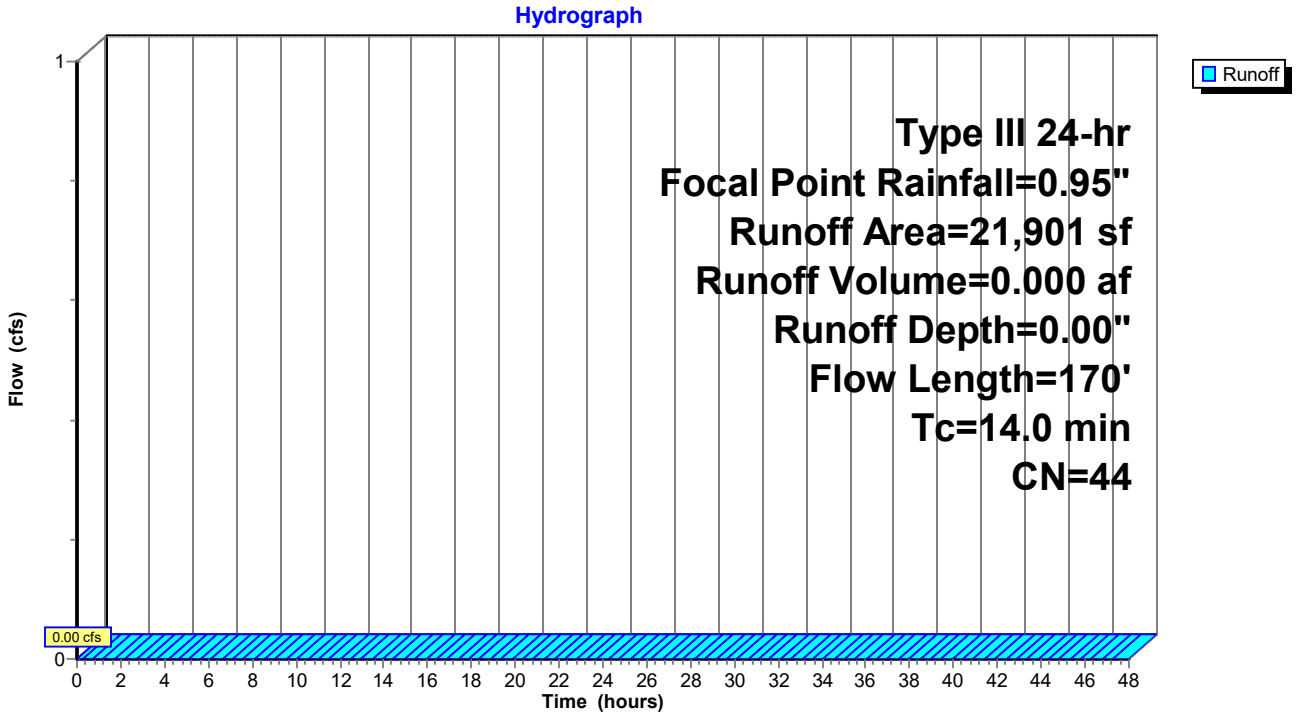
Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr Focal Point Rainfall=0.95"

Area (sf)	CN	Description
1,750	98	Paved parking, HSG A
20,151	39	>75% Grass cover, Good, HSG A
21,901	44	Weighted Average
20,151		92.01% Pervious Area
1,750		7.99% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.8	150	0.0200	0.18		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.10"
0.2	20	0.0600	1.71		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
14.0	170	Total			

Subcatchment 7S: Area to Rain Garden West



Summary for Subcatchment 9S:

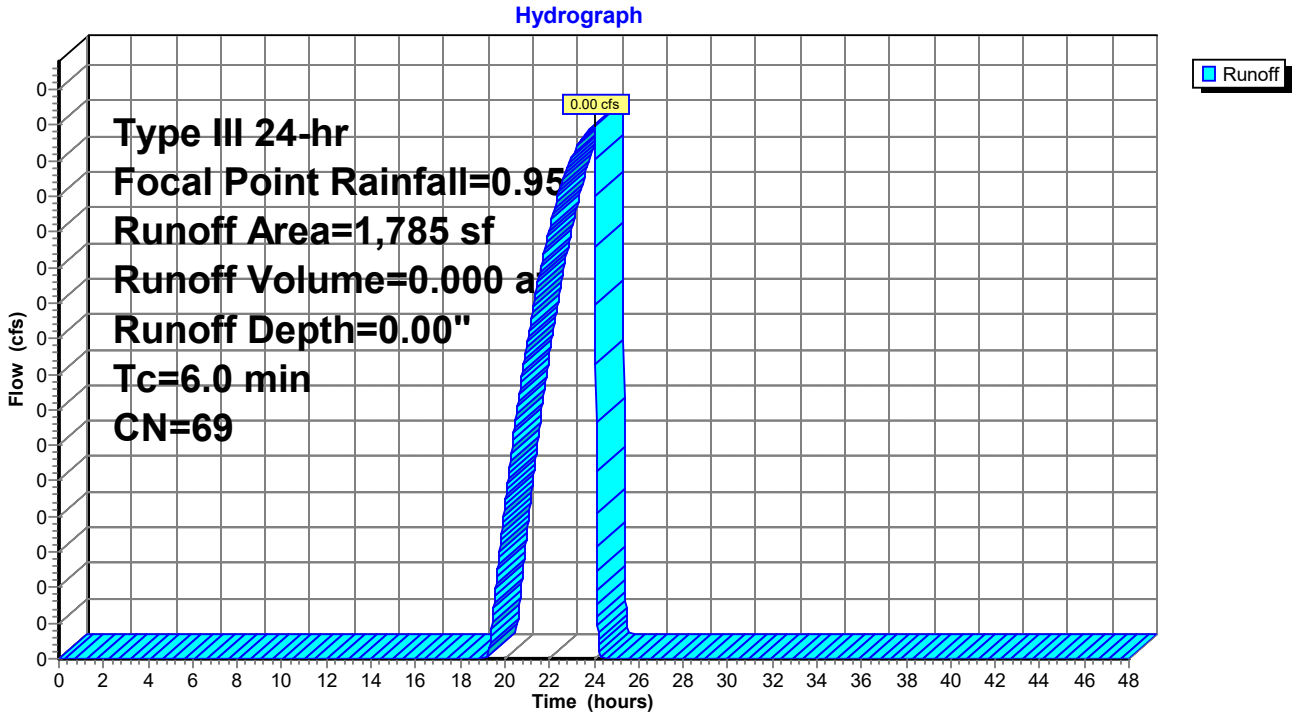
Runoff = 0.00 cfs @ 24.01 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr Focal Point Rainfall=0.95"

Area (sf)	CN	Description
875	39	>75% Grass cover, Good, HSG A
910	98	Paved parking, HSG A
1,785	69	Weighted Average
875		49.02% Pervious Area
910		50.98% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 9S:



Summary for Subcatchment 10S:

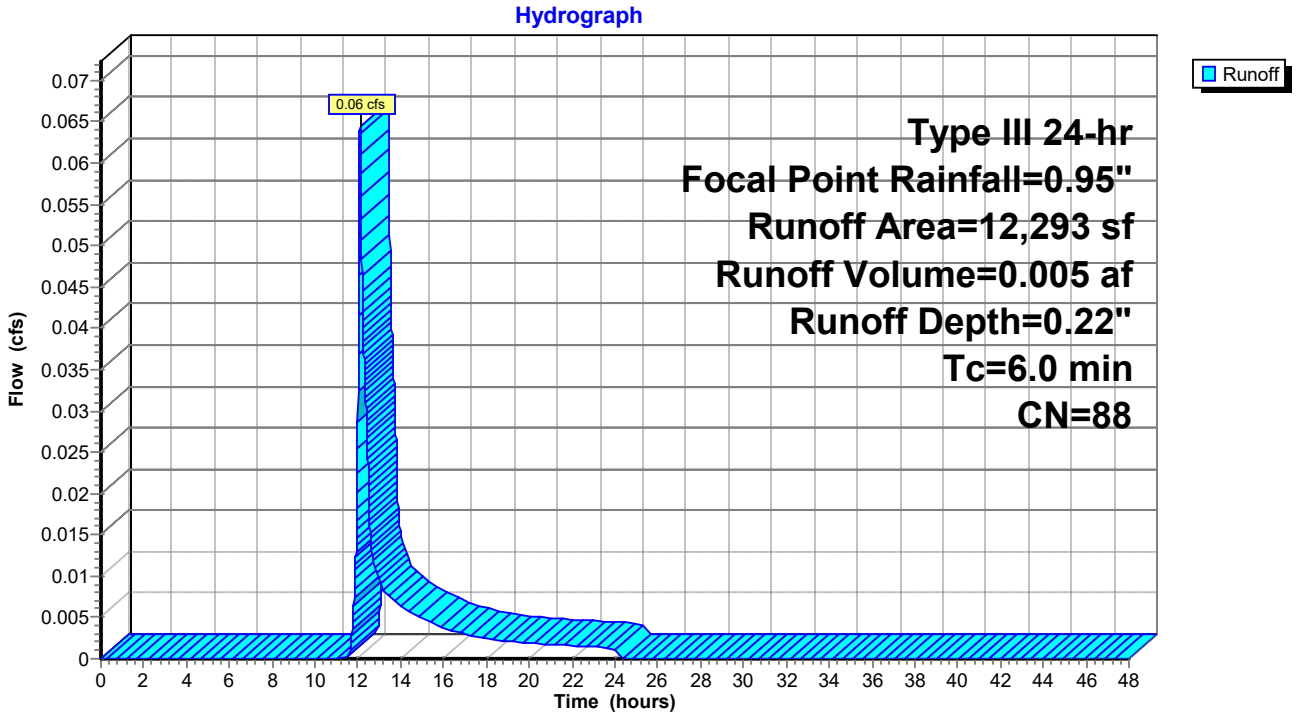
Runoff = 0.06 cfs @ 12.10 hrs, Volume= 0.005 af, Depth= 0.22"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr Focal Point Rainfall=0.95"

Area (sf)	CN	Description
10,120	98	Paved parking & roofs
2,173	39	>75% Grass cover, Good, HSG A
12,293	88	Weighted Average
2,173		17.68% Pervious Area
10,120		82.32% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum Tc**

Subcatchment 10S:



Summary for Subcatchment 11S: Area to Rain Garden 2

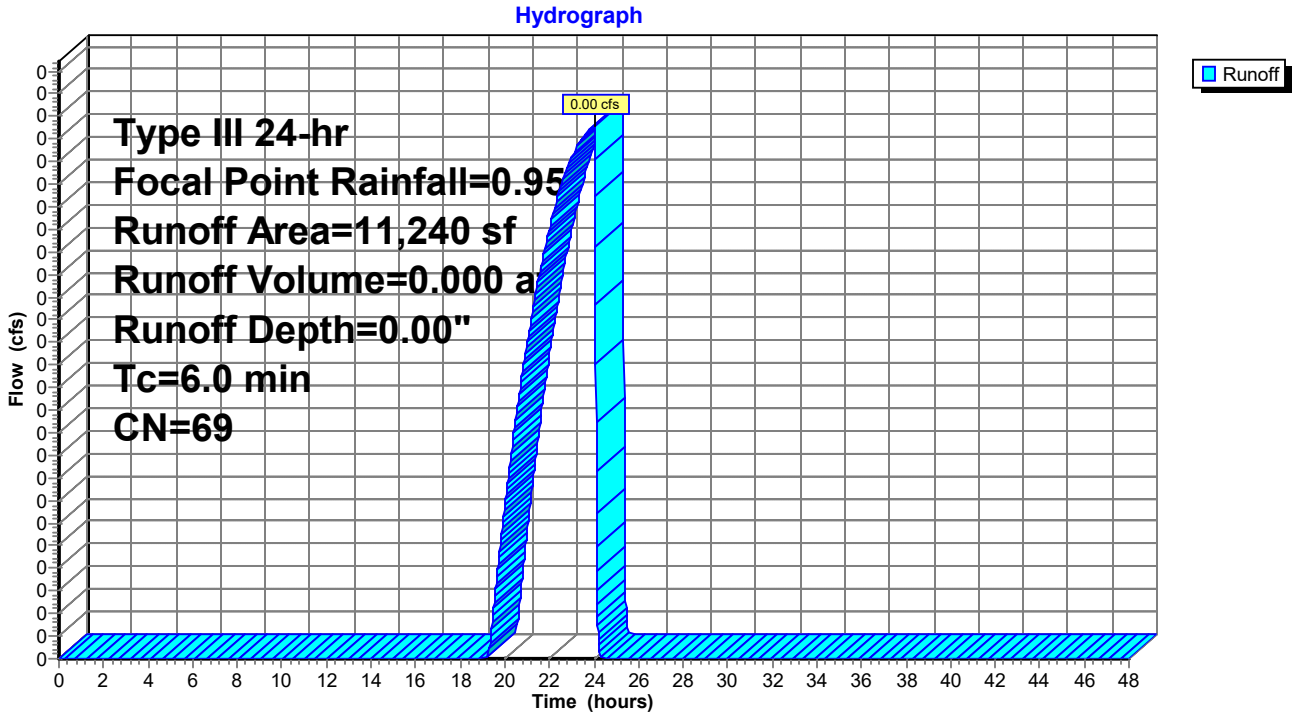
Runoff = 0.00 cfs @ 24.01 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr Focal Point Rainfall=0.95"

Area (sf)	CN	Description
5,795	98	Paved parking & roofs
5,445	39	>75% Grass cover, Good, HSG A
11,240	69	Weighted Average
5,445		48.44% Pervious Area
5,795		51.56% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum Tc**

Subcatchment 11S: Area to Rain Garden 2



Summary for Subcatchment 12S: Area to Rain Garden 1

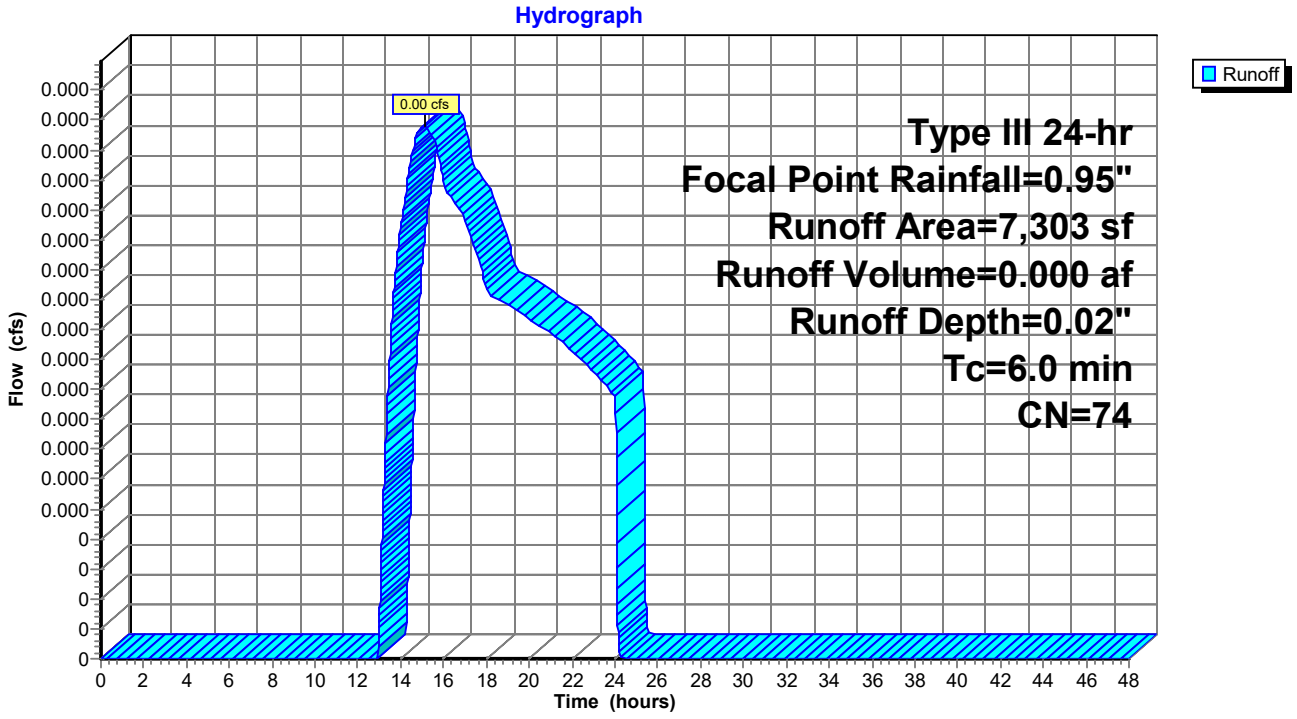
Runoff = 0.00 cfs @ 15.10 hrs, Volume= 0.000 af, Depth= 0.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr Focal Point Rainfall=0.95"

Area (sf)	CN	Description
4,299	98	Paved parking & roofs
3,004	39	>75% Grass cover, Good, HSG A
7,303	74	Weighted Average
3,004		41.13% Pervious Area
4,299		58.87% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum Tc**

Subcatchment 12S: Area to Rain Garden 1



Summary for Subcatchment 13S: Area to Infiltration Trench

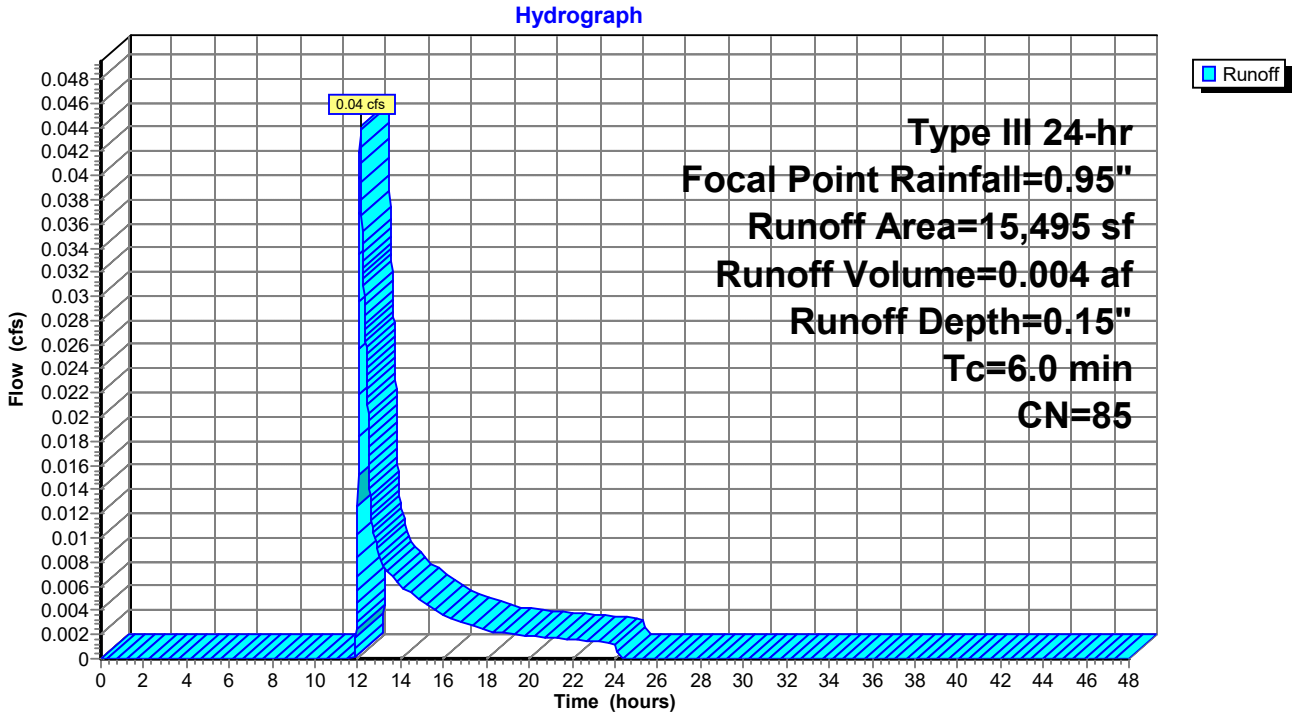
Runoff = 0.04 cfs @ 12.11 hrs, Volume= 0.004 af, Depth= 0.15"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr Focal Point Rainfall=0.95"

Area (sf)	CN	Description
12,004	98	Paved parking & roofs
3,491	39	>75% Grass cover, Good, HSG A
15,495	85	Weighted Average
3,491		22.53% Pervious Area
12,004		77.47% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum Tc**

Subcatchment 13S: Area to Infiltration Trench



Summary for Subcatchment 14S: Roof Area to Drip Strip 4

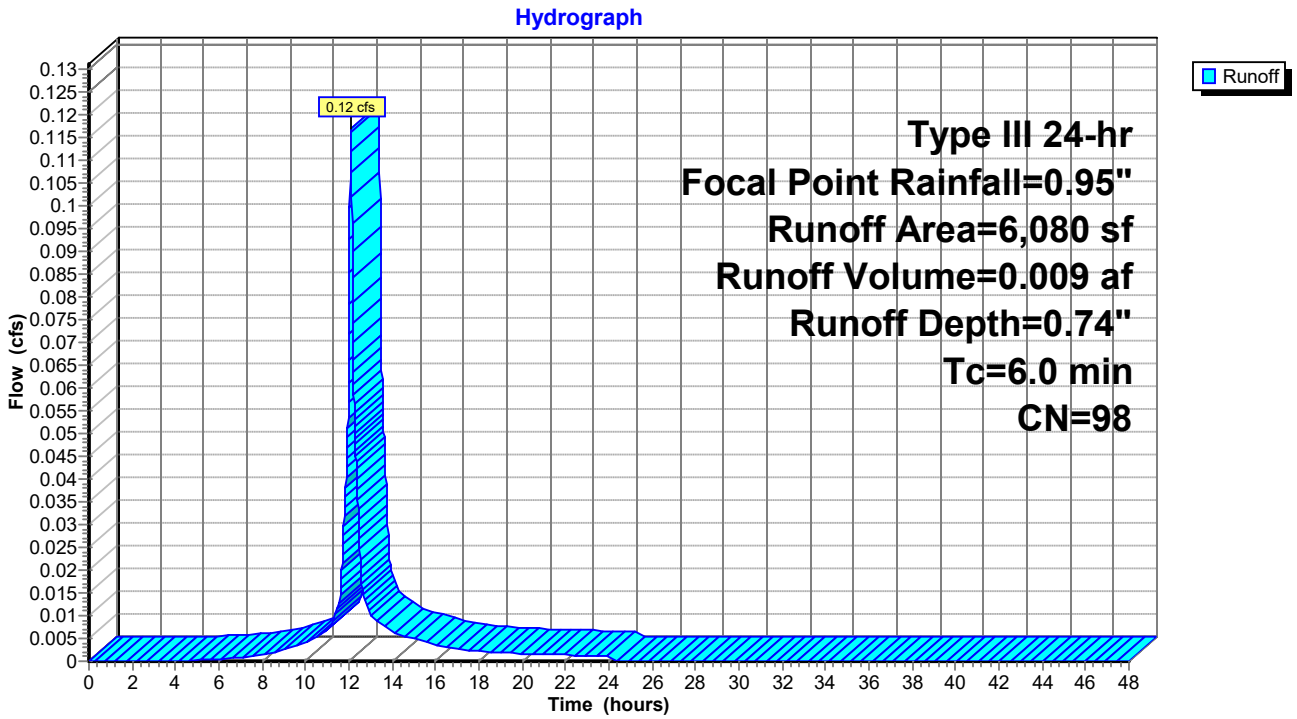
Runoff = 0.12 cfs @ 12.08 hrs, Volume= 0.009 af, Depth= 0.74"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr Focal Point Rainfall=0.95"

	Area (sf)	CN	Description
*	6,080	98	Roofs
*	0	76	Drip stone, HSG A
	6,080	98	Weighted Average
	6,080		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum Tc**

Subcatchment 14S: Roof Area to Drip Strip 4



Summary for Subcatchment 15S: Roof Area to Drip Strip 1

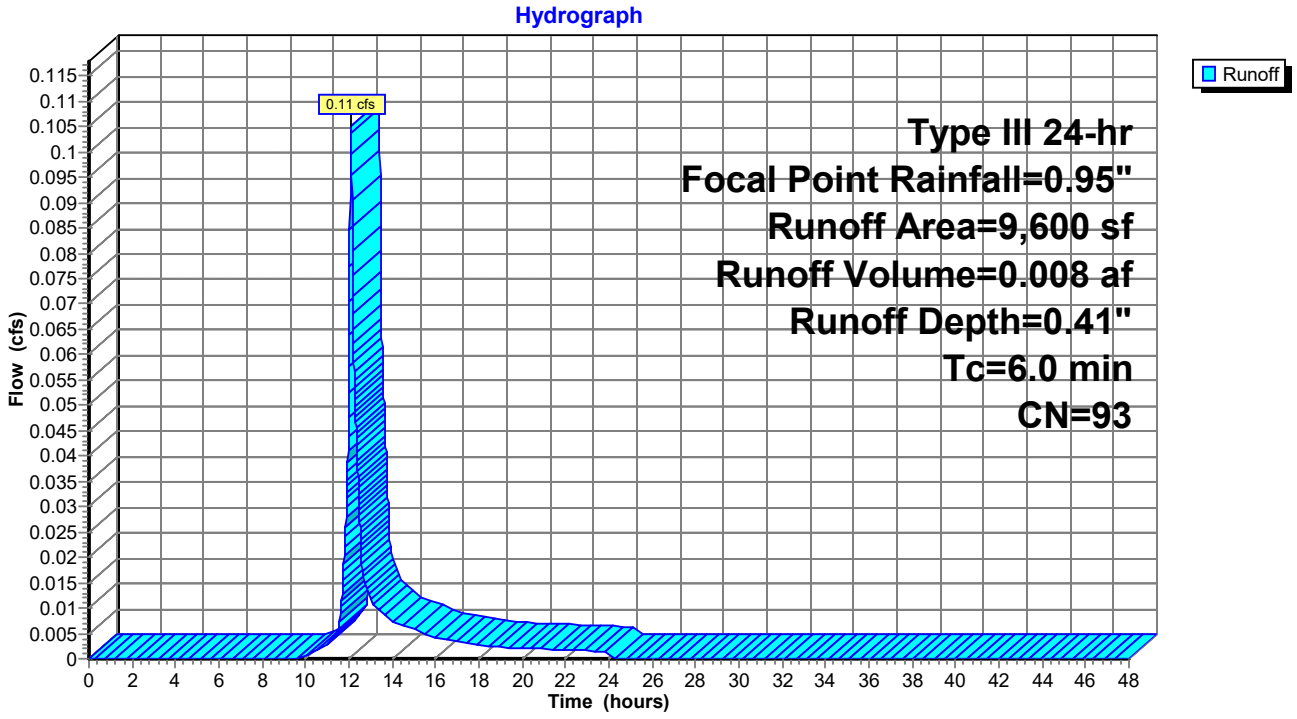
Runoff = 0.11 cfs @ 12.09 hrs, Volume= 0.008 af, Depth= 0.41"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr Focal Point Rainfall=0.95"

	Area (sf)	CN	Description
*	7,600	98	Roofs
*	2,000	76	Drip stone, HSG A
	9,600	93	Weighted Average
	2,000		20.83% Pervious Area
	7,600		79.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum Tc**

Subcatchment 15S: Roof Area to Drip Strip 1



Summary for Subcatchment 16S: Roof Area to Drip Strip 2

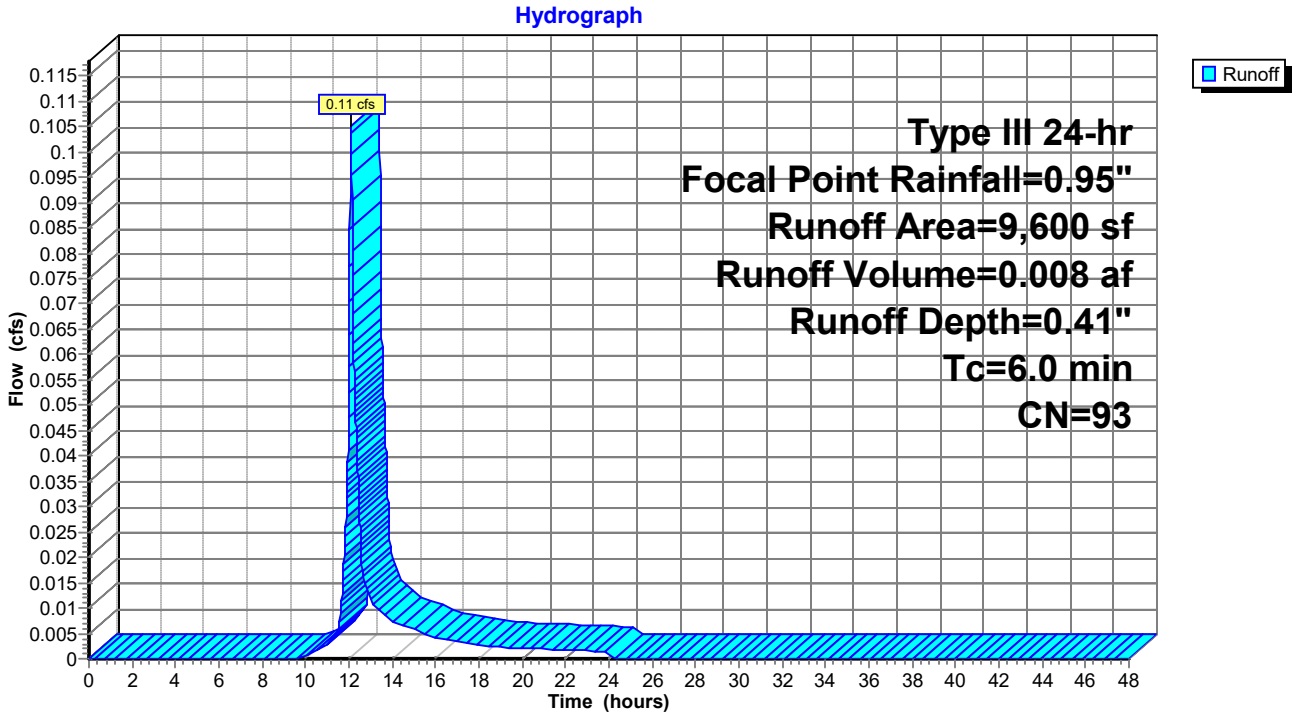
Runoff = 0.11 cfs @ 12.09 hrs, Volume= 0.008 af, Depth= 0.41"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr Focal Point Rainfall=0.95"

	Area (sf)	CN	Description
*	7,600	98	Roofs
*	2,000	76	Drip stone, HSG A
	9,600	93	Weighted Average
	2,000		20.83% Pervious Area
	7,600		79.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum Tc**

Subcatchment 16S: Roof Area to Drip Strip 2



Summary for Subcatchment 17S: Roof Area to Drip Strip 3

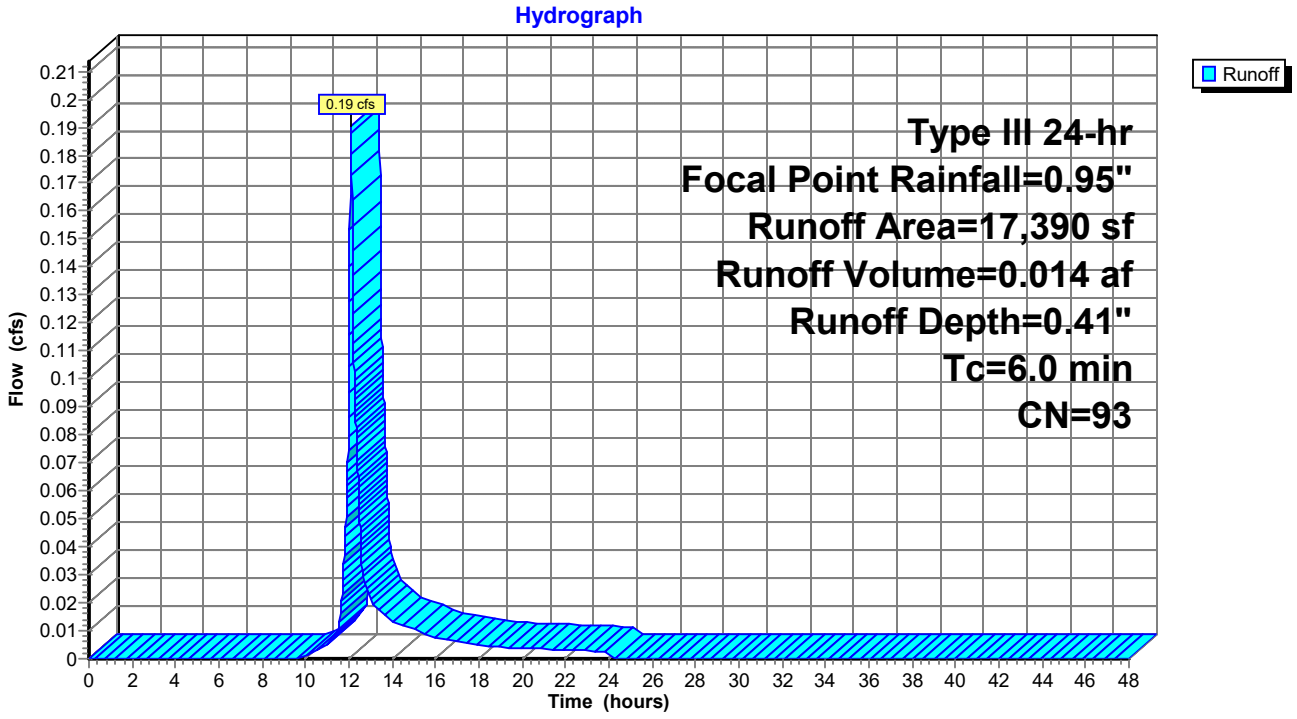
Runoff = 0.19 cfs @ 12.09 hrs, Volume= 0.014 af, Depth= 0.41"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr Focal Point Rainfall=0.95"

	Area (sf)	CN	Description
*	13,270	98	Roofs
*	4,120	76	Drip stone, HSG A
	17,390	93	Weighted Average
	4,120		23.69% Pervious Area
	13,270		76.31% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum Tc**

Subcatchment 17S: Roof Area to Drip Strip 3



Summary for Subcatchment 18S: North of Mother House

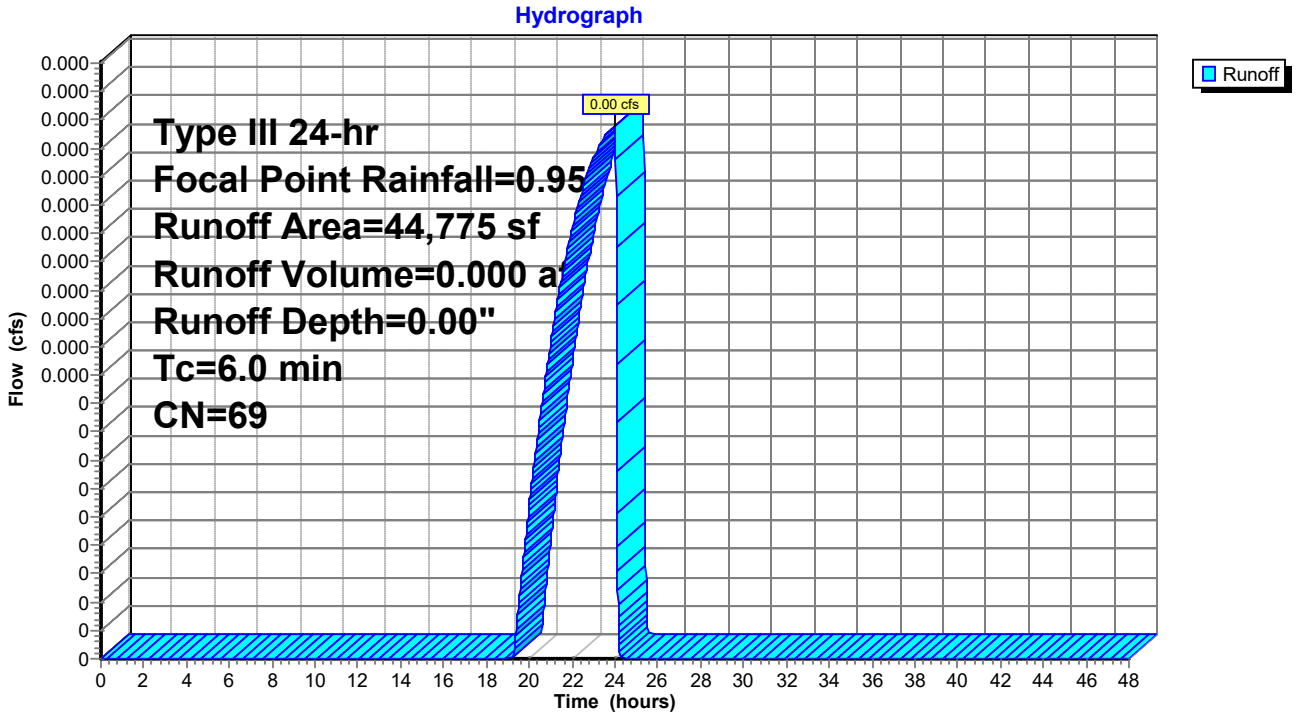
Runoff = 0.00 cfs @ 24.01 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr Focal Point Rainfall=0.95"

Area (sf)	CN	Description
21,975	39	>75% Grass cover, Good, HSG A
22,800	98	Paved parking, HSG A
44,775	69	Weighted Average
21,975		49.08% Pervious Area
22,800		50.92% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 18S: North of Mother House



Summary for Subcatchment 19A: St. Josephs

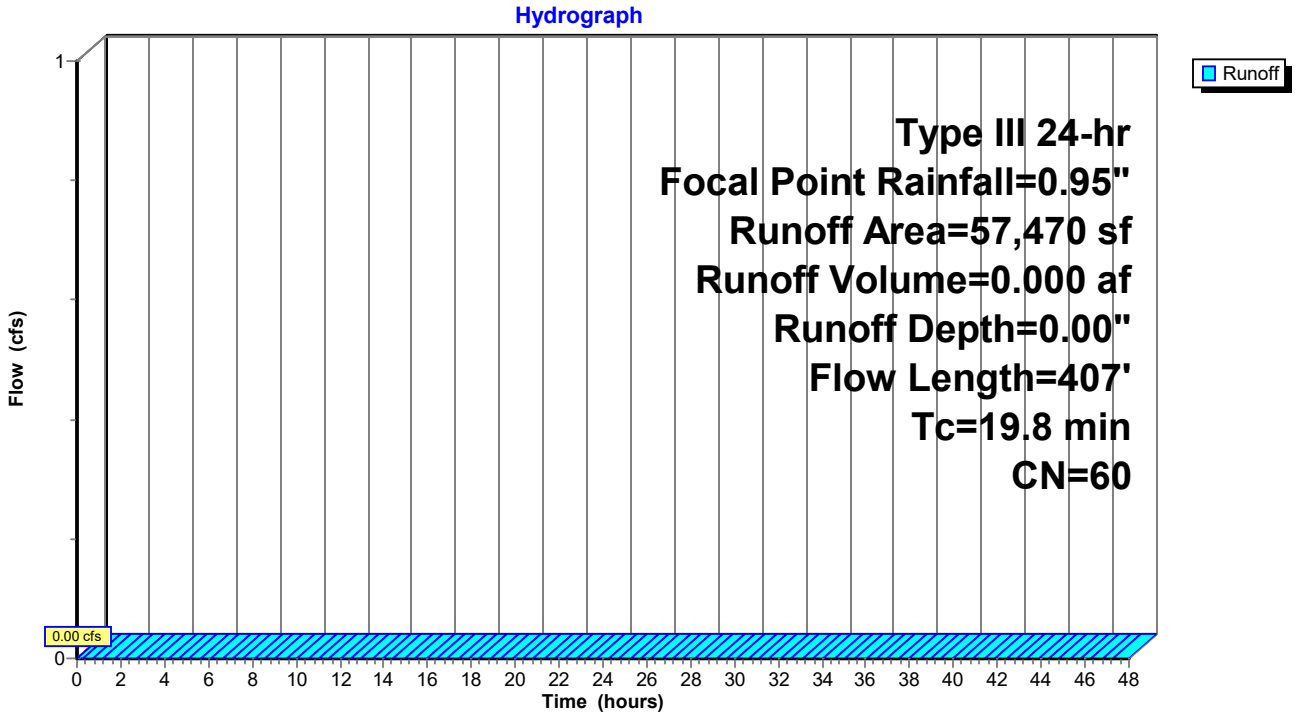
Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr Focal Point Rainfall=0.95"

	Area (sf)	CN	Description
*	20,155	98	Impervious
	37,315	39	>75% Grass cover, Good, HSG A
	57,470	60	Weighted Average
	37,315		64.93% Pervious Area
	20,155		35.07% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.6	122	0.0160	0.11		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.10"
1.2	285	0.0064	3.93	3.09	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Corrugated PP, smooth interior
19.8	407	Total			

Subcatchment 19A: St. Josephs



Summary for Subcatchment 20A: North Parking - West

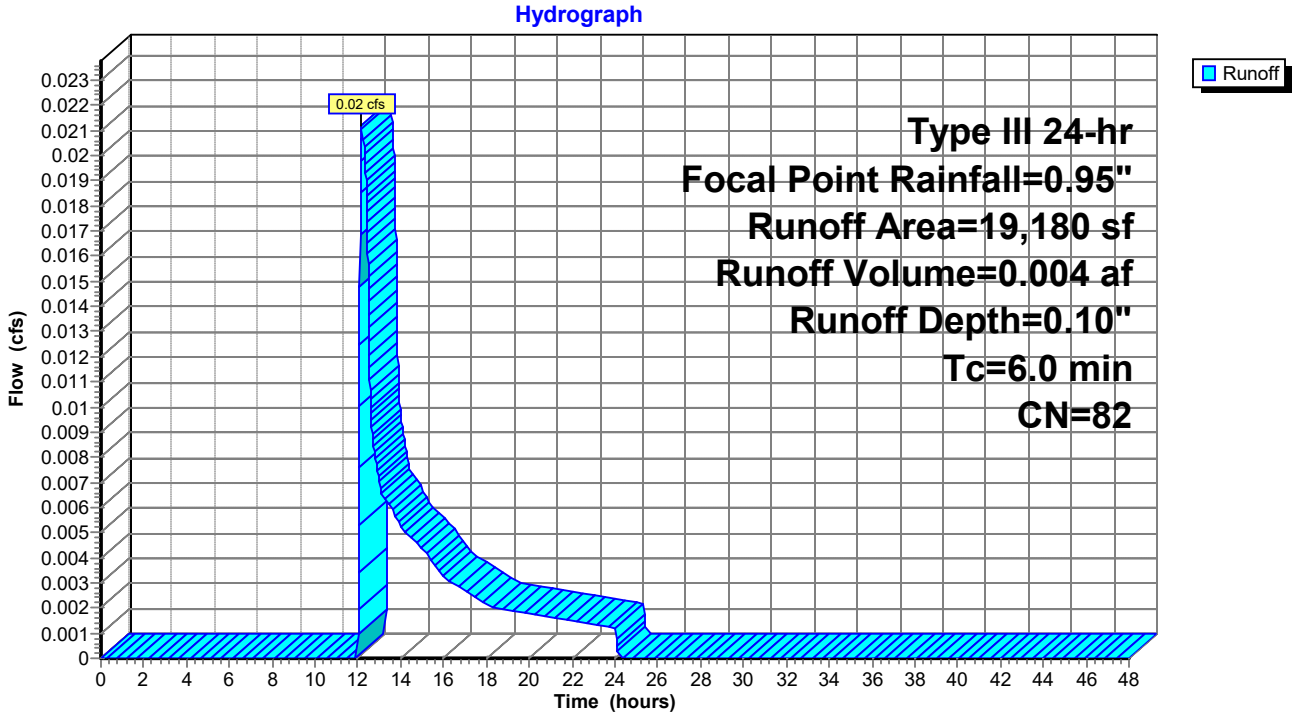
Runoff = 0.02 cfs @ 12.15 hrs, Volume= 0.004 af, Depth= 0.10"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr Focal Point Rainfall=0.95"

	Area (sf)	CN	Description
*	7,700	98	Paved parking, HSG A
*	6,156	98	Porous pavement
	5,324	39	>75% Grass cover, Good, HSG A
	19,180	82	Weighted Average
	5,324		27.76% Pervious Area
	13,856		72.24% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 20A: North Parking - West



Summary for Subcatchment 20B: North Parking - East

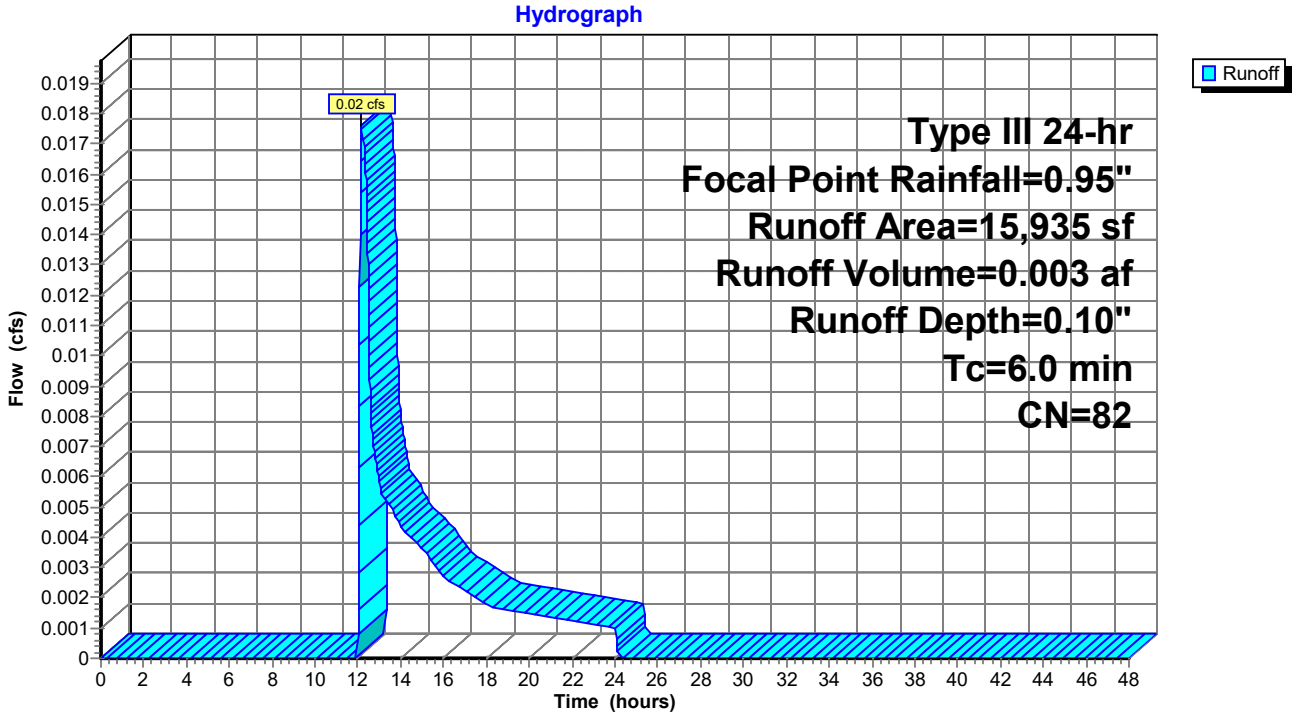
Runoff = 0.02 cfs @ 12.15 hrs, Volume= 0.003 af, Depth= 0.10"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr Focal Point Rainfall=0.95"

	Area (sf)	CN	Description
*	6,380	98	Paved parking, HSG A
*	5,346	98	Porous pavement
	4,209	39	>75% Grass cover, Good, HSG A
	15,935	82	Weighted Average
	4,209		26.41% Pervious Area
	11,726		73.59% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 20B: North Parking - East



Summary for Subcatchment 21A: Building 5

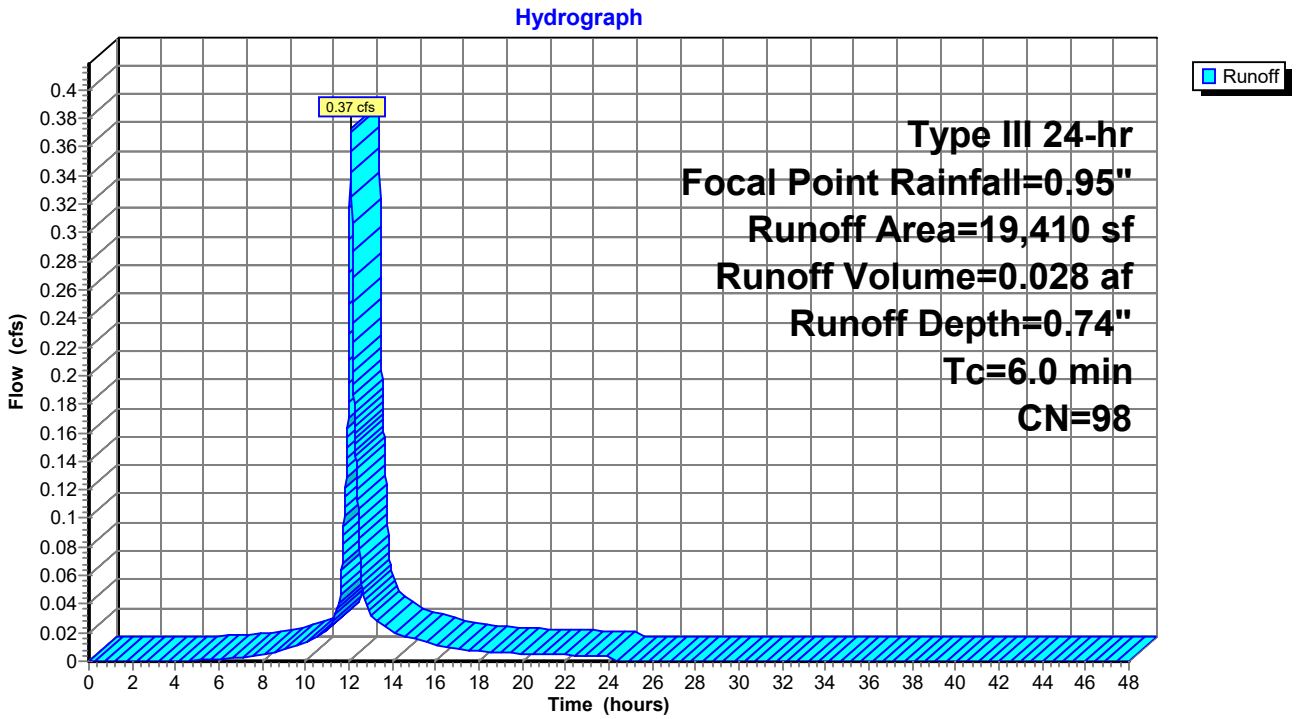
Runoff = 0.37 cfs @ 12.08 hrs, Volume= 0.028 af, Depth= 0.74"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr Focal Point Rainfall=0.95"

	Area (sf)	CN	Description
*	19,410	98	Roof & Sidewalk
	0	39	>75% Grass cover, Good, HSG A
	19,410	98	Weighted Average
	19,410		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 21A: Building 5



Summary for Subcatchment 21B: Buiding 4

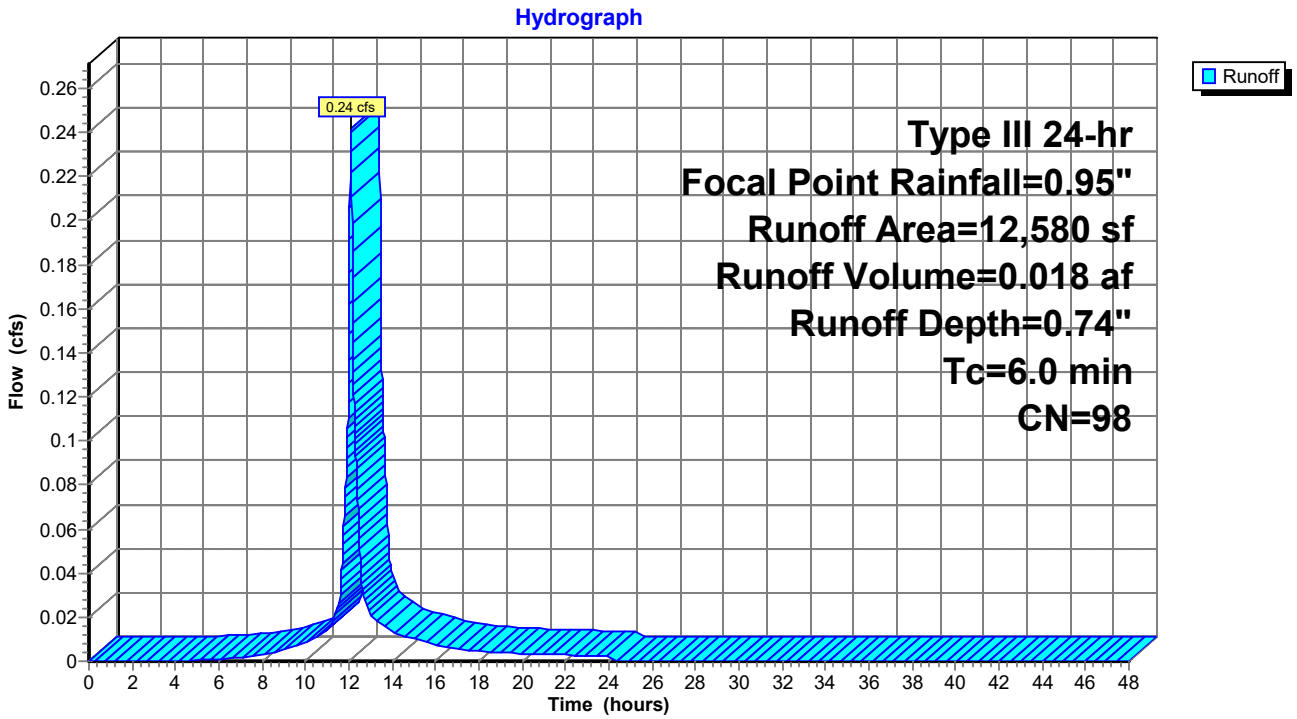
Runoff = 0.24 cfs @ 12.08 hrs, Volume= 0.018 af, Depth= 0.74"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr Focal Point Rainfall=0.95"

	Area (sf)	CN	Description
*	12,580	98	Roof & Sidewalk
	0	39	>75% Grass cover, Good, HSG A
	12,580	98	Weighted Average
	12,580		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 21B: Buiding 4



Summary for Subcatchment 22A: The Common

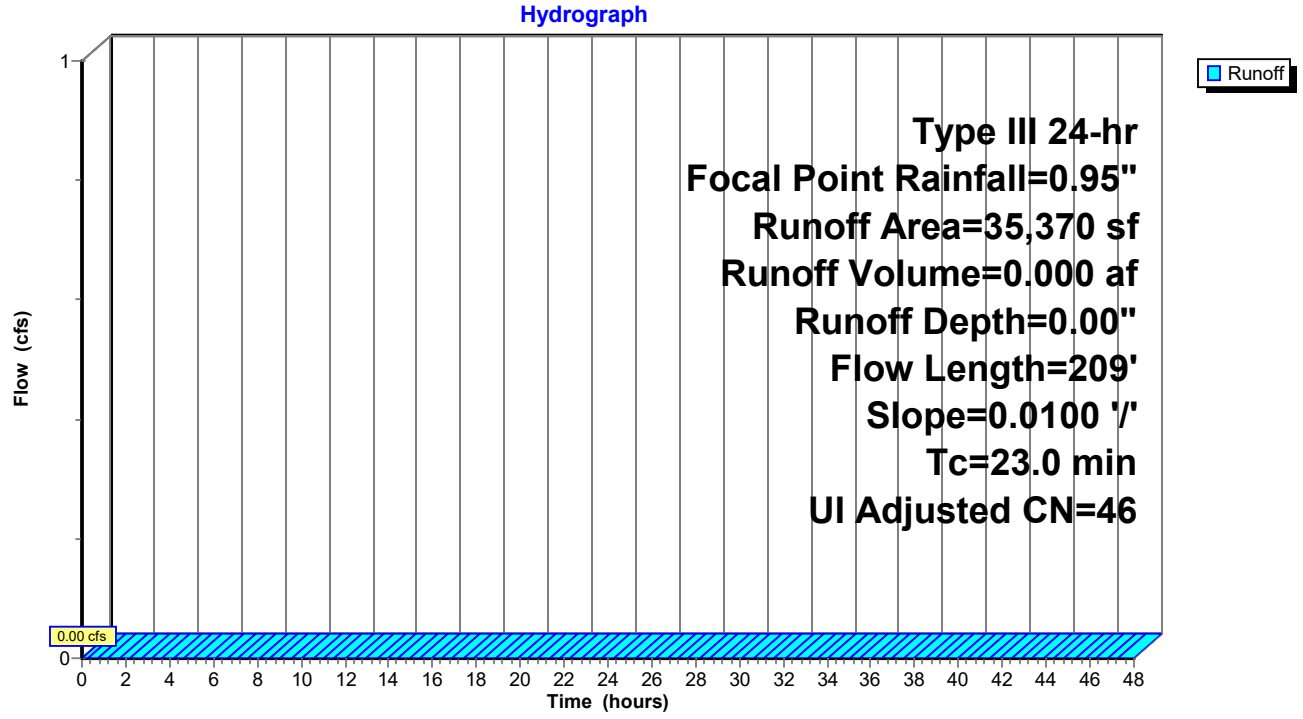
Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr Focal Point Rainfall=0.95"

Area (sf)	CN	Adj	Description
8,175	98		Unconnected pavement, HSG A
27,195	39		>75% Grass cover, Good, HSG A
35,370	53	46	Weighted Average, UI Adjusted
27,195			76.89% Pervious Area
8,175			23.11% Impervious Area
8,175			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.1	120	0.0100	0.09		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.10"
0.1	15	0.0100	2.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.8	74	0.0100	1.50		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
23.0	209	Total			

Subcatchment 22A: The Common



Summary for Subcatchment 22B: Detention Pond 1

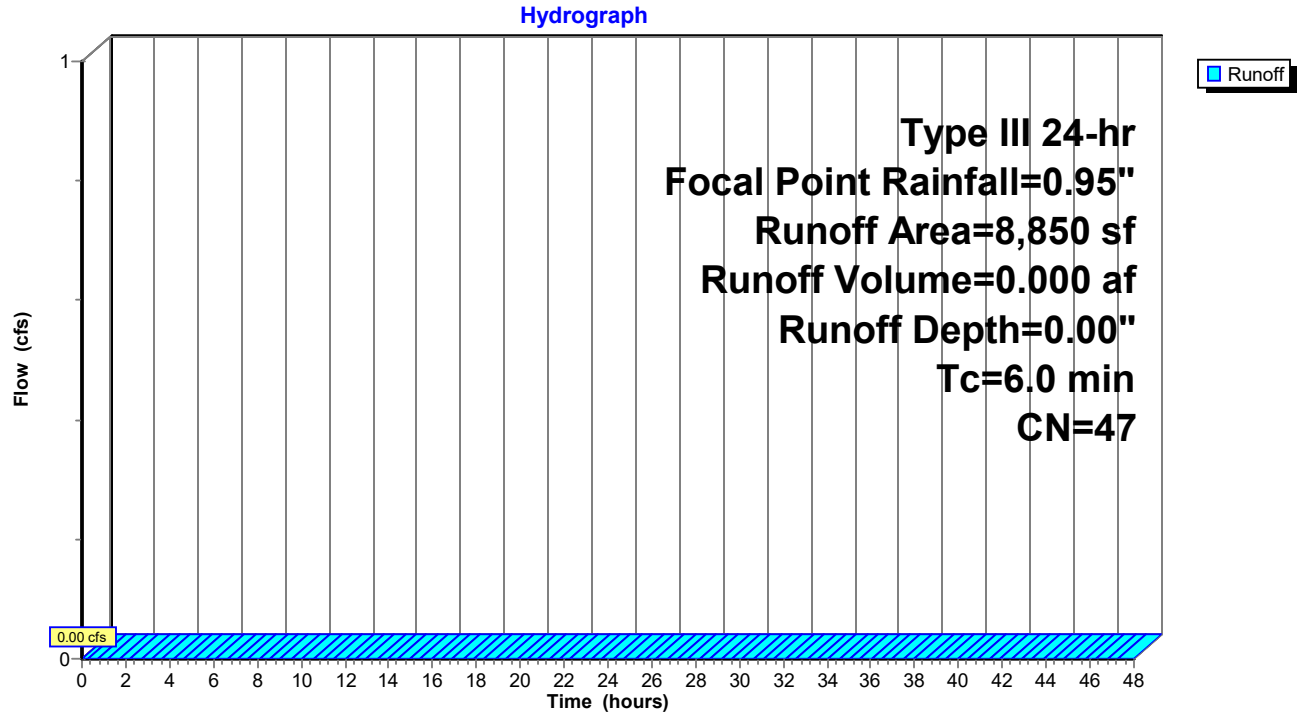
Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr Focal Point Rainfall=0.95"

	Area (sf)	CN	Description
*	1,185	98	Walkways
	7,665	39	>75% Grass cover, Good, HSG A
	8,850	47	Weighted Average
	7,665		86.61% Pervious Area
	1,185		13.39% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 22B: Detention Pond 1



Summary for Subcatchment 23A: South Parking - West

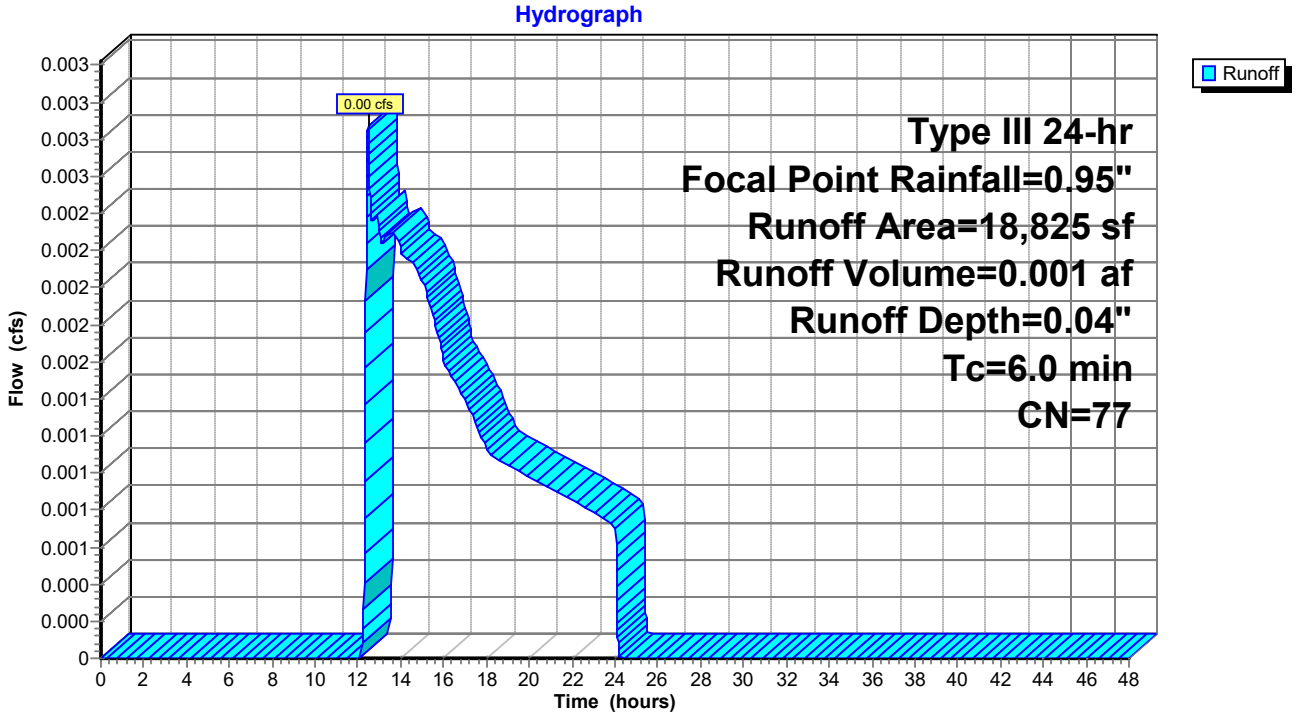
Runoff = 0.00 cfs @ 12.48 hrs, Volume= 0.001 af, Depth= 0.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr Focal Point Rainfall=0.95"

	Area (sf)	CN	Description
*	8,390	98	Paved parking, HSG A
*	3,744	98	Porous pavement
	6,691	39	>75% Grass cover, Good, HSG A
	18,825	77	Weighted Average
	6,691		35.54% Pervious Area
	12,134		64.46% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 23A: South Parking - West



Summary for Subcatchment 23B: South Parking - East

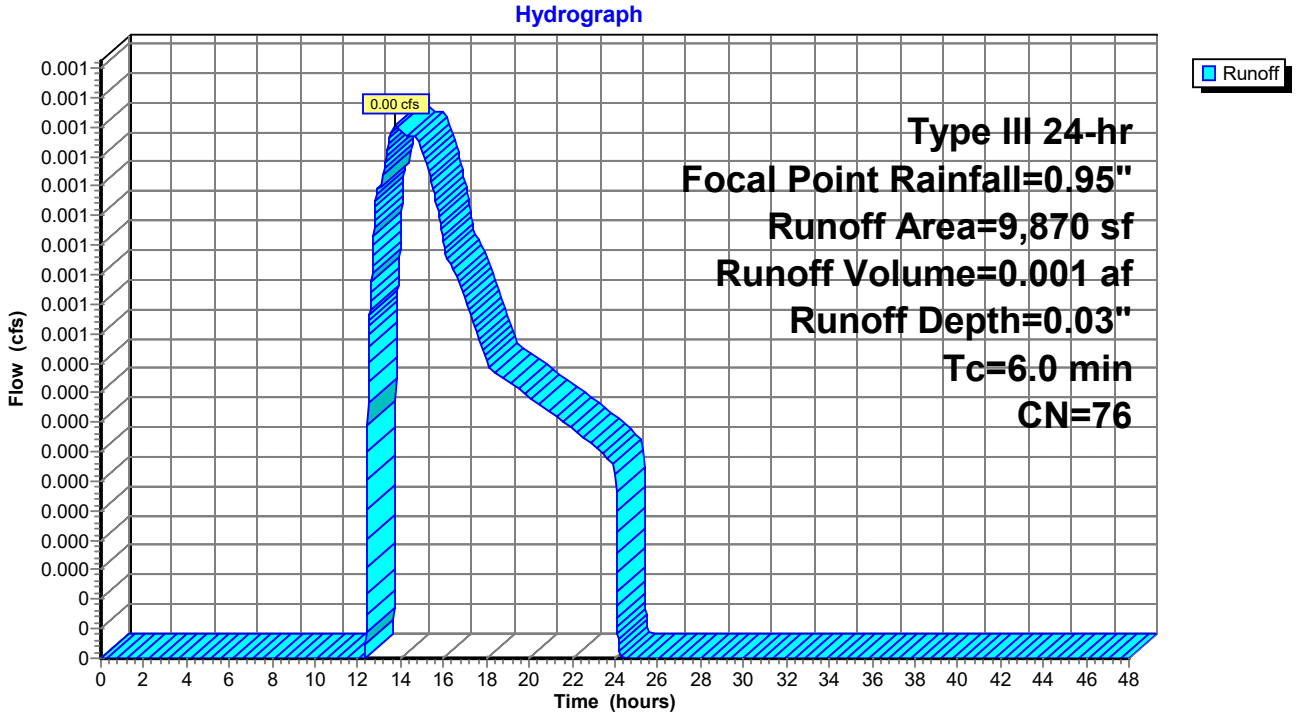
Runoff = 0.00 cfs @ 13.74 hrs, Volume= 0.001 af, Depth= 0.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr Focal Point Rainfall=0.95"

	Area (sf)	CN	Description
*	4,610	98	Paved parking, HSG A
*	1,620	98	Porous pavement
	3,640	39	>75% Grass cover, Good, HSG A
	9,870	76	Weighted Average
	3,640		36.88% Pervious Area
	6,230		63.12% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 23B: South Parking - East



Summary for Subcatchment 24A: Building 2

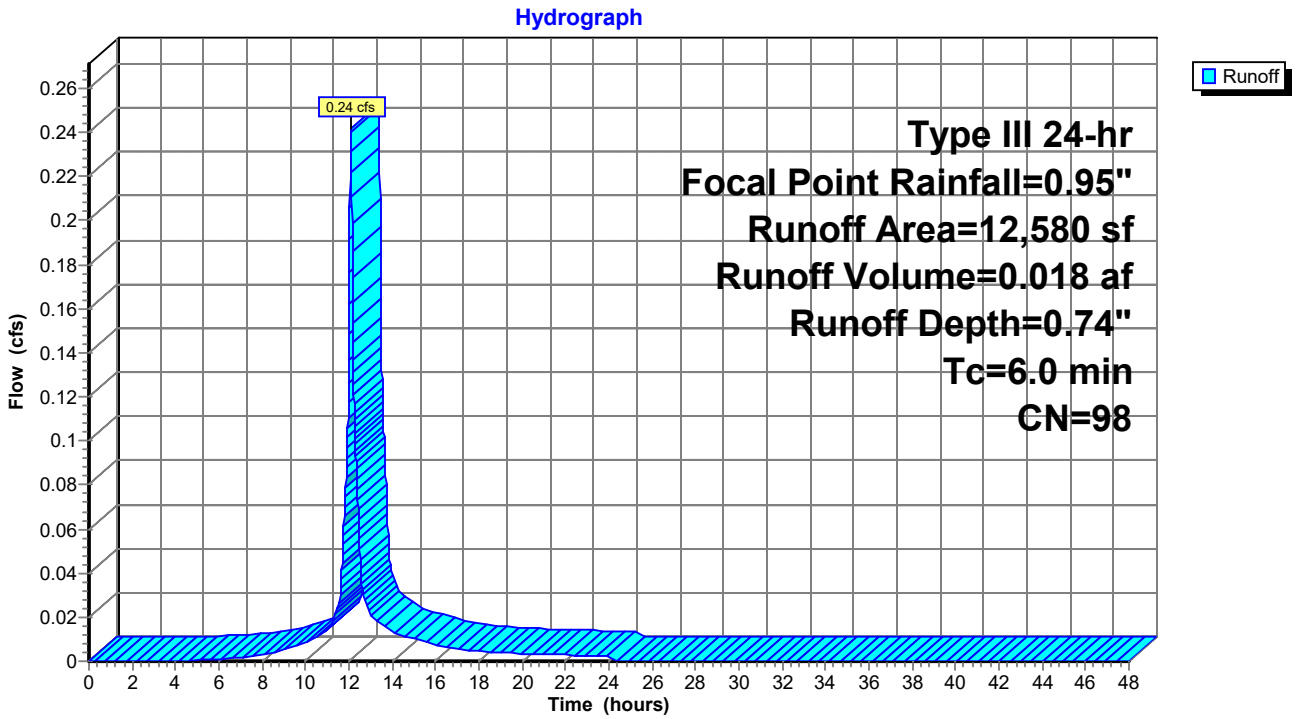
Runoff = 0.24 cfs @ 12.08 hrs, Volume= 0.018 af, Depth= 0.74"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr Focal Point Rainfall=0.95"

	Area (sf)	CN	Description
*	12,580	98	Roof & Pavement
	0	39	>75% Grass cover, Good, HSG A
	12,580	98	Weighted Average
	12,580		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 24A: Building 2



Summary for Subcatchment 24B: Building 3

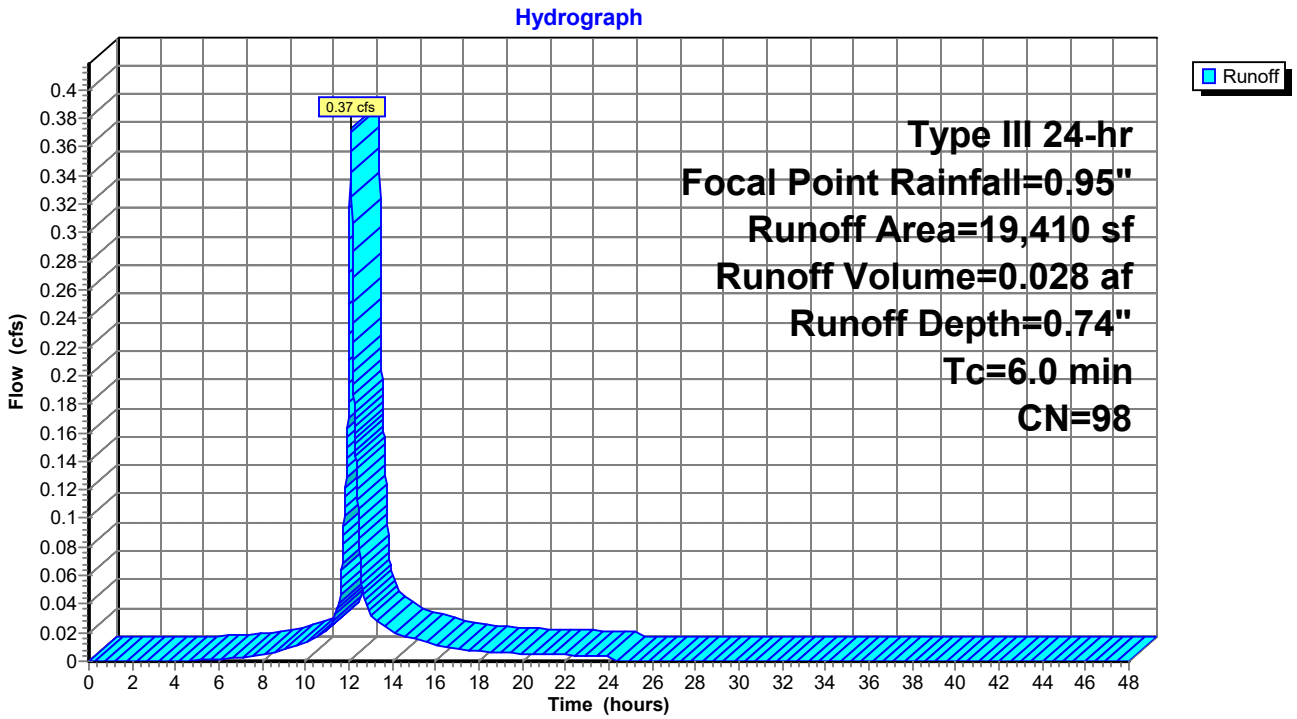
Runoff = 0.37 cfs @ 12.08 hrs, Volume= 0.028 af, Depth= 0.74"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr Focal Point Rainfall=0.95"

	Area (sf)	CN	Description
*	19,410	98	Roof & Sidewalk
	0	74	>75% Grass cover, Good, HSG C
	19,410	98	Weighted Average
	19,410		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 24B: Building 3



Summary for Subcatchment 25A: South of Building 2

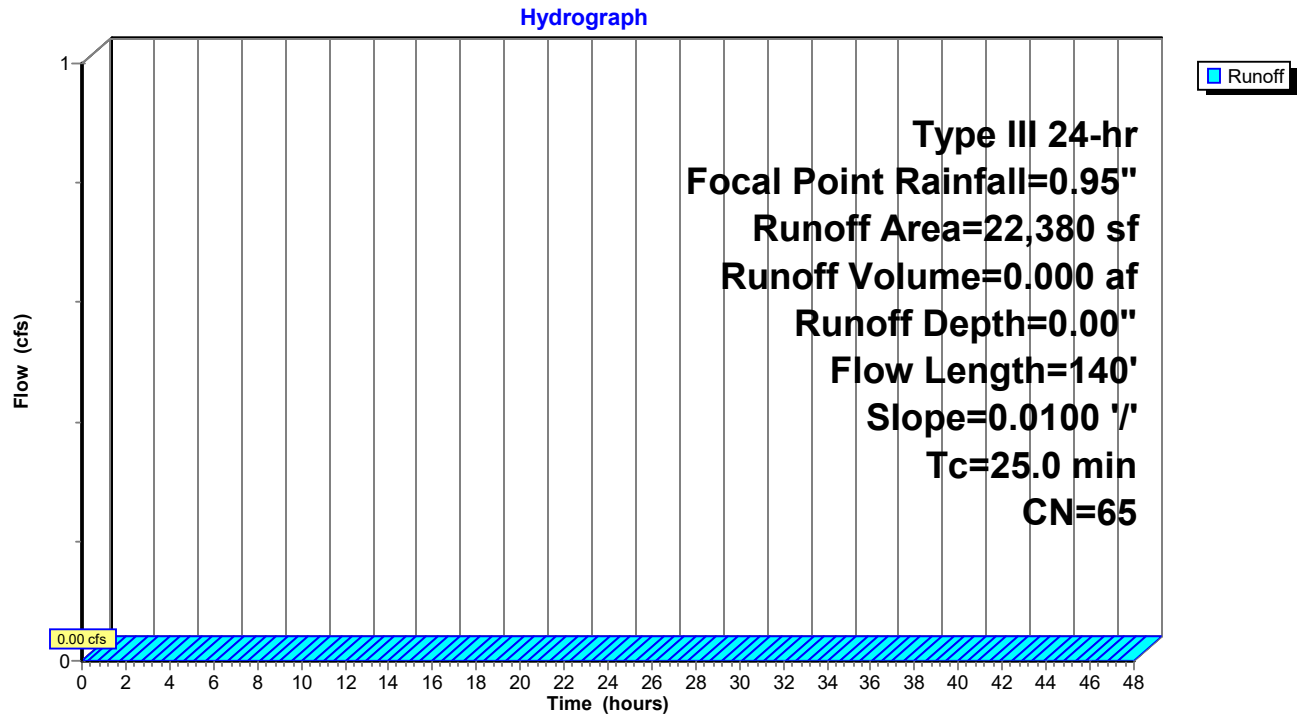
Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr Focal Point Rainfall=0.95"

Area (sf)	CN	Description
8,900	39	>75% Grass cover, Good, HSG A
4,910	98	Paved parking, HSG A
8,570	74	>75% Grass cover, Good, HSG C
22,380	65	Weighted Average
17,470		78.06% Pervious Area
4,910		21.94% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
25.0	140	0.0100	0.09		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.10"

Subcatchment 25A: South of Building 2



Summary for Subcatchment 25B: South of Building 3

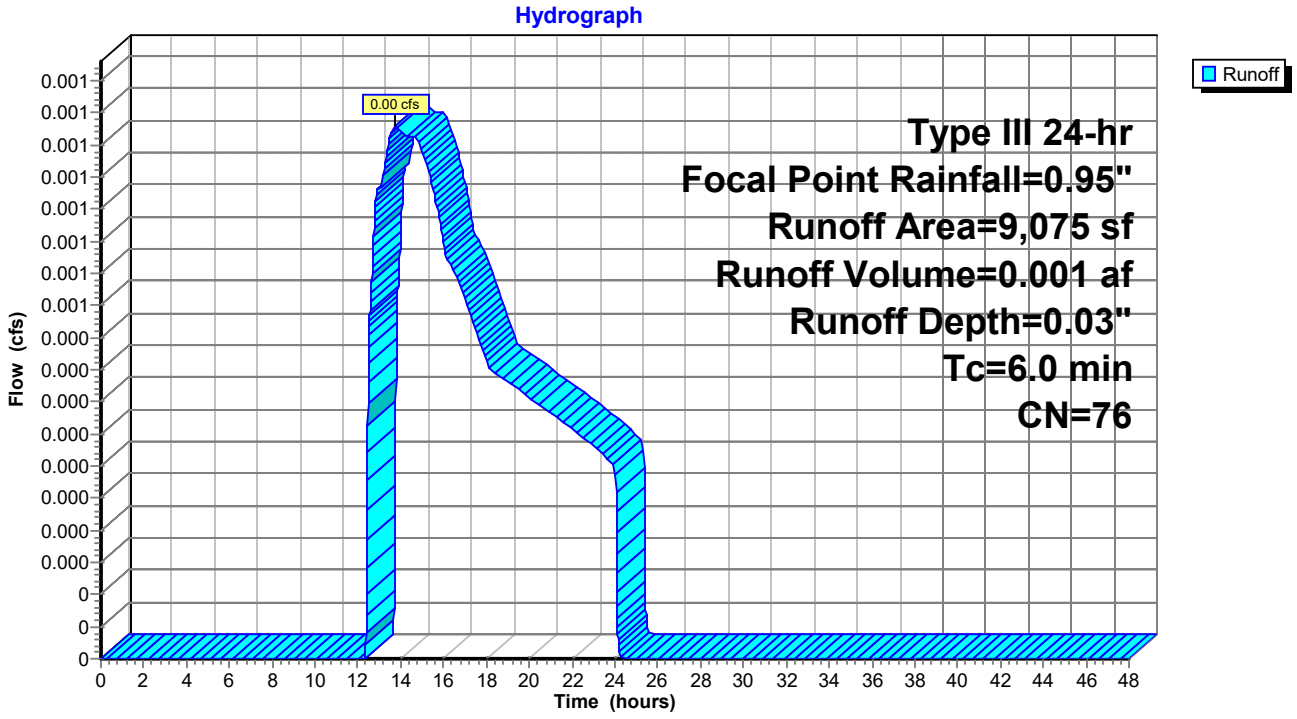
Runoff = 0.00 cfs @ 13.74 hrs, Volume= 0.001 af, Depth= 0.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr Focal Point Rainfall=0.95"

	Area (sf)	CN	Description
	8,340	74	>75% Grass cover, Good, HSG C
*	735	98	Walkways
	9,075	76	Weighted Average
	8,340		91.90% Pervious Area
	735		8.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 25B: South of Building 3



Summary for Subcatchment 25C: South of Building 3

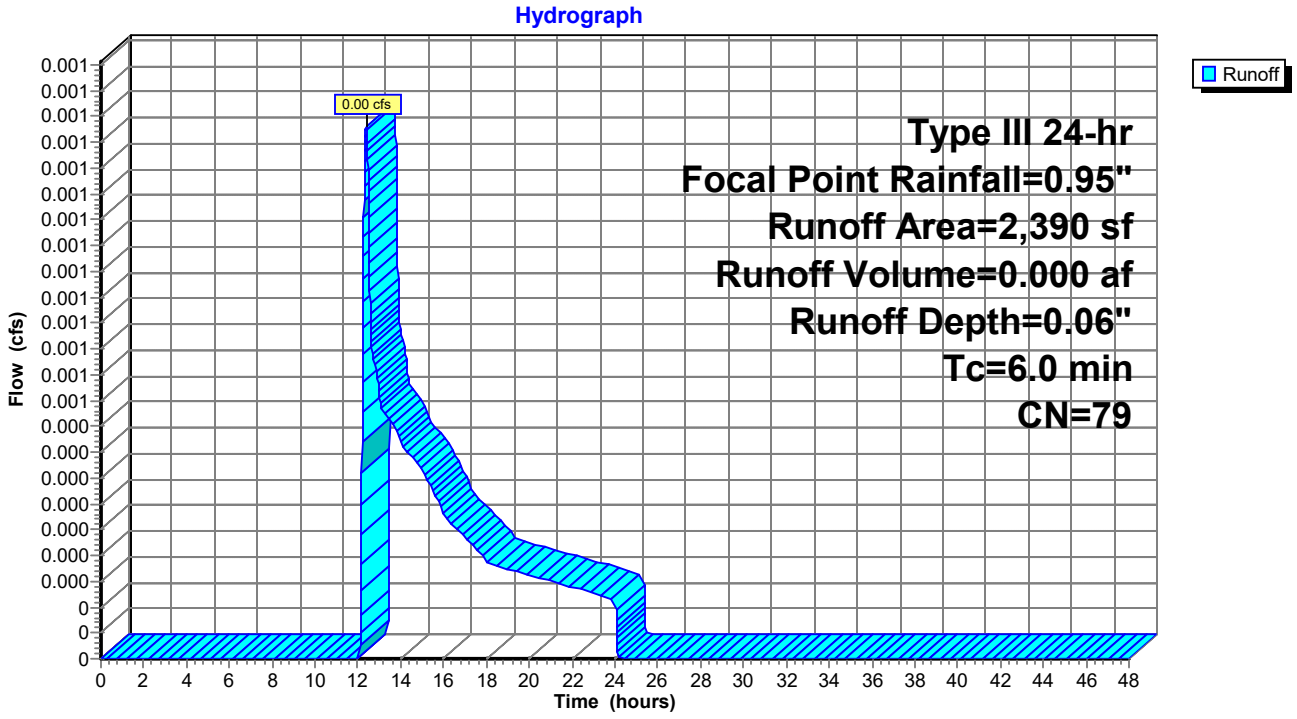
Runoff = 0.00 cfs @ 12.39 hrs, Volume= 0.000 af, Depth= 0.06"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr Focal Point Rainfall=0.95"

	Area (sf)	CN	Description
	1,930	74	>75% Grass cover, Good, HSG C
*	460	98	Walkways
	2,390	79	Weighted Average
	1,930		80.75% Pervious Area
	460		19.25% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 25C: South of Building 3



Summary for Subcatchment 26S: Wetland to POI 2

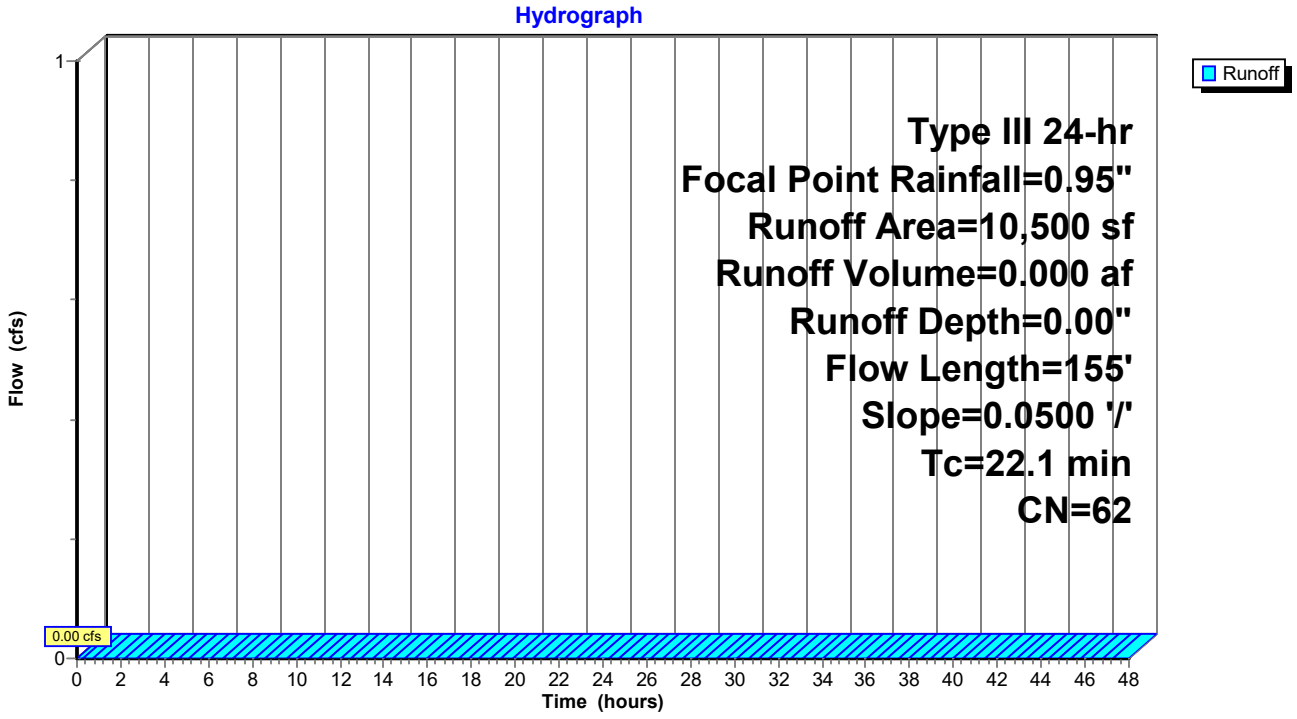
Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr Focal Point Rainfall=0.95"

	Area (sf)	CN	Description
	4,528	39	>75% Grass cover, Good, HSG A
	5,392	77	Woods, Good, HSG D
*	580	98	Walking Path
	10,500	62	Weighted Average
	9,920		94.48% Pervious Area
	580		5.52% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.9	75	0.0500	0.06		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.10"
1.2	80	0.0500	1.12		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
22.1	155	Total			

Subcatchment 26S: Wetland to POI 2



Summary for Subcatchment 27S: Wetland to POI 1

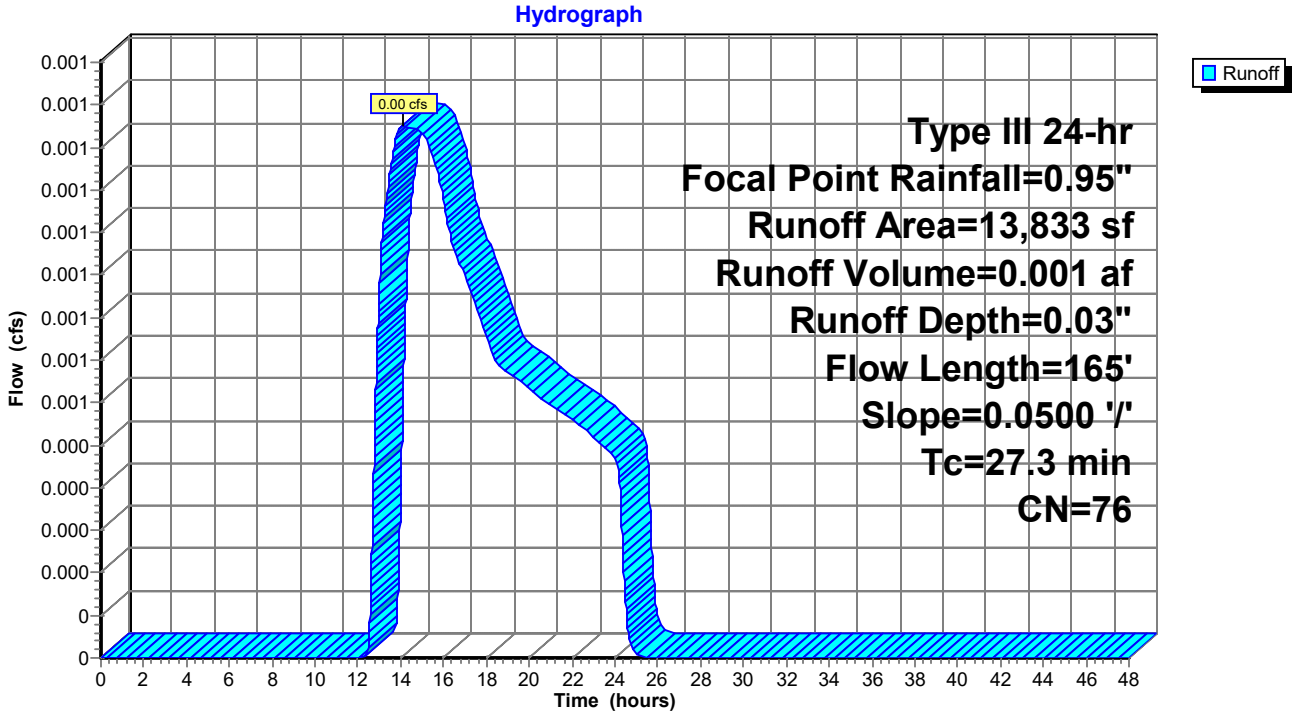
Runoff = 0.00 cfs @ 14.10 hrs, Volume= 0.001 af, Depth= 0.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr Focal Point Rainfall=0.95"

	Area (sf)	CN	Description
	3,935	74	>75% Grass cover, Good, HSG C
	9,282	77	Woods, Good, HSG D
	141	39	>75% Grass cover, Good, HSG A
*	475	98	Walking Path
	13,833	76	Weighted Average
	13,358		96.57% Pervious Area
	475		3.43% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
26.3	100	0.0500	0.06		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.10"
1.0	65	0.0500	1.12		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
27.3	165	Total			

Subcatchment 27S: Wetland to POI 1



Summary for Subcatchment 28S:

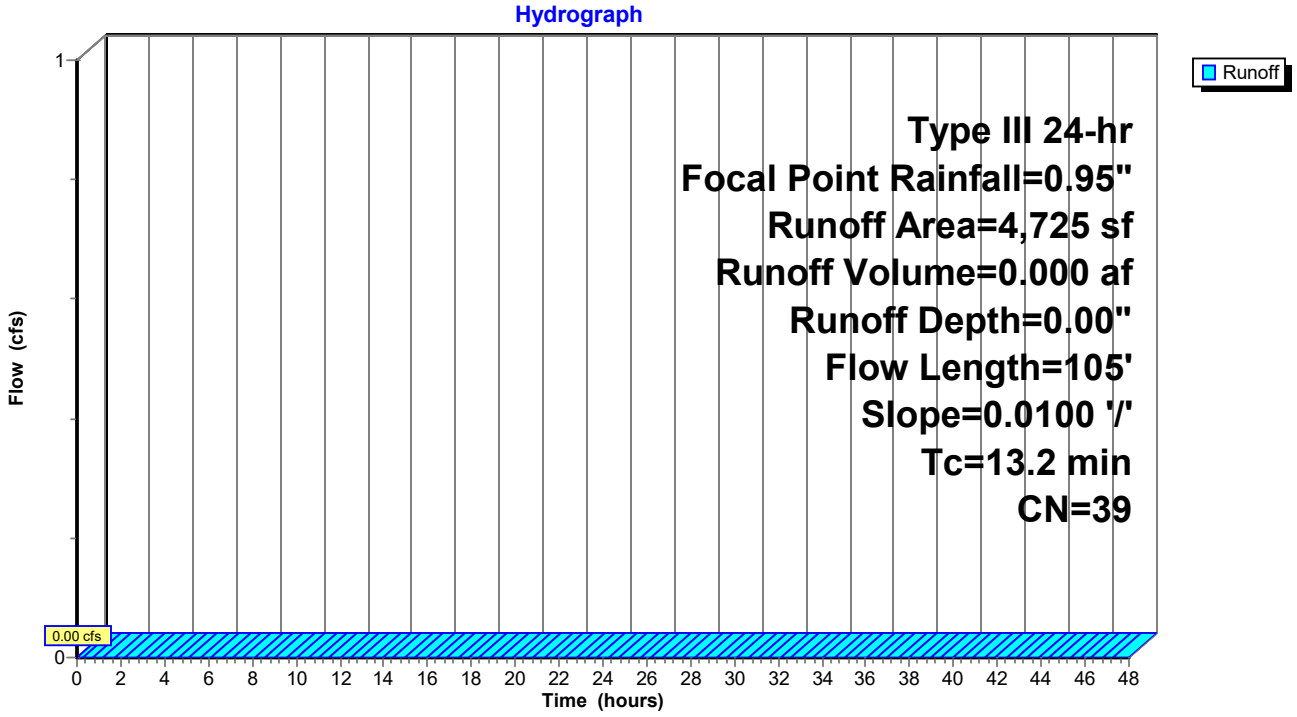
Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr Focal Point Rainfall=0.95"

Area (sf)	CN	Description
4,725	39	>75% Grass cover, Good, HSG A
4,725		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.7	60	0.0100	0.08		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.10"
0.5	45	0.0100	1.50		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
13.2	105	Total			

Subcatchment 28S:



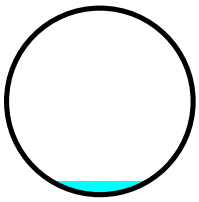
Summary for Reach 1R: CB 19 TO WETLAND

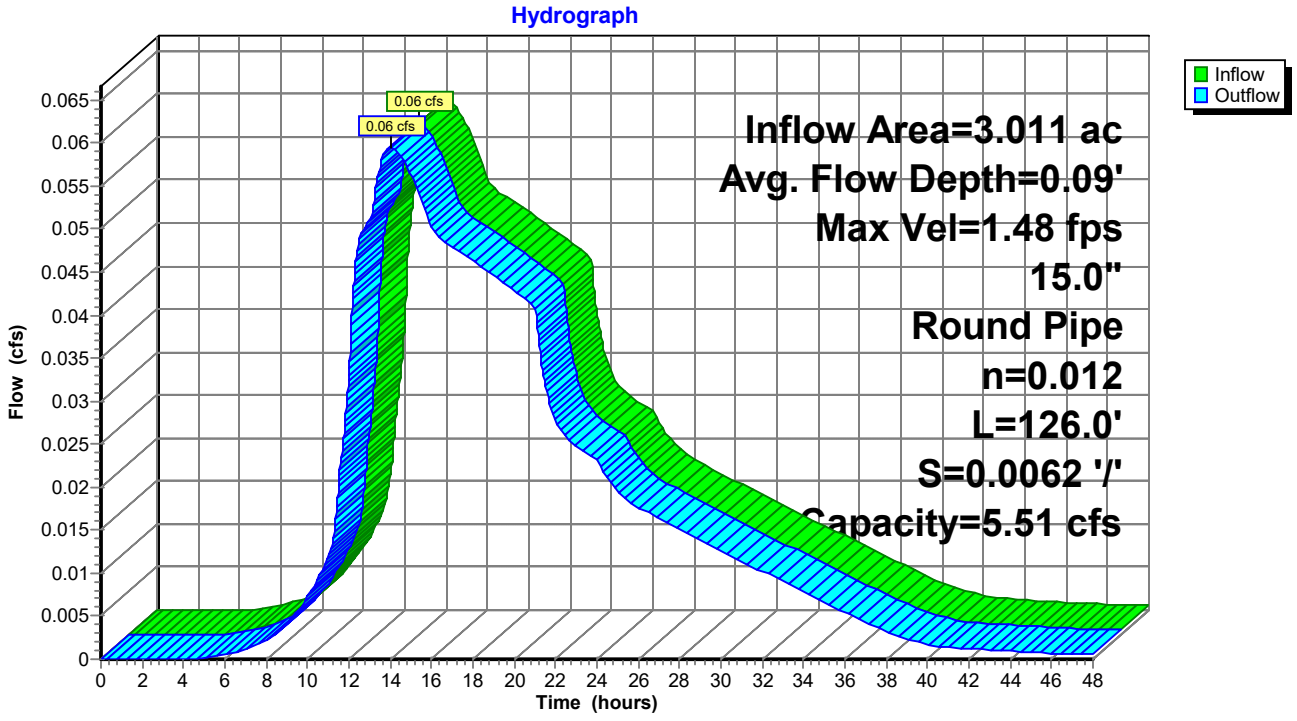
Inflow Area = 3.011 ac, 47.24% Impervious, Inflow Depth > 0.24" for Focal Point event
Inflow = 0.06 cfs @ 13.99 hrs, Volume= 0.061 af
Outflow = 0.06 cfs @ 14.01 hrs, Volume= 0.061 af, Atten= 0%, Lag= 1.1 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 1.48 fps, Min. Travel Time= 1.4 min
Avg. Velocity = 0.87 fps, Avg. Travel Time= 2.4 min

Peak Storage= 5 cf @ 14.01 hrs
Average Depth at Peak Storage= 0.09' , Surface Width= 0.65'
Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 5.51 cfs

15.0" Round Pipe
n= 0.012 Corrugated PP, smooth interior
Length= 126.0' Slope= 0.0062 '/'
Inlet Invert= 108.10', Outlet Invert= 107.32'



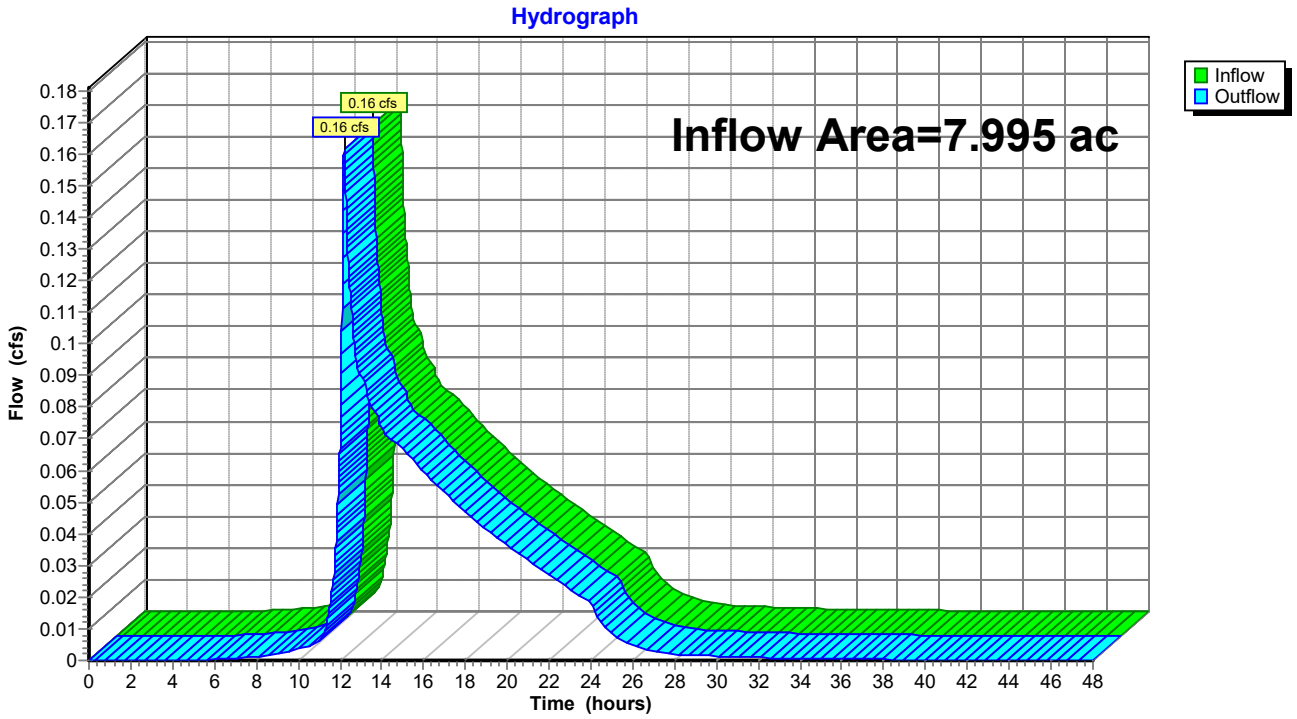


Summary for Reach 2R: POI 2

Inflow Area = 7.995 ac, 56.42% Impervious, Inflow Depth > 0.09" for Focal Point event
Inflow = 0.16 cfs @ 12.20 hrs, Volume= 0.057 af
Outflow = 0.16 cfs @ 12.20 hrs, Volume= 0.057 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Reach 2R: POI 2



Summary for Reach 4R: Wetland to POI 2

Inflow Area = 7.754 ac, 58.01% Impervious, Inflow Depth > 0.09" for Focal Point event
Inflow = 0.16 cfs @ 12.17 hrs, Volume= 0.057 af
Outflow = 0.16 cfs @ 12.20 hrs, Volume= 0.057 af, Atten= 2%, Lag= 1.6 min

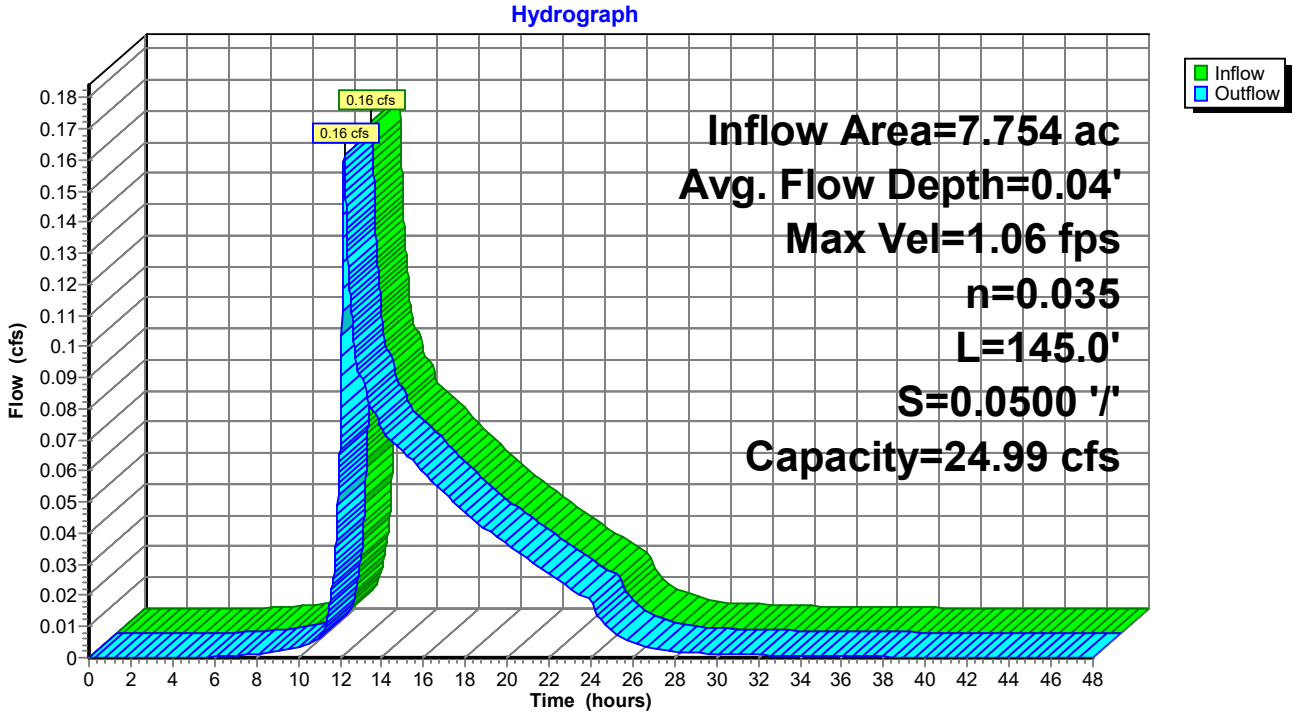
Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 1.06 fps, Min. Travel Time= 2.3 min
Avg. Velocity = 0.46 fps, Avg. Travel Time= 5.2 min

Peak Storage= 22 cf @ 12.20 hrs
Average Depth at Peak Storage= 0.04' , Surface Width= 4.05'
Bank-Full Depth= 0.80' Flow Area= 3.6 sf, Capacity= 24.99 cfs

4.00' x 0.80' deep channel, n= 0.035 Earth, dense weeds
Side Slope Z-value= 0.7 '/' Top Width= 5.12'
Length= 145.0' Slope= 0.0500 '/'
Inlet Invert= 102.89', Outlet Invert= 95.64'



Reach 4R: Wetland to POI 2



Summary for Reach 6R: Wetland to POI 1

Inflow Area = 3.011 ac, 47.24% Impervious, Inflow Depth > 0.24" for Focal Point event
Inflow = 0.06 cfs @ 14.01 hrs, Volume= 0.061 af
Outflow = 0.06 cfs @ 14.09 hrs, Volume= 0.061 af, Atten= 0%, Lag= 4.8 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.55 fps, Min. Travel Time= 6.4 min
Avg. Velocity = 0.40 fps, Avg. Travel Time= 8.8 min

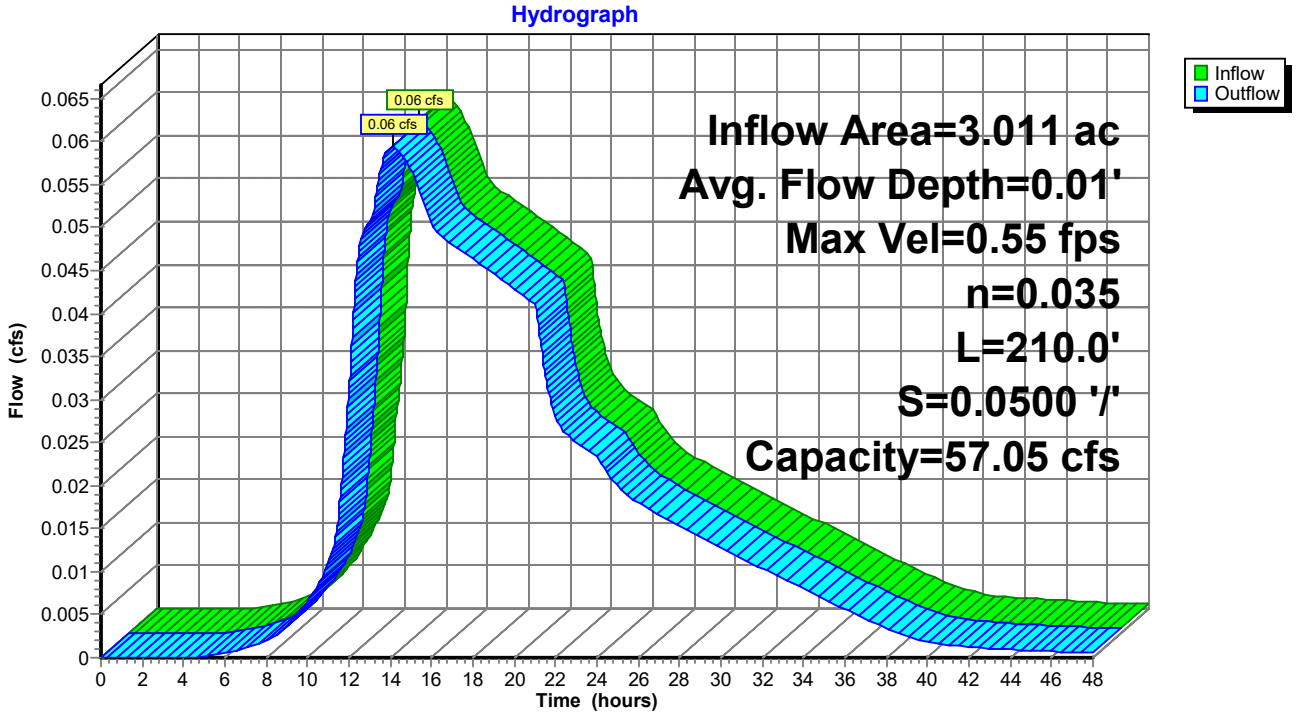
Peak Storage= 23 cf @ 14.09 hrs
Average Depth at Peak Storage= 0.01' , Surface Width= 8.13'
Bank-Full Depth= 0.75' Flow Area= 8.8 sf, Capacity= 57.05 cfs

8.00' x 0.75' deep channel, n= 0.035 Earth, dense weeds
Side Slope Z-value= 5.0 '/' Top Width= 15.50'
Length= 210.0' Slope= 0.0500 '/'
Inlet Invert= 107.32', Outlet Invert= 96.82'



‡

Reach 6R: Wetland to POI 1



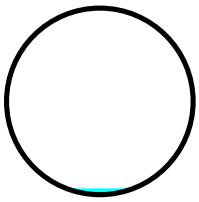
Summary for Reach 24R: DMH 11 to DMH 12

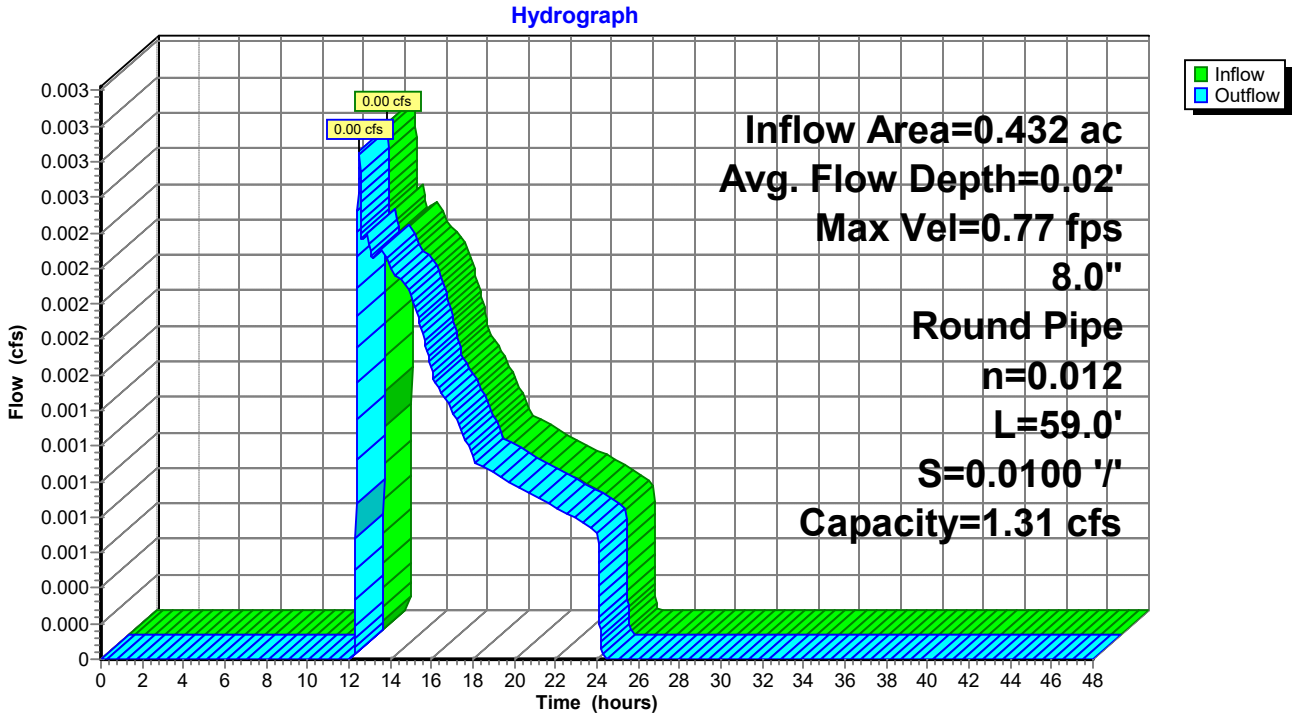
Inflow Area = 0.432 ac, 64.46% Impervious, Inflow Depth = 0.04" for Focal Point event
Inflow = 0.00 cfs @ 12.48 hrs, Volume= 0.001 af
Outflow = 0.00 cfs @ 12.50 hrs, Volume= 0.001 af, Atten= 1%, Lag= 0.9 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.77 fps, Min. Travel Time= 1.3 min
Avg. Velocity = 0.60 fps, Avg. Travel Time= 1.6 min

Peak Storage= 0 cf @ 12.50 hrs
Average Depth at Peak Storage= 0.02' , Surface Width= 0.24'
Bank-Full Depth= 0.67' Flow Area= 0.3 sf, Capacity= 1.31 cfs

8.0" Round Pipe
n= 0.012 Corrugated PP, smooth interior
Length= 59.0' Slope= 0.0100 '/'
Inlet Invert= 109.67', Outlet Invert= 109.08'





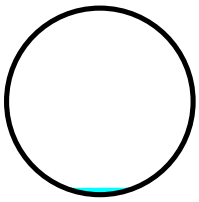
Summary for Reach 25R: DMH 12 to DMH 15

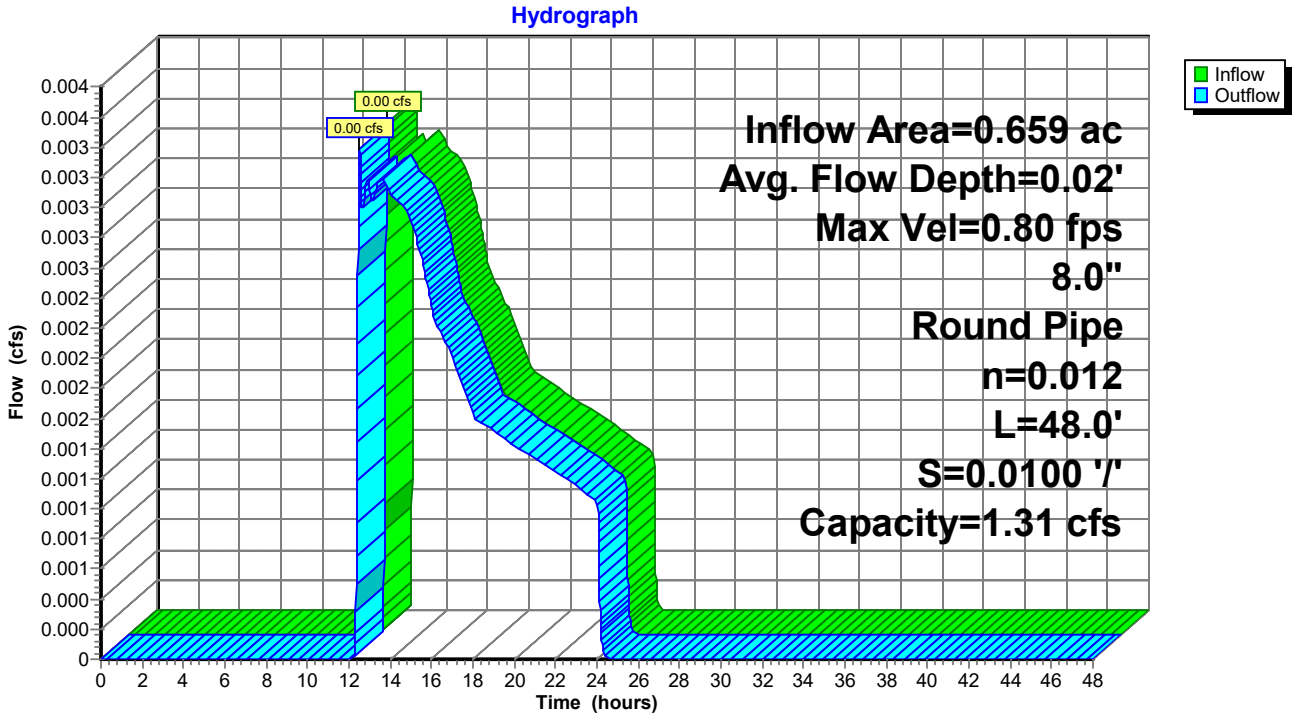
Inflow Area = 0.659 ac, 64.00% Impervious, Inflow Depth = 0.03" for Focal Point event
Inflow = 0.00 cfs @ 12.51 hrs, Volume= 0.002 af
Outflow = 0.00 cfs @ 12.52 hrs, Volume= 0.002 af, Atten= 0%, Lag= 0.7 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.80 fps, Min. Travel Time= 1.0 min
Avg. Velocity = 0.66 fps, Avg. Travel Time= 1.2 min

Peak Storage= 0 cf @ 12.52 hrs
Average Depth at Peak Storage= 0.02' , Surface Width= 0.25'
Bank-Full Depth= 0.67' Flow Area= 0.3 sf, Capacity= 1.31 cfs

8.0" Round Pipe
n= 0.012 Corrugated PP, smooth interior
Length= 48.0' Slope= 0.0100 '/'
Inlet Invert= 108.98', Outlet Invert= 108.50'





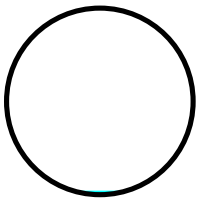
Summary for Reach 26R: DMH 15 to DMH 14

Inflow Area = 1.471 ac, 41.43% Impervious, Inflow Depth = 0.02" for Focal Point event
Inflow = 0.00 cfs @ 12.52 hrs, Volume= 0.002 af
Outflow = 0.00 cfs @ 12.55 hrs, Volume= 0.002 af, Atten= 2%, Lag= 1.8 min

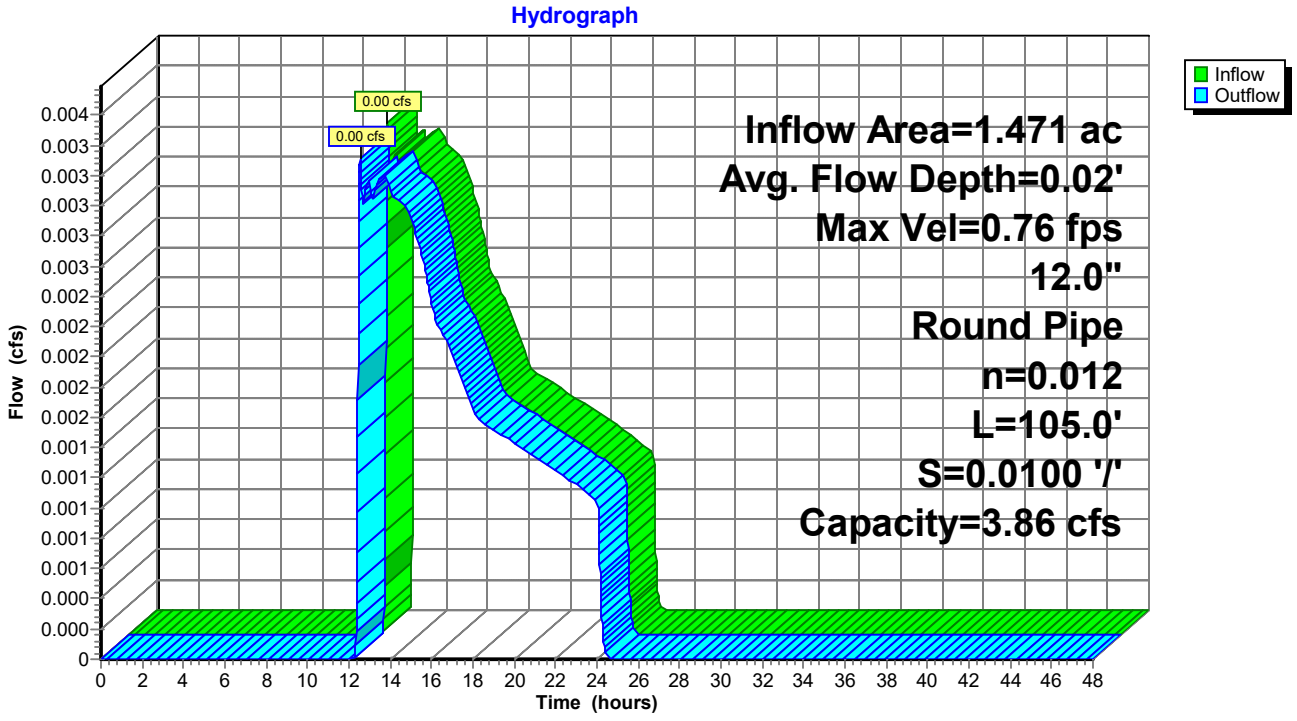
Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.76 fps, Min. Travel Time= 2.3 min
Avg. Velocity = 0.64 fps, Avg. Travel Time= 2.7 min

Peak Storage= 0 cf @ 12.55 hrs
Average Depth at Peak Storage= 0.02' , Surface Width= 0.29'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 3.86 cfs

12.0" Round Pipe
n= 0.012 Corrugated PP, smooth interior
Length= 105.0' Slope= 0.0100 '/'
Inlet Invert= 108.40', Outlet Invert= 107.35'



Reach 26R: DMH 15 to DMH 14



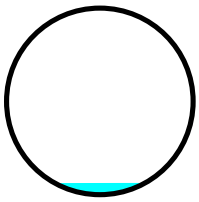
Summary for Reach 27R: DMH 14 to DMH 7

Inflow Area = 2.408 ac, 56.92% Impervious, Inflow Depth > 0.21" for Focal Point event
Inflow = 0.06 cfs @ 12.96 hrs, Volume= 0.042 af
Outflow = 0.06 cfs @ 12.96 hrs, Volume= 0.042 af, Atten= 0%, Lag= 0.3 min

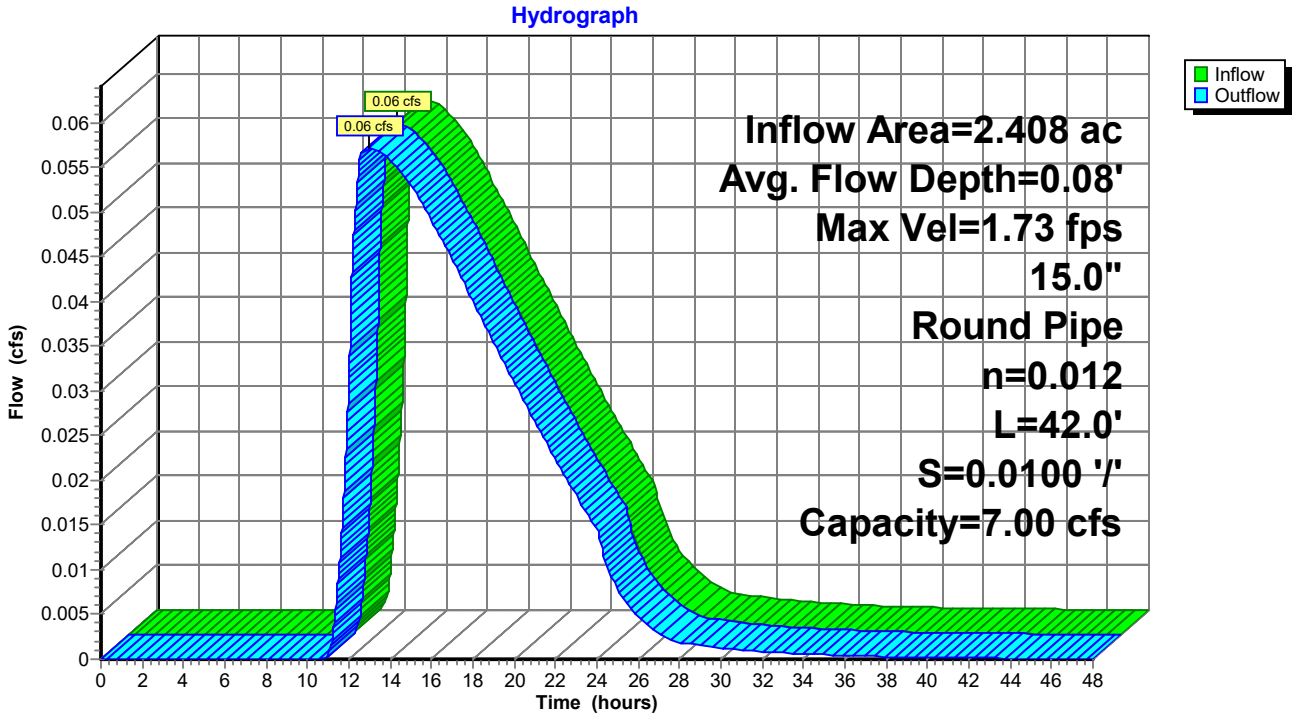
Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 1.73 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 0.90 fps, Avg. Travel Time= 0.8 min

Peak Storage= 1 cf @ 12.96 hrs
Average Depth at Peak Storage= 0.08' , Surface Width= 0.61'
Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 7.00 cfs

15.0" Round Pipe
n= 0.012 Corrugated PP, smooth interior
Length= 42.0' Slope= 0.0100 '/'
Inlet Invert= 107.25', Outlet Invert= 106.83'



Reach 27R: DMH 14 to DMH 7

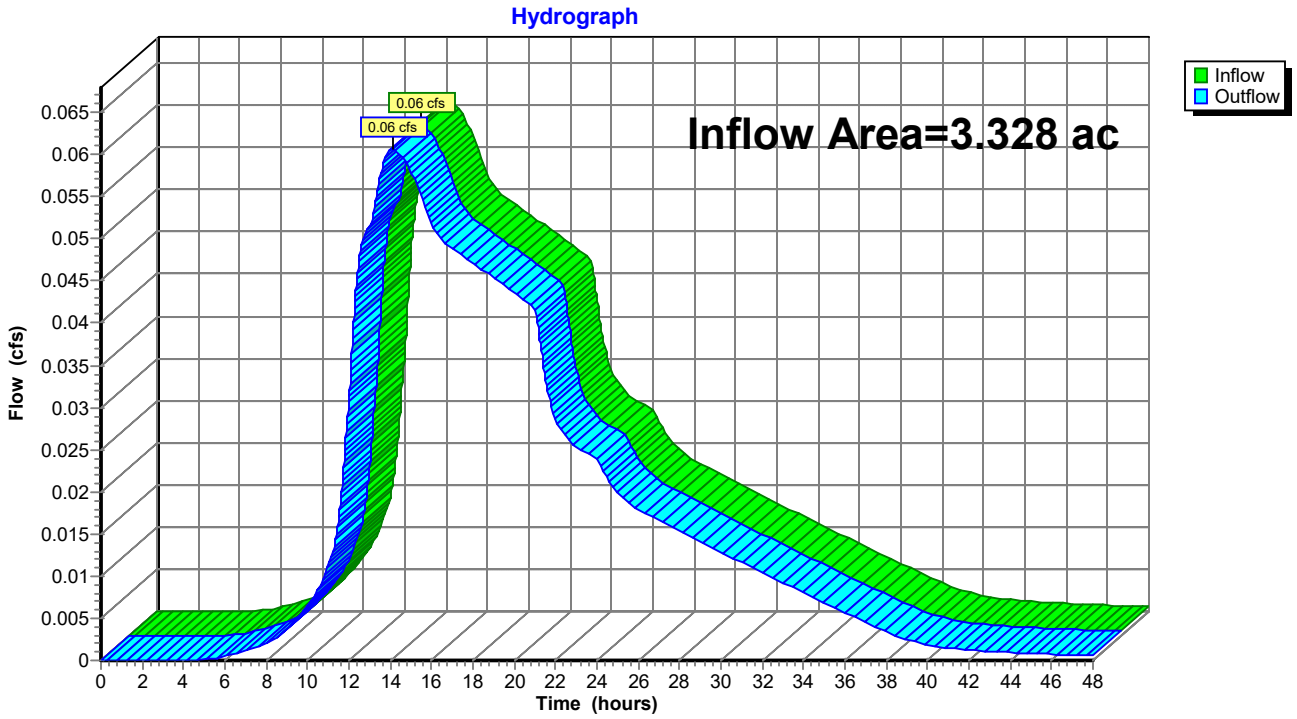


Summary for Reach 28R: POI 1

Inflow Area = 3.328 ac, 43.06% Impervious, Inflow Depth > 0.22" for Focal Point event
Inflow = 0.06 cfs @ 14.10 hrs, Volume= 0.062 af
Outflow = 0.06 cfs @ 14.10 hrs, Volume= 0.062 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Reach 28R: POI 1



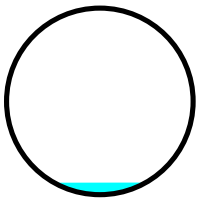
Summary for Reach 29R: EX. DMH 4 to NEW CB 19

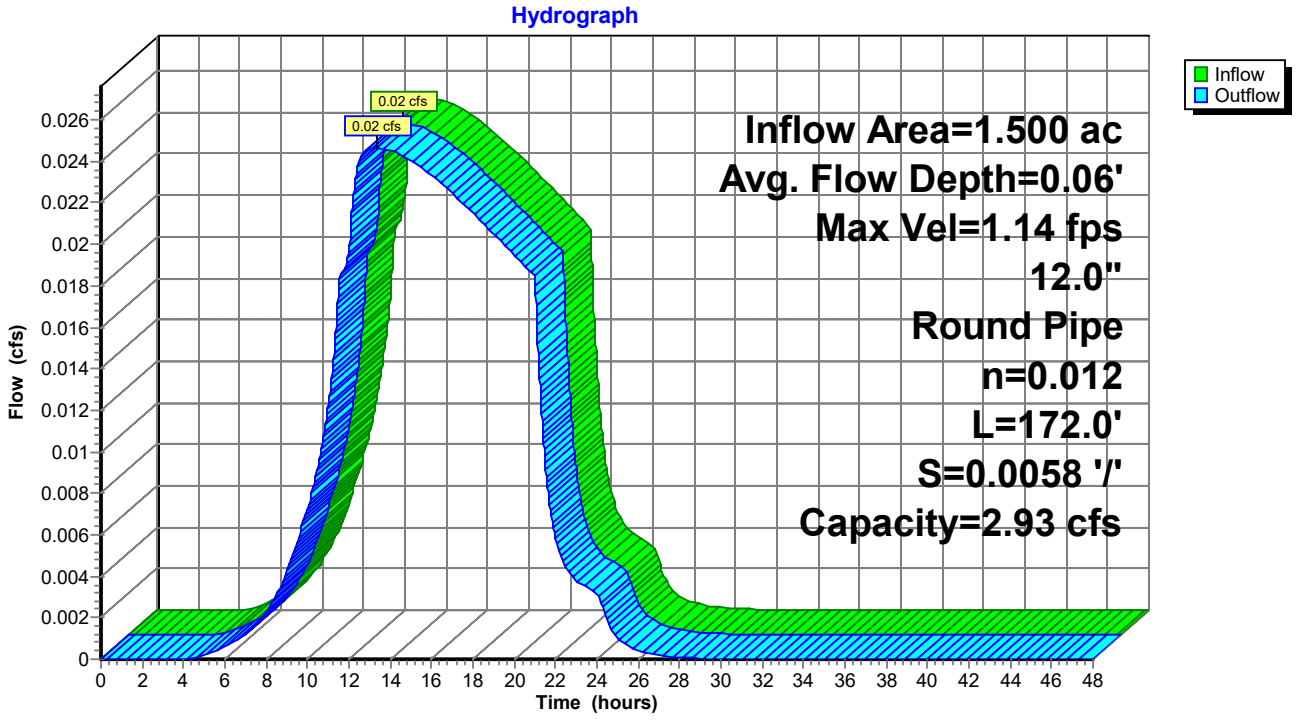
Inflow Area = 1.500 ac, 36.53% Impervious, Inflow Depth = 0.17" for Focal Point event
Inflow = 0.02 cfs @ 13.29 hrs, Volume= 0.022 af
Outflow = 0.02 cfs @ 13.32 hrs, Volume= 0.022 af, Atten= 0%, Lag= 1.8 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 1.14 fps, Min. Travel Time= 2.5 min
Avg. Velocity = 0.76 fps, Avg. Travel Time= 3.8 min

Peak Storage= 4 cf @ 13.32 hrs
Average Depth at Peak Storage= 0.06' , Surface Width= 0.49'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.93 cfs

12.0" Round Pipe
n= 0.012 Corrugated PP, smooth interior
Length= 172.0' Slope= 0.0058 '/'
Inlet Invert= 109.09', Outlet Invert= 108.10'





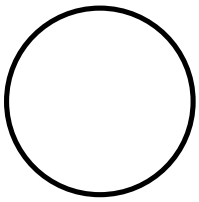
Summary for Reach 31R: 8" SD

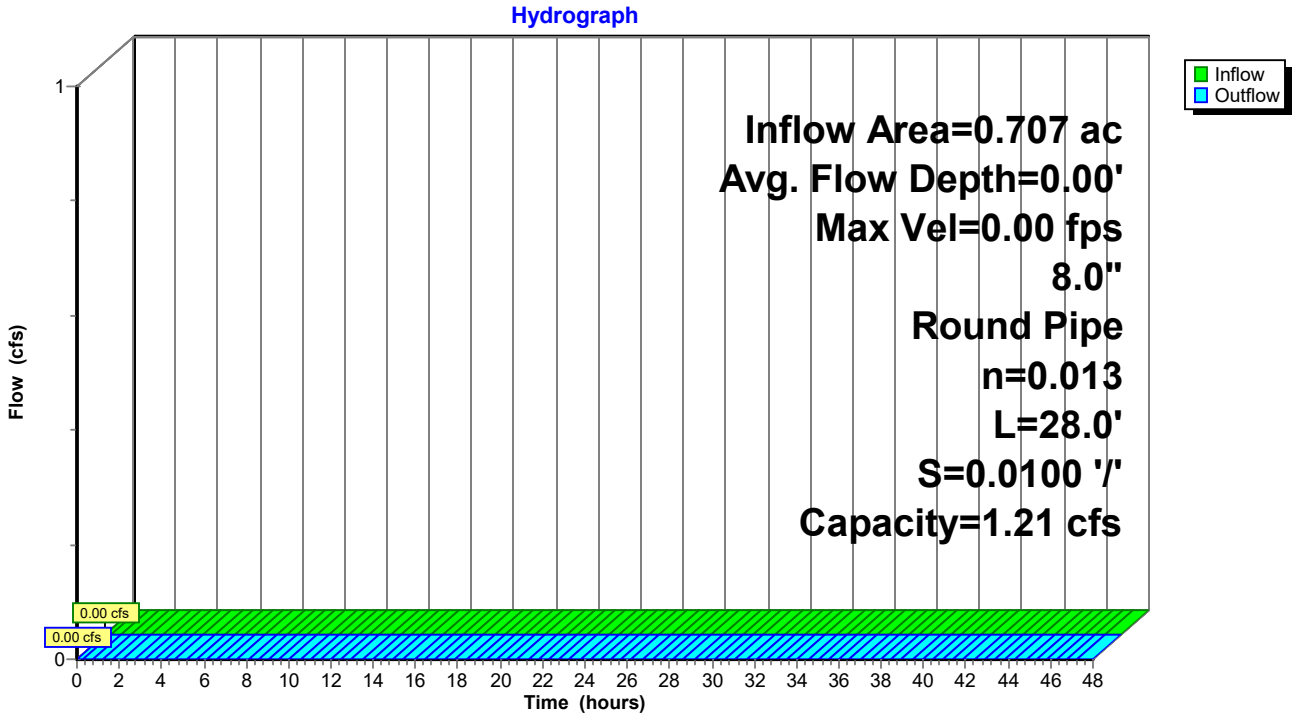
Inflow Area = 0.707 ac, 10.73% Impervious, Inflow Depth = 0.00" for Focal Point event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 0.00 fps, Avg. Travel Time= 0.0 min

Peak Storage= 0 cf @ 0.00 hrs
Average Depth at Peak Storage= 0.00'
Bank-Full Depth= 0.67' Flow Area= 0.3 sf, Capacity= 1.21 cfs

8.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 28.0' Slope= 0.0100 '/'
Inlet Invert= 115.15', Outlet Invert= 114.87'





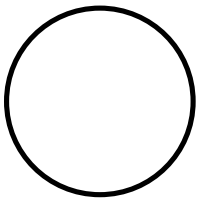
Summary for Reach 32R: 8" UD

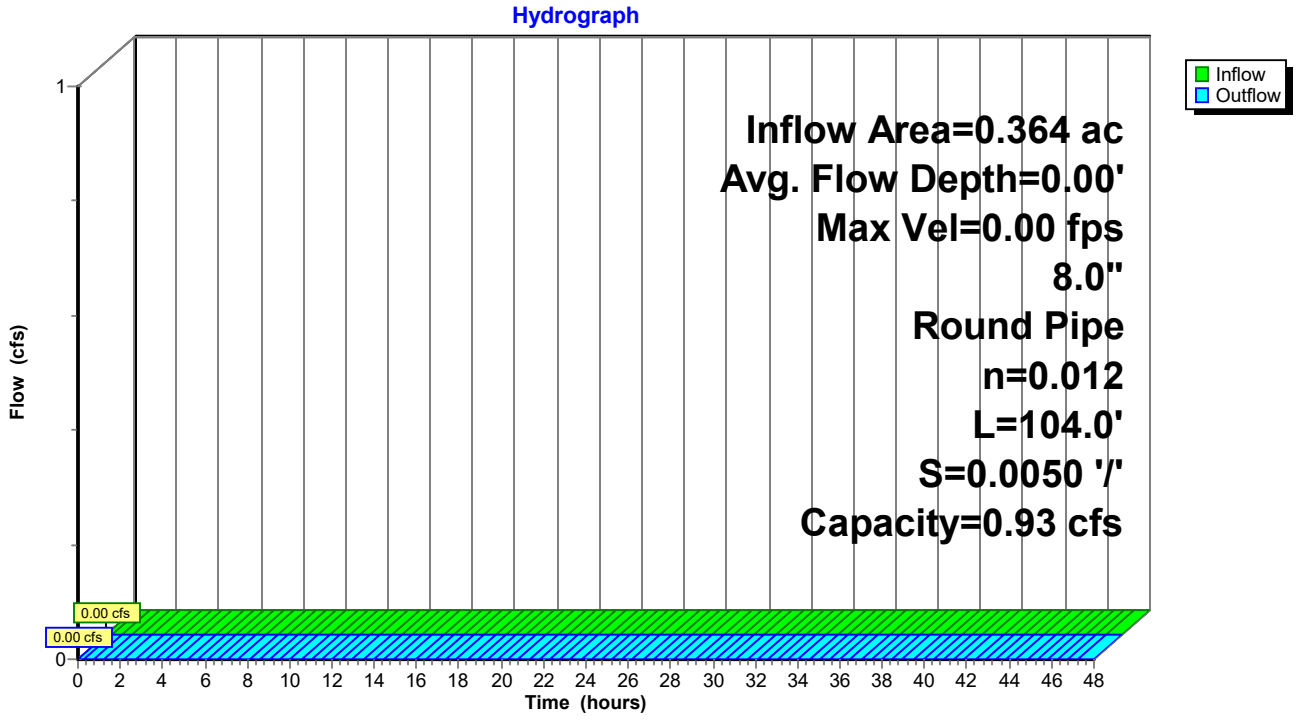
Inflow Area = 0.364 ac, 17.16% Impervious, Inflow Depth = 0.00" for Focal Point event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 0.00 fps, Avg. Travel Time= 0.0 min

Peak Storage= 0 cf @ 0.00 hrs
Average Depth at Peak Storage= 0.00'
Bank-Full Depth= 0.67' Flow Area= 0.3 sf, Capacity= 0.93 cfs

8.0" Round Pipe
n= 0.012 Corrugated PP, smooth interior
Length= 104.0' Slope= 0.0050 '/'
Inlet Invert= 116.28', Outlet Invert= 115.76'





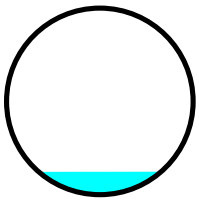
Summary for Reach 33R: 8" SD

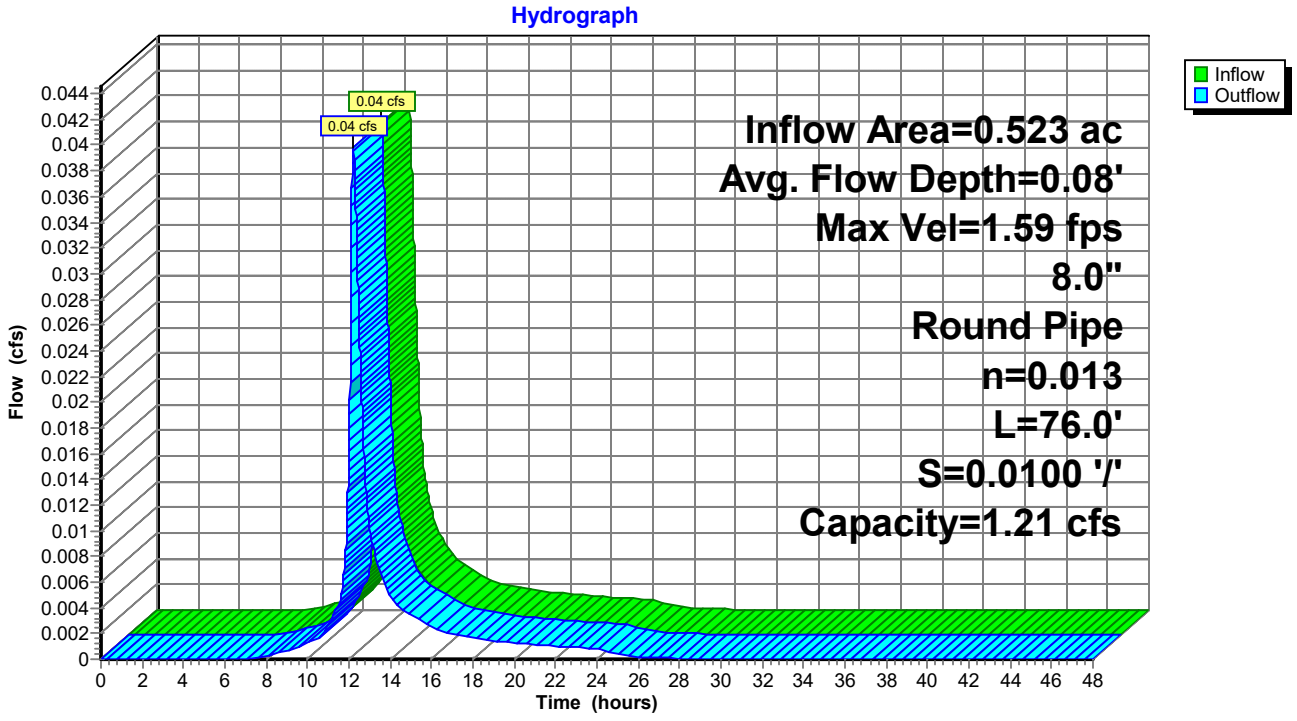
Inflow Area = 0.523 ac, 38.77% Impervious, Inflow Depth = 0.11" for Focal Point event
Inflow = 0.04 cfs @ 12.19 hrs, Volume= 0.005 af
Outflow = 0.04 cfs @ 12.20 hrs, Volume= 0.005 af, Atten= 0%, Lag= 0.6 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 1.59 fps, Min. Travel Time= 0.8 min
Avg. Velocity = 0.59 fps, Avg. Travel Time= 2.1 min

Peak Storage= 2 cf @ 12.20 hrs
Average Depth at Peak Storage= 0.08' , Surface Width= 0.44'
Bank-Full Depth= 0.67' Flow Area= 0.3 sf, Capacity= 1.21 cfs

8.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 76.0' Slope= 0.0100 '/'
Inlet Invert= 115.48', Outlet Invert= 114.72'





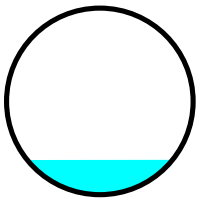
Summary for Reach 34R: 12" SD

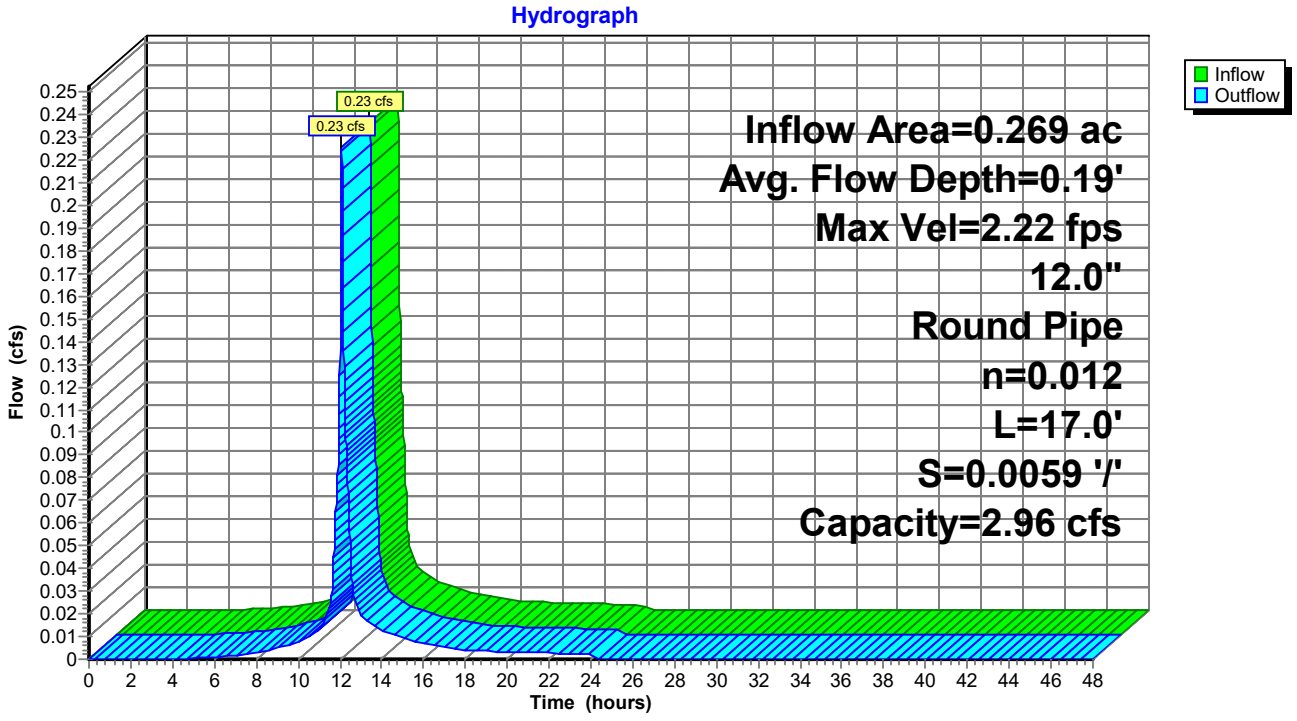
Inflow Area = 0.269 ac,100.00% Impervious, Inflow Depth = 0.74" for Focal Point event
Inflow = 0.23 cfs @ 12.08 hrs, Volume= 0.017 af
Outflow = 0.23 cfs @ 12.09 hrs, Volume= 0.017 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.22 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 0.73 fps, Avg. Travel Time= 0.4 min

Peak Storage= 2 cf @ 12.09 hrs
Average Depth at Peak Storage= 0.19' , Surface Width= 0.78'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.96 cfs

12.0" Round Pipe
n= 0.012 Corrugated PP, smooth interior
Length= 17.0' Slope= 0.0059 '/'
Inlet Invert= 114.75', Outlet Invert= 114.65'





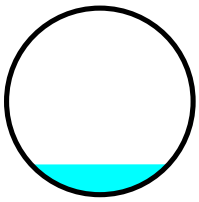
Summary for Reach 35R: 12" SD

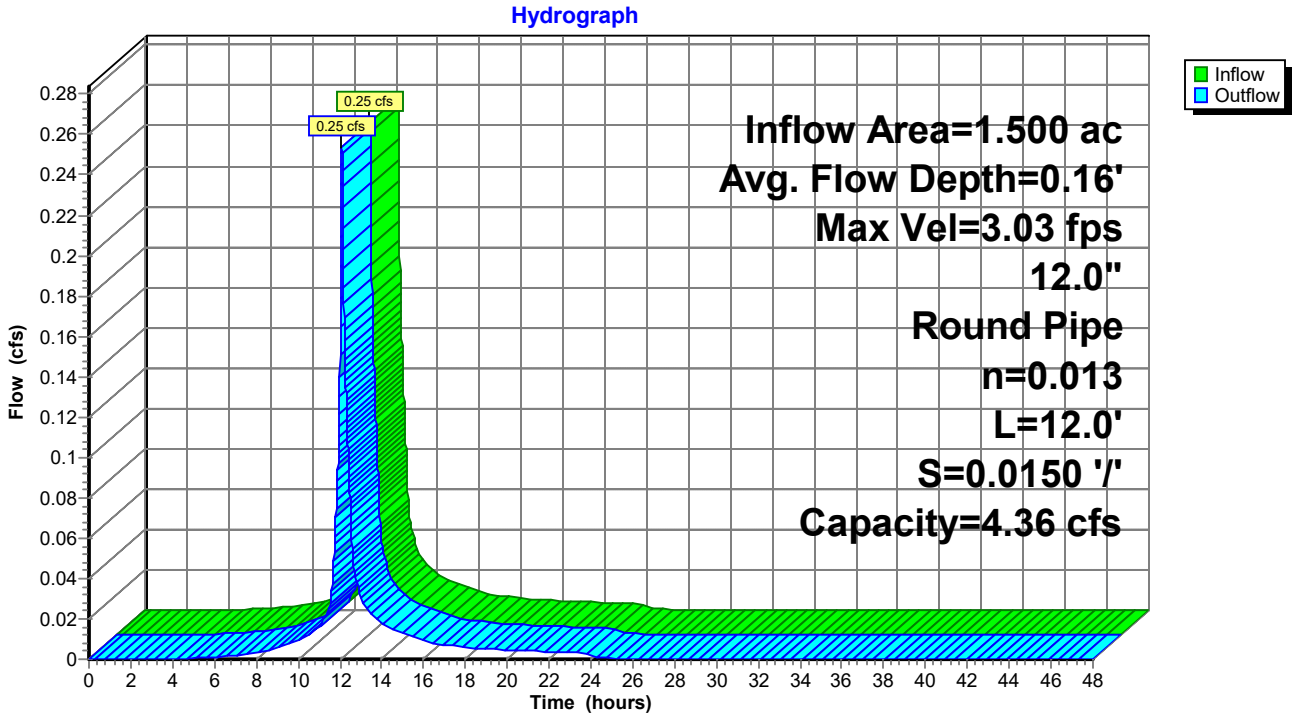
Inflow Area = 1.500 ac, 36.53% Impervious, Inflow Depth = 0.17" for Focal Point event
Inflow = 0.25 cfs @ 12.09 hrs, Volume= 0.022 af
Outflow = 0.25 cfs @ 12.09 hrs, Volume= 0.022 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.03 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 0.95 fps, Avg. Travel Time= 0.2 min

Peak Storage= 1 cf @ 12.09 hrs
Average Depth at Peak Storage= 0.16' , Surface Width= 0.74'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 4.36 cfs

12.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 12.0' Slope= 0.0150 '/'
Inlet Invert= 113.40', Outlet Invert= 113.22'





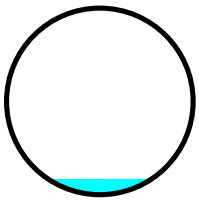
Summary for Reach 40R: New CB 1 to DMH 2

Inflow Area = 3.221 ac, 64.50% Impervious, Inflow Depth = 0.03" for Focal Point event
Inflow = 0.12 cfs @ 12.08 hrs, Volume= 0.009 af
Outflow = 0.11 cfs @ 12.12 hrs, Volume= 0.009 af, Atten= 8%, Lag= 2.1 min

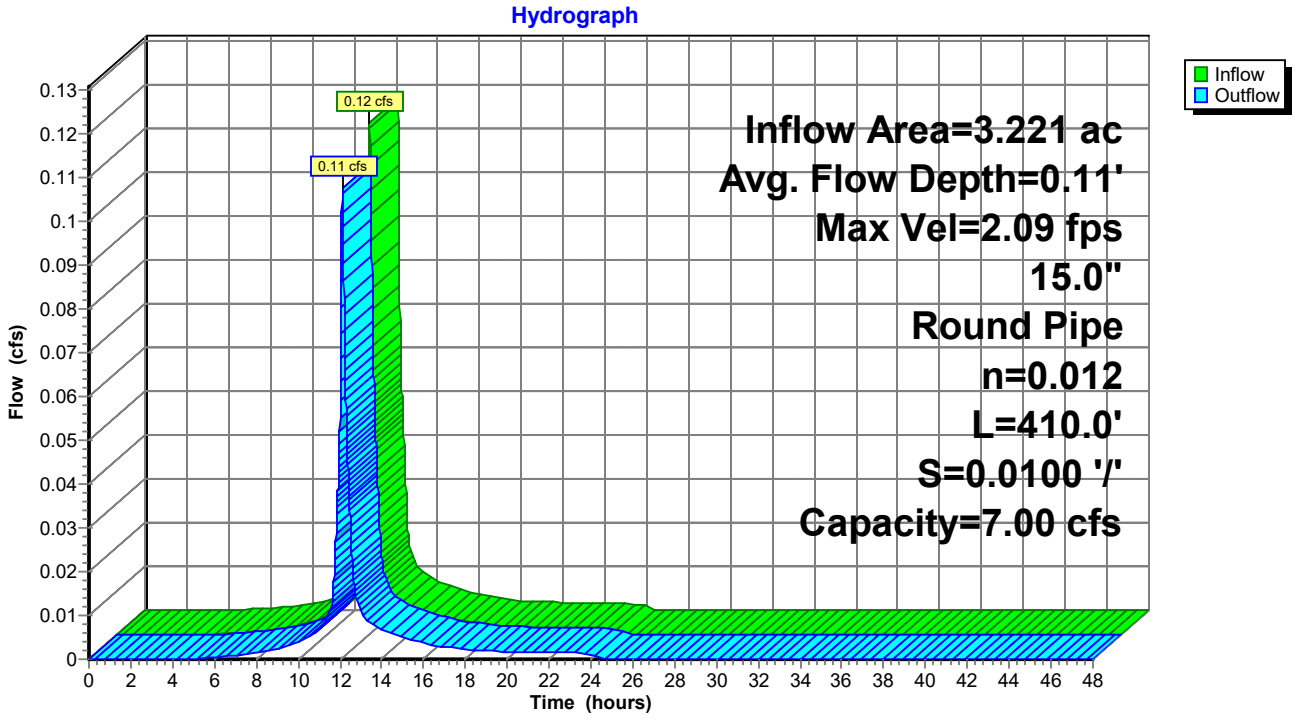
Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.09 fps, Min. Travel Time= 3.3 min
Avg. Velocity = 0.73 fps, Avg. Travel Time= 9.4 min

Peak Storage= 21 cf @ 12.12 hrs
Average Depth at Peak Storage= 0.11' , Surface Width= 0.70'
Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 7.00 cfs

15.0" Round Pipe
n= 0.012 Corrugated PP, smooth interior
Length= 410.0' Slope= 0.0100 '/'
Inlet Invert= 111.96', Outlet Invert= 107.86'



Reach 40R: New CB 1 to DMH 2



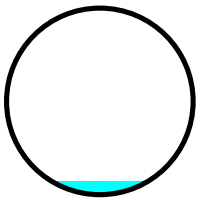
Summary for Reach 41R: DMH 2 to DMH 3

Inflow Area = 4.980 ac, 57.39% Impervious, Inflow Depth = 0.03" for Focal Point event
Inflow = 0.12 cfs @ 12.12 hrs, Volume= 0.012 af
Outflow = 0.12 cfs @ 12.13 hrs, Volume= 0.012 af, Atten= 0%, Lag= 0.5 min

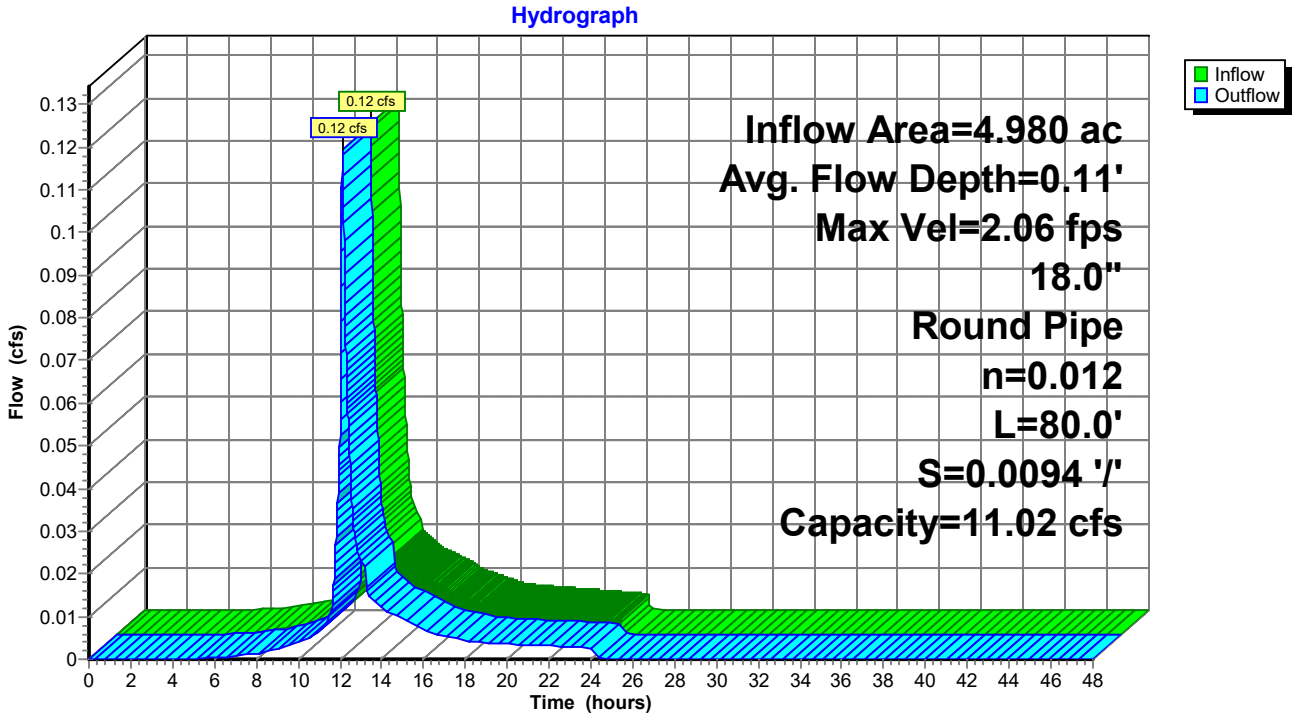
Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.06 fps, Min. Travel Time= 0.6 min
Avg. Velocity = 0.80 fps, Avg. Travel Time= 1.7 min

Peak Storage= 5 cf @ 12.13 hrs
Average Depth at Peak Storage= 0.11' , Surface Width= 0.78'
Bank-Full Depth= 1.50' Flow Area= 1.8 sf, Capacity= 11.02 cfs

18.0" Round Pipe
n= 0.012 Corrugated PP, smooth interior
Length= 80.0' Slope= 0.0094 '/'
Inlet Invert= 107.97', Outlet Invert= 107.22'



Reach 41R: DMH 2 to DMH 3



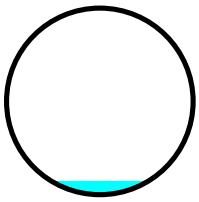
Summary for Reach 42R: DMH 3 to DMH 7

Inflow Area = 5.346 ac, 58.49% Impervious, Inflow Depth = 0.03" for Focal Point event
Inflow = 0.13 cfs @ 12.13 hrs, Volume= 0.015 af
Outflow = 0.12 cfs @ 12.17 hrs, Volume= 0.015 af, Atten= 6%, Lag= 2.4 min

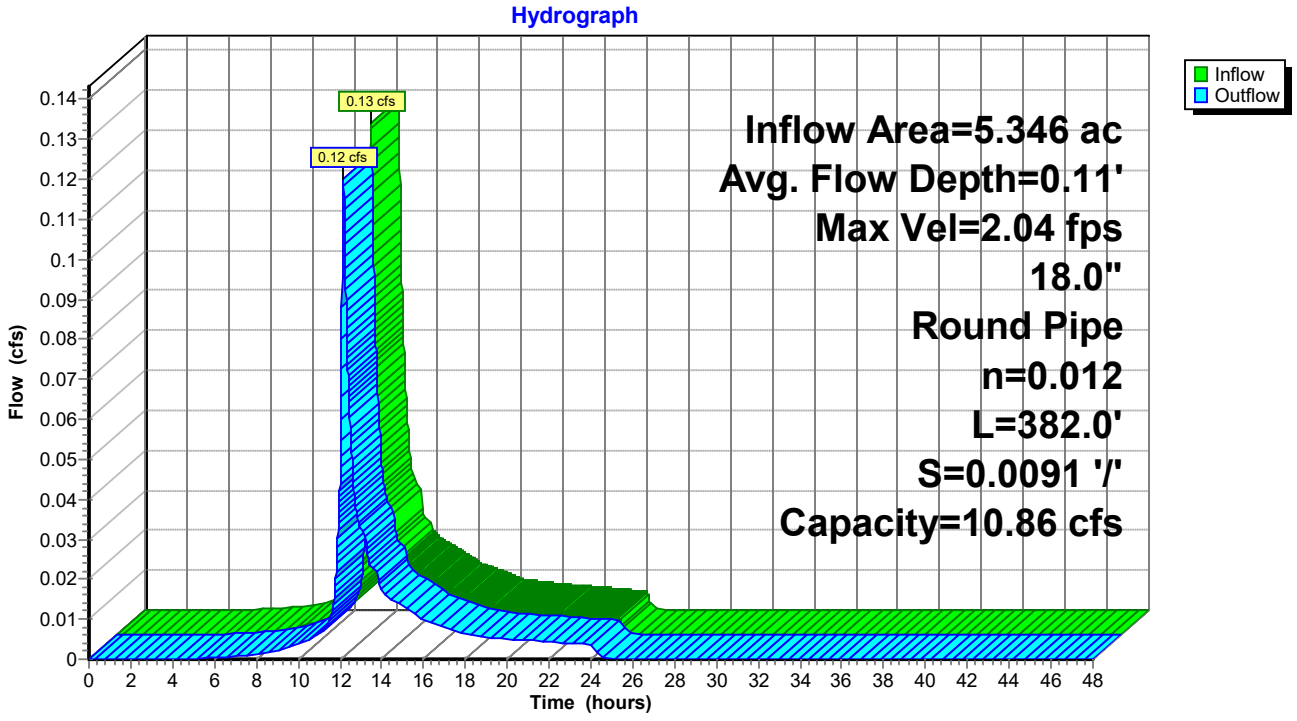
Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.04 fps, Min. Travel Time= 3.1 min
Avg. Velocity = 0.84 fps, Avg. Travel Time= 7.6 min

Peak Storage= 22 cf @ 12.17 hrs
Average Depth at Peak Storage= 0.11' , Surface Width= 0.78'
Bank-Full Depth= 1.50' Flow Area= 1.8 sf, Capacity= 10.86 cfs

18.0" Round Pipe
n= 0.012 Corrugated PP, smooth interior
Length= 382.0' Slope= 0.0091 '/'
Inlet Invert= 107.12', Outlet Invert= 103.64'



Reach 42R: DMH 3 to DMH 7



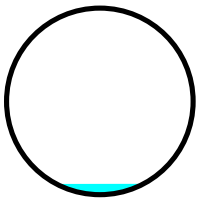
Summary for Reach 44R: DMH 7 to Wetland

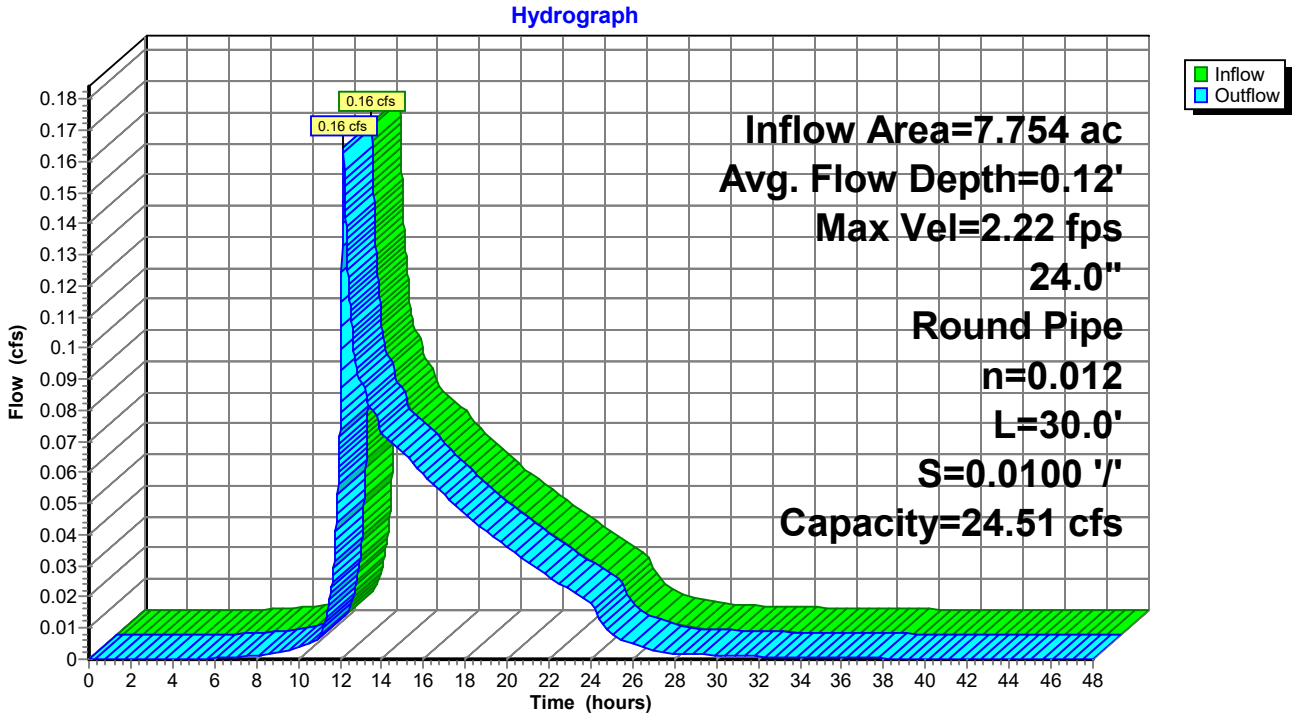
Inflow Area = 7.754 ac, 58.01% Impervious, Inflow Depth > 0.09" for Focal Point event
Inflow = 0.16 cfs @ 12.17 hrs, Volume= 0.057 af
Outflow = 0.16 cfs @ 12.17 hrs, Volume= 0.057 af, Atten= 0%, Lag= 0.2 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.22 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 0.97 fps, Avg. Travel Time= 0.5 min

Peak Storage= 2 cf @ 12.17 hrs
Average Depth at Peak Storage= 0.12' , Surface Width= 0.94'
Bank-Full Depth= 2.00' Flow Area= 3.1 sf, Capacity= 24.51 cfs

24.0" Round Pipe
n= 0.012 Corrugated PP, smooth interior
Length= 30.0' Slope= 0.0100 '/'
Inlet Invert= 103.58', Outlet Invert= 103.28'





Summary for Pond 3P: FP1 TANKS

Inflow Area = 0.812 ac, 23.11% Impervious, Inflow Depth = 0.00" for Focal Point event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 108.21' @ 0.00 hrs Surf.Area= 798 sf Storage= 0 cf
Flood Elev= 111.84' Surf.Area= 798 sf Storage= 2,017 cf

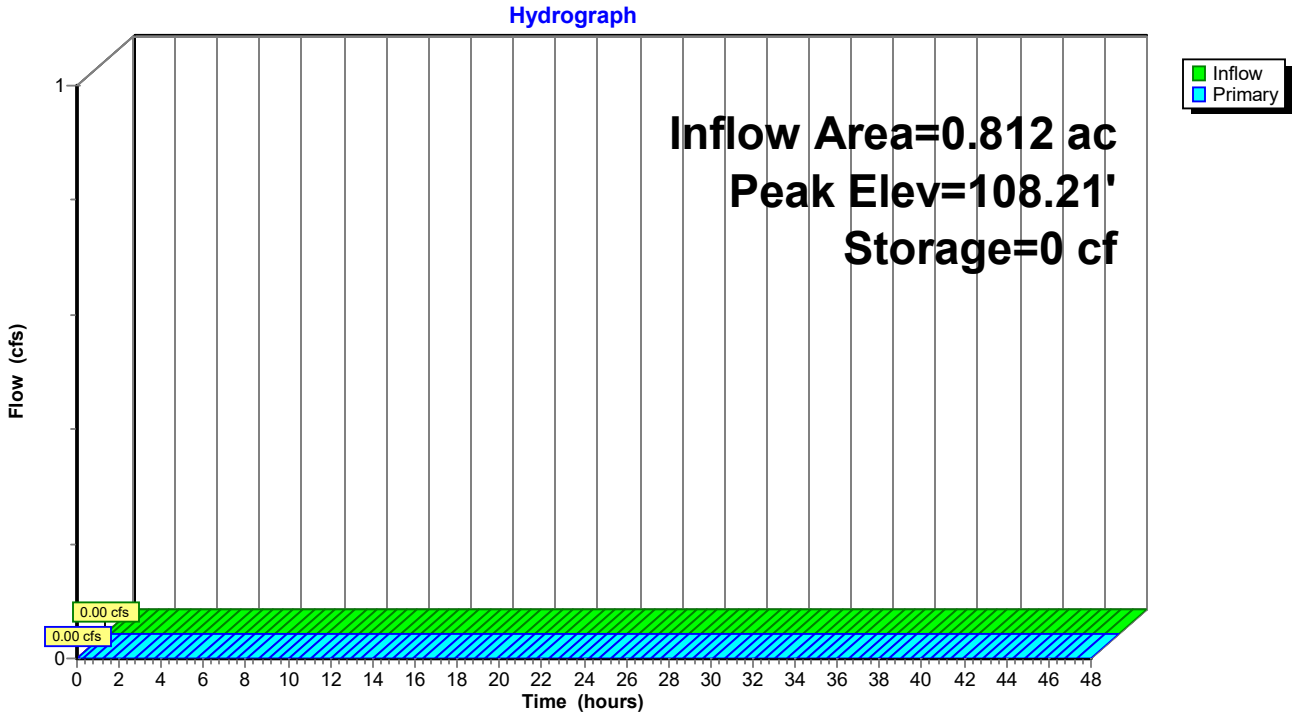
Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no inflow)

Volume	Invert	Avail.Storage	Storage Description
#1	109.90'	4 cf	**ACF R-Tank HD 1** Inside #3 Inside= 15.7"W x 17.3"H => 1.80 sf x 2.35'L = 4.2 cf Outside= 15.7"W x 17.3"H => 1.89 sf x 2.35'L = 4.4 cf 4 cf Overall x 95.0% Voids
#2	108.46'	1,568 cf	**ACF R-Tank HD 2** x 200 Inside #3 Inside= 15.7"W x 33.9"H => 3.52 sf x 2.35'L = 8.3 cf Outside= 15.7"W x 33.9"H => 3.70 sf x 2.35'L = 8.7 cf 200 Chambers in 10 Rows 1,737 cf Overall x 95.0% Voids
#3	108.21'	445 cf	**27.50'W x 29.00'L x 3.58'H Prismatoid** 2,855 cf Overall - 1,742 cf Embedded = 1,113 cf x 40.0% Voids
		2,017 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Device 3	108.46'	**0.5" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#2	Device 3	111.34'	**6.0' long x 0.7' 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 Coef. (English) 2.76 2.82 2.93 3.09 3.18 3.22 3.27 3.30 3.32 3.31 3.32
#3	Primary	108.46'	**12.0" Round Culvert** L= 10.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 108.46' / 108.41' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=108.21' (Free Discharge)
└**3=Culvert** (Controls 0.00 cfs)
  ├**1=Orifice/Grate** (Controls 0.00 cfs)
  └**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 3P: FP1 TANKS



Summary for Pond 4P: FP2 TANKS

Inflow Area = 0.514 ac, 21.94% Impervious, Inflow Depth = 0.00" for Focal Point event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 108.13' @ 0.00 hrs Surf.Area= 840 sf Storage= 0 cf
Flood Elev= 111.76' Surf.Area= 840 sf Storage= 1,208 cf

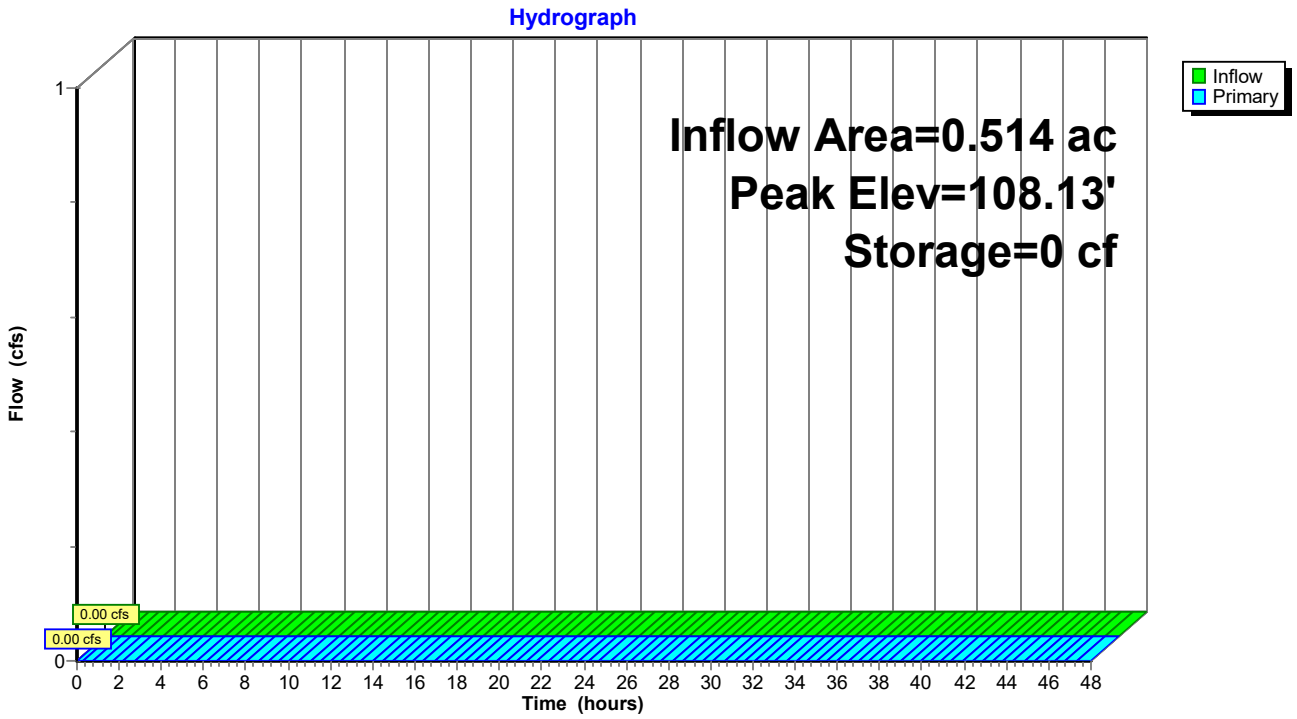
Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no inflow)

Volume	Invert	Avail.Storage	Storage Description
#1	108.38'	24 cf	**ACF R-Tank HD 1** x 6 Inside #5 Inside= 15.7"W x 17.3"H => 1.80 sf x 2.35'L = 4.2 cf Outside= 15.7"W x 17.3"H => 1.89 sf x 2.35'L = 4.4 cf 27 cf Overall x 95.0% Voids
#2	108.38'	24 cf	**ACF R-Tank HD 1** x 6 Inside #5 Inside= 15.7"W x 17.3"H => 1.80 sf x 2.35'L = 4.2 cf Outside= 15.7"W x 17.3"H => 1.89 sf x 2.35'L = 4.4 cf 27 cf Overall x 95.0% Voids
#3	108.38'	481 cf	**ACF R-Tank HD 1** x 120 Inside #5 Inside= 15.7"W x 17.3"H => 1.80 sf x 2.35'L = 4.2 cf Outside= 15.7"W x 17.3"H => 1.89 sf x 2.35'L = 4.4 cf 120 Chambers in 8 Rows 533 cf Overall x 95.0% Voids
#4	108.38'	180 cf	**ACF R-Tank HD 1** x 45 Inside #5 Inside= 15.7"W x 17.3"H => 1.80 sf x 2.35'L = 4.2 cf Outside= 15.7"W x 17.3"H => 1.89 sf x 2.35'L = 4.4 cf 45 Chambers in 3 Rows 200 cf Overall x 95.0% Voids
#5	108.13'	498 cf	**21.00'W x 40.00'L x 2.42'H Prismatoid** 2,033 cf Overall - 787 cf Embedded = 1,246 cf x 40.0% Voids
		1,208 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Device 3	108.38'	**0.5" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#2	Device 3	109.65'	**6.0' long x 0.7' 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 Coef. (English) 2.76 2.82 2.93 3.09 3.18 3.22 3.27 3.30 3.32 3.31 3.32
#3	Primary	108.38'	**12.0" Round Culvert** L= 70.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 108.38' / 108.10' S= 0.0040 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=108.13' (Free Discharge)
└**3=Culvert** (Controls 0.00 cfs)
└**1=Orifice/Grate** (Controls 0.00 cfs)
└**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 4P: FP2 TANKS



Summary for Pond 5P: Filterra

Inflow Area = 0.323 ac, 78.35% Impervious, Inflow Depth = 0.20" for Focal Point event
Inflow = 0.06 cfs @ 12.10 hrs, Volume= 0.005 af
Outflow = 0.06 cfs @ 12.11 hrs, Volume= 0.005 af, Atten= 1%, Lag= 0.6 min
Primary = 0.06 cfs @ 12.11 hrs, Volume= 0.005 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 114.59' @ 12.11 hrs Surf.Area= 60 sf Storage= 4 cf

Plug-Flow detention time= 3.5 min calculated for 0.005 af (100% of inflow)
Center-of-Mass det. time= 3.0 min (884.3 - 881.3)

Volume	Invert	Avail.Storage	Storage Description
#1	114.43'	130 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

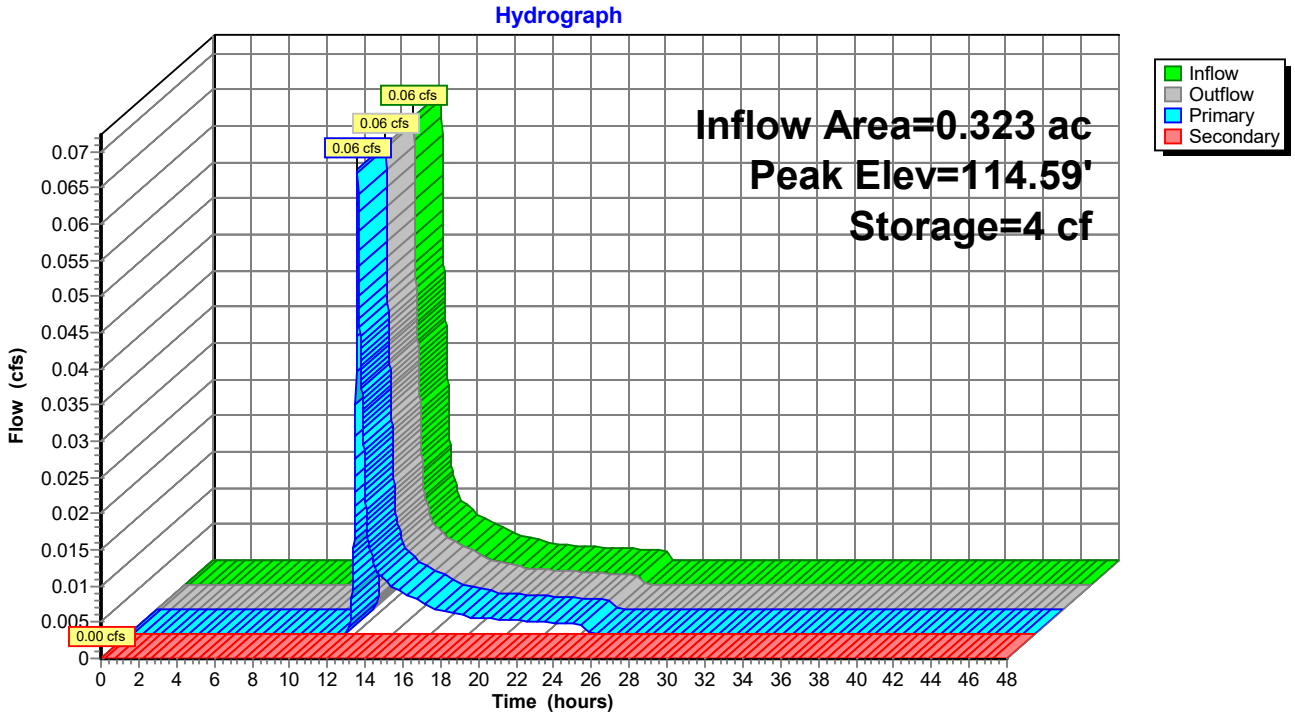
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
114.43	60	0.0	0	0
114.44	60	33.0	0	0
114.94	60	44.0	13	13
116.69	60	44.0	46	60
116.94	60	44.0	7	66
116.95	60	100.0	1	67
118.00	60	100.0	63	130

Device	Routing	Invert	Outlet Devices
#1	Primary	114.44'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#2	Device 1	114.43'	**0.19 cfs Exfiltration at all elevations**
#3	Secondary	117.25'	**8.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.06 cfs @ 12.11 hrs HW=114.59' (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 0.06 cfs @ 1.31 fps)
└**2=Exfiltration** (Passes 0.06 cfs of 0.19 cfs potential flow)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=114.43' (Free Discharge)
└**3=Orifice/Grate** (Controls 0.00 cfs)

Pond 5P: Filterra



Summary for Pond 6P: Filterra

Inflow Area = 0.834 ac, 69.90% Impervious, Inflow Depth = 0.06" for Focal Point event
Inflow = 0.04 cfs @ 12.11 hrs, Volume= 0.004 af
Outflow = 0.04 cfs @ 12.13 hrs, Volume= 0.004 af, Atten= 1%, Lag= 0.7 min
Primary = 0.04 cfs @ 12.13 hrs, Volume= 0.004 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 114.56' @ 12.13 hrs Surf.Area= 60 sf Storage= 3 cf

Plug-Flow detention time= 3.9 min calculated for 0.004 af (100% of inflow)
Center-of-Mass det. time= 3.3 min (909.2 - 905.9)

Volume	Invert	Avail.Storage	Storage Description
#1	114.43'	130 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

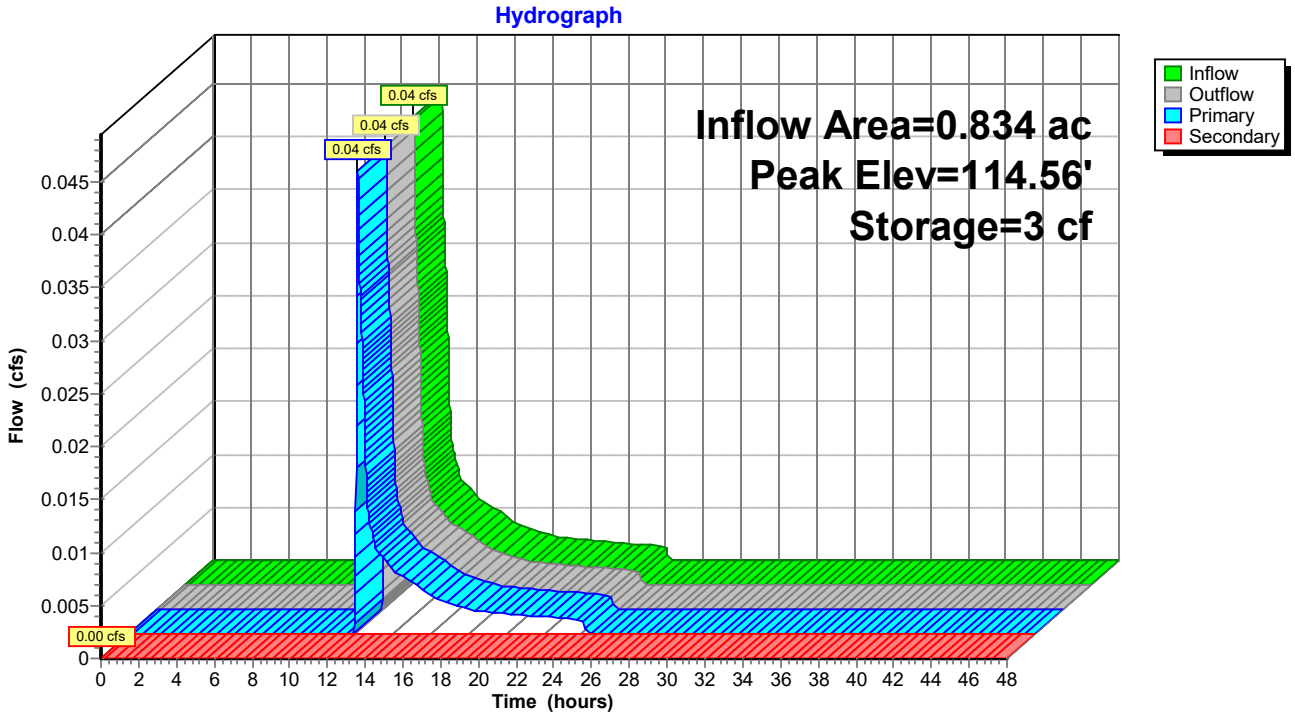
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
114.43	60	0.0	0	0
114.44	60	33.0	0	0
114.94	60	44.0	13	13
116.69	60	44.0	46	60
116.94	60	44.0	7	66
116.95	60	100.0	1	67
118.00	60	100.0	63	130

Device	Routing	Invert	Outlet Devices
#1	Primary	114.44'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#2	Device 1	114.43'	**140.000 in/hr Exfiltration over Surface area**
#3	Secondary	117.25'	**8.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.04 cfs @ 12.13 hrs HW=114.56' (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 0.04 cfs @ 1.18 fps)
└**2=Exfiltration** (Passes 0.04 cfs of 0.19 cfs potential flow)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=114.43' (Free Discharge)
└**3=Orifice/Grate** (Controls 0.00 cfs)

Pond 6P: Filterra



Summary for Pond 9R: New CB 1 to DMH 2

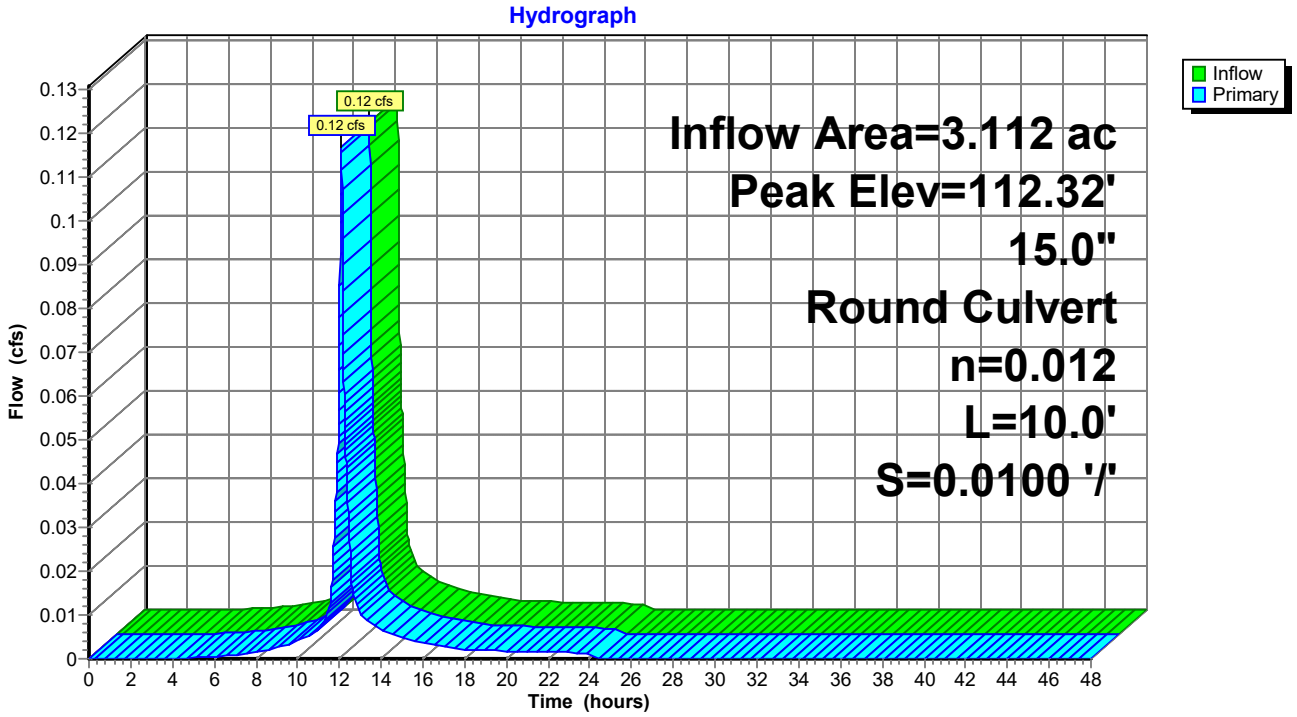
Inflow Area = 3.112 ac, 66.74% Impervious, Inflow Depth = 0.03" for Focal Point event
Inflow = 0.12 cfs @ 12.08 hrs, Volume= 0.009 af
Outflow = 0.12 cfs @ 12.08 hrs, Volume= 0.009 af, Atten= 0%, Lag= 0.0 min
Primary = 0.12 cfs @ 12.08 hrs, Volume= 0.009 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 112.32' @ 12.08 hrs
Flood Elev= 117.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	112.15'	**15.0" Round Culvert** L= 10.0' Ke= 0.500 Inlet / Outlet Invert= 112.15' / 112.05' S= 0.0100 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.11 cfs @ 12.08 hrs HW=112.32' (Free Discharge)
1=Culvert (Barrel Controls 0.11 cfs @ 1.82 fps)

Pond 9R: New CB 1 to DMH 2



Summary for Pond 30P: Raised StormTech SC-740 System

Inflow Area = 1.500 ac, 36.53% Impervious, Inflow Depth = 0.17" for Focal Point event
Inflow = 0.25 cfs @ 12.09 hrs, Volume= 0.022 af
Outflow = 0.02 cfs @ 13.29 hrs, Volume= 0.022 af, Atten= 90%, Lag= 71.6 min
Primary = 0.02 cfs @ 13.29 hrs, Volume= 0.022 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 111.64' @ 13.29 hrs Surf.Area= 0.053 ac Storage= 0.009 af

Plug-Flow detention time= 150.9 min calculated for 0.022 af (100% of inflow)
Center-of-Mass det. time= 150.9 min (954.3 - 803.4)

Volume	Invert	Avail.Storage	Storage Description
#1A	111.22'	0.007 af	**6.25'W x 46.34'L x 3.50'H Field A** 0.023 af Overall - 0.006 af Embedded = 0.017 af x 40.0% Voids
#2A	111.72'	0.006 af	**ADS_StormTech SC-740 +Cap** x 6 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap
#3B	111.22'	0.010 af	**6.25'W x 67.70'L x 3.50'H Field B** 0.034 af Overall - 0.009 af Embedded = 0.025 af x 40.0% Voids
#4B	111.72'	0.009 af	**ADS_StormTech SC-740 +Cap** x 9 Inside #3 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap
#5C	111.22'	0.018 af	**6.25'W x 124.66'L x 3.50'H Field C** 0.063 af Overall - 0.018 af Embedded = 0.045 af x 40.0% Voids
#6C	111.72'	0.018 af	**ADS_StormTech SC-740 +Cap** x 17 Inside #5 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap
#7D	111.22'	0.019 af	**6.25'W x 131.78'L x 3.50'H Field D** 0.066 af Overall - 0.019 af Embedded = 0.047 af x 40.0% Voids
#8D	111.72'	0.019 af	**ADS_StormTech SC-740 +Cap** x 18 Inside #7 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap
		0.106 af	Total Available Storage

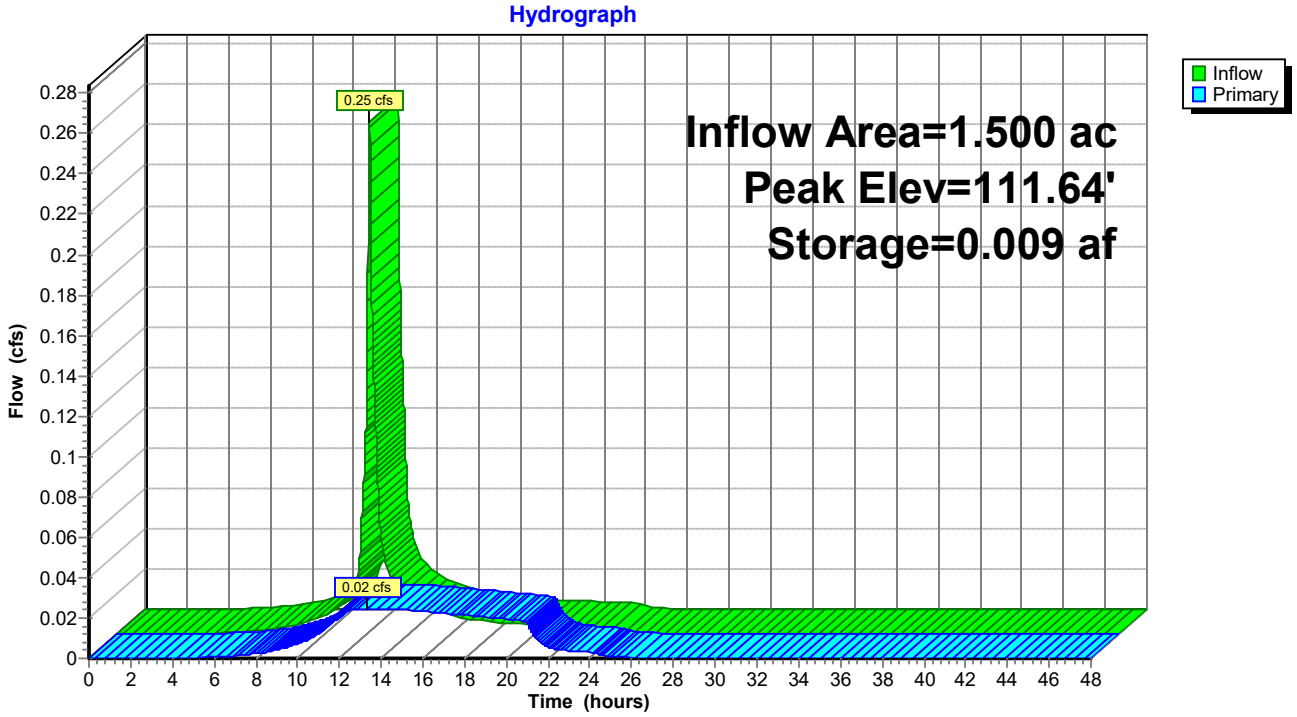
Storage Group A created with Chamber Wizard
Storage Group B created with Chamber Wizard
Storage Group C created with Chamber Wizard
Storage Group D created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Device 3	110.72'	**1.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#2	Device 3	113.72'	**6.0' long x 0.7' 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 Coef. (English) 2.76 2.82 2.93 3.09 3.18 3.22 3.27 3.30 3.32 3.31 3.32
#3	Primary	110.72'	**12.0" Round Culvert** L= 3.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 110.72' / 110.69' S= 0.0100 '/' Cc= 0.900

n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.02 cfs @ 13.29 hrs HW=111.64' (Free Discharge)
└**3=Culvert** (Passes 0.02 cfs of 1.69 cfs potential flow)
  └**1=Orifice/Grate** (Orifice Controls 0.02 cfs @ 4.52 fps)
  └**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 30P: Raised StormTech SC-740 System



Summary for Pond 36P: PP1

Inflow Area = 0.050 ac, 81.59% Impervious, Inflow Depth = 0.20" for Focal Point event
Inflow = 0.01 cfs @ 12.11 hrs, Volume= 0.001 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 115.69' @ 24.34 hrs Surf.Area= 1,110 sf Storage= 36 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

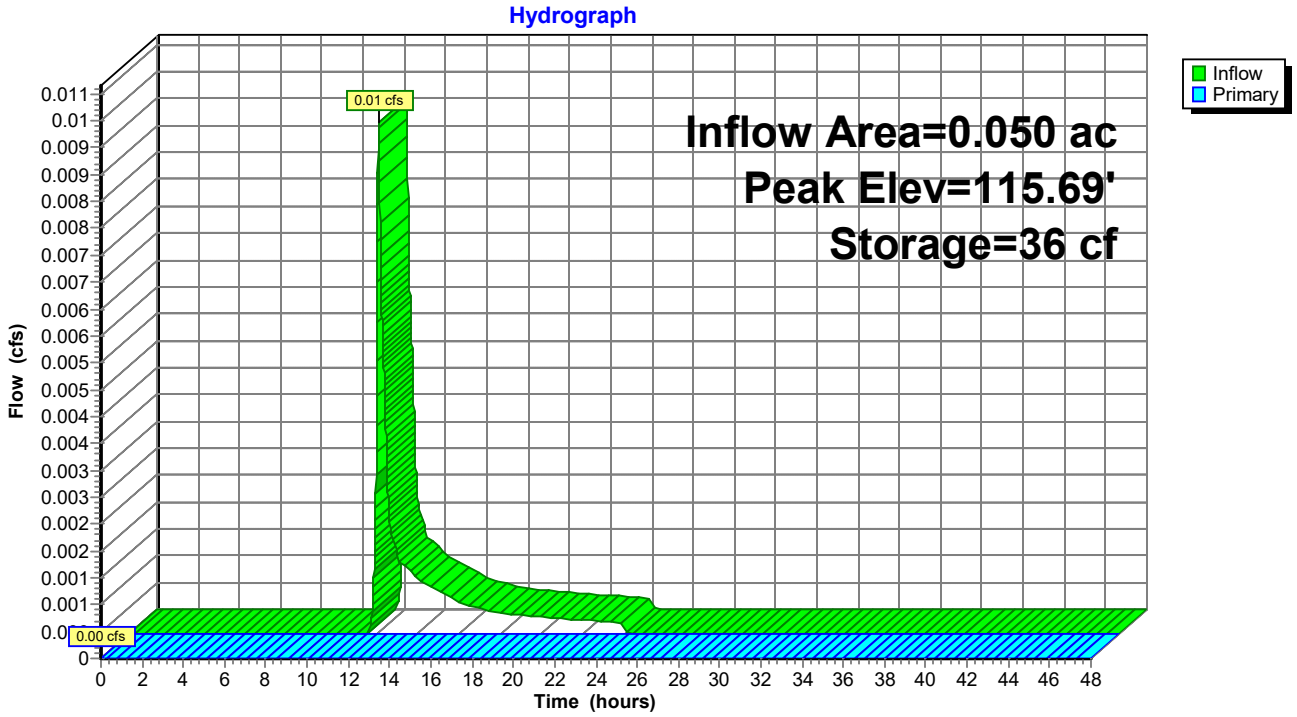
Volume	Invert	Avail.Storage	Storage Description
#1	115.59'	939 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
115.59	1,110	0.0	0	0
115.60	1,110	20.0	2	2
116.35	1,110	33.0	275	277
116.68	1,110	40.0	147	423
117.00	1,110	20.0	71	495
119.00	1,110	20.0	444	939

Device	Routing	Invert	Outlet Devices
#1	Primary	115.76'	**7.500 in/hr Exfiltration over Surface area above 115.76'** Excluded Surface area = 1,110 sf
#2	Primary	115.76'	**8.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=115.59' (Free Discharge)
1=Exfiltration (Controls 0.00 cfs)
2=Orifice/Grate (Controls 0.00 cfs)

Pond 36P: PP1


Hydrograph
Inflow
Primary
Inflow Area=0.050 ac
Peak Elev=115.69'
Storage=36 cf
0.01 cfs
0.00 cfs
Flow (cfs)
Time (hours)
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48
0 0.001 0.001 0.002 0.002 0.003 0.003 0.004 0.004 0.005 0.005 0.006 0.006 0.007 0.007 0.008 0.008 0.009 0.009 0.01 0.011

Summary for Pond 37P: PP2

Inflow Area = 0.077 ac,100.00% Impervious, Inflow Depth = 0.74" for Focal Point event
Inflow = 0.06 cfs @ 12.08 hrs, Volume= 0.005 af
Outflow = 0.04 cfs @ 12.19 hrs, Volume= 0.005 af, Atten= 39%, Lag= 6.1 min
Primary = 0.04 cfs @ 12.19 hrs, Volume= 0.005 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 115.71' @ 12.19 hrs Surf.Area= 1,212 sf Storage= 48 cf

Plug-Flow detention time= 61.0 min calculated for 0.005 af (99% of inflow)
Center-of-Mass det. time= 53.5 min (843.1 - 789.6)

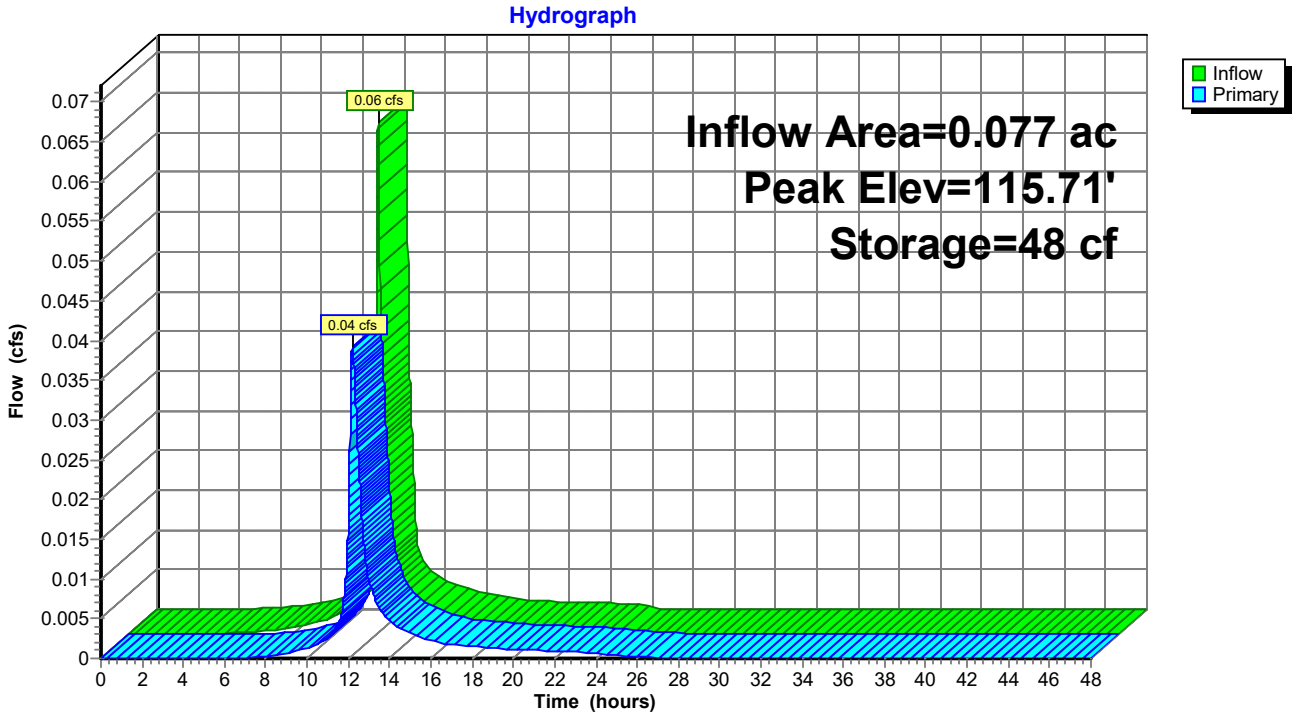
Volume	Invert	Avail.Storage	Storage Description
#1	115.59'	1,025 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
115.59	1,212	0.0	0	0
115.60	1,212	20.0	2	2
116.35	1,212	33.0	300	302
116.68	1,212	40.0	160	462
117.00	1,212	20.0	78	540
119.00	1,212	20.0	485	1,025

Device	Routing	Invert	Outlet Devices
#1	Primary	115.76'	**7.500 in/hr Exfiltration over Surface area above 115.76'** Excluded Surface area = 1,212 sf
#2	Primary	115.60'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.04 cfs @ 12.19 hrs HW=115.71' (Free Discharge)
1=Exfiltration (Controls 0.00 cfs)
2=Orifice/Grate (Orifice Controls 0.04 cfs @ 1.15 fps)

Pond 37P: PP2


Hydrograph
Inflow
Primary
0.06 cfs
0.04 cfs
Inflow Area=0.077 ac
Peak Elev=115.71'
Storage=48 cf
Flow (cfs)
0.07
0.065
0.06
0.055
0.05
0.045
0.04
0.035
0.03
0.025
0.02
0.015
0.01
0.005
0
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48
Time (hours)

Summary for Pond 38P: Rain Garden West

Inflow Area = 0.503 ac, 7.99% Impervious, Inflow Depth = 0.00" for Focal Point event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 120.00' @ 0.00 hrs Surf.Area= 453 sf Storage= 0 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no inflow)

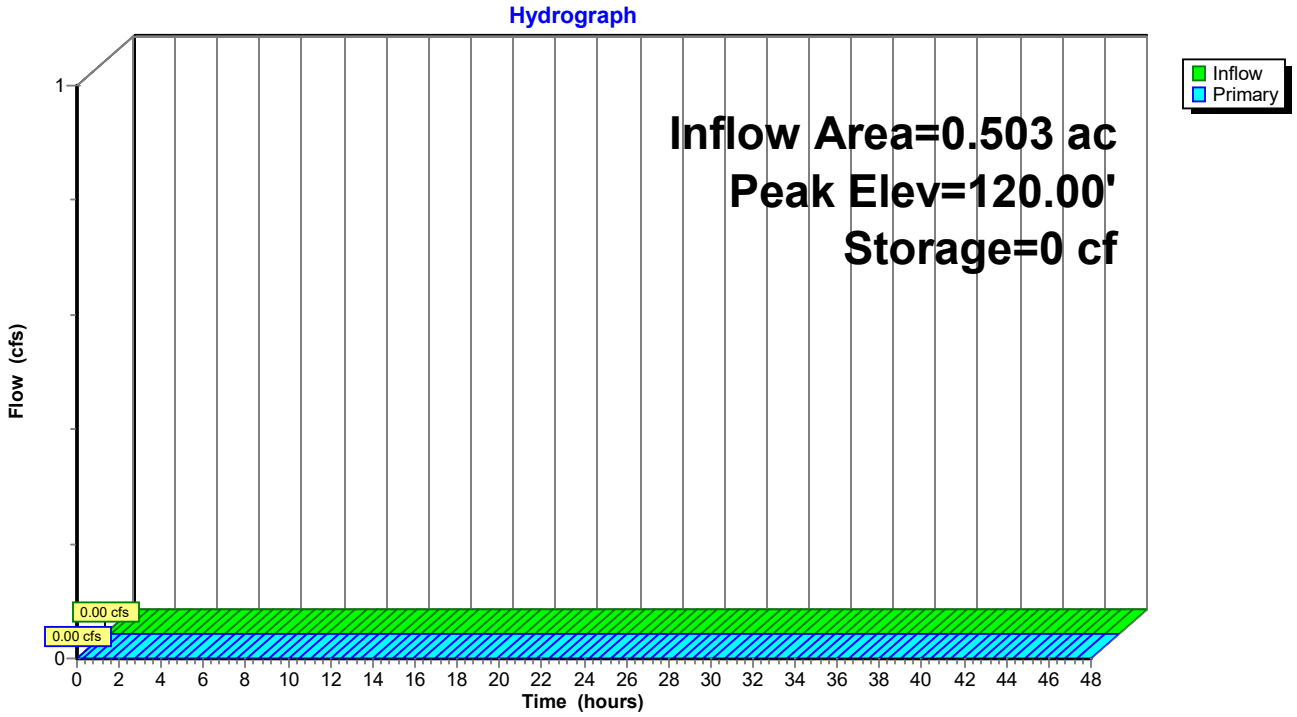
Volume	Invert	Avail.Storage	Storage Description
#1	120.00'	729 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
120.00	453	0	0
121.00	1,005	729	729

Device	Routing	Invert	Outlet Devices
#1	Device 2	120.25'	**8.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#2	Primary	117.25'	**8.0" Round Culvert** L= 187.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 117.25' / 115.25' S= 0.0107 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=120.00' (Free Discharge)
↑**2=Culvert** (Passes 0.00 cfs of 1.65 cfs potential flow)
↑**1=Orifice/Grate** (Controls 0.00 cfs)

Pond 38P: Rain Garden West



Summary for Pond DS-2: Drip Strip

Inflow Area = 0.220 ac, 79.17% Impervious, Inflow Depth = 0.41" for Focal Point event
Inflow = 0.11 cfs @ 12.09 hrs, Volume= 0.008 af
Outflow = 0.10 cfs @ 12.12 hrs, Volume= 0.008 af, Atten= 6%, Lag= 1.8 min
Discarded = 0.10 cfs @ 12.12 hrs, Volume= 0.008 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 115.02' @ 12.12 hrs Surf.Area= 1,600 sf Storage= 11 cf

Plug-Flow detention time= 1.9 min calculated for 0.008 af (100% of inflow)
Center-of-Mass det. time= 1.9 min (845.4 - 843.5)

Volume	Invert	Avail.Storage	Storage Description
#1	115.00'	3,040 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

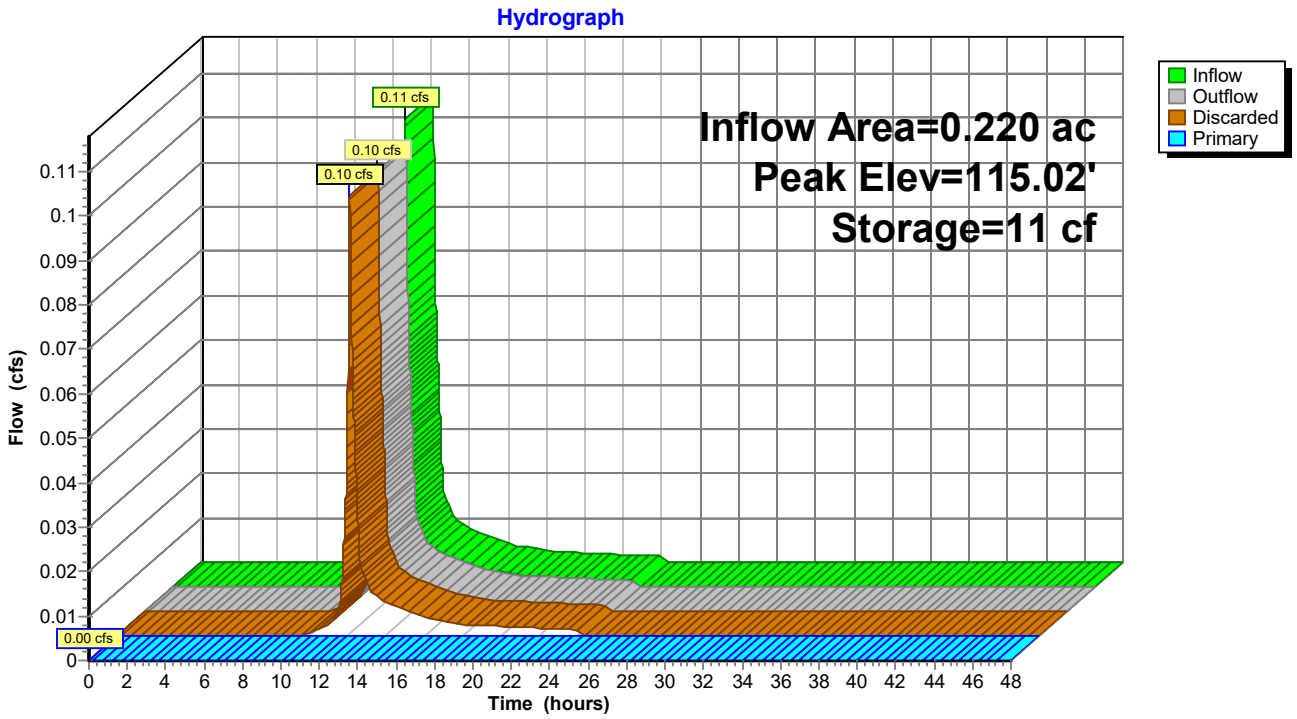
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
115.00	1,600	0.0	0	0
116.00	1,600	40.0	640	640
117.00	1,600	30.0	480	1,120
118.00	1,600	40.0	640	1,760
119.00	1,600	40.0	640	2,400
120.00	1,600	40.0	640	3,040

Device	Routing	Invert	Outlet Devices
#1	Discarded	115.00'	**7.500 in/hr Exfiltration over Surface area**
#2	Primary	116.00'	**6.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.28 cfs @ 12.12 hrs HW=115.02' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.28 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=115.00' (Free Discharge)
↑—**2=Orifice/Grate** (Controls 0.00 cfs)

Pond DS-2: Drip Strip



Summary for Pond DS-3: Drip Strip

Inflow Area = 0.399 ac, 76.31% Impervious, Inflow Depth = 0.41" for Focal Point event
Inflow = 0.19 cfs @ 12.09 hrs, Volume= 0.014 af
Outflow = 0.18 cfs @ 12.12 hrs, Volume= 0.014 af, Atten= 6%, Lag= 1.8 min
Discarded = 0.18 cfs @ 12.12 hrs, Volume= 0.014 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 115.03' @ 12.12 hrs Surf.Area= 1,600 sf Storage= 21 cf

Plug-Flow detention time= 1.9 min calculated for 0.014 af (100% of inflow)
Center-of-Mass det. time= 1.9 min (845.4 - 843.5)

Volume	Invert	Avail.Storage	Storage Description
#1	115.00'	3,040 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

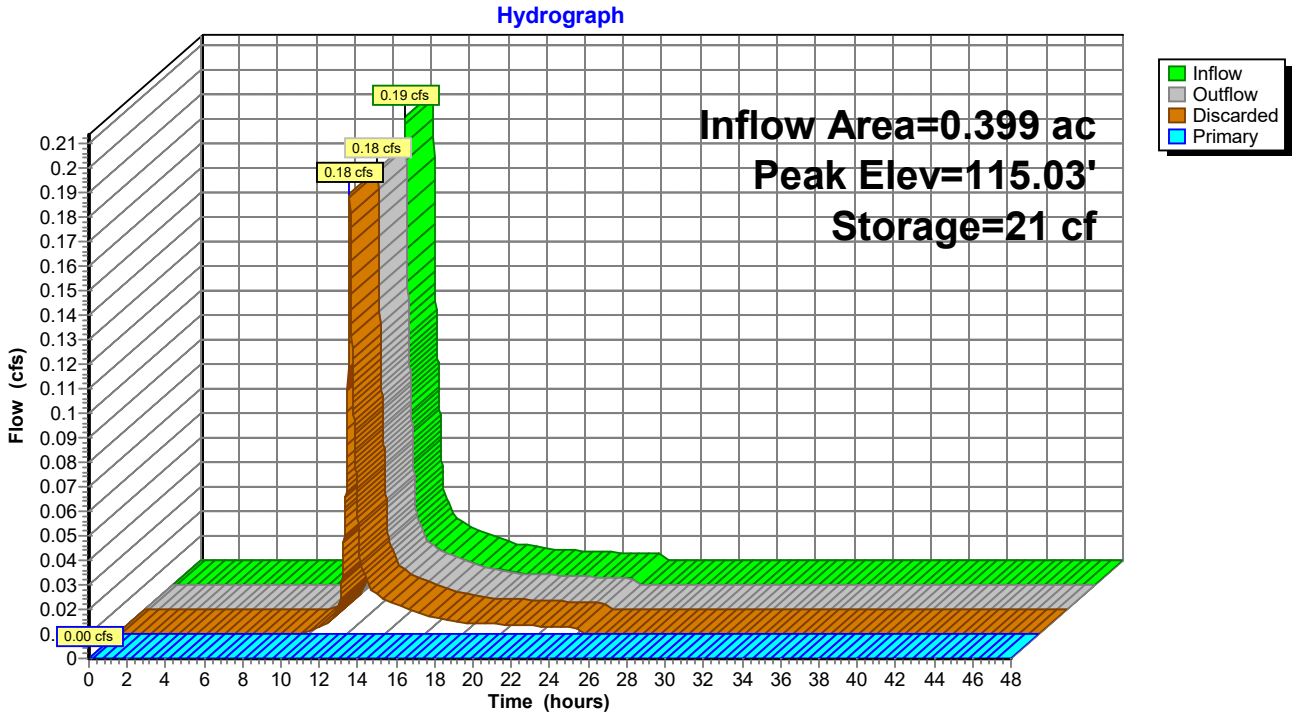
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
115.00	1,600	0.0	0	0
116.00	1,600	40.0	640	640
117.00	1,600	30.0	480	1,120
118.00	1,600	40.0	640	1,760
119.00	1,600	40.0	640	2,400
120.00	1,600	40.0	640	3,040

Device	Routing	Invert	Outlet Devices
#1	Discarded	115.00'	**7.500 in/hr Exfiltration over Surface area**
#2	Primary	116.00'	**6.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.28 cfs @ 12.12 hrs HW=115.03' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.28 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=115.00' (Free Discharge)
↑—**2=Orifice/Grate** (Controls 0.00 cfs)

Pond DS-3: Drip Strip



Summary for Pond DS1: Drip Strip

Inflow Area = 0.220 ac, 79.17% Impervious, Inflow Depth = 0.41" for Focal Point event
Inflow = 0.11 cfs @ 12.09 hrs, Volume= 0.008 af
Outflow = 0.10 cfs @ 12.12 hrs, Volume= 0.008 af, Atten= 6%, Lag= 1.8 min
Discarded = 0.10 cfs @ 12.12 hrs, Volume= 0.008 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 115.02' @ 12.12 hrs Surf.Area= 1,600 sf Storage= 11 cf

Plug-Flow detention time= 1.9 min calculated for 0.008 af (100% of inflow)
Center-of-Mass det. time= 1.9 min (845.4 - 843.5)

Volume	Invert	Avail.Storage	Storage Description
#1	115.00'	3,040 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

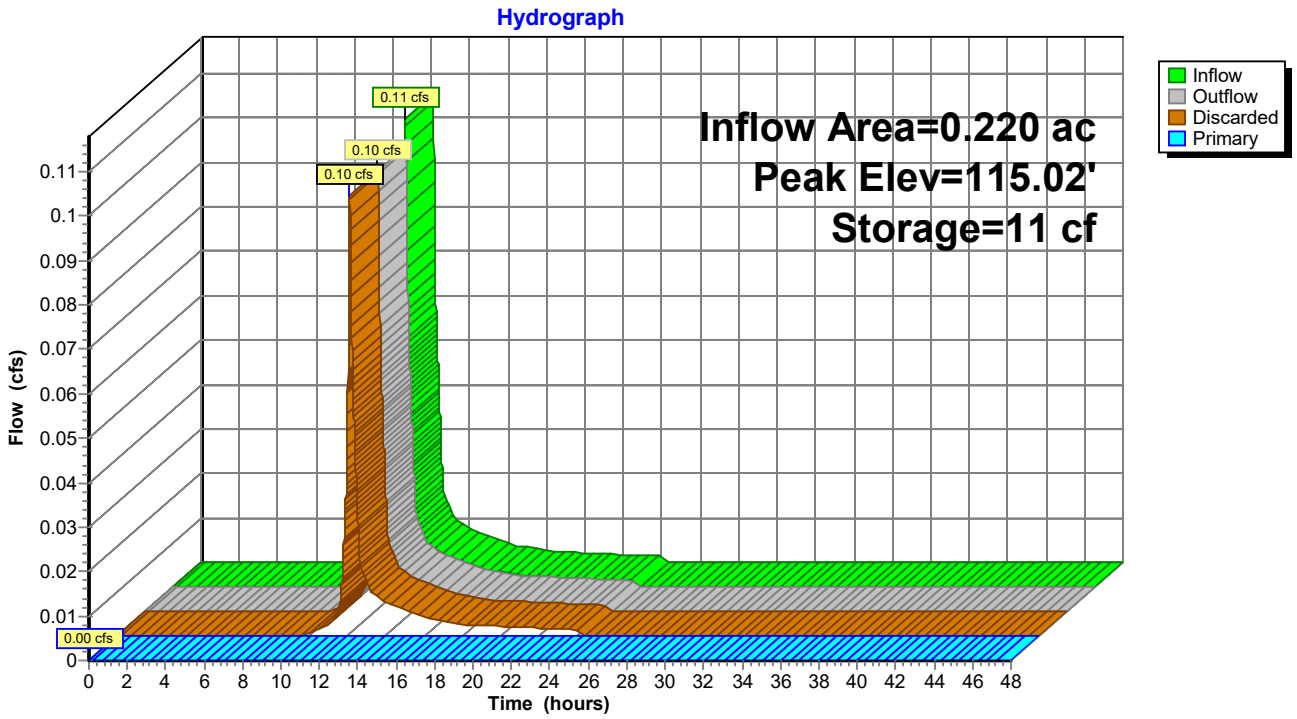
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
115.00	1,600	0.0	0	0
116.00	1,600	40.0	640	640
117.00	1,600	30.0	480	1,120
118.00	1,600	40.0	640	1,760
119.00	1,600	40.0	640	2,400
120.00	1,600	40.0	640	3,040

Device	Routing	Invert	Outlet Devices
#1	Discarded	115.00'	**7.500 in/hr Exfiltration over Surface area**
#2	Primary	116.00'	**6.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.28 cfs @ 12.12 hrs HW=115.02' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.28 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=115.00' (Free Discharge)
↑—**2=Orifice/Grate** (Controls 0.00 cfs)

Pond DS1: Drip Strip



Summary for Pond FP1: FP1 Filter

Inflow Area = 0.812 ac, 23.11% Impervious, Inflow Depth = 0.00" for Focal Point event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 111.84' @ 0.00 hrs Surf.Area= 75 sf Storage= 0 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no inflow)

Volume	Invert	Avail.Storage	Storage Description
#1	111.84'	133 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

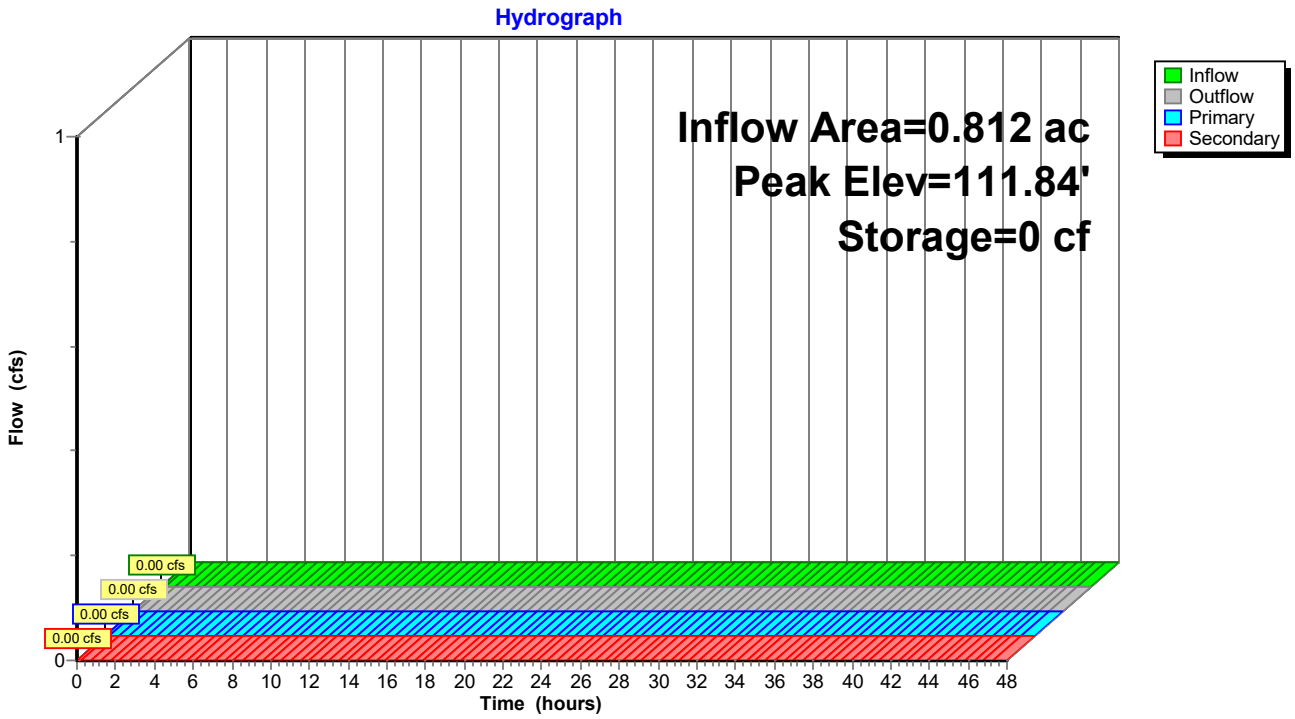
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
111.84	75	0.0	0	0
113.34	75	40.0	45	45
114.34	100	100.0	88	133

Device	Routing	Invert	Outlet Devices
#1	Primary	111.84'	**100.000 in/hr Exfiltration over Surface area**
#2	Secondary	113.84'	**12.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=111.84' (Free Discharge)
↑—**1=Exfiltration** (Passes 0.00 cfs of 0.17 cfs potential flow)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=111.84' (Free Discharge)
↑—**2=Orifice/Grate** (Controls 0.00 cfs)

Pond FP1: FP1 Filter



Summary for Pond FP2: FP2 Filter

Inflow Area = 0.514 ac, 21.94% Impervious, Inflow Depth = 0.00" for Focal Point event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 110.56' @ 0.00 hrs Surf.Area= 75 sf Storage= 0 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no inflow)

Volume	Invert	Avail.Storage	Storage Description
#1	110.56'	133 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

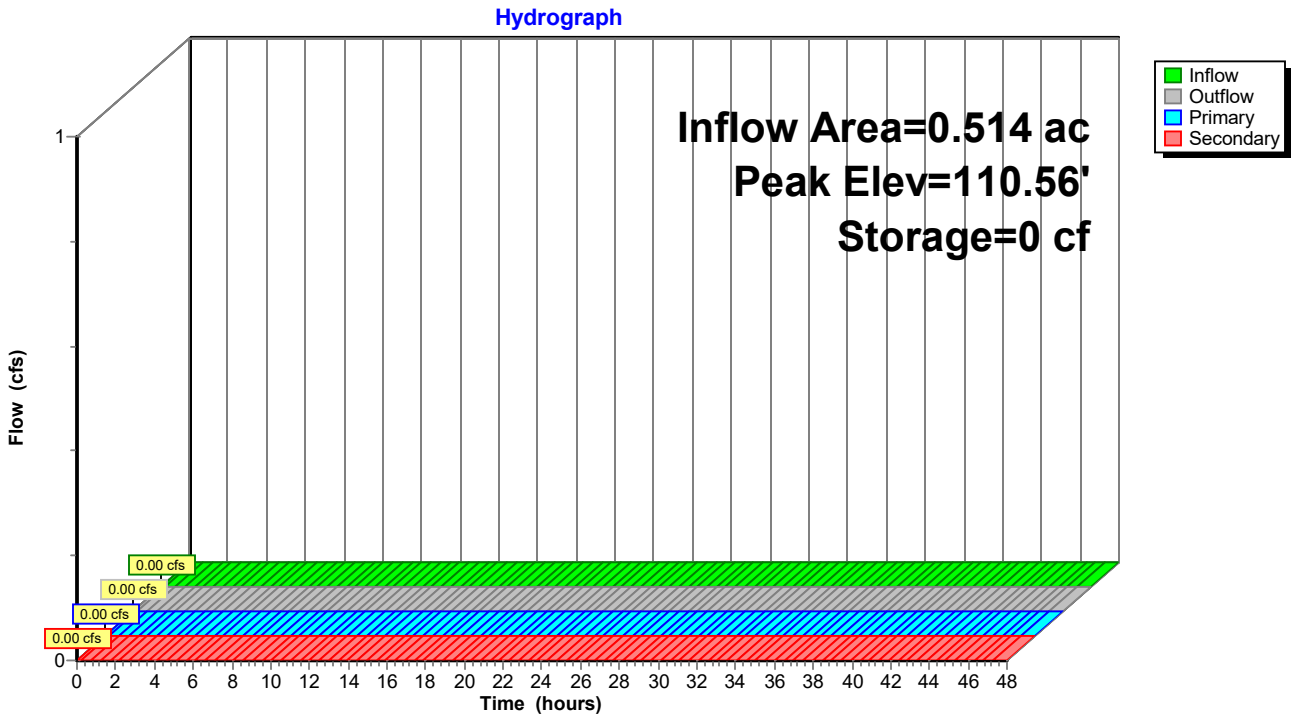
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
110.56	75	0.0	0	0
112.06	75	40.0	45	45
113.06	100	100.0	88	133

Device	Routing	Invert	Outlet Devices
#1	Primary	110.56'	**100.000 in/hr Exfiltration over Surface area**
#2	Secondary	112.55'	**12.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=110.56' (Free Discharge)
1=Exfiltration (Passes 0.00 cfs of 0.17 cfs potential flow)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=110.56' (Free Discharge)
2=Orifice/Grate (Controls 0.00 cfs)

Pond FP2: FP2 Filter



Summary for Pond IT-1: Infiltration Trench

Inflow Area = 1.157 ac, 72.26% Impervious, Inflow Depth = 0.10" for Focal Point event
Inflow = 0.11 cfs @ 12.12 hrs, Volume= 0.010 af
Outflow = 0.10 cfs @ 12.14 hrs, Volume= 0.010 af, Atten= 4%, Lag= 1.5 min
Discarded = 0.10 cfs @ 12.14 hrs, Volume= 0.010 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 112.02' @ 12.14 hrs Surf.Area= 1,600 sf Storage= 9 cf

Plug-Flow detention time= 1.4 min calculated for 0.010 af (100% of inflow)
Center-of-Mass det. time= 1.4 min (897.2 - 895.7)

Volume	Invert	Avail.Storage	Storage Description
#1	112.00'	2,880 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

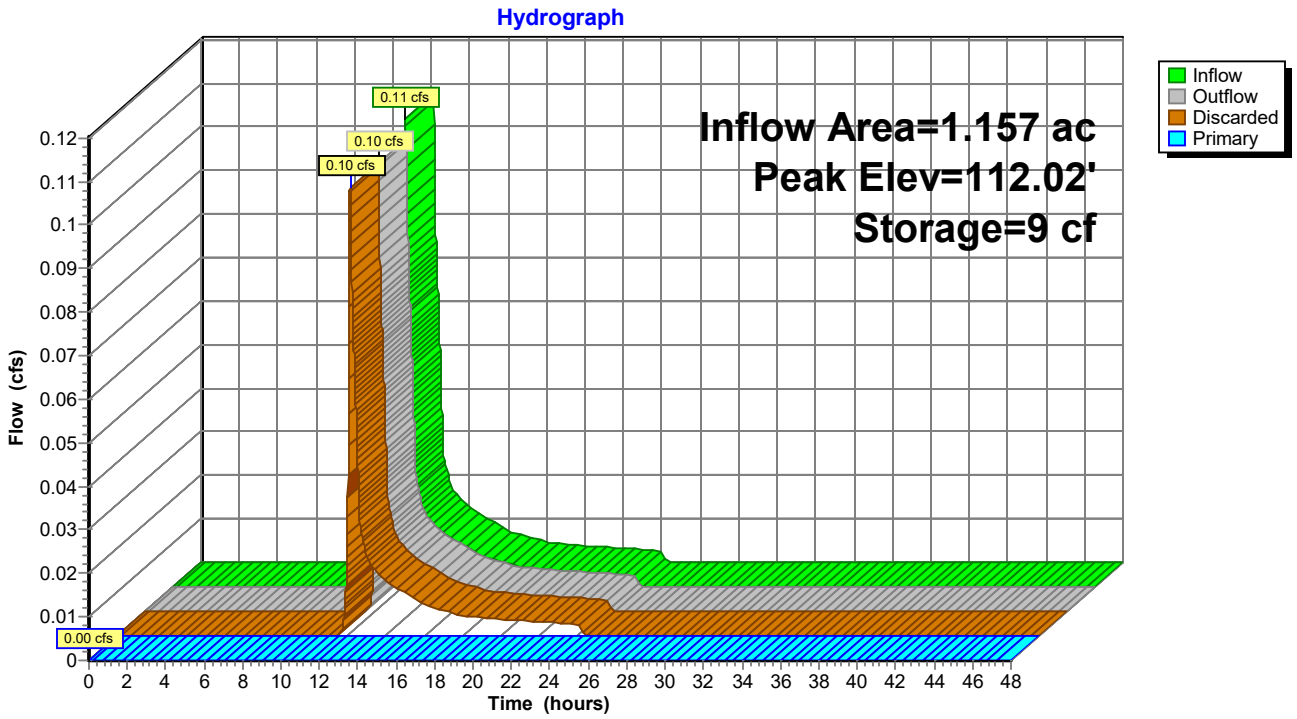
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
112.00	1,600	0.0	0	0
113.00	1,600	30.0	480	480
114.00	1,600	30.0	480	960
115.00	1,600	40.0	640	1,600
116.00	1,600	40.0	640	2,240
117.00	1,600	40.0	640	2,880

Device	Routing	Invert	Outlet Devices
#1	Discarded	112.00'	**7.500 in/hr Exfiltration over Surface area**
#2	Primary	113.00'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.28 cfs @ 12.14 hrs HW=112.02' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.28 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=112.00' (Free Discharge)
↑—**2=Orifice/Grate** (Controls 0.00 cfs)

Pond IT-1: Infiltration Trench



Summary for Pond PP1: Porous Pavement 1

Inflow Area = 0.440 ac, 72.24% Impervious, Inflow Depth = 0.10" for Focal Point event
Inflow = 0.02 cfs @ 12.15 hrs, Volume= 0.004 af
Outflow = 0.01 cfs @ 12.54 hrs, Volume= 0.004 af, Atten= 43%, Lag= 23.2 min
Primary = 0.01 cfs @ 12.54 hrs, Volume= 0.004 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 112.90' @ 12.54 hrs Surf.Area= 6,156 sf Storage= 11 cf
Flood Elev= 114.67' Surf.Area= 6,156 sf Storage= 4,358 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 2.9 min (939.1 - 936.3)

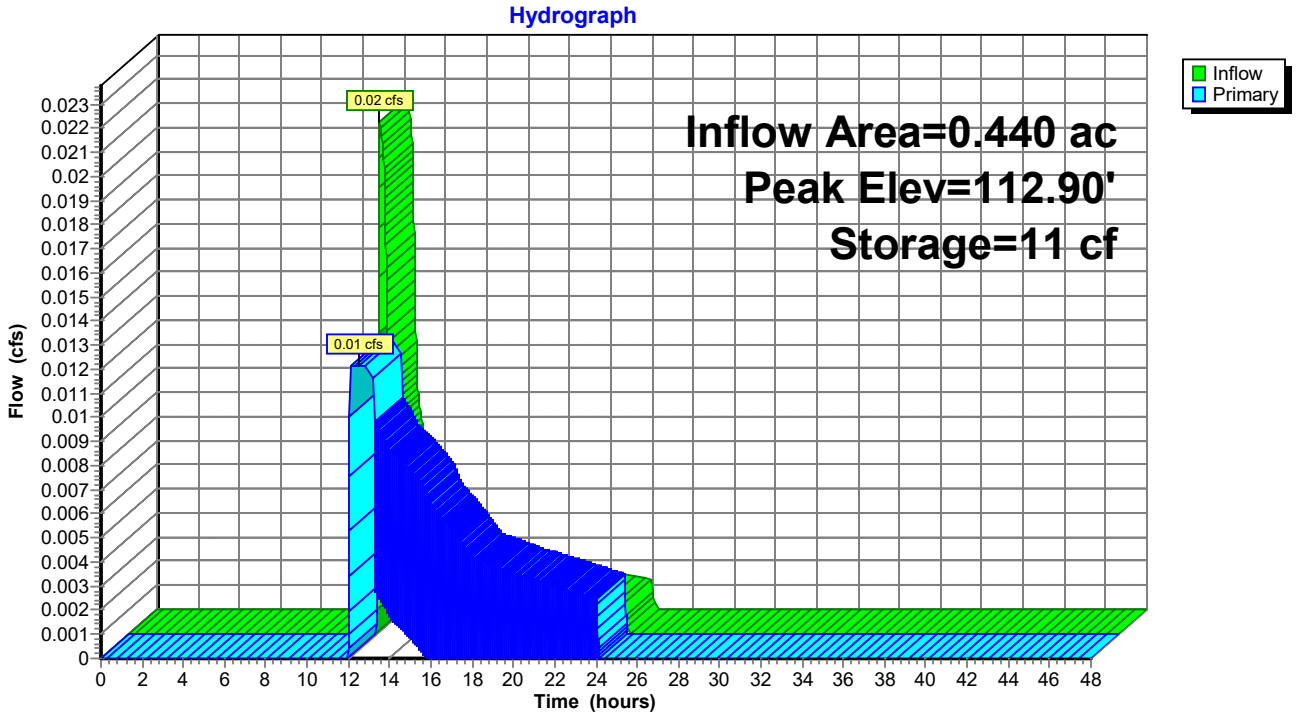
Volume	Invert	Avail.Storage	Storage Description
#1	111.22'	4,358 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
111.22	6,156	0.0	0	0
112.90	6,156	0.0	0	0
114.67	6,156	40.0	4,358	4,358
115.25	6,156	0.0	0	4,358

Device	Routing	Invert	Outlet Devices
#1	Primary	111.23'	**8.0" Round Culvert** L= 35.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 111.23' / 110.88' S= 0.0100 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.35 sf
#2	Device 1	111.23'	**0.6" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	113.45'	**0.5' long x 0.7' 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 Coef. (English) 2.76 2.82 2.93 3.09 3.18 3.22 3.27 3.30 3.32 3.31 3.32
#4	Device 1	113.95'	**6.0' long x 0.7' 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 Coef. (English) 2.76 2.82 2.93 3.09 3.18 3.22 3.27 3.30 3.32 3.31 3.32

Primary OutFlow Max=0.01 cfs @ 12.54 hrs HW=112.90' (Free Discharge)
└**1=Culvert** (Passes 0.01 cfs of 1.85 cfs potential flow)
  ├**2=Orifice/Grate** (Orifice Controls 0.01 cfs @ 6.18 fps)
  ├**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
  └**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond PP1: Porous Pavement 1



Summary for Pond PP2: Porous Pavement 2

Inflow Area = 0.366 ac, 73.59% Impervious, Inflow Depth = 0.10" for Focal Point event
Inflow = 0.02 cfs @ 12.15 hrs, Volume= 0.003 af
Outflow = 0.01 cfs @ 12.58 hrs, Volume= 0.003 af, Atten= 52%, Lag= 25.9 min
Primary = 0.01 cfs @ 12.58 hrs, Volume= 0.003 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 112.78' @ 12.58 hrs Surf.Area= 5,346 sf Storage= 12 cf
Flood Elev= 114.27' Surf.Area= 5,346 sf Storage= 2,138 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 5.6 min (941.9 - 936.3)

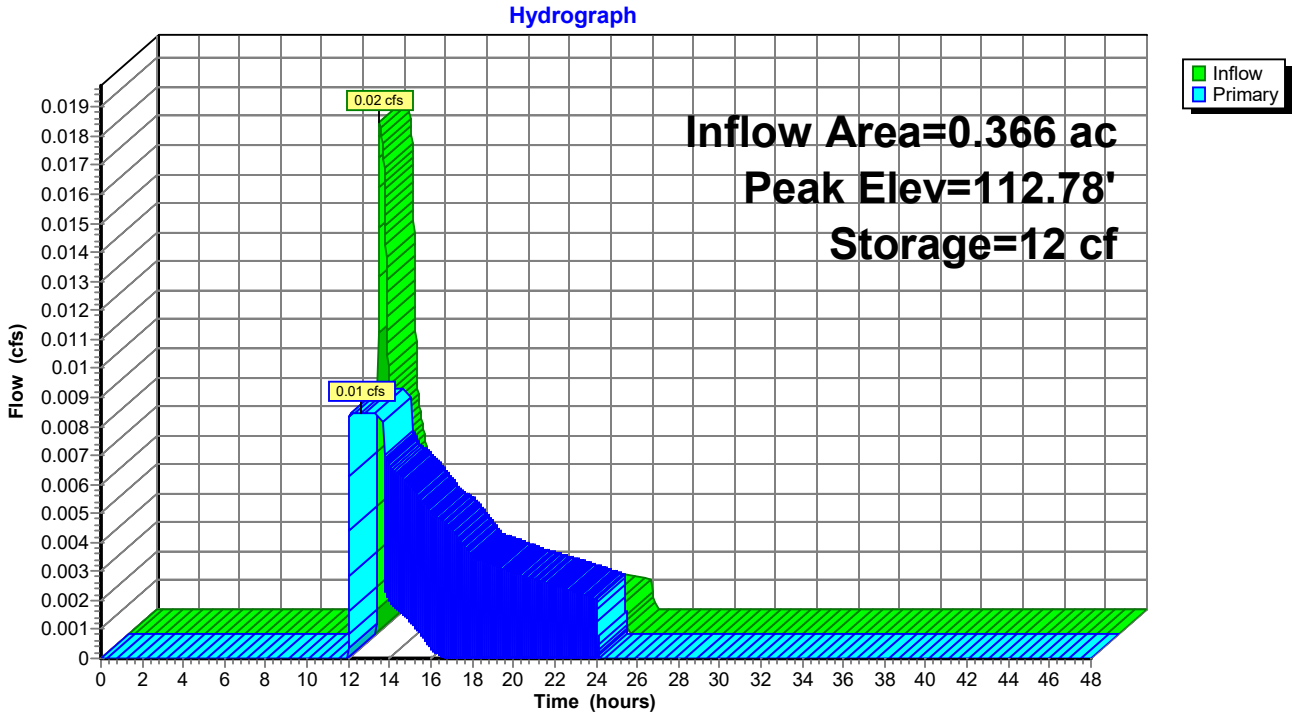
Volume	Invert	Avail.Storage	Storage Description
#1	111.10'	2,138 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
111.10	5,346	0.0	0	0
112.77	5,346	0.0	0	0
113.77	5,346	40.0	2,138	2,138
114.35	5,346	0.0	0	2,138

Device	Routing	Invert	Outlet Devices
#1	Primary	111.10'	**8.0" Round Culvert** L= 25.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 111.10' / 110.70' S= 0.0160 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.35 sf
#2	Device 1	111.10'	**0.5" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	113.29'	**0.5' long x 0.7' 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 Coef. (English) 2.76 2.82 2.93 3.09 3.18 3.22 3.27 3.30 3.32 3.31 3.32
#4	Device 1	113.79'	**6.0' long x 0.7' 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 Coef. (English) 2.76 2.82 2.93 3.09 3.18 3.22 3.27 3.30 3.32 3.31 3.32

Primary OutFlow Max=0.01 cfs @ 12.58 hrs HW=112.78' (Free Discharge)
└**1=Culvert** (Passes 0.01 cfs of 1.95 cfs potential flow)
  ├**2=Orifice/Grate** (Orifice Controls 0.01 cfs @ 6.19 fps)
  ├**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
  └**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond PP2: Porous Pavement 2



Summary for Pond PP3: Porous Pavement 3

Inflow Area = 0.432 ac, 64.46% Impervious, Inflow Depth = 0.04" for Focal Point event
Inflow = 0.00 cfs @ 12.48 hrs, Volume= 0.001 af
Outflow = 0.00 cfs @ 12.48 hrs, Volume= 0.001 af, Atten= 0%, Lag= 0.0 min
Primary = 0.00 cfs @ 12.48 hrs, Volume= 0.001 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 110.34' @ 12.48 hrs Surf.Area= 3,744 sf Storage= 0 cf

Plug-Flow detention time= (not calculated: no plugs found)
Center-of-Mass det. time= 0.0 min (1,012.1 - 1,012.1)

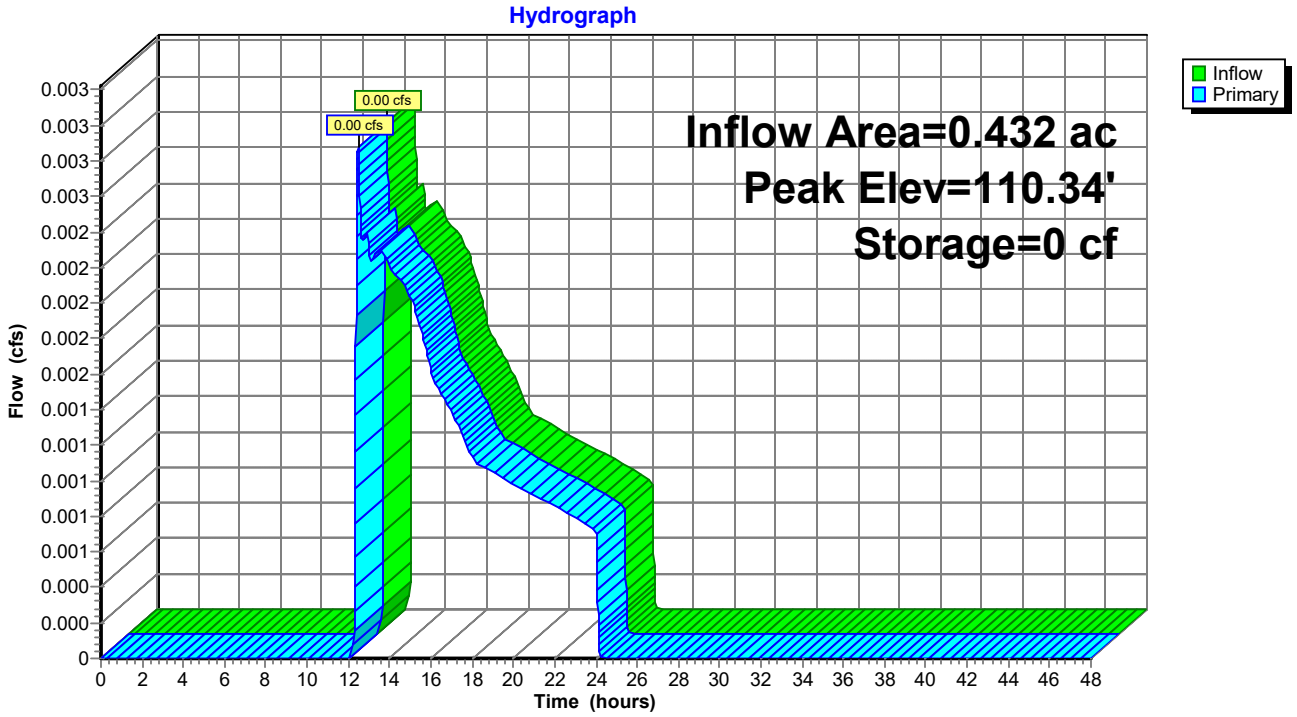
Volume	Invert	Avail.Storage	Storage Description
#1	110.13'	3,025 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
110.13	3,744	0.0	0	0
111.10	3,744	0.0	0	0
111.80	3,744	0.0	0	0
113.82	3,744	40.0	3,025	3,025
114.40	3,744	0.0	0	3,025

Device	Routing	Invert	Outlet Devices
#1	Primary	110.13'	**8.0" Round Culvert** L= 40.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 110.13' / 109.73' S= 0.0100 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.35 sf
#2	Device 1	110.13'	**0.5" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	112.65'	**0.5' long x 0.7' 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 Coef. (English) 2.76 2.82 2.93 3.09 3.18 3.22 3.27 3.30 3.32 3.31 3.32
#4	Device 1	113.15'	**6.0' long x 0.7' 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 Coef. (English) 2.76 2.82 2.93 3.09 3.18 3.22 3.27 3.30 3.32 3.31 3.32

Primary OutFlow Max=0.00 cfs @ 12.48 hrs HW=110.34' (Free Discharge)
└**1=Culvert** (Passes 0.00 cfs of 0.15 cfs potential flow)
  ├**2=Orifice/Grate** (Orifice Controls 0.00 cfs @ 2.11 fps)
  ├**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
  └**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond PP3: Porous Pavement 3



Summary for Pond PP4: Porous Pavement 4

Inflow Area = 0.227 ac, 63.12% Impervious, Inflow Depth = 0.03" for Focal Point event
Inflow = 0.00 cfs @ 13.74 hrs, Volume= 0.001 af
Outflow = 0.00 cfs @ 13.74 hrs, Volume= 0.001 af, Atten= 0%, Lag= 0.0 min
Primary = 0.00 cfs @ 13.74 hrs, Volume= 0.001 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 110.19' @ 13.74 hrs Surf.Area= 1,620 sf Storage= 0 cf
Flood Elev= 113.60' Surf.Area= 1,620 sf Storage= 1,166 cf

Plug-Flow detention time= 0.0 min calculated for 0.001 af (100% of inflow)
Center-of-Mass det. time= 0.0 min (1,033.7 - 1,033.7)

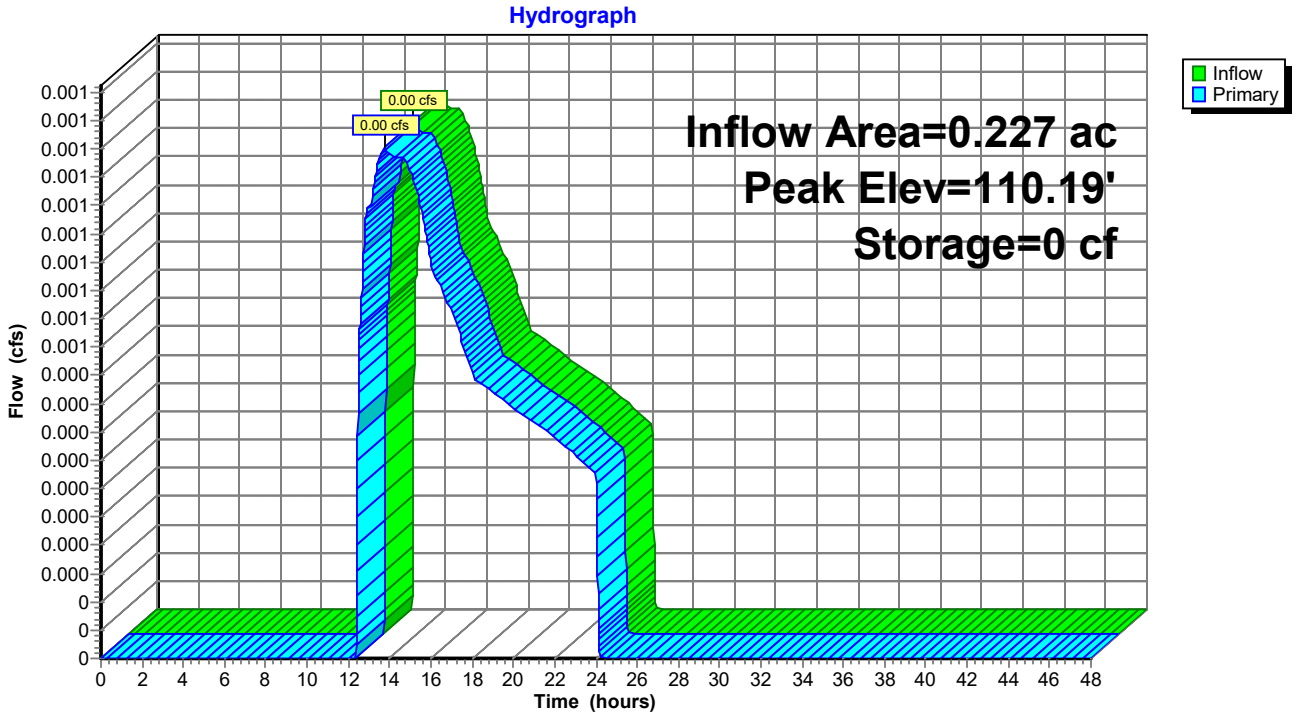
Volume	Invert	Avail.Storage	Storage Description
#1	110.10'	1,166 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
110.10	1,620	0.0	0	0
111.80	1,620	0.0	0	0
113.60	1,620	40.0	1,166	1,166
114.14	1,620	0.0	0	1,166

Device	Routing	Invert	Outlet Devices
#1	Primary	110.13'	**8.0" Round Culvert** L= 35.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 110.13' / 109.78' S= 0.0100 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.35 sf
#2	Device 1	110.13'	**0.4" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	112.80'	**0.5' long x 0.7' 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 Coef. (English) 2.76 2.82 2.93 3.09 3.18 3.22 3.27 3.30 3.32 3.31 3.32
#4	Device 1	113.30'	**6.0' long x 0.7' 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 Coef. (English) 2.76 2.82 2.93 3.09 3.18 3.22 3.27 3.30 3.32 3.31 3.32

Primary OutFlow Max=0.00 cfs @ 13.74 hrs HW=110.19' (Free Discharge)
└**1=Culvert** (Passes 0.00 cfs of 0.01 cfs potential flow)
  ├**2=Orifice/Grate** (Orifice Controls 0.00 cfs @ 1.05 fps)
  ├**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
  └**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond PP4: Porous Pavement 4



Summary for Pond R1: Detention Pond 1

Inflow Area = 0.734 ac,100.00% Impervious, Inflow Depth = 0.74" for Focal Point event
Inflow = 0.62 cfs @ 12.08 hrs, Volume= 0.045 af
Outflow = 0.05 cfs @ 13.00 hrs, Volume= 0.040 af, Atten= 91%, Lag= 55.0 min
Primary = 0.05 cfs @ 13.00 hrs, Volume= 0.040 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 110.96' @ 13.00 hrs Surf.Area= 1,156 sf Storage= 1,135 cf

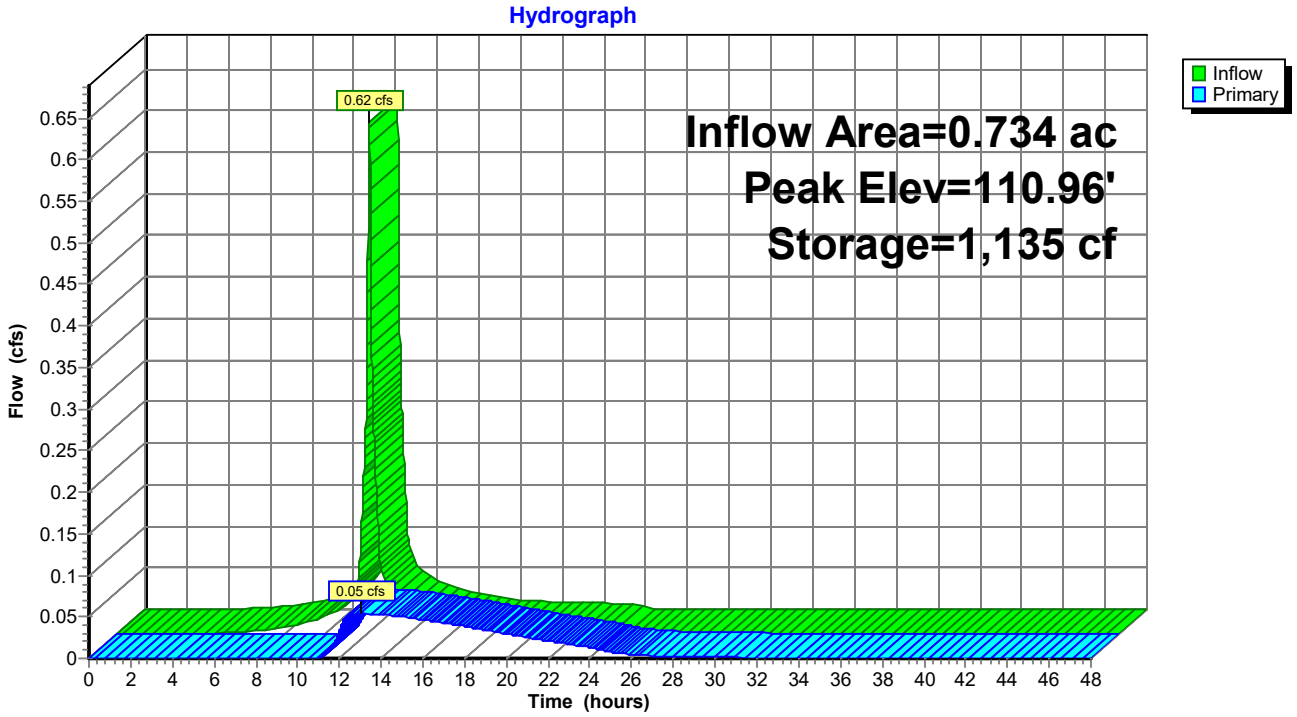
Plug-Flow detention time= 309.1 min calculated for 0.040 af (88% of inflow)
Center-of-Mass det. time= 255.1 min (1,044.7 - 789.6)

Volume	Invert	Avail.Storage	Storage Description
#1	110.06'	2,744 cf	**ACF R-Tank HD 2** x 350 Inside #2 Inside= 15.7"W x 33.9"H => 3.52 sf x 2.35'L = 8.3 cf Outside= 15.7"W x 33.9"H => 3.70 sf x 2.35'L = 8.7 cf 350 Chambers in 14 Rows 3,040 cf Overall x 95.0% Voids
#2	109.56'	555 cf	**34.00'W x 34.00'L x 3.83'H Prismatoid** 4,427 cf Overall - 3,040 cf Embedded = 1,387 cf x 40.0% Voids
		3,299 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	110.06'	**10.0" Round Culvert** L= 10.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 110.06' / 109.68' S= 0.0380 '/' Cc= 0.900 n= 0.012, Flow Area= 0.55 sf
#2	Device 1	110.06'	**1.5" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	112.90'	**6.0' long x 0.7' 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 Coef. (English) 2.76 2.82 2.93 3.09 3.18 3.22 3.27 3.30 3.32 3.31 3.32
#4	Device 1	111.00'	**8.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.05 cfs @ 13.00 hrs HW=110.96' (Free Discharge)
└**1=Culvert** (Passes 0.05 cfs of 1.83 cfs potential flow)
  ├**2=Orifice/Grate** (Orifice Controls 0.05 cfs @ 4.41 fps)
  ├**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
  └**4=Orifice/Grate** (Controls 0.00 cfs)

Pond R1: Detention Pond 1



Summary for Pond R2: Detention Pond 2

Inflow Area = 0.734 ac,100.00% Impervious, Inflow Depth = 0.74" for Focal Point event
Inflow = 0.62 cfs @ 12.08 hrs, Volume= 0.045 af
Outflow = 0.03 cfs @ 14.04 hrs, Volume= 0.039 af, Atten= 95%, Lag= 117.2 min
Primary = 0.03 cfs @ 14.04 hrs, Volume= 0.039 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 111.05' @ 14.04 hrs Surf.Area= 1,344 sf Storage= 1,302 cf

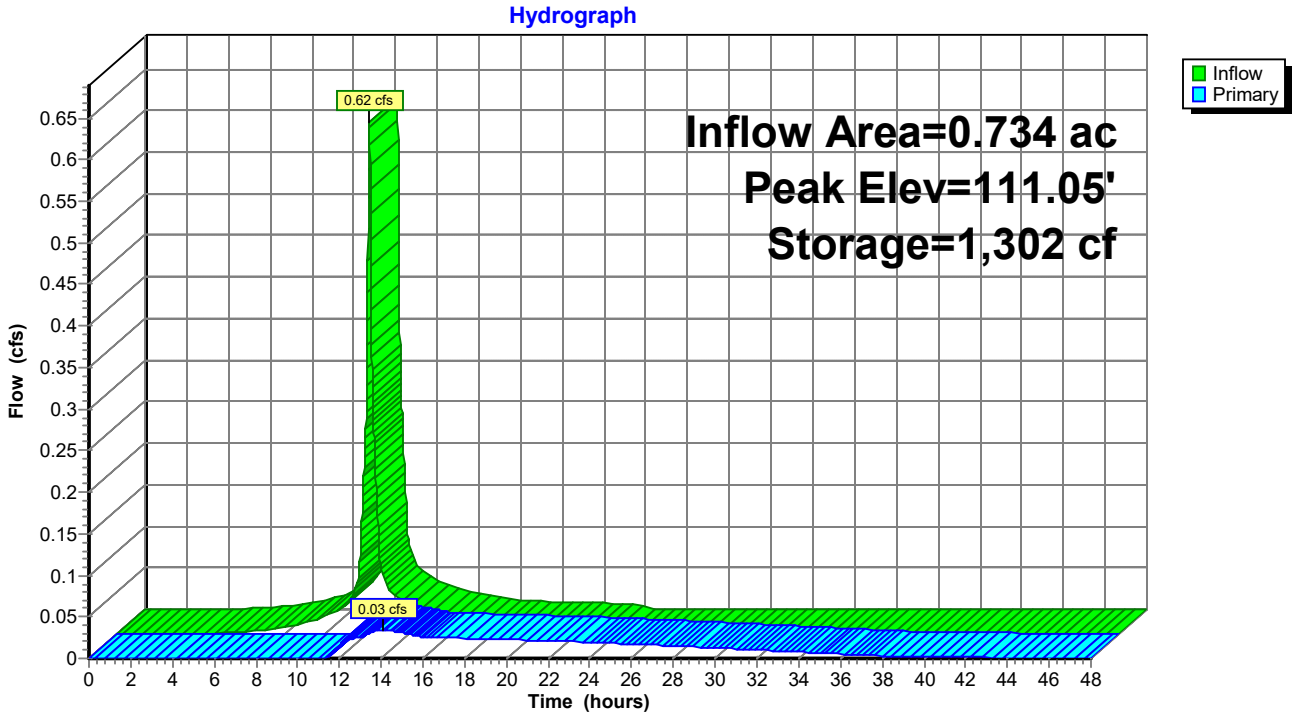
Plug-Flow detention time= 600.2 min calculated for 0.039 af (86% of inflow)
Center-of-Mass det. time= 538.7 min (1,328.3 - 789.6)

Volume	Invert	Avail.Storage	Storage Description
#1	110.06'	2,587 cf	**ACF R-Tank HD 2** x 330 Inside #2 Inside= 15.7"W x 33.9"H => 3.52 sf x 2.35'L = 8.3 cf Outside= 15.7"W x 33.9"H => 3.70 sf x 2.35'L = 8.7 cf 330 Chambers in 15 Rows 2,866 cf Overall x 95.0% Voids
#2	109.56'	912 cf	**24.00'W x 56.00'L x 3.83'H Prismatoid** 5,148 cf Overall - 2,866 cf Embedded = 2,281 cf x 40.0% Voids
		3,499 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	108.14'	**12.0" Round Culvert** L= 10.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 108.14' / 108.10' S= 0.0040 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#2	Device 1	110.06'	**1.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	112.70'	**6.0' long x 0.7' 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 Coef. (English) 2.76 2.82 2.93 3.09 3.18 3.22 3.27 3.30 3.32 3.31 3.32
#4	Device 1	111.00'	**7.5" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.03 cfs @ 14.04 hrs HW=111.05' (Free Discharge)
└**1=Culvert** (Passes 0.03 cfs of 5.87 cfs potential flow)
  ├**2=Orifice/Grate** (Orifice Controls 0.03 cfs @ 4.68 fps)
  ├**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
  └**4=Orifice/Grate** (Orifice Controls 0.01 cfs @ 0.73 fps)

Pond R2: Detention Pond 2



Summary for Pond RG-1: Rain Garden

Inflow Area = 0.168 ac, 58.87% Impervious, Inflow Depth = 0.02" for Focal Point event
Inflow = 0.00 cfs @ 15.10 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 15.14 hrs, Volume= 0.000 af, Atten= 0%, Lag= 2.6 min
Discarded = 0.00 cfs @ 15.14 hrs, Volume= 0.000 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 114.50' @ 15.14 hrs Surf.Area= 460 sf Storage= 0 cf

Plug-Flow detention time= 1.1 min calculated for 0.000 af (100% of inflow)
Center-of-Mass det. time= 1.1 min (1,088.1 - 1,086.9)

Volume	Invert	Avail.Storage	Storage Description
#1	114.50'	1,185 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

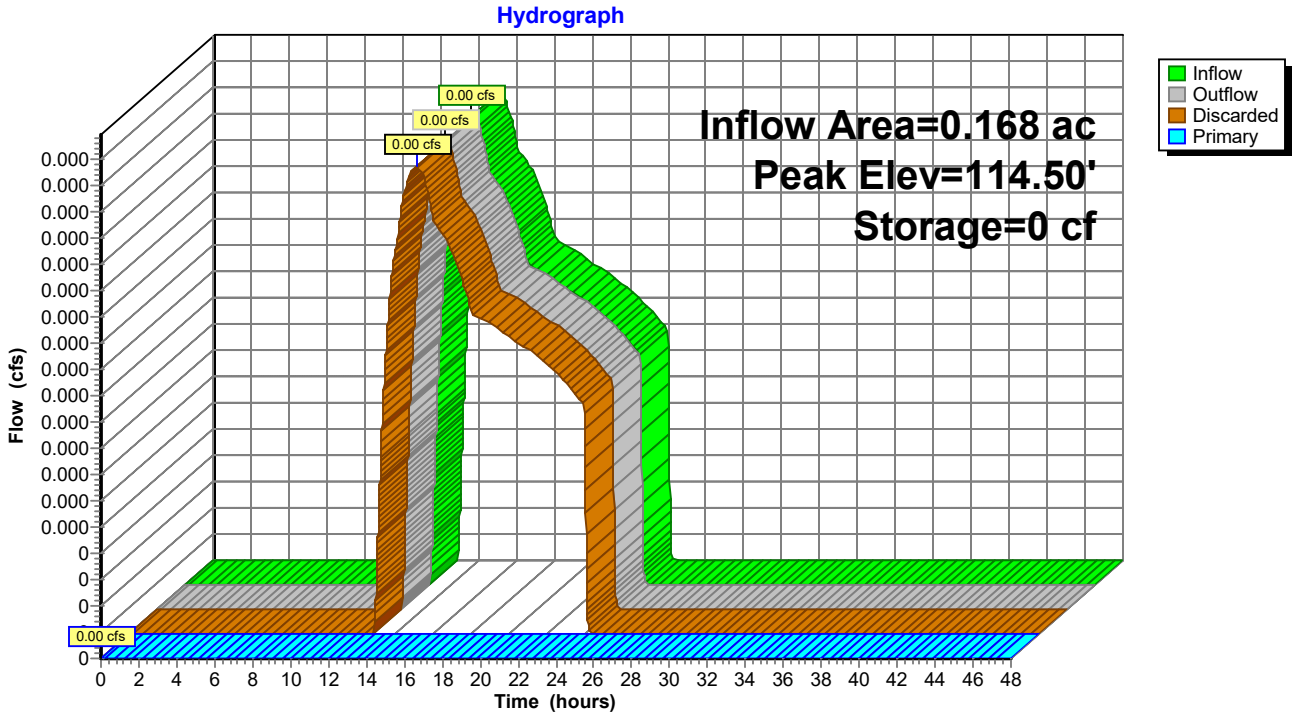
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
114.50	460	33.0	0	0
115.00	460	33.0	76	76
115.50	460	33.0	76	152
116.00	460	33.0	76	228
116.50	460	100.0	230	458
117.00	460	100.0	230	688
117.50	505	100.0	241	929
118.00	520	100.0	256	1,185

Device	Routing	Invert	Outlet Devices
#1	Discarded	114.50'	**7.500 in/hr Exfiltration over Surface area**
#2	Device 3	115.00'	**4.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Primary	114.50'	**8.0" Round Culvert** L= 150.0' Ke= 0.500 Inlet / Outlet Invert= 114.50' / 112.15' S= 0.0157 '/' Cc= 0.900 n= 0.012, Flow Area= 0.35 sf
#4	Device 3	117.50'	**10.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.08 cfs @ 15.14 hrs HW=114.50' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.08 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=114.50' (Free Discharge)
└**3=Culvert** (Controls 0.00 cfs)
  ├**2=Orifice/Grate** (Controls 0.00 cfs)
  └**4=Orifice/Grate** (Controls 0.00 cfs)

Pond RG-1: Rain Garden



Summary for Pond RG-2: Rain Garden

Inflow Area = 0.478 ac, 64.28% Impervious, Inflow Depth = 0.00" for Focal Point event
Inflow = 0.00 cfs @ 24.01 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 24.01 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
Discarded = 0.00 cfs @ 24.01 hrs, Volume= 0.000 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 114.49' @ 24.01 hrs Surf.Area= 960 sf Storage= 0 cf

Plug-Flow detention time= 0.3 min calculated for 0.000 af (100% of inflow)
Center-of-Mass det. time= 0.3 min (1,336.8 - 1,336.5)

Volume	Invert	Avail.Storage	Storage Description
#1	114.49'	2,177 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

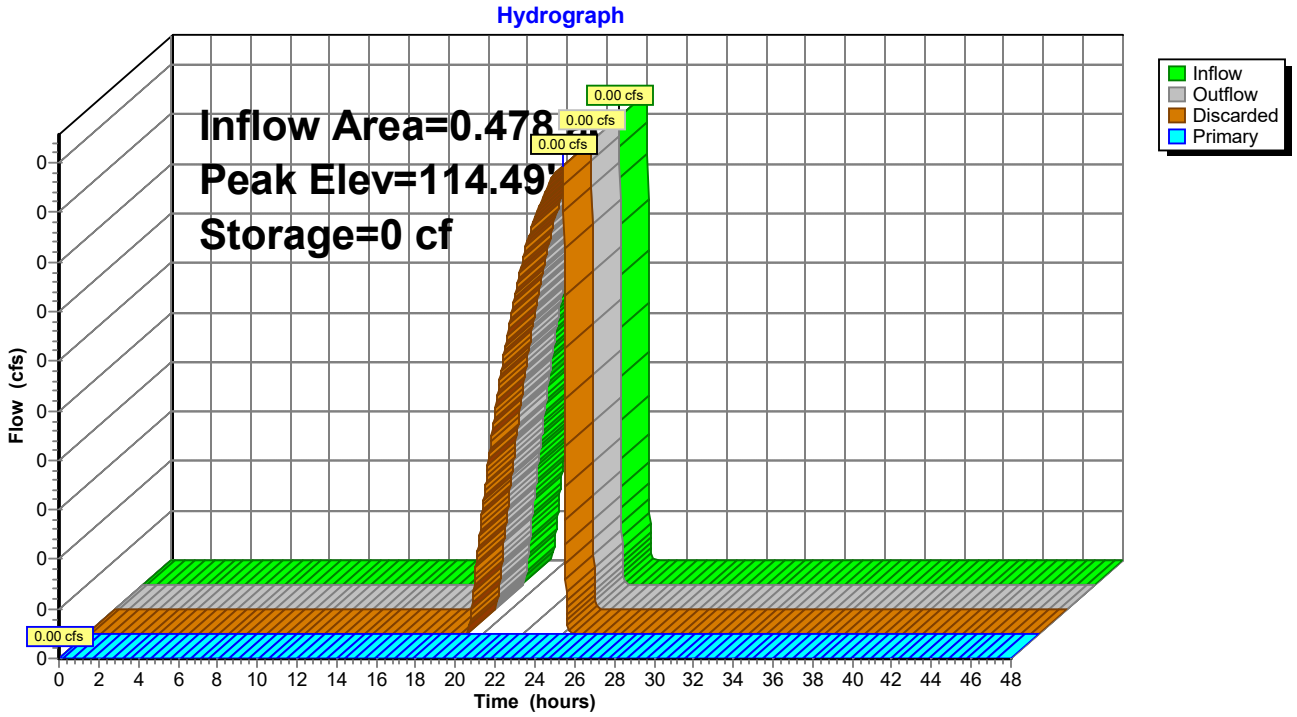
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
114.49	960	0.0	0	0
114.50	960	33.0	3	3
115.00	960	33.0	158	162
115.50	960	33.0	158	320
116.00	960	33.0	158	478
116.50	960	33.0	158	637
117.00	960	100.0	480	1,117
117.50	1,040	100.0	500	1,617
118.00	1,200	100.0	560	2,177

Device	Routing	Invert	Outlet Devices
#1	Discarded	114.49'	**7.500 in/hr Exfiltration over Surface area**
#2	Device 3	115.00'	**4.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Primary	114.50'	**8.0" Round Culvert** L= 150.0' Ke= 0.500 Inlet / Outlet Invert= 114.50' / 113.00' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 0.35 sf
#4	Device 3	117.50'	**10.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.17 cfs @ 24.01 hrs HW=114.49' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.17 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=114.49' (Free Discharge)
└**3=Culvert** (Controls 0.00 cfs)
  ├**2=Orifice/Grate** (Controls 0.00 cfs)
  └**4=Orifice/Grate** (Controls 0.00 cfs)

Pond RG-2: Rain Garden



ATTACHMENT C

WATER QUALITY CALCULATIONS

STORMWATER QUALITY TREATMENT SUMMARY										
	IMPERVIOUS AREA					DEVELOPED AREA				TREATMENT BMP
SUBCATCHMENT	COVER TYPE	AREA (SF)	% TREATED	% AREA	% TREATED	AREA (SF)	% TREATED	% AREA	% TREATED	
20A	PAVEMENT	13,856	100%	11%	11%	19,180	100%	9%	9%	PERVIOUS PAVERS 1
20B	PAVEMENT	11,726	100%	9%	9%	15,935	100%	7%	7%	PERVIOUS PAVERS 2
21A, 21B	ROOFS	31,990	100%	25%	25%	31,990	100%	14%	14%	R-TANK SYSTEM 1
22A	PAVEMENT	8,175	100%	7%	7%	35,370	100%	16%	16%	FOCAL POINT 1
23A	PAVEMENT	12,134	100%	10%	10%	18,825	100%	9%	9%	PERVIOUS PAVERS 3
23B	PAVEMENT	6,230	100%	5%	5%	9,870	100%	4%	4%	PERVIOUS PAVERS 4
24A, 24B	ROOFS	31,990	100%	25%	25%	31,990	100%	14%	14%	R-TANK SYSTEM 2
25A	PAVEMENT	4,910	100%	4%	4%	22,380	100%	10%	10%	FOCAL POINT 2
UNTREATED	WALKWAYS	4,627	0%	4%	0%	35,130	0%	16%	0%	
TOTAL AREA		125,638		100%		220,670		100%		
TOTAL % TREATED					96%				84%	

Sizing Calculations

DETENTION POND 1		
Area	Area (SF)	WQV (CF)
Buildings 4 & 5	31,990	2,666
Total	31,990	**2,666**
# "Double" R-Tank Chambers		350
Storage Provided		2,905

DETENTION POND 2		
Area	Area (SF)	WQV (CF)
Buildings 2 & 3	31,990	2,666
Total	31,990	**2,666**
# "Double" R-Tank Chambers		330
Storage Provided		2,739

FOCAL POINT 1					
Area	Area (SF)	WQV (CF)	Required Filter Area (SF)	Filter Area Provided (CF)	Ponding Volume Provided (CF)
Paved Areas	8175	681	33		
Landscaped areas	27195	907	4		
Total	35370	1588	37	100	50
# Chambers for Treatment Row		1			
# Chambers for Expanded Volume		200	Expanded Volume Provided		1,660

*Treatment row consists of R-Tank "single" HD chambers sized to handle 0.02 cfs per chamber in the 1 year 24-hour storm

*Expanded volume consists of R-Tank "double" chambers, with a storage capacity of 8.3 cf per chamber, sized to store the WQV

FOCAL POINT 2					
Area	Area (SF)	WQV (CF)	Required Filter Area (SF)	Storage Provided (CF)	Ponding Volume Provided (CF)
Paved Areas	4910	409	20		
Landscaped areas	8175	273	1		
Total	22380	682	21	100	50
# Chambers for Treatment Row		4			
# Chambers for Expanded Volume		84	Expanded Volume Provided		697

*Treatment row consists of R-Tank "single" HD chambers sized to handle 0.02 cfs per chamber in the 1 year 24-hour storm

*Expanded volume consists of R-Tank "double" chambers, with a storage capacity of 8.3 cf per chamber, sized to store the WQV

POROUS PAVER AREA 1				
Area	Area (SF)	WQV (CF)	Storage Provided (CF)	Elevation
Pavement Areas	7,700	642	-	112.5
Paver Area	6,156	513		
Landscaped areas	5,324	177	1,527	113.5
Total	13,024	**1,332**	4,358	114.7
		WQV Elevation		113.5
		Pavement : Paver Ratio		80%
		Filter Thickness (in.)		5
		Reservoir Thickness (in.)		26

POROUS PAVER AREA 2				
Area	Area (SF)	WQV (CF)	Storage Provided (CF)	Elevation
Pavement Areas	6,380	532	-	112.7
Paver Area	5,346	446		
Landscaped areas	4,209	140	1,133	113.3
Total	10,589	**1,117**	2,138	113.8
		WQV Elevation		113.3
		Pavement : Paver Ratio		84%
		Filter Thickness (in.)		5
		Reservoir Thickness (in.)		13

POROUS PAVER AREA 3				
Area	Area (SF)	WQV (CF)	Storage Provided (CF)	Elevation
Pavement Areas	8,390	699	-	111.7
Paver Area	3,744	312		
Landscaped areas	6,691	223	1,393	112.7
Total	15,081	**1,234**	3,025	113.8
		WQV Elevation		112.7
		Pavement : Paver Ratio		45%
		Filter Thickness (in.)		9
		Reservoir Thickness (in.)		25

POROUS PAVER AREA 4				
Area	Area (SF)	WQV (CF)	Storage Provided (CF)	Elevation
Pavement Areas	4,610	384	-	111.8
Paver Area	1,620	135		
Landscaped areas	3,640	121	648	112.8
Total	8,250	**641**	1,166	113.6
		WQV Elevation		112.8
		Pavement : Paver Ratio		35%
		Filter Thickness (in.)		12
		Reservoir Thickness (in.)		22

Pavement: Paver Ratio	Required Filter Thickness (in.)
20%	18
30%	12
40%	9
50%	7
60%	6
70%	5
80%	5
90%	4
100%	4

Stevens Square - Drawdown Calcs

Drawdown Calculation - Porous Pavement Area 1

Orifice Diameter =0.625 in

Elev. (ft)	Depth (ft)	Surface Area (sq.ft)	Ave. End Area (sq.ft)	End Area Depth (ft)	Incremental Volume (cf)	Head, h (ft)	Orifice Flow (cfs)	Drawdown Time (secs)	Drawdown Time (hours)
113.45	0.65	6,156	6156.00	0.65	1600.56	2.48	0.0161	99115.12	27.532
112.80	0.00	6,156	0.00	0.00	0.00	1.83	0.0139	0.00	0.000
								TOTAL	***27.532***

Orifice Formula	**$CA\ (2gh)^{1/2}$**	
Orifice Diameter:	**0.625**	inch
A:	0.002131	sq.ft
Filter Thickness:	1.83	feet
g:	32.174	ft/s^2
C:	0.6	Orifice/Grate

Drawdown Calculation - Porous Pavement Area 2

Orifice Diameter =0.5 in

Elev. (ft)	Depth (ft)	Surface Area (sq.ft)	Ave. End Area (sq.ft)	End Area Depth (ft)	Incremental Volume (cf)	Head, h (ft)	Orifice Flow (cfs)	Drawdown Time (secs)	Drawdown Time (hours)
113.30	0.60	5,346	5346.00	0.60	1283.04	2.43	0.0102	125415.40	34.838
112.70	0.00	5,346	0.00	0.00	0.00	1.83	0.0089	0.00	0.000
								TOTAL	***34.838***

Orifice Formula	**$CA\ (2gh)^{1/2}$**	
Orifice Diameter:	**0.5**	inch
A:	0.001364	sq.ft
Filter Thickness:	1.83	feet
g:	32.174	ft/s^2
C:	0.6	Orifice/Grate

Drawdown Calculation - Porous Pavement Area 3

Orifice Diameter =0.5 in

Elev. (ft)	Depth (ft)	Surface Area (sq.ft)	Ave. End Area (sq.ft)	End Area Depth (ft)	Incremental Volume (cf)	Head, h (ft)	Orifice Flow (cfs)	Drawdown Time (secs)	Drawdown Time (hours)
112.65	0.95	3,744	3744.00	0.95	1422.72	2.78	0.0109	130020.21	36.117
111.70	0.00	3,744	0.00	0.00	0.00	1.83	0.0089	0.00	0.000
								TOTAL	***36.117***

Orifice Formula	**$CA(2gh)^{1/2}$**	
Orifice Diameter:	**0.5**	inch
A:	0.001364	sq.ft
Filter Thickness:	1.83	feet
g:	32.174	ft/s^2
C:	0.6	Orifice/Grate

Drawdown Calculation - Porous Pavement Area 4

Orifice Diameter =0.375 in

Elev. (ft)	Depth (ft)	Surface Area (sq.ft)	Ave. End Area (sq.ft)	End Area Depth (ft)	Incremental Volume (cf)	Head, h (ft)	Orifice Flow (cfs)	Drawdown Time (secs)	Drawdown Time (hours)
112.80	1.00	1,620	1620.00	1.00	648.00	2.83	0.0062	104345.35	28.985
111.80	0.00	1,620	0.00	0.00	0.00	1.83	0.0050	0.00	0.000
								TOTAL	***28.985***

Orifice Formula	**$CA(2gh)^{1/2}$**	
Orifice Diameter:	**0.375**	inch
A:	0.000767	sq.ft
Filter Thickness:	1.83	feet
g:	32.174	ft/s^2
C:	0.6	Orifice/Grate

Drawdown Calculation - FocalPoint Filter 1

Orifice Diameter =0.5 in

Elev. (ft)	Depth (ft)	Surface Area (sq.ft)	Ave. End Area (sq.ft)	End Area Depth (ft)	Incremental Volume (cf)	Head, h (ft)	Orifice Flow (cfs)	Drawdown Time (secs)	Drawdown Time (hours)
111.80	0.50	615	615.00	0.50	123.00	1.00	0.0066	18742.13	5.206
111.30	2.84	615	615.00	2.84	1659.27	2.84	0.0111	149991.79	41.664
108.46	0.00	615	0.00	0.00	0.00	0.00	0.0002	0.00	0.000
								TOTAL	***46.871***

Orifice Formula	$CA(2gh)^{1/2}$	
Orifice Diameter:	**0.5**	inch
A:	0.001364	sq.ft
Filter Thickness:	0	feet
g:	32.174	ft/s^2
C:	0.6	Orifice/Grate

Drawdown Calculation - FocalPoint Filter 2

Orifice Diameter =0.5 in

Elev. (ft)	Depth (ft)	Surface Area (sq.ft)	Ave. End Area (sq.ft)	End Area Depth (ft)	Incremental Volume (cf)	Head, h (ft)	Orifice Flow (cfs)	Drawdown Time (secs)	Drawdown Time (hours)
110.32	0.50	535	535.00	0.50	107.00	1.00	0.0066	16304.13	4.529
109.82	1.44	535	535.00	1.44	731.88	1.44	0.0079	92889.57	25.803
108.38	0.00	535	0.00	0.00	0.00	0.00	0.0002	0.00	0.000
								TOTAL	***30.332***

Orifice Formula	$CA(2gh)^{1/2}$	
Orifice Diameter:	**0.5**	inch
A:	0.001364	sq.ft
Filter Thickness:	0.83	feet
g:	32.174	ft/s^2
C:	0.6	Orifice/Grate

ATTACHMENT D

OPERATION & MAINTENANCE MANUAL

STEVENS SQUARE AT BAXTER WOODS PHASE 2
PORTLAND, MAINE

STORMWATER MANAGEMENT SYSTEM OPERATION AND MAINTENANCE MANUAL FOR STORMWATER FACILITIES

PREPARED FOR

DC BAXTER WOODS LLC
100 COMMERCIAL STREET, SUITE 414
PORTLAND, ME 04101

PREPARED BY

GORRILL PALMER
707 SABLE OAKS DRIVE – SUITE 30
SOUTH PORTLAND, MAINE 04106
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May 2021

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I. INTRODUCTION

Runoff from developed areas may contain a number of contaminants especially when emanating from rooftops, paved or lawn areas. This runoff can contain a significant amount of non-point contaminants, which can have an adverse impact on the receiving waters. The installation of soil media filters can significantly reduce the non-point pollution discharge from the developed area.

The effectiveness of ponds and other components of the system are dependent on their upkeep and maintenance to assure they meet their design function over an extended period of years. It is critical that the stormwater management facilities are inspected on a regularly scheduled basis, and that maintenance is performed on an as needed basis. It must also be recognized that the effectiveness of these facilities, and their maintenance requirements, are related to the stormwater drainage facilities that transport the flow to the ponds or treatment measures. Thus, maintenance should be directed to the total system, not just the ponds.

The purpose of this document is to define in detail the inspection and maintenance requirements deemed necessary to assure that the stormwater management facilities function as intended on a long-term basis for Stevens Square, Lot 5. This Operations and Maintenance Manual is specific to the existing and proposed stormwater measures utilized to execute a successful stormwater management plan. Subsequent sections identify individual maintenance items; give a brief commentary of the function and need of the item, a description of the work required, and a suggested frequency of accomplishment. While the suggested programs and schedules must be adapted to specific projects, the material presented should provide guidance for a successful long-term program.

A. Guidelines Overview

A summary of the individual components of stormwater management facilities for this project has been prepared. The format used in the summary is as follows:

Preface: A general description of what function/benefit the element is intended to provide. This is a short summary and not intended to provide the design basis, which can be found in other sources.

Inspection: This section provides the inspection requirements for the individual component.

Maintenance: The section provides general information on the routine maintenance requirements of this element.

Frequency: This section outlines the best judgment of the designer on the system to the frequency of maintenance.

Comments: This section provides any particular comment on the site-specific features of this element. This is a summary only. The owner/operator should review the design drawings and documents carefully to understand the particular elements of the project. The end of this section should allow the owner/operator to make notes on the specific program. This may include the selected maintenance procedure, cross-references to applicable design drawings, etc.

A list of the individual inspection/maintenance elements is provided in the table of contents. The guidelines are proposed for initial use with adjustments made as appropriate based upon specific project experience.

This report includes the Operation and Maintenance requirements for any potential BMP identified in the Stormwater Management Report for this project.

B. Responsible Party

The responsible party for operation and maintenance of the stormwater and other site infrastructure will be the Applicant or their agents or assigns.

II. PROJECT OVERVIEW

Key permits issued (or applied for) on the project include:

- City of Portland Site Plan Approval
- Maine Construction General Permit Stormwater General Permit
- Stormwater Service Charge Program

A copy of the permits and Stormwater Management Report should be appended to this manual as Appendix C. The Owner/Operator of the stormwater management system should review these permits for a general description and background of the project, as well as any specific permit conditions or requirements of the project.

The applicant has retained Gorrill Palmer for civil engineering for the development project. Gorrill Palmer has prepared the design for the stormwater management facilities and may be contacted at:

Gorrill Palmer
707 Sable Oaks Drive – Suite 30
South Portland, Maine 04106
207.772.2515

The applicable plans and design documents which apply to the project are:

1. Civil Site Plans Prepared by Gorrill Palmer
2. The Erosion Control/Sedimentation Control Plan for the project
3. The Stormwater Management Plan for the project

A copy of these documents should be retained with this manual.

The proposed design includes inlets, stormwater conveyance lines, Focal Point filters, pervious pavers, detention ponds, and outlet control structures.

The key receiving water for this project is Back Cove that is located to the east of the project site.

The manual is intended for general guidance; however, any substituted deviations from the manual should be reviewed with respect to provisions of Appendix C.

III. STANDARD INSPECTION/MAINTENANCE DESCRIPTIONS

The following narratives describe the inspection/maintenance provisions for the Stormwater Management system. Proper O&M is necessary to make sure the system will provide its intended purpose of conveying runoff, removing a substantial amount of the suspended solids, and other contaminants in the stormwater runoff.

A. Stormwater Inlets

Preface: The success of any stormwater facility relies on the ability to intercept stormwater runoff at the design locations. Stormwater inlets include catch basins, open culverts, and field inlets. Field inlets exist to the south of Building 2 and Focal Points as overflow structures.

Inspection: The inspection of inlet points will need to be coordinated with other maintenance items, these include:

- Building maintenance areas
- Grounds maintenance

The key elements of the inspection are to assure the inlet entry point is clear of debris and will allow the intended water entry.

Maintenance: The key maintenance is the removal of any blockage which restricts the entry of stormwater to the inlet. The removed material should be taken out of the area of the inlet and placed where it will not reenter the runoff collection system. Snow should be removed from inlets on parking lots. Grass clippings and leaves should be bagged and removed particularly near the yard inlets near the buildings.

Frequency: All inlets should be inspected on a quarterly basis, and after/during significant storm events i.e. >1" rainfall).

Maintenance Personnel: The maintenance personnel will perform the normal maintenance/ inspections of the inlets and tributary drainage system.

Comments: Maintenance of inlets is critical on this project.

B. Tributary Drainage System

Preface: Stormwater from most of the project will be directed through a conveyance (tributary) system which transports the flow to the Focal Point Filters, detention ponds and ultimately to the wetland to the east. This conveyance system will be principally overland flow discharging to piped drain systems. Most of the sediment carried by the drainage system is intended to be trapped in structures. Maintenance of this system can play a major role in the long-term maintenance costs and the effectiveness of the onsite systems. The primary pretreatment measure for the site will be through flow travel over vegetated buffers.

Inspection: The tributary drainage system should be periodically inspected to assure that it is operating as intended, and that the carrying capacity has not been diminished by accumulations of debris and sediment or other hydraulic impediments. On piped systems, the inlets must be

inspected to ensure the rims are set at the proper elevation to optimize flow entry and are not clogged with debris.

The level of sediment in the sumps should be checked to assure their effectiveness. Pipelines connecting the inlets should be checked to determine if siltation is occurring. This will be most critical on drain lines laid at minimal slopes. This can usually be accomplished by a light and mirror procedure.

Maintenance: Maintenance of the storm drainage system must assure that it continues to serve its design function on a long-term basis, and that its operation does not transport excessive sediments to any downstream treatment device or the receiving waters. Elevations on the rim of catch basins should be adjusted as needed to assure optimal water entry. Depending on the frost susceptibility of the soil, the rims may become elevated over time causing flow to circumvent the inlet. If a temporary filter bag has been designated for the inlet during construction, silt or other deleterious materials, can significantly reduce capacity and the bags should be removed with the sediment and replaced during construction. Catch basin cleaning would normally be accomplished with vacuum trucks contracted as a maintenance service for the Development. The removed material must be disposed of at an approved site for such materials.

If sediment in the pipeline is observed, it should be removed. This may be accomplished by hydraulic flushing, or by mechanical means. If hydraulic flushing is used the downstream conditions should be analyzed.

Frequency: The tributary drainage system should be inspected on an annual basis. Adjustment of inlet rim elevations should be on an as needed basis. Cleaning catch basin sumps and pipelines will depend on the rate of accumulation.

C. Pervious Pavers

Preface: The pervious pavers collect stormwater runoff from the surface before passing it through a treatment section and discharging into a closed drainage system.

Inspection/Monitoring: The pavers should be inspected regularly to ensure that the surface is not clogged, and that runoff can pass freely through the pervious section. The pervious pavers must be inspected for integrity and to ensure rutting or deformation of the surface is minimized.

Maintenance: Any debris should be removed from the paver surface. If the pervious paver area is holding water in excess of 48-72 hours, corrective action is needed. To correct a standing water problem, the following remedial actions are recommended.

1. Vacuum any sediment or debris from the paver surface on a semi-annual basis.
2. Ensure the underdrain system or outlet pipe orifice is not clogged with any silt or other materials.
3. Ensure that the pervious pavers can pass water freely or drain quickly while handling large amounts of water.

Frequency: The pervious pavers should be inspected and vacuumed semi-annually and maintained as necessary.

Maintenance/Inspection Responsibility: The Owner or an outside agent is responsible for inspection and maintenance of the pervious paver areas.

Comments: Proper maintenance is critical for the pervious pavers as it plays a large role in the overall stormwater management plan for the development. Limit salt use for deicing and no not use sand.

D. Proprietary Treatment Devices (FocalPoint®)

Preface: FocalPoint® systems will be used on site to treat surface runoff from impervious and landscaped areas.

Inspection: Inspection of the filter should be performed after each major rainfall event to ensure that stormwater runoff is able to pass through the filters. The vegetation should be inspected and maintained regularly similar to other landscape features on site. The underdrain outlet should be inspected regularly.

Maintenance: Clear inlets and pretreatment devices of debris and sediment. Maintain as instructed by manufacturer.

Frequency: The system should be inspected semi-annually and maintained as required by the manufacturer.

Comments: The manufacturer typically commits to the first year of maintenance if their strict guidelines are followed for installation, which is highly encouraged to achieve peak performance. It is recommended that an outside agent who is familiar with the product be retained for future maintenance.

E. Proprietary Device (R-Tanks)

Inspection of the outlet control structure should be performed after each major rainfall event to ensure that stormwater runoff is able to pass through the system. The system should be inspected semi-annually and maintained as required by the manufacturer.

F. Orifice Control Devices

Preface: Orifices of assorted sizes are commonly utilized to control discharge from stormwater management features. This project uses orifice controls to control discharge from the four pervious paver areas, detention ponds, and the Focal Point filters.

Inspection: Inspection of orifices should be performed after each major rainfall event to ensure that stormwater runoff is able to discharge through the orifice and that it is not clogged.

Maintenance: The orifice cap should be removed and all debris flushed from the pipe prior to reinstalling the orifice cap. An orifice in a weir wall should be cleared of debris by hand.

Frequency: The orifice control devices should be inspected semi-annually and maintained as needed.

Comments: None.

G. Proprietary Device (Filterra)

The first year of maintenance shall be performed by the Supplier or a supplier approved contractor. Subsequent maintenance shall be performed at least 2 times per year (preferably in Spring and Fall). At a minimum, the maintenance shall consist of the following:

1. Filterra Unit Inspection
2. Foreign debris, silt, mulch & trash removal
3. Filter media evaluation and recharge as necessary
4. Plant health evaluation and pruning or replacement as necessary
5. Replacement of mulch
6. Disposal of all maintenance refuse items

H. Ditches, Swales, and Other Open Stormwater Channels

Inspect 2 times per year (preferably in Spring and Fall) to ensure they are working in their intended fashion and that they are free of sediment and debris. Remove any obstructions to flow, including accumulated sediments and debris and vegetated growth. Repair any erosion of the ditch lining. Vegetated ditches will be mowed at least annually or otherwise maintained to control the growth of woody vegetation and maintain flow capacity. Any woody vegetation growing through riprap linings must also be removed. Repair any slumping side slopes as soon as practicable. If the ditch has a riprap lining, replace riprap on areas where any underlying filter fabric or underdrain gravel is showing through the stone or where stones have dislodged. Correct any erosion of the channel's bottom or side slopes. The facilities shall be inspected after major storms and any identified deficiencies shall be corrected.

I. Roadways and Parking Surfaces

Clear accumulations of winter sand in parking lots and along roadways at least once a year, preferably in the spring. Accumulations on pavement may be removed by pavement sweeping. 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. Repair potholes and other roadway obstructions and hazards. Plowing and sanding of paved areas shall be performed as necessary to maintain vehicular traffic safety.

J. Litter

Litter should be removed as a matter of course by workers and as part of the ground's maintenance contract.

IV. PROGRAM ADMINISTRATION

A. General

A reliable administrative structure must be established to assure implementation of the maintenance programs described in the foregoing section. Key factors that must be considered in establishing a responsive administrative structure include:

1. Administrative body must be responsible for long-term operation and maintenance of the facilities. (Maintenance continues for the lifespan of the development in accordance with this document)

2. Administrative body must have the financial resources to accomplish the inspection and maintenance program over the life of the facility.

3. The administrative body must have a responsible administrator to manage the inspection and maintenance programs.

4. The administrative body must have the staff to accomplish the inspection and maintenance programs or must have authority to contract for the required services.

5. The administrative body must have a management information system sufficient to file, retain, and retrieve all inspection and maintenance records associated with the inspection and maintenance programs.

6. A qualified post construction inspector shall be retained by the Owner. His/her duties shall include preparing schedules for the Owner's maintenance, summarizing the results of this maintenance and preparing an annual report on the operation, maintenance, and repair of the stormwater system which must be copied to the City. (The Owner shall be responsible for retaining a separate entity to perform maintenance which cannot be performed by the management of building and property grounds.) This person shall also participate in troubleshooting of the stormwater management system if a problem develops.

If any of the above criteria cannot be met by the entity assigned inspection and maintenance responsibilities, it is likely that the system will fail to meet its water quality objectives at some point during its life. While each of the above criteria may be met by a variety of formats, it is critical to clearly establish the assigned administrative body in a responsible and sustainable manner.

B. Record Keeping

Records of all inspections and maintenance work accomplished must be kept and maintained to document facility operations. These records should be filed and retained in accordance with the City of Portland Code of Ordinances, Chapter 32. The filing system should be capable of ready retrieval of data for periodic reviews by appropriate regulatory bodies. Where possible, copies of such records should also be filed with the designated primary regulatory agency for their review for compliance with permit conditions. Typical inspection and maintenance record forms are attached hereto as Appendix B.

The owner will be required to hire a qualified post-construction stormwater inspector to at least annually, inspect the BMPs. In addition, the qualified post-construction stormwater inspector shall, on or by June 30 of each year, provide a completed and signed certification to DPW in a form provided by DPW certifying that the person has inspected the BMPs and they are adequately maintained and functioning as intended.

C. Contract Services

In some instances, or at specific times, the Maintenance Personnel may not have the staff to conduct the required inspection and/or maintenance programs as outlined in this document. In such cases, the work should be accomplished on a contractual basis with a firm or organization that has the staff and equipment to accomplish the required work.

The service contract for inspection and maintenance should be formal, well written legal document which clearly defines the services to be provided, the contractual conditions that will apply, and detailed payment schedules. Liability insurance should be required in all contracts.

APPENDIX A

SUMMARY CHECKLIST
INSPECTION AND MAINTENANCE

Stormwater Management System Maintenance Program Summary Checklist						
Item	**Commentary**	**Frequency**				
		Monthly	**Quarterly**	**Semi-Annual**	**Annual**	**Long Term**
Stormwater Inlets	Stormwater inlets allow flow entry from a surface swale to a piped system. Inspect entry for debris accumulation. Remove debris to allow unimpeded entry. Lawn clippings and leaves should be removed from yard areas.		X		X Clearing	
Tributary Drainage System	Inspect to assure that the carrying capacity has not been diminished by debris, sediment or other hydraulic impediments.				X	
Pervious Pavers	Inspect after major storm events ensure the pavers are not plugged with debris. Vacuum semi-annually.			X		
Focal Point Filters	Filters should be inspected semi-annually and maintained as needed. Snow Storage within the filter should be prohibited by Maintenance Personnel.			X		X
Orifice Control Devices	Inspect after major storm events and clear debris from orifice. May require flushing of pipes.			X		
Ditches, Swales, and Other Open Stormwater Channels	Inspect twice annually (spring and fall), remove any obstructions to flow, repair any erosion			X		
Roadways and Parking Surfaces	Pavements should be swept at least twice annually, once in the spring.			X		
Filterra Module	Check for signs of clogging, remove trash, unwanted vegetation, and sediment as needed			X		
Litter	Litter should be removed daily.					

APPENDIX B

SAMPLE INSPECTION LOGS

STEVENS SQUARE AT BAXTER WOODS, LOT 5
PORTLAND, MAINE

STORMWATER MANAGEMENT
SAMPLE STORMWATER INSPECTION & MAINTENANCE LOG

This log is intended to accompany the Operation and Maintenance Manual for Stormwater Management and Related Facilities. All stormwater BMPs shall be maintained in effective operating condition. A person with knowledge of erosion and stormwater control, including the standards and conditions of the City of Portland's Post Construction Stormwater Management Monitoring Ordinance, shall conduct inspections of the facilities as described in the O&M Manual and on this form, and identified deficiencies must be corrected. This log shall be kept on file for a minimum of five (5) years.

A. General Information			
Project Name:		**Inspection Date:**	
Parcel/Lot:		**Current Weather:**	
BMP Owner:		**Date/Amount Last Precip.:**	
Owner Mailing Address:		**Inspection Company:**	
Owner Phone #:		**Inspection Co. Mailing Address:**	
Owner Email:		**Inspector Name:**	
		Inspector Phone #:	
		Inspector Email:	

B. Stormwater Inlets (Catchbasins)	**Observations**
Frequency: Annually in the spring	
Accumulated sediments from inflow channels and pipes between basins have been removed and legally disposed of	☐ Yes ☐ No ☐ NA
Floating debris and large sediment particles have been removed from inlets.	☐ Yes ☐ No ☐ NA
Stormwater Inlet Notes:	

C. Tributary Drainage System	**Observations**
Frequency: Annually spring or late fall and after heavy rains	
Remove and legally dispose of sediments	☐ Yes ☐ No ☐ NA
Remove floatables and other objects	☐ Yes ☐ No ☐ NA
Check for overgrown vegetation impeding flow	☐ Yes ☐ No ☐ NA
Check pipelines for siltation and clogging	☐ Yes ☐ No ☐ NA
Repair any slumping side slopes or erosion	☐ Yes ☐ No ☐ NA
Replace any riprap on areas where any underlying fabric or underlying gravel is exposed.	☐ Yes ☐ No ☐ NA
Tributary Drainage System Notes:	

D. Pervious Pavers	Observations					
Frequency: Semi-Annually						
Vacuum any sediment and debris from paver surface	☐	Yes	☐	No	☐	NA
Check that underdrain system is functioning properly	☐	Yes	☐	No	☐	NA
Check for pooling or signs that pavers are clogged and doesn't pass water	☐	Yes	☐	No	☐	NA
Pervious Paver Notes:						

E. Proprietary Device (FocalPoint®)	Observations					
Frequency: Semi-annually						
Check for debris blocking orifice	☐	Yes	☐	No	☐	NA
Check overflow structure and clear debris	☐	Yes	☐	No	☐	NA
Check for signs of clogging, or water is not draining freely through filter media	☐	Yes	☐	No	☐	NA
If applicable, flush underdrain pipe	☐	Yes	☐	No	☐	NA
Proprietary Device Notes:						

F. Detention Pond	Observations					
Frequency: Semi-Annually						
Inspect pond for unwanted vegetation.	☐	Yes	☐	No	☐	NA
Inspect pond for trash and debris. Dispose of properly.	☐	Yes	☐	No	☐	NA
Remove unwanted vegetation and dispose of properly.	☐	Yes	☐	No	☐	NA
Repair any eroded areas.	☐	Yes	☐	No	☐	NA
Remove and properly dispose of any accumulated sediment.	☐	Yes	☐	No	☐	NA
Reseed areas without 90% grass catch.	☐	Yes	☐	No	☐	NA
Detention Pond Notes:						

G. Orifice Control Devices	Observations
Frequency: Semi-Annually	
Check for debris blocking orifice	☐ Yes ☐ No ☐ NA
If applicable, flush underdrain pipe	☐ Yes ☐ No ☐ NA
Orifice Control Devices Notes:	

H. Ditches, Swales, and Other Open Stormwater Channels	Observations
Frequency: Semi Annually spring and late fall and after heavy rains	
Remove and legally dispose of sediments	☐ Yes ☐ No ☐ NA
Remove floatables and other objects	☐ Yes ☐ No ☐ NA
Check for overgrown vegetation impeding flow.	☐ Yes ☐ No ☐ NA
Mow to control growth and maintain flow capacity.	☐ Yes ☐ No ☐ NA
Repair any slumping side slopes or erosion	☐ Yes ☐ No ☐ NA
Replace any riprap on areas where any underlying fabric or underlying gravel is exposed.	☐ Yes ☐ No ☐ NA
Ditches Swales and Other Channel Notes:	

I. Roadways and Parking Surfaces	Observations
Frequency: Annually preferably in spring	
Remove and legally dispose of accumulated winter sand	☐ Yes ☐ No ☐ NA
Repair potholes and other roadway obstructions and hazards.	☐ Yes ☐ No ☐ NA
Roadways and Parking Surfaces Notes:	

J. Proprietary Device (Filterra Module)	Observations
Frequency: Semi-Annually	
Remove foreign debris, silt, mulch & trash	☐ Yes ☐ No ☐ NA
Evaluate filter media and recharge	☐ Yes ☐ No ☐ NA
Evaluate plant health and prune/replace as necessary	☐ Yes ☐ No ☐ NA
Replace mulch	☐ Yes ☐ No ☐ NA
Proprietary Device Notes:	

APPENDIX C

PERMITS FOR PROJECT
(TO BE PROVIDED)

APPENDIX D

DRAFT STORMWATER MAINTENANCE AGREEMENT

DRAFT - STORMWATER DRAINAGE SYSTEM
MAINTENANCE AGREEMENT

DC Baxter Woods, LLC
Stevens Square at Baxter Woods – Phase 2 at 605 Stevens Avenue

IN CONSIDERATION OF the site plan and subdivision approval granted by the Planning Board of the City of Portland to the proposed **Stevens Square at Baxter Woods – Phase 2 Project ID PL-001649-2021** shown on the Subdivision Plat (Exhibit A) recorded in Cumberland Registry of Deeds in Plan Book __, Page __ submitted by Titcomb Associates and associated Overall Site Layout Plan Drawing C-3.0, Grading & Drainage Plan Drawing C-4.0 and Phasing Plans C-4.3 thru C-4.5 (Exhibits B, C and D) prepared by Gorrill Palmer Consulting Engineers of 707 Sable Oaks Drive, South Portland, Maine dated last revised 2021/11/23 and pursuant to a condition thereof, DC Baxter Woods LLC, a Maine limited liability company with a principal place of business in Portland, Maine, and having a mailing address of 631 Stevens Avenue, Suite 203, Portland, ME 04103, 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 pervious pavement systems, Focal Point filter systems, R-Tank underground detention ponds, roof drains, Oil-Water Separator, Filterra Module, and related onsite drainage infrastructure, (hereinafter collectively referred to as the "stormwater system"), as shown on the overall Grading & Drainage Plan in Exhibit C and phased construction plans and in strict compliance with the approved Stormwater Inspection and Maintenance Manual prepared for the Owner by Gorrill Palmer Consulting Engineers (copy attached in Exhibit E) 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 subdivision and/or site plan most recently and formally approved by the Planning Board 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 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.

_____
(*name of company*)

_____
(*representative of owner, name and title*)

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 Subdivision Plat
Exhibit B: Approved Site Layout Plan
Exhibit C: Approved Grading & Drainage Plan
Exhibit D: Approved Phasing plans
Exhibit E: Approved Stormwater Inspection and Maintenance Manual

DEPARTMENT OF ENVIRONMENTAL PROTECTION
Bureau of Land Quality Control
State House Station 17
Augusta, Maine 34333
Tel: (207) 287-2111

FOR DEP USE

#L- _____

Date Received _____

NOTIFICATION OF APPLICATION ACCEPTANCE
MUNICIPAL REVIEW OF DEVELOPMENT
(38 M.R.S.A. Section 489-A)

This form is to be used by a registered municipality to notify the Department upon the acceptance of an application for review pursuant to 38 M.R.S.A. Section 489-A. This form must be received by the Department within 14 days of acceptance of an application. The municipality must also submit one copy of the project application and one copy of the record of review and action.

If the application which is the subject of this notice should subsequently be amended during the review process, this form should also be used to submit notice to the Department of the amendment.

Municipality: Portland, ME

Contact Person: James Dealaman, Planner

Address/Phone: Portland Planning and Urban Development, 389 Congress St., Portland, ME 04101. General Number (207) 874-8719.

Project Applicant: DC Baxter Woods IV LLC

Address/Phone: 100 Commercial Street, Suite 414, Portland ME 04101 / (207)766-1632

Title of Project: Stevens Square Phase II

Date Accepted as Complete by Municipality: 7/2/2021

I. Type of Project for which permit is sought:

_____ Subdivision as described in section 482, subsection 5 of more than 20 acres but less than 100 acres; *(Note: Subdivision review will occur at future dates)*

__✓_ Structure as described in section 482, subsection 6, paragraph B, in excess of 3 acres but less than 7 acres;

_____ Excavation on more than 5 acres of land for borrow, topsoil, clay or silt, whether alone or in combination as described in section 482, subsection 2-B.

II. Description of Project.

The project is seeking a Site Location of Development (SLOD) Permit for the proposed Stevens Square Phase II development located at 583 Stevens Avenue in Portland. The proposed work will take place on a Lot 4, identified by the City of Portland Assessor as Tax Map 136, Lot E006001, Tax Map 143, Lot F004001, Tax Map 143, Lot F012001, and Tax Map 144, Lot B003001, which total approximately 9.05

acres in size. The proposed work will be limited to approximately 5.07 acres of the property.

The current project proposes constructing 140 multifamily dwelling units to be housed within four new five-story buildings totaling 201,640 square feet of floor area, along with associated site improvements, at 65 McAuley Way. Site work includes installing buildings include 260 structured and surface parking spaces, as well as open space, a perimeter walking trail, interior walkways and stormwater management infrastructure.

III. Submit as attachments to this form:

A. One copy of complete application filed with municipality (include site plans);

Included as an attachment.

B. Identification of any outside review agents or consultants who will be performing reviews of any aspect of the application;

Thomas Errico, P.E. TY Lin, Traffic
Lauren Swett, P.E., Woodward and Curran, Stormwater

C. One copy of the legal notices served by the municipality.

The Legal Notice for Receipt of Application is included as an attachment.

NOTE: APPLICANT IS ADVISED TO REVIEW THE NATURAL RESOURCES PROTECTION ACT 38 M.R.S.A. SECTIONS 480-A 480-U (N.R.P.A.) TO ENSURE CONSISTENCY WITH THAT LAW. THE MUNICIPALITY'S DELEGATED REVIEW AUTHORITY PURSUANT TO 38 M.R.S.A. SECTION 489-A DOES NOT EXTEND TO THE N.R.P.A. IF AN N.R.P.A. PERMIT IS NECESSARY IT MUST BE OBTAINED FROM THE DEPARTMENT PRIOR TO THE COMMENCEMENT OF CONSTRUCTION.

Town or City of: PORTLAND, ME Date: January 20, 2022



By: _____

Printed Name: James Dealaman

Title: Planner

Department of Environmental Protection
Bureau of Land & Water Quality
17 State House Station
Augusta, Maine 04333
Telephone: 207-287-3901

FOR DEP USE
ATS # _____
L-_____
Total Fees: _____
Date: Received _____

FORM A PAGE 1

****

SITE LOCATION OF DEVELOPMENT PERMIT APPLICATION 38 M.R.SA. §§481-490

PLEASE TYPE OR PRINT IN *INK ONLY*

This application is for: (CHECK THE ONE THAT APPLIES)	☐ 20 acre development ☐ Planning Permit ☐ Metallic Mining	☐ Marine Oil Terminal ☐ Structure ☐ Subdivision	☐ Major Amendment ☐ Minor Amendment

1. Name of Applicant:	DC Baxter Woods IV LLC	**6. Name of Agent (if applicable):**	Steve Bushey
2. Applicant's Mailing Address:	631 Stevens Ave Suite 203 Portland,	**7. Agent's Mailing Address:**	707 Sable Oaks Dr S Portland
3. Applicant's Daytime Phone #:	207-772-7673	**8. Agent's Daytime Phone # :**	207-7752-2515
4. Applicant's Fax # (if available):		**9. Agent's Fax # (if available):**	
5. Applicant's *e-mail address* (REQUIRED -license will be sent via: e-mail):	bunker.kevin@gmail.com	**10. Agent's *e-mail address* (REQUIRED - license will be sent via e-mail):**	sbushey@gorrillpalmer.com

PROJECT INFORMATION

11. Name of Development:	Stevens Square at Baxter Woods						
12. Map and Lot #'s:	Map #: see cover	Lot #:	**13. Deed Reference #'s:**		Book #: 217	Page #: 151	
14. Location of Project City/Town:	Portland	**15. County:**	Cumberland	**16. UTM Northing**		**17. UTM Easting**	
18. Brief Description of Project including total parcel size:	160 Unit residential development over 5 buildings on the former Maine Girls Academy campus						

19. Type of Direct Watershed: (Check all that apply)

☐ Lake not most at risk ☐ River, stream or brook ☐ Coastal wetland
☐ Lake most at risk ☐ Urban impaired stream ☐ Wellhead or public water
☐ Lake most at risk, severely blooming ☐ Freshwater wetland

20. Name of Waterbody Project Site drains to:	Municipal system - ultimately Back Bay		
21. Amount of Developed Area:	Total acres: 7	Existing Developed area: 7 acres	New Developed area: 0 acres
22. Amount of Impervious Area:	Total acres: 3.44	Existing Impervious areas .54 acres	New Impervious area: 2.9 acres
23. Development started prior to obtaining a license?:	■ Yes ☐ No	Phase 1 started - was less than 3 acre threshold	
24. .Development or any portion of the site subject to enforcement action?	☐ Yes ■ No	If yes, name of enforcement staff involved?	
25. Common scheme of development?:	☐ Yes ■ No	**26. Title, Right or Interest:**	☒ own ☐ lease ☐ purchase option ☐ written agreement
27. Natural Resources Protection Act permit required?:	☐ Yes ■ No	If yes: ☐ PBR	☐ Tier 1 ☐ Full Permit ☐ Tier 2
28. Existing DEP Permit number (if applicable):			
29. Names of DEP staff person(s) present at the pre-application meeting:	N/A		
30. Does agent have an interest in project? If yes, what is the interest?	☐ Yes ■ No		

CERTIFICATIONS AND SIGNATURES LOCATED ON PAGE 2

IMPORTANT: IF THE SIGNATURE BELOW IS NOT THE APPLICANT'S SIGNATURE, ATTACH LETTER OF AGENT AUTHORIZATION SIGNED BY THE APPLICANT.

By signing below the applicant (or authorized agent), certifies that he or she has read and understood the following :

CERTIFICATIONS / SIGNATURES

"I certify under penalty of law that I have personally examined the information submitted in this document and all attachments thereto and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the information is true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment. I authorize the Department to enter the property that is the subject of this application, at reasonable hours, including buildings, structures or conveyances on the property, to determine the accuracy of any information provided herein.

Further, I hereby authorize the DEP to send me an electronically signed decision on the license I am applying for with this application by emailing the decision to the electronic address located on the front page of this application (see #5 for the applicant and #10 for the agent)"..

Signed: _____ **Title** Senior Associate/agent **Date:** 1/21/2022

Notice of Intent to Comply with Maine Construction General Permit	**With this Site Law application form and my signature, I am filing notice of my intent to carry out work which meets the requirements of the Maine Construction General Permit (MCGP). I have read and will comply with all of the MCGP standards.** **If this form is not being signed by the landowner or lessee of the property, attach documentation showing authorization to sign.** **Signed** _____ **Date:** 1/21/2022

NOTE: You must file a MCGP Notice of Termination (Form K) within 20 days of completing permanent stabilization of the project site.

CERTIFICATION

The person responsible for preparing this application and/or attaching pertinent site and design information hereto, by signing below, certifies that the application for development approval is complete and accurate to the best of his/her knowledge.

Signature: _____

Name (print): Stephen Bushey

Date: 1/21/2022

Re/Cert/Lic No.: _____
Engineer ME # 7429
Geologist _____
Soil Scientist _____
Land Surveyor _____
Site Evaluator _____
Active Member of the Maine Bar _____
Professional Landscape Architect _____
Other _____

GORRILL PALMER

707 Sable Oaks Drive, Suite 30
South Portland, ME 04106
207.772.2515

January 19, 2022

Ms. Alison Sirois
MeDEP
312 Canco Road
Portland, Maine 04103

Subject: Stevens Square Phase II
583 Stevens Avenue
Delegated Review Authorization to the City of Portland
Applicant: DC Baxter Woods IV LLC

Dear Alison:

On behalf **DC Baxter Woods IV LLC (Applicant),** our office is pleased to provide the accompanying package of materials related to the proposed Stevens Square development at 583 Stevens Avenue in Portland. The development site is the former Maine Girls Academy (former McAuley School), which has been redeveloped for residential housing, a community center and mixed-use facility. This submission package is intended to allow your consideration for the City of Portland Planning Authority delegated review of the site plans for the project under the Site Location of Development Act. The applicant team submitted a Major Site Plan application to the City in May 2021 and are now scheduled for a Planning Board Public Hearing on January 25, 2022, for an approval action.

In accordance with the typical Site Location of Development application sections we offer the following abbreviated background by section. Further information is outlined in the accompanying materials that have been made part of the Level III Site plan application to the city.

Section 1 – Development Description

The current proposal was originally contemplated and approved as a Master Development Plan[1] (MDP) in accordance with the figure on the next page. The MDP included within the proposed Lot 4 development area, five residential buildings containing a total of 161 dwelling units as outlined below. In 2018, the Planning Board granted a Site Plan approval to the first of the five buildings, known as Building #1 containing twenty-one dwelling units[2]. That project has been constructed and is nearly fully occupied. The current proposal includes the following elements:

- A Major Site Plan to include four multi-story structures containing a total of 140 Senior Adult housing units and 260 parking spaces. Site amenities for active outdoor space and connectivity to

[1] See Master Development Plan approval letter dated June 16, 2106, for Project ID #2016-033
[2] Building #1 now has only twenty units as two units have been combined into one.

surrounding pedestrian infrastructure will provide vibrancy for residents and the surrounding community in general. This development will be a phased site plan which will include the following:

- First Phase – Building 2
- Second Phase – Building 3
- Final Phase – Buildings 4 and 5

- Proposed Buildings 2-5 will include the following:

Building #	No. of Dwelling Units	No. of Parking Spaces at Ground Level Within the Building Footprint
2	28	29 (plus 12 bikes)
3	42	48 (plus 20 bikes)
4	28	29 (plus 12 bikes)
5	42	48 (plus 20 bikes)
Total	140 units	154 spaces (plus 64 bikes)



The proposed project will involve site work construction including building and foundation work, utilities construction including water, sewer, drainage, gas, power, and/or communications extensions into the buildings and landscaping. The proposed development will result in 3.44± acres of proposed impervious area. The site development will include stormwater management measures to satisfy the Chapter 500 Stormwater Management regulations including Basic Standards and General Standards. For additional information and background, please see the accompanying Cover Letter to the City in the Major Site Plan Submission material.

Section 2 – Title, Right or Interest

DC Baxter Woods IV, LLC currently owns the property as evidenced in the deed recorded in CCRD Book 36065; Page 326; attached to the Title, Right or Interest section of the Major Site Plan Application material.

Section 3 – Financial Capacity

See attached section made part of the city submission

Section 4 – Technical Ability

See attached section made part of the city submission

Section 5 – Noise

The development is classified as a minor noise generator. All HVAC equipment will meet the City's local noise standards for sound levels at the property line.

Section 6 – Visual Quality and Scenic Character

The site is not located in an area of significant visual quality or scenic character.

Section 7 – Wildlife and Fisheries

A letter has been sent to the Maine Fish & Wildlife and their response will be forwarded to your office upon receipt.

Section 8 – Historic Sites

A letter has been sent to the Maine Historic Preservation and their response will be forwarded to your office upon receipt.

Section 9 – Unusual Natural Areas

A letter has been sent to the Maine Natural Areas Program and their response will be forwarded to your office upon receipt.

Section 10 – Buffers

Various new tree plantings consisting of both evergreen and deciduous will be planted within the development limits identified on the plans. See accompanying narratives that are part of the Major Site Plan submission. The development layout provides ample setback and use of natural mature woods on the south side facing Baxter Woods and on the east side.

Section 11 – Soils

A high intensity soil survey has not been performed for the site since the development will be served by public water and sewer utilities. A geotechnical investigation by Summit Geoengineering which has found that the onsite soils have been found to be suitable to support the proposed development activity. Please see attached Stormwater Management Report for further information.

Section 12 – Stormwater Management

The stormwater management design will include measures to comply with the flooding standards and water quality treatment General standards.

Please see attached Stormwater Management Report for further information.

Section 13 – Urban Impaired Stream Submission

Not applicable – the site is tributary to the Municipal System in Forest Avenue, east of the site.

Section 14 – Basic Standards

See accompanying Erosion Control details and narratives contained with the plan documents.

Section 15 – Groundwater

The development does not involve any new wells or onsite wastewater disposal. Groundwater is not expected to be encountered during construction as the observed groundwater depth is greater than 8' below grade. All stormwater management systems will be located with the bottom of the system at least 3' separated above the groundwater table.

Section 16 – Water Supply

The development will be served municipal water from the Portland Water District. The supply system was previously installed as part of the now complete Building #1 construction.

Section 17 – Wastewater Disposal

The development will be served by municipal wastewater collection and conveyance and treatment at the Wastewater treatment plant. The City of Portland requires a wastewater capacity authorization which was issued on December 10, 2021.

Section 18 – Solid Waste

The site will include a solid waste and recycling enclosure area within each building for the placement of trash collection cannisters. A contracted waste hauler will be responsible for the removal of all waste on a routine basis.

Section 19 – Flooding

The development site is not located within a mapped flood area according to the City of Portland flood mapping.

Section 20 – Blasting

Not applicable to the project.

Section 21 – Air Emissions

The development will not result in any major sources of emissions including either point source or non-point sources. Any mechanical equipment including emergency power generators will have exhaust that will comply with all local, state and federal limits.

Section 22 – Odors

The Development will not result in any major sources of odors as does not involve production, manufacturing or related odor sources.

Section 23 – Water Vapor

The development does not involve the large-scale emission of water vapor as it is not a processing plant or power generating facility.

Section 24 – Sunlight

The development will not block access to direct sunlight for structures utilizing solar energy.

Section 25 – Notices

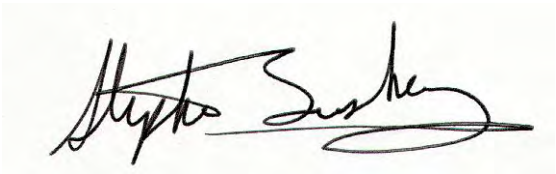
The project has been publicly noticed for both the City of Portland Planning Board workshop and a neighborhood meeting that was held on July 28, 2021. As required, once the meeting has been held, supporting evidence and Certification of the Meeting will be filed with the City of Portland.

We trust that this information will allow your prompt consideration and response to the City Planning Department (James Dealaman – Planner jdealaman@portlandmaine.gov). The project is scheduled for a Planning Board Hearing on January 25, 2022

If you have any questions regarding the materials being submitted, please contact this office.

Sincerely,

GORRILL-PALMER



Stephen Bushey, PE
Senior Associate
Phone: 207-772-2515 x286
sbushey@gorrillpalmer.com

Attachments

c: James Dealaman, City of Portland

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NOTICE FROM CITY OF PORTLAND - RE: 65 MCAULEY WAY

To residents and property owners: DC Baxter Woods IV, LLC has submitted a Master Development Plan amendment application to facilitate the Phase 2 development of Stevens Square, including 161 multifamily dwelling units to be housed within four new multistory buildings totaling 201,640 square feet of floor area, along with associated site improvements. The subject property, located at 65 McAuley Way (583 Stevens Avenue) is 7.05 acres in size and is zoned R-5 and R-5a Residential. The Master Development Plan amendment would amend PEZ.2016-033, approved by the Planning Board on June 14, 2016. A related Major Site Plan application, PL-001649-2021, has also been submitted.

In accordance with the Portland Land Use Ordinance, notices of receipt of a Master Development Plan application must be sent to property owners within 500 ft. of the subject property (or 1,000 ft. if the project is a subdivision or map amendment for a site located within an Industrial Zone). You will be notified of future Planning Board meetings by receiving notices from the Planning Division prior to any workshops or public hearings.

A project and plan summary is available for viewing on the Citizen Self Service Portal (https://css.portlandmaine.gov/), by referencing Plan Number PL-001662-2021. Written comments should be submitted to planningboard@portlandmaine.gov. If you have any questions regarding the proposal, please contact James Rather, Development Review Manager, by phone at (207)874-8699 or e-mail at jrather@portlandmaine.gov.

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GORRILL PALMER

707 Sable Oaks Drive, Suite 30
South Portland, Maine 04106
207.772.2515

May 27, 2021

Ms. Christine Grimando
Planning and Development Department
City of Portland, Maine
389 Congress Street
Portland, Maine 04101-3509

Subject: Stevens Square at Baxter Woods
583 Stevens Avenue
Major Site Plan Application (New Development) – Lot 4 Phase 2 – 140 units
Amended Subdivision and Master Development Applications
Applicant: DC Baxter Woods IV, LLC

Dear Christine:

On behalf of **DC Baxter Woods IV, LLC,** we are pleased to provide the accompanying Major Site Plan, Amended Subdivision, and Amended Master Plan Application package related to the proposed Phase 2 development of Lot 4 of the previously approved Master Development Plan for Sea Coast at Baxter Woods, LLC. This submission package is intended to meet the City's Submission Requirements as outlined in the Major Site Plan Application procedures. This submittal provides information in support of the Portland Land Use Code Article 15 – Subdivision and Article 14 – Major Site Plan Standards. Ultimately, we are seeking Major site plan approval, An Amended Subdivision approval, and Amended Master Development Plan approval.

The current proposal was originally contemplated and approved as a Master Development Plan[1] (MDP) in accordance with the figure on the next page. The MDP included within the proposed Lot 4 development area five residential buildings containing a total of 161 dwelling units as outlined below. In 2018, the Planning Board granted a Site Plan approval to the first of the five buildings, known as Building #1 containing 21 dwelling units[2]. That project has been constructed and is nearly fully occupied. The current proposal includes the following elements:

- An Amended Subdivision Plan to subdivide the previously approved Lot 4 into two lots (Lots 4 & 5). Building #1 which was previously approved and under construction will occupy a 2-acre parcel area which will be identified as Lot 4 on the plan. The proposed new development of Buildings #2-5 will occupy the remaining 7.05-acre parcel and Lot 5 to be created as part of the Second Amended Subdivision plan. Property and building ownership considerations are the basis for the Lot 4 division into two lots.

[1] See Master Development Plan approval letter dated June 16, 2106 for Project ID #2016-033
[2] Building #1 now has only 20 units as two units have been combined into one.

- A Major Site Plan to include four multi-story structures containing a total of 140 Senior Adult housing units and 260 parking spaces. Site amenities for active outdoor space and connectivity to surrounding pedestrian infrastructure will provide vibrancy for residents and the surrounding community in general. This development will be a phased site plan which will include the following:
  - First Phase – Building 2
  - Second Phase – Building 3
  - Final Phase – Buildings 4 and 5
- Proposed Buildings 2-5 will include the following:

Building #	No. of Dwelling Units	No. of Parking Spaces at Ground Level Within the Building Footprint
2	28	29 (plus 12 bikes)
3	42	48 (plus 20 bikes)
4	28	29 (plus 12 bikes)
5	42	48 (plus 20 bikes)
Total	140 units	154 spaces (plus 64 bikes)



Original Approved Master Development Plan

EXISTING CONDITIONS

The existing site is located off McAuley Way to the east of the existing 88-unit Motherhouse Residence Senior Apartment Building (53 McAuley Way). The existing 9.05-acre site is currently developed with the recently completed 20 unit Building #1 as well as the former MGA athletic fields consisting of a soccer field, and two baseball fields. The field complex contains some drainage infrastructure and an irrigation system. The site's east side contains some mapped forested wetland that will largely remain unchanged as part of the proposed development. Surrounding land uses are described as follows:

- Building #1 on the west side of Lot 4 was recently completed;
- The Deering Pavilion is located to the east of the property;
- St. Catherine's Residence is located to the north side of the site within the Lot 1 of the Subdivision;
- The former Maine Girls Academy School and 92 space parking lot are on Lot 2. Recent renovations to the building have allowed for new uses including a daycare, offices, a café, and a community fitness center;
- The Motherhouse containing 88 apartments are located on Lot 3, west of the site; and
- Baxter Woods is located south of the site.

The existing buildings are served by various public utilities along Stevens Avenue and Walton Street. The Building 1 construction included utility improvements for water, sewer, gas and power/communications infrastructure within the subdivision. Water main extensions for Fire and Domestic service were completed during the Building #1 construction to serve proposed Buildings #2-5. Similarly, services for gas and power are ready for extension to serve the proposed buildings. There is an existing private sewer extending through the middle of the property that ties into the Walton Street system. There is also an existing 8" sewer main in Holly Street that will be used for three of the proposed buildings. Drainage from the development basically is collected in a closed drainage system with two small pipe discharge points on the east side of the property. This runoff flow ultimately drains towards Forest Avenue further to the east and is captured in the City's municipal drainage systems for conveyance down to Back Cove.

PROPOSED PROJECT

The Applicant is proposing to subdivide Lot 4 into two new lots; the remaining Lot 4 area will contain 2 acres and the existing Building 1. A proposed Lot 5 will be divided from Lot 4 and it will contain 7.05 acres and the four proposed structures. The project is generally consistent with the MDP issued June 14, 2016, #2016-033. The proposed layout contemplates four multistory buildings as presented on the previous page. The buildings will include ground level parking within the building footprints and four levels of apartments on the floors above. Unlike the MDP, the proposed layout is punctuated by a large common area that the four buildings will surround. Surface parking for residents and guests will be located on the north side of each of the buildings. Additional common areas will aid with the

robust landscaping/ pedestrian aspects of the site. A perimeter walking path will interconnect with multiple sidewalks within the Lot 5 area and these will also connect to a broader area of pedestrian sidewalks and pathways within the full subdivision. Ultimately, these sidewalks and paths will offer nearly a mile of onsite length and also several connections to various offsite pedestrian routes along Stevens Avenue, Baxter Woods and numerous others in this area of the City. The site will also have convenient access to the METRO as shown to the right. A total of 260 parking spaces are currently proposed. Vehicular access will be provided from either the existing Stevens Avenue one-way driveways or McAuley Way off Walton Street.

