PLANNING BOARD

Tuesday, June 23, 2026 at 4:30 PM
Room 24 (Basement Level of City Hall)
and Zoom

MEMBERS
Joseph Zamboni, Chair
Kelsey Robertson, Vice Chair
Eric Dinn
Nicholas Messina
David Silk
Austin Smith
Beverly Uhlenhake

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AGENDA:

PUBLIC HEARING - 4:30 PM

1. ROLL CALL AND DECLARATION OF QUORUM

2. COMMUNICATION AND REPORTS

Update on Portland in Motion

3. REPORT OF ATTENDANCE AT THE MEETING HELD ON JUNE 9, 2026

Workshop
15 & 19 Cedar Street: Din, Robertson, Uhlenhake, and Zamboni present. Silk and Smith rescued; Messina absent.

4. REPORTS OF DECISIONS AT THE MEETING HELD ON JUNE 9, 2026

5. NEW BUSINESS

i. Major Site Plan; 1871 Forest Avenue; Avesta Housing Development Corporation, Applicant. The Planning Board will hold a hybrid public hearing to consider an application for the construction of a four-story, approximately 28,000 square-foot multifamily building at 1871 Forest Avenue in the B-2 Community Business Zone. The proposed development includes 33 dwelling units, 100% of which would be affordable, and eight parking spaces. A project and plan summary are available for viewing on the city's CSS Portal (https://css.portlandmaine.gov/) by referencing Plan Number PL-003538-2026.

6. UNFINISHED BUSINESS

i. Major Site Plan; 0 Dalton Street; Main-Land Development Consultants, Inc, Applicant. The Planning Board will hold a hybrid public hearing to consider an application for the development of eight new dwelling units across two lots. Each lot will contain two, two-family buildings, totaling four units per lot, with eight off-street parking spaces in total. The subject property is located within the Residential Neighborhood RN-3 zone. A project and plan summary are available for viewing on the city's CSS Portal (https://css.portlandmaine.gov/) by referencing Plan Number PL-003335-2025. **This item was tabled at the May 26, 2026 Planning Board Meeting.**

ii. Major Site Plan; 16 Purington Way; Main-Land Development Consultants, Inc, Applicant. The Planning Board will hold a hybrid public hearing to consider an application for the development of eight new dwelling units across two lots. Each lot will contain one four-family building, with eight off-street parking spaces. The subject property is located within the Residential Neighborhood RN-3 zone. A project and plan summary are available for viewing on the city's CSS Portal (https://css.portlandmaine.gov/) by referencing Plan Number PL-003302-2025. **This item was tabled at the May 26, 2026 Planning Board Meeting.**

1871 Forest Avenue
Major Site Plan Application
PL-003538-2026
Avesta Housing Development Corporation, Applicant

Submitted to:	Portland Planning Board	**Prepared By:**	Rowen McAllister
Public Hearing Date:	June 9, 2026	**Date:**	June 17, 2026

I. INTRODUCTION

Avesta Housing Development Corporation (the "Applicant") has submitted a Major Site Plan application to facilitate the construction of a 33-unit multifamily residential building at 1871 Forest Avenue (the "subject property"). This property is located in the B-2 Community Business zone. This application is being referred to the Planning Board for compliance with the City of Portland's Land Use Code Site Plan Standards, Section 13.6.

The Planning and Urban Development Department mailed 48 notices advertising this meeting to property owners within 500 feet of the site. A legal advertisement ran in the June 11th and 12th editions of the *Portland Press Herald*.

Applicant: Avesta Housing Development Corporation
Applicant Representative(s): Acorn Engineering, Inc

Figure 1: Project Rendering

II. REQUIRED REVIEWS –

Review	*Applicable Standards*
Site Plan	Section 13.6
Design Review	Design Review Manual – (d) B-2 Commercial Business Zone, Appendix 2, and (i) two-family,

	special needs independent living units, multiple family, lodging houses, bed and breakfasts, and emergency shelters.

Exemption and Waiver Requests	*Applicable Standards*
Request: No bicycle parking for residents	Land Use Code, Table 18A – Minimum Bicycle Parking Requirements: 1 per 2 dwelling units
Request: Provide trees along perimeter of parking lot instead of landscaped islands	Land Use Code, Section 13.6.2.B.3.a – Developments with more than 5 parking spaces shall include one tree for every 750 square feet of uncovered asphalt planted in landscaped islands to screen and shade area.
Request: Private connection to City catch basins	Technical Manual, 6.9.7 - No storm drains or storm drain laterals, with the exception of street underdrains, shall be connected into a catch basin structure.
Exemption Request: Provide a build-to zone of 0-32 feet	Land Use Code, Table 7-C – Requires a build-to zone of 0-10 feet.

Project Data	
Existing Zoning	B-2
Property Size	144,679 square feet
Existing Use	Commercial Business - Restaurant (Vacant)
Proposed Use	Multifamily Dwelling
Proposed Development Program	33-unit dwelling, with ground-floor, auxiliary office space to support residents

III. BACKGROUND/PLANNING BOARD WORKSHOP SUMMARY

A Planning Board workshop was held on May 12, 2026 for the Major Site Plan Application submitted for the subject property. At the workshop, Planning Staff provided the Board and the public with an overview of the submission. The applicant provided a summary of the proposed project and discussed the following items with the Board:

- *Bicycle Parking*
  The Applicant is seeking a waiver of the City's bicycle parking requirements, requiring one bicycle parking space for every two residential units, for a total requirement of 17 parking spaces. The Applicant's original submission showed a total of six bicycle parking spaces outside the primary entrance. At the workshop, the Applicant agreed to provide one additional rack. The resubmission, dated May 21, 2026, shows a total of eight bicycle parking spaces.
- *Landscaping and Buffers*
  The Applicant is seeking a waiver from the landscaping and screening requirements which require that trees be provided in landscaped islands to shade and screen parking areas. The Applicant has provided one tree in a landscaped island and six around the perimeter of the parking area. The Board was generally amenable to this waiver request and did not seek additional details.
- *Stormwater Technical Requirements*

The Applicant is seeking a waiver from the prohibition on private connections to City catch basins. The Applicant reviewed plans, dated April 27, 2026, with the City's Water Resources Division, and received support from City Staff for the waiver request. The Applicant's resubmission, dated May 21, 2026, shows a different proposed structure and placement. Staff have provided conditions of approval which require further revision and review. See Section IX.3 of this Report for additional details.

- *Build-to Zone*
  The Applicant is seeking an exemption from the 0-10 foot build-to zone requirement, due to unusual topography of the site. During discussion at the workshop, the Board requested that staff clarify whether the proposed stepback of the second and third stories should be considered in the requested exemption. Staff determined that the stepback was an allowable façade articulation that did not need to meet the build-to exemption. However, staff also determined that the Applicant must request a build-to zone that extends to the furthest part of the proposed structure, and cannot be measured from the private patio. This is due to the definition of build-to percentage, provided in Section 7 of the Land Use Code, which states that only public open spaces can be counted towards the build-to percentage requirements. Therefore, the Applicant has revised their requested build-to exemption from 12.5 feet to 32 feet, and provided additional pedestrian level plantings, found in the Planting Plan – attachment 10, and further justification for the request, found in attachment H. Waiver Summary Resubmission. See Section VIII of this Report for additional details.
- *Existing Footpath*
  Additionally, there was discussion of a footpath the crosses the western side property to create an informal connection between Forest Avenue and the Hannaford grocery store. The Board urged the Applicant to consider improvements to the path at later stages of development on the property.

Several members of the public commented in support of the proposed development. Many noted that the redevelopment of the site is an improvement from the existing vacant restaurant. Others also spoke in support of the programming on the site to provide housing to chronically homeless individuals.

IV. EXISTING CONDITIONS AND SURROUNDING AREA

The subject property at 1871 Forest Ave currently contains an 8,771 square foot, vacant commercial restaurant with 59 parking spaces on a 144,679 square foot lot with 690 feet of frontage. Two existing curb cuts at the east and west sides of the parcel provide access to the parking area and structure. The site experiences a grade change of more than ten feet from the existing sidewalk and right-of-way on Forest Ave to the existing commercial structure. Wetlands and mature tree cover exist on the western portion of the site, and mature trees extend to the rear and eastern edges of the site. A footpath on the western side of the property provides informal access from Forest Ave to the parking lot of Hannaford Supermarket, located to the north of the site.

Figure 2: Existing Conditions

The subject property is bounded by commercial uses to the north and west, a Quaker Meeting House and cemetery to the east, and Forest Avenue to the south. Nearby uses along Forest Avenue opposite the subject property include single family dwellings, a cultural center and mosque, a gas station, and a new multifamily dwelling in Riverton Park. The City of Portland's Riverside Shelter is also within a half-mile of the property. The portion of Forest Avenue along the subject property is a primary arterial connecting Portland and Westbrook. The METRO bus routes #2 and #3 provide public transit service along this corridor as well.

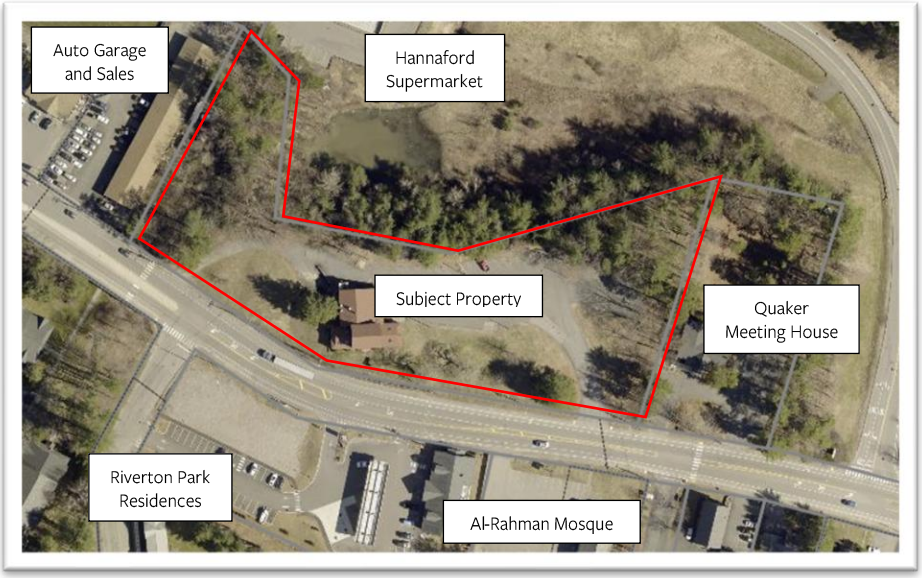


Figure 3: Surrounding Uses

The subject property and adjacent properties along Forest Avenue are in the B-2 Community Business zone. Nearby parcels along Riverton Street are in the B-4 zone. Both commercial zones form a small commercial cluster at the intersection of Riverside Street and Forest Avenue, providing a neighborhood grocery store along with retail and service options for nearby residents. Along the southern side of Forest Avenue, the RN-5 zone supports higher-density residential uses and includes Portland Housing Authority's Riverton Park community, which is currently under development to create more than 41 new units. Across I-95 is primarily single-family homes in the RN-1 zone. The commercial and residential zones adjacent to the subject property are otherwise surrounded by industrial, namely the I-M and I-H zones, to the north and south.

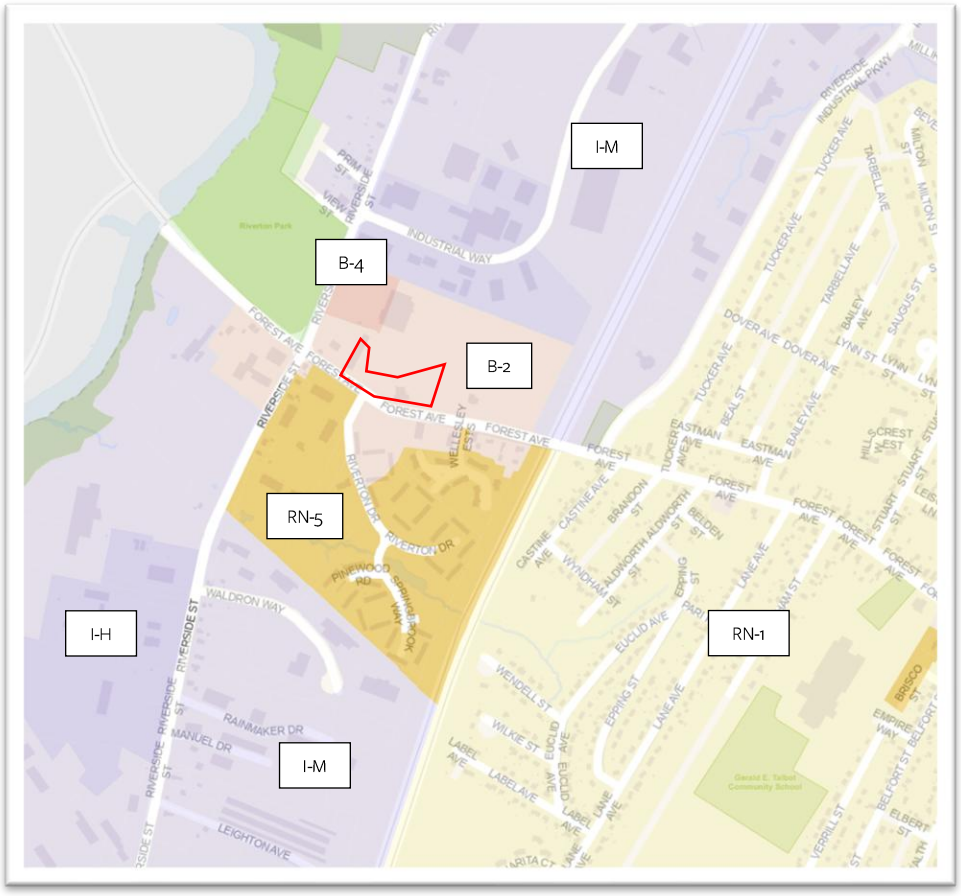


Figure 4: Zoning Districts

V. PROPOSED DEVELOPMENT

The proposed Major Site Plan application would facilitate the development of a four-story, multifamily building totaling approximately 28,000 square feet with 33 residential units with ground floor offices and common areas for tenants. All of the residential units would be designated affordable under the Home for Good program, which supports chronically homeless individuals build independent living skills. Eight parking spaces are provided on the northern side of the lot towards the rear of the building. Two of the parking spaces would include EV chargers. The building and parking area would be accessed via a new curb cut and a 22-foot drive aisle from Forest Avenue.

The proposed project would include six street trees along Forest Avenue. A new seven-foot sidewalk and esplanade would replace the existing sidewalk for approximately 65 feet along the development's frontage. The applicant is proposing a new crosswalk on Forest Avenue to enhance pedestrian connectivity to existing bus stops.

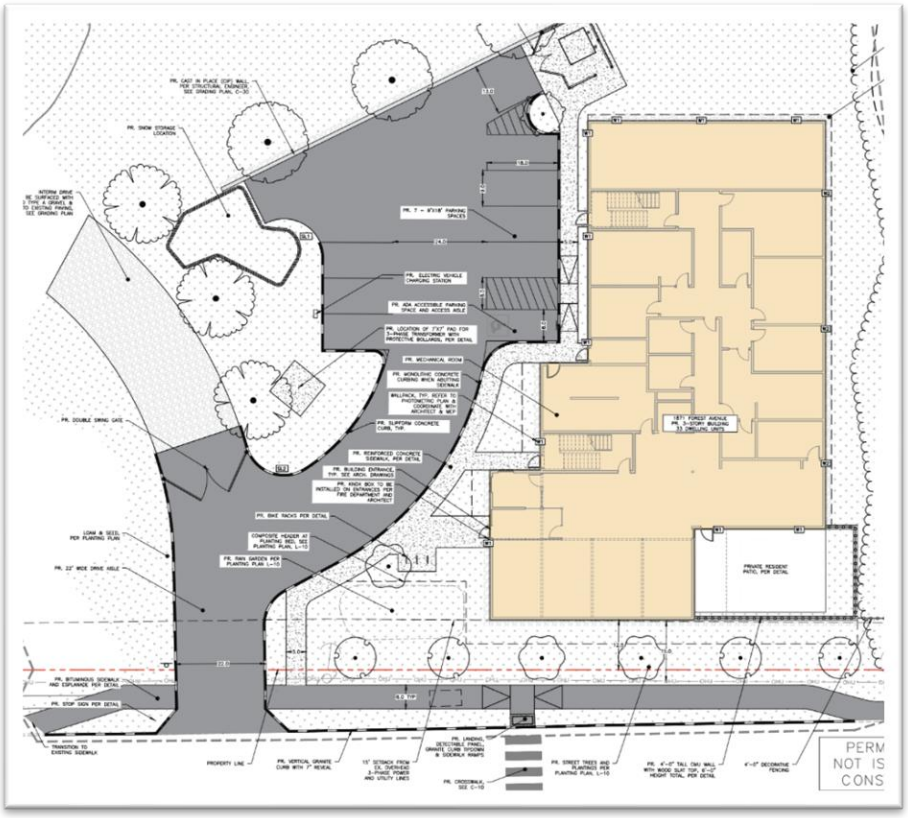


Figure 5: Enlarged Site Plan

The proposed structure and corresponding site plan only address the eastern portion of the property at 1871 Forest Avenue. The Applicant has suggested that further residential development is contemplated for the western portion of the property at a future date, which would be pursued under separate site plan applications.

VI. RIGHT, TITLE, & INTEREST

The Applicant has demonstrated sufficient right, title, and interest to the subject property. An Option Agreement dated March 18, 2025 provides the Applicant an option to purchase the land and existing building at 1871 Forest Avenue, as shown in Attachment C.

VII. FINANCIAL & TECHNICAL CAPACITY

The Applicant is an established housing developer that manages a portfolio of 16 multifamily properties in the Portland area. A letter from Bangor Saving Bank dated February 11, 2026 offers additional support of the Applicant's financial capacity to execute this project, as shown in Attachment D and E.

VIII. ZONING ANALYSIS

The subject property is located in the B-2 Community Business zone. As outlined in Table 5-D of the Land Use Code, the purpose of the B-2 zone is:

"To provide locations for a mixture of commercial, service, and residential uses in a comfortable pedestrian environment that is easily accessible and well-connected to surrounding neighborhoods. Such a mixture may serve the daily needs of nearby residents within walking distance, as well as surrounding neighborhoods via multiple modes of transportation. The zone provides a broad range of goods and services with a mixture of large and small buildings, such as grocery stores, shops and services located in shopping centers and along arterial streets. The B-2 zone's multi-modal orientation accommodates all modes of transportation, and the standards of the zone require that development relate to surrounding neighborhoods by design, orientation, and circulation patterns. The zone encourages mixed-use development, and provides locations for moderate to high-density housing, including three-family, four-family, townhouse, and multi-family structures in urban neighborhoods along arterials."

The proposed development at the subject property aligns with the purpose of the B-2 zone due to the dense multifamily use and the project's improvements to the transit and pedestrian infrastructure in the area. The proposed development is also generally consistent with the dimensional requirements of the B-2 zone, as shown in the table below.

Standard	Required	Proposed
Lot Area (Min)	0	144,679 square feet
Street Frontage	--	690.35 feet
Gross floor area	--	28,694 square feet
Build-to Zone	0-10 feet	32 feet, Per Section 7.6.5.B.3, the Applicant has requested an exemption due to the irregular shape of the lot and the steep topography.
Build-to percentage	100%	See Build-to Zone
Building Length as a percentage of street frontage	--	N/A
Rear Setback	--	115.5 feet
Side Setback	--	22.75 feet
Building Height	75 feet	50 feet
Lot Coverage (max)	100 percent	5.69 percent
Blank Wall	20 feet	Applicant shall provide additional information to ensure there is no blank wall greater than 20 feet in length along the building façade.

In accordance with Section 17.2.3, site plan applications that create ten or more new dwelling units for rent or for sale through new construction, substantial alteration of existing structures, adaptive reuse or conversion of a nonresidential use to residential use, or any combination of these elements must provide 25% of the units must be workforce housing units. Section 17.2.3 (B) states that the subsection shall not apply to projects that otherwise meet or exceed the standards of 17.2.3(C). The proposed development is exempt from Section 17.2.3 as it will provide 100% of the units as workforce housing units.

Build-to exception request

Section 7.6.5.B of the Land Use Code permits exemptions to the build-to requirement if the subject property is irregularly shaped, provided that the build-to requirement is met to the greatest extent

practicable and a continuous, pedestrian-scaled edge treatment is provided. To satisfy the build-to percentage, all portions of the front façade must be located within the build-to zone. Public plazas and outdoor space bounded by a building's façade may also be included in the calculation of the required build-to percentage.

The Applicant has requested an exemption from the build-to requirements to allow a 32-foot build-to zone due to the unusual topography of the property. The Applicant revised the requested exemption after staff determined that the original 12.5-foot build-to zone would not satisfy the required 100 percent build-to percentage, due to the private nature of the proposed outdoor patio space, which is not eligible to be counted towards this requirement. Staff advised the Applicant to either relocate the proposed patio to the rear or side of the structure and shift the building forward to comply with the base build-to requirement, or revise their request for an exception to further expand the build-to zone so that it encompasses the entire front façade of the proposed building.

The Applicant has indicated that the requested exception is influenced by several site design considerations. The proposed patio location was selected to maintain a direct visual connection between the outdoor space and the facility's staff offices. The Applicant has also identified overhead utility infrastructure along Forest Avenue and the anticipated layout of future phases of development on the larger site as factors influencing the proposed building location, and the Applicant's request for an exception.

Following discussions with staff, the Applicant revised the build-to zone to extend to the furthest edge of the façade adjacent to the private patio. The Applicant also provided a planting plan showing street trees and native grass mixes along the proposed façade to achieve a pedestrian-scaled edge treatment.

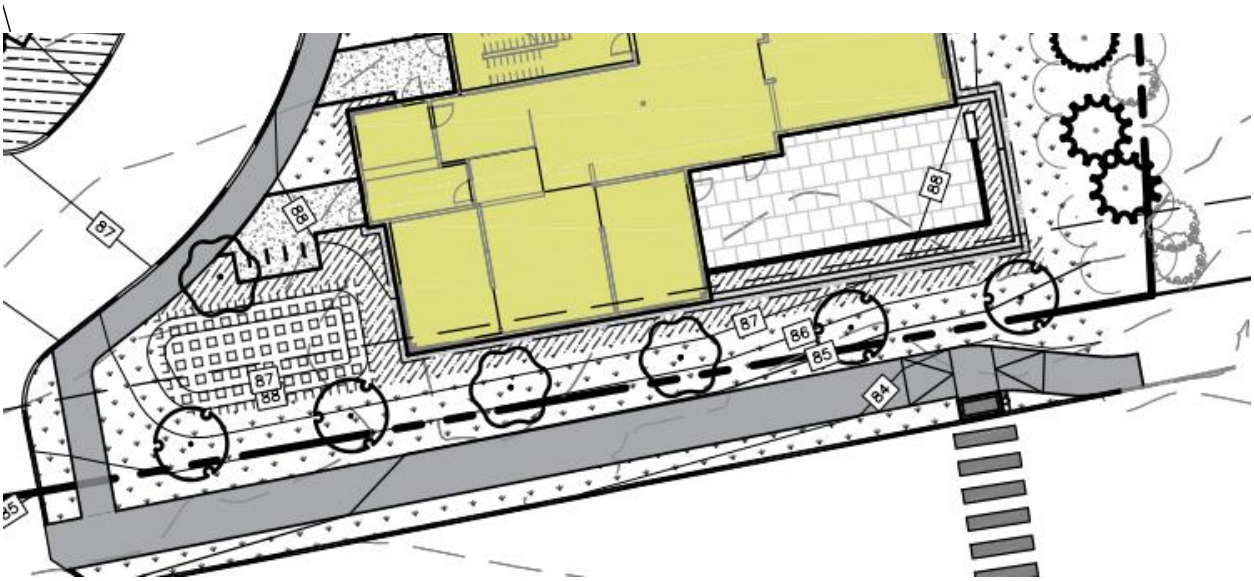


Figure 6: Excerpt from Planting Plan

Additionally, staff determined that the stepped back design of the proposed second and third stories is an acceptable façade articulation under the build-to requirements and does not require additional revision. In evaluating the requested exception, the Planning Board is being asked to consider whether the site design

considerations identified by the Applicant, together with the proposed landscape improvements and building design, adequately address the intent of the build-to standards and the pedestrian-scaled edge treatment requirements of Section 7.6.5.B.

IX. SITE PLAN STANDARDS (Section 13.6) -

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 13.6.

1. Transportation Standards (Section 13.6.1)
   - Impact on surrounding street systems

     The proposed development is likely to generate new vehicle, pedestrian, bicycle and transit activity on the surrounding street systems. All developments must ensure that any impacts to the surrounding street system would not create or substantially increase hazards and/or congestion without proportionate mitigation. The applicant has proposed a new 22-foot drive aisle to connect the development to Forest Avenue. Standard traffic navigation signage is proposed to facilitate safe egress from the site onto Forest Ave. The proposed driveway has been designed to meet the applicable sight distance requirements. To increase pedestrian safety on the surrounding street network, the applicant is proposing to improve public sidewalks along a portion of the development's frontage.

     Finding of Fact: Based on the submitted application materials, the project's description of components related to impact on surrounding street systems this standard is determined to be met.

   - Access and circulation

     The development is required to provide safe and reasonable access and internal circulation for all users of the site. Vehicular access to the site would be provided via a new curb cut and driveway from Forest Avenue, connected to a small surface parking area adjacent to the primary building entrance. The proposed driveway is designed to comply with relevant City technical standards (Section 1 of the Technical Manual) for driveway design, including sight distance, driveway separation, and dimensional requirements for driveway width and the driveway apron cross-slope.

     The proposed development would provide safe and reasonable pedestrian access to the site with a new bituminous sidewalk and a reinforced concrete internal walkway. This internal walkway would extend from the Forest Avenue sidewalk to the building's entrance and parking area. A proposed seven-foot bituminous sidewalk, esplanade, and vertical granite curb would be installed along the development's frontage to enhance pedestrian safety and accessibility. A new crosswalk with flashing beacons is proposed across Forest Avenue near the eastern side of the site to provide safe pedestrian access to the site.

     The proposed development would provide safe and reasonable access to public transit through ADA accessibility improvements to nearby METRO transit stops at 1837 Forest Avenue and 1854 Forest Avenue.

While the proposed access and circulation improvements generally satisfy the requirements of the Land Use Code, several minor revisions remain outstanding. To address these items, staff has included a draft condition of approval that would require the submission of revised plans showing or otherwise addressing the following:

- Show the proposed curb closure and sidewalk replacement.
- Relocate the Rectangular Rapid-Flashing Beacon (RRFB) on the south side of Forest Avenue to the backside of the proposed landing, so that it is located out of the proposed ramp area.
- Add a note stating that RRFB specifications shall be submitted to the City for review and approval.
- Add a note that crosswalk illumination shall be evaluated in accordance with Maine DOT standards and that lighting improvements shall be installed if determined to be necessary
- Add a note identifying the required improvements to the existing transit stops.
- Add a note that the existing crosswalk, signage, and ramps shall be removed.
- Show the relocated of the inbound bus stop sign and proposed improvements to the western side of the crosswalk.
- Show the proposed improvements to the outbound bus stop.
- Revise Site Detail 3 to show a 5-foot minimum and a 10-foot preferred.

The Applicant shall also submit a revised utility plan for review and approval by the Planning Authority that shows the proposed electrical connection and routing for the light posts associated with the RRFB's.

Finding of Fact: Based on the submitted application materials, the project's description of components related to access and circulation this standard is determined to be met, provided the revisions noted above are included as conditions of approval.

- Public transit access

  All residential development consisting of 20 or more dwelling units are required to provide a transit shelter adjacent to or within the public right -of-way along its frontage, or at a nearby high-volume transit stop without a transit shelter when the development is proposed along an existing public transit route on and when the nearest existing transit shelter on the route is more than ¼ mile from the site, measured along rights-of-way. The nearest existing transit shelter is within ¼ mile from the site.

  Finding of Fact: Based on the submitted application materials, the project's description of components related to public transit access this standard is determined to not be applicable.

- Parking

  Developments must provide compliant vehicular and bicycle parking, adequate areas for snow storage and electric vehicle (EV) charging infrastructure in accordance with applicable City standards. The proposed development would provide a total of eight parking spaces, well beneath the maximum number of spaces (66) permitted. Parking is proposed to be located towards the rear of the site. One electric vehicle (EV) charging station would be provided to service up to two parking spaces. Five spaces would be EV-ready, or capable of hosting EV chargers if installed in the future.

Four bicycle racks, providing eight bicycle parking spaces, would be affixed to a concrete pad on the sidewalk adjacent to the entrance of the building would provide bicycle parking for residents, visitors or staff.

The Applicant has requested a waiver in order to not provide the required bicycle parking of one space for every two residential dwelling units. Instead, the Applicant proposes that residents shall store bicycles in their residential units, due to anticipated underuse of shared bicycle storage and preferences of the prospective residents. Staff is supportive of the requested waiver to provide eight bicycle parking spaces given the anticipated usage patterns.

Snow storage would be provided at the western edge of the parking area and would not encroach on public ways, walkways, or adjacent properties, nor adversely impact the nearby landscaping or mature trees.

Finding of Fact: Based on the submitted application materials, and the project's description of components related to parking, this standard is determined to be met subject to the granting of the bicycle parking waiver request.

- Transportation demand management (TDM)
  A TDM is not required for this proposal as the development would not exceed 50,000 SF of total floor area.

  Finding of Fact: Based on the submitted application materials, the project's description of components related to transportation demand management this standard is determined not to be applicable.

2. Environmental Quality Standards (Section 13.6.2)
   - Preservation of significant natural features
     All development is required to preserve and protect significant natural features to the greatest extent practicable. The applicant has provided a low impact development (LID) scorecard as required by Section 13.6.2 of the Land Use Code and Technical Manual. The development has proposed to incorporate the following low impact development strategies:
       - Maintaining a 50-foot setback from wetlands
       - Maintaining a 10–20-foot undisturbed vegetative buffer along all slopes greater than 15 percent to preserve and protect natural features
       - Erosion control berms towards the western and eastern edges of the site
       - Tree protection fencing along the forest edge at the northern and eastern boundaries of the site would to protect and preserve significant features

     The existing vegetation would be preserved at the rear of the site, along with mature trees along the eastern property boundary.

     Finding of Fact: Based on the submitted application materials, and the project's description of components related to the preservation of significant natural features, this standard is determined to be met.

- Site landscaping and buffers
  The proposed development is required to provide on-site landscaping, including shade trees or alternative plantings, and screening of waste enclosures, off-street parking areas, and mechanical equipment from public streets, sidewalks, and adjacent properties. The proposed development would provide six street trees, which include serviceberry and redbud trees, that would be planted along 65 feet of property frontage along Forest Avenue. Additional shrubs and grass would provide engaging, pedestrian-level landscaping along the subject property's frontage. The proposed building's orientation, fencing, and deciduous trees would provide screening for trash and recycling areas from the sidewalk, roadways and adjacent properties. Similarly, shrubs and deciduous trees would screen pad mounted transformer located to the west of the parking area.

  Surface parking is oriented to the rear of the building. Six street trees and a rain garden would provide an initial buffer from the right-of-way, while northern red oaks and various shrubs would provide an intermediate layer further into the site to provide adequate screening and buffering from the right-of-way. The existing tree line along the eastern property line would be preserved to provide additional screening and buffering. Additional plantings would provide lower-level screening at the eastern side of the property. Eight parking spaces, comprising approximately 2,420 square feet of asphalt, require the planting of four shade trees (one per 750 square feet of uncovered asphalt) within landscaped islands within the parking area.

  The Applicant has requested a waiver in order to provide shade trees along the perimeter of the parking area, rather than planted in a landscaped island. The Applicant proposes one tree in a landscaped island and three trees immediately adjacent to the proposed parking area. The justification for this waiver is due to the steep slopes and turning radii requirements for solid waste collections and emergency vehicles. Staff is supportive of this waiver request as the limited number of spaces can be successfully shared using perimeter trees.

  Non-vehicular hardscaped surfaces would be constructed from natural gray concrete. This material would achieve a Solar Reflective Index (SRI) of 33 initially and 28 or less after 3 years. The applicant is proposing 2,420 square feet of asphalt parking, which requires four shade trees be provided.

  Finding of Fact: Based on the submitted application materials, the project's description of components related to site landscaping and buffers this standard is determined to be met subject to granting of the waiver request.

- Water quality/storm water management/erosion control
  All proposed development must be designed to minimize impervious area and provide adequate stormwater management. The proposed development would create more than 10,000 square feet of disturbed area and more than 1,000 square feet of new impervious surface, triggering the need for a stormwater management plan, as detailed in Section 5 of the Technical Manual. The project is located in an area with separated storm water and sanitary sewer. The development must provide on-site stormwater detention in accordance with the Technical Manual.

  The existing site is divided into five sub-catchments. The proposed development would be contained within the first and the fifth sub-catchment, and drainage patterns would remain

relatively unchanged across the sub-catchments. The peak flows would remain at or below the pre-development levels. The rain garden and the subsurface storage system would provide on-site stormwater filtration and detention, which exceeds the minimum detention volume equal to 1 foot of rainfall across the impervious area on the site. Underground detention tanks, a rain garden and additional underground stormwater infrastructure would provide stormwater management for the site. Frequent dewatering of ground water from the site would occur during construction to reduce risk of contamination. The "K" values for subsurface soils show a low susceptibility to erosion and provide suitable support for development.

Finding of Fact: Based on the submitted application materials, the project's description of components related to water quality, storm water management, and erosion control this standard is determined to be met.

3. Public Infrastructure and Community Safety Standards (Section 13.6.3)

- Consistency with City Master Plans

  The City's housing goals in the Comprehensive Plan encourage contextually appropriate housing density near service center and transit nodes. The 33-unit building along the Forest Avenue corridor and nearby neighborhood amenities, such as a grocery store and services store, align with this goal.

  Finding of Fact: Based on the submitted application materials, the project's description of components related to consistency with City Master Plans this standard is determined to be met.

- Public safety and fire prevention

  All development must incorporate public safety principles into site design to enhance the security of public and private spaces. The proposed building entrances and exits would be visible from the public right of way and would be illuminated to enhance public safety. Pedestrian walkways and the driveway guide users to the building's entrance. Private patio space would be fenced and accessible only from within the building. A gate installed along the driveway would limit further access to the site to ensure only authorized use. The site layout as proposed provides separate public and private spaces. Street trees and shrubs would reinforce the spatial edge of the private and public zones.

  The dead-end roadway to the parking lot is greater than 150 feet in length, which necessitates a turnaround at the closed end to provide adequate emergency vehicle access. Signage would identify area reserved for emergency access.

  Finding of Fact: Based on the submitted application materials, the project's description of components related to public safety and fire prevention this standard is determined to be met.

- Availability and capacity of public utilities

  All developments must provide adequate utility infrastructure on-site and in connection to surrounding locations and facilities. The proposed development would provide two new service lines – a 2-inch domestic service and an 8-inch fire service line. Subsurface stormwater detention systems and a rain garden would manage and treat stormwater. The applicant has requested a waiver from Technical Standard 6.9.7, which prohibits private connections to City street catch

basins. The waiver would allow the project's stormwater system to connect to an existing City catch basin located along the southeastern side of the property.

While the proposed utility infrastructure generally satisfies the requirements of the Land Use Code, staff has identified a minor revision to the proposed drainage plan. To address this item, staff has included a draft condition of approval requiring the Applicant to submit a revised drainage plan that clarifies DMH-1 as a drainage manhole and relocates the structure away from the Forest Avenue curb line. The condition would require that the revised drainage plan be reviewed and approved by the Public Works Authority prior to issuance of the building permit.
A new riser pole along Forest Avenue would facilitate the installation of underground primary electric and communication lines to the building.

A new 6-inch sewer service lateral would convey building flows to a proposed on-site manhole. From this manhole, an 8-inch sewer line would connect to the existing public manhole located in Forest Avenue. The site would discharge to the public sanitary sewer system via this connection.

A dumpster enclosure with a pressure-treated wood fence, anchored to a 15-foot by 10-foot concrete pad, would provide screening of the solid waste receptacles.

Finding of Fact: Based on the submitted application materials, the project's description of components related to availability and capacity of public utilities this standard is determined to be met, subject to the granting of the waiver and conditions of approval.

4. Site Design Standards (Section 13.6.4)

- Massing, ventilation, and wind impact
  The bulk, location, or height of proposed buildings must not create health or safety hazards for users of the site or adjacent spaces. The proposed four-story building would have a height of 46 feet. The height of the structure is unlikely to create or change existing wind conditions. Ventilation for the building is provided via a roof-mounted Dedicated Outdoor Air System (DOAS). Ventilation and exhaust air would comply with ASHRAE 62.1 and 2021 IMC. The upper roof would have a white membrane with a three-year aged SRI of 80 or greater.

  Finding of Fact: Based on the submitted application materials, the project's description of components related to massing, ventilation, and wind impact this standard is determined to be met.

- Shadows
  Not applicable. The building is under 65 ft.

  Finding of Fact: Based on the submitted application materials, the project's description of components related to shadows this standard is determined to not be applicable.

- Snow and ice loading
  All development shall be designed to prevent significant amounts of snow and ice from falling onto adjacent properties or public ways. Wood trusses and parapets around the edges of the fourth-floor roof of the proposed building would prevent falling snow and ice.

Finding of Fact: Based on the submitted application materials, the project's description of components related to snow and ice loading this standard is determined to be met.

- View corridors
  Not applicable. The proposed building is not located within an established public view corridor as detailed in the City of Portland Design Manual.

  Finding of Fact: Based on the submitted application materials, the project's description of components related to view corridors this standard is determined to not be applicable.

- Historic resources
  The development is not located within a historic district and does not affect any designated landmarks. There are no known archaeological resources present at the site. A historic cemetery is adjacent to the site. Pursuant to Maine Revised Statutes, Title 13, Section 1371-A., a 25 foot no disturbance buffer is required around the cemetery. Proper measures, as detailed in the City's site plan ordinance under this standard, must be taken if archaeological resources are discovered during construction.

  Finding of Fact: Based on the submitted application materials, the project's description of components related to historic resources this standard is determined to be met.

- Exterior lighting
  All exterior site lighting shall provide adequate illumination to support site safety, comfort, and convenience without creating excessive glare or light trespass. The proposed developments would provide downlit, side shielded and dark sky compliant lighting, as shown on the photometric and lighting plan. There are no adjacent residential properties. No architectural or specialty lighting is proposed. There is no up-lighting proposed on the building or features. No new street lighting is proposed. Existing cobra head streetlights mounted to utility poles provide adequate illumination along Forest Avenue in the vicinity of the project.

  Finding of Fact: Based on the submitted application materials, the project's description of components related to exterior lighting this standard is determined to be met.

- Noise and vibration
  All heating, ventilation, and air conditioning equipment, and similar equipment shall meet applicable emission requirements. Ventilation for the proposed building is provided via a roof-mounted Dedicated Outdoor Air System (DOAS). Ventilation and exhaust air would comply with ASHRAE 62.1 and 2021 IMC.

  Finding of Fact: Based on the submitted application materials, the project's description of components related to noise and vibration this standard is determined to be met.

- Signage and wayfinding
  A standard MUTCD compliant stop sign is proposed at driveway exit. Additional wayfinding and informational signage would be affixed to the building entrance.

Finding of Fact: Based on the submitted application materials, the project's description of components related to signage and wayfinding this standard is determined to be met.

- Zoning-related design standards
  The proposed development is subject to the site design review standards for the B-2 zone. The project was evaluated and found to meet the applicable standards. The proposed building locates the primary entrance along the west elevation, within close proximity to the front façade. The entrance is clearly visible from the street, with fixed glass that surrounds the doorway and projecting canopy with slatted cedar. The single-story building exterior is articulated with a vertical-slated siding and a mansard roofline. The building design incorporates façade variations (mansard roof, material tone and accent screening material at residential windows) that promote compatibility with nearby residential and commercial structures. The proposed building creates an urban street wall with a row of ornamental trees along the property frontage within close proximity to the street.

  Finding of Fact: Based on the submitted application materials, the project's description of components related to design standards this standard is determined to be met.