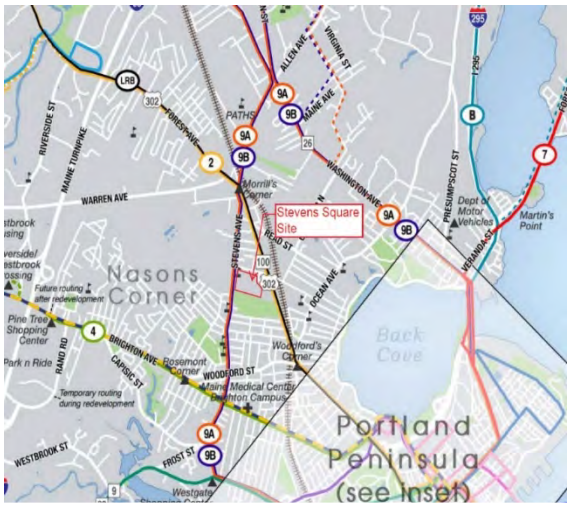
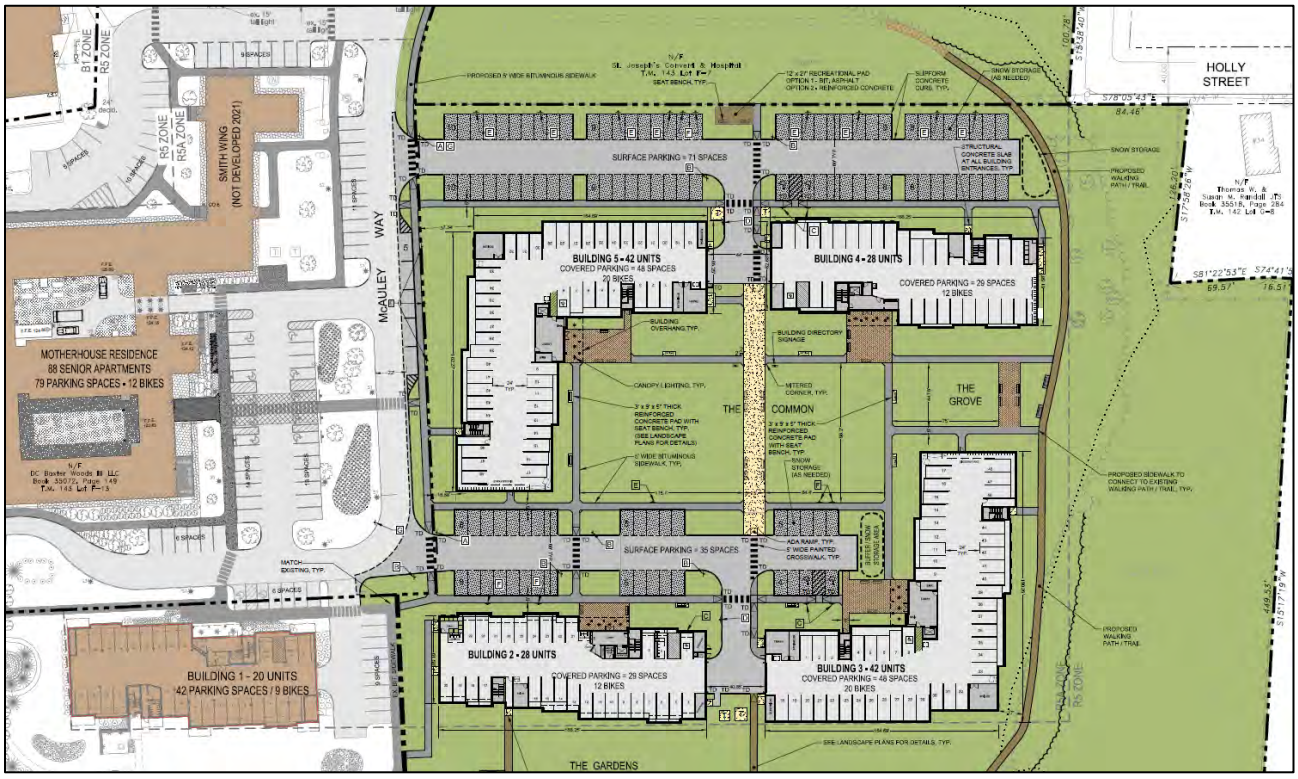


Figure 2 – METRO Route Map

Team Members involved in the project include Kevin Bunker of Developers Collaborative, David Lloyd, Archetype PA, Nick Aceto ALA Landscape Architects and Gorrill Palmer Consulting Engineers.



Stevens Square Phase 2 - Proposed Development Plan

CLOSURE

As outlined in the Major Site Plan and Amended Subdivision submission requirements and checklists, we will upload the following materials upon authorization by City staff:

- General Application Documents
    - Cover Letter/Project Description
    - Major Site Plan Application Checklist
    - Right, Title and Interest
    - Zoning Assessment
    - Existing and/or Proposed Easements (please see Survey Plan)
    - Waiver Request and Waiver Table
    - Financial Capacity
    - Technical Capability
- Transportation
    - Transportation Narrative
- Environmental and Landscape Features & Stormwater
    - Narrative to Address Standards
- Public Infrastructure and Safety
    - Narrative to Address Standards
- Site Design
    - Narrative to Address Standards
- Construction Management Plan
- Site Plans, Second Amended Subdivision Plan, and Architectural Plans

On behalf of **DC Baxter Woods IV, LLC,** we look forward to your continued assistance on the project and we look forward to the next available workshop meeting with the Planning Board. As is required, once we complete the Planning Board workshop, the applicant will be conducting a Neighborhood Meeting. We anticipate this meeting will be conducted prior to the Public Hearing.

If you have any questions regarding the materials being submitted, please contact this office.

Sincerely,

GORRILL-PALMER

Stephen Bushey, PE
Senior Associate
sbushey@gorrillpalmer.com

Attachments

c: Kevin Bunker, DC Baxter Woods IV, LLC

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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

RIGHT, TITLE & INTEREST

DC Baxter Woods IV, LLC currently owns the property as evidenced in the deed recorded in CCRD Book 36065; Page 326 attached to this section.

DLN 1001940075069

SHORT FORM QUITCLAIM DEED WITH COVENANT

KNOW ALL PERSONS BY THESE PRESENTS, that DC BAXTER WOODS LLC, a Maine limited liability company, in consideration of One Dollar and other valuable consideration paid by DC BAXTER WOODS IV LLC, a Maine limited liability company, whose mailing address is 100 Commercial Street, Suite 414, Portland, Maine 04101, its successors and assigns forever (collectively "Grantee"), the receipt whereof is hereby acknowledged, does hereby GRANT unto the Grantee, WITH QUITCLAIM COVENANT, the following described real estate:

A certain lot or parcel of land together with any buildings and improvements thereon, located in the City of Portland, County of Cumberland and State of Maine, being Lot #4 as shown on the Overall Subdivision Plan 605 Stevens Avenue, Stevens Avenue and Walton Street, Portland, Maine, made for Sea Coast at Baxter Woods Associates, LLC by Titcomb Associates, dated June 24, 2015, as revised through June 15, 2016, and recorded in the Cumberland County Registry of Deeds, Plan Book 216, Page 433, as amended by the First Amended Overall Subdivision Plan 605 Stevens Avenue, Stevens Avenue and Walton Street, Portland, Maine, made for Sea Coast at Baxter Woods Associates, LLC by Titcomb Associates, dated April 10, 2017, and recorded in the Cumberland County Registry of Deeds, Plan Book 217, Page 151 (collectively the "Plan").

Said #4 as described and conveyed above is conveyed subject to and with the benefit of:

1. Title to and rights of the public and others entitled thereto in and to those portions of the insured premises lying within the bounds of Stevens Avenue and Walton Street.

2. Such state of facts as shown on the Plan.

3. City of Portland Certificate of Subdivision Waiver Approval, dated September 8, 2015 and recorded in the Cumberland County Registry of Deeds, Book 32584, Page 153.

4. Rights and easements excepted and reserved by St. Joseph's Convent and Hospital in its deed to Sea Coast at Baxter Woods Associates, LLC, dated December 16, 2016 and recorded in the Cumberland County Registry of Deeds, Book 33698, Page 187.

5. Rights, covenants and easements set forth in the Stormwater Drainage System Maintenance Agreement from Sea Coast at Baxter Woods Associates, LLC to the City of Portland, dated December 23, 2016 and recorded in the Cumberland County Registry of Deeds, Book 33752, Page 170, as amended by an Addendum, dated June 1, 2017 and recorded in said Registry, Book 34050, Page 80.

6. Rights, easements and covenants set forth or references in the Declaration of Covenants and Easements dated May 5, 2017 and recorded in the Cumberland County Registry of Deeds, Book 33992, Page 172.

7. Subject to rights and easements reserved and set forth in the deeds from James P. Baxter to the Roman Catholic Bishop of Portland, dated March 10, 1908 and recorded in said Registry of Deeds in Book 821, Pages 58 and 59.

8. Stormwater Drainage System Maintenance Agreement entered into by Sea Coast at Baxter Woods Associates, LLC for the benefit of the City of Portland dated August 11, 2015, recorded in said Registry of Deeds in Book 33752, Page 170, as affected by Addendum to Stormwater Drainage System Maintenance Agreement dated December 23, 2016, recorded in said Registry of Deeds in Book 34050, Page 80.

9. Underground utility easement granted by Sea Coast at Baxter Woods Associates LLC to Central Maine Power Company and Northern New England Telephone Operations, LLC dated September 5, 2017, recorded in said Registry of Deeds in Book 34616, Page 110.

10. Underground utility easement granted by Sea Coast at Baxter Woods Associates LLC to Central Maine Power Company and Northern New England Telephone Operations, LLC dated September 5, 2017, recorded in said Registry of Deeds in Book 34616, Page 110.

11. Subject to rights and easements reserved and set forth in the deeds from James P. Baxter to the Roman Catholic Bishop of Portland, dated March 10, 1908 and recorded in said Registry of Deeds in Book 821, Pages 58 and 59.

12. Easement Agreement (Bus Stop) in favor of City of Portland to be recorded in said Registry of Deeds.

13. Rights of others in and to the appurtenant easements in favor of said Lot # 4.

TO HAVE AND TO HOLD, the same, together with all the privileges and appurtenances thereunto belonging, to the said DC Baxter Woods IV LLC, its successors and assigns forever, to use and behoof forever.

IN WITNESS WHEREOF, the said DC Baxter Woods LLC has caused this instrument to be executed by Kevin R. Bunker, its Manager thereunto duly authorized, as of the 8th day of October, 2019.

WITNESS:

DC BAXTER WOODS LLC

By: _____
Kevin R. Bunker, its Manager

STATE OF MAINE
Cumberland, ss.

October 8, 2019

Then personally appeared the above-named Kevin R. Bunker, Manager of DC Baxter Woods LLC as aforesaid and acknowledged the foregoing instrument to be his free act and deed in said capacity and the free act and deed of said limited liability company.

SEAL

Before me,

Patricia A. Smith

Notary Public/Attorney-at-Law
Print Name:_____
My Commission Expires:_____

PATRICIA A. SMITH
NOTARY PUBLIC
State of Maine
My Comm. Expires August 07, 2026

O:\DC Predevelopment LLC (20981)\Baxter Woods (331)\Lot 4\Transfer documents\Deed_QCWC_Lot 4.docx

Received
Recorded Register of Deeds
Oct 11,2019 12:57:40P
Cumberland County
Nancy A. Lane

ZONING ANALYSIS

See attached Zoning Analysis Table and project site plans for additional information.

ZONING ANALYSIS TABLE

STANDARD	R-5	R-5A	LOT 4 Building 1 (20 DU)	LOT 5 Buildings 2-5 (140 DU)
Lot Area (min)	2 AC	2 AC	2.00 AC	7.05 AC
Net Land Area per Dwelling Unit (min.)	3,000 SF	1,600 SF	4,356 SF	2,194 SF
Units per Building (max.)	NA	NA	NA	NA
Lot Area per Multiplex Unit	4,500 SF	NA	NA	NA
Street Frontage (min)	50'	50'	140'	84.5'
Lot Width (min)	60'/90' Multiplex	60'	140'	525'
Front Setback (min)	20'	25'	196'	80'
Rear Setback (min)	20'	25'	58'	107'
Side Setback (min) >2.5 stories	14'	16'	78'	18'
Structure Height	35'	55'	43'-3"	55'
Stepbacks	NA	NA	NA	NA
Building Length	140	NA	NA	NA
Lot Coverage (max.)	40%	30%	17%	20%
Building Setback from External Subdivision Property Lines (min). >100'	35'	35'	84'	96'
Common Recreation Open Space Area (min.) (136 DU x 200 = 27,200 SF)	300 SF/DU	200 SF/DU	4,000 SF	28,000 SF
Off street Parking Spaces (136 DU/SP)	1 Space/DU	1 Space/DU 136	42 Spaces	260 Spaces
Loading Bays	NA	NA	NA	NA
Pavement Setback	NA	NA	NA	NA
Floor Area Ratio	NA	NA	NA	NA
Maximum Impervious Area	NA	NA	NA	NA

*No Dwelling Units proposed in the R-5 zone.

WAIVER REQUESTS

The Applicant is not requesting waivers at this time.

FINANCIAL CAPACITY

The Applicant has the means at its disposal for financing the proposed Stevens Square at Baxter Woods – Lot 4 Phase 2 project. A letter from Kennebec Savings Bank is attached to this section as evidence of the applicant's financial capacity to undertake the development.

A breakdown of the preliminary project cost for Lot 4-Phase 2 includes the following:

- Site Work: <$1,000,000
- Structures: $70 million; approximately $14 million each for buildings 2 and 4 and approximately $21 million each for buildings 3 and 5.

These values are considered preliminary and approximate and are subject to change as building design and project layout is refined.

Kennebec Savings Bank
181 Lower Main Street | Freeport, Maine 04032 | Telephone: (207) 402-1218

May 26, 2021

City of Portland
389 Congress Street
Portland, Maine 04101

Re: Kevin Bunker condo projects

To Whom It May Concern,

This letter is to confirm that Kevin Bunker possesses the financial resources to accommodate the continued development of condo buildings located at 631 Stevens Avenue in Portland, Maine.

Should you have any further questions or concerns, please feel free to contact me via e-mail at deldridge@kennebecsavings.bank or by cell phone at (207) 402-1218.

Sincerely,

David M. Eldridge
Regional VP & Commercial Banking Officer

TECHNICAL CAPABILITY

The applicant has retained a highly qualified team of professionals to undertake planning, permitting and design tasks on this project. Services will be provided by the following companies and their respective team leaders:

Civil Engineer	Stephen Bushey, P.E. Gorrill-Palmer Consulting Engineers 707 Sable Oaks Drive South Portland, Maine 04106 (207) 772-2515 sbushey@gorrillpalmer.com
Architect	Devin Cough Archetype PA 48 Union Wharf Portland, ME 04101 (207) 772-6022 https://www.archetype-architects.com/
Surveyor	Rex Croteau Titcomb Associates 133 Gray Road Falmouth, ME 04105 (207) 797-9199 rcroteau@titcombsurvey.com
Geotechnical	Bill Peterlein, PE Summit Geoengineering Services, Inc. 145 Lisbon Street, Suite 701 Lewiston, ME 04240 (207) 576-3313
Landscape Architecture	Nick Aceto, PLA ASLA Aceto Landscape Architects PO Box 3787 Portland, ME 04104 (207) 221-3390 na@acetola.com

The team of consultants retained by developer has expertise and experience in the design of similar commercial projects. Resumes of key personnel for development team can be provided upon request.

The Applicant also has significant experience in the development and management of large commercial projects having managed the previous phases of this Master Plan Development as well as similar projects throughout southern Maine for many years.

TRANSPORTATION

The following statements are provided in accordance with the Section 14.6 Site plan review standards of the ordinance.

TRANSPORTATION

14.6.1 Transportation Standards

Impact on Surrounding Street Systems 14.6.1(A)

- *Describe incremental volume of traffic impacts and mitigation measures. If needed*

The development will fit in with the existing street system as it will use the primary existing site driveway off Walton Street onto McAuley Way. During the Master Development Plan process, Diane Morabito, PE, then of Maine Traffic Resources (now Sewell) completed a Traffic impact Study[1]. That study included trip generation associated with the 88 Unit Motherhouse apartments and another 161 additional Senior Adult Housing units proposed in five buildings on Lot 5. The following table summarizes the expected trip generation for the development:

"

Time Period	ITE Trip Generation One-way Trip-Ends
Weekday	856
AM Peak Hour – adjacent street	50
Entering Site	17
Exiting Site	33
AM Peak Hour – generator	97
Entering Site	45
Exiting Site	52
PM Peak Hour – adjacent street	62
Entering Site	33
Exiting Site	29
PM Peak Hour – generator	87
Entering Site	48
Exiting Site	39

"

Excerpt from Traffic Impact study March 2016

On the basis of these calculations the Lot 5 development will not trigger a Traffic Movement Permit. We note that the closure of the Maine Girls Academy influenced overall traffic conditions for the site. Recent Change of use approvals for the School building are in transition as new occupants of that site continue to transition into place. Overall, there remain conditions tied to the Master development Plan approval that include future traffic and parking data collection.

[1] See Traffic Impact Study 605 Stevens Avenue, March 15, 2016 and subsequent May 27, 2016 letter responding to Staff comments as part of the MDP.

Access and Circulation 14.6.1(B)

- *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)*

(i) The development provides primary two-way access via McAuley Way off Walton Street. Secondary access via a one-way entering drive and one-way exiting drive onto Stevens Avenue in front of the Motherhouse is also available. Two driveways from Lot 4 onto McAuley Way provide access to the parking lots and interior parking within each building. Ample turning movement is provided at each street entrance. Internal circulation has been reviewed and designed to accommodate the typical use of passenger vehicles. ADA Parking is provided within the ground level parking zones in each building and additional ADA parking will be provided for visitors/guests on the outside parking.

(ii) There are no drive-up features proposed.

(iii) Access and egress have been designed to avoid conflict with existing turning movements and traffic flows. Please see AutoTURN diagrams included in Section 10.

(iv) Public sidewalks exist along both Walton and Stevens Avenue frontage and several connections into the site are provided. The applicant recently completed the installation of a public crosswalk and pedestrian signal beacons at the Walton/Stevens intersection in accordance with previous conditions of approval. Onsite connecting sidewalks are proposed for access around the site and to connect to the neighboring Motherhouse residential and Building 1 development. The Applicant is proposing to connect to the existing sidewalk on the easterly side of the Building 1 parking area to the existing walking trail south of the project. Additional internal connections are proposed to access the existing walking trail to the east of the site near Baxter Woods. Finally sidewalk access will be provided from the site directly to a new Bus shelter on the East (outbound) side of Stevens Avenue. This will provide excellent access to public transit.

Public Transit Access 14.6.1(C), if applicable

- *Existing available transit service and proposed transit improvements, including design details, such as easement, pad base, and shelter*

The site is served by nearby public bus shelters on Stevens Avenue. The applicant has previously installed a new bus shelter on the Stevens Square Lot 4 property. The City also previously installed a shelter on the west (inbound) side of Stevens Avenue along with a crosswalk for pedestrians/Transit users to gain access to the METRO service along that route.

Parking 14.6.1(D)

- *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*

1. Vehicular Parking

The proposed project will include covered parking as well as surface parking area. Based upon the minimum required Zoning standard of 1 space/dwelling unit, the applicant is proposing the following parking spaces:

Use	Units	Total Spaces
Building 2 Covered Parking	28	29
Building 3 Covered Parking	42	48
Building 4 Covered Parking	28	29
Building 5 Covered Parking	42	48
Surface Parking Areas	--	106
Total Onsite Parking (Lot 5)	--	**260**
ADA Spaces (included in total above)		8 (2 standard, 6 van accessible)*

* Seven ADA spaces required for Total spaces of 201-300 per ADA Standards for Accessible Design 4.1.2(5)

2. Bicycle Parking

The site plan currently identifies 64 bikes required (2 spaces/5 units) which will be accommodated by an inside bike storage system. Buildings 2 and 4 will contain 12 bike spaces and Buildings 3 and 5 will contain 20 bike spaces each. Additional bike parking will also be provided outside of each building. See the Landscape plans by ALA for further information on the outside bike parking locations.

3. Snow Storage.

a. Snow storage management will employ two strategies:

1. On-site snow storage around the perimeter of the site as shown on the site plans; and
2. Snow removal and off-site storage.

4. Electric Vehicle (EV) Charging

The Applicant will be providing conduit for EV Charging stations for all covered parking spaces and installation will be subject to user demand, as units are intended to be sold as condominiums

Traffic Demand Management (TDM) 14.6.1(E), if applicable

- *Provide TDM plan drafted in accordance with Technical Manual Section 1 requirements*

A TDM plan is not required for the proposed residential project.

ENVIRONMENTAL

The following statements are provided in accordance with the Section 14 of the Ordinance.

14.6.2 Environmental Quality Standards

A. Preservation of Significant Natural Features 14-14.6.2(A), if applicable

- *Populations of trees and plants that are endangered or threatened*
- *Habitat for species*
- *High and moderate value waterfowl and wading habitat*
- *Aquifers on 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*

1. *Preservation of Significant Natural Features:*

    a. The development site does not contain any significant natural features including wetlands of special significance, vernal pools or other protected resources. A forested wetland was identified on the east side of the property, along low-lying area. Several drainage outlets from the site's drainage systems provide water to the east side and likely support the prevalence of forested wetland. The existing ballfield area has no trees or shrubs that might be considered for protection. During the Master Development Phase various resource agencies were contacted regarding the site's potential to contain significant wildlife habitat, historic or archaeological resources. Findings from each of the agencies has been previously provided to the City. No further evidence will be provided for the current application, unless requested.

B. Landscape Preservation 14-14.6.2(B)

- *Measures to preserve trees, including within required zoning setbacks (Technical Manual, Section 4)*
- *Measures to protect existing vegetation during construction*

1. The applicant is committed to preserving existing trees and providing supplemental plantings.
2. The majority of the development footprint lies within the former ballfield area, where there are no trees to be preserved.
3. Existing trees along the south side of the property facing Baxter Woods will be substantially preserved.
4. The applicant is not seeking a waiver at this time.
5. Due to the site's current use as a ballfield, there is little to no effect on existing vegetation. At the southeast corner of Building 2, some invasive plant material on the existing slope will be cleared for construction of the loop trail. Existing trees at this forest edge will have protection measures, detailed in the landscape plans, and erosion control measures, detailed in the civil plans.

The applicant is not seeking to replace trees, however a robust planting plan will be provided to increase the tree and shrub plantings on the property.

C. Site Landscaping and Buffers 14-14.6.2(C)

- *Overall landscape 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*

1. Landscaping

The proposed landscape plan meets (and exceeds) the site plan review standards in Section C of the technical manual. The applicant is proposing shade and flowering trees—as well as shrubs, ornamental grasses, and perennials—along development frontage and at the site's interior that will add aesthetic interest, ecological value, and scale to the proposed development. All proposed trees are listed in the City of Portland Recommended Tree List. Due to the site's current use as a ballfield, there are no existing trees or vegetation that need preservation. The proposed landscape plan has carried select plant species from the existing development to the proposed in order to give the final campus a cohesive design language. Along building frontages, the applicant is proposing shade or flowering tree in addition to the planting of ornamental grass, perennials, or shrubs at the understory level.

2. Buffers:

There are no service or loading areas observable from nearby sidewalks or residential properties and trash and recycling are internal to the proposed building. Various existing trees, at the edge of the site and in Baxter Woods, provide a significant buffer to the surrounding properties.

(a) The applicant is the owner of all the land within these zoning boundaries. The existing woods on site will remain undisturbed and serves as a significant buffer to the proposed development. The proposed landscape plan further enhances the vegetated buffer with Baxter Woods, south of buildings 2 and 3. The applicant prefers to use vegetation to maintain connectivity within the campus and trail connections with Baxter Woods. The applicant reserves the right to monitor and address any buffering needs with vegetative screening in the future, if needed.

(b) Not applicable

(c) The applicant is avoiding any disturbance with the existing, mature evergreen and deciduous trees along the southern site border with Baxter Woods. Plantings south of Buildings 2 and 3 will further enhance the existing buffer with Baxter Woods.

3. Parking and Vehicle Display Lot Landscaping

The applicant is proposing a mix of shade trees, ornamental trees, and shrubs in raised landscape islands to screen, shade, and break up surface parking lots. Landscape islands (containing trees and shrubs or ornamental grasses) are also proposed.

4. Street Trees

The proposed development dose not border any public streets. At the western edge of the development, shade trees and shrubs are proposed along the access road to buffer the residential development from vehicular traffic. All trees on site were selected using the City of Portland Recommended Tree List.

D. Water Quality, Stormwater Management and Erosion Control 14-14.6.2(D)

1. The proposed development results in 125,453± SF (2.88 ac) of proposed impervious area. A full Stormwater Management study including an analysis of predevelopment vs post development conditions has been prepared and accompanies this application. The design includes Stormwater Management measures to comply with both the flooding standards and water quality treatment standards. On the basis of the proposed Stormwater Water Management designs, we believe there will be no impacts to downstream or adjacent properties.
2. As evidenced in the accompanying Stormwater, Management Report, the proposed project will comply with the City's stormwater management standards of the Technical Manual. The project will employ various Best Management Practices including pervious pavers in the parking lots and proprietary devices with underground storage systems.
3. The development will include some amount of runoff infiltration into the underlying ground. This is due to the absorption capacity of the onsite soils and the depth to groundwater. This is a benefit/advantage of the site and the ability to provide some amount of infiltration practices as part of the Stormwater Management regime.

PUBLIC INFRASTRUCTURE AND COMMUNITY SAFETY

The following statements are provided in accordance with the submission and Section 14.6.3 of the ordinance.

Public Infrastructure and Community Safety Standards

A. Consistency with City Master Plans 14.6.3.A

1. The proposed development is consistent with the previously approved Master Development Plan as shown below. There have been subtle adjustments to the layout that we believe improve the overall proposal. These include the reduction of parking in the central core of the development and increased open space to provide greater pedestrian/aesthetic opportunities on the site. As determined during the MDP process the site is ideally situated to benefit from public infrastructure for utilities, vehicular and pedestrian access as well as nearby public transit.



Fig 1. 2016 Approved Master Development Plan



Fig. 2 Proposed Development Plan

2. The Applicant has coordinated with utility representatives for the maintenance of easements related to utility infrastructure crossing the site. A 50' wide access, utility and drainage easement crosses Lot 3 of the subdivision and this easement benefits Lot 4 and the proposed Lot 5. This easement will remain in place as will several others that will remain unchanged and in force. A 30' wide drainage easement through Lot 4 that benefits Lots 2 and 3 will be rerouted through Lot 5 as part of the updated drainage system on the site. Titcomb Associates is preparing the Second Amended Subdivision plan that will be uploaded to Eplan upon completion.

B. Public Safety and Fire Prevention 14-14.6.3(B)

- *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)*

a. The site has been designed to promote a safe and inviting visitor experience. All pedestrian paths and outside gathering spaces have been positioned to maintain visibility and consider safety for the users.

b. The primary site access will be off Walton Street. One direction access is provided via single entry and exiting driveways off Stevens Avenue. Observations of current use patterns for Motherhouse occupants indicate that the primary access route is the Walton Street Driveway (McAuley Way) and not Stevens Avenue. This likely is due to the lesser traffic volumes on Walton Street compared to Stevens Avenue. Two full service driveways will allow access to the four

proposed buildings. These driveways will not be interconnected except for emergency vehicle access, thus reducing any proclivity for through traffic.

The site plan includes emergency vehicle access as evidenced by the AutoTURN diagram accompanying this section and shown below.

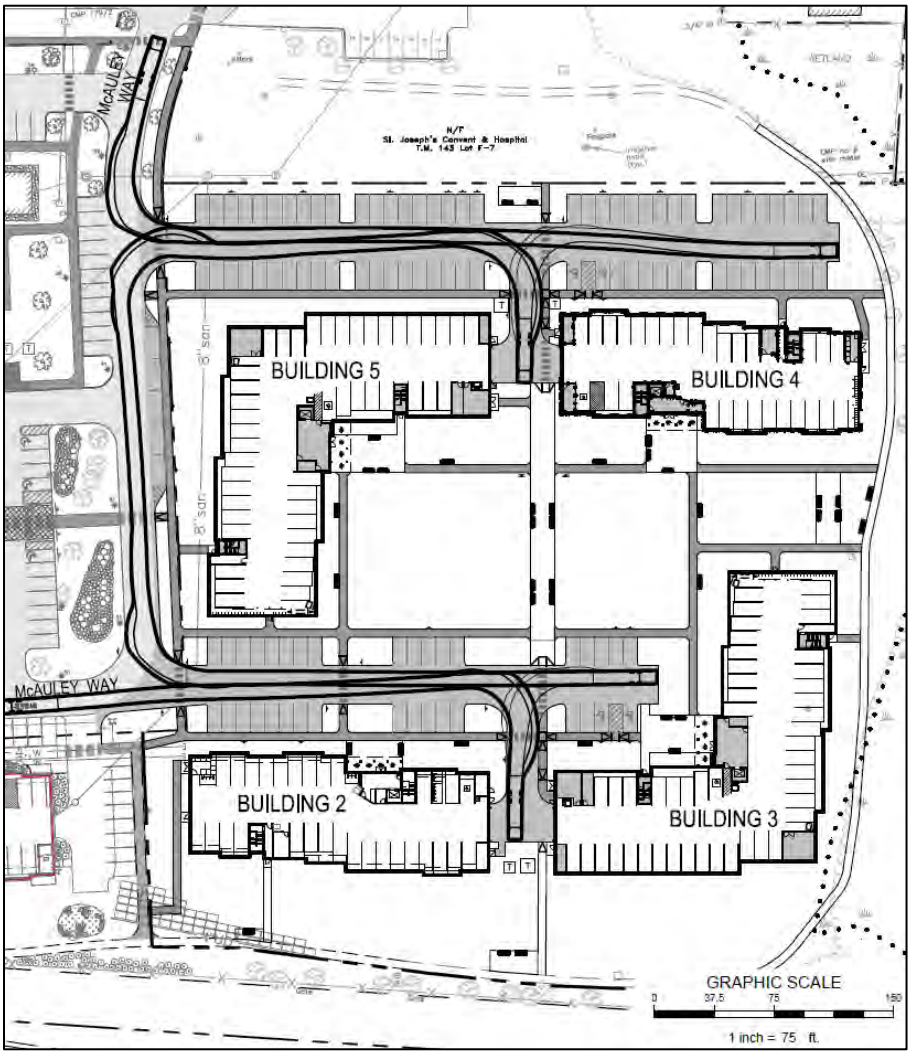


Fig. 3 AutoTURN Plan

C. Availability and Adequacy of Public Utilities 14.6.3(C) (Technical Manual, Sections 2 & 9 9)

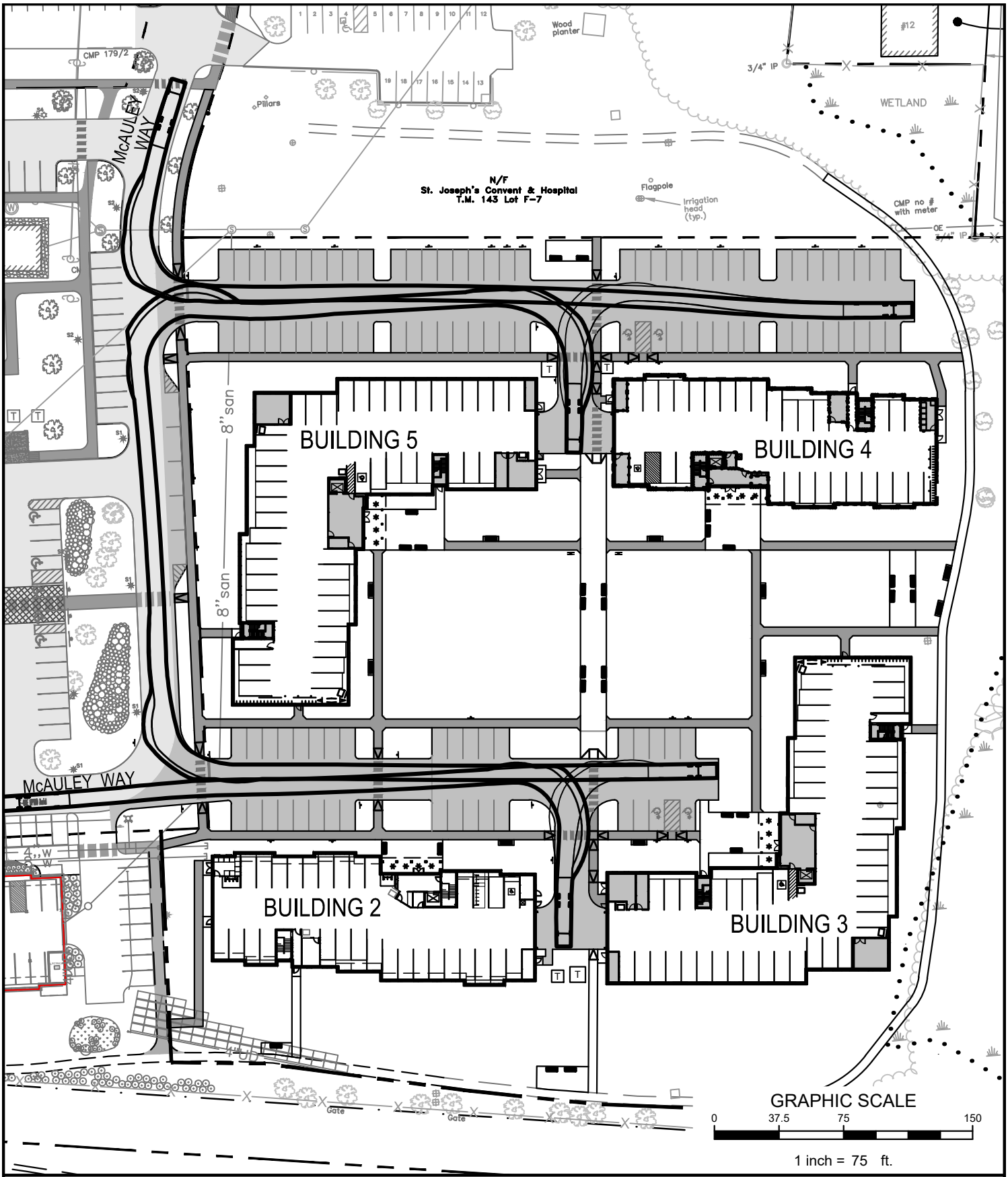
- *Electrical services, including providing underground services*
- *Identify existing and proposed connections for public utilities and required public utility upgrades*
- *Sewer line connections are required, if there is a main within 200 feet*

a. The Applicant is coordinating with the onsite utility providers and will forward capacity to serve letters upon receipt. All utilities were previously determined to have adequate capacity during the MDP process and no significant changes to the project's needs have occurred as part of the current design process.

b. All electrical and communications feeds are underground on the property.

c. A new sewer connection to the existing 8" main in Holly Street is proposed for the sanitary flows from Buildings 2-4. Building #5 will connect to an existing onsite sewer main that ultimately connects to the system in Walton Street. The wastewater collection system design has been prepared to comply with the City's technical standards.

d. The buildings will contain trash rooms for the placement of collection totes for waste and recyclable materials. The buildings will have routine (weekly at a minimum) pickup by a contracted waste hauler. The totes will typically be wheeled from the interior trash room for disposal into the waste hauling vehicle. There will be no outside solid waste enclosures on Lot 4 or 5.



VEHICLE TURNING - HP-100 AERIAL FIRE TRUCK

STEVENS SQUARE AT BAXTER WOODS - PHASE 2

583 Stevens Avenue, Portland, Maine

NORTH

Design: SRB	Date: MAY 2021
Draft: CDD	Job No.: 3564.03
Checked: SRB	Scale: AS NOTED
File Name: 356403-PBASE.dwg	

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Figure 1

SITE DESIGN

The following statements are provided in accordance with the submission and Section 14 of the ordinance.

Site Design Standards 14.6.4

A. Massing, Ventilations and Wind Impact 14.14.6.4(A)

- *Wind and ventilation impacts on adjoining structures and/or adjacent public spaces. Wind study, if applicable.*
- *Bulk, location or height impacts on adjoining structures*

a. The bulk, location, and height of the proposed buildings will not result in any impacts to adjacent sites or buildings. The proposed buildings are relatively modest in height and they are positioned away from nearby structures. The closest structures are the Motherhouse which is greater than 100 feet west of the site and the recently constructed Building #1 which is greater than 50' west of the site.

b. Based on the positioning of the four new buildings there is expected to be no diminution in value or utility of nearby properties. The proposal is consistent with the previously approved Master Development Plan.

c. HVAC venting will be directed through building roof top mounted units and does not impact any adjacent public spaces or residential properties.

B. Shadows 14-14.6.4(B), if applicable

- *Shadow analysis of impacts on publicly accessible open space (Technical Manual, Section 11)*

a. The proposed buildings will not cast significant shadows onto neighboring properties, or block access to direct sunlight for structures utilizing solar energy.

C. Snow and Ice Loading 14-14.6.4.(C)

- *Building design to prevent snow and ice from loading or falling onto adjacent properties or public ways.*

a. The proposed buildings have been designed and located such that accumulated snow and ice will not fall onto adjacent properties or public ways. Snow will be removed from the parking lots and stockpiled within the site perimeter or if necessary, removed from the site.

D. View Corridors 14-14.6.4(D), if applicable

- *Protection of designated view corridors (Portland Design Manual, Appendix 1)*

a. The project site is located outside the Downtown Vision Corridor Protection Plan.

E. Historic Resources 14-14.6.4(E), if applicable

- *Identify developments within Historic Districts or affecting Designated Landmarks*
- *Certificate of Appropriateness or other evidence*
- *Identify Developments within 100 feet of Historic Districts or affecting Designated Landmarks. Advisory HP review may be required*
- *Address preservation and documentation of Archaeological Resources*

During the Master Development and Building 1 Site Plan Review process the applicant proposed addition of and adjustments in various site pathways. Only one opening/gate at the Baxter Woods fence is now shown connecting to the historical Baxter Woods allée off the corner of Building 1.

F. Exterior Lighting (14-14.6.4(F))

- *Cut sheets of on-site light fixtures and any architectural or specialty lights (Technical Manual, Section 12)*
- *Engineered details for any lights proposed in street right-of-way (Technical Manual, Section 10)*

a. Site Lighting

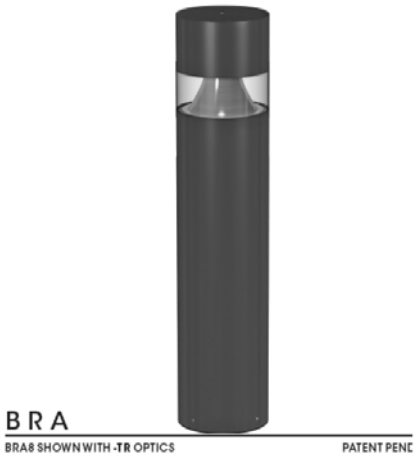
The proposed site parking lot lighting will be consistent with the lighting provided for Building #1. This includes 12-foot residential scale LED fixtures, with 90 degree cutoff shields. (Mozart Series by US architectural Lighting & Sun Valley Lighting)



b. Architectural and Specialty Lighting

(i) Architectural and specialty lighting may include Bollard lights along walkways. Main entrances will utilize recessed ceiling LED lights by Fail Safe®.
(ii) The garage doors will be provided with down lot LED wall lights by Lumark®





c. Street Lighting

There are existing streetlights along Walton Street and Stevens Avenue. No new street lighting is proposed.

G. Noise and Vibration 14-14.6.4(G)

- *Evidence of noise levels for equipment, such as equipment specifications, to demonstrate consistency with zoning requirements*

All new HVAC equipment will be located greater than 100 feet from any nearby residential uses. No equipment will be located within 50 feet of a property line. All new equipment will meet the City standards for noise at the property lines.

H. Signage and Wayfinding 14-14.6.4(H), if applicable

- *Signage plan showing the location, dimensions, height and setback of all existing and proposed signs*
- *Proposed commercial and directional signage on site*

1. All street and wayfinding signage shall meet the requirements of the Manual on Uniform Traffic Devices (MUTCD) and Division 22 of the City Code.

I. Design Standards 14-14.6.4(I)

- *Address any applicable design review standards by zone - Residential developments, shall integrate with and respect the character of surrounding residential development in terms of architectural form, landscaping and open space, façade materials, roof pitch, massing, and height.*

The site is located in the R5 & R5A Zoning District. The buildings are oriented to provide a primary entrance from Walton Street and secondary access from Stevens Avenue. The site has

been previously approved under a Master Development Plan and the current proposal is consistent with the original MDP.

- Building 1, now near completion, sets the overall tone and concept for the remaining buildings to be designed . As Building #1 was adjacent to the Motherhouse, and most prominent to Stevens Avenue, it came under the jurisdiction of review by the State Historical commission and the National Park Service. Portland planning staff and HP also had design input with one of the major changes was from sloped pitched roofs to flat roofs.
- The remaining buildings will generally follow through with the same design consensus.
- The exceptions being that the remaining Buildings will be 5 stories vs. 4 and some, not all, of the brick façade will be substituted with Clapboard.
- The colors the new buildings will remain all natural toned, brick, stone, metal shingle, and clapboard.
- The entry ways into each building are clearly defined with porch designs and large glass areas, yielding them a transparent and welcoming feel.
- Each unit will have its own private exterior deck.
- The majority of parking is located below the structures allowing more green space and a campus feel . The facades of the garage are enclosed and fenestrated to resemble the residential quality of the building.

PROGRESS PRINT

GENERAL NOTES- SITE ELECTRICAL

1. THE COMPLETE INSTALLATION SHALL CONFORM WITH ALL APPLICABLE FEDERAL, STATE AND LOCAL LAWS, CODES AND ORDINANCES, INCLUDED BUT NOT LIMITED TO APPROVED EDITIONS OF THE FOLLOWING: NATIONAL ELECTRICAL SAFETY CODE (ANSI C2): NATIONAL ELECTRICAL CODE (NFPA 70): OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA) AND ALL AMENDMENTS THERETO. NOTHING CONTAINED IN THE DRAWINGS AND SPECIFICATIONS SHALL BE CONSTRUED TO CONFLICT WITH THESE LAWS, CODES, AND ORDINANCES, AND THEY ARE THEREBY INCLUDED IN THESE SPECIFICATIONS. OBTAIN PERMITS AND REQUEST INSPECTIONS FROM ALL AUTHORITIES HAVING JURISDICTION. COMPLY WITH ALL POWER, TELEPHONE, CABLE TELEVISION PROVIDER REGULATIONS AND STANDARDS.

2. THE FOLLOWING ELECTRICAL WORK SHALL BE PERFORMED UNDER THIS CONTRACT: UNDERGROUND CONDUIT, FITTINGS, AND ALL DEVICES: PROVISION OF HAND HOLES, NEW LIGHTING FIXTURES, POLES WITH ALL ACCESSORIES INCLUDING ANCHOR BOLTS AND POLE BASES: PROVISION OF UNDERGROUND CONDUIT AND WIRE TO SERVE NEW LIGHTING EQUIPMENT AND RECEPTACLES: PROVISION OF SERVICE EQUIPMENT, INCLUDING OUTDOOR CABINETS, INGROUND SPLICE BOXES, GROUNDING, METER ENCLOSURES, AND WEATHERPROOF RECEPTACLES.

3. ELECTRICAL UTILITY SHALL PROVIDE ALL ASSOCIATED OVERHEAD AND UNDERGROUND PRIMARY WIRING, PRIMARY TERMINATIONS, TRANSFORMERS, AND CONNECTIONS TO EXISTING OVERHEAD LINES. CONTRACTOR SHALL PROVIDE UNDERGROUND CONDUIT.

4. PROVIDE UNDERGROUND ELECTRICAL WARNING TAPE: 6" WIDE PLASTIC TAPE, COLORED RED WITH SUITABLE LEGEND DESCRIBING BURIED ELECTRICAL LINES FOR ALL UNDERGROUND CONDUITS. LOCATE 6 INCHES BELOW FINISHED GRADE.

5. REFER TO CIVIL DRAWINGS FOR EXCAVATION AND BACKFILL OF ALL UNDERGROUND WORK.

6. EXISTING UTILITY LOCATIONS ARE APPROXIMATE AND SHALL BE FIELD VERIFIED. CONTRACTORS SHALL CONTACT DIG SAFE BEFORE BEGINNING ANY EXCAVATIONS.

7. FINAL LOCATION OF NEW UTILITIES MAY VARY FROM PLANS PENDING UTILITY COMPANY FIELD COORDINATION.

8. THE LOCAL TELEPHONE AND CABLE TELEVISION SERVICE PROVIDERS SHALL PROVIDE AND INSTALL ALL THE SITE UTILITY SERVICE CABLE TO NEW BACKBOARD IN THE CONDUITS PROVIDED BY THE CONTRACTOR AS PART OF THE SITE WORK.

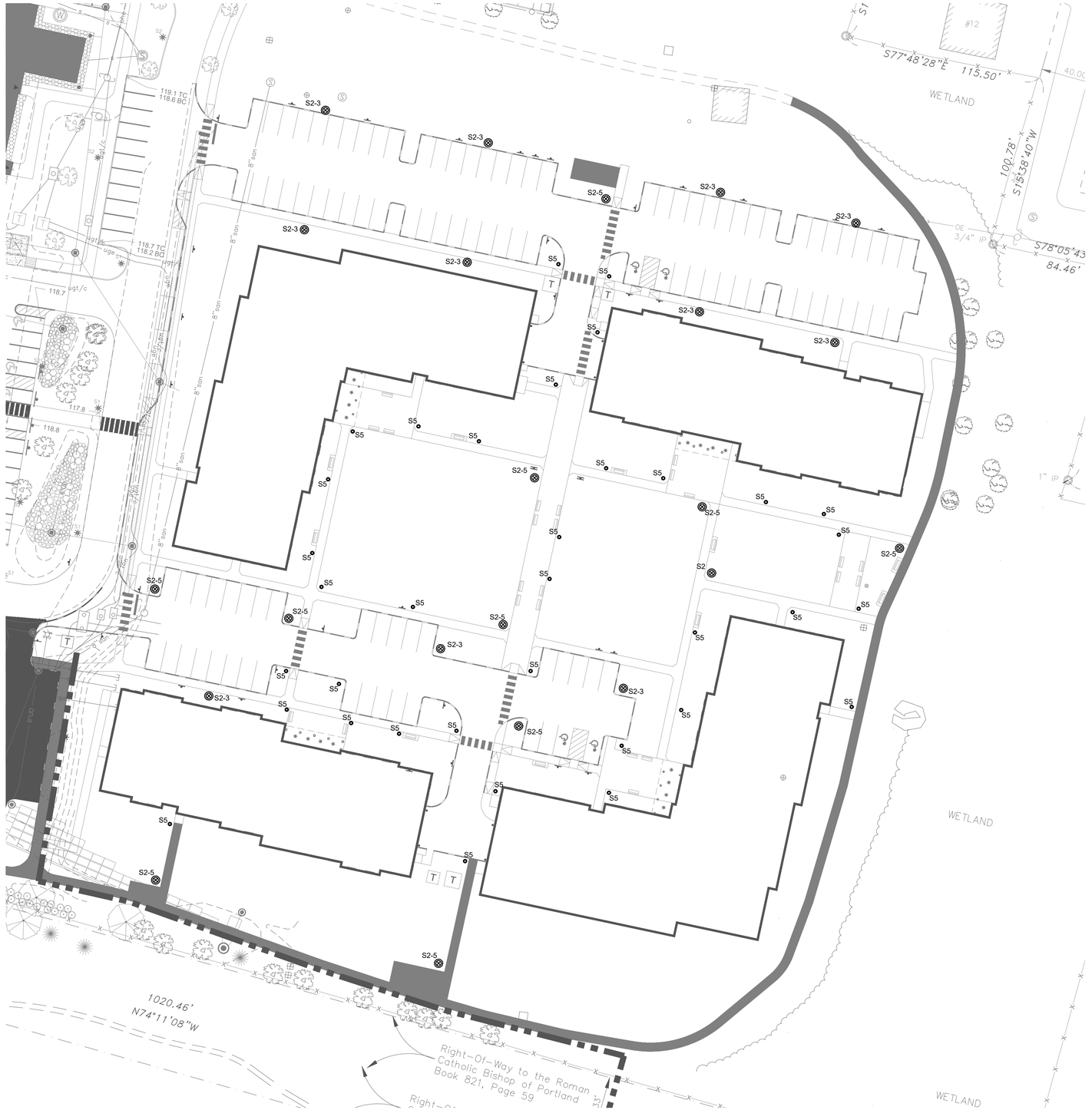
9. UNDERGROUND CONDUIT SHALL BE SCHED 40 PVC. ABOVE GRADE CONDUIT SHALL BE RGS. ALL CONDUIT SWEEPS SHALL BE RGS LONG SWEEPS.

10. PROVIDE EXPANSION FITTINGS FOR ALL UNDERGROUND CONDUIT CONNECTED TO FIXED ABOVE GROUND STRUCTURES.

11. PROVIDE A LISTED INTERSYSTEM BONDING TERMINAL AT THE SERVICE ENTRANCE. INSTALL IN ACCORDANCE WITH NFPA 70,250.94

LEGEND

S5	U.S ARCHITECTURAL LIGHTING BRA6-LED-IL-24LED[350MA]-NW-120-GI-RAL9005T-36IN OAH
S2-3	SUN VALLEY LIGHTING MOZ20LED-VLED-III-48LED-350MA-NW-120-PT-HS-VLED-RAL9005T
S2-5	SUN VALLEY LIGHTING MOZ20LED-VLED-V-SQ-48LED-350MA-NW-120-PT-HS-VLED-RAL9005T POLE LIGHTS MOUNTED AT 10'-0"



1 E1.1 STEVEN'S SQUARE SITE LIGHTING

SCALE: 1/32" = 1'-0"

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STEVEN'S SQUARE AT BAXTER WOODS - PHASE 2

583 STEVENS AVENUE, PORTLAND MAINE

Date Drawn -	05/21/21
Drawn By -	MJM
Project #	
Scale -	AS NOTED
Revised -	

SHEET TITLE

SITE LIGHTING PLAN

E1.0

PROGRESS PRINT



1 E1.1 STEVEN'S SQUARE PRELMINARY PHOTOMETRICS

SCALE: 1/32" = 1'-0"

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STEVEN'S SQUARE AT BAXTER WOODS - PHASE 2

583 STEVENS AVENUE, PORTLAND MAINE

Date Drawn -	05/21/21
Drawn By -	MJM
Project #	
Scale -	AS NOTED
Revised -	

SHEET TITLE

SITE PHOTOMETRICS PLAN

E1.1

TAB 12 – CONSTRUCTION MANAGEMENT PLAN

A Draft Construction Management Plan has been prepared and is included with this section.

AMMENDED STORMWATER MANAGEMENT REPORT

STEVENS SQUARE AT BAXTER WOODS – PHASE 2
PORTLAND, MAINE

Prepared for

DC BAXTER WOODS LLC
100 COMMERCIAL STREET, SUITE 414
PORTLAND, ME 04101

PREPARED BY

GORRILL PALMER
707 SABLE OAKS DRIVE – SUITE 30
SOUTH PORTLAND, MAINE 04106
207.772.2515

~~MAY~~ NOVEMBER 2021

STORMWATER MANAGEMENT REPORT

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Figure

1 USGS Project Location Map

Attachments

A Watershed Maps:
WS1 Pre-Development Watershed Map
WS2 Post-Development Watershed Map
C-7.0 Water Quality Map

B Pre and Post Development HydroCAD Model

C Water Quality Calculations

D Operation & Maintenance Manual

1.0 INTRODUCTION

DC Baxter Woods IV LLC is proposing Phase 2 development of Lot 4 of the Stevens Square site at Baxter Woods. The Phase 2 proposal includes the redevelopment of the former athletic field complex associated with the former Maine Girls Academy. The proposed project includes the construction of four (4) new apartment buildings that will contain 140 new living units. The site development includes 260 parking spaces, access drives, and open spaces with walking trails. The site includes 154 parking spaces located within the ground floors of the proposed buildings, the remaining 106 surface parking spaces will be exterior spaces constructed with pervious pavers as the primary surface material. Figure 1 is a map showing the project location.

The purpose of this analysis and report is to document the following:

- The measures that will be implemented to provide stormwater management for the project,
- what is required to control the peak rate of discharge during large storm events, and
- to provide treatment to stormwater runoff as determined by Maine DEP's Chapter 500 Rules and City of Portland Technical Standards for Stormwater Management.

Both the impact on peak rates of runoff and water quality measures are considered in this evaluation.

Erosion and Sedimentation Controls satisfying the MDEP Basic Standards will be employed during the construction of this project and are summarized in the Erosion and Sedimentation Control Plans provided on Sheets C-8.6, and C-8.7 of the plan set.

2.0 EXISTING SITE CONDITIONS

The project site is located at 583 Stevens Avenue, to the north of Baxter Woods, and west of the Deering Pavilion as shown on the Location Map. The Phase 2 Lot area is 7.05 acres in size containing 5.07 acres of athletic fields, a vegetated side slope at the edge of the athletic fields and wooded wetlands to the east of the athletic fields.

Abutting land uses include:

- North – Residential
- East – Woods and Residential
- South – Open Space/Baxter Woods
- West – Residential consisting of the Motherhouse development

Stormwater runoff from the majority of the site is conveyed through overland flow into two storm drain/underdrain systems that drain to a wetland located on the eastern edge of the project site. Stormwater runoff from smaller vegetated areas of the site flow overland to the northeast and ultimately to properties to the south of Holly Street. Runoff from the Motherhouse to the west, and St. Josephs to the north, and the northern portion of the athletic field is collected and conveyed across the site via a 12" stormdrain. These flows ultimately discharge into a drainage channel within the wetland along the

eastern property line. The existing athletic field also contains an underdrain system which is connected to the stormdrain system that discharges to the wetland. Additionally, runoff from Building 1 to the southeast is conveyed via a 12" stormdrain, and ultimately discharges into a secondary channel (to the south of the previously mentioned channel) within the wetland to the southeast property line. The stormwater runoff to these existing stormdrain systems from the surrounding land uses was evaluated as part of previously approved site plans.

The site is currently developed with inactive athletic fields consisting of a soccer field, and two softball fields. Topography is relatively flat across the proposed construction area, with slopes of 1% to 2%. To the east-northeast of the proposed construction area is a steep embankment down to a forested wetland, with slopes ranging from 5% to 33%. Elevations range from elev. 95' (NGVD29) along the eastern property line, to elev. 117' along McAuley Way.

The soils on the site are shown on the watershed maps and are from the USDA NRCS Medium Intensity Soil Survey. The soils range from hydrologic soil group A to D. Runoff over the athletic fields is collected via several catch basin inlets and an underdrained pipe network. Since the underdrains collect some of the rainfall and convey the runoff to the outfall at the wetlands, the field area does not function as a vegetated HSG A soil would. For this analysis, the athletic field soils were assumed to be HSG C. Wetland areas were assumed HSG D.

There are no lakes located on, adjacent to or downstream of the project site. Stormwater runoff from the project site is tributary to Back Cove. Runoff from the site is not tributary to an Urban Impaired Stream. Based upon the FEMA maps, no part of the proposed development is located within the Zone A 100-year floodplain.

3.0 DEVELOPMENT DESCRIPTION

The proposed project includes the construction of two new apartment buildings each with a footprint of 19,410 SF, and two new apartment buildings with a footprint of 12,580 SF each. Two access drives will be constructed to provide access to tenant parking areas on the ground floor of the buildings, and the exterior parking for guests. The guest parking stalls will be constructed with pervious pavers to provide stormwater storage and treatment for runoff from the access drives. Approximately 0.62 acres of open space and walking trails are also incorporated in the site plans.

Changes in land cover will include removal of impervious surfaces to the north of the site and grassed areas within portions of the site, and the addition of roof, paved surfaces, and lawn areas. **Overall, the proposed project will create approximately 2.88 acres of impervious area within the site boundary. The developed area within the property boundary is approximately 5.07 acres.**

4.0 REFERENCES

The following reference sources were reviewed during preparation of the stormwater analysis:

1. Maine Erosion and Sedimentation Control Handbook for Construction: Best Management Practices, MaineDEP, current edition.
2. Stormwater Management for Maine, Volume III BMPS Technical Design Manual, MeDEP, May 2016.
3. Original Master Development Plan Stormwater Analysis May 2016, prepared by Stantec.

The following sources were used for preparation of the stormwater quality analysis:

1. Stormwater Management for Maine, Volume III BMPS Technical Design Manual, MaineDEP, May 2016
2. MeDEP Chapter 500, Stormwater Management Rules.

Computer programs used to assist in the various components of this analysis include:

1. HydroCAD 10.00, HydroCAD Software Solutions LLC – used for modeling watersheds for pre and post development conditions.
2. Microsoft Excel, Microsoft Corporation – used for spreadsheet computations.
3. AutoCAD Civil 3D 2010, 2011, and 2019, Autodesk - used to determine areas and graphical representation of design.

Data resources used to obtain the hydrologic input data for the stormwater models are identified later in this report.

5.0 OVERVIEW OF STORMWATER RUNOFF MODELING

The stormwater analysis evaluates the following elements:

- Predevelopment and post development stormwater runoff and peak discharge rates;
- The impacts of the proposed development and subsequent modification to site discharge rates;
- The effect of land cover modifications within the site, especially those that are expected to increase site runoff rates;
- The requirements for stormwater management including compliance with Chapter 500 flooding standards as compared to existing conditions;
- Storm drainage requirements for parking areas and other improvements; and
- Requirements for water quality measures based upon MDEP General Standards.

6.0 METHODS OF ANALYSIS – STORMWATER QUANTITY

6.1.1 Stormwater Quantity

The hydrologic analyses for predevelopment and post development conditions have been conducted based upon the methodology contained in the USDA Soil Conservation Service's Technical Releases No. 20 and 55 (SCS TR-20 and TR-55) as modified for special site conditions. For this section of Cumberland County SE, Maine, a 24-hour SCS Type III Storm distribution was used for the analysis using the following storm frequencies and rainfall amounts:

Storm Event	24-Hour Rainfall (Post 2014)
2-Year Storm	3.1
10-Year Storm	4.6
25-Year Storm	5.8

The SCS TR-20 methodology, using the HydroCAD computer program, was employed by Gorrill Palmer to analyze the pre- and post-development watersheds.

Land use, cover, delineation of watershed subcatchments, hydraulic flow paths, and hydrologic soil types were obtained using the following data:

1. Portland, Maine USGS 7.5-minute Quadrangle Maps.
2. USDA NRCS Web Soil Survey.
3. Onsite Topographic Survey with 1-foot contour intervals prepared by Titcomb Associates.
4. Previously approved plans for the Master Development Plan, the Motherhouse Expansion and Building 1.
5. Field reconnaissance.

6.1.2 Stormwater Quality

Water quality treatment for the development has been designed to meet the Stormwater Management Rules (Chapter 500) General Standard, which requires the treatment of at least 95% of impervious area and at least 80% of developed area generated. Treatment requirements were analyzed within the site area to meet the General Standard.

7.0 DESCRIPTION OF SITE WATERSHED MODEL

The watershed model was developed to predict peak discharge rates at the Points of Interest (POI) depicted on the watershed maps. The following sections describe the pre-development and the post-development conditions.

8.0 PRE-DEVELOPMENT CONDITIONS

The predevelopment conditions for this analysis were considered to be the current condition of the site as described in the Existing Site Conditions section above.

The predevelopment condition was analyzed as 21 subcatchments with two points of interest (POI) as shown in Figure W-1. The majority of the 21 subcatchments are from the approved stormwater analysis for the Motherhouse and Building 1 projects. Subcatchments 19A, B, C and Subcatchment 20 encompass the currently proposed project. POI 1 and POI 2 are points within the wetland at the east side property line.

To account for off-site runoff tributary to the two POIs, Gorrill Palmer was able to obtain previously completed stormwater analyses and HydroCAD models for stormwater management systems from the Motherhouse, and Building 1 to the east of the project site. Four of the 21 subcatchments encompass the currently proposed development area. The following table summarizes the pre-development watershed characteristics:

PRE-DEVELOPMENT WATERSHEDS HYDRAULIC CHARACTERISTICS			
Watershed ID	**Area (ac)**	**CN**	**Hydraulic Time of Concentration (min.)**
1S	0.364	49	20.7
2S	0.033	80	6.0
3S	0.050	87	6.0
4S	0.077	98	6.0
5S	0.204	49	9.2
6S	0.269	98	6.0
7S	0.503	44	14.0
9S	0.059	49	6.0
10S	0.282	88	6.0
11S	0.258	69	6.0
12S	0.168	74	6.0
13S	0.360	81	6.0
14S	0.140	98	6.0
15S	0.220	93	6.0
16S	0.220	93	6.0
17S	0.399	93	6.0
18S	1.028	69	6.0
19A	1.059	76	21.0
19B	1.474	74	25.0
19C	0.471	75	21.6
20S	2.920	74	31.2
Total	**10.558**		

The following is a brief description of each predevelopment subcatchment:

- Subcatchment 1S-9S consists of off-site areas tributary to POI 1. These areas and stormwater management systems are obtained from the previously approved plans for Building 1.

- Subcatchment 10S-18S consists of off-site areas tributary to pond 8P which conveys runoff to POI 2 via a 12" pipe. These areas and stormwater management systems were obtained from the previously approved plans for the Motherhouse parking expansion.

- Subcatchments 19A-20S encompass the currently proposed development area.

- Subcatchment 19A is the off-site area of St. Joseph's roof and parking lot tributary to the existing stormdrain which conveys runoff to POI 2.

- Subcatchment 19B is athletic field area tributary to a field inlet, which ultimately ties into the existing pipe network which conveys runoff to POI 2. Since the field is underdrained, the hydrologic soil group is assumed to be C.

- Subcatchment 19C consists of wooded area and grassed playing fields. The runoff from this subcatchment is tributary to a channel within the wetland which conveys runoff to POI 2. Since the field is underdrained, the hydrologic soil group is assumed to be C for areas within the athletic field.

- Subcatchment 20S is grassed area tributary to the pipe network labeled 15R, which conveys runoff to POI 1. Since the field is underdrained, the hydrologic soil group is assumed to be C.

There is no impervious area onsite in the existing condition. The onsite developed area consisting of the athletic fields, is approximately 5.07 acres.

A watershed map for the predevelopment condition is attached to this section as drawing number WS1 in Attachment A. Attachment B contains the TR-20 calculations.

Per the Master Development Plan SWM analysis, the predevelopment watershed was originally analyzed as a single 13.30 acre watershed with a CN of 55.

Table 1 presents the peak flow rates at the POI for the design storms.

Table 1– Pre-Development Peak Flow Rates (cfs)

Point of Interest	Peak Flow (cfs)		
	2 Year	10 Year	25 Year
POI # 1	1.77	3.90	6.97
POI # 2	2.99	7.55	11.40

9.0 POST DEVELOPMENT CONDITION

Analysis for the post development condition consists of determining post development peak flows and limiting the post development flows to predevelopment levels at each point of interest. Temporary runoff storage will be provided within the pervious pavers reservoir course, and also within several below grade manufactured storage chambers systems. The proposed sidewalk along McAuley Way will be constructed over an existing infiltration trench drain, however the existing piping to the infiltration trench drain will remain. To account for uncaptured surface runoff from McAuley Way, ~~a~~ two 6x10 Filterra tree box filter system modules are ~~is~~ proposed to provide treatment for the ~~0.36~~ 0.68 acre area currently draining to the infiltration trench. The subsurface portion of the infiltration trench will be preserved and the Filterra Systems will outlet to the underdrain pipe within the infiltration trench. Instead of the infiltration trench receiving flow via surface runoff, the infiltration trench will receive flow from the perforated underdrain pipe which will distribute water within the trench. The proposed design will utilize the storage and infiltration provided by the existing trench which was previously sized water quality storage and infiltration of these areas.

The predevelopment subcatchments affected by the proposed development have been modified to reflect the post development conditions. The post development conditions contain 16 subcatchments tributary to the same two points of interest in addition to the subcatchments from outside the development area. The existing 12" storm drain running through the center of the site will be rerouted along the northern property boundary and will discharge at the same location. The overall watershed area slightly increases in the post development condition to collect the developed area that would otherwise discharge to Holly Street. The area draining to Holly Street is reduced in the post-development condition and was not included in the pre-development analysis and watershed model, since, by inspection, the runoff to Holly Street will be reduced in the post development condition. The following table summarizes the post-development watershed characteristics:

Post Development Watersheds Hydraulic Characteristics			
Watershed ID	**Area (ac)**	**CN**	**Hydraulic Time of Concentration (min.)**
1S	0.364	49	20.7
2S	0.033	80	6
3S	0.050	87	6
4S	0.077	98	6
5S	0.204	49	9.2
6S	0.269	98	6
7S	0.503	44	14
9S	0.041	69	6
10S	0.282	88	6
11S	0.258	69	6
12S	0.168	74	6
13S	0.356	85	6
14S	0.140	98	6

Post Development Watersheds Hydraulic Characteristics			
Watershed ID	**Area (ac)**	**CN**	**Hydraulic Time of Concentration (min.)**
15S	0.220	93	6
16S	0.220	93	6
17S	0.399	93	6
18S	1.028	69	6
19A	1.319	60	19.8
20A	0.440	82	6
20B	0.366	82	6
21A	0.446	98	6
21B	0.289	98	6
22A	0.812	46	23
22B	0.203	47	6
23A	0.432	77	6
23B	0.227	76	6
24A	0.289	98	6
24B	0.446	98	6
25A	0.514	65	25
25B	0.208	76	6
25C	0.055	79	6
26S	0.241	62	22.1
27S	0.318	76	27.3
28S	0.108	39	13.2
Total	**11.324**		

The following is a brief description of each post development subcatchment.

- Subcatchment 1S-7S were not affected by the proposed development and are unchanged.

- ~~Subcatchment 9S was modified from the existing conditions and consists of landscaped area and access entrance.~~

- ~~Subcatchment 10S-12S were not affected by the proposed development and are unchanged.~~

- Subcatchment 9S was modified from the existing conditions and consists of landscaped area and access entrance tributary to the proposed Filterra treatment system.

- Subcatchment 10S was not affected by the proposed development and is now tributary to the proposed Filterra treatment system.

- Subcatchment 11S-12S were not affected by the proposed development and are unchanged.

- Subcatchment 13S is the area within McAuley Way tributary to the proposed Filterra treatment system.

- Subcatchment 14S-18S were not affected by the proposed development and are unchanged.

- Subcatchment 20A consists of grassed and paved areas tributary to the pervious pavers which are tributary to the proposed stormdrain system which conveys runoff to POI 2.

- Subcatchment 20B consists of grassed and paved areas tributary to the pervious pavers which are tributary to the proposed stormdrain system which conveys runoff to POI 2.

- Subcatchment 21A consists of the roof drain from the proposed building 5, which is tributary to Detention Pond 1, which outlets to the proposed stormdrain system that conveys runoff to POI 2.

- Subcatchment 21B consists of the roof drain from the proposed building 4, which is tributary to Detention Pond 1, which outlets to the proposed stormdrain system that conveys runoff to POI 2.

- Subcatchment 22B consists of the vegetated area tributary to the proposed stormdrain system, which conveys runoff to POI 2.

- Subcatchment 22A is the grassed and paved areas tributary to Focal Point Filter 1, which outlets to the proposed stormdrain system that conveys runoff to POI 2.

- Subcatchment 23A consists of grassed and paved areas tributary to the pervious pavers which are tributary to the proposed stormdrain system which conveys runoff to POI 2.

- Subcatchment 23B consists of grassed and paved areas tributary to the pervious pavers which are tributary to the proposed stormdrain system which conveys runoff to POI 2.

- Subcatchment 24A consists of the roof drain from the proposed building 2, which is tributary to Detention Pond 2, which outlets to the stormdrain system that conveys runoff to POI 1.

- Subcatchment 24B consists of the roof drain from the proposed building 3, which is tributary to Detention Pond 2, which outlets to the stormdrain system that conveys runoff to POI 1.

- Subcatchment 25A is the grassed and paved areas tributary to Focal Point Filter 2, which outlets to the stormdrain system that conveys runoff to POI 1.

- Subcatchment 25B consists of the vegetated area which is tributary to the proposed stormdrain system which conveys runoff to POI 1.

- Subcatchment 25C consists of an untreated open space area which is tributary to the stormdrain system that conveys runoff to POI 1.

- Subcatchment 26S consists of grassed, paved, and wooded areas tributary to the channel labeled 44R which conveys runoff to POI 2.

- Subcatchment 27S consists of grassed, paved, and wooded areas tributary to the channel labeled 28R which conveys runoff to POI 2.

- Subcatchment 28S consists of grassed and paved areas tributary to the proposed stormdrain network that conveys runoff to POI 2.

The total impervious area onsite in the proposed condition is 2.88 acres, and the total developed area onsite in the proposed condition is 5.07 acres. The total watershed area analyzed contains 5.39 acres including 2.86 acres of impervious and 2.54 acres of non-impervious.

A watershed map for the post development condition is attached as drawing number WS2 in Attachment A. Attachment B contains the TR-20 calculations.

The following table reflects the pre- and post-development peak flow rates comparison at the two points of interest:

Table 2 – Comparison of Peak flows (cfs)						
Point of Interest	**Peak Flow (cfs)**					
	2 Year		**10 Year**		**25 Year**	
	Pre	**Post**	**Pre**	**Post**	**Pre**	**Post**
POI #1	1.77	1.72	3.90	2.60	6.97	4.55
POI #2	2.99	~~2.77~~ 2.60	7.55	~~6.75~~ 6.69	11.40	~~11.37~~ 11.32

As shown in Table 2 above, the Post development peak flows for the 2, 10, and 25-yr storm events are less than the pre-development peak flows at POI 1 and POI 2. Thus, we conclude that the proposed onsite management of stormwater runoff will result in no impacts to the downstream conditions.

10.0 STORMWATER MANAGEMENT SUMMARY

Under the General Standards, the project is required to meet the BMP water quality Standards, as the development site is not tributary to a lake watershed. As part of the original Master Development Plan various SWM BMP's had been suggested for use including the following:

- Filtering roof drip strips
- Two Filterra Bioretention Systems
- An infiltration trench
- Two Focal Point Filters
- Areas of porous pavement

The filtering roof drip strips have not been used due to changes in building design and roof architecture. The MDP also contemplated extensive infiltration capacity of runoff into the site's underlying soils. We have reduced the effects of infiltration on the model in order to arrive at a conservative estimate of onsite storage capacity need and peak discharge release.

The following sections summarize the BMP's that are being employed to meet the water quantity and quality standards for the proposed development.

10.1.1 Pervious Pavers

Underdrained pervious pavers will be installed in all exterior parking stalls throughout the project. Direct absorption or sheet flow from adjacent areas will flow down through the pervious pavers and through a sand filter treatment section before being collected in underdrain pipes that will connect to the closed collection system that ultimately outfalls to POI 2. The pervious paver filter section was designed in accordance with Section 7.7 of the MDEP Stormwater BMPS Technical Design Manual dated May 2016.

The pervious paver section consists of the pavers, a choker course, a reservoir course with a 40% void ratio, a sand filter layer, and an underdrain course. The reservoir course has been sized to store the runoff generated by the 25-year storm for controlled release through the outlet control structures. The outlet control structure for each pervious paver storage volume allows for a 24-48 hour release of the channel protection volume, which is filtered through the sand section for treatment. Runoff from larger storms is temporarily stored within the reservoir course and released from the storage volume through the outlet control structure.

In the HydroCAD model, the pervious paver filters are broken down into four main subcatchment areas that can be seen on the Post-Development Watershed Map. These areas are identified as storage volumes identified as PP1, PP2, PP3, and PP4. Although they are broken into four areas, each section of parking has been sized individually to be at least 20% of the contributing impervious area running onto it. It should be noted that in all cases, the pervious paver surface areas are oversized, for flood control purposes, compared to the area draining to it. Sizing calculations are provided in Attachment C.

In total, the pervious pavers will provide treatment for 43,950 SF of impervious area and 63,810 SF of developed area. This accounts for 35% of the total impervious and 29% of the total developed area. Design calculations for the pervious pavers are included in Attachment C. The pavers are expected to look like below once installed:



Fig. 1 Pervious Pavers

10.1.2 Focal Point Filters

Focal Point filters will be installed in the center of the open space area to the south of Building 4, and to the south of Building 2. Two separate filters will be used primarily to treat surface

runoff resulting from paved and landscaped areas throughout the site. Direct absorption or sheet flow from adjacent areas will flow to the Focal Points and through the filter section before being collected in R-Tanks that will ultimately discharge to the two points of interest via existing and proposed stormdrain networks. The Focal Point Filters are designed in accordance with the MDEP approval letter dated February 2, 2017.

The approval letter requires that the treated runoff and the overflow runoff be directed to a treatment row. The treatment row needs to be sized to treat the peak flow from the 1-year storm event. Additional storage downstream of the treatment row is required to store the water quality volume and release the volume over a 24-48 hour period.

The tributary area to Focal Point #1 consists of a small, paved area and HSG A lawn. The subcatchment does not produce any runoff for storms up to the 2-year storm, so the water quality volume typically generated by smaller storms will not be present. Larger storms will generate runoff that produces a volume equal to or greater than the water quality volume, therefore the required water quality volume storage has been provided. The treatment row sizing is based upon the flow from the 1-year storm which will be zero for this subcatchment. A single treatment R-Tank has been provided for this filter.

The tributary area to Focal Point #2 produces the typical runoff from smaller storms, and the required treatment and storage have been provided.

The outflow from the R-Tanks will be controlled by outlet control structures that will limit the outflow of the water quality volume to 24-48 hours and allow for bypass of larger flows.

In total, the Focal Point filters will provide treatment for 13,085 SF of impervious area and 57,750 SF of developed area. This accounts for 10% of the total impervious area and 26% of the total developed area. Design calculations for the Focal Point filters are included in Attachment C.

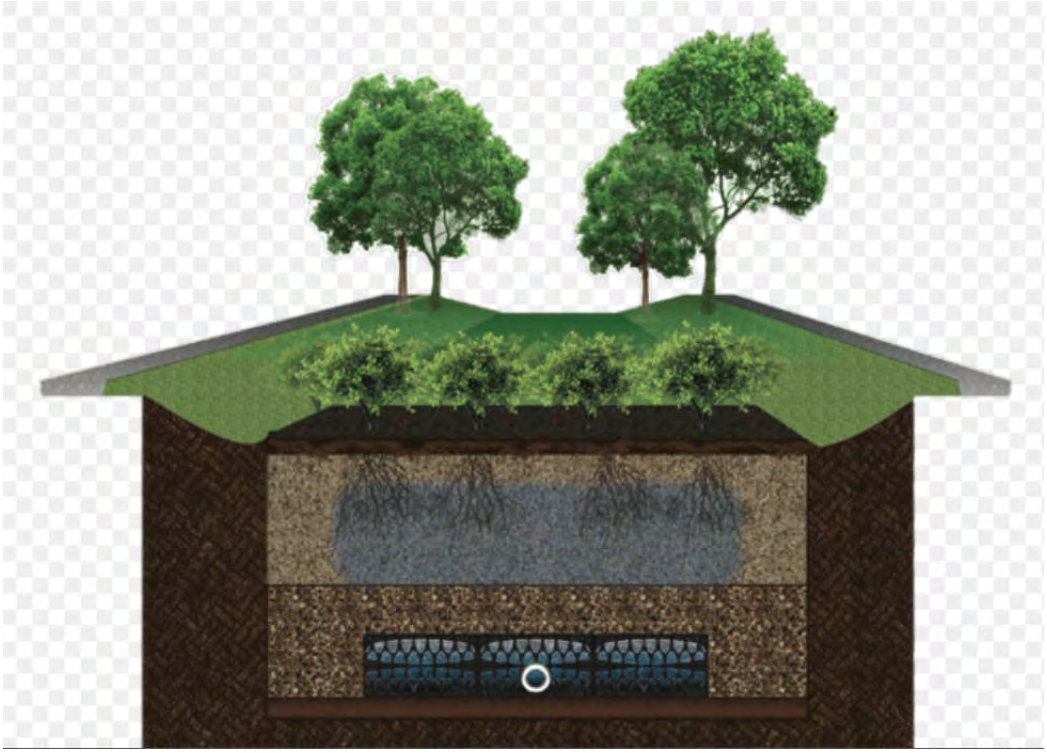


Fig 2 Focal Point System

10.1.3 Detention Ponds

Underground Storage volumes will be installed to the north and south of Building 3. The roof drains from the buildings will be tributary to these storage areas. In the post-development HydroCAD model, these BMP's are labeled as Detention Pond 1 & 2 (R1 & R2). The two separate ponds will be used primarily to provide treatment for thermal impact from the roof runoff in accordance with Chapter 500 Part 4.C(5)(f). The detention ponds will consist of subsurface storage using R-Tanks. The ponds and outlet control structures have been sized to provide a 24-48 hour outflow for the runoff generated by the 2-year storm. The subsurface storage and slow discharge will provide cooling of the roof runoff before it is conveyed to the outlet points. The Chapter 500 Roof exception from the General Standard is applicable for the runoff from the roofs. The exception states that runoff from sloped non-asphalt roofs needs to be treated for thermal impact and channel protection only. The proposed non-asphalt roofs will slope to roof drains that will convey the runoff to the subsurface detention ponds. The roof area has been included in the treatment summary since the thermal and channel protection provisions have been met in accordance with Chapter 500.

In total, the underground storage volumes will provide treatment for 63,980 SF of impervious area and 63,980 SF of developed area. This accounts for 51% of the total impervious area and 29% of the total developed area. It should be noted that all landscaped and impervious areas draining to the detention ponds (with the exception of roof areas) are not considered to be "treated" in treatment calculations. Design calculations for the detention ponds are included in Attachment C.



Fig 3. R Tank Underground Storage

10.1.4 Filterra Bioretention System (FBS)

~~A~~ Two 6x10 Filterra Bioretention Systems will be installed along the eastern edge of McAuley Way to replace the treatment of surface runoff provided by the existing infiltration trench. The FBS was sized in accordance with the MDEP Approval Letter dated February 2017.

The subsurface portion of the infiltration trench will be preserved to allow the Filterra Systems to outlet to the underdrain pipe in the infiltration trench. Instead of the infiltration trench receiving flow via surface runoff, the underdrain pipe will distribute water within the trench which was previously sized water quality storage and infiltration.

In total, the Filterra Systems will provide treatment for ~~12,000~~ 23,034 SF of impervious area and ~~15,500~~ 29,573 SF of developed area. This accounts for the developed and impervious surface runoff that was draining to the infiltration trench. The area draining to FBS #1 is 0.36 acres (Subcatchment 13), and the area draining to FBS #2 is 0.32 acres, both of which requires a 6'x10' Filterra Module. Since this treatment is occurring off-site, it should be noted that all landscaped and impervious areas draining to the FBS are not considered a treated area in treatment calculations for the project.



Fig 4. Filterra System

11.0 WATER QUALITY SUMMARY

The construction of BMPs employed as part of the development will allow the project to meet the standards set forth in Chapter 500 and the City's stormwater management standards. The pervious pavers, Focal Point filters, and detention ponds successfully treat approximately 2.78 acres of impervious area and 4.26 acres of developed area. This equates to overall treatment percentages of 96% and 84% for impervious and developed area, respectively. A summary of the calculations is provided below:

Treatment Summary

Treatment Method	Impervious		Developed	
	sf	%	sf	%
Pervious Pavers	45,890	35	89,310	29
Focal Point Filters	13,085	10	57,750	26
Detention Ponds	63,980	51	63,980	29
Total:	**125,638**	**96**	**220,670**	**84**

Water Quality Calculations that demonstrate compliance with The Chapter 500 General Standards for the development are provided in Attachment C. A summary of the calculations is provided below:

Treatment Summary

Total Impervious Area =	2.88 acres
Total Developed Area =	5.07 acres
Impervious Area Treated =	2.78 acres
Percent Impervious Area Treated =	96%
Developed Area Treated =	4.26 acres
Percent Developed Area Treated =	84%

12.0 MASTER DEVELOPMENT PLAN

This stormwater management report is a detailed analysis of the stormwater impacts for Lot 5 Phase 2 of Stevens Square at Baxter Woods. The original Master Development Plan (MDP) was an overall concept which included the conceptual development of Lot 5 Phase 2. In accordance with the City of Portland requirements, this proposed development has been designed to conform to MDEP Chapter 500 Stormwater Management Law for general and flooding standards. The basic standard is presented in the erosion and sedimentation control plan for the project. The proposed development of Lot 5 Phase 2 meets the MDP overall stormwater framework by providing a design in compliance with Chapter 500.

13.0 MAINTENANCE OF FACILITIES

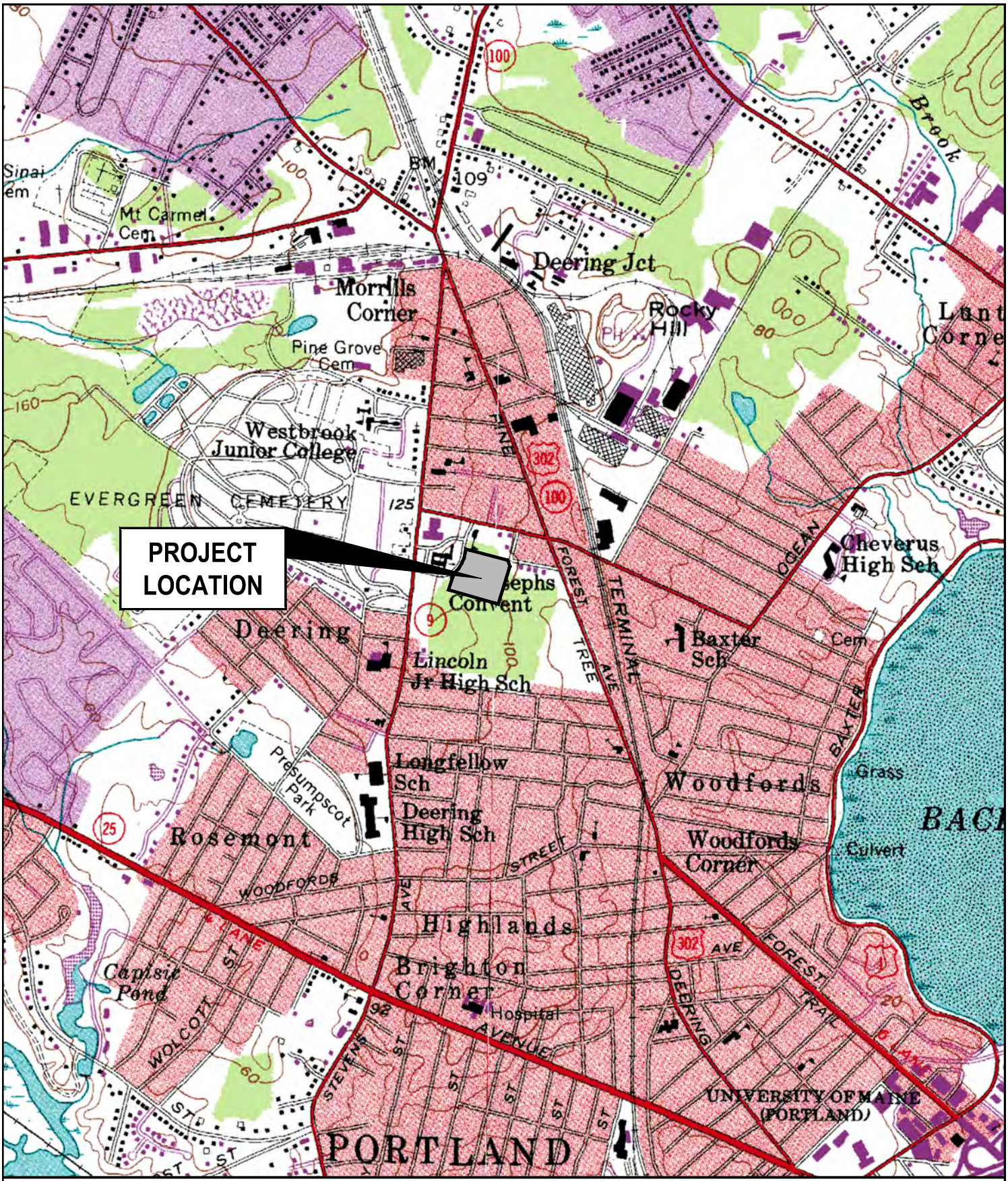
The stormwater management facilities will be maintained by the Applicant or their assigns after construction is completed. The general contractor will be responsible for maintenance during construction. The contract documents will require that the contractor designate a person for maintenance of the facilities during construction as required by this application. Long-term operation/maintenance schedules for the facilities are provided in the O&M Manual included in Attachment D of this report. A draft maintenance agreement is also included in the O&M Manual.

The owner will be required to hire a qualified post-construction stormwater inspector to at least annually, inspect the BMPs. In addition, the qualified post-construction stormwater inspector shall, on or by June 30 of each year, provide a completed and signed certification to DPW in a form provided by DPW certifying that the person has inspected the BMPs and they are adequately maintained and functioning as intended.

14.0 CONCLUSION

The Stormwater Management Plan for this project outlines the measures proposed to achieve compliance with the Chapter 500 Stormwater Management standards for water quality treatment. The design includes stormwater quantity controls including storage components within the pervious paver cross section, and within the detention ponds.

Based on the proposed design, the runoff from the proposed development will be captured and conveyed in a manner that will not have an adverse impact to the surrounding stormwater systems or the environment.



USGS LOCATION MAP

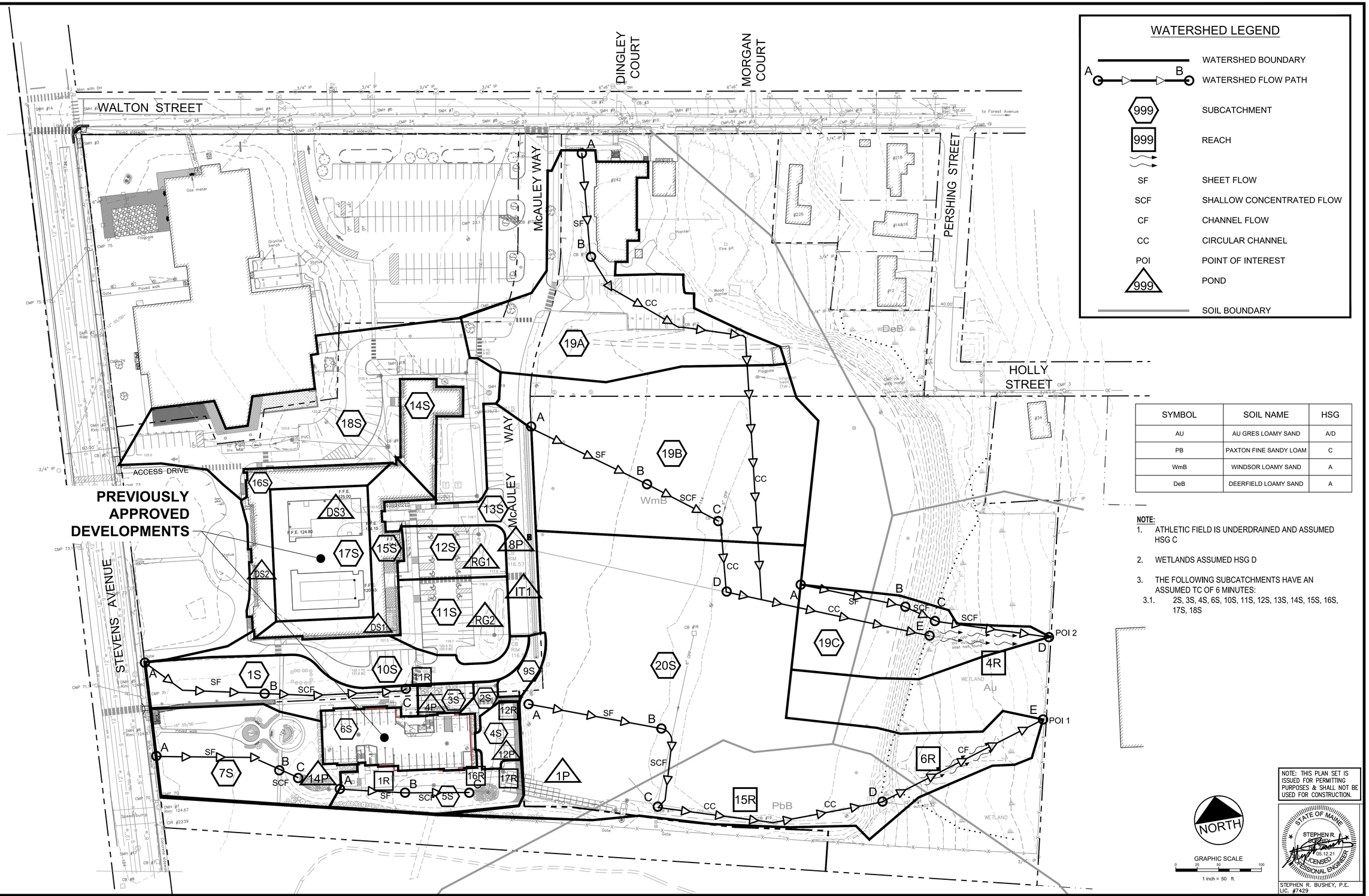
STEVENS SQUARE AT BAXTER WOODS - LOT 4 PHASE 2
583 Stevens Avenue, Portland, Maine

NORTH

Design: SRB	Date: APRIL 2021	GORRILL PALMER	Figure 1
Draft: CDD	Job No.: 3564.03	Relationships. Responsiveness. Results. www.gorrillpalmer.com 207.772.2515	
Checked: SRB	Scale: NOT TO SCALE		
File Name: 356403–COVER.dwg			

ATTACHMENT A

WATERSHED MAPS



SYMBOL	SOIL NAME	HSG
AU	AU GRES LOAMY SAND	A/D
PB	PAXTON FINE SANDY LOAM	C
WmB	WINDSOR LOAMY SAND	A
DeB	DEERFIELD LOAMY SAND	A

NOTE:

1. ATHLETIC FIELD IS UNDERDRAINED AND ASSUMED HSG C
2. WETLANDS ASSUMED HSG D
3. THE FOLLOWING SUBCATCHMENTS HAVE AN ASSUMED TC OF 6 MINUTES:
   - 3.1. 2S, 3S, 4S, 6S, 10S, 11S, 12S, 13S, 14S, 15S, 16S, 17S, 18S

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES & SHALL NOT BE USED FOR CONSTRUCTION.

STATE OF MAINE — STEPHEN R. BUSHEY — 05.12.21 — LICENSED PROFESSIONAL ENGINEER

STEPHEN R. BUSHEY, P.E.
LIC. #7429

Rev.	Date	Revision

Rev.	Date	Revision
1	2021.05.12	SUBMITTED TO CITY FOR REVIEW

Design: SRB	Draft: CDD	Date: MAY 2021
Checked: SRB	Scale: AS NOTED	Job No.: 3564.03
File Name: 356403-WSHED.dwg		

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207.772.2515

Drawing Name: PREDEVELOPMENT WATERSHED PLAN

Project: **Stevens Square at Baxter Woods – Phase 2**
583 Stevens Avenue, Portland, Maine

Client/Owner: **DC BAXTER WOODS LLC**
100 COMMERCIAL STREET, SUITE 414, PORTLAND, ME 04101 PH. 207.766.6696

Drawing No. WS1

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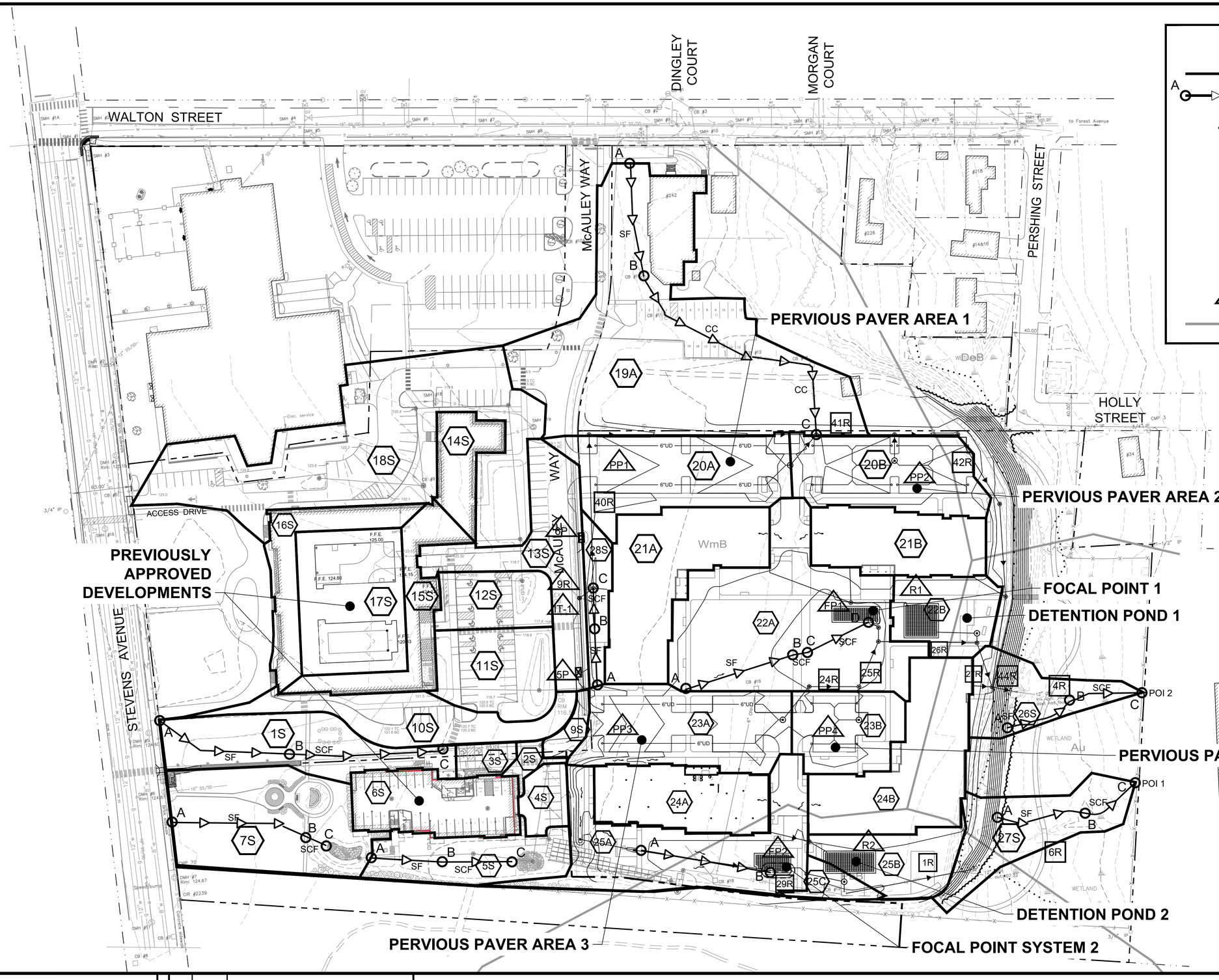

WATERSHED LEGEND

- WATERSHED BOUNDARY
- A — B: WATERSHED FLOW PATH
- 999: SUBCATCHMENT
- 999: REACH
- SF: SHEET FLOW
- SCF: SHALLOW CONCENTRATED FLOW
- CF: CHANNEL FLOW
- CC: CIRCULAR CHANNEL
- POI: POINT OF INTEREST
- 999: POND
- SOIL BOUNDARY

SYMBOL	SOIL NAME	HSG
AU	AU GRES LOAMY SAND	A/D
PB	PAXTON FINE SANDY LOAM	C
WmB	WINDSOR LOAMY SAND	A
DeB	DEERFIELD LOAMY SAND	A

NOTE:

1. ATHLETIC FIELD IS UNDERDRAINED AND ASSUMED HSG C
2. WETLANDS ASSUMED HSG D
3. THE FOLLOWING SUBCATCHMENTS HAVE AN ASSUMED TC OF 6 MINUTES:
   - 3.1. 2S, 3S, 4S, 6S, 10S, 11S, 12S, 13S, 14S, 15S, 16S, 17S, 18S, 20A, 20B, 21A, 21B, 22B, 23A, 23B, 24A, 24B, 25B

NORTH

GRAPHIC SCALE
0 25 50 100
1 inch = 50 ft.

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES & SHALL NOT BE USED FOR CONSTRUCTION.

STATE OF MAINE — STEPHEN R. BUSHEY — 11.23.21 — LICENSED PROFESSIONAL ENGINEER

STEPHEN R. BUSHEY, P.E.
LIC. #7429

Rev.	Date	Revision

Rev.	Date	Revision
2	2021.11.23	RESUBMITTED PER LOR #1 FOR FINAL REVIEW
1	2021.05.12	SUBMITTED TO CITY FOR REVIEW

Design: SRB	Draft: CDD	Date: MAY 2021
Checked: SRB	Scale: AS NOTED	Job No.: 3564.03
File Name: 356403-WSHED.dwg		

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Drawing Name: POSTDEVELOPMENT WATERSHED PLAN

Project: **Stevens Square at Baxter Woods – Phase 2–4**
583 Stevens Avenue, Portland, Maine

Client/Owner: **DC BAXTER WOODS IV LLC**
100 COMMERCIAL STREET, SUITE 414, PORTLAND, ME 04101 PH. 207.772.7673

Drawing No. WS2

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STORMWATER QUALITY TREATMENT										
	IMPERVIOUS AREA					DEVELOPED AREA				TREATMENT BMP
SUBCATCHMENT	COVER TYPE	AREA (SF)	% TREATED	% AREA	% TREATED	AREA (SF)	% TREATED	% AREA	% TREATED	
20A	PAVEMENT	13,856	100%	11%	11%	19,180	100%	9%	9%	PERVIOUS PAVERS 1
20B	PAVEMENT	11,726	100%	9%	9%	15,935	100%	7%	7%	PERVIOUS PAVERS 2
21A, 21B	ROOFS *	31,990	100%	25%	25%	31,990	100%	14%	14%	R-TANK SYSTEM 1
22A	PAVEMENT	8,175	100%	7%	7%	35,370	100%	16%	16%	FOCAL POINT 1
23A	PAVEMENT	12,134	100%	10%	10%	18,825	100%	9%	9%	PERVIOUS PAVERS 3
23B	PAVEMENT	6,230	100%	5%	5%	9,870	100%	4%	4%	PERVIOUS PAVERS 4
24A, 24B	ROOFS *	31,990	100%	25%	25%	31,990	100%	14%	14%	R-TANK SYSTEM 2
25A	PAVEMENT	4,910	100%	4%	4%	22,380	100%	10%	10%	FOCAL POINT 2
UNTREATED	WALKWAYS	4,627	0%	4%	0%	35,130	0%	16%	0%	
TOTAL AREA		125,638		100%		220,670		100%		
TOTAL % TREATED					96%				84%	

WATERSHED LEGEND

- DEVELOPED AREA BOUNDARY
- 999 — SUBCATCHMENT
- AREA TREATED BY PERVIOUS PAVER AREA 1
- AREA TREATED BY PERVIOUS PAVER AREA 2
- AREA TREATED BY PERVIOUS PAVER AREA 3
- AREA TREATED BY PERVIOUS PAVER AREA 4
- AREA TREATED BY FOCAL POINT 1
- AREA TREATED BY FOCAL POINT 2
- AREA TREATED BY DETENTION POND 1
- AREA TREATED BY DETENTION POND 2
- UNTREATED

*ROOF AREA TREATED FOR THERMAL IMPACTS IN ACCORDANCE WITH CHAPTER 500 ROOF EXCEPTION FROM THE GENERAL STANDARDS.

PERVIOUS PAVER AREA 1
SIDE SLOPES ASSUMED TO BE UNDEVELOPED
PERVIOUS PAVER AREA 2
DETENTION POND 1
FOCAL POINT 1
PERVIOUS PAVER AREA 4
PERVIOUS PAVER AREA 3
SIDE SLOPES ASSUMED TO BE UNDEVELOPED
DETENTION POND 2
FOCAL POINT 2

BUILDING 1 - 20 UNITS
42 PARKING SPACES / 9 BIKES
BUILDING 2 - 28 UNITS
BUILDING 3 - 42 UNITS
BUILDING 4 - 28 UNITS
BUILDING 5 - 42 UNITS
SMITH WING (NOT DEVELOPED 2021)
McAULEY WAY

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES & SHALL NOT BE USED FOR CONSTRUCTION.

STEPHEN R. BUSHEY, P.E. LIC. #7429

GRAPHIC SCALE 0 15 30 60 — 1 inch = 30 ft.

Rev.	Date	Revision

Rev.	Date	Revision
1	2021.05.12	SUBMITTED TO CITY FOR REVIEW

Design: SRB	Draft: CDD	Date: MAY 2021
Checked: SRB	Scale: AS NOTED	Job No.: 3564.03
File Name: 356403-WSHED.dwg		

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Drawing Name: WATER QUALITY PLAN

Project: **Stevens Square at Baxter Woods – Phase 2**
583 Stevens Avenue, Portland, Maine

Client/Owner: **DC BAXTER WOODS LLC**
100 COMMERCIAL STREET, SUITE 414, PORTLAND, ME 04101 PH. 207.766.6696

Drawing No. C-7.0

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ATTACHMENT B

PRE AND POST DEVELOPMENT HYDROCAD MODEL

CAN BE PROVIDED UPON REQUEST

ATTACHMENT C

WATER QUALITY CALCULATIONS

STORMWATER QUALITY TREATMENT SUMMARY										
	IMPERVIOUS AREA					DEVELOPED AREA				TREATMENT BMP
SUBCATCHMENT	COVER TYPE	AREA (SF)	% TREATED	% AREA	% TREATED	AREA (SF)	% TREATED	% AREA	% TREATED	
20A	PAVEMENT	13,856	100%	11%	11%	19,180	100%	9%	9%	PERVIOUS PAVERS 1
20B	PAVEMENT	11,726	100%	9%	9%	15,935	100%	7%	7%	PERVIOUS PAVERS 2
21A, 21B	ROOFS	31,990	100%	25%	25%	31,990	100%	14%	14%	R-TANK SYSTEM 1
22A	PAVEMENT	8,175	100%	7%	7%	35,370	100%	16%	16%	FOCAL POINT 1
23A	PAVEMENT	12,134	100%	10%	10%	18,825	100%	9%	9%	PERVIOUS PAVERS 3
23B	PAVEMENT	6,230	100%	5%	5%	9,870	100%	4%	4%	PERVIOUS PAVERS 4
24A, 24B	ROOFS	31,990	100%	25%	25%	31,990	100%	14%	14%	R-TANK SYSTEM 2
25A	PAVEMENT	4,910	100%	4%	4%	22,380	100%	10%	10%	FOCAL POINT 2
UNTREATED	WALKWAYS	4,627	0%	4%	0%	35,130	0%	16%	0%	
TOTAL AREA		125,638		100%		220,670		100%		
TOTAL % TREATED					96%				84%	

Sizing Calculations

DETENTION POND 1		
Area	Area (SF)	WQV (CF)
Buildings 4 & 5	31,990	2,666
Total	31,990	**2,666**
# "Double" R-Tank Chambers		350
Storage Provided		2,905

DETENTION POND 2		
Area	Area (SF)	WQV (CF)
Buildings 2 & 3	31,990	2,666
Total	31,990	**2,666**
# "Double" R-Tank Chambers		330
Storage Provided		2,739

FOCAL POINT 1					
Area	Area (SF)	WQV (CF)	Required Filter Area (SF)	Filter Area Provided (CF)	Ponding Volume Provided (CF)
Paved Areas	8175	681	33		
Landscaped areas	27195	907	4		
Total	35370	1588	37	100	50
# Chambers for Treatment Row		1			
# Chambers for Expanded Volume		200	Expanded Volume Provided		1,660

*Treatment row consists of R-Tank "single" HD chambers sized to handle 0.02 cfs per chamber in the 1 year 24-hour storm

*Expanded volume consists of R-Tank "double" chambers, with a storage capacity of 8.3 cf per chamber, sized to store the WQV

FOCAL POINT 2					
Area	Area (SF)	WQV (CF)	Required Filter Area (SF)	Storage Provided (CF)	Ponding Volume Provided (CF)
Paved Areas	4910	409	20		
Landscaped areas	8175	273	1		
Total	22380	682	21	100	50
# Chambers for Treatment Row		4			
# Chambers for Expanded Volume		84	Expanded Volume Provided		697

*Treatment row consists of R-Tank "single" HD chambers sized to handle 0.02 cfs per chamber in the 1 year 24-hour storm

*Expanded volume consists of R-Tank "double" chambers, with a storage capacity of 8.3 cf per chamber, sized to store the WQV

POROUS PAVER AREA 1				
Area	Area (SF)	WQV (CF)	Storage Provided (CF)	Elevation
Pavement Areas	7,700	642	-	112.5
Paver Area	6,156	513		
Landscaped areas	5,324	177	1,527	113.5
Total	13,024	**1,332**	4,358	114.7
		WQV Elevation		113.5
		Pavement : Paver Ratio		80%
		Filter Thickness (in.)		5
		Reservoir Thickness (in.)		26

POROUS PAVER AREA 2				
Area	Area (SF)	WQV (CF)	Storage Provided (CF)	Elevation
Pavement Areas	6,380	532	-	112.7
Paver Area	5,346	446		
Landscaped areas	4,209	140	1,133	113.3
Total	10,589	**1,117**	2,138	113.8
		WQV Elevation		113.3
		Pavement : Paver Ratio		84%
		Filter Thickness (in.)		5
		Reservoir Thickness (in.)		13

POROUS PAVER AREA 3				
Area	Area (SF)	WQV (CF)	Storage Provided (CF)	Elevation
Pavement Areas	8,390	699	-	111.7
Paver Area	3,744	312		
Landscaped areas	6,691	223	1,393	112.7
Total	15,081	**1,234**	3,025	113.8
		WQV Elevation		112.7
		Pavement : Paver Ratio		45%
		Filter Thickness (in.)		9
		Reservoir Thickness (in.)		25

POROUS PAVER AREA 4				
Area	Area (SF)	WQV (CF)	Storage Provided (CF)	Elevation
Pavement Areas	4,610	384	-	111.8
Paver Area	1,620	135		
Landscaped areas	3,640	121	648	112.8
Total	8,250	**641**	1,166	113.6
		WQV Elevation		112.8
		Pavement : Paver Ratio		35%
		Filter Thickness (in.)		12
		Reservoir Thickness (in.)		22

Pavement: Paver Ratio	Required Filter Thickness (in.)
20%	18
30%	12
40%	9
50%	7
60%	6
70%	5
80%	5
90%	4
100%	4

Stevens Square - Drawdown Calcs

Drawdown Calculation - Porous Pavement Area 1

Orifice Diameter =0.625 in

Elev. (ft)	Depth (ft)	Surface Area (sq.ft)	Ave. End Area (sq.ft)	End Area Depth (ft)	Incremental Volume (cf)	Head, h (ft)	Orifice Flow (cfs)	Drawdown Time (secs)	Drawdown Time (hours)
113.45	0.65	6,156	6156.00	0.65	1600.56	2.48	0.0161	99115.12	27.532
112.80	0.00	6,156	0.00	0.00	0.00	1.83	0.0139	0.00	0.000
								TOTAL	***27.532***

Orifice Formula	**$CA(2gh)^{1/2}$**	
Orifice Diameter:	**0.625**	inch
A:	0.002131	sq.ft
Filter Thickness:	1.83	feet
g:	32.174	ft/s^2
C:	0.6	Orifice/Grate

Drawdown Calculation - Porous Pavement Area 2

Orifice Diameter =0.5 in

Elev. (ft)	Depth (ft)	Surface Area (sq.ft)	Ave. End Area (sq.ft)	End Area Depth (ft)	Incremental Volume (cf)	Head, h (ft)	Orifice Flow (cfs)	Drawdown Time (secs)	Drawdown Time (hours)
113.30	0.60	5,346	5346.00	0.60	1283.04	2.43	0.0102	125415.40	34.838
112.70	0.00	5,346	0.00	0.00	0.00	1.83	0.0089	0.00	0.000
								TOTAL	***34.838***

Orifice Formula	**$CA(2gh)^{1/2}$**	
Orifice Diameter:	**0.5**	inch
A:	0.001364	sq.ft
Filter Thickness:	1.83	feet
g:	32.174	ft/s^2
C:	0.6	Orifice/Grate

Drawdown Calculation - Porous Pavement Area 3

Orifice Diameter =0.5 in

Elev. (ft)	Depth (ft)	Surface Area (sq.ft)	Ave. End Area (sq.ft)	End Area Depth (ft)	Incremental Volume (cf)	Head, h (ft)	Orifice Flow (cfs)	Drawdown Time (secs)	Drawdown Time (hours)
112.65	0.95	3,744	3744.00	0.95	1422.72	2.78	0.0109	130020.21	36.117
111.70	0.00	3,744	0.00	0.00	0.00	1.83	0.0089	0.00	0.000
								TOTAL	***36.117***

Orifice Formula	**$CA(2gh)^{1/2}$**	
Orifice Diameter:	**0.5**	inch
A:	0.001364	sq.ft
Filter Thickness:	1.83	feet
g:	32.174	ft/s^2
C:	0.6	Orifice/Grate

Drawdown Calculation - Porous Pavement Area 4

Orifice Diameter =0.375 in

Elev. (ft)	Depth (ft)	Surface Area (sq.ft)	Ave. End Area (sq.ft)	End Area Depth (ft)	Incremental Volume (cf)	Head, h (ft)	Orifice Flow (cfs)	Drawdown Time (secs)	Drawdown Time (hours)
112.80	1.00	1,620	1620.00	1.00	648.00	2.83	0.0062	104345.35	28.985
111.80	0.00	1,620	0.00	0.00	0.00	1.83	0.0050	0.00	0.000
								TOTAL	***28.985***

Orifice Formula	**$CA(2gh)^{1/2}$**	
Orifice Diameter:	**0.375**	inch
A:	0.000767	sq.ft
Filter Thickness:	1.83	feet
g:	32.174	ft/s^2
C:	0.6	Orifice/Grate

Drawdown Calculation - FocalPoint Filter 1

Orifice Diameter =0.5 in

Elev. (ft)	Depth (ft)	Surface Area (sq.ft)	Ave. End Area (sq.ft)	End Area Depth (ft)	Incremental Volume (cf)	Head, h (ft)	Orifice Flow (cfs)	Drawdown Time (secs)	Drawdown Time (hours)
111.80	0.50	615	615.00	0.50	123.00	1.00	0.0066	18742.13	5.206
111.30	2.84	615	615.00	2.84	1659.27	2.84	0.0111	149991.79	41.664
108.46	0.00	615	0.00	0.00	0.00	0.00	0.0002	0.00	0.000
								TOTAL	***46.871***

Orifice Formula	**$CA\ (2gh)^{1/2}$**	
Orifice Diameter:	**0.5**	inch
A:	0.001364	sq.ft
Filter Thickness:	0	feet
g:	32.174	ft/s^2
C:	0.6	Orifice/Grate

Drawdown Calculation - FocalPoint Filter 2

Orifice Diameter =0.5 in

Elev. (ft)	Depth (ft)	Surface Area (sq.ft)	Ave. End Area (sq.ft)	End Area Depth (ft)	Incremental Volume (cf)	Head, h (ft)	Orifice Flow (cfs)	Drawdown Time (secs)	Drawdown Time (hours)
110.32	0.50	535	535.00	0.50	107.00	1.00	0.0066	16304.13	4.529
109.82	1.44	535	535.00	1.44	731.88	1.44	0.0079	92889.57	25.803
108.38	0.00	535	0.00	0.00	0.00	0.00	0.0002	0.00	0.000
								TOTAL	***30.332***

Orifice Formula	**$CA\ (2gh)^{1/2}$**	
Orifice Diameter:	**0.5**	inch
A:	0.001364	sq.ft
Filter Thickness:	0.83	feet
g:	32.174	ft/s^2
C:	0.6	Orifice/Grate

ATTACHMENT D

OPERATION & MAINTENANCE MANUAL

STEVENS SQUARE AT BAXTER WOODS PHASE 2
PORTLAND, MAINE

STORMWATER MANAGEMENT SYSTEM OPERATION AND MAINTENANCE MANUAL FOR STORMWATER FACILITIES

PREPARED FOR

DC BAXTER WOODS LLC
100 COMMERCIAL STREET, SUITE 414
PORTLAND, ME 04101

PREPARED BY

GORRILL PALMER
707 SABLE OAKS DRIVE – SUITE 30
SOUTH PORTLAND, MAINE 04106
207.772.2515

May 2021

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APPENDICES

Appendix A – Summary Checklist for Inspection and Maintenance

Appendix B – Inspection Logs

Appendix C –Permits for Project

Appendix D – Stormwater Maintenance Agreement (DRAFT)

I. INTRODUCTION

Runoff from developed areas may contain a number of contaminants especially when emanating from rooftops, paved or lawn areas. This runoff can contain a significant amount of non-point contaminants, which can have an adverse impact on the receiving waters. The installation of soil media filters can significantly reduce the non-point pollution discharge from the developed area.

The effectiveness of ponds and other components of the system are dependent on their upkeep and maintenance to assure they meet their design function over an extended period of years. It is critical that the stormwater management facilities are inspected on a regularly scheduled basis, and that maintenance is performed on an as needed basis. It must also be recognized that the effectiveness of these facilities, and their maintenance requirements, are related to the stormwater drainage facilities that transport the flow to the ponds or treatment measures. Thus, maintenance should be directed to the total system, not just the ponds.

The purpose of this document is to define in detail the inspection and maintenance requirements deemed necessary to assure that the stormwater management facilities function as intended on a long-term basis for Stevens Square, Lot 5. This Operations and Maintenance Manual is specific to the existing and proposed stormwater measures utilized to execute a successful stormwater management plan. Subsequent sections identify individual maintenance items; give a brief commentary of the function and need of the item, a description of the work required, and a suggested frequency of accomplishment. While the suggested programs and schedules must be adapted to specific projects, the material presented should provide guidance for a successful long-term program.

A. Guidelines Overview

A summary of the individual components of stormwater management facilities for this project has been prepared. The format used in the summary is as follows:

Preface: A general description of what function/benefit the element is intended to provide. This is a short summary and not intended to provide the design basis, which can be found in other sources.

Inspection: This section provides the inspection requirements for the individual component.

Maintenance: The section provides general information on the routine maintenance requirements of this element.

Frequency: This section outlines the best judgment of the designer on the system to the frequency of maintenance.

Comments: This section provides any particular comment on the site-specific features of this element. This is a summary only. The owner/operator should review the design drawings and documents carefully to understand the particular elements of the project. The end of this section should allow the owner/operator to make notes on the specific program. This may include the selected maintenance procedure, cross-references to applicable design drawings, etc.

A list of the individual inspection/maintenance elements is provided in the table of contents. The guidelines are proposed for initial use with adjustments made as appropriate based upon specific project experience.

This report includes the Operation and Maintenance requirements for any potential BMP identified in the Stormwater Management Report for this project.

B. Responsible Party

The responsible party for operation and maintenance of the stormwater and other site infrastructure will be the Applicant or their agents or assigns.

II. PROJECT OVERVIEW

Key permits issued (or applied for) on the project include:

- City of Portland Site Plan Approval
- Maine Construction General Permit Stormwater General Permit
- Stormwater Service Charge Program

A copy of the permits and Stormwater Management Report should be appended to this manual as Appendix C. The Owner/Operator of the stormwater management system should review these permits for a general description and background of the project, as well as any specific permit conditions or requirements of the project.

The applicant has retained Gorrill Palmer for civil engineering for the development project. Gorrill Palmer has prepared the design for the stormwater management facilities and may be contacted at:

Gorrill Palmer
707 Sable Oaks Drive – Suite 30
South Portland, Maine 04106
207.772.2515

The applicable plans and design documents which apply to the project are:

1. Civil Site Plans Prepared by Gorrill Palmer
2. The Erosion Control/Sedimentation Control Plan for the project
3. The Stormwater Management Plan for the project

A copy of these documents should be retained with this manual.

The proposed design includes inlets, stormwater conveyance lines, Focal Point filters, pervious pavers, detention ponds, and outlet control structures.

The key receiving water for this project is Back Cove that is located to the east of the project site.

The manual is intended for general guidance; however, any substituted deviations from the manual should be reviewed with respect to provisions of Appendix C.

III. STANDARD INSPECTION/MAINTENANCE DESCRIPTIONS

The following narratives describe the inspection/maintenance provisions for the Stormwater Management system. Proper O&M is necessary to make sure the system will provide its intended purpose of conveying runoff, removing a substantial amount of the suspended solids, and other contaminants in the stormwater runoff.

A. Stormwater Inlets

Preface: The success of any stormwater facility relies on the ability to intercept stormwater runoff at the design locations. Stormwater inlets include catch basins, open culverts, and field inlets. Field inlets exist to the south of Building 2 and Focal Points as overflow structures.

Inspection: The inspection of inlet points will need to be coordinated with other maintenance items, these include:

- Building maintenance areas
- Grounds maintenance

The key elements of the inspection are to assure the inlet entry point is clear of debris and will allow the intended water entry.

Maintenance: The key maintenance is the removal of any blockage which restricts the entry of stormwater to the inlet. The removed material should be taken out of the area of the inlet and placed where it will not reenter the runoff collection system. Snow should be removed from inlets on parking lots. Grass clippings and leaves should be bagged and removed particularly near the yard inlets near the buildings.

Frequency: All inlets should be inspected on a quarterly basis, and after/during significant storm events i.e. >1" rainfall).

Maintenance Personnel: The maintenance personnel will perform the normal maintenance/ inspections of the inlets and tributary drainage system.

Comments: Maintenance of inlets is critical on this project.

B. Tributary Drainage System

Preface: Stormwater from most of the project will be directed through a conveyance (tributary) system which transports the flow to the Focal Point Filters, detention ponds and ultimately to the wetland to the east. This conveyance system will be principally overland flow discharging to piped drain systems. Most of the sediment carried by the drainage system is intended to be trapped in structures. Maintenance of this system can play a major role in the long-term maintenance costs and the effectiveness of the onsite systems. The primary pretreatment measure for the site will be through flow travel over vegetated buffers.

Inspection: The tributary drainage system should be periodically inspected to assure that it is operating as intended, and that the carrying capacity has not been diminished by accumulations of debris and sediment or other hydraulic impediments. On piped systems, the inlets must be

inspected to ensure the rims are set at the proper elevation to optimize flow entry and are not clogged with debris.

The level of sediment in the sumps should be checked to assure their effectiveness. Pipelines connecting the inlets should be checked to determine if siltation is occurring. This will be most critical on drain lines laid at minimal slopes. This can usually be accomplished by a light and mirror procedure.

Maintenance: Maintenance of the storm drainage system must assure that it continues to serve its design function on a long-term basis, and that its operation does not transport excessive sediments to any downstream treatment device or the receiving waters. Elevations on the rim of catch basins should be adjusted as needed to assure optimal water entry. Depending on the frost susceptibility of the soil, the rims may become elevated over time causing flow to circumvent the inlet. If a temporary filter bag has been designated for the inlet during construction, silt or other deleterious materials, can significantly reduce capacity and the bags should be removed with the sediment and replaced during construction. Catch basin cleaning would normally be accomplished with vacuum trucks contracted as a maintenance service for the Development. The removed material must be disposed of at an approved site for such materials.

If sediment in the pipeline is observed, it should be removed. This may be accomplished by hydraulic flushing, or by mechanical means. If hydraulic flushing is used the downstream conditions should be analyzed.

Frequency: The tributary drainage system should be inspected on an annual basis. Adjustment of inlet rim elevations should be on an as needed basis. Cleaning catch basin sumps and pipelines will depend on the rate of accumulation.

C. Pervious Pavers

Preface: The pervious pavers collect stormwater runoff from the surface before passing it through a treatment section and discharging into a closed drainage system.

Inspection/Monitoring: The pavers should be inspected regularly to ensure that the surface is not clogged, and that runoff can pass freely through the pervious section. The pervious pavers must be inspected for integrity and to ensure rutting or deformation of the surface is minimized.

Maintenance: Any debris should be removed from the paver surface. If the pervious paver area is holding water in excess of 48-72 hours, corrective action is needed. To correct a standing water problem, the following remedial actions are recommended.

1. Vacuum any sediment or debris from the paver surface on a semi-annual basis.
2. Ensure the underdrain system or outlet pipe orifice is not clogged with any silt or other materials.
3. Ensure that the pervious pavers can pass water freely or drain quickly while handling large amounts of water.

Frequency: The pervious pavers should be inspected and vacuumed semi-annually and maintained as necessary.

Maintenance/Inspection Responsibility: The Owner or an outside agent is responsible for inspection and maintenance of the pervious paver areas.

Comments: Proper maintenance is critical for the pervious pavers as it plays a large role in the overall stormwater management plan for the development. Limit salt use for deicing and no not use sand.

D. Proprietary Treatment Devices (FocalPoint®)

Preface: FocalPoint® systems will be used on site to treat surface runoff from impervious and landscaped areas.

Inspection: Inspection of the filter should be performed after each major rainfall event to ensure that stormwater runoff is able to pass through the filters. The vegetation should be inspected and maintained regularly similar to other landscape features on site. The underdrain outlet should be inspected regularly.

Maintenance: Clear inlets and pretreatment devices of debris and sediment. Maintain as instructed by manufacturer.

Frequency: The system should be inspected semi-annually and maintained as required by the manufacturer.

Comments: The manufacturer typically commits to the first year of maintenance if their strict guidelines are followed for installation, which is highly encouraged to achieve peak performance. It is recommended that an outside agent who is familiar with the product be retained for future maintenance.

E. Proprietary Device (R-Tanks)

Inspection of the outlet control structure should be performed after each major rainfall event to ensure that stormwater runoff is able to pass through the system. The system should be inspected semi-annually and maintained as required by the manufacturer.

F. Orifice Control Devices

Preface: Orifices of assorted sizes are commonly utilized to control discharge from stormwater management features. This project uses orifice controls to control discharge from the four pervious paver areas, detention ponds, and the Focal Point filters.

Inspection: Inspection of orifices should be performed after each major rainfall event to ensure that stormwater runoff is able to discharge through the orifice and that it is not clogged.

Maintenance: The orifice cap should be removed and all debris flushed from the pipe prior to reinstalling the orifice cap. An orifice in a weir wall should be cleared of debris by hand.

Frequency: The orifice control devices should be inspected semi-annually and maintained as needed.

Comments: None.

G. Proprietary Device (Filterra)

The first year of maintenance shall be performed by the Supplier or a supplier approved contractor. Subsequent maintenance shall be performed at least 2 times per year (preferably in Spring and Fall). At a minimum, the maintenance shall consist of the following:

1. Filterra Unit Inspection
2. Foreign debris, silt, mulch & trash removal
3. Filter media evaluation and recharge as necessary
4. Plant health evaluation and pruning or replacement as necessary
5. Replacement of mulch
6. Disposal of all maintenance refuse items

H. Ditches, Swales, and Other Open Stormwater Channels

Inspect 2 times per year (preferably in Spring and Fall) to ensure they are working in their intended fashion and that they are free of sediment and debris. Remove any obstructions to flow, including accumulated sediments and debris and vegetated growth. Repair any erosion of the ditch lining. Vegetated ditches will be mowed at least annually or otherwise maintained to control the growth of woody vegetation and maintain flow capacity. Any woody vegetation growing through riprap linings must also be removed. Repair any slumping side slopes as soon as practicable. If the ditch has a riprap lining, replace riprap on areas where any underlying filter fabric or underdrain gravel is showing through the stone or where stones have dislodged. Correct any erosion of the channel's bottom or side slopes. The facilities shall be inspected after major storms and any identified deficiencies shall be corrected.

I. Roadways and Parking Surfaces

Clear accumulations of winter sand in parking lots and along roadways at least once a year, preferably in the spring. Accumulations on pavement may be removed by pavement sweeping. 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. Repair potholes and other roadway obstructions and hazards. Plowing and sanding of paved areas shall be performed as necessary to maintain vehicular traffic safety.

J. Litter

Litter should be removed as a matter of course by workers and as part of the ground's maintenance contract.

IV. PROGRAM ADMINISTRATION

A. General

A reliable administrative structure must be established to assure implementation of the maintenance programs described in the foregoing section. Key factors that must be considered in establishing a responsive administrative structure include:

1. Administrative body must be responsible for long-term operation and maintenance of the facilities. (Maintenance continues for the lifespan of the development in accordance with this document)

2. Administrative body must have the financial resources to accomplish the inspection and maintenance program over the life of the facility.

3. The administrative body must have a responsible administrator to manage the inspection and maintenance programs.

4. The administrative body must have the staff to accomplish the inspection and maintenance programs or must have authority to contract for the required services.

5. The administrative body must have a management information system sufficient to file, retain, and retrieve all inspection and maintenance records associated with the inspection and maintenance programs.

6. A qualified post construction inspector shall be retained by the Owner. His/her duties shall include preparing schedules for the Owner's maintenance, summarizing the results of this maintenance and preparing an annual report on the operation, maintenance, and repair of the stormwater system which must be copied to the City. (The Owner shall be responsible for retaining a separate entity to perform maintenance which cannot be performed by the management of building and property grounds.) This person shall also participate in troubleshooting of the stormwater management system if a problem develops.

If any of the above criteria cannot be met by the entity assigned inspection and maintenance responsibilities, it is likely that the system will fail to meet its water quality objectives at some point during its life. While each of the above criteria may be met by a variety of formats, it is critical to clearly establish the assigned administrative body in a responsible and sustainable manner.

B. Record Keeping

Records of all inspections and maintenance work accomplished must be kept and maintained to document facility operations. These records should be filed and retained in accordance with the City of Portland Code of Ordinances, Chapter 32. The filing system should be capable of ready retrieval of data for periodic reviews by appropriate regulatory bodies. Where possible, copies of such records should also be filed with the designated primary regulatory agency for their review for compliance with permit conditions. Typical inspection and maintenance record forms are attached hereto as Appendix B.

The owner will be required to hire a qualified post-construction stormwater inspector to at least annually, inspect the BMPs. In addition, the qualified post-construction stormwater inspector shall, on or by June 30 of each year, provide a completed and signed certification to DPW in a form provided by DPW certifying that the person has inspected the BMPs and they are adequately maintained and functioning as intended.

C. Contract Services

In some instances, or at specific times, the Maintenance Personnel may not have the staff to conduct the required inspection and/or maintenance programs as outlined in this document. In such cases, the work should be accomplished on a contractual basis with a firm or organization that has the staff and equipment to accomplish the required work.

The service contract for inspection and maintenance should be formal, well written legal document which clearly defines the services to be provided, the contractual conditions that will apply, and detailed payment schedules. Liability insurance should be required in all contracts.

APPENDIX A

SUMMARY CHECKLIST
INSPECTION AND MAINTENANCE

Stormwater Management System Maintenance Program Summary Checklist						
Item	**Commentary**	**Frequency**				
		Monthly	**Quarterly**	**Semi-Annual**	**Annual**	**Long Term**
Stormwater Inlets	Stormwater inlets allow flow entry from a surface swale to a piped system. Inspect entry for debris accumulation. Remove debris to allow unimpeded entry. Lawn clippings and leaves should be removed from yard areas.		X		X Clearing	
Tributary Drainage System	Inspect to assure that the carrying capacity has not been diminished by debris, sediment or other hydraulic impediments.				X	
Pervious Pavers	Inspect after major storm events ensure the pavers are not plugged with debris. Vacuum semi-annually.			X		
Focal Point Filters	Filters should be inspected semi-annually and maintained as needed. Snow Storage within the filter should be prohibited by Maintenance Personnel.			X		X
Orifice Control Devices	Inspect after major storm events and clear debris from orifice. May require flushing of pipes.			X		
Ditches, Swales, and Other Open Stormwater Channels	Inspect twice annually (spring and fall), remove any obstructions to flow, repair any erosion			X		
Roadways and Parking Surfaces	Pavements should be swept at least twice annually, once in the spring.			X		
Filterra Module	Check for signs of clogging, remove trash, unwanted vegetation, and sediment as needed			X		
Litter	Litter should be removed daily.					

APPENDIX B

SAMPLE INSPECTION LOGS

STEVENS SQUARE AT BAXTER WOODS, LOT 5
PORTLAND, MAINE

STORMWATER MANAGEMENT
SAMPLE STORMWATER INSPECTION & MAINTENANCE LOG

This log is intended to accompany the Operation and Maintenance Manual for Stormwater Management and Related Facilities. All stormwater BMPs shall be maintained in effective operating condition. A person with knowledge of erosion and stormwater control, including the standards and conditions of the City of Portland's Post Construction Stormwater Management Monitoring Ordinance, shall conduct inspections of the facilities as described in the O&M Manual and on this form, and identified deficiencies must be corrected. This log shall be kept on file for a minimum of five (5) years.

A. General Information			
Project Name:		**Inspection Date:**	
Parcel/Lot:		**Current Weather:**	
BMP Owner:		**Date/Amount Last Precip.:**	
Owner Mailing Address:		**Inspection Company:**	
Owner Phone #:		**Inspection Co. Mailing Address:**	
Owner Email:		**Inspector Name:**	
		Inspector Phone #:	
		Inspector Email:	

B. Stormwater Inlets (Catchbasins)	**Observations**
Frequency: Annually in the spring	
Accumulated sediments from inflow channels and pipes between basins have been removed and legally disposed of	☐ Yes ☐ No ☐ NA
Floating debris and large sediment particles have been removed from inlets.	☐ Yes ☐ No ☐ NA
Stormwater Inlet Notes:	

C. Tributary Drainage System	**Observations**
Frequency: Annually spring or late fall and after heavy rains	
Remove and legally dispose of sediments	☐ Yes ☐ No ☐ NA
Remove floatables and other objects	☐ Yes ☐ No ☐ NA
Check for overgrown vegetation impeding flow	☐ Yes ☐ No ☐ NA
Check pipelines for siltation and clogging	☐ Yes ☐ No ☐ NA
Repair any slumping side slopes or erosion	☐ Yes ☐ No ☐ NA
Replace any riprap on areas where any underlying fabric or underlying gravel is exposed.	☐ Yes ☐ No ☐ NA
Tributary Drainage System Notes:	

D. Pervious Pavers	Observations					
Frequency: Semi-Annually						
Vacuum any sediment and debris from paver surface	☐	Yes	☐	No	☐	NA
Check that underdrain system is functioning properly	☐	Yes	☐	No	☐	NA
Check for pooling or signs that pavers are clogged and doesn't pass water	☐	Yes	☐	No	☐	NA
Pervious Paver Notes:						

E. Proprietary Device (FocalPoint®)	Observations					
Frequency: Semi-annually						
Check for debris blocking orifice	☐	Yes	☐	No	☐	NA
Check overflow structure and clear debris	☐	Yes	☐	No	☐	NA
Check for signs of clogging, or water is not draining freely through filter media	☐	Yes	☐	No	☐	NA
If applicable, flush underdrain pipe	☐	Yes	☐	No	☐	NA
Proprietary Device Notes:						

F. Detention Pond	Observations					
Frequency: Semi-Annually						
Inspect pond for unwanted vegetation.	☐	Yes	☐	No	☐	NA
Inspect pond for trash and debris. Dispose of properly.	☐	Yes	☐	No	☐	NA
Remove unwanted vegetation and dispose of properly.	☐	Yes	☐	No	☐	NA
Repair any eroded areas.	☐	Yes	☐	No	☐	NA
Remove and properly dispose of any accumulated sediment.	☐	Yes	☐	No	☐	NA
Reseed areas without 90% grass catch.	☐	Yes	☐	No	☐	NA
Detention Pond Notes:						

G. Orifice Control Devices	Observations
Frequency: Semi-Annually	
Check for debris blocking orifice	☐ Yes ☐ No ☐ NA
If applicable, flush underdrain pipe	☐ Yes ☐ No ☐ NA
Orifice Control Devices Notes:	

H. Ditches, Swales, and Other Open Stormwater Channels	Observations
Frequency: Semi Annually spring and late fall and after heavy rains	
Remove and legally dispose of sediments	☐ Yes ☐ No ☐ NA
Remove floatables and other objects	☐ Yes ☐ No ☐ NA
Check for overgrown vegetation impeding flow.	☐ Yes ☐ No ☐ NA
Mow to control growth and maintain flow capacity.	☐ Yes ☐ No ☐ NA
Repair any slumping side slopes or erosion	☐ Yes ☐ No ☐ NA
Replace any riprap on areas where any underlying fabric or underlying gravel is exposed.	☐ Yes ☐ No ☐ NA
Ditches Swales and Other Channel Notes:	

I. Roadways and Parking Surfaces	Observations
Frequency: Annually preferably in spring	
Remove and legally dispose of accumulated winter sand	☐ Yes ☐ No ☐ NA
Repair potholes and other roadway obstructions and hazards.	☐ Yes ☐ No ☐ NA
Roadways and Parking Surfaces Notes:	

J. Proprietary Device (Filterra Module)	Observations
Frequency: Semi-Annually	
Remove foreign debris, silt, mulch & trash	☐ Yes ☐ No ☐ NA
Evaluate filter media and recharge	☐ Yes ☐ No ☐ NA
Evaluate plant health and prune/replace as necessary	☐ Yes ☐ No ☐ NA
Replace mulch	☐ Yes ☐ No ☐ NA
Proprietary Device Notes:	

APPENDIX C

PERMITS FOR PROJECT
(TO BE PROVIDED)

APPENDIX D

DRAFT STORMWATER MAINTENANCE AGREEMENT

DRAFT - STORMWATER DRAINAGE SYSTEM MAINTENANCE AGREEMENT

DC Baxter Woods, LLC
Stevens Square at Baxter Woods – Phase 2 at 605 Stevens Avenue

IN CONSIDERATION OF the site plan and subdivision approval granted by the Planning Board of the City of Portland to the proposed **Stevens Square at Baxter Woods – Phase 2 Project ID _____** shown on the Subdivision Plat (Exhibit A) recorded in Cumberland Registry of Deeds in Plan Book __, Page __ submitted by _____ and associated Overall Site Layout Plan and Grading & Drainage Plan (Exhibits B and C) prepared by Gorrill Palmer Consulting Engineers of 707 Sable Oaks Drive, South Portland, Maine dated last revised _____ and pursuant to a condition thereof, DC Baxter Woods LLC, a Maine limited liability company with a principal place of business in Portland, Maine, and having a mailing address of 100 Commercial Street, Suite 414, Portland, ME 04101, 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 pervious pavement systems, Focal Point filter systems, R-Tank underground detention ponds, roof drains, Oil-Water Separator, Filterra Module, and related onsite drainage infrastructure, (hereinafter collectively referred to as the "stormwater system"), as shown on the Grading & Drainage Plan in Exhibit C and in strict compliance with the approved Stormwater Inspection and Maintenance Manual prepared for the Owner by Gorrill Palmer Consulting Engineers (copy attached in Exhibit D) 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 subdivision and/or site plan most recently and formally approved by the Planning Board 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 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.

_____
(*name of company*)

_____
(*representative of owner, name and title*)

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 Subdivision Plat
Exhibit B: Approved Site Layout Plan
Exhibit C: Approved Grading & Drainage Plan
Exhibit D: Approved Stormwater Inspection and Maintenance Manual

SITE DEVELOPMENT PLANS

FOR

Stevens Square at Baxter Woods - Phase 2 - 4

583 STEVENS AVENUE, PORTLAND, MAINE

JANUARY 2022

PERMIT DOCUMENTS

TAX MAP-BLOCK-LOT NUMBER:

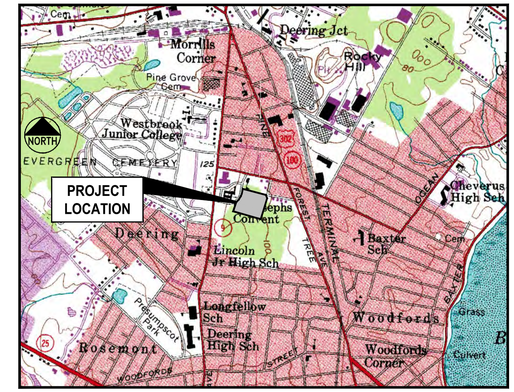
MAP 136 LOT E-6, MAP 143 LOT F-4, MAP 143 LOT F-12, MAP 144 LOT B-3
MAP 135 LOT X-2, MAP 135 LOT X-3, MAP 136 LOT X-1 (CONVEYANCE LOTS)

CURRENT LAND OWNER:

DC BAXTER WOODS IV LLC (ALL LOTS)
100 COMMERCIAL STREET, SUITE 414
PORTLAND, ME. 04101
BOOK 35072 / PAGE 145
SEE OVERALL SUBDIVISION PLAN
(CCRD BK. 216, PG. 433 - 10/28/2016)
FIRST AMENDED OVERALL SUBDIVISION PLAN
(CCRD BK. 217, PG. 151 - 05/04/2017)

DEVELOPER / APPLICANT:

DC BAXTER WOODS IV LLC
100 COMMERCIAL STREET, SUITE 414
PORTLAND, ME. 04101
CONTACT: KEVIN BUNKER
207.772.7673
bunker.kevin@gmail.com



LOCATION MAP
N.T.S.

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C-11.1 UTILITY PROFILES

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E1.1 SITE PHOTOMETRICS PLAN (BY BENNETT ENGINEERING)

UTILITIES

WATER:
PORTLAND WATER DISTRICT
225 DOUGLASS STREET
P.O. BOX 3553
PORTLAND, MAINE 04104
207.761.8310
CONTACT: ROBERT BARTELS
rbartels@pwd.org

SEWER:
CITY OF PORTLAND
PUBLIC SERVICES DIVISION
212 CANCO ROAD
PORTLAND, MAINE 04103
207.874.8840
CONTACT: KEITH GRAY / BRAD ROLAND

ELECTRIC:
CENTRAL MAINE POWER
162 CANCO ROAD
PORTLAND, MAINE 04103
207.842.2367
CONTACT: JAMIE COUGH

TELEPHONE:
CONSOLIDATED COMMUNICATIONS
5 DAVIS HILL FARM ROAD
PORTLAND, MAINE 04103
207.797.1866
CONTACT: PATRICK MORRISON

NATURAL GAS:
NORTHERN UTILITIES / UNITIL
1075 FOREST AVENUE
PORTLAND, MAINE 04103
207.541.2536
CONTACT: BRIDGET HARMON
harmon@unitil.com

CABLE TV:
TIME WARNER CABLE / SPECTRUM
115 JOHNSON ROAD
PORTLAND, MAINE 04102
207.253.2324
CONTACT: MARK PELLETIER

DIG SAFE:
CALL BEFORE YOU DIG
DIAL 811 (AT LEAST 72 HRS IN ADVANCE)

PERMITS / APPROVALS

TYPE:	GOVERNING BODY:	STATUS/DATE ISSUED:
LOCAL		
MAJOR SITE PLAN APPROVAL AMENDED SUBDIVISION PLAN APPROVAL/AMENDED MASTER DEVELOPMENT PLAN APPROVAL:	CITY OF PORTLAND PLANNING AUTHORITY CITY HALL, CONGRESS STREET PORTLAND, MAINE 04103 207.874.8608 CONTACT: KEVIN KRAFT	MAJOR SITE PLAN APPLICATION PRE APP - MARCH 24, 2021 APPLICATION MADE - MAY 12, 2021 PLANNING BOARD WORKSHOP AUGUST 10, 2021 RESUBMISSION NOVEMBER 23, 2021
BUILDING PERMIT:	CITY OF PORTLAND CODE ENFORCEMENT OFFICE CITY HALL, CONGRESS STREET PORTLAND, MAINE 04103 207.874.8900	BY OWNER/ARCHITECT
UTILITY OPENING PERMITS:	CITY OF PORTLAND PUBLIC SERVICES DIVISION 212 CANCO ROAD PORTLAND, ME 04103	BY CONTRACTOR

I HEREBY ACKNOWLEDGE THAT THESE PLANS AND SPECIFICATIONS WERE PREPARED UNDER MY DIRECT SUPERVISION, AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MAINE AND THAT I AM COMPETENT TO PREPARE THIS DOCUMENT.

ALL PERMITS ARE ANTICIPATED TO HAVE CONDITIONS ATTENDANT WITH THEIR APPROVAL. THE CONTRACTOR SHALL REVIEW ALL PERMITS AND THE CONDITIONS ATTENDANT WITH APPROVALS PRIOR TO THE START OF THE WORK. UNLESS OTHERWISE STIPULATED BY THE CONTRACT DOCUMENTS, THE CONTRACTOR IS REQUIRED TO COMPLY AND FULFILL ALL CONDITIONS OF APPROVAL.

CONSULTANT LIST

CIVIL ENGINEER:
Gorrill Palmer Consulting Engineers, Inc.
707 SABLE OAKS DRIVE, SUITE 30
SOUTH PORTLAND, MAINE 04106
207.772.2515
CONTACT: STEPHEN BUSHEY
sbushey@gorrillpalmer.com

ARCHITECT:
Archetype
48 UNION WHARF
PORTLAND, MAINE 04101
207.772.6022
CONTACT: MIKE HUTCHINS
mike@archetypepa.com

SURVEYOR (TOPOGRAPHY AND BOUNDARY):
Titcomb Associates
133 GRAY ROAD
FALMOUTH, MAINE 04105
207.797.9199
CONTACT: DAVE TITCOMB
dtitcomb@titcombsurvey.com

GEOTECHNICAL ENGINEER:
Summit Geoengineering Services Inc.
145 LISBON STREET, SUITE 701
LEWISTON, MAINE 04240
207.576.3313
CONTACT: WILLIAM M. PETERLEIN, P.E.

LANDSCAPE ARCHITECT:
Aceto Landscape Architects.
565 CONGRESS STREET, SUITE 310
PORTLAND, MAINE 04101
207.221.3390
CONTACT: NICK ACETO / MARGO BARAJAS

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES & SHALL NOT BE USED FOR CONSTRUCTION.

STATE OF MAINE
STEPHEN R. BUSHEY
01.18.22
LICENSED PROFESSIONAL ENGINEER
STEPHEN R. BUSHEY, P.E.
LIC. #7429

Rev.	Date	Revision

Rev.	Date	Revision
3	2022.01.18	ISSUED FOR FINAL PERMIT AND PUBLIC HEARING
2	2021.12.07	RESUBMITTED PER LOR #1 FOR FINAL REVIEW
1	2021.05.12	SUBMITTED TO CITY FOR REVIEW

Design: SRB	Draft: CDD	Date: MAY 2021
Checked: SRB	Scale: AS NOTED	Job No.: 3564.03
File Name: 356403-COVER.dwg		

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Drawing Name: COVER SHEET
Project: **Stevens Square at Baxter Woods – Phase 2 – 4**
583 Stevens Avenue, Portland, Maine
Client/Owner: **DC BAXTER WOODS IV LLC**
631 STEVENS AVE., SUITE 203, PORTLAND, ME 04103 PH. 207.772.7673

Drawing No. C-1.0

U:\3564.03_Stevens Square-Lot 4 - Portland, ME\Z - CAD\DWG\356403-COVER.dwg - 1/18/2022 2:20 PM

GENERAL NOTES:

1. THE CONTRACTOR SHALL REFER TO THE PROJECT MANUAL FOR CONSTRUCTION SPECIFICATIONS AND BIDDING PROCEDURES.
2. THIS PROJECT WILL BE SUBJECT TO THE TERMS AND CONDITIONS OF ALL PERMITS ISSUED BY LOCAL UTILITY COMPANIES AND THE CITY OF PORTLAND.
3. THE CONTRACTOR SHALL REFER TO THE ARCHITECTURAL PLANS FOR EXACT LOCATIONS AND DIMENSIONS OF THE ENTRANCE, PAVING, PRECISE BUILDING DIMENSIONS, AND EXACT BUILDING UTILITY ENTRANCE POINTS. ENTRANCES IN MOST LOCATIONS REQUIRE STRUCTURAL SLABS. REFER TO THE ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR INFORMATION ON THE STRUCTURAL SLAB ENTRANCES.
4. ALL REQUIRED AND NECESSARY INSPECTIONS AND/OR CERTIFICATIONS REQUIRED BY CODES AND/OR UTILITY SERVICE COMPANIES SHALL BE PERFORMED PRIOR TO ANNOUNCED BUILDING POSSESSIONS AND THE FINAL SERVICE CONNECTIONS.
5. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR THE ELEVATION OF THE EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES AND, WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THIS INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE APPROPRIATE UTILITY COMPANY AND DIG SAFE AT LEAST 72 HOURS PRIOR TO ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.
6. MAINTENANCE OF EROSION CONTROL MEASURES IS OF PARAMOUNT IMPORTANCE TO THE APPLICANT AND THE CONTRACTOR IS RESPONSIBLE FOR COMPLYING WITH ALL EROSION CONTROL MEASURES SHOWN ON THE PLANS. ADDITIONAL EROSION CONTROL MEASURES SHALL BE INSTALLED IF DEEMED NECESSARY BY ONSITE INSPECTIONS OF THE OWNER, THEIR REPRESENTATIVES, OR THE CITY, AT NO ADDITIONAL COST TO THE OWNER.
7. ALL MATERIAL SCHEDULES SHOWN ON THE PLANS ARE FOR GENERAL INFORMATION ONLY. THE CONTRACTOR SHALL PREPARE HIS OWN MATERIAL SCHEDULES BASED UPON HIS PLAN REVIEW. ALL SCHEDULES SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO ORDERING MATERIALS OR PERFORMING WORK.
8. ALL MATERIALS AND CONSTRUCTION METHODS SHALL CONFORM TO THE PROJECT SPECIFICATIONS, THE CITY OF PORTLAND AND SERVICING UTILITY REQUIREMENTS, IN CASES WHERE THESE CONFLICT THE MOST STRINGENT SHALL APPLY AT NO EXTRA COST TO THE OWNER.
9. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING RECORD DRAWINGS THROUGHOUT THE PROJECT AND PROVIDING THE OWNER WITH A SET OF THE FINAL RECORD DRAWINGS WHEN THE PROJECT IS COMPLETE.
10. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING ACCESS AT ALL TIMES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TEMPORARY MARKINGS, SIGNAGE AND INCIDENTALS TO MAINTAIN SAFE VEHICLE AND PEDESTRIAN ACCESS THROUGH OUT THE LIFE OF THE PROJECT.

SITE LAYOUT NOTES:

1. ALL HANDICAP PARKING SPACES ARE TO RECEIVE HANDICAP SIGNS AND PAVEMENT MARKINGS AS ILLUSTRATED ON THE DETAIL SHEETS.
2. BITUMINOUS CONCRETE CURB AND GRANITE CURB SHALL MEET THE REQUIREMENTS OF MDOT 702.01, 703.07, AND 609.04.
3. ALL DIMENSIONING, UNLESS NOTED OTHERWISE, IS TO THE FACE OF CURB OR THE FACE OF THE BUILDING.
4. EXCEPT WHERE INDICATED OTHERWISE, THE PAVEMENT IS TO BE STANDARD DUTY PAVEMENT.
5. ALL TRAFFIC CONTROL SIGNS INDICATED ON THE SITE LAYOUT PLAN ARE TO MEET ALL REQUIREMENTS AND STANDARDS OF THE MAINE DEPARTMENT OF TRANSPORTATION, AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITIONS AND THE AMERICANS WITH DISABILITIES ACT REQUIREMENTS.
6. STRIPE PARKING AREAS, DRIVES AND ROADWAY AS SHOWN, INCLUDING PARKING SPACES, STOP BARS, CROSSWALKS, HANDICAP SYMBOLS, PAINTED ISLANDS AND FIRE LANES. (ALL MARKINGS EXCEPT MEDIAN ISLANDS AND CENTERLINES TO BE CONSTRUCTED USING WHITE TRAFFIC PAINT.) ALL TRAFFIC PAINT SHALL MEET THE REQUIREMENTS OF AASHTO M248 TYPE 'F'. MEDIAN ISLANDS AND CENTERLINES TO BE CONSTRUCTED USING YELLOW TRAFFIC PAINT.
7. SEE DETAILS FOR PARKING STALL DIMENSIONS, HANDICAP SYMBOLS, SIGNS AND SIGN POSTS.
8. STOP BARS SHALL BE 12" WIDE.
9. PAINTED ISLANDS SHALL BE 4" WIDE DIAGONAL LINES @ 3'-0" O.C. BORDERED BY 4" WIDE LINES.

GRADING & DRAINAGE NOTES:

1. ALL STORM DRAIN PIPE SHALL BE SMOOTH BORE INTERIOR PROVIDING A MANNINGS ROUGHNESS COEFFICIENT OF n = 0.013 OR LESS.
2. PROVIDE TURF REINFORCEMENT IN AREAS INDICATED ON THE PLANS.
3. AN "AS-BUILT" CERTIFICATION OF THE STORMWATER DRAINAGE SYSTEM BY A REGISTERED ENGINEER IS REQUIRED PRIOR TO THE OWNER ACCEPTING THE BUILDING AND PROPERTY. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT ANY DEVIATION FROM THE PLANS MAY DELAY THE ACCEPTANCE OF THE PROJECT.
4. A DETAILED O&M MANUAL FOR STORMWATER MANAGEMENT SYSTEMS IS (WILL BE) FILED WITH THE CITY OF PORTLAND DURING THE PERMIT REVIEW PROCESS. A SPECIFIC MANUAL HAS BEEN PREPARED FOR O&M OF THE DRAINAGE SYSTEM.
5. SEE EXISTING CONDITIONS PLAN FOR BENCHMARK INFORMATION.
6. SEE GRADING, DRAINAGE AND EROSION/SEDIMENT CONTROL PLAN FOR PROPOSED GRADING AND EROSION CONTROL MEASURES.
7. ALL DISTURBED AREAS NOT TO BE PAVED, SODDED OR OTHERWISE TREATED SHALL RECEIVE 4" LOAM, SEED, FERTILIZER AND MULCH.
8. COMPACTION REQUIREMENTS:

LOCATION	MINIMUM COMPACTION
SUBBASE AND BASE GRAVEL BELOW PAVED OR CONCRETE AREAS	95%
SUBGRADE FILL BELOW PAVED AREAS	90%
TRENCH BEDDING MATERIAL AND SAND BLANKET BACKFILL	95%
BELOW LOAM AND SEED AREAS	90%
STRUCTURAL FILL WITHIN PROPOSED BUILDING AREA	95%
SELECT FILL ADJACENT BUILDING FOUNDATIONS, EXTERIOR FOUNDATIONS, AND WITHIN 8 INCHES OF THE SLAB-ON-GRADE	95%

*ALL PERCENTAGES OF COMPACTION SHALL BE OF THE MAXIMUM DRY DENSITY AT THE OPTIMUM MOISTURE CONTENT AS DETERMINED AND CONTROLLED IN ACCORDANCE WITH ASTM D-1557.

9. ADJUST ALL MANHOLES, CATCH BASINS, CURB BOXES, ETC. WITHIN LIMITS OF WORK TO FINISH GRADE.
10. CONTRACTOR SHALL PROVIDE A FINISH PAVEMENT SURFACE FREE OF LOW SPOTS AND PONDING AREAS. CRITICAL AREAS INCLUDE BUILDING ENTRANCE AND EXIT RAMPS ADJACENT TO THE BUILDING AND ALONG NEW CURBED AREAS. ALL ADA COMPLIANT PARKING SPACES SHALL BE PAVED WITH A MAXIMUM SLOPE OF 2% IN ANY DIRECTION.
11. PROVIDE STABILIZATION OR SEPARATION GEOTEXTILE FABRIC OVER UNSTABLE SOILS AS DIRECTED BY THE OWNER'S REPRESENTATIVE AND IN ACCORDANCE WITH THE FINAL GEOTECHNICAL RECOMMENDATIONS.
12. NATIVE SOILS CONSIST OF TOPSOIL / PAVEMENT OVER FILL / REWORKED NATIVE SOIL OVERLYING MARINE FAN DEPOSIT OVERLYING BEDROCK. CARE MUST BE EXERCISED TO LIMIT DISTURBANCE OF THE BEARING SOILS. SHOULD THE SUBGRADE BECOME YIELDING OR DIFFICULT TO WORK, DISTURBED AREAS SHOULD BE EXCAVATED AND BACKFILLED WITH COMPACTED SELECT FILL OR CRUSHED STONE AT NO EXTRA EXPENSE TO THE OWNER.
13. FIVE (5.0) FEET OF CLEAN GRANULAR SOIL MEETING THE SELECT FILL GRADATION SPECIFICATIONS SHALL BE PROVIDED BELOW THE ENTRANCE SLABS AND ADJACENT SIDEWALKS. GRADUAL TRANSITION (3 HORIZONTAL TO 1 VERTICAL) OF SELECT FILL THICKNESS SHALL BE PROVIDED FROM THE 5.0 FOOT DEPTH TO THE GRAVEL BASE THICKNESS AT THE SIDEWALKS AND PAVED AREAS AWAY FROM THE BUILDINGS.

UTILITY NOTES:

1. ALL REQUIRED UTILITIES SERVING THE PROJECT SHALL BE COORDINATED AND CONSTRUCTED BY THE SITE WORK CONTRACTOR TO WITHIN 5 FEET OF THE BUILDINGS, AT A LOCATION COORDINATED WITH THE MEP CONTRACTOR AND THE BUILDING PLANS. SITE WORK WITHIN 5 FEET OF UNDERSLAB UTILITIES SHALL CONSIST OF TRENCHING AND BACKFILLING. ACTUAL UTILITY INSTALLATION SHALL BE BY THE MEP CONTRACTOR. ALL REQUIRED CONNECTION FEES SHALL BE PAID BY THE GENERAL CONTRACTOR.
2. THE CONTRACTOR SHALL COORDINATE THE INSTALLATION OF AND/OR RELOCATION OF OVERHEAD AND UNDERGROUND TELEPHONE WITH CONSOLIDATED COMMUNICATIONS. CONTRACTOR SHALL BE RESPONSIBLE FOR CONDUITS, PULL WIRES, TRENCHING AND BACKFILLING NECESSARY TO COMPLETE THE WORK.
3. ALL SANITARY SEWER WORK SHALL MEET THE STANDARDS OF THE MAINE STATE PLUMBING CODE AND CITY OF PORTLAND PUBLIC WORKS DEPARTMENT.
4. THE CONTRACTOR SHALL COORDINATE THE INSTALLATION OF ELECTRIC SERVICE WITH CENTRAL MAINE POWER.
5. COORDINATE ALL UTILITY WORK WITH THE APPROPRIATE UTILITY COMPANY. ALL UTILITY WORK SHALL CONFORM TO THE STANDARDS OF THE UTILITY COMPANY AND PROJECT SPECIFICATIONS. IN CASE OF CONFLICT, THE MORE STRINGENT STANDARDS SHALL APPLY.
6. THE LOCATIONS OF THE NEW UTILITY SERVICES AND CONNECTIONS SHALL BE COORDINATED WITH THE SERVING UTILITY COMPANY.
7. UNDERGROUND ELECTRICAL, CONDUIT MATERIAL AND INSTALLATION SHALL CONFORM TO UTILITY COMPANY STANDARDS AND PROJECT SPECIFICATIONS, WHICH EVER IS MORE STRINGENT.
8. ADJUST ALL MANHOLES, CATCH BASINS, CURB BOXES, ETC. WITHIN LIMITS OF WORK TO FINISH GRADE.
9. ALL UNDERGROUND CONDUITS SHALL HAVE NYLON PULL ROPES TO FACILITATE PULLING CABLES.
10. THE CONTRACTOR SHALL OBTAIN, PAY FOR, AND COMPLY WITH ALL REQUIRED PERMITS, ARRANGE FOR ALL INSPECTIONS, AND SUBMIT COPIES OF ACCEPTANCE CERTIFICATES TO THE OWNER PRIOR TO COMPLETION OF THE PROJECT.
11. THE CONTRACTOR SHALL PROVIDE AND INSTALL ALL BOXES, FITTINGS, CONNECTORS, COVER PLATES AND OTHER MISCELLANEOUS ITEMS NOT NECESSARILY DETAILED ON THE DRAWINGS TO RENDER INSTALLATION OF UTILITIES COMPLETE AND OPERATIONAL, AT NO EXTRA EXPENSE TO THE OWNER.
12. A 10 FOOT MINIMUM EDGE TO EDGE HORIZONTAL SEPARATION SHALL BE PROVIDED BETWEEN ALL WATER AND SANITARY SEWER LINES. AN 18 INCH OUTSIDE TO OUTSIDE VERTICAL SEPARATION SHALL BE PROVIDED AT ALL WATER AND SANITARY SEWER CROSSINGS.
13. THE CONTRACTOR SHALL PHASE UTILITY CONSTRUCTION AND PROVIDE TEMPORARY SERVICES AS REQUIRED TO PROVIDE CONTINUOUS SERVICE TO THE JOBSITE. TEMPORARY SERVICES SHALL COMPLY WITH ALL FEDERAL, STATE, LOCAL AND UTILITY COMPANY STANDARDS. COORDINATE ALL TEMPORARY SERVICES WITH UTILITY COMPANY, OWNER AND AFFECTED BUSINESSES.

LANDSCAPE NOTES:

(SUBJECT TO COORDINATION WITH LANDSCAPE DRAWINGS. IN CASE OF CONFLICT, THE LANDSCAPING DRAWINGS SHALL GOVERN.)

1. ALL PLANTS SHALL BE NURSERY GROWN AND WORKMANSHIP SHALL CONFORM TO THE AMERICAN ASSOCIATION OF NURSERYMEN, STANDARDS AND SHALL BE SUBJECT TO THE APPROVAL OF THE OWNERS REPRESENTATIVE BEFORE AND AFTER PLANTING.
2. PLANTS SHALL BE GUARANTEED FOR A PERIOD OF ONE (1) YEAR AFTER INSPECTION AND ACCEPTANCE, AND SHALL HAVE AT LEAST 80% HEALTHY GROWTH AT THE END OF THE GUARANTEED PERIOD.
3. ALL DISTURBED AREAS NOT TO BE PAVED OR OTHERWISE TREATED SHALL RECEIVE 4" LOAM, SEED, FERTILIZER, AND MULCH.
4. THREE (3) INCH BARK MULCH IS TO BE USED AROUND THE TREE AND SHRUB PLANTING AS SPECIFIED IN THE DETAILS. WHERE BARK MULCH IS USED IN A CURBED ISLAND, THE BARK SHALL MEET THE TOP INSIDE EDGE OF THE CURB. ALL OTHER AREAS SHALL RECEIVE 4" LOAM, SEED, FERTILIZER AND MULCH.
5. THE CONTRACTOR SHALL SUPPLY ALL PLANT MATERIALS IN QUANTITIES SUFFICIENT TO COMPLETE THE PLANTING AS SHOWN.
6. PARKING AREA PLANTED ISLANDS TO HAVE A MINIMUM OF 4" TOPSOIL. REMOVE ALL CONSTRUCTION DEBRIS BEFORE TOPSOILING. TOPSOIL SHALL BE PLACED TO TOP OF CURB.
7. ALL PLANT MATERIAL SHALL BE APPROVED BY THE OWNER OR THE OWNERS REPRESENTATIVE PRIOR TO ARRIVAL ON THE SITE.
8. PLANT MATERIAL SHALL BEAR THE SAME RELATIONSHIP TO FINISHED GRADE AS TO THE ORIGINAL PLANTING GRADE PRIOR TO DIGGING.
9. THE CONTRACTOR SHALL LOCATE, VERIFY, AND MARK ALL EXISTING AND NEWLY INSTALLED UNDERGROUND UTILITIES PRIOR TO ANY LAWN WORK OR PLANTING. ANY CONFLICTS WHICH MIGHT OCCUR BETWEEN PLANTINGS AND UTILITIES SHALL BE IMMEDIATELY REPORTED TO THE OWNER SO THAT ALTERNATE PLANTING LOCATIONS CAN BE DETERMINED.
10. NO SUBSTITUTION OF PLANT MATERIALS SHALL BE ALLOWED WITHOUT THE PRIOR WRITTEN APPROVAL OF THE OWNER.
11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL PLANTING AND LAWNS AGAINST DAMAGE FROM ONGOING CONSTRUCTION. THIS PROTECTION SHALL BEGIN AT THE TIME THE PLANT IS INSTALLED AND CONTINUE UNTIL THE FORMAL ACCEPTANCE OF ALL THE PLANTINGS.
12. SEE PLANTING DETAILS FOR WEED BARRIER INFORMATION.
13. ALL PLANTING LOCATED AT THE ENTRANCE TO THE PROJECT OR AT INTERSECTIONS WITHIN THE SITE WILL BE MAINTAINED AND WILL NOT EXCEED 3 FEET IN HEIGHT WITHIN A TRIANGLE FORMED 25' INTO THE DRIVEWAY AND 25' ALONG THE TRAVEL WAY.

EROSION CONTROL NOTES:

1. PRIOR TO BEGINNING ANY LAND DISTURBING ACTIVITIES. CLEARING AND GRADING LIMITS SHALL BE STAKED BY THE CONTRACTOR BASED ON THE LIMITS OF GRADING SHOWN ON THE DRAWINGS AND ACCEPTED BY THE OWNER'S REPRESENTATIVE IN THE FIELD. AFTER THE CLEARING AND GRADING LIMITS HAVE BEEN ACCEPTED, THE CONTRACTOR SHALL INSTALL THE PERIMETER SILT FENCES AND THE CONSTRUCTION ENTRANCES ASSOCIATED WITH THE PROJECT.
2. ALL GROUND AREAS GRADED FOR CONSTRUCTION SHALL BE GRADED, LOAMED, SEEDED AND MULCHED AS SOON AS POSSIBLE. TEMPORARY/PERMANENT SEED MIXTURES SHALL CONFORM TO THE SEEDING PLAN CONTAINED IN THE EROSION CONTROL PROJECT PREPARED FOR THIS PROJECT.
3. PRIOR TO PAVING, THE CONTRACTOR SHALL FLUSH SILT FROM ALL STORM LINES.
4. ALL STORM DRAIN INLETS AND OUTLETS NOT IN PAVED AREAS ARE TO RECEIVE RIPRAP PROTECTION APRONS DURING CONSTRUCTION.
5. SILT FENCES SHALL BE INSPECTED, REPAIRED AND CLEANED AS NOTED IN THE EROSION CONTROL NOTES SHOWN ON THE EROSION CONTROL DETAIL SHEET.
6. THE CONTRACTOR SHALL REPAIR AND ADD STONE TO THE CONSTRUCTION ENTRANCE AS IT BECOMES SATURATED WITH MUD TO ENSURE THAT IT FUNCTIONS TO CAPTURE MUD FROM THE TIRES OF CONSTRUCTION VEHICLES DURING CONSTRUCTION. THE PURPOSE OF THE CONSTRUCTION ENTRANCE IS TO KEEP ADJACENT STREETS CLEAR OF DIRT AND MUD, SWEEPING OF THE ROADWAYS SHALL BE PERFORMED BY THE CONTRACTOR.
7. SILT REMOVED FROM AROUND INLETS AND BEHIND THE SILT FENCES SHALL BE PLACED ON A TOPSOIL STOCKPILE AND MIXED INTO TOPSOIL FOR USE IN LANDSCAPING OPERATIONS.
8. LAND DISTURBING ACTIVITIES SHALL BE ACCOMPLISHED IN A MANNER AND SEQUENCE WHICH CAUSE THE LEAST PRACTICAL UNPROTECTED DENUDED AREAS ON THE SITE DURING CONSTRUCTION.
9. THE CONTRACTOR IS CAUTIONED THAT FAILURE TO COMPLY WITH THE SEQUENCE OF CONSTRUCTION, EROSION / SEDIMENT CONTROL PLAN, AND OTHER PERMIT REQUIREMENTS MAY RESULT IN MONETARY PENALTIES AS ENFORCED BY THE MEDEP OR LOCAL AGENCIES. THE CONTRACTOR SHALL BE ASSESSED ALL SUCH PENALTIES AT NO COST TO THE OWNER OR PERMITTEE.
10. A FULL EROSION/SEDIMENTATION CONTROL PLAN ACCOMPANIES THIS DRAWING SET AND IS ALSO CONTAINED IN THE SITE WORK SPECIFICATIONS.
11. PROVIDE INLET PROTECTION BARRIERS AROUND ALL EXISTING AND PROPOSED STORM DRAINAGE INLETS AS SHOWN AND MAINTAIN FOR THE DURATION OF THE PROJECT UNTIL PAVEMENT HAS BEEN INSTALLED.
12. INSPECT EROSION AND SEDIMENT CONTROL DEVICES AFTER EACH RAIN STORM OF 0.25 INCH OR GREATER. REPAIR/MODIFY PROTECTION AS NECESSARY TO MAXIMIZE EFFICIENCY FILTER. REPLACE ALL FILTERS WHEN SEDIMENT IS $\frac{1}{3}$ THE STRUCTURE HEIGHT.
13. INSTALL CURLEX EROSION CONTROL MAT OR EQUAL ON ALL SLOPES STEEPER THAN 3:1.
14. THE CONTRACTOR SHALL INSTALL ALL EROSION CONTROL MEASURES IN ACCORDANCE WITH THE "MAINE EROSION & SEDIMENT CONTROL HANDBOOK FOR CONSTRUCTION: BEST MANAGEMENT PRACTICES, CUMBERLAND COUNTY SOIL AND WATER CONVERSATION DISTRICT AND MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION, MARCH 1991"

LEGEND

EXISTING	PROPOSED
ZONING LINE	
EXISTING STRUCTURE	BUILDING
EDGE OF TRAVEL WAY, PAVEMENT, ROADS, DRIVES	PROPERTY LINE
CURBING	RETAINING WALL
PROPERTY LINE	CURBING
EASEMENT LINE	VERTICAL GRANITE*
OVERHEAD ELECTRIC LINES / OVERHEAD WIRES	SLOPED GRANITE*
UNDERGROUND ELECTRIC LINE	EDGE OF PAVEMENT
UNDERGROUND TELEPHONE LINE	GRADING CONTOUR LINE
WATER LINE	SPOT ELEVATION
WATER GATE VALVE	GUARD POST/BOLLARD
STORM DRAIN LINE	POLE WITH LIGHT FIXTURE(S)
SANITARY SEWER LINE	FREESTANDING SIGN
ROADWAY PAVEMENT STRIPING	BARRIER FREE PARKING SYMBOL
GAS	PEDESTRIAN CROSSWALK
FENCE	DIRECTION OF TRAFFIC FLOW
EXISTING CONTOUR LINE	UNDERGROUND TELEPHONE / CABLE
EXISTING WETLANDS	UNDERGROUND ELECTRIC/TELEPHONE
UTILITY POLE	WATER LINE
SIGN	SEWER LINE
LIGHT POLE	GAS LINE
CATCH BASIN	STORM DRAIN LINE
SEWER MANHOLE	HYDRANT
ELECTRICAL/COMMUNICATIONS VAULT	WATER GATE VALVE
ELECTRICAL/COMMUNICATIONS PULL BOX	WATER SHUT OFF VALVE
HYDRANT	MANHOLE
TREES, LANDSCAPING	CATCH BASIN
TREELINE / EDGE OF BRUSH	EXISTING CATCH BASIN TO BE ALTERED
TELEPHONE MANHOLE	RIPRAP
ELECTRICAL MANHOLE	SILT FENCE
TEST BORING	CHAIN LINK OR SAFETY FENCE
WETLANDS	WOOD FENCE
	GUIDE RAIL
	LIMIT OF WORK
	STONE SEDIMENT BARRIER
	TRANSFORMER PAD
	TREE TO BE REMOVED

*OWNER RESERVES THE RIGHT TO MODIFY ALL ONSITE CURBING TO SLIPFORM CONCRETE

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES & SHALL NOT BE USED FOR CONSTRUCTION.

STATE OF MAINE — STEPHEN R. BUSHEY — 01.18.22 — LICENSED PROFESSIONAL ENGINEER

STEPHEN R. BUSHEY, P.E.
LIC. #7429

Rev.	Date	Revision

Rev.	Date	Revision
3	2022.01.18	ISSUED FOR FINAL PERMIT AND PUBLIC HEARING
2	2021.12.07	RESUBMITTED PER LOR #1 FOR FINAL REVIEW
1	2021.05.12	SUBMITTED TO CITY FOR REVIEW

Design: SRB	Draft: CDD	Date: MAY 2021
Checked: SRB	Scale: AS NOTED	Job No.: 3564.03
File Name: 356403-GEN NOTES.dwg		

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Drawing Name: GENERAL NOTES & LEGEND

Project: **Stevens Square at Baxter Woods – Phase 2 – 4**
583 Stevens Avenue, Portland, Maine

Client/Owner: **DC BAXTER WOODS IV LLC**
631 STEVENS AVE., SUITE 203, PORTLAND, ME 04103 PH. 207.772.7673

Drawing No. C-1.1

U:\3564.03_Stevens Square-Lot 4 - Portland, ME\2 - CAD\DWG\356403-GEN NOTES.dwg - 1/18/2022 10:22 AM

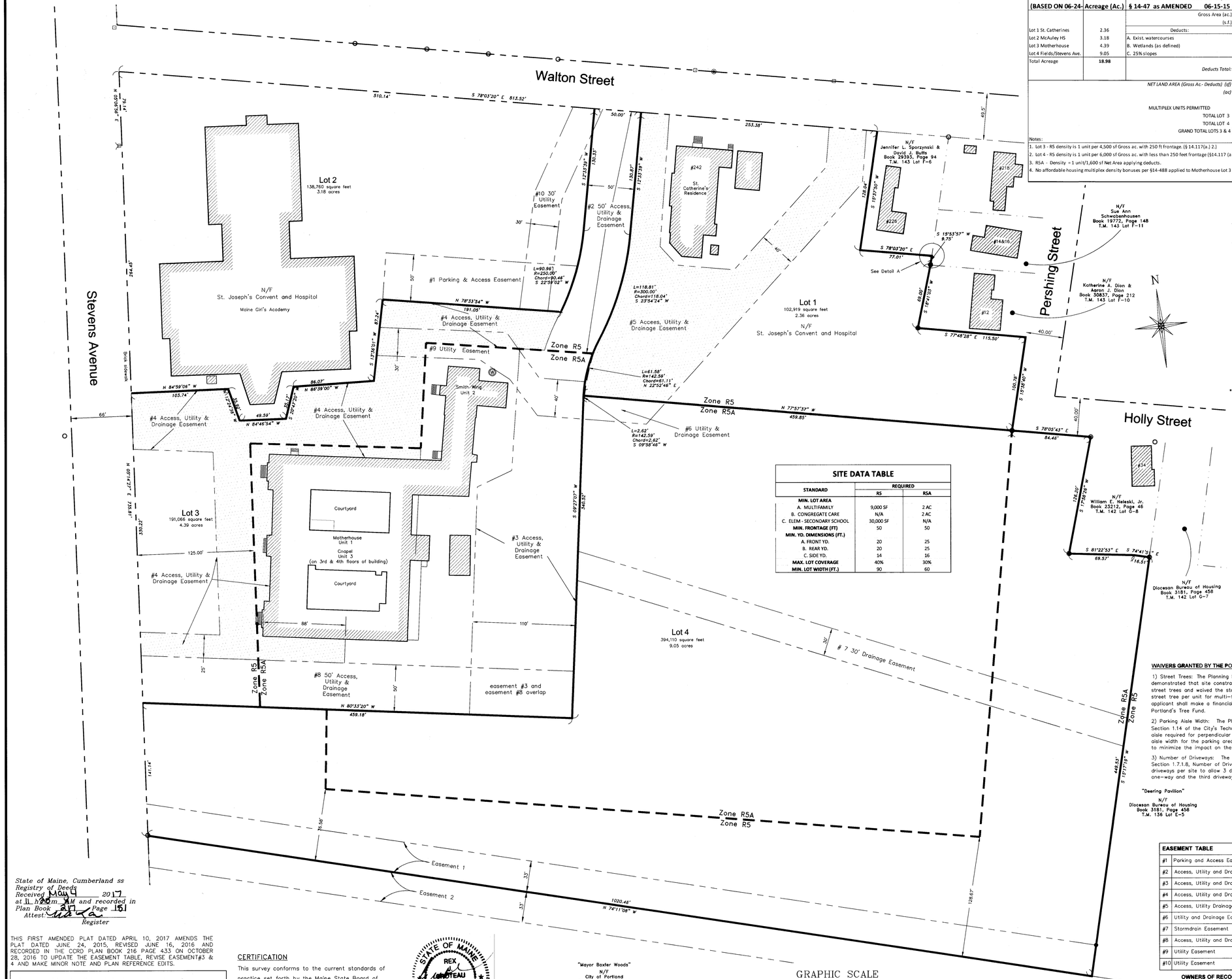
605 Stevens Avenue, Portland - Residential Density Computations **Lots 3 & 4**

Parcel ID (BASED ON 06-24-)	Gross Acreage (Ac.)	R5A ESTIMATED NRA DEDUCTS per § 14-47 as AMENDED 06-15-15	LOT AREA IN R5A (APPLY Mother House Lot 3	LOT AREA IN R5A (APPLY Lot 4 (Fields)	LOT AREA IN R5 (NO Mother House Lot 3	LOT AREA IN R5 (NO Lot 4 (Fields)
		Gross Area (ac.)	2.65	7.15	1.73	1.90
		(s.f.)	115,538	311,533	75,528	82,577
Lot 1 St. Catherines	2.36	Deducts:				
Lot 2 McAuley HS	3.18	A. Exist. watercourses	0	0	NA	NA
Lot 3 Motherhouse	4.39	B. Wetlands (as defined)	0	54,341	NA	NA
Lot 4 Fields/Stevens Ave.	9.05	C. 25% slopes	0	19,827	NA	NA
Total Acreage	**18.98**	*Deducts Total:*	0	74,168	NA	NA
		NET LAND AREA (Gross Ac.- Deducts) (sf)	*115,538*	*237,365*	*75,528*	*82,577*
		(ac)	*2.65*	*5.45*	*1.73*	*1.90*
		MULTIPLEX UNITS PERMITTED	72	148	16	13
		TOTAL LOT 3	88			
		TOTAL LOT 4	161			
		GRAND TOTAL LOTS 3 & 4	**249**			

Notes:
1. Lot 3 - R5 density is 1 unit per 4,500 sf Gross ac. with 250 ft frontage. (§ 14.117(a.) 2.)
2. Lot 4 - R5 density is 1 unit per 6,000 sf Gross ac. with less than 250 feet frontage (§14.117 (a.) 2.)
3. R5A - Density = 1 unit/1,600 sf Net Area applying deducts.
4. No affordable housing multiplex density bonuses per §14-488 applied to Motherhouse Lot 3

LOCUS PLAN
NOT TO SCALE





LEGEND

- Iron pin found
- Monument found
- Abutter's line
- Property line
- Easement line
- Right of way line
- Existing building

SITE DATA TABLE

STANDARD	REQUIRED R5	REQUIRED R5A
MIN. LOT AREA		
A. MULTIFAMILY	9,000 SF	2 AC
B. CONGREGATE CARE	N/A	2 AC
C. ELEM - SECONDARY SCHOOL	30,000 SF	N/A
MIN. FRONTAGE (FT)	50	50
MIN. YD. DIMENSIONS (FT.)		
A. FRONT YD.	20	25
B. REAR YD.	20	25
C. SIDE YD.	14	16
MAX. LOT COVERAGE	40%	30%
MIN. LOT WIDTH (FT.)	90	60

08-11-15 SUBDIVISION CONDITIONS OF APPROVAL:

1) The applicant shall finalize and cross-reference the two subdivision plats and associated condominium documents for review and approval by Corporation Counsel, the Department of Public Services, and the Planning Authority prior the plats being signed by the Planning Board; and

2) That the 73 parking spaces on Lot #3 (Motherhouse Lot) shall be solely for the residential tenants of the Motherhouse with no other lots having easement rights for parking on Lot #3. All of the easements as identified on the Plat, including those regarding the shared driveways and parking areas, shall be finalized to the satisfaction of the Corporation Counsel, Department of Public Services, Traffic Engineering Reviewer and the Planning Authority, and executed prior to the release of the signed subdivision plat; and

3) That the recommendations of the City Arborist in comments dated 7.22.2015 regarding the protection of preserved trees and follow up tree care (particularly large heritage Red Oaks) shall be advised to all contractors and implemented during construction and after, to include no storage of materials within the drip line of trees and tree save measures as per ISA trees and construction recommendations as noted.

*(also see note #9)

WAIVERS GRANTED BY THE PORTLAND PLANNING BOARD ON 08-11-15:

1) Street Trees: The Planning Board finds that the applicant has demonstrated that site constraints prevent the planting of all required street trees and waived the standard (Section 14-526(b)(iii)) requiring one street tree per unit for multi-family development and concludes that the applicant shall make a financial contribution of $5,600 for 28 trees to Portland's Tree Fund.

2) Parking Aisle Width: The Planning Board waived the requirement of Section 1.14 of the City's Technical Manual that show a 24 ft. wide drive aisle required for perpendicular spaces to allow a reduction to 22 feet aisle width for the parking area in the north exit drive on Stevens Avenue to minimize the impact on the historic nature of the area.

3) Number of Driveways: The Planning Board waived the requirement of Section 1.7.1.8, Number of Driveways, that does not permit more than 2 driveways per site to allow 3 driveways because 2 of the driveways are one-way and the third driveway functions as a shared driveway.

TOTAL AREA

826,755 sq. ft./18.98 acres

EASEMENT TABLE	
#1	Parking and Access Easement
#2	Access, Utility and Drainage Easement
#3	Access, Utility and Drainage Easement
#4	Access, Utility and Drainage Easement
#5	Access, Utility Drainage Easement
#6	Utility and Drainage Easement
#7	Stormdrain Easement
#8	Access, Utility and Drainage Easement
#9	Utility Easement
#10	Utility Easement

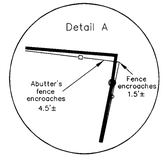
OWNERS OF RECORD

Lots 2, 3 and 4

Sea Coast at Baxter Woods Associates, LLC
Book 33698, Page 187

Map Blocks and Lots: 136-E-6, 143-F-4, 144-B-1

Detail A



NOTES

1) Book and Page references are to the Cumberland County Registry of Deeds.

2) Bearings are referenced to Grid North. See Plan Reference 1.

3) This plan has been prepared and approved in accordance with the City of Portland Land Use Code, Article IV Subdivisions as a four (4)-lot subdivision. Development of Lots 1-4 shall be subject to Site Plan Review and approval by the Planning Board pursuant to Article V Site Plan Review standards. A sectional recording plat for individual or master planned development shall be prepared and approved for individual lot or section development in accordance with Article IV, § 14-495(h) requirements prior to construction on any lots.

4) Notwithstanding any deeded rights granted to the City of Portland development shall occur within the 33-foot right of way easement located on the southerly property line (the Baxter Easement). Said easement shall forever remain natural, however allowing for tree and vegetation maintenance by a licensed arborist, creation and maintenance of trails for use by the public or other activities consistent with permitted uses within the adjacent Mayor Baxter Woods property.

5) This four lot subdivision approval was granted by the City of Portland Planning Board 8/11/15.

6) Reference is made to the Lot 3 Sectional Subdivision Plat Motherhouse-88 Units prepared by Titcomb Associates, last dated 6/24/15 and approved by the City of Portland on 8/11/15 for Lot 3 conditions of approval as recorded in Plan Book 216, Page 434 as modified by the First Amended Plan of Lot 3 Sectional Subdivision Plat Motherhouse-88 Units prepared by Titcomb Associates dated April 10, 2017, to be recorded.

7) The easements are referenced and described by the corresponding number in the 605 Stevens Avenue, Declaration of Covenants and Easements to be recorded in the Cumberland County Registry of Deeds.

8) Lots 3 and 4 are referenced to a City of Portland Master Development Plan approval dated 06-14-16 in conformance with City Code Section 14-524(a)3c.

9) This plan provides 76 parking spaces on lot 3 (3 spaces in excess of the08-11-15 approved 73 spaces)- 73 spaces shall be assigned to the Motherhouse, Condominium Unit 1 and 3 spaces assigned to the Smith Wing, unit 2. refer to plan reference 11 for parking locations.

PLAN REFERENCES

1) Site Plan done by SYTDesign Consultants, December 2000 and May 2001, not recorded.

2) Standard Boundary Survey of "Mayor Baxter Woods" by Public Works Department of the City of Portland, Maine, dated April 2001, not recorded.

3) Plan of Land Attached to the Last Will and Testament of Annie E. Ewing by E.C. Jordan, dated April 25, 1892, recorded in Plan Book 10, Page 131.

4) Plan of Topography in Portland, Maine for Mercy Hospital by E.C. Jordan, dated March 21, 1968, not recorded.

5) Plan of Maple Grove, Portland, not signed, recorded October 20, 1868 in Plan Book 2, Page 52.

6) Plan of Property made for St. Joseph's Convent and Hospital Corp. by H.I. & E.C. Jordan, dated June 28, 1977, not recorded.

7) Standard Boundary Survey made for Amy Mulkerin by Titcomb Associates, dated July 14, 1987, not recorded.

8) Standard Boundary Survey, Property of St. Joseph's Convent and Hospital, made for SYTDesign Consultants by Titcomb Associates, dated November 4, 2002.

9) Plan of Property and Existing Conditions, Catherine McAuley High School & St. Joseph's Convent made for Land Use Consultants by Land Use Consultants dated September 26, 2006.

10) Overall Subdivision Plan-605 Stevens Avenue made for Sea Coast at Baxter Woods Associates, LLC dated June 24, 2015 and revised through June 15, 2016 as recorded in Plan Book 216, Page 433.

11) Plan of Lot 3 Sectional Subdivisional Plat Motherhouse-88 Units made for Motherhouse Associates LP by Titcomb Associates, dated June 24, 2015 recorded in the Cumberland County Registry of Deeds in Plan Book 216, Page 434 as modified by a plan entitled "First Amended Plan of Lot 3 Sectional Subdivision Plat Motherhouse-88 Units" made for Motherhouse Associates LP by Titcomb Associated dated April 10, 2017, to be recorded.

EASEMENTS and ENCUMBRANCES

1) Lot 4 is subject to a right of way 33 feet wide as shown, reserved in deed of James P. Baxter to the Roman Catholic Bishop of Portland dated March 10, 1908 and recorded in Book 821, Page 59.

2) Lot 4 benefits from a right of way 33 feet wide adjoining the southerly sideline as shown, described in deed of James P. Baxter to the Roman Catholic Bishop of Portland dated March 10, 1908 and recorded in Book 821, Page 59.

3) No record evidence of an easement for utility poles on the property was found.

4) Rights, covenants and easements set forth in the Stormwater Drainage System Maintenance Agreement from Sea Coast at Baxter Woods Associates, LLC to the City of Portland, dated December 23, 2016 and recorded in the Cumberland County Registry of Deeds, Book 33752, Page 170 as modified by an Addendum to Stormwater Drainage System Maintenance Agreement, to be recorded. Not plottable.

5) Covenants, conditions, restrictions, reservations, easements, liens for assessments, and other matters set forth in the Declaration of Condominium of 605 Stevens Avenue Condominium, to be recorded.

6) Rights, easements and covenants set forth in the Declaration of Covenants and Easements, to be recorded.

State of Maine, Cumberland ss
Registry of Deeds
Received May 4 *2017*
at 11 *h* 20 *m* AM *and recorded in*
Plan Book 217 *Page* 151
Attest: _____
Register

THIS FIRST AMENDED PLAT DATED APRIL 10, 2017 AMENDS THE PLAT DATED JUNE 24, 2015, REVISED JUNE 16, 2016 AND RECORDED IN THE CCRD PLAN BOOK 216 PAGE 433 ON OCTOBER 28, 2016 TO UPDATE THE EASEMENT TABLE, REVISE EASEMENT#3 & 4 AND MAKE MINOR NOTE AND PLAN REFERENCE EDITS.

Approved by the City of Portland Director of Planning and Urban Development
dated 5/3/17

CERTIFICATION

This survey conforms to the current standards of practice set forth by the Maine State Board of Licensure for Land Surveyors.

Rex J. Croteau, P.L.S. #2273

STATE OF MAINE REX CROTEAU 2273 PROFESSIONAL LAND SURVEYOR

GRAPHIC SCALE
50 0 25 50 100 200
(IN FEET)
1 inch = 50 ft.

FIRST AMENDED OVERALL SUBDIVISION PLAN

605 Stevens Avenue

Stevens Avenue & Walton Street — Portland, Maine

MADE FOR

Sea Coast at Baxter Woods Associates, LLC

20 Blueberry Lane — Falmouth, Maine 04105

JOB#	202096.1	DATE: April 10, 2017	SCALE: 1" = 50'
BOOK#	525, 578		
202096-2006.dwg			
FILE#	8538		

Titcomb Associates
133 Gray Road, Falmouth, Maine 04105
(207)797-9199 www.titcombsurvey.com

Sheet C2

PROTECT SEWER, TYP.

REMOVE IRRIGATION HEAD, TYP.

ALL CONSTRUCTION ACCESS SHALL BE FROM WALTON ST/McAULEY WAY

PROTECT SEWER, TYP.

PROTECT EXISTING STORM DRAIN

REMOVE FENCING / BACKSTOP (FUTURE PHASE)

REMOVE EXISTING STORM DRAIN TO LOCATION OF PROPOSED DMH 2 (SEE SHEET C-4.0) (FUTURE PHASE)

REMOVE CATCH BASIN AND STORM DRAIN PIPING (FUTURE PHASE)

REMOVE FENCE (FUTURE PHASE)

APPROXIMATE LIMIT OF PHASE 2

REMOVE CATCH BASIN AND STORM DRAIN PIPING

PROTECT SEWER, TYP. ADJUST SMH COVER TO GRADE

NOTE: ATHLETIC FIELD UNDERDRAIN & IRRIGATION SYSTEMS SHALL BE REMOVED WHERE THEY CONFLICT WITH THE PROPOSED CONSTRUCTION AT NO EXTRA EXPENSE TO THE OWNER.

PROTECT / ADJUST UNDERGROUND UTILITIES, TYP. (SEE SHEET C-5.0)

PROTECT EXISTING UNDERGROUND WATER QUALITY TREATMENT SYSTEM, TYP. (INSTALLED AS PART OF BLDG #1 CONSTRUCTION)

EX. DMH (#4) RIM 114.90
12" INV. 109.09±
TO REMAIN - PROTECT DURING CONSTRUCTION

CAP STORM DRAIN PIPE

EXISTING CB 19 TO REMAIN - CORE & ADJUST STRUCTURE

REMOVE FENCE

REMOVE IRRIGATION HEAD, TYP.

LIMIT OF CLEARING, TYP.

REMOVE EX. CB 18 AND STORM DRAIN PIPING (IDENTIFIED ON TITCOMB SURVEY BUT NOT LOCATED IN FIELD BY G-P)

REMOVE EX. 12" SD & REPLACE WITH 15" SD

PROPERTY LINE, TYP.

Right-Of-Way to the Roman Catholic Bi...

BUILDING #1 COMPLETED SPRING 2021

McAULEY WAY

HOLLY STREET

N/F St. Joseph's Convent & Hospital T.M. 143 Lot F-7

N/F Thomas W. & Susan M. Randall JTS Book 35518, Page 284 T.M. 142 Lot G-8

N/F Diocesan Bureau of Housing Book 3181, Page 458 T.M. 142 Lot G-7

N/F Baxter Woods III LLC Book 35072, Page 149 143 Lot F-13

WETLAND

UTILITY NOTES:

1. UTILITY INFORMATION ON THIS PLAN IS APPROXIMATE AND BASED ON PREVIOUS GROUND SURVEY, VISIBLE FEATURES OBSERVED DURING SITE RECONNAISSANCE, AND RECORD INFORMATION PROVIDED BY THE CITY OF PORTLAND DPW ARCHIVES OR BY OTHERS.
2. ALL UTILITIES NOT IDENTIFIED FOR REMOVAL SHALL BE PROTECTED.
3. THE GRADING, DRAINAGE AND EROSION CONTROL PLAN FOR THE ATHLETIC FACILITY EXPANSION, APPROVED MAY 23, 2003, PREPARED BY SYT DESIGN CONSULTANTS, IDENTIFIES A SYSTEM OF 6" PVC UNDERDRAIN, GENERALLY SPACED AT 25' o.c., RUNNING N/S OVER THE ENTIRE FIELD. THE PIPE SHALL BE REMOVED AS ENCOUNTERED. SIMILARLY, AN IRRIGATION SYSTEM IS LOCATED IN THE FIELD, AND IT SHALL BE REMOVED ENTIRELY WITHIN THE LIMITS OF WORK.
4. IN GENERAL, REMOVALS SHALL OCCUR DURING PHASE 2 ACTIVITY, ALTHOUGH THE APPLICANT RESERVES THE RIGHT TO DEFER REMOVALS OF SOME FEATURES UNTIL PHASE 3 OR 4 IF NECESSARY. THE CONTRACTOR SHALL MAINTAIN ONSITE RECORDS INDICATING WHAT HAS BEEN REMOVED OR REMAINS IN PLACE THROUGHOUT THE DURATION OF CONSTRUCTION.

B7 — APPROXIMATE BORING LOCATION - SEE TEST BORING LOCATION PLAN PREPARED BY SUMMIT GEOENGINEERING SERVICES, DATED MARCH 23, 2015.

TB-1 (CW) — APPROXIMATE BORING LOCATION WITH OBSERVATION WELL - SEE TEST BORING LOCATION PLAN PREPARED BY SUMMIT GEOENGINEERING SERVICES, DATED MARCH 23, 2015.

SEE SHEET C-4.3 FOR MORE SPECIFIC INFORMATION OF WORK BY CONSTRUCTION PHASE.

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES & SHALL NOT BE USED FOR CONSTRUCTION.

STATE OF MAINE — STEPHEN R. BUSHEY — 01.18.22 — LICENSED PROFESSIONAL ENGINEER

STEPHEN R. BUSHEY, P.E.
LIC. #7429

GRAPHIC SCALE
0 15 30 60
1 inch = 30 ft.

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File Name: 356403-REMOVALS.dwg		

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Drawing Name: EXISTING CONDITIONS & REMOVALS PLAN

Project: **Stevens Square at Baxter Woods – Phase 2 – 4**
583 Stevens Avenue, Portland, Maine

Client/Owner: **DC BAXTER WOODS IV LLC**
631 STEVENS AVE., SUITE 203, PORTLAND, ME 04103 PH. 207.772.7673

Drawing No. C-2.0

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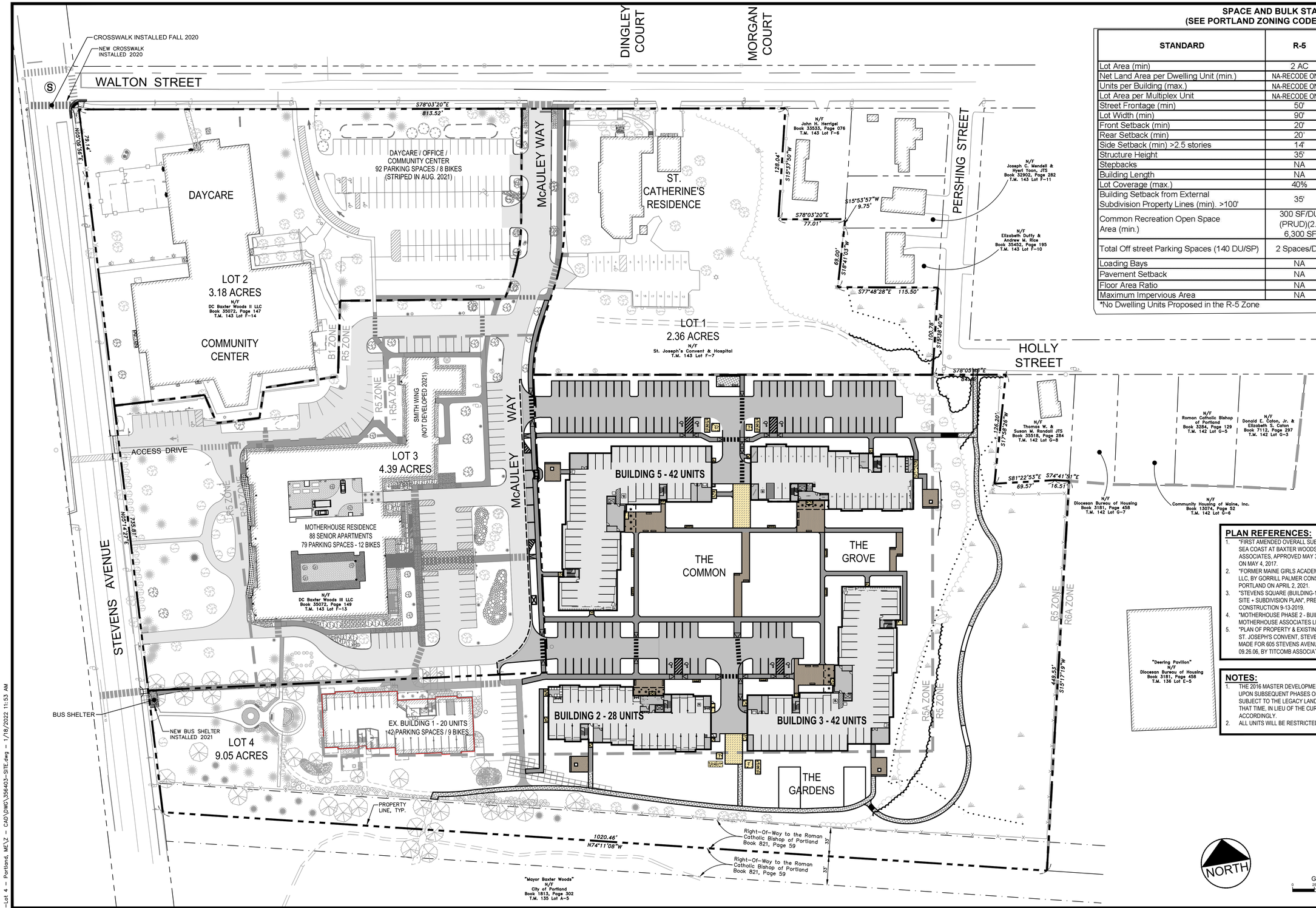

SPACE AND BULK STANDARDS
(SEE PORTLAND ZONING CODE CHAP. 14 8/15/13)

STANDARD	R-5	R-5A	LOT 4 Buildings 1-5 (160 DU)
Lot Area (min)	2 AC	2 AC	9.05 AC
Net Land Area per Dwelling Unit (min.)	NA-RECODE ONLY	NA-RECODE ONLY	2,464 SF
Units per Building (max.)	NA-RECODE ONLY	NA-RECODE ONLY	NA
Lot Area per Multiplex Unit	NA-RECODE ONLY	NA-RECODE ONLY	NA
Street Frontage (min)	50'	50'	224.5'
Lot Width (min)	90'	60'	140'
Front Setback (min)	20'	25'	96'
Rear Setback (min)	20'	25'	176'
Side Setback (min) >2.5 stories	14'	16'	16.58'
Structure Height	35'	55'	55'
Stepbacks	NA	NA	NA
Building Length	NA	NA	NA
Lot Coverage (max.)	40%	30%	19%
Building Setback from External Subdivision Property Lines (min). >100'	35'	35'	84'
Common Recreation Open Space Area (min.)	300 SF/DU (PRUD)(2.) 6,300 SF	200 SF/DU (PRUD) 4,200 SF	32,000 SF
Total Off street Parking Spaces (140 DU/SP)	2 Spaces/DU	2 Spaces/DU	302 Spaces
Loading Bays	NA	NA	NA
Pavement Setback	NA	NA	NA
Floor Area Ratio	NA	NA	NA
Maximum Impervious Area	NA	NA	NA

*No Dwelling Units Proposed in the R-5 Zone

PLAN REFERENCES:

1. "FIRST AMENDED OVERALL SUBDIVISION PLAN, 605 STEVENS AVENUE", MADE FOR SEA COAST AT BAXTER WOODS ASSOCIATES, LLC, PREPARED BY TITCOMB ASSOCIATES, APPROVED MAY 3, 2017 AND RECORDED IN C.C.R.D. BOOK 217, PAGE 151 ON MAY 4, 2017.
2. "FORMER MAINE GIRLS ACADEMY PLOT PLAN", PREPARED FOR DC BAXTER WOODS II LLC, BY GORRILL PALMER CONSULTING ENGINEERS, INC., APPROVED BY CITY OF PORTLAND ON APRIL 2, 2021.
3. "STEVENS SQUARE (BUILDING-1), 583 STEVENS AVENUE, PORTLAND, MAINE, LEVEL III SITE + SUBDIVISION PLAN", PREPARED BY CARROLL ASSOCIATES, ISSUED FOR CONSTRUCTION 9-13-2019.
4. "MOTHERHOUSE PHASE 2 - BUILDING 1", RECORD PLANS DATED 04-04-2019, FOR MOTHERHOUSE ASSOCIATES LP, BY STANTEC.
5. "PLAN OF PROPERTY & EXISTING CONDITIONS, CATHERINE MCAULEY HIGH SCHOOL & ST. JOSEPH'S CONVENT, STEVENS AVENUE & WALTON STREET, PORTLAND, MAINE", MADE FOR 605 STEVENS AVENUE SENIOR APARTMENTS - JOB #202096.1, DATED 09.26.06, BY TITCOMB ASSOCIATES.

NOTES:

1. THE 2016 MASTER DEVELOPMENT PLAN CONFERRED PENDING PROCEEDING STATUS UPON SUBSEQUENT PHASES OF THE PROJECT; THEREFORE, THE DEVELOPMENT IS SUBJECT TO THE LEGACY LAND USE CODE (LAST REV. 8.15.13) THAT WAS IN EFFECT AT THAT TIME, IN LIEU OF THE CURRENT CODE, WITH ALL CODE CITATIONS MADE ACCORDINGLY.
2. ALL UNITS WILL BE RESTRICTED TO RESIDENTS 55+ IN AGE.

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES & SHALL NOT BE USED FOR CONSTRUCTION.

STATE OF MAINE — STEPHEN R. BUSHEY — 01.18.22 — LICENSED PROFESSIONAL ENGINEER

STEPHEN R. BUSHEY, P.E. LIC. #7429

Rev.	Date	Revision

Rev.	Date	Revision
3	2022.01.18	ISSUED FOR FINAL PERMIT AND PUBLIC HEARING
2	2021.12.07	RESUBMITTED PER LOR #1 FOR FINAL REVIEW
1	2021.05.12	SUBMITTED TO CITY FOR REVIEW

Design: SRB	Draft: CDD	Date: MAY 2021
Checked: SRB	Scale: AS NOTED	Job No.: 3564.03
File Name: 356403-SITE.dwg		

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207.772.2515

Drawing Name: OVERALL SITE LAYOUT PLAN

Project: **Stevens Square at Baxter Woods – Phase 2 – 4**
583 Stevens Avenue, Portland, Maine

Client/Owner: **DC BAXTER WOODS IV LLC**
631 STEVENS AVE., SUITE 203, PORTLAND, ME 04103 PH. 207.772.7673

Drawing No. C-3.0

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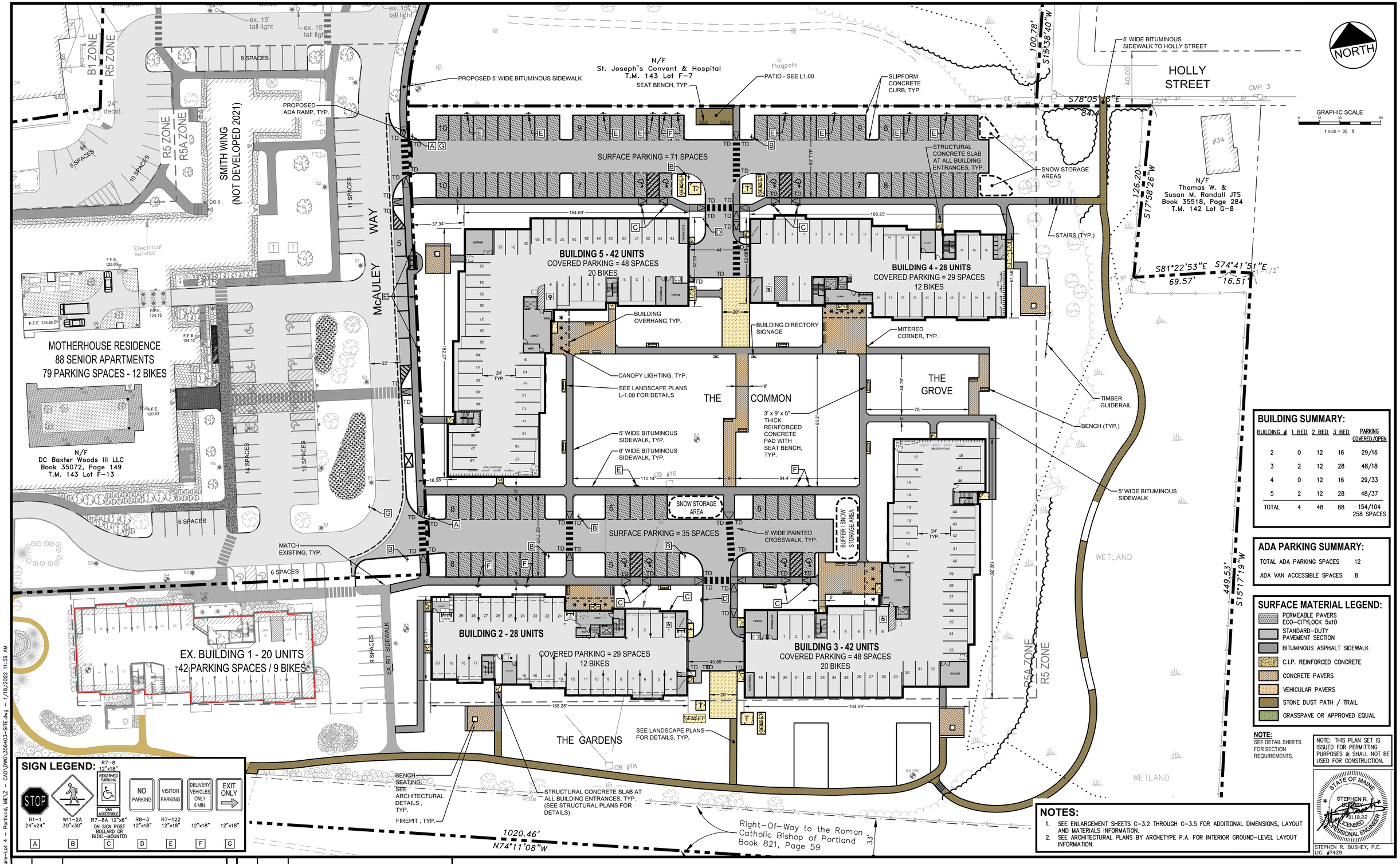

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Design: SRB	Draft: CDD	Date: MAY 2021
Checked: SRB	Scale: AS NOTED	Job No.: 3564.03

File Name: 356403-SITE.dwg

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207.772.2515

Drawing Name: SITE LAYOUT PLAN

Project: **Stevens Square at Baxter Woods – Phase 2 – 4**
583 Stevens Avenue, Portland, Maine

Client/Owner: **DC BAXTER WOODS IV LLC**
631 STEVENS AVE., SUITE 203, PORTLAND, ME 04103 PH. 207.772.7673

Drawing No. C-3.1

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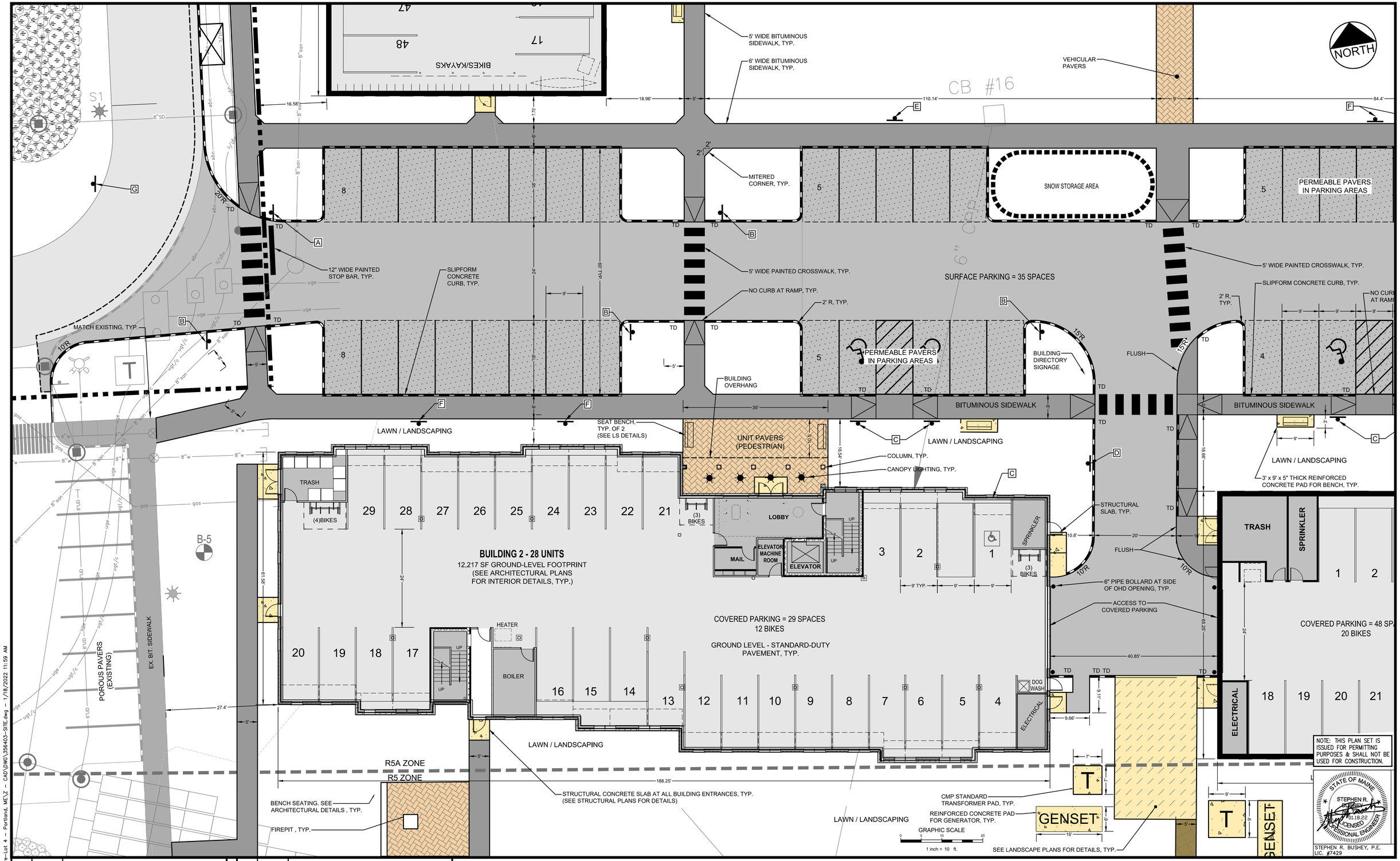

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Rev.	Date	Revision

Rev.	Date	Revision
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1	2021.05.12	SUBMITTED TO CITY FOR REVIEW

Design: SRB	Draft: CDD	Date: MAY 2021
Checked: SRB	Scale: AS NOTED	Job No.: 3564.03
File Name: 356403-SITE.dwg		

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207.772.2515

Drawing Name: BUILDING #2 LAYOUT PLAN

Project: **Stevens Square at Baxter Woods – Phase 2 – 4**
583 Stevens Avenue, Portland, Maine

Client/Owner: **DC BAXTER WOODS IV LLC**
631 STEVENS AVE., SUITE 203, PORTLAND, ME 04103 PH. 207.772.7673

Drawing No. C-3.2

B-7

CB #16

VEHICULAR PAVERS

110.14'

9'

84.4'

5'

19.5'

LAWN / LANDSCAPING

12.4'

68.27'

LAWN / LANDSCAPING

BIKES/KAYAKS

5' WIDE BITUMINOUS SIDEWALK

NORTH

SNOW STORAGE AREA

PERMEABLE PAVERS IN PARKING AREAS

BUFFER / SNOW STORAGE AREA

5' WIDE PAINTED CROSSWALK, TYP.

SURFACE PARKING = 35 SPACES

SLIPFORM CONCRETE CURB, TYP.

NO CURB AT RAMP, TYP.

2' R, TYP.

15'R

FLUSH

BUILDING DIRECTORY SIGNAGE

PERMEABLE PAVERS IN PARKING AREAS

BITUMINOUS SIDEWALK

BITUMINOUS SIDEWALK

LAWN / LANDSCAPING

COLUMN, TYP.

CANOPY LIGHTING, TYP.

LAWN / LANDSCAPING

3' x 9' x 5" THICK REINFORCED CONCRETE PAD FOR BENCH, TYP.

UNIT PAVERS (PEDESTRIAN)

EMR

COLUMN, TYP.

LOBBY

CANOPY LIGHTING, TYP.

BUILDING OVERHANG

STRUCTURAL SLAB AT DOOR, TYP. (SEE STRUCTURAL PLANS)

MAIL

STRUCTURAL SLAB, TYP.

SPRINKLER

(3) BIKES

10'R

6" PIPE BOLLARD AT SIDE OF OHD OPENING, TYP.

ACCESS TO COVERED PARKING

TRASH

SPRINKLER

ELECTRICAL

DOG WASH

ELECTRICAL

BUILDING 3 - 42 UNITS
19,051 SF GROUND-LEVEL FOOTPRINT
(SEE ARCHITECTURAL PLANS FOR INTERIOR DETAILS, TYP.)

COVERED PARKING = 48 SPACES
20 BIKES

GROUND LEVEL - STANDARD-DUTY PAVEMENT, TYP.

BOILER

R5A ZONE
R5 ZONE

LAWN / LANDSCAPING

164.69'

LAWN / LANDSCAPING

24' TYP.

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES & SHALL NOT BE USED FOR CONSTRUCTION.

STATE OF MAINE — STEPHEN R. BUSHEY — 01.18.22 — LICENSED PROFESSIONAL ENGINEER

STEPHEN R. BUSHEY, P.E.
LIC. #7429

GRAPHIC SCALE
0 5 10 20
1 inch = 10 ft.

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File Name: 356403-SITE.dwg		

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Drawing Name: BUILDING #3 LAYOUT PLAN

Project: **Stevens Square at Baxter Woods – Phase 2 – 4**
583 Stevens Avenue, Portland, Maine

Client/Owner: **DC BAXTER WOODS IV LLC**
631 STEVENS AVE., SUITE 203, PORTLAND, ME 04103 PH. 207.772.7673

Drawing No. C-3.3

NORTH

BORINGS BY SUMMIT GEOENGINEERING, TYP.

SURFACE PARKING = 71 SPACES

5' WIDE PAINTED CROSSWALK, TYP.

1:12 ADA RAMP, TYP.

REINFORCED CONCRETE PAD FOR TRANSFORMER, TYP.

NO CURB AT RAMP, TYP.

SLIPFORM CONCRETE CURB, TYP.

2' R, TYP.

PERMEABLE PAVERS IN PARKING AREAS

BITUMINOUS SIDEWALK

STRUCTURAL CONCRETE SLAB AT ALL BUILDING ENTRANCES, TYP.

ADA RAMP, TYP.

STAIRS (TYP.)

ELECTRICAL

BOILER

TRASH

ACCESS TO COVERED PARKING

4" PIPE BOLLARD, TYP.

12,217 SF GROUND-LEVEL FOOTPRINT
(SEE ARCHITECTURAL PLANS FOR INTERIOR DETAILS, TYP.)

GROUND LEVEL - STANDARD-DUTY PAVEMENT, TYP.

BUILDING 4 - 28 UNITS

COVERED PARKING = 29 SPACES
12 BIKES

BIKES

SPRINKLER

ELEVATOR

ELEVATOR MACHINE ROOM

DOG WASH

LOBBY

MAIL

TIMBER GUIDERAIL, TYP.

FIREPIT, TYP.

VEHICULAR PAVERS

3' x 9' REINFORCED CONCRETE PAD FOR BENCH, TYP.

3' x 9' x 5" THICK REINFORCED CONCRETE PAD WITH SEAT BENCH, TYP.

UNIT PAVERS (PEDESTRIAN)

COLUMN, TYP.

CANOPY LIGHTING, TYP.

BUILDING OVERHANG, TYP.

BUILDING DIRECTORY SIGNAGE

MITERED CORNER, TYP.

BENCH SEATING, TYP.

R5A ZONE
R5 ZONE

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES & SHALL NOT BE USED FOR CONSTRUCTION.

STATE OF MAINE
STEPHEN R. BUSHEY
10.18.22
LICENSED PROFESSIONAL ENGINEER

STEPHEN R. BUSHEY, P.E.
LIC. #7429

GRAPHIC SCALE
0 5 10 20
1 inch = 10 ft.

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Drawing Name: BUILDING #4 LAYOUT PLAN

Project: **Stevens Square at Baxter Woods – Phase 2 – 4**
583 Stevens Avenue, Portland, Maine

Client/Owner: **DC BAXTER WOODS IV LLC**
631 STEVENS AVE., SUITE 203, PORTLAND, ME 04103 PH. 207.772.7673

Drawing No. C-3.4

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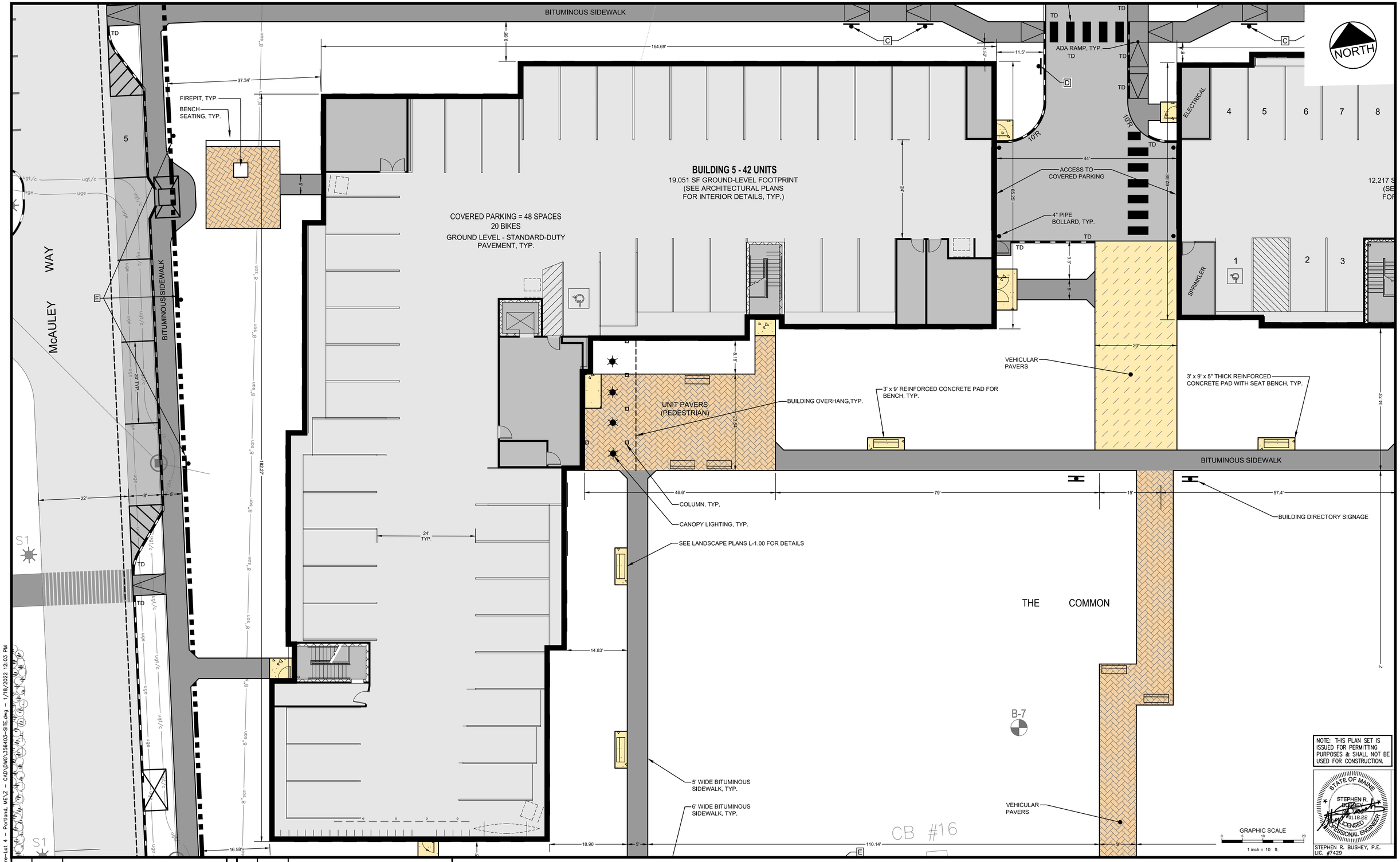

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES & SHALL NOT BE USED FOR CONSTRUCTION.

STATE OF MAINE
STEPHEN R. BUSHEY
01.18.22
LICENSED PROFESSIONAL ENGINEER

STEPHEN R. BUSHEY, P.E.
LIC. #7429

Rev.	Date	Revision

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2	2021.12.07	RESUBMITTED PER LOR #1 FOR FINAL REVIEW
1	2021.05.12	SUBMITTED TO CITY FOR REVIEW

Design: SRB	Draft: CDD	Date: MAY 2021
Checked: SRB	Scale: AS NOTED	Job No.: 3564.03
File Name: 356403-SITE.dwg		

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Drawing Name: BUILDING #5 LAYOUT PLAN

Project: **Stevens Square at Baxter Woods – Phase 2 – 4**
583 Stevens Avenue, Portland, Maine

Client/Owner: **DC BAXTER WOODS IV LLC**
631 STEVENS AVE., SUITE 203, PORTLAND, ME 04103 PH. 207.772.7673

Drawing No. C-3.5

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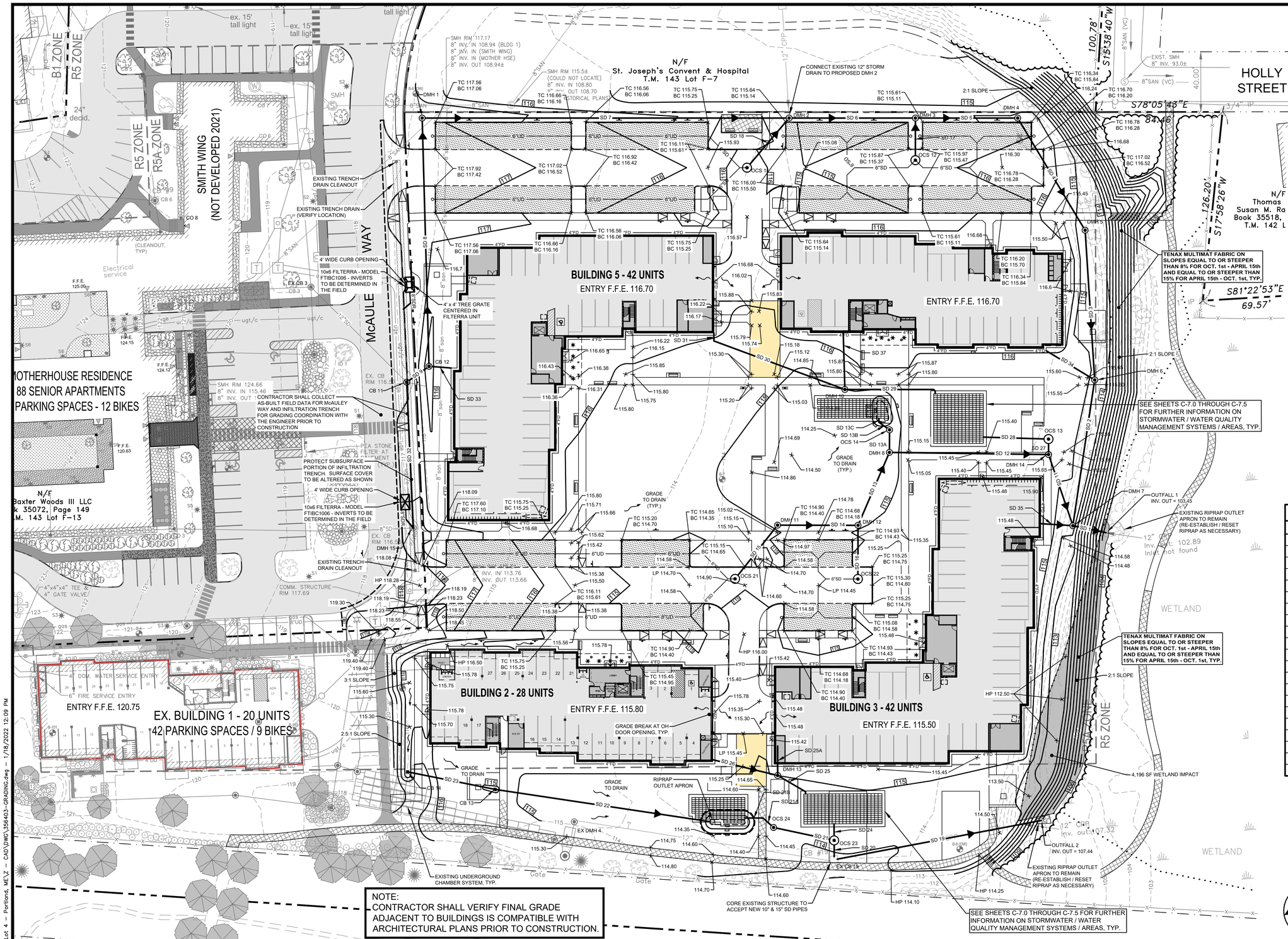

STORM DRAIN STRUCTURE SCHEDULE

STRUCTURE	SIZE	RIM	INV. IN/SIZE (FROM)	INV. OUT/SIZE (TO)
CB 11	4'ø	116.57	112.42/12"(DMH 15) 112.42/12"(EX CB 3)	112.15/15"(CB 12)
CB 12	4'ø	115.40	112.08/15"(CB 11) 112.08/4"(BLDG 5–FD)	111.98/15"(DMH 1)
CB 13	4'ø	114.75	112.04/12"(CB 14)	112.04/12"(FP 2)
CB 14	4'ø	115.25		113.05/12"(CB 13)
DMH 1	4'ø	117.50	110.53/15"(CB 12)	110.43/15"(DMH 2)
DMH 2	4'ø	115.75	108.27/15"(DMH 1) 110.84/8"(OCS 11) 108.27/12"(EX CB 13)	108.17/18"(DMH 3)
DMH 3	4'ø	115.85	107.45/18"(DMH 2) 110.81/8"(OCS 12)	107.35/18"(DMH 4)
DMH 4	4'ø	116.20	106.78/18"(DMH 3)	106.68/18"(DMH 5)
DMH 5	4'ø	114.50	105.93/18"(DMH 4)	105.83/18"(DMH 6)
DMH 6	4'ø	113.00	104.96/18"(DMH 5) 105.00/4"(BLDG 4–FD)	104.86/18"(DMH 7)
DMH 7	4'ø	114.00	106.64/15"(DMH 14) 104.02/18"(DMH 6) 106.64/4"(BLDG 3–FD)	103.92/24"(OUTFALL 1)
DMH 8	4'ø	114.75	108.50/12"(DMH 12) 108.31/12"(OCS 14)	108.21/15"(DMH 14)
DMH 10	4'ø	115.00	112.60/8"(BLDG 5) 112.60/8"(BLDG 4–RD)	112.50/12"(R 1)
DMH 11	4'ø	114.97	109.77/8"(OCS 21)	109.67/12"(DMH 12)
DMH 12	4'ø	114.98	109.08/12"(DMH 11) 109.81/8"(OCS 22)	108.98/12"(DMH 8)
DMH 13	4'ø	115.00	113.03/8"(BLDG 2–RD) 113.03/8"(BLDG 3–RD)	113.03/8"(R2)
DMH 14	4'ø	115.65	107.16/15"(DMH 8) 109.98/10"(OCS 13)	107.06/15"(DMH 7)
DMH 15	2'SQ.	118.10	TBD/8" (FROM RG)	112.99/12"(CB 11)
EX CB 19	4'ø	113.56	108.10/10"(OCS 23) 108.10/12"(EX DMH 4)	108.10/15"(OUTFALL 2)
OCS 11	6'ø	116.12	111.23/6"(UD–3)	111.23/8"(DMH 2)
OCS 12	6'ø	115.65	111.10/6"(UD–4) 111.10/6"(UD–5)	111.10/8"(DMH 3)
OCS 13	6'ø	115.25	110.06/12"(R–1)	110.06/10"(DMH 14)
OCS 14	4'ø	114.25	108.46/12"(FP 1)	108.46/12"(DMH 8)
OCS 21	6'ø	114.85	110.13/6"(UD–1)	110.13/8"(DMH 11)
OCS 22	6'ø	114.70	110.13/6"(UD–2)	110.13/8"(DMH 12)
OCS 23	6'ø	114.35	110.06/10"(R–2) 108.14/12"(OCS 24)	108.14/10"(EX CB 19)
OCS 24	2'SQ.	114.25	108.38/12"(FP_2)	108.38/12"(OCS 23)

PIPE SCHEDULE

Pipe Name	Size	Length	Slope
SD 1	24"	21'	2.1%
SD 2	18"	94'	0.9%
SD 3	18"	96'	0.9%
SD 4	18"	83'	0.9%
SD 5	18"	64'	0.8%
SD 6	18"	80'	0.9%
SD 7	15"	240'	0.9%
SD 8	15"	161'	0.9%
SD 9	15"	14'	0.4%
SD 11	15"	46'	0.8%
SD 12	15"	102'	1.0%
SD 13	12"	49'	0.9%
SD 13A	12"	11'	1.0%
SD 13B	12"	7'	2.3%
SD 13C	12"	3'	2.3%
SD 14	12"	50'	1.1%
SD 15	8"	41'	0.8%
SD 16	8"	31'	0.9%
SD 17	8"	23'	1.0%
SD 18	8"	38'	0.9%
SD 19	15"	138'	0.5%

PIPE SCHEDULE

Pipe Name	Size	Length	Slope
SD 20	10"	8'	0.3%
SD 21	12"	36'	0.6%
SD 21B	12"	12'	0.6%
SD 22	12"	142'	0.4%
SD 23	12"	55'	1.7%
SD 24	10"	8'	0.0%
SD 25	8"	20'	0.1%
SD 25A	8"	18'	1.0%
SD 26	8"	43'	1.6%
SD 27	10"	5'	0.8%
SD 28	12"	40'	1.0%
SD 29	12"	57'	−0.8%
SD 30	8"	91'	1.2%
SD 31	8"	5'	2.5%
SD 32	12"	95'	0.6%
SD 33	4"	13'	2.9%
SD 34	4"	36'	5.3%
SD 35	4"	19'	4.0%
SD 37	8"	36'	2.1%

KEY

PERVIOUS PAVERS

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES & SHALL NOT BE USED FOR CONSTRUCTION.

NORTH

GRAPHIC SCALE 0 15 30 60 — 1 inch = 30 ft.

STATE OF MAINE — STEPHEN R. BUSHEY — No. 7429 — 01.18.22 — LICENSED PROFESSIONAL ENGINEER

STEPHEN R. BUSHEY, P.E. LIC. #7429

Rev.	Date	Revision

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File Name: 356403–GRADING.dwg		

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GORRILL PALMER

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207.772.2515

Drawing Name: GRADING & DRAINAGE PLAN

Project: **Stevens Square at Baxter Woods – Phase 2 – 4**
583 Stevens Avenue, Portland, Maine

Client/Owner: **DC BAXTER WOODS IV LLC**
631 STEVENS AVE., SUITE 203, PORTLAND, ME 04103 PH. 207.772.7673

Drawing No. C-4.0

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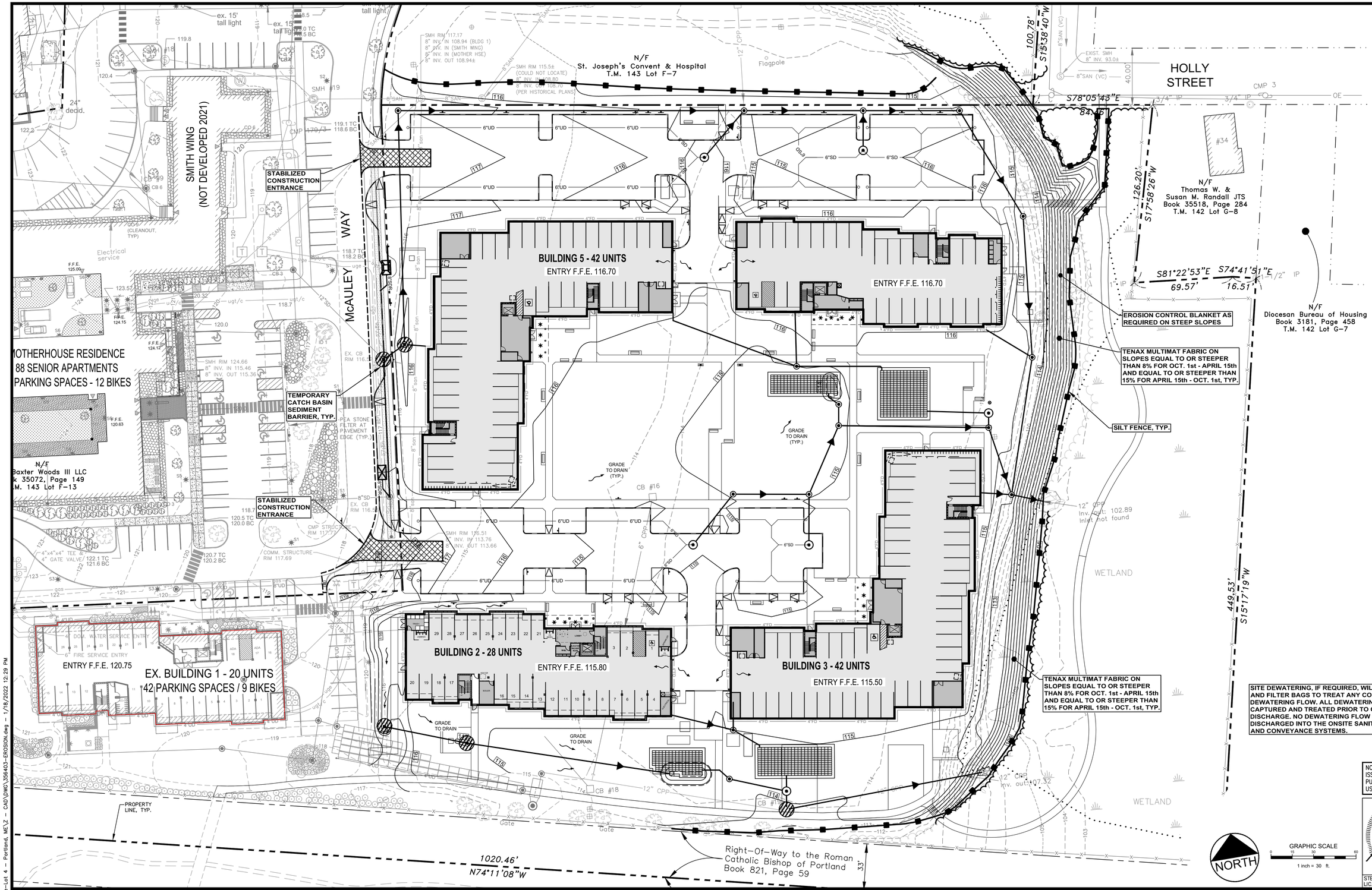

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STATE OF MAINE
STEPHEN R. BUSHEY
No. 7429
01.18.22
LICENSED PROFESSIONAL ENGINEER

STEPHEN R. BUSHEY, P.E.
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Checked: SRB	Scale: AS NOTED	Job No.: 3564.03
File Name: 356403-EROSION.dwg		

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207.772.2515

Drawing Name: EROSION & SEDIMENT CONTROL PLAN

Project: **Stevens Square at Baxter Woods – Phase 2 – 4**
583 Stevens Avenue, Portland, Maine

Client/Owner: **DC BAXTER WOODS IV LLC**
631 STEVENS AVE., SUITE 203, PORTLAND, ME 04103 PH. 207.772.7673

Drawing No. C-4.1

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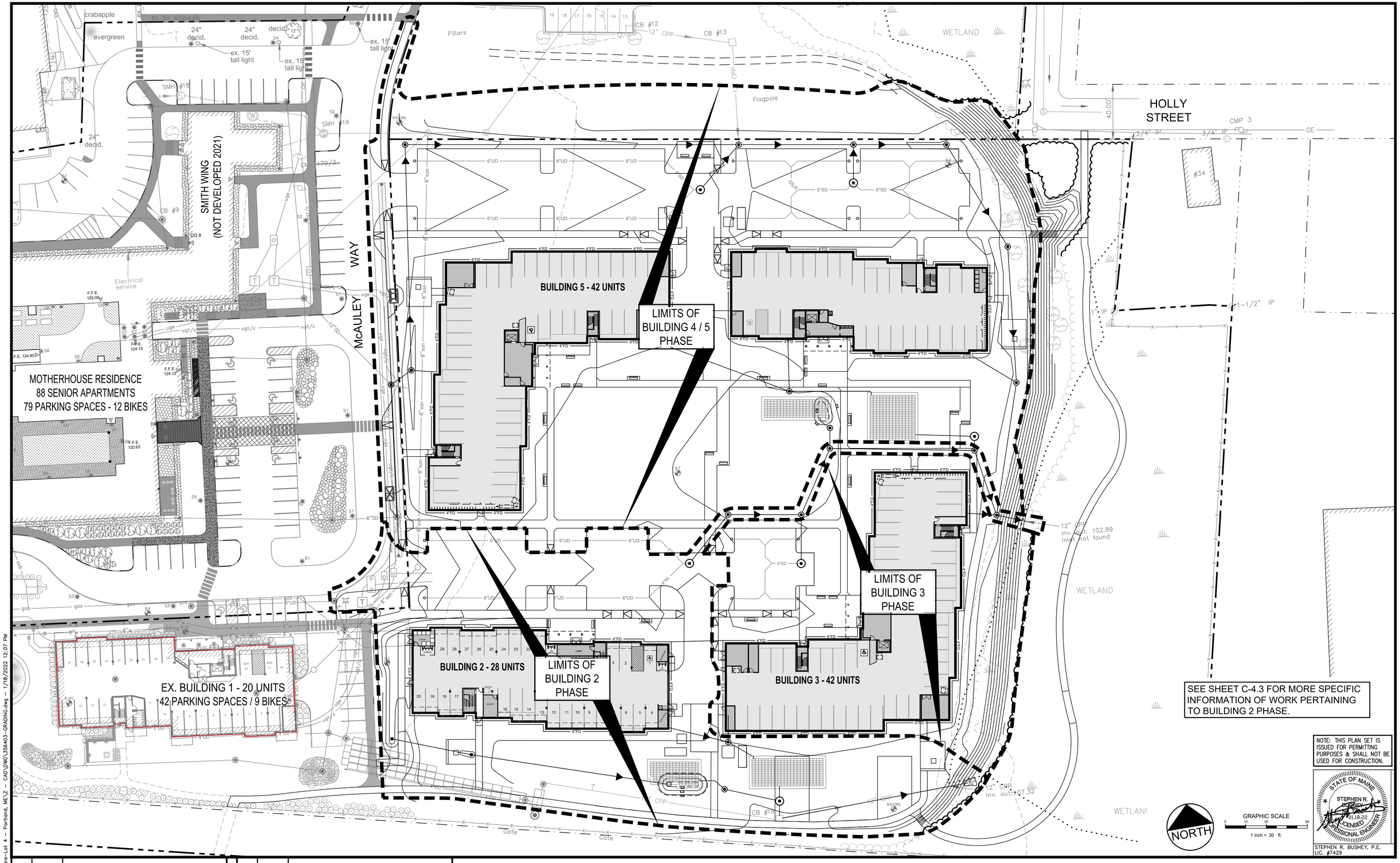

Rev.	Date	Revision

Rev.	Date	Revision
3	2022.01.18	ISSUED FOR FINAL PERMIT AND PUBLIC HEARING
2	2021.12.07	RESUBMITTED PER LOR #1 FOR FINAL REVIEW
1	2021.05.12	SUBMITTED TO CITY FOR REVIEW

Design: SRB	Draft: CDD	Date: MAY 2021
Checked: SRB	Scale: AS NOTED	Job No.: 3564.03
File Name: 356403-GRADING.dwg		

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207.772.2515

Drawing Name: PHASING PLAN

Project: **Stevens Square at Baxter Woods – Phase 2 – 4**
583 Stevens Avenue, Portland, Maine

Client/Owner: **DC BAXTER WOODS IV LLC**
631 STEVENS AVE., SUITE 203, PORTLAND, ME 04103 PH. 207.772.7673

Drawing No. C-4.2

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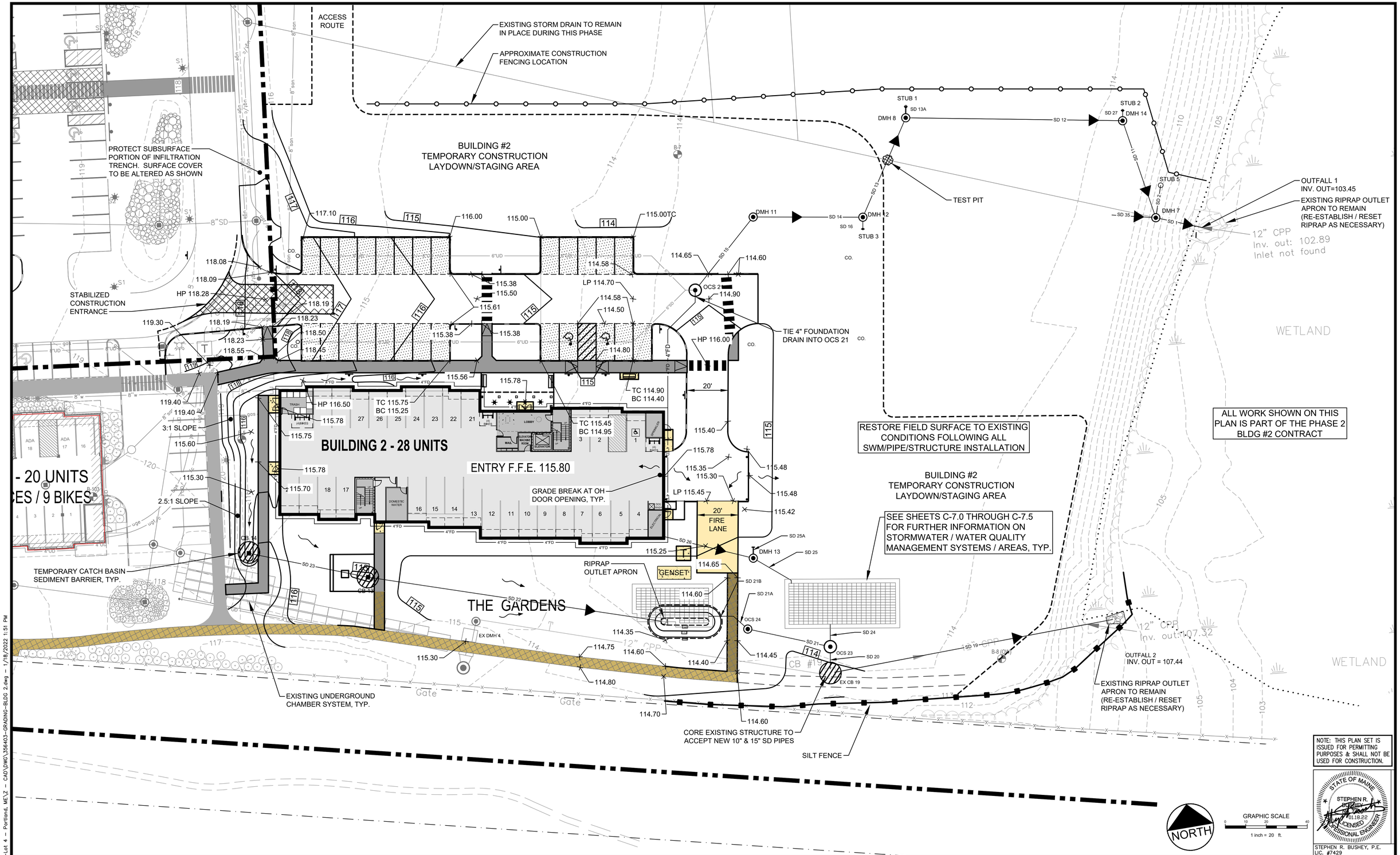

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES & SHALL NOT BE USED FOR CONSTRUCTION.

STATE OF MAINE — STEPHEN R. BUSHEY — 01.18.22 — LICENSED PROFESSIONAL ENGINEER

STEPHEN R. BUSHEY, P.E.
LIC. #7429

Rev.	Date	Revision

Rev.	Date	Revision
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1	2021.05.12	SUBMITTED TO CITY FOR REVIEW

Design: SRB	Draft: CDD	Date: MAY 2021
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File Name: 356403-GRADING-BLDG 2.dwg		

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207.772.2515

Drawing Name: GRADING & DRAINAGE PLAN - BUILDING 2

Project: **Stevens Square at Baxter Woods – Phase 2 – 4**
583 Stevens Avenue, Portland, Maine

Client/Owner: **DC BAXTER WOODS IV LLC**
631 STEVENS AVE., SUITE 203, PORTLAND, ME 04103 PH. 207.772.7673

Drawing No. C-4.3

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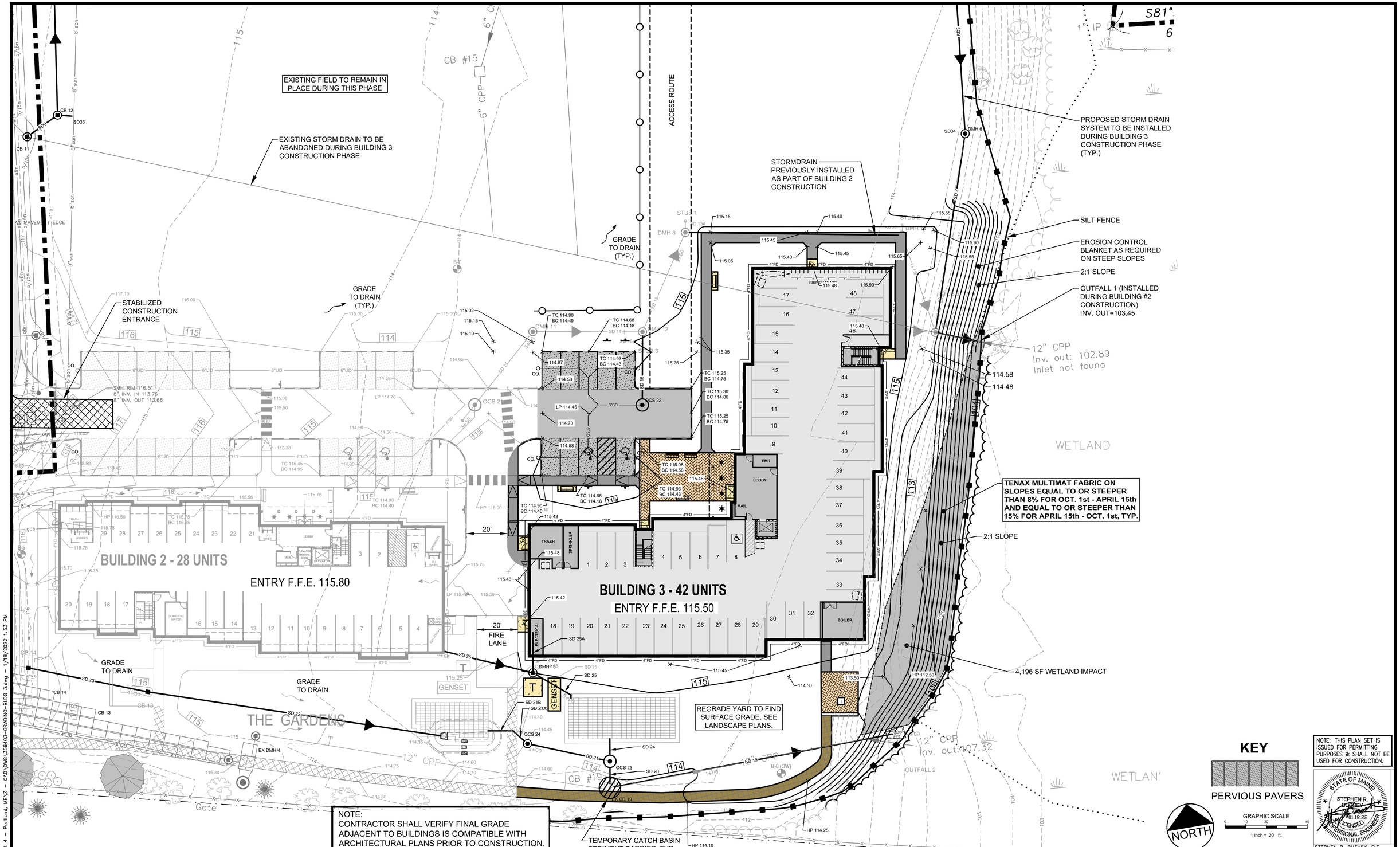

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Rev.	Date	Revision

Rev.	Date	Revision
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1	2021.05.12	SUBMITTED TO CITY FOR REVIEW

Design: SRB	Draft: CDD	Date: MAY 2021
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File Name: 356403-GRADING-BLDG 3.dwg		

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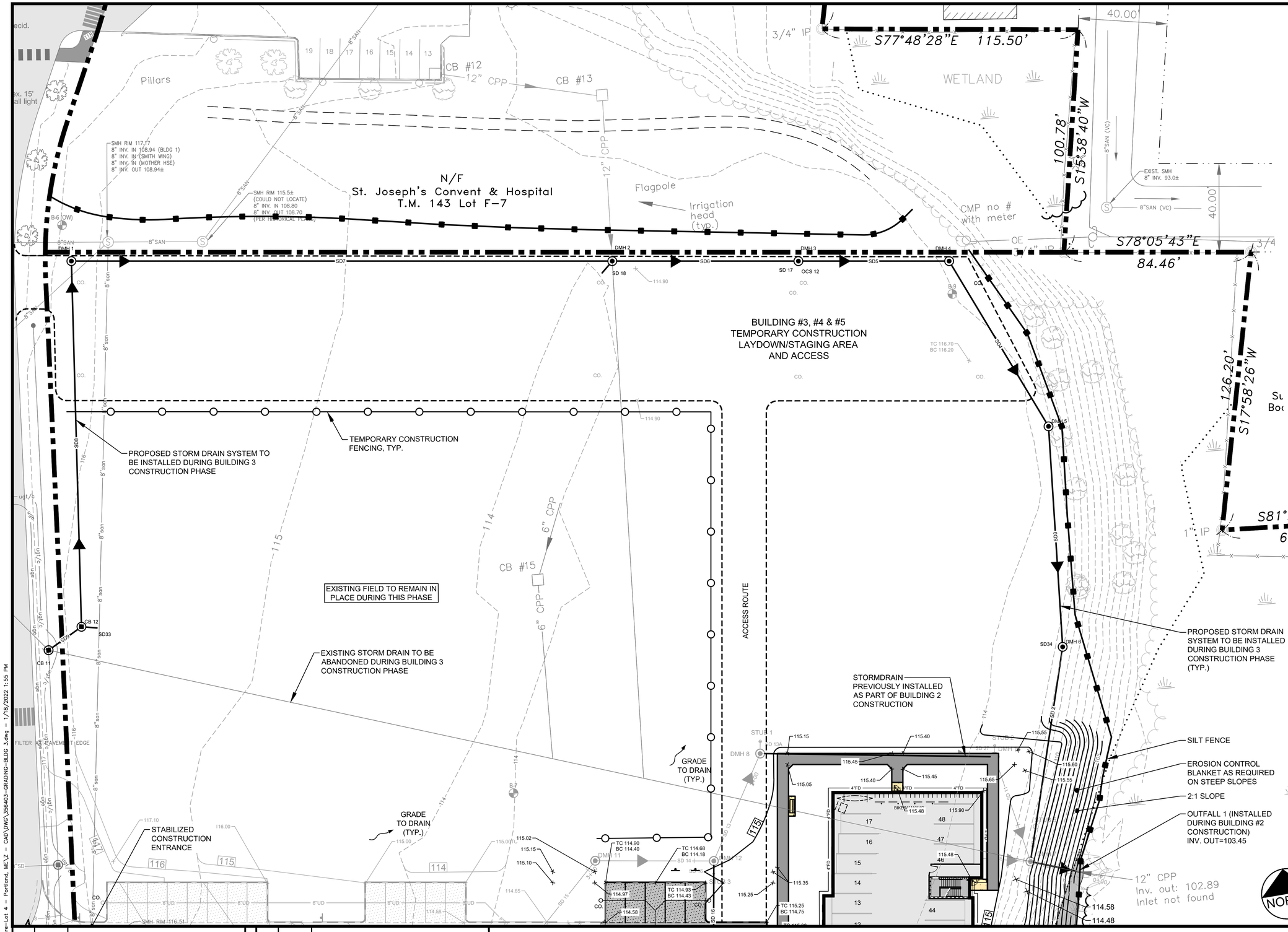
207.772.2515

Drawing Name: GRADING & DRAINAGE PLAN - BUILDING 3

Project: Stevens Square at Baxter Woods – Phase 2 – 4
583 Stevens Avenue, Portland, Maine

Client/Owner: DC BAXTER WOODS IV LLC
631 STEVENS AVE., SUITE 203, PORTLAND, ME 04103 PH. 207.772.7673

Drawing No. C-4.4



Rev.	Date	Revision

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File Name: 356403-GRADING-BLDG 3.dwg		

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207.772.2515

Drawing Name: GRADING & DRAINAGE PLAN - BUILDING 3

Project: **Stevens Square at Baxter Woods – Phase 2 – (BLDG 3)**
583 Stevens Avenue, Portland, Maine

Client/Owner: **DC BAXTER WOODS IV LLC**
631 STEVENS AVE., SUITE 203, PORTLAND, ME 04103 PH. 207.772.7673

Drawing No. C-4.4A

U:\3564.03_Stevens Square-Lot 4 - Portland, ME\Z - CAD\DWG\356403-GRADING-BLDG 3.dwg - 1/18/2022 1:55 PM

N/F
St. Joseph's Convent & Hospital
T.M. 143 Lot F-7

BUILDING #4/5
TEMPORARY CONSTRUCTION
LAYDOWN/STAGING AREA

BUILDING 5 - 42 UNITS
ENTRY F.F.E. 116.70

BUILDING 4 - 28 UNITS
ENTRY F.F.E. 116.70

McAULEY WAY

Flagpole

CONTRACTOR ACCESS ROUTE FROM WALTON STREET ONLY

STABILIZED CONSTRUCTION ENTRANCE

EXISTING TRENCH DRAIN CLEANOUT

EXISTING TRENCH DRAIN (VERIFY LOCATION)

4' WIDE CURB OPENING

10x6 FILTERRA - MODEL FTIBC1006 - INVERTS TO BE DETERMINED IN THE FIELD

4' x 4' TREE GRATE CENTERED IN FILTERRA UNIT

TEMPORARY CATCH BASIN SEDIMENT BARRIER, TYP.

CONTRACTOR SHALL COLLECT AS-BUILT FIELD DATA FOR McAULEY WAY AND INFILTRATION TRENCH FOR GRADING COORDINATION WITH THE ENGINEER PRIOR TO CONSTRUCTION

PEA STONE FILTER MEDIA TRENCH EDGE (TYP.)

PROTECT SUBSURFACE PORTION OF INFILTRATION TRENCH. SURFACE COVER TO BE ALTERED AS SHOWN

4' WIDE CURB OPENING

10x6 FILTERRA - MODEL FTIBC1006 - INVERTS TO BE DETERMINED IN THE FIELD

CONNECT EXISTING 12" STORM DRAIN TO PROPOSED DMH 2

CONTRACTOR STAGING/STORAGE DURING BUILDING 4 & 5 CONSTRUCTION

SILT FENCE, TYP.

EROSION CONTROL BLANKET AS REQUIRED ON STEEP SLOPES

CLEARING LIMIT, TYP.

MATCH EXISTING PAVEMENT, TYP.

STAIRS (DETAILS TBD)

TENAX MULTIMAT FABRIC ON SLOPES EQUAL TO OR STEEPER THAN 8% FOR OCT. 1st - APRIL 15th AND EQUAL TO OR STEEPER THAN 15% FOR APRIL 15th - OCT. 1st, TYP.

SEE SHEETS C-7.0 THROUGH C-7.5 FOR FURTHER INFORMATION ON STORMWATER / WATER QUALITY MANAGEMENT SYSTEMS / AREAS, TYP.

EXISTING RIPRAP OUTLET APRON TO REMAIN (RE-ESTABLISH / RESET RIPRAP AS NECESSARY)

12" CMP Inv. Out: 102.89 Inlet not found

WORK WITHIN THE COMMON / THE GROVE TO BE COMPLETED AS PART OF BUILDING 4 & 5

GRADE TO DRAIN (TYP.)

GRADE TO DRAIN (TYP.)

20' FIRE LANE

S78°05'03"E 84.46

S17°58'26"W 126.20'

S81°22' 69.5

NOTE:
CONTRACTOR SHALL VERIFY FINAL GRADE ADJACENT TO BUILDINGS IS COMPATIBLE WITH ARCHITECTURAL PLANS PRIOR TO CONSTRUCTION.

KEY

PERVIOUS PAVERS

NORTH

GRAPHIC SCALE
0 10 20 40
1 inch = 20 ft.

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES & SHALL NOT BE USED FOR CONSTRUCTION.

STATE OF MAINE
STEPHEN R. BUSHEY
No. 7429
01.18.22
LICENSED PROFESSIONAL ENGINEER

STEPHEN R. BUSHEY, P.E.
LIC. #7429

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File Name: 356403-GRADING-BLDG 4-5.dwg		

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207.772.2515

Drawing Name: GRADING & DRAINAGE PLAN - BUILDINGS 4 & 5

Project: **Stevens Square at Baxter Woods – Phase 2 – 4**
583 Stevens Avenue, Portland, Maine

Client/Owner: **DC BAXTER WOODS IV LLC**
631 STEVENS AVE., SUITE 203, PORTLAND, ME 04103 PH. 207.772.7673

Drawing No. C-4.5

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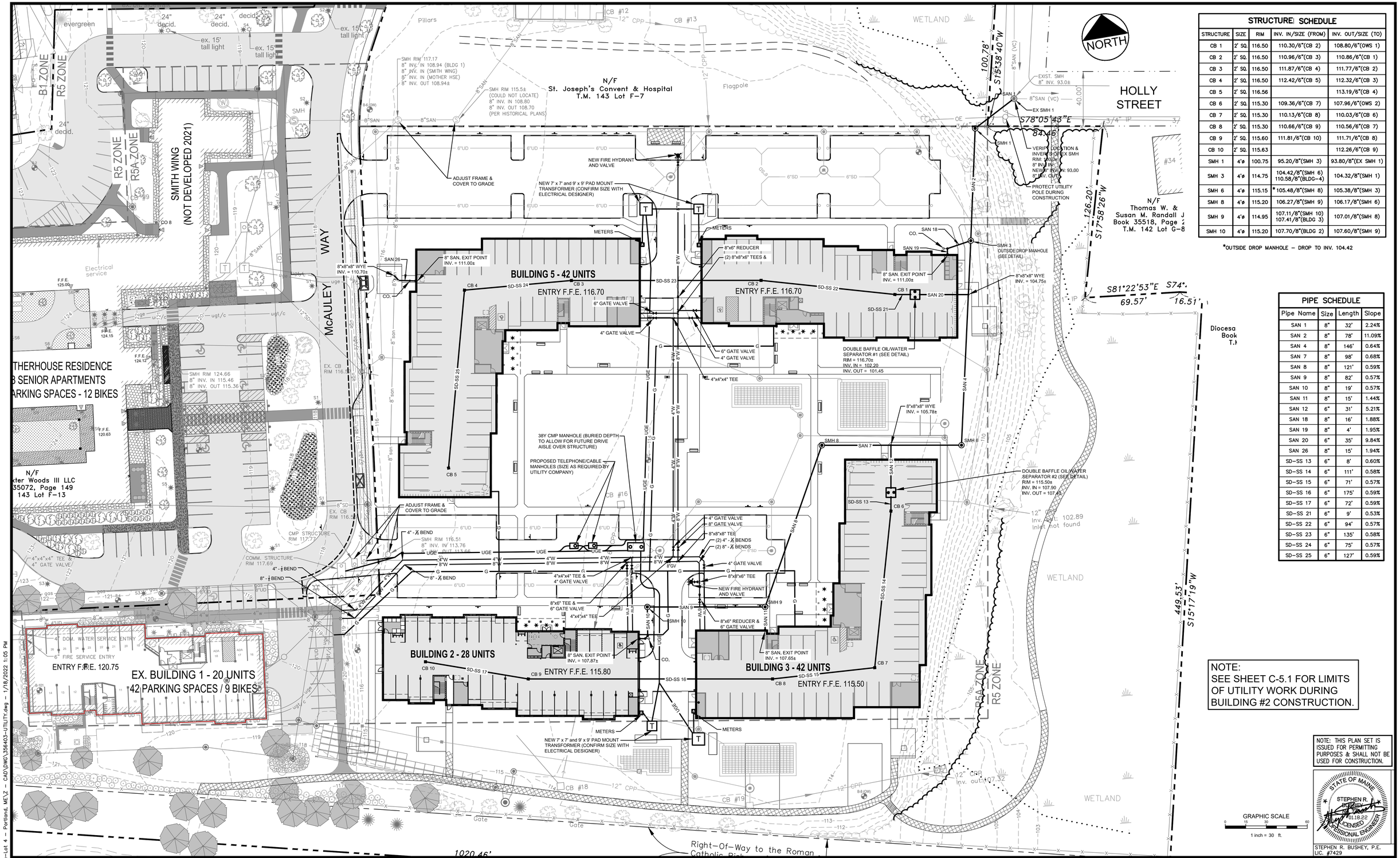

STRUCTURE SCHEDULE

STRUCTURE	SIZE	RIM	INV. IN/SIZE (FROM)	INV. OUT/SIZE (TO)
CB 1	2' SQ.	116.50	110.30/6"(CB 2)	108.80/6"(OWS 1)
CB 2	2' SQ.	116.50	110.96/6"(CB 3)	110.86/6"(CB 1)
CB 3	2' SQ.	116.50	111.87/6"(CB 4)	111.77/6"(CB 2)
CB 4	2' SQ.	116.50	112.42/6"(CB 5)	112.32/6"(CB 3)
CB 5	2' SQ.	116.56		113.19/6"(CB 4)
CB 6	2' SQ.	115.30	109.36/6"(CB 7)	107.96/6"(OWS 2)
CB 7	2' SQ.	115.30	110.13/6"(CB 8)	110.03/6"(CB 6)
CB 8	2' SQ.	115.30	110.66/6"(CB 9)	110.56/6"(CB 7)
CB 9	2' SQ.	115.60	111.81/6"(CB 10)	111.71/6"(CB 8)
CB 10	2' SQ.	115.63		112.26/6"(CB 9)
SMH 1	4'ø	100.75	95.20/8"(SMH 3)	93.80/8"(EX SMH 1)
SMH 3	4'ø	114.75	104.42/8"(SMH 6) 110.58/8"(BLDG-4)	104.32/8"(SMH 1)
SMH 6	4'ø	115.15	*105.48/8"(SMH 8)	105.38/8"(SMH 3)
SMH 8	4'ø	115.20	106.27/8"(SMH 9)	106.17/8"(SMH 6)
SMH 9	4'ø	114.95	107.11/8"(SMH 10) 107.41/8"(BLDG 3)	107.01/8"(SMH 8)
SMH 10	4'ø	115.20	107.70/8"(BLDG 2)	107.60/8"(SMH 9)

*OUTSIDE DROP MANHOLE – DROP TO INV. 104.42

PIPE SCHEDULE

Pipe Name	Size	Length	Slope
SAN 1	8"	32'	2.24%
SAN 2	8"	78'	11.09%
SAN 4	8"	146'	0.64%
SAN 7	8"	98'	0.68%
SAN 8	8"	121'	0.59%
SAN 9	8"	82'	0.57%
SAN 10	8"	19'	0.57%
SAN 11	8"	15'	1.44%
SAN 12	6"	31'	5.21%
SAN 18	8"	16'	1.88%
SAN 19	8"	4'	1.95%
SAN 20	6"	35'	9.84%
SAN 26	8"	15'	1.94%
SD-SS 13	6"	8'	0.60%
SD-SS 14	6"	111'	0.58%
SD-SS 15	6"	71'	0.57%
SD-SS 16	6"	175'	0.59%
SD-SS 17	6"	72'	0.59%
SD-SS 21	6"	9'	0.53%
SD-SS 22	6"	94'	0.57%
SD-SS 23	6"	135'	0.58%
SD-SS 24	6"	75'	0.57%
SD-SS 25	6"	127'	0.59%

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File Name: 356403-UTILITY.dwg		

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207.772.2515

Drawing Name: UTILITY PLAN

Project: **Stevens Square at Baxter Woods – Phase 2 – 4**
583 Stevens Avenue, Portland, Maine

Client/Owner: **DC BAXTER WOODS IV LLC**
631 STEVENS AVE., SUITE 203, PORTLAND, ME 04103 PH. 207.772.7673

Drawing No. C-5.0

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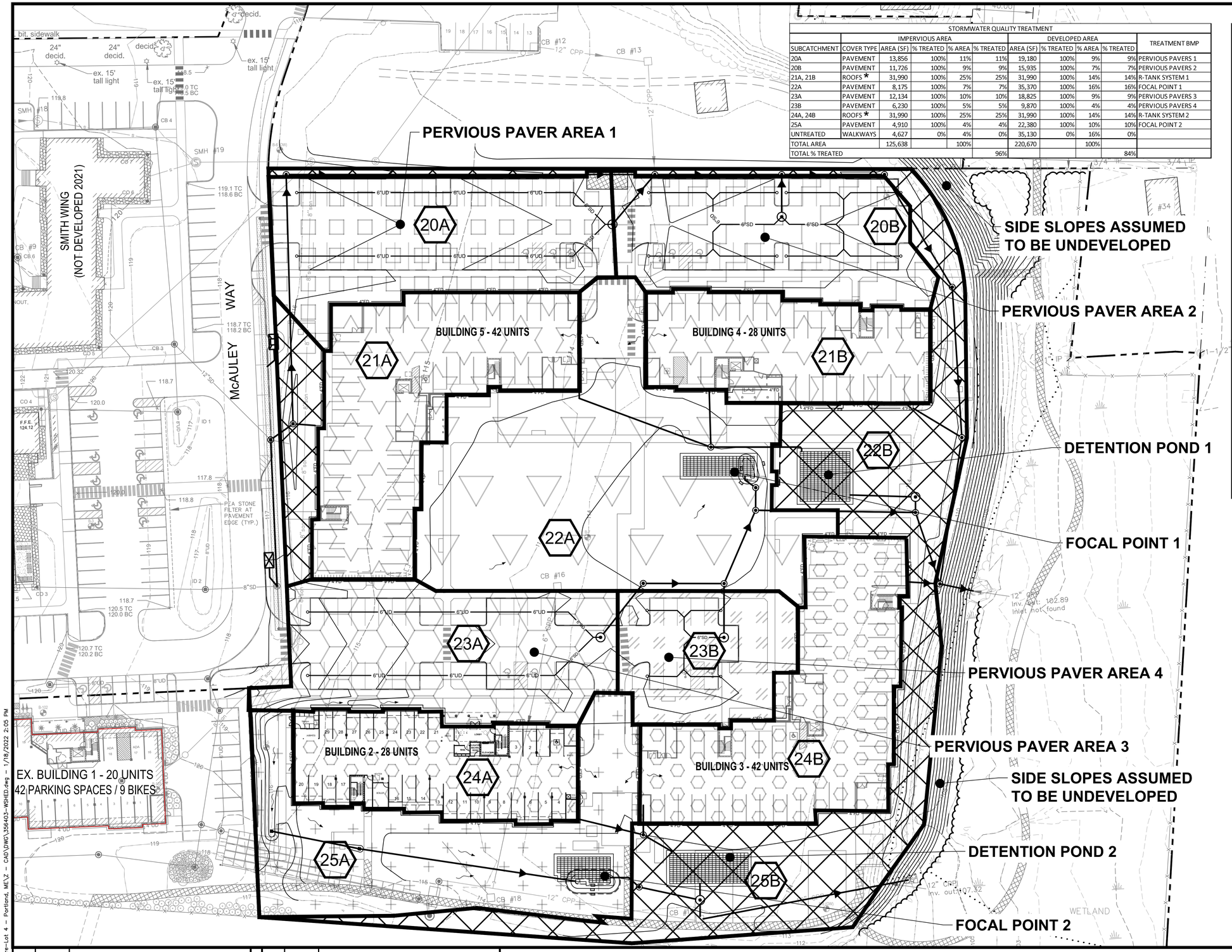

STORMWATER QUALITY TREATMENT										
	IMPERVIOUS AREA					DEVELOPED AREA				TREATMENT BMP
SUBCATCHMENT	COVER TYPE	AREA (SF)	% TREATED	% AREA	% TREATED	AREA (SF)	% TREATED	% AREA	% TREATED	
20A	PAVEMENT	13,856	100%	11%	11%	19,180	100%	9%	9%	PERVIOUS PAVERS 1
20B	PAVEMENT	11,726	100%	9%	9%	15,935	100%	7%	7%	PERVIOUS PAVERS 2
21A, 21B	ROOFS *	31,990	100%	25%	25%	31,990	100%	14%	14%	R-TANK SYSTEM 1
22A	PAVEMENT	8,175	100%	7%	7%	35,370	100%	16%	16%	FOCAL POINT 1
23A	PAVEMENT	12,134	100%	10%	10%	18,825	100%	9%	9%	PERVIOUS PAVERS 3
23B	PAVEMENT	6,230	100%	5%	5%	9,870	100%	4%	4%	PERVIOUS PAVERS 4
24A, 24B	ROOFS *	31,990	100%	25%	25%	31,990	100%	14%	14%	R-TANK SYSTEM 2
25A	PAVEMENT	4,910	100%	4%	4%	22,380	100%	10%	10%	FOCAL POINT 2
UNTREATED	WALKWAYS	4,627	0%	4%	0%	35,130	0%	16%	0%	
TOTAL AREA		125,638		100%		220,670		100%		
TOTAL % TREATED					96%				84%	

WATERSHED LEGEND

- DEVELOPED AREA BOUNDARY
- 999 SUBCATCHMENT
- AREA TREATED BY PERVIOUS PAVER AREA 1
- AREA TREATED BY PERVIOUS PAVER AREA 2
- AREA TREATED BY PERVIOUS PAVER AREA 3
- AREA TREATED BY PERVIOUS PAVER AREA 4
- AREA TREATED BY FOCAL POINT 1
- AREA TREATED BY FOCAL POINT 2
- AREA TREATED BY DETENTION POND 1
- AREA TREATED BY DETENTION POND 2
- UNTREATED

*ROOF AREA TREATED FOR THERMAL IMPACTS IN ACCORDANCE WITH CHAPTER 500 ROOF EXCEPTION FROM THE GENERAL STANDARDS.

NORTH

GRAPHIC SCALE
0 15 30 60
1 inch = 30 ft.

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES & SHALL NOT BE USED FOR CONSTRUCTION.

STATE OF MAINE
STEPHEN R. BUSHEY
No. 7429
01.18.22
LICENSED PROFESSIONAL ENGINEER

STEPHEN R. BUSHEY, P.E.
LIC. #7429

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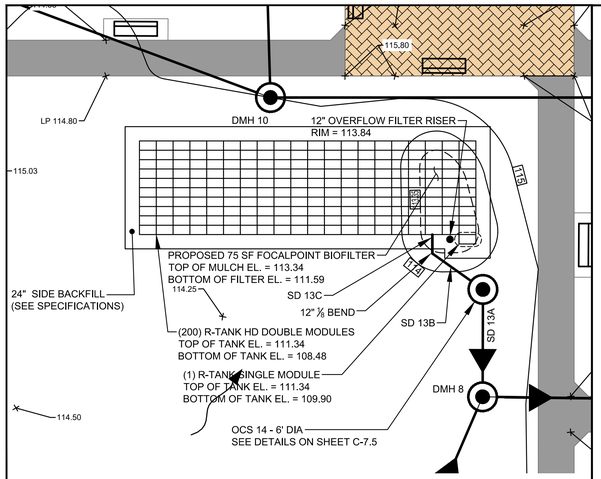
Drawing Name: WATER QUALITY PLAN

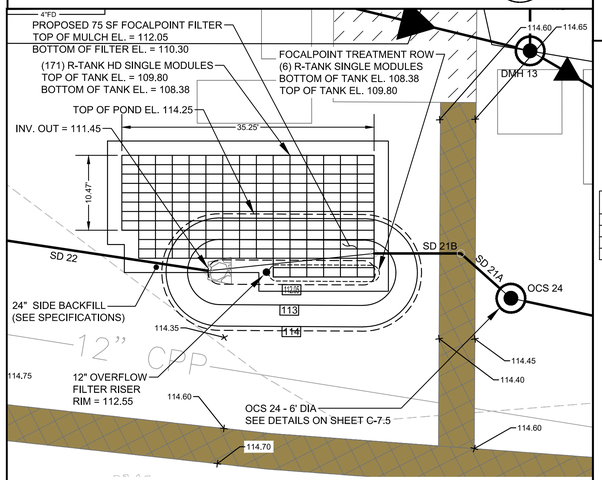
Project: Stevens Square at Baxter Woods – Phase 2 – 4
583 Stevens Avenue, Portland, Maine

Client/Owner: DC BAXTER WOODS IV LLC
631 STEVENS AVE., SUITE 203, PORTLAND, ME 04103 PH. 207.772.7673

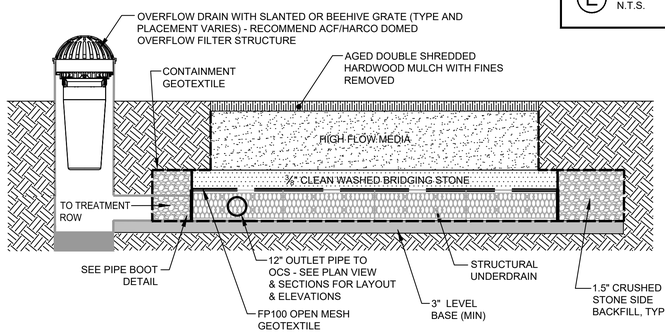
Drawing No. C-7.0



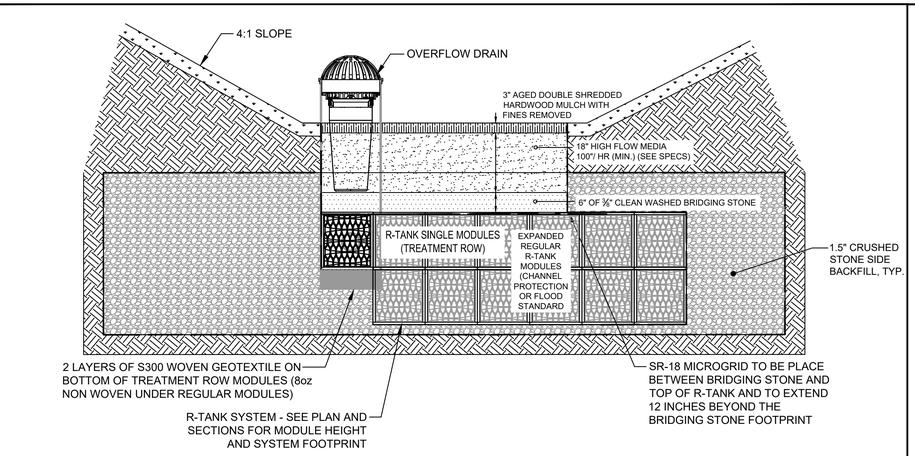
A FOCALPOINT #1 PLAN VIEW (N.I.C.)
1"=10'



B FOCALPOINT #2 PLAN VIEW (BLDG. #2)
1"=10'



C FOCALPOINT SECTION X-X
N.T.S.

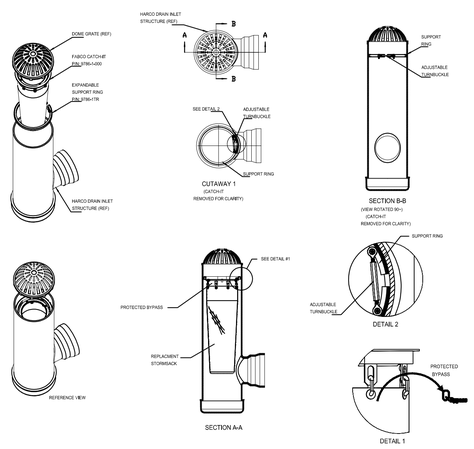


FOCALPOINT WITH R-TANK TREATMENT ROW
N.T.S.

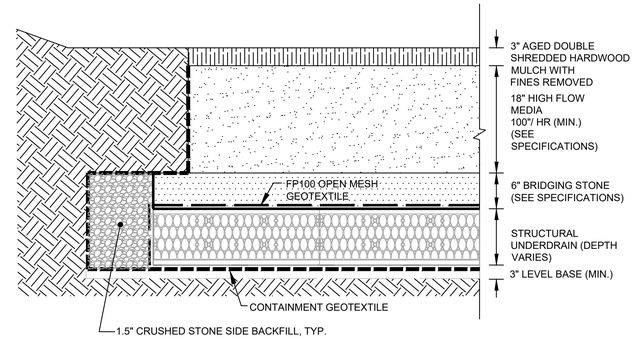
D FOCALPOINT DETAILED CROSS SECTION
N.T.S.

NOTES:
1. STORMSACK WEIGHT (EMPTY): 12 LB MAX
2. MATERIAL:
A) SHROUD: HIGH DENSITY POLYETHYLENE (TYPICAL WALL THICKNESS .125")
B) SUPPORT HUB: CRS, POWDER COATED
C) STORMSACK: WOVEN POLYPROPYLENE GEOTEXTILE (GEOTEX 117F)
D) HARDWARE: ALUMINUM POP-RIVETS
3. RECOMMENDED MINIMUM VAULT DEPTH: 24N BELOW CARTRIDGE
4. TYPICAL INSTALLATION: RAISE STORM GRATE, PUSH CATCH-IT SHROUD DOWN ON FRAME SUPPORT LEDGE UNTIL LOCKING-CLIPS CLICK IN-PLACE, LOWER STORM GRATE.
5. USE ONLY WITH FABCO REPLACEABLE STORMSACK.

STRUCTURE DIAMETER (INCHES)	DEBRIS CAPACITY (CF)	FILTERED FLOWRATE (CFS)	BYPASS FLOWRATE (CFS)	TOTAL SYSTEM FLOWRATE (CFS)
12	0.77	2.2	1.2	3.4
18	1.85	2.5	1.0	3.5
24	3.60	4.9	2.4	7.3
30	6.20	4.9	2.4	7.3



E ACF/HARCO DOMED OVERFLOW FILTER RISER
N.T.S.



FOCALPOINT HP PERFORMANCE SPECIFICATION:

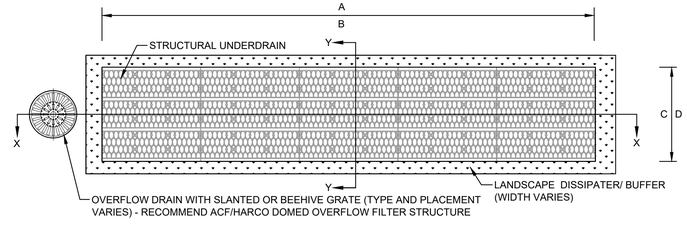
HIGH PERFORMANCE MEDIA

HIGH PERFORMANCE MEDIA MUST MEET A MINIMUM OF 100"PER HOUR INFILTRATION RATE.

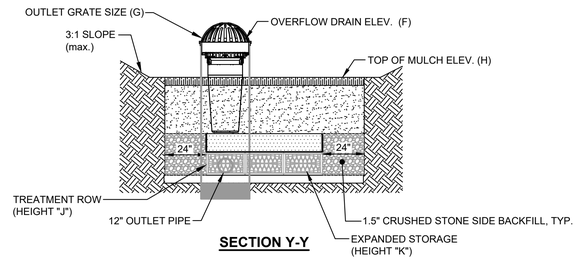
HIGH PERFORMANCE STRUCTURAL UNDERDRAIN

MUST HAVE A MINIMUM OF 19 SQUARE INCHES OF ORIFICE OPENING PER SQUARE FOOT.
MUST MEET H20 LOADING REQUIREMENTS.
MUST BE MODULAR IN NATURE AND ASSEMBLED ON SITE.
MUST HAVE MINIMUM 90% INTERIOR VOID SPACE.

G FOCALPOINT DETAILED CROSS SECTION
N.T.S.



PLAN VIEW



SECTION Y-Y

H FOCALPOINT CONSTRUCTION GUIDE
N.T.S.

FOCALPOINT & STRUCTURAL UNDERDRAIN KEY DIMENSIONAL DATA - SEE DETAIL H			
FOCALPOINT ID		FP1	FP2
A	R-TANK LENGTH	23.5'	VARIES
B	# UNDERDRAIN LONG	10	VARIES
C	R-TANK WIDTH	14.4'	VARIES
D	# UNDERDRAIN WIDE	10	VARIES
E	FILTER AREA	75 SF	75 SF
F	OVERFLOW ELEVATION	113.84	113.75
G	OUTLET GRATE SIZE	12"	12"
H	TOP OF MULCH	113.34	112.05
J	TREATMENT ROW HEIGHT	SINGLE	SINGLE
K	EXPANDED STORAGE HEIGHT	DOUBLE	SINGLE
WQV	WATER QUALITY VOLUME	1588 CF	682 CF

F FOCALPOINT KEY DIMENSIONAL DATA
N.T.S.

NOTE:
SEE SHEET C-7.2 FOR PIPE CONNECTION DETAILS.

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES & SHALL NOT BE USED FOR CONSTRUCTION.

STATE OF MAINE — STEPHEN R. BUSHEY — 01.18.22 — LICENSED PROFESSIONAL ENGINEER

STEPHEN R. BUSHEY, P.E.
LIC. #7429

Rev.	Date	Revision

Rev.	Date	Revision
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Design: SRB	Draft: CDD	Date: MAY 2021
Checked: SRB	Scale: AS NOTED	Job No.: 3564.03
File Name: 356403-WSHED.dwg		

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Drawing Name: FOCAL POINT FILTER DETAILS
Project: **Stevens Square at Baxter Woods – Phase 2 – 4**
583 Stevens Avenue, Portland, Maine
Client/Owner: **DC BAXTER WOODS IV LLC**
631 STEVENS AVE., SUITE 203, PORTLAND, ME 04103 PH. 207.772.7673

Drawing No. C-7.1

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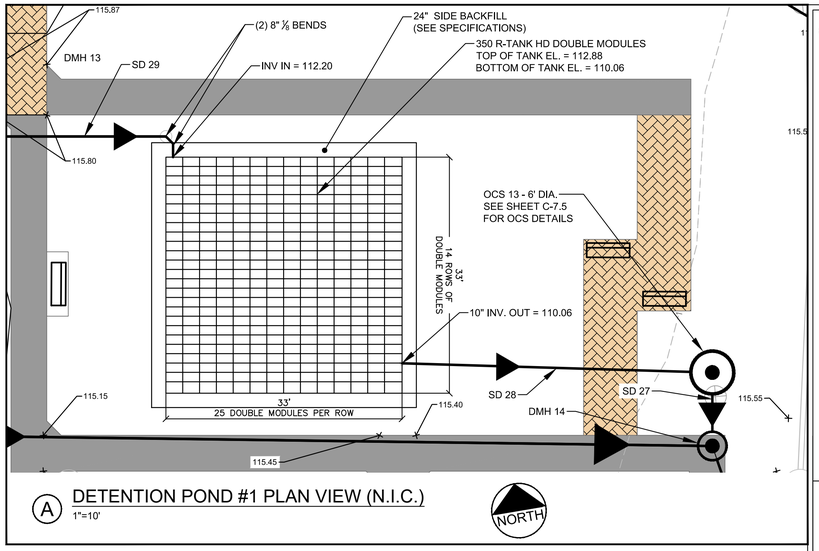
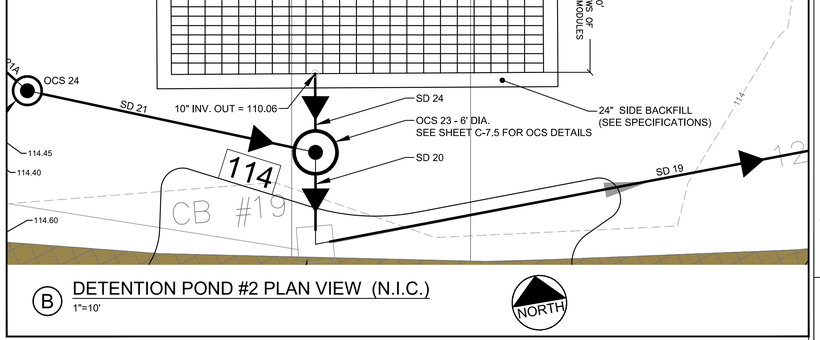


A DETENTION POND #1 PLAN VIEW (N.I.C.)
1"=10'

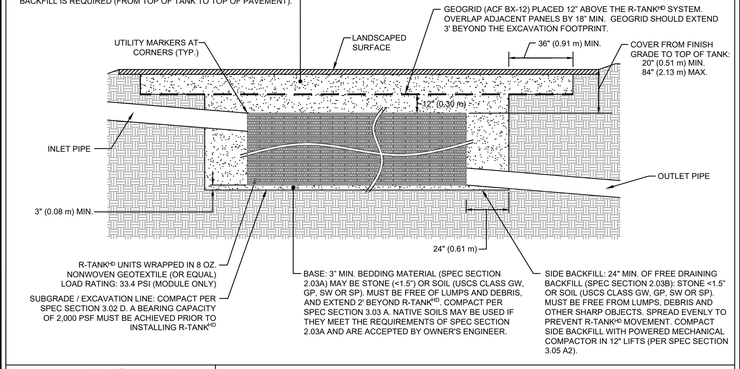


B DETENTION POND #2 PLAN VIEW (N.I.C.)
1"=10'

C FOCALPOINT PIPE CONNECTION DETAIL
N.T.S.

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 ACF ENVIRONMENTAL 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.

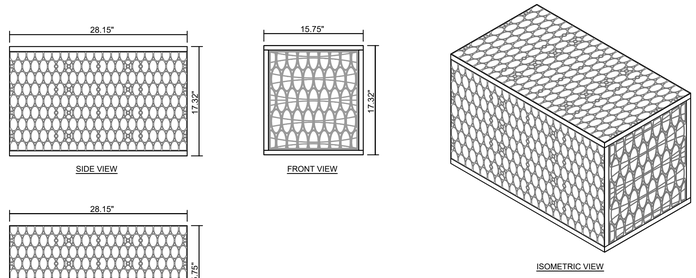


08/29/2018

ENVIRONMENTAL LET'S GET IT DONE

R-TANK^{HD} & HS-20 LOADS - SECTION VIEW

FOR ADDITIONAL INFORMATION PLEASE CONTACT: ACF ENVIRONMENTAL, 1-800-448-3636, www.acfenvironmental.com



MODULE DATA

GEOMETRY: LENGTH = 28.15 IN. (715 MM)
WIDTH = 15.75 IN. (400 MM)
HEIGHT = 17.32 IN. (440 MM)
TANK VOLUME = 4.44 CF
STORAGE VOLUME = 4.22 CF
VOID INTERNAL VOLUME: 95%
VOID SURFACE AREA: 90%

LOAD RATING: 33.4 PSI, (MODULE ONLY)
HS25, (WITH ACF COVER SYSTEM)

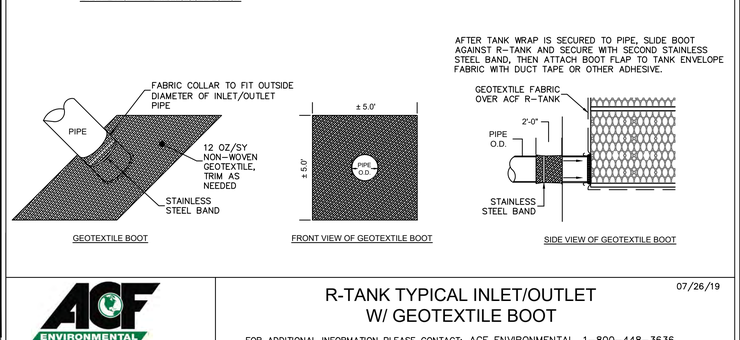
MATERIAL: 100% RECYCLED POLYPROPYLENE

SMALL PLATES PER SEGMENT/TOTAL: 5/5

ENVIRONMENTAL LET'S GET IT DONE

R-TANK^{HD} - SINGLE MODULE

FOR ADDITIONAL INFORMATION PLEASE CONTACT: ACF ENVIRONMENTAL, 1-800-448-3636, www.acfenvironmental.com 5/16

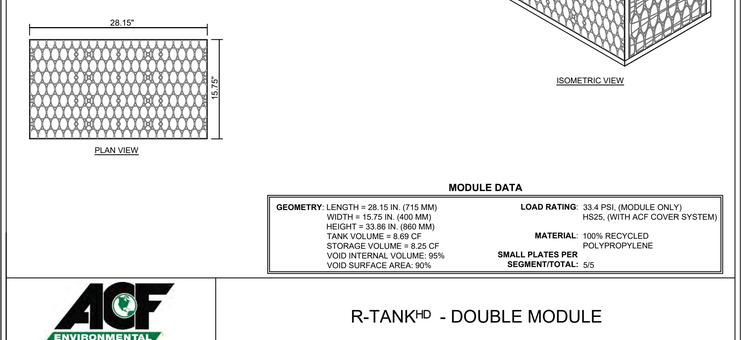


07/26/19

ENVIRONMENTAL LET'S GET IT DONE

R-TANK TYPICAL INLET/OUTLET W/ GEOTEXTILE BOOT

FOR ADDITIONAL INFORMATION PLEASE CONTACT: ACF ENVIRONMENTAL, 1-800-448-3636, www.acfenvironmental.com



MODULE DATA

GEOMETRY: LENGTH = 28.15 IN. (715 MM)
WIDTH = 15.75 IN. (400 MM)
HEIGHT = 33.86 IN. (860 MM)
TANK VOLUME = 8.69 CF
STORAGE VOLUME = 8.25 CF
VOID INTERNAL VOLUME: 95%
VOID SURFACE AREA: 90%

LOAD RATING: 33.4 PSI, (MODULE ONLY)
HS25, (WITH ACF COVER SYSTEM)

MATERIAL: 100% RECYCLED POLYPROPYLENE

SMALL PLATES PER SEGMENT/TOTAL: 5/5

ENVIRONMENTAL LET'S GET IT DONE

R-TANK^{HD} - DOUBLE MODULE

FOR ADDITIONAL INFORMATION PLEASE CONTACT: ACF ENVIRONMENTAL, 1-800-448-3636, www.acfenvironmental.com 5/16

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES & SHALL NOT BE USED FOR CONSTRUCTION.

STATE OF MAINE
STEPHEN R. BUSHEY
01.18.22
LICENSED PROFESSIONAL ENGINEER

STEPHEN R. BUSHEY, P.E.
LIC. #7429

Rev.	Date	Revision

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Design: SRB	Draft: CDD	Date: MAY 2021
Checked: SRB	Scale: AS NOTED	Job No.: 3564.03
File Name: 356403-WSHED.dwg		

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Drawing Name: R-TANK DETENTION POND DETAILS

Project: **Stevens Square at Baxter Woods – Phase 2 – 4**
583 Stevens Avenue, Portland, Maine

Client/Owner: **DC BAXTER WOODS IV LLC**
631 STEVENS AVE., SUITE 203, PORTLAND, ME 04103 PH. 207.772.7673

Drawing No. C-7.2

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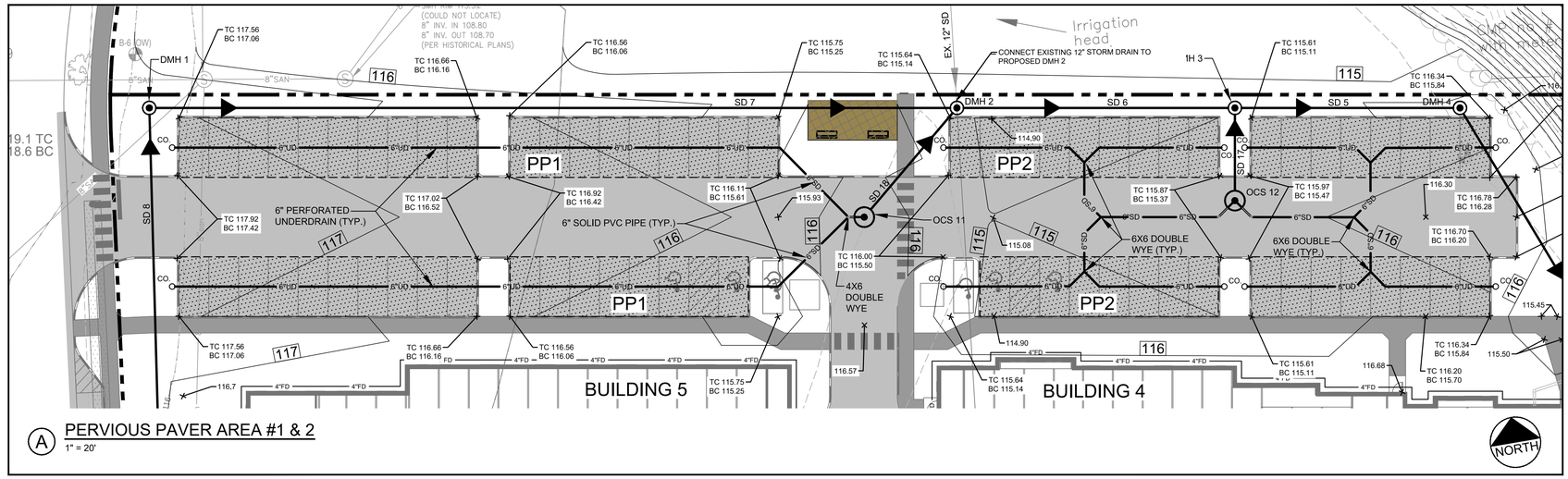
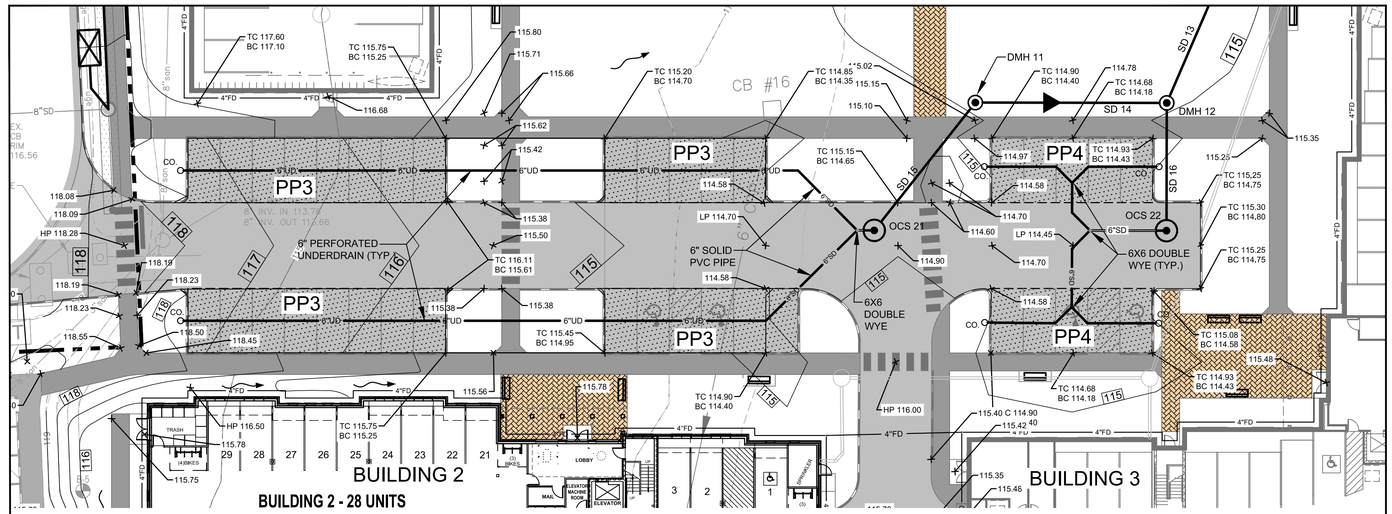
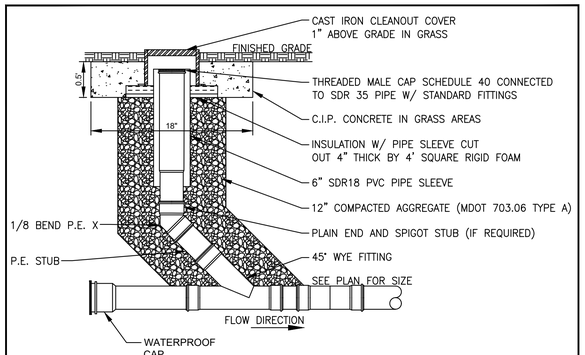


A PERVIOUS PAVER AREA #1 & 2
1" = 20'



B PERVIOUS PAVER AREA #3 & 4
1" = 20'



C CLEANOUT TYPICAL SECTION
N.T.S.

Table 1 MEDOT Specifications for Aggregate (MEDOT #703.01)

SIEVE SIZE	% PASSING BY WEIGHT
3"	100
#4	95–100
#8	80–100
#16	50–85
#30	25–60
#60	10–30
#100	2–10
#200	0–5 (8–10% IS PREFERRED)

Table 2 MEDOT Specifications for Underdrain Type C (MEDOT #703.22)

SIEVE SIZE	% PASSING BY WEIGHT
1"	100
¾"	90–100
⅜"	0–75
#4	0–25
#10	0–5

Table 3 MEDOT Specifications for Type A Base Gravel (MEDOT #703.06)

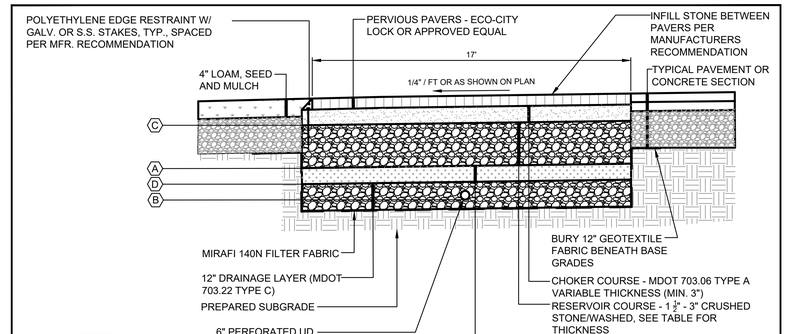
SIEVE SIZE	% PASSING BY WEIGHT
2"	45–70
¼"	30–55
#40	0–20
#200	0–6

CONSTRUCTION OVERSIGHT

INSPECTION BY A PROFESSIONAL ENGINEER SHALL CONSIST OF WEEKLY VISITS TO THE SITE TO INSPECT THE CONSTRUCTION AND STABILIZATION OF THE PROPOSED PERVIOUS PAVERS AND ITS FILTER COURSE MATERIAL TO BE BUILT ON SITE. INSPECTIONS SHALL CONSIST OF AN APPROPRIATE NUMBER OF VISITS TO THE SITE TO INSPECT THE FILTER BED MATERIAL PLACEMENT AND COMPACTION, STORAGE COURSE, PAVEMENT ALTERNATIVE PLACEMENT, FABRIC LAYMENT, AND STORMWATER OVERFLOW BYPASS CONSTRUCTION FROM INITIAL GROUND DISTURBANCE TO FINAL PAVEMENT COMPACTION.

LEGEND

- PERVIOUS PAVERS – ECO-CITYLOCK
- STANDARD-DUTY BITUMINOUS PAVEMENT
- ENTRANCE PLAZA – HOLLANDSTONE BY GAGNE & SON PRECAST PEDESTRIAN PAVERS
- VEHICULAR PAVERS



NOTES:

ALL MATERIALS SHALL CONFORM TO MDOT SPECIFICATIONS, LATEST REVISION.
COMPACTION OF ALL MATERIALS TO BE IN ACCORDANCE WITH THE SPECIFICATIONS.

POROUS	PP1	PP2	PP3	PP4
A - TOP OF FILTER COURSE	112.9	112.77	111.8	111.8
B - INVERT OF UD	111.23	111.1	110.13	110.13
C - TOP OF RESERVOIR	114.67	113.77	113.82	113.60
D - BOTTOM OF FILTER	112.4	112.37	110.8	110.8

E TYPICAL PERVIOUS PAVER DETAIL
N.T.S.

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES & SHALL NOT BE USED FOR CONSTRUCTION.

STATE OF MAINE — STEPHEN R. BUSHEY — 01.18.22 — LICENSED PROFESSIONAL ENGINEER

STEPHEN R. BUSHEY, P.E.
LIC. #7429

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Design: SRB	Draft: CDD	Date: MAY 2021
Checked: SRB	Scale: AS NOTED	Job No.: 3564.03
File Name: 356403-WSHED.dwg		

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Drawing Name: PERVIOUS PAVER DETAILS

Project: **Stevens Square at Baxter Woods – Phase 2 – 4**
583 Stevens Avenue, Portland, Maine

Client/Owner: **DC BAXTER WOODS IV LLC**
631 STEVENS AVE., SUITE 203, PORTLAND, ME 04103 PH. 207.772.7673

Drawing No. C-7.3

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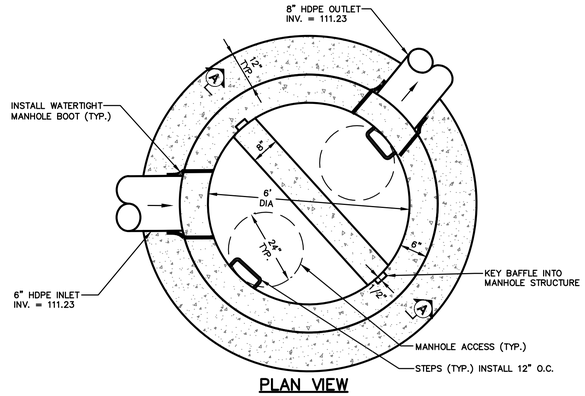
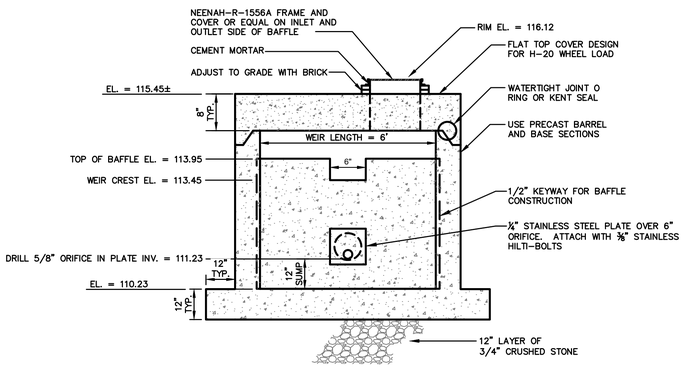


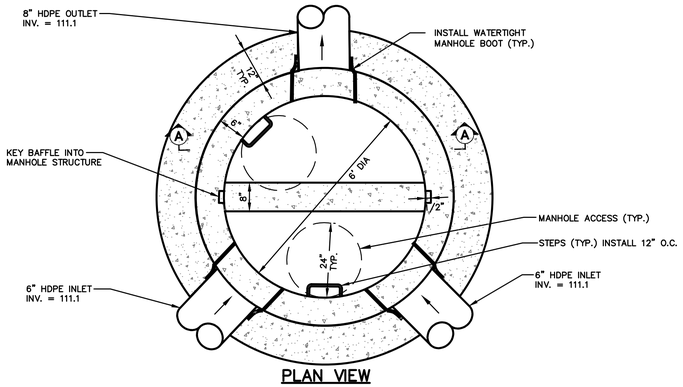
PLAN VIEW



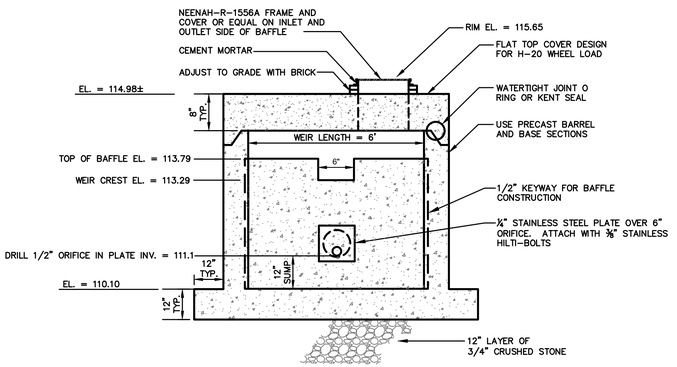
SECTION A-A

A OUTLET CONTROL STRUCTURE 11 (OCS 11) DETAILS

N.T.S.



PLAN VIEW



SECTION A-A

B OUTLET CONTROL STRUCTURE 12 (OCS 12) DETAILS

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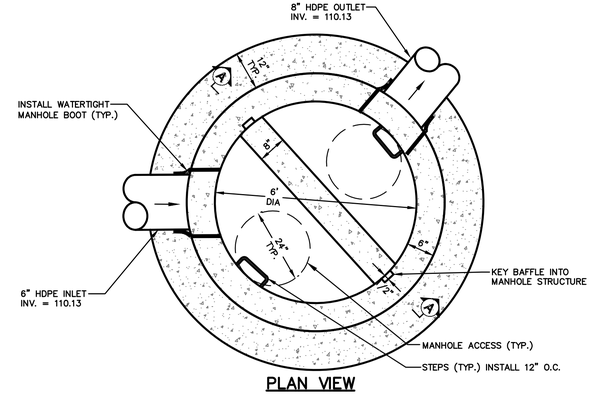
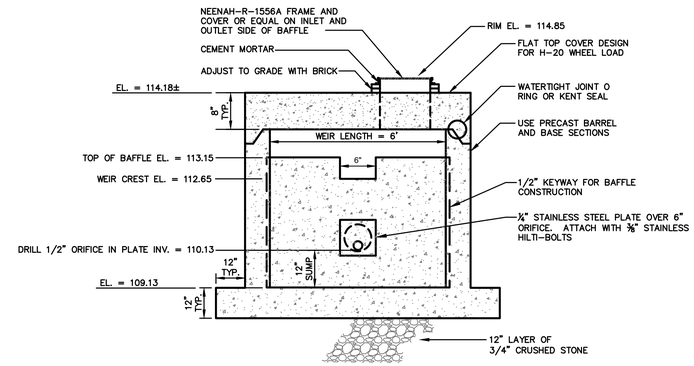


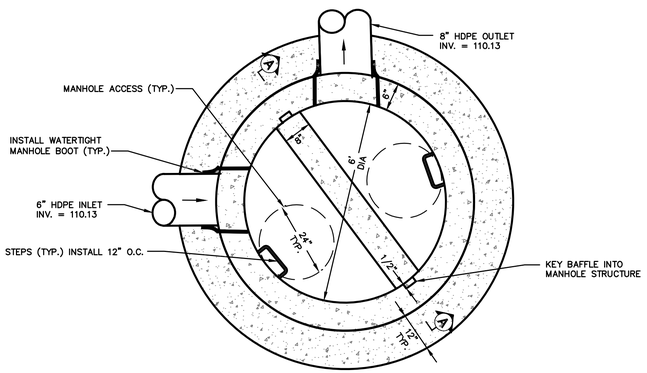
PLAN VIEW



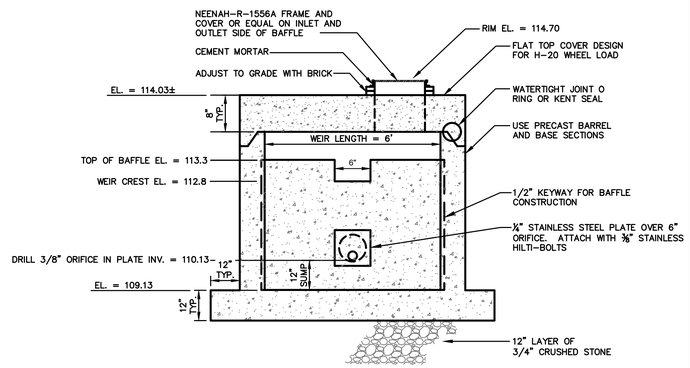
SECTION A-A

C OUTLET CONTROL STRUCTURE 21 (OCS 21) DETAILS

N.T.S.



PLAN VIEW



SECTION A-A

D OUTLET CONTROL STRUCTURE 22 (OCS 22) DETAILS

N.T.S.

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES & SHALL NOT BE USED FOR CONSTRUCTION.

STATE OF MAINE
STEPHEN R. BUSHEY
01.18.22
LICENSED PROFESSIONAL ENGINEER

STEPHEN R. BUSHEY, P.E.
LIC. #7429

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Drawing Name: OUTLET CONTROL STRUCTURE DETAILS

Project: **Stevens Square at Baxter Woods – Phase 2 – 4**
583 Stevens Avenue, Portland, Maine

Client/Owner: **DC BAXTER WOODS IV LLC**
631 STEVENS AVE., SUITE 203, PORTLAND, ME 04103 PH. 207.772.7673

Drawing No. C-7.4

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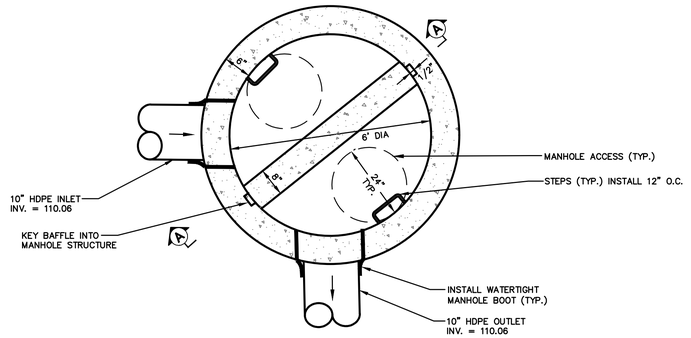
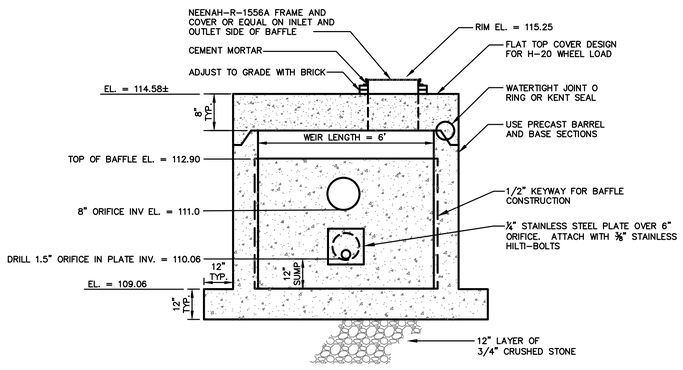


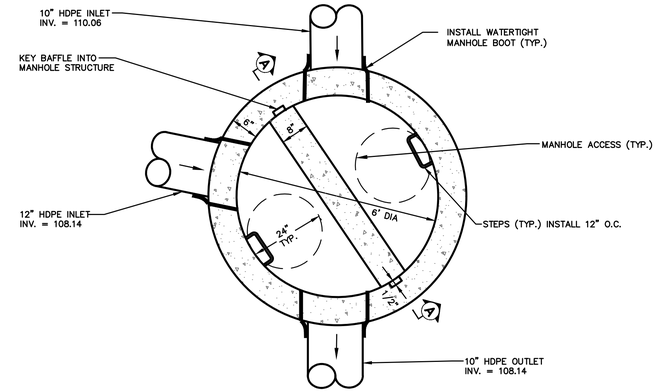
PLAN VIEW



SECTION A-A

A OUTLET CONTROL STRUCTURE 13 (OCS 13) DETAILS

N.T.S.



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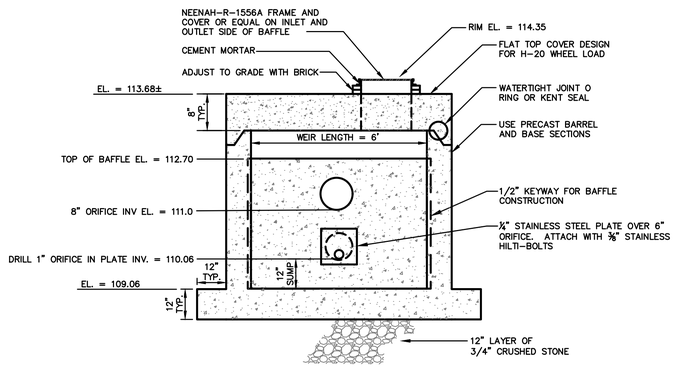
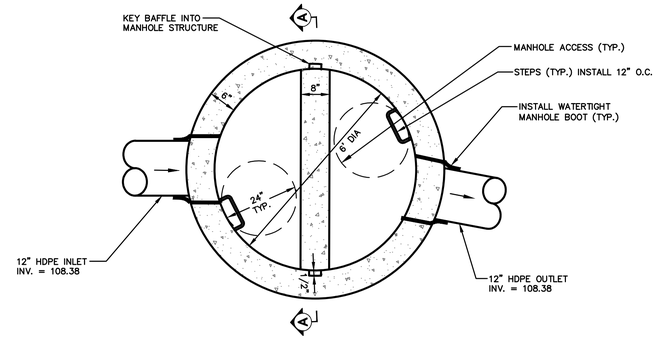


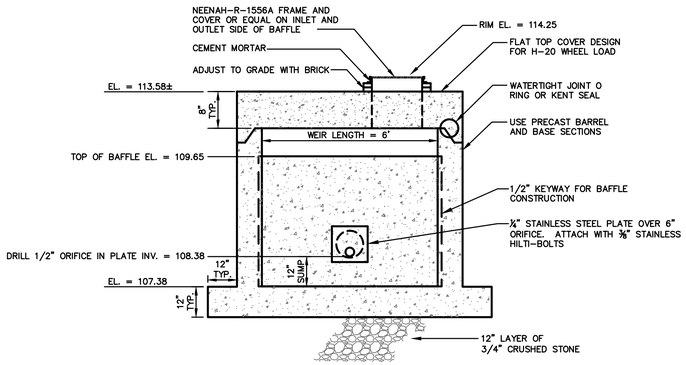
SECTION A-A

B OUTLET CONTROL STRUCTURE 23 (OCS 23) DETAILS

N.T.S.



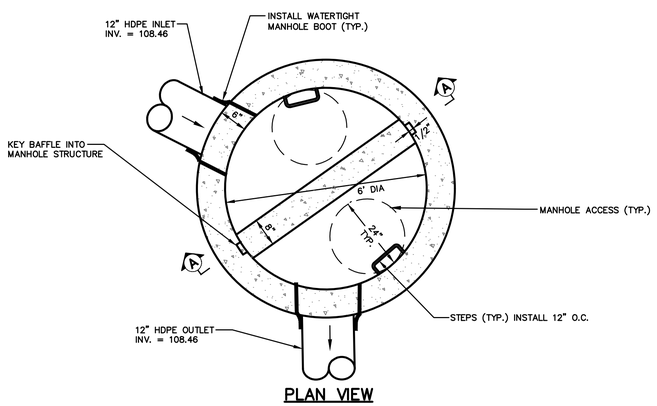
PLAN VIEW



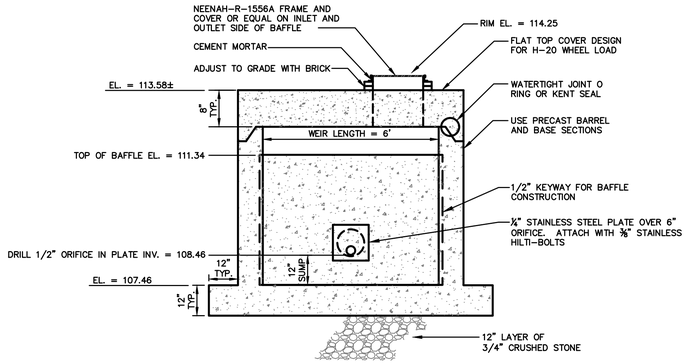
SECTION A-A

C OUTLET CONTROL STRUCTURE 24 (OCS 24) DETAILS

N.T.S.



PLAN VIEW



SECTION A-A

D OUTLET CONTROL STRUCTURE 14 (OCS 14) DETAILS

N.T.S.

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES & SHALL NOT BE USED FOR CONSTRUCTION.

STATE OF MAINE
STEPHEN R. BUSHEY
01.18.22
LICENSED PROFESSIONAL ENGINEER

STEPHEN R. BUSHEY, P.E.
LIC. #7429

Rev.	Date	Revision

Rev.	Date	Revision
3	2022.01.18	ISSUED FOR FINAL PERMIT AND PUBLIC HEARING
2	2021.12.07	RESUBMITTED PER LOR #1 FOR FINAL REVIEW
1	2021.05.12	SUBMITTED TO CITY FOR REVIEW

Design: SRB	Draft: CDD	Date: MAY 2021
Checked: SRB	Scale: AS NOTED	Job No.: 3564.03
File Name: 356403-WSHED.dwg		

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Drawing Name: OUTLET CONTROL STRUCTURE DETAILS

Project: **Stevens Square at Baxter Woods – Phase 2 – 4**
583 Stevens Avenue, Portland, Maine

Client/Owner: **DC BAXTER WOODS IV LLC**
631 STEVENS AVE., SUITE 203, PORTLAND, ME 04103 PH. 207.772.7673

Drawing No. C-7.5

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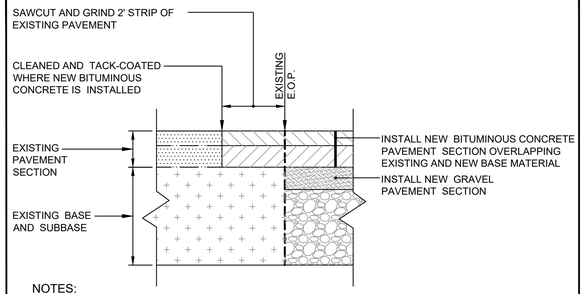
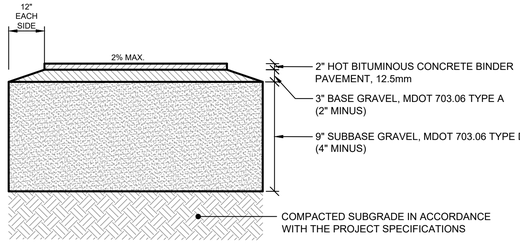


NOTES:

1. APPLY TACK COAT BETWEEN BINDER AND SURFACE COURSES.
2. ALL MATERIALS SHALL CONFORM TO MDOT SPECIFICATIONS, LATEST REVISION.
3. COMPACTION OF ALL MATERIALS TO BE IN ACCORDANCE WITH THE SPECIFICATIONS.

TYPICAL PAVEMENT SECTION NEW PAVEMENT ADJACENT TO EXISTING PAVEMENT

(A) N.T.S.

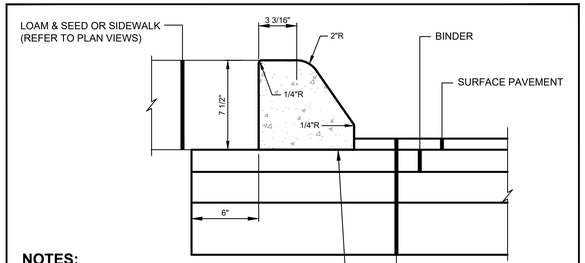


NOTES:

1. ALL MATERIALS SHALL CONFORM TO MDOT SPECIFICATIONS, LATEST REVISION.
2. COMPACTION OF ALL MATERIALS TO BE IN ACCORDANCE WITH THE SPECIFICATIONS.
3. 2% MAXIMUM CROSS SLOPE ON ALL SIDEWALKS.

BITUMINOUS CONCRETE SIDEWALK SECTION FOR SITE INSTALLATION

(D) N.T.S.



NOTES:

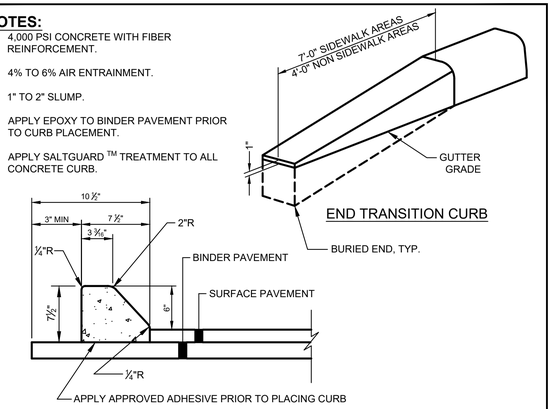
1. 4,000 PSI CONCRETE WITH FIBER REINFORCEMENT AND SAWCUT JOINTS AT NO MORE THAN 30' SPACING
2. 4% TO 6% AIR ENTRAINMENT.
3. 1" TO 2" SLUMP.
4. APPLY EPOXY TO BINDER PAVEMENT PRIOR TO CURB PLACEMENT.
5. APPLY SALTGUARD™ CHLORIDE INHIBITOR TO ALL NEW CONCRETE CURBING UPON COMPLETION OF CURING PERIOD.
6. ALL TIPDOWNS SHALL HAVE REINFORCEMENT TO AVOID CRACKING. TIPDOWNS SHALL HAVE NO MORE THAN 1/2" REVEAL AT THE END.

DIRECT TO BINDER SLIPFORM CONCRETE CURB

(G) N.T.S.

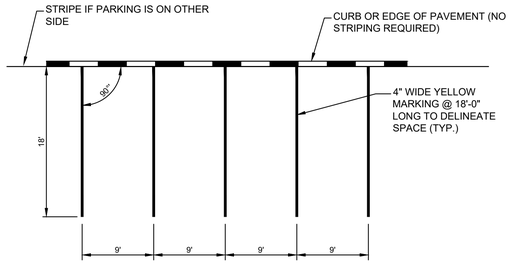
NOTES:

1. 4,000 PSI CONCRETE WITH FIBER REINFORCEMENT.
2. 4% TO 6% AIR ENTRAINMENT.
3. 1" TO 2" SLUMP.
4. APPLY EPOXY TO BINDER PAVEMENT PRIOR TO CURB PLACEMENT.
5. APPLY SALTGUARD ™ TREATMENT TO ALL CONCRETE CURB.



EXTRUDED SLIPFORM SLOPED CONCRETE CURB DETAIL

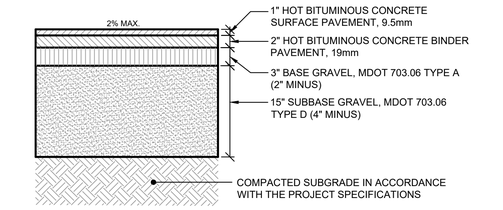
(J) N.T.S.



NOTE:
WHEN PARKING IS ON A CURVE THE NARROWEST PORTION OF THE PARKING STALL SHALL MEET THE WIDTH SHOWN.

STANDARD PARKING STALL STRIPING

(B) N.T.S.

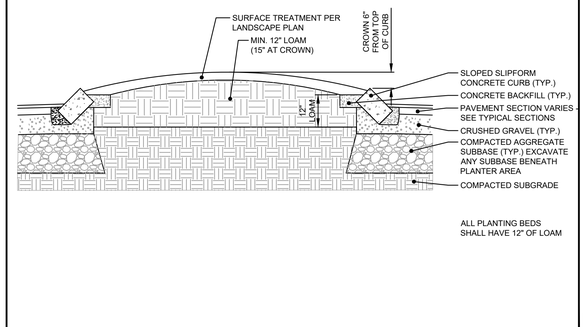


NOTES:

1. APPLY TACK COAT BETWEEN BINDER AND SURFACE COURSES.
2. ALL MATERIALS SHALL CONFORM TO MDOT SPECIFICATIONS, LATEST REVISION.
3. COMPACTION OF ALL MATERIALS TO BE IN ACCORDANCE WITH THE SPECIFICATIONS.
4. 2% MAXIMUM CROSS SLOPE ON ALL SIDEWALKS AND DRIVEWAYS.

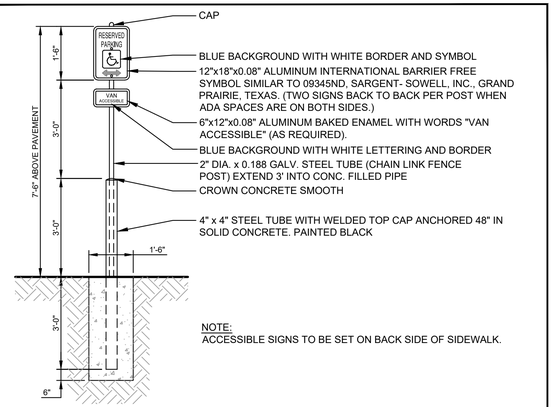
STANDARD DUTY BITUMINOUS CONCRETE PAVEMENT SECTION

(E) N.T.S.



TYPICAL ISLAND PLANTING BEDS WITHOUT SIDEWALK

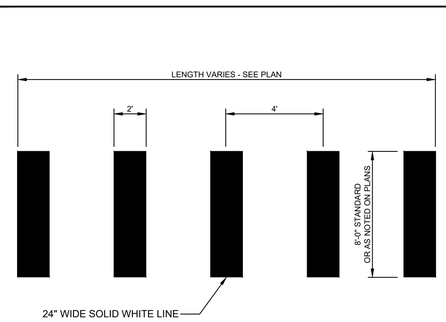
(H) N.T.S.



NOTE:
ACCESSIBLE SIGNS TO BE SET ON BACK SIDE OF SIDEWALK.

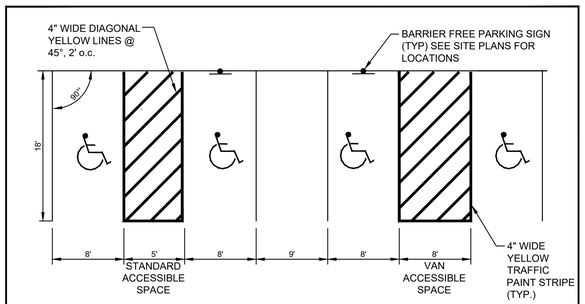
BARRIER FREE PARKING SIGN

(K) N.T.S.



CROSSWALK STRIPING DETAIL

(C) N.T.S.

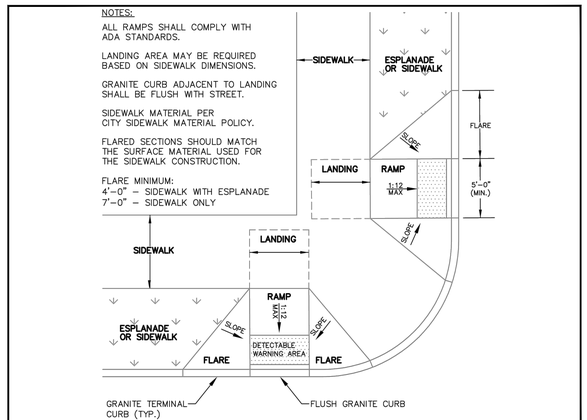


NOTES:

1. ONE IN EIGHT BARRIER FREE SPACES (MIN.) MUST BE VAN ACCESSIBLE. THIS HAS BEEN PROVIDED FOR ON THE SITE LAYOUT PLAN.
2. BARRIER FREE GRAPHIC SYMBOL (PAINTED WHITE) TO BE CENTERED IN PARKING STALL. SYMBOL TO BE PAINTED ON BLUE NON-SKID BACKGROUND.

TYPICAL BARRIER FREE PARKING STALL DIMENSIONS

(F) N.T.S.



PREFERRED SIDEWALK RAMP AT INTERSECTION

(I) N.T.S.

AS OBTAINED FROM THE CITY OF PORTLAND "TECHNICAL MANUAL"

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STATE OF MAINE — STEPHEN R. BUSHEY — 01.18.22 — LICENSED PROFESSIONAL ENGINEER

STEPHEN R. BUSHEY, P.E.
LIC. #7429

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Drawing Name: SITE DETAILS

Project: **Stevens Square at Baxter Woods – Phase 2 – 4**
583 Stevens Avenue, Portland, Maine

Client/Owner: **DC BAXTER WOODS IV LLC**
631 STEVENS AVE., SUITE 203, PORTLAND, ME 04103 PH. 207.772.7673

Drawing No. C-8.0

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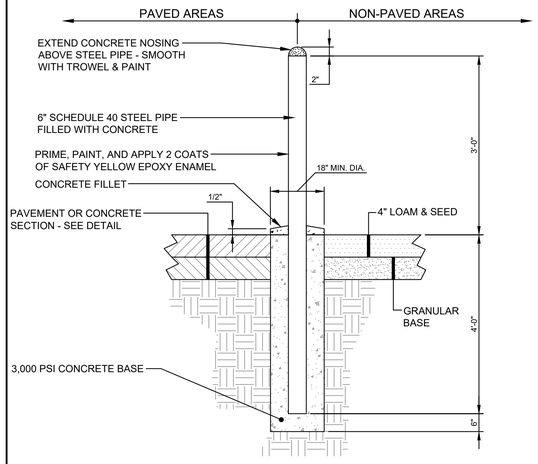
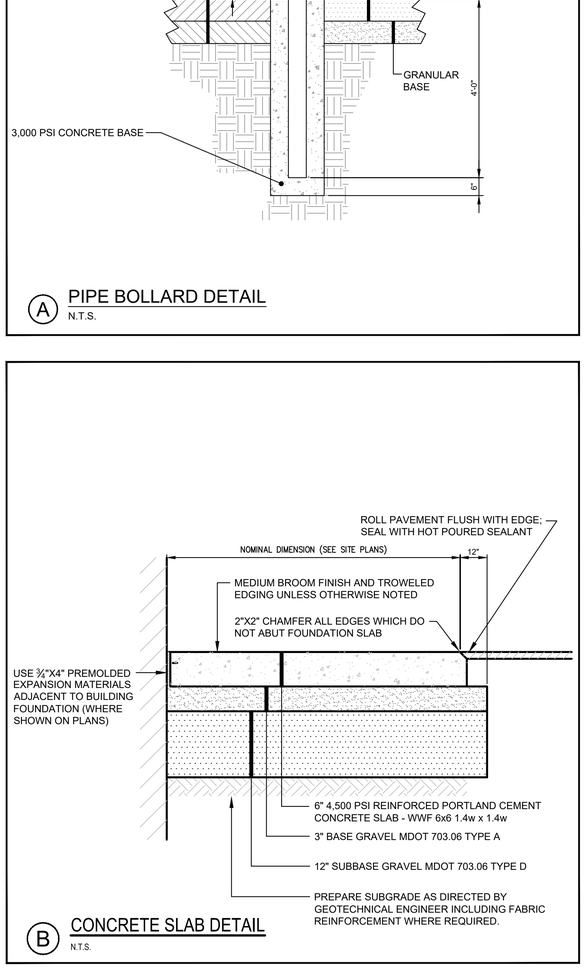
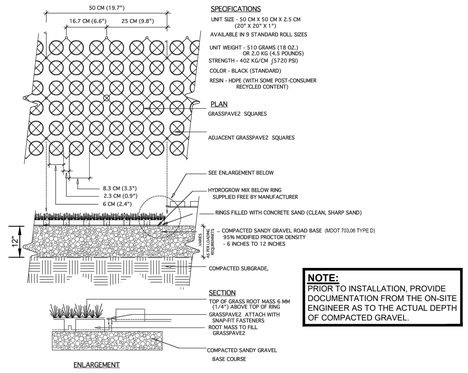


A PIPE BOLLARD DETAIL
N.T.S.



B CONCRETE SLAB DETAIL
N.T.S.



NOTE: GRASS-PLANT TYPES SHALL BE SPECIFIED BY A LANDSCAPE ARCHITECT OR LANDSCAPE DESIGNER.

NOTE:
PRIOR TO INSTALLATION, PROVIDE DOCUMENTATION FROM THE ON-SITE ENGINEER AS TO THE ACTUAL DEPTH OF COMPACTED GRAVEL.

C GRASSPAVE2 DETAIL OR APPROVED EQUAL
N.T.S.

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES & SHALL NOT BE USED FOR CONSTRUCTION.

STATE OF MAINE
STEPHEN R. BUSHEY
01.18.22
LICENSED PROFESSIONAL ENGINEER

STEPHEN R. BUSHEY, P.E.
LIC. #7429

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Project: **Stevens Square at Baxter Woods – Phase 2 – 4**
583 Stevens Avenue, Portland, Maine

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Drawing No. C-8.1

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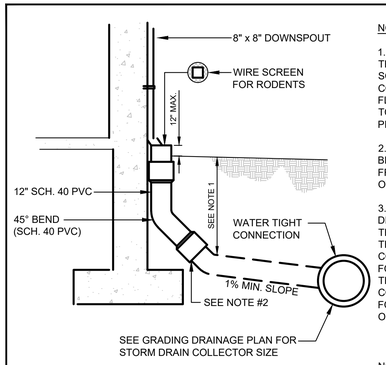


NOTES:

1. FOR ALL DEPTHS OF COVER LESS THAN TWO (2) FEET, PIPE MUST BE SCHEDULE 40 PVC. FOR DEPTHS OF COVER GREATER THAN TWO (2) FEET, FLEXIBLE PIPE MAY BE USED. REFER TO SPECIFICATIONS FOR ALLOWABLE PIPE TYPES.

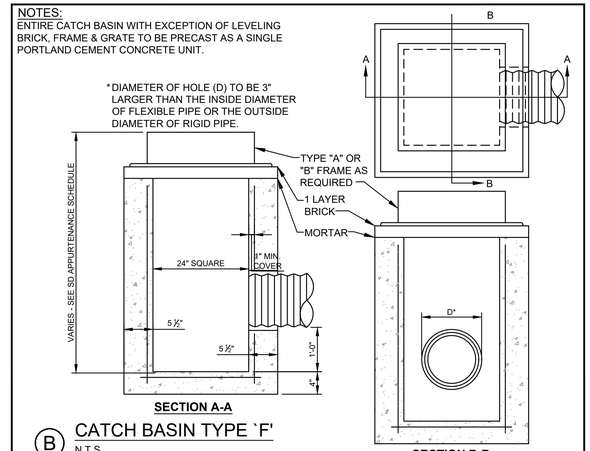
2. A WATERTIGHT CONNECTION SHALL BE MAINTAINED WITH ANY TRANSITION FROM SCHEDULE 40 PVC PIPE TO ANY OTHER PIPE TYPE.

3. THE DOWNSPOUT COLLECTOR DRAIN SHALL BE INSTALLED BEFORE THE DOWNSPOUTS ARE INSTALLED ON THE BUILDING. SITE WORK CONTRACTOR SHALL BE RESPONSIBLE FOR ALL WORK TO AND INCLUDING THE RODENT SCREEN. BUILDING CONTRACTOR SHALL BE RESPONSIBLE FOR THE CONNECTION AT THE POINT OF THE RODENT SCREEN.