X. NEIGHBORHOOD MEETING & PUBLIC COMMENT

A neighborhood meeting was held by the applicant on March 18, 2026, at Portland Friends Meeting House at 1837 Forest Avenue, Portland Maine at 5:30pm. There were eight members of the public in attendance. Comments and questions primarily related to the Home for Good programming to which the Applicant confirmed that 24-hour staffing would be available on-site to respond to and address issues that may arise. Members of the public also voiced concern that the site's proximity to the Riverside Shelter could create safety concerns. There was also a brief exchange about the existing footpath through the western edge of the site. The Applicant confirmed they had discussions with Hannaford, but there was not an interest from either party to improve it.

Three public comments have been received as of June 17, 2026. One comment received is in opposition to the programming of the site as a Home for Good, Housing First program. Another is generally supportive of the project, yet encourages the applicant to consider improvements to the informal footpath connecting Forest Avenue to Hannaford Supermarket. The third comment requests additional information regarding the reuse, recycling, or disposal of the demolished building materials.

XI. STAFF RECOMMENDATION

Subject to the proposed motions and conditions of approval listed below, Planning Department staff recommends that the Planning Board find that the construction of a 33-unit multifamily residential building at 1871 Forest Avenue meets the applicable standards of Portland's Land Use Code.

XII. PROPOSED MOTIONS

A. WAIVERS AND EXCEPTIONS

Based on the information in 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 23, 2026 for application PL-003538-2026 at 1871 Forest Avenue relevant to the Site Plan Standards of the Land Use Code and Portland's Technical and Design Standards, and other regulations, and testimony presented at the Planning Board public hearing:

1. Bicycle Parking

The Planning Board finds based upon the City's Review, that extraordinary conditions exist or undue hardship may result from strict compliance with the Land Use Code Section 18A which requires, one parking space per two dwelling units, that substantial justice and the public interest are secured with the proposed variation in this standard, and that variation is consistent with the intent of the ordinance. The Planning Board **[waives/does not waive]** the site plan standard Section 13.6.1.D.2.b to allow eight bicycle parking spaces to be provided.

2. Parking Lot Landscaping

The Planning Board finds based upon the City's Review, that extraordinary conditions exist or undue hardship may result from strict compliance with the site plan standard 13.6.2.B.3.a which requires, one tree for every 750 square feet of asphalt planted in landscaped islands, that substantial justice and the public interest are secured with the proposed variation in this standard, and that variation is consistent with the intent of the ordinance. The Planning Board [**waives/does not waive]** the site plan standard Section 13.6.2.B.3.a to allow for one tree to be planted in a landscaped island with additional trees planted around the perimeter of the parking area.

3. Private Connection to City Catch Basins

The Planning Board finds based upon the City Engineer's Review, that extraordinary conditions exist or undue hardship may result from strict compliance with the technical standard 6.9.7. which prohibits private connections to city-owned catch basins, that substantial justice and the public interest are secured with the proposed variation in this standard, and that variation is consistent with the intent of the ordinance. The Planning Board [**waives/does not waive]** the technical standard 6.9.7 to allow for connection to the existing catch basin on Forest Avenue.

4. Build-to Exception

The Planning Board **[finds/does not find]** that the subject property is irregularly shaped, and that the applicant has demonstrated that the proposed build-to zone meets the standard requirement to the maximum extent practicable due to the horizontal irregularities along the frontage and the topographical variation across the site. The Planning Board [**exempts/does not exempt]** compliance with the build-to zone to allow for a build-to zone of 0-32 feet, in accordance with Section 7.5.6.B.

B. SITE PLAN REVIEW

Based on the information in the application, plans, reports through testimony at the Planning Board hearing, and other information submitted by the applicant the Planning Board adopts the findings, conclusions and recommendations contained in the Planning Board Report for the public hearing on June 23, 2026 for application PL-003538-2026 at 1871 Forest Avenue relevant

to the site plan regulations and **[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 ISSUANCE OF A BUILDING PERMIT

1. The Applicant shall submit a revised drainage plan that clarifies DMH-1 as a drainage manhole and relocates the structure away from the Forest Avenue curb line. The revised plan shall be subject to review and approval by the Public Works Authority.
2. The applicant shall submit a revised site plan for review and approval by the Planning Authority. The site plan shall be revised to show the following:
    a. The proposed curb closure and sidewalk replacement.
    b. Relocation of the Rectangular Rapid-Flashing Beacon (RRFB) on the south side of Forest Avenue to the backside of the proposed landing, so that it is located outside of the proposed ramp area.
    c. A note stating that RRFB specifications shall be submitted to the City for review and approval.
    d. A note that crosswalk illumination shall be evaluated in accordance with Maine DOT standards and that lighting improvements shall be installed if determined to be necessary.
    e. A note identifying the required improvements to the existing transit stops
    f. A note that the existing crosswalk, signage, and ramps shall be removed.
3. The applicant shall submit a revised Utility Plan for review and approval by Planning Authority that shows the proposed electrical connection and routing for the light post associated with the RRFB's.

XIII. PLANNING BOARD DECISION

On the basis of the findings, conclusions and recommendations contained in the Planning Board report for the public hearing on June 23, 2026 related to application PL-003538-2026 for 1871 Forest Avenue, which is attached to the draft approval letter and incorporated therein, the Planning Board **[adopts/does not adopt]** the findings and conclusions in the June 17, 2026 Planning Board Report and the approval letter as drafted as the Planning Board's decision for application PL-003538-2026 and authorizes the Planning Board Chair to sign the approval letter as drafted.

PUBLIC COMMENTS

PC1. Alison Frazee
PC2. Marc Foster
PC3. Michael McDade

APPLICANT'S DOCUMENTS

A. Development Description
B. Site Plan Checklist
C. Right, Title, and Interest
D. Financial Capacity
E. Technical Capacity
F. Conformity with Land Use Ordinance
G. Site Plan Data Sheet
H. Waiver Summary

I. Easement Summary
J. Construction Management Plan
K. Stormwater Management
L. Utilities Summary
M. Solid Waste Disposal
N. Public Safety
O. Architectural Design Narrative
P. Low Impact Design
Q. Lighting Plans
R. Wastewater Capacity
S. Erosion and Sedimentation Control
T. Parking

APPLICANT'S DRAWINGS

1. Cover Sheet
2. General Notes
3. Boundary and Existing Conditions
4. Construction Management & Erosion Control
5. Site Plan
6. Enlarged Site Plan
7. Utility Plan
8. Enlarged Utility Plan
9. Grading and Drainage Plan
10. Planting Plan
11. Site Sections
12. Landscape Site Details
13. Planting Details
14. Site Details – 1
15. Site Details – 2
16. Site Details – 3
17. Utility Details -1
18. Utility Details -2
19. Utility Details -3
20. Drainage Details
21. Erosion and Sedimentation Control Notes
22. Erosion and Sedimentation Control Details
23. Architectural Ground Floor Plan
24. Architectural Upper Floor Plan
25. Architectural Elevations - 1
26. Architectural Elevations - 2
27. Architectural Eastern View
28. Architectural Western View
29. Updated Architectural Drawings

STAFF ATTACHMENTS

S1. Comment Letter and Worksheets
S2. Design Review Memo
S3. Staff Memo

Att. S1

Dear Applicant,

We have completed our review of your application PL-003538-2026 proposing to develop a four-story, approximately 28,000 square-foot multifamily building at 1871 Forest Ave in the B-2 zone. **This review is based on the application submitted on February 27, 2026.** This development triggers major site plan review and is subject to the following regulations:

- Site Plan – Article 13.6
- Zoning – Article 6 & 7

An overview of the City's review can be viewed in the attached project review worksheets and peer review comments.

Next Steps

Please review all feedback and reach out to the assigned planner if you have any questions or would like to discuss this feedback in more detail. In order to proceed, the applicant shall prepare a written response to all feedback, and shall update plans, documents and other materials as necessary to address review comments. The applicant shall notify the planner when a resubmission is uploaded to ProjectDox. Once received, the planner will notify the applicant of their scheduled review timeline for this resubmission.

Sincerely,

Rowen McAllister
Senior Planner

Attachments

1. Site Plan Worksheet
2. Zoning Worksheet

General Comments:

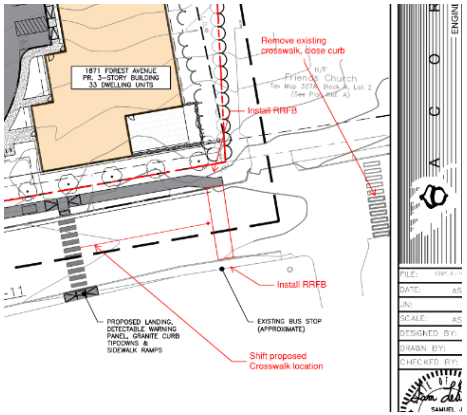
- The Applicant shall revise "Enlarged Site Plan," dated February 27, 2026, by Acorn Engineering, Inc to ensure the building footprint aligns with architectural plans, particularly near the building entrance and patio area.
- The Applicant shall revise "Standard Boundary Survey Plan, Land Of Powell Realty, For Avesta Housing", dated October 2025, by BH2M to ensure standards for Boundary Survey Requirements, as provided in Article 14.2 of the Technical Manual, are met.
    - Applicant shall show the relationship of the project to the surrounding area at a scale no greater than one inch equals 2,000 feet;
    - Applicant shall state the source and method used to tie into vertical datum (NGVD29).
    - Label street status (i.e. Accepted City Street, Continued Paper Street, Discontinued Street, etc)
    - State the source and method used to tie into horizontal datum (MSPC).
    - List state plane coordinates on at least two corners as specified.
- Applicant shall be aware that Forest Ave is set to be paved by MDOT in 2026. Excavation into Forest Ave after it has been paved will be subject to the Moratorium replacement standards.

Site Plan Review Standards (Sec. 13.6)

Transportation Standards (Sec. 13.6.1)

Standard		***How the standard is being met***	***Finding***
Impact on Surrounding Street Systems	13.6.1.A.1 The provisions for vehicular loading and unloading, parking, and vehicular and pedestrian circulation on the site and onto adjacent public streets and ways and the incremental volume of vehicular, bicycle, pedestrian, and transit traffic will not: 1. Create or aggravate any significant hazard to safety on the surrounding street network.	A new 22 ft. drive aisle is proposed to connect the development to Forest Avenue. Standard traffic navigation signage will provide safe exit from the site onto Forest Ave. Improved public sidewalks with an esplanade will increase pedestrian safety directly adjacent to the development. What still needs to be addressed: 1) The Applicant shall provide sight distance measurements at the driveway entrance.	More information needed
	13.6.1.A.2 The provisions for vehicular loading and unloading, parking, and vehicular and pedestrian circulation on the site and onto adjacent public streets and ways and the incremental volume of	The proposed development will generate fewer than 100 peak hour trips. However, pedestrian traffic and transit usage is likely to increase when compared to the previous restaurant use.	More inform

	vehicular, bicycle, pedestrian, and transit traffic will not: 2. Substantially increase congestion on any street without mitigation proportionate to the level of impact.	**What still needs to be addressed:** 1) The plans shall include improvements to nearby transit stops in order to mitigate for this usage. See Standard **13.6.1.C.1** *Public Transit Access* for more information.	
Access and Circulation	**13.6.1.B.1.a** ***In General*** All development subject to this article shall provide safe and reasonable access and internal circulation for all users of the site and shall comply with the transportation systems and street design standards of the Technical Manual.	Vehicle access will be provided from Forest Avenue. Vehicular circulation will be contained within the site. Pedestrian access to the site is provided via a new bituminous sidewalk and a reinforced concrete sidewalk. **What still needs to be addressed:** 1) Applicant shall darify the purpose of the interim driveway and use of adjacent parking lot prior to the next phase of development.	More information needed
	13.6.1.B.1.b ***In General*** Shared circulation, parking, and transportation infrastructure shall be provided to the extent practicable, with utilization of joint curb cuts, walkways, service alleys, bus pull-out areas, and related infrastructure shared with abutting lots and roadways. Easements for access for abutting properties and shared internal access points at property lines shall be provided where possible to facilitate present or future sharing of access and infrastructure.	The proposed development will maintain existing vehicular access from Forest Avenue. Existing and improved sidewalk connections will provide access to public transit routes along Forest Avenue. **What still needs to be addressed:**	Met
	13.6.1.B.1.c ***In General*** Continuous internal walkways shall be provided between existing or planned public sidewalks adjacent to the site, transit stops and street crossings, and building entrances on the site.	The internal walkway extends from Forest Avenue sidewalk to building entrance and parking area. Access to transit routes and street crossings will also be provided via internal walkways and public sidewalks. **What still needs to be addressed:**	Met
	13.6.1.B.1.d ***In General*** Where the site abuts or includes an existing or planned publicly accessible trail, a connection to or integration of such trail shall be provided to the extent practicable, including rights of public access.	Not applicable. **What still needs to be addressed:**	Not Applicabl

	13.6.1.B.1.e ***In General*** Points of access and egress shall be located to avoid conflicts with turning movements and traffic flows.	The proposed driveway provides site access directly from Forest Avenue, and does not appear to be in conflict with other intersections or traffic flows. A new sidewalk is proposed mid-block to provide pedestrian access to the site. **What still needs to be addressed:** 1) Applicant shall revise proposed crosswalk to better align with the Wellesley Estates Driveway and bus stop. Further, the Applicant shall install RRFB for the arterial crossing and eliminate the existing crosswalk/ramps, as shown below.  	More information needed
	13.6.1.B.2.a ***Curb and sidewalks*** All development shall provide curb and sidewalks along all frontages, installed to specifications as described in the transportation systems and street design standards of the Technical Manual.	A proposed bituminous sidewalk, esplanade, and vertical granite curb with a 7" reveal will improve the existing curb and sidewalk. **What still needs to be addressed:**	Met
	13.6.1.B.2.b ***Curb and sidewalks*** Where sidewalks already exist but are in substandard condition, they	Sidewalks will be reconstructed to include an esplanade and street trees.	Met

	shall be repaired or replaced in conformance with Chapter 25 of the City of Portland Code of Ordinances and the transportation systems and street design standards of the Technical Manual.	What still needs to be addressed:	
	13.6.1.B.2.c ***Curb and sidewalks*** An applicant may request a waiver from sidewalk installation requirements if they meet two or more applicable waiver criteria as listed below: i. There is no reasonable expectation for pedestrian usage coming from, going to, and traversing the site. ii. There is no sidewalk in existence or expected within 1000 feet and the construction of sidewalks does not contribute to the development of pedestrian-oriented infrastructure. iii. A safe alternative walking route is reasonably available, for example, by way of a sidewalk on the other side of the street that is lightly traveled. iv. The reconstruction of the street is specifically identified and approved in the first or second year of the current Capital Improvement Program (CIP) or has been funded through an earlier CIP or through other sources. v. The street has been constructed or reconstructed without sidewalks within the last 24 months. vi. Strict adherence to the sidewalk requirement would result in the loss of significant site features related to landscaping or topography that are deemed to be of a greater public value.	No waiver is requested. What still needs to be addressed:	Not Applicable

	13.6.1.B.2.d ***Curb and sidewalks*** An applicant may request a waiver from curb installation requirements if they meet two or more applicable waiver criteria as listed below: i. The cost to construct the curbing, including any applicable street opening fees, is in excess of 5% of the overall project cost. ii. The reconstruction of the street is specifically identified and approved in the first or second year of the current CIP or has been funded through an earlier CIP or through other sources. iii. The street has been rehabilitated without curbing in the last 60 months and the proposed use and design of the site does not necessitate the installation of curbing. iv. Strict adherence to the curb requirement would result in the loss of significant site features related to landscaping or topography that are deemed to be of a greater public value. v. Runoff from the development site or within the street does not require curbing for stormwater management.	No waiver is requested. **What still needs to be addressed:**	Not Applicable
Public Transit Access	**13.6.1.C.1** All residential development consisting of 20 or more dwelling units and all commercial and institutional developments of at least 20,000 square feet gross floor area shall provide a transit shelter adjacent to or within the public right-of-way along its frontage, or at a nearby high-volume transit stop without a transit shelter, when the following criteria are met: A. The development is proposed along an existing public transit route on a principal or minor arterial roadway, as shown in the Federal Street Classification Map. B. The nearest existing transit shelter on the route is more than ¼ mile from the site, measured along rights-of-way.	The proposed development is situated along METRO's #2 and #3 bus transit route. The limited available parking and the proposed Home for Good program indicate that the residents will frequently utilize pedestrian and transit infrastructure. **What still needs to be addressed:** 1) The plans shall include improvements to the existing bus stop at 1837 Forest, as it does not currently meet accessibility standards. The bus stop shall be moved approx. 120 ft. southeast along Forest Ave and the sidewalk should be widened to 8 ft. for a run of 5-10 ft. near the bus stop sign.	Not Met

		2) Similar improvements shall be proposed for the inbound stop at 1854 Forest Ave to construct an 8 ft. sidewalk with a width of 5-10 ft. at the bus stop.	
	13.6.1.C.2 Transit facilities shall be connected to the public sidewalk system.	All improvements will be made within the public sidewalk system. What still needs to be addressed:	Met
	13.6.1.C.3 All or some of this standard may be waived if the review authority determines that the development is not anticipated to generate public transit usage due to particular characteristics of the development or proposed use.	Not applicable. The particular character of the development is likely to generate high public transit usage. What still needs to be addressed:	Not Applicable
Parking	13.6.1.D.1.a ***Vehicular parking*** Developments shall comply with the parking standards of Article 18.	A total of eight compliant parking spaces are proposed. These spaces will serve the employees of the housing programming provided on the first floor of the proposed building. What still needs to be addressed:	Met
	13.6.1.D.1.b ***Vehicular parking*** Where provided, parking spaces and aisles shall not be located in front and corner side yards, unless the applicant can demonstrate that site constraints preclude the location of parking elsewhere on the site.	Parking is provided towards the rear of the site. What still needs to be addressed:	Met
	13.6.1.D.1.c ***Vehicular parking*** Where provided, parking spaces and aisles shall meet applicable dimensional standards as detailed in the transportation systems and street design standards of the Technical Manual.	A total of eight parking spaces are provided: seven 9' x 18' standard and one 8' x 18' ADA. The driveway width is 22 ft.. What still needs to be addressed:	Met
	13.6.1.D.2.a ***Bicycle parking*** All development shall provide secure bicycle parking in accordance with the parking requirements of Article 18 and the transportation systems and street design standards of the Technical Manual.	Three bicycle racks will be affixed to a concrete pad on the sidewalk and adjacent to the entrance of the building. The Applicant has requested a waiver in order to not provide the required bicycle parking of 1 space for every two residential dwelling units. Instead, the Applicant proposes that residents shall store bicycles in their residential units, due	Not met

		to anticipated underuse of shared bicycle storage and preferences of the residents. **What still needs to be addressed:**	
	13.6.1.D.2.b ***Bicycle parking*** The review authority may reduce the required number of bicycle parking spaces if it is determined, based on evidence submitted by the applicant, that the proposed development is expected to generate reduced demand for bicycle parking due to particular site characteristics or proposed uses.	The Applicant has requested a waiver as described in Standard 13.6.1.D.2.a. **What still needs to be addressed:**	Not met
	13.6.1.D.3.a ***Snow storage*** All developments shall include areas for snow storage or provide an acceptable snow removal plan.	Snow storage will be provided at the western edge of the parking area. **What still needs to be addressed:**	Met
	13.6.1.D.3.b ***Snow storage*** Snow storage areas may not encroach on adjacent properties, public ways, and pedestrian walkways, and shall not be located where they would adversely impact the functionality of stormwater management systems.	Snow storage will be provided at the western edge of the parking area and will not impact public ways, walkways, or adjacent properties. **What still needs to be addressed:**	Met
	13.6.1.D.3.c ***Snow storage*** Landscaping in designated snow storage areas shall be such that it can withstand the snow pile.	Snow storage will be provided at the western edge of the parking area, and does not appear to impact landscaped features. **What still needs to be addressed:**	Met
	13.6.1.D.4 ***Electric vehicle (EV) charging*** All development shall meet applicable EV standards as provided in Section 1 of the Technical Manual.	One electric vehicle (EV) charging station will be provided to service up to two parking spaces. Five spaces will be capable of hosting EV chargers. **What still needs to be addressed:** 1) Applicant shall provide narrative that addresses all EV requirements in Section 1 of the Technical Manual, as well as a spec on the proposed charger.	More information needed

Transportation Demand Management	**13.6.1.E.1** The following types of development shall design and implement a Transportation Demand Management (TDM) plan: A. All commercial, institutional, or mixed-use developments of 50,000 square feet or more in total floor area. B. All commercial or institutional uses designed to accommodate 100 or more employees or, for educational institutions, 100 or more students.	Not applicable. The development will not have a total floor area of 50,000 sq. ft.. or more. **What still needs to be addressed:**	Not Applicable
	13.6.1.E.2 The TDM Plan shall comply with the standards for transportation studies and plans as contained in the Technical Manual.	Not applicable. A TDM is not required. **What still needs to be addressed:**	Not Applicable
Environmental Quality Standards (Sec. 13.6.2)			
Standard		***How the standard is being met***	***Finding***
Preservation of Significant Natural Features	**13.6.2.A.1** All development shall preserve and protect significant natural features by incorporating the principles of Low-Impact Development (LID) in accordance with the LID standards of the Technical Manual.	There is a significant cliff edge to the rear of the site. The development meets LID standards such as maintaining a 50 ft. setback from wetlands and maintaining a 10-20 ft. undisturbed vegetative buffer along all slopes greater than 15% to preserve and protect natural features. **What still needs to be addressed:** 1) Submit a LID Narrative summarizing score and standard approaches.	More information needed
	13.6.2.A.2 Where complete preservation of significant natural features substantially compromises development of the site as otherwise permitted by zoning, the review authority may reduce the requirement in accordance with the LID standards of the Technical Manual provided that the applicant implements preservation measures to the extent	Not applicable. **What still needs to be addressed:**	Not Applicable

	practicable and demonstrates compliance with applicable state and federal regulations.		
	13.6.2.A.3 The site plan shall include adequate measures to protect significant natural features to be preserved from construction impacts, in accordance with the LID standards of the Technical Manual.	Erosion control berms towards the western and eastern edges of the site and tree protection fencing along the forest edge at the northern and eastern boundaries of the site will protect and preserve significant features. **What still needs to be addressed:**	Met
Site Landscaping and Buffers	13.6.2.B.1.a ***On-site landscaping*** All development subject to this article shall provide a minimum of one shade tree consisting of species identified on the City of Portland Recommended Tree list or six plantings, defined as one shrub, one ornamental grass, and/or three perennials, per 5,000 square feet of lot area in accordance with the landscaping standards of the Technical Manual.	Six deciduous and native street trees will be planted along Forest Avenue. Nine additional trees will be planted within the site, primarily near or adjacent to the parking area. proposed along with nine internal trees. Native shrubs and groundcover plantings will provide additional screening and landscaped design. **What still needs to be addressed:** 1) The Applicant shall add note to the Landscape Plan that all landscaping materials will be locally-sourced native plants.	More information needed.
	13.6.2.B.1.b ***On-site landscaping*** Existing vegetation to be preserved on the site may be counted towards this requirement as described in the landscaping and landscape preservation standards of the Technical Manual.	The existing vegetation will be preserved on the rear of the site, along with mature trees on the eastern boundary. **What still needs to be addressed:**	Met
	13.6.2.B.1.c ***On-site landscaping*** Where site constraints prevent the planting of required shade trees or plantings at the development site, the reviewing authority may approve an alternative as described in the landscaping standards of the Technical Manual.	Not applicable. **What still needs to be addressed:**	Not Applicable
	13.6.2.B.2.a ***Buffers and screening*** Loading and servicing areas, trash and recycling areas, storage areas, and roof- and ground-mounted utility	The building's orientation, fencing, and deciduous trees will screen trash and recycling areas from the sidewalk, roadways and adjacent	Met

	structures, except for renewable energy systems, shall be screened from view from public sidewalks, streets and adjacent properties by dense evergreen and deciduous landscaping, fencing, architectural screening products, masonry walls, building walls, or a combination thereof.	properties. Similarly, shrubs and deciduous trees will screen pad mounted transformer located to the west of the parking area. What still needs to be addressed:	
	13.6.2.B.2.b *Buffers and screening* Where immediately visible from the right-of-way, surface parking areas shall be screened with dense evergreen and deciduous landscaping, fencing, or masonry wall in accordance with the landscaping standards of the Technical Manual.	Surface parking is oriented to the rear of the building. Six street trees and a rain garden provide an initial buffer from the right-of-way, while northern red oaks and various shrubs will provide an intermediate layer further into the site to provide adequate screening and buffers from the right-of-way. What still needs to be addressed:	Met
	13.6.2.B.2.c *Buffers and screening* For nonresidential development abutting a residential zone, an evergreen, densely landscaped buffer of not less than 10 feet in depth and six feet tall is required along the side abutting the residential zone. In cases where architectural fencing is used, the depth of the landscaped buffer may be reduced, so long as the fencing is at least six feet in height and a mix of evergreen and deciduous trees spaced no further than 20 feet apart is planted abutting the residential zone.	Not applicable. This is a residential development. What still needs to be addressed:	Not Applicable
	13.6.2.B.2.d *Buffers and screening* All residential development shall provide and/or preserve evergreen vegetated buffers where necessary to buffer the development from detrimental impacts of existing surrounding development.	The existing tree line along the eastern property line will be preserved to provide screening and buffers. What still needs to be addressed: 1) The Applicant shall provide a tree inventory along the eastern property line to establish whether additional buffer may be required.	More information needed
	13.6.2.B.3.a *Parking and vehicle display lot landscaping* Developments with more than five parking spaces shall include at least one tree for every 750 square feet of uncovered asphalt parking area	Eight parking spaces comprise approximately 2,420 sq ft. of asphalt. Four trees will provide shade and screening to the parking area.	Not met

	(including drive aisles), planted in landscaped islands to screen, shade, and break up parking. Trees and shrubs in parking lots may be in informal groups, straight rows, or concentrated in clusters as described in the landscaping standards of the Technical Manual.	The Applicant has requested a waiver in order to provide shade trees along the perimeter of the parking area, rather than planted in a landscaped island. The Applicant proposes one tree in a landscaped island and three trees immediately adjacent to the proposed parking area. The justification for this waiver is due to the steep slopes and turning radii requirements for solid waste collections and emergency vehicles. **What still needs to be addressed:**	
	13.6.2.B.3.b ***Parking and vehicle display lot landscaping*** Landscaped islands shall be distributed so that uninterrupted pavement does not exceed forty parking spaces.	Not applicable. Eight parking spaces will be provided. **What still needs to be addressed:**	Not Applicable
	13.6.2.B.3.c ***Parking and vehicle display lot landscaping*** Where site constraints prevent implementation of all or a portion of required parking lot landscaping, as determined by the review authority, the reviewing authority may approve an alternative as described in the landscaping standards of the Technical Manual.	The Applicant has requested a waiver as described in Standard 13.6.2.B.3.a. **What still needs to be addressed:**	More information needed
	13.6.2.B.4 ***Non-vehicular hardscape*** All uncovered paving for non-vehicular use, including pathways and patios, must either have a minimum Solar Reflective Index (SRI) of 33 initially and 28 once aged three years or include one tree for every 750 square feet of asphalt paving.	Non-vehicular paving will be constructed from natural gray concrete. This material will achieve a Solar Reflective Index of 33 initially and 28 or less aft.er 3 years. The site will also plant 15 trees for 7,455 sq. ft. of asphalt paving, which is 1 tree for every 497 sq. ft. **What still needs to be addressed:**	Met
	13.6.2.B.5.a ***Street trees*** All development shall include one street tree per 25-35 linear feet of frontage along a city right-of-way or private roadway as specified in	Six street trees comprised of serviceberry and redbud trees will be planted along 65 ft. of frontage along Forest Avenue.	Mor e

	the landscaping standards of the Technical Manual. The provision of measures to enhance tree survival (such as raised planters, irrigation, and structural soils as recommended by the City Arborist) shall be required.	**What still needs to be addressed:**	
	13.6.2.B.5.b *Street trees* Where the applicant can demonstrate that site constraints prevent the planting of required street trees in the city right-of-way, the review authority may permit an alternative subject to the landscaping standards of the Technical Manual.	Not applicable. Street trees are included in the project. **What still needs to be addressed:**	Not Applicable
	13.6.2.B.5.c *Street trees* Where the proposed development includes the removal of an existing street tree determined by the City Arborist to be a heritage or feature mature tree, the applicant shall be required to contribute to the Tree Fund at the designated rate in the Technical Manual so that the total replacement cost is significantly higher than planting a new street tree/contributing for a new street tree.	Not applicable. No trees have been designated by the City Arborist. **What still needs to be addressed:**	Not Applicable
Water Quality, Stormwater Management and Erosion Control	**13.6.2.C.1.a** All development shall be designed to minimize total area of impervious surface on the site and both the volume and rate of runoff from the lot. Provisions for stormwater management shall demonstrate the following: a) Any stormwater draining onto or across the lot in its pre-improvement state will not be impeded or redirected so as to create ponding on, or flooding of, adjacent lots.	The existing site is divided into five sub-catchments. The development will be contained within the first and the fifth sub-catchment, and drainage patterns will remain relatively the same across the sub-catchments. The peak flows will remain at or below the pre-development levels. **What still needs to be addressed:**	Met
	13.6.2.C.1.b All development shall be designed to minimize total area of impervious surface on the site and both the volume and rate of runoff from the lot. Provisions for stormwater management shall demonstrate the following: b) Any increase in volume or rate of stormwater draining from the lot onto an adjacent lot or City property following the improvement can be handled on the	The peak flows will remain at or below the pre-development levels, as provided in the stormwater management plan. **What still needs to be addressed:**	Met

	adjacent lot or City property without creating ponding, flooding or other drainage problems and that the owner of the lot being improved has the legal right to increase the flow of stormwater onto the adjacent lot or City property.		
	13.6.2.C.1.c All development shall be designed to minimize total area of impervious surface on the site and both the volume and rate of runoff from the lot. Provisions for stormwater management shall demonstrate the following: c) Any increase in volume or rate of stormwater draining from the lot into the City's storm sewer system can be accommodated in the system without creating downstream problems or exceeding the capacity of the storm sewer system.	The rain garden will provide on-site stormwater detention which exceeds the minimum detention volume equal to 1 ft. of rainfall across the impervious area on the site. **What still needs to be addressed:**	Met
	13.6.2.C.2 All development shall comply with the stormwater management standards of the Technical Manual.	Underground detention tanks, a rain garden and additional underground stormwater infrastructure will provide the stormwater management for the site. **What still needs to be addressed:** 1) The Applicant shall provide complete information on the two field inlets located at the southeastern corner of the proposed building. 2) The Applicant shall clarify how the foundation drain located at the southeast corner of the building will connect to the site's stormwater system. 3) The Applicant shall clarify how the storm drain connection stub and sewer stub, both to the western side of the site, will be left in temporary condition until the next phase is completed.	More information needed

		4) Plans shall include more contour labels for the graded areas around the building, in order to provide clarity for review of the proposed stormwater system with the stormwater model and provide a detail for construction. 5) The submitted stormwater report indicated that the proposed project is reducing impervious surface and is not meeting the 5,000 sq. ft. threshold for non-roof development. Areas confirming this condition shall be listed in the report. 6) Applicant shall confirm that the temporary gravel pad will need to be considered in future phases of work as roof area when calculating changes to impervious area, as it is not currently included in impervious surface considerations for the proposed stormwater management plan. 7) Applicant shall review the modeled rain garden with the proposed design. The modeled outlets do not match the drawings. The underground storage system should also be reviewed against the plans. Both should be revised accordingly. 8) Applicant shall re-evaluate the flow from subcatchment 1.1 and its potential impact on the outlet control structure for the underground storage system. Portions of this subcatchment area will be draining into the downstream side of the outlet control structure, and flow could impact the outlets from the underground system, in particular with larger storm events. The outlet pipe from the structure should be sized for all flow. 9) The plans shall clarify the details of the proposed subsurface storage system. As	

		currently shown on the plans, the system does not directly relate to what has been modeled in the HydroCAD report. The proprietary system shall be reviewed and approved by the product manufacturer.	
	13.6.2.C.3 Development shall not pose a risk of groundwater contamination either during or post-construction, as described in the stormwater management and water supply standards of the Technical Manual.	The project will be serviced by the public wastewater system. Frequent dewatering of ground water from the site will occur during construction to reduce risk of contamination. What still needs to be addressed:	Met
	13.6.2.C.4 Applicants shall demonstrate that subsurface and/or any adjacent slope conditions are suitable to support the development, and where determined necessary, shall prepare a geotechnical study to demonstrate that the development as designed will not adversely impact the development site or any abutting property. Soil surveys and/or geotechnical studies shall be prepared in accordance with the requirements of the Technical Manual.	The "K" values for subsurface soils show a low susceptibility to erosion and provide evidence of suitable support for development. What still needs to be addressed:	Met
Public Infrastructure and Community Safety Standards (Sec. 13.6.3)			
Standard		***How the standard is being met***	***Finding***
Consistency with City Master Plans	13.6.3.A.1 All developments shall be designed so as to be consistent with City Council-approved master plans and facilities plans and with off-premises infrastructure.	The City's housing goals in the Comprehensive Plan encourage contextually appropriate housing density near service center and transit nodes. The 33 units building along the Forest Avenue Corridor and nearby neighborhood amenities align with this goal. What still needs to be addressed:	Met
	13.6.3.A.2 The site plan shall include suitable easements, rights, and improvements to connect or continue off-premises public infrastructure as may be required by the review authority.	Not applicable. What still needs to be addressed:	Not Applicable
Public	13.6.3.B.1.a All development shall incorporate the following public safety principles for Crime	Building entrances and exits will be visible from the public right of way and will be illuminated	Met

	Prevention through Environmental Design (CPTED) into site design to enhance the security of public and private spaces and to reduce the potential for crime: a) Natural surveillance that promotes visibility of public spaces and areas.	to enhance public safety. Additional safety measures, such as security cameras will be provided. **What still needs to be addressed:**	
	13.6.3.B.1.b All development shall incorporate the following public safety principles for Crime Prevention through Environmental Design (CPTED) into site design to enhance the security of public and private spaces and to reduce the potential for crime: b) Access control that promotes authorized and/or appropriate access to the site.	Pedestrian walkways and the driveway guide users to site entrance. Private patio space will be fenced and accessible only from inside the building. A gate installed along the driveway will limit further access to the site. **What still needs to be addressed:**	Met
	13.6.3.B.1.c All development shall incorporate the following public safety principles for Crime Prevention through Environmental Design (CPTED) into site design to enhance the security of public and private spaces and to reduce the potential for crime: c) Territorial reinforcement that promotes a sense of ownership and responsibility through environmental design.	The site layout provides separate public and private spaces. Street trees and shrubs reinforce the spatial edge of the private and public zones. **What still needs to be addressed:**	Met
	13.6.3.B.2 All developments shall be designed to provide adequate emergency vehicle access to the site and comply with the Public Safety standards of the Technical Manual.	The dead-end roadway to the parking lot is greater than 150 ft., which necessitates a turnaround at the closed end. **What still needs to be addressed:** 1) Plans shall include "No Parking Fire Lane" signs facing towards the parking area and in between the snow and trash storage. 2) Applicant shall reach out to Charles Wordell, the City's 9-1-1 Addressing Officer to provide an approved street name and building number, if they intend to further develop the property.	More Information needed
Public Utilities	**13.6.3.C.1** The development shall not overburden sanitary sewers and storm drains, water lines or supply, or other public infrastructure and utilities. Development shall provide adequate utility	Two new service lines – 2" domestic service and an 8" fire service line will connect to the new building. Subsurface stormwater detention systems and a rain garden will manage and treat stormwater.	More Information needed

	infrastructure on-site and in connection to surrounding locations and facilities.	**What still needs to be addressed:** 1) Utility plan shall note that existing communications vault within the proposed sidewalk must be ADA compliant.	
	13.6.3.C.2 Electrical service shall be underground unless otherwise specified for industrial uses, or if it is determined to be unfeasible due to extreme cost, the need to retrofit properties not owned by the applicant, or complexity of revising existing overhead facilities.	A new riser pole along Forest Avenue will facilitate routing underground primary and communication lines to the building. **What still needs to be addressed:**	Met
	13.6.3.C.3 All sanitary sewer lines, storm drains, water lines, and other utilities proposed as part of the development shall be designed to conform with the sanitary sewer and storm drain and water supply standards of the Technical Manual.	A new 6" sewer service lateral will tie into the existing main with Forest Avenue. An 8" sewer lateral would connect from a new manhole to an existing manhole in front of the property. **What still needs to be addressed:**	Met
	13.6.3.C.4 All development within 200 feet of a public sanitary collection and treatment system shall connect sanitary sewer lines into the nearest available public sewer. If a public sanitary collection and treatment system is not available, a private wastewater system may be used according to the requirements of Chapter 24 of the City Code and the sanitary sewer and storm drain standards of the Technical Manual.	The site will connect to the public sanitary sewer system within Forest Avenue. **What still needs to be addressed:** 1) Plans shall confirm that the new connection into the combined sewer system will be equipped with backflow prevention. 1) Applicant shall revise proposed catch basin connection. Private connections are not permitted into the City street catch basins per technical standard 6.9.7.	More information needed
	13.6.3.C.5 All residential development of 20 units or more, commercial development, and industrial development shall provide for the temporary storage and timely removal of all trash and recyclable materials including, at a minimum, paper, corrugated cardboard, plastics, and metals. Storage containers for recyclable materials shall be separated from trash containers. All exterior storage of trash and recyclables shall be screened from view from public sidewalks, streets, and adjacent properties.	A dumpster enclosure with a pressure-treated wooden fence and 15 ft. x 10 ft. concrete pad will provide screening. **What still needs to be addressed:** 1) Applicant shall clarify how containers will provide separate storage for trash and recycling.	More information needed.