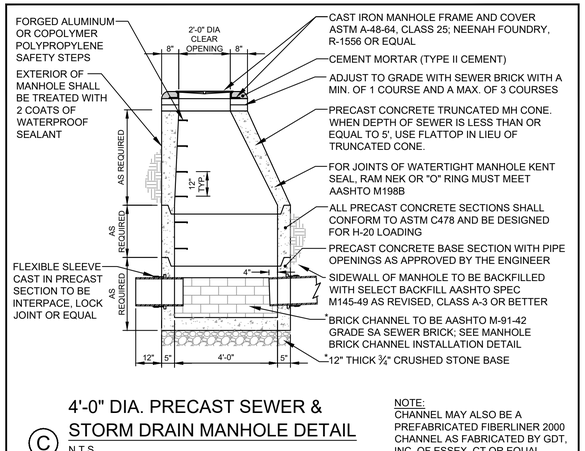
NOTE:
ARCHITECT MAY ELECT TO USE INTERNAL ROOF DRAINS - REFER TO ARCHITECTURAL PLANS

(A) ROOF DRAIN DETAIL
N.T.S.

NOTES:
ENTIRE CATCH BASIN WITH EXCEPTION OF LEVELING BRICK, FRAME & GRATE TO BE PRECAST AS A SINGLE PORTLAND CEMENT CONCRETE UNIT.

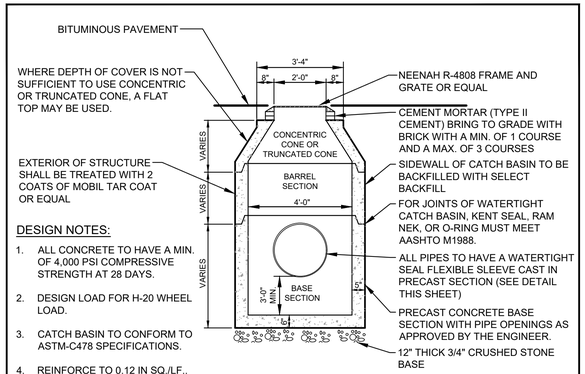


(B) CATCH BASIN TYPE `F'
N.T.S.



(C) 4'-0" DIA. PRECAST SEWER & STORM DRAIN MANHOLE DETAIL
N.T.S.

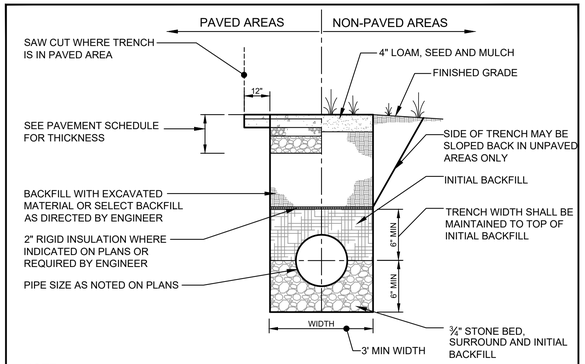
NOTE:
CHANNEL MAY ALSO BE A PREFABRICATED FIBERLINER 2000 CHANNEL AS FABRICATED BY GDT, INC. OF ESSEX, CT OR EQUAL



DESIGN NOTES:

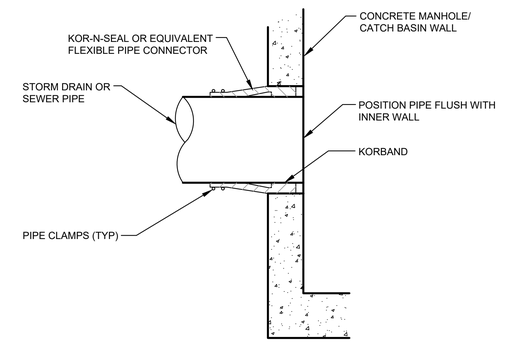
1. ALL CONCRETE TO HAVE A MIN. OF 4,000 PSI COMPRESSIVE STRENGTH AT 28 DAYS.
2. DESIGN LOAD FOR H-20 WHEEL LOAD.
3. CATCH BASIN TO CONFORM TO ASTM-C478 SPECIFICATIONS.
4. REINFORCE TO 0.12 IN SQ./LF..

(D) 4'-0" PRECAST CATCH BASIN DETAIL
N.T.S.



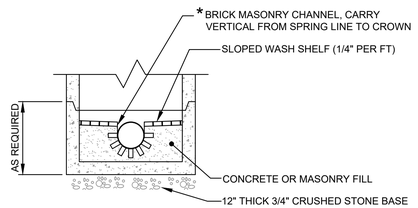
NOTE:
BRACING AND SHEETING OR OTHER TRENCH PROTECTION TO BE PROVIDED TO MEET APPLICABLE STATE AND O.S.H.A. SAFETY STANDARDS. ALL SUCH TRENCH PROTECTION TO BE THE RESPONSIBILITY OF THE CONTRACTOR.

(E) TYPICAL SEWER AND STORM DRAIN TRENCH SECTION
N.T.S.



(F) PIPE CONNECTION TO PRECAST CONCRETE SANITARY SEWER AND STORM DRAINAGE STRUCTURES
N.T.S.

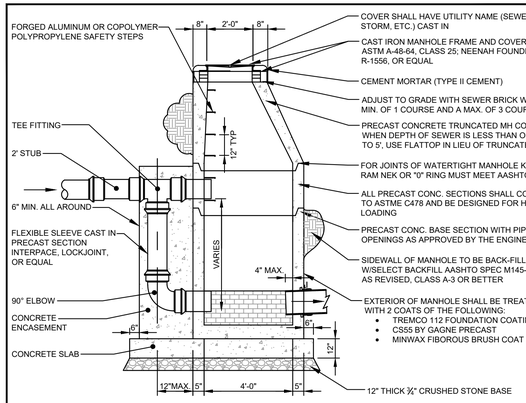
*NOTE:
CHANNEL MAY ALSO BE A PREFABRICATED FIBERLINER 2000 CHANNEL AS FABRICATED BY GDT, INC. OF ESSEX, CT OR EQUAL



NOTES:

1. BRICK CHANNEL TO BE AASHTO M-91-42 GRADE SA SEWER BRICK.*
2. MANHOLE TEST TO BE ACCOMPLISHED AFTER CHANNEL INSTALLATION IS COMPLETE.
3. WHERE THE ALIGNMENT CHANGES OR SIDE FLOW ENTERS THE MANHOLE, CONSTRUCT CHANNEL WITH A SMOOTH RADIAL CHANNEL TO ACCOMPLISH ALL JUNCTIONAL CHANGE OF ALIGNMENT WITHIN MANHOLE.

(G) MANHOLE BRICK CHANNEL INSTALLATION DETAIL
N.T.S.



(H) 4'-0" DIA. DROP MANHOLE
N.T.S.

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES & SHALL NOT BE USED FOR CONSTRUCTION.

STATE OF MAINE
STEPHEN R. BUSHEY
01.18.22
LICENSED PROFESSIONAL ENGINEER

STEPHEN R. BUSHEY, P.E.
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Drawing Name: STORM DRAIN & UTILITY DETAILS

Project: **Stevens Square at Baxter Woods – Phase 2 – 4**
583 Stevens Avenue, Portland, Maine

Client/Owner: **DC BAXTER WOODS IV LLC**
631 STEVENS AVE., SUITE 203, PORTLAND, ME 04103 PH. 207.772.7673

Drawing No. C-8.2

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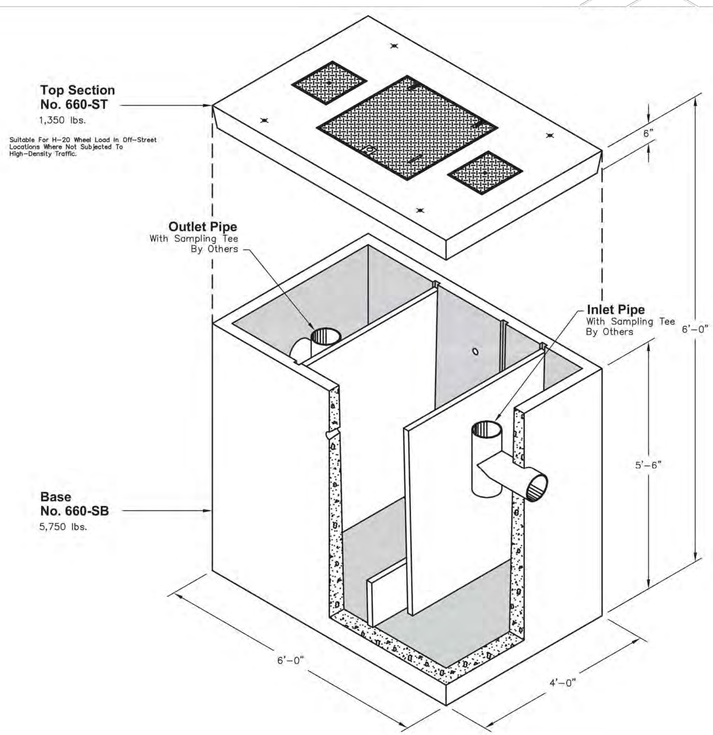
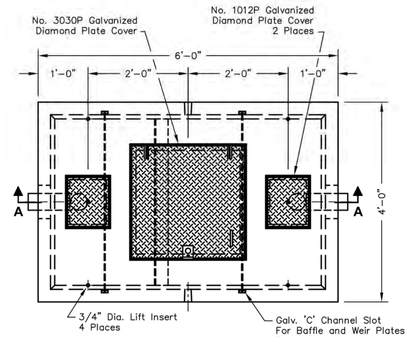
660-SA OIL WATER SEPARATOR

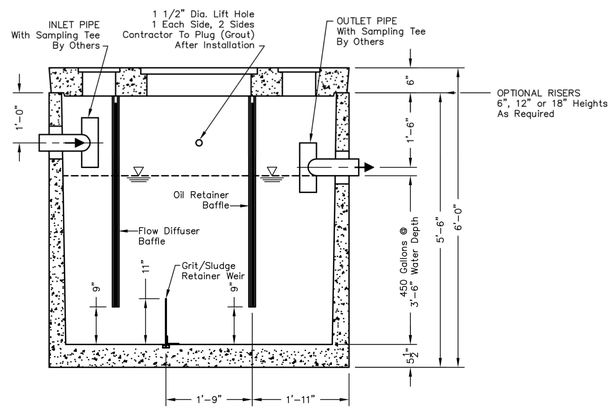
450 Gallon Capacity

660-SA





PLAN VIEW



SECTION AA

STRUCTURAL NOTES:
1. Concrete: 28 Day Compressive Strength f'c= 7000 psi
2. Rebar: ASTM A-615 Grade 60
3. Mesh: ASTM A-185 Grade 65
4. Design: ACI-318-05 Building Code
   ASTM C-890 "Minimum Structural Design Loading For Underground Precast Concrete Water and Wastewater Structures"
5. Loads: HS-20 Truck Wheel w/ 30% Impact Per AASHTO

GENERAL NOTES:
1. All Baffles and Weirs To Be Steel
2. Contractor to:
   Supply and Install All Piping & Sampling Tees
   Grout In All Pipes
   Fill With Clean Water Prior To "Start-Up" Of System
   Verify All Blockout Sizes and Locations

FOR CUSTOM APPLICATIONS
THE FOLLOWING INFORMATION IS NEEDED:
Top Of Separator Elevation:
Inlet Pipe Size:
Inlet Pipe Elevation:
Outlet Pipe Size:
Outlet Pipe Elevation:

OIL/WATER SEPARATOR
BY OLD CASTLE PRECAST DETAIL
(A) N.T.S.

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Drawing Name: STORM DRAIN & UTILITY DETAILS

Project: **Stevens Square at Baxter Woods – Phase 2 – 4**
583 Stevens Avenue, Portland, Maine

Client/Owner: **DC BAXTER WOODS IV LLC**
631 STEVENS AVE., SUITE 203, PORTLAND, ME 04103 PH. 207.772.7673

Drawing No. C-8.3

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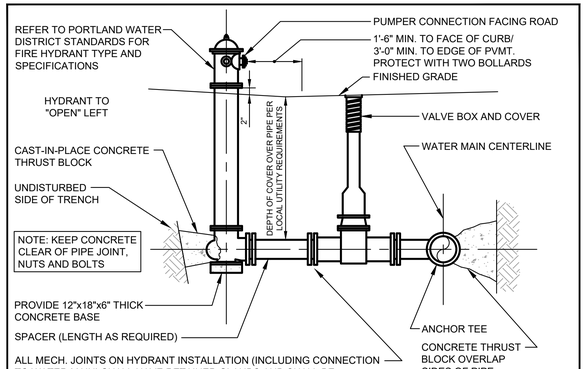


(A) FIRE HYDRANT INSTALLATION DETAIL
N.T.S.

1. INSTALL POLY BARRIER BETWEEN PIPE AND ALL THRUST BLOCKS.

2. ANY MODIFICATION TO THRUST BLOCK SIZING OR PIPE RESTRAINT REVISIONS SHALL BE APPROVED IN WRITING BY THE ENGINEER PRIOR TO IMPLEMENTATION IN THE FIELD.

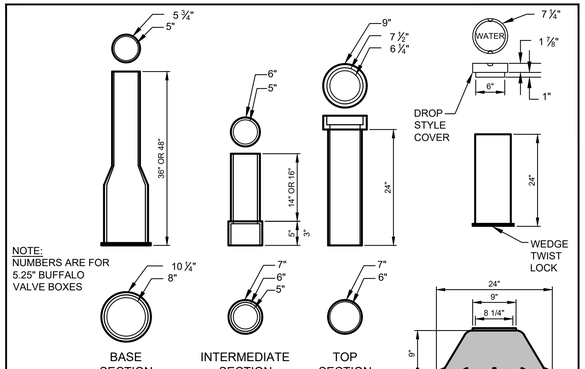
3. ANY WORK RELATING TO WATER PIPING OR DETAILS SHALL BE IN ACCORDANCE WITH THE PORTLAND WATER DISTRICT SPECIFICATIONS.

4. ALL RESTRAINED JOINTS MUST HAVE GRIPRING.™

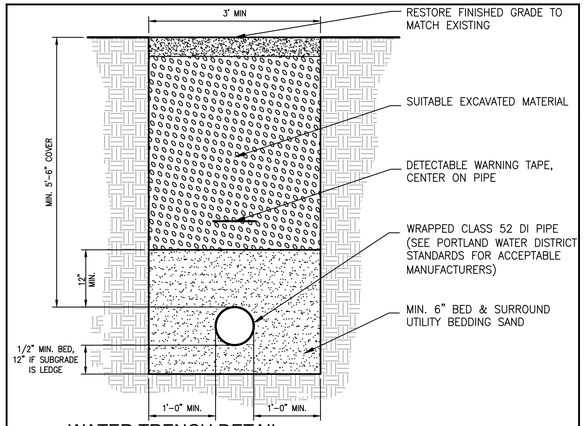
BEARING SURFACE REQUIRED IN SQUARE FEET

PIPE SIZE	1/32 BEND	1/16 BEND	1/8 BEND	1/4 BEND	TEES/CAPS
6"/8"	5.0	5.0	5.0	6.5	5.0
12"	11.5	11.5	11.5	20.0	22.0

(B) THRUST BLOCK NOTES
N.T.S.



(C) TYPICAL VALVE BOXES
N.T.S.



(D) WATER TRENCH DETAIL
N.T.S.

PLAN

NOTE:
KEEP CONCRETE CLEAR OF PIPE JOINT, NUTS AND BOLTS

SECTION

THRUST/RETAINER GLAND SCHEDULE		
¼ BEND	(90°)	USE POURED-IN-PLACE THRUST BLOCK WITH GRIPRING™ MECHANICAL JOINT RESTRAINT
⅛ BEND	(45°)	THRUST BLOCK w/ GRIPRING™
1/16 BEND	(22 ½°)	THRUST BLOCK w/ GRIPRING™
1/32 BEND	(11 ¼°)	THRUST BLOCK w/ GRIPRING™

THE ABOVE SCHEDULE IS SUBJECT TO THE APPROVAL OF THE ON-SITE INSPECTOR DUE TO SOILS AND WORKING PRESSURES IN THE AREA.

NOTES:

1. THE PORTLAND WATER DISTRICT MAY HAVE INSPECTION FEES AND REQUIRE OBSERVATION OF ALL PIPING INSTALLATION BEFORE BURIAL. REFER TO SPECIFICATIONS.
2. FOR WATER MAIN LAYOUT SEE SHEET C-5.0.
3. FOR WATER MAIN TRENCH SEE DETAILS ON THIS SHEET.
4. REFER TO PORTLAND WATER DISTRICT SPECIFICATIONS FOR TESTING AND CHLORINATION REQUIREMENTS.
5. ALL HYDRANTS AND VALVES TO BE EPOXY COATED, NUTS AND BOLTS TO BE STAINLESS STEEL.
6. SERVICE RODS FOR DOMESTIC SERVICE OR AIR VALVES TO BE STAINLESS STEEL.

(E) TYPICAL THRUST BLOCK PLACEMENT BENDS
N.T.S.

PLAN

NOTE:
KEEP CONCRETE CLEAR OF PIPE JOINT, NUTS AND BOLTS

SECTION

(F) TYPICAL THRUST BLOCK PLACEMENT ON TEES
N.T.S.

(G) STANDARD TEE BLOCKING DETAIL
N.T.S.

TORQUE SCHEDULE			
PIPE SIZE IN.	BOLT SIZE IN.	RANGE OF TORQUE FT-LB.	LENGTH OF WRENCH IN *
2 - 3	5/8	45 - 60	8
4 - 24	3/4	75 - 90	10
30 - 36	1	85 - 100	12
42 - 48	1 1/4	105 - 120	14

* THE TORQUE LOADS MAY BE APPLIED WITH TORQUE MEASURING OR TORQUE INDICATING WRENCHES, WHICH MAY ALSO BE USED TO CHECK THE APPLICATION OF APPROXIMATE TORQUE LOADS APPLIED BY A PERSON TRAINED TO GIVE AN AVERAGE PULL ON A DEFINITE LENGTH OF REGULAR SOCKET WRENCH.

(H) TYPICAL AIR VALVE SECTION (1")
N.T.S.

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES & SHALL NOT BE USED FOR CONSTRUCTION.

STATE OF MAINE
STEPHEN R. BUSHEY
01.18.22
LICENSED PROFESSIONAL ENGINEER

STEPHEN R. BUSHEY, P.E.
LIC. #7429

Rev.	Date	Revision

Rev.	Date	Revision
3	2022.01.18	ISSUED FOR FINAL PERMIT AND PUBLIC HEARING
2	2021.12.07	RESUBMITTED PER LOR #1 FOR FINAL REVIEW
1	2021.05.12	SUBMITTED TO CITY FOR REVIEW

Design: SRB	Draft: CDD	Date: MAY 2021
Checked: SRB	Scale: AS NOTED	Job No.: 3564.03
File Name: 356403-DETAILS.dwg		

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Drawing Name: WATER DETAILS

Project: **Stevens Square at Baxter Woods – Phase 2 – 4**
583 Stevens Avenue, Portland, Maine

Client/Owner: **DC BAXTER WOODS IV LLC**
631 STEVENS AVE., SUITE 203, PORTLAND, ME 04103 PH. 207.772.7673

Drawing No. C-8.4

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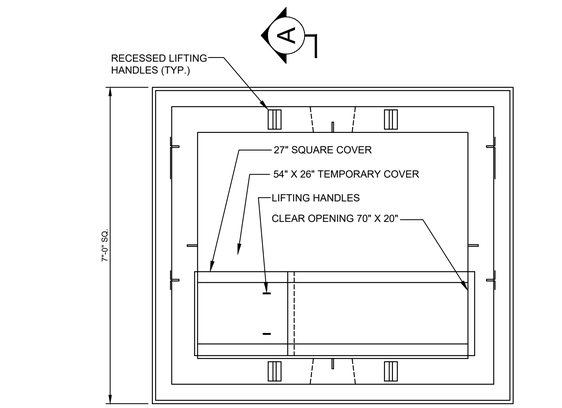
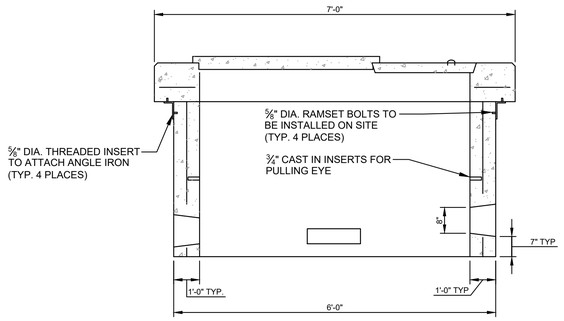
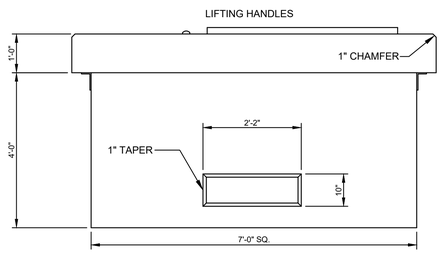


TOP VIEW



SECTION A-A



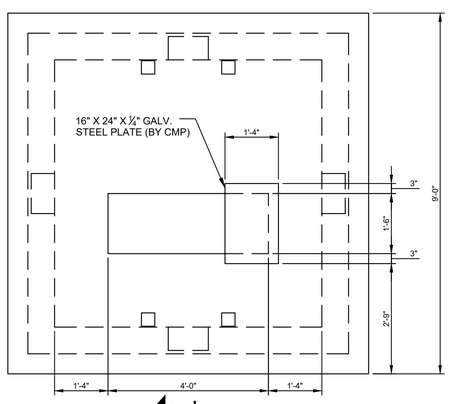
FRONT VIEW

DESIGN NOTES:

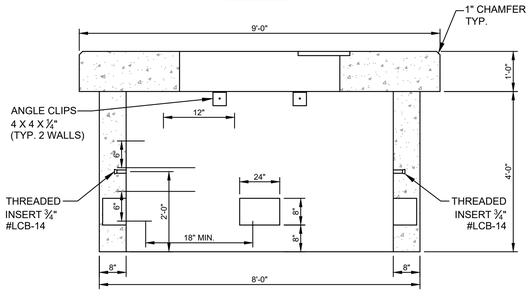
1. CONCRETE 4,000 PSI AT 28 DAYS.
2. REINFORCING #4 BARS AT 6" O.C. EACH WAY.
3. DUCT OPENINGS SHOWN ARE TYPICAL AND CAN BE MODIFIED PER REQUEST.
4. CENTRAL MAINE POWER COMPANY SPECIFICATION.
5. TEMPORARY COVER HAS (2) ⅝" THREADED LIFTING INSERTS CAST IN.

NOTE:
CONFIRM TRANSFORMER PAD SIZES WITH OWNER AND ELECTRICAL DESIGNER. SITE CONTRACTOR IS RESPONSIBLE FOR FURNISHING AND INSTALLING THE TRANSFORMER PAD.

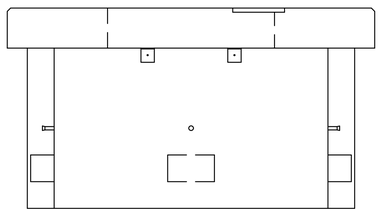
(A) 7'-0" TRANSFORMER PAD (BLDG #2)
N.T.S.



PLAN VIEW



SECTION VIEW

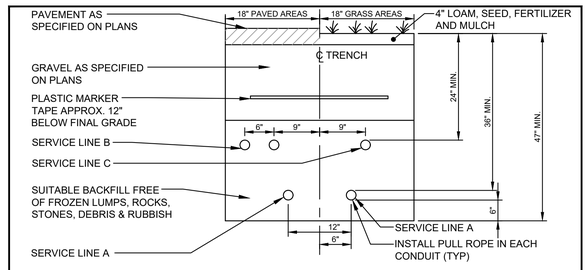


END VIEW

NOTES:

1. CONCRETE MINIMUM COMPRESSIVE STRENGTH 4,000 PSI @ 28 DAYS WITH STEEL REINFORCEMENT.
2. AS PER CENTRAL MAINE POWER COMPANY SPECIFICATIONS, AS MANUFACTURED BY SUPERIOR CONCRETE OR EQUAL.
3. FINAL SIZING TO BE BY ELECTRICAL DESIGNER.
4. ONE 8" x 24" KNOCKOUT PROVIDED EACH WALL.
5. FOR 750 - 5000 KVA THREE PHASE TRANSFORMER.
6. FINISH GRADE SHALL BE GRADED TO ALLOW SURFACE WATER TO FLOW AWAY FROM THE PAD.

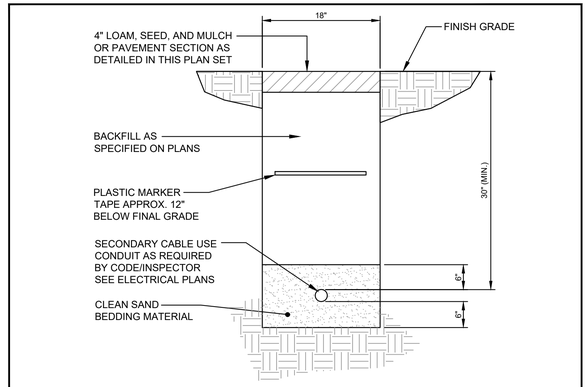
(B) 9'-0" TRANSFORMER PAD (N.I.C.)
N.T.S.



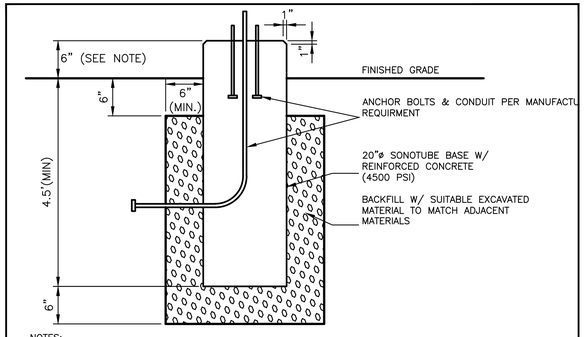
NOTES:

1. FOR CONDUIT TYPES AND SIZES SEE ELECTRICAL PLAN

(C) UTILITY TRENCH - PRIMARY ELECTRIC, TELEPHONE & COMMUNICATIONS
N.T.S.



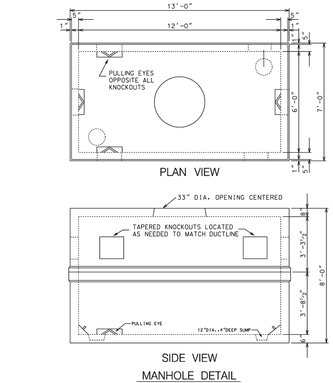
(E) SECONDARY ELECTRICAL TRENCH DETAIL
N.T.S.



NOTES:

1. ALL LIGHT POLE BASES TO BE SET 6" ABOVE GRADE (MINIMUM) AND LIGHT BOLLARD BASES SHALL BE SET 3" ABOVE GRADE, OR AS DESCRIBED BY THE LANDSCAPE ARCHITECT OR OWNER'S REPRESENTATIVE. CONTRACTOR SHALL CONFIRM PRIOR TO ANY POLE INSTALLATIONS.
2. BASE SIZE TO BE CONFIRMED WITH THE LIGHT POLE SUPPLIER.

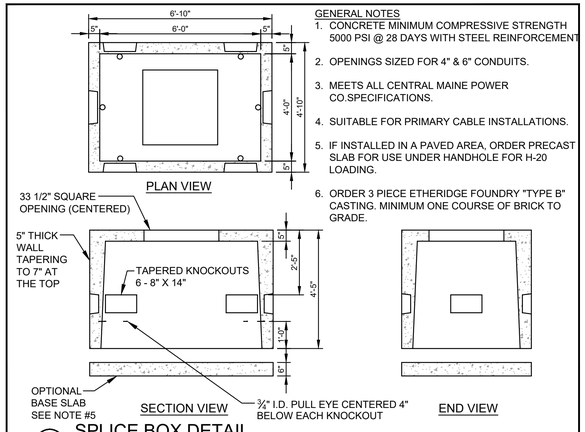
(G) TYPICAL PARKING LOT LIGHTING POLE FOUDATION
N.T.S.



NOTES

1) Vault shall be designed to withstand H20 wheel loading with 6 inches of overburden. The design shall also comply with the strength requirements of National Electrical Safety Code Section 323A. Provide design calculations signed by a State of Maine Registered Professional Engineer upon Request
2) Joints sealed with asphalt.
3) Mountings for cable racks etc. cast in wall by further plans or field locates.
4) Manhole shall be set on a suitable gravel base.
5) Cables are to be racked along one wall only.

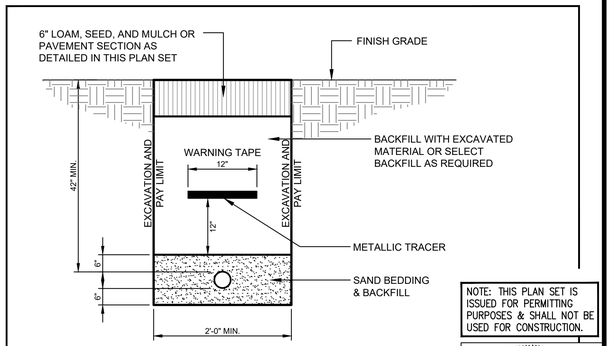
(D) PRECAST CONCRETE 38Y MANHOLE
N.T.S.



GENERAL NOTES

1. CONCRETE MINIMUM COMPRESSIVE STRENGTH 5000 PSI @ 28 DAYS WITH STEEL REINFORCEMENT
2. OPENINGS SIZED FOR 4" & 6" CONDUITS.
3. MEETS ALL CENTRAL MAINE POWER CO.SPECIFICATIONS.
4. SUITABLE FOR PRIMARY CABLE INSTALLATIONS.
5. IF INSTALLED IN A PAVED AREA, ORDER PRECAST SLAB FOR USE UNDER HANDHOLE FOR H-20 LOADING.
6. ORDER 3 PIECE ETHERIDGE FOUNDRY "TYPE B" CASTING. MINIMUM ONE COURSE OF BRICK TO GRADE.

(F) SPLICE BOX DETAIL
N.T.S.



NOTE:
GAS LINE TO BE INSTALLED BY OTHERS. SITE CONTRACTOR IS RESPONSIBLE FOR EXCAVATION AND BACKFILL OF THE GAS LINE AND PLACEMENT OF THE WARNING TAPES AND TRACER.

(H) GAS SERVICE TRENCH SECTION
N.T.S.

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES & SHALL NOT BE USED FOR CONSTRUCTION.

STATE OF MAINE
STEPHEN R. BUSHEY
01.18.22
LICENSED PROFESSIONAL ENGINEER

STEPHEN R. BUSHEY, P.E.
LIC. #7429

Rev.	Date	Revision

Rev.	Date	Revision
3	2022.01.18	ISSUED FOR FINAL PERMIT AND PUBLIC HEARING
2	2021.12.07	RESUBMITTED PER LOR #1 FOR FINAL REVIEW
1	2021.05.12	SUBMITTED TO CITY FOR REVIEW

Design: SRB	Draft: CDD	Date: MAY 2021
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Drawing Name: ELECTRIC & UTILITY DETAILS

Project: **Stevens Square at Baxter Woods – Phase 2 – 4**
583 Stevens Avenue, Portland, Maine

Client/Owner: **DC BAXTER WOODS IV LLC**
631 STEVENS AVE., SUITE 203, PORTLAND, ME 04103 PH. 207.772.7673

Drawing No. C-8.5

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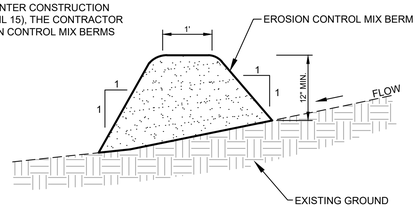
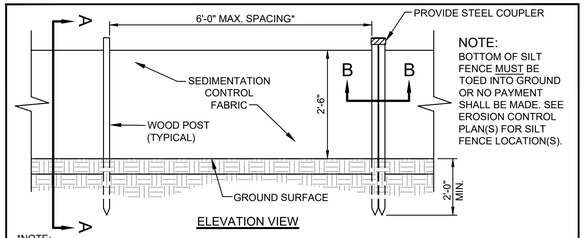
NOTE:
DURING PERIODS OF WINTER CONSTRUCTION (NOV. 15 THROUGH APRIL 15), THE CONTRACTOR SHALL INSTALL EROSION CONTROL MIX BERMS IN LIEU OF SILT FENCE.



EROSION CONTROL MIX:
EROSION CONTROL MIX SHALL CONTAIN A WELL-GRADED MIXTURE OF PARTICLE SIZES & 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.
- PH SHALL FALL BETWEEN 5.0 AND 8.0.

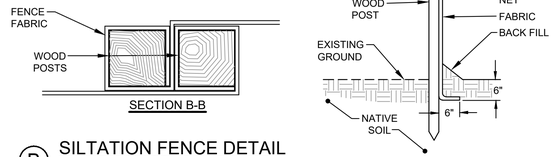
(A) EROSION CONTROL MIX BERM DETAIL
N.T.S.



NOTE:
BOTTOM OF SILT FENCE MUST BE TOED INTO GROUND OR NO PAYMENT SHALL BE MADE. SEE EROSION CONTROL PLAN(S) FOR SILT FENCE LOCATION(S).

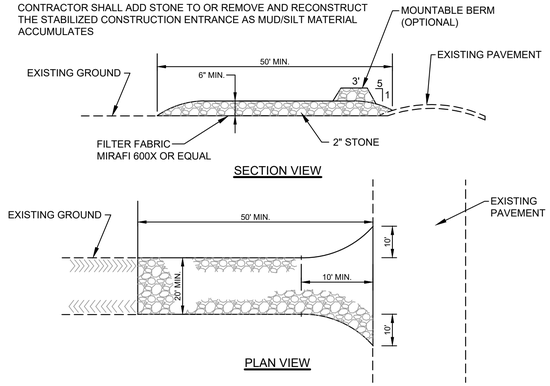
ELEVATION VIEW

*NOTE:
THE SILT FENCE SHOULD HAVE A MAXIMUM STAKING DISTANCE OF 6', UNLESS THE FENCE IS SUPPORTED BY WIRE FENCE REINFORCEMENT, A MAXIMUM 14 GAUGE AND WITH A MINIMUM MESH SPACING OF 6".

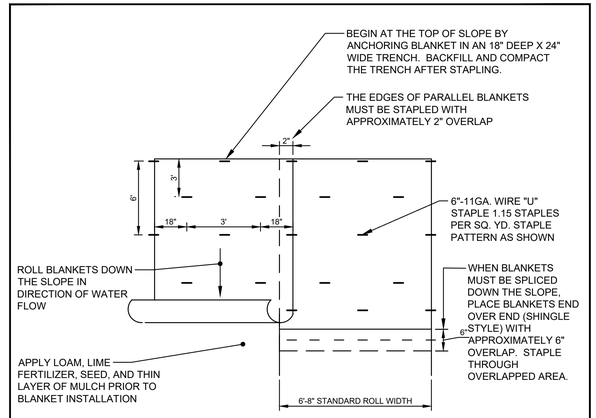


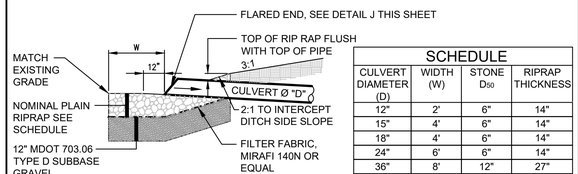
(B) SILTATION FENCE DETAIL
N.T.S.

NOTE:
CONTRACTOR SHALL ADD STONE TO OR REMOVE AND RECONSTRUCT THE STABILIZED CONSTRUCTION ENTRANCE AS MUD/SILT MATERIAL ACCUMULATES

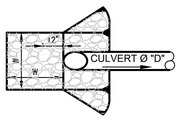


(C) STABILIZED CONSTRUCTION ENTRANCE DETAIL
N.T.S.



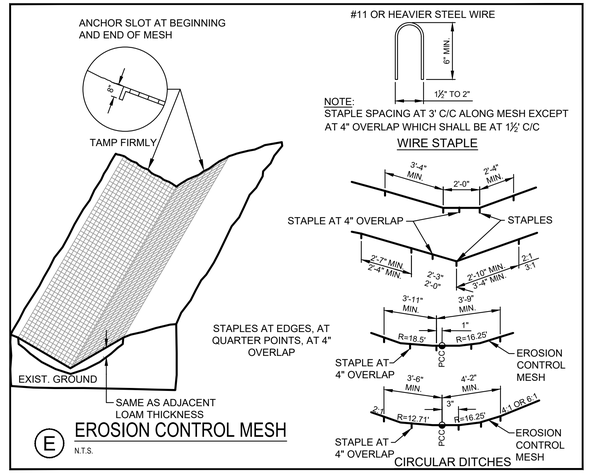


SCHEDULE			
CULVERT DIAMETER (D)	WIDTH (W)	STONE D_{50}	RIPRAP THICKNESS
12"	2'	6"	14"
15"	4'	6"	14"
18"	4'	6"	14"
24"	6'	6"	14"
36"	8'	12"	27"
42"	10'	12"	27"
48"	12'	12"	27"



(D) PIPE/CULVERT INLET APRON
N.T.S.

NOTE:
RIPRAP GRADATION AND PLACEMENT - THE RIPRAP GRADATION SHALL BE A WELL-GRADED MIX FROM ABOUT 1.5 TIMES THE D SIZE TO ABOUT 25 PERCENT OF THE D SIZE. THE RIPRAP STONES SHALL BE CAREFULLY PLACED WORKING FROM THE TOE OF THE SLOPE UPWARD. THE STONES SHOULD BE LOWERED TO THE SLOPE AND NOT BE ALLOWED TO DROP MORE THAN 12 INCHES ONTO THE GEOTEXTILE. THE FINISHED SURFACE SHALL BE A RELATIVELY SMOOTH UNIFORMLY SLOPED SURFACE.

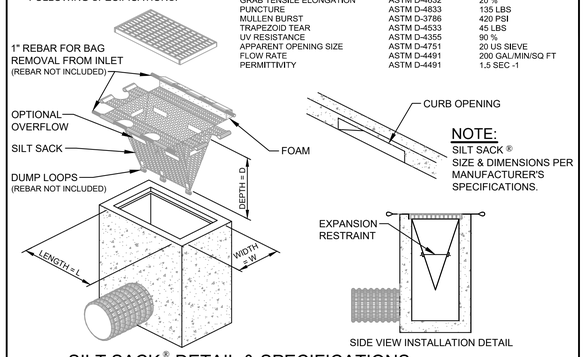


(E) EROSION CONTROL MESH
N.T.S.

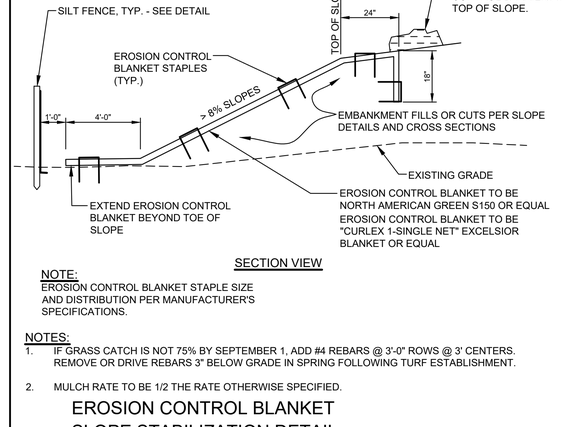
NOTE: THE SILT SACK ® WILL BE MANUFACTURED FROM A WOVEN POLYPROPYLENE FABRIC THAT MEETS OR EXCEEDS THE FOLLOWING SPECIFICATIONS:

HIGH-FLOW SILT SACK ® (FOR USE IN LOW POINTS/SAGS)
(FOR AREAS OF MODERATE TO HEAVY PRECIPITATION AND RUN-OFF)

PROPERTIES	TEST METHOD	UNITS
GRAB TENSILE STRENGTH	ASTM D-4632	265 LBS
GRAB TENSILE ELONGATION	ASTM D-4632	20 %
PUNCTURE	ASTM D-4833	135 LBS
MULLEN BURST	ASTM D-3786	420 PSI
TRAPEZOID TEAR	ASTM D-4533	45 LBS
UV RESISTANCE	ASTM D-4355	90 %
APPARENT OPENING SIZE	ASTM D-4751	20 US SIEVE
FLOW RATE	ASTM D-4491	200 GAL/MIN/SQ FT
PERMITTIVITY	ASTM D-4491	1.5 SEC -1



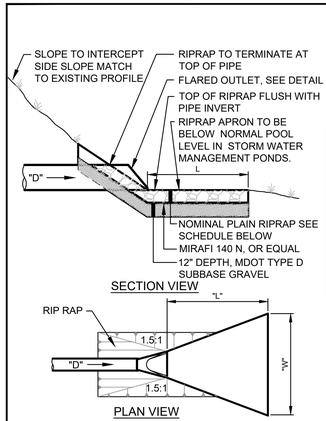
(F) SILT SACK ® DETAIL & SPECIFICATIONS
N.T.S.



NOTE:
EROSION CONTROL BLANKET STAPLE SIZE AND DISTRIBUTION PER MANUFACTURER'S SPECIFICATIONS.

NOTES:
1. IF GRASS CATCH IS NOT 75% BY SEPTEMBER 1, ADD #4 REBARS @ 3'-0" ROWS @ 3' CENTERS. REMOVE OR DRIVE REBARS 3" BELOW GRADE IN SPRING FOLLOWING TURF ESTABLISHMENT.
2. MULCH RATE TO BE 1/2 THE RATE OTHERWISE SPECIFIED.

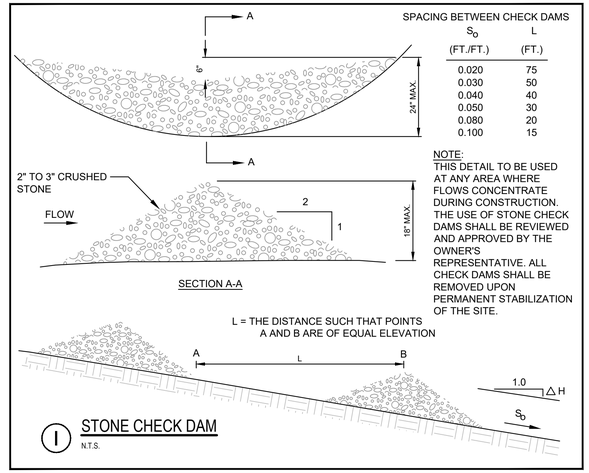
(G) EROSION CONTROL BLANKET SLOPE STABILIZATION DETAIL
N.T.S.



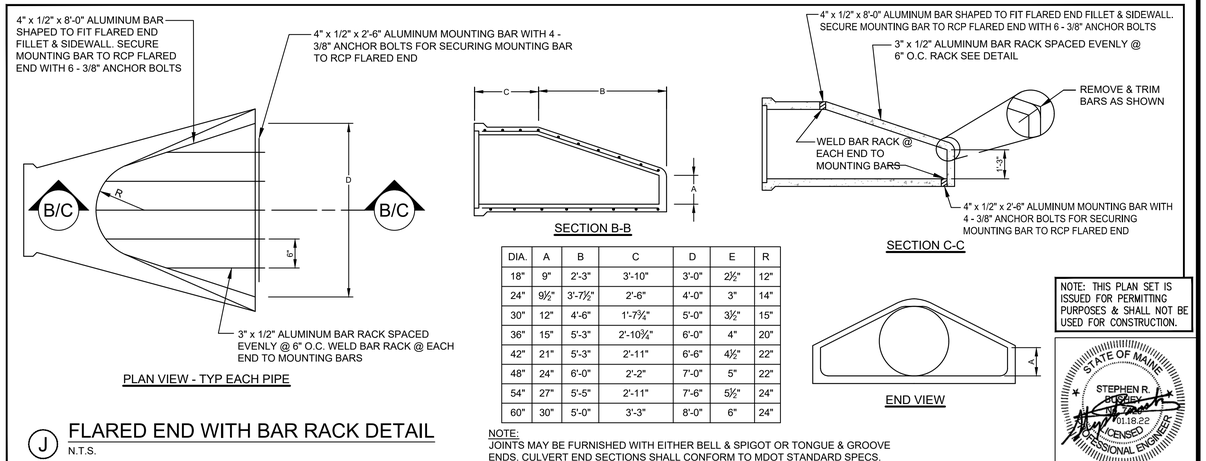
SCHEDULE				
CULVERT DIAMETER (D)	WIDTH (W)	LENGTH (L)	STONE D_{50}	RIPRAP THICKNESS
12"	8'	10'	6"	14"
15"	8'	10'	6"	14"
18"	10'	14'	6"	14"
24"	12'	16'	9"	21"
30"	12'	16'	12"	27"
36"	20'	24'	12"	27"
42"	24'	26'	12"	27"
48"	28'	32'	12"	27"

NOTE:
RIPRAP GRADATION AND PLACEMENT - THE RIPRAP GRADATION SHALL BE A WELL-GRADED MIX FROM ABOUT 1.5 TIMES THE D SIZE TO ABOUT 25 PERCENT OF THE D SIZE. THE RIPRAP STONES SHALL BE CAREFULLY PLACED WORKING FROM THE TOE OF THE SLOPE UPWARD. THE STONES SHOULD BE LOWERED TO THE SLOPE AND NOT BE ALLOWED TO DROP MORE THAN 12 INCHES ONTO THE GEOTEXTILE. THE FINISHED SURFACE SHALL BE A RELATIVELY SMOOTH UNIFORMLY SLOPED SURFACE.

(H) PIPE/CULVERT OUTLET APRON
N.T.S.



(I) STONE CHECK DAM
N.T.S.



DIA.	A	B	C	D	E	R
18"	9"	2'-3"	3'-10"	3'-0"	2½"	12"
24"	9½"	3'-7½"	2'-6"	4'-0"	3"	14"
30"	12"	4'-6"	1'-7¾"	5'-0"	3½"	15"
36"	15"	5'-3"	2'-10¾"	6'-0"	4"	20"
42"	21"	5'-3"	2'-11"	6'-6"	4½"	22"
48"	24"	6'-0"	2'-2"	7'-0"	5"	22"
54"	27"	5'-5"	2'-11"	7'-6"	5½"	24"
60"	30"	5'-0"	3'-3"	8'-0"	6"	24"

NOTE:
JOINTS MAY BE FURNISHED WITH EITHER BELL & SPIGOT OR TONGUE & GROOVE ENDS. CULVERT END SECTIONS SHALL CONFORM TO MDOT STANDARD SPECS.

(J) FLARED END WITH BAR RACK DETAIL
N.T.S.

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES & SHALL NOT BE USED FOR CONSTRUCTION.

STATE OF MAINE
STEPHEN R. BUSHEY
01.18.22
LICENSED PROFESSIONAL ENGINEER
STEPHEN R. BUSHEY, P.E.
LIC. #7429

Rev.	Date	Revision

Rev.	Date	Revision
3	2022.01.18	ISSUED FOR FINAL PERMIT AND PUBLIC HEARING
2	2021.12.07	RESUBMITTED PER LOR #1 FOR FINAL REVIEW
1	2021.05.12	SUBMITTED TO CITY FOR REVIEW

Design: SRB	Draft: CDD	Date: MAY 2021
Checked: SRB	Scale: AS NOTED	Job No.: 3564.03
File Name: 356403-DETAILS.dwg		

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Drawing Name: EROSION CONTROL DETAILS

Project: **Stevens Square at Baxter Woods – Phase 2 – 4**
583 Stevens Avenue, Portland, Maine

Client/Owner: **DC BAXTER WOODS IV LLC**
631 STEVENS AVE., SUITE 203, PORTLAND, ME 04103 PH. 207.772.7673

Drawing No. C-8.6

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1.3.5 EROSION CONTROL MEASURES AND SITE STABILIZATION

THE PRIMARY EMPHASIS OF THE EROSION/SEDIMENTATION CONTROL PLAN, WHICH WILL BE IMPLEMENTED FOR THIS PROJECT, IS AS FOLLOWS:

- DEVELOPMENT OF A CAREFUL CONSTRUCTION SEQUENCE.
- RAPID REVEGETATION OF DENUDED AREAS TO MINIMIZE THE PERIOD OF SOIL EXPOSURE.
- RAPID STABILIZATION OF DRAINAGE PATHS TO AVOID RILL AND GULLY EROSION.
- THE USE OF ON-SITE MEASURES TO CAPTURE SEDIMENT (HAY BALES/ STONE CHECK DAMS/SILT FENCE, ETC.)

THE FOLLOWING TEMPORARY AND PERMANENT EROSION AND SEDIMENT CONTROL DEVICES WILL BE IMPLEMENTED AS PART OF THE SITE DEVELOPMENT. THESE DEVICES SHALL BE INSTALLED AS INDICATED ON THE PLANS OR AS DESCRIBED WITHIN THIS REPORT. FOR FURTHER REFERENCE, SEE THE LATEST EDITION OF THE MAINE EROSION AND SEDIMENT CONTROL PRACTICES FIELD GUIDE FOR CONTRACTORS.

A. DEWATERING

WATER FROM CONSTRUCTION TRENCH DEWATERING SHALL PASS FIRST THROUGH A FILTER BAG OR SECONDARY CONTAINMENT STRUCTURE (E.G. HAY BALE LINED POOL) PRIOR TO DISCHARGE. THE DISCHARGE SITE SHALL BE SELECTED TO AVOID FLOODING, ICING, AND SEDIMENT DISCHARGES TO A PROTECTED RESOURCE. IN NO CASE SHALL THE FILTER BAG OR CONTAINMENT STRUCTURE BE LOCATED WITHIN 50 FEET OF A PROTECTED NATURAL RESOURCE. DEWATERING DISCHARGE SHALL NOT BE DIRECTED ACROSS ADJACENT PROPERTIES IN A CONCENTRATED MANNER.

B. INSPECTION AND MONITORING

MAINTENANCE MEASURES SHALL BE APPLIED AS NEEDED DURING THE ENTIRE CONSTRUCTION SEASON. AFTER EACH RAINFALL, SNOW STORM OR PERIOD OF THAWING AND RUNOFF, THE SITE CONTRACTOR SHALL PERFORM A VISUAL INSPECTION OF ALL INSTALLED EROSION CONTROL MEASURES AND PERFORM REPAIRS AS NEEDED TO INSURE THEIR CONTINUOUS FUNCTION. FOLLOWING THE TEMPORARY AND/OR FINAL SEEDING AND MULCHING, THE CONTRACTOR SHALL IN THE SPRING INSPECT AND REPAIR ANY DAMAGES AND/OR UNESTABLISHED SPOTS. ESTABLISHED VEGETATIVE COVER MEANS A MINIMUM OF 90% OF AREAS VEGETATED WITH VIGOROUS GROWTH.

THE FOLLOWING STANDARDS MUST BE MET DURING CONSTRUCTION.

(a) **INSPECTION AND CORRECTIVE ACTION**. INSPECT DISTURBED AND IMPERVIOUS AREAS, EROSION CONTROL MEASURES, MATERIALS STORAGE AREAS 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 WITHIN 24 HOURS AFTER A STORM EVENT (RAINFALL), AND PRIOR TO COMPLETING PERMANENT STABILIZATION MEASURES. A PERSON WITH KNOWLEDGE OF EROSION AND STORMWATER CONTROL, INCLUDING THE STANDARDS AND CONDITIONS IN THE PERMIT, SHALL CONDUCT THE INSPECTIONS.

(b) **MAINTENANCE**. IF BEST MANAGEMENT PRACTICES (BMPS) NEED TO BE REPAIRED, THE REPAIR WORK SHOULD BE INITIATED UPON DISCOVERY OF THE PROBLEM BUT NO LATER THAN THE END OF THE NEXT WORKDAY. IF ADDITIONAL BMPS OR SIGNIFICANT REPAIR OF BMPS ARE NECESSARY, IMPLEMENTATION MUST BE COMPLETED WITHIN 7 CALENDAR DAYS AND PRIOR TO ANY STORM EVENT (RAINFALL). ALL MEASURES MUST BE MAINTAINED IN EFFECTIVE OPERATING CONDITION UNTIL AREAS ARE PERMANENTLY STABILIZED.

(c) **DOCUMENTATION**. KEEP A LOG (REPORT) SUMMARIZING THE INSPECTIONS AND ANY CORRECTIVE ACTION TAKEN. THE LOG MUST INCLUDE THE NAME(S) AND QUALIFICATIONS OF THE PERSON MAKING THE INSPECTIONS, THE DATE(S) OF THE INSPECTIONS, AND MAJOR OBSERVATIONS ABOUT THE OPERATION AND MAINTENANCE OF EROSION AND SEDIMENTATION CONTROLS, MATERIALS STORAGE AREAS, AND VEHICLE ACCESS POINTS TO THE PARCEL. MAJOR OBSERVATIONS MUST INCLUDE BMPS THAT NEED MAINTENANCE, BMPS THAT FAILED TO OPERATE AS DESIGNED OR PROVED INADEQUATE FOR A PARTICULAR LOCATION, AND LOCATION(S) WHERE ADDITIONAL BMPS ARE NEEDED. FOR EACH BMP REQUIRING MAINTENANCE, BMP NEEDING REPLACEMENT, AND LOCATION NEEDING ADDITIONAL BMPS, NOTE IN THE LOG THE CORRECTIVE ACTION TAKEN AND WHEN IT WAS TAKEN.

THE LOG MUST BE MADE ACCESSIBLE TO CITY 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 PERMANENT STABILIZATION.

C. TEMPORARY EROSION CONTROL MEASURES

TEMPORARY EROSION CONTROL MEASURES SHALL BE INSTALLED BY THE CONTRACTOR AS REQUIRED BY THIS REPORT AND AS SHOWN ON THE PLAN SET FOR THE PROJECT. ADDITIONAL EROSION CONTROL MEASURES SHALL BE INSTALLED IF DEEMED NECESSARY BY ON-SITE INSPECTIONS OF THE OWNER, THE CITY OF PORTLAND, OR THEIR REPRESENTATIVES AT NO ADDITIONAL COST TO THE OWNER.

THE FOLLOWING MEASURES ARE PLANNED AS TEMPORARY EROSION/SEDIMENTATION CONTROL MEASURES DURING CONSTRUCTION:

1. CRUSHED STONE-STABILIZED CONSTRUCTION ENTRANCE SHALL BE PLACED AT THE ENTRANCE TO EACH CONSTRUCTION AREA.

2. SILTATION FENCE OR WOOD WASTE COMPOST BERMS SHALL BE INSTALLED DOWNSTREAM OF ANY DISTURBED AREAS TO TRAP RUNOFF- BORNE SEDIMENTS UNTIL GRASS AREAS ARE REVEGETATED. THE SILT FENCE AND/OR WOOD WASTE COMPOST BERMS SHALL BE INSTALLED PER THE DETAILS PROVIDED IN THIS PACKAGE AND INSPECTED AT LEAST ONCE A WEEK AND BEFORE AND IMMEDIATELY AFTER A STORM EVENT OF 0.5 INCHES OR GREATER, AND AT LEAST DAILY DURING PROLONGED RAINFALL. REPAIRS SHALL BE MADE IF THERE ARE ANY SIGNS OF EROSION OR SEDIMENTATION BELOW THE FENCE OR BERM LINE. IF THERE ARE SIGNS OF UNDERCUTTING AT THE CENTER OR THE EDGES, OR IMPOUNDING OF LARGE VOLUMES OF WATER BEHIND THE FENCE OR BERM, THE BARRIER SHALL BE REPLACED WITH A STONE CHECK DAM. WOOD WASTE COMPOST BERMS ARE NOT TO BE USED ADJACENT TO WETLAND AREAS THAT ARE NOT TO BE DISTURBED.

3. STRAW OR HAY MULCH INCLUDING HYDROSEEDING IS INTENDED TO PROVIDE COVER FOR DENUDED OR SEEDED AREAS UNTIL REVEGETATION IS ESTABLISHED. MULCH PLACED BETWEEN APRIL 15TH AND OCTOBER 15TH ON SLOPES OF LESS THEN 15 PERCENT SHALL BE ANCHORED BY APPLYING WATER; MULCH PLACED ON SLOPES OF EQUAL TO OR STEEPER THAN 15 PERCENT SHALL BE COVERED BY A FABRIC NETTING AND ANCHORED WITH STAPLES IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATION. FABRIC NETTING AND STAPLES SHALL BE USED ON DISTURBED AREAS WITHIN 50' OF LAKES, STREAMS, AND WETLANDS REGARDLESS OF THE UPSTREAM SLOPE. MULCH PLACED BETWEEN OCTOBER 15TH AND APRIL 15TH ON SLOPES EQUAL TO OR STEEPER THAN 8 PERCENT SHALL BE COVERED WITH A FABRIC NETTING AND ANCHORED WITH STAPLES IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. SLOPES STEEPER THAN 3:1 AND EQUAL TO OR FLATTER THAN 2:1, WHICH ARE TO BE REVEGETATED, SHALL RECEIVE CURLEX BLANKETS BY AMERICAN EXCELSIOR OR EQUAL. SLOPES STEEPER THAN 2:1 SHALL RECEIVE RIPRAP AS NOTED ON THE PLANS. THE MULCH APPLICATION RATE FOR BOTH TEMPORARY AND PERMANENT SEEDING IS 75 LBS PER 1000 SF AS IDENTIFIED IN ATTACHMENT A OF THIS SECTION. MULCH SHALL NOT BE PLACED OVER SNOW.

4. TEMPORARY STOCKPILES OF STUMPS, GRUBBINGS, OR COMMON EXCAVATION WILL BE PROTECTED AS FOLLOWS:

a) TEMPORARY STOCKPILES SHALL NOT BE LOCATED WITHIN 100 FEET OF ANY WETLANDS WHICH WILL NOT BE DISTURBED AND SHALL BE LOCATED AWAY FROM DRAINAGE SWALES.

b) STOCKPILES SHALL BE STABILIZED WITHIN 7 DAYS BY EITHER TEMPORARILY SEEDING THE STOCKPILE BY A HYDROSEED METHOD CONTAINING AN EMULSIFIED MULCH TACKIFIER OR BY COVERING THE STOCKPILE WITH MULCH, SUCH AS HAY, STRAW, OR EROSION CONTROL MIX.

c) STOCKPILES SHALL BE SURROUNDED BY SEDIMENTATION BARRIER AT THE TIME OF FORMATION.

5. ALL DENUDED AREAS THAT ARE WITHIN 100 FEET OF AN UNDISTURBED WETLAND, WHICH HAVE BEEN ROUGH GRADED AND ARE NOT LOCATED WITHIN A BUILDING PAD, PARKING AREA, OR ACCESS DRIVE SUBBASE AREA, SHALL RECEIVE MULCH OR EROSION CONTROL MESH FABRIC WITHIN 48 HOURS OF INITIAL DISTURBANCE OF SOIL. ALL AREAS WITHIN 100 FEET OF AN UNDISTURBED WETLAND SHALL BE MULCHED PRIOR TO ANY PREDICTED RAIN EVENT REGARDLESS OF THE 48 HOUR WINDOW. IN OTHER AREAS, THE TIME PERIOD MAY BE EXTENDED TO 7 DAYS.

6. FOR WORK, WHICH IS CONDUCTED BETWEEN OCTOBER 15TH AND APRIL 15TH OF ANY CALENDAR YEAR, ALL DENUDED AREAS, SHALL BE COVERED WITH HAY MULCH OR EROSION CONTROL MIX, APPLIED AT TWICE THE NORMAL APPLICATION RATE AND ANCHORED WITH A FABRIC NETTING. THE TIME PERIOD FOR APPLYING MULCH SHALL BE LIMITED TO 2 DAYS FOR ALL AREAS.

7. MCCAULEY WAY SHALL BE SWEPT TO CONTROL MUD AND DUST AS NECESSARY. ADDITIONAL STONE SHALL BE ADDED TO THE STABILIZED CONSTRUCTION ENTRANCE TO MINIMIZE THE TRACKING OF MATERIAL OFF THE SITE AND ONTO THE SURROUNDING ROADWAYS.

8. DURING GRUBBING OPERATIONS STONE CHECK DAMS SHALL BE INSTALLED AT ANY EVIDENT CONCENTRATED FLOW DISCHARGE POINTS AND AS DIRECTED ON THE EROSION CONTROL PLANS.

9. SILT FENCING WITH A MINIMUM STAKE SPACING OF 6 FEET SHALL BE USED, UNLESS THE FENCE IS SUPPORTED BY WIRE FENCE REINFORCEMENT OF MINIMUM 14 GAUGE AND WITH A MAXIMUM MESH SPACING OF 6 INCHES, IN WHICH CASE STAKES MAY BE SPACED A MAXIMUM OF 10 FEET APART. THE BOTTOM OF THE FENCE SHALL BE ANCHORED. A DOUBLE ROW OF SILT FENCE SHALL BE USED ADJACENT TO WETLANDS.

10. WOOD WASTE COMPOST/BARK BERMS MAY BE USED IN LIEU OF SILTATION FENCING. BERMS SHALL BE REMOVED AND SPREAD IN A LAYER NOT TO EXCEED 3" THICK ONCE UPSTREAM AREAS ARE COMPLETED AND A 90% CATCH OF VEGETATION IS ATTAINED.

11. STORM DRAIN CATCH BASIN INLET PROTECTION SHALL BE PROVIDED THROUGH THE USE OF STONE SEDIMENT BARRIERS OR APPROVED SEDIMENT BAGS (SUCH AS SILT SACK). INSTALLATION DETAILS ARE PROVIDED IN THE PLAN SET. THE BARRIERS SHALL BE INSPECTED AFTER EACH RAINFALL AND REPAIRS MADE AS NECESSARY. SEDIMENT SHALL BE REMOVED AND THE BARRIER RESTORED TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO ½ THE DESIGN DEPTH OF THE BARRIER. THE BARRIER SHALL BE REMOVED WHEN THE TRIBUTARY DRAINAGE AREA HAS BEEN STABILIZED.

12. WATER AND/OR CALCIUM CHLORIDE SHALL BE FURNISHED AND APPLIED IN ACCORDANCE WITH MDOT SPECIFICATIONS - SECTION 637 - DUST CONTROL.

13. LOAM AND SEED IS INTENDED TO SERVE, AS THE PRIMARY PERMANENT REVEGETATIVE MEASURE FOR ALL DENUDED AREAS NOT PROVIDED WITH OTHER EROSION CONTROL MEASURES, SUCH AS RIPRAP. APPLICATION RATES ARE PROVIDED IN ATTACHMENT A OF THIS SECTION. SEEDING SHALL NOT OCCUR OVER SNOW.

D. PERMANENT EROSION CONTROL MEASURES

THE FOLLOWING PERMANENT EROSION CONTROL MEASURES HAVE BEEN DESIGNED AS PART OF THE EROSION/SEDIMENTATION CONTROL PLAN:

1. ALL AREAS DISTURBED DURING CONSTRUCTION, BUT NOT SUBJECT TO OTHER RESTORATION (PAVING, RIPRAP, ETC.) WILL BE LOAMED, LIMED, FERTILIZED, MULCHED, AND SEEDED. FABRIC NETTING, ANCHORED WITH STAPLES, SHALL BE PLACED OVER THE MULCH IN AREAS AS NOTED IN **TEMPORARY EROSION CONTROL MEASURES** PARAGRAPH 3 OF THIS REPORT. ALL AREAS WITHIN 100 FEET OF AN UNDISTURBED WETLAND SHALL BE MULCHED PRIOR TO ANY PREDICTED RAIN EVENT REGARDLESS OF THE 48 HOUR WINDOW. NATIVE TOPSOIL SHALL BE STOCKPILED AND REUSED FOR FINAL RESTORATION WHEN IT IS OF SUFFICIENT QUALITY.

2. ALL STORM DRAIN PIPE OUTLETS SHALL HAVE RIPRAP APRONS AT THEIR OUTLET TO PROTECT THE OUTLET AND RECEIVING CHANNEL FROM SCOUR AND DETERIORATION. INSTALLATION DETAILS ARE PROVIDED IN THE PLAN SET. THE APRONS SHALL BE INSTALLED AND STABILIZED TO THE EXTENT PRACTICABLE PRIOR TO DIRECTING RUNOFF TO THE TRIBUTARY PIPE OR CULVERT.

1.4 IMPLEMENTATION SCHEDULE

THE FOLLOWING CONSTRUCTION SEQUENCE SHALL BE REQUIRED TO ENSURE THE EFFECTIVENESS OF THE EROSION AND SEDIMENTATION CONTROL MEASURES ARE OPTIMIZED:

IT IS ANTICIPATED THAT CONSTRUCTION OF BUILDINGS 2-5 AND RELATED INFRASTRUCTURE WILL COMMENCE IN SUMMER OF 2021 AND BE COMPLETED BY SPRING OF 2022.

NOTE: FOR ALL GRADING ACTIVITIES, THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION NOT TO OVEREXPOSE THE SITE, THIS SHALL BE ACCOMPLISHED BY LIMITING THE DISTURBED AREA.

1. INSTALL STABILIZED CONSTRUCTION ENTRANCE AT CONSTRUCTION ACCESS POINTS FROM PAVED ROADWAYS.

2. INSTALL CATCH BASIN INLET PROTECTION, AND PERIMETER SILT FENCE/WOOD WASTE BERMS PRIOR TO GRUBBING RESPECTIVE AREAS.

3. CLEAR AND GRUB AREA TO BE DEVELOPED. INSTALL STONE CHECK DAMS AT ANY EVIDENT CONCENTRATED FLOW DISCHARGE POINTS.

4. FOUNDATION PREPARATION AREA SHALL BE EXCAVATED FOR INSTALLATION OF THE BUILDING FOOTINGS. BUILDING WORK WILL BE ON GOING THROUGH THE REMAINDER OF THE PROJECT.

5. COMMENCE INSTALLATION OF DRAINAGE APPURTENANCES.

6. COMMENCE CONSTRUCTION OF PERVIOUS PAVER FILTER/RESERVOIR UP TO CHOKER COURSE, FOCAL POINT FILTERS AND DETENTION PONDS.

7. COMMENCE EARTHWORK AND GRADING TO SUBGRADE.

8. COMMENCE INSTALLATION OF UTILITIES.

9. CONTINUE EARTHWORK AND GRADING TO SUBGRADE AS NECESSARY FOR CONSTRUCTION.

10. COMPLETE INSTALLATION OF UNDERGROUND UTILITIES TO WITHIN 5' OF THE BUILDINGS.

11. INSTALL LIGHT POLE FOUNDATIONS AND LIGHT POLES.

12. COMPLETE REMAINING EARTHWORK OPERATIONS.

13. COMPLETE INSTALLATION OF CATCH BASINS AND APPURTENANCES.

14. INSTALL SUB-BASE AND BASE GRAVEL WITHIN PARKING FIELDS, WALKWAYS, AND ALL DRIVEWAYS.

15. INSTALL BASE COURSE PAVING FOR ACCESS DRIVE AND PARKING AREA AS WELL AS CONCRETE SURFACES.

16. INSTALL CURBING IN PARKING FIELDS, DRIVEWAYS, AND ALONG THE STREETS AS NEEDED.

17. LOAM, LIME, FERTILIZE, SEED AND MULCH DISTURBED AREAS AND COMPLETE ALL LANDSCAPING.

18. INSTALL PERVIOUS PAVERS AND INFILL STONE, SURFACE COURSE PAVING FOR ACCESS DRIVE AND PARKING AREAS. STRIPE PER PLAN.

19. ONCE THE SITE IS STABILIZED AND A 90% CATCH OF VEGETATION HAS BEEN OBTAINED, REMOVE ALL TEMPORARY EROSION CONTROL MEASURES.

20. TOUCH UP LOAM AND SEED.

NOTE: ALL DENUDED AREAS NOT SUBJECT TO FINAL PAVING, RIPRAP, OR GRAVEL SHALL BE REVEGETATED.

PRIOR TO CONSTRUCTION OF THE PROJECT, THE CONTRACTOR SHALL SUBMIT TO THE OWNER A SCHEDULE FOR THE COMPLETION OF THE WORK, WHICH WILL SATISFY THE FOLLOWING CRITERIA:

1. THE ABOVE CONSTRUCTION SEQUENCE SHOULD GENERALLY BE COMPLETED IN THE SPECIFIED ORDER; HOWEVER, SEVERAL SEPARATE ITEMS MAY BE CONSTRUCTED SIMULTANEOUSLY. WORK MUST ALSO BE SCHEDULED OR PHASED TO REDUCE THE EXTENT OF THE EXPOSED AREAS AS SPECIFIED BELOW. THE INTENT OF THIS SEQUENCE IS TO PROVIDE FOR EROSION CONTROL AND TO HAVE STRUCTURAL MEASURES SUCH AS SILT FENCE AND CONSTRUCTION ENTRANCES IN PLACE BEFORE LARGE AREAS OF LAND ARE DENUDED.

2. THE WORK SHALL BE CONDUCTED IN SECTIONS WHICH SHALL:

a) LIMIT THE AMOUNT OF EXPOSED AREA TO THOSE AREAS IN WHICH WORK IS EXPECTED TO BE UNDERTAKEN DURING THE PROCEEDING 30 DAYS.

b) REVEGETATE DISTURBED AREAS AS RAPIDLY AS POSSIBLE. ALL AREAS SHALL BE PERMANENTLY STABILIZED WITHIN 7 DAYS OF FINAL GRADING OR BEFORE A STORM EVENT; OR TEMPORARILY STABILIZED WITHIN 48 HOURS OF INITIAL DISTURBANCE OF SOIL FOR AREAS WITHIN 100 FEET OF AN UNDISTURBED WETLAND AND 7 DAYS FOR ALL OTHER AREAS. AREAS WITHIN 100 FEET OF AN UNDISTURBED WETLAND SHALL BE MULCHED PRIOR TO ANY PREDICTED RAIN EVENT REGARDLESS OF THE 48 HOUR WINDOW.

c) INCORPORATE PLANNED INLETS AND DRAINAGE SYSTEM AS EARLY AS POSSIBLE INTO THE CONSTRUCTION PHASE. THE DITCHES SHALL BE IMMEDIATELY LINED OR REVEGETATED AS SOON AS THEIR INSTALLATION IS COMPLETE.

1.5 EROSION, SEDIMENTATION AND STABILIZATION CONTROL PLAN

THE EROSION CONTROL PLAN IS INCLUDED IN THE PLAN SET.

1.6 DETAILS AND SPECIFICATIONS

THE EROSION CONTROL DETAILS AND SPECIFICATIONS ARE INCLUDED IN THE PLAN SET.

1.7 WINTER STABILIZATION PLAN

THE WINTER CONSTRUCTION PERIOD IS FROM NOVEMBER 1 THROUGH APRIL 15. IF THE CONSTRUCTION SITE IS NOT STABILIZED WITH PAVEMENT, A ROAD GRAVEL BASE, 75% MATURE VEGETATION COVER OR RIPRAP BY NOVEMBER 15 THEN THE SITE NEEDS TO BE PROTECTED WITH OVER-WINTER STABILIZATION. AN AREA CONSIDERED OPEN IS ANY AREA NOT STABILIZED WITH PAVEMENT; VEGETATION, MULCHING, EROSION CONTROL MATS, RIPRAP OR GRAVEL BASE ON A ROAD.

WINTER EXCAVATION AND EARTHWORK SHALL BE COMPLETED SUCH THAT ANY AREA LEFT EXPOSED CAN BE CONTROLLED BY THE CONTRACTOR. LIMIT THE EXPOSED AREA TO THOSE AREAS IN WHICH WORK IS EXPECTED TO BE UNDERTAKEN DURING THE PROCEEDING 15 DAYS AND THAT CAN BE MULCHED IN ONE DAY PRIOR TO ANY SNOW EVENT.

ALL AREAS SHALL BE CONSIDERED TO BE DENUDED UNTIL THE SUBBASE GRAVEL IS INSTALLED IN ROADWAY/PARKING AREAS OR THE AREAS OF FUTURE LOAM AND SEED HAVE BEEN LOAMED, SEEDED AND MULCHED. HAY AND STRAW MULCH RATE SHALL BE A MINIMUM OF 150 LBS./1,000 S.F. (3 TONS/ACRE) AND SHALL BE PROPERLY ANCHORED.

THE CONTRACTOR SHALL INSTALL ANY ADDED MEASURES WHICH MAY BE NECESSARY TO CONTROL EROSION/SEDIMENTATION FROM THE SITE DEPENDENT UPON THE ACTUAL SITE AND WEATHER CONDITIONS. CONTINUATION OF EARTHWORK OPERATIONS ON ADDITIONAL AREAS SHALL NOT BEGIN UNTIL THE EXPOSED SOIL SURFACE ON THE AREA BEING WORKED HAS BEEN STABILIZED, IN ORDER TO MINIMIZE AREAS WITHOUT EROSION CONTROL PROTECTION.

1. SOIL STOCKPILES

STOCKPILES OF SOIL OR SUBSOIL SHALL BE MULCHED FOR OVER WINTER PROTECTION WITH HAY OR STRAW AT TWICE THE NORMAL RATE OR AT 150 LBS/1,000 S.F. (3 TONS PER ACRE) OR WITH A FOUR-INCH LAYER OF WOODWASTE EROSION CONTROL MIX. THIS SHALL BE DONE WITHIN 24 HOURS OF STOCKING AND RE-ESTABLISHED PRIOR TO ANY RAINFALL OR SNOWFALL. ANY SOIL STOCKPILE SHALL NOT BE PLACED (EVEN COVERED WITH HAY OR STRAW) WITHIN 100 FEET FROM ANY NATURAL RESOURCES.

2. NATURAL RESOURCE PROTECTION

ANY AREAS WITHIN 100 FEET FROM ANY NATURAL RESOURCES, IF NOT STABILIZED WITH A MINIMUM OF 75% MATURE VEGETATION CATCH, SHALL BE MULCHED BY DECEMBER 1 AND ANCHORED WITH PLASTIC NETTING OR PROTECTED WITH EROSION CONTROL MATS. DURING WINTER CONSTRUCTION, A DOUBLE LINE OF SEDIMENT BARRIERS (I.E. SILT FENCE BACKED WITH HAY BALES OR EROSION CONTROL MIX) SHALL BE PLACED BETWEEN ANY NATURAL RESOURCE AND THE DISTURBED AREA. PROJECTS CROSSING THE NATURAL RESOURCE SHALL BE PROTECTED A MINIMUM DISTANCE OF 100 FEET ON EITHER SIDE FROM THE RESOURCE. EXISTING PROJECTS NOT STABILIZED BY DECEMBER 1 SHALL BE PROTECTED WITH THE SECOND LINE OF SEDIMENT BARRIER TO ENSURE FUNCTIONALITY DURING THE SPRING THAW AND RAINS.

3. SEDIMENT BARRIERS

DURING FROZEN CONDITIONS, SEDIMENT BARRIERS SHALL CONSIST OF WOODWASTE FILTER BERMS AS FROZEN SOIL PREVENTS THE PROPER INSTALLATION OF HAY BALES AND SEDIMENT SILT FENCES.

4. MULCHING

AN AREA SHALL BE CONSIDERED DENUDED UNTIL AREAS OF FUTURE LOAM AND SEED HAVE BEEN LOAMED, SEEDED AND MULCHED. HAY AND STRAW MULCH SHALL BE APPLIED AT A RATE OF 150 LB. PER 1,000 SQUARE FEET OR 3 TONS/ACRE (TWICE THE NORMAL ACCEPTED RATE OF 75-LBS./1,000 S.F. OR 1.5 TONS/ACRE) AND SHALL BE PROPERLY ANCHORED. MULCH SHALL NOT BE SPREAD ON TOP OF SNOW. THE SNOW SHALL BE REMOVED DOWN TO A ONE-INCH DEPTH OR LESS PRIOR TO APPLICATION. AFTER EACH DAY OF FINAL GRADING, THE AREA SHALL BE PROPERLY STABILIZED WITH ANCHORED HAY OR STRAW OR EROSION CONTROL MATTING. AN AREA SHALL BE CONSIDERED TO HAVE BEEN STABILIZED WHEN EXPOSED SURFACES HAVE BEEN EITHER MULCHED WITH STRAW OR HAY AT A RATE OF 150 LB. PER 1,000 SQUARE FEET (3 TONS/ACRE) AND ADEQUATELY ANCHORED THAT GROUND SURFACE IS NOT VISIBLE THOUGH THE MULCH.

BETWEEN THE DATES OF NOVEMBER 1 AND APRIL 15, ALL MULCH SHALL BE ANCHORED BY PEG LINE, MULCH NETTING, ASPHALT EMULSION CHEMICAL, OR WOOD CELLULOSE FIBER. WHEN GROUND SURFACE IS NOT VISIBLE THROUGH THE MULCH THEN COVER IS SUFFICIENT. AFTER NOVEMBER 1ST, MULCH AND ANCHORING OF ALL BARE SOIL SHALL OCCUR AT THE END OF EACH FINAL GRADING WORKDAY.

5. MULCHING ON SLOPES AND DITCHES

SLOPES SHALL NOT BE LEFT EXPOSED FOR ANY EXTENDED TIME OF WORK SUSPENSION UNLESS FULLY MULCHED AND ANCHORED WITH PEG AND NETTING OR WITH EROSION CONTROL BLANKETS. MULCHING SHALL BE APPLIED AT A RATE OF 230 LBS/1,000 S.F. ON ALL SLOPES GREATER THAN 8%.

MULCH NETTING SHALL BE USED TO ANCHOR MULCH IN ALL DRAINAGE WAYS WITH A SLOPE GREATER THAN 3% FOR SLOPES EXPOSED TO DIRECT WINDS AND FOR ALL OTHER SLOPES GREATER THAT 8%. EROSION CONTROL BLANKETS SHALL BE USED IN LIEU OF MULCH IN ALL DRAINAGE WAYS WITH SLOPES GREATER THAN 8%. EROSION CONTROL MIX CAN BE USED TO SUBSTITUTE EROSION CONTROL BLANKETS ON ALL SLOPES EXCEPT DITCHES.

6. SEEDING

BETWEEN THE DATES OF OCTOBER 15 AND APRIL 1ST, LOAM OR SEED WILL NOT BE REQUIRED. DURING PERIODS OF ABOVE FREEZING TEMPERATURES FINISHED AREAS SHALL BE FINE GRADED AND EITHER PROTECTED WITH MULCH OR TEMPORARILY SEEDED AND MULCHED UNTIL SUCH TIME AS THE FINAL TREATMENT CAN BE APPLIED. IF THE DATE IS AFTER NOVEMBER 1ST AND IF THE EXPOSED AREA HAS BEEN LOAMED, FINAL GRADED WITH A UNIFORM SURFACE, THEN THE AREA MAY BE DORMANT SEEDED AT A RATE OF 3 TIMES HIGHER THAN SPECIFIED FOR PERMANENT SEED AND THEN MULCHED. DORMANT SEEDING MAY BE SELECTED TO BE PLACED PRIOR TO THE PLACEMENT OF MULCH AND FABRIC NETTING ANCHORED WITH STAPLES. IF DORMANT SEEDING IS USED FOR THE SITE, ALL DISTURBED AREAS SHALL RECEIVE 4" OF LOAM AND SEED AT AN APPLICATION RATE OF 5 LBS/1,000 S.F. ALL AREAS SEEDED DURING THE WINTER SHALL BE INSPECTED IN THE SPRING FOR ADEQUATE CATCH. ALL AREAS INSUFFICIENTLY VEGETATED (LESS THAN 75% CATCH) SHALL BE REVEGETATED BY REPLACING LOAM, SEED AND MULCH. IF DORMANT SEEDING IS NOT USED FOR THE SITE, ALL DISTURBED AREAS SHALL BE REVEGETATED IN THE SPRING.

STANDARDS FOR TIMELY STABILIZATION OF CONSTRUCTION SITES DURING WINTER

1. STANDARD FOR THE TIMELY STABILIZATION OF DITCHES AND CHANNELS -- THE APPLICANT SHALL CONSTRUCT AND STABILIZE ALL STONE-LINED DITCHES AND CHANNELS ON THE SITE BY NOVEMBER 15. THE APPLICANT SHALL CONSTRUCT AND STABILIZE ALL GRASS-LINED DITCHES AND CHANNELS ON THE SITE BY SEPTEMBER 1. IF THE APPLICANT FAILS TO STABILIZE A DITCH OR CHANNEL TO BE GRASS-LINED BY SEPTEMBER 1, THEN THE APPLICANT WILL TAKE ONE OF THE FOLLOWING ACTIONS TO STABILIZE THE DITCH FOR LATE FALL AND WINTER.

INSTALL A SOD LINING IN THE DITCH -- THE APPLICANT SHALL LINE THE DITCH WITH PROPERLY INSTALLED SOD BY OCTOBER 1. PROPER INSTALLATION INCLUDES THE APPLICANT PINNING THE SOD ONTO THE SOIL WITH WIRE PINS, ROLLING THE SOD TO GUARANTEE CONTACT BETWEEN THE SOD AND UNDERLYING SOIL, WATERING THE SOD TO PROMOTE ROOT GROWTH INTO THE DISTURBED SOIL, AND ANCHORING THE SOD WITH JUTE OR PLASTIC MESH TO PREVENT THE SOD STRIPS FROM SLOUGHING DURING FLOW CONDITIONS.

INSTALL A STONE LINING IN THE DITCH --THE APPLICANT SHALL LINE THE DITCH WITH STONE RIPRAP BY NOVEMBER 15. THE APPLICANT SHALL HIRE A REGISTERED PROFESSIONAL ENGINEER TO DETERMINE THE STONE SIZE AND LINING THICKNESS NEEDED TO WITHSTAND THE ANTICIPATED FLOW VELOCITIES AND FLOW DEPTHS WITHIN THE DITCH. IF NECESSARY, THE APPLICANT SHALL REGRADE THE DITCH PRIOR TO PLACING THE STONE LINING SO TO PREVENT THE STONE LINING FROM REDUCING THE DITCH'S CROSS-SECTIONAL AREA.

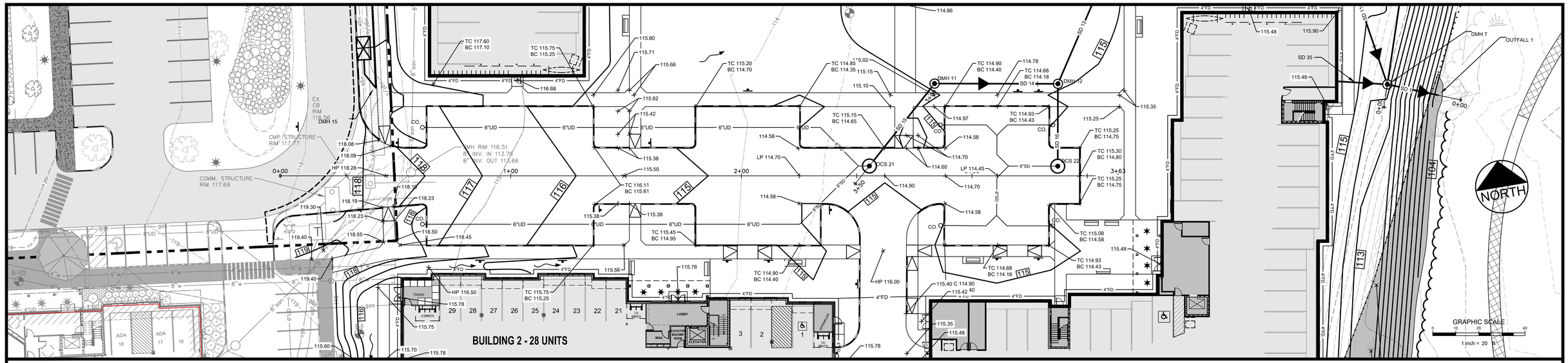
2. STANDARD FOR THE TIMELY STABILIZATION OF DISTURBED SLOPES -- THE APPLICANT SHALL CONSTRUCT AND STABILIZE STONE-COVERED SLOPES BY NOVEMBER 15. THE APPLICANT SHALL SEED AND MULCH ALL SLOPES TO BE VEGETATED BY SEPTEMBER 1. THE DEPARTMENT SHALL CONSIDER ANY AREA HAVING A GRADE GREATER THAN 15% TO BE A SLOPE. IF THE APPLICANT FAILS TO STABILIZE ANY SLOPE TO BE VEGETATED BY SEPTEMBER 1, THEN THE APPLICANT SHALL TAKE ONE OF THE FOLLOWING ACTIONS TO STABILIZE THE SLOPE FOR LATE FALL AND WINTER.

STABILIZE THE SOIL WITH TEMPORARY VEGETATION AND EROSION CONTROL MATS -- BY SEPTEMBER 1 THE APPLICANT SHALL SEED THE DISTURBED SLOPE WITH WINTER RYE AT A SEEDING RATE OF 3 POUNDS PER 1,000 SQUARE FEET AND APPLY EROSION CONTROL MATS OVER THE MULCHED SLOPE. THE APPLICANT SHALL MONITOR GROWTH OF THE RYE OVER THE NEXT 30 DAYS. IF THE RYE FAILS TO GROW AT LEAST THREE INCHES OR COVER AT LEAST 75% OF THE DISTURBED SLOPE BY NOVEMBER 1, THEN THE APPLICANT SHALL COVER THE SLOPE WITH A LAYER OF WOODWASTE COMPOST AS DESCRIBED IN ITEM III OF THIS STANDARD OR WITH STONE RIPRAP AS DESCRIBED IN ITEM IV OF THIS STANDARD.

STABILIZE THE SLOPE WITH SOD -- THE APPLICANT SHALL STABILIZE THE DISTURBED SLOPE WITH PROPERLY INSTALLED SOD BY SEPTEMBER 1. PROPER INSTALLATION INCLUDES THE APPLICANT PINNING THE SOD ONTO THE SLOPE 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. THE APPLICANT SHALL NOT USE LATE-SEASON SOD INSTALLATION TO STABILIZE SLOPES HAVING A GRADE GREATER THAN 33% (3H:1V).

STABILIZE THE SLOPE WITH WOODWASTE COMPOST -- THE APPLICANT SHALL PLACE A SIX-INCH LAYER OF WOODWASTE COMPOST ON THE SLOPE BY NOVEMBER 15. PRIOR TO PLACING THE WOODWASTE COMPOST, THE APPLICANT SHALL REMOVE ANY SNOW ACCUMULATION ON THE DISTURBED SLOPE. THE APPLICANT SHALL NOT USE WOODWASTE COMPOST TO STABILIZE SLOPES HAVING GRADES GREATER THAN 50% (2H:1V) OR HAVING GROUNDWATER SEEPS ON THE SLOPE FACE.

STABILIZE THE SLOPE WITH STONE RIPRAP -- THE APPLICANT SHALL PLACE A LAYER OF STONE RIPRAP ON THE SLOPE BY NOVEMBER 15. THE APPLICANT SHALL HIRE A REGISTERED PROFESSIONA



ACCESS DRIVE 1 PLAN

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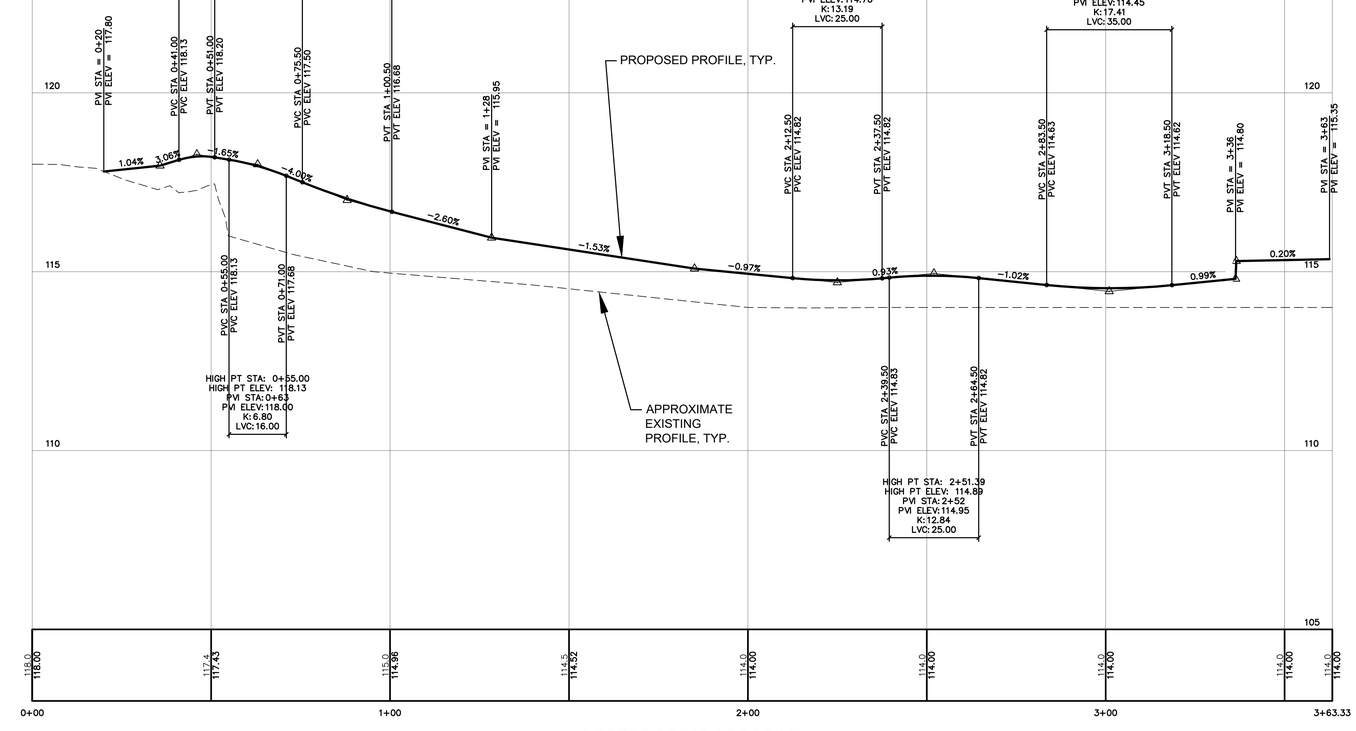

ACCESS DRIVE 1 PROFILE

SCALE: 1" = 20' HORZ. / 1" = 2' VERT.

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STATE OF MAINE — STEPHEN R. BUSHEY — 01.18.22 — LICENSED PROFESSIONAL ENGINEER

STEPHEN R. BUSHEY, P.E.
LIC. #7429

Rev.	Date	Revision
3	2022.01.18	ISSUED FOR FINAL PERMIT AND PUBLIC HEARING
2	2021.12.07	RESUBMITTED PER LOR #1 FOR FINAL REVIEW
1	2021.05.12	SUBMITTED TO CITY FOR REVIEW

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File Name: 356403-GRADING.dwg	

Date: MAY 2021
Job No.: 3564.03

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Client/Owner: **DC BAXTER WOODS IV LLC**
631 STEVENS AVE., SUITE 203, PORTLAND, ME 04103 PH. 207.772.7673

Drawing No. C-9.0

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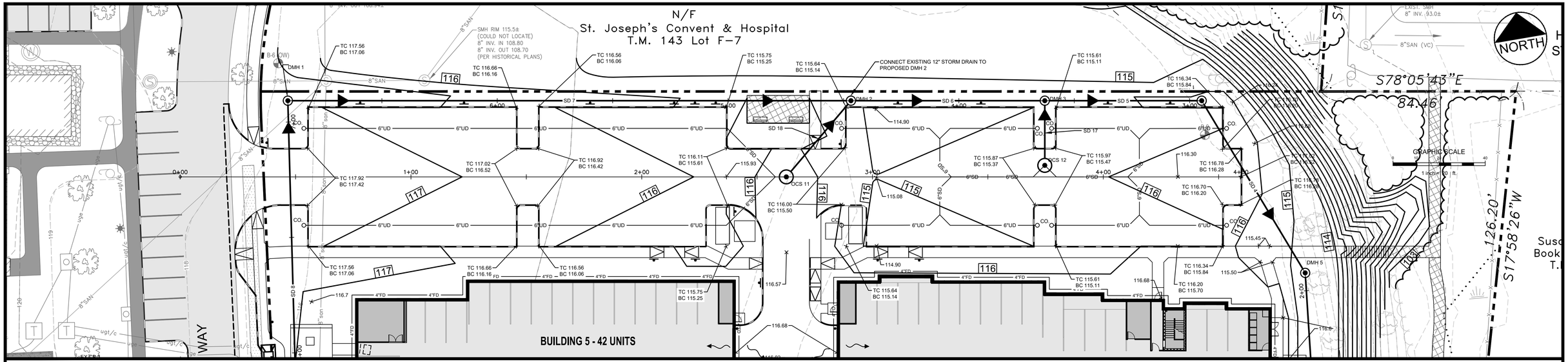

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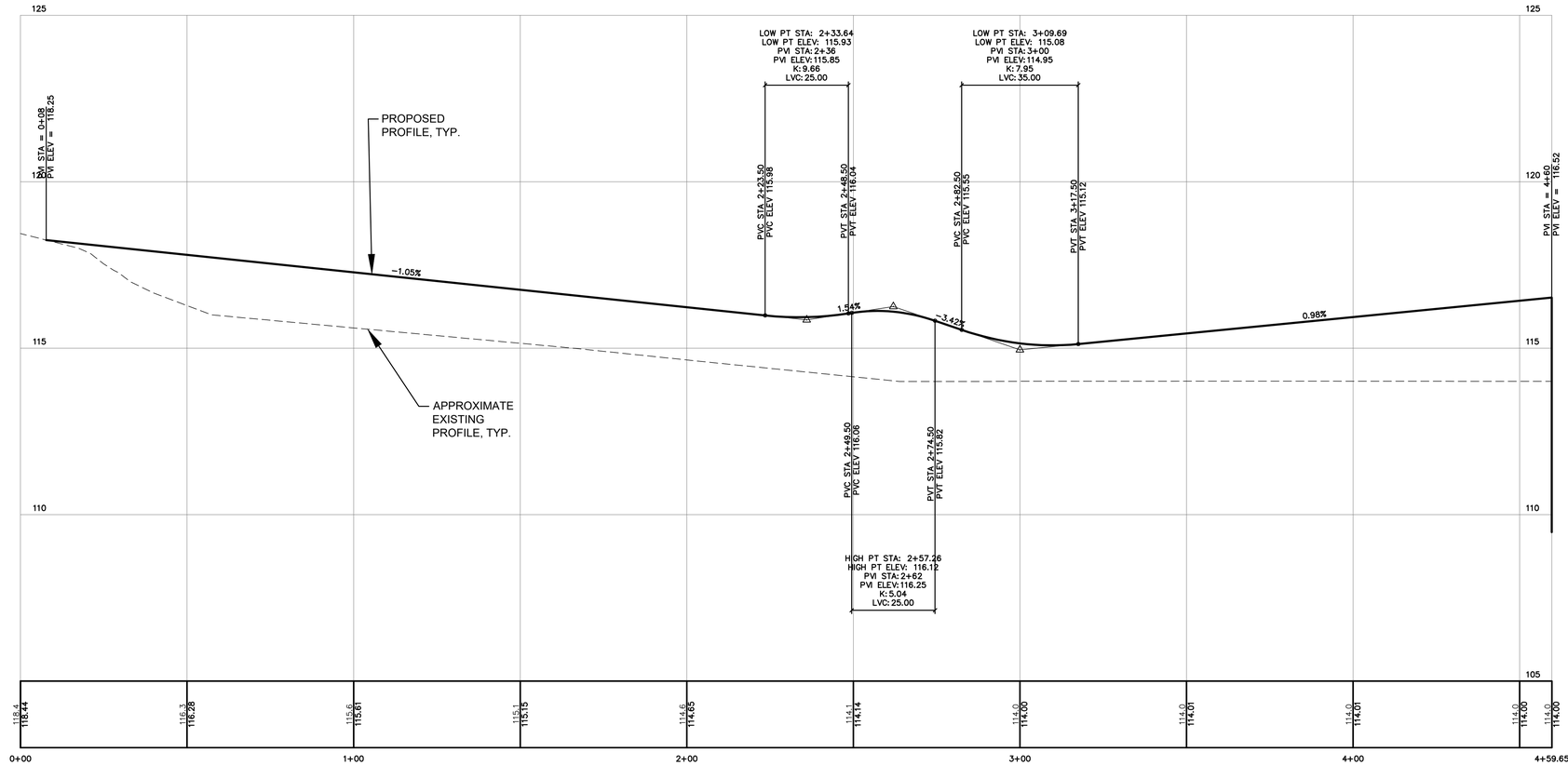

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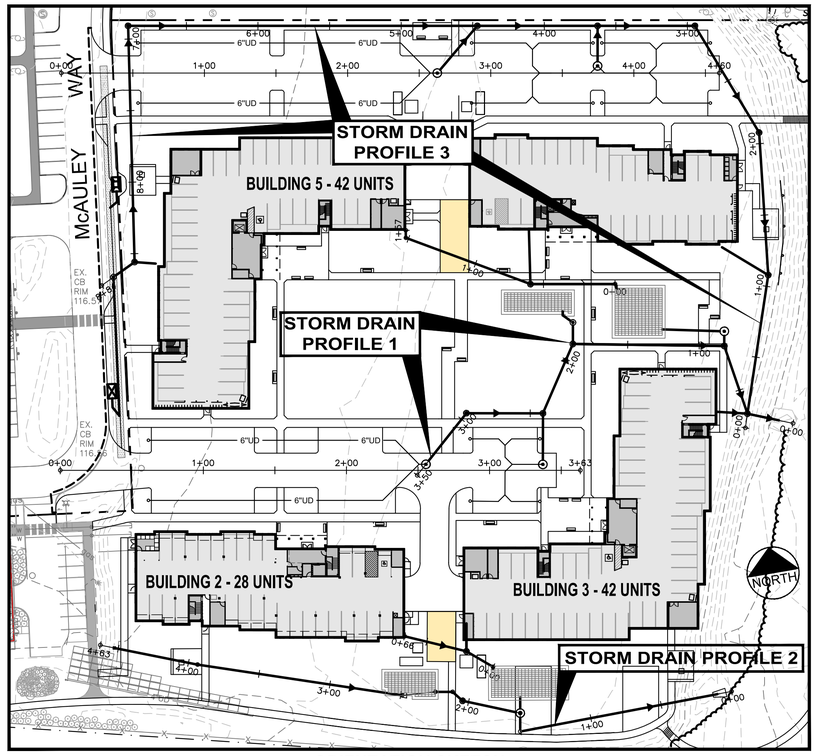
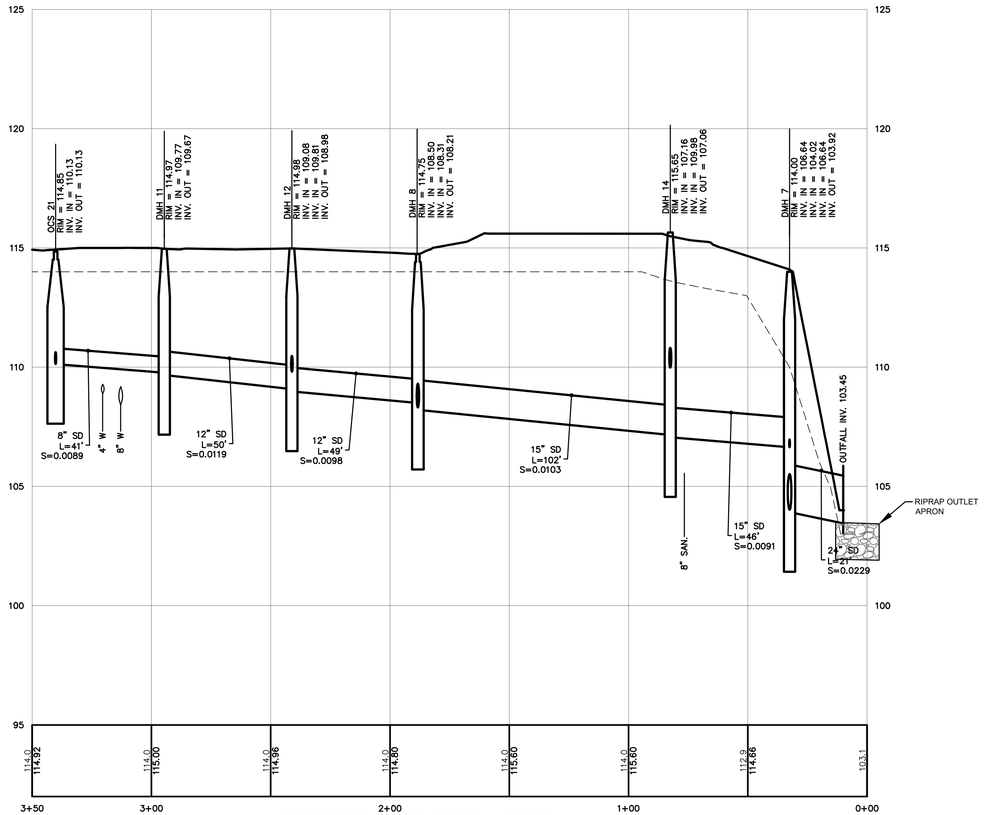


ORIENTATION SKETCH
SCALE: 1" = 50



STORM DRAIN PROFILE 1 (BLDG. 2)
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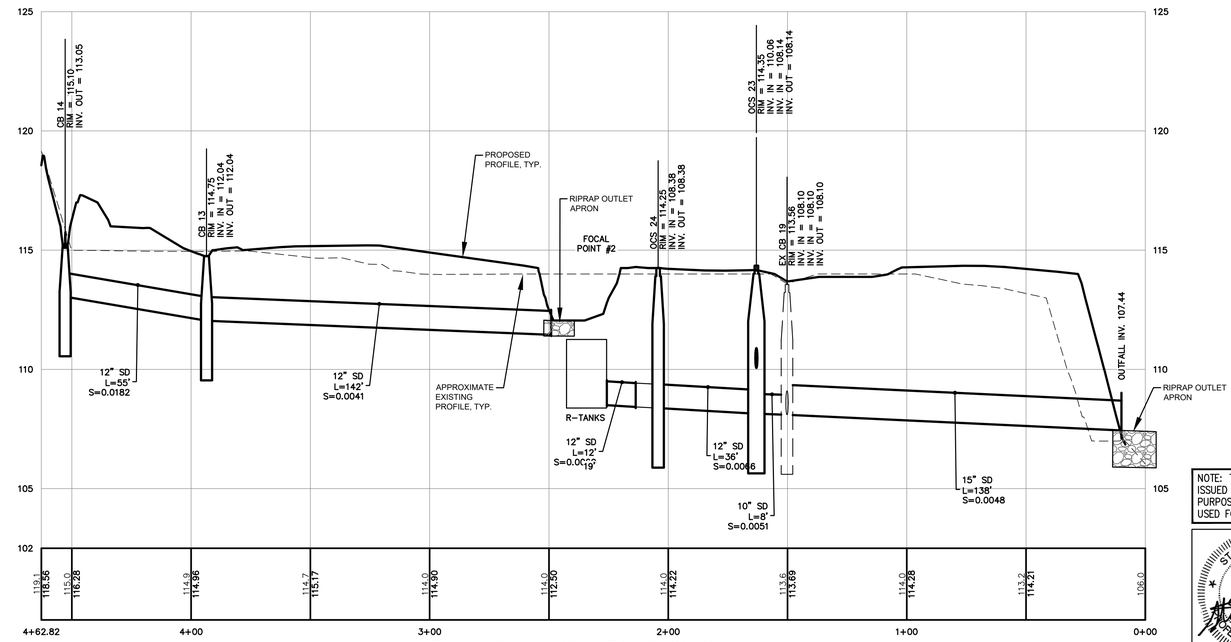

STORM DRAIN PROFILE 2 (BLDG. 2)
SCALE: 1" = 30 HORZ. / 1" = 3' VERT.

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Drawing Name: STORM DRAIN PROFILES

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Drawing No. C-10.0

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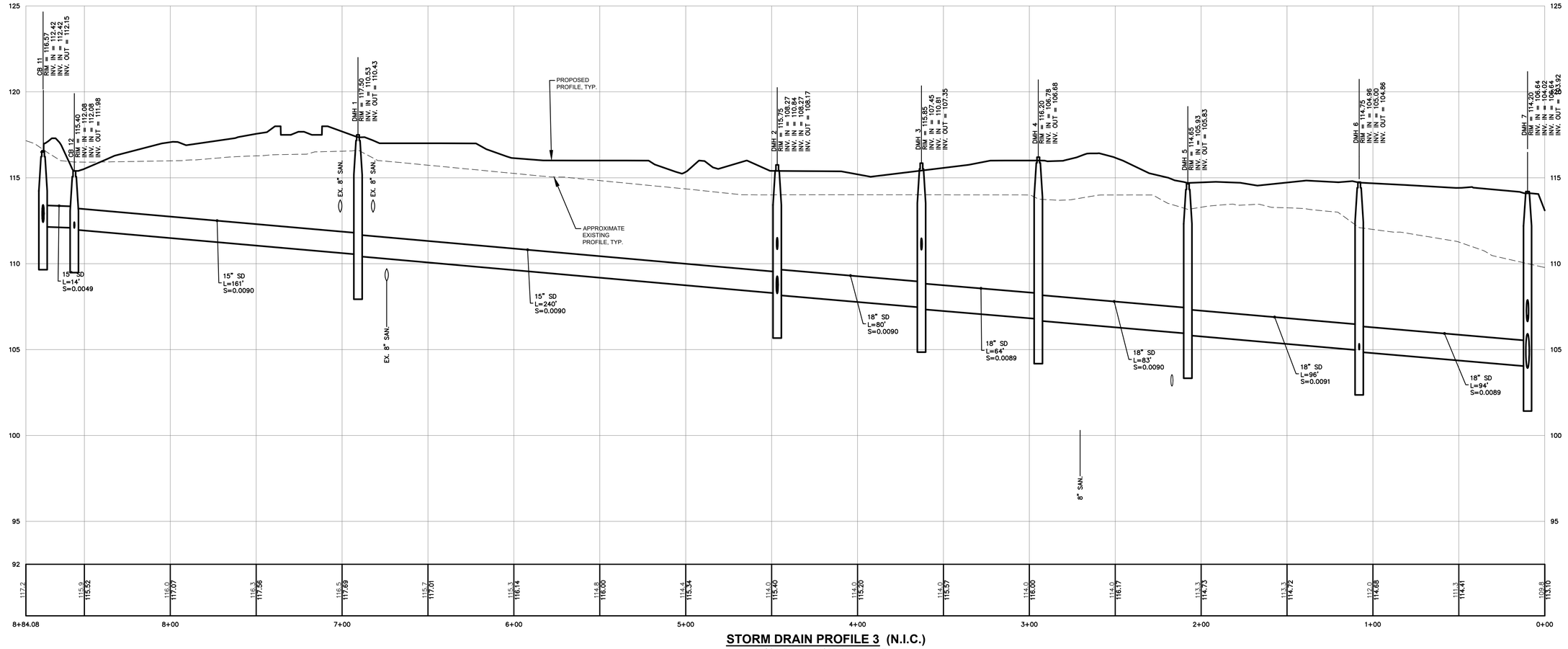
NOTE:
SEE SHEET C-10.0 FOR ORIENTATION SKETCH



STORM DRAIN PROFILE 3 (N.I.C.)
SCALE: 1" = 30 HORZ. / 1" = 3' VERT.

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Drawing Name: STORM DRAIN PROFILES
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Drawing No. C-10.1

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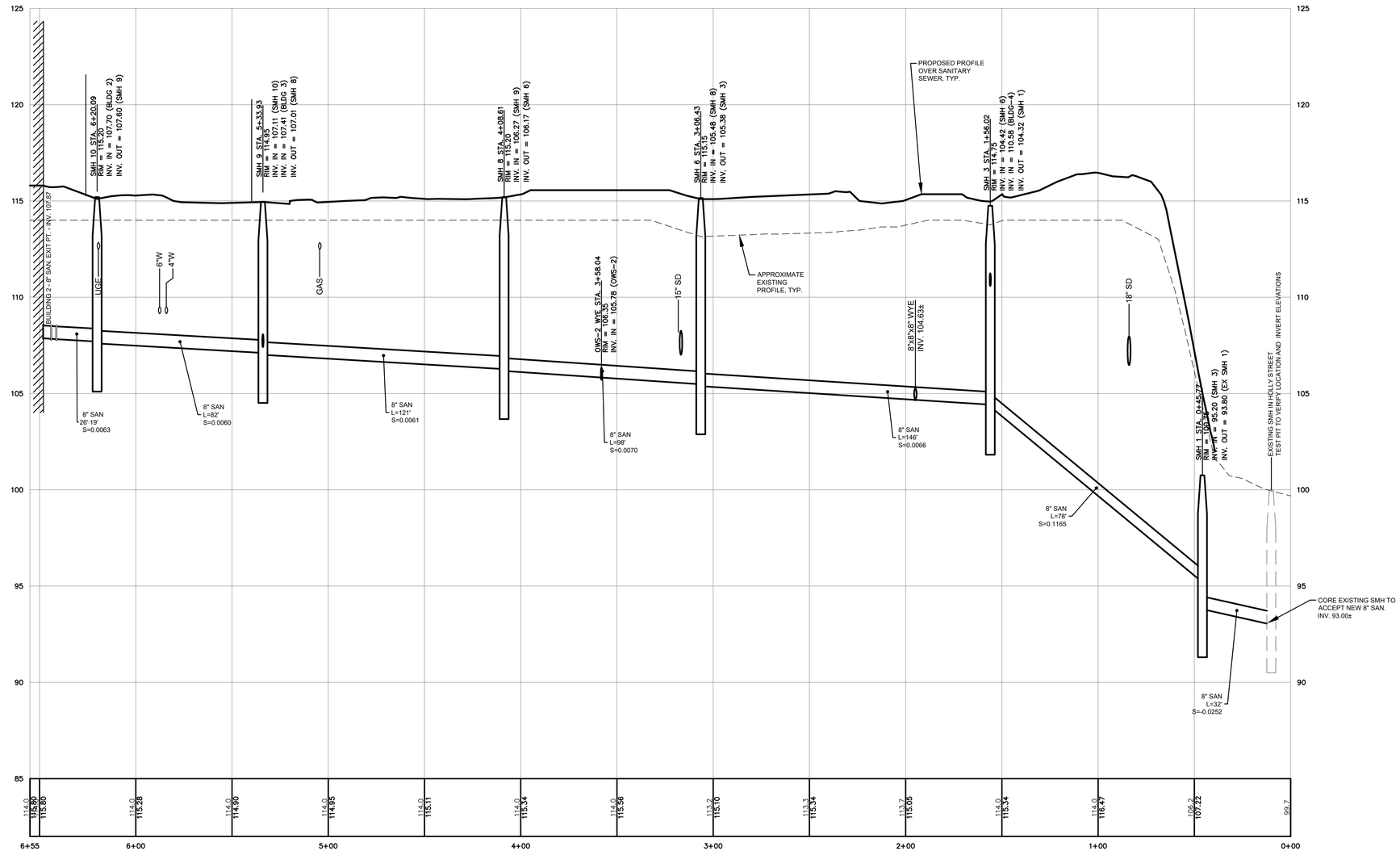

NOTE:
SEE SHEET C-11.1 FOR ORIENTATION SKETCH

SANITARY SEWER PROFILE 1 (BLDG. 2)

SCALE: 1" = 30' HORZ. / 1" = 3' VERT.

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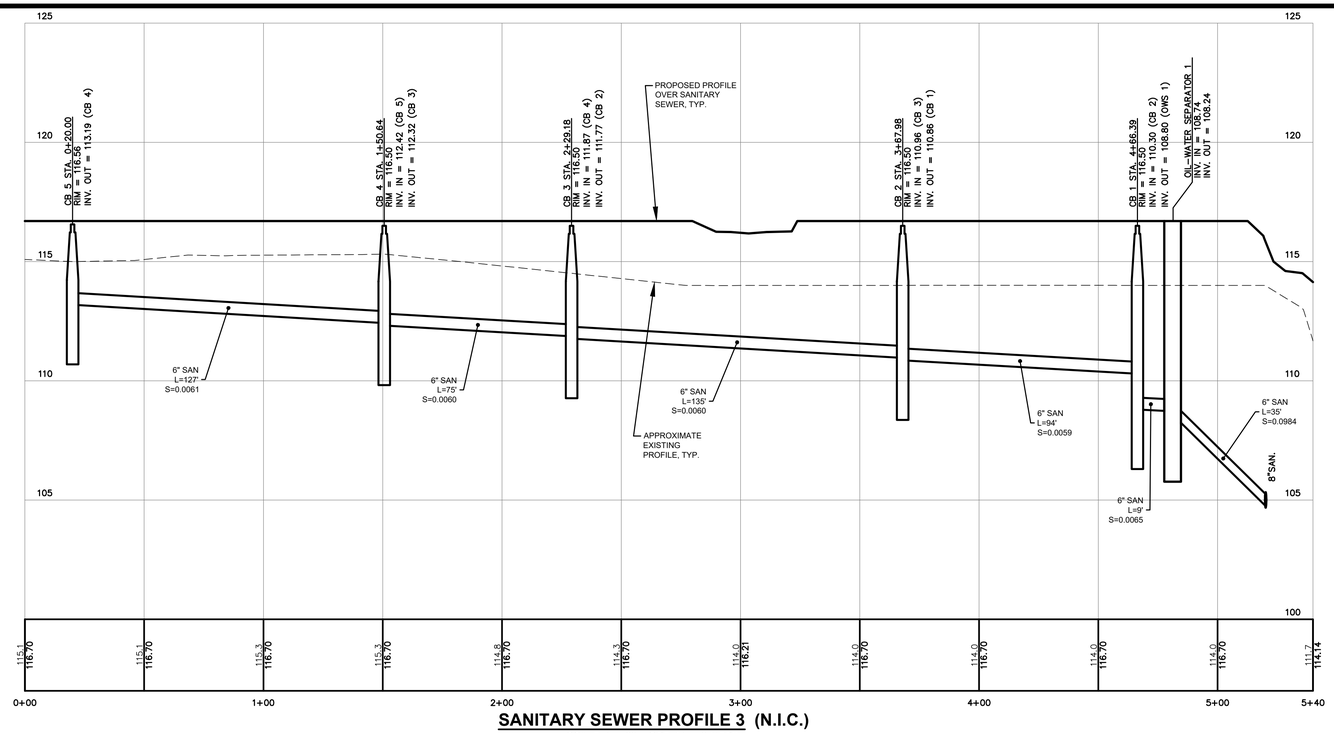

SANITARY SEWER PROFILE 3 (N.I.C.)

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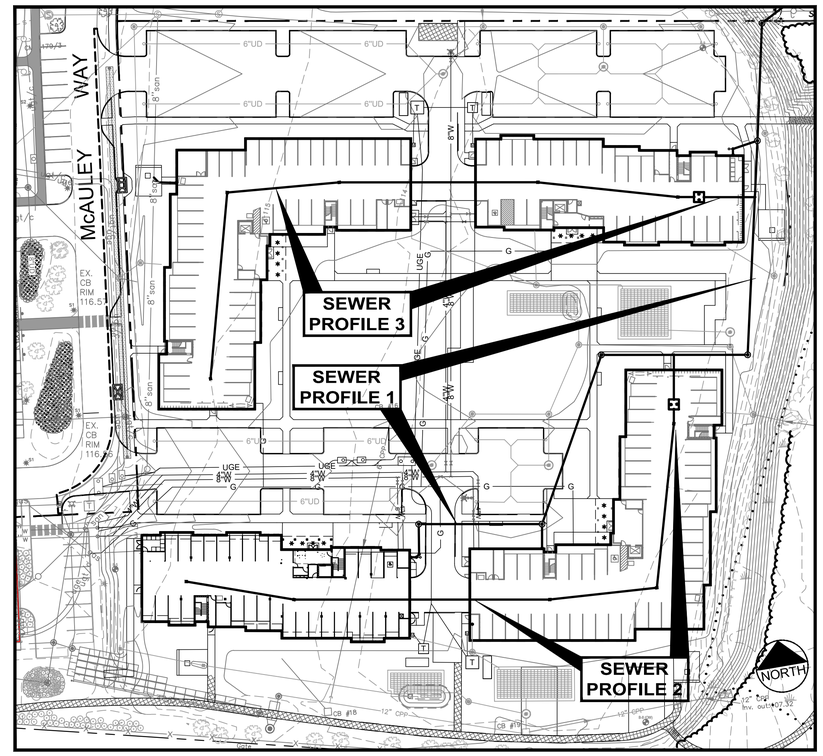

ORIENTATION SKETCH

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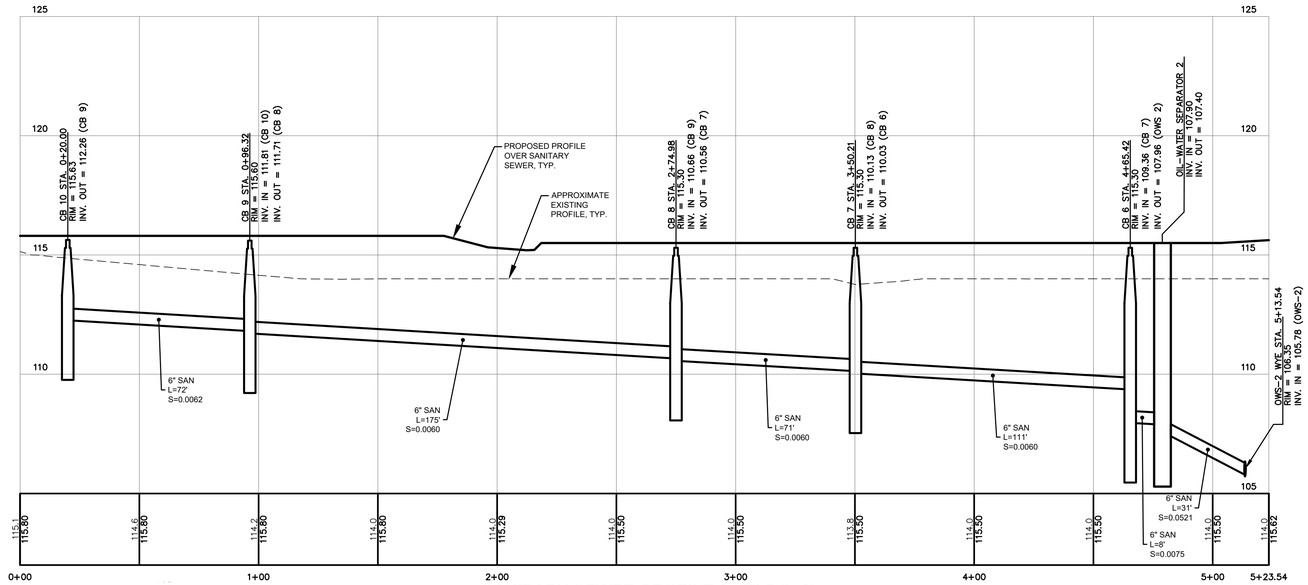

SANITARY SEWER PROFILE 2 (BLDG. 2)

SCALE: 1" = 30' HORZ. / 1" = 3' VERT.

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Drawing No. C-11.1

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GENERAL NOTES- SITE ELECTRICAL

1. THE COMPLETE INSTALLATION SHALL CONFORM WITH ALL APPLICABLE FEDERAL, STATE AND LOCAL LAWS, CODES AND ORDINANCES, INCLUDED BUT NOT LIMITED TO APPROVED EDITIONS OF THE FOLLOWING: NATIONAL ELECTRICAL SAFETY CODE (ANSI C2): NATIONAL ELECTRICAL CODE (NFPA 70): OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA) AND ALL AMENDMENTS THERETO. NOTHING CONTAINED IN THE DRAWINGS AND SPECIFICATIONS SHALL BE CONSTRUED TO CONFLICT WITH THESE LAWS, CODES, AND ORDINANCES, AND THEY ARE THEREBY INCLUDED IN THESE SPECIFICATIONS. OBTAIN PERMITS AND REQUEST INSPECTIONS FROM ALL AUTHORITIES HAVING JURISDICTION. COMPLY WITH ALL POWER, TELEPHONE, CABLE TELEVISION PROVIDER REGULATIONS AND STANDARDS.

2. THE FOLLOWING ELECTRICAL WORK SHALL BE PERFORMED UNDER THIS CONTRACT: UNDERGROUND CONDUIT, FITTINGS, AND ALL DEVICES: PROVISION OF HAND HOLES, NEW LIGHTING FIXTURES, POLES WITH ALL ACCESSORIES INCLUDING ANCHOR BOLTS AND POLE BASES: PROVISION OF UNDERGROUND CONDUIT AND WIRE TO SERVE NEW LIGHTING EQUIPMENT AND RECEPTACLES: PROVISION OF SERVICE EQUIPMENT, INCLUDING OUTDOOR CABINETS, INGROUND SPLICE BOXES, GROUNDING, METER ENCLOSURES, AND WEATHERPROOF RECEPTACLES.

3. ELECTRICAL UTILITY SHALL PROVIDE ALL ASSOCIATED OVERHEAD AND UNDERGROUND PRIMARY WIRING, PRIMARY TERMINATIONS, TRANSFORMERS, AND CONNECTIONS TO EXISTING OVERHEAD LINES. CONTRACTOR SHALL PROVIDE UNDERGROUND CONDUIT.

4. PROVIDE UNDERGROUND ELECTRICAL WARNING TAPE: 6" WIDE PLASTIC TAPE, COLORED RED WITH SUITABLE LEGEND DESCRIBING BURIED ELECTRICAL LINES FOR ALL UNDERGROUND CONDUITS. LOCATE 6 INCHES BELOW FINISHED GRADE.

5. REFER TO CIVIL DRAWINGS FOR EXCAVATION AND BACKFILL OF ALL UNDERGROUND WORK.

6. EXISTING UTILITY LOCATIONS ARE APPROXIMATE AND SHALL BE FIELD VERIFIED. CONTRACTORS SHALL CONTACT DIG SAFE BEFORE BEGINNING ANY EXCAVATIONS.

7. FINAL LOCATION OF NEW UTILITIES MAY VARY FROM PLANS PENDING UTILITY COMPANY FIELD COORDINATION.

8. THE LOCAL TELEPHONE AND CABLE TELEVISION SERVICE PROVIDERS SHALL PROVIDE AND INSTALL ALL THE SITE UTILITY SERVICE CABLE TO NEW BACKBOARD IN THE CONDUITS PROVIDED BY THE CONTRACTOR AS PART OF THE SITE WORK.

9. UNDERGROUND CONDUIT SHALL BE SCHED 40 PVC. ABOVE GRADE CONDUIT SHALL BE RGS. ALL CONDUIT SWEEPS SHALL BE RGS LONG SWEEPS.

10. PROVIDE EXPANSION FITTINGS FOR ALL UNDERGROUND CONDUIT CONNECTED TO FIXED ABOVE GROUND STRUCTURES.

11. PROVIDE A LISTED INTERSYSTEM BONDING TERMINAL AT THE SERVICE ENTRANCE. INSTALL IN ACCORDANCE WITH NFPA 70,250.94

LEGEND

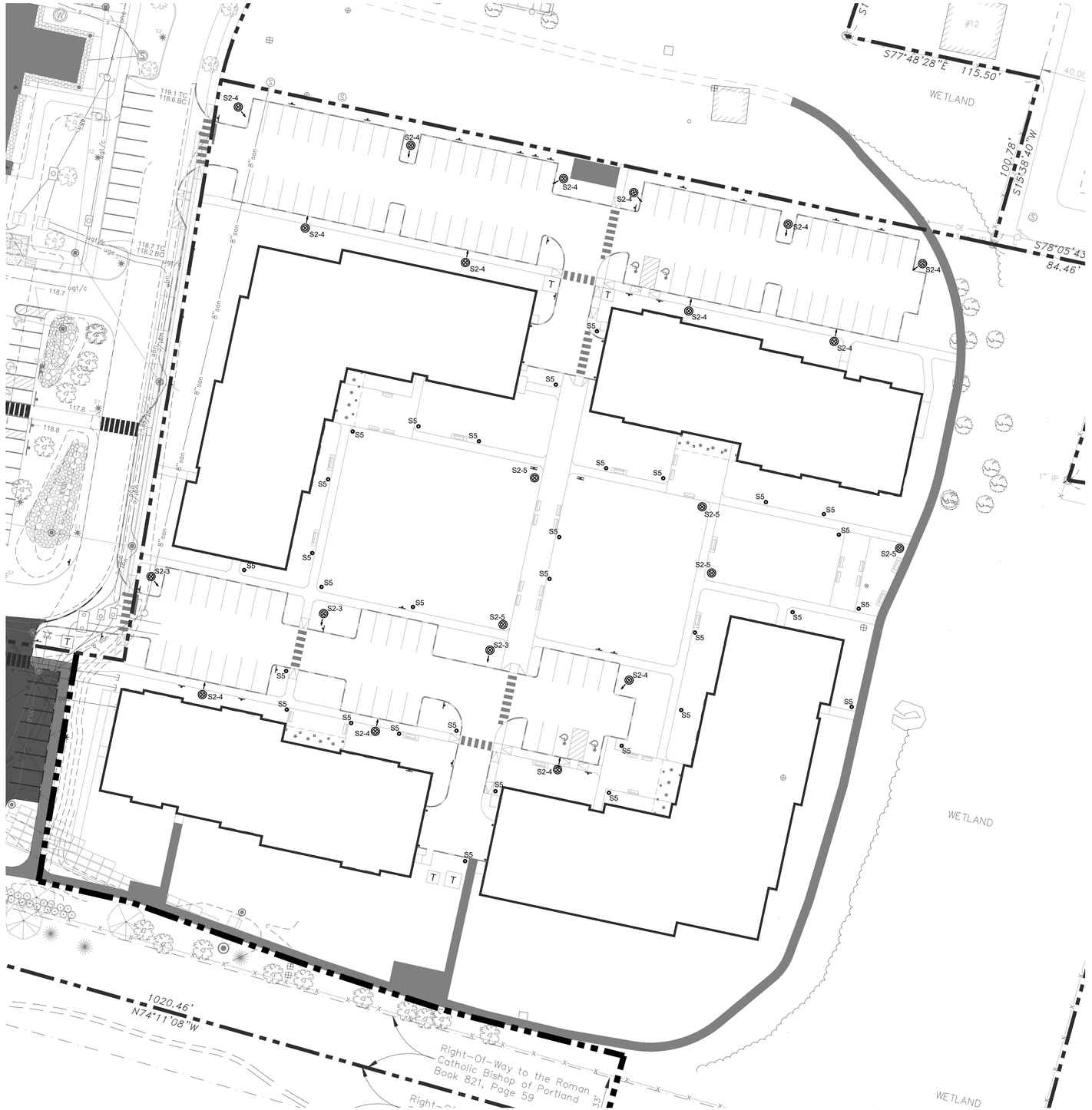
S5 ○
U.S ARCHITECTURAL LIGHTING
3000K 28W
BRA6-LED-IL-24LED(350MA)-WW-120-GI-RAL9005T-36IN OAH

S2-3 ⊗
SUN VALLEY LIGHTING
3000K 55W 3731-4187 LUMENS
MOZ20LED-VLED-III-48LED-350MA-WW-120-PT-RAL9005T
POLE:
US ARCHITECTURAL LIGHTING
RNTA144-125PT27RAL9005S (14' POLE)

S2-4 ⊗
SUN VALLEY LIGHTING
3000K 55W 3731-4187 LUMENS
MOZ20LED-VLED-IV-48LED-350MA-WW-120-PT-RAL9005T
POLE:
US ARCHITECTURAL LIGHTING
RNTA144-125-PT27-RAL9005S (14' POLE)

S2-5 ⊗
SUN VALLEY LIGHTING
3000K 55W 3731-4187 LUMENS
MOZ20LED-VLED-V-SQ-48LED-350MA-WW-120-PT-RAL9005T
POLE:
US ARCHITECTURAL LIGHTING
RNTA124-125PT27RAL9005S (12' POLE)

FIXTURE TYPES ARE FULL CUTOFF, DO NOT EXCEED LUMEN OUTPUT MAXIMUMS AND FIXTURE HEIGHT REQUIREMENTS OF CITY OF PORTLAND TECHNICAL MANUAL



1 / E1.0 STEVEN'S SQUARE SITE LIGHTING
SCALE: 1/32" = 1'-0"

STATE OF MAINE · STEVEN M. JOHNSON #8488 LICENSED PROFESSIONAL ENGINEER

BENNETT ENGINEERING
MECHANICAL • ELECTRICAL
(207) 865-9475

STEVEN'S SQUARE AT BAXTER WOODS - PHASE 2
583 STEVENS AVENUE, PORTLAND MAINE

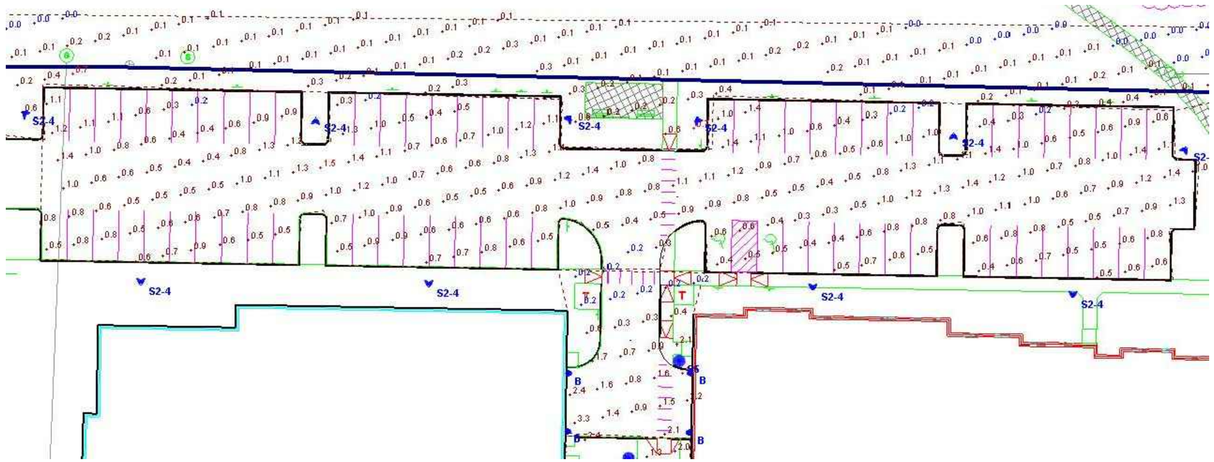
Date Drawn -	11/22/21
Drawn By -	MJM
Project *	
Scale -	AS NOTED

Revised -
2022.01.12 PHOTOMETRIC UPDATES

SHEET TITLE

SITE LIGHTING PLAN

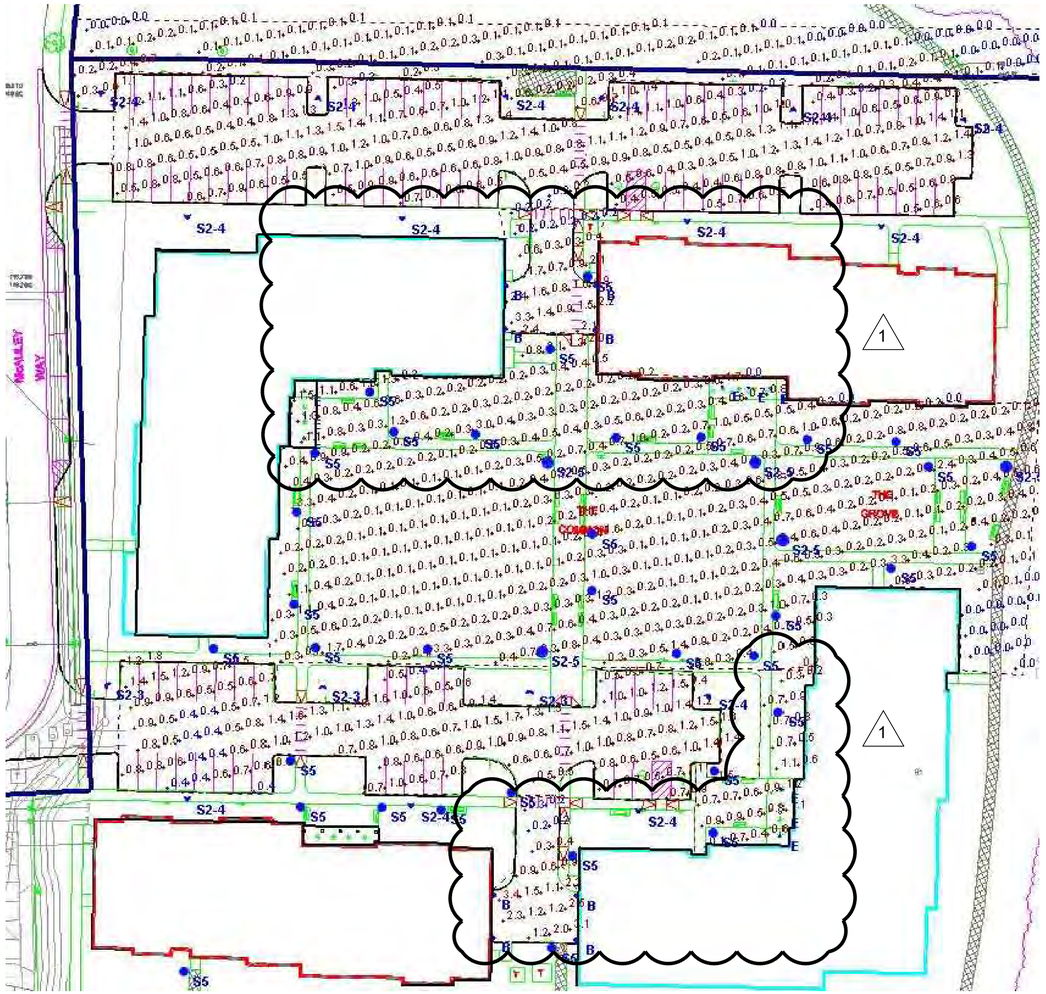
E1.0



1
E1.1

STEVEN'S SQUARE UPPER PARKING PHOTOMETRICS

SCALE: 1/32" = 1'-0"



2
E1.1

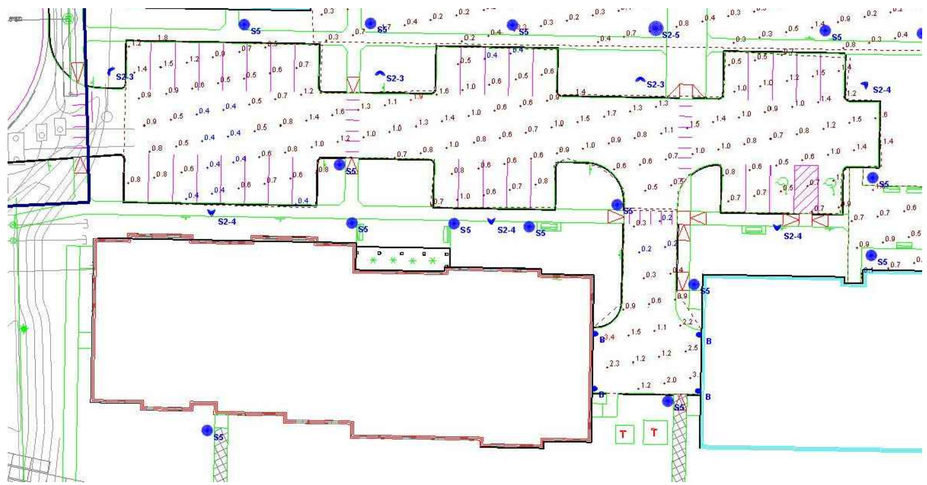
STEVEN'S SQUARE OVERALL PHOTOMETRICS

SCALE: 1/32" = 1'-0"

STATISTICS	
Upper Parking	
Average	.8 fc
Maximum	1.5 fc
Minimum	0.2 fc
Max/Min	7.5:1
Average/Min	4.0:1
Commons	
Average	0.4 fc
Maximum	3.3 fc
Minimum	0.0 fc
Max/Min	N/A
Average/Min	N/A
Lower Parking	
Average	.9 fc
Maximum	1.9 fc
Minimum	0.4 fc
Max/Min	4.8:1
Average/Min	2.3:1

NOTE:

ALL SITE LIGHTING FIXTURES ARE LED, FULL CUT-OFF FIXTURES - SEE SHEET E1.01 FOR LIGHTING FIXTURE TYPES AND SPECIFICATIONS



3
E1.1

STEVEN'S SQUARE LOWER PARKING PHOTOMETRICS

SCALE: 1/32" = 1'-0"

STATE OF MAINE STEVEN M. JOHNSON #9488 LICENSED PROFESSIONAL ENGINEER

BENNETT ENGINEERING
MECHANICAL • ELECTRICAL
(207) 865-9475

STEVEN'S SQUARE AT BAXTER WOODS - PHASE 2

583 STEVENS AVENUE, PORTLAND MAINE

Date Drawn -	11/22/21
Drawn By -	MJM
Project #	
Scale -	AS NOTED

Revised -
2022.01.12 PHOTOMETRIC UPDATES

SHEET TITLE

SITE PHOTOMETRICS PLAN

E1.1

SOLID STATE BOLLARDS

BRA SERIES-LED

SPECIFICATIONS

PROJECT NAME:

FIXTURE TYPE:

BOLLARD
Durable corrosion resistant extruded and cast aluminum construction. ¼" wall thickness.

LED POWER ARRAY™
Three-dimensional array consisting of 6 individual LED tubes for the BDA8 model and 4 individual LED tubes for the BDA6 model, which are fastened to a retaining plate equally spaced to provide 360° of even illumination output. Each LED tube consists of a circuit board populated with a multiple of LED's which is fastened to a radial aluminum heat sink. A white polycarbonate lens and end caps protect each LED tube's internal components and provides diffusion to prevent shadowing and striations.

INTERNAL LOUVER (IL) - A specular louver stack conceals the inner LED Power Array Module and provides uplight and glare control through the external clear polycarbonate lens.

CAST LOUVER (CL) - External cast aluminum louver stack protects the internal LED Power Array Module and provides uplight and glare control. An internal clear polycarbonate lens is integrated with the LED Power Array Module.

OPAL LENS (WP) - Exterior white polycarbonate lens protects the internal LED Power Array Module and provides a uniform white glow.

RADIAL LED MODULE
LED'S are mounted to a circular heatsink in a radial array. The radial LED module is concealed in the cap of the bollard. LED's are not directly visible from angles above 90°.

PARABOLIC REFLECTOR (PR) - A specular Parabolic Reflector reflects a portion of the distribution from the radial LED module and provides a uniform wide angle throw through the outer clear polycarbonate lens.

LED EMITTERS
High Output LED's are driven at 350mA for nominal 1 Watt output each. 70CRI Minimum. LED's are available in standard Neutral White (4000K), or optional Cool White (5000K) or Warm White (3000K). Consult Factory for other LED options.

LED DRIVER
UL and CUL recognized Constant Current LED drivers operate on input voltages from 120-277VAC, 50/60hz. Consult Factory for (347-480VAC). Driver is mechanically fastened to a retaining bracket. Driver has a minimum 4KV of internal surge protection, 10KV & 20KV Surge Protector optional. Dimmable and High-Low Driver options available.

FINISH
Polyester powder coat incorporates four step iron phosphate process to pretreat metal surface for maximum adhesion. Top coat is baked at 400°F for maximum hardness and exterior durability.



BRA

BRA8 SHOWN WITH **-PR** OPTICS

PATENT PENDING



BOLLARD	A	B	C	D
BRA8	42" 1067mm	8" 203mm	6" 152mm	8" 203mm
BRA6	42" 1067mm	6" 152mm	4" 102mm	6" 152mm

c UL us LISTED

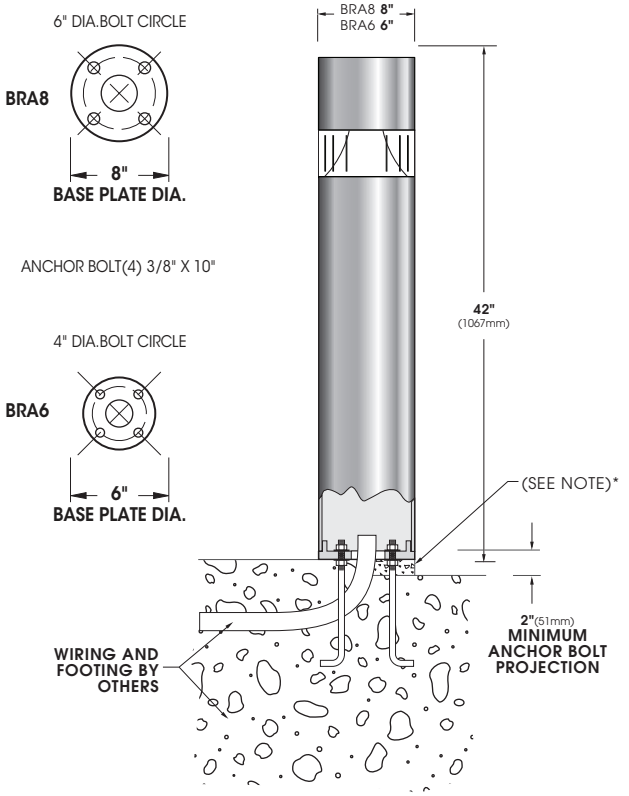
MADE IN THE USA

2018214

BRA SERIES-LED

SPECIFICATIONS

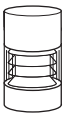
INSTALLATION



*When mounting in soil, anchor bolt fasteners and other hardware must be protected from soil by grouting.

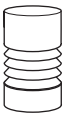
OPTICS

INTERNAL LOUVER
SUPPLIED WITH CLEAR POLYCARBONATE LENS



IL

CAST LOUVER

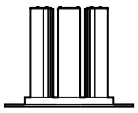


CL

OPAL POLYCARBONATE



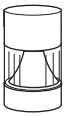
WA



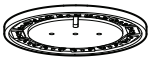
VPA - Vertical Array
BRA8 Available in:
36 LED Max

BRA6 Available in:
24LED Max

PARABOLIC REFLECTOR



PR



RADIAL LED Module
BRA8 Available in:
18 LED Module

BRA6 Available in:
12 LED Module

Spec/Order Example: BRA6-TR/12LED120WW/RAL-8019-T/HLSW

ORDERING INFORMATION

BOLLARD	OPTICS	# of LED's COLOR VOLTAGE	MOUNTING	FINISH	OPTIONS

BOLLARD

- ☐ **BRA8-LED**
- ☐ **BRA6-LED**

OPTICS

VERTICAL POWER ARRAY

- ☐ INTERNAL LOUVER . . . . . **IL**
- ☐ CAST LOUVER . . . . . **CL**
- ☐ OPAL POLYCARBONATE . . . . . **WP***

RADIAL LED MODULE

- ☐ PARABOLIC REFLECTOR . . . . **PR**

***-WP** OPTICS USE OPAL POLYCARBONATE LENS

LED

# of LEDs

- ☐ **36LED**[1]
- ☐ **24LED**
- ☐ **18LED**[1]
- ☐ **12LED**[2]

COLOR

- ☐ **NW** (4000K) Standard
- ☐ **CW** (5000K)
- ☐ **WW** (3000K)

OTHER LED COLORS AVAILABLE CONSULT FACTORY

VOLTAGE

- ☐ **120**
- ☐ **208**
- ☐ **240**
- ☐ **277**
- ☐ **347**
- ☐ **480**

NOTES:
1 – AVAILABLE IN BRA8 ONLY.
2 – AVAILABLE IN BRA6 ONLY.

MOUNTING

- ☐ **GROUND INSTALLATION** . . . . (STANDARD)
- ☐ WALL MOUNT **WM** . . . . . .

FINISH

STANDARD TEXTURED FINISH

- ☐ BLACK **RAL-9005-T**
- ☐ WHITE **RAL-9003-T**
- ☐ GREY **RAL-7004-T**
- ☐ DARK BRONZE **RAL-8019-T**
- ☐ GREEN **RAL-6005-T**

FOR SMOOTH FINISH REPLACE SUFFIX "T" WITH SUFFIX "S" (EXAMPLE: RAL-9500-S)

SEE USALTG.COM FOR ADDITIONAL COLORS

OPTIONS

- ☐ DIMMABLE DRIVER (0-10V PROVIDED) . . . . . **DIM**
- ☐ HIGH-LOW DIMMING FOR HARDWIRED SWITCHING OR NONINTEGRATED MOTION SENSOR . . . . . **HLSW**
- ☐ INTERNAL HOUSE SIDE SHIELD. . . . **HS**
- ☐ DUPLEX RECEPTACLE . . . . . **DUP**
- ☐ GROUND FAULT RECEPTACLE . . . . . **GFI**
- ☐ 10KV SURGE PROTECTOR. **10SP**
- ☐ 20KV SURGE PROTECTOR (277V & 480V Only) **20SP**

OPTIONAL HEIGHTS:

- ☐ **30"**
- ☐ **36"**

PROJECT NAME:

FIXTURE TYPE:

SOLID STATE AREA LIGHTING

MOZART SERIES-LED

S P E C I F I C A T I O N S

FIXTURE HOUSING

One piece unitized precise heavy wall cast aluminum construction comprised of low copper (< 0.2% Cu) aluminum. Hood is fastened to the Housing with a stainless steel hinge and secured with a tool-less stainless steel latch 180° opposite the hinge. Housing and Hood is sealed with an extruded closed cell silicone gasket. Driver/wiring access through top of Mounting Hub. Hub accommodates a 2⅞" x 3" tenon. All exposed hardware is stainless steel.

VLED® OPTICAL MODULE

Low copper A356 alloy (< 0.2% copper) cast aluminum housing. Integrated clear tempered 3/16" glass lens sealed with a continuous silicone gasket protects emitters (LED's) and emitter Reflector-Prism optics, and seals the module from water intrusion and environmental contaminants. Reflector-Prism injection molded from H12 acrylic. Each Reflector-Prism has indexing pins for aiming and is secured to an optical plate made of matte black anodized aluminum. The optical plate locates a Reflector-Prism over each emitter. Reflector-Prisms are secured to the optical plate with a UV curing adhesive. The Reflector-Prisms are arrayed to produce IES Type II, III, IV, and V-SQ distributions. The entire Optical Module is field rotatable in 90° increments. Both module and drivers are factory wired using water resistant, insulated cord. Lens, module and drivers are field replaceable.

LED EMITTERS

High output LED's are utilized with drive currents ranging from 350mA to 700mA. 70CRI Minimum. LED's are available in standard Neutral White (4000K), or optional Cool White (5000K) or Warm White (3000K). Consult Factory for other LED options.

LED DRIVER

UL and CUL recognized High Power Factor, Constant Current LED drivers operate on input voltages from 120-277, 50/60hz, or 347-480V 50/60hz and utilizes 0-10v dimming. Driver is mechanically fastened to a retaining bracket. Main power quick disconnect provided. Surge protector supplied for field installation at the most conveniently serviceable location.

AMBER LED's

PCA (Phosphor Converted Amber) LED's utilize phosphors to create color output similar to LPS lamps and have a slight output in the blue spectral bandwidth. **TRA** (True Amber) LED's utilize material that emits light in the amber spectral bandwidth only without the use of phosphors.

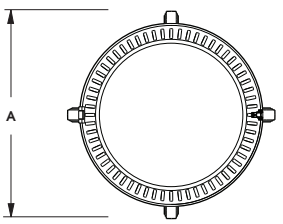
FINISH

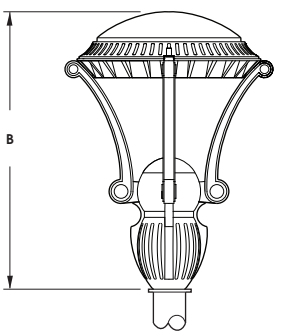
Electrostatically applied TGIC Polyester Powder Coat on substrate prepared with 20 PSI power wash at 140°F. Four step sand blast and iron phosphate pretreatment for protection and paint adhesion. 400°F bake for maximum hardness and durability. Texture finish is standard.



MOZ-LED

PATENT PENDING





Fitter supplied to fit over 2 7/8" X 3" (73mm X 76mm) tennon.

FIXTURE	A	B
MOZ26	26" 660mm	34.5" 876mm
MOZ20	20" 508mm	26.5" 673mm

c UL us LISTED

MADE IN THE USA

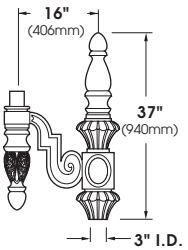
2018332

MOZART SERIES - LED

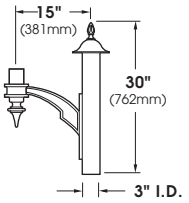
SPECIFICATIONS

ARM STYLES

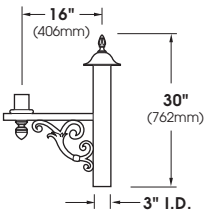
XAC



XAZ-UP

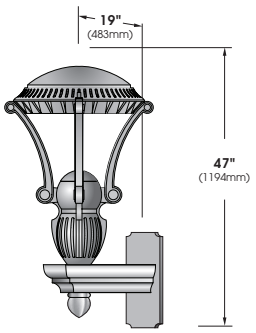


XAT



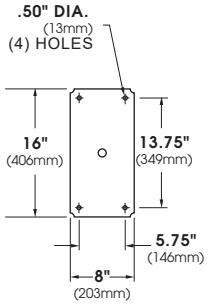
ARMS ARE HEAVY WALL EXTRUDED AND CAST ALUMINUM CONSTRUCTION. FOR ADDITIONAL ARM AND/OR WALL MOUNT OPTIONS SEE ARM SECTION.

WALL MOUNT

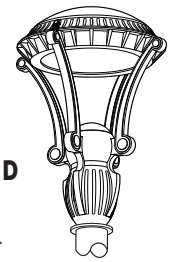


ARM BRACKET EXTRUDED AND CAST ALUMINUM CONSTRUCTION. (XBW-WM SHOWN)

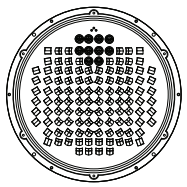
WALL PLATE



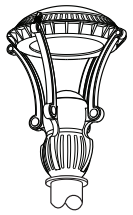
VLED® MODULES



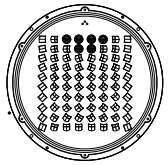
MOZ26-LED
E.P.A.= 2.30
Available in:
120 LED Max.



120 LED Module



MOZ20-LED
E.P.A.= 1.49
Available in:
80 LED Max.



80 LED Module

MAX INPUT WATTS/ HID EQUIVALENTS

# OF LED's	DRIVE CURRENT	SYSTEM WATTS	HID EQUIV	APPROX. LUMENS - 4,000
48	350mA	55	70 – 100w	4,501
	525mA	79	100w	6,214
	700mA	109	150 – 175w	7,823
64	350mA	70	100w	5,577
	525mA	108	150 – 175w	7,825
	700mA	134	175 – 200w	10,166
80	350mA	85	150w	7,292
	525mA	130	175 – 200w	10,219
100	350mA	109	175w	9,061
120	350mA	130	200 – 250w	10,873

Spec/Order Example: MOZ26-LED/VLED-III/64LED-700mA/NW/277/PT/RAL-9003-S/HS-VLED

SPEC / ORDERING INFORMATION

MODEL	OPTICS	LED MODE	VOLTAGE	MOUNTING	FINISH	OPTIONS

MODEL

- ☐ MOZ26-LED
- ☐ MOZ20LED

OPTICS

VLED® IES DISTRIBUTION TYPE

- ☐ TYPE I I **VLED - II** . . . . .
- ☐ TYPE I I **VLED - III** . . . . .
- ☐ TYPE I V **VLED - IV** . . . . .
- ☐ TYPE V-SQ **VL ED- V-SQ** .

LED MODE

# of LED's

MOZ26
- ☐ 120LED
- ☐ 100LED
- ☐ 80LED
- ☐ 64LED
- ☐ 48LED

MOZ20
- ☐ 80LED
- ☐ 64LED
- ☐ 48LED

DRIVE CURRENT
- ☐ 350mA
- ☐ 525mA[1]
- ☐ 700mA[2, 3]

COLOR TEMP-CCT
- ☐ NW (4000K) *STANDARD
- ☐ CW (5000K)
- ☐ WW (3000K)

OTHER LED COLORS AVAILABLE CONSULT FACTORY

AMBER[4]
- ☐ PHOSPHOR CONVERTED AMBER **PCA**
- ☐ TRUE AMBER[5] **TRA**

NOTES:
1 - 80LED, 64LED & 48LED ONLY
2 - 64LED & 48LED ONLY
3 - NOT FOR USE WITH TRA LED'S
4 - NARROW BAND AMBERS HAVE NO DEFINABLE CCT EQUIVALENT
5 - AVAILABLE IN 350mA & 525mA DRIVE CURRENTS ONLY

VOLTAGE

- ☐ 120
- ☐ 208
- ☐ 240
- ☐ 277
- ☐ 347
- ☐ 480

MOUNTING

ARM MOUNT
- ☐ XXX/1 . . . . .
- ☐ XXX/2-180 .
- ☐ XXX/2-90 . . .
- ☐ XXX/3-90 . .
- ☐ XXX/3-120 .
- ☐ XXX/4-90 . .

(**XXX** = Arm Model #
Ex = XBW-2-180/RAL-9005-T)

POST TOP MOUNT
(STANDARD 2¼" x 3" TENON)
- ☐ PT . . . . . .

WALL MOUNT
- ☐ WM . . . . . .

FINISH

STANDARD TEXTURED FINISH
- ☐ BLACK **RAL-9005-T**
- ☐ WHITE **RAL-9003-T**
- ☐ GREY **RAL-7004-T**
- ☐ DARK BRONZE **RAL-8019-T**
- ☐ GREEN **RAL-6005-T**

FOR SMOOTH FINISH REPLACE SUFFIX "T" WITH SUFFIX "S" (EXAMPLE: RAL-9500-S)

SEE USALTG.COM FOR ADDITIONAL COLORS

OPTIONS

- ☐ 7-PIN TWIST LOCK RECEPTACLE ONLY (ANSI C136.41). **TPR7**
- ☐ INTERNAL HOUSE SIDE SHIELDS . . . . . **HS-VLED**
- ☐ HIGH-LOW DIMMING FOR HARDWIRED SWITCHING OR NON-INTEGRATED MOTION SENSOR . . . . . **HLSW**
- ☐ PHOTO CELL + VOLTAGE (EXAMPLE: PC120V) . . . . **PC+V**
- ☐ TWIST LOCK PHOTOCELL RECEPTACLE ONLY . . **TPR**

CONTACT FACTORY FOR STEP DIM MOTION SENSOR (PROGRAMMED 50/100)

MOZART SERIES - LED

LED COUNT	SOURCE TYPE	SOURCE	INITIAL LUMENS - 4000K	INITIAL LUMENS - 3000K	INITIAL LUMENS - 5000K	L70 GREATER THAN (HR)	STARTING TEMP.	SYSTEM WATTS	VOLTS	MAX INPUT AMPS
48	LED	48 *V* LED® Optical Module - 350mA	4,241 – 4,760	3,731 – 4,187	4,337 – 4,868	60,000+	-20°F	55	120 277 347	0.46 0.20 0.16
48	LED	48 *V* LED® Optical Module - 525mA	5,871 – 6,557	5,152 – 5,755	6,009 – 6,711	60,000+	-20°F	79	120 277 347	0.66 0.29 0.23
48	LED	48 *V* LED® Optical Module - 700mA	7,515 – 8,131	6,579 – 7,119	7,696 – 8,327	60,000+	-20°F	109	120 277	0.91 0.40 0.32
64	LED	64 *V* LED® Optical Module - 350mA	5,255 – 5,898	4,623 – 5,189	5,373 – 6,031	60,000+	-20°F	70	120 277 347	0.59 0.26 0.21
64	LED	64 *V* LED Optical Module - 525mA	7,393 – 8,257	6,488 – 7,246	7,566 – 8,451	60,000+	-20°F	108	120 277 347	0.90 0.39 0.32
64	LED	64 *V* LED® Optical Module - 700mA	9,927 – 10,405	8,691 – 9,110	10,166 – 10,655	60,000+	-20°F	134	120 277 347	1.12 0.49 0.39
80	LED	80 *V* LED® Optical Module - 350mA	7,131 – 7,452	6,273 – 6,556	7,292 – 7,620	60,000+	-20°F	85	120 277 347	0.77 0.31 0.25
80	LED	80 *V* LED® Optical Module - 525mA	9,994 – 10,444	8,770 – 9,166	10,228 – 10,689	60,000+	-20°F	130	120 277 347	1.09 0.47 0.38
100	LED	100 *V* LED® Optical Module - 350mA	8,862 – 9,260	7,796 – 8,146	9,062 – 9,469	60,000+	-20°F	109	120 277 347	0.91 0.40 0.32
120	LED	120 *V* LED® Optical Module - 350mA	10,634 – 11,112	9,355 – 9,776	10,874 – 11,363	60,000+	-20°F	130	120 277 347	1.09 0.47 0.38

NOTES:

1. Max Input Amps is the highest of starting, operating, or open circuit currents
2. Lumen values for LED Modules vary according to the distribution type
3. System Watts includes the source watts and all driver components.
4. Fuse value should be sufficient to protect all wiring components. For electronic driver and LED component protection, use 10KV – 20KV surge suppressors.
5. L70(10K) – TM-21 6x rule applied
   L70(10K) – Calculated = 244,000 @ 700mA

WARNING: All fixtures must be installed in accordance with local codes or the National Electrical Code. Failure to do so may result in serious personal injury.

PROJECT NAME:

FIXTURE TYPE:

SOLID STATE AREA LIGHTING

MOZART-WA SERIES-LED

S P E C I F I C A T I O N S

FIXTURE HOUSING

One piece unitized precise heavy wall cast aluminum construction comprised of low copper (< 0.2% Cu) aluminum. Hood is fastened to the Housing with a stainless steel hinge and secured with a tool-less stainless steel latch 180° opposite the hinge. Housing and Hood is sealed with an extruded closed cell silicone gasket. White Acrylic enclosure is gasketed at the fixture Mounting Hub and crown with an extruded closed cell silicone gasket. Driver/wiring access is inside the enclosure and accesses through the top of the Mounting Hub. Hub accommodates a 2⅞" x 3" tenon. All exposed hardware is stainless steel.

LED POWER ARRAY™

Three-dimensional array of individual LED Tubes fastened to a retaining plate. Each LED Tube consists of circuit board populated with a multiple of LED's and is mechanically fastened to a radial aluminum heat sink. A diffuse acrylic lens and end cap protects each LED Tube's internal components.

VERTICAL POWER ARRAY™: LED Tubes are aligned vertically and equally arranged radially to produce an even raw light distribution that simulates standard light sources. Produces a minimal glare, symmetric diffuse light distribution. Used in conjunction with a smooth, white, acrylic diffusing enclosure.

LED EMITTERS

High output LED's are utilized with drive currents ranging from 350mA to 525mA. 70CRI Minimum. LED's are available in standard Neutral White (4000K), or optional Cool White (5000K) or Warm White (3000K). Consult Factory for other LED options.

LED DRIVER

UL and CUL recognized High Power Factor, Constant Current LED drivers operate on input voltages from 120-277VAC, 50/60hz or 347-480V, 50/60hz and utilizes 0-10v dimming. Driver is mechanically fastened to a retaining bracket. Main power quick disconnect provided. Surge protector supplied for field installation at the most conveniently serviceable location.

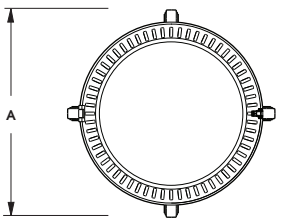
FINISH

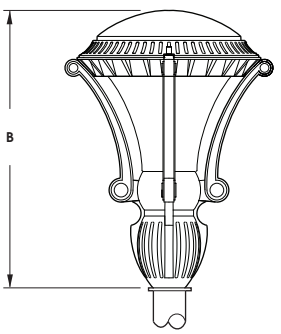
Electrostatically applied TGIC Polyester Powder Coat on substrate prepared with 20 PSI power wash at 140°F. Four step sand blast and iron phosphate pretreatment for protection and paint adhesion. 400°F bake for maximum hardness and durability. Texture finish is standard.



MOZ-WA-LED

PATENT PENDING





Fitter supplied to fit over 2⅞" X 3" (73mm X 76mm) tennon.

FIXTURE	A	B
MOZ26-WA	26" 660mm	34.5" 876mm
MOZ20-WA	20" 508mm	26.5" 673mm

c UL us LISTED

MADE IN THE USA

2018332

Sun Valley Lighting

660 West Avenue O, Palmdale, CA 93551
Phone (661) 233-2000 Fax (661) 233-2001
www.usaltg.com

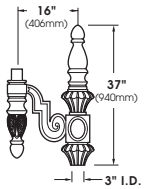
SUN VALLEY LIGHTING

MOZART-WA SERIES - LED

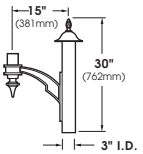
SPECIFICATIONS

ARM STYLES

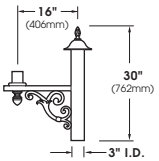
XAC



XAZ-UP

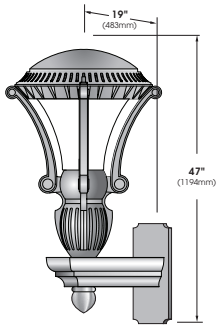


XAT



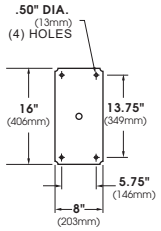
ARMS ARE HEAVY WALL EXTRUDED AND CAST ALUMINUM CONSTRUCTION. FOR ADDITIONAL ARM AND/OR WALL MOUNT OPTIONS SEE ARM SECTION.

WALL MOUNT

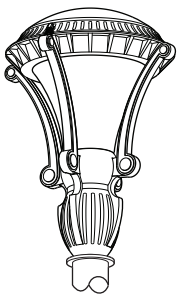


ARM BRACKET EXTRUDED AND CAST ALUMINUM CONSTRUCTION.

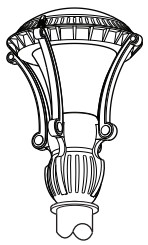
WALL PLATE



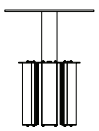
LED POWER ARRAY™ MODULE



MOZ26-WA-LED
E.P.A.= 2.27
VERTICAL ARRAY
Available in:
80 LED Max.



MOZ20-WA-LED
E.P.A.= 1.48
VERTICAL ARRAY
Available in:
48 LED Max.



VPA - Vertical Array
Top Mount

Spec/Order Example: MOZ20-WA-LED/VPA-SYM/36LED-525mA/WW/277/PT/RAL-9005-T

SPEC / ORDERING INFORMATION

LUMINAIRE	OPTICS	# of LED's DRIVE CURRENT COLOR VOLTAGE	MOUNTING	FINISH	OPTIONS

LUMINAIRE

LUMINAIRE

☐ **MOZ26-WA-LED**

☐ **MOZ20-WA-LED**

OPTICS

VERTICAL POWER ARRAY

☐ SYMMETRIC TYPE - V
VPA-SYM . . . . .

LED

# of LEDs

MOZ26-WA
☐ **64LED**
☐ **48LED**
☐ **32LED**

MOZ20-WA
☐ **48LED**
☐ **36LED**
☐ **24LED**

DRIVE CURRENT

☐ **350mA**
☐ **525mA**

COLOR TEMP - CCT

☐ **NW (4000K)***
* STANDARD
☐ **CW (5000K)**
☐ **WW (3000K)**

OTHER LED COLORS AVAILABLE CONSULT FACTORY

VOLTAGE

☐ **120**
☐ **208**
☐ **240**
☐ **277**
☐ **347**
☐ **480**

MOUNTING

ARM MOUNT

☐ **XXX/1 (TYP.)** . . . . .
☐ **XXX/2-180 (TYP.)** .
☐ **XXX/2-90 (TYP.)** . . .
☐ **XXX/3-90 (TYP.)** . .
☐ **XXX/3-120 (TYP.)** .
☐ **XXX/4-90 (TYP.)** . .

(**XXX** = Arm Model #
Ex = XBW-2-180/RAL-9005-T)

POST TOP MOUNT
(STANDARD 2¼" x 3" TENON)

☐ **PT** . . . . . .

WALL MOUNT

☐ **WM** . . . . . .

FINISH

STANDARD TEXTURED FINISH

☐ BLACK **RAL-9005-T**
☐ WHITE **RAL-9003-T**
☐ GREY **RAL-7004-T**
☐ DARK BRONZE **RAL-8019-T**
☐ GREEN **RAL-6005-T**

FOR SMOOTH FINISH REPLACE SUFFIX "T" WITH SUFFIX "S" (EXAMPLE: RAL-9500-S)

SEE USALTG.COM FOR ADDITIONAL COLORS

OPTIONS

☐ 7-PIN TWIST LOCK RECEPTACLE ONLY (ANSI C136.41). **TPR7**
☐ HOUSE SIDE SHIELDS (STANDARD 180° SHIELD). . **HS**
☐ HIGH-LOW DIMMING FOR HARDWIRED SWITCHING OR NON-INTEGRATED MOTION SENSOR . . . . . **HLSW**
☐ PHOTO CELL + VOLTAGE (EXAMPLE: PC120V) . . . . **PC+V**
☐ TWIST LOCK PHOTOCELL RECEPTACLE ONLY . . **TPR**
☐ SINGLE FUSE (120V, 277V) . . . . . **SF**
☐ DOUBLE FUSE (208V, 240V) . . . . . **DF**

CONTACT FACTORY FOR STEP DIM MOTION SENSOR (PROGRAMMED 50/100)

MOZART-WA SERIES - VPA LED

LAMP/ELECTRICAL GUIDE

LED COUNT	SOURCE TYPE	SOURCE	INITIAL LUMENS - 4000K	INITIAL LUMENS - 3000K	INITIAL LUMENS - 5000K	L70 GREATER THAN (HR)	STARTING TEMP.	SYSTEM WATTS	VOLTS	MAX INPUT AMPS
24	LED	24 VPA LED Power Array – 350mA	2,453	2,158	2,508	60,000+	-20°F	37	120 277 347	0.23 0.10 < 0.10
24	LED	24 VPA LED Power Array – 525mA	3,434	3,021	3,511	60,000+	-20°F	55	120 277 347	0.34 0.15 0.12
32	LED	32 VPA LED Power Array – 350mA	3,271	2,877	3,344	60,000+	-20°F	45	120 277 347	0.30 0.13 0.11
32	LED	32 VPA LED Power Array – 525mA	4,579	4,028	4,682	60,000+	-20°F	66	120 277 347	0.45 0.20 0.16
36	LED	36 VPA LED Power Array – 350mA	3,679	3,236	3,762	60,000+	-20°F	54	120 277 347	0.35 0.15 0.12
36	LED	36 VPA LED Power Array – 525mA	5,151	4,531	5,267	60,000+	-20°F	79	120 277 347	0.51 0.23 0.18
48	LED	48 VPA LED Power Array – 350mA	4,906	4,316	5,017	60,000+	-20°F	67	120 277 347	0.45 0.20 0.16
48	LED	48 VPA LED Power Array – 525mA	6,868	6,042	7,023	60,000+	-20°F	98	120 277 347	0.66 0.29 0.23
64	LED	64 VPA LED Power Array – 350mA	6,541	5,754	6,689	60,000+	-20°F	89	120 277 347	0.60 0.26 0.21
64	LED	64 VPA LED Power Array – 525mA	9,157	8,056	9,364	60,000+	-20°F	131	120 277 347	0.88 0.38 0.31

NOTES:

1. Max Input Amps is the highest of starting, operating, or open circuit currents
2. Lumen values for LED Modules vary according to the distribution type
3. System Watts includes the source watts and all driver components.
4. Fuse value should be sufficient to protect all wiring components. For electronic driver and LED component protection, use 10KV – 20KV surge suppressors.
5. L70(10K) – TM-21 6x rule applied
   L70(10K) – Calculated = 244,000 @ 700mA

WARNING: All fixtures must be installed in accordance with local codes or the National Electrical Code. Failure to do so may result in serious personal injury.

PROJECT NAME:

FIXTURE TYPE:

SOLID STATE AREA LIGHTING

MOZART-CPA SERIES-LED

S P E C I F I C A T I O N S

FIXTURE HOUSING

One piece unitized precise heavy wall cast aluminum construction comprised of low copper (A356 alloy, <0.2% Cu) aluminum. Hood is fastened to the Housing with a stainless steel hinge and secured with a tool-less stainless steel latch 180° opposite the hinge. Housing and Hood is sealed with an extruded closed cell silicone gasket. Clear Patterned Acrylic enclosure is gasketed at the fixture Mounting Hub and crown with an extruded closed cell silicone gasket. Driver/wiring access is inside the enclosure and accesses through the top of the Mounting Hub. Hub accommodates a 2 7/8" x 3" tenon. All exposed hardware is stainless steel.

LED POWER ARRAY™

Three-dimensional array of individual LED Tubes fastened to a retaining plate. Each LED Tube consists of circuit board populated with a multiple of LED's and is mechanically fastened to a radial aluminum heat sink. A diffuse acrylic lens and end cap protects each LED Tube's internal components.

ANGLED POWER ARRAY™: Micro-Reflectors mounted around each LED control the raw emitter output. LED Tubes are rotated on their vertical axis, angled on their horizontal axis, and arrayed to produce highly efficient IES Distribution Types II, III, IV and V. Used in conjunction with a clear patterned acrylic enclosure.

VERTICAL POWER ARRAY™: LED Tubes are aligned vertically and equally arranged radially to produce an even raw light distribution that simulates standard light sources. Produces a minimal glare, symmetric diffuse light distribution. Used in conjunction with prismatic glass refractor to produce symmetric or asymmetric distributions and surrounded by a Clear Patterned Acrylic enclosure.

LED EMITTERS

High output LED's are utilized with drive currents ranging from 350mA to 525mA. 70CRI Minimum. LED's are available in standard Neutral White (4000K), or optional Cool White (5000K) or Warm White (3000K). Consult Factory for other LED options.

LED DRIVER

UL and CUL recognized High Power Factor, Constant Current LED drivers operate on input voltages from 120-277VAC, 50/60hz. Driver is mechanically fastened to a retaining bracket. Main power quick disconnect provided. Surge protector supplied for field installation at the most conveniently serviceable location.

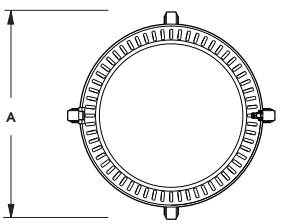
FINISH

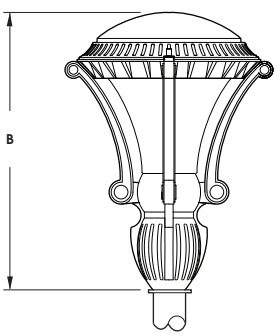
Electrostatically applied TGIC Polyester Powder Coat on substrate prepared with 20 PSI power wash at 140°F. Four step sand blast and iron phosphate pretreatment for protection and paint adhesion. 400°F bake for maximum hardness and durability. Texture finish is standard.



MOZ-CPA-LED

PATENT PENDING





Fitter supplied to fit over 2 7/8" X 3" (73mm X 76mm) tennon.

FIXTURE	A	B
MOZ26-CPA	26" 660mm	34.5" 876mm
MOZ20-CPA	20" 508mm	26.5" 673mm

c UL us LISTED

MADE IN THE USA

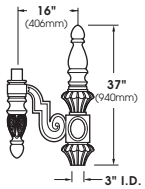
2018332

MOZART-CPA SERIES - LED

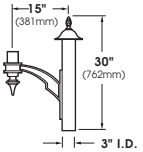
S P E C I F I C A T I O N S

ARM STYLES

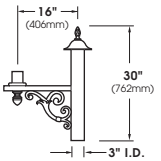
XAC



XAZ-UP

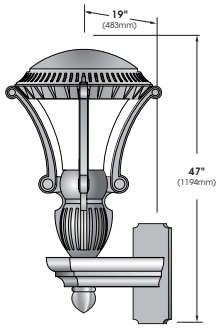


XAT



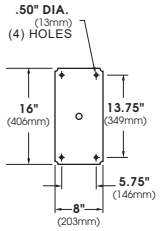
ARMS ARE HEAVY WALL EXTRUDED AND CAST ALUMINUM CONSTRUCTION. FOR ADDITIONAL ARM AND/OR WALL MOUNT OPTIONS SEE ARM SECTION.

WALL MOUNT

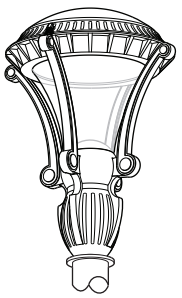


ARM BRACKET EXTRUDED AND CAST ALUMINUM CONSTRUCTION.

WALL PLATE



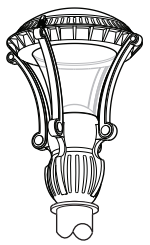
LED POWER ARRAY™ MODULES



MOZ26-CPA-LED
E.P.A.= 2.27

ANGLED POWER ARRAY
Available in:
80 LED Max.

VERTICAL ARRAY
Available in:
80 LED Max.



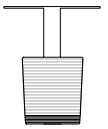
MOZ20-CPA-LED
E.P.A.= 1.48

ANGLED POWER ARRAY
Available in:
48 LED Max.

VERTICAL ARRAY
Available in:
48 LED Max.



APA - Angled Array
Top Mount



GRV - Glass Refractor w/ Vertical Array
Top mount

Spec/Order Example: MOZ20-CPA-LED/GRV-III/48LED-525mA/WW/120/PT/RAL-9005

S P E C / O R D E R I N G I N F O R M A T I O N

LUMINAIRE	OPTICS	# of LED's DRIVE CURRENT COLOR VOLTAGE	MOUNTING	FINISH	OPTIONS

LUMINAIRE

LUMINAIRE

☐ **MOZ26-CPA-LED**

☐ **MOZ20-CPA-LED**

OPTICS

ANGLED POWER ARRAY

☐ TYPE - II **APA - II** . . . . .
☐ TYPE - III **APA - III** . . . . .
☐ TYPE - IV **APA - IV** . . . . . .
☐ TYPE - V **APA - V** . . . . . .

GLASS REFRACTOR

☐ TYPE - III **GRV - III** . . . . .
☐ TYPE - V **GRV - V** . . . . . .

LED

# of LEDs

MOZ26-CPA APA MODELS

☐ **80LED**
☐ **60LED**
☐ **40LED**

GRV MODELS

☐ **36LED**
☐ **24LED**

MOZ20-CPA APA MODELS

☐ **48LED**
☐ **32LED**

GRV MODELS

☐ **36LED**
☐ **24LED**

DRIVE CURRENT

☐ **350mA**
☐ **525mA**

COLOR TEMP - CCT

☐ **NW (4000K)*** *STANDARD
☐ **CW (5000K)**
☐ **WW (3000K)**

OTHER LED COLORS AVAILABLE CONSULT FACTORY

VOLTAGE

☐ **120**
☐ **208**
☐ **240**
☐ **277**
☐ **347**
☐ **480**

MOUNTING

ARM MOUNT

☐ **XXX/1 (TYP.)** . . . . .
☐ **XXX/2-180 (TYP.)** .
☐ **XXX/2-90 (TYP.)** . . . .
☐ **XXX/3-90 (TYP.)** . .
☐ **XXX/3-120 (TYP.)** .
☐ **XXX/4-90 (TYP.)** . .

(**XXX** = Arm Model #
Ex = XBW-2-180/RAL-9005-T)

POST TOP MOUNT
(STANDARD 2¼" x 3" TENON)

☐ **PT** . . . . . .

WALL MOUNT

☐ **WM** . . . . . .

FINISH

STANDARD TEXTURED FINISH

☐ BLACK **RAL-9005-T**
☐ WHITE **RAL-9003-T**
☐ GREY **RAL-7004-T**
☐ DARK BRONZE **RAL-8019-T**
☐ GREEN **RAL-6005-T**

FOR SMOOTH FINISH REPLACE SUFFIX "T" WITH SUFFIX "S" (EXAMPLE: RAL-9500-S)

SEE USALTG.COM FOR ADDITIONAL COLORS

OPTIONS

☐ 7-PIN TWIST LOCK RECEPTACLE ONLY (ANSI C136.41). **TPR7**
☐ HOUSE SIDE SHIELDS (STANDARD 180° SHIELD). . **HS**
☐ HIGH-LOW DIMMING FOR HARDWIRED SWITCHING OR NON-INTEGRATED MOTION SENSOR . . . . . **HLSW**
☐ PHOTO CELL + VOLTAGE (EXAMPLE: PC120V) . . . . **PC+V**
☐ TWIST LOCK PHOTOCELL RECEPTACLE ONLY . . **TPR**
☐ SINGLE FUSE (120V, 277V) . . . . . **SF**
☐ DOUBLE FUSE (208V, 240V) . . . . . **DF**

CONTACT FACTORY FOR STEP DIM MOTION SENSOR (PROGRAMMED 50/100)

Sun Valley Lighting

660 West Avenue O, Palmdale, CA 93551
Phone (661) 233-2000 Fax (661) 233-2001
www.usaltg.com

SUN VALLEY LIGHTING

MOZART-CPA SERIES - APA LED LAMP/ELECTRICAL GUIDE

LED COUNT	SOURCE TYPE	SOURCE	INITIAL LUMENS - 4000K	INITIAL LUMENS - 3000K	INITIAL LUMENS - 5000K	L70 GREATER THAN (HR)	STARTING TEMP.	SYSTEM WATTS	VOLTS	MAX INPUT AMPS
32	LED	32 APA LED Power Array - 350mA	2,343 – 2,396	2,061 – 2,108	2,396 – 2,450	60,000+	-20°F	37	120 277 347	0.31 0.14 0.11
32	LED	32 APA LED Power Array - 525mA	3,280 – 3,354	2,886 – 2,951	3,354 – 3,430	60,000+	-20°F	55	120 277 347	0.46 0.20 0.16
40	LED	32 APA LED Power Array - 350mA	3,469 – 3,771	3,052 – 3,317	3,457 – 3,856	60,000+	-20°F	45	120 277 347	0.38 0.17 0.13
40	LED	32 APA LED Power Array - 525mA	4,856 – 5,279	4,272 – 4,644	4,966 – 5,398	60,000+	-20°F	66	120 277 347	0.55 0.24 0.20
48	LED	32 APA LED Power Array - 350mA	3,515 – 3,594	3,092 – 3,162	3,594 – 3,675	60,000+	-20°F	54	120 277 347	0.45 0.20 0.16
48	LED	32 APA LED Power Array - 525mA	4,921 - 5,032	4,329 – 4,426	5,032 – 5,145	60,000+	-20°F	79	120 277 347	0.66 0.29 0.23
60	LED	32 APA LED Power Array - 350mA	5,203 – 5,656	4,577 – 4,975	5,321 – 5,783	60,000+	-20°F	67	120 277 347	0.56 0.25 0.20
60	LED	32 APA LED Power Array - 525mA	7,285 – 7,918	6,408 – 6,966	7,449 – 8,097	60,000+	-20°F	98	120 277 347	0.82 0.36 0.29
80	LED	32 APA LED Power Array - 350mA	6,938 – 7,541	6,103 – 6,634	7,094 – 7,711	60,000+	-20°F	89	120 277 347	0.75 0.33 0.26
80	LED	32 APA LED Power Array - 525mA	9,713 – 10,557	8,544 – 9,287	9,932 – 10,796	60,000+	-20°F	131	120 277 347	1.10 0.48 0.38

NOTES:

1. Max Input Amps is the highest of starting, operating, or open circuit currents
2. Lumen values for LED Modules vary according to the distribution type
3. System Watts includes the source watts and all driver components.
4. Fuse value should be sufficient to protect all wiring components. For electronic driver and LED component protection, use 10KV – 20KV surge suppressors.
5. L70(10K) – TM-21 6x rule applied
   L70(10K) – Calculated = 244,000 @ 700mA

WARNING: All fixtures must be installed in accordance with local codes or the National Electrical Code. Failure to do so may result in serious personal injury.

MOZART-CPA SERIES - GRV LED LAMP/ELECTRICAL GUIDE

LED COUNT	SOURCE TYPE	SOURCE	INITIAL LUMENS - 4000K	INITIAL LUMENS - 3000K	INITIAL LUMENS - 5000K	L70 GREATER THAN (HR)	STARTING TEMP.	SYSTEM WATTS	VOLTS	MAX INPUT AMPS
24	LED	24 GRV/VPA LED Power Array – 350mA	1,922 – 1,966	1,687 – 1,726	1,967 – 2,012	60,000+	-20°F	26	120 277 347	0.22 0.10 0.08
24	LED	24 GRV/VPA LED Power Array – 525mA	2,787 – 2,852	2,446 – 2,503	2,853 – 2,919	60,000+	-20°F	39	120 277 347	0.33 0.15 0.12
36	LED	36 GRV/VPA LED Power Array – 350mA	2,883– 2,949	2,531 – 2,589	2,951 – 3,019	60,000+	-20°F	39	120 277	0.33 0.15 0.12
36	LED	36 GRV/VPA LED Power Array – 525mA	4,180 – 4,278	3,669 – 3,755	4,278 – 4,379	60,000+	-20°F	59	120 277 347	0.50 0.22 0.18

NOTES:

1. Max Input Amps is the highest of starting, operating, or open circuit currents
2. Lumen values for LED Modules vary according to the distribution type
3. System Watts includes the source watts and all driver components.
4. Fuse value should be sufficient to protect all wiring components. For electronic driver and LED component protection, use 10KV – 20KV surge suppressors.
5. L70(10K) – TM-21 6x rule applied
   L70(10K) – Calculated = 244,000 @ 700mA

WARNING: All fixtures must be installed in accordance with local codes or the National Electrical Code. Failure to do so may result in serious personal injury.

660 West Avenue O, Palmdale, CA 93551
Phone (661) 233-2000 Fax (661) 233-2001
www.usaltg.com

Submitting Agency:	Description: XTOR1B-W Project: STEVENS SQUARE AT BAXTER WOODS Notes:	Type: S3

Lumark

DESCRIPTION

The patented Lumark Crosstour™ LED Wall Pack Series of luminaries provides an architectural style with super bright, energy efficient LEDs. The low-profile, rugged die-cast aluminum construction, universal back box, stainless steel hardware along with a sealed and gasketed optical compartment make the Crosstour impervious to contaminants. The Crosstour wall luminaire is ideal for wall/surface, inverted mount for façade/canopy illumination, post/bollard, site lighting, floodlight and low level pathway illumination including stairs. Typical applications include building entrances, multi-use facilities, apartment buildings, institutions, schools, stairways and loading docks test.

Catalog #		Type
Project		
Comments		Date
Prepared by		

SPECIFICATION FEATURES

Construction
Slim, low-profile LED design with rugged one-piece, die-cast aluminum hinged removable door and back box. Matching housing styles incorporate both a small and medium design. The small housing is available in 12W, 18W and 26W. The medium housing is available in the 38W model. Patented secure lock hinge feature allows for safe and easy tool-less electrical connections with the supplied push-in connectors. Back box includes three half-inch, NPT threaded conduit entry points. The universal back box supports both the small and medium forms and mounts to standard 3-1/2" to 4" round and octagonal, 4" square, single gang and masonry junction boxes. Key hole gasket allows for adaptation to junction box or wall. External fin design extracts heat from the fixture surface. One-piece silicone gasket seals door and back box. Minimum 5" wide pole for site lighting application. Not recommended for car wash applications.

Optical
Silicone sealed optical LED chamber incorporates a custom engineered mirrored anodized reflector providing high-efficiency illumination. Optical assembly includes impact-resistant tempered glass and meets IESNA requirements for full cutoff compliance. Available in seven lumen packages; 5000K, 4000K and 3000K CCT.

Electrical
LED driver is mounted to the die-cast housing for optimal heat sinking. LED thermal management system incorporates both conduction and natural convection to transfer heat rapidly away from the LED source. 12W, 18W, 26W and 38W series operate in -40°C to 40°C [-40°F to 104°F]. High ambient 50°C models available. Crosstour luminaires maintain greater than 89% of initial light output after 72,000 hours of operation. Three half-inch NPT threaded conduit entry points allow for thru-branch wiring. Back box is an authorized electrical wiring compartment. Integral LED electronic driver incorporates surge protection. 120-277V 50/60Hz or 347V 60Hz models.

Finish
Crosstour is protected with a Super durable TGIC carbon bronze or summit white polyester powder coat paint. Super durable TGIC powder coat paint finishes withstand extreme climate conditions while providing optimal color and gloss retention of the installed life.

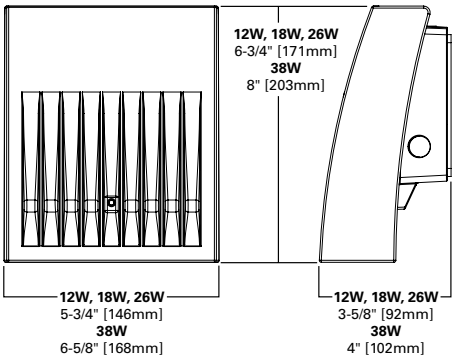
Warranty
Five-year warranty.



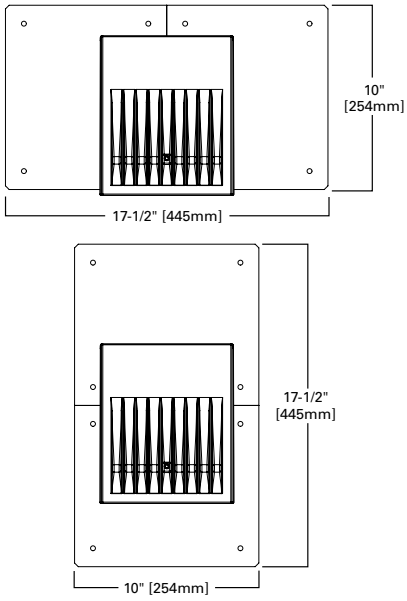
XTOR
CROSSTOUR LED

APPLICATIONS:
WALL / SURFACE
POST / BOLLARD
LOW LEVEL
FLOODLIGHT
INVERTED
SITE LIGHTING

DIMENSIONS



ESCUTCHEON PLATES



CERTIFICATION DATA
UL/cUL Wet Location Listed
LM79 / LM80 Compliant
ROHS Compliant
ADA Compliant
NOM Compliant Models
IP66 Ingressed Protection Rated
Title 24 Compliant
DesignLights Consortium® Qualified*

TECHNICAL DATA
40°C Maximum Ambient Temperature
External Supply Wiring 90°C Minimum

EPA
Effective Projected Area (Sq. Ft.):
XTOR1B, XT0R2B, XT0R3B=0.34
XTOR4B=0.45

SHIPPING DATA:
Approximate Net Weight:
3.7 – 5.25 lbs. [1.7 – 2.4 kgs.]

Powering Business Worldwide

*www.designlights.org

TD514013EN
September 17, 2018 3:02 PM

BENNETT
ENGINEERING
MECHANICAL ▪ ELECTRICAL
(207) 865-9475

☒ NO EXCEPTIONS TAKEN	☐ SUBMIT SPECIFIED ITEM
☐ MAKE CORRECTIONS NOTED	☐ REJECTED-SEE REMARKS
☐ AMEND & RE-SUBMIT	☐ SEE COMMENTS BELOW

CHECKING IS ONLY FOR GENERAL CONFORMANCE WITH THE DESIGN CONCEPT OF THE PROJECT AND GENERAL COMPLIANCE WITH THE INFORMATION GIVEN IN THE CONTRACT DOCUMENTS. ANY ACTION SHOWN IS SUBJECT TO THE REQUIREMENTS OF THE DRAWINGS AND SPECIFICATIONS. CONTRACTOR IS RESPONSIBLE FOR DIMENSIONS WHICH SHALL BE CONFIRMED AND CORRELATED AT THE JOB SITE, FABRICATION PROCESSES AND TECHNIQUES OF CONSTRUCTION, COORDINATION OF THE WORK WITH THAT OF OTHER TRADES AND THE SATISFACTORY PERFORMANCE OF THE WORK.

Steven Jonason	**4/14/2020**
SIGNATURE	REVIEW DATE

Project: 4327 Stevens Square

Submittal: Exterior Lighing

Comments: None

PORTLAND BUILDERS
ON THE LEVEL

Job: 2019-007

Stevens Square at Baxter Woods
583-605 Stevens Ave
Portland, ME 04102

Spec Section Title: 265600 Exterior Lighting
Submittal Title: Exterior Lighting

Spec Section No.: 265600
Submittal No.: 265600.01
Revision No.: N/A
Sent Date: March 24, 2020

To: Archetype, PA
Devin Cough

From: Portland Builders, Inc.
Bill Cuddy

Portland Builders, Inc.
PO Box 4902
Portland, ME 04112
Approved ☐
Approved As Noted ☒
Correct & Resubmit ☐
Date: 3/24/20 By: D. Faey

Contractor:

Portland Builders, Inc.
70 Center Street, Ste 304
Portland, ME 04101

Architect:

Archetype, PA
48 Union Wharf
Portland, ME 04101

Subcontractor:

Mancini Electric
179 Sheridan Street
Portland, ME 04101

Manufacturers:

Eaton
Sun Valley Lighting
US Architectural Lighting

Samples:

N/A

For your review. Please return approved copy.

MANCINI ELECTRIC

179 Sheridan Street
Portland, Maine 04101-2636
Tele: (207) 774-5829
Fax: (207) 772-1686
E-mail: info@mancinielectric.com
"We Appreciate Your Business"

- Electrical Contractors
- AMI Telecommunications
- Watt Saver Energy Management Systems

Letter of Transmittal

To Portland Builders, Inc.
PO Box 4902
Portland, ME 04112

Date: 03/18/2020

Re: Stevens Square at Baxter Woods

WE ARE SENDING YOU:

☐ Shop Drawings ☐ Prints ☐ Plans ☐ Specifications
☐ Copy of letter ☐ Change order ☐ Attached ☐ Samples

COPIES	DATE	NO.	DESCRIPTION
1	03/18/2020	265600	Action Submittal – Exterior Lighting

THESE ARE TRANSMITTED as checked below:

☐ For approval ☐ Approved a submitted ☐ Resubmit ☐ copies for approval
☐ For your use ☐ Approved as noted ☐ Submit ☐ copies for distribution
☐ As requested ☐ Returned for corrections ☐ Return 2 ☐ corrected prints
☐ For review and comment

Remarks:

Copy to

Signed

Michael Merrill

If enclosures are not as noted, kindly notify us at once

Stevens Square at Baxter Woods
53 McAuley Way
Portland, Maine

Architect:
Archtype Architects
48 Union Wharf
Portland, ME 04101
207-772-6022

Engineer:
Bennett Engineering
7 Bennett Road
Freeport, ME 04032

Owner:
DC Baxter Woods IV LLC
100 Commercial Street
Portland, ME 04101

General Contractor:
Portland Builders, Inc
PO Box 4902
Portland, ME 04112
207-879-0118

Electrical Contractor:
Mancini Electric
179 Sheridan St
Portland, ME 04101
207-774-5829

Specification Section:
265600 – Exterior Lighting

March 4, 2020
Transmittal Sheet

Project: STEVENS SQUARE AT BAXTER WOODS

Created by: Ken Denison

Project: STEVENS SQUARE AT BAXTER WOODS

Contents - March 4, 2020

Type	Factory	Description
S3	Lumark	XTOR1B-W
S4	Failsafe	TRO11-LD4-20W-40-OPL-BK-UNV-EDC1-CSTG

Submitting Agency:	Description: XTOR1B-W Project: STEVENS SQUARE AT BAXTER WOODS Notes:	Type: S3

Lumark

DESCRIPTION

The patented Lumark Crosstour™ LED Wall Pack Series of luminaries provides an architectural style with super bright, energy efficient LEDs. The low-profile, rugged die-cast aluminum construction, universal back box, stainless steel hardware along with a sealed and gasketed optical compartment make the Crosstour impervious to contaminants. The Crosstour wall luminaire is ideal for wall/surface, inverted mount for façade/canopy illumination, post/bollard, site lighting, floodlight and low level pathway illumination including stairs. Typical applications include building entrances, multi-use facilities, apartment buildings, institutions, schools, stairways and loading docks test.

Catalog #		Type
Project		
Comments		Date
Prepared by		

SPECIFICATION FEATURES

Construction
Slim, low-profile LED design with rugged one-piece, die-cast aluminum hinged removable door and back box. Matching housing styles incorporate both a small and medium design. The small housing is available in 12W, 18W and 26W. The medium housing is available in the 38W model. Patented secure lock hinge feature allows for safe and easy tool-less electrical connections with the supplied push-in connectors. Back box includes three half-inch, NPT threaded conduit entry points. The universal back box supports both the small and medium forms and mounts to standard 3-1/2" to 4" round and octagonal, 4" square, single gang and masonry junction boxes. Key hole gasket allows for adaptation to junction box or wall. External fin design extracts heat from the fixture surface. One-piece silicone gasket seals door and back box. Minimum 5" wide pole for site lighting application. Not recommended for car wash applications.

Optical
Silicone sealed optical LED chamber incorporates a custom engineered mirrored anodized reflector providing high-efficiency illumination. Optical assembly includes impact-resistant tempered glass and meets IESNA requirements for full cutoff compliance. Available in seven lumen packages; 5000K, 4000K and 3000K CCT.

Electrical
LED driver is mounted to the die-cast housing for optimal heat sinking. LED thermal management system incorporates both conduction and natural convection to transfer heat rapidly away from the LED source. 12W, 18W, 26W and 38W series operate in -40°C to 40°C [-40°F to 104°F]. High ambient 50°C models available. Crosstour luminaires maintain greater than 89% of initial light output after 72,000 hours of operation. Three half-inch NPT threaded conduit entry points allow for thru-branch wiring. Back box is an authorized electrical wiring compartment. Integral LED electronic driver incorporates surge protection. 120-277V 50/60Hz or 347V 60Hz models.

Finish
Crosstour is protected with a Super durable TGIC carbon bronze or summit white polyester powder coat paint. Super durable TGIC powder coat paint finishes withstand extreme climate conditions while providing optimal color and gloss retention of the installed life.

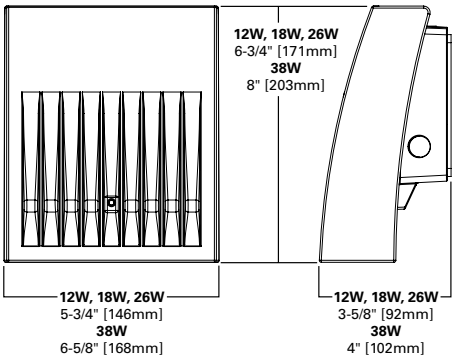
Warranty
Five-year warranty.



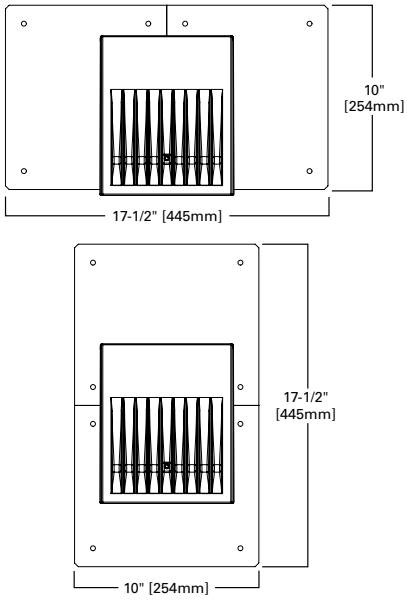
XTOR
CROSSTOUR LED

APPLICATIONS:
WALL / SURFACE
POST / BOLLARD
LOW LEVEL
FLOODLIGHT
INVERTED
SITE LIGHTING

DIMENSIONS



ESCUTCHEON PLATES



CERTIFICATION DATA
UL/cUL Wet Location Listed
LM79 / LM80 Compliant
ROHS Compliant
ADA Compliant
NOM Compliant Models
IP66 Ingressed Protection Rated
Title 24 Compliant
DesignLights Consortium® Qualified*

TECHNICAL DATA
40°C Maximum Ambient Temperature
External Supply Wiring 90°C Minimum

EPA
Effective Projected Area (Sq. Ft.):
XTOR1B, XT0R2B, XT0R3B=0.34
XTOR4B=0.45

SHIPPING DATA:
Approximate Net Weight:
3.7 – 5.25 lbs. [1.7 – 2.4 kgs.]

Powering Business Worldwide

*www.designlights.org

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September 17, 2018 3:02 PM

Submitting Agency:	Description: XTOR1B-W Project: STEVENS SQUARE AT BAXTER WOODS Notes:	Type: S3

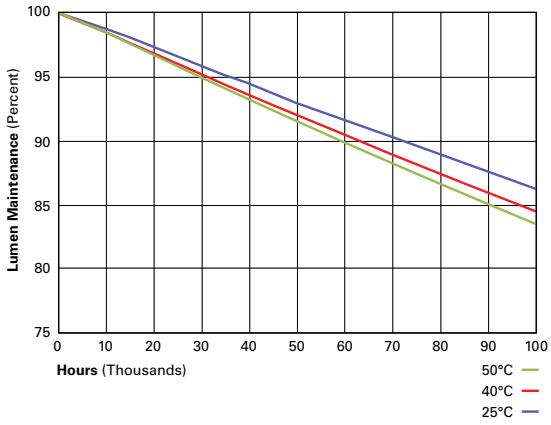
POWER AND LUMENS BY FIXTURE MODEL

LED Information	XTOR1B	XTOR1B-W	XTOR1B-Y	XTOR2B	XTOR2B-W	XTOR2B-Y	XTOR3B	XTOR3B-W	XTOR3B-Y	XTOR4B	XTOR4B-W	XTOR4B-Y
Delivered Lumens (Wall Mount)	1,418	1,396	1,327	2,135	2,103	1,997	2,751	2,710	2,575	4,269	4,205	3,995
Delivered Lumens (With Flood Accessory Kit) [1]	1,005	990	940	1,495	1,472	1,399	2,099	2,068	1,965	3,168	3,121	2,965
B.U.G. Rating [2]	B1-U0-G0	B1-U0-G0	B1-U0-G0	B1-U0-G0	B1-U0-G0	B1-U0-G0	B1-U0-G0	B1-U0-G0	B1-U0-G0	B2-U0-G0	B2-U0-G0	B2-U0-G0
CCT (Kelvin)	5,000	4,000	3,000	5,000	4,000	3,000	5,000	4,000	3,000	5,000	4,000	3,000
CRI (Color Rendering Index)	70	70	70	70	70	70	70	70	70	70	70	70
Power Consumption (Watts)	12W	12W	12W	18W	18W	18W	26W	26W	26W	38W	38W	38W

NOTES: 1 Includes shield and visor. **2** B.U.G. Rating does not apply to floodlighting.

LUMEN MAINTENANCE

Ambient Temperature	TM-21 Lumen Maintenance (72,000 Hours)	Theoretical L70 (Hours)
XTOR1B Model		
25°C	> 90%	255,000
40°C	> 89%	234,000
50°C	> 88%	215,000
XTOR2B Model		
25°C	> 89%	240,000
40°C	> 88%	212,000
50°C	> 87%	196,000
XTOR3B Model		
25°C	> 89%	240,000
40°C	> 88%	212,000
50°C	> 87%	196,000
XTOR4B Model		
25°C	> 89%	222,000
40°C	> 87%	198,000
50°C	> 87%	184,000



CURRENT DRAW

Voltage	Model Series			
	XTOR1B	XTOR2B	XTOR3B	XTOR4B
120V	0.103A	0.15A	0.22A	0.34A
208V	0.060A	0.09A	0.13A	0.17A
240V	0.053A	0.08A	0.11A	0.17A
277V	0.048A	0.07A	0.10A	0.15A
347V	0.039A	0.06A	0.082A	0.12A

Submitting Agency:	Description: XTOR1B-W Project: STEVENS SQUARE AT BAXTER WOODS Notes:	Type: S3

ORDERING INFORMATION

Sample Number: XTOR2B-W-WT-PC1

Series [1]	**LED Kelvin Color**	**Housing Color**	**Options** (Add as Suffix)	**Accessories** (Order Separately)
XTOR1B=Small Door, 12W **XTOR2B**=Small Door, 18W **XTOR3B**=Small Door, 26W **XTOR4B**=Medium Door, 38W	**[Blank]**=Bright White (Standard), 5000K **W**=Neutral White, 4000K **Y**=Warm White, 3000K	**[Blank]**=Carbon Bronze (Standard) **WT**=Summit White **BK**=Black **BZ**=Bronze **AP**=Grey **GM**=Graphite Metallic **DP**=Dark Platinum	**PC1**=Photocontrol 120V [2] **PC2**=Photocontrol 208-277V [2, 3] **347V**=347V [4] **HA**=50°C High Ambient [4]	**WG/XTOR**=Wire Guard [5] **XTORFLD-KNC**=Knuckle Floodlight Kit [6] **XTORFLD-TRN**=Trunnion Floodlight Kit [6] **XTORFLD-KNC-WT**=Knuckle Floodlight Kit, Summit White [6] **XTORFLD-TRN-WT**=Trunnion Floodlight Kit, Summit White [6] **EWP/XTOR**=Escutcheon Wall Plate, Carbon Bronze **EWP/XTOR-WT**=Escutcheon Wall Plate, Summit White

NOTES:
1. DesignLights Consortium® Qualified and classified for both DLC Standard and DLC Premium, refer to www.designlights.org for details.
2. Photocontrols are factory installed.
3. Order PC2 for 347V models.
4. Thru-branch wiring not available with HA option or with 347V. XTOR3B not available with HA and 347V or 120V combination.
5. Wire guard for wall/surface mount. Not for use with floodlight kit accessory.
6. Floodlight kit accessory supplied with knuckle (KNC) or trunnion (TRN) base, small and large top visors and small and large impact shields.

STOCK ORDERING INFORMATION

12W Series	**18W Series**	**26W Series**	**38W Series**
XTOR1B=12W, 5000K, Carbon Bronze	**XTOR2B**=18W, 5000K, Carbon Bronze	**XTOR3B**=26W, 5000K, Carbon Bronze	**XTOR4B**=38W, 5000K, Carbon Bronze
XTOR1B-WT=12W, 5000K, Summit White	**XTOR2B-W**=18W, 4000K, Carbon Bronze	**XTOR3B-W**=26W, 4000K, Carbon Bronze	**XTOR4B-W**=38W, 4000K, Carbon Bronze
XTOR1B-PC1=12W, 5000K, 120V PC, Carbon Bronze	**XTOR2B-WT**=18W, 5000K, Summit White	**XTOR3B-WT**=26W, 5000K, Summit White	**XTOR4B-WT**=38W, 5000K, Summit White
XTOR1B-W=12W, 4000K, Carbon Bronze	**XTOR2B-PC1**=18W, 5000K, 120V PC, Carbon Bronze	**XTOR3B-PC1**=26W, 5000K, 120V PC, Carbon Bronze	**XTOR4B-PC1**=38W, 5000K, 120V PC, Carbon Bronze
	XTOR2B-W-PC1=18W, 4000K, 120V PC, Carbon Bronze	**XTOR3B-W-PC1**=26W, 4000K, 120V PC, Carbon Bronze	**XTOR4B-W-PC1**=38W, 4000K, 120V PC, Carbon Bronze
	XTOR2B-347V=18W, 5000K, Carbon Bronze, 347V	**XTOR3B-347V**=26W, 5000K, Carbon Bronze, 347V	**XTOR4B-347V**=38W, 5000K, Carbon Bronze, 347V
	XTOR2B-WT-PC1=18W, 5000K, 120V PC, Summit White	**XTOR3B-PC2**=26W, 5000K, 208-277V PC, Carbon Bronze	

Submitting Agency:	Description: TRO11-LD4-20W-40-OPL-BK-UNV-EDC1-CSTG Project: STEVENS SQUARE AT BAXTER WOODS Notes:	Type: S4

Fail-Safe

DESCRIPTION

The 11" round LED provides exceptional aesthetics with impressive strength and is available in 10, 15, 20, or 25 watt lumen packages. Polycarbonate lens, clear or opal, combined with four face plates provides a choice of different styles. Also, choose a photo control or motion sensor for control. Choose an emergency battery pack to provide egress illumination.

Catalog #		Type
Project		
Comments		Date
Prepared by		

SPECIFICATION FEATURES

Housing
Shallow casting is die-cast aluminum. Backplate constructed of 16 gauge aluminum.

Face Plate Finish
Injection-molded polycarbonate color is matte black standard, matte white painted, or bronze painted. Border paint option is a premium baked-on finish. For custom colors, provide manufacturer paint number, RAL number or color chip.

Shallow Casting Finish
Polyester powder-coat paint applied in a five-stage process, 2.0 mil thickness, and baked on at 400° F. Finish is TGIC, textured, thermoset, polyester powder-coat.

Mounting
Surface, ceiling or wall. Interior or exterior.

Gasket
Die-cut closed-cell silicone gasket seals lens to casting. Gasket is secured with adhesive, and locked in place to the back casting. When the casting is not required, the gasket is mechanically attached to the back plate. One gasket seals the fixture.

Lens
One-piece, injection-molded opal or clear polycarbonate, 0.125" thick. Attached with 4 recessed T20 stainless-steel TORX®-head fasteners.
Lens Lifetime Warranty.

Decorative Faces
High-impact, injection molded, 0.125" minimum thickness, polycarbonate overlay attached to lens with two recessed T20 stainless steel TORX®-head fasteners. Eyelid offers optimal lamp shielding. Open face is lens for continuous radial light pattern. Border face utilizes the standard open lens with paint on the border, eliminating backlit halo effect.

Electrical
LED driver is mounted to the backpan for optimal thermal management. High efficiency LED mounted to ciruit board. 70% lumen maintenance at 50,000 hours when operated in an environment as noted on the Maximum Ambient Operating/Option Matrix on the following page.

Labels
UL/cUL listed for wet locations, ceiling or wall mount. IP65 rated. Available to mount on combustible or non-combustible surfaces.



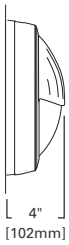
TR 11 LED

LD4 LED

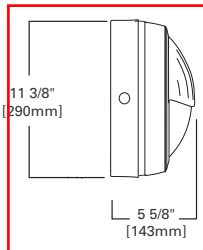
11" Round
10/15/20/25 Watt
High Abuse
Polycarbonate
Lens Lifetime Warranty

CEILING/WALL
INTERIOR/EXTERIOR

MOUNTING



FLAT



SHALLOW CASTING (CSTG)

Delivered Lumens (5000K)						
Wattage		**TRO11**	**TRB11**	**TRR11**	**TRF11**	**TRE11**
10	Clear	1175	950	825	775	650
	Opal	825	600	600	525	450
15	Clear	1725	1325	1500	1200	930
	Opal	1200	825	850	760	600
20	Clear	2200	1800	1950	1500	1175
	Opal	1500	1100	1150	1000	725
25	Clear	2630	2190	2333	1831	1410
	Opal	1695	1400	1485	1155	890
		Open	**Border**	**Ring**	**Four Quadrant**	**Eyelid**

Delivered Lumens in table above are estimated values only.
Refer to LM-79 data files for exact delivered lumen, input wattage and distribution.

RATINGS

UL/CUL listed for wet locations
IP65

TORX® is a registered trademark of Camcar Division of Textron Inc.

EATON
Powering Business Worldwide

Submitting Agency:	Description: TRO11-LD4-20W-40-OPL-BK-UNV-EDC1-CSTG Project: STEVENS SQUARE AT BAXTER WOODS Notes:	Type: S4

ORDERING INFORMATION

SAMPLE NUMBER: TRF11-LD4-15W-40-OPL-BZ-UNV-EDC1-EL5W/CSTG

T	R		11	LD4						ED			

Product
T=Terrapin LED

Shape
R=Round

Style
B=Border Paint [5]
E=Eyelid [5]
F=Four Quadrant [5]
R=Ring [5]
O=Open [6]

Size
11=11"

LD4=LED 4.0

Wattage [2]
10W=10 Watt
15W=15 Watt
20W=20 Watt
25W=25 Watt

Color Temp
30=3000K
35=3500K
40=4000K
50=5000K

Lens
OPL=Opal
CL=Clear

Color [1, 6]
BK=Black
WH=White
BZ=Bronze

Voltage
UNV=Universal Voltage
120V=120 Volt
277V=277 Volt

Driver
ED=Electronic Driver

C1=Single Circuit, Low Voltage Leads not connected
D1=Single Circuit, Low Voltage Dimming Leads connected to driver and presented at supply

Options [2]
F1=Fuse(specify voltage) [2]
CSTG=Shallow Casting - [3,4] Same as SCB11, but ships with fixture
PB120V/CSTG=Photocell, 120V, [2,3,9] (Shallow Casting Necessary)
PB277V/CSTG=Photocell, 277V, [2,3,9] (Shallow Casting Necessary)
OS=Occupancy Sensor, Internal (behind lens), FM105 [2, 8]
EL5W/CSTG=Emergency Battery Pack, 5W [2, 3, 7] (Shallow Casting Necessary), 20, 25 watt limited to max. 25°C ambient environment

Accessories
(order separately)
VRSD=T20 Center-pin tamper-proof TORX®-head screwdriver

Notes:
1. Custom colors available. Furnish RAL # or paint manufacturer/model #.
2. See Maximum Ambient Operating/Option Matrix below for option capability and wattage/ambient restrictions.
3. When CSTG, PB120/CSTG, PB277/CSTG, EL5W/CSTG is specified, a color must be specified.
4. CSTG has (4) threadless hubs suitable for 1/2" conduit (plugged).
5. Color must be specified.
6. Open lens/style does not require a color to be specified, unless used with a shallow casting (CSTG, PB120/CSTG, PB277/CSTG, EL5W/CSTG).
7. Not available 25W.
8. OS only funtional with 120 or 277 input voltage.
9. PB120V/CSTG requires 120V to be specified as fixture voltage, and PB277V/CSTG requires 277V to be specified as fixture voltage.

Maximum Ambient Operating/Option Matrix

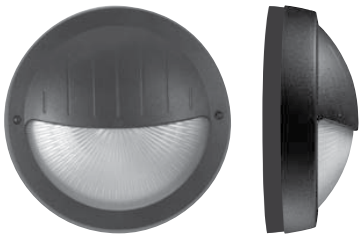
	10W				15W				20W				25W			
	Flat Mount		Shallow Cast		Flat Mount		Shallow Cast		Flat Mount		Shallow Cast		Flat Mount		Shallow Cast	
	Ceiling	Wall	Ceiling	Wall	Ceiling	Wall	Ceiling	Wall	Ceiling	Wall	Ceiling	Wall	Ceil-ing	Wall	Ceil-ing	Wall
No options	45C	45C	45C	45C	40C	40C	40C	40C	40C	40C	40C	40C	40C	40C	40C	40C
Fuse	45C	45C	45C	45C	40C	40C	40C	40C	40C	40C	40C	40C	40C	40C	40C	40C
Photocell	n/a	n/a	40C	40C	n/a	n/a	40C	40C	n/a	n/a	30C	30C	n/a	n/a	25C	25C
Occ Sensor	40C	40C	35C	35C	35C	35C	35C	35C	25C	25C	25C	25C	n/a	n/a	n/a	n/a
Fuse & Photocell	n/a	n/a	40C	40C	n/a	n/a	40C	40C	n/a	n/a	30C	30C	n/a	n/a	25C	25C
Fuse & Occ Sensor	40C	40C	35C	35C	35C	35C	35C	35C	25C	25C	25C	25C	n/a	n/a	n/a	n/a
EM	n/a	n/a	35C	35C	n/a	n/a	35C	35C	n/a	n/a	25C	25C	n/a	n/a	n/a	n/a
EM & Fuse	n/a	n/a	35C	35C	n/a	n/a	35C	35C	n/a	n/a	25C	25C	n/a	n/a	n/a	n/a
EM & Fuse & Photocell	n/a	n/a	35C	35C	n/a	n/a	35C	35C	n/a	n/a	25C	25C	n/a	n/a	n/a	n/a
EM & Fuse & Occ Sensor	n/a	n/a	35C	35C	n/a	n/a	35C	35C	n/a	n/a	25C	25C	n/a	n/a	n/a	n/a
EM & Photocell	n/a	n/a	35C	35C	n/a	n/a	35C	35C	n/a	n/a	25C	25C	n/a	n/a	n/a	n/a
EM & Occ Sensor	n/a	n/a	35C	35C	n/a	n/a	35C	35C	n/a	n/a	25C	25C	n/a	n/a	n/a	n/a

Lens Lifetime Warranty

Fail-Safe will repair or provide a replacement lens for any TR11 lens found to be inoperative due to physical abuse for the duration of the installation under normal conditions.

** To make a claim, contact your Cooper Lighting Agent to arrange an RMA (Return Material Authorization) for the claimed product. Upon receipt and verification of the defect, Cooper Lighting will return to you a repaired or, at Cooper Lighting's sole option, replacement fixture.

DESIGN GALLERY



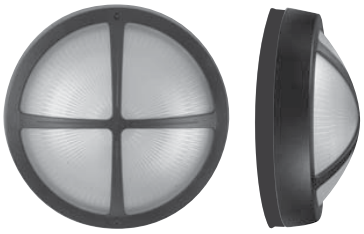
Eyelid
Polycarbonate eyelid/cover attached to lens with tamper resistant screws



Border (Painted Border)
Side and edge of lens painted, no front cover



Ring
Polycarbonate ring attached to lens with tamper resistant screws



Four Quadrant
Polycarbonate cover attached to lens with tamper resistant screws



Open
Unpainted lens only. No polycarbonate front cover

177 East Industrial Park Drive
2nd Floor
Manchester, NH 03109

Phone: 877-886-2843
Fax: 877-886-2844
www.apexltg.com

Submittal

Original Submittal for Approval

Project:

STEVENS SQUARE SITE

Date: 3/5/2020

1 Copy of Submittals is Attached

To:

Submittal

Source Quote: STVNSQRSTE
Entry Date: 3/5/2020
Project: STEVENS SQUARE SITE

Type	Mfg	Description
S2	U.S. ARCHITECTURAL LIGHTING	MOZ20LED-VLED-IV-48LED-350MA-NW-120-PT-HS-VLED-RAL9005T
S2P	U.S. ARCHITECTURAL LIGHTING	RNTA-124-125-PT27-RAL-9005S
S5	U.S. ARCHITECTURAL LIGHTING	BRA6-LED-IL-24LED[350MA]-NW-120-GI-RAL9005T-36IN OAH

APEX LIGHTING SOLUTIONS The point where all ascending lines converge.	Project STVNSQRSTS Date 3/4/2020 STEVENS SQUARE SITE Submitted By APEX - NNE	Catalog Number MOZ20LED-VLED-IV-48LED-350MA-NW-120-PT-HS-VLED-RAL9005T Notes	TYPE: S2

PROJECT NAME:

FIXTURE TYPE:

SOLID STATE AREA LIGHTING

MOZART SERIES-LED

S P E C I F I C A T I O N S

FIXTURE HOUSING

One piece unitized precise heavy wall cast aluminum construction comprised of low copper (< 0.2% Cu) aluminum. Hood is fastened to the Housing with a stainless steel hinge and secured with a tool-less stainless steel latch 180° opposite the hinge. Housing and Hood is sealed with an extruded closed cell silicone gasket. Driver/wiring access through top of Mounting Hub. Hub accommodates a 2⅞" x 3" tenon. All exposed hardware is stainless steel.

VLED® OPTICAL MODULE

Low copper A356 alloy (< 0.2% copper) cast aluminum housing. Integrated clear tempered 3/16" glass lens sealed with a continuous silicone gasket protects emitters (LED's) and emitter Reflector-Prism optics, and seals the module from water intrusion and environmental contaminants. Reflector-Prism injection molded from H12 acrylic. Each Reflector-Prism has indexing pins for aiming and is secured to an optical plate made of matte black anodized aluminum. The optical plate locates a Reflector-Prism over each emitter. Reflector-Prisms are secured to the optical plate with a UV curing adhesive. The Reflector-Prisms are arrayed to produce IES Type II, III, IV, and V-SQ distributions. The entire Optical Module is field rotatable in 90° increments. Both module and drivers are factory wired using water resistant, insulated cord. Lens, module and drivers are field replaceable.

LED EMITTERS

High output LED's are utilized with drive currents ranging from 350mA to 700mA. 70CRI Minimum. LED's are available in standard Neutral White (4000K), or optional Cool White (5000K) or Warm White (3000K). Consult Factory for other LED options.

LED DRIVER

UL and CUL recognized High Power Factor, Constant Current LED drivers operate on input voltages from 120-277, 50/60hz, or 347-480V 50/60hz and utilizes 0-10v dimming. Driver is mechanically fastened to a retaining bracket. Main power quick disconnect provided. Surge protector supplied for field installation at the most conveniently serviceable location.

AMBER LED's

PCA (Phosphor Converted Amber) LED's utilize phosphors to create color output similar to LPS lamps and have a slight output in the blue spectral bandwidth. **TRA** (True Amber) LED's utilize material that emits light in the amber spectral bandwidth only without the use of phosphors.

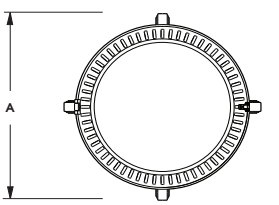
FINISH

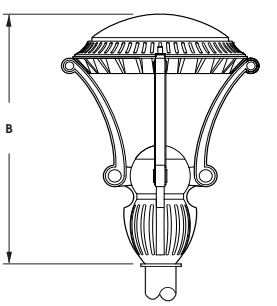
Electrostatically applied TGIC Polyester Powder Coat on substrate prepared with 20 PSI power wash at 140°F. Four step sand blast and iron phosphate pretreatment for protection and paint adhesion. 400°F bake for maximum hardness and durability. Texture finish is standard.



MOZ-LED

PATENT PENDING





Fitter supplied to fit over 2 7/8" X 3" (73mm X 76mm) tennon.

FIXTURE	A	B
MOZ26	26" 660mm	34.5" 876mm
MOZ20	20" 508mm	26.5" 673mm

c UL us LISTED

MADE IN THE USA

2018332

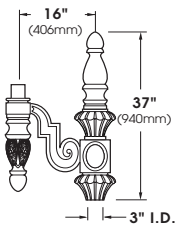
APEX LIGHTING SOLUTIONS The point where all ascending lines converge.	Project STVNSQRSTS Date 3/4/2020 STEVENS SQUARE SITE Submitted By APEX - NNE	Catalog Number MOZ20LED-VLED-IV-48LED-350MA-NW-120-PT-HS-VLED-RAL9005T Notes	TYPE: S2

MOZART SERIES - LED

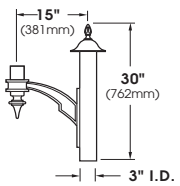
SPECIFICATIONS

ARM STYLES

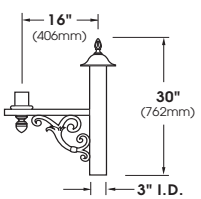
XAC



XAZ-UP

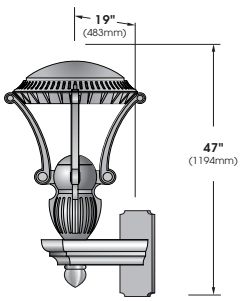


XAT



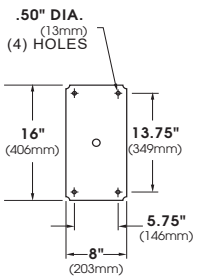
ARMS ARE HEAVY WALL EXTRUDED AND CAST ALUMINUM CONSTRUCTION. FOR ADDITIONAL ARM AND/OR WALL MOUNT OPTIONS SEE ARM SECTION.

WALL MOUNT



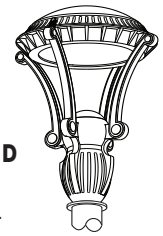
ARM BRACKET EXTRUDED AND CAST ALUMINUM CONSTRUCTION. (XBW-WM SHOWN)

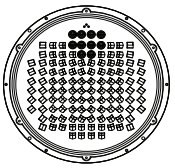
WALL PLATE



VLED® MODULES

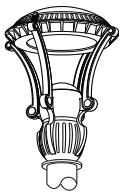
MOZ26-LED
E.P.A.= 2.30
Available in:
120 LED Max.

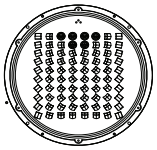




120 LED Module

MOZ20-LED
E.P.A.= 1.49
Available in:
80 LED Max.





80 LED Module

MAX INPUT WATTS/ HID EQUIVALENTS

# OF LED's	DRIVE CURRENT	SYSTEM WATTS	HID EQUIV	APPROX. LUMENS - 4,000
48	350mA	55	70 – 100w	4,501
	525mA	79	100w	6,214
	700mA	109	150 – 175w	7,823
64	350mA	70	100w	5,577
	525mA	108	150 – 175w	7,825
	700mA	134	175 – 200w	10,166
80	350mA	85	150w	7,292
	525mA	130	175 – 200w	10,219
100	350mA	109	175w	9,061
120	350mA	130	200 – 250w	10,873

Spec/Order Example: MOZ26-LED/VLED-III/64LED-700mA/NW/277/PT/RAL-9003-S/HS-VLED

SPEC / ORDERING INFORMATION

MODEL | OPTICS | LED MODE | VOLTAGE | MOUNTING | FINISH | OPTIONS

MODEL

- ☐ MOZ26-LED
- ☐ MOZ20LED

OPTICS

VLED® IES DISTRIBUTION TYPE

- ☐ TYPE I I VLED - II . . . . .
- ☐ TYPE I I VLED - III . . . . .
- ☐ TYPE I V VLED - IV . . . . .
- ☐ TYPE V-SQ VL ED- V-SQ . .

LED MODE

# of LED's

MOZ26
- ☐ 120LED
- ☐ 100LED
- ☐ 80LED
- ☐ 64LED
- ☐ 48LED

MOZ20
- ☐ 80LED
- ☐ 64LED
- ☐ 48LED

DRIVE CURRENT
- ☐ 350mA
- ☐ 525mA[1]
- ☐ 700mA[2, 3]

COLOR TEMP-CCT
- ☐ NW (4000K) *STANDARD
- ☐ CW (5000K)
- ☐ WW (3000K)

OTHER LED COLORS AVAILABLE CONSULT FACTORY

AMBER[4]
- ☐ PHOSPHOR CONVERTED AMBER PCA
- ☐ TRUE AMBER[5] TRA

NOTES:
1 - 80LED, 64LED & 48LED ONLY
2 - 64LED & 48LED ONLY
3 - NOT FOR USE WITH TRA LED'S
4 - NARROW BAND AMBERS HAVE NO DEFINABLE CCT EQUIVALENT
5 - AVAILABLE IN 350mA & 525mA DRIVE CURRENTS ONLY

VOLTAGE
- ☐ 120
- ☐ 208
- ☐ 240
- ☐ 277
- ☐ 347
- ☐ 480

MOUNTING

ARM MOUNT
- ☐ XXX/1 . . . . .
- ☐ XXX/2-180 . .
- ☐ XXX/2-90 . . .
- ☐ XXX/3-90 . .
- ☐ XXX/3-120 .
- ☐ XXX/4-90 . .

(XXX = Arm Model # Ex = XBW-2-180/RAL-9005-T)

POST TOP MOUNT (STANDARD 2⅜" x 3" TENON)
- ☐ PT . . . . . .

WALL MOUNT
- ☐ WM . . . . . .

FINISH

STANDARD TEXTURED FINISH
- ☐ BLACK RAL-9005-T
- ☐ WHITE RAL-9003-T
- ☐ GREY RAL-7004-T
- ☐ DARK BRONZE RAL-8019-T
- ☐ GREEN RAL-6005-T

FOR SMOOTH FINISH REPLACE SUFFIX "T" WITH SUFFIX "S" (EXAMPLE: RAL-9500-S)

SEE USALTG.COM FOR ADDITIONAL COLORS

OPTIONS
- ☐ 7-PIN TWIST LOCK RECEPTACLE ONLY (ANSI C136.41). TPR7
- ☐ INTERNAL HOUSE SIDE SHIELDS . . . . . HS-VLED
- ☐ HIGH-LOW DIMMING FOR HARDWIRED SWITCHING OR NON-INTEGRATED MOTION SENSOR . . . . . .HLSW
- ☐ PHOTO CELL + VOLTAGE (EXAMPLE: PC120V) . . . .PC+V
- ☐ TWIST LOCK PHOTOCELL RECEPTACLE ONLY . . TPR

CONTACT FACTORY FOR STEP DIM MOTION SENSOR (PROGRAMMED 50/100)

MOZART SERIES - LED

LAMP/ELECTRICAL GUIDE

LED COUNT	SOURCE TYPE	SOURCE	INITIAL LUMENS - 4000K	INITIAL LUMENS - 3000K	INITIAL LUMENS - 5000K	L70 GREATER THAN (HR)	STARTING TEMP.	SYSTEM WATTS	VOLTS	MAX INPUT AMPS
48	LED	48 *V*LED® Optical Module - 350mA	4,241 – 4,760	3,731 – 4,187	4,337 – 4,868	60,000+	-20°F	55	120 277 347	0.46 0.20 0.16
48	LED	48 *V*LED® Optical Module - 525mA	5,871 – 6,557	5,152 – 5,755	6,009 – 6,711	60,000+	-20°F	79	120 277 347	0.66 0.29 0.23
48	LED	48 *V*LED® Optical Module - 700mA	7,515 – 8,131	6,579 – 7,119	7,696 – 8,327	60,000+	-20°F	109	120 277	0.91 0.40 0.32
64	LED	64 *V*LED® Optical Module - 350mA	5,255 – 5,898	4,623 – 5,189	5,373 – 6,031	60,000+	-20°F	70	120 277 347	0.59 0.26 0.21
64	LED	64 *V*LED Optical Module - 525mA	7,393 – 8,257	6,488 – 7,246	7,566 – 8,451	60,000+	-20°F	108	120 277 347	0.90 0.39 0.32
64	LED	64 *V*LED® Optical Module - 700mA	9,927 – 10,405	8,691 – 9,110	10,166 – 10,655	60,000+	-20°F	134	120 277 347	1.12 0.49 0.39
80	LED	80 *V*LED® Optical Module - 350mA	7,131 – 7,452	6,273 – 6,556	7,292 – 7,620	60,000+	-20°F	85	120 277 347	0.77 0.31 0.25
80	LED	80 *V*LED® Optical Module - 525mA	9,994 – 10,444	8,770 – 9,166	10,228 – 10,689	60,000+	-20°F	130	120 277 347	1.09 0.47 0.38
100	LED	100 *V*LED® Optical Module - 350mA	8,862 – 9,260	7,796 – 8,146	9,062 – 9,469	60,000+	-20°F	109	120 277 347	0.91 0.40 0.32
120	LED	120 *V*LED® Optical Module - 350mA	10,634 – 11,112	9,355 – 9,776	10,874 – 11,363	60,000+	-20°F	130	120 277 347	1.09 0.47 0.38

NOTES:

1. Max Input Amps is the highest of starting, operating, or open circuit currents
2. Lumen values for LED Modules vary according to the distribution type
3. System Watts includes the source watts and all driver components.
4. Fuse value should be sufficient to protect all wiring components. For electronic driver and LED component protection, use 10KV – 20KV surge suppressors.
5. L70(10K) – TM-21 6x rule applied
   L70(10K) – Calculated = 244,000 @ 700mA

WARNING: All fixtures must be installed in accordance with local codes or the National Electrical Code. Failure to do so may result in serious personal injury.

PROJECT NAME:

FIXTURE TYPE:

SOLID STATE AREA LIGHTING

MOZART-WA SERIES-LED

S P E C I F I C A T I O N S

FIXTURE HOUSING

One piece unitized precise heavy wall cast aluminum construction comprised of low copper (< 0.2% Cu) aluminum. Hood is fastened to the Housing with a stainless steel hinge and secured with a tool-less stainless steel latch 180° opposite the hinge. Housing and Hood is sealed with an extruded closed cell silicone gasket. White Acrylic enclosure is gasketed at the fixture Mounting Hub and crown with an extruded closed cell silicone gasket. Driver/wiring access is inside the enclosure and accesses through the top of the Mounting Hub. Hub accommodates a 2⅞" x 3" tenon. All exposed hardware is stainless steel.

LED POWER ARRAY™

Three-dimensional array of individual LED Tubes fastened to a retaining plate. Each LED Tube consists of circuit board populated with a multiple of LED's and is mechanically fastened to a radial aluminum heat sink. A diffuse acrylic lens and end cap protects each LED Tube's internal components.

VERTICAL POWER ARRAY™: LED Tubes are aligned vertically and equally arranged radially to produce an even raw light distribution that simulates standard light sources. Produces a minimal glare, symmetric diffuse light distribution. Used in conjunction with a smooth, white, acrylic diffusing enclosure.

LED EMITTERS

High output LED's are utilized with drive currents ranging from 350mA to 525mA. 70CRI Minimum. LED's are available in standard Neutral White (4000K), or optional Cool White (5000K) or Warm White (3000K). Consult Factory for other LED options.

LED DRIVER

UL and CUL recognized High Power Factor, Constant Current LED drivers operate on input voltages from 120-277VAC, 50/60hz or 347-480V, 50/60hz and utilizes 0-10v dimming. Driver is mechanically fastened to a retaining bracket. Main power quick disconnect provided. Surge protector supplied for field installation at the most conveniently serviceable location.

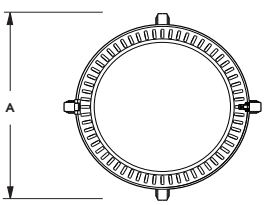
FINISH

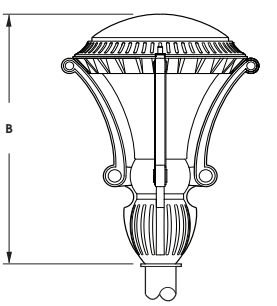
Electrostatically applied TGIC Polyester Powder Coat on substrate prepared with 20 PSI power wash at 140°F. Four step sand blast and iron phosphate pretreatment for protection and paint adhesion. 400°F bake for maximum hardness and durability. Texture finish is standard.



MOZ-WA-LED

PATENT PENDING





Fitter supplied to fit over 2⅞" X 3" (73mm X 76mm) tennon.

FIXTURE	A	B
MOZ26-WA	26" 660mm	34.5" 876mm
MOZ20-WA	20" 508mm	26.5" 673mm

c UL us LISTED

MADE IN THE USA

2018332

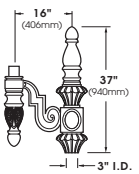
APEX LIGHTING SOLUTIONS The point where all ascending lines converge.	Project STVNSQRSTS Date 3/4/2020 STEVENS SQUARE SITE Submitted By APEX - NNE	Catalog Number MOZ20LED-VLED-IV-48LED-350MA-NW-120-PT-HS-VLED-RAL9005T Notes	TYPE: S2

MOZART-WA SERIES - LED

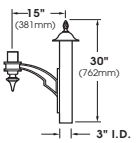
S P E C I F I C A T I O N S

ARM STYLES

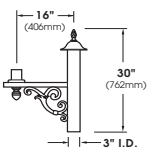
XAC



XAZ-UP

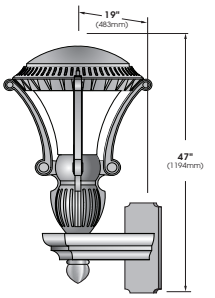


XAT



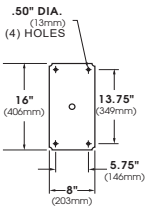
ARMS ARE HEAVY WALL EXTRUDED AND CAST ALUMINUM CONSTRUCTION. FOR ADDITIONAL ARM AND/OR WALL MOUNT OPTIONS SEE ARM SECTION.

WALL MOUNT

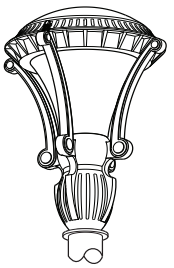


ARM BRACKET EXTRUDED AND CAST ALUMINUM CONSTRUCTION.

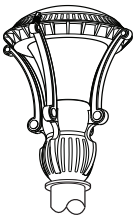
WALL PLATE



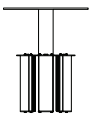
LED POWER ARRAY™ MODULE



MOZ26-WA-LED
E.P.A.= 2.27
VERTICAL ARRAY
Available in:
80 LED Max.



MOZ20-WA-LED
E.P.A.= 1.48
VERTICAL ARRAY
Available in:
48 LED Max.



VPA - Vertical Array
Top Mount

Spec/Order Example: MOZ20-WA-LED/VPA-SYM/36LED-525mA/WW/277/PT/RAL-9005-T

S P E C / O R D E R I N G I N F O R M A T I O N

LUMINAIRE	OPTICS	# of LED's DRIVE CURRENT COLOR VOLTAGE	MOUNTING	FINISH	OPTIONS

LUMINAIRE

LUMINAIRE

☐ **MOZ26-WA-LED**

☐ **MOZ20-WA-LED**

OPTICS

VERTICAL POWER ARRAY

☐ SYMMETRIC TYPE - V **VPA-SYM** . . . . .

LED

# of LEDs

MOZ26-WA
☐ **64LED**
☐ **48LED**
☐ **32LED**

MOZ20-WA
☐ **48LED**
☐ **36LED**
☐ **24LED**

DRIVE CURRENT

☐ **350mA**
☐ **525mA**

COLOR TEMP - CCT

☐ **NW (4000K)*** *STANDARD
☐ **CW (5000K)**
☐ **WW (3000K)**

OTHER LED COLORS AVAILABLE CONSULT FACTORY

VOLTAGE

☐ **120**
☐ **208**
☐ **240**
☐ **277**
☐ **347**
☐ **480**

MOUNTING

ARM MOUNT

☐ **XXX/1 (TYP.)** . . . . .
☐ **XXX/2-180 (TYP.)** .
☐ **XXX/2-90 (TYP.)** . . .
☐ **XXX/3-90 (TYP.)** . .
☐ **XXX/3-120 (TYP.)** .
☐ **XXX/4-90 (TYP.)** . .

(**XXX** = Arm Model #
Ex = XBW-2-180/RAL-9005-T)

POST TOP MOUNT
(STANDARD 2⅛" x 3" TENON)

☐ **PT** . . . . . .

WALL MOUNT

☐ **WM** . . . . . .

FINISH

STANDARD TEXTURED FINISH

☐ BLACK **RAL-9005-T**
☐ WHITE **RAL-9003-T**
☐ GREY **RAL-7004-T**
☐ DARK BRONZE **RAL-8019-T**
☐ GREEN **RAL-6005-T**

FOR SMOOTH FINISH REPLACE SUFFIX "T" WITH SUFFIX "S" (EXAMPLE: RAL-9500-S)

SEE USALTG.COM FOR ADDITIONAL COLORS

OPTIONS

☐ 7-PIN TWIST LOCK RECEPTACLE ONLY (ANSI C136.41). **TPR7**
☐ HOUSE SIDE SHIELDS (STANDARD 180° SHIELD). . **HS**
☐ HIGH-LOW DIMMING FOR HARDWIRED SWITCHING OR NON-INTEGRATED MOTION SENSOR . . . . . **HLSW**
☐ PHOTO CELL + VOLTAGE (EXAMPLE: PC120V) . . . . **PC+V**
☐ TWIST LOCK PHOTOCELL RECEPTACLE ONLY . . **TPR**
☐ SINGLE FUSE (120V, 277V) . . . . . **SF**
☐ DOUBLE FUSE (208V, 240V) . . . . . **DF**

CONTACT FACTORY FOR STEP DIM MOTION SENSOR (PROGRAMMED 50/100)

MOZART-WA SERIES - VPA LED

LAMP/ELECTRICAL GUIDE

LED COUNT	SOURCE TYPE	SOURCE	INITIAL LUMENS - 4000K	INITIAL LUMENS - 3000K	INITIAL LUMENS - 5000K	L70 GREATER THAN (HR)	STARTING TEMP.	SYSTEM WATTS	VOLTS	MAX INPUT AMPS
24	LED	24 VPA LED Power Array – 350mA	2,453	2,158	2,508	60,000+	-20°F	37	120 277 347	0.23 0.10 < 0.10
24	LED	24 VPA LED Power Array – 525mA	3,434	3,021	3,511	60,000+	-20°F	55	120 277 347	0.34 0.15 0.12
32	LED	32 VPA LED Power Array – 350mA	3,271	2,877	3,344	60,000+	-20°F	45	120 277 347	0.30 0.13 0.11
32	LED	32 VPA LED Power Array – 525mA	4,579	4,028	4,682	60,000+	-20°F	66	120 277 347	0.45 0.20 0.16
36	LED	36 VPA LED Power Array – 350mA	3,679	3,236	3,762	60,000+	-20°F	54	120 277 347	0.35 0.15 0.12
36	LED	36 VPA LED Power Array – 525mA	5,151	4,531	5,267	60,000+	-20°F	79	120 277 347	0.51 0.23 0.18
48	LED	48 VPA LED Power Array – 350mA	4,906	4,316	5,017	60,000+	-20°F	67	120 277 347	0.45 0.20 0.16
48	LED	48 VPA LED Power Array – 525mA	6,868	6,042	7,023	60,000+	-20°F	98	120 277 347	0.66 0.29 0.23
64	LED	64 VPA LED Power Array – 350mA	6,541	5,754	6,689	60,000+	-20°F	89	120 277 347	0.60 0.26 0.21
64	LED	64 VPA LED Power Array – 525mA	9,157	8,056	9,364	60,000+	-20°F	131	120 277 347	0.88 0.38 0.31

NOTES:

1. Max Input Amps is the highest of starting, operating, or open circuit currents
2. Lumen values for LED Modules vary according to the distribution type
3. System Watts includes the source watts and all driver components.
4. Fuse value should be sufficient to protect all wiring components. For electronic driver and LED component protection, use 10KV – 20KV surge suppressors.
5. L70(10K) – TM-21 6x rule applied
   L70(10K) – Calculated = 244,000 @ 700mA

WARNING: All fixtures must be installed in accordance with local codes or the National Electrical Code. Failure to do so may result in serious personal injury.

PROJECT NAME:

FIXTURE TYPE:

SOLID STATE AREA LIGHTING

MOZART-CPA SERIES-LED

S P E C I F I C A T I O N S

FIXTURE HOUSING

One piece unitized precise heavy wall cast aluminum construction comprised of low copper (A356 alloy, <0.2% Cu) aluminum. Hood is fastened to the Housing with a stainless steel hinge and secured with a tool-less stainless steel latch 180° opposite the hinge. Housing and Hood is sealed with an extruded closed cell silicone gasket. Clear Patterned Acrylic enclosure is gasketed at the fixture Mounting Hub and crown with an extruded closed cell silicone gasket. Driver/wiring access is inside the enclosure and accesses through the top of the Mounting Hub. Hub accommodates a 2 7/8" x 3" tenon. All exposed hardware is stainless steel.

LED POWER ARRAY™

Three-dimensional array of individual LED Tubes fastened to a retaining plate. Each LED Tube consists of circuit board populated with a multiple of LED's and is mechanically fastened to a radial aluminum heat sink. A diffuse acrylic lens and end cap protects each LED Tube's internal components.

ANGLED POWER ARRAY™: Micro-Reflectors mounted around each LED control the raw emitter output. LED Tubes are rotated on their vertical axis, angled on their horizontal axis, and arrayed to produce highly efficient IES Distribution Types II, III, IV and V. Used in conjunction with a clear patterned acrylic enclosure.

VERTICAL POWER ARRAY™: LED Tubes are aligned vertically and equally arranged radially to produce an even raw light distribution that simulates standard light sources. Produces a minimal glare, symmetric diffuse light distribution. Used in conjunction with prismatic glass refractor to produce symmetric or asymmetric distributions and surrounded by a Clear Patterned Acrylic enclosure.

LED EMITTERS

High output LED's are utilized with drive currents ranging from 350mA to 525mA. 70CRI Minimum. LED's are available in standard Neutral White (4000K), or optional Cool White (5000K) or Warm White (3000K). Consult Factory for other LED options.

LED DRIVER

UL and CUL recognized High Power Factor, Constant Current LED drivers operate on input voltages from 120-277VAC, 50/60hz. Driver is mechanically fastened to a retaining bracket. Main power quick disconnect provided. Surge protector supplied for field installation at the most conveniently serviceable location.

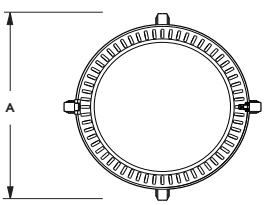
FINISH

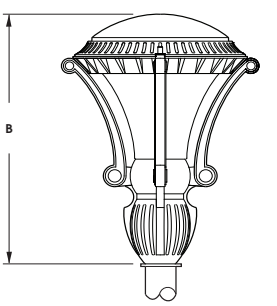
Electrostatically applied TGIC Polyester Powder Coat on substrate prepared with 20 PSI power wash at 140°F. Four step sand blast and iron phosphate pretreatment for protection and paint adhesion. 400°F bake for maximum hardness and durability. Texture finish is standard.



MOZ-CPA-LED

PATENT PENDING





Fitter supplied to fit over 2 7/8" X 3" (73mm X 76mm) tennon.

FIXTURE	A	B
MOZ26-CPA	26" 660mm	34.5" 876mm
MOZ20-CPA	20" 508mm	26.5" 673mm

c UL us LISTED

MADE IN THE USA

2018332

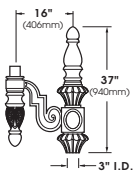
APEX LIGHTING SOLUTIONS The point where all ascending lines converge.	Project STVNSQRSTS Date 3/4/2020 STEVENS SQUARE SITE Submitted By APEX - NNE	Catalog Number MOZ20LED-VLED-IV-48LED-350MA-NW-120-PT-HS-VLED-RAL9005T Notes	TYPE: S2

MOZART-CPA SERIES - LED

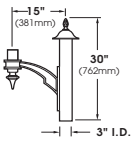
S P E C I F I C A T I O N S

ARM STYLES

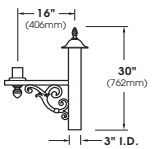
XAC



XAZ-UP

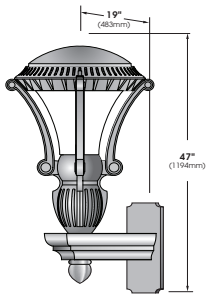


XAT



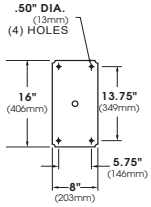
ARMS ARE HEAVY WALL EXTRUDED AND CAST ALUMINUM CONSTRUCTION. FOR ADDITIONAL ARM AND/OR WALL MOUNT OPTIONS SEE ARM SECTION.

WALL MOUNT

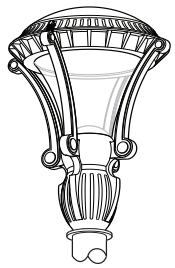


ARM BRACKET EXTRUDED AND CAST ALUMINUM CONSTRUCTION.

WALL PLATE



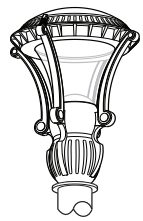
LED POWER ARRAY™ MODULES



MOZ26-CPA-LED
E.P.A.= 2.27

ANGLED POWER ARRAY
Available in:
80 LED Max.

VERTICAL ARRAY
Available in:
80 LED Max.



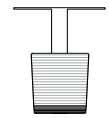
MOZ20-CPA-LED
E.P.A.= 1.48

ANGLED POWER ARRAY
Available in:
48 LED Max.

VERTICAL ARRAY
Available in:
48 LED Max.



APA - Angled Array
Top Mount



GRV - Glass Refractor w/ Vertical Array
Top mount

Spec/Order Example: MOZ20-CPA-LED/GRV-III/48LED-525mA/WW/120/PT/RAL-9005

S P E C / O R D E R I N G I N F O R M A T I O N

LUMINAIRE	OPTICS	# of LED's DRIVE CURRENT COLOR VOLTAGE	MOUNTING	FINISH	OPTIONS

LUMINAIRE

LUMINAIRE

☐ **MOZ26-CPA-LED**

☐ **MOZ20-CPA-LED**

OPTICS

ANGLED POWER ARRAY

☐ TYPE - II **APA - II** . . . . .
☐ TYPE - III **APA - III** . . . . .
☐ TYPE - IV **APA - IV** . . . . . .
☐ TYPE - V **APA - V** . . . . . .

GLASS REFRACTOR

☐ TYPE - III **GRV - III** . . . . .
☐ TYPE - V **GRV - V** . . . . . .

LED

# of LEDs

MOZ26-CPA APA MODELS

☐ **80LED**
☐ **60LED**
☐ **40LED**

GRV MODELS
☐ **36LED**
☐ **24LED**

MOZ20-CPA APA MODELS

☐ **48LED**
☐ **32LED**

GRV MODELS
☐ **36LED**
☐ **24LED**

DRIVE CURRENT

☐ **350mA**
☐ **525mA**

COLOR TEMP - CCT

☐ **NW (4000K)*** *STANDARD
☐ **CW (5000K)**
☐ **WW (3000K)**

OTHER LED COLORS AVAILABLE CONSULT FACTORY

VOLTAGE

☐ **120**
☐ **208**
☐ **240**
☐ **277**
☐ **347**
☐ **480**

MOUNTING

ARM MOUNT

☐ **XXX/1 (TYP.)** . . . . .
☐ **XXX/2-180 (TYP.)** . .
☐ **XXX/2-90 (TYP.)** . . . .
☐ **XXX/3-90 (TYP.)** . .
☐ **XXX/3-120 (TYP.)** . .
☐ **XXX/4-90 (TYP.)** . .

(**XXX** = Arm Model #
Ex = XBW-2-180/RAL-9005-T)

POST TOP MOUNT
(STANDARD 2⅛" x 3" TENON)

☐ **PT** . . . . . .

WALL MOUNT

☐ **WM** . . . . . .

FINISH

STANDARD TEXTURED FINISH

☐ BLACK **RAL-9005-T**
☐ WHITE **RAL-9003-T**
☐ GREY **RAL-7004-T**
☐ DARK BRONZE **RAL-8019-T**
☐ GREEN **RAL-6005-T**

FOR SMOOTH FINISH REPLACE SUFFIX "T" WITH SUFFIX "S" (EXAMPLE: RAL-9500-S)

SEE USALTG.COM FOR ADDITIONAL COLORS

OPTIONS

☐ 7-PIN TWIST LOCK RECEPTACLE ONLY (ANSI C136.41). **TPR7**
☐ HOUSE SIDE SHIELDS (STANDARD 180° SHIELD). . **HS**
☐ HIGH-LOW DIMMING FOR HARDWIRED SWITCHING OR NON-INTEGRATED MOTION SENSOR . . . . . **HLSW**
☐ PHOTO CELL + VOLTAGE (EXAMPLE: PC120V) . . . . **PC+V**
☐ TWIST LOCK PHOTOCELL RECEPTACLE ONLY . . **TPR**
☐ SINGLE FUSE (120V, 277V) . . . . . **SF**
☐ DOUBLE FUSE (208V, 240V) . . . . . **DF**

CONTACT FACTORY FOR STEP DIM MOTION SENSOR (PROGRAMMED 50/100)

MOZART-CPA SERIES - APA LED

LAMP/ELECTRICAL GUIDE

LED COUNT	SOURCE TYPE	SOURCE	INITIAL LUMENS - 4000K	INITIAL LUMENS - 3000K	INITIAL LUMENS - 5000K	L70 GREATER THAN (HR)	STARTING TEMP.	SYSTEM WATTS	VOLTS	MAX INPUT AMPS
32	LED	32 APA LED Power Array - 350mA	2,343 – 2,396	2,061 – 2,108	2,396 – 2,450	60,000+	-20°F	37	120 277 347	0.31 0.14 0.11
32	LED	32 APA LED Power Array - 525mA	3,280 – 3,354	2,886 – 2,951	3,354 – 3,430	60,000+	-20°F	55	120 277 347	0.46 0.20 0.16
40	LED	32 APA LED Power Array - 350mA	3,469 – 3,771	3,052 – 3,317	3,457 – 3,856	60,000+	-20°F	45	120 277 347	0.38 0.17 0.13
40	LED	32 APA LED Power Array - 525mA	4,856 – 5,279	4,272 – 4,644	4,966 – 5,398	60,000+	-20°F	66	120 277 347	0.55 0.24 0.20
48	LED	32 APA LED Power Array - 350mA	3,515 – 3,594	3,092 – 3,162	3,594 – 3,675	60,000+	-20°F	54	120 277 347	0.45 0.20 0.16
48	LED	32 APA LED Power Array - 525mA	4,921 - 5,032	4,329 – 4,426	5,032 – 5,145	60,000+	-20°F	79	120 277 347	0.66 0.29 0.23
60	LED	32 APA LED Power Array - 350mA	5,203 – 5,656	4,577 – 4,975	5,321 – 5,783	60,000+	-20°F	67	120 277 347	0.56 0.25 0.20
60	LED	32 APA LED Power Array - 525mA	7,285 – 7,918	6,408 – 6,966	7,449 – 8,097	60,000+	-20°F	98	120 277 347	0.82 0.36 0.29
80	LED	32 APA LED Power Array - 350mA	6,938 – 7,541	6,103 – 6,634	7,094 – 7,711	60,000+	-20°F	89	120 277 347	0.75 0.33 0.26
80	LED	32 APA LED Power Array - 525mA	9,713 – 10,557	8,544 – 9,287	9,932 – 10,796	60,000+	-20°F	131	120 277 347	1.10 0.48 0.38

NOTES:

1. Max Input Amps is the highest of starting, operating, or open circuit currents
2. Lumen values for LED Modules vary according to the distribution type
3. System Watts includes the source watts and all driver components.
4. Fuse value should be sufficient to protect all wiring components. For electronic driver and LED component protection, use 10KV – 20KV surge suppressors.
5. L70(10K) – TM-21 6x rule applied
   L70(10K) – Calculated = 244,000 @ 700mA

WARNING: All fixtures must be installed in accordance with local codes or the National Electrical Code. Failure to do so may result in serious personal injury.

MOZART-CPA SERIES - GRV LED LAMP/ELECTRICAL GUIDE

LED COUNT	SOURCE TYPE	SOURCE	INITIAL LUMENS - 4000K	INITIAL LUMENS - 3000K	INITIAL LUMENS - 5000K	L70 GREATER THAN (HR)	STARTING TEMP.	SYSTEM WATTS	VOLTS	MAX INPUT AMPS
24	LED	24 GRV/VPA LED Power Array – 350mA	1,922 – 1,966	1,687 – 1,726	1,967 – 2,012	60,000+	-20°F	26	120 277 347	0.22 0.10 0.08
24	LED	24 GRV/VPA LED Power Array – 525mA	2,787 – 2,852	2,446 – 2,503	2,853 – 2,919	60,000+	-20°F	39	120 277 347	0.33 0.15 0.12
36	LED	36 GRV/VPA LED Power Array – 350mA	2,883– 2,949	2,531 – 2,589	2,951 – 3,019	60,000+	-20°F	39	120 277	0.33 0.15 0.12
36	LED	36 GRV/VPA LED Power Array – 525mA	4,180 – 4,278	3,669 – 3,755	4,278 – 4,379	60,000+	-20°F	59	120 277 347	0.50 0.22 0.18

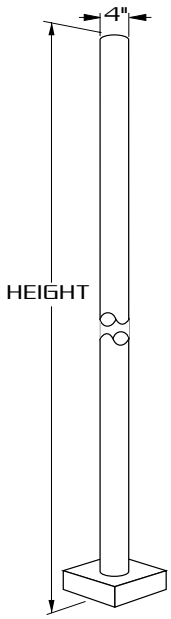
NOTES:

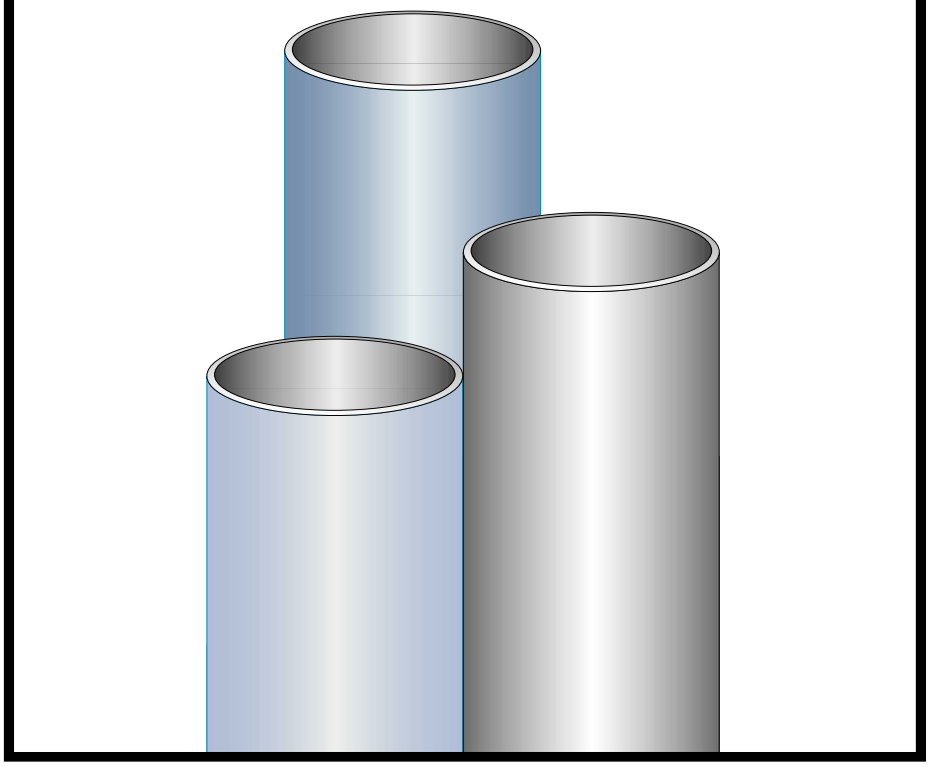
1. Max Input Amps is the highest of starting, operating, or open circuit currents
2. Lumen values for LED Modules vary according to the distribution type
3. System Watts includes the source watts and all driver components.
4. Fuse value should be sufficient to protect all wiring components. For electronic driver and LED component protection, use 10KV – 20KV surge suppressors.
5. L70(10K) – TM-21 6x rule applied
   L70(10K) – Calculated = 244,000 @ 700mA

WARNING: All fixtures must be installed in accordance with local codes or the National Electrical Code. Failure to do so may result in serious personal injury.

APEX LIGHTING SOLUTIONS The point where all ascending lines converge.	Project STVNSQRSTS Date 3/4/2020 STEVENS SQUARE SITE Submitted By APEX - NNE	Catalog Number RNTA-124-125-PT27-RAL-9005S Notes	TYPE: S2P

RNTA 4"





4" ROUND STRAIGHT ALUMINUM

SPECIFICATIONS

SHAFT: 4" DIAMETER. EXTRUDED FROM 6063 ALLOY ALUMINUM TUBING. HEAT TREATED TO PRODUCE A T6 TEMPER. SHAFT INCLUDES A PERIPHERALLY REINFORCED HAND HOLE FURNISHED WITH COVER. SHAFT IS FURNISHED WITH GROUND LUG LOCATED ON CAST ALUMINUM BASE PLATE.

BASE PLATE: CAST ALUMINUM CONSTRUCTED OF A-356 ALUMINUM ALLOY HEAT TREATED TO PRODUCE A T6 TEMPER. STRUCTURALLY ENGINEERED BASE INCLUDES EIGHT HEAVY WALL REINFORCING VERTICAL GUSSETS. BASE TELESCOPES AND IS CIRCUMFERENTIALLY WELDED TO SHAFT AT BOTH THE OUTSIDE TOP AND INSIDE BOTTOM OF THE BASE.

ANCHORAGE: (4) ANCHOR BOLTS FABRICATED FROM HOT ROLLED STEEL BAR, MINIMUM YIELD STRENGTH OF 50,000 P.S.I. BOLTS HAVE "L" BEND ON ONE END AND ARE THREADED ON THE OTHER END. BOLTS ARE FULLY GALVANIZED AND ARE FURNISHED WITH TWO NUTS AND TWO WASHERS.

BASE COVER: FABRICATED FROM HEAVY WALL ALUMINUM CONSTRUCTION. TWO PIECE COVER ENTIRELY CONCEALS BASE.

FINISH: POLYESTER POWDER COAT-STATE OF THE ART 20 PSI PRESSURE POWER WASH AT 140° TEMPERATURE INCORPORATES FOUR STEP IRON PHOSPHATE PROCESS TO CLEANSE AND PRETREAT THE METAL SURFACE FOR MAXIMUM PAINT ADHESION. ELECTROSTATICALLY APPLIED TEXTURED POLYESTER POWDER TOPCOAT IS BAKED AT 400° TEMPERATURE FOR MAXIMUM HARDNESS AND EXTERIOR DURABILITY.

APEX LIGHTING SOLUTIONS The point where all ascending lines converge.	Project STVNSQRSTS Date 3/4/2020 STEVENS SQUARE SITE Submitted By APEX - NNE	Catalog Number RNTA-124-125-PT27-RAL-9005S Notes	TYPE: S2P

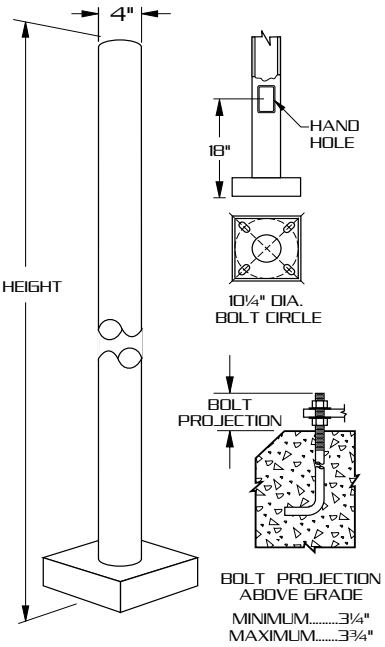
RNTA SERIES

ENGINEERING DATA

Maximum EPA - Square Feet

Catalog Number	Maximum Fixt. wgt.	100 MPH	90 MPH	80 MPH	70 MPH
RNTA 84-125	100	6.9	8.7	11.4	15.2
RNTA 104-125	100	4.7	6.0	8.0	10.9
RNTA 124-125	100	3.3	4.4	6.0	8.5
RNTA 144-125	100	2.2	3.1	4.5	6.6

All above design calculations are based on sustained wind forces plus additional 1.3 wind gust
(Example: Pole rated at 80 MPH withstands 104 MPH gusts)



ORDERING INFORMATION

MODEL NO. :	POLES	MOUNTING	FINISH	OPTIONS
RNTA				

MODEL NO. : RNTA

POLES

	POLE HEIGHT	WALL THICKNESS	BOLT CIRCLE	ANCHORAGE
☐ 84-125	8'	.125	10¼"	3/4"X18"X3"
☐ 104-125	10'	.125	10¼"	3/4"X18"X3"
☐ 124-125	12'	.125	10¼"	3/4"X18"X3"
☐ 144-125	14'	.125	10¼"	3/4"X18"X3"

MOUNTING

☐ 2 3/8"X4" TENON **PT23**

☐ 2 7/8"X4" TENON **PT27**

☐ OTHER TENON MT _____

DRILL MOUNT

☐ 1..... ☐ 3-90....

☐ 2-180.. ☐ 4-90....

☐ 2-90..... ☐ 3-120...

2-90, 3-90, 4-90 REQUIRES **PT27** AND **T490** ADAPTER

3-120 REQUIRES **PT27** AND **T3120** ADAPTER

FINISH

STANDARD SMOOTH FINISH

☐ BLACK **RAL-9005-S**

☐ WHITE **RAL-9003-S**

☐ GREY **RAL-7004-S**

☐ DRK BRONZE **RAL-8019-S**

☐ GREEN **RAL-6005-S**

OPTION:

☐ BRONZE ANODIZED **AZ313**

☐ NATURAL ANODIZED **AZ**

☐ BLACK ANODIZED **AZBK**

FOR TEXTURED FINISH REPLACE SUFFIX "S" WITH SUFFIX "T" (EXAMPLE: RAL-9005-T)

CONSULT FACTORY FOR CUSTOM COLORS

OPTIONS

☐ DUPLEX RECEPTACLE **DUP**

☐ GFI RECEPTACLE **GFI**

☐ 3 WAY ADAPTER **T3120**

☐ 4 WAY ADAPTER **T490**

☐ ROUND BASE COVER **RBC**

☐ 1/2" COUPLING **CPLN1/2**

☐ 3/4" COUPLING **CPLN3/4**

☐ 2" COUPLING **CPLN2**

(SPECIFY COUPLING LOCATION)

SEE ACCESSORIES SECTION FOR OTHER OPTIONS.

U.S. ARCHITECTURAL LIGHTING
660 WEST AVENUE O, PALMDALE, CA. 93551
(661) 233-2000
FAX NO. (661) 233-2001

APEX LIGHTING SOLUTIONS The point where all ascending lines converge.	Project STVNSQRSTS Date 3/4/2020 STEVENS SQUARE SITE Submitted By APEX - NNE	Catalog Number BRA6-LED-IL-24LED[350MA]-NW-120-GI-RAL9005T-36IN OAH Notes	TYPE: S5

SOLID STATE BOLLARDS

BRA SERIES-LED

SPECIFICATIONS

BOLLARD
Durable corrosion resistant extruded and cast aluminum construction. ¼" wall thickness.

LED POWER ARRAY™
Three-dimensional array consisting of 6 individual LED tubes for the BDA8 model and 4 individual LED tubes for the BDA6 model, which are fastened to a retaining plate equally spaced to provide 360° of even illumination output. Each LED tube consists of a circuit board populated with a multiple of LED's which is fastened to a radial aluminum heat sink. A white polycarbonate lens and end caps protect each LED tube's internal components and provides diffusion to prevent shadowing and striations.

INTERNAL LOUVER (IL) - A specular louver stack conceals the inner LED Power Array Module and provides uplight and glare control through the external clear polycarbonate lens.

CAST LOUVER (CL) - External cast aluminum louver stack protects the internal LED Power Array Module and provides uplight and glare control. An internal clear polycarbonate lens is integrated with the LED Power Array Module.

OPAL LENS (WP) - Exterior white polycarbonate lens protects the internal LED Power Array Module and provides a uniform white glow.

RADIAL LED MODULE
LED'S are mounted to a circular heatsink in a radial array. The radial LED module is concealed in the cap of the bollard. LED's are not directly visible from angles above 90°.

PARABOLIC REFLECTOR (PR) - A specular Parabolic Reflector reflects a portion of the distribution from the radial LED module and provides a uniform wide angle throw through the outer clear polycarbonate lens.

LED EMITTERS
High Output LED's are driven at 350mA for nominal 1 Watt output each. 70CRI Minimum. LED's are available in standard Neutral White (4000K), or optional Cool White (5000K) or Warm White (3000K). Consult Factory for other LED options.

LED DRIVER
UL and CUL recognized Constant Current LED drivers operate on input voltages from 120-277VAC, 50/60hz. Consult Factory for (347-480VAC). Driver is mechanically fastened to a retaining bracket. Driver has a minimum 4KV of internal surge protection, 10KV & 20KV Surge Protector optional. Dimmable and High-Low Driver options available.

FINISH
Polyester powder coat incorporates four step iron phosphate process to pretreat metal surface for maximum adhesion. Top coat is baked at 400°F for maximum hardness and exterior durability.

PROJECT NAME:

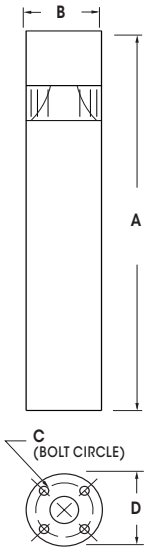
FIXTURE TYPE:



BRA

BRA8 SHOWN WITH **-PR** OPTICS

PATENT PENDING



BOLLARD	A	B	C	D
BRA8	42" 1067mm	8" 203mm	6" 152mm	8" 203mm
BRA6	42" 1067mm	6" 152mm	4" 102mm	6" 152mm

c UL us LISTED

MADE IN THE USA

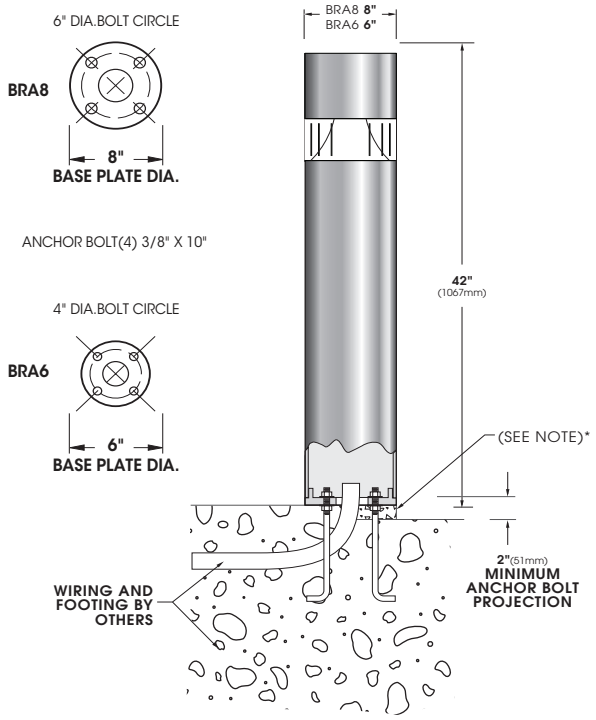
2018214

APEX LIGHTING SOLUTIONS The point where all ascending lines converge.	Project STVNSQRSTS Date 3/4/2020 STEVENS SQUARE SITE Submitted By APEX - NNE	Catalog Number BRA6-LED-IL-24LED[350MA]-NW-120-GI-RAL9005T-36IN OAH Notes	TYPE: S5

BRA SERIES-LED

SPECIFICATIONS

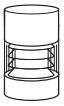
INSTALLATION



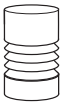
*When mounting in soil, anchor bolt fasteners and other hardware must be protected from soil by grouting.

OPTICS

INTERNAL LOUVER
SUPPLIED WITH CLEAR POLYCARBONATE LENS — **IL**

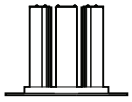


CAST LOUVER — **CL**



OPAL POLYCARBONATE — **WA**

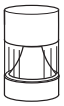




VPA - Vertical Array
BRA8 Available in:
36 LED Max

BRA6 Available in:
24LED Max

PARABOLIC REFLECTOR — **PR**





RADIAL LED Module
BRA8 Available in:
18 LED Module

BRA6 Available in:
12 LED Module

Spec/Order Example: BRA6-TR/12LED120WW/RAL-8019-T/HLSW

ORDERING INFORMATION

BOLLARD	OPTICS	# of LED's	COLOR	VOLTAGE	MOUNTING	FINISH	OPTIONS

BOLLARD

- ☐ **BRA8-LED**
- ☐ **BRA6-LED**

OPTICS

VERTICAL POWER ARRAY

- ☐ INTERNAL LOUVER . . . . . **IL**
- ☐ CAST LOUVER . . . . . **CL**
- ☐ OPAL POLYCARBONATE . . . . . **WP***

RADIAL LED MODULE

- ☐ PARABOLIC REFLECTOR . . . . **PR**

*-**WP** OPTICS USE OPAL POLYCARBONATE LENS

LED

# of LEDs

- ☐ **36LED**[1]
- ☐ **24LED**
- ☐ **18LED**[1]
- ☐ **12LED**[2]

COLOR

- ☐ **NW** (4000K) Standard
- ☐ **CW** (5000K)
- ☐ **WW** (3000K)

OTHER LED COLORS AVAILABLE CONSULT FACTORY

VOLTAGE

- ☐ **120**
- ☐ **208**
- ☐ **240**
- ☐ **277**
- ☐ **347**
- ☐ **480**

NOTES:
1 – AVAILABLE IN BRA8 ONLY.
2 – AVAILABLE IN BRA6 ONLY.

MOUNTING

- ☐ **GROUND INSTALLATION** . . . . (STANDARD)
- ☐ WALL MOUNT **WM** . . . . . .

FINISH

STANDARD TEXTURED FINISH

- ☐ BLACK **RAL-9005-T**
- ☐ WHITE **RAL-9003-T**
- ☐ GREY **RAL-7004-T**
- ☐ DARK BRONZE **RAL-8019-T**
- ☐ GREEN **RAL-6005-T**

FOR SMOOTH FINISH REPLACE SUFFIX "T" WITH SUFFIX "S" (EXAMPLE: RAL-9500-S)

SEE USALTG.COM FOR ADDITIONAL COLORS

OPTIONS

- ☐ DIMMABLE DRIVER (0-10V PROVIDED) . . . . . **DIM**
- ☐ HIGH-LOW DIMMING FOR HARDWIRED SWITCHING OR NONINTEGRATED MOTION SENSOR . . . . . **HLSW**
- ☐ INTERNAL HOUSE SIDE SHIELD. . . . **HS**
- ☐ DUPLEX RECEPTACLE . . . . . **DUP**
- ☐ GROUND FAULT RECEPTACLE . . . . . **GFI**
- ☐ 10KV SURGE PROTECTOR. **10SP**
- ☐ 20KV SURGE PROTECTOR (277V & 480V Only) **20SP**

OPTIONAL HEIGHTS:

- ☐ **30"**
- ☐ **36"**

Att. S

Att. T

DECLARATION OF CONDOMINIUM

OF

STEVENS SQUARE CONDOMINIUM

This Declaration of Condominium is executed as of the 3rd day of February, 2021 by DC BAXTER WOODS IV LLC, a Maine limited liability company with a place of business in Portland, Maine ("Declarant"), pursuant to the Maine Condominium Act, 33 M.R.S.A. § 1601-101 et seq. (as amended from time to time, hereinafter the "Act").

ARTICLE I: CREATION OF CONDOMINIUM; DEFINED TERMS

Section 1.1 Declaration of Property. Declarant, owner in fee simple of the land (the "Land"), described in Exhibit A attached hereto and incorporated herein, located within the City of Portland, Maine, hereby submits the Land, together with all buildings, improvements, appurtenant easements, rights and appurtenances located thereon or belonging thereto (collectively the "Property") to the provisions of Chapter 31 of Title 33 of the Maine Revised Statutes Annotated, as amended, known as the Maine Condominium Act (the "Act") and hereby creates a condominium with respect to the Property, reserving to itself Development Rights in the Property, such condominium to be known as "Stevens Square Condominium" (the "Condominium"). The Property is shown on the plan titled "Condominium Plat --Stevens Square Condominium" dated March 12, 2019, prepared by Titcomb Associates and to be recorded herewith in the Cumberland County Registry of Deeds and on plans titled "Stevens Square Condominium Plans" dated January 29, 2021 prepared by Archetype, P.A., to be recorded herewith in the Cumberland County Registry of Deeds (collectively the "Plat and Plans"), as amended from time to time. The Property shall hereafter be held, sold and conveyed subject to the terms, conditions, covenants, easements and restrictions set forth in this

Declaration of Condominium of Stevens Square Condominium, as amended from time to time (the "Declaration") and in the Act, which shall run with the Property and bind and inure to the benefit of all owners of the Property or any portion thereof, their respective heirs, successors and assigns. Stevens Square Condominium Association, a Maine non-profit corporation created under the Maine non-profit corporation act, 13-B M.R.S.A. § 101 et seq., as amended (hereinafter the "Association") shall be the Unit Owners' Association under the Act.

Section 1.2 Defined Terms. Capitalized terms used in this Declaration shall have the meaning specified in this Declaration or, if not otherwise defined in this Declaration, as it may be amended from time to time, or in the Plat and Plans, shall have the same meanings as specified in the Act:

(1) "Additional Units" means Units added to the Condominium in Subsequent Phases.

(2) "Allocated Interests" mean (a) the Common Element Interest as defined in Section 4.3 hereof, (b) the Common Expense Liability as defined in Section 6.1 hereof, and (c) the votes in the Association, allocated to each Unit pursuant to this Declaration.

(3) "Buildings" means, collectively, the buildings to be built on the Land, containing the Units, as well as other improvements comprising a part of the Buildings or intended to be used for purposes incidental to the use of the Buildings. One Building is identified on the Plat and Plans as "Building 1." Building 1 must be built; Declarant is reserving Development Rights to add up to four additional Buildings; such additional Buildings need not be built.

(4) "Bylaws" mean such governing regulations for the Association as are adopted pursuant to the Act and this Declaration for the regulation and management of the Property, including such amendments thereof as may be adopted from time to time.

(5) "Common Elements" mean all portions of the Condominium other than the Units, as shown on the Plat and Plans.

(6) "Common Element Interest" has the meaning provided in Section 4.3 of this Declaration.

(7) "Common Expenses" mean expenditures made by or financial liabilities of the Association together with any allocation to reserves.

(8) "Common Expense Liability" has the meaning provided in Section 6.1 of this Declaration.

(9) "Condominium Documents" mean this Declaration, the Plat and Plans and the Bylaws, as amended from time to time.

(10) "Declarant" means DC Baxter Woods IV LLC, its successors and assigns and all successors to any Special Declarant Rights hereunder.

(11) "Declarant Control Period" means the time period described in Section 7.2 of the Declaration.

(12) "Development Rights" has the meaning specified in Article V of this Declaration and Section 1601-103(11) of the Act.

(13) "Eligible Mortgage Holder" means the holder of record of a recorded first Mortgage on a Unit in the Condominium which has delivered written notice to the Association by prepaid United States mail, return receipt requested, or by delivery in hand securing a receipt therefor, stating the name and address of such holder, the name and address of the Owner of the Unit encumbered by such Mortgage, the identifying number of such Unit, and containing a statement that such Mortgage is a recorded first mortgage.

(14) "Executive Board" means the Board of Directors of the Association authorized to act on behalf of the Association pursuant to this Declaration, the Act and other applicable law.

(15) "Limited Common Elements" mean those portions of the Common Elements the exclusive use of which is reserved as an appurtenance to one or more, but fewer than all, of the Units as indicated and allocated pursuant to this Declaration and the Plat and Plans.

(16) "Limited Common Expenses" mean the Common Expenses for services benefiting fewer than all the Units, which are assessed pursuant to this Declaration exclusively against those Units benefited in accordance with Section 1603-115(c)(2) of the Act.

(17) "Mortgage" means a recorded mortgage encumbering a Unit in the Condominium held by a Mortgagee and "Mortgagee" means the holder of a recorded Mortgage or deed of trust encumbering a Unit in the Condominium.

(18) "Recorded" means that an instrument has been duly entered of record in the Registry of Deeds for Cumberland County, Maine.

(19) "Special Declarant Rights" has the meaning provided in Article V of this Declaration and Section 1601-103(25) of the Act.

(20) "Subsequent Phases" means such additional construction phases under which the Declarant elects to add Additional Units to the Condominium. Declarant presently contemplates up to four Subsequent Phases of either 28 or 42 Additional Units each, but reserves sole discretion to determine the number of Additional Units and Subsequent Phases, subject to this Declaration.

(21) "Unit" means a part of the Property designated for separate ownership or occupancy for residential purposes, the boundaries of which are described in Article III hereof, and includes all Additional Units added to the Condominium as provided in this Declaration.

ARTICLE II: IDENTIFICATION AND LOCATION OF CONDOMINIUM; ASSOCIATION

The name of the condominium is Stevens Square Condominium. The name of the Association organized under the Act is Stevens Square Condominium Association. The Condominium is located at 53-80 McAuley Way in Portland, County of Cumberland and State of Maine (which location is more particularly described in Exhibit A hereto).

ARTICLE III: DESCRIPTION OF PROPERTY AND UNITS

Section 3.1 Description of the Property. A metes and bounds description of the Property included in the Condominium is set forth in Exhibit A attached hereto and made a part hereof.

Section 3.2 Maximum Number of Units. Pursuant to this Declaration, Declarant is initially creating twenty (20) Units, being Units 1 through 20 located in Building 1. Declarant hereby reserves the right to create up to one hundred forty-one (141) Additional Units in Subsequent Phases. The maximum number of Units that the Declarant reserves the right to create in the Condominium is one hundred sixty-one (161) Units. An Additional Unit is created and added to the Condominium when the Declarant amends Exhibit B and the Plat and Plans to include such Additional Unit.

Section 3.3 Description and Boundaries of Units. The Unit numbers, location of Units created by this Declaration within the Buildings and their approximate dimensions are shown on the Plat and Plans. A list of all Unit numbers, addresses and Allocated Interests in the Association appurtenant to each Unit is attached hereto as Exhibit B. The locations of the Units, Common Elements and Limited Common Elements are as shown more fully on the Plat and Plans.

The boundaries of each Unit created by this Declaration will be as follows: (1) Horizontal (Upper and Lower) Boundaries of each Unit shall be the following boundaries extended to an intersection with the vertical (perimetric) boundaries: (a) Upper Boundary: The plane of the lower surface of ceiling joists or other framing members (but not including the ceiling joists or such other framing members); and (b) Lower Boundary: The horizontal upper surface of the bottom subfloor (but not including the subfloor); and (2) Vertical (perimetric) Boundaries of each Unit shall be the internal surface of the walls (i.e., the inner surface of the sheetrock or other finished wall surface) bounding the Unit extended to intersections with each other and with the horizontal or inclined boundaries. All paneling, tiles, wallpaper, paint,

sheetrock, finish flooring and any other materials constituting any part of the finished surfaces of the ceilings, walls or floors are a part of the Unit, and all other portions of the walls, floors or ceilings are a part of the Common Elements. If any chute, flue, duct, wire, conduit, bearing wall, bearing column or any other fixture lies partially within and partially outside the designated boundaries of a Unit, any portion thereof serving only that Unit is a Limited Common Element allocated solely to that Unit and any portion thereof serving more than one Unit or any portion of the Common Elements is a part of the Common Elements. Subject to the foregoing provisions, all spaces, interior partitions and other fixtures and improvements within the boundaries of a Unit are a part of the Unit. All exterior doors and windows within or serving a Unit are Limited Common Elements appurtenant to that Unit. Any shutters, awnings, window boxes, doorsteps, stoops, halls, steps, decks, balconies, patios, skylights, and flues designed to serve a single Unit but which are located outside a Unit's boundaries are Limited Common Elements allocated exclusively to that Unit. The Buildings and Units shown on the Plat and Plans are subject to settling or lateral movement of the Buildings and minor variations between the Unit boundaries as shown or projected on the Plat and Plans and the physical boundaries as constructed or reconstructed. In such event, each Unit has an easement for encroachments as set forth in Article XVI hereof.

Section 3.4 Subdivision or Relocation of Unit Boundaries. Subject to applicable provisions of this Declaration or law and environmental and land-use ordinances and regulations of the State of Maine and City of Portland, as the same may be amended, modified, superseded or replaced from time to time, and upon the prior written consent of the Executive Board, the subdivision of Units and/or relocation of boundaries between Units will be permitted at the expense of the Unit Owners of the Unit or Units to be so subdivided and the boundaries of which are to be so relocated, subject to compliance with the provisions therefor set forth in Section 1602-113 and Section 1602-112 of the Act. No Unit may be created by subdivision which is smaller than the minimum size for residential dwelling units under the City of Portland Land Use Ordinance. Notwithstanding the foregoing, no subdivision of a Unit may result in the creation of a number of Units in excess of the number of Units approved by the City of Portland, which is 22.

Section 3.5 Maintenance Responsibilities. The Units, including heating systems, shall be maintained and repaired by each Unit Owner, and the Common Elements shall be maintained and repaired by the Association except that if damage is inflicted upon any Common Elements, the Unit Owner responsible for the damage is liable for the prompt repair thereof, all in accordance with the provisions of Section 1603-107(a) of the Act, except as expressly set forth to the contrary in this Declaration. See Sections 4.8, 4.9 and 4.10 herein.

ARTICLE IV: COMMON ELEMENTS AND LIMITED COMMON ELEMENTS

Section 4.1 Allocation of Limited Common Elements. The location of all real estate that is allocated as Limited Common Elements other than portions of the Property specified as Limited Common Elements in Section 1602-102 (2) and (4) of the Act, is shown on the Plat and

Plans. All portions of each Building except the Units, including, without limitation, the exterior walls, roof, foundation, windows, exterior doors, interior stairways and hallways, elevator, common room and common infrastructure including without limitation plumbing and electric, contained within each Building, are Limited Common Elements appurtenant to all the Units in such Building. The decks attached to each Unit are Limited Common Elements appurtenant to such Unit. The parking space(s) allocated to each Unit in the manner set forth in Section 5.11 below are Limited Common Elements appurtenant to the Units so allocated. The allocation of Limited Common Elements to the Units cannot be altered except with the written consent of the Owners of the Units affected by the reallocation of Limited Common Elements, in compliance with the provisions of Section 1602-108(b) of the Act, together with the consent of such Owners' Mortgagees of record.

Section 4.2 Association Rights to Reserve Common Elements. The Association shall have the power to grant revocable licenses in the Common Elements for use by less than all Unit Owners for specified periods of time and to establish a reasonable charge for the use and maintenance thereof. Such designation by the Board shall not be construed as a sale or disposition of the Common Elements.

Section 4.3 Common Element Interest. The Common Elements are all parts of the Property other than the Units. The percentage of undivided interest in the Common Elements appurtenant to each Unit (the "Common Element Interest") is listed and allocated to each Unit in Exhibit B. The Common Element Interest and the Common Expense Liability appurtenant to each Unit, is a percentage determined on the basis of the number of square feet of floor space in the Unit divided by the total amount of floor space of all Units listed on Exhibit B, times 100. However, if Declarant exercises its rights under this Declaration to create Additional Units by the completion of some or all Subsequent Phases, the Allocated Interests will be adjusted accordingly and Exhibit B shall be amended. The voting rights for each Unit are shown on Exhibit B.

Section 4.4 Common Elements to Remain Undivided. The Common Element Interest of a Unit shall be inseparable from each Unit, and any conveyance, lease, devise or other disposition or mortgage or other encumbrance of any Unit shall extend to and include the Common Element Interest, whether or not expressly referred to in the instrument effecting such transfer. Except as otherwise provided by law or this Declaration, the Common Element Interests and the fee titles to the respective Units conveyed therewith shall not be separately conveyed, transferred, alienated or encumbered, and each of said Common Element Interests shall be deemed to be conveyed, transferred, alienated or encumbered with its respective Unit notwithstanding that the description in the instrument of conveyance, transfer, alienation or encumbrance may refer only to the fee title to the Unit. The Common Elements shall remain undivided and no action for partition or division of any part thereof shall be permitted, unless otherwise provided by law and permitted by this Declaration.

Section 4.5 Amendment of Interest in Common Elements. Except with respect to the subdivision or relocation of boundaries of Units as provided in Section 3.4 or the re-allocation of

interests provided in Section 6.1, or the expansion of the Condominium as provided in Article V or as otherwise provided in the Act, the Common Element Interest appurtenant to each Unit shall have a permanent character, shall be inseparable from each Unit and shall not be altered or changed except by the recording of an amendment to this Declaration, duly approved by the number of Unit Owners required under the Act and otherwise as provided in this Declaration.

Section 4.6 Use of Common Elements. Except as their use may otherwise be limited by this Declaration, the Bylaws or otherwise by the Executive Board or Unit Owners pursuant to its/their powers under the Bylaws to establish rules and regulations, each Unit Owner, tenant and occupant of a Unit, and the family members and guests of such Unit Owner, tenant and occupant, may use the Common Elements in common with all other Unit Owners and tenants or occupants of other Units, and their respective family members and guests, in accordance with the purposes for which they are intended without hindering or encroaching upon the lawful rights of the other Unit Owners, and in common with other persons legally entitled to use the Common Elements, upon the following terms:

(1) The portion of the Common Elements used for vehicular and pedestrian access shall not be used for the parking of motor vehicles, commercial vehicles, trailers, motor homes, or boats except with the prior written approval of the Executive Board. No unattended vehicle shall at any time be left in such a manner as to impede the passage of traffic (whether by foot or vehicle) or to impair access to parking areas. Parking areas and Common Elements shall at all times be kept free of unreasonable accumulations of debris or rubbish of any kind and no junk or derelict vehicle or other vehicle on which current registration plates are not displayed shall be kept upon any of the Common Elements or Limited Common Elements. Major vehicular repairs are not permitted on the Property. The Association shall have the right to tow any vehicles left on the Common Elements in violation of this Declaration or any rules duly promulgated by the Association at the expense of the responsible Unit Owner.

(2) No Unit Owner (other than the Declarant in connection with its promotional or marketing purposes) may erect any sign on or in his or her Unit or any Limited Common Element which is visible from outside of his or her Unit or from the Common Elements, without in each instance having obtained the prior written permission of the Executive Board. The foregoing provisions of this subparagraph shall not apply to a Mortgagee in possession of a Unit as a result of foreclosure, judicial sale or a proceeding in lieu of foreclosure. This provision is not intended to prevent the Executive Board from maintaining on the Common Elements a register of Unit occupants, or owners, or both.

(3) No Unit Owner shall obstruct any of the Common Elements nor shall any Unit Owner place or cause or permit anything to be placed on or in any of the Common Elements without the approval of the Board. Nothing shall be altered or constructed in or removed from the Common Elements except with the prior written consent of the Executive Board.

(4) The Executive Board, the Association, any Unit Owner and the Declarant shall not be considered a bailee of any personal property stored on the Common Elements (including

vehicles parked on the Common Elements), whether or not exclusive possession of the particular area is given to a Unit Owner for parking purposes, and shall not be responsible for the security of such personal property or for any loss or damage thereto, except to the extent covered by insurance in excess of any applicable deductible.

(5) The Association shall have the power to enforce adherence by Unit Owners, their guests, agents, invitees and tenants, to the restrictions described in this Section 4.6.

(6) The Land is subject to that certain Declaration of Covenants and Easements dated May 5, 2017 and recorded in the Cumberland County Registry of Deeds in Book 33992, Page 172 (the "Land Declaration"). The Association, acting for the Unit Owners, shall be a member in the 605 Stevens Avenue Lot Owners Association, a Maine nonprofit corporation, created pursuant to the Land Declaration. All costs assessed to the Land under the Land Declaration shall be Common Expenses.

Section 4.7 Alteration to Unit or Common Elements by Unit Owner. A Unit Owner may make improvements and alterations to the interior of his Unit, but no Unit Owner may make any improvements or alterations or do any work whatsoever which would impair the structural integrity or mechanical systems of the Building, lessen the support of any portion of the Condominium, or jeopardize the soundness or safety of the Property. No Unit Owner shall impair any easement or other right appurtenant to the Property or the Units without the unanimous consent of the Unit Owners affected thereby. No Unit Owner shall alter, paint or otherwise change the appearance of the Common Elements (including the Limited Common Elements) or paint or otherwise change the exterior appearance of his Unit (including, but not limited to, the exterior surfaces of doors) or any other portion of the Condominium without the prior written approval of the Executive Board.

Section 4.8 Limited Common Elements, Maintenance. Except as herein provided, the Association shall maintain, repair and replace all Limited Common Elements located outside the boundaries of the Unit, as well as exterior doors and windows, and shall assess as a Limited Common Expense to the Unit Owners who benefit from the use of such Limited Common Elements the Common Expenses associated with the maintenance, repair or replacement of such Limited Common Elements, provided that the Association shall also have the right to assess an individual Unit for such Common Expenses if the Common Expense shall be incurred due to the negligence or misconduct of the Owner of such Unit or his agents, invitees or guests. The Association shall be responsible for snow removal on entryways, walkways, and parking spaces. The Unit Owners shall maintain, repair, and replace any Limited Common Elements located within the perimetric boundaries of their respective Units. The Unit Owners shall have housekeeping responsibilities for the entryways to their respective Units and shall be responsible for keeping their respective parking spaces free of debris and spilled petroleum or other automotive products. The Association may set standards of housekeeping, maintenance, use and appearance applicable to the Limited Common Elements.

Section 4.9 Maintenance of Common Elements. The Association shall maintain, repair and replace all Common Elements, including but not limited to driveways and parking areas, the open space and walkways, water feeder lines and meters and sewer and drainage system within the Property (including proper and timely maintenance of the stormwater drainage system installed on the Property, as well as replacement of components as required) and the bus stop and infrastructure located thereon, which is the subject of an easement to the City of Portland of near date recorded in the Cumberland County Registry of Deeds in Book 37437, Page 282 (the "Bus Stop"), and the maintenance and repair costs for which shall be included in Common Expenses, and shall provide for snow plowing and removal of household rubbish. The Association shall be a party to any stormwater maintenance agreement that may be required by the City of Portland. The Association shall assess as a Common Expense the Common Expenses associated with the maintenance, repair or replacements of such Common Elements, provided that the Association shall also have the right to assess an individual Unit for such Common Expenses if the Common Expense shall be incurred due to the negligence, neglect or misconduct of the Owner of such Unit or his agents, invitees or guests. The Association shall responsible for removing snow and ice from City sidewalks adjacent to the Property in accordance with the City's Code of Ordinances, and all such snow removal costs shall be assessed as Common Expenses.

Section 4.10 Maintenance of Unit. Each Unit Owner shall keep and maintain his or her Unit and its equipment, heating system, appliances and appurtenances in good order, condition and repair and in clean and sanitary condition, whether such maintenance and repair shall be structural or nonstructural, ordinary or extraordinary, and shall do all redecorating, painting and varnishing which may at any time be necessary to maintain the good appearance and condition of his or her Unit. No Unit Owner shall sweep or throw, or permit to be swept or thrown, from his or her Unit any dirt, debris or other substance. In addition, each Unit Owner shall be responsible for all damage to any other Units or to the Common Elements resulting from his or her failure or negligence to make any of the repairs required by this Article. Each Unit Owner shall perform his or her responsibility in such manner as shall not unreasonably disturb or interfere with the other Unit Owners. Each Unit Owner shall promptly report to the Executive Board or the managing agent any defect or need for repairs for which the Association is responsible.

Section 4.11 Liability of Owner. Each Unit Owner shall be liable, and the Association shall have a lien against his or her Unit, for the expense of maintenance, repair or replacement of any damage to the Common Elements, Limited Common Elements or to another Unit caused by such Unit Owner's act, neglect or carelessness or by that of any member of such Unit Owner's family, or such Unit Owner's guest or tenants, or their pets. Such liability shall include any increase in fire insurance rates occasioned by use, misuse, occupancy, or abandonment of any Unit or its appurtenances. Nothing herein contained, however, shall be construed so as to modify any waiver by insurance companies of rights of subrogation against such Unit Owner.

ARTICLE V: SPECIAL DECLARANT RIGHTS

Section 5.1 Development Rights. For a period ending twenty-five (25) years after the date of the first conveyance of a Unit to a third party purchaser, Declarant, its successors and assigns, reserves the rights set forth in this Article V and the following Development Rights: (a) to complete the first phase Building; (b) to construct additional Buildings in order to add the Additional Units to the Condominium and to develop the real estate or any part thereof on which Subsequent Phase are located as shown on the Plat and Plans; (c) to create additional Common Elements and/or Limited Common Elements on the Property in addition to those shown on the Plat and Plans; (d) to change the terms of existing easements encumbering the Property; (e) to grant easements or licenses on the Condominium Property; (f) to have access to Units after sale for inspection, maintenance, repair or replacement of Common Elements, for the making or completing of improvements indicated on the Plat and Plans or for certain other purposes as described in Article V of the Declaration; (g) to maintain signs advertising the Condominium and models without any limitation as to size, location or relocation except that none of the foregoing will be located in any Unit not owned by Declarant; (h) to use easements through the Common Elements for the purpose of making improvements within the Condominium or within real estate which may be added to the Condominium; (i) to add land to the Condominium; and (j) to withdraw portions of the Land from the Condominium, all as may be more fully described in Sections 5.3 through 5.11 of this Article. All of these rights may be exercised in compliance with Section 1602-110 of the Act and without consent of any Unit Owner or Mortgagee. The Development Rights reserved herein may be exercised with respect to different areas of real estate at different times and no assurances are made in regard to the boundaries of the portions or regulation of the order in which those areas may be subjected to the exercise of each Development Right. Declarant shall exercise its Development Rights subject to any lawfully-required approvals of the City of Portland. The real estate subject to the Development Rights reserved in this Article V is shown on the Plat and Plans and is described in Exhibit A attached hereto and made a part hereof.

Section 5.2 Appointment of Association Officers and Board Members. Declarant reserves the right to appoint or remove any officer of the Association or any Executive Board members or in the alternative under Section 1603-103 (d), to approve or disapprove acts of the Association (including acceptance of the Budget) or the Executive Board during the period of Declarant Control to the extent, in the manner and for the periods specified in Article VII of this Declaration.

Section 5.3 Condominium Association and Executive Board Access. Declarant reserves in favor of itself, the Association and its Executive Board, officers, agents and employees, any managing agent and every other person authorized by the Executive Board, the irrevocable right and easement to have access to each Unit as provided in Section 1603-107(a) of the Act as may be necessary for the inspection, maintenance, repair or replacement of any of the Common Elements and Limited Common Elements therein or accessible therefrom or the making of any addition or improvements thereto; or to make repairs to any Unit, the Common Elements or the Limited Common Elements if such repairs are reasonably necessary for the

public safety or to prevent damage to any other Unit or Units, the Common Elements or the Limited Common Elements; or to abate any violation of law, orders, rules or regulations of the Association or of any governmental authorities having jurisdiction thereof. In case of an emergency, such right of entry shall be immediate whether or not the Unit Owner is present at the time. The Association and its Executive Board shall have the right to grant to third parties permits, licenses and easements over and through the Common Elements for utilities and other purposes reasonably necessary or useful for the proper maintenance and operation of the Condominium. Declarant's rights but not the Association's rights under this paragraph shall terminate as provided in Section 5.1 above.

Section 5.4 Declarant's Easement for Marketing. The Declarant reserves the right with respect to its marketing of Units to use the Common Elements and Limited Common Elements for the ingress and egress of itself, its officers, employees, agents, contractors and subcontractors and for prospective purchasers of Units, including the right of such prospective purchasers to park in parking spaces. The Declarant also reserves the right to use any Units owned or leased by the Declarant as models, management offices, sales offices for this and other projects. The Declarant reserves the right to relocate the same from time to time within the Property; upon relocation, the furnishings thereof may be removed. The Declarant further reserves the right to maintain on the Property such advertising signs and lighting as may comply with applicable governmental regulations, which may be placed in any location on the Property and may be relocated or removed, all at the sole discretion of the Declarant. Further, the Declarant shall have the right to erect temporary offices on Common Element parking spaces for models, sales, management, customer service and similar purposes. This easement shall continue for the time period specified in Section 5.1. Any Limited Common Element parking spaces allocated as Limited Common Elements to Units owned by Purchasers may not be used for the purposes specified in this Paragraph.

Section 5.5 Declarant's Easements for Construction. The Declarant reserves the easement, right and privilege without let or hindrance with respect to the creation of the Units, Common Elements, Limited Common Elements, and other improvements of the Condominium, to go upon any and all of the Property, for purposes of construction, reconstruction, maintenance, repair, renovation, replacement, improvement or correction of the Units and Common Elements, and for completion of the improvements indicated on the Plat and Plans. Declarant reserves the right to keep construction equipment on the Property as necessary. Furthermore, the Declarant reserves an easement in the Units and Common Elements pursuant to Section 1602-116 of the Act for the purpose of discharging Declarant's obligations and exercising the Special Declarant Rights reserved pursuant to this Declaration. These easements shall continue until the expiration of the period of Development Rights as reserved under Section 5.1 above.

Section 5.6 Declarant's Right to Connect With Utilities. The Declarant further reserves an easement to connect with and make use of utility lines, wires, pipes and conduits located on the Property for construction purposes on the Property, provided that Declarant shall be responsible for the cost of service so used, and to use the Common Elements for ingress and egress and construction activities and for the storage of construction materials and equipment

used in the completion of the Units and Common Elements. This easement shall continue until the conveyance of all Units to Purchasers other than a Successor Declarant.

Section 5.7 Declarant's Right to Grant Easements. The Declarant shall have the right, until the conveyance of all one hundred sixty-one (161) Units to Purchasers other than a Successor Declarant, to grant and reserve easements and rights-of-way, to any party and for any purpose, through, under, over and across the Property, including without limitation for vehicular and pedestrian access, road improvement, construction purposes, for the installation, maintenance and inspection of the lines and appurtenances for public or private water, sewer, pumping station, drainage, gas, electricity, telephone and other utilities. The Units and Common Elements shall be, and are hereby, made subject to easements in favor of the Declarant, appropriate utility and service companies and governmental agencies or authorities for such access or utility and service lines and equipment as may be necessary or desirable to serve any portion of the Property or adjacent property. The Declarant may change the terms of any easements affecting the Condominium. The easements created in this Paragraph shall include, without limitation, rights of Declarant, or the providing utility or service company, or governmental agency or authority to install, lay, maintain, repair, relocate and replace gas lines, pipes and conduits, water mains and pipes, sewer and drain lines, telephone wires and equipment, air conditioning, heating systems, ventilation systems, electric wires, cables, conduits and equipment and ducts and vents over, under, through, along and on the Units and Common Elements and to provide public access across the Common Elements.

Section 5.8 Alteration of Common Elements by Declarant. Subject to all applicable ordinances, requirements, and conditions of the City of Portland, the Declarant reserves the right (but shall have no obligation) to modify, alter, remove or improve defective, obsolete or nonfunctional portions of the Common Elements, including without limitation any equipment, fixtures and appurtenances when in the Declarant's judgment it is necessary or desirable to do so, until the conveyance of all Units to Purchasers other than a Successor Declarant.

Section 5.9 Transfer of Special Declarant Rights; Surrender. Declarant reserves the right to transfer from time to time to any one or more transferees any or all reserved Special Declarant Rights in accordance with Section 1603-104 of the Act. Notwithstanding any other provisions in this Declaration, this Article V may not be amended without the prior written consent of the Declarant. Notwithstanding the foregoing, Declarant may in its sole and exclusive discretion surrender or terminate any rights reserved under this Article at any time by recording an instrument so providing in the Cumberland County Registry of Deeds.

Section 5.10 Withdrawal of Land from the Condominium. Declarant reserves the right during the 25 year period referred to in Section 5.1 to withdraw land from the Condominium for any reason. Such withdrawal may be accomplished in stages or all at once, at the Declarant's sole discretion.

Section 5.11 Limited Common Elements to be Allocated by Declarant. In the Plat and Plans, the Declarant has designated certain areas on the Land and within the Buildings as parking

areas. Those portions of the Common Elements comprising individual parking spaces within such parking areas are each generically referred to as an "Assignable Limited Common Element." Pursuant to Section 1602-105(a)(7) of the Act, the Declarant reserves the exclusive right to assign each Assignable Limited Common Element as a Limited Common Element for the exclusive use of the respective Unit Owners to whose Units such Assignable Limited Common Element shall be assigned and become appurtenant. The Plat and Plans show such assignments as the Declarant has made as of the date of recording of this Declaration and the Plat and Plans. The Declarant may, without consent or action by the Unit Owners or any Mortgagee, allocate each such Assignable Limited Common Element as a Limited Common Element pursuant to the provisions of Section 1602-108 of the Act and cause appropriate amendments to this Declaration or to the Plat and Plans, if not already shown on the Plat and Plans, to be executed and recorded by Declarant. After all Units (including the Additional Units) have been sold by Declarant, the Association shall have the right to assign any unallocated Assignable Limited Common Element pursuant to the provisions of Section 1602-108 of the Act. Certain parking spaces within each Building that are assigned to a Unit pursuant to this Section 5.11 may have charging stations for electric vehicles. Such charging stations shall be a part of the parking space and therefore be a Limited Common Element allocated to the Unit to which the parking space is assigned.

Section 5.12 No Assurances. The Declarant makes no assurances as to the order in which the Units, Additional Units and any Subsequent Phase (whether single or multiple) may be developed. All restrictions in or created by authority of this Declaration affecting the use, occupancy and alienation of Units will apply to any Additional Units created in Subsequent Phases. Differentiations may also be made by the Declarant with respect to the assessment of Common Expenses and Limited Common Expenses against Units created in the Subsequent Phases to reflect and account for considerations that are particular for each Unit or the buildings in which they are located.

ARTICLE VI: ASSESSMENTS FOR COMMON EXPENSES

Section 6.1 Common Expense Liability. Reference is made to Exhibit B for the allocation of the liability for Common Expenses (the "Common Expense Liability") to each Unit. The Common Expense Liability allocated to each Unit is a percentage of the Common Expenses assessed against all the Units, according to the formula described herein. As development occurs in Subsequent Phases, and Additional Units are created by declaring them, Exhibit B will be amended to show the appropriate changes in percentage of interest and liability.

Section 6.2 Allocation of Assessments of Common Expense. The total amount of Common Expenses shall be assessed against all the Units in the following proportions: (1) the Common Expenses other than Limited Common Expenses shall be assessed against all the Units as shown on Exhibit B on a prorata basis based on square footage and according to the percentage interests specified on Exhibit B, and subject to adjustment as Additional Units are added to the Condominium; (2) the Limited Common Expenses shall be assessed solely against

each Unit benefited except as otherwise provided in this Declaration; if a Limited Common Expense benefits more than a single Unit, but fewer than all of the Units, that Limited Common Expense shall be divided proportionally, according to square footages among those Units benefited; (3) assessments to pay a judgment against the Association shall be made as a Limited Common Expense against the Units included in the Condominium at the time such judgment was entered but shall be allocated to Units according to the percentages set forth in Exhibit B as in effect at the time of said judgment; (4) any utilities which are or are made by Declarant to be separately metered shall be supplied by the public utility company serving the area directly to each Unit through a separate meter and each Unit Owner shall be required to pay the bills for utilities consumed or used in his Unit; any utilities, including, but not limited to water distribution and electricity, used for common purposes or furnished to the Common Elements, or which are not separately metered, shall be paid by the Association as a Common Expense.

Notwithstanding the foregoing, common expenses relating to Limited Common Elements shall be assessed to and paid by the Owner of the Unit to which said Limited Common Elements are allocated, and Common Expenses that are the responsibility of a particular Unit Owner under this Declaration shall be assessed to and paid by such Unit Owner; and the lien and enforcement provisions of this Declaration may be used to collect such expenses.

The Declarant shall pay all the Common Expenses for operations until the Association makes a Common Expense assessment based upon a ratified budget. Assessments against all declared Units will begin upon the adoption and ratification of the budget. The Executive Board will propose the budget. If a majority of the voting interest of the Unit Owners do not reject the proposed budget, it will be ratified.

Section 6.3 Payment Obligations. Each Unit Owner shall pay to the Association or its authorized representative on the first day of each month, or on such other date that the Association may determine in writing, one-twelfth of the Unit's Limited Common Expenses and Common Expenses which are assessed on an annual basis against the Unit in the proportions required in Section 6.2 of this Article in accordance with the Bylaws and subject to Section 1603-103(c) of the Act. If for any reason the Association shall revise the annual budget of the Association in accordance with the Bylaws and subject to Section 1603-103(c) of the Act whereby the Common Expenses or any component thereof may be increased, then commencing on the first day of the first month subsequent to the adoption of such revised budget, each Unit Owner shall pay to the Association or its authorized representative one-twelfth of any such revised annual Common Expenses including Limited Common Expenses assessed against his Unit in the proportions required in Section 6.2. The Declarant shall have no liability for Common Expense assessments with respect to any unsold Unit until such Unit has been created in accordance with the Act.

Section 6.4 Interest; Late Fee; Acceleration. In the event of a default by any Unit owner in paying any sum assessed against his Unit which continues for a period in excess of thirty (30) days, interest at a rate to be established annually by the Executive Board (which shall not exceed the lower of the maximum interest rate allowed by law which may be charged by the

Association at such time or eighteen percent per annum), shall be imposed on the principal amount unpaid from the date when due until paid. If the Executive Board shall fail to set such rate, it shall be deemed to have been set at the rate of Eighteen Percent (18%) per annum. In addition to assessing interest on unpaid assessments, the Association shall have the right in the rules and regulations to establish and impose charges for late payment of assessments. In any case where an assessment against a Unit Owner is payable in installments, upon a default by such Unit Owner in the timely payment of any two consecutive installments, the maturity of the remaining total of the unpaid installments of such assessments may be accelerated at the option of the Executive Board, and the entire balance of the annual assessment may be declared due and payable in full by the service of notice to such effect upon the defaulting Unit Owner by the Executive Board or its representative.

Section 6.5 Lien for Assessments. The total annual assessment levied against each Unit for Common Expenses including Limited Common Expenses, revised Common Expenses including Limited Common Expenses, or any special assessment, and any other sums duly levied against the Unit pursuant to this Declaration, the Bylaws, or the Act and all interest thereon and charges for late payment thereof and legal fees and other costs of collection thereof, shall constitute the personal liability of the Owner of the Unit so assessed and also shall, until fully paid, constitute a lien against the Unit in favor of the Association from the date upon which such assessment, special assessment or other sum such as interest becomes due as provided in Section 1603-116 of the Act. Such lien shall, with respect to annual assessments, be effective on the first day of each fiscal year of the Association as to the full amount of the annual assessment, and, as to special assessments and other sums duly levied, on the first day of the next month which begins more than ten (10) days after delivery to the Unit Owner of notice of such special assessment or levy. Such lien is prior to all other liens and encumbrances on a Unit except (a) liens and encumbrances recorded before the recordation of this Declaration, (b) a first Mortgage recorded before or after the date on which the assessment sought to be enforced becomes delinquent, and (c) liens for real estate taxes and sewer liens or assessments against the Units; provided, however, that such lien is not subject to the provisions of 14 M.R.S.A. §4561 and 18-A M.R.S.A. §2-201, et seq., as they or their equivalents may be amended or modified from time to time.

Section 6.6 Enforcement. The lien for assessments described in Section 6.5 may be enforced and foreclosed by the Association in like manner as a mortgage on real estate as provided in Section 1603-116(a) of the Act or by any other means presently or hereafter provided by law or in equity. A suit to recover a money judgment for unpaid assessments, interests, penalties, and costs of collection may be maintained against the Unit Owner personally without foreclosing or waiving the lien securing such assessments and a foreclosure may be maintained notwithstanding the pendency of any suit to recover a money judgment. During the pendency of any such suit, the Unit Owner shall be required to pay a reasonable rental for the Unit for any period prior to the sale pursuant to any judgment or order of any Court having jurisdiction over such sale.

Section 6.7 No Exemption From Expenses by Waiver of Use of Common Elements or Unit. No Unit Owner may exempt himself from Common Expense Liability with respect to the payment of assessments for Common Expenses by waiver of the enjoyment of the right to use any of the Common Elements or by abandonment of his Unit or otherwise. The obligation to pay assessments for Common Expenses is absolute and unconditional and shall not be subject to set-offs or counterclaims.

Section 6.8 Reduction of Expenses. All receipts from payments, fees or charges for the use, rental, operation of any and all Common Elements shall be applied first to reduce the Common Expense relating to the use of that Common Element giving rise to such receipt and any excess thereof shall be applied to Common Expenses generally.

Section 6.9 Surplus Funds. If at the end of any fiscal year any amounts accumulated from assessments for Common Expenses and income from the operation of the Common Elements to which such Common Expenses pertain shall exceed the amount required for actual Common Expenses and provision for Common Expenses and any payment of reserves for future Common Expenses, such excess shall be applied to the reserve fund, or if not so applied, shall be credited to each Unit Owner in proportion to their respective Common Expense Liabilities to reduce until exhausted the next monthly installments due from Unit Owners. Surplus funds shall not otherwise be paid or credited to Unit Owners.

Section 6.10 Service Charges. The Association shall have the express power to separately charge a Unit and the owner thereof for services rendered to that Unit. Such charges shall be a lien on the Unit with the same status as a lien for Common Expense assessments under this Declaration and Bylaws, which lien for service charges may be foreclosed in like manner as a mortgage on real estate. The recordation of this Declaration constitutes record notice of the lien. Service charges shall include without limitation: (1) if a Unit Owner, members of his family, guests or tenants requests the Association to perform repair and maintenance work on his Unit or damages the Common Elements or fails to perform maintenance and repair work required, the expense thereof as determined by the Executive Board or its designee may be assessed as a Service Charge; (2) fees, if any, which may be established by the Executive Board for use and maintenance of water, sewer, heat and/or other utility services; (3) insurance premiums on permanent improvements to Units installed by Unit Owners and insured by the request of the Unit Owner with the Association's hazard insurance carrier; and (4) fees for private collection of trash and recycled materials, which service is in addition to service already assessed as a common expense.

Section 6.11 Liability. Subject to the limitation set forth below, in a voluntary conveyance subsequent to the sale by the Declarant to the initial Owner, the purchaser of a Unit shall be jointly and severally liable with the seller for all unpaid common assessments, charges, fees, interest and costs of collection up to the time of the recording of the grant or conveyance, although the purchaser shall not be prevented from exercising any right to recover from the seller the amounts thereof paid by purchaser.

(1) A Unit Owner or purchaser or prospective purchaser under a purchase and sale contract for a Unit may obtain, upon request and the payment of such fee as may be established from time to time by the Executive Board, a statement from the Association setting forth the amount of unpaid common assessments, special assessments, charges, fees, interest and costs of collection against the unit as of the date of the statement and such other items required by the Act under §1604-108(a). Except as otherwise agreed in writing by the purchaser, if the purchaser requests a statement from the Association, the purchaser shall not be liable for (and the Unit conveyed shall not be subject to a lien for) any unpaid amounts due from the seller before the statement is issued other than that which is indicated on the statement, but shall be liable for interest and costs of collection accrued thereafter.

(2) A Unit Owner providing a certificate pursuant to subsection (1) is not liable to the purchaser for any erroneous information provided by the Association and included in the certificate.

(3) In a foreclosure instituted by the first mortgage holder, a lien on the Unit for unpaid assessments will be extinguished but the personal liability for the assessments made prior to foreclosure will remain with the person who owned the Unit when the assessments became due until said assessments are paid in full.

ARTICLE VII: UNIT OWNERS' ASSOCIATION; DECLARANT CONTROL

Section 7.1 Owners' Association and Bylaws. Each Unit Owner shall be a member of the Association, a non-profit corporation organized under the laws of the State of Maine known as Stevens Square Condominium Association. Membership shall be appurtenant to the Units, and the transfer of title to a Unit shall automatically transfer the membership appurtenant to that Unit to the transferee or transferees. A mortgage, however, shall not transfer membership until foreclosure or transfer of the Unit in lieu of foreclosure. The Bylaws of the Association shall be available to all members of the Association.

Section 7.2 Declarant Control Period. Until the earlier of (i) seven (7) years from the first conveyance of a Unit to a person other than the Declarant or (ii) sixty (60) days after conveyance of 75% of the maximum number of Units, which are or could be created and built by Declarant exercising its developmental rights, to Unit Owners other than a Declarant, subject to earlier termination as set forth below, Declarant shall control the Association as specified in Section 5.2 ("Declarant Control Period"), and during the Declarant Control Period Declarant or persons designated by it may appoint, remove and replace members of the Executive Board. The Declarant in its sole and exclusive discretion may elect in writing to terminate the Declarant control period earlier than the time specified in the first sentence of this Section.

Section 7.3 Working Capital Fund. Sums deposited to the Working Capital Fund, which shall be equal to the total number of Units times two (2) months Common Expense

Charges (as established at the time the first Unit is conveyed), shall become available to meet transitional needs of the Association as soon as deposited in the Working Capital Fund.

ARTICLE VIII: LIMITATION OF LIABILITY

Section 8.1 Limited Liability of the Executive Board. No member of the Executive Board or officer of the Association, except to the extent of his or her willful misconduct or gross negligence: (1) shall be liable for the failure of any service to be obtained by the Executive Board and paid for by the Association, or for injury or damage to persons or property caused by the elements or by another Unit Owner or person on the Property, or resulting from electricity, gas, water, rain, dust or sand which may leak or flow from the outside or from any part of the Building, or from any of its pipes, drains, conduits, appliances, or equipment, or from any other place; (2) shall be liable to the Unit Owners as a result of the performance of the Executive Board members' duties for any mistake of judgment, negligence or otherwise; (3) shall have any personal liability in contract to a Unit Owner or any other person or entity under any agreement, check, contract, deed, lease, mortgage, instrument or transaction entered into by them on behalf of the Executive Board or the Association in the performance of the Executive Board members' duties; (4) shall be liable to a Unit Owner, or such Unit Owner's tenants, employees, agents, customers or guests, for loss or damage caused by theft of or damage to personal property left by guest in a Unit, or in or on the Common Elements or Limited Common Elements; (5) shall have any personal liability in tort to a Unit Owner or any other person or entity, direct or imputed, by virtue of acts performed by or for them; or (6) shall have any personal liability arising out of the use, misuse or condition of the Buildings, or which might in any other way be assessed against or imputed to the Executive Board members as a result of or by virtue of their performance of their duties.

Section 8.2 Indemnification. Each member of the Executive Board, in his or her capacity as an Executive Board member, officer or both, shall be indemnified by the Association against all expenses and liabilities, including attorney's fees, reasonably incurred by or imposed upon him or her in connection with any proceeding in which he or she may become involved by reason of his or her being or having been a member and/or officer of the Executive Board, or any settlement of any such proceeding, whether or not he or she is an Executive Board member, officer or both at the time such expenses are incurred, except in such cases wherein such Executive Board member and/or officer is adjudged guilty of willful misconduct or gross negligence in the performance of his or her duties; provided that, in the event of a settlement, this indemnification shall apply only if and when the Executive Board (with the affected member abstaining if he or she is then an Executive Board member) or 70% of the voting interests of the Unit Owners (if more than 50% of the Board abstains or if the settlement is beyond the amount covered by insurance) approve(s) such settlement and reimbursement as being in the best interests of the Association; and provided further that indemnification hereunder with respect to any criminal action or proceeding is permitted only if such Executive Board member and/or officer had no reasonable cause to believe his or her conduct was unlawful. The indemnification

by the Unit Owners set forth in this Paragraph shall be paid by the Association on behalf of the Unit Owners and shall constitute a Common Expense and shall be assessed and collectible as such. Such right of indemnification shall not be deemed exclusive of any other rights to which such Executive Board member and/or officer may be entitled as a matter of law or agreement or by vote of the Unit Owners or otherwise.

Section 8.3 Defense of Claims. Complaints brought against the Association, the Executive Board or the officers, employees or agents thereof in their respective capacities as such, or the Condominium as a whole, shall be directed to the Executive Board of the Association, which shall promptly give written notice thereof to the Unit Owners and the Eligible Mortgage Holders and the Mortgagees of Units identified to the Association, and such complaints shall be defended by the Association. The Unit Owners shall have no right to participate in such defense other than through the Association.

ARTICLE IX: EMINENT DOMAIN

Section 9.1 Entire Unit. If any Unit shall be taken or condemned by any authority having the power of eminent domain, or if part of a Unit is taken or condemned by any authority having the power of eminent domain leaving the Unit Owner with a remnant which may not be practically or lawfully be used for any purpose permitted by this Declaration, the award for such taking or condemnation shall be paid to the Unit Owner as compensation for his Unit and its Allocated Interest in the Common Elements, whether or not any Common Elements are taken or condemned. Upon such taking or condemnation, unless the decree provides otherwise, that Unit's entire Allocated Interests shall be automatically reallocated to the remaining Units according to the formula specified in Exhibit B. The Association shall promptly prepare, execute and record as a Common Expense an amendment to this Declaration reflecting such reallocation. Any remnant of a Unit remaining after part of a Unit is taken or condemned under this Section 9.1 shall thereafter be a Common Element.

Section 9.2 Part of a Unit. Except as otherwise provided in Section 9.1, if part of a Unit is taken or condemned by any authority having the power of eminent domain, any award therefor shall be paid to the Owner of such Unit as compensation for the reduction in value of the Unit and its Allocated Interest in the Common Elements, whether or not any Common Elements are taken or condemned. After such part of a Unit is taken or condemned:

(1) That Unit's Allocated Interests shall be reduced in proportion to the reduction in size of the Unit; and

(2) The Allocated Interests of all other Units shall be re-allocated according to the formula in Exhibit B. The Association shall promptly prepare, execute and record as a Common Expense an amendment to this Declaration reflecting such reallocation.

Section 9.3 Common Elements. If part of the Common Elements shall be taken or condemned by any authority having the power of eminent domain, the Association shall represent the Unit Owners in any condemnation proceedings or in negotiations, settlements and agreements with the condemning authority, and the portion of the award attributable to the Common Elements taken shall be paid to the Association for the use and benefit of the Unit Owners and their Mortgagees as their interests may appear. Each Unit Owner appoints the Association as attorney-in-fact for this purpose. Subject to the provisions of Section 9.4, the Association shall divide any portion of remaining Common Elements among the Unit Owners and their Mortgagees, in proportion to their respective interests in the Common Elements prior to such taking or condemnation, but the portion of the award attributable to the acquisition of any Limited Common Element shall be equally divided among the Owners of the Units to which such Limited Common Element was allocated at the time of such taking or condemnation. The Association shall promptly prepare, execute and record as a Common Expense an amendment to this Declaration reflecting such reallocation.

Section 9.4 Decree; Prior Liens. The court decree shall be recorded in the Registry of Deeds. Notwithstanding anything to the contrary in this Article, lien holders on any Unit, Common Element or Limited Common Element, shall have a lien on any such awards in order of priority of their respective liens.

ARTICLE X: REPAIR AND RECONSTRUCTION AFTER FIRE OR CASUALTY

Section 10.1 Required Repair and Reconstruction. In the event of damage to or destruction of all or any part of the Property as a result of fire or other casualty, the Executive Board on behalf of the Association shall promptly arrange for and supervise the prompt repair, replacement and restoration thereof (including any damaged Units, service fixtures, service machinery and other apparatus initially installed therein by the Declarant, but not including any other furniture, furnishings, fixtures, equipment or other personal property supplied or installed by the Unit Owners in the Units), substantially in accordance with this Declaration, Plat and Plans, the prior elevation thereof, the original plans and specifications therefor, unless (1) the Condominium is terminated, or (2) repair, replacement or restoration would be illegal under any state or local health, safety, land-use or environmental statute, code or ordinance, or (3) eighty percent (80%) of the voting interests of the Unit Owners (Eligible Mortgage Holder substituting its vote in place of the Unit Owner as allowed under §1602-119(c)) vote not to repair, restore or replace the damaged or destroyed Property, and such decision is approved by every Owner (or the Eligible Mortgage Holder substituting its vote) of a Unit or Limited Common Element, which will not be repaired, replaced or restored. Additionally, approval of at least fifty-one (51%) percent of the first lien Mortgagees is required as further described in Section 14.6.

Section 10.2 Procedure for Reconstruction and Repair. If repair, replacement or restoration shall be required pursuant to Section 10.1:

(1) Cost Estimates: The Executive Board shall promptly obtain reliable and detailed estimates of the cost of repairing and restoring such portion (including any damaged Units, fixtures, service machinery and other apparatus initially installed by Declarant, but not including any other furniture, furnishings, fixtures or equipment installed by the Unit Owner in the Unit) substantially in accordance with this Declaration, the Plat and Plans, the prior elevation thereof and original building plans and specifications therefor unless other action is approved by the voting interests specified in Section 10.1 above; such costs may also include professional fees and premiums for such bonds as the Association may determine to be necessary;

(2) Assessments: If the net proceeds of insurance, if any, are not sufficient to defray such estimated costs of reconstruction, repair and replacement, or if upon completion of reconstruction and repair the funds for the payment of the costs thereof are insufficient, the amount necessary to complete such reconstruction and repaid may be obtained from the appropriate reserve for replacement funds, and any such costs in excess of insurance proceeds and reserves shall be deemed a Common Expense and a special assessment therefor shall be levied by the Association; and

(3) Construction Fund and Disbursement: The proceeds of insurance collected on account of the casualty, and the sums received by the Association from collections of assessments against Unit Owners pursuant to Section 10.2(2) on account of such casualty, shall be payable to the Association and shall be held in trust for the benefit of Unit Owners and their mortgagees. The trust fund shall be used for construction and be disbursed in the following manner: (a) if the estimated cost of reconstruction and repair is less than One Hundred Thousand ($100,000.00) Dollars, then the construction fund shall be disbursed in appropriate progress payments, or upon order of the Executive Board; provided, however, that upon request of fifty percent (50%) of the first lien Mortgagees (based upon one vote for each Mortgage held) such funds shall be disbursed pursuant to Section 10.2(3)(b); (b) if the estimated cost of reconstruction and repair is One Hundred Thousand ($100,000.00) Dollars or more, then the construction fund shall be disbursed in payment of such costs upon approval of an architect qualified to practice in the State of Maine (the "Architect") and approved by fifty percent (50%) of the first lien Mortgagees, payment to be made from time to time as the work progresses; the Architect shall be required to furnish a certificate giving a brief description of the services and materials furnished by various contractors, subcontractors, materialmen, the architect and other persons who have rendered services or furnished materials in connection with the work stating that: (i) the sums requested by them in payment are justly due and owing and that such sums do not exceed the value of the services and materials furnished; (ii) there is no other outstanding indebtedness known to such Architect for the services and materials described; (iii) the cost as estimated by such Architect for the work remaining to be done subsequent to the date of such certificate does not exceed the amount of the construction fund remaining after payment of the sum so requested; and (c) when the damage is to both Common Elements and Units, the insurance proceeds shall be applied first to the cost of repairing the Common Elements and thereafter to the cost of repairing the Units; and (d) the first monies disbursed in payment of the cost of reconstruction and repair shall be from any insurance proceeds and, if there is a balance in the construction fund after the payment of all of the costs of the reconstruction and repair for which the fund is

established, such balance shall be distributed among all Unit Owners, Mortgage holders and lien holders, as their respective insurable interests may appear, in proportion to their respective Common Element Interests or the Common Element Interests to which their respective Mortgages are subject, unless such balance resulted from a fund collected solely from a Unit Owner assessed because of said Unit Owner's negligence or omission.

Section 10.3 Damage or Destruction; No Repair or Replacement. If the entire Condominium is not repaired or replaced: (1) the insurance proceeds attributable to the damaged Common Elements shall be used to restore the damaged areas of the Common Elements to a condition compatible with the remainder of the Condominium as determined by the Executive Board or Architect; (2) the insurance proceeds attributable to Units and Limited Common Elements which are not rebuilt shall be distributed to the Owners and Mortgagees of those Units as their insurable interests appear and the Owners and Mortgagees of the Units to which those Limited Common Elements were assigned or allocated, as their insurable interests may appear; and (3) the remainder of the proceeds shall be distributed to all the Unit Owners and Mortgagees, as their insurable interest may appear, in proportion to their respective Common Element Interests or the Common Element Interests which are subject to respective Mortgages. If the Unit Owners and their Mortgagees vote not to rebuild any Unit, that Unit's entire Allocated Interests shall be automatically reallocated upon said vote as if the Unit had been condemned as provided in Article IX of this Declaration and the Association shall prepare, execute and record an amendment to this Declaration reflecting the re-allocations. Notwithstanding any provisions of this Article to the contrary, Section 1602-118 of the Act governs the distribution of insurance proceeds if the Condominium is terminated.

ARTICLE XI: INSURANCE

Section 11.1 Policies. Commencing no later than the time of the first conveyance of a Unit other than as security for an obligation to a person other than the Declarant, the Executive Board on behalf of the Association shall obtain, or cause to be obtained, and shall maintain, the policies of insurance described in Sections 11.2, 11.4, and 11.5 to the extent such policies shall be reasonably available from reputable insurance companies. To the extent that any of the insurance described in said sections becomes in the future no longer available, the Association shall obtain in substitution therefor such comparable insurance as shall then be available.

Section 11.2 Property Insurance. The Executive Board shall obtain and maintain as a Common Expense a blanket-type or master standard form of "all-risk" fire insurance policy with extended coverage, vandalism, malicious mischief, wind storm, debris removal, cost of demolition and water damage endorsements issued by an insurance company authorized to do business in the State of Maine insuring as a single entity the entire Property (exclusive of land, foundations, excavations, and other similar items customarily excluded from property insurance policies), including the Units and any bathroom and service fixtures, service machinery, and other appliances and apparatus initially installed therein by the Declarant and the replacements thereto installed by the Declarant but not including furniture, wall coverings, furnishings or other

personal property supplied or installed by Unit Owners, and including all air-conditioning and heating equipment and other service machinery contained in the Property covering the interests of and naming as named insureds, the Association (for the use and benefit of the individual Unit Owners), the Executive Board and all Unit Owners and their Mortgagees and their Mortgagees' successors and assigns, as their insurable interests may appear. It shall contain a standard Maine Mortgage Clause in favor of each Mortgagee of a Unit with provisions that the proceeds of loss, if any, shall first be payable to each Mortgagee, its successors and assigns, as its insurable interest may appear. It shall be for an amount no less than one hundred percent (100%) of the then current full replacement cost of the Property (exclusive of the land, excavations, foundations and other similar items customarily excluded from such coverage), without deduction for depreciation (such amount to be redetermined annually by the Executive Board with the assistance of the insurance company affording such coverage). Such policy shall contain such "deductible" as the Executive Board shall reasonably deem appropriate, but the maximum deductible amount shall be not greater than the lessor of Ten Thousand Dollars ($10,000.00), one percent (1%) of the policy face amount, or that amount required under Federal National Mortgage Association, d/b/a Fannie Mae ("FNMA") and Federal Home Loan Mortgage Corporation, d/b/a Freddie Mac ("FHLMC") guidelines and shall also contain all endorsements required by the guidelines promulgated by FNMA and FHLMC, as amended from time to time, together with the following provisions:

(1) The following endorsements (or their equivalent): (a) "no control", i.e. to the effect that coverage shall not be prejudiced by any act or neglect of any occupant or Unit Owner or their agents when such act or neglect is not within the control of the insured, or the Unit Owners collectively; nor by any failure of the insured, or the Unit Owners collectively, to comply with any warranty or condition with regard to any portion of the Condominium over which the insured, or the Unit Owners collectively, have no control; (b) "Construction Code Endorsement" or "increased cost of construction"; (c) steam boiler coverage endorsement, if applicable; and (d) "agreed amount" or elimination of co-insurance clause and inflation-guard endorsement, if applicable; (2) That any "no other insurance" clause expressly exclude individual Unit Owners' policies from its operation so that the physical damage policy purchased by the Executive Board shall be deemed primary coverage and any individual Unit Owners' policies shall be deemed excess coverage, and in no event shall the insurance coverage obtained and maintained by the Executive Board hereunder provide for or be brought into contribution with insurance purchased by individual Unit Owners or their Mortgagees; (3) Each Unit Owner is an insured person under the policy with respect to liability arising out of his ownership of an undivided interest in the Common Elements or membership in the Association; (4) The insurer waives its right to subrogation under the policy against any Unit Owner of the Condominium or members of his household; (5) No act or omission by any Unit Owner, unless acting within the scope of his authority on behalf of the Association, will void the policy or be a condition to recovery under the policy; and (6) If, at the time of a loss under the policy, there is other insurance in the name of a Unit Owner covering the same risk covered by the policy, the Association's policy provides primary insurance.

Section 11.3 Losses; Adjustment and Payment. Any loss covered by the insurance policy described in Section 11.2(1) and (2) of this Article shall be adjusted with the Association by its Executive Board, and the insurance proceeds for said loss shall be payable to the Association, and not to any Mortgagee. The Association shall hold any insurance proceeds in trust for Unit Owners, Mortgagees and other lien holders as their interests may appear. Subject to the provisions of Section 11.3 and Section 10.2(3), the proceeds shall be disbursed first for the repair or restoration of the damage to the Property, and Unit Owners, Mortgagees and other lien holders are not entitled to receive payment of any portion of the proceeds unless there is a surplus of proceeds after the damaged Common Elements and Units have been repaired or restored, or the decision has been made not to repair or restore the damage as provided in Section 10.1(3) and Section 14.6, or the Condominium is terminated.

Section 11.4 Liability Insurance. The Executive Board shall obtain and maintain, as a Common Expense, comprehensive general public liability insurance (including medical payments insurance) and property damage insurance in such limits as the Board may from time to time determine, insuring each Executive Board Member, any managing agent, each Unit Owner and the Declarant against any liability to the public or to the Unit Owners (and their invitees, agents and employees) covering all occurrences commonly insured against for death, bodily injury or property damage arising out of, or incident to, the maintenance, ownership or use of the Common Elements and the use of the public ways serving the Condominium and/or relating to any legal liability resulting from suits or actions related to employment contracts to which the Association is a party. Such insurance shall be issued on a comprehensive liability basis and shall contain: (1) a cross liability endorsement under which the rights of a named insured under the policy shall not be prejudiced with respect to his action against another named insured; and (2) a "severability of interest" endorsement which shall preclude the insurer from denying liability to a Unit Owner because of negligent acts of the Association or of another Unit Owner. The Executive Board shall review such limits once each year, but in no event shall such insurance be less than one million dollars covering claims for bodily injury or property damage arising out of one occurrence.

Section 11.5 Other Insurance. The Executive Board shall obtain and maintain as a Common Expense: (1) insurance to satisfy the indemnification obligations of the Association as provided in this Declaration to the extent available and at the option of the Executive Board; (2) worker's compensation insurance if and to the extent necessary to meet the requirements of law; (3) blanket fidelity bond coverage for any management agent and for anyone who handles or is responsible for funds held or administered by the Association whether or not compensation is received for such services, which fidelity bond shall name the Association as an obligee; (4) directors and officers insurance; and (5) such other insurance as the Executive Board may determine or as may be requested from time to time by a majority in voting interest of the Unit Owners. Said fidelity bond shall cover the greater of (a) the maximum funds in the custody of the Association or management agent at any time and in addition shall be at least equal to the sum of three months of assessments on all Units plus the Association's reserve funds or (b) 150% of the estimated annual operating expenses, including reserves of the Condominium. The fidelity bond shall provide for ten days' written notice to the Association and each servicer that

services a Unit mortgage owned by FNMA or FHLMC before the bond can be cancelled or modified for any reason.

Section 11.6 Memoranda, Cancellation, Additional Required Provisions. All insurers which issue an insurance policy or policies to the Association, upon request, shall issue a copy of the policy to any Unit Owner or Mortgagee. The Association shall use its best efforts to cause all such insurers issuing the policy not to cancel (including cancellation for non-payment of premium), substantially modify or refuse to renew such policy or policies until twenty (20) days after notice of the proposed cancellation, modification or non-renewal has been mailed to the Association, the managing agent, each Unit Owner and each Mortgagee to whom a certificate or memorandum of insurance has been issued at their respective last known addresses. All policies under this Article shall in addition contain the following provisions: (1) The insurer waives any right to claim by way of subrogation against the Declarant, the Association, the Executive Board, the managing agent or the Unit Owners, and their respective agents, employees, guests and, in the case of Unit Owners, the members of their household; and (2) The Declarant, so long as Declarant shall own any Unit, shall be protected by all such policies as a Unit Owner.

Section 11.7 Separate Insurance. Each Unit Owner shall have the right, at his own expense, to obtain insurance for his own Unit and for his own benefit and to obtain insurance coverage upon his personal property and for his personal liability as well as upon any improvements made by him to his Unit under coverage normally called "improvements and betterments coverage", and for such other risks as are normally insured against; provided, however, that no Unit Owner shall be entitled to exercise his right to acquire or maintain such insurance coverage so as to decrease the amount which the Executive Board, on behalf of all Unit Owners, may realize under any insurance policy maintained by the Board or to cause any insurance coverage maintained by the Board to be brought into contribution with insurance coverage obtained by a Unit Owner. All such policies shall contain waivers of subrogation. Each Unit Owner shall obtain and maintain general liability insurance in such amounts as required by the Association from time to time and shall provide a certificate of insurance to the Executive Board for each term of coverage at least two (2) weeks prior to the expiration date of the current term of such insurance.