Site Design Standards (Sec. 13.6.4)			
Standard		***How the standard is being met***	***Finding***
Massing, Ventilation and Wind Impact	13.6.4.A.1 The bulk, location, or height of proposed buildings and structures shall not result in health or safety problems from a reduction in ventilation to abutting structures or changes to the existing wind climate that would result in unsafe wind conditions for users of the site and/or adjacent public spaces.	The four-story building will have a height of 46 ft. The relative height of the structure is unlikely to create or change existing wind climate. What still needs to be addressed:	Met
	13.6.4.A.2 Development shall locate all HVAC venting mechanisms to direct exhaust away from public spaces and residential properties directly adjacent to the site.	Ventilation for the building is provided via a roof-mounted Dedicated Outdoor Air System (DOAS). Ventilation and exhaust air will comply with ASHRAE 62.1 and 2021 IMC. What still needs to be addressed:	Met
	13.6.4.A.3 In proposed buildings or additions with an aggregate roof area greater than 2,000 square feet, measured horizontally, and, for residential projects, greater than nine residential units, a minimum of 75% of the roof area must meet the following "cool roof" Solar Reflective Index (SRI) standards: a) Roofs with a slope less than 2:12: SRI of 82+ (initial)/64+ (3-year aged) b) Roofs with a slope greater than 2:12: SRI of 25+ (initial)/25+ (3-year aged) Roof areas covered by shade structures with an SRI of 39+, including photovoltaic panels that shade the roof, are considered exempt from roof area calculations for the purposes of this standard.	The upper roof will have a white membrane with a three-year aged solar reflectance index of 80 or greater. Roof slope is not provided in the narrative. What still needs to be addressed:	Met
Shadow	13.6.4.B All development over 65 feet in height shall be designed to avoid and/or mitigate the adverse impacts of shadows cast by new structures or building additions from falling on publicly accessible open space in accordance with the shadow standards of the Technical Manual.	Not applicable. Building height is under 65 ft. What still needs to be addressed:	Not Applicable
Snow and Ice	13.6.4.C All development shall be designed to prevent significant amounts of accumulated snow and ice	Wood trusses and parapets around the edges of the fourth-floor roof will prevent falling snow and ice.	Met

	from loading or falling onto adjacent properties or public ways.	What still needs to be addressed:	
View Corridors	13.6.4.D The massing, location, and height of development shall not substantially obstruct public view corridors identified in the City of Portland Design Manual.	Not applicable. There are not water or landmark views present near the site. What still needs to be addressed:	Not Applicable
Historic Resources	13.6.4.E.1 When a development affects a designated landmark or lies within a designated historic district or historic landscape district, such development shall be required to obtain historic preservation approval under Article 16.	Not applicable. The development is not located in a Historic District and does not affect designated landmarks. What still needs to be addressed:	Not Applicable
	13.6.4.E.2.a All development shall document and protect state or local archaeological resources known to exist or discovered on the site. a) Protection may include leaving archaeological resources untouched beneath a new development through adaptation of foundation design or architectural layout.	There are no known archaeological resources present at the site. There is a historic cemetery adjacent to the site. There is a 25 ft. no disturbance zone. Proper measures must be taken if archaeological resources are discovered during construction. What still needs to be addressed:	Met
	13.6.4.E.2.b All development shall document and protect state or local archaeological resources known to exist or discovered on the site.	There are no known archaeological resources on the site. Proper measures must be taken if archaeological resources are discovered during construction.	Met

	b) Where the applicant can demonstrate that complete protection is not feasible, the applicant shall excavate and document archeological resources. Such measures shall be conducted in consultation with the City's historic preservation program and Maine Historic Preservation Commission. For resources of state significance, excavation and documentation shall be conducted by a qualified professional, in coordination with Maine Historic Preservation Commission. Local archeological resources may or may not be recognized by the Maine Historic Preservation Commission as significant and shall include the following: i. Original seawall structure located landward of Commercial Street. ii. Inactive historic family cemetery plots. iii. Historic railroad beds including but not limited to the Portland-Lewiston interurban railroad. iv. Original structure and/or landforms associated with the Cumberland and Oxford Canal. v. Buried portions of colonial and post-colonial period structures or built features located on the Portland Peninsula predating the Great Fire of 1866. vi. Pre-colonial occupation sites identified by shell middens or other evidence. vii. Sites listed or eligible for listing on the National Register of Historic Places.	What still needs to be addressed:	

	13.6.4.E.2.c All development shall document and protect state or local archaeological resources known to exist or discovered on the site. c) In order to preserve archeological resources, the review authority may waive standards listed in the City of Portland Technical Manual where necessary if it is determined that such a waiver would not jeopardize the health, safety, or welfare of the development's occupants, the public, or the natural environment.	No waiver is requested. What still needs to be addressed:	Not Applicable
Exterior Lighting	13.6.4.F.1.a ***Site lighting*** All exterior site lighting shall be full cutoff with no light emitted above the horizontal plane or spilled onto adjacent properties. Illumination levels shall be adequate but not excessive for the safety, comfort, and convenience of occupants and users of the site, and shall conform to the lighting standards of the Technical Manual.	Lighting is downlit, side shielded and dark sky compliant. Photometric and lighting plan submitted. What still needs to be addressed:	Met
	13.6.4.F.1.a ***Site lighting*** Where light from a proposed development may adversely impact adjacent residential properties, exterior lighting shall employ building-side shielding.	Not applicable. There are no adjacent residential properties. What still needs to be addressed:	Not Applicable
	13.6.4.F.2.a ***Architectural and specialty lighting*** Architectural and specialty lighting of such features as architectural details, monuments, public art, or other site features shall be designed to illuminate specific details or attributes only and shall meet the lighting standards of the Technical Manual.	Not applicable. No architectural or specialty lighting proposed. What still needs to be addressed:	Not Applicable
	13.6.4.F.2.b ***Architectural and specialty lighting*** Up-lighting by any method is prohibited except for public buildings and parklands; clock towers and steeples; landscape features; designated historic landmarks; flags of state, federal, or national jurisdictions; and public art. Such light fixtures, brackets, conduits, and all other components shall be designed by a lighting professional and shall be scaled and placed to minimize their visibility and installed in accordance with the lighting standards of the Technical Manual.	Not applicable. There is no up-lighting on the building or features. What still needs to be addressed:	Not Applicable
	13.6.4.F.3 ***Street lighting*** All development shall provide municipal street lighting adequate for the	No new street lighting is proposed. There are existing cobra head street lights mounted to	Met

	safety and comfort of pedestrians, bicyclists, and motorists and, where applicable, conforming to specific lighting district requirements as specified in the street lighting standards of the Technical Manual.	utility poles adjacent to the site and along Forest Avenue. **What still needs to be addressed:**	
Noise and Vibration	**13.6.4.G** All heating, ventilation and air conditioning equipment (HVAC), air handling units (AHU), emergency generators, and similar equipment shall meet applicable state and federal emissions requirements and shall be located to the interior of the site, away from abutting properties.	Ventilation for the building is provided via a roof-mounted Dedicated Outdoor Air System (DOAS). Ventilation and exhaust air will comply with ASHRAE 62.1 and 2021 IMC. **What still needs to be addressed:**	Met
Signage and Wayfinding	**13.6.4.H.1** On-site directional traffic signage may be provided to enable users to safely and easily navigate into, around and out of the site.	Standard MUTC compliant stop sign proposed at driveway exit. **What still needs to be addressed:**	Met
	13.6.4.H.2 Signage shall not adversely affect visibility at intersections on or off the site.	Not applicable. Signage to be affixed to building entrance. **What still needs to be addressed:**	Not Applicable
Design Standards	**13.6.4.I.1** Development of certain types and/or proposed in certain zones, as specified in the City of Portland Design Manual, shall meet the design standards of the Design Manual in order to ensure that building and site design contribute to and enhance the goals and policies for specific zones within the city. The City of Portland Design Manual is incorporated by reference as part of this Land Use Code.	Primary building entrance located along the western elevation in close proximity to the front façade. Storefront scaled windows create strong connection to the street. **What still needs to be addressed:** 1) See Design Memo	More information needed.
	13.6.4.I.2 If the development is located in a historic district or associated with a historic landmark, the standards of Article 16 shall supersede.	Not applicable. **What still needs to be addressed:**	Not Applicable

Zoning Use Review (Article 6)

Use Permissions (Table 6-A – Table 6-F)

Proposed Use	***Permitted, Conditional or Accessory Use***	***Zone***	***Use Std***
Multi-Family	*Permitted*	*B-2*	6.4.12
Accessory Office	*Permitted*	*B-2*	6.4.15, 6.4.10

Supplemental or Accessory Use Standards (Sec. 6)

Standard	***Discussion***	***Finding***
6.2.3 Multiple Uses A lot may contain more than one principal use, providing each use is allowed within the zone. Each principal use shall be permitted separately. In certain cases, uses are defined in Article 3 to include accessory uses that provide necessary support or are functionally integrated into the principal use.	Overview: A Multi-family dwelling is the primary use of the proposed development at the subject property. An office use on the first floor of the proposed structure is an accessory use to provide support staff for residents. The accessory office use is integral to the residential use under the "Home for Good" program. Updates Requested None. Updates Requested List action items for an applicant to respond to	***Met***

Dimensional Standards (Table 7-C)

Standard	***Requirement 1 – Base Zone (B-2)***	***Requirement 2- Overlay (N/A)***	***Proposed***	***Finding***
Lot Area (Min)	***0***	***N/A***	***144,679***	***Met***
Street Frontage	--	N/A	690.35	Not Applicable
Gross floor area	--	N/A	28,694	Not Applicable
Build-to Zone	0-10 ft	N/A	12.5, Per Section 7.6.5.B.3, the Applicant has requested an exemption due to the irregular shape of the lot and the steep topography. Further, existing 3-phase power lines running along the site	Not Met

			requires a 15 ft setback.	
Build-to percentage	100%	N/A	See Build-to Zone	Not Met
Building Length as a percentage of street frontage	--	N/A	N/A	Not Applicable
Rear Setback	--	N/A	115.5	Not Applicable
Side Setback	--	N/A	22.75	Not Applicable
Building Height	75 ft	N/A	50	Met
Lot Coverage (max)	100%	N/A	5.69%	Met
Blank Wall	20 ft	N/A	Applicant shall provide additional information to ensure there is no blank wall greater than 20 ft in length along the building façade.	Additional Information Needed

Affordable Housing Density Bonuses (Sec. 17.2)

Bonus Type	***Allowed Under Density Bonus***	***Proposed***	***Finding***
Maximum Density (units)	2.5 x Base	33	Met
Maximum Height	85	46	Met

Design Review
Planning and Urban Development Department

City of portland

Subject:	1871 Forest Avenue
Zone:	B-2
Date of Review:	Wednesday, March 25, 2026
Reviewer(s):	Sean King (Urban Designer), Rowen McAllister (Senior Planner), Neha Sunil Pol (Planner),
Project ID:	PL-003538-2026

I. INTRODUCTION

The development project at 1871 Forest Avenue is subject to the site design review standards, Land Use Code section 13.6.4.I Design standards.

The proposed at 165 Washington Avenue is located in the B-2 Community Business zone, and is subject to the design standards of the City of Portland *Design Manual* – ***(d) B-2 Commercial Business Zone, Appendix 2*** and ***(i) Two-family, special needs independent living units, multiple-family, lodging houses, bed and breakfasts and emergency shelters.***

II. REQUEST FOR ADDITIONAL SUBMISSION MATERIALS

Staff requests that the Applicant provide the following plan and detail materials:

1. Specify exterior façade materials onto the architectural elevations and reflect onto the renderings.
2. Submit window specifications that indicate the window transparency to meet .7 or greater at the ground floor facing the street.

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

(d) B-2 STANDARDS

c. *Building entrances: In the B-1, **B-2** and B-2b zone building entrances shall be oriented toward, located adjacent to, and directly accessible from, a sidewalk in a public right-of-way.*

Staff comment: The proposed building locates the primary along the west elevation within close proximity to the front façade. Staff finds that the primary building entrance is clearly visible from the street with fixed glass around the perimeter, and integrated into the ground floor that is accessible from the public sidewalk.

d. *Windows: In the B-1, **B-2**, B-2b zones windows shall be required along the street frontage of a building. Windows shall be transparent (with visible transmittance (VT) of .7 or greater) and installed at a height to allow views into the building by passerby.*

Staff comment: The proposed building is setback approximately 12'6" from the front property line, however Staff finds that the large expanse of storefront-scaled windows along the street frontage creates a strong connection to the street.

Staff requests window specifications that indicate the window transparency to meet .7 or greater at the ground floor facing the street.

e. *Façade character: In the B-1, **B-2**, B-2b zones, active and public portions of the buildings (e.g. doors, windows, entries retail displays) shall be oriented to and, where possible, be located adjacent to the public sidewalk to create an active presence along the sidewalk.*

Staff comment: The proposed building provides storefront windows along a single-story annex provides an entrance lobby and community gathering space for the residents. The single-story building exterior is articulated with a vertical- slated siding and soffit that Staff finds creates an active presence to create an active presence along the sidewalk.

Staff recommends that the Applicant consider a vertical alignment of the ground floor windows along the west and east elevations that corresponds to the upper floor window arrangement.

f. *Building design: B-1, **B-2** and B-2b commercial buildings shall be designed to be compatible with their residential and commercial neighbors.*

Staff comment: The proposed building is arranged to provide gathering spaces for residents at the ground-floor and residential units on the upper floors setback from the street. Staff finds that the building is segmented into building modules that creates variation in the building plane and reduces the overall scale. In addition, the building design incorporates façade variations (roof pitch, tone and accent material at residential windows) to complement the building module that Staff finds is compatible with the surrounding residential and commercial structures within proximity to the site.

g. *Building materials: Façade materials of buildings located in the B-1, **B-2** and B-2b zones shall be compatible with those materials of surrounding residential and commercial use.*

Staff comment: The proposed building design provides façade materials that relate to the corresponding use, the single-story portion includes large storefront windows and vertical siding of various reveals and tones that Staff finds articulates the primary entrance. The upper floors organize windows in a symmetrical pattern and include accent materials between the windows that Staff finds provides appropriate façade variation.

Staff request that the application identify the exterior building materials onto the elevations and reflect appropriately onto the renderings.

i. *Landscaping and buffers: In the B-1, **B-2** and B-2b zones buildings and associated parking areas must be screened to buffer abutting properties. A densely planted landscape buffer and/or fencing will be required to protect neighboring properties from the impacts associated with the development, including lighting, parking, traffic, noise, odor, smoke, or other incompatible uses. Where buildings are setback from the street, a landscaped area must be planted along the front yard street line.*

Staff comment: Staff requests that the applicant provide an inventory of existing trees with location, size and type along the east property line to evaluate if existing vegetation provide on the property provides sufficient buffering. If no existing trees are present within the property boundaries, Staff recommends additional landscape screening along the east property to buffer the proposed building from the adjacent property at 1837 Forest Avenue.

GUIDELINES

Please refer to Appendix 2 of this manual, The B-1, **B-2**, B-2b Design Guidelines, for applicable design guidelines for the B-1 and B-2 zones.

1. *Buildings located in the B-2 zone are specifically encouraged to adhere to the design guidelines contained in the B-1, B-2, B-2b Design Guidelines (Appendix 2) of this section concerning the creation and preservation of an urban street wall.*

   Staff comment: Staff finds that the proposed building creates a sufficient urban street wall with a row of ornamental trees along the property frontage and building frontage within close proximity to the street.

2. *In the B-2 zone, buildings are specifically encouraged to adhere to the guidelines contained in the B-1, B-2, B-2b Design Guidelines (Appendix 2) of this section concerning building entrances.*

   Staff comment: Staff finds that the primary building entrances is clearly visible from the street with large storefront windows around the perimeter and an accessible walkway to the public sidewalk.

Memorandum
Planning and Urban Development Department

To:	Chair Zamboni & Members of the Planning Board
From:	Rowen McAllister
Date:	May 6, 2026
Re:	1871 Forest Avenue
Project ID:	PL-003538-2026
CBL:	327A A004001
Meeting Date:	May 12, 2026

I. INTRODUCTION

Avesta Housing Development Corporation (the "Applicant") has submitted a Major Site Plan application to facilitate the construction of a 33-unit multifamily residential building at 1871 Forest Avenue (the "subject property"). This property is located in the B-2 Community Business zone. This application is being referred to the Planning Board for compliance with the City of Portland's Land Use Code Site Plan Standards, Section 13.6.

The Planning and Urban Development Department mailed 48 notices advertising this meeting to property owners within 500 feet of the site. A legal advertisement ran in the May 1st and 2nd editions of the *Portland Press Herald*.

Applicant: Avesta Housing Development Corporation
Applicant Representatives: Acorn Engineering, Inc

Figure 1: Project Rendering

II. REQUIRED REVIEWS

Review	*Applicable Standards*
Site Plan	Section 13.6
Design Review	Design Review Manual – (d) B-2 Commercial Business Zone, Appendix 2, and (i) two-family, special needs independent living units, multiple family, lodging houses, bed and breakfasts, and emergency shelters.

Waiver Requests	*Applicable Standards*
Request: No bicycle parking for residents	Land Use Code, Table 18A – Minimum Bicycle Parking Requirements: 1 per 2 dwelling units
Request: Provide trees along perimeter of parking lot instead of landscaped islands	Land Use Code, Section 13.6.2.B.3.a – Developments with more than 5 parking spaces shall include one tree for every 750 SF of uncovered asphalt planted in landscaped islands to screen and shade area.

III. PROJECT DATA

Existing Zoning	B-2
Property Size	149,411 SF
Existing Use	Commercial Business - Restaurant (Vacant)
Proposed Use	Multifamily Dwelling
Proposed Development Program	33-unit dwelling, with ground-floor, auxiliary office space to support residents

	Existing	*Proposed*	*Net Change*
Building Footprint	4,870	8,354	3,484
Building Floor Area	8,771 SF	28,694 SF	19,923 SF
Impervious Surface Area	41,425	35,000	-6,425
Parking Spaces	59	8	-51
Bicycle Parking Spaces	0	0	--
EV Charging Stations	0	1	1

IV. EXISTING CONDITIONS AND SURROUNDING AREA

The subject property at 1871 Forest Ave currently contains an 8,771 square foot, vacant commercial restaurant with 59 parking spaces on a 144,679 square foot lot with 690 feet of frontage. Two existing curb cuts at the east and west sides of the parcel provide access to the parking area and structure. The site experiences a grade change of more than ten feet from the existing sidewalk and right-of-way on Forest Ave to the existing commercial structure. Wetlands and mature tree cover exist on the western portion of the site, and mature trees extend to the rear and eastern edges of the site. A footpath on the western side of the property provides informal access from Forest Ave to the parking lot of Hannaford Supermarket, located to the north of the site.

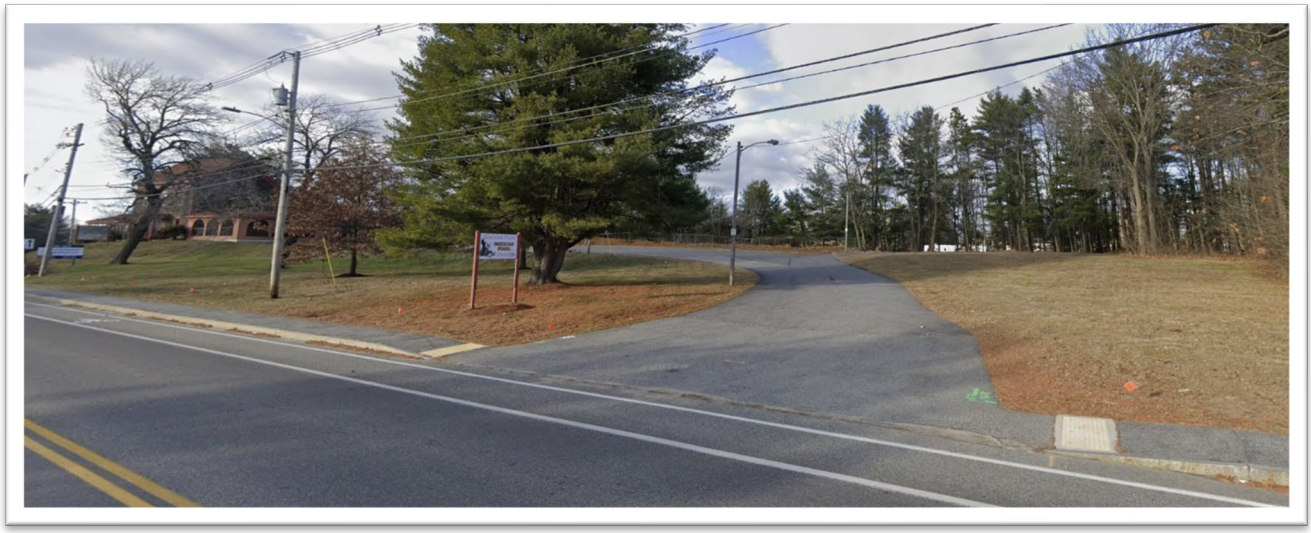


Figure 2: Existing Conditions

The subject property is bounded by commercial uses to the north and west, a Quaker Meeting House and cemetery to the east, and Forest Avenue to the south. Nearby uses along Forest Avenue opposite the subject property include single family dwellings, a cultural center and mosque, a gas station, and a new multifamily dwelling in Riverton Park. The City of Portland's Riverside Shelter is also within a half-mile of the property. The portion of Forest Avenue along the subject property is a primary arterial connecting Portland and Westbrook. The METRO bus routes #2 and #3 provide public transit service along this corridor as well.

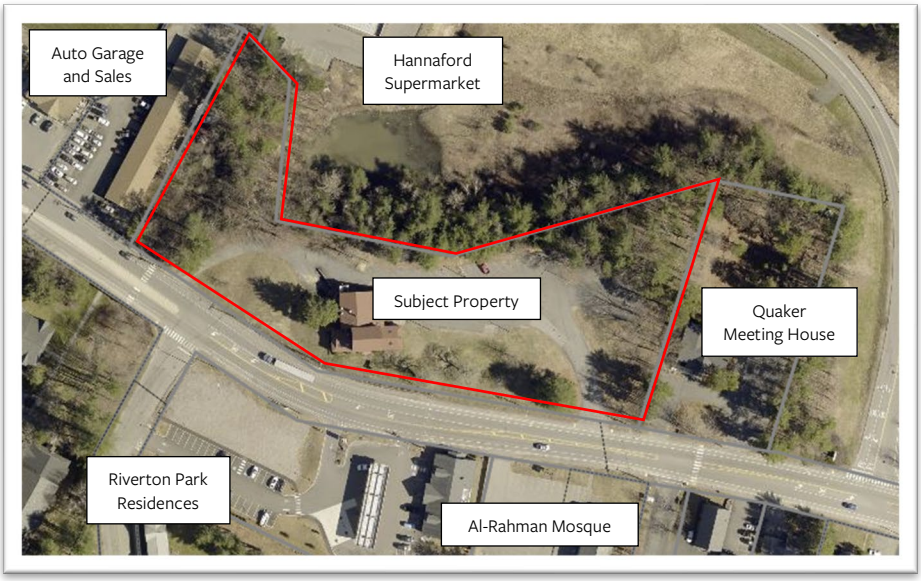


Figure 3: Surrounding Uses

The subject property and adjacent properties along Forest Avenue are in the B-2 Community Business zone. Nearby parcels along Riverton Street are in the B-4 zone. Both commercial zones form a small commercial cluster at the intersection of Riverside Street and Forest Avenue, which provides a neighborhood grocery store and retail or service stores to serve the nearby residents. Along the southern

side of Forest Avenue, the RN-5 zone supports higher-density residential uses and includes Portland Housing Authority's Riverton Park community, which is currently under development to create more than 41 new units. Across I-95 is primarily single-family homes in the RN-1 zone. The commercial and residential zones adjacent to the subject property are otherwise surrounded by industrial, namely the I-M and I-H zones, to the north and south.

Figure 4: Zoning Districts

V. PROPOSED DEVELOPMENT

The proposed Major Site Plan application would facilitate the development of a four-story, multifamily building totaling approximately 28,000 square feet with 33 residential units with ground floor offices and common areas for tenants. All of the residential units would be designated affordable under the Home for Good program, which supports chronically homeless individuals build independent living skills. Eight parking spaces are provided on the northern side of the lot towards the rear of the building. Two of the parking spaces would include EV chargers. The building and parking area would be accessed via a new curb cut and a 22-foot drive aisle from Forest Avenue.

Figure 3: Proposed Building at 1871 Forest Ave

The proposed project would include six street trees along Forest Avenue. A new six-foot sidewalk and esplanade would replace the existing sidewalk for approximately 65 feet along the development's frontage. The applicant is proposing a new crosswalk on Forest Avenue to enhance pedestrian connectivity to existing bus stops. A

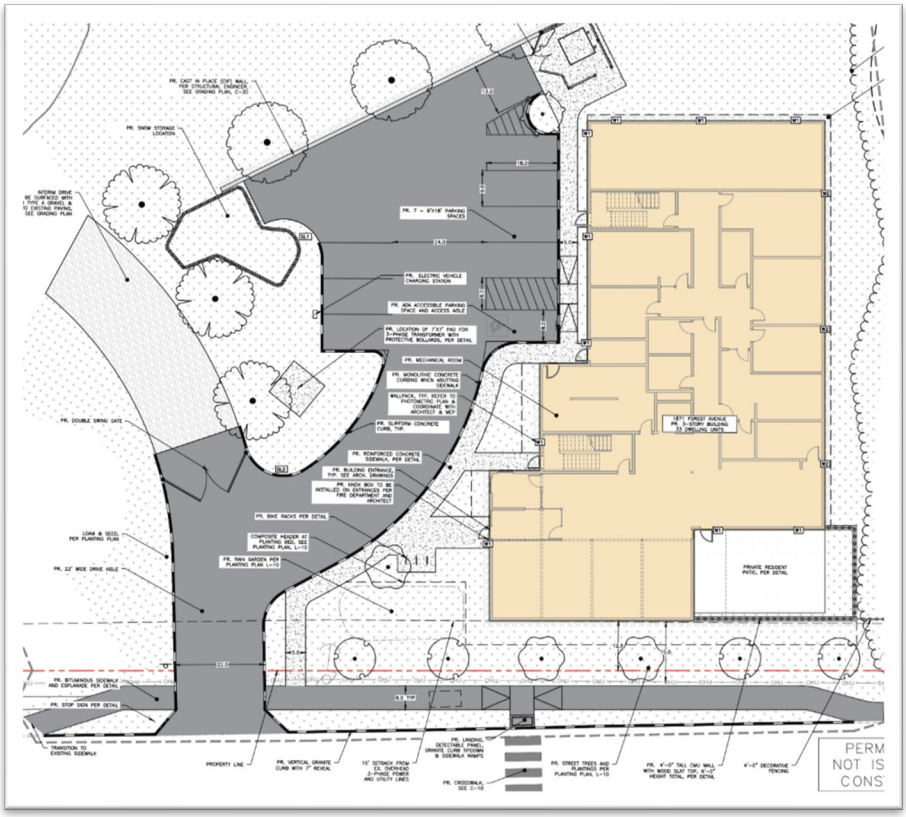


Figure 4: Enlarged Site Plan

The proposed structure and corresponding site plan only address the eastern portion of the property at 1871 Forest Avenue. The Applicant has suggested that further residential development is contemplated for the western portion of the property at a future date, which would be pursued under separate site plan applications.

VI. RIGHT, TITLE, & INTEREST

The Applicant has demonstrated sufficient right, title, and interest to the subject property. An Option Agreement dated March 18, 2025 provides the Applicant an option to purchase the land and existing building at 1871 Forest Avenue, as shown in Attachment C.

VII. FINANCIAL & TECHNICAL CAPACITY

The Applicant is an established housing developer that manages a portfolio of 16 multifamily properties in the Portland area. A letter from Bangor Saving Bank dated February 11, 2026 offers additional support of the Applicant's financial capacity to execute this project, as shown in Attachment D and E.

VIII. ZONING ANALYSIS

The subject property is located in the B-2 Community Business zone. As outlined in Table 5-D of the Land Use Code, the purpose of the B-2 zone is:

"*To provide locations for a mixture of commercial, service, and residential uses in a comfortable pedestrian environment that is easily accessible and well-connected to surrounding neighborhoods. Such a mixture may serve the daily needs of nearby residents within walking distance, as well as surrounding neighborhoods via multiple modes of transportation. The zone provides a broad range of goods and services with a mixture of large and small buildings, such as grocery stores, shops and services located in shopping centers and along arterial streets. The B-2 zone's multi-modal orientation accommodates all modes of transportation, and the standards of the zone require that development relate to surrounding neighborhoods by design, orientation, and circulation patterns. The zone encourages mixed-use development, and provides locations for moderate to high-density housing, including three-family, four-family, townhouse, and multi-family structures in urban neighborhoods along arterials.*"

The proposed development at the subject property aligns with the purpose of the B-2 zone due to the dense multifamily use and the support provided to the transit and pedestrian infrastructure in the area. The proposed development is also consistent with the dimensional requirements of the B-2 zone, as shown in the table below.

Standard	Required	Proposed
Lot Area (Min)	0	144,679 SF
Street Frontage	--	690.35 ft
Gross floor area	--	28,694 SF
Build-to Zone	0-10 ft	12.5, Per Section 7.6.5.B.3, the Applicant has requested an exemption due to the irregular shape of the lot and the steep topography. Further, existing 3-phase power lines running along the site requires a 15 ft setback.
Build-to percentage	100%	See Build-to Zone

Building Length as a percentage of street frontage	--	N/A
Rear Setback	--	115.5 ft
Side Setback	--	22.75 ft
Building Height	75 ft	50 ft
Lot Coverage (max)	100%	5.69%
Blank Wall	20 ft	Applicant shall provide additional information to ensure there is no blank wall greater than 20 ft in length along the building façade.

The Applicant has requested an exemption from the build-to requirements in order to provide a front yard setback of 12.5 feet, due to the unusual topography of the property and the presence of overhead utility lines which require a 15-foot setback. Section 7.6.5.B of the Land Use Code permits exemptions to the build-to requirement if the subject property is irregularly shaped and the front yard setback is met to the greatest extent practicable, and if a continuous, pedestrian-scaled edge treatment is provided. The proposed building orientation and landscaping provides acceptable street-facing pedestrian level engagement. However, staff encourages the Board to explore whether the Applicant could bring the build-to zone into compliance by either relocating the utility lines below grade or widening the sidewalk by 2.5 feet.

IX. SITE PLAN REVIEW STANDARDS (Section 13.6)

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 13.6. Staff comments are noted below.

1. Transportation Standards (Section 13.6.1)

A. Impact on surrounding street systems

The proposed development is likely to generate new vehicle, pedestrian, bicycle and transit traffic which could impact the surrounding street systems. All developments must ensure impact to the surrounding street systems will not create or substantially increase hazards and congestion without proportionate mitigation. The applicant has proposed a new 22-foot drive aisle is proposed to connect the development to Forest Avenue. Standard traffic navigation signage will provide safe exit from the site onto Forest Ave. Improved public sidewalks with an esplanade will increase pedestrian safety on the surrounding street network directly adjacent to the development.

Staff Comments and Requests

Staff have requested that the applicant provide sight distance measurements at the driveway entrance to ensure vehicles can safely exit the site.

B. Access and circulation

The development is required to provide safe and reasonable access and internal circulation for all users of the site. The proposed development will provide safe and reasonable vehicular access from a new curb cut and driveway from Forest Avenue. Vehicular circulation will be contained within the site. The proposed driveway provides site access directly from Forest Avenue, and will avoid conflict with other intersections or traffic flows.

The proposed development will provide safe and reasonable pedestrian access to the site with a new bituminous sidewalk and a reinforced concrete internal walkway. A continuous internal walkway will extend from the Forest Avenue sidewalk to the building's entrance and parking area. A proposed bituminous sidewalk, esplanade, and vertical granite curb with a 7-inch reveal will improve the existing curb and sidewalk. A new crosswalk is proposed across Forest Ave to provide pedestrian access to the site.

Staff Comments and Requests

Staff have requested that the Applicant clarify how the interim driveway and adjacent parking lot, depicted on the submitted site plan application, will be utilized prior to the next phase of development.

Staff have requested that the Applicant revise the proposed crosswalk to better align with the Wellesley Estates Driveway and bus stop. Further, the Applicant shall install flashing beacon for the arterial crossing and eliminate the existing crosswalk/ramps. See image below:

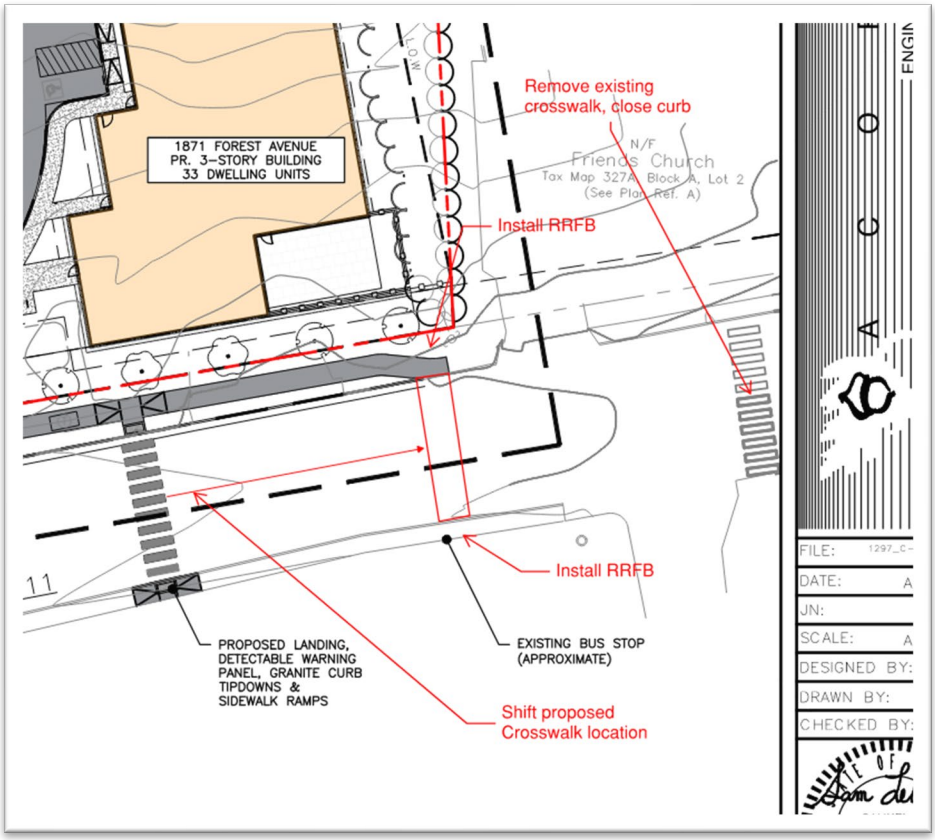


Figure 5: Changes to Proposed Sidewalk

Staff have also requested that the Applicant make ADA accessibility improvements to the nearby METRO transit stops to ensure safe and continuous connection to transit stops. These improvements in are shown in the highlighted landing area in image below:

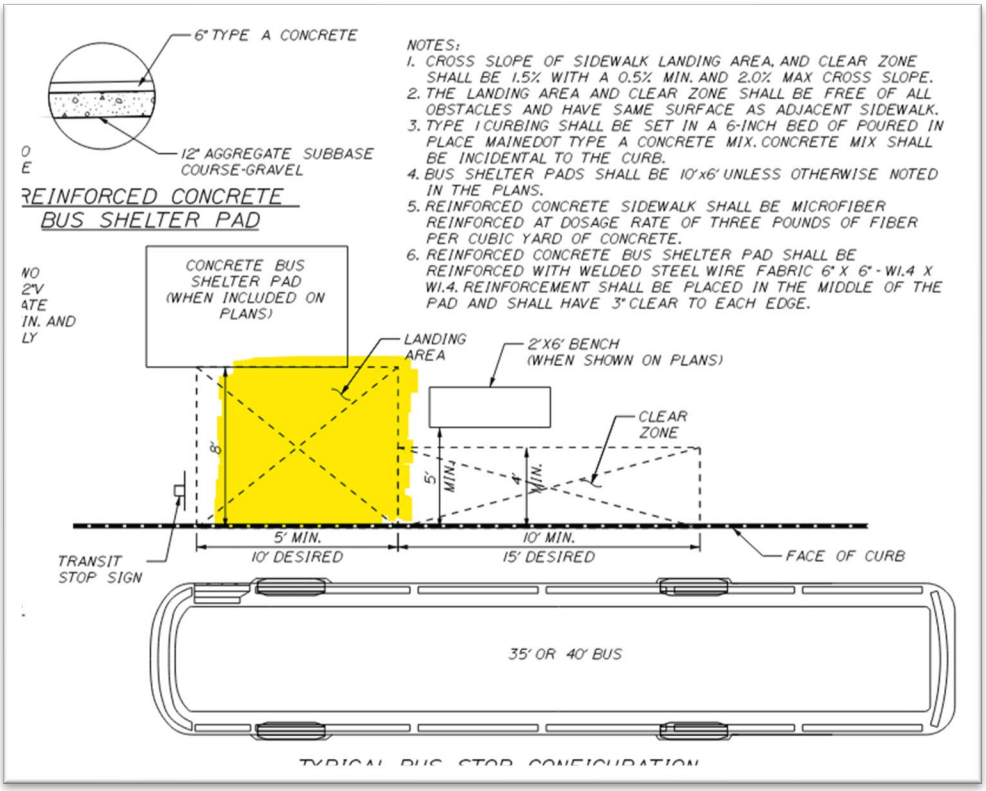


Figure 6: Requested Concrete Pad at METRO stops

C. Public transit access

All residential development consisting of 20 or more dwelling units are required to provide a transit shelter adjacent to or within the public right -of-way along its frontage, or at a nearby high-volume transit stop without a transit shelter when the development is proposed along an existing public transit route on and when the nearest existing transit shelter on the route is more than ¼ mile from the site, measured along rights-of-way. The nearest existing transit shelter is within ¼ mile from the site.

D. Parking

Developments must ensure compliant vehicular and bicycle parking, as well as acceptable snow storage and EV charging. The proposed development will provide a total of eight parking spaces in accordance with the required parking standards. Parking is provided towards the rear of the site. One electric vehicle (EV) charging station will be provided to service up to two parking spaces. Five spaces will be EV-ready, or capable of hosting EV chargers if installed in the future.

Three bicycle racks will be affixed to a concrete pad on the sidewalk and adjacent to the entrance of the building will provide interim bicycle parking for residents, visitors or staff.

The Applicant has requested a waiver in order to not provide the required bicycle parking of 1 space for every two residential dwelling units. Instead, the Applicant proposes that residents shall store bicycles in their residential units, due to anticipated underuse of shared bicycle storage and preferences of the prospective residents.

Snow storage will be provided at the western edge of the parking area and will not encroach on public ways, walkways, or adjacent properties, nor adversely impact the nearby landscaping or mature trees.

Staff Comments and Requests
Staff has requested additional details for the proposed electric vehicle (EV) chargers to confirm compliance with the technical manual. During their consideration of the abovementioned waiver, staff encourages the Board to confirm there is adequate space for bicycle storage in units.

E. Transportation demand management (TDM)
A TDM is not required for this proposal as the development will not exceed 50,000 SF of total floor area.

2. Environmental Quality Standards (Section 13.6.2)

A. Preservation of significant natural features
The applicant has provided a low impact development (LID) scorecard as required by Section 13.6.2. The development has incorporated the following low impact development strategies, such as maintaining a 50-foot setback from wetlands and maintaining a 10–20-foot undisturbed vegetative buffer along all slopes greater than 15% to preserve and protect natural features. Erosion control berms towards the western and eastern edges of the site and tree protection fencing along the forest edge at the northern and eastern boundaries of the site will protect and preserve significant features.

Six deciduous and native street trees will be planted along Forest Avenue. Nine additional trees will be planted within the site, primarily near or adjacent to the parking area. Native shrubs and groundcover plantings will provide additional screening and landscaped design. The existing vegetation will be preserved on the rear of the site, along with mature trees on the eastern boundary.

Staff Comments and Requests
Staff has requested the Applicant submit a LID Narrative summarizing score and standard approaches, in accordance with Section 3 of the Technical Manual.

B. Site landscaping and buffers
The applicant is required to provide on-site landscaping, including shade trees or alternative plantings, and appropriate screening of waste enclosures, off-street parking areas, and mechanical equipment from public streets, sidewalks, and adjacent properties. The proposed development will provide six street trees, which include serviceberry and redbud trees, that will be planted along 65 feet of property frontage along Forest Avenue. Additional shrubs and grass will provide engaging, pedestrian-level landscaping along the subject property's frontage. The proposed building's orientation, fencing, and deciduous trees will provide screening for trash and recycling areas from the sidewalk, roadways and adjacent properties. Similarly, shrubs and deciduous trees will screen pad mounted transformer located to the west of the parking area.

Surface parking is oriented to the rear of the building. Six street trees and a rain garden will provide an initial buffer from the right-of-way, while northern red oaks and various shrubs will provide an intermediate layer further into the site to provide adequate screening and buffers from the right-of-way. The existing tree line along the eastern property line will be preserved to provide additional screening and buffers. Eight parking spaces comprise approximately 2,420 square feet of asphalt. Four trees will provide shade and screening to the parking area. The Applicant has requested a waiver in

order to provide shade trees along the perimeter of the parking area, rather than planted in a landscaped island. The Applicant proposes one tree in a landscaped island and three trees immediately adjacent to the proposed parking area. The justification for this waiver is due to the steep slopes and turning radii requirements for solid waste collections and emergency vehicles.

Non-vehicular paving will be constructed from natural gray concrete. This material will achieve a Solar Reflective Index (SRI) of 33 initially and 28 or less after 3 years. The applicant also proposes to plant 15 trees to satisfy the parking lot landscaping requirement of one tree for every 750 square feet of uncovered asphalt. For reference, the site's proposed parking area totals 7,455 square feet, which equates to a total requirement of ten trees.

Staff Comments and Requests

Staff has requested that the Applicant add a note to the Landscape Plan that all landscaping materials will be locally-sourced native plants. Staff has also requested that the Applicant provide a tree inventory along the eastern property line near the existing Meeting House to establish whether additional buffer may be required.

C. Water quality/storm water management/erosion control

All proposed development must be designed to minimize impervious area and provide adequate stormwater management. The proposed development will create more than 10,000 square feet of disturbed area, resulting in a stormwater management plan, in accordance with Section 5 of the Technical Manual. No new developed footprint expansion is proposed and therefore the project is exempt from the redevelopment treatment standards in Section 5 of the Technical Manual. The project is located in an area with separated storm water and sanitary sewer. The development must provide on-site stormwater detention in accordance with the Technical Manual.

The existing site is divided into five sub-catchments. The proposed development will be contained within the first and the fifth sub-catchment, and drainage patterns will remain relatively the same across the sub-catchments. The peak flows will remain at or below the pre-development levels. The rain garden and the subsurface storage system will provide on-site stormwater filtration and detention, which exceeds the minimum detention volume equal to 1 foot of rainfall across the impervious area on the site. Underground detention tanks, a rain garden and additional underground stormwater infrastructure will provide the stormwater management for the site. The project will be serviced by the public wastewater system. Frequent dewatering of ground water from the site will occur during construction to reduce risk of contamination. The "K" values for subsurface soils show a low susceptibility to erosion and provide suitable support for development.