ARTICLE XII: RESTRICTIONS ON USE, OCCUPANCY OR ALIENATION OF UNITS

Section 12.1 Use and Occupancy Restrictions on Units. Each Unit shall be occupied and used subject to the following restrictions: (1) no Unit shall be used for other than residential purposes (with the exception of any such Units during the time period when they are being used by the Declarant as a sample, model or sales office) of the Unit Owners or such other persons to whom the Unit Owners have leased the Unit in accordance with this Declaration, the Bylaws and any rules and regulations adopted by the Association; nothing in this Declaration shall be construed to prohibit the Declarant from exercising any easements and rights reserved by the Declarant pursuant to this Declaration for any purposes including promotional, marketing or

display purposes, from using any appropriate portion of the Common Elements for exercising these reserved rights, settlement of sales of Units and for customer service purposes, or from leasing Units owned by Declarant as provided in this Declaration; (2) nothing shall be done or kept in any Unit or in the Common Elements which will increase the rate of insurance for the Property or any part thereof applicable for commercial use without the prior written consent of the Executive Board, except that Declarant during the twenty-five year period specified in Section 5.1 may authorize such uses if Declarant pays or causes to be paid any additional premiums occasioned by such uses; no Unit Owner shall permit anything to be done or kept in his Unit or in the Common Elements which will result in the cancellation of insurance on the Property or any part thereof or which would be in violation of any law, regulation or administrative ruling; no waste will be committed on the Common Elements; (3) no Unit shall be used so as to create a nuisance or an unreasonable interference with the peaceful possession and occupation or proper use of any other Unit or the Common Elements; (4) no owner or occupant of any Unit shall carry on, or permit to be carried on, any practice which unreasonably interferes with the quiet enjoyment and proper use of another Unit or the Common Elements by the Owner or occupant of any other Unit, or which creates or results in a hazard or nuisance on the Property; (5) the maintenance, keeping, boarding and/or raising of animals, laboratory animals, livestock, poultry or reptiles of any kind, regardless of number, is prohibited within any Unit or upon the Common Elements except that the Association may adopt rules permitting certain household pets; and (6) the Units shall be occupied and used in accordance with the provisions of the Land Use Ordinance of the City of Portland. The Association may adopt rules which would eliminate any specific pet which was adjudged to have become a nuisance.

The Condominium is intended as housing for older persons in accordance with the Housing for Older Persons Act ("HOPA"). At all times the Association shall verify that the Condominium is in compliance with HOPA. The Association shall establish appropriate rules and regulations for assuring compliance with HOPA prior to the resale of any Unit.

Notwithstanding any of the foregoing, a Unit owner may use a Unit for the purpose of a home office, provided, however, that any such use complies with all applicable state and local laws, ordinances and regulations, and that such use is otherwise consistent with the Condominium Documents.

Section 12.2 Leasing Restrictions. No Unit shall be rented for a period of less than six months, or be rented, occupied or used for any short term transient purposes. Units shall not be listed on any vacation rental site such as but not limited to Airbnb, or VRBO. No Unit Owner shall lease a Unit other than on written form of lease requiring the lessee to comply with the Condominium Documents and rules and regulations of the Association. Each Unit Owner shall, promptly following the execution of any lease of a Unit, notify the Association in writing of the name of the tenant and the term of the lease and any options in the lease to renew, extend or purchase. The Bylaws may provide for further regulation and rental of Units, except that no other restrictions will be imposed relating to the term of any lease or rental agreement.

Section 12.3 Voluntary Resale of Units. The following provision applies to the sales of Units by all Unit Owners other than the Declarant: No Unit Owner shall be liable for the payment of any part of the Common Expenses assessed against his or her Unit subsequent to the date of recordation of a bona fide conveyance in fee of such Unit by the Owner to a new Owner. In a voluntary transfer of a Unit, the grantee of the Unit shall be jointly and severally liable with the grantor for all unpaid assessments and special assessments for Common Expenses made by the Executive Board against the latter up to the time of the recordation of grantor's transfer, without prejudice to the grantee's right to recover from the grantor the amounts paid by the grantee therefor. However, any person who shall have entered into an agreement to purchase a Unit from a Unit Owner shall be entitled to a certificate from the Executive Board as provided by Section 1604-108(b) of the Act, and the grantee shall not be liable for, nor shall the Unit conveyed be subject to a lien for, any assessments or unpaid special assessments made by the Executive Board against the grantor for Common Expenses in excess of those disclosed on such certificate. All Unit Owners shall comply with Section 1604-108 of the Act. Except as provided in this Article, there are no other restrictions governing the voluntary transfer of a Unit.

Section 12.4 Rules and Regulations. Each Unit may be used subject to all restrictions contained in the Unit deed, this Declaration, the Bylaws of the Association, and the Rules and Regulations of the Association, as amended from time to time.

Section 12.5 Local Zoning. The Units shall be used and occupied in accordance with all local zoning requirements of the City of Portland.

ARTICLE XIII: APPLICABILITY, COMPLIANCE AND DEFAULT

Section 13.1 Applicability. This Declaration shall be applicable to the Condominium. All present and future Owners and tenants, their guests, servants, agents and employees and any other person or persons that shall be permitted to use the Common Elements shall be subject to this Declaration, the Bylaws and to such rules and regulations as may be issued according to the Bylaws by the Executive Board or the members of the Association from time to time governing the conduct of its members and the use and occupancy of the Property. Ownership, rental or occupancy of any of the Units in the Condominium shall be conclusively deemed to mean that said Owner, tenant or occupant has accepted and ratified this Declaration, the Bylaws and the rules and regulations of the Association and will comply with them. The acceptance of a deed or conveyance (other than as security) or the entering into of a lease or the entering into of occupancy of any Unit (other than possession by a Mortgagee prior to either the completion of foreclosure or the acceptance of a deed to the Unit subject to the Mortgage held by such Mortgagee) shall signify that the provisions of this Declaration and the Bylaws, the rules and regulations of the Condominium and the decisions of the Executive Board are accepted and ratified by such Owner, tenant or occupant, and all of such provisions shall be deemed and taken to be covenants running with the land and shall bind any person having at any time any interest or estate in such Unit, as though such provisions were recited and stipulated at length in each and every deed or conveyance or lease thereof.

Section 13.2 Compliance and Default. (1) Each Unit Owner shall be governed by and shall comply strictly with the terms, covenants, conditions and restrictions of this Declaration, Bylaws and the rules and regulations adopted pursuant thereto, and the same as they may be amended from time to time. (2) The Executive Board shall have the power to enforce compliance with such reasonable rules and regulations relative to the operation, use and occupancy of the Units and the Common Elements consistent with the provisions of this Declaration and the Act, including, but not limited to the appointment of such committees and the enactment and enforcement of such enforcement procedures and penalties for violations as the Executive Board shall deem appropriate. The rules and regulations shall be adopted, amended, or rescinded from time to time, by means of appropriate resolutions duly approved by the Executive Board or by vote of the Unit Owners in accordance with the Bylaws. A copy of such rules and regulations and copies of any amendments thereto shall be delivered or mailed to each Owner or occupant of a Unit promptly after the adoption thereof. (3) Failure of the Unit Owner to comply therewith shall entitle the Association or Unit Owners to the remedies provided in this Declaration and the Act, and also to the following relief, none of which remedies shall be exclusive of any other remedies: (a) Suits: Failure to comply with the terms of this Declaration, the Bylaws and the rules and regulations adopted pursuant thereto, as the same may be amended from time to time, shall entitle the Association or any aggrieved Unit Owner to sue for the recovery of damages or for injunctive relief, or both. Such relief shall not be exclusive of other remedies provided by law; (b) Costs and Attorney's Fees: In any proceeding arising because of an alleged failure of a Unit Owner to comply with the terms of the Condominium Documents and rules and regulations adopted pursuant thereto, as the same may be amended from time to time, the prevailing party shall be entitled to recover the costs of the proceeding and reasonable attorney's fees; provided, however, that no attorney's fees may be recovered against the Executive Board in any such action unless the court shall first expressly find that the Executive Board acted in bad faith; and (c) No Waiver of Rights: The failure of the Declarant, or the Executive Board, or any Unit Owner to enforce any covenant, restriction or other provision of the Act, the Condominium Documents or the rules and regulations adopted pursuant thereto, shall not constitute a waiver of the right to do so thereafter.

Section 13.3 Appeal and Hearing Procedure; Actions by Owners. Unit Owners shall have the right to object, challenge, commence any suit at law or in equity or take any other action under any act, power or authority now in force or hereafter to be enacted against the Association, but not until the Unit Owner has followed such procedures established by the Executive Board by rule or regulation consistent with the provisions of this Paragraph. The Executive Board, or a committee as may be appointed by the Executive Board, shall hear appeals from Unit Owners or lessees of alleged violations of the Condominium Documents and rules and regulations of the Association. Unit Owners shall not have the right to appeal assessments for or collections of assessments for Common Expenses. The Executive Board or such committee shall hold a hearing on any such appeal within thirty (30) days after the receipt by the Executive Board of a formal notice of appeal from a Unit Owner or resident. A decision shall be issued in writing by the Executive Board within ten (10) days after the conclusion of the hearing. The Executive Board shall have the right to establish various rules and procedures governing the operation and

administration of the appeal and hearing process and the enforcement of the Condominium Documents and rules and regulations. Unless the internal remedies provided by this Section and such rules and regulations as may be promulgated by the Executive Board shall be expressly waived by the Association or the Association fails or refuses to act, no action at law or in equity shall be commenced by any Unit Owner or resident until such internal remedy is pursued to exhaustion. Any action by a Unit Owner against any other Unit Owner or resident arising out of any term, covenant or condition contained in the Condominium Documents or any rule or regulation made pursuant thereto shall be subject to the same procedures.

ARTICLE XIV: MORTGAGES OF UNITS; RIGHTS OF MORTGAGEES

Section 14.1 Right to Mortgage. Each Unit Owner shall have the right to mortgage or encumber his own respective Unit together with the Allocated Interests appurtenant to such Unit. Except as otherwise permitted by Section 1603-112 of the Act and subject to this Declaration, no Unit Owner shall have the right or authority to mortgage or otherwise encumber in any manner whatsoever the Common Elements or any part thereof except his own Unit and his own respective Allocated Interests appurtenant to his Unit. A Unit Owner who mortgages his Unit shall notify the Executive Board in writing of the name and address of his Mortgagee(s) and shall file a conformed copy of the note and Mortgage with the Executive Board.

Section 14.2 Mortgage Foreclosure. Foreclosure by a Mortgagee of a Unit shall proceed by civil action according to 14 M.R.S.A. §6321, et seq., as amended, or pursuant to the remedies provided in the mortgage or through deed (or assignment) in lieu of foreclosure. The Association shall be named party in the proceedings if a lien exists for assessments that were or may become payable to the Association before the foreclosure sale. A first mortgage recorded before or after the date on which an assessment became delinquent has priority over any lien which the Association may have. The foreclosure sale will extinguish as to the Mortgagee the lien for assessments that were payable before the foreclosure sale but the proceeds from the sale will be disbursed according to the provisions of the judgment regarding priority of liens, including any assessments owed to the Association.

Section 14.3 Notices to Eligible Mortgage Holder. The Association shall send written notice by certified or registered mail with a return receipt requested to each affected Eligible Mortgage Holder at the address identified pursuant to Section 17.3 of this Declaration of the following proposed actions either within a reasonable period prior to the taking of any of such proposed actions or at the time that notice thereof is given to Unit Owners unless another time is specified herein: (1) the termination of the Condominium pursuant to Section 1602-118 of the Act and this Declaration; (2) a change in the Allocated Interests appurtenant to any Unit, a change in the boundaries of a Unit, or the subdivision of a Unit; (3) the merger or consolidation of the Condominium with another condominium; (4) the conveyance or subjection to a security interest of any portion of the Common Elements (5) the proposed use of any proceeds of Property Insurance required to be obtained and maintained by the Association pursuant to Section 1603-113, subsection (a) of the Act, for purposes other than repair or restoration of the

damaged property; (6) the adoption of any proposed budget under Section 1603-103, subsection (c) of the Act, the date of the meeting of Unit Owners scheduled to consider ratification of such proposed budget, and a summary of the proposed budget; or (7) any default in the performance or payment by a Unit Owner of any obligations under this Declaration, the Bylaws or any rules and regulations of the Association, including, without limitation, default in the payment of Common Expense. Any action taken by the Declarant which has been reserved as a Declarant's right under this Declaration does not require notification of the Eligible Mortgage Holders.

Section 14.4 Voting by Eligible Mortgage Holders. In the event of any of the proposed actions requiring that a notice be sent to the Eligible Mortgage Holders as set forth in Section 14.3, an Eligible Mortgage Holder shall have the right but not the obligation in place of the Unit Owner to cast the votes allocated to that Unit or give or withhold any consent required of the Unit Owner for such action. This right shall be exercised by the Eligible Mortgage Holder delivering written notice to the Association with a copy to the Unit Owner, prior to or at the time of the taking of the proposed action, which notice shall be sent by certified or registered United States mail, return receipt requested, or by delivery in hand, all according to 33 M.R.S.A. § 1602-119(c). Failure of the Eligible Mortgage Holder to so exercise such right shall constitute a waiver thereof.

Section 14.5 Notices to First Lien Mortgagees and Guarantors. The Association shall send written notice by certified or registered mail with a return receipt requested to each affected first lien Mortgagee and to each affected Guarantor (as such term is defined at the end of this Section) of the following proposed actions either within a reasonable period prior to the taking of any of such proposed actions or at the time that notice thereof is given to Unit Owners unless another time is specified herein: (1) any condemnation loss or any casualty loss which affects a material portion of the Condominium or any Unit on which there is a first Mortgage held by such first lien Mortgagee or Guarantor; (2) notice of any default or delinquency in the payment of assessments for Common Expenses or any other charges owed by an Owner of a Unit subject to a Mortgage held of record by such first lien Mortgagee or Guarantor, or any other default in the performance or payment by such an Owner of a Unit of any obligation under this Declaration, the Bylaws or any rules and regulations of the Association, which delinquency or other default continues for a period of sixty (60) days; (3) any lapse, cancellation or material modification of any insurance policy or fidelity bond required to be maintained under the Declaration or Bylaws by the Association; or (4) any proposed action which would require the consent of a specified percentage of first lien Mortgagees as specified in Section 14.6. For purposes of this Section "Guarantor" means the guarantor of a recorded first Mortgage on a Unit in the Condominium which has delivered written notice to the Association by prepaid United States mail, return receipt requested, or by delivery in hand securing a receipt therefor, stating the name and address of such guarantor, the name and address of the Owner of the Unit encumbered by such Mortgage which is guaranteed by the Guarantor, the identifying number of such Unit, and containing a statement that such Mortgage is a recorded first mortgage and has been guaranteed by the Guarantor.

Section 14.6 Mortgagee Approval Rights:

(1) The prior written approval of at least eighty percent (80%) of the voting interest of the Unit Owners and fifty-one (51%) percent of first lien Mortgagees shall be required to terminate or abandon the Condominium, except that any right exercised by the Declarant under Article V above shall not require any such approval.

(2) The prior written approval of at least sixty-seven percent (67%) of the voting interest of the Unit Owners, and at least fifty-one (51%) percent of first lien Mortgagees, shall be required to alter or change the Allocated Interests, except as otherwise provided in the Act with respect to approval by Unit Owners. The exercise of any Development Rights reserved by the Declarant in this Declaration pursuant to Article V does not require approval by either the Unit Owners or Mortgagees.

(3) Any abandonment, partition, subdivision, encumbrance, sale or transfer of any of the Common Elements (except for granting easements for utilities or other public purposes consistent with the intended use of the Common Elements and the exercise of rights reserved by the Declarant under Article V) by act or omission shall require the prior written approval of at least eighty (80%) percent in voting interest of the Unit Owners and fifty-one percent (51%) of first lien Mortgagees. The exercise of any Development Rights reserved by the Declarant in this Declaration pursuant to Article V does not require approval by either the Unit Owners or Mortgagees.

(4) The prior written approval of at least fifty-one percent (51%) of first lien Mortgagees shall be required to do any of the following: (i) any partition or subdivision of any Unit; (ii) abandonment, partition, subdivision, encumbrance, sale or transfer of any Common Elements, other than the granting of easements for public utilities or other public purposes consistent with the intended use of the Common Elements; (iii) any change in the procedure that protects the first Mortgagee's interest when handling any losses or proceeds from condemnation, destruction, or liquidation of all or a part of the project, or from termination of the project; (iv) any change in voting rights except as allowed for additional phases or annexations in accordance with the initial project documents; (v) any change in the Unit Owner's interest in or obligations to the project in order to levy assessments or charges, to allocate distribution of homeowners insurance proceeds or condemnation awards, or to determine the Unit Owner's interest in the Common Elements; (vi) changes in the priority of liens for Association assessments of Common Expenses or Limited Common Expenses; (vii) reductions in reserves for maintenance, repair and replacement of Common Elements; (viii) responsibility for maintenance and repair of the Common Elements; (ix) reallocation of interests in Common Elements or rights to their use; (x) redefinition of any Unit boundaries; (xi) conversion of Units into Common Elements or Common Elements into Units; (xii) change in required insurance coverage; (xiv) imposition of any new restrictions on the leasing or rental of units; (xv) imposition of any new restrictions on a Unit Owner's right to sell or transfer a unit; and (xvi) any other amendments to this Declaration of a nature materially adverse to the interest of first lien Mortgagees. Notwithstanding the

foregoing, no exercise of Declarant Rights by Declarant under Article V shall require the prior approval of any first lien mortgagee.

(5) A first lien Mortgagee who receives a written request sent in the manner set forth in Section 17.3 to approve any actions or additions and amendments to the documents shall exercise such right by delivering written notice to the Association with a copy to the Unit Owner, which notice shall be sent by certified or registered United States mail, return receipt requested, or by hand. A first lien Mortgagee who does not deliver to the requesting party a negative response within sixty (60) days after the giving of notice shall be deemed to have approved such request in writing.

Section 14.7 Other Rights of Eligible Mortgage Holders and First Lien Mortgagees. In the event or any default by a Unit Owner in payment of assessments or performance of obligations pursuant to the Condominium Documents as more fully described in Section 14.3(7) of this Article, the first lien Mortgagee holder of the Mortgage on such Owner's Unit shall have the right but not the obligation to cure such default. In addition to, but not by way of limitation of, all rights granted to Eligible Mortgage Holders pursuant to the Act and to this Declaration to cast the votes allocated to a Unit in lieu of the Unit Owner or which require a certain percent approval by Eligible Mortgage Holders, any Eligible Mortgage Holder, or its representative, shall have the right to attend meetings of the Association and Executive Board for the purposes of discussing the matters described in Sections 14.3(1) - (5). No provision of the Condominium Documents shall be deemed or construed to give a Unit Owner, or any other person, priority over the rights of first lien Mortgagee pursuant to its Mortgage in the case of a distribution to Unit Owners of insurance proceeds or condemnation awards for losses to or a taking of Units, Common Elements, or both. Each first lien Mortgagee shall be entitled to examine the financial records and books of account of the Association upon reasonable prior written notice to the Association and shall be entitled at the expense of the first lien Mortgagee to an audited financial statement for the preceding fiscal year.

ARTICLE XV: AMENDMENT

Except in cases of amendments to this Declaration as described in the Act in Sections 1601-107, Eminent Domain; 1602-108, Allocation of Limited Common Elements; 1602-112, Reallocation of Boundaries Between Adjoining Units; 1602-113, Subdivision of Units; or 1602-118, Termination of Condominium, and except in cases of amendments to the Declaration that may by executed by the Declarant under Section 1602-109(f) Plat and Plans or under Section 1602-110, Exercise of Development Rights, of the Act, and subject to the other provisions of this Declaration and of the Act, this Declaration and the Plat and Plans may be amended as follows:

Section 15.1 Before Any Conveyance. Prior to the conveyance of any Unit by the Declarant to a Unit Owner other than as security for an obligation, the Declarant shall have the right to amend this Declaration in any manner that the Declarant may deem appropriate.

Section 15.2 After First Conveyance. After the first conveyance of a Unit by a Declarant, excepting amendments to the Declaration, Plat and Plans made by the Declarant in accordance with rights preserved under Article V, the terms of the following subparagraphs shall apply to the amendment of this Declaration:

(1) Notice. Notice of the subject matter of a proposed amendment shall be included in the notice of any meeting of the Executive Board in which a proposed amendment is considered, and shall be served upon all Unit Owners in the manner provided in Section 17.1 for service of notices and upon Eligible Mortgage Holders and first lien Mortgagees, if required under Section 14, in the manner identified in Section 17.3.

(2) Resolution. An amendment to this Declaration may be proposed by either the Executive Board or by Unit Owners holding in the aggregate no less than twenty (20%) percent of the votes in the Association. No resolution of the Executive Board adopting a proposed amendment shall be effective unless it has been adopted at a meeting of the Association duly called and held in accordance with the Bylaws by the affirmative vote of at least sixty-seven (67%) percent in voting interest of the Unit Owners, and has been approved by the requisite percentage of first lien Mortgagees if required under Section 14, and then executed and recorded as provided in Section 15.2 (5).

(3) Agreement. In the alternative, an amendment may be made by an agreement signed by the record Unit Owners to which at least sixty-seven (67%) percent of the votes in the Association are allocated in the manner required for the execution of a deed and acknowledged by at least one of them, and which has been approved by the requisite percentage of first lien Mortgagees if required under Section 14, and such amendment shall be effective when recorded.

(4) Certain Amendments. Except as otherwise permitted by the Act or provided in this Declaration (including without limitation Article V hereof), no amendment may increase the number of Units, change the Allocated Interests or change the boundaries of any Unit, or the uses to which any Unit is restricted without the unanimous consent of the Unit Owners and the consent given and delivered as in Section 14.6 of fifty-one (51%) percent of the first lien Mortgagees. No amendment of this Declaration shall make any change which would in any way affect any of the rights, privileges, powers and options of the Declarant, its successors or assigns, unless the Declarant, or its successors or assigns shall join in the execution of such amendment.

(5) Execution and Recording. A copy of each amendment shall be attached to or included with a certificate, certifying that the amendment was duly adopted, which certificate shall be executed and acknowledged by such officer or officers of the Association and/or member or members of the Executive Board designated for that purpose in the Bylaws. The amendment shall be effective when such certificate and copy of the amendment are recorded.

(6) Notice and Challenge. No action to challenge the validity of an amendment to this Declaration adopted by the Association pursuant to this Article may be brought more than one year after such amendment is recorded. After each amendment to this Declaration adopted

pursuant to this Article has been recorded, notice thereof shall be sent to all Unit Owners and to all Eligible Mortgage Holders at the address last furnished to the Executive Board and to the first lien Mortgagees at the address listed in the Mortgage, but failure to send such notices shall not affect the validity of such amendment. The Association shall make copies of the Declaration and all amendments thereto available for inspection at reasonable times upon reasonable request for such inspection.

Section 15.3 Secondary Market Requirements. Notwithstanding anything to the contrary stated herein, Declarant may amend this Declaration at any time without obtaining approval from any Unit Owner or any other party in order to bring the Declaration into compliance with the requirements of FNMA, FHLMC or the Federal Housing Administration of the U.S. Department of Housing and Urban Development.

ARTICLE XVI: EASEMENTS AND LICENSES

Section 16.1 Recorded Easements and Licenses. The recording data for previously existing recorded easements and licenses appurtenant to or included in the Condominium or by virtue of any reservation contained in this Declaration are stated and set forth in Exhibit A hereto.

Section 16.2 Utilities, Pipes and Conduits. Each Unit Owner shall have an easement in common with all other Unit Owners in the same Building to use all pipes, wires, ducts, cables, conduits, public utility lines and other Common Elements serving his Unit and located in any of the other Units in the same Building. Each Unit shall be subject to an easement in favor of all other Unit Owners to use the pipes, ducts, cables, wires, conduits, public utility lines and other Common Elements serving such other Units in the same Building and located in such Unit.

Section 16.3 Structural Support. Each Unit shall have an easement to the extent necessary for structural and subjacent support over every other Unit in the same Building and over the Common Elements, and each Unit and the Common Elements shall be subject to an easement for structural and lateral support in favor of every other Unit in the same Building.

Section 16.4 Ingress, Egress and Regress. Each Unit Owner shall have an easement, subject to any rules and regulations established by the Association, in common with all other Unit Owners to use the entrances, exits, corridors and other Common Elements as a means of ingress, egress and regress to and from the Property and the adjoining public streets. The Association shall not and cannot establish any rules and regulations depriving any Unit Owner of reasonable ingress, egress and regress to and from his Unit, the Property and Common Elements, and the adjoining public streets.

Section 16.5 Encroachments. If any portion of the Common Elements or Limited Common Elements hereafter encroaches upon any Unit, or if any Unit hereafter encroaches upon any other Unit or upon any portion of the Common Elements or Limited Common Elements, as a

result of settling or shifting of the Buildings in which they are located or if the Buildings or Units are not constructed precisely in accordance with the dimension shown on the Plat and Plans or otherwise except as a result of the purposeful or negligent act or omission of the Owner of the encroaching Unit, or of the Association in the case of encroachments by the Common Elements or Limited Common Elements, a valid easement appurtenant to the encroaching Units, Common Elements or Limited Common Elements for the encroachment and for the maintenance of the same shall exist for so long as the encroachment shall exist. In the event that a Building shall be partially destroyed as a result of fire or other casualty or as a result of taking by the power of, or in the nature of, eminent domain or by an action or deed in lieu of condemnation, and then is rebuilt, encroachments of a portion or portions of the Common Elements or Limited Common Elements upon any Unit or of any Unit upon any other Unit or upon any portion of the Common Elements or Limited Common Elements, due to such rebuilding, shall be permitted, and valid easements appurtenant to the encroaching Units, Common Elements or Limited Common Elements for such encroachments and the maintenance thereof shall exist so long as such Building as so rebuilt shall stand.

Section 16.6 Common Elements Easement in Favor of Unit Owners. The Common Elements (including, but not limited to, the Limited Common Elements) shall be and are hereby made subject to the following easements in favor of the Units benefited: (1) for the installation, repair, maintenance, use, removal and/or replacement of lighting fixtures, electrical receptacles, panel boards and other electrical installations which are Common Elements adjacent to such Unit; provided that the installation, repair, maintenance, use, removal or replacement of any such item does not unreasonably interfere with the common use of any part of the Common Elements, adversely affect either the thermal or acoustical character of the Building or impair or structurally weaken the Building; (2) for driving and removing nails, screws, bolts and other attachment devices into the Unit side surface of the stone, block, brick or other masonry walls bounding the Unit and the Unit side surface of the studs which support the dry wall or plaster perimeter walls bounding the Unit, the bottom surface of floor joists above the Unit to the extent such nails, screws, bolts and other attachment devices may encroach into a part of a Common Elements adjacent to such Unit; provided that any such action will not unreasonably interfere with the common use of any part of the Common Elements, adversely affect either the thermal or acoustical character of the Buildings or impair or structurally weaken the Buildings; and (3) for the maintenance of the encroachment of any lighting devices, outlets, exhaust fans, ventilation ducts, registers, grilles and similar fixtures which serve only one Unit but which encroach into any part of any Common Elements or Limited Common Elements on the date this Declaration is recorded or was thereafter installed by Declarant during the Declarant Control Period or within two (2) years after the termination thereof.

Section 16.7 Association's Rights. The Association shall have rights reserved to it by the Declarant in Section 5.3. It shall have the reasonable right of entry upon any Unit to make emergency repairs and to do other work reasonably necessary for the proper maintenance or operation of the Condominium. The Association shall have the right to grant permits, licenses and easements over the Common Elements for utilities, ways and other purposes reasonably necessary or useful for the proper maintenance or operation of the Condominium. The

Association has a right of access to each Unit for the purpose of making inspections or for the purpose of correcting any condition originating in a Unit or elsewhere and threatening another Unit or a Common Element, or for the purpose of performing installations, alterations or repairs to the mechanical or electrical services, other Common Elements or Units, provided that requests for entry are made in advance and that any such entry is at a time reasonably convenient to the Unit Owner, and provided further that judicial proceedings shall be instituted by the Association before any items of construction can be altered or demolished. In case of an emergency, such right of entry shall be immediate, whether the Unit Owner is present at the time or not.

Section 16.8 Special Declarant Rights. Declarant, its successors and assigns, have the rights and easements specified in Article V of this Declaration entitled Special Declarant Rights.

Section 16.9 Easement in Favor of each Unit Owner to Use Amenity Spaces in each Building. Each Unit Owner is hereby granted an easement to use the amenity rooms contained in the other Buildings, to the extent Declarant exercise its Development Rights to build any or all of Buildings 2 through 5. The easement shall be for pedestrian access only through the corridors from the entrance of the building to and from each amenity room and to use the amenities in the amenity rooms. The Association shall be responsible for maintaining each amenity room and any equipment in the amenity rooms and shall assess the costs of maintaining the same to all of the Unit Owners as a Common Expense. The amenity rooms are shown on the Plat and Plans.

ARTICLE XVII: NOTICES TO UNIT OWNERS BY ASSOCIATION

Section 17.1 To Unit Owners. All notices, demands, bills, statements or other communications affecting the Condominium shall be given to Unit Owners by the Association in writing, if requested, and shall be deemed to have been duly given if delivered personally or sent by United States mail, postage prepaid, or if such notification is of a default or lien, sent by registered or certified United States mail, return receipt requested, postage prepaid, addressed to the Unit Owner at the address which the Unit Owner shall designate in writing and file with the Secretary of the Association, or if no such address is so designated, the address of the Unit of such Unit Owner who is the record owner thereof.

Section 17.2 To the Association. All notices, demands, statements or other communications affecting the Condominium shall be in writing and shall be deemed to have been duly given to the Association if delivered personally or sent by United States mail, postage prepaid, return receipt requested, addressed to the Association at the principal office of the managing agent, or if there shall be no managing agent, then to the Secretary of the Association at the address of the Unit of which the Secretary is the record Unit Owner thereof.

Section 17.3 Eligible Mortgage Holders and First Lien Mortgagees. All notices, demands, statements or other communications affecting the Condominium given by the Association to any Eligible Mortgage Holder or first lien Mortgagee shall be in writing and shall be deemed to have been duly given by the Association if delivered personally or sent by certified

or registered mail, return receipt requested, addressed to the Eligible Mortgage Holder at the address identified pursuant to this Declaration or to the first lien Mortgagee at the address set forth in the Mortgage.

ARTICLE XVIII: TAXATION

Section 18.1 Separate Taxation. If there is any Unit Owner other than the Declarant, each Unit and its Allocated Interests shall be deemed to be a separate tax parcel and shall be separately taxed and assessed by the City of Portland. Except to any extent required by law, neither the Buildings, the Property nor any of the Common Elements shall be deemed to be or assessed individually as a separate tax parcel.

Section 18.2 Units Not Yet Separately Assessed. In the event that for any year real estate taxes assessed by the City of Portland and are not separately taxed and assessed to each separate Unit Owner but are taxed on the Property as a whole, then each Unit Owner shall pay his proportionate share thereof in accordance with his respective Common Element Liability.

ARTICLE XIX: TERMINATION OF CONDOMINIUM

The Condominium shall not be terminated except as provided in, and subject to, Section 1602-118 of the Act, and only by agreement of Unit Owners of Units to which at least eighty (80%) percent of the Votes of the Association are allocated, but an Eligible Mortgage Holder shall have the right but not the obligation in place of the Unit Owner to cast the vote allocated to that Unit subject to its mortgage by delivering written notice to the Association with a copy to the Unit Owner prior to or at the time of taking the proposed action as allowed under the Act. Additionally, approval of first lien Mortgagees is required as previously described in Section 14.6.

ARTICLE XX: MISCELLANEOUS

Section 20.1 Interpretation; Conflict. In the event of any conflict or discrepancy between this Declaration, the Bylaws and the Plat and Plans, this Declaration shall govern. If any provision of this Declaration, the Bylaws or the rules and regulations, or any section, sentence, clause, phrase, or word therein, or the application thereof in any circumstances be judicially held in conflict with any applicable laws, including, but not limited to, the Act, then the laws shall be deemed controlling; but the validity of the remainder of this Declaration, the Bylaws and rules and regulations, and the application of any such provision, section, clause, phrase, or word in other circumstances shall not be affected thereby and all of the other provisions of this Declaration shall continue in full force and effect as if such invalid provision had never been included herein. The captions herein are inserted only as a matter of convenience and for reference, and in no way define, limit or describe the scope of this Declaration or the

intent of any provisions hereof. The use of the singular number in this Declaration shall be deemed to include the plural, and the use of any one gender shall be deemed applicable to all genders. No provision contained in this Declaration shall be deemed to have been abrogated or waived by reason of any failure to enforce the same irrespective of the number of violations or breaches which may occur. Any dispute or disagreement between Unit Owners with respect to interpretation or application of this Declaration or the Bylaws or rules and regulations shall be determined by the Executive Board, which determination shall be final and binding on all parties.

Section 20.2 Remedies Cumulative. All rights, remedies and privileges granted to the Executive Board or a Unit Owner pursuant to any terms, provisions, covenants or conditions of the Condominium Documents shall be deemed to be cumulative, and the exercise of any one or more shall not be deemed to constitute an election of remedies nor shall it preclude the party thus exercising the same from exercising such other and additional rights, remedies, or privileges as may be granted to such party hereunder or by any instruments or documents incorporated herein by reference or at law or in equity.

Section 20.3 Arbitration. In any dispute between one or more Unit Owners and the Declarant regarding the Common Elements, the Executive Board shall act for the Unit Owners, and any agreement with respect thereto by the Board shall be conclusive and binding upon the Unit Owners. Any dispute or disagreement between Unit Owners other than Declarant with respect to the interpretation or application of this Declaration or the Articles of Incorporation, the Bylaws or rules and regulations of the Association shall be determined by the Executive Board, which determination shall be final and binding on all parties subject to a disputant's right to appeal the decision by seeking arbitration following the procedures set forth hereinbelow.

All claims, disputes and other matters in question between the Declarant, on the one hand, and the Association or any Unit Owners on the other hand, arising out of or relating to, this Declaration, the Bylaws, or the deed to any Unit or the breach thereof, except for claims which have been waived by the acceptance of a deed, shall be decided by arbitration in accordance with the Construction Industry Arbitration Rules of the American Arbitration Association then obtaining unless the parties mutually agree otherwise. This agreement to arbitrate shall be specifically enforceable under the prevailing arbitration law. The award rendered by the arbitrators shall be final, and judgment may be entered upon it in accordance with applicable law in any court having jurisdiction thereof. Notice of the demand for arbitration shall be filed in writing with the other parties and with the American Arbitration Association. The demand for arbitration shall be made within a reasonable time after the claim, dispute or other matter in question has arisen, and in no event shall it be made after the date when institution of legal or equitable proceedings based on such claim, dispute or other matter in question would be barred by the applicable statute of limitations or other principles of law and equity.

[remainder of page left blank intentionally—signatures begin on next page]

IN WITNESS WHEREOF, DC Baxter Woods IV LLC, the Declarant, has caused this Declaration to be executed by Kevin R. Bunker, its Manager thereunto duly authorized, as of the date first above written.

WITNESS:

DC BAXTER WOODS IV LLC, Declarant

By:_____
Kevin R. Bunker, its Manager

STATE OF MAINE
CUMBERLAND, SS.

February 3, 2021

Personally appeared the above-named Kevin Bunker, Manager of DC Baxter Woods IV 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 entities.

Before me,

Notary Public/Attorney-at-law

SEAL

JESSICA GABBARD
NOTARY PUBLIC - STATE OF MAINE
MY COMMISSION EXPIRES
6/10/2021

C:\OneDrive\Documents\CT\DC Predevelopment LLC (20981)\Baxter Woods (331)\Lot 4\Condominium documents\Declaration of Condominium_Stevens Square_FINAL.docx

EXHIBIT A

PROPERTY DESCRIPTION

A certain lot or parcel of land together with all buildings and improvements thereon located in the City of Portland, County of Cumberland and State of Maine, being Lot #4 as shown on the Overall Subdivision Plan 605 Stevens Avenue, Stevens Avenue and Walton Street, Portland, Maine, made for Sea Coast at Baxter Woods Associates, LLC by Titcomb Associates, dated June 24, 2015, as revised through June 15, 2016, and recorded in the Cumberland County Registry of Deeds, Plan Book 216, Page 433, as amended by the First Amended Overall Subdivision Plan 605 Stevens Avenue, Stevens Avenue and Walton Street, Portland, Maine, made for Sea Coast at Baxter Woods Associates, LLC by Titcomb Associates, dated April 10, 2017, and recorded in the Cumberland County Registry of Deeds, Plan Book 217, Page 151.

The foregoing Lot 4 is subject to and has the benefit of:

1. Title to and rights of the public and others entitled thereto in and to those portions of the insured premises lying within the bounds of Stevens Avenue and Walton Street.

2. Such state of facts as shown on the Overall Subdivision Plan 605 Stevens Avenue, Stevens Avenue and Walton Street, Portland, Maine, made for Sea Coast at Baxter Woods Associates, LLC by Titcomb Associates, dated June 24, 2015, as revised through June 15, 2016, and recorded in the Cumberland County Registry of Deeds, Plan Book 216, Page 433, as amended by the First Amended Overall Subdivision Plan, 605 Stevens Avenue, Stevens Avenue and Walton Street, Portland, Maine, made for Sea Coast at Baxter Woods Associates, LLC by Titcomb Associates, dated April 10, 2017, and recorded in the Cumberland County Registry of Deeds, Plan Book 217, Page 151, and on the Plan of Lot 3 Sectional Subdivisional Plat Motherhouse-88 Units made for Motherhouse Associates LP by Titcomb Associates, dated June 24, 2015 recorded in the Cumberland County Registry of Deeds in Plan Book 216, Page 434, as amended by the First Amended Plan of Lot 3 Sectional Subdivision Plat Motherhouse-88 Units made for Motherhouse Associates LP by Titcomb Associates, dated April 10, 2017 recorded in the Cumberland County Registry of Deeds in Plan Book 217, Page 152, and on the ALTA/NSPS Land Title Survey 605 Stevens Avenue, made for Sea Coast at Baxter Woods Associates LLC by Titcomb Associates, dated March 24, 2016, as revised through March 16, 2017.

3. City of Portland Certificate of Subdivision Waiver Approval, dated September 8, 2015 and recorded in the Cumberland County Registry of Deeds, Book 32584, Page 153.

4. Rights and easements excepted and reserved by St. Joseph's Convent and Hospital in its deed to Sea Coast at Baxter Woods Associates, LLC, dated December 16, 2016 and recorded in the Cumberland County Registry of Deeds, Book 33698, Page 187.

5. Rights, covenants and easements set forth in the Stormwater Drainage System Maintenance Agreement from Sea Coast at Baxter Woods Associates, LLC to the City of Portland, dated December 23, 2016 and recorded in the Cumberland County Registry of Deeds, Book 33752, Page 170, as amended by an Addendum, dated June 1, 2017 and recorded in said Registry, Book 34050, Page 80.

6. Rights, easements and covenants set forth or references in the Declaration of Covenants and Easements dated May 5, 2017 and recorded in the Cumberland County Registry of Deeds, Book 33992, Page 172.

7. Subject to rights and easements reserved and set forth in the deeds from James P. Baxter to the Roman Catholic Bishop of Portland, dated March 10, 1908 and recorded in said Registry of Deeds in Book 821, Pages 58 and 59.

8. Stormwater Drainage System Maintenance Agreement entered into by Sea Coast at Baxter Woods Associates, LLC for the benefit of the City of Portland dated August 11, 2015, recorded in said Registry of Deeds in Book 33752, Page 170, as affected by Addendum to Stormwater Drainage System Maintenance Agreement dated December 23, 2016, recorded in said Registry of Deeds in Book 34050, Page 80, and Stormwater Drainage System Maintenance Agreement entered into by DC Baxter Woods IV LLC for the benefit of the City of Portland dated January 20, 2021, recorded in said Registry of Deeds in Book 37742, Page 118 and re-recorded in said Registry of Deeds in Book 37778 Page 00279

9. Underground utility easement granted by Sea Coast at Baxter Woods Associates LLC to Central Maine Power Company and Northern New England Telephone Operations, LLC dated September 5, 2017, recorded in said Registry of Deeds in Book 34616, Page 110.

10. Declaration of Covenants and Easements by Seacoast at Baxter Woods Associates, LLC dated May 5, 2017 and recorded in the Cumberland County Registry of Deeds in Book 33992, Page 172.

11. Underground utility easement granted by Sea Coast at Baxter Woods Associates LLC to Central Maine Power Company and Northern New England Telephone Operations, LLC dated September 5, 2017, recorded in said Registry of Deeds in Book 34616, Page 110.

12. Subject to rights and easements reserved and set forth in the deeds from James P. Baxter to the Roman Catholic Bishop of Portland, dated March 10, 1908 and recorded in said Registry of Deeds in Book 821, Pages 58 and 59.

13. Easement Agreement (Bus Stop) in favor of City of Portland dated October 26, 2020 and recorded in said Registry of Deeds in Book 37437, Page 282.

14. Rights of others in and to the appurtenant easements in favor of the Land.

Declarant has reserved Development Rights in all of the land described at the beginning of this Exhibit.

EXHIBIT B

Allocated Interests

Received
Recorded Register of Deeds
Feb 04,2021 11:55:17A
Cumberland County
Nancy A. Lane

Stevens Square Condominium

53 McAuley Way, Portland
ME 04103

Unit Number	*Apt. Number*	*Floor*	*Size (sq. ft.)*	*Percent Interest*	*Parking Space*	*Vote in Association*
1	201	2nd	1,536	5.71%	11,12	1
2	202	2nd	1,267	4.71%	26	1
3	203	2nd	1,446	5.37%	6,16	1
4	204	2nd	1,045	3.88%	15,17	1
5	205	2nd	922	3.43%	13	1
6	206	2nd	1,495	5.55%	14	1
7	207	2nd	1,254	4.66%	9	1
8	301	3rd	1,536	5.71%	1	1
9	302	3rd	1,267	4.71%	10	1
10	303	3rd	1,446	5.37%	3	1
11	304	3rd	1,041	3.87%	4	1
12	305	3rd	922	3.43%	2	1
13	306	3rd	1,495	5.55%	22, 27	1
14	307	3rd	1,254	4.66%	23	1
15	401	4th	1,536	5.71%	20, 21	1
16	402	4th	1,267	4.71%	24	1
17	403	4th	1,446	5.37%	5	1
18	405	4th	921	3.42%	25	1
19	407	4th	1,254	4.66%	19	1
20	406	4th	2,566	9.53%	7,8	1
			26,916	100.00	26 1 unassigned (18)	20

Received
Recorded Register of Deeds
Feb 11,2021 02:15:37P
Cumberland County
Nancy A. Lane

Att. U

From: Robert Bartels on behalf of AMaP MEANS
To: Steve Bushey
Cc: Christopher Kowash
Subject: 498370-Stevens Square at Baxter, PO
Date: Friday, January 7, 2022 3:46:17 PM

Mr. Bushey,

Based on the information provided, the existing **4-inch** domestic service with **3-inch** meter should be able to handle the water demand at the site. If you experience any water supply or pressure issues please contact PWD to increase the service size to the building.

-

PLEASE NOTE: The following conditions apply to your project:

1. The plans indicate two private fire hydrants will be installed as part of the project. PWD will issue a service application to cover the inspection of the two private fire hydrants. The private fire hydrants will automatically be enrolled in the PWD Winter Hydrant Inspection Program (WHIP).

If you have any questions please feel free to reach out.

-

Thanks,
Robert Bartels, PE

Robert Bartels
Senior Project Engineer
Portland Water District
Phone: 207-774-5961
E-mail: rbartels@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

GORRILL PALMER

707 Sable Oaks Drive, Suite 30
South Portland, ME 04106
207.772.2515

December 7, 2021

Mr. James J. Rather, AICP
Development Review Manager
Planning & Urban Development Department
389 Congress Street
Portland, Maine 04101

Subject: Major Site Plan, Master Development Plan Amendment & Subdivision
Project ID – PL-001649-2021
65 McAuley Way
DC Baxter Woods IV LLC, Applicant
Letter of Response #1

Dear James:

On behalf of **DC Baxter Woods IV LLC (Applicant)**, our office is pleased to provide the following responses to staff review comments provided within an email and letter dated July 29, 2021, your August 31, 2021 email and as well surveyor's comments from August 11, 2021. For ease of review we have repeated all of the staff comments in *italics* and provide our responses in **bold** as follows:

CITY PLANNING STAFF

Comment

Please provide an interim conditions plan depicting, in detail, the layout and configuration of the development site during each of the three phases. How will portions of the development site on which future phases of the project will be built and programmed during the interim between each phase.

Response

We have expanded on the Phasing plans to include additional plan sheets depicting site conditions upon the completion of each project phase. These are now included in the plans as Sheets C-4.3, C-4.4, C-4.4A, and C-4.5 for interim building Phases 2, 3, and 4 respectively. The goal of these plans is to provide interim site conditions as each building is constructed. For Buildings 2 and 3, it is expected that the existing field space will remain largely intact. Utilities and stormwater management for each building and its surrounding parking and/or site improvements will also be constructed. As Buildings 4 and 5 are put forward the Commons and Grove open spaces will be more fully developed and the associated remaining stormwater management, utilities and north end parking area will be completed. We have shown the approximate limits of anticipated staging/laydown/storage for each phase of work.

Comment

Please providing additional materials to address the proposed lighting scheme for the project and its compliance with Section 12 of the City's Technical Manual. Specifically:

- *The provided photometrics plan does not include a stamp*
- *The photometrics plan appears to show lighting levels that fall below the 0.2 foot- candle standard within the parking lot – please verify that this standard has been met*
- *While cutsheets for lighting fixtures have been provided, please include further data on how these fixtures meet color temperature, lumens, and other key metrics for lighting as set forth in the Technical Manual .*

Response

An updated stamped Site Lighting Plan and Photometrics plan are included with this submission as prepared by Bennett Engineering. The plans are stamped by Steven Jonason PE. Per the statistics called out on Sheet E1-1 the following coverage values are now provided:

Location	Average	Maximum	Minimum	Max/min	Average/min
Upper parking	.8 fc	1.5 fc	0.2 fc	7.5:1	4.0:1
Commons	0.7 fc	7.7 fc	0.0 fc	N/A	N/A
Lower Parking	0.8 fc	1.8 fc	0.3 fc	6.0:1	2.7:1

Comment

Please clarify - regarding the unit mix: are all of the units to be deed restricted to individuals 55+ in age, or are a portion of them to be unrestricted.

Response

The units are age-restricted as indicated by the Condominium Documents. Similar to the first building, the project will be held in compliance to the Housing for Older Persons Act (HOPA) exemption to the Fair Housing Act. In brief, this indicates that at all times the building shall fit the HUD definition of "intended and operated for occupancy by persons 55 years of age or older". As such the following requirements must be met:

1. **At least 80 percent of the units must have at least one occupant who is 55 years of age or older;**
2. **The facility or community must publish and adhere to policies and procedures that demonstrate the intent to operate as "55 or older" housing; and**
3. **The facility or community must comply with HUD's regulatory requirements for age verification of residents.**

This restriction is found in Section 12.1 of the Declaration of Condominium.

Transportation – DPW Development Review Division

Comment

There is a tipdown south of the McAuley Way intersection of the 71-space surface lot that appears to lead to nowhere; please clarify, or remove if unneeded.

Response

There are tipdown curb sections positioned on each side of the sidewalk ramps at this location as is customary.

Comment

As shown on the plans, the site is heavily parked, at a ratio of approximately 2:1 ratio; please provide additional rationale justifying the proposed parking allotment.

Response

The parking ratio will actually be less than required under the previous zoning code for residential structures (2 spaces per unit plus one space for every six units). From the perspective of standard parking, we believe the placement of ground level parking within each building actually succeeds in reducing the overall visual impact of vehicular parking on the site since the majority of parking will be concealed by the buildings.

Comment:

The number of accessible parking spaces in each parking area appears to be too few; for parking areas of 26 spaces or more, two HP spaces are required, one of which must be van- accessible.

Response

The site plan includes 258 Spaces which only requires 7 ADA spaces[1]. The proposed Site Plan includes 1 ADA space within each building parking area (4 spaces) and then an additional 8 ADA van accessible spaces in the outside parking for a total of 12 ADA spaces.

Comment

Consider the use of structurally-reinforced grass for visitor spaces in lieu of pavement to reduce impervious surface levels at the site.

Response

We have considered the request and respectfully submit no changes to the parking surfaces. We are employing porous pavers in the parking spaces currently and thus feel that this approach does reduce the overall imperviousness and in fact improves the opportunity for natural infiltration of stormwater runoff back into the ground.

Comment

Consider providing additional electric vehicle chargers, both within the garage spaces and surface lots.

[1] See ADA Standards for Accessible Design 4.1.2 (5)

Response

All the ground level parking in each building will be fitted with adequate conduit and measures to allow for the future installation of EV charging equipment as tenant demand dictates, similiear to Building #1. To date only a single EV charging connection has been requested from the 20 tenants in Building #1.

Comment

Consider the use of compact parking spaces to reduce impervious surface levels; all spaces appear full-size currently.

Response

The inside parking spaces within the buildings are considered relatively compact in nature due to the placement of building support columns, storage lockers and other layout items that require careful vehicle maneuvering when in use. The applicant seeks to provide regular 9' x 18' parking spaces in the outside parking lot simply to provide adequate parking size for owners of larger vehicles (either tenants and/or visitors).

Comment

The floor plans for the garage do not show the first floor columns; the location of those columns has implications for turning movements. Please update the plans to include them.

Response:

The updated plans now show the locations of columns in Building 2. Columns have been positioned to allow for access to the parking spaces, however, as discussed above, ideally owners of larger vehicles may choose to park outside, given the challenge of parking in the building. Buildings #3, 4, & 5 have no structural plans yet prepared so we have not shown columns for those buildings.

Transportation – Consulting Traffic Engineer

Comment

The Master Development Plan (MDP) had a condition of approval for the construction of a crosswalk on Stevens Avenue at Walton Street. City will review implementation details and will provide feedback in the future.

Response

The crosswalk has been completed and is currently operational.

Comment

The MDP had a condition of approval for the conduct of a traffic monitoring study as it relates to trip generation. It seems to make sense that the study be conducted now with the first building occupied. With the McAuley School leaving the site, overall trip generation will likely not trigger a Traffic Movement Permit.

Response

Diane Morabito of Sewall has provided the accompanying letter regarding trip generation and parking demand.

Comment

The MDP had a condition of approval for conducting parking monitoring studies. The applicant should begin the process of detailing the scope of work and performing the work as appropriate, given changes since the closing of McAuley School.

Response

Diane Morabito of Sewall has provided the accompanying letter regarding trip generation and parking demand.

WATER QUALITY, STORMWATER & INFRASTRUCTURE

DPW Water Resources Division

Comment

Is the proposed stormwater system to be completely built out within the first phase of the project, or will the system itself also be phased? If the latter, please provide materials (narrative and plans) that speaks to how the system will be constructed in a phased manner and how it will operate during each phase.

Response

The latest phasing plans outline each of the stormwater management system pieces that will be installed as each building and parking area is constructed. The systems will be designed to achieve compliance with water quality treatment and quantity control standards as each phase is built out. The existing outfalls basically remain unchanged from the predevelopment conditions and as each phase is constructed there will be various Stormwater Management BMP's installed to handle runoff generated by each development area.

Comment

Please be advised that the project will need a Stormwater Maintenance Agreement that will be recorded concurrently with the subdivision plat. The Agreement may require amendments to address each phase if the stormwater system is built out in a segmented fashion.

Response

A draft Updated Stormwater Maintenance Agreement accompanies this submission for Staff and Corporation Counsel review.

Comment

Please provide a dewatering plan

Response

Notes and information related to site dewatering have been added to the Erosion and Sediment Control Plan Drawing C-4.1. Site dewatering, if required, will rely on sumps and filter bags to treat any concentrated dewatering flow. All dewatering flow will be captured and treated prior to onsite overland discharge. No dewatering flow will be discharged into the onsite sanitary collection and conveyance systems.

Comment

Staff are concerned about stormwater flow to the proposed drainage swale and the impact that stormwater events may have on Baxter Woods. Please provide additional material demonstrating how the project will seek to minimize stormwater impacts on Baxter Woods

Response

The project's stormwater management measures include several BMP's containing onsite storage to achieve quantity control of peak discharge to the downstream points of analysis. The site drains toward existing channels that extend over the site's easterly wooded area at the rear of the Deering Pavilion. The channels combine to drain easterly towards Forest Avenue. The analysis completed for Stevens Square shows that post development discharge to onsite points of analysis will be at or below pre development rates. On this basis, we believe the project satisfies the City's stormwater management provisions and will not negatively impact conditions in Baxter Woods. An updated Stormwater Management report has been completed and is included with this letter. The report reflects minor changes based on internal staff review. The following table summarizes the pre and post development peak discharge rates at the two points of analysis:

Table 2 – Comparison of Peak flows (cfs)						
Point of Interest	Peak Flow (cfs)					
	2 Year		10 Year		25 Year	
	Pre	Post	Pre	Post	Pre	Post
POI #1	1.77	1.72	3.90	2.60	6.97	4.55
POI #2	2.99	~~2.77~~ 2.60	7.55	~~6.75~~ 6.69	11.40	~~11.37~~ 11.32

Comment

Staff note that the use of pervious parking spaces for snow storage is not ideal from a drainage perspective; are there alternate locations that could be explored?

Response

We have updated to the plans to shift the snow storage zones off of the porous pavement parking areas.

Comment

The eight-inch sewer beneath Holly Street will be lined in anticipation of the increased flows that this project will generate.

Response

We have reached out to Brad Roland of DPW to ask for more details as to the City's requirements for lining the Holly Street Sewer. There is about 555 LF of 8" vitrified clay sewer in Holly Street down to Forest Avenue. Pursuant to an email exchange with Brad Roland, he has confirmed that the Holly Street sewer has already been lined, thus no further work appears necessary. A copy of that email is attached. In the meantime, Mr. Roland continues to review the wastewater capacity application we have provided to him. We await his review and acceptance.

Consulting Stormwater Engineer

Comment

The project is required to comply with Maine DEP Chapter 500 and Section 5 of the City of Portland's Technical Manual for stormwater management. The project must comply with the Basic, General, and Flooding Standards. Comments are as follows:

- *Basic Standards – The plans include erosion and sedimentation control details and notes in compliance with the Basic Standards. An overall Erosion and Sediment Control Plan has been provided for the entire site, however it is our understanding that the project will be completed in three phases. Erosion control will be provided for each phase of construction, and should be reflected in this way in the plans.*

Response

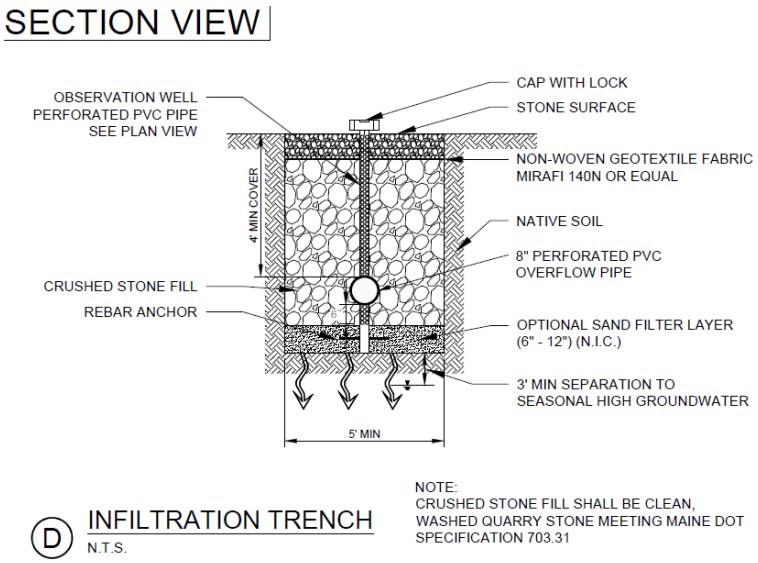
The updated phasing plans each include the provisions for erosion and sediment control as each phase is constructed.

Comment

- *General Standards – The project will meet the General Standards through the use of pervious pavers, focal point filters, and subsurface detention ponds. In addition, a Filterra Bioretention system will be installed to replace an existing infiltration trench on the adjacent site. Please provide information from the previous approval showing the area draining to the previous stormwater system, and now the proposed Filterra.*

Response

The original Stormwater Management report for the Motherhouse indicated that Subarea 210 contained 15,676 SF with a CN of 81 and runoff total of 1.41 cfs (25 yr) that would drain to an infiltration trench. The typical section is shown as follows:



The current design includes Subarea 10S containing 12,293 SF that will drain to a Filterra unit and subarea 13S (formerly 210) containing 15,495 SF that will drain to a second Filterra. The two Filterra units replace the function of the infiltration trench since that trench will be covered by a sidewalk or parallel parking.

Comment

- *Flooding Standards – The project has been designed to mitigate flows, reducing flows in the evaluated storm events at the two points of interest, in compliance with the Flooding Standards.*

Response

No further response required.

Comment

The Applicant has provided a stormwater O&M manual and draft maintenance agreement. The documents should take into consideration any phasing of the work. The way that the proposed agreement works in conjunction with any existing agreement should also be considered, as the proposed Filterra will be replacing a previously approved infiltration system on the adjacent developed site.

Response

The accompanying Stormwater Maintenance Agreement has been reworded to account for the phased installation of the stormwater management measures. It is the applicant's responsibility to maintain the systems as they are installed.

Comment

A detailed plan for demolition has been provided. Some further clarification of stormwater demolition should be provided. It was specifically noted that additional information should be provided on capping of the remaining structure located to the west of the site, at the midpoint of the property line along McAuley Way, where the stormdrain piping has been called out to be removed. Further clarification on removal or protection of DMH 4 and CB 19 should also be provided, as there are some conflicts between the demolition plan and the grading plan.

Response

The intent will be to remove or otherwise abandon in place an existing 12" storm drain pipe that crosses the ballfield. That system will be replaced with a new pipe that will be realigned to the north side of Buildings #4 and #5. A new catch basin #11 will be installed along McAuley Way to replace an existing catch basin; this will be made part of the Building #4 construction, during which time the 12" pipe across the field will need to be removed. The existing DMH #4 and CB#19 along the southerly side of the site will remain in place and will be adjusted for any surface grading changes as well as holes cored for new pipe as needed.

Comment

With the proposed phasing, the Applicant should consider the timing and the implications on site grading, utility installation, and landscaping. The plans show a comprehensive plan for the entire site for these features. The timing of phasing, and the need to stabilize and manage edges of the different phases should be considered.

Response

The updated phasing plans now include additional information outlining the intended site, utility and drainage improvements to be installed during each phase.

Comment

I would suggest a few more spot grades be added to the driveways leading to the building garage doors. Specifically, the driveway between Buildings 2 and 3 appears to show a higher grade to the north of the doorway entrances, implying that stormwater could flow from the driveway into the garage entrances.

Response

Additional spot grades have been placed on the grading plans as suggested.

Comment

The Applicant has reached out to utilities with regards to ability to serve and has noted that confirmation of ability to serve will be forwarded upon receipt.

Response

We continue to await final letters from the utility providers. These will be supplied to the Planning Department upon receipt.

CONSTRUCTION MANAGEMENT

Comment

Please provide a Construction Management Plan, including both a drawing and narrative, that accounts for the phased nature of this project. Review of previous phases of the project raised concerns over the tracking of dirt onto paved, developed portions of the site and into the public way due to a substandard construction entrance; the plan should include measures to mitigate this.

Response

Phased drawings depicting the construction of Buildings #2, #3, #4 & #5 are now contained in the drawing set. A Construction Management Plan is being prepared and it will be uploaded immediately upon receipt.

Comment

Please also note that staff have concerns around porous pavement and staging during phased project construction, as experience has shown that porous pavement is highly vulnerable to destruction from equipment during staging on phased projects.

Response

We are aware of the challenges associated with construction activity and placement of porous zones in nearby completed areas. The objective will be to avoid any porous zones with construction activity once those areas are completed. We believe that the phasing layouts achieve that objective. It will be the contractor's responsibility to maintain the porous areas clean of mud and sediments that might clog the surface infiltration capacity.

PUBLIC SAFETY

Life Safety Office

Comment

The turnaround for buildings 1 and 2 should be at the end, not in the middle. For Buildings 3 and 4, the City requires better access to the buildings in the rear - possibly via a fire lane near the walkway that goes around building 3. Alternately, the driveway could extend farther down and wrap somewhat around building 3.

Response

We have discussed the site layout and emergency vehicle access with Jason Grant of the Fire Department. The result are the changes to access now shown on the plans. This includes access surfaces between buildings 2 & 3 and 4 & 5 that will allow fire apparatus the ability to access the rear of the buildings. We have also adjusted the paved area approaching the building #3 entrance to shift the pavement closer to the entry, as suggested by the Fire Department. We believe the updated plans reflect approvable conditions as outlined by the Fire Department.

LANDSCAPING & ENVIRONMENTAL QUALITY

City Arborist

Comment

The proposed Stevens Square project is next to one of the more significant natural areas in Portland, Mayor Baxter Woods. Given the site location, focusing on Maine's native plants should be an attraction for future residents; this could be an educational factor as well as helping native habitat. We would recommend the tree and plant pallet better reflect native Maine trees & shrubs. Percentage wise, a few 'exotic' specimen plants would be acceptable. This would also follow earlier tree and landscape themes for earlier phases of Stevens Square. There are many suggested resources to reference tree and plant types that are well suited for this site: See:

https://extension.umaine.edu/gardening/manual/plants-for-the-maine-landscape/
https://mainenativeplants.org
http://nenativeplants.uconn.edu/nativePlants.php
https://wildseedproject.net/native-trees-for-northeast-landscapes-further-resources/

Response

The tree and plant palette has been updated to include an increased number of native species. The concentration of the "exotic/specimen" plants and trees are used at the interior of the site, adjacent to the proposed buildings. Plantings along the border with Baxter Woods (on the south) and wooded area (to the east) are all native tree and shrub species.

Comment

In regard to the Mayor Baxter Woods edge condition: the landscape buffer along Mayor Baxter Woods should be increased. A tree and landscape priority here would be to provide greater buffer plantings along the project edge abutting Mayor Baxter Woods. This also has been an important topic since Phase 1 and earlier work at McAuley Field. As shown, the parking lots are inadequately screened from the Baxter Woods natural areas. Night lighting should also be limited to low lighting standards and perhaps motion detection versus all night lighting. Mayor Baxter Woods is also an important ecological and habitat area as stated in the Baxter Deed; the Woods is a sanctuary for wild birds and is a municipal forest. This proximity to this important natural area needs to be respected and represented in the tree / landscape plan.

Response

The landscape buffer along Mayor Baxter Woods (south of the development) has been increased with additional quantities of native trees and shrubs – with attention to tree canopy and an understory shrub layer. Primary species in this area are Eastern White Pine (Pinus Strobus), Eastern Hornbeam (Carpinus caroliniana), River Birch (Betula nigra) and Redtwig Dogwood (Cornus sericea). We have also highlighted the existing tree line location (to remain), which is a dense stand of mature deciduous and evergreen trees. It should also be noted that there is no surface parking bordering Baxter Woods as part of this development; the parking spaces shown are all interior to the building. A black, ornamental metal fence is also proposed as part of the buffer with Baxter Woods.

Comment

In regard to perimeter fencing: the fencing installed in earlier phases should continue for the length of the project's border with Baxter Woods.

Response

The black, ornamental metal fence installed as part of Building #1 development will continue along the border with Baxter Woods for this development. Plans have been updated to call out this addition.

Comment

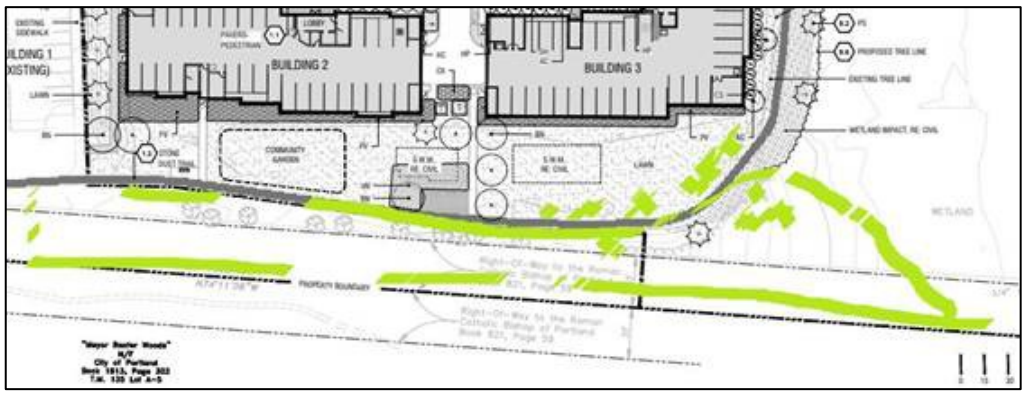
In regards to plant selection: the tree and plant landscape plan should include an increased number of native plants.

Response

The tree and plant palette has been updated to include an increased number of native species.

Comment

The sketch below shows the area of concern of needed buffering/landscape:



Response

The landscape buffer along Mayor Baxter Woods (south of the development) has been increased with additional quantities of native trees and shrubs. We have also highlighted the existing tree line location, which is a dense stand of mature deciduous and evergreen trees.

Comment

Please also be advised the parking lot does not meet the tree & landscape standards as shown.

Response

The parking lots at the center and north of the development meet the tree and landscape design standards. The other parking shown is interior to the buildings.

COMMENTS FROM BILL SCOTT – CITY SURVEYOR

Comment

1. *The Easements & Encumbrances notes 1 & 2 need to be revised to reflect Lot 5 as well as Lot 4.*

Response

The Second Amended Subdivision Plan has been updated to include Lot 5 in the note reference.

Comment

2. *E & E note 4 refers to the Stormwater Drainage System Maintenance Agreement recorded at the Registry. Does this document have to be updated now since the proposed location of Easement #7 has been changed?*

Response

An updated Stormwater Drainage System Maintenance Agreement has been prepared and is included with this submission. Once acceptable and upon project approval, the updated Agreement will be executed and recorded at the registry. The updating recording document will be provided for city records.

Comment

3. *In the regular plan notes, do notes 5, 7 and 8 need to be revised due to the addition of Lot 5 and the change in Easement #7?*

Response

These notes have been updated on the Second Amended plan.

Comment

4. *Please show iron boundary markers to be set at all of the lot corners for Lots 1 thru 5. Please add that symbol to the Legend.*

Response

The Second Amended Plan has been updated to include the installation of iron pins as requested by the City.

Comment

5. *Will there be a separate plan that defines the courses and distances of all ten of the easements on this plan? None are defined on this one.*

Response

We have requested that Titcomb Associates review this request and advise as to how best to handle this information.

COMMENTS FROM CAITLIN CAMERON – URBAN PLANNER

Comment

- Consistently label drawings to reflect building numbering
- Provide elevations for all four buildings
- The following changes are the direct result from a design meeting with Caitlin and James

Response

The elevations have been provided on the plans and labelling has been corrected.

Comment

1. *Building Footprints – The scale, placement, orientation, and footprint of the buildings are consistent with the approved Master Development Plan. The proposed footprints successfully mitigate the scale of the building through the use of varied forms and change of building plane. The buildings are also placed interior to the lot and are therefore less visible from public rights-of-way and neighboring properties, buffered by space and trees. Consideration was given to the impact on Baxter Woods and the Motherhouse.*

Response

We appreciate the findings of the reviewer and find that no further response seems required.

Comment

2. *Roof Lines – Flat roof forms are prescribed.*

Response

The proposed roof lines are all flat as is required.

Comment

3. *Motherhouse Context – Characteristics taken from the Motherhouse to be applied to new development include: granite base; reference to the Motherhouse roofline and proportions through material changes and floor delineation; regular pattern of vertical proportioned windows, and brick elements using brick of similar color and pattern as the Motherhouse.*

Response

The building elevations have incorporated a 12" stone base. They also include brick similar in color to the Motherhouse.

Comment

4. *Material Palette – The material selection and color palette are consistent with the approved MDP. Staff would like to see the granite base applied to all buildings and at primary entry points.*

Response

We agree this is a nice detail and can incorporate at the primary entry, but it is a very expensive detail that we prefer to use at its most effective locations. Keeping in mind that Building #1 is the most visible building to the public from Stevens Avenue and its location next to the Motherhouse. As per a discussion between staff and the Architect there will be a consistent 12-inch stone base on all buildings.

Comment

- *Stone/granite base should consistently appear throughout all four buildings and should follow similar design to Building #1 by wrapping around whole building.*

Response

Please see explanation above.

Comment

- *Buildings #3 and #5 – Staff recommend swapping the placement of fiber cement cladding with the brick to better relate the character of the buildings with the Motherhouse and convey the main building mass to be clad in the sturdier brick material.*

Response

We chose more glass at the entry to these buildings, to give a more open inviting, exciting feeling to the entry. Floating the brick in these more pronounced horizontal elements does not feel like the correct material for this application. On the top floor with the deck, we can change the fiber cement to a clapboard, brick above the deck presents some difficult water control issues, that we prefer not to deal with now or in the future. Per our discussion we are not changing from clapboard to brick, due to a sizable increase in cost. We will be keeping the glass entries as an inviting element to the buildings as discussed.

Comment

- *Buildings #2 and #4 have massing projections clad in brick – these have an odd relationship with the faux mansard roof line. In the Building #1 design, these were carried up to terminate with the roofline. Staff do not support these massing variations to have a different terminus that already-established datums within the building that visually conflict with the balconies and roof spring point.*

Response

We have projected the building above the brick, keeping it in the same plane but based upon industry standards we do not want to carry the brick up the full 5 stories. It is not recommended to exceed 4 stories with brick in a wood framed building due to the shrinkage that occurs in wood framed buildings.

Comment

5. *Building Entry – The entry for each building is emphasized by a one-story porch, large windows, and special material placement. Staff recommend that the stone material be used at all entrance locations.*

Response

We have incorporated stone detailing at the entrance to each building.

Comment

6. *Massing - The scale of the building is mitigated through the use of varied forms and change of building plane, deck spaces, and façade composition. Buildings #2 and #4 - resolve the awkward relationship of the massing projections with the balcony/roof line.*

Response

We have brought out the fifth floor to line up with balcony/roof line projection.

Comment

7. *Parking – Structured parking is proposed to be designed to have similar character to the residential building above.*

Response

No further response required.

Comment

8. *Window types will be consistent with vertical proportion throughout all buildings – the proposal meets this guideline. There are approximately three window types, all with vertical proportions and used consistently.*

Response

No further response required.

ADDITIONAL DESIGN CONSIDERATIONS

Comment

Flat or hipped roof line referential of the Motherhouse would be acceptable provided the proportion and slope of the roof is comparable and compatible as well as consistent throughout all the buildings. - The project uses a material change on the fifth floor to create a visual effect similar to the hipped roof of the Motherhouse to meet this guideline. Staff feel that this faux roof line is successful and consistent with the MDP guidelines.

Response

No further response required

Comment

In the new buildings, maintain the proportional relationship of "roof" to façade found in the Motherhouse – The building design does not reflect these proportions. The base "water table" line should also be carried consistently around the building and possibly be lowered to improve the overall building proportions.

Response

The dimension of the shingled area is the same. It appears different since we have eliminated the transom above the patio doors. Previously, the window heads aligned with the transom and now they align with the top of the patio doors. We can raise the sills and increase the height of the doors. the architect believes the visual effect is increased by having an additional story below the shingled section as compared to Building #1. They have incorporated a continuous 12-inch stone base on all buildings. The base water table is an expensive item that is now being used more efficiently. Lowering it would not be a problem.

Comment

Use as few material types as possible – The proposal meets this guideline by limiting the materials to brick, stone base, and tile on the top floor.

Response

No further response required.

Comment

The building nearest the Motherhouse should be designed with the most sensitivity to the context of the historic structure. – the comments above reflect how the design might be revised in relationship to the Motherhouse context. Overall, the new buildings are set back from the street in deference to what should be the focal point of the property – the historic Motherhouse building. The proportions, materials, fenestration pattern, and roofline are the most critical elements for compatibility with the Motherhouse building.

Response

We have incorporated these elements into the proposed building plans.

COMMENTS FROM JAMES RATHER IN EMAIL JULY 31, 2021

Comment

Request for updated Master Development Plans and Subdivision Checklist

Response

We have prepared an updated site circulation plan that emphasizes the following:

- **Continued use of McAuley Way and the Walton Street driveway as the primary vehicular access route into the proposed development.**
- **The Motherhouse driveways will continue to function as one way routes in and out of Stevens Avenue.**
- **Pedestrian connectivity through a plethora of sidewalks, paths and trails throughout the property with connections to Stevens Ave, Baxter Woods, Holly Street and Walton Street.**

With regard to the Amended Subdivision we have uploaded the Checklist and offer the following information:

Description	Supporting information
Project Description	See original cover letter and supplement LOR#1 for greater detail
Completed Checklist	Provided
Evidence of Right, Title Interest	Previously Provided for Major Site Plan
Evidence of State or Federal Approvals	Previously Provided for Major Site Plan
Zoning Assessment	Previously uploaded for Major Site Plan
Subdivision Standards Assessment	See narrative following this table
Existing Easements and/or Covenants	See Amended Subdivision Plan by Titcomb Associates
Waiver Requests	None
Financial Capability	Previously uploaded for Site plan
Technical Capability	Previously uploaded for Site plan
Private Sewage	Not applicable
Geotechnical Report	The site's soils are suitable for the development as proposed. A geotechnical report has been prepared and can be made available upon request.
Price Range of houses	Not applicable
Traffic Analysis	Previously prepared and subject to MDP COA and ongoing monitoring
High Intensity soils survey	Not applicable
Solid Waste	Routine household waste collection and recycling will be managed thru direct contract with a private waste hauler with removal on at least a weekly or more frequent basis.
Buffer Strips	The site will maintain a buffer of at least 35' along the southerly zone adjacent Baxter Woods. The elimination of parking on the south side of buildings 2 and 3 substantially improves the area between those buildings and the Woods and should improve the overall relationship of the development with Baxter Woods users.
Wetlands, Wildlife and Habitat	There are no significant resources on the site according to information previously supplied as part of the approved Master Development Plan

Description	Supporting information
Construction Plan	**Phasing plans have been made part of the overall plan set and a Construction Management Plan will be prepared by the Contractor intended to perform the work. The CMP will be uploaded immediately upon receipt and prior to the Public Hearing.**
Erosion Control	**Plans and details for control erosion and dust during the course of construction are included in the development drawings.**
Subdivision plan	**See Titcomb Associates Amended Subdivision Plan**

The following information is provided in accordance with Section 15.4.1 Standards of review pertaining to Subdivisions:

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 flood plains, 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.*

The site is not located in the flood zone. Measures including public water supply and wastewater disposal and stormwater management measures will result in no undue water or air pollution.

B. *Has sufficient water available for the reasonably foreseeable needs of the subdivision.*

The site is served by public water supply by the Portland Water District who have previously provided evidence of a capacity to provide service.

C *Will not cause unreasonable burden on an existing water supply.*

The site is served by public water supply by the Portland Water District who have previously provided evidence of a capacity to provide service.

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.

The site is on soils that are suitable for development and measures to prevent erosion and sediment transport will be implemented during construction and long term.

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.*

The development consists of residential housing and is expected to result in low traffic volumes that can be handled by the nearby streets without resulting in congestion or unsafe conditions.

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.*

The site will use public water supply and discharge to the existing municipal wastewater collection and conveyance to the wastewater treatment plant. No concerns regarding capacity have been expressed by the PWD or DPW.

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.*

All waste collection and disposal will be provided under private contract to the development.

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).*

The site contains no scenic areas or valuable habitat. The layout has made positioned to minimize impacts to the adjacent Baxter Woods with site planning to otherwise enhance the area and take advantage of the site's attributes and surrounding conditions for resident enjoyment and overall neighborhood integration.

I. *Is in conformance with the Comprehensive Plan or its successor.*

The plan is consistent with the comprehensive plan as well as a previously approved Master Development Plan that each contemplate the placement of thoughtful residential housing that is surrounded by similar housing and mixed uses within the urban area.

J. *The subdivider has adequate financial and technical capacity to meet the standards of this subsection.*

Evidence for these standards has been previously submitted and accepted.

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.*

This standard is not applicable.

L. *Will not, alone or in conjunction with existing activities, adversely affect the quality or quantity of groundwater.*

The development will not use any groundwater and in fact provides opportunity for groundwater recharge by the use of porous surfaces that will allow stormwater runoff infiltration capacity into the ground.

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.

The site is not located in a mapped floodplain.

N. *Will provide for adequate stormwater management.*

Stormwater management measures including water quality treatment and flood control Best Management Practices are incorporated into the design and will comply with the City's stormwater management regulations. The applicant will enter into a Maintenance Agreement with the City as is standard practice.

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.

This standard is not applicable.

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.

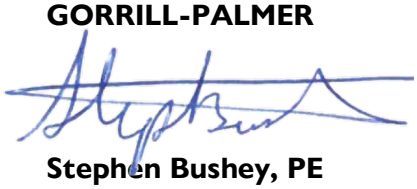
This standard is not applicable.

We trust that these responses and supplemental information satisfy current Staff comments and we look forward to the next available placement on the Planning Board's agenda for a Public hearing.

If you have any questions regarding the materials being submitted, please contact this office.

Sincerely,

GORRILL-PALMER



Stephen Bushey, PE
Senior Associate
Phone: 207-772-2515 x286
sbushey@gorrillpalmer.com

Attachments:

Condominium Documents
Sewell Traffic Memorandum
Stormwater Management Report
Stormwater Management Maintenance Agreement
DPW Email from Brad Roland
Architectural Plans
Photometrics Plan & Lighting Plan
Site Plans
Subdivision Plan

c: Kevin Bunker
Nick Aceto
David Lloyd

u:\3564.03_stevens square-lot 4 - portland, me\p applications\local\major site plan\lor\lor#1_rather_12.07.2021x.docx

GORRILL PALMER

707 Sable Oaks Drive, Suite 30
South Portland, ME 04106
207.772.2515

January 7, 2022

Mr. James Dealaman
Planning & Urban Development Department
389 Congress Street
Portland, Maine 04101

Subject: Major Site Plan, Master Development Plan Amendment & Subdivision
Project ID – PL-001649-2021
65 McAuley Way
DC Baxter Woods IV LLC, Applicant
Letter of Response #2

Dear Jimmy:

On behalf of **DC Baxter Woods IV LLC (Applicant)**, our office is pleased to provide the following responses to staff review comments provided within an email dated December 28, 2021 as well surveyor's comments from January 4, 2022. For ease of review we have repeated all of the staff comments in *italics* and provide our responses in **bold** as follows:

ACCESS AND CIRCULATION

Comment

To better understand the vehicle turning movements, the plans should be provided/updated showing the columns for each building parking area - not just for building 2.

Response



Building#1 Ground Level Parking

The structural designs for Buildings 3-5 have not yet been commenced so we do not have column locations available. We know that Building #4 will be similar to Building #2 and the previously constructed building #1. Building #1 has been found to have adequate maneuvering area between columns etc. for the vehicle parking within the ground level floor area. We expect similar conditions to be provided in Buildings 2-5. Ground level parking within residential buildings have become more commonplace and structural layout of columns etc. can generally be accomplished without significant hardship to vehicle movements in these spaces.

STREET TREES

Comment

Please note that due to the application proposing 140 residential units, to comply with Section 4.6.1 of the City's Technical Manual, which requires a minimum of one tree per unit, the project is required to provide 140 trees or an equivalent in-lieu fee amount; the Technical Manual allows for alternatives to the street tree requirement if it is demonstrated that site constraints prevent the planting of required street trees.

In order to calculate this, please provide staff a total number of trees planted (the planting schedule does not provide totals) and if this total amounts to less than the required 140 trees, please provide written justification why planting 140 trees is not feasible. The City Arborist has reviewed the plans and is supportive of the project contributing into the City's tree fund ($400 per tree not planted) as an alternative to meeting the standard if it becomes necessary.

Response

The Landscape Plan contains 90 new Deciduous trees, 25 Evergreen trees and 77 ornamental trees for a total of 192 trees. There are at least 239 shrubs and extensive perennials, ground covers and ornamental grasses also identified on the plan. We believe that the Landscaping Plan satisfies Section 4 of the Technical Standards.

SITE LIGHTING

Comment

- *Please provide lighting plan with cutsheet information for the interior garage spaces. Note: indoor lighting should not exceed 2.0 foot candles (fc) and must be over the minimum of 0.2 fc.*

Response

The building electrical/lighting designer from Bennett Engineering has replied as follows:



Building#1 Entrance – Interior Overhead Lights

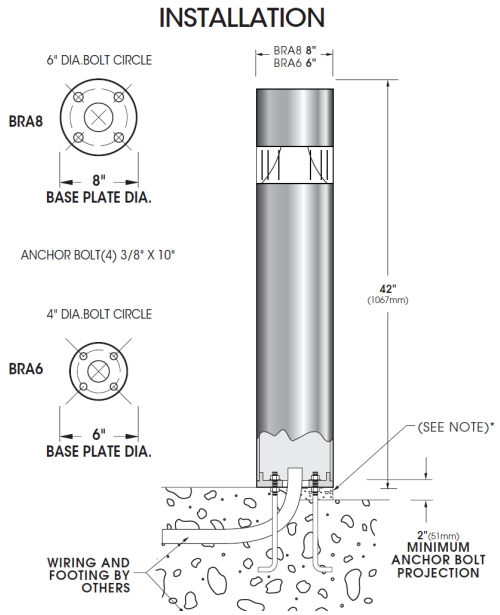
"The indoor parking garage will be part of the building permit and not in this scope for site lighting. In addition to that, the IES standard applications for safety and vision quality recommends a minimum of 10fc on horizontal surfaces in general areas (minimum of 2fc in inactive – where no motion is detected) with a uniformity ratio of 10:1. This will be taken care of in the building lighting plans."

We expect that the garage lighting will be similar to what was installed in Building #1 as shown above.

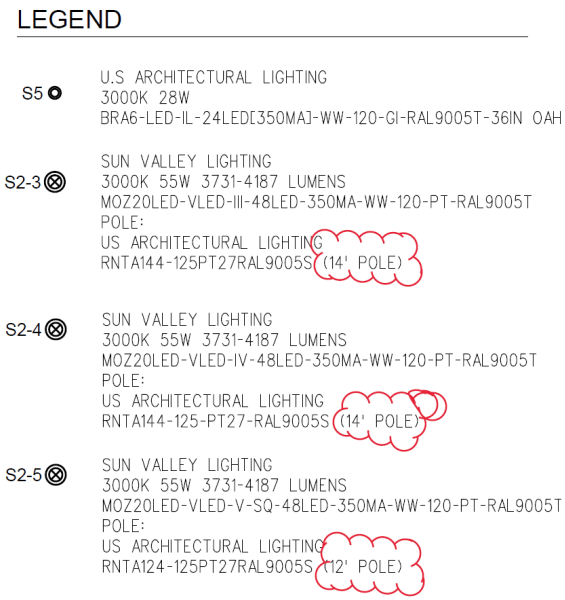
- *What is the height of the bollard lighting and pole lighting? (Note: pole lighting cannot exceed 20 feet and maximum height of bollards is 42 inches which is measured from grade to the bottom of the lighting fixture).*

Response

The proposed bollard lights stand at 42" height above grade. The area lights are the Mozart series that stand either at 14' pole height or 12' height, thus these are compliant with the standards. Each of these fixtures was previously approved and installed as part of the Building #1 and Motherhouse development activity. Cut sheets for each fixture style are attached to this letter.



Bollard Light



Area Lights

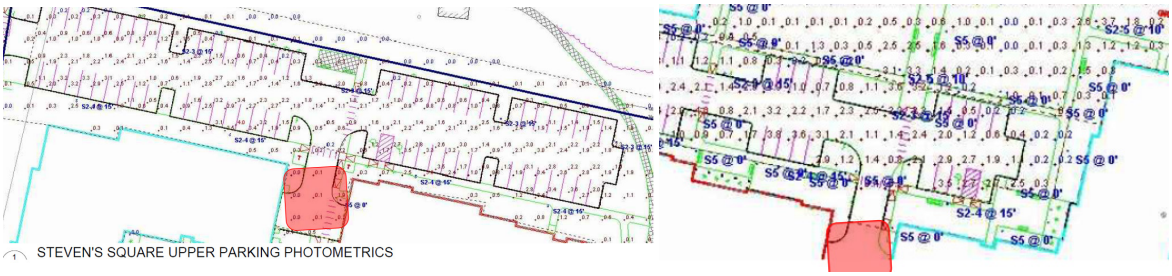
- *Provide lighting cutsheet information for the recessed ceiling lighting at entrances described in the original submission. Please show these in photometrics plan, and also ensure that there is adequate lighting in all areas under the minimum 0.1 fc highlighted below in red.*



Response

The building lighting designers are currently working with a vendor for the entrance canopy lights. When they receive further information in the next few days, they will update the photometric plan and we will upload to Eplan for final review. They are also accessing the areas with the 0.1 fc coverage.

- *Provide cutsheet information for the wall light fixtures intended at the garage door locations and add these fixtures to the photometrics/lighting plan. Per the images below, the area to the garage entry is under the minimum (0.2 fc) lighting requirements. Additionally, please ensure both garage entry locations meet the lighting requirements.*



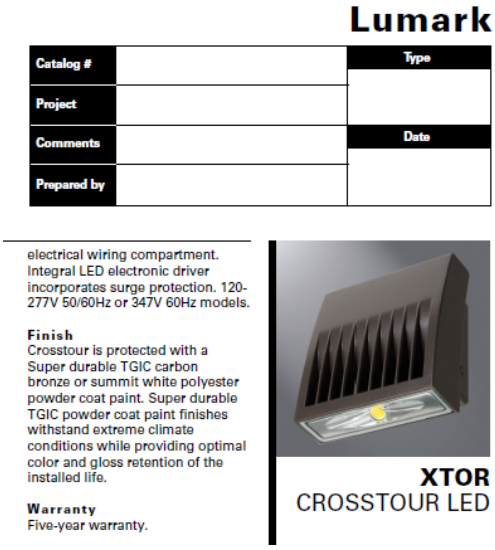
- *The lighting schedule appears to show The Commons area as exceeding the maximum allowable foot candles (5.0). Please update lighting fixtures to ensure lighting does not exceed this standard. If fixtures have dimming features which will be used to keep lighting levels under 5.0 fc, please note this on the plan.*

Response

The garage entry fixture will be a Lumark Crosstour LED as shown below. A cut sheet is attached to this submission. The updated photometrics plan to be uploaded next week will include these fixtures. The designer is also reviewing the Commons coverage.



Building #1 Entrance Lights



Garage Entry Wall Mount

- *Please clarify if the lighting along McAuley Way (opposite the Phase II development shown in yellow below) will adequately accommodate providing a minimum of 0.2 foot candles for pedestrians along the sidewalk (shown in red below).*



Response

The original photometrics plan for the McAuley Way lighting was part of the Motherhouse submission. A copy of the plan is attached to this submission. It shows the layout of various Mozart style area lights along McAuley Way. The lighting coverage includes nine (9) pole mounted lights spaced approximately 60 feet part for the length of McAuley Way. These lights will provide adequate coverage of the sidewalk on the east side of McAuley Way.

REQUIRED DOCUMENTATION

Comment

- *Please submit a draft of the condo docs. [Note: It doesn't appear they are included as part of the December 7th response to comments.*

Response

A copy of the recorded Condominium Document accompanies this letter. The applicant is withdrawing the Subdivision piece of the current application as they are now not seeking an Amended Subdivision Plan. This simplifies the proposal as the existing recorded Declaration, used for Building #1, included the four (4) additional buildings and 140 units.

- *Please provide an ability to serve letter from the Portland Water District, which does not appear to be submitted.*

Response

We await a final determination letter reply from the PWD and will email it to your attention upon receipt.

WASTEWATER

Comment

I've confirmed with Public Works that no additional work is needed on Holly Street due to already being lined and no further work is planned.

Please find the attached Wastewater Capacity letter for your reference, which was forwarded to our office by Public Works.

Response

No response required.

ADDITIONAL PENDING REVIEWS

Construction Management Plan

Comment:

The Public Works reviewer has received your December 7th response to comments and the Planning office is awaiting confirmation that all comments have been addressed. However, this review still requires a construction management narrative to supplement the CM drawings submitted. Please submit as soon as possible. Please use the City's current CM template when drafting.

Response

A Construction Management Plan has been prepared by Hebert Construction and it is attached to this submission.

TRAFFIC & PARKING, WATER RESOURCES, LIFE SAFETY, AND PUBLIC WORKS SURVEYOR

Comment

The city's traffic engineer is reviewing your December 7th response to comments and the Planning office is awaiting confirmation that all comments have been addressed. This includes the review of traffic and parking monitoring study submitted to meet the MDP condition of approval.

Response

No Response Required.

PUBLIC WORK SURVEYOR COMMENTS DATED JANUARY 4, 2022

Comment

Item 2 - The response says there's an updated Stormwater System Maintenance Agreement that will be recorded once approved. So, it sounds like it's being addressed but it's not finished yet.

Response

We have previously provided a Stormwater Management Maintenance Agreement that basically complies with the typical requirements. We expect that the agreement will be executed and recorded prior to the release of a building permit for Building #2 and simply ask that this be a condition of approval.

Item3 - The response says that the notes have been changed on the Second Amended Plan. But one of those notes is incomplete on the attached version. Note 8 is missing the date of the updated Master Development Plan.

Response

As indicated earlier the applicant is withdrawing the Amended Subdivision Application from consideration. No further review of the Amended Subdivision plan is necessary.

Item 5 - Even though the written response said they were consulting with their surveyor, it does look like they added a lot of the course and distance information that I was looking for to this revised plan. However, there are numerous places where additional labels still need to be added. Please have them double check the easement labels on the plan and make sure all of the segments are labeled for every easement.

Response

No further response required as the Amended Subdivision Application is withdrawn.

We trust that these responses and supplemental information satisfy current Staff comments and we look forward to placement on the Planning Board's January 25th agenda for a Public hearing and approval action.

If you have any questions regarding the materials being submitted, please contact this office.

Sincerely,

GORRILL-PALMER

Stephen Bushey, PE
Senior Associate
Phone: 207-772-2515 x286
sbushey@gorrillpalmer.com

Attachments:

c: Kevin Bunker

u:\3564.03_stevens square-lot 4 - portland, me\p applications\local\major site plan\lor\lor#2\lor#2_dealaman_01.07.2022.docx

GORRILL PALMER

707 Sable Oaks Drive, Suite 30
South Portland, ME 04106
207.772.2515

January 19, 2022

Mr. James Dealaman
Planning & Urban Development Department
389 Congress Street
Portland, Maine 04101

Subject: Major Site Plan, Master Development Plan Amendment
Project ID – PL-001649-2021
65 McAuley Way
DC Baxter Woods IV LLC, Applicant
Letter of Response #3

Dear Jimmy:

On behalf of **DC Baxter Woods IV LLC (Applicant)**, our office is pleased to provide the following responses to staff review comments provided within an email dated January 12th, 15th and 17th, 2022. For ease of review we have repeated all of the staff comments in *italics* and provide our responses in **bold** as follows:

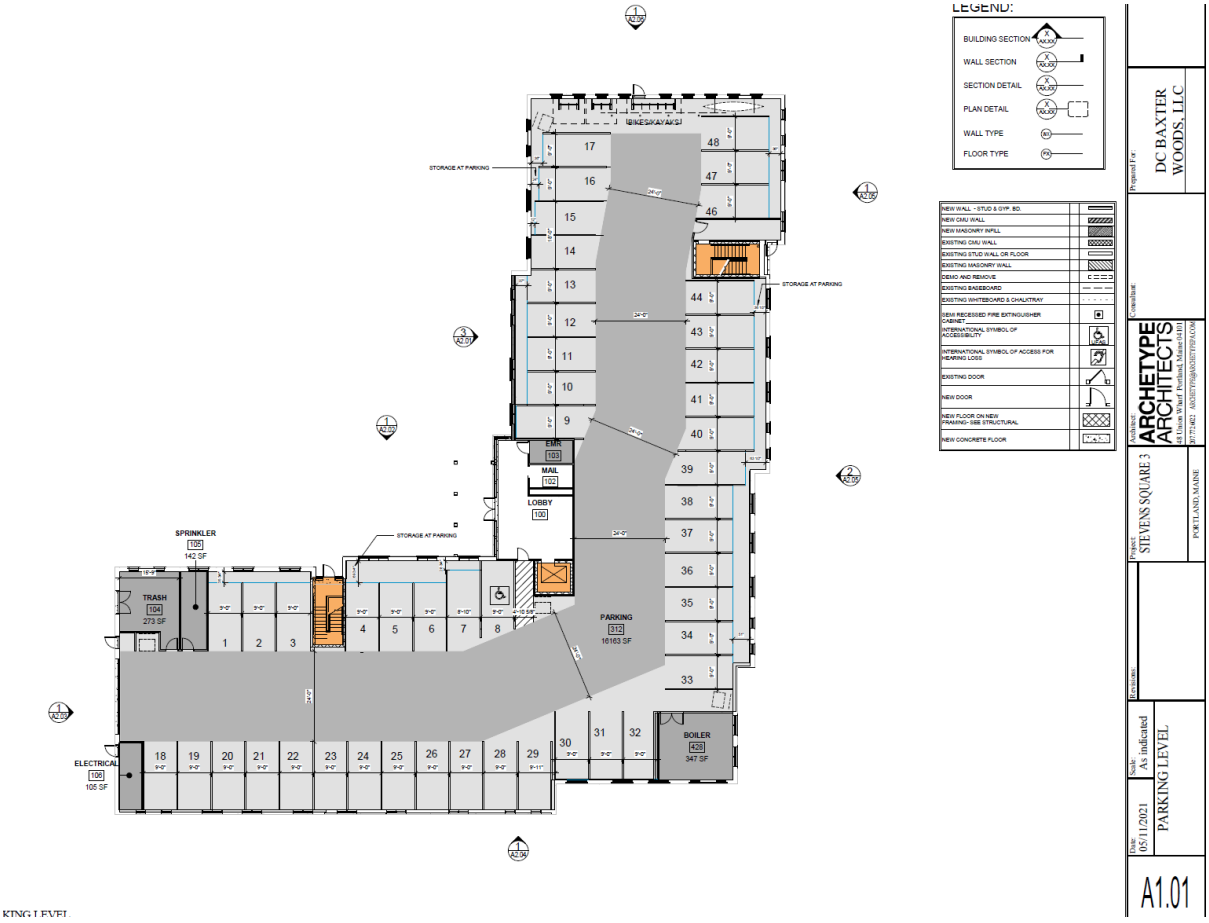
January 12th, 2022 email

Comment

1) The plans for the remaining buildings (3-5) must be submitted so staff can confirm the parking areas are acceptable (parking aisles, size of parking spaces, etc). Given that the parking layout isn't yet known, the Board cannot confirm the project is meeting these standards until these plans are submitted.

Response

See attached and below for building #3. Per Archetype, Building #4 columns will be similar to Building #2 which we've previously provided. Building #3 and #5 will also be similar. The columns are positioned to allow entry into all the spaces. The 24' wide middle aisle is sufficient to allow vehicle maneuvering in our opinion. As Buildings #3-5 are yet to commence structural design, we are amenable to a Condition of approval tied to the issuance of a building permit for these buildings, if that might help staff.



KING LEVEL

Comment

2) *What is the status of submitting an updated site photometric plan?*

Response

The attached lighting plans have been updated by the lighting designer at Bennett Engineering. The updated information is intended to address comments previously discussed in LOR#2.

Comment

3) *The indoor parking garage lighting is within the scope of this current review. If the indoor lighting plan isn't available staff would support adding a condition of approval that the interior garage lighting plans be submitted and reviewed by staff post-approval.*

Response

The design team is amenable to this proposed condition of approval as it will allow more thorough interior design to commence. We can provide the interior lighting information as a condition of approval tied to the issuance of the building permit.

January 15, 2022 email

Comment

Another minor request - if withdrawing the subdivision component of the application then the full plan set should be updated accordingly to remove the new lot, as well as part of the note indicated on sheet C1.1 which speaks to the subdivision creating Lot 5. Please upload these revised plans into E-plan as well this week.

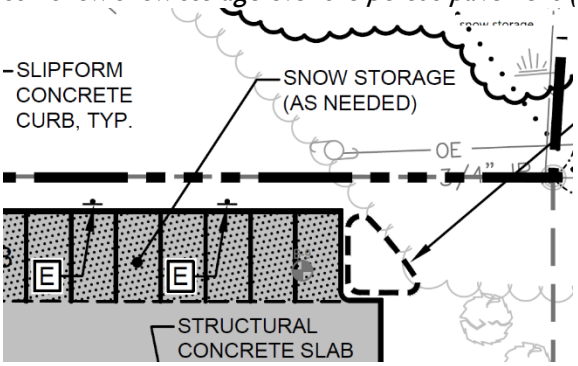
Response

We have updated all the civil plans and uploaded to Eplan for the final review and public hearing.

January 17, 2022 email

Comment

Another quick note to consider when updating the plans. The response to staff comment noted that the plans were updated to shift the snow storage zones off of the porous pavement parking areas. However, Sheet C-3.1 appears to still show snow storage over the porous pavement (image below).



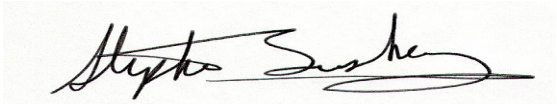
Response

The updated plans have been adjusted accordingly.

We trust that these responses and supplemental information satisfy current Staff comments and we look forward to the Planning Board's January 25th Public hearing and approval action.

Sincerely,

GORRILL-PALMER



Stephen Bushey, PE
Senior Associate
Phone: 207-772-2515 x286
sbushey@gorrillpalmer.com

Attachments:

c: Kevin Bunker

u:\3564.03_stevens square-lot 4 - portland, me\p applications\local\major site plan\lor\lor#3\lor#3_dealaman_01.19.2022.docx



LEGEND:

- BUILDING SECTION — X / AX.XX
- WALL SECTION — X / AX.XX
- SECTION DETAIL — X / AX.XX
- PLAN DETAIL — X / AX.XX
- WALL TYPE — WX
- FLOOR TYPE — FX

NEW WALL - STUD & GYP. BD.	
NEW CMU WALL	
NEW MASONRY INFILL	
EXISTING CMU WALL	
EXISTING STUD WALL OR FLOOR	
EXISTING MASONRY WALL	
DEMO AND REMOVE	
EXISTING BASEBOARD	
EXISTING WHITEBOARD & CHALKTRAY	
SEMI RECESSED FIRE EXTINGUISHER CABINET	
INTERNATIONAL SYMBOL OF ACCESSIBILITY	UFAS
INTERNATIONAL SYMBOL OF ACCESS FOR HEARING LOSS	
EXISTING DOOR	
NEW DOOR	
NEW FLOOR ON NEW FRAMING- SEE STRUCTURAL	
NEW CONCRETE FLOOR	

1 PARKING LEVEL
3/32" = 1'-0"

Prepared For: DC BAXTER WOODS, LLC

Consultant:

Architect: ARCHETYPE ARCHITECTS
48 Union Wharf Portland, Maine 04101
207.772.6022 ARCHETYPE@ARCHETYPEPA.COM

Project: STEVENS SQUARE 3
PORTLAND, MAINE

Revisions:

Scale: As indicated

Date: 05/11/2021

PARKING LEVEL

A1.01

GENERAL NOTES- SITE ELECTRICAL

1. THE COMPLETE INSTALLATION SHALL CONFORM WITH ALL APPLICABLE FEDERAL, STATE AND LOCAL LAWS, CODES AND ORDINANCES, INCLUDED BUT NOT LIMITED TO APPROVED EDITIONS OF THE FOLLOWING: NATIONAL ELECTRICAL SAFETY CODE (ANSI C2): NATIONAL ELECTRICAL CODE (NFPA 70): OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA) AND ALL AMENDMENTS THERETO. NOTHING CONTAINED IN THE DRAWINGS AND SPECIFICATIONS SHALL BE CONSTRUED TO CONFLICT WITH THESE LAWS, CODES, AND ORDINANCES, AND THEY ARE THEREBY INCLUDED IN THESE SPECIFICATIONS. OBTAIN PERMITS AND REQUEST INSPECTIONS FROM ALL AUTHORITIES HAVING JURISDICTION. COMPLY WITH ALL POWER, TELEPHONE, CABLE TELEVISION PROVIDER REGULATIONS AND STANDARDS.

2. THE FOLLOWING ELECTRICAL WORK SHALL BE PERFORMED UNDER THIS CONTRACT: UNDERGROUND CONDUIT, FITTINGS, AND ALL DEVICES: PROVISION OF HAND HOLES, NEW LIGHTING FIXTURES, POLES WITH ALL ACCESSORIES INCLUDING ANCHOR BOLTS AND POLE BASES: PROVISION OF UNDERGROUND CONDUIT AND WIRE TO SERVE NEW LIGHTING EQUIPMENT AND RECEPTACLES: PROVISION OF SERVICE EQUIPMENT, INCLUDING OUTDOOR CABINETS, INGROUND SPLICE BOXES, GROUNDING, METER ENCLOSURES, AND WEATHERPROOF RECEPTACLES.

3. ELECTRICAL UTILITY SHALL PROVIDE ALL ASSOCIATED OVERHEAD AND UNDERGROUND PRIMARY WIRING, PRIMARY TERMINATIONS, TRANSFORMERS, AND CONNECTIONS TO EXISTING OVERHEAD LINES. CONTRACTOR SHALL PROVIDE UNDERGROUND CONDUIT.

4. PROVIDE UNDERGROUND ELECTRICAL WARNING TAPE: 6" WIDE PLASTIC TAPE, COLORED RED WITH SUITABLE LEGEND DESCRIBING BURIED ELECTRICAL LINES FOR ALL UNDERGROUND CONDUITS. LOCATE 6 INCHES BELOW FINISHED GRADE.

5. REFER TO CIVIL DRAWINGS FOR EXCAVATION AND BACKFILL OF ALL UNDERGROUND WORK.

6. EXISTING UTILITY LOCATIONS ARE APPROXIMATE AND SHALL BE FIELD VERIFIED. CONTRACTORS SHALL CONTACT DIG SAFE BEFORE BEGINNING ANY EXCAVATIONS.

7. FINAL LOCATION OF NEW UTILITIES MAY VARY FROM PLANS PENDING UTILITY COMPANY FIELD COORDINATION.

8. THE LOCAL TELEPHONE AND CABLE TELEVISION SERVICE PROVIDERS SHALL PROVIDE AND INSTALL ALL THE SITE UTILITY SERVICE CABLE TO NEW BACKBOARD IN THE CONDUITS PROVIDED BY THE CONTRACTOR AS PART OF THE SITE WORK.

9. UNDERGROUND CONDUIT SHALL BE SCHED 40 PVC. ABOVE GRADE CONDUIT SHALL BE RGS. ALL CONDUIT SWEEPS SHALL BE RGS LONG SWEEPS.

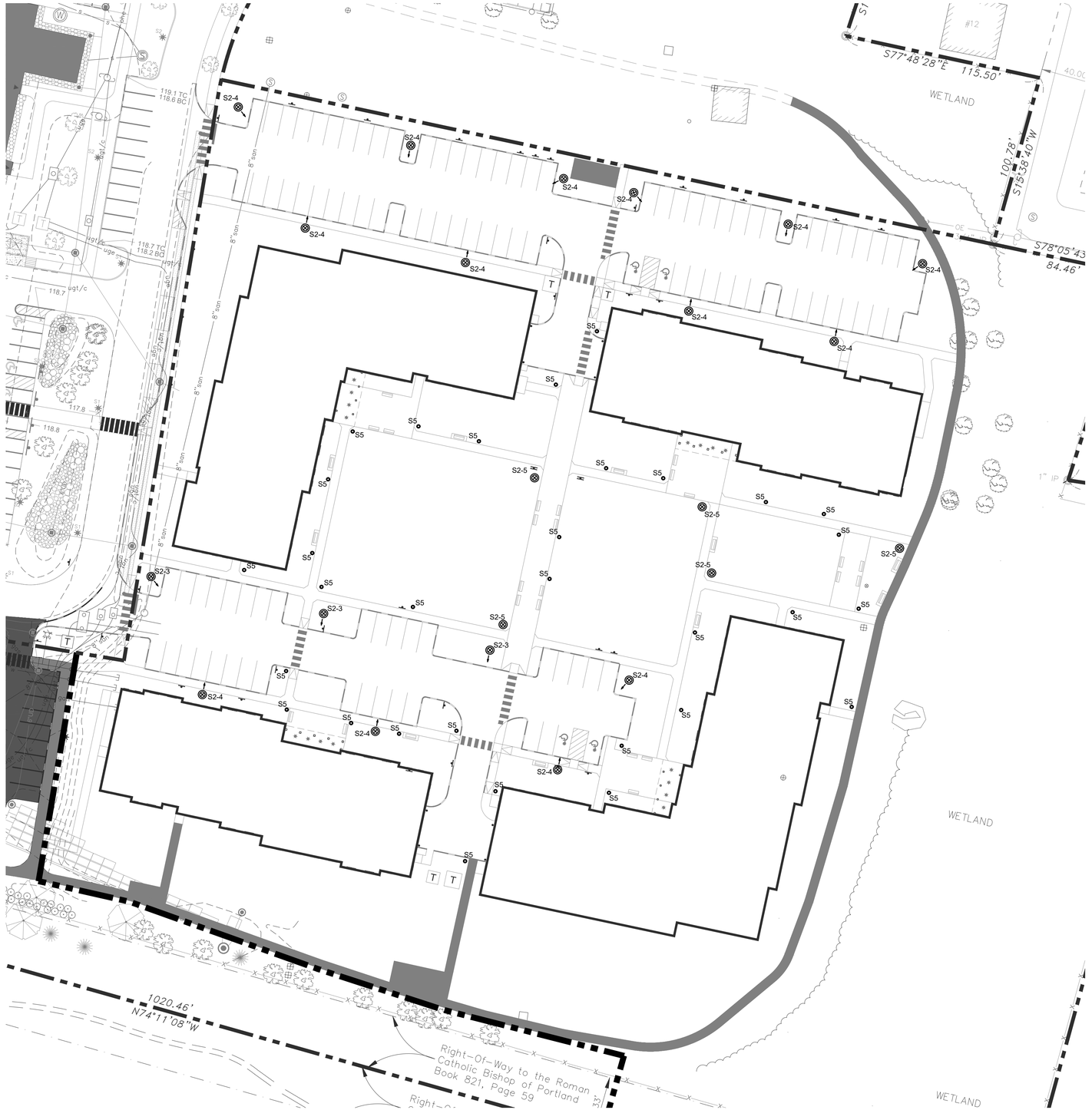
10. PROVIDE EXPANSION FITTINGS FOR ALL UNDERGROUND CONDUIT CONNECTED TO FIXED ABOVE GROUND STRUCTURES.

11. PROVIDE A LISTED INTERSYSTEM BONDING TERMINAL AT THE SERVICE ENTRANCE. INSTALL IN ACCORDANCE WITH NFPA 70,250.94

LEGEND

S5 ○	U.S ARCHITECTURAL LIGHTING 3000K 28W BRA6-LED-IL-24LED(350MA)-WW-120-GI-RAL9005T-36IN OAH
S2-3 ⊗	SUN VALLEY LIGHTING 3000K 55W 3731-4187 LUMENS MOZ20LED-VLED-III-48LED-350MA-WW-120-PT-RAL9005T POLE: US ARCHITECTURAL LIGHTING RNTA144-125PT27RAL9005S (14' POLE)
S2-4 ⊗	SUN VALLEY LIGHTING 3000K 55W 3731-4187 LUMENS MOZ20LED-VLED-IV-48LED-350MA-WW-120-PT-RAL9005T POLE: US ARCHITECTURAL LIGHTING RNTA144-125-PT27-RAL9005S (14' POLE)
S2-5 ⊗	SUN VALLEY LIGHTING 3000K 55W 3731-4187 LUMENS MOZ20LED-VLED-V-SQ-48LED-350MA-WW-120-PT-RAL9005T POLE: US ARCHITECTURAL LIGHTING RNTA124-125PT27RAL9005S (12' POLE)

FIXTURE TYPES ARE FULL CUTOFF, DO NOT EXCEED LUMEN OUTPUT MAXIMUMS AND FIXTURE HEIGHT REQUIREMENTS OF CITY OF PORTLAND TECHNICAL MANUAL



1 / E1.0 STEVEN'S SQUARE SITE LIGHTING

SCALE: 1/32" = 1'-0"

STATE OF MAINE · STEVEN M. JOHNSON #8488 LICENSED PROFESSIONAL ENGINEER

BENNETT ENGINEERING
MECHANICAL • ELECTRICAL
(207) 865-9475

STEVEN'S SQUARE AT BAXTER WOODS - PHASE 2

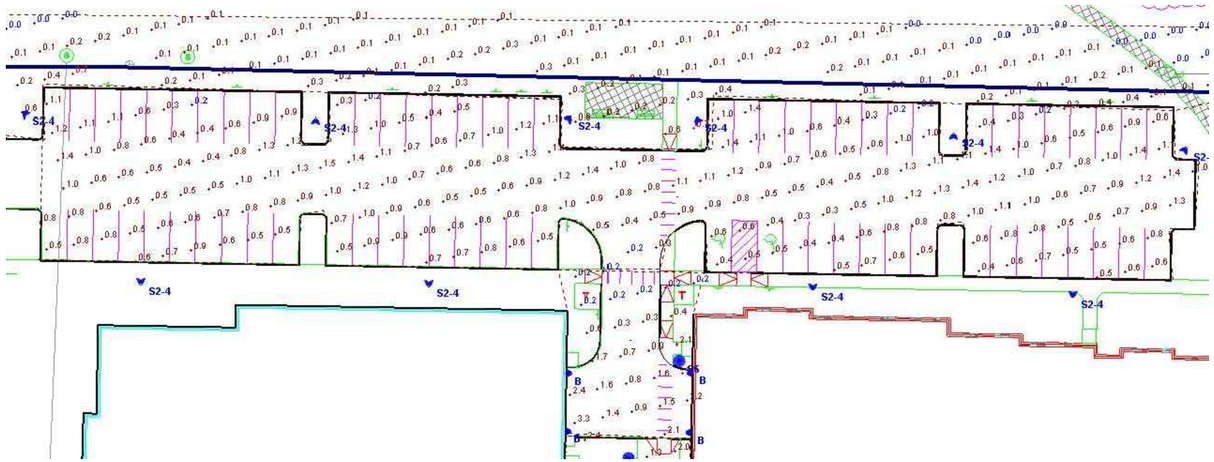
583 STEVENS AVENUE, PORTLAND MAINE

Date Drawn -	11/22/21
Drawn By -	MJM
Project *	
Scale -	AS NOTED
Revised - 2022.01.12 PHOTOMETRIC UPDATES	

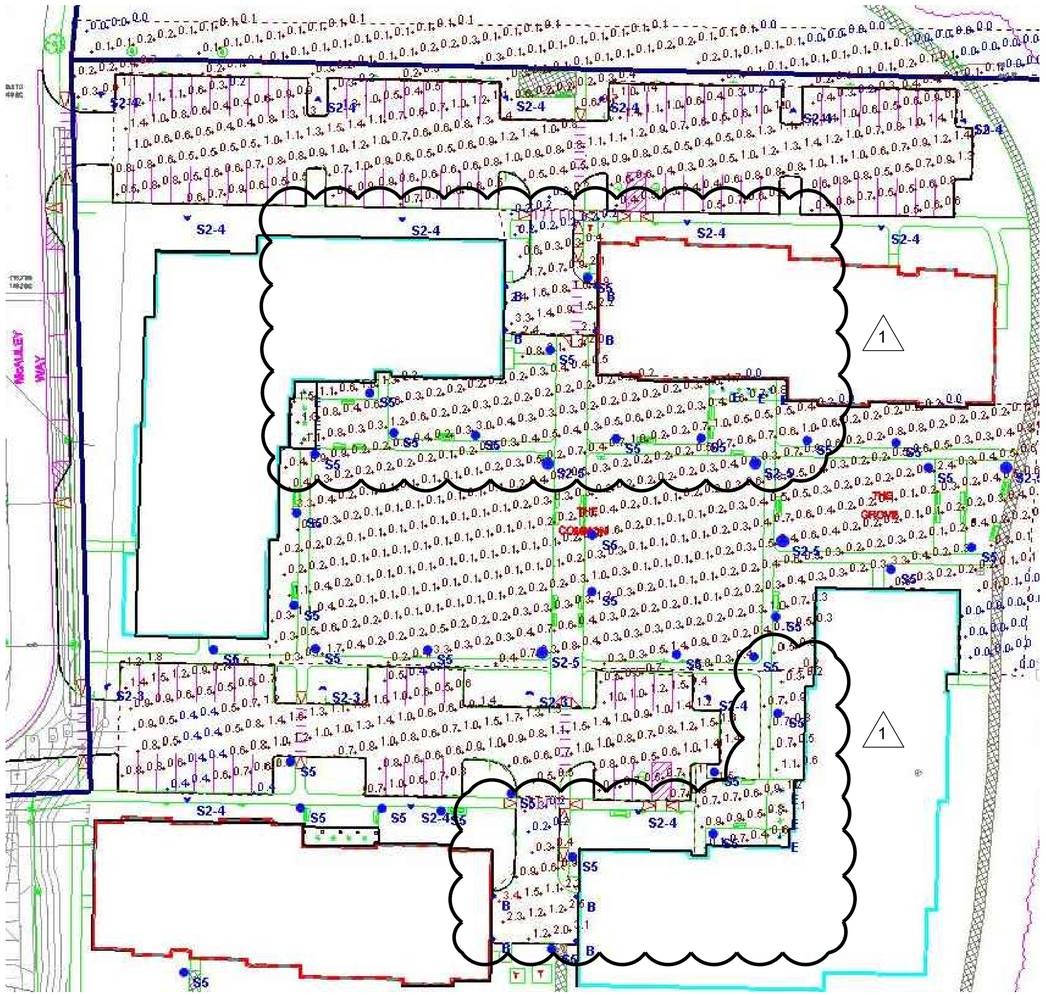
SHEET TITLE

SITE LIGHTING PLAN

E1.0



1
E1.1
STEVEN'S SQUARE UPPER PARKING PHOTOMETRICS
SCALE: 1/32" = 1'-0"



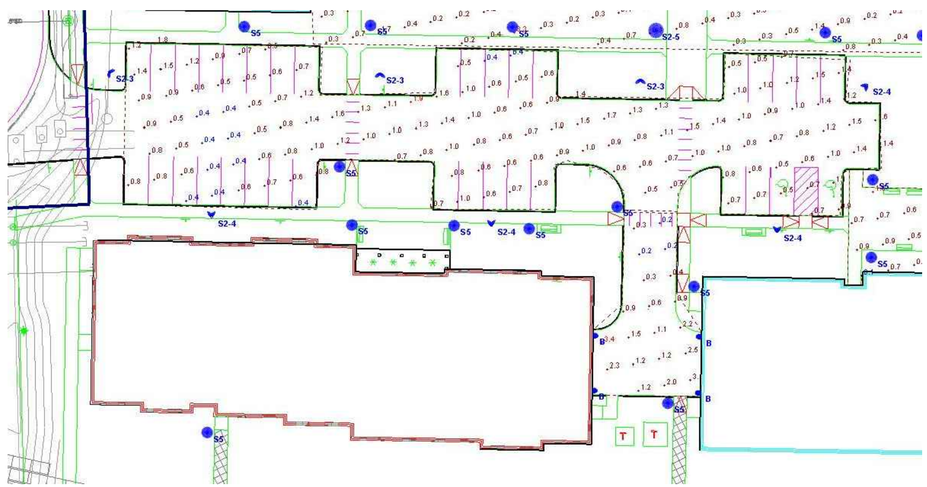
2
E1.1
STEVEN'S SQUARE OVERALL PHOTOMETRICS
SCALE: 1/32" = 1'-0"

STATISTICS	
Upper Parking	
Average	.8 fc
Maximum	1.5 fc
Minimum	0.2 fc
Max/Min	7.5:1
Average/Min	4.0:1
Commons	
Average	0.4 fc
Maximum	3.3 fc
Minimum	0.0 fc
Max/Min	N/A
Average/Min	N/A
Lower Parking	
Average	.9 fc
Maximum	1.9 fc
Minimum	0.4 fc
Max/Min	4.8:1
Average/Min	2.3:1

1

NOTE:

ALL SITE LIGHTING FIXTURES ARE LED, FULL CUT-OFF FIXTURES - SEE SHEET E1.01 FOR LIGHTING FIXTURE TYPES AND SPECIFICATIONS



3
E1.1
STEVEN'S SQUARE LOWER PARKING PHOTOMETRICS
SCALE: 1/32" = 1'-0"

STATE OF MAINE
STEVEN LOVASON
#6468
LICENSED
PROFESSIONAL ENGINEER

BENNETT ENGINEERING
MECHANICAL • ELECTRICAL
(207) 865-9475

STEVEN'S SQUARE AT BAXTER WOODS - PHASE 2
583 STEVENS AVENUE, PORTLAND MAINE

Date Drawn -	11/22/21
Drawn By -	MJM
Project •	
Scale -	AS NOTED
Revised - 2022.01.12 PHOTOMETRIC UPDATES	

SHEET TITLE

SITE PHOTOMETRICS PLAN

E1.1

Att. 1

Portland Maine Yes. Google's good here.

Jimmy Dealaman <jdealaman@portlandmaine.gov>

Final Review - Stevens Square Ph II (65 McAuley Way)

Bradley Roland <brad@portlandmaine.gov> Thu, Dec 23, 2021 at 1:03 PM
To: Jimmy Dealaman <jdealaman@portlandmaine.gov>

Hello Jimmy,
Answers below.

Brad Roland
-The applicant has indicated that no additional work is needed on the Holly Street sewer due to being lined already. OK?
Correct- Holly Street has been lined- no further work planned.
-Any updates on the wastewater capacity application the applicant has submitted. Applicant must still obtain wastewater capacity letter.
Issued December 10th - see attached- (they have a copy of it that should have been uploaded)

Enjoy the holidays.
Brad
--
Bradley A. Roland, P.E.
Senior Project Engineer
Portland Public Works
212 Canco Road
Portland, ME 04103
Tel: 207-874-8840
brad@portlandmaine.gov

On Thu, Dec 23, 2021 at 12:31 PM Jimmy Dealaman <jdealaman@portlandmaine.gov> wrote:
[Quoted text hidden]

Wastewater Capacity Authorization 2021-12-10 583 Stevens Avenue-Phase 4.pdf
118K

Att. 2

Portland Maine Yes. Google's good here.

Jimmy Dealaman <jdealaman@portlandmaine.gov>

Stevens Square - Final Traffic Comments

Tom Errico <thomas.errico@tylin.com> Fri, Jan 21, 2022 at 7:32 AM
To: James Dealaman <jdealaman@portlandmaine.gov>

Hi Jimmy – I have reviewed the application materials and offer the following final traffic comments.

1. The MDP had a condition of approval for the conduct of a traffic monitoring study as it relates to trip generation. It seems to make sense that the study be conducted now with the first building occupied. With the McAuley School leaving the site, overall trip generation will likely not trigger a Traffic Movement Permit.

Response: The applicant has conducted a trip generation study for the first occupied building. I find the methods and conclusions to be reasonable. As noted in the study, the site trip generation rate was slightly higher than ITE rates for a Senior Housing Residential development. Given the limited size of the land use sampled, it is suggested that the determination of a TMP occur after future phases or building occupancies, which is a requirement of the MDP.

2. The MDP had a condition of approval for conducting parking monitoring studies. The applicant should begin the process of detailing the scope of work and performing the work as appropriate, given changes since the closing of McAuley School.

Response: The applicant has conducted a parking generation study for the first occupied building, and I find the methods and conclusions to be reasonable. In my professional opinion the site will provide sufficient parking supply.

3. I have reviewed the internal parking garage circulation and the response and supporting materials provided by the applicant. Given that the parking area will be providing a 24-foot parking aisle width and standard parking space dimensions, it is my professional opinion acceptable parking space maneuvers will be provided.

Please contact me if you have any questions.

Best regards,

Thomas A. Errico, PE
Senior Associate
Traffic Engineering Director
TY LIN INTERNATIONAL
12 Northbrook Drive
Falmouth, ME 04105
+1.207.781.4721 main
+1.207.347.4354 direct
+1.207.400.0719 mobile
thomas.errico@tylin.com
Visit us online at www.tylin.com
Twitter | Facebook | LinkedIn | Instagram

Att. 3

Portland Maine Yes. Google's good here.

Jimmy Dealaman <jdealaman@portlandmaine.gov>

65 McAuley Way

Lauren Swett <lswett@woodardcurran.com> Thu, Dec 23, 2021 at 5:59 AM
To: Jimmy Dealaman <jdealaman@portlandmaine.gov>

Hi Jimmy,

I have reviewed the Applicant's response to comments. They have provided phasing plans that are helpful to show how the work will be done. I believe the only thing remaining relative to my comments is the water ability to serve.

I also thought a bit more about the stormwater agreement question relative to phasing – they now note that they have phased construction plans in the agreement in response to my comments. I believe that they way they would report on this annually, if they haven't completed some phases yet, they would just note that those particular systems have not yet been installed, and I think that should be fine.

This one should be just about set.

Thanks,

Lauren

All Woodard & Curran consulting employees are currently working from home. I do not have regular access to mail or other deliveries made to the office. You can still reach me via email or at my direct or cell phone numbers.

Lauren Swett, P.E.*

Technical Manager

Woodard & Curran

41 Hutchins Drive

Portland, Maine 04102

Phone: (207)558-3763 (direct)

(207)219-3591 (cell)

(800)426-4262 (office)

Email: lswett@woodardcurran.com

*Licensed in Maine and Wisconsin

Commitment & Integrity Drive Results

www.woodardcurran.com

M.ASCE

Chair, Leader Training Committee

American Society of Civil Engineers

http://regions.asce.org/leader-training-committee/

Att. 4

Portland Maine Yes. Google's good here.

Jimmy Dealaman <jdealaman@portlandmaine.gov>

Final Review - Stevens Square Ph II (65 McAuley Way)

Jason Grant <jgrant@portlandmaine.gov> Wed, Jan 5, 2022 at 8:47 AM
To: Jimmy Dealaman <jdealaman@portlandmaine.gov>

Jimmy,

Fire is good with the corrections that they have made.

Jason Grant

On Jan 4, 2022, at 17:28, Jimmy Dealaman <jdealaman@portlandmaine.gov> wrote:

[Quoted text hidden]

Planning and Urban Development Department
Planning Division

Subject: Design Review – 65 McAuley Way – Buildings #2-#5

Written by: Caitlin Cameron, Urban Designer

Date of Review: Wednesday, August 18, 2021

The final review for buildings #2-5 was conducted on Wednesday, August 18th by Caitlin Cameron, Urban Designer, and James Rather, Development Review Manager. The applicable design standards are the adopted Architectural Characteristics Summary from the Master Development Plan.

The approved Master Plan design considerations include cohesiveness within the proposed development as well as compatibility with the context. In this case, the immediate context is the Motherhouse and campus property on which future developments will be situated.

Comments/Questions

- Consistently label drawings to reflect building numbering

Architectural Design

The Architectural Characteristics Summary describes those characteristics that should apply to all future architectural proposals.

1. Building Footprints – The scale, placement, orientation, and footprint of the buildings are consistent with the approved Master Development Plan. The proposed footprints successfully mitigate the scale of the building through the use of varied forms and change of building plane. The buildings are also placed interior to the lot and are therefore less visible from public rights-of-way and neighboring properties, buffered by space and trees. Consideration was given to the impact on Baxter Woods and the Motherhouse.
2. Roof Lines – Flat roof forms are prescribed.
3. Motherhouse Context – Characteristics taken from the Motherhouse to be applied to new development include: granite base; reference to the Motherhouse roofline and proportions through material changes and floor delineation; regular pattern of vertical proportioned windows, and brick elements using brick of similar color and pattern as the Motherhouse.
4. Material Palette – The material selection and color palette are consistent with the approved MDP.
    - Stone/granite base is consistently appear throughout all four buildings and should follow similar design to Building #1 by wrapping around whole building
    - Buildings #3 and #5 – Clapboard will be grey in color, consistent material palette and colors will be applied throughout.

- **Buildings #2 and #4 massing projections were revised to resolve the relationship between the roofline and balconies to be consistent with the Building #1 design.**

5. Building Entry –The entry for each building is emphasized by a one-story porch, large windows, and special material placement.
6. Massing - The scale of the building is mitigated through the use of varied forms and change of building plane, deck spaces, and façade composition. Buildings #2 and #4 - esolve the awkward relationship of the massing projections with the balcony/roof line.
7. Parking – Structured parking is proposed to be designed to have similar character to the residential building above.
8. Window types will be consistent with vertical proportion throughout all buildings – the proposal meets this guideline. There are approximately three window types, all with vertical proportions and used consistently.

Additional Design Considerations:

The following guidelines will be taken into consideration for the architecture and design of future Site Plan development applications:

- Flat or hipped roof line referential of the Motherhouse would be acceptable provided the proportion and slope of the roof is comparable and compatible as well as consistent throughout all the buildings. - The project uses a material change on the fifth floor to create a visual effect similar to the hipped roof of the Motherhouse to meet this guideline. Staff feel that this faux roof line is successful and consistent with the MDP guidelines.
- In the new buildings, maintain the proportional relationship of "roof" to façade found in the Motherhouse. - The building design reflects these proportions. The base "water table" line should also be carried consistently around the building and possibly be lowered to improve the overall building proportions.
- Use as few material types as possible. – The proposal meets this guideline by limiting the materials to brick, stone base, and tile on the top floor.
- The building nearest the Motherhouse should be designed with the most sensitivity to the context of the historic structure. – the comments above reflect how the design might be revised in relationship to the Motherhouse context. Overall, the new buildings are set back from the street in deference to what should be the focal point of the property – the historic Motherhouse building. The proportions, materials, fenestration pattern, and roofline are the most critical elements for compatibility with the Motherhouse building.

 Att. 6

Portland Maine Yes. Google's good here.

Jimmy Dealaman <jdealaman@portlandmaine.gov>

Fwd: FW: following up on IZ Stevens Square

Jimmy Dealaman <jdealaman@portlandmaine.gov> Thu, Jan 20, 2022 at 6:39 PM
To: Jimmy Dealaman <jdealaman@portlandmaine.gov>

---------- Forwarded message ---------
From: **Victoria Volent** <vvolent@portlandmaine.gov>
Date: Tue, Jan 18, 2022 at 11:52 AM
Subject: Fwd: FW: following up on IZ Stevens Square
To: James Dealaman <jdealaman@portlandmaine.gov>

Hi Jimmy,

I would echo Jean Fraser's memo to the Planning Board regarding Building 1 (1-9-2018; 583-605 Stevens Avenue), in which she noted:

"the proposed units will be market rate. The principle of applying the 66 affordable housing units in the Motherhouse to address the Workforce Housing requirements was agreed in principle during the MDP review".

The Master Development Plan Review occurred prior to my employment by the City. Therefore I did not provide a recommendation to the Board nor was I involved in the agreement.

I did indicate to Jean on 10-20-17 that the Motherhouse (Lot 3) did create affordable housing beyond the provisions of Division 30, Section 14-487. Jean used that same language in her memo to the PB for the 1-9-2018 review of Building 1 (Lot 4) though I did not provide it to her for Lot 4.

The Motherhouse was the recipient of a federal subsidy ($627,223 in HOME funding approved by the Council in 2017). As the City subsidized the development of the Motherhouse, we normally would not have agreed to allow the developer to fulfill the IZ requirements for off-site units in a subsidized building. Recognizing that IZ units do not below in a subsidized building, the Zoning Ordinance was therefore amended. 18.2.3 B now exempts from IZ development projects using public financing requiring affordability restrictions (such as HOME).

Therefore, for your memo, I can confirm the principle of applying the 66 affordable housing units in the Motherhouse to address the Workforce Housing requirements was agreed in principle during the MDP review.

Victoria

Victoria Volent
Housing Program Manager
City of Portland
389 Congress Street
Phone: 207-482-5028
www.portlandmaine.gov
housing & economic development

CITY OF PORTLAND, MAINE
PLANNING BOARD

Elizabeth Boepple, Chair
Sean Dundon, Vice Chair
Carol Morrissette
David Eaton
Kristien Nichols
Lisa Whited
Maggie Stanley

June 16, 2016

Kevin Bunker/Matthew Teare
Sea Coast at Baxter Woods Associates, LLC
100 Commercial Street, Suite 414
Portland, ME 04101

Frederick Licht, PE, LSE
Licht Environmental Design, LLC
35 Fran Circle
Gray, ME 04039

Project Name: **Master Development Plan for Senior Housing (lots 3 and 4)**
Project ID: #2016-033
Address: 605 Stevens Avenue CBL: 136 E006001
Applicant: Sea Coast at Baxter Woods Associates, LLC
Planner: Jean Fraser

Dear Sirs:

On June 14, 2016, the Planning Board considered the final Master Development Plan application for the proposed 249 dwelling units of senior housing on two lots (Lots 3 and 4, approximately 13.5 acres) at 605 Stevens Avenue, Portland. The Planning Board reviewed the proposals for conformance with the master development plan regulations of the City's Land Use Code and voted to approve the application with the following motion and conditions as presented below.

A. MASTER DEVELOPMENT 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 June 14, 2016 for application 2016-033 (605 Stevens Avenue) relevant to the master development plan regulations; and the testimony presented at the Planning Board hearing, the Planning Board voted (4-0, Boepple and Morrissette absent; Eaton recused) that it finds that the plan is in conformance with the master development plan standards of the land use code, subject to the following conditions of approval:

i. That the applicant shall conduct traffic monitoring studies (methodology to be agreed with the Planning Authority prior to undertaking the first study) prior to the submission of site plan applications for each phase after the Motherhouse and the first and second new buildings are completed, to confirm to the Planning Authority that the trip generation levels are consistent with the levels predicted in the traffic studies (based on ITE) and remain below the Traffic Movement Permit threshold of 100 peak hour vehicle trips; and

ii. That the applicant shall conduct parking monitoring studies (methodology to be agreed with the Planning Authority prior to undertaking the first study) prior to the submission of site plan applications for each phase after the Motherhouse, to confirm to the Planning Authority that the parking supply and circulation conditions at both the project site and at McAuley School are safe and acceptable. Associated with this is the requirement that the applicant confirm the parking generation assumptions for each phase are valid and the project does not impact the public street system and neighborhood; and

iii. That the proposed parking may be reduced from the zoning requirement of 2 parking spaces per unit of new development (excludes the Motherhouse) if the parking monitoring studies show that the demand is less than 2 spaces per unit. No parking between the new buildings and Baxter Woods shall be constructed until after the fourth building is occupied. The phasing plan shall be revised to show all parking for phases II to V to be located to the north of the buildings southern most wall; and

iv. That the applicant shall implement the following improvements in the ROW:
   a. Implementation of a 50 feet No Parking Zone on Stevens Avenue at the Motherhouse egress driveway to enhance safety by improving sight distance. Final details of the Zone shall be reviewed and approved by the City prior to implementation;
   b. Installation of a crosswalk on the south side of Stevens Avenue at Walton Street, to include all works associated with a fully installed ADA compliant crossing and shall include, but not limited to, traffic signal equipment, sidewalk ramps, pavement markings, and signage. This work shall be installed at the time of occupancy of the first new building (anticipated to be between the Motherhouse and Baxter Woods).

v. That the applicant shall include the location (which may need to be on the applicant's property) and implementation proposals for a bus shelter along the Stevens Avenue frontage as part of the site plan application for the first building (between the Motherhouse and Baxter Woods), and all site plan applications shall include details and clarification of proposed measures that will be implemented to reduce vehicle trips, such as car share vehicles; van service for local trips; bicycle facilities etc; and

vi. That the applicant shall include a pedestrian connection to Holly Street as part of the site plan application for the third new building, and continue to coordinate with the City on the location of the crosswalk on Stevens Avenue (to which a contribution has already been required as part of the Motherhouse rehabilitation site plan approval); and

vii. That the applicant shall contribute to the preservation of Baxter Woods by:
   a. Implementation of the submitted and approved "*Letter of Intent*" that confirms that the applicant will work with the city to assist in the preservation of Baxter Woods. The City will oversee this work which shall include the assessment of the current condition of Baxter Woods, annual monitoring, and specific work identified as a priority by the monitoring;
   b. Making a contribution of $5000 per year (starting at the date of the issuance of the first building permit and ending 2 years after the final phase is occupied) towards the items identified in the *LOI*, amount contributed in any given year may be more or less than $5000 based on actual costs identified to monitor and improve Baxter Woods in accordance with the *LOI* that year, except in no event will the contribution period exceed either 10 years or amount to more than $50,000 in total contributions;
   c. Pursuing the creation of a *conservation easement,* or equally binding legal mechanism, for the 33 ft of applicant's land between the existing fence and the property line along Baxter Woods.

viii. That the site plan applications for the new buildings nearest to Baxter Woods shall include an analysis and supporting information as to how all light sources (buildings, vehicles and site lighting) are proposed to be minimized to avoid impacts on the wildlife attracted to and in Baxter Woods; and

ix. That the *Architectural Characteristics Summary* (Exhibit B.1), as amended by the Urban Designer's Design Review Memo dated June 9, 2016 , shall be the applicable design guidelines for future development proposals on this site, with the documents in Exhibit B - architectural plans, elevations, and renderings – to be considered guiding documents illustrating the design framework for the project. The *Architectural Characteristics Summary* shall also include an additional guideline 8. as follows: Window types will be consistent with vertical proportion throughout all buildings; and

x. The applicant shall provide, as part of the site plan application for the first building, a summary of existing and/or proposed easements, covenants, public or private rights-of-way, public access agreements, parking management arrangements or other documents that augment the subdivision plat and condo documents and support the operation of the site as presented in the MDP application; and

xi. That the comments of the Urban Designer dated 6.9.2016 be taken into consideration when addressing final site plan and building design, location and size for each phase so as to ensure that any changes consider methods to minimize the impact of the buildings on Baxter Woods; and

xii. For each phase the applicant shall submit an analysis (for review and approval) that documents how the specific proposals relate to the overall MDP stormwater and utility framework and calculations (eg re impervious surfaces, stormwater flows etc) and include evidence of water capacity from the Portland Water District and of sewer capacity from the Department of Public Works.

The approval is based on the submitted plans/documents and the findings related to master development plan review standards as contained in Planning Report for application #2016-033 which is attached.

STANDARD CONDITIONS OF APPROVAL & REQUIREMENTS

Please note the following standard conditions of approval and requirements for all approved master development plans:

1. **Separate Level III Subdivision/Site Plan Approvals Required** This approval 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. This 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. Separate Level III subdivision and site plan approvals are required. Level III subdivision and site plans for each phase shall be in general conformance with the master development plan.

2. **Master Development Plan Amendments** A minor amendment to a master development Plan shall be defined as a change which is generally consistent with the approved master development plan layout of buildings, circulation infrastructure, and open spaces, and:
   i. Does not propose any new general type of use beyond those approved initially;
   ii. Does not increase the building ground coverage, floor area ratio or residential density of the Master Development Plan;
   iii. Does not decrease any specified area regulations or enumerated parking ratios; and
   iv. Does not substantially change access, circulation, or infrastructure on or adjacent to the site.

The Planning Authority shall be authorized to approve such minor amendments to a master development plan upon written application and explanation of the change(s) by the owner (or its agent) of the property. No further public hearings shall be required.

3. **Master Development Plan Expiration** 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 development plan approval that would have a substantial impact on the 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.

If there are any questions, please contact Jean Fraser at 874-8728 or at jf@portlandmaine.gov .

Sincerely,

Elizabeth Boepple, Chair
Portland Planning Board

Attachments:
1. *Letter of Intent*
2. *Architectural Characteristics Summary* (Exhibit B.1)
3. Urban Designer comments dated 6.9.2016

Electronic Distribution:
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Thomas Errico, P.E., TY Lin Associates
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Rick Blackburn, Assessor's Department
Approval Letter File

Final Draft as of 6.9.16

June 9, 2016

Jean Fraser
Senior Planner
Planning and Urban Development Department
Planning Division
389 Congress Street, 4th Floor
Portland, ME 04104

605 Stevens Avenue -- Master Development Plan Submission
Letter of Intent regarding Monitoring and Preservation of Baxter Woods

The applicant, neighbors, City of Portland and a variety of important stakeholder groups identified the interrelationship between 605 Stevens Avenue and Baxter Woods as a crucial issue for the outset of the planning process. Over the past 24 months, we have heard many comments, concerns and ideas regarding Baxter Woods. Based on this input and meetings with city staff, please accept this letter of intent as one element in our effort to help protect and preserve Baxter Woods.

The fundamental first step in this effort is to recognize the current fence line as the effective border between Baxter Woods and the 605 Stevens campus. While the applicant owns 33 feet of a historic 66-foot-wide road easement located on the Baxter Woods side of the current fence, we will pursue a conservation easement or other legally appropriate mechanism to permanently preserve this area. With the acknowledgement of this border, the next elements of the proposal involve the collection of data and implementing solutions as follows:

I. Assessing and Monitoring the Use and Condition of Baxter Woods

The next important step in protecting Baxter Woods is ensuring accurate and comprehensive data on its current status. With its long history, there is a significant amount of information on Baxter Woods. The applicant proposes assisting the City of Portland in assembling and augmenting this data to create a baseline of information and then establish a periodic monitoring program to update, organize and maintain this information.

Specifically, the applicant will assist the city with the following three initiatives:

1) Baseline Data - Engage a professional conservationist /forester, as recommended and approved by the Planning Authority, to complete the following under the supervision of specified City representatives:
   a) Research and assemble all appropriate existing data and information on Baxter Woods;
   b) Plan and conduct a monitoring study which will result in a comprehensive set of *baseline data* on the condition, use and impacts on Baxter Woods;

c) Create an annual monitoring plan for Baxter Woods to update the baseline data. The first phase of this data collection process would begin with the financing and construction start of the first phase of the project.

2) Annual Monitoring
   a) Continue the data collection process outlined above by assisting the City to coordinate the annual monitoring and update of the baseline date focusing on the condition, use and impacts on Baxter Woods from both the 605 Stevens community and other users and activities.
   b) The monitoring, including the annual monitoring reports, would occur on an annual basis beginning approximately one year after the completion and publication of the baseline study. The idea would be for the applicant to sponsor the annual effort until 2 years after the occupation of the final phase of the project with some reasonable expectations and limitations. Following this initial period, the applicant would continue to work with the City and local stakeholders to help ensure a partnership develops to continue this work indefinitely.

3) Annual Recommendations to be included in the monitoring report
   a) The monitoring would include a series of recommendations designed to preserve the Baxter Woods experience as originally intended by helping to address any issues identified during the monitoring process.
   b) These recommendations would be updated and published annually.
   c) The recommendations would include a plan of action with specific tasks, deadlines and funding resources designed to ensure implementation.

II. Potential Improvements to Preserve the Baxter Woods Experience

The applicant would fund work in and around its border with Baxter Woods that respect the original deed restrictions regarding the preservation of Baxter Woods. Any and all improvements would be approved and directed by the Planning authority and the City Arborist. These improvements could derive from the Master Planning process, site plan reviews of individual phases or the annual monitoring process.

While the applicant is happy to assist in broader activities regarding the preservation of Baxter Woods, the specific work items under consideration should be directly related to the applicant's border area with Baxter Woods and the impact of the new development upon Baxter Woods. Wherever possible, the improvements should be tailored to address the impact of each new phase of development and any remedial activities should occur during that phase.

The following are some of the potential activities under consideration for inclusion in a future work plan:

1) Re-establishment of the pathway through the allee of mature trees that once connected Baxter Woods to the 605 Stevens Avenue property;

2) Relocation and repurposing of some of the secondary trails that run directly against the chain-line fence in the 33' boundary area. These trails should be designed as primitive footpaths – providing for modest, lower level use.
3) Removal of invasive species within the 33' boundary area;
4) Replacement of the existing chain-link fencing with a more attractive, appropriate option;
5) Additional plantings on the 605 Stevens Avenue property to enhance the buffer area between the fence and the new development. Two areas of particular focus should include:
   a) Red Pine Grove at the Entrance to Baxter Woods along Stevens Avenue. The trees are tall with no limbs for buffering on their lower trunks. There are several areas in and around this viewpoint where plantings could add significant buffering.
   b) The Meadow in Baxter Woods. While the existing evergreens here are effective, there is a zone approx. 100 ft. long to the north of the meadow where additional plantings would be beneficial.
6) Additional supplemental plantings on both sides of the fence with the purpose of providing wildlife habitat and food – particularly for birds. Plantings as viburnum, elderberry and blueberry might add to the buffering and act to enhance the wildlife habitat of the woods.

Over more than 30 years of creating and operating senior communities, the applicant and the residents of our communities have strongly supported a long list of civic minded organizations and initiatives. During that time, initiatives related to land conservation, energy efficiency and energy conservation have received the greatest level of interest and support. The opportunity to enjoy, protect and preserve Baxter Woods and Evergreen Cemetery is a critical element of the proposed community at 605 Stevens Avenue. We look forward to working in partnership with all the various stakeholders to preserve these unique and invaluable resources.

Very Truly Yours,



Matthew D. Teare
Director of Development
Sea Coast Management Company

Attachment 2

LICHT
ENVIRONMENTAL DESIGN, LLC

605 STEVENS AVE
MDP APPLICATION
FINAL SUBMISSION 05-24-16

EXHIBIT B.1
605 STEVENS AVENUE
ARCHITECTURAL CHARACTERISTICS

The following design guidelines are proposed to describe the context of the architectural program for the 605 Stevens Avenue Master Development Plan Architecture. Final details may vary as submitted with individual LIII Site Plans for each building phase but shall incorporate the following design elements into the overall campus masterplan for the site:

1. Final building footprints will generally follow the approved footprints and massing shown on the Site Master Development Plans.

2. All Gable roofs have been eliminated in favor of flat roofs. This has the effect of calming down the architecture and is more reflective of an honest architecture.

3. Elements of the Motherhouse have been reflected in the new buildings such as the granite base of the Mother house will be incorporated into the new designs . A modern version of the mansard on the Motherhouse will be incorporated, but in a vertical, not sloped version , with a zinc faced metal shingle to identify the top floor. Brick elements with brick matching the Mother house are incorporated into the design .

4. The colors of the new buildings are all natural toned, brick, granite and grey clapboard.

5. The entry ways into each building are clearly delineated with welcoming porch elements.

6. Each unit will have its own deck space which also works to help break down the building massing and add interest.

7. Parking is located under each building structure allowing more open green space . The facades of the parking garage are fenestrated with window openings which are similar to a living space yielding a more inviting look to the exterior .

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Attachment 3
(2 pages)

Planning and Urban Development Department
Planning Division

Subject: Design Review – 605 Stevens Avenue Master Plan
Written by: Caitlin Cameron, Urban Designer
Date of Review: Thursday, June 9, 2016

The proposed master plan for multi-family residential buildings is only reviewed according to the Master Plan criteria. In future Site Plan design reviews, the projects will be subject to the R-5 and Multi-family design guidelines.

In the Master Plan level review, the design considerations include cohesiveness within the proposed development as well as compatibility with the context. In this case, the immediate context is the Motherhouse and campus property on which future developments will be situated. Though the design and placement of buildings should be sensitive to neighboring residential and park contexts, the multi-family building typology and the relationship to the Motherhouse are the primary considerations in evaluating the proposed design characteristics.

Building Footprints
The applicant was asked to consider whether there are strategies for reducing the impact of the buildings facing Baxter Woods. Suggested strategies included reducing the building footprints, varying building heights, turning buildings 90 degrees so that the shorter end faces the park. The applicant responded with a memorandum "Urban Design – Massing Relationship to Baxter Woods" (Exhibit B) describing the building footprints and the rationale for their placement. Staff has no further comment at this time and defers to the Planning Board on the evaluation of the impact of the master plan development on Baxter Woods. In each future Site Plan application, the applicant is expected to re-evaluate the scale, placement, orientation, and footprint of the buildings in consideration of impact on Baxter Woods and will mitigate that impact whenever feasible.

Architectural Design
The applicant has included architectural plans, elevations, and renderings (Exhibit B), as well as an Architectural Characteristics Summary (Exhibit B.1) as guiding documents for future development proposals with the expectation of creating cohesive design throughout the campus as well as defining how new development shall be compatible with the existing context. Staff considers all these documents together and recommends the Planning Board approve the Master Plan Development application with the expectation that these are guiding documents only, but should be considered applicable design guidelines for any future Site Plan application on this site.

The Architectural Characteristics Summary (Exhibit B.1) describes which characteristics found in the drawing set will apply to all future architectural proposals. The staff reviewers are generally in favor of the revisions made to the architectural character proposed for the site and support the guidelines proposed – brief staff comment on each guideline is provided below:

1. Building Footprints – Future development shall generally follow the MDP approved footprints. The proposed footprints – an L-type and a bar-type – successfully mitigate the scale of the buildings through the use of varied forms and change of building plane. The buildings are also placed interior to the lot and are therefore less visible from public rights-of-way and neighboring properties, buffered by space and trees.
2. Roof Lines – Flat roof forms are prescribed; the change to flat roofs is consistent with the building typology proposed and moves the architecture in a direction that is responsive to the Motherhouse context which has a hipped roof with gabled dormers.
3. Motherhouse Context – Characteristics taken from the Motherhouse be applied to new development include: granite base; reference to the Motherhouse roofline through material changes and floor delineation; brick elements using brick of similar color and pattern as the Motherhouse.
4. Material Palette – The material selection and color palette should be guided by the material indications on the elevations and renderings and as described in the narrative as having natural tone, brick, granite, and grey clapboard. The more subtle grey material palette with brick vertical elements is supported – the use of as few materials as possible is recommended.
5. Building Entry –Clearly delineated entries with porch elements shall be a common feature.
6. Massing - The scale of each building is proposed to be mitigated through the use of varied forms and change of building plane, deck spaces, and façade composition (see renderings for material placement and massing).
7. Parking – Structured parking is proposed to be designed to have similar character to the residential building above.

Conditions of Approval

Staff recommends the following design conditions of approval:

- That the documents included in Exhibit B – architectural plans, elevations, and renderings, as well as an Architectural Characteristics Summary (Exhibit B.1) – are considered together to be adopted guiding documents that will be applicable design guidelines for future development proposals on this site.
- That an additional guideline 8. be added to *Exhibit B.1 Architectural Characteristics Summary* as follows: 8. Window types will be consistent with vertical proportion throughout all buildings.

Additional Design Considerations (Site Plan)

The following guidelines will be taken into consideration for the architecture and design of future Site Plan development applications:

- Flat or hipped roof line referential of the Motherhouse would be acceptable provided the proportion and slope of the roof is comparable and compatible as well as consistent throughout all the buildings.
- In the new buildings, maintain the proportional relationship of "roof" to façade found in the Motherhouse. The four-story building design in the MDP guiding documents does not reflect these proportions.
- Use as few material types as possible.
- The building nearest the Motherhouse should be designed with the most sensitivity to the context of the historic structure.

PLANNING BOARD REPORT
PORTLAND, MAINE

605 Stevens Avenue Senior Housing (Lots 3 and 4)
Master Development Plan

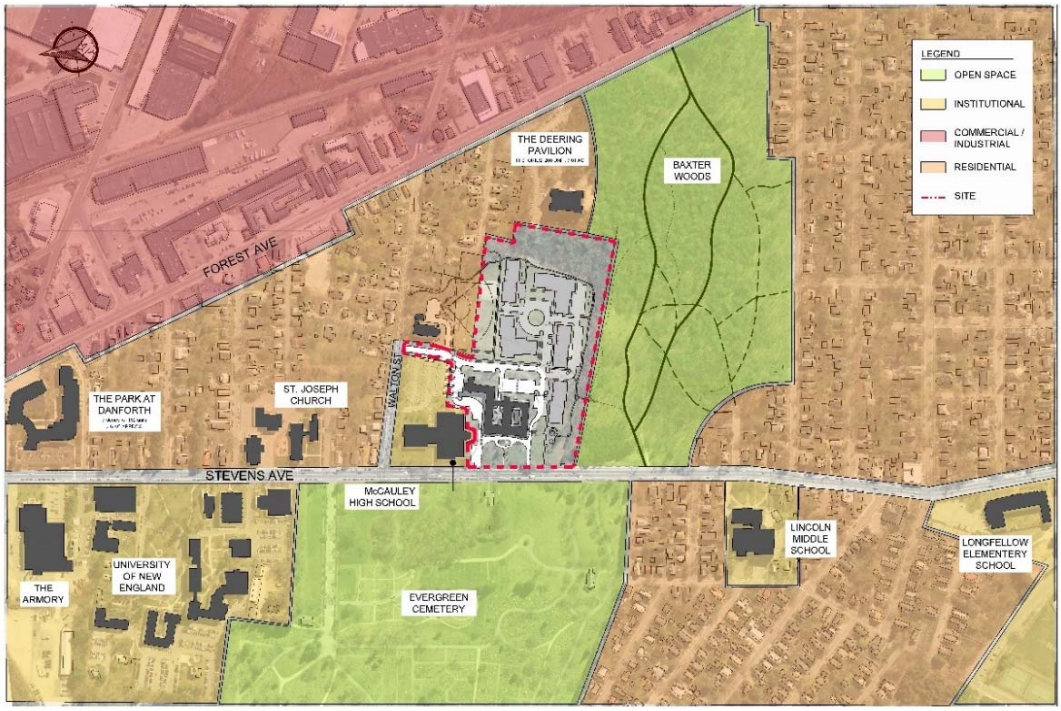
Level III Master Development Plan
Sea Coast at Baxter Woods Associates, LLC, Applicant

Submitted to: Portland Planning Board Date: June 10, 2016 Public Hearing Date: June 14, 2016	Prepared by: Jean Fraser, Planner CBL: 136 E006001 Project #: 2016-033

I. INTRODUCTION

Sea Coast at Baxter Woods Associates, LLC has requested approval of the Level III Master Development Plan (MDP) application for 249 dwelling units of senior housing on two lots (Lots 3 and 4, approximately 13.5 acres) at the corner of Walton Avenue and Stevens Avenue. The project has been considered by the Planning Board at two workshops, and the final proposals have been revised to address Board, staff and neighbor comments.

The site is located just north of Baxter Woods and abuts the Catherine McAuley High School and the Deering Pavilion. The MDP site is part of an approximately 20 acre site that was previously owned by the Sisters of Mercy and included the Motherhouse (now mostly vacant); the Catherine McAuley High School and associated playing fields; and the St Catherine apartments on Walton Street. The MDP does not include the ongoing uses of the School (except the playing field area) and the apartments, but does include the Motherhouse.



The MDP proposal for 249 units comprises the rehabilitation of the former convent (referred to as the Motherhouse) into 88 apartments, and the phased development 161 dwellings (condos) in five new 4-5 story new buildings nearby. The project includes 399 parking spaces and approximately 6 acres of open space. These proposals are consistent with previous reviews and approvals, including the rezoning from R5 to R5A for part of the site and Site Plan approval for the rehabilitation of the Motherhouse. A summary of the previous approvals is included in Attachment 7 for reference.

Applicant: Sea Coast at Baxter Woods Associates, LLC
Consultants: Rick Licht of Licht Environmental Design LLC and Pat Carroll of Carroll Associates Landscape Architects

II. REQUIRED REVIEWS

Review	***Applicable Standards***
Master Development Plan	*Section 14-524(a)3c(iii)*
Site Location of Development Act	*Note: First new building will trigger this delegated review (see para* **X***)*

III. PROJECT DATA for Lots 3 and 4 only (Lot #3 is Motherhouse site; Lot #4 is the area to south and east of the Motherhouse - see data sheet in updated Attachment B)

	Existing	*Proposed*
Zoning	R5 and R5a	Previously amended
Uses	Vacant Motherhouse; playing fields; open land	Senior housing and associated parking and open space; reconfigured playing field
Parcel Size	13.5 acres (585,176 sf)	13.5 acres (585,176 sf)
Dwelling Units	none	Motherhouse: 88 units (68 1-BR; 20 studios) Lot #4: 161 units, all 2BR
Building footprint	24,065 sf (Motherhouse)	Motherhouse: 24,065 sf Lot #4: 74,188sf
Building floor area	102,241 sf (Motherhouse)	Motherhouse; 102,241 sf Lot #4: 349,626 sf
Impervious Surface		261,188 sf
Parking spaces	Approx. 34	Motherhouse: 43 new (not all for Motherhouse occupants) Lot #4: 322 (183 covered; 139 surface)

IV. EXISTING CONDITIONS and BACKGROUND

The MDP site has 460 feet of frontage along Stevens Avenue between Catherine McAuley High School and Baxter Woods. To the south and south-east the site abuts Baxter Woods and the Deering Pavilion. The north and north-east parts of the site abut an area of single and multifamily homes and the Forest Avenue RP zone is nearby. The site is adjacent to two valued open areas, Evergreen Cemetery and Baxter Woods and located on an arterial street with good public transit. The wider neighborhood is a cohesive and family-focused community with a mix of institutions (including 2 existing senior housing developments, several schools and UNE) and some retail (see Plan P4 Neighborhood Context Plan).

Evergreen Cemetery is located opposite the site on Stevens Avenue and is an historic landscape. None of the buildings on or near the site are formally designated as landmarks, but the Motherhouse is currently being reviewed at State/Federal level (at the applicant's request) for inclusion on the National Register.

The existing Catherine McAuley High School is currently accessed by two one-way drives from Walton Street direct into the existing parking lot (see Plan P2). There are two small drives with gates (currently closed) on Stevens Avenue that go directly to the front of the Motherhouse. Walton Street is a residential street connecting Stevens Avenue and Forest Avenue, with signals at both intersections. Under the Federal Street Classification system Stevens Avenue is classified as a "Minor Arterial" (other "Minor Arterials" in Portland are Warren Avenue and Washington Avenue) and Forest Avenue is classified a "Principal Arterial" (other "Principal Arterials" in Portland are Brighton Avenue and outer Congress Street).

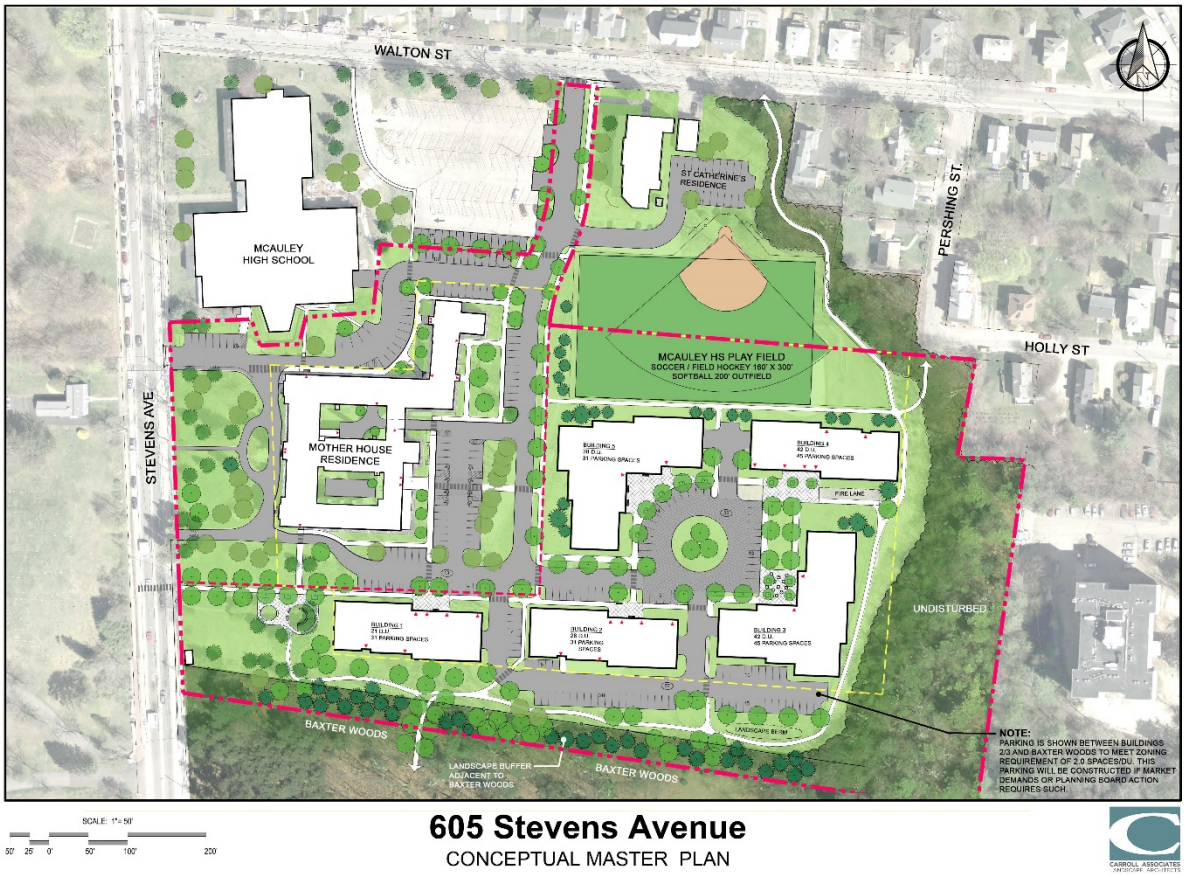
V. MASTER DEVELOPMENT PLAN PROPOSALS

The applicant has described the proposal in detail in the cover letter and narrative (Attachment A) which clarifies the revisions that have been made to the proposals over the course of the review between March and May. The final submissions include additional elevations, renderings and design information as well as a more detailed response to the issues that have been raised regarding the integration with/impacts on Baxter Woods and the location of pedestrian and transit facilities.

The key features of the final MDP proposals include (see Plan Set P3 to P14)

- A five phase development (anticipated to be one new building per phase) to create 161 new units of senior housing (plus a first phase of 88 units located within the existing Motherhouse building to be converted and refurbished);
- Five new buildings, one at 4 stories (between the Motherhouse and Baxter Woods on the Stevens Avenue frontage) and four 5-story buildings behind the Motherhouse;
- A total of 395 new parking spaces, of which about half are underneath the new buildings;
- Several acres of open space, with connections to Baxter Woods and extensive new tree planting;
- A network of pedestrian walkways that link to Walton Street, Stevens and Forest Avenues and other pedestrian and transit facilities;
- Improved landscape along Baxter Woods, including replacement of the existing fencing and additional planting buffers (details in Attachment A and Plans P12 and P15).

The final Conceptual Master Plan (Plan P5) illustrates the key features for the overall build out:



VI. PUBLIC COMMENT and PB WORKSHOP DISCUSSIONS

A total of 129 notices were sent to property owners within 500 feet of the site and interested parties, and a legal ad was published in the *Portland Press Herald* on June 6 and 7, 2016. The required Neighborhood Meeting was held on March 14, 2016 (documented in Attachment H) which was attended by about 15 neighbors. A second (voluntary) Neighborhood Meeting was held at the site on May 19th, 2016 which was attended by about 10 members of the public and included a walk around the site where the applicant had placed markers showing the corners of the proposed new buildings. As of the time of completing this Memorandum, the Planning Division has received ten written public comments (PC A and B; PC 1-10), with eight of these in support of the project with some suggestions. The other four comments, and many of the comments at the Workshop, raised concerns about the impact of the project on Baxter Woods.

The first Workshop on March 22, 2016 included a discussion about the potential traffic generation and noted that a Traffic Movement Permit (State but delegated to the City) was not required. Tom Errico, the City's Traffic consultant reviewer, clarified that the proposals would still be subject to a Traffic Study and further review of potential impacts, and that Transportation Demand Management measures would be expected as part of the proposals. Diane Moribito, the applicants Traffic consultant, outlined that the traffic analyses indicated that the proposals and the additional traffic would have very limited impacts, in part because much of the traffic would be off-peak.

The second Workshop concentrated on building and landscape design issues, including the relationship with Baxter Woods. The City's Urban Designer, Caitlin Cameron, and the City's Arborist Jeff Tarling commented on the proposals and the Board discussed the design (particularly the roofline and need to respect the Motherhouse context). The Board generally welcomed the applicant's willingness to contribute to the preservation of Baxter Woods, though the proximity of the parking to the Woods was a concern. The applicant clarified that the proposed parking was intended to ensure that all the parking demand could be accommodated on site, but that this could be modified in later stages if the parking demand in the early phases turned out to be less.

VII. RIGHT, TITLE, & INTEREST and FINANCIAL CAPACITY

The applicant has submitted a P&S Agreement and letter from the Bath Savings Institution (2.16.16) (Atts C and E).

VIII. ZONING ANALYSIS

The Master Development Plan proposals comply with the R5 and R5A requirements; the applicant has included this information on Plans P6 and P7 and the R5A dimensional standards are included in Attachment 9. It should be noted that the density and open space calculations are based on the R5A requirements but (based on the principle established by the City Council when the R5A area was reduced) the R5 parts of these lots is not built upon but the area is used to calculate the density and open space for a unified development plan.

IX. STAFF REVIEW

A. MASTER DEVELOPMENT PLAN OBJECTIVES

The Site Plan ordinance outlines that an approved Master Development Plan (MDP) 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. It is not a final authorization for development, but it does confer pending proceeding status upon the development with the effect of maintaining the applicability of regulations in effect at the time of the approval for as long as the MDP approval remains valid (6 years initially), including permissible extensions up to 10 years. All Level III site plans for each phase shall be in general conformance with the approved MDP. The required review is under *Section 14-524(a)3c(iii) Master Development Plan Review including Standards for Review.*

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

Section 14-527 of the city's site plan ordinance outlines Master Development Plan submittal requirements. The Planning Authority or Planning Board may give direction regarding the form of the information required for the MDP review. In general the final submission requirements have been met and the applicant has submitted additional information as requested.

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

Section 14-524 of the City's land use code establishes standards under which Master Development Plan applications must be reviewed. Per this section, Master Development Plans 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;

Staff comments: The 13.5 acre site meets this requirement.

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

Staff comments: The applicant has submitted a Master Development Plan for Lots #3 and #4 where the proposed senior housing development will be located, and shows how the proposed development integrates with the surrounding area.

c. Consistent with the objectives of this ordinance; and *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);*

Staff comments: There are no formal City Council approved plans in the vicinity except for the Evergreen Cemetery Master Plan. The applicant has sought staff guidance in relation to ensuring consistency with the proposed sidewalk improvements in Stevens Avenue, with surrounding utilities, with METRO's bus service and with the City's preservation plans for Baxter Woods. The final plans reflect the existing and anticipated local infrastructure/facilities.

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;

Staff comments: The trees to be preserved, removed and the new trees proposed to be planted are shown on the following plans: Tree Removal/Landscape Preservation Plan (Plan P11 and Landscape Master Plan (Plan P12); and Conceptual Site Plan in Plan P5 and above. The tree removal analysis is provided in Plan

P11. The City Arborist has reviewed the plans and noted there is an historic allee linking the site to Baxter Woods which is impacted by building 1; he has indicated that proposed replacement planting to extend and reinforce the allee is acceptable as are the overall landscape and preservation proposals. (Attachment 6).

The Open Space Calculations Plan in Plan P8. clarify the extent of impervious surfaces, wetland and open space. Open space areas, excluding the wetland, total about 6 acres (45% of the MDP area) and the plan indicates the different sizes and functions of the open space areas.

f. 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;

Staff comments: Although the Motherhouse building is considered of historic and architectural significance, the building is not yet designated a local landmark under Portland's Historic Preservation ordinance nor is it located in a local Historic District. It is understood that the applicant is seeking to list the building in the National Register of Historic Places in conjunction with their interest in securing tax credits for its rehabilitation.

The review under the tax credit program will likely require the preservation of some existing site elements. A letter from the Maine Historic Preservation Commission (Attachment 5) confirms general support for the overall project based on the understanding that the "*existing landscape and shrine located west of Building 1 (proposed new 4 story building fronting Stevens Avenue) will remain in place*". The new buildings nearest to the Motherhouse may also be subject to review by the Maine Historic Preservation Commission and National Park Service, given the fact that the buildings will be located on the original Motherhouse property and have a visual relationship with the Motherhouse.

It should be noted that the site is opposite and within 100 feet of Evergreen Cemetery, an Historic Landscape. Thus the proposals for the frontage along Stevens Avenue would be reviewed at site plan stage by the Historic Preservation Program Manager under the site plan requirement for compatibility. If the Motherhouse is designated as a local landmark, then this site plan requirement would extend to any new buildings within 100 feet of the Motherhouse.

The Motherhouse dominates the site and the anticipated historic reviews are likely to consider the detailed architectural design relationship of any new buildings in the context of the Motherhouse; this is considered to be an important influence on the architectural approach to the new buildings.



EXISTING VIEW - VIEW FROM EVERGREEN CEMETERY

The submitted perspective (right; with gables, which have since been removed as shown in Exhibit B) of the proposed first building (building #1 on Plan P5, 4 story and 21 units) illustrates how this new building would be set back to minimize impacts on the Motherhouse building.



PROPOSED VIEW - VIEW FROM EVERGREEN CEMETERY

A rendering of the Building 1 west elevation (directly facing Stevens Avenue) was added to the final submissions and is extracted at right.



Building 1 from Stevens Avenue

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;

Staff comments: The proposed layout has taken account of site features/constraints (see Exhibit B-16 and Plans P8 and P11. Public comments have included concerns about the impact of the development on the birds and wildlife in Baxter Woods- for example glare from headlights, site lighting and lights shining through curtain walls in the buildings. Staff suggest the following condition of approval (combined with a reference to the Urban Design comments):

> *That the site plan applications for the new buildings nearest to Baxter woods shall include an analysis and supporting information as to how all light sources (buildings, vehicles and site lighting) are proposed to be minimized to avoid impacts on the wildlife attracted to and in Baxter Woods; and*

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; and

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; and

Staff comments: The applicants plan set (Plans P3-P14) illustrate the coordination of the proposals in some detail. ***Baxter Woods*** is a key surrounding land use/public facility is Baxter Woods, which shares an approximately 1000 foot long boundary with the MDP site. The 29.5 acre Baxter Woods was presented to the "People of Portland" in 1946, a gift from then Governor Percival Baxter as a "municipal forest to be kept in its natural state" (see background leaflet with plan in Attachment 10. The use and maintenance of the Woods are dictated by deed restrictions and the City Arborist has been working with foresters over the years to meet the original intent of the gift, especially in the context of its high level of recreational use by the community.

Through the rezoning and MDP reviews the question of the potential impact of the future senior housing development on Baxter Woods has been raised by neighbors and staff. The City Arborist, Jeff Tarling, has provided the following comments (Attachment 6, at end) and been involved in all of the meetings with the applicants on this subject:

> *The proposed 605 Stevens Avenue project is adjacent to 'Mayor Baxter Woods' which is a significant natural, open space park donated to the City of Portland by Governor Percival Baxter in honor of his father, James P Baxter former Mayor of Portland. The woods was also formerly 'Forest Home' and throughout the last century and a half have have been a forested refuge. To minimize impact to the park both physically and view wise it will be important for the project team to work closely with the City objectively, so that visitors to the park have the natural experience as they have for over 75 years.*

Recommendations include:

a) Enhance buffering along the property edge, including the roadway easement
b) Future parking facing the park should be screened with native vegetation and earth berms.
c) Building facades facing the park should be painted or stained using natural earth tones. Night lighting should be engineered to have minimal trespass into the park.
d) Landscape treatment should be designed using native plants and plants that habitat friendly to birds.
e) Park impact baseline & monitoring - baseline assessment of park conditions along with a five year monitoring program would be a recommended.

The final proposals address these comments and now include a mechanism for ensuring that any potential impacts of the development would be identified and addressed and that the applicant would contribute to further preservation of Baxter Woods in accordance with Baxter's intentions for its future public use and enjoyment, including:

1. An assessment of the Wood's current condition and use as a baseline for future monitoring of its condition, use and associated impacts.
2. Monitoring (linked to phases and going beyond the final phase) of its condition over time, with monitoring data maintained and made available to interested parties; and
3. Development of a list of potential improvement proposals and timing based on 1 and 2 above.

This is documented by a *Letter of Intent LOI)* (Attachment I) which clarifies the applicant's willingness to work with the City, and specifies in some detail the objectives and associated process related to these three items. The *LOI* is complemented by the recommended condition number *vii* that specifies the applicant's contribution to the costs of these items, so that as the development is implemented the program of monitoring continues and informs the nature and priority of the preservation projects. The *LOI* has evolved from the "*Memorandum of Understanding" (MOU)* presented to the April PB workshop and reflects Board, public and staff comments. An important principle is that the City would supervise these studies/associated projects, and make use of specialist advisors who were already familiar with the Woods.

The *LOI* (Attachment I) also confirms the applicant's intention to treat the 33 feet of their land between the fence the and property boundary as part of Baxter Woods. The most effective legal mechanism to achieve this requires further investigation and this is addressed by a suggested condition of approval.

In addition to the use and condition of the Woods, there are concerns about the height and proximity of the new buildings to and as viewed from the Woods. The applicants have addressed this issue in a number of ways (see narrative Exhibit B-16 Massing and Baxter Woods):

- The buildings are located approximately 90 to 140 feet from the property boundary (35 feet required by zoning ordinance- see Att 9);
- The location and massing of the buildings and how they have responded to constraints is explained in the Exhibit B-16;
- Introduced berms and landforms (see Sections in Plan P15) between the buildings and the Woods;
- Revised the phasing of the parking construction to reduce the spaces built near Baxter Woods (although staff are recommending that none be built there until the last phase, if needed (see below);
- The design of the buildings has been revised to incorporate flat roofs and more neutral colors as shown in the submitted (as part of the final submission) rendering at right, as located in the vicinity of the "Meadows" part of Baxter Woods (see discussion below regarding overall design issues).
- Submitted (March) a perspective from the "Meadows" area of



Baxter Woods (Exhibit B Arch Info) that gives an impression of how the new buildings would appear from that location. The perspectives are of the former design, with gables and extracted below:

Perspectives (see Exhibit B)



EXISTING VIEW - VIEW FROM BAXTER WOODS MEADOW

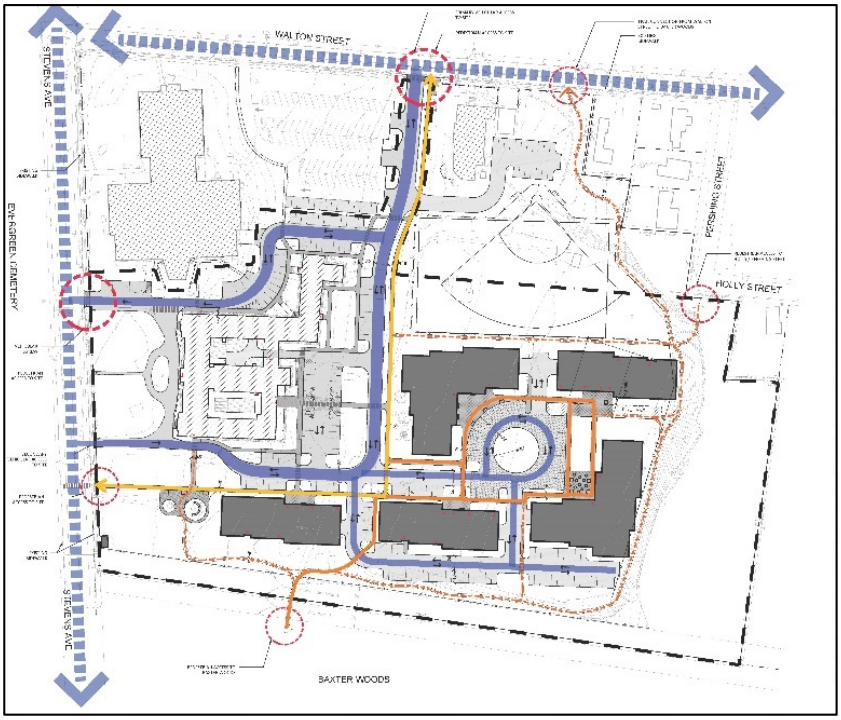


PROPOSED VIEW - VIEW FROM BAXTER WOODS MEADOW

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

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

Staff comments: The applicant has proposed a full turn access on Walton Street and a one way system in front of the Motherhouse that allows a right in and right out only with the egress being to the north. This was proposed to address concerns about congestion and safety in Stevens Avenue and direct vehicles to the signaled turn locations. The circulation is shown in Plan P9 and to right:



The applicants consulting traffic engineer submitted a Traffic Impact Study and additional information as requested by the City's Traffic Reviewing Engineer (Att. F entitled "Exhibit D- Traffic).)

Tom Errico, the City's Traffic Engineering reviewer, has reviewed the final submissions and provided the following final comments (Attachment 1):

- *The applicant submitted a preliminary trip generation analysis that was based upon data from the Trip Generation Manual, Institute of Transportation of Engineers (ITE). The estimate was based upon Land Use Code 252 – Senior Adult Housing. I requested additional information on the ITE Land Use development type and is the data based upon current developments. Additionally, I requested the applicant provide local data for comparison. The applicant provided information that indicates the most recent publication provided by ITE does include current developments sites. Additionally, the applicant provided actual trip generation data collected at the Highlands in Topsham, which indicates similar trip levels as ITE. Based upon the applicant's analysis the project would be expected to generate 97 trips entering and exiting during the Weekday AM Peak hour and 87 trips entering and exiting during the Weekday PM Peak hour. This level of trip generation does not trigger the need for a Traffic Movement Permit, although it is very close to 100 peak hour vehicle trip threshold.*

  The applicant shall conduct monitoring studies for each phase after the Motherhouse and the first and second new buildings are completed to confirm trip generation levels are consistent with ITE. This monitoring will also confirm that trip levels remain below the Traffic Movement Permit threshold of 100 peak hour vehicle trips. Details of the monitoring study scope will be defined in the future.

- *The applicant has recommended that on-street parking be prohibited on Stevens Avenue at the Motherhouse egress driveway to enhance safety by improving sight distance. The applicant is suggesting that 50 feet of a No Parking zone be established. I concur with this recommendation. The applicant shall be responsible for implementation of the No Parking restriction. Final details shall be reviewed and approved by the City.*

- *The applicant should provide details and clarification on proposed measures that will be implemented to reduce vehicle trips, such as car share vehicles; van service for local trips; bicycle facilities, etc. that would be considered to be a component of a Senior Housing development that would have been reflected in the developments surveyed by ITE for use in estimating trip generation.*

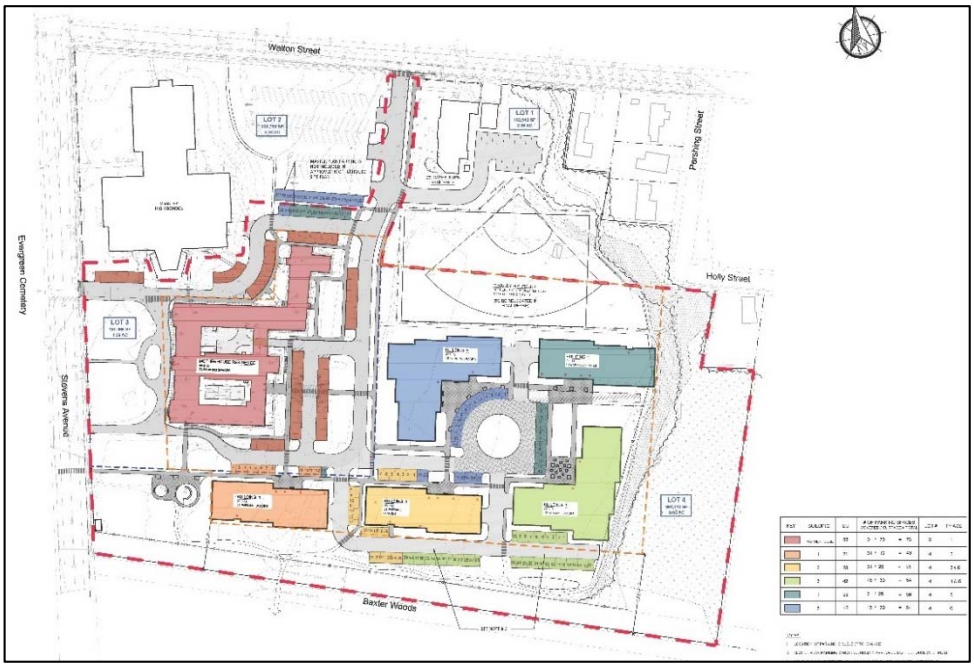
- *A traffic impact study has been submitted and in general I find the methods and conclusions to be acceptable with the following comments:*
  - *The Forest Avenue/Walton Street intersection is a High Crash Location and based upon the applicant's analysis no correctable crash patterns were identified. I have field reviewed the subject intersection and concur with the findings. Accordingly, no action by the applicant is required.*
  - *The applicant shall install a crosswalk on the south side of Stevens Avenue at Walton Street thus creating full intersection accessibility. This will include all work associated with a fully installed ADA compliant crossing and shall include, but not limited to, traffic signal equipment, sidewalk ramps, pavement markings, and signage.*

  The applicant shall install a crosswalk on the south side of Stevens Avenue at Walton Street. This will include all work associated with a fully installed ADA compliant crossing and shall include, but not limited to, traffic signal equipment, sidewalk ramps, pavement markings, and signage. This work shall be installed at the time of occupancy of the first new building (anticipated to be between the Motherhouse and Baxter Woods).

- ***Fire Access***

  The Fire Department was concerned that previous layouts needed additional access routes to ensure rescues could be made from all of the buildings (Attachment 1). The Fire Department has verbally confirmed that the final MDP layout appears to be generally acceptable, and noted that at the Site Plan review stage they will require life safety and emergency access accommodations.

- ***Parking***
  The Parking Diagram (Plan P10) shows a total of 395 parking spaces, of which 212 spaces are on the surface and 183 are beneath the buildings. The allocation of the surface parking is shown as color-coded on the Parking Diagram:



The proposals outlined in the Master Development Plan are based on the approved parking ratio for the Motherhouse (73 dedicated parking spaces for the 88 units) and on the zoning requirement for the rest of the area (2 parking spaces per unit).

The objective is to ensure that the proposed parking levels will not result in overflow parking to streets outside of the site. Staff generally consider that the parking is adequate, but Tom Errico, the Traffic Engineering Reviewer, has recommended a requirement for monitoring as follows (Attachment 1):

- *On-site traffic circulation and parking will need to be evaluated, particularly as it relates to interaction between the proposed project and the McAuley School (both typical school days and during events).*
  The applicant shall conduct monitoring studies prior to the submission of site plan applications for each phase after the Motherhouse to confirm parking supply and circulation conditions at both the project site and at McAuley School are safe and acceptable. Associated with this is the requirement that the applicant confirm the parking generation assumptions for each phase are valid and the project does not impact the public street system and neighborhood. Details of the monitoring scope will be defined in the future

Some of the parking for the final build out is located between the new buildings and Baxter Woods and this was raised as a concern by many members of the public and some members of the Planning Board. In view of the fact that that monitoring of the parking demand may show that some of this parking is not required to meet future demand, staff requested (Attachment 5) that the applicant reconsider the way the parking was allocated during all but the last phases to avoid constructing the parking between the buildings and Baxter Woods until shown to be needed.

The revised phasing plan (Plan P7) has moved in that direction with less parking constructed in this location than in the earlier phases, but staff suggest that there should not be any parking in this location as described in the suggested condition of approval:

> *That the proposed parking may be reduced from the zoning requirement of 2 parking spaces per unit of new development (excludes the Motherhouse) if the parking monitoring studies show that the demand is less than 2 spaces per unit. No parking between the new buildings and Baxter Woods shall be constructed until after the fourth building is occupied, and only if the monitoring studies show that additional parking is necessary to meet demand. The phasing plan shall be revised to show all parking for phases II to V to be located to the north of the buildings southmost wall;*

- ***Street Connectivity, pedestrian and transit connections***
  One of the public comments (PC3- C MilNeil) suggested that the project include improvements that would improve access to and from Forest Avenue and ensure public access at the eastern side of the development.

  The Traffic Engineer Reviewer has commented (Attachment 1):

  > *Given the likelihood of residents seeking destinations along Forest Avenue south of Walton Street, there may be benefits in providing a more direct pedestrian/bicycle connection between the east boundary of the site and Holly Street. Accordingly, the applicant shall provide a pedestrian connection to Holly Street as part of the site plan application for the third new building.*

  The applicant has addressed this by indicating a pedestrian link on Plan P8 between the site and the abutting Holly Street. A suggested condition of approval is included to ensure that this is implemented as part of the site plan for the third new building.

  The Planning Board approval for the Motherhouse required the applicant to work with the City on the relocation of the existing crosswalk and the provision of a bus shelter for a bus stop along the frontage. Since then the applicant and staff have identified the likely location for the crosswalk, bus stop and associated bus shelter and these are indicated on the MDP final proposals. The suggested conditions on the MDP reiterate the requirements already approved in relation to the Motherhouse.

- ***Utilities; Stormwater; other***
  The applicant submitted additional information to assess the available capacity and the extent of upgrades and new infrastructure that may be required. The Peer Engineering Reviewer and the Department of Public Works have confirmed that the applicant has demonstrated that the full build out can be satisfactorily accommodated based on the engineering approaches outlined in the submissions (Attachment 2 and 3). At each site plan stage the applicant will need to show how the specific proposals relate to the overall MDP framework and calculations and obtain the associated detailed capacity letters.

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;

Staff comments:
Since the April PB workshop the applicant has revised the building renderings to show a different architectural approach, added renderings to show the elevation of building 1 from Stevens Avenue and the 5 story building nearest to Baxter Woods as viewed from the south. Massing models have also been submitted, which include an additional "closer" view.

The proposed building design originally incorporated gables as shown in the now-superceded rendering at right.





The roofline was discussed at the at the April PB workshop and the applicant has responded to comments by revising the roofline to be a flat roof and simplifying the design elements, as shown left and in Exhibit B (B6 shows the 4 story version):

The applicant submitted three "massing model" views at the April PB Workshop and staff requested a "closer" view, which was included in the final submissions and below (see Exhibit B: B-11-B-13):



PROPOSED BIRDSEYE VIEW - VIEW FROM THE SOUTH WEST

The City's Urban Designer, Caitlin Cameron, has commented (Attachment 4):

> *The proposed master plan for multi-family residential buildings is only reviewed according to the Master Plan criteria. In future Site Plan design reviews, the projects will be subject to the R-5 and Multi-family design guidelines.*
>
> *In the Master Plan level review, the design considerations include cohesiveness within the proposed development as well as compatibility with the context. In this case, the immediate context is the Motherhouse and campus property on which future developments will be situated. Though the design and placement of buildings should be sensitive to neighboring residential and park contexts, the multi-family building typology and the relationship to the Motherhouse are the primary considerations in evaluating the proposed design characteristics.*
>
> ***Building Footprints***
> *The applicant was asked to consider whether there are strategies for reducing the impact of the buildings facing Baxter Woods. Suggested strategies included reducing the building footprints, varying building heights, turning buildings 90 degrees so that the shorter end faces the park. The applicant responded with a memorandum "Urban Design – Massing Relationship to Baxter Woods" (Exhibit B) describing the building footprints and the rationale for their placement. Staff has no further comment at this time and defers to the Planning Board on the evaluation of the impact of the master plan development on Baxter Woods. In each future Site Plan application, the applicant is expected to re-evaluate the scale, placement, orientation, and footprint of the buildings in consideration of impact on Baxter Woods and will mitigate that impact whenever feasible.*
>
> ***Architectural Design***
> *The applicant has included architectural plans, elevations, and renderings (Exhibit B), as well as an Architectural Characteristics Summary (Exhibit B.1) as guiding documents for future development proposals with the expectation of creating cohesive design throughout the campus as well as defining how new development shall be compatible with the existing context. Staff considers all these documents together and recommends the Planning Board approve the Master Plan Development application with the expectation that these are guiding documents only, but should be considered applicable design guidelines for any future Site Plan application on this site.*

The Architectural Characteristics Summary (Exhibit B.1) describes which characteristics found in the drawing set will apply to all future architectural proposals. The staff reviewers are generally in favor of the revisions made to the architectural character proposed for the site and support the guidelines proposed – brief staff comment on each guideline is provided below:

1. *Building Footprints – Future development shall generally follow the MDP approved footprints. The proposed footprints – an L-type and a bar-type – successfully mitigate the scale of the buildings through the use of varied forms and change of building plane. The buildings are also placed interior to the lot and are therefore less visible from public rights-of-way and neighboring properties, buffered by space and trees.*
2. *Roof Lines – Flat roof forms are prescribed; the change to flat roofs is consistent with the building typology proposed and moves the architecture in a direction that is responsive to the Motherhouse context which has a hipped roof with gabled dormers.*
3. *Motherhouse Context – Characteristics taken from the Motherhouse be applied to new development include: granite base; reference to the Motherhouse roofline through material changes and floor delineation; brick elements using brick of similar color and pattern as the Motherhouse.*
4. *Material Palette – The material selection and color palette should be guided by the material indications on the elevations and renderings and as described in the narrative as having natural tone, brick, granite, and grey clapboard. The more subtle grey material palette with brick vertical elements is supported – the use of as few materials as possible is recommended.*
5. *Building Entry –Clearly delineated entries with porch elements shall be a common feature.*
6. *Massing - The scale of each building is proposed to be mitigated through the use of varied forms and change of building plane, deck spaces, and façade composition (see renderings for material placement and massing).*
7. *Parking – Structured parking is proposed to be designed to have similar character to the residential building above.*

Conditions of Approval

Staff recommends the following design conditions of approval:

- *That the documents included in Exhibit B – architectural plans, elevations, and renderings, as well as an Architectural Characteristics Summary (Exhibit B.1) – are considered together to be adopted guiding documents that will be applicable design guidelines for future development proposals on this site.*
- *That an additional guideline 8. be added to Exhibit B.1 Architectural Characteristics Summary as follows: 8. Window types will be consistent with vertical proportion throughout all buildings.*

Additional Design Considerations (Site Plan)

The following guidelines will be taken into consideration for the architecture and design of future Site Plan development applications:

- *Flat or hipped roof line referential of the Motherhouse would be acceptable provided the proportion and slope of the roof is comparable and compatible as well as consistent throughout all the buildings.*
- *In the new buildings, maintain the proportional relationship of "roof" to façade found in the Motherhouse. The four-story building design in the MDP guiding documents does not reflect these proportions.*
- *Use as few material types as possible.*
- *The building nearest the Motherhouse should be designed with the most sensitivity to the context of the historic structure.*

The potential conditions of approval include the Urban Designer's recommended condition (above) and an additional condition that "the comments of the Urban Designer dated 6.9.2016 be taken into account when finalizing the location, size and design of the new buildings generally".

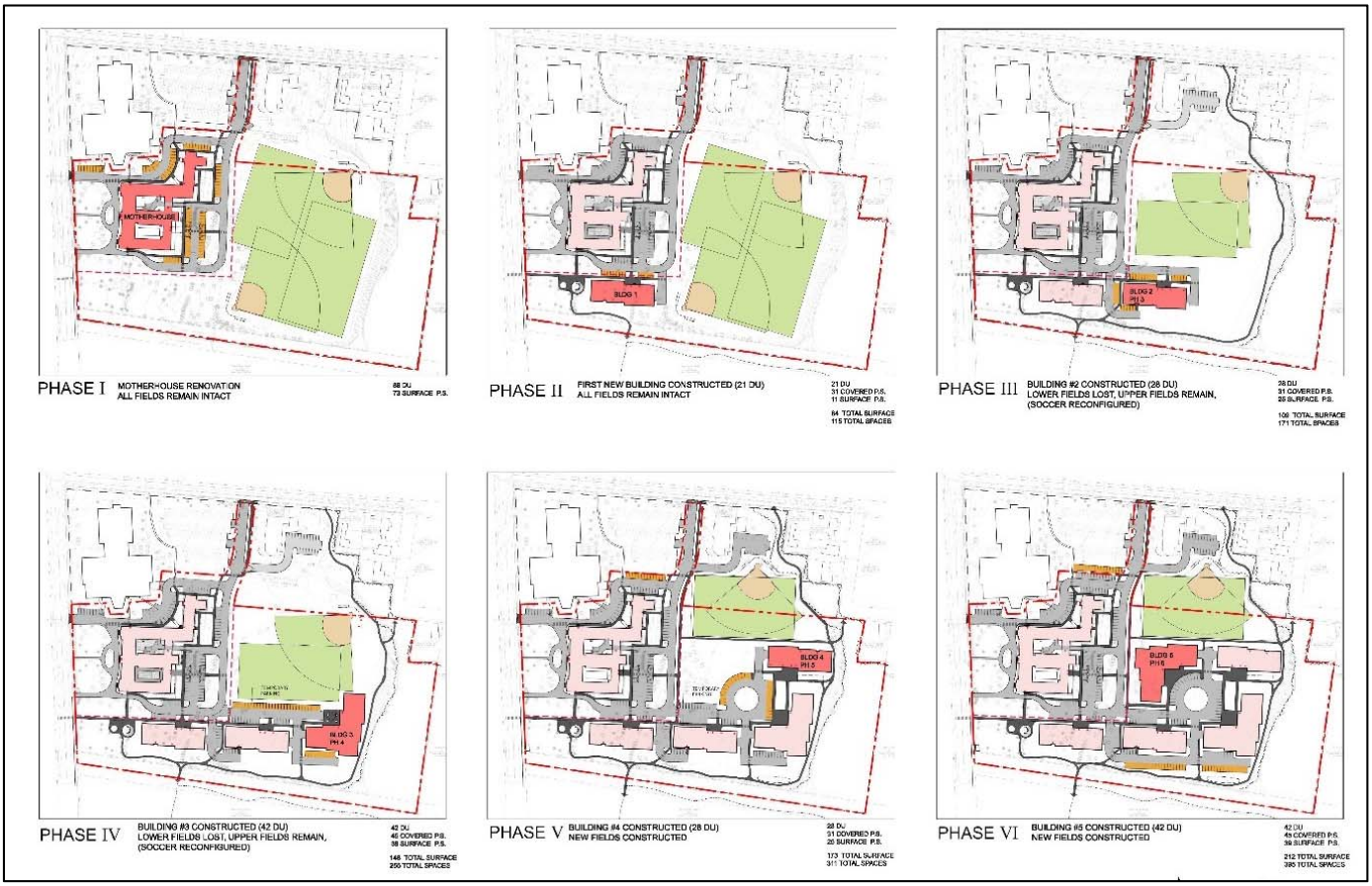
m. *Inclusive of provisions for the ownership and maintenance of usable open space as appropriate;*

Staff comments: The submission includes the draft Condominium Documents (Attachment D) that outline the management arrangements for the MDP area, including the open space. These will be finalized as required by the conditions of approval for the Motherhouse rehabilitation project. A suggested condition of approval requires the submission of further legal documents that clarify the use and operation of the MDP 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.

Staff comments: The applicant has submitted a revised Phasing Diagram (Plan P7) to reflect the intention of constructing one building per phase and to address comments regarding the interim parking and access for each phase and minimizing parking between the buildings and Baxter Woods (see discussions above). Staff consider that in phases III. IV and V the parking and paved areas should be omitted from the sides of the buildings facing Baxter Woods as it appears that interim parking (to serve that phase) could be provided on areas away from Baxter woods that are going to be disturbed and paved in any case. The suggested condition states:

> *That the proposed parking may be reduced from the zoning requirement of 2 parking spaces per unit of new development (excludes the Motherhouse) if the parking monitoring studies show that the demand is less than 2 spaces per unit. No parking between the new buildings and Baxter Woods shall be constructed until after the fourth building is occupied, and only if the monitoring studies show that additional parking is necessary to meet demand. The phasing plan shall be revised to show all parking for phases II to V to be located to the north of the buildings southmost wall;*



X. SITE LOCATION OF DEVELOPMENT ACT

In consultation with the MDEP, staff confirm that this review will apply when the first new building is submitted for site plan review and will take into account both the Lot 3 and Lot 4 in terms of relevant data.

XI. 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 the senior housing development proposed for Lots 3 and 4 at 605 Stevens Avenue.

XII. 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 June 14, 2016 for application 2016-033 (605 Stevens Avenue) relevant to the master development plan regulations; and the testimony presented at the Planning Board hearing, 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:

i. That the applicant shall conduct traffic monitoring studies (methodology to be agreed with the Planning Authority prior to undertaking the first study) prior to the submission of site plan applications for each phase after the Motherhouse and the first and second new buildings are completed, to confirm to the Planning Authority that the trip generation levels are consistent with the levels predicted in the traffic studies (based on ITE) and remain below the Traffic Movement Permit threshold of 100 peak hour vehicle trips; and

ii. That the applicant shall conduct parking monitoring studies (methodology to be agreed with the Planning Authority prior to undertaking the first study) prior to the submission of site plan applications for each phase after the Motherhouse, to confirm to the Planning Authority that the parking supply and circulation conditions at both the project site and at McAuley School are safe and acceptable. Associated with this is the requirement that the applicant confirm the parking generation assumptions for each phase are valid and the project does not impact the public street system and neighborhood; and

iii. That the proposed parking may be reduced from the zoning requirement of 2 parking spaces per unit of new development (excludes the Motherhouse) if the parking monitoring studies show that the demand is less than 2 spaces per unit. No parking between the new buildings and Baxter Woods shall be constructed until after the fourth building is occupied, and only if the monitoring studies show that additional parking is necessary to meet demand. The phasing plan shall be revised to show all parking for phases II to V to be located to the north of the buildings southmost wall; and

iv. That the applicant shall implement the following improvements in the ROW:
   a. Implementation of a 50 feet No Parking Zone on Stevens Avenue at the Motherhouse egress driveway to enhance safety by improving sight distance. Final details of the Zone shall be reviewed and approved by the City prior to implementation;
   b. Installation of a crosswalk on the south side of Stevens Avenue at Walton Street, to include all works associated with a fully installed ADA compliant crossing and shall include, but not limited to, traffic signal equipment, sidewalk ramps, pavement markings, and signage. This work shall be installed at the time of occupancy of the first new building (anticipated to be between the Motherhouse and Baxter Woods).

v. That the applicant shall include the location (which may need to be on the applicant's property) and implementation proposals for a bus shelter along the Stevens Avenue frontage as part of the site plan application for the first building (between the Motherhouse and Baxter Woods), and all site plan applications shall include details and clarification of proposed measures that will be implemented to reduce vehicle trips, such as car share vehicles; van service for local trips; bicycle facilities etc; and

vi. That the applicant shall include a pedestrian connection to Holly Street as part of the site plan application for the third new building, and continue to coordinate with the City on the location of the crosswalk on Stevens Avenue (to which a contribution has already been required as part of the Motherhouse rehabilitation site plan approval); and

(continued)

vii. That the applicant shall contribute to the preservation of Baxter Woods by:
   a. Implementation of the submitted and approved "*Letter of Intent*" that confirms that the applicant will work with the city to assist in the preservation of Baxter Woods. The City will oversee this work which shall include the assessment of the current condition of Baxter Woods, annual monitoring, and specific work identified as a priority by the monitoring;
   b. Making a contribution of $5000 per year (starting at the date of the issuance of the first building permit and ending 2 years after the final phase is occupied) towards the items identified in the *LOI,* except that the contributions will not exceed either 10 years or $50,000 in total contributions;
   c. Pursuing the creation of a *conservation easement,* or equally binding legal mechanism, for the 33 ft of applicant's land between the existing fence and the property line along Baxter Woods.

viii. That the site plan applications for the new buildings nearest to Baxter woods shall include an analysis and supporting information as to how all light sources (buildings, vehicles and site lighting) are proposed to be minimized to avoid impacts on the wildlife attracted to and in Baxter Woods; and that the comments of the Urban Designer dated 6.9.2016 be taken into account when finalizing the location, size and design of the new buildings generally; and

ix. That the documents included in Exhibit B – architectural plans, elevations, and renderings, as well as an Architectural Characteristics Summary (Exhibit B.1) – are considered together to be the guiding documents that will be applicable design guidelines for future development proposals on this site. The applicable design guidelines shall also include an additional guideline 8. to be added to *Exhibit B.1 Architectural Characteristics Summary* as follows: 8. Window types will be consistent with vertical proportion throughout all buildings; and

x. The applicant shall provide, as part of the site plan application for the first building, a summary of existing and/or proposed easements, covenants, public or private rights-of-way, public access agreements, parking management arrangements or other documents that augment the subdivision plat and condo documents and support the operation of the site as presented in the MDP application; and

xi. For each phase the applicant shall submit an analysis (for review and approval) that documents how the specific proposals relate to the overall MDP stormwater and utility framework and calculations (eg re impervious surfaces, stormwater flows etc) and include evidence of water capacity from the Portland Water District and of sewer capacity from the Department of Public Works.

ATTACHMENTS

REPORT ATTACHMENTS

1. Traffic Engineer final review comments
2. Peer Engineer final review comments
3. Dept. of Public Works review comments
4. Urban Design review comments
5. Staff review comments May 2016
6. City Arborist review comments
7. Background and previous reviews and approvals
8. Lots & zoning data table based on R5A zone
9. R5A Zone Dimensional Requirements
10. Baxter Woods leaflet: history, plans & restrictions

PUBLIC COMMENTS

PC A and B; PC1-10

APPLICANT'S SUBMITTAL

A. Cover Letter & Narrative 5.24.2016
B. MDP updated Application 6.3.2016 & prelim 2.1.2016
C. RTI
D. Draft Condo Docs
E. Financial Capability
F. Exhibit D – Traffic final
G. Exhibit E – Stormwater & Utilities final

APPLICANT'S SUBMITTAL

H. Exhibit F - Neighborhood Meeting Documentation
I. Letter of Intent (LOI) re Baxter Woods

PLANS (FINAL)

P1 Draft Subdivision Plat (previously approved)
P2 Overall Existing Conditions Plan
P3 Cover Sheet
P4 Neighborhood Context Plan
P5 Conceptual Master Plan
P6 Site Plan (full build out)
P7 Phasing Diagram
P8 Open space Calculations (full build out)
P9 Circulation Plan (full build out)
P10 Parking Diagram (full build out)
P11 Tree Removal Plan (full build out)
P12 Landscape Master Plan (full build out)
P13 Concept Stormwater Plan (full build out)
P14 Concept Utilities Plan (full build out)
P15 Sections buildings & Baxter Woods

Exhibit B Architectural Info: B-1 to B-16 Design narratives, elevations, renderings, perspectives and views that comprise the Urban Design Package

LICHT ENVIRONMENTAL DESIGN, LLC

EXHIBIT B
URBAN DESIGN & ARCHITECTURE

Exhibit B contains the following materials:

- Architectural Plans, Archetype, PA
  4-Story Rendering
  5-Story Rendering
  L-Building Rendering
  A2.1 4 –Story Elevation
  A2.1 5 - Story Elevation
  A2.2 4 - Story Elevation
  A 2.2 5 – Story Elevation

- Architectural Characteristics Summary, *Exhibit B.1,* attached.

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EXHIBIT B.1
605 STEVENS AVENUE
ARCHITECTURAL CHARACTERISTICS

The following design guidelines are proposed to describe the context of the architectural program for the 605 Stevens Avenue Master Development Plan Architecture. Final details may vary as submitted with individual LIII Site Plans for each building phase but shall incorporate the following design elements into the overall campus masterplan for the site:

1. Final building footprints will generally follow the approved footprints and massing shown on the Site Master Development Plans.

2. All Gable roofs have been eliminated in favor of flat roofs. This has the effect of calming down the architecture and is more reflective of an honest architecture.

3. Elements of the Motherhouse have been reflected in the new buildings such as the granite base of the Mother house will be incorporated into the new designs . A modern version of the mansard on the Motherhouse will be incorporated, but in a vertical, not sloped version , with a zinc faced metal shingle to identify the top floor. Brick elements with brick matching the Mother house are incorporated into the design .

4. The colors of the new buildings are all natural toned, brick, granite and grey clapboard.

5. The entry ways into each building are clearly delineated with welcoming porch elements.

6. Each unit will have its own deck space which also works to help break down the building massing and add interest.

7. Parking is located under each building structure allowing more open green space . The facades of the parking garage are fenestrated with window openings which are similar to a living space yielding a more inviting look to the exterior .

From: Tom Randall
To: jrather@portlandmaine.gov
Subject: 65 McAuley Way
Date: Monday, July 26, 2021 1:54:19 PM

Hello Mr. Rather,

I received your letter as an abutter to the proposal at 65 McAuley Way. We are concerned about several aspects of the proposal. In truth, as I have only recently received this notification of potential changes, I have not managed to delve into all the details of the proposal yet, however some issues have jumped out already.

The proposal significantly moves the buildings further north and includes a new car park beyond that which obliterates the open space guaranteed in the earlier proposal. As one of the very few direct abutters this change is very significant to us. Our light and view will be significantly affected by this change. Moreover, especially considering the car park, what provision for rainwater runoff have been made? Holly Street is already a rather damp neighborhood. Where are the 2 small pipe discharges on the east side?

Another issue would be in regards to waste water which will run out through Holly Street's existing pipes. How do we know it can accommodate an increase of well over a hundred units? How many additional units would we expect it could handle?

Are the buildings to be taller than previously proposed?

How will the wooded hillside be affected?

I received this notice only very recently and the meeting is on Thursday. Is this a typical timeline for a project of this order?

Thank you for your thoughtful response!
Tom Randall

From: Liz Duffy
To: jrather@portlandmaine.gov
Subject: Baxter Woods Development Proposal
Date: Wednesday, July 21, 2021 8:09:53 PM

Hi James,

My name is Elizabeth Duffy and I live at 12 Pershing St. Our lot backs up directly to the old Mcaully school field that I believe the following development is building multi-family condos on - PL-001662-2021.

We have a very high water table on our property. We get standing water immediately in the yard and around the house. Is anything being addressed during this development to better that and ensure none of this major digging will impact this in an adverse way? Can anything be done during this major work to improve this situation? Where is the drainage from the new buildings going to go? We are down hill from this new development and are concerned about this impact.

Thank you for your time and l look forward to hearing from you.

Sincerely,
Elizabeth Duffy

Comments regarding 65 McAuley Way

Tom Randall
Aug 27, 2021
to planni...@portlandmaine.gov

Portland Planning Board
Comments in regards to 65 McAuley Way
27 August 2021

Dear members of the Board,

We are opposed to the proposed changes to the Project at Stephens Square. We live at 34 Holly Street and are one of the very few direct residential abutters. We bought our home in March of 2019 with an understanding of the extent of the Stephens Square project. It is clear the revisions seriously change the nature of the approved plans.

The buildings are being moved significantly North in relation to our home and at 55 feet tall and up the hill from us (adding an additional 15 feet?) it will dwarf and shadow our neighborhood.

Moving the parking lot to the North side directly opposite our second floor leads to many additional concerns, including

Lighting in the parking lot shining down on us.
Traffic noise at all hours.
Rainfall runoff.
Snow melt.

In particular, with regards to the snow, the new proposal includes a specially designated place for snow directly above our property. The snow, salt, chemicals, and all matter of road debris will come straight down the hill to our house.

The previously approved plan with the buildings slightly south and the parking lot to the south side allowed for natural runoff into the woods and to the existing drainage systems where no one would be affected. The argument that the parking lot would take away from Baxter Woods does not hold true as the massive five story building will dominate the view and the parking lot itself will be screened by the existing coniferous forest in that area. The original plan also eliminates the issue of emergency access to Building 3 that came up during the recent planning workshop.

Moreover, all of the previous issues will be enhanced by what appears to be significant tree removal and engineering activities on an already problematic hillside above our home. In the approved plan the trees were designated as “Undisturbed.” The drawings for the current proposal appear to remove many trees including the conifers which would provide the only visual screen from November to April. It appears that Drawing WS1 misrepresents the current forest edge which is actually at the crest of the hill.

The new proposal also includes a new drainage easement and walkway built out beyond the current edge. It will skirt the hill edge whereas in the previously approved plan the draining easement takes a more direct line to the city drainage. From the documents I have seen I have not figured out what this will look like, but it can’t be good.

Run-off down the hill to our home and neighborhood became a problem due to landscaping work and the removal of trees to create the playing field some years ago. Grass and trees are the key to water uptake.

> What will be the actual effect of the pervious pavers in the lot?
> Will all the water drain through? Only some with inevitable runoff down the hill?
> What happens to the water that does pass through the pavers?
> Since the soil is assumed to be HSG:C will it likely not penetrate the soil and resurface in my garden and basement?
> What recourse do we have if the proposed drainage system fails? It appears the responsibility for maintenance of the stormwater system will fall to a large group of owners.

There are many reasons to reject this new proposal. It is clear from talking with my neighbors that they did not understand this is actually a new proposal with significant changes from the previously approved plan that would affect the residents of Holly and Pershing Streets. We have older houses with fieldstone foundations. Who has time to read through and understand the 400 pages of documentation, which perhaps accounts for some of the seeming apathy, as does summer timing of its release, the past and continuing stress of Covid, and fatigue from dealing with the original project.

Therefore, I implore the board to look after the interests of the current residents and not merely acquiesce to the developer's desires to morph the project unchecked. There is already an approved plan. I believe in fairness we should hold to it.

Yours Sincerely,

Thomas and Susan Randall

SITE DEVELOPMENT PLANS

FOR

Stevens Square at Baxter Woods - Phase 2 - 4

583 STEVENS AVENUE, PORTLAND, MAINE

JANUARY 2022

PERMIT DOCUMENTS

TAX MAP-BLOCK-LOT NUMBER:

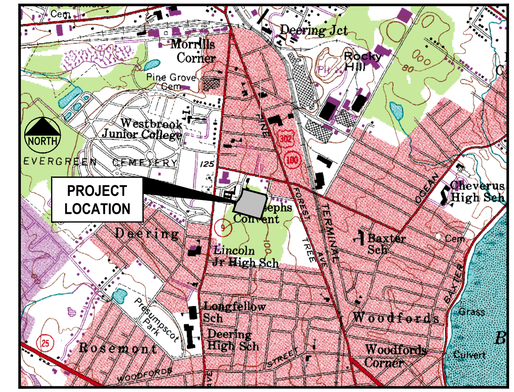
MAP 136 LOT E-6, MAP 143 LOT F-4, MAP 143 LOT F-12, MAP 144 LOT B-3
MAP 135 LOT X-2, MAP 135 LOT X-3, MAP 136 LOT X-1 (CONVEYANCE LOTS)

CURRENT LAND OWNER:

DC BAXTER WOODS IV LLC (ALL LOTS)
100 COMMERCIAL STREET, SUITE 414
PORTLAND, ME. 04101
BOOK 35072 / PAGE 145
SEE OVERALL SUBDIVISION PLAN
(CCRD BK. 216, PG. 433 - 10/28/2016)
FIRST AMENDED OVERALL SUBDIVISION PLAN
(CCRD BK. 217, PG. 151 - 05/04/2017)

DEVELOPER / APPLICANT:

DC BAXTER WOODS IV LLC
100 COMMERCIAL STREET, SUITE 414
PORTLAND, ME. 04101
CONTACT: KEVIN BUNKER
207.772.7673
bunker.kevin@gmail.com



LOCATION MAP
N.T.S.

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C-11.1 UTILITY PROFILES

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E1.1 SITE PHOTOMETRICS PLAN (BY BENNETT ENGINEERING)

UTILITIES

WATER:
PORTLAND WATER DISTRICT
225 DOUGLASS STREET
P.O. BOX 3553
PORTLAND, MAINE 04104
207.761.8310
CONTACT: ROBERT BARTELS
rbartels@pwd.org

SEWER:
CITY OF PORTLAND
PUBLIC SERVICES DIVISION
212 CANCO ROAD
PORTLAND, MAINE 04103
207.874.8840
CONTACT: KEITH GRAY / BRAD ROLAND

ELECTRIC:
CENTRAL MAINE POWER
162 CANCO ROAD
PORTLAND, MAINE 04103
207.842.2367
CONTACT: JAMIE COUGH

TELEPHONE:
CONSOLIDATED COMMUNICATIONS
5 DAVIS HILL FARM ROAD
PORTLAND, MAINE 04103
207.797.1866
CONTACT: PATRICK MORRISON

NATURAL GAS:
NORTHERN UTILITIES / UNITIL
1075 FOREST AVENUE
PORTLAND, MAINE 04103
207.541.2536
CONTACT: BRIDGET HARMON
harmon@unitil.com

CABLE TV:
TIME WARNER CABLE / SPECTRUM
115 JOHNSON ROAD
PORTLAND, MAINE 04102
207.253.2324
CONTACT: MARK PELLETIER

DIG SAFE:
CALL BEFORE YOU DIG
DIAL 811 (AT LEAST 72 HRS IN ADVANCE)

PERMITS / APPROVALS

TYPE:	GOVERNING BODY:	STATUS/DATE ISSUED:
LOCAL		
MAJOR SITE PLAN APPROVAL AMENDED SUBDIVISION PLAN APPROVAL/AMENDED MASTER DEVELOPMENT PLAN APPROVAL:	CITY OF PORTLAND PLANNING AUTHORITY CITY HALL, CONGRESS STREET PORTLAND, MAINE 04103 207.874.8608 CONTACT: KEVIN KRAFT	MAJOR SITE PLAN APPLICATION PRE APP - MARCH 24, 2021 APPLICATION MADE - MAY 12, 2021 PLANNING BOARD WORKSHOP AUGUST 10, 2021 RESUBMISSION NOVEMBER 23, 2021
BUILDING PERMIT:	CITY OF PORTLAND CODE ENFORCEMENT OFFICE CITY HALL, CONGRESS STREET PORTLAND, MAINE 04103 207.874.8900	BY OWNER/ARCHITECT
UTILITY OPENING PERMITS:	CITY OF PORTLAND PUBLIC SERVICES DIVISION 212 CANCO ROAD PORTLAND, ME 04103	BY CONTRACTOR

I HEREBY ACKNOWLEDGE THAT THESE PLANS AND SPECIFICATIONS WERE PREPARED UNDER MY DIRECT SUPERVISION, AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MAINE AND THAT I AM COMPETENT TO PREPARE THIS DOCUMENT.

ALL PERMITS ARE ANTICIPATED TO HAVE CONDITIONS ATTENDANT WITH THEIR APPROVAL. THE CONTRACTOR SHALL REVIEW ALL PERMITS AND THE CONDITIONS ATTENDANT WITH APPROVALS PRIOR TO THE START OF THE WORK. UNLESS OTHERWISE STIPULATED BY THE CONTRACT DOCUMENTS, THE CONTRACTOR IS REQUIRED TO COMPLY AND FULFILL ALL CONDITIONS OF APPROVAL.

CONSULTANT LIST

CIVIL ENGINEER:
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mike@archetypepa.com

SURVEYOR (TOPOGRAPHY AND BOUNDARY):
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FALMOUTH, MAINE 04105
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dtitcomb@titcombsurvey.com

GEOTECHNICAL ENGINEER:
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145 LISBON STREET, SUITE 701
LEWISTON, MAINE 04240
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LANDSCAPE ARCHITECT:
Aceto Landscape Architects.
565 CONGRESS STREET, SUITE 310
PORTLAND, MAINE 04101
207.221.3390
CONTACT: NICK ACETO / MARGO BARAJAS

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES & SHALL NOT BE USED FOR CONSTRUCTION.

STATE OF MAINE
STEPHEN R. BUSHEY
01.18.22
LICENSED PROFESSIONAL ENGINEER
STEPHEN R. BUSHEY, P.E.
LIC. #7429

Rev.	Date	Revision

Rev.	Date	Revision
3	2022.01.18	ISSUED FOR FINAL PERMIT AND PUBLIC HEARING
2	2021.12.07	RESUBMITTED PER LOR #1 FOR FINAL REVIEW
1	2021.05.12	SUBMITTED TO CITY FOR REVIEW

Design: SRB	Draft: CDD	Date: MAY 2021
Checked: SRB	Scale: AS NOTED	Job No.: 3564.03
File Name: 356403-COVER.dwg		

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Drawing Name: COVER SHEET
Project: **Stevens Square at Baxter Woods – Phase 2 – 4**
583 Stevens Avenue, Portland, Maine
Client/Owner: **DC BAXTER WOODS IV LLC**
631 STEVENS AVE., SUITE 203, PORTLAND, ME 04103 PH. 207.772.7673

Drawing No. C-1.0

U:\3564.03_Stevens Square-Lot 4 - Portland, ME\Z - CAD\DWG\356403-COVER.dwg - 1/18/2022 2:20 PM

GENERAL NOTES:

1. THE CONTRACTOR SHALL REFER TO THE PROJECT MANUAL FOR CONSTRUCTION SPECIFICATIONS AND BIDDING PROCEDURES.
2. THIS PROJECT WILL BE SUBJECT TO THE TERMS AND CONDITIONS OF ALL PERMITS ISSUED BY LOCAL UTILITY COMPANIES AND THE CITY OF PORTLAND.
3. THE CONTRACTOR SHALL REFER TO THE ARCHITECTURAL PLANS FOR EXACT LOCATIONS AND DIMENSIONS OF THE ENTRANCE, PAVING, PRECISE BUILDING DIMENSIONS, AND EXACT BUILDING UTILITY ENTRANCE POINTS. ENTRANCES IN MOST LOCATIONS REQUIRE STRUCTURAL SLABS. REFER TO THE ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR INFORMATION ON THE STRUCTURAL SLAB ENTRANCES.
4. ALL REQUIRED AND NECESSARY INSPECTIONS AND/OR CERTIFICATIONS REQUIRED BY CODES AND/OR UTILITY SERVICE COMPANIES SHALL BE PERFORMED PRIOR TO ANNOUNCED BUILDING POSSESSIONS AND THE FINAL SERVICE CONNECTIONS.
5. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR THE ELEVATION OF THE EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES AND, WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THIS INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE APPROPRIATE UTILITY COMPANY AND DIG SAFE AT LEAST 72 HOURS PRIOR TO ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.
6. MAINTENANCE OF EROSION CONTROL MEASURES IS OF PARAMOUNT IMPORTANCE TO THE APPLICANT AND THE CONTRACTOR IS RESPONSIBLE FOR COMPLYING WITH ALL EROSION CONTROL MEASURES SHOWN ON THE PLANS. ADDITIONAL EROSION CONTROL MEASURES SHALL BE INSTALLED IF DEEMED NECESSARY BY ONSITE INSPECTIONS OF THE OWNER, THEIR REPRESENTATIVES, OR THE CITY, AT NO ADDITIONAL COST TO THE OWNER.
7. ALL MATERIAL SCHEDULES SHOWN ON THE PLANS ARE FOR GENERAL INFORMATION ONLY. THE CONTRACTOR SHALL PREPARE HIS OWN MATERIAL SCHEDULES BASED UPON HIS PLAN REVIEW. ALL SCHEDULES SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO ORDERING MATERIALS OR PERFORMING WORK.
8. ALL MATERIALS AND CONSTRUCTION METHODS SHALL CONFORM TO THE PROJECT SPECIFICATIONS, THE CITY OF PORTLAND AND SERVICING UTILITY REQUIREMENTS, IN CASES WHERE THESE CONFLICT THE MOST STRINGENT SHALL APPLY AT NO EXTRA COST TO THE OWNER.
9. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING RECORD DRAWINGS THROUGHOUT THE PROJECT AND PROVIDING THE OWNER WITH A SET OF THE FINAL RECORD DRAWINGS WHEN THE PROJECT IS COMPLETE.
10. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING ACCESS AT ALL TIMES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TEMPORARY MARKINGS, SIGNAGE AND INCIDENTALS TO MAINTAIN SAFE VEHICLE AND PEDESTRIAN ACCESS THROUGH OUT THE LIFE OF THE PROJECT.

SITE LAYOUT NOTES:

1. ALL HANDICAP PARKING SPACES ARE TO RECEIVE HANDICAP SIGNS AND PAVEMENT MARKINGS AS ILLUSTRATED ON THE DETAIL SHEETS.
2. BITUMINOUS CONCRETE CURB AND GRANITE CURB SHALL MEET THE REQUIREMENTS OF MDOT 702.01, 703.07, AND 609.04.
3. ALL DIMENSIONING, UNLESS NOTED OTHERWISE, IS TO THE FACE OF CURB OR THE FACE OF THE BUILDING.
4. EXCEPT WHERE INDICATED OTHERWISE, THE PAVEMENT IS TO BE STANDARD DUTY PAVEMENT.
5. ALL TRAFFIC CONTROL SIGNS INDICATED ON THE SITE LAYOUT PLAN ARE TO MEET ALL REQUIREMENTS AND STANDARDS OF THE MAINE DEPARTMENT OF TRANSPORTATION, AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITIONS AND THE AMERICANS WITH DISABILITIES ACT REQUIREMENTS.
6. STRIPE PARKING AREAS, DRIVES AND ROADWAY AS SHOWN, INCLUDING PARKING SPACES, STOP BARS, CROSSWALKS, HANDICAP SYMBOLS, PAINTED ISLANDS AND FIRE LANES. (ALL MARKINGS EXCEPT MEDIAN ISLANDS AND CENTERLINES TO BE CONSTRUCTED USING WHITE TRAFFIC PAINT.) ALL TRAFFIC PAINT SHALL MEET THE REQUIREMENTS OF AASHTO M248 TYPE 'F'. MEDIAN ISLANDS AND CENTERLINES TO BE CONSTRUCTED USING YELLOW TRAFFIC PAINT.
7. SEE DETAILS FOR PARKING STALL DIMENSIONS, HANDICAP SYMBOLS, SIGNS AND SIGN POSTS.
8. STOP BARS SHALL BE 12" WIDE.
9. PAINTED ISLANDS SHALL BE 4" WIDE DIAGONAL LINES @ 3'-0" O.C. BORDERED BY 4" WIDE LINES.

GRADING & DRAINAGE NOTES:

1. ALL STORM DRAIN PIPE SHALL BE SMOOTH BORE INTERIOR PROVIDING A MANNINGS ROUGHNESS COEFFICIENT OF n = 0.013 OR LESS.
2. PROVIDE TURF REINFORCEMENT IN AREAS INDICATED ON THE PLANS.
3. AN "AS-BUILT" CERTIFICATION OF THE STORMWATER DRAINAGE SYSTEM BY A REGISTERED ENGINEER IS REQUIRED PRIOR TO THE OWNER ACCEPTING THE BUILDING AND PROPERTY. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT ANY DEVIATION FROM THE PLANS MAY DELAY THE ACCEPTANCE OF THE PROJECT.
4. A DETAILED O&M MANUAL FOR STORMWATER MANAGEMENT SYSTEMS IS (WILL BE) FILED WITH THE CITY OF PORTLAND DURING THE PERMIT REVIEW PROCESS. A SPECIFIC MANUAL HAS BEEN PREPARED FOR O&M OF THE DRAINAGE SYSTEM.
5. SEE EXISTING CONDITIONS PLAN FOR BENCHMARK INFORMATION.
6. SEE GRADING, DRAINAGE AND EROSION/SEDIMENT CONTROL PLAN FOR PROPOSED GRADING AND EROSION CONTROL MEASURES.
7. ALL DISTURBED AREAS NOT TO BE PAVED, SODDED OR OTHERWISE TREATED SHALL RECEIVE 4" LOAM, SEED, FERTILIZER AND MULCH.
8. COMPACTION REQUIREMENTS:

LOCATION	MINIMUM COMPACTION
SUBBASE AND BASE GRAVEL BELOW PAVED OR CONCRETE AREAS	95%
SUBGRADE FILL BELOW PAVED AREAS	90%
TRENCH BEDDING MATERIAL AND SAND BLANKET BACKFILL	95%
BELOW LOAM AND SEED AREAS	90%
STRUCTURAL FILL WITHIN PROPOSED BUILDING AREA	95%
SELECT FILL ADJACENT BUILDING FOUNDATIONS, EXTERIOR FOUNDATIONS, AND WITHIN 8 INCHES OF THE SLAB-ON-GRADE	95%

*ALL PERCENTAGES OF COMPACTION SHALL BE OF THE MAXIMUM DRY DENSITY AT THE OPTIMUM MOISTURE CONTENT AS DETERMINED AND CONTROLLED IN ACCORDANCE WITH ASTM D-1557.

9. ADJUST ALL MANHOLES, CATCH BASINS, CURB BOXES, ETC. WITHIN LIMITS OF WORK TO FINISH GRADE.
10. CONTRACTOR SHALL PROVIDE A FINISH PAVEMENT SURFACE FREE OF LOW SPOTS AND PONDING AREAS. CRITICAL AREAS INCLUDE BUILDING ENTRANCE AND EXIT RAMPS ADJACENT TO THE BUILDING AND ALONG NEW CURBED AREAS. ALL ADA COMPLIANT PARKING SPACES SHALL BE PAVED WITH A MAXIMUM SLOPE OF 2% IN ANY DIRECTION.
11. PROVIDE STABILIZATION OR SEPARATION GEOTEXTILE FABRIC OVER UNSTABLE SOILS AS DIRECTED BY THE OWNER'S REPRESENTATIVE AND IN ACCORDANCE WITH THE FINAL GEOTECHNICAL RECOMMENDATIONS.
12. NATIVE SOILS CONSIST OF TOPSOIL / PAVEMENT OVER FILL / REWORKED NATIVE SOIL OVERLYING MARINE FAN DEPOSIT OVERLYING BEDROCK. CARE MUST BE EXERCISED TO LIMIT DISTURBANCE OF THE BEARING SOILS. SHOULD THE SUBGRADE BECOME YIELDING OR DIFFICULT TO WORK, DISTURBED AREAS SHOULD BE EXCAVATED AND BACKFILLED WITH COMPACTED SELECT FILL OR CRUSHED STONE AT NO EXTRA EXPENSE TO THE OWNER.
13. FIVE (5.0) FEET OF CLEAN GRANULAR SOIL MEETING THE SELECT FILL GRADATION SPECIFICATIONS SHALL BE PROVIDED BELOW THE ENTRANCE SLABS AND ADJACENT SIDEWALKS. GRADUAL TRANSITION (3 HORIZONTAL TO 1 VERTICAL) OF SELECT FILL THICKNESS SHALL BE PROVIDED FROM THE 5.0 FOOT DEPTH TO THE GRAVEL BASE THICKNESS AT THE SIDEWALKS AND PAVED AREAS AWAY FROM THE BUILDINGS.

UTILITY NOTES:

1. ALL REQUIRED UTILITIES SERVING THE PROJECT SHALL BE COORDINATED AND CONSTRUCTED BY THE SITE WORK CONTRACTOR TO WITHIN 5 FEET OF THE BUILDINGS, AT A LOCATION COORDINATED WITH THE MEP CONTRACTOR AND THE BUILDING PLANS. SITE WORK WITHIN 5 FEET OF UNDERSLAB UTILITIES SHALL CONSIST OF TRENCHING AND BACKFILLING. ACTUAL UTILITY INSTALLATION SHALL BE BY THE MEP CONTRACTOR. ALL REQUIRED CONNECTION FEES SHALL BE PAID BY THE GENERAL CONTRACTOR.
2. THE CONTRACTOR SHALL COORDINATE THE INSTALLATION OF AND/OR RELOCATION OF OVERHEAD AND UNDERGROUND TELEPHONE WITH CONSOLIDATED COMMUNICATIONS. CONTRACTOR SHALL BE RESPONSIBLE FOR CONDUITS, PULL WIRES, TRENCHING AND BACKFILLING NECESSARY TO COMPLETE THE WORK.
3. ALL SANITARY SEWER WORK SHALL MEET THE STANDARDS OF THE MAINE STATE PLUMBING CODE AND CITY OF PORTLAND PUBLIC WORKS DEPARTMENT.
4. THE CONTRACTOR SHALL COORDINATE THE INSTALLATION OF ELECTRIC SERVICE WITH CENTRAL MAINE POWER.
5. COORDINATE ALL UTILITY WORK WITH THE APPROPRIATE UTILITY COMPANY. ALL UTILITY WORK SHALL CONFORM TO THE STANDARDS OF THE UTILITY COMPANY AND PROJECT SPECIFICATIONS. IN CASE OF CONFLICT, THE MORE STRINGENT STANDARDS SHALL APPLY.
6. THE LOCATIONS OF THE NEW UTILITY SERVICES AND CONNECTIONS SHALL BE COORDINATED WITH THE SERVING UTILITY COMPANY.
7. UNDERGROUND ELECTRICAL, CONDUIT MATERIAL AND INSTALLATION SHALL CONFORM TO UTILITY COMPANY STANDARDS AND PROJECT SPECIFICATIONS, WHICH EVER IS MORE STRINGENT.
8. ADJUST ALL MANHOLES, CATCH BASINS, CURB BOXES, ETC. WITHIN LIMITS OF WORK TO FINISH GRADE.
9. ALL UNDERGROUND CONDUITS SHALL HAVE NYLON PULL ROPES TO FACILITATE PULLING CABLES.
10. THE CONTRACTOR SHALL OBTAIN, PAY FOR, AND COMPLY WITH ALL REQUIRED PERMITS, ARRANGE FOR ALL INSPECTIONS, AND SUBMIT COPIES OF ACCEPTANCE CERTIFICATES TO THE OWNER PRIOR TO COMPLETION OF THE PROJECT.
11. THE CONTRACTOR SHALL PROVIDE AND INSTALL ALL BOXES, FITTINGS, CONNECTORS, COVER PLATES AND OTHER MISCELLANEOUS ITEMS NOT NECESSARILY DETAILED ON THE DRAWINGS TO RENDER INSTALLATION OF UTILITIES COMPLETE AND OPERATIONAL, AT NO EXTRA EXPENSE TO THE OWNER.
12. A 10 FOOT MINIMUM EDGE TO EDGE HORIZONTAL SEPARATION SHALL BE PROVIDED BETWEEN ALL WATER AND SANITARY SEWER LINES. AN 18 INCH OUTSIDE TO OUTSIDE VERTICAL SEPARATION SHALL BE PROVIDED AT ALL WATER AND SANITARY SEWER CROSSINGS.
13. THE CONTRACTOR SHALL PHASE UTILITY CONSTRUCTION AND PROVIDE TEMPORARY SERVICES AS REQUIRED TO PROVIDE CONTINUOUS SERVICE TO THE JOBSITE. TEMPORARY SERVICES SHALL COMPLY WITH ALL FEDERAL, STATE, LOCAL AND UTILITY COMPANY STANDARDS. COORDINATE ALL TEMPORARY SERVICES WITH UTILITY COMPANY, OWNER AND AFFECTED BUSINESSES.

LANDSCAPE NOTES:

(SUBJECT TO COORDINATION WITH LANDSCAPE DRAWINGS. IN CASE OF CONFLICT, THE LANDSCAPING DRAWINGS SHALL GOVERN.)

1. ALL PLANTS SHALL BE NURSERY GROWN AND WORKMANSHIP SHALL CONFORM TO THE AMERICAN ASSOCIATION OF NURSERYMEN, STANDARDS AND SHALL BE SUBJECT TO THE APPROVAL OF THE OWNERS REPRESENTATIVE BEFORE AND AFTER PLANTING.
2. PLANTS SHALL BE GUARANTEED FOR A PERIOD OF ONE (1) YEAR AFTER INSPECTION AND ACCEPTANCE, AND SHALL HAVE AT LEAST 80% HEALTHY GROWTH AT THE END OF THE GUARANTEED PERIOD.
3. ALL DISTURBED AREAS NOT TO BE PAVED OR OTHERWISE TREATED SHALL RECEIVE 4" LOAM, SEED, FERTILIZER, AND MULCH.
4. THREE (3) INCH BARK MULCH IS TO BE USED AROUND THE TREE AND SHRUB PLANTING AS SPECIFIED IN THE DETAILS. WHERE BARK MULCH IS USED IN A CURBED ISLAND, THE BARK SHALL MEET THE TOP INSIDE EDGE OF THE CURB. ALL OTHER AREAS SHALL RECEIVE 4" LOAM, SEED, FERTILIZER AND MULCH.
5. THE CONTRACTOR SHALL SUPPLY ALL PLANT MATERIALS IN QUANTITIES SUFFICIENT TO COMPLETE THE PLANTING AS SHOWN.
6. PARKING AREA PLANTED ISLANDS TO HAVE A MINIMUM OF 4" TOPSOIL. REMOVE ALL CONSTRUCTION DEBRIS BEFORE TOPSOILING. TOPSOIL SHALL BE PLACED TO TOP OF CURB.
7. ALL PLANT MATERIAL SHALL BE APPROVED BY THE OWNER OR THE OWNERS REPRESENTATIVE PRIOR TO ARRIVAL ON THE SITE.
8. PLANT MATERIAL SHALL BEAR THE SAME RELATIONSHIP TO FINISHED GRADE AS TO THE ORIGINAL PLANTING GRADE PRIOR TO DIGGING.
9. THE CONTRACTOR SHALL LOCATE, VERIFY, AND MARK ALL EXISTING AND NEWLY INSTALLED UNDERGROUND UTILITIES PRIOR TO ANY LAWN WORK OR PLANTING. ANY CONFLICTS WHICH MIGHT OCCUR BETWEEN PLANTINGS AND UTILITIES SHALL BE IMMEDIATELY REPORTED TO THE OWNER SO THAT ALTERNATE PLANTING LOCATIONS CAN BE DETERMINED.
10. NO SUBSTITUTION OF PLANT MATERIALS SHALL BE ALLOWED WITHOUT THE PRIOR WRITTEN APPROVAL OF THE OWNER.
11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL PLANTING AND LAWNS AGAINST DAMAGE FROM ONGOING CONSTRUCTION. THIS PROTECTION SHALL BEGIN AT THE TIME THE PLANT IS INSTALLED AND CONTINUE UNTIL THE FORMAL ACCEPTANCE OF ALL THE PLANTINGS.
12. SEE PLANTING DETAILS FOR WEED BARRIER INFORMATION.
13. ALL PLANTING LOCATED AT THE ENTRANCE TO THE PROJECT OR AT INTERSECTIONS WITHIN THE SITE WILL BE MAINTAINED AND WILL NOT EXCEED 3 FEET IN HEIGHT WITHIN A TRIANGLE FORMED 25' INTO THE DRIVEWAY AND 25' ALONG THE TRAVEL WAY.

EROSION CONTROL NOTES:

1. PRIOR TO BEGINNING ANY LAND DISTURBING ACTIVITIES. CLEARING AND GRADING LIMITS SHALL BE STAKED BY THE CONTRACTOR BASED ON THE LIMITS OF GRADING SHOWN ON THE DRAWINGS AND ACCEPTED BY THE OWNER'S REPRESENTATIVE IN THE FIELD. AFTER THE CLEARING AND GRADING LIMITS HAVE BEEN ACCEPTED, THE CONTRACTOR SHALL INSTALL THE PERIMETER SILT FENCES AND THE CONSTRUCTION ENTRANCES ASSOCIATED WITH THE PROJECT.
2. ALL GROUND AREAS GRADED FOR CONSTRUCTION SHALL BE GRADED, LOAMED, SEEDED AND MULCHED AS SOON AS POSSIBLE. TEMPORARY/PERMANENT SEED MIXTURES SHALL CONFORM TO THE SEEDING PLAN CONTAINED IN THE EROSION CONTROL PROJECT PREPARED FOR THIS PROJECT.
3. PRIOR TO PAVING, THE CONTRACTOR SHALL FLUSH SILT FROM ALL STORM LINES.
4. ALL STORM DRAIN INLETS AND OUTLETS NOT IN PAVED AREAS ARE TO RECEIVE RIPRAP PROTECTION APRONS DURING CONSTRUCTION.
5. SILT FENCES SHALL BE INSPECTED, REPAIRED AND CLEANED AS NOTED IN THE EROSION CONTROL NOTES SHOWN ON THE EROSION CONTROL DETAIL SHEET.
6. THE CONTRACTOR SHALL REPAIR AND ADD STONE TO THE CONSTRUCTION ENTRANCE AS IT BECOMES SATURATED WITH MUD TO ENSURE THAT IT FUNCTIONS TO CAPTURE MUD FROM THE TIRES OF CONSTRUCTION VEHICLES DURING CONSTRUCTION. THE PURPOSE OF THE CONSTRUCTION ENTRANCE IS TO KEEP ADJACENT STREETS CLEAR OF DIRT AND MUD, SWEEPING OF THE ROADWAYS SHALL BE PERFORMED BY THE CONTRACTOR.
7. SILT REMOVED FROM AROUND INLETS AND BEHIND THE SILT FENCES SHALL BE PLACED ON A TOPSOIL STOCKPILE AND MIXED INTO TOPSOIL FOR USE IN LANDSCAPING OPERATIONS.
8. LAND DISTURBING ACTIVITIES SHALL BE ACCOMPLISHED IN A MANNER AND SEQUENCE WHICH CAUSE THE LEAST PRACTICAL UNPROTECTED DENUDED AREAS ON THE SITE DURING CONSTRUCTION.
9. THE CONTRACTOR IS CAUTIONED THAT FAILURE TO COMPLY WITH THE SEQUENCE OF CONSTRUCTION, EROSION / SEDIMENT CONTROL PLAN, AND OTHER PERMIT REQUIREMENTS MAY RESULT IN MONETARY PENALTIES AS ENFORCED BY THE MEDEP OR LOCAL AGENCIES. THE CONTRACTOR SHALL BE ASSESSED ALL SUCH PENALTIES AT NO COST TO THE OWNER OR PERMITTEE.
10. A FULL EROSION/SEDIMENTATION CONTROL PLAN ACCOMPANIES THIS DRAWING SET AND IS ALSO CONTAINED IN THE SITE WORK SPECIFICATIONS.
11. PROVIDE INLET PROTECTION BARRIERS AROUND ALL EXISTING AND PROPOSED STORM DRAINAGE INLETS AS SHOWN AND MAINTAIN FOR THE DURATION OF THE PROJECT UNTIL PAVEMENT HAS BEEN INSTALLED.
12. INSPECT EROSION AND SEDIMENT CONTROL DEVICES AFTER EACH RAIN STORM OF 0.25 INCH OR GREATER. REPAIR/MODIFY PROTECTION AS NECESSARY TO MAXIMIZE EFFICIENCY FILTER. REPLACE ALL FILTERS WHEN SEDIMENT IS $\frac{1}{3}$ THE STRUCTURE HEIGHT.
13. INSTALL CURLEX EROSION CONTROL MAT OR EQUAL ON ALL SLOPES STEEPER THAN 3:1.
14. THE CONTRACTOR SHALL INSTALL ALL EROSION CONTROL MEASURES IN ACCORDANCE WITH THE "MAINE EROSION & SEDIMENT CONTROL HANDBOOK FOR CONSTRUCTION: BEST MANAGEMENT PRACTICES, CUMBERLAND COUNTY SOIL AND WATER CONVERSATION DISTRICT AND MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION, MARCH 1991"

LEGEND

EXISTING	PROPOSED
ZONING LINE	
EXISTING STRUCTURE	BUILDING
EDGE OF TRAVEL WAY, PAVEMENT, ROADS, DRIVES	PROPERTY LINE
CURBING	RETAINING WALL
PROPERTY LINE	CURBING
EASEMENT LINE	VERTICAL GRANITE*
OVERHEAD ELECTRIC LINES / OVERHEAD WIRES	SLOPED GRANITE*
UNDERGROUND ELECTRIC LINE	EDGE OF PAVEMENT
UNDERGROUND TELEPHONE LINE	GRADING CONTOUR LINE
WATER LINE	SPOT ELEVATION
WATER GATE VALVE	GUARD POST/BOLLARD
STORM DRAIN LINE	POLE WITH LIGHT FIXTURE(S)
SANITARY SEWER LINE	FREESTANDING SIGN
ROADWAY PAVEMENT STRIPING	BARRIER FREE PARKING SYMBOL
GAS	PEDESTRIAN CROSSWALK
FENCE	DIRECTION OF TRAFFIC FLOW
EXISTING CONTOUR LINE	UNDERGROUND TELEPHONE / CABLE
EXISTING WETLANDS	UNDERGROUND ELECTRIC/TELEPHONE
UTILITY POLE	WATER LINE
SIGN	SEWER LINE
LIGHT POLE	GAS LINE
CATCH BASIN	STORM DRAIN LINE
SEWER MANHOLE	HYDRANT
ELECTRICAL/COMMUNICATIONS VAULT	WATER GATE VALVE
ELECTRICAL/COMMUNICATIONS PULL BOX	WATER SHUT OFF VALVE
HYDRANT	MANHOLE
TREES, LANDSCAPING	CATCH BASIN
TREELINE / EDGE OF BRUSH	EXISTING CATCH BASIN TO BE ALTERED
TELEPHONE MANHOLE	RIPRAP
ELECTRICAL MANHOLE	SILT FENCE
TEST BORING	CHAIN LINK OR SAFETY FENCE
WETLANDS	WOOD FENCE
	GUIDE RAIL
	LIMIT OF WORK
	STONE SEDIMENT BARRIER
	TRANSFORMER PAD
	TREE TO BE REMOVED

*OWNER RESERVES THE RIGHT TO MODIFY ALL ONSITE CURBING TO SLIPFORM CONCRETE

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES & SHALL NOT BE USED FOR CONSTRUCTION.

STATE OF MAINE — STEPHEN R. BUSHEY — 01.18.22 — LICENSED PROFESSIONAL ENGINEER

STEPHEN R. BUSHEY, P.E.
LIC. #7429

Rev.	Date	Revision

Rev.	Date	Revision
3	2022.01.18	ISSUED FOR FINAL PERMIT AND PUBLIC HEARING
2	2021.12.07	RESUBMITTED PER LOR #1 FOR FINAL REVIEW
1	2021.05.12	SUBMITTED TO CITY FOR REVIEW

Design: SRB	Draft: CDD	Date: MAY 2021
Checked: SRB	Scale: AS NOTED	Job No.: 3564.03
File Name: 356403-GEN NOTES.dwg		

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207.772.2515

Drawing Name: GENERAL NOTES & LEGEND

Project: **Stevens Square at Baxter Woods – Phase 2 – 4**
583 Stevens Avenue, Portland, Maine

Client/Owner: **DC BAXTER WOODS IV LLC**
631 STEVENS AVE., SUITE 203, PORTLAND, ME 04103 PH. 207.772.7673

Drawing No. C-1.1

U:\3564.03_Stevens Square-Lot 4 - Portland, ME\2 - CAD\DWG\356403-GEN NOTES.dwg - 1/18/2022 10:22 AM

605 Stevens Avenue, Portland - Residential Density Computations **Lots 3 & 4**

Parcel ID (BASED ON 06-24-)	Gross Acreage (Ac.)	R5A ESTIMATED NRA DEDUCTS per § 14-47 as AMENDED 06-15-15	LOT AREA IN R5A (APPLY Mother House Lot 3	LOT AREA IN R5A (APPLY Lot 4 (Fields)	LOT AREA IN R5 (NO Mother House Lot 3	LOT AREA IN R5 (NO Lot 4 (Fields)
		Gross Area (ac.)	2.65	7.15	1.73	1.90
		(s.f.)	115,538	311,533	75,528	82,577
Lot 1 St. Catherines	2.36	Deducts:				
Lot 2 McAuley HS	3.18	A. Exist. watercourses	0	0	NA	NA
Lot 3 Motherhouse	4.39	B. Wetlands (as defined)	0	54,341	NA	NA
Lot 4 Fields/Stevens Ave.	9.05	C. 25% slopes	0	19,827	NA	NA
Total Acreage	**18.98**	*Deducts Total:*	0	74,168	NA	NA
		NET LAND AREA (Gross Ac.- Deducts) (sf)	*115,538*	*237,365*	*75,528*	*82,577*
		(ac)	*2.65*	*5.45*	*1.73*	*1.90*
		MULTIPLEX UNITS PERMITTED	72	148	16	13
		TOTAL LOT 3	88			
		TOTAL LOT 4	161			
		GRAND TOTAL LOTS 3 & 4	**249**			

Notes:
1. Lot 3 - R5 density is 1 unit per 4,500 sf Gross ac. with 250 ft frontage. (§ 14.117(a.) 2.)
2. Lot 4 - R5 density is 1 unit per 6,000 sf Gross ac. with less than 250 feet frontage (§14.117 (a.) 2.)
3. R5A - Density = 1 unit/1,600 sf Net Area applying deducts.
4. No affordable housing multiplex density bonuses per §14-488 applied to Motherhouse Lot 3

LOCUS PLAN
NOT TO SCALE



LEGEND
- Iron pin found
- Monument found
- Abutter's line
- Property line
- Easement line
- Right of way line
- Existing building

NOTES

1) Book and Page references are to the Cumberland County Registry of Deeds.

2) Bearings are referenced to Grid North. See Plan Reference 1.

3) This plan has been prepared and approved in accordance with the City of Portland Land Use Code, Article IV Subdivisions as a four (4)–lot subdivision. Development of Lots 1–4 shall be subject to Site Plan Review and approval by the Planning Board pursuant to Article V Site Plan Review standards. A sectional recording plat for individual or master planned development shall be prepared and approved for individual lot or section development in accordance with Article IV, § 14–495(h) requirements prior to construction on any lots.

4) Notwithstanding any deeded rights granted to the City of Portland development shall occur within the 33–foot right of way easement located on the southerly property line (the Baxter Easement). Said easement shall forever remain natural, however allowing for tree and vegetation maintenance by a licensed arborist, creation and maintenance of trails for use by the public or other activities consistent with permitted uses within the adjacent Mayor Baxter Woods property.

5) This four lot subdivision approval was granted by the City of Portland Planning Board 8/11/15.

6) Reference is made to the Lot 3 Sectional Subdivision Plat Motherhouse–88 Units prepared by Titcomb Associates, last dated 6/24/15 and approved by the City of Portland on 8/11/15 for Lot 3 conditions of approval as recorded in Plan Book 216, Page 434 as modified by the First Amended Plan of Lot 3 Sectional Subdivision Plat Motherhouse–88 Units prepared by Titcomb Associates dated April 10, 2017, to be recorded.

7) The easements are referenced and described by the corresponding number in the 605 Stevens Avenue, Declaration of Covenants and Easements to be recorded in the Cumberland County Registry of Deeds.

8) Lots 3 and 4 are referenced to a City of Portland Master Development Plan approval dated 06–14–16 in conformance with City Code Section 14–524(a)3c.

9) This plan provides 76 parking spaces on lot 3 (3 spaces in excess of the08–11–15 approved 73 spaces)– 73 spaces shall be assigned to the Motherhouse, Condominium Unit 1 and 3 spaces assigned to the Smith Wing, unit 2. refer to plan reference 11 for parking locations.

PLAN REFERENCES

1) Site Plan done by SYTDesign Consultants, December 2000 and May 2001, not recorded.

2) Standard Boundary Survey of "Mayor Baxter Woods" by Public Works Department of the City of Portland, Maine, dated April 2001, not recorded.

3) Plan of Land Attached to the Last Will and Testament of Annie E. Ewing by E.C. Jordan, dated April 25, 1892, recorded in Plan Book 10, Page 131.

4) Plan of Topography in Portland, Maine for Mercy Hospital by E.C. Jordan, dated March 21, 1968, not recorded.

5) Plan of Maple Grove, Portland, not signed, recorded October 20, 1868 in Plan Book 2, Page 52.

6) Plan of Property made for St. Joseph's Convent and Hospital Corp. by H.I. & E.C. Jordan, dated June 28, 1977, not recorded.

7) Standard Boundary Survey made for Amy Mulkerin by Titcomb Associates, dated July 14, 1987, not recorded.

8) Standard Boundary Survey, Property of St. Joseph's Convent and Hospital, made for SYTDesign Consultants by Titcomb Associates, dated November 4, 2002.

9) Plan of Property and Existing Conditions, Catherine McAuley High School & St. Joseph's Convent made for Land Use Consultants by Land Use Consultants dated September 26, 2006.

10) Overall Subdivision Plan–605 Stevens Avenue made for Sea Coast at Baxter Woods Associates, LLC dated June 24, 2015 and revised through June 15, 2016 as recorded in Plan Book 216, Page 433.

11) Plan of Lot 3 Sectional Subdivisional Plat Motherhouse–88 Units made for Motherhouse Associates LP by Titcomb Associates, dated June 24, 2015 recorded in the Cumberland County Registry of Deeds in Plan Book 216, Page 434 as modified by a plan entitled "First Amended Plan of Lot 3 Sectional Subdivision Plat Motherhouse–88 Units" made for Motherhouse Associates LP by Titcomb Associated dated April 10, 2017, to be recorded.

EASEMENTS and ENCUMBRANCES

1) Lot 4 is subject to a right of way 33 feet wide as shown, reserved in deed of James P. Baxter to the Roman Catholic Bishop of Portland dated March 10, 1908 and recorded in Book 821, Page 59.

2) Lot 4 benefits from a right of way 33 feet wide adjoining the southerly sideline as shown, described in deed of James P. Baxter to the Roman Catholic Bishop of Portland dated March 10, 1908 and recorded in Book 821, Page 59.

3) No record evidence of an easement for utility poles on the property was found.

4) Rights, covenants and easements set forth in the Stormwater Drainage System Maintenance Agreement from Sea Coast at Baxter Woods Associates, LLC to the City of Portland, dated December 23, 2016 and recorded in the Cumberland County Registry of Deeds, Book 33752, Page 170 as modified by an Addendum to Stormwater Drainage System Maintenance Agreement, to be recorded. Not plottable.

5) Covenants, conditions, restrictions, reservations, easements, liens for assessments, and other matters set forth in the Declaration of Condominium of 605 Stevens Avenue Condominium, to be recorded.

6) Rights, easements and covenants set forth in the Declaration of Covenants and Easements, to be recorded.

08-11-15 SUBDIVISION CONDITIONS OF APPROVAL:

1) The applicant shall finalize and cross–reference the two subdivision plats and associated condominium documents for review and approval by Corporation Counsel, the Department of Public Services, and the Planning Authority prior the plats being signed by the Planning Board; and

2) That the 73 parking spaces on Lot #3 (Motherhouse Lot) shall be solely for the residential tenants of the Motherhouse with no other lots having easement rights for parking on Lot #3. All of the easements as identified on the Plat, including those regarding the shared driveways and parking areas, shall be finalized to the satisfaction of the Corporation Counsel, Department of Public Services, Traffic Engineering Reviewer and the Planning Authority, and executed prior to the release of the signed subdivision plat; and

3) That the recommendations of the City Arborist in comments dated 7.22.2015 regarding the protection of preserved trees and follow up tree care (particularly large heritage Red Oaks) shall be advised to all contractors and implemented during construction and after, to include no storage of materials within the drip line of trees and tree save measures as per ISA trees and construction recommendations as noted.

*(also see note #9)

WAIVERS GRANTED BY THE PORTLAND PLANNING BOARD ON 08-11-15:

1) Street Trees: The Planning Board finds that the applicant has demonstrated that site constraints prevent the planting of all required street trees and waived the standard (Section 14–526(b)(iii)) requiring one street tree per unit for multi–family development and concludes that the applicant shall make a financial contribution of $5,600 for 28 trees to Portland's Tree Fund.

2) Parking Aisle Width: The Planning Board waived the requirement of Section 1.14 of the City's Technical Manual that show a 24 ft. wide drive aisle required for perpendicular spaces to allow a reduction to 22 feet aisle width for the parking area in the north exit drive on Stevens Avenue to minimize the impact on the historic nature of the area.

3) Number of Driveways: The Planning Board waived the requirement of Section 1.7.1.8, Number of Driveways, that does not permit more than 2 driveways per site to allow 3 driveways because 2 of the driveways are one–way and the third driveway functions as a shared driveway.

TOTAL AREA

826,755 sq. ft./18.98 acres

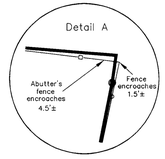
EASEMENT TABLE	
#1	Parking and Access Easement
#2	Access, Utility and Drainage Easement
#3	Access, Utility and Drainage Easement
#4	Access, Utility and Drainage Easement
#5	Access, Utility Drainage Easement
#6	Utility and Drainage Easement
#7	Stormdrain Easement
#8	Access, Utility and Drainage Easement
#9	Utility Easement
#10	Utility Easement

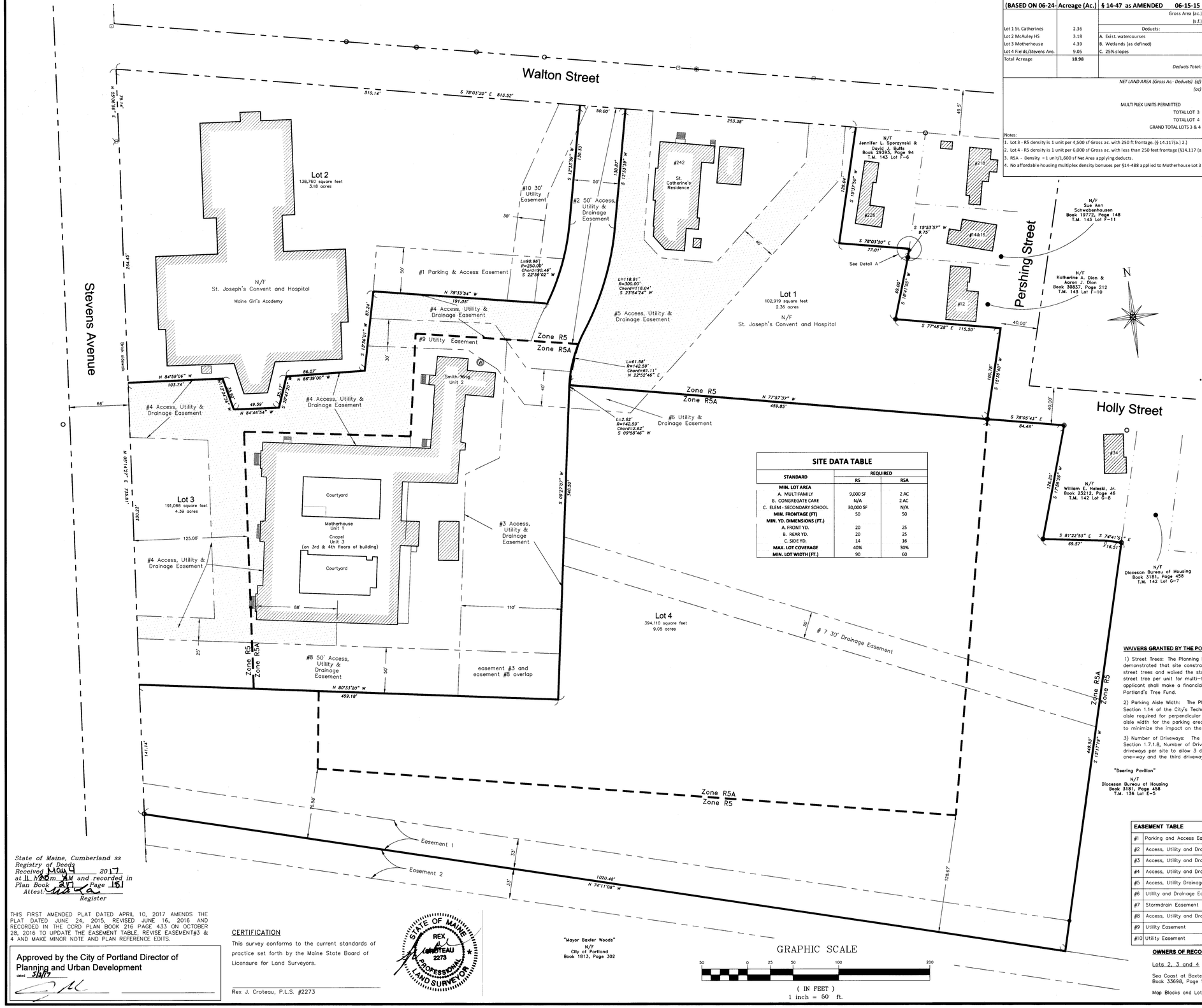
OWNERS OF RECORD

Lots 2, 3 and 4

Sea Coast at Baxter Woods Associates, LLC
Book 33698, Page 187

Map Blocks and Lots: 136–E–6, 143–F–4, 144–B–1





SITE DATA TABLE

STANDARD	REQUIRED R5	REQUIRED R5A
MIN. LOT AREA		
A. MULTIFAMILY	9,000 SF	2 AC
B. CONGREGATE CARE	N/A	2 AC
C. ELEM - SECONDARY SCHOOL	30,000 SF	N/A
MIN. FRONTAGE (FT)	50	50
MIN. YD. DIMENSIONS (FT.)		
A. FRONT YD.	20	25
B. REAR YD.	20	25
C. SIDE YD.	14	16
MAX. LOT COVERAGE	40%	30%
MIN. LOT WIDTH (FT.)	90	60

GRAPHIC SCALE
50 0 25 50 100 200
(IN FEET)
1 inch = 50 ft.

State of Maine, Cumberland ss
Registry of Deeds
Received May 4 2017
at 11 h 20 m AM and recorded in
Plan Book 217 Page 151
Attest: Register

THIS FIRST AMENDED PLAT DATED APRIL 10, 2017 AMENDS THE PLAT DATED JUNE 24, 2015, REVISED JUNE 16, 2016 AND RECORDED IN THE CCRD PLAN BOOK 216 PAGE 433 ON OCTOBER 28, 2016 TO UPDATE THE EASEMENT TABLE, REVISE EASEMENT#3 & 4 AND MAKE MINOR NOTE AND PLAN REFERENCE EDITS.

Approved by the City of Portland Director of Planning and Urban Development
dated 5/2/17

CERTIFICATION

This survey conforms to the current standards of practice set forth by the Maine State Board of Licensure for Land Surveyors.

Rex J. Croteau, P.L.S. #2273

STATE OF MAINE REX CROTEAU 2273 PROFESSIONAL LAND SURVEYOR

FIRST AMENDED OVERALL SUBDIVISION PLAN

605 Stevens Avenue

Stevens Avenue & Walton Street — Portland, Maine

MADE FOR

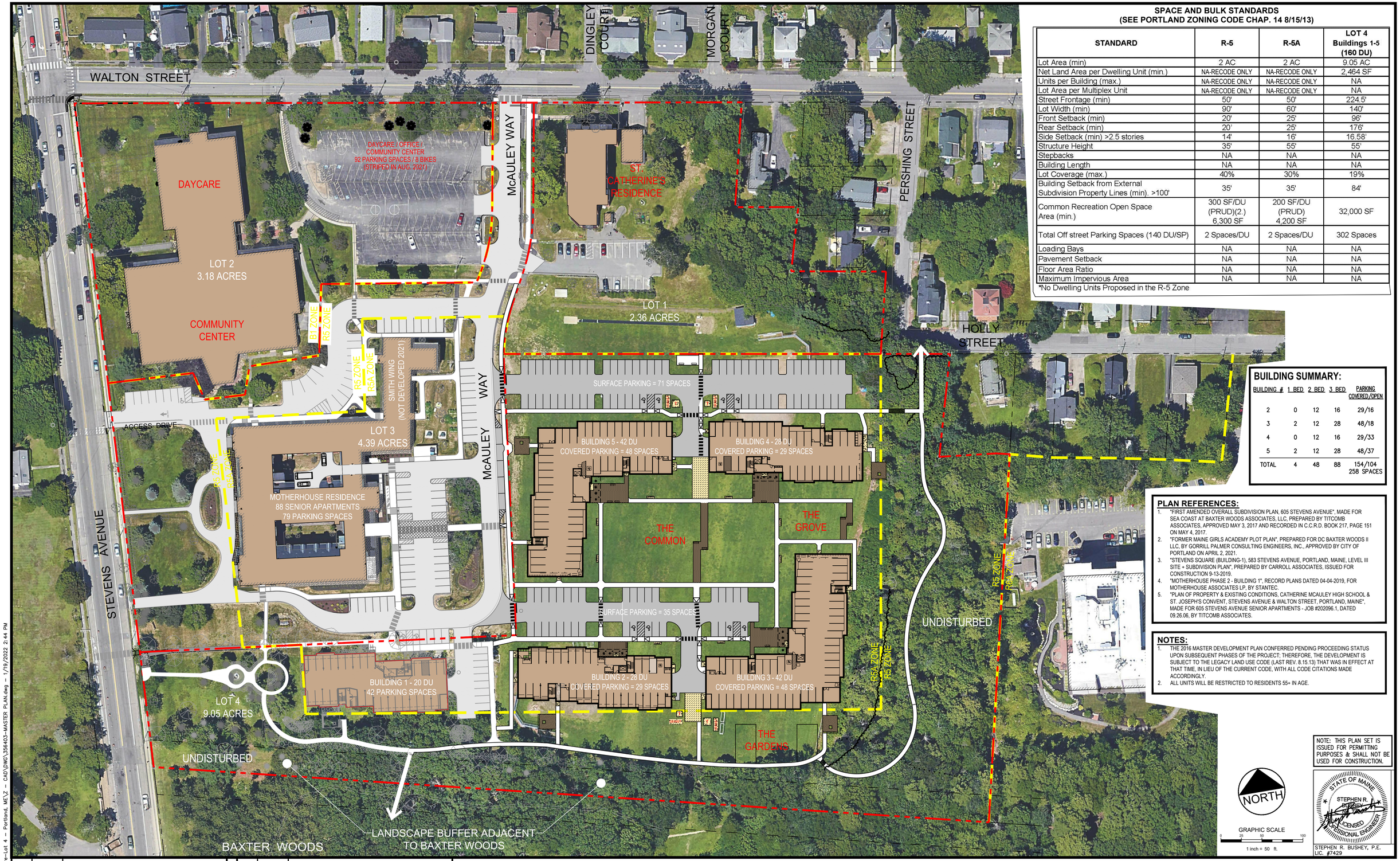
Sea Coast at Baxter Woods Associates, LLC

20 Blueberry Lane — Falmouth, Maine 04105

JOB#	202096.1	DATE:	April 10, 2017	SCALE:	1" = 50'
BOOK#	525, 578				
202096–2006.dwg					
FILE#	8538				

Titcomb Associates
133 Gray Road, Falmouth, Maine 04105
(207)797-9199 www.titcombsurvey.com

Sheet C2



SPACE AND BULK STANDARDS
(SEE PORTLAND ZONING CODE CHAP. 14 8/15/13)

STANDARD	R-5	R-5A	LOT 4 Buildings 1-5 (160 DU)
Lot Area (min)	2 AC	2 AC	9.05 AC
Net Land Area per Dwelling Unit (min.)	NA-RECODE ONLY	NA-RECODE ONLY	2,464 SF
Units per Building (max.)	NA-RECODE ONLY	NA-RECODE ONLY	NA
Lot Area per Multiplex Unit	NA-RECODE ONLY	NA-RECODE ONLY	NA
Street Frontage (min)	50'	50'	224.5'
Lot Width (min)	90'	60'	140'
Front Setback (min)	20'	25'	96'
Rear Setback (min)	20'	25'	176'
Side Setback (min) >2.5 stories	14'	16'	16.58'
Structure Height	35'	55'	55'
Stepbacks	NA	NA	NA
Building Length	NA	NA	NA
Lot Coverage (max.)	40%	30%	19%
Building Setback from External Subdivision Property Lines (min). >100'	35'	35'	84'
Common Recreation Open Space Area (min.)	300 SF/DU (PRUD)(2.) 6,300 SF	200 SF/DU (PRUD) 4,200 SF	32,000 SF
Total Off street Parking Spaces (140 DU/SP)	2 Spaces/DU	2 Spaces/DU	302 Spaces
Loading Bays	NA	NA	NA
Pavement Setback	NA	NA	NA
Floor Area Ratio	NA	NA	NA
Maximum Impervious Area	NA	NA	NA

*No Dwelling Units Proposed in the R-5 Zone

BUILDING SUMMARY:

BUILDING #	1 BED	2 BED	3 BED	PARKING COVERED/OPEN
2	0	12	16	29/16
3	2	12	28	48/18
4	0	12	16	29/33
5	2	12	28	48/37
TOTAL	4	48	88	154/104 258 SPACES

PLAN REFERENCES:

1. "FIRST AMENDED OVERALL SUBDIVISION PLAN, 605 STEVENS AVENUE", MADE FOR SEA COAST AT BAXTER WOODS ASSOCIATES, LLC, PREPARED BY TITCOMB ASSOCIATES, APPROVED MAY 3, 2017 AND RECORDED IN C.C.R.D. BOOK 217, PAGE 151 ON MAY 4, 2017.
2. "FORMER MAINE GIRLS ACADEMY PLOT PLAN", PREPARED FOR DC BAXTER WOODS II LLC, BY GORRILL PALMER CONSULTING ENGINEERS, INC., APPROVED BY CITY OF PORTLAND ON APRIL 2, 2021.
3. "STEVENS SQUARE (BUILDING-1), 583 STEVENS AVENUE, PORTLAND, MAINE, LEVEL III SITE + SUBDIVISION PLAN", PREPARED BY CARROLL ASSOCIATES, ISSUED FOR CONSTRUCTION 9-13-2019.
4. "MOTHERHOUSE PHASE 2 - BUILDING 1", RECORD PLANS DATED 04-04-2019, FOR MOTHERHOUSE ASSOCIATES LP, BY STANTEC.
5. "PLAN OF PROPERTY & EXISTING CONDITIONS, CATHERINE MCAULEY HIGH SCHOOL & ST. JOSEPH'S CONVENT, STEVENS AVENUE & WALTON STREET, PORTLAND, MAINE", MADE FOR 605 STEVENS AVENUE SENIOR APARTMENTS - JOB #202096.1, DATED 09.26.06, BY TITCOMB ASSOCIATES.

NOTES:

1. THE 2016 MASTER DEVELOPMENT PLAN CONFERRED PENDING PROCEEDING STATUS UPON SUBSEQUENT PHASES OF THE PROJECT; THEREFORE, THE DEVELOPMENT IS SUBJECT TO THE LEGACY LAND USE CODE (LAST REV. 8.15.13) THAT WAS IN EFFECT AT THAT TIME, IN LIEU OF THE CURRENT CODE, WITH ALL CODE CITATIONS MADE ACCORDINGLY.
2. ALL UNITS WILL BE RESTRICTED TO RESIDENTS 55+ IN AGE.

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES & SHALL NOT BE USED FOR CONSTRUCTION.

NORTH

GRAPHIC SCALE
0 25 50 100
1 inch = 50 ft.

STATE OF MAINE
STEPHEN R. BUSHEY
LICENSED PROFESSIONAL ENGINEER
STEPHEN R. BUSHEY, P.E.
LIC. #7429

Rev.	Date	Revision

Rev.	Date	Revision
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1	2021.05.12	SUBMITTED TO CITY FOR REVIEW

Design: SRB	Draft: CDD	Date: MAY 2021
Checked: SRB	Scale: AS NOTED	Job No.: 3564.03
File Name: 356403-MASTER PLAN.dwg		

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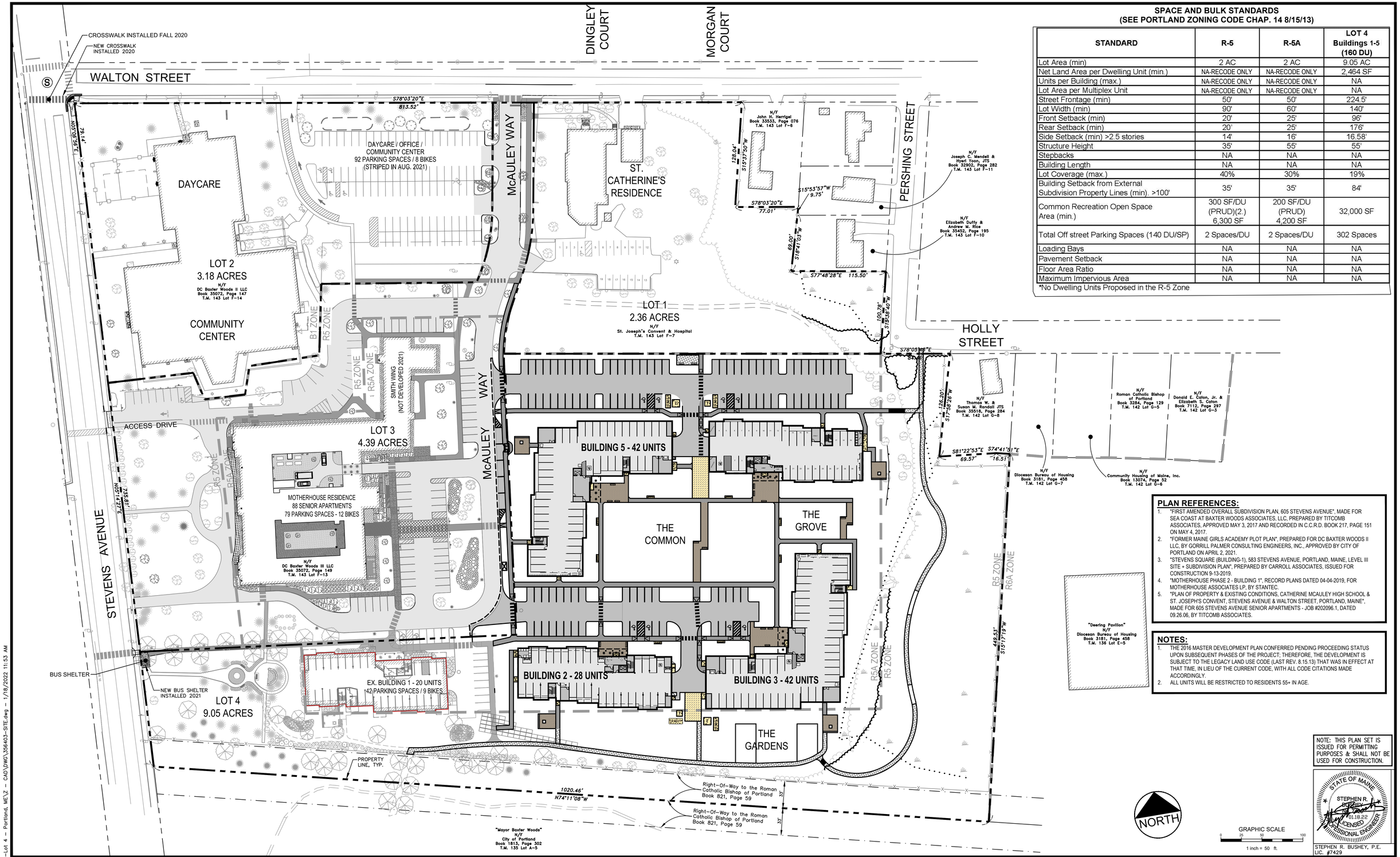
Drawing Name: AMENDED MASTER PLAN
Project: **Stevens Square at Baxter Woods**
583 Stevens Avenue, Portland, Maine
Client/Owner: **DC BAXTER WOODS IV LLC**
631 STEVENS AVE., SUITE 203, PORTLAND, ME 04103 PH. 207.772.7673

Drawing No. MASTER PLAN

U:\3564.03_Stevens Square-Lot 4 - Portland, ME\Z - CAD\DWG\356403-MASTER PLAN.dwg - 1/19/2022 2:44 PM



SPACE AND BULK STANDARDS
(SEE PORTLAND ZONING CODE CHAP. 14 8/15/13)

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Lot Area (min)	2 AC	2 AC	9.05 AC
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Total Off street Parking Spaces (140 DU/SP)	2 Spaces/DU	2 Spaces/DU	302 Spaces
Loading Bays	NA	NA	NA
Pavement Setback	NA	NA	NA
Floor Area Ratio	NA	NA	NA
Maximum Impervious Area	NA	NA	NA

*No Dwelling Units Proposed in the R-5 Zone

PLAN REFERENCES:

1. "FIRST AMENDED OVERALL SUBDIVISION PLAN, 605 STEVENS AVENUE", MADE FOR SEA COAST AT BAXTER WOODS ASSOCIATES, LLC, PREPARED BY TITCOMB ASSOCIATES, APPROVED MAY 3, 2017 AND RECORDED IN C.C.R.D. BOOK 217, PAGE 151 ON MAY 4, 2017.
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5. "PLAN OF PROPERTY & EXISTING CONDITIONS, CATHERINE MCAULEY HIGH SCHOOL & ST. JOSEPH'S CONVENT, STEVENS AVENUE & WALTON STREET, PORTLAND, MAINE", MADE FOR 605 STEVENS AVENUE SENIOR APARTMENTS - JOB #202096.1, DATED 09.26.06, BY TITCOMB ASSOCIATES.

NOTES:

1. THE 2016 MASTER DEVELOPMENT PLAN CONFERRED PENDING PROCEEDING STATUS UPON SUBSEQUENT PHASES OF THE PROJECT; THEREFORE, THE DEVELOPMENT IS SUBJECT TO THE LEGACY LAND USE CODE (LAST REV. 8.15.13) THAT WAS IN EFFECT AT THAT TIME, IN LIEU OF THE CURRENT CODE, WITH ALL CODE CITATIONS MADE ACCORDINGLY.
2. ALL UNITS WILL BE RESTRICTED TO RESIDENTS 55+ IN AGE.

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES & SHALL NOT BE USED FOR CONSTRUCTION.

STATE OF MAINE — STEPHEN R. BUSHEY — 01.18.22 — LICENSED PROFESSIONAL ENGINEER

STEPHEN R. BUSHEY, P.E.
LIC. #7429

Rev.	Date	Revision

Rev.	Date	Revision
3	2022.01.18	ISSUED FOR FINAL PERMIT AND PUBLIC HEARING
2	2021.12.07	RESUBMITTED PER LOR #1 FOR FINAL REVIEW
1	2021.05.12	SUBMITTED TO CITY FOR REVIEW

Design: SRB	Draft: CDD	Date: MAY 2021
Checked: SRB	Scale: AS NOTED	Job No.: 3564.03
File Name: 356403-SITE.dwg		

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207.772.2515

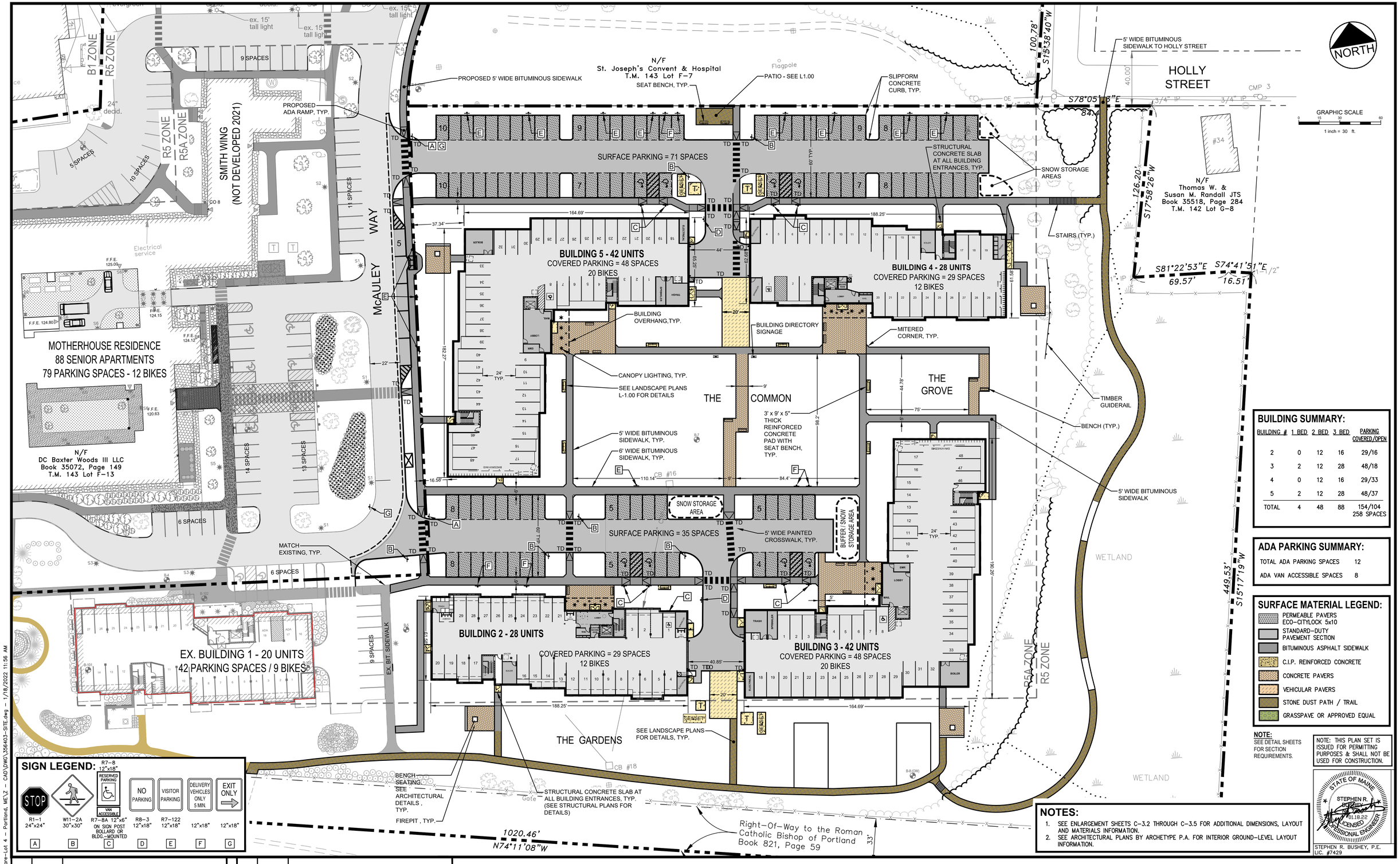
Drawing Name: OVERALL SITE LAYOUT PLAN

Project: **Stevens Square at Baxter Woods – Phase 2 – 4**
583 Stevens Avenue, Portland, Maine

Client/Owner: **DC BAXTER WOODS IV LLC**
631 STEVENS AVE., SUITE 203, PORTLAND, ME 04103 PH. 207.772.7673

Drawing No. C-3.0

U:\3564.03_Stevens Square-Lot 4 - Portland, ME\Z - CAD\DWG\356403-SITE.dwg - 1/18/2022 11:53 AM



SIGN LEGEND:

A	B	C	D	E	F	G
STOP		RESERVED PARKING / VAN ACCESSIBLE	NO PARKING	VISITOR PARKING	DELIVERY VEHICLES ONLY 5 MIN.	EXIT ONLY
R1-1 24"x24"	W11-2A 30"x30"	R7-8A 12"x6" ON SIGN POST BOLLARD OR BLDG.-MOUNTED	R8-3 12"x18"	R7-122 12"x18"	12"x18"	12"x18"

R7-8 12"x18"

BUILDING SUMMARY:

BUILDING #	1 BED	2 BED	3 BED	PARKING COVERED/OPEN
2	0	12	16	29/16
3	2	12	28	48/18
4	0	12	16	29/33
5	2	12	28	48/37
TOTAL	4	48	88	154/104 258 SPACES

ADA PARKING SUMMARY:

TOTAL ADA PARKING SPACES	12
ADA VAN ACCESSIBLE SPACES	8

SURFACE MATERIAL LEGEND:

- PERMEABLE PAVERS ECO-CITYLOCK 5x10
- STANDARD-DUTY PAVEMENT SECTION
- BITUMINOUS ASPHALT SIDEWALK
- C.I.P. REINFORCED CONCRETE
- CONCRETE PAVERS
- VEHICULAR PAVERS
- STONE DUST PATH / TRAIL
- GRASSPAVE OR APPROVED EQUAL

NOTE:
SEE DETAIL SHEETS FOR SECTION REQUIREMENTS.

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES & SHALL NOT BE USED FOR CONSTRUCTION.

NOTES:

1. SEE ENLARGEMENT SHEETS C-3.2 THROUGH C-3.5 FOR ADDITIONAL DIMENSIONS, LAYOUT AND MATERIALS INFORMATION.
2. SEE ARCHITECTURAL PLANS BY ARCHETYPE P.A. FOR INTERIOR GROUND-LEVEL LAYOUT INFORMATION.

STATE OF MAINE — STEPHEN R. BUSHEY — 01.18.22 — LICENSED PROFESSIONAL ENGINEER
STEPHEN R. BUSHEY, P.E.
LIC. #7429

Rev.	Date	Revision

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Design: SRB	Draft: CDD	Date: MAY 2021
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File Name: 356403-SITE.dwg

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207.772.2515

Drawing Name: SITE LAYOUT PLAN

Project: **Stevens Square at Baxter Woods – Phase 2 – 4**
583 Stevens Avenue, Portland, Maine

Client/Owner: **DC BAXTER WOODS IV LLC**
631 STEVENS AVE., SUITE 203, PORTLAND, ME 04103 PH. 207.772.7673

Drawing No. C-3.1

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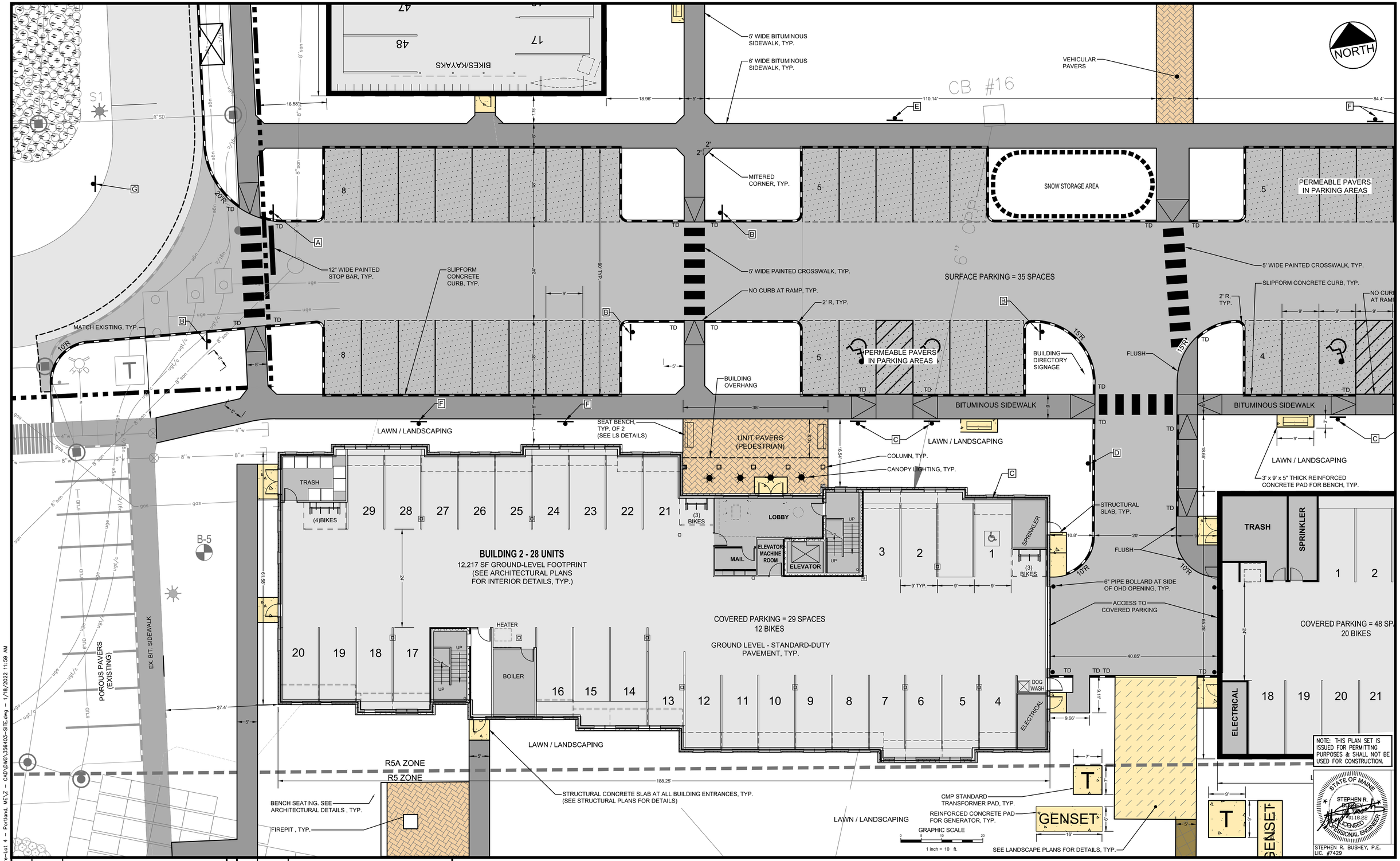

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File Name: 356403-SITE.dwg		

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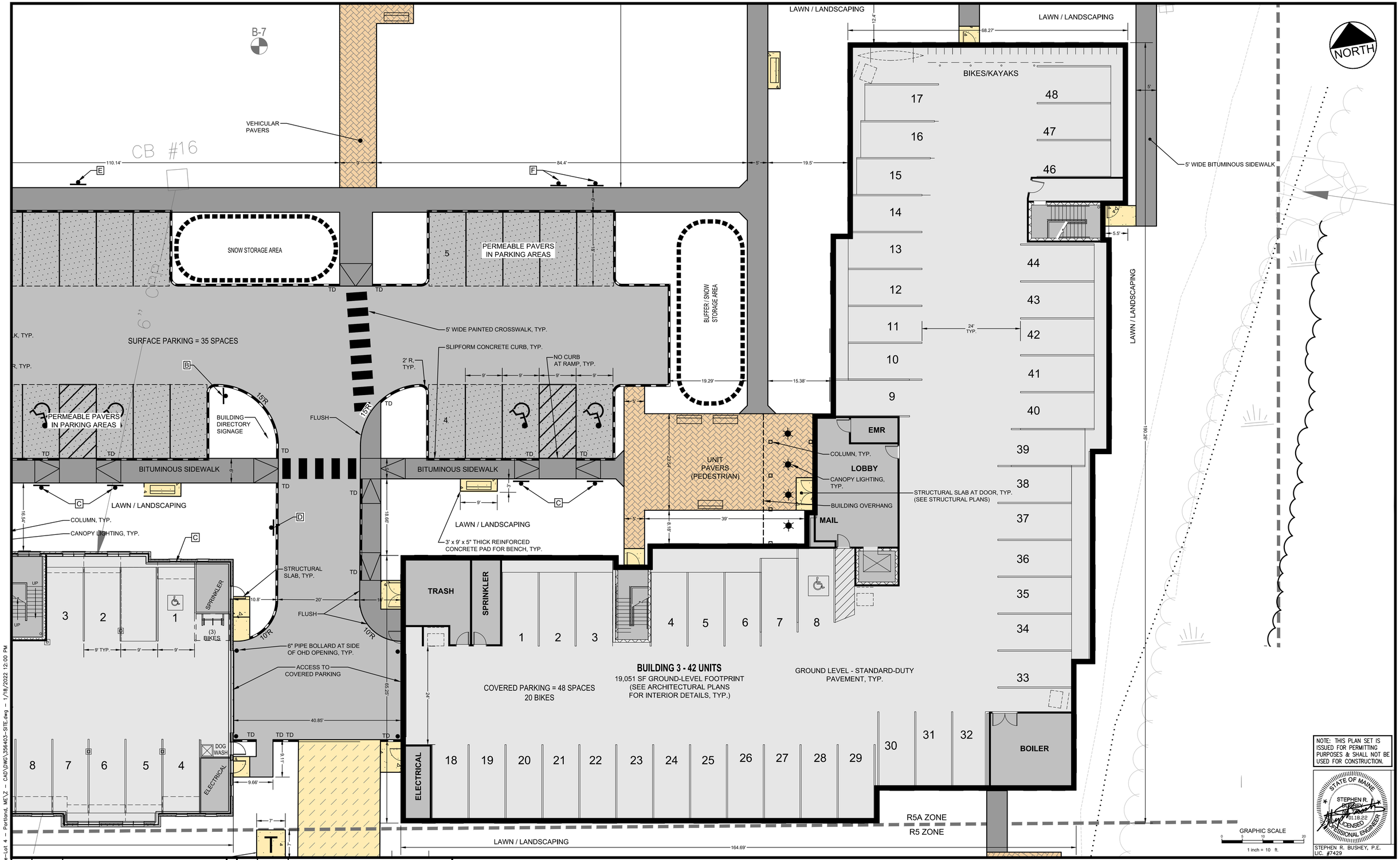
207.772.2515

Drawing Name: BUILDING #2 LAYOUT PLAN

Project: **Stevens Square at Baxter Woods – Phase 2 – 4**
583 Stevens Avenue, Portland, Maine

Client/Owner: **DC BAXTER WOODS IV LLC**
631 STEVENS AVE., SUITE 203, PORTLAND, ME 04103 PH. 207.772.7673

Drawing No. C-3.2



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Rev.	Date	Revision
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NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES & SHALL NOT BE USED FOR CONSTRUCTION.

STATE OF MAINE — STEPHEN R BUSHEY — 01.18.22 — LICENSED PROFESSIONAL ENGINEER

STEPHEN R. BUSHEY, P.E.
LIC. #7429

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207.772.2515

Drawing Name: BUILDING #3 LAYOUT PLAN

Project: **Stevens Square at Baxter Woods – Phase 2 – 4**
583 Stevens Avenue, Portland, Maine

Client/Owner: **DC BAXTER WOODS IV LLC**
631 STEVENS AVE., SUITE 203, PORTLAND, ME 04103 PH. 207.772.7673

Drawing No. C-3.3

SURFACE PARKING = 71 SPACES

5' WIDE PAINTED CROSSWALK, TYP.

1:12 ADA RAMP, TYP.

REINFORCED CONCRETE PAD FOR TRANSFORMER, TYP.

NO CURB AT RAMP, TYP.

SLIPFORM CONCRETE CURB, TYP.

2' R, TYP.

PERMEABLE PAVERS IN PARKING AREAS

BITUMINOUS SIDEWALK

ADA RAMP, TYP.

STRUCTURAL CONCRETE SLAB AT ALL BUILDING ENTRANCES, TYP.

BORINGS BY SUMMIT GEOENGINEERING, TYP.

STAIRS (TYP.)

12,217 SF GROUND-LEVEL FOOTPRINT
(SEE ARCHITECTURAL PLANS FOR INTERIOR DETAILS, TYP.)

GROUND LEVEL - STANDARD-DUTY PAVEMENT, TYP.

BUILDING 4 - 28 UNITS

COVERED PARKING = 29 SPACES
12 BIKES

ACCESS TO COVERED PARKING

4" PIPE BOLLARD, TYP.

VEHICULAR PAVERS

3' x 9' REINFORCED CONCRETE PAD FOR BENCH, TYP.

3' x 9' x 5" THICK REINFORCED CONCRETE PAD WITH SEAT BENCH, TYP.

UNIT PAVERS (PEDESTRIAN)

COLUMN, TYP.

CANOPY LIGHTING, TYP.

BUILDING OVERHANG, TYP.

BUILDING DIRECTORY SIGNAGE

MITERED CORNER, TYP.

BENCH SEATING, TYP.

TIMBER GUIDERAIL, TYP.

FIREPIT, TYP.

R5A ZONE
R5 ZONE

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES & SHALL NOT BE USED FOR CONSTRUCTION.

STATE OF MAINE
STEPHEN R. BUSHEY
No. 7429
01.18.22
LICENSED PROFESSIONAL ENGINEER

STEPHEN R. BUSHEY, P.E.
LIC. #7429

GRAPHIC SCALE
0 5 10 20
1 inch = 10 ft.

Rev.	Date	Revision

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File Name: 356403-SITE.dwg		

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Drawing Name: BUILDING #4 LAYOUT PLAN

Project: **Stevens Square at Baxter Woods – Phase 2 – 4**
583 Stevens Avenue, Portland, Maine

Client/Owner: **DC BAXTER WOODS IV LLC**
631 STEVENS AVE., SUITE 203, PORTLAND, ME 04103 PH. 207.772.7673

Drawing No. C-3.4

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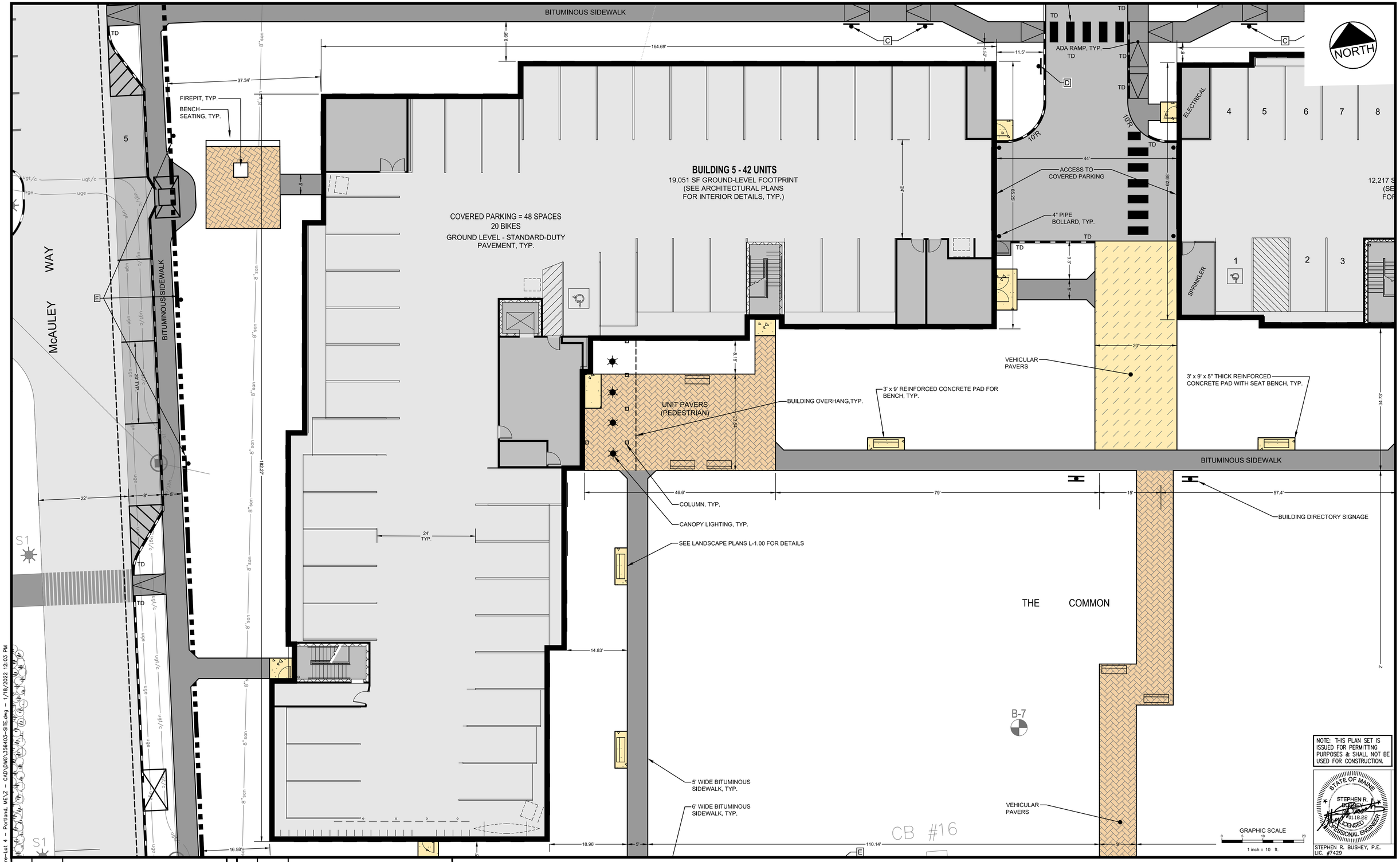

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STATE OF MAINE
STEPHEN R. BUSHEY
01.18.22
LICENSED PROFESSIONAL ENGINEER

STEPHEN R. BUSHEY, P.E.
LIC. #7429

Rev.	Date	Revision

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File Name: 356403-SITE.dwg		

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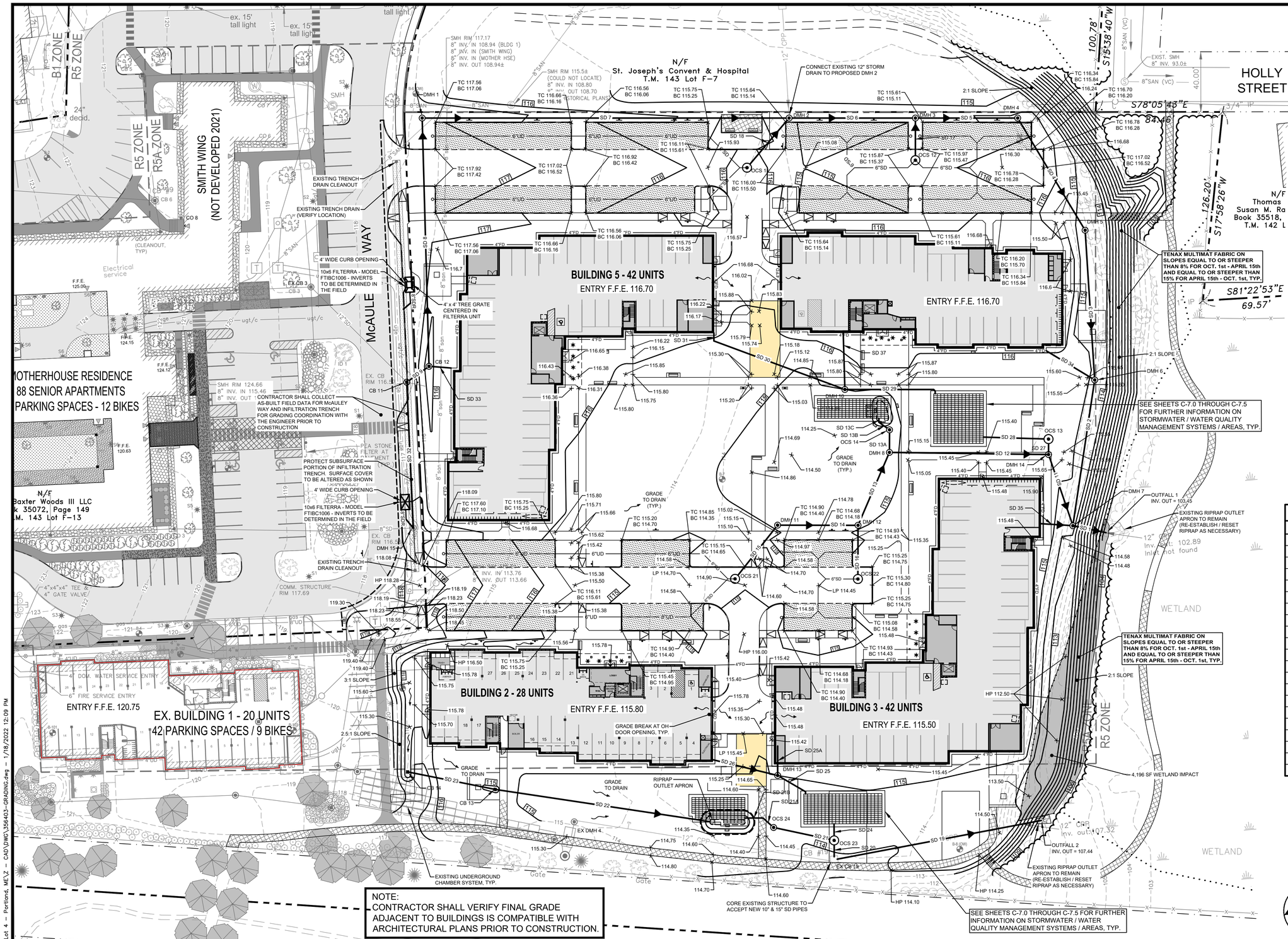
Drawing Name: BUILDING #5 LAYOUT PLAN

Project: **Stevens Square at Baxter Woods – Phase 2 – 4**
583 Stevens Avenue, Portland, Maine

Client/Owner: **DC BAXTER WOODS IV LLC**
631 STEVENS AVE., SUITE 203, PORTLAND, ME 04103 PH. 207.772.7673

Drawing No. C-3.5



STORM DRAIN STRUCTURE SCHEDULE

STRUCTURE	SIZE	RIM	INV. IN/SIZE (FROM)	INV. OUT/SIZE (TO)
CB 11	4'ø	116.57	112.42/12"(DMH 15) 112.42/12"(EX CB 3)	112.15/15"(CB 12)
CB 12	4'ø	115.40	112.08/15"(CB 11) 112.08/4"(BLDG 5–FD)	111.98/15"(DMH 1)
CB 13	4'ø	114.75	112.04/12"(CB 14)	112.04/12"(FP 2)
CB 14	4'ø	115.25		113.05/12"(CB 13)
DMH 1	4'ø	117.50	110.53/15"(CB 12)	110.43/15"(DMH 2)
DMH 2	4'ø	115.75	108.27/15"(DMH 1) 110.84/8"(OCS 11) 108.27/12"(EX CB 13)	108.17/18"(DMH 3)
DMH 3	4'ø	115.85	107.45/18"(DMH 2) 110.81/8"(OCS 12)	107.35/18"(DMH 4)
DMH 4	4'ø	116.20	106.78/18"(DMH 3)	106.68/18"(DMH 5)
DMH 5	4'ø	114.50	105.93/18"(DMH 4)	105.83/18"(DMH 6)
DMH 6	4'ø	113.00	104.96/18"(DMH 5) 105.00/4"(BLDG 4–FD)	104.86/18"(DMH 7)
DMH 7	4'ø	114.00	106.64/15"(DMH 14) 104.02/18"(DMH 6) 106.64/4"(BLDG 3–FD)	103.92/24"(OUTFALL 1)
DMH 8	4'ø	114.75	108.50/12"(DMH 12) 108.31/12"(OCS 14)	108.21/15"(DMH 14)
DMH 10	4'ø	115.00	112.60/8"(BLDG 5) 112.60/8"(BLDG 4–RD)	112.50/12"(R 1)
DMH 11	4'ø	114.97	109.77/8"(OCS 21)	109.67/12"(DMH 12)
DMH 12	4'ø	114.98	109.08/12"(DMH 11) 109.81/8"(OCS 22)	108.98/12"(DMH 8)
DMH 13	4'ø	115.00	113.03/8"(BLDG 2–RD) 113.03/8"(BLDG 3–RD)	113.03/8"(R2)
DMH 14	4'ø	115.65	107.16/15"(DMH 8) 109.98/10"(OCS 13)	107.06/15"(DMH 7)
DMH 15	2'SQ.	118.10	TBD/8" (FROM RG)	112.99/12"(CB 11)
EX CB 19	4'ø	113.56	108.10/10"(OCS 23) 108.10/12"(EX DMH 4)	108.10/15"(OUTFALL 2)
OCS 11	6'ø	116.12	111.23/6"(UD–3)	111.23/8"(DMH 2)
OCS 12	6'ø	115.65	111.10/6"(UD–4) 111.10/6"(UD–5)	111.10/8"(DMH 3)
OCS 13	6'ø	115.25	110.06/12"(R–1)	110.06/10"(DMH 14)
OCS 14	4'ø	114.25	108.46/12"(FP 1)	108.46/12"(DMH 8)
OCS 21	6'ø	114.85	110.13/6"(UD–1)	110.13/8"(DMH 11)
OCS 22	6'ø	114.70	110.13/6"(UD–2)	110.13/8"(DMH 12)
OCS 23	6'ø	114.35	110.06/10"(R–2) 108.14/12"(OCS 24)	108.14/10"(EX CB 19)
OCS 24	2'SQ.	114.25	108.38/12"(FP_2)	108.38/12"(OCS 23)

PIPE SCHEDULE

Pipe Name	Size	Length	Slope
SD 1	24"	21'	2.1%
SD 2	18"	94'	0.9%
SD 3	18"	96'	0.9%
SD 4	18"	83'	0.9%
SD 5	18"	64'	0.8%
SD 6	18"	80'	0.9%
SD 7	15"	240'	0.9%
SD 8	15"	161'	0.9%
SD 9	15"	14'	0.4%
SD 11	15"	46'	0.8%
SD 12	15"	102'	1.0%
SD 13	12"	49'	0.9%
SD 13A	12"	11'	1.0%
SD 13B	12"	7'	2.3%
SD 13C	12"	3'	2.3%
SD 14	12"	50'	1.1%
SD 15	8"	41'	0.8%
SD 16	8"	31'	0.9%
SD 17	8"	23'	1.0%
SD 18	8"	38'	0.9%
SD 19	15"	138'	0.5%

PIPE SCHEDULE

Pipe Name	Size	Length	Slope
SD 20	10"	8'	0.3%
SD 21	12"	36'	0.6%
SD 21B	12"	12'	0.6%
SD 22	12"	142'	0.4%
SD 23	12"	55'	1.7%
SD 24	10"	8'	0.0%
SD 25	8"	20'	0.1%
SD 25A	8"	18'	1.0%
SD 26	8"	43'	1.6%
SD 27	10"	5'	0.8%
SD 28	12"	40'	1.0%
SD 29	12"	57'	−0.8%
SD 30	8"	91'	1.2%
SD 31	8"	5'	2.5%
SD 32	12"	95'	0.6%
SD 33	4"	13'	2.9%
SD 34	4"	36'	5.3%
SD 35	4"	19'	4.0%
SD 37	8"	36'	2.1%

KEY

PERVIOUS PAVERS

NORTH

GRAPHIC SCALE 0 15 30 60 — 1 inch = 30 ft.

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES & SHALL NOT BE USED FOR CONSTRUCTION.

STATE OF MAINE — STEPHEN R. BUSHEY — 10782 — 01.18.22 — LICENSED PROFESSIONAL ENGINEER

STEPHEN R. BUSHEY, P.E.
LIC. #7429

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1	2021.05.12	SUBMITTED TO CITY FOR REVIEW

Design: SRB | Drafted: CDD | Date: MAY 2021
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File Name: 356403–GRADING.dwg

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Drawing Name: GRADING & DRAINAGE PLAN

Project: **Stevens Square at Baxter Woods – Phase 2 – 4**
583 Stevens Avenue, Portland, Maine

Client/Owner: **DC BAXTER WOODS IV LLC**
631 STEVENS AVE., SUITE 203, PORTLAND, ME 04103 PH. 207.772.7673

Drawing No. C-4.0

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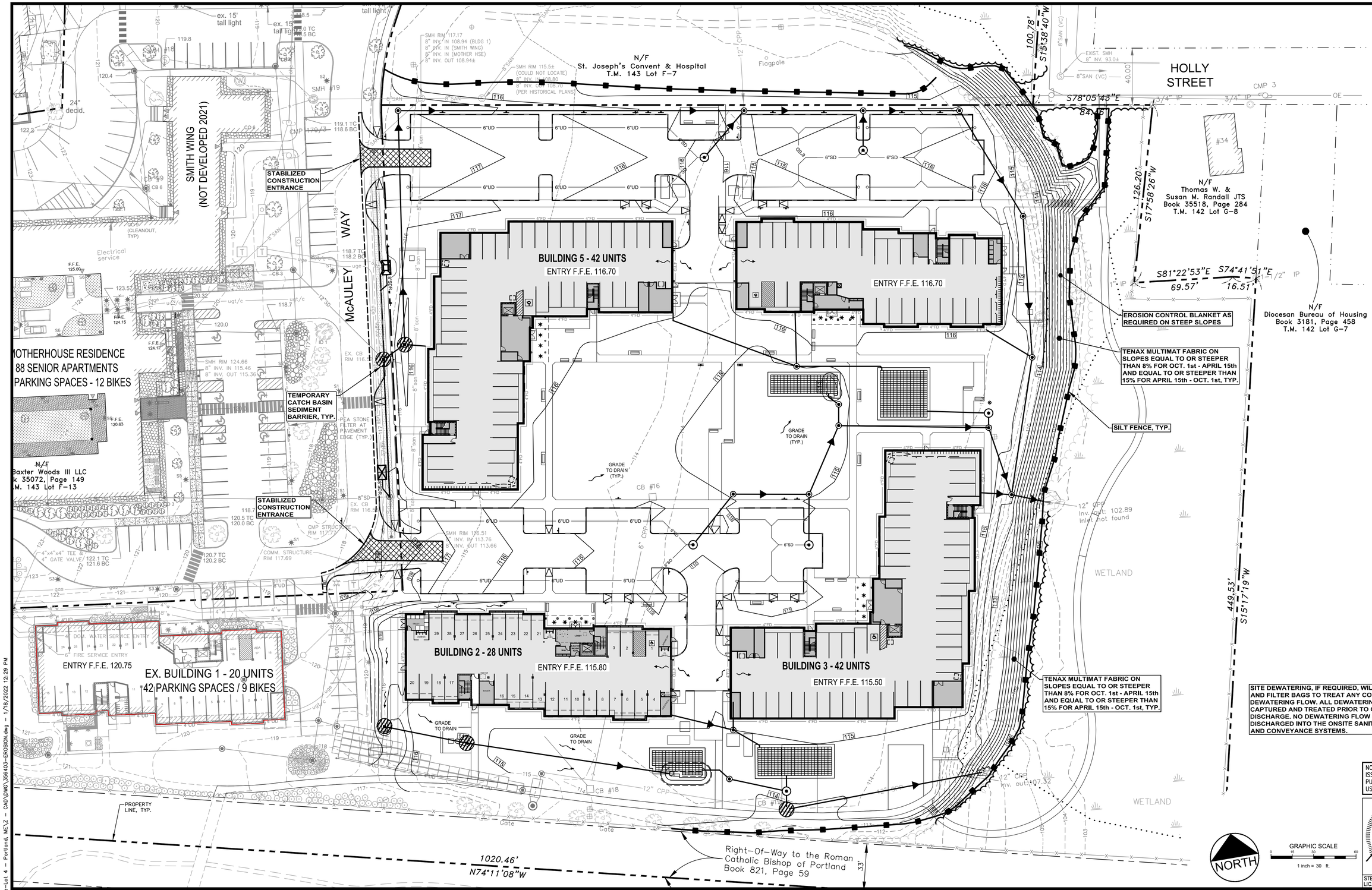

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STATE OF MAINE
STEPHEN R. BUSHEY
No. 7429
01.18.22
LICENSED PROFESSIONAL ENGINEER

STEPHEN R. BUSHEY, P.E.
LIC. #7429

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207.772.2515

Drawing Name: EROSION & SEDIMENT CONTROL PLAN

Project: **Stevens Square at Baxter Woods – Phase 2 – 4**
583 Stevens Avenue, Portland, Maine

Client/Owner: **DC BAXTER WOODS IV LLC**
631 STEVENS AVE., SUITE 203, PORTLAND, ME 04103 PH. 207.772.7673

Drawing No. C-4.1

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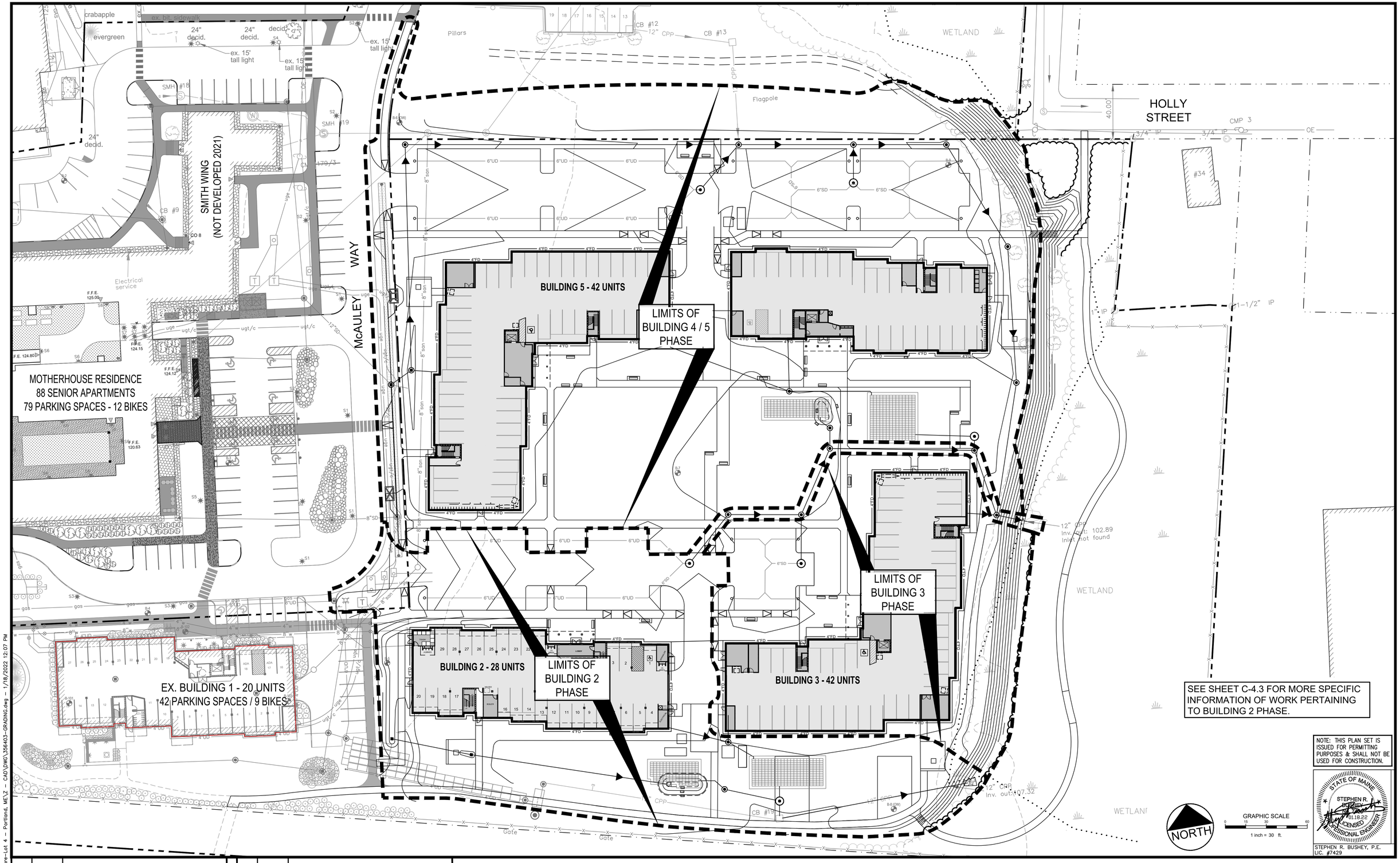

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Drawing Name: PHASING PLAN

Project: **Stevens Square at Baxter Woods – Phase 2 – 4**
583 Stevens Avenue, Portland, Maine

Client/Owner: **DC BAXTER WOODS IV LLC**
631 STEVENS AVE., SUITE 203, PORTLAND, ME 04103 PH. 207.772.7673

Drawing No. C-4.2

U:\3564.03_Stevens Square-Lot 4 - Portland, ME\Z - CAD\DWG\356403-GRADING.dwg — 1/18/2022 12:07 PM

ACCESS ROUTE

EXISTING STORM DRAIN TO REMAIN IN PLACE DURING THIS PHASE

APPROXIMATE CONSTRUCTION FENCING LOCATION

BUILDING #2
TEMPORARY CONSTRUCTION
LAYDOWN/STAGING AREA

PROTECT SUBSURFACE PORTION OF INFILTRATION TRENCH. SURFACE COVER TO BE ALTERED AS SHOWN

STABILIZED CONSTRUCTION ENTRANCE

BUILDING 2 - 28 UNITS

ENTRY F.F.E. 115.80

- 20 UNITS
CES / 9 BIKES

3:1 SLOPE

2.5:1 SLOPE

GRADE BREAK AT OH DOOR OPENING, TYP.

TEMPORARY CATCH BASIN SEDIMENT BARRIER, TYP.

THE GARDENS

EXISTING UNDERGROUND CHAMBER SYSTEM, TYP.

TIE 4" FOUNDATION DRAIN INTO OCS 21

RIPRAP OUTLET APRON

GENSET

20' FIRE LANE

TEST PIT

STUB 1
SD 13A
DMH 8
SD 12
STUB 2
SD 27
DMH 14
SD 11
STUB 5
SD 2
DMH 7
SD 1
SD 13
DMH 11
SD 14
DMH 12
SD 16
STUB 3
SD 35

OUTFALL 1
INV. OUT=103.45

EXISTING RIPRAP OUTLET APRON TO REMAIN (RE-ESTABLISH / RESET RIPRAP AS NECESSARY)

12" CPP
Inv. out: 102.89
Inlet not found

WETLAND

RESTORE FIELD SURFACE TO EXISTING CONDITIONS FOLLOWING ALL SWM/PIPE/STRUCTURE INSTALLATION

BUILDING #2
TEMPORARY CONSTRUCTION
LAYDOWN/STAGING AREA

SEE SHEETS C-7.0 THROUGH C-7.5 FOR FURTHER INFORMATION ON STORMWATER / WATER QUALITY MANAGEMENT SYSTEMS / AREAS, TYP.

ALL WORK SHOWN ON THIS PLAN IS PART OF THE PHASE 2 BLDG #2 CONTRACT

OUTFALL 2
INV. OUT = 107.44

EXISTING RIPRAP OUTLET APRON TO REMAIN (RE-ESTABLISH / RESET RIPRAP AS NECESSARY)

12" CPP
Inv. out: 107.52

CORE EXISTING STRUCTURE TO ACCEPT NEW 10" & 15" SD PIPES

SILT FENCE

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES & SHALL NOT BE USED FOR CONSTRUCTION.

STATE OF MAINE
STEPHEN R. BUSHEY
01.18.22
LICENSED PROFESSIONAL ENGINEER

STEPHEN R. BUSHEY, P.E.
LIC. #7429

NORTH

GRAPHIC SCALE
0 10 20 40
1 inch = 20 ft.

Rev.	Date	Revision

Rev.	Date	Revision
3	2022.01.18	ISSUED FOR FINAL PERMIT AND PUBLIC HEARING
2	2021.12.07	RESUBMITTED PER LOR #1 FOR FINAL REVIEW
1	2021.05.12	SUBMITTED TO CITY FOR REVIEW

Design: SRB	Draft: CDD	Date: MAY 2021
Checked: SRB	Scale: AS NOTED	Job No.: 3564.03
File Name: 356403-GRADING-BLDG 2.dwg		

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207.772.2515

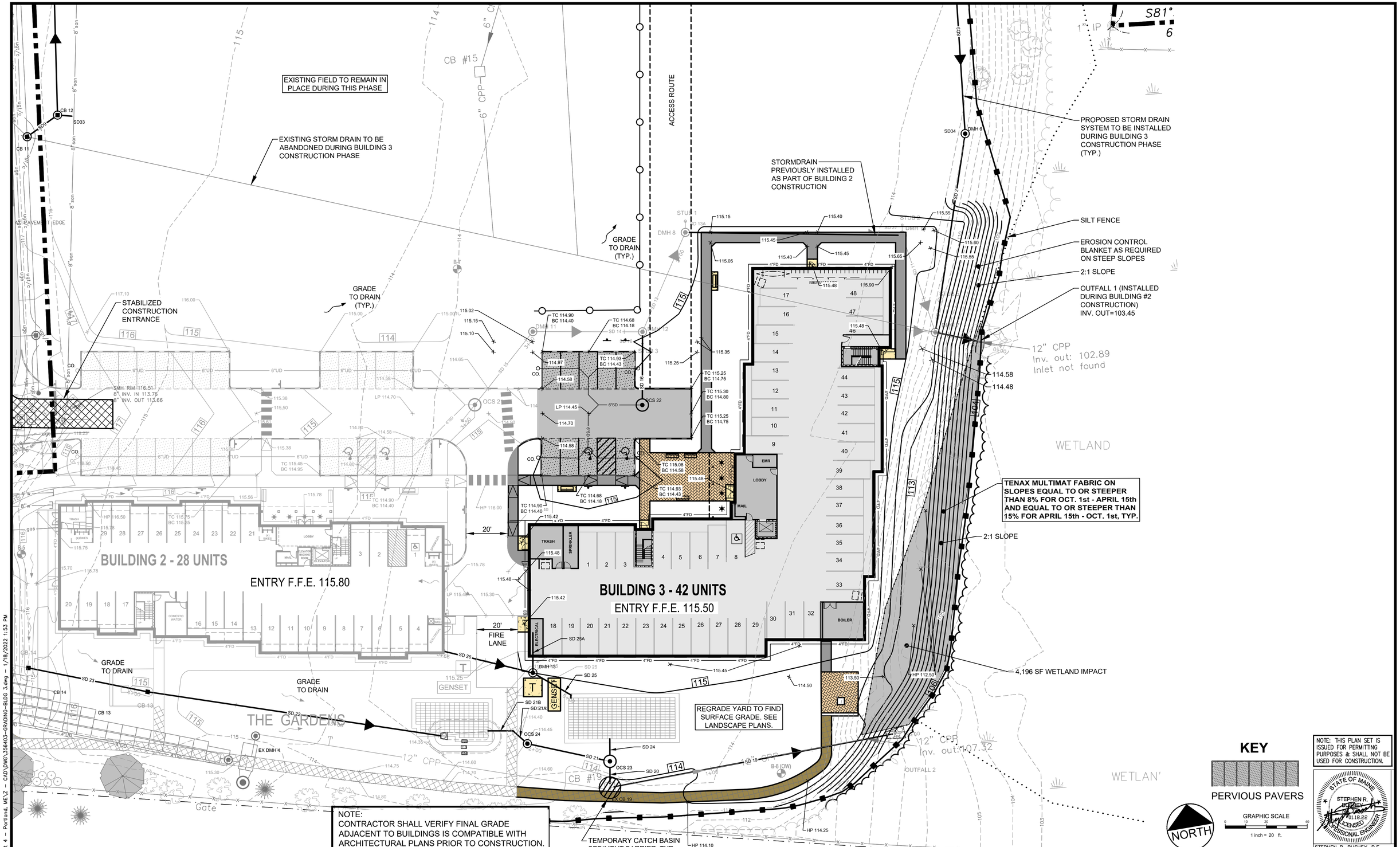
Drawing Name: GRADING & DRAINAGE PLAN - BUILDING 2

Project: **Stevens Square at Baxter Woods – Phase 2 – 4**
583 Stevens Avenue, Portland, Maine

Client/Owner: **DC BAXTER WOODS IV LLC**
631 STEVENS AVE., SUITE 203, PORTLAND, ME 04103 PH. 207.772.7673

Drawing No. C-4.3

U:\3564.03_Stevens Square-Lot 4 - Portland, ME\Z - CAD\DWG\356403-GRADING-BLDG 2.dwg - 1/18/2022 1:51 PM



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Rev.	Date	Revision

Rev.	Date	Revision
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GORRILL PALMER

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207.772.2515

Drawing Name: GRADING & DRAINAGE PLAN - BUILDING 3

Project: Stevens Square at Baxter Woods – Phase 2 – 4
583 Stevens Avenue, Portland, Maine

Client/Owner: DC BAXTER WOODS IV LLC
631 STEVENS AVE., SUITE 203, PORTLAND, ME 04103 PH. 207.772.7673

Drawing No. C-4.4

N/F
St. Joseph's Convent & Hospital
T.M. 143 Lot F-7

BUILDING #3, #4 & #5
TEMPORARY CONSTRUCTION
LAYDOWN/STAGING AREA
AND ACCESS

PROPOSED STORM DRAIN SYSTEM TO BE INSTALLED DURING BUILDING 3 CONSTRUCTION PHASE

TEMPORARY CONSTRUCTION FENCING, TYP.

EXISTING FIELD TO REMAIN IN PLACE DURING THIS PHASE

EXISTING STORM DRAIN TO BE ABANDONED DURING BUILDING 3 CONSTRUCTION PHASE

STABILIZED CONSTRUCTION ENTRANCE

GRADE TO DRAIN (TYP.)

GRADE TO DRAIN (TYP.)

ACCESS ROUTE

STORMDRAIN PREVIOUSLY INSTALLED AS PART OF BUILDING 2 CONSTRUCTION

PROPOSED STORM DRAIN SYSTEM TO BE INSTALLED DURING BUILDING 3 CONSTRUCTION PHASE (TYP.)

SILT FENCE

EROSION CONTROL BLANKET AS REQUIRED ON STEEP SLOPES

2:1 SLOPE

OUTFALL 1 (INSTALLED DURING BUILDING #2 CONSTRUCTION)
INV. OUT=103.45

12" CPP
Inv. out: 102.89
Inlet not found

KEY

PERVIOUS PAVERS

GRAPHIC SCALE
0 10 20 40
1 inch = 20 ft.

NORTH

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES & SHALL NOT BE USED FOR CONSTRUCTION.

STATE OF MAINE
STEPHEN R. BUSHEY
10.18.22
LICENSED
PROFESSIONAL ENGINEER

STEPHEN R. BUSHEY, P.E.
LIC. #7429

Rev.	Date	Revision

Rev.	Date	Revision
3	2022.01.18	ISSUED FOR FINAL PERMIT AND PUBLIC HEARING
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File Name: 356403-GRADING-BLDG 3.dwg		

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207.772.2515

Drawing Name: GRADING & DRAINAGE PLAN - BUILDING 3

Project: **Stevens Square at Baxter Woods – Phase 2 – (BLDG 3)**
583 Stevens Avenue, Portland, Maine

Client/Owner: **DC BAXTER WOODS IV LLC**
631 STEVENS AVE., SUITE 203, PORTLAND, ME 04103 PH. 207.772.7673

Drawing No. C-4.4A

U:\3564.03_Stevens Square-Lot 4 - Portland, ME\Z - CAD\DWG\356403-GRADING-BLDG 3.dwg - 1/18/2022 1:55 PM

N/F
St. Joseph's Convent & Hospital
T.M. 143 Lot F-7

BUILDING #4/5
TEMPORARY CONSTRUCTION
LAYDOWN/STAGING AREA

BUILDING 5 - 42 UNITS
ENTRY F.F.E. 116.70

BUILDING 4 - 28 UNITS
ENTRY F.F.E. 116.70

McAULEY WAY

CONTRACTOR ACCESS ROUTE FROM WALTON STREET ONLY

STABILIZED CONSTRUCTION ENTRANCE

EXISTING TRENCH DRAIN CLEANOUT

EXISTING TRENCH DRAIN (VERIFY LOCATION)

4' WIDE CURB OPENING

10x6 FILTERRA - MODEL FTIBC1006 - INVERTS TO BE DETERMINED IN THE FIELD

4' x 4' TREE GRATE CENTERED IN FILTERRA UNIT

TEMPORARY CATCH BASIN SEDIMENT BARRIER, TYP.

CONTRACTOR SHALL COLLECT AS-BUILT FIELD DATA FOR McAULEY WAY AND INFILTRATION TRENCH FOR GRADING COORDINATION WITH THE ENGINEER PRIOR TO CONSTRUCTION

PEA STONE FILTER MEDIA EDGE (TYP.)

PROTECT SUBSURFACE PORTION OF INFILTRATION TRENCH. SURFACE COVER TO BE ALTERED AS SHOWN

4' WIDE CURB OPENING

10x6 FILTERRA - MODEL FTIBC1006 - INVERTS TO BE DETERMINED IN THE FIELD

CMP STRUCTURE RIM 117.77

COMM. STRUCTURE RIM 117.69

EX. CB RIM 116.57

EX. CB RIM 116.56

SMH RIM 116.51
8" INV. IN 113.76
8" INV. OUT 113.66

SMH RIM 115.5±
(COULD NOT LOCATE)
8" INV. IN 108.80
8" INV. OUT 108.70
(PER HISTORICAL PLANS)

8" INV. OUT 108.94±

Flagpole

CONNECT EXISTING 12" STORM DRAIN TO PROPOSED DMH 2

SILT FENCE, TYP.

CONTRACTOR STAGING/STORAGE DURING BUILDING 4 & 5 CONSTRUCTION

EROSION CONTROL BLANKET AS REQUIRED ON STEEP SLOPES

CLEARING LIMIT, TYP.

MATCH EXISTING PAVEMENT, TYP.

EXIST. SMH
8" INV. 93.0±

STAIRS (DETAILS TBD)

TENAX MULTIMAT FABRIC ON SLOPES EQUAL TO OR STEEPER THAN 8% FOR OCT. 1st - APRIL 15th AND EQUAL TO OR STEEPER THAN 15% FOR APRIL 15th - OCT. 1st, TYP.

SEE SHEETS C-7.0 THROUGH C-7.5 FOR FURTHER INFORMATION ON STORMWATER / WATER QUALITY MANAGEMENT SYSTEMS / AREAS, TYP.

EXISTING RIPRAP OUTLET APRON TO REMAIN (RE-ESTABLISH / RESET RIPRAP AS NECESSARY)

12" CMP
Inv. Out: 102.89
Inlet not found

WORK WITHIN THE COMMON / THE GROVE TO BE COMPLETED AS PART OF BUILDING 4 & 5

GRADE TO DRAIN (TYP.)

GRADE TO DRAIN (TYP.)

S78°05'03"E 84.46

S17°58'26"W 126.20'

S81°22' 69.5

Th
Susan
Book 3
T.M.

HO
STR

NOTE:
CONTRACTOR SHALL VERIFY FINAL GRADE ADJACENT TO BUILDINGS IS COMPATIBLE WITH ARCHITECTURAL PLANS PRIOR TO CONSTRUCTION.

KEY

PERVIOUS PAVERS

NORTH

GRAPHIC SCALE
0 10 20 40
1 inch = 20 ft.

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES & SHALL NOT BE USED FOR CONSTRUCTION.

STATE OF MAINE
STEPHEN R. BUSHEY
No. 7429
01.18.22
LICENSED
PROFESSIONAL ENGINEER

STEPHEN R. BUSHEY, P.E.
LIC. #7429

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Design: SRB	Draft: CDD	Date: MAY 2021
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File Name: 356403-GRADING-BLDG 4-5.dwg		

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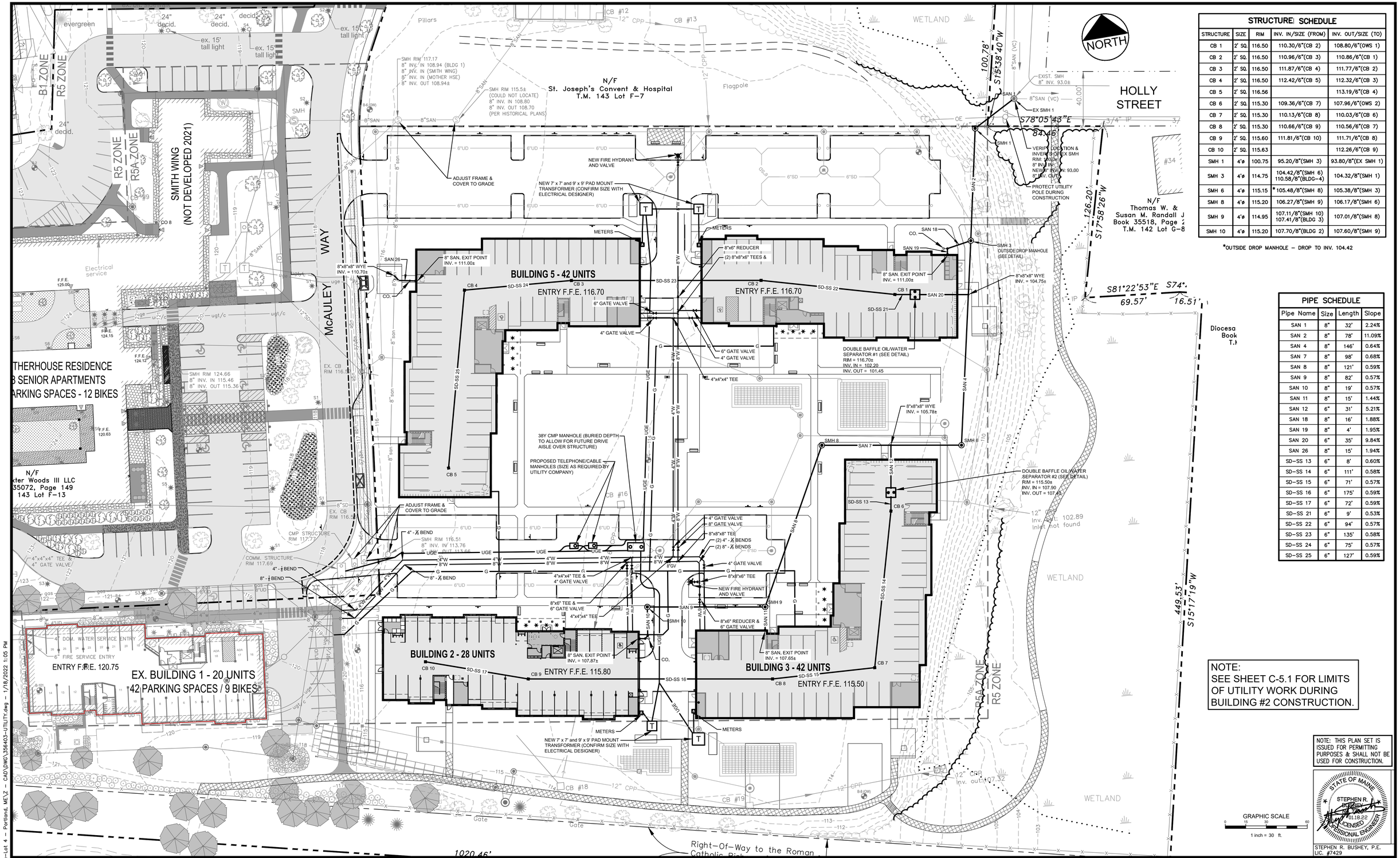
Drawing Name: GRADING & DRAINAGE PLAN - BUILDINGS 4 & 5

Project: **Stevens Square at Baxter Woods – Phase 2 – 4**
583 Stevens Avenue, Portland, Maine

Client/Owner: **DC BAXTER WOODS IV LLC**
631 STEVENS AVE., SUITE 203, PORTLAND, ME 04103 PH. 207.772.7673

Drawing No. C-4.5

U:\3564.03_Stevens Square-Lot 4 - Portland, ME\Z - CAD\DWG\356403-GRADING-BLDG 4-5.dwg - 1/18/2022 2:01 PM



STRUCTURE SCHEDULE

STRUCTURE	SIZE	RIM	INV. IN/SIZE (FROM)	INV. OUT/SIZE (TO)
CB 1	2' SQ.	116.50	110.30/6"(CB 2)	108.80/6"(OWS 1)
CB 2	2' SQ.	116.50	110.96/6"(CB 3)	110.86/6"(CB 1)
CB 3	2' SQ.	116.50	111.87/6"(CB 4)	111.77/6"(CB 2)
CB 4	2' SQ.	116.50	112.42/6"(CB 5)	112.32/6"(CB 3)
CB 5	2' SQ.	116.56		113.19/6"(CB 4)
CB 6	2' SQ.	115.30	109.36/6"(CB 7)	107.96/6"(OWS 2)
CB 7	2' SQ.	115.30	110.13/6"(CB 8)	110.03/6"(CB 6)
CB 8	2' SQ.	115.30	110.66/6"(CB 9)	110.56/6"(CB 7)
CB 9	2' SQ.	115.60	111.81/6"(CB 10)	111.71/6"(CB 8)
CB 10	2' SQ.	115.63		112.26/6"(CB 9)
SMH 1	4'ø	100.75	95.20/8"(SMH 3)	93.80/8"(EX SMH 1)
SMH 3	4'ø	114.75	104.42/8"(SMH 6) 110.58/8"(BLDG-4)	104.32/8"(SMH 1)
SMH 6	4'ø	115.15	*105.48/8"(SMH 8)	105.38/8"(SMH 3)
SMH 8	4'ø	115.20	106.27/8"(SMH 9)	106.17/8"(SMH 6)
SMH 9	4'ø	114.95	107.11/8"(SMH 10) 107.41/8"(BLDG 3)	107.01/8"(SMH 8)
SMH 10	4'ø	115.20	107.70/8"(BLDG 2)	107.60/8"(SMH 9)

*OUTSIDE DROP MANHOLE – DROP TO INV. 104.42

PIPE SCHEDULE

Pipe Name	Size	Length	Slope
SAN 1	8"	32'	2.24%
SAN 2	8"	78'	11.09%
SAN 4	8"	146'	0.64%
SAN 7	8"	98'	0.68%
SAN 8	8"	121'	0.59%
SAN 9	8"	82'	0.57%
SAN 10	8"	19'	0.57%
SAN 11	8"	15'	1.44%
SAN 12	6"	31'	5.21%
SAN 18	8"	16'	1.88%
SAN 19	8"	4'	1.95%
SAN 20	6"	35'	9.84%
SAN 26	8"	15'	1.94%
SD-SS 13	6"	8'	0.60%
SD-SS 14	6"	111'	0.58%
SD-SS 15	6"	71'	0.57%
SD-SS 16	6"	175'	0.59%
SD-SS 17	6"	72'	0.59%
SD-SS 21	6"	9'	0.53%
SD-SS 22	6"	94'	0.57%
SD-SS 23	6"	135'	0.58%
SD-SS 24	6"	75'	0.57%
SD-SS 25	6"	127'	0.59%

NOTE:
SEE SHEET C-5.1 FOR LIMITS OF UTILITY WORK DURING BUILDING #2 CONSTRUCTION.

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES & SHALL NOT BE USED FOR CONSTRUCTION.

GRAPHIC SCALE
0 15 30 60
1 inch = 30 ft.

STATE OF MAINE
STEPHEN R. BUSHEY
10.18.22
LICENSED PROFESSIONAL ENGINEER

STEPHEN R. BUSHEY, P.E.
LIC. #7429

Rev.	Date	Revision

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Design: SRB	Draft: CDD	Date: MAY 2021
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File Name: 356403-UTILITY.dwg		

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207.772.2515

Drawing Name: UTILITY PLAN
Project: **Stevens Square at Baxter Woods – Phase 2 – 4**
583 Stevens Avenue, Portland, Maine
Client/Owner: **DC BAXTER WOODS IV LLC**
631 STEVENS AVE., SUITE 203, PORTLAND, ME 04103 PH. 207.772.7673

Drawing No. C-5.0

U:\3564.03_Stevens Square-Lot 4 - Portland, ME\Z - CAD\DWG\356403-UTILITY.dwg - 1/18/2022 1:05 PM

PROTECT SEWER, TYP.

REMOVE IRRIGATION HEAD, TYP.

ALL CONSTRUCTION ACCESS SHALL BE FROM WALTON ST/McAULEY WAY

PROTECT SEWER, TYP.

PROTECT EXISTING STORM DRAIN

REMOVE FENCING / BACKSTOP (FUTURE PHASE)

REMOVE EXISTING STORM DRAIN TO LOCATION OF PROPOSED DMH 2 (SEE SHEET C-4.0) (FUTURE PHASE)

REMOVE CATCH BASIN AND STORM DRAIN PIPING (FUTURE PHASE)

REMOVE FENCE (FUTURE PHASE)

APPROXIMATE LIMIT OF PHASE 2

REMOVE CATCH BASIN AND STORM DRAIN PIPING

PROTECT SEWER, TYP. ADJUST SMH COVER TO GRADE

NOTE: ATHLETIC FIELD UNDERDRAIN & IRRIGATION SYSTEMS SHALL BE REMOVED WHERE THEY CONFLICT WITH THE PROPOSED CONSTRUCTION AT NO EXTRA EXPENSE TO THE OWNER.

PROTECT / ADJUST UNDERGROUND UTILITIES, TYP. (SEE SHEET C-5.0)

PROTECT EXISTING UNDERGROUND WATER QUALITY TREATMENT SYSTEM, TYP. (INSTALLED AS PART OF BLDG #1 CONSTRUCTION)

EX. DMH (#4) RIM 114.90
12" INV. 109.09±
TO REMAIN - PROTECT DURING CONSTRUCTION

CAP STORM DRAIN PIPE

EXISTING CB 19 TO REMAIN - CORE & ADJUST STRUCTURE

REMOVE EX. CB 18 AND STORM DRAIN PIPING (IDENTIFIED ON TITCOMB SURVEY BUT NOT LOCATED IN FIELD BY G-P)

REMOVE EX. 12" SD & REPLACE WITH 15" SD

REMOVE FENCE

REMOVE IRRIGATION HEAD, TYP.

LIMIT OF CLEARING, TYP.

PROPERTY LINE, TYP.

Right-Of-Way to the Roman Catholic Bi...

UTILITY NOTES:

1. UTILITY INFORMATION ON THIS PLAN IS APPROXIMATE AND BASED ON PREVIOUS GROUND SURVEY, VISIBLE FEATURES OBSERVED DURING SITE RECONNAISSANCE, AND RECORD INFORMATION PROVIDED BY THE CITY OF PORTLAND DPW ARCHIVES OR BY OTHERS.
2. ALL UTILITIES NOT IDENTIFIED FOR REMOVAL SHALL BE PROTECTED.
3. THE GRADING, DRAINAGE AND EROSION CONTROL PLAN FOR THE ATHLETIC FACILITY EXPANSION, APPROVED MAY 23, 2003, PREPARED BY SYT DESIGN CONSULTANTS, IDENTIFIES A SYSTEM OF 6" PVC UNDERDRAIN, GENERALLY SPACED AT 25' o.c., RUNNING N/S OVER THE ENTIRE FIELD. THE PIPE SHALL BE REMOVED AS ENCOUNTERED. SIMILARLY, AN IRRIGATION SYSTEM IS LOCATED IN THE FIELD, AND IT SHALL BE REMOVED ENTIRELY WITHIN THE LIMITS OF WORK.
4. IN GENERAL, REMOVALS SHALL OCCUR DURING PHASE 2 ACTIVITY, ALTHOUGH THE APPLICANT RESERVES THE RIGHT TO DEFER REMOVALS OF SOME FEATURES UNTIL PHASE 3 OR 4 IF NECESSARY. THE CONTRACTOR SHALL MAINTAIN ONSITE RECORDS INDICATING WHAT HAS BEEN REMOVED OR REMAINS IN PLACE THROUGHOUT THE DURATION OF CONSTRUCTION.

B7 APPROXIMATE BORING LOCATION - SEE TEST BORING LOCATION PLAN PREPARED BY SUMMIT GEOENGINEERING SERVICES, DATED MARCH 23, 2015.

B5 (OW) APPROXIMATE BORING LOCATION WITH OBSERVATION WELL - SEE TEST BORING LOCATION PLAN PREPARED BY SUMMIT GEOENGINEERING SERVICES, DATED MARCH 23, 2015.

SEE SHEET C-4.3 FOR MORE SPECIFIC INFORMATION OF WORK BY CONSTRUCTION PHASE.

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES & SHALL NOT BE USED FOR CONSTRUCTION.

STATE OF MAINE — STEPHEN R. BUSHEY — 01.18.22 — LICENSED PROFESSIONAL ENGINEER

STEPHEN R. BUSHEY, P.E.
LIC. #7429

GRAPHIC SCALE
0 15 30 60
1 inch = 30 ft.

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File Name: 356403-REMOVALS.dwg		

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207.772.2515

Drawing Name: EXISTING CONDITIONS & REMOVALS PLAN

Project: **Stevens Square at Baxter Woods – Phase 2 – 4**
583 Stevens Avenue, Portland, Maine

Client/Owner: **DC BAXTER WOODS IV LLC**
631 STEVENS AVE., SUITE 203, PORTLAND, ME 04103 PH. 207.772.7673

Drawing No. C-2.0

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1 | PARKING LEVEL - BUILDING 2
1/8" = 1'-0"

Prepared For: Developers Collaborative

Consultant:

Architect: ARCHETYPE ARCHITECTS
48 Union Wharf Portland, Maine 04101
207.772.6022 ARCHETYPE@ARCHETYPEPA.COM

Project: STEVENS SQUARE BUILDING 2
PORTLAND, MAINE

Revisions:

Scale: 1/8" = 1'-0"

Date: 09/10/2020

PARKING LEVEL PLAN

A1.00



2 | LEFT ELEVATION.
1/8" = 1'-0"

ELEVATION MATERIALS

1. BERRIDGE SHINGLE
2. CLAPBOARD SIDING
3. BRICK
4. PRECAST SILLS
5. PRECAST LINTELS
6. PRECAST BAND
7. STACKED STONE VENEER
8. PREFABRICATED STEEL BALCONY
9. 1X6 PVC HEAD TRIM
10. PVC CORNICE
11. VINYL DOUBLE-HUNG WINDOW
12. ALUMINUM STOREFRONT
13. 10x10 PVC COLUMN
14. VINYL PATIO DOOR
15. GLAZED ALUMINUM OVERHEAD DOOR
16. INSULATED HM DOOR
17. 1X4 PVC JAMB TRIM
18. ALUMINUM RAILING



1 | ENTRY ELEVATION - BUILDING 2
1/8" = 1'-0"

Prepared For: Developers Collaborative

Consultant:

Architect: ARCHETYPE ARCHITECTS
48 Union Wharf Portland, Maine 04101
207.772.6022 ARCHETYPE@ARCHETYPEPA.COM

Project: STEVENS SQUARE BUILDING 2
PORTLAND, MAINE

Revisions:

Scale: As indicated

Date: 09/10/2020

BUILDING ELEVATIONS

A2.01

ELEVATION MATERIALS

1. BERRIDGE SHINGLE
2. CLAPBOARD SIDING
3. BRICK
4. PRECAST SILLS
5. PRECAST LINTELS
6. PRECAST BAND
7. STACKED STONE VENEER
8. PREFABRICATED STEEL BALCONY
9. 1X6 PVC HEAD TRIM
10. PVC CORNICE
11. VINYL DOUBLE-HUNG WINDOW
12. ALUMINUM STOREFRONT
13. 10X10 PVC COLUMN
14. VINYL PATIO DOOR
15. GLAZED ALUMINUM OVERHEAD DOOR
16. INSULATED HM DOOR
17. 1X4 PVC JAMB TRIM
18. ALUMINUM RAILING



2 RIGHT ELEVATION.
1/8" = 1'-0"



1 REAR ELEVATION - 5 STORY BUILDING
1/8" = 1'-0"

Prepared For:
Developers Collaborative

Consultant:

Architect:
ARCHETYPE ARCHITECTS
48 Union Wharf Portland, Maine 04101
207.772.6022 ARCHETYPE@ARCHETYPEPA.COM

Project:
STEVENS SQUARE BUILDING 2
PORTLAND, MAINE

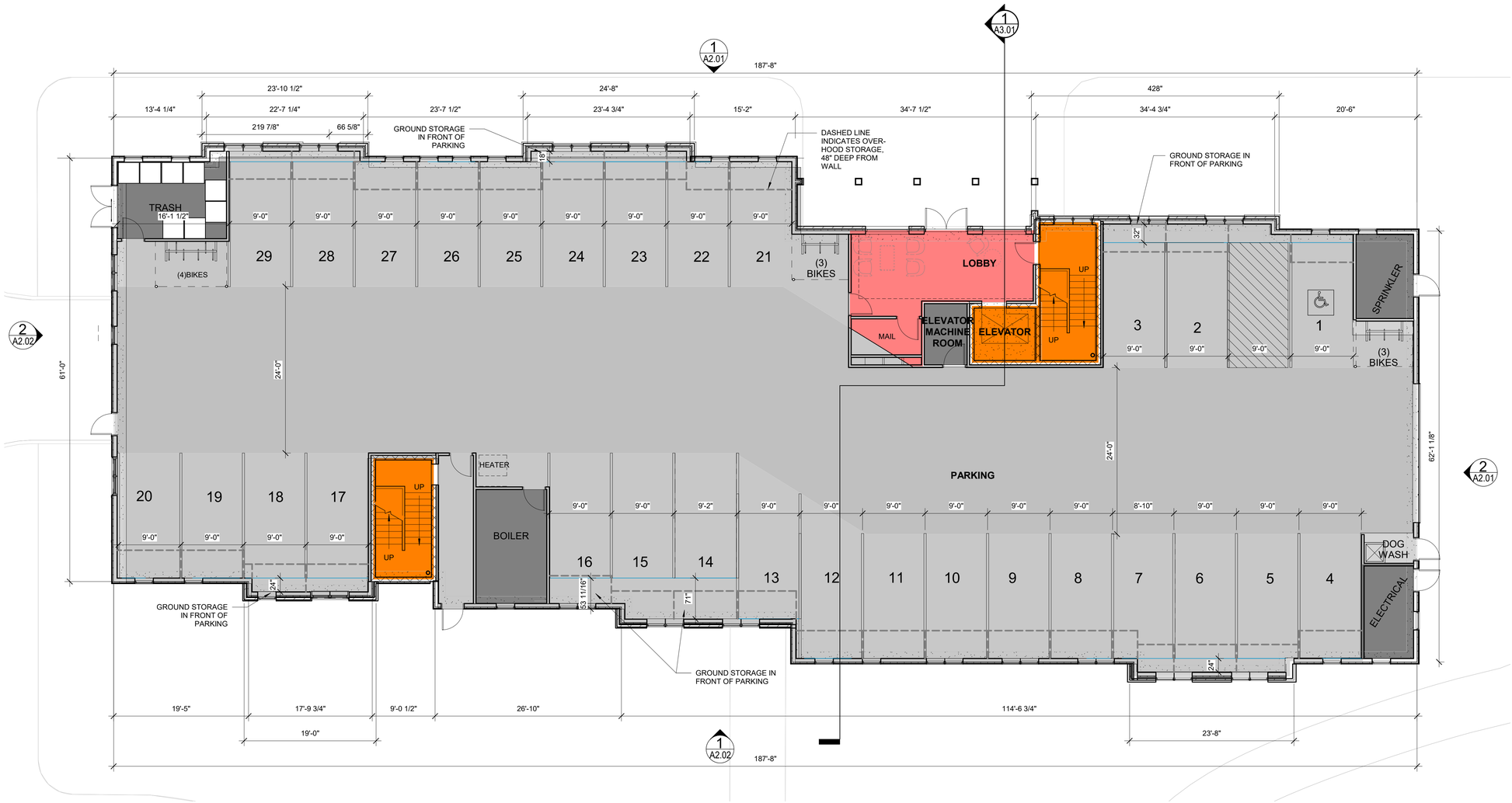
Revisions:

Scale: As indicated

Date: 09/10/2020

BUILDING ELEVATIONS

A2.02



GROSS FLOOR AREA			
Level	FLOOR	# UNITS	GROSS AREA +/-
2ND FLOOR	SECOND FLOOR	7	12168 SF
3RD FLOOR	THIRD FLOOR	7	12168 SF
4TH FLOOR	FOURTH FLOOR	7	11593 SF
5TH FLOOR	FIFTH FLOOR	7	11435 SF

1 PARKING LEVEL
1/8" = 1'-0"

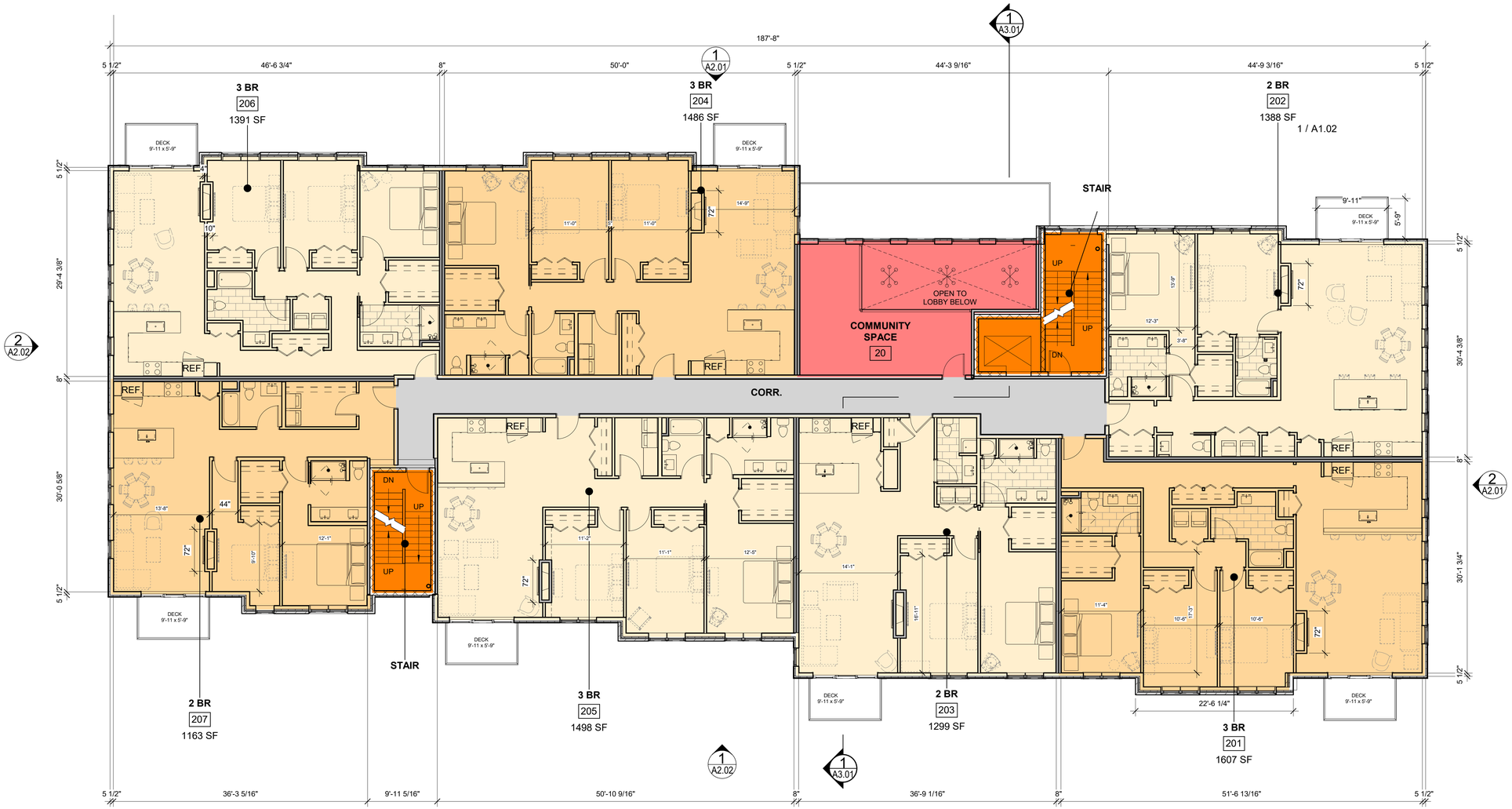
Stevens Square Building Two

Portland, Maine

05/04/2021

A1.1

ARCHETYPE ARCHITECTS
48 Union Wharf Portland, Maine 04101
(207) 772-6022 WWW.ARCHETYPE-ARCHITECTS.COM



GROSS FLOOR AREA			
Level	FLOOR	# UNITS	GROSS AREA +/-
2ND FLOOR	SECOND FLOOR	7	12168 SF
3RD FLOOR	THIRD FLOOR	7	12168 SF
4TH FLOOR	FOURTH FLOOR	7	11593 SF
5TH FLOOR	FIFTH FLOOR	7	11435 SF

1 SECOND FLOOR PLAN
1/8" = 1'-0"

Stevens Square Building Two

Portland, Maine

05/04/2021

A1.2

ARCHETYPE ARCHITECTS
48 Union Wharf Portland, Maine 04101
(207) 772-6022 WWW.ARCHETYPE-ARCHITECTS.COM



GROSS FLOOR AREA			
Level	FLOOR	# UNITS	GROSS AREA +/-
2ND FLOOR	SECOND FLOOR	7	12168 SF
3RD FLOOR	THIRD FLOOR	7	12168 SF
4TH FLOOR	FOURTH FLOOR	7	11593 SF
5TH FLOOR	FIFTH FLOOR	7	11435 SF

1 | 3RD FLOOR
1/8" = 1'-0"

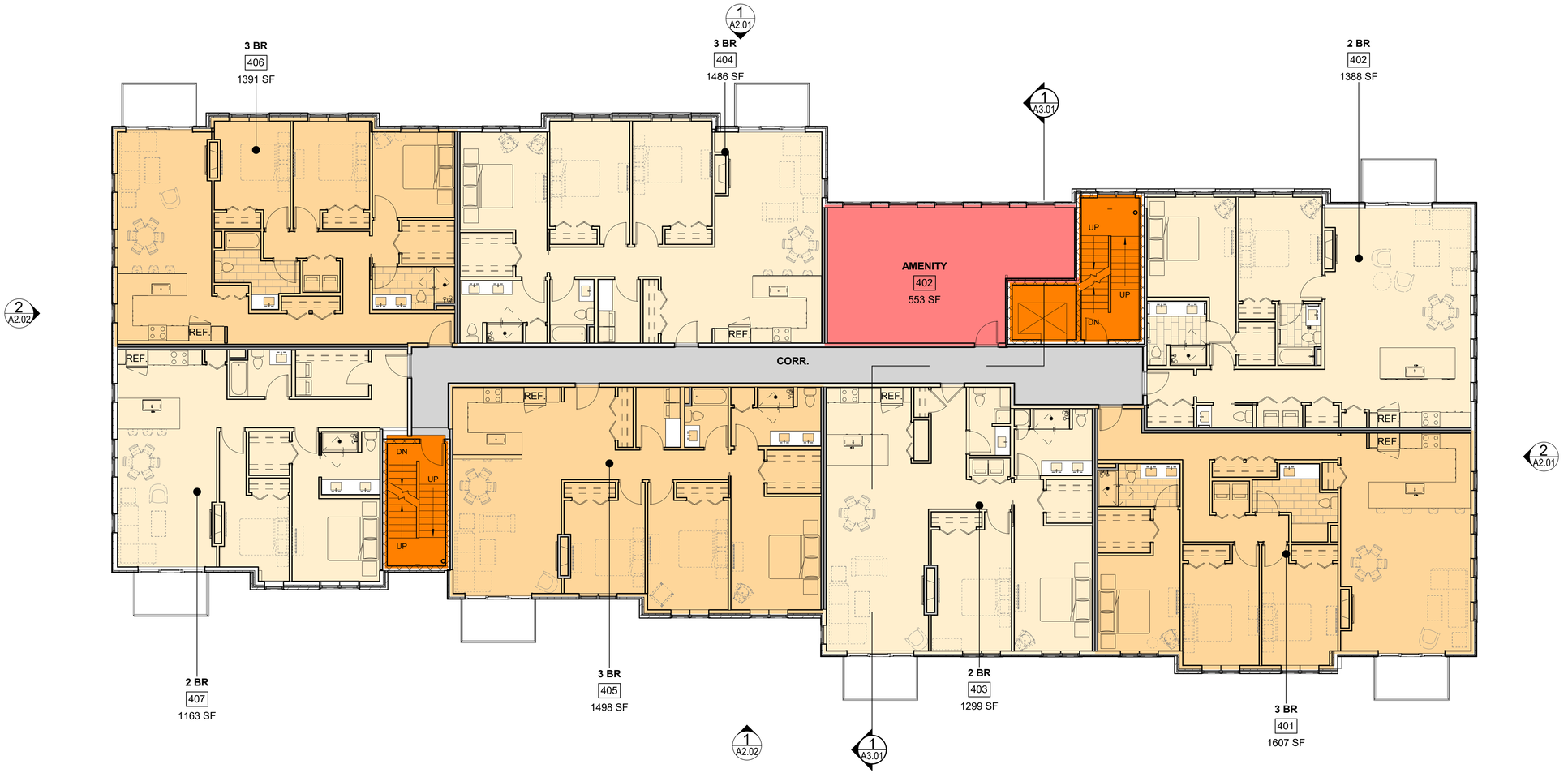
Stevens Square Building Two

Portland, Maine

05/04/2021

A1.3

ARCHETYPE ARCHITECTS
48 Union Wharf Portland, Maine 04101
(207) 772-6022 WWW.ARCHETYPE-ARCHITECTS.COM



GROSS FLOOR AREA			
Level	FLOOR	# UNITS	GROSS AREA +/-
2ND FLOOR	SECOND FLOOR	7	12168 SF
3RD FLOOR	THIRD FLOOR	7	12168 SF
4TH FLOOR	FOURTH FLOOR	7	11593 SF
5TH FLOOR	FIFTH FLOOR	7	11435 SF

1 | 4TH FLOOR
1/8" = 1'-0"

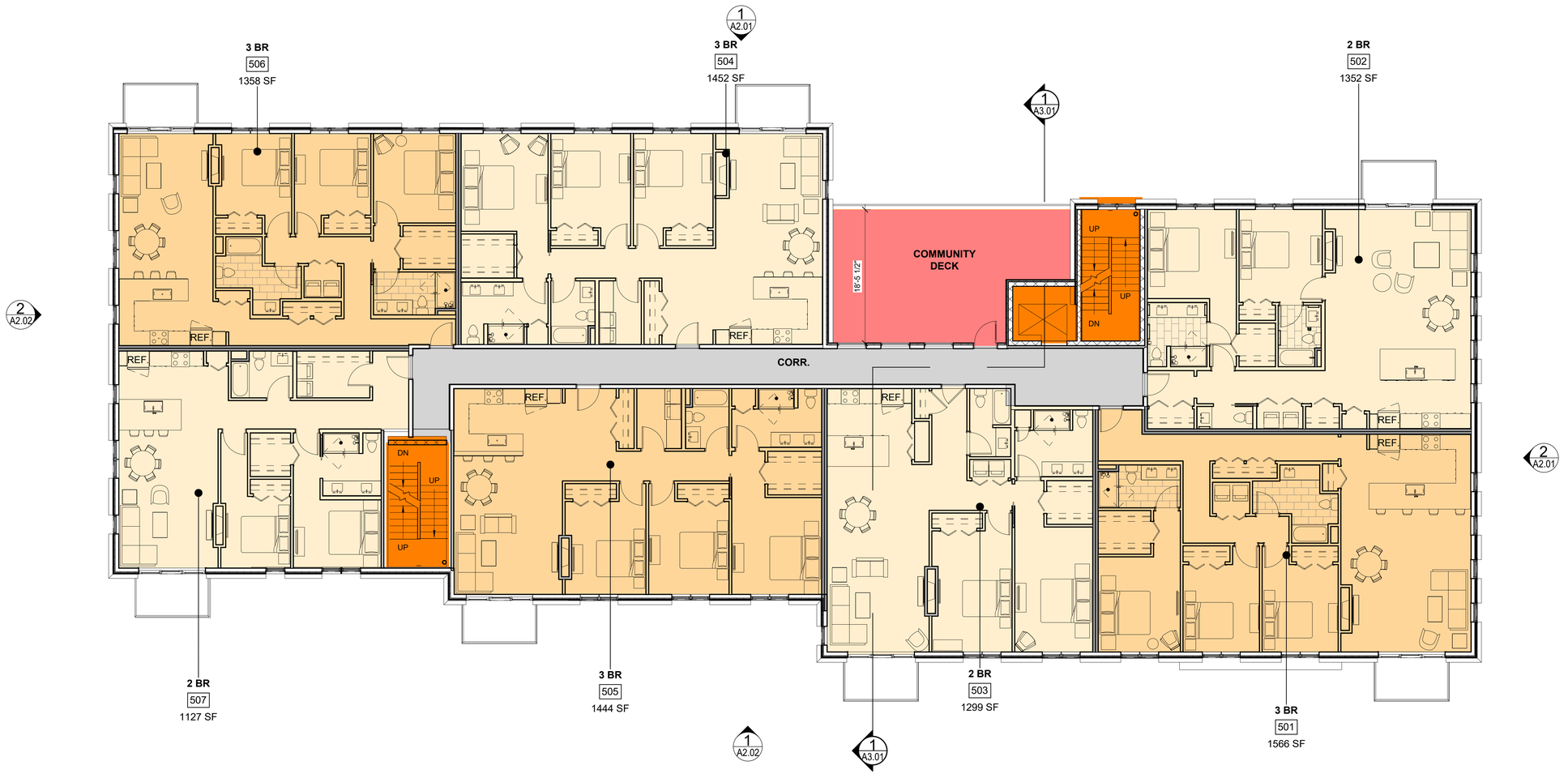
Stevens Square Building Two

Portland, Maine

05/04/2021

A1.4

ARCHETYPE ARCHITECTS
48 Union Wharf Portland, Maine 04101
(207) 772-6022 WWW.ARCHETYPE-ARCHITECTS.COM



GROSS FLOOR AREA			
Level	FLOOR	# UNITS	GROSS AREA +/-
2ND FLOOR	SECOND FLOOR	7	12168 SF
3RD FLOOR	THIRD FLOOR	7	12168 SF
4TH FLOOR	FOURTH FLOOR	7	11593 SF
5TH FLOOR	FIFTH FLOOR	7	11435 SF

1 | 5TH FLOOR
1/8" = 1'-0"

Stevens Square Building Two

Portland, Maine

05/04/2021

A1.5

ARCHETYPE ARCHITECTS
48 Union Wharf Portland, Maine 04101
(207) 772-6022 WWW.ARCHETYPE-ARCHITECTS.COM



2 | LEFT ELEVATION.
1/8" = 1'-0"

ELEVATION MATERIALS

1. BERRIDGE SHINGLE
2. CLAPBOARD SIDING
3. BRICK
4. PRECAST SILLS
5. PRECAST LINTELS
6. PRECAST BAND
7. STACKED STONE VENEER
8. PREFABRICATED STEEL BALCONY
9. 1X6 PVC HEAD TRIM
10. PVC CORNICE
11. VINYL DOUBLE-HUNG WINDOW
12. ALUMINUM STOREFRONT
13. 10x10 PVC COLUMN
14. VINYL PATIO DOOR
15. GLAZED ALUMINUM OVERHEAD DOOR
16. INSULATED HM DOOR
17. 1X4 PVC JAMB TRIM
18. ALUMINUM RAILING



1 | ENTRY ELEVATION - BUILDING 2
1/8" = 1'-0"

Prepared For:
Developers Collaborative

Consultant:

Architect:
ARCHETYPE ARCHITECTS
48 Union Wharf Portland, Maine 04101
207.772.6022 ARCHETYPE@ARCHETYPEPA.COM

Project:
Stevens Square Building Two
Portland, Maine

Revisions:

Scale: As indicated
Date: 05/04/2021

BUILDING ELEVATIONS

A2.01

ELEVATION MATERIALS

1. BERRIDGE SHINGLE
2. CLAPBOARD SIDING
3. BRICK
4. PRECAST SILLS
5. PRECAST LINTELS
6. PRECAST BAND
7. STACKED STONE VENEER
8. PREFABRICATED STEEL BALCONY
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10. PVC CORNICE
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12. ALUMINUM STOREFRONT
13. 10x10 PVC COLUMN
14. VINYL PATIO DOOR
15. GLAZED ALUMINUM OVERHEAD DOOR
16. INSULATED HM DOOR
17. 1X4 PVC JAMB TRIM
18. ALUMINUM RAILING



2 RIGHT ELEVATION.
1/8" = 1'-0"



1 REAR ELEVATION - 5 STORY BUILDING
1/8" = 1'-0"

Prepared For:
Developers Collaborative

Consultant:

Architect:
ARCHETYPE ARCHITECTS
48 Union Wharf Portland, Maine 04101
207.772.6022 ARCHETYPE@ARCHETYPEPA.COM

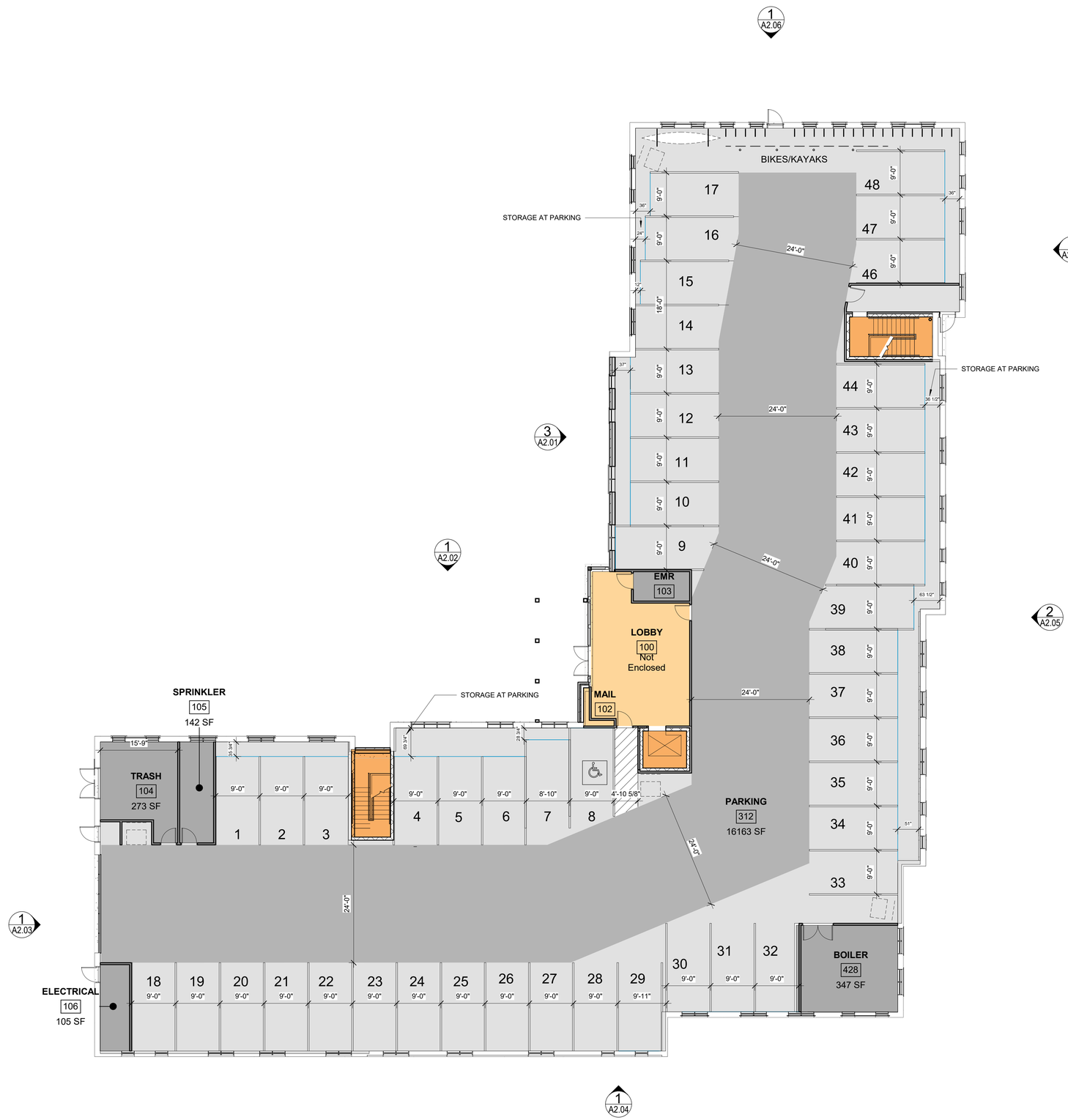
Project:
Stevens Square Building Two
Portland, Maine

Revisions:

Scale: As indicated
Date: 05/04/2021

BUILDING ELEVATIONS

A2.02



LEGEND:

- BUILDING SECTION — X / AX.XX
- WALL SECTION — X / AX.XX
- SECTION DETAIL — X / AX.XX
- PLAN DETAIL — X / AX.XX
- WALL TYPE — WX
- FLOOR TYPE — FX

NEW WALL - STUD & GYP. BD.	
NEW CMU WALL	
NEW MASONRY INFILL	
EXISTING CMU WALL	
EXISTING STUD WALL OR FLOOR	
EXISTING MASONRY WALL	
DEMO AND REMOVE	
EXISTING BASEBOARD	
EXISTING WHITEBOARD & CHALKTRAY	
SEMI RECESSED FIRE EXTINGUISHER CABINET	
INTERNATIONAL SYMBOL OF ACCESSIBILITY	UFAS
INTERNATIONAL SYMBOL OF ACCESS FOR HEARING LOSS	
EXISTING DOOR	
NEW DOOR	
NEW FLOOR ON NEW FRAMING- SEE STRUCTURAL	
NEW CONCRETE FLOOR	

1 PARKING LEVEL
3/32" = 1'-0"

Prepared For: DC BAXTER WOODS, LLC

Consultant:

Architect: ARCHETYPE ARCHITECTS
48 Union Wharf Portland, Maine 04101
207.772.6022 ARCHETYPE@ARCHETYPEPA.COM

Project: STEVENS SQUARE 3
PORTLAND, MAINE

Revisions:

Scale: As indicated

Date: 2020

First Floor

A1.01

ELEVATION MATERIALS

1. BERRIDGE SHINGLE
2. CLAPBOARD SIDING
3. BRICK
4. PRECAST SILLS
5. PRECAST LINTELS
6. PRECAST BAND
7. STACKED STONE VENEER
8. PREFABRICATED STEEL BALCONY
9. 1X6 PVC HEAD TRIM
10. PVC CORNICE/BAND
11. VINYL DOUBLE-HUNG WINDOW
12. ALUMINUM STOREFRONT
13. 10x10 PVC COLUMN
14. VINYL PATIO DOOR
15. GLAZED ALUMINUM OVERHEAD DOOR
16. INSULATED HM DOOR
17. 1X4 PVC JAMB TRIM
18. ALUMINUM RAILING



3 ENTRY ELEVATION
3/16" = 1'-0"

Prepared For:
DC BAXTER WOODS, LLC
Address
City, State

Consultant:

Architect:
ARCHETYPE ARCHITECTS
48 Union Wharf Portland, Maine 04101
207.772.6022 ARCHETYPE@ARCHETYPEPA.COM

Project:
STEVENS SQUARE 3
PORTLAND, MAINE

Revisions:

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Date: 2020

BUILDING ELEVATIONS

A2.01

ELEVATION MATERIALS

1. BERRIDGE SHINGLE
2. CLAPBOARD SIDING
3. BRICK
4. PRECAST SILLS
5. PRECAST LINTELS
6. PRECAST BAND
7. STACKED STONE VENEER
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16. INSULATED HM DOOR
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18. ALUMINUM RAILING



1 NORTH ELEVATION - SOUTH ELL
3/16" = 1'-0"

Prepared For:
DC BAXTER WOODS, LLC

Consultant:

Architect:
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Project:
STEVENS SQUARE 3
PORTLAND, MAINE

Revisions:

Scale:
As indicated

Date:
2020

BUILDING ELEVATIONS

A2.02

ELEVATION MATERIALS

1. BERRIDGE SHINGLE
2. CLAPBOARD SIDING
3. BRICK
4. PRECAST SILLS
5. PRECAST LINTELS
6. PRECAST BAND
7. STACKED STONE VENEER
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14. VINYL PATIO DOOR
15. GLAZED ALUMINUM OVERHEAD DOOR
16. INSULATED HM DOOR
17. 1X4 PVC JAMB TRIM
18. ALUMINUM RAILING



1 GARAGE ENTRY ELEVATION
3/16" = 1'-0"

Prepared For:
DC BAXTER WOODS, LLC

Consultant:

Architect:
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Project:
STEVENS SQUARE 3
PORTLAND, MAINE

Revisions:

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Date: 2020

BUILDING ELEVATIONS

A2.03

ELEVATION MATERIALS

1. BERRIDGE SHINGLE
2. CLAPBOARD SIDING
3. BRICK
4. PRECAST SILLS
5. PRECAST LINTELS
6. PRECAST BAND
7. STACKED STONE VENEER
8. PREFABRICATED STEEL BALCONY
9. 1X6 PVC HEAD TRIM
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11. VINYL DOUBLE-HUNG WINDOW
12. ALUMINUM STOREFRONT
13. 10x10 PVC COLUMN
14. VINYL PATIO DOOR
15. GLAZED ALUMINUM OVERHEAD DOOR
16. INSULATED HM DOOR
17. 1X4 PVC JAMB TRIM
18. ALUMINUM RAILING



1 SOUTH ELEVATION
3/16" = 1'-0"

Prepared For:
DC BAXTER WOODS, LLC

Consultant:

Architect:
ARCHETYPE ARCHITECTS
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207.772.6022 ARCHETYPE@ARCHETYPEPA.COM

Project:
STEVENS SQUARE 3
PORTLAND, MAINE

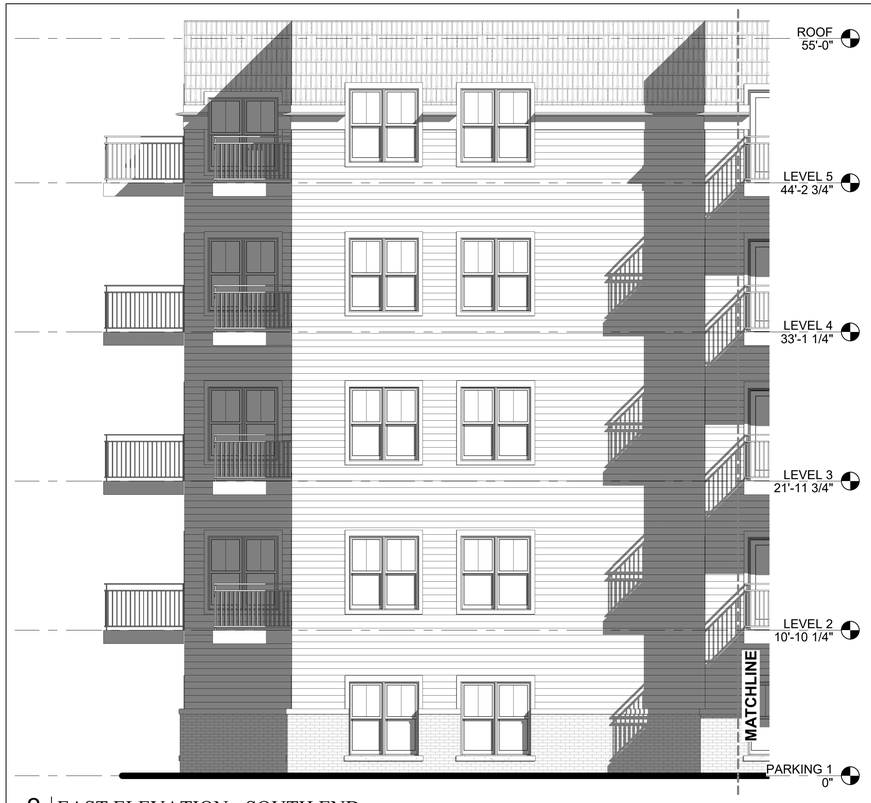
Revisions:

Scale: As indicated

Date: 2020

BUILDING ELEVATIONS

A2.04



2 EAST ELEVATION - SOUTH END
3/16" = 1'-0"

ELEVATION MATERIALS

1. BERRIDGE SHINGLE
2. CLAPBOARD SIDING
3. BRICK
4. PRECAST SILLS
5. PRECAST LINTELS
6. PRECAST BAND
7. STACKED STONE VENEER
8. PREFABRICATED STEEL BALCONY
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14. VINYL PATIO DOOR
15. GLAZED ALUMINUM OVERHEAD DOOR
16. INSULATED HM DOOR
17. 1X4 PVC JAMB TRIM
18. ALUMINUM RAILING



1 EAST ELEVATION - NORTH END
3/16" = 1'-0"

Prepared For:
DC BAXTER WOODS, LLC

Consultant:

Architect:
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Project:
STEVENS SQUARE 3
PORTLAND, MAINE

Revisions:

Scale:
As indicated

Date:
2020

BUILDING ELEVATIONS

A2.05

ELEVATION MATERIALS

1. BERRIDGE SHINGLE
2. CLAPBOARD SIDING
3. BRICK
4. PRECAST SILLS
5. PRECAST LINTELS
6. PRECAST BAND
7. STACKED STONE VENEER
8. PREFABRICATED STEEL BALCONY
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18. ALUMINUM RAILING



1 NORTH ELEVATION
3/16" = 1'-0"

Prepared For:
DC BAXTER WOODS, LLC

Consultant:

Architect:
ARCHETYPE ARCHITECTS
48 Union Wharf Portland, Maine 04101
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Project:
STEVENS SQUARE 3
PORTLAND, MAINE

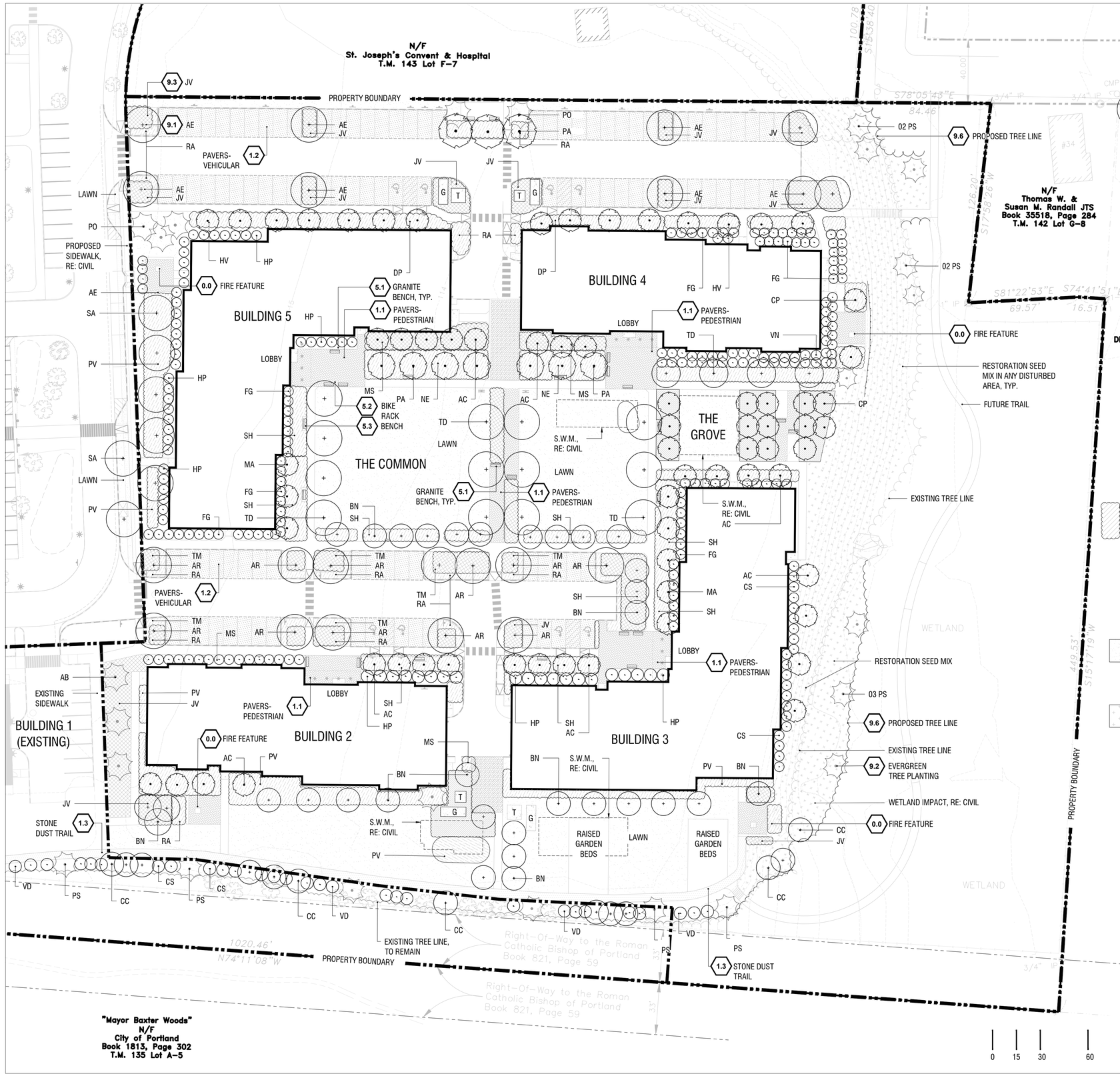
Revisions:

Scale: As indicated

Date: 2020

BUILDING ELEVATION

A2.06



PLANT LIST

SYMB.	BOTANICAL NAME	COMMON NAME	QTY.	SIZE	NATIVE	SPACING
TREES - DECIDUOUS						
AR	ACER RUBRUM	RED MAPLE	TBD	2" CAL.	Y	PER PLAN
AE	AESCULUS X CARNEA 'FORT MCNAIR'	RED HORSECHESTNUT (SEEDLESS)	TBD	2" CAL.	N	PER PLAN
BN	BETULA NIGRA 'HERITAGE'	RIVER BIRCH	TBD	2" CAL	Y	PER PLAN
CC	CARPINUS CAROLINA	AMERICAN HORNBEAM	TBD	2" CAL	Y	PER PLAN
SA	SORBUS ALNIFOLIA	KOREAN MOUNTAIN ASH	TBD	2" CAL.	N	PER PLAN
TD	TAXODIUM DISTICHUM 'GREEN WHISPER'	BALD CYPRESS	TBD	2" CAL.	Y	PER PLAN
TREES - EVERGREEN						
AB	ABIES BALSAMEA	BALSAM FIR	TBD	7-8'	Y	PER PLAN
PO	PICEA OMORIKA	SERBIAN SPRUCE	TBD	7-8'	N	PER PLAN
PS	PINUS STROBUS	EASTERN WHITE PINE	TBD	7-8'	Y	PER PLAN
TREES - ORNAMENTAL						
AC	AMELANCHIER CANADENSIS	SERVICEBERRY (MULTI-STEM)	TBD	7-8'	Y	PER PLAN
CP	CORNUS PAGODA	PAGODA DOGWOOD (SINGLE STEM)	TBD	6-7'	Y	PER PLAN
MA	MAGNOLIA X. L. 'MERRILL'	MAGNOLIA	TBD	#5	N	PER PLAN
PA	PRUNUS ACCOLADE	ACCOLADE CHEERY	TBD	2" CAL.	N	PER PLAN
HV	HAMAMELLIS VIRGINIANA	WITCH HAZEL	TBD	6-7'	Y	PER PLAN
SHRUBS						
FG	FOTHERGILLA GARDENII	DWARF FOTHERGILLA	TBD	#3	Y	PER PLAN
HP	HYDRANGEA PANICULATA 'QUICK FIRE'	QUICK FIRE HYDRANGEA	TBD	#3	N	PER PLAN
JV	JUNIPERUS VIRGINIANA 'GREY OWL'	GREY OWL JUNIPER	TBD	#2	Y	PER PLAN
VN	VIBURNUM NUDUM 'WINTERTHUR'	SMOOTH WITHEROD	TBD	#5	Y	PER PLAN
VD	VIBURNUM DENTATUM	ARROWWOOD VIBURNUM	TBD	#5	Y	PER PLAN
RP	RHODODENDRON CATAWBIENSE	CATAWBA RHODODENDRON	TBD	#5	Y	PER PLAN
RA	RHUS AROMATICA	GRO-LOW SUMAC	TBD	#2	Y	PER PLAN
TM	TAXUS X MEDIA 'EVERLOW'	EVERLOW YEW	TBD	#2	N	PER PLAN
CS	CORNUS SERICEA	RED TWIG DOGWOOD	TBD	#5	Y	PER PLAN
PERENNIALS, GROUND COVERS, AND ORNAMENTAL GRASSES						
CX	CALAMAGROSTIS X ACUTIFLORA	KARL FOERSTER GRASS	TBD	#1	N	PER PLAN
DP	DENNSTAEDTIA PUNCTILOBULA	HAY-SCENTED FERN	TBD	#1	Y	PER PLAN
MS	MISCANTHUS SINENSIS 'MORNING LIGHT'	MAIDENGRASS	TBD	#1	N	PER PLAN
NE	NEPETA 'WALKER'S LOW'	WALKER'S LOW CATMINT	TBD	#1	N	PER PLAN
PV	PANICUM VIRGATUM 'ROTSTRAHLBUSCH'	SWITCH GRASS	TBD	#1	Y	PER PLAN
SH	SPOROBOLUS HETEROLEPIS	PRAIRIE DROP SEED	TBD	#1	Y	PER PLAN
SS	SCHIZACHYRIUM SCOPARIUM	LITTLE BLUESTEM	TBD	#1	Y	PER PLAN
AN	ASTER NOVAE-ANGLIAE	NEW ENGLAND ASTER	TBD	#1	Y	PER PLAN
AG	AQUILEGIA CANADENSIS	COLUMBINE	TBD	#1	Y	PER PLAN
CA	CALTHA PALUSTRIS	MARSH MARIGOLD	TBD	#1	Y	PER PLAN
AE	ANEMONE CANADENSIS	CANADA WINDFLOWER	TBD	#1	Y	PER PLAN

LAWN (SEED MIX) (WILDFLOWER FARM'S ECO-LAWN GRASS SEED)

TOTAL AREA 4,500 SF

ECO-LAWN IS A DROUGHT-RESISTANT GRASS THAT REQUIRES MOWING ONLY ONCE PER MONTH. EACH 5 POUND BAG OF SEED COVERS 1,000 SQUARE FEET. A THICK HEALTHY LAWN IS THE BEST DEFENCE AGAINST WEEDS, DISEASE, DROUGHT AND INSECT DAMAGE.

RESTORATION MIX (SEED MIX)

NEW ENGLAND WETLAND PLANT, INC.
"NEW ENGLAND CONSERVATION/WILDLIFE MIX"
APPLICATION RATE: 25LBS/ACRE | 1750 SQ FT/LB

SITE KEYNOTES:

1.0	PAVEMENTS, RAMPS, CURBS	DETAIL / SHEET	
1.1	PAVERS - PEDESTRIAN	1/L4-00	
1.2	PAVERS - VEHICULAR	2/L4-00	
1.3	STONE DUST PATH	3/L4-00	
2.0	JOINTING		
X.X	NOT USED AT THIS TIME	X/XX-XX	
3.0	STEPS		
X.X	NOT USED AT THIS TIME	X/XX-XX	
4.0	SITE WALLS/ EMBANKMENTS		
X.X	NOT USED AT THIS TIME	X/XX-XX	
5.0	SITE FURNITURE		
5.1	GRANITE BENCH WOOD TOP	3/L4-00	
5.2	BICYCLE RACK	6/L4-00	
5.3	BENCH	5/L4-00	
6.0	RAILINGS, BARRIERS, FENCING	DETAIL / SHEET	
X.X	NOT USED AT THIS TIME	X/XX-XX	
7.0	SITE LIGHTING		
	BY OTHERS		
8.0	DRAINAGE		
X.X	NOT USED AT THIS TIME	X/XX-XX	
9.0	PLANTING AND LANDSCAPE		
9.1	DECIDUOUS TREE PLANTING	1/L4-01	
9.2	EVERGREEN TREE PLANTING	2/L4-01	
9.3	SHRUB PLANTING	3/L4-01	
9.4	PERENNIAL PLANTING	5/L4-01	
9.5	STEEL EDGING	4/L4-01	
9.6	TREE PROTECTION	6/L4-01	
10.0	MISCELLANEOUS ELEMENTS		
X.X	NOT USED AT THIS TIME	X/XX-XX	

ACETO LANDSCAPE ARCHITECTS
207.221.3390 | ACETOLA.COM

SEAL

PROJECT TITLE

STEVEN'S SQUARE AT BAXTER WOODS

LOT 4 / PHASE 2
583 STEVEN'S AVE
PORTLAND, ME

PREPARED FOR

OWNER:

DC BAXTER WOODS IV
631 STEVENS AVE
SUITE 203
PORTLAND, ME 04103

REVISIONS	DATE
SITE PLAN REVIEW	05/26/21
SITE PLAN REVIEW	08/20/21

ISSUE DATE

SITE PLAN REVIEW
DECEMBER, 2021

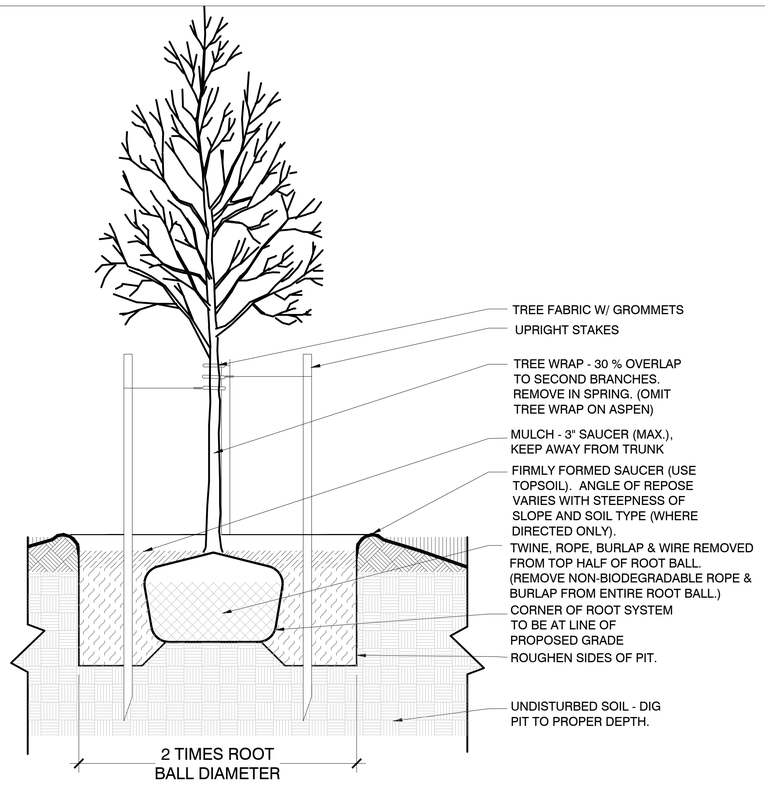
SHEET TITLE

LANDSCAPE PLAN

SHEET INFORMATION

L 1-00

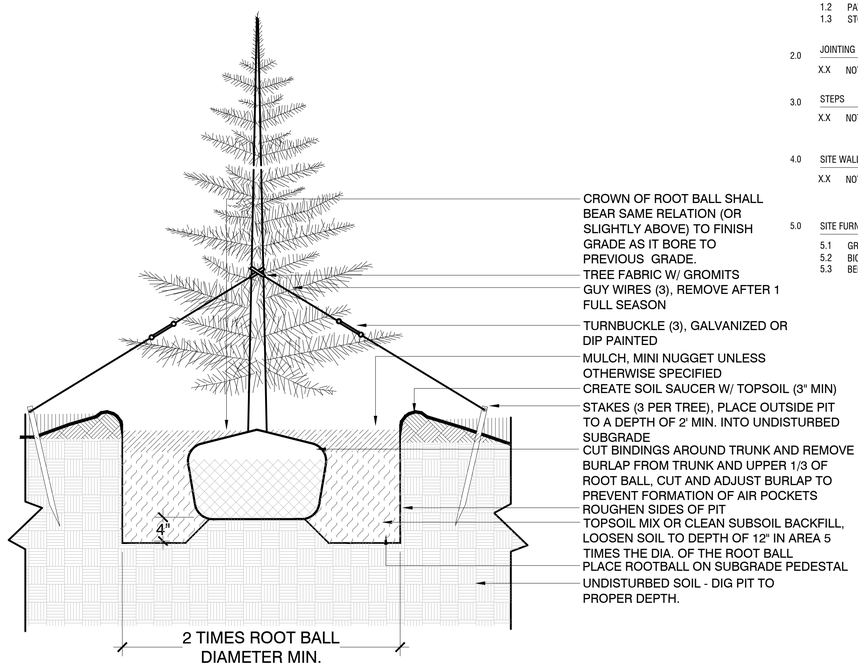
NOT FOR CONSTRUCTION



1 DECIDUOUS TREE PLANTING

9.1

1":1'-0"



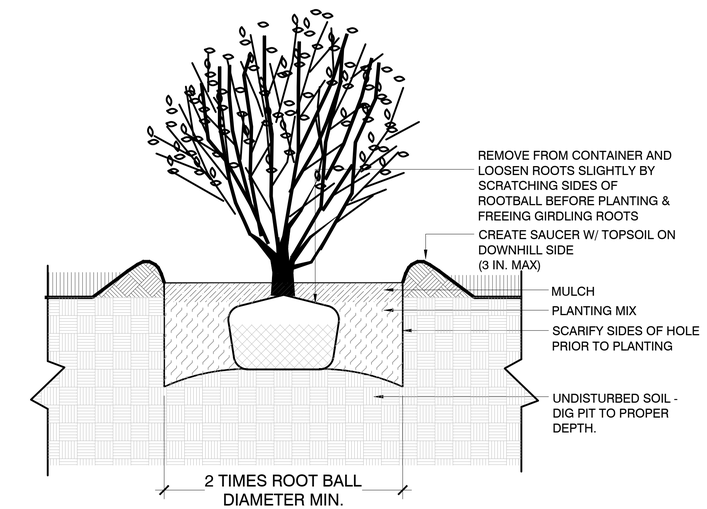
2 EVERGREEN TREE PLANTING

9.2

1":1'-0"

SITE KEYNOTES:

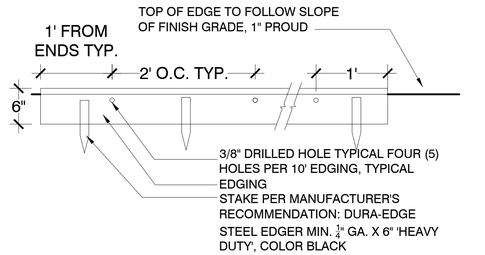
1.0	PAVEMENTS, RAMPS, CURBS		DETAIL / SHEET
	1.1	PAVERS - PEDESTRIAN	1/L4-00
	1.2	PAVERS - VEHICULAR	2/L4-00
	1.3	STONE DUST PATH	3/L4-00
2.0	JOINTING		
	X.X	NOT USED AT THIS TIME	X/XX-XX
3.0	STEPS		
	X.X	NOT USED AT THIS TIME	X/XX-XX
4.0	SITE WALLS/ EMBANKMENTS		
	X.X	NOT USED AT THIS TIME	X/XX-XX
5.0	SITE FURNITURE		
	5.1	GRANITE BENCH WOOD TOP	3/L4-00
	5.2	BICYCLE RACK	6/L4-00
	5.3	BENCH	5/L4-00
6.0	RAILINGS, BARRIERS, FENCING		DETAIL / SHEET
	X.X	NOT USED AT THIS TIME	X/XX-XX
7.0	SITE LIGHTING		
	BY OTHERS		
8.0	DRAINAGE		
	X.X	NOT USED AT THIS TIME	X/XX-XX
9.0	PLANTING AND LANDSCAPE		
	9.1	DECIDUOUS TREE PLANTING	1/L4-01
	9.2	EVERGREEN TREE PLANTING	2/L4-01
	9.3	SHRUB PLANTING	3/L4-01
	9.4	PERENNIAL PLANTING	5/L4-01
	9.5	STEEL EDGING	4/L4-01
	9.6	TREE PROTECTION	6/L4-01
10.0	MISCELLANEOUS ELEMENTS		
	X.X	NOT USED AT THIS TIME	X/XX-XX



3 SHRUB PLANTING

9.3

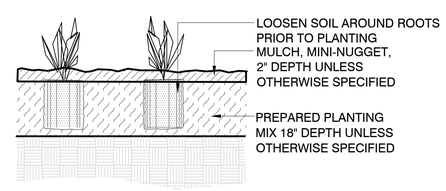
1":1'-0"



4 METAL EDGING

9.5

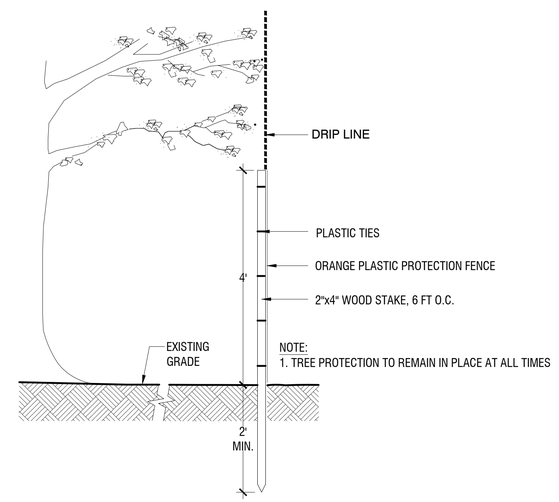
1":1'-0"



5 PERENNIAL & GRASS PLANTING

9.4

1":1'-0"



6 TREE PROTECTION

9.6

N.T.S.

ACETO LANDSCAPE ARCHITECTS
207.221.3390 | ACETOLA.COM

SEAL

PROJECT TITLE

STEVEN'S SQUARE AT BAXTER WOODS

LOT 4 / PHASE 2
583 STEVEN'S AVE
PORTLAND, ME

PREPARED FOR

OWNER:

DC BAXTER WOODS IV
631 STEVENS AVE
SUITE 203
PORTLAND, ME 04103

REVISIONS	DATE
SITE PLAN REVIEW	05/26/21
SITE PLAN REVIEW	08/20/21

ISSUE DATE

SITE PLAN REVIEW
DECEMBER, 2021

SHEET TITLE

PLANTING DETAILS

SHEET INFORMATION

L 4-01

STORMWATER QUALITY TREATMENT										
	IMPERVIOUS AREA					DEVELOPED AREA				TREATMENT BMP
SUBCATCHMENT	COVER TYPE	AREA (SF)	% TREATED	% AREA	% TREATED	AREA (SF)	% TREATED	% AREA	% TREATED	
20A	PAVEMENT	13,856	100%	11%	11%	19,180	100%	9%	9%	PERVIOUS PAVERS 1
20B	PAVEMENT	11,726	100%	9%	9%	15,935	100%	7%	7%	PERVIOUS PAVERS 2
21A, 21B	ROOFS *	31,990	100%	25%	25%	31,990	100%	14%	14%	R-TANK SYSTEM 1
22A	PAVEMENT	8,175	100%	7%	7%	35,370	100%	16%	16%	FOCAL POINT 1
23A	PAVEMENT	12,134	100%	10%	10%	18,825	100%	9%	9%	PERVIOUS PAVERS 3
23B	PAVEMENT	6,230	100%	5%	5%	9,870	100%	4%	4%	PERVIOUS PAVERS 4
24A, 24B	ROOFS *	31,990	100%	25%	25%	31,990	100%	14%	14%	R-TANK SYSTEM 2
25A	PAVEMENT	4,910	100%	4%	4%	22,380	100%	10%	10%	FOCAL POINT 2
UNTREATED	WALKWAYS	4,627	0%	4%	0%	35,130	0%	16%	0%	
TOTAL AREA		125,638		100%		220,670		100%		
TOTAL % TREATED					96%				84%	

WATERSHED LEGEND

- DEVELOPED AREA BOUNDARY
- 999 — SUBCATCHMENT
- AREA TREATED BY PERVIOUS PAVER AREA 1
- AREA TREATED BY PERVIOUS PAVER AREA 2
- AREA TREATED BY PERVIOUS PAVER AREA 3
- AREA TREATED BY PERVIOUS PAVER AREA 4
- AREA TREATED BY FOCAL POINT 1
- AREA TREATED BY FOCAL POINT 2
- AREA TREATED BY DETENTION POND 1
- AREA TREATED BY DETENTION POND 2
- UNTREATED

*ROOF AREA TREATED FOR THERMAL IMPACTS IN ACCORDANCE WITH CHAPTER 500 ROOF EXCEPTION FROM THE GENERAL STANDARDS.

PERVIOUS PAVER AREA 1
PERVIOUS PAVER AREA 2
PERVIOUS PAVER AREA 3
PERVIOUS PAVER AREA 4
SIDE SLOPES ASSUMED TO BE UNDEVELOPED
DETENTION POND 1
DETENTION POND 2
FOCAL POINT 1
FOCAL POINT 2
SMITH WING (NOT DEVELOPED 2021)
McAULEY WAY
EX. BUILDING 1 - 20 UNITS
42 PARKING SPACES / 9 BIKES
BUILDING 5 - 42 UNITS
BUILDING 4 - 28 UNITS
BUILDING 2 - 28 UNITS
BUILDING 3 - 42 UNITS
20A
20B
21A
21B
22A
22B
23A
23B
24A
24B
25A
25B
P/A STONE FILTER AT PAVEMENT EDGE (TYP.)
WETLAND

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES & SHALL NOT BE USED FOR CONSTRUCTION.

NORTH

GRAPHIC SCALE
0 15 30 60
1 inch = 30 ft.

STATE OF MAINE — STEPHEN R. BUSHEY — 01.18.22 — LICENSED PROFESSIONAL ENGINEER

STEPHEN R. BUSHEY, P.E.
LIC. #7429

Rev.	Date	Revision

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Design: SRB	Draft: CDD	Date: MAY 2021
Checked: SRB	Scale: AS NOTED	Job No.: 3564.03
File Name: 356403-WSHED.dwg		

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Drawing Name: WATER QUALITY PLAN

Project: **Stevens Square at Baxter Woods – Phase 2 – 4**
583 Stevens Avenue, Portland, Maine

Client/Owner: **DC BAXTER WOODS IV LLC**
631 STEVENS AVE., SUITE 203, PORTLAND, ME 04103 PH. 207.772.7673

Drawing No. C-7.0

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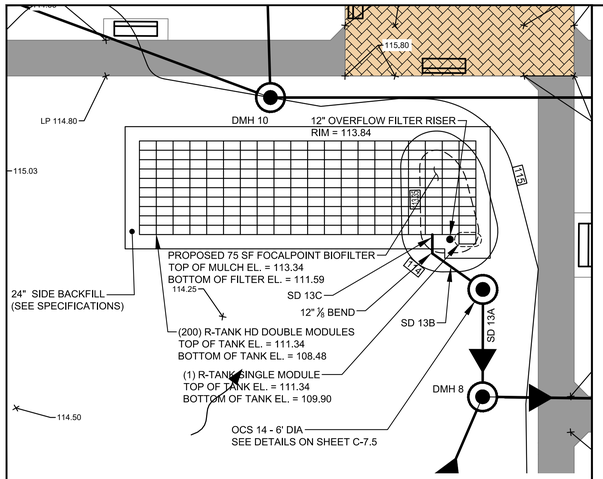
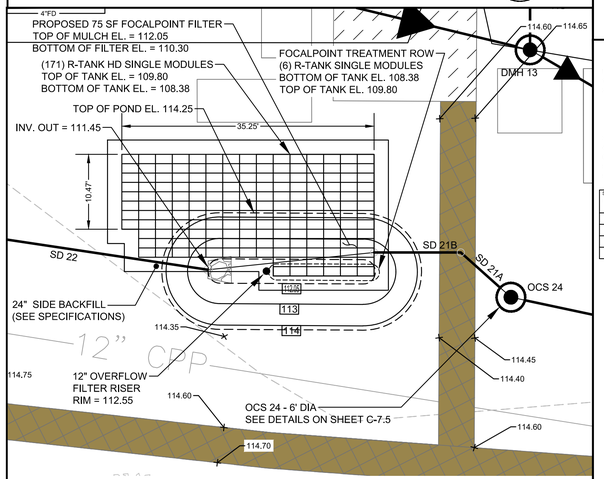
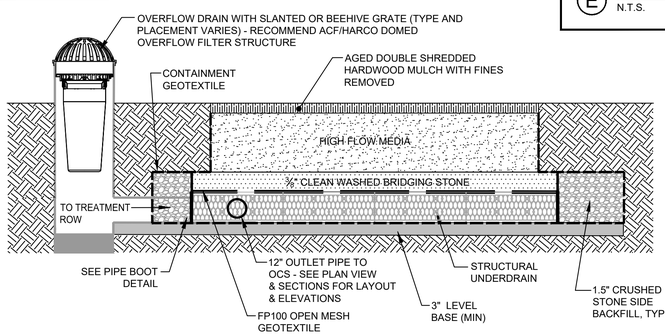


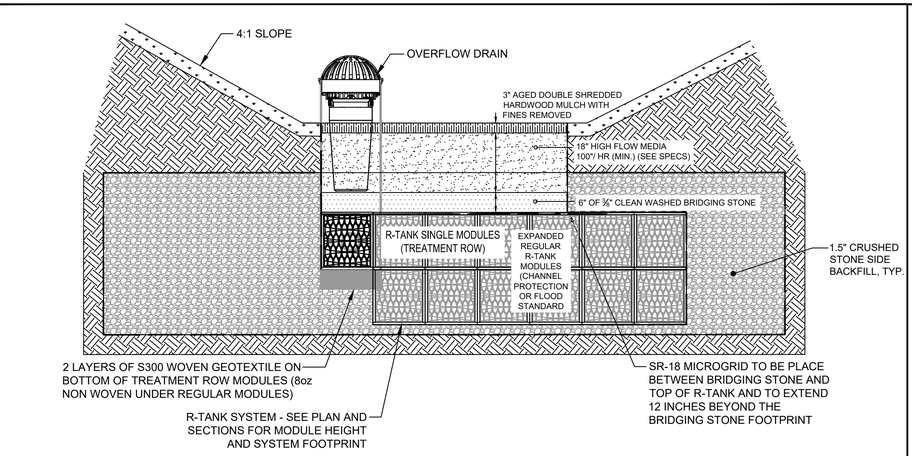
A FOCALPOINT #1 PLAN VIEW (N.I.C.)
1"=10'



B FOCALPOINT #2 PLAN VIEW (BLDG. #2)
1"=10'

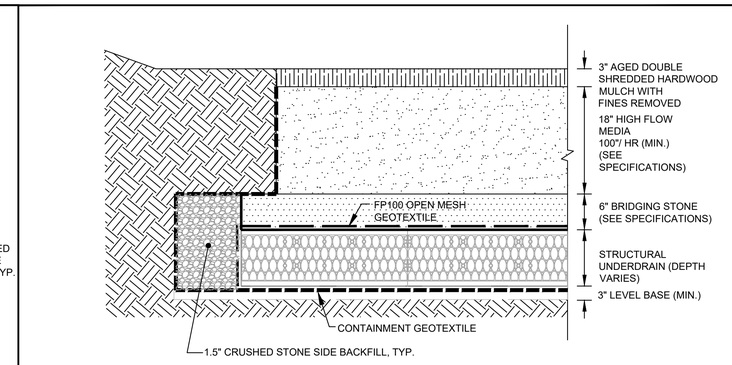


C FOCALPOINT SECTION X-X
N.T.S.



FOCALPOINT WITH R-TANK TREATMENT ROW
N.T.S.

D FOCALPOINT DETAILED CROSS SECTION
N.T.S.



FOCALPOINT HP PERFORMANCE SPECIFICATION:

HIGH PERFORMANCE MEDIA

HIGH PERFORMANCE MEDIA MUST MEET A MINIMUM OF 100"PER HOUR INFILTRATION RATE.

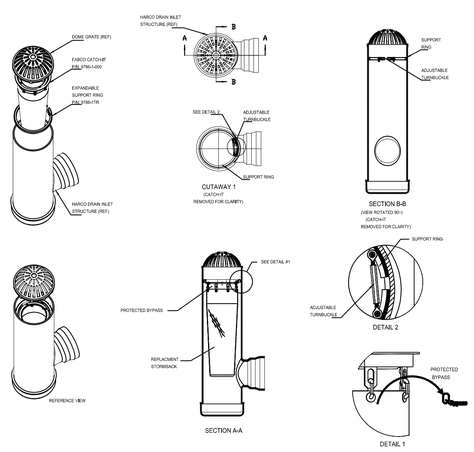
HIGH PERFORMANCE STRUCTURAL UNDERDRAIN

MUST HAVE A MINIMUM OF 19 SQUARE INCHES OF ORIFICE OPENING PER SQUARE FOOT.
MUST MEET H20 LOADING REQUIREMENTS.
MUST BE MODULAR IN NATURE AND ASSEMBLED ON SITE.
MUST HAVE MINIMUM 90% INTERIOR VOID SPACE.

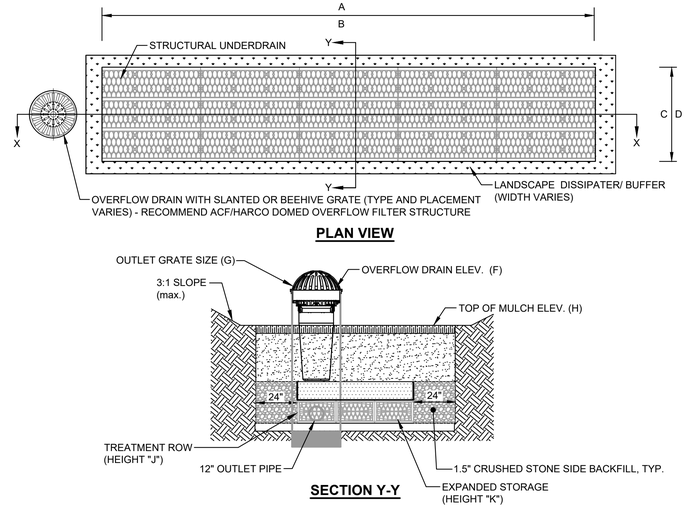
G FOCALPOINT DETAILED CROSS SECTION
N.T.S.

NOTES:
1. STORMSACK WEIGHT (EMPTY): 12 LB MAX
2. MATERIAL:
A) SHROUD: HIGH DENSITY POLYETHYLENE (TYPICAL WALL THICKNESS .125")
B) SUPPORT HUB: CRS, POWDER COATED
C) STORMSACK: WOVEN POLYPROPYLENE GEOTEXTILE (GEOTEX 117F)
D) HARDWARE: ALUMINUM POP-RIVETS
3. RECOMMENDED MINIMUM VAULT DEPTH: 24N BELOW CARTRIDGE
4. TYPICAL INSTALLATION: RAISE STORM GRATE, PUSH CATCH-IT SHROUD DOWN ON FRAME SUPPORT LEDGE UNTIL LOCKING-CLIPS CLICK IN-PLACE, LOWER STORM GRATE.
5. USE ONLY WITH FABCO REPLACEABLE STORMSACK.

STRUCTURE DIAMETER (INCHES)	DEBRIS CAPACITY (CF)	FILTERED FLOWRATE (CFS)	BYPASS FLOWRATE (CFS)	TOTAL SYSTEM FLOWRATE (CFS)
12	0.77	2.2	1.2	3.4
18	1.85	2.5	1.0	3.5
24	3.60	4.8	2.4	7.3
30	6.20	4.8	2.4	7.3



E ACF/HARCO DOMED OVERFLOW FILTER RISER
N.T.S.



H FOCALPOINT CONSTRUCTION GUIDE
N.T.S.

FOCALPOINT & STRUCTURAL UNDERDRAIN KEY DIMENSIONAL DATA - SEE DETAIL H			
FOCALPOINT ID		FP1	FP2
A	R-TANK LENGTH	23.5'	VARIES
B	# UNDERDRAIN LONG	10	VARIES
C	R-TANK WIDTH	14.4'	VARIES
D	# UNDERDRAIN WIDE	10	VARIES
E	FILTER AREA	75 SF	75 SF
F	OVERFLOW ELEVATION	113.84	113.75
G	OUTLET GRATE SIZE	12"	12"
H	TOP OF MULCH	113.34	112.05
J	TREATMENT ROW HEIGHT	SINGLE	SINGLE
K	EXPANDED STORAGE HEIGHT	DOUBLE	SINGLE
WQV	WATER QUALITY VOLUME	1588 CF	682 CF

F FOCALPOINT KEY DIMENSIONAL DATA
N.T.S.

NOTE:
SEE SHEET C-7.2 FOR PIPE CONNECTION DETAILS.

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES & SHALL NOT BE USED FOR CONSTRUCTION.

STATE OF MAINE
STEPHEN R. BUSHEY
01.18.22
LICENSED PROFESSIONAL ENGINEER

STEPHEN R. BUSHEY, P.E.
LIC. #7429

Rev.	Date	Revision

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3	2022.01.18	ISSUED FOR FINAL PERMIT AND PUBLIC HEARING
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Design: SRB	Draft: CDD	Date: MAY 2021
Checked: SRB	Scale: AS NOTED	Job No.: 3564.03
File Name: 356403-WSHED.dwg		

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207.772.2515

Drawing Name: FOCAL POINT FILTER DETAILS
Project: **Stevens Square at Baxter Woods – Phase 2 – 4**
583 Stevens Avenue, Portland, Maine
Client/Owner: **DC BAXTER WOODS IV LLC**
631 STEVENS AVE., SUITE 203, PORTLAND, ME 04103 PH. 207.772.7673

Drawing No. C-7.1

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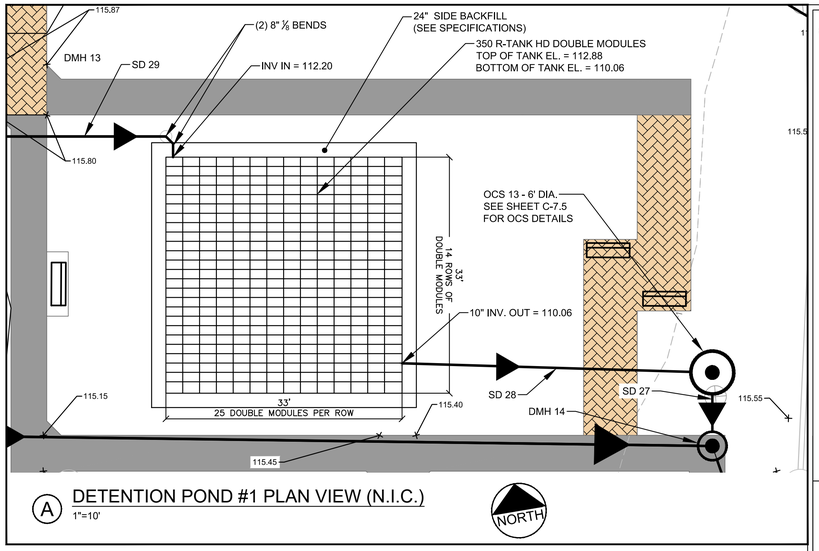
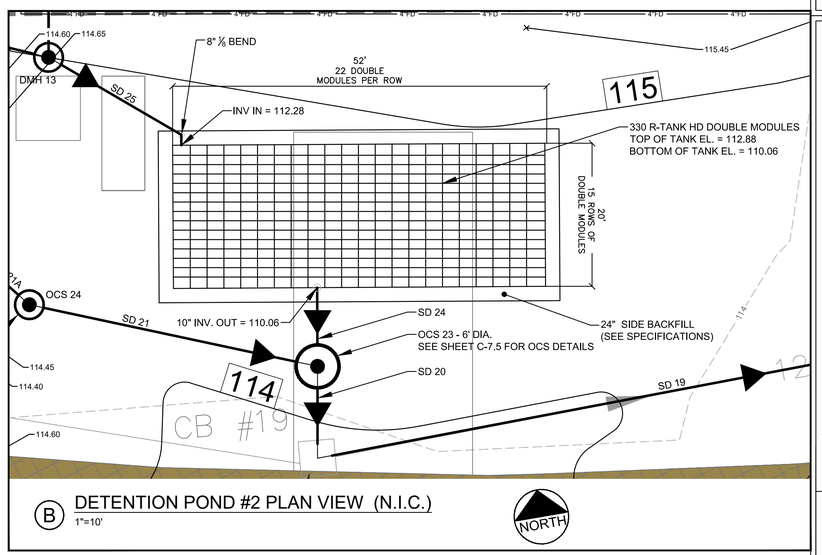


A DETENTION POND #1 PLAN VIEW (N.I.C.)
1"=10'



B DETENTION POND #2 PLAN VIEW (N.I.C.)
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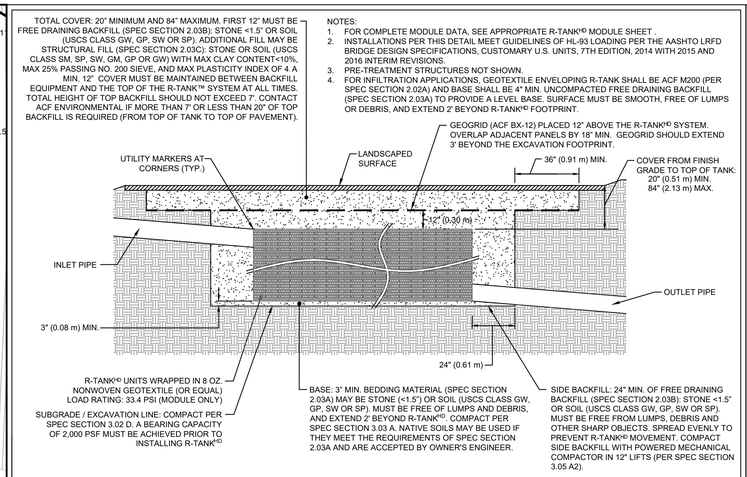
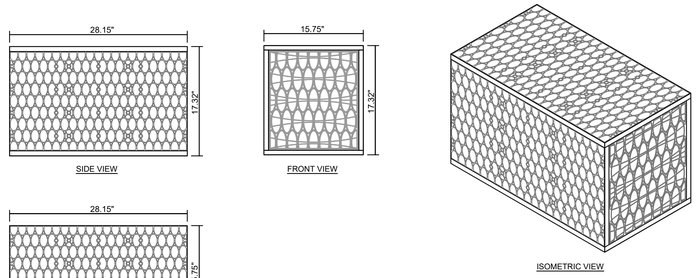


08/29/2018

R-TANK^HD & HS-20 LOADS - SECTION VIEW

FOR ADDITIONAL INFORMATION PLEASE CONTACT: ACF ENVIRONMENTAL, 1-800-448-3636, www.acfenvironmental.com



MODULE DATA

GEOMETRY: LENGTH = 28.15 IN. (715 MM)
WIDTH = 15.75 IN. (400 MM)
HEIGHT = 17.32 IN. (440 MM)
TANK VOLUME = 4.44 CF
STORAGE VOLUME = 4.22 CF
VOID INTERNAL VOLUME: 95%
VOID SURFACE AREA: 90%

LOAD RATING: 33.4 PSI, (MODULE ONLY)
HS25, (WITH ACF COVER SYSTEM)

MATERIAL: 100% RECYCLED POLYPROPYLENE

SMALL PLATES PER SEGMENT/TOTAL: 5/5

R-TANK^HD - SINGLE MODULE

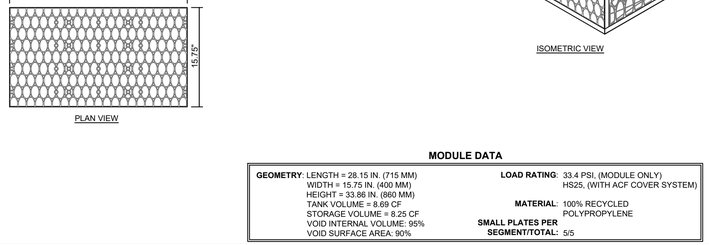
FOR ADDITIONAL INFORMATION PLEASE CONTACT: ACF ENVIRONMENTAL, 1-800-448-3636, www.acfenvironmental.com 5/16



07/26/19

R-TANK TYPICAL INLET/OUTLET W/ GEOTEXTILE BOOT

FOR ADDITIONAL INFORMATION PLEASE CONTACT: ACF ENVIRONMENTAL, 1-800-448-3636, www.acfenvironmental.com



MODULE DATA

GEOMETRY: LENGTH = 28.15 IN. (715 MM)
WIDTH = 15.75 IN. (400 MM)
HEIGHT = 33.86 IN. (860 MM)
TANK VOLUME = 8.69 CF
STORAGE VOLUME = 8.25 CF
VOID INTERNAL VOLUME: 95%
VOID SURFACE AREA: 90%

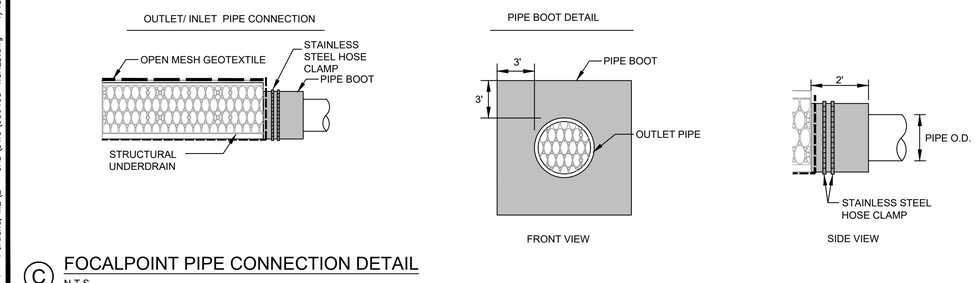
LOAD RATING: 33.4 PSI, (MODULE ONLY)
HS25, (WITH ACF COVER SYSTEM)

MATERIAL: 100% RECYCLED POLYPROPYLENE

SMALL PLATES PER SEGMENT/TOTAL: 5/5

R-TANK^HD - DOUBLE MODULE

FOR ADDITIONAL INFORMATION PLEASE CONTACT: ACF ENVIRONMENTAL, 1-800-448-3636, www.acfenvironmental.com 5/16



C FOCALPOINT PIPE CONNECTION DETAIL
N.T.S.

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES & SHALL NOT BE USED FOR CONSTRUCTION.

STATE OF MAINE
STEPHEN R. BUSHEY
01.18.22
LICENSED PROFESSIONAL ENGINEER

STEPHEN R. BUSHEY, P.E.
LIC. #7429

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Drawing Name: R-TANK DETENTION POND DETAILS

Project: **Stevens Square at Baxter Woods – Phase 2 – 4**
583 Stevens Avenue, Portland, Maine

Client/Owner: **DC BAXTER WOODS IV LLC**
631 STEVENS AVE., SUITE 203, PORTLAND, ME 04103 PH. 207.772.7673

Drawing No. C-7.2

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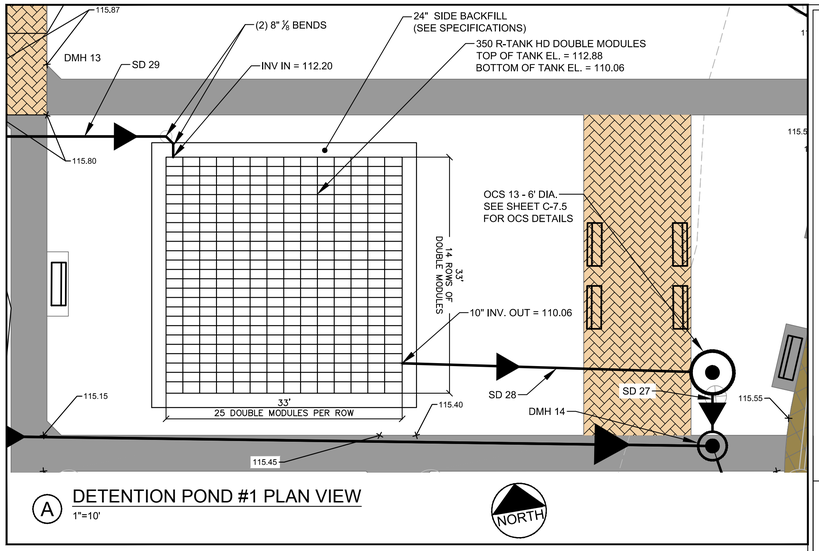
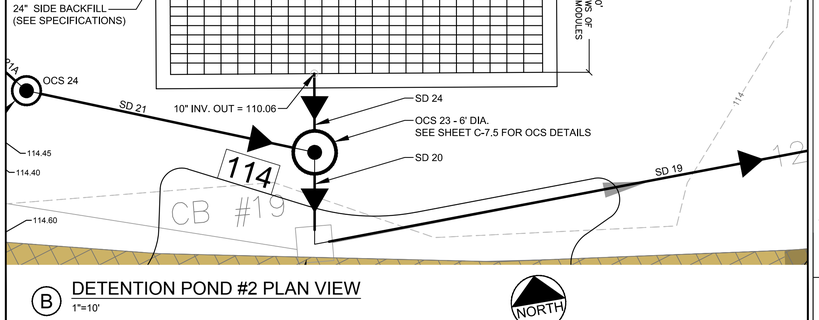
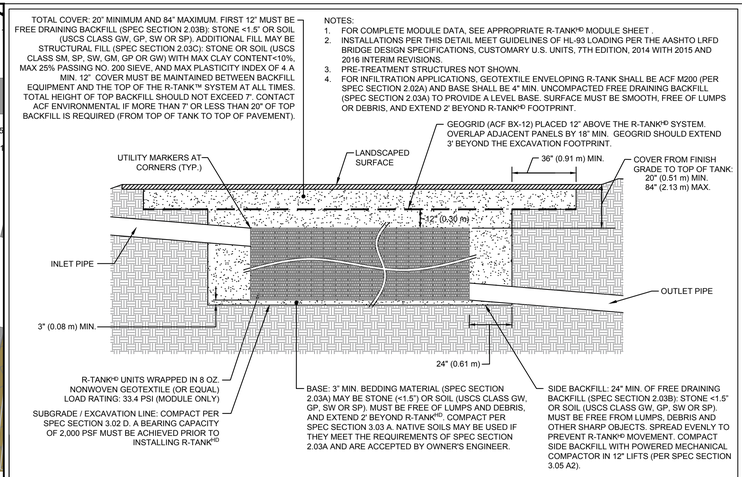


A DETENTION POND #1 PLAN VIEW
1"=10'



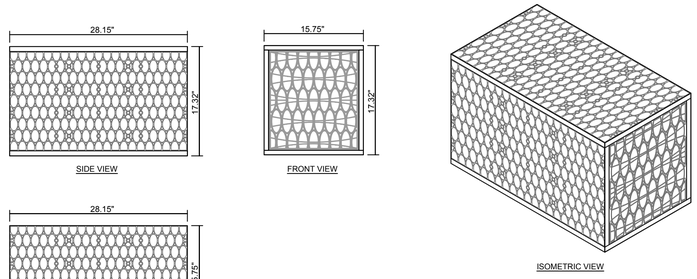
B DETENTION POND #2 PLAN VIEW
1"=10'



08/29/2018

R-TANK^HD & HS-20 LOADS - SECTION VIEW

FOR ADDITIONAL INFORMATION PLEASE CONTACT: ACF ENVIRONMENTAL, 1-800-448-3636, www.acfenvironmental.com



MODULE DATA

GEOMETRY: LENGTH = 28.15 IN. (715 MM)
WIDTH = 15.75 IN. (400 MM)
HEIGHT = 17.32 IN. (440 MM)
TANK VOLUME = 4.44 CF
STORAGE VOLUME = 4.22 CF
VOID INTERNAL VOLUME: 95%
VOID SURFACE AREA: 90%

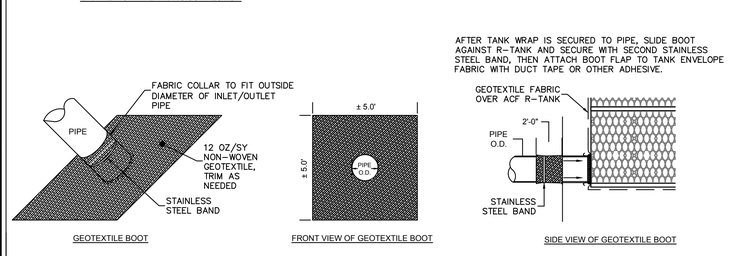
LOAD RATING: 33.4 PSI, (MODULE ONLY)
HS25, (WITH ACF COVER SYSTEM)

MATERIAL: 100% RECYCLED POLYPROPYLENE

SMALL PLATES PER SEGMENT/TOTAL: 5/5

R-TANK^HD - SINGLE MODULE

FOR ADDITIONAL INFORMATION PLEASE CONTACT: ACF ENVIRONMENTAL, 1-800-448-3636, www.acfenvironmental.com 5/16



07/26/19

R-TANK TYPICAL INLET/OUTLET W/ GEOTEXTILE BOOT

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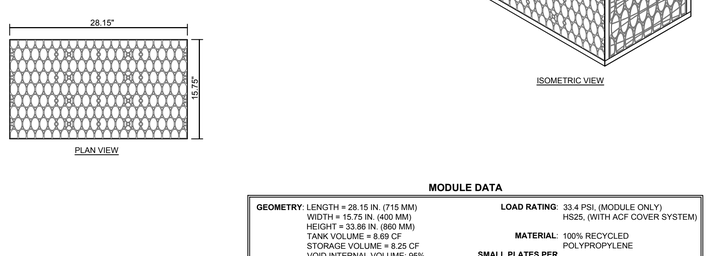

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GEOMETRY: LENGTH = 28.15 IN. (715 MM)
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HEIGHT = 33.86 IN. (860 MM)
TANK VOLUME = 8.69 CF
STORAGE VOLUME = 8.25 CF
VOID INTERNAL VOLUME: 95%
VOID SURFACE AREA: 90%

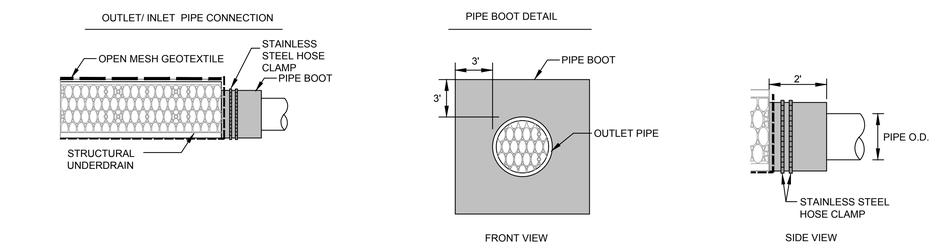
LOAD RATING: 33.4 PSI, (MODULE ONLY)
HS25, (WITH ACF COVER SYSTEM)

MATERIAL: 100% RECYCLED POLYPROPYLENE

SMALL PLATES PER SEGMENT/TOTAL: 5/5

R-TANK^HD - DOUBLE MODULE

FOR ADDITIONAL INFORMATION PLEASE CONTACT: ACF ENVIRONMENTAL, 1-800-448-3636, www.acfenvironmental.com 5/16



C FOCALPOINT PIPE CONNECTION DETAIL
N.T.S.

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES & SHALL NOT BE USED FOR CONSTRUCTION.

STATE OF MAINE
STEPHEN R. BUSHEY
05.12.21
LICENSED PROFESSIONAL ENGINEER

STEPHEN R. BUSHEY, P.E.
LIC. #7429

Rev.	Date	Revision

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207.772.2515

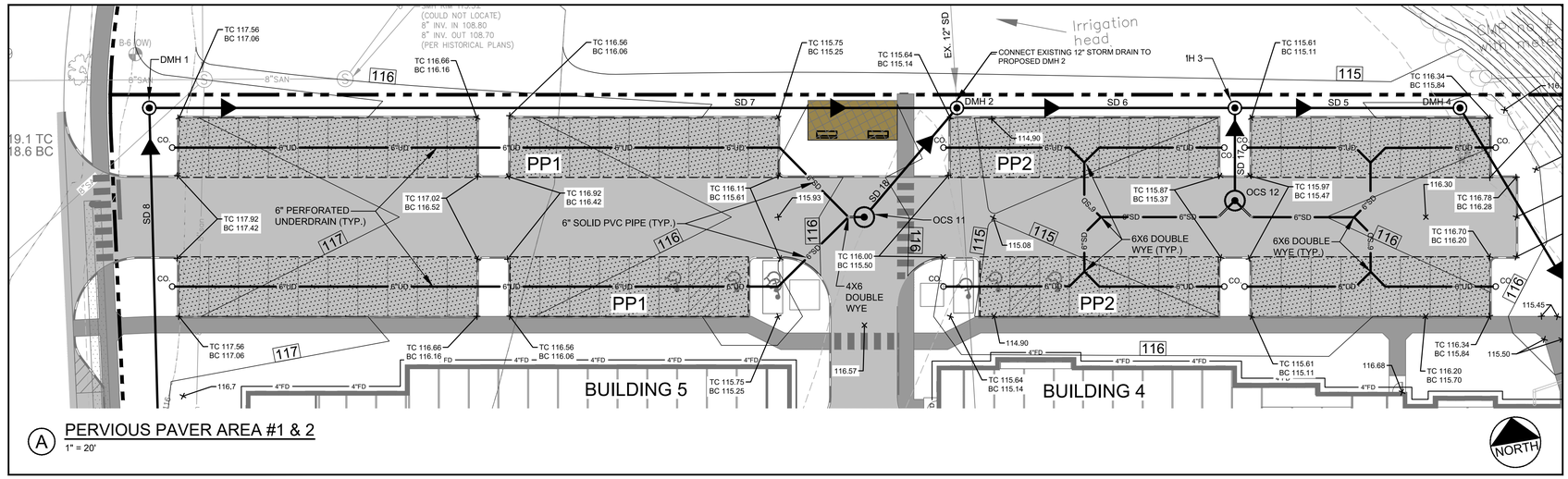
Drawing Name: R-TANK DETENTION POND DETAILS

Project: **Stevens Square at Baxter Woods – Phase 2**
583 Stevens Avenue, Portland, Maine

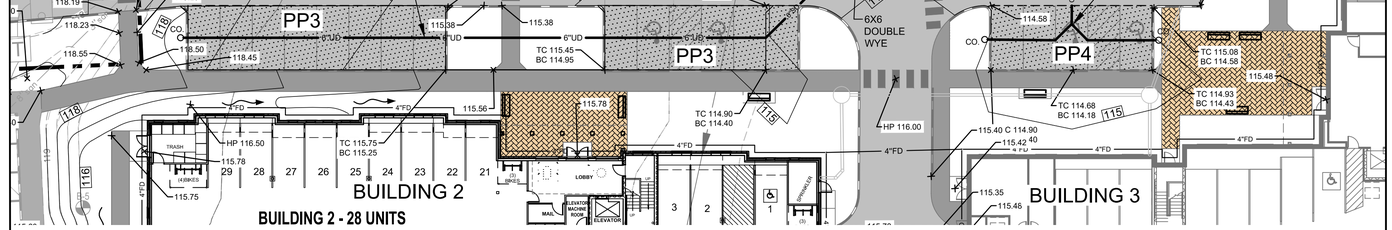
Client/Owner: **DC BAXTER WOODS LLC**
100 COMMERCIAL STREET, SUITE 414, PORTLAND, ME 04101 PH. 207.766.6696

Drawing No. C-7.2

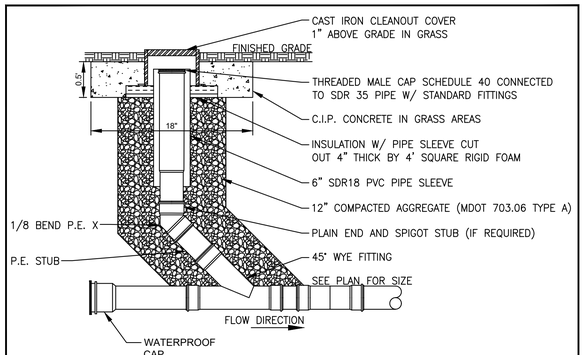
U:\3564.03_Stevens Square-Lot 4 - Portland, ME\Z - CAD\DWG\356403-WSHED.dwg - 5/13/2021 5:28 PM



A PERVIOUS PAVER AREA #1 & 2
1" = 20'



B PERVIOUS PAVER AREA #3 & 4
1" = 20'



C CLEANOUT TYPICAL SECTION
N.T.S.

Table 1 MEDOT Specifications for Aggregate (MEDOT #703.01)

SIEVE SIZE	% PASSING BY WEIGHT
3"	100
#4	95–100
#8	80–100
#16	50–85
#30	25–60
#60	10–30
#100	2–10
#200	0–5 (8–10% IS PREFERRED)

Table 2 MEDOT Specifications for Underdrain Type C (MEDOT #703.22)

SIEVE SIZE	% PASSING BY WEIGHT
1"	100
¾"	90–100
⅜"	0–75
#4	0–25
#10	0–5

Table 3 MEDOT Specifications for Type A Base Gravel (MEDOT #703.06)

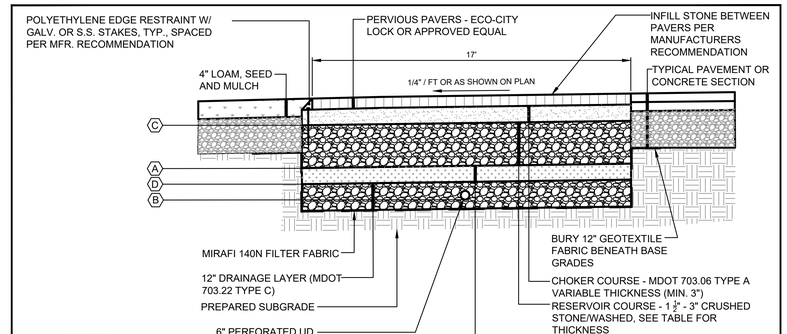
SIEVE SIZE	% PASSING BY WEIGHT
2"	45–70
¼"	30–55
#40	0–20
#200	0–6

CONSTRUCTION OVERSIGHT

INSPECTION BY A PROFESSIONAL ENGINEER SHALL CONSIST OF WEEKLY VISITS TO THE SITE TO INSPECT THE CONSTRUCTION AND STABILIZATION OF THE PROPOSED PERVIOUS PAVERS AND ITS FILTER COURSE MATERIAL TO BE BUILT ON SITE. INSPECTIONS SHALL CONSIST OF AN APPROPRIATE NUMBER OF VISITS TO THE SITE TO INSPECT THE FILTER BED MATERIAL PLACEMENT AND COMPACTION, STORAGE COURSE, PAVEMENT ALTERNATIVE PLACEMENT, FABRIC LAYMENT, AND STORMWATER OVERFLOW BYPASS CONSTRUCTION FROM INITIAL GROUND DISTURBANCE TO FINAL PAVEMENT COMPACTION.

LEGEND

- PERVIOUS PAVERS – ECO-CITYLOCK
- STANDARD-DUTY BITUMINOUS PAVEMENT
- ENTRANCE PLAZA – HOLLANDSTONE BY GAGNE & SON PRECAST PEDESTRIAN PAVERS
- VEHICULAR PAVERS



NOTES:

ALL MATERIALS SHALL CONFORM TO MDOT SPECIFICATIONS, LATEST REVISION.
COMPACTION OF ALL MATERIALS TO BE IN ACCORDANCE WITH THE SPECIFICATIONS.

POROUS	PP1	PP2	PP3	PP4
A - TOP OF FILTER COURSE	112.9	112.77	111.8	111.8
B - INVERT OF UD	111.23	111.1	110.13	110.13
C - TOP OF RESERVOIR	114.67	113.77	113.82	113.60
D - BOTTOM OF FILTER	112.4	112.37	110.8	110.8

E TYPICAL PERVIOUS PAVER DETAIL
N.T.S.

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES & SHALL NOT BE USED FOR CONSTRUCTION.

STATE OF MAINE — STEPHEN R BUSHEY — 01.18.22 — LICENSED PROFESSIONAL ENGINEER

STEPHEN R. BUSHEY, P.E.
LIC. #7429

Rev.	Date	Revision

Rev.	Date	Revision
3	2022.01.18	ISSUED FOR FINAL PERMIT AND PUBLIC HEARING
2	2021.12.07	RESUBMITTED PER LOR #1 FOR FINAL REVIEW
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Design: SRB	Draft: CDD	Date: MAY 2021
Checked: SRB	Scale: AS NOTED	Job No.: 3564.03
File Name: 356403-WSHED.dwg		

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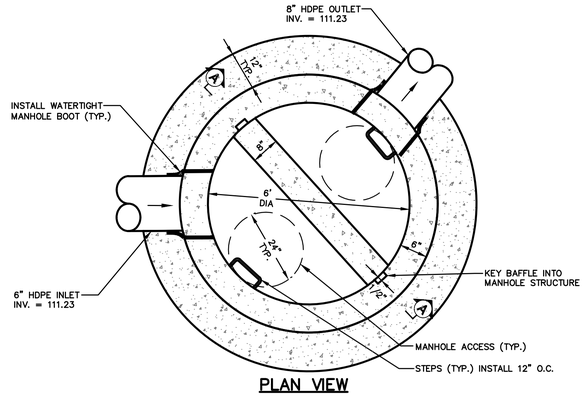
Drawing Name: PERVIOUS PAVER DETAILS

Project: **Stevens Square at Baxter Woods – Phase 2 – 4**
583 Stevens Avenue, Portland, Maine

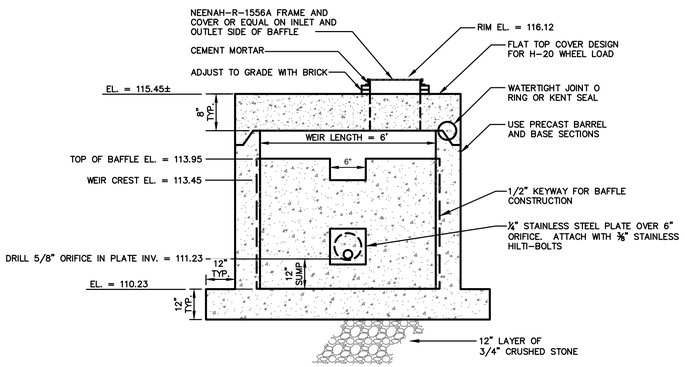
Client/Owner: **DC BAXTER WOODS IV LLC**
631 STEVENS AVE., SUITE 203, PORTLAND, ME 04103 PH. 207.772.7673

Drawing No. C-7.3

U:\3564.03_Stevens Square–Lot 4 – Portland, ME\Z – CAD\DWG\356403-WSHED.dwg – 1/18/2022 2:09 PM

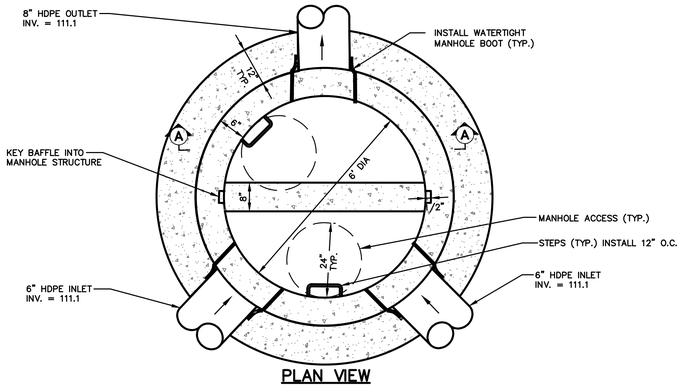


PLAN VIEW

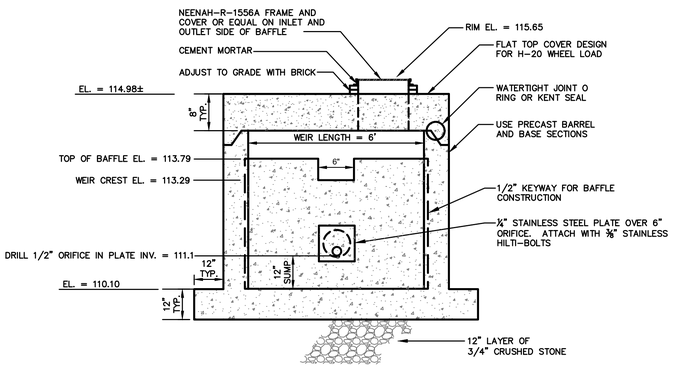


SECTION A-A

(A) OUTLET CONTROL STRUCTURE 11 (OCS 11) DETAILS
N.T.S.

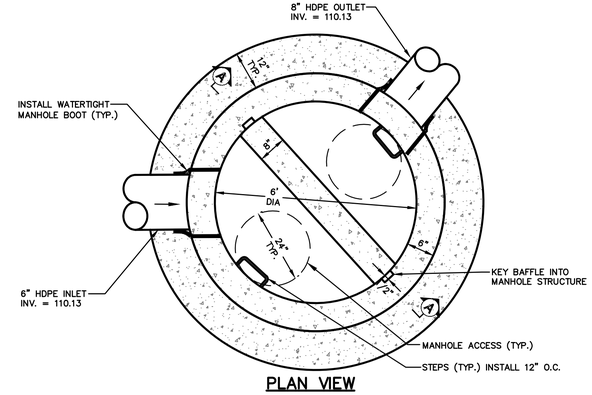


PLAN VIEW

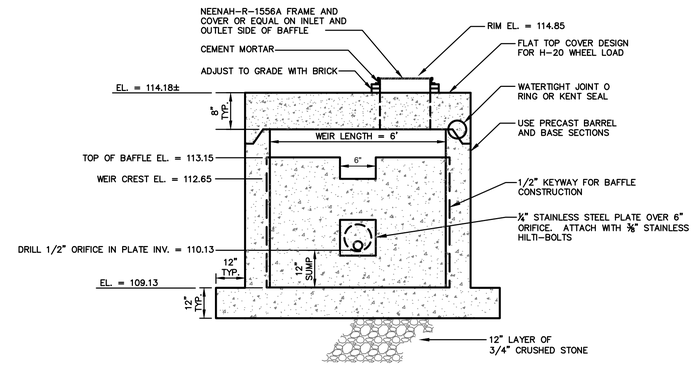


SECTION A-A

(B) OUTLET CONTROL STRUCTURE 12 (OCS 12) DETAILS
N.T.S.

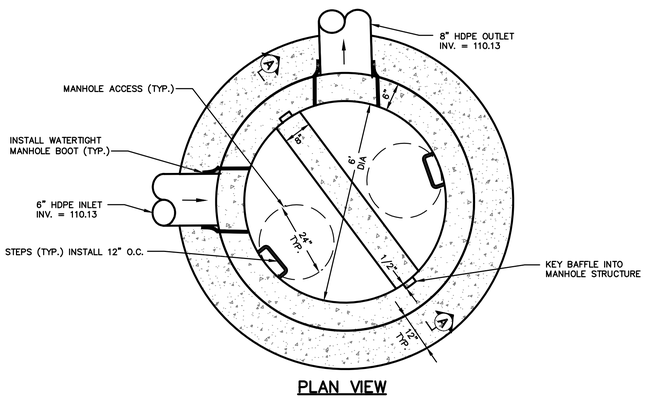


PLAN VIEW

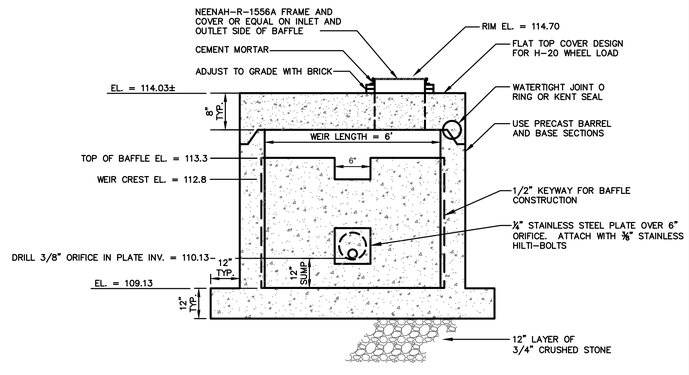


SECTION A-A

(C) OUTLET CONTROL STRUCTURE 21 (OCS 21) DETAILS
N.T.S.



PLAN VIEW



SECTION A-A

(D) OUTLET CONTROL STRUCTURE 22 (OCS 22) DETAILS
N.T.S.

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES & SHALL NOT BE USED FOR CONSTRUCTION.

STATE OF MAINE
STEPHEN R. BUSHEY
01.18.22
LICENSED PROFESSIONAL ENGINEER
STEPHEN R. BUSHEY, P.E.
LIC. #7429

Rev.	Date	Revision

Rev.	Date	Revision
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Design: SRB	Draft: CDD	Date: MAY 2021
Checked: SRB	Scale: AS NOTED	Job No.: 3564.03
File Name: 356403-WSHED.dwg		

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Drawing Name: OUTLET CONTROL STRUCTURE DETAILS

Project: **Stevens Square at Baxter Woods – Phase 2 – 4**
583 Stevens Avenue, Portland, Maine

Client/Owner: **DC BAXTER WOODS IV LLC**
631 STEVENS AVE., SUITE 203, PORTLAND, ME 04103 PH. 207.772.7673

Drawing No. C-7.4

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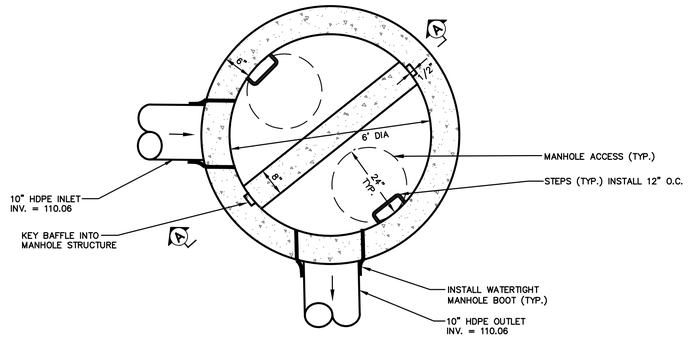

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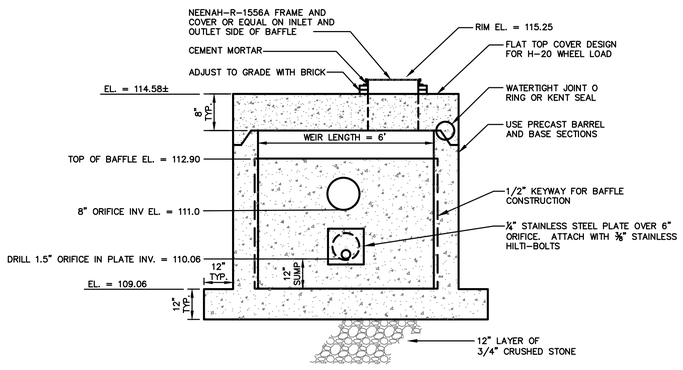
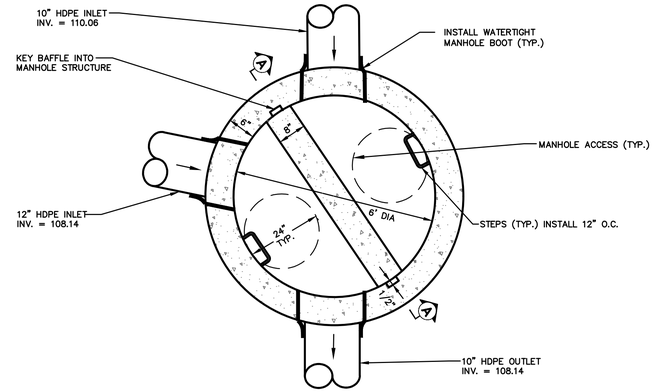


SECTION A-A

A OUTLET CONTROL STRUCTURE 13 (OCS 13) DETAILS

N.T.S.



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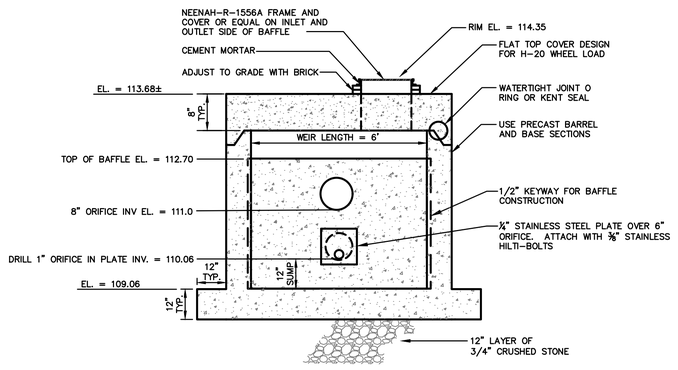
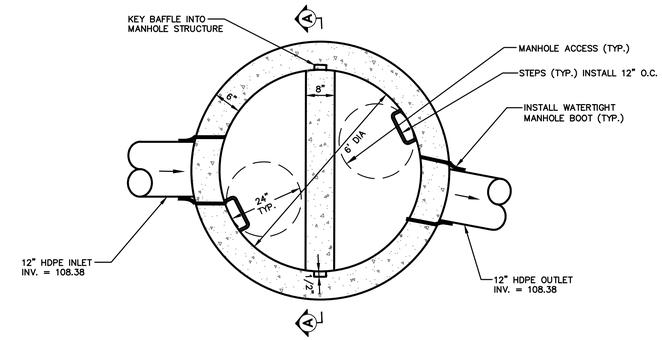


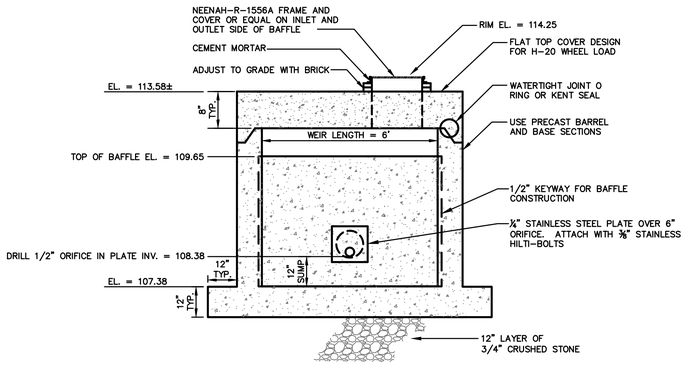
SECTION A-A

B OUTLET CONTROL STRUCTURE 23 (OCS 23) DETAILS

N.T.S.



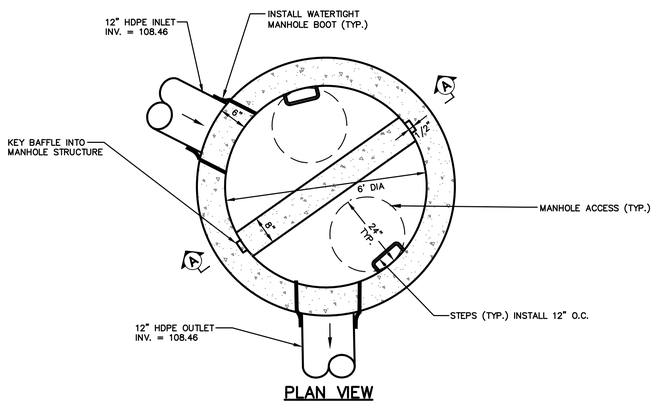
PLAN VIEW



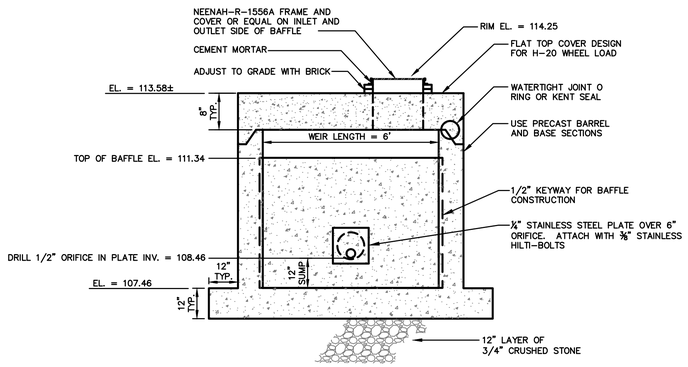
SECTION A-A

C OUTLET CONTROL STRUCTURE 24 (OCS 24) DETAILS

N.T.S.



PLAN VIEW



SECTION A-A

D OUTLET CONTROL STRUCTURE 14 (OCS 14) DETAILS

N.T.S.

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES & SHALL NOT BE USED FOR CONSTRUCTION.

STATE OF MAINE
STEPHEN R. BUSHEY
01.18.22
LICENSED PROFESSIONAL ENGINEER

STEPHEN R. BUSHEY, P.E.
LIC. #7429

Rev.	Date	Revision

Rev.	Date	Revision
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2	2021.12.07	RESUBMITTED PER LOR #1 FOR FINAL REVIEW
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Design: SRB	Draft: CDD	Date: MAY 2021
Checked: SRB	Scale: AS NOTED	Job No.: 3564.03
File Name: 356403-WSHED.dwg		

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Drawing Name: OUTLET CONTROL STRUCTURE DETAILS

Project: **Stevens Square at Baxter Woods – Phase 2 – 4**
583 Stevens Avenue, Portland, Maine

Client/Owner: **DC BAXTER WOODS IV LLC**
631 STEVENS AVE., SUITE 203, PORTLAND, ME 04103 PH. 207.772.7673

Drawing No. C-7.5

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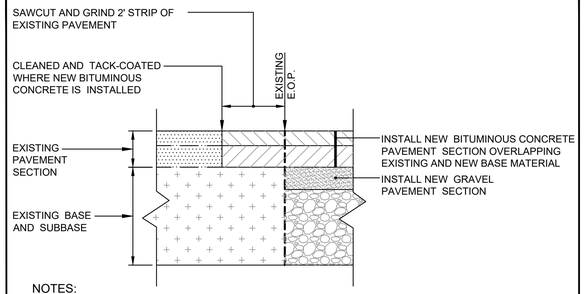
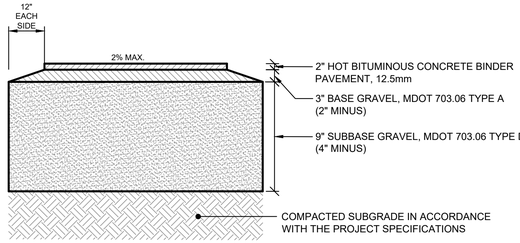


NOTES:

1. APPLY TACK COAT BETWEEN BINDER AND SURFACE COURSES.
2. ALL MATERIALS SHALL CONFORM TO MDOT SPECIFICATIONS, LATEST REVISION.
3. COMPACTION OF ALL MATERIALS TO BE IN ACCORDANCE WITH THE SPECIFICATIONS.

TYPICAL PAVEMENT SECTION NEW PAVEMENT ADJACENT TO EXISTING PAVEMENT

A N.T.S.

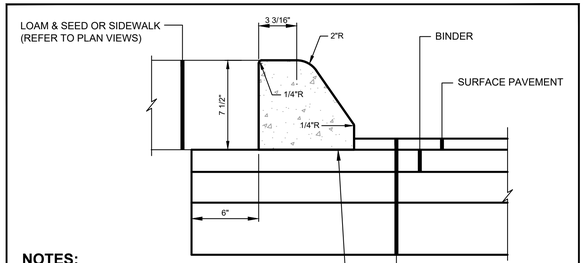


NOTES:

1. ALL MATERIALS SHALL CONFORM TO MDOT SPECIFICATIONS, LATEST REVISION.
2. COMPACTION OF ALL MATERIALS TO BE IN ACCORDANCE WITH THE SPECIFICATIONS.
3. 2% MAXIMUM CROSS SLOPE ON ALL SIDEWALKS.

BITUMINOUS CONCRETE SIDEWALK SECTION FOR SITE INSTALLATION

D N.T.S.



NOTES:

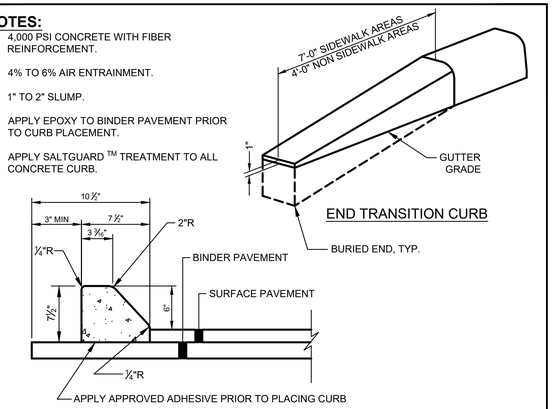
1. 4,000 PSI CONCRETE WITH FIBER REINFORCEMENT AND SAWCUT JOINTS AT NO MORE THAN 30' SPACING
2. 4% TO 6% AIR ENTRAINMENT.
3. 1" TO 2" SLUMP.
4. APPLY EPOXY TO BINDER PAVEMENT PRIOR TO CURB PLACEMENT.
5. APPLY SALTGUARD™ CHLORIDE INHIBITOR TO ALL NEW CONCRETE CURBING UPON COMPLETION OF CURING PERIOD.
6. ALL TIPDOWNS SHALL HAVE REINFORCEMENT TO AVOID CRACKING. TIPDOWNS SHALL HAVE NO MORE THAN 1/2" REVEAL AT THE END.

DIRECT TO BINDER SLIPFORM CONCRETE CURB

G N.T.S.

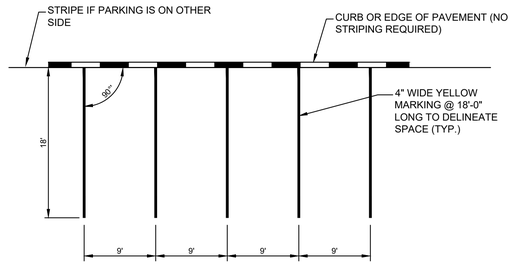
NOTES:

1. 4,000 PSI CONCRETE WITH FIBER REINFORCEMENT.
2. 4% TO 6% AIR ENTRAINMENT.
3. 1" TO 2" SLUMP.
4. APPLY EPOXY TO BINDER PAVEMENT PRIOR TO CURB PLACEMENT.
5. APPLY SALTGUARD ™ TREATMENT TO ALL CONCRETE CURB.



EXTRUDED SLIPFORM SLOPED CONCRETE CURB DETAIL

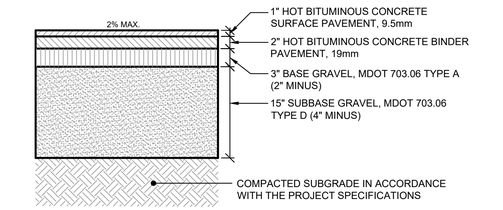
J N.T.S.



NOTE:
WHEN PARKING IS ON A CURVE THE NARROWEST PORTION OF THE PARKING STALL SHALL MEET THE WIDTH SHOWN.

STANDARD PARKING STALL STRIPING

B N.T.S.

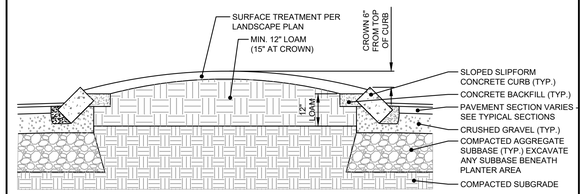


NOTES:

1. APPLY TACK COAT BETWEEN BINDER AND SURFACE COURSES.
2. ALL MATERIALS SHALL CONFORM TO MDOT SPECIFICATIONS, LATEST REVISION.
3. COMPACTION OF ALL MATERIALS TO BE IN ACCORDANCE WITH THE SPECIFICATIONS.
4. 2% MAXIMUM CROSS SLOPE ON ALL SIDEWALKS AND DRIVEWAYS.

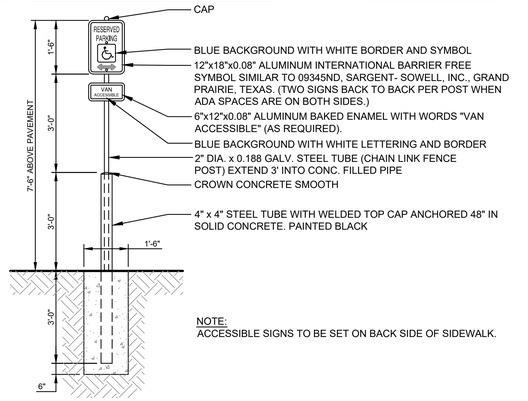
STANDARD DUTY BITUMINOUS CONCRETE PAVEMENT SECTION

E N.T.S.



TYPICAL ISLAND PLANTING BEDS WITHOUT SIDEWALK

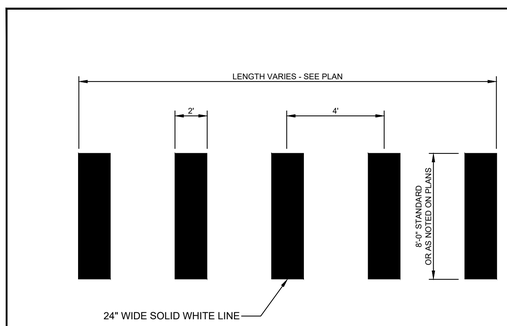
H N.T.S.



NOTE:
ACCESSIBLE SIGNS TO BE SET ON BACK SIDE OF SIDEWALK.

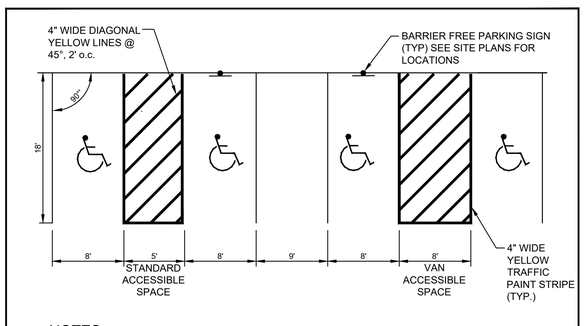
BARRIER FREE PARKING SIGN

K N.T.S.



CROSSWALK STRIPING DETAIL

C N.T.S.

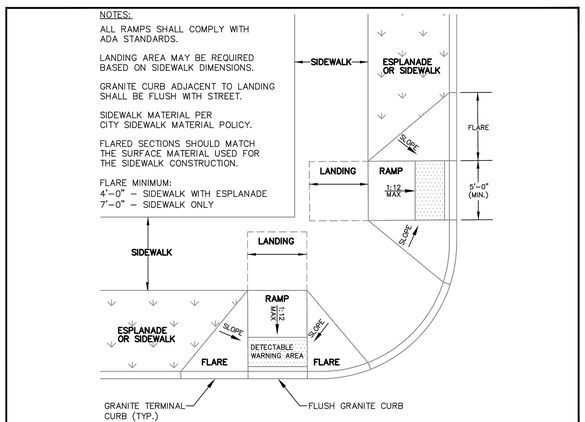


NOTES:

1. ONE IN EIGHT BARRIER FREE SPACES (MIN.) MUST BE VAN ACCESSIBLE. THIS HAS BEEN PROVIDED FOR ON THE SITE LAYOUT PLAN.
2. BARRIER FREE GRAPHIC SYMBOL (PAINTED WHITE) TO BE CENTERED IN PARKING STALL. SYMBOL TO BE PAINTED ON BLUE NON-SKID BACKGROUND.

TYPICAL BARRIER FREE PARKING STALL DIMENSIONS

F N.T.S.



PREFERRED SIDEWALK RAMP AT INTERSECTION

I N.T.S.

AS OBTAINED FROM THE CITY OF PORTLAND "TECHNICAL MANUAL"

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES & SHALL NOT BE USED FOR CONSTRUCTION.

STATE OF MAINE — STEPHEN R. BUSHEY — 01.18.22 — LICENSED PROFESSIONAL ENGINEER

STEPHEN R. BUSHEY, P.E.
LIC. #7429

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Drawing Name: SITE DETAILS

Project: **Stevens Square at Baxter Woods – Phase 2 – 4**
583 Stevens Avenue, Portland, Maine

Client/Owner: **DC BAXTER WOODS IV LLC**
631 STEVENS AVE., SUITE 203, PORTLAND, ME 04103 PH. 207.772.7673

Drawing No. C-8.0

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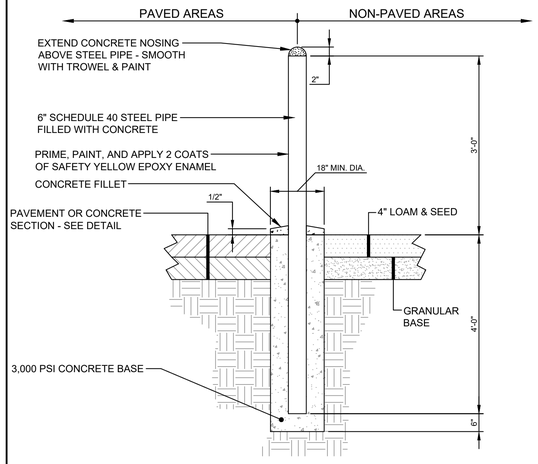
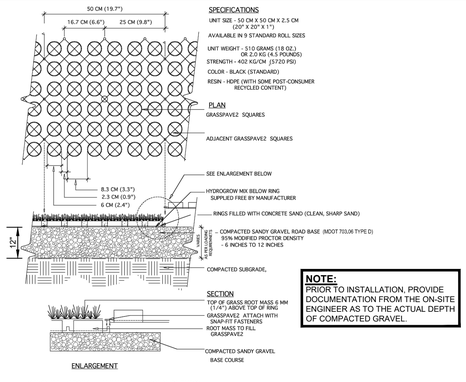
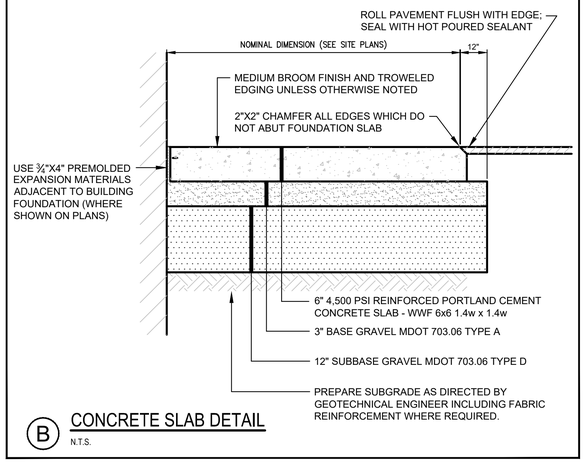


A PIPE BOLLARD DETAIL
N.T.S.



NOTE:
PRIOR TO INSTALLATION, PROVIDE DOCUMENTATION FROM THE ON-SITE ENGINEER AS TO THE ACTUAL DEPTH OF COMPACTED GRAVEL.

C GRASSPAVE2 DETAIL OR APPROVED EQUAL
N.T.S.



B CONCRETE SLAB DETAIL
N.T.S.

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES & SHALL NOT BE USED FOR CONSTRUCTION.

STATE OF MAINE
STEPHEN R. BUSHEY
01.18.22
LICENSED PROFESSIONAL ENGINEER
STEPHEN R. BUSHEY, P.E.
LIC. #7429

Rev.	Date	Revision
3	2022.01.18	ISSUED FOR FINAL PERMIT AND PUBLIC HEARING
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Design: SRB	Draft: CDD	Date: MAY 2021
Checked: SRB	Scale: AS NOTED	Job No.: 3564.03
File Name: 356403-DETAILS.dwg		

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Drawing Name: SITE DETAILS
Project: **Stevens Square at Baxter Woods – Phase 2 – 4**
583 Stevens Avenue, Portland, Maine
Client/Owner: **DC BAXTER WOODS IV LLC**
631 STEVENS AVE., SUITE 203, PORTLAND, ME 04103 PH. 207.772.7673

Drawing No. C-8.1

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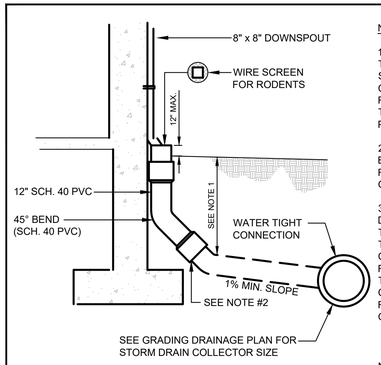


NOTES:

1. FOR ALL DEPTHS OF COVER LESS THAN TWO (2) FEET, PIPE MUST BE SCHEDULE 40 PVC. FOR DEPTHS OF COVER GREATER THAN TWO (2) FEET, FLEXIBLE PIPE MAY BE USED. REFER TO SPECIFICATIONS FOR ALLOWABLE PIPE TYPES.

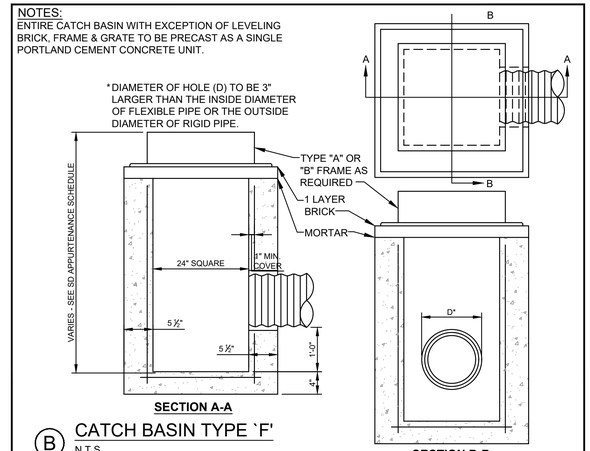
2. A WATERTIGHT CONNECTION SHALL BE MAINTAINED WITH ANY TRANSITION FROM SCHEDULE 40 PVC PIPE TO ANY OTHER PIPE TYPE.

3. THE DOWNSPOUT COLLECTOR DRAIN SHALL BE INSTALLED BEFORE THE DOWNSPOUTS ARE INSTALLED ON THE BUILDING. SITE WORK CONTRACTOR SHALL BE RESPONSIBLE FOR ALL WORK TO AND INCLUDING THE RODENT SCREEN. BUILDING CONTRACTOR SHALL BE RESPONSIBLE FOR THE CONNECTION AT THE POINT OF THE RODENT SCREEN.

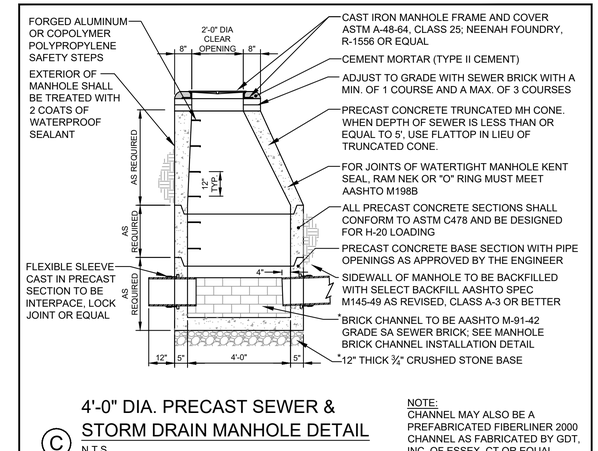
NOTE:
ARCHITECT MAY ELECT TO USE INTERNAL ROOF DRAINS - REFER TO ARCHITECTURAL PLANS

(A) ROOF DRAIN DETAIL
N.T.S.

NOTES:
ENTIRE CATCH BASIN WITH EXCEPTION OF LEVELING BRICK, FRAME & GRATE TO BE PRECAST AS A SINGLE PORTLAND CEMENT CONCRETE UNIT.

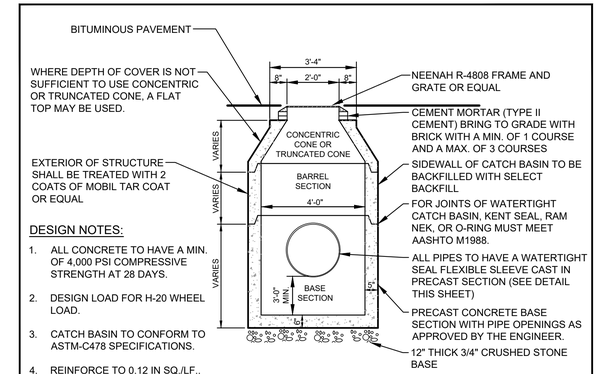


(B) CATCH BASIN TYPE `F'
N.T.S.



(C) 4'-0" DIA. PRECAST SEWER & STORM DRAIN MANHOLE DETAIL
N.T.S.

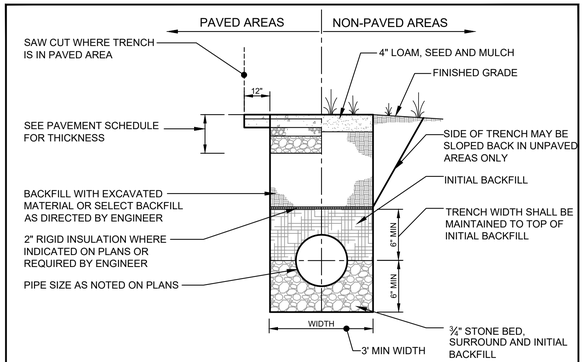
NOTE:
CHANNEL MAY ALSO BE A PREFABRICATED FIBERLINER 2000 CHANNEL AS FABRICATED BY GDT, INC. OF ESSEX, CT OR EQUAL



DESIGN NOTES:

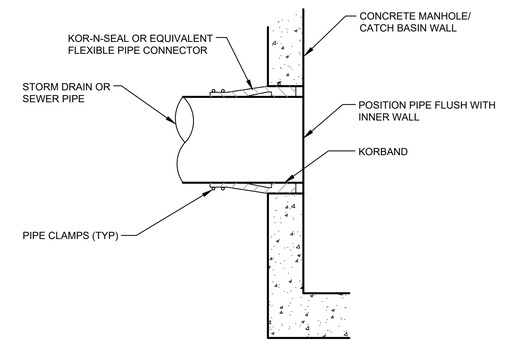
1. ALL CONCRETE TO HAVE A MIN. OF 4,000 PSI COMPRESSIVE STRENGTH AT 28 DAYS.
2. DESIGN LOAD FOR H-20 WHEEL LOAD.
3. CATCH BASIN TO CONFORM TO ASTM-C478 SPECIFICATIONS.
4. REINFORCE TO 0.12 IN SQ./LF..

(D) 4'-0" PRECAST CATCH BASIN DETAIL
N.T.S.



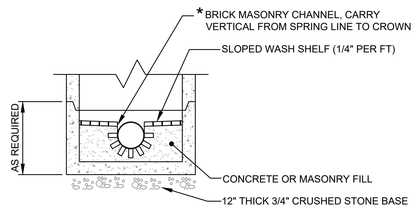
NOTE:
BRACING AND SHEETING OR OTHER TRENCH PROTECTION TO BE PROVIDED TO MEET APPLICABLE STATE AND O.S.H.A. SAFETY STANDARDS. ALL SUCH TRENCH PROTECTION TO BE THE RESPONSIBILITY OF THE CONTRACTOR.

(E) TYPICAL SEWER AND STORM DRAIN TRENCH SECTION
N.T.S.



PIPE CONNECTION TO PRECAST CONCRETE SANITARY SEWER AND STORM DRAINAGE STRUCTURES
(F) N.T.S.

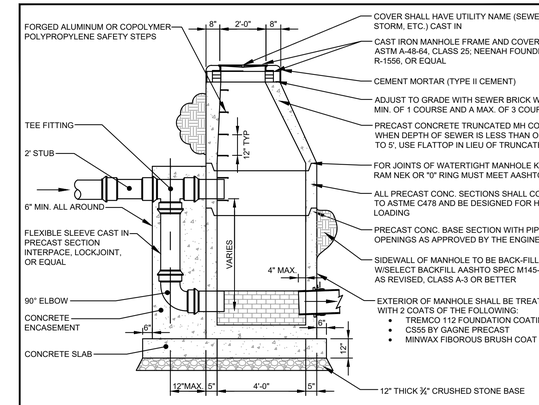
*NOTE:
CHANNEL MAY ALSO BE A PREFABRICATED FIBERLINER 2000 CHANNEL AS FABRICATED BY GDT, INC. OF ESSEX, CT OR EQUAL



NOTES:

1. BRICK CHANNEL TO BE AASHTO M-91-42 GRADE SA SEWER BRICK.*
2. MANHOLE TEST TO BE ACCOMPLISHED AFTER CHANNEL INSTALLATION IS COMPLETE.
3. WHERE THE ALIGNMENT CHANGES OR SIDE FLOW ENTERS THE MANHOLE, CONSTRUCT CHANNEL WITH A SMOOTH RADIAL CHANNEL TO ACCOMPLISH ALL JUNCTIONAL CHANGE OF ALIGNMENT WITHIN MANHOLE.

(G) MANHOLE BRICK CHANNEL INSTALLATION DETAIL
N.T.S.



(H) 4'-0" DIA. DROP MANHOLE
N.T.S.

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES & SHALL NOT BE USED FOR CONSTRUCTION.

STATE OF MAINE — STEPHEN R. BUSHEY — 10.18.22 — LICENSED PROFESSIONAL ENGINEER

STEPHEN R. BUSHEY, P.E.
LIC. #7429

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Drawing Name: STORM DRAIN & UTILITY DETAILS

Project: **Stevens Square at Baxter Woods – Phase 2 – 4**
583 Stevens Avenue, Portland, Maine

Client/Owner: **DC BAXTER WOODS IV LLC**
631 STEVENS AVE., SUITE 203, PORTLAND, ME 04103 PH. 207.772.7673

Drawing No. C-8.2

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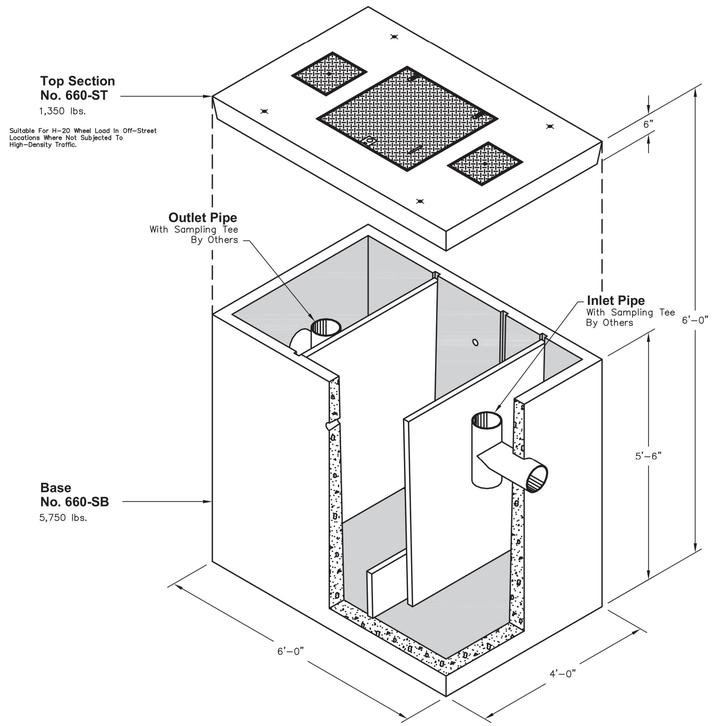
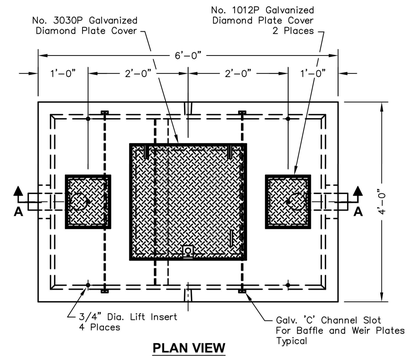
660-SA OIL WATER SEPARATOR

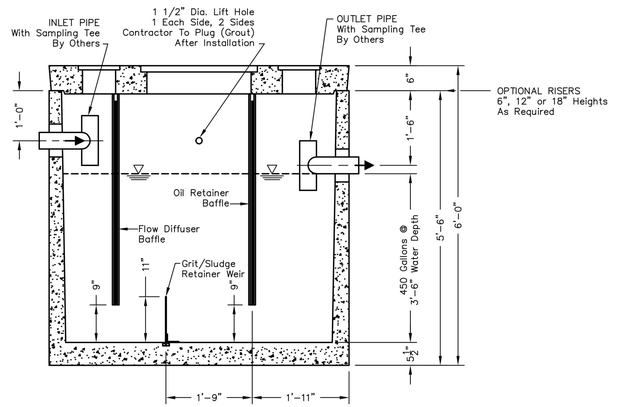
450 Gallon Capacity

660-SA





PLAN VIEW



SECTION AA

STRUCTURAL NOTES:
1. Concrete: 28 Day Compressive Strength f'c= 7000 psi
2. Rebar: ASTM A-615 Grade 60
3. Mesh: ASTM A-185 Grade 65
4. Design: ACI-318-05 Building Code
   ASTM C-890 "Minimum Structural Design Loading For Underground Precast Concrete Water and Wastewater Structures"
5. Loads: HS-20 Truck Wheel w/ 30% Impact Per AASHTO

GENERAL NOTES:
1. All Baffles and Weirs To Be Steel
2. Contractor to:
   Supply and Install All Piping & Sampling Tees
   Grout In All Pipes
   Fill With Clean Water Prior To "Start-Up" Of System
   Verify All Blockout Sizes and Locations

FOR CUSTOM APPLICATIONS
THE FOLLOWING INFORMATION IS NEEDED:
Top Of Separator Elevation:
Inlet Pipe Size:
Inlet Pipe Elevation:
Outlet Pipe Size:
Outlet Pipe Elevation:

OIL/WATER SEPARATOR
BY OLD CASTLE PRECAST DETAIL
(A) N.T.S.

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STATE OF MAINE
STEPHEN R. BUSHEY
01.18.22
LICENSED PROFESSIONAL ENGINEER

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Drawing No. C-8.3

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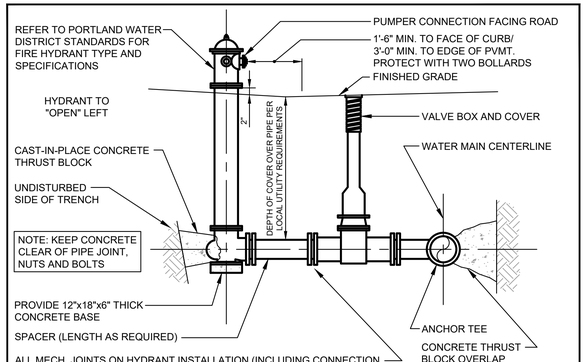


(A) FIRE HYDRANT INSTALLATION DETAIL
N.T.S.

1. INSTALL POLY BARRIER BETWEEN PIPE AND ALL THRUST BLOCKS.

2. ANY MODIFICATION TO THRUST BLOCK SIZING OR PIPE RESTRAINT REVISIONS SHALL BE APPROVED IN WRITING BY THE ENGINEER PRIOR TO IMPLEMENTATION IN THE FIELD.

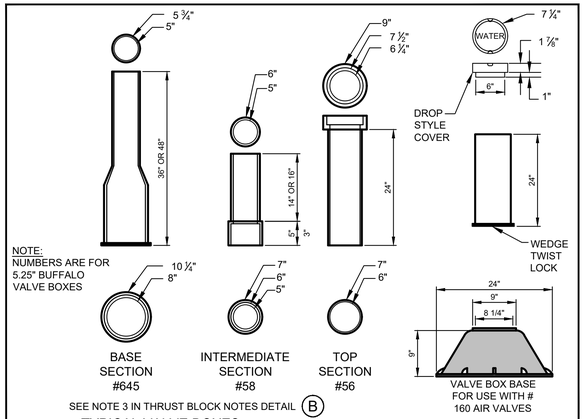
3. ANY WORK RELATING TO WATER PIPING OR DETAILS SHALL BE IN ACCORDANCE WITH THE PORTLAND WATER DISTRICT SPECIFICATIONS.

4. ALL RESTRAINED JOINTS MUST HAVE GRIPRING.™

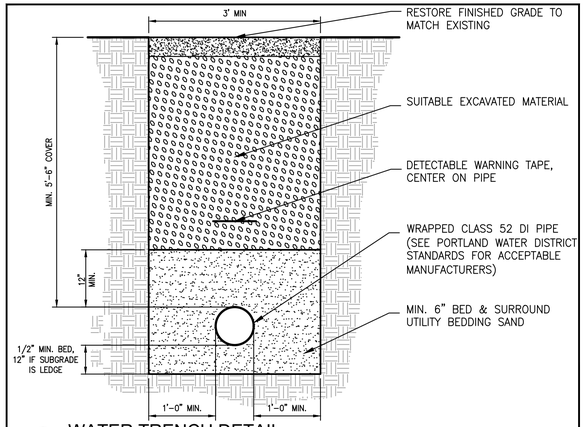
BEARING SURFACE REQUIRED IN SQUARE FEET

PIPE SIZE	1/32 BEND	1/16 BEND	1/8 BEND	1/4 BEND	TEES/CAPS
6"/8"	5.0	5.0	5.0	6.5	5.0
12"	11.5	11.5	11.5	20.0	22.0

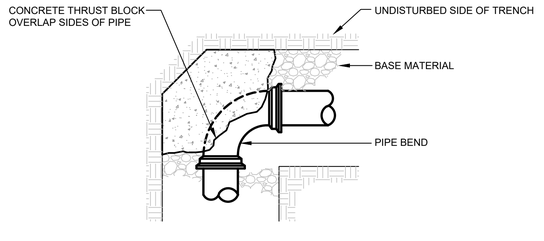
(B) THRUST BLOCK NOTES
N.T.S.



(C) TYPICAL VALVE BOXES
N.T.S.

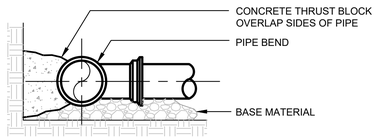


(D) WATER TRENCH DETAIL
N.T.S.



PLAN

NOTE:
KEEP CONCRETE CLEAR OF PIPE JOINT, NUTS AND BOLTS



SECTION

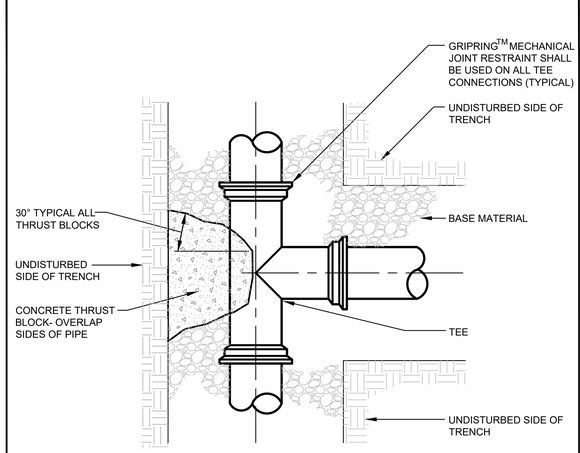
THRUST/RETAINER GLAND SCHEDULE		
¼ BEND	(90°)	USE POURED-IN-PLACE THRUST BLOCK WITH GRIPRING™ MECHANICAL JOINT RESTRAINT
⅛ BEND	(45°)	THRUST BLOCK w/ GRIPRING™
1/16 BEND	(22 ½°)	THRUST BLOCK w/ GRIPRING™
1/32 BEND	(11 ¼°)	THRUST BLOCK w/ GRIPRING™

THE ABOVE SCHEDULE IS SUBJECT TO THE APPROVAL OF THE ON-SITE INSPECTOR DUE TO SOILS AND WORKING PRESSURES IN THE AREA.

NOTES:

1. THE PORTLAND WATER DISTRICT MAY HAVE INSPECTION FEES AND REQUIRE OBSERVATION OF ALL PIPING INSTALLATION BEFORE BURIAL. REFER TO SPECIFICATIONS.
2. FOR WATER MAIN LAYOUT SEE SHEET C-5.0.
3. FOR WATER MAIN TRENCH SEE DETAILS ON THIS SHEET.
4. REFER TO PORTLAND WATER DISTRICT SPECIFICATIONS FOR TESTING AND CHLORINATION REQUIREMENTS.
5. ALL HYDRANTS AND VALVES TO BE EPOXY COATED, NUTS AND BOLTS TO BE STAINLESS STEEL.
6. SERVICE RODS FOR DOMESTIC SERVICE OR AIR VALVES TO BE STAINLESS STEEL.

(E) TYPICAL THRUST BLOCK PLACEMENT BENDS
N.T.S.



PLAN

NOTE:
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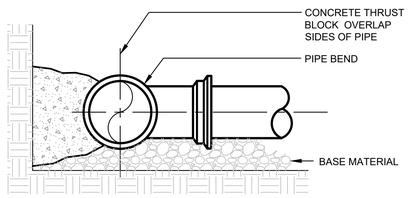
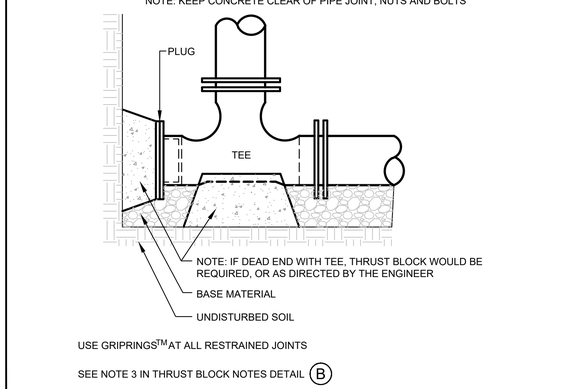


SECTION

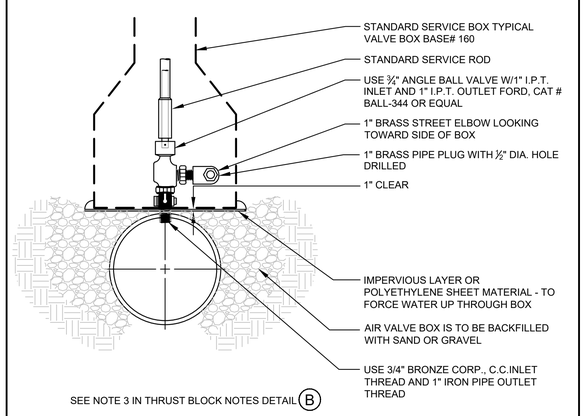
(F) TYPICAL THRUST BLOCK PLACEMENT ON TEES
N.T.S.



USE GRIPRINGS™ AT ALL RESTRAINED JOINTS

SEE NOTE 3 IN THRUST BLOCK NOTES DETAIL (B)

(G) STANDARD TEE BLOCKING DETAIL
N.T.S.



TORQUE SCHEDULE			
PIPE SIZE IN.	BOLT SIZE IN.	RANGE OF TORQUE FT-LB.	LENGTH OF WRENCH IN *
2 - 3	5/8	45 - 60	8
4 - 24	3/4	75 - 90	10
30 - 36	1	85 - 100	12
42 - 48	1 1/4	105 - 120	14

* THE TORQUE LOADS MAY BE APPLIED WITH TORQUE MEASURING OR TORQUE INDICATING WRENCHES, WHICH MAY ALSO BE USED TO CHECK THE APPLICATION OF APPROXIMATE TORQUE LOADS APPLIED BY A PERSON TRAINED TO GIVE AN AVERAGE PULL ON A DEFINITE LENGTH OF REGULAR SOCKET WRENCH.

(H) TYPICAL AIR VALVE SECTION (1")
N.T.S.

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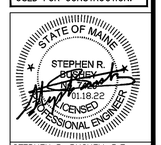

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Drawing Name: WATER DETAILS

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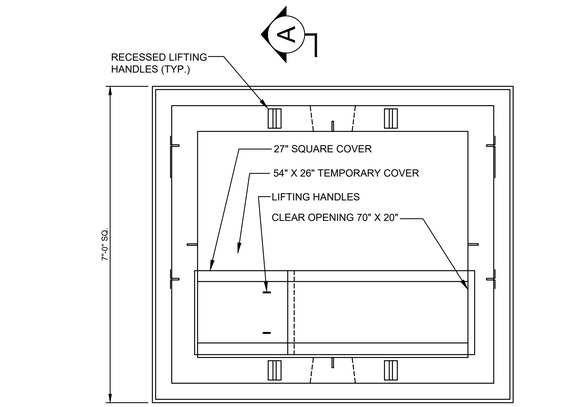
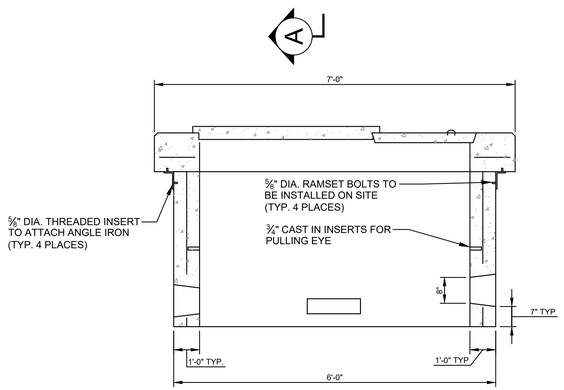
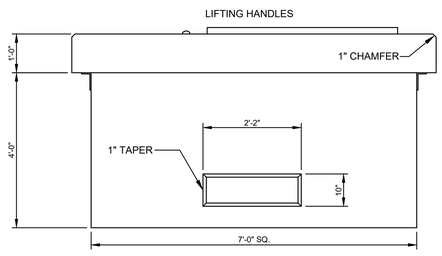


TOP VIEW



SECTION A-A



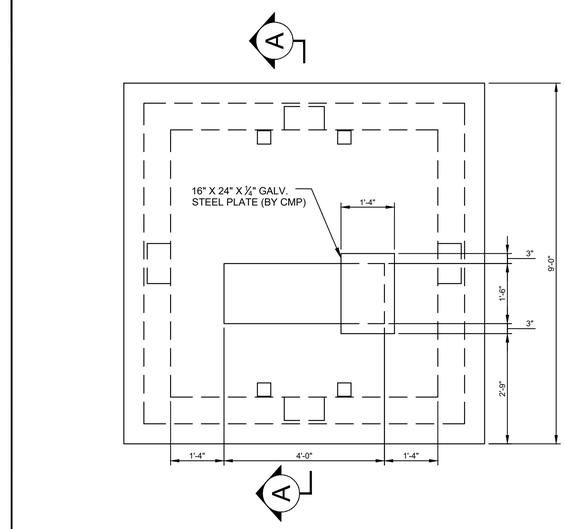
FRONT VIEW

DESIGN NOTES:

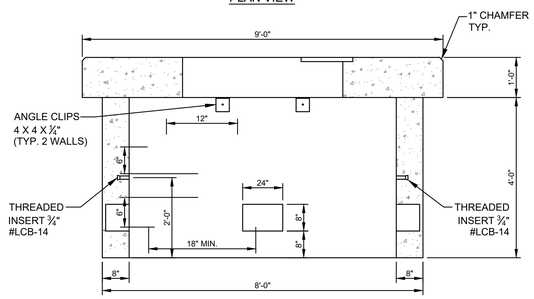
1. CONCRETE 4,000 PSI AT 28 DAYS.
2. REINFORCING #4 BARS AT 6" O.C. EACH WAY.
3. DUCT OPENINGS SHOWN ARE TYPICAL AND CAN BE MODIFIED PER REQUEST.
4. CENTRAL MAINE POWER COMPANY SPECIFICATION.
5. TEMPORARY COVER HAS (2) ⅝" THREADED LIFTING INSERTS CAST IN.

NOTE:
CONFIRM TRANSFORMER PAD SIZES WITH OWNER AND ELECTRICAL DESIGNER. SITE CONTRACTOR IS RESPONSIBLE FOR FURNISHING AND INSTALLING THE TRANSFORMER PAD.

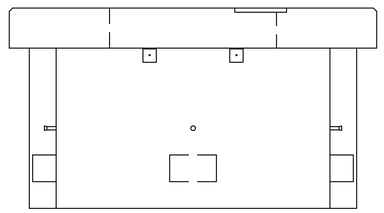
(A) 7'-0" TRANSFORMER PAD (BLDG #2)
N.T.S.



PLAN VIEW



SECTION VIEW

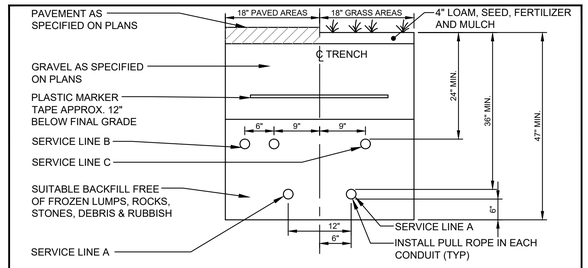


END VIEW

NOTES:

1. CONCRETE MINIMUM COMPRESSIVE STRENGTH 4,000 PSI @ 28 DAYS WITH STEEL REINFORCEMENT.
2. AS PER CENTRAL MAINE POWER COMPANY SPECIFICATIONS, AS MANUFACTURED BY SUPERIOR CONCRETE OR EQUAL.
3. FINAL SIZING TO BE BY ELECTRICAL DESIGNER.
4. ONE 8" x 24" KNOCKOUT PROVIDED EACH WALL.
5. FOR 750 - 5000 KVA THREE PHASE TRANSFORMER.
6. FINISH GRADE SHALL BE GRADED TO ALLOW SURFACE WATER TO FLOW AWAY FROM THE PAD.

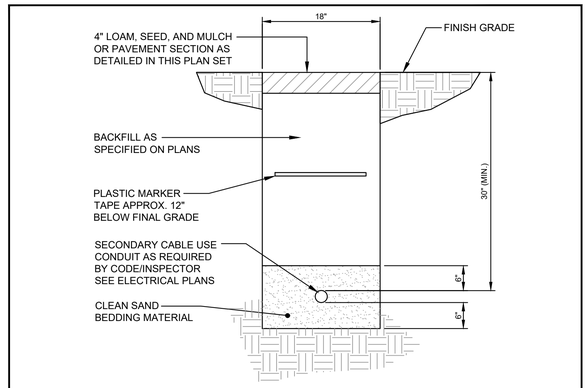
(B) 9'-0" TRANSFORMER PAD (N.I.C.)
N.T.S.



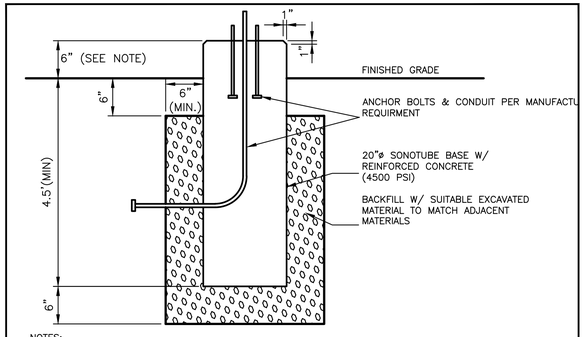
NOTES:

1. FOR CONDUIT TYPES AND SIZES SEE ELECTRICAL PLAN

(C) UTILITY TRENCH - PRIMARY ELECTRIC, TELEPHONE & COMMUNICATIONS
N.T.S.



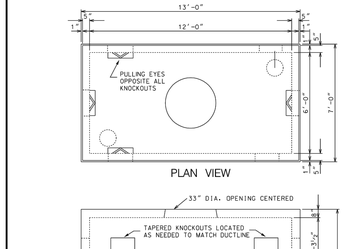
(E) SECONDARY ELECTRICAL TRENCH DETAIL
N.T.S.



NOTES:

1. ALL LIGHT POLE BASES TO BE SET 6" ABOVE GRADE (MINIMUM) AND LIGHT BOLLARD BASES SHALL BE SET 3" ABOVE GRADE, OR AS DESCRIBED BY THE LANDSCAPE ARCHITECT OR OWNER'S REPRESENTATIVE. CONTRACTOR SHALL CONFIRM PRIOR TO ANY POLE INSTALLATIONS.
2. BASE SIZE TO BE CONFIRMED WITH THE LIGHT POLE SUPPLIER.

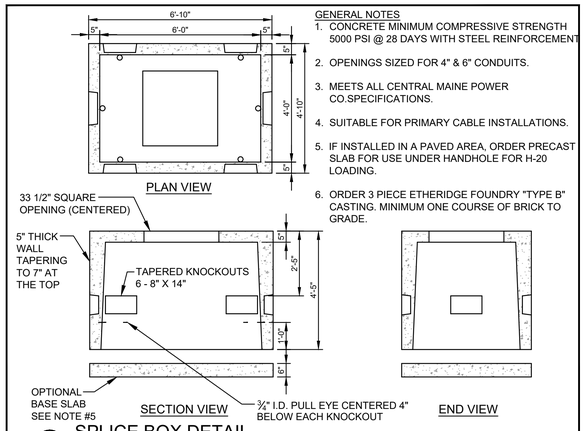
(G) TYPICAL PARKING LOT LIGHTING POLE FOUDATION
N.T.S.



NOTES

1) Vault shall be designed to withstand H20 wheel loading with 6 inches of overburden. The design shall also comply with the strength requirements of National Electrical Safety Code Section 323A. Provide design calculations signed by a State of Maine Registered Professional Engineer upon Request
2) Joints sealed with asphalt.
3) Mountings for cable racks etc. cast in wall by further plans or field locates.
4) Manhole shall be set on a suitable gravel base.
5) Cables are to be racked along one wall only.

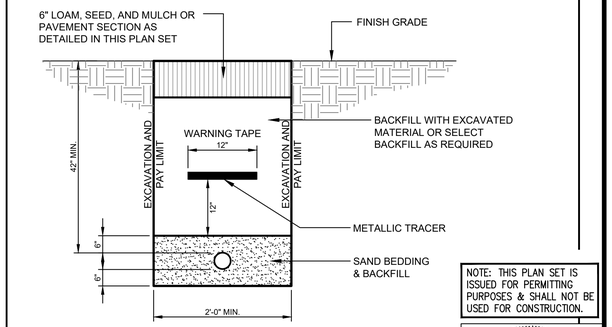
(D) PRECAST CONCRETE 38Y MANHOLE
N.T.S.



GENERAL NOTES

1. CONCRETE MINIMUM COMPRESSIVE STRENGTH 5000 PSI @ 28 DAYS WITH STEEL REINFORCEMENT
2. OPENINGS SIZED FOR 4" & 6" CONDUITS.
3. MEETS ALL CENTRAL MAINE POWER CO.SPECIFICATIONS.
4. SUITABLE FOR PRIMARY CABLE INSTALLATIONS.
5. IF INSTALLED IN A PAVED AREA, ORDER PRECAST SLAB FOR USE UNDER HANDHOLE FOR H-20 LOADING.
6. ORDER 3 PIECE ETHERIDGE FOUNDRY "TYPE B" CASTING. MINIMUM ONE COURSE OF BRICK TO GRADE.

(F) SPLICE BOX DETAIL
N.T.S.



NOTE:
GAS LINE TO BE INSTALLED BY OTHERS. SITE CONTRACTOR IS RESPONSIBLE FOR EXCAVATION AND BACKFILL OF THE GAS LINE AND PLACEMENT OF THE WARNING TAPES AND TRACER.

(H) GAS SERVICE TRENCH SECTION
N.T.S.

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES & SHALL NOT BE USED FOR CONSTRUCTION.

STATE OF MAINE
STEPHEN R. BUSHEY
No. 7429
01.18.22
LICENSED PROFESSIONAL ENGINEER

STEPHEN R. BUSHEY, P.E.
LIC. #7429

Rev.	Date	Revision

Rev.	Date	Revision
3	2022.01.18	ISSUED FOR FINAL PERMIT AND PUBLIC HEARING
2	2021.12.07	RESUBMITTED PER LOR #1 FOR FINAL REVIEW
1	2021.05.12	SUBMITTED TO CITY FOR REVIEW

Design: SRB	Draft: CDD	Date: MAY 2021
Checked: SRB	Scale: AS NOTED	Job No.: 3564.03
File Name: 356403-DETAILS.dwg		

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Drawing Name: ELECTRIC & UTILITY DETAILS

Project: **Stevens Square at Baxter Woods – Phase 2 – 4**
583 Stevens Avenue, Portland, Maine

Client/Owner: **DC BAXTER WOODS IV LLC**
631 STEVENS AVE., SUITE 203, PORTLAND, ME 04103 PH. 207.772.7673

Drawing No. C-8.5

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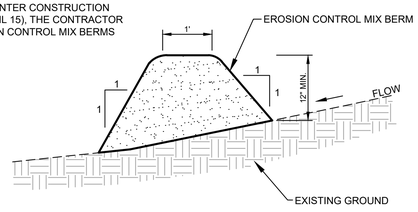
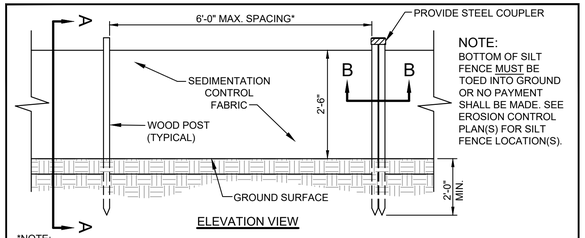
NOTE:
DURING PERIODS OF WINTER CONSTRUCTION (NOV. 15 THROUGH APRIL 15), THE CONTRACTOR SHALL INSTALL EROSION CONTROL MIX BERMS IN LIEU OF SILT FENCE.



EROSION CONTROL MIX:
EROSION CONTROL MIX SHALL CONTAIN A WELL-GRADED MIXTURE OF PARTICLE SIZES & 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.
- PH SHALL FALL BETWEEN 5.0 AND 8.0.

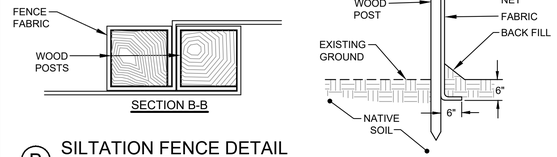
(A) EROSION CONTROL MIX BERM DETAIL
N.T.S.



NOTE:
BOTTOM OF SILT FENCE MUST BE TOED INTO GROUND OR NO PAYMENT SHALL BE MADE. SEE EROSION CONTROL PLAN(S) FOR SILT FENCE LOCATION(S).

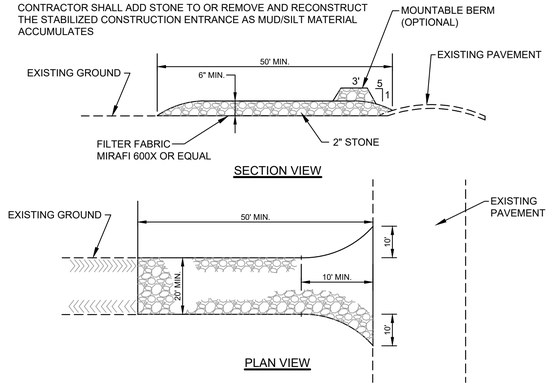
ELEVATION VIEW

*NOTE:
THE SILT FENCE SHOULD HAVE A MAXIMUM STAKING DISTANCE OF 6', UNLESS THE FENCE IS SUPPORTED BY WIRE FENCE REINFORCEMENT, A MAXIMUM 14 GAUGE AND WITH A MINIMUM MESH SPACING OF 6".

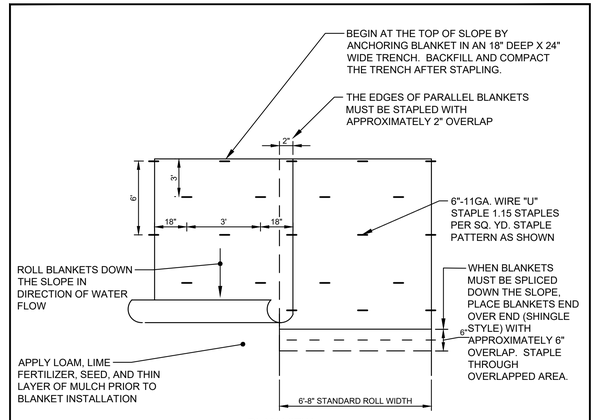


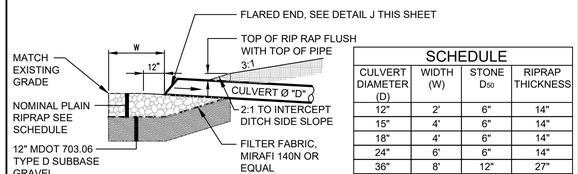
(B) SILTATION FENCE DETAIL
N.T.S.

NOTE:
CONTRACTOR SHALL ADD STONE TO OR REMOVE AND RECONSTRUCT THE STABILIZED CONSTRUCTION ENTRANCE AS MUD/SILT MATERIAL ACCUMULATES

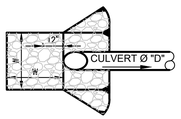


(C) STABILIZED CONSTRUCTION ENTRANCE DETAIL
N.T.S.



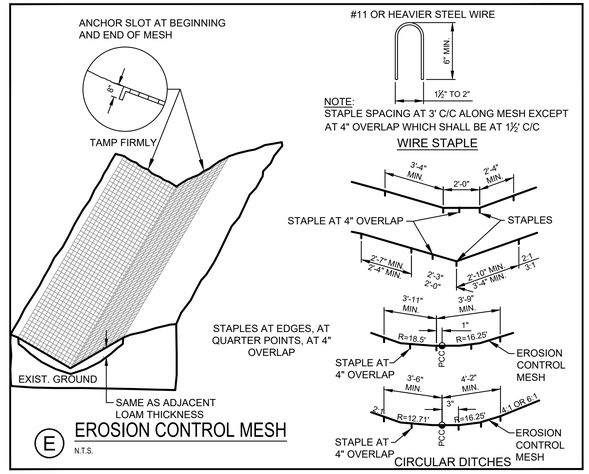


SCHEDULE			
CULVERT DIAMETER (D)	WIDTH (W)	STONE D_{50}	RIPRAP THICKNESS
12"	2'	6"	14"
15"	4'	6"	14"
18"	4'	6"	14"
24"	6'	6"	14"
36"	8'	12"	27"
42"	10'	12"	27"
48"	12'	12"	27"



(D) PIPE/CULVERT INLET APRON
N.T.S.

NOTE:
RIPRAP GRADATION AND PLACEMENT - THE RIPRAP GRADATION SHALL BE A WELL-GRADED MIX FROM ABOUT 1.5 TIMES THE D SIZE TO ABOUT 25 PERCENT OF THE D SIZE. THE RIPRAP STONES SHALL BE CAREFULLY PLACED WORKING FROM THE TOE OF THE SLOPE UPWARD. THE STONES SHOULD BE LOWERED TO THE SLOPE AND NOT BE ALLOWED TO DROP MORE THAN 12 INCHES ONTO THE GEOTEXTILE. THE FINISHED SURFACE SHALL BE A RELATIVELY SMOOTH UNIFORMLY SLOPED SURFACE.

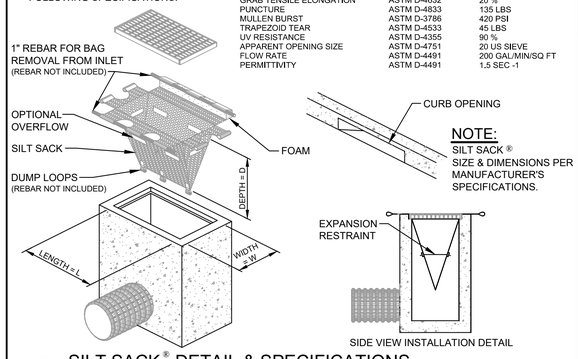


(E) EROSION CONTROL MESH
N.T.S.

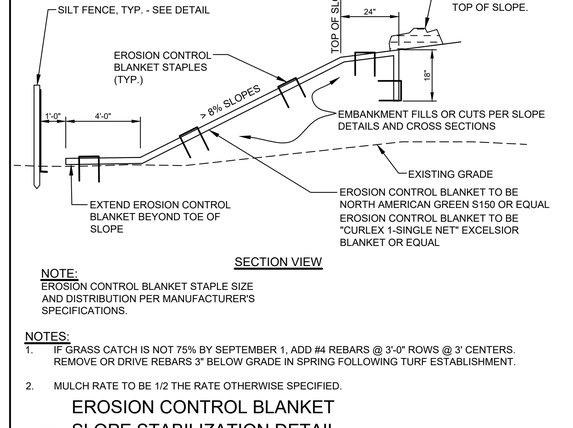
NOTE: THE SILT SACK ® WILL BE MANUFACTURED FROM A WOVEN POLYPROPYLENE FABRIC THAT MEETS OR EXCEEDS THE FOLLOWING SPECIFICATIONS:

HIGH-FLOW SILT SACK ® (FOR USE IN LOW POINTS/SAGS)
(FOR AREAS OF MODERATE TO HEAVY PRECIPITATION AND RUN-OFF)

PROPERTIES	TEST METHOD	UNITS
GRAB TENSILE STRENGTH	ASTM D-4632	265 LBS
GRAB TENSILE ELONGATION	ASTM D-4632	20 %
PUNCTURE	ASTM D-4833	135 LBS
MULLEN BURST	ASTM D-3786	420 PSI
TRAPEZOID TEAR	ASTM D-4533	45 LBS
UV RESISTANCE	ASTM D-4355	90 %
APPARENT OPENING SIZE	ASTM D-4751	20 US SIEVE
FLOW RATE	ASTM D-4491	200 GAL/MIN/SQ FT
PERMITTIVITY	ASTM D-4491	1.5 SEC -1



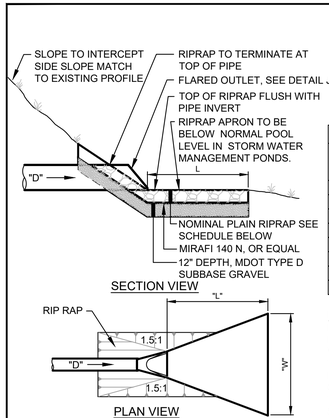
(F) SILT SACK ® DETAIL & SPECIFICATIONS
N.T.S.



NOTE:
EROSION CONTROL BLANKET STAPLE SIZE AND DISTRIBUTION PER MANUFACTURER'S SPECIFICATIONS.

NOTES:
1. IF GRASS CATCH IS NOT 75% BY SEPTEMBER 1, ADD #4 REBARS @ 3'-0" ROWS @ 3' CENTERS. REMOVE OR DRIVE REBARS 3" BELOW GRADE IN SPRING FOLLOWING TURF ESTABLISHMENT.
2. MULCH RATE TO BE 1/2 THE RATE OTHERWISE SPECIFIED.

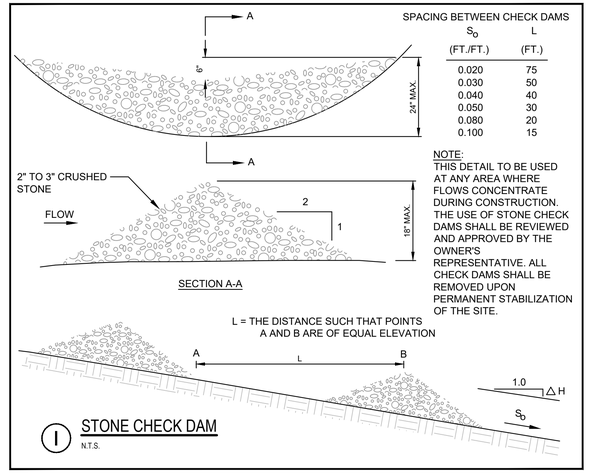
(G) EROSION CONTROL BLANKET SLOPE STABILIZATION DETAIL
N.T.S.



SCHEDULE				
CULVERT DIAMETER (D)	WIDTH (W)	LENGTH (L)	STONE D_{50}	RIPRAP THICKNESS
12"	8'	10'	6"	14"
15"	8'	10'	6"	14"
18"	10'	14'	6"	14"
24"	12'	16'	9"	21"
30"	12'	16'	12"	27"
36"	20'	24'	12"	27"
42"	24'	26'	12"	27"
48"	28'	32'	12"	27"

NOTE:
RIPRAP GRADATION AND PLACEMENT - THE RIPRAP GRADATION SHALL BE A WELL-GRADED MIX FROM ABOUT 1.5 TIMES THE D SIZE TO ABOUT 25 PERCENT OF THE D SIZE. THE RIPRAP STONES SHALL BE CAREFULLY PLACED WORKING FROM THE TOE OF THE SLOPE UPWARD. THE STONES SHOULD BE LOWERED TO THE SLOPE AND NOT BE ALLOWED TO DROP MORE THAN 12 INCHES ONTO THE GEOTEXTILE. THE FINISHED SURFACE SHALL BE A RELATIVELY SMOOTH UNIFORMLY SLOPED SURFACE.

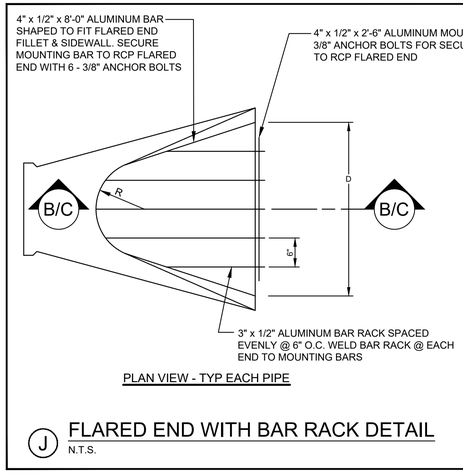
(H) PIPE/CULVERT OUTLET APRON
N.T.S.



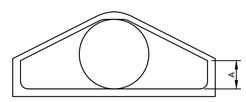
SPACING BETWEEN CHECK DAMS	
S_O (FT./FT.)	L (FT.)
0.020	75
0.030	50
0.040	40
0.050	30
0.080	20
0.100	15

NOTE:
THIS DETAIL TO BE USED AT ANY AREA WHERE FLOWS CONCENTRATE DURING CONSTRUCTION. THE USE OF STONE CHECK DAMS SHALL BE REVIEWED AND APPROVED BY THE OWNER'S REPRESENTATIVE. ALL CHECK DAMS SHALL BE REMOVED UPON PERMANENT STABILIZATION OF THE SITE.

(I) STONE CHECK DAM
N.T.S.



DIA.	A	B	C	D	E	R
18"	9"	2'-3"	3'-10"	3'-0"	2½"	12"
24"	9½"	3'-7½"	2'-6"	4'-0"	3"	14"
30"	12"	4'-6"	1'-7¾"	5'-0"	3½"	15"
36"	15"	5'-3"	2'-10¾"	6'-0"	4"	20"
42"	21"	5'-3"	2'-11"	6'-6"	4½"	22"
48"	24"	6'-0"	2'-2"	7'-0"	5"	22"
54"	27"	5'-5"	2'-11"	7'-6"	5½"	24"
60"	30"	5'-0"	3'-3"	8'-0"	6"	24"



(J) FLARED END WITH BAR RACK DETAIL
N.T.S.

NOTE:
JOINTS MAY BE FURNISHED WITH EITHER BELL & SPIGOT OR TONGUE & GROOVE ENDS. CULVERT END SECTIONS SHALL CONFORM TO MDOT STANDARD SPECS.

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES & SHALL NOT BE USED FOR CONSTRUCTION.

STATE OF MAINE — STEPHEN R. BUSHEY — 01.18.22 — LICENSED PROFESSIONAL ENGINEER
STEPHEN R. BUSHEY, P.E.
LIC. #7429

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Design: SRB	Draft: CDD	Date: MAY 2021
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Drawing Name: EROSION CONTROL DETAILS
Project: Stevens Square at Baxter Woods – Phase 2 – 4
583 Stevens Avenue, Portland, Maine
Client/Owner: DC BAXTER WOODS IV LLC
631 STEVENS AVE., SUITE 203, PORTLAND, ME 04103 PH. 207.772.7673

Drawing No. C-8.6

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1.3.5 EROSION CONTROL MEASURES AND SITE STABILIZATION

THE PRIMARY EMPHASIS OF THE EROSION/SEDIMENTATION CONTROL PLAN, WHICH WILL BE IMPLEMENTED FOR THIS PROJECT, IS AS FOLLOWS:

- DEVELOPMENT OF A CAREFUL CONSTRUCTION SEQUENCE.
- RAPID REVEGETATION OF DENUDED AREAS TO MINIMIZE THE PERIOD OF SOIL EXPOSURE.
- RAPID STABILIZATION OF DRAINAGE PATHS TO AVOID RILL AND GULLY EROSION.
- THE USE OF ON-SITE MEASURES TO CAPTURE SEDIMENT (HAY BALES/ STONE CHECK DAMS/SILT FENCE, ETC.)

THE FOLLOWING TEMPORARY AND PERMANENT EROSION AND SEDIMENT CONTROL DEVICES WILL BE IMPLEMENTED AS PART OF THE SITE DEVELOPMENT. THESE DEVICES SHALL BE INSTALLED AS INDICATED ON THE PLANS OR AS DESCRIBED WITHIN THIS REPORT. FOR FURTHER REFERENCE, SEE THE LATEST EDITION OF THE MAINE EROSION AND SEDIMENT CONTROL PRACTICES FIELD GUIDE FOR CONTRACTORS.

A. DEWATERING

WATER FROM CONSTRUCTION TRENCH DEWATERING SHALL PASS FIRST THROUGH A FILTER BAG OR SECONDARY CONTAINMENT STRUCTURE (E.G. HAY BALE LINED POOL) PRIOR TO DISCHARGE. THE DISCHARGE SITE SHALL BE SELECTED TO AVOID FLOODING, ICING, AND SEDIMENT DISCHARGES TO A PROTECTED RESOURCE. IN NO CASE SHALL THE FILTER BAG OR CONTAINMENT STRUCTURE BE LOCATED WITHIN 50 FEET OF A PROTECTED NATURAL RESOURCE. DEWATERING DISCHARGE SHALL NOT BE DIRECTED ACROSS ADJACENT PROPERTIES IN A CONCENTRATED MANNER.

B. INSPECTION AND MONITORING

MAINTENANCE MEASURES SHALL BE APPLIED AS NEEDED DURING THE ENTIRE CONSTRUCTION SEASON. AFTER EACH RAINFALL, SNOW STORM OR PERIOD OF THAWING AND RUNOFF, THE SITE CONTRACTOR SHALL PERFORM A VISUAL INSPECTION OF ALL INSTALLED EROSION CONTROL MEASURES AND PERFORM REPAIRS AS NEEDED TO INSURE THEIR CONTINUOUS FUNCTION. FOLLOWING THE TEMPORARY AND/OR FINAL SEEDING AND MULCHING, THE CONTRACTOR SHALL IN THE SPRING INSPECT AND REPAIR ANY DAMAGES AND/OR UNESTABLISHED SPOTS. ESTABLISHED VEGETATIVE COVER MEANS A MINIMUM OF 90% OF AREAS VEGETATED WITH VIGOROUS GROWTH.

THE FOLLOWING STANDARDS MUST BE MET DURING CONSTRUCTION.

(a) **INSPECTION AND CORRECTIVE ACTION**. INSPECT DISTURBED AND IMPERVIOUS AREAS, EROSION CONTROL MEASURES, MATERIALS STORAGE AREAS 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 WITHIN 24 HOURS AFTER A STORM EVENT (RAINFALL), AND PRIOR TO COMPLETING PERMANENT STABILIZATION MEASURES. A PERSON WITH KNOWLEDGE OF EROSION AND STORMWATER CONTROL, INCLUDING THE STANDARDS AND CONDITIONS IN THE PERMIT, SHALL CONDUCT THE INSPECTIONS.

(b) **MAINTENANCE**. IF BEST MANAGEMENT PRACTICES (BMPS) NEED TO BE REPAIRED, THE REPAIR WORK SHOULD BE INITIATED UPON DISCOVERY OF THE PROBLEM BUT NO LATER THAN THE END OF THE NEXT WORKDAY. IF ADDITIONAL BMPS OR SIGNIFICANT REPAIR OF BMPS ARE NECESSARY, IMPLEMENTATION MUST BE COMPLETED WITHIN 7 CALENDAR DAYS AND PRIOR TO ANY STORM EVENT (RAINFALL). ALL MEASURES MUST BE MAINTAINED IN EFFECTIVE OPERATING CONDITION UNTIL AREAS ARE PERMANENTLY STABILIZED.

(c) **DOCUMENTATION**. KEEP A LOG (REPORT) SUMMARIZING THE INSPECTIONS AND ANY CORRECTIVE ACTION TAKEN. THE LOG MUST INCLUDE THE NAME(S) AND QUALIFICATIONS OF THE PERSON MAKING THE INSPECTIONS, THE DATE(S) OF THE INSPECTIONS, AND MAJOR OBSERVATIONS ABOUT THE OPERATION AND MAINTENANCE OF EROSION AND SEDIMENTATION CONTROLS, MATERIALS STORAGE AREAS, AND VEHICLE ACCESS POINTS TO THE PARCEL. MAJOR OBSERVATIONS MUST INCLUDE BMPS THAT NEED MAINTENANCE, BMPS THAT FAILED TO OPERATE AS DESIGNED OR PROVED INADEQUATE FOR A PARTICULAR LOCATION, AND LOCATION(S) WHERE ADDITIONAL BMPS ARE NEEDED. FOR EACH BMP REQUIRING MAINTENANCE, BMP NEEDING REPLACEMENT, AND LOCATION NEEDING ADDITIONAL BMPS, NOTE IN THE LOG THE CORRECTIVE ACTION TAKEN AND WHEN IT WAS TAKEN.

THE LOG MUST BE MADE ACCESSIBLE TO CITY 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 PERMANENT STABILIZATION.

C. TEMPORARY EROSION CONTROL MEASURES

TEMPORARY EROSION CONTROL MEASURES SHALL BE INSTALLED BY THE CONTRACTOR AS REQUIRED BY THIS REPORT AND AS SHOWN ON THE PLAN SET FOR THE PROJECT. ADDITIONAL EROSION CONTROL MEASURES SHALL BE INSTALLED IF DEEMED NECESSARY BY ON-SITE INSPECTIONS OF THE OWNER, THE CITY OF PORTLAND, OR THEIR REPRESENTATIVES AT NO ADDITIONAL COST TO THE OWNER.

THE FOLLOWING MEASURES ARE PLANNED AS TEMPORARY EROSION/SEDIMENTATION CONTROL MEASURES DURING CONSTRUCTION:

1. CRUSHED STONE-STABILIZED CONSTRUCTION ENTRANCE SHALL BE PLACED AT THE ENTRANCE TO EACH CONSTRUCTION AREA.

2. SILTATION FENCE OR WOOD WASTE COMPOST BERMS SHALL BE INSTALLED DOWNSTREAM OF ANY DISTURBED AREAS TO TRAP RUNOFF- BORNE SEDIMENTS UNTIL GRASS AREAS ARE REVEGETATED. THE SILT FENCE AND/OR WOOD WASTE COMPOST BERMS SHALL BE INSTALLED PER THE DETAILS PROVIDED IN THIS PACKAGE AND INSPECTED AT LEAST ONCE A WEEK AND BEFORE AND IMMEDIATELY AFTER A STORM EVENT OF 0.5 INCHES OR GREATER, AND AT LEAST DAILY DURING PROLONGED RAINFALL. REPAIRS SHALL BE MADE IF THERE ARE ANY SIGNS OF EROSION OR SEDIMENTATION BELOW THE FENCE OR BERM LINE. IF THERE ARE SIGNS OF UNDERCUTTING AT THE CENTER OR THE EDGES, OR IMPOUNDING OF LARGE VOLUMES OF WATER BEHIND THE FENCE OR BERM, THE BARRIER SHALL BE REPLACED WITH A STONE CHECK DAM. WOOD WASTE COMPOST BERMS ARE NOT TO BE USED ADJACENT TO WETLAND AREAS THAT ARE NOT TO BE DISTURBED.

3. STRAW OR HAY MULCH INCLUDING HYDROSEEDING IS INTENDED TO PROVIDE COVER FOR DENUDED OR SEEDED AREAS UNTIL REVEGETATION IS ESTABLISHED. MULCH PLACED BETWEEN APRIL 15TH AND OCTOBER 15TH ON SLOPES OF LESS THEN 15 PERCENT SHALL BE ANCHORED BY APPLYING WATER; MULCH PLACED ON SLOPES OF EQUAL TO OR STEEPER THAN 15 PERCENT SHALL BE COVERED BY A FABRIC NETTING AND ANCHORED WITH STAPLES IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATION. FABRIC NETTING AND STAPLES SHALL BE USED ON DISTURBED AREAS WITHIN 50' OF LAKES, STREAMS, AND WETLANDS REGARDLESS OF THE UPSTREAM SLOPE. MULCH PLACED BETWEEN OCTOBER 15TH AND APRIL 15TH ON SLOPES EQUAL TO OR STEEPER THAN 8 PERCENT SHALL BE COVERED WITH A FABRIC NETTING AND ANCHORED WITH STAPLES IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. SLOPES STEEPER THAN 3:1 AND EQUAL TO OR FLATTER THAN 2:1, WHICH ARE TO BE REVEGETATED, SHALL RECEIVE CURLEX BLANKETS BY AMERICAN EXCELSIOR OR EQUAL. SLOPES STEEPER THAN 2:1 SHALL RECEIVE RIPRAP AS NOTED ON THE PLANS. THE MULCH APPLICATION RATE FOR BOTH TEMPORARY AND PERMANENT SEEDING IS 75 LBS PER 1000 SF AS IDENTIFIED IN ATTACHMENT A OF THIS SECTION. MULCH SHALL NOT BE PLACED OVER SNOW.

4. TEMPORARY STOCKPILES OF STUMPS, GRUBBINGS, OR COMMON EXCAVATION WILL BE PROTECTED AS FOLLOWS:

a) TEMPORARY STOCKPILES SHALL NOT BE LOCATED WITHIN 100 FEET OF ANY WETLANDS WHICH WILL NOT BE DISTURBED AND SHALL BE LOCATED AWAY FROM DRAINAGE SWALES.

b) STOCKPILES SHALL BE STABILIZED WITHIN 7 DAYS BY EITHER TEMPORARILY SEEDING THE STOCKPILE BY A HYDROSEED METHOD CONTAINING AN EMULSIFIED MULCH TACKIFIER OR BY COVERING THE STOCKPILE WITH MULCH, SUCH AS HAY, STRAW, OR EROSION CONTROL MIX.

c) STOCKPILES SHALL BE SURROUNDED BY SEDIMENTATION BARRIER AT THE TIME OF FORMATION.

5. ALL DENUDED AREAS THAT ARE WITHIN 100 FEET OF AN UNDISTURBED WETLAND, WHICH HAVE BEEN ROUGH GRADED AND ARE NOT LOCATED WITHIN A BUILDING PAD, PARKING AREA, OR ACCESS DRIVE SUBBASE AREA, SHALL RECEIVE MULCH OR EROSION CONTROL MESH FABRIC WITHIN 48 HOURS OF INITIAL DISTURBANCE OF SOIL. ALL AREAS WITHIN 100 FEET OF AN UNDISTURBED WETLAND SHALL BE MULCHED PRIOR TO ANY PREDICTED RAIN EVENT REGARDLESS OF THE 48 HOUR WINDOW. IN OTHER AREAS, THE TIME PERIOD MAY BE EXTENDED TO 7 DAYS.

6. FOR WORK, WHICH IS CONDUCTED BETWEEN OCTOBER 15TH AND APRIL 15TH OF ANY CALENDAR YEAR, ALL DENUDED AREAS, SHALL BE COVERED WITH HAY MULCH OR EROSION CONTROL MIX, APPLIED AT TWICE THE NORMAL APPLICATION RATE AND ANCHORED WITH A FABRIC NETTING. THE TIME PERIOD FOR APPLYING MULCH SHALL BE LIMITED TO 2 DAYS FOR ALL AREAS.

7. MCCAULEY WAY SHALL BE SWEPT TO CONTROL MUD AND DUST AS NECESSARY. ADDITIONAL STONE SHALL BE ADDED TO THE STABILIZED CONSTRUCTION ENTRANCE TO MINIMIZE THE TRACKING OF MATERIAL OFF THE SITE AND ONTO THE SURROUNDING ROADWAYS.

8. DURING GRUBBING OPERATIONS STONE CHECK DAMS SHALL BE INSTALLED AT ANY EVIDENT CONCENTRATED FLOW DISCHARGE POINTS AND AS DIRECTED ON THE EROSION CONTROL PLANS.

9. SILT FENCING WITH A MINIMUM STAKE SPACING OF 6 FEET SHALL BE USED, UNLESS THE FENCE IS SUPPORTED BY WIRE FENCE REINFORCEMENT OF MINIMUM 14 GAUGE AND WITH A MAXIMUM MESH SPACING OF 6 INCHES, IN WHICH CASE STAKES MAY BE SPACED A MAXIMUM OF 10 FEET APART. THE BOTTOM OF THE FENCE SHALL BE ANCHORED. A DOUBLE ROW OF SILT FENCE SHALL BE USED ADJACENT TO WETLANDS.

10. WOOD WASTE COMPOST/BARK BERMS MAY BE USED IN LIEU OF SILTATION FENCING. BERMS SHALL BE REMOVED AND SPREAD IN A LAYER NOT TO EXCEED 3" THICK ONCE UPSTREAM AREAS ARE COMPLETED AND A 90% CATCH OF VEGETATION IS ATTAINED.

11. STORM DRAIN CATCH BASIN INLET PROTECTION SHALL BE PROVIDED THROUGH THE USE OF STONE SEDIMENT BARRIERS OR APPROVED SEDIMENT BAGS (SUCH AS SILT SACK). INSTALLATION DETAILS ARE PROVIDED IN THE PLAN SET. THE BARRIERS SHALL BE INSPECTED AFTER EACH RAINFALL AND REPAIRS MADE AS NECESSARY. SEDIMENT SHALL BE REMOVED AND THE BARRIER RESTORED TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO ½ THE DESIGN DEPTH OF THE BARRIER. THE BARRIER SHALL BE REMOVED WHEN THE TRIBUTARY DRAINAGE AREA HAS BEEN STABILIZED.

12. WATER AND/OR CALCIUM CHLORIDE SHALL BE FURNISHED AND APPLIED IN ACCORDANCE WITH MDOT SPECIFICATIONS - SECTION 637 - DUST CONTROL.

13. LOAM AND SEED IS INTENDED TO SERVE, AS THE PRIMARY PERMANENT REVEGETATIVE MEASURE FOR ALL DENUDED AREAS NOT PROVIDED WITH OTHER EROSION CONTROL MEASURES, SUCH AS RIPRAP. APPLICATION RATES ARE PROVIDED IN ATTACHMENT A OF THIS SECTION. SEEDING SHALL NOT OCCUR OVER SNOW.

D. PERMANENT EROSION CONTROL MEASURES

THE FOLLOWING PERMANENT EROSION CONTROL MEASURES HAVE BEEN DESIGNED AS PART OF THE EROSION/SEDIMENTATION CONTROL PLAN:

1. ALL AREAS DISTURBED DURING CONSTRUCTION, BUT NOT SUBJECT TO OTHER RESTORATION (PAVING, RIPRAP, ETC.) WILL BE LOAMED, LIMED, FERTILIZED, MULCHED, AND SEEDED. FABRIC NETTING, ANCHORED WITH STAPLES, SHALL BE PLACED OVER THE MULCH IN AREAS AS NOTED IN **TEMPORARY EROSION CONTROL MEASURES** PARAGRAPH 3 OF THIS REPORT. ALL AREAS WITHIN 100 FEET OF AN UNDISTURBED WETLAND SHALL BE MULCHED PRIOR TO ANY PREDICTED RAIN EVENT REGARDLESS OF THE 48 HOUR WINDOW. NATIVE TOPSOIL SHALL BE STOCKPILED AND REUSED FOR FINAL RESTORATION WHEN IT IS OF SUFFICIENT QUALITY.

2. ALL STORM DRAIN PIPE OUTLETS SHALL HAVE RIPRAP APRONS AT THEIR OUTLET TO PROTECT THE OUTLET AND RECEIVING CHANNEL FROM SCOUR AND DETERIORATION. INSTALLATION DETAILS ARE PROVIDED IN THE PLAN SET. THE APRONS SHALL BE INSTALLED AND STABILIZED TO THE EXTENT PRACTICABLE PRIOR TO DIRECTING RUNOFF TO THE TRIBUTARY PIPE OR CULVERT.

1.4 IMPLEMENTATION SCHEDULE

THE FOLLOWING CONSTRUCTION SEQUENCE SHALL BE REQUIRED TO ENSURE THE EFFECTIVENESS OF THE EROSION AND SEDIMENTATION CONTROL MEASURES ARE OPTIMIZED:

IT IS ANTICIPATED THAT CONSTRUCTION OF BUILDINGS 2-5 AND RELATED INFRASTRUCTURE WILL COMMENCE IN SUMMER OF 2021 AND BE COMPLETED BY SPRING OF 2022.

NOTE: FOR ALL GRADING ACTIVITIES, THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION NOT TO OVEREXPOSE THE SITE, THIS SHALL BE ACCOMPLISHED BY LIMITING THE DISTURBED AREA.

1. INSTALL STABILIZED CONSTRUCTION ENTRANCE AT CONSTRUCTION ACCESS POINTS FROM PAVED ROADWAYS.

2. INSTALL CATCH BASIN INLET PROTECTION, AND PERIMETER SILT FENCE/WOOD WASTE BERMS PRIOR TO GRUBBING RESPECTIVE AREAS.

3. CLEAR AND GRUB AREA TO BE DEVELOPED. INSTALL STONE CHECK DAMS AT ANY EVIDENT CONCENTRATED FLOW DISCHARGE POINTS.

4. FOUNDATION PREPARATION AREA SHALL BE EXCAVATED FOR INSTALLATION OF THE BUILDING FOOTINGS. BUILDING WORK WILL BE ON GOING THROUGH THE REMAINDER OF THE PROJECT.

5. COMMENCE INSTALLATION OF DRAINAGE APPURTENANCES.

6. COMMENCE CONSTRUCTION OF PERVIOUS PAVER FILTER/RESERVOIR UP TO CHOKER COURSE, FOCAL POINT FILTERS AND DETENTION PONDS.

7. COMMENCE EARTHWORK AND GRADING TO SUBGRADE.

8. COMMENCE INSTALLATION OF UTILITIES.

9. CONTINUE EARTHWORK AND GRADING TO SUBGRADE AS NECESSARY FOR CONSTRUCTION.

10. COMPLETE INSTALLATION OF UNDERGROUND UTILITIES TO WITHIN 5' OF THE BUILDINGS.

11. INSTALL LIGHT POLE FOUNDATIONS AND LIGHT POLES.

12. COMPLETE REMAINING EARTHWORK OPERATIONS.

13. COMPLETE INSTALLATION OF CATCH BASINS AND APPURTENANCES.

14. INSTALL SUB-BASE AND BASE GRAVEL WITHIN PARKING FIELDS, WALKWAYS, AND ALL DRIVEWAYS.

15. INSTALL BASE COURSE PAVING FOR ACCESS DRIVE AND PARKING AREA AS WELL AS CONCRETE SURFACES.

16. INSTALL CURBING IN PARKING FIELDS, DRIVEWAYS, AND ALONG THE STREETS AS NEEDED.

17. LOAM, LIME, FERTILIZE, SEED AND MULCH DISTURBED AREAS AND COMPLETE ALL LANDSCAPING.

18. INSTALL PERVIOUS PAVERS AND INFILL STONE, SURFACE COURSE PAVING FOR ACCESS DRIVE AND PARKING AREAS. STRIPE PER PLAN.

19. ONCE THE SITE IS STABILIZED AND A 90% CATCH OF VEGETATION HAS BEEN OBTAINED, REMOVE ALL TEMPORARY EROSION CONTROL MEASURES.

20. TOUCH UP LOAM AND SEED.

NOTE: ALL DENUDED AREAS NOT SUBJECT TO FINAL PAVING, RIPRAP, OR GRAVEL SHALL BE REVEGETATED.

PRIOR TO CONSTRUCTION OF THE PROJECT, THE CONTRACTOR SHALL SUBMIT TO THE OWNER A SCHEDULE FOR THE COMPLETION OF THE WORK, WHICH WILL SATISFY THE FOLLOWING CRITERIA:

1. THE ABOVE CONSTRUCTION SEQUENCE SHOULD GENERALLY BE COMPLETED IN THE SPECIFIED ORDER; HOWEVER, SEVERAL SEPARATE ITEMS MAY BE CONSTRUCTED SIMULTANEOUSLY. WORK MUST ALSO BE SCHEDULED OR PHASED TO REDUCE THE EXTENT OF THE EXPOSED AREAS AS SPECIFIED BELOW. THE INTENT OF THIS SEQUENCE IS TO PROVIDE FOR EROSION CONTROL AND TO HAVE STRUCTURAL MEASURES SUCH AS SILT FENCE AND CONSTRUCTION ENTRANCES IN PLACE BEFORE LARGE AREAS OF LAND ARE DENUDED.

2. THE WORK SHALL BE CONDUCTED IN SECTIONS WHICH SHALL:

a) LIMIT THE AMOUNT OF EXPOSED AREA TO THOSE AREAS IN WHICH WORK IS EXPECTED TO BE UNDERTAKEN DURING THE PROCEEDING 30 DAYS.

b) REVEGETATE DISTURBED AREAS AS RAPIDLY AS POSSIBLE. ALL AREAS SHALL BE PERMANENTLY STABILIZED WITHIN 7 DAYS OF FINAL GRADING OR BEFORE A STORM EVENT; OR TEMPORARILY STABILIZED WITHIN 48 HOURS OF INITIAL DISTURBANCE OF SOIL FOR AREAS WITHIN 100 FEET OF AN UNDISTURBED WETLAND AND 7 DAYS FOR ALL OTHER AREAS. AREAS WITHIN 100 FEET OF AN UNDISTURBED WETLAND SHALL BE MULCHED PRIOR TO ANY PREDICTED RAIN EVENT REGARDLESS OF THE 48 HOUR WINDOW.

c) INCORPORATE PLANNED INLETS AND DRAINAGE SYSTEM AS EARLY AS POSSIBLE INTO THE CONSTRUCTION PHASE. THE DITCHES SHALL BE IMMEDIATELY LINED OR REVEGETATED AS SOON AS THEIR INSTALLATION IS COMPLETE.

1.5 EROSION, SEDIMENTATION AND STABILIZATION CONTROL PLAN

THE EROSION CONTROL PLAN IS INCLUDED IN THE PLAN SET.

1.6 DETAILS AND SPECIFICATIONS

THE EROSION CONTROL DETAILS AND SPECIFICATIONS ARE INCLUDED IN THE PLAN SET.

1.7 WINTER STABILIZATION PLAN

THE WINTER CONSTRUCTION PERIOD IS FROM NOVEMBER 1 THROUGH APRIL 15. IF THE CONSTRUCTION SITE IS NOT STABILIZED WITH PAVEMENT, A ROAD GRAVEL BASE, 75% MATURE VEGETATION COVER OR RIPRAP BY NOVEMBER 15 THEN THE SITE NEEDS TO BE PROTECTED WITH OVER-WINTER STABILIZATION. AN AREA CONSIDERED OPEN IS ANY AREA NOT STABILIZED WITH PAVEMENT; VEGETATION, MULCHING, EROSION CONTROL MATS, RIPRAP OR GRAVEL BASE ON A ROAD.

WINTER EXCAVATION AND EARTHWORK SHALL BE COMPLETED SUCH THAT ANY AREA LEFT EXPOSED CAN BE CONTROLLED BY THE CONTRACTOR. LIMIT THE EXPOSED AREA TO THOSE AREAS IN WHICH WORK IS EXPECTED TO BE UNDERTAKEN DURING THE PROCEEDING 15 DAYS AND THAT CAN BE MULCHED IN ONE DAY PRIOR TO ANY SNOW EVENT.

ALL AREAS SHALL BE CONSIDERED TO BE DENUDED UNTIL THE SUBBASE GRAVEL IS INSTALLED IN ROADWAY/PARKING AREAS OR THE AREAS OF FUTURE LOAM AND SEED HAVE BEEN LOAMED, SEEDED AND MULCHED. HAY AND STRAW MULCH RATE SHALL BE A MINIMUM OF 150 LBS./1,000 S.F. (3 TONS/ACRE) AND SHALL BE PROPERLY ANCHORED.

THE CONTRACTOR SHALL INSTALL ANY ADDED MEASURES WHICH MAY BE NECESSARY TO CONTROL EROSION/SEDIMENTATION FROM THE SITE DEPENDENT UPON THE ACTUAL SITE AND WEATHER CONDITIONS. CONTINUATION OF EARTHWORK OPERATIONS ON ADDITIONAL AREAS SHALL NOT BEGIN UNTIL THE EXPOSED SOIL SURFACE ON THE AREA BEING WORKED HAS BEEN STABILIZED, IN ORDER TO MINIMIZE AREAS WITHOUT EROSION CONTROL PROTECTION.

1. SOIL STOCKPILES

STOCKPILES OF SOIL OR SUBSOIL SHALL BE MULCHED FOR OVER WINTER PROTECTION WITH HAY OR STRAW AT TWICE THE NORMAL RATE OR AT 150 LBS/1,000 S.F. (3 TONS PER ACRE) OR WITH A FOUR-INCH LAYER OF WOODWASTE EROSION CONTROL MIX. THIS SHALL BE DONE WITHIN 24 HOURS OF STOCKING AND RE-ESTABLISHED PRIOR TO ANY RAINFALL OR SNOWFALL. ANY SOIL STOCKPILE SHALL NOT BE PLACED (EVEN COVERED WITH HAY OR STRAW) WITHIN 100 FEET FROM ANY NATURAL RESOURCES.

2. NATURAL RESOURCE PROTECTION

ANY AREAS WITHIN 100 FEET FROM ANY NATURAL RESOURCES, IF NOT STABILIZED WITH A MINIMUM OF 75% MATURE VEGETATION CATCH, SHALL BE MULCHED BY DECEMBER 1 AND ANCHORED WITH PLASTIC NETTING OR PROTECTED WITH EROSION CONTROL MATS. DURING WINTER CONSTRUCTION, A DOUBLE LINE OF SEDIMENT BARRIERS (I.E. SILT FENCE BACKED WITH HAY BALES OR EROSION CONTROL MIX) SHALL BE PLACED BETWEEN ANY NATURAL RESOURCE AND THE DISTURBED AREA. PROJECTS CROSSING THE NATURAL RESOURCE SHALL BE PROTECTED A MINIMUM DISTANCE OF 100 FEET ON EITHER SIDE FROM THE RESOURCE. EXISTING PROJECTS NOT STABILIZED BY DECEMBER 1 SHALL BE PROTECTED WITH THE SECOND LINE OF SEDIMENT BARRIER TO ENSURE FUNCTIONALITY DURING THE SPRING THAW AND RAINS.

3. SEDIMENT BARRIERS

DURING FROZEN CONDITIONS, SEDIMENT BARRIERS SHALL CONSIST OF WOODWASTE FILTER BERMS AS FROZEN SOIL PREVENTS THE PROPER INSTALLATION OF HAY BALES AND SEDIMENT SILT FENCES.

4. MULCHING

AN AREA SHALL BE CONSIDERED DENUDED UNTIL AREAS OF FUTURE LOAM AND SEED HAVE BEEN LOAMED, SEEDED AND MULCHED. HAY AND STRAW MULCH SHALL BE APPLIED AT A RATE OF 150 LB. PER 1,000 SQUARE FEET OR 3 TONS/ACRE (TWICE THE NORMAL ACCEPTED RATE OF 75-LBS./1,000 S.F. OR 1.5 TONS/ACRE) AND SHALL BE PROPERLY ANCHORED. MULCH SHALL NOT BE SPREAD ON TOP OF SNOW. THE SNOW SHALL BE REMOVED DOWN TO A ONE-INCH DEPTH OR LESS PRIOR TO APPLICATION. AFTER EACH DAY OF FINAL GRADING, THE AREA SHALL BE PROPERLY STABILIZED WITH ANCHORED HAY OR STRAW OR EROSION CONTROL MATTING. AN AREA SHALL BE CONSIDERED TO HAVE BEEN STABILIZED WHEN EXPOSED SURFACES HAVE BEEN EITHER MULCHED WITH STRAW OR HAY AT A RATE OF 150 LB. PER 1,000 SQUARE FEET (3 TONS/ACRE) AND ADEQUATELY ANCHORED THAT GROUND SURFACE IS NOT VISIBLE THOUGH THE MULCH.

BETWEEN THE DATES OF NOVEMBER 1 AND APRIL 15, ALL MULCH SHALL BE ANCHORED BY PEG LINE, MULCH NETTING, ASPHALT EMULSION CHEMICAL, OR WOOD CELLULOSE FIBER. WHEN GROUND SURFACE IS NOT VISIBLE THROUGH THE MULCH THEN COVER IS SUFFICIENT. AFTER NOVEMBER 1ST, MULCH AND ANCHORING OF ALL BARE SOIL SHALL OCCUR AT THE END OF EACH FINAL GRADING WORKDAY.

5. MULCHING ON SLOPES AND DITCHES

SLOPES SHALL NOT BE LEFT EXPOSED FOR ANY EXTENDED TIME OF WORK SUSPENSION UNLESS FULLY MULCHED AND ANCHORED WITH PEG AND NETTING OR WITH EROSION CONTROL BLANKETS. MULCHING SHALL BE APPLIED AT A RATE OF 230 LBS/1,000 S.F. ON ALL SLOPES GREATER THAN 8%.

MULCH NETTING SHALL BE USED TO ANCHOR MULCH IN ALL DRAINAGE WAYS WITH A SLOPE GREATER THAN 3% FOR SLOPES EXPOSED TO DIRECT WINDS AND FOR ALL OTHER SLOPES GREATER THAT 8%. EROSION CONTROL BLANKETS SHALL BE USED IN LIEU OF MULCH IN ALL DRAINAGE WAYS WITH SLOPES GREATER THAN 8%. EROSION CONTROL MIX CAN BE USED TO SUBSTITUTE EROSION CONTROL BLANKETS ON ALL SLOPES EXCEPT DITCHES.

6. SEEDING

BETWEEN THE DATES OF OCTOBER 15 AND APRIL 1ST, LOAM OR SEED WILL NOT BE REQUIRED. DURING PERIODS OF ABOVE FREEZING TEMPERATURES FINISHED AREAS SHALL BE FINE GRADED AND EITHER PROTECTED WITH MULCH OR TEMPORARILY SEEDED AND MULCHED UNTIL SUCH TIME AS THE FINAL TREATMENT CAN BE APPLIED. IF THE DATE IS AFTER NOVEMBER 1ST AND IF THE EXPOSED AREA HAS BEEN LOAMED, FINAL GRADED WITH A UNIFORM SURFACE, THEN THE AREA MAY BE DORMANT SEEDED AT A RATE OF 3 TIMES HIGHER THAN SPECIFIED FOR PERMANENT SEED AND THEN MULCHED. DORMANT SEEDING MAY BE SELECTED TO BE PLACED PRIOR TO THE PLACEMENT OF MULCH AND FABRIC NETTING ANCHORED WITH STAPLES. IF DORMANT SEEDING IS USED FOR THE SITE, ALL DISTURBED AREAS SHALL RECEIVE 4" OF LOAM AND SEED AT AN APPLICATION RATE OF 5 LBS/1,000 S.F. ALL AREAS SEEDED DURING THE WINTER SHALL BE INSPECTED IN THE SPRING FOR ADEQUATE CATCH. ALL AREAS INSUFFICIENTLY VEGETATED (LESS THAN 75% CATCH) SHALL BE REVEGETATED BY REPLACING LOAM, SEED AND MULCH. IF DORMANT SEEDING IS NOT USED FOR THE SITE, ALL DISTURBED AREAS SHALL BE REVEGETATED IN THE SPRING.

STANDARDS FOR TIMELY STABILIZATION OF CONSTRUCTION SITES DURING WINTER

1. STANDARD FOR THE TIMELY STABILIZATION OF DITCHES AND CHANNELS -- THE APPLICANT SHALL CONSTRUCT AND STABILIZE ALL STONE-LINED DITCHES AND CHANNELS ON THE SITE BY NOVEMBER 15. THE APPLICANT SHALL CONSTRUCT AND STABILIZE ALL GRASS-LINED DITCHES AND CHANNELS ON THE SITE BY SEPTEMBER 1. IF THE APPLICANT FAILS TO STABILIZE A DITCH OR CHANNEL TO BE GRASS-LINED BY SEPTEMBER 1, THEN THE APPLICANT WILL TAKE ONE OF THE FOLLOWING ACTIONS TO STABILIZE THE DITCH FOR LATE FALL AND WINTER.

INSTALL A SOD LINING IN THE DITCH -- THE APPLICANT SHALL LINE THE DITCH WITH PROPERLY INSTALLED SOD BY OCTOBER 1. PROPER INSTALLATION INCLUDES THE APPLICANT PINNING THE SOD ONTO THE SOIL WITH WIRE PINS, ROLLING THE SOD TO GUARANTEE CONTACT BETWEEN THE SOD AND UNDERLYING SOIL, WATERING THE SOD TO PROMOTE ROOT GROWTH INTO THE DISTURBED SOIL, AND ANCHORING THE SOD WITH JUTE OR PLASTIC MESH TO PREVENT THE SOD STRIPS FROM SLOUGHING DURING FLOW CONDITIONS.

INSTALL A STONE LINING IN THE DITCH --THE APPLICANT SHALL LINE THE DITCH WITH STONE RIPRAP BY NOVEMBER 15. THE APPLICANT SHALL HIRE A REGISTERED PROFESSIONAL ENGINEER TO DETERMINE THE STONE SIZE AND LINING THICKNESS NEEDED TO WITHSTAND THE ANTICIPATED FLOW VELOCITIES AND FLOW DEPTHS WITHIN THE DITCH. IF NECESSARY, THE APPLICANT SHALL REGRADE THE DITCH PRIOR TO PLACING THE STONE LINING SO TO PREVENT THE STONE LINING FROM REDUCING THE DITCH'S CROSS-SECTIONAL AREA.

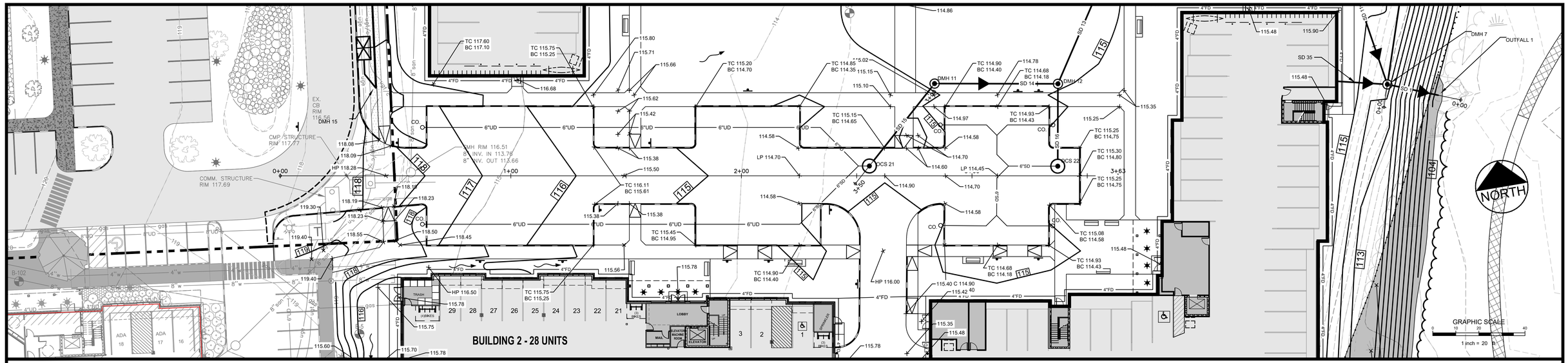
2. STANDARD FOR THE TIMELY STABILIZATION OF DISTURBED SLOPES -- THE APPLICANT SHALL CONSTRUCT AND STABILIZE STONE-COVERED SLOPES BY NOVEMBER 15. THE APPLICANT SHALL SEED AND MULCH ALL SLOPES TO BE VEGETATED BY SEPTEMBER 1. THE DEPARTMENT SHALL CONSIDER ANY AREA HAVING A GRADE GREATER THAN 15% TO BE A SLOPE. IF THE APPLICANT FAILS TO STABILIZE ANY SLOPE TO BE VEGETATED BY SEPTEMBER 1, THEN THE APPLICANT SHALL TAKE ONE OF THE FOLLOWING ACTIONS TO STABILIZE THE SLOPE FOR LATE FALL AND WINTER.

STABILIZE THE SOIL WITH TEMPORARY VEGETATION AND EROSION CONTROL MATS -- BY SEPTEMBER 1 THE APPLICANT SHALL SEED THE DISTURBED SLOPE WITH WINTER RYE AT A SEEDING RATE OF 3 POUNDS PER 1,000 SQUARE FEET AND APPLY EROSION CONTROL MATS OVER THE MULCHED SLOPE. THE APPLICANT SHALL MONITOR GROWTH OF THE RYE OVER THE NEXT 30 DAYS. IF THE RYE FAILS TO GROW AT LEAST THREE INCHES OR COVER AT LEAST 75% OF THE DISTURBED SLOPE BY NOVEMBER 1, THEN THE APPLICANT SHALL COVER THE SLOPE WITH A LAYER OF WOODWASTE COMPOST AS DESCRIBED IN ITEM III OF THIS STANDARD OR WITH STONE RIPRAP AS DESCRIBED IN ITEM IV OF THIS STANDARD.

STABILIZE THE SLOPE WITH SOD -- THE APPLICANT SHALL STABILIZE THE DISTURBED SLOPE WITH PROPERLY INSTALLED SOD BY SEPTEMBER 1. PROPER INSTALLATION INCLUDES THE APPLICANT PINNING THE SOD ONTO THE SLOPE 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. THE APPLICANT SHALL NOT USE LATE-SEASON SOD INSTALLATION TO STABILIZE SLOPES HAVING A GRADE GREATER THAN 33% (3H:1V).

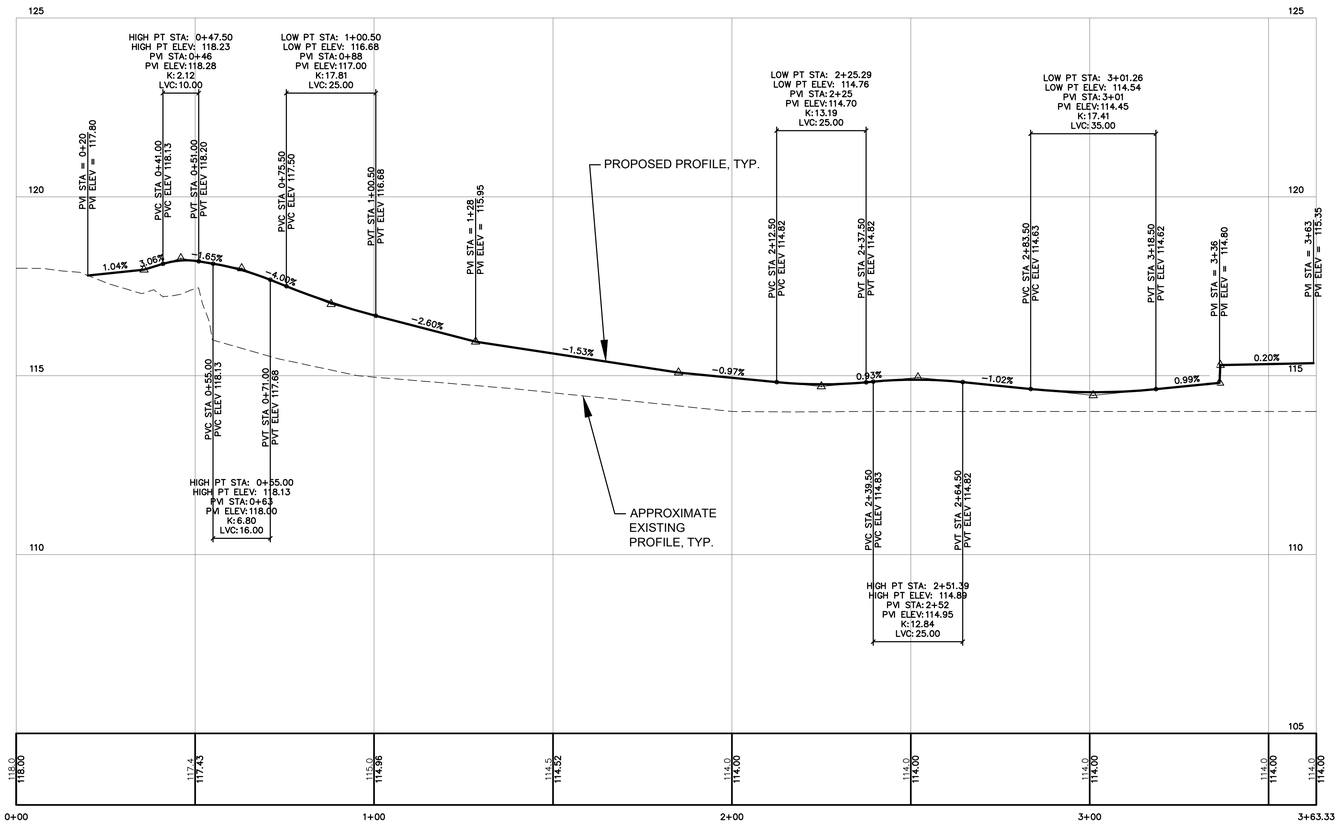
STABILIZE THE SLOPE WITH WOODWASTE COMPOST -- THE APPLICANT SHALL PLACE A SIX-INCH LAYER OF WOODWASTE COMPOST ON THE SLOPE BY NOVEMBER 15. PRIOR TO PLACING THE WOODWASTE COMPOST, THE APPLICANT SHALL REMOVE ANY SNOW ACCUMULATION ON THE DISTURBED SLOPE. THE APPLICANT SHALL NOT USE WOODWASTE COMPOST TO STABILIZE SLOPES HAVING GRADES GREATER THAN 50% (2H:1V) OR HAVING GROUNDWATER SEEPS ON THE SLOPE FACE.

STABILIZE THE SLOPE WITH STONE RIPRAP -- THE APPLICANT SHALL PLACE A LAYER OF STONE RIPRAP ON THE SLOPE BY NOVEMBER 15. THE APPLICANT SHALL HIRE A REGISTERED PROFESSION



ACCESS DRIVE 1 PLAN

SCALE: 1" = 20'



ACCESS DRIVE 1 PROFILE

SCALE: 1" = 20' HORZ. / 1" = 2' VERT.

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES & SHALL NOT BE USED FOR CONSTRUCTION.

STATE OF MAINE STEPHEN R. BUSHEY 3429 01.18.22 LICENSED PROFESSIONAL ENGINEER

STEPHEN R. BUSHEY, P.E. LIC. #7429

Rev.	Date	Revision

Rev.	Date	Revision
3	2022.01.18	ISSUED FOR FINAL PERMIT AND PUBLIC HEARING
2	2021.12.07	RESUBMITTED PER LOR #1 FOR FINAL REVIEW
1	2021.05.12	SUBMITTED TO CITY FOR REVIEW

Design: SRB	Draft: CDD	Date: MAY 2021
Checked: SRB	Scale: AS NOTED	Job No.: 3564.03
File Name: 356403-GRADING.dwg		

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Drawing Name: ACCESS DRIVE 1 PLAN & PROFILE

Project: **Stevens Square at Baxter Woods – Phase 2 – 4**
583 Stevens Avenue, Portland, Maine

Client/Owner: **DC BAXTER WOODS IV LLC**
631 STEVENS AVE., SUITE 203, PORTLAND, ME 04103 PH. 207.772.7673

Drawing No. C-9.0

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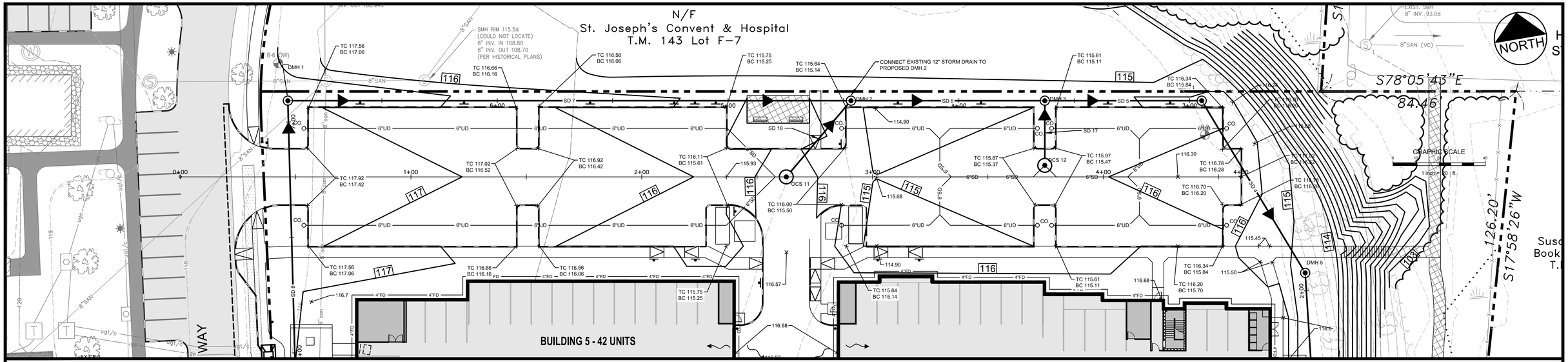

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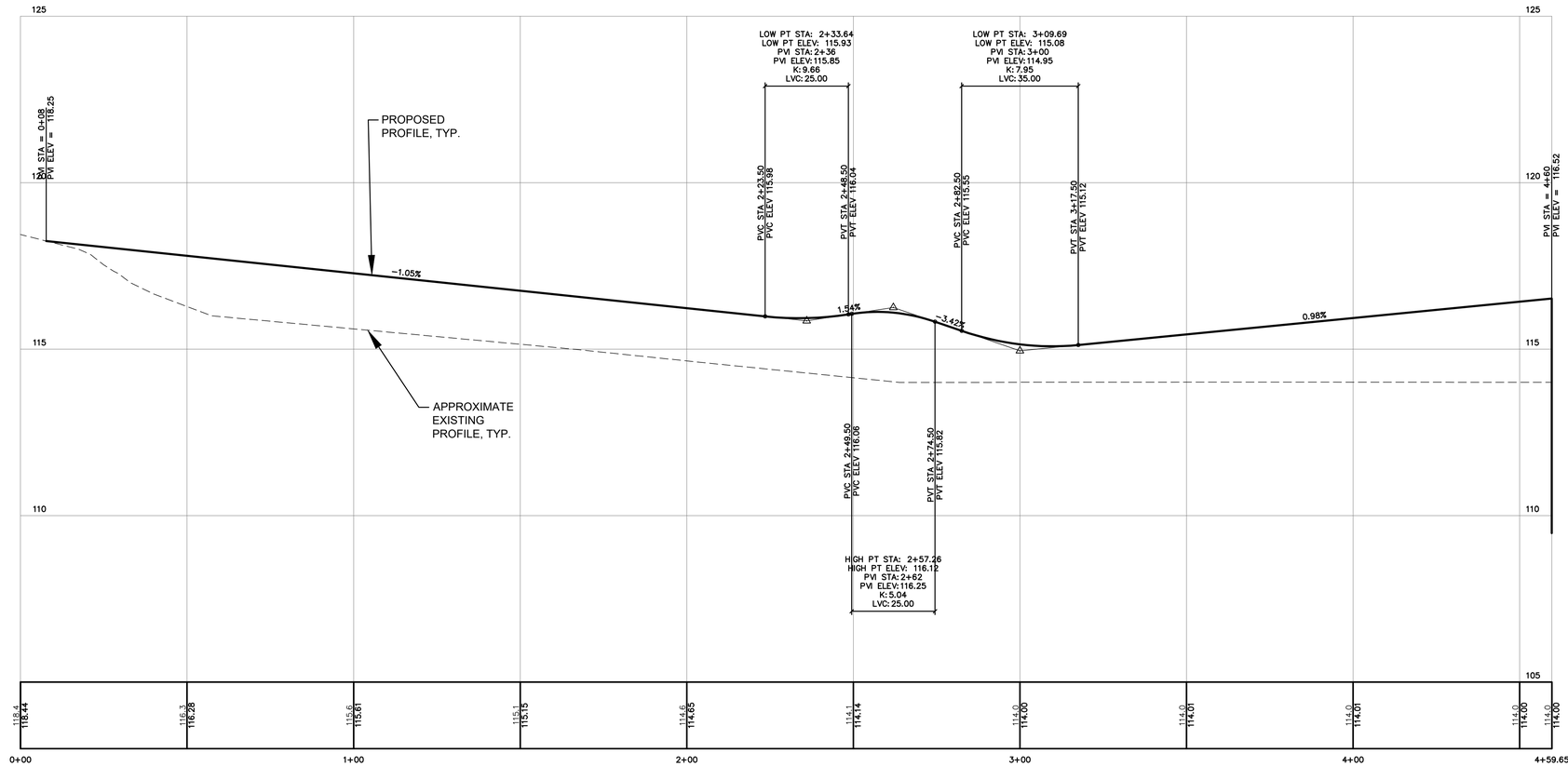

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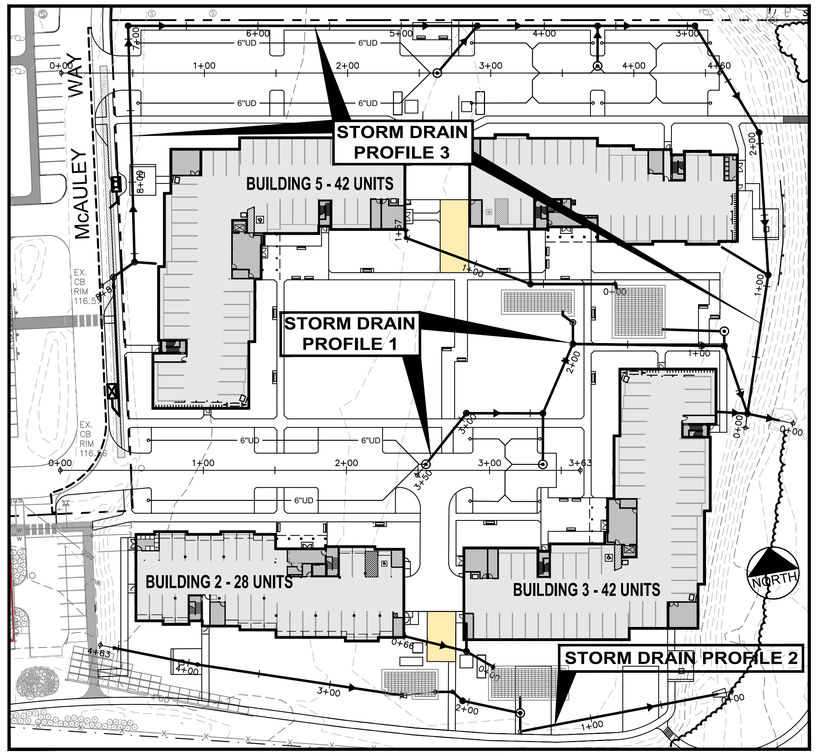
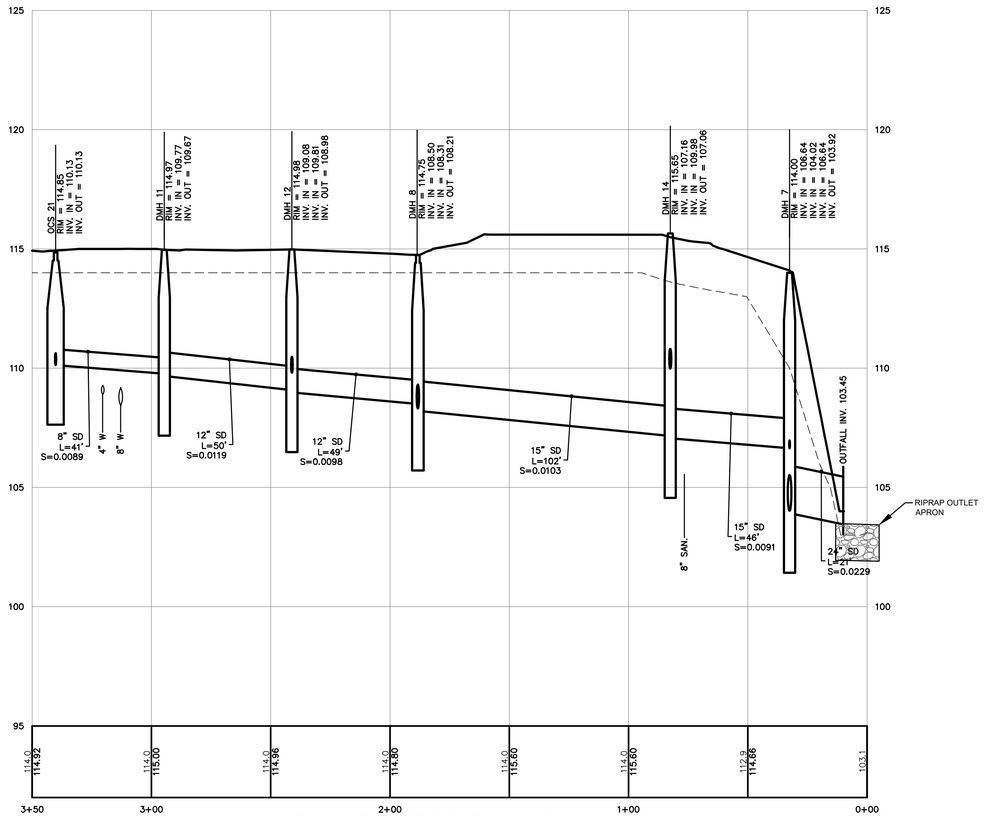


ORIENTATION SKETCH
SCALE: 1" = 50



STORM DRAIN PROFILE 1 (BLDG. 2)
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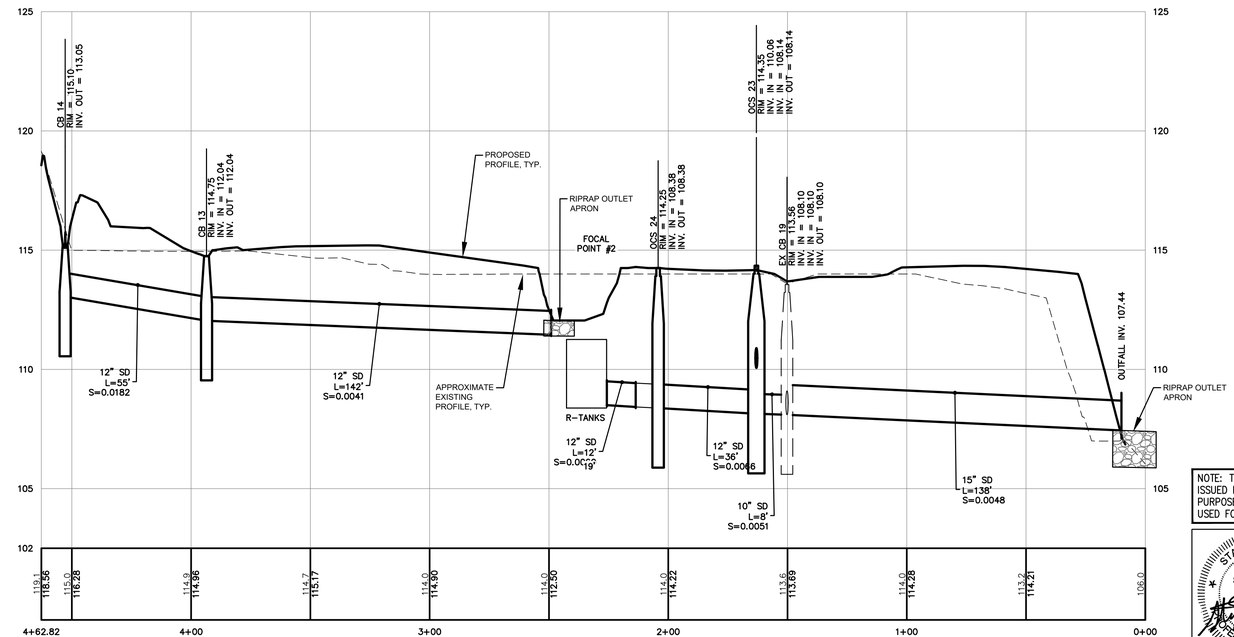

STORM DRAIN PROFILE 2 (BLDG. 2)
SCALE: 1" = 30 HORZ. / 1" = 3' VERT.

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No. 7429
01.18.22
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Drawing Name: STORM DRAIN PROFILES

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Client/Owner: **DC BAXTER WOODS IV LLC**
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Drawing No. C-10.0

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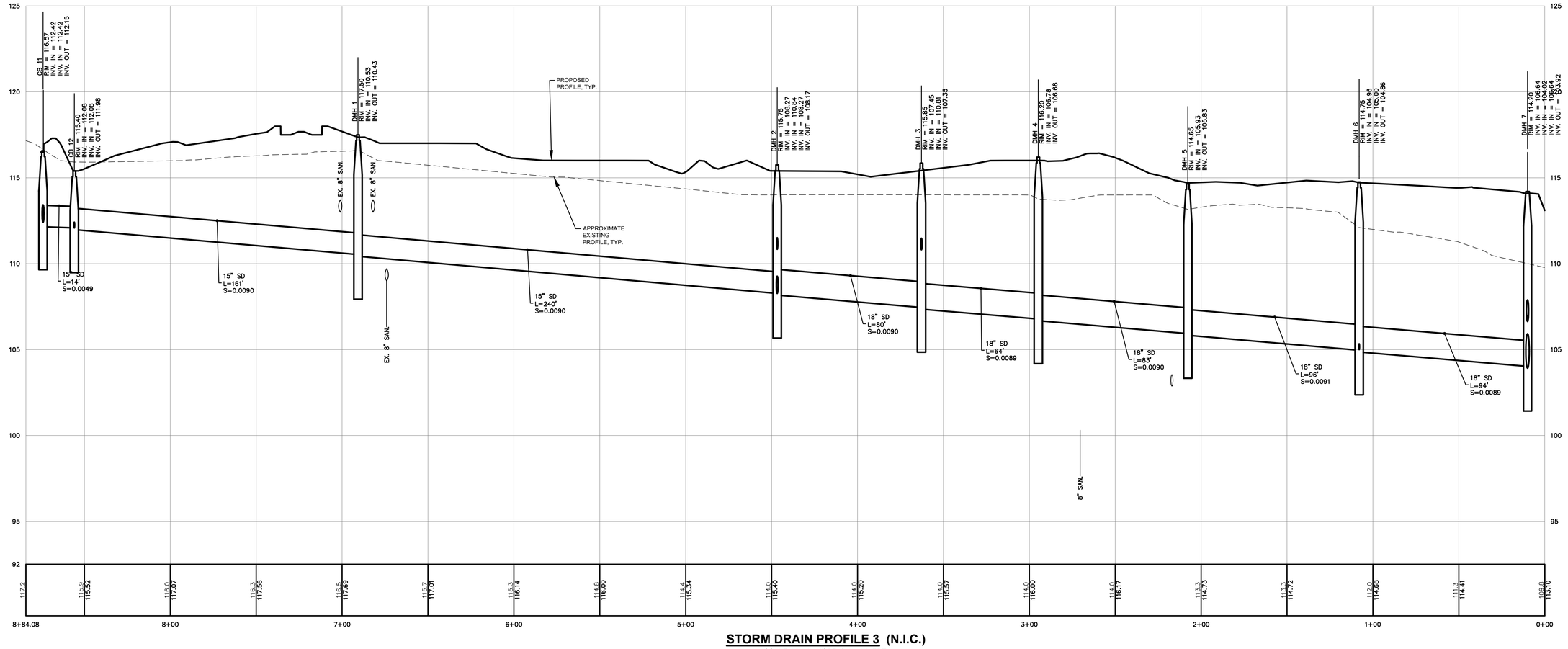
NOTE:
SEE SHEET C-10.0 FOR ORIENTATION SKETCH



STORM DRAIN PROFILE 3 (N.I.C.)
SCALE: 1" = 30 HORZ. / 1" = 3' VERT.

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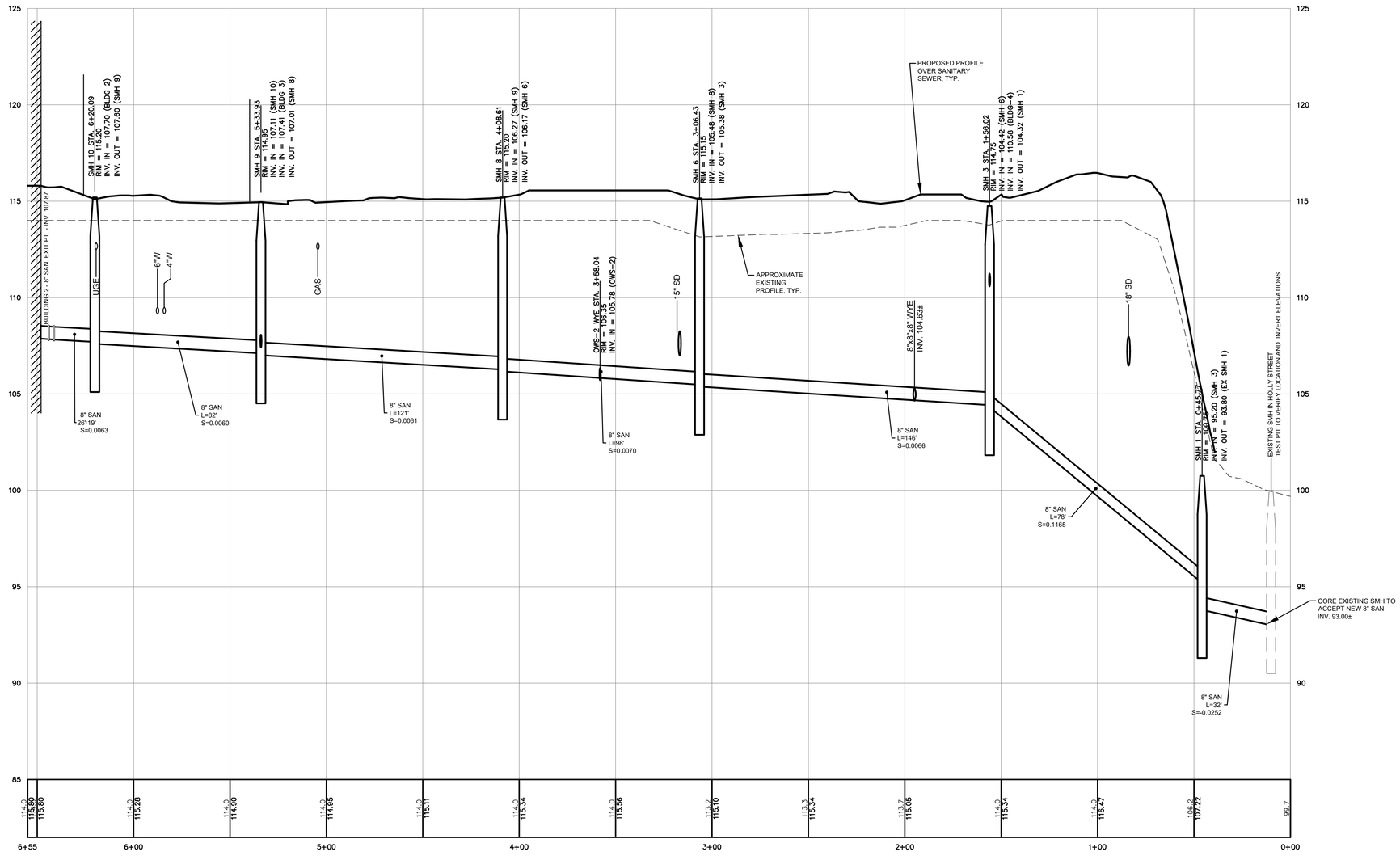

SANITARY SEWER PROFILE 1 (BLDG. 2)

SCALE: 1" = 30' HORZ. / 1" = 3' VERT.

NOTE:
SEE SHEET C-11.1 FOR ORIENTATION SKETCH

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01.18.22
LICENSED PROFESSIONAL ENGINEER

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Drawing Name: UTILITY PROFILES

Project: **Stevens Square at Baxter Woods – Phase 2 – 4**
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Client/Owner: **DC BAXTER WOODS IV LLC**
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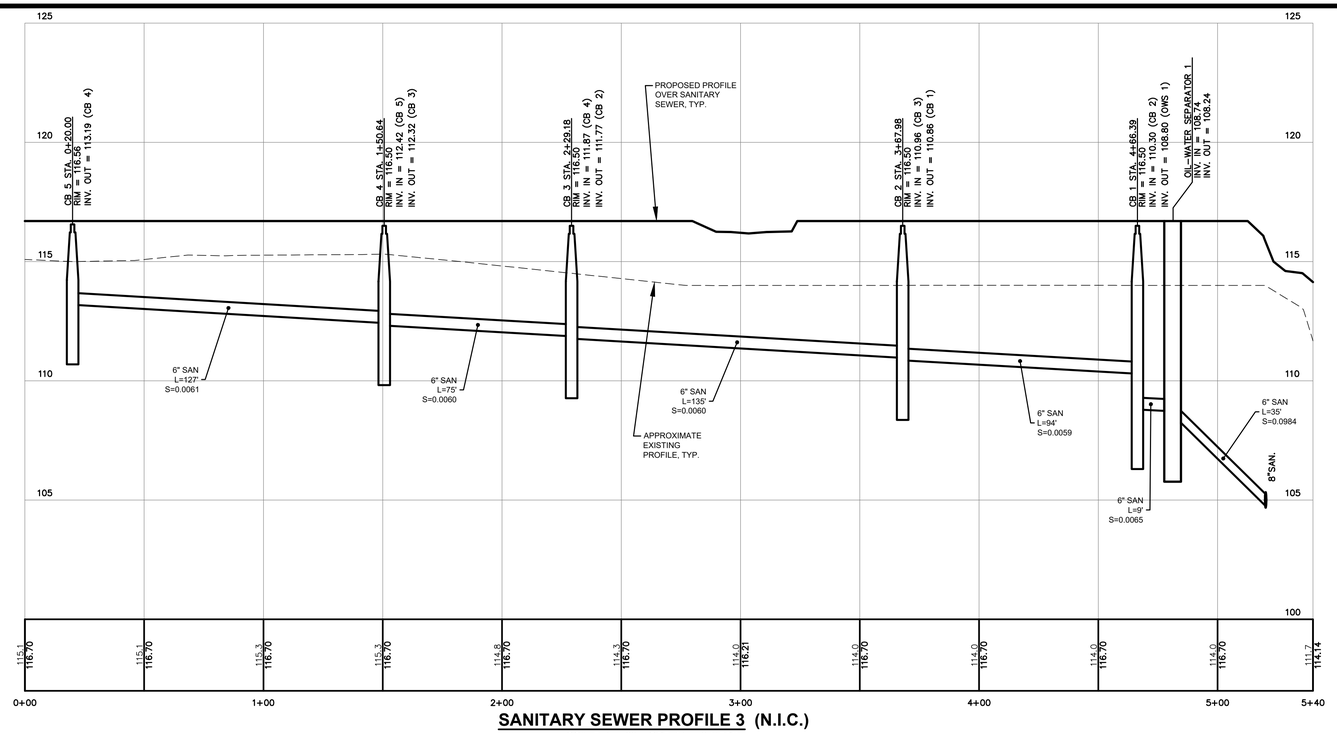

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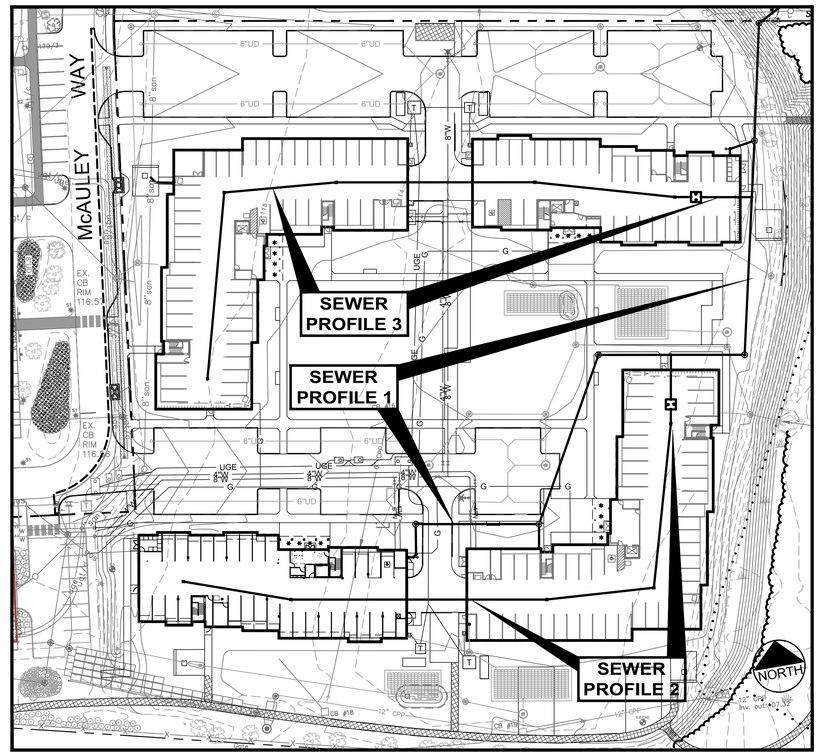

ORIENTATION SKETCH

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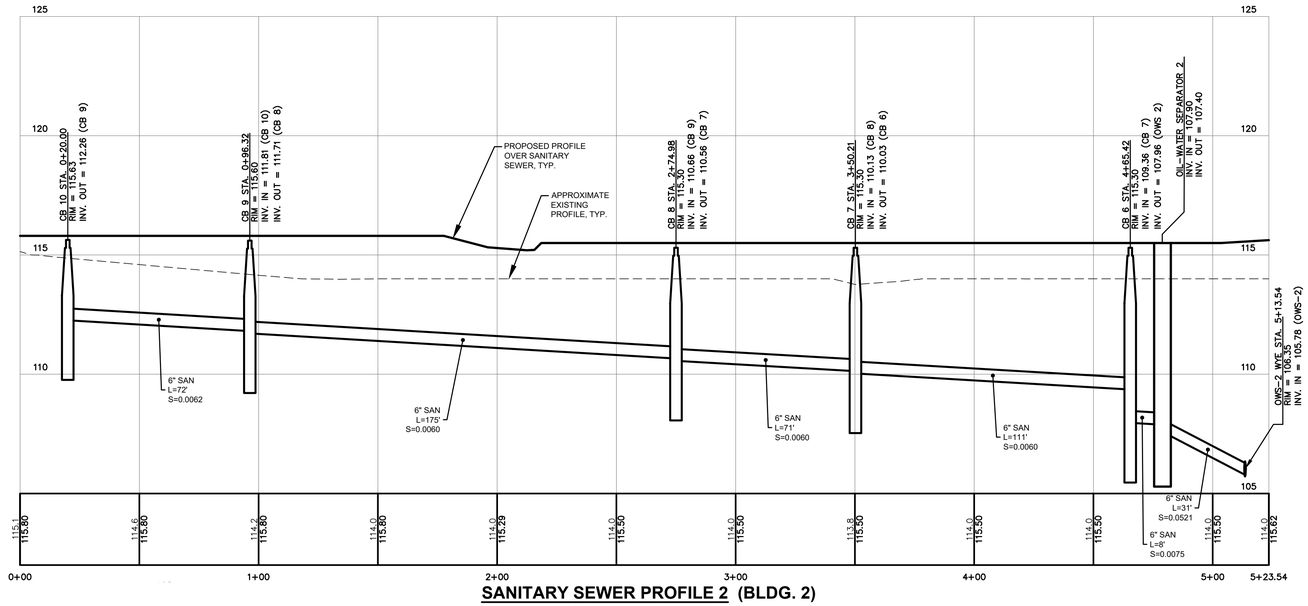

SANITARY SEWER PROFILE 2 (BLDG. 2)

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HEBERT
CONSTRUCTION

Construction Management Plan

Hebert Construction – Steven's Square, Portland, ME

Construction Management Plans shall depict the overall planning, coordination, and control of a construction site, including phases as applicable, from beginning to completion. The City's goal for a construction management plan is to support a safe construction site and protect the public safety, accessibility (including preserving accessible pedestrian, bicycle, and vehicular modes of transport throughout the city), and welfare during construction. In addition, the construction management plan shall minimize construction impacts in their duration and magnitude to the surrounding area and develop an effective communication process for resolving concerns and conflicts.

A. Construction Management Principles

The following narrative provides an overview of the construction management principles that Hebert Construction has identified to minimize impacts from the construction, such as noise, vibrations, ground movement, truck traffic, and other construction related factors to the surrounding building and communities.

B. Development Review of Construction Management Plan

Hebert Construction shall submit a construction management plan that provides a comprehensive Logistics and safety program for the construction project, which will be reviewed and approved as part of the site plan review process. Minimizing impacts to areas surrounding the building/construction site will be primary considerations in the process.

Planning authority in the department of public works have the right to seek revisions to an approved construction management plan or require a condition of approval that states an applicant shall coordinate a project construction schedule is the timing of nearby construction activities, in order to avoid cumulative impact on a neighborhood. Such a condition may involve a delay in the commencement of construction, if necessary.

The following details define the intended approach to a successful management of the project construction and the construction management plan will address the general conditions contained below

C. Performance guarantees, inspection fees, preconstruction meeting, and permits

1. **Street Opening and Street Occupancy Permits:**
   - **a.** (site contractor) has marked out for digsafe and contacted the city to schedule the work associated with the street opening for the utility work required to supply the new building.
   - **b.** All street work will be performed in accordance with the city of Portland requirements for patching and repairing pavement.
   - **c.** All work within this project occurs within the limits of private property and therefore public utilities have already been stubbed into the site limiting or eliminating the need to access public ROW.
2. **Blasting:**

   a. **None required**
3. **Building Code:**
   a. Hebert Construction will employ the best practices, as applicable, of Chapter 33 Safeguards During Construction, from IBC 2009.

D. Construction Administration and Communication

1. 24 Hour Contacts
   - Site Supervisors: Jared Deschene – 207-740-8985
   - Project Manager: Peter Waring – 781-710-6146
   - Project Executive: Timothy Hebert – 207-212-2176
2. Construction Signage posted on the site with Contact Information for Contractor will be posted on the site security fencing along with the safety information upon project start.
3. Communication strategies
   - Hebert Construction will be corresponding with the owner's project manager, Michael Lyne. Michael will be responsible for communications to the surrounding owners and tenants.
   - Hebert Construction will provide a communication board on our site fencing that will be updated from time to time to provide the neighborhood with a general sense of what will be happening on the site if it has anything to do with noise or major deliveries from construction vehicular traffic.
4. All construction site signage is temporary and shall be removed at project completion.

E. Construction Schedule

1. Construction Schedule Timeline
   a. Preconstruction (City Permitting) Meeting: TBD prior to 4/1/2022
   b. Anticipated Start Date: 4/15/2022
   c. *All other specific dates are provided in our comprehensive construction management project schedule which will be provided prior to construction start and updated on a weekly basis.*

2. Hours of Construction. Construction may occur during the daytime hours as defined in Section 17-18. Construction Activities for Building permit (Attachment 1) and Section 25-129. Noise, dust and debris (Attachment 2).
   a. Typical hours of operation for the job site will be 7:00am – 5:00pm. From time to time there will be off hours work to maintain schedule or due to items like utility work. This work is intended to be minimal throughout the project.

3. Extended Hours or Night Work: Pursuant to Section 17-18, this section not apply to emergency utility work or "Situations where the public works authority or the office of building inspections determines that the construction activity is of a unique character which cannot reasonably be completed or performed during the permitted hours and which is not of a recurring nature, provided that prior to engaging in such activity the contractor or his representatives gives notice of the time and scope of such proposed activity, the notice to be given in a manner approved by the public works authority."

4. Material Deliveries: Schedule and designated location for delivery of materials and boxed goods.

    a. Material deliveries will be scheduled always through Hebert Construction. Trucks will be directed onsite through the security fencing and to the job trailer. The site will have designated storage container for delivered materials or be brought up into the building immediately.

F. Security & Public Safety

1. The Construction Management Plan will depict all proposed fencing or other barriers and access gates (with knox locking devices) with the intent of separating pedestrian and vehicle circulation from the construction site. *See attached site security and staging plan for details.*
2. Structures undergoing construction, alteration, or demolition operations, including those in underground locations, shall comply with NFPA 1 Chapter 16. *Safeguarding Construction, Alteration, and Demolition Operations.*
3. Fire Safety Program. An overall construction of demolition fire safety program shall be developed. Essential items to be emphasized include the following:
    - Good Housekeeping
    - On-site security
    - Installation of new fire protection systems as construction progresses
    - Preservation of existing systems during demolition
    - Organization and training of an on-site fire brigade
    - Development of a pre-fire plan with the local fire department
    - Rapid communication
    - Consideration of special hazards resulting from previous occupancies
    - Protection of existing structures and equipment from exposure fires resulting from construction, alteration, and demolition operations
4. Blasting, if required, shall conform with all measures of Article VIII. Regulation of Explosives in the Land Use Code and Section 3.7 Standards for Blasting and Regulation of Explosives in Portland's Technical Manual.
5. Any proposed temporary security lighting shall be shown on CMP and all fixtures shall be full cutoffs.

G. Construction Permitting and Traffic Control Plans

1. Construction Activity in Public Streets: Construction activity in the public right-of-way is controlled by Chapter 25 Article VII of the City Code of Ordinances. Required licenses and permits, restrictions on activity, and fees & area are outlined in that Chapter. Rules and Regulations for Excavation Activity are available through the Street Opening Clerk at the Department of Public Works. At no time can construction activity including delivery vehicles close or block streets or affect public safety access without prior notice and approval of the Department of Public Works.
2. Sewer and Stormwater: Sewer and stormwater water system connections are controlled by Chapters 24 and 32 of the City Code of Ordinance. Required permits for new connections and/or abandonment of existing connections are available through the Street Opening Clerk at the Department of Public Works. Rules and Regulations for

these utility systems are available through the City Engineer's office of the Department of Public Works and in Section II of the Technical Manual.

3. Traffic Control Plans: Construction activity that impacts the existing public street system must be controlled to protect the safety of the construction workers and all modes of the traveling public. Projects are required to submit a satisfactory 'maintenance of traffic" (MOT) plan prior to any site plan, subdivision, or street opening permit approval. MOT plans may be required for projects that have impacts on local streets.

   Maintenance of Traffic (MOT) plans shall provide for the safe passage of the public through or along the construction work zone. On a case-by-case basis, applicants may be allowed to close a street and/or detour a mode of traffic when absolutely necessary for safety. MOT plans shall employ the appropriate techniques and devices as called for n the latest edition of the Manual on Uniform Traffic Control Devices (MUTCD). In addition:

   - Construction speed signing may be used as needed to slow traffic
   - Traffic Control signs shall not be placed where they are an obstruction to bicycles or pedestrians.
   - In some situations, flaggers may be required.
   - Police details may be required at lighted intersections and may be requested by the City's transportation engineer or his designee.

   All existing modes of travel in work zone area shall be accommodated if impacted by the activity. The safe passage of pedestrians, bicyclists, transit providers, and motorists are of equal importance when planning out the work zone; no pre-existing travel mode may be eliminated without the express approval of the Department of Public Works. The MOT should also address on-street parking impacts, including deliveries and parking for adjoining businesses and property owners, analysis of roadway capacity or diversion capacity if street closure or change to roadway capacity is required, and coordination with other on-going or future construction or utility projects in the vicinity.

   - Traffic control of bicycle and pedestrian facilities or routes through work zones shall be maintained until the bicycle and pedestrian facilities or routes are ready for safe operation. Traffic control will not be removed to allow auto travel at the expense of bicycle and pedestrians.
   - Barrier systems utilized to separate the construction activity from the public street and /or sidewalk shall not inhibit sight distances, particularly for visibility of pedestrians and bicyclists.
   - ADA compliance shall be maintained.
   - Maintain 16' clear in roadway between fencing or any barricades to permit the passage of fire trucks and other emergency vehicles.

   Use of public parking spaces or the blockage of any portion of sidewalk for the purpose of construction activity shall require an occupancy permit and appropriate fee as assessed by the Department of Public Works.

H. Site Management and Controls

The final Construction Management Plan will address maintaining the site in a safe condition and will include the following:

1. Regular trash and debris removal
    - **i.** The site will be supplied at all times with a 30yd dumpster for debris. All materials will be removed from the building to provide a safe working environment and the dumpster will be maintained throughout the life of the project.
2. Street cleaning and damage controls
    - **i.** Maintain broom clean site throughout. No F.O.D will be allowed outside the construction site and all fencing and surrounding areas of the site will be checked and cleaned daily.
3. Dust controls- The construction shall comply with Portland's requirements under Section 25-129 on Noise, dust and debris (Attachment 2).
    - **i.** In order to control dust in the neighborhood, Hebert Construction's plan is to perform the Sitework and bring the parking lot grade up to binder pavement prior to the start of vertical construction. By doing so we will provide for a cleaner safer site to work within as well as maintaining dust control throughout the project.
    - **ii.** Hebert Construction's policy is to maintain sweeping compound onsite to mitigate dust generation during sweeping and cleaning of the job site.
    - **iii.** Additionally, Hebert Construction plans to bring all sitework up to pavement binder prior to starting vertical construction to provide a clean and manageable site.
4. Noise: The construction shall comply with Portland's requirements under Section 17-18 of the City Code (Attachment 1) and Section 25-129 on Noise, dust and debris Attachment 2).
5. Rodent Control will be provided, if applicable, by a professional exterminator and consistent with Chapter 22 of the City Code.
6. Snow Removal: Pursuant to Section 25-173 Contractors to ensure a safe means of travel within the work zone.
    1) Snow/ice removal or commence automatically from (1" of snow and up) or Ice
    2) Remove snow as needed within the work zone, including parking spaces & not to block any driveways or sight lines with the piles of snow.
    3) Clear all walks & ramps with the work zone
    4) Sand or Salt as needed
    5) Clear all basin or drainage to help snow melt
    6) This would include Monday-Friday Sat/Sunday/Holidays

I. Erosion Control and Preservation of Trees

1. Hebert Construction shall install all erosion and sedimentation controls as depicted on the approved erosion and sedimentation control plan prior to the pre-construction meeting for inspection by the City. The contractor shall regularly inspect the control measures, no less than weekly and after significant storm events, and maintain any installed temporary or permanent stormwater management systems in working order. The contractor shall document all inspection activities and corrective actions and be

prepared to provide these documents for inspection by the City, Maine Department of Environmental Protection or the U.S. Environmental Protection Agency upon request.

2. Hebert Construction shall maintain all tree and landscaping preservation measures as depicted on the landscaping plan (Exhibit) within the area of construction.
3. The storage of materials shall be identified and avoid being located under/near trees.

J. Construction Staging Area

1. The Construction Management Plan shows the area in Lot 5 that shall be our primary staging area for materials and deliveries.
2. Delivery Truck Holding Areas On-Site: Lot 5 shall provide access for delivery trucks to hold until they can be unloaded. A delivery schedule is maintained by the Project Manager and scheduled deliveries are coordinated with the site.
3. Delivery Truck Holding Areas Off-Site: In the event that adequate on-site area for holding of trucks is not available, an off-site marshalling area will be utilized for trucking. The designated off-site location will be identified in the construction management plan.

K. Parking During Construction

1. Construction Parking: Parking for construction vehicles shall be done onsite in lot 5.
2. Parking: Parking for construction vehicles shall not impact the current surrounding businesses or residences.
3. Truck Routes and Volumes: The Construction Management Plan address the primary entrances and egress from vehicular traffic on site.

L. Dewatering Plan

1. See attached Dewatering site plan for details and locations.
2. Emergency Contact: Jared Deschane – 207-740-8985
3. Ground water was not observed during test pits performed earlier this year in preparation for the work and investigation of the soils.
4. In the event ground water is present a sump pit will be established of which the size will be determined based on the water present. Size will allow for proper sedimentation of soils out of water to be pumped.
5. All water removed from the site via the sump will be in accordance with DEP standards for removal of storm and ground water.
    - **i.** The sump shall be made of crushed stone and hold a submersible perforated structure (a bucket or similar perforated device shall be used if approved). Water will be allowed to settle and be pumped by use of a submersible float water pump.
6. Storm water will be pumped up to nearest CB onsite. The water will flow through a primary filter media (sand bags or another filter bladder bag for end of hose discharges) and then into the CB which will be covered with a silt sack.
7. Overnight and unattended pumping: overnight pumping is not expected and will not take place without prior approval by the City of Portland. During normal hours of construction all pumping will require a competent person to monitor throughout the process and maintain all pumping measures. The competent person shall have the ability to shut down pumping if safety provisions are compromised.
8. Catch basin will be inspected regularly to ensure proper filtration is being maintained.

9. Wet Weather Conditions: During wet weather conditions the City of Portland prohibits the discharging of water from the site. Exception to this rule; the catch basin pumping into is connected to a new storm drain and not the combined, sewer/water system. In addition, this provision requires approval by the City of Portland along with engineered drawings proving the connection.

M. Special Measures as Necessary

1. None

SPACE AND BULK STANDARDS
(SEE PORTLAND ZONING CODE CHAP. 14 8/15/13)

ZONING ANALYSIS TABLE RESIDENTIAL – MULTIPLEX (PRUD)				
STANDARD	**R-5**	**R-5A**	**LOT 4 Building 1 (20 DU)**	**LOT 5 Buildings 2-5 (140 DU)**
Lot Area (min)	2 AC	2 AC	2.00 AC	7.05 AC
Net Land Area per Dwelling Unit (min.)	NA-RECODE ONLY	NA-RECODE ONLY	4,356 SF	2,194 SF
Units per Building (max.)	NA-RECODE ONLY	NA-RECODE ONLY	NA	NA
Lot Area per Multiplex Unit	NA-RECODE ONLY	NA-RECODE ONLY	NA	NA
Street Frontage (min)	50'	50'	140'	84.5'
Lot Width (min)	90'	60'	140'	525'
Front Setback (min)	20'	25'	196'	80'
Rear Setback (min)	20'	25'	58'	107'
Side Setback (min) >2.5 stories	14'	16'	78'	18'
Structure Height	35'	55'	43'-3"	55'
Stepbacks	NA	NA	NA	NA
Building Length	NA	NA	NA	NA
Lot Coverage (max.)	40%	30%	17%	20%
Building Setback from External Subdivision Property Lines (min). >100'	35'	35'	84'	96'
Common Recreation Open Space Area (min.)	300 SF/DU (PRUD)(2.) 6,300 SF	200 SF/DU (PRUD) 4,200 SF	4,000 SF	28,000 SF
Total Off street Parking Spaces (140 DU/SP)	2 Spaces/DU	2 Spaces/DU	42 Spaces	260 Spaces
Loading Bays	NA	NA	NA	NA
Pavement Setback	NA	NA	NA	NA
Floor Area Ratio	NA	NA	NA	NA

PLAN REFERENCES:

1. "FIRST AMENDED OVERALL SUBDIVISION PLAN, 605 STEVENS AVENUE", MADE FOR SEA COAST AT BAXTER WOODS ASSOCIATES, LLC, PREPARED BY TITCOMB ASSOCIATES, APPROVED MAY 3, 2017 AND RECORDED IN C.C.R.D. BOOK 217, PAGE 151 ON MAY 4, 2017.
2. "FORMER MAINE GIRLS ACADEMY PLOT PLAN", PREPARED FOR DC BAXTER WOODS II LLC, BY GORRILL PALMER CONSULTING ENGINEERS, INC., APPROVED BY CITY OF PORTLAND ON APRIL 2, 2021.
3. "STEVENS SQUARE (BUILDING-1), 583 STEVENS AVENUE, PORTLAND, MAINE, LEVEL III SITE + SUBDIVISION PLAN", PREPARED BY CARROLL ASSOCIATES, ISSUED FOR CONSTRUCTION 9-13-2019.
4. "MOTHERHOUSE PHASE 2 - BUILDING 1", RECORD PLANS DATED 04-04-2019, FOR MOTHERHOUSE ASSOCIATES LP, BY STANTEC.
5. "PLAN OF PROPERTY & EXISTING CONDITIONS, CATHERINE MCAULEY HIGH SCHOOL & ST. JOSEPH'S CONVENT, STEVENS AVENUE & WALTON STREET, PORTLAND, MAINE", MADE FOR 605 STEVENS AVENUE SENIOR APARTMENTS - JOB #202096.1, DATED 09.26.06, BY TITCOMB ASSOCIATES.

NOTES:

1. THE 2016 MASTER DEVELOPMENT PLAN CONFERRED PENDING PROCEEDING STATUS UPON SUBSEQUENT PHASES OF THE PROJECT; THEREFORE, THE DEVELOPMENT IS SUBJECT TO THE LEGACY LAND USE CODE (LAST REV. 8.15.13) THAT WAS IN EFFECT AT THAT TIME, IN LIEU OF THE CURRENT CODE, WITH ALL CODE CITATIONS MADE ACCORDINGLY.
2. ALL UNITS WILL BE RESTRICTED TO RESIDENTS 55+ IN AGE.

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES & SHALL NOT BE USED FOR CONSTRUCTION.

STATE OF MAINE — STEPHEN R. BUSHEY — 12.07.21 — LICENSED PROFESSIONAL ENGINEER

STEPHEN R. BUSHEY, P.E.
LIC. #7429

GRAPHIC SCALE
0 25 50 100
1 inch = 50 ft.

NORTH

Construction traffic path

Construction fencing

Rev.	Date	Revision
2	2021.12.07	RESUBMITTED PER LOR #1 FOR FINAL REVIEW
1	2021.05.12	SUBMITTED TO CITY FOR REVIEW

Design: SRB	Draft: CDD	Date: MAY 2021
Checked: SRB	Scale: AS NOTED	Job No.: 3564.03
File Name: 356403–SITE.dwg		

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207.772.2515

Drawing Name: OVERALL SITE LAYOUT PLAN

Project: **Stevens Square at Baxter Woods – Phase 2–4**
583 Stevens Avenue, Portland, Maine

Client/Owner: **DC BAXTER WOODS IV LLC**
631 STEVENS AVE., SUITE 203, PORTLAND, ME 04103 PH. 207.772.7673

Drawing No. C-3.0

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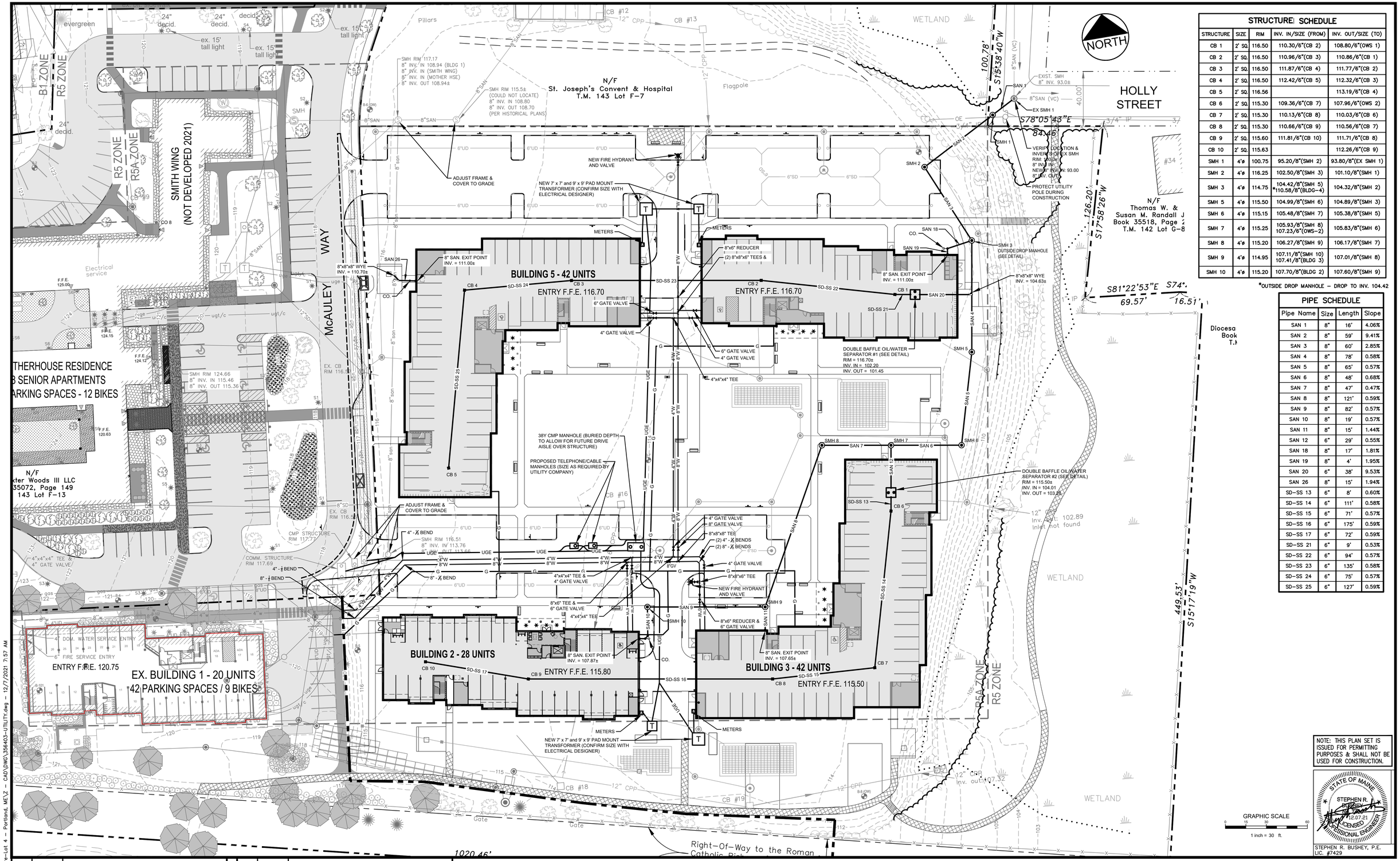

STRUCTURE SCHEDULE

STRUCTURE	SIZE	RIM	INV. IN/SIZE (FROM)	INV. OUT/SIZE (TO)
CB 1	2' SQ.	116.50	110.30/6"(CB 2)	108.80/6"(OWS 1)
CB 2	2' SQ.	116.50	110.96/6"(CB 3)	110.86/6"(CB 1)
CB 3	2' SQ.	116.50	111.87/6"(CB 4)	111.77/6"(CB 2)
CB 4	2' SQ.	116.50	112.42/6"(CB 5)	112.32/6"(CB 3)
CB 5	2' SQ.	116.56		113.19/6"(CB 4)
CB 6	2' SQ.	115.30	109.36/6"(CB 7)	107.96/6"(OWS 2)
CB 7	2' SQ.	115.30	110.13/6"(CB 8)	110.03/6"(CB 6)
CB 8	2' SQ.	115.30	110.66/6"(CB 9)	110.56/6"(CB 7)
CB 9	2' SQ.	115.60	111.81/6"(CB 10)	111.71/6"(CB 8)
CB 10	2' SQ.	115.63		112.26/6"(CB 9)
SMH 1	4'ø	100.75	95.20/8"(SMH 2)	93.80/8"(EX SMH 1)
SMH 2	4'ø	116.25	102.50/8"(SMH 3)	101.10/8"(SMH 1)
SMH 3	4'ø	114.75	104.42/8"(SMH 5) *110.58/8"(BLDG-4)	104.32/8"(SMH 2)
SMH 5	4'ø	115.50	104.99/8"(SMH 6)	104.89/8"(SMH 3)
SMH 6	4'ø	115.15	105.48/8"(SMH 7)	105.38/8"(SMH 5)
SMH 7	4'ø	115.25	105.93/8"(SMH 8) 107.23/6"(OWS-2)	105.83/8"(SMH 6)
SMH 8	4'ø	115.20	106.27/8"(SMH 9)	106.17/8"(SMH 7)
SMH 9	4'ø	114.95	107.11/8"(SMH 10) 107.41/8"(BLDG 3)	107.01/8"(SMH 8)
SMH 10	4'ø	115.20	107.70/8"(BLDG 2)	107.60/8"(SMH 9)

*OUTSIDE DROP MANHOLE – DROP TO INV. 104.42

PIPE SCHEDULE

Pipe Name	Size	Length	Slope
SAN 1	8"	16'	4.06%
SAN 2	8"	59'	9.41%
SAN 3	8"	60'	2.85%
SAN 4	8"	78'	0.58%
SAN 5	8"	65'	0.57%
SAN 6	8"	48'	0.68%
SAN 7	8"	47'	0.47%
SAN 8	8"	121'	0.59%
SAN 9	8"	82'	0.57%
SAN 10	8"	19'	0.57%
SAN 11	8"	15'	1.44%
SAN 12	6"	29'	0.55%
SAN 18	8"	17'	1.81%
SAN 19	8"	4'	1.95%
SAN 20	6"	38'	9.53%
SAN 26	8"	15'	1.94%
SD-SS 13	6"	8'	0.60%
SD-SS 14	6"	111'	0.58%
SD-SS 15	6"	71'	0.57%
SD-SS 16	6"	175'	0.59%
SD-SS 17	6"	72'	0.59%
SD-SS 21	6"	9'	0.53%
SD-SS 22	6"	94'	0.57%
SD-SS 23	6"	135'	0.58%
SD-SS 24	6"	75'	0.57%
SD-SS 25	6"	127'	0.59%

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES & SHALL NOT BE USED FOR CONSTRUCTION.

GRAPHIC SCALE
0 15 30 60
1 inch = 30 ft.

STATE OF MAINE
STEPHEN R. BUSHEY
12.07.21
LICENSED
PROFESSIONAL ENGINEER

STEPHEN R. BUSHEY, P.E.
LIC. #7429

Rev.	Date	Revision

Rev.	Date	Revision
2	2021.12.07	RESUBMITTED PER LOR #1 FOR FINAL REVIEW
1	2021.05.12	SUBMITTED TO CITY FOR REVIEW

Design: SRB	Draft: CDD	Date: MAY 2021
Checked: SRB	Scale: AS NOTED	Job No.: 3564.03
File Name: 356403-UTILITY.dwg		

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Drawing Name: UTILITY PLAN

Project: **Stevens Square at Baxter Woods – Phase 2-4**
583 Stevens Avenue, Portland, Maine

Client/Owner: **DC BAXTER WOODS IV LLC**
631 STEVENS AVE., SUITE 203, PORTLAND, ME 04103 PH. 207.772.7673

Drawing No. C-5.0

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Site Management & Control Plan

ACCESS ROUTE

Stabilized Construction Entrance @ entrance off pavement

EXISTING STORM DRAIN TO REMAIN IN PLACE DURING THIS PHASE

APPROXIMATE CONSTRUCTION FENCING LOCATION

Construction Fencing

PROTECT SUBSURFACE PORTION OF INFILTRATION TRENCH. SURFACE COVER TO BE ALTERED AS SHOWN

BUILDING #2
TEMPORARY CONSTRUCTION
LAYDOWN/STAGING AREA

STABILIZED CONSTRUCTION ENTRANCE

Dumpsters

Construction Field Office

TIE 4" FOUNDATION DRAIN INTO OCS 21

Storage Containers

RESTORE FIELD SURFACE TO EXISTING CONDITIONS FOLLOWING ALL SWM/PIPE/STRUCTURE INSTALLATION

BUILDING #2
TEMPORARY CONSTRUCTION
LAYDOWN/STAGING AREA

SEE SHEETS C-7.0 THROUGH C-7.5 FOR FURTHER INFORMATION ON STORMWATER / WATER QUALITY MANAGEMENT SYSTEMS / AREAS, TYP.

TEST PIT

OUTFALL 1
INV. OUT=103.45

EXISTING RIPRAP OUTLET APRON TO REMAIN (RE-ESTABLISH / RESET RIPRAP AS NECESSARY)

12" CPP
Inv. out: 102.89
Inlet not found

WETLAND

BUILDING 2 - 28 UNITS

ENTRY F.F.E. 115.80

GRADE BREAK AT OH DOOR OPENING, TYP.

20' FIRE LANE

GENSET

- 20 UNITS
CES / 9 BIKES

3:1 SLOPE

2.5:1 SLOPE

TEMPORARY CATCH BASIN SEDIMENT BARRIER, TYP.

RIPRAP OUTLET APRON

THE GARDENS

EXISTING UNDERGROUND CHAMBER SYSTEM, TYP.

CORE EXISTING STRUCTURE TO ACCEPT NEW 10" & 15" SD PIPES

SILT FENCE

OUTFALL 2
INV. OUT = 107.44

EXISTING RIPRAP OUTLET APRON TO REMAIN (RE-ESTABLISH / RESET RIPRAP AS NECESSARY)

12" CPP
Inv. out: 107.32

WETLAND

Erosion control measures will consist of:
1. DEP mulch berm around perimeter of site near construction security fencing.
2. Silt sacks on all CB's within proximity of the site and within the site itself
3. de-watering plan to be consistent with the written CM plan herein.
4. preliminary grading and storm drainage will be a priority for the project upon completion of excavation for foundations. All disturbed areas shall be surrounded by erosion control berm within the site and/or have a DEP approved ground cover applied so as to prevent sedimentation
and erosion into storm drainage and adjacent wetlands.

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES & SHALL NOT BE USED FOR CONSTRUCTION.

STATE OF MAINE
STEPHEN R. BUSHEY
12.07.21
LICENSED
PROFESSIONAL ENGINEER
STEPHEN R. BUSHEY, P.E.
LIC. #7429

NORTH

GRAPHIC SCALE
0 10 20 40
1 inch = 20 ft.

Rev.	Date	Revision

Rev.	Date	Revision
2	2021.12.07	RESUBMITTED PER LOR #1 FOR FINAL REVIEW
1	2021.05.12	SUBMITTED TO CITY FOR REVIEW

Design: SRB	Draft: CDD	Date: MAY 2021
Checked: SRB	Scale: AS NOTED	Job No.: 3564.03
File Name: 356403-GRADING-BLDG 2.dwg		

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Drawing Name: GRADING & DRAINAGE PLAN - BUILDING 2

Project: **Stevens Square at Baxter Woods – Phase 2–4 (BLDG 2)**
583 Stevens Avenue, Portland, Maine

Client/Owner: **DC BAXTER WOODS IV LLC**
631 STEVENS AVE., SUITE 203, PORTLAND, ME 04103 PH. 207.772.7673

Drawing No. C-4.3

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GENERAL NOTES- SITE ELECTRICAL

1. THE COMPLETE INSTALLATION SHALL CONFORM WITH ALL APPLICABLE FEDERAL, STATE AND LOCAL LAWS, CODES AND ORDINANCES, INCLUDED BUT NOT LIMITED TO APPROVED EDITIONS OF THE FOLLOWING: NATIONAL ELECTRICAL SAFETY CODE (ANSI C2): NATIONAL ELECTRICAL CODE (NFPA 70): OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA) AND ALL AMENDMENTS THERETO. NOTHING CONTAINED IN THE DRAWINGS AND SPECIFICATIONS SHALL BE CONSTRUED TO CONFLICT WITH THESE LAWS, CODES, AND ORDINANCES, AND THEY ARE THEREBY INCLUDED IN THESE SPECIFICATIONS. OBTAIN PERMITS AND REQUEST INSPECTIONS FROM ALL AUTHORITIES HAVING JURISDICTION. COMPLY WITH ALL POWER, TELEPHONE, CABLE TELEVISION PROVIDER REGULATIONS AND STANDARDS.

2. THE FOLLOWING ELECTRICAL WORK SHALL BE PERFORMED UNDER THIS CONTRACT: UNDERGROUND CONDUIT, FITTINGS, AND ALL DEVICES: PROVISION OF HAND HOLES, NEW LIGHTING FIXTURES, POLES WITH ALL ACCESSORIES INCLUDING ANCHOR BOLTS AND POLE BASES: PROVISION OF UNDERGROUND CONDUIT AND WIRE TO SERVE NEW LIGHTING EQUIPMENT AND RECEPTACLES: PROVISION OF SERVICE EQUIPMENT, INCLUDING OUTDOOR CABINETS, INGROUND SPLICE BOXES, GROUNDING, METER ENCLOSURES, AND WEATHERPROOF RECEPTACLES.

3. ELECTRICAL UTILITY SHALL PROVIDE ALL ASSOCIATED OVERHEAD AND UNDERGROUND PRIMARY WIRING, PRIMARY TERMINATIONS, TRANSFORMERS, AND CONNECTIONS TO EXISTING OVERHEAD LINES. CONTRACTOR SHALL PROVIDE UNDERGROUND CONDUIT.

4. PROVIDE UNDERGROUND ELECTRICAL WARNING TAPE: 6" WIDE PLASTIC TAPE, COLORED RED WITH SUITABLE LEGEND DESCRIBING BURIED ELECTRICAL LINES FOR ALL UNDERGROUND CONDUITS. LOCATE 6 INCHES BELOW FINISHED GRADE.

5. REFER TO CIVIL DRAWINGS FOR EXCAVATION AND BACKFILL OF ALL UNDERGROUND WORK.

6. EXISTING UTILITY LOCATIONS ARE APPROXIMATE AND SHALL BE FIELD VERIFIED. CONTRACTORS SHALL CONTACT DIG SAFE BEFORE BEGINNING ANY EXCAVATIONS.

7. FINAL LOCATION OF NEW UTILITIES MAY VARY FROM PLANS PENDING UTILITY COMPANY FIELD COORDINATION.

8. THE LOCAL TELEPHONE AND CABLE TELEVISION SERVICE PROVIDERS SHALL PROVIDE AND INSTALL ALL THE SITE UTILITY SERVICE CABLE TO NEW BACKBOARD IN THE CONDUITS PROVIDED BY THE CONTRACTOR AS PART OF THE SITE WORK.

9. UNDERGROUND CONDUIT SHALL BE SCHED 40 PVC. ABOVE GRADE CONDUIT SHALL BE RGS. ALL CONDUIT SWEEPS SHALL BE RGS LONG SWEEPS.

10. PROVIDE EXPANSION FITTINGS FOR ALL UNDERGROUND CONDUIT CONNECTED TO FIXED ABOVE GROUND STRUCTURES.

11. PROVIDE A LISTED INTERSYSTEM BONDING TERMINAL AT THE SERVICE ENTRANCE. INSTALL IN ACCORDANCE WITH NFPA 70,250.94

LEGEND

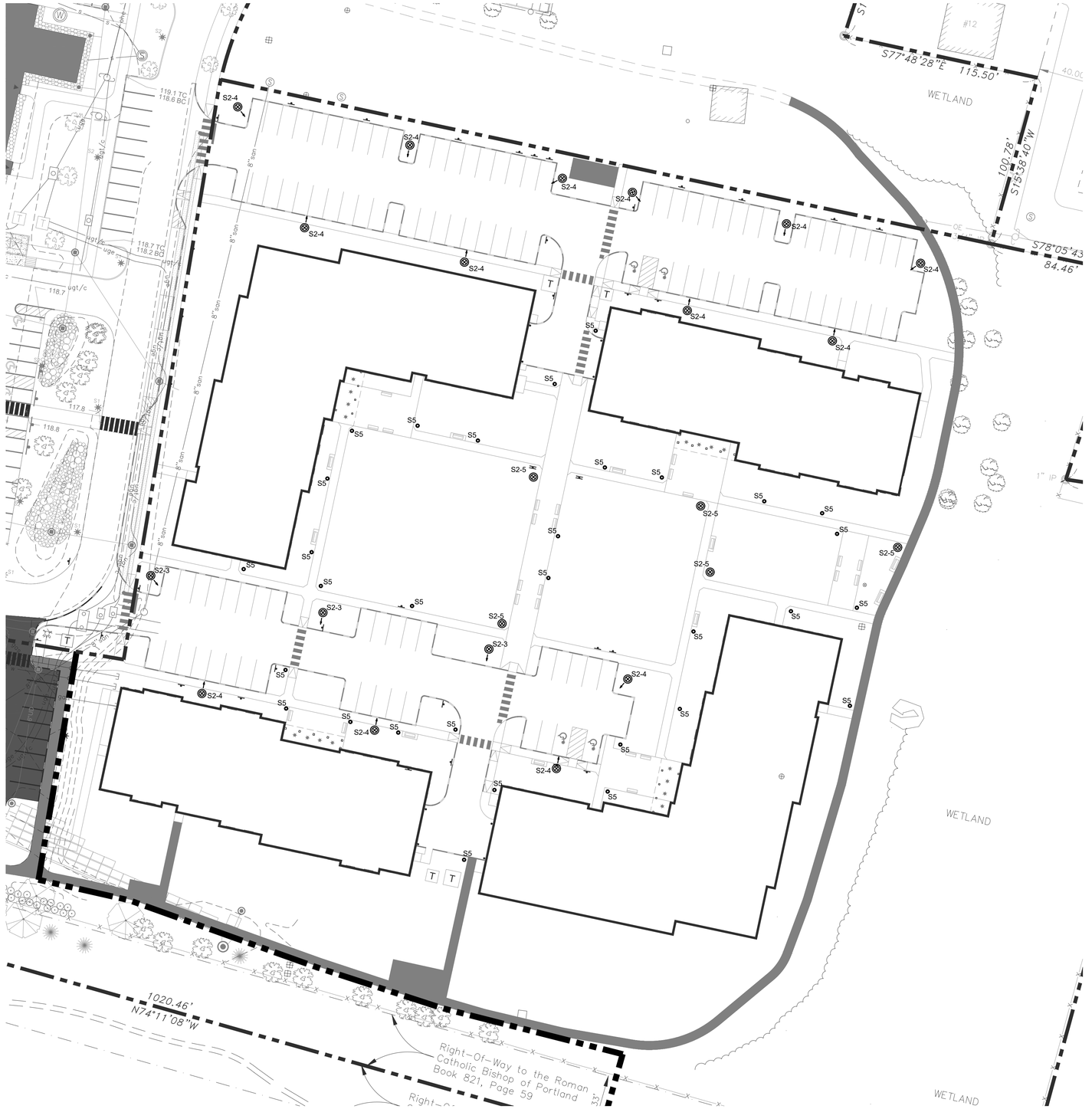
S5 ○
U.S ARCHITECTURAL LIGHTING
3000K 28W
BRA6-LED-IL-24LED(350MA)-WW-120-GI-RAL9005T-36IN OAH

S2-3 ⊗
SUN VALLEY LIGHTING
3000K 55W 3731-4187 LUMENS
MOZ20LED-VLED-III-48LED-350MA-WW-120-PT-RAL9005T
POLE:
US ARCHITECTURAL LIGHTING
RNTA144-125PT27RAL9005S (14' POLE)

S2-4 ⊗
SUN VALLEY LIGHTING
3000K 55W 3731-4187 LUMENS
MOZ20LED-VLED-IV-48LED-350MA-WW-120-PT-RAL9005T
POLE:
US ARCHITECTURAL LIGHTING
RNTA144-125-PT27-RAL9005S (14' POLE)

S2-5 ⊗
SUN VALLEY LIGHTING
3000K 55W 3731-4187 LUMENS
MOZ20LED-VLED-V-SQ-48LED-350MA-WW-120-PT-RAL9005T
POLE:
US ARCHITECTURAL LIGHTING
RNTA124-125PT27RAL9005S (12' POLE)

FIXTURE TYPES ARE FULL CUTOFF, DO NOT EXCEED LUMEN OUTPUT MAXIMUMS AND FIXTURE HEIGHT REQUIREMENTS OF CITY OF PORTLAND TECHNICAL MANUAL



1 / E1.0 STEVEN'S SQUARE SITE LIGHTING
SCALE: 1/32" = 1'-0"

STATE OF MAINE · STEVEN M. JOHNSON #8488 · LICENSED PROFESSIONAL ENGINEER

BENNETT ENGINEERING
MECHANICAL • ELECTRICAL
(207) 865-9475

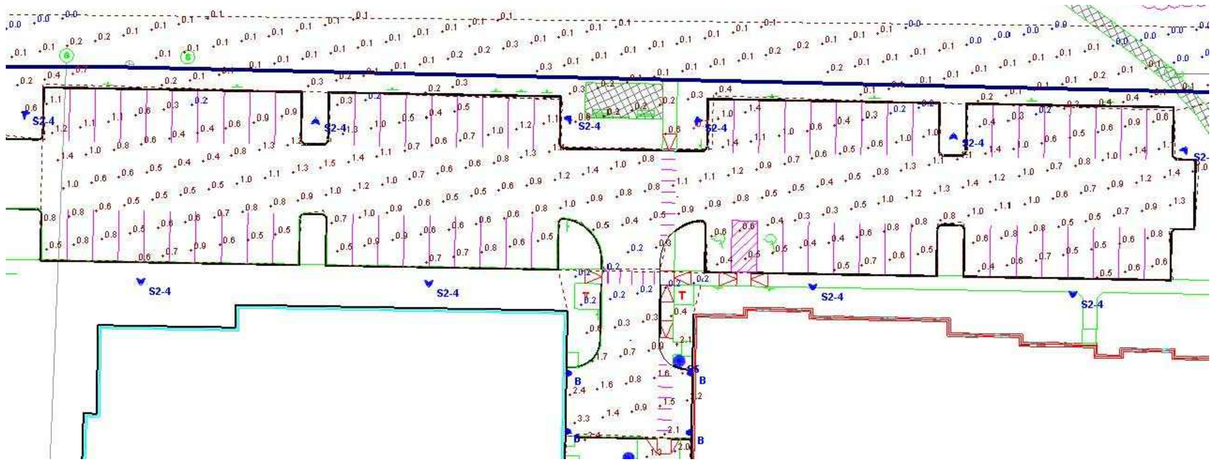
STEVEN'S SQUARE AT BAXTER WOODS - PHASE 2
583 STEVENS AVENUE, PORTLAND MAINE

Date Drawn -	11/22/21
Drawn By -	MJM
Project *	
Scale -	AS NOTED
Revised - 2022.01.12 PHOTOMETRIC UPDATES	

SHEET TITLE

SITE LIGHTING PLAN

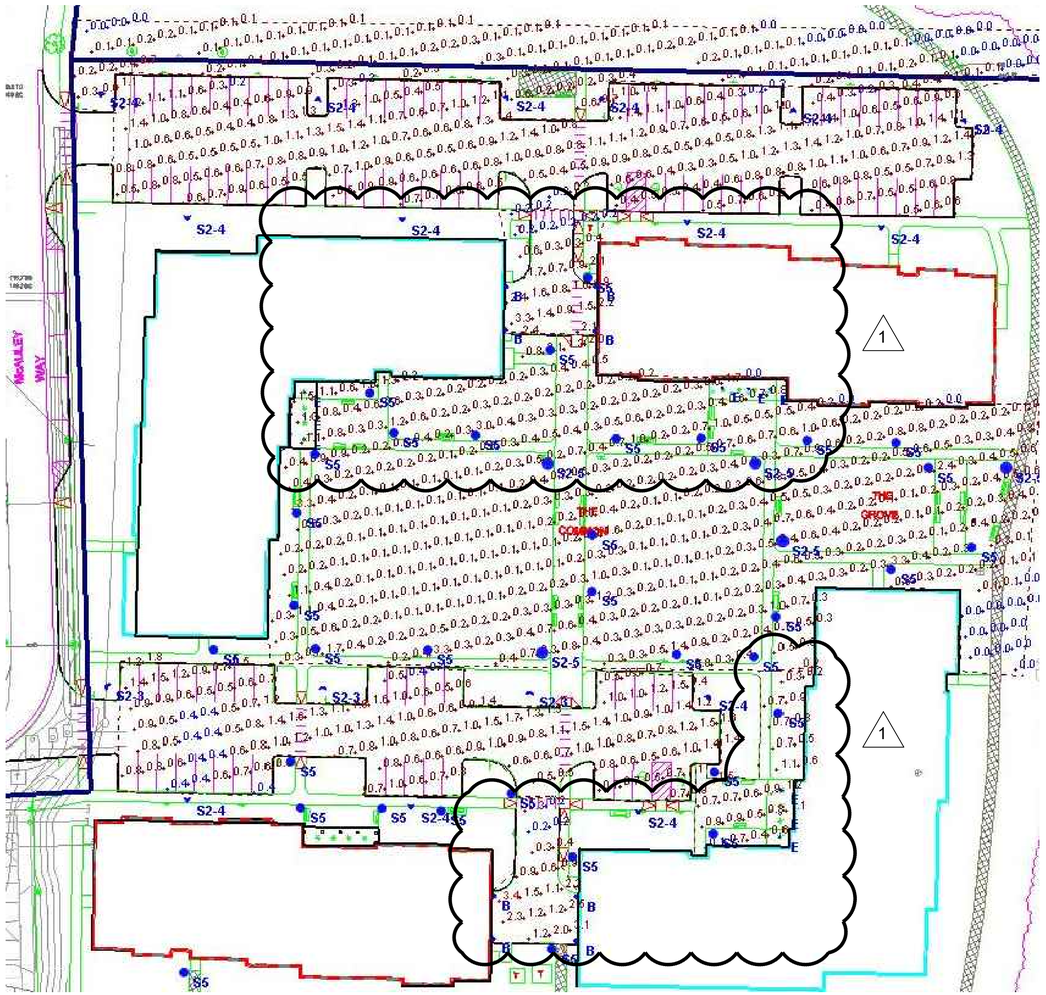
E1.0



1
E1.1

STEVEN'S SQUARE UPPER PARKING PHOTOMETRICS

SCALE: 1/32" = 1'-0"



2
E1.1

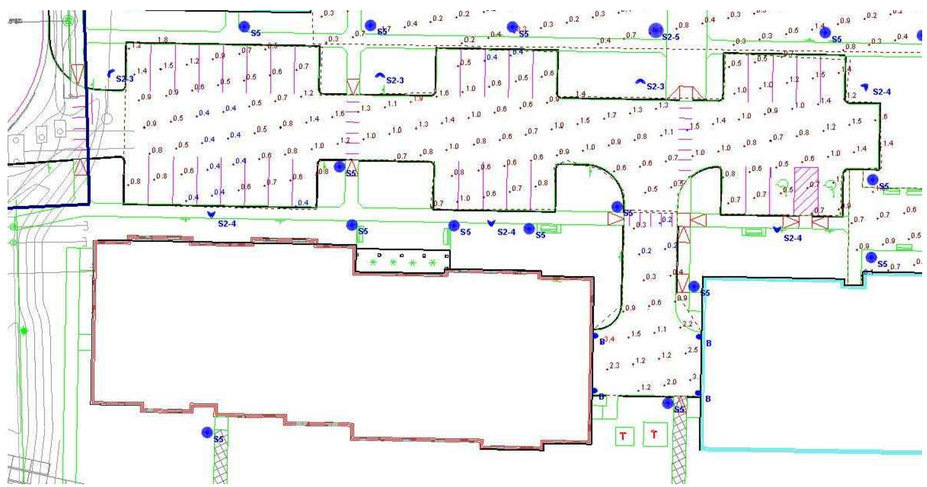
STEVEN'S SQUARE OVERALL PHOTOMETRICS

SCALE: 1/32" = 1'-0"

STATISTICS	
Upper Parking	
Average	.8 fc
Maximum	1.5 fc
Minimum	0.2 fc
Max/Min	7.5:1
Average/Min	4.0:1
Commons	
Average	0.4 fc
Maximum	3.3 fc
Minimum	0.0 fc
Max/Min	N/A
Average/Min	N/A
Lower Parking	
Average	.9 fc
Maximum	1.9 fc
Minimum	0.4 fc
Max/Min	4.8:1
Average/Min	2.3:1

NOTE:

ALL SITE LIGHTING FIXTURES ARE LED, FULL CUT-OFF FIXTURES - SEE SHEET E1.01 FOR LIGHTING FIXTURE TYPES AND SPECIFICATIONS



3
E1.1

STEVEN'S SQUARE LOWER PARKING PHOTOMETRICS

SCALE: 1/32" = 1'-0"

STATE OF MAINE · STEVEN M. JOHNSON #8488 LICENSED PROFESSIONAL ENGINEER

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STEVEN'S SQUARE AT BAXTER WOODS - PHASE 2

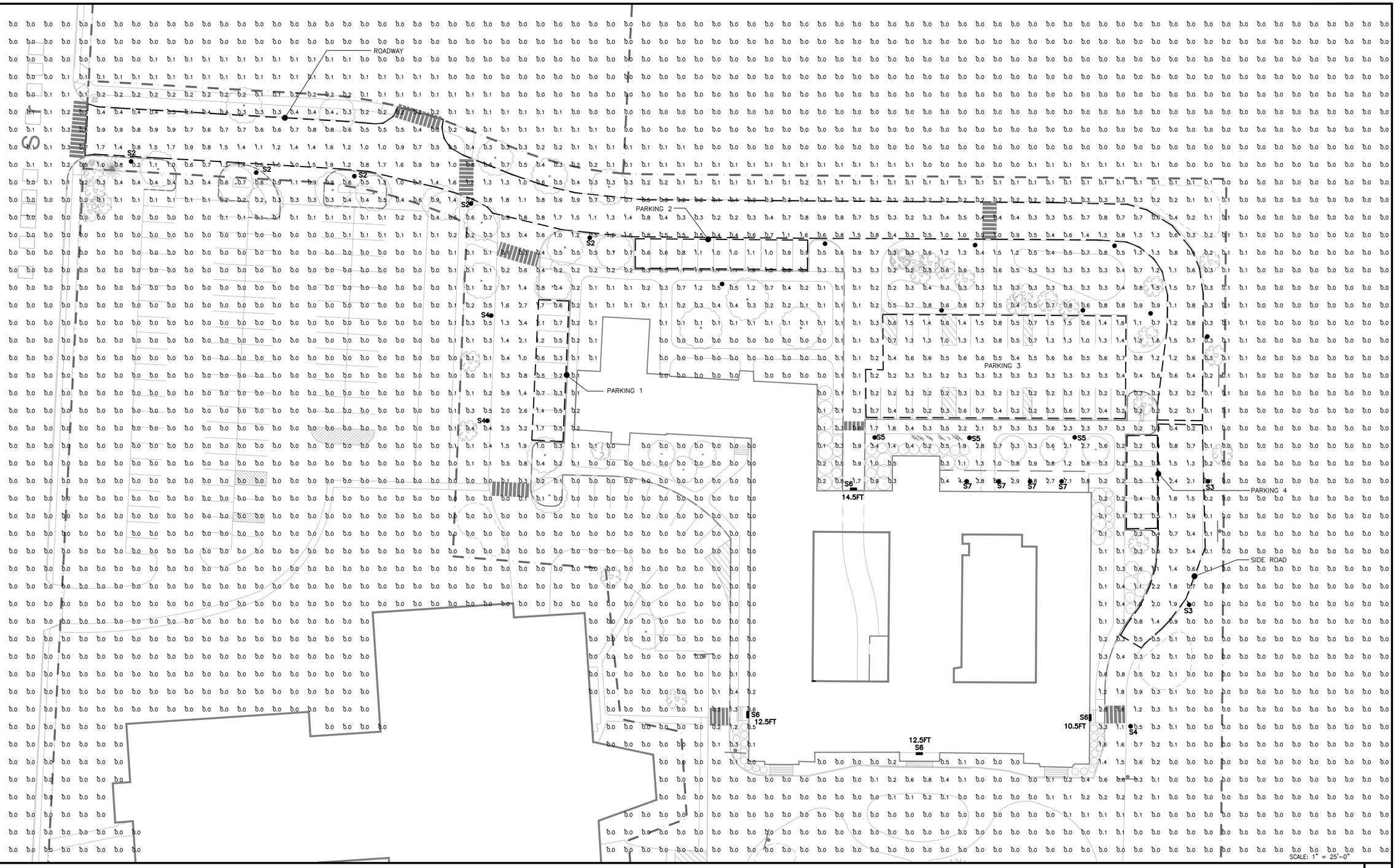
583 STEVENS AVENUE, PORTLAND MAINE

Date Drawn -	11/22/21
Drawn By -	MJM
Project #	
Scale -	AS NOTED
Revised -	2022.01.12 PHOTOMETRIC UPDATES

SHEET TITLE

SITE PHOTOMETRICS PLAN

E1.1



PHOTOMETRIC LIGHTING PLAN | 1

NOTES:
1. CALCULATIONS REPRESENT INITIAL FOOTCANDLE LEVELS AT GRADE.

STATE OF MAINE
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No. 7928
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Lawrence E. Bartlett
7/30/15

Bartlett Design
LIGHTING & ELECTRICAL ENGINEERING
942 WASHINGTON STREET, BATH, ME 04530
TEL (207) 443-5447 FAX (207) 443-5560

date drawn:	07/28/15
date issued:	07/28/15
drawn by:	JLC
scale:	AS NOTED

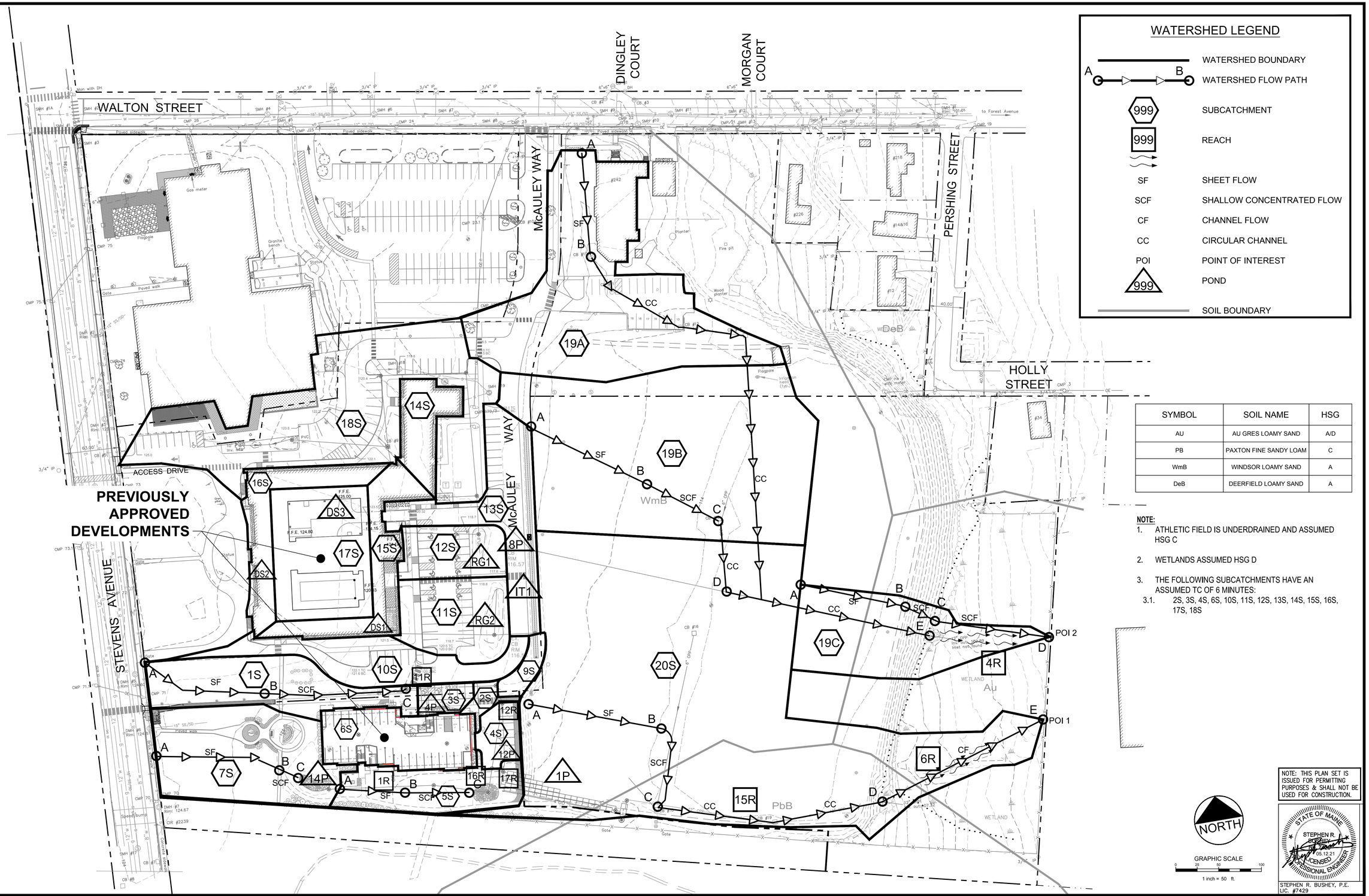
project: MOTHERHOUSE SENIOR HOUSING
PORTLAND, MAINE

drawing title: PHOTOMETRIC LIGHTING PLAN

project no. 15-0032

revisions:
1. add type S6 light 02/22/17

E0.0
sheet number



WATERSHED LEGEND

- WATERSHED BOUNDARY
- A — B: WATERSHED FLOW PATH
- 999: SUBCATCHMENT
- 999: REACH
- SF: SHEET FLOW
- SCF: SHALLOW CONCENTRATED FLOW
- CF: CHANNEL FLOW
- CC: CIRCULAR CHANNEL
- POI: POINT OF INTEREST
- 999: POND
- SOIL BOUNDARY

SYMBOL	SOIL NAME	HSG
AU	AU GRES LOAMY SAND	A/D
PB	PAXTON FINE SANDY LOAM	C
WmB	WINDSOR LOAMY SAND	A
DeB	DEERFIELD LOAMY SAND	A

NOTE:

1. ATHLETIC FIELD IS UNDERDRAINED AND ASSUMED HSG C
2. WETLANDS ASSUMED HSG D
3. THE FOLLOWING SUBCATCHMENTS HAVE AN ASSUMED TC OF 6 MINUTES:
   - 3.1. 2S, 3S, 4S, 6S, 10S, 11S, 12S, 13S, 14S, 15S, 16S, 17S, 18S

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES & SHALL NOT BE USED FOR CONSTRUCTION.

STATE OF MAINE — STEPHEN R. BUSHEY — 05.12.21 — LICENSED PROFESSIONAL ENGINEER

STEPHEN R. BUSHEY, P.E.
LIC. #7429

Rev.	Date	Revision

Rev.	Date	Revision
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File Name: 356403-WSHED.dwg		

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Drawing Name: PREDEVELOPMENT WATERSHED PLAN

Project: **Stevens Square at Baxter Woods – Phase 2**
583 Stevens Avenue, Portland, Maine

Client/Owner: **DC BAXTER WOODS LLC**
100 COMMERCIAL STREET, SUITE 414, PORTLAND, ME 04101 PH. 207.766.6696

Drawing No. WS1

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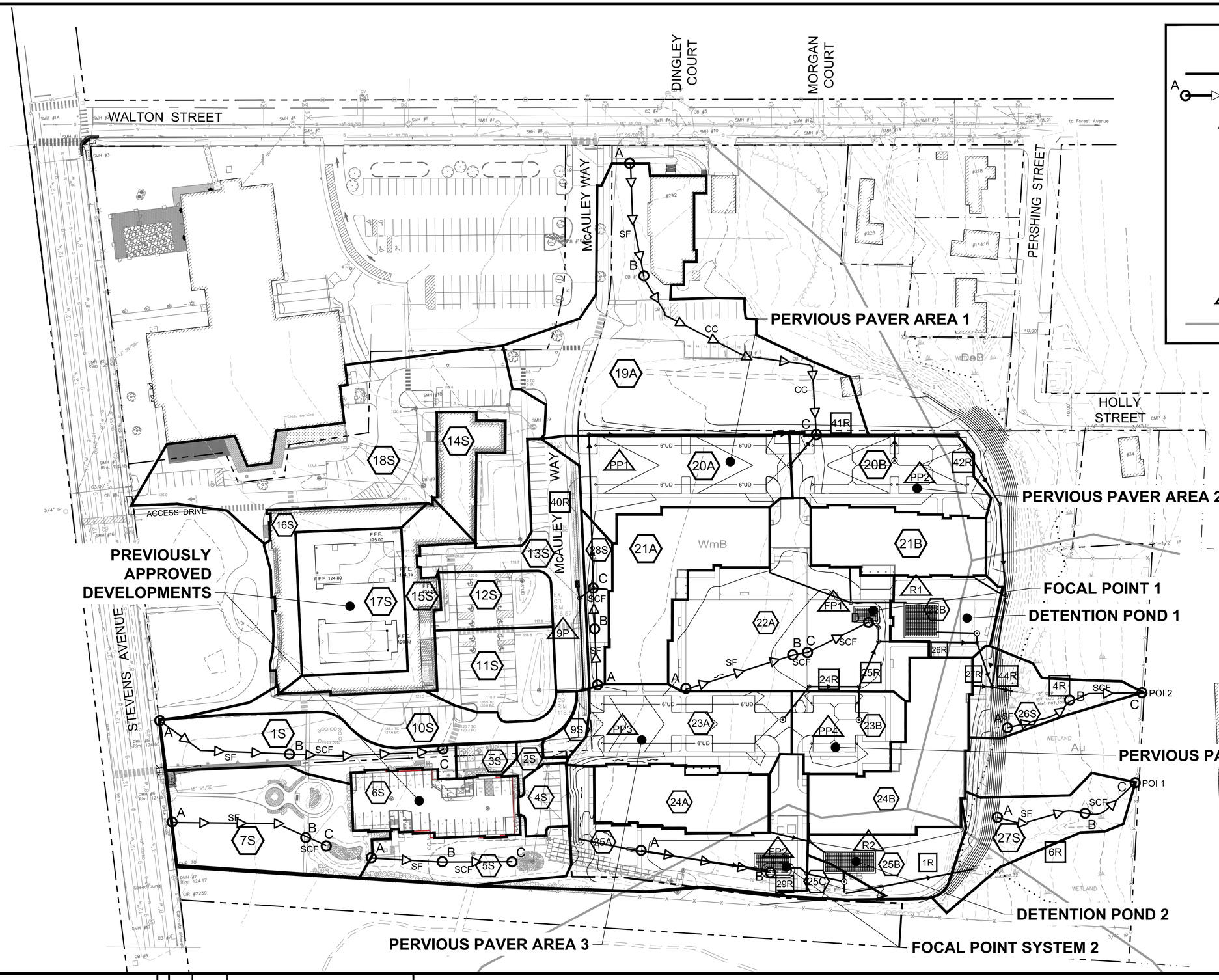

WATERSHED LEGEND

- WATERSHED BOUNDARY
- A — B: WATERSHED FLOW PATH
- 999: SUBCATCHMENT
- 999: REACH
- SF: SHEET FLOW
- SCF: SHALLOW CONCENTRATED FLOW
- CF: CHANNEL FLOW
- CC: CIRCULAR CHANNEL
- POI: POINT OF INTEREST
- 999: POND
- SOIL BOUNDARY

SYMBOL	SOIL NAME	HSG
AU	AU GRES LOAMY SAND	A/D
PB	PAXTON FINE SANDY LOAM	C
WmB	WINDSOR LOAMY SAND	A
DeB	DEERFIELD LOAMY SAND	A

NOTE:

1. ATHLETIC FIELD IS UNDERDRAINED AND ASSUMED HSG C
2. WETLANDS ASSUMED HSG D
3. THE FOLLOWING SUBCATCHMENTS HAVE AN ASSUMED TC OF 6 MINUTES:
   - 3.1. 2S, 3S, 4S, 6S, 10S, 11S, 12S, 13S, 14S, 15S, 16S, 17S, 18S, 20A, 20B, 21A, 21B, 22B, 23A, 23B, 24A, 24B, 25B

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES & SHALL NOT BE USED FOR CONSTRUCTION.

STATE OF MAINE — STEPHEN R. BUSHEY — 05.12.21 — LICENSED PROFESSIONAL ENGINEER

STEPHEN R. BUSHEY, P.E.
LIC. #7429

Rev.	Date	Revision

Rev.	Date	Revision
1	2021.05.12	SUBMITTED TO CITY FOR REVIEW

Design: SRB	Draft: CDD	Date: MAY 2021
Checked: SRB	Scale: AS NOTED	Job No.: 3564.03
File Name: 356403-WSHED.dwg		

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Drawing Name: POSTDEVELOPMENT WATERSHED PLAN

Project: **Stevens Square at Baxter Woods – Phase 2**
583 Stevens Avenue, Portland, Maine

Client/Owner: **DC BAXTER WOODS LLC**
100 COMMERCIAL STREET, SUITE 414, PORTLAND, ME 04101 PH. 207.766.6696

Drawing No. WS2

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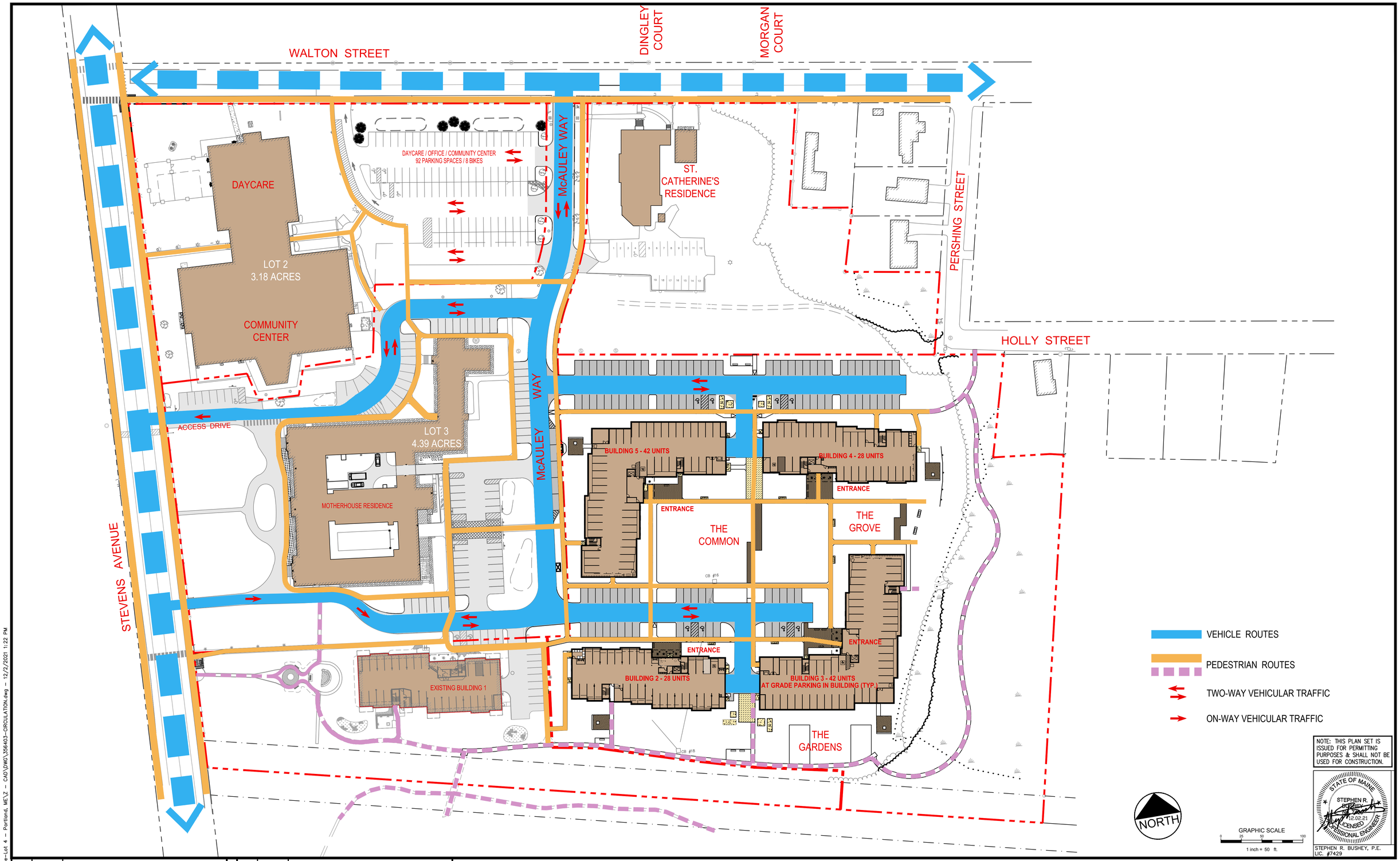

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES & SHALL NOT BE USED FOR CONSTRUCTION.

STATE OF MAINE
STEPHEN R. BUSHEY
12.02.21
LICENSED PROFESSIONAL ENGINEER

STEPHEN R. BUSHEY, P.E.
LIC. #7429

Rev.	Date	Revision

Rev.	Date	Revision
2	2021.12.02	RESUBMITTED PER LOR #1 FOR FINAL REVIEW
1	2021.05.12	SUBMITTED TO CITY FOR REVIEW

Design: SRB	Draft: CDD	Date: MAY 2021
Checked: SRB	Scale: AS NOTED	Job No.: 3564.03
File Name: 356403-CIRCULATION.dwg		

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Drawing Name: AMENDED CIRCULATION PLAN

Project: **Stevens Square at Baxter Woods – Phase 2–4**
583 Stevens Avenue, Portland, Maine

Client/Owner: **DC BAXTER WOODS IV LLC**
100 COMMERCIAL STREET, SUITE 414, PORTLAND, ME 04101 PH. 207.772.7673

Drawing No. -

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PLANNING BOARD REPORT
PORTLAND, MAINE

Time & Temperature Building | 477 Congress Street
Level III Site Plan + Inclusionary Zoning Conditional Use
PL-001003-2021
T.T. Maine Ventures LLC

Submitted to:	Portland Planning Board	**Prepared By:**	Charles Tetelman
Public Hearing Date:	January 25, 2022	**Date:**	January 21, 2022

I. INTRODUCTION

Fathom Companies, on behalf of T.T. Maine Venture LLC, seeks approval of a Level III Site Plan and Inclusionary Zoning Conditional Use application for the property at 477 - 481 Congress Street and 22 Preble Street, known as the Time & Temperature Building. The development plans call for the conversion of the building into a 186-room hotel that includes meeting and banquet rooms, a restaurant, retail, and a rooftop bar.



Figure 1: Location of Site

The Planning and Urban Development Department mailed 115 notices advertising this meeting to property owners within 500 feet of the site. A legal advertisement ran in the January 14, 2022 and January 15, 2022 editions of the *Portland Press Herald*.

The Planning Board held a workshop on this application on August 24, 2021.