Staff Comments and Requests

Staff has requested the Applicant provide a number of technical revisions to the plans relating to stormwater management.

3. Public Infrastructure and Community Safety Standards (Section 13.6.3)

A. Consistency with City Master Plans

The City's housing goals in the Comprehensive Plan encourage contextually appropriate housing density near service center and transit nodes. The 33-unit building along the Forest Avenue corridor and nearby neighborhood amenities, such as a grocery store and services store, align with this goal.

B. Public safety and fire prevention

All development must incorporate public safety principles into site design to enhance the security of public and private spaces. The proposed building entrances and exits will be visible from the public right of way and will be illuminated to enhance public safety. Pedestrian walkways and the driveway guide users to the building's entrance. Private patio space will be fenced and accessible only from within the building. A gate installed along the driveway will limit further access to the site to ensure only authorized use. The site layout provides separate public and private spaces. Street trees and shrubs reinforce the spatial edge of the private and public zones.

The dead-end roadway to the parking lot is greater than 150 feet in length, which necessitates a turnaround at the closed end to provide adequate emergency vehicle access.

Staff Comments and Requests

Staff has requested that the Applicant include additional signage to ensure emergency vehicle access.

C. Availability and capacity of public utilities

All developments must provide adequate utility infrastructure on-site and in connection to surrounding locations and facilities. The proposed development will provide two new service lines – a 2-inch domestic service and an 8-inch fire service line will connect to the building. Subsurface stormwater detention systems and a rain garden will manage and treat stormwater. A new riser pole along Forest Avenue will facilitate routing underground primary and communication lines to the building.

A new 6-inch sewer service lateral will convey building flows to a proposed on-site manhole. From this manhole, an 8-inch sewer line will connect to the existing public manhole located in Forest Avenue. The site will discharge to the public sanitary sewer system via this connection.

A dumpster enclosure with a pressure-treated wood fence and 15-foot by 10-foot concrete pad will provide screening of the solid waste receptacles.

Staff Comments and Requests

Staff has requested that the Applicant revise the plans to note ADA compliance of the existing communications vault. Staff has requested that the Applicant revise the plans to ensure private connections are not made to City catch basins.

4. Site Design Standards (Section 13.6.4)

A. Massing, ventilation, and wind impact

The bulk, location, or height of proposed buildings must not result in health or safety problems for users of the site or adjacent spaces. The proposed four-story building will have a height of 46 feet. The height of the structure is unlikely to create or change existing wind conditions. Ventilation for the building is provided via a roof-mounted Dedicated Outdoor Air System (DOAS). Ventilation and exhaust air will comply with ASHRAE 62.1 and 2021 IMC. The upper roof will have a white membrane with a three-year aged SRI of 80 or greater. Roof slope is not provided in the narrative.

B. Shadows

Not applicable. The building is under 65 ft.

C. Snow and ice loading

All development shall be designed to prevent significant amounts of snow and ice from falling onto adjacent properties or public ways. Wood trusses and parapets around the edges of the fourth-floor roof of the proposed building will prevent falling snow and ice.

D. View corridors

Not applicable. The proposed building is not located within an established public view corridor as detailed in the City of Portland Design Manual.

E. Historic resources

The development is not located within a Historic District and does not affect designated landmarks. There are no known archaeological resources present at the site. A historic cemetery is adjacent to the site. There is a 25 foot no disturbance zone, as established by Maine Revised Statutes, Title 13, Section 1371-A. Proper measures, as detailed in the City's site plan ordinance under this standard, must be taken if archaeological resources are discovered during construction.

F. Exterior lighting

All exterior site lighting shall provide adequate illumination to support site safety, comfort, and convenience without creating excessive glare or light trespass. The proposed developments will provide downlit, side shielded and dark sky compliant lighting, as shown on the photometric and lighting plan. There are no adjacent residential properties. No architectural or specialty lighting is proposed. There is no up-lighting proposed on the building or features. No new street lighting is proposed. There are existing cobra head street lights mounted to utility poles adjacent to the site and along Forest Avenue.

G. Noise and vibration

All heating, ventilation, and air conditioning equipment, and similar equipment shall meet applicable emission requirements. Ventilation for the proposed building is provided via a roof-mounted Dedicated Outdoor Air System (DOAS). Ventilation and exhaust air will comply with ASHRAE 62.1 and 2021 IMC.

H. Signage and wayfinding

Standard MUTC compliant stop sign is proposed at driveway exit. Signage will be affixed to building entrance.

I. Zoning-related design standards

The proposed building locates the primary entrance along the west elevation, within close proximity to the front façade. The entrance is clearly visible from the street, with lobby and vestibule windows that include decorative screening. The single-story building exterior is articulated with a vertical- slated siding and soffit that creates an active presence along the sidewalk. The building design incorporates façade variations (roof pitch, tone and accent material at residential windows) to complement the building module that is compatible with the surrounding residential and commercial structures within proximity to the site. The proposed building creates an urban street wall with a row of ornamental trees along the property frontage within close proximity to the street.

Staff Comments and Requests

Staff are requesting revised architectural drawings to clarify building materials and realign ground floor windows with the upper floor window arrangement. This request is further detailed in the Design Review Memorandum (Attachment S2).

X. NEIGHBORHOOD MEETING & PUBLIC COMMENT

No public comments have been received as of May 6, 2026.

A neighborhood meeting was held by the applicant on March 18, 2026, at Portland Friends Meeting House at 1837 Forest Avenue, Portland Maine at 5:30pm. There were eight members of the public in attendance. Comments and questions primarily related to the Home for Good programming to which the Applicant confirmed that 24-hour staffing will be available on-site to respond to and address issues that may arise. Members of the public also voiced concern that the site's proximity to the Riverside Shelter could create safety concerns. There was also a brief exchange about the existing footpath through the western edge of the site. The Applicant confirmed they had discussions with Hannaford, but there was not an interest from either party to improve it.

XI. NEXT STEPS

1. Suggested topics for discussion at Planning Board Workshop:
    a. Build-to zone exemption
    b. Bicycle parking waiver
    c. Landscaped parking island waiver.
2. Applicant shall address staff comments contained in the Comment Letter (Attachment S1)
3. Applicant shall address additional comments from the Planning Board.
4. Prepare final plan submission.
5. Schedule and hold planning board public hearing.

XII. ATTACHMENTS

APPLICANT'S DOCUMENTS

A. Development Description
B. Site Plan Checklist
C. Right, Title, and Interest
D. Financial Capacity
E. Technical Capacity
F. Conformity with Land Use Ordinance
G. Site Plan Data Sheet
H. Waiver Summary
I. Easement Summary
J. Construction Management Plan
K. Stormwater Management
L. Utilities Summary
M. Solid Waste Disposal
N. Public Safety
O. Architectural Design Narrative
P. Low Impact Design

Q. Lighting Plans
R. Wastewater Capacity
S. Erosion and Sedimentation Control
T. Parking

APPLICANT'S DRAWINGS

1. Cover Sheet
2. General Notes
3. Boundary and Existing Conditions
4. Construction Management & Erosion Control
5. Site Plan
6. Enlarged Site Plan
7. Utility Plan
8. Enlarged Utility Plan
9. Grading and Drainage Plan
10. Planting Plan
11. Site Sections
12. Landscape Site Details
13. Planting Details
14. Site Details – 1
15. Site Details – 2
16. Site Details – 3
17. Utility Details -1
18. Utility Details -2
19. Utility Details -3
20. Drainage Details
21. Erosion and Sedimentation Control Notes
22. Erosion and Sedimentation Control Details
23. Architectural Ground Floor Plan
24. Architectural Upper Floor Plan
25. Architectural Elevations - 1
26. Architectural Elevations - 2
27. Architectural Eastern View
28. Architectural Western View
29. Updated Architectural Drawings

STAFF ATTACHMENTS

S1. Comment Letter and Worksheets
S2. Design Review Memo

Att. A

Section A

Development Description

A.1 Table of Contents

Major Site Plan Application Materials

Section A: Development Description
- Section A.1: Table of Contents
- Section A.2: Cover Letter

Section B: Site Plan Checklist
Section C: Right, Title, & Interest
Section D: Financial Capacity
Section E: Technical Capacity
- Section E.1: Civil Engineer Technical Capacity
- Section E.2: Architect Technical Capacity

Section F: Conformity with Land Use Ordinance
Section G: Site Plan Data Sheet
Section H: Waivers
Section I: Easements
Section J: Construction Management Plan
Section K: Stormwater Management
- Section K.1: Stormwater Management Report
- Section K.2: Impervious Areas Exhibit
- Section K.3: Pre-Development Stormwater Map
- Section K.4: Post-Development Stormwater Map
- Section K.5: Pre-Development HydroCAD Report
- Section K.6: Post-Development HydroCAD Report
- Section K.7: ADS, Inc. Drainage Handbook Excerpt

Section L: Utilities
- Section L.1: Utilities Summary
- Section L.2: Ability To Serve Letters

Section M: Solid Waste Disposal
Section N: Public Safety
Section O: Architectural Design Narrative
- Section O.1: Architectural Design Narrative & Conformity with City Design Manual – By Simon's Architects
- Section O.2: HVAC & Plumbing Narrative – By Design Day Mechanicals Inc

Section P: Low Impact Design
- Section P.1: Low Impact Design Narrative
- Section P.2: Beginning with Habitat Map
- Section P.3: Low Impact Design Scorecard

Section Q: Lighting Plans
- Section Q.1: Lighting Narrative

Section Q.2: Photometric Plan
Section Q.3: Lighting Cut Sheets
Section R: Wastewater Capacity
Section S: Erosion & Sedimentation Control
Section S.1: Erosion & Sedimentation Control Report
Section S.2: Medium Intensity Soil Survey
Section S.3: Geotechnical Soil Borings – By Summit Geoengineering
Section T: Parking
Section T.1: Parking & Transportation Summary
Section T.2: Turning Templates
Section T.3: Sight Distance
Section U: Comment Response

Major Site Plan Application Appendix Materials

Attachment A: Civil Site & Landscape Plan Set – By Acorn Engineering
Boundary Survey & Existing Conditions – By BH2M
Attachment B: Architectural Plans – By Simons Architects

ACORN ENGINEERING, INC.

Planning and Urban Development Department
Attn: Andrew Graminski, Development Review Manager
City of Portland, Maine
389 Congress Street, 4th Floor
Portland, ME 04101

February 27th, 2026

Subject: Major Site Plan Application – Section A.2
1871 Forest Avenue Redevelopment

Mr. Graminski:

On behalf of Avesta Housing, we are pleased to submit the accompanying package of submission materials for a Major Site Plan Application to support the proposed redevelopment of 1871 Forest Avenue (Parcel ID: 327A A004001). The project, located within the B-2 Community Business Zoning District, proposes demolishing the existing vacant structure and a portion of the existing parking area on the approximately 3.42-acre parcel to construct a new multifamily affordable housing development. The project is envisioned in two phases with this specific Site Plan application focused on the first phase, where 33 units of affordable housing through the Home for Good program will be constructed. The second phase has not been designed at this point, but contemplates additional affordable apartments through traditional Maine Housing programs.

The first phase of the project proposes a 4-story building with 33 residential units and common areas on the ground floor. Eight parking spaces are provided on site for staff, residents, and visitors. The existing curb cut and sidewalk will be reconstructed along Forest Avenue, complete with street trees and a thoughtful landscaping approach to activate the building frontage. The project also proposes to significantly improve the stormwater management controls by reducing runoff and improving water quality.

This application package is intended to meet the City's submission requirements as outlined in the Major Site Plan application procedures. The Applicant and the design team look forward to your review of this project. If you have any questions regarding these materials or the completeness of the application materials, please do not hesitate to contact us.

Sincerely,

Sam Lebel, P.E.
Senior Project Manager
Acorn Engineering, Inc.

Alexis Del Vecchio
Landscape Architect/ Associate Project Manager
Acorn Engineering, Inc.

Att. B

Section B

Site Plan Application Checklist

Planning & Urban Development Department

MAJOR AND MINOR SITE PLAN

DOCUMENT CHECKLIST

Please submit each document as a separate PDF file.

Please confirm by electronically checking the boxes in the left-hand column.

General Application Documents

Indicate Below	**Required of All Applications**
☑	Project Description • Cover letter with detailed project description
☑	Completed Checklist (this document)
☑	Evidence of Right, Title, and Interest • Deeds, leases, or purchase and sale agreements
☑	Financial Capacity • Letter or evidence from a financial institution or third-party verifying financial capacity to undertake the project.
☑	Technical Capacity • Evidence of technical capability of applicant and consultants – resume and/or examples of past projects.
☑	Site Plan Standards • Detail how the project complies with the land use code's site plan standards. For each standard, please provide clear evidence by referencing applicable site plan(s), graphics, and other visual materials that demonstrate how the requirement is met. If a standard is not applicable to this specific project, clearly state its inapplicability and provide a brief explanation for why it doesn't apply.
☑	Site Plan Data (the link to the form can be found **here**) • Summary of project data and compliance with use and dimensional standards of land use code.

Indicate Below		**Only if Applicable**
Yes	N/A	
☑	☐	Waiver Requests (the link to the form can be found **here**) • Written request for waiver describing request and compliance with applicable waiver standards.
☐	☑	Summary of Existing or Proposed Easements or Covenants • Evidence of existing easements and any proposed easements, covenants, public or private rights-of-way.
☐	☑	Evidence of State or Federal Approvals • Permits or letters of non-jurisdiction

Additional Documents

Indicate Below		Only if Applicable
Yes	N/A	
☑	☐	Construction Management Plan, including traffic control plan. • Provide construction management narrative in accordance with the City's Construction Management Template.
☐	☑	Traffic Study and/or other Transportation Plans • Detailed in Sec. 2 of the Technical Manual
☐	☑	Significant Natural Features Narrative • Identify significant natural features, wildlife habitats, fisheries habitats, or archaeological sites as detailed Ch. 14, Article 13, located on or near the project site, and describe protection methods during and after construction.
☑	☐	Stormwater Management Report • Detailed in Sec. 14 of the Technical Manual
☑	☐	City Master Plan Narrative • Detail project's consistency with City adopted Master Plans.
☑	☐	Evidence of Utility Capacity • Provide letter from all utility providers demonstrating capacity to service the project.
☑	☐	Solid Waste Narrative • Detail the amount of solid waste and recyclable material anticipated to be generated by the development, and information on how waste will be collected and removed.
☑	☐	Life/Safety Code Analysis Narrative • Detail how the project complies with NFPA 1 and other Fire Department technical standards.
☑	☐	Design Narrative • Detail how the project complies with any applicable design standards contained within the Land Use Code or City of Portland Design Manual.
☑	☐	HVAC and Manufacturing Equipment Verification • Provide verification from manufacturer that equipment meets applicable state and federal emissions requirements.
☑	☐	Low Impact Development (LID) Analysis • Provide a narrative detailing how the project complies with the low impact development requirements listed in Section 3 of the Technical Manual, along with a completed LID scorecard.

MAJOR AND MINOR SITE PLAN DRAWINGS CHECKLIST

Please upload the following drawings with the listed details into ProjectDox as separate PDFs. All drawings must be submitted in a 24" x 36" inch sheet size.

Boundary Survey (Stamped by a Licensed Surveyor in accordance with Sec. 14 of the Technical Manual)

Site Plan(s) (Stamped by a Maine Licensed Professional Engineer)

Indicate Below	**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, including firm that produced plans.
☑		North arrow
☑		Date of preparation and revision history block.
☑		Tax parcel (chart, block, and lot) number
Indicate Below Yes	N/A	**Existing Conditions Plan**
☑	☐	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 locations of test pits and borings
☑	☐	Zoning boundary lines, including overlays
☑	☐	Location of all existing easements and rights-of-way.
Indicate Below Yes	N/A	**Proposed Site Plan**
☑	☐	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 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
Indicate Below Yes	N/A	**Utility Plan**
☑	☐	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 the site
Indicate Below		**Grading and Drainage Plan**
Yes	N/A	
☑	☐	Proposed grades
☑	☐	Proposed stormwater management measures meeting Technical Manual standards
☑	☐	Any proposed alteration of a watercourse or wetlands
☑	☐	Any groundwater protection measures
☑	☐	Proposed buffers and preservation measures for wetlands or significant natural features
Indicate Below		**Landscape Plan**
Yes	N/A	
☑	☐	Existing vegetation to be preserved and preservation measures

☑	☐	Proposed landscaping, screening, and street trees, including caliper widths for trees
☑	☐	Planting schedule, including street trees detailing species, quantity of plantings, and size at planting.
Indicate Below		**Architectural Plans and Renderings**
Yes	N/A	
☑	☐	Exterior building elevations, color renderings, illustrations of all sides.
☑	☐	Axonometric and street-level views for structures greater than three stories in height.
☑	☐	Context drawings
☑	☐	Floor plans
Indicate Below		**Construction Management Plan**
Yes	N/A	
☑	☐	Specifics on traffic control, sidewalk sheds, and pedestrian rerouting
☑	☐	Construction management plan and narrative based upon site plan in accordance with the City's construction management template.
Indicate Below		**Other**
Yes	N/A	
☑	☐	Details and cross-sections

Att. C

Section C

Right, Title, & Interest

C. Right, Title & Interest

See attached Option Agreement for the project property located at 1871 Forest Avenue in Portland Maine.

Docusign Envelope ID: 984BCA51-26D1-40C0-8EB2-6E498C89C617

OPTION AGREEMENT

THIS OPTION AGREEMENT (the "Agreement") made and entered into as of the 3/18/2025 day of March, 2025, by and between **POWELL REALTY PORTLAND**, a Maine general partnership with a mailing address of P.O. Box 245, South Hero, VT 05486 ("Grantor"), and **AVESTA HOUSING DEVELOPMENT CORPORATION**, a Maine nonprofit corporation with a place of business and mailing address of 307 Cumberland Avenue, Portland, Maine 04101 ("Grantee").

WITNESSETH:

In consideration of [redacted] Dollars ($[redacted]) (the "Initial Option Consideration"), the receipt of which is hereby acknowledged by Grantor, Grantor and Grantee hereby agree as follows:

1. Grant of Option. Grantor hereby grants to Grantee, its successors and assigns, the exclusive and irrevocable option to purchase certain land and building located at 1871 Forest Avenue, Portland, Maine, consisting of approximately 3.42 acres of land, as further described in a deed recorded in Book 6172, Page 80 in the Cumberland County Registry of Deeds (the "Property"), on the terms and conditions contained in this Agreement.

DS DS

2. Expiration; Option Consideration. This option shall expire on March 18, 2026, at midnight, Maine time unless exercised by that date and time in accordance with the terms and conditions of this Agreement. Grantee shall have the right to extend said initial term of this Option for an additional period of six (6) months ("First Option Extension") by providing written notice to Grantor prior to the expiration date of said initial term and delivering to Grantor's escrow agent an additional payment of $[redacted] (the "First Option Extension Consideration"). Having elected to exercise the First Option Extension, Grantee shall have the right to further extend said Option for an additional period of six (6) months ("Second Option Extension") by providing written notice to Grantor prior to the expiration date of said extended option term and delivering to Grantor's escrow agent an additional payment of $[redacted] (the "Second Option Extension Consideration"). The Option Consideration, First Option Extension Consideration, and Second Option Extension Consideration shall be paid to and held in escrow by The Boulos Company (the "Escrow Agent") until this Option is exercised or otherwise terminated.

3. Notice of Exercise; Failure to Exercise. This option may be exercised only by Grantee giving written notice of election to exercise to Grantor by first class mail, postage prepaid, registered or certified, return receipt requested, addressed to Grantor at the address set forth at the beginning of this Agreement, or to such other address as Grantor may designate to Grantee in writing. Said notice shall be deemed to have been duly given if postmarked prior to the expiration date and time specified herein. In the event that Grantee fails to exercise the option granted in this Agreement within the time specified in Section 2 above, as it may be extended, the Initial Option Consideration, First Option Extension Consideration, and Second Option Extension Consideration, if paid, along with the Extension Payments (as defined in

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Section 5, if any, shall be retained by Grantor, and thereafter neither Grantor nor Grantee shall have any further rights or claims against the other.