Applicant: T.T. Maine Venture LLC., owner represented by Fathom Companies
Consultants: Darrin Stairs, PE, Woodard and Curran
David Lloyd, Archetype Architects
Scott Hanson, MacRostie Historic Advisors

II. REQUIRED REVIEWS

Review	*Applicable Standards*
Site Plan	Section 14.6
Hotel Inclusionary Zoning (IZ)	Section 15.4
Pedestrian Overlay District	Section 18.2.3

III. PROJECT DATA

Existing Zoning	B-3 Downtown Business
Property Size	78,680 sq. ft.
Existing Use	Commercial (Vacant)

Proposed Use	Hotel

	Existing	*Proposed*	*Net Change*
Building Footprint	31,700 sq. ft.	31,700 sq. ft.	0
Building Floor Area	202,000 sq. ft.	202,000 sq. ft.	0
Impervious Surface Area	100%	100%	0
Parking Spaces	0 (vacant building)	56 (at 45 Brown St.)	+56
Bicycle Parking Spaces	0	None at this time	

IV. EXISTING CONDITIONS AND SURROUNDING AREA

The Time and Temperature Building, a fourteen-story historic structure, is located in the center of Downtown Portland, proximate to some of the major downtown businesses, art galleries, coffee shops and restaurants. The site is surrounded by three adjacent parcels, which are fully developed (Maine Historical Society at 489 Congress Street, 24 Preble Street, and the parking garage along Brown Street).



Figure 2: Existing Buildings

The building is more appropriately identified as a building complex, as it is composed of four historic structures that were functionally combined and physically connected when the Chapman Building at the corner (the newest of the four structures and the one typically identified as the Time & Temperature building) was constructed in 1924. The four components of the complex include the Chapman Building at 477 Congress Street, the Preble House Building at 481 Congress Street, 10-20 Preble Street, and the former B. F. Keith Theatre at 22 Preble Street.

The building is located in the B-3 Downtown Business zone. B-3 is a high-density commercial, residential, and mixed-use zone mapped throughout the City's downtown. The site is also located within the Pedestrian Activities District (PAD) and the Congress Street Historic District. The proposed renovations will be reviewed by the Historic Preservation Board for design; the development has had one workshop with the Historic Preservation Board on June 2, 2021. The block includes three existing buildings, two of which are contributing structures facing Congress Street. Congress Street is an important historic thoroughfare in the downtown with larger scale, historic buildings and a high volume of pedestrian traffic.

Please see Attachment 11 for detailed information about the history of the individual historic resources that comprise the Time & Temperature Building, as well as building descriptions for each. The document also describes the unique retail arcade that was built within the ground floor of the building, a significant portion of which is still extant.

V. PROPOSED DEVELOPMENT

The proposed development site (Plan 4) comprises 78,680 sq. ft. The corner lot has frontage along Congress and Preble streets. The proposed development will include renovations and a change of use for

the properties, from multi-use commercial to hotel and multi-use commercial. The new uses will include a 186-room hotel and associated amenity spaces; new retail (approx. 4,700 sq. ft.); rooftop bar (approx. 5,100 sq. ft.) and restaurant (approx. 2,260 sq. ft.). The gross square footage including basements and sub basements is 202,000 sq. ft. 56 parking spaces will be provided off-site at the parking garage at 45 Brown Street.

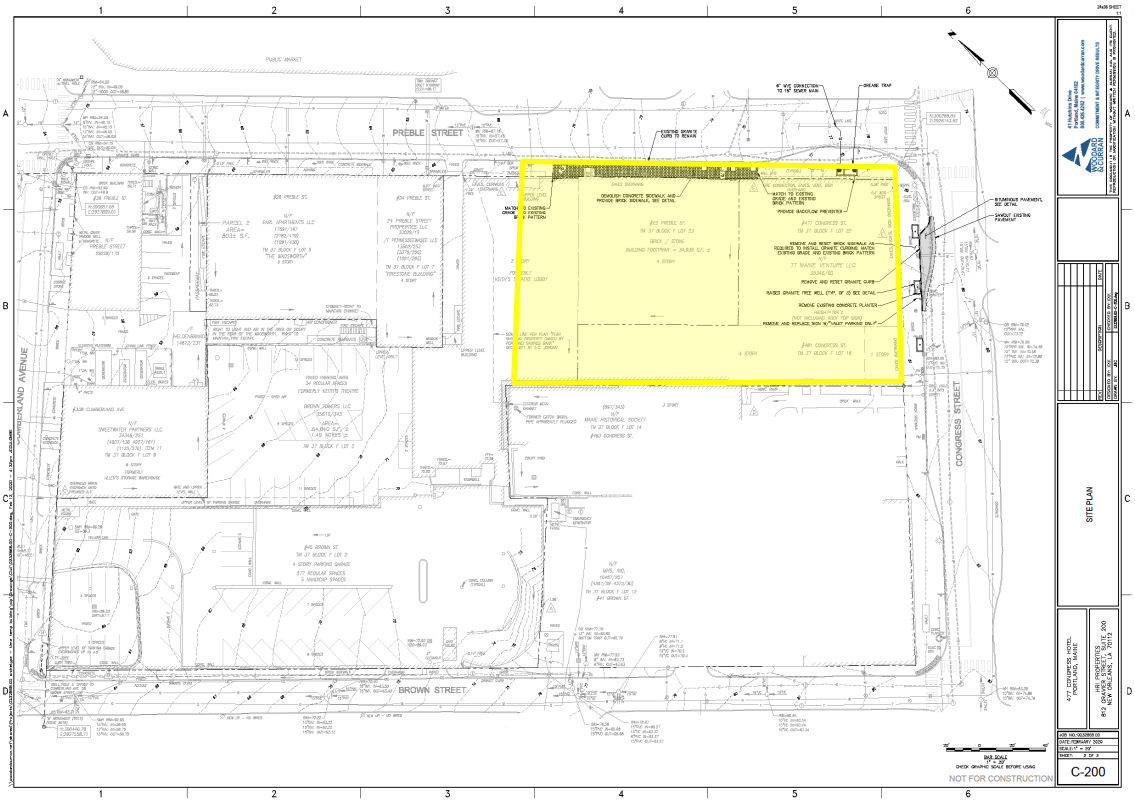

Figure 3 – Proposed Site Plan (highlighted in Yellow)

VI. PREVIOUS WORKSHOPS

At the August 24th, 2021 Workshop, the Planning Board and Staff expressed concerns with locating valet operations on Congress Street. Applicant was advised to explore other alternatives including accommodating all valet operations on Preble Street. The Fire Chief was in attendance and spoke to concerns regarding potential conflicts with emergency vehicles traveling down Congress Street.

VII. RIGHT, TITLE, & INTEREST

The owners of the property are TT Maine Venture, LLC and Brown Tower, LLC, both owned by Presidium, by quitclaim deed without covenants recorded at the Cumberland County Registry of Deeds (Book 35346 Page 51 and Book 35610 Page 345). The applicant has provided a copy of the deeds, which demonstrates their right, title and interest in the property (Attachments P and Q).

There is one easement agreement on the project site between 477 Time & Temperature LLC and the Maine Historical Society at 489 Congress Street. This cross easement allows for maintenance repair and renovation of the respective buildings (Attachment R). In addition, there are four proposed electrical vaults in the right-of-way on Preble Street.

VIII. FINANCIAL & TECHNICAL CAPACITY

The applicant has submitted a letter from Presidium Group, dated March 21, 2021, as demonstration of their financial and technical capacity to complete the proposed development (Attachment T).

IX. ZONING ANALYSIS

A. DIMENSIONAL AND USE REQUIREMENTS

A zoning review has been conducted on this application and this project meets the requirements of the B-3 zone, see below.

	Required	Proposed
Lot Size	none	78,680 sq. ft.
Area Per Dwelling Unit	none	n/a
Minimum Street Frontage	15'	121'
Front Yard Minimum	None	0'
Front Yard Maximum	5'	0'
Rear Yard	None	0'
Side Yard	None	0'
Maximum Lot Coverage	100%	81%
Maximum Height	210'	158' – 8"
Open Space	n/a	0
Maximum Impervious Surface	100%	100%
Off-Street Parking	none	56

The proposed use of hotel and commercial retail are permitted uses within the B-3 Downtown Business zone. Additionally, this application, while initially filed in the winter of 2020 as a Level III Site Plan under the previous Land Use Code, does not have pending proceeding status under the prior Land Use Code and thus is subject to the provisions of the current Land Use Code.

B. CONDITIONAL USE – INCLUSIONARY ZONING FOR HOTELS

As required by the City's Hotel Inclusionary Zoning Ordinance (18.2.5(D) Low-income housing minimum):

> *All hotel projects are subject to Section 18.2.5 of the Land Use Code and shall provide one unit of low-income housing for rent in the City of Portland for every 28 rooms in the hotel project, which shall meet the standards outlined in Subsections 18.2.3(C)(3), (4), and (5) and in the implementing regulations governing low income units. This amount shall be rounded up to the nearest increment of 28 rooms. These units shall be deed restricted for the longest period permitted by law, shall not be used for short-term rentals of less than 30 days, and must be provided with distinct entrances from the street to delineate them from the hotel itself.*

Fee-in-lieu alternative:

> *As an alternative to providing low-income housing units under Subsection 18.2.5(D) above, a hotel project may pay a fee-in-lieu of $3,806 per hotel guest room. This amount shall be paid into the City's Housing Trust Fund and used for the purposes set forth in the ordinance and regulations applicable to that trust.*

The City's Housing Program Manager, Victoria Volent, has reviewed the application and offers the following comment (Attachment 7):

To comply with the Hotel IZ Ordinance, the applicant has indicated they intend to pay the fee-in-lieu of $707,916,886 (186 X $3,806) prior to receiving their certificate of occupancy.

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/Access and Circulation

The site is a corner lot bounded by Congress Street to the east and Preble Street to the north. Congress Street is the main downtown thoroughfare, which permits traffic movement in both directions. Preble Street permits one-way movement from Marginal Way towards Congress Street. There are two parallel on-street parking spaces on Preble Street and one commercial loading zone along the building's frontage and two parallel on-street parking spaces on Congress Street along the building's frontage.

The applicant's original proposal included valet parking on Congress Street for a length of 86 feet and a 64 foot unloading/loading zone, with a combined total of 150 feet. City staff expressed concerns with the valet proposal and expressed opposition to locating valet operations on Congress Street given traffic and life-safety conflict concerns due to Congress Street being the City's primary east-west route. In addition, Congress Street is a primary bus route for METRO service with a bus stop directly across from the site on the east-bound side of Congress Street. Therefore City staff advocated for valet operations to be located on Preble Street, a secondary street, which is consistent with City guidance to locate valet operations onto secondary streets adjacent to the property at other hotels.

In response to concerns raised from both the Planning Board and City Staff the applicant, in consultation with City staff, is now proposing to remove existing on-street parking spaces from portions of Preble Street and Congress Street for valet service and a loading/unloading zone, respectively. The applicant is proposing to utilize 186 feet of Preble Street for valet service and retain an existing commercial loading zone. In addition, a 40 foot loading/unloading zone is proposed for Congress Street (Attachment Plan 34).

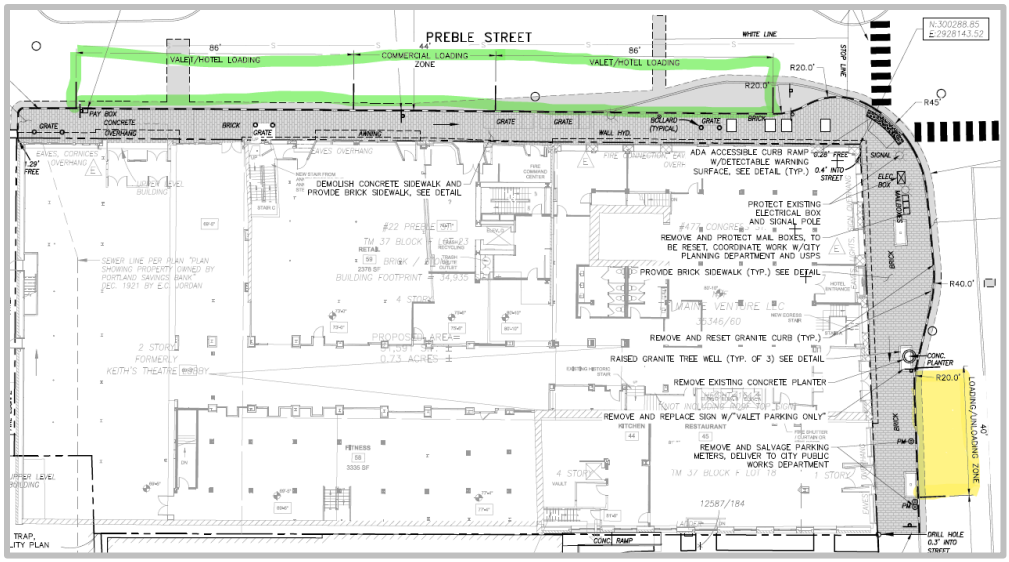

Figure 4 – Proposed Valet Parking Layout

The Planning Department, Department of Public Works, Parking Division Director, Fire Chief, and Police Department has reviewed the revised submission and finds the revised layout acceptable with the following conditions:

- The proposed loading/unloading zone on Congress Street shall be limited to 15 minutes.
- That the commercial loading zone on Preble Street be moved closer to the corner of Preble and Congress streets and be limited to 15 minutes.

See attachments 15 & 16 for staff comments related to valet operations.

The City's Traffic Consultant reviewed the application and finds the revised trip generation analysis reasonable and will not change the expected AM peak hour traffic and reduce PM peak hour traffic. Therefore, a Traffic Movement Permit (TMP) is not required. The applicant also provided an analysis of High Crash Locations which demonstrated that most crashes involve parked vehicles and highlights the nature of the surrounding urban setting. Finally, the proposed project is not expected to create unreasonable congestion at intersections within the study area of the applicant's analysis (Attachment 14).

B. Public transit access

No transit shelter is required. The project is near several existing bus stops (Routes 1, 2, 3, 8, 9A, 9B, and Husky Line).

C. Parking

Off-street vehicular parking is not required for a change of use in the B-3 zone, but the applicant is proposing to use the parking garage at 45 Brown Street. The total number of parking spaces to be leased for the hotel use is 56. Per Table 19-A of the Land Use Ordinance, the off-street parking requirement for a 186-room hotel (one parking space per 4 guest rooms) is 49 parking spaces.

The applicant states that "Because off-street vehicular parking is not required for a change in use in the B-3 zone, and the EV Charging requirement is based on vehicle parking required, no EV Charging is required". Staff notes that no EV Charging is required because the EV requirement is

for new structured and surface parking lots, since the applicant is proposing to utilize existing off-site parking spaces, there is no requirement for the applicant to provide EV charging spaces.

Bicycle parking is not accounted for as part of the development; the applicant states that since the bicycle parking requirement is based on vehicle parking required, no bike parking is required. Shared bicycle parking will need to be provided on site for short and long-term visitors – updated plans have been included as a Condition of Approval.

D. Transportation Demand Management (TDM)
All commercial and mixed use developments of 50,000 sq. ft. or more total floor area are required to submit a TDM Plan. The Applicant submitted a TDM Plan for review (Attachment HH).

The City's Transportation Program Manger reviewed the proposed TDM Plan and provided preliminary feedback to the applicant. The plan lays out a basic strategy for employee TDM strategies and monitoring and reporting; it does not address TDM strategies associated with guests. City Staff will work with applicant to address hotel guest TDM strategies. The plan should specifically document existing trip levels to the site to ease monitoring. The TDM Plan should establish a time-frame for working toward achieving cited trip reductions in percentage and absolute terms for employees. A revised TDM should also commit to a transit subsidy level for employees (100%, 75%, 50%, etc.). The hotel's website should include information on car-free travel to Portland and other information that touts car-free travel opportunities once guests arrive. Real-time information should be provided in the hotel lobby on transportation options including bus arrival times for stops nearby the site (Attachment 13).

Given the above outstanding items, the TDM is not yet finalized or approved by City Staff, and a Condition of Approval has been proposed.

2. Environmental Quality Standards (Section 14.6.2)

A. Preservation of significant natural features
The site is completely 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. This proposal is not deemed to have an adverse impact on the scenic beauty of the area.

The applicant is proposing to plant three street trees in raised planters on Congress Street. Section 4.6.3 of the Technical Manual states that street trees for Commercial, industrial and institutional developments shall provide street trees thirty (30) to forty five (45) feet apart on center in the City right of way along all street frontages unless otherwise approved. The City Arborist has reviewed the plans and stated that they would prefer raised granite tree wells at this site that are similar to the one in front of the Portland Public Library (Attachment 9).

B. Landscape preservation
The Site is completely developed and there is no existing landscaping or existing trees that will be removed.

C. Site landscaping and buffers
As part of the landscaping, the applicant is planting three street trees with raised granite tree wells.

D. Water quality/storm water management/erosion control

The site is completely developed, and the proposed project is a change of use of existing buildings, therefore the stormwater will continue to be managed as it is currently, and no changes to the site's impervious area are proposed.

No unreasonable soil erosion or reduction in the capacity of the land to hold water is anticipated, given that the site is developed. The Utility Plan (Plan 8) and Grading & Drainage Plan (Plan 6) include measures designed to stabilize the site during and after construction.

3. Public Infrastructure and Community Safety Standards (Section 14.6.3)

A. Consistency with City Master Plans

The proposed development is consistent with Portland's Plan 2030. The project is in accordance with the stated goals around authenticity (preserving the historic building), and further supports goals around stabilizing and enhancing historic areas and ensuring quality investment in existing structures. In addition, any future redevelopment and investment into these properties will further support the City's desire of creating complete neighborhoods and reinforcing the center as the subject properties are located within a central, downtown location near transit and walkable services. In addition, the project supports A Vibrant City, the City's Economic Policy guide by furthering goals such as creating economic prosperity by growing Portland's tax and employment base, and by respecting the City's unique quality of place as key to the City's current and future economic success.

B. Public safety and fire prevention

The Crime Prevention through Environmental Design (CPTED) standards in the site plan ordinance address the principles of natural surveillance, access control and territorial reinforcement so that the design of developments enhance the security of public and private spaces and reduce the potential for crime. The building is built to the property line, therefore the street lighting provides visibility and a sense of activity at night. In addition, the proposed project will include active entrances on both Congress and Preble streets and will include ground floor retail spaces that together, will provide experiences that attract more people and activate the street frontage which could add "eyes" on the street and improve natural surveillance.

C. Availability and capacity of public utilities

The development will be served by a six-inch fire protection water line from Congress Street. The site will also be served by a four-inch domestic line provided from Congress Street. The sanitary sewer will be served through an existing lateral in Congress Street and Preble Street. The development of the project includes restaurants with kitchens therefore oil/water separators and grease traps are provided and are shown on the utility plan.

4. Site Design Standards (Section 14.6.4)

A. Massing, ventilation, and wind impact

The building is existing. The project is in an urban infill site with no residential properties immediately adjacent.

B. Shadows

The proposed project is an adaptive reuse of existing building. The project is located within the B-3 zone, and thus is exempt from the shadow standards as stated in Section 14.6.4.B.

C. Snow and ice loading
No anticipated concerns.

D. View corridors
The developed site is not in any of the established view corridors.

E. Historic resources
The project is within the Congress Street Historic District and is subject to Historic Preservation review for a certificate of appropriateness. Additionally, the Time & Temperature building is a designated Historic Landmark in the City of Portland.

F. Exterior lighting
The applicant is planning no changes to the existing exterior lighting on site.

G. Noise and vibration
HVAC will be located on the roof with a screened penthouse. The project is not directly abutting residential properties.

H. Signage and wayfinding
Signage was not proposed or reviewed as part of this application.

I. Zoning-related design standards
The site is located within the Congress Street Historic District; therefore, the Historic Preservation Board is conducting design review for a certificate of appropriateness. The Historic Preservation Board held an initial workshop on the development on June 2, 2021 and a second workshop on this proposal before the Historic Preservation Board is scheduled for February 2, 2022. A potential condition of approval is proposed:

> *Prior to the issuance of a building permit, the applicant shall obtain Certificate of Appropriateness from the Historic Preservation Board.*

The project was also reviewed against the B-3 Pedestrian Activities District (PAD) standards. Staff had concerns with window transparency along the building's street facing façades, see Attachment 6 and Attachment 17 for details. A Condition of Approval has been included for updated building elevations to confirm adherence with city transparency requirements for ground floor windows.

XI. NEIGHBORHOOD MEETING & PUBLIC COMMENT

The applicant held a neighborhood meeting on July 14, 2021, as required as part of this application, where eleven (11) abutters attended (Attachment C). Questions and concerns raised at the meeting were pertaining to signs and lighting effect on the abutting properties, and valet and parking, with its potential impact to the neighboring Maine Historical Society building.

The Planning and Urban Development Department have received two public comments regarding this application. Both Public Comments opposed valet parking along Congress Street which the applicant has since revised to be located on Preble Street (Attachments not included).

XII. STAFF RECOMMENDATION

Subject to the proposed motions and conditions of approval listed below, Planning Department staff determined that the application PL-001003-2020, a Level III Site Plan to redevelop the Time & Temperature Building located at 477 Congress Street into a hotel, meets the applicable standards of Portland's Land Use Code.

XIII. PROPOSED MOTIONS

A. INCLUSIONARY ZONING CONDITIONAL USE

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 January 25, 2022 for application PL-001003-2020 at 477 Congress Street relevant to Portland's Inclusionary Zoning Conditional Use Standards and other regulations, and the testimony presented at the Planning Board hearing, the Planning Board, [finds/does not find] the proposed conditional use for workforce housing meets the standards of Section 18.2.3 with the following condition(s), to be met prior to issuance of a Certificate of Occupancy:

PRIOR TO ISSUANCE OF A BUILDING PERMIT

1. That the Applicant and the City enter into an agreed upon Affordable Housing Agreement (AHA) for workforce housing units as described in the memorandum from Housing Program Manager dated July 21, 2021, or as an alternative to providing workforce housing units, the project may pay a fee-in-lieu for some or all of the required units;

PRIOR TO ISSUANCE OF CERTIFCATE OF OCCUPANCY

2. That the Affordable Housing Agreement (AHA) be filed as covenant to the 477 Congress Street property's deed with the Cumberland County Registry of Deeds.

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 January 25, 2022 for application PL-001003-2020 at 477 Congress 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 all new easement agreements and amendments to existing easement agreements for review and approval by the Planning Authority and Corporation Counsel.
2. The applicant shall submit a final Transportation Demand Management Plan for review and approval by the Planning Authority and the Department of Public Works.
3. The applicant shall submit a final site plan that includes bicycle parking locations on site and reflects the final loading area location on Preble Street and loading and unloading timing restrictions for review and approval by the Planning Authority.

4. The applicant shall submit revised Building Elevations that adhere to required transparency values for ground floor windows for review and approval by the Planning Authority.

PRIOR TO ISSUANCE OF A BUILDING PERMIT

5. The Applicant shall obtain Certificate of Appropriateness from the Historic Preservation Board.

PRIOR TO ISSUANCE OF A CERTIFICATE OF OCCUPANCY

6. The applicant shall contribute to the tree fund in the amount of $400 per tree for five (5) trees for a total of $2,000.

XIV. ATTACHMENTS

Report Attachments

1. Traffic Engineer 08.18.2021
2. Traffic Engineer 07.21.2021
3. DPW 7.21.2021
4. DPW Comments 8.17.2021
5. DPW Water Resource 07.21.2021
6. 477 Congress St PAD Preliminary Review
7. Victoria Volent IZ Memo 7.21.2021
8. 477 Congress St. Building History
9. City Arborist Comments 7.22.2021
10. Police Comments 8.16.2021
11. HP Preservation Program Manager Comments
12. Fire Chief Comments 8.18.2021
13. City Staff TDM Comments
14. Final Traffic Comments
15. City Valet Comments 11.01.2021
16. City Valet Comments V2 12.10.2021
17. PAD Overlay Design Review Memo 01.18.2022

Applicant Submittal

A. T&T Building Cover Letter
B. Project Summary
C. Neighborhood Meeting Certification
D. Response to City Comments 7.16.2021
E. Response to City Comments 8.2.2021
F. Response to City Comments 8.13.2021
G. Supplemental Materials
H. Response to City Comments 11.18.21
I. Response to City Comments 12.23.21
J. Notice of Public Meeting Certification
K. Table of Contents
L. Application Checklist
M. Application Fees
N. Project Summary

O. Waiver Requests
P. Evidence of Right, Title, and Interest 1
Q. Evidence of Right, Title, and Interest 2
R. Easements and Other Burdens
S. Evidence of State and or Federal Approvals
T. Evidence of Financial and Technical Capability
U. Consistency with Portland Design Standards
V. Zoning Assessment
W. Site Plan Standards Assessment
X. Zoning Assessment 2
Y. Traffic Memorandum
Z. Site Plan Review Standards
AA. Boundary Survey
BB. Construction Management Plan
CC. Availability and Adequacy of Public Utilities
DD. Boundary Survey
EE. Availability and Adequacy of Public Utilities
FF. Portland Fire Department Site Review Checklist
GG. Portland Fire Department Site Review Checklist 2
HH. TDM Plan 477 Congress Street

Plans

Plan 1. Cover Page
Plan 2. Cover Sheet
Plan 3. General Notes
Plan 4. Overall Site Plan
Plan 5. Site and Utility Plan
Plan 6. Grading and Drainage Plan
Plan 7. Civil Details
Plan 8. Utility Plan
Plan 9. Civil Details
Plan 10. Civil Details
Plan 11. Civil Details
Plan 12. Brown Street LLC
Plan 13. On-Street Parking Diagram
Plan 14. Basement Plan
Plan 15. First Floor Plan
Plan 16. First Floor Plan
Plan 17. Second Floor Plan
Plan 18. Third Floor Plan
Plan 19. Fourth Floor Plan
Plan 20. Floors 5-13 Plan
Plan 21. 14th Floor Plan
Plan 22. 15 Roof Top Bar Plan
Plan 23. 16 Roof Plan
Plan 24. Exterior Elevations
Plan. 25. Exterior Elevations
Plan 26. Exterior Elevations

Plan 27. Exterior Elevations
Plan 28. Exterior Elevations
Plan 29. Congress St. Elevation
Plan 30. Preble Street Elevation
Plan 31. North Elevation
Plan 32. West Elevation
Plan 33. Boundary and Topo Survey
Plan 34. 477 Congress Street Valet Parking

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February 6, 2020

James Rather
City of Portland Development Review Services Manager
389 Congress Street
Portland, ME 04101

Re: TT Maine Venture, LLC – Time & Temperature Building
Level III Site Plan Application

Dear James:

On behalf of Presidium, Woodard & Curran is pleased to submit the Time & Temperature Building project located at 477 – 481 Congress Street and 22 Preble Street in Portland, Maine for review of a Level III Site Plan Application.

The proposed project will include renovations and change in use for the properties, from multi-use commercial, to hotel and multi-use commercial. The new uses will include a 181-room hotel and associated amenity spaces, new retail, and restaurant. The gross square footage including basements and sub basements 202,000 square feet.

In addition to the 181-room hotel, the proposed uses will include the following:

Proposed Use	Area (SF)
Meeting Space	4,400
Ball Room	5,341
Retail Space	7,800
Lobby and Bar	4,507
Restaurant	5,000
Bar (14th Floor)	1,313
(Roof)	3,254

The Site Plan Application documents were prepared in accordance with the City of Portland's Chapter 14, Land Use Code of Ordinances and meet the applicable sections of the City of Portland Design and Technical Manuals. The Application reports, attachments and design drawings will be uploaded into the Eplan folder when it is available for the project. If there are any questions on the uploaded materials, please don't hesitate to contact me.

Thank you for coordinating the review of this project. If you have any questions regarding this application, please feel free to contact me at (207) 558-3662 or by email at dstairs@woodardcurran.com.

Sincerely,

Darrin Stairs, PE
Project Manager

cc: Chris Rhodes, Andrew Preston – TT Ventures
Patrick Vyncke – HRI Properties
David LLoyd, Architect, Archetype PA

COMMITMENT & INTEGRITY
DRIVE RESULTS

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April 30, 2021

James Rather
City of Portland Development Review Services Manager
389 Congress Street
Portland, ME 04101

Re: TT Maine Venture, LLC – Time & Temperature Building
Major Site Plan Application

Dear James:

On behalf of Presidium, Woodard & Curran is pleased to submit the Time & Temperature Building project located at 477 – 481 Congress Street and 22 Preble Street in Portland, Maine for review of a Level III Site Plan Application.

The proposed project will include renovations and change in use for the properties, from multi-use commercial to hotel and multi-use commercial. The new uses will include a 196-room hotel and associated amenity spaces; new retail (approx. 4,700 SF); rooftop bar (approx. 5,100 SF) and restaurant (approx. 2,260 SF). The gross square footage including basements and sub basements is 202,000 square feet.

The Site Plan Application documents were prepared in accordance with the City of Portland's Land Use Code of Ordinances and the applicable sections of the City of Portland Design and Technical Manuals. The Application reports, attachments and design drawings will be uploaded into the Eplan folder when it is available for the project. If there are any questions on the uploaded materials, please do not hesitate to contact me.

Thank you for coordinating the review of this project. If you have any questions regarding this application, please feel free to contact me at (207) 558-3662 or by email at dstairs@woodardcurran.com.

Sincerely,

Darrin Stairs, PE
Project Manager

cc: Chris Rhodes, Andrew Preston – TT Ventures
Marieke Thormann – Fathom Companies
David LLoyd, Archetype PA

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Via Electronic Mail

July 15, 2021

Department of Planning & Development
Attn: Shukria Wiar
City of Portland
389 Congress Street
Portland, ME 04101

Re: Time & Temperature Hotel, 477 Congress Street - Neighborhood Meeting Certification

Ms. Wiar:

I, Darrin Stairs, PE of Woodard & Curran, hereby certify that a neighborhood meeting was held on July 14, 2021, virtually via Microsoft Teams platform, at 6:00 pm regarding the Major Site Plan Submittal for the proposed Time & Temperature Hotel project located at 477 Bedford Street.

I also certify that on July 1, 2021, invitations were mailed to the following:

1. All addresses on the abutters list provided by the Planning Division which includes property owners within 500 feet of the proposed development.

2. Residents on the "interested parties" list.

Signed,

WOODARD & CURRAN INC.

Darrin Stairs, PE
Project Manager

Attached to this certification are:

1. Copy of the invitation sent
2. Meeting Attendance Report from MS Teams Meeting
3. Meeting Notes

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June 25, 2021

Dear Neighbor:

On behalf of the TT Maine Venture, LLC (Applicant), please join us for a neighborhood meeting to discuss the applicant's plans to renovate the properties at 477-481 Congress Street and 22 Preble Street, into a hotel with associated amenity spaces, retail, and restaurant. A Major Site Plan Application for the development has been filed with the City of Portland Planning Division on behalf of the Applicant.

Meeting Location: Virtual Microsoft Teams Meeting – Please email Darrin Stairs at dstairs@woodardcurran.com to request a link to the meeting.

Meeting Date: Wednesday, July 14, 2021

Meeting Time: Meeting link will open at 5:50 PM, EST; Presentation to begin at 6:00 PM EST

The City code requires that property owners within 500 feet of the proposed development and residents on an "interested parties list" be invited to participate in a neighborhood meeting. Attendance will be taken, and minutes recorded and submitted to the Planning Board.

If you have any questions, please contact Darrin Stairs at (207) 558-3662 or via email at dstairs@woodardcurran.com.

Sincerely,

WOODARD & CURRAN INC.

Darrin Stairs, PE
Project Manager

Note: Under Section 14-32(C) and 14-524(a)d of the City Code of Ordinances, an applicant for a Level III development is required to hold a neighborhood meeting within 30 days of submitting a preliminary application or 21 days of submitting a final site plan application, if a preliminary plan was not submitted. The neighborhood meeting must be held at least seven days prior to the Planning Board public hearing on the proposal. Should you wish to offer additional comments on this proposed development, you may contact the Planning Division at 874-8721 or send written correspondence to the Planning and Urban Development Department, Planning Division, 4th Floor, 389 Congress Street Portland, ME 04101 or by email: to jrather@portlandmaine.gov.

Meeting Summary

Total Number of Participants	22
Meeting Title	477-481 Congress Street/22 Preble Street (Time & Temperature Building) Hotel - Neighborhood Meeting
Meeting Start Time	7/14/2021, 5:45:18 PM
Meeting End Time	7/14/2021, 7:03:50 PM

Full Name	Join Time	Leave Time	Duration	userPrincipalName	Role
Darrin Stairs	7/14/2021, 5:45:18 PM	7/14/2021, 6:43:55 PM	58m 37s	dstairs@woodardcurran.com	Organizer
Peter Marcus Kimball Court (Gue	7/14/2021, 5:51:34 PM	7/14/2021, 6:44:05 PM	52m 31s		Attendee
Gerry (Guest)	7/14/2021, 5:51:34 PM	7/14/2021, 6:36:22 PM	44m 47s		Attendee
Chuck Steward (Guest)	7/14/2021, 5:51:35 PM	7/14/2021, 5:51:54 PM	19s		Attendee
12072723262	7/14/2021, 5:51:39 PM	7/14/2021, 5:52:05 PM	26s		Attendee
12072723262	7/14/2021, 5:53:39 PM	7/14/2021, 5:56:24 PM	2m 45s		Attendee
Jennifer Packard	7/14/2021, 5:52:43 PM	7/14/2021, 6:43:38 PM	50m 55s	jp@pkrealtymgmt.com	Attendee
Beverley Ricci (Guest)	7/14/2021, 5:54:52 PM	7/14/2021, 6:43:55 PM	49m 2s		Attendee
Chuck Steward (Guest)	7/14/2021, 5:55:52 PM	7/14/2021, 6:43:51 PM	47m 58s		Attendee
Ginny Stanley (Guest)	7/14/2021, 5:56:01 PM	7/14/2021, 6:43:47 PM	47m 45s		Presenter
Drew Swenson	7/14/2021, 5:57:35 PM	7/14/2021, 6:43:41 PM	46m 5s	dswenson@FTS-US.COM	Attendee
David Lloyd	7/14/2021, 5:57:55 PM	7/14/2021, 6:43:40 PM	45m 45s	admin@Archetypepacom.onmicrosoft.com	Attendee
Alison Henault	7/14/2021, 5:59:20 PM	7/14/2021, 6:37:42 PM	38m 21s		Attendee
Jason Raichle (Guest)	7/14/2021, 5:59:21 PM	7/14/2021, 6:43:40 PM	44m 19s		Attendee
Marieke Thormann	7/14/2021, 5:59:22 PM	7/14/2021, 6:43:37 PM	44m 15s	mthormann@fathomcompanies.com	Attendee
Steve Landry	7/14/2021, 5:59:23 PM	7/14/2021, 6:43:42 PM	44m 18s	slandry@mainehistory.org	Attendee
12079393782	7/14/2021, 6:00:01 PM	7/14/2021, 6:43:38 PM	43m 37s		Attendee
Larry Casillo (Guest)	7/14/2021, 6:00:03 PM	7/14/2021, 6:43:39 PM	43m 36s		Attendee
12079396811	7/14/2021, 6:00:58 PM	7/14/2021, 6:43:39 PM	42m 41s		Attendee
David Packard	7/14/2021, 6:01:08 PM	7/14/2021, 6:43:41 PM	42m 33s	dpackard@pkrealtymgmt.com	Attendee
chris (Guest)	7/14/2021, 6:16:59 PM	7/14/2021, 6:43:37 PM	26m 37s		Attendee
Andrew Preston	7/14/2021, 6:16:59 PM	7/14/2021, 7:03:50 PM	46m 50s	apreston@heliossvcs.com	Attendee
Ed Gardner	7/14/2021, 6:35:19 PM	7/14/2021, 6:45:20 PM	10m		Attendee

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MEETING MEMORANDUM

PROJECT: Time and Temperature Building - 477 Congress Street

MEETING DATE: 7/14/2021

LOCATION: Virtual Neighborhood Meeting

ISSUED DATE: 7/15/2021

PRESENTERS:
Darrin Stairs – Civil Engineer
Marieke Thormann – Owners' Representative
David Llyod – Architect
Virginie Stanley – Architect
Andrew Preston – Building Owner
Larry Casillo – Hotel Operator

ATTENDEES:
Steve Landry - Maine Historical Society
Jennifer Packard - PKRM LLC
David Packard - PKRM LLC
Ellen Thompson - Northland Enterprises & Management
Drew Swenson - Paragon Management LLC
Christopher Leahy - Portland Land Development LLC
Chuck Steward - MRM Equity
Jason Raichle - Connecticut River Capital LLC
Peter Marcus
Beverley and Mike Ricci
Gerry Soule

A Neighborhood Meeting, hosted virtually, took place on Wednesday, July 14, 2021 at 6:00 pm in which presenters gave an overview of the Time and Temperature Building project.

The following are questions and comments received from attendees:

1. Question about sign on roof and concern about light shining in their unit in Kimball Court. Explained that the sign is historically protected and will remain. There will be an upgrade in electronics of sign.

2. Questions about when construction will start and which streets will be closed off. Answered by presenters and noted that a construction management plan will be submitted thru the planning process.

3. Question of how valet parking will work and where cars will be parked. System explained by operator and graphically shown.

4. Questions about rooftop bar and if a design for seagull control is being considered. Excellent question. Designers will consider and incorporate. Roof top operation explained and graphically shown in plan.

5. Question asked about any provisions for bus drop-off considered. Provisions will be looked at.

6. Question about impact on neighboring Maine Historical Society. Explained that owners have been in contact with Maine Historical Society and negotiating easements as needed during and after construction.

7. Comments made that this will be a great improvement to the neighborhood and City of Portland.

8. Question about gas meter location and to not have it located by the front door.

9. Question about cleaning of exterior of the building. Explained that any cleaning will be completed under the rules of the National Park Service.

10. Question about the location of mechanical roof top units.

11. Question about which street will be used for moving operations.

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Via Electronic Mail

July 16, 2021

Shukria Wiar, Planner
Planning & Urban Development Department
City of Portland
389 Congress Street, 4th Floor
Portland, ME 04101

Re: Time & Temperature Hotel – Response to Site Plan Review Comments

Dear Shukria:

Thank you for coordinating the review of the submitted Site Plan application for the proposed Time & Temperature Hotel located at 477 Congress Street, Portland, Maine. The following letter compiles responses to comments received from the City on June 23, 2021.

City Comments

The comments received are provided for reference and are italicized, with responses noted in blue.

A. Traffic Comments – Tom Errico

Initial comments submitted based on the review of the Traffic Memorandum prepared by VHB dated May 21, 2021.

Detailed traffic count data from 2018 and 2019 used in the traffic analysis shall be provided for review and approval.

> VHB used the Intersect program with the probe data provider INRIX to identify pre-Covid traffic data at the study area intersections. INRIX probe data is the aggregation of anonymized data collected from cellular phones, fleet trucks, sensors from connected devices and much more. This data was used to develop counts for July and October of 2019 for the intersections of Congress Street at Preble Street, Congress Street at Brown Street, Cumberland Avenue at Preble Street and Cumberland Avenue at Brown Street. The INRIX traffic volumes are provided attached. The City of Portland had also provided turning movement count information for the intersection of Congress Street at Preble Street collected in July 2018, and that data is also provided for comparison.

The trip generation estimate from the prior retail use assumed it generated 191 PM peak hour trips. This estimate seems high, and the applicant should consider other methods for estimating traffic to retail use in the downtown area.

> VHB used the smaller of the two rates, average vs. regression. The PM Peak average rate was 191 trips, while the regression rate was 330 trips. Any urban retail tends to generate mostly pedestrian trips which is not reflected in these numbers. In any case, the previous uses on the site were not used for any of the subsequent analysis and only for a point of comparison.

The applicant did not include any trips to the 5,100SF Roof Top Bar area of the project and I would request that further information be provided on this assumption.

As discussed in the meeting with City staff, the choice was made to estimate very conservatively high on the first-floor restaurant space and to not add trips associated with a seasonal, weather dependent, space on the roof. It is likely that the number of trips assigned to the restaurant (as a high turnover restaurant with a 100% auto mode share instead of a quality restaurant with no trips from the hotel or adjustments for transit, bike and walking trips) include trips associated with the seasonal bar when open. Information provided by the hotel operator regarding the patrons of rooftop bars (hotel guests, local residents, other urban hotel guests, resulting in low auto trips) supports this decision.

The traffic study should provide trip assignment information for hotel and retail/restaurant land uses separately. It should also provide assumptions for parking locations (valet and self-park scenarios).

The trip generation for the various uses on the site was added together and 75% of site visitors were assigned to circulate to the valet stand then to circulate around the block to enter the Brown Street garage counting as one entering trip. Similarly, trips exiting both the hotel and other uses (50%) were estimated to circulate back to the valet space prior to exiting the area counting as a single exiting trip. We will discuss with Tom Errico and provide backup as necessary.

A safety analysis of the High Crash Locations (HCL) noted in the report shall be performed.

As labeled in Figure 3 of the Traffic Memorandum, three of the four streets in the site area are current high crash locations (HCLs), but none of the study area intersections is considered a HCL. Each of the streets has seen 8-10 crashes in three years (2017-2019) with the majority of crashes involving property damage only (PDO), and in most situations the crashes were with parked cars.

- Congress: 100% PDO. 4 sideswipes of parked cars. 2 parked cars opened their doors into a moving vehicle. One rear end and one pulling out collision
- Preble: 7/8 crashes PDO, one crash Injury level C. 4 parked cars were hit, 3 angle collisions from pulling out of parking spaces.
- Cumberland: 9/10 PDO, last one Injury level C (10%). 4 reported crashes were with parked cars. The 1 injury was most likely a car hitting a jaywalker.

The Traffic Operations Analysis indicates Congress Street currently operates with little delay and queuing. The applicant should calibrate the Synchro Model to reflect actual field conditions.

As indicated in the meeting, upon receiving the comments, VHB visited the site to review the operations and queuing. Traffic volumes were approximately 30 percent lower than the previous count data. The maximum queue noted during the visit was six vehicles westbound and five vehicles eastbound (between queuing on Congress Street and queuing on Center Street). More typically however, the maximum queue each cycle averaged two vehicles westbound and three eastbound. These queues cleared each cycle during the visit.

B. Department of Public Services – Mike Tremblay

DPW does not support a valet operation on Congress Street. Congress Street is a congested urban thruway, with only one travel lane in each direction and a significant volume of bus and emergency vehicle traffic. Valet operations, under the best of circumstances, are often unpredictable; in order to run smoothly, the valet operator and each individual user needs to know and understand what is expected upon their arrival, which is extremely difficult, and complications are inevitable. For this reason, valet operations are preferred to occur within the site. At a similar sized hotel on High Street, valet operations often make one of the two northbound travel lanes unusable; this is undesirable, but tenable due to the fact that there are multiple northbound travel lanes. On Congress Street, a blockage of the travel lane adjacent to the valet spaces, for any length of time, is not acceptable. As such, DPW recommends that all valet operations occur on Preble Street, with plenty of signage and online guidance indicating that guests should circulate to Preble Street for valet. The Applicant should provide the City with examples of similar-sized hotels utilizing a street parking lane for valet operations.

The success of any hotel requires acceptable arrival and departure experiences, including location, appropriate staffing, and services/amenities. The success of hotel valet operations comes down to planning, organizing, and proper service execution. Experienced Hotel and Valet operators are involved with this project and will determine and schedule staffing levels accordingly to seamlessly operate during peak arrival/departure times (Friday afternoons, Sunday mornings, functions, etc.) to prevent backups.

Valet operations on Congress Street are critical to the operation of the hotel, and we would argue that not allowing for them could create the potential for more congestion and backups on Congress Street. The Time & Temperature Building has National Landmark status, and the historic entrance on Congress Street must remain as the building's primary entry point.

Although the concept of moving the valet to Preble with signage and guest instructions might make sense in theory, the hotel operator's experience with numerous hotels in large cities on busy urban streets, is that most guests will attempt to arrive at the front door and the street address, which is Congress Street. This will be despite signage, advanced directions, or attempts to geolocate them otherwise.

We propose to segregate the operations as shown on the attached Valet and Loading Zone exhibit. The valet/loading zones on Congress Street will allow for appropriate management of arrivals. The time-restricted loading zone to the west allows for the hotel and other local users to briefly stop to access this, or other local businesses.

A departure and additional overflow valet zone are proposed on Preble. This will provide the valet operation staging space to handle peak demands and also prioritize management of arrivals. We have designated a separate zone for commercial loading and unloading on Preble.

The scenario described above, segregating the arrival and staging/departure zones, is unique to any other hotel operation in the City, and along the goal of the hotel operator to provide the highest level of hotel experience, and the appropriate level of valet staffing to meet demand, will provide the greatest assurance the Congress Street traffic is minimally impacted by the operation of the hotel.

The Parking Management Company successfully operates several hotels in the downtown Boston area that present similar challenges if not operated effectively: a 242 room hotel on Washington St with restaurant space operates with approximately 6 curb spaces on a single lane road that has heavy bus traffic, a 342 room hotel located on Tremont St that incorporates a bike lane operates with 5 curb spaces, and a 225 room hotel with function space and restaurant operates on Berkeley St with 7 spaces. In all cases the parking facility for valet vehicles is located several blocks away.

The redesigned curb extension is supported by DPW, with edits. The curb extension requires pushing back the stop bar on Congress Street at Center Street, but this would result in vehicles blocking Center Street entirely. The curb extension should be redesigned with a larger radius (similar to the existing radius) to remove the need to move the stop bar. DPW would accept an apex pedestrian ramp at this location if necessary.

We have adjusted the curb return to comply with this request. Please see the attached Site Plan

Tree planters along Congress Street should be flush with the sidewalk, or they will conflict with parked car door openings.

We have adjusted the tree planter locations. Please see the attached Site Plan

Please add slope arrows and any break lines to the grading plan.

We have added slope arrows and break lines. Please see the attached grading plan.

Ramps should be considered for the valet area(s).

Adding ramps is not desirable for the use, as a defined curb and landing area is preferred by the Hotel and Valet operator.

The grading plan indicates a large sawcut area, indicating that the cross-section of Congress Street is changing. Existing and proposed cross-section should be provided. Please indicate on spot grades the elevation delta where applicable.

We have added slope arrows and break lines. Please see the attached grading plan.

Bike racks are recommended between the tree planters.

We will provide bike racks in locations that are acceptable to the City.

It is assumed that commercial loading will take place in the hotel loading (i.e., overflow valet) spaces on Preble Street. Please clarify.

This is correct. Please see attached Valet and Loading Zone exhibit.

It is not clear where valet cars will be parked. Valet cars should be parked nearby in an easily accessible facility, to maintain smooth valet operations. This is especially important since valet operations are proposed in the ROW; this concern applies to Preble Street and especially for Congress Street, as a suboptimal parking location would lengthen the amount of time vehicles are parked in the ROW, and potentially increase the time the adjacent travel lane is negatively affected by this activity.

Cars will be parked in 45-Brown garage. It is also important to note that the developer and operator have been in conversations with other garage owners and operators in the downtown area and would be able to negotiate additional parking if needed (eg. for special events). This is very common for the Hotel Operator.

C. Planning Comments – Shukria Wiar

Address how the project will meet the Transportation Demand Management standard

The Project is committed to implementing a TDM plan. A Transportation Coordinator will be appointed that will manage the plan including the collection of survey data to determine the mode shares of existing employees and determine the barriers to increased public transit, bicycle, and pedestrian transportation. The site is ideally located to encourage the use of alternative modes to access the site. The dense urban location means that significant pedestrian infrastructure is present including sidewalks and crosswalks along all desire lines.

The project is located across from Monument Square where a number of routes to South Portland stop, and a block away from the Metro Pulse where other routes in the system stop. This location is well suited to result in a high percentage of transit riders. In addition, because no site parking will be provided for employees, alternative modes will be encouraged. As a result, the Project is committed to providing staff with subsidized transit passes and will post the Metro schedules in employee areas. In addition to transit opportunities, there will be an area where potential ride sharing opportunities can be posted and area transportation providers.

To encourage employees to bicycle and run/walk, employee showers and lockers will be provided on site. In addition, covered secure bicycle parking will also be provided. The local bicycle route information will also be posted in employee areas.

For guests, hotel will be well versed in the local bicycle trail networks and walkability of Portland as well as opportunities for guests to use transit or walk to local destinations. Bicycle parking will be provided at the front of the site for trips to and from the restaurant and retail space on site.

State Review that need to be forwarded to the Planning Department: State Historical Preservation Commission and National Park Service.

These reviews are in progress, and we will update/provide copies to the City as approvals are received.

What is the parking spaces need based on the parking study?

Based on the Institute of Transportation Engineers (ITE) Parking Generation manual 5th edition, an urban hotel is expected to experience its peak parking demand overnight at a rate of 0.37 spaces per room resulting in a peak demand of 69 parking spaces. The owner has indicated that the parking garage has excess supply at all hours, but especially overnight. As indicated in the meeting, there is joint ownership of the proposed hotel and garage properties and the ability to allocate parking spaces as needed.

Exterior Lighting plan with photometric need to be submitted.

These plans are being developed and will be submitted under separate cover.

What the building fully vacant in 2018?

The building was approximately 25% occupied in 2018 and was fully vacant by June 2019.

Confirm the number of guestrooms.

The current design is for 186 rooms.

Where will the valet parking the cars at; which parking garage is being used, if any?

Cars will be parked in 45-Brown garage. It is also important to note that the developer and operator have been in conversations with other garage owners and operators in the downtown area and would be able to negotiate additional parking if needed (e.g., for special events). This is very common for the Hotel Operator.

What will happen on-site, regarding parking and loading, when there is a larger gathering at the hotel?

As described above, the segregation of operations, as well as the appropriate level of planning and staffing for peak times will ensure smooth operations of the service.

There was a question about traffic congestion on Congress Street and getting a police car and/or emergency vehicle through; how would this be addressed with the new use?

With proposed valet areas and proper planning and scheduling of staff members, the hotel valet will not interfere with the flow of traffic. We believe the lack of adequate valet space on Congress would have more of an impact on the flow of traffic.

Submit templates as to how a larger vehicle like, the City bus, will make the turn onto Congress Street.

Please see the attached exhibit depicting a fire truck turning movement around the curb return.

D. Transportation Program - Bruce Hyman Comments

1. Turning template needed for METRO bus with new curb alignment at Preble-Congress (a tighter radius than currently provided)?

Please see the attached exhibit depicting a fire truck turning movement around the curb return.

2. Do site plans reflect the updated signal project on Congress at Preble?

Yes. The signal changes at Congress Street and Preble Street included pedestrian signal upgrades and have already been implemented. The operation will remain the same as presented.

3. Document valet service times and distances - seems much farther than the ~330' for Press Hotel from valet stand to parking lot (what is route valet drivers will take - is there an internal route from Preble St to the garage?) - what are their parking plans for when/if the garage is redeveloped.

Cars will be parked in 45-Brown garage. It is also important to note that the developer and operator have been in conversations with other garage owners and operators in the downtown area and would be able to negotiate additional parking if needed (e.g., for special events). This is very common for the Hotel Operator.

The Parking Management Company successfully operates several hotels in the downtown Boston area that present similar challenges if not operated effectively: a 242 room hotel on Washington St with restaurant space operates with approximately 6 curb spaces on a single lane road that has heavy bus traffic, a 342 room hotel located on Tremont St that incorporates a bike lane operates with 5 curb spaces, and a 225 room hotel with function space and restaurant operates on Berkeley St with 7 spaces. In all cases the parking facility for valet vehicles is located several blocks away.

4. *Curb installation/reset with concrete (not backfilled with gravel) - the detail shows gravel.*

   This detail will be adjusted on the construction documents.

5. *What is plan for building entrances to be ADA-accessible - some don't appear to be*

   That is correct, that some entrances are not ADA Accessible. The primary ADA access will be from the main entrance at 477 Congress Street.

6. *What is the status of vaults that currently have metal plates over them - site plan shows bricked in(?) - still need the bollards or are they to be removed? - I don't see a demolition plan that addresses this - is the symbology on the site plan (shows bricked in) misleading with what may end up there?*

   These vaults will be replaced. We are still in coordination with CMP on location and sizes. The notes on the demolition plan will be clarified once the design is confirmed with CMP.

7. *Needs bike racks on Preble and Congress Streets*

   We will provide bike racks in locations that are acceptable to the City.

8. *Tree wells 4' outside dimension; need radius corners; maintain min 8' between building face and tree wells - don't see a tree well detail*

   The tree wells are located approximately 9 feet from the building face. It has been requested by DPW that these tree wells be flush versus raised. A detail will be added to the final Construction Documents.

9. *This project will need a TDM plan since there is more than 50,000 SF of commercial or institutional use per the ordinance.*

   The Project is committed to implementing a TDM plan. A Transportation Coordinator will be appointed that will manage the plan including the collection of survey data to determine the mode shares of existing employees and determine the barriers to increased public transit, bicycle and pedestrian transportation. The site is ideally located to encourage the use of alternative modes to access the site. The dense urban location means that significant pedestrian infrastructure is present including sidewalks and crosswalks along all desire lines.

   The project is located across from Monument Square where a number of routes to South Portland stop and a block away from the Metro Pulse where other routes in the system stop. This location is

well suited to result in a high percentage of transit riders. In addition, because no site parking will be provided for employees, alternative modes will be encouraged. As a result, the Project is committed to providing staff with subsidized transit passes and will be posting the Metro schedules in employee areas. In addition to transit opportunities, there will be an area where potential ride sharing opportunities can be posted and area transportation providers.

To encourage employees to bicycle and run/walk, employee showers and lockers will be provided on site. In addition, covered secure bicycle parking will also be provided. The local bicycle route information will also be posted in employee areas.

For guests, hotel will be well versed in the local bicycle trail networks and walkability of Portland as well as opportunities for guests to use transit or walk to local destinations. Bicycle parking will be provided at the front of the site for trips to and from the restaurant and retail space on site.

If you have any questions or require additional information, please do not hesitate to contact me at 207-558-3662 or email me at dstairs@woodardcurran.com.

Sincerely,

WOODARD & CURRAN, INC.

Darrin Stairs, PE
Project Manager

cc: Marieke Thormann, Fathom Companies
David Lloyd, Archetype Architects
Jenn Connelly - VHB

Attachments:

- Valet and Loading Zone Exhibit
- Revised Plan Sheet C-200 Site Plan (also uploaded separately to Eplan)
- Revised Plan Sheet C-201 Grading and Drainage Plan (also uploaded separately to Eplan)
- AASHTO Vehicle Tracking Figure – Fire Truck
- Traffic Exhibits

PN: 232868.00

PREBLE STREET

PUBLIC MARKET

REMOVE AND RESET GRANITE CURB (TYP.)

RESET SIGN, COORDINATE WITH CITY (TYP.)

REMOVE AND PROTECT PAY BOX, TO BE RESET, COORDINATE WORK W/CITY PLANNING DEPARTMENT

COMMERCIAL LOADING/ UNLOADING ZONE

HOTEL VALET (DEPARTURES/ STAGING)

14' GRANITE TIPDOWN TERMINAL CURB, SEE DETAIL

ADA ACCESSIBLE CURB RAMP, SEE DETAIL (TYP.)

86' NON-RESTRICTED PARKING

44' COMMERCIAL LOADING ZONE

86' NO PARKING, HOTEL LOADING ONLY

MATCH GRADE AT EXISTING PAVED DRIVEWAY APRON

DEMOLISH CONCRETE SIDEWALK AND PROVIDE BRICK SIDEWALK, SEE DETAIL

ADA ACCESSIBLE CURB RAMP W/DETECTABLE WARNING SURFACE, SEE DETAIL (TYP.)

PROTECT EXISTING ELECTRICAL BOX AND SIGNAL POLE

REMOVE AND PROTECT MAIL BOXES, TO BE RESET, COORDINATE WORK W/CITY PLANNING DEPARTMENT AND USPS

PROVIDE BRICK SIDEWALK (TYP.) SEE DETAIL

REMOVE AND RESET GRANITE CURB (TYP.)

FLUSH GRANITE TREE WELL (TYP. OF 3) SEE DETAIL

REMOVE EXISTING CONCRETE PLANTER

REMOVE AND REPLACE SIGN W/"VALET PARKING ONLY"

REMOVE AND SALVAGE PARKING METERS, DELIVER TO CITY PUBLIC WORKS DEPARTMENT

NEW RAMP

MATCH BRICK SIDEWALK TO EXISTING GRADE AND BRICK PATTERN

RESTRIPE EXISTING CROSSWALK

SAWCUT EXISTING PAVEMENT

BITUMINOUS PAVEMENT, SEE DETAIL

HOTEL VALET (ARRIVALS/ DROPOFFS)

86' NO PARKING, HOTEL LOADING ONLY

15 MINUTE LOADING/ UNLOADING ZONE

64' 15-MINUTE LOADING/ UNLOADING

CONGRESS STREET

GREASE TRAP, SEE UTILITY PLAN

EXISTING ANNEX TO BE DEMOLISHED

#338 CUMBERLAND AVE.

#28 PREBLE ST.

#38 PREBLE ST.

#24 PREBLE ST.

#45 BROWN ST.

#41 BROWN ST.

PARCEL 2 AREA= 803± S.F.

PROPOSED AREA= 48,460 S.F. ± 1.11 ACRES ±

PASSAGEWAY PART OF DEED "A" RIGHTS OF USAGE IN IT

PROPERTY LINE IS THE SOUTHWST WALL OF THE WADSWORTH

FIRE ESCAPE SEE AGREEMENT BETWEEN COMMERCE BUILDING, INC. AND MANSFIELD BEAUTY ACADEMY DATED FEB. 25, 1985

RIGHT TO LIGHT AND AIR IN THE AREA OR COURT IN THE REAR OF THE WADSWORTH. RIGHT TO MAINTAIN FIRE ESCAPE

FORMER PROPERTY LINE IS A "PROLONGATION OF THE OUTSIDE FACE OF THE WEST WALL OF BUILDING AT CUMBERLAND AVE. AND PREBLE ST.

FORMER PROPERTY LINE IS THE OUTSIDE FACE OF ALLEN STORAGE WAREHOUSE WALL

PROPERTY LINE IS OUTSIDE FACE OF ALLEN STORAGE WAREHOUSE WALL. ORIGINALLY REFEREED TO AS CENTER OF PARTY WALL BETWEEN KEITH'S THEATER AND ALLEN STORAGE WAREHOUSE

PROPERTY LINE IS 0.09' WEST (FREE) OF BUILDING LINE

FORMER PROPERTY LINE IS THE OUTSIDE FACE OF THE FORMER STAGE ENTRANCE TO KEITH'S THEATER, NO DEMOLISHED. LOCATION BASED ON MARKINGS ON EXISTING BUILDING FACE

PAVED PARKING AREA 34 REGULAR SPACES FORMERLY KEITH'S THEATRE

PAVED – OPEN AIR

N/F EARL APARTMENTS LLC 17591/197 (2182/479) (1091/438) TM 37 BLOCK F LOT 5 "THE WADSWORTH" 6 STORY

N/F 24 PREBLE STREET PROPERTIES LLC 33029/19 /F PENNESSEEWASEE LLC 13502/253 (3375/256) (1091/295) TM 37 BLOCK F LOT 7 "FIRESTONE BUILDING" 4 STORY

N/F PREBLE STREET 29228/170 (1125/269)

/F HELDENBRAND 14612/231

N/F SWEETWATER PARTNERS LLC 34349/251 (4907/138 4907/161) (1125/270) ITEM 11 TM 37 BLOCK F LOT 9 8 STORY FORMERLY ALLEN'S STORAGE WAREHOUSE

BROWN TOWERS LLC 35610/345 TM 37 BLOCK F LOT 2

#45 BROWN ST. TM 37 BLOCK F LOT 2 4 STORY PARKING GARAGE 277 REGULAR SPACES 5 HANDICAP SPACES

N/F MHS, INC. 10467/207 (4367/59 4373/30) TM 37 BLOCK F LOT 12 #41 BROWN ST.

MAINE HISTORICAL SOCIETY

NEIGHBORING BUILDING

RETAIL 59 2378 SF

FITNESS 58 3335 SF

KITCHEN 44

RESTAURANT 45

12587/184

N:300288.85
E:2928143.52

N:300657.06
E:2927809.01

N:300446.78
E:2927558.71

20' 0 20' 40'

BAR SCALE
1" = 20'
CHECK GRAPHIC SCALE BEFORE USING

NOT FOR CONSTRUCTION

41 Hutchins Drive
Portland, Maine 04102
800.426.4262 | www.woodardcurran.com

COMMITMENT & INTEGRITY DRIVE RESULTS

WOODARD & CURRAN

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REV	DESCRIPTION	DATE
1	RESPONSE TO CITY COMMENTS	07/16/21

DESIGNED BY: ANL
DRAWN BY: JBC
CHECKED BY: DBS

02\232868.00-C-200.dwg

OVERALL SITE PLAN

477 CONGRESS HOTEL
PORTLAND, MAINE

TT MAINE VENTURE, LLC
3100 MCKINNON STREET, SUITE 250
DALLAS, TX 75201

JOB NO.:0232868.00
DATE: APRIL 2021
SCALE: 1" = 20'
SHEET: 2 OF 7

C-200

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PREBLE STREET

CONGRESS STREET

PUBLIC MARKET

#338 CUMBERLAND AVE.

#45 BROWN ST.

#41 BROWN ST.

#38 PREBLE ST.

#28 PREBLE ST.

#24 PREBLE STREET

MAINE HISTORICAL SOCIETY

NEIGHBORING BUILDING

EXISTING ANNEX TO BE DEMOLISHED

PARCEL 2
AREA=
803± S.F.

PROPOSED AREA=
48,460 S.F. ±
1.11 ACRES ±

TM 37 BLOCK F LOT 2

TM 37 BLOCK F LOT 5
"THE WADSWORTH"
6 STORY

TM 37 BLOCK F LOT 7
"FIRESTONE BUILDING"
4 STORY

N:300657.06
E:2927809.01

N:300446.78
E:2927558.71

N:300288.85
E:2928143.52

RETAIL
59
2378 SF

FITNESS
58
3335 SF

KITCHEN
44

RESTAURANT
45

REMOVE AND RESET GRANITE CURB (TYP.)

RESET SIGN, COORDINATE WITH CITY (TYP.)

REMOVE AND PROTECT PAY BOX, TO BE RESET, COORDINATE WORK W/CITY PLANNING DEPARTMENT

14' GRANITE TIPDOWN TERMINAL CURB, SEE DETAIL

ADA ACCESSIBLE CURB RAMP, SEE DETAIL (TYP.)

86' NON-RESTRICTED PARKING

44' COMMERCIAL LOADING ZONE

86' NO PARKING, HOTEL LOADING ONLY

RESTRIPE EXISTING CROSSWALK

R15.0'

R20.0'

R45'

SAWCUT EXISTING PAVEMENT

BITUMINOUS PAVEMENT, SEE DETAIL

MATCH GRADE AT EXISTING PAVED DRIVEWAY APRON

DEMOLISH CONCRETE SIDEWALK AND PROVIDE BRICK SIDEWALK, SEE DETAIL

ADA ACCESSIBLE CURB RAMP W/DETECTABLE WARNING SURFACE, SEE DETAIL (TYP.)

PROTECT EXISTING ELECTRICAL BOX AND SIGNAL POLE

REMOVE AND PROTECT MAIL BOXES, TO BE RESET, COORDINATE WORK W/CITY PLANNING DEPARTMENT AND USPS

PROVIDE BRICK SIDEWALK (TYP.) SEE DETAIL

REMOVE AND RESET GRANITE CURB (TYP.)

FLUSH GRANITE TREE WELL (TYP. OF 3) SEE DETAIL

REMOVE EXISTING CONCRETE PLANTER

REMOVE AND REPLACE SIGN W/"VALET PARKING ONLY"

REMOVE AND SALVAGE PARKING METERS, DELIVER TO CITY PUBLIC WORKS DEPARTMENT

NO PARKING, HOTEL LOADING ONLY

15-MINUTE LOADING/UNLOADING

64'

NEW RAMP

MATCH BRICK SIDEWALK TO EXISTING GRADE AND BRICK PATTERN

EXISTING STAIRS

NEW STAIR FROM MT CONGRESS BASEMENT UP TO 4TH FLOOR MAINE TCE TO BE LOCATED WITHIN THE EXISTING BUILDING

GREASE TRAP, SEE UTILITY PLAN

FORMER PROPERTY LINE IS A "PROLONGATION OF THE OUTSIDE FACE OF THE WEST WALL OF BUILDING AT CUMBERLAND AVE. AND PREBLE ST.

PROPERTY LINE IS THE SOUTHWST WALL OF THE WADSWORTH

FORMER PROPERTY LINE IS THE OUTSIDE FACE OF ALLEN STORAGE WAREHOUSE WALL

PROPERTY LINE IS OUTSIDE FACE OF ALLEN STORAGE WAREHOUSE WALL, ORIGINALLY REFEREED TO AS CENTER OF PARTY WALL BETWEEN KEITH'S THEATER AND ALLEN STORAGE WAREHOUSE

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FIRE ESCAPE SEE AGREEMENT BETWEEN COMMERCE BUILDING, INC. AND MANSFIELD BEAUTY ACADEMY DATED FEB. 25, 1985

RIGHT TO LIGHT AND AIR IN THE AREA OR COURT IN THE REAR OF THE WADSWORTH. RIGHT TO MAINTAIN FIRE ESCAPE

RIGHT IN COMMON WITH OTHERS TO USE PASSAGEWAY

FORMER PROPERTY LINE IS THE OUTSIDE FACE OF THE FORMER STAGE ENTRANCE TO KEITH'S THEATER, NO DEMOLISHED. LOCATION BASED ON MARKINGS ON EXISTING BUILDING FACE

UTILITY RIGHTS

CHIMNEY–RIGHT TO MAINTAIN CHIMNEY

N/F
EARL APARTMENTS LLC
17591/197
(2182/479)
(1091/438)

N/F
24 PREBLE STREET PROPERTIES LLC
33029/19
/F PENNESSEEWASEE LLC
13502/253
(3375/256)
(1091/295)

N/F
PREBLE STREET
29228/170
(1125/269)

/F
HELDENBRAND
14612/231

N/F
SWEETWATER PARTNERS LLC
34349/251
(4907/138 4907/161)
(1125/270) ITEM 11
TM 37 BLOCK F LOT 9

N/F
BROWN TOWERS LLC
35610/345

N/F
MHS, INC.
10467/207
(4367/59 4373/30)
TM 37 BLOCK F LOT 12

12587/184

8 STORY
FORMERLY
ALLEN'S STORAGE WAREHOUSE

4 STORY PARKING GARAGE
277 REGULAR SPACES
5 HANDICAP SPACES

34 REGULAR SPACES
FORMERLY KEITH'S THEATRE

PAVED PARKING AREA

PAVED – OPEN AIR

"M" MONUMENT w/DRILL HOLE
RIM=54.55
12" INV. IN=49.05
12" HOOD OUT=48.85

TBM: BONNET BOLT HYDRANT
ELEV.=68.17

MH RIM=54.55
6"INV. IN=48.15
15"INV. IN=46.15
12"INV. IN=48.05
15"INV. OUT=46.05

CB RIM=54.75
INV. OUT=50.05

CB RIM=53.99
INV. OUT=49.9

MH RIM=57.46
15"INV. IN=57.46
15"INV. OUT=57.16

MH RIM=79.57
15"INV. IN=70.17
15"INV. OUT=70.07

MH RIM=79.98
12"RPP INV. IN=74.68
15" INV. IN=70.48
12"PVC INV. IN=72.88
15" INV. OUT=70.38

CB RIM=79.42
12"RPP INV. OUT=73.72

MH RIM=80.05
12"PVC INV. IN=75.75

MH RIM=83.29
15"INV. IN=74.89
15"INV. OUT=74.79

CB RIM=77.10
12" INV. IN=65.80
BOTTOM TRAP OUT=65.70

MH RIM=77.53
6" INV. IN=63.73
6"INV. OUT=63.63

RIM=77.91
8"VC IN=71.1
8"VC IN=71.0
15"VC IN=70.5
15"VC OUT=70.4

RIM=72.93
H2O=69.03

SMH RIM=63.51
8"INV. IN=53.21
8"INV. OUT=55.81

SMH RIM=62.85
15"INV. IN=56.95
12"INV. IN=56.75
15"INV. OUT=56.75

"M" MONUMENT (2015)
(GONE 2019)
RIM=62.31

RIM=70.22
15"INV. IN=63.22
15"INV. IN=62.22
15"INV. OUT=62.12

RIM=70.40
15"INV. IN=63.30
15"INV. OUT=63.20

RIM=76.58
15"PVC IN=65.68
15"PVC OUT=65.68

RIM=76.87
15"PVC IN=69.27
15"VC IN=63.37
6"PVC IN=63.37
15"PVC OUT=63.27

RIM=80.64
10"VC IN=63.54
15"VC IN=63.64
15"VC OUT=63.34

DRILL HOLE 3" OFFSET CUMBERLAND AVE. CORNER BROWN STREET

DRILL HOLE 0.3" INTO STREET

"M" MONUMENT w/DRILL HOLE

DRILL HOLE 0.2' OFFSET

2228 OSCAR BZ

2226 UP BZ

2224 UP BZ

2225 UP BZ

2206 UP BZ

NEW UP – NO WIRES

OVERHEAD WIRES ENCROACH ONTO PREMISES 0.3'

UPPER LEVEL OF PARKING GARAGE ENCROACHES UP TO 4.5'

0.17' FREE

0.85' FREE

0.14' FREE

0.29' FREE

0.07' INTO STREET

2.20'

1.56'

0.12' FREE

0.27' FREE

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BAR SCALE
1" = 20'
CHECK GRAPHIC SCALE BEFORE USING

NOT FOR CONSTRUCTION

41 Hutchins Drive
Portland, Maine 04102
800.426.4262 | www.woodardcurran.com

COMMITMENT & INTEGRITY DRIVE RESULTS

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REV	DESCRIPTION	DATE
1	RESPONSE TO CITY COMMENTS	07/16/21

DESIGNED BY: ANL
DRAWN BY: JBC
CHECKED BY: DBS

02.232868.00-C-200.dwg

OVERALL SITE PLAN

477 CONGRESS HOTEL
PORTLAND, MAINE

TT MAINE VENTURE, LLC
3100 MCKINNON STREET, SUITE 250
DALLAS, TX 75201

JOB NO.:02.232868.00
DATE: APRIL 2021
SCALE: 1" = 20'
SHEET: 2 OF 7

C-200

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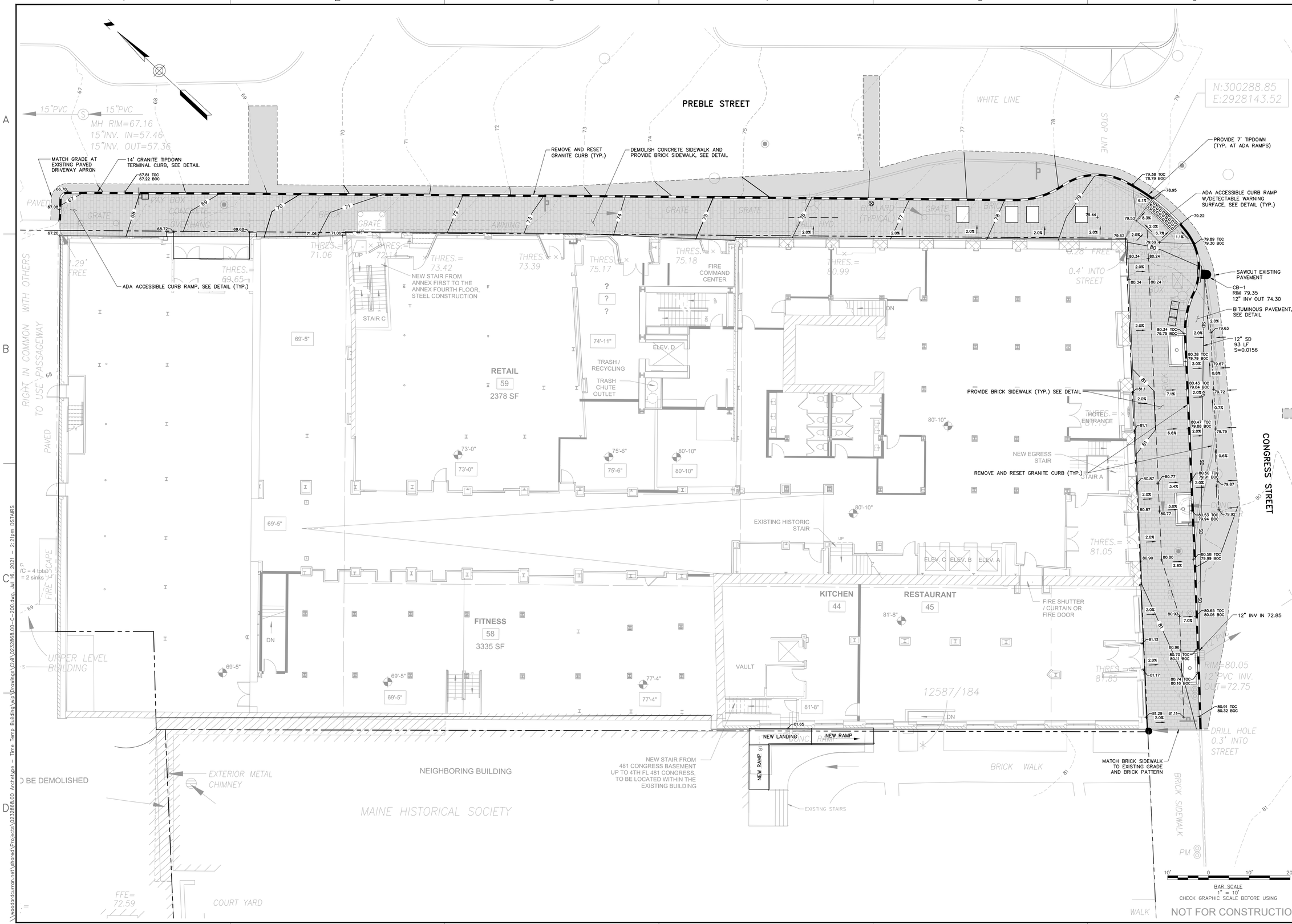

24x36 SHEET 1:1

41 Hutchins Drive
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REV	DESCRIPTION	DATE
1	RESPONSE TO COMMENTS	07/16/21

DESIGNED BY: ANL
DRAWN BY: JBC
CHECKED BY: DBS
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GRADING AND DRAINAGE PLAN

477 CONGRESS HOTEL
PORTLAND, MAINE

TT MAINE VENTURE, LLC
3100 MCKINNON STREET, SUITE 250
DALLAS, TX 75201

JOB NO.:0232868.00
DATE: APRIL 2021
SCALE: 1" = 10'
SHEET: 3 OF 7

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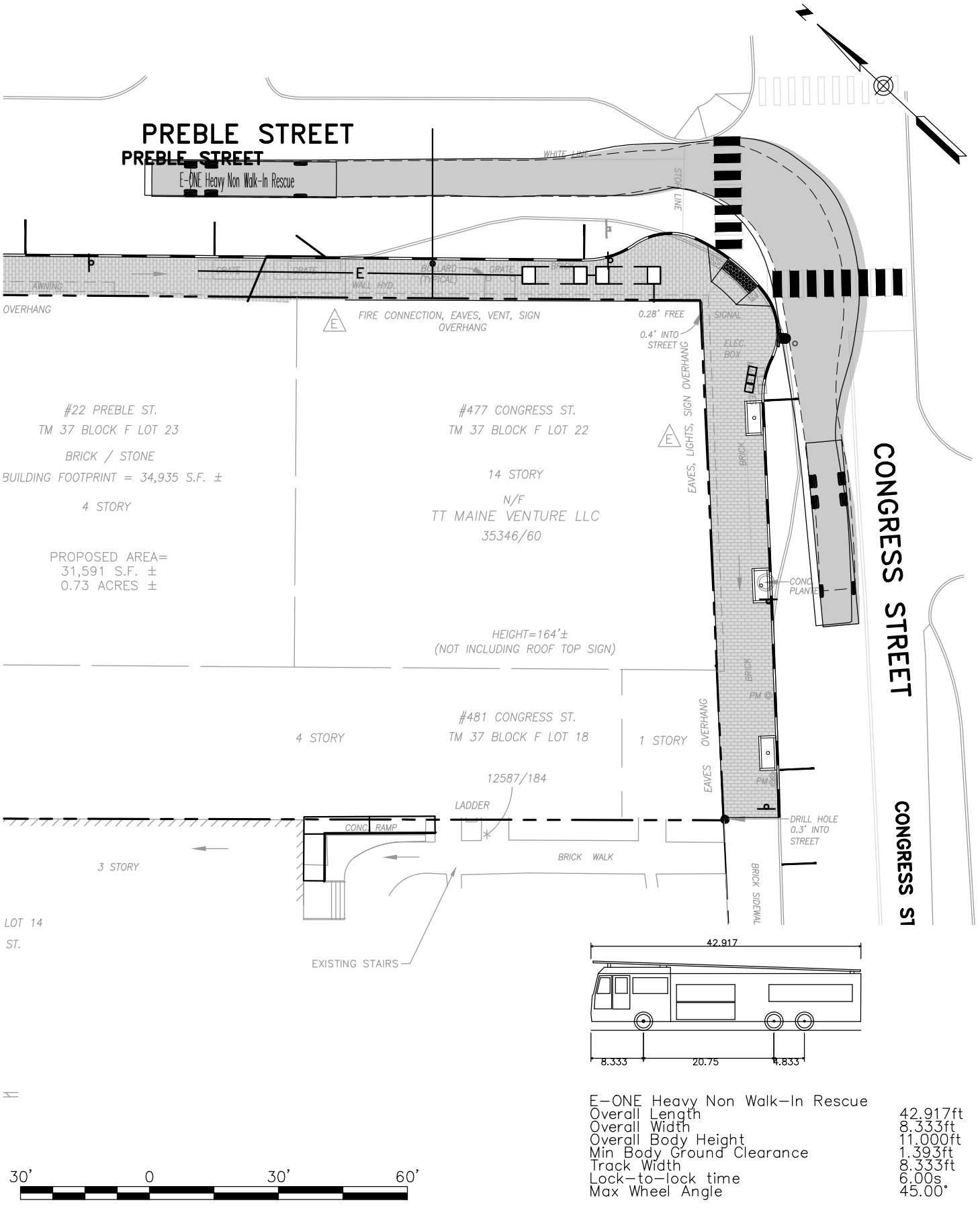

E-ONE Heavy Non Walk-In Rescue	
Overall Length	42.917ft
Overall Width	8.333ft
Overall Body Height	11.000ft
Min Body Ground Clearance	1.393ft
Track Width	8.333ft
Lock-to-lock time	6.00s
Max Wheel Angle	45.00°

30' 0 30' 60'

WOODARD & CURRAN
41 Hutchins Drive
Portland, Maine 04102
800.426.4262 | www.woodardcurran.com
COMMITMENT & INTEGRITY DRIVE RESULTS

AASHTO VEHICLE TRACKING FIRE TRUCK

DESIGNED BY:	CHECKED BY:
DRAWN BY: JBC	0232868.00-C-200.dwg

477 CONGRESS HOTEL
PORTLAND, MAINE

HRI PROPERTIES
812 GRAVIER STREET, SUITE 200
NEW ORLEANS, LA 70112

JOB NO: 0232868.00
DATE: JULY 2021
SCALE: 1" = 30'

Fire

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TRAFFIC EXHIBITS AND SUPPLMENTARY DATA

H. C. L.
CRASH COLLISION DIAGRAM
DATA PACKAGE

COUNTY: **CUMBERLAND** TOWN: **PORTLAND**

LOW NODE: **18977** HIGH NODE: **18998** REGION: **1** U/R: **URBAN**

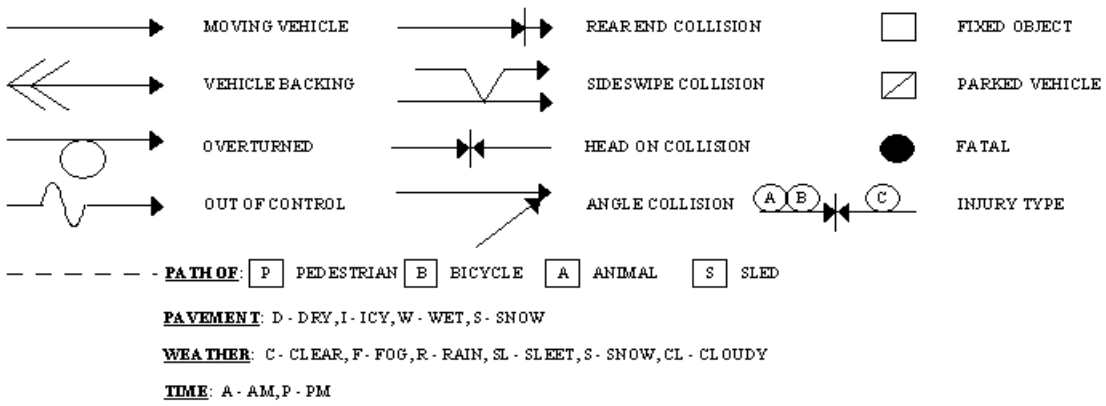
DESCRIPTION: **Congress St from Center St to Brown St**

RTE # / RD #: **0560160** DATE DRAWN: **6/22/2020** DRAWN BY: **BOB K**

STUDY FROM: **1/1/2017** STUDY TO: **12/31/2019**

CRASH RATE: **2022.96** CRF: **2.88** % INJURY: **0** TOTAL CRASHES: **8**

LEGEND



Prepared by Office of Safety
RFK3 6-22-20

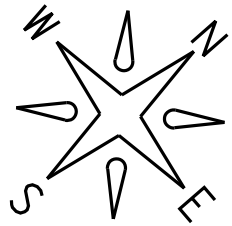
Portland

Link: 18977-18998

Element: 194663

Study Period: 2017-2019

# of Crashes: 8 / CRF: 2.88



18998

18977

side-swiped parked car

angle collision pulling out from parking space

979 1-10-19 2:58P D/CL Fail To Keep In Lane

5100 2-10-19 10:50A D/C Fail to yield

Congress St.

73722 11-27-19 12:47P D/CL Opened door

parked car opened door, hit moving vehicle

rear-ended car while driving

48635 4-9-19 1:48P W/R Follow too close

parked car opened door, hit moving vehicle

34205 11-18-18 3:10P D/C Opened door

8464 3-9-18 5:42P W/CL Hit & Run

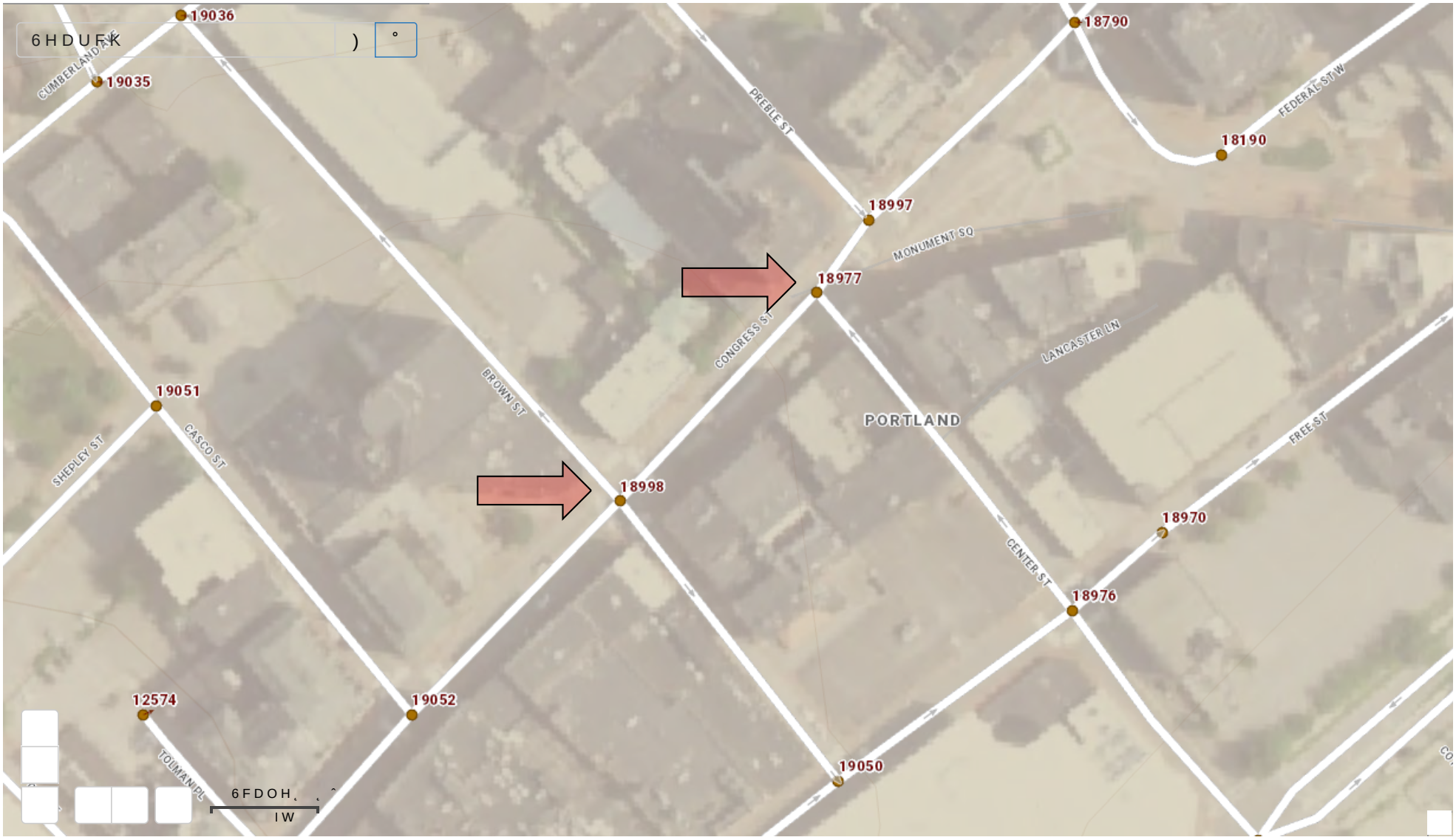
6383 2-17-17 5:03P W/C Improper lane change

30079 10-19-18 11:28A W/C Improper pass

side-swiped parked car

side-swiped parked car

side-swiped parked car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Crash Summary Report

Report Selections and Input Parameters

REPORT SELECTIONS

☑ **Crash Summary I - Single Element**	☐ **Section Detail**	☑ **Crash Summary II**	☐ **1320 Public**	☐ **1320 Private**	☐ **1320 Summary**

REPORT DESCRIPTION

Portland
Congress St from Center St to Brown St

REPORT PARAMETERS

Year 2017, Start Month 1 through Year 2019 End Month: 12

Route: **0560160**	Start Node: **18977**	Start Offset: **0**	☑ **Exclude First Node**
	End Node: **18998**	End Offset: **0**	☑ **Exclude Last Node**

Crash Summary I

Sections

Start Node	End Node	Element	Offset Begin - End	Route - MP	Section Length	U/R	Total Crashes	Injury Crashes K	A	B	C	PD	Percent Injury	Annual HMVM	Crash Rate	Critical Rate	CRF
18977	18998	194663	0 - 0.05	0560160 - 1.17	0.05	2	8	0	0	0	0	7	0.0	0.00132	2022.96	702.93	2.88
Int of CENTER ST	CONGRESS ST			RD INV 05 60160											Statewide Crash Rate: 220.75		
Study Years:	3.00			**Section Totals:**	0.05		8	0	0	0	0	7	0.0	0.00132	2022.96	702.93	2.88

Crash Summary

Section Details

Start Node	End Node	Element	Offset Begin - End	Route - MP	Total Crashes	Injury Crashes K	A	B	C	PD	Crash Report	Crash Date	Crash Mile Point	Injury Degree
18977	18998	194663	0 - 0.05	0560160 - 1.17	8	0	0	0	0	7	2018-30079	10/19/2018	1.18	PD
											2019-5100	02/10/2019	1.18	PD
											2019-48635	04/09/2019	1.18	PD
											2019-73722	11/27/2019	1.18	PD
											2019-979	01/10/2019	1.18	PD
											2018-34205	11/18/2018	1.19	PD
											2017-6383	02/17/2017	1.19	PD
											2018-8464	03/09/2018	1.20	
				Totals:	8	0	0	0	0	7				

Crash Summary II - Characteristics

Crashes by Day and Hour

	AM												PM													
	Hour of Day																									
Day Of Week	**12**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**Un**	**Tot**
SUNDAY	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	2
MONDAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TUESDAY	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
WEDNESDAY	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
THURSDAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
FRIDAY	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2	0	0	0	0	0	0	0	3
SATURDAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	0	2	0	0	0	0	0	0	0	**8**

Vehicle Counts by Type

Unit Type	Total
1-Passenger Car	8
2-(Sport) Utility Vehicle	2
3-Passenger Van	0
4-Cargo Van (10K lbs or Less)	0
5-Pickup	1
6-Motor Home	0
7-School Bus	0
8-Transit Bus	3
9-Motor Coach	0
10-Other Bus	0
11-Motorcycle	0
12-Moped	0
13-Low Speed Vehicle	0
14-Autocycle	0
15-Experimental	0
16-Other Light Trucks (10,000 lbs or Less)	0
17-Medium/Heavy Trucks (More than 10,000 lbs)	1
18-ATV - (4 wheel)	0
20-ATV - (2 wheel)	0
21-Snowmobile	0
22-Pedestrian	0
23-Bicyclist	0
24-Witness	0
25-Other	1
26-Construction	0
27-Farm Vehicle	0
Total	**16**

Crash Summary II - Characteristics

Crashes by Driver Action at Time of Crash

Driver Action at Time of Crash	Dr 1	Dr 2	Dr 3	Dr 4	Dr 5	Other	Total
No Contributing Action	4	2	0	0	0	0	6
Ran Off Roadway	0	0	0	0	0	0	0
Failed to Yield Right-of-Way	0	2	0	0	0	0	2
Ran Red Light	0	0	0	0	0	0	0
Ran Stop Sign	0	0	0	0	0	0	0
Disregarded Other Traffic Sign	0	0	0	0	0	0	0
Disregarded Other Road Markings	0	0	0	0	0	0	0
Exceeded Posted Speed Limit	0	0	0	0	0	0	0
Drove Too Fast For Conditions	0	0	0	0	0	0	0
Improper Turn	0	0	0	0	0	0	0
Improper Backing	0	0	0	0	0	0	0
Improper Passing	0	1	0	0	0	0	1
Wrong Way	0	0	0	0	0	0	0
Followed Too Closely	0	1	0	0	0	0	1
Failed to Keep in Proper Lane	2	0	0	0	0	0	2
Operated Motor Vehicle in Erratic, Reckless, Careless, Negligent or Aggressive Manner	0	0	0	0	0	0	0
Swerved or Avoided Due to Wind, Slippery Surface, Motor Vehicle, Object, Non-Motorist in Roadway	0	0	0	0	0	0	0
Over-Correcting/Over-Steering	0	0	0	0	0	0	0
Other Contributing Action	1	0	0	0	0	0	1
Unknown	0	0	0	0	0	0	0
Total	**7**	**6**	**0**	**0**	**0**	**0**	**13**

Crashes by Apparent Physical Condition And Driver

Apparent Physical Condition	Dr 1	Dr 2	Dr 3	Dr 4	Dr 5	Other	Total
Apparently Normal	6	6	0	0	0	0	12
Physically Impaired or Handicapped	0	0	0	0	0	0	0
Emotional(Depressed, Angry, Disturbed, etc.)	0	0	0	0	0	0	0
Ill (Sick)	0	0	0	0	0	0	0
Asleep or Fatigued	0	0	0	0	0	0	0
Under the Influence of Medications/Drugs/Alcohol	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0
Total	**6**	**6**	**0**	**0**	**0**	**0**	**12**

Driver Age by Unit Type

Age	Driver	Bicycle	SnowMobile	Pedestrian	ATV	Total
09-Under	0	0	0	0	0	0
10-14	0	0	0	0	0	0
15-19	2	0	0	0	0	2
20-24	1	0	0	0	0	1
25-29	1	0	0	0	0	1
30-39	3	0	0	0	0	3
40-49	3	0	0	0	0	3
50-59	3	0	0	0	0	3
60-69	1	0	0	0	0	1
70-79	0	0	0	0	0	0
80-Over	0	0	0	0	0	0
Unknown	2	0	0	0	0	2
Total	**16**	**0**	**0**	**0**	**0**	**16**

Crash Summary II - Characteristics

Most Harmful Event

Most Harmful Event	Total	Most Harmful Event	Total
1-Overturn / Rollover	0	38-Other Fixed Object (wall, building, tunnel, etc.)	0
2-Fire / Explosion	0	39-Unknown	0
3-Immersion	0	40-Gate or Cable	0
4-Jackknife	0	41-Pressure Ridge	0
5-Cargo / Equipment Loss Or Shift	0	**Total**	**15**
6-Fell / Jumped from Motor Vehicle	0		
7-Thrown or Falling Object	0		
8-Other Non-Collision	0		
9-Pedestrian	0		
10-Pedalcycle	0		
11-Railway Vehicle - Train, Engine	0		
12-Animal	0		
13-Motor Vehicle in Transport	11		
14-Parked Motor Vehicle	4		
15-Struck by Falling, Shifting Cargo or Anything Set in Motion by Motor Vehicle	0		
16-Work Zone / Maintenance Equipment	0		
17-Other Non-Fixed Object	0		
18-Impact Attenuator / Crash Cushion	0		
19-Bridge Overhead Structure	0		
20-Bridge Pier or Support	0		
21-Bridge Rail	0		
22-Cable Barrier	0		
23-Culvert	0		
24-Curb	0		
25-Ditch	0		
26-Embankment	0		
27-Guardrail Face	0		
28-Guardrail End	0		
29-Concrete Traffic Barrier	0		
30-Other Traffic Barrier	0		
31-Tree (Standing)	0		
32-Utility Pole / Light Support	0		
33-Traffic Sign Support	0		
34-Traffic Signal Support	0		
35-Fence	0		
36-Mailbox	0		
37-Other Post Pole or Support	0		

Injury Data

Severity Code	Injury Crashes	Number Of Injuries
K	0	0
A	0	0
B	0	0
C	0	0
PD	7	0
Total	**7**	**0**

Road Character

Road Grade	Total
1-Level	8
2-On Grade	0
3-Top of Hill	0
4-Bottom of Hill	0
5-Other	0
Total	**8**

Traffic Control Devices

Traffic Control Device	Total
1-Traffic Signals (Stop & Go)	1
2-Traffic Signals (Flashing)	0
3-Advisory/Warning Sign	0
4-Stop Signs - All Approaches	0
5-Stop Signs - Other	0
6-Yield Sign	0
7-Curve Warning Sign	0
8-Officer, Flagman, School Patrol	0
9-School Bus Stop Arm	0
10-School Zone Sign	0
11-R.R. Crossing Device	0
12-No Passing Zone	0
13-None	7
14-Other	0
Total	**8**

Light

Light Condition	Total
1-Daylight	8
2-Dawn	0
3-Dusk	0
4-Dark - Lighted	0
5-Dark - Not Lighted	0
6-Dark - Unknown Lighting	0
7-Unknown	0
Total	**8**

Crash Summary II - Characteristics

Crashes by Year and Month

Month	2017	2018	2019	Total
JANUARY	0	0	1	1
FEBRUARY	1	0	1	2
MARCH	0	1	0	1
APRIL	0	0	1	1
MAY	0	0	0	0
JUNE	0	0	0	0
JULY	0	0	0	0
AUGUST	0	0	0	0
SEPTEMBER	0	0	0	0
OCTOBER	0	1	0	1
NOVEMBER	0	1	1	2
DECEMBER	0	0	0	0
Total	**1**	**3**	**4**	**8**

Report is limited to the last 10 years of data.

Crash Summary II - Characteristics

Crashes by Crash Type and Type of Location

Crash Type	Straight Road	Curved Road	Three Leg Intersection	Four Leg Intersection	Five or More Leg Intersection	Driveways	Bridges	Interchanges	Other	Parking Lot	Private Way	Cross Over	Railroad Crossing	Traffic Circle-Roundabout	Total
Object in Road	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rear End - Sideswipe	8	0	0	0	0	0	0	0	0	0	0	0	0	0	8
Head-on - Sideswipe	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Intersection Movement	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Train	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Went Off Road	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
All Other Animal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycle	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Jackknife	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rollover	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fire	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Submersion	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Thrown or Falling Object	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bear	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Deer	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Moose	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Turkey	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	**8**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**8**

Crash Summary II - Characteristics

Crashes by Weather, Light Condition and Road Surface

Weather Light	Dry	Ice/Frost	Mud, Dirt, Gravel	Oil	Other	Sand	Slush	Snow	Unknown	Water (Standing, Moving)	Wet	Total
Blowing Sand, Soil, Dirt												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Blowing Snow												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Clear												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	3	0	0	0	0	0	0	0	0	0	1	4
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Cloudy												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	2	0	0	0	0	0	0	0	0	0	1	3
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0

Crash Summary II - Characteristics

Crashes by Weather, Light Condition and Road Surface

Weather Light	Dry	Ice/Frost	Mud, Dirt, Gravel	Oil	Other	Sand	Slush	Snow	Unknown	Water (Standing, Moving)	Wet	Total
Fog, Smog, Smoke												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Other												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Rain												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	1	1
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Severe Crosswinds												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0

Crash Summary II - Characteristics

Crashes by Weather, Light Condition and Road Surface

Weather Light	Dry	Ice/Frost	Mud, Dirt, Gravel	Oil	Other	Sand	Slush	Snow	Unknown	Water (Standing, Moving)	Wet	Total
Sleet, Hail (Freezing Rain or Drizzle)												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Snow												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	**5**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**8**

H. C. L.
CRASH COLLISION DIAGRAM
DATA PACKAGE

COUNTY: **CUMBERLAND** TOWN: **PORTLAND**

LOW NODE: **19036** HIGH NODE: **19037** REGION: **1** U/R: **URBAN**

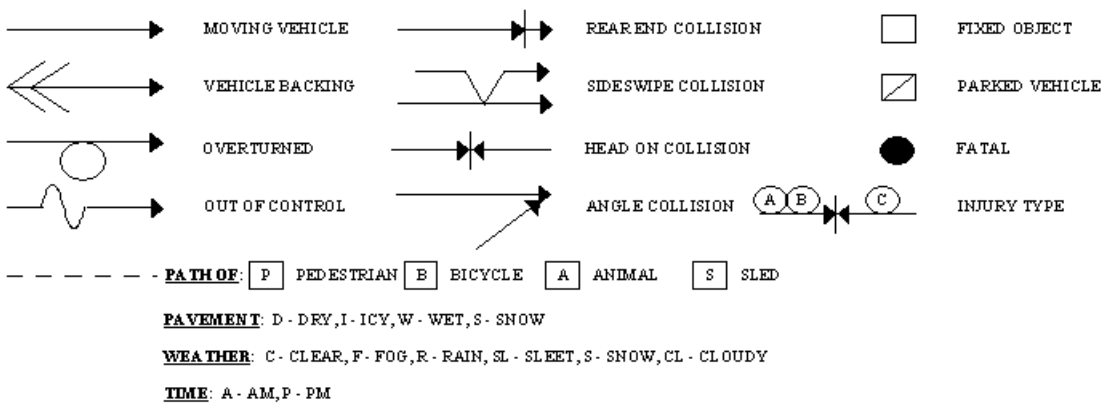
DESCRIPTION: **Cumberland Ave from Brown St to Preble St**

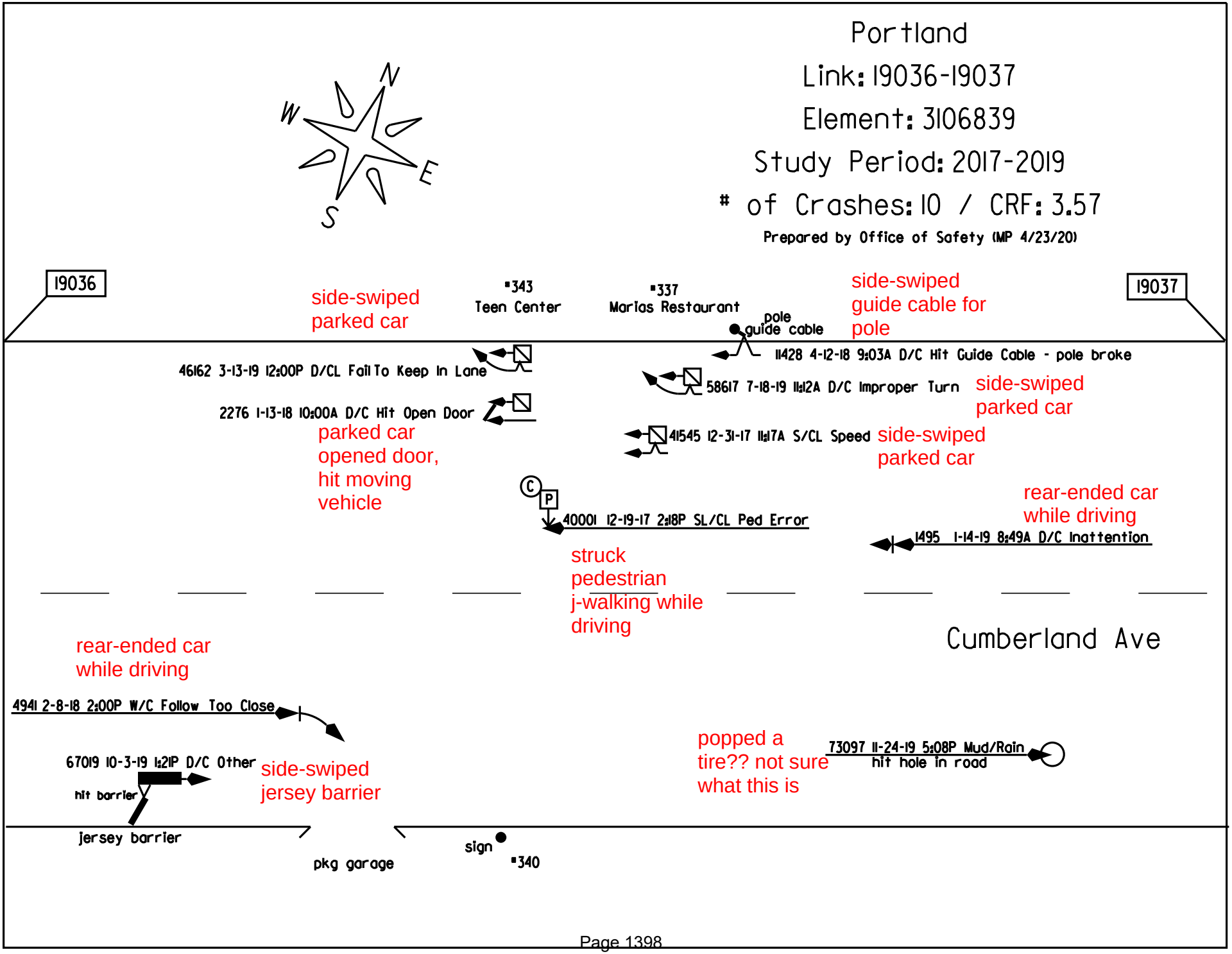
RTE # / RD #: **0561238** DATE DRAWN: **4/23/2020** DRAWN BY: **Michelle**

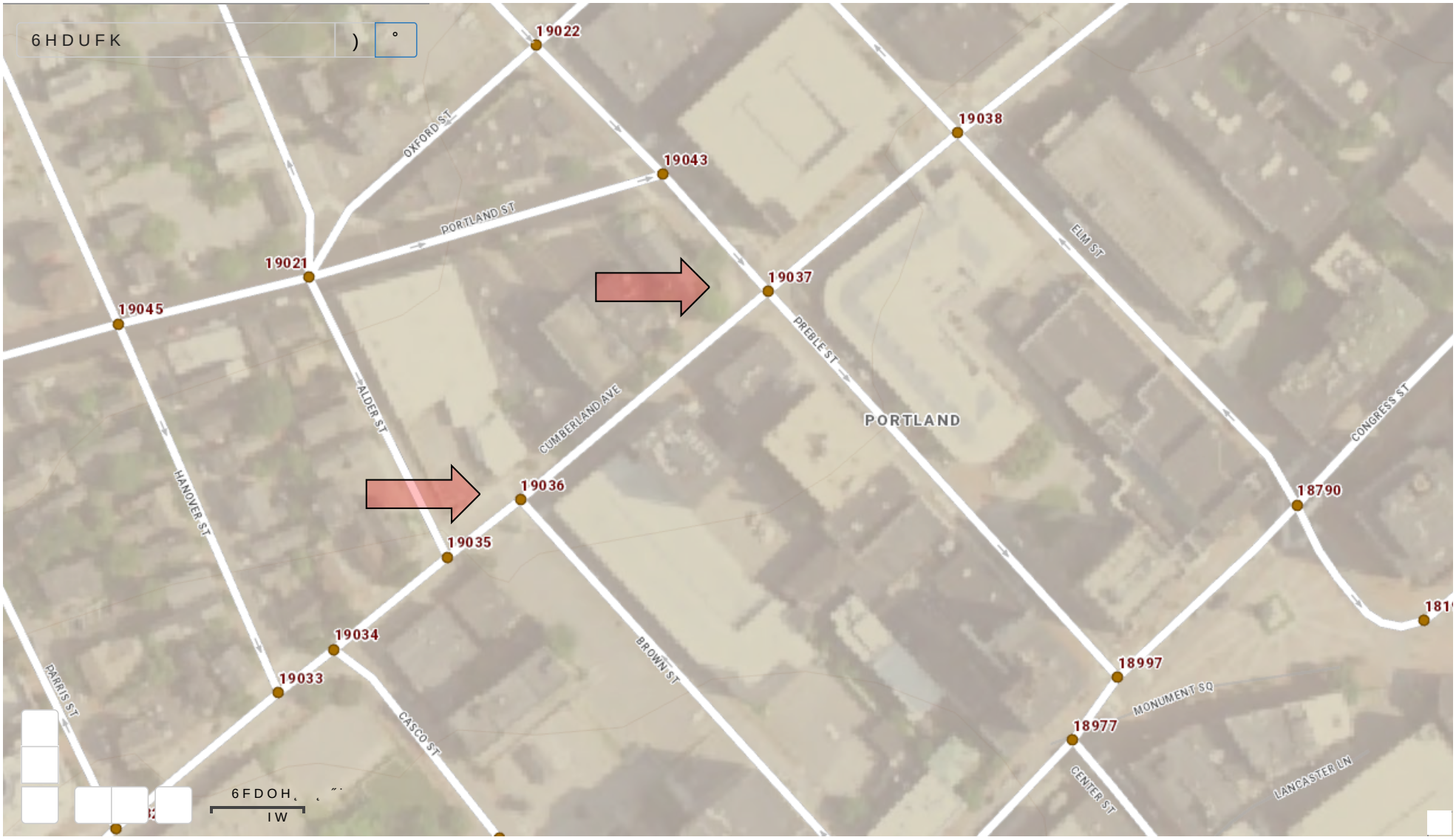
STUDY FROM: **1/1/2017** STUDY TO: **12/31/2019**

CRASH RATE: **2007.13** CRF: **3.57** % INJURY: **10** TOTAL CRASHES: **10**

LEGEND




Portland
Link: 19036-19037
Element: 3106839
Study Period: 2017-2019
# of Crashes: 10 / CRF: 3.57
Prepared by Office of Safety (MP 4/23/20)
N
W
E
S
19036
19037
side-swiped parked car
#343 Teen Center
#337 Marias Restaurant
pole guide cable
side-swiped guide cable for pole
11428 4-12-18 9:03A D/C Hit Guide Cable - pole broke
46162 3-13-19 12:00P D/CL Fail To Keep In Lane
58617 7-18-19 11:12A D/C Improper Turn
side-swiped parked car
2276 1-13-18 10:00A D/C Hit Open Door
parked car opened door, hit moving vehicle
41545 12-31-17 11:17A S/CL Speed
side-swiped parked car
C
P
40001 12-19-17 2:18P SL/CL Ped Error
struck pedestrian j-walking while driving
rear-ended car while driving
1495 1-14-19 8:49A D/C Inattention
Cumberland Ave
rear-ended car while driving
4941 2-8-18 2:00P W/C Follow Too Close
67019 10-3-19 1:21P D/C Other
hit barrier
jersey barrier
side-swiped jersey barrier
popped a tire?? not sure what this is
73097 11-24-19 5:08P Mud/Rain
hit hole in road
pkg garage
sign
#340



KWWSV PGRWLQHWDSSV VWDWH PH XV PDS "SRSXS WUXH FROIIJ FUDVK
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Crash Summary Report

Report Selections and Input Parameters

REPORT SELECTIONS

☑ Crash Summary I - Single Element	☐ Section Detail	☑ Crash Summary II	☐ 1320 Public	☐ 1320 Private	☐ 1320 Summary

REPORT DESCRIPTION

Portland
Cumberland Ave from Brown St to Preble St

REPORT PARAMETERS

Year 2017, Start Month 1 through Year 2019 End Month: 12

Route: 0561238	Start Node: 19036	Start Offset: 0	☑ Exclude First Node
	End Node: 19037	End Offset: 0	☑ Exclude Last Node

Crash Summary I

Sections

Start Node	End Node	Element	Offset Begin - End	Route - MP	Section Length	U/R	Total Crashes	Injury Crashes K	A	B	C	PD	Percent Injury	Annual HMVM	Crash Rate	Critical Rate	CRF
19036	19037	3106839	0 - 0.07	0561238 - 0.34	0.07	2	10	0	0	0	1	9	10.0	0.00166	2007.13	561.77	3.57
Int of BROWN ST CUMBERLAND AV				RD INV 05 61238											Statewide Crash Rate: 176.83		
Study Years: 3.00				Section Totals:	0.07		10	0	0	0	1	9	10.0	0.00166	2007.13	561.77	3.57

Crash Summary

Section Details

Start Node	End Node	Element	Offset Begin - End	Route - MP	Total Crashes	Injury Crashes K	A	B	C	PD	Crash Report	Crash Date	Crash Mile Point	Injury Degree
19036	19037	3106839	0 - 0.07	0561238 - 0.34	10	0	0	0	1	9	2019-67019	10/03/2019	0.35	PD
											2018-4941	02/08/2018	0.36	PD
											2017-40001	12/19/2017	0.37	C
											2019-46162	03/13/2019	0.37	PD
											2018-2276	01/13/2018	0.37	PD
											2019-58617	07/18/2019	0.38	PD
											2019-1495	01/14/2019	0.39	PD
											2018-11428	04/12/2018	0.39	PD
											2017-41545	12/31/2017	0.39	PD
											2019-73097	11/24/2019	0.40	PD
				Totals:	10	0	0	0	1	9				

Crash Summary II - Characteristics

Crashes by Day and Hour

	AM												PM												
	Hour of Day																								
Day Of Week	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	Un	Tot
SUNDAY	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	2
MONDAY	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
TUESDAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
WEDNESDAY	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
THURSDAY	0	0	0	0	0	0	0	0	0	1	0	1	0	1	1	0	0	0	0	0	0	0	0	0	0	4
FRIDAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SATURDAY	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Totals	0	0	0	0	0	0	0	0	1	1	1	2	1	1	2	0	0	1	0	0	0	0	0	0	0	10

Vehicle Counts by Type

Unit Type	Total
1-Passenger Car	11
2-(Sport) Utility Vehicle	0
3-Passenger Van	0
4-Cargo Van (10K lbs or Less)	3
5-Pickup	1
6-Motor Home	0
7-School Bus	0
8-Transit Bus	0
9-Motor Coach	0
10-Other Bus	0
11-Motorcycle	0
12-Moped	0
13-Low Speed Vehicle	0
14-Autocycle	0
15-Experimental	0
16-Other Light Trucks (10,000 lbs or Less)	0
17-Medium/Heavy Trucks (More than 10,000 lbs)	1
18-ATV - (4 wheel)	0
20-ATV - (2 wheel)	0
21-Snowmobile	0
22-Pedestrian	1

Unit Type	Total
23-Bicyclist	0
24-Witness	0
25-Other	0
26-Construction	0
27-Farm Vehicle	0
Total	17

Crash Summary II - Characteristics

Crashes by Driver Action at Time of Crash

Driver Action at Time of Crash	Dr 1	Dr 2	Dr 3	Dr 4	Dr 5	Other	Total
No Contributing Action	6	4	0	0	0	0	10
Ran Off Roadway	0	0	0	0	0	0	0
Failed to Yield Right-of-Way	0	0	0	0	0	0	0
Ran Red Light	0	0	0	0	0	0	0
Ran Stop Sign	0	0	0	0	0	0	0
Disregarded Other Traffic Sign	0	0	0	0	0	0	0
Disregarded Other Road Markings	0	0	0	0	0	0	0
Exceeded Posted Speed Limit	0	0	0	0	0	0	0
Drove Too Fast For Conditions	1	0	0	0	0	0	1
Improper Turn	1	0	0	0	0	0	1
Improper Backing	0	0	0	0	0	0	0
Improper Passing	0	0	0	0	0	0	0
Wrong Way	0	0	0	0	0	0	0
Followed Too Closely	1	0	0	0	0	0	1
Failed to Keep in Proper Lane	0	1	0	0	0	0	1
Operated Motor Vehicle in Erratic, Reckless, Careless, Negligent or Aggressive Manner	0	0	0	0	0	0	0
Swerved or Avoided Due to Wind, Slippery Surface, Motor Vehicle, Object, Non-Motorist in Roadway	0	0	0	0	0	0	0
Over-Correcting/Over-Steering	0	0	0	0	0	0	0
Other Contributing Action	1	0	0	0	0	0	1
Unknown	0	0	0	0	0	0	0
Total	10	5	0	0	0	0	15

Crashes by Apparent Physical Condition And Driver

Apparent Physical Condition	Dr 1	Dr 2	Dr 3	Dr 4	Dr 5	Other	Total
Apparently Normal	10	5	0	0	0	1	16
Physically Impaired or Handicapped	0	0	0	0	0	0	0
Emotional(Depressed, Angry, Disturbed, etc.)	0	0	0	0	0	0	0
Ill (Sick)	0	0	0	0	0	0	0
Asleep or Fatigued	0	0	0	0	0	0	0
Under the Influence of Medications/Drugs/Alcohol	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0
Total	10	5	0	0	0	1	16

Driver Age by Unit Type

Age	Driver	Bicycle	SnowMobile	Pedestrian	ATV	Total
09-Under	0	0	0	0	0	0
10-14	0	0	0	0	0	0
15-19	0	0	0	0	0	0
20-24	5	0	0	0	0	5
25-29	2	0	0	0	0	2
30-39	2	0	0	0	0	2
40-49	1	0	0	0	0	1
50-59	3	0	0	0	0	3
60-69	2	0	0	0	0	2
70-79	1	0	0	0	0	1
80-Over	0	0	0	0	0	0
Unknown	0	0	0	1	0	1
Total	16	0	0	1	0	17

Crash Summary II - Characteristics

Most Harmful Event

Most Harmful Event	Total	Most Harmful Event	Total
1-Overturn / Rollover	0	38-Other Fixed Object (wall, building, tunnel, etc.)	0
2-Fire / Explosion	0	39-Unknown	0
3-Immersion	0	40-Gate or Cable	0
4-Jackknife	0	41-Pressure Ridge	0
5-Cargo / Equipment Loss Or Shift	0	Total	16
6-Fell / Jumped from Motor Vehicle	0		
7-Thrown or Falling Object	0		
8-Other Non-Collision	0		
9-Pedestrian	0		
10-Pedalcycle	0		
11-Railway Vehicle - Train, Engine	0		
12-Animal	0		
13-Motor Vehicle in Transport	12		
14-Parked Motor Vehicle	3		
15-Struck by Falling, Shifting Cargo or Anything Set in Motion by Motor Vehicle	0		
16-Work Zone / Maintenance Equipment	1		
17-Other Non-Fixed Object	0		
18-Impact Attenuator / Crash Cushion	0		
19-Bridge Overhead Structure	0		
20-Bridge Pier or Support	0		
21-Bridge Rail	0		
22-Cable Barrier	0		
23-Culvert	0		
24-Curb	0		
25-Ditch	0		
26-Embankment	0		
27-Guardrail Face	0		
28-Guardrail End	0		
29-Concrete Traffic Barrier	0		
30-Other Traffic Barrier	0		
31-Tree (Standing)	0		
32-Utility Pole / Light Support	0		
33-Traffic Sign Support	0		
34-Traffic Signal Support	0		
35-Fence	0		
36-Mailbox	0		
37-Other Post Pole or Support	0		

Injury Data

Severity Code	Injury Crashes	Number Of Injuries
K	0	0
A	0	0
B	0	0
C	1	1
PD	9	0
Total	10	1

Road Character

Road Grade	Total
1-Level	9
2-On Grade	0
3-Top of Hill	0
4-Bottom of Hill	0
5-Other	1
Total	10

Traffic Control Devices

Traffic Control Device	Total
1-Traffic Signals (Stop & Go)	1
2-Traffic Signals (Flashing)	0
3-Advisory/Warning Sign	0
4-Stop Signs - All Approaches	0
5-Stop Signs - Other	0
6-Yield Sign	0
7-Curve Warning Sign	0
8-Officer, Flagman, School Patrol	0
9-School Bus Stop Arm	0
10-School Zone Sign	0
11-R.R. Crossing Device	0
12-No Passing Zone	0
13-None	9
14-Other	0
Total	10

Light

Light Condition	Total
1-Daylight	9
2-Dawn	0
3-Dusk	0
4-Dark - Lighted	1
5-Dark - Not Lighted	0
6-Dark - Unknown Lighting	0
7-Unknown	0
Total	10

Crash Summary II - Characteristics

Crashes by Year and Month

Month	2017	2018	2019	Total
JANUARY	0	1	1	2
FEBRUARY	0	1	0	1
MARCH	0	0	1	1
APRIL	0	1	0	1
MAY	0	0	0	0
JUNE	0	0	0	0
JULY	0	0	1	1
AUGUST	0	0	0	0
SEPTEMBER	0	0	0	0
OCTOBER	0	0	1	1
NOVEMBER	0	0	1	1
DECEMBER	2	0	0	2
Total	2	3	5	10

Report is limited to the last 10 years of data.

Crash Summary II - Characteristics

Crashes by Crash Type and Type of Location

Crash Type	Straight Road	Curved Road	Three Leg Intersection	Four Leg Intersection	Five or More Leg Intersection	Driveways	Bridges	Interchanges	Other	Parking Lot	Private Way	Cross Over	Railroad Crossing	Traffic Circle-Roundabout	Total
Object in Road	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rear End - Sideswipe	5	0	0	0	0	1	0	0	0	0	0	0	0	0	6
Head-on - Sideswipe	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Intersection Movement	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrians	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Train	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Went Off Road	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
All Other Animal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycle	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other	3	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Jackknife	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rollover	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fire	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Submersion	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Thrown or Falling Object	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bear	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Deer	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Moose	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Turkey	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	9	0	0	0	0	1	0	0	0	0	0	0	0	0	10

Crash Summary II - Characteristics

Crashes by Weather, Light Condition and Road Surface

Weather Light	Dry	Ice/Frost	Mud, Dirt, Gravel	Oil	Other	Sand	Slush	Snow	Unknown	Water (Standing, Moving)	Wet	Total
Blowing Sand, Soil, Dirt												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Blowing Snow												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Clear												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	5	0	0	0	0	0	0	0	0	0	1	6
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Cloudy												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	1	0	0	0	0	0	1	1	0	0	0	3
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0

Crash Summary II - Characteristics

Crashes by Weather, Light Condition and Road Surface

Weather Light	Dry	Ice/Frost	Mud, Dirt, Gravel	Oil	Other	Sand	Slush	Snow	Unknown	Water (Standing, Moving)	Wet	Total
Fog, Smog, Smoke												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Other												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Rain												
Dark - Lighted	0	0	1	0	0	0	0	0	0	0	0	1
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Severe Crosswinds												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0

Crash Summary II - Characteristics

Crashes by Weather, Light Condition and Road Surface

Weather / Light	Dry	Ice/Frost	Mud, Dirt, Gravel	Oil	Other	Sand	Slush	Snow	Unknown	Water (Standing, Moving)	Wet	Total
Sleet, Hail (Freezing Rain or Drizzle)												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Snow												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	6	0	1	0	0	0	1	1	0	0	1	10

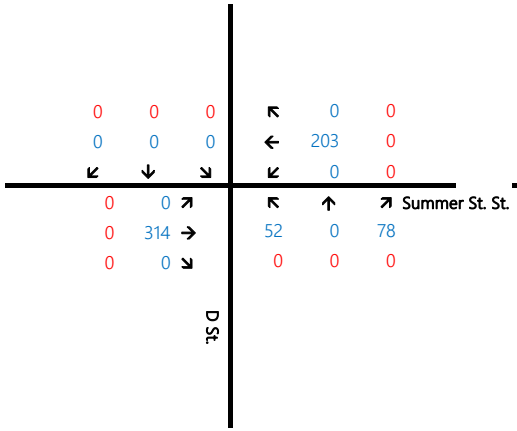
Intersection Key	Peak Hour
1 Cumberland at Brown	7:30 AM
2 Congress at Brown	7:30 AM
3 Cumberland at Preble	7:30 AM
4 Congress at Preble	7:30 AM

AM Peak:

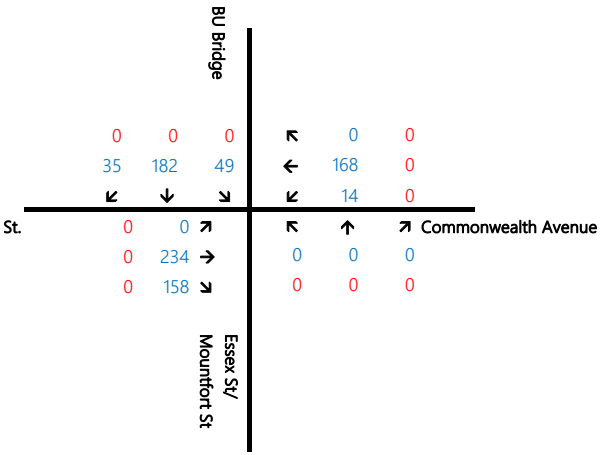
Probe Data - July 2019
Count Data - July 2018



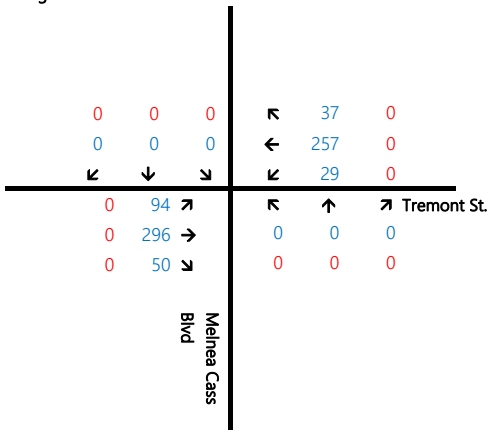
Cumberland at Brown



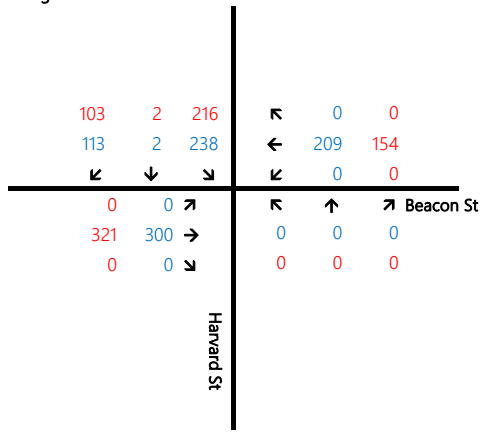
Cumberland at Preble



Congress at Brown



Congress at Preble

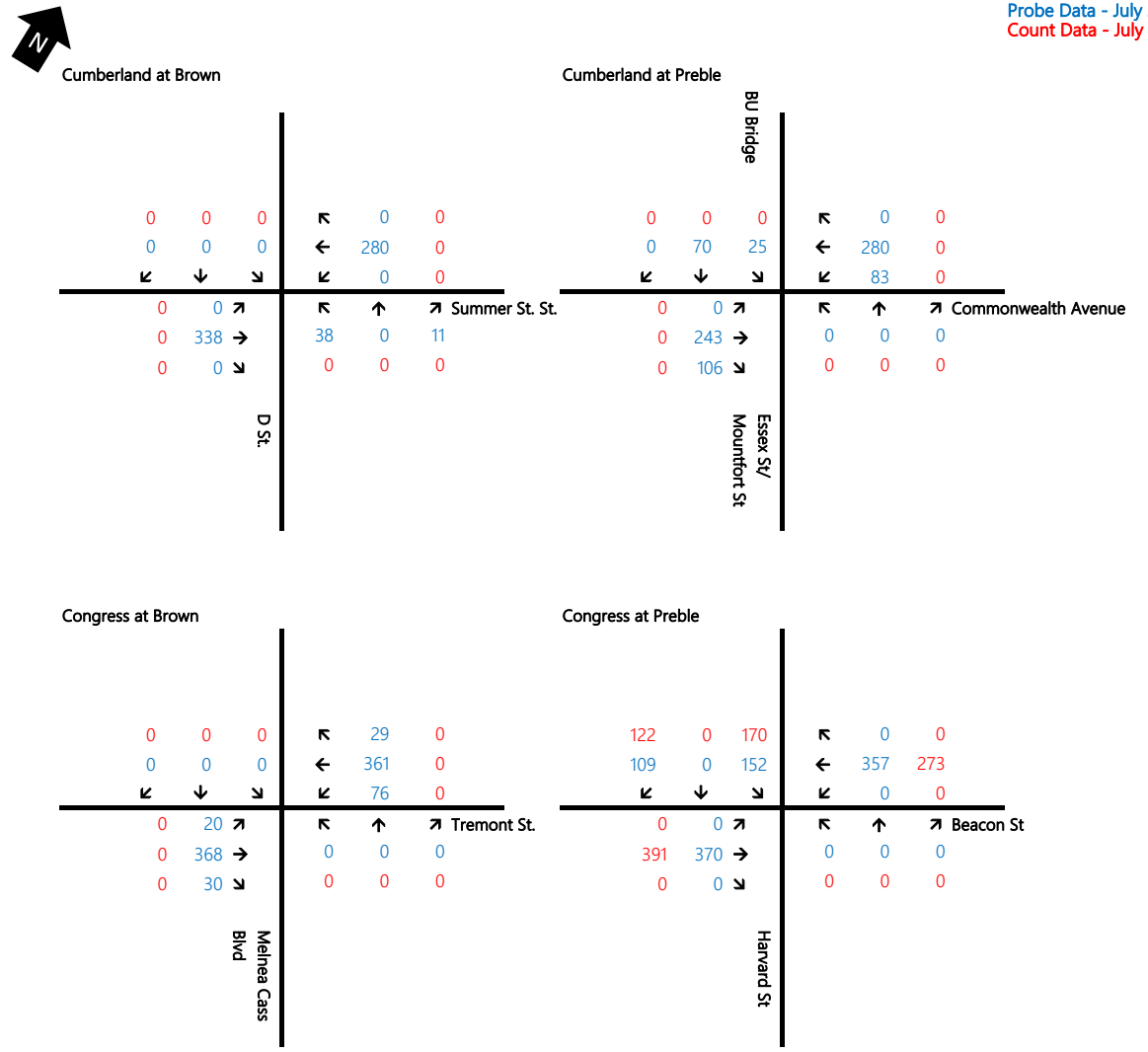


Probe Data - July 2019
Count Data - July 2018

Intersection Key	Peak Hour
1 Cumberland at Brown	4:30 PM
2 Congress at Brown	4:30 PM
3 Cumberland at Preble	4:30 PM
4 Congress at Preble	4:30 PM

PM Peak:

Probe Data - July 2019
Count Data - July 2018



Probe Data - July 2019
Count Data - July 2018

H. C. L.
CRASH COLLISION DIAGRAM
DATA PACKAGE

COUNTY: **CUMBERLAND** TOWN: **PORTLAND**

LOW NODE: **18997** HIGH NODE: **19037** REGION: **1** U/R: **URBAN**

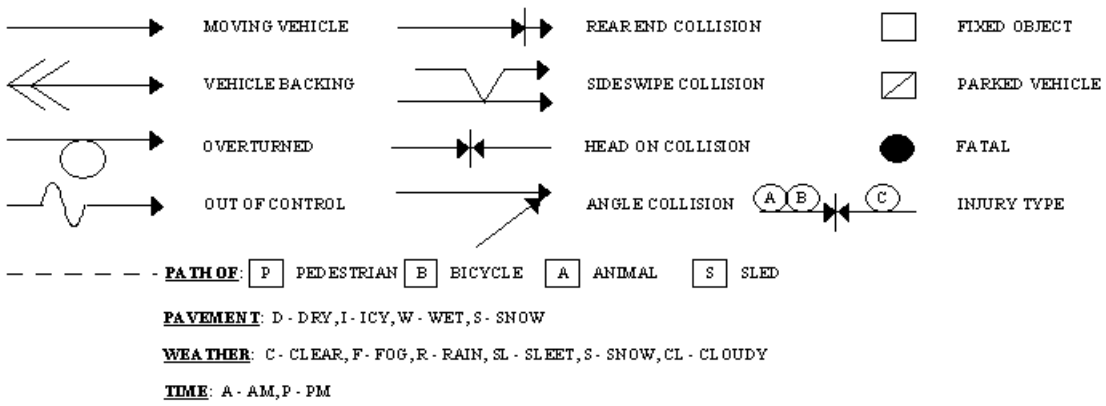
DESCRIPTION: **Preble St from Congress St to Cumberland Ave**

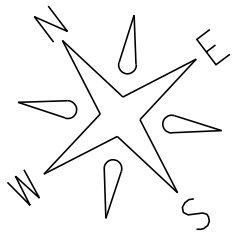
RTE # / RD #: **0560597** DATE DRAWN: **7/27/2020** DRAWN BY: **BOB K**

STUDY FROM: **1/1/2017** STUDY TO: **12/31/2019**

CRASH RATE: **2480.79** CRF: **3.35** % INJURY: **12.5** TOTAL CRASHES: **8**

LEGEND





Prepared by Office of Safety

RFK3 7-27-20

Portland

Link: 18997-19037

Element: 3129953

Study Period: 2017-2019

of Crashes: 8 / CRF: 3.35

19037

18997

angle collision
w/ pedestrian

C

P

49971 4-19-19 11:49P D/CL Fail to yield

ONE WAY

Preble St.

angle collision
pulling out
from parking
space

1377 1-13-19 8:32P S/C Fail to yield

side-swiped
parked car

3371 1-27-19 1:50P D/CL Improper pass

angle collision
pulling out
from parking
space

21792 7-24-17 11:16A
D/CL Fail To Yield

21387 7-31-18 12:00P D/C
Improper Backing

angle collision
pulling out
from parking
space

32756 11-8-18 8:38A
D/C Fail To Yield

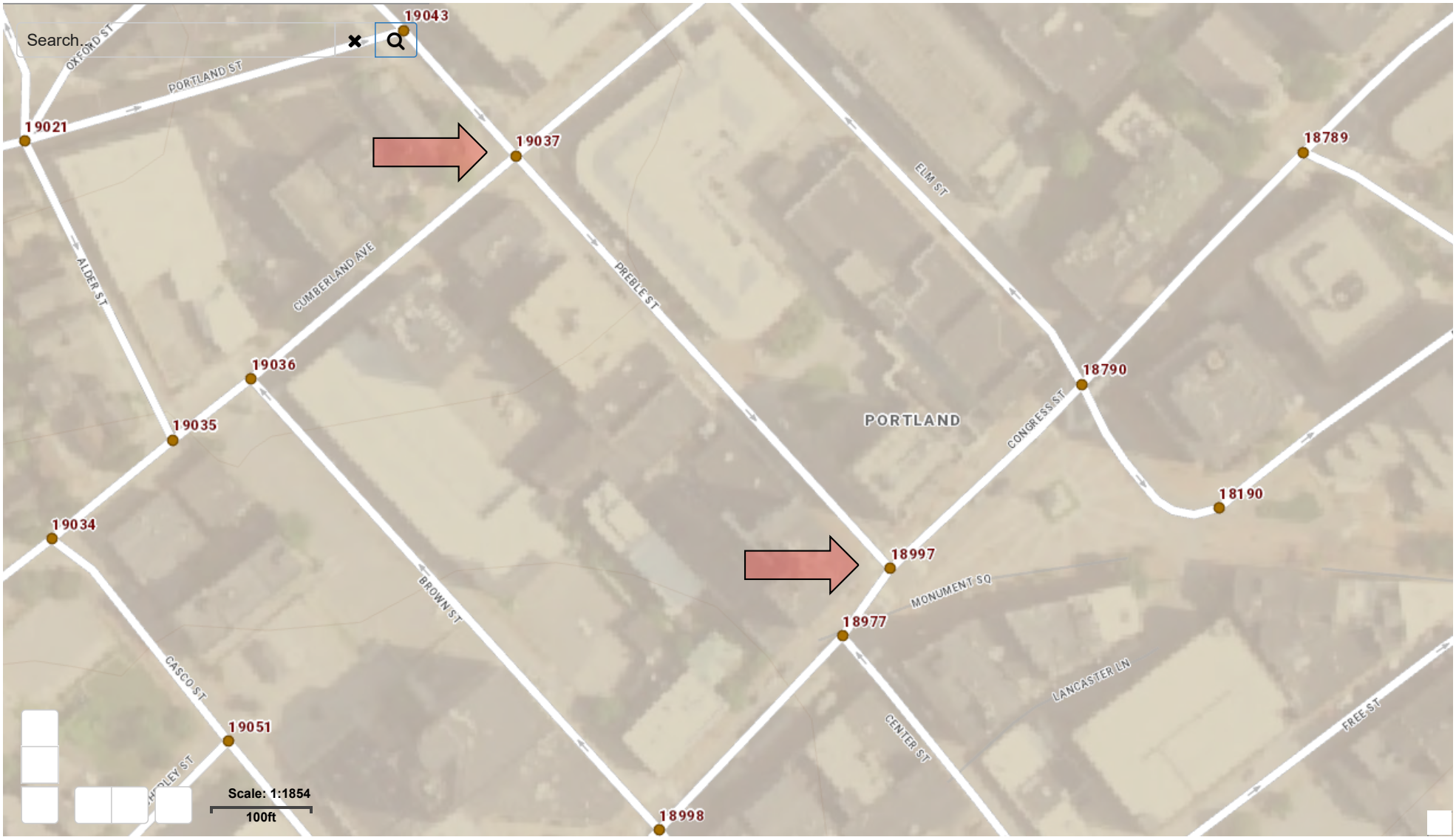
7317 2-27-17 5:09P D/C
Improper Turn

33335 11-3-17 1:07P D/CL
Fail To Keep In Lane

side-swiped
parked car

side-swiped
parked car

vehicle backed
into parked car


Search...
19043
OXFORD ST
PORTLAND ST
19021
19037
ELM ST
18789
ALDER ST
CUMBERLAND AVE
PREBLE ST
19036
18790
19035
PORTLAND
CONGRESS ST
18190
19034
18997
MONUMENT SQ
BROWN ST
18977
CASCO ST
LANCASTER LN
19051
CENTER ST
FREE ST
Scale: 1:1854
100ft
18998

Crash Summary Report

Report Selections and Input Parameters

REPORT SELECTIONS

☑ Crash Summary I - Single Element	☐ Section Detail	☑ Crash Summary II	☐ 1320 Public	☐ 1320 Private	☐ 1320 Summary

REPORT DESCRIPTION

Portland
Preble St from Congress St to Cumberland Ave

REPORT PARAMETERS

Year 2017, Start Month 1 through Year 2019 End Month: 12

Route: 0560597	Start Node: 19037	Start Offset: 0	☑ Exclude First Node
	End Node: 18997	End Offset: 0	☑ Exclude Last Node

Crash Summary I

Sections

Start Node	End Node	Element	Offset Begin - End	Route - MP	Section Length	U/R	Total Crashes	Injury Crashes K	A	B	C	PD	Percent Injury	Annual HMVM	Crash Rate	Critical Rate	CRF
18997	19037	3129953	0 - 0.10	0560597 - 0.33	0.10	2	8	0	0	0	1	7	12.5	0.00107	2480.79	739.53	3.35
Int of CONGRESS ST	PREBLE ST			RD INV 05 60597											Statewide Crash Rate: 220.69		
Study Years: 3.00				Section Totals:	0.10		8	0	0	0	1	7	12.5	0.00107	2480.79	739.54	3.35

Crash Summary

Section Details

Start Node	End Node	Element	Offset Begin - End	Route - MP	Total Crashes	Injury Crashes K	A	B	C	PD	Crash Report	Crash Date	Crash Mile Point	Injury Degree
18997	19037	3129953	0 - 0.10	0560597 - 0.33	8	0	0	0	1	7	2019-1377	01/13/2019	0.34	PD
											2017-7317	02/27/2017	0.35	PD
											2019-3371	01/27/2019	0.37	PD
											2017-33335	11/03/2017	0.37	PD
											2018-21387	07/31/2018	0.38	PD
											2017-21792	07/24/2017	0.38	PD
											2019-49971	04/19/2019	0.39	C
											2018-32756	11/08/2018	0.39	PD
				Totals:	8	0	0	0	1	7				

Crash Summary II - Characteristics

Crashes by Day and Hour

	AM												PM												
	Hour of Day																								
Day Of Week	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	Un	Tot
SUNDAY	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	2
MONDAY	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	2
TUESDAY	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
WEDNESDAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
THURSDAY	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
FRIDAY	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	2
SATURDAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	0	0	0	0	0	0	0	0	1	0	0	1	1	2	0	0	0	1	0	0	1	0	0	1	0	8

Vehicle Counts by Type

Unit Type	Total
1-Passenger Car	9
2-(Sport) Utility Vehicle	2
3-Passenger Van	1
4-Cargo Van (10K lbs or Less)	2
5-Pickup	0
6-Motor Home	0
7-School Bus	0
8-Transit Bus	0
9-Motor Coach	0
10-Other Bus	0
11-Motorcycle	0
12-Moped	0
13-Low Speed Vehicle	0
14-Autocycle	0
15-Experimental	0
16-Other Light Trucks (10,000 lbs or Less)	0
17-Medium/Heavy Trucks (More than 10,000 lbs)	1
18-ATV - (4 wheel)	0
20-ATV - (2 wheel)	0
21-Snowmobile	0
22-Pedestrian	1

Unit Type	Total
23-Bicyclist	0
24-Witness	1
25-Other	0
26-Construction	0
27-Farm Vehicle	0
Total	17

Crash Summary II - Characteristics

Crashes by Driver Action at Time of Crash

Driver Action at Time of Crash	Dr 1	Dr 2	Dr 3	Dr 4	Dr 5	Other	Total
No Contributing Action	1	3	0	0	0	0	4
Ran Off Roadway	0	0	0	0	0	0	0
Failed to Yield Right-of-Way	3	0	0	0	0	0	3
Ran Red Light	0	0	0	0	0	0	0
Ran Stop Sign	0	0	0	0	0	0	0
Disregarded Other Traffic Sign	0	0	0	0	0	0	0
Disregarded Other Road Markings	0	0	0	0	0	0	0
Exceeded Posted Speed Limit	0	0	0	0	0	0	0
Drove Too Fast For Conditions	0	0	0	0	0	0	0
Improper Turn	1	0	0	0	0	0	1
Improper Backing	1	0	0	0	0	0	1
Improper Passing	1	0	0	0	0	0	1
Wrong Way	0	0	0	0	0	0	0
Followed Too Closely	0	0	0	0	0	0	0
Failed to Keep in Proper Lane	0	1	0	0	0	0	1
Operated Motor Vehicle in Erratic, Reckless, Careless, Negligent or Aggressive Manner	0	0	0	0	0	0	0
Swerved or Avoided Due to Wind, Slippery Surface, Motor Vehicle, Object, Non-Motorist in Roadway	0	0	0	0	0	0	0
Over-Correcting/Over-Steering	0	0	0	0	0	0	0
Other Contributing Action	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0
Total	7	4	0	0	0	0	11

Crashes by Apparent Physical Condition And Driver

Apparent Physical Condition	Dr 1	Dr 2	Dr 3	Dr 4	Dr 5	Other	Total
Apparently Normal	7	4	0	0	0	1	12
Physically Impaired or Handicapped	0	0	0	0	0	0	0
Emotional(Depressed, Angry, Disturbed, etc.)	0	0	0	0	0	0	0
Ill (Sick)	0	0	0	0	0	0	0
Asleep or Fatigued	0	0	0	0	0	0	0
Under the Influence of Medications/Drugs/Alcohol	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0
Total	7	4	0	0	0	1	12

Driver Age by Unit Type

Age	Driver	Bicycle	SnowMobile	Pedestrian	ATV	Total
09-Under	0	0	0	0	0	0
10-14	0	0	0	0	0	0
15-19	1	0	0	0	0	1
20-24	3	0	0	0	0	3
25-29	1	0	0	0	0	1
30-39	1	0	0	0	0	1
40-49	0	0	0	0	0	0
50-59	4	0	0	0	0	4
60-69	2	0	0	0	0	2
70-79	3	0	0	0	0	3
80-Over	0	0	0	0	0	0
Unknown	0	0	0	1	0	1
Total	15	0	0	1	0	16

Crash Summary II - Characteristics

Most Harmful Event

Most Harmful Event	Total	Most Harmful Event	Total
1-Overturn / Rollover	0	38-Other Fixed Object (wall, building, tunnel, etc.)	0
2-Fire / Explosion	0	39-Unknown	0
3-Immersion	0	40-Gate or Cable	0
4-Jackknife	0	41-Pressure Ridge	0
5-Cargo / Equipment Loss Or Shift	0	Total	15
6-Fell / Jumped from Motor Vehicle	0		
7-Thrown or Falling Object	0		
8-Other Non-Collision	0		
9-Pedestrian	0		
10-Pedalcycle	0		
11-Railway Vehicle - Train, Engine	0		
12-Animal	0		
13-Motor Vehicle in Transport	13		
14-Parked Motor Vehicle	2		
15-Struck by Falling, Shifting Cargo or Anything Set in Motion by Motor Vehicle	0		
16-Work Zone / Maintenance Equipment	0		
17-Other Non-Fixed Object	0		
18-Impact Attenuator / Crash Cushion	0		
19-Bridge Overhead Structure	0		
20-Bridge Pier or Support	0		
21-Bridge Rail	0		
22-Cable Barrier	0		
23-Culvert	0		
24-Curb	0		
25-Ditch	0		
26-Embankment	0		
27-Guardrail Face	0		
28-Guardrail End	0		
29-Concrete Traffic Barrier	0		
30-Other Traffic Barrier	0		
31-Tree (Standing)	0		
32-Utility Pole / Light Support	0		
33-Traffic Sign Support	0		
34-Traffic Signal Support	0		
35-Fence	0		
36-Mailbox	0		
37-Other Post Pole or Support	0		

Injury Data

Severity Code	Injury Crashes	Number Of Injuries
K	0	0
A	0	0
B	0	0
C	1	1
PD	7	0
Total	8	1

Road Character

Road Grade	Total
1-Level	2
2-On Grade	6
3-Top of Hill	0
4-Bottom of Hill	0
5-Other	0
Total	8

Traffic Control Devices

Traffic Control Device	Total
1-Traffic Signals (Stop & Go)	2
2-Traffic Signals (Flashing)	0
3-Advisory/Warning Sign	0
4-Stop Signs - All Approaches	0
5-Stop Signs - Other	0
6-Yield Sign	0
7-Curve Warning Sign	0
8-Officer, Flagman, School Patrol	0
9-School Bus Stop Arm	0
10-School Zone Sign	0
11-R.R. Crossing Device	0
12-No Passing Zone	0
13-None	6
14-Other	0
Total	8

Light

Light Condition	Total
1-Daylight	6
2-Dawn	0
3-Dusk	0
4-Dark - Lighted	2
5-Dark - Not Lighted	0
6-Dark - Unknown Lighting	0
7-Unknown	0
Total	8

Crash Summary II - Characteristics

Crashes by Year and Month

Month	2017	2018	2019	Total
JANUARY	0	0	2	2
FEBRUARY	1	0	0	1
MARCH	0	0	0	0
APRIL	0	0	1	1
MAY	0	0	0	0
JUNE	0	0	0	0
JULY	1	1	0	2
AUGUST	0	0	0	0
SEPTEMBER	0	0	0	0
OCTOBER	0	0	0	0
NOVEMBER	1	1	0	2
DECEMBER	0	0	0	0
Total	3	2	3	8

Report is limited to the last 10 years of data.

Crash Summary II - Characteristics

Crashes by Crash Type and Type of Location

Crash Type	Straight Road	Curved Road	Three Leg Intersection	Four Leg Intersection	Five or More Leg Intersection	Driveways	Bridges	Interchanges	Other	Parking Lot	Private Way	Cross Over	Railroad Crossing	Traffic Circle-Roundabout	Total
Object in Road	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rear End - Sideswipe	7	0	0	0	0	0	0	0	0	0	0	0	0	0	7
Head-on - Sideswipe	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Intersection Movement	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrians	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
Train	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Went Off Road	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
All Other Animal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycle	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Jackknife	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rollover	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fire	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Submersion	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Thrown or Falling Object	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bear	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Deer	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Moose	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Turkey	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	7	0	0	0	0	1	0	0	0	0	0	0	0	0	8

Crash Summary II - Characteristics

Crashes by Weather, Light Condition and Road Surface

Weather / Light	Dry	Ice/Frost	Mud, Dirt, Gravel	Oil	Other	Sand	Slush	Snow	Unknown	Water (Standing, Moving)	Wet	Total
Blowing Sand, Soil, Dirt												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Blowing Snow												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Clear												
Dark - Lighted	0	0	0	0	0	0	0	1	0	0	0	1
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	3	0	0	0	0	0	0	0	0	0	0	3
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Cloudy												
Dark - Lighted	1	0	0	0	0	0	0	0	0	0	0	1
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	3	0	0	0	0	0	0	0	0	0	0	3
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0

Crash Summary II - Characteristics

Crashes by Weather, Light Condition and Road Surface

Weather Light	Dry	Ice/Frost	Mud, Dirt, Gravel	Oil	Other	Sand	Slush	Snow	Unknown	Water (Standing, Moving)	Wet	Total
Fog, Smog, Smoke												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Other												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Rain												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Severe Crosswinds												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0

Crash Summary II - Characteristics

Crashes by Weather, Light Condition and Road Surface

Weather Light	Dry	Ice/Frost	Mud, Dirt, Gravel	Oil	Other	Sand	Slush	Snow	Unknown	Water (Standing, Moving)	Wet	Total
Sleet, Hail (Freezing Rain or Drizzle)												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Snow												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	7	0	0	0	0	0	0	1	0	0	0	8

COMMITMENT & INTEGRITY
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Via Electronic Mail

August 2, 2021

Shukria Wiar, Planner
Planning & Urban Development Department
City of Portland
389 Congress Street, 4th Floor
Portland, ME 04101

Re: Time & Temperature Hotel – Response to Site Plan Review Comments

Dear Shukria:

Thank you for continuing to coordinate review of the Site Plan application for the proposed Time & Temperature Hotel located at 477 Congress Street, Portland, Maine. This letter compiles responses to comments received from the City on July 21, 2021; July 22, 2021; and July 29, 2021.

This application was originally submitted on May 3, 2021. It is our opinion that it is complete and addresses pertinent criteria in the Development Ordinance required for Site Plan review by the Board. We've posted the site informing the public of pending Planning Board meeting, as required by the City. We look forward to appearing before the Planning Board Workshop on August 10th.

City Comments

The comments received are provided by the City for reference and are italicized, with responses noted in blue.

A. Housing Program Manager – Victoria Volent – July 21, 2021

477 Congress Street proposes the creation of a hotel with 186 guest rooms. To comply with the Hotel IZ Ordinance, the applicant has indicated they intend to pay the fee-in-lieu of $707,916 (186 X $3,806) prior to receiving their C/O. Should the actual number of guest rooms change, the fee-in-lieu would need to be recalculated.

The applicant acknowledges the fee-in-lieu requirement for the project.

B. Traffic Engineer – Tom Errico – July 21, 2021

Detailed traffic count data from 2018 and 2019 used in the traffic analysis shall be provided for review and approval.

Status: The actual 2018 traffic count sheets shall be provided. As discussed at our July 14, 2021 meeting, StreetLight data should be used to compare 2018 data to current conditions.

Please see the attached Response to Comments memorandum from VHB dated July 30, 2021.

The trip generation estimate from the prior retail use assumed it generated 191 PM peak hour trips. This estimate seems high, and the applicant should consider other methods for estimating traffic to a retail use in the downtown area.

Status: The purpose of estimating trips from the site both historically and for the proposed project is to determine the need for a Traffic Movement Permit. While it does not appear a TMP will be required given credit for prior trips, documentation is necessary. Accordingly, the applicant shall revisit this item for the purposes of estimating traffic from the prior use. All backup calculations for trip generation estimates shall be provided.

Please see the attached Response to Comments memorandum from VHB dated July 30, 2021.

The applicant did not include any trips to the 5,100SF Roof Top Bar area of the project and I would request that further information be provided on this assumption.

Status: I don't support the applicant's assumption that given the use of a High Turnover Restaurant the trip generation estimate is conservative and thus accounts for any activity at the Roof Top Bar. The restaurant is estimated to generate 35 AM peak hour and 34 PM peak hour trips which does not seem to be overly conservative. The applicant should estimate traffic separately for the Roof Top Bar.

Please see the attached Response to Comments memorandum from VHB dated July 30, 2021.

The traffic study should provide trip assignment information for hotel and retail/restaurant land uses separately. It should also provide assumptions for parking locations (valet and self-park scenarios).

Status: Graphics shall be provided for both entering and exiting movements to valet and parking source locations.

Please see the attached Response to Comments memorandum from VHB dated July 30, 2021.

A safety analysis of the High Crash Locations (HCL) noted in the report shall be performed.

Status: The applicant has conducted the requested analysis and I concur that the High Crash Locations do not have patterns and/or contributing factors that can be mitigated. Most crashes involved parked vehicles, which highlights the nature of an active urban setting. I have no further comment.

No additional response required by the applicant.

The Traffic Operations Analysis indicates Congress Street currently operates with little delay and queuing. The applicant should calibrate the Synchro Model to reflect actual field conditions.

Status: The applicant indicates that a field observation was performed. Details of the observation shall be provided to determine its acceptability. Additional field studies may be requested. The applicant shall also provide the Synchro files for review and approval.

Please see the attached Response to Comments memorandum from VHB dated July 30, 2021.

C. DPW Comments – Mike Tremblay

After our call last Wednesday with the Applicant and after review of the materials provided by the Applicant on Friday 7/16/2021 about the proposed valet parking associated with the proposed hotel at 477 Congress Street, DPW remains opposed to the proposed valet parking area on Congress Street.

DPW still has strong concerns about potential blockage of Congress Street by double-parked vehicles. The Applicant has not provided sufficient data to support that the potential of blockages of Congress Street westbound will be eliminated. They provided examples of curbside valet areas in Boston; however, no example provided was comparable to Congress Street (two-lane, two-way roadway with no excess width for thru vehicles in the event of double parking). Additionally, no quantitative data was provided to support the number of valet spaces provided in these examples. Finally, no data was provided concerning the arrival and departure mode of hotel guests in Boston -- where regional public transit is well-established and far-reaching -- versus Portland, where nearly all guests are likely to arrive in a personal automobile or TSP/taxi. The potential for blockages on Congress is a critical concern for emergency response, and a significant traffic concern.

The Applicant should continue to explore ways to make a valet operation on Preble Street work. Other places of interest in Maine and elsewhere program a separate address for parking and valet operations if it is different from the primary use -- for example, the Maine Medical Center Parking Garage has a separate address from the Maine Medical Center proper -- which helps direct users to the correct location based on their need. Even if the hotel address must be on Congress Street, it may be possible to provide a Preble Street address for valet parking operations.

In meetings with City staff and in the application materials, the applicant has detailed the site, building and operational factors that require that the hotel entry is located on Congress Street.

We are providing three additional memoranda that support the need for valet services located at the building entrances front door on 477 Congress Street:

- Time & Temperature Hotel Entrance Memorandum, Archetype, July 30, 2021;
- Time & Temperature Hotel Entrance Memorandum, MacRostie Historic Advisors, August 2, 2021; and
- Time & Temperature Valet Services Memorandum, Oxford Hotels, August 2, 2021.

In short, this is due to Historic Preservation requirements, accessibility, and operational efficiency. In the applicant's opinion, disallowing a Valet Drop-off area on Congress Street may result in traffic congestion and problems on Congress Street, by failing to provide adequate valet services at the point where guests will attempt to access the hotel entrance. The applicant has proposed a robust valet parking program with adequate off-street space and staffing to prevent traffic issues on Congress Street.

D. DPW – Jodie Keene – July 21, 2021

The sidewalk slopes do not appear to be consistent with what the City requires, which is between 1% and 2% cross slope for the width of the sidewalk. Mike mentioned there were some limiting factors (road reconstruction, etc.) which may necessitate some deviation, but I think we need to keep a close eye on this. Designing to 2% cross slope (which is the maximum) allows for absolutely no wiggle room. And designing a 5' strip of compliant sidewalk does not meet City expectations for ADA compliance.

The existing sidewalk does currently meet ADA guidelines for cross slope. This is due to the fixed thresholds of the doorways of the existing building and the curb line of Congress Street. Per discussion with DPW, we have proposed to create a 5-foot-wide ADA compliant cross slope adjacent to the building and make up cross-slope differences in the "furnishing zone" at the curb line. This is the cleanest way to create a 2% cross slope given the existing curb elevations on Congress Street,

without introducing the prospect of ramps within the ROW to get into building doorways or significantly changing the cross slope of Congress Street, which is not desirable by the applicant nor the City. If the City requires some other expectation for ADA compliance, it has not been made known to the applicant.

We will need to closely consider edge conditions for this site. The sidewalk to which they will be matching along Congress Street (in front of the First Parish UU) is in a herringbone pattern. How do they propose to tie in our standard brick sidewalk pattern to herringbone? We'll want a detail to review and approve. They are also tying into a paved walkway on Preble and appear to be using a flush granite curb to transition. Again, we'll want a detail to review and approve. It may be that the flush granite is appropriate at both transitions. Deb may have some recommendations from the HP perspective.

The applicant proposes to resolve this as we work through the HP Application Process. Appropriate details will be introduced at that time, and the Applicant will comply with HP direction on the brick pattern. This can be a Condition of Approval if necessary.

Do we need easements for the four proposed electrical vaults in the ROW on Preble Street? I believe this came up for a few projects recently, but I don't recall where it landed. Jimmy Dealaman may recall as I believe one of his projects had this condition.

This is not the applicant's understanding and ask the City to confirm.

The ADA ramps are not the same across plans. I don't know what they are actually proposing here. This should be clarified and consistent on all plans.

The ramps were shown correctly on the Site Plan and the Grading Plan, which were the only plans revised for the last Response to Comments. We have updated the Utility Plan to match as well, and it has been uploaded to Eplan.

The curb detail provided is incorrect. The City requires all granite curbing to be set in concrete. They are also proposing to remove and reset the existing granite curb. This is subject to the condition of the existing curb. If the existing curb is broken, chipped, of inadequate dimensions, etc. they will need to use new granite. They should work with Craig Sloan, engineering inspector, during construction to ID which curbing can be reused.

The curb details match what is currently released in the City's Technical Standards. We have since been provided with an updated detail by Mike Tremblay and revised our details to match. The applicant understands that resetting of curb is dependent on condition and it will be verified during construction with the City inspector.

I did not see an erosion and sedimentation control plan. They need to submit an ESC plan for review and approval.

We have added Erosion Control (Catch Basin inserts) to the Grading Plan. Erosion control notes are included on Sheet C-302.

The tree wells are shown on the site plan as flush granite, but the detail provided shows our standard raised tree well. This should be clarified and consistent with the City's Technical Standards and Jeff Tarling's recommendations.

The plan note was previously revised based on comments from DPW to make them flush, but we've received comments from other staff requiring them to be raised. We will provide whichever style the City determines to be appropriate. See comments from Jeff Tarling at the end of the letter. This can be a Condition of Approval.

The utility plan shows 3 water lines, which I'm sure is just a drafting error. But this should be corrected.

This is not an error. There are two existing fire services on Preble, which will be maintained, and one new domestic service to be installed on Preble. The existing domestic water service on Congress Street will be abandoned per PWD requirements.

How is rooftop runoff managed? We prefer it to be connected into the sewer separately from the sanitary waste on site in anticipation of future separation.

There is an existing storm drain lateral at the rear of the building that will remain in service for the roof drains.

It may be helpful to see a demolition plan, which will answer the following questions.

There are demolition notes indicated on the plans where needed.

Where is/are the existing water line(s) and how will they be capped?

The existing domestic water service is shown on the Utility Plan on Congress Street. Per PWD, the 4" valve will be removed at the main (C-202).

Where is/are existing sewer line(s) and how will they be capped?

The existing sewer service is located to the rear of the building and is shown on the Utility Plan C-202. This line will remain in service, and a second line is being added to Preble Street. No sewer lines are proposed to be capped.

All details / detail sheets should be revisited: duplicate details should be removed; details should be consistent with the City's Technical Standards; details not applicable to this project should be removed.

The detail sheets have been updated.

E. City Arborist Comments – Jeff Tarling

July 22, 2021

Street trees - We would like to see raised granite tree wells similar to those nearby near the Public Library. We can discuss exact locations and sizes.

Off Site trees - Trees are needed across the street, similar to the offsite tree and landscape work

that nearby One Monument Square project donated to Monument Square tree replacement and raised granite tree planters, we could use similar trees at Monument Way towards One City Center.

Overall, the current, already constructed streetscape does not present much room in the way of supporting additional trees or landscape. Project contribution to needed trees and the landscape across the street would be a welcomed addition.

Parks & Recreation is willing to work with the development team on this aspect.

The applicant is committed to working with the City Arborist during the Construction Document phase to locate the tree wells and use the appropriate planter details. This does not significantly impact the site design and can be addressed as a Condition of Approval.

July 29, 2021
In areas we have on street parking we space the tree planting locations between the potential car parking spaces and lower the raised curb height to 4". We can work with the project team to identify the parking spots and best places to plant a tree.

The applicant is committed to working with the City Arborist during the Construction Document phase to locate the tree wells and use the appropriate planter details. This does not significantly impact the site design and can be addressed as a Condition of Approval.

Additional Information Provided

Please find attached lighting cutsheets and photometric plan.

If you have any questions or require additional information, please do not hesitate to contact me at 207-558-3662 or email me at dstairs@woodardcurran.com.

Sincerely,

WOODARD & CURRAN, INC.

Darrin Stairs, PE
Project Manager

cc: Marieke Thormann, Fathom Companies
David Lloyd, Archetype Architects
Jenn Connelly - VHB

Attachments:

- Response to Comments Memorandum, VHB, Dated July 30, 2021
- Time & Temperature Hotel Entrance Letter, Archetype, July 30, 2021
- Time & Temperature Hotel Entrance Letter, MacRostie Historic Advisors, August 2, 2021
- Time & Temperature Valet Services Letter, Oxford Hotels, August 2, 2021.
- Revised C-201 Grading Plan (uploaded separately to Eplan)
- Revised C-202 Utility Plan (uploaded separately to Eplan)

- Revised C-300, C-301, C-302 Civil Detail Sheets (uploaded separately to Eplan)
- Lighting Cutsheets
- Photometrics Plan

PN: 232868.00

To: City of Portland

Date: July 30, 2021

Project #: 55321.01

From: Jennifer Conley, PE, PTOE
Karen Sentoff, EIT

Re: Time and Temperature Building
477 Congress Street
Response to Comments

VHB prepared a Traffic Memorandum regarding the anticipated redevelopment of the Time and Temperature Building dated May 21, 2021 (Traffic Memo). We are in receipt of the review comments from the City of Portland's Department of Public Works and their traffic consultant. Specifically, an email dated July 21, 2021, was received from Tom Errico. Responses to those comments are provided below. An abbreviated summary of each comment is also offered for reference.

Actual count data should be provided and verified via Streetlight data.

The actual count data is provided attached to this memorandum. VHB obtained Streetlight data for the area and has included Streetlight AADT information as well as percentages of turning movements at each intersection. The data was plotted on a diagram that also includes the percentages and traffic volumes based on INRIX data as well as the actual count data. This diagram is provided in the Appendix.

Existing retail trip generation seems high

Although the Traffic Memo based the trip generation of the retail space on industry standard rates, it is true that in a dense urban area such as the site that many trips are made by modes other than vehicular. A review of available data on mode shares in this area reveals that City of Portland Plan refers to a work trip rate of only 36% of trips being made by automobile. VHB adjusted the trips associated with retail space to be consistent with this mode share. The resulting trip generation information is shown in Table 1.

As indicated above, the office and retail space on the site was recently occupied. The trip generation of the office space was calculated using Land Use Code (LUC) 710, Office (Dense Multi-Use Urban). The trip generation of the retail space was based on LUC 820, Shopping Center. The trip generation for the bank space on LUC 911, Walk In Bank, which only had data for the PM peak hour. The resulting trip generation associated with the current or recent land uses is provided in ***Table 1***.

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Table 1. Revised Trip Generation – Current or Recent Uses

		Office Building[1]	Retail Annex[2]	Bank[3]	**Total Trips**
Weekday AM peak	Enter	95	10	-	***105***
	Exit	16	6	-	***22***
	Total	111	16	-	**127**
Weekday PM peak	Enter	19	33	14	***66***
	Exit	92	36	18	***146***
	Total	111	69	32	**212**

[1]123,000 square feet of LUC 710 (Dense Multi-Use Urban)
[2]50,000 square feet of LUC 820 adjusted for Portland plan mode share of 36% vehicle trips
[3]2,600 square feet of LUC 911

As shown in Table 1, the site generated the most trips during the weekday PM peak hour when 212 trips entered/exited the site. During the weekday AM peak hour, 127 trips entered/exited the site.

Trip generation of the proposed redevelopment should include trip generation for the rooftop bar space.

In response to the request, although the rooftop space will be seasonal, the trip generation was determined. Because the rooftop bar is anticipated to be a high end establishment that will serve some food and drinks, VHB developed a trip generation calculation for the rooftop bar space using LUC 931, Quality Restaurant. Because this facility will not be open during the AM peak period, no trips were assigned during the AM peak hour. In addition, to be consistent with the existing trip generation calculations for retail space, the retail trip rate continued to be calculated by LUC 820, Shopping Center with a local adjustment.

The resulting trip generation of the proposed site was determined and is presented in ***Table 2***. As shown, the proposed site is anticipated to generate 127 and 197 trips respectively during the weekday AM and PM peak hours.

Table 2. Revised Trip Generation – Proposed Uses

		Hotel[1]	Retail[2]	Restaurant[3]	Rooftop[4]	**Total Trips**
Weekday AM peak	Enter	53	1	19		***73***
	Exit	37	1	16	0	***54***
	Total	90	2	35	0	**127**
Weekday PM peak	Enter	60	3	21	27	***111***
	Exit	57	3	13	13	***86***
	Total	117	6	34	40	**197**

[1] 190 rooms of LUC 310
[2] 4,700 square feet of LUC 820 adjusted for Portland plan mode share of 36% vehicle trips
[3] 3,500 square feet of LUC 932
[4] 5,100 square feet of LUC 931 (not anticipated to be open during AM hours)

The net trip generation of the site was calculated and is illustrated in ***Table 3*** below. The net trip generation of the redevelopment was calculated by comparing the trips recently generated by the site with those anticipated to be generated by the redeveloped site.

Table 3. Revised Net Trip Generation

		Existing Site	Proposed Site	**Net Trips**
Weekday AM peak	Enter	*105*	***73***	**-32**
	Exit	*22*	***54***	**+32**
	Total	127	**127**	**+0**
Weekday PM peak	Enter	*66*	***111***	**+45**
	Exit	*146*	***86***	**-60**
	Total	212	**197**	**-15**

Based on the trips determined above, the redeveloped site will generate the same amount of trips during the weekday AM peak hour as the recent uses on the site and 15 fewer trips during the weekday PM peak hour than the recent land use. As shown, the redevelopment will not require a MaineDOT Traffic Movement Permit.

Trip Assignment should be illustrated for the hotel and retail/restaurant land uses separately and the assumptions regarding valet and self-park presented.

The projected new trips outlined above were distributed on the study area roadways based on the assumptions outlined in the Traffic Memo. For the hotel use, all trips were assigned to the valet operation which presents a worst-case scenario in regard to impact due to the circulating vehicles and are illustrated in ***Figure 1*** and ***Figure 2***. For the retail and restaurant uses, to be conservative, 50 percent of traffic was assigned to use the valet operation and the remaining 50 percent was assigned to on street or garage parking along area roadways. Those trips are illustrated in ***Figure 3*** and ***Figure 4***.

Figure 1. Hotel Trips for AM Peak Hour

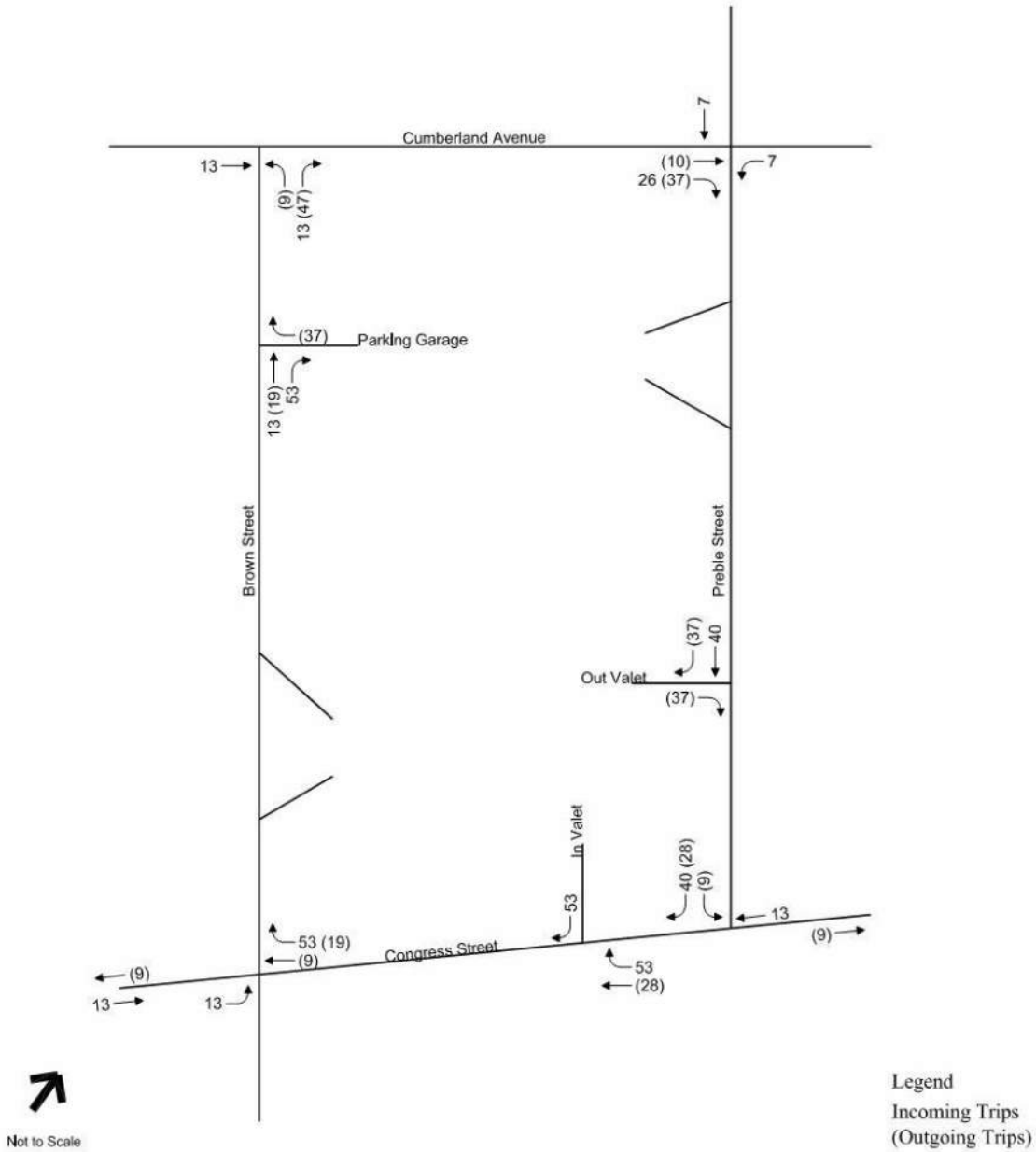


Figure 2. Hotel Trips for PM Peak Hour

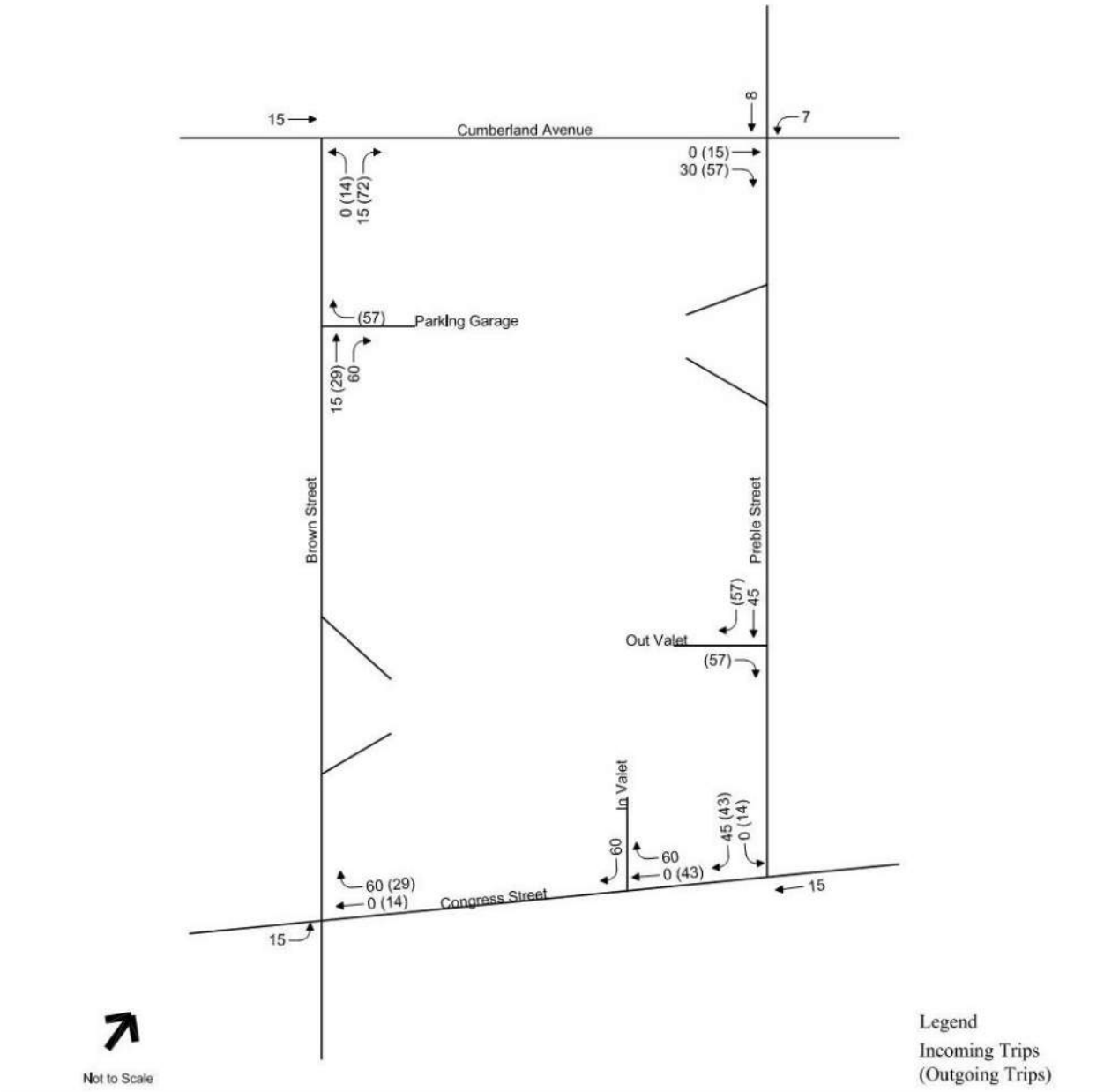


Figure 3. Retail and Restaurant Trips for AM Peak Hour

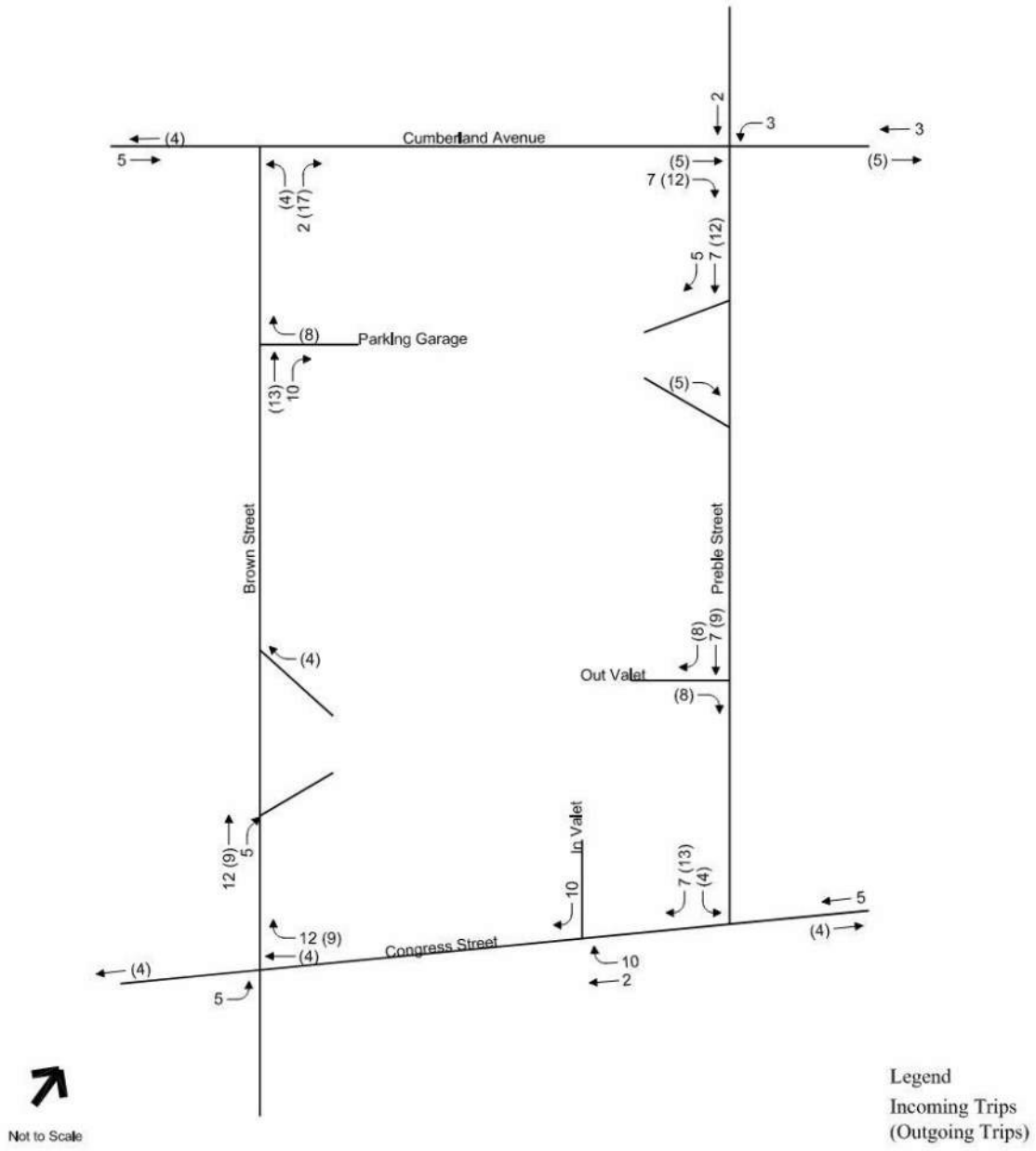
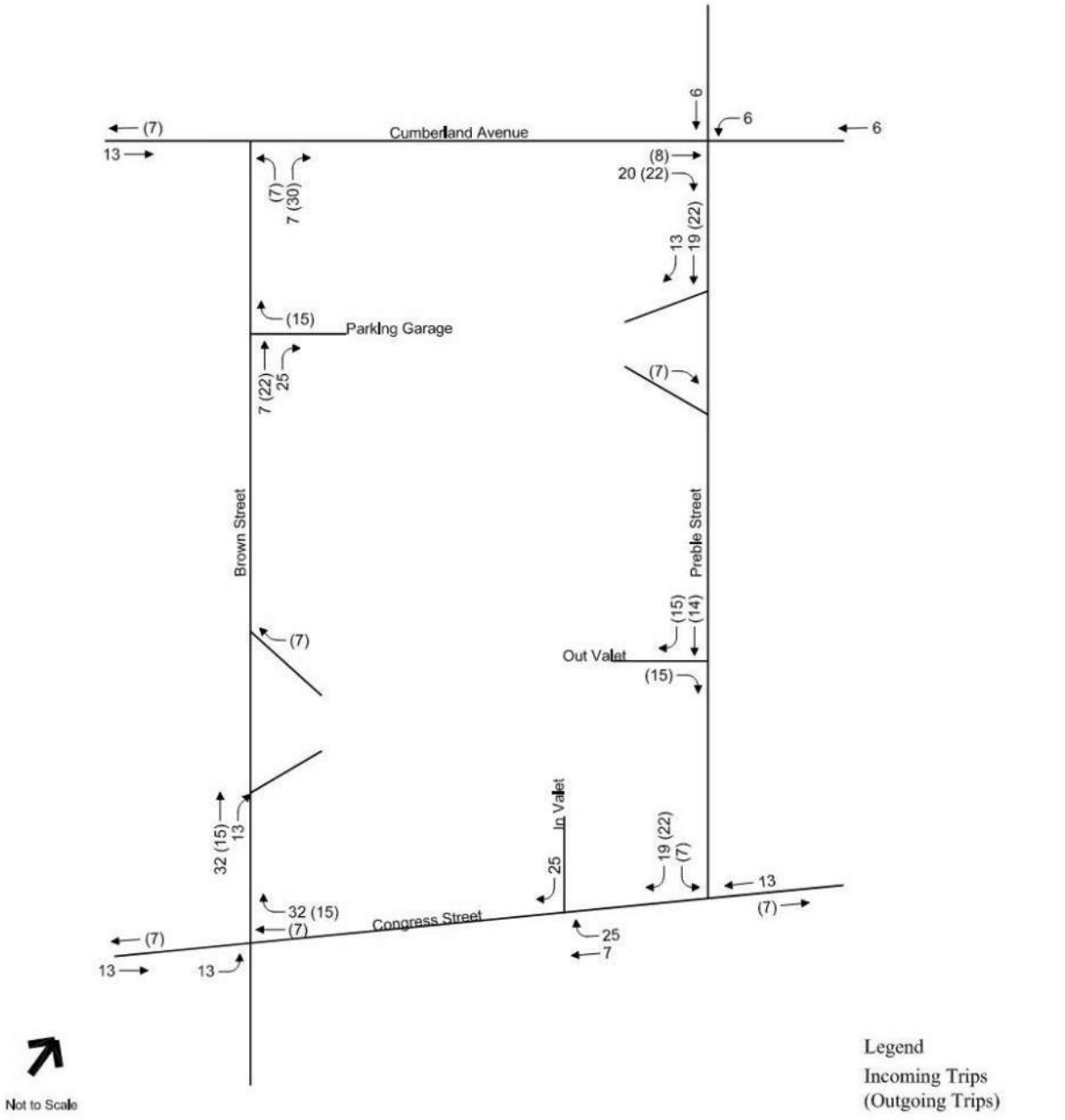
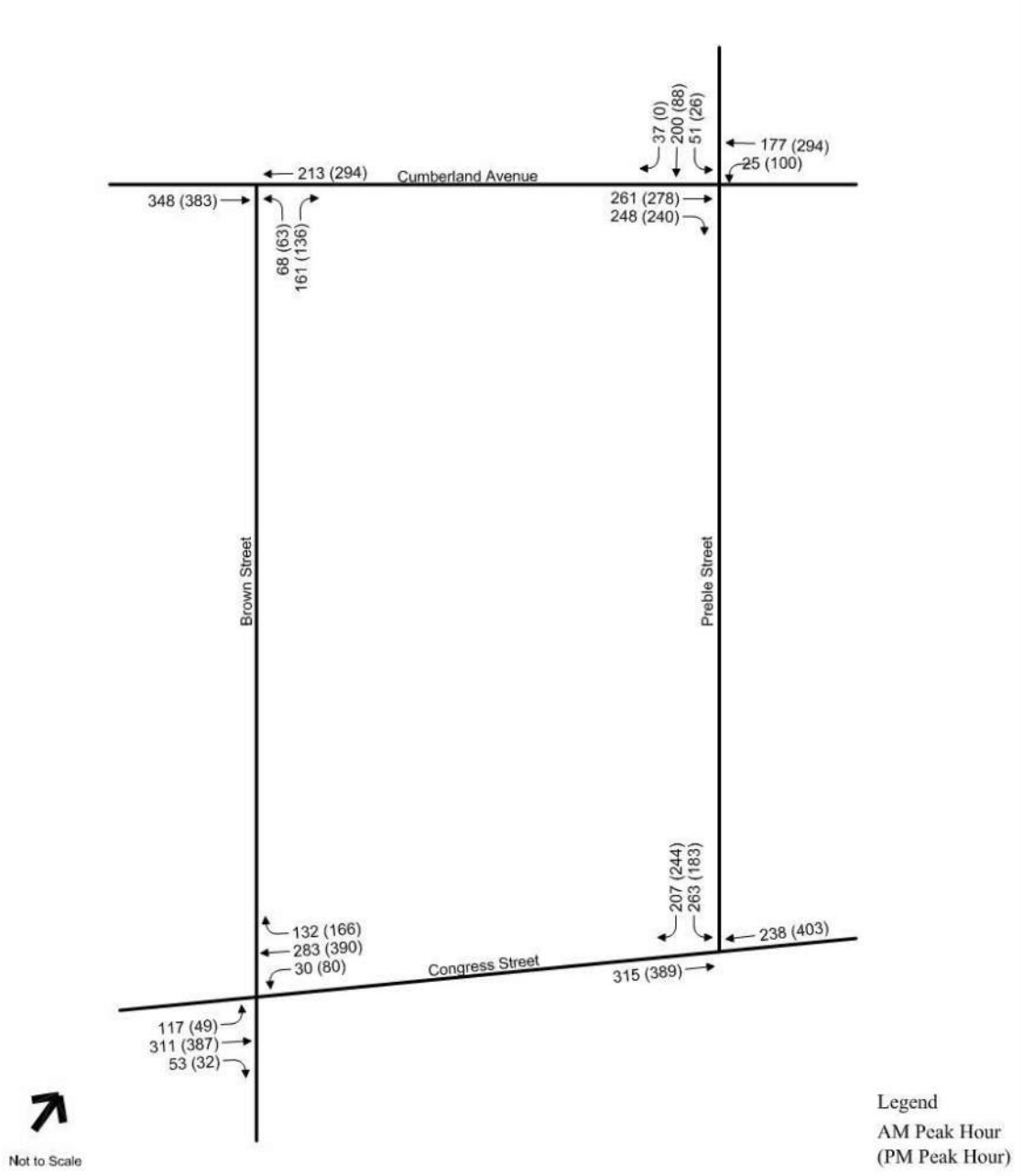


Figure 4. Retail and Restaurant Trips for PM Peak Hour



The revised 2026 Build traffic volumes for the weekday morning and evening peak hours are shown in ***Figure 5***.

Figure 5. Build Condition Peak Hour Traffic Volumes



Traffic Operations Analysis

The operation analysis of the area intersections was revised to reflect the revised Build condition traffic volumes. ***Table 4*** summarizes the operational analysis at the signalized study area intersections during the weekday AM and PM peak hours under 2021 existing conditions and 2026 No Build and Build conditions. The levels of service remain consistent with the LOS results provided in the Traffic Memo. As shown, the intersections are projected to operate at LOS B or better during the peak hours.

Table 4: 2026 Signalized Intersection Operations

Intersection	2021 Existing			2026 No Build			2026 Build		
Peak Hour	v/c+	Delay*	LOS **	v/c+	Delay*	LOS **	v/c+	Delay*	LOS **
Cumberland Avenue at Preble Street									
AM Peak Hour	0.50	9.7	A	0.51	10.1	B	0.57	11.4	B
PM Peak Hour	0.48	6.8	A	0.50	6.9	A	0.54	8.7	A
Congress Street at Preble Street									
AM Peak Hour	0.56	8.4	A	0.58	8.7	A	0.59	8.8	A
PM Peak Hour	0.55	7.1	A	0.56	8.3	A	0.59	8.8	A

+ Volume to capacity ratio
** Delay expressed in seconds per vehicle*
*** Level of Service*

Table 5 summarizes the operational analysis at the unsignalized study area intersections during the weekday AM and PM peak hours. The projected average delays are only projected to increase by two seconds during the AM and PM peak periods.

The Brown Street intersection with Congress Street does not have any side street approach traffic to assess the operations of the intersection. Since the north and south legs of the intersection are one-way away from the intersection, the only conflicting movements are the Congress Street left turns. These movements are projected to operate efficiently during the weekday AM and PM peak hours under 2021 existing and future 2026 No-Build and Build conditions with minimal delays.

Table 5: 2026 Unsignalized Intersection Operations

Intersection	Critical	2021 Existing				2026 No Build				2026 Build			
Peak Hour	Movement	Demand	Delay*	LOS**	Q	Demand	Delay*	LOS	Q	Demand	Delay*	LOS	Q
Cumberland Avenue at Brown Street													
AM Peak Hour	NB	142	12.9	B	23	149	13.4	B	26	249	15.5	C	52
PM Peak Hour	NB	53	13.8	B	10	56	14.3	B	11	214	16.3	C	48

** Delay expressed in seconds per vehicle*
*** Level of Service*
**** 95th percentile queue length, feet*

The traffic operations analysis should be field verified

On July 29, 2021, VHB observed the operations at the intersection of Congress Street and Preble Street. During the 4:25 to 4:45 pm time period, the vehicular queues were noted on all approaches. As provided in the Appendix, the queue was measured every minute during that time period and found to average a single vehicle on each approach. The maximum queues noted were 140 feet westbound on Congress Street, 80 feet eastbound on Congress Street and 120 feet on Preble Street. These queues cleared during each signal phase. The observed queues were longer westbound on Congress Street (Synchro had 113 feet) and southbound on Preble (Synchro had 63 feet), but shorter eastbound on Congress Street (Synchro had 118 feet). A spot traffic volume count was taken from 4:00 to 4:15 PM which showed traffic volumes approximately 20% lower than the data analyzed in the Synchro.

Conclusions

The information requested by the City's Traffic Consultant has been collected and analyzed. We are happy to meet with the City and the Traffic Consultant to discuss any of these issues.

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Engineering Excellence Since 1998

Location: Portland, ME
Counter: Trey
Board: 1
Weather: Clear

File Name : AM Congress-Preble
Site Code : 3246
Start Date : 7/31/2018
Page No : 1

Groups Printed- Passenger Cars - unit Trucks - Large Trucks

	PREBLE From North					CONGRESS From East					MONUMENT SQUARE SIDEWALK From South					CONGRESS From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	13	0	23	16	52	0	22	0	8	30	0	0	0	0	0	0	42	0	13	55	137
07:15 AM	12	0	35	11	58	0	23	0	5	28	0	0	0	0	0	0	46	0	15	61	147
07:30 AM	21	0	42	16	79	0	32	0	12	44	0	0	0	0	0	0	70	0	13	83	206
07:45 AM	21	0	46	21	88	0	44	0	13	57	0	0	0	0	0	0	82	0	21	103	248
Total	67	0	146	64	277	0	121	0	38	159	0	0	0	0	0	0	240	0	62	302	738
08:00 AM	30	2	56	24	112	0	37	0	17	54	0	0	0	0	0	0	89	0	15	104	270
08:15 AM	31	0	72	18	121	0	41	0	18	59	1	0	0	0	1	0	80	0	12	92	273
08:30 AM	28	1	48	24	101	0	46	0	14	60	0	0	0	0	0	0	71	0	23	94	255
08:45 AM	21	1	71	20	113	0	51	0	19	70	0	0	0	0	0	0	79	0	24	103	286
Total	110	4	247	86	447	0	175	0	68	243	1	0	0	0	1	0	319	0	74	393	1084
Grand Total	177	4	393	150	724	0	296	0	106	402	1	0	0	0	1	0	559	0	136	695	1822
Apprch %	24.4	0.6	54.3	20.7		0	73.6	0	26.4		100	0	0	0		0	80.4	0	19.6		
Total %	9.7	0.2	21.6	8.2	39.7	0	16.2	0	5.8	22.1	0.1	0	0	0	0.1	0	30.7	0	7.5	38.1	
Passenger Cars	167	4	383	132	686	0	272	0	93	365	1	0	0	0	1	0	506	0	111	617	1669
% Passenger Cars																					
Single-unit Trucks	10	0	9	18	37	0	24	0	13	37	0	0	0	0	0	0	51	0	25	76	150
% Single-unit Trucks	5.6	0	2.3	12	5.1	0	8.1	0	12.3	9.2	0	0	0	0	0	0	9.1	0	18.4	10.9	8.2
Large Trucks	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	3
% Large Trucks	0	0	0.3	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0.4	0	0	0.3	0.2

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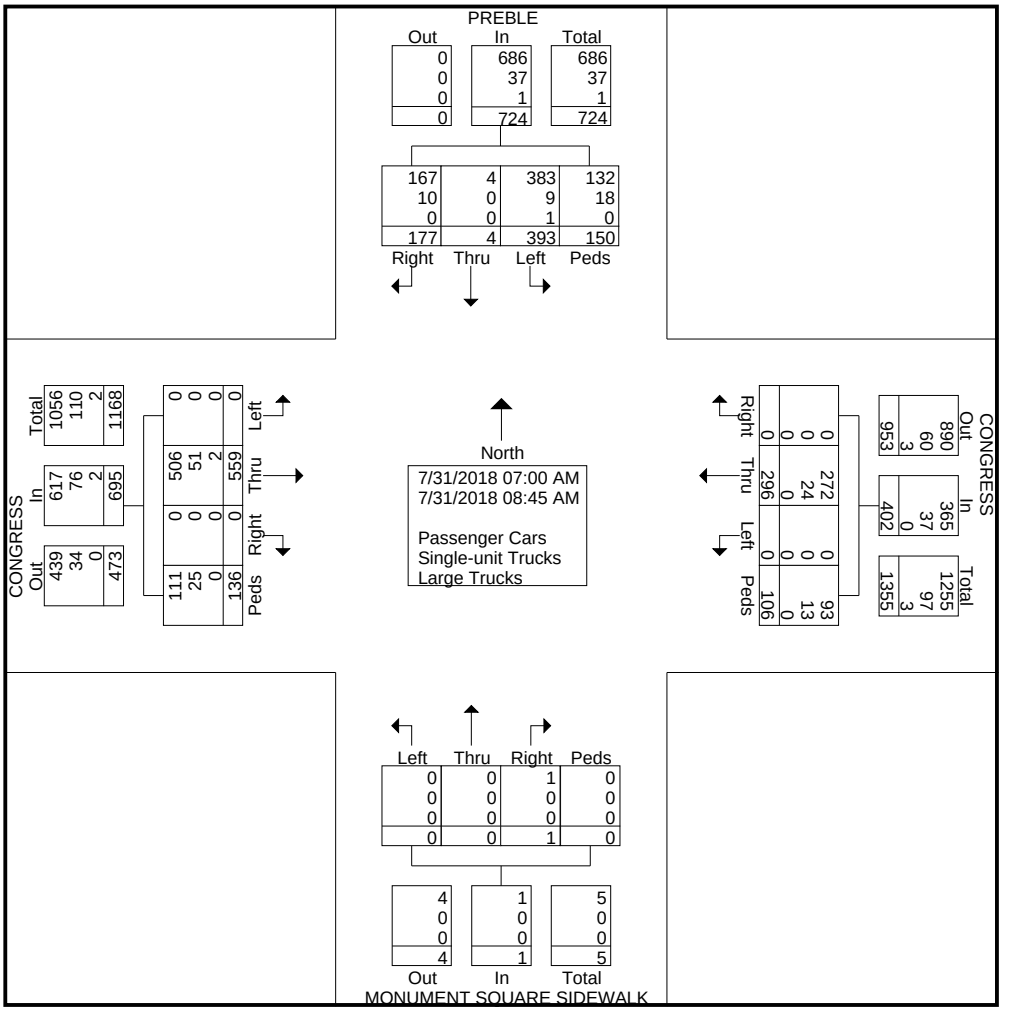

	PREBLE From North					CONGRESS From East					MONUMENT SQUARE SIDEWALK From South					CONGRESS From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	30	**2**	56	**24**	112	0	37	0	17	54	0	0	0	0	0	0	**89**	0	15	**104**	270
08:15 AM	**31**	0	**72**	18	**121**	0	41	0	18	59	**1**	0	0	0	**1**	0	80	0	12	92	273
08:30 AM	28	1	48	24	101	0	46	0	14	60	0	0	0	0	0	0	71	0	23	94	255
08:45 AM	21	1	71	20	113	0	**51**	0	**19**	**70**	0	0	0	0	0	0	79	0	**24**	103	**286**
Total Volume	110	4	247	86	447	0	175	0	68	243	1	0	0	0	1	0	319	0	74	393	1084
% App. Total	24.6	0.9	55.3	19.2		0	72	0	28		100	0	0	0		0	81.2	0	18.8		
PHF	.887	.500	.858	.896	.924	.000	.858	.000	.895	.868	.250	.000	.000	.000	.250	.000	.896	.000	.771	.945	.948
Passenger Cars	106	4	241	74	425	0	164	0	61	225	1	0	0	0	1	0	295	0	65	360	1011
% Passenger Cars																					
Single-unit Trucks	4	0	5	12	21	0	11	0	7	18	0	0	0	0	0	0	22	0	9	31	70
% Single-unit Trucks	3.6	0	2.0	14.0	4.7	0	6.3	0	10.3	7.4	0	0	0	0	0	0	6.9	0	12.2	7.9	6.5
Large Trucks	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	3
% Large Trucks	0	0	0.4	0	0.2	0	0	0	0	0	0	0	0	0	0	0	0.6	0	0	0.5	0.3

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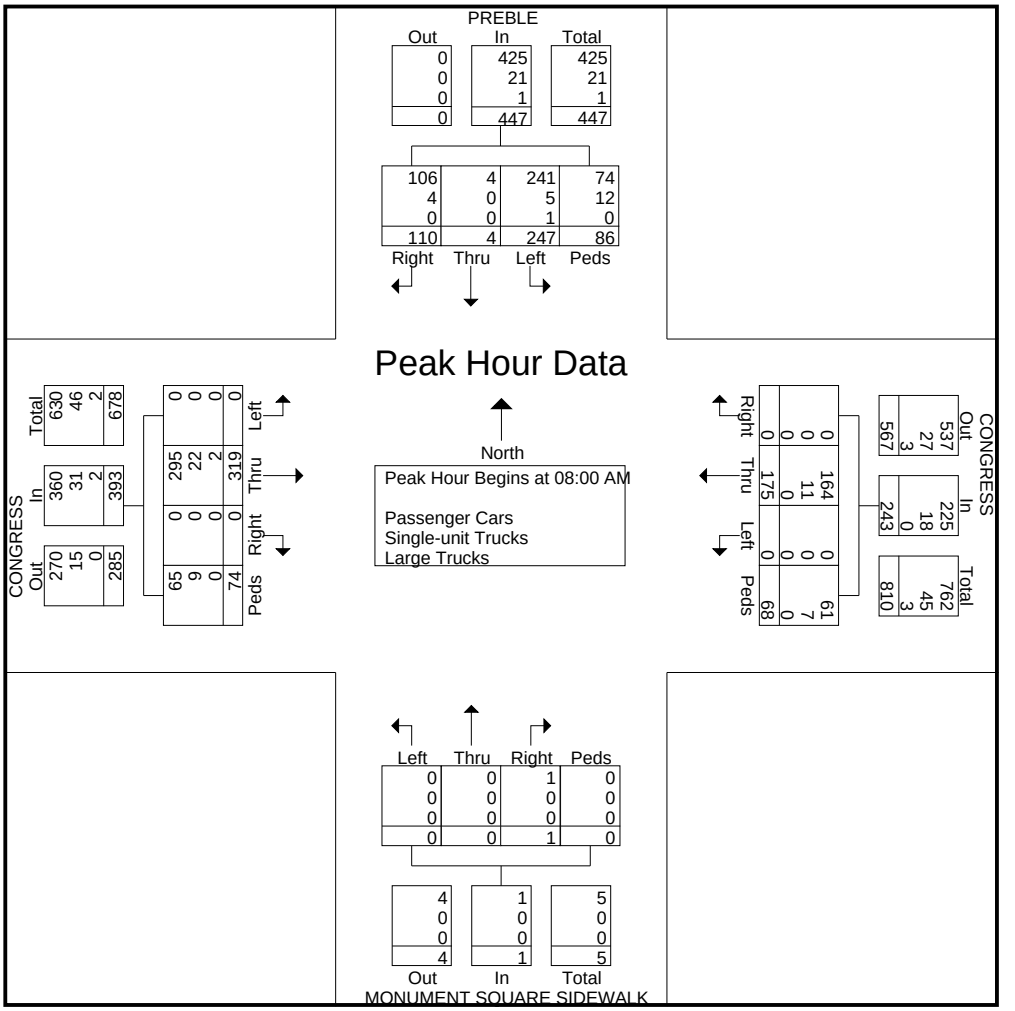

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Groups Printed- Passenger Cars - unit Trucks - Large Trucks

	PREBLE From North					CONGRESS From East					MNUMENT SQUARE SIDEWALK From South					CONGRESS From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
03:30 PM	26	0	37	56	119	0	64	0	14	78	0	0	0	0	0	0	80	0	36	116	313
03:45 PM	20	0	34	36	90	0	70	0	20	90	0	0	0	0	0	0	94	0	37	131	311
Total	46	0	71	92	209	0	134	0	34	168	0	0	0	0	0	0	174	0	73	247	624
04:00 PM	22	0	35	33	90	0	60	0	28	88	1	0	0	0	1	0	100	0	32	132	311
04:15 PM	23	0	30	54	107	0	69	0	12	81	0	0	0	0	0	0	93	0	28	121	309
04:30 PM	27	0	39	40	106	0	68	0	35	103	0	0	0	1	1	0	108	0	36	144	354
04:45 PM	23	0	51	51	125	0	68	0	17	85	0	0	0	1	1	0	89	0	33	122	333
Total	95	0	155	178	428	0	265	0	92	357	1	0	0	2	3	0	390	0	129	519	1307
05:00 PM	39	0	42	43	124	0	69	0	41	110	0	0	0	0	0	0	93	0	31	124	358
05:15 PM	33	0	38	36	107	0	68	0	23	91	0	0	0	0	0	0	101	0	36	137	335
05:30 PM	20	0	34	34	88	0	62	0	19	81	0	0	0	0	0	0	71	0	38	109	278
05:45 PM	22	0	35	36	93	0	59	0	21	80	0	0	0	0	0	0	75	0	36	111	284
Total	114	0	149	149	412	0	258	0	104	362	0	0	0	0	0	0	340	0	141	481	1255
Grand Total	255	0	375	419	1049	0	657	0	230	887	1	0	0	2	3	0	904	0	343	1247	3186
Apprch %	24.3	0	35.7	39.9		0	74.1	0	25.9		33.3	0	0	66.7		0	72.5	0	27.5		
Total %	8	0	11.8	13.2	32.9	0	20.6	0	7.2	27.8	0	0	0	0.1	0.1	0	28.4	0	10.8	39.1	
Passenger Cars	247	0	365	402	1014	0	628	0	179	807	1	0	0	0	1	0	851	0	311	1162	2984
% Passenger Cars																					
Single-unit Trucks	8	0	9	17	34	0	29	0	51	80	0	0	0	2	2	0	53	0	32	85	201
% Single-unit Trucks	3.1	0	2.4	4.1	3.2	0	4.4	0	22.2	9	0	0	0	100	66.7	0	5.9	0	9.3	6.8	6.3
Large Trucks	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
% Large Trucks	0	0	0.3	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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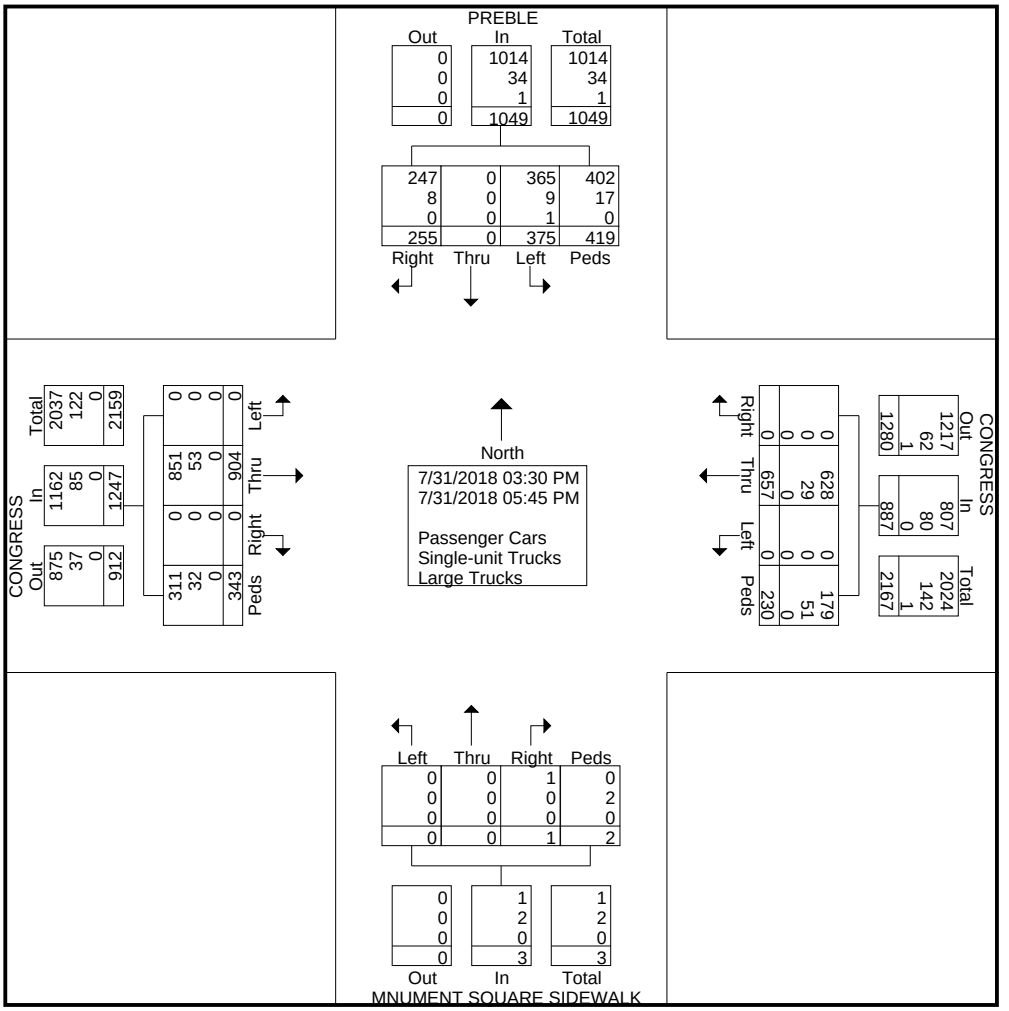

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Peak Hour Analysis From 03:30 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	27	0	39	40	106	0	68	0	35	103	0	0	0	**1**	**1**	0	**108**	0	**36**	**144**	354
04:45 PM	23	0	**51**	**51**	**125**	0	68	0	17	85	0	0	0	1	1	0	89	0	33	122	333
05:00 PM	**39**	0	42	43	124	0	**69**	0	**41**	**110**	0	0	0	0	0	0	93	0	31	124	**358**
05:15 PM	33	0	38	36	107	0	68	0	23	91	0	0	0	0	0	0	101	0	36	137	335
Total Volume	122	0	170	170	462	0	273	0	116	389	0	0	0	2	2	0	391	0	136	527	1380
% App. Total	26.4	0	36.8	36.8		0	70.2	0	29.8		0	0	0	100		0	74.2	0	25.8		
PHF	.782	.000	.833	.833	.924	.000	.989	.000	.707	.884	.000	.000	.000	.500	.500	.000	.905	.000	.944	.915	.964
Passenger Cars	118	0	165	166	449	0	260	0	97	357	0	0	0	0	0	0	369	0	119	488	1294
% Passenger Cars																					
Single-unit Trucks	4	0	5	4	13	0	13	0	19	32	0	0	0	2	2	0	22	0	17	39	86
% Single-unit Trucks	3.3	0	2.9	2.4	2.8	0	4.8	0	16.4	8.2	0	0	0	100	100	0	5.6	0	12.5	7.4	6.2
Large Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Large Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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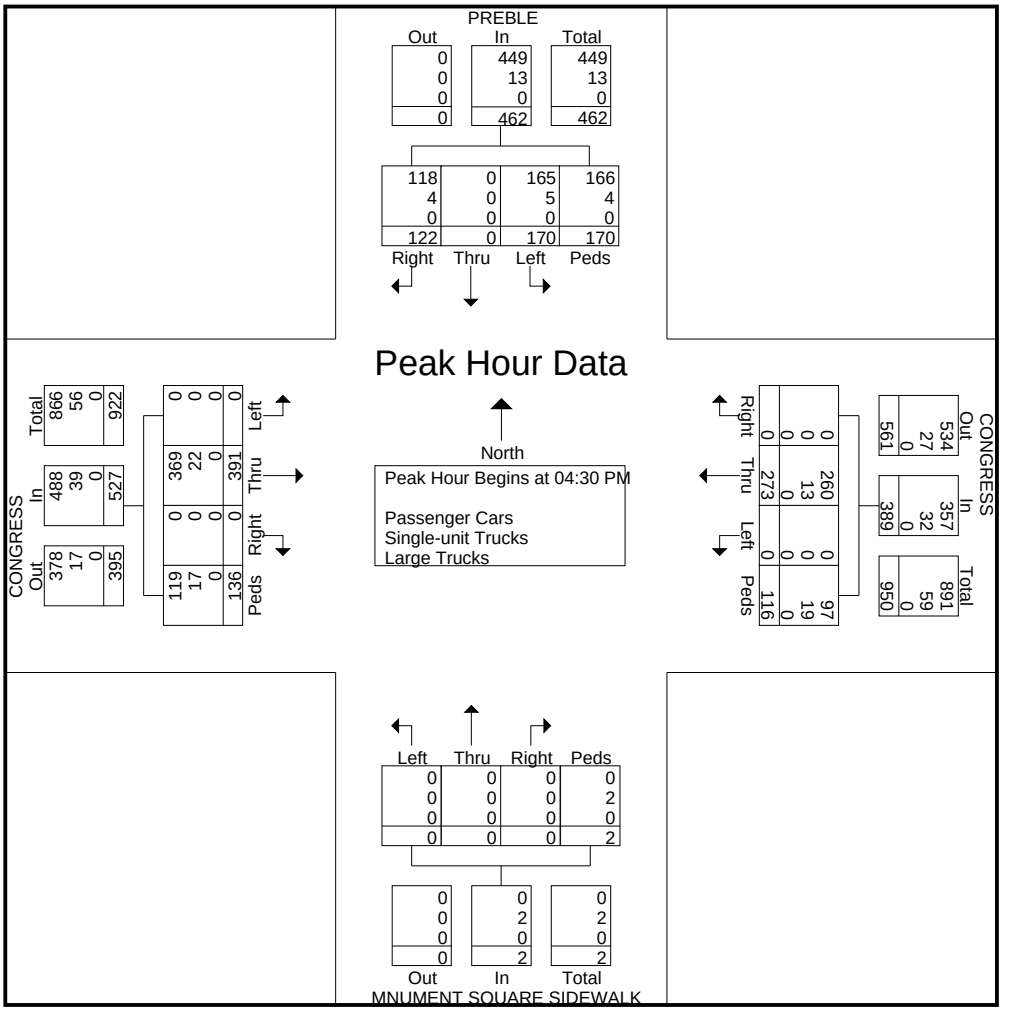
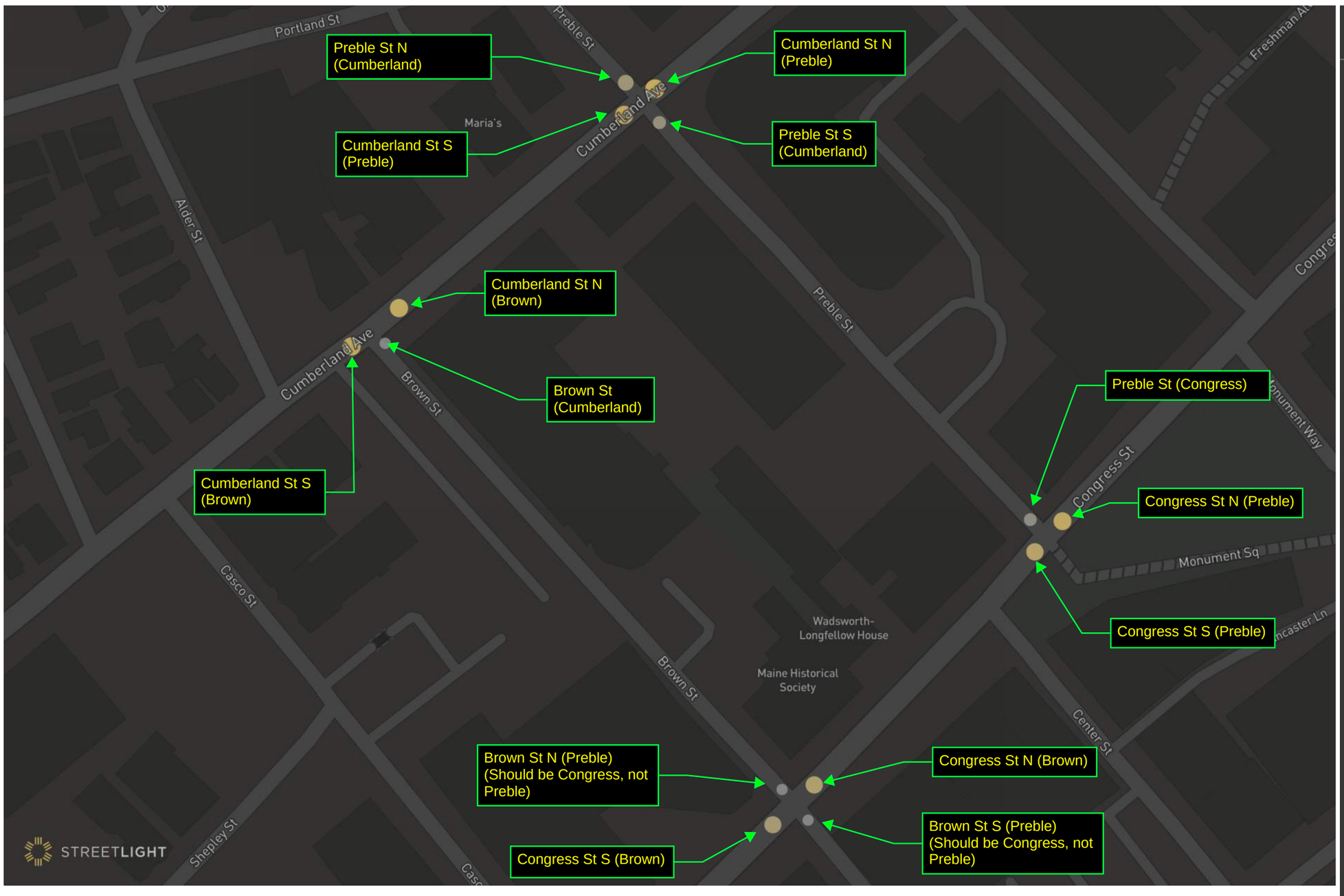
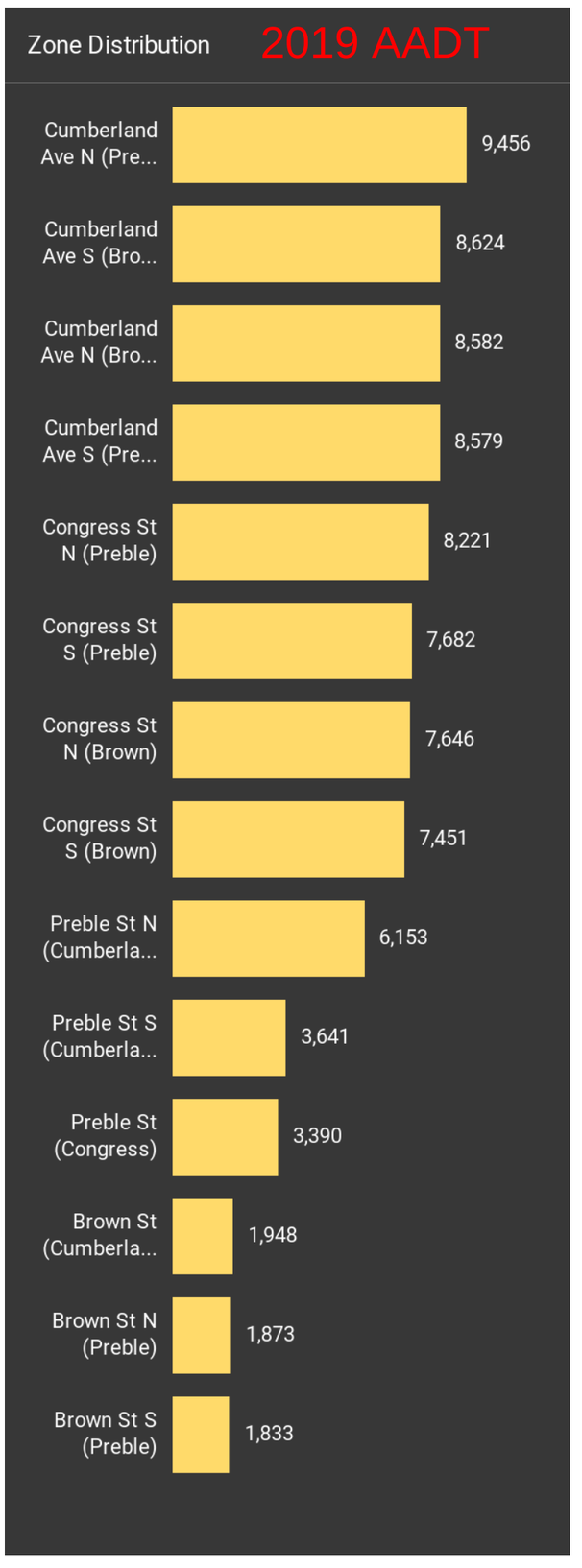
707 Sable Oaks Drive, Suite 30
South Portland, Maine 04106
Engineering Excellence Since 1998

Location: Portland, ME
Counter: Trey
Board: 1
Weather: Clear

File Name : PM Congress-Preble
Site Code : 3246
Start Date : 7/31/2018
Page No : 3




Preble St N (Cumberland)
Cumberland St N (Preble)
Cumberland St S (Preble)
Preble St S (Cumberland)
Cumberland St N (Brown)
Brown St (Cumberland)
Cumberland St S (Brown)
Preble St (Congress)
Congress St N (Preble)
Congress St S (Preble)
Brown St N (Preble) (Should be Congress, not Preble)
Congress St N (Brown)
Brown St S (Preble) (Should be Congress, not Preble)
Congress St S (Brown)
Portland St
Preble St
Cumberland Ave
Maria's
Alder St
Brown St
Casco St
Shepley St
Wadsworth-Longfellow House
Maine Historical Society
Freshman Alley
Congress St
Monument Sq
Monument Way
Center St
STREETLIGHT


Zone Distribution
2019 AADT
Cumberland Ave N (Pre... 9,456
Cumberland Ave S (Bro... 8,624
Cumberland Ave N (Bro... 8,582
Cumberland Ave S (Pre... 8,579
Congress St N (Preble) 8,221
Congress St S (Preble) 7,682
Congress St N (Brown) 7,646
Congress St S (Brown) 7,451
Preble St N (Cumberla... 6,153
Preble St S (Cumberla... 3,641
Preble St (Congress) 3,390
Brown St (Cumberla... 1,948
Brown St N (Preble) 1,873
Brown St S (Preble) 1,833

Visualization / BMD Portland T-T Turning Cumberland/Preble 5

TYPE	ADD-ONS	MODE OF TRAVEL
Turning Movement Counts	None	All Vehicles

Help

Time Controls

Day Types — select all

Weekday (M-F)

Day Parts

Custom Range — All (52)

StL Peak Hours

Traffic Flow

Flow

Total Traffic

Zone Selection

Intersections — select

Preble (Cumberland)

Metric Controls

Measurement

Percentage

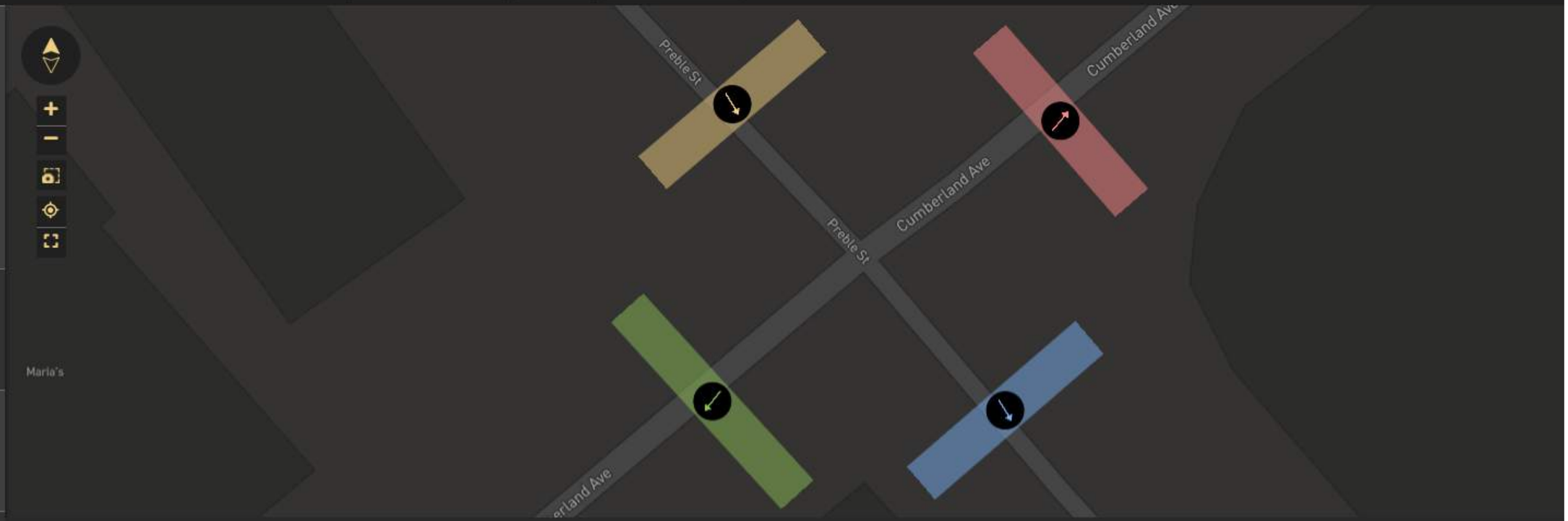
Map Layers

Legend | Labels

Gates

~~Unselected Zones~~

Base



Traffic Flow | Percentage

Chart Type | Diagram

Cumberland Ave SB N (Preble)		
In	Total	Out
0.00%	N/A	45.54%
Right	Thru	Left
0.00%	0.00%	0.00%

Preble St EB W (Cumberland)					
Out	0.00%	Left	45.54%	↗	
Total	N/A	Thru	46.23%	→	
In	100.00%	Right	8.24%	↘	

					Preble St EB E (Cumberland)
↖	0.00%	Right	0.00%	In	
←	0.00%	Thru	N/A	Total	
↙	0.00%	Left	46.23%	Out	

0.00%	0.00%	0.00%
Left	Thru	Right
8.24%	N/A	0.00%
Out	Total	In

Cumberland Ave SB S (Preble)

Visualization / BMD Portland T-T Turning Cumberland/Preble 4

TYPE: Turning Movement Counts | ADD-ONS: None | MODE OF TRAVEL: All Vehicles | Help

Time Controls

Day Types — select all

Weekday (M-F) ×

Day Parts

Custom Range — All (52) >

StL Peak Hours

Traffic Flow

Flow: Total Traffic

Zone Selection

Intersections — select

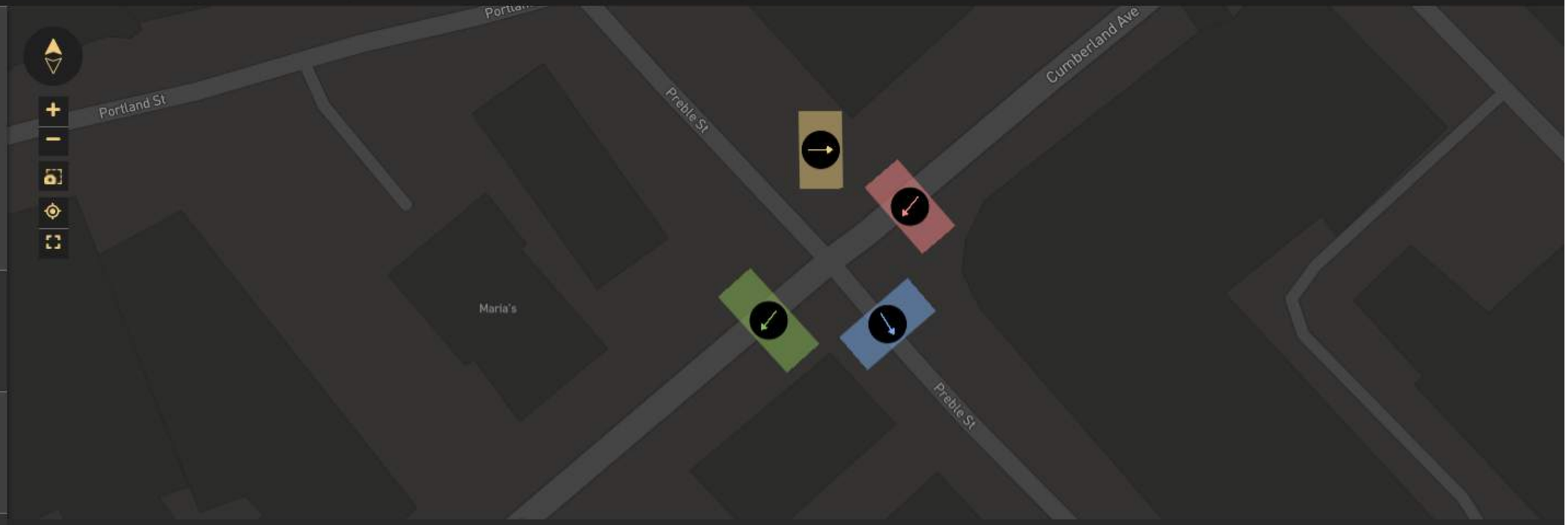
Cumberland SB (Preble) ×

Metric Controls

Measurement: Percentage

Map Layers

Legend | Labels | Gates | ~~Unselected Zones~~ | Base



Traffic Flow — Percentage — Chart Type: Diagram

Preble St EB W (Cumberland)					
Out	0.00%	Left	0.00%	↗	
Total	N/A	Thru	0.00%	→	
In	0.03%	Right	0.03%	↘	

Cumberland Ave SB N (Preble)		
In	Total	Out
99.97%	N/A	0.00%
Right	Thru	Left
0.00%	87.03%	12.94%
↙	↓	↘

↖	0.00%	Right	0.00%	In	
←	0.00%	Thru	N/A	Total	
↙	0.00%	Left	12.94%	Out	Preble St EB E (Cumberland)

↖	↑	↗
0.00%	0.00%	0.00%
Left	Thru	Right
87.06%	N/A	0.00%
Out	Total	In

Cumberland Ave SB S (Preble)

Visualization / BMD Portland T-T Turning Cumberland/Preble 3

TYPE	ADD-ONS	MODE OF TRAVEL
Turning Movement Counts	None	All Vehicles

Help

Time Controls

Day Types — select all

Weekday (M-F)

Day Parts

Custom Range — All (52)

StL Peak Hours

Traffic Flow

Flow

Total Traffic

Zone Selection

Intersections — select

Cumberland NB (Preble)

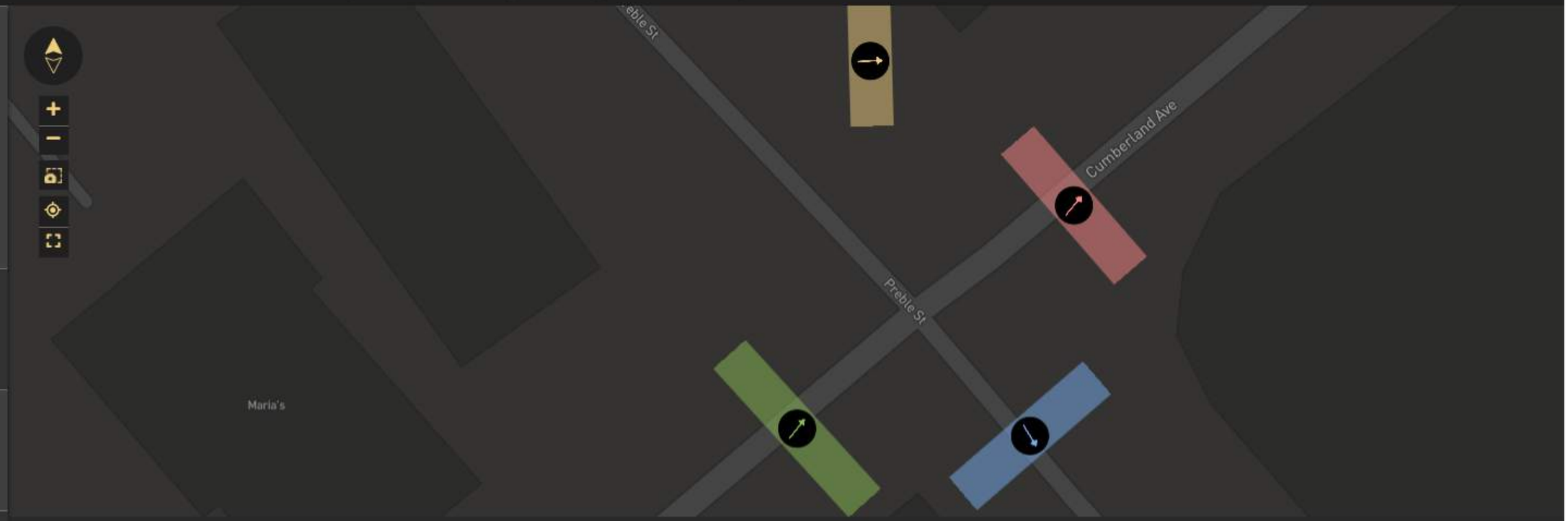
Metric Controls

Measurement

Percentage

Map Layers

Legend | Labels | Gates | ~~Unselected Zones~~ | Base



Traffic Flow — Percentage

Chart Type — Diagram

Preble St EB W (Cumberland)					
Out	0.00%	Left	0.00%	↗	
Total	N/A	Thru	0.00%	→	
In	0.00%	Right	0.00%	↘	

Cumberland Ave NB N (Preble)		
In	Total	Out
0.00%	N/A	82.05%
Right	Thru	Left
0.00%	0.00%	0.00%
↙	↓	↘

Cumberland Ave NB S (Preble)		
↖	↑	↗
0.00%	82.05%	17.95%
Left	Thru	Right
0.00%	N/A	100.00%
Out	Total	In

					Preble St EB E (Cumberland)
↖	0.00%	Right	0.00%	In	
←	0.00%	Thru	N/A	Total	
↙	0.00%	Left	17.95%	Out	

Visualization / BMD Portland T-T Turning Cumberland/Brown 1

TYPE	ADD-ONS	MODE OF TRAVEL
Turning Movement Counts	None	All Vehicles

Help

Time Controls

Day Types — select all

Weekday (M-F)

Day Parts

Custom Range — All (52)

StL Peak Hours

Traffic Flow

Flow

Total Traffic

Zone Selection

Intersections — select

Cumberland/Brown

Metric Controls

Measurement

Percentage

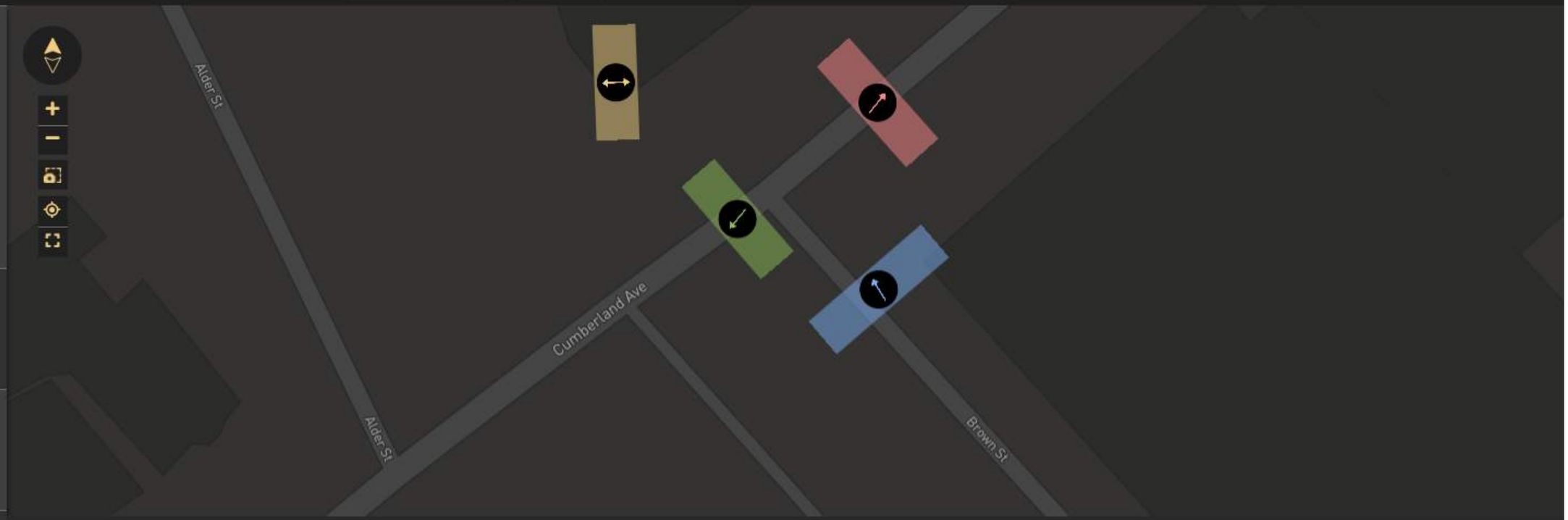
Map Layers

Legend | Labels

Gates

~~Unselected Zones~~

Base



Traffic Flow — Percentage

Chart Type — Diagram

Cumberland Ave NB		
In	Total	Out
0.00%	N/A	43.71%
Right	Thru	Left
0.00%	0.00%	0.00%

West					
Out	0.00%	Left	0.00%	↗
Total	N/A	Thru	0.00%	→
In	0.00%	Right	0.00%	↘

Brown St				
In	100.00%	Right	43.71%	↖
Total	N/A	Thru	0.00%	←
Out	0.00%	Left	56.29%	↙

↖	↑	↗
0.00%	0.00%	0.00%
Left	Thru	Right
56.29%	N/A	0.00%
Out	Total	In

Cumberland Ave SB

Visualization / BMD Portland T-T Turning Congress/Preble 1

TYPE	ADD-ONS	MODE OF TRAVEL
Turning Movement Counts	None	All Vehicles

Help

Time Controls

Day Types — select all

Weekday (M-F) ×

Day Parts

Custom Range — All (52) >

StL Peak Hours >

Traffic Flow

Flow

Total Traffic

Zone Selection

Intersections — select

Congress NB (Brown) ×

Metric Controls

Measurement

Percentage

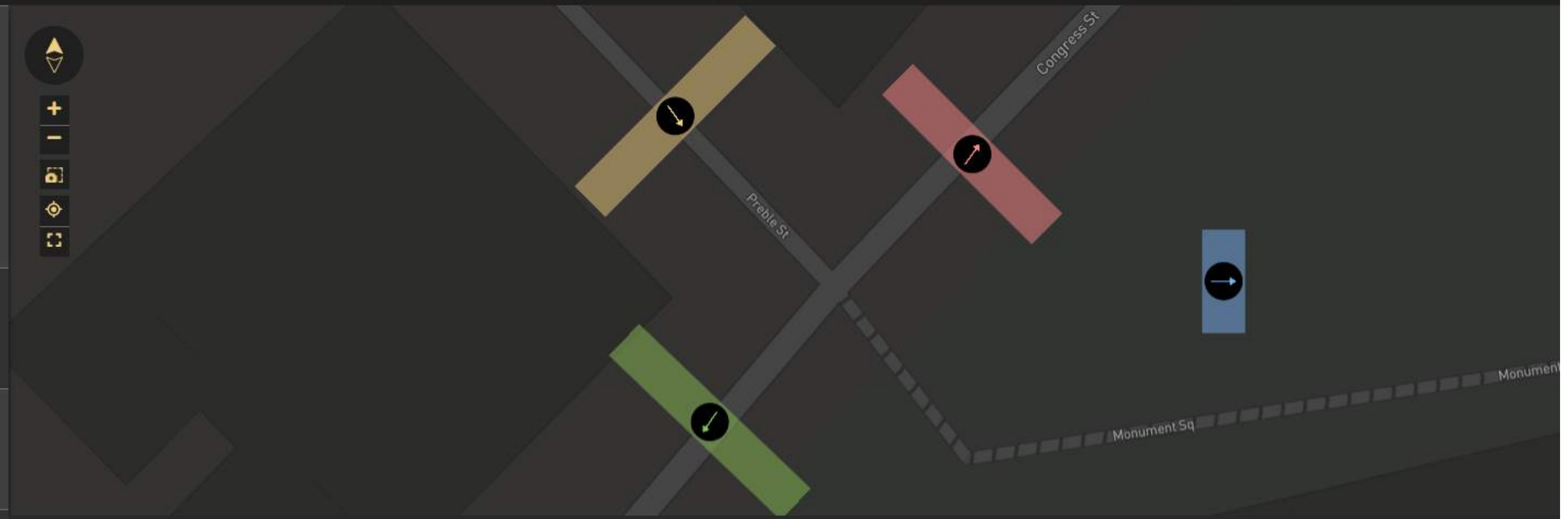
Map Layers

Legend | Labels

Gates

~~Unselected Zones~~

Base



Traffic Flow — Percentage

Chart Type — Diagram

Congress St NB N (Preble)		
In	Total	Out
0.00%	N/A	69.26%
Right	Thru	Left
0.00%	0.00%	0.00%

Preble St					
Out	0.00%	Left	69.26%	↗	
Total	N/A	Thru	0.00%	→	
In	100.00%	Right	30.74%	↘	

↖	0.00%	Right	0.00%	In	East
←	0.00%	Thru	N/A	Total	
↙	0.00%	Left	0.00%	Out	

↖	↑	↗
0.00%	0.00%	0.00%
Left	Thru	Right
30.74%	N/A	0.00%
Out	Total	In

Congress St SB S (Preble)

Visualization / BMD Portland T-T Turning Congress/Brown 2

TYPE: Turning Movement Counts | ADD-ONS: None | MODE OF TRAVEL: All Vehicles | Help

Time Controls

Day Types: select all

Weekday (M-F)

Day Parts

Custom Range: All (52)

StL Peak Hours

Traffic Flow

Flow: Total Traffic

Zone Selection

Intersections: select

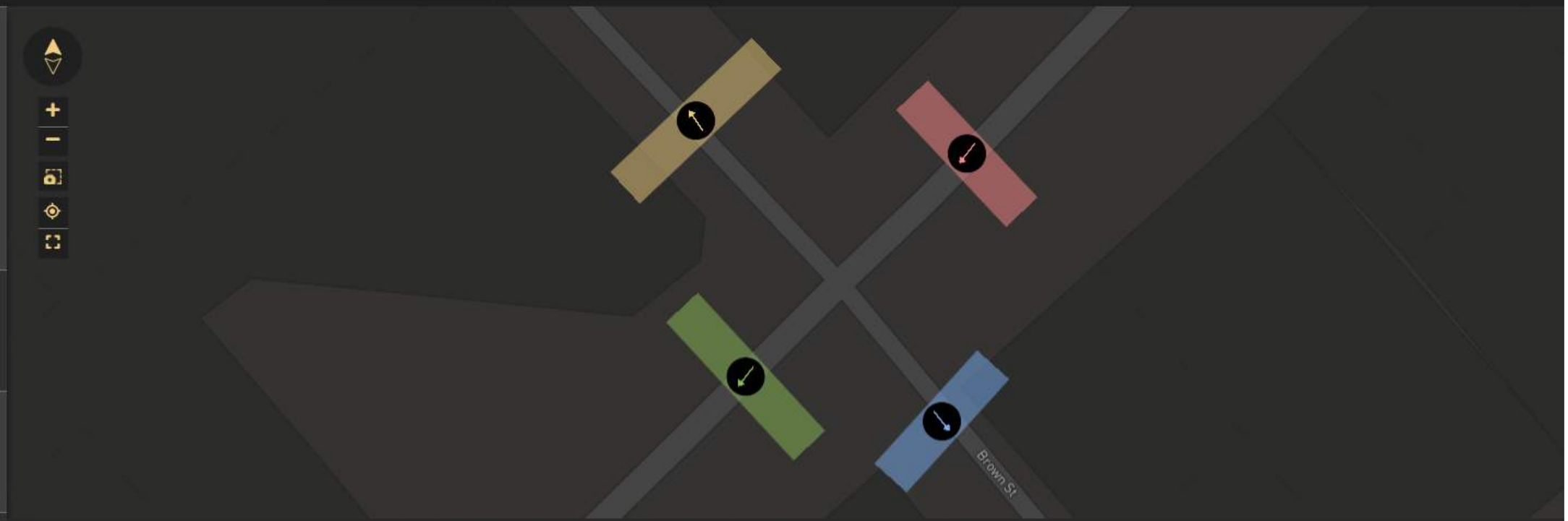
Congress SB (Brown)

Metric Controls

Measurement: Percentage

Map Layers

Legend | Labels | Gates | Unselected Zones | Base



Traffic Flow | Percentage | Chart Type: Diagram

Congress St SB N (Brown)		
In	Total	Out
100.00%	N/A	0.00%
Right	Thru	Left
7.94%	81.43%	10.63%

Brown St WB					
Out	7.94%	Left	0.00%	↗	
Total	N/A	Thru	0.00%	→	
In	0.00%	Right	0.00%	↘	

Brown St EB					
↖	0.00%	Right	0.00%	In	
←	0.00%	Thru	N/A	Total	
↙	0.00%	Left	10.63%	Out	

Congress St SB S (Brown)		
↖	↑	↗
0.00%	0.00%	0.00%
Left	Thru	Right
81.43%	N/A	0.00%
Out	Total	In

Visualization / BMD Portland T-T Turning Congress/Brown 1

TYPE: Turning Movement Counts | ADD-ONS: None | MODE OF TRAVEL: All Vehicles | Help

Time Controls

Day Types: Weekday (M-F) — select all

Day Parts: Custom Range — All (52) | StL Peak Hours

Traffic Flow

Flow: Total Traffic

Zone Selection

Intersections: Congress NB (Brown) — select

Metric Controls

Measurement: Percentage

Map Layers

Legend | Labels | Gates | ~~Unselected Zones~~ | Base



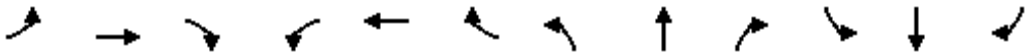
Traffic Flow — Percentage — Chart Type: Diagram

Congress St NB S (Brown)		
In	Total	Out
0.00%	N/A	83.31%
Right	Thru	Left
0.00%	0.00%	0.00%

Brown St WB					
Out	4.64%	Left	0.00%	↗	
Total	N/A	Thru	0.00%	→	
In	0.00%	Right	0.00%	↘	

Brown St EB					
↖	0.00%	Right	0.00%	In	
←	0.00%	Thru	N/A	Total	
↙	0.00%	Left	12.05%	Out	

Congress St NB N (Brown)		
↖	↑	↗
4.64%	83.31%	12.05%
Left	Thru	Right
0.00%	N/A	100.00%
Out	Total	In



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	117	311	53	30	283	132	0	0	0	0	0	0
Future Volume (Veh/h)	117	311	53	30	283	132	0	0	0	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	127	338	58	33	308	143	0	0	0	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)					325							
pX, platoon unblocked	0.98						0.98	0.98		0.98	0.98	0.98
vC, conflicting volume	451			396			1066	1138	367	1066	1096	380
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	428			396			1057	1130	367	1057	1087	355
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	89			97			100	100	100	100	100	100
cM capacity (veh/h)	1107			1163			177	171	678	177	182	674

Direction, Lane #	EB 1	WB 1
Volume Total	523	484
Volume Left	127	33
Volume Right	58	143
cSH	1107	1163
Volume to Capacity	0.11	0.03
Queue Length 95th (ft)	10	2
Control Delay (s)	3.1	0.9
Lane LOS	A	A
Approach Delay (s)	3.1	0.9
Approach LOS		

Intersection Summary				
Average Delay	2.0			
Intersection Capacity Utilization	57.3%	ICU Level of Service	B	
Analysis Period (min)	15			



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	348	0	0	213	68	161
Future Volume (Veh/h)	348	0	0	213	68	161
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	378	0	0	232	74	175
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)				341		
pX, platoon unblocked					1.00	
vC, conflicting volume			378		610	378
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			378		608	378
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		84	74
cM capacity (veh/h)			1180		458	669

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	378	232	249
Volume Left	0	0	74
Volume Right	0	0	175
cSH	1700	1700	588
Volume to Capacity	0.22	0.14	0.42
Queue Length 95th (ft)	0	0	52
Control Delay (s)	0.0	0.0	15.5
Lane LOS			C
Approach Delay (s)	0.0	0.0	15.5
Approach LOS			C

Intersection Summary			
Average Delay	4.5		
Intersection Capacity Utilization	38.7%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	315	0	0	238	0	0	0	0	263	2	207
Future Volume (vph)	0	315	0	0	238	0	0	0	0	263	2	207
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		72			151			106			198	
Travel Time (s)		1.6			3.4			2.4			4.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	342	0	0	259	0	0	0	0	286	227	0
Turn Type		NA			NA					Perm	NA	
Protected Phases		6			2			8			4	
Permitted Phases				2			8			4		
Detector Phase		6		2	2		8	8		4	4	
Switch Phase												
Minimum Initial (s)		6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Minimum Split (s)		10.5		10.5	10.5		10.5	10.5		10.5	10.5	
Total Split (s)		22.0		22.0	22.0		22.0	22.0		22.0	22.0	
Total Split (%)		33.8%		33.8%	33.8%		33.8%	33.8%		33.8%	33.8%	
Yellow Time (s)		3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)		1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0			0.0		0.0	0.0	
Total Lost Time (s)		4.5			4.5			4.5		4.5	4.5	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode		None		None	None		None	None		None	None	
v/c Ratio		0.53			0.40					0.52	0.30	
Control Delay		13.2			11.5					12.9	2.9	
Queue Delay		0.0			0.0					0.0	0.0	
Total Delay		13.2			11.5					12.9	2.9	
Queue Length 50th (ft)		52			37					38	0	
Queue Length 95th (ft)		113			84					105	29	
Internal Link Dist (ft)		1			71			26			118	
Turn Bay Length (ft)												
Base Capacity (vph)		963			963					729	928	
Starvation Cap Reductn		0			0					0	0	
Spillback Cap Reductn		0			0					0	0	
Storage Cap Reductn		0			0					0	0	
Reduced v/c Ratio		0.36			0.27					0.39	0.24	

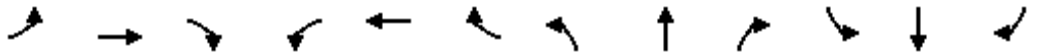
Intersection Summary	
Area Type:	Other
Cycle Length: 65	
Actuated Cycle Length: 35.2	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 9: Congress St & Preble St



Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Right Turn on Red	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	5.0
Minimum Split (s)	21.0
Total Split (s)	21.0
Total Split (%)	32%
Yellow Time (s)	3.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	None
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	315	0	0	238	0	0	0	0	263	2	207
Future Volume (vph)	0	315	0	0	238	0	0	0	0	263	2	207
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5					4.5	4.5	
Lane Util. Factor		1.00			1.00					1.00	1.00	
Frt		1.00			1.00					1.00	0.85	
Flt Protected		1.00			1.00					0.95	1.00	
Satd. Flow (prot)		1863			1863					1770	1586	
Flt Permitted		1.00			1.00					0.76	1.00	
Satd. Flow (perm)		1863			1863					1410	1586	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	342	0	0	259	0	0	0	0	286	2	225
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	136	0
Lane Group Flow (vph)	0	342	0	0	259	0	0	0	0	286	91	0
Turn Type		NA			NA					Perm	NA	
Protected Phases		6			2			8			4	
Permitted Phases				2			8			4		
Actuated Green, G (s)		12.1			12.1					13.7	13.7	
Effective Green, g (s)		12.1			12.1					13.7	13.7	
Actuated g/C Ratio		0.35			0.35					0.39	0.39	
Clearance Time (s)		4.5			4.5					4.5	4.5	
Vehicle Extension (s)		3.0			3.0					3.0	3.0	
Lane Grp Cap (vph)		647			647					555	624	
v/s Ratio Prot		c0.18			0.14						0.06	
v/s Ratio Perm										c0.20		
v/c Ratio		0.53			0.40					0.52	0.15	
Uniform Delay, d1		9.1			8.6					8.0	6.8	
Progression Factor		1.00			1.00					1.00	1.00	
Incremental Delay, d2		0.8			0.4					0.8	0.1	
Delay (s)		9.9			9.0					8.8	6.9	
Level of Service		A			A					A	A	
Approach Delay (s)		9.9			9.0			0.0			8.0	
Approach LOS		A			A			A			A	

Intersection Summary			
HCM 2000 Control Delay	8.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	34.8	Sum of lost time (s)	12.0
Intersection Capacity Utilization	38.6%	ICU Level of Service	A
Analysis Period (min)	15		

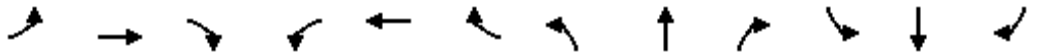
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	261	248	25	177	0	0	0	0	51	200	37
Future Volume (vph)	0	261	248	25	177	0	0	0	0	51	200	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		121			162			350			192	
Travel Time (s)		2.8			3.7			8.0			4.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	554	0	27	192	0	0	0	0	0	312	0
Turn Type		NA		pm+pt	NA					Perm	NA	
Protected Phases		6		5	2						4	
Permitted Phases				2						4		
Detector Phase		6		5	2					4	4	
Switch Phase												
Minimum Initial (s)		6.0		5.0	10.0					6.0	6.0	
Minimum Split (s)		22.5		9.5	22.5					22.5	22.5	
Total Split (s)		30.0		12.0	42.0					23.0	23.0	
Total Split (%)		46.2%		18.5%	64.6%					35.4%	35.4%	
Yellow Time (s)		3.5		3.5	3.5					3.5	3.5	
All-Red Time (s)		1.0		1.0	1.0					1.0	1.0	
Lost Time Adjust (s)		0.0		0.0	0.0						0.0	
Total Lost Time (s)		4.5		4.5	4.5						4.5	
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?		Yes		Yes								
Recall Mode		None		None	None					None	None	
v/c Ratio		0.66		0.06	0.21						0.36	
Control Delay		12.4		4.8	5.7						14.3	
Queue Delay		0.0		0.0	0.0						0.0	
Total Delay		12.4		4.8	5.7						14.3	
Queue Length 50th (ft)		52		2	17						21	
Queue Length 95th (ft)		238		10	47						77	
Internal Link Dist (ft)		41			82			270			112	
Turn Bay Length (ft)												
Base Capacity (vph)		1293		501	1658						1837	
Starvation Cap Reductn		0		0	0						0	
Spillback Cap Reductn		0		0	0						0	
Storage Cap Reductn		0		0	0						0	
Reduced v/c Ratio		0.43		0.05	0.12						0.17	

Intersection Summary	
Area Type:	Other
Cycle Length: 65	
Actuated Cycle Length: 38.5	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 10: Preble St & Cumberland Ave

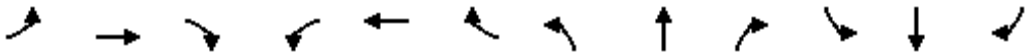




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	261	248	25	177	0	0	0	0	51	200	37
Future Volume (vph)	0	261	248	25	177	0	0	0	0	51	200	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5		4.5	4.5						4.5	
Lane Util. Factor		1.00		1.00	1.00						0.95	
Frt		0.93		1.00	1.00						0.98	
Flt Protected		1.00		0.95	1.00						0.99	
Satd. Flow (prot)		1740		1770	1863						3441	
Flt Permitted		1.00		0.23	1.00						0.99	
Satd. Flow (perm)		1740		435	1863						3441	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	284	270	27	192	0	0	0	0	55	217	40
RTOR Reduction (vph)	0	51	0	0	0	0	0	0	0	0	19	0
Lane Group Flow (vph)	0	503	0	27	192	0	0	0	0	0	293	0
Turn Type		NA		pm+pt	NA					Perm	NA	
Protected Phases		6		5	2						4	
Permitted Phases				2						4		
Actuated Green, G (s)		17.4		22.9	22.9						9.6	
Effective Green, g (s)		17.4		22.9	22.9						9.6	
Actuated g/C Ratio		0.42		0.55	0.55						0.23	
Clearance Time (s)		4.5		4.5	4.5						4.5	
Vehicle Extension (s)		3.0		3.0	3.0						3.0	
Lane Grp Cap (vph)		729		272	1028						795	
v/s Ratio Prot		c0.29		0.00	c0.10							
v/s Ratio Perm				0.05							0.09	
v/c Ratio		0.69		0.10	0.19						0.37	
Uniform Delay, d1		9.8		5.7	4.6						13.4	
Progression Factor		1.00		1.00	1.00						1.00	
Incremental Delay, d2		2.8		0.2	0.1						0.3	
Delay (s)		12.7		5.8	4.7						13.7	
Level of Service		B		A	A						B	
Approach Delay (s)		12.7			4.9			0.0			13.7	
Approach LOS		B			A			A			B	

Intersection Summary			
HCM 2000 Control Delay	11.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	41.5	Sum of lost time (s)	13.5
Intersection Capacity Utilization	44.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	34	387	47	80	400	166	0	0	0	0	0	0
Future Volume (Veh/h)	34	387	47	80	400	166	0	0	0	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	37	421	51	87	435	180	0	0	0	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)					325							
pX, platoon unblocked	0.88						0.88	0.88		0.88	0.88	0.88
vC, conflicting volume	615			472			1220	1310	446	1220	1245	525
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	499			472			1183	1284	446	1183	1211	397
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	96			92			100	100	100	100	100	100
cM capacity (veh/h)	942			1090			134	129	612	134	142	577

Direction, Lane #	EB 1	WB 1
Volume Total	509	702
Volume Left	37	87
Volume Right	51	180
cSH	942	1090
Volume to Capacity	0.04	0.08
Queue Length 95th (ft)	3	6
Control Delay (s)	1.1	2.0
Lane LOS	A	A
Approach Delay (s)	1.1	2.0
Approach LOS		

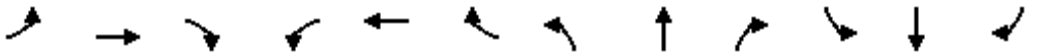
Intersection Summary				
Average Delay	1.6			
Intersection Capacity Utilization	58.3%	ICU Level of Service	B	
Analysis Period (min)	15			



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	383	0	0	294	61	136
Future Volume (Veh/h)	383	0	0	294	61	136
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	416	0	0	320	66	148
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)				341		
pX, platoon unblocked					0.96	
vC, conflicting volume			416		736	416
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			416		706	416
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		83	77
cM capacity (veh/h)			1143		387	637

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	416	320	214
Volume Left	0	0	66
Volume Right	0	0	148
cSH	1700	1700	531
Volume to Capacity	0.24	0.19	0.40
Queue Length 95th (ft)	0	0	48
Control Delay (s)	0.0	0.0	16.3
Lane LOS			C
Approach Delay (s)	0.0	0.0	16.3
Approach LOS			C

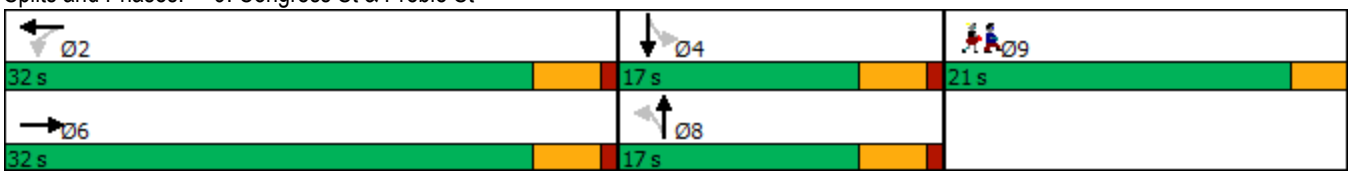
Intersection Summary			
Average Delay	3.7		
Intersection Capacity Utilization	38.6%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	389	0	0	403	0	0	0	0	181	0	244
Future Volume (vph)	0	389	0	0	403	0	0	0	0	181	0	244
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		72			151			106			198	
Travel Time (s)		1.6			3.4			2.4			4.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	423	0	0	438	0	0	0	0	197	265	0
Turn Type		NA			NA					Perm	NA	
Protected Phases		6			2			8			4	
Permitted Phases				2			8			4		
Detector Phase		6		2	2		8	8		4	4	
Switch Phase												
Minimum Initial (s)		6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Minimum Split (s)		10.5		10.5	10.5		10.5	10.5		10.5	10.5	
Total Split (s)		32.0		32.0	32.0		17.0	17.0		17.0	17.0	
Total Split (%)		45.7%		45.7%	45.7%		24.3%	24.3%		24.3%	24.3%	
Yellow Time (s)		3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)		1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0			0.0		0.0	0.0	
Total Lost Time (s)		4.5			4.5			4.5		4.5	4.5	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode		None		None	None		None	None		None	None	
v/c Ratio		0.57			0.60					0.43	0.29	
Control Delay		11.5			11.9					13.2	0.8	
Queue Delay		0.0			0.0					0.0	0.0	
Total Delay		11.5			11.9					13.2	0.8	
Queue Length 50th (ft)		57			59					25	0	
Queue Length 95th (ft)		113			118					77	0	
Internal Link Dist (ft)		1			71			26			118	
Turn Bay Length (ft)												
Base Capacity (vph)		1546			1546					541	968	
Starvation Cap Reductn		0			0					0	0	
Spillback Cap Reductn		0			0					0	0	
Storage Cap Reductn		0			0					0	0	
Reduced v/c Ratio		0.27			0.28					0.36	0.27	

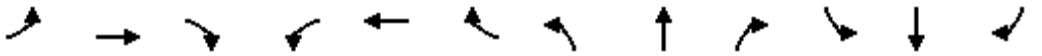
Intersection Summary	
Area Type:	Other
Cycle Length: 70	
Actuated Cycle Length: 33.4	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 9: Congress St & Preble St



Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Right Turn on Red	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	5.0
Minimum Split (s)	21.0
Total Split (s)	21.0
Total Split (%)	30%
Yellow Time (s)	3.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	None
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	389	0	0	403	0	0	0	0	181	0	244
Future Volume (vph)	0	389	0	0	403	0	0	0	0	181	0	244
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5					4.5	4.5	
Lane Util. Factor		1.00			1.00					1.00	1.00	
Frt		1.00			1.00					1.00	0.85	
Flt Protected		1.00			1.00					0.95	1.00	
Satd. Flow (prot)		1863			1863					1770	1583	
Flt Permitted		1.00			1.00					0.76	1.00	
Satd. Flow (perm)		1863			1863					1410	1583	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	423	0	0	438	0	0	0	0	197	0	265
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	178	0
Lane Group Flow (vph)	0	423	0	0	438	0	0	0	0	197	87	0
Turn Type		NA			NA					Perm	NA	
Protected Phases		6			2			8			4	
Permitted Phases				2			8			4		
Actuated Green, G (s)		13.2			13.2					10.9	10.9	
Effective Green, g (s)		13.2			13.2					10.9	10.9	
Actuated g/C Ratio		0.40			0.40					0.33	0.33	
Clearance Time (s)		4.5			4.5					4.5	4.5	
Vehicle Extension (s)		3.0			3.0					3.0	3.0	
Lane Grp Cap (vph)		742			742					464	521	
v/s Ratio Prot		0.23			c0.24						0.06	
v/s Ratio Perm										c0.14		
v/c Ratio		0.57			0.59					0.42	0.17	
Uniform Delay, d1		7.7			7.8					8.7	7.9	
Progression Factor		1.00			1.00					1.00	1.00	
Incremental Delay, d2		1.1			1.3					0.6	0.2	
Delay (s)		8.8			9.1					9.3	8.0	
Level of Service		A			A					A	A	
Approach Delay (s)		8.8			9.1			0.0			8.6	
Approach LOS		A			A			A			A	

Intersection Summary			
HCM 2000 Control Delay	8.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	33.1	Sum of lost time (s)	12.0
Intersection Capacity Utilization	43.8%	ICU Level of Service	A
Analysis Period (min)	15		

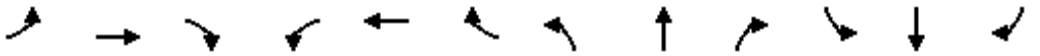
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	278	240	93	303	0	0	0	0	26	88	0
Future Volume (vph)	0	278	240	93	303	0	0	0	0	26	88	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		121			162			350			192	
Travel Time (s)		2.8			3.7			8.0			4.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	563	0	101	329	0	0	0	0	0	124	0
Turn Type		NA		pm+pt	NA					Perm	NA	
Protected Phases		6		5	2						4	
Permitted Phases				2						4		
Detector Phase		6		5	2					4	4	
Switch Phase												
Minimum Initial (s)		6.0		5.0	10.0					6.0	6.0	
Minimum Split (s)		22.5		9.5	22.5					22.5	22.5	
Total Split (s)		35.0		12.0	47.0					23.0	23.0	
Total Split (%)		50.0%		17.1%	67.1%					32.9%	32.9%	
Yellow Time (s)		3.5		3.5	3.5					3.5	3.5	
All-Red Time (s)		1.0		1.0	1.0					1.0	1.0	
Lost Time Adjust (s)		0.0		0.0	0.0						0.0	
Total Lost Time (s)		4.5		4.5	4.5						4.5	
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?		Yes		Yes								
Recall Mode		None		None	None					None	None	
v/c Ratio		0.57		0.18	0.24						0.17	
Control Delay		12.0		3.7	3.7						20.8	
Queue Delay		0.0		0.0	0.0						0.0	
Total Delay		12.0		3.7	3.7						20.8	
Queue Length 50th (ft)		106		8	28						15	
Queue Length 95th (ft)		206		20	59						42	
Internal Link Dist (ft)		41			82			270			112	
Turn Bay Length (ft)												
Base Capacity (vph)		1227		612	1640						1738	
Starvation Cap Reductn		0		0	0						0	
Spillback Cap Reductn		0		0	0						0	
Storage Cap Reductn		0		0	0						0	
Reduced v/c Ratio		0.46		0.17	0.20						0.07	

Intersection Summary	
Area Type:	Other
Cycle Length: 70	
Actuated Cycle Length: 43.5	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 10: Preble St & Cumberland Ave





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	278	240	93	303	0	0	0	0	26	88	0
Future Volume (vph)	0	278	240	93	303	0	0	0	0	26	88	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5		4.5	4.5						4.5	
Lane Util. Factor		1.00		1.00	1.00						0.95	
Frt		0.94		1.00	1.00						1.00	
Flt Protected		1.00		0.95	1.00						0.99	
Satd. Flow (prot)		1746		1770	1863						3500	
Flt Permitted		1.00		0.26	1.00						0.99	
Satd. Flow (perm)		1746		484	1863						3500	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	302	261	101	329	0	0	0	0	28	96	0
RTOR Reduction (vph)	0	42	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	521	0	101	329	0	0	0	0	0	124	0
Turn Type		NA		pm+pt	NA					Perm	NA	
Protected Phases		6		5	2						4	
Permitted Phases				2						4		
Actuated Green, G (s)		21.0		30.6	30.6						5.3	
Effective Green, g (s)		21.0		30.6	30.6						5.3	
Actuated g/C Ratio		0.47		0.68	0.68						0.12	
Clearance Time (s)		4.5		4.5	4.5						4.5	
Vehicle Extension (s)		3.0		3.0	3.0						3.0	
Lane Grp Cap (vph)		816		475	1269						413	
v/s Ratio Prot		c0.30		0.02	c0.18							
v/s Ratio Perm				0.12							0.04	
v/c Ratio		0.64		0.21	0.26						0.30	
Uniform Delay, d1		9.1		3.9	2.8						18.1	
Progression Factor		1.00		1.00	1.00						1.00	
Incremental Delay, d2		1.7		0.2	0.1						0.4	
Delay (s)		10.7		4.1	2.9						18.5	
Level of Service		B		A	A						B	
Approach Delay (s)		10.7			3.2			0.0			18.5	
Approach LOS		B			A			A			B	

Intersection Summary			
HCM 2000 Control Delay	8.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	44.9	Sum of lost time (s)	13.5
Intersection Capacity Utilization	50.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Congress at Preble, Portland, ME - 7/29/21

Queuing Observations

	Vehicles		
Time	WB Congress	EB Congress	SB Preble
4:25	3	3	5
4:26	7	2	1
4:27	2	4	1
4:28	0	0	6
4:29	0	1	4
4:30	1	0	0
4:31	3	0	3
4:32	0	0	1
4:33	0	0	0
4:34	0	1	1
4:35	0	1	1
4:36	0	0	0
4:37	0	2	1
4:38	2	3	2
4:39	0	0	0
4:40	0	0	0
4:41	0	0	1
4:42	4	1	0
4:43	1	1	0
4:44	1	1	2
Average	1.2	1	1.45
95th %	4.15	3.05	5.05
95th % ft	83	61	101
max	7	4	6
max (ft)	140	80	120

20 feet - assumed length of vehicle and gap for length of queue

Traffic queues were observed and recorded at the start of each listed minute.

The observed traffic operations show that the constant pedestrian call which actuated an exclusive pedestrian phase as the cause of most queueing.

Pedestrian counts, total individual pedestrians whether alone or in groups, crossing Congress Street.

Congress/Preble 7/29/2021

	WBT	SBL	SBR	EBT	Center NBL	Center NBT	*Peds StoN*	*Peds NtoS*
3:45	23	9	8	21	0	10	*2*	*4*
3:50	14	15	7	24	1	7	*3*	*7*
3:55	20	10	7	23	1	8	*10*	*4*
15 Min	**57**	**34**	**22**	**68**	**2**	**25**	***15***	***15***
4:00	19	11	5	24	0	9	*4*	*10*
4:05	20	11	8	25	0	8	*2*	*4*
4:10	29	10	3	34	0	13	*3*	*2*
15 Min	**68**	**32**	**16**	**83**	**0**	**30**	***9***	***16***
4X	272	128	64	332	0	120	36	64

Northbound traffic on Center Street was counted separately from the intersection of Center Street and Preble Street. Center Street right turning traffic were then subsequently counted as Congress Street eastbound through movements.

Peds StoN - Pedestrian movements from the south side of the road to the north
Peds NtoS - Pedestrian movements from the north side of the road to the south
Pedestrian movements across Preble Street were not counted.

July 30, 2021

Shukria Wiar
Portland City Hall
389 Congress Street
Portland, Maine 04101

Dear Shukria,

RE: Time and Temperature Hotel Entrance Location

I am writing you regarding the city's request to relocate the hotel valet operation and therefore also the main entry to the hotel on to Preble Street. I want to express the following reasons why this is not possible, and our logic in placing the entry, in its present location, for your consideration.

1. The building is a Contributing resource in the Congress Street Historic District and designated as a Certified Structure by the National Park Service (NPS). The rehabilitation project will use state and federal historic tax credits to fund a significant percentage of the cost to preserve and repurpose this landmark building. All aspects of the project must be found to meet the Secretary of the Interior's Standards as interpreted by Maine Historic Preservation Commission and NPS. Our historic consultant highly recommends that the original primary entrance to the building be utilized as the entry for the new hotel in order to meet the Standards.

2. This main entry location allows for an ADA compliant entry on a relatively flat sidewalk and gives all guests entering the building, not only an historically significant entry, but a truly grand architectural entry into what we hope will become one of Portland's premiere hotels. The hotel lobby and public spaces including the historic retail arcade, meeting spaces, and restaurant are also supported by the entrance on Congress Street and the program currently planned would not be able to be maintained if the entrance were relocated to Preble Street.

3. Developing a main entry on Preble Street is problematic from an aesthetic and historical aspect, as stated above, and presents highly concerning ADA access issues. Preble Street sidewalk is at a 6% slope, which effectively makes reconfiguring the street and sidewalk to accommodate ADA access, extremely difficult and awkward at best. The first floor is also approximately 4 feet above the sidewalk at Preble Street presenting another issue of providing a lift in the building and/or approximately 48 feet of ramping. Both scenarios are aesthetically unappealing and do not provide an equal arrival experience for all guests given the ADA constraints.

We are all hopeful of creating a magnificent hotel for the city of Portland and hope that you will take these critical factors into your consideration.

Respectfully,



David Lloyd,
Maine Licensed Architect
Architect/President, Archetype

48 Union Wharf, Portland, Maine 04101 (207) 772-6022• Fax (207) 772-4056

MacRostie Historic Advisors LLC

Bringing equity, strategy, and experience
to historic building development

August 2, 2021

Shukria Wiar
Portland City Hall
389 Congress Street
Portland, Maine 04101

RE: Time and Temperature Hotel Entrance Location

Dear Shukria,

I am writing you regarding the city's request to relocate the hotel valet operation and therefore also the main entry to the hotel on to Preble Street.

The building is a Contributing resource in the Congress Street Historic District and designated as a Certified Structure by the National Park Service (NPS). The rehabilitation project will use state and federal historic tax credits (HTCs) to fund a significant percentage of the cost to preserve and repurpose this landmark building. Combined state and federal historic tax credits equal 45% of qualifying rehabilitation expenses. All aspects of the project must be found to meet the Secretary of the Interior's Standards as interpreted by Maine Historic Preservation Commission and NPS.

In the Technical Preservation Services "Standards Guidelines" from NPS, under Building Exterior Entrances and Porches, "Cutting new entrances on a primary elevation" is "Not Recommended." This point is further emphasized in the document under "Recommended" treatments: "Designing and installing additional entrances or porches when required for the new use in a manner that preserves the historic character of the buildings, *i.e., limiting such alteration to non-character-defining elevations."* While less important than the Congress Street elevation, the Preble Street elevation of the building is character-defining. This point was made by the Portland Historic Preservation Board during the project's last workshop, when they clearly stated that the Preble Street elevation of the complex should not be treated as less important than the Congress Street elevation.

Unlike the Portland HP Board, state and federal reviewers also consider alterations to the interior of a building being rehabbed with historic tax credits. Their review is cumulative – balancing preservation and restoration of significant spaces and features against changes required to accommodate the new use of the building. Changing an office building with an original banking hall and shopping arcade to a hotel requires significant changes to much of the building, requiring significant efforts to preserve and restore the most important features.

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NPS guidance for "Building Interior: Spaces, Features, and Finishes states, "An interior floor plan, the arrangement and sequence of spaces, and built-in features and applied finishes are individually and collectively important in defining the historic character of the building. Their identification, retention, protection, and repair should be given prime consideration in every rehabilitation project." A critical element of meeting the standards for this project is restoring the historically significant arcade and banking hall to balance out the major alterations required in other parts of the complex to accommodate its new use as a hotel.

This includes restoration of the primary entrance to the banking hall by reopening the central area of the floor and recreating the missing monumental staircase to access the space. This staircase was originally oriented toward the main entrance from Congress Street, creating a progression through the elaborate entrance with carved stone ornament crowned by an eagle on Congress Street, into a low-ceilinged space with the monumental stair rising to the two-story tall banking hall at its center, with light flooding down through the open stairwell into the lower lobby. This sequence of arrival, unique in Portland, was intentional and designed to impress. The restoration of this original element of the building's design is very important to meeting the standards in the cumulative review by the state and NPS. Moving the primary entrance for the hotel to Preble Street would require reorientating the monumental stair away from the historic Congress Street entrance. "Relocating an interior feature such as a staircase so that the historic relationship between features and spaces is altered" is specifically "Not Recommended" in the NPS guidance.

As historic consultant for this project, I have serious concerns about the ability to receive state and federal HTC approval for the project if the primary entrance to the hotel is relocated to the Preble Street elevation. I highly recommend that the original primary entrance to the building be utilized as the entry for the new hotel in order to meet the Standards.

Sincerely,

Scott Hanson
MHA Senior Associate

Oxford Capital Group, LLC

Oxford Hotels & Resorts, LLC

7/30/2021

Brandon Mazer, Chairman, Maggie Stanley, Vice-Chairman and
Planning Board Members
389 Congress Street, 4th Floor
Portland, ME 04101

RE: Request for site plan approval including valet parking zone as requested

Dear Chairman, Vice-Chairman and Planning Board Members,

There are several important factors in the operation of a successful hotel valet operation. Chief among those are safety and guest arrival/departure experience. Safety includes personal bodily safety for the arriving or departing guest (well-lit, covered, populated area) as well as vehicular and traffic safety- not only for the guest but also the surrounding moving traffic. Key to achieving a safe and pleasant valet experience include proper arrival location (main entrance, with curb cutout of approx. 7-8 spots for a hotel this size in Portland) and appropriate staffing.

Location

The location must be easily and intuitively accessible in order to facilitate an efficient arrival and departure. A well-marked and intuitive valet zone location at the hotels main entrance facilitates smooth and safe arrivals. Despite efforts to educate guests prior to arrival regarding an unusual valet zone location (anything that is not directly connected to the main entrance and map address), most guests and rideshare drivers will attempt to arrive at the hotel's main entrance/address, and more often than not will be directed to that location by internet mapping services such as Google Maps, Apple Maps, Mapquest, etc, regardless of the frequent attempts to re-locate geo markings.

Beyond the safety provided by a well-located and staffed valet zone, guest experience is also of extreme importance, especially at the level of luxury this hotel intends to provide. Most hotel guests, unlike customers of other local businesses, are traveling from out of town. Guests often arrive at a hotel tired and frazzled after a long day of travel and are unfamiliar with the city. Adding inclement weather, especially rain or snow, while schlepping luggage transforms an inconvenient valet location from a mere annoyance to a breaking point, leaving the guest with a sour taste for the hotel and the city they are intending to visit and enjoy. Anything other than a seamless arrival experience puts the hotel operation at a disadvantage and sets the business up for future failure prior to a guest even walking in the main entrance for the first time.

We believe strongly that the arrival route being proposed by the planning staff with the valet parking zone on Preble Street will create more congestion on both Congress Street and Preble Street as most guests will arrive using navigation systems, bringing the vehicle to the main entrance at 477 Congress. Relocating the hotel's address on any mapping platform such as Google Maps is an arduous and opaque process that is never 100% effective. For example, if a guest searches for the location by name ("The Time & Temperature Hotel Portland") the mapping program will still send them to the main entrance. The same will happen if they search for the hotel by its main address. Only if the location can be

identified specifically as the valet location ("Time & Temperature Hotel Valet") will the mapping service recognize it- and it is hit and miss at that. The AI and algorithms used by the mapping services default to the locations that are most frequently searched for therefor the main hotel address will always be the default or first listed even if a secondary address exists. We have had experience with moving addresses with multiple hotels, in many cities across the country and the process is never smooth, and in some of these cases we were moving an address to a more obvious, less confusing location.

The location must also be appropriately sized so arriving drivers can pull out of traffic sufficiently to not create street congestion and back-ups. Valet attendants will be in place and able to offer assistance to arriving guests immediately on their arrival in order to safely direct them out of traffic and to a safe stopping point within the valet zone. Without sufficient valet zone space, drivers will panic and stop suddenly in traffic. The appropriate size could be accomplished through the additional curb cut proposed on the site plan of the Congress Street sidewalk directly in front of the hotel's main entrance, including the spaces already present.

The Godfrey Hotel Boston (owned, development and operated by Oxford), located at 505 Washington Street in the very heart of Downtown Boston, offers an example of a valet parking zone located directly in front of the main entrance, accomplished through a curb cutout. Washington Street is an extremely busy street which terminates into a pedestrian-only zone just feet from the hotel. Additionally, a double-length Silver Line T Bus runs along the street and turns onto a side street (Temple Place) at the corner of the valet zone. Although it is a heavily congested street, the valet zone operates smoothly and safely. Other hotels within the City of Boston share similar circumstances and are able to operate efficiently with curb cutouts. Examples include The Moxy and W hotels on Stuart Street and the Hilton Boston Financial District on Broad Street. A little closer to home, the AC Hotel on Vaughn Street in Portsmouth, NH also successfully operates in a similarly trafficked zone with a curb cutout.

Staffing

Maintaining sufficient staffing levels, especially during peak times of the week, is equally important to proper location. Valet parking attendants' direct traffic, act as ambassadors for both the hotel and city (they are truly the first point of contact for many visitors), and assist with luggage. By having a well-located valet parking zone, the attendants are able to keep an eye on arriving cars while carrying out their other duties. Luggage assistance is efficient because it does not require transporting it a long distance and there is a direct line of vision between arriving vehicles and the hotel entrance. A valet zone that is located around the corner on a side street will create a number of obstacles for a well-managed valet operation, not to mention additional traffic congestions and security related concerns.

The cost of operating a valet operation around the corner from the main entrance will be significantly higher than if the operation were located at the main entrance. But this cost could be dwarfed by the lost opportunity cost of a bad guest experience. A poor arrival and departure experience (the first and last experience for a hotel guest) will result in lower guest-satisfaction ratings and will challenge the hotel's ability to compete with other hotels locally. Among chain hotel companies such as Hilton, Marriott, Hyatt and Kimpton/IHG the arrival and departure experience are considered so important that a hotel that is underperforming in this area can be defaulted by the brand and lose its affiliation. The brands' preference is always to locate the valet parking zone directly in front of the hotel at the main entrance for a seamless arrival/departure.

Oxford Capital Group, LLC

Oxford Hotels & Resorts, LLC

Oxford Capital Group develops, owns and operates hotels throughout the U.S. As a developer we have completed nearly a dozen historic preservation and/or adaptive reuse projects nationally, including a number of landmarked buildings for which we have received local and national awards. We are believers in great architecture and great design. We believe that whenever we can make a smart real estate investment while also transforming an elegant historic building that may have fallen on hard times, we would like to do it as it not only good for us, but it is also great for the neighborhood and city. We are proud that we can create something beautiful that generates millions of dollars of incremental taxes and will generate robust economic activity at the location. Having decades of ownership, development and operating experience it is our position that the lack of a curb cutout in front of the main entrance to operate arriving valet parking will not only adversely affect local traffic patterns as well as our guest experience and hotel operating performance. This is such a critical element that if it does not get approved, we will have to reassess our investment in this project.

Thank you for your consideration to this matter.

Sincerely,



Larry Casillo

Vice President

Oxford Hotels & Resorts, LLC | Oxford Capital Group, LLC



Project:

Location:

Fixture Type:

Catalog Number:

AVAILABLE FINISHES:



Two If By Sea

WS-W41912

PRODUCT DESCRIPTION

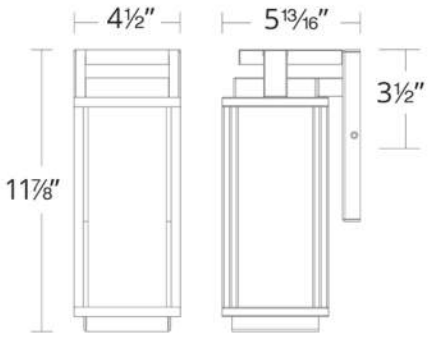
Take shelter from the storm. Like a hard rainfall on the window panes, timeless inspiration is melded with modern technology to create a stunning LED luminaire. Beautiful lightdiffuses through clear hammered mouth blown glass for a soft glow on all sides of this geometric wall sconce. Crafted from extruded aluminum and wet rated for outdoor use, this piece isguaranteed to make a grand first impression.

FEATURES

- ACLED driverless technology
- Clear mouth-blown hammered glass
- Down light illumination

SPECIFICATIONS

Rated Life	54000 Hours
Standards	ETL, cETL,Wet Location Listed,IP65,Title 24 JA8: 2019 Compliant
Input	120 VAC,50/60Hz
Dimming	ELV: 100-10%,TRIAC: 100-10%
Color Temp	3000K
CRI	90
Construction	Aluminum hardware, Clear, hammered, mouth-blown glass



WS-W41912

Model & Size	Color Temp	Finish	LED Watts	LED Lumens	Delivered Lumens
❍ WS-W41912 12"	3000K	❍ BK Black	15W	1200	919

Example: **WS-W41912-BK**

For custom requests please contact customs@modernforms.com



Project:

Location:

Fixture Type:

Catalog Number:

AVAILABLE FINISHES:



Two If By Sea

WS-W41918

PRODUCT DESCRIPTION

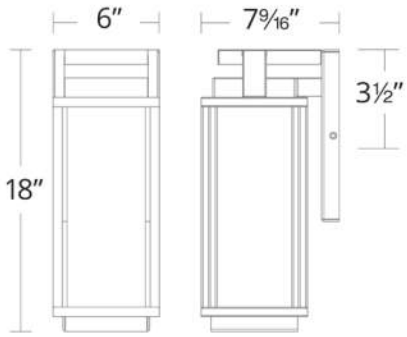
Take shelter from the storm. Like a hard rainfall on the window panes, timeless inspiration is melded with modern technology to create a stunning LED luminaire. Beautiful lightdiffuses through clear hammered mouth blown glass for a soft glow on all sides of this geometric wall sconce. Crafted from extruded aluminum and wet rated for outdoor use, this piece isguaranteed to make a grand first impression.

FEATURES

- ACLED driverless technology
- Clear mouth-blown hammered glass
- Down light illumination

SPECIFICATIONS

Rated Life	54000 Hours
Standards	ETL, cETL,Wet Location Listed,IP65,Title 24 JA8: 2019 Compliant
Input	120 VAC,50/60Hz
Dimming	ELV: 100-10%,TRIAC: 100-10%
Color Temp	3000K
CRI	90
Construction	Aluminum hardware, Clear, hammered, mouth-blown glass



WS-W41918

Model & Size	Color Temp	Finish	LED Watts	LED Lumens	Delivered Lumens
❍ WS-W41918 18"	3000K	❍ BK Black	15W	1200	965

Example: **WS-W41918-BK**

For custom requests please contact customs@modernforms.com



Project:

Location:

Fixture Type:

Catalog Number:

AVAILABLE FINISHES:



Two If By Sea

WS-W41925

PRODUCT DESCRIPTION

Take shelter from the storm. Like a hard rainfall on the window panes, timeless inspiration is melded with modern technology to create a stunning LED luminaire. Beautiful lightdiffuses through clear hammered mouth blown glass for a soft glow on all sides of this geometric wall sconce. Crafted from extruded aluminum and wet rated for outdoor use, this piece isguaranteed to make a grand first impression.

FEATURES

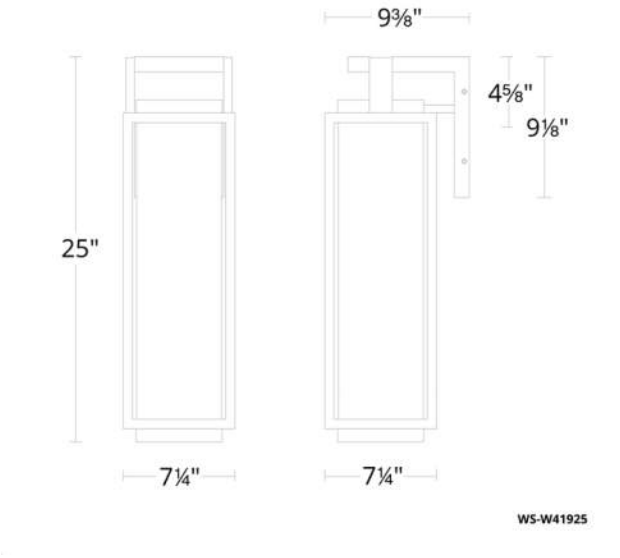
- ACLED driverless technology
- Clear mouth-blown hammered glass
- Down light illumination

SPECIFICATIONS

Rated Life	54000 Hours
Standards	ETL, cETL,Wet Location Listed,IP65,Title 24 JA8: 2019 Compliant
Input	120 VAC,50/60Hz
Dimming	ELV: 100-10%,TRIAC: 100-10%
Color Temp	3000K
CRI	90
Construction	Aluminum hardware, Clear, hammered, mouth-blown glass

REPLACEMENT PARTS

RPL-GLA-41925 - Outer Glass



Model & Size	Color Temp	Finish	LED Watts	LED Lumens	Delivered Lumens
❍ WS-W41925 25"	3000K	❍ BK Black	20W	1600	1317

Example: **WS-W41925-BK**

For custom requests please contact customs@modernforms.com

BeveLED® 2.2 Basic
4.5″ Round Downlight - B4RD-G1

USAI® Lighting

Universal and Field Convertible - Trim | Trimless | Millwork







usailighting.com/beveledbasic

Meet the new and improved BeveLED Basic, upgraded with even more effiicient, perfectly consistent classic white LED light engines and our field convertible trims that allow for easy on-site changes from trimmed to trimless to millwork – all in a budget-conscious product with the same below ceiling appearance as our extremely versatile BeveLED 2.2 product line.

FEATURES

- Field Flexibility between trimmed, trimless and millwork
- Dry/damp/wet location rated for bathrooms and showers, including trimless and millwork
- 1% dimming standard + more dimming options
- Clear overspray protector for installation convenience

COMPANION FAMILY PRODUCTS



Adjustable - B4RA-G1
usailighting.com/B4RA-G1



Wall Wash - B4RW-G1
usailighting.com/B4RW-G1

DOWNLIGHT PERFORMANCE DATA

Classic White

DELIVERED* PERFORMANCE:	9W		12W		16W		24W	
Color Rendering Index:	80+	90+	80+	90+	80+	90+	80+	90+
Source Lumens:	900	725	1275	1050	1775	1450	2650	2175
Lumens Per Watt:	79	65	85	69	85	69	89	73
Delivered Lumens:	700	575	1025	825	1425	1175	2125	1750
EM Mode Output:	550 Delivered Lumens (nominal)							

*Based on 3000K. Performance varies for each specific beamspread and color temperature. See IES files for exact values at usailighting.com.

Classic White

CORRELATED COLOR TEMPERATURE MULTIPLIER	2700K		3000K		3500K		4000K	
Color Rendering Index:	80+	90+	80+	90+	80+	90+	80+	90+
Multiplier for Lumen Output:	0.94	0.82	1.00	0.82	1.00	.88	1.00	0.94

USAI LIGHTING COLLABORATORY
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New York, NY 10013
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Revised 05/26/2021

HOW TO SPECIFY

BeveLED® 2.2 Basic
4.5″ Round Downlight - B4RD-G1

USAI® Lighting

Specify fixture part number. (All boxes must be filled in to correctly order)

B4RD__

BeveLED Trim Style

F Trimmed with Flange (use with all materials)

L Trimless Spackle-in (use with sheetrock and plaster only) (5)

M Millwork Knife-Edge (use with wood and stone) (5)

Wattage Options

Classic White Light

09G1 9W LED

12G1 12W LED

16G1 16W LED

24G1 24W LED

LED Color Options

27KS 2700K, 80+ CRI

27KH 2700K, 90+ CRI

30KS 3000K, 80+ CRI

30KH 3000K, 90+ CRI

35KS 3500K, 80+ CRI

35KH 3500K, 90+ CRI

40KS 4000K, 80+ CRI

40KH 4000K, 90+ CRI

Beam Options

25 25° beam

50 50° beam

90 90° beam

Lens Options

S Solite (provided standard)

BF Borosilicate Frosted

Bevel Trim Finish Finish Options

WH White

SC Conduit Silver

GR Grey

BL Black

BZ Bronze

PR (5) Primer Finish

AC (5) Clear Matte Anodized

AB (5) Piano Gloss Black

RAL Custom Color Specify RAL #

*Flange/ Millwork Collar Finish

WH White

SC Conduit Silver

GR Grey

BL Black

BZ Bronze

PR Primer Finish

AC Clear Matte Anodized

WH White

GR Grey

BL Black

AB Piano Gloss Black

WH White

GR Grey

BL Black

RAL Custom Color Specify RAL #

*Leave blank for Trimless

Natatorium Corrosion Protection (optional)

NT Natatorium triple-coat Corrosion resistant (available with "F" flanged trims and painted finishes only)

* Leave blank for non Natatorium trims

Housing Options

NCSM New Construction Narrow Width

NC New Construction

NCCP Chicago Plenum

NCIC Insulation Contact Rated / Airtight

Voltage Options *Select one*

UNV 120V-277V

120V

Dimming Driver Options

For use with Universal Voltage 120V - 277V

No Additional Charge

D6E EldoLED 0-10V, 1% (provided standard)

D6F EldoLED 0-10V, 1%

D4A Lutron ECO, 0.1% (2)

D4H Lutron H ECO, 1% Fade (1)

D4P Lutron ECO, 1% (2)

D6A EldoLED 0-10V, 0.1%

D6B EldoLED 0-10V, 0.1%

D7 EldoLED DALI, 0.1%

D28 EldoLED DMX, 0.1%

For use with 120V only

No Additional Charge

D19 Phase 2-wire, 1% (1)

D3 Lutron 2-wire, 1%

Accessories (Optional)*

CB27 27" C-Channel Bars

CB52 52" C-Channel Bars

EM Emergency Battery (3)

EMW Emergency Battery Wet Location (4)

*Residential grade nailer bars provided standard

Notes:
1 Not available with 9W.
2 Not available with 24W
3 For NC and NCSM housings only. NCSM housing requires above ceiling access.
4. This is a gasketed remote test switch available with NCSM housings only. Above ceiling access required.
5 Not available with NT natatorium corrosion finish

TRIM FINISH OPTIONS



White | Grey | Black | Bronze | Clear Matte Anodized | Piano Gloss Black | Clear Matte Anodized with White Flange | Custom RAL (example)

Custom colors and primer finish also available

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Revised 05/26/2021

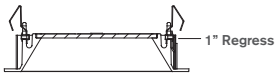
BeveLED® 2.2 Basic
4.5″ Round Downlight - B4RD-G1

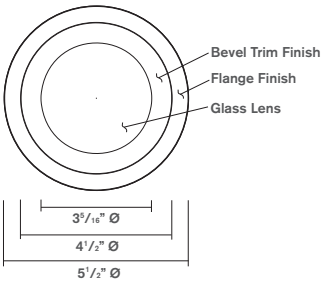
USAI® Lighting

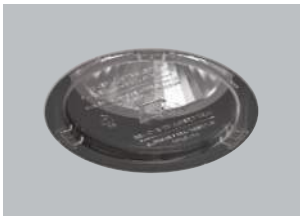
Trimmed - B4RDF-G1

TRIM DETAILS

Trimmed - B4RDF



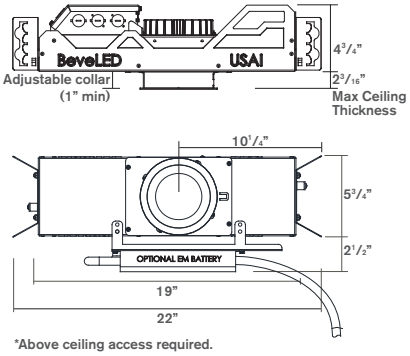




Clear acrylic overspray protector provided standard with every housing to keep out dust and contaminants during construction. Allows for use as work light.

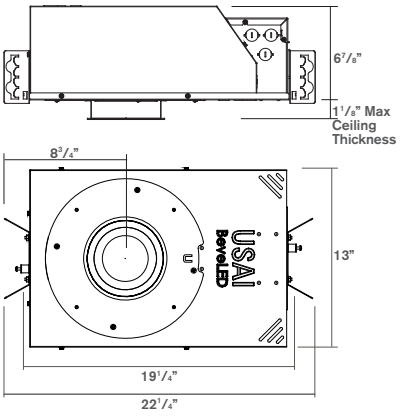
HOUSING OPTIONS

New Construction Narrow Width - NCSM
NCSM with Emergency Battery*



*Above ceiling access required.

New Construction - NC
Insulation-Contact Rated - NCIC
Chicago Plenum Rated - NCCP
NC with Emergency Battery



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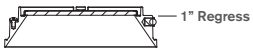
BeveLED® 2.2 Basic
4.5″ Round Downlight - B4RD-G1

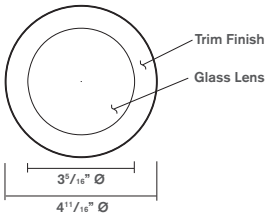
USAI® Lighting

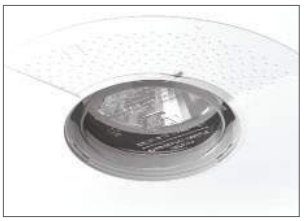
Trimless - B4RDL-G1

TRIM DETAILS

Trimless - B4RDL



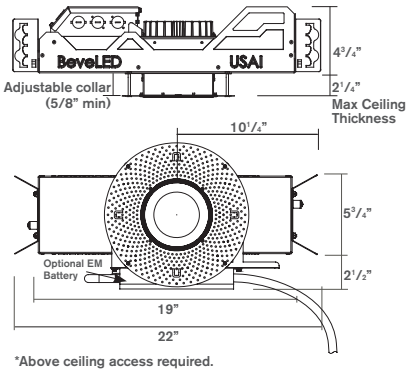




Clear acrylic overspray protector provided standard with every housing to keep out dust and contaminants during construction. Allows for use as work light.

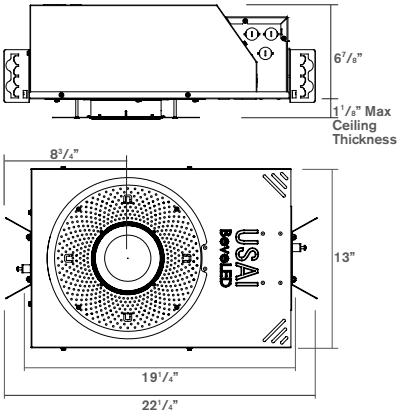
HOUSING OPTIONS

New Construction Narrow Width - NCSM
NCSM with Emergency Battery*



*Above ceiling access required.

New Construction - NC
Insulation-Contact Rated - NCIC
Chicago Plenum Rated - NCCP
NC with Emergency Battery



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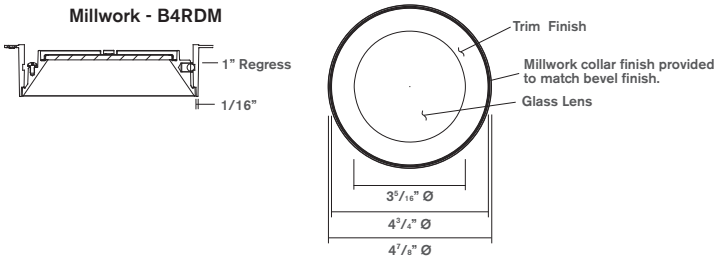
BeveLED® 2.2 Basic
4.5″ Round Downlight - B4RD-G1

USAI® Lighting

Millwork - B4RDM-G1

TRIM DETAILS

Millwork - B4RDM

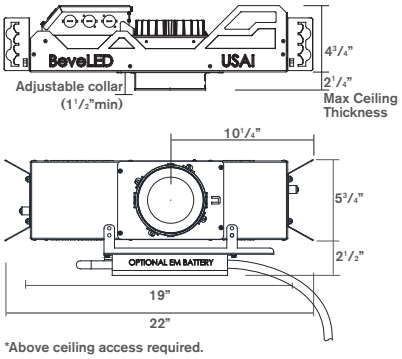




Clear acrylic overspray protector provided standard with every housing to keep out dust and contaminants during construction. Allows for use as work light.

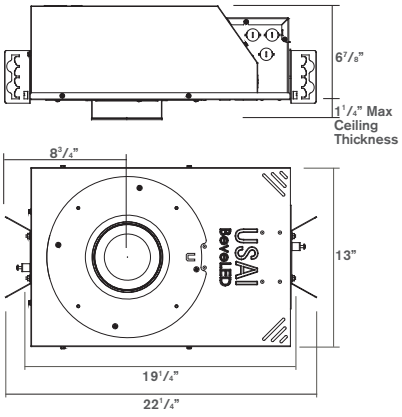
HOUSING OPTIONS

New Construction Narrow Width - NCSM
NCSM with Emergency Battery*



*Above ceiling access required.

New Construction - NC
Insulation-Contact Rated - NCIC
Chicago Plenum Rated - NCCP
NC with Emergency Battery



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BeveLED® 2.2 Basic
4.5″ Round Downlight - B4RD-G1

USAI® Lighting

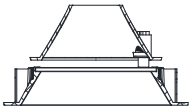
BEVELED BASIC SPECIFICATIONS

FIELD REPLACEABLE LED LIGHT ENGINE
is serviceable through the aperture without tools or with a Philips screwdriver. All USAI Lighting light engines feature industry-leading color consistency.

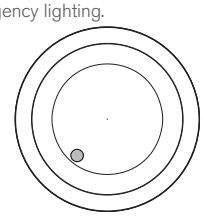
TRIM
Die-cast 4.5" diameter aperture round trim with a 1" regress retains a glass lens.

FIELD REPLACEABLE DRIVER
Unless otherwise specified, a 0-10V, 100%-1% solid state electronic constant current integral D6E dimming driver with a high power factor is provided standard and sources 2mA. All integral dimming drivers are located within the fixture housing and are serviceable from below the ceiling through the aperture. Some on-time delay may be experienced depending on control system used. All dimming drivers comply with IEEE C62.41 surge protection.

EMERGENCY BATTERY
IOTA emergency battery provides backup power for 90 minutes. NC EM fixtures are provided with an integral emergency battery with integral test switch and can be serviced through the aperture from below the ceiling plane. NCSM EM fixtures are provided with an integral emergency battery with a remote test switch, which comes with a 24" lead length for location of the test switch. Remote EM test switch is dry/damp only; select EMW emergency option for a wet location-rated EM test switch. NCSM EM fixtures require above ceiling access for service of the EM pack. Fixtures that have no USAI EM option may be connected to an inverter (by others) for emergency lighting.



Integral Emergency Test Switch included with NC housing

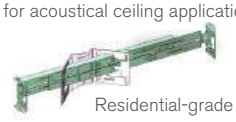




Remote Emergency Test Switch included with NCSM housing (above ceiling access required).

HOUSING
All BeveLED Basic fixtures are field-flexible which allows for field changes from trimless or millwork to trimmed with a simple components change with parts from USAI. Housings are fabricated of 20 ga. steel construction with thru wire J-box, 4 in 4 out at min. 90°C, #12 AWG thru branch circuit wiring, except for NCSM which is fabricated of 18 ga. steel. NCIC housing for use with 9W, 12W, and 16W light engines only is rated for direct contact with spray foam insulation of R-42 or less.

MOUNTING
B4RDF overlap flange fixtures are designed for use in sheetrock, acoustical ceiling tile, and many other ceiling materials. B4RDL trimless fixtures are provided with a spackle collar and are designed for use in sheetrock/mud-in ceiling applications. B4RDM millwork fixtures are provided with a millwork collar in finish to match trim finish specified and are designed for use in wood/millwork, stone and tile construction applications. Butterfly brackets and residential grade adjustable nailer bars extendible from 14" to 24" centers with integral nails are provided standard for attachment to building structure. C-channel bars are optionally available for acoustical ceiling applications.



Residential-grade nailer bars provided standard.

FIXTURE WEIGHT
NC, NCIC, and NCCP housings weigh 16 lbs. NCSM housing weighs 10 lbs., NCSM with EM weighs 16.5 lbs, and NC housing with EM weighs 24.5 lbs.

WARRANTY
Based on IESNA LM80-2008, BeveLED has a 50,000 hour rated life at 70% lumen maintenance (L70). USAI Lighting Warranty covers replacement parts for 5 years from date of shipment. Ambient temperatures at fixture location should not exceed 40°C during normal operation.

CEILING CUT OUT
B4RDF Trimmed with Overlap Flange: 5-1/16" ∅
B4RDL Trimless Spackle-in: 5-1/2" ∅
B4RDM Millwork Knife-edge: 4-15/16" ∅

TRIM FINISH
BeveLED Basic trims are available in a wide range of finishes. USAI's standard powdercoat painted trim finishes are white, conduit silver, gray, black, and bronze. A clear matte anodized bevel and piano gloss black electrocoated bevel are also available with matching or contrast-painted flange finish options. Natatorium finishes are triple-coated for corrosion resistance; these coatings are offered in painted finishes only and are not available for trimless or millwork. All trim finishes are dry/damp/wet location rated, with the exception of the anodized (-AC-) and electrocoated (-AB-) bevel finishes, which are dry/damp only. Please contact the USAI factory with a RAL number specification for custom color trims, or specify the field-paintable primer finish option.

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BeveLED® 2.2 Basic
4.5″ Round Downlight - B4RD-G1

USAI® Lighting

BEVELED BASIC SPECIFICATIONS

LISTINGS
Dry/Damp/Wet location. AC and AB trim finishes are dry/damp only. Remote EM test switch is dry/damp only. Select EMW option for wet location remote test switch. UL2043 rated for use in air handling plenums. NRTL/CSA-US tested to UL standards. IBEW union made.

NOTES
• Use of pressure washer voids warranty

PHOTOMETRICS
Consult factory or website for IES files. Tested in accordance with IESNA LM79.

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USAI Lighting

DIMMING DRIVER COMPATIBILITY SELECTION GUIDE
D3 / DIML3

DIMMING DRIVER WIRING SCHEMES:

NOTES:
Wiring diagrams are examples of typical installations intended to illustrate the number of wires that must be run to fixture. These diagrams are not intended to specify all equipment necessary for a given dimming circuit. Refer to specific dimmer manufacturer's documentation for details.

IMPORTANT SAFETY INSTRUCTIONS - SAVE THESE INSTRUCTIONS

1. Keep these instructions in a safe place for future reference.
2. Only qualified electricians in accordance to local codes should install these fixtures.
3. De-energize the electrical circuit at the circuit breaker prior to installation process or servicing.
4. Make sure all connections are in accordance with the National Electrical Code and any local regulations.
5. Cap any wires not used separately (not together).

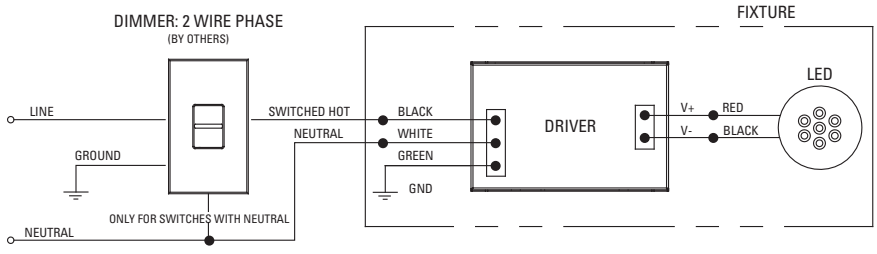
D3 / DIML3 LED: Lutron Hi-Lume A-Series 2 Wire Fwd Phase (with neutral) / LED Dimming Driver Wiring (Dims down to 1%) 120V

D3 / DIML3 Dimmer Compatibility Chart

Manufacturer	Product	Part Number	Dimmed Light Output Range	Qty Fixtures Per Dimmer* Fixture Wattage	
120V Only				39W and Less	40W - 80W
ETC	Sensor+ Cabinet	ELV10	100% - 1%	1 – 26	1 – 13
ETC	Unison DRd Cabinet	ELV10	100% - 1%	1 – 26	1 – 13
Lutron	Maestro Wireless® 600W dimmer	MRF2-6ND-120-	100% - 1%	1 – 8	1 – 4
Lutron	Maestro Wireless® 1000W dimmer	MRF2-10ND-120-	100% - 1%	1 – 13	1 – 6
Lutron	HomeWorks® QS adaptive dimmer	HQRD-6NA-	100% - 1%	1 – 8	1 – 4
Lutron	HomeWorks® QS 600W dimmer	HQRD-6ND-	100% - 1%	1 – 8	1 – 4
Lutron	HomeWorks® QS 1000 W dimmer	HQRD-10ND-	100% - 1%	1 – 13	1 – 6
Lutron	Caseta Wireless® Pro 1000W dimmer	PD-10NXD-	100% - 1%	1 – 13	1 – 6
Lutron	Stanza® dimmer	SZ-6ND-	100% - 1%	1 – 8	1 – 4
Lutron	RadioRA® 2 adaptive dimmer	RRD-6NA-	100% - 1%	1 – 8	1 – 4
Lutron	RadioRA® 2 1000 W dimmer	RRD-10ND-	100% - 1%	1 – 6	1 – 3
Lutron	myRoom DIN power module	MQSE-4A1-D	100% - 1%	1 – 6	1 – 3
Lutron	HomeWorks® QS wallbox power module	HQRJ-WPM-6D-120-	100% - 1%	1 – 26	1 – 13
Lutron	Homeworks® DIN power module	LQSE-4A1-D	100% - 1%	1 – 6	1 – 3
Lutron	HomeWorks® wallbox power module	HWI-WPM-6D-120	100% - 1%	1 – 26	1 – 13
Lutron	GRAFIK Eye® QS control unit	QSGR-, QSGRJ-	100% - 1%	1 – 26	1 – 13
Lutron	GRAFIK Eye® 3000 control unit	GRX-3100-, GRX-3500-	100% - 1%	1 – 26	1 – 13
Lutron	RPM-4U module	HW-RPM-4U-120, LP-RPM-4U-120	100% - 1%	1 – 26	1 – 13
Lutron	RPM-4A module	HW-RPM-4A-120, LP-RPM-4A-120	100% - 1%	1 – 26	1 – 13
Lutron	GP dimming panels	Various	100% - 1%	1 – 26	1 – 13
Lutron	Ariadni CL 250W dimmer	AYCL-253P-	100%-1%	1 – 8	1 – 4
Lutron	Diva CL 250W dimmer	DVCL-253P-, DVSCCL-253P-	100%-1%	1 – 8	1 – 4
Lutron	Grafik T CL or RF CL dimmer	GT-250M-, GTJ-250M-	100%-1%	1 – 8	1 – 4
Lutron	Nova T CL 250W dimmer	NTCL-250-	100%-1%	1 – 10	1 – 5

* NOTE: Refer to dimmer manufacturer's documentation for installation instructions and circuit details.

D3 / DIML3
2 WIRE PHASE DIMMING



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USAI Lighting

DIMMING DRIVER COMPATIBILITY SELECTION GUIDE D4H /DIML4H

DIMMING DRIVER WIRING SCHEMES:

NOTES:
Wiring diagrams are examples of typical installations intended to illustrate the number of wires that must be run to fixture. These diagrams are not intended to specify all equipment necessary for a given dimming circuit. Refer to specific dimmer manufacturer's documentation for details.

IMPORTANT SAFETY INSTRUCTIONS - SAVE THESE INSTRUCTIONS

1. Keep these instructions in a safe place for future reference.
2. Only qualified electricians in accordance to local codes should install these fixtures.
3. De-energize the electrical circuit at the circuit breaker prior to installation process or servicing.
4. Make sure all connections are in accordance with the National Electrical Code and any local regulations.
5. Cap any wires not used separately (not together).

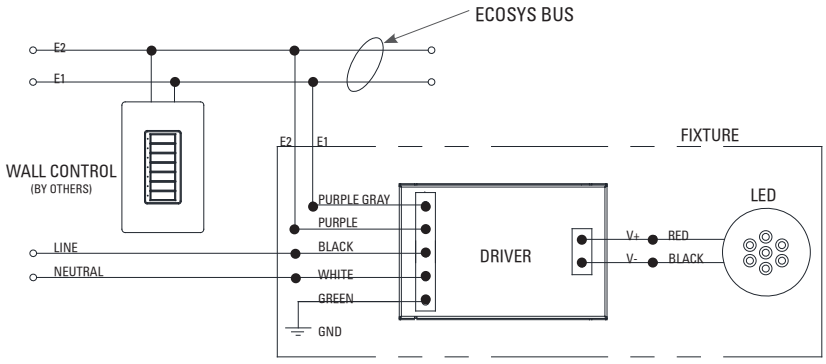
D4H / DIML4H LED: Lutron H Series EcoSystem LED Driver with Fade to Black (dims down to 1%)

D4H / DIML4H EcoSystem Dimmer Compatibility Chart

Manufacturer	Product	Part Number	Dimmed Light Output Range	Qty Fixtures Per Control* Fixture Wattage	
120V / 277V				39W and Less	40W - 80W
Lutron	PowPak dimming module	RMJ-ECO32-DV-B	100%–1%	1–32	1–16
Lutron	Energi Savr Node	QSN-1ECO-S, QSN-2ECO-S	100%–1%	1–64	1–32
Lutron	GRAFIK Eye QS (120V ONLY)	QSGRJ- E, QSGR- E	100%–1%	1–64	1–32
Lutron	Quantum	Various	100%–1%	1–64	1–32

* NOTE: Number of fixtures may be higher if wattage is less than maximum values shown. Refer to dimmer manufacturer's documentation for installation instructions and circuit details.

D4H / DIML 4H
EcoSystem CONTROLS



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USAI Lighting

DIMMING DRIVER COMPATIBILITY SELECTION GUIDE
D6A / DIML6A and D6E / DIML6E
D6B / DIML6B and D6F / DIML6F

IMPORTANT SAFETY INSTRUCTIONS
- SAVE THESE INSTRUCTIONS

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5. Cap any wires not used separately (not together).

D6A / DIML6A and D6E / DIML6E LED Dimming Compatibility Table

D6A / DIML6A and D6E / DIML6E are linearly programmed dimming drivers for use with the dimming controls listed in the table below.
D6A / DIML6A = EldoLED SOLOdrive 0-10V control dims from 100% to 0.1%
D6E / DIML6E = EldoLED ECOdrive 0-10V control dims from 100% to 1%

D6A / DIML6A and D6E / DIML6E Dimmer Compatibility Chart

Manufacturer	Product	Part Number	Dimmed Light Output Range			Qty Fixtures Per Dimmer*
120V & 277V			DIML6A		6E	Refer to manufacturer's dimmer load rating for maximum and minimum fixture quantities per dimmer. Enlighted compatible.
Lutron	Diva	DVTV/NFTV with PP-20	99% -	0.1%	1%	
Lutron	Nova T	NTFTV with PP-20	99% -	0.1%	1%	
Lutron	Energi Savr Node	QSN-4T16-S	100% -	0.1%	1%	
Lutron	GP Dimming Panels	TVM2 Module	99% -	0.1%	1%	
Lutron	Interfaces	GRX-TVI w/ GRX3503	100% -	0.1%	1%	
Sensor Switch	nIO	nIO EZ	100% -	0.1%	1%	
enlighted	Control Unit	CU-3E-1R	100% -	0.1%	1%	

D6B / DIML6B and D6F / DIML6F LED Dimming Compatibility Table

D6B / DIML6B and D6F / DIML6F are logarithmic-programmed dimming drivers for use with the dimming controls listed in the table below.
D6B / DIML6B = EldoLED SOLOdrive 0-10V control dims from 100% to 0.1% D6F / DIML6F = EldoLED ECOdrive 0-10V control dims from 100% to 1%

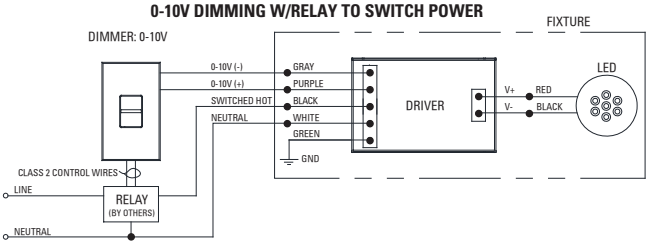
D6B / DIML6B and D6F / DIML6F Dimmer Compatibility Chart

Manufacturer	Product	Part Number	Dimmed Light Output Range			Qty Fixtures Per Dimmer*
120V & 277V			DIML6B		6F	Refer to manufacturer's dimmer load rating for maximum and minimum fixture quantities per dimmer. Enlighted compatible.
Bush-Jaeger	Electronic potentiometer	2112U-101	100% -	0.1%	1%	
Jung	Electronic potentiometer	240-10	100% -	0.1%	1%	
Leviton	Iluma Tech dimmer	IP710-DLX	100% -	0.1%	1%	
Lightolier (Philips)	Momentum (120V ONLY)	ZP600FAM120	100% -	0.1%	1%	
Merten	Electronic potentiometer	5729	100% -	0.1%	1%	
Pass & Seymour	Titan	CD4FB-W	100% -	0.1%	1%	
Watt Stopper	Miro	DCLV1	100% -	0.1%	1%	
Synergy	Wallbox Dimmers	ISD BC	100% -	0.1%	1%	
ABB	i-bus	SD/S 2.16.1	100% -	0.1%	1%	
Crestron	Modules	GLX-DIMFLV8, GLXP-DIMFLV8	100% -	0.1%	1%	
Crestron	Green Light	GLPAC-DIMFLV4-, GLPAC-DIMFLV8-	100% -	0.1%	1%	
Crestron	Green Light Power Pack	GLPP-DIMFLVEX-PM, GLPP-1DIMFLV2EX-PM, GLPP-1DIMFLV3EX-PM	100% -	0.1%	1%	
Crestron	DIN Rail Analog Output Module	DIN-A08	100% -	0.1%	1%	
Crestron	DIN Rail 0-10V Fluorescent Dimmer	DIN-4DIMFLV4	100% -	0.1%	1%	
Crestron	iLux 0-10V Dimmer Expansion Module	CLS-EXP-DIMFLV	100% -	0.1%	1%	
enlighted	Control Unit	CU-3E-1R	100% -	0.1%	1%	

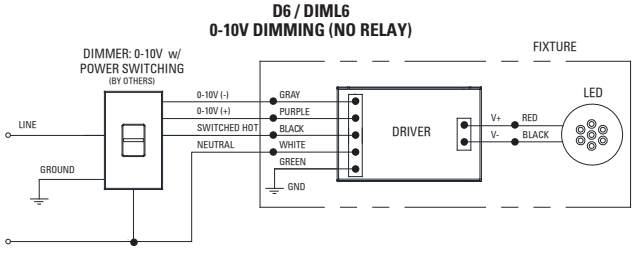
DIMMING DRIVER WIRING SCHEMES:

NOTES: Wiring diagrams are examples of typical installations intended to illustrate the number of wires that must be run to fixture. These diagrams are not intended to specify all equipment necessary for a given dimming circuit. Refer to specific dimmer manufacturer's documentation for details.

D6 / DIML6
0-10V DIMMING W/RELAY TO SWITCH POWER



D6 / DIML6
0-10V DIMMING (NO RELAY)



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USAI Lighting

DIMMING DRIVER COMPATIBILITY SELECTION GUIDE
D7 / DIML7 and D7E

DIMMING DRIVER WIRING SCHEMES:

NOTES:

Wiring diagrams are examples of typical installations intended to illustrate the number of wires that must be run to fixture. These diagrams are not intended to specify all equipment necessary for a given dimming circuit. Refer to specific dimmer manufacturer's documentation for details.

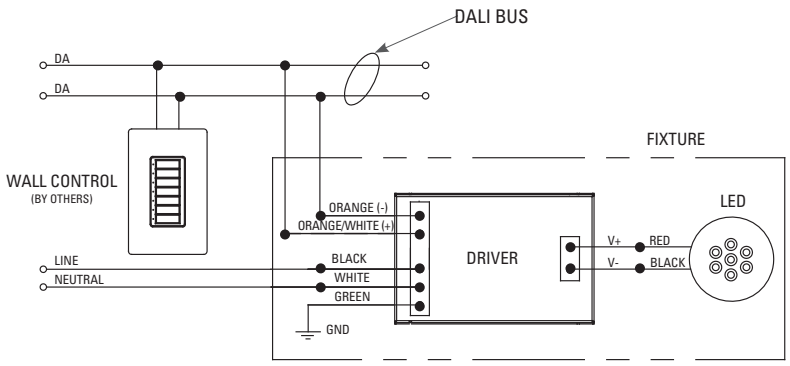
IMPORTANT SAFETY INSTRUCTIONS - SAVE THESE INSTRUCTIONS

1. Keep these instructions in a safe place for future reference.
2. Only qualified electricians in accordance to local codes should install these fixtures.
3. De-energize the electrical circuit at the circuit breaker prior to installation process or servicing.
4. Make sure all connections are in accordance with the National Electrical Code and any local regulations.
5. Cap any wires not used separately (not together).

D7 / DIML7 and D7E Dimming Driver Wiring

D7 / DIML7 and D7E are linearly programmed dimming drivers.
D7 / DIML7 = EldoLED SOLOdrive DALI control dims from 100% to 0.1%
D7E = EldoLED ECOdrive DALI control dims from 100% to 1%

D7 / DIML7 / D7E
DALI CONTROLS



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USAI Lighting

DIMMING DRIVER COMPATIBILITY SELECTION GUIDE
D18

DIMMING DRIVER WIRING SCHEMES:

NOTES:
Wiring diagrams are examples of typical installations intended to illustrate the number of wires that must be run to fixture. These diagrams are not intended to specify all equipment necessary for a given dimming circuit. Refer to specific dimmer manufacturer's documentation for details.

IMPORTANT SAFETY INSTRUCTIONS - SAVE THESE INSTRUCTIONS

1. Keep these instructions in a safe place for future reference.
2. Only qualified electricians in accordance to local codes should install these fixtures.
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4. Make sure all connections are in accordance with the National Electrical Code and any local regulations.
5. Cap any wires not used separately (not together).

D18 Dimming Driver Wiring

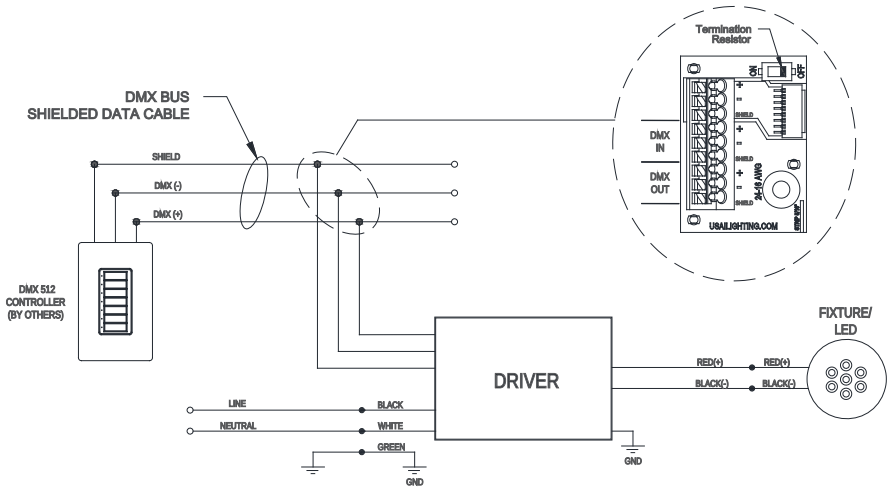
D18 are programmed dimming drivers.
D18 Moons DMX control dims from 100% to 1%

DMX BUS -
SHIELDED DATA CABLE

The data cable used must meet the following requirements:
- type: shielded, 2-conductor twisted pair
- maximum capacitance between conductors: 30 pF/ft
- maximum capacitance between conductor and shield: 55 pF/ft
- maximum resistance: 0.02 ohms/ft
- normal impedance: 100-140 ohms
- conductive core: 24 AWG is recommended

If 3-wire data cables are preferred, we suggest a Belden 9841 or equivalent cable which meets the specifications for EIA RS-485 applications. Do not use standard microphone cables: they cannot transmit DMX512 data reliably over long distances. NOTE: DMX link termination device, provided through Dip Switch on connection board, should be used on last fixture in line on a circuit to avoid signal loss.

D18
DMX CONTROLS



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USAI Lighting

DIMMING DRIVER COMPATIBILITY SELECTION GUIDE
D19 / DIML19

DIMMING DRIVER WIRING SCHEMES:

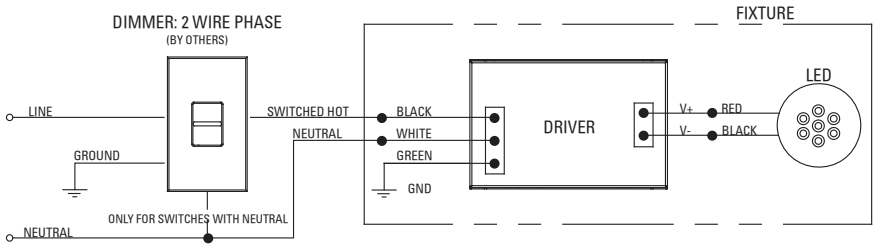
NOTES:
Wiring diagrams are examples of typical installations intended to illustrate the number of wires that must be run to fixture. These diagrams are not intended to specify all equipment necessary for a given dimming circuit. Refer to specific dimmer manufacturer's documentation for details.

IMPORTANT SAFETY INSTRUCTIONS - SAVE THESE INSTRUCTIONS

1. Keep these instructions in a safe place for future reference.
2. Only qualified electricians in accordance to local codes should install these fixtures.
3. De-energize the electrical circuit at the circuit breaker prior to installation process or servicing.
4. Make sure all connections are in accordance with the National Electrical Code and any local regulations.
5. Cap any wires not used separately (not together).

D19 / DIML19 LED: Hatch XTC series or equivalent - Forward and Reverse Phase Dimming Driver. Dims down to 1% contingent upon dimmer specification and load. 120V only.

D19 / DIML19
2 WIRE PHASE DIMMING



D19 / DIML19 Dimmer Compatibility Chart

120V ONLY		
Forward Phase / TRIAC Dimming		
Manufacturer	Product	Qty Fixtures Per Dimmer
Leviton	IPL06-10Z	Use fixture wattage per fixture specification sheet to determine number of fixtures per dimmer. Max number of fixtures is limited by dimmer load rating.
	6613-xxx	
Lutron	S-600P	
	S-603P	
	DVSC-603P	
	CT-600P	
	CT-603P	

120V ONLY		
Reverse Phase / ELV Dimming		
Manufacturer	Product	Qty Fixtures Per Dimmer
Leviton	6615	Use fixture wattage per fixture specification sheet to determine number of fixtures per dimmer. Max number of fixtures is limited by dimmer load rating.
	IPE04-xxx	
Lutron	NTELV-300	
	NTELV-600	
	SELV-300P	
	SELV-303P	
	DVELV-300P	
	DVELV-303P	

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F 845–561–1130

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I2-264-19 Revised 03/26/2021

NITE STAR (MR16)

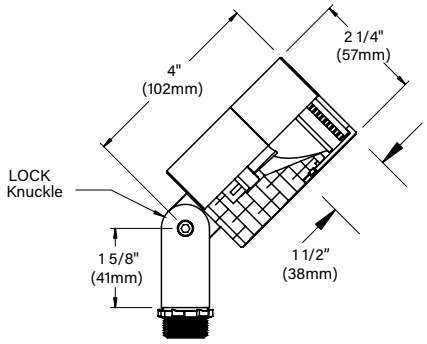
IP66 RATED

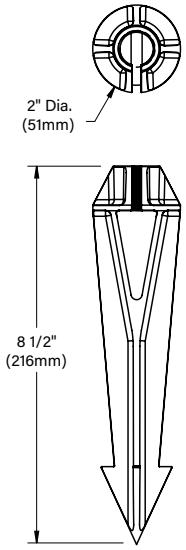
DATE:	PROJECT:	TYPE:

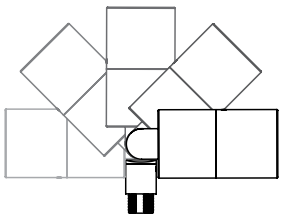
CATALOG NUMBER LOGIC:



CATALOG NUMBER LOGIC
NS - 502 - BLP
SERIES
NS - Nite Star
LAMP TYPE
0 - By Others
500 - 7W/15DEG/2700K
501 - 7.5W/25DEG/2700K
502 - 7.5W/35DEG/2700K
503 - 7W/15DEG/3000K
504 - 7.5W/25DEG/3000K
505 - 7.5W/35DEG/3000K
FINISH (See below for full-color swatches)
Standard Finishes (BZP, BZW, BLP, BLW, WHP, WHW, SAP, VER)







180° Vertical adjustment
(Standard)

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 color swatches of these finishes on our website

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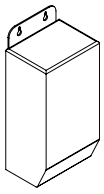
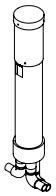
NITE STAR (MR16)

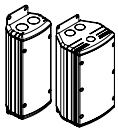
IP66 RATED

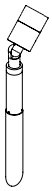
DATE:	PROJECT:	TYPE:

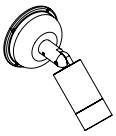
Accessories (Configure separately)

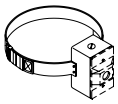

TR Series


Power Pipe

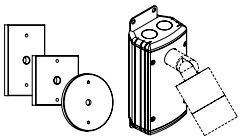

UPMRM


Power Pipe


Power Canopy


Tree Strap


Stems


Canopies UPM

SPECIFICATIONS

ELECTRICAL	WATTAGE	7W or 7.5W
	WIRING	Teflon® coated wire, 18AWG, 600V, 250° C rated and certified to UL 1659 standard.
	TRANSFORMER	For use with 12 VAC remote transformer.
PHYSICAL	MATERIALS	Furnished in copper-free aluminum (6061-T6).
	BODY	Unibody design is fully machined from solid billet and provides enclosed, water-proof wireway and heat sink to maximize lamp life. High temperature, silicone 'O' Ring provides watertight seal.
	KNUCKLE	LOCK Knuckle is comprised of two components. The first is integral to the body and features an interior, machined taper. The second is machined from solid billet and features a second, reverse angle taper. The resultant mechanical taper-lock allows a full 180° vertical adjustment without the use of serrated teeth, which inherently limit aiming. High temperature, silicone 'O' Ring provides water-tight seal and compressive resistance to maintain fixture position. Design withstands 73 lb. static load prior to movement to ensure decades of optical alignment. ½" pipe thread for mounting.
	CAP	Fully machined with a flush mounted lens.
	LENS	Shock resistant, tempered, clear glass lens is factory adhered to fixture cap and provides hermetically sealed optical compartment.
	SOCKET	Specification grade, ceramic body lamp holder. GU5.3 base. Nickel allow contacts and heat resistant, spring loaded, stainless steel lamp retaining clips.
	LAMP TYPE	MR16 Green Creative LED Lamp, Title 20 and Title 24, JA8 compliant. Compatible with 50 watt maximum, MR16 lamp.* Not for use with IR technology lamps. Halogen sourced by others. *Except GE Light Q42MR16/C/VNSP9 (EZY).
	HARDWARE	Tamper-resistant, stainless steel hardware. LOCK aiming screw 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 Listed. Certified to CAN/CSA/ANSI Standards. RoHS compliant. Title 24 and JA8 compliant (when using factory lamp options). Suitable for indoor or outdoor use, in wet locations, and within 4' of the ground. Made in the USA with sustainable processes.
	INCLUDED ITEMS	Fixture, mounting stake, and Honeycomb Baffle accessory.

TITLE 24, JA8

c UL us LISTED

RoHS

MADE IN THE USA

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LED wall luminaires - symmetrical light distribution **BEGA**

Application
LED wall luminaires with symmetrical light distribution designed for general illumination of pathways, plazas and building entrances.

Materials
Luminaire housing constructed of die-cast marine grade, copper free (≤0.3% copper content) A360.0 aluminum alloy
Matte 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 IP65
Weight: 4.0 lbs

Electrical

Operating voltage	120-277V AC
Minimum start temperature	-30° C
LED module wattage	8.9 W
System wattage	11.0 W
Controllability	0-10V dimmable
Color rendering index	Ra > 80
Luminaire lumens	938 lumens (3000K)
Lifetime at Ta = 15° C	190,000 h (L70)
Lifetime at Ta = 50° C	165,000 h (L70)

LED color temperature

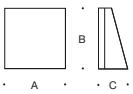
☐ 4000K - Product number + **K4**
☐ 3500K - Product number + **K35**
☐ 3000K - Product number + **K3**
☐ 2700K - Product number + **K27**

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 · symmetrical light distribution

		LED	A	B	C
24218	ADA	8.9 W	8	8	3¾

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 02/06/18

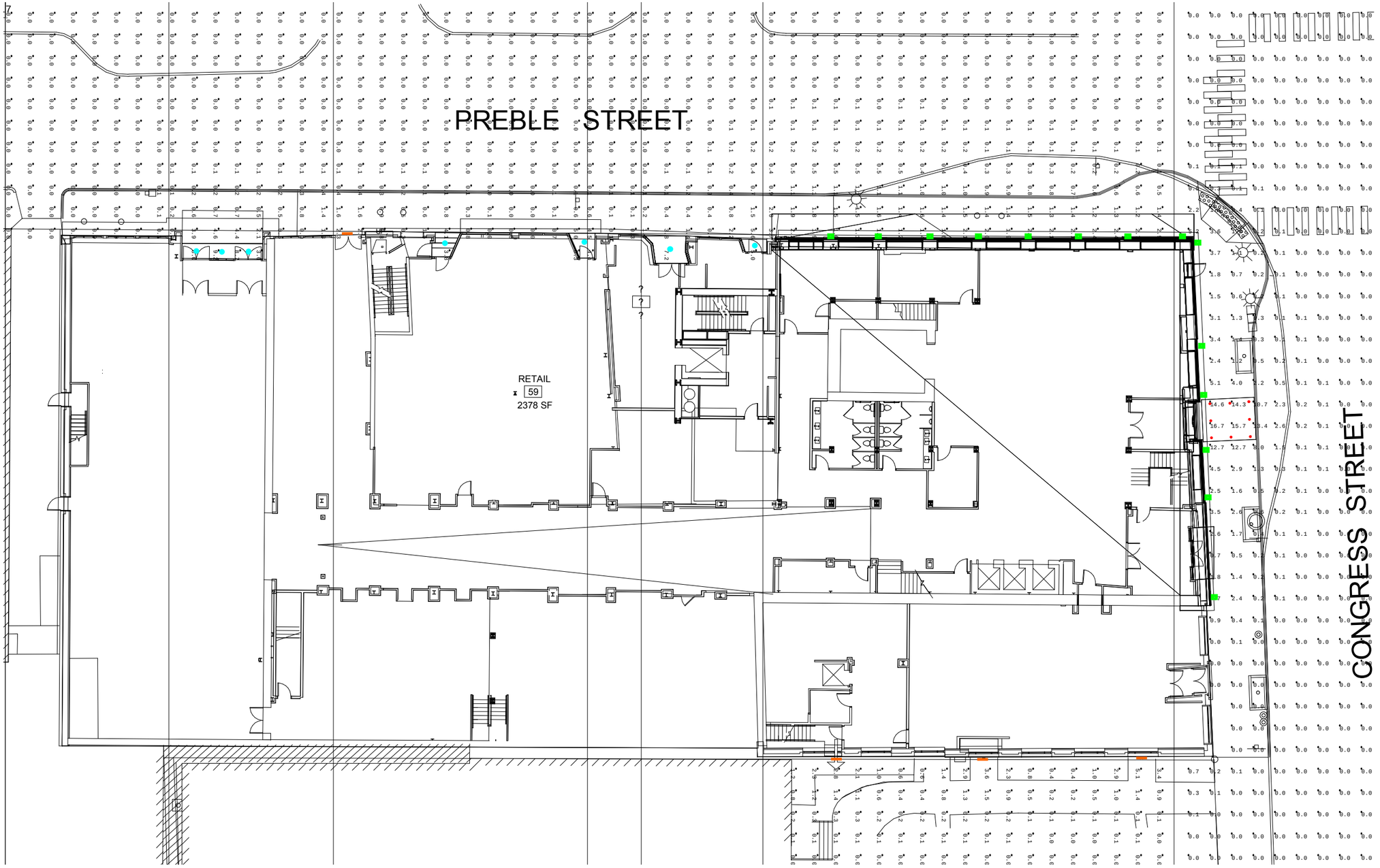
Time and Temperature Hotel

Exterior Preliminary Photometrics

2021.07.30

Overall Site

These Lighting Calculations include ONLY the fixtures mounted to the lowest level of the building. This calculation does not include any city street lighting or high-mounted decorative facade lighting that will not impact light levels at the sidewalk and street area.

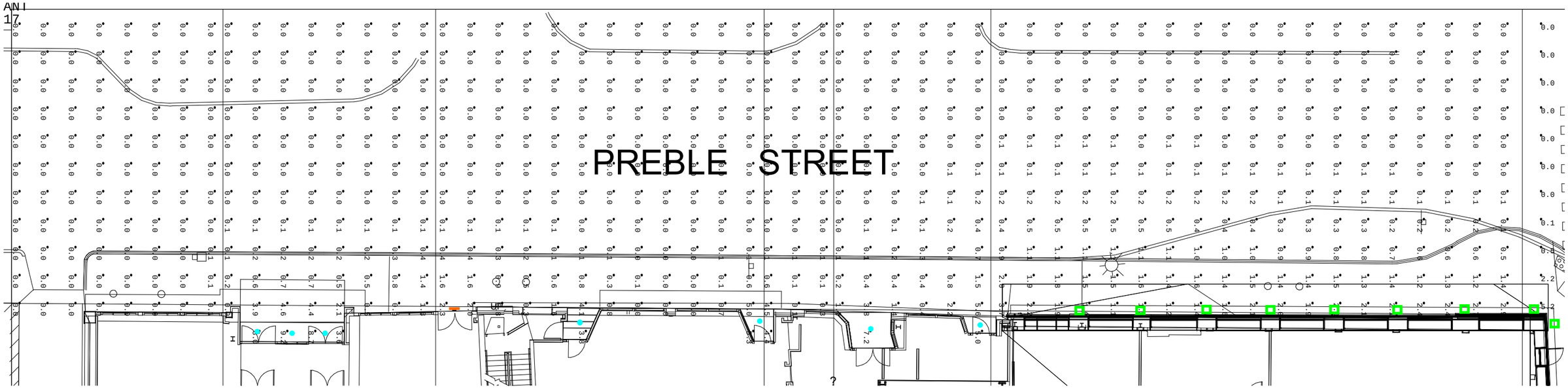


Congress Street



Luminaire Schedule - Building Base					
Symbol	Qty	Tag	Description	Lum. Lumens	LLF
	14	Pedestrian Level Deco Sconce	Modern Forms WS-41918	964	0.855
	8	Canopy Cylinders	BK-NS-LED-e66-WFL-12	462	0.855
	4	Wall Mount	Bega 24218	989	0.855
	8	Recessed Light	USAI_ B4RDF-16G1-30KS-50-S-WH-NCIC-UNV	739	0.855

Preble Street



Luminaire Schedule - Building Base					
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	8	Recessed Light	USAI_ B4RDF-16G1-30KS-50-S-WH-NCIC-UNV	739	0.855

24x36 SHEET
1:1

PREBLE STREET

CONGRESS STREET

PUBLIC MARKET

#38 PREBLE ST.
N:300657.06
E:2927809.01

PARCEL 2
AREA=
803± S.F.

N/F
PREBLE STREET
29228/170
(1125/269)

#28 PREBLE ST.

N/F
EARL APARTMENTS LLC
17591/197
(2182/479)
(1091/438)
TM 37 BLOCK F LOT 5
"THE WADSWORTH"
6 STORY

#24 PREBLE ST.

N/F
24 PREBLE STREET
PROPERTIES LLC
33029/19
/F PENNESSEEWASEE LLC
13502/253
(3375/256)
(1091/295)
TM 37 BLOCK F LOT 7
"FIRESTONE BUILDING"
4 STORY

/F
HELDENBRAND
14612/231

#338 CUMBERLAND AVE.

N/F
SWEETWATER PARTNERS LLC
34349/251
(4907/138 4907/161)
(1125/270) ITEM 11
TM 37 BLOCK F LOT 9
8 STORY
FORMERLY
ALLEN'S STORAGE WAREHOUSE

BROWN TOWERS LLC
35610/345
PROPOSED AREA=
48,460 S.F. ±
1.11 ACRES ±
TM 37 BLOCK F LOT 2

#45 BROWN ST.
TM 37 BLOCK F LOT 2
4 STORY PARKING GARAGE
277 REGULAR SPACES
5 HANDICAP SPACES

N/F
MHS, INC.
10467/207
(4367/59 4373/30)
TM 37 BLOCK F LOT 12
#41 BROWN ST.

12587/184

MAINE HISTORICAL SOCIETY

N:300288.85
E:2928143.52

N:300446.78
E:2927558.71

RETAIL
59
2378 SF

FITNESS
59
3335 SF

KITCHEN
44

RESTAURANT
45

13 SPACES
11 SPACES
7 SPACES
6 SPACES
5 SPACES
4 SPACES
3 SPACES
2 SPACES

FORMER PROPERTY LINE IS A "PROLONGATION OF THE OUTSIDE FACE OF THE WEST WALL OF BUILDING AT CUMBERLAND AVE. AND PREBLE ST.

PROPERTY LINE IS THE SOUTHWST WALL OF THE WADSWORTH

PASSAGEWAY PART OF DEED "A" RIGHTS OF USAGE IN IT

RIGHT TO LIGHT AND AIR IN THE AREA OR COURT IN THE REAR OF THE WADSWORTH. RIGHT TO MAINTAIN FIRE ESCAPE

FIRE ESCAPE SEE AGREEMENT BETWEEN COMMERCE BUILDING, INC. AND MANSFIELD BEAUTY ACADEMY DATED FEB. 25, 1985

RIGHT IN COMMON WITH OTHERS TO USE PASSAGEWAY

FORMER PROPERTY LINE IS THE OUTSIDE FACE OF ALLEN STORAGE WAREHOUSE WALL

PROPERTY LINE IS OUTSIDE FACE OF ALLEN STORAGE WAREHOUSE WALL. ORIGINALLY REFEREED TO AS CENTER OF PARTY WALL BETWEEN KEITH'S THEATER AND ALLEN STORAGE WAREHOUSE

FORMER PROPERTY LINE IS THE OUTSIDE FACE OF THE FORMER STAGE ENTRANCE TO KEITH'S THEATER, NO DEMOLISHED. LOCATION BASED ON MARKINGS ON EXISTING BUILDING FACE

PROPERTY LINE IS 0.09' WEST (FREE) OF BUILDING LINE

PAVED PARKING AREA
34 REGULAR SPACES
FORMERLY KEITH'S THEATRE

PAVED – OPEN AIR

EXISTING ANNEX TO BE DEMOLISHED

NEIGHBORING BUILDING

REMOVE AND RESET GRANITE CURB (TYP.)

RESET SIGN, COORDINATE WITH CITY (TYP.)

REMOVE AND PROTECT PAY BOX, TO BE RESET, COORDINATE WORK W/CITY PLANNING DEPARTMENT

14' GRANITE TIPDOWN TERMINAL CURB, SEE DETAIL

ADA ACCESSIBLE CURB RAMP, SEE DETAIL (TYP.)

MATCH GRADE AT EXISTING PAVED DRIVEWAY APRON

86' NON-RESTRICTED PARKING

44' COMMERCIAL LOADING ZONE

86' NO PARKING, HOTEL LOADING ONLY

RESTRIPE EXISTING CROSSWALK

DEMOLISH CONCRETE SIDEWALK AND PROVIDE BRICK SIDEWALK, SEE DETAIL

ADA ACCESSIBLE CURB RAMP W/DETECTABLE WARNING SURFACE, SEE DETAIL (TYP.)

SAWCUT EXISTING PAVEMENT

PROTECT EXISTING ELECTRICAL BOX AND SIGNAL POLE

BITUMINOUS PAVEMENT, SEE DETAIL

REMOVE AND PROTECT MAIL BOXES, TO BE RESET, COORDINATE WORK W/CITY PLANNING DEPARTMENT AND USPS

PROVIDE BRICK SIDEWALK (TYP.) SEE DETAIL

REMOVE AND RESET GRANITE CURB (TYP.)

RAISED GRANITE TREE WELL (TYP. OF 3) SEE DETAIL

REMOVE EXISTING CONCRETE PLANTER

REMOVE AND REPLACE SIGN W/"VALET PARKING ONLY"

REMOVE AND SALVAGE PARKING METERS, DELIVER TO CITY PUBLIC WORKS DEPARTMENT

NO PARKING, HOTEL LOADING ONLY

15-MINUTE LOADING/UNLOADING

64'

NEW RAMP

MATCH BRICK SIDEWALK TO EXISTING GRADE AND BRICK PATTERN

GREASE TRAP, SEE UTILITY PLAN

EXISTING STAIRS

NEW STAIR FROM #41 CONGRESS BASEMENT UP TO 6TH FLOOR MAINTENANCE TO BE LOCATED WITHIN EXISTING BUILDING

NEW STAIR FROM AND STR

UPPER LEVEL ONLY

UPPER LEVEL BUILDING

EXTERIOR METAL CHIMNEY

CHIMNEY–RIGHT TO MAINTAIN CHIMNEY

FIRE ESCAPE

AIR CONDITIONER

CONCRETE REMNANTS

VENT

WINDOW WELL

COURT YARD

STAIRWELL

EMERGENCY GENERATOR

METAL FENCE

GATE HOUSE

CONC. COLUMN (TYPICAL)

CONC. PLANTER

ELEC. BOX

BIKE RACKS

ELEVATED PLATFORM

CHAIN LINK FENCE

GENERATOR

TRANS. #202.1

ELEC. BOXES

4" PVC'S

TRANS.

VAULT

TRASH / RECYCLING

TRASH CHUTE OUTLET

FIRE COMMAND CENTER

HOTEL ENTRANCE

NEW EGRESS STAIR

EXISTING HISTORIC STAIR

FIRE SHUTTER (TYP.)

RAMP

BRICK WALK

WALK

CONCRETE

BRICK SIDEWALK

GRANITE CURB

BRICK

PAVED

CONCRETE ENTRANCE

GATE

METAL STAIRS

OVERHANG

UPPER LEVEL OF PARKING GARAGE

OVERHEAD WIRES ENCROACH ONTO PREMISES 0.3'

GATE AND UPPER LEVEL WALL

UPPER LEVEL OF PARKING GARAGE ENCROACHES UP TO 4.5'

DRILL HOLE 3' OFFSET CUMBERLAND AVE. & BROWN STREET, LOT

NEW UP – NO WIRES

SEE 14612/235

YELLOW LINE

BRICK BUILDING

CB RIM=53.99
INV. OUT=49.9

CB RIM=54.75
INV. OUT=50.05

MH RIM=54.55
6"INV. IN=48.15
15"INV. IN=46.15
12"INV. IN=48.05
15"INV. OUT=46.05

"M" MONUMENT w/DRILL HOLE

RIM=54.55
12" INV. IN=49.05
12" HOOD OUT=48.85

TBM: BONNET BOLT HYDRANT ELEV.=68.17

16"WATER

15"PVC

MH RIM=57.46
15"INV. IN=57.46
15"INV. OUT=57.16

SMH RIM=59.26
ICE=56.3

RIM=59.22
DIRT=57.7

SMH RIM=63.51
8"INV. IN=63.31
8"INV. OUT=55.81

RIM=62.31

"M" MONUMENT (2015) (GONE 2019)

SMH RIM=62.85
15"INV. IN=56.95
12"INV. IN=56.75
15"INV. OUT=56.75

RIM=70.22
15"INV. IN=63.22
15"INV. IN=62.22
15"INV. OUT=62.12

RIM=70.40
15"INV. IN=63.20
15"INV. OUT=62.90

CB RIM=77.10
12" INV. IN=65.80
BOTTOM TRAP OUT=65.70

MH RIM=77.53
6" INV. IN=63.73
6"INV. OUT=63.63

RIM=72.93
H2O=69.03

4" CLEANOUT

RIM=77.91
8"VC IN=71.1
8"VC IN=71.0
15"VC IN=70.5
15"VC OUT=70.4

RIM=76.58
15"PVC IN=65.68
15"PVC OUT=65.68

RIM=76.87
15"PVC IN=69.27
15"VC IN=63.37
6"PVC IN=63.37
15"PVC OUT=63.27

RIM=80.64
10"VC IN=63.54
15"VC IN=63.44
15"VC OUT=63.34

RIM=79.57
15"INV. IN=70.17
15"INV. OUT=70.07

MH RIM=79.98
12"RPP INV. IN=74.68
15" INV. IN=70.48
12"PVC INV. IN=72.88
15" INV. OUT=70.38

CB RIM=79.42
12"RPP INV. OUT=73.72

RIM=80.05
12"PVC INV.=74.75

MH RIM=83.29
15"INV. IN=74.89
15"INV. OUT=74.79

DRILL HOLE 0.3' INTO STREET

0.07' INTO STREET

0.4' INTO STREET

0.14' FREE

0.17' FREE

0.85' FREE

0.29' FREE

1.56'

2.20'

0.12' FREE

2228 GRAR BZ

2226 UP BZ

2224 UP BZ

2225 UP BZ

R15.0'

R20.0'

R45'

20' 0 20' 40'

BAR SCALE
1" = 20'
CHECK GRAPHIC SCALE BEFORE USING

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REV	DESCRIPTION	DATE
2	RESPONSE TO CITY COMMENTS	07/30/21
1	RESPONSE TO CITY COMMENTS	07/16/21

DESIGNED BY: ANL
DRAWN BY: JBC
CHECKED BY: DBS
0232868.00-C-200.dwg

OVERALL SITE PLAN

477 CONGRESS HOTEL
PORTLAND, MAINE

TT MAINE VENTURE, LLC
3100 MCKINNON STREET, SUITE 250
DALLAS, TX 75201

JOB NO.:0232868.00
DATE: APRIL 2021
SCALE: 1" = 20'
SHEET: 2 OF 7

C-200

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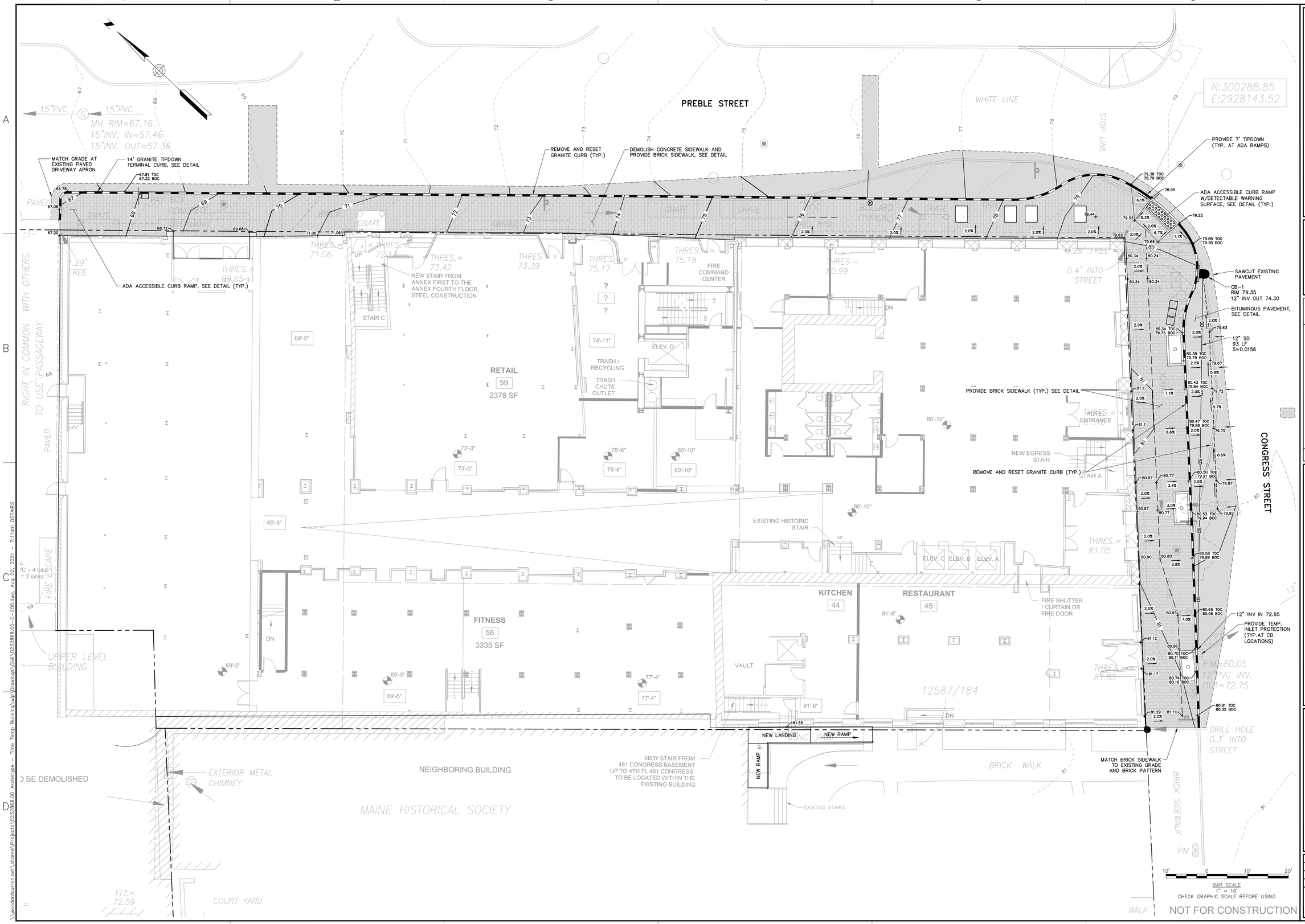
24x36 SHEET
1:1



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1	RESPONSE TO COMMENTS	07/16/21

DESIGNED BY: ANL
DRAWN BY: JBC
CHECKED BY: DBS
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GRADING, DRAINAGE AND EROSION CONTROL PLAN

477 CONGRESS HOTEL
PORTLAND, MAINE

TT MAINE VENTURE, LLC
3100 MCKINNON STREET, SUITE 250
DALLAS, TX 75201

JOB NO.:0232868.00
DATE: APRIL 2021
SCALE: 1" = 10'
SHEET: 3 OF 7

C-201

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24x36 SHEET
1:1

EXISTING 6" DI FIRE SERVICE TO REMAIN

INSTALL 8" SANITARY SEWER LATERAL TO BUILDING

EXISTING WATER SERVICES RETIRED OR ABANDONED (PER PWD)

EXISTING 6" DI FIRE SERVICE TO REMAIN

PROVIDE 4" DOMESTIC WATER SERVICE

PREBLE STREET

WHITE LINE

STOP LINE

N:300288.85
E:2928143.52

15"PVC

15"PVC

MH RIM=67.16
15"INV. IN=57.46
15"INV. OUT=57.36

PROPOSED ELECTRIC VAULTS (FINAL DESIGN AND LOCATION BY OTHERS)

ELECTRICAL VAULTS TO BE RELOCATED

PAVED

PAY BOX

CONCRETE OVERHANG

BRICK

GRATE

AWNING

WALL HYD.

BOLLARD TYPICAL

0.28' FREE

0.4' INTO STREET

SIGNAL

ELEC. BOX

1.29' FREE

RIGHT IN COMMON WITH OTHERS TO USE PASSAGEWAY

PAVED

NEW STAIR FROM ANNEX FIRST TO THE ANNEX FOURTH FLOOR, STEEL CONSTRUCTION

STAIR C

UP

FIRE COMMAND CENTER

ELEV. D

TRASH / RECYCLING

TRASH CHUTE OUTLET

RETAIL
59
2378 SF

69'-5"

74'-11"

73'-0"

75'-6"

80'-10"

HOTEL ENTRANCE

NEW EGRESS STAIR

STAIR A

REMOVE 4" VALVE AND PLUG TEE AT MAIN PER PWD STANDARDS

ABANDON EXISTING 4" DOMESTIC WATER

CONGRESS STREET

CONC. PLANTER

BRICK

RIM=80.05
12"PVC INV. OUT=72.75

DRILL HOLE 0.3' INTO STREET

EXISTING HISTORIC STAIR

ELEV. C ELEV. B ELEV. A

KITCHEN
44

RESTAURANT
45

FIRE SHUTTER / CURTAIN OR FIRE DOOR

81'-8"

FITNESS
58
3335 SF

VAULT

77'-4"

12587/184

NEW STAIR FROM CONGRESS BASEMENT TO FL 481 CONGRESS, LOCATED WITHIN THE EXISTING BUILDING

CONC. RAMP

BRICK WALK

EXISTING STAIRS

BRICK SIDEWALK

SEE INSET A, THIS SHEET

UPPER LEVEL BUILDING

EXISTING 8" SANITARY SEWER

4" GREASE-LADEN WASTE WATER SEWER

TO BE DEMOLISHED

EXTERIOR METAL CHIMNEY

COURT YARD

FIRE ESCAPE

c.
/C = 4 total
= 2 sinks

WINDOW WELL

SANITARY SEWER MANHOLE

EXISTING 8" SANITARY SEWER

4" GREASE-LADEN WASTE WATER SEWER

INTERCEPTOR, 1,500 GALLON

INSET A
SCALE: 1" = 10'

10' 0 10' 20'

BAR SCALE
1" = 10'
CHECK GRAPHIC SCALE BEFORE USING

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1	RESPONSE TO COMMENTS	07/26/21

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DRAWN BY: JBC
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UTILITY PLAN

477 CONGRESS HOTEL
PORTLAND, MAINE

TT MAINE VENTURE, LLC
3100 MCKINNON STREET, SUITE 250
DALLAS, TX 75201

JOB NO.:0232868.00
DATE: APRIL 2021
SCALE: 1" = 10'
SHEET: 4 OF 7

C-202

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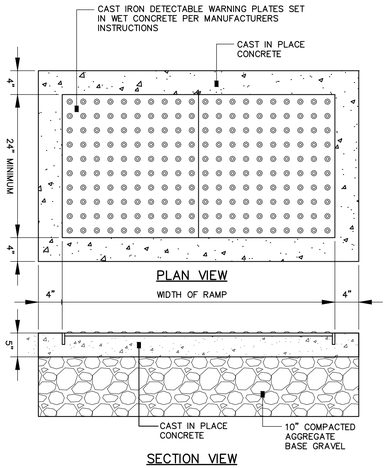
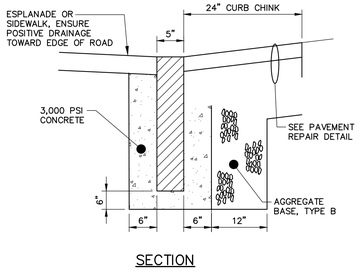
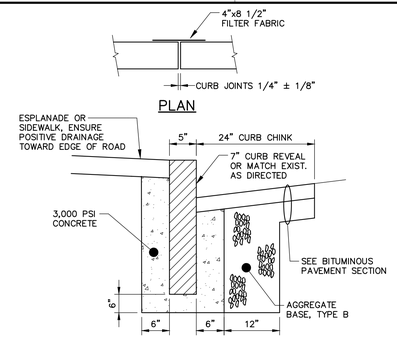


NOTES:

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 + CONCRETE SHALL EXTEND THE WIDTH OF THE CURB RAMP, LANDING, OR BLENDED 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.

SIDEWALK RAMP DETECTABLE WARNING
N.T.S.





CURB TYPE 1 ON CURVES			
TYPE	RADIUS OF CURVE	LENGTH	STONE IS CUT OR CAST
1	0' TO 60' INCL.	4' MIN.	ARC TO FIT CURVE
	OVER 60' TO 160'	4' TO 6'	STRAIGHT PIECES

NOTES:

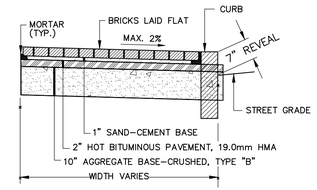
1. INDIVIDUAL PIECES OF CURB SHORTER THAN 4 L.F. ARE NOT ALLOWED, WITH THE EXCEPTION OF RADIAL CURB.
2. THE MINIMUM HEIGHT OF THE CONCRETE BACKING SHALL BE 10-INCHES OR TO THE BOTTOM OF THE HOT MIX ASPHALT PAVEMENT, WHICHEVER IS GREATER, MEASURED FROM THE BOTTOM OF CURB.
3. CURBING SHALL BE SET IN 6-INCH BED OF POURED IN PLACE 3,000 PSI CONCRETE MIX.
4. WOODEN SHIMS MAY BE USED TO SET CURB.
5. SUBGRADE TO BE 95% COMPACTED.

TYPICAL FLUSH CURB INSTALLATION
N.T.S.

NOTE: AGGREGATE TYPES PER MDOT SECTION 304.02

TYPICAL NEW AND RESET CURB INSTALLATION
N.T.S.

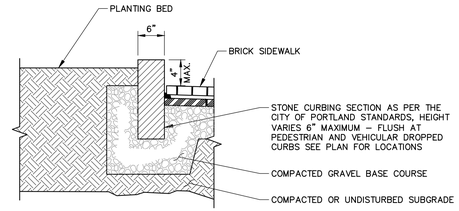
NOTE: AGGREGATE TYPES PER MDOT SECTION 304.02



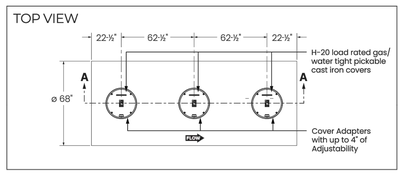
NOTES:

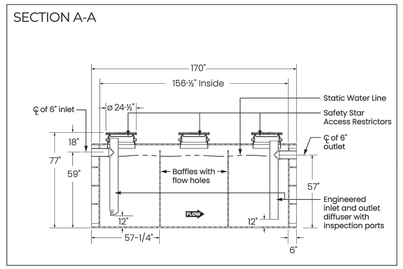
1. SEE LANDSCAPE PLANS FOR GRANITE PAVER SECTIONS.
2. PROVIDE MIN. 48" OF STRUCTURAL FILL BENEATH ANY BRICK SIDEWALK SECTION WITHIN 6 FEET OF AN EXTERIOR DOOR, ALL DIRECTIONS.
3. PROVIDE MIN. 48" OF STRUCTURAL FILL BENEATH ANY BRICK SIDEWALK SECTION WITHIN 6 FEET OF AN EXTERIOR DOOR, ALL DIRECTIONS.

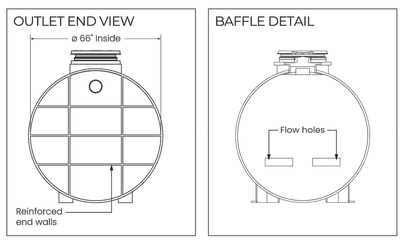
BRICK SIDEWALK DETAIL
N.T.S.



RAISED GRANITE TREE WELL DETAIL
N.T.S.

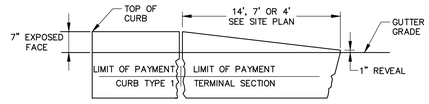






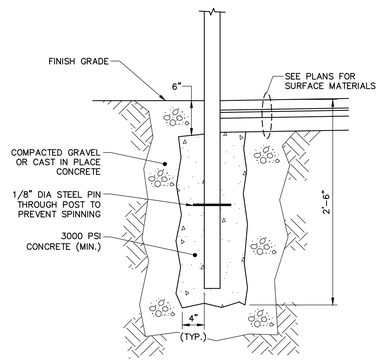
NOTES:
1. GREASE TRAP SHALL BE CGI-2000 MODEL BY SCHIER, OR APPROVED EQUAL.
2. GREASE TRAP SHALL BE PROVIDED WITH RISERS AS NECESSARY TO ACCOMMODATE DEFINED INVERTS.
3. GREASE TRAP AND ASSOCIATED COVERS AND RISERS SHALL BE PROVIDED FOR H-20 LOADING.

GREASE INTERCEPTOR DETAIL
N.T.S.



TERMINAL SECTION TYPE "1"

TERMINAL CURB SECTION
N.T.S.



POST SPECIFICATION			
TYPE	HEIGHT ABOVE FIN. GRADE	POST DIAMETER	POST MATERIAL
STREET SIGNAGE	7'-0"	2 3/8" (O.D.)	GALV. STEEL

TYPICAL SIGN POST DETAIL
N.T.S.

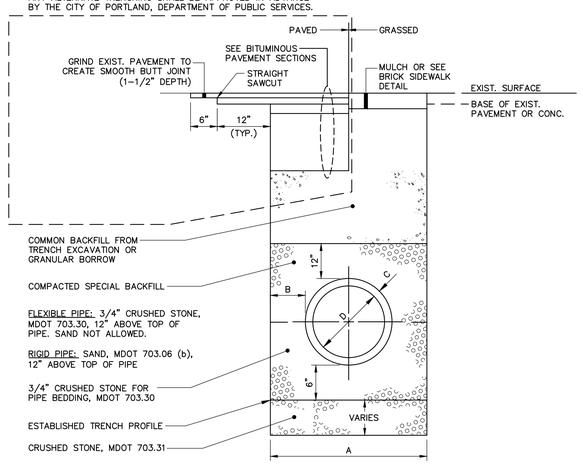
PIPE INSTALLATION DETAIL - NOTES

1. IN PAVED AREAS, DEPTHS OF GRAVEL AND HOT MIX ASPHALT PAVEMENT SHALL MATCH THE GREATER OF EXISTING CONDITIONS OR THE REQUIREMENTS FOR THE CORRESPONDING STREET CLASSIFICATION.
2. DIMENSION "B" SHALL BE SUFFICIENT TO ALLOW CRUSHED STONE BEDDING TO BE PLACED AND COMPACTED UNDER THE HAUNCHES OF THE PIPE; BUT IN ALL CASES "B" SHALL BE AT LEAST 9".
3. DIMENSION "A" SHALL BE BASED ON PIPE DIAMETER, AS SET FORTH IN THE FOLLOWING TABLE.

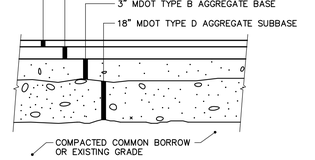
PIPE DIAMETER, "D" (INCHES)	MAX. TRENCH WIDTH, "A" (FEET)
6	4.0
8	4.0
10	4.0
12	4.0
15	4.0
18	5.0
21	5.0
24	5.5
27	6.0
30	6.0
36	7.0
42	8.0
48	8.0

NOTES:

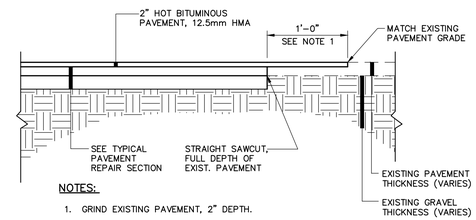
ANY ALTERNATE TRENCHING SHALL BE APPROVED IN ADVANCE BY THE CITY OF PORTLAND, DEPARTMENT OF PUBLIC SERVICES.



PIPE INSTALLATION DETAIL
N.T.S.



BITUMINOUS PAVEMENT REPAIR SECTION
N.T.S.



NOTES:

1. GRIND EXISTING PAVEMENT, 2" 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.

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REV	DESCRIPTION	DATE
1	RESPONSE TO COMMENTS	07/30/21

DESIGNED BY: ANL
DRAWN BY: JBC
CHECKED BY: DBS
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CIVIL DETAILS - 1

477 CONGRESS HOTEL
PORTLAND, MAINE

TT MAINE VENTURE, LLC
3100 MCKINNON STREET, SUITE 250
DALLAS, TX 75201

JOB NO.:0232868.00
DATE: APRIL 2021
SCALE: AS NOTED
SHEET: 5 OF 7

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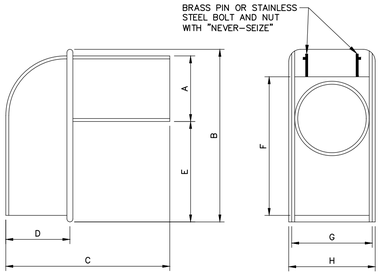


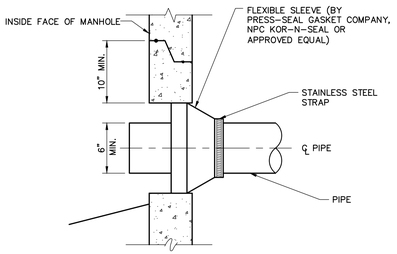
SIZE	A	B	C	D	E	F	G	H
10"	9 1/2"	16"	16 1/4"	6"	4 1/2"	14 1/8"	11 1/2"	12 3/8"
12"	11 1/2"	17"	22"	8"	3 1/2"	17"	12 1/2"	13 3/8"
15"	14 1/2"	22 1/2"	23"	10 1/4"	5 3/4"	21"	14 1/2"	15 3/4"

NOTE:

1. CASCO TRAP SHALL BE CAST IRON CASCO TRAP BY ETHERIDGE FOUNDRY OR APPROVED EQUAL.
2. BOLT AND NUT REQUIRED WHERE HOOD WILL NOT OPEN COMPLETELY.
3. CASCO TRAP SHALL BE INSTALLED ON ALL CATCH BASIN OUTLET PIPES, INCIDENTAL TO COST OF CATCH BASIN

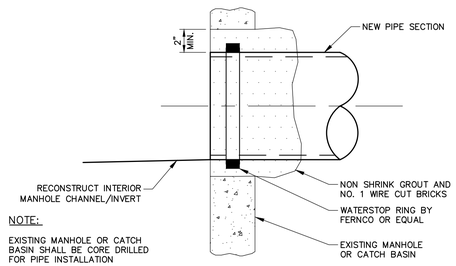
CASCO TRAP DETAIL

N.T.S.



NEW PIPE TO NEW STRUCTURE CONNECTION DETAIL

N.T.S.

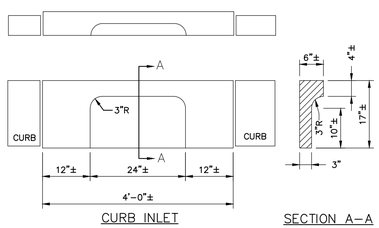


NOTE:

EXISTING MANHOLE OR CATCH BASIN SHALL BE CORE DRILLED FOR PIPE INSTALLATION

NEW PIPE TO EXISTING STRUCTURE

N.T.S.

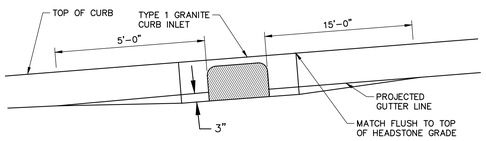


TYPE 1 GRANITE CURB DETAIL

N.T.S.

NOTE:

DISH 10' EITHER SIDE OF HEADSTONE FOR CATCH BASIN AT LOW POINT.



TYPICAL PAVEMENT GRADING ON SLOPES FOR CATCH BASIN AND INLETS

N.T.S.

NOTES:

ALL RAMPS SHALL COMPLY WITH ADA STANDARDS.

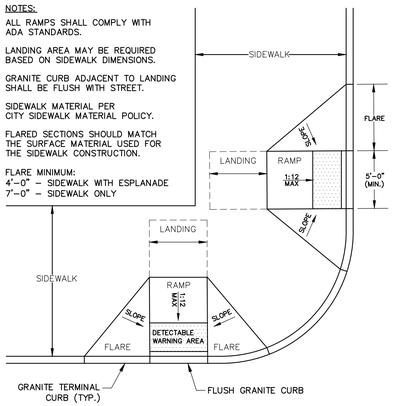
LANDING AREA MAY BE REQUIRED BASED ON SIDEWALK DIMENSIONS.

GRANITE CURB ADJACENT TO LANDING SHALL BE FLUSH WITH STREET.

SIDEWALK MATERIAL PER CITY SIDEWALK MATERIAL POLICY.

FLARED SECTIONS SHOULD MATCH THE SURFACE MATERIAL USED FOR THE SIDEWALK CONSTRUCTION.

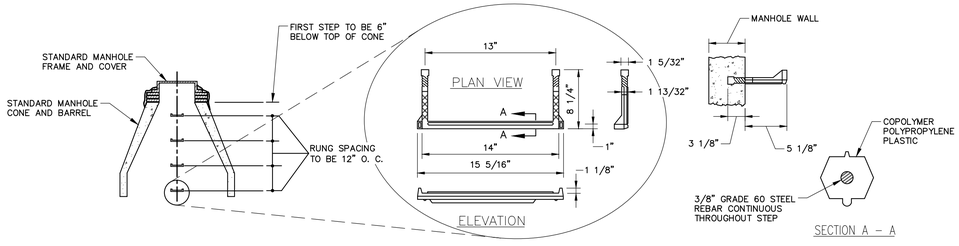
FLARE MINIMUM:
4'-0" – SIDEWALK WITH ESPLANADE
7'-0" – SIDEWALK ONLY



SIDEWALK RAMP AT INTERSECTION

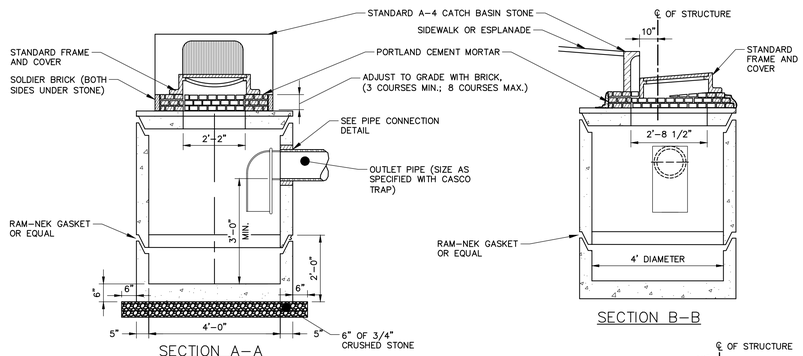
ADA ACCESSIBLE CURB RAMPS

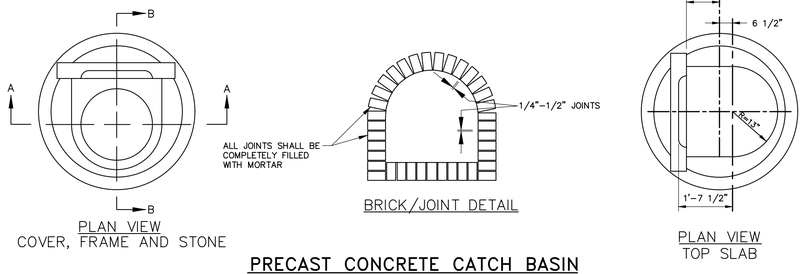
N.T.S.



PLASTIC MANHOLE STEPS

N.T.S.



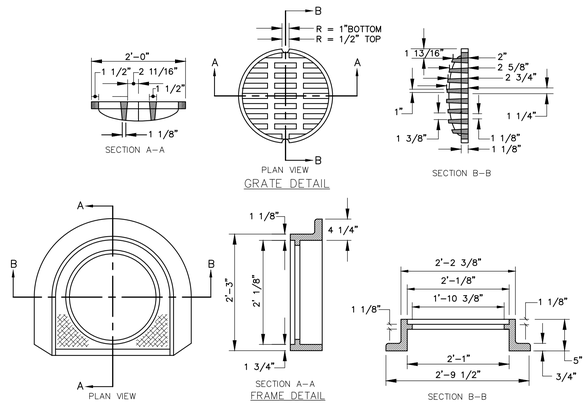


PRECAST CONCRETE CATCH BASIN

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.



CATCH BASIN TYPE "D" – FRAME & COVER DETAIL

N.T.S.

NOT FOR CONSTRUCTION

41 Hutchins Drive
Portland, Maine 04102
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REV	DESCRIPTION	DATE
1	RESPONSE TO COMMENTS	07/30/21

DESIGNED BY: ANL
DRAWN BY: JBC
CHECKED BY: DBS
0232868.00-DETAILS.dwg

CIVIL DETAILS - 2

477 CONGRESS HOTEL
PORTLAND, MAINE

TT MAINE VENTURE, LLC
3100 MCKINNON STREET, SUITE 250
DALLAS, TX 75201

JOB NO.:0232868.00
DATE: APRIL 2021
SCALE: AS NOTED
SHEET: 6 OF 7

C-301

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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
Sedimentation 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 per inspections table below, and maintain and repair as necessary.

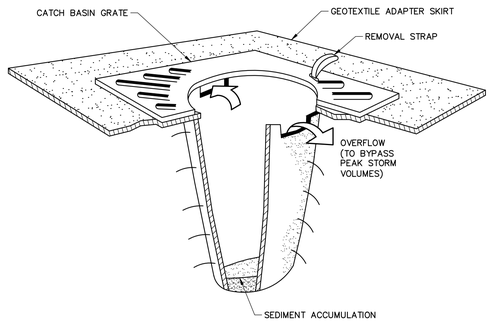
Permanent Erosion Control:

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.



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 SEDIMENTATION 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, PLUNGE POOLS, CHECK DAMS, SEDIMENT TRAPS, CATCHBASIN SEDIMENT COLLECTION BAGS AND GEOTEXTILE FILTER BAGS. PERMANENT MEASURES INCLUDE THE USE OF RIPRAP AT EXPOSED STORMDRAIN AND CULVERT INLETS AND OUTLETS, ARMORED SWALES AND SLOPES AND PERMANENT VEGETATION.

GENERAL

A. THE PROJECT SHALL CONFORM WITH THE STANDARDS OF THE MAINE CONSTRUCTION GENERAL PERMIT, IF APPLICABLE.

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.

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 AREAS STABILIZED WITH RIPRAP, PERMANENT STABILIZATION MEANS THAT SLOPES STABILIZED WITH RIPRAP HAVE AN APPROPRIATE BACKING OF A WELL-GRADED GRAVEL OR APPROVED GEOTEXTILE. STONE MUST BE SIZED APPROPRIATELY AND IN ACCORDANCE WITH SECTION E-6 OF THE MAINE EROSION AND SEDIMENT CONTROL BMP MANUAL.
v. FOR PAVED AREAS, PERMANENT STABILIZATION MEANS THE PLACEMENT OF THE ASPHALT BINDER COURSE.
vi. FOR OPEN CHANNELS, LEVEL SPREADERS, ENGINEERED BUFFERS OR OTHER DESIGNED STORMWATER CONVEYANCE STRUCTURE, PERMANENT STABILIZATION MEANS THE CHANNELIZED AREA(S) IS STABILIZED WITH MATURE VEGETATION AT LEAST THREE INCHES IN HEIGHT, WITH APPROVED RIPRAP, OR WITH OTHER NON-EROSIVE LINING CAPABLE OF WITHSTANDING THE ANTICIPATED FLOW VELOCITIES AND FLOW DEPTHS WITHOUT RELIANCE ON CHECK DAMS TO SLOW FLOW. THERE SHALL BE NO EVIDENCE OF SLUMPING, UNDERCUTTING OR DOWNCUTTING OF THE DESIGNED CHANNEL.

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 4 INCHES. IN COMPACTED AREAS TILL 2-3" OF COMPOST INTO UPPER 8" OF DISTURBED SOIL AND THEN APPLY 4 INCHES OF TOPSOIL.
ii. APPLY LIME AND FERTILIZER ACCORDING TO SOIL TESTS. IN LIEU OF SOIL TESTS, APPLY GROUND LIMESTONE AT A RATE OF 33 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. DITCH LININGS AND RIPRAP INLET AND OUTLET PROTECTION SHALL BE INSTALLED WITHIN 48 HOURS OF COMPLETING THE GRADING OF THAT SECTION OF DITCH OR INSTALLATION OF THE CULVERT.

L. EROSION CONTROL BLANKET SHALL BE INSTALLED ON ALL PERMANENT SLOPES STEEPER THAN 3:1, IN THE BASE OF DITCHES AND ANY DISTURBED AREAS WITHIN 100 FEET OF A PROTECTED NATURAL RESOURCE (WETLANDS AND WATER RESOURCES). 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.

M. 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.

DEWATERING

A. ANY DEWATERING FLOW DIRECTED TO THE CITY'S COMBINED SEWER SYSTEM SHALL BE REVIEWED AND APPROVED BY THE DEPARTMENT OF PUBLIC SERVICES AND/OR THE PORTLAND WATER DISTRICT PRIOR TO COMMENCING DEWATERING ACTIVITIES.

41 Hutchins Drive
Portland, Maine 04102
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REV	DESCRIPTION	DATE
1	RESPONSE TO COMMENTS	07/30/21

DESIGNED BY: ANL
DRAWN BY: JBC
CHECKED BY: DBS
0232868.00-DETAILS.dwg

CIVIL DETAILS - 3

477 CONGRESS HOTEL
PORTLAND, MAINE

TT MAINE VENTURE, LLC
3100 MCKINNON STREET, SUITE 250
DALLAS, TX 75201

JOB NO.:0232868.00
DATE: APRIL 2021
SCALE: AS NOTED
SHEET: 7 OF 7

C-302

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COMMITMENT & INTEGRITY
DRIVE RESULTS

41 Hutchins Drive
Portland, Maine 04102
www.woodardcurran.com

T 800.426.4262
T 207.774.2112
F 207.774.6635

Via Electronic Mail

August 13, 2021

Shukria Wiar, Planner
Planning & Urban Development Department
City of Portland
389 Congress Street, 4th Floor
Portland, ME 04101

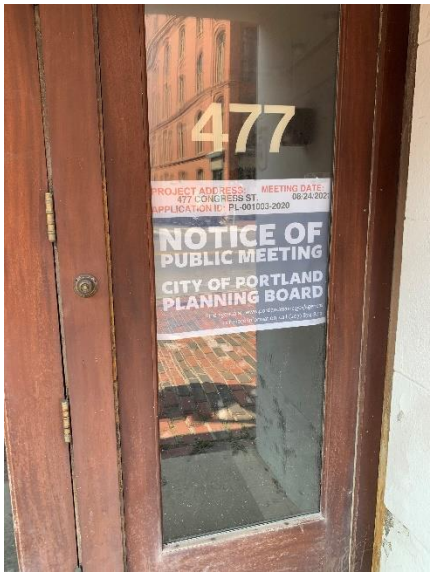
Re: Time & Temperature Hotel – Notice of Public Meeting Certification

Dear Shukria:

I, Darrin Stairs, PE hereby certify that a notice of neighborhood meeting sign was posted from 08/11/21 to 08/25/21 prior to the public workshop held on 08/24/21 for the proposed project PL-001003-2020, at located at 477 CONGRESS ST.

Photo documentation of sign in situ:





Sincerely,

WOODARD & CURRAN, INC.

Darrin Stairs, PE
Project Manager

PN: 232868.00

COMMITMENT & INTEGRITY
DRIVE RESULTS

41 Hutchins Drive
Portland, Maine 04102
www.woodardcurran.com

T 800.426.4262
T 207.774.2112
F 207.774.6635

Via Electronic Mail

October 15, 2021

Kevin Kraft, Deputy Director
Planning & Urban Development Department
City of Portland
389 Congress Street, 4th Floor
Portland, ME 04101

Re: Time & Temperature Hotel – 477 Congress Street
Major Site Plan Review – Supplemental Materials

Kevin:

Thank you for continuing to coordinate the review of the Site Plan application for the proposed Time & Temperature Hotel located at 477 Congress Street, Portland, Maine.

This letter compiles materials we are submitting in supplement to our Major Site Plan Application. They include the following:

Additional Information Provided

1. 477 Congress Hotel – Curbside Valet Demand Analysis, dated October 8, 2021, by VHB, Inc. (Previously provided by email)

   This analysis was prepared utilizing data from the operations at the Godfrey Hotel in Boston for valet drop-off dwell times, runner times and staffing levels. That data was then applied to the 477 Congress Street location, adjusting for the number of rooms; length of travel for runners; estimated ride-share drop-offs; and estimated peak arrival times. This analysis showed that the curbside valet space is sized to accommodate the expected worst-case demand level (peak) without negatively impacting thru traffic on Congress Street.

2. Letter from the Downtown Boston, Business Improvement District (DBBID) Corp, dated October 7, 2021

   This letter expresses the positive experience DBBID has had with the Godfrey Boston valet parking and curbside management since the Hotel was opened in 2016. The DBBID has found that despite the heavy and complicated traffic flows in the area, the valet parking zone has provided "a significant improvement in the street's operations."

3. Email Correspondence from Sgt. Paul Petruccelli of the Massachusetts Transit Police Department

   Sargent Petruccelli's email recognizes the great job the Valet staff has done easing congestion and keeping traffic flowing for MBTA buses and Emergency vehicles through Washington Street despite busy holiday seasons and large sporting events.

We look forward to moving forward on this matter, and trust that City Staff has the additional information to move forward with a second Planning Board workshop.

If you have any questions or require additional information, please do not hesitate to contact me at 207-558-3662 or email me at dstairs@woodardcurran.com.

Sincerely,

WOODARD & CURRAN, INC.

Darrin Stairs, PE
Project Manager

cc: Marieke Thormann, Fathom Companies
David Lloyd, Archetype Architects
Jenn Connelly - VHB

Attachments:

- 477 Congress Hotel – Curbside Valet Demand Analysis, dated October 8, 2021 by VHB, Inc.
- Letter from the Downtown Boston, Business Improvement District Corp, dated October 7, 2021
- Email Correspondence from Sgt. Paul Petriccelli of the Massachusetts Transit Police Department

PN: 232868.00

477 Congress Hotel
Curbside Valet Demand

October 8, 2021

Demand Profile (Inputs and Assumptions)

- Hotel Size: 186 Keys
  - Based on Hotel Experience
    - Rooms turnover every 2.1 days (about 50 percent of rooms on any given day)
    - 25 to 30 percent drive-in valet
    - Approximately 1/3 in the peak hour
- Expected 10 Valet Drop-Offs during peak

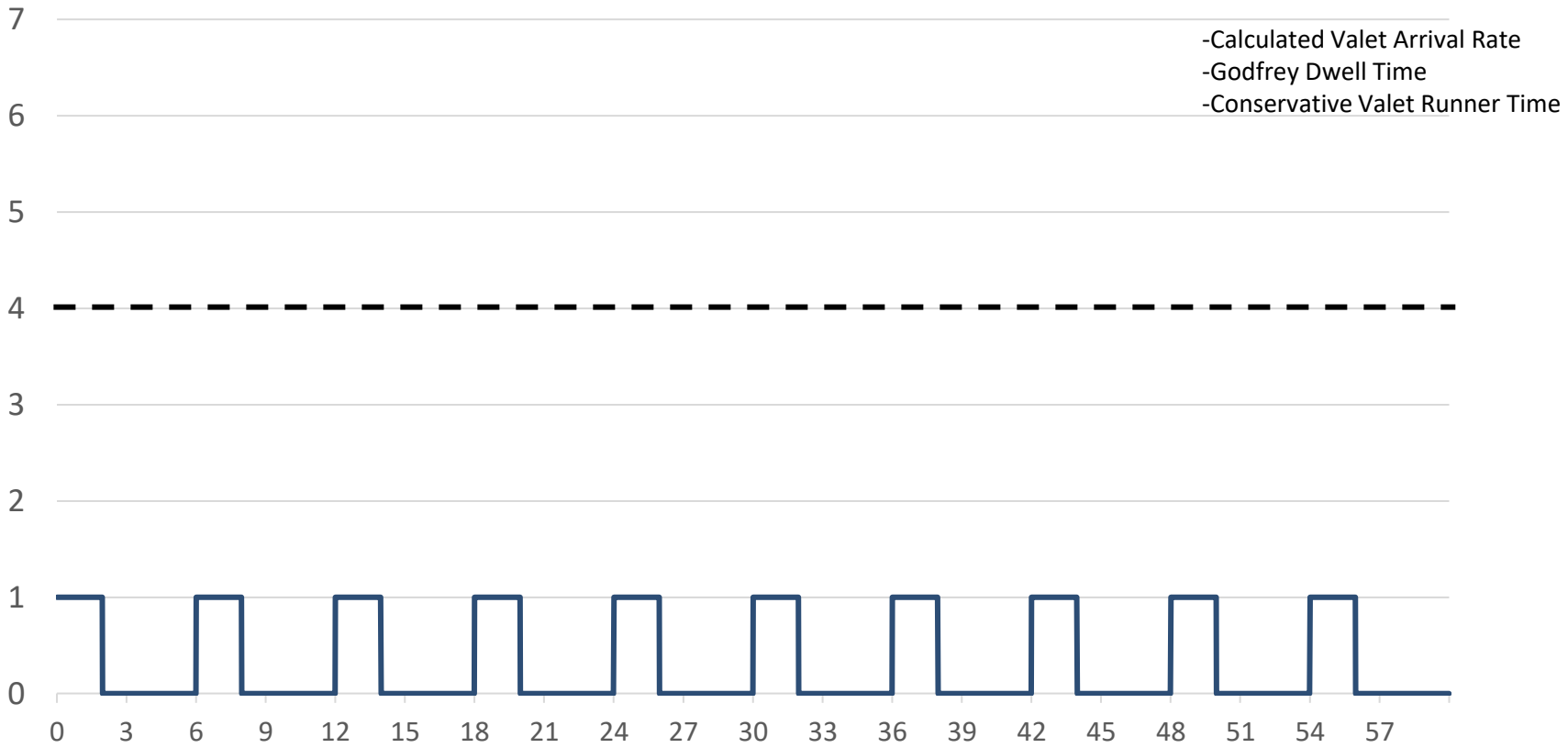
Demand Profile (Inputs and Assumptions)

- Comparable Hotel with Valet: The Godfrey Boston
  - Hotel Size: 242 Keys
  - During Friday peak check-in time, 11 vehicles were valeted
    - 6% of rooms would valet in peak period
    - 15 Vehicles non-valet
  - Valet Drop-Off arrived every 2.8 minutes on average and dwell for approximately 80 seconds
  - Other non-valets arrived every 2 minutes and dwelled for 45 seconds.
  - **Operation would function efficiently with a curb ambassador and a single valet runner – even under peak conditions.**

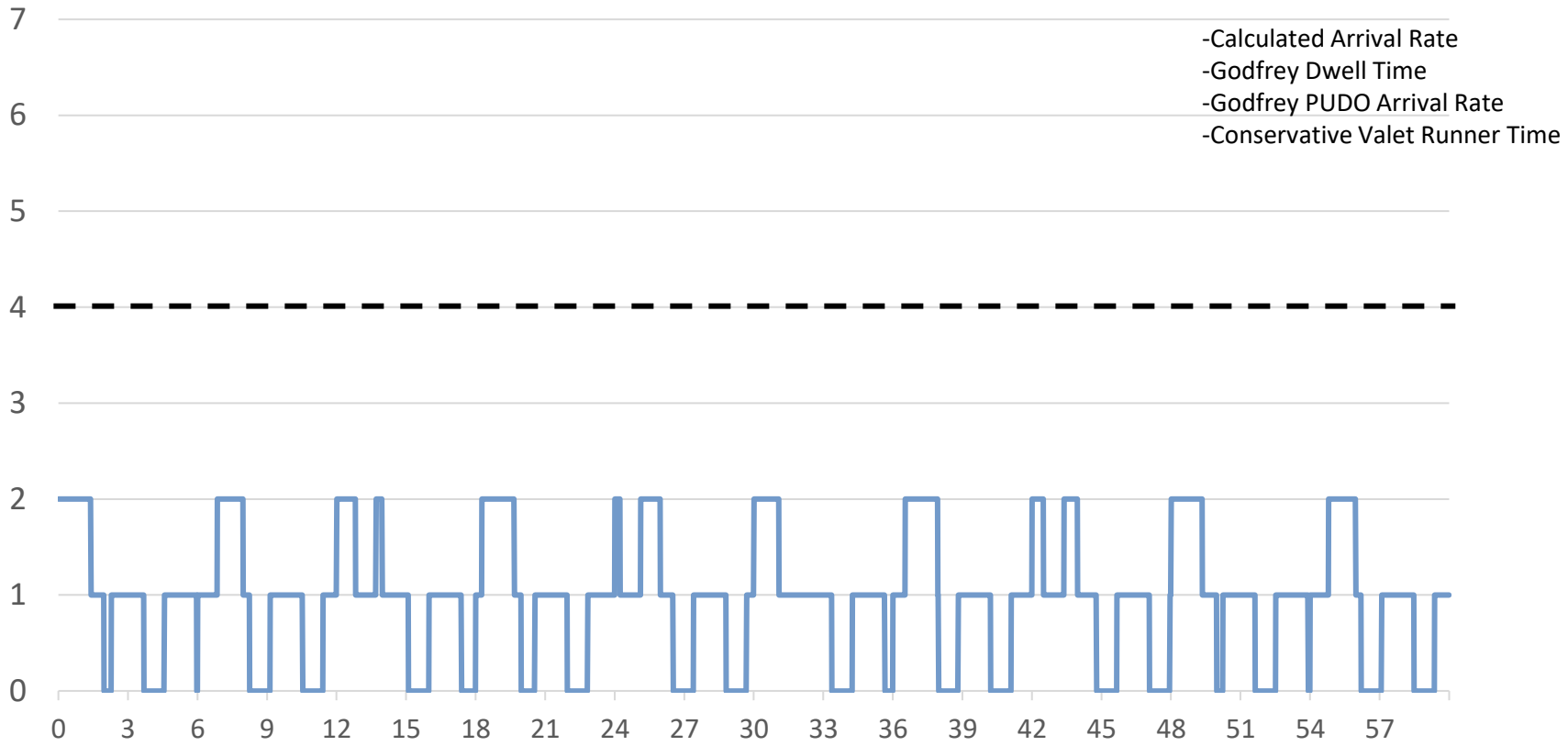
Summary Table

	Calculated Using Industry Standard (186 rooms)	Observed at Godfrey Hotel Boston (242 rooms)
Valet Drop-Off arrival Rate	Every 6 minutes	Every 4 minutes
Valet Dwell Times, 85th	-	1 minute 58 seconds
PU/DO Arrival Rate	-	Every 2 minutes 18 seconds
PU/DO Dwell Times, 85th	-	1 minute 24 seconds
Valet Runner Time	3 minutes 6 seconds (used 4 minutes in analysis)	-

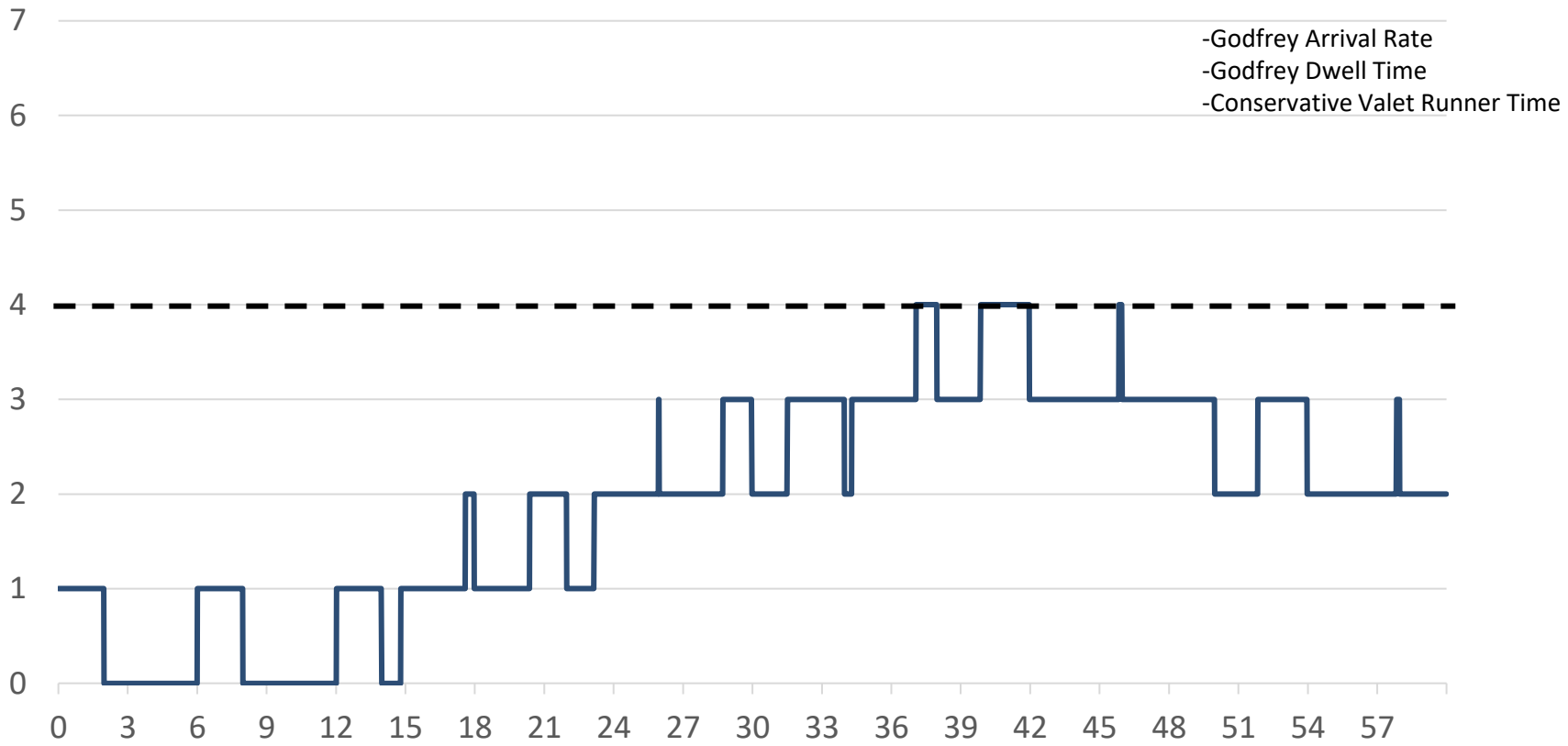
Valet Drop-Off Curb Usage
Average Arrivals and 85th Percentile Dwell Times – Typical Busy Period



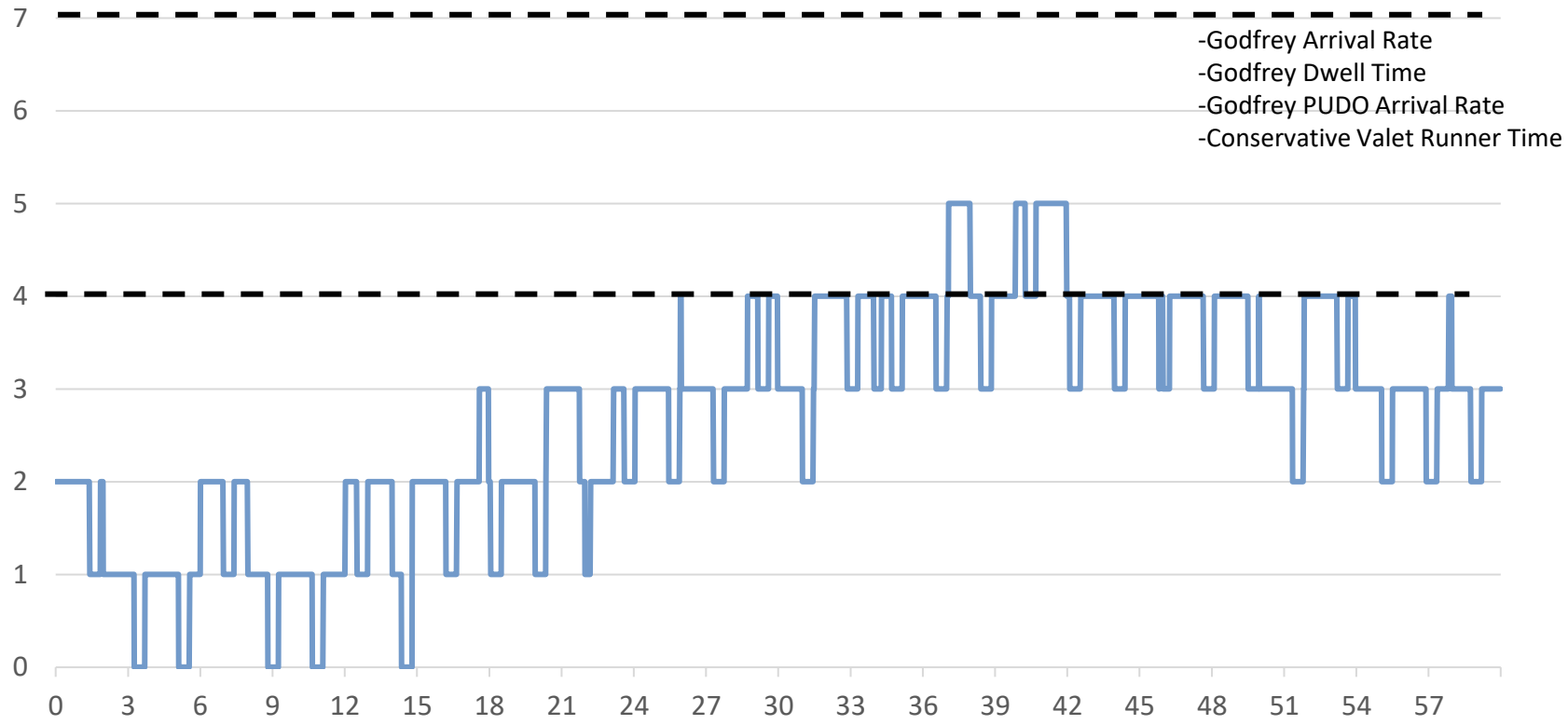
Valet Drop-Off & TNC PU/DO Curb Usage
Average Arrivals and 85th Percentile Dwell Times – Typical Busy Period



Valet Drop-Off Curb Usage
Frequent Arrivals and 85th Percentile Dwell Times – Stress Test



Valet Drop-Off & TNC PU/DO Curb Usage
Frequent Arrivals and 85th Percentile Dwell Times – Stress Test

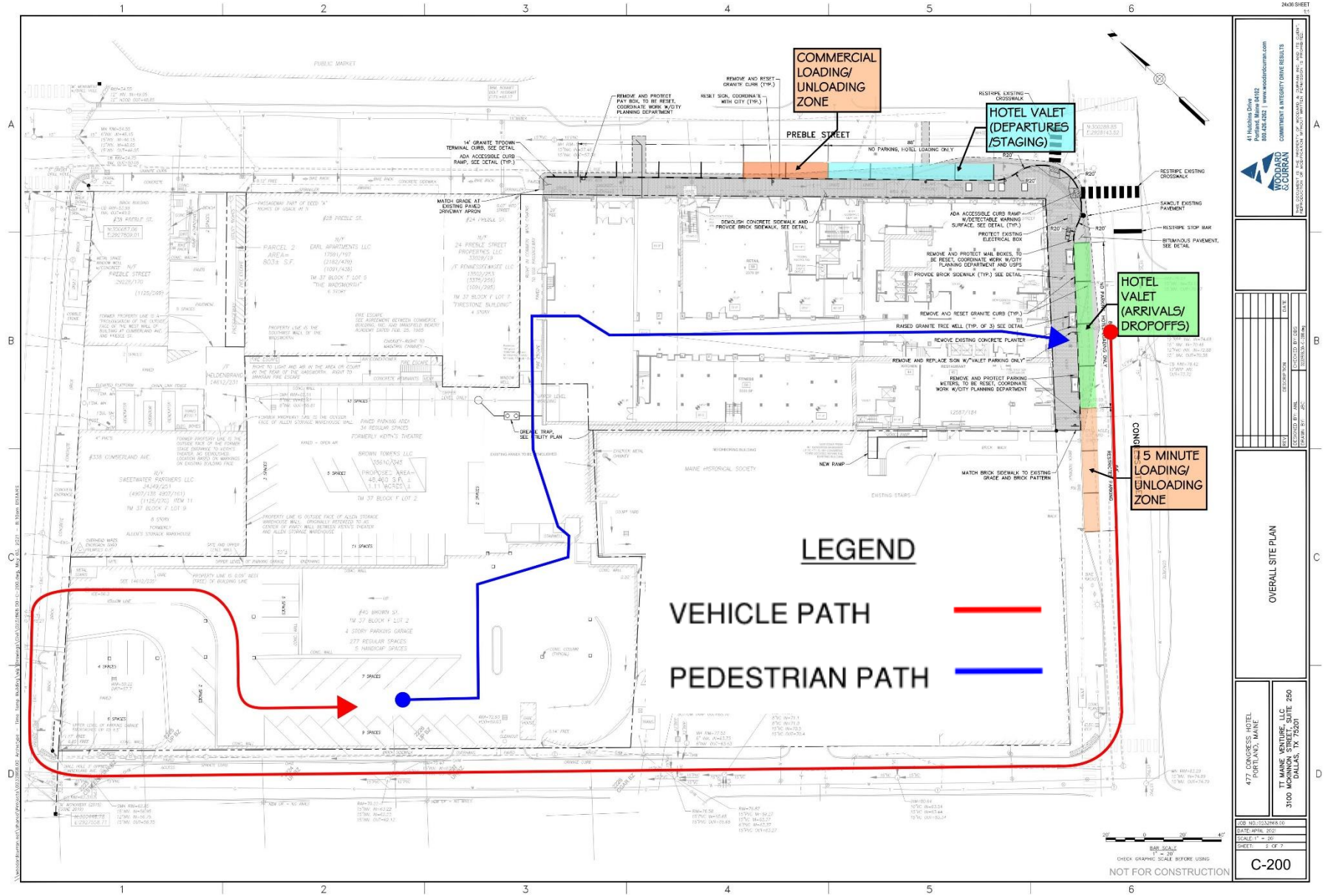


Conclusions

- The Proposed curbside valet space can accommodate seven vehicles at a time
- Runners can process one vehicle every 3-4 minutes
- Curb is sized appropriately to accommodate the expected worst-case demand level

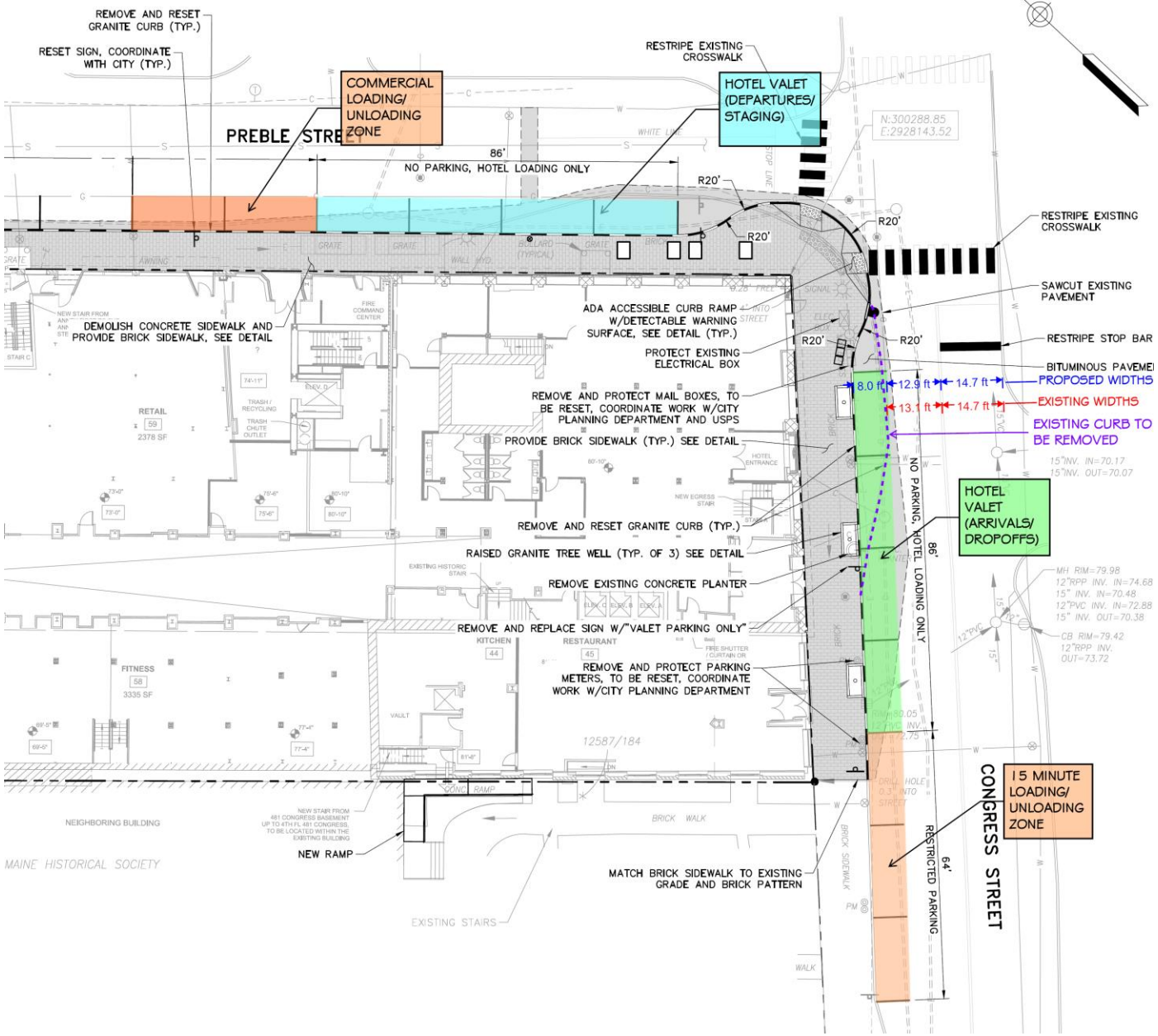
Hotel Demand Calculation - Appendix

- Vehicle travel time from drop-off zone to the garage
  - Distance Traveled = 1,000 feet
  - Velocity of vehicle = 10 mph = 14.67 feet per second
  - Time needed to travel = 68 seconds or **1 minute and 8 seconds**
- Runner travel time from garage back to drop-off zone
  - Distance traveled = 520 feet
  - Velocity of runner = 3 mph = 4.4 feet per second
  - Time needed to travel = 118 seconds or **1 minute and 58 seconds**
- Total time needed for a runner to drive to the garage and walk back to the curb is **3 minutes and 6 seconds**



Expected Valet Travel Path

477 Congress Street Hotel, Portland ME



Curb Details

477 Congress Street Hotel, Portland ME



Godfrey Curbside

477 Congress Street Hotel, Portland ME

Downtown Boston
Business Improvement District
Corporation

October 7, 2021

City of Portland Planning Board
389 Congress St
4th Floor
Portland, ME 04101

RE: Godfrey Hotel's valet parking request

Dear City of Portland Planning Board:

On behalf of the Downtown Boston Business Improvement District (DBBID), I would like to relay our positive experiences with the Godfrey Hotel's valet parking and curb management in Downtown Boston. The Godfrey is a highly valued and engaged member of the Downtown Boston community. We were fortunate to have the opportunity to meet with them, as they planned the Godfrey Hotel, and to support their project publicly. We have found them to be a strong partner since they opened in February 2016.

When we first met with the staff from the Godfrey Hotel, we had many questions about their proposed project. The hotel's location, on Washington Street, is a vital gateway to the Downtown Crossing Pedestrian Zone, one of the busiest pedestrian areas in the city. It is a hectic and complicated location at the edge of the pedestrian zone, around the corner from the Silver Line bus terminus, and a significant commercial loading and unloading site. More recently, the area has seen the addition of bike lanes that further complicate the traffic flow. We were excited about the new activity but wary of its impact on the street. Establishing a valet parking zone and the curb management that the Godfrey provides has been a significant improvement in the street's operations.

A key to the success of the valet parking area has been the excellent and consistent curbside management the hotel provides. The hotel brought the desired activation and vitality that we were hoping for when it re-opened. On average, the staff manages 40-45 valet cars, overnight, along with an average of 150 daily drop-offs/pickups. The smooth operation of the valet makes this corner work with this added activity. While our pedestrian traffic was reduced, we also appreciated the friendly presence of the valets on the street during the last year.

If you have any questions, don't hesitate to get in touch with me.

The Downtown Boston BID is a private not-for-profit corporation that provides supplemental services in Downtown Boston. Designed to benefit property owners, businesses, visitors, students, and residents, it is committed to achieving downtown's full potential as a premier economic center and vibrant mixed-use neighborhood.

Sincerely,

Rosemarie E. Sansone
President & CEO

Subject: Fwd: Question - Godfrey Valet Line
Date: Tuesday, October 12, 2021 at 8:09:10 AM Eastern Daylight Time
From: Larry Casillo
To: Marieke Thormann
Attachments: image002.jpg, image003.jpg, image001.gif

FYI- from the Sergeant in charge of the Downtown Boston Disctrict.

---------- Forwarded message ---------
From: **Petruccelli, Paul** <ppetruccelli@mbta.com>
Date: Tue, Oct 12, 2021 at 7:54 AM
Subject: Question - Godfrey Valet Line
To: Larry Casillo <larry.casillo@ohrllc.com>

V.P. Casillo,

Hello, we had a very busy Holiday weekend in the City with the Boston Marathon and Red Sox Championship Series. Traffic in the City is back to pre-pandemic levels with Red Sox, Bruins, Celtics and Theater District back in full swing. Your staff has done a great job on easing congestion and keeping traffic flowing for the MBTA Buses and Emergency Vehicles through Washington St. with the help of your valet line.

If you have any further questions or if I can be of any assistance you can reach out to me for any further discussion.

Than you,

Paul

Sergeant Petruccelli

Transit Police Department

240 Southampton Street

Boston, MA 02118

617-222-1270



www.massdot.state.ma.us\transit





From: Larry Casillo <larry.casillo@ohrllc.com>
Sent: Thursday, October 7, 2021 3:55 PM
To: Petruccelli, Paul <ppetruccelli@MBTA.com>
Subject: Question - Godfrey Valet Line

Sergeant Paul,

I hope you are well. I wanted to reach out to see if you could send me your opinion on how our Valet Line at The Godfrey Hotel operates from a police, emergency vehicles and MBTA Bus perspective? We have a strong presence on Washington street and knowing I do not hear any negatives from you I presume we are doing a good job.

Please let me know as it would be helpful for another project we will develop and eventually manage very similar to Godfrey Boston.

Larry Casillo
Vice President of Operations | East Coast

Oxford Hotels & Resorts, LLC

505 Washington Street | Boston, MA 02111

o. 857.957.0201

c. 617.634.2959

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--

Larry Casillo
Vice President of Operations | East Coast
Oxford Hotels & Resorts, LLC
505 Washington Street | Boston, MA 02111
o. 857.957.0201
c. 617.634.2959

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Via Electronic Mail

November 17, 2021

Kevin Kraft, Deputy Director
Planning & Urban Development Department
City of Portland
389 Congress Street, 4th Floor
Portland, ME 04101

Re: Time & Temperature Hotel – 477 Congress Street
Major Site Plan Review – Supplemental Materials

Kevin:

We are in receipt of your email dated November 1, 2021, responding to supplemental materials we provided on October 15th, in support of this Site Plan application. We understand that you met internally to discuss the supplemental materials on October 29th with representatives of Planning, DPW, Fire, Police, Parking, Transportation, and the City's third-party traffic engineer.

Your email expressed that the City is not supportive of the submitted proposal to control parking and traffic along the Congress Street frontage through the use of a valet operation for the Time & Temperature Hotel. Our position remains that the proposal we've put forward would have been the best solution for the control and management of this frontage and provide the least impact to local traffic. This position is supported by the additional analyses from our traffic consultant and other supporting documentation submitted to date as part of the Site Plan Application.

Despite our analyses and professional experience, City staff has continued to oppose the approach, although no alternative analyses or data to support these concerns has been presented. Per your email, the City's position is that the valet service should be located on the secondary (Preble) street, away from the Hotel's primary entrance. We want to reiterate again, that this is contrary to what we believe is the correct solution for the location. Nevertheless, we are reconciled to the prospect of locating the valet service on Preble Street as required by the City of Portland to allow the permitting process to move forward and have revised the on-street parking management plan accordingly and as shown on the attached drawing. This will include:

- Preble Street
    - The equivalent of eight (8) valet spaces along Preble Street – these will be operated depending on the weather. During mild weather, the forward spaces closer to the front entrance would be primarily used for arrivals. During inclement weather the spaces to the west will be more heavily used, with a secondary entrance developed at the former theater entrance in the Annex.
    - Two (2) commercial loading spaces will still be dedicated on Preble Street.

- Congress Street
    - We still request that the previous curb modifications are permitted, which allows for two additional spaces along the curb line near the historic front entrance of the building.
    - One (1) 5-minute ADA Valet space will be reserved near the corner.
    - Three (3) spaces restricted to 5-minute loading/unloading zone in front of the hotel's entrance.
    - The remaining three (3) spaces will be regular metered parking as currently designated by the City of Portland.

We believe this compromise will address the City's concerns with locating the valet service on Congress Street, while providing sufficient space for the inevitable rideshare drop offs that will endeavor to deposit guests near the front entrance. Per our previous submissions to you, we anticipate the rideshare proportion of arrivals will be in the range of 60-65% of guests and rideshare drivers will likely bring those arrivals to the address at the front entrance and will potentially create the traffic stoppages and double-parking it they are not provided with some reasonable zone to unload.

We look forward to moving forward on this matter, and trust that City Staff has the additional information to schedule the second Planning Board workshop as soon as possible.

If you have any questions or require additional information, please do not hesitate to contact me at (857) 957-0201 or email me at Larry.Casillo@OHRLLC.com.

Sincerely,

Larry Casillo

cc: Marieke Thormann, Fathom Companies
Darrin Stairs, Woodard & Curran, Inc.

Attachments:

- On-Street Parking Diagram 11/9/2021

PN: 232868.00

PREBLE STREET

CONGRESS STREET

86' VALET/HOTEL LOADING

44' COMMERCIAL LOADING ZONE

86' VALET/HOTEL LOADING

REMOVE AND RESET GRANITE CURB (TYP.)

RESET SIGN, COORDINATE WITH CITY (TYP.)

REMOVE AND PROTECT PAY BOX, TO BE RESET, COORDINATE WORK W/CITY PLANNING DEPARTMENT

14' GRANITE TIPDOWN TERMINAL CURB, SEE DETAIL

ADA ACCESSIBLE CURB RAMP, SEE DETAIL (TYP.)

MATCH GRADE AT EXISTING PAVED DRIVEWAY APRON

DEMOLISH CONCRETE SIDEWALK AND PROVIDE BRICK SIDEWALK, SEE DETAIL

RESTRIPE EXISTING CROSSWALK

ADA ACCESSIBLE CURB RAMP W/DETECTABLE WARNING SURFACE, SEE DETAIL (TYP.)

PROTECT EXISTING ELECTRICAL BOX AND SIGNAL POLE

REMOVE AND PROTECT MAIL BOXES, TO BE RESET, COORDINATE WORK W/CITY PLANNING DEPARTMENT AND USPS

PROVIDE BRICK SIDEWALK (TYP.) SEE DETAIL

REMOVE AND RESET GRANITE CURB (TYP.)

RAISED GRANITE TREE WELL (TYP. OF 3) SEE DETAIL

REMOVE EXISTING CONCRETE PLANTER

REMOVE AND REPLACE SIGN W/"VALET PARKING ONLY"

REMOVE AND SALVAGE PARKING METERS, DELIVER TO CITY PUBLIC WORKS DEPARTMENT

RESTRIPE EXISTING CROSSWALK

SAWCUT EXISTING PAVEMENT

BITUMINOUS PAVEMENT, SEE DETAIL

22' 5 MIN. ADA VALET SPACE

64' 5 MINUTE LOADING/UNLOADING

64' METERED PARKING

GREASE TRAP, SEE UTILITY PLAN

NEW RAMP

MATCH BRICK SIDEWALK TO EXISTING GRADE AND BRICK PATTERN

EXISTING STAIRS

EXISTING ANNEX TO BE DEMOLISHED

NEW STAIR FROM 441 CONGRESS BASEMENT UP TO 4TH FLOOR MAINE HISTORICAL SOCIETY TO BE LOCATED WITHIN THE EXISTING BUILDING

PUBLIC MARKET

#38 PREBLE ST.

#28 PREBLE ST.

#24 PREBLE ST.

#338 CUMBERLAND AVE.

#45 BROWN ST.

#41 BROWN ST.

PARCEL 2 AREA= 803± S.F.

N/F EARL APARTMENTS LLC 17591/197 (2182/479) (1091/438) TM 37 BLOCK F LOT 5 "THE WADSWORTH" 6 STORY

N/F 24 PREBLE STREET PROPERTIES LLC 33029/19 /F PENNESSEEWASEE LLC 13502/253 (3375/256) (1091/295) TM 37 BLOCK F LOT 7 "FIRESTONE BUILDING" 4 STORY

N/F PREBLE STREET 29228/170 (1125/269)

/F HELDENBRAND 14612/231

N/F SWEETWATER PARTNERS LLC 34349/251 (4907/138 4907/161) (1125/270) ITEM 11 TM 37 BLOCK F LOT 9 8 STORY FORMERLY ALLEN'S STORAGE WAREHOUSE

BROWN TOWERS LLC 35610/345 PROPOSED AREA= 48,460 S.F. ± 1.11 ACRES ± TM 37 BLOCK F LOT 2

#45 BROWN ST. TM 37 BLOCK F LOT 2 4 STORY PARKING GARAGE 277 REGULAR SPACES 5 HANDICAP SPACES

N/F MHS, INC. 10467/207 (4367/59 4373/30) TM 37 BLOCK F LOT 12 #41 BROWN ST.

FORMER PROPERTY LINE IS A "PROLONGATION OF THE OUTSIDE FACE OF THE WEST WALL OF BUILDING AT CUMBERLAND AVE. AND PREBLE ST.

PROPERTY LINE IS THE SOUTHWST WALL OF THE WADSWORTH

FORMER PROPERTY LINE IS THE OUTSIDE FACE OF ALLEN STORAGE WAREHOUSE WALL

PROPERTY LINE IS OUTSIDE FACE OF ALLEN STORAGE WAREHOUSE WALL, ORIGINALLY REFEREED TO AS CENTER OF PARTY WALL BETWEEN KEITH'S THEATER AND ALLEN STORAGE WAREHOUSE

PROPERTY LINE IS 0.09' WEST (FREE) OF BUILDING LINE

FORMER PROPERTY LINE IS THE OUTSIDE FACE OF THE FORMER STAGE ENTRANCE TO KEITH'S THEATER, NO DEMOLISHED. LOCATION BASED ON MARKINGS ON EXISTING BUILDING FACE

PASSAGEWAY PART OF DEED "A" RIGHTS OF USAGE IN IT

FIRE ESCAPE SEE AGREEMENT BETWEEN COMMERCE BUILDING, INC. AND MANSFIELD BEAUTY ACADEMY DATED FEB. 25, 1985

RIGHT TO LIGHT AND AIR IN THE AREA OR COURT IN THE REAR OF THE WADSWORTH. RIGHT TO MAINTAIN FIRE ESCAPE

CHIMNEY-RIGHT TO MAINTAIN CHIMNEY

RIGHT IN COMMON WITH OTHERS TO USE PASSAGEWAY

N:300888.85
E:2928143.52

N:300657.06
E:2927809.01

N:300446.78
E:2927558.71

TBM: BONNET BOLT HYDRANT ELEV.=68.17

"M" MONUMENT w/DRILL HOLE RIM=54.55 12" INV. IN=49.05 12" HOOD OUT=48.85

MH RIM=54.55 6"INV. IN=48.15 15"INV. IN=46.15 12"INV. IN=48.05 15"INV. OUT=46.05

CB RIM=54.75 INV. OUT=50.05

MH RIM=57.46 15"INV. IN=57.46 15"INV. OUT=57.16

MH RIM=79.57 15"INV. IN=70.17 15"INV. OUT=70.07

MH RIM=79.98 12"RPP INV. IN=74.68 15" INV. IN=70.48 12"PVC INV. IN=72.88 15" INV. OUT=70.38

CB RIM=79.42 12"RPP INV. OUT=73.72

MH RIM=83.29 15"INV. IN=74.89 15"INV. OUT=74.79

CB RIM=77.10 12" INV. IN=65.80 BOTTOM TRAP OUT=65.70

MH RIM=77.53 6" INV. IN=63.73 6"INV. OUT=63.63

RIM=77.91 8"VC IN=71.1 8"VC IN=71.0 15"VC IN=70.5 15"VC OUT=70.4

RIM=76.58 15"PVC IN=65.68 15"PVC OUT=65.68

RIM=76.87 15"PVC IN=69.27 15"VC IN=63.37 6"PVC IN=63.37 6"PVC OUT=63.27

RIM=80.64 10"VC IN=63.54 15"VC IN=63.44 15"VC OUT=63.34

SMH RIM=62.85 15"INV. IN=56.95 12"INV. IN=56.75 15"INV. OUT=56.75

RIM=70.22 15"INV. IN=63.22 15"INV. IN=62.22 15"INV. OUT=62.12

RIM=70.40 15"INV. IN=63.20 15"INV. OUT=63.10

RIM=72.93 H2O=69.03

SMH RIM=59.26 ICE=56.3

RIM=59.22 DIRT=57.7

SMH RIM=63.51 8"INV. IN=63.51 8"INV. OUT=55.81

RIM=62.31

RIM=80.05 12"PVC INV. IN=75.25 12"PVC INV. OUT=75.15

RIM=79.75

RIM=79.61

RIM=79.57

RIM=79.54

RIM=79.51

RIM=79.47

RIM=79.44

RIM=79.41

RIM=79.37

RIM=79.34

RIM=79.31

RIM=79.27

RIM=79.24

RIM=79.21

RIM=79.17

RIM=79.14

RIM=79.11

RIM=79.07

RIM=79.04

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RIM=78.34

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Via Electronic Mail

December 22, 2021

Kevin Kraft, Deputy Director
Planning & Urban Development Department
City of Portland
389 Congress Street, 4th Floor
Portland, ME 04101

Re: Time & Temperature Hotel – 477 Congress Street
Major Site Plan Review – Supplemental Materials

Kevin:

We are in receipt of your email dated December 13, 2021, responding to supplemental materials we provided on November 19th, in support of this Site Plan application. Your email outlined several revisions proposed by City staff to the plan that we submitted; they are repeated below for reference.

The City's proposal includes the following:

- *No curb changes on Congress Street*
  - *Adjusting the current curb configuration on Congress creates potential conflicts with cars turning right onto Congress from Preble Street.*
  - *Center Street intersects with Congress Street in this location, creating a "T" intersection making it challenging for vehicles that may diverge into the eastbound traffic lane.*
- *Add 2, 15-minute ADA spaces on Congress Street by removing existing metered spaces. Totals 44 feet.*
- *Consider shifting Preble Street loading area towards Congress or Cumberland Street. Delivery trucks are not going to maneuver between two valet areas.*

Note, that in the applicant's November 19th response the proposed layout requested 86 feet of curb space on Congress Street. The City is proposing 44 feet; A 42-foot difference.

Our position remains that the proposal we originally put forward on May 3, 2021 and supplemented on August 2nd and October 15th, that requested valet operations on Congress Street, would have been the best solution for the control and management of this frontage and provide the least impact to local traffic. This position is supported by the additional analyses from our traffic consultant and other supporting documentation submitted to date as part of the Site Plan Application (VHB study dated October 8, 2021).

Despite our analyses and professional experience, City staff has continued to oppose the approach, although no alternative analyses or data to support these concerns has been presented. Per your email, the City's position is that the valet service should be located on the secondary (Preble) street, away from the Hotel's primary entrance. We want to reiterate again, that this is contrary to what we believe is the correct solution for the location.

Nevertheless, we are reconciled to locating the valet service on Preble Street as required by the City of Portland to allow the permitting process to move forward. Taken with the additional revisions required by the City in your

December 13 email, we have revised the on-street parking management plan as shown on the attached drawing. This will include:

- Preble Street
    - The equivalent of eight (8) valet spaces along Preble Street – these will be operated depending on the weather. During mild weather, the forward spaces closer to the front entrance would be primarily used for arrivals. During inclement weather the spaces to the west will be more heavily used, with a secondary entrance developed at the former theater entrance in the Annex.
    - Two (2) commercial loading spaces will still be dedicated on Preble Street. These spaces are located between the two (2) valet areas to match the existing commercial loading configuration with metered spaces on Preble Street and will allow for direct access to the hotel trash/laundry access adjacent to the commercial loading spaces.
- Congress Street
    - As requested by the City, we have removed the proposed curb modifications that would have allowed for two additional spaces near the historic front entrance of the building.
    - In lieu of the two ADA drop-off spaces indicated on the plan the City provided on December 13, we are proposing that the two (2) spaces be time-restricted Hotel loading/unloading spaces. The time restriction and space designation will be as agreed upon by City staff and Applicant.
    - The remaining three (3) spaces will be regular metered parking as currently designated by the City of Portland.

We believe this compromise will address the City's concerns with locating the valet service on Congress Street, while providing some accommodation for the inevitable rideshare drop offs that will attempt to deposit guests near the front entrance. Per our previous submissions to you, we anticipate the rideshare proportion of arrivals will be in the range of 60-65% of guests and rideshare drivers will likely bring those arrivals to the address at the front entrance and will potentially create traffic stoppages and double-parking given the limited loading/unloading spaces allowable by the City of Portland. As requested by the City, there will be no valet operation or staff at the Congress Street frontage or entrances to manage these unwanted stoppages.

We look forward to moving forward on this matter, and trust that City Staff has the additional information to schedule the next meeting as a Public Hearing with the Planning Board as soon as possible.

If you have any questions or require additional information, please do not hesitate to contact me at (857) 957 0201 or email me at larry.casillo@OHRLLC.com.

Sincerely,

Larry Casillo

cc: Marieke Thormann, Fathom Companies
Darrin Stairs, Woodard & Curran, Inc.

Attachments: On-Street Parking Diagram 12/22/2021
PN: 232868.00

PUBLIC MARKET

"W" MONUMENT w/DRILL HOLE

TBM: BONNET BOLT HYDRANT ELEV.=68.17

PREBLE STREET

REMOVE AND PROTECT PAY BOX, TO BE RESET, COORDINATE WORK W/CITY PLANNING DEPARTMENT

REMOVE AND RESET GRANITE CURB (TYP.)

RESET SIGN, COORDINATE WITH CITY (TYP.)

14' GRANITE TIPDOWN TERMINAL CURB, SEE DETAIL

ADA ACCESSIBLE CURB RAMP, SEE DETAIL (TYP.)

86' VALET/HOTEL LOADING

44' COMMERCIAL LOADING ZONE

86' VALET/HOTEL LOADING

WHITE LINE

STOP LINE

RESTRIPE EXISTING CROSSWALK

N:300288.85
E:2928143.52

R20.0'

R45'

RESTRIPE EXISTING CROSSWALK

SAWCUT EXISTING PAVEMENT

BITUMINOUS PAVEMENT, SEE DETAIL

3" OFFSET DRILL HOLE

ELEC. BOX

GRANITE CURB

SIGNAL POLE

CONCRETE

CONC. WALL

WALK SIGNAL

ONE WAY SIGN

BRICK BUILDING

#38 PREBLE ST.

N:300657.06
E:2927809.01

BENCH

CONC.

DIRT

GM

BIKE RACK

RAMP w/HANDRAIL

2 SPACES

CONC. WALL

PAVED

BRICK

METAL GRATE WINDOW WELL w/CONCRETE

N/F
PREBLE STREET
29228/170
(1125/269)

VAULT

5 SPACES

PAVEMENT

COBBLE STONE

FORMER PROPERTY LINE IS A "PROLONGATION OF THE OUTSIDE FACE OF THE WEST WALL OF BUILDING AT CUMBERLAND AVE. AND PREBLE ST.

2 SPACES

PAVED

BRICK

ELEVATED PLATFORM

CHAIN LINK FENCE

POST

1'DIA. MH

GENERATOR

GENERATOR

GENERATOR

TRANS. #202.1

ELEC. BOXES

A/C

4" PVC'S

CONCRETE

CONCRETE ENTRANCE

#338 CUMBERLAND AVE.

FORMER PROPERTY LINE IS THE OUTSIDE FACE OF THE FORMER STAGE ENTRANCE TO KEITH'S THEATER, NO DEMOLISHED. LOCATION BASED ON MARKINGS ON EXISTING BUILDING FACE

N/F
SWEETWATER PARTNERS LLC
34349/251
(4907/138 4907/161)
(1125/270) ITEM 11
TM 37 BLOCK F LOT 9

8 STORY
FORMERLY
ALLEN'S STORAGE WAREHOUSE

PROPERTY LINE IS OUTSIDE FACE OF ALLEN STORAGE WAREHOUSE WALL. ORIGINALLY REFEREED TO AS CENTER OF PARTY WALL BETWEEN KEITH'S THEATER AND ALLEN STORAGE WAREHOUSE

OVERHEAD WIRES ENCROACH ONTO PREMISES 0.3'

GATE AND UPPER LEVEL WALL

GATE

UPPER LEVEL OF PARKING GARAGE

OVERHANG

SEE 14612/235

GATE

PROPERTY LINE IS 0.09' WEST (FREE) OF BUILDING LINE

METAL STAIRS

YELLOW LINE

BRICK

GRANITE CURB

UPPER LEVEL OF PARKING GARAGE ENCROACHES UP TO 4.5'

1.17' FREE

0.85' FREE

CONC. WALL

CONCRETE

DRILL HOLE 3' OFFSET TO CUMBERLAND AVE. ON BROWN STREET LINE

N04°20'49"E
32.86'

"M" MONUMENT (2015) (GONE 2019)

N:300446.78
E:2927558.71

2225 CSTEEL BZ

OHW

NEW UP – NO WIRES

4 SPACES

PAVED

6 SPACES

9 SPACES

7 SPACES

5 SPACES

2 SPACES

3 SPACES

11 SPACES

13 SPACES

5 SPACES

PAVED – OPEN AIR

PAVED PARKING AREA
34 REGULAR SPACES
FORMERLY KEITH'S THEATRE

BROWN TOWERS LLC
35610/345

PROPOSED AREA=
48,460 S.F. ±
1.11 ACRES ±

TM 37 BLOCK F LOT 2

#45 BROWN ST.
TM 37 BLOCK F LOT 2
4 STORY PARKING GARAGE
277 REGULAR SPACES
5 HANDICAP SPACES

N/F
MHS, INC.
10467/207
(4367/59 4373/30)
TM 37 BLOCK F LOT 12
#41 BROWN ST.

UP

S 90°00'00"E
32.86'

2226 UP BZ

2224 UP BZ

2222 UP BZ

2228 CGAR BZ

1.56'

4" CLEANOUT

0.14' FREE

GATE HOUSE

TRANS.

CONC. COLUMN (TYPICAL)

PAVED ACCESS

GRANITE CURB

BRICK SIDEWALK

OVERHANG

PAVED

BRICK

GRANITE CURB

OHW

NEW UP – NO WIRES

#28 PREBLE ST.

N/F
EARL APARTMENTS LLC
17591/197
(2182/479)
(1091/438)
TM 37 BLOCK F LOT 5
"THE WADSWORTH"
6 STORY

PASSAGEWAY PART OF DEED "A" RIGHTS OF USAGE IN IT

UTILITY RIGHTS

FIRE ESCAPE

PASSAGEWAY

PROPERTY LINE IS THE SOUTHWST WALL OF THE WADSWORTH

FIRE ESCAPE SEE AGREEMENT BETWEEN COMMERCE BUILDING, INC. AND MANSFIELD BEAUTY ACADEMY DATED FEB. 25, 1985

CHIMNEY–RIGHT TO MAINTAIN CHIMNEY

RIGHT TO LIGHT AND AIR IN THE AREA OR COURT IN THE REAR OF THE WADSWORTH. RIGHT TO MAINTAIN FIRE ESCAPE

FIRE ESCAPE

AIR CONDITIONER

FIRE ESCAPE

CONCRETE REMNANTS

VENT

WINDOW WELL

CONC. WALL

UPPER LEVEL ONLY

UPPER LEVEL BUILDING

/F HELDENBRAND
14612/231

#24 PREBLE ST.

N/F
24 PREBLE STREET PROPERTIES LLC
33029/19
/F PENNESSEEWASEE LLC
13502/253
(3375/256)
(1091/295)
TM 37 BLOCK F LOT 7
"FIRESTONE BUILDING"
4 STORY

MATCH GRADE AT EXISTING PAVED DRIVEWAY APRON

0.07' INTO STREET

1.29' FREE

RIGHT IN COMMON WITH OTHERS TO USE PASSAGEWAY

PAVED

PAY BOX

CONCRETE OVERHANG

GRATE

BRICK

GRATE

AWNING

GRATE

GRATE

BOLLARD (TYPICAL)

WALL HYD.

GRATE

BRICK

EAVES OVERHANG

NEW STAIR FROM ANNEX TO BE DEMOLISHED

UPPER LEVEL BUILDING

DEMOLISH CONCRETE SIDEWALK AND PROVIDE BRICK SIDEWALK, SEE DETAIL

FIRE CONNECTION, TYP.

OVERHANG

ADA ACCESSIBLE CURB RAMP W/DETECTABLE WARNING SURFACE, SEE DETAIL (TYP.)

0.28' FREE

0.4' INTO STREET

SIGNAL

ELEC. BOX

PROTECT EXISTING ELECTRICAL BOX AND SIGNAL POLE

#22 PREBLE ST.

TM 37 BLOCK F LOT 23

#477 CONGRESS ST.

REMOVE AND PROTECT MAIL BOXES, TO BE RESET, COORDINATE WORK W/CITY PLANNING DEPARTMENT AND USPS

PROVIDE BRICK SIDEWALK (TYP.) SEE DETAIL

R40.0'

SEWER LINE PER PLAN "PLAN SHOWING PROPERTY OWNED BY PORTLAND SAVINGS BANK" DEC. 1921 BY E.C. JORDAN

RETAIL
2378 SF

BUILDING FOOTPRINT
34,935 SF

4 STORY

MAINE VENTURE LLC
5346/60

REMOVE AND RESET GRANITE CURB (TYP.)

RAISED GRANITE TREE WELL (TYP. OF 3) SEE DETAIL

REMOVE EXISTING CONCRETE PLANTER

CONC. PLANTER

R20.0'

LOADING/UNLOADING ZONE

40'

REMOVE AND REPLACE SIGN W/"VALET PARKING ONLY"

PROPOSED AREA=
6,359 SF
0.73 ACRES ±

2 STORY
FORMERLY
KEITH'S THEATRE LOBBY

EXISTING HISTORIC STAIR

KITCHEN
44

RESTAURANT
45

FIRE SHUTTER (TYP.)

REMOVE AND SALVAGE PARKING METERS, DELIVER TO CITY PUBLIC WORKS DEPARTMENT

PATCH/REPAIR (NOT INCLUDING ROOF TOP FAN)

IM 37 BLOCK F LOT 18

1 STORY

4 STORY

VAULT

FITNESS
59
3335 SF

12587/184

PM

DRILL HOLE 0.3' INTO STREET

64' METERED PARKING

CONC. RAMP

BRICK WALK

NEW RAMP

MATCH BRICK SIDEWALK TO EXISTING GRADE AND BRICK PATTERN

EXISTING STAIRS

BRICK SIDEWALK

WALK

CONGRESS STREET

CONCRETE

BIKE RACKS

VAULT

CONC. PLANTER

ELEC. BOX

GREASE TRAP, SEE UTILITY PLAN

EXTERIOR METAL CHIMNEY

FORMER CATCH BASIN, PIPE APPARENTLY PLUGGED

EXISTING ANNEX TO BE DEMOLISHED

25540/239

NEIGHBORING BUILDING
(697/343)

N/F
MAINE HISTORICAL SOCIETY
TM 37 BLOCK F LOT 14
#483 CONGRESS ST.

3 STORY

NEW STAIR FROM #477 CONGRESS BASEMENT UP TO 4TH FLOOR TO BE LOCATED WITHIN THE EXISTING BUILDING

COURT YARD

STAIRWELL

CONC. WALL

GM

EMERGENCY GENERATOR

METAL FENCE

2.20'

BAR SCALE
1" = 20'
CHECK GRAPHIC SCALE BEFORE USING

20' 0 20' 40'

NOT FOR CONSTRUCTION

41 Hutchins Drive
Portland, Maine 04102
800.426.4262 | www.woodardcurran.com

COMMITMENT & INTEGRITY DRIVE RESULTS

WOODARD & CURRAN

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REV	DESCRIPTION	DATE
A	RESPONSE TO CITY COMMENTS	12/22/2021

DESIGNED BY: ANL
DRAWN BY: JBC
CHECKED BY: DBS
02.232868.00-C-200.dwg

OVERALL SITE PLAN

477 CONGRESS HOTEL
PORTLAND, MAINE

TT MAINE VENTURE, LLC
3100 MCKINNON STREET, SUITE 250
DALLAS, TX 75201

JOB NO.:02.232868.00
DATE: DECEMBER 22, 2021
SCALE: 1" = 20'
SHEET: 2 OF 7

C-200

\\woodardcurran.net\shared\Projects\02.232868.00 Archetype – Time, Temp, Building\Wip\Drawings\Civil\02.232868.00-C-200.dwg, Dec 23, 2021 – 1:14pm, DSTAIRS

COMMITMENT & INTEGRITY
DRIVE RESULTS

41 Hutchins Drive
Portland, Maine 04102
www.woodardcurran.com

T 800.426.4262
T 207.774.2112
F 207.774.6635

Via Electronic Mail

January 13, 2022

Charles Tetelman, Planner
Planning & Urban Development Department
City of Portland
389 Congress Street, 4th Floor
Portland, ME 04101

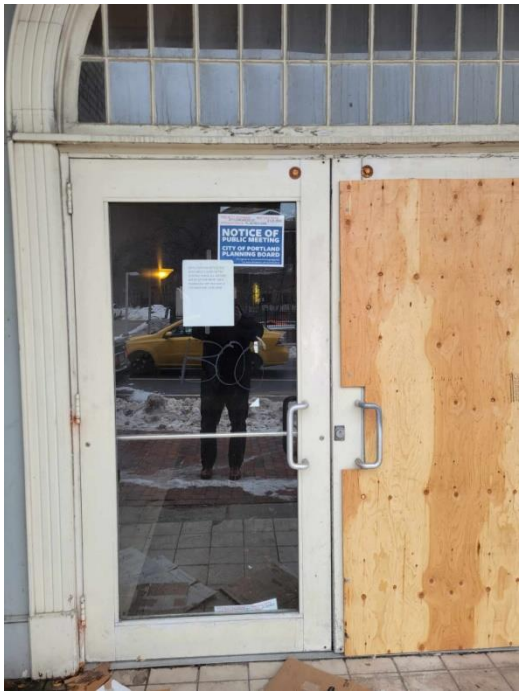
Re: Time & Temperature Hotel – Notice of Public Meeting Certification

Dear Charles:

I, Darrin Stairs, PE hereby certify that a notice of neighborhood meeting sign was posted from 01/13/22 to 01/25/22 prior to the public hearing held on 01/25/22 for the proposed project PL-001003-2020, located at 477 CONGRESS ST.

Photo documentation of sign in situ:









Sincerely,

WOODARD & CURRAN, INC.

Darrin Stairs, PE
Project Manager

PN: 232868.00

TIME & TEMPERATURE BUILDING

MAJOR SITE PLAN

477 Congress Street
481 Congress Street
22 Preble Street

Portland, ME

41 Hutchins Drive
Portland, ME 04102
800-426-4262

woodardcurran.com
COMMITMENT & INTEGRITY DRIVE RESULTS

0232868.00
TT Maine Venture

April 2021

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1. APPLICATION CHECKLIST

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 X NA	**Project Description** • Cover letter with detailed project description
Yes X NA	**Completed Checklist** (this document)
Yes X NA	**Evidence of Right, Title, and Interest** • Deeds, leases, or purchase and sales agreements
Yes NA X	**Evidence of State or Federal Approvals** • Permits or letters of non-jurisdiction, if applicable
Yes X NA	**Zoning Assessment** (see Zoning Assessment Table) Summary of compliance with use and dimensional standards of the land use code
Yes X 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 X 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 X NA	**Waiver Requests** (see Waiver Table) • Written request for waiver describing request and compliance with applicable waiver standards
Yes X NA	**Financial Capability** • Letter or evidence from a financial institution or third party verifying financial capacity to undertake project
Yes X 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 X NA	**Impact on Surrounding Street Systems (14-14.6.1(A))** ● Describe incremental volume of traffic impacts and mitigation measures. If needed
Yes X 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 X	**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 X	**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 X	**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 X	**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 X	**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 X 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 X 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 X 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 X 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 X 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 X	**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 X	**Shadows (14-14.6.4(B)), if applicable** ● Provide shadow analysis of impacts on publicly accessible open space (Technical Manual, Section 11)
Yes NA X	**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 X	**View Corridors (14-14.6.4(D)), if applicable** ● Describe any protection of designated view corridors (Portland Design Manual, Appendix. 1)
Yes X 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 X	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 X 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 X 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 X NA	Zone-Related Design Standards (14-14.6.4(I)) ● Address any applicable design review standards by zone, including compliance with Design Manual

2. APPLICATION FEES

The application fee has been provided to the Planning Department.

- Major Site Plan 100,000 SF to 200,000 SF $4,000

3. PROJECT SUMMARY

On behalf of TT Maine Venture, LLC (Applicant), or its assigns, Woodard & Curran (W&C) is submitting a Major Site Plan Application to renovate the properties located at 477-481 Congress Street and 22 Preble Street. A letter authorizing Woodard & Curran to act as the agent on behalf of the Applicant is attached to this Section. This application has been prepared in accordance with the City of Portland's Land Use Code, as amended through 3/15/2021, and the applicable sections of the City of Portland Design and Technical Manuals. A location map and tax map are attached. The proposed work is shown on the drawings included with this application.

3.1 PROJECT SITE & BACKGROUND

The project is located on land identified by the City Tax Assessor as Tax Map 037, Lots F002 and F022.

As noted above, this project is submitted for Site Plan Approval by the City of Portland. The project's size and scale qualify it for a **Major Site Plan** that will be reviewed and approved by the Planning Board.

The project is in the City's B-3 Zone and is included in the Congress Street Historic District. The Time & Temperature Tower and the Preble Street buildings are identified as "Contributing Structures" to the Historic District. In addition, The Longfellow House and Maine Historical Society Library that abut the property have Landmark status.

The building frontage along Congress Street is within the Pedestrian Activities District Overlay Zone (PAD) and Preble Street is a PAD Encouragement Area.

The current land use designations for 477-481 Congress Street are approximately 123,000 square feet of office and 2,600 square feet of bank. The current land use for 22 Preble Street is approximately 50,000 square feet of office and retail. The gross square footage of the buildings, including basements and sub basements, is 202,000 square feet.

3.2 PROPOSED PROJECT

The project includes interior and exterior renovations to the buildings at 477-481 Congress Street and 22 Preble Street. The planned improvements are described in more detail below.

Interior Building Renovations

The project includes the conversion of 477 Congress Street into a 196-room hotel and associated amenity spaces; new retail (approx. 4,700 SF); rooftop bar (approx. 5,100 SF) and restaurant (approx. 2,260 SF). The restored lobby and entry from Congress Street will feature the hotel check-in, interior access to a future restaurant, and a grab-and-go store. Retail spaces will be accessed from Preble Street.

The project consists of four, 32,000 SF, lower levels that will include 3 kitchens, a ball room, the hotel lobby, hotel rooms, mechanical rooms, and retail spaces. The ten-floor (8,200 SF per floor) tower above the fourth floor will be hotel rooms and a roof deck bar.

Proposed Exterior Renovations

Because the buildings are within the Congress Street Historic District, a separate application has been made to the Historical Preservation Board by Archetype Architects for the proposed exterior renovations. The project will also apply for Historic Tax Credits and therefore will also be reviewed by the Maine Historic Preservation Commission and the National Park Service.

The proposed exterior improvements are summarized below:

1. 479 Congress ST. Circa 1922, former TD Bank: new storefronts built in mahogany and painted, and a new painted wood entry door replacing the existing aluminum storefronts and door.

2. 477 Congress St: existing mahogany arcade entry doors, will be repaired and painted.

3. 475 Congress St. circa 1923, is the tower. The original bank entry abandoned for many years and replaced with the aluminum door will be replaced with a frameless glass door and glass canopy, above the door's flags. New storefront windows will be installed with bronzed aluminum frames. Paint will be removed from the existing granite base.

4. The large steel framed windows on the second and third floors of tower façade, along Congress and Preble, will be repaired, and the central ornamental panels will be reconditioned.

5. The existing storefronts on Preble will be rebuilt in wood and painted. The painted brick will be repainted. Above the storefronts on the second floor the large, fixed windows with flanking double-hungs will be repaired and painted. Aluminum double-hungs will be replaced with wood double-hungs.

6. The entry to 22 Preble St. will receive a new canopy and signage to reflect what was there historically. The windows above on the second floor will be reconditioned.

7. All masonry will be field verified for soundness and repointed or repaired as necessary, Exterior materials include painted brick, unpainted brick, limestone, and granite.

9. The main tower circa1923 had a two-story addition placed on the building in 1963. It was clad in a painted metal panel, and sometime in the 1980's Dryvit was applied to the metal panels. This entire façade will be removed and replaced with a fiberglass cornice and pilasters with an infill of curtain wall between the pilasters. The cornice and pilasters will reflect the original cornice and the pilasters are lined up with pilasters from below.

10. On the northern end of the tower a new elevator and fire egress stair will be added to bring the building up to code. It will be clad in a brick similar in color to the adjacent brick.

Frontage and Utility Improvements

The concrete section of sidewalk in front of the 22 Preble Street property will be replaced with brick, and the remainder of the sidewalk along the Preble and Congress Street property frontages will be constructed to meet the brick sidewalk standard. Raised tree wells will be added to the Congress Street Frontage, as approved by the City Arborist.

A new valet drop-off (loading and unloading) area is proposed in front of the new hotel entrance on Congress Street. Removal and resetting of the granite curb will add approximately forty (40) feet of additional parallel parking area as shown on the attached site plan. The applicant is requesting a "No Parking/Hotel Loading Only" zone in front of the hotel as shown.

A similar curb modification is proposed on Preble Street, which will add approximately 40 feet of on-street parking. A designated "No Parking/Hotel Loading Only" zone is proposed as shown.

The existing 4" domestic water service dates to 1898 and will be replaced with a new service proposed from Preble Street. The two existing 6" fire services on Preble Street were renewed in 2020 and will be maintained.

The existing 8" sanitary sewer service for the buildings exits to the rear (north) into the parking area behind 45 Brown Street, and then out to Preble Street. This service will continued to be used, and a second 8" sanitary sewer service will be added from Preble Street.

3.3 ATTACHMENTS

- Agent Letter
- Location Map
- Tax Map
- Civil Design Plans (uploaded to Drawings folder in Eplan)
- Architectural Renderings (uploaded to Drawings folder in Eplan)

PRESIDIUM
presidiumre.com

JANUARY 29, 2020

Woodard & Curran

Attn: Darrin Stairs, Project Manager

41 Hutchins Drive

Portland, ME 04102

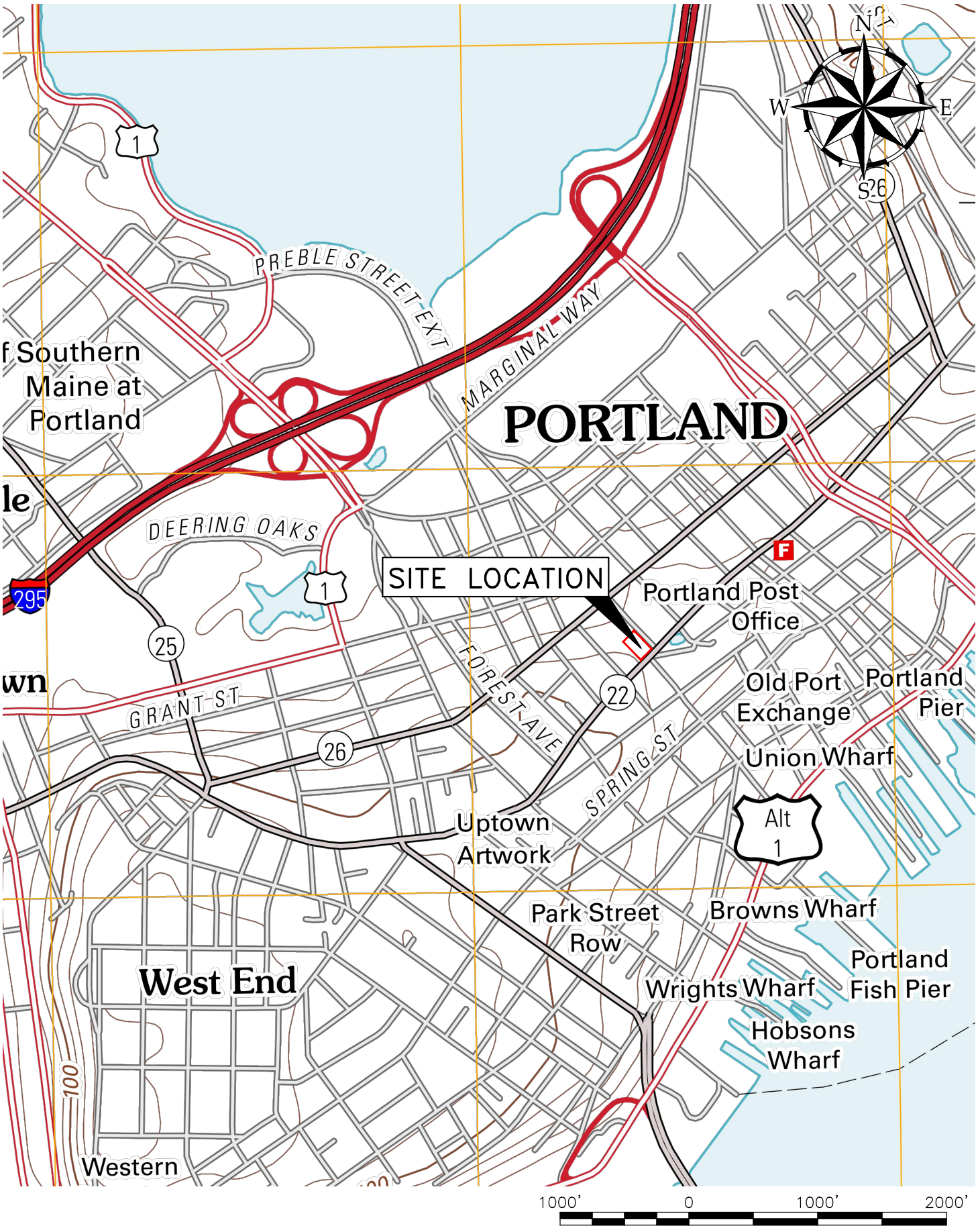
Dear Darrin,

Presidium authorizes Woodard & Curran to act as our authorized agent in our application for the level III site plan approval for the hotel project at 477 Congress Street in Portland, Maine.

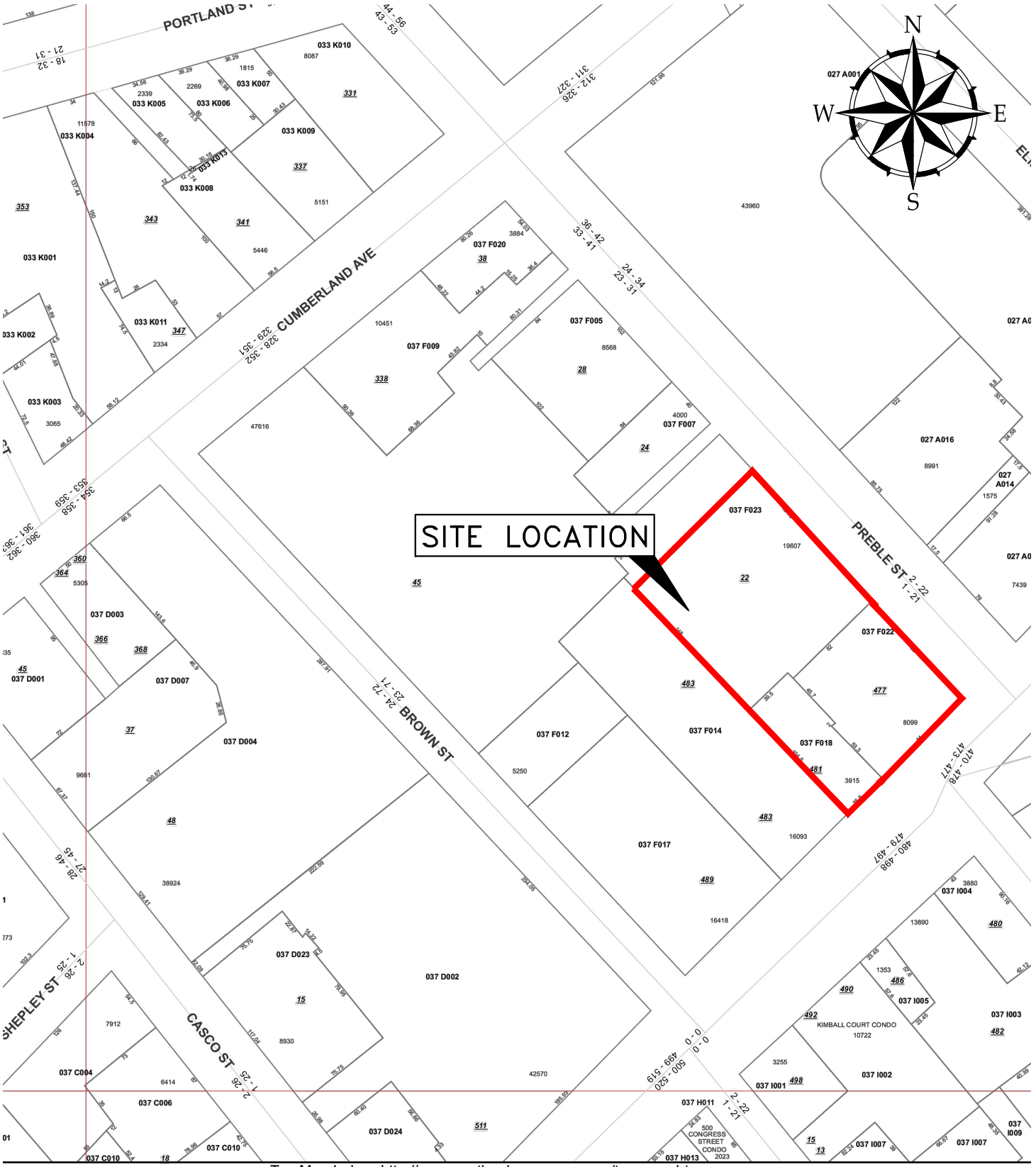
Warm regards,

Cross Moceri

Co-CEO



WOODARD &CURRAN 41 Hutchins Drive Portland, Maine 04102 800.426.4262 | www.woodardcurran.com COMMITMENT & INTEGRITY DRIVE RESULTS	LOCATION MAP DESIGNED BY: DS | CHECKED BY: DS DRAWN BY: DS | 0232868.00 LOCATION MAP*.dwg	TT MAINE VENTURE, LLC 3100 MCKINNON ST STE 250 DALLAS, TX 75201 477 CONGRESS HOTEL PORTLAND, MAINE	JOB NO: 0232868.00 DATE: February 2020 SCALE: 1" = 1000' Location Map



April 1 2012 fy 2013

Tax Map Index; http://www.portlandassessors.com/taxmaps.htm

WOODARD &CURRAN
41 Hutchins Drive
Portland, Maine 04102
800.426.4262 | www.woodardcurran.com
COMMITMENT & INTEGRITY DRIVE RESULTS

TAX MAP

DESIGNED BY: DS	CHECKED BY: DS
DRAWN BY: DS	0232868.00 TAX MAP.dwg

TT MAINE VENTURE, LLC
3100 MCKINNON ST STE 250
DALLAS, TX 75201

477 CONGRESS
HOTEL
PORTLAND, MAINE

JOB NO: 0232868.00
DATE: February 2020
SCALE: 1" = 1000'

Tax Map

4. WAIVER REQUESTS

No waivers are requested at this time.

5. EVIDENCE OF RIGHT, TITLE & INTEREST

The proposed development is located on properties owned by Limited Liability Company (LLCs) owned by the Applicant and identified as Tax Map 037, Lots F002 and F022. Attached are copies of the deeds associated with these properties.

The Owner Information is as follows:

Property Location	477 CONGRESS ST
CBL	037 F022001
Land Use Type	MULTI-USE COMMERICAL
Owner Information	TT MAINE VENTURE LLC 3100 MCKINNON ST STE 250 DALLAS TX 75201
Book and Page	35346/060
Legal Description	37-F-22 CONGRESS ST 473-481

Property Location	45 BROWN ST
CBL	037 F002001
Land Use Type	MULTI-USE COMMERICAL
Owner Information	BROWN TOWER LLC 3100 MCKINNON ST STE 250 DALLAS TX 75201
Book and Page	35610/345
Legal Description	37-F-2 BROWN ST 45-67 PREBLE 8-20 CUMBERLAND AVE 346-352

5.1 ATTACHMENTS

- Deeds

MAINE REAL ESTATE TAX-Paid

DLN: 1001840046130

QUITCLAIM DEED WITHOUT COVENANT
(Release Deed)

KNOW ALL PERSONS BY THESE PRESENTS, THAT **477-481 CONGRESS STREET HOLDINGS, LLC**, a Maryland limited liability company ("Grantor"), with a mailing address of c/o CWCapital Asset Management LLC, 7501 Wisconsin Avenue, Suite 500 West, Bethesda, Maryland 20814, for consideration paid, RELEASES to **TT MAINE VENTURE, LLC**, a Delaware limited liability company ("Grantee"), with a mailing address of 3100 McKinnon Street, Suite 250, Dallas, TX 75201, certain real property located in the City of Portland, County of Cumberland, State of Maine, which is more particularly described in Exhibit A attached hereto and made a part hereof.

This conveyance is made SUBJECT, HOWEVER, to real estate taxes which are not yet due and payable, which by acceptance hereof, Grantee assumes and agrees to pay.

[REMAINDER OF PAGE LEFT INTENTIONALLY BLANK]

When Recorded Return To: Arthur
First American Title Insurance Company
National Commercial Services
1850 K Street NW Suite 1050
Washington, DC 20006
File No: NCS ~~716731~~ A

In witness whereof, Grantor has caused this instrument to be executed by the undersigned, its duly authorized representative, this 6th December of _____, 2018.

GRANTOR

477-481 CONGRESS STREET HOLDINGS, LLC,
a Maryland limited liability company

By: U.S. Bank National Association, as Trustee, successor-in-interest to Bank of America, N.A., as Trustee, Successor to Wells Fargo Bank, N.A., as Trustee, for the Registered Holders of Wachovia Bank Commercial Mortgage Trust, Commercial Mortgage Pass-Through Certificates, Series 2007-C30 (the "Trust"), its Sole Member/Manager

By: CWCapital Asset Management LLC, a Delaware limited liability company, solely in its capacity as Special Servicer to the Trust

By: _____
Name: Alex Killick
Title: Senior Vice President

STATE OF MARYLAND §
§
COUNTY OF MONTGOMERY §

BEFORE ME, personally appeared, Alex Killick, the Senior Vice President of CWCapital Asset Management LLC, a Delaware limited liability company, to me to be the person whose name is subscribed on the foregoing instrument and acknowledge to me that-same was executed for the purposes and consideration therein expressed and in the capacity therein sated as the act and deed of said entity.

GIVEN UNDER MY HAND AND SEAL OF OFICE this the 5 day of December, 2018.

Notary Public, State of Maryland
My Commission Expires: _____

Sheremee D. Griffin
NOTARY PUBLIC
Montgomery County
State of Maryland
My Commission Expires
November 30, 2022

Exhibit "A"

Legal Description

Real property in the City of Portland, County of Cumberland, State of Maine, described as follows: Parcel One:

A certain lot or parcel of land with the buildings thereon, situated at the intersection of the northwesterly side of Congress Street and the southwesterly side of Preble Street, in the City of Portland, County of Cumberland and State of Maine, and being more particularly bounded and described as follows:

Beginning at a point, which point marks the intersection of the northwesterly side of Congress Street with the southwesterly side of Preble Street; thence South 59° 24' 30" West along the northwesterly sideline of Congress Street one hundred twenty-one and seven hundredths (121.07) feet to a point; thence North 27° 52' 30" West two hundred forty and sixty-nine hundredths (240.69) feet to a point; thence South 59° 33' West sixty-five and ninety-four hundredths (65.94) feet to a point; thence South 28° 48' 10" East twenty-two and seventy-two hundredths (22.72) feet to a point; thence South 65° 26' 10" West ninety-nine and forty-nine hundredths (99.49) feet to a point in the northeasterly sideline of Brown Street; thence North 28° 19' 30" West along the northeasterly sideline of said Brown Street two hundred ninety-seven and forty-eight hundredths (297.48) feet to a point, which point marks the intersection of the northeasterly sideline of Brown Street with the southeasterly sideline of Cumberland Avenue, thence North 65° 38' 40" East along the southeasterly sideline of said Cumberland Avenue one hundred and ninety-six hundredths (100.96) feet to a point; thence South 28° 10' 20" East ninety-one and ten hundredths (91.10) feet to a point; thence North 62° 29' 30" East sixty-four and ninety-four hundredths (64.94) feet to a point; thence North 60° 08' 00" East thirty-nine and five hundredths (39.05) feet to a point; thence South 28° 06' 30" East one hundred three and one hundredths (103.01) feet to a point; thence South 62° 35' 40" West sixteen and sixteen hundredths (16.16) feet to a point; thence South 27° 31' 10" East thirty-nine and ninety-six hundredths (39.96) feet to a point; thence North 62° 24' 40" East one hundred and twenty-nine hundredths (100.29) feet to a point in the southwesterly sideline of Preble Street; thence South 27° 34' 40" East along the southwesterly sideline of said Preble Street two hundred seventy-two and eighty hundredths (272.80) feet to the point of beginning.

Parcel Two:

Also another certain lot or parcel of land situated in said City of Portland, County of Cumberland and State of Maine bounded and described as follows:

Beginning at a 5/8" reinforcing rod located on the southwesterly sideline of Preble Street, said rod being North 27° 34' 40" West, a distance of 10', as measured by said southwesterly sideline of Preble Street, from the northerly or northeasterly corner of the building known as "The Wadsworth" as described in a deed from M. Mayo Citrin, et al. to The Arthar Company by deed recorded in the Cumberland County Registry of Deeds in Book 2182, Page 479, and said reinforcing rod being also located South 27° 34' 40" East, a distance of 69', more or less, as measured by said southwesterly sideline of Preble Street, from the intersection of said Preble Street with the southerly side of Cumberland Avenue; thence South 21° 34' 40" East along the southwesterly sideline of Preble Street ten (10) feet to a point; thence South 62° 32' 20" West eighty and thirty-three hundredths (80.33) feet to a point; thence North 27° 18' 50" West ten (10)

feet to a point; thence North 62° 32' 20" East eighty and twenty-eight hundredths (80.28) feet to a point in the southwesterly sideline of Preble Street and the point of beginning.

Parcel 3:

Together with and subject to party wall rights in the division wall between Keith's Theater, so-called, and the Allen Storage Warehouse, so-called, as set forth in a certain deed of Portland Savings Bank to Preble Company dated January 31, 1933 and recorded in the Cumberland County Registry of Deeds, in Book 1125, Page 270.

Together with and subject to such party wall rights in the partition wall between the "Firestone" building and Keith's Theater building as more fully set forth in a deed from Portland Savings Bank to Harry Potter dated December 29, 1921, and recorded in the said Registry of Deeds in Book 1091, Page 295.

Subject to any rights of passage and right to maintain electric, gas, water and sewer lines in a certain passageway now existing along the northerly side of "The Wadsworth" extending from Preble Street to the court in rear of "The Wadsworth" and to the stage entrance of Keith's Theater, as set forth in deeds recorded in said Registry of Deeds in Book 1091, Page 438; Book 1125, Page 269; and Book 1125, Page 270.

Together with and subject to all the rights and easements, the burden of which was placed upon, and the benefit of which was given to the premises herein described in two certain deeds of the Portland Savings Bank, one to Harry Potter dated December 29, 1921 and recorded in said Registry of Deeds, Book 1091, Page 295, and the other to Jacob Citrin dated January 17, 1922 and recorded in said Registry of Deeds in Book 1091, Page 438.

Together with rights and easements reserved by October Corporation as set forth in a deed to Ladd L. Heldenbrand, et al. dated January 14, 1999 and recorded in said Registry of Deeds in Book 14612, Page 231.

Together with rights and easements to maintain, repair and replace existing parking garage, which overhangs or encroaches land of Ladd L. Heldenbrand et al. as conveyed in a Release Deed to October Corporation dated February 9, 1999 and recorded in said Registry of Deeds in Book 14612, Page 235.

QUITCLAIM DEED WITH COVENANT

TT MAINE VENTURE, LLC, a Delaware Limited Liability Company with a mailing address of 3100 McKinnon Street, Suite 250, Dallas, TX, 75201, grants to **BROWN TOWER, LLC**, a Maine Limited Liability Company with a mailing address of 3100 McKinnon Street, Suite 250, Dallas, TX, 75201, with **Quitclaim Covenants**, the premises, together with any buildings thereon, situated in the City of Portland, County of Cumberland, and State of Maine, being more particularly described in Exhibit A attached hereto and incorporated herein.

Being a portion of the property conveyed to TT Maine Venture, LLC by deed of 477-481 Congress Street Holdings, LLC, dated December 5, 2018, and recorded in the Cumberland County Registry of Deeds in Book 35346, Page 60.

[*Signature appears on the following page.*]

In Witness Whereof, TT Maine Venture, LLC has caused this instrument to be executed by **Cross Moceri,** in his capacity as Manager of TT Presidium, LLC, which is Manager of TT Maine Venture, LLC, hereunto duly authorized, as of the 29th day of April, 2019.

Witness:

_____

TT Maine Venture, LLC
By: TT Presidium, LLC
Its: Manager

By: _____
Cross Moceri
Its: Manager

STATE OF Texas
COUNTY OF Travis

April 29th, 2019

Then personally appeared the above-named Cross Moceri, Manager of TT Presidium, LLC, which is Manager of TT Maine Venture, LLC, and acknowledged the foregoing instrument to be his free act and deed and the free act and deed of said TT Maine Venture, LLC.

YUEZHU XIONG
Notary Public, State of Texas
Comm. Expires 11-23-2019
Notary ID 130449059

Before me,

_____
Notary Public
Print Name: Yuezhu Xiong
My Commission Expires: 11/23/2019

Exhibit A
Deed to Brown Tower, LLC

Parcel One:

A certain lot or parcel of land with the buildings thereon, situated on the northeasterly side of Brown Street, the southeasterly side of Cumberland Avenue and the southwesterly side of Preble Street, in the City of Portland, County of Cumberland and State of Maine, and being more particularly bounded and described as follows:

Beginning at the intersection of the northeasterly sideline of Brown Street with the southeasterly sideline of Cumberland Avenue;

Thence, North 65° 38' 40" East along the southeasterly sideline of said Cumberland Avenue one hundred and ninety-six hundredths (100.96) feet to the westerly line of land now or formerly of Sweetwater Partners LLC as described in deed Book 34349, Page 251;

Thence, South 28° 10' 20" East along the westerly line of land of said Sweetwater Partners LLC ninety-one and ten hundredths (91.10) feet;

Thence, North 62° 29' 30" East along the southerly line of land of Sweetwater Partners LLC sixty-four and ninety-four hundredths (64.94) feet;

Thence, North 60° 08' 00" East continuing along the southerly line of land of Sweetwater Partners LLC thirty-nine and five hundredths (39.05) feet to the westerly line of land now or formerly of Earl Apartments LLC as described in deed Book 17591, Page 197;

Thence, South 28° 06' 30" East along the westerly line of land of said Earl Apartments LLC one hundred three and one hundredths (103.01) feet to the northerly line of land now or formerly of 24 Preble Street Properties LLC as described in deed Book 33029, Page 19;

Thence, South 62° 35' 40" West along the northerly line of land of said 24 Preble Street Properties LLC sixteen and sixteen hundredths (16.16) feet;

Thence, South 27° 31' 10" East along the westerly line of land of 24 Preble Street Properties LLC thirty-nine and ninety-six hundredths (39.96) feet;

Thence, North 62° 24' 40" East along the southerly line of land of 24 Preble Street Properties LLC one hundred and twenty-nine hundredths (100.29) feet to the southwesterly sideline of Preble Street;

Thence, South 27° 34' 40" East along the southwesterly sideline of said Preble Street one hundred seventy-nine (179.00) feet;

Thence, South 62° 24' 41" West eighty-six (86.00) feet;

Thence, North 27° 34' 39" West ninety-seven (97.00) feet;

Thence, South 62° 24' 41" West thirty-five and ninety-three hundredths (35.93) feet to the easterly line of land now or formerly of Maine Historical Society as described in deed Book 697, Page 343;

Thence, North 27° 52' 30" West along the easterly line of land of said Maine Historical Society forty-three and fifty-four hundredths (43.54) feet;

Thence, South 59° 33' 00" West along the northerly line of land of Maine Historical Society sixty-five and ninety-four hundredths (65.94) feet;

Thence, South 28° 48' 10" East along the westerly line of land of Maine Historical Society twenty-two and seventy-two hundredths (22.72) feet to the northerly line of land now or formerly of MHS, Inc. as described in deed Book 10467, Page 207;

Thence, South 65° 26' 10" West along the northerly line of land of said MHS, Inc. ninety-nine and forty-nine hundredths (99.49) feet to the northeasterly sideline of Brown Street;

Thence, North 28° 19' 30" West along the northeasterly sideline of said Brown Street two hundred ninety-seven and forty-eight hundredths (297.48) feet to the point of beginning.

Containing 64,840 square feet or 1.488 acres, more or less.

Reference is made to a plan titled "Boundary & Topographic Survey Time and Temperature Building Monument Square Parking Garage 477-481 Congress Street, 22 Preble Street, 45 Brown Street, Portland, Maine made for TT Venture, LLC" by Owen Haskell, Inc. dated Jan. 28, 2019 revised through 4/1/19.

Parcel Two:

Also another certain lot or parcel of land situated in said City of Portland, County of Cumberland and State of Maine bounded and described as follows:

Beginning at a 5/8" reinforcing rod located on the southwesterly sideline of Preble Street, said rod being North 27° 34' 40" West, a distance of ten feet (10'), as measured by said southwesterly sideline of Preble Street, from the northerly or northeasterly corner of the building known as "The Wadsworth" as described in a deed from M. Mayo Citrin, et al. to The Arthar Company by deed recorded in the Cumberland County Registry of Deeds in Book 2182, Page 479, and said reinforcing rod being also located South 27° 34' 40" East, a distance of sixty-nine feet (69'), more or less, as measured by said southwesterly sideline of Preble Street, from the intersection of said Preble Street with the southerly side of Cumberland Avenue; thence South 21° 34' 40" East, along the southwesterly sideline of Preble Street ten feet (10') to a point; thence South 62° 32' 20" West eighty and thirty-three hundredths feet (80.33') to a point; thence North 27° 18' 50"

West ten feet (10') to a point; thence North 62° 32' 20" East eighty and twenty-eight hundredths feet (80.28') to a point in the southwesterly sideline of Preble street and the point of beginning.

Parcels One and Two are conveyed subject to and together with the following rights and easements:

Together with and subject to party wall rights in the division wall between Keith's Theater, so-called, and the Allen Storage Warehouse, so-called, as set forth in a certain deed of Portland Savings Bank to Preble Company dated January 31, 1933 and recorded in the Cumberland County Registry of Deeds, in Book 1125, Page 270.

Together with and subject to such party wall rights in the partition wall between the "Firestone" building and Keith's Theater building as more fully set forth in a deed from Portland Savings Bank to Harry Potter dated December 29, 1921, and recorded in the said Registry of Deeds in Book 1091, Page 295.

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Together with rights and easements to maintain, repair and replace existing parking garage, which overhangs or encroaches land of Ladd L. Heldenbrand et al. as conveyed in a Release Deed to October Corporation dated February 9, 1999 and recorded in said Registry of Deeds in Book 14612, Page 235.

The above-described Premises are benefitted by and subject to certain easements and agreements described in a certain Reciprocal Easement Agreement by and between TT Maine Venture, LLC and Brown Tower, LLC of even date herewith to be recorded in the Cumberland County Registry of Deeds.

Received
Recorded Register of Deeds
Apr 30,2019 01:22:47P
Cumberland County
Nancy A. Lane

5. EVIDENCE OF RIGHT, TITLE & INTEREST

The proposed development is located on properties owned by Limited Liability Company (LLCs) owned by the Applicant and identified as Tax Map 037, Lots F002 and F022. Attached are copies of the deeds associated with these properties.

The Owner Information is as follows:

Property Location	477 CONGRESS ST
CBL	037 F022001
Land Use Type	MULTI-USE COMMERICAL
Owner Information	TT MAINE VENTURE LLC 3100 MCKINNON ST STE 250 DALLAS TX 75201
Book and Page	35346/060
Legal Description	37-F-22 CONGRESS ST 473-481

Property Location	45 BROWN ST
CBL	037 F002001
Land Use Type	MULTI-USE COMMERICAL
Owner Information	BROWN TOWER LLC 3100 MCKINNON ST STE 250 DALLAS TX 75201
Book and Page	35610/345
Legal Description	37-F-2 BROWN ST 45-67 PREBLE 8-20 CUMBERLAND AVE 346-352

5.1 ATTACHMENTS

- Deeds

QUITCLAIM DEED WITH COVENANT

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[*Signature appears on the following page.*]

In Witness Whereof, TT Maine Venture, LLC has caused this instrument to be executed by **Cross Moceri,** in his capacity as Manager of TT Presidium, LLC, which is Manager of TT Maine Venture, LLC, hereunto duly authorized, as of the 29th day of April, 2019.

Witness:

_____

TT Maine Venture, LLC
By: TT Presidium, LLC
Its: Manager

By: _____
Cross Moceri
Its: Manager

STATE OF Texas
COUNTY OF Travis

April 29th, 2019

Then personally appeared the above-named Cross Moceri, Manager of TT Presidium, LLC, which is Manager of TT Maine Venture, LLC, and acknowledged the foregoing instrument to be his free act and deed and the free act and deed of said TT Maine Venture, LLC.

YUEZHU XIONG
Notary Public, State of Texas
Comm. Expires 11-23-2019
Notary ID 130449059

Before me,

_____
Notary Public
Print Name: Yuezhu Xiong
My Commission Expires: 11/23/2019

Exhibit A
Deed to Brown Tower, LLC

Parcel One:

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Thence, North 62° 29' 30" East along the southerly line of land of Sweetwater Partners LLC sixty-four and ninety-four hundredths (64.94) feet;

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Thence, South 62° 35' 40" West along the northerly line of land of said 24 Preble Street Properties LLC sixteen and sixteen hundredths (16.16) feet;

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Thence, South 59° 33' 00" West along the northerly line of land of Maine Historical Society sixty-five and ninety-four hundredths (65.94) feet;

Thence, South 28° 48' 10" East along the westerly line of land of Maine Historical Society twenty-two and seventy-two hundredths (22.72) feet to the northerly line of land now or formerly of MHS, Inc. as described in deed Book 10467, Page 207;

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Parcel Two:

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West ten feet (10') to a point; thence North 62° 32' 20" East eighty and twenty-eight hundredths feet (80.28') to a point in the southwesterly sideline of Preble street and the point of beginning.

Parcels One and Two are conveyed subject to and together with the following rights and easements:

Together with and subject to party wall rights in the division wall between Keith's Theater, so-called, and the Allen Storage Warehouse, so-called, as set forth in a certain deed of Portland Savings Bank to Preble Company dated January 31, 1933 and recorded in the Cumberland County Registry of Deeds, in Book 1125, Page 270.

Together with and subject to such party wall rights in the partition wall between the "Firestone" building and Keith's Theater building as more fully set forth in a deed from Portland Savings Bank to Harry Potter dated December 29, 1921, and recorded in the said Registry of Deeds in Book 1091, Page 295.

Subject to any rights of passage and right to maintain electric, gas, water and sewer lines in a certain passageway now existing along the northerly side of "The Wadsworth" extending from Preble Street to the court in real of "The Wadsworth" and to the stage entrance of Keith's Theater, as set forth in deeds recorded in said Registry of Deeds in Book 1091, Page 438; Book 1125, Page 269; and Book 1125, Page 270.

Together with and subject to all the rights and easements, the burden of which was placed upon, and the benefit of which was given to the premises herein described in two certain deeds of the Portland Savings Bank, one to Harry Potter dated December 29, 1921 and recorded in said Registry of Deeds, Book 1091, Page 295, and other to Jacob Citrin dated January 17, 1922 and recorded in said Registry of Deeds in Book 1091, Page 438.

Together with rights and easements reserved by October Corporation as set forth in a deed to Ladd L. Heldenbrand, et al. dated January 14, 1999 and recorded in said Registry of Deeds in Book 14612, Page 231.

Together with rights and easements to maintain, repair and replace existing parking garage, which overhangs or encroaches land of Ladd L. Heldenbrand et al. as conveyed in a Release Deed to October Corporation dated February 9, 1999 and recorded in said Registry of Deeds in Book 14612, Page 235.

The above-described Premises are benefitted by and subject to certain easements and agreements described in a certain Reciprocal Easement Agreement by and between TT Maine Venture, LLC and Brown Tower, LLC of even date herewith to be recorded in the Cumberland County Registry of Deeds.

Received
Recorded Register of Deeds
Apr 30,2019 01:22:47P
Cumberland County
Nancy A. Lane

MAINE REAL ESTATE TAX-Paid

DLN: 1001840046130

QUITCLAIM DEED WITHOUT COVENANT
(Release Deed)

KNOW ALL PERSONS BY THESE PRESENTS, THAT **477-481 CONGRESS STREET HOLDINGS, LLC**, a Maryland limited liability company ("Grantor"), with a mailing address of c/o CWCapital Asset Management LLC, 7501 Wisconsin Avenue, Suite 500 West, Bethesda, Maryland 20814, for consideration paid, RELEASES to **TT MAINE VENTURE, LLC**, a Delaware limited liability company ("Grantee"), with a mailing address of 3100 McKinnon Street, Suite 250, Dallas, TX 75201, certain real property located in the City of Portland, County of Cumberland, State of Maine, which is more particularly described in Exhibit A attached hereto and made a part hereof.

This conveyance is made SUBJECT, HOWEVER, to real estate taxes which are not yet due and payable, which by acceptance hereof, Grantee assumes and agrees to pay.

[REMAINDER OF PAGE LEFT INTENTIONALLY BLANK]

When Recorded Return To: Arthur
First American Title Insurance Company
National Commercial Services
1850 K Street NW Suite 1050
Washington, DC 20006
File No: NCS ~~716731~~ A

In witness whereof, Grantor has caused this instrument to be executed by the undersigned, its duly authorized representative, this 6th December of _____, 2018.

GRANTOR

477-481 CONGRESS STREET HOLDINGS, LLC,
a Maryland limited liability company

By: U.S. Bank National Association, as Trustee, successor-in-interest to Bank of America, N.A., as Trustee, Successor to Wells Fargo Bank, N.A., as Trustee, for the Registered Holders of Wachovia Bank Commercial Mortgage Trust, Commercial Mortgage Pass-Through Certificates, Series 2007-C30 (the "Trust"), its Sole Member/Manager

By: CWCapital Asset Management LLC, a Delaware limited liability company, solely in its capacity as Special Servicer to the Trust

By: _____
Name: Alex Killick
Title: Senior Vice President

STATE OF MARYLAND §
§
COUNTY OF MONTGOMERY §

BEFORE ME, personally appeared, Alex Killick, the Senior Vice President of CWCapital Asset Management LLC, a Delaware limited liability company, to me to be the person whose name is subscribed on the foregoing instrument and acknowledge to me that-same was executed for the purposes and consideration therein expressed and in the capacity therein sated as the act and deed of said entity.

GIVEN UNDER MY HAND AND SEAL OF OFICE this the 5 day of December, 2018.

Notary Public, State of Maryland
My Commission Expires: _____

Sheremee D. Griffin
NOTARY PUBLIC
Montgomery County
State of Maryland
My Commission Expires
November 30, 2022

Exhibit "A"

Legal Description

Real property in the City of Portland, County of Cumberland, State of Maine, described as follows: Parcel One:

A certain lot or parcel of land with the buildings thereon, situated at the intersection of the northwesterly side of Congress Street and the southwesterly side of Preble Street, in the City of Portland, County of Cumberland and State of Maine, and being more particularly bounded and described as follows:

Beginning at a point, which point marks the intersection of the northwesterly side of Congress Street with the southwesterly side of Preble Street; thence South 59° 24' 30" West along the northwesterly sideline of Congress Street one hundred twenty-one and seven hundredths (121.07) feet to a point; thence North 27° 52' 30" West two hundred forty and sixty-nine hundredths (240.69) feet to a point; thence South 59° 33' West sixty-five and ninety-four hundredths (65.94) feet to a point; thence South 28° 48' 10" East twenty-two and seventy-two hundredths (22.72) feet to a point; thence South 65° 26' 10" West ninety-nine and forty-nine hundredths (99.49) feet to a point in the northeasterly sideline of Brown Street; thence North 28° 19' 30" West along the northeasterly sideline of said Brown Street two hundred ninety-seven and forty-eight hundredths (297.48) feet to a point, which point marks the intersection of the northeasterly sideline of Brown Street with the southeasterly sideline of Cumberland Avenue, thence North 65° 38' 40" East along the southeasterly sideline of said Cumberland Avenue one hundred and ninety-six hundredths (100.96) feet to a point; thence South 28° 10' 20" East ninety-one and ten hundredths (91.10) feet to a point; thence North 62° 29' 30" East sixty-four and ninety-four hundredths (64.94) feet to a point; thence North 60° 08' 00" East thirty-nine and five hundredths (39.05) feet to a point; thence South 28° 06' 30" East one hundred three and one hundredths (103.01) feet to a point; thence South 62° 35' 40" West sixteen and sixteen hundredths (16.16) feet to a point; thence South 27° 31' 10" East thirty-nine and ninety-six hundredths (39.96) feet to a point; thence North 62° 24' 40" East one hundred and twenty-nine hundredths (100.29) feet to a point in the southwesterly sideline of Preble Street; thence South 27° 34' 40" East along the southwesterly sideline of said Preble Street two hundred seventy-two and eighty hundredths (272.80) feet to the point of beginning.

Parcel Two:

Also another certain lot or parcel of land situated in said City of Portland, County of Cumberland and State of Maine bounded and described as follows:

Beginning at a 5/8" reinforcing rod located on the southwesterly sideline of Preble Street, said rod being North 27° 34' 40" West, a distance of 10', as measured by said southwesterly sideline of Preble Street, from the northerly or northeasterly corner of the building known as "The Wadsworth" as described in a deed from M. Mayo Citrin, et al. to The Arthar Company by deed recorded in the Cumberland County Registry of Deeds in Book 2182, Page 479, and said reinforcing rod being also located South 27° 34' 40" East, a distance of 69', more or less, as measured by said southwesterly sideline of Preble Street, from the intersection of said Preble Street with the southerly side of Cumberland Avenue; thence South 21° 34' 40" East along the southwesterly sideline of Preble Street ten (10) feet to a point; thence South 62° 32' 20" West eighty and thirty-three hundredths (80.33) feet to a point; thence North 27° 18' 50" West ten (10)

feet to a point; thence North 62° 32' 20" East eighty and twenty-eight hundredths (80.28) feet to a point in the southwesterly sideline of Preble Street and the point of beginning.

Parcel 3:

Together with and subject to party wall rights in the division wall between Keith's Theater, so-called, and the Allen Storage Warehouse, so-called, as set forth in a certain deed of Portland Savings Bank to Preble Company dated January 31, 1933 and recorded in the Cumberland County Registry of Deeds, in Book 1125, Page 270.

Together with and subject to such party wall rights in the partition wall between the "Firestone" building and Keith's Theater building as more fully set forth in a deed from Portland Savings Bank to Harry Potter dated December 29, 1921, and recorded in the said Registry of Deeds in Book 1091, Page 295.

Subject to any rights of passage and right to maintain electric, gas, water and sewer lines in a certain passageway now existing along the northerly side of "The Wadsworth" extending from Preble Street to the court in rear of "The Wadsworth" and to the stage entrance of Keith's Theater, as set forth in deeds recorded in said Registry of Deeds in Book 1091, Page 438; Book 1125, Page 269; and Book 1125, Page 270.

Together with and subject to all the rights and easements, the burden of which was placed upon, and the benefit of which was given to the premises herein described in two certain deeds of the Portland Savings Bank, one to Harry Potter dated December 29, 1921 and recorded in said Registry of Deeds, Book 1091, Page 295, and the other to Jacob Citrin dated January 17, 1922 and recorded in said Registry of Deeds in Book 1091, Page 438.

Together with rights and easements reserved by October Corporation as set forth in a deed to Ladd L. Heldenbrand, et al. dated January 14, 1999 and recorded in said Registry of Deeds in Book 14612, Page 231.

Together with rights and easements to maintain, repair and replace existing parking garage, which overhangs or encroaches land of Ladd L. Heldenbrand et al. as conveyed in a Release Deed to October Corporation dated February 9, 1999 and recorded in said Registry of Deeds in Book 14612, Page 235.

6. EASEMENTS AND OTHER BURDENS

There is one of easement agreement on the project Site between 477 Time & Temperature LLC and the Maine Historical Society at 489 Congress Street. This cross easement allows for maintenance repair and renovation of the respective buildings. A copy of the easement is attached.

6.1 ATTACHMENTS

- Easement Agreement

EASEMENT AGREEMENT

THIS EASEMENT AGREEMENT is made this 12 day of Oct., 2007, by and between **477 TIME & TEMPERATURE LLC**, a Delaware limited liability company (hereinafter "477"), and the **MAINE HISTORICAL SOCIETY**, a Maine non-profit corporation with a mailing address 489 Congress Street, Portland, Maine 04101 (hereinafter "MHS").

Whereas, 477 is the owner of certain real property located northwesterly of Congress Street in the City of Portland, County of Cumberland, and State of Maine, conveyed to 477 by that certain deed recorded at the Cumberland County Registry of Deeds in Book 24634, Page 44 (the "477 Property");

Whereas, MHS is the owner of certain real property adjacent to the 477 Property, conveyed to MHS by that certain deed recorded at the Cumberland County Registry of Deeds in Book 697, Page 343 (the "MHS Property"); and

Whereas, MHS desires certain easement rights to use portions of the 477 Property in connection with MHS's addition to and renovation of the building on the MHS Property, and each party desires certain easement rights to use portions of the other's property for purposes of maintaining their respective buildings; and

Whereas, each of 477 and MHS own a portion of the Easement Area (as that term is defined below) and any grant or easement rights in the Easement Area by either of 477 or MHS to the other is intended to burden the portion of the Easement Area which the grantor owns.

Now, therefore, the parties hereby covenant, grant and agree as follows:

1. Cross Easements. MHS grants to 477, its successors and assigns, for the benefit of the 477 Property, an appurtenant, non-exclusive easement to enter upon the area shown in hatching on the attached Exhibit A (the "Easement Area"), with workers and equipment as reasonably necessary for the construction, maintenance and repair of the building(s) now or hereafter located on the 477 Property; together with the right of access to the Easement Area, at reasonable times and from such other portions of the MHS Property as are agreed upon in advance by MHS, its successors and assigns, provided that such access shall not interfere with MHS's use and quiet enjoyment of the MHS Property. 477 grants to MHS, its successors and assigns, for the benefit of the MHS Property, an appurtenant, non-exclusive easement to enter upon the Easement Area with men and equipment as reasonably necessary for the construction, maintenance and repair of the building(s) located on the MHS Property.

2. Easement to MHS. 477 grants to MHS, its successors and assigns, for the benefit of the MHS Property, an appurtenant easement for the purposes of constructing, maintaining, repairing, replacing, and removing one (1) above-ground boiler flue areaway within the Easement Area as shown on the attached Exhibit A, and underground mini piles and up to ten (10) underground concrete pile caps within and under the Easement Area generally as shown on the attached Exhibit A, in connection with MHS's addition to and renovation of the building on the MHS Property; provided, however, that such construction, maintenance, repair, replacement or removal shall be conducted at MHS's sole cost and expense and in such a manner that does not damage, undermine, or interfere with the buildings and foundations now or hereafter located on the 477 Property.

3. Reserved Rights. Each of MHS and 477 reserves, for itself, its successors and assigns, the use and enjoyment of that portion of the Easement Area that each owns for all purposes consistent with the use of the foregoing easements.

4. Indemnities. MHS agrees to (a) indemnify and (b) hold harmless 477 for and against any and all lost, cost, damage or expense, including reasonable attorneys' fees arising from MHS's or its agents' or its contractors' or employees' use or activities in, on, over or under the Easement Area. 477 agrees to (a) indemnify and (b) hold harmless MHS for and against any and all lost, cost, damage or expense, including reasonable attorneys' fees arising from 477's or its agents', contractors or employees' activities in, on, over or under the Easement Area.

WITNESS our hands and seals as of the date written above.

477 TIME & TEMPERATURE LLC
By: KNJ PORTLAND, INC.,
Its Managing Member

By: _____
Joshua Dolgin, its President

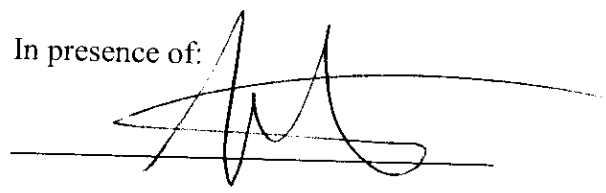
STATE OF NEW YORK
COUNTY OF NEW YORK

October 12, 2007

Then personally appeared the above-named Joshua Dolgin, President of KNJ Portland, Inc., Managing Member of 477 Time & Temperature LLC, and acknowledged the foregoing instrument to be his free act and deed and the free act and deed of said company.

Before me, _____
Notary Public
Print Name: PAULA SAHRAOUI

PAULA M. SAHRAOUI
Notary Public, State of New York
No. 01SA6075908
Qualified in Kings County
Commission Expires June 10, 2010

In presence of: 

MAINE HISTORICAL SOCIETY

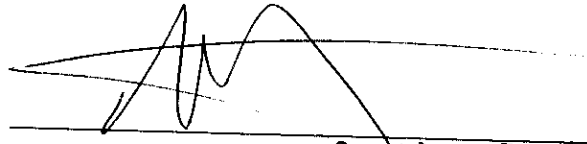
By: Richard D'Abate

Richard D'Abate
Executive Director

STATE OF MAINE
COUNTY OF CUMBERLAND

October 15, 2007

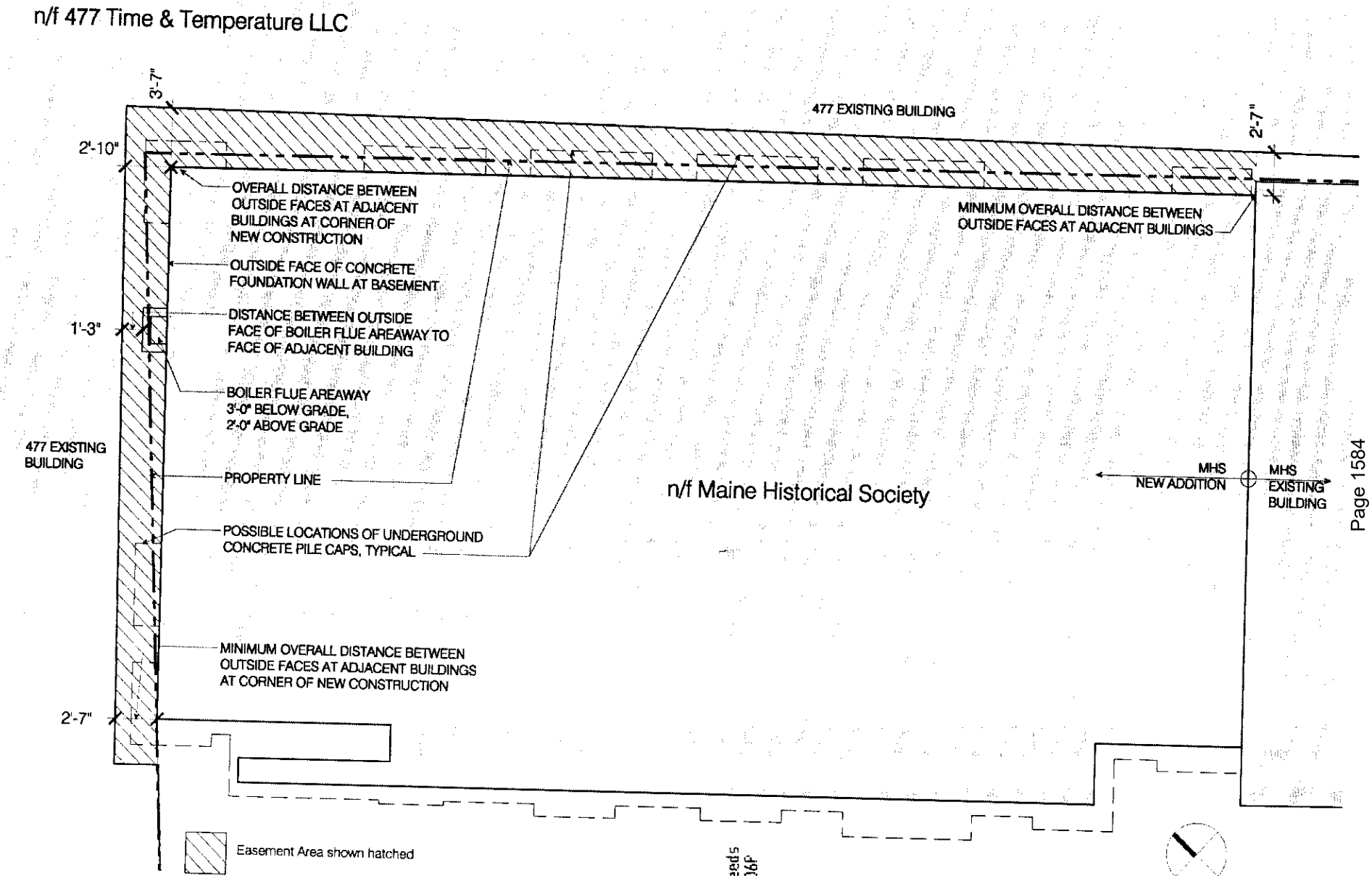
Then personally appeared the above-named Richard D'Abate, Executive Director of the Maine Historical Society, and acknowledged the foregoing instrument to be his free act and deed and the free act and deed of said nonprofit corporation.

Before me, 

~~Notary Public~~ ATTORNEY AT LAW

Print Name: Nathan H. Smith

Doc#: 64084 Bk:25540 Pg: 242



Maine Historical Society
Research Library Addition and Renovation

Exhibit A

Received
Recorded Register of Deeds
Oct 15,2007 01:35:06P
Cumberland County
Pamela E. Lovley

Diagrammatic Cross-Easement Plan
Revised 09/05/07

7. EVIDENCE OF STATE AND/OR FEDERAL APPROVALS

The project will be reviewed by the State Historical Preservation Commission and the National Park Service. Copies of these approvals can be supplied upon receipt and if requested.

8. EVIDENCE OF FINANCIAL & TECHNICAL CAPABILITY

8.1 FINANCIAL CAPABILITY

Attached is a copy of a letter verifying the Applicant's financial capacity to undertake the project.

8.2 TECHNICAL CAPABILITY

On behalf of the Applicant, Woodard & Curran is preparing this application for the proposed development. Woodard & Curran has extensive experience with design for site development projects and specifically on the peninsula within the City of Portland. Woodard & Curran, a 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.

Archetype Architects is a Portland based firm that has been designing buildings in Maine and New England for over 50 years. Projects include multi-family housing, commercial developments, and historic reuse. Recent on-peninsula projects include 20 Thames Street Residential, the WEX Headquarters, and the Shipyard/Vets First Choice Development.

VHB is a 1,600-person multi-disciplinary firm that is providing traffic engineering services for the project. VHB professionals include scientists, planners, engineers, and designers, and their work includes transportation, real estate, institutional, and energy industries.

Copies of resumes can be provided upon request.

8.3 ATTACHMENTS

- Financial Capacity Letter

PRESIDIUM
thepresidiumgroup.com

MARCH 31, 2021

To whom it may concern,

Presidium as an organization has the means to complete the renovation of the Time & Temperature Building and conversion to a hotel. Presidium currently owns a portfolio with total asset value of $2 billion and has had a highly successful track record over its 18-year history, selling over $1 billion in assets over that time. Its two principals have a combined net worth of over $100 million and liquidity of over $15 million.

Please reach out if you need any more information about us or our firm.

Warm regards,



John Griggs, Co-CEO, Co-Founder

9. CONSISTENCY WITH PORTLAND DESIGN STANDARDS

Section 14-526 of the City of Portland's Land Use Code outlines the site plan standards that must be met by Level III Site Plan projects. The proposed development will follow the City's design standards as described in the following section.

9.1 TRANSPORTATION

A Traffic Movement Permit (TMP) is not required for this project, because the project will not generate 100 or more passenger trips at peak hour. A Traffic Memo has been prepared by VHB for the proposed development and is included as an attachment to this Section.

1. *Impact on Surrounding Street Systems*
   The attached Traffic Assessment was prepared by VHB for the proposed development. A trip generation summary is provided in the traffic assessment, as well as a comparison to trip generation calculated for the existing uses.

2. *Access and Circulation*
   The primary vehicular and pedestrian entrances to the site will largely remain as they are currently. VHB will work with the City Traffic Engineer to evaluate the impacts, if any, of the addition of the valet space proposed on Congress Street in front of the Hotel entrance.

3. *Loading & Servicing*
   Loading and trash removal will continue to be serviced from the Preble Street side of the building.

4. *Sidewalks*
   Brick sidewalks and granite curb will be provided per the City of Portland Sidewalks and Driveway Apron Materials Policy on Congress and Preble Streets where the project will impact the sidewalks. The existing concrete sections of sidewalk located along Preble Street will be removed and replaced with brick.

5. *Public Transit Access*
   No changes to public transit access are proposed as part of this project.

6. *Parking*
   Ninety (90) parking spaces will be provided in the parking garage at 45-Brown Street.

7. *Snow Storage*
   The Site's snow removal will continue to be managed by a contracted third party to ensure safe pedestrian circulation and to maintain access to the building entrances.

8. *Transportation Demand Management (TDM)*
   A TDM plan is not required for this project.

9.2 ENVIRONMENTAL & LANDSCAPE FEATURES

1. *Preservation of Significant Natural Features*
   The Site is completely 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.

2. *Landscaping & Landscape Preservation*
   The Site is completely developed and there is no existing landscaping or existing trees that will be removed.

3. *Site Landscaping & Street Trees*
   Three (3) street trees in raised planters are proposed on Congress Street, subject to approval by the City Arborist.

9.3 ENVIRONMENTAL & STORMWATER

1. *Water Quality, Stormwater Management, & Erosion Control*
   This project site is completely developed, and the proposed project is a change in use of existing buildings. Stormwater will continue to be managed as it is currently. This project will not create any changes to the quantity, or quality, of the stormwater runoff from the site.

   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. The development has also been designed to provide for the adequate and sanitary disposal of sewage, as further described in Section 13 of this Report.

9.4 PUBLIC INFRASTRUCTURE & SAFETY

1. *Consistency with City Master Plans*
   The project has been designed consistent with City Council approved Master Plans, including sewer and stormwater, streets, and other public facilities.

2. *Public Safety and Fire Prevention*
   Provisions for public safety have been incorporated into the design of accesses and egresses. The design includes natural surveillance of public spaces and appropriate access control.

   Emergency vehicle access is provided on the adjacent public roadways. Compliance with the Portland Fire Department Site Review Checklist is described in Section 14 of this Report.

3. *Availability and Adequate Capacity of Public Utilities*
   The availability and adequate capacity of public utilities is described in Section 13 of this Report.

9.5 SITE DESIGN

1. *Massing, Ventilation, and Wind Impact*
   This project is a change in use to existing buildings. There are no changes to massing, ventilation, or wind impacts.

2. *Shadows*
   This project is a change in use to existing buildings and as such will not change its impacts from shadows. It is also located in the B3 zone, which is exempt from avoiding or mitigating shadow impacts.

3. *Snow and Ice Loading*
   This project is a change in use to existing buildings. Any changes to building facades or elevations will be designed to prevent snow and ice from accumulating and falling onto abutting properties and public ways.

4. *View Corridors*
   This project is a change in use to existing buildings. No view corridors are impacted.

5. *Historic Resources*
   This project is in the Congress Street Historic District, and the buildings are all considered "contributing structures." The proposed renovations take into consideration the preservation standards for the district, under the guidelines of The National Park Service and in accordance with the provisions of article IX (historic preservation) of the Land Use Code.

   An application for a Certificate of Appropriateness for the proposed exterior renovations will proceed concurrently through the review process with the Historic Preservation Board. We will work with Staff and the Board to schedule this review.

6. *Exterior Lighting*
   No changes to exterior lighting are proposed with the project.

7. *Noise and Vibration*
   The noise impact from the proposed project 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 project 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 project will not exceed regulated levels.

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 building and comply with the requirements of the Historic District.

9. *Zoning Related Design Standards*
   An assessment of the City Zoning requirements is provided in Section 10 of this Report.

9.6 ATTACHMENTS

- Traffic Memorandum Prepared by VHB

Memorandum

To: City of Portland DPW and MaineDOT

Date: January 28, 2020

Project #: 55321

From: Jennifer Conley, PE, PTOE

Re: 45 Brown Street and 477 Congress Street Trip Generation

A redevelopment project is currently being contemplated for the properties located at 45 Brown Street and 477 Congress Street.

The 477 Congress Street site, an approximately 123,000 square feet (sf) office building, is now 85% vacant. However, as recently as 2013, it was fully occupied. In addition to the office space at that address, the adjacent annex (on Preble Street) accommodates approximately 50,000 sf of retail space and 481 Congress Street is occupied by a 2,600 square foot bank. The 477 Congress Street site was connected via an interior corridor to the existing parking garage at 45 Brown Street.

As currently proposed, the 477 Congress Street site will be redeveloped into a 180-room hotel with approximately 20,000 sf of retail annex remaining. The existing bank space is anticipated to be converted into a high-end restaurant off the lobby of the hotel. In addition, there is anticipated to be restaurant space on both the second and the top floors of the hotel with seasonal outdoor space. The 45 Brown Street site will be redeveloped into a 300-unit residential building and a parking garage that will serve both 45 Brown Street and 477 Congress Street.

Unadjusted Trip Generation

VHB has evaluated the trip generation of the redevelopment of the 45 Brown Street and 477 Congress Street sites. VHB calculated the peak hour trip generation of the site when it was fully occupied using the Institute of Transportation Engineers' (ITE) trip generation rates. ITE rates typically do not include adjustment to represent the urban, downtown nature of this specific site. For example, it is quite likely that a high percentage of retail trips in this neighborhood are made via foot by people who are already working, shopping or visiting the area. In the future, it is likely that a high percentage of residential or hotel trips will be made on foot to area employers, retail and tourist destinations.

Current/Recent Site Trip Generation

The trip generation of the office, retail, and bank spaces were calculated using Land Use Code (LUC) 710 – General Office Building, LUC 820 – Shopping Center, and LUC 911 – Walk-In Bank, respectively. The Walk-In Bank LUC only had data for the PM peak hour. For the purposes of this analysis, the trip generation of the parking garage was not calculated separately for either the existing or redevelopment scenarios and instead the trips were assigned to the land uses that actually generate them. The resulting trip generation associated with the current or recent land uses is provided in Table 1. For the purposes of this initial evaluation, no adjustment was made for trips made via other modes.

40 IDX Drive, Building 100
Suite 200
South Burlington, Vermont 05403

Table 1. Trip Generation – Current or Recent Land Uses

		Office Building[1]	Retail Annex[2]	Bank[3]	Parking Garage[4]	**Total Trips**
Weekday AM Peak Hour	Enter	94	29	-	-	***123***
	Exit	15	18	-	-	***33***
	Total	109	47	-	-	**156**
Weekday PM Peak Hour	Enter	18	91	14	-	***123***
	Exit	90	99	18	-	***207***
	Total	109	189	32	-	**330**
Saturday Peak Hour	Enter	34	117	-	-	***151***
	Exit	29	108	-	-	***137***
	Total	63	225	-	-	**288**

[1]125,000 square feet of LUC 710
[2]50,000 square feet of LUC 820
[3]2,600 square feet of LUC 911
[4] parking garage – trips assigned to land uses

As shown in Table 1, the site generated the most trips during the weekday PM peak hour, when 330 trips visited the site. During the weekday AM peak hour, 156 trips visited the site. During the Saturday peak hour, 288 trips visited the site.

Proposed Site Trip Generation

As indicated above, the redevelopment will include a conversion from office to hotel, and a conversion of some retail to restaurant, a reduction of overall retail space, and the addition of a residential tower above the parking garage. As shown on the attached site plan, the proposed development will consist of an approximately 180-room hotel at 477 Congress Street and 300 residential units at 45 Brown Street.

The proposed restaurant space was divided into the space that would primarily serve the visitors of the hotel, and the space that would likely serve outside guests. The square footage on both the first floor and the top floor were included as square footage that would likely generate trips outside of the hotel. The second floor space was assumed to be the hotel restaurant that is included in that land use code. Although it is likely that the restaurant spaces will be higher end restaurants, in order to present a worst case scenario, the trip generation of the restaurant space was based on LUC 932, High Turnover (Sit-Down) Restaurant. Of the existing retail space, approximately 20,000 square feet will be maintained. In addition, a 333-space parking garage is proposed to support these uses.

VHB has calculated the trip generation of these proposed uses. The trip generation for the residential units, hotel, restaurant, and retail uses were calculated based on LUC 222 – Multifamily Housing (High Rise). The hotel trip generation was calculated based on LUC 310 – Hotel. Although the restaurant is anticipated to be high end, the trips were calculated using the rates for LUC 932 – High Turnover (Sit-Down) Restaurant in the event the space is ever used as such. The retail space trip rate continued to be calculated by LUC 820 – Shopping Center.

The resulting trip generation of the proposed site was determined and is presented in Table 2. For the purposes of this initial evaluation, no adjustment was made for trips made via other modes.

As shown, the proposed site is anticipated to generate 383 trips during the highest generating peak, the Saturday midday peak hour. During the weekday AM and PM peak hours, the proposed redevelopment will generate 241 and 336 trips, respectively.

Table 2. Trip Generation – Proposed Land Uses

		Residential[1]	Hotel[2]	Retail[3]	Restaurant[4]	Parking Garage[5]	**Total Trips**
Weekday AM peak	Enter	23	50	12	22	-	***107***
	Exit	74	35	7	18	-	***134***
	Total	97	85	19	40	-	**241**
Weekday PM peak	Enter	68	56	37	24	-	***185***
	Exit	43	53	40	15	-	***151***
	Total	111	109	77	39	-	**336**
Saturday peak	Enter	65	73	47	23	-	***208***
	Exit	53	57	43	22	-	***175***
	Total	118	130	90	45	-	**383**

[1] 300 units of LUC 222

[2] 180 rooms of LUC 310

[3] 20,000 square feet of LUC 820

[4] 4,000 square feet of LUC 932

[5] parking garage – trips assigned to land uses

Net Trip Generation

The net trip generation of the site was calculated and is illustrated in Table 3 below. The net trip generation of the redevelopment was calculated by comparing the trips recently generated by the site with those anticipated to be generated by the redeveloped site.

Table 3. Net Trip Generation

		Existing Site	Proposed Site	Net Trips
Weekday AM Peak Hour	Enter	123	107	-16
	Exit	33	134	+101
	Total	156	241	+85
Weekday PM Peak Hour	Enter	123	185	+62
	Exit	207	151	-56
	Total	330	336	+6
Saturday Peak Hour	Enter	151	208	+57
	Exit	137	175	+38
	Total	288	383	+95

Based on the trips determined above, the redeveloped site will generate between 6 and 95 trips above those previously generated by the site depending on the hour. The recently highest generating peak hour occurred during the weekday PM peak hour when the site was generating 330 trips. The peak hour of the redeveloped site is anticipated to occur on Saturday with 383 generated trips, a difference of 53 peak hour trips.

MaineDOT Traffic Movement Permit

Any project which generates 100 or more passenger car equivalents (PCE) trips during the peak hour of traffic generation, must file a Traffic Movement Permit application with Maine Department of Transportation. As outlined above, a comparison of the trips generated by the recently occupied site and the proposed site reveals that a difference of only 95 peak hour trips at its highest.

An analysis of the peak hour trips calculated using the 7th Edition of Trip Generation yields the result that the recently occupied site generated more peak hour trips than the proposed site. During the PM peak hour, the previously occupied site generated 476 trips based on 7th Edition trip rates. An analysis of the proposed site trips yields a

Saturday peak hour with 449 trips anticipated. Therefore, the MaineDOT Traffic Movement Permit is not required. All backup calculations are provided in the Appendix.

Other Considerations – Internal Trips

Mixed use developments such as that proposed at 45 Brown Street and 477 Congress Street generate internal capture trips which are defined as trips having multiple destinations within a given project site (for example, a resident of 45 Brown Street who visits a restaurant at 477 Congress Street or a hotel guest who also visits the retail offerings). The level of shared trips/internal trip capture for this project was determined based on information published by the Transportation Research Board (TRB) in NCHRP Report 684. This report provides particular percentages of internal trips for Office, Retail, Restaurant, Residential, and Hotel land uses when those uses are located together. East percentage was applied to the appropriate land uses and resulted in the percentages of internal trips for the site presented in Table 4. Backup data is provided attached to this memorandum.

Table 4. Internal Trip Percentages

		Existing Site	Proposed Site
Weekday AM Peak Hour	Enter	7%	9%
	Exit	24%	7%
	Total	10%	8%
Weekday PM Peak Hour	Enter	8%	21%
	Exit	5%	25%
	Total	6%	23%
Saturday Peak Hour	Enter	5%	22%
	Exit	6%	26%
	Total	6%	24%

As shown, with only the office and retail located at the site, the percentages of internal trips between uses is typically between seven and ten percent. The exception is exiting AM trips because the total number of exiting trips is rather low during that period. The internal trips in this case are likely folks stopping at the retail space on their way into work (presumably to pick up a cup of coffee or other convenience item on their way in).

The internally captured trips increase significantly as more land uses are located on the site. There is cross traffic expected between all of the land uses, especially during the PM and Saturday peak hours. Residents will visit restaurants, hotel guests will visit retail, and restaurant goers will visit retail shops while at the site.

When the traffic analysis is conducted, the effect of these internal trips to reduce the traffic impact on area roadways will be incorporated.

Other Considerations – Alternative Modes

As outlined above, the proposed site is located such that a number of trips are likely to occur by walking, bicycling and transit. As a result, the site will generate fewer vehicle trips than was calculated based on ITE trip rates. Recent census data indicates that residents in this area (bordering on Census tracts 3 and 6) significantly use alternate modes to get to their employment (backup information is provided attached to the document). Approximately 38 percent of residents travel by foot to work, seven percent of residents travel by public transportation, and one percent of residents travel by bicycle. Applying these rates to the residential trips at the site would result in a net reduction of 41 peak hour trips. Similar mode shares are likely to be reached at the other land uses on the site and another 60 to 80 peak hour trips that will be made by bicycle, pedestrian or transit.

When the traffic analysis for the site is conducted, these mode splits will be applied to the trip generation.

Other Considerations – Additional Analysis

Although the redevelopment is anticipated to cause only a minor increase in vehicular trips to the site and not require a MaineDOT Traffic Movement Permit, the City of Portland has expressed some concern regarding curb usage and the operations of the site. A large number of the trips to the hotel portion of the site will reach the garage via a valet operation at the front of the site. As such, the City has requested that a review and analysis of valet demand be completed and the resulting impact of the valet on the current parking supply be quantified. This analysis will be conducted as the permitting of the hotel moves forward. A successful hotel valet operation will be observed and scaled appropriately for the proposed hotel at 477 Congress Street to ensure that a backup does not occur on either Congress or Preble Streets and adversely impact traffic operations on those roadways. Any impact that that valet operation has on the curb usage in front of the site will be determined.

The City has also requested that the Project conduct an operational analysis of the four intersections at the corners of the block:

- Congress Street and Preble Street
- Congress Street and Brown Street
- Cumberland Avenue and Brown Street
- Cumberland Avenue and Preble Street

Based on physical constraints and recent or proposed modifications at these locations, it is unlikely that intersection improvements will be required. However, it is important to confirm that the infrastructure is adequate to accommodate the proposed traffic. Each of these concerns will be addressed in future traffic analysis.

Finally, there is currently, and will continue to be, parking facilities provided on the site. The traffic analysis for the site will include a discussion of the existing parking demand on the site and how that demand will be accommodated in the area when the project is developed. In addition, the existing on-street parking demand will be noted and any project related net loss of on street parking supply will determined.

Conclusions

As anticipated, the redevelopment of the 45 Brown Street and 477 Congress Street will result in a net trip generation of less than 100 passenger car equivalents and as such will not require a MaineDOT traffic access permit. However, in order to address concerns raised by the City of Portland, a detailed traffic analysis will be conducted that will include a review of traffic operations at area intersections, a review of the proposed valet operation, and a determination of net parking impacts.

Trip Generation - Project Specific for Existing Condition

Total Site generated trips (not accounting for internal, pass-by, or diverted trips)

Site Land Uses and Descriptions				AM PK HR OF ADJACENT STREET TRAFFIC										PM PK HR OF ADJACENT STREET TRAFFIC									
				directional dist.		average		regression		# trips				directional dist.		average		regression		# trips			
Code	Land Use	Size	Unit	% enter	% exit	Avg Rate	Total by Avg	r^2	total by Eq'n	Method Chosen	Total Trips	Entering	Exiting	% enter	% exit	Avg Rate	Total by Avg	r^2	total by Eq'n	Method Chosen	Total Trips	Entering	Exiting
45 Brown Street																							
Time and Temperature Building																							
710*	General Office Building	120	KSF	86%	14%	0.83	100	0.90	109	regression	109	94	15	17%	83%	0.87	104	0.86	108	regression	108	18	90
820	Shopping Center	50	KSF	62%	38%	0.94	47	0.50	177	average	47	29	18	48%	52%	3.81	191	0.82	330	average	191	91	99
911	Walk In Bank	2.6	KSF				0							44%	56%	12.13	32			average	32	14	18
							0																

*Used Dense Multi-Use Urban Setting in ITE

	total	entering	exiting
AM Peak Hour Total Site Trips:	156	123	33

PM Peak Hour Total Site Trips:	330	124	206

Trip Generation - Project Specific for Existing Cc

Total Site generated trips (not accounting for interna

Site Land Uses and Descriptions				SATURDAY PK HR OF GENERATOR									
				directional dist.		average		regression		# trips			
Code	Land Use	Size	Unit	% enter	% exit	Avg Rate	Total by Avg	r^2	total by Eq'n	Method Chosen	Total Trips	Entering	Exiting
45 Brown Street													
Time and Temperature Building													
710*	General Office Building	120	KSF	54%	46%	0.53	64	-	-	average	64	34	29
820	Shopping Center	50	KSF	52%	48%	4.50	225	0.87	364	average	225	117	108
911	Walk In Bank	2.6	KSF										

Trip Generation - Project Specific

Total Site generated trips (not accounting for internal, pass-by, or diverted trips)

Site Land Uses and Descriptions				AM PK HR OF ADJACENT STREET TRAFFIC									PM PK HR OF ADJACENT STREET TRAFFIC								
				directional dist.		average		regression		# trips			directional dist.		average		regression		# trips			
Code	Land Use	Size	Unit	% enter	% exit	Avg Rate	Total by Avg	r^2	total by Eq'n	Method Chosen	Total Trips	Entering	Exiting	% enter	% exit	Avg Rate	Total by Avg	r^2	total by Eq'n	Method Chosen	Total Trips	Entering	Exiting
45 Brown Street																							
222	Multi-Family Housing (High Rise)	300	UNITS	24%	76%	0.31	93	0.90	97	regression	97	23	74	61%	39%	0.36	108	0.96	111	regression	111	68	43
Time and Temperature Building																							
310	Hotel	180	ROOMS	59%	41%	0.47	85	0.85	85	regression	85	50	35	51%	49%	0.60	108	0.80	109	regression	109	56	53
932	High-Turnover (Sit-Down) Restauran	4	KSF	55%	45%	9.94	40	-	-	average	40	22	18	62%	38%	9.77	39	-	-	average	39	24	15
820	Shopping Center	20	KSF	62%	38%	0.94	19	0.50	162	average	19	12	7	48%	52%	3.81	76	0.82	165	average	76	37	40
							0																
											total	entering	exiting								total	entering	exiting
										AM Peak Hour Total Site Trips:	241	107	134							**PM Peak Hour Total Site Trips:**	335	184	151

Trip Generation - Project Specific

Total Site generated trips (not accounting for internal, pass-b

Site Land Uses and Descriptions				SATURDAY PK HR OF GENERATOR									
				directional dist.		average		regression		# trips			
Code	Land Use	Size	Unit	% enter	% exit	Avg Rate	Total by Avg	r^2	total by Eq'n	Method Chosen	Total Trips	Entering	Exiting
45 Brown Street													
222	Multi-Family Housing (High Rise)	300	UNITS	55%	45%	0.36	108	0.98	118	regression	118	65	53
Time and Temperature Building													
310	Hotel	180	ROOMS	56%	44%	0.72	130	0.80	129	average	130	73	57
932	High-Turnover (Sit-Down) Restauran	4	KSF	51%	49%	11.19	45	-	-	average	45	23	22
820	Shopping Center	20	KSF	52%	48%	4.50	90	0.87	174	average	90	47	43
										Saturday Peak Hour Total Site Trips:	382	207	175

Brown St Tower Redevelopment
Trip Generation Summary

	Proposed Site Generated Trips					*Existing Trip Generation*					Net New
Peak Period	Total	Transit	Bike & Pedestrian	Internal Capture	Net Vehicles	Total	Transit	Bike & Pedestrian	Internal Capture	Net Vehicles	Trips Total
Weekday Morning		*3%*	*43%*	*8%*			*3%*	*43%*	*10%*		
Enter	107	4	46	10	47	123	4	53	8	58	**-16**
Exit	134	5	57	10	62	33	1	14	8	10	**100**
Total	241	8	103	20	109	156	5	67	16	68	**84**
Weekday Evening		3%	43%	*23%*			3%	43%	*6%*		
Enter	184	6	79	38	61	124	4	53	10	56	**60**
Exit	151	5	65	38	43	206	7	89	10	101	**-56**
Total	335	11	144	76	104	330	11	142	20	157	**4**
Saturday		3%	43%	*23%*			3%	43%	*6%*		
Enter	207	7	89	43	68	151	5	65	9	72	**55**
Exit	175	6	75	43	51	137	5	59	9	65	**38**
Total	382	13	164	86	118	289	10	124	17	137	**93**

Peak Period	New Trips
Weekday Morning	
Enter	**107**
Exit	**134**
Total	**241**
Weekday Evening	
Enter	**184**
Exit	**151**
Total	**335**
Saturday	
Enter	**207**
Exit	**175**
Total	**382**

Brown St Tower Redevelopment

AM Pk Hr

Land Use	Entering							Exiting							Totals						
	All Entering Trips				Entering External			All Exiting Trips				Exiting External			All Trips				All External		
	% int.	Internal	External	Total	Vehicles	Transit	Non-Motorized	% int.	Internal	External	Total	Vehicles	Transit	Non-Motorized	% int.	Internal	External	Total	Vehicles	Transit	Non-Motorized
Office	4%	4	90	94	90	0	0	27%	4	11	15	11	0	0	7%	8	101	109	101	0	0
Retail	14%	4	25	29	25	0	0	22%	4	14	18	14	0	0	17%	8	39	47	39	0	0
	7%	8	115	**123**	115	0	0	24%	8	25	**33**	25	0	0	10%	16	140	**156**	140	0	0

PM Pk Hr

Land Use	Entering							Exiting							Totals						
	All Entering Trips				Entering External			All Exiting Trips				Exiting External			All Trips				All External		
	% int.	Internal	External	Total	Vehicles	Transit	Non-Motorized	% int.	Internal	External	Total	Vehicles	Transit	Non-Motorized	% int.	Internal	External	Total	Vehicles	Transit	Non-Motorized
Office	11%	2	16	18	16	0	0	9%	8	82	90	82	0	0	9%	10	98	108	98	0	0
Retail	8%	8	97	105	97	0	0	2%	2	115	117	115	0	0	5%	10	212	222	212	0	0
	8%	10	113	**123**	113	0	0	5%	10	197	**207**	197	0	0	6%	20	310	**330**	310	0	0

NCHRP 8-51 Internal Trip Capture Estimation Tool			
Project Name:	Brown St Tower Redevelopment	**Organization:**	VHB
Project Location:	Portland, ME	**Performed By:**	ELQ
Scenario Description:	Existing Trip Generation	**Date:**	1/10/2020
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	120	1K sf	109	94	15
Retail	820 and 911	53	1K sf	47	29	18
Restaurant				0		
Cinema/Entertainment				0		
Residential				0		
Hotel				0		
All Other Land Uses[2]				0		
Total				156	123	33

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		4	0	0	0	0
Retail	4		0	0	0	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	0	0	0		0
Hotel	0	0	0	0	0	

Table 5-A: Computations Summary

	Total	Entering	Exiting
All Person-Trips	156	123	33
Internal Capture Percentage	10%	7%	24%
External Vehicle-Trips[3]	140	115	25
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	4%	27%
Retail	14%	22%
Restaurant	N/A	N/A
Cinema/Entertainment	N/A	N/A
Residential	N/A	N/A
Hotel	N/A	N/A

[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:	Brown St Tower 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	94	94	1.00	15	15
Retail	1.00	29	29	1.00	18	18
Restaurant	1.00	0	0	1.00	0	0
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.00	0	0	1.00	0	0
Hotel	1.00	0	0	1.00	0	0

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		4	9	0	0	0
Retail	5		2	0	3	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	0	0	0		0
Hotel	0	0	0	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		9	0	0	0	0
Retail	4		0	0	0	0
Restaurant	13	2		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	3	5	0	0		0
Hotel	3	1	0	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	4	90	94	90	0	0
Retail	4	25	29	25	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	0	0	0	0	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	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	4	11	15	11	0	0
Retail	4	14	18	14	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	0	0	0	0	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	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:	Brown St Tower Redevelopment	**Organization:**	VHB
Project Location:	Portland, ME	**Performed By:**	ELQ
Scenario Description:	Existing Trip Generation	**Date:**	1/10/2020
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	120	1K sf	108	18	90
Retail	820 and 911	53	1K sf	222	105	117
Restaurant				0		
Cinema/Entertainment				0		
Residential				0		
Hotel				0		
All Other Land Uses[2]				0		
Total				330	123	207

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		0				
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		8	0	0	0	0
Retail	2		0	0	0	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	0	0	0		0
Hotel	0	0	0	0	0	

Table 5-P: Computations Summary

	Total	Entering	Exiting
All Person-Trips	330	123	207
Internal Capture Percentage	6%	8%	5%
External Vehicle-Trips[3]	310	113	197
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	11%	9%
Retail	8%	2%
Restaurant	N/A	N/A
Cinema/Entertainment	N/A	N/A
Residential	N/A	N/A
Hotel	N/A	N/A

[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:	Brown St Tower 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	18	18	1.00	90	90
Retail	1.00	105	105	1.00	117	117
Restaurant	1.00	0	0	1.00	0	0
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.00	0	0	1.00	0	0
Hotel	1.00	0	0	1.00	0	0

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		18	4	0	2	0
Retail	2		34	5	30	6
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	0	0	0		0
Hotel	0	0	0	0	0	

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		8	0	0	0	0
Retail	6		0	0	0	0
Restaurant	5	53		0	0	0
Cinema/Entertainment	1	4	0		0	0
Residential	10	11	0	0		0
Hotel	0	2	0	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	2	16	18	16	0	0
Retail	8	97	105	97	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	0	0	0	0	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	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	8	82	90	82	0	0
Retail	2	115	117	115	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	0	0	0	0	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	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.

Brown St Tower Redevelopment

AM Pk Hr

Land Use	Entering							Exiting							Totals						
	All Entering Trips				Entering External			All Exiting Trips				Exiting External			All Trips				All External		
	% int.	Internal	External	Total	Vehicles	Transit	Non-Motorized	% int.	Internal	External	Total	Vehicles	Transit	Non-Motorized	% int.	Internal	External	Total	Vehicles	Transit	Non-Motorized
Retail	17%	2	10	12	10	0	0	14%	1	6	7	6	0	0	16%	3	16	19	16	0	0
Restaurant	27%	6	16	22	16	0	0	17%	3	15	18	15	0	0	23%	9	31	40	31	0	0
Residential	4%	1	22	23	22	0	0	7%	5	69	74	69	0	0	6%	6	91	97	91	0	0
Hotel	2%	1	49	50	49	0	0	3%	1	34	35	34	0	0	2%	2	83	85	83	0	0
	9%	10	97	**107**	97	0	0	7%	10	124	**134**	124	0	0	8%	20	221	**241**	221	0	0

PM Pk Hr

Land Use	Entering							Exiting							Totals						
	All Entering Trips				Entering External			All Exiting Trips				Exiting External			All Trips				All External		
	% int.	Internal	External	Total	Vehicles	Transit	Non-Motorized	% int.	Internal	External	Total	Vehicles	Transit	Non-Motorized	% int.	Internal	External	Total	Vehicles	Transit	Non-Motorized
Retail	27%	10	27	37	27	0	0	48%	19	21	40	21	0	0	38%	29	48	77	48	0	0
Restaurant	46%	11	13	24	13	0	0	67%	10	5	15	5	0	0	54%	21	18	39	18	0	0
Residential	19%	13	55	68	55	0	0	16%	7	36	43	36	0	0	18%	20	91	111	91	0	0
Hotel	7%	4	52	56	52	0	0	4%	2	51	53	51	0	0	6%	6	103	109	103	0	0
	21%	38	147	**185**	147	0	0	25%	38	113	**151**	113	0	0	23%	76	260	**336**	260	0	0

NCHRP 8-51 Internal Trip Capture Estimation Tool			
Project Name:	Brown St Tower Redevelopment	**Organization:**	VHB
Project Location:	Portland, ME	**Performed By:**	ELQ
Scenario Description:	Proposed Trip Generation	**Date:**	1/10/2020
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				0		
Retail	820	20	1K sf	19	12	7
Restaurant	932	4	1K sf	40	22	18
Cinema/Entertainment				0		
Residential	222	300	Units	97	23	74
Hotel	310	180	Rooms	85	50	35
All Other Land Uses[2]				0		
Total				241	107	134

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		0	0	0	0	0
Retail	0		1	0	0	0
Restaurant	0	1		0	1	1
Cinema/Entertainment	0	0	0		0	0
Residential	0	1	4	0		0
Hotel	0	0	1	0	0	

Table 5-A: Computations Summary

	Total	Entering	Exiting
All Person-Trips	241	107	134
Internal Capture Percentage	8%	9%	7%
External Vehicle-Trips[3]	221	97	124
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	N/A	N/A
Retail	17%	14%
Restaurant	27%	17%
Cinema/Entertainment	N/A	N/A
Residential	4%	7%
Hotel	2%	3%

[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:	Brown St Tower 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	0	0	1.00	0	0
Retail	1.00	12	12	1.00	7	7
Restaurant	1.00	22	22	1.00	18	18
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.00	23	23	1.00	74	74
Hotel	1.00	50	50	1.00	35	35

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		0	0	0	0	0
Retail	2		1	0	1	0
Restaurant	6	3		0	1	1
Cinema/Entertainment	0	0	0		0	0
Residential	1	1	15	0		0
Hotel	26	5	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		4	5	0	0	0
Retail	0		11	0	0	0
Restaurant	0	1		0	1	2
Cinema/Entertainment	0	0	0		0	0
Residential	0	2	4	0		0
Hotel	0	0	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	0	0	0	0	0	0
Retail	2	10	12	10	0	0
Restaurant	6	16	22	16	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	1	22	23	22	0	0
Hotel	1	49	50	49	0	0
All Other Land Uses[3]	0	0	0	0	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	0	0	0	0	0	0
Retail	1	6	7	6	0	0
Restaurant	3	15	18	15	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	5	69	74	69	0	0
Hotel	1	34	35	34	0	0
All Other Land Uses[3]	0	0	0	0	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:	Brown St Tower Redevelopment	**Organization:**	VHB
Project Location:	Portland, ME	**Performed By:**	ELQ
Scenario Description:	Proposed Trip Generation	**Date:**	1/10/2020
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				0		
Retail	820	20	1K sf	77	37	40
Restaurant	932	4	1k SF	39	24	15
Cinema/Entertainment				0		
Residential	222	300	Units	111	68	43
Hotel	310	180	Rooms	109	56	53
All Other Land Uses[2]				0		
Total				336	185	151

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					500	
Restaurant					500	
Cinema/Entertainment						
Residential		500	500			
Hotel					500	

Table 4-P: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	0		7	0	10	2
Restaurant	0	6		0	3	1
Cinema/Entertainment	0	0	0		0	0
Residential	0	3	3	0		1
Hotel	0	1	1	0	0	

Table 5-P: Computations Summary

	Total	Entering	Exiting
All Person-Trips	336	185	151
Internal Capture Percentage	23%	21%	25%
External Vehicle-Trips[3]	260	147	113
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	N/A	N/A
Retail	27%	48%
Restaurant	46%	67%
Cinema/Entertainment	N/A	N/A
Residential	19%	16%
Hotel	7%	4%

[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:	Brown St Tower 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	0	0	1.00	0	0
Retail	1.00	37	37	1.00	40	40
Restaurant	1.00	24	24	1.00	15	15
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.00	68	68	1.00	43	43
Hotel	1.00	56	56	1.00	53	53

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		0	0	0	0	0
Retail	1		12	2	10	2
Restaurant	0	6		1	3	1
Cinema/Entertainment	0	0	0		0	0
Residential	2	16	8	0		1
Hotel	0	8	36	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		3	0	0	3	0
Retail	0		7	0	31	10
Restaurant	0	19		0	11	40
Cinema/Entertainment	0	1	1		3	1
Residential	0	3	3	0		7
Hotel	0	1	1	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	0	0	0	0	0	0
Retail	10	27	37	27	0	0
Restaurant	11	13	24	13	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	13	55	68	55	0	0
Hotel	4	52	56	52	0	0
All Other Land Uses[3]	0	0	0	0	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	0	0	0	0	0	0
Retail	19	21	40	21	0	0
Restaurant	10	5	15	5	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	7	36	43	36	0	0
Hotel	2	51	53	51	0	0
All Other Land Uses[3]	0	0	0	0	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.

Brown and Congress - Existing

Saturday peak hour

Land Use	Entering							Exiting							Totals						
	All Entering Trips				Entering External			All Exiting Trips				Exiting External			All Trips				All External		
	% int.	Internal	External	Total	Vehicles	Transit	Non-Motorized	% int.	Internal	External	Total	Vehicles	Transit	Non-Motorized	% int.	Internal	External	Total	Vehicles	Transit	Non-Motorized
Office	6%	2	32	34	32	0	0	21%	6	23	29	23	0	0	13%	8	55	63	55	0	0
Retail	5%	6	111	117	111	0	0	2%	2	106	108	106	0	0	4%	8	217	225	217	0	0
	5%	8	143	**151**	143	0	0	6%	8	129	**137**	129	0	0	6%	16	272	**288**	272	0	0

Brown and Congress - Existing

Saturday peak hour

Land Use	Entering							Exiting							Totals						
	All Entering Trips				Entering External			All Exiting Trips				Exiting External			All Trips				All External		
	% int.	Internal	External	Total	Vehicles	Transit	Non-Motorized	% int.	Internal	External	Total	Vehicles	Transit	Non-Motorized	% int.	Internal	External	Total	Vehicles	Transit	Non-Motorized
Office	6%	2	32	34	32	0	0	21%	6	23	29	23	0	0	13%	8	55	63	55	0	0
Retail	5%	6	111	117	111	0	0	2%	2	106	108	106	0	0	4%	8	217	225	217	0	0
	5%	8	143	**151**	143	0	0	6%	8	129	**137**	129	0	0	6%	16	272	**288**	272	0	0

Brown Tower Redevelopment

Saturday Peak Hour

Land Use	Entering							Exiting							Totals						
	All Entering Trips				Entering External			All Exiting Trips				Exiting External			All Trips				All External		
	% int.	Internal	External	Total	Vehicles	Transit	Non-Motorized	% int.	Internal	External	Total	Vehicles	Transit	Non-Motorized	% int.	Internal	External	Total	Vehicles	Transit	Non-Motorized
Retail	30%	14	33	47	33	0	0	47%	20	23	43	23	0	0	38%	34	56	90	56	0	0
Restaurant	48%	11	12	23	12	0	0	68%	15	7	22	7	0	0	58%	26	19	45	19	0	0
Residential	23%	15	50	65	50	0	0	17%	9	44	53	44	0	0	20%	24	94	118	94	0	0
Hotel	8%	6	67	73	67	0	0	4%	2	55	57	55	0	0	6%	8	122	130	122	0	0
	22%	46	162	**208**	162	0	0	26%	46	129	**175**	129	0	0	24%	92	291	**383**	291	0	0

NCHRP 8-51 Internal Trip Capture Estimation Tool			
Project Name:	Brown St Tower Redevelopment	**Organization:**	VHB
Project Location:	Portland, ME	**Performed By:**	ELQ
Scenario Description:	Proposed Trip Generation	**Date:**	1/10/2020
Analysis Year:		**Checked By:**	
Analysis Period:	**Saturday**	**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				0		
Retail	820	20	1K sf	90	47	43
Restaurant	932	4	1k SF	45	23	22
Cinema/Entertainment				0		
Residential	222	300	Units	118	65	53
Hotel	310	180	Rooms	130	73	57
All Other Land Uses[2]				0		
Total				383	208	175

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					500	
Restaurant					500	
Cinema/Entertainment						
Residential		500	500			
Hotel					500	

Table 4-P: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	0		7	0	11	2
Restaurant	0	9		0	4	2
Cinema/Entertainment	0	0	0		0	0
Residential	0	4	3	0		2
Hotel	0	1	1	0	0	

Table 5-P: Computations Summary

	Total	Entering	Exiting
All Person-Trips	383	208	175
Internal Capture Percentage	24%	22%	26%
External Vehicle-Trips[3]	291	162	129
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	N/A	N/A
Retail	30%	47%
Restaurant	48%	68%
Cinema/Entertainment	N/A	N/A
Residential	23%	17%
Hotel	8%	4%

[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:	Brown St Tower Redevelopment
Analysis Period:	**Saturday**

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	0	0	1.00	0	0
Retail	1.00	47	47	1.00	43	43
Restaurant	1.00	23	23	1.00	22	22
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.00	65	65	1.00	53	53
Hotel	1.00	73	73	1.00	57	57

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		0	0	0	0	0
Retail	1		12	2	11	2
Restaurant	1	9		2	4	2
Cinema/Entertainment	0	0	0		0	0
Residential	2	20	10	0		2
Hotel	0	9	39	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		4	0	0	3	0
Retail	0		7	0	30	12
Restaurant	0	24		0	10	52
Cinema/Entertainment	0	2	1		3	1
Residential	0	4	3	0		9
Hotel	0	1	1	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	0	0	0	0	0	0
Retail	14	33	47	33	0	0
Restaurant	11	12	23	12	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	15	50	65	50	0	0
Hotel	6	67	73	67	0	0
All Other Land Uses[3]	0	0	0	0	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	0	0	0	0	0	0
Retail	20	23	43	23	0	0
Restaurant	15	7	22	7	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	9	44	53	44	0	0
Hotel	2	55	57	55	0	0
All Other Land Uses[3]	0	0	0	0	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.

B08301

MEANS OF TRANSPORTATION TO WORK
Universe: Workers 16 years and over
2013-2017 American Community Survey 5-Year Estimates

Supporting documentation on code lists, subject definitions, data accuracy, and statistical testing can be found on the American Community Survey website in the Technical Documentation section.

Sample size and data quality measures (including coverage rates, allocation rates, and response rates) can be found on the American Community Survey website in the Methodology section.

Although the American Community Survey (ACS) produces population, demographic and housing unit estimates, it is the Census Bureau's Population Estimates Program that produces and disseminates the official estimates of the population for the nation, states, counties, cities, and towns and estimates of housing units for states and counties.

	Census Tract 3, Cumberland County, Maine		Census Tract 6, Cumberland County, Maine	
	Estimate	Margin of Error	Estimate	Margin of Error
Total:	1,317	+/-192	1,483	+/-249
Car, truck, or van:	661	+/-157	583	+/-146
Drove alone	579	+/-156	497	+/-126
Carpooled:	82	+/-54	86	+/-66
In 2-person carpool	67	+/-52	86	+/-66
In 3-person carpool	0	+/-10	0	+/-10
In 4-person carpool	5	+/-8	0	+/-10
In 5- or 6-person carpool	10	+/-15	0	+/-10
In 7-or-more-person carpool	0	+/-10	0	+/-10
Public transportation (excluding taxicab):	45	+/-36	153	+/-76
Bus or trolley bus	45	+/-36	136	+/-70
Streetcar or trolley car (carro publico in Puerto Rico)	0	+/-10	0	+/-10
Subway or elevated	0	+/-10	0	+/-10
Railroad	0	+/-10	0	+/-10
Ferryboat	0	+/-10	17	+/-20
Taxicab	10	+/-15	7	+/-11
Motorcycle	0	+/-10	11	+/-15
Bicycle	15	+/-17	10	+/-15
Walked	552	+/-120	506	+/-159
Other means	0	+/-10	25	+/-40
Worked at home	34	+/-33	188	+/-72

Data are based on a sample and are subject to sampling variability. The degree of uncertainty for an estimate arising from sampling variability is represented through the use of a margin of error. The value shown here is the 90 percent margin of error. The margin of error can be interpreted roughly as providing a 90 percent probability that the interval defined by the estimate minus the margin of error and the estimate plus the margin of error (the lower and upper confidence bounds) contains the true value. In addition to sampling variability, the ACS estimates are subject to nonsampling error (for a discussion of nonsampling variability, see Accuracy of the Data). The effect of nonsampling error is not represented in these tables.

Workers include members of the Armed Forces and civilians who were at work last week.

While the 2013-2017 American Community Survey (ACS) data generally reflect the February 2013 Office of Management and Budget (OMB) definitions of metropolitan and micropolitan statistical areas; in certain instances the names, codes, and boundaries of the principal cities shown in ACS tables may differ from the OMB definitions due to differences in the effective dates of the geographic

entities.

Estimates of urban and rural populations, housing units, and characteristics reflect boundaries of urban areas defined based on Census 2010 data. As a result, data for urban and rural areas from the ACS do not necessarily reflect the results of ongoing urbanization.

Source: U.S. Census Bureau, 2013-2017 American Community Survey 5-Year Estimates

Explanation of Symbols:

1. An '**' entry in the margin of error column indicates that either no sample observations or too few sample observations were available to compute a standard error and thus the margin of error. A statistical test is not appropriate.
2. An '-' entry in the estimate column indicates that either no sample observations or too few sample observations were available to compute an estimate, or a ratio of medians cannot be calculated because one or both of the median estimates falls in the lowest interval or upper interval of an open-ended distribution.
3. An '-' following a median estimate means the median falls in the lowest interval of an open-ended distribution.
4. An '+' following a median estimate means the median falls in the upper interval of an open-ended distribution.
5. An '***' entry in the margin of error column indicates that the median falls in the lowest interval or upper interval of an open-ended distribution. A statistical test is not appropriate.
6. An '*****' entry in the margin of error column indicates that the estimate is controlled. A statistical test for sampling variability is not appropriate.
7. An 'N' entry in the estimate and margin of error columns indicates that data for this geographic area cannot be displayed because the number of sample cases is too small.
8. An '(X)' means that the estimate is not applicable or not available.

Trip Generation - Project Specific for Existing Condition

Total Site generated trips (not accounting for internal, pass-by, or diverted trips)

Site Land Uses and Descriptions				AM PK HR OF ADJACENT STREET TRAFFIC										7th edition			
				directional dist.		average		regression		# trips							
Code	Land Use	Size	Unit	% enter	% exit	Avg Rate	Total by Avg	r^2	total by Eq'n	Method Chosen	Total Trips	Entering	Exiting	Avg Rate	Total	Entering	Exiting
45 Brown Street																	
Time and Temperature Building																	
710*	General Office Building	120	KSF	86%	14%	0.83	100	0.90	109	regression	109	94	15	1.55	186	160	26
820	Shopping Center	50	KSF	62%	38%	0.94	47	0.50	177	average	47	29	18	1.03	52	32	20
911	Walk In Bank	2.6	KSF				0								0	0	0
							0										

*Used Dense Multi-Use Urban Setting in ITE

	total	entering	exiting				
AM Peak Hour Total Site Trips:	156	123	33	**l Site Trips:**	238	192	46

Trip Generation - Project Specific for Existing Co

Total Site generated trips (not accounting for interna

Site Land Uses and Descriptions				PM PK HR OF ADJACENT STREET TRAFFIC										7th edition			
				directional dist.		average		regression		# trips							
Code	Land Use	Size	Unit	% enter	% exit	Avg Rate	Total by Avg	r^2	total by Eq'n	Method Chosen	Total Trips	Entering	Exiting	Avg Rate	Total	Entering	Exiting
45 Brown Street																	
Time and Temperature Building																	
710*	General Office Building	120	KSF	17%	83%	0.87	104	0.86	108	regression	108	18	90	1.49	179	30	148
820	Shopping Center	50	KSF	48%	52%	3.81	191	0.82	330	average	191	91	99	3.75	188	90	98
911	Walk In Bank	2.6	KSF	44%	56%	12.13	32			average	32	14	18	42.02	109	48	61
										PM Peak Hour Total Site Trips:	330	124	206	**Site Trips:**	476	168	307

*Used Dense Multi-Use Urban Setting in ITE

Trip Generation - Project Specific for Existing Co

Total Site generated trips (not accounting for interna

Site Land Uses and Descriptions				SATURDAY PK HR OF GENERATOR										7th edition			
				directional dist.		average		regression		# trips							
Code	Land Use	Size	Unit	% enter	% exit	Avg Rate	Total by Avg	r^2	total by Eq'n	Method Chosen	Total Trips	Entering	Exiting	Avg Rate	Total	Entering	Exiting
45 Brown Street																	
Time and Temperature Building																	
710*	General Office Building	120	KSF	54%	46%	0.53	64	-	-	average	64	34	29	0.41	49	27	23
820	Shopping Center	50	KSF	52%	48%	4.50	225	0.87	364	average	225	117	108	4.97	249	129	119
911	Walk In Bank	2.6	KSF												0	0	0
										Saturday Peak Hour Total Site Trips:	289	151	137	**Site Trips:**	298	156	142

*Used Dense Multi-Use Urban Setting in ITE

Trip Generation - Proposed Site

Total Site generated trips (not accounting for internal, pass-by, or diverted trips)

Site Land Uses and Descriptions				AM PK HR OF ADJACENT STREET TRAFFIC										7th edition			
				directional dist.		average		regression		# trips							
Code	Land Use	Size	Unit	% enter	% exit	Avg Rate	Total by Avg	r^2	total by Eq'n	Method Chosen	Total Trips	Entering	Exiting	Avg Rate	Total	Entering	Exiting
45 Brown Street																	
222	Multi-Family Housing (High Rise)	300	UNITS	24%	76%	0.31	93	0.90	97	regression	97	23	74	0.30	90	22	68
Time and Temperature Building																	
310	Hotel	180	ROOMS	59%	41%	0.47	85	0.85	85	regression	85	50	35	0.67	121	71	49
932	High-Turnover (Sit-Down) Restauran	4	KSF	55%	45%	9.94	40	-	-	average	40	22	18	11.52	46	25	21
820	Shopping Center	20	KSF	62%	38%	0.94	19	0.50	162	average	19	12	7	1.03	21	13	8
							0										
											total	entering	exiting		total		
										AM Peak Hour Total Site Trips:	241	107	134	**l Site Trips:**	277	131	146

Trip Generation - Proposed Site

Total Site generated trips (not accounting for internal, pass-b

Site Land Uses and Descriptions				PM PK HR OF ADJACENT STREET TRAFFIC										7th edition			
				directional dist.		average		regression		# trips							
Code	Land Use	Size	Unit	% enter	% exit	Avg Rate	Total by Avg	r^2	total by Eq'n	Method Chosen	Total Trips	Entering	Exiting	Avg Rate	Total	Entering	Exiting
45 Brown Street																	
222	Multi-Family Housing (High Rise)	300	UNITS	61%	39%	0.36	108	0.96	111	regression	111	68	43	0.35	105	64	41
Time and Temperature Building																	
310	Hotel	180	ROOMS	51%	49%	0.60	108	0.80	109	regression	109	56	53	0.70	126	64	62
932	High-Turnover (Sit-Down) Restauran	4	KSF	62%	38%	9.77	39	-	-	average	39	24	15	10.92	44	27	17
820	Shopping Center	20	KSF	48%	52%	3.81	76	0.82	165	average	76	37	40	3.75	75	36	39
										PM Peak Hour Total Site Trips:	335	184	151	**Site Trips:**	350	191	158

Trip Generation - Proposed Site

Total Site generated trips (not accounting for internal, pass-b

Site Land Uses and Descriptions				SATURDAY PK HR OF GENERATOR										7th edition			
				directional dist.		average		regression		# trips							
Code	Land Use	Size	Unit	% enter	% exit	Avg Rate	Total by Avg	r^2	total by Eq'n	Method Chosen	Total Trips	Entering	Exiting	Avg Rate	Total	Entering	Exiting
45 Brown Street																	
222	Multi-Family Housing (High Rise)	300	UNITS	55%	45%	0.36	108	0.98	118	regression	118	65	53	0.40	120	66	47
Time and Temperature Building																	
310	Hotel	180	ROOMS	56%	44%	0.72	130	0.80	129	average	130	73	57	0.87	157	88	69
932	High-Turnover (Sit-Down) Restauran	4	KSF	51%	49%	11.19	45	-	-	average	45	23	22	20.00	80	41	39
820	Shopping Center	20	KSF	52%	48%	4.50	90	0.87	174	average	90	47	43	4.97	99	52	48
										Saturday Peak Hour Total Site Trips:	382	207	175	**Site Trips:**	456	246	203

Brown St Tower Redevelopment

Trip Generation Summary

	Proposed Site Generated Trips					*Existing Trip Generation*					Net New
Peak Period	Total	Transit	Bike & Pedestrian	Internal Capture	Net Vehicles	Total	Transit	Bike & Pedestrian	Internal Capture	Net Vehicles	Trips Total
Weekday Morning		*3%*	*43%*	*8%*			*3%*	*43%*	*10%*		
Enter	131	4	56	12	59	192	7	83	12	91	**-62**
Exit	146	5	63	12	67	46	2	20	12	12	**100**
Total	277	9	119	23	126	238	8	102	24	103	**38**
Weekday Evening		3%	43%	*23%*			3%	43%	*6%*		
Enter	191	7	82	40	63	168	6	72	14	76	**22**
Exit	158	5	68	40	45	307	10	132	14	150	**-149**
Total	350	12	150	79	108	476	16	204	29	226	**-127**
Saturday		3%	43%	*23%*			3%	43%	*6%*		
Enter	246	8	106	51	81	156	5	67	9	74	**90**
Exit	203	7	87	51	58	142	5	61	9	67	**61**
Total	449	15	193	102	139	298	10	128	18	142	**151**

9. ZONING ASSESSMENT

The project is in the City's B-3 Zone and is included in the Congress Street Historic District. The Time & Temperature Tower and the Preble Street buildings are identified as "Contributing Structures" to the Historic District. In addition, The Longfellow House and Maine Historical Society Library that abut the property have Landmark status. The building frontage along Congress Street is within the Pedestrian Activities District Overlay Zone (PAD) and Preble Street is a PAD Encouragement Area.

The current land use designations for 477-481 Congress Street are approximately 123,000 square feet of office and 2,600 square feet of bank. The current land use for 22 Preble Street is approximately 50,000 square feet of office and retail. The gross square footage of the buildings, including basements and sub basements, is 202,000 square feet.

The project includes the conversion of 477 Congress Street into a 196-room hotel with associated amenity spaces, retail, and a future restaurant.

The proposed uses are permitted within the B-3 zone. The attached Zoning Assessment Table shows the project complies with dimensional requirements specified in the City's Land Use Ordinance.

Inclusionary Zoning for Hotel Projects

Per Section 18.2.5 of the Land Use Code, Inclusionary Housing for Hotel Projects, the hotel use is a conditional use subject to compliance with the requirements of that section. All hotel projects shall provide one Low Income Housing for rent in the City for every 28 rooms in the hotel project. For this 196-room project, that equates to 7 units of Low-Income Housing. The applicant proposes to meet the requirements of this section through payment of a fee-in-lieu per subsection 18.2.5(E). The current fee-in-lieu is $3,086 per hotel guest room, or $558,566. This amount will be paid to the City's Housing Trust Fund.

9.1 ATTACHMENTS

- City of Portland Zoning Assessment Table

ZONING ANALYSIS Relevant Zone(s) B-3; PAD Overlay

All Projects:

	Required	Proposed
Lot Size	None	78,680 SF
Area Per Dwelling Unit	None	N/A
Minimum Street Frontage	15'	121'
Front Yard Minimum	5'	0'
Front Yard Maximum	None	0'
Rear Yard	None	0'
Yard Right	None	0'
Yard Left	None	0'
Side Street Setback	15'	0' (existing)
Step Back	30'	0' (existing)
Maximum Lot Coverage	100%	81%
Minimum Lot Coverage	None	N/A
Maximum Height	210'	158'-8" (existing)
Open Space	N/A	0
Maximum Impervious Area	100%	100%
Pavement Setback	None	N/A
Floor Area Ratio	N/A	N/A
Off Street Parking Spaces	None	90
Loading Bays	None	None
Other 1		
Other 2		
Other 3		

Planned Residential Unit Developments (PRUD) Requirements Not Applicable

	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) Not 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):			

10. SITE PLAN STANDARDS ASSESSMENT

Chapter 6 of the City of Portland's Land Use Code outlines the use standards that must be met by Major Site Plan projects. The proposed development will follow the City's design standards as described in the following section.

10.1 DETERMINATION OF USE

Per table 6-C of the Land Use Code, Hotel, retail, and restaurant uses are all Permitted in the B-3 zone.

10.2 SUPPLEMENTAL USE STANDARDS (SECTION 6.4 OF LAND USE CODE)

Adult business establishments – not applicable to this project.

Bars and restaurants in the B-6 zone – not applicable to this project.

Bed and breakfasts – not applicable to this project.

Campgrounds – not applicable to this project.

Commercial uses in the B-1/B-1b zones – not applicable to this project.

Correctional Pre-release facilities – not applicable to this project.

Hostels – not applicable to this project.

Lodging Houses – not applicable to this project.

Marijuana-related uses – not applicable to this project.

Marine uses – not applicable to this project.

Multiplexes – not applicable to this project.

Office parks in the O-P zone – not applicable to this project.

Planned unit development in the IR-3 zone – not applicable to this project.

Retail in the B-3/B-3b/B-3c and B-5/B-5b zones – Retail will not include wholesale and bulk purchase lumber and construction supply sales.

Solar energy systems – not applicable to this project.

Tow lots – not applicable to this project.

Wind energy systems – not applicable to this project.

10.3 CONDITIONAL USE STANDARDS (SECTION 6.5 OF LAND USE CODE)

Not applicable. There are no conditional uses proposed with this project.

10.4 ACCESSORY USES (SECTION 6.6 OF LAND USE CODE)

Not applicable. There are no accessory uses proposed with this project.

10.5 TEMPORARY USES (SECTION 6.7 OF LAND USE CODE)

Not applicable. There are no temporary uses proposed with this project.

10.6 PERFORMANCE STANDARDS (SECTION 6.8 OF LAND USE CODE)

Design. In the B-3 zone, all building and site alterations, and all provision for landscaping and other pedestrian amenities shall be consistent with the Downtown Urban Design Guidelines.

This proposed project is a change in use of existing buildings; no new buildings or site alterations are proposed. Renovations to building facades are shown on the attached architectural drawings. Proposed alterations to the public sidewalks are shown on the plans and include provision of brick sidewalk along all building frontage and street trees as approved by the City arborist.

Exterior lighting. All exterior lighting will be full cut-off fixtures to direct illumination onto the site and prevent illumination onto neighboring properties.

Historic Resources. The project is within the Downtown Historic District and is subject to the preservation provisions of the Article 17. An application has been submitted to the Historic Preservation Commission for review.

Noise. No noise generated by the project will exceed the noise standard in Table 6-G of the land use code. For the B-3 zone, this is 60 dBA in the daytime/evening (7 a.m. – 9 p.m.) and 55 dBA at night (9 p.m. – 7 a.m.). Noises from construction and maintenance activities are exempt between 7:00 a.m. and 10:00 p.m.

Waste Disposal. Waste disposal will be via a licensed hauler. All solid waste and recycling will be removed from the premises via the service entrance on Preble Street.

10. ZONING ASSESSMENT

The project is in the City's B-3 Zone and is included in the Congress Street Historic District. The Time & Temperature Tower and the Preble Street buildings are identified as "Contributing Structures" to the Historic District. In addition, The Longfellow House and Maine Historical Society Library that abut the property have Landmark status. The building frontage along Congress Street is within the Pedestrian Activities District Overlay Zone (PAD) and Preble Street is a PAD Encouragement Area.

The current land use designations for 477-481 Congress Street is approximately 123,000 square feet of office and 2,600 square feet of bank. The current land use for 22 Preble Street is approximately 50,000 square feet of office and retail. The gross square footage of the buildings, including basements and sub basements, is 202,000 square feet.

The project includes the conversion of 477 Congress Street into a 181-room hotel with associated amenity spaces, and approximately 20,000 square feet of retail. The 2,600 square feet of bank space will be converted into a high-end restaurant.

The proposed uses are permitted within the B-3 zone. The attached Zoning Assessment Table shows the project complies with dimensional requirements specified in the City's Land Use Ordinance.

Inclusionary Zoning for Hotel Projects

Per Section 14-488.1 of the Land Use Code, Inclusionary Housing for Hotel Projects, the hotel use is a conditional use subject to compliance with the requirements of that section. All hotel projects shall provide one Low Income Housing for rent in the City for every 28 rooms in the hotel project. For this 181-room project, that equates to 7 units of Low Income Housing. The applicant proposes to meet the requirements of this section through payment of a fee-in-lieu per subsection 14-488.1(d). The current fee-in-lieu is $3,086 per hotel guest room, or $558,566. This amount will be paid to the City's Housing Trust.

10.1 ATTACHMENTS

- City of Portland Zoning Assessment Table

ZONING ANALYSIS Relevant Zone(s) B-3; PAD Overlay

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Yard Left	None	0'
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Minimum Lot Coverage	None	N/A
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Open Space	N/A	0
Maximum Impervious Area	100%	100%
Pavement Setback	None	N/A
Floor Area Ratio	N/A	N/A
Off Street Parking Spaces	None	90
Loading Bays	None	None
Other 1		
Other 2		
Other 3		

Planned Residential Unit Developments (PRUD) Requirements Not Applicable

	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) Not 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):			

Memorandum

To: City of Portland DPW and MaineDOT

Date: May 21, 2021

Project #: 55321.01

From: Jennifer Conley, PE, PTOE

Re: Time and Temperature Building
477 Congress Street
Traffic Impact Study

A redevelopment project is currently being contemplated for the property located at 477 Congress Street. On the 477 Congress Street site, an approximately 123,000 sf office building, is now 100% vacant, however, as recently as 2013, it was fully occupied. In addition to the office space at that address, the adjacent annex (on Preble Street) accommodates approximately 50,000 sf of retail space and the adjacent 481 Congress Street is occupied by a 2,600 square foot bank. The 477 Congress Street site was connected via interior hallway to the existing parking garage at 45 Brown Street.

In the future, the 477 Congress Street site will be redeveloped into a 190 key hotel with approximately 4,700 sf of retail space on the first floor. The existing bank space is anticipated to be converted into a high-end restaurant or commercial retail off the lobby of the hotel (approximately 3,500 gsf). In addition, there is anticipated to be a 5,100 sf rooftop bar.

Existing Conditions

The existing conditions in the vicinity of the proposed development as outlined above were reviewed. As indicated, the proposed redevelopment is to occur at the intersection of Congress Street and Preble Street. The parking garage anticipated to serve the site is located at the intersection of Cumberland Avenue and Brown Street (on the southeast corner of the intersection). As such, the planned points of vehicular access/egress will be via Brown Street and Cumberland Avenue.

A review of existing conditions focused on the project site and transportation network access to and from the site as depicted in **Figure 1**.

Roadway and Intersection Characteristics

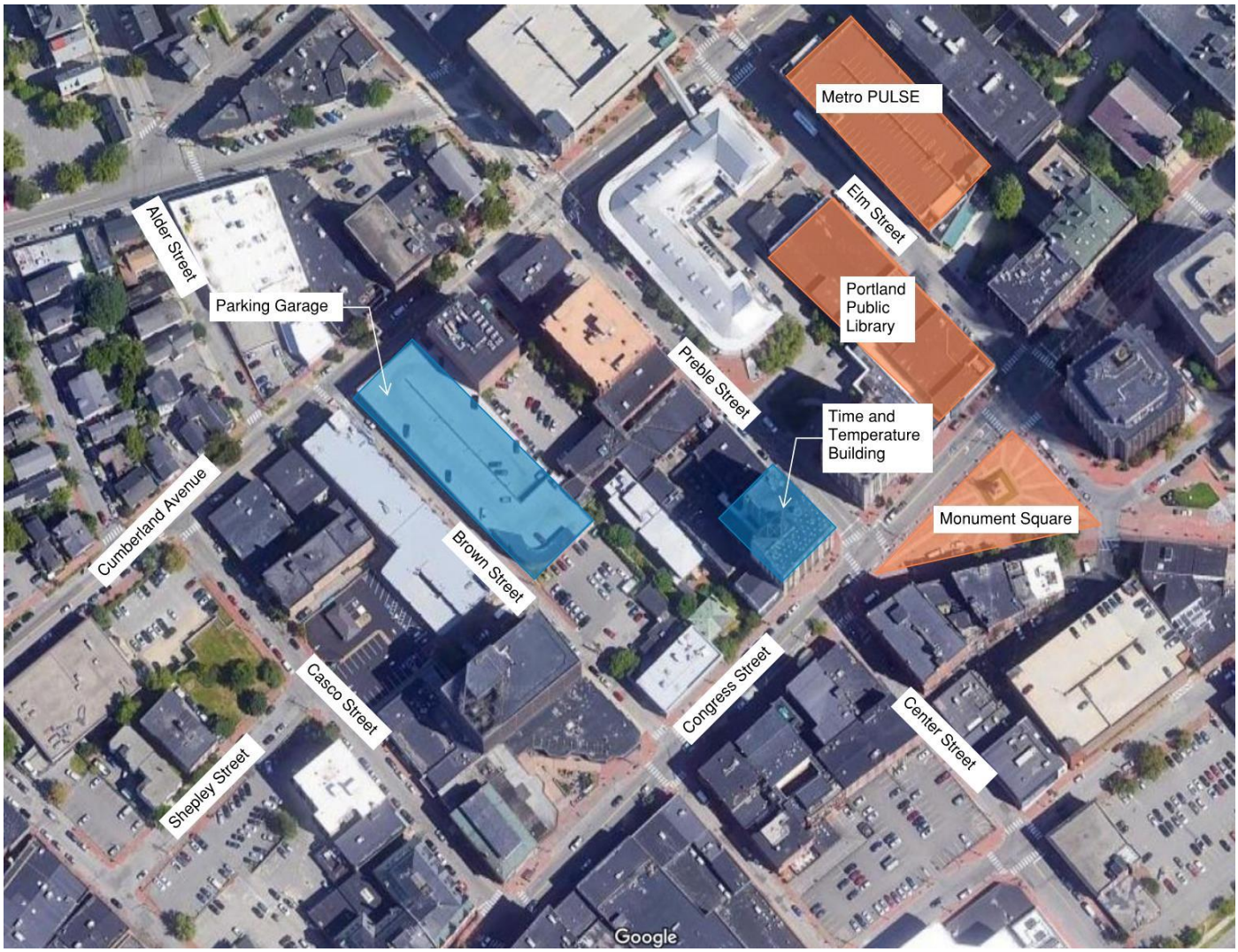
The proposed redevelopment will be located on the block between Congress Street, Cumberland Avenue, Preble Street, and Brown Street. Congress Street is a minor arterial running northeast to southwest through Portland. Near the project site, Congress Street consists of a through lane in each direction in addition to on-street parking along parts of the road. Congress Street is the primary route through downtown for the public bus system, and 11 different lines stop in the nearby area on Congress Street. Pedestrian facilities are readily available, and bicycle facilities are planned.

Preble Street ends at the intersection of Congress Street at a three-way signalized intersection. Preble Street is a minor arterial which serves one-way southbound traffic with two lanes at the intersections with

500 Southborough Drive
Suite 105B
South Portland, Maine 04106

Cumberland Avenue and Congress Street to accommodate turning vehicles. The roadway has many on-street parking spaces to serve surrounding businesses. The proposed development will be on the northwest corner of Preble Street and Congress Street.

Figure 1: Study Area and Nearby Landmarks



Cumberland Avenue is a major collector which extends northeast to southwest. It intersects with Brown Street at an unsignalized intersection and with Preble Street at a signalized intersection. Cumberland Avenue consists of a single travel lane in each direction and parking along the north side of the roadway. The main access and egress to/from the parking garage is located on the south side of Cumberland Avenue.

Brown Street runs parallel to Preble Street, and intersects with both Congress Street and Cumberland Avenue at unsignalized intersections. Between these intersections, Brown Street consists of a single travel lane that is one-way towards the northwest with parking provided on the left side of the street. There is currently an exit only from the parking garage located on the east side of Brown Street with the main access/egress to the garage located on the south side of Cumberland Avenue.

Pedestrian and Bicycle Facilities

The Congress Street site has an extended brick sidewalk of 20 feet to the front of the building, and brick and concrete sidewalks along Preble Street. The rest of the streets in the area have brick or concrete sidewalks. Crosswalks are available for pedestrians at each of the four intersections.

There are no bicycle facilities on any of the surrounding streets. The bicycle and pedestrian plan for the city shows an on-road bicycle facility is planned (as of 2014) on Preble Street and Congress Street.

Public Transportation

Portland has a vast public transportation network which is made up of buses, as depicted in **Figure 2**. The public transportation hub for downtown Portland is the METRO Pulse located at the intersection of Cumberland Avenue and Elm Street, which is a block from the site. There are several other stops in the surrounding area which service 14 different bus lines, and the closest include:

- Preble & Cumberland: buses 7, 8 & Husky
- Center & Cumberland: buses 1, 2, 4, 5, 8, 9B, 21, 24A, 24B & BRZ
- Library: 1, 8, 9A, BRZ

Figure 2: Greater Portland METRO Map



Traffic Crash Analysis

Three of the four streets in the site location are current high crash locations (HCLs). The number of crashes and critical rate factor is depicted in **Figure 3** for each street labelled as an HCL. A pin was placed where the Time and Temperature Building is located. Each of the streets has seen 8-10 crashes in the past three years, which lead to them being deemed high crash locations. None of the surrounding intersections are considered HCLs. The majority of crashes were property damage only, and in most situations the accidents were with parked cars. Historically, Brown Street has not been an HCL, and this continues to be true today.

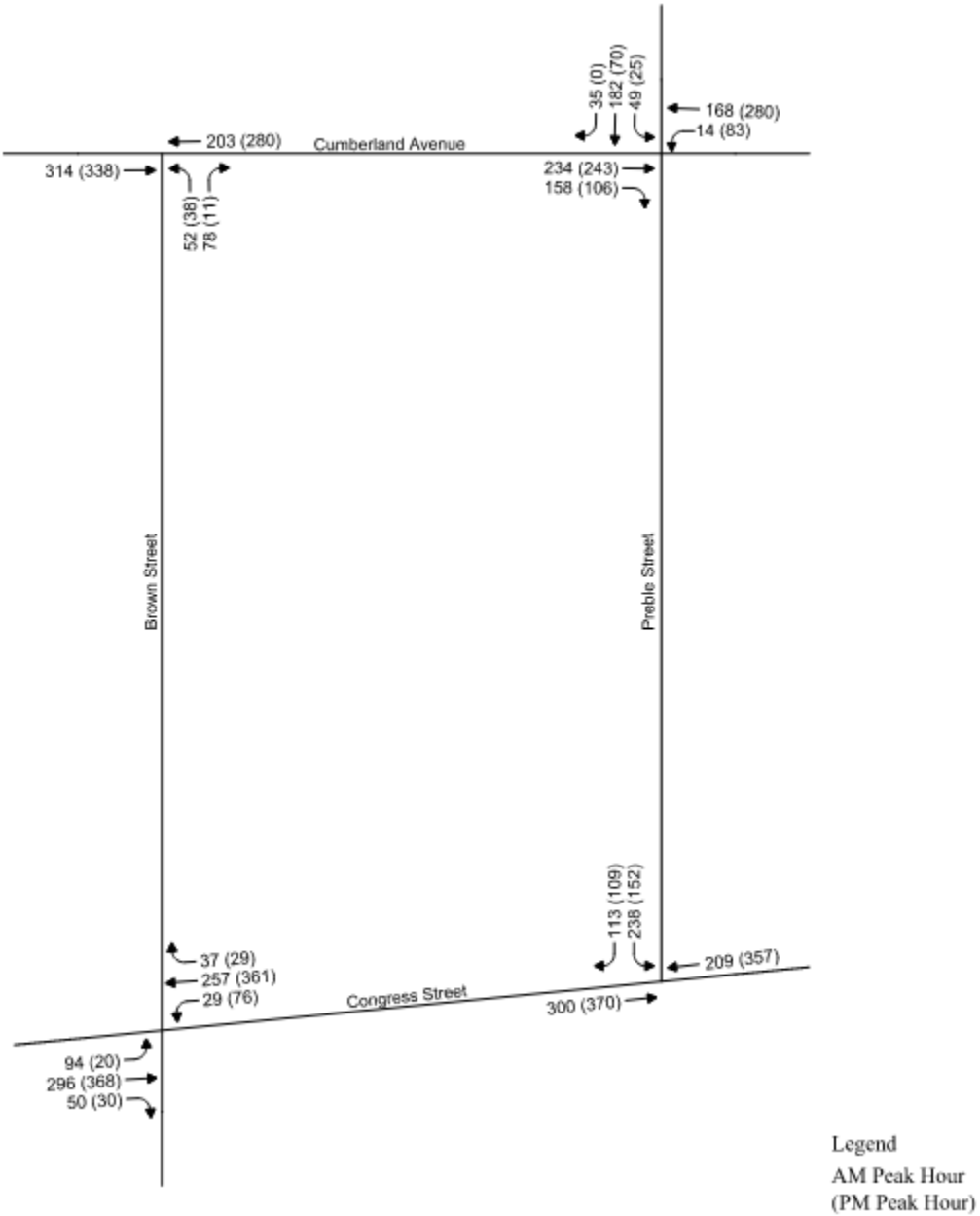
Figure 3: Map of HCLs



Traffic Volume Data

Due to the COVID-19 stay at home orders and phased reopening, current traffic conditions are not representative of normal conditions. In order to represent normal (pre-COVID-19) traffic conditions, weekday morning and evening peak hour (7:30 AM to 8:30 AM and 4:30 PM to 5:30 PM) traffic probe data was reviewed for July and October of 2019. According to seasonal adjustment data, July traffic volumes represent the peak month of the year. The 2019 July (peak month) probe data was compared with 2018 traffic count data provided by the City of Portland Department of Public Works (DPW). The 2019 July probe data was shown to be comparable, and in many cases slightly higher, than the 2018 traffic data. In order to remain conservative (using higher traffic volumes) in the assessment of existing traffic conditions, the July 2019 probe data (highest month of the year and pre-COVID) traffic volumes were used to represent 2021 existing traffic conditions. The existing weekday morning and weekday evening peak hour traffic volume networks are summarized in **Figure 4**.

Figure 4: 2021 Existing Traffic Volumes



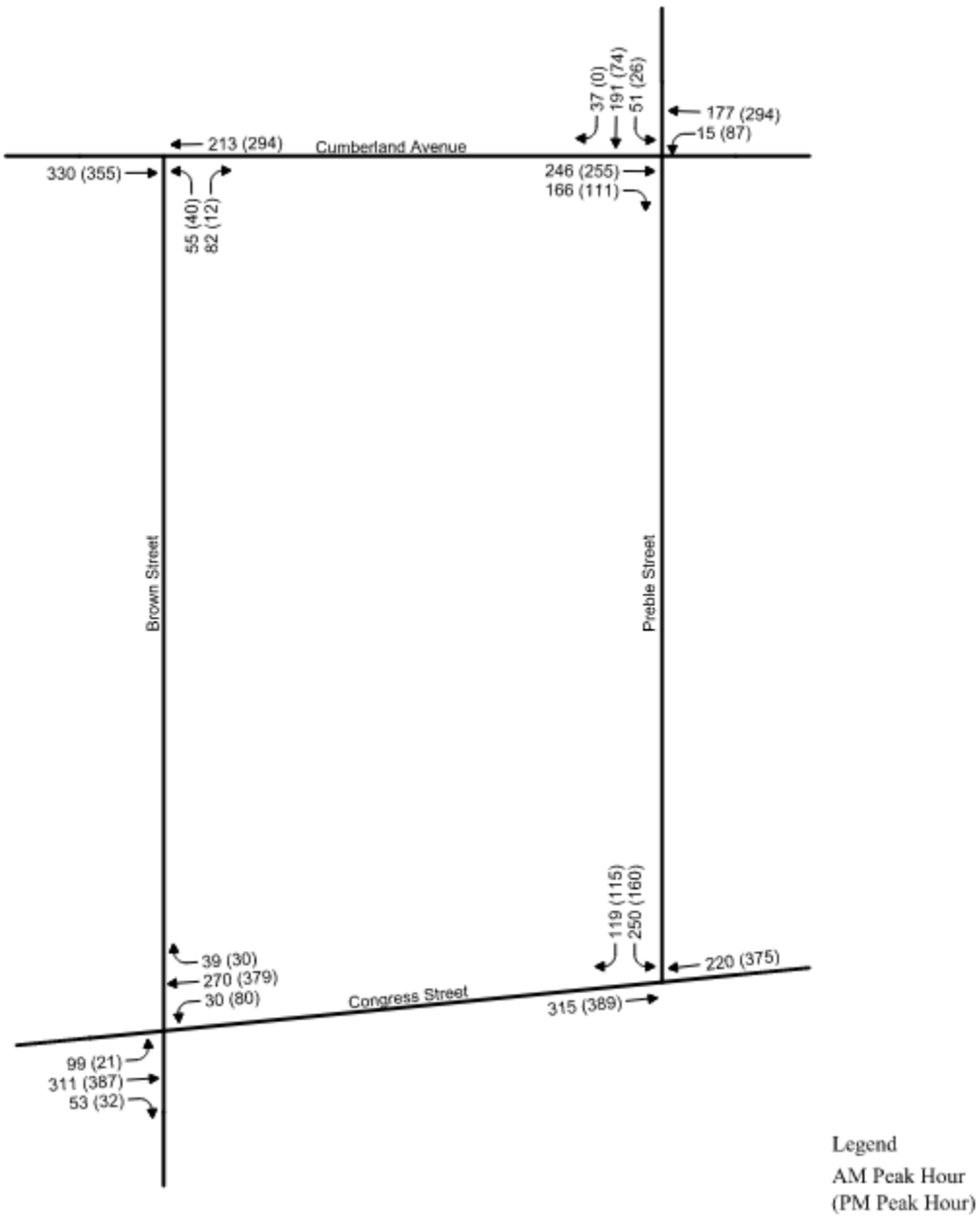
Future Conditions

Typically, transportation conditions in the study area can be expected to change in the future due to potential development/growth and planned transportation infrastructure improvements in the area. A five-year planning horizon was used to assess the study area intersections with the planned development. The traffic volumes were projected to the year 2026 to reflect growth without ("No-Build") and with ("Build") the development project and analyzed. The 2026 No-Build projected traffic volumes include growth in traffic volumes associated with generalized regional growth. The anticipated site-generated traffic volumes superimposed upon the 2026 No-Build peak hour traffic volume network reflect the 2026 Build peak hour conditions.

No Build Traffic Volumes

As stated under the Existing Conditions Traffic Volume data section above, current traffic conditions are not representative of normal (pre-COVID) conditions. This is because trips to work, shop, and for tourism are currently down and these traffic volumes are not likely to return to pre-COVID levels for some time. Despite this fact, the 2021 Existing traffic volume networks in **Figure 4** were increased by a growth rate of one (1) percent per year for five years (5.1% total growth) through 2026. The study area is already densely populated under existing conditions with limited area left to develop further; therefore, this annual growth will more than include any minor developments that may occur in the next five years. The 2026 No-Build traffic volumes for the weekday morning and evening peak hours are shown in **Figure 5**.

Figure 5: 2026 No-Build Traffic Volumes



Trip Generation

VHB has evaluated the trip generation of the redevelopment of the 477 Congress Street site. VHB calculated the peak hour trip generation of the site when it was fully occupied using the Institute of Transportation Engineers' (ITE) trip generation rates. ITE rates typically do not include adjustment to represent the urban, downtown nature of this specific site. For example, it is quite likely that a high percentage of retail trips in this neighborhood are made via foot by people who are already working, shopping, or visiting the area. In the future, it is likely that a high percentage of hotel trips will be made on foot to area employers, retail, and tourist destinations.

Current/Recent Site Trip Generation

As indicated above, the office and retail space on the site was recently occupied. The trip generation of the office space was calculated using Land Use Code (LUC) 710, Office (Dense Multi-Use Urban). The trip generation of the retail space was based on LUC 820, Shopping Center. The trip generation for the bank space on LUC 911, Walk In Bank, which only had data for the PM peak hour. The resulting trip generation associated with the current or recent land uses is provided in Table 1.

Table 1. Trip Generation – Current or Recent Uses

		Office Building[1]	Retail Annex[2]	Bank[3]	**Total Trips**
Weekday AM peak	Enter	95	29	-	***124***
	Exit	16	18	-	***34***
	Total	111	47	-	**158**
Weekday PM peak	Enter	19	92	14	***125***
	Exit	92	99	18	***209***
	Total	111	191	32	**334**

[1]123,000 square feet of LUC 710 (Dense Multi-Use Urban)
[2]50,000 square feet of LUC 820
[3]2,600 square feet of LUC 911

As shown in Table 1, the site generated the most trips during the weekday PM peak hour when 334 trips entered/exited the site. During the weekday AM peak hour, 158 trips entered/exited the site.

Proposed Site Trip Generation

As indicated above, the redevelopment will include a conversion from office to hotel, and a conversion of some retail to restaurant, and a reduction of overall retail space. As shown on the site plan submitted with

the planning board application, the proposed development will consist of an approximately 190 room hotel at 477 Congress Street.

The proposed restaurant space was divided into the space that would primarily serve the visitors of the hotel and the space that would likely serve outside guests. The square footage of the restaurant on the first floor was included as square footage that would likely generate trips outside of the hotel. Although it is likely that the restaurant space will be a higher end restaurant, in order to present a worst-case scenario, the trip generation of the restaurant space was based on LUC 932, High Turnover Restaurant. Of the existing retail space at the site, only approximately 4,700 square feet will be maintained.

VHB has calculated the trip generation of these proposed uses. The hotel trip generation was calculated based on LUC 310, Hotel. Although the restaurant is anticipated to be high end, the trips were calculated using the rates for LUC 932, High Turnover (Sit-Down) Restaurant in the event the space is ever used as such and to be conservative (overestimating projected traffic). The retail space trip rate continued to be calculated by LUC 820, Shopping Center.

The resulting trip generation of the proposed site was determined and is presented in Table 2. As shown, the proposed site is anticipated to generate 130 and 169 trips respectively during the weekday AM and PM peak hours.

Table 2. Trip Generation – Proposed Uses

		Hotel[2]	Retail[3]	Restaurant[4]	**Total Trips**
Weekday AM peak	Enter	53	3	19	***75***
	Exit	37	2	16	***55***
	Total	90	5	35	**130**
Weekday PM peak	Enter	60	9	21	***90***
	Exit	57	9	13	***79***
	Total	117	18	34	**169**

[1] 190 rooms of LUC 310
[2] 4,700 square feet of LUC 820
[3] 3,500 square feet of LUC 932

Net Trip Generation

The net trip generation of the site was calculated and is illustrated in Table 3 below. The net trip generation of the redevelopment was calculated by comparing the trips recently generated by the site with those anticipated to be generated by the redeveloped site.

Table 3. Net Trip Generation

		Existing Site	Proposed Site	**Net Trips**
Weekday AM peak	Enter	124	75	**-49**
	Exit	34	55	**+21**
	Total	158	130	**-28**
Weekday PM peak	Enter	125	90	**-35**
	Exit	209	79	**-130**
	Total	334	169	**-165**

Based on the trips determined above, the redeveloped site will generate 28 less trips during the weekday AM peak hour and 165 less trips during the weekday PM peak hour than the current or recent land use. As shown, the redevelopment is anticipated to result in a net decrease in vehicular trips to and from the site and will not require a MaineDOT Traffic Movement Permit.

Adjusted Trip Generation

As outlined above, the proposed site is located so that a number of trips are likely to occur by walking, bicycling and transit. As a result, the site will generate even fewer vehicle trips than was calculated based on ITE trip rates. Recent census data indicates that residents in this area (bordering on Census tracts 3 and 6) significantly use alternate modes to get to their employment (backup information is provided attached to the document). Because the proposed land use is hotel, no adjustments were made to account for alternative modes even though based on the location, it is quite likely that some hotel trips will be made by alternative modes.

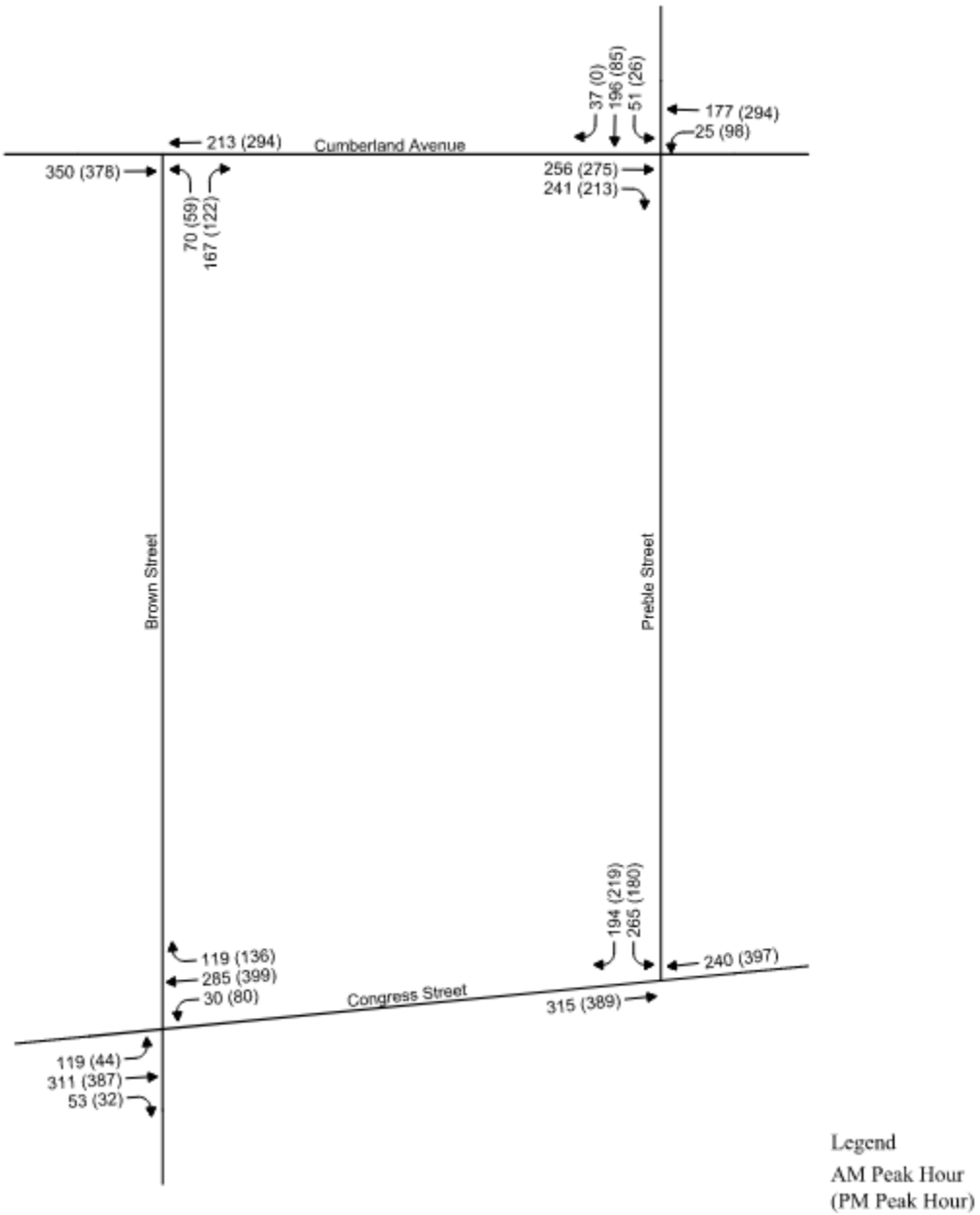
Trip Distribution and Assignment

Having estimated project generated vehicle trips, the next step in the study is to determine the trip distribution of project traffic and assign these trips to the roadway network. The trip distribution for this project was based on existing travel patterns. The projected new trips associated with the proposed mixed-use development were distributed on the study area roadways based on the following assumptions:

- 25% from the northwest on Cumberland Avenue
- 25% from the west on Congress Street
- 12.5% from the north on Preble Street
- 12.5% from the north east on Cumberland Avenue
- 25% from the east on Congress Street

When these trips approach the site, the immediate roadway circulation will determine the travel patterns. Because Preble Street is one way southbound and Brown Street is one way northbound, trips may have to circulate around the block to get to and from the site. In addition, because many trips at the hotel will start or end with the valet operation, these trips to and from the ultimate parking location were also added to the traffic network. The 2026 Build traffic volumes for the weekday morning and evening peak hours are shown in **Figure 6**.

Figure 6: 2026 Build Traffic Volumes



Traffic Operations Analysis

The operation of the area intersections was determined for each of the Existing, No Build and Build conditions. In addition, based on a concern raised by the City, the proposed hotel valet operations was also reviewed.

Intersection Capacity Analyses

The City has also requested that the Project conduct an operational analysis of the four intersections at the corners of the block:

- Cumberland Avenue and Preble Street
- Congress Street and Preble Street
- Cumberland Avenue and Brown Street
- Congress Street and Brown Street

Intersection capacity analyses were performed for the study area intersections. Levels of service (LOS) were calculated based on the criteria published in the *2000 Highway Capacity Manual*.[1] Level of service is the term that defines the conditions that may occur on a given roadway or at an intersection when accommodating various traffic volume loads. Levels of service range from A to F with LOS A representing generally free flowing operating conditions and LOS F representing generally congested conditions. Synchro 9 was used to determine the LOS at signalized and unsignalized intersections. Copies of the LOS calculations are provided in the Appendix.

Table 4 summarizes the operational analysis at the signalized study area intersections during the weekday AM and PM peak hours under 2021 existing conditions and 2026 No Build and Build conditions. As shown, the Cumberland Avenue intersection with Preble Street is expected to operate at LOS A during the weekday AM and PM peak hours under 2021 existing conditions. The intersections are projected to operate at LOS B during the weekday AM and LOS A during the weekday PM peak hour under 2026 No Build and Build conditions. The Congress Street intersections with Preble Street is expected to operate at LOS A during the weekday AM and PM peak hours under 2021 existing conditions. The intersections are projected to operate at the same LOS A during the weekday AM and PM peak hours under 2026 No Build and Build conditions.

[1] Highway Capacity Manual, Federal Highway Administration, Transportation Research Board, 2000.

Table 4: 2026 Signalized Intersection Operations

Intersection	2021 Existing			2026 No Build			2026 Build		
Peak Hour	v/c+	Delay*	LOS **	v/c+	Delay*	LOS **	v/c+	Delay*	LOS **
Cumberland Avenue at Preble Street									
AM Peak Hour	0.50	9.7	A	0.51	10.1	B	0.57	11.2	B
PM Peak Hour	0.48	6.8	A	0.50	6.9	A	0.52	8.4	A
Congress Street at Preble Street									
AM Peak Hour	0.56	8.4	A	0.58	8.7	A	0.55	8.2	A
PM Peak Hour	0.55	7.1	A	0.56	8.3	A	0.58	8.7	A

+ Volume to capacity ratio
** Delay expressed in seconds per vehicle*
*** Level of Service*

Table 5 summarizes the operational analysis at the unsignalized study area intersections during the weekday AM and PM peak hours under 2021 existing conditions and future 2026 No Build and Build conditions. As shown, the Brown Street intersections with Cumberland Avenue is expected to operate at LOS B during the weekday AM and PM peak hours under 2021 existing conditions. The intersection is projected to operate at the same LOS B during the weekday AM and PM peak hours under 2026 No Build conditions. The intersection is projected to operate at the same LOS C during the weekday AM and PM peak hours under 2026 No Build conditions. The projected average delays are only projected to increase by 1 to 2 seconds during the AM and PM peak periods.

The Brown Street intersection with Congress Street does not have any side street approach traffic to assess the operations of the intersection. Since the north and south legs of the intersection are one-way away from the intersection, the only conflicting movements are the Congress Street left turns. These movements are projected to operate efficiently during the weekday AM and PM peak hours under 2021 existing and future 2026 No-Build and Build conditions with minimal delays.

Table 5: 2026 Unsignalized Intersection Operations

Intersection	Critical	2021 Existing				2026 No Build				2026 Build			
Peak Hour	Movement	Demand	Delay*	LOS**	Q	Demand	Delay*	LOS	Q	Demand	Delay*	LOS	Q
Cumberland Avenue at Brown Street													
AM Peak Hour	NB	142	12.9	B	23	149	13.4	B	26	258	15.8	C	56
PM Peak Hour	NB	53	13.8	B	10	56	14.3	B	11	197	15.8	C	43

** Delay expressed in seconds per vehicle*
*** Level of Service*
**** 95th percentile queue length, feet*

Additional Analysis - Curb Usage and Valet Operations

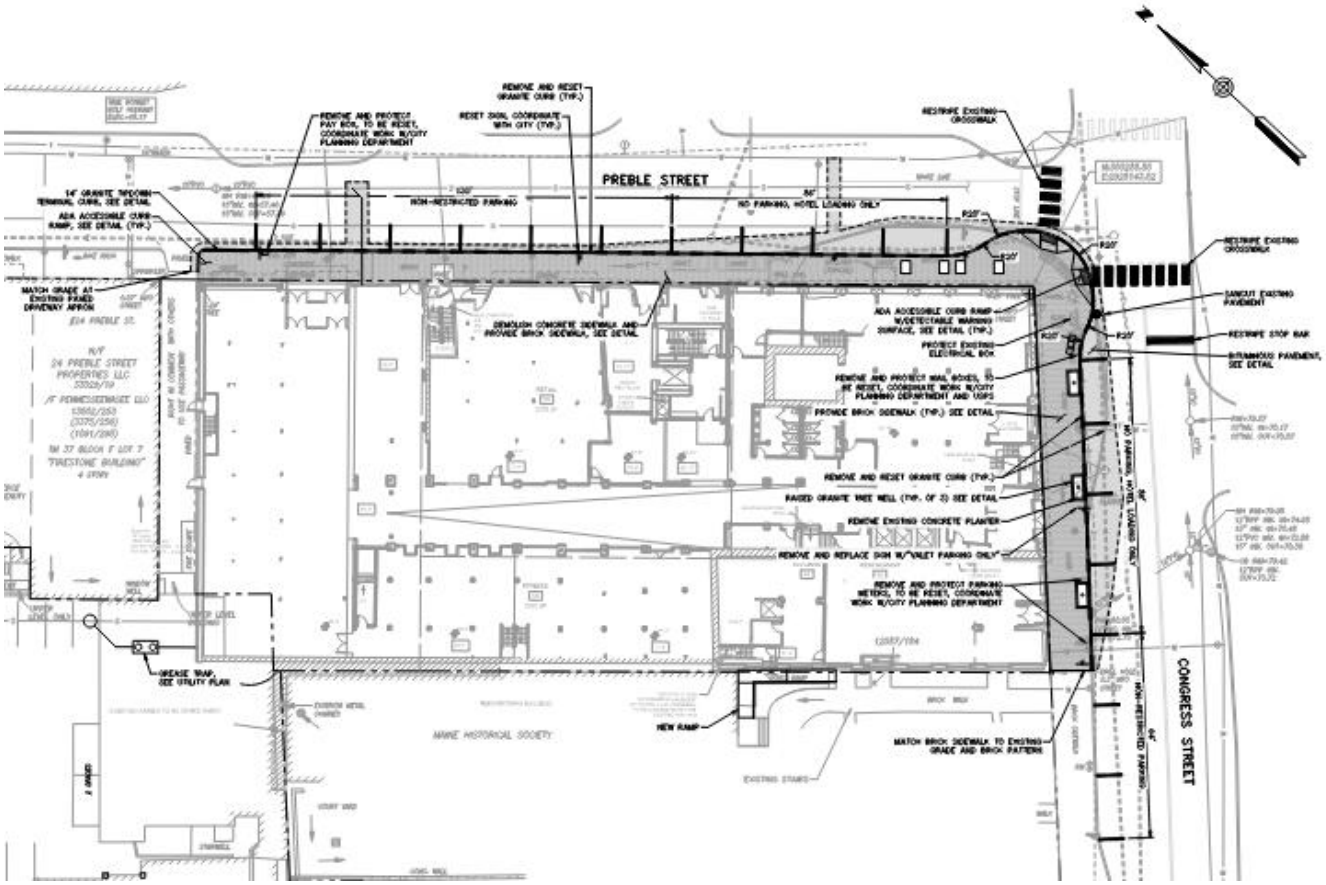
The redevelopment is anticipated to result in a net decrease in vehicular trips to and from the site and will not require a MaineDOT Traffic Movement Permit. However, the City of Portland has expressed some

concern regarding curb usage and the operations of the site. A large number of the trips to the hotel portion of the site will reach the garage via a valet operation at the front of the site. As such, the City has requested that a review and analysis of valet operation be completed and the resulting impact of the valet on the current parking supply be quantified. A successful hotel valet operation will be implemented and scaled appropriately for the proposed hotel at 477 Congress Street to ensure that a backup does not occur on either Congress Street or Preble Street and impact traffic operations on those roadways.

The location of the proposed hotel on Congress Street results in an increased focus on the frontage and the necessity to reduce any impact to the operations on Congress Street. As such, the project has investigated efficient valet operations and proposed infrastructure changes that will better accommodate the valet operation while only minimally impacting the existing on-street parking.

As shown in **Figure 7** below, the project has proposed modifications to the geometry at the corner at Congress and Preble Streets. These modifications lengthen the cut-ins available for vehicles along the curb, while also shortening the crossing distance for pedestrians walking along the Congress Street and crossing Preble Street. These modifications will provide over 50 additional linear feet of usable curb space on each street. This additional space combined with minimal conversion of spaces will result in a total of 86 linear feet of curb space (four spaces) on Congress Street and 86 feet on Preble Street (four spaces) for valet use.

Figure 7: Proposed Geometric Modifications to Congress Street and Preble Street



The City of Portland has indicated that the valet operation at the Press Hotel is one of the more efficient valet operations in the City. As such, the project team met with the management of the Press Hotel to understand that operation. In addition, the project team met with representatives at various levels of the Unified Parking Organization.

The Press Hotel has a close working relationship with Unified Parking and the valet account manager for the Press Hotel sits in department head meetings and weekly occupancy meetings with hotel staff to ensure an understanding of valet needs from day to day and at different time periods. Being located on site allows a close working relationship with the operations staff to understand the needs each week based on turnover and special events.

The distance to the garage at the Press is similar to that proposed at the Time and Temperature Building and the valet operation tracks the metrics as to retrieval time and uses those metrics to motivate the staff.

When parking the vehicles, there is always a strategic plan regarding positioning in the lot in order to prepare for departure, especially during events. Best practices include the potential for a complete reorganization of the lot while an event is occurring in order to best prepare for departure.

As far as curbside operation is concerned, Press has valet space for 5 to 6 vehicles. Based on the higher room count at 477 Congress Street, eight valet spaces are proposed (four spaces on Congress Street and 4 spaces on Preble Street four spaces). During peak events, it is anticipated that both spaces will be used as necessary (all for arriving vehicles or all for departing vehicles), however, during typical operations, it is likely that the Preble Street curb space will be used when valet brings a car out for a departing guest until room is available along Congress Street. All efforts will be towards keeping the Congress Street clear for arriving guests so that roadway operations on Congress Street are not impacted.

The operation at the Press involves a minimum of two people working valet at all times but is staffed at higher levels for peak time, peak days, and special events. In the event that there is a special event with a severe peak time, there is a labor force of other valets within walking distance of each other that can provide that short-term assistance.

When discussing locations that encounter more valet issues than experienced at the Press, the valet operators indicate that some locations have significantly more rooms, which leads to higher turnover demand, and are only provided a similar curb allocation to what is provided at the Press, and less than proposed at 477 Congress Street. At more challenging locations, the valet staff pay meters to provide that extra curb space at peak times. Similar to the Press location, the 477 Congress location offers metered spaces nearby which can provide additional short-term storage.

Conclusions

As anticipated, the redevelopment of the 477 Congress Street site will result in a reduction in net trip generation (28 and 165 less vehicles during the AM and PM peak hours, respectively) and as such will not require a MaineDOT traffic access permit. However, in order to address concerns raised by the City of Portland, a detailed traffic analysis has been conducted including a review of traffic operations at area intersections and a review of the proposed valet operation. As shown, the study area intersections are projected to operate comparable to 2026 No-Build conditions with a projected increase in average delays of one to two seconds during the weekday AM and PM peak hours.

The project team met with the management of the Press Hotel to understand that operation, as it was noted by the City of Portland as one of the more efficient valet operations in the City. The proposed development includes providing 86 linear feet of curb space (four spaces) on Congress Street and 86 feet on Preble Street (four spaces) based on the input received The valet operations will be modeled after the Press Hotel model with the main focus on not impacting traffic flow along Congress Street.

The proposed redevelopment is projected to have minimal impacts to traffic operations based on the fact that it will generate less traffic during the AM and PM peak hours than the recent uses and the proposed modifications will provide additional parking on Congress Street and Preble Street to adequately accommodate valet operations.

Memorandum

Technical Appendix

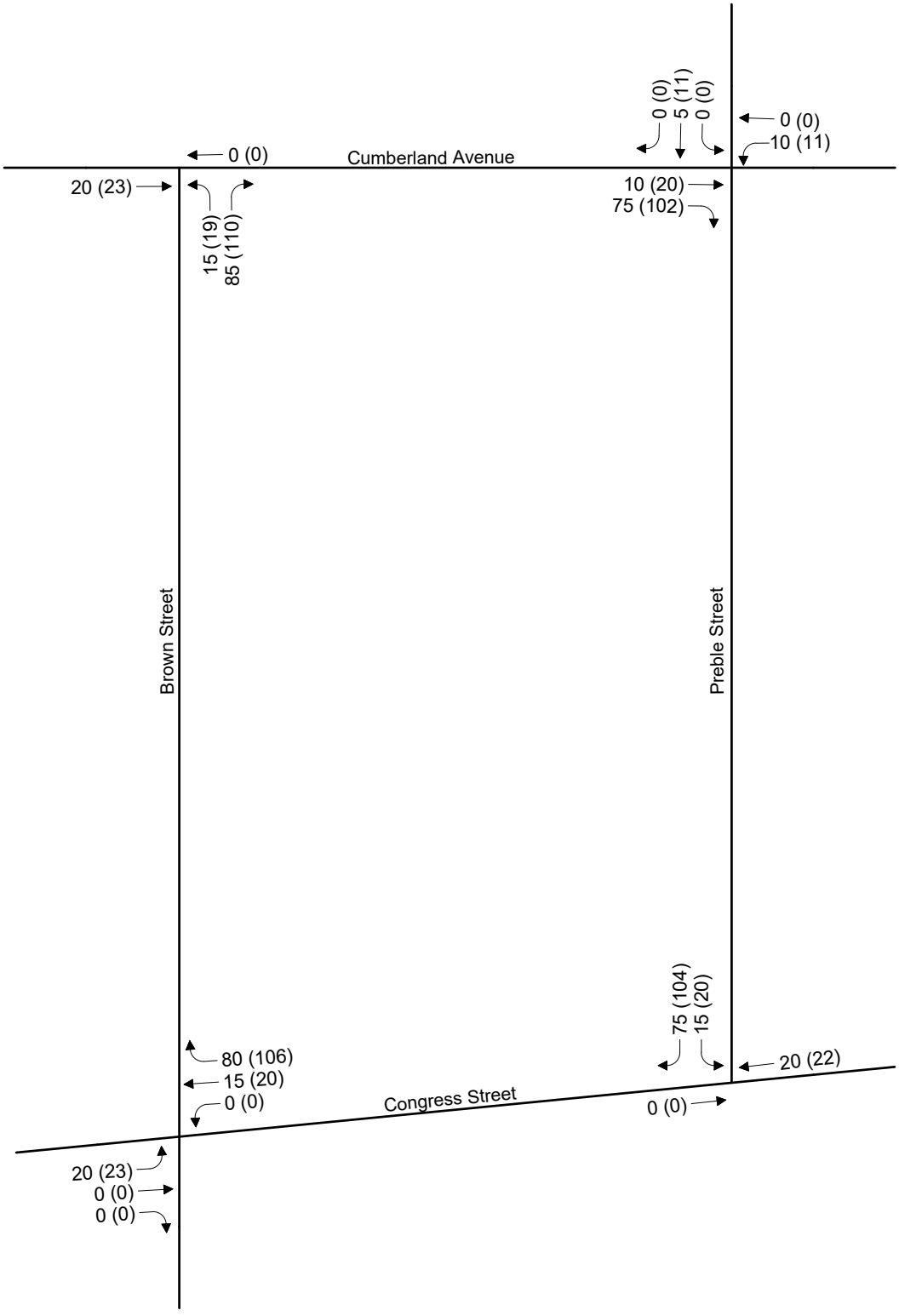
Trip Generation Figure

Synchro Intersection Capacity Analysis

Memorandum

Appendix A

Trip Generation Figure



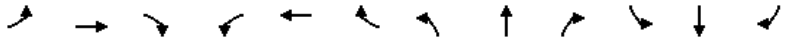
Not to Scale

Legend
AM Peak Hour
(PM Peak Hour)

Memorandum

Appendix B

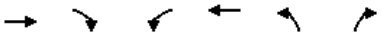
Synchro Intersection Capacity Analysis



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	94	296	50	29	257	37	0	0	0	0	0	0
Future Volume (Veh/h)	94	296	50	29	257	37	0	0	0	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	102	322	54	32	279	40	0	0	0	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)					325							
pX, platoon unblocked	0.95						0.95	0.95		0.95	0.95	0.95
vC, conflicting volume	319			376			916	936	349	916	943	299
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	251			376			883	904	349	883	911	230
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	92			97			100	100	100	100	100	100
cM capacity (veh/h)	1243			1182			232	234	694	232	232	765

Direction, Lane #	EB 1	WB 1
Volume Total	478	351
Volume Left	102	32
Volume Right	54	40
cSH	1243	1182
Volume to Capacity	0.08	0.03
Queue Length 95th (ft)	7	2
Control Delay (s)	2.4	1.0
Lane LOS	A	A
Approach Delay (s)	2.4	1.0
Approach LOS		

Intersection Summary				
Average Delay	1.8			
Intersection Capacity Utilization	47.7%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	314	0	0	203	52	78
Future Volume (Veh/h)	314	0	0	203	52	78
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	341	0	0	221	57	85
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)				341		
pX, platoon unblocked						
vC, conflicting volume			341		562	341
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			341		562	341
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		88	88
cM capacity (veh/h)			1218		488	701

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	341	221	142
Volume Left	0	0	57
Volume Right	0	0	85
cSH	1700	1700	597
Volume to Capacity	0.20	0.13	0.24
Queue Length 95th (ft)	0	0	23
Control Delay (s)	0.0	0.0	12.9
Lane LOS			B
Approach Delay (s)	0.0	0.0	12.9
Approach LOS			B

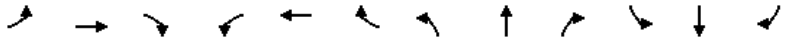
Intersection Summary			
Average Delay	2.6		
Intersection Capacity Utilization	30.9%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø9
Lane Configurations													
Traffic Volume (vph)	0	300	0	0	209	0	0	0	0	238	2	113	
Future Volume (vph)	0	300	0	0	209	0	0	0	0	238	2	113	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Right Turn on Red			Yes			Yes			Yes			Yes	
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		72			151			106			198		
Travel Time (s)		1.6			3.4			2.4			4.5		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	326	0	0	227	0	0	0	0	259	125	0	
Turn Type		NA			NA					Perm	NA		
Protected Phases		6			2			8			4		9
Permitted Phases				2			8			4			
Detector Phase		6		2	2		8	8		4	4		
Switch Phase													
Minimum Initial (s)		6.0		6.0	6.0		6.0	6.0		6.0	6.0		5.0
Minimum Split (s)		10.5		10.5	10.5		10.5	10.5		10.5	10.5		21.0
Total Split (s)		23.0		23.0	23.0		21.0	21.0		21.0	21.0		21.0
Total Split (%)		35.4%		35.4%	35.4%		32.3%	32.3%		32.3%	32.3%		32%
Yellow Time (s)		3.5		3.5	3.5		3.5	3.5		3.5	3.5		3.0
All-Red Time (s)		1.0		1.0	1.0		1.0	1.0		1.0	1.0		0.0
Lost Time Adjust (s)		0.0			0.0			0.0		0.0	0.0		
Total Lost Time (s)		4.5			4.5			4.5		4.5	4.5		
Lead/Lag													
Lead-Lag Optimize?													
Recall Mode		None		None	None		None	None		None	None		None
v/c Ratio		0.51			0.35					0.49	0.19		
Control Delay		12.4			10.5					12.2	3.1		
Queue Delay		0.0			0.0					0.0	0.0		
Total Delay		12.4			10.5					12.2	3.1		
Queue Length 50th (ft)		42			28					32	0		
Queue Length 95th (ft)		103			71					92	22		
Internal Link Dist (ft)		1			71			26			118		
Turn Bay Length (ft)													
Base Capacity (vph)		1076			1076					727	877		
Starvation Cap Reductn		0			0					0	0		
Spillback Cap Reductn		0			0					0	0		
Storage Cap Reductn		0			0					0	0		
Reduced v/c Ratio		0.30			0.21					0.36	0.14		

Intersection Summary	
Area Type:	Other
Cycle Length: 65	
Actuated Cycle Length: 33.3	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 9: Congress St & Preble St





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	300	0	0	209	0	0	0	0	238	2	113
Future Volume (vph)	0	300	0	0	209	0	0	0	0	238	2	113
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5					4.5	4.5	
Lane Util. Factor		1.00			1.00					1.00	1.00	
Frt		1.00			1.00					1.00	0.85	
Flt Protected		1.00			1.00					0.95	1.00	
Satd. Flow (prot)		1863			1863					1770	1588	
Flt Permitted		1.00			1.00					0.76	1.00	
Satd. Flow (perm)		1863			1863					1410	1588	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	326	0	0	227	0	0	0	0	259	2	123
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	76	0
Lane Group Flow (vph)	0	326	0	0	227	0	0	0	0	259	49	0
Turn Type		NA			NA					Perm	NA	
Protected Phases		6			2			8			4	
Permitted Phases				2			8			4		
Actuated Green, G (s)		11.5			11.5					12.5	12.5	
Effective Green, g (s)		11.5			11.5					12.5	12.5	
Actuated g/C Ratio		0.35			0.35					0.38	0.38	
Clearance Time (s)		4.5			4.5					4.5	4.5	
Vehicle Extension (s)		3.0			3.0					3.0	3.0	
Lane Grp Cap (vph)		649			649					534	601	
v/s Ratio Prot		c0.18			0.12						0.03	
v/s Ratio Perm										c0.18		
v/c Ratio		0.50			0.35					0.49	0.08	
Uniform Delay, d1		8.5			8.0					7.8	6.6	
Progression Factor		1.00			1.00					1.00	1.00	
Incremental Delay, d2		0.6			0.3					0.7	0.1	
Delay (s)		9.1			8.3					8.5	6.6	
Level of Service		A			A					A	A	
Approach Delay (s)		9.1			8.3			0.0			7.9	
Approach LOS		A			A			A			A	

Intersection Summary				
HCM 2000 Control Delay	8.4	HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio	0.56			
Actuated Cycle Length (s)	33.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	36.5%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	234	158	14	168	0	0	0	0	49	182	35
Future Volume (vph)	0	234	158	14	168	0	0	0	0	49	182	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		121			162			350			192	
Travel Time (s)		2.8			3.7			8.0			4.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	426	0	15	183	0	0	0	0	0	289	0
Turn Type		NA		pm+pt	NA					Perm	NA	
Protected Phases		6		5	2						4	
Permitted Phases				2						4		
Detector Phase		6		5	2					4	4	
Switch Phase												
Minimum Initial (s)		6.0		5.0	10.0					6.0	6.0	
Minimum Split (s)		22.5		9.5	22.5					22.5	22.5	
Total Split (s)		30.0		12.0	42.0					23.0	23.0	
Total Split (%)		46.2%		18.5%	64.6%					35.4%	35.4%	
Yellow Time (s)		3.5		3.5	3.5					3.5	3.5	
All-Red Time (s)		1.0		1.0	1.0					1.0	1.0	
Lost Time Adjust (s)		0.0		0.0	0.0						0.0	
Total Lost Time (s)		4.5		4.5	4.5						4.5	
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?		Yes		Yes								
Recall Mode		None		None	None					None	None	
v/c Ratio		0.56		0.03	0.22						0.32	
Control Delay		10.6		4.7	5.9						12.0	
Queue Delay		0.0		0.0	0.0						0.0	
Total Delay		10.6		4.7	5.9						12.0	
Queue Length 50th (ft)		35		1	15						14	
Queue Length 95th (ft)		159		7	42						69	
Internal Link Dist (ft)		41			82			270			112	
Turn Bay Length (ft)												
Base Capacity (vph)		1466		552	1738						2079	
Starvation Cap Reductn		0		0	0						0	
Spillback Cap Reductn		0		0	0						0	
Storage Cap Reductn		0		0	0						0	
Reduced v/c Ratio		0.29		0.03	0.11						0.14	

Intersection Summary	
Area Type:	Other
Cycle Length: 65	
Actuated Cycle Length: 33.5	
Natural Cycle: 55	
Control Type: Actuated-Uncoordinated	

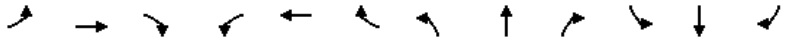
Splits and Phases: 10: Preble St & Cumberland Ave



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	234	158	14	168	0	0	0	0	49	182	35
Future Volume (vph)	0	234	158	14	168	0	0	0	0	49	182	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5		4.5	4.5						4.5	
Lane Util. Factor		1.00		1.00	1.00						0.95	
Frt		0.95		1.00	1.00						0.98	
Flt Protected		1.00		0.95	1.00						0.99	
Satd. Flow (prot)		1761		1770	1863						3438	
Flt Permitted		1.00		0.31	1.00						0.99	
Satd. Flow (perm)		1761		584	1863						3438	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	254	172	15	183	0	0	0	0	53	198	38
RTOR Reduction (vph)	0	39	0	0	0	0	0	0	0	0	20	0
Lane Group Flow (vph)	0	387	0	15	183	0	0	0	0	0	269	0
Turn Type		NA		pm+pt	NA					Perm	NA	
Protected Phases		6		5	2						4	
Permitted Phases				2						4		
Actuated Green, G (s)		13.7		19.0	19.0						8.6	
Effective Green, g (s)		13.7		19.0	19.0						8.6	
Actuated g/C Ratio		0.37		0.52	0.52						0.23	
Clearance Time (s)		4.5		4.5	4.5						4.5	
Vehicle Extension (s)		3.0		3.0	3.0						3.0	
Lane Grp Cap (vph)		659		329	967						807	
v/s Ratio Prot		c0.22		0.00	c0.10							
v/s Ratio Perm				0.02							0.08	
v/c Ratio		0.59		0.05	0.19						0.33	
Uniform Delay, d1		9.2		5.0	4.7						11.6	
Progression Factor		1.00		1.00	1.00						1.00	
Incremental Delay, d2		1.3		0.1	0.1						0.2	
Delay (s)		10.5		5.0	4.8						11.9	
Level of Service		B		A	A						B	
Approach Delay (s)		10.5			4.8			0.0			11.9	
Approach LOS		B			A			A			B	

Intersection Summary				
HCM 2000 Control Delay	9.7	HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio	0.50			
Actuated Cycle Length (s)	36.6	Sum of lost time (s)	13.5	
Intersection Capacity Utilization	37.0%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	368	30	76	361	29	0	0	0	0	0	0
Future Volume (Veh/h)	20	368	30	76	361	29	0	0	0	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	22	400	33	83	392	32	0	0	0	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)					325							
pX, platoon unblocked	0.87						0.87	0.87		0.87	0.87	0.87
vC, conflicting volume	424			433			1034	1050	416	1034	1051	408
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	262			433			964	983	416	964	983	243
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			93			100	100	100	100	100	100
cM capacity (veh/h)	1132			1127			190	196	636	190	196	691

Direction, Lane #	EB 1	WB 1
Volume Total	455	507
Volume Left	22	83
Volume Right	33	32
cSH	1132	1127
Volume to Capacity	0.02	0.07
Queue Length 95th (ft)	1	6
Control Delay (s)	0.6	2.1
Lane LOS	A	A
Approach Delay (s)	0.6	2.1
Approach LOS		

Intersection Summary				
Average Delay	1.4			
Intersection Capacity Utilization	53.5%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	338	0	0	280	38	11
Future Volume (Veh/h)	338	0	0	280	38	11
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	367	0	0	304	41	12
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)				341		
pX, platoon unblocked					0.98	
vC, conflicting volume			367		671	367
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			367		654	367
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		90	98
cM capacity (veh/h)			1192		423	678

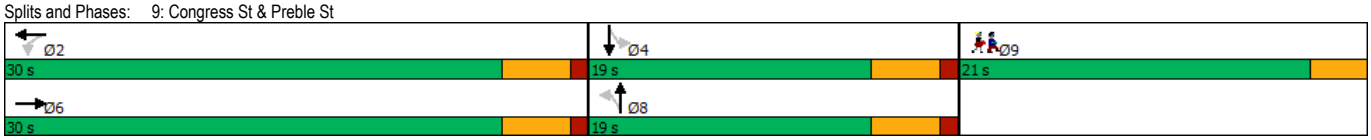
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	367	304	53
Volume Left	0	0	41
Volume Right	0	0	12
cSH	1700	1700	462
Volume to Capacity	0.22	0.18	0.11
Queue Length 95th (ft)	0	0	10
Control Delay (s)	0.0	0.0	13.8
Lane LOS			B
Approach Delay (s)	0.0	0.0	13.8
Approach LOS			B

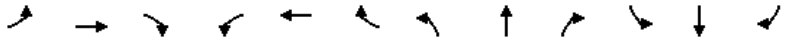
Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	27.8%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø9
Lane Configurations													
Traffic Volume (vph)	0	370	0	0	357	0	0	0	0	152	0	109	
Future Volume (vph)	0	370	0	0	357	0	0	0	0	152	0	109	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Right Turn on Red			Yes			Yes			Yes			Yes	
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		72			151			106			198		
Travel Time (s)		1.6			3.4			2.4			4.5		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	402	0	0	388	0	0	0	0	165	118	0	
Turn Type		NA			NA					Perm	NA		
Protected Phases		6			2			8			4		9
Permitted Phases				2			8			4			
Detector Phase		6		2	2		8	8		4	4		
Switch Phase													
Minimum Initial (s)		6.0		6.0	6.0		6.0	6.0		6.0	6.0		5.0
Minimum Split (s)		10.5		10.5	10.5		10.5	10.5		10.5	10.5		21.0
Total Split (s)		30.0		30.0	30.0		19.0	19.0		19.0	19.0		21.0
Total Split (%)		42.9%		42.9%	42.9%		27.1%	27.1%		27.1%	27.1%		30%
Yellow Time (s)		3.5		3.5	3.5		3.5	3.5		3.5	3.5		3.0
All-Red Time (s)		1.0		1.0	1.0		1.0	1.0		1.0	1.0		0.0
Lost Time Adjust (s)		0.0			0.0			0.0		0.0	0.0		
Total Lost Time (s)		4.5			4.5			4.5		4.5	4.5		
Lead/Lag													
Lead-Lag Optimize?													
Recall Mode		None		None	None		None	None		None	None		None
v/c Ratio		0.41			0.39					0.33	0.12		
Control Delay		8.8			8.7					11.6	0.3		
Queue Delay		0.0			0.0					0.0	0.0		
Total Delay		8.8			8.7					11.6	0.3		
Queue Length 50th (ft)		44			42					20	0		
Queue Length 95th (ft)		118			113					63	0		
Internal Link Dist (ft)		1			71			26			118		
Turn Bay Length (ft)													
Base Capacity (vph)		1525			1525					778	1147		
Starvation Cap Reductn		0			0					0	0		
Spillback Cap Reductn		0			0					0	0		
Storage Cap Reductn		0			0					0	0		
Reduced v/c Ratio		0.26			0.25					0.21	0.10		

Intersection Summary	
Area Type:	Other
Cycle Length: 70	
Actuated Cycle Length: 29.6	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 9: Congress St & Preble St





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	370	0	0	357	0	0	0	0	152	0	109
Future Volume (vph)	0	370	0	0	357	0	0	0	0	152	0	109
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5					4.5	4.5	
Lane Util. Factor		1.00			1.00					1.00	1.00	
Frt		1.00			1.00					1.00	0.85	
Flt Protected		1.00			1.00					0.95	1.00	
Satd. Flow (prot)		1863			1863					1770	1583	
Flt Permitted		1.00			1.00					0.76	1.00	
Satd. Flow (perm)		1863			1863					1410	1583	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	402	0	0	388	0	0	0	0	165	0	118
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	89	0
Lane Group Flow (vph)	0	402	0	0	388	0	0	0	0	165	30	0
Turn Type		NA			NA					Perm	NA	
Protected Phases		6			2			8			4	
Permitted Phases				2			8			4		
Actuated Green, G (s)		13.5			13.5					7.5	7.5	
Effective Green, g (s)		13.5			13.5					7.5	7.5	
Actuated g/C Ratio		0.45			0.45					0.25	0.25	
Clearance Time (s)		4.5			4.5					4.5	4.5	
Vehicle Extension (s)		3.0			3.0					3.0	3.0	
Lane Grp Cap (vph)		838			838					352	395	
v/s Ratio Prot		c0.22			0.21						0.02	
v/s Ratio Perm										c0.12		
v/c Ratio		0.48			0.46					0.47	0.07	
Uniform Delay, d1		5.8			5.7					9.6	8.6	
Progression Factor		1.00			1.00					1.00	1.00	
Incremental Delay, d2		0.4			0.4					1.0	0.1	
Delay (s)		6.2			6.1					10.5	8.7	
Level of Service		A			A					B	A	
Approach Delay (s)		6.2			6.1			0.0			9.8	
Approach LOS		A			A			A			A	

Intersection Summary			
HCM 2000 Control Delay	7.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	30.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	35.4%	ICU Level of Service	A
Analysis Period (min)	15		

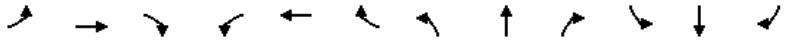
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	243	106	83	280	0	0	0	0	25	70	0
Future Volume (vph)	0	243	106	83	280	0	0	0	0	25	70	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		121			162			350			192	
Travel Time (s)		2.8			3.7			8.0			4.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	379	0	90	304	0	0	0	0	0	103	0
Turn Type		NA		pm+pt	NA					Perm	NA	
Protected Phases		6		5	2						4	
Permitted Phases				2						4		
Detector Phase		6		5	2					4	4	
Switch Phase												
Minimum Initial (s)		6.0		5.0	10.0					6.0	6.0	
Minimum Split (s)		22.5		9.5	22.5					22.5	22.5	
Total Split (s)		35.0		12.0	47.0					23.0	23.0	
Total Split (%)		50.0%		17.1%	67.1%					32.9%	32.9%	
Yellow Time (s)		3.5		3.5	3.5					3.5	3.5	
All-Red Time (s)		1.0		1.0	1.0					1.0	1.0	
Lost Time Adjust (s)		0.0		0.0	0.0						0.0	
Total Lost Time (s)		4.5		4.5	4.5						4.5	
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?		Yes		Yes								
Recall Mode		None		None	None					None	None	
v/c Ratio		0.39		0.10	0.21						0.10	
Control Delay		9.9		3.3	3.4						15.3	
Queue Delay		0.0		0.0	0.0						0.0	
Total Delay		9.9		3.3	3.4						15.3	
Queue Length 50th (ft)		62		6	24						10	
Queue Length 95th (ft)		130		18	53						30	
Internal Link Dist (ft)		41			82			270			112	
Turn Bay Length (ft)												
Base Capacity (vph)		1466		831	1805						2281	
Starvation Cap Reductn		0		0	0						0	
Spillback Cap Reductn		0		0	0						0	
Storage Cap Reductn		0		0	0						0	
Reduced v/c Ratio		0.26		0.11	0.17						0.05	

Intersection Summary	
Area Type:	Other
Cycle Length: 70	
Actuated Cycle Length: 31.5	
Natural Cycle: 55	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 10: Preble St & Cumberland Ave





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	243	106	83	280	0	0	0	0	25	70	0
Future Volume (vph)	0	243	106	83	280	0	0	0	0	25	70	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5		4.5	4.5						4.5	
Lane Util. Factor		1.00		1.00	1.00						0.95	
Frt		0.96		1.00	1.00						1.00	
Flt Protected		1.00		0.95	1.00						0.99	
Satd. Flow (prot)		1786		1770	1863						3493	
Flt Permitted		1.00		0.36	1.00						0.99	
Satd. Flow (perm)		1786		662	1863						3493	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	264	115	90	304	0	0	0	0	27	76	0
RTOR Reduction (vph)	0	26	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	353	0	90	304	0	0	0	0	0	103	0
Turn Type		NA		pm+pt	NA					Perm	NA	
Protected Phases		6		5	2						4	
Permitted Phases				2						4		
Actuated Green, G (s)		11.2		18.9	18.9						3.2	
Effective Green, g (s)		11.2		18.9	18.9						3.2	
Actuated g/C Ratio		0.36		0.61	0.61						0.10	
Clearance Time (s)		4.5		4.5	4.5						4.5	
Vehicle Extension (s)		3.0		3.0	3.0						3.0	
Lane Grp Cap (vph)		643		516	1132						359	
v/s Ratio Prot		c0.20		0.02	c0.16							
v/s Ratio Perm				0.09							0.03	
v/c Ratio		0.55		0.17	0.27						0.29	
Uniform Delay, d1		7.9		3.0	2.9						12.9	
Progression Factor		1.00		1.00	1.00						1.00	
Incremental Delay, d2		1.0		0.2	0.1						0.4	
Delay (s)		8.9		3.2	3.0						13.3	
Level of Service		A		A	A						B	
Approach Delay (s)		8.9			3.0			0.0			13.3	
Approach LOS		A			A			A			B	

Intersection Summary				
HCM 2000 Control Delay	6.8	HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio	0.48			
Actuated Cycle Length (s)	31.1	Sum of lost time (s)	13.5	
Intersection Capacity Utilization	40.1%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	99	311	53	30	270	39	0	0	0	0	0	0
Future Volume (Veh/h)	99	311	53	30	270	39	0	0	0	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	108	338	58	33	293	42	0	0	0	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)					325							
pX, platoon unblocked	0.94						0.94	0.94		0.94	0.94	0.94
vC, conflicting volume	335			396			963	984	367	963	992	314
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	256			396			927	949	367	927	958	233
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	91			97			100	100	100	100	100	100
cM capacity (veh/h)	1226			1163			213	216	678	213	214	754

Direction, Lane #	EB 1	WB 1
Volume Total	504	368
Volume Left	108	33
Volume Right	58	42
cSH	1226	1163
Volume to Capacity	0.09	0.03
Queue Length 95th (ft)	7	2
Control Delay (s)	2.5	1.0
Lane LOS	A	A
Approach Delay (s)	2.5	1.0
Approach LOS		

Intersection Summary				
Average Delay	1.9			
Intersection Capacity Utilization	50.0%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	330	0	0	213	55	82
Future Volume (Veh/h)	330	0	0	213	55	82
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	359	0	0	232	60	89
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)				341		
pX, platoon unblocked						
vC, conflicting volume			359		591	359
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			359		591	359
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		87	87
cM capacity (veh/h)			1200		470	685

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	359	232	149
Volume Left	0	0	60
Volume Right	0	0	89
cSH	1700	1700	578
Volume to Capacity	0.21	0.14	0.26
Queue Length 95th (ft)	0	0	26
Control Delay (s)	0.0	0.0	13.4
Lane LOS			B
Approach Delay (s)	0.0	0.0	13.4
Approach LOS			B

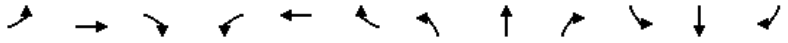
Intersection Summary			
Average Delay	2.7		
Intersection Capacity Utilization	32.1%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø9
Lane Configurations													
Traffic Volume (vph)	0	315	0	0	220	0	0	0	0	250	2	119	
Future Volume (vph)	0	315	0	0	220	0	0	0	0	250	2	119	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Right Turn on Red			Yes			Yes			Yes			Yes	
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		72			151			106			198		
Travel Time (s)		1.6			3.4			2.4			4.5		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	342	0	0	239	0	0	0	0	272	131	0	
Turn Type		NA			NA					Perm	NA		
Protected Phases		6			2			8			4		9
Permitted Phases				2			8			4			
Detector Phase		6		2	2		8	8		4	4		
Switch Phase													
Minimum Initial (s)		6.0		6.0	6.0		6.0	6.0		6.0	6.0		5.0
Minimum Split (s)		10.5		10.5	10.5		10.5	10.5		10.5	10.5		21.0
Total Split (s)		22.0		22.0	22.0		22.0	22.0		22.0	22.0		21.0
Total Split (%)		33.8%		33.8%	33.8%		33.8%	33.8%		33.8%	33.8%		32%
Yellow Time (s)		3.5		3.5	3.5		3.5	3.5		3.5	3.5		3.0
All-Red Time (s)		1.0		1.0	1.0		1.0	1.0		1.0	1.0		0.0
Lost Time Adjust (s)		0.0			0.0			0.0		0.0	0.0		
Total Lost Time (s)		4.5			4.5			4.5		4.5	4.5		
Lead/Lag													
Lead-Lag Optimize?													
Recall Mode		None		None	None		None	None		None	None		None
v/c Ratio		0.52			0.36					0.52	0.19		
Control Delay		12.6			10.7					12.9	3.1		
Queue Delay		0.0			0.0					0.0	0.0		
Total Delay		12.6			10.7					12.9	3.1		
Queue Length 50th (ft)		47			30					36	0		
Queue Length 95th (ft)		113			78					99	22		
Internal Link Dist (ft)		1			71			26			118		
Turn Bay Length (ft)													
Base Capacity (vph)		987			987					747	901		
Starvation Cap Reductn		0			0					0	0		
Spillback Cap Reductn		0			0					0	0		
Storage Cap Reductn		0			0					0	0		
Reduced v/c Ratio		0.35			0.24					0.36	0.15		

Intersection Summary	
Area Type:	Other
Cycle Length: 65	
Actuated Cycle Length: 34.4	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 9: Congress St & Preble St





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	315	0	0	220	0	0	0	0	250	2	119
Future Volume (vph)	0	315	0	0	220	0	0	0	0	250	2	119
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5					4.5	4.5	
Lane Util. Factor		1.00			1.00					1.00	1.00	
Frt		1.00			1.00					1.00	0.85	
Flt Protected		1.00			1.00					0.95	1.00	
Satd. Flow (prot)		1863			1863					1770	1588	
Flt Permitted		1.00			1.00					0.76	1.00	
Satd. Flow (perm)		1863			1863					1410	1588	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	342	0	0	239	0	0	0	0	272	2	129
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	80	0
Lane Group Flow (vph)	0	342	0	0	239	0	0	0	0	272	51	0
Turn Type		NA			NA					Perm	NA	
Protected Phases		6			2			8			4	
Permitted Phases				2			8			4		
Actuated Green, G (s)		12.1			12.1					12.9	12.9	
Effective Green, g (s)		12.1			12.1					12.9	12.9	
Actuated g/C Ratio		0.36			0.36					0.38	0.38	
Clearance Time (s)		4.5			4.5					4.5	4.5	
Vehicle Extension (s)		3.0			3.0					3.0	3.0	
Lane Grp Cap (vph)		663			663					534	602	
v/s Ratio Prot		c0.18			0.13						0.03	
v/s Ratio Perm										c0.19		
v/c Ratio		0.52			0.36					0.51	0.08	
Uniform Delay, d1		8.6			8.1					8.1	6.8	
Progression Factor		1.00			1.00					1.00	1.00	
Incremental Delay, d2		0.7			0.3					0.8	0.1	
Delay (s)		9.3			8.4					8.9	6.8	
Level of Service		A			A					A	A	
Approach Delay (s)		9.3			8.4			0.0			8.2	
Approach LOS		A			A			A			A	

Intersection Summary			
HCM 2000 Control Delay	8.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	34.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	37.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	246	166	15	177	0	0	0	0	51	191	37
Future Volume (vph)	0	246	166	15	177	0	0	0	0	51	191	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		121			162			350			192	
Travel Time (s)		2.8			3.7			8.0			4.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	447	0	16	192	0	0	0	0	0	303	0
Turn Type		NA		pm+pt	NA					Perm	NA	
Protected Phases		6		5	2						4	
Permitted Phases				2						4		
Detector Phase		6		5	2					4	4	
Switch Phase												
Minimum Initial (s)		6.0		5.0	10.0					6.0	6.0	
Minimum Split (s)		22.5		9.5	22.5					22.5	22.5	
Total Split (s)		30.0		12.0	42.0					23.0	23.0	
Total Split (%)		46.2%		18.5%	64.6%					35.4%	35.4%	
Yellow Time (s)		3.5		3.5	3.5					3.5	3.5	
All-Red Time (s)		1.0		1.0	1.0					1.0	1.0	
Lost Time Adjust (s)		0.0		0.0	0.0						0.0	
Total Lost Time (s)		4.5		4.5	4.5						4.5	
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?		Yes		Yes								
Recall Mode		None		None	None					None	None	
v/c Ratio		0.59		0.03	0.23						0.33	
Control Delay		11.2		4.9	6.1						12.4	
Queue Delay		0.0		0.0	0.0						0.0	
Total Delay		11.2		4.9	6.1						12.4	
Queue Length 50th (ft)		38		1	16						16	
Queue Length 95th (ft)		176		7	47						75	
Internal Link Dist (ft)		41			82			270			112	
Turn Bay Length (ft)												
Base Capacity (vph)		1440		541	1725						2039	
Starvation Cap Reductn		0		0	0						0	
Spillback Cap Reductn		0		0	0						0	
Storage Cap Reductn		0		0	0						0	
Reduced v/c Ratio		0.31		0.03	0.11						0.15	

Intersection Summary	
Area Type:	Other
Cycle Length: 65	
Actuated Cycle Length: 34.6	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	

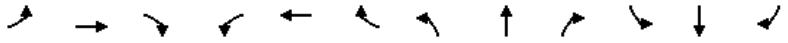
Splits and Phases: 10: Preble St & Cumberland Ave



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	246	166	15	177	0	0	0	0	51	191	37
Future Volume (vph)	0	246	166	15	177	0	0	0	0	51	191	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5		4.5	4.5						4.5	
Lane Util. Factor		1.00		1.00	1.00						0.95	
Frt		0.95		1.00	1.00						0.98	
Flt Protected		1.00		0.95	1.00						0.99	
Satd. Flow (prot)		1761		1770	1863						3438	
Flt Permitted		1.00		0.30	1.00						0.99	
Satd. Flow (perm)		1761		555	1863						3438	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	267	180	16	192	0	0	0	0	55	208	40
RTOR Reduction (vph)	0	38	0	0	0	0	0	0	0	0	20	0
Lane Group Flow (vph)	0	409	0	16	192	0	0	0	0	0	283	0
Turn Type		NA		pm+pt	NA					Perm	NA	
Protected Phases		6		5	2						4	
Permitted Phases				2						4		
Actuated Green, G (s)		14.3		19.6	19.6						9.0	
Effective Green, g (s)		14.3		19.6	19.6						9.0	
Actuated g/C Ratio		0.38		0.52	0.52						0.24	
Clearance Time (s)		4.5		4.5	4.5						4.5	
Vehicle Extension (s)		3.0		3.0	3.0						3.0	
Lane Grp Cap (vph)		669		315	971						822	
v/s Ratio Prot		c0.23		0.00	c0.10							
v/s Ratio Perm				0.03							0.08	
v/c Ratio		0.61		0.05	0.20						0.34	
Uniform Delay, d1		9.4		5.1	4.8						11.9	
Progression Factor		1.00		1.00	1.00						1.00	
Incremental Delay, d2		1.7		0.1	0.1						0.3	
Delay (s)		11.1		5.2	4.9						12.1	
Level of Service		B		A	A						B	
Approach Delay (s)		11.1			4.9			0.0			12.1	
Approach LOS		B			A			A			B	

Intersection Summary			
HCM 2000 Control Delay	10.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	37.6	Sum of lost time (s)	13.5
Intersection Capacity Utilization	38.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	21	387	32	80	379	30	0	0	0	0	0	0
Future Volume (Veh/h)	21	387	32	80	379	30	0	0	0	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	23	421	35	87	412	33	0	0	0	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)					325							
pX, platoon unblocked	0.84						0.84	0.84		0.84	0.84	0.84
vC, conflicting volume	445			456			1087	1104	438	1087	1104	428
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	238			456			1006	1026	438	1006	1027	219
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			92			100	100	100	100	100	100
cM capacity (veh/h)	1111			1105			170	177	618	170	177	687

Direction, Lane #	EB 1	WB 1
Volume Total	479	532
Volume Left	23	87
Volume Right	35	33
cSH	1111	1105
Volume to Capacity	0.02	0.08
Queue Length 95th (ft)	2	6
Control Delay (s)	0.6	2.2
Lane LOS	A	A
Approach Delay (s)	0.6	2.2
Approach LOS		

Intersection Summary				
Average Delay	1.4			
Intersection Capacity Utilization	56.1%	ICU Level of Service	B	
Analysis Period (min)	15			



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	355	0	0	294	40	12
Future Volume (Veh/h)	355	0	0	294	40	12
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	386	0	0	320	43	13
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)				341		
pX, platoon unblocked					0.97	
vC, conflicting volume			386		706	386
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			386		682	386
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		89	98
cM capacity (veh/h)			1172		403	662

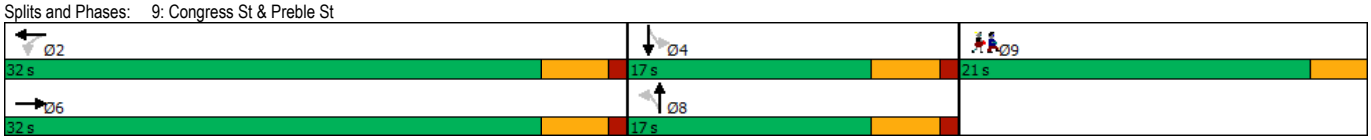
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	386	320	56
Volume Left	0	0	43
Volume Right	0	0	13
cSH	1700	1700	443
Volume to Capacity	0.23	0.19	0.13
Queue Length 95th (ft)	0	0	11
Control Delay (s)	0.0	0.0	14.3
Lane LOS			B
Approach Delay (s)	0.0	0.0	14.3
Approach LOS			B

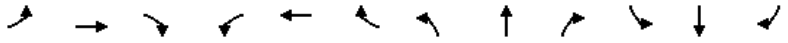
Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	28.7%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø9
Lane Configurations													
Traffic Volume (vph)	0	389	0	0	375	0	0	0	0	160	0	115	
Future Volume (vph)	0	389	0	0	375	0	0	0	0	160	0	115	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Right Turn on Red			Yes			Yes			Yes			Yes	
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		72			151			106			198		
Travel Time (s)		1.6			3.4			2.4			4.5		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	423	0	0	408	0	0	0	0	174	125	0	
Turn Type		NA			NA					Perm	NA		
Protected Phases		6			2			8			4		9
Permitted Phases				2			8			4			
Detector Phase		6		2	2		8	8		4	4		
Switch Phase													
Minimum Initial (s)		6.0		6.0	6.0		6.0	6.0		6.0	6.0		5.0
Minimum Split (s)		10.5		10.5	10.5		10.5	10.5		10.5	10.5		21.0
Total Split (s)		32.0		32.0	32.0		17.0	17.0		17.0	17.0		21.0
Total Split (%)		45.7%		45.7%	45.7%		24.3%	24.3%		24.3%	24.3%		30%
Yellow Time (s)		3.5		3.5	3.5		3.5	3.5		3.5	3.5		3.0
All-Red Time (s)		1.0		1.0	1.0		1.0	1.0		1.0	1.0		0.0
Lost Time Adjust (s)		0.0			0.0			0.0		0.0	0.0		
Total Lost Time (s)		4.5			4.5			4.5		4.5	4.5		
Lead/Lag													
Lead-Lag Optimize?													
Recall Mode		None		None	None		None	None		None	None		None
v/c Ratio		0.57			0.55					0.39	0.14		
Control Delay		11.2			10.9					12.6	0.3		
Queue Delay		0.0			0.0					0.0	0.0		
Total Delay		11.2			10.9					12.6	0.3		
Queue Length 50th (ft)		51			48					21	0		
Queue Length 95th (ft)		113			108					67	0		
Internal Link Dist (ft)		1			71			26			118		
Turn Bay Length (ft)													
Base Capacity (vph)		1591			1591					564	994		
Starvation Cap Reductn		0			0					0	0		
Spillback Cap Reductn		0			0					0	0		
Storage Cap Reductn		0			0					0	0		
Reduced v/c Ratio		0.27			0.26					0.31	0.13		

Intersection Summary	
Area Type:	Other
Cycle Length: 70	
Actuated Cycle Length: 32.2	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 9: Congress St & Preble St





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	389	0	0	375	0	0	0	0	160	0	115
Future Volume (vph)	0	389	0	0	375	0	0	0	0	160	0	115
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5					4.5	4.5	
Lane Util. Factor		1.00			1.00					1.00	1.00	
Frt		1.00			1.00					1.00	0.85	
Flt Protected		1.00			1.00					0.95	1.00	
Satd. Flow (prot)		1863			1863					1770	1583	
Flt Permitted		1.00			1.00					0.76	1.00	
Satd. Flow (perm)		1863			1863					1410	1583	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	423	0	0	408	0	0	0	0	174	0	125
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	85	0
Lane Group Flow (vph)	0	423	0	0	408	0	0	0	0	174	40	0
Turn Type		NA			NA					Perm	NA	
Protected Phases		6			2			8			4	
Permitted Phases				2			8			4		
Actuated Green, G (s)		12.8			12.8					10.1	10.1	
Effective Green, g (s)		12.8			12.8					10.1	10.1	
Actuated g/C Ratio		0.40			0.40					0.32	0.32	
Clearance Time (s)		4.5			4.5					4.5	4.5	
Vehicle Extension (s)		3.0			3.0					3.0	3.0	
Lane Grp Cap (vph)		747			747					446	501	
v/s Ratio Prot		c0.23			0.22						0.02	
v/s Ratio Perm										c0.12		
v/c Ratio		0.57			0.55					0.39	0.08	
Uniform Delay, d1		7.4			7.3					8.5	7.6	
Progression Factor		1.00			1.00					1.00	1.00	
Incremental Delay, d2		1.0			0.8					0.6	0.1	
Delay (s)		8.4			8.1					9.1	7.7	
Level of Service		A			A					A	A	
Approach Delay (s)		8.4			8.1			0.0			8.5	
Approach LOS		A			A			A			A	

Intersection Summary			
HCM 2000 Control Delay	8.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	31.9	Sum of lost time (s)	12.0
Intersection Capacity Utilization	36.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	255	111	87	294	0	0	0	0	26	74	0
Future Volume (vph)	0	255	111	87	294	0	0	0	0	26	74	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		121			162			350			192	
Travel Time (s)		2.8			3.7			8.0			4.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	398	0	95	320	0	0	0	0	0	108	0
Turn Type		NA		pm+pt	NA					Perm	NA	
Protected Phases		6		5	2						4	
Permitted Phases				2						4		
Detector Phase		6		5	2					4	4	
Switch Phase												
Minimum Initial (s)		6.0		5.0	10.0					6.0	6.0	
Minimum Split (s)		22.5		9.5	22.5					22.5	22.5	
Total Split (s)		35.0		12.0	47.0					23.0	23.0	
Total Split (%)		50.0%		17.1%	67.1%					32.9%	32.9%	
Yellow Time (s)		3.5		3.5	3.5					3.5	3.5	
All-Red Time (s)		1.0		1.0	1.0					1.0	1.0	
Lost Time Adjust (s)		0.0		0.0	0.0						0.0	
Total Lost Time (s)		4.5		4.5	4.5						4.5	
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?		Yes		Yes								
Recall Mode		None		None	None					None	None	
v/c Ratio		0.40		0.11	0.22						0.10	
Control Delay		9.9		3.3	3.4						15.8	
Queue Delay		0.0		0.0	0.0						0.0	
Total Delay		9.9		3.3	3.4						15.8	
Queue Length 50th (ft)		67		7	26						11	
Queue Length 95th (ft)		139		19	56						32	
Internal Link Dist (ft)		41			82			270			112	
Turn Bay Length (ft)												
Base Capacity (vph)		1446		823	1781						2255	
Starvation Cap Reductn		0		0	0						0	
Spillback Cap Reductn		0		0	0						0	
Storage Cap Reductn		0		0	0						0	
Reduced v/c Ratio		0.28		0.12	0.18						0.05	

Intersection Summary	
Area Type:	Other
Cycle Length: 70	
Actuated Cycle Length: 32.4	
Natural Cycle: 55	
Control Type: Actuated-Uncoordinated	

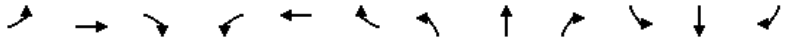
Splits and Phases: 10: Preble St & Cumberland Ave



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	255	111	87	294	0	0	0	0	26	74	0
Future Volume (vph)	0	255	111	87	294	0	0	0	0	26	74	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5		4.5	4.5						4.5	
Lane Util. Factor		1.00		1.00	1.00						0.95	
Frt		0.96		1.00	1.00						1.00	
Flt Protected		1.00		0.95	1.00						0.99	
Satd. Flow (prot)		1786		1770	1863						3494	
Flt Permitted		1.00		0.34	1.00						0.99	
Satd. Flow (perm)		1786		642	1863						3494	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	277	121	95	320	0	0	0	0	28	80	0
RTOR Reduction (vph)	0	25	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	373	0	95	320	0	0	0	0	0	108	0
Turn Type		NA		pm+pt	NA					Perm	NA	
Protected Phases		6		5	2						4	
Permitted Phases				2						4		
Actuated Green, G (s)		11.8		19.5	19.5						3.2	
Effective Green, g (s)		11.8		19.5	19.5						3.2	
Actuated g/C Ratio		0.37		0.62	0.62						0.10	
Clearance Time (s)		4.5		4.5	4.5						4.5	
Vehicle Extension (s)		3.0		3.0	3.0						3.0	
Lane Grp Cap (vph)		664		508	1146						352	
v/s Ratio Prot		c0.21		0.02	c0.17							
v/s Ratio Perm				0.10							0.03	
v/c Ratio		0.56		0.19	0.28						0.31	
Uniform Delay, d1		7.9		3.0	2.8						13.2	
Progression Factor		1.00		1.00	1.00						1.00	
Incremental Delay, d2		1.1		0.2	0.1						0.5	
Delay (s)		9.0		3.2	3.0						13.7	
Level of Service		A		A	A						B	
Approach Delay (s)		9.0			3.0			0.0			13.7	
Approach LOS		A			A			A			B	

Intersection Summary				
HCM 2000 Control Delay	6.9	HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio	0.50			
Actuated Cycle Length (s)	31.7	Sum of lost time (s)	13.5	
Intersection Capacity Utilization	41.3%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	119	311	53	30	285	119	0	0	0	0	0	0
Future Volume (Veh/h)	119	311	53	30	285	119	0	0	0	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	129	338	58	33	310	129	0	0	0	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)					325							
pX, platoon unblocked	0.94						0.94	0.94		0.94	0.94	0.94
vC, conflicting volume	439			396			1066	1130	367	1066	1094	374
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	370			396			1037	1106	367	1037	1068	301
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	88			97			100	100	100	100	100	100
cM capacity (veh/h)	1116			1163			175	170	678	175	179	693

Direction, Lane #	EB 1	WB 1
Volume Total	525	472
Volume Left	129	33
Volume Right	58	129
cSH	1116	1163
Volume to Capacity	0.12	0.03
Queue Length 95th (ft)	10	2
Control Delay (s)	3.1	0.9
Lane LOS	A	A
Approach Delay (s)	3.1	0.9
Approach LOS		

Intersection Summary				
Average Delay	2.0			
Intersection Capacity Utilization	56.7%	ICU Level of Service	B	
Analysis Period (min)	15			



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	350	0	0	213	70	167
Future Volume (Veh/h)	350	0	0	213	70	167
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	380	0	0	232	76	182
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)				341		
pX, platoon unblocked					1.00	
vC, conflicting volume			380		612	380
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			380		610	380
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		83	73
cM capacity (veh/h)			1178		457	667

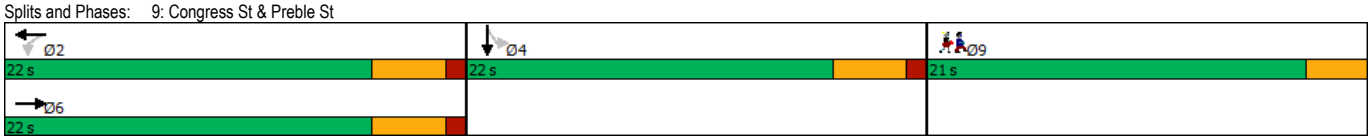
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	380	232	258
Volume Left	0	0	76
Volume Right	0	0	182
cSH	1700	1700	587
Volume to Capacity	0.22	0.14	0.44
Queue Length 95th (ft)	0	0	56
Control Delay (s)	0.0	0.0	15.8
Lane LOS			C
Approach Delay (s)	0.0	0.0	15.8
Approach LOS			C

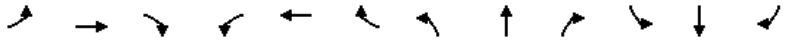
Intersection Summary			
Average Delay	4.7		
Intersection Capacity Utilization	39.2%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø9
Lane Configurations													
Traffic Volume (vph)	0	315	0	0	240	0	0	0	0	265	2	194	
Future Volume (vph)	0	315	0	0	240	0	0	0	0	265	2	194	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Right Turn on Red			Yes			Yes			Yes			Yes	
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		72			151			106			198		
Travel Time (s)		1.6			3.4			2.4			4.5		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	342	0	0	261	0	0	0	0	288	213	0	
Turn Type		NA			NA					Perm	NA		
Protected Phases		6			2						4		9
Permitted Phases				2						4			
Detector Phase		6		2	2					4	4		
Switch Phase													
Minimum Initial (s)		6.0		6.0	6.0					6.0	6.0		5.0
Minimum Split (s)		10.5		10.5	10.5					10.5	10.5		21.0
Total Split (s)		22.0		22.0	22.0					22.0	22.0		21.0
Total Split (%)		33.8%		33.8%	33.8%					33.8%	33.8%		32%
Yellow Time (s)		3.5		3.5	3.5					3.5	3.5		3.0
All-Red Time (s)		1.0		1.0	1.0					1.0	1.0		0.0
Lost Time Adjust (s)		0.0			0.0					0.0	0.0		
Total Lost Time (s)		4.5			4.5					4.5	4.5		
Lead/Lag													
Lead-Lag Optimize?													
Recall Mode		None		None	None					None	None		None
v/c Ratio		0.51			0.39					0.46	0.31		
Control Delay		11.8			10.3					11.5	3.2		
Queue Delay		0.0			0.0					0.0	0.0		
Total Delay		11.8			10.3					11.5	3.2		
Queue Length 50th (ft)		44			32					36	0		
Queue Length 95th (ft)		113			85					96	28		
Internal Link Dist (ft)		1			71			26			118		
Turn Bay Length (ft)													
Base Capacity (vph)		1033			1033					982	973		
Starvation Cap Reductn		0			0					0	0		
Spillback Cap Reductn		0			0					0	0		
Storage Cap Reductn		0			0					0	0		
Reduced v/c Ratio		0.33			0.25					0.29	0.22		

Intersection Summary	
Area Type:	Other
Cycle Length: 65	
Actuated Cycle Length: 33	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 9: Congress St & Preble St





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	315	0	0	240	0	0	0	0	265	2	194
Future Volume (vph)	0	315	0	0	240	0	0	0	0	265	2	194
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5					4.5	4.5	
Lane Util. Factor		1.00			1.00					1.00	1.00	
Frt		1.00			1.00					1.00	0.85	
Flt Protected		1.00			1.00					0.95	1.00	
Satd. Flow (prot)		1863			1863					1770	1586	
Flt Permitted		1.00			1.00					0.95	1.00	
Satd. Flow (perm)		1863			1863					1770	1586	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	342	0	0	261	0	0	0	0	288	2	211
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	136	0
Lane Group Flow (vph)	0	342	0	0	261	0	0	0	0	288	77	0
Turn Type		NA			NA					Perm	NA	
Protected Phases		6			2						4	
Permitted Phases				2						4		
Actuated Green, G (s)		11.9			11.9					11.6	11.6	
Effective Green, g (s)		11.9			11.9					11.6	11.6	
Actuated g/C Ratio		0.37			0.37					0.36	0.36	
Clearance Time (s)		4.5			4.5					4.5	4.5	
Vehicle Extension (s)		3.0			3.0					3.0	3.0	
Lane Grp Cap (vph)		682			682					631	566	
v/s Ratio Prot		c0.18			0.14						0.05	
v/s Ratio Perm										c0.16		
v/c Ratio		0.50			0.38					0.46	0.14	
Uniform Delay, d1		8.0			7.6					8.0	7.1	
Progression Factor		1.00			1.00					1.00	1.00	
Incremental Delay, d2		0.6			0.4					0.5	0.1	
Delay (s)		8.6			8.0					8.6	7.2	
Level of Service		A			A					A	A	
Approach Delay (s)		8.6			8.0			0.0			8.0	
Approach LOS		A			A			A			A	

Intersection Summary				
HCM 2000 Control Delay	8.2	HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio	0.55			
Actuated Cycle Length (s)	32.5	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	38.8%	ICU Level of Service	A	
Analysis Period (min)	15			

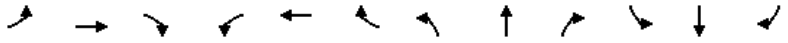
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	256	241	25	177	0	0	0	0	51	196	37
Future Volume (vph)	0	256	241	25	177	0	0	0	0	51	196	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		121			162			350			192	
Travel Time (s)		2.8			3.7			8.0			4.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	540	0	27	192	0	0	0	0	0	308	0
Turn Type		NA		pm+pt	NA					Perm	NA	
Protected Phases		6		5	2						4	
Permitted Phases				2						4		
Detector Phase		6		5	2					4	4	
Switch Phase												
Minimum Initial (s)		6.0		5.0	10.0					6.0	6.0	
Minimum Split (s)		22.5		9.5	22.5					22.5	22.5	
Total Split (s)		30.0		12.0	42.0					23.0	23.0	
Total Split (%)		46.2%		18.5%	64.6%					35.4%	35.4%	
Yellow Time (s)		3.5		3.5	3.5					3.5	3.5	
All-Red Time (s)		1.0		1.0	1.0					1.0	1.0	
Lost Time Adjust (s)		0.0		0.0	0.0						0.0	
Total Lost Time (s)		4.5		4.5	4.5						4.5	
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?		Yes		Yes								
Recall Mode		None		None	None					None	None	
v/c Ratio		0.66		0.06	0.21						0.35	
Control Delay		12.2		4.9	5.8						13.9	
Queue Delay		0.0		0.0	0.0						0.0	
Total Delay		12.2		4.9	5.8						13.9	
Queue Length 50th (ft)		49		2	17						20	
Queue Length 95th (ft)		229		10	47						77	
Internal Link Dist (ft)		41			82			270			112	
Turn Bay Length (ft)												
Base Capacity (vph)		1315		506	1673						1870	
Starvation Cap Reductn		0		0	0						0	
Spillback Cap Reductn		0		0	0						0	
Storage Cap Reductn		0		0	0						0	
Reduced v/c Ratio		0.41		0.05	0.11						0.16	

Intersection Summary	
Area Type:	Other
Cycle Length: 65	
Actuated Cycle Length: 37.8	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 10: Preble St & Cumberland Ave

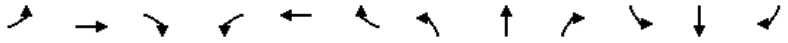




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	256	241	25	177	0	0	0	0	51	196	37
Future Volume (vph)	0	256	241	25	177	0	0	0	0	51	196	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5		4.5	4.5						4.5	
Lane Util. Factor		1.00		1.00	1.00						0.95	
Frt		0.93		1.00	1.00						0.98	
Flt Protected		1.00		0.95	1.00						0.99	
Satd. Flow (prot)		1741		1770	1863						3440	
Flt Permitted		1.00		0.24	1.00						0.99	
Satd. Flow (perm)		1741		447	1863						3440	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	278	262	27	192	0	0	0	0	55	213	40
RTOR Reduction (vph)	0	51	0	0	0	0	0	0	0	0	19	0
Lane Group Flow (vph)	0	489	0	27	192	0	0	0	0	0	289	0
Turn Type		NA		pm+pt	NA					Perm	NA	
Protected Phases		6		5	2						4	
Permitted Phases				2						4		
Actuated Green, G (s)		16.8		22.2	22.2						9.5	
Effective Green, g (s)		16.8		22.2	22.2						9.5	
Actuated g/C Ratio		0.41		0.55	0.55						0.23	
Clearance Time (s)		4.5		4.5	4.5						4.5	
Vehicle Extension (s)		3.0		3.0	3.0						3.0	
Lane Grp Cap (vph)		718		273	1016						802	
v/s Ratio Prot		c0.28		0.00	c0.10							
v/s Ratio Perm				0.05							0.08	
v/c Ratio		0.68		0.10	0.19						0.36	
Uniform Delay, d1		9.8		5.6	4.7						13.1	
Progression Factor		1.00		1.00	1.00						1.00	
Incremental Delay, d2		2.7		0.2	0.1						0.3	
Delay (s)		12.4		5.8	4.8						13.3	
Level of Service		B		A	A						B	
Approach Delay (s)		12.4			4.9			0.0			13.3	
Approach LOS		B			A			A			B	

Intersection Summary				
HCM 2000 Control Delay	11.2	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.57			
Actuated Cycle Length (s)	40.7	Sum of lost time (s)	13.5	
Intersection Capacity Utilization	43.8%	ICU Level of Service	A	
Analysis Period (min)	15			

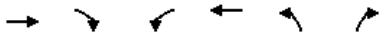
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	44	387	32	80	399	136	0	0	0	0	0	0
Future Volume (Veh/h)	44	387	32	80	399	136	0	0	0	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	48	421	35	87	434	148	0	0	0	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)					325							
pX, platoon unblocked	0.83						0.83	0.83		0.83	0.83	0.83
vC, conflicting volume	582			456			1216	1290	438	1216	1234	508
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	399			456			1160	1249	438	1160	1181	310
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	95			92			100	100	100	100	100	100
cM capacity (veh/h)	967			1105			130	126	618	130	139	609

Direction, Lane #	EB 1	WB 1
Volume Total	504	669
Volume Left	48	87
Volume Right	35	148
cSH	967	1105
Volume to Capacity	0.05	0.08
Queue Length 95th (ft)	4	6
Control Delay (s)	1.4	2.0
Lane LOS	A	A
Approach Delay (s)	1.4	2.0
Approach LOS		

Intersection Summary				
Average Delay	1.7			
Intersection Capacity Utilization	52.4%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	378	0	0	294	59	122
Future Volume (Veh/h)	378	0	0	294	59	122
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	411	0	0	320	64	133
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)				341		
pX, platoon unblocked					0.96	
vC, conflicting volume			411		731	411
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			411		700	411
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		84	79
cM capacity (veh/h)			1148		390	641

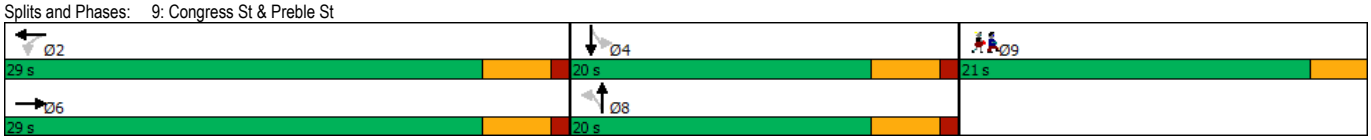
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	411	320	197
Volume Left	0	0	64
Volume Right	0	0	133
cSH	1700	1700	530
Volume to Capacity	0.24	0.19	0.37
Queue Length 95th (ft)	0	0	43
Control Delay (s)	0.0	0.0	15.8
Lane LOS			C
Approach Delay (s)	0.0	0.0	15.8
Approach LOS			C

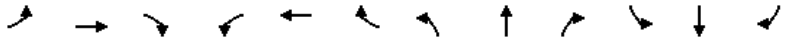
Intersection Summary			
Average Delay	3.3		
Intersection Capacity Utilization	37.3%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø9
Lane Configurations													
Traffic Volume (vph)	0	389	0	0	397	0	0	0	0	180	0	219	
Future Volume (vph)	0	389	0	0	397	0	0	0	0	180	0	219	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Right Turn on Red			Yes			Yes			Yes			Yes	
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		72			151			106			198		
Travel Time (s)		1.6			3.4			2.4			4.5		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	423	0	0	432	0	0	0	0	196	238	0	
Turn Type		NA			NA					Perm	NA		
Protected Phases		6			2			8			4		9
Permitted Phases				2			8			4			
Detector Phase		6		2	2		8	8		4	4		
Switch Phase													
Minimum Initial (s)		6.0		6.0	6.0		6.0	6.0		6.0	6.0		5.0
Minimum Split (s)		10.5		10.5	10.5		10.5	10.5		10.5	10.5		21.0
Total Split (s)		29.0		29.0	29.0		20.0	20.0		20.0	20.0		21.0
Total Split (%)		41.4%		41.4%	41.4%		28.6%	28.6%		28.6%	28.6%		30%
Yellow Time (s)		3.5		3.5	3.5		3.5	3.5		3.5	3.5		3.0
All-Red Time (s)		1.0		1.0	1.0		1.0	1.0		1.0	1.0		0.0
Lost Time Adjust (s)		0.0			0.0			0.0		0.0	0.0		
Total Lost Time (s)		4.5			4.5			4.5		4.5	4.5		
Lead/Lag													
Lead-Lag Optimize?													
Recall Mode		None		None	None		None	None		None	None		None
v/c Ratio		0.57			0.58					0.43	0.26		
Control Delay		11.8			12.0					13.3	0.7		
Queue Delay		0.0			0.0					0.0	0.0		
Total Delay		11.8			12.0					13.3	0.7		
Queue Length 50th (ft)		52			54					26	0		
Queue Length 95th (ft)		130			133					78	0		
Internal Link Dist (ft)		1			71			26			118		
Turn Bay Length (ft)													
Base Capacity (vph)		1398			1398					672	1061		
Starvation Cap Reductn		0			0					0	0		
Spillback Cap Reductn		0			0					0	0		
Storage Cap Reductn		0			0					0	0		
Reduced v/c Ratio		0.30			0.31					0.29	0.22		

Intersection Summary	
Area Type:	Other
Cycle Length: 70	
Actuated Cycle Length: 34.1	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 9: Congress St & Preble St





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	389	0	0	397	0	0	0	0	180	0	219
Future Volume (vph)	0	389	0	0	397	0	0	0	0	180	0	219
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5					4.5	4.5	
Lane Util. Factor		1.00			1.00					1.00	1.00	
Frt		1.00			1.00					1.00	0.85	
Flt Protected		1.00			1.00					0.95	1.00	
Satd. Flow (prot)		1863			1863					1770	1583	
Flt Permitted		1.00			1.00					0.76	1.00	
Satd. Flow (perm)		1863			1863					1410	1583	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	423	0	0	432	0	0	0	0	196	0	238
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	160	0
Lane Group Flow (vph)	0	423	0	0	432	0	0	0	0	196	78	0
Turn Type		NA			NA					Perm	NA	
Protected Phases		6			2			8			4	
Permitted Phases				2			8			4		
Actuated Green, G (s)		13.6			13.6					11.0	11.0	
Effective Green, g (s)		13.6			13.6					11.0	11.0	
Actuated g/C Ratio		0.40			0.40					0.33	0.33	
Clearance Time (s)		4.5			4.5					4.5	4.5	
Vehicle Extension (s)		3.0			3.0					3.0	3.0	
Lane Grp Cap (vph)		754			754					461	518	
v/s Ratio Prot		0.23			c0.23						0.05	
v/s Ratio Perm										c0.14		
v/c Ratio		0.56			0.57					0.43	0.15	
Uniform Delay, d1		7.7			7.7					8.8	8.0	
Progression Factor		1.00			1.00					1.00	1.00	
Incremental Delay, d2		1.0			1.1					0.6	0.1	
Delay (s)		8.7			8.8					9.5	8.1	
Level of Service		A			A					A	A	
Approach Delay (s)		8.7			8.8			0.0			8.7	
Approach LOS		A			A			A			A	

Intersection Summary				
HCM 2000 Control Delay	8.7	HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio	0.58			
Actuated Cycle Length (s)	33.6	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	42.0%	ICU Level of Service	A	
Analysis Period (min)	15			

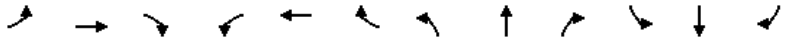
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	275	213	98	294	0	0	0	0	26	85	0
Future Volume (vph)	0	275	213	98	294	0	0	0	0	26	85	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		121			162			350			192	
Travel Time (s)		2.8			3.7			8.0			4.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	531	0	107	320	0	0	0	0	0	120	0
Turn Type		NA		pm+pt	NA					Perm	NA	
Protected Phases		6		5	2						4	
Permitted Phases				2						4		
Detector Phase		6		5	2					4	4	
Switch Phase												
Minimum Initial (s)		6.0		5.0	10.0					6.0	6.0	
Minimum Split (s)		22.5		9.5	22.5					22.5	22.5	
Total Split (s)		35.0		12.0	47.0					23.0	23.0	
Total Split (%)		50.0%		17.1%	67.1%					32.9%	32.9%	
Yellow Time (s)		3.5		3.5	3.5					3.5	3.5	
All-Red Time (s)		1.0		1.0	1.0					1.0	1.0	
Lost Time Adjust (s)		0.0		0.0	0.0						0.0	
Total Lost Time (s)		4.5		4.5	4.5						4.5	
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?		Yes		Yes								
Recall Mode		None		None	None					None	None	
v/c Ratio		0.55		0.18	0.24						0.17	
Control Delay		12.0		3.8	3.7						20.0	
Queue Delay		0.0		0.0	0.0						0.0	
Total Delay		12.0		3.8	3.7						20.0	
Queue Length 50th (ft)		97		8	27						15	
Queue Length 95th (ft)		191		21	57						40	
Internal Link Dist (ft)		41			82			270			112	
Turn Bay Length (ft)												
Base Capacity (vph)		1259		626	1669						1773	
Starvation Cap Reductn		0		0	0						0	
Spillback Cap Reductn		0		0	0						0	
Storage Cap Reductn		0		0	0						0	
Reduced v/c Ratio		0.42		0.17	0.19						0.07	

Intersection Summary	
Area Type:	Other
Cycle Length: 70	
Actuated Cycle Length: 42.2	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 10: Preble St & Cumberland Ave





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	275	213	98	294	0	0	0	0	26	85	0
Future Volume (vph)	0	275	213	98	294	0	0	0	0	26	85	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5		4.5	4.5						4.5	
Lane Util. Factor		1.00		1.00	1.00						0.95	
Frt		0.94		1.00	1.00						1.00	
Flt Protected		1.00		0.95	1.00						0.99	
Satd. Flow (prot)		1753		1770	1863						3498	
Flt Permitted		1.00		0.28	1.00						0.99	
Satd. Flow (perm)		1753		513	1863						3498	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	299	232	107	320	0	0	0	0	28	92	0
RTOR Reduction (vph)	0	39	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	492	0	107	320	0	0	0	0	0	120	0
Turn Type		NA		pm+pt	NA					Perm	NA	
Protected Phases		6		5	2						4	
Permitted Phases				2						4		
Actuated Green, G (s)		19.8		29.4	29.4						5.2	
Effective Green, g (s)		19.8		29.4	29.4						5.2	
Actuated g/C Ratio		0.45		0.67	0.67						0.12	
Clearance Time (s)		4.5		4.5	4.5						4.5	
Vehicle Extension (s)		3.0		3.0	3.0						3.0	
Lane Grp Cap (vph)		796		492	1256						417	
v/s Ratio Prot		c0.28		0.03	c0.17							
v/s Ratio Perm				0.12							0.03	
v/c Ratio		0.62		0.22	0.25						0.29	
Uniform Delay, d1		9.0		3.8	2.8						17.5	
Progression Factor		1.00		1.00	1.00						1.00	
Incremental Delay, d2		1.4		0.2	0.1						0.4	
Delay (s)		10.5		4.0	2.9						17.9	
Level of Service		B		A	A						B	
Approach Delay (s)		10.5			3.2			0.0			17.9	
Approach LOS		B			A			A			B	

Intersection Summary				
HCM 2000 Control Delay	8.4	HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio	0.52			
Actuated Cycle Length (s)	43.6	Sum of lost time (s)	13.5	
Intersection Capacity Utilization	49.2%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group

11. SITE PLAN REVIEW STANDARDS

11.1 TRANSPORTATION STANDARDS

A Traffic Movement Permit (TMP) is not required for this project, because the project will not generate 100 or more passenger trips at peak hour. A Traffic Memo has been prepared by VHB for the proposed development and is attached.

1. *Impact on Surrounding Street Systems*
   A Traffic Assessment is being prepared by VHB for the proposed development and will be provided under separate cover.

2. *Access and Circulation*

   In general. The primary vehicular and pedestrian entrances to the site will largely remain unchanged. New vehicle loading/unloading zones are proposed on Congress and Preble Streets, as shown on the plans. VHB will work with the City Traffic Engineer to evaluate the impacts, if any, of the addition of the valet space proposed on Congress Street.

   Loading & Servicing. Loading and trash removal will continue to be serviced from the Preble Street side of the building.

   Curb and Sidewalks. Brick sidewalks and granite curb will be provided per the City of Portland "Sidewalks and Driveway Apron Materials Policy" on Congress and Preble Streets. The existing concrete sections of sidewalk located along Preble Street will be removed and replaced with brick.

3. *Public Transit Access*
   No changes to public transit access are proposed as part of this project.

4. *Parking*

   Vehicular Parking. Valet service will be provided for hotel guests. Per Table 19-B, no off-street parking is required for changes in use in the B-3 zone. The applicant is proposing, however, to provide fifty-six (56) parking spaces for hotel use in the garage at 45-Brown Street. Per Table 19-A of the Land Use Ordinance, the off-street parking requirement for a 196-room hotel (one parking space per 4 guest rooms) would be 49 parking spaces.

   Bicycle Parking. Because off-street vehicular parking is not required for a change in use in the B-3 zone, and the bike parking requirement is based on vehicle parking required, no bike parking is required.

   Snow Storage. The Site's snow removal will continue to be managed by a contracted third party to ensure safe pedestrian circulation and to maintain access to the building entrances.

   Electric Vehicle (EV) Charging. Because off-street vehicular parking is not required for a change in use in the B-3 zone, and the EV Charging requirement is based on vehicle parking required, no EV Charging is required.

5. *Transportation Demand Management (TDM)*
   A TDM plan is not required for this project.

11.2 ENVIRONMENTAL QUALITY STANDARDS

1. *Preservation of Significant Natural Features*
   The Site is completely 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.

2. *Landscape Preservation*
   The Site is completely developed and there is no existing landscaping or existing trees that will be removed.

3. *Site Landscaping & Buffers*
   Three (3) street trees in raised planters are proposed on Congress Street, subject to approval by the City Arborist. No buffers are required for this project. All loading and servicing operations will be contained within the buildings.

4. *Water Quality, Stormwater Management, & Erosion Control*
   This project site is completely developed, and the proposed project is a change in use of existing buildings. Stormwater will continue to be managed as it is currently, and no changes to site impervious area are proposed. This project will not create any changes to the quantity, or quality, of the stormwater runoff from the site.

   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. The development has also been designed to provide for the adequate and sanitary disposal of sewage, as further described in Section 13 of this Report.

   Erosion Control Measures proposed during construction will include catch basin inlet protection where necessary.

11.3 PUBLIC INFRASTRUCTURE & COMMUNITY SAFETY STANDARDS

1. *Consistency with City Master Plans*
   The project has been designed consistent with City Council approved Master Plans, including sewer and stormwater, streets, and other public facilities.

2. *Public Safety and Fire Prevention*
   Provisions for public safety have been incorporated into the design of accesses and egresses. The design includes natural surveillance of public spaces and appropriate access control.

   Emergency vehicle access is provided on the adjacent public roadways. Compliance with the Portland Fire Department Site Review Checklist is described elsewhere in this Report.

3. *Availability and Adequate Capacity of Public Utilities*
   The availability and adequate capacity of public utilities is described elsewhere in this Report.

11.4 SITE DESIGN STANDARDS

1. *Massing, Ventilation, and Wind Impact*

This project is a change in use to existing buildings. There are no changes to massing, ventilation, or wind impacts.

2. *Shadows*
This project is a change in use to existing buildings and as such will not change its impacts from shadows. It is also located in the B3 zone, which is exempt from avoiding or mitigating shadow impacts.

3. *Snow and Ice Loading*
This project is a change in use to existing buildings. Any changes to building facades or elevations will be designed to prevent snow and ice from accumulating and falling onto abutting properties and public ways.

4. *View Corridors*
This project is a change in use to existing buildings. No view corridors are impacted.

5. *Historic Resources*
This project is in the Congress Street Historic District, and the buildings are all considered "contributing structures." The proposed renovations take into consideration the preservation standards for the district, under the guidelines of The National Park Service and in accordance with the provisions of article IX (historic preservation) of the Land Use Code.

   An application for a Certificate of Appropriateness for the proposed exterior renovations will proceed concurrently through the review process with the Historic Preservation Board.

6. *Exterior Lighting*
No changes to exterior lighting are proposed with the project.

7. *Noise and Vibration*
The noise impact from the proposed project 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 project 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 project will not exceed regulated levels.

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 building and comply with the requirements of the Historic District.

9. *Design Standards*
This project supports the development of dense, mixed-use neighborhoods with attractive, safe, and convenient street-level pedestrian environment.

11.5 ATTACHMENTS

- Traffic Memorandum Prepared by VHB (to be submitted under separate cover)

12. BOUNDARY SURVEY

A boundary and topographic survey of the Site was completed by Owen Haskell, Inc. Professional Land Surveyors. The survey is included with the project drawings.

12.1 ATTACHMENTS

- Boundary & Topographic Survey, prepared by Owen Haskell, Inc. (uploaded to Drawings folder in Eplan)

PREBLE STREET
PAVED – PUBLIC 56.5' WIDE

CUMBERLAND AVENUE
PAVED – PUBLIC 66' WIDE

CONGRESS STREET
PAVED – PUBLIC – VARIABLE WIDTH

BROWN STREET
PAVED – PUBLIC 33' WIDE

#338 CUMBERLAND AVE.
N/F
SWEETWATER PARTNERS LLC
34349/251
(4907/138 4907/161)
(1125/270) ITEM 11
TM 37 BLOCK F LOT 9
8 STORY
FORMERLY
ALLEN'S STORAGE WAREHOUSE

#38 PREBLE ST.
N:300657.06
E:2927809.01
BRICK BUILDING
CB RIM=53.99
INV. OUT=49.9
N/F
PREBLE STREET
29228/170
(1125/269)

#28 PREBLE ST.
PARCEL 2
AREA=
803± S.F.
N/F
EARL APARTMENTS LLC
17591/197
(2182/479)
(1091/438)
TM 37 BLOCK F LOT 5
"THE WADSWORTH"
6 STORY

#24 PREBLE ST.
N/F
24 PREBLE STREET PROPERTIES LLC
33029/19
/F PENNESSEEWASEE LLC
13502/253
(3375/256)
(1091/295)
TM 37 BLOCK F LOT 7
"FIRESTONE BUILDING"
4 STORY

#22 PREBLE ST.
TM 37 BLOCK F LOT 23
BRICK / STONE
BUILDING FOOTPRINT = 34,935 S.F. ±
2 STORY
FORMERLY
KEITH'S THEATRE LOBBY
4 STORY

#477 CONGRESS ST.
TM 37 BLOCK F LOT 22
14 STORY
N/F
TT MAINE VENTURE LLC
35346/60
HEIGHT=164'±
(NOT INCLUDING ROOF TOP SIGN)

#481 CONGRESS ST.
TM 37 BLOCK F LOT 18
4 STORY
1 STORY
12587/184

#483 CONGRESS ST.
(697/343)
N/F
MAINE HISTORICAL SOCIETY
TM 37 BLOCK F LOT 14
3 STORY

#45 BROWN ST.
TM 37 BLOCK F LOT 2
4 STORY PARKING GARAGE
277 REGULAR SPACES
5 HANDICAP SPACES

#41 BROWN ST.
N/F
MHS, INC.
10467/207
(4367/59 4373/30)
TM 37 BLOCK F LOT 12

TM 37 BLOCK F LOT 2

PAVED PARKING AREA
34 REGULAR SPACES
FORMERLY KEITH'S THEATRE

PAVED – OPEN AIR

BROWN TOWERS LLC
35610/345
AREA=
.64,840 S.F. ±
1.49 ACRES ±

PASSAGEWAY
PASSAGEWAY PART OF DEED "A"
RIGHTS OF USAGE IN IT
RIGHT IN COMMON WITH OTHERS TO USE PASSAGEWAY

EASEMENT AGREEMENT
25540/239

N:300288.85
E:2928143.52

GRID MAGNETIC 1915 17°

Legend

- IRON ROD FOUND
- MONUMENT FOUND
- WATER GATE / VALVE
- GAS VALVE
- MANHOLE
- ELECTRIC MANHOLE
- TELEPHONE MANHOLE
- CATCH BASIN
- UTILITY POLE
- LIGHT POLE
- HYDRANT
- WATER VALVE OR SHUTOFF
- SIGN
- PARKING METER
- ELECTRIC/GAS METER
- FENCE
- CURB
- OHW — OVERHEAD UTILITIES
- E — UNDERGROUND ELEC./COMM.
- T — TELEPHONE
- G — GAS LINE
- W — WATER LINE
- CONC. — CONCRETE
- N/F — NOW OR FORMERLY
- 000/000 — DEED BOOK / PAGE
- TM — TAX MAP BLOCK LOT NO.
- A — SIGNIFICANT OBSERVATION
- EASEMENT AGREEMENT 25540/239
- PROPERTY LINE
- 60 — 1' CONTOUR

Possible Encroachments

- A PARKING GARAGE BUILDING OVER PROPERTY LINE 1.56'±
- B UPPER LEVEL OF PARKING GARAGE STREET OVERHANG 4.5'±
- C OVERHEAD WIRES ENCROACH ONTO PREMISES 0.3'±
- D LADDER, CONCRETE RAMP AND RAILING AND LADDER ENCROACH UP TO 0.4'±
- E EAVES, CORNICES, LIGHTS, SIGN OVERHANG AS NOTED

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.

SCALE : 1" = 20'

0' 10' 20' 40'

Plan References

1. "ALTA/ACSM LAND TITLE SURVEY ON CUMBERLAND AVE., PREBLE ST., CONGRESS ST., & BROWN ST., PORTLAND, MAINE MADE FOR ISRAEL M. DOLGIN ASSOCIATES LLC" NOV. 13, 2006 BY OWEN HASKELL, INC.

2. "PLAN OF PROPERTY IN PORTLAND, MAINE MADE FOR MONUMENT SQUARE ASSOCIATES, INC. 20 APRIL 1983 H.J. & E.C. JORDAN–SURVEYORS"

3. "ATLA/ACSM LAND TITLE SURVEY, CWC2016 PROJECT, TIME & TEMPERATURE BUILDING AND MONUMENT SQUARE PARKING GARAGE, 477–481 CONGRESS STREET, 22 PREBLE STREET AND 45 BROWN STREET, PORTLAND, ME 04101" FOR BOCK & LCARK'S NATIONAL SURVEYORS NETWORK DATED MARCH 16, 2016 BY OWEN HASKELL, INC.

4. "ALTA/NSPS LAND TITLE SURVEY, TIME AND TEMPERATURE BUILDING, MONUMENT SQUARE PARKING GARAGE, 477–481 CONGRESS STREET, 22 PREBLE STREET, 45 BROWN STREET, PORTLAND, CUMBERLAND COUNTY, MAINE MADE FOR TT MAINE VENTURE, LLC" NOVEMBER 20, 2018 BY OWEN HASKELL, INC.

General Notes

1. OWNER OF RECORD: BROWN TOWERS, LLC, RECORDED IN CUMBERLAND COUNTY REGISTRY OF DEEDS IN BOOK 35610, PAGE 345.
2. LOCUS IS SHOWN ON PORTLAND PROPERTY MAPS AS MAP 37 BLOCK F LOTS 2, 18, 22 & 23.
4. ELEVATIONS ARE BASED ON OFFICIAL CITY OF PORTLAND BENCHMARK: L 757–34–112 "M" MONUMENT AT THE NORTHWESTERLY CORNER OF FOREST AVE. & CUMBERLAND AVE. ELEVATION = 80.66' (REF. CITY L.B. 725 PG. 99–100)
4. THE PARKING GARAGE AND THE PAVED PARKING AREA HAVE A COMBINED TOTAL OF 311 REGULAR AND 5 HANDICAPPED DELINEATED PARKING SPACES.
5. THE PROPERTY IS SERVICED BY VARIOUS UTILITIES THROUGH ADJACENT PUBLIC STREETS.
6. PARTY WALL IN 1125/270 IS NOW ONLY WALL OF SWEETWATER PARTNERS LLC AND IS NOT A WALL FOR PREMISES BUILDING.
7. STREET LINES ARE BASED ON PLAN REFERENCE 2 WHICH WAS BASED ON ADDITIONAL MONUMENTS ON CUMBERLAND AVENUE AND PREBLE STREET WHICH NO LONGER EXIST.
8. SUBJECT PROPERTY HAS DIRECT ACCESS TO CUMBERLAND AVENUE, PREBLE STREET, AND BROWN STREET, PUBLIC RIGHTS OF WAY.
9. BEARINGS ARE BASED ON MAGNETIC 1915 PER RECORD DEEDS AND PLANS. COORDINATES ARE BASED ON MAINE STATE PLANE COORDINATE SYSTEM WET ZONE NAD 83 PER CITY CONTROL POINTS:

T124–11–1087
N: 300446.78
E: 2927558.71

T124–12–1096
N: 299913.92
E: 2926805.42

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.

01/09/2020
DATE

RANDY R. LOUBIER, PLS #2407

STATE OF MAINE
RANDY R. LOUBIER 2407
PROFESSIONAL LAND SURVEYOR

Boundary & Topographic Survey

Time and Temperature Building
Monument Square Parking Garage
477-481 Congress Street, 22 Preble Street,
45 Brown Street, Portland, Maine
Made For
45 Brown Street, LLC

OWEN HASKELL, INC.
PROFESSIONAL LAND SURVEYORS
390 U.S. ROUTE ONE, UNIT 10, FALMOUTH, MAINE 04105

DRAWN BY: RRL / JLW	DATE: JAN. 9, 2020	JOB NO. 2019-348P
CHECKED BY: RRL	SCALE: 1" = 20'	DRWG. NO. 1

12. CONSTRUCTION MANAGEMENT PLAN

A Construction Management Plan has been prepared by Wright-Ryan Construction for the proposed project. The Contractor will be required to provide adequate safety fencing and signage directing pedestrians safely around the construction area. The Construction Management Plan is attached to this Section for your reference.

12.1 ATTACHMENTS

- Construction Management Plan prepared by Wright-Ryan Construction (Uploaded to the Construction Management Plan folder on Eplan)

Construction Management Plan
[Wright-Ryan Construction – Time and Temperature]

The following is the Construction Management Plan for the renovation of the interior and exterior of the Time and Temperature Building, connecting Bank, and Annex Buildings located at the intersection of Preble Street and Congress Street in Portland, Maine. This building includes an adaptive re-use development of a boutique hotel consisting of a planned 190 rooms, 2 restaurants/bars, fitness center, and approximately 8,300 SF of retail and 10,000 SF of meeting space.

The Site of The Time & Temperature Building is a tight and urban in nature, and very similar to several projects Wright-Ryan has successfully completed on the Portland Peninsula. *(See attached Site Utilization plan for traffic, deliveries, and pedestrian control Plan 01)*

A. Construction Management Principles.

The proposed Construction Management Plan is configured to lessen the impact of the construction activities on Congress Street and Preble Street, abutters, and the surrounding neighborhood. Below is a list of control measures being taken

1. **Site Access**: A temporary construction site fence with gates will be used to control pedestrian and vehicle access to the site, for the safety of pedestrians and workers alike. The temporary fence will remain during all phases of construction management. Signage will be utilized to inform pedestrians to cross the street as the sidewalks will be closed during the construction of this building. (See attached plan 01)
2. **Traffic control**: Will be required throughout the entire project and will be crucial to logistics of the project.
    A. Our initial plan is to close off the Congress Street and Preble Street Sidewalks around the building for laydown, deliveries, and trash removal. We would also work with the City to take at minimum, one lane of Preble Street for the safe offloading of materials and removal of debris away from the public way. We would prefer to close Preble Street for the entire duration since the more staging that can be done on Preble Street will reduce the impact to traffic and the neighbors on Congress Street. We will work out the details of this with the City prior to start of construction. We have developed and implemented similar approaches with the City of Portland engaging a local traffic engineer as necessary to ensure our site logistics meet all DOT requirements. This will require rerouting sidewalks and installing clear road and pedestrian signage to ensure a safe traffic flow.
    B. Trenching activities for utilities and services in both Preble and Congress Streets will have traffic control on a as needed basis, and none of which is anticipated to extend past a week.
    C. We will supply and remove materials to and from the building utilizing a material hoist on Preble Street as the most efficient way to

get materials to their destination and allow for debris to be removed. We will use the current elevators for construction personnel to access to their respective work areas. During the period we are constructing the areas within 481 Congress and the Annex areas we will utilize trash chutes to remove materials closer to the work areas on Congress and Preble, as the most efficient for 4 stories and lower. (See plans 02,03, and 04)

D. We intend to use a combination of hydro-mobile and scaffold systems around the exterior of the building. This will allow for multiple activities to take place at the same time to expedite schedule. We have some initial thoughts of where we would use each system as shown on the site utilization plans. However, this would be further refined as we engage subcontract partners and work through our Construction Management plan with the City. (See plans 02,03, and 04)

B. Development Review of Construction Management Plan.

Wright-Ryan will submit this construction management plan which outlines the logistics and safety measures being taken to protect the city and its residents as well as the workers during construction of this building. We will review this plan with the planning authority and Department of Public Works and obtain approval prior to start of construction. Minimizing impacts to areas surrounding the building site will be an important consideration in the development of this plan. (An initial proposed plan is attached P01)

C. Performance Guarantees, Inspection Fees, Preconstruction Meeting, and Permits.

1. **Street Opening Permit:** A street opening permit will be needed for the hook up of domestic water, sprinkler, sanitary, storm water, and gas during the project. These will happen at different areas and times along both Preble and Congress Streets. Our site contractor will be applying for these individually as the work is scheduled.
2. **Street Occupancy, Lane Closure, Parking and Sidewalk Closing Permits:** Sidewalk occupancy permits will be required for Congress Street. Street, parking, and sidewalk permits will be required Preble street. The Street opening permits will be for limited duration scheduled with the City for the utility hookups, the sidewalk and parking permits will be occupied for the duration of the project. We will need to close and divert two sidewalks as shown on the utilization plan during the duration of the project.
3. **Blasting:** Blasting will not be required for this project.

D. Construction Administration and Communication.

Wright-Ryan Construction will work diligently to ensure that communication with all parties involved is paramount. We intend to assist the developer in their conversations with abutters before and during construction to inform them of the work that is

scheduled to occur, to minimize the impact of construction to the surrounding abutters during the renovations. We will also provide construction signage with the contact information of our company, so we can be contacted should any issues arise. We propose the following contact persons at this time:

1. Project Manager: Chris Simmons – (207)747-8530
2. Project Superintendent: Jeff Giggey – (207) 405-1515
   Note: These are subject to change based on Wright-Ryan personnel availability, but the final construction management plan will be up to date with the actual persons of contact. Also, until this project reaches the construction phase, contact should be limited to the Wright-Ryan Preconstruction Department which can be reached at 207- 773-3625.
3. Construction Signage will be clear and concise and will be removed at end of project.

E. Construction Schedule.

1. The preliminary timeline for this project is as follows:
   a. Proposed Construction Start: January 2022
   b. Proposed Final Completion: March 2024
   (Summary Schedule is attached)
2. Hours of construction are currently foreseen as being limited to 7:00am to 5:00pm, Monday-Friday. Occasional weekend work is anticipated at this time, it will be limited to the hours allowed by the City of Portland. We may accept early deliveries to alleviate congestion on Congress Street, but no construction activities until 7AM.
3. Extended hours or night work are not foreseen at this time, but the city will be notified if these are required at any point during construction.
4. The majority of material deliveries will take place on Preble Street and directed to a laydown area on site or at a future satellite site as required.

F. Security & Public Safety.

1. The construction management plan drawings show where temporary construction fences and gates will be located during all phases of construction. These fences and gates will both secure the site as well as protect pedestrians from the construction equipment and work. (please see attached plans)
2. This construction project will be operated in accordance with all OSHA regulations.
3. A Fire Safety Program will be developed and adhered to during construction of this

G. Construction Permitting and Traffic Control Plans.

1. **Construction Activity in Public Streets**: Construction activity in public streets will have traffic control in place during working hours. This includes for any open excavations or construction equipment/vehicles temporarily parked on the side of

the road. If open excavations will be left overnight, these excavations will be covered with steel plates and signage will alert drivers and pedestrians of the work.

2. **Sewer, Water, and Gas Services**: The sewer, water, and gas piping will need to be hooked up to city services for this project. Applicable Street Opening, and Excavation permits will be pulled prior to the start of this work.
3. **Traffic Control Plans**: A preliminary plan is included in page 01 of the attachment. Individual plans will be developed for each street opening once we get closer to the work and a site contractor is engaged.

H. Site Management and Controls.

1. **Waste**: This construction site will have dumpsters stored near the construction entrances and will be changed out on a regular basis.
2. **Noise:** Will be confined to normal work hours. This noise will consist of normal vehicle traffic, construction equipment and normal construction noises such as banging and the sounds of power tools. This should not disturb the surrounding neighborhood.
3. **Snow Removal.** Wright-Ryan will be responsible for snow removal inside of the construction site and any closings of streets. We will rely on the city to plow all accessible public roads

I. Erosion Control and Preservation of Trees.

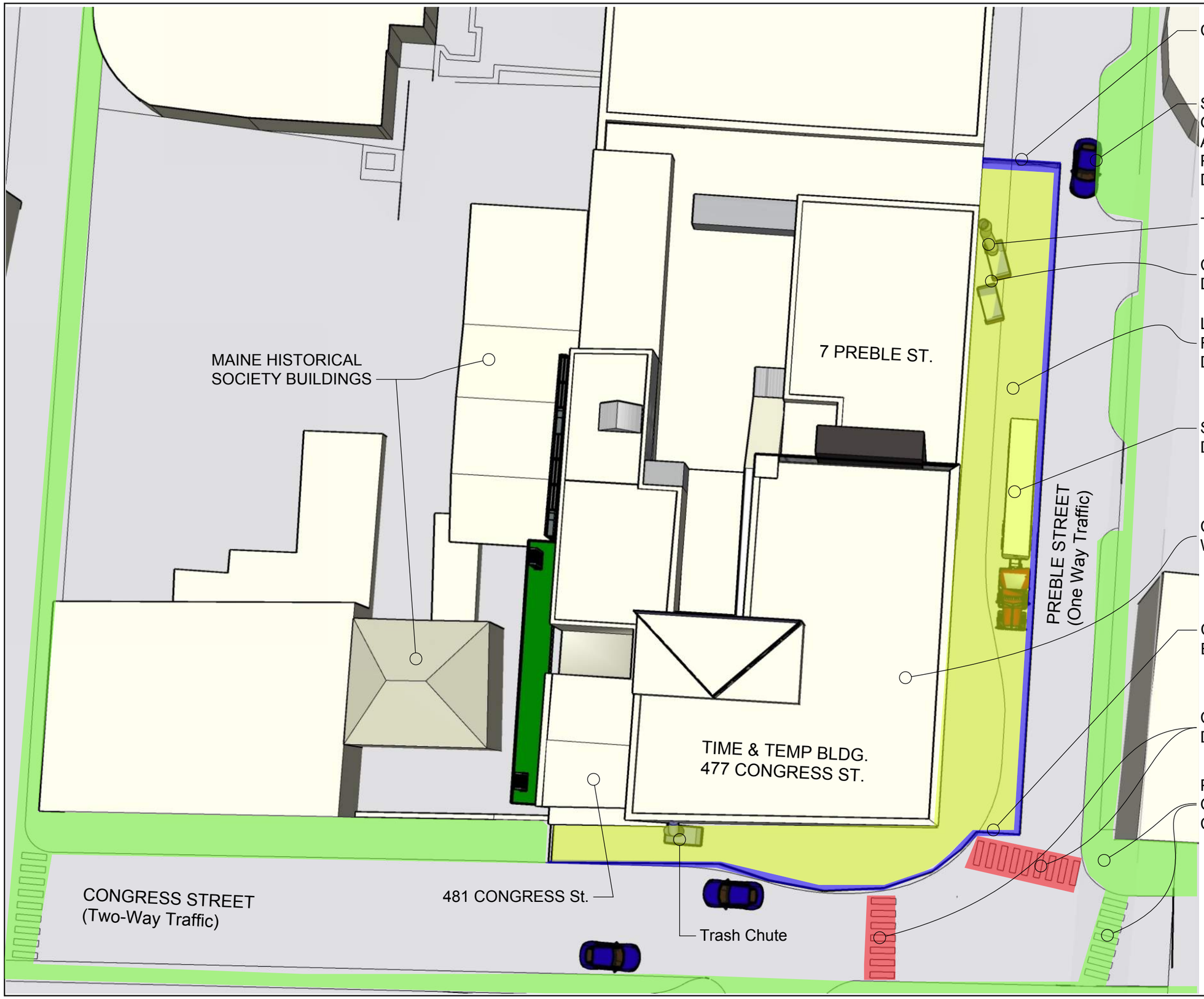
1. Erosion control measures and protection of trees is not foreseen for this site as it is an urban site, and there are no existing trees on either Congress or Preble Street.
2. We will use sediment control measures to prevent dirt and dust from our site from flowing into storm drains during inclement weather or melting.

J. Construction Staging Area.

1. Staging for vehicle off loading and material storage will be on site and will occur on Preble Street. Deliveries will be scheduled to minimize queuing in the public streets. We will have a material hoist to bring material into its intended location as the construction site will have a limited footprint for storage.

K. Parking during construction

1. Parking on the construction site will be extremely limited. We will work with our subcontractor partners to establish offsite parking as we have done may times successfully in the past.
2. Truck Routes and Volumes: The expected truck route will be left on to Preble Street for loading and unloading then left onto Congress Street to exit the area.



WR
Wright-Ryan

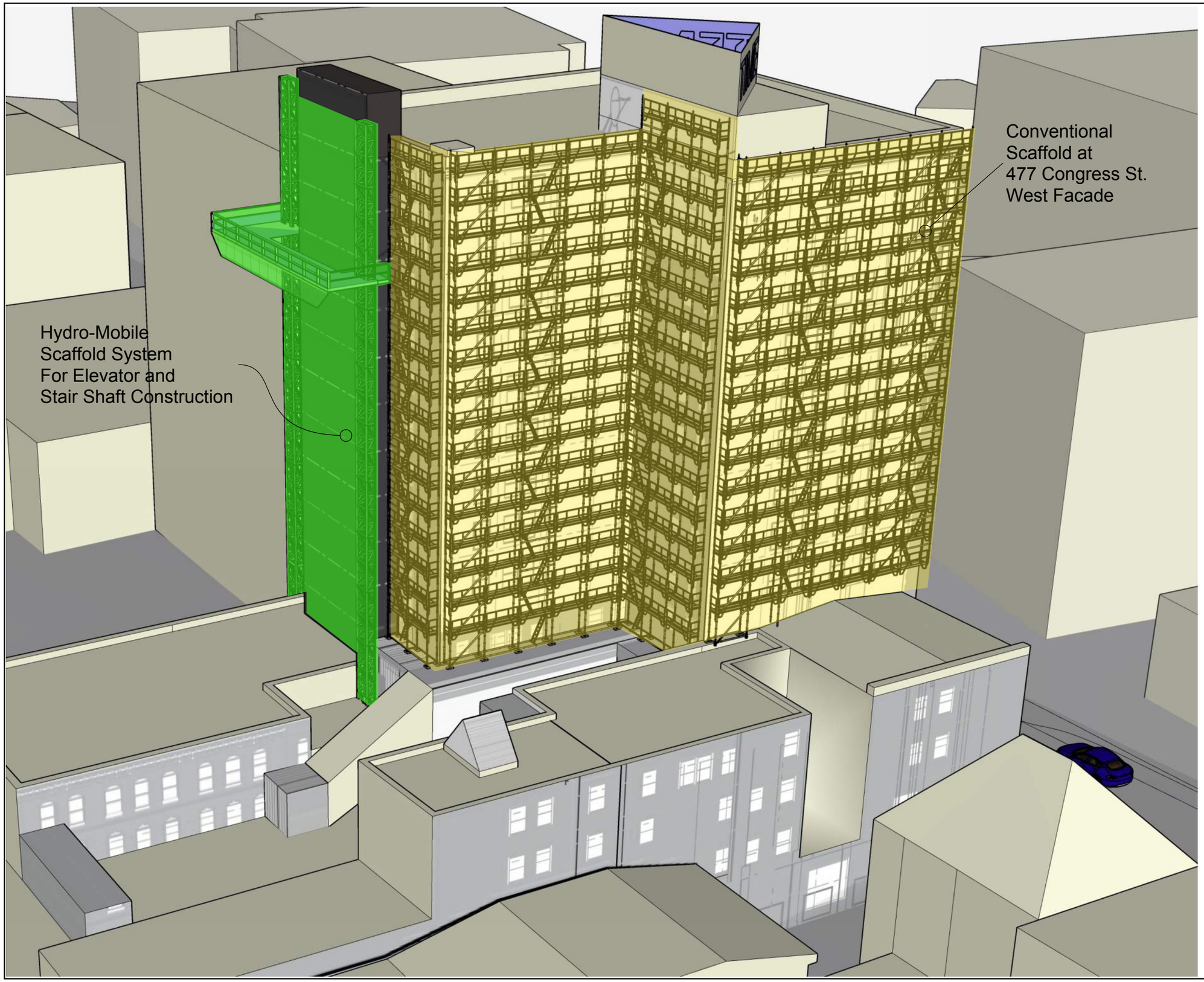
Site Utilization

PROJECT
Time & Temperature

Exterior Site
Utilization
Plan Overview

SUP

01



WR
Wright-Ryan

Site Utilization

PROJECT
Time & Temperature

477 Congress
West Facade
Improvements

SUP

02



477 Congress St.
Preble St. / East Elevation
Improvements using
Conventional Scaffolding

Material Hoist

Hydro-Mobile Scaffolding
System for Preble St. Facade
Improvements

Dumpsters

Trash
Chute

Construction Site
Exit Gate

477 Congress St.
Congress St. / North Elevation
Improvements using
Conventional Scaffolding

Construction Site
Entrance Gate

WR
Wright-Ryan

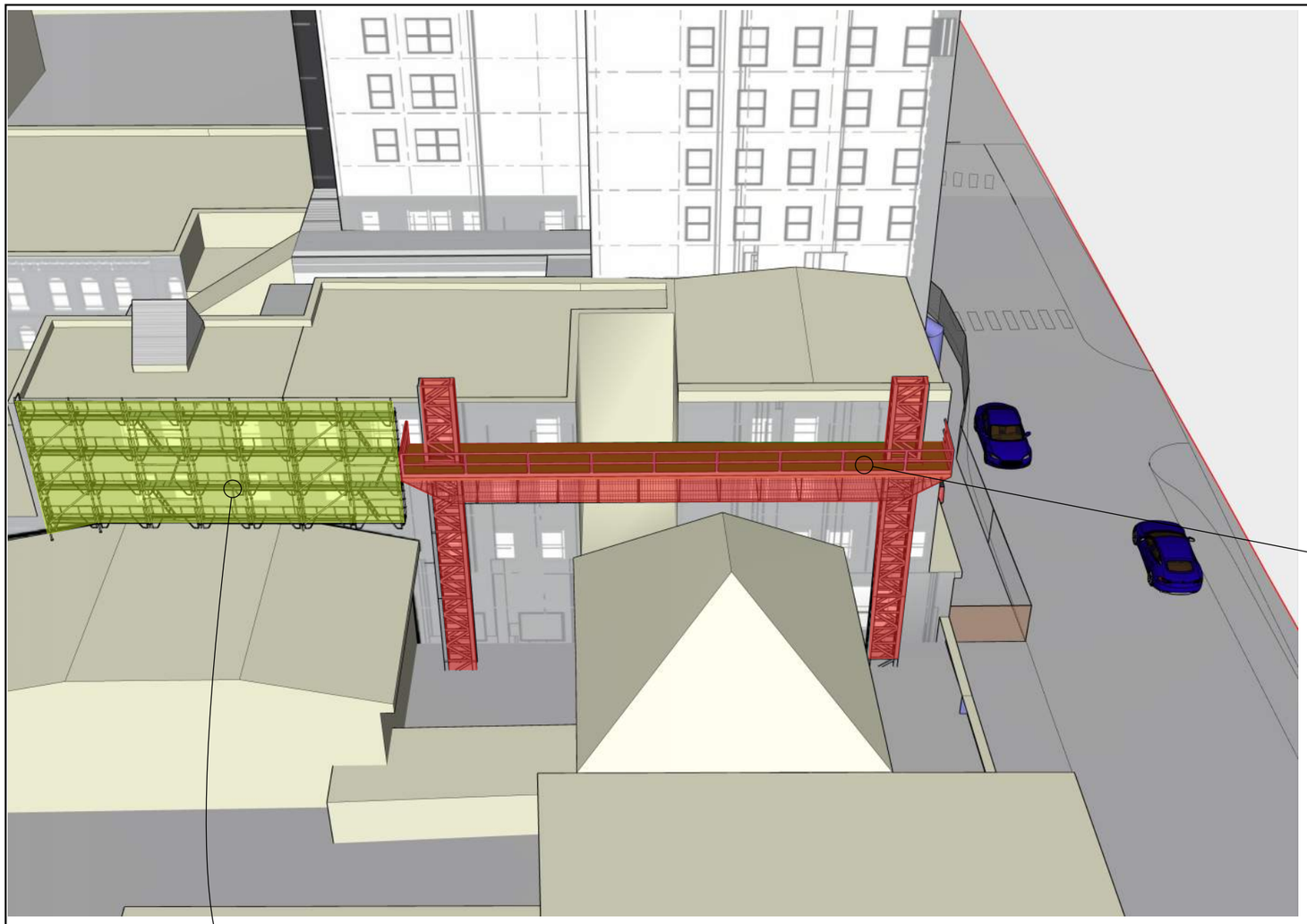
Site Utilization

PROJECT
Time & Temperature

Time & Temp
Preble St.
Facade

SUP

03

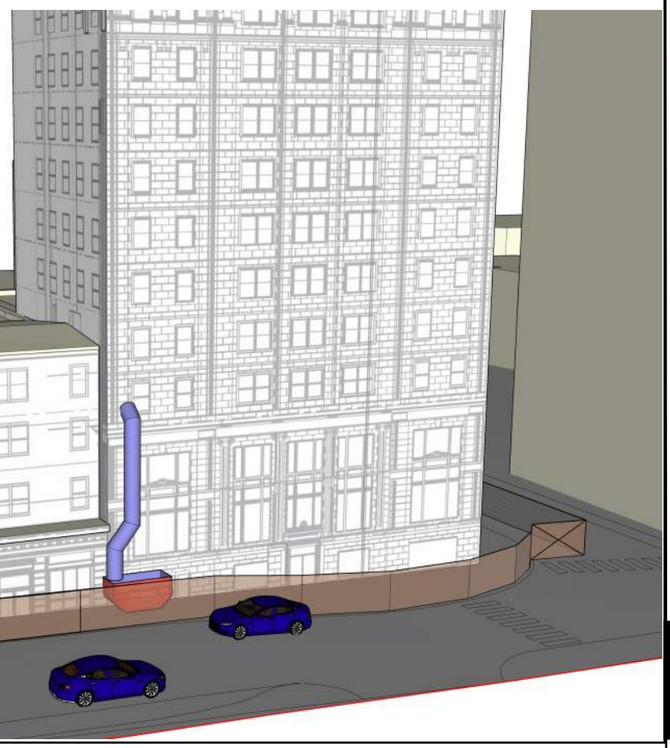


Option A: Hydro-Mobile Scaffolding System

Option B: Mobile Lift

(Coordindate with Maine Historical Society)

Conventional Scaffolding Above
Maine Historical Society Bldg. Roof
(Secured to 481 Congress, West Facade



WR
Wright-Ryan

Site Utilization

PROJECT
Time & Temperature

West Elevation of 481 Congress St.

SUP

04

13. AVAILABILITY & ADEQUACY OF PUBLIC UTILITIES

The proposed project will be serviced by existing public water, sewer, gas, and electric utilities. The locations of the utility services are shown on the Utility Plan included in the Design Drawings attached to Section 3. The proposed development will also generate waste as a result of construction and post-construction operations.

13.1 WATER

The existing buildings are served with 6" fire protection water services from Congress Street and Preble Street. A four-inch domestic water service is provided from Congress Street. The fire protection and plumbing systems will be completed through design build contractors who will work directly with the Portland Water District (PWD) to confirm the capacity of the services and any changes required. An ability to serve determination will be provided upon receipt.

13.2 SEWER

The existing buildings will continue to be served with sanitary sewer service from Congress Street and Preble Street. The proposed development will include restaurants and kitchens; grease traps and oil/water separators will be provided. The attached letter is provided to request confirmation of ability to serve the proposed development; the Wastewater Capacity Application is submitted with this letter. A copy of the City's determination will be provided upon receipt.

13.3 ELECTRIC

The proposed project will continue to utilize underground electric service. Design of the electric service is being coordinated with Central Maine Power (CMP) by the design-build electrical contractor. Final electric plans will be provided to CMP for their review and an ability to serve determination will be provided upon receipt.

13.4 SOLID WASTE

Adequate provisions for recycling and solid waste disposal have been made. All solid waste materials and recyclables generated by the proposed project will continue to 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.

13.5 CONSTRUCTION & DEMOLITION DEBRIS

The proposed project 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.

13.6 SPECIAL & HAZARDOUS WASTE

The proposed project is not anticipated to produce any hazardous waste.

A Voluntary Action Response Plan (VRAP) application was submitted for the properties in November of 2018 by Beacon Environmental Consultants to document previous investigations and a No Further Action Assurance Letter was issued in December of 2018 from the Maine DEP. The VRAP application and the response from the Maine DEP are attached.

13.7 ATTACHMENTS

- Portland Department of Public Works Request for Ability to Serve Letter and Wastewater Capacity Application
- VRAP Application and Environmental Sampling Report – Beacon Environmental Consultants
- No Further Action Assurance Letter – December 4, 2018 – Maine DEP

COMMITMENT & INTEGRITY
DRIVE RESULTS

41 Hutchins Drive
Portland, Maine 04102
www.woodardcurran.com

T 800.426.4262
T 207.774.2112
F 207.774.6635

February 13, 2020

ATTN: Bradley Roland, P.E.
Department of Public Works
212 Canco Road
Portland, ME 04103

Re: Time & Temperature Hotel – Request for Evidence of Capacity to Serve

Dear Mr. Roland:

On behalf of TT Maine Venture, LLC, Woodard & Curran is submitting this ability to serve request letter for proposed change in use for the Time & Temperature Building. The proposed project will include renovations and change in use for the properties, from multi-use commercial, to hotel and multi-use commercial.

In addition to the 181-room hotel, the proposed uses will include the following:

Proposed Use	**Area (SF)**
Retail Space	7,800
Restaurant (Ground Flr)	2,600
Restaurant and Bar (2nd Flr)	4,507
Bar (14th Floor)	1,313
(Roof)	3,254

Upon completion of both phases of development, the proposed project is anticipated to require 26,750 gallons of water per day from the water main on Preble Street. This estimate is based on the preliminary design of the interior layout. We do not anticipate changes that would result in significant water usage increases but will notify the Water District if design development results in any major changes.

Additional information on grease trap sizing and final location will be coordinated and provided as the design progresses. We intend to submit to the City of Portland Planning Department for approval of the Level III 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 207-558-3662 or dstairs@woodardcurran.com.

Sincerely,

WOODARD & CURRAN

Darrin Stairs, P.E.
Project Manager

Enclosure(s) Utility Plan
Wastewater Application

PN: 0232868.00

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: **February 5, 2020**

1. Please, Submit Utility, Site, and Locus Plans.

Site Address: **477-481 Congress and 22 Preble Streets**

Chart Block Lot Number: **037 F002 and F022**

Proposed Use: **Hotel and Multi Use Commercial**
Previous Use: **Multi Use Commercial**
Existing Sanitary Flows: _____GPD
Existing Process Flows: **0** GPD
Description and location of City sewer that is to receive the proposed building sewer lateral.

Preble Street

Site Category		
	Commercial *(see part 4 below)*	**X**
	Industrial *(complete part 5 below)*	
	Governmental	
	Residential	
	Other *(specify)*	

Clearly, indicate the proposed connections, on the submitted plans.

2. Please, Submit Contact Information.

City Planner's Name: **TBD** Phone: _____
Owner/Developer Name: **Presidium, c/o Jason Knotowicz**
Owner/Developer Address: **3100 McKinnon Street, Suite 250, Dallas, TX 75201**
Phone: **(469) 428-0213** Fax: **N/A** E-mail: **jknotowicz@presidiumre.com**
Engineering Consultant Name: **Woodard & Curran, c/o Darrin Stairs, PE**
Engineering Consultant Address: **41 Hutchins Drive, Portland, ME 04101**
Phone: **(207) 558-3662** Fax: **N/A** E-mail: **dstairs@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: _____
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: **Location and size TBD**

Retention Time: _____

Peaking Factor/ Peak Times: _____

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

Estimated Industrial Process Wastewater Flows Generated: **N/A** GPD

Do you currently hold Federal or State discharge permits? Yes ____ No **X**

Is the process wastewater termed categorical under CFR 40? Yes ____ No **X**

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.

BE-141

November 29, 2018

Mr. Nicholas Hodgkins
Maine Department of Environmental Protection
17 State House Station
Augusta, Maine 04333

RE: VRAP Application and Environmental Sampling Report
Time and Temperature Building
477-481 Congress Street, 22 Preble Street, and 45 Brown Street
Portland, Maine

Dear Nick:

At the request of the TT Maine Venture, LLC (TT), Beacon Environmental Consultants, LLC (Beacon) has compiled this letter report documenting the environmental sampling completed at the above referenced property and a Voluntary Response Action Program (VRAP) application. See **Figure 1** for a Site Location Map.

BACKGROUND

The subject property consists of approximately 1.819 acres of land which is currently occupied by one-14 story office building, a separate two and three story attached office building with retail and one-four story parking garage. The buildings were constructed in 1924, 1900, 1970 and 1909. The area surrounding the property is commercial and residential. The property is accessed via Congress Street to the southeast, Preble Street to the north and Brown Street to the southwest.

Previous Investigations

Spill Report P-110-1981

On November 6, 1981, the MEDEP was notified of a 1,000-gallon release of number 6 oil due to a tank overfill. Approximately 200 gallons made it to the city sewer. According to the spill report between vacuum and sorbents the cleanup was completed to the satisfaction of the Department.

Spill Report P-285-1995

On May 19, 1995, the MEDEP was notified that evidence of a discharge had been identified during environmental investigations as part of a property transfer. When Steve Brezinksi of the MEDEP Spill Response Unit arrived, he found that the tank was a 10,000-gallon tank enclosed within a brick wall and covered with concrete, ergo an underground storage tank (UST) by MEDEP rules.

Investigations performed by Northrop Devine & Tarbell Engineering and Environmental Science (NDT) and Environmental Engineering and Remediation (EER) found petroleum-impacted soils and groundwater associated with areas around the tank. Determination was made by Mr. Brezinski, utilizing the Decision Tree, that the property was within a non-attainment zone and did not pose an environmental risk to abutting properties and therefore was considered to be "Baseline 2" and no further action was required. He recommended that the property owner submit an

application to VRAP. This was not completed.

Spill P-443-2004

On May 23, 2004, MEDEP was notified of a release of one gallon of number 2 oil when a driver did not hear the tank's whistle and it discharged out the vent. This was cleaned up to the Department's satisfaction.

Phase I Environmental Site Assessment – March 16, 2016

At the request of CW Capital Asset Management, LLC, Metropolitan Solutions was retained to conduct a Phase I Environmental Site Assessment at the subject property. The investigation was performed to determine if there was readily apparent evidence of environmental contamination present at the subject property. Metropolitan Solutions indicated that no evidence of recognized environmental conditions was found to exist on the property.

See **Attachment A** for copies of these reports.

SAMPLING

A Phase I ESA being conducted as part of this purchase and sale identified potential Recognized Environmental Conditions (RECs) associated with the UST. Beacon was retained by TT to complete sampling to determine if impacts were present.

On November 28, 2018, Beacon, utilizing a four-inch core drill, drilled two holes in the concrete near the UST. Once the holes were completed, Beacon utilized a hand Geoprobe® to collect a soil sample from 0-2' below the concrete. Samples from both samples were screened with a MiniRae 3000 Photoionization Detector (PID) to determine volatile concentrations. PID responses were 1.5 parts per million (ppm) in SS-01 and 0.4 ppm in SS-02. A sample was collected for laboratory analysis of Extractible Petroleum Hydrocarbons (EPH) and Volatile Petroleum Hydrocarbons (VPH). See **Figure 2** for sample locations.

Water was present in a low area beside the tank's wall. A sheen had been observed by the Site Assessor during the Phase I ESA site visit. Beacon advised TT that the sheen appeared to be biological in nature and not petroleum-related. To determine this, Beacon collected water in a clear jar and shook it to observe if petroleum sheens were present. The sample did not have a sheen. An additional sample of the sheen was collected for laboratory analysis of coliform and e coli. The soil samples for EPH and VPH and the water sample for coliform and e coli were submitted to Alpha Analytical Laboratory (Alpha) of Westboro, Massachusetts for analysis.

RESULTS

Analytical results of the soil samples were below MEDEP Remediation Guidelines for Petroleum Contaminated Site for EPH and VPH ranges and compounds. See **Table 1** for analytical results. The results of the water sample were positive for both coliform and e coli. See **Attachment B** for analytical results.

RECOMMENDATIONS AND CONCLUSIONS

Based on the analytical results there were no petroleum impacts above MEDEP Guidelines and therefore do not require remediation.

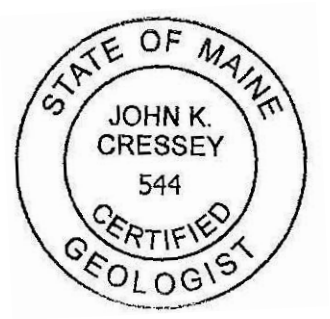
A VRAP application is attached to this report as **Attachment C.** We request a No Further Action Assurance (NFAA) letter be issued for this property.

Please feel free to contact me with any questions.

Sincerely,

BEACON ENVIRONMENTAL CONSULTANTS, LLC





John K. Cressey, CG, PG
President

Cc: Chris Rhoades, TT Maine Venture, LLC

TABLE

TABLE 1
SOIL ANALYTICAL RESULTS
TIME AND TEMPERATURE BUILDING, PORTLAND, MAINE

CLIENT SAMPLE ID			SS-01		SS-02	
SAMPLING DATE			28-NOV-18		28-NOV-18	
LAB SAMPLE ID			L1848527-02		L1848527-03	
	ME-SRG-R	Units		Qual		Qual
General Chemistry						
Solids, Total		%	94.5		95.6	
Volatile Petroleum Hydrocarbons						
Benzene	17	mg/kg	0.139	U	0.1	U
C5-C8 Aliphatics, Adjusted	1400	mg/kg	3.48	U	2.49	U
C9-C10 Aromatics	750	mg/kg	3.48	U	2.49	U
C9-C12 Aliphatics, Adjusted	2700	mg/kg	3.48	U	2.49	U
Ethylbenzene	130	mg/kg	0.139	U	0.1	U
Methyl tert butyl ether	790	mg/kg	0.07	U	0.05	U
Naphthalene	500	mg/kg	0.279	U	0.199	U
Toluene	2700	mg/kg	0.139	U	0.1	U
Xylenes, Total	6800	mg/kg	0.139	U	0.1	U
Extractible Petroleum Hydrocarbons w/MS Targets						
2-Methylnaphthalene	94	mg/kg	0.028	U	0.026	U
Acenaphthene	1500	mg/kg	0.028	U	0.026	U
Acenaphthylene	1500	mg/kg	0.028	U	0.026	U
Anthracene	7000	mg/kg	0.028	U	0.026	U
Benzo(a)anthracene	0.26	mg/kg	0.028	U	0.026	U
Benzo(a)pyrene	0.026	mg/kg	**0.028**	U	**0.026**	U
Benzo(b)fluoranthene	0.26	mg/kg	0.028	U	0.026	U
Benzo(ghi)perylene	750	mg/kg	0.028	U	0.026	U
Benzo(k)fluoranthene	2.6	mg/kg	0.028	U	0.026	U
C11-C22 Aromatics, Adjusted	750	mg/kg	37.4		6.54	U
C19-C36 Aliphatics	10000	mg/kg	213		6.54	U
C9-C18 Aliphatics	2700	mg/kg	9.04		6.54	U
Chrysene	26	mg/kg	0.028	U	0.026	U
Dibenzo(a,h)anthracene	0.026	mg/kg	**0.028**	U	**0.026**	U
Fluoranthene	1000	mg/kg	0.028	U	0.026	U
Fluorene	1000	mg/kg	0.028	U	0.026	U
Indeno(1,2,3-cd)Pyrene	0.26	mg/kg	0.028	U	0.026	U
Naphthalene	500	mg/kg	0.028	U	0.026	U
Phenanthrene	750	mg/kg	0.028	U	0.026	U
Pyrene	750	mg/kg	0.028	U	0.026	U

Notes:
Sample Results Comparison with Maine Resident Soil Remediation Criteria (ME-SRG-R).
mg/kg = milligrams per kilogram
U = Not Detected Above Laboratory Detection Limits
0.028 = Laboratory Detection Limit Above the ME-SRG-R

FIGURES

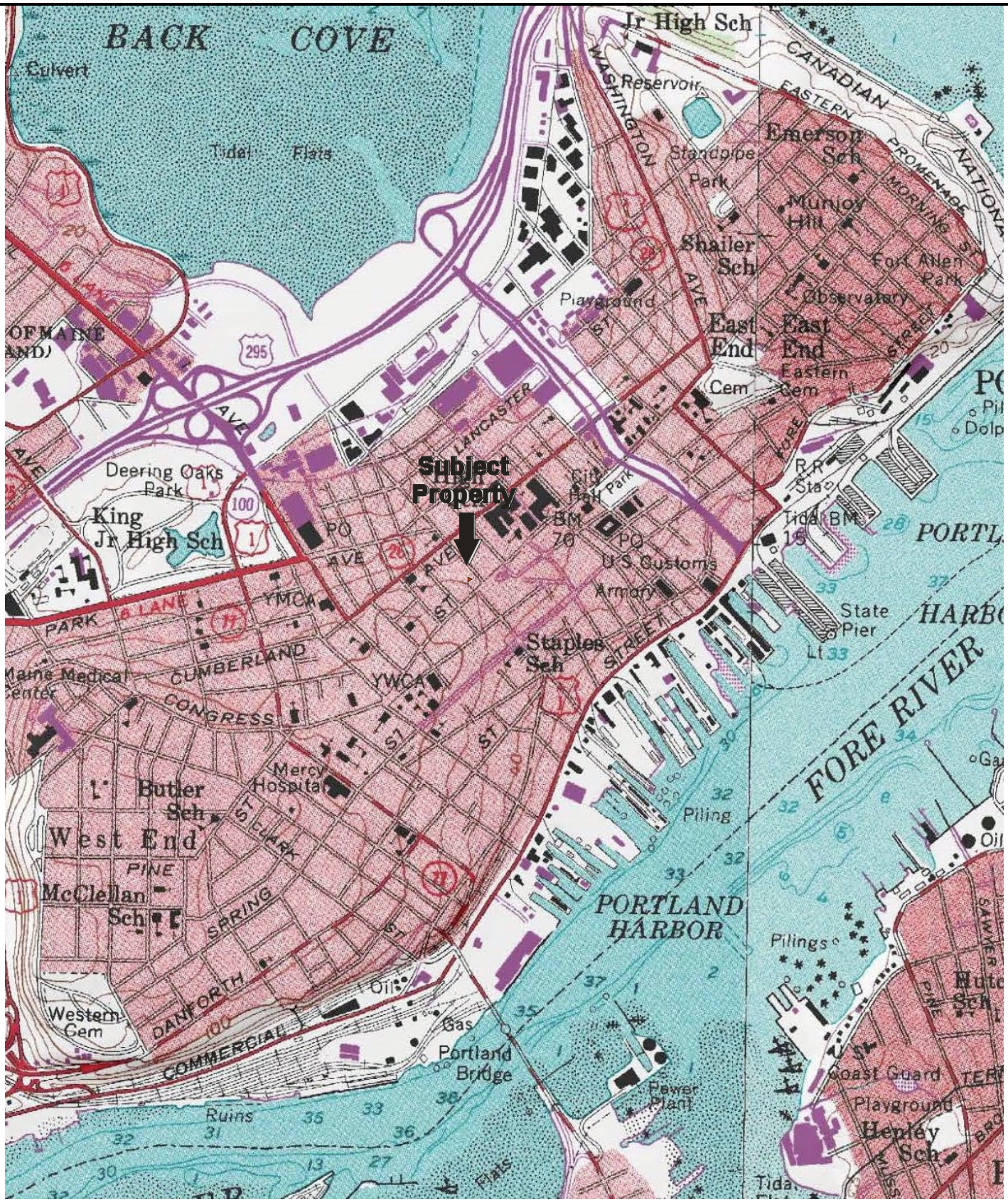


FIGURE 1: SITE LOCATION MAP
Project No. BE-141

Drawing Not To Scale

BEACON Environmental Consultants, LLC

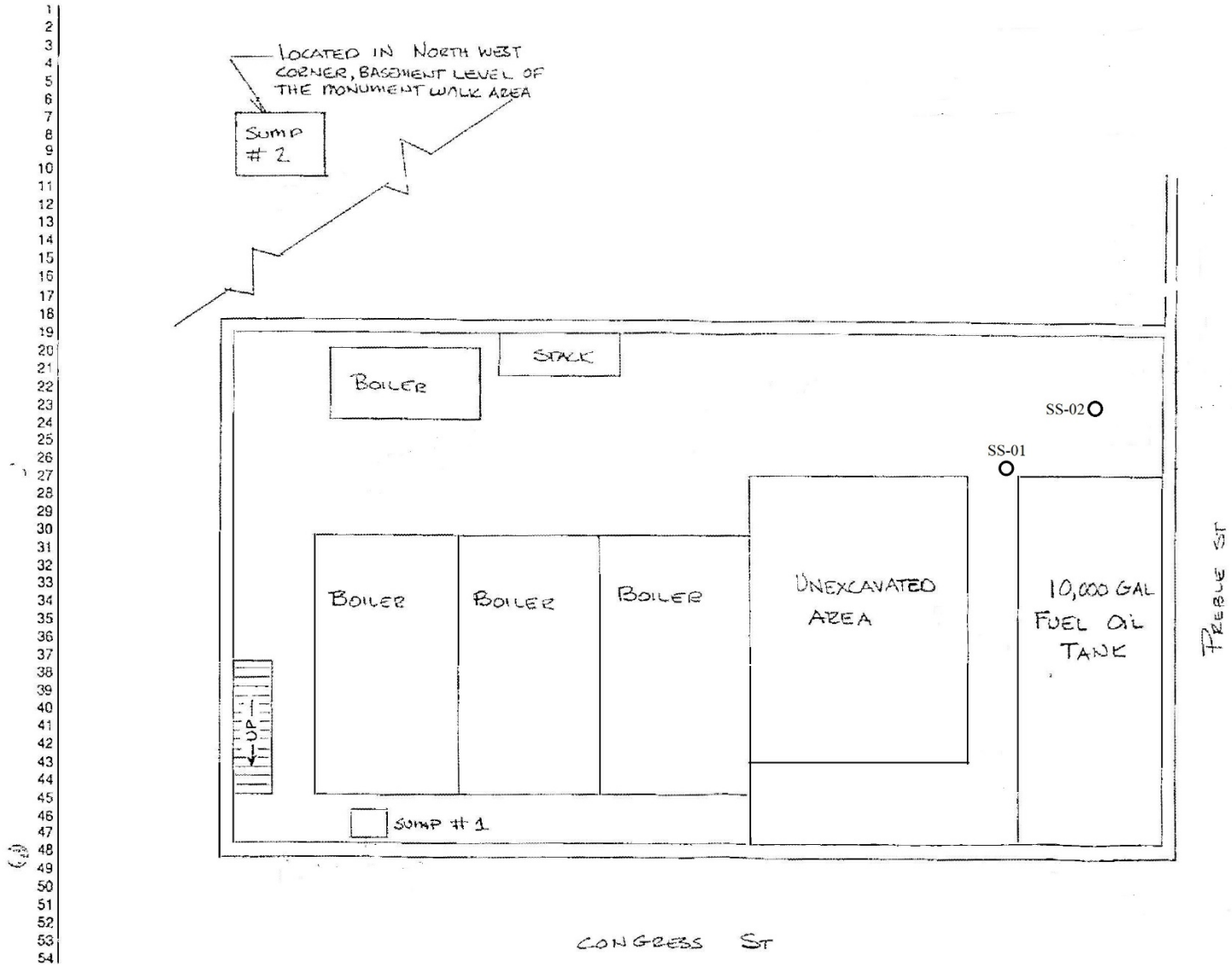


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FIGURE 2: SAMPLING PLAN
477 CONGRESS STREET, PORTLAND, MAINE
Project No.: BE-141

BEACON Environmental Consultants, LLC

Doc#: 63059 Bk:35350 Pg: 192

STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

PAUL R. LEPAGE
GOVERNOR

SCANNED

MELANIE LOYZIM
ACTING COMMISSIONER

December 4, 2018

TT Maine Venture, LLC
Attn: Chris Rhoades, Partner
74 Neptune Drive
Brunswick, Maine 04011

Re: Time and Temperature Building, 477 Congress Street, Portland, Maine
No Further Action Assurance Letter - Voluntary Response Action Program

Mr. Rhoades:

The Maine Department of Environmental Protection ("Department") has reviewed your application to the Department's Voluntary Response Action Program ("VRAP"). The application and associated reports were submitted to the Department with the request that the property referred to as "Time and Temperature Building" in the Department's VRAP records, located at 477 Congress Street in Portland, identified on the Portland's Tax Map 37 as Lots F-2, F-18, F-22 and F-23, further described in **Book 33116, Page 257**, at the Cumberland County Registry of Deeds, and generally depicted in the figure included as Attachment A to this letter ("Site") participate in the VRAP, and TT Maine Venture, LLC ("Applicant"), as applicant to the VRAP, receive the protections provided by the *Voluntary Response Action Program* law, 38 M.R.S. § 343-E (1993).

Department staff has reviewed the following reports and supporting documents for the Site (hereinafter collectively referred to as the "Reports"):

- Phase I Environmental Site Assessment Report, Time and Temperature Building and Monument Square Parking Garage, 477-481 Congress Street, 22 Preble Street, 45 Brown Street, Portland, Maine, prepared by Metropolitan Solutions, March 16, 2016; and
- VRAP Application and Environmental Sampling Report, 477-481 Congress Street, 22 Preble Street, and 45 Brown Street, Portland, Maine, prepared by Beacon Environmental Consultants, LLC ("Beacon"), November 29, 2018.

The Site consists of four lots, is approximately 1.819 acres in total, and is developed with one 14-story office building, a separate two and three-story attached office building and a four-story parking garage. The Site and surrounding area is a mixture of commercial and residential

AUGUSTA
17 STATE HOUSE STATION
AUGUSTA, MAINE 04333-0017
(207) 287-7688 FAX: (207) 287-7826

BANGOR
106 HOGAN ROAD, SUITE 6
BANGOR, MAINE 04401
(207) 941 4570 FAX: (207) 941 4584

PORTLAND
312 CANCO ROAD
PORTLAND, MAINE 04103
(207) 822-6300 FAX: (207) 822-6303

PRESQUE ISLE
1235 CENTRAL DRIVE, SKYWAY PARK
PRESQUE ISLE, MAINE 04769
(207) 764-0477 FAX: (207) 760-3143

website: www.maine.gov/dep

properties. The proposed future use of the Site is largely consistent with current use, and may include residential uses.

The reports document the presence of a 10,000 gallon fuel oil tank enclosed within a brick wall and covered with concrete in the basement of the 14-story building. A past spill (P-285-1995) documented the presence of petroleum impacts around the tank. These impacts, however, met the appropriate guidance for that time and did not require any remedial actions.

In the most recent work conducted by Beacon in the tank area, both soil and groundwater results demonstrated that extractable petroleum hydrocarbons ("EPH") and volatile petroleum hydrocarbons ("VPH") were below the Department's current Remediation Guidelines for Petroleum Contaminated Sites for residential exposure scenarios.

No recognized environmental conditions other than those described in the Reports were reported to the Department in the Applicant's VRAP application.

Based on the information presented in the Reports, the Department considers no further investigations or remedial actions are necessary at the Site, provided that a copy of this letter is recorded at the Cumberland County Registry of Deeds. A copy of the recorded document must be supplied to the Department's VRAP within thirty (30) days of being recorded.

Therefore, the Applicant, their successors, assigns and/or affiliates, and the persons qualified for protection under 38 M.R.S. § 343-E(6) are entitled to protection from liability to the extent provided by 38 M.R.S. § 343-E, except that the protection from liability conferred by the VRAP is not granted to or assignable to any person, entity, or government agency that caused or is otherwise responsible for a release of petroleum, hazardous wastes, or hazardous substances at the Site or that has a Hazardous Waste Generator Closure obligation associated with the Site. This protection from liability will be limited to the matters addressed by and identified by the Reports, including the extent and concentration of existing contamination by petroleum and/or hazardous constituents described in the Reports, and is subject to the qualifications and conditions set forth in this letter and in 38 M.R.S. § 343-E. VRAP liability protections under 38 M.R.S. § 343-E do not limit the Department's enforcement authorities for non-compliance with other laws administered by the Department, including, but not limited to, lead abatement and asbestos regulations.

If you have any questions regarding this letter, please feel free to call Nick Hodgkins of my staff at (207) 592-0882.

Sincerely,

David E. Burns
Acting Director
Bureau of Remediation & Waste Management

cc: Gary Vogel, Drummond Woodsum
John Cressey, Beacon
Nick Hodgkins, Department VRAP Coordinator

STATE OF MAINE
KENNEBEC, ss., December 4, 2018

Then personally appeared the above-named David E. Burns, Acting Director, Bureau of Remediation & Waste Management of the Maine Department of Environmental Protection and duly authorized delegee for the Commissioner, and acknowledged the foregoing instrument to be his free act and deed, and the free act and deed of the Department of Environmental Protection.

Before me,

Becky Lynn Blais

Notary Public

Becky Lynn Blais

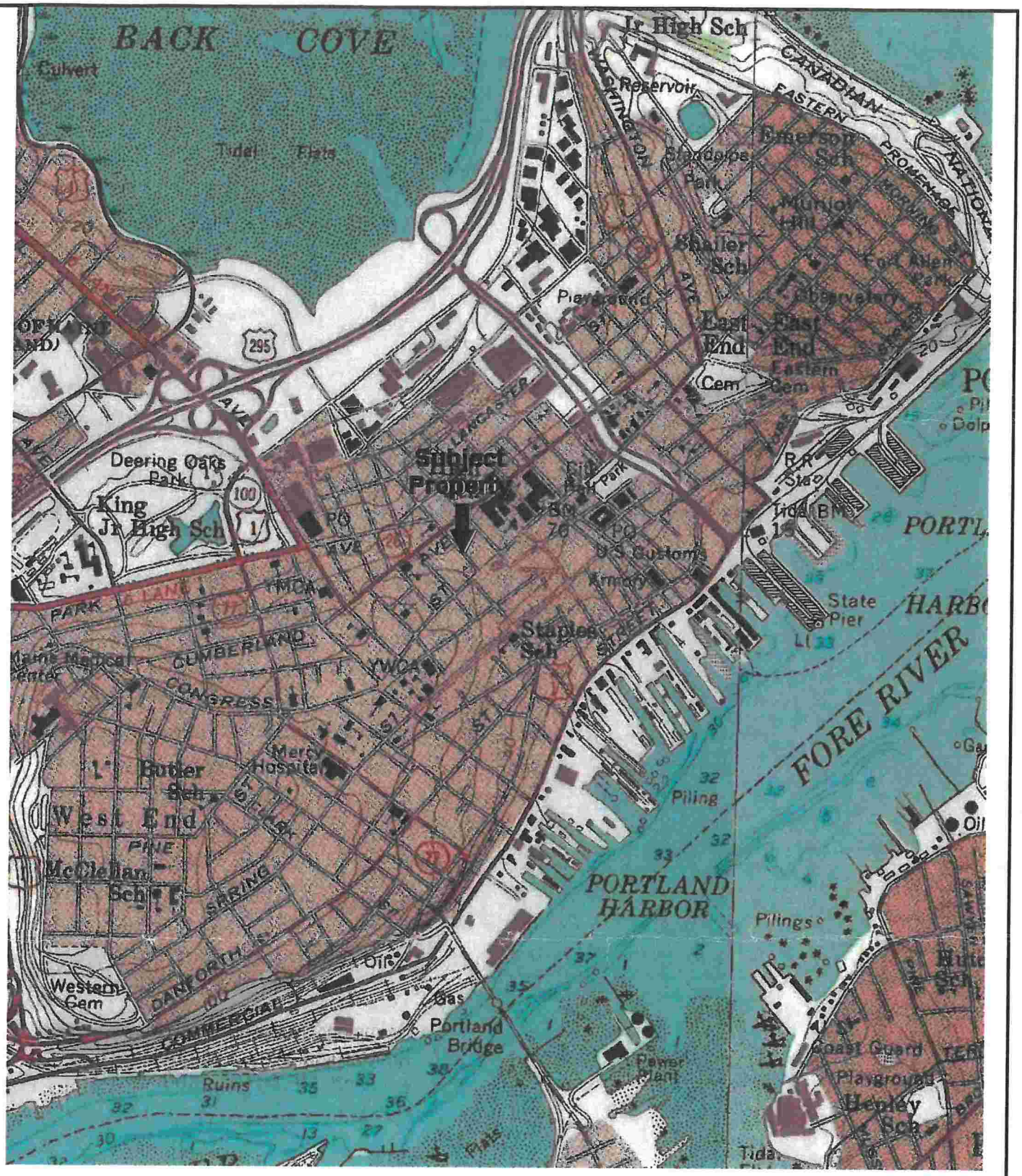
(Print name)

My commission expires: 11/8/25

SEAL

Doc#: 63059 Bk:35350 Pg: 195

Attachment A



Received
Recorded Register of Deeds
Dec 13,2018 11:58:20A
Cumberland County
Nancy A. Lane

FIGURE 1: SITE LOCATION MAP
Project No. BE-141

Drawing Not To Scale

BEACON Environmental Consultants, LLC

13. BOUNDARY SURVEY

A boundary and topographic survey of the Site was completed by Owen Haskell, Inc. Professional Land Surveyors. The survey is included with the project drawings.

13.1 ATTACHMENTS

- Boundary & Topographic Survey, prepared by Owen Haskell, Inc. (uploaded to Drawings folder in Eplan)

14. AVAILABILITY & ADEQUACY OF PUBLIC UTILITIES

The proposed project will be serviced by existing public water, sewer, gas, and electric utilities. The locations of the utility services are shown on the Utility Plan included in the Design Drawings attached to Section 3. The proposed development will also generate waste because of construction and post-construction operations.

14.1 WATER

The existing buildings are served with 6" fire protection water services from Preble Street. These were renewed in 2020 and are adequate to serve this project.

A four-inch domestic water service is provided from Congress Street. According to the Portland Water District (PWD), this service is cast iron and dates to 1884. Due to the age of this service, the applicant is proposing renewal of this service and will work with PWD for its replacement with a new service from Preble Street. An ability to serve determination has been requested from PWD will be provided upon receipt.

14.2 SEWER

The existing buildings are currently served with an 8" sanitary sewer that exits to the rear into the parking area behind the 45-Brown Street parking garage, before continuing down the alley north of #28 Preble Street and connecting to the 15" sewer main in Preble Street. The applicant will continue use of the 8" sanitary sewer service and add a second 8" service to Preble Street from the east side of the building.

The proposed development will include restaurants and kitchens; a grease interceptor is proposed to serve the project to the north of the building, as shown on the plans.

A request for confirmation of ability to serve the proposed development has been made. A copy of the City's determination will be provided upon receipt.

14.3 ELECTRIC

The proposed project will continue to utilize underground electric service from Preble Street. Design of the electric service will be coordinated with Central Maine Power (CMP) by the design-build electrical contractor. Final electric plans will be provided to CMP for their review and an ability to serve determination will be provided upon receipt.

14.4 SOLID WASTE

Adequate provisions for recycling and solid waste disposal have been made. All solid waste materials and recyclables generated by the proposed project will continue to 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.

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The proposed project 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.

14.6 SPECIAL & HAZARDOUS WASTE

The proposed project is not anticipated to produce any hazardous waste.

A Voluntary Action Response Plan (VRAP) application was submitted for the properties in November of 2018 by Beacon Environmental Consultants to document previous investigations and a No Further Action Assurance Letter was issued in December of 2018 from the Maine DEP. The VRAP application and the response from the Maine DEP are attached.

14.7 ATTACHMENTS

- VRAP Application and Environmental Sampling Report – Beacon Environmental Consultants
- No Further Action Assurance Letter – December 4, 2018 – Maine DEP

BE-141

November 29, 2018

Mr. Nicholas Hodgkins
Maine Department of Environmental Protection
17 State House Station
Augusta, Maine 04333

RE: VRAP Application and Environmental Sampling Report
Time and Temperature Building
477-481 Congress Street, 22 Preble Street, and 45 Brown Street
Portland, Maine

Dear Nick:

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BACKGROUND

The subject property consists of approximately 1.819 acres of land which is currently occupied by one-14 story office building, a separate two and three story attached office building with retail and one-four story parking garage. The buildings were constructed in 1924, 1900, 1970 and 1909. The area surrounding the property is commercial and residential. The property is accessed via Congress Street to the southeast, Preble Street to the north and Brown Street to the southwest.

Previous Investigations

Spill Report P-110-1981

On November 6, 1981, the MEDEP was notified of a 1,000-gallon release of number 6 oil due to a tank overfill. Approximately 200 gallons made it to the city sewer. According to the spill report between vacuum and sorbents the cleanup was completed to the satisfaction of the Department.

Spill Report P-285-1995

On May 19, 1995, the MEDEP was notified that evidence of a discharge had been identified during environmental investigations as part of a property transfer. When Steve Brezinksi of the MEDEP Spill Response Unit arrived, he found that the tank was a 10,000-gallon tank enclosed within a brick wall and covered with concrete, ergo an underground storage tank (UST) by MEDEP rules.

Investigations performed by Northrop Devine & Tarbell Engineering and Environmental Science (NDT) and Environmental Engineering and Remediation (EER) found petroleum-impacted soils and groundwater associated with areas around the tank. Determination was made by Mr. Brezinski, utilizing the Decision Tree, that the property was within a non-attainment zone and did not pose an environmental risk to abutting properties and therefore was considered to be "Baseline 2" and no further action was required. He recommended that the property owner submit an

application to VRAP. This was not completed.

Spill P-443-2004

On May 23, 2004, MEDEP was notified of a release of one gallon of number 2 oil when a driver did not hear the tank's whistle and it discharged out the vent. This was cleaned up to the Department's satisfaction.

Phase I Environmental Site Assessment – March 16, 2016

At the request of CW Capital Asset Management, LLC, Metropolitan Solutions was retained to conduct a Phase I Environmental Site Assessment at the subject property. The investigation was performed to determine if there was readily apparent evidence of environmental contamination present at the subject property. Metropolitan Solutions indicated that no evidence of recognized environmental conditions was found to exist on the property.

See **Attachment A** for copies of these reports.

SAMPLING

A Phase I ESA being conducted as part of this purchase and sale identified potential Recognized Environmental Conditions (RECs) associated with the UST. Beacon was retained by TT to complete sampling to determine if impacts were present.

On November 28, 2018, Beacon, utilizing a four-inch core drill, drilled two holes in the concrete near the UST. Once the holes were completed, Beacon utilized a hand Geoprobe® to collect a soil sample from 0-2' below the concrete. Samples from both samples were screened with a MiniRae 3000 Photoionization Detector (PID) to determine volatile concentrations. PID responses were 1.5 parts per million (ppm) in SS-01 and 0.4 ppm in SS-02. A sample was collected for laboratory analysis of Extractible Petroleum Hydrocarbons (EPH) and Volatile Petroleum Hydrocarbons (VPH). See **Figure 2** for sample locations.

Water was present in a low area beside the tank's wall. A sheen had been observed by the Site Assessor during the Phase I ESA site visit. Beacon advised TT that the sheen appeared to be biological in nature and not petroleum-related. To determine this, Beacon collected water in a clear jar and shook it to observe if petroleum sheens were present. The sample did not have a sheen. An additional sample of the sheen was collected for laboratory analysis of coliform and e coli. The soil samples for EPH and VPH and the water sample for coliform and e coli were submitted to Alpha Analytical Laboratory (Alpha) of Westboro, Massachusetts for analysis.

RESULTS

Analytical results of the soil samples were below MEDEP Remediation Guidelines for Petroleum Contaminated Site for EPH and VPH ranges and compounds. See **Table 1** for analytical results. The results of the water sample were positive for both coliform and e coli. See **Attachment B** for analytical results.

RECOMMENDATIONS AND CONCLUSIONS

Based on the analytical results there were no petroleum impacts above MEDEP Guidelines and therefore do not require remediation.

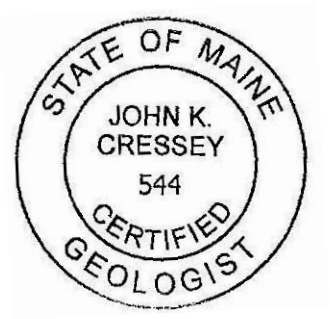
A VRAP application is attached to this report as **Attachment C.** We request a No Further Action Assurance (NFAA) letter be issued for this property.

Please feel free to contact me with any questions.

Sincerely,

BEACON ENVIRONMENTAL CONSULTANTS, LLC





John K. Cressey, CG, PG
President

Cc: Chris Rhoades, TT Maine Venture, LLC

TABLE

TABLE 1
SOIL ANALYTICAL RESULTS
TIME AND TEMPERATURE BUILDING, PORTLAND, MAINE

CLIENT SAMPLE ID			SS-01		SS-02	
SAMPLING DATE			28-NOV-18		28-NOV-18	
LAB SAMPLE ID			L1848527-02		L1848527-03	
	ME-SRG-R	Units		Qual		Qual
General Chemistry						
Solids, Total		%	94.5		95.6	
Volatile Petroleum Hydrocarbons						
Benzene	17	mg/kg	0.139	U	0.1	U
C5-C8 Aliphatics, Adjusted	1400	mg/kg	3.48	U	2.49	U
C9-C10 Aromatics	750	mg/kg	3.48	U	2.49	U
C9-C12 Aliphatics, Adjusted	2700	mg/kg	3.48	U	2.49	U
Ethylbenzene	130	mg/kg	0.139	U	0.1	U
Methyl tert butyl ether	790	mg/kg	0.07	U	0.05	U
Naphthalene	500	mg/kg	0.279	U	0.199	U
Toluene	2700	mg/kg	0.139	U	0.1	U
Xylenes, Total	6800	mg/kg	0.139	U	0.1	U
Extractible Petroleum Hydrocarbons w/MS Targets						
2-Methylnaphthalene	94	mg/kg	0.028	U	0.026	U
Acenaphthene	1500	mg/kg	0.028	U	0.026	U
Acenaphthylene	1500	mg/kg	0.028	U	0.026	U
Anthracene	7000	mg/kg	0.028	U	0.026	U
Benzo(a)anthracene	0.26	mg/kg	0.028	U	0.026	U
Benzo(a)pyrene	0.026	mg/kg	**0.028**	U	**0.026**	U
Benzo(b)fluoranthene	0.26	mg/kg	0.028	U	0.026	U
Benzo(ghi)perylene	750	mg/kg	0.028	U	0.026	U
Benzo(k)fluoranthene	2.6	mg/kg	0.028	U	0.026	U
C11-C22 Aromatics, Adjusted	750	mg/kg	37.4		6.54	U
C19-C36 Aliphatics	10000	mg/kg	213		6.54	U
C9-C18 Aliphatics	2700	mg/kg	9.04		6.54	U
Chrysene	26	mg/kg	0.028	U	0.026	U
Dibenzo(a,h)anthracene	0.026	mg/kg	**0.028**	U	**0.026**	U
Fluoranthene	1000	mg/kg	0.028	U	0.026	U
Fluorene	1000	mg/kg	0.028	U	0.026	U
Indeno(1,2,3-cd)Pyrene	0.26	mg/kg	0.028	U	0.026	U
Naphthalene	500	mg/kg	0.028	U	0.026	U
Phenanthrene	750	mg/kg	0.028	U	0.026	U
Pyrene	750	mg/kg	0.028	U	0.026	U

Notes:
Sample Results Comparison with Maine Resident Soil Remediation Criteria (ME-SRG-R).
mg/kg = milligrams per kilogram
U = Not Detected Above Laboratory Detection Limits
0.028 = Laboratory Detection Limit Above the ME-SRG-R

FIGURES

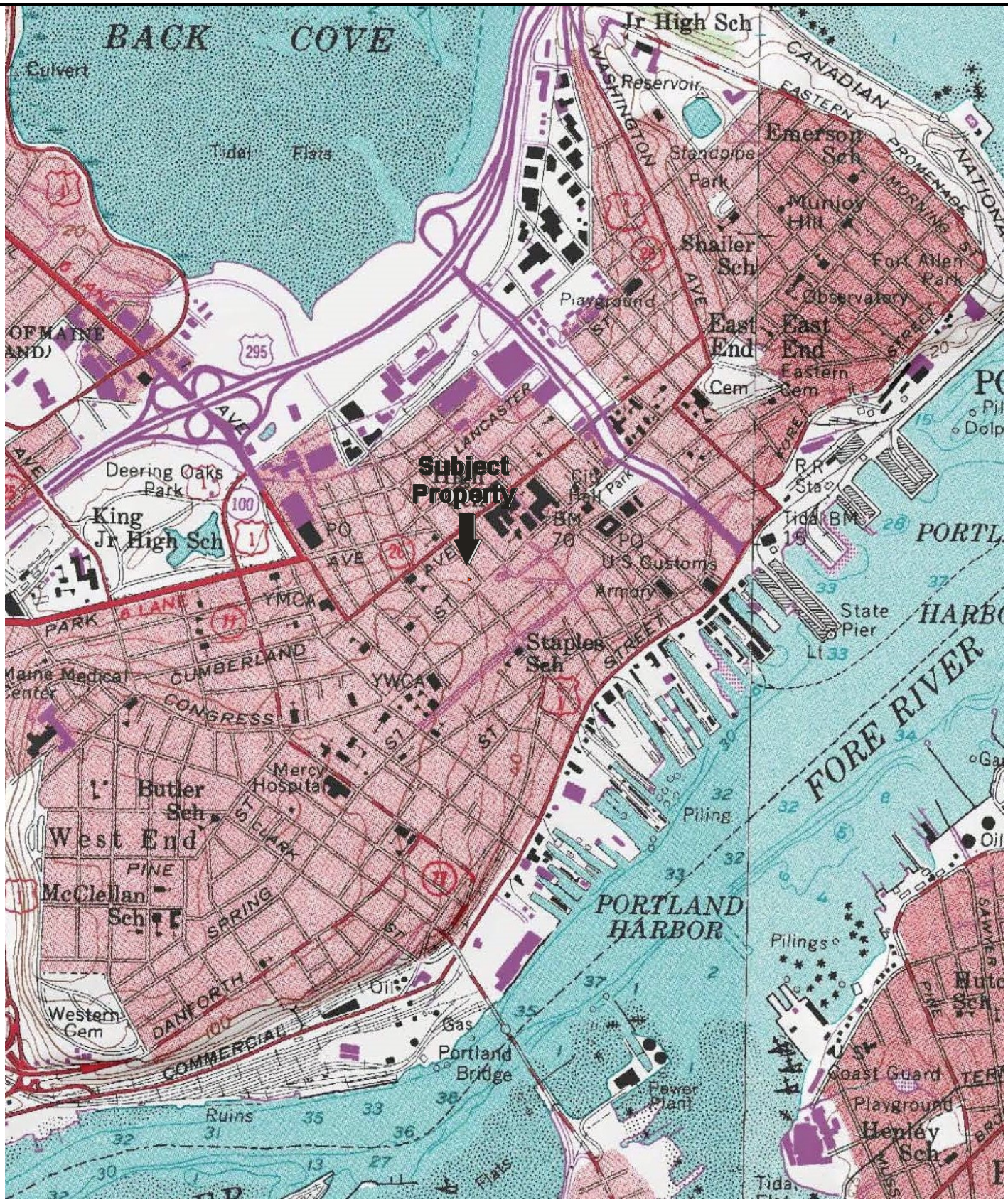


FIGURE 1: SITE LOCATION MAP
Project No. BE-141

Drawing Not To Scale

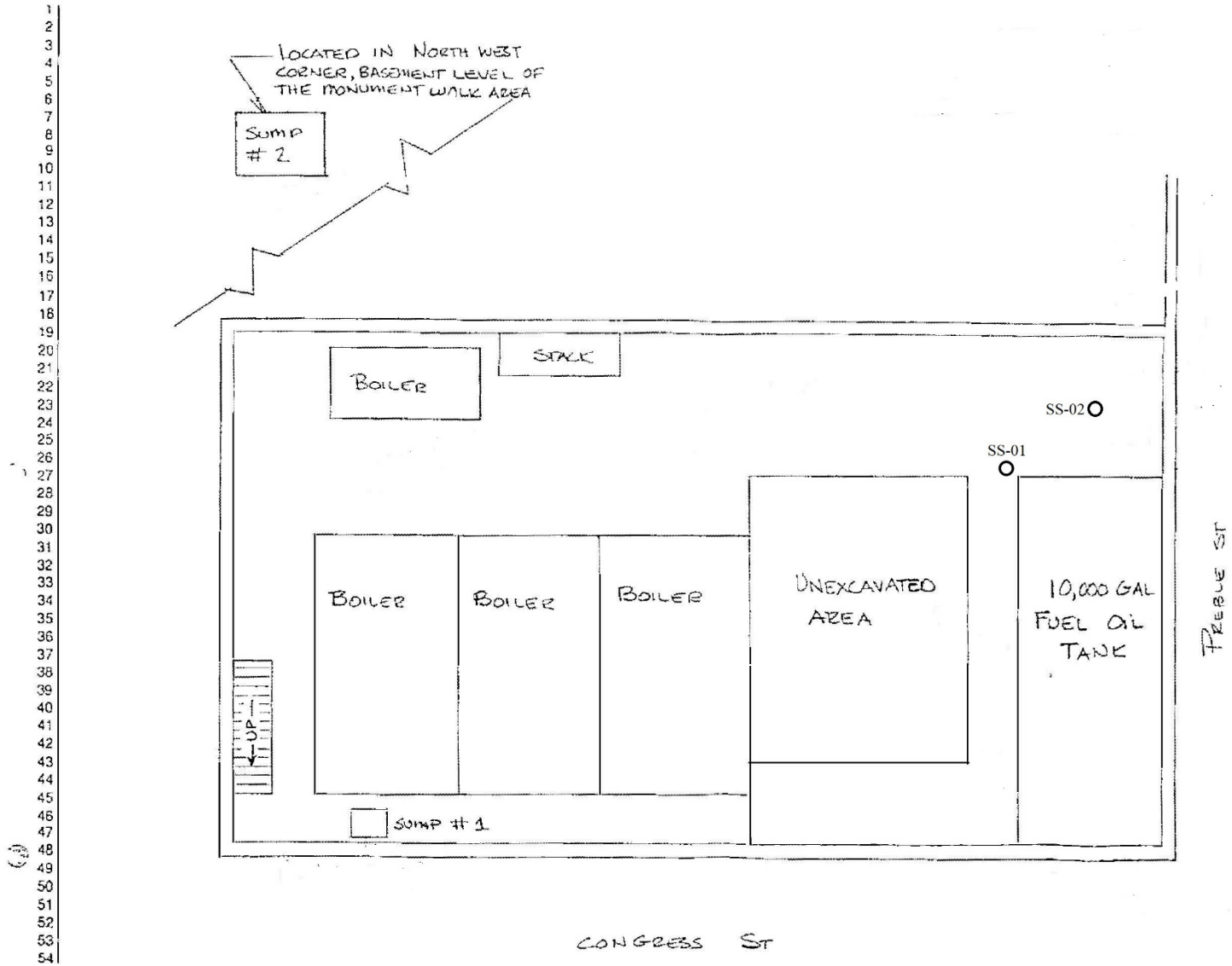


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FIGURE 2: SAMPLING PLAN
477 CONGRESS STREET, PORTLAND, MAINE
Project No.: BE-141

BEACON Environmental Consultants, LLC

Doc#: 63059 Bk:35350 Pg: 192

STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

PAUL R. LEPAGE
GOVERNOR

SCANNED

MELANIE LOYZIM
ACTING COMMISSIONER

December 4, 2018

TT Maine Venture, LLC
Attn: Chris Rhoades, Partner
74 Neptune Drive
Brunswick, Maine 04011

Re: Time and Temperature Building, 477 Congress Street, Portland, Maine
No Further Action Assurance Letter - Voluntary Response Action Program

Mr. Rhoades:

The Maine Department of Environmental Protection ("Department") has reviewed your application to the Department's Voluntary Response Action Program ("VRAP"). The application and associated reports were submitted to the Department with the request that the property referred to as "Time and Temperature Building" in the Department's VRAP records, located at 477 Congress Street in Portland, identified on the Portland's Tax Map 37 as Lots F-2, F-18, F-22 and F-23, further described in **Book 33116, Page 257**, at the Cumberland County Registry of Deeds, and generally depicted in the figure included as Attachment A to this letter ("Site") participate in the VRAP, and TT Maine Venture, LLC ("Applicant"), as applicant to the VRAP, receive the protections provided by the *Voluntary Response Action Program* law, 38 M.R.S. § 343-E (1993).

Department staff has reviewed the following reports and supporting documents for the Site (hereinafter collectively referred to as the "Reports"):

- Phase I Environmental Site Assessment Report, Time and Temperature Building and Monument Square Parking Garage, 477-481 Congress Street, 22 Preble Street, 45 Brown Street, Portland, Maine, prepared by Metropolitan Solutions, March 16, 2016; and
- VRAP Application and Environmental Sampling Report, 477-481 Congress Street, 22 Preble Street, and 45 Brown Street, Portland, Maine, prepared by Beacon Environmental Consultants, LLC ("Beacon"), November 29, 2018.

The Site consists of four lots, is approximately 1.819 acres in total, and is developed with one 14-story office building, a separate two and three-story attached office building and a four-story parking garage. The Site and surrounding area is a mixture of commercial and residential

AUGUSTA
17 STATE HOUSE STATION
AUGUSTA, MAINE 04333-0017
(207) 287-7688 FAX: (207) 287-7826

BANGOR
106 HOGAN ROAD, SUITE 6
BANGOR, MAINE 04401
(207) 941 4570 FAX: (207) 941 4584

PORTLAND
312 CANCO ROAD
PORTLAND, MAINE 04103
(207) 822-6300 FAX: (207) 822-6303

PRESQUE ISLE
1235 CENTRAL DRIVE, SKYWAY PARK
PRESQUE ISLE, MAINE 04769
(207) 764-0477 FAX: (207) 760-3143

website: www.maine.gov/dep

properties. The proposed future use of the Site is largely consistent with current use, and may include residential uses.

The reports document the presence of a 10,000 gallon fuel oil tank enclosed within a brick wall and covered with concrete in the basement of the 14-story building. A past spill (P-285-1995) documented the presence of petroleum impacts around the tank. These impacts, however, met the appropriate guidance for that time and did not require any remedial actions.

In the most recent work conducted by Beacon in the tank area, both soil and groundwater results demonstrated that extractable petroleum hydrocarbons ("EPH") and volatile petroleum hydrocarbons ("VPH") were below the Department's current Remediation Guidelines for Petroleum Contaminated Sites for residential exposure scenarios.

No recognized environmental conditions other than those described in the Reports were reported to the Department in the Applicant's VRAP application.

Based on the information presented in the Reports, the Department considers no further investigations or remedial actions are necessary at the Site, provided that a copy of this letter is recorded at the Cumberland County Registry of Deeds. A copy of the recorded document must be supplied to the Department's VRAP within thirty (30) days of being recorded.

Therefore, the Applicant, their successors, assigns and/or affiliates, and the persons qualified for protection under 38 M.R.S. § 343-E(6) are entitled to protection from liability to the extent provided by 38 M.R.S. § 343-E, except that the protection from liability conferred by the VRAP is not granted to or assignable to any person, entity, or government agency that caused or is otherwise responsible for a release of petroleum, hazardous wastes, or hazardous substances at the Site or that has a Hazardous Waste Generator Closure obligation associated with the Site. This protection from liability will be limited to the matters addressed by and identified by the Reports, including the extent and concentration of existing contamination by petroleum and/or hazardous constituents described in the Reports, and is subject to the qualifications and conditions set forth in this letter and in 38 M.R.S. § 343-E. VRAP liability protections under 38 M.R.S. § 343-E do not limit the Department's enforcement authorities for non-compliance with other laws administered by the Department, including, but not limited to, lead abatement and asbestos regulations.

If you have any questions regarding this letter, please feel free to call Nick Hodgkins of my staff at (207) 592-0882.

Sincerely,

David E. Burns
Acting Director
Bureau of Remediation & Waste Management

cc: Gary Vogel, Drummond Woodsum
John Cressey, Beacon
Nick Hodgkins, Department VRAP Coordinator

STATE OF MAINE
KENNEBEC, ss., December 4, 2018

Then personally appeared the above-named David E. Burns, Acting Director, Bureau of Remediation & Waste Management of the Maine Department of Environmental Protection and duly authorized delegee for the Commissioner, and acknowledged the foregoing instrument to be his free act and deed, and the free act and deed of the Department of Environmental Protection.

Before me,

Becky Lynn Blais

Notary Public

Becky Lynn Blais

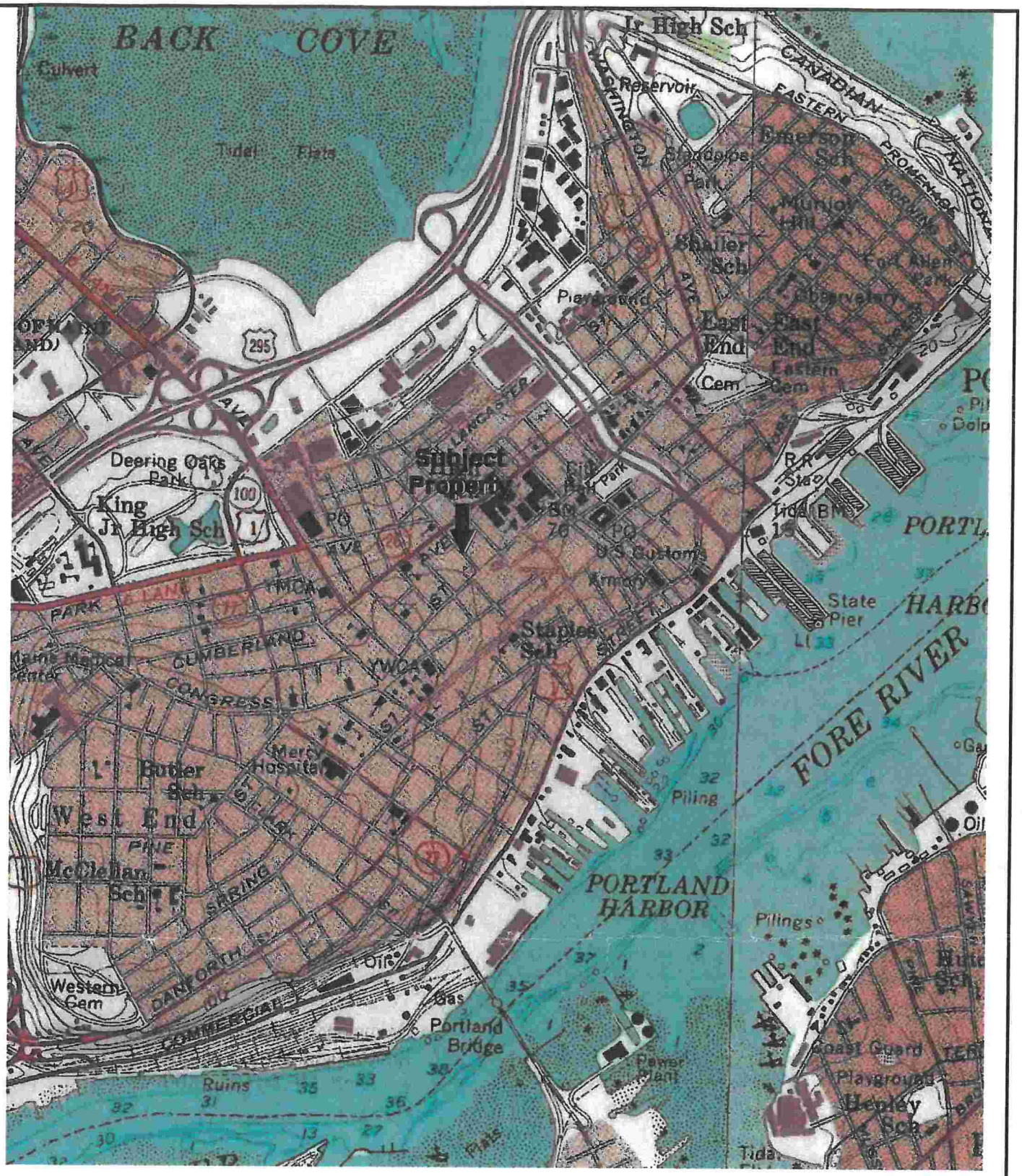
(Print name)

My commission expires: 11/8/25

SEAL

Doc#: 63059 Bk:35350 Pg: 195

Attachment A



Received
Recorded Register of Deeds
Dec 13,2018 11:58:20A
Cumberland County
Nancy A. Lane

FIGURE 1: SITE LOCATION MAP
Project No. BE-141

Drawing Not To Scale

BEACON Environmental Consultants, LLC

14. 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:
    - TT Maine Venture, LLC, c/o Chris Rhoades
        - 3100 McKinnon Street, Suite 250, Dallas, TX 75201
        - (949) 554-3166

    with

    - HRI Properties, c/o Patrick Vyncke
        - 812 Gravier Street, Suite 200, New Orleans, LA 70112
        - (504) 566-9352
- Name, address, telephone number of architect:
    - Archetype PA, c/o David Lloyd, Architect
        - 48 Union Wharf, Portland, ME 04101
        - (207) 772-6022
- Proposed uses of any structures [NFPA and IBC classification]:
    - The structures are mixed-use. Use classifications are provided 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 from Congress Street and Preble Street.
- 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.

15. 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:
    - TT Maine Venture, LLC, c/o Chris Rhoades
        - 3100 McKinnon Street, Suite 250, Dallas, TX 75201
        - (949) 554-3166
- Name, address, telephone number of architect:
    - Archetype PA, c/o David Lloyd, Architect
        - 48 Union Wharf, Portland, ME 04101
        - (207) 772-6022
- Proposed uses of any structures [NFPA and IBC classification]:
    - The structures are mixed-use. Use classifications are provided 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 from Congress Street and Preble Streets.
- 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.

Memorandum

To: City of Portland DPW and MaineDOT

Date: January 14, 2022

Project #: 55321.01

From: Jennifer Conley, PE, PTOE

Re: TDM Plan

The Transportation Demand Management (TDM) Plan outlined below follows the specific provisions required by the City of Portland. The development will include a number of strategies to reduce the number of single occupant vehicles and encourage trips to the site by other modes.

Transportation Narrative

The development is a boutique hotel with a high-end restaurant space. The site for the development is ideally located to encourage the use of alternate modes to access the site. The dense urban location means that significant pedestrian infrastructure is present including sidewalks and crosswalks along all desire lines. The centrally located site and dense pedestrian network connects to area transit.

The project is located across from Monument Square where several transit routes to South Portland stop, and a block away from the Metro Pulse where other routes in the system stop. This location is well suited to result in a high percentage of transit riders. In addition, because no on-site parking will be provided for employees, alternate modes will be encouraged.

TDM Coordinator

A Transportation Demand Management (TDM) Coordinator will be appointed that will manage the plan including the collection of survey data to determine the mode shares of existing employees and determine the barriers to increased public transit, bicycle, and pedestrian transportation.

Transportation Survey

The TDM Coordinator will conduct an employee survey annually to understand the different mode shares. Information collected in the survey will inform potential carpooling and ridesharing opportunities. In addition, the survey will determine barriers to using alternate modes.

Parking and Trip Reduction Target

The hotel operator will have an arrangement to use adjacent parking garages and will not be providing any project specific parking on site.

Although we would anticipate high alternate mode shares for employee trips, hotel guests are more likely to arrive by personal vehicle or rideshare. Based on Census data approximately half of all work trips made to this area are made by alternate modes. Because these trips are not made during the site peak hour, a more reasonable trip reduction target may be 10%. This will correspond to a reduction in vehicular 13 trips in AM peak hour and 17 trips PM peak hour.

500 Southborough Drive
Suite 105B
South Portland, Maine 04106

Customized Parking and Trip Reduction Strategies

In order to encourage employees to utilize alternate modes, there is no on-site parking provided so no parking reduction strategies are included in this TDM. The site is disincentivizing the use of vehicles by not providing on site parking. Additionally, the market rate of parking in the area will further disincentivize vehicular trips. There will not be parking "Cash Out" because there is not parking provided.

Trip Reduction Strategies are listed below:

Transit

The project is in an area with access to several transit options. This location is currently well utilized by transit riders, centrally located adjacent to Monument Square and a block from Metro Pulse. As such, the project is committed to providing staff with subsidized transit passes and will post the Metro schedules and information in employee areas.

Rideshare

In addition to transit opportunities, there will be information posted to employee areas regarding potential ride sharing or carpooling opportunities. There will not be an opportunity for preferential rideshare parking as no employee parking will be provided.

Information gathered from the Transportation Survey will help to inform these shared ride arrangements and methods for communicating them to staff.

Walking/Biking

To encourage employees to bicycle and run/walk, employee showers and lockers will be provided on site. The project will work with the parking garage to determine if covered secure bicycle parking can also be provided in addition to vehicular parking. The local bicycle route information will also be posted in employee areas.

For guests, the hotel staff will be well versed in the local bicycle trail networks and walkability of Portland to encourage guests to use walking and biking modes as well as opportunities for transit to make connections to local destinations.

Employees will be encouraged to bicycle and run/ walk to work, and the project is committed to providing on site lockers and showers for employees. The local bicycle trail networks and walkability of Portland will be provided to both employees and guests.

Telecommuting

Due to the nature of hotel operations providing direct service to guests, there are limited opportunities for telecommuting.

Education

As indicated above the TDM Coordinator will provide transit maps and schedules to employees. In addition, information and bicycle routes and walkable destinations will be available to guests. As a part of the survey program, the TDM Coordinator will work with interested parties to create ride share opportunities. Additionally, the TDM Coordinator will provide educational materials of the benefits and cost saving opportunities of using alternate transportation.

Monitoring

As indicated above the TDM Coordinator will conduct an annual survey to understand employee mode shares and understand progress towards trip reduction targets. In addition, as requested in the guidance the TDM Coordinator will report on parking needs of the development.

Conclusions

The location of the site is hub for local transportation options and safe pedestrian and bike pathways. This disincentivizes the need for personal vehicles and will allow for employees and guests to optimize the use of these resources.

The TDM Coordinator will ensure that employees and guests have the proper information required to maximize the use of local transit systems and bicycle and pedestrian network. Additionally, there will be resources available to walkable locations to encourage the support of local businesses.

The TDM Plan will be facilitated by the TDM Coordinator to ensure that the project has minimal impacts on traffic operations and provides employees and guests with proper resources to maximize the use of alternate transportation.

Portland Maine | Yes. Google's good here.

Shukria Wiar <shukriaw@portlandmaine.gov>

477 Congress Street - Status Traffic Comments

Tom Errico <thomas.errico@tylin.com> Wed, Aug 18, 2021 at 3:16 PM
To: Shukria Wiar <shukriaw@portlandmaine.gov>
Cc: Jeremiah Bartlett <jbartlett@portlandmaine.gov>

Hi Shukria - I have reviewed responses and information provided by the applicant and a status update of my June 21, 2021 comments are provided below.

* Detailed traffic count data from 2018 and 2019 used in the traffic analysis shall be provided for review and approval.
Status: The actual 2018 traffic count sheets shall be provided. As discussed at our July 14, 2021 meeting, StreetLight data should be used to compare 2018 data to current conditions.
Status: The applicant has provided the 2018 traffic count sheets. The purpose of the StreetLight data is to understand current traffic conditions (vehicle delay and queues) and how the 2018 volumes used in the analysis compares to 2021 conditions. The applicant should provide an opinion regarding 2018 volumes as compared to 2021 volumes.

* The trip generation estimate from the prior retail use assumed it generated 191 PM peak hour trips. This estimate seems high, and the applicant should consider other methods for estimating traffic to a retail use in the downtown area.
Status: The purpose of estimating trips from the site both historically and for the proposed project is to determine the need for a Traffic Movement Permit. While it does not appear a TMP will be required given credit for prior trips, documentation is necessary. Accordingly, the applicant shall revisit this item for the purposes of estimating traffic from the prior use. All backup calculations for trip generation estimates shall be provided.
Status: The applicant has revised the trip generation estimate and I find the methods used to be reasonable. The project is expected to have no change in AM peak hour traffic as compared to the prior use. During the PM peak hour, the project is estimated to generate less traffic as compared to the prior use. Accordingly, a Traffic Movement Permit is not required.

* The applicant did not include any trips to the 5,100SF Roof Top Bar area of the project and I would request that further information be provided on this assumption.
Status: I don't support the applicant's assumption that given the use of a High Turnover Restaurant the trip generation estimate is conservative and thus accounts for any activity at the Roof Top Bar. The restaurant is estimated to generate 35 AM peak hour and 34 PM peak hour trips which does not seem to be overly conservative. The applicant should estimate traffic separately for the Roof Top Bar.
Status: The applicant has included an estimate for the Roof Top Bar, and I find the estimate to be reasonable. I have no further comment.

* The traffic study should provide trip assignment information for hotel and retail/restaurant land uses separately. It should also provide assumptions for parking locations (valet and self-park scenarios).
Status: Graphics shall be provided for both entering and exiting movements to valet and parking source locations.
Status: The graphics have been provided and I have no further comment.

* A safety analysis of the High Crash Locations (HCL) noted in the report shall be performed.
Status: The applicant has conducted the requested analysis and I concur that the High Crash Locations do not have patterns and/or contributing factors that can be mitigated. Most crashes involved parked vehicles, which highlights the nature of an active urban setting. I have no further comment.

* The Traffic Operations Analysis indicates Congress Street currently operates with little delay and queuing. The applicant should calibrate the Synchro Model to reflect actual field conditions.
Status: The applicant indicates that a field observation was performed. Details of the observation shall be provided to determine its acceptability. Additional field studies may be requested. The applicant shall also provide the Synchro files for review and approval.
Status: The applicant has conducted a calibration of the Synchro model according to field data. The model files shall be provided for review. Additionally, I will be conducting an independent field assessment of the study area in the near future to confirm model calibration and overall traffic mobility impacts within the Congress/Brown/Cumberland/Preble block area.

If you have any questions, please contact me.

Best regards,

Thomas A. Errico, PE
Senior Associate
Traffic Engineering Director
[T.Y. Lin International]
12 Northbrook Drive
Falmouth, ME 04105
+1.207.781.4721 main
+1.207.347.4354 direct
+1.207.400.0719 mobile
thomas.errico@tylin.com<mailto:thomas.errico@tylin.com>
Visit us online at www.tylin.com<http://www.tylin.com>
Twitter<https://twitter.com/TYLI_Group> | Facebook<https://www.facebook.com/pages/TY-Lin-International/334954505367> | LinkedIn<http://www.linkedin.com/company/27343> | Instagram<https://www.instagram.com/tylininternational/>



image001.gif
2K

Portland Maine | Yes. Google's good here.

Shukria Wiar <shukriaw@portlandmaine.gov>

477 Congress Street - Status Traffic Comments

Tom Errico <thomas.errico@tylin.com> Wed, Jul 21, 2021 at 10:31 AM
To: "Shukria Wiar (SHUKRIAW@portlandmaine.gov)" <shukriaw@portlandmaine.gov>
Cc: Mike Tremblay <mtremblay@portlandmaine.gov>

Hi Shukria - I have reviewed responses and information provided by the applicant and a status update of my June 9, 2021 comments are provided below.

* Detailed traffic count data from 2018 and 2019 used in the traffic analysis shall be provided for review and approval.
Status: The actual 2018 traffic count sheets shall be provided. As discussed at our July 14, 2021 meeting, StreetLight data should be used to compare 2018 data to current conditions.

* The trip generation estimate from the prior retail use assumed it generated 191 PM peak hour trips. This estimate seems high, and the applicant should consider other methods for estimating traffic to a retail use in the downtown area.
Status: The purpose of estimating trips from the site both historically and for the proposed project is to determine the need for a Traffic Movement Permit. While it does not appear a TMP will be required given credit for prior trips, documentation is necessary. Accordingly, the applicant shall revisit this item for the purposes of estimating traffic from the prior use. All backup calculations for trip generation estimates shall be provided.

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Status: Graphics shall be provided for both entering and exiting movements to valet and parking source locations.

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Status: The applicant has conducted the requested analysis and I concur that the High Crash Locations do not have patterns and/or contributing factors that can be mitigated. Most crashes involved parked vehicles, which highlights the nature of an active urban setting. I have no further comment.

* The Traffic Operations Analysis indicates Congress Street currently operates with little delay and queuing. The applicant should calibrate the Synchro Model to reflect actual field conditions.
Status: The applicant indicates that a field observation was performed. Details of the observation shall be provided to determine its acceptability. Additional field studies may be requested. The applicant shall also provide the Synchro files for review and approval.

If you have any questions, please contact me.

Best regards,

Thomas A. Errico, PE
Senior Associate
Traffic Engineering Director
[T.Y. Lin International]
12 Northbrook Drive
Falmouth, ME 04105

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image001.gif
2K

Portland Maine Yes. Google's good here.

Shukria Wiar <shukriaw@portlandmaine.gov>

477 Congress - Time and Temp - Valet Operations on Congress Street

Mike Tremblay <mtremblay@portlandmaine.gov> Wed, Jul 21, 2021 at 10:13 AM
To: Shukria Wiar <shukriaw@portlandmaine.gov>, Tom Errico <thomas.errico@tylin.com>, James Rather <jrather@portlandmaine.gov>, John Peverada <jbp@portlandmaine.gov>, Kevin Kraft <kkraft@portlandmaine.gov>
Cc: Keith Gray <kgray@portlandmaine.gov>

Shukria,

After our call last Wednesday with the Applicant and after review of the materials provided by the Applicant on Friday 7/16/2021 about the proposed valet parking associated with the proposed hotel at 477 Congress Street, DPW remains opposed to the proposed valet parking area on Congress Street.

- DPW still has strong concerns about potential blockage of Congress Street by double-parked vehicles. The Applicant has not provided sufficient data to support that the potential of blockages of Congress Street westbound will be eliminated. They provided examples of curbside valet areas in Boston; however, no example provided was comparable to Congress Street (two-lane, two-way roadway with no excess width for thru vehicles in the event of double parking). Additionally, no quantitative data was provided to support the number of valet spaces provided in these examples. Finally, no data was provided concerning the arrival and departure mode of hotel guests in Boston -- where regional public transit is well-established and far-reaching -- versus Portland, where nearly all guests are likely to arrive in a personal automobile or TSP/taxi. The potential for blockages on Congress is a critical concern for emergency response, and a significant traffic concern.

- The Applicant should continue to explore ways to make a valet operation on Preble Street work. Other places of interest in Maine and elsewhere program a separate address for parking and valet operations if it is different from the primary use -- for example, the Maine Medical Center Parking Garage has a separate address from the Maine Medical Center proper -- which helps direct users to the correct location based on their need. Even if the hotel address must be on Congress Street, it may be possible to provide a Preble Street address for valet parking operations.

We have other project-related comments for the Applicant as well; Jodie Keene will provide them to you directly.

Mike Tremblay, P.E.
Senior Engineer
Engineering Division
Department of Public Works
City of Portland, ME
mtremblay@portlandmaine.gov
P. 207.874.8881 F. 207.874.8852

Portland Maine Yes. Google's good here.

Shukria Wiar <shukriaw@portlandmaine.gov>

477 Congress - Congress Street Parking Recommendations

Jeremiah Bartlett <jbartlett@portlandmaine.gov> Tue, Aug 17, 2021 at 12:59 PM
To: "Wiar, Shukria" <shukriaw@portlandmaine.gov>
Cc: "Thomas.Errico@tylin.com" <thomas.errico@tylin.com>, Keith Gray <kgray@portlandmaine.gov>, Jodie Keene <jkeene@portlandmaine.gov>

Hi Shukria,

Based on our review of the proposed site plan for 477 Congress Street, and the proposed curb adjustments, DPW recommends the following parking implementation along the frontage:

1.) The first two (2) spaces on the north side of Congress immediately west of Preble Street shall be 15-minute spaces
2.) The remaining spaces west of the 15-minute spaces shall remain two-hour metered parking

Thank you,
Jeremiah

Jeremiah J. Bartlett, PE, PTOE
Transportation Systems Engineer
Department of Public Works
212 Canco Road, Suite B
Portland, Maine 04103
jbartlett@portlandmaine.gov
(207) 874-8891

Portland Maine | Yes. Google's good here.

Shukria Wiar <shukriaw@portlandmaine.gov>

477 Congress initial comments

Jodie Keene <JKEENE@portlandmaine.gov> Wed, Jul 21, 2021 at 10:40 AM
To: Shukria Wiar <shukriaw@portlandmaine.gov>, Mike Tremblay <mtremblay@portlandmaine.gov>, Deb Andrews <dga@portlandmaine.gov>

Hi Shukria,

Here are my initial comments for 477 Congress. Please let me know if you have any questions. I've copied Mike since most of these relate to the City's Technical standards. I've copied Deb for her opinion on the 2nd bullet point.

- The sidewalk slopes do not appear to be consistent with what the City requires, which is between 1% and 2% cross slope for the width of the sidewalk. Mike mentioned there were some limiting factors (road reconstruction, etc) which may necessitate some deviation, but I think we need to keep a close eye on this. Designing to 2% cross slope (which is the maximum) allows for absolutely no wiggle room. And designing a 5' strip of compliant sidewalk does not meet City expectations for ADA compliance.
- We will need to closely consider edge conditions for this site. The sidewalk to which they will be matching along Congress Street (in front of the First Parish UU) is in a herringbone pattern. How do they propose to tie in our standard brick sidewalk pattern to herringbone? We'll want a detail to review and approve. They are also tieing into a paved walkway on Preble and appear to be using a flush granite curb to transition. Again, we'll want a detail to review and approve. It may be that the flush granite is appropriate at both transitions. **Deb may have some recommendations from the HP perspective.**
- Do we need easements for the four proposed electrical vaults in the ROW on Preble Street? I believe this came up for a few projects recently but I don't recall where it landed. Jimmy Dealaman may recall as I believe one of his projects had this condition.
- The ADA ramps are not the same across plans. I don't know what they are actually proposing here. This should be clarified and consistent on all plans.
- The curb detail provided is incorrect. The City requires all granite curbing to be set in concrete. They are also proposing to remove and reset the existing granite curb. This is subject to the condition of the existing curb. If the existing curb is broken, chipped, of inadequate dimensions, etc. they will need to use new granite. They should work with Craig Sloan, engineering inspector, during construction to ID which curbing can be reused.
- I did not see an erosion and sedimentation control plan. They need to submit an ESC plan for review and approval.
- The tree wells are shown on the site plan as flush granite but the detail provided shows our standard raised tree well. This should be clarified and consistent with the City's Technical Standards and Jeff Tarlings recommendations.
- The utility plan shows 3 water lines, which I'm sure is just a drafting error. But this should be corrected.
- How is rooftop runoff managed? We prefer it to be connected into the sewer separately from the sanitary waste on site in anticipation of future separation.
- It may be helpful to see a demolition plan, which will answer the following questions.
  - Where is/are the existing water line(s) and how will they be capped?
  - Where is/are existing sewer line(s) and how will they be capped?
- All details / detail sheets should be revisited: duplicate details should be removed; details should be consistent with the City's Technical Standards; details not applicable to this project should be removed.

I hope this helps!
Thanks,
Jodie

Jodie W. Keene, Stormwater Coordinator

(she/her/hers) Office: 207.874.8832 | Mobile: 207.317.1956
City of Portland, Department of Public Works, Water Resources
212 Canco Road, Suite B, Portland, Maine 04103
I acknowledge that I live and work on the traditional land of the Abenaki People.



Planning and Urban Development Department
Planning Division

Subject: B-3 Pedestrian Activities District Review – 477 Congress Street (Time & Temperature Building)

Written by: Caitlin Cameron, Urban Designer

Date of Review: Tuesday, July 7 2021

The project at 477 Congress Street – Canal Landing - was reviewed according to the B-3 PAD standards by Caitlin Cameron, Urban Designer, Shukria Wiar, Planner, and Kevin Kraft, Deputy Director.

B. Pedestrian Activities District (PAD)

In addition to subsection 1 (a through d), proposed development and substantial building alterations located within the Pedestrian Activities District (PAD) overlay zone . . . shall be designed and constructed to accommodate pedestrian-oriented uses at the street level. Proposed development located within the PAD encouragement areas which is not initially constructed to accommodate pedestrian-oriented activities at the street-level shall be designed to have the capability of accommodating pedestrian-oriented uses through non-structural building alterations.

1. *Exterior design of street level building façade*

   - Existing façade design kept intact with adequate windows/doors and visual interest of architectural elements

   - One additional door added to Congress Street at retail/grab and go

   - The four entrances should be distinguished and clearly relate the uses. A canopy at the arcade entrance competes with the hotel lobby and is unnecessary from a functional standpoint because the doors are recessed.

2. Design and placement of impenetrable exterior building features

- Existing building that maintains existing structure, entrances, storefront

3. Orientation and accessibility to the street

- There are four entrances on Congress street to these uses – restaurant, arcade, hotel lobby, retail/grab and go.

- Visual accessibility should be created by using transparent glass rather than the existing tinted glass which inhibits visual connection and is also reflective.

4. Adequacy of interior layout

- Interior layout maintains the ability for lobby, restaurant, and retail spaces.

- The plans show a new egress stair placed at the Congress Street façade – how will this impact the windows? Will the windows remain transparent?

5. Continuity of street level uses

- The Congress Street frontage includes active street-level uses for the majority of the façade (with the exception of the stair tower introduced between the hotel and arcade entrances) – continuity is maintained with the existing street wall, fenestration at the ground level, and active uses for the whole width of the façade.

- Service entrances, etc. are placed on sides/rear.

- The sidewalk, canopy, and lighting design shall be consistent with the Site Plan and Historic District standards.

Portland Maine Yes. Google's good here.

Shukria Wiar <shukriaw@portlandmaine.gov>

477 Congress St - Hotel Inclusionary Zoning

Victoria Volent <vvolent@portlandmaine.gov> Wed, Jul 21, 2021 at 12:19 PM
To: Shukria Wiar <shukriaw@portlandmaine.gov>

Hi Shukria,

477 Congress Street proposes the creation of a hotel with 186 guest rooms. To comply with the Hotel IZ Ordinance, the applicant has indicated they intend to pay the fee-in-lieu of $707,916 (186 X $3,806) prior to receiving their C/O.

Should the actual number of guest rooms change, the fee-in-lieu would need to be recalculated.

Thank you,

Victoria

Victoria Volent
Housing Program Manager
Housing and Community Development
Phone: 207-482-5028
www.portlandmaine.gov

Property name: Time and Temperature Building NPS Project Number_____

Property address: 477 Congress Street, Portland, ME

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5. Description of Physical Appearance:

Setting: The Time and Temperature Building is located in downtown Portland, ME between two primary arterials, Congress Street and Cumberland Avenue. The area immediately surrounding the site is characterized by mid-rise commercial and civic buildings. The Maine Historical Society and National Historic Landmark Wadsworth-Longfellow House is located immediately to the west on the same block.

Site: The subject building sits on a roughly 0.70 acre site at the northwest corner of the intersection of Congress Street and Preble Street. The primary façades of the building front on Congress Street and Preble Street, both of which front public concrete sidewalks. The site is fully built out.

Exterior: The subject building is comprised of four distinct resources: the Chapman Building, the Preble House Building, 10-20 Preble Street, and the B.F. Keith Theater. The following physical description will be defined by the four distinct resources.

The Chapman Building: The granite, terracotta, and buff brick building is a restrained example of the Classical Revival style. When compared to the neighboring Fidelity Trust Building, it is simple in its decorative detail. The Chapman Building in its original configuration exhibited the base, shaft, and capital organization so typical of commercial structures of its period at its primary street-facing south and east elevations. The base is three-stories high and divided into three parts. At the south elevation, the base's centerpiece is a slightly recessed main banking hall entrance, with a stone entablature complete with carved eagle, and grandly scaled windows above and to its sides. The recessed, center three bays above the main entrance on the south elevation are emphasized by four, two-story-high, fluted engaged columns that provide liveliness to the base. They contrast to the simple, modern storefronts on the first floor. A simple cornice caps the base at the third floor. The first story is of granite (now painted gray) and the upper stories of terracotta.

The fourth through tenth floors form the shaft and are simply detailed. On either side, outer bays have stone quoins at their edges and two vertical rows of single windows with double-hung one-over-one sash, separated by a full height pier. The main center section has three bays, each with a pair of double-hung windows separated by a mullion.

A simple cornice with an egg-and-dart design is atop the tenth story and forms the bottom edge of the building's "capital". Two balconies, each supported on four massive brackets, extend the cornice at the two edge bays.

The building "capital" continues as the eleventh and twelfth floors. Windows are separated by pilasters capped by Corinthian capitals. A simple cornice above these capitals was the original

top edge of the building but was previously removed when the top two floors were added in 1962.

The north and west elevations of the building are utilitarian, built of buff brick with no ornamentation. On the north elevation, there is an exterior fire escape from the 12th story that is enclosed within aluminum siding.

When they were added in 1962, the thirteenth and fourteenth floors made no attempt to relate to the style, detail or materials of the original building including the fenestration pattern and were constructed of modern curtainwall. In 1986-87, the top two floors were reclad in a stucco coating that was detailed with simplified, stylized classical motifs. New windows were grouped to more closely correspond with original patterns below. The thickness of the new cladding causes the addition to extend beyond the plane of the original building walls.

The exterior retains a large degree of integrity, with modifications to the storefronts at the first floor and removal of the cornice at the roof line as the only notable changes. The original upper story one-over-one wood windows were replaced with similar aluminum one-over-one windows in the 1980's without any noticeable impact to the buildings appearance from the street. The two stories added in 1962 were originally clad with enameled steel or aluminum panels and had larger single-light aluminum framed windows. In the mid-1980's these floors were reclad in dry-vit stucco and the windows replaced with smaller double-hung vinyl units. These floors were added after the district's period of significance (1785-1958) and have been altered since their original construction. A large flashing time and temperature sign on the roof of the vertical addition dates to the 1990's.

Preble House Building: The building has been remodeled several times and presents a variety in stylistic treatment of the street level and upper floors. The street facing south façade was redesigned in 1924 when the building was converted into a bank branch and offices by the Portland Savings Bank. As part of the redesign, the first floor was built out to the sidewalk. The first floor has a stately Beaux-Arts composition of display windows with transoms, framed by stone storefront piers at outer edges and smaller piers at the inner edges. The smaller piers form the frame for the central door, which has carved trim and an entablature featuring decorative garlands and medallions. Above the doors and display windows is a richly detailed stone cornice.

Above and set back from the first floor are the upper three stories of the original building, built of painted brick with simple aluminum double-hung windows and a simple metal cornice. The brick west elevation faces the Henry Wadsworth Longfellow House and Maine Historical Society's Brown Research Library. The south portion of the elevation, closest to Congress Street, is painted to match the brick on the upper stories of the south façade. The rear portion is utilitarian red brick. A light well separates the building into two sections above the first story, which separates the painted and unpainted portions of the wall. Large modern aluminum framed

windows light the banking hall with smaller double hung aluminum windows on the remainder of the elevation. The north and east elevations abut adjoining buildings on the first two stories, with utilitarian brick walls above.

10-20 Preble Street: The primary east elevation of the building presents as three sections, two four-story sections and a two-story section to the north. The four-story Italianate painted brick commercial section has segmental arched window lintels on the upper two floors of the primary east facade. The northern four-story section of the building at the street facing east elevation has projecting belt courses between the upper floors and a restrained Italianate cornice in brick. The south four-story section of the east elevation is very plain and unadorned. Large Chicago style windows are located at the second floor, installed c.1920. The two-story red brick section of the building, adjoining the B.F. Keith Theater entrance, has a late 20th century red brick facade, which replaced a two-story 19th century Italianate brick storefront façade. Storefronts at the first floor throughout are modern.

The north and south elevations of this building fully abut other buildings with party walls at the lower floors. The west elevation is exposed at the upper floors, above the rear arcade, and is plain red brick with simple one-over-one aluminum framed windows on both floors.

B.F. Keith Theater: The primary street facing east elevation features a two-story façade that is divided into nearly equal halves. Above the former theater entrance, on the south side, is a grand arch window with a scrolled keystone ornament located at the second-floor level, surrounded with Adamesque stucco ornament, sitting on an entablature supported by round columns with Ionic capitals and flanking flat paneled pilasters with Doric capitals. The entrance is recessed, flanked by painted brick, and has a modern double-leaf glazed door and arched transom with modern wood paneling to the side. The entrance formerly spanned this entire bay, though it was later infilled when the theater was removed and the interior space subdivided.

The north end of the east elevation is more restrained. It has three windows with keystone lintels set in the brick wall on the second floor, above the entablature that continues from the south side of the building, the first-floor has a modern storefront with wood-paneled bulkheads and transom. A brick pilaster with a Doric capital sits on a granite base to the right of the storefront, balancing the more elaborate pilasters at the south side of the façade and at the center, framing the entrance, and carrying the entablature. A bracketed and denticulated cornice topped with a classical balustrade caps the façade. The current paneled design of the recessed entry is a late 20th century treatment, as is the storefront infill on right side of the building.

The secondary north and west elevations are utilitarian in character and are constructed of red brick. The south elevation abuts the adjacent building and is not visible.

Interior: Similar to the exterior, the interior description of the subject building will be defined by the four separate resources.

The Chapman Building: The interior of the building features retail space located at the first floor, a two-story former banking hall at the second story, and offices at the remaining upper floors. The building is largely vacant. At the first floor along the west elevation is the building's primary entrance that provides access to the elevator lobby. Within the internal vestibule finishes include: flat plaster walls with ornamental plaster pilasters and crown molding, gypsum board ceiling and modern ceramic tile floor. Doors are compatible modern glazed rim doors. To the north is the building's elevator lobby with a bank of three elevators with modern wood surrounds. Finishes within the space include: tile floors, and painted gypsum board walls and ceilings and plaster corbels. Adjacent to the elevator bank is the building's primary stair which is open to the lobby and consists of a metal railing and risers with terrazzo treads. Modern wood-framed storefronts flank the lobby which provides access to a highly altered arcade space that is located within the adjacent building at 10-20 Preble Street. The remainder of the first floor features modern offices with finishes that include: carpet floors, painted gypsum board walls, and acoustic drop tile ceilings.

The second floor features the former two-story banking hall which is accessed by a modern wood communicating stair as the historic stair from the street was previously removed c. 1980. The banking hall space is generally open in design with a balcony located at the second-story perimeter. Finishes of the space are generally reflective of the original construction. A former board room is located at the balcony/third floor level and features wood wall paneling and a fireplace.

The remaining upper floors all feature modern offices with finishes that are reflective of typical tenant turnover. Elevator lobbies on each floor have modern gypsum board and acoustic tile finishes with mail chutes remaining. Floors within the upper floor elevator lobbies are generally carpet with limited areas of terrazzo. Floor plans on the upper floors are inconsistent and are reflective of substantial changes over time. Finishes within corridors and tenant spaces include: vinyl tile and carpet floors, painted gypsum board walls, and acoustic tile/gypsum board drop ceilings. Perimeter walls are generally furred out with modern trim and there are no historic corridors, doors or finishes beyond limited areas of painted wood baseboard and window trim.

Preble House Building: Internally, the first story is self-contained and accessed from the Congress Street door with an internal secondary pass-through to the adjacent Chapman Building. The first floor consists of a large banking hall with a stair, elevator and vault to the rear (north) end. Within the banking hall the finishes including flat plaster and gypsum board walls with marble paneling and pilasters and modern applied wood molding, plaster ceiling beams with inset acoustic tile ceilings and modern ceramic tile and carpet flooring. Columns are finished in

marble with modern wood wainscoting that matches the modern teller desk. The upper floors are modern office space consisting of furred out perimeter walls finished in painted gypsum board with modern trim, gypsum board demising walls, suspended acoustic and gypsum board ceilings and carpeted floors. The upper floors have completely modern floor plans and have undergone multiple tenant renovations since the building was converted to office use in the 1920s. A single-leaf pass-through on the upper floors provides access to the elevator lobby within the adjacent Chapman Building.

10-20 Preble Street: Internally, the first floor contains retail spaces with offices located at the upper floors. The first floor contains a heavily modified arcade at the rear of the building, which runs north-south and features replacement storefronts on its east and west perimeters that provide access to the flanking retail spaces. Finishes of the arcade are modern throughout and include: modern vinyl flooring, and painted gypsum board walls and ceiling with modern light fixtures. Small communicating stairs furnish the space due to the slope of the floor. The flanking retail spaces are finished with modern materials, which include: carpet and vinyl tile floors, painted gypsum board walls with modern baseboard, and painted gypsum board and acoustic tile drop ceilings. Formerly a two-story space, a floor level was inserted into the arcade space in the 1980s, altering the volume and character of the space. The commercial spaces fronting Preble Street have modern finishes throughout including: gypsum board walls, suspended acoustic tile ceilings and carpeted floors. A single skylight, which formerly lit the arcade space, is located at the second floor where the arcade was infilled. The south and north ends of the arcade space provide access to the Chapman Building elevator lobby and B.F. Keith lobby, respectively. The offices at the upper floors all contain modern finishes that include: carpet floors, painted gypsum board walls with modern baseboard, and acoustic tile drop ceilings.

B.F. Keith Theater: The primary entrance leads to a long hallway that historically served as the entrance to the theater (theater auditorium no longer extant). The entrance area was previously subdivided with a gypsum board wall and the north side is now utilized for leasable office space. On the interior, cast plaster ornamentation, a stained-glass window, and areas of mosaic tile floor remain in the theater entrance area. The south side functions as a corridor that provides access to the commercial space as well as a non-historic, unrelated modern parking structure to the west with both historic and modern finishes. At the west end of the first floor there is a passage into the arcade that is located within the adjacent building at 10-20 Preble Street.

The second story contains a large commercial space with several smaller rooms to the rear and contains modern finishes including: gypsum board walls, acoustic tile ceiling and commercial tile flooring. An enclosed staircase connects the two floors toward the west end of the building.

At the rear of the building, outside the district boundary, a corridor connects the theater entrance area to the surface parking and parking garage at the corner of Brown Street and Cumberland Avenue. This corridor and vacant space are outside the historic district boundary.

6. Statement of Significance

Summary

The Time and Temperature Building is comprised of four separate resources, all of which are determided contributing to the Congress Street Historic District. The district was certified by the National Park Service on May 25, 2010. The building was built between 1870 and 1980.

The four compents of the complex, the Chapman Building at 477 Congress St., Preble House addition at 481 Congress St., 10-20 Preble St., and the B.F. Keith Theater at 22 Preble Street have been internally connected and functionally related since construction of the Chapman Building (the newest of the buildings) in 1924. The Chapman Building was built on the site of the Preble House hotel, which was originally a Federal style mansion, built c. 1810. A later addition to the Preble House at 481 Congress Street, was left standing and connected internally with the new building with a Beaux Arts storefront added at the first story to relate it to the new building. The existing late 19th century buildings at 10-20 Preble Street and the B.F. Keith Theater entry and lobby were connected to the new building by infilling an alleyway to create a two-story tall arcade lit by skylights. New storefronts in the arcade provided access to the Preble Street shops, in addition to their existing storefronts on the street. Storefronts were also added on the opposite side of the arcade to access new shops in the rear of the surviving portion of the Preble House. The arcade also served as a Congress Street entrance to the B.F. Keith Theater.

History

The history of the building will be defined by each respective individual resource.

The Chapman Building: The fourteen-story Chapman Building (now known as the Time and Temperature Building) was designed as a twelve-story tower by Portland architect Herbert W. Rhodes. The original building was completed in 1924 on a site previously occupied by the Preble House Hotel. The Preble House Hotel began as the Federal style residence of Commodore Edward Preble, designed by Alexander Parris and completed c. 1808, and was expanded several times after conversion to the Preble House Hotel in 1860. The evolution of uses on this site is characteristic of the district, where properties originally developed for residences were later converted to commercial uses and in many cases subsequently demolished and replaced with much larger commercial buildings, as here.

As originally built, the Chapman Building housed the Chapman Bank on the mezzanine level (2nd floor) with retail spaces on the first story. Above the bank were nine stories of commercial office space for lease. The principal Congress Street entrance, located near the center of the south elevation and ornamented with a carved granite eagle over the door, served the bank with a

secondary entrance, located within the westernmost bay of the south elevation, serving the elevator lobby to the upper stories and connecting to the retail arcade located within the adjacent building at 10-20 Preble Street. The subject building was the second "skyscraper" built in Maine, the first being the ten-story Fidelity Building just across Preble Street. Both buildings represented the movement of financial institutions from their traditional location near the waterfront to the newly developing commercial center of the city along Congress Street near Monument Square.

Preble House Building: The Preble House Building is a four-story structure that was originally an addition to the Preble House Hotel. The Preble House Hotel grew from the classic Federal style three-story brick mansion of Commodore Edward Preble. Designed by Alexander Parris, it was built between 1806-08. Converted to a hotel in 1860, it eventually gained a fourth floor as well as a four-bay addition to the east and a three-bay addition to the west. 481 Congress Street is the three-bay addition on the west. After 1906, the west end of the first floor was utilized as a secondary entrance to B.F. Keith's vaudeville theater, which stood to the north of the building, with its primary entrance from Preble Street. The upper stories were primarily used for professional office space after the removal of the remainder of the hotel building. A branch office of the Portland Savings Bank was established on the first floor in 1906. In 1924, the bank undertook a renovation of the building and moving its administrative offices into the building; these occupied the upper floors. The entire first floor was renovated for use as the bank's primary banking hall. As part of this renovation, the first floor was expanded southward to the Congress Street sidewalk and finished with a new, Beaux-Arts façade typical of bank design of the period. In the mid-20th century, the first floor was remodeled for use as a banking hall.

The building continued in use as the offices and banking hall for Portland Savings Bank, though the offices were later leased to tenants during the mid-late 20th century. Following a series of banking mergers, the first floor banking hall was later branded as a People's Savings Bank branch during the 1980s, Banknorth branch during the 1990s and as a TD Bank branch since the mid-2000s, all dating to the lineage of Portland Savings Bank.

10-20 Preble Street: This two and four-story Italianate style commercial building is typical of downtown commercial structures of the period with storefronts on the first floor and office or warehouse spaces above. The two-story red brick section at the north end was historically a storefront with commercial space on the second floor. The rear arcade space was constructed c. 1924 as an addition to the subject building. This is confirmed by the City of Portland 1924 tax record for this property which confirms that the property included the arcade, stores, Preble Street lunch room (1st floor) and remodeled remainder of the building (upper floors). The building is representative of the transition of the Monument Square area from residential to commercial in the second half of the 19th century. One of Portland's first railroad depots was built at the foot of Preble Street for the York and Cumberland Railroad before 1850, making the street an important artery from the depot to the city's commercial center in what is now called the Old Port. This was the start of the shift of the commercial center to Congress Street and

Monument Square. The Great Fire of 1866, which destroyed the old commercial center entirely, contributed to this movement toward Monument Square.

The building has been utilized for commercial and retail tenants throughout its entire existence through to the present. Typical changes were made to the building as it was updated for tenants, most notably the installation of Chicago-style windows on the second floors in the 1920s, periodic installation of new storefronts and a new façade at the two-story section. The rear arcade addition was constructed in the 1920s but did not alter the historic appearance of the block on its primary Preble Street elevation. The red brick main elevation was later painted white during the latter half of the 20th century.

B.F. Keith Theater: The surviving portion of the B.F. Keith Theater is the former main entrance area. The large theater auditorium it served was located at the center of the block and was demolished in 1965. That space is now a surface parking lot and adjacent parking structure which are located outside of the district boundary. Adjacent to the theater entrance, a storefront opened into the retail space. Following the demolition of the theater, the entrance area was converted into retail space and utilized as an entrance to the modern parking area. Many of the historic finishes were retained.

The B.F. Keith Theater was one of several vaudeville theaters built in the district in the early 20th century, when the area was the heart of Maine's most urban environment. Only one theater survives intact in the district, the State, built in 1929 just west of Congress Square.

The B.F. Keith Theater chain stretched across the U.S. with more than 30 theaters by 1909. Through mergers, the chain eventually owned or controlled more than 700 theaters in the U.S. and Canada. Like many vaudeville theaters, the B.F. Keith Theater in Portland eventually was converted to a movie theater and renamed the Civic.

The theater's architect, Francis A. Fassett, was one of Portland's most important architects of the late 19th and early 20th century. Although the theater space itself no longer stands, the Preble Street façade is clearly a theater façade (in spite of the removal of the marquee) and is the only surviving theater façade by Fassett.

Conclusion

All portions of the Time and Temperature Building complex contribute to the Congress Street Historic District (NR 2010). The buildings of the complex serve as examples of the development and architectural history for which the district is significant.

Bibliography

"Congress Street Historic District," National Register of Historic Places. 25 May 2010.

DRAFT

HISTORIC PRESERVATION CERTIFICATION APPLICATION
PART 1 – EVALUATION OF SIGNIFICANCE

Property name: Time and Temperature Building NPS Project Number_____

Property address: 477 Congress Street, Portland, ME

N

Appendix A: NR District Map



Property name: Time and Temperature Building NPS Project Number_____

Property address: 477 Congress Street, Portland, ME

District Inventory for 10-20 Preble Street

Monument Square	28	Emerson Clapp Building	Contributing
Monument Square	50 (474 Congress St.)	Lancaster Building	Contributing
Oak Street	44-50	Frye Building	Contributing
Oak Street	47-55 (51)	The Everett Chambers/Hotel Everett	Contributing
Oak Street	57		Non-Contributing
Oak Street	70-82	Parking Lot	Non-Contributing
Oak Street	104-106	Tennessee Hotel Building	Contributing
Preble Street	7	Parking Lot	Non-Contributing
Preble Street	10-20		Contributing
Preble Street	15-23	Parking Lot	Non-Contributing
Preble Street	22	B. F. Keith Theater	Contributing
Preble Street	24	Potter Building	Contributing
Preble Street	26-34	Wadsworth Building	Contributing
Preble Street	36-40		Contributing
Spring Street	97	Charles Q. Clapp House	Landmark
Spring Street	103	McLellan-Sweat Mansion - PMA	Landmark
Spring Street	103 (rear)	Sweat Memorial Galleries - PMA	Landmark
Spring St	73-93 (24-30 Oak St.)	Vacant Land	Non-Contributing
State Street	186-188		Contributing
State Street	190-192		Contributing
Tolman Place		Parking Lot	Non-Contributing

DRAFT

District Inventory for the B.F. Keith Theater

Monument Square	28	Emerson Clapp Building	Contributing
Monument Square	50 (474 Congress St.)	Lancaster Building	Contributing
Oak Street	44-50	Frye Building	Contributing
Oak Street	47-55 (51)	The Everett Chambers/Hotel Everett	Contributing
Oak Street	57		Non-Contributing
Oak Street	70-82	Parking Lot	Non-Contributing
Oak Street	104-106	Tennessee Hotel Building	Contributing
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Preble Street	22	B. F. Keith Theater	Contributing
Preble Street	24	Potter Building	Contributing
Preble Street	26-34	Wadsworth Building	Contributing
Preble Street	36-40		Contributing
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Spring Street	103	McLellan-Sweat Mansion - PMA	Landmark
Spring Street	103 (rear)	Sweat Memorial Galleries - PMA	Landmark
Spring St	73-93 (24-30 Oak St.)	Vacant Land	Non-Contributing
State Street	186-188		Contributing
State Street	190-192		Contributing
Tolman Place		Parking Lot	Non-Contributing

Property name: Time and Temperature Building NPS Project Number_____

Property address: 477 Congress Street, Portland, ME

District Inventory for the Chapman Building

Congress Street	396	Post Office Square (Building 1)	Contributing
Congress Street	400	Post Office Square (Building 2)	Contributing
Congress Street	415	Masonic Building	Landmark
Congress Street	423-433	First Parish Church	Landmark
Congress Street	431-441	The Metropolitan Building	Contributing
Congress Street	443-449	Clapp Memorial Building	Landmark
Congress Street	451-459	Portland Public Library	Contributing
Congress Street	465-467	Fidelity Trust Building	Landmark
Congress Street	474	Lancaster Block	Contributing
Congress Street	475-477	Chapman Building (Time & Temp Bldg.)	Contributing
Congress Street	480-482 (128-136 Center St.)	Kamber Building	Contributing
Congress Street	480 1/2 (sidewalk)	Bus Shelter	Non-Contributing
Congress Street	479-481	Preble House Building	Contributing
Congress Street	482-484 (114-126 Center St.)	Congress St. façade only (not Center St. facade)	Non-Contributing
Congress Street	483-485	Longfellow House and M.H.S. Library	Landmark
Congress Street	486-488		Contributing
Congress Street	489-495 (27-39 Brown St.)		Non-Contributing
Congress Street	490 and 492	Kimball Court	Non-Contributing
Congress Street	496-498	Beaver Block	Contributing
Congress Street	499-513 (511)	Maine Savings Plaza	Non-Contributing
Congress Street	500		Contributing
Congress Street	504-506		Contributing
Congress Street	508-514 (510)	W.T. Grant Building	Contributing
Congress Street	516-518		Non-Contributing
Congress Street	515-519	Charitable Mechanics Hall Building	Landmark
Congress Street	522-528	Porteous Building/Miller Building	Landmark
Congress Street	523-543	J.B. Brown Memorial Building	Landmark
Congress Street	536-538	Durant Block	Contributing
Congress Street	542	F.W. Woolworth Building	Contributing
Congress Street	541-549		Contributing
Congress Street	550	Asa Hanson Heirs Block	Contributing
Congress Street	551	Lerner Shoe Block	Contributing
Congress Street	553	Benjamin Larrabee Heirs Block	Contributing

Property name: Time and Temperature Building NPS Project Number_____

Property address: 477 Congress Street, Portland, ME

District Inventory for the Preble House Building

Congress Street	396	Post Office Square (Building 1)	Contributing
Congress Street	400	Post Office Square (Building 2)	Contributing
Congress Street	415	Masonic Building	Landmark
Congress Street	423-433	First Parish Church	Landmark
Congress Street	431-441	The Metropolitan Building	Contributing
Congress Street	443-449	Clapp Memorial Building	Landmark
Congress Street	451-459	Portland Public Library	Contributing
Congress Street	465-467	Fidelity Trust Building	Landmark
Congress Street	474	Lancaster Block	Contributing
Congress Street	475-477	Chapman Building (Time & Temp Bldg.)	Contributing
Congress Street	480-482 (128-136 Center St.)	Kamber Building	Contributing
Congress Street	480 1/2 (sidewalk)	Bus Shelter	Non-Contributing
Congress Street	479-481	Preble House Building	Contributing
Congress Street	482-484 (114-126 Center St.)	Congress St. façade only (not Center St. facade)	Non-Contributing
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Congress Street	500		Contributing
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Congress Street	541-549		Contributing
Congress Street	550	Asa Hanson Heirs Block	Contributing
Congress Street	551	Lerner Shoe Block	Contributing
Congress Street	553	Benjamin Larrabee Heirs Block	Contributing

Portland Maine Yes. Google's good here.

Shukria Wiar <shukriaw@portlandmaine.gov>

Time Temp Building Project

Jeff Tarling <jst@portlandmaine.gov> Thu, Jul 22, 2021 at 3:53 PM
To: Shukria Wiar <shukriaw@portlandmaine.gov>
Cc: Kevin Kraft <kkraft@portlandmaine.gov>, James Rather <jrather@portlandmaine.gov>

Hi Shukria -

In review of the proposed Congress Street project we have the following tree & landscape recommendations:

Street trees - We would like to see raised granite tree wells similar to those nearby near the Public Library. We can discuss exact locations and sizes.

Off Site trees - Trees are needed across the street, similar to the off site tree and landscape work that nearby One Monument Square project donated to Monument Square tree replacement and raised granite tree planters, we could use similar trees at Monument Way towards One City Center.

Overall, the current, already constructed streetscape does not present much room in the way of supporting additional trees or landscape. Project contribution to needed trees and the landscape across the street would be a welcomed addition.

Parks & Recreation is willing to work with the development team on this aspect.

Thanks,

Jeff

Jeff Tarling
City Arborist - City of Portland Maine
Parks, Recreation & Facilities
Forestry & Horticulture
212 Canco Road - Suite A
Portland, ME. 04103
(207) 808-5400
jst@portlandmaine.gov

Portland Maine Yes. Google's good here.

Shukria Wiar <shukriaw@portlandmaine.gov>

Congress Street Valet - Time & Temp Building

Robert Martin <rmm@portlandmaine.gov> Mon, Aug 16, 2021 at 2:55 PM
To: Shukria Wiar <shukriaw@portlandmaine.gov>
Cc: Frank Clark <FClark@portlandmaine.gov>, Keith Gautreau <kng@portlandmaine.gov>, Kevin Kraft <kkraft@portlandmaine.gov>

Congress Street Valet - Time & Temp Building

All,

The Portland Police Department would oppose the proposal to allow Valet Parking on the Congress Street side of 477 Congress Street.

That section of Congress Street is heavily travelled with additional side street traffic from both Center Street and Preble Street in the immediate vicinity. The proposed site is also directly across the street from an active bus stop. All of this contributes to a natural pinch point where traffic is often restricted to single lanes and eastbound traffic is often forced into the westbound lanes.

Another concern is the frequent use of Monument Square for events and protests. Access to Monument Square is closed several times each year to accommodate hundreds and sometimes thousands of people. These road closures would include the proposed valet area.

For these reasons we believe the use of Congress Street for Valet parking would not be an appropriate or safe option. We would be supportive of the proposed valet option on Preble St.

If we can be of further assistance please let me know.

Regards,

Bob Martin

--
Major Robert Martin
Portland Police Department
Support and Investigative Services
109 Middle Street
Portland, Maine 04101

Office: (207) 874-8604
RMM@PortlandMaine.gov
Follow us @PolicePortland

Portland Maine Yes. Google's good here.

Shukria Wiar <shukriaw@portlandmaine.gov>

Valet operations at Time & Temp building

Deb Andrews <dga@portlandmaine.gov> Tue, Aug 17, 2021 at 3:16 PM
To: Kevin Kraft <kkraft@portlandmaine.gov>, Shukria Wiar <shukriaw@portlandmaine.gov>

Kevin and Shukria,

This memo is in response to your question regarding the possibility of introducing another entry on the Preble Street elevation of the Time & Temperature building to accommodate hotel valet operations and, specifically, whether such an alteration would likely meet National Park Service review standards. I understand that meeting NPS review standards is essential in order for the proposed hotel project to qualify for historic tax credits.

While the Planning Department is not requiring the applicant to provide an additional entrance to accommodate valet operations, I agree that there's an opportunity to rethink how hotel patrons utilizing valet services enter the hotel and it is appropriate that all options be considered. It is my professional opinion that introducing a new secondary entry on the Preble Street elevation would meet the Secretary of the Interior's Standards for Rehabilitation provided the new entry is clearly differentiated from and compatible with the historic structure. The new entry should be more recessive in appearance and not compete for architectural prominence with the original main entrance. The new entry would accommodate valet operations and also provide an entryway into the hotel for arriving guests who would find entry from their initial drop-off point more convenient. Once guests are settled into the hotel, the Congress Street entrance would serve its original intended role as the formal and primary entrance.

Deb

--
Deb Andrews
Historic Preservation Program Manager
City of Portland
389 Congress Street
Portland, Maine 04101
(207) 874-8726

Portland Fire Department
Headquarters
Office of the Chief of Department

To: Shukria Wiar, Senior Planner
CC: Christine Grimando, Director of Planning Kevin Kraft, Deputy Director
From: Keith Gautreau, Fire Chief
Date: August 18, 2021
RE: Congress Street Valet - Time & Temp Building

The purpose of this memo is to address the proposed valet parking options that have been presented to the City for the Time & Temp Building at 477 Congress Street. The applicant had submitted an option of having valet parking operations on Congress Street some time ago and the Fire Department at that time could not support that location from an emergency response and safety concerns. There was discussion of a second option located on Preble Street in which the Fire Department still feels would create some issues but could support that location for valet parking.

Congress Street is the primary route for public safety and emergency response vehicles in the downtown district. The downtown district generates our highest calls for service in the City. At this particular address on Congress Street there already exists a pinch point at the intersection of Preble, Center and Monument Sq. creating a safety issue. It also experiences an extremely high volume of pedestrian traffic due to the bus stop, farmer's markets, public library and several retail and business occupancies. As it exists today without the proposed valet operations it is a high risk area for our emergency responses to the East and West ends of the peninsula.

Other Hotels are operating and moving their respective valet operations to secondary streets adjacent to the property such as;

- The Press Hotel (Exchange Street vs. Congress Street)
- The Canopy Hotel (Center Street vs. Commercial Street)
- The Hyatt Place Old Port (Valet underneath hotel off of Fore and Union)

It is for the reasons that I have articulated above that the Fire Department can not support Option #1 on Congress Street for valet parking operations at this location.

I'm happy to attend the Planning Board meeting to speak to this particular topic and answer any concerns or questions you may have.

Respectfully submitted,

K. Gautreau

Keith Gautreau, Fire Chief

Portland Maine | Yes. Google's good here.

Charles Tetelman <ctetelman@portlandmaine.gov>

477 Congress Street Hotel (PL1003-2020) TDM Plan Preliminary Comments

Bruce Hyman <bhyman@portlandmaine.gov> Fri, Jan 21, 2022 at 8:49 AM
To: Charles Tetelman <ctetelman@portlandmaine.gov>

Good morning, Charles,

I have reviewed the TDM Plan dated January 14, 2022, for the hotel redevelopment at 477 Congress Street.

I have the following comments:

- The plan lays out a basic strategy for employee TDM strategies and monitoring/reporting; it does not address guest TDM - I will work with the applicant to address hotel guest TDM strategies (strategies may include documenting guest paid parking, hotel website information on alternate travel modes to Portland, day transit passes for guests, alternate modes to the hotel from the Jetport and the Portland Transportation Center, etc).
- The plan should specifically document existing trip levels to the site to ease monitoring; it does cite trip reductions in percentage (10%) and absolute terms for employees; it should establish a time-frame for working toward achieving this goal; it could also establish goals for mode share and vehicle trip reductions by guests.
- The plan includes a commitment to transit subsidies for hotel employees; a revised TDM should commit to a subsidy level (100%, 75%, 50%, etc)
- The hotel website should include information on car-free travel to Portland and the hotel and include information that touts car-free travel opportunities once guests have arrived to reduce the impression that a car is necessary once in Portland.
- Real-time information should be provided in the hotel lobby on transportation options including bus arrival times for stops proximate to the site. This can be a visible reminder to both staff and guests and reinforce alternate transportation options.

These are my preliminary comments. I may have more as I contact the applicant to build upon this good start to an effective TDM Plan for the site.

Please don't hesitate to contact me if you or the Board have any questions.

Bruce
--
Bruce Hyman
Transportation Program Manager
City of Portland
Department of Planning and Urban Development
389 Congress Street, 4th Floor
Portland, Maine 04101
(207) 874-8717 phone
bhyman@portlandmaine.gov

planning & urban development

Portland Maine Yes. Google's good here.

Charles Tetelman <ctetelman@portlandmaine.gov>

Fwd: 477 Congress Street - Final Traffic Comments

Kevin Kraft <kkraft@portlandmaine.gov> Fri, Jan 21, 2022 at 7:09 AM
To: Charles Tetelman <ctetelman@portlandmaine.gov>

Hi Charles - can you add Tom's final traffic comments to the Time & Temp Packet

---------- Forwarded message ---------
From: **Tom Errico** <thomas.errico@tylin.com>
Date: Thu, Jan 20, 2022 at 3:05 PM
Subject: 477 Congress Street - Final Traffic Comments
To: Kevin Kraft <kkraft@portlandmaine.gov>

Hi Kevin – I have reviewed responses and information provided by the applicant and my final traffic comments are provided below.

- Detailed traffic count data from 2018 and 2019 used in the traffic analysis shall be provided for review and approval.

Status: The actual 2018 traffic count sheets shall be provided. As discussed at our July 14, 2021, meeting, StreetLight data should be used to compare 2018 data to current conditions.

Status: The applicant has provided the 2018 traffic count sheets. The purpose of the StreetLight data is to understand current traffic conditions (vehicle delay and queues) and how the 2018 volumes used in the analysis compares to 2021 conditions. The applicant should provide an opinion regarding 2018 volumes as compared to 2021 volumes.

Final Status: The applicant has provided the requested information and I have no further comment.

- The trip generation estimate from the prior retail use assumed it generated 191 PM peak hour trips. This estimate seems high, and the applicant should consider other methods for estimating traffic to a retail use in the downtown area.

Status: The purpose of estimating trips from the site both historically and for the proposed project is to determine the need for a Traffic Movement Permit. While it does not appear a TMP will be required given credit for prior trips, documentation is necessary. Accordingly, the applicant shall revisit this item for the purposes of estimating traffic from the prior use. All backup calculations for trip generation estimates shall be provided.

Final Status: The applicant has revised the trip generation estimate and I find the methods used to be reasonable. The project is expected to have no change in AM peak hour traffic as compared to the prior use. During the PM peak hour, the project is estimated to generate less traffic as compared to the prior use. Accordingly, a Traffic Movement Permit is not required.

- The applicant did not include any trips to the 5,100SF Roof Top Bar area of the project and I would request that further information be provided on this assumption.

Status: I don't support the applicant's assumption that given the use of a High Turnover Restaurant the trip generation estimate is conservative and thus accounts for any activity at the Roof Top Bar. The restaurant is estimated to generate 35 AM peak hour and 34 PM peak hour trips which does not seem to be overly conservative. The applicant should estimate traffic separately for the Roof Top Bar.

Final Status: The applicant has included a traffic estimate for the Roof Top Bar, and I find the estimate to be reasonable. I have no further comment.

- The traffic study should provide trip assignment information for hotel and retail/restaurant land uses separately. It should also provide assumptions for parking locations (valet and self-park scenarios).

Status: Graphics shall be provided for both entering and exiting movements to valet and parking source locations.

Final Status: The graphics have been provided and I have no further comment.

- A safety analysis of the High Crash Locations (HCL) noted in the report shall be performed.

Final Status: The applicant has conducted the requested analysis and I concur that the High Crash Locations do not have patterns and/or contributing factors that can be mitigated. Most crashes involved parked vehicles, which highlights the nature of an active urban setting. I have no further comment.

- The Traffic Operations Analysis indicates Congress Street currently operates with little delay and queuing. The applicant should calibrate the Synchro Model to reflect actual field conditions.

Status: The applicant indicates that a field observation was performed. Details of the observation shall be provided to determine its acceptability. Additional field studies may be requested. The applicant shall also provide the Synchro files for review and approval.

Status: The applicant has conducted a calibration of the Synchro model according to field data. The model files shall be provided for review. Additionally, I will be conducting an independent field assessment of the study area in the near future to confirm model calibration and overall traffic mobility impacts within the Congress/Brown/Cumberland/Preble block area.

Final Status: The applicant has provided the requested information. Based on field observations I find the model results to be reasonable and the project is not expected to create unreasonable congestion at intersections in the study area.

If you have any questions, please contact me.

Best regards,

Thomas A. Errico, PE
Senior Associate
Traffic Engineering Director
T·Y·LIN INTERNATIONAL
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Falmouth, ME 04105
+1.207.781.4721 main
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thomas.errico@tylin.com
Visit us online at www.tylin.com
Twitter | Facebook | LinkedIn | Instagram

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Kevin Kraft, AICP
Deputy Director Planning & Urban Development Department
389 Congress Street
Portland, Maine 04101
Phone: 207.874.8430
kkraft@portlandmaine.gov

planning
& urban
development

Portland Maine | Yes. Google's good here.

Kevin Kraft <kkraft@portlandmaine.gov>

477 Congress Street - Time & Temperature Hotel - Supplemental Materials

Kevin Kraft <kkraft@portlandmaine.gov> Mon, Nov 1, 2021 at 11:32 AM
To: Marieke Thormann <mthormann@fathomcompanies.com>, Darrin Stairs <DStairs@woodardcurran.com>
Cc: James Rather <jrather@portlandmaine.gov>, Keith Gray <kgray@portlandmaine.gov>, Keith Gautreau <kng@portlandmaine.gov>, Tom Errico <thomas.errico@tylin.com>, John Peverada <jbp@portlandmaine.gov>, Jeremiah Bartlett <jbartlett@portlandmaine.gov>, Bruce Hyman <bhyman@portlandmaine.gov>, Heath Gorham <frankg@portlandmaine.gov>

Darrin & Marieke,

I am writing in response to the supplemental materials submitted on October 15, 2021, which included a Valet Study by VHB, and two letters of support, from the Downtown Boston Business Improvement District, and one from the Massachusetts Transit Police Department.

On Friday, October 29th, an internal meeting was held to review the applicant's supplemental materials. The following departments were present, Planning & Urban Development Department, Department of Public Works, Fire, Police, Parking Division, Transportation Program Manager, and the City's third party traffic engineer.

As previously expressed, the City has grave concerns about valet operations on Congress Street and after reviewing the supplemental materials cannot support the proposed valet parking area on Congress Street.

Staff appreciate the applicant submitting additional data, however, the hotel on Washington Street in Boston is not a true comparison. Understanding that Washington Street does see lots of bus traffic, there is limited thru traffic on this segment because it becomes a pedestrianized street shortly downstream from the hotel. Congress Street is a two-lane, two-way major thoroughfare with no excess width for thru vehicles in the event of double parking. In addition, this site is located on the corner of Congress and Preble streets and is directly across from where Center Street meets Congress Street, creating a T intersection. Adding to this challenging environment is a METRO bus stop located on the east side of Congress Street. The City's position is to locate valet operations onto secondary streets adjacent to the site, which is consistent with past guidance provided to other sites throughout the city. The Omni Parker House in Boston utilizes a similar treatment, with valet operations on School Street, a minor one-way street, and no-parking or stopping allowed on Tremont Street a major thoroughfare. Here in Portland, both the Canopy Hotel and Press Hotel operate valets on secondary streets, rather than Commercial and Congress streets respectively.

Although the City is not supportive of valet operations on Congress Street, the applicant should consider adding one, five-minute ADA parking space on Congress Street as shown in the attached document.

Regarding the hotel's primary entrance, staff agrees that the primary hotel entrance should face Congress Street, however, the applicant should consider adding a 'secondary' entrance on Preble Street for valet guests. Our historic preservation staff can assist in working through the design.

Next Steps:
As a next step, the applicant should review the comments and concerns provided by staff. Should the applicant wish to proceed with their application, the applicant team should revise their proposal to incorporate valet operations fully on Preble Street. In addition, the applicant should provide additional data and analysis on current hotel valet operations in Portland to support the need for such an operation.

The City welcomes working with the applicant on how to accommodate valet on Preble Street and we look forward to the redevelopment of this site.
[Quoted text hidden]
--

Kevin Kraft, AICP
Deputy Director Planning & Urban Development Department
389 Congress Street
Portland, Maine 04101
kkraft@portlandmaine.gov

2021.01.11 - City Response.pdf
103K

Portland Maine | Yes. Google's good here.

Kevin Kraft <kkraft@portlandmaine.gov>

477 Congress Street - Time & Temp Valet Response

Kevin Kraft <kkraft@portlandmaine.gov> Fri, Dec 10, 2021 at 5:45 PM
To: Darrin Stairs <DStairs@woodardcurran.com>
Cc: Marieke Thormann <mthormann@fathomcompanies.com>, James Rather <jrather@portlandmaine.gov>

Darrin,

Please see the City's final response to the proposed layout shared on November 19, 2021.

The City's proposal includes the following:

- No curb change on Congress Street
  - Adjusting the current curb configuration on Congress creates potential conflicts with cars turning right onto Congress from Preble Street.
  - Center Street intersects with Congress Street in this location, creating a "T" intersection making it challenging for vehicles that may diverge into the eastbound traffic lane.
- Add 2, 15 minute ADA spaces on Congress Street by removing existing metered spaces. Totals 44 feet.
- Consider shifting Preble Street loading area towards Congress or Cumberland Street. Delivery trucks are not going to maneuver between two valet areas.

Note, that in the applicant's November 19th response the proposed layout requested 86 feet of curb space on Congress Street. The City is proposing 44 feet; A 42-foot difference.

Additionally, the City's latest proposal provides the hotel with approximately 216 feet of frontage along City streets (172' on Preble & 44' on Congress), for comparisons two other valet examples include the following:

- Press Hotel: Approximately 150' of street frontage
- Westin: Approximately 150' of frontage

Please let us know how the applicant would like to proceed. If the applicant is amenable to this latest proposal please upload revised materials so staff can begin their review and identify future planning board meetings.

Thanks,
Kevin
--
Kevin Kraft, AICP
Deputy Director Planning & Urban Development Department
389 Congress Street
Portland, Maine 04101
kkraft@portlandmaine.gov

2021.12.10 - Time and Temp_Valet.pdf
464K

Planning and Urban Development Department

Subject: B-3 Pedestrian Activities District Final Review – 477 Congress Street

Written by: Kevin Kraft, Deputy Director

Date of Review : Tuesday, January 18, 2022

The project at 477 Congress Street – Canal Landing - was initial reviewed according to the B-3 PAD standards by Caitlin Cameron, Urban Designer, Shukria Wiar, Planner, and Kevin Kraft, Deputy Director.

A final design review was conducted on Tuesday, January 18, 2022 by Kevin Kraft, Deputy Director, and Charles Tetelman, Planner.

B. Pedestrian Activities District (PAD)

In addition to subsection 1 (a through d), proposed development and substantial building alterations located within the Pedestrian Activities District (PAD) overlay zone . . . shall be designed and constructed to accommodate pedestrian-oriented uses at the street level. Proposed development located within the PAD encouragement areas which is not initially constructed to accommodate pedestrian-oriented activities at the street-level shall be designed to have the capability of accommodating pedestrian-oriented uses through non-structural building alterations.

1. *Exterior design of street level building façade*

   - Existing façade design kept intact with adequate windows/doors and visual interest of architectural elements

   - One additional door added to Congress Street at retail/grab and go

   - The four entrances should be distinguished and clearly relate the uses. A canopy at the arcade entrance competes with the hotel lobby and is unnecessary from a functional standpoint because the doors are recessed.

2. Design and placement of impenetrable exterior building features

- Existing building that maintains existing structure, entrances, storefront

3. Orientation and accessibility to the street

- There are four entrances on Congress street to these uses – restaurant, arcade, hotel lobby, retail/grab and go.

- There are two awnings proposed along Congress Street, which provides the appearance of a primary, and inviting entrance to the building.

- While the building contains sufficient windows along the ground floor, visual accessibility should be created by using transparent glass rather than the existing tinted glass which inhibits visual connection and is also reflective. Staff is recommending as a condition of approval that the applicant submit to the Planning Authority updated building elevations to confirm adherence with city transparency requirements for ground floors windows.

4. Adequacy of interior layout

- Interior layout maintains the ability for lobby, restaurant, and retail spaces.

- The plans show a new egress stair placed at the Congress Street façade – how will this impact the windows? Will the windows remain transparent?

5. Continuity of street level uses

- The Congress Street frontage includes active street-level uses for the majority of the façade (with the exception of the stair tower introduced between the hotel and arcade entrances) – continuity is maintained with the existing street wall, fenestration at the ground level, and active uses for the whole width of the façade.

- Service entrances, etc. are placed on sides/rear.

- The sidewalk, canopy, and lighting design shall be consistent with the Site Plan and Historic District standards.

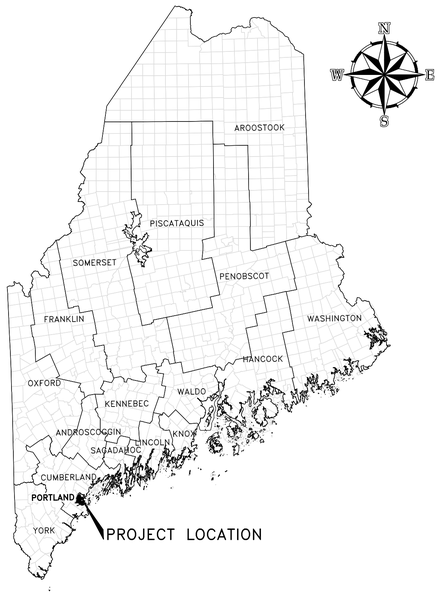
477 CONGRESS HOTEL
PORTLAND, MAINE

TT MAINE VENTURE, LLC
3100 MCKINNON STREET, SUITE 250
DALLAS, TX 75201

NOT FOR CONSTRUCTION

PROJECT NO. 0232868.00

APRIL 2021



PROJECT LOCATION MAP

50 0 50 100
scale mile

SHEET INDEX

GENERAL
G-001 COVER SHEET
G-100 GENERAL NOTES, LEGEND, AND ABBREVIATIONS
CIVIL
C-200 OVERALL SITE PLAN
C-201 GRADING AND DRAINAGE PLAN
C-202 UTILITY PLAN
C-300 CIVIL DETAILS – 1
C-301 CIVIL DETAILS – 2

WOODARD & CURRAN

41 Hutchins Drive | Portland, Maine 04102
800.426.4262 | www.woodardcurran.com

COMMITMENT & INTEGRITY DRIVE RESULTS



SOURCE: USGS TOPOGRAPHIC MAP

SITE LOCATION MAP

½ 0 ½ 1
scale mile

2000 0 2000 4000
scale feet

\\woodardcurran.net\shared\Projects\0232868.00 archetype - time temp building\wip\Drawings\General\0232868.00-G1.01.dwg, Apr 15, 2021 - 11:54am JCOULOMBE

477 CONGRESS HOTEL - PORTLAND, MAINE

HRI PROPERTIES

812 GRAVIER STREET, SUITE 200

NEW ORLEANS, LA 70112

TT MAINE VENTURE, LLC

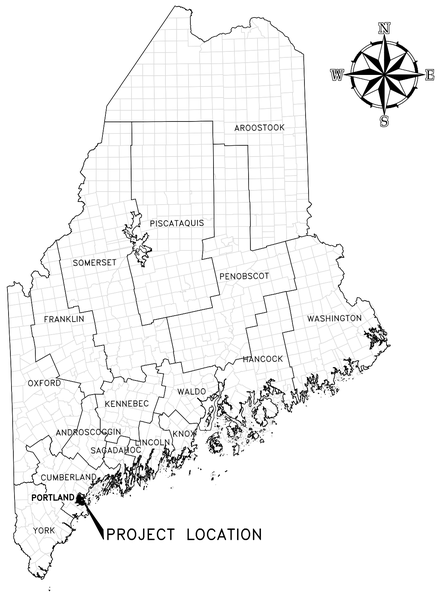
3100 MCKINNON STREET, SUITE 250

DALLAS, TX 75201

NOT FOR CONSTRUCTION

PROJECT NO. 0232868.00

FEBRUARY 2020



PROJECT LOCATION MAP

50 0 50 100
scale mile

SHEET INDEX

GENERAL

G-001 COVER SHEET

G-100 GENERAL NOTES, LEGEND, AND ABBREVIATIONS

CIVIL

C-200 SITE PLAN

C-300 CIVIL DETAILS

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COMMITMENT & INTEGRITY DRIVE RESULTS

SOURCE: USGS TOPOGRAPHIC MAP

SITE LOCATION MAP

½ 0 ½ 1
scale mile

2000 0 2000 4000
scale feet

\\woodardcurran.net\shared\Projects\0232868.00 archetype - time temp building\wip\Drawings\General\0232868.00-G01.01.dwg, Feb 12, 2020 - 4:32pm JCOULOMBE

GENERAL NOTES:

1. SITE AND TOPOGRAPHIC DATA BASED ON A PLAN BY OWEN HASKELL, INC., FALMOUTH, MAINE, DATED JANUARY 9, 2020, TITLED "BOUNDARY & TOPOGRAPHIC SURVEY, TIME AND TEMPERATURE BUILDING, MONUMENT SQUARE PARKING GARAGE, 477–481 CONGRESS STREET, 22 PREBLE STREET, 45 BROWN STREET, PORTLAND, MAINE, MADE FOR 45 BROWN STREET, LLC".
2. VERTICAL DATUM IS BASED ON OFFICIAL CITY OF PORTLAND BENCHMARK: L 757–34–112 "M" MONUMENT AT THE NORTHWESTERLY CORNER OF FOREST AVE. & CUMBERLAND AVE. ELEVATION = 80.66' (REF. CITY L.B. 725 PG. 99–100)
3. HORIZONTAL DATUM IS BASED ON MAINE STATE PLANE COORDINATE SYSTEM WEST ZONE NAD 83 PER CITY CONTROL POINTS: T124–11–1087, N: 300446.78, E: 2927558.71 AND T124–12–1096, N: 299913.92, E: 2926805.42
4. 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.
5. THE UTILITY LOCATIONS SHOWN IN PLAN ARE APPROXIMATE AND REQUIRE FIELD VERIFICATION BY THE CONTRACTOR. CONTACT THE CITY IMMEDIATELY UPON DISCOVERING ANY CONFLICTS WITH EXISTING AND PROPOSED UTILITY LOCATIONS. NOT ALL EXISTING UTILITIES ARE SHOWN ON PLANS.
6. CLEAN AND/OR FLUSH ALL MANHOLES, CATCH BASINS, AND ASSOCIATED PIPING AFTER THE WORK HAS BEEN COMPLETED.
7. COORDINATE CONSTRUCTION ACTIVITY WITH UTILITY COMPANIES, EMERGENCY SERVICES AND CITY. CONTACTS ARE LISTED IN SPECIFICATIONS. NOTIFY UTILITY COMPANIES WITHIN 48 HOURS OF WORK ACTIVITY ADJACENT TO THOSE UTILITIES.
8. CONTRACTOR SHALL NOTIFY ALL UTILITIES PRIOR TO COMMENCING WORK, ALLOWING SUFFICIENT TIME TO LOCATE AND MARK THE LOCATION OF BURIED UTILITIES. CONTRACTOR SHALL CONTACT "DIG SAFE", TELEPHONE 888–344–7233, PRIOR TO EXCAVATION.
9. RESTORE ALL AREAS DISTURBED BY CONTRACTOR'S OPERATIONS TO ORIGINAL FINISH (GRAVEL, PAVEMENT, GRASS, ETC.). RESTORATION OF PAVED SURFACES, GRAVEL SURFACES, DRIVEWAYS, AND LAWNS DAMAGED BY CONSTRUCTION ACTIVITIES OUTSIDE OF LIMITS OF WORK INDICATED ON THE PLANS SHALL BE PERFORMED AT NO ADDITIONAL COST TO OWNER. ANY CURB DAMAGED BY CONSTRUCTION ACTIVITIES SHALL BE REPLACED IN KIND AND SHALL CONFORM TO CITY OF PORTLAND AND MAINE DOT SPECIFICATIONS AT NO ADDITIONAL COST TO OWNER.
10. 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.
11. EXISTING FACILITIES (I.E. TREES, POLES, LIGHT POSTS, CATCH BASINS, ETC.) SHALL BE REMOVED AND PROTECTED DURING CONSTRUCTION. OWNER AND/OR CITY RETAINS RIGHT TO KEEP ANY AND ALL REMOVED FACILITIES FOR WORK WITHIN RIGHT–OF–WAY. CONTRACTOR TO DISPOSE OF ANY REMOVED FACILITY AT THE REQUEST OF OWNER AT CONTRACTOR'S EXPENSE.
12. ALL TREES NOT NOTED TO BE REMOVED OR RELOCATED SHALL BE PROTECTED BY CONTRACTOR DURING CONSTRUCTION.
13. 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.
14. DO NOT PARK, IMPEDE ACCESS TO, OR STORE EQUIPMENT ON ADJACENT CITY OR PRIVATELY OWNED LOTS, UNLESS PERMISSION HAS BEEN GRANTED IN WRITING BY CITY AND/OR LAND OWNER.
15. COORDINATE DISRUPTION OF PRIVATE UTILITY SERVICES WITH LANDOWNERS AT LEAST TWO DAYS (48 HOURS) PRIOR TO DISRUPTION. ALL UTILITY COORDINATION IS RESPONSIBILITY OF CONTRACTOR.
16. 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.
17. CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL NECESSARY CONSTRUCTION PERMITS. PERMIT APPLICATIONS SHALL BE SUBMITTED WITH ADEQUATE TIME SO AS NOT TO DELAY CONSTRUCTION.
18. 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. THE EXCAVATOR'S LICENSE FEE WILL NOT BE WAIVED BY THE CITY.
19. ALL WORK ASSOCIATED WITH THE PROJECT SHALL BE COMPLETED IN ACCORDANCE WITH ARTICLES VI, VII, AND IX OF CHAPTER 25–STREETS, SIDEWALKS, AND OTHER PUBLIC PLACES OF THE CITY OF PORTLAND CODE OF ORDINANCES.
20. 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.
21. THE CITY OF PORTLAND ENGINEERING DIVISION REQUIRES THAT UPON COMPLETION OF CONSTRUCTION, 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 BE SUBMITTED TO THE DIVISION.
22. WORK IS IN CLOSE PROXIMITY TO EXISTING UTILITIES. PROTECTION OF EXISTING UTILITIES DURING CONSTRUCTION SHALL BE AT NO ADDITIONAL COST TO THE OWNER.
23. FOR TEST PIT LOCATIONS SHOWN ON PLANS, FIELD VERIFY EXISTING UTILITY ELEVATIONS PRIOR TO NEW UTILITY INSTALLATION. NOTIFY ENGINEER OF ANY CONFLICTS.
24. 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.
25. PROVIDE 6–INCHES OF LOAM AND SEED IN ALL LAWN AREAS DISTURBED BY CONTRACTOR'S OPERATIONS UNLESS NOTED OTHERWISE.
26. IF CONTRACTOR PROPOSES TO TEMPORARILY STOCKPILE ANY SURPLUS SOIL AND ROCK IN THE CITY OF PORTLAND, THE CONTRACTOR SHALL OBTAIN APPROVAL FOR EACH STOCKPILE LOCATION FROM THE ENGINEER. IF CONTRACTOR PROPOSES TO PERMANENTLY STOCKPILE ANY SURPLUS SOIL AND ROCK ON PROPERTY IN THE CITY OF PORTLAND, THE CONTRACTOR MUST OBTAIN ANY SITE PLAN PERMITS REQUIRED FROM THE CITY PLANNING AUTHORITY OR ANY FILL PERMITS REQUIRED FROM MDEP OR U.S. ARMY CORPS OF ENGINEERS. BOTH TEMPORARY AND PERMANENT STOCKPILE LOCATIONS SHALL MEET THE APPLICABLE SETBACK REQUIREMENTS IN THE CITY LAND USE CODE AND SHALL RECEIVE PROPER STABILIZATION AND EROSION & SEDIMENT CONTROL MEASURES IN ACCORDANCE WITH APPROVED SOIL EROSION & WATER POLLUTION CONTROL PLAN.
27. CAPPED PIPE STUB LOCATIONS SHALL BE MARKED WITH EMBEDDED STAKE AND A MINIMUM OF THREE TIES SHOULD 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 TO THE CITY OF PORTLAND ENGINEERING OFFICE. WARNING TAPE AND WIRE SHALL BE INSTALLED OVER PIPE STUBS IN ACCORDANCE WITH SPECIFICATIONS.
28. PRIOR TO CONSTRUCTION, A PRECONSTRUCTION MEETING SHALL BE HELD AT THE PROJECT SITE WITH THE CONTRACTOR, DEVELOPMENT REVIEW COORDINATOR, PUBLIC SERVICES 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.
29. EXISTING PAVEMENT SHALL BE SAWCUT AND BUTTED TO THE NEW PAVEMENT. NO FEATHERING OF PAVEMENT WILL BE PERMITTED.

SYMBOLS

DESCRIPTION	EXISTING	PROPOSED
SANITARY SEWER MANHOLE	S	
STORM DRAIN MANHOLE	D	
CATCH BASIN		
DRAIN BASIN		
ELECTRICAL MANHOLE	E	
COMMUNICATIONS MANHOLE	T	
CABLE MANHOLE	C	
UTILITY POLE W/GUY		
UTILITY POLE		
UTILITY POLE W/LIGHT		
LIGHT POLE		
WATER GATE		
WATER VALVE		
WATER SHUT OFF		
HYDRANT		
SIGN		
MAILBOX	MB	
CONIFEROUS TREE		
DECIDUOUS TREE		
IRON PIN (FOUND)		
MONUMENTS (FOUND)		
TEST PIT		
BITUMINOUS PAVEMENT		
BRICK SIDEWALK		

LINE TYPES

DESCRIPTION	EXISTING	PROPOSED
CONTOUR (1' INTERVAL)	11	11
CONTOUR (INDEX)	10	10
SANITARY SEWER	S	S
STORM DRAIN	SD	
UNDERDRAIN	UD	
WATER MAIN	W	W
UNDERGROUND ELECTRIC	E	E
GAS LINE	G	G
OVERHEAD ELECTRIC	OE	
UNDERGROUND ELECTRICAL /COMMUNICATIONS/CABLE	COMM	
PROPERTY LINE		
RIGHT OF WAY		
EASEMENT		
FENCE		
RETAINING WALL		
STONEWALL		
CURB		
TYPE 1 GRANITE CURB		
BITUMINOUS CURB		
EDGE OF PAVEMENT		
RETAINING WALL		
BUILDING OUTLINE		
SAWCUT		

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
FT	FOOT/FEET		
		TS	TOP OF STAIRS
G	GAS MAIN	TW	TOP OF WALL
GS	GAS SERVICE	TYP.	TYPICAL
GALV.	GALVANIZED		
GRAN.	GRANITE	UP	UTILITY POLE
HDPE	HIGH DENSITY POLYETHYLENE	VC	VITRIFIED CLAY
HYD	HYDRANT	VIT.	VITRIFIED CLAY
INV.	INVERT	W	WEST
		W	WATER
LF	LINEAR FEET	W/	WITH
		W	WATERMAIN
MAX.	MAXIMUM	WS	WATER SERVICE
MDOT	MAINE DEPARTMENT OF TRANSPORTATION	WV	WATER VALVE
MIN.	MINIMUM		
MON	MONUMENT		

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COMMITMENT & INTEGRITY DRIVE RESULTS

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REV	DESCRIPTION	DATE

DESIGNED BY: ANL
DRAWN BY: JBC
CHECKED BY: DBS
0232868.00-G-001.dwg

GENERAL NOTES, LEGEND, AND ABBREVIATIONS

477 CONGRESS HOTEL
PORTLAND, MAINE

TT MAINE VENTURE, LLC
3100 MCKINNON STREET, SUITE 250
DALLAS, TX 75201

JOB NO.:0232868.00
DATE: APRIL 2021
SCALE: NONE
SHEET: 1 OF 7

G-100

NOT FOR CONSTRUCTION

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COMMITMENT & INTEGRITY DRIVE RESULTS

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REV	DESCRIPTION	DATE
A	RESPONSE TO CITY COMMENTS	01/11/2022

DESIGNED BY: ANL
DRAWN BY: JBC
CHECKED BY: DBS
0232868.00-C-200.dwg

PUBLIC MARKET

"W" MONUMENT w/DRILL HOLE

TBM: BONNET BOLT HYDRANT ELEV.=68.17

PREBLE STREET

REMOVE AND PROTECT PAY BOX, TO BE RESET, COORDINATE WORK W/CITY PLANNING DEPARTMENT

REMOVE AND RESET GRANITE CURB (TYP.)

RESET SIGN, COORDINATE WITH CITY (TYP.)

RESTRIPE EXISTING CROSSWALK

N:300288.85
E:2928143.52

14' GRANITE TIPDOWN TERMINAL CURB, SEE DETAIL

ADA ACCESSIBLE CURB RAMP, SEE DETAIL (TYP.)

86' VALET/HOTEL LOADING

44' COMMERCIAL LOADING ZONE

86' VALET/HOTEL LOADING

WHITE LINE

STOP LINE

R20.0'

R45'

R40.0'

RESTRIPE EXISTING CROSSWALK

SAWCUT EXISTING PAVEMENT

BITUMINOUS PAVEMENT, SEE DETAIL

3" OFFSET DRILL HOLE

ELEC. BOX

GRANITE CURB

CONCRETE

SIGNAL POLE

WALK SIGNAL

ONE WAY SIGN

BRICK BUILDING

#38 PREBLE ST.

N:300657.06
E:2927809.01

BRICK

METAL GRATE WINDOW WELL w/CONCRETE

N/F
PREBLE STREET
29228/170
(1125/269)

VAULT

COBBLE STONE

FORMER PROPERTY LINE IS A "PROLONGATION OF THE OUTSIDE FACE OF THE WEST WALL OF BUILDING AT CUMBERLAND AVE. AND PREBLE ST.

2 SPACES

PAVED

5 SPACES

PAVEMENT

CONC. WALL

BENCH

DIRT

BIKE RACK

GM

RAMP w/HANDRAIL

2 SPACES

CONC. WALL

PAVED

0.12' FREE

BIKE RACK

BIKE RACK

CONCRETE SIDEWALK

BIKE RACK

SPRINKLER

AWNING

SPRINKLER

PAVED

PASSAGEWAY PART OF DEED "A" RIGHTS OF USAGE IN IT

UTILITY RIGHTS

FIRE ESCAPE

PASSAGEWAY

#28 PREBLE ST.

N/F
EARL APARTMENTS LLC
17591/197
(2182/479)
(1091/438)

TM 37 BLOCK F LOT 5
"THE WADSWORTH"
6 STORY

PARCEL 2
AREA=
803± S.F.

PROPERTY LINE IS THE SOUTHWST WALL OF THE WADSWORTH

FIRE ESCAPE
SEE AGREEMENT BETWEEN COMMERCE BUILDING, INC. AND MANSFIELD BEAUTY ACADEMY DATED FEB. 25, 1985

CHIMNEY–RIGHT TO MAINTAIN CHIMNEY

FIRE ESCAPE

AIR CONDITIONER

FIRE ESCAPE

RIGHT TO LIGHT AND AIR IN THE AREA OR COURT IN THE REAR OF THE WADSWORTH. RIGHT TO MAINTAIN FIRE ESCAPE

CONCRETE REMNANTS

VENT

WINDOW WELL

MATCH GRADE AT EXISTING PAVED DRIVEWAY APRON

0.07' INTO STREET

#24 PREBLE ST.

N/F
24 PREBLE STREET PROPERTIES LLC
33029/19

/F PENNESSEEWASEE LLC
13502/253
(3375/256)
(1091/295)

TM 37 BLOCK F LOT 7
"FIRESTONE BUILDING"
4 STORY

RIGHT IN COMMON WITH OTHERS TO USE PASSAGEWAY

PAVED

0.29' FREE

PAY BOX

CONCRETE OVERHANG

GRATE

BRICK

GRATE

AWNING

GRATE

GRATE

BOLLARD (TYPICAL)

WALL HYD.

GRATE

BRICK

R20.0'

CONCRETE

SIGNAL

ELEC. BOX

SAWCUT

BRICK

ADA ACCESSIBLE CURB RAMP W/DETECTABLE WARNING SURFACE, SEE DETAIL (TYP.)

0.28' FREE

0.4' INTO STREET

DEMOLISH CONCRETE SIDEWALK AND PROVIDE BRICK SIDEWALK, SEE DETAIL

EAVES OVERHANG

UPPER LEVEL BUILDING

FIRE CONNECTION, TYP.

OVER-

#22 PREBLE ST.

TM 37 BLOCK F LOT 23

RETAIL

2376 SF

BRICK / STONE

BUILDING FOOTPRINT

34,935 SF

4 STORY

SEWER LINE PER PLAN "PLAN SHOWING PROPERTY OWNED BY PORTLAND SAVINGS BANK" DEC. 1921 BY E.C. JORDAN

#477 CONGRESS ST.

MAINE VENTURE LLC

5346/60

PROTECT EXISTING ELECTRICAL BOX AND SIGNAL POLE

REMOVE AND PROTECT MAIL BOXES, TO BE RESET, COORDINATE WORK W/CITY PLANNING DEPARTMENT AND USPS

PROVIDE BRICK SIDEWALK (TYP.) SEE DETAIL

REMOVE AND RESET GRANITE CURB (TYP.)

RAISED GRANITE TREE WELL (TYP. OF 3) SEE DETAIL

REMOVE EXISTING CONCRETE PLANTER

REMOVE AND REPLACE SIGN W/"VALET PARKING ONLY"

REMOVE AND SALVAGE PARKING METERS, DELIVER TO CITY PUBLIC WORKS DEPARTMENT

PROPOSED AREA=
8,359 SF
0.73 ACRES ±

2 STORY
FORMERLY
KEITH'S THEATRE LOBBY

4 STORY

FITNESS
59
3335 SF

KITCHEN
44

RESTAURANT
45

EXISTING HISTORIC STAIR

FIRE SHUTTER (STAIR IN)

NEW EGRESS STAIR

HOTEL ENTRANCE

CONC. PLANTER

PM

R20.0'

LOADING/UNLOADING ZONE

40'

CONGRESS STREET

64' METERED PARKING

CONC. RAMP

BRICK WALK

MATCH BRICK SIDEWALK TO EXISTING GRADE AND BRICK PATTERN

BRICK SIDEWALK

DRILL HOLE 0.3' INTO STREET

12587/184

IM 37 BLOCK F LOT 18

1 STORY

NOT INCLUDING ROOF TOP ITEMS

4 STORY

VAULT

EXISTING STAIRS

NEW RAMP

NEW STAIR FROM #41 CONGRESS BASEMENT UP TO 4TH FLOOR TO BE LOCATED WITHIN EXISTING BUILDING

NEIGHBORING BUILDING (697/343)

3 STORY

N/F
MAINE HISTORICAL SOCIETY
TM 37 BLOCK F LOT 14
#483 CONGRESS ST.

EXTERIOR METAL CHIMNEY

FORMER CATCH BASIN, PIPE APPARENTLY PLUGGED

EXISTING ANNEX TO BE DEMOLISHED

25540/239

GREASE TRAP, SEE UTILITY PLAN

UPPER LEVEL ONLY

UPPER LEVEL BUILDING

WINDOW WELL

FIRE ESCAPE

CONC. WALL

13 SPACES

FORMER PROPERTY LINE IS THE OUTSIDE FACE OF ALLEN STORAGE WAREHOUSE WALL

PAVED PARKING AREA
34 REGULAR SPACES
FORMERLY KEITH'S THEATRE

PAVED – OPEN AIR

BROWN TOWERS LLC
35610/345

5 SPACES

PROPOSED AREA=
48,460 S.F. ±
1.11 ACRES ±

TM 37 BLOCK F LOT 2

3 SPACES

2 SPACES

ELEVATED PLATFORM

CHAIN LINK FENCE

POST

1'DIA. MH

1'DIA. MH

POST

GENERATOR

GENERATOR

GENERATOR

TRANS. #202.1

ELEC. BOXES

A/C

4" PVC'S

FORMER PROPERTY LINE IS THE OUTSIDE FACE OF THE FORMER STAGE ENTRANCE TO KEITH'S THEATER, NO DEMOLISHED. LOCATION BASED ON MARKINGS ON EXISTING BUILDING FACE

#338 CUMBERLAND AVE.

N/F
SWEETWATER PARTNERS LLC
34349/251
(4907/138 4907/161)
(1125/270) ITEM 11
TM 37 BLOCK F LOT 9

8 STORY
FORMERLY
ALLEN'S STORAGE WAREHOUSE

CONCRETE ENTRANCE

CONCRETE

PROPERTY LINE IS OUTSIDE FACE OF ALLEN STORAGE WAREHOUSE WALL. ORIGINALLY REFEREED TO AS CENTER OF PARTY WALL BETWEEN KEITH'S THEATER AND ALLEN STORAGE WAREHOUSE

/F HELDENBRAND
14612/231

OVERHEAD WIRES ENCROACH ONTO PREMISES 0.3'

GATE AND UPPER LEVEL WALL

11 SPACES

32'±

GATE

UPPER LEVEL OF PARKING GARAGE OVERHANG

CONC. WALL

METAL STAIRS

GATE

SEE 14612/235

PROPERTY LINE IS 0.09' WEST (FREE) OF BUILDING LINE

YELLOW LINE

5 SPACES

#45 BROWN ST.
TM 37 BLOCK F LOT 2
4 STORY PARKING GARAGE
277 REGULAR SPACES
5 HANDICAP SPACES

UP

CONC. WALL

CONC. WALL

CONC. WALL

CONC. WALL

CONC. COLUMN (TYPICAL)

N/F
MHS, INC.
10467/207
(4367/59 4373/30)
TM 37 BLOCK F LOT 12
#41 BROWN ST.

4 SPACES

7 SPACES

5 SPACES

PAVED

6 SPACES

9 SPACES

UPPER LEVEL OF PARKING GARAGE ENCROACHES UP TO 4.5'

1.17' FREE

0.85' FREE

CONC. WALL

CONCRETE

PAVED

ACCESS

GRANITE CURB

2225 UP BZ

2224 UP BZ

2223 CSTEEL BZ

2226 UP BZ

2227 UP BZ

2228 CSAR BZ

OHW

DRILL HOLE 3' OFFSET TO CUMBERLAND AVE. ON BROWN STREET LINE

N 16°20'49" E 32.86'

"W" MONUMENT (2015) (GONE 2019)

N:300446.78
E:2927558.71

NEW UP – NO WIRES

NEW UP – NO WIRES

1.56'

PAVED

TRANS.

GATE HOUSE

4" CLEANOUT

0.14' FREE

BRICK

OHW

GRANITE CURB

BRICK SIDEWALK

OVERHANG

PAVED

COURT YARD

STAIRWELL

CONC. WALL

GM

2.20'

EMERGENCY GENERATOR

METAL FENCE

BIKE RACKS

CONCRETE

WALK

VAULT

CONC. PLANTER

ELEC. BOX

20' 0 20' 40'

BAR SCALE
1" = 20'
CHECK GRAPHIC SCALE BEFORE USING

NOT FOR CONSTRUCTION

OVERALL SITE PLAN

477 CONGRESS HOTEL
PORTLAND, MAINE

TT MAINE VENTURE, LLC
3100 MCKINNON STREET, SUITE 250
DALLAS, TX 75201

JOB NO.:0232868.00
DATE: JANUARY 11, 2022
SCALE: 1" = 20'
SHEET: 2 OF 7

C-200

24x36 SHEET
1:1

PREBLE STREET

CONGRESS STREET

PUBLIC MARKET

REMOVE AND RESET GRANITE CURB (TYP.)

RESET SIGN, COORDINATE WITH CITY (TYP.)

REMOVE AND PROTECT PAY BOX, TO BE RESET, COORDINATE WORK W/CITY PLANNING DEPARTMENT

RESTRIPE EXISTING CROSSWALK

14' GRANITE TIPDOWN TERMINAL CURB, SEE DETAIL

ADA ACCESSIBLE CURB RAMP, SEE DETAIL (TYP.)

86' NON-RESTRICTED PARKING

44' COMMERCIAL LOADING ZONE

86' NO PARKING, HOTEL LOADING ONLY

MATCH GRADE AT EXISTING PAVED DRIVEWAY APRON

DEMOLISH CONCRETE SIDEWALK AND PROVIDE BRICK SIDEWALK, SEE DETAIL

ADA ACCESSIBLE CURB RAMP W/DETECTABLE WARNING SURFACE, SEE DETAIL (TYP.)

PROTECT EXISTING ELECTRICAL BOX AND SIGNAL POLE

REMOVE AND PROTECT MAIL BOXES, TO BE RESET, COORDINATE WORK W/CITY PLANNING DEPARTMENT AND USPS

PROVIDE BRICK SIDEWALK (TYP.) SEE DETAIL

REMOVE AND RESET GRANITE CURB (TYP.)

FLUSH GRANITE TREE WELL (TYP. OF 3) SEE DETAIL

REMOVE EXISTING CONCRETE PLANTER

REMOVE AND REPLACE SIGN W/"VALET PARKING ONLY"

REMOVE AND SALVAGE PARKING METERS, DELIVER TO CITY PUBLIC WORKS DEPARTMENT

RESTRIPE EXISTING CROSSWALK

SAWCUT EXISTING PAVEMENT

BITUMINOUS PAVEMENT, SEE DETAIL

NO PARKING, HOTEL LOADING ONLY

15-MINUTE LOADING/UNLOADING

64'

MATCH BRICK SIDEWALK TO EXISTING GRADE AND BRICK PATTERN

NEW RAMP

GREASE TRAP, SEE UTILITY PLAN

EXISTING ANNEX TO BE DEMOLISHED

EXTERIOR METAL CHIMNEY

NEIGHBORING BUILDING

MAINE HISTORICAL SOCIETY

EXISTING STAIRS

#338 CUMBERLAND AVE.

#38 PREBLE ST.

#28 PREBLE ST.

#24 PREBLE ST.

#45 BROWN ST.

#41 BROWN ST.

PARCEL 2 AREA= 803± S.F.

PROPOSED AREA= 48,460 S.F. ± 1.11 ACRES ±

N:300657.06 E:2927809.01

N:300288.85 E:2928143.52

N:300446.78 E:2927558.71

PASSAGEWAY PART OF DEED "A" RIGHTS OF USAGE IN IT

PROPERTY LINE IS THE SOUTHWST WALL OF THE WADSWORTH

FIRE ESCAPE SEE AGREEMENT BETWEEN COMMERCE BUILDING, INC. AND MANSFIELD BEAUTY ACADEMY DATED FEB. 25, 1985

RIGHT TO LIGHT AND AIR IN THE AREA OR COURT IN THE REAR OF THE WADSWORTH. RIGHT TO MAINTAIN FIRE ESCAPE

FORMER PROPERTY LINE IS A "PROLONGATION OF THE OUTSIDE FACE OF THE WEST WALL OF BUILDING AT CUMBERLAND AVE. AND PREBLE ST.

FORMER PROPERTY LINE IS THE OUTSIDE FACE OF ALLEN STORAGE WAREHOUSE WALL

FORMER PROPERTY LINE IS THE OUTSIDE FACE OF THE FORMER STAGE ENTRANCE TO KEITH'S THEATER, NO DEMOLISHED. LOCATION BASED ON MARKINGS ON EXISTING BUILDING FACE

PROPERTY LINE IS OUTSIDE FACE OF ALLEN STORAGE WAREHOUSE WALL. ORIGINALLY REFEREED TO AS CENTER OF PARTY WALL BETWEEN KEITH'S THEATER AND ALLEN STORAGE WAREHOUSE

PROPERTY LINE IS 0.09' WEST (FREE) OF BUILDING LINE

N/F EARL APARTMENTS LLC 17591/197 (2182/479) (1091/438) TM 37 BLOCK F LOT 5 "THE WADSWORTH" 6 STORY

N/F 24 PREBLE STREET PROPERTIES LLC 33029/19 /F PENNESSEEWASEE LLC 13502/253 (3375/256) (1091/295) TM 37 BLOCK F LOT 7 "FIRESTONE BUILDING" 4 STORY

N/F PREBLE STREET 29228/170 (1125/269)

/F HELDENBRAND 14612/231

N/F SWEETWATER PARTNERS LLC 34349/251 (4907/138 4907/161) (1125/270) ITEM 11 TM 37 BLOCK F LOT 9 8 STORY FORMERLY ALLEN'S STORAGE WAREHOUSE

BROWN TOWERS LLC 35610/345 TM 37 BLOCK F LOT 2

4 STORY PARKING GARAGE 277 REGULAR SPACES 5 HANDICAP SPACES

N/F MHS, INC. 10467/207 (4367/59 4373/30) TM 37 BLOCK F LOT 12

34 REGULAR SPACES FORMERLY KEITH'S THEATRE

RETAIL 59 2378 SF

FITNESS 58 3335 SF

12587/184

"M" MONUMENT w/DRILL HOLE RIM=54.55 12" INV. IN=49.05 12" HOOD OUT=48.85

TBM: BONNET BOLT HYDRANT ELEV.=68.17

MH RIM=54.55 6"INV. IN=48.15 15"INV. IN=46.15 12"INV. IN=48.05 15"INV. OUT=46.05

CB RIM=54.75 INV. OUT=50.05

CB RIM=53.99 INV. OUT=49.9

MH RIM=57.46 15"INV. IN=57.46 15"INV. OUT=57.16

MH RIM=79.57 15"INV. IN=70.17 15"INV. OUT=70.07

MH RIM=79.98 12"RPP INV. IN=74.68 15" INV. IN=70.48 12"PVC INV. IN=72.88 15" INV. OUT=70.38

CB RIM=79.42 12"RPP INV. OUT=73.72

MH RIM=80.05 12"PVC INV. IN=75.75

MH RIM=83.29 15"INV. IN=74.89 15"INV. OUT=74.79

CB RIM=77.10 12" INV. IN=65.80 BOTTOM TRAP OUT=65.70

MH RIM=77.53 6" INV. IN=63.73 6"INV. OUT=63.63

RIM=77.91 8"VC IN=71.1 8"VC IN=71.0 15"VC IN=70.5 15"VC OUT=70.4

RIM=72.93 H2O=69.03

SMH RIM=62.85 15"INV. IN=56.95 12"INV. IN=56.75 15"INV. OUT=56.75

RIM=70.22 15"INV. IN=63.22 15"INV. IN=62.22 15"INV. OUT=62.12

RIM=76.58 15"PVC IN=65.68 15"PVC OUT=65.68

RIM=76.87 15"PVC IN=69.27 15"VC IN=63.37 6"PVC IN=63.37 15"PVC OUT=63.27

RIM=80.64 10"VC IN=63.54 15"VC IN=63.64 15"VC OUT=63.34

SMH RIM=59.26 ICE=56.3

SMH RIM=63.51 8"INV. IN=53.21 8"INV. OUT=55.81

RIM=59.22 DIRT=57.7

RIM=62.31

20' 0 20' 40'

BAR SCALE 1" = 20'

CHECK GRAPHIC SCALE BEFORE USING

NOT FOR CONSTRUCTION

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COMMITMENT & INTEGRITY DRIVE RESULTS

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REV	DESCRIPTION	DATE
1	RESPONSE TO CITY COMMENTS	07/16/21

DESIGNED BY: ANL
DRAWN BY: JBC
CHECKED BY: DBS

02.232868.00-C-200.dwg

OVERALL SITE PLAN

477 CONGRESS HOTEL
PORTLAND, MAINE

TT MAINE VENTURE, LLC
3100 MCKINNON STREET, SUITE 250
DALLAS, TX 75201

JOB NO.:02.232868.00
DATE: APRIL 2021
SCALE: 1" = 20'
SHEET: 2 OF 7

C-200

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REV	DESCRIPTION	DATE
A	RESPONSE TO CITY COMMENTS	01/11/2022

DESIGNED BY: ANL
DRAWN BY: JBC
CHECKED BY: DBS
0232868.00-C-200.dwg

GRADING, DRAINAGE AND EROSION CONTROL PLAN

477 CONGRESS HOTEL
PORTLAND, MAINE

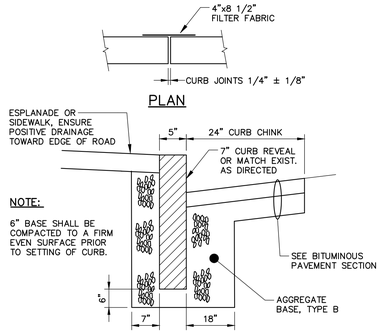
TT MAINE VENTURE, LLC
3100 MCKINNON STREET, SUITE 250
DALLAS, TX 75201

JOB NO.:0232868.00
DATE: JANUARY 11, 2022
SCALE: 1" = 10'
SHEET: 3 OF 7

C-201

BAR SCALE
1" = 10'
CHECK GRAPHIC SCALE BEFORE USING

NOT FOR CONSTRUCTION



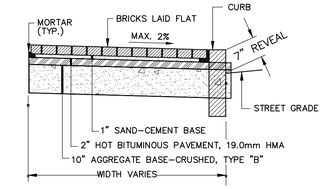
SECTION

CURB TYPE 1 ON CURVES			
TYPE	RADIUS OF CURVE	LENGTH	STONE IS CUT OR CAST
1	0' TO 60' INCL.	4' MIN.	ARC TO FIT CURVE
	OVER 60' TO 160'	4' TO 6'	STRAIGHT PIECES

TYPICAL NEW AND RESET CURB INSTALLATION

N.T.S.

NOTE: AGGREGATE TYPES PER MDOT SECTION 304.02



SECTION

NOTES:

1. SEE LANDSCAPE PLANS FOR GRANITE PAVER SECTIONS.
2. PROVIDE MIN. 48" OF STRUCTURAL FILL BENEATH ANY BRICK SIDEWALK SECTION WITHIN 6 FEET OF AN EXTERIOR DOOR, ALL DIRECTIONS.
3. PROVIDE MIN. 48" OF STRUCTURAL FILL BENEATH ANY BRICK SIDEWALK SECTION WITHIN 6 FEET OF AN EXTERIOR DOOR, ALL DIRECTIONS.

BRICK SIDEWALK DETAIL

N.T.S.

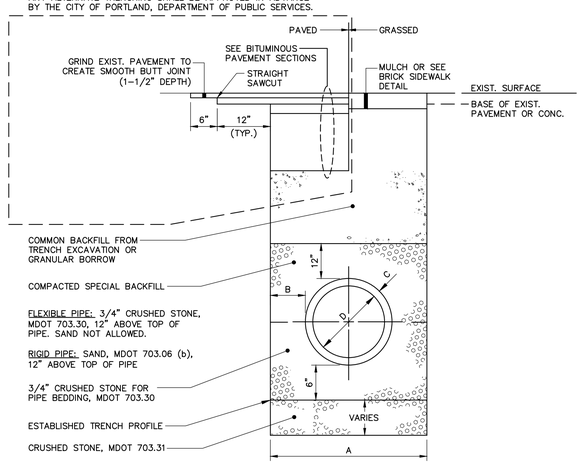
PIPE INSTALLATION DETAIL – NOTES

1. IN PAVED AREAS, DEPTHS OF GRAVEL AND HOT MIX ASPHALT PAVEMENT SHALL MATCH THE GREATER OF EXISTING CONDITIONS OR THE REQUIREMENTS FOR THE CORRESPONDING STREET CLASSIFICATION.
2. DIMENSION "B" SHALL BE SUFFICIENT TO ALLOW CRUSHED STONE BEDDING TO BE PLACED AND COMPACTED UNDER THE HAUNCHES OF THE PIPE; BUT IN ALL CASES "B" SHALL BE AT LEAST 9".
3. DIMENSION "A" SHALL BE BASED ON PIPE DIAMETER, AS SET FORTH IN THE FOLLOWING TABLE.

PIPE DIAMETER, "D" (INCHES)	MAX. TRENCH WIDTH, "A" (FEET)
6 – – – –	4.0
8	4.0
10	4.0
12	4.0
15	4.0
18 – – – –	5.0
21	5.0
24	5.5
27	6.0
30	6.0
36 – – – –	7.0
42	8.0
48	8.0

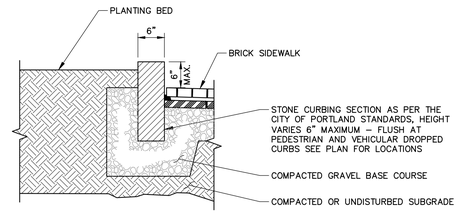
NOTES:

ANY ALTERNATE TRENCHING SHALL BE APPROVED IN ADVANCE BY THE CITY OF PORTLAND, DEPARTMENT OF PUBLIC SERVICES.



PIPE INSTALLATION DETAIL

N.T.S.



RAISED GRANITE TREE WELL DETAIL

N.T.S.

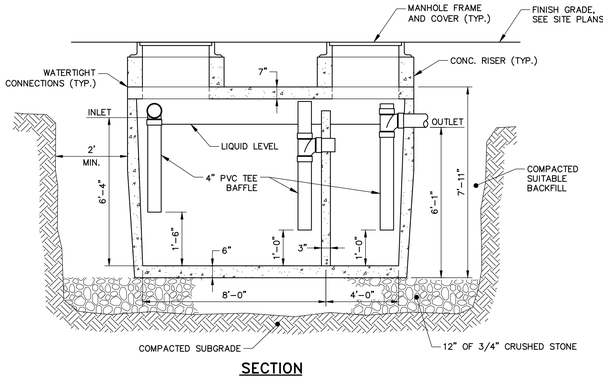
PLAN

CONCRETE SPECIFICATIONS

1. 5,000 PSI AT 28 DAYS
2. 4% – 6% ENTRAINED AIR
3. TANK PENETRATIONS ARE INTEGRALLY CAST
4. ALL JOINTS SEALED WITH BUTYL RUBBER JOINT SEALANT
5. H–20 LOADING

GREASE TRAP INFORMATION

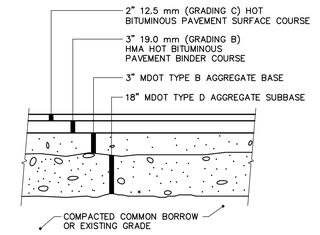
1. TANKS SHOULD BE PUMPED AS NEEDED
2. ACCESS COVERS SHOULD HAVE RISERS TO BRING COVER ACCESS TO GRADE.



SECTION

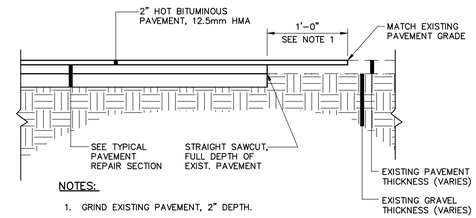
3,000 GALLON EXTERNAL GREASE TRAP DETAIL

N.T.S.



BITUMINOUS PAVEMENT REPAIR SECTION

N.T.S.



NOTES:

1. GRIND EXISTING PAVEMENT, 2" 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.

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REV	DESCRIPTION	DATE

DESIGNED BY: XXX
DRAWN BY: JBC
CHECKED BY: XXX
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CIVIL DETAILS

477 CONGRESS HOTEL
PORTLAND, MAINE

HRI PROPERTIES
812 GRAVIER STREET, SUITE 200
NEW ORLEANS, LA 70112

JOB NO.: 0232868.00
DATE: FEBRUARY 2020
SCALE: AS NOTED
SHEET: 3 OF 3

C-300

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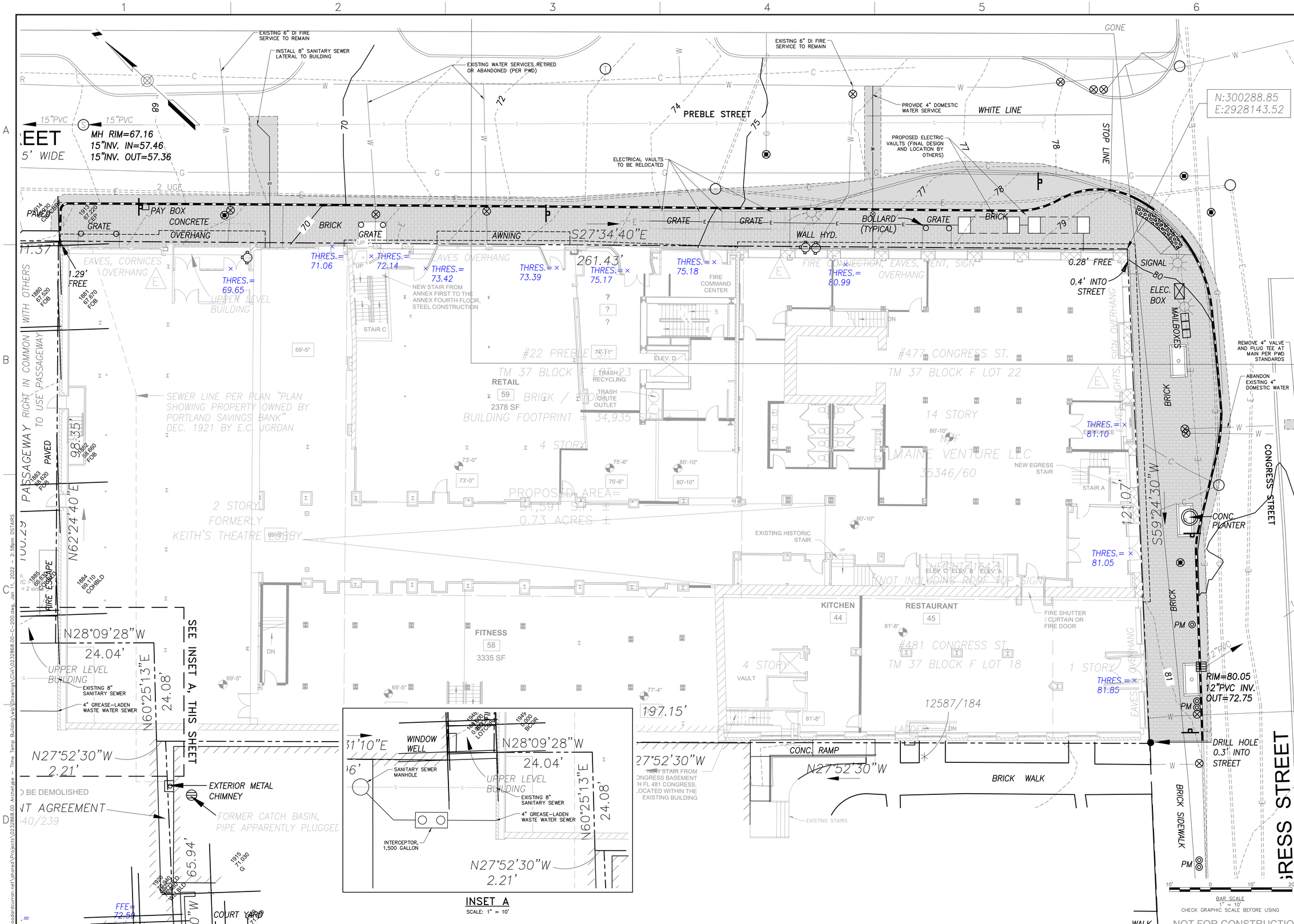

24x36 SHEET
1:1

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REV	DESCRIPTION	DATE
A	RESPONSE TO CITY COMMENTS	01/11/2022

DESIGNED BY: ANL
DRAWN BY: JBC
CHECKED BY: DBS
0232868.00-C-200.dwg

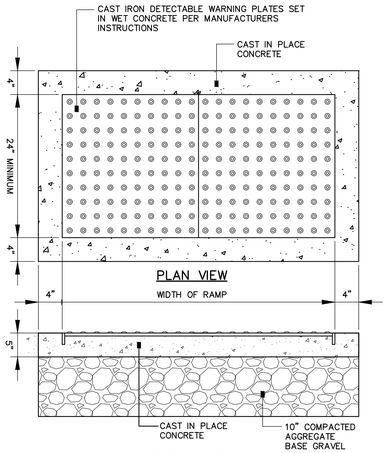
UTILITY PLAN

477 CONGRESS HOTEL
PORTLAND, MAINE

TT MAINE VENTURE, LLC
3100 MCKINNON STREET, SUITE 250
DALLAS, TX 75201

JOB NO.:0232868.00
DATE: JANUARY 11, 2022
SCALE: 1" = 10'
SHEET: 4 OF 7

C-202

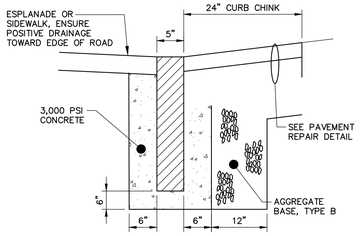


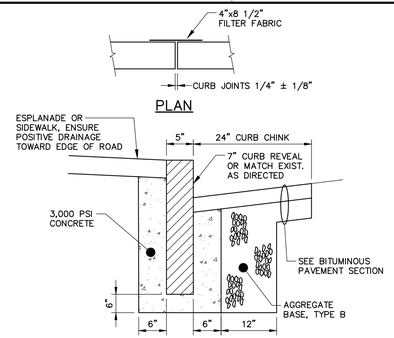
NOTES:

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 + CONCRETE SHALL EXTEND THE WIDTH OF THE CURB RAMP, LANDING, OR BLENDED 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.

SIDEWALK RAMP DETECTABLE WARNING

N.T.S.





CURB TYPE 1 ON CURVES			
TYPE	RADIUS OF CURVE	LENGTH	STONE IS CUT OR CAST
1	0' TO 60' INCL.	4' MIN.	ARC TO FIT CURVE
	OVER 60' TO 160'	4' TO 6'	STRAIGHT PIECES

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 6-INCH BED OF POURED IN PLACE 3,000 PSI CONCRETE MIX.
4. WOODEN SHIMS MAY BE USED TO SET CURB.
5. SUBGRADE TO BE 95% COMPACTED.

TYPICAL FLUSH CURB INSTALLATION

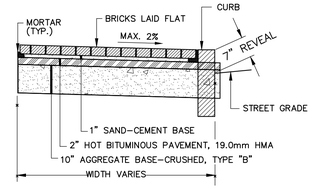
N.T.S.

NOTE: AGGREGATE TYPES PER MDOT SECTION 304.02

TYPICAL NEW AND RESET CURB INSTALLATION

N.T.S.

NOTE: AGGREGATE TYPES PER MDOT SECTION 304.02

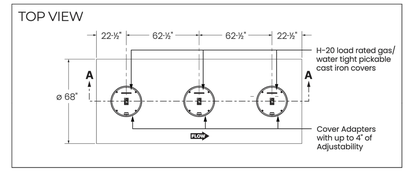


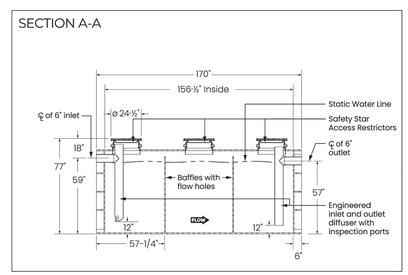
NOTES:

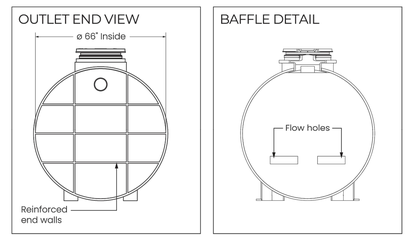
1. SEE LANDSCAPE PLANS FOR GRANITE PAVER SECTIONS.
2. PROVIDE MIN. 48" OF STRUCTURAL FILL BENEATH ANY BRICK SIDEWALK SECTION WITHIN 6 FEET OF AN EXTERIOR DOOR, ALL DIRECTIONS.
3. PROVIDE MIN. 48" OF STRUCTURAL FILL BENEATH ANY BRICK SIDEWALK SECTION WITHIN 6 FEET OF AN EXTERIOR DOOR, ALL DIRECTIONS.

BRICK SIDEWALK DETAIL

N.T.S.



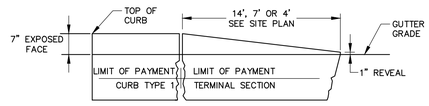




NOTES:
1. GREASE TRAP SHALL BE GGI-2000 MODEL BY SCHIER, OR APPROVED EQUAL.
2. GREASE TRAP SHALL BE PROVIDED WITH RISERS AS NECESSARY TO ACCOMMODATE DEFINED INVERTS.
3. GREASE TRAP AND ASSOCIATED COVERS AND RISERS SHALL BE PROVIDED FOR H-20 LOADING.

GREASE INTERCEPTOR DETAIL

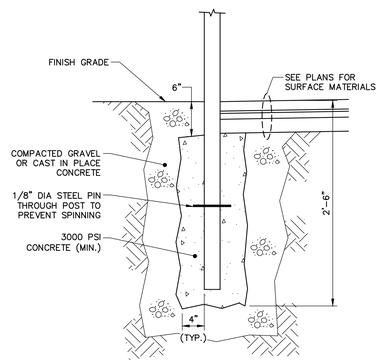
N.T.S.



TERMINAL SECTION TYPE "1"

TERMINAL CURB SECTION

N.T.S.



POST SPECIFICATION			
TYPE	HEIGHT ABOVE FIN. GRADE	POST DIAMETER	POST MATERIAL
STREET SIGNAGE	7'-0"	2 3/8" (O.D.)	GALV. STEEL

TYPICAL SIGN POST DETAIL

N.T.S.

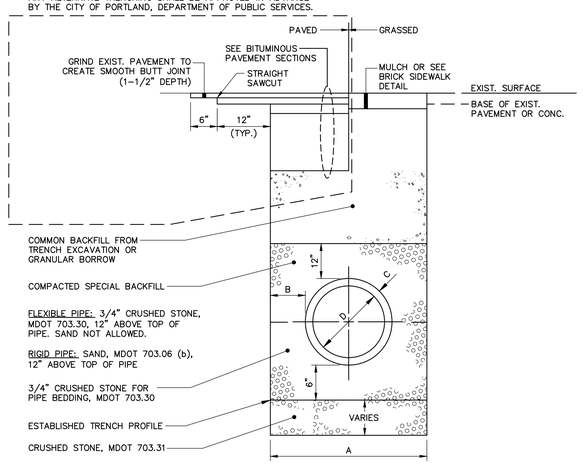
PIPE INSTALLATION DETAIL - NOTES

1. IN PAVED AREAS, DEPTHS OF GRAVEL AND HOT MIX ASPHALT PAVEMENT SHALL MATCH THE GREATER OF EXISTING CONDITIONS OR THE REQUIREMENTS FOR THE CORRESPONDING STREET CLASSIFICATION.
2. DIMENSION "B" SHALL BE SUFFICIENT TO ALLOW CRUSHED STONE BEDDING TO BE PLACED AND COMPACTED UNDER THE HAUNCHES OF THE PIPE; BUT IN ALL CASES "B" SHALL BE AT LEAST 9".
3. DIMENSION "A" SHALL BE BASED ON PIPE DIAMETER, AS SET FORTH IN THE FOLLOWING TABLE.

PIPE DIAMETER, "D" (INCHES)	MAX. TRENCH WIDTH, "A" (FEET)
6	4.0
8	4.0
10	4.0
12	4.0
15	4.0
18	5.0
21	5.0
24	5.5
27	6.0
30	6.0
36	7.0
42	8.0
48	8.0

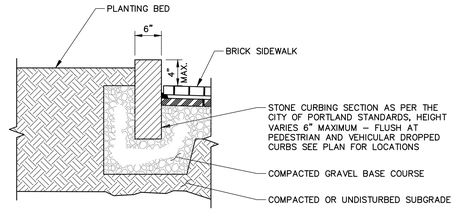
NOTES:

ANY ALTERNATE TRENCHING SHALL BE APPROVED IN ADVANCE BY THE CITY OF PORTLAND, DEPARTMENT OF PUBLIC SERVICES.



PIPE INSTALLATION DETAIL

N.T.S.



RAISED GRANITE TREE WELL DETAIL

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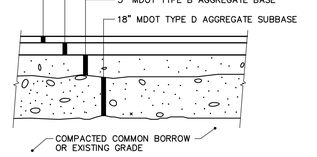

BITUMINOUS PAVEMENT REPAIR SECTION

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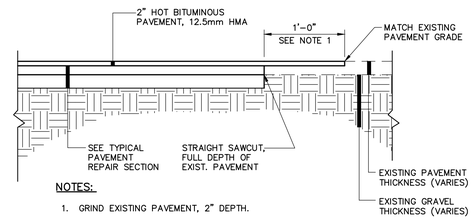

NOTES:

1. GRIND EXISTING PAVEMENT, 2" 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

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Portland, Maine 04102
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REV	DESCRIPTION	DATE
1	RESPONSE TO COMMENTS	07/30/21

DESIGNED BY: ANL
DRAWN BY: JBC
CHECKED BY: DBS
0232868.00-DETAILS.dwg

CIVIL DETAILS - 1

477 CONGRESS HOTEL
PORTLAND, MAINE

TT MAINE VENTURE, LLC
3100 MCKINNON STREET, SUITE 250
DALLAS, TX 75201

JOB NO.:0232868.00
DATE: APRIL 2021
SCALE: AS NOTED
SHEET: 5 OF 7

C-300

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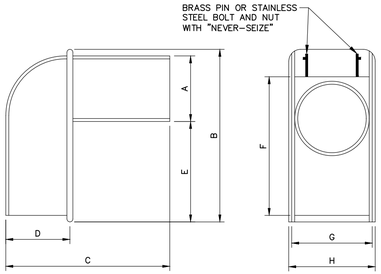


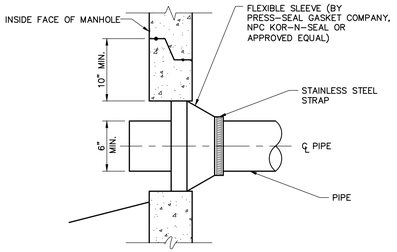
SIZE	A	B	C	D	E	F	G	H
10"	9 1/2"	16"	16 1/4"	6"	4 1/2"	14 1/8"	11 1/2"	12 3/8"
12"	11 1/2"	17"	22"	8"	3 1/2"	17"	12 1/2"	13 3/8"
15"	14 1/2"	22 1/2"	23"	10 1/4"	5 3/4"	21"	14 1/2"	15 3/4"

NOTE:

1. CASCO TRAP SHALL BE CAST IRON CASCO TRAP BY ETHERIDGE FOUNDRY OR APPROVED EQUAL.
2. BOLT AND NUT REQUIRED WHERE HOOD WILL NOT OPEN COMPLETELY.
3. CASCO TRAP SHALL BE INSTALLED ON ALL CATCH BASIN OUTLET PIPES, INCIDENTAL TO COST OF CATCH BASIN

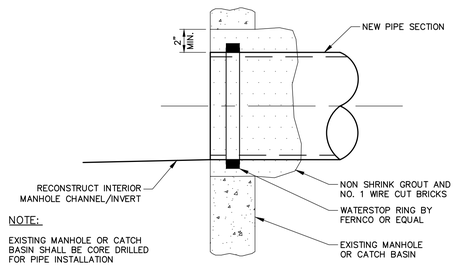
CASCO TRAP DETAIL

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

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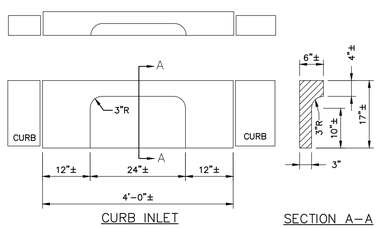
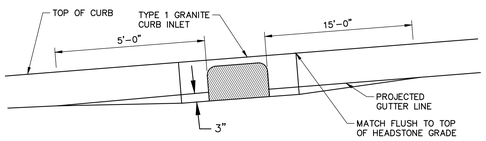


TYPE 1 GRANITE CURB DETAIL

N.T.S.

NOTE:

DISH 10' EITHER SIDE OF HEADSTONE FOR CATCH BASIN AT LOW POINT.



TYPICAL PAVEMENT GRADING ON SLOPES FOR CATCH BASIN AND INLETS

N.T.S.

NOTES:

ALL RAMPS SHALL COMPLY WITH ADA STANDARDS.

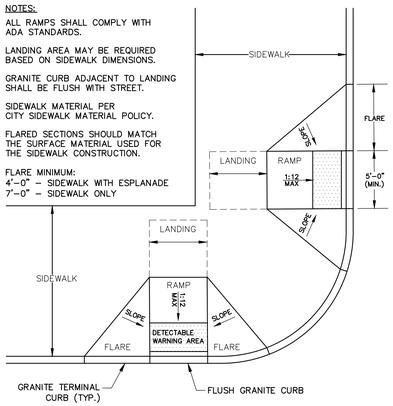
LANDING AREA MAY BE REQUIRED BASED ON SIDEWALK DIMENSIONS.

GRANITE CURB ADJACENT TO LANDING SHALL BE FLUSH WITH STREET.

SIDEWALK MATERIAL PER CITY SIDEWALK MATERIAL POLICY.

FLARED SECTIONS SHOULD MATCH THE SURFACE MATERIAL USED FOR THE SIDEWALK CONSTRUCTION.

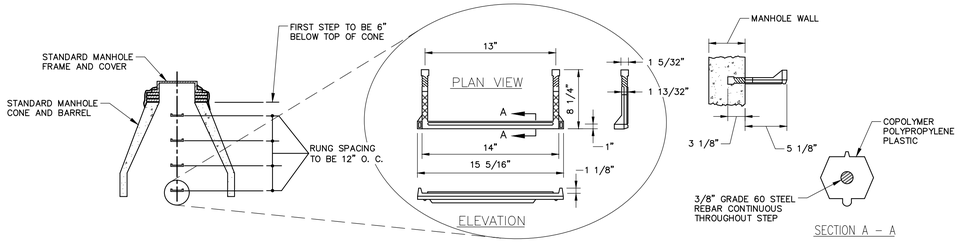
FLARE MINIMUM:
4'-0" – SIDEWALK WITH ESPLANADE
7'-0" – SIDEWALK ONLY



SIDEWALK RAMP AT INTERSECTION

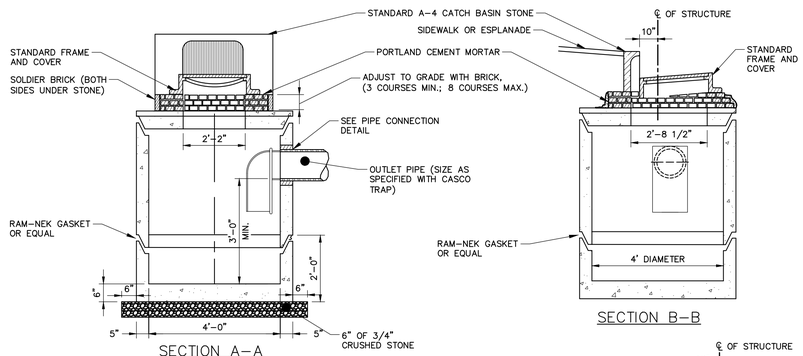
ADA ACCESSIBLE CURB RAMPS

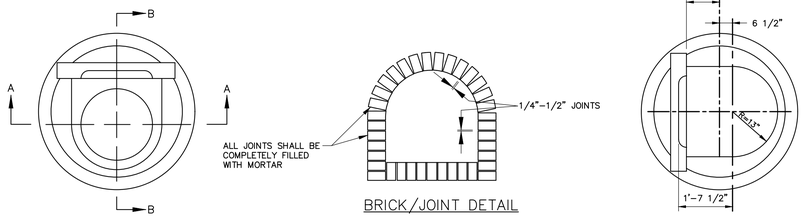
N.T.S.



PLASTIC MANHOLE STEPS

N.T.S.



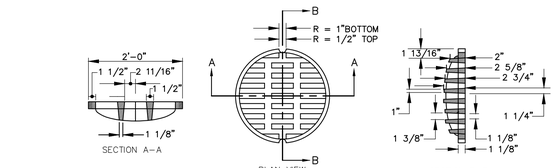


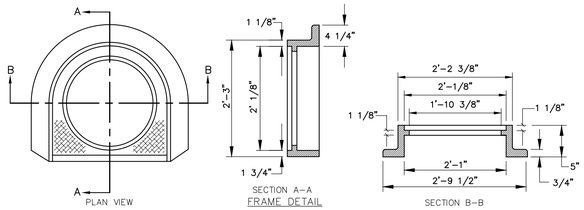
PRECAST CONCRETE CATCH BASIN

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.





CATCH BASIN TYPE "D" – FRAME & COVER DETAIL

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REV	DESCRIPTION	DATE
1	RESPONSE TO COMMENTS	07/30/21

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DRAWN BY: JBC
CHECKED BY: DBS
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CIVIL DETAILS - 2

477 CONGRESS HOTEL
PORTLAND, MAINE

TT MAINE VENTURE, LLC
3100 MCKINNON STREET, SUITE 250
DALLAS, TX 75201

JOB NO.:0232868.00
DATE: APRIL 2021
SCALE: AS NOTED
SHEET: 6 OF 7

C-301

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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
Sedimentation 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 per inspections table below, and maintain and repair as necessary.

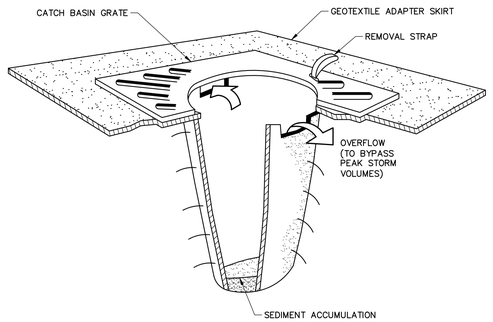
Permanent Erosion Control:

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.



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 SEDIMENTATION 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, PLUNGE POOLS, CHECK DAMS, SEDIMENT TRAPS, CATCHBASIN SEDIMENT COLLECTION BAGS AND GEOTEXTILE FILTER BAGS. PERMANENT MEASURES INCLUDE THE USE OF RIPRAP AT EXPOSED STORMDRAIN AND CULVERT INLETS AND OUTLETS, ARMORED SWALES AND SLOPES AND PERMANENT VEGETATION.

GENERAL

A. THE PROJECT SHALL CONFORM WITH THE STANDARDS OF THE MAINE CONSTRUCTION GENERAL PERMIT, IF APPLICABLE.

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.

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 AREAS STABILIZED WITH RIPRAP, PERMANENT STABILIZATION MEANS THAT SLOPES STABILIZED WITH RIPRAP HAVE AN APPROPRIATE BACKING OF A WELL-GRADED GRAVEL OR APPROVED GEOTEXTILE. STONE MUST BE SIZED APPROPRIATELY AND IN ACCORDANCE WITH SECTION E-6 OF THE MAINE EROSION AND SEDIMENT CONTROL BMP MANUAL.
v. FOR PAVED AREAS, PERMANENT STABILIZATION MEANS THE PLACEMENT OF THE ASPHALT BINDER COURSE.
vi. FOR OPEN CHANNELS, LEVEL SPREADERS, ENGINEERED BUFFERS OR OTHER DESIGNED STORMWATER CONVEYANCE STRUCTURE, PERMANENT STABILIZATION MEANS THE CHANNELIZED AREA(S) IS STABILIZED WITH MATURE VEGETATION AT LEAST THREE INCHES IN HEIGHT, WITH APPROVED RIPRAP, OR WITH OTHER NON-EROSIVE LINING CAPABLE OF WITHSTANDING THE ANTICIPATED FLOW VELOCITIES AND FLOW DEPTHS WITHOUT RELIANCE ON CHECK DAMS TO SLOW FLOW. THERE SHALL BE NO EVIDENCE OF SLUMPING, UNDERCUTTING OR DOWNCUTTING OF THE DESIGNED CHANNEL.

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 4 INCHES. IN COMPACTED AREAS TILL 2-3" OF COMPOST INTO UPPER 8" OF DISTURBED SOIL AND THEN APPLY 4 INCHES OF TOPSOIL.
ii. APPLY LIME AND FERTILIZER ACCORDING TO SOIL TESTS. IN LIEU OF SOIL TESTS, APPLY GROUND LIMESTONE AT A RATE OF 33 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. DITCH LININGS AND RIPRAP INLET AND OUTLET PROTECTION SHALL BE INSTALLED WITHIN 48 HOURS OF COMPLETING THE GRADING OF THAT SECTION OF DITCH OR INSTALLATION OF THE CULVERT.

L. EROSION CONTROL BLANKET SHALL BE INSTALLED ON ALL PERMANENT SLOPES STEEPER THAN 3:1, IN THE BASE OF DITCHES AND ANY DISTURBED AREAS WITHIN 100 FEET OF A PROTECTED NATURAL RESOURCE (WETLANDS AND WATER RESOURCES). 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.

M. 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.

DEWATERING

A. ANY DEWATERING FLOW DIRECTED TO THE CITY'S COMBINED SEWER SYSTEM SHALL BE REVIEWED AND APPROVED BY THE DEPARTMENT OF PUBLIC SERVICES AND/OR THE PORTLAND WATER DISTRICT PRIOR TO COMMENCING DEWATERING ACTIVITIES.

41 Hutchins Drive
Portland, Maine 04102
800.426.4262 | www.woodardcurran.com
COMMITMENT & INTEGRITY DRIVE RESULTS
WOODARD & CURRAN

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REV	DESCRIPTION	DATE
1	RESPONSE TO COMMENTS	07/30/21

DESIGNED BY: ANL
DRAWN BY: JBC
CHECKED BY: DBS
0232868.00-DETAILS.dwg

CIVIL DETAILS - 3

477 CONGRESS HOTEL
PORTLAND, MAINE

TT MAINE VENTURE, LLC
3100 MCKINNON STREET, SUITE 250
DALLAS, TX 75201

JOB NO.:0232868.00
DATE: APRIL 2021
SCALE: AS NOTED
SHEET: 7 OF 7

C-302

NOT FOR CONSTRUCTION

\\woodardcurran.net\shared\Projects\0232868.00 Archetype - Time Temp Building\wip\Drawings\Civil\0232868.00-Details.dwg, Aug 02, 2021 - 7:08am DSTAIRS

PREBLE STREET
PAVED – PUBLIC 56.5' WIDE

CUMBERLAND AVENUE
PAVED – PUBLIC 66' WIDE

CONGRESS STREET
PAVED – PUBLIC – VARIABLE WIDTH

BROWN STREET
PAVED – PUBLIC 33' WIDE

#38 PREBLE ST.
N:300657.06
E:2927809.01
BRICK BUILDING
CB RIM=53.99
INV. OUT=49.9
THRES.= 59.71
THRES.= 59.59

PARCEL 2
AREA= 803± S.F.

N/F
EARL APARTMENTS LLC
17591/197
(2182/479)
(1091/438)
TM 37 BLOCK F LOT 5
"THE WADSWORTH"
6 STORY

#28 PREBLE ST.

N/F
24 PREBLE STREET PROPERTIES LLC
33029/19
/F PENNESSEEWASEE LLC
13502/253
(3375/256)
(1091/295)
TM 37 BLOCK F LOT 7
"FIRESTONE BUILDING"
4 STORY

#24 PREBLE ST.

#22 PREBLE ST.
TM 37 BLOCK F LOT 23
BRICK / STONE
BUILDING FOOTPRINT = 34,935 S.F. ±
4 STORY

2 STORY
FORMERLY
KEITH'S THEATRE LOBBY

#477 CONGRESS ST.
TM 37 BLOCK F LOT 22
14 STORY
N/F
TT MAINE VENTURE LLC
35346/60
HEIGHT=164'±
(NOT INCLUDING ROOF TOP SIGN)

#481 CONGRESS ST.
TM 37 BLOCK F LOT 18
4 STORY
1 STORY
12587/184

#338 CUMBERLAND AVE.
N/F
SWEETWATER PARTNERS LLC
34349/251
(4907/138 4907/161)
(1125/270) ITEM 11
TM 37 BLOCK F LOT 9
8 STORY
FORMERLY
ALLEN'S STORAGE WAREHOUSE

#45 BROWN ST.
TM 37 BLOCK F LOT 2
4 STORY PARKING GARAGE
277 REGULAR SPACES
5 HANDICAP SPACES

BROWN TOWERS LLC
35610/345
AREA=
.64,840 S.F. ±
1.49 ACRES ±
TM 37 BLOCK F LOT 2

N/F
MAINE HISTORICAL SOCIETY
(697/343)
TM 37 BLOCK F LOT 14
#483 CONGRESS ST.

N/F
MHS, INC.
10467/207
(4367/59 4373/30)
TM 37 BLOCK F LOT 12
#41 BROWN ST.

#41 BROWN ST.
TM 37 BLOCK F LOT 11
3 STORY
FORMERLY
KEITH'S THEATRE

#45 BROWN ST.
TM 37 BLOCK F LOT 10
3 STORY
FORMERLY
KEITH'S THEATRE

EASEMENT AGREEMENT
25540/239
43.54'

PROPERTY LINE IS THE SOUTHWEST WALL OF THE WADSWORTH

FIRE ESCAPE SEE AGREEMENT BETWEEN COMMERCE BUILDING, INC. AND MANSFIELD BEAUTY ACADEMY DATED FEB. 25, 1985

PASSAGEWAY PART OF DEED "A" RIGHTS OF USAGE IN IT

PASSAGEWAY RIGHT IN COMMON WITH OTHERS TO USE PASSAGEWAY

FORMER PROPERTY LINE IS A "PROLONGATION OF THE OUTSIDE FACE OF THE WEST WALL OF BUILDING AT CUMBERLAND AVE. AND PREBLE ST."

FORMER PROPERTY LINE IS THE OUTSIDE FACE OF THE FORMER STAGE ENTRANCE TO KEITH'S THEATER, NO DEMOLISHED. LOCATION BASED ON MARKINGS ON EXISTING BUILDING FACE

FORMER PROPERTY LINE IS THE OUTSIDE FACE OF ALLEN STORAGE WAREHOUSE WALL

PROPERTY LINE IS OUTSIDE FACE OF ALLEN STORAGE WAREHOUSE WALL. ORIGINALLY REFEREED TO AS CENTER OF PARTY WALL BETWEEN KEITH'S THEATER AND ALLEN STORAGE WAREHOUSE

PROPERTY LINE IS 0.09' WEST (FREE) OF BUILDING LINE

RIGHT TO LIGHT AND AIR IN THE AREA OR COURT IN THE REAR OF THE WADSWORTH. RIGHT TO MAINTAIN/FIRE ESCAPE

CHIMNEY–RIGHT TO MAINTAIN CHIMNEY

SEWER LINE PER PLAN "PLAN SHOWING PROPERTY OWNED BY PORTLAND SAVINGS BANK" DEC. 1921 BY E.C. JORDAN

PAVED PARKING AREA
34 REGULAR SPACES
FORMERLY KEITH'S THEATRE

PAVED – OPEN AIR

S27°34'40"E 10.00'
S62°32'20"W 80.33'
N62°32'20"E 80.28'
N27°18'50"W 10.00'
S28°06'30"E 103.01'
S62°35'40"W 16.16'
S27°31'10"E 39.96'
N62°24'40"E 100.29'
S62°24'41"W 86.00'
N27°34'39"W 97.00'
S62°24'41"W 35.93'
N27°52'30"W 43.54'
N27°52'30"W 197.15'
S27°34'40"E 179.00'
S27°34'40"E 93.80'
S27°24'30"W 121.07'
S59°24'30"W 559.24'
N60°10'00"E 39.05'
N62°29'30"E 64.94'
S28°10'20"E 91.10'
S59°33'00"W 65.94'
S28°48'10"E 22.72'
S59°33'00"W 99.49'
N65°38'10"E 100.96'
N28°19'30"W 297.48'
S65°26'10"W 1.56'

Legend
- IRON ROD FOUND
- MONUMENT FOUND
- WATER GATE / VALVE
- GAS VALVE
- MANHOLE
- E ELECTRIC MANHOLE
- T TELEPHONE MANHOLE
- CATCH BASIN
- UTILITY POLE
- LIGHT POLE
- HYDRANT
- WATER VALVE OR SHUTOFF
- SIGN
- PM PARKING METER
- EM/GM ELECTRIC/GAS METER
- FENCE
- CURB
- OHW OVERHEAD UTILITIES
- E UNDERGROUND ELEC./COMM.
- T TELEPHONE
- G GAS LINE
- W WATER LINE
- CONC. CONCRETE
- N/F NOW OR FORMERLY
- 000/000 DEED BOOK / PAGE
- TM TAX MAP BLOCK LOT NO.
- A SIGNIFICANT OBSERVATION
- EASEMENT AGREEMENT 25540/239
- PROPERTY LINE
- 60 1' CONTOUR

Possible Encroachments
- A PARKING GARAGE BUILDING OVER PROPERTY LINE 1.56'±
- B UPPER LEVEL OF PARKING GARAGE STREET OVERHANG 4.5'±
- C OVERHEAD WIRES ENCROACH ONTO PREMISES 0.3'±
- D LADDER, CONCRETE RAMP AND RAILING AND LADDER ENCROACH UP TO 0.4'±
- E EAVES, CORNICES, LIGHTS, SIGN OVERHANG AS NOTED

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.

SCALE : 1" = 20'
0' 10' 20' 40'

Plan References
1. "ALTA/ACSM LAND TITLE SURVEY ON CUMBERLAND AVE., PREBLE ST., CONGRESS ST., & BROWN ST., PORTLAND, MAINE MADE FOR ISRAEL M. DOLGIN ASSOCIATES LLC" NOV. 13, 2006 BY OWEN HASKELL, INC.
2. "PLAN OF PROPERTY IN PORTLAND, MAINE MADE FOR MONUMENT SQUARE ASSOCIATES, INC. 20 APRIL 1983 H.J. & E.C. JORDAN–SURVEYORS"
3. "ATLA/ACSM LAND TITLE SURVEY, CWC2016 PROJECT, TIME & TEMPERATURE BUILDING AND MONUMENT SQUARE PARKING GARAGE, 477–481 CONGRESS STREET, 22 PREBLE STREET AND 45 BROWN STREET, PORTLAND, ME 04101" FOR BOCK & LCARK'S NATIONAL SURVEYORS NETWORK DATED MARCH 16, 2016 BY OWEN HASKELL, INC.
4. "ALTA/NSPS LAND TITLE SURVEY, TIME AND TEMPERATURE BUILDING, MONUMENT SQUARE PARKING GARAGE, 477–481 CONGRESS STREET, 22 PREBLE STREET, 45 BROWN STREET, PORTLAND, CUMBERLAND COUNTY, MAINE MADE FOR TT MAINE VENTURE, LLC" NOVEMBER 20, 2018 BY OWEN HASKELL, INC.

General Notes
1. OWNER OF RECORD: BROWN TOWERS, LLC, RECORDED IN CUMBERLAND COUNTY REGISTRY OF DEEDS IN BOOK 35610, PAGE 345.
2. LOCUS IS SHOWN ON PORTLAND PROPERTY MAPS AS MAP 37 BLOCK F LOTS 2, 18, 22 & 23.
4. ELEVATIONS ARE BASED ON OFFICIAL CITY OF PORTLAND BENCHMARK: L 757–34–112 "M" MONUMENT AT THE NORTHWESTERLY CORNER OF FOREST AVE. & CUMBERLAND AVE. ELEVATION = 80.66' (REF. CITY L.B. 725 PG. 99–100)
4. THE PARKING GARAGE AND THE PAVED PARKING AREA HAVE A COMBINED TOTAL OF 311 REGULAR AND 5 HANDICAPPED DELINEATED PARKING SPACES.
5. THE PROPERTY IS SERVICED BY VARIOUS UTILITIES THROUGH ADJACENT PUBLIC STREETS.
6. PARTY WALL IN 1125/270 IS NOW ONLY WALL OF SWEETWATER PARTNERS LLC AND IS NOT A WALL FOR PREMISES BUILDING.
7. STREET LINES ARE BASED ON PLAN REFERENCE 2 WHICH WAS BASED ON ADDITIONAL MONUMENTS ON CUMBERLAND AVENUE AND PREBLE STREET WHICH NO LONGER EXIST.
8. SUBJECT PROPERTY HAS DIRECT ACCESS TO CUMBERLAND AVENUE, PREBLE STREET, AND BROWN STREET, PUBLIC RIGHTS OF WAY.
9. BEARINGS ARE BASED ON MAGNETIC 1915 PER RECORD DEEDS AND PLANS. COORDINATES ARE BASED ON MAINE STATE PLANE COORDINATE SYSTEM WET ZONE NAD 83 PER CITY CONTROL POINTS:

T124–11–1087
N: 300446.78
E: 2927558.71

T124–12–1096
N: 299913.92
E: 2926805.42

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.

01/09/2020
DATE

RANDY R. LOUBIER, PLS #2407

STATE OF MAINE
RANDY R. LOUBIER
2407
PROFESSIONAL LAND SURVEYOR

Boundary & Topographic Survey
Time and Temperature Building
Monument Square Parking Garage
477-481 Congress Street, 22 Preble Street,
45 Brown Street, Portland, Maine
Made For
45 Brown Street, LLC

OWEN HASKELL, INC.
PROFESSIONAL LAND SURVEYORS
390 U.S. ROUTE ONE, UNIT 10, FALMOUTH, MAINE 04105

DRAWN BY: RRL / JLW	DATE: JAN. 9, 2020	JOB NO. 2019-348P
CHECKED BY: RRL	SCALE: 1" = 20'	DRWG. NO. 1

PREBLE STREET

CONGRESS STREET

PUBLIC MARKET

MAINE HISTORICAL SOCIETY

REMOVE AND RESET GRANITE CURB (TYP.)

RESET SIGN, COORDINATE WITH CITY (TYP.)

REMOVE AND PROTECT PAY BOX, TO BE RESET, COORDINATE WORK W/CITY PLANNING DEPARTMENT

RESTRIPE EXISTING CROSSWALK

14' GRANITE TIPDOWN TERMINAL CURB, SEE DETAIL

ADA ACCESSIBLE CURB RAMP, SEE DETAIL (TYP.)

86' VALET/HOTEL LOADING

44' COMMERCIAL LOADING ZONE

86' VALET/HOTEL LOADING

R15.0'

R45'

R20.0'

RESTRIPE EXISTING CROSSWALK

SAWCUT EXISTING PAVEMENT

R15.0'

BITUMINOUS PAVEMENT, SEE DETAIL

MATCH GRADE AT EXISTING PAVED DRIVEWAY APRON

DEMOLISH CONCRETE SIDEWALK AND PROVIDE BRICK SIDEWALK, SEE DETAIL

ADA ACCESSIBLE CURB RAMP W/DETECTABLE WARNING SURFACE, SEE DETAIL (TYP.)

PROTECT EXISTING ELECTRICAL BOX AND SIGNAL POLE

REMOVE AND PROTECT MAIL BOXES, TO BE RESET, COORDINATE WORK W/CITY PLANNING DEPARTMENT AND USPS

PROVIDE BRICK SIDEWALK (TYP.) SEE DETAIL

22' 5 MIN. ADA VALET SPACE

5 MINUTE LOADING/UNLOADING

64' METERED PARKING

REMOVE AND RESET GRANITE CURB (TYP.)

RAISED GRANITE TREE WELL (TYP. OF 3) SEE DETAIL

REMOVE EXISTING CONCRETE PLANTER

REMOVE AND REPLACE SIGN W/"VALET PARKING ONLY"

REMOVE AND SALVAGE PARKING METERS, DELIVER TO CITY PUBLIC WORKS DEPARTMENT

GREASE TRAP, SEE UTILITY PLAN

NEW RAMP

MATCH BRICK SIDEWALK TO EXISTING GRADE AND BRICK PATTERN

EXISTING STAIRS

EXISTING ANNEX TO BE DEMOLISHED

NEIGHBORING BUILDING

#38 PREBLE ST.

#28 PREBLE ST.

#24 PREBLE ST.

#338 CUMBERLAND AVE.

#45 BROWN ST.

#41 BROWN ST.

PARCEL 2 AREA= 803± S.F.

PROPOSED AREA= 48,460 S.F. ± 1.11 ACRES ±

TM 37 BLOCK F LOT 2

4 STORY PARKING GARAGE

277 REGULAR SPACES

5 HANDICAP SPACES

41 Hutchins Drive
Portland, Maine 04102
800.426.4262 | www.woodardcurran.com

COMMITMENT & INTEGRITY DRIVE RESULTS

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REV	DESCRIPTION	DATE

DESIGNED BY: ANL
DRAWN BY: JBC
CHECKED BY: DBS
02/2868.00-C-200.dwg

OVERALL SITE PLAN

477 CONGRESS HOTEL
PORTLAND, MAINE

TT MAINE VENTURE, LLC
3100 MCKINNON STREET, SUITE 250
DALLAS, TX 75201

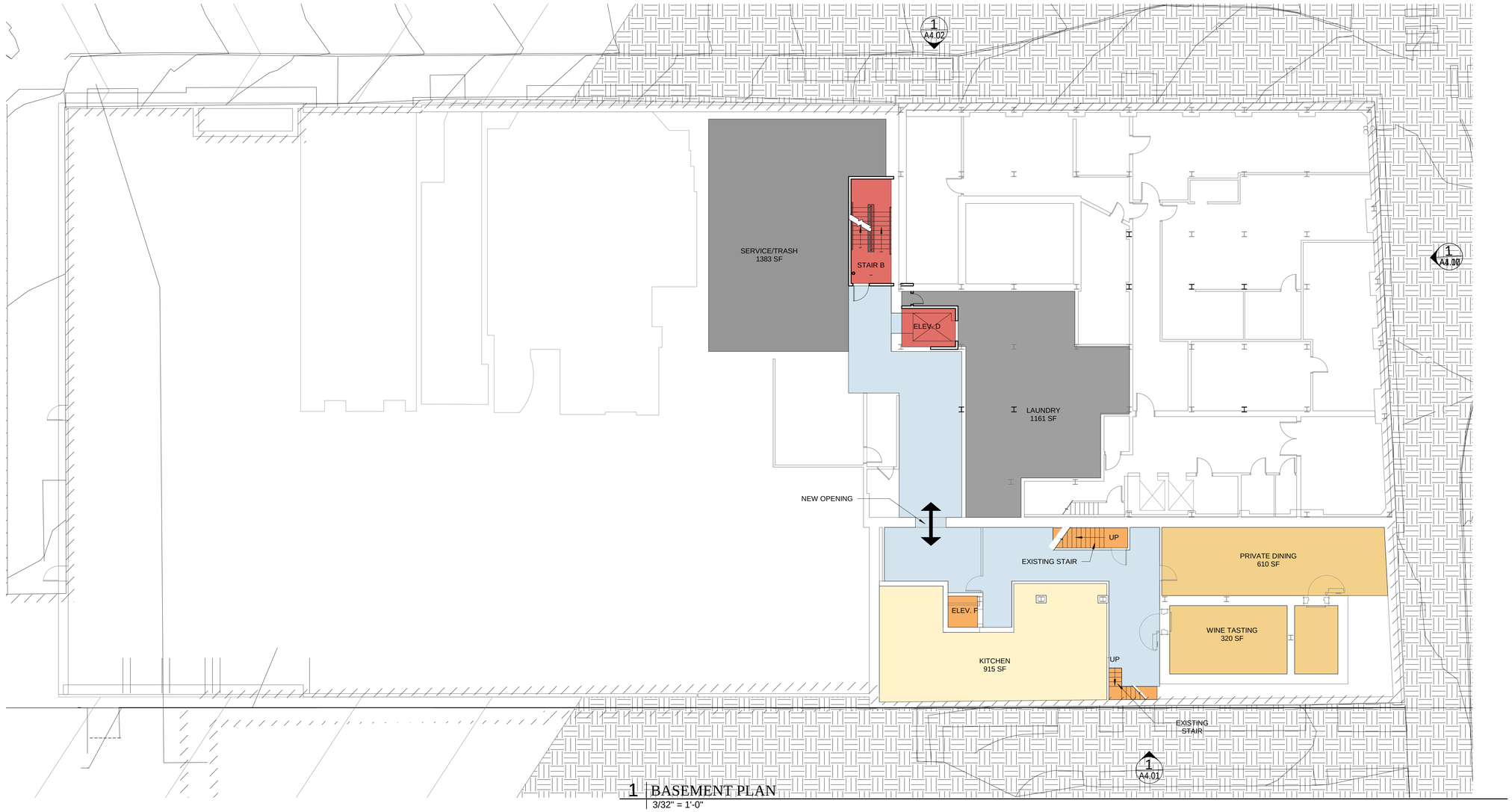
JOB NO.: 0232868.00
DATE: OCTOBER 7, 2021
SCALE: 1" = 20'
SHEET: 2 OF 7

C-200

20' 0 20' 40'
BAR SCALE
1" = 20'
CHECK GRAPHIC SCALE BEFORE USING

NOT FOR CONSTRUCTION

\\woodardcurran.net\shared\Projects\0232868.00 Archetype - Time Temp Building\wip\Drawings\Civil\0232868.00-C-200.dwg, Nov 09, 2021 - 8:38am DSTAIRS



1 BASEMENT PLAN
3/32" = 1'-0"

Prepared For:
HRI
PROPERTIES
812 Gravier Street, Suite 200
New Orleans, LA 70112

Consultant:

Architect:
ARCHETYPE
ARCHITECTS
48 Union Wharf Portland, Maine 04101
(207) 772-6022 Fax (207) 772-4056

Project:
477 CONGRESS
HOTEL
477 Congress Street
Portland, Maine

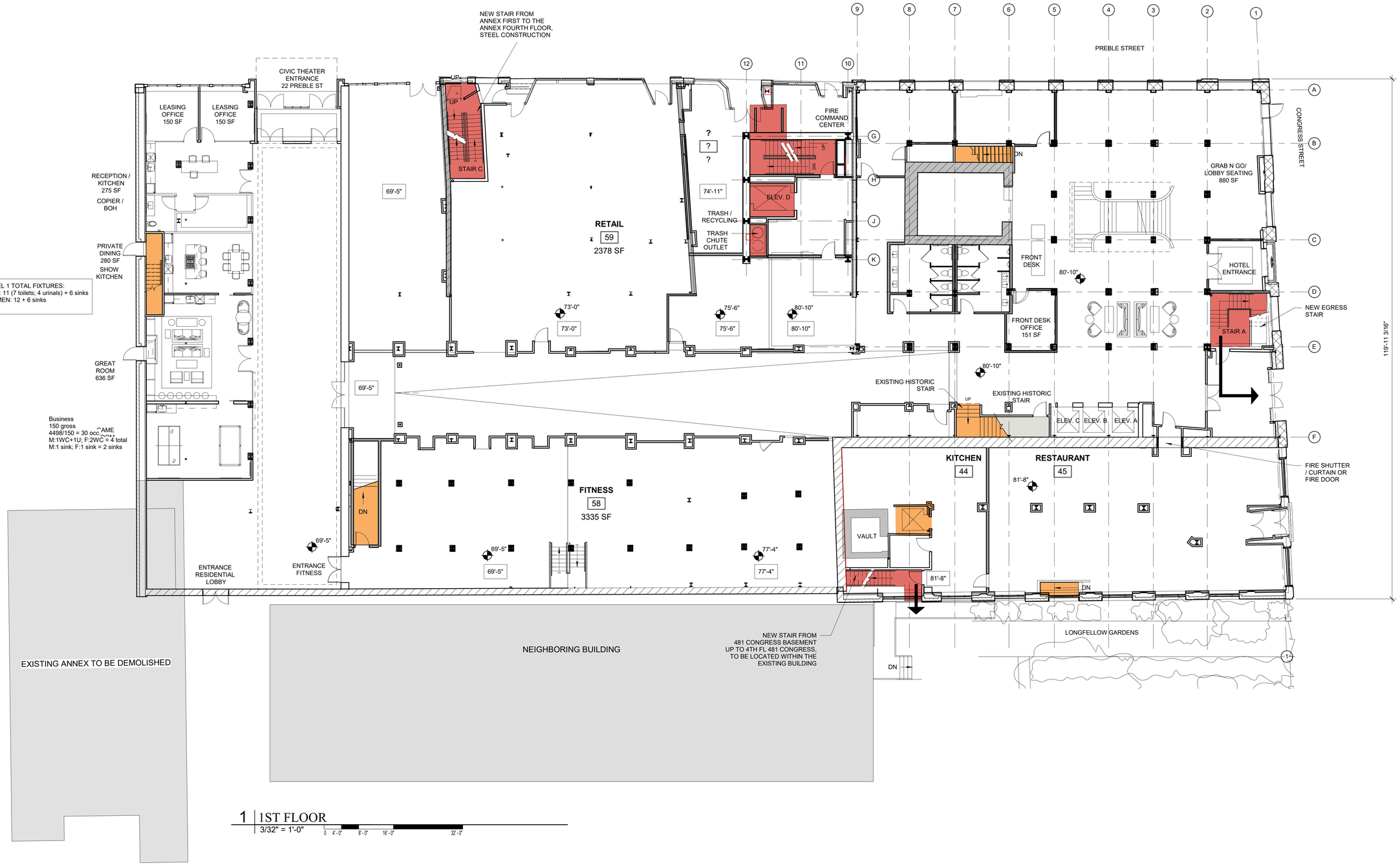
Revisions:

Scale:
3/32" = 1'-0"

Date:
14 JAN. 2020

BASEMENT PLAN

A1.00



1 | 1ST FLOOR
3/32" = 1'-0"

0 4'-0" 8'-0" 16'-0" 32'-0"

Prepared For: PRESIDIUM

Consultant:

Architect: ARCHETYPE ARCHITECTS
48 Union Wharf Portland, Maine 04101
(207) 772-6022 Fax (207) 772-4056

Project: TIME & TEMPERATURE HOTEL
477 Congress Street
Portland, Maine

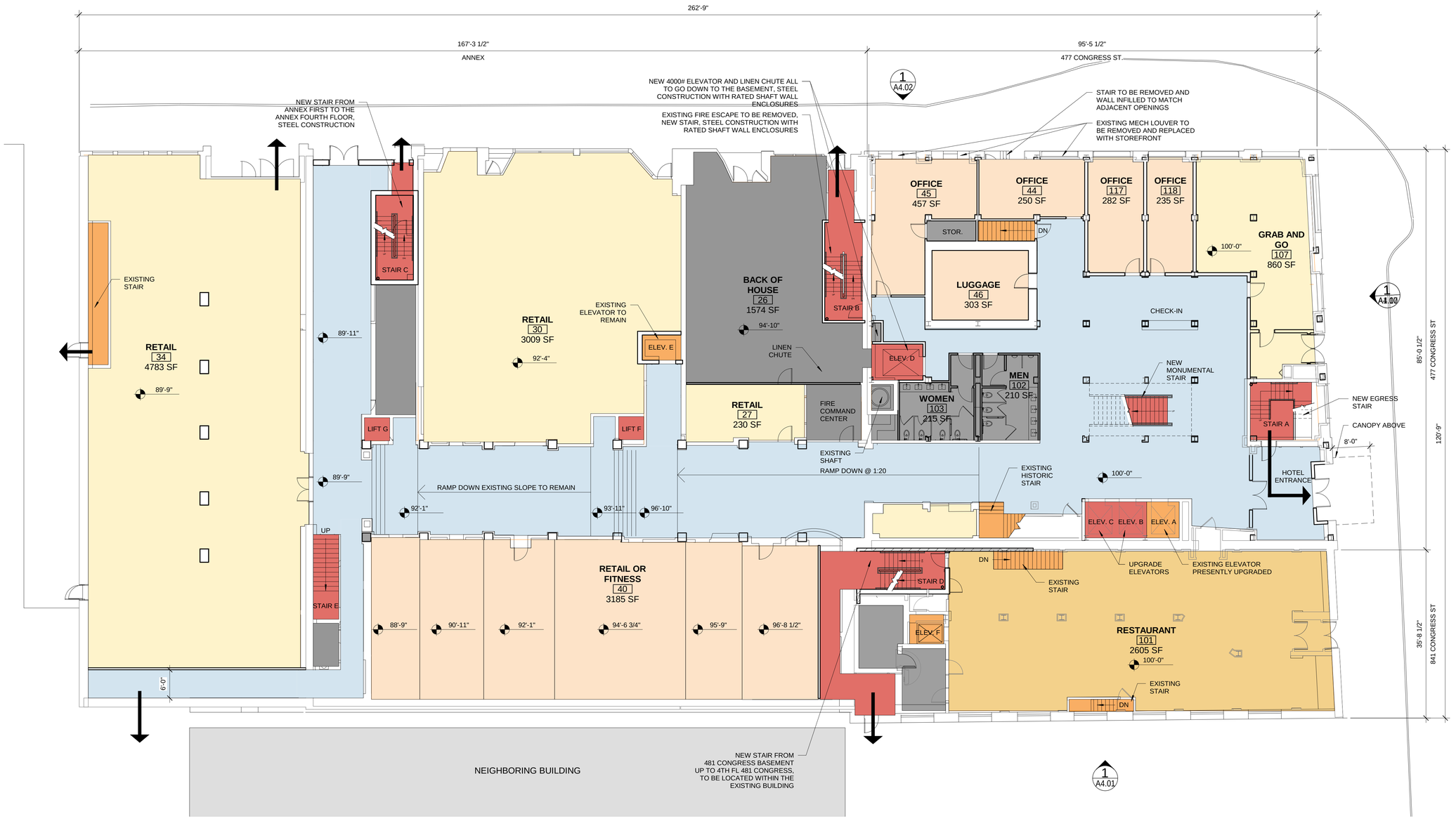
Revisions:

Scale: 3/32" = 1'-0"

Date: 16 APRIL, 2021

FIRST FLOOR PLAN

A1.01



1 | 1ST FLOOR
3/32" = 1'-0"
0 4'-0" 8'-0" 16'-0" 32'-0"

Prepared For:
HRI PROPERTIES
812 Gravier Street, Suite 200
New Orleans, LA 70112

Consultant:

Architect:
ARCHETYPE ARCHITECTS
48 Union Wharf Portland, Maine 04101
(207) 772-6022 Fax (207) 772-4056

Project:
477 CONGRESS HOTEL
477 Congress Street
Portland, Maine

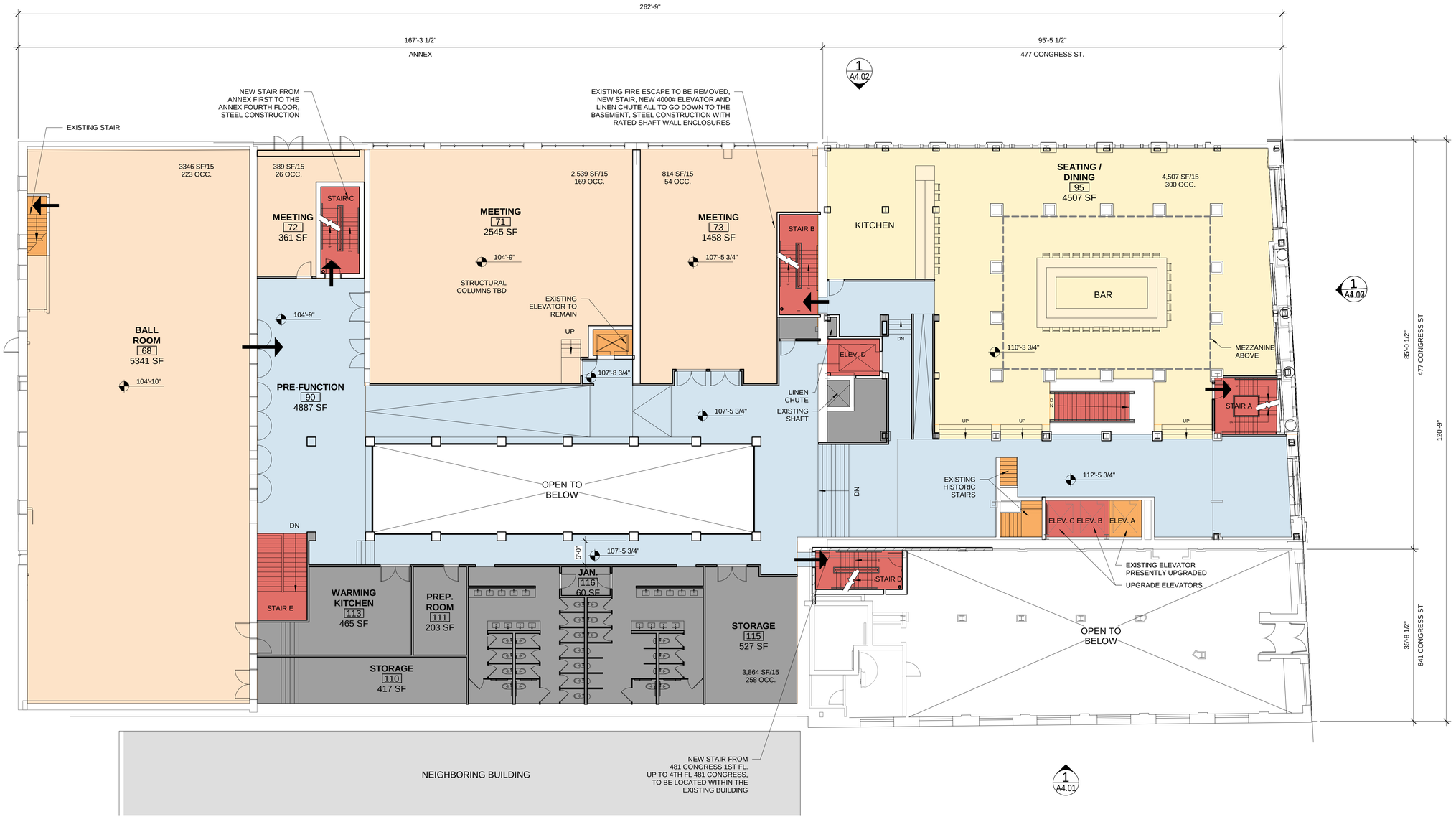
Revisions:

Scale: 3/32" = 1'-0"

Date: 14 JAN. 2020

FIRST FLOOR PLAN

A1.01



1 | 2ND FLOOR
3/32" = 1'-0"
0 4'-0" 8'-0" 16'-0" 32'-0"

Prepared For:
HRI PROPERTIES
812 Gravier Street, Suite 200
New Orleans, LA 70112

Consultant:

Architect:
ARCHETYPE ARCHITECTS
48 Union Wharf Portland, Maine 04101
(207) 772-6022 Fax (207) 772-4056

Project:
477 CONGRESS HOTEL
477 Congress Street
Portland, Maine

Revisions:

Scale: 3/32" = 1'-0"

Date: 14 JAN. 2020

SECOND FLOOR PLAN

A1.02



1 | 3RD FLOOR AND 2ND FL OF 481 CONGRESS

3/32" = 1'-0"

0 4'-0" 8'-0" 16'-0" 32'-0"

2 | 481 CONGRESS 3RD FLOOR

3/32" = 1'-0"

0 4'-0" 8'-0" 16'-0" 32'-0"

Prepared For:
HRI PROPERTIES
812 Gravier Street, Suite 200
New Orleans, LA 70112

Consultant:

Architect:
ARCHETYPE ARCHITECTS
48 Union Wharf Portland, Maine 04101
(207) 772-6022 Fax (207) 772-4056

Project:
477 CONGRESS HOTEL
477 Congress Street
Portland, Maine

Revisions:

Scale: 3/32" = 1'-0"

Date: 14 JAN. 2020

THIRD FLOOR PLAN

A1.03



1 | 4TH FLOOR
3/32" = 1'-0"
0 4'-0" 8'-0" 16'-0" 32'-0"

Prepared For:
HRI PROPERTIES
812 Gravier Street, Suite 200
New Orleans, LA 70112

Consultant:

Architect:
ARCHETYPE ARCHITECTS
48 Union Wharf Portland, Maine 04101
(207) 772-6022 Fax (207) 772-4056

Project:
477 CONGRESS HOTEL
477 Congress Street
Portland, Maine

Revisions:

Scale: 3/32" = 1'-0"

Date: 14 JAN. 2020

FOURTH FLOOR PLAN

A1.04



1 | 5TH - 13TH FLOOR

3/32" = 1'-0"

0 4'-0" 8'-0" 16'-0" 32'-0"

Prepared For:
HRI PROPERTIES
812 Gravier Street, Suite 200
New Orleans, LA 70112

Consultant:

Architect:
ARCHETYPE ARCHITECTS
48 Union Wharf Portland, Maine 04101
(207) 772-6022 Fax (207) 772-4056

Project:
477 CONGRESS HOTEL
477 Congress Street
Portland, Maine

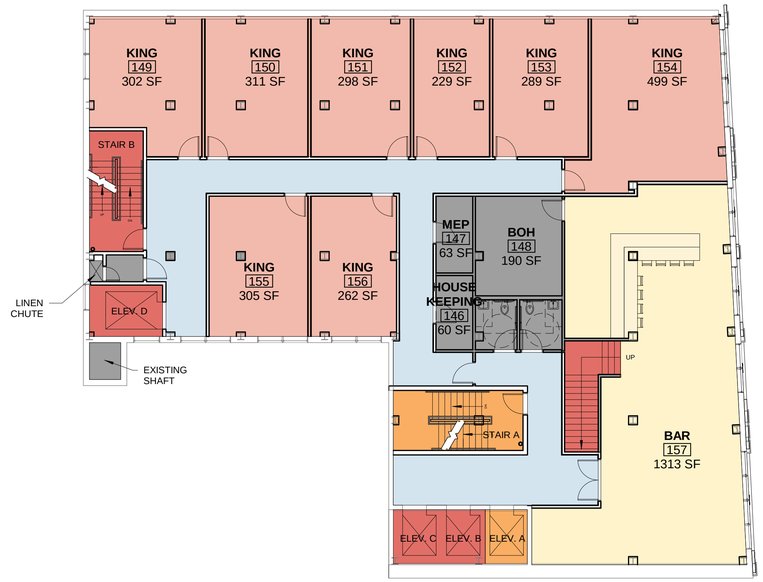
Revisions:

Scale: 3/32" = 1'-0"

Date: 14 JAN. 2020

FLOORS 5 - 13 PLAN

A1.05



1 | 14TH FLOOR
3/32" = 1'-0"
0 4'-0" 8'-0" 16'-0" 32'-0"

Prepared For:
HRI PROPERTIES
812 Gravier Street, Suite 200
New Orleans, LA 70112

Consultant:

Architect:
ARCHETYPE ARCHITECTS
48 Union Wharf Portland, Maine 04101
(207) 772-6022 Fax (207) 772-4056

Project:
477 CONGRESS HOTEL
477 Congress Street
Portland, Maine

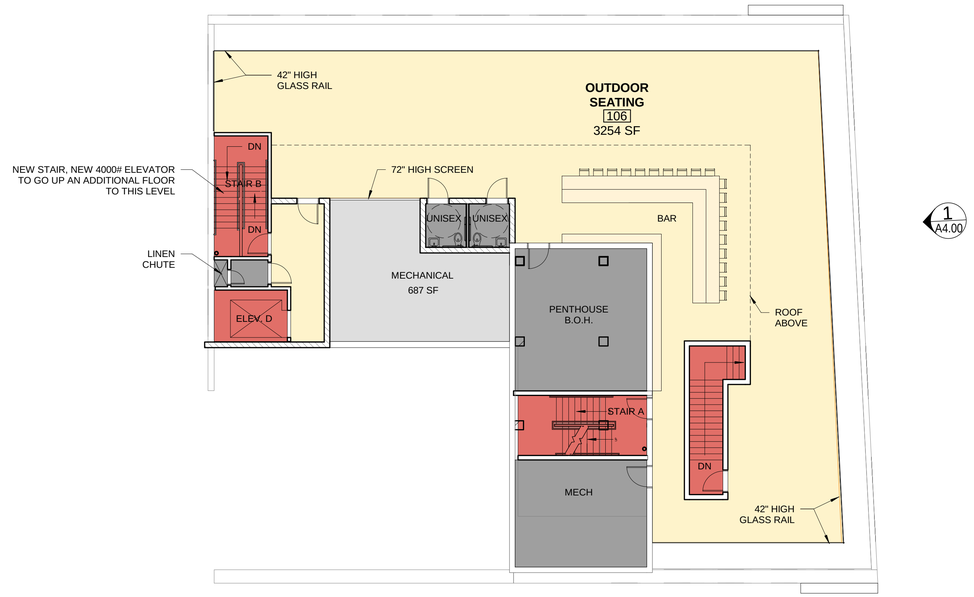
Revisions:

Scale: 3/32" = 1'-0"

Date: 14 JAN. 2020

14TH FLOOR PLAN

A1.14



1 ROOF TOP BAR PLAN - ADD ALT

3/32" = 1'-0"

0 4'-0" 8'-0" 16'-0" 32'-0"

Prepared For:
HRI PROPERTIES
812 Gravier Street, Suite 200
New Orleans, LA 70112

Consultant:

Architect:
ARCHETYPE ARCHITECTS
48 Union Wharf Portland, Maine 04101
(207) 772-6022 Fax (207) 772-4056

Project:
477 CONGRESS HOTEL
477 Congress Street
Portland, Maine

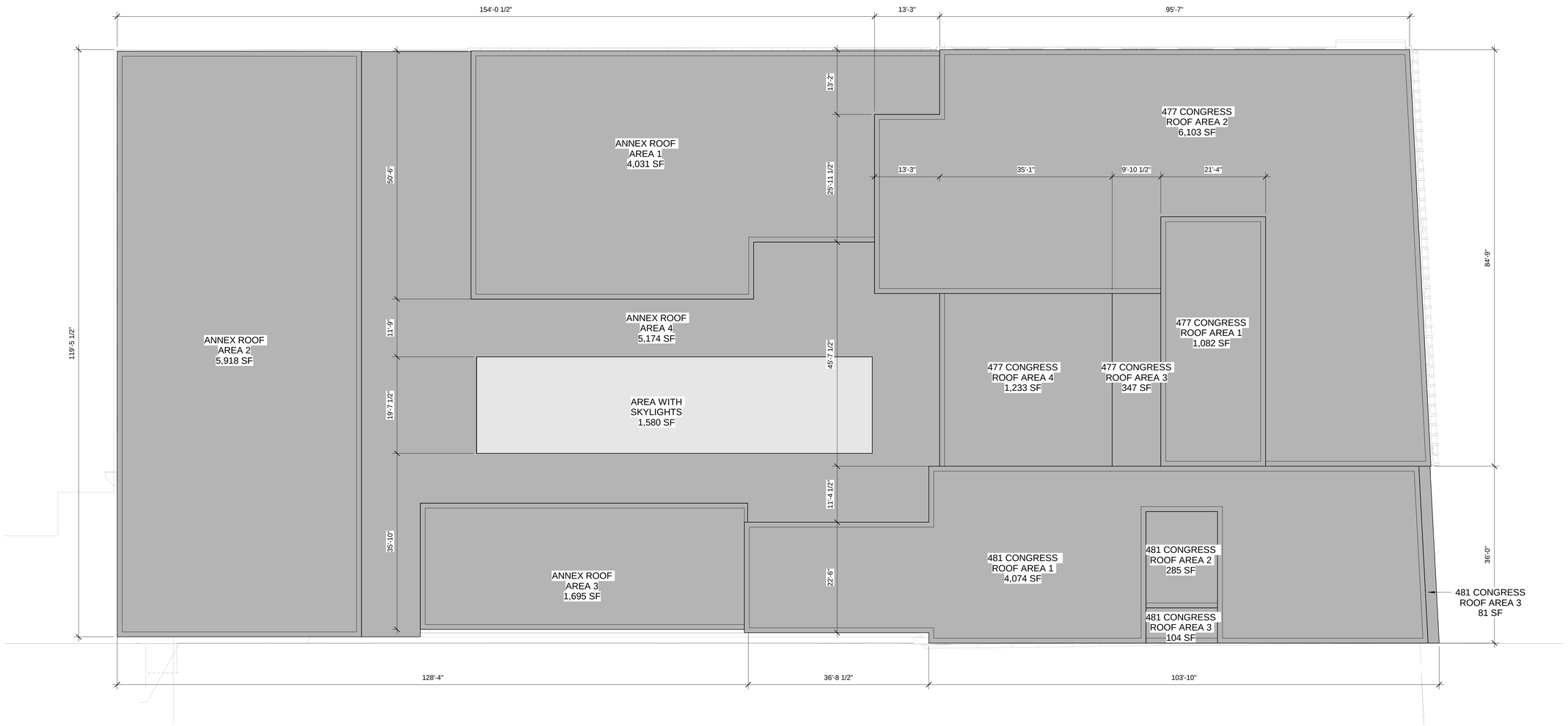
Revisions:

Scale: 3/32" = 1'-0"

Date: 14 JAN. 2020

ROOF TOP BAR PLAN

A1.15



1 ROOF
3/32" = 1'-0"

30,127 SF OF NEW EPDM ON SLOPED POLY-ISO, R-20 MIN

Prepared For:
HRI PROPERTIES
812 Gravier Street, Suite 200
New Orleans, LA 70112

Consultant:

Architect:
ARCHETYPE ARCHITECTS
48 Union Wharf Portland, Maine 04101
(207) 772-6022 Fax (207) 772-4056

Project:
477 CONGRESS HOTEL
477 Congress Street
Portland, Maine

Revisions:

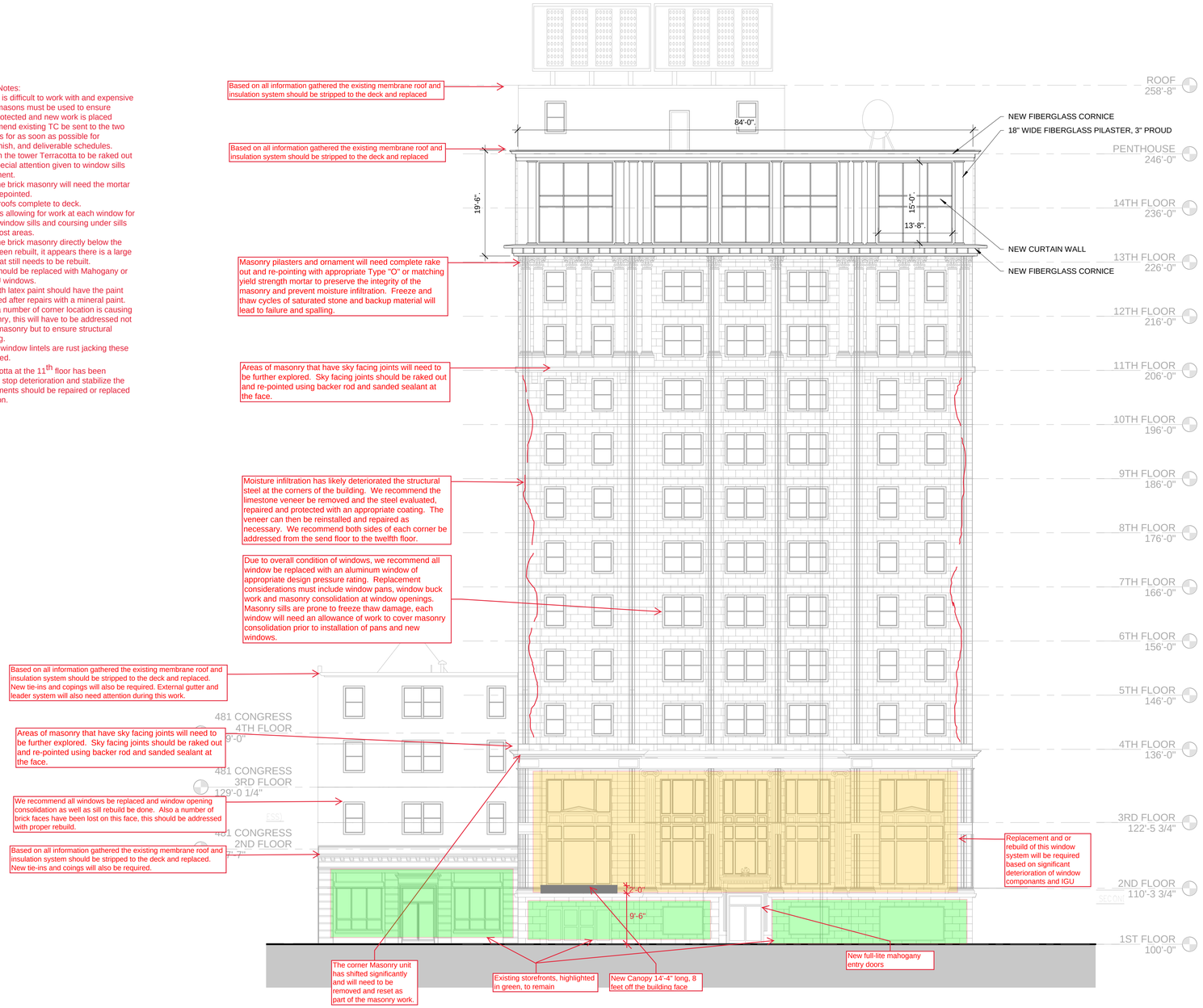
Scale: 3/32" = 1'-0"

Date: 14 JAN. 2020

ROOF PLAN

A1.16

Preliminary General Notes:
1.Terracotta cladding is difficult to work with and expensive to replace. Skilled masons must be used to ensure existing pieces are protected and new work is placed properly. We recommend existing TC be sent to the two leading manufacturers for as soon as possible for replication ability in finish, and deliverable schedules.
2.All masonry joints in the tower Terracotta to be raked out and repointed with special attention given to window sills and decorative ornament.
3.A large portion of the brick masonry will need the mortar joints raked out and repointed.
4.Replace all EPDM roofs complete to deck.
5.Replace all windows allowing for work at each window for consolidation. Brick window sills and coursing under sills will need rebuild in most areas.
6.A large portion of the brick masonry directly below the EIFS overstory has been rebuilt, it appears there is a large portion of masonry that still needs to be rebuilt.
7.Wood storefronts should be replaced with Mahogany or similar wood and IGU windows.
8.All bricks coated with latex paint should have the paint removed and repainted after repairs with a mineral paint.
9.Structural Steel in a number of corner location is causing damage to the masonry, this will have to be addressed not only to preserve the masonry but to ensure structural stability of the building.
10.A number of steel window lintels are rust jacking these will need to be replaced.
11.Decorative Terracotta at the 11th floor has been strapped with steel to stop deterioration and stabilize the masonry. These elements should be repaired or replaced in a permanent fashion.



1 CONGRESS STREET ELEVATION
3/32" = 1'-0"

Prepared For:
HRI PROPERTIES
812 Gravier Street, Suite 200
New Orleans, LA 70112

Consultant:
ENVELOPE ARCHITECTURE & CONSULTING
207-807-6661

Architect:
ARCHETYPE ARCHITECTS
48 Union Wharf Portland, Maine 04101
(207) 772-6022 Fax (207) 772-4056

Project:
477 CONGRESS HOTEL
477 Congress Street
Portland, Maine

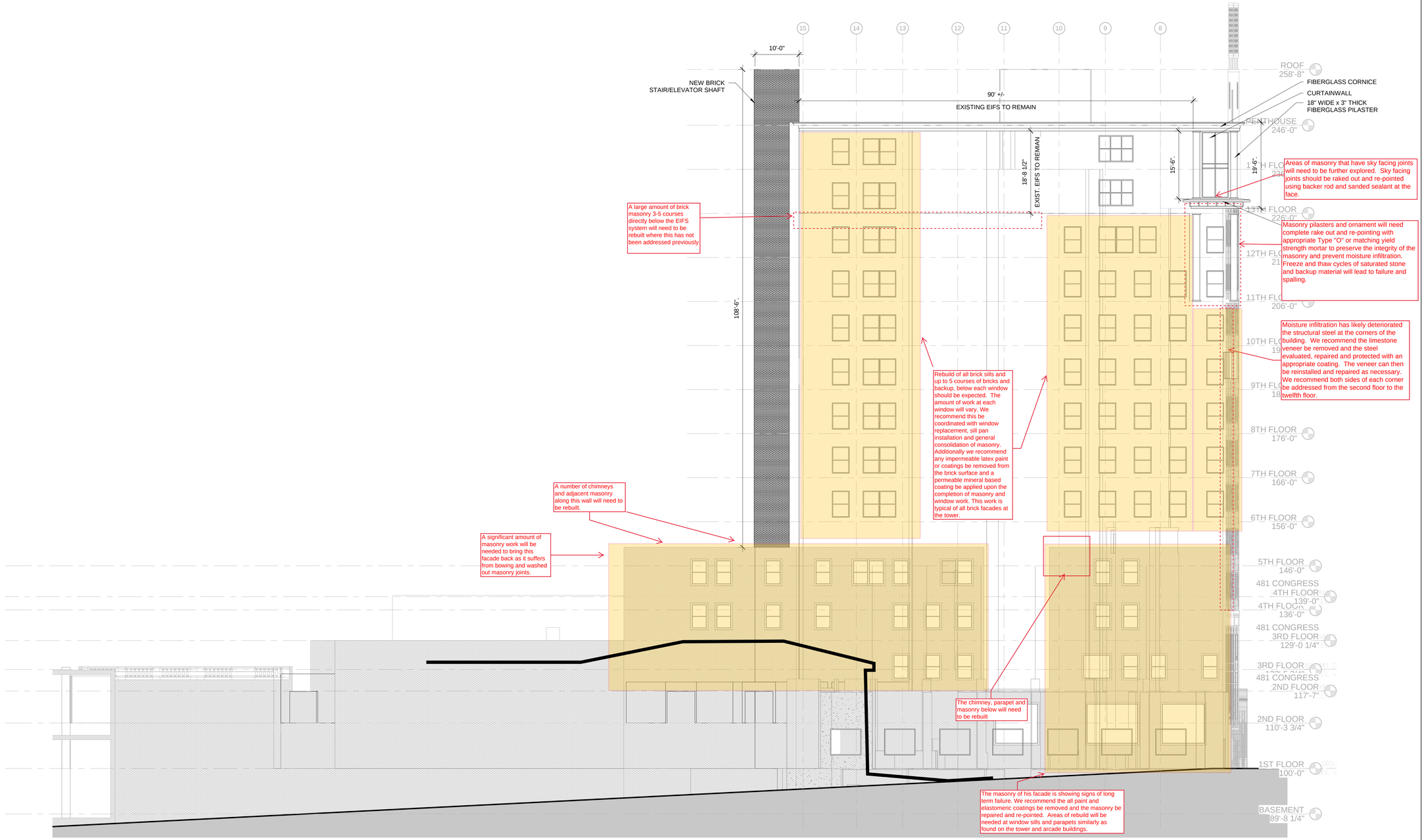
Revisions:

Scale: 3/32" = 1'-0"

Date: 21 OCT 2019

EXTERIOR ELEVATIONS

A4.00



1 WEST ELEVATION
3/32" = 1'-0"
0 4'-0" 8'-0" 16'-0" 32'-0"

Prepared For:
HRI PROPERTIES
812 Gravier Street, Suite 200
New Orleans, LA 70112

Consultant:
ENVELOPE ARCHITECTURE & CONSULTING
Architecture · Building Envelope Design · Construction Management
207-807-6661

Architect:
ARCHETYPE ARCHITECTS
48 Union Wharf Portland, Maine 04101
(207) 772-6022 Fax (207) 772-4056

Project:
477 CONGRESS HOTEL
477 Congress Street
Portland, Maine

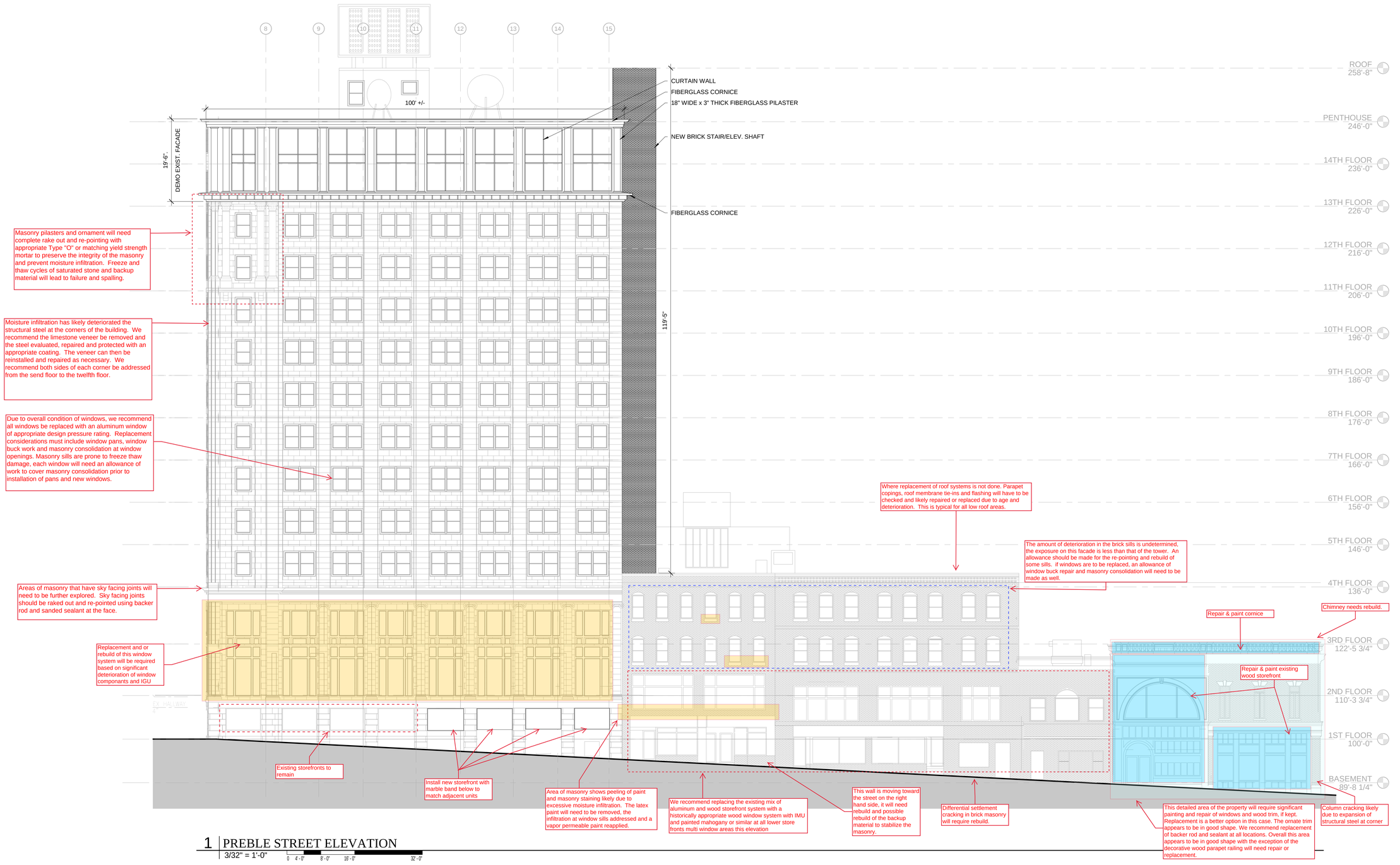
Revisions:

Scale: 3/32" = 1'-0"

Date: 21 OCT 2019

EXTERIOR ELEVATIONS

A4.01



1 PREBLE STREET ELEVATION

3/32" = 1'-0"

0 4'-0" 8'-0" 16'-0" 32'-0"

Prepared For:
HRI PROPERTIES
812 Gravier Street, Suite 200
New Orleans, LA 70112

Consultant:
ENVELOPE ARCHITECTURE & CONSULTING
Architecture · Building Envelope Design
Historic Preservation
Condominiums · Timeshares · HOA
207-887-6661

Architect:
ARCHETYPE ARCHITECTS
48 Union Wharf Portland, Maine 04101
(207) 772-6022 Fax (207) 772-4056

Project:
477 CONGRESS HOTEL
477 Congress Street
Portland, Maine

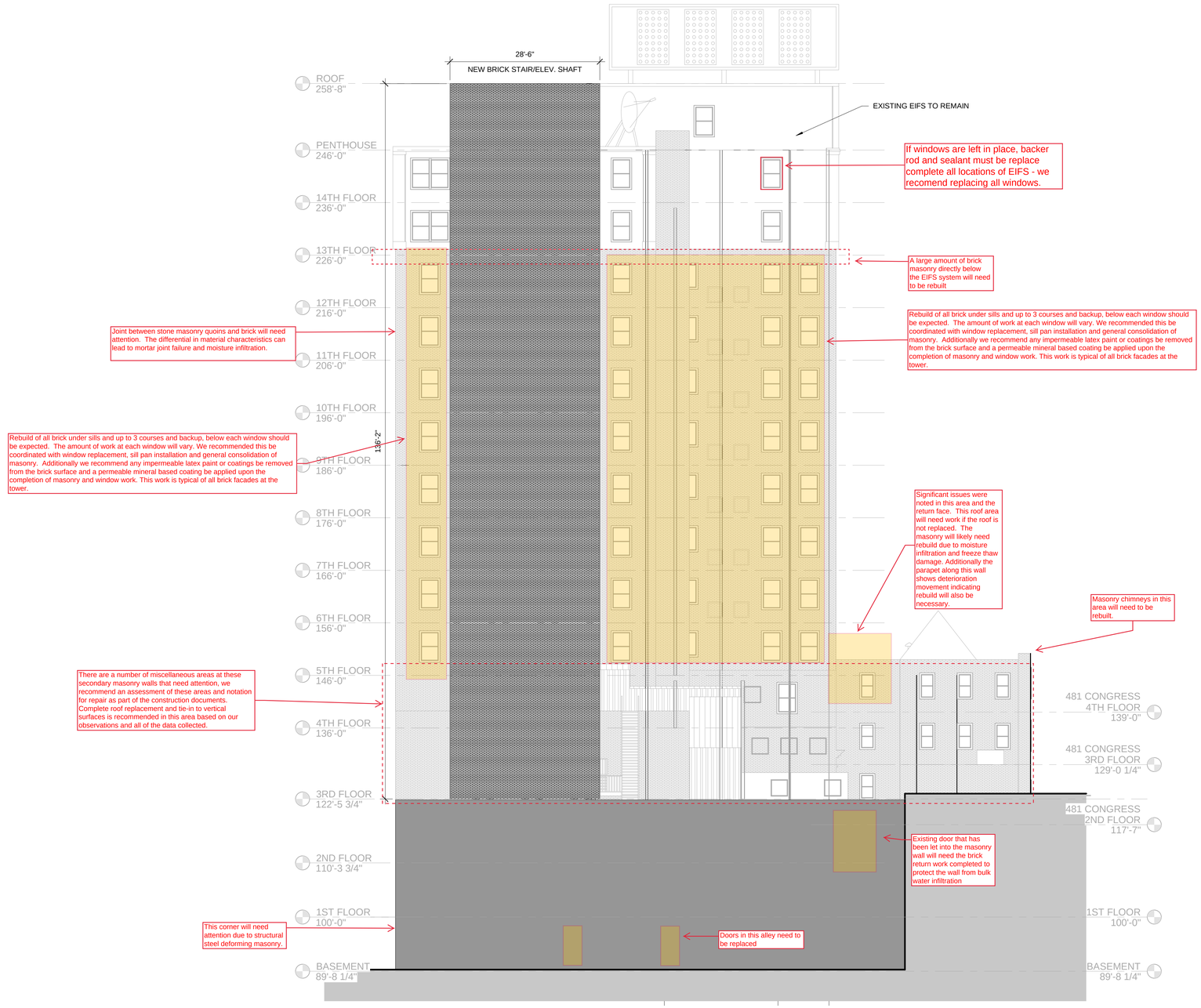
Revisions:

Scale: 3/32" = 1'-0"

Date: 21 OCT 2019

EXTERIOR ELEVATIONS

A4.02



1 NORTH ELEVATION
3/32" = 1'-0"

Prepared For:
HRI PROPERTIES
812 Gravier Street, Suite 200
New Orleans, LA 70112

Consultant:
ENVELOPE ARCHITECTURE & CONSULTING
ARCHITECTURE • BUILDING ENVELOPE DESIGN
CONSULTING • INVESTIGATION AND
COMMISSIONING • WINDMAN, ME
207-807-6661

Architect:
ARCHETYPE ARCHITECTS
48 Union Wharf Portland, Maine 04101
(207) 772-6022 Fax (207) 772-4056

Project:
477 CONGRESS HOTEL
477 Congress Street
Portland, Maine

Revisions:

Scale: 3/32" = 1'-0"

Date: 21 OCT 2019

EXTERIOR ELEVATIONS

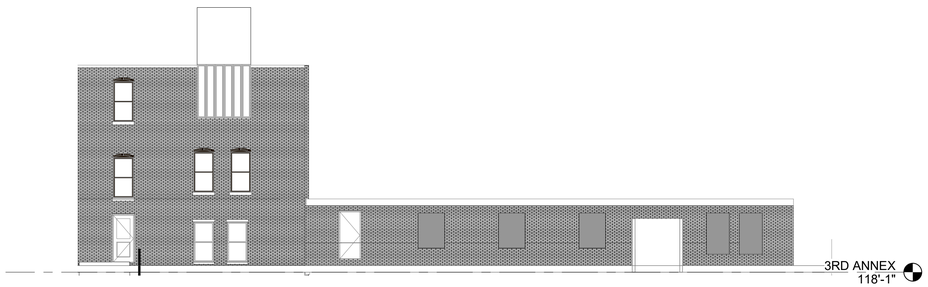
A4.03



2 EXISITNG ELEVATION AT LOWER ROOF

3/32" = 1'-0"

0 4'-0" 8'-0" 16'-0" 32'-0"



1 EXISTING ELEVATION AT LOWER ROOF

3/32" = 1'-0"

0 4'-0" 8'-0" 16'-0" 32'-0"

Prepared For:
HRI PROPERTIES
812 Gravier Street, Suite 200
New Orleans, LA 70112

Consultant:

Architect:
ARCHETYPE ARCHITECTS
48 Union Wharf Portland, Maine 04101
(207) 772-6022 Fax (207) 772-4056

Project:
477 CONGRESS HOTEL
477 Congress Street
Portland, Maine

Revisions:

Scale:
3/32" = 1'-0"

Date:
1 NOV. 2019

EXTERIOR ELEVATIONS

A4.04

Preliminary General Notes:

1. Terracotta cladding is difficult to work with and expensive to replace. Skilled masons must be used to ensure existing pieces are protected and new work is placed properly. We recommend existing TC be sent to the two leading manufacturers as soon as possible for replication ability in finish, and deliverable schedules.

2. All masonry joints in the tower Terracotta to be raked out and repointed with special attention given to window sills and decorative ornament.

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8. All bricks coated with latex paint should have the paint removed and repainted after repairs with a mineral paint.

9. Structural Steel in a number of corner location is causing damage to the masonry, this will have to be addressed not only to preserve the masonry but to ensure structural stability of the building.

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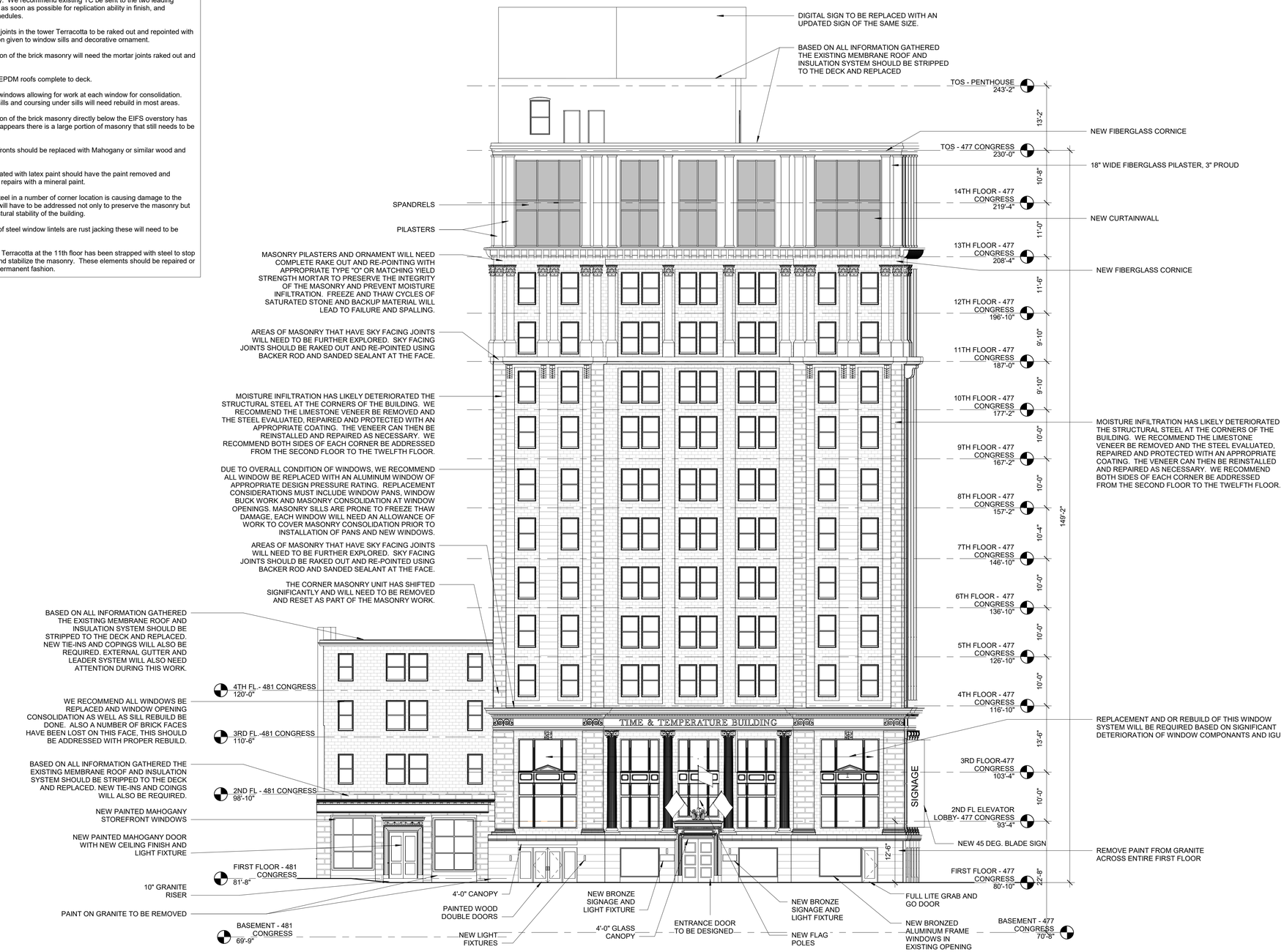


2 | CONGRESS ST - ELEVATION - NEW
3/32" = 1'-0"

Prepared For: PRESIDIUM

Consultant:

Architect: **ARCHETYPE ARCHITECTS**
48 Union Wharf Portland, Maine 04101
(207) 772-6022 Fax (207) 772-4056

Project: TIME & TEMPERATURE HOTEL
477 Congress Street Portland, Maine

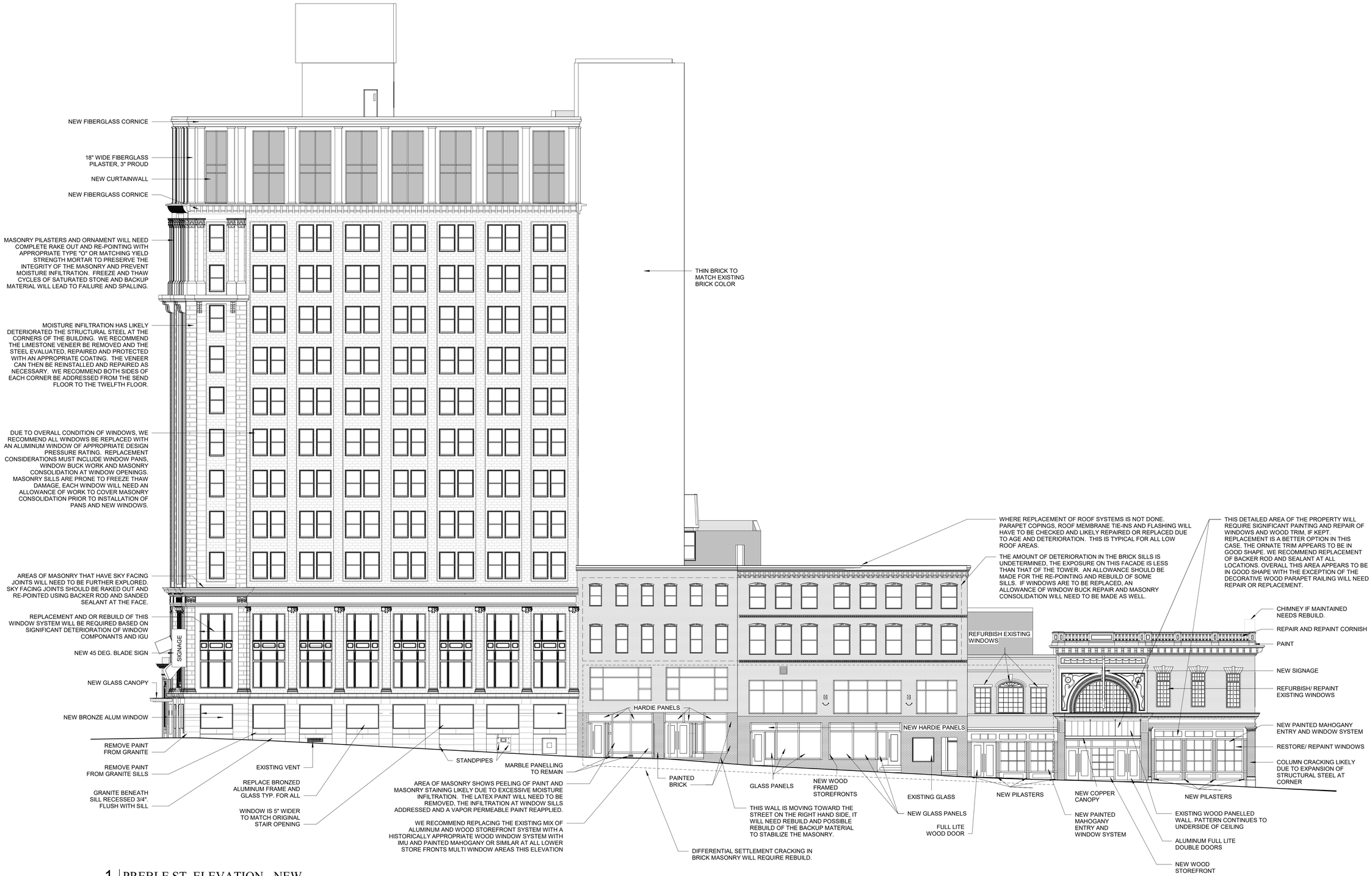
Revisions:

Scale: 3/32" = 1'-0"

Date: 16 APRIL, 2021

CONGRESS ST ELEVATION

A4.21



1 PREBLE ST. ELEVATION - NEW
3/32" = 1'-0"

Prepared For: PRESIDIUM

Consultant:

Architect: ARCHETYPE ARCHITECTS
48 Union Wharf Portland, Maine 04101
(207) 772-6022 Fax (207) 772-4056

Project: TIME & TEMPERATURE HOTEL
477 Congress Street Portland, Maine

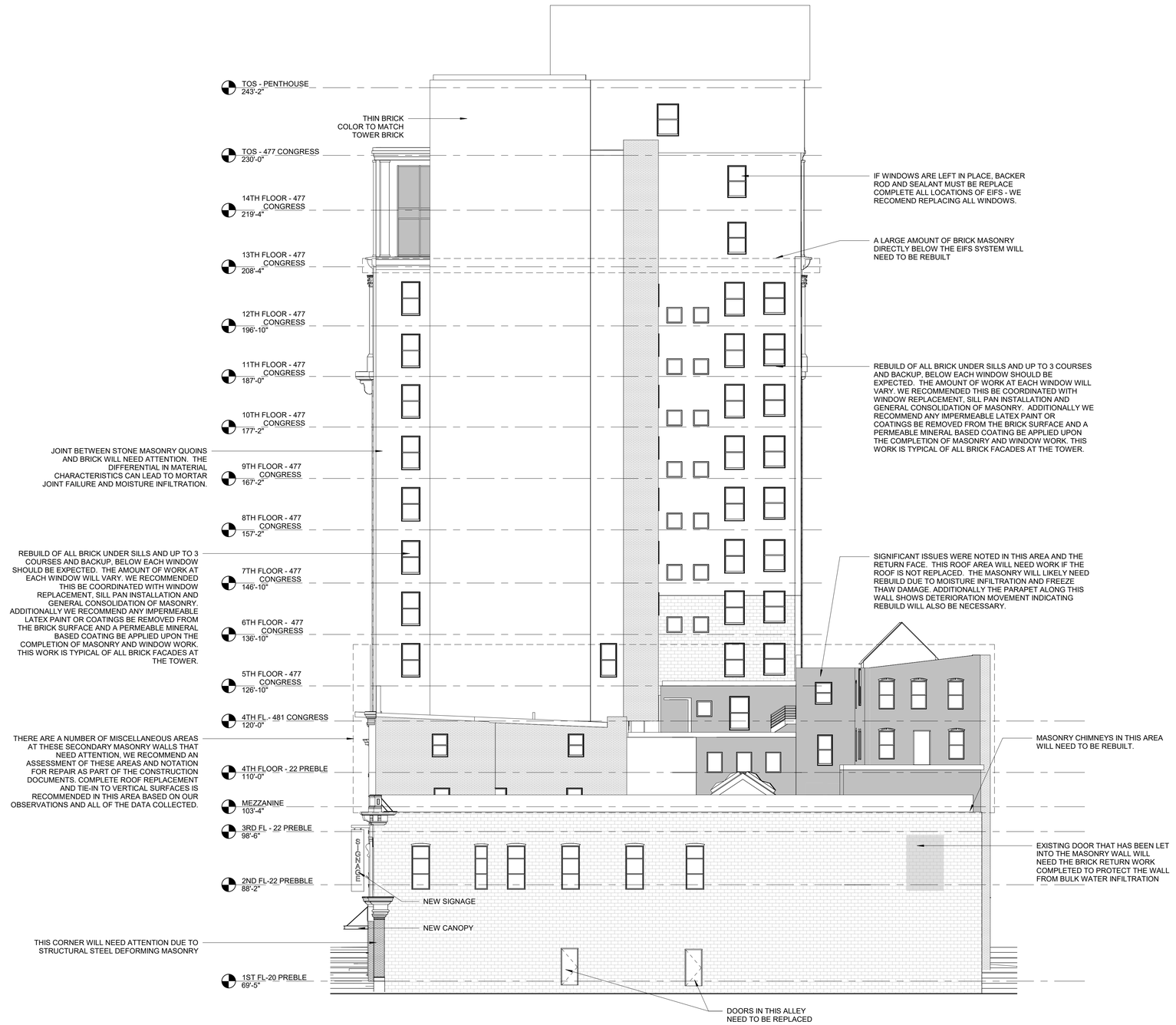
Revisions:

Scale: 3/32" = 1'-0"

Date: 16 APRIL, 2021

PREBLE ST. ELEVATION

A4.22



1 NORTH ELEVATION NEW
3/32" = 1'-0"

Prepared For: PRESIDIUM

Consultant:

Architect: ARCHETYPE ARCHITECTS
48 Union Wharf Portland, Maine 04101
(207) 772-6022 Fax: (207) 772-4056

Project: TIME & TEMPERATURE HOTEL
477 Congress Street
Portland, Maine

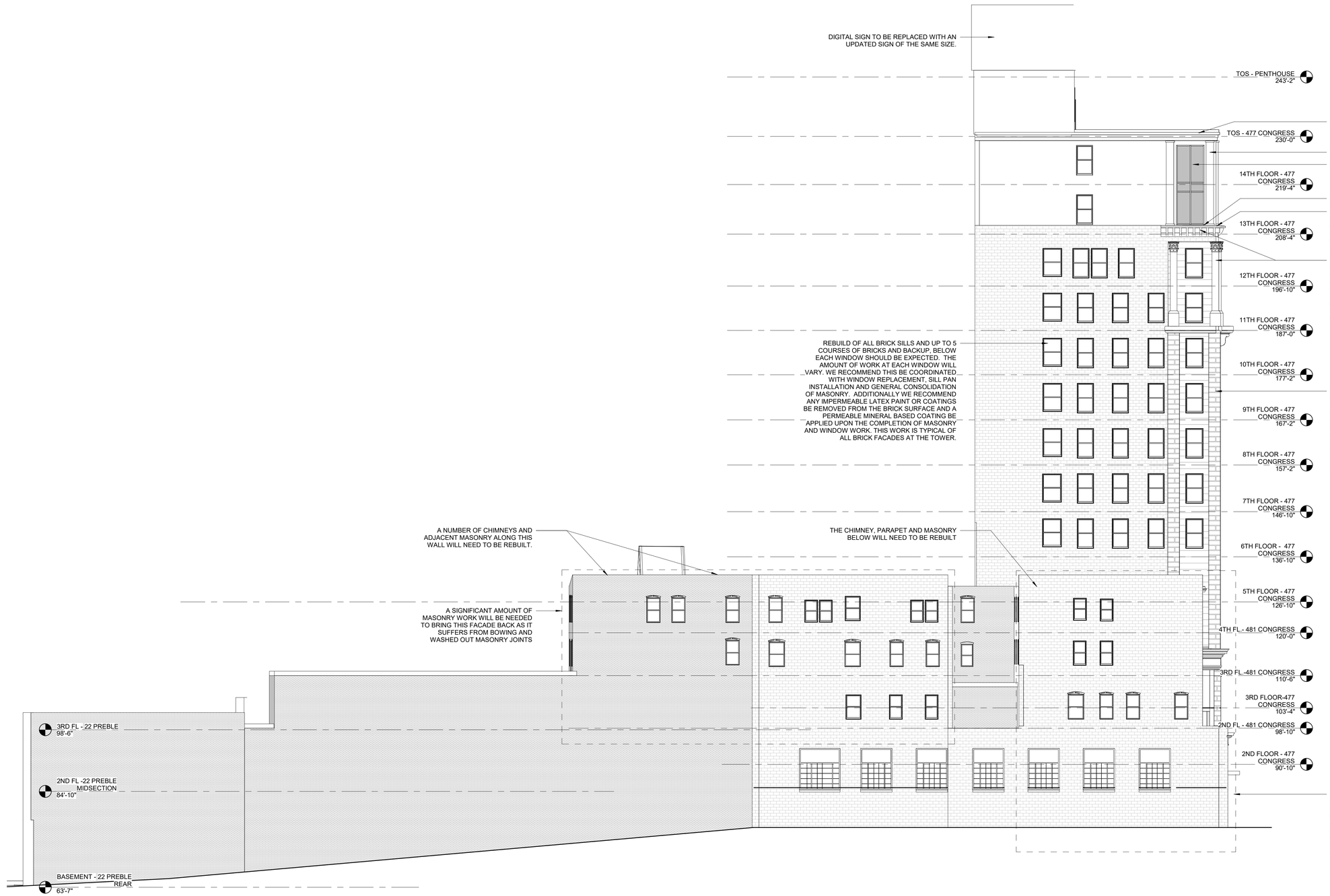
Revisions:

Scale: 3/32" = 1'-0"

Date: 16 APRIL, 2021

NORTH ELEVATIONS

A4.23



1 | WEST ELEVATION NEW
3/32" = 1'-0"

Prepared For: PRESIDIUM

Consultant:

Architect: ARCHETYPE ARCHITECTS
48 Union Wharf Portland, Maine 04101
(207) 772-6022 Fax (207) 772-4056

Project: TIME & TEMPERATURE HOTEL
477 Congress Street Portland, Maine

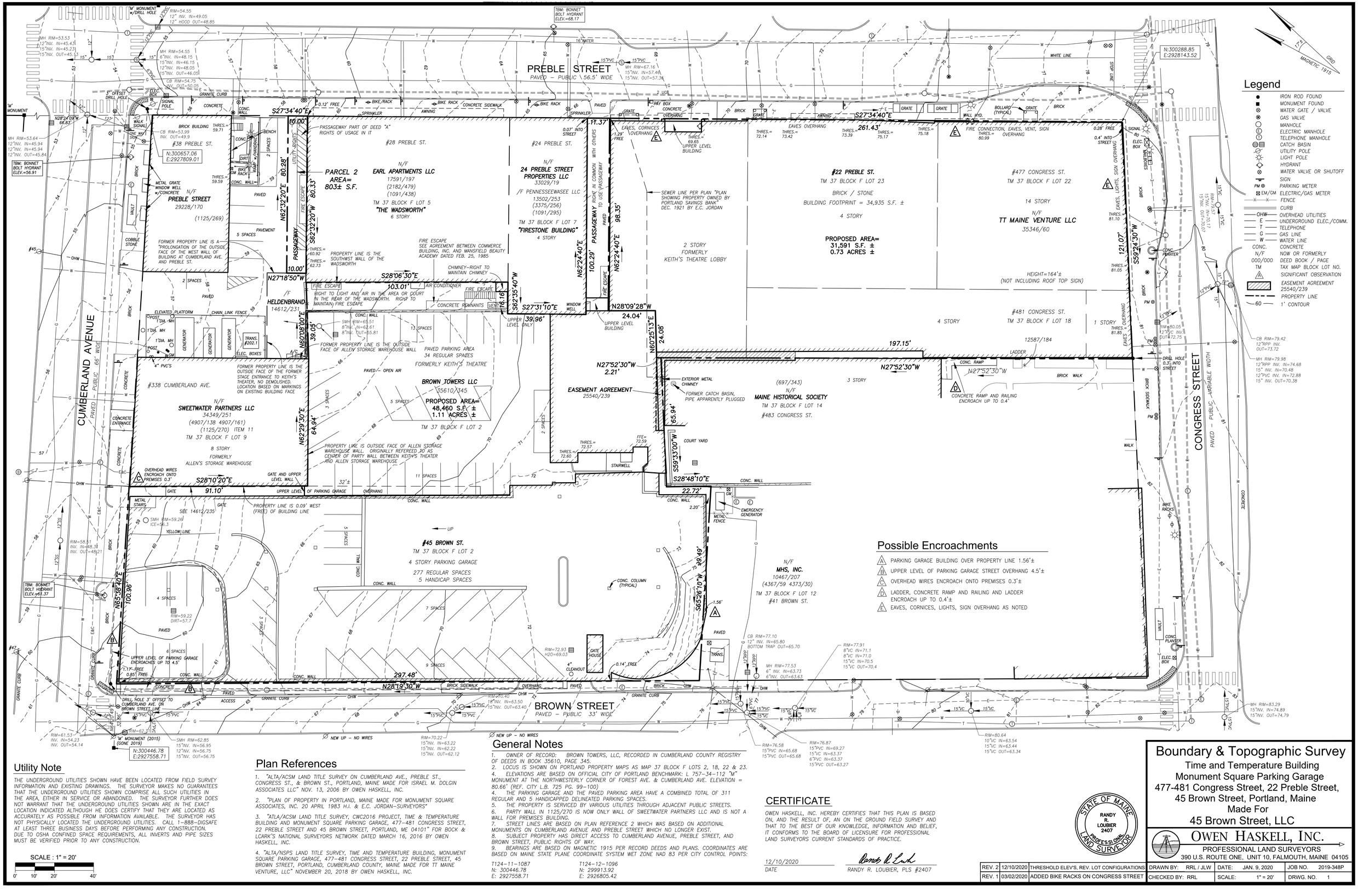
Revisions:

Scale: 3/32" = 1'-0"

Date: 16 APRIL, 2021

WEST ELEVATION

A4.24


PREBLE STREET
PAVED – PUBLIC \ 56.5' WIDE
CUMBERLAND AVENUE
PAVED – PUBLIC 66' WIDE
CONGRESS STREET
PAVED – PUBLIC – VARIABLE WIDTH
BROWN STREET
PAVED – PUBLIC 33' WIDE
PASSAGEWAY
#28 PREBLE ST.
#24 PREBLE ST.
#22 PREBLE ST.
TM 37 BLOCK F LOT 23
BRICK / STONE
BUILDING FOOTPRINT = 34,935 S.F. ±
4 STORY
PROPOSED AREA=
31,591 S.F. ±
0.73 ACRES ±
#477 CONGRESS ST.
TM 37 BLOCK F LOT 22
14 STORY
N/F
TT MAINE VENTURE LLC
35346/60
HEIGHT=164'±
(NOT INCLUDING ROOF TOP SIGN)
#481 CONGRESS ST.
TM 37 BLOCK F LOT 18
12587/184
1 STORY
4 STORY
2 STORY
FORMERLY
KEITH'S THEATRE LOBBY
#338 CUMBERLAND AVE.
N/F
SWEETWATER PARTNERS LLC
34349/251
(4907/138 4907/161)
(1125/270) ITEM 11
TM 37 BLOCK F LOT 9
8 STORY
FORMERLY
ALLEN'S STORAGE WAREHOUSE
#38 PREBLE ST.
N:300657.06
E:2927809.01
N/F
PREBLE STREET
29228/170
(1125/269)
PARCEL 2
AREA=
803± S.F.
N/F
EARL APARTMENTS LLC
17591/197
(2182/479)
(1091/438)
TM 37 BLOCK F LOT 5
"THE WADSWORTH"
6 STORY
N/F
24 PREBLE STREET
PROPERTIES LLC
33029/19
/F PENNESSEEWASEE LLC
13502/253
(3375/256)
(1091/295)
TM 37 BLOCK F LOT 7
"FIRESTONE BUILDING"
4 STORY
/F
HELDENBRAND
14612/231
BROWN TOWERS LLC
35610/345
PROPOSED AREA=
48,460 S.F. ±
1.11 ACRES ±
TM 37 BLOCK F LOT 2
#45 BROWN ST.
TM 37 BLOCK F LOT 2
4 STORY PARKING GARAGE
277 REGULAR SPACES
5 HANDICAP SPACES
N/F
MHS, INC.
10467/207
(4367/59 4373/30)
TM 37 BLOCK F LOT 12
#41 BROWN ST.
N/F
MAINE HISTORICAL SOCIETY
TM 37 BLOCK F LOT 14
#483 CONGRESS ST.
(697/343)
EASEMENT AGREEMENT
25540/239
PAVED PARKING AREA
34 REGULAR SPACES
FORMERLY KEITH'S THEATRE
PAVED – OPEN AIR
COURT YARD
STAIRWELL
GATE HOUSE
N:300288.85
E:2928143.52
TBM: BONNET BOLT HYDRANT ELEV.=68.17
"M" MONUMENT w/DRILL HOLE
"M" MONUMENT
"M" MONUMENT (2015) (GONE 2019)
N:300446.78
E:2927558.71
TBM: BONNET BOLT HYDRANT ELEV.=56.91
TBM: BONNET BOLT HYDRANT ELEV.=61.37
MAGNETIC 1915
GRID
17°
Legend
IRON ROD FOUND
MONUMENT FOUND
WATER GATE / VALVE
GAS VALVE
MANHOLE
ELECTRIC MANHOLE
TELEPHONE MANHOLE
CATCH BASIN
UTILITY POLE
LIGHT POLE
HYDRANT
WATER VALVE OR SHUTOFF
SIGN
PARKING METER
ELECTRIC/GAS METER
FENCE
CURB
OVERHEAD UTILITIES
UNDERGROUND ELEC./COMM.
TELEPHONE
GAS LINE
WATER LINE
CONCRETE
NOW OR FORMERLY
DEED BOOK / PAGE
TAX MAP BLOCK LOT NO.
SIGNIFICANT OBSERVATION
EASEMENT AGREEMENT
25540/239
PROPERTY LINE
1' CONTOUR
Possible Encroachments
A PARKING GARAGE BUILDING OVER PROPERTY LINE 1.56'±
B UPPER LEVEL OF PARKING GARAGE STREET OVERHANG 4.5'±
C OVERHEAD WIRES ENCROACH ONTO PREMISES 0.3'±
D LADDER, CONCRETE RAMP AND RAILING AND LADDER ENCROACH UP TO 0.4'±
E EAVES, CORNICES, LIGHTS, SIGN OVERHANG AS NOTED
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.
SCALE : 1" = 20'
0' 10' 20' 40'
Plan References
1. "ALTA/ACSM LAND TITLE SURVEY ON CUMBERLAND AVE., PREBLE ST., CONGRESS ST., & BROWN ST., PORTLAND, MAINE MADE FOR ISRAEL M. DOLGIN ASSOCIATES LLC" NOV. 13, 2006 BY OWEN HASKELL, INC.
2. "PLAN OF PROPERTY IN PORTLAND, MAINE MADE FOR MONUMENT SQUARE ASSOCIATES, INC. 20 APRIL 1983 H.I. & E.C. JORDAN-SURVEYORS"
3. "ATLA/ACSM LAND TITLE SURVEY, CWC2016 PROJECT, TIME & TEMPERATURE BUILDING AND MONUMENT SQUARE PARKING GARAGE, 477-481 CONGRESS STREET, 22 PREBLE STREET AND 45 BROWN STREET, PORTLAND, ME 04101" FOR BOCK & LCARK'S NATIONAL SURVEYORS NETWORK DATED MARCH 16, 2016 BY OWEN HASKELL, INC.
4. "ALTA/NSPS LAND TITLE SURVEY, TIME AND TEMPERATURE BUILDING, MONUMENT SQUARE PARKING GARAGE, 477-481 CONGRESS STREET, 22 PREBLE STREET, 45 BROWN STREET, PORTLAND, CUMBERLAND COUNTY, MAINE MADE FOR TT MAINE VENTURE, LLC" NOVEMBER 20, 2018 BY OWEN HASKELL, INC.
General Notes
1. OWNER OF RECORD: BROWN TOWERS, LLC, RECORDED IN CUMBERLAND COUNTY REGISTRY OF DEEDS IN BOOK 35610, PAGE 345.
2. LOCUS IS SHOWN ON PORTLAND PROPERTY MAPS AS MAP 37 BLOCK F LOTS 2, 18, 22 & 23.
4. ELEVATIONS ARE BASED ON OFFICIAL CITY OF PORTLAND BENCHMARK: L 757-34-112 "M" MONUMENT AT THE NORTHWESTERLY CORNER OF FOREST AVE. & CUMBERLAND AVE. ELEVATION = 80.66' (REF. CITY L.B. 725 PG. 99-100)
4. THE PARKING GARAGE AND THE PAVED PARKING AREA HAVE A COMBINED TOTAL OF 311 REGULAR AND 5 HANDICAPPED DELINEATED PARKING SPACES.
5. THE PROPERTY IS SERVICED BY VARIOUS UTILITIES THROUGH ADJACENT PUBLIC STREETS.
6. PARTY WALL IN 1125/270 IS NOW ONLY WALL OF SWEETWATER PARTNERS LLC AND IS NOT A WALL FOR PREMISES BUILDING.
7. STREET LINES ARE BASED ON PLAN REFERENCE 2 WHICH WAS BASED ON ADDITIONAL MONUMENTS ON CUMBERLAND AVENUE AND PREBLE STREET WHICH NO LONGER EXIST.
8. SUBJECT PROPERTY HAS DIRECT ACCESS TO CUMBERLAND AVENUE, PREBLE STREET, AND BROWN STREET, PUBLIC RIGHTS OF WAY.
9. BEARINGS ARE BASED ON MAGNETIC 1915 PER RECORD DEEDS AND PLANS. COORDINATES ARE BASED ON MAINE STATE PLANE COORDINATE SYSTEM WET ZONE NAD 83 PER CITY CONTROL POINTS:
T124-11-1087
N: 300446.78
E: 2927558.71
T124-12-1096
N: 299913.92
E: 2926805.42
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.
12/10/2020
DATE
RANDY R. LOUBIER, PLS #2407
STATE OF MAINE
RANDY R. LOUBIER 2407
PROFESSIONAL LAND SURVEYOR
Boundary & Topographic Survey
Time and Temperature Building
Monument Square Parking Garage
477-481 Congress Street, 22 Preble Street,
45 Brown Street, Portland, Maine
Made For
45 Brown Street, LLC
OWEN HASKELL, INC.
PROFESSIONAL LAND SURVEYORS
390 U.S. ROUTE ONE, UNIT 10, FALMOUTH, MAINE 04105
REV. 2 12/10/2020 THRESHOLD ELEV'S, REV. LOT CONFIGURATIONS
REV. 1 03/02/2020 ADDED BIKE RACKS ON CONGRESS STREET
DRAWN BY: RRL / JLW
CHECKED BY: RRL
DATE: JAN. 9, 2020
SCALE: 1" = 20'
JOB NO. 2019-348P
DRWG. NO. 1

PUBLIC MARKET

"W" MONUMENT w/DRILL HOLE

TBM: BONNET BOLT HYDRANT ELEV.=68.17

PREBLE STREET

REMOVE AND PROTECT PAY BOX, TO BE RESET, COORDINATE WORK W/CITY PLANNING DEPARTMENT

REMOVE AND RESET GRANITE CURB (TYP.)

RESET SIGN, COORDINATE WITH CITY (TYP.)

RESTRIPE EXISTING CROSSWALK

14' GRANITE TIPDOWN TERMINAL CURB, SEE DETAIL

ADA ACCESSIBLE CURB RAMP, SEE DETAIL (TYP.)

86' VALET/HOTEL LOADING

44' COMMERCIAL LOADING ZONE

86' VALET/HOTEL LOADING

WHITE LINE

STOP LINE

N:300288.85
E:2928143.52

R20.0'

R45'

RESTRIPE EXISTING CROSSWALK

SAWCUT EXISTING PAVEMENT

BITUMINOUS PAVEMENT, SEE DETAIL

R40.0'

3" OFFSET DRILL HOLE

ELEC. BOX

SIGNAL POLE

GRANITE CURB

CONCRETE

CONC. WALL

WALK SIGNAL

ONE WAY SIGN

BRICK BUILDING

#38 PREBLE ST.

N:300657.06
E:2927809.01

BENCH

CONC.

DIRT

BIKE RACK

RAMP

2 SPACES

CONC. WALL

BRICK

METAL GRATE WINDOW WELL w/CONCRETE

N/F
PREBLE STREET
29228/170
(1125/269)

VAULT

PAVED

5 SPACES

COBBLE STONE

FORMER PROPERTY LINE IS A "PROLONGATION OF THE OUTSIDE FACE OF THE WEST WALL OF BUILDING AT CUMBERLAND AVE. AND PREBLE ST.

2 SPACES

PAVED

BRICK

ELEVATED PLATFORM

CHAIN LINK FENCE

POST

1'DIA. MH

GENERATOR

GENERATOR

GENERATOR

TRANS. #202.1

A/C

ELEC. BOXES

4" PVC'S

CONCRETE

CONCRETE ENTRANCE

#338 CUMBERLAND AVE.

FORMER PROPERTY LINE IS THE OUTSIDE FACE OF THE FORMER STAGE ENTRANCE TO KEITH'S THEATER, NO DEMOLISHED. LOCATION BASED ON MARKINGS ON EXISTING BUILDING FACE

N/F
SWEETWATER PARTNERS LLC
34349/251
(4907/138 4907/161)
(1125/270) ITEM 11
TM 37 BLOCK F LOT 9

8 STORY
FORMERLY
ALLEN'S STORAGE WAREHOUSE

0.12' FREE

BIKE RACK

BIKE RACK

CONCRETE SIDEWALK

BIKE RACK

SPRINKLER

AWNING

SPRINKLER

PASSAGEWAY PART OF DEED "A" RIGHTS OF USAGE IN IT

#28 PREBLE ST.

N/F
EARL APARTMENTS LLC
17591/197
(2182/479)
(1091/438)
TM 37 BLOCK F LOT 5
"THE WADSWORTH"
6 STORY

PARCEL 2
AREA=
803± S.F.

UTILITY RIGHTS

FIRE ESCAPE

PASSAGEWAY

PROPERTY LINE IS THE SOUTHWST WALL OF THE WADSWORTH

FIRE ESCAPE
SEE AGREEMENT BETWEEN COMMERCE BUILDING, INC. AND MANSFIELD BEAUTY ACADEMY DATED FEB. 25, 1985

CHIMNEY–RIGHT TO MAINTAIN CHIMNEY

AIR CONDITIONER

FIRE ESCAPE

FIRE ESCAPE

RIGHT TO LIGHT AND AIR IN THE AREA OR COURT IN THE REAR OF THE WADSWORTH. RIGHT TO MAINTAIN FIRE ESCAPE

CONCRETE REMNANTS

VENT

WINDOW WELL

/F
HELDENBRAND
14612/231

CONC. WALL

13 SPACES

FORMER PROPERTY LINE IS THE OUTSIDE FACE OF ALLEN STORAGE WAREHOUSE WALL

PAVED PARKING AREA
34 REGULAR SPACES
FORMERLY KEITH'S THEATRE

PAVED – OPEN AIR

BROWN TOWERS LLC
35610/345

5 SPACES

PROPOSED AREA=
48,460 S.F. ±
1.11 ACRES ±

TM 37 BLOCK F LOT 2

3 SPACES

2 SPACES

PROPERTY LINE IS OUTSIDE FACE OF ALLEN STORAGE WAREHOUSE WALL. ORIGINALLY REFEREED TO AS CENTER OF PARTY WALL BETWEEN KEITH'S THEATER AND ALLEN STORAGE WAREHOUSE

OVERHEAD WIRES ENCROACH ONTO PREMISES 0.3'

GATE AND UPPER LEVEL WALL

11 SPACES

32'±

GATE

UPPER LEVEL OF PARKING GARAGE OVERHANG

GATE

SEE 14612/235

PROPERTY LINE IS 0.09' WEST (FREE) OF BUILDING LINE

METAL STAIRS

CONC. WALL

YELLOW LINE

BRICK

5 SPACES

#45 BROWN ST.
TM 37 BLOCK F LOT 2
4 STORY PARKING GARAGE
277 REGULAR SPACES
5 HANDICAP SPACES

UP

CONC. WALL

CONC. WALL

CONC. COLUMN (TYPICAL)

4 SPACES

PAVED

6 SPACES

7 SPACES

9 SPACES

UPPER LEVEL OF PARKING GARAGE ENCROACHES UP TO 4.5'

1.17' FREE

0.85' FREE

CONC. WALL

CONCRETE

PAVED

ACCESS

GRANITE CURB

CONC. WALL

BRICK SIDEWALK

OVERHANG

PAVED

BRICK

GRANITE CURB

OHW

OHW

OHW

OHW

2225 UP BZ

2224 UP BZ

2227 UP BZ

2228 CGAR BZ

2223 CS FEED BZ

2226 UP BZ

2225 UP BZ

DRILL HOLE 3' OFFSET TO CUMBERLAND AVE. ON BROWN STREET LINE

N64°20'49"E 32.86'

"M" MONUMENT (2015) (GONE 2019)

N:300446.78
E:2927558.71

NEW UP – NO WIRES

NEW UP – NO WIRES

PAVED

1.56'

TRANS.

GATE HOUSE

4" CLEANOUT

0.14' FREE

EMERGENCY GENERATOR

METAL FENCE

2.20'

N/F
MHS, INC.
10467/207
(4367/59 4373/30)
TM 37 BLOCK F LOT 12
#41 BROWN ST.

STAIRWELL

COURT YARD

CONC. WALL

CONC. WALL

GM

.29' FREE

PAY BOX

CONCRETE OVERHANG

GRATE

BRICK

GRATE

AWNING

GRATE

GRATE

BOLLARD (TYPICAL)

WALL HYD.

GRATE

BRICK

EAVES OVERHANG

UPPER LEVEL BUILDING

DEMOLISH CONCRETE SIDEWALK AND PROVIDE BRICK SIDEWALK, SEE DETAIL

SEWER LINE PER PLAN "PLAN SHOWING PROPERTY OWNED BY PORTLAND SAVINGS BANK" DEC. 1921 BY E.C. JORDAN

RIGHT IN COMMON WITH OTHERS TO USE PASSAGEWAY

PAVED

0.07' INTO STREET

MATCH GRADE AT EXISTING PAVED DRIVEWAY APRON

#24 PREBLE ST.

N/F
24 PREBLE STREET PROPERTIES LLC
33029/19
/F PENNESSEEWASEE LLC
13502/253
(3375/256)
(1091/295)
TM 37 BLOCK F LOT 7.
"FIRESTONE BUILDING"
4 STORY

UPPER LEVEL ONLY

UPPER LEVEL BUILDING

GREASE TRAP, SEE UTILITY PLAN

EXTERIOR METAL CHIMNEY

FORMER CATCH BASIN, PIPE APPARENTLY PLUGGED

EXISTING ANNEX TO BE DEMOLISHED

25540/239

NEIGHBORING BUILDING (697/343)

N/F
MAINE HISTORICAL SOCIETY
TM 37 BLOCK F LOT 14
#483 CONGRESS ST.

3 STORY

NEW RAMP

NEW STAIR FROM MT CONGRESS BASEMENT UP TO 6TH FLOOR LOCATED WITHIN TO BE LOCATED WITHIN THE EXISTING BUILDING

EXISTING STAIRS

#477 CONGRESS ST.

#22 PREBLE ST.

TM 37 BLOCK F LOT 23

RETAIL
59
2378 SF

BRICK / STONE

BUILDING FOOTPRINT
34,935 SF

4 STORY

MAINE VENTURE LLC
5346/60

PROPOSED AREA=
8,359 SF
0.73 ACRES ±

2 STORY
FORMERLY
KEITH'S THEATRE LOBBY

FIRE COMMAND CENTER

FIRE CONNECTION FDC OVER

ADA ACCESSIBLE CURB RAMP W/DETECTABLE WARNING SURFACE, SEE DETAIL (TYP.)

0.28' FREE

0.4' INTO STREET

SIGNAL

ELEC. BOX

PROTECT ELECTRICAL BOX AND SIGNAL POLE

REMOVE AND PROTECT MAIL BOXES, TO BE RESET, COORDINATE WORK W/CITY PLANNING DEPARTMENT AND USPS

PROVIDE BRICK SIDEWALK (TYP.) SEE DETAIL

REMOVE AND RESET GRANITE CURB (TYP.)

RAISED GRANITE TREE WELL (TYP. OF 3) SEE DETAIL

REMOVE EXISTING CONCRETE PLANTER

REMOVE AND REPLACE SIGN W/"VALET PARKING ONLY"

REMOVE AND SALVAGE PARKING METERS, DELIVER TO CITY PUBLIC WORKS DEPARTMENT

CONC. PLANTER

R20.0'

LOADING/UNLOADING ZONE

40'

PM

PM

DRILL HOLE 0.3' INTO STREET

CONC. RAMP

BRICK WALK

MATCH BRICK SIDEWALK TO EXISTING GRADE AND BRICK PATTERN

BRICK SIDEWALK

PM

64' METERED PARKING

CONGRESS STREET

CONCRETE

WALK

BIKE RACKS

VAULT

CONC. PLANTER

ELEC. BOX

KITCHEN
44

RESTAURANT
45

FIRE SHUTTER (STAIR) IN

EXISTING HISTORIC STAIR

NEW EGRESS STAIR

HOTEL ENTRANCE

FITNESS
58
3335 SF

4 STORY

VAULT

1 STORY

IM 37 BLOCK F LOT 18

12587/184

NOT INCLUDING ROOF TOP WORK

20' 0 20' 40'

BAR SCALE
1" = 20'
CHECK GRAPHIC SCALE BEFORE USING

NOT FOR CONSTRUCTION

41 Hutchins Drive
Portland, Maine 04102
800.426.4262 | www.woodardcurran.com

COMMITMENT & INTEGRITY DRIVE RESULTS

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REV	DESCRIPTION	DATE
A	RESPONSE TO CITY COMMENTS	01/31/2022

DESIGNED BY: ANL
DRAWN BY: JBC
CHECKED BY: DBS
0232868.00-C-200.dwg

OVERALL SITE PLAN

477 CONGRESS HOTEL
PORTLAND, MAINE

TT MAINE VENTURE, LLC
3100 MCKINNON STREET, SUITE 250
DALLAS, TX 75201

JOB NO.:0232868.00
DATE: JANUARY 11, 2022
SCALE: 1" = 20'
SHEET: 2 OF 7

C-200

\\woodardcurran.net\shared\Projects\0232868.00 Archetype – Time Temp Building\Wip\Drawings\Civil\0232868.00-C-200.dwg, Jan 11, 2022 – 2:52pm DSTAIRS