4. Exercise. In the event that Grantee exercises the option granted in this Agreement to purchase the Property as provided herein, the following provisions shall be applicable:

a. Purchase Price. Subject to any adjustments and prorations hereinafter described, the total purchase price for the Property shall be $[redacted] (the "Purchase Price"), payable at closing by certified or bank cashiers' check or by wire transfer. The Initial Option Consideration, the Additional Option Consideration, if paid, and the Extension Payments, if any, shall in all instances be credited against the Purchase Price at closing.

b. Title. Grantor shall convey the Property to Grantee at the closing in fee simple with good and marketable title, free and clear of all liens, claims and encumbrances, except standard utility easements that do not materially and adversely affect the use and enjoyment of the Property. In the event that Grantor is unable to convey title as aforesaid, Grantor shall be given a reasonable period of time, not to exceed thirty (30) days, after receipt of notice from Grantee in which to remedy any title defects. In the event that said defects cannot be corrected or remedied within said time period, or in the event that Grantor elects not to remedy same, then this Agreement shall terminate whereupon Grantor shall fully refund to Grantee the Initial Option Consideration, the Additional Option Consideration, if paid, and the Extension Payments, if any. Grantee may elect to close notwithstanding such defects as may exist. Grantor agrees to convey the Property using any new survey description resulting from Buyer's boundary survey.

c. Closing. The closing under this Agreement shall take place not later than sixty (60) days after the exercise of the Option (the "Closing Date") at 10:00 AM, local time, at Grantee's counsel's office, or at such other time and place as Grantor and Grantee shall mutually agree upon in writing. At the closing, Grantor shall execute and deliver to Grantee a Quitclaim Deed with Covenant and such other affidavits, instruments and documents as Grantee may reasonably request and which are customary in commercial real estate transactions in Maine.

d. Adjustments, Prorations and Closing Costs. Real property taxes shall be prorated as of the Closing Date based on the latest available tax bill. The recording fee for the deed and any expenses related to any mortgages which Grantee may grant to a lender in connection with the purchase of the Property shall be paid for by Grantee. Real estate transfer taxes shall be paid by Grantor and Grantee in accordance with Maine statutory law. Grantor shall be responsible for all costs associated with the Property through the Closing Date, and Grantee shall be responsible for all such costs after the Closing Date.

e. Possession. Grantor shall deliver possession of the Property to Grantee at the closing, free and clear of all leases, tenancies or occupancies by any person.

f. Risk of Loss. All risk of loss to the Property prior to the closing shall be on Grantor.

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g. Default; Remedies. In the event that Grantee exercises its option but fails to close hereunder for a reason other than the default of Grantor, Grantor's sole remedy shall be to retain the Initial Option Consideration, the Additional Option Consideration, if paid, and the Extension Payments, if any, as full and complete liquidated damages in lieu of any other legal or equitable remedy, whereupon this Agreement will terminate and neither party will be under any further obligation hereunder. In the event Grantor defaults under this Agreement, Grantee shall have available all remedies at law and in equity, including, without limitation, the right of specific performance or, in the alternative, the right to seek a complete refund of the Initial Option Consideration, the Additional Option Consideration, if paid, and the Extension Payments, if any.

h. Conditions Precedent. Grantee's obligation to purchase the Property is conditioned upon there having occurred no material adverse change in or to the Property between the date of Grantee's inspections under Section 6 below and the Closing Date. If this condition is not satisfied as of the Closing Date, Grantee may terminate this Agreement, whereupon the Initial Option Consideration, the Additional Option Consideration, if paid, and the Extension Payments, if any, shall be returned to the Grantee.

5. Inspection.

a. Within five (5) days of the date of the Agreement, Grantor shall deliver to Grantee copies of all inspection reports, tests (building and environmental), title insurance policies, leases, construction details relating to any improvements on the Property, surveys, building plans, easements relating to the Property, and any other relevant documents relating to the Property in the possession and/or control of Grantor.

b. For a period of one hundred eighty days (180) from the date hereof (the "Inspection Period"), at all times upon reasonable prior notice, Grantee and any prospective lender or investor of Grantee's shall have the right to enter the Property upon reasonable notice to Grantor and perform, at Grantee's expense, any and all inspections, tests, surveys or other due diligence inquiries with respect to the Property as Grantee deems necessary or appropriate. Notwithstanding the foregoing, Grantee shall not perform any intrusive soil tests on the Property without Grantor's prior written consent, which shall not be unreasonably withheld, conditioned or delayed. Grantee agrees to return the Property as nearly as possible to its original condition after any of such tests and inspections. Grantor shall cooperate with Grantee in such inspections. Grantee shall have the right to extend the Inspection Period for two additional periods of thirty (30) days each by providing an additional payment of $[redacted] for each such extension, with each such payment to be paid to Escrow Agent prior to the end of the then-current period (each, an "Extension Payment" and together, the "Extension Payments"). In the event Grantee is not satisfied for any reason by the results of such due diligence inspections, Grantee shall have the option of terminating this Agreement by written notice to Grantor, whereupon the Initial Option Consideration (but not Extension Payments, if any) shall be returned to Grantee and neither party shall be under any further obligation hereunder. Except as otherwise provided herein, once paid, the Extension Payments are not refundable to Grantee. Without limiting the generality of the foregoing and notwithstanding anything to the contrary elsewhere in this Agreement, this Agreement and Grantee's purchase of the Property are subject

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to a determination by Maine State Housing Authority as to the desirability of the Property for Grantee's intended use as a result of the completion of the environmental review process required by the United States Department of Housing and Urban Development ("HUD"), and if such determination is unsatisfactory, Grantee may terminate this Agreement at any time, including after the end of the Inspection Period. In the event that Grantee terminates this Agreement due to such unsatisfactory determination by Maine State Housing Authority or HUD before the expiration of the initial term of this Option, Grantor shall return to Grantee the Initial Option Consideration. In the event that Grantee terminates this Agreement due to such unsatisfactory determination by Maine State Housing Authority or HUD after having exercised its First Option Extension and before such Extension's expiration, Grantor shall return to Grantee the First Option Extension Consideration and retain the Initial Option Consideration. In the event that Grantee terminates this Agreement due to such unsatisfactory determination by Maine State Housing Authority or HUD after having exercised its Second Option Extension and before such extension's expiration, Grantor shall return to Grantee the Second Option Extension Consideration and retain the Initial Option Consideration and First Option Extension Consideration.

c. In the event that Grantee terminates the Agreement as provided in this Section, if requested by Grantor within seven (7) days of the date of termination and as long as Grantor is not in default under the Agreement, Grantee agrees to provide Grantor with any inspection reports, tests, surveys, and other due diligence documents relating to the Property obtained by Grantee from third parties (collectively, the "Reports"), after payment to Grantee of the actual costs associated with obtaining each such document. If such request is made by Grantor, Grantee will provide Grantor with an itemized list of the documents obtained and the cost associated with obtaining each such document. Upon payment to Grantee for those Reports requested by Grantor, Grantee shall provide such Reports to Grantor.

6. Brokerage. Other than The Boulos Company, the parties represent to one another that neither has dealt with or had contact with any broker in connection with the transaction described in this Agreement. Grantor shall pay any commission owed to The Boulos Company in connection with the sale of the Property. The parties shall indemnify, defend and hold harmless one another from and against any breach of the foregoing representation.

7. Recording of Option. Grantor and Grantee agree that this Option shall not be recorded. Grantor agrees upon request of Grantee to execute and tender for recording a memorandum summarizing the terms of this Agreement (except the Purchase Price).

8. Notices. Except as provided in Section 3 above, all notices, demands and other communications hereunder shall be in writing and shall be deemed to have been duly given on the date of service if served personally on the party to whom notice is to be given, or on the first business day after mailing if mailed to the party to whom notice is to be given by first class mail, postage prepaid, registered or certified, return receipt requested, addressed to the recipient at the addresses set forth at the beginning of this Agreement. Either party may change its address for purposes of this Section by giving the other party notice of the new address in the manner described herein.

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9. Assignment. Grantee may assign this Agreement to an affiliate of Grantee without the prior written consent of Grantor.

10. Miscellaneous. Time is of the essence hereof. This Agreement constitutes the entire agreement between Grantor and Grantee, there are no agreements or understandings between the parties except as set forth herein, and all prior agreements and understandings are superseded by this Agreement. This Agreement will inure to the benefit of and bind the respective successors and assigns of Grantor and Grantee. As used in this Agreement, the singular number shall include the plural, the plural the singular, and the use of one gender shall be deemed applicable to all genders. This Agreement may be executed in two or more counterparts, each of which shall be deemed an original and all of which together shall constitute one and the same agreement. This Agreement shall be governed by and construed in accordance with the laws of Maine. The recitals contained in this Agreement are deemed by the parties to be accurate statements of fact. If any provision of this Agreement is determined to be invalid or unenforceable, it shall not affect the validity or enforcement of the remaining provisions hereof.

IN WITNESS WHEREOF, the parties have executed this Agreement as of the date first above written.

WITNESS:

DocuSigned by:
Judy Dunn
E09C99E7040245E...

POWELL REALTY

DocuSigned by:
By: Tom Powell
Name: Tom Powell
Its: owner

DocuSigned by:
Derek Miller
612983DF7AAD44E...

AVESTA HOUSING DEVELOPMENT CORPORATION

DocuSigned by:
By:
Name: Eric Boucher
Its: Interim CEO

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Att. D

Section D

Financial Capacity

D. Financial Capacity

Please find attached the letter from the Applicant verifying financial capacity to undertake the project.

Bangor Savings Bank

February 11, 2026

City of Portland
Planning Department
389 Congress Street
Portland, ME 04101

RE: 1871 Forest Avenue, Portland

To Whom It May Concern:

On behalf of Bangor Savings Bank, I am pleased to provide this letter in support of Avesta Housing Development Corporation (AHDC) for the development of a 33-unit permanent, supportive housing development to be located at 1871 Forest Avenue in Portland, Maine. Bangor Savings Bank has worked with AHDC on multiple projects of a similar nature. Based on our prior experience working with the organization, we believe that the applicant has the ability to finance the proposed project costs. In addition, they possess the management skill and development expertise to successfully complete the proposed project.

While this letter of support is not a commitment to lend, Bangor Savings Bank would welcome the opportunity to be a resource for project financing. Please feel free to call me at 541-2707 with any questions.

Sincerely,

Shawn McKenna
Vice President
Commercial Banking

Att. E

Section E

Technical Capacity

E.1 Civil Engineer Technical Capacity

Acorn Engineering, Inc. has successfully permitted and provided civil/site engineering for dozens of Major and Minor Site Plan projects in Portland, many of which have been constructed. Some examples include:

- Munjoy Heights
- 70 Anderson St.
- 89 Anderson St. – East Bayside Lofts
- 667 Congress St – The Hiawatha
- 82 Hanover St – Hanover Works
- 132 Marginal Way – The Linden
- 52 Hanover St – The Armature

See attached Letter of Technical Capacity for **Simons Architects** in Section E.2.

E.2 Architectural Technical Capacity

Simons Architects is a multi-disciplinary firm based in Portland, Maine providing architectural, landscape, planning, and interior design services. Simons Architects is well known for innovative solutions to design challenges, large and small. Our guiding principle is to design spaces of exceptional beauty and substance. We love challenges and are known for our projects that combine site planning, master planning, and unique design approaches. We have a strong ability to envision future facility and space needs and create sustainable design solutions that add lasting value for owners and their communities.

Overall, the design team brings decades of experience and demonstrated success in designing, managing, permitting, and overseeing the construction of high-quality residential properties. Some examples include Dana Street Housing, Maple Grove – Seavey Terrace, and the Ronald McDonald House.

Section F

Conformity with Land Use Ordinance

F. Conformity With Land Use Ordinance

The following outline is made in accordance with the City of Portland Code of Ordinances, Chapter 14 Land Use. Specifically, Article 13 Section 6 Site Plan Review Standards.

OVERVIEW
The proposed project has been designed to conform to City standards where possible as demonstrated in the following narrative.

13.6.1 Transportation Standards

A. Impact on Surrounding Street Systems:

1. Based on the scale and nature of the proposed project, fewer than 100 peak hour trips are expected to be generated, therefore a Traffic Movement Permit has not been completed by a licensed traffic engineer. The site is located on Forest Avenue and is not anticipated to create any significant hazard to safety on the surrounding street network. Congestion of the intersections is not anticipated.

2. No substantial increase in congestion on any streets is anticipated.

B. Access and Circulation:

1. In General:

This project conforms with the design standards of Section 13.6.1.B as demonstrated in the following narrative:

a) All site access and internal circulation will be designed in accordance with the standards set forth in Section 1 of the Technical Manual.

b) The site maintains existing vehicular access from Forest Avenue.

c) The development's frontage on Forest Avenue contains curb and sidewalk. Any existing asphalt sidewalk along Forest Avenue that is disturbed as part of the project will be rebuilt as identified in the City's Sidewalk Material Policy. The public sidewalks connect the site to the nearest public transit stops. Continuous internal walkways will be provided between the building entrances on the site and the public sidewalks on the Forest Ave frontage.

d) The proposed project does not abut or include any existing or proposed publicly accessible trails or trail connections. However, there is access from the site via public sidewalks to a Sebago to the Sea Trailhead on Riverton St.

e) Egress and access to the site is directly off Forest Avenue. There are no anticipated conflicts with traffic flows or turning movements.

2. Curb and Sidewalks:

   a) A sidewalk with curbing exists on Forest Avenue. If any sidewalk or curb must be rebuilt, it will be installed to specifications as described in the Portland Technical Manual.

   b) There is an existing sidewalk along Forest Avenue. Any curbing or sidewalk disturbed during construction is to be repaired and rebuilt as necessary in conformance with City standards

   c) Not applicable. The project intends to have public sidewalks on the Forest Ave frontage.

   d) Not applicable. The project will ensure that the existing curbing along Forest Ave is properly maintained or replaced.

C. Public Transit Access:

1. Not applicable. There is an existing transit shelter less than a ¼ mile from the site.

2. The site is connected to nearby existing public transit routes through public sidewalks.

3. Not applicable. The project is not requesting any public transit access waivers.

D. Parking:

1. Vehicular parking:

   a) Off-street parking for the proposed project will be provided per table 18-A: Off-street parking maximums. See Site Plan (Sheet C-10) for the Parking Summary.

   b) Parking spaces shall not be located in front of the building. Parking will be provided towards the rear of the site and will be adequately screened from the street.

   c) Parking spaces and drive aisles are designed to conform to the standards set forth in the City of Portland Technical Manual. Additionally, turning templates have been attached in Section T. Parking Summary.

2. Bicycle parking

   a) The project proposes secure bicycle parking located within the residential units.

b) The project is requesting a waiver to not provide exterior bike racks or an interior bike storage room to accompany this building. The proposed building in Phase 1 of this project will serve as Home for Good housing through Avesta Housing. Home for Good serves individuals who are coming out of homelessness and often tend to keep their possessions with them, or in their residence. At the three other existing Home for Good locations in Portland, Avesta has found that residents do not use designated bike parking facilities, as they don't feel secure enough. Many residents instead opt to keep their bikes in their unit. Additionally, with the close proximity of Hannaford, 7-11, and the bus route, many residents may not end up using bikes. Based on these considerations and prior experience, we feel that bike racks would simply be unused impervious surface, and are requesting a waiver to not provide bike parking at this time. Racks are provided in front of the building with high visibility for short term usage.

3. Snow Storage:

a) We believe adequate snow storage areas are provided onsite. See Sheet C-10 for additional information.

b) Snow storage shall not be located where it interferes with pedestrian walkways or stormwater management systems. Landscaping in designated snow storage areas shall be such that it can withstand the snow pile.

4. Electric Vehicle (EV) charging

a) See the Site Plan for additional information regarding EV charging.

E. Transportation Demand Management (TDM):

1. Not applicable. The proposed development will have less than 50,000 square feet of floor area.

2. Not applicable. A Transportation Demand Management Plan is not required for this site.

13.6.2 Environmental Quality Standards

A. Preservation of Significant Natural Features:

1. The project will incorporate the principles of Low-Impact Development (LID) in accordance with the LID standards of the Technical Manual. Proposed LID elements include a rain garden to manage stormwater and the integration of native plant species, among other site elements. Refer to the attached LID checklist (Section P) for additional information.

2. Not applicable. Complete preservation of significant natural features will be

achieved in this phase.

3. The site plan includes adequate measures to protect significant natural features from construction impacts.

B. Site landscaping and buffers.

1. On-Site Landscaping

a) The project proposes various plantings of trees, shrubs, and herbaceous perennials to meet or exceed the lot size planting requirement. Proposed plantings include six (6) street trees planted along Forest Avenue and an additional nine (9) trees of various species to be planted internally. Native shrub and groundcover plantings are proposed throughout the site: shrubs located along Forest Avenue will soften and activate the building frontage, with additional shrubs and groundcover plantings planned along the building foundation facing the parking area. Additional plantings are proposed to screen the building transformer. Tree and shrub species have been selected based on existing solar and soil conditions, as well as species' ability to withstand drought and urban conditions. Refer to the planting schedule on the Site Plan for more information.

b) The project will preserve most of the vegetation on the rear of the property, as well as existing mature trees along the eastern property boundary. Tree protection fencing is proposed to limit disturbance, as feasible, within the root zones of mature trees.

c) Not Applicable. The project will meet the planting requirements and landscaping standards of the Technical Manual.

2. Buffers and screening

a) The proposed loading and service areas, trash and recycling areas, storage areas, and utility structures shall be screened by a combination of tree and shrub plantings and will not be viewable from public sidewalks and adjacent streets or properties. See the Site and Planting Plans for additional information.

b) Surface parking is oriented away from the right-of-way, with additional trees and shrubs proposed between the sidewalk and parking area. Layered plantings will adequately screen surface parking so that it will not be immediately visible from the right-of-way. See the Planting Plan for additional information.

c) Not applicable. The project is a residential development.

d) The development is not expected to cause detrimental impacts on or experience detrimental impacts from the existing surrounding environment.

Therefore, evergreen vegetated buffers are not necessary. However, the existing deciduous buffer along the eastern side of the property is proposed to be preserved none-the-less. Please see the Site Plan for additional information.

3. Parking and vehicle display lot landscaping.

   a) The project exceeds the requirement to provide one tree for every 750 SF of parking area. The project proposes four (4) trees immediately adjacent to the proposed parking area, which includes eight (8) parking stalls and totals approximately 2,420 sf uncovered asphalt parking area, including drive aisles. Due to the limitations of the site, including steep slopes, trash and emergency vehicle turning radii, and proposed utility routes, 3 of the 4 trees that will shade the parking area are not located within landscape islands; however, given the relatively low number of parking stalls and numerous trees proposed surrounding the parking area, the design team feels the proposed design sufficiently screens and shades surface parking.

   b) Not applicable. The development proposes less than 40 new parking spaces.

   c) See section 3.a, the project requests relief from the requirement that parking lot trees are located in landscaped islands due to site constraints.

4. Non-vehicular hardscape

   a) All pedestrian sidewalks and other non-vehicular hardscape is proposed as natural gray concrete. The design team intends that the non-vehicular hardscape will achieve a Solar Reflective Index of 33 initially and 28 or less after 3 years. Additionally, the project proposes 15 trees for 7,455 square feet of asphalt paving.

5. Street trees

   a) Six street trees are proposed along 65 foot frontage of the property on Forest Avenue.

   b) Not applicable. The project proposes planting street trees.

   c) It is our understanding that there are no existing street trees that qualify as heritage or feature mature trees located in front of the property, The project, however, does propose to remove (1) existing, mature pine tree with a d.b.h. greater than 12" located approximately 20 feet from the property line. Due to the fact that the project proposes (6) new street trees planted approximately 25 feet on center along the building frontage, the Applicant feels that the replacement requirement has been adequately met and no additional contribution to the tree fund is required.

C. Water Quality, Stormwater Management, and Erosion Control:

1. The site has been designed to minimize impervious surfaces and stormwater runoff from the lot.

   a) All proposed stormwater network improvements will not create adverse impacts on adjacent lots.

   b) A stormwater management plan is provided as part of the project. The plan will meet the requirements in laid out in the City of Portland's Technical Manual, Section 5. The project will not create ponding, flooding, or other drainage problems on any adjacent lots or City property.

   c) The stormwater network does not anticipate creating downstream problems or exceeding the capacity of the storm sewer system. Please see Section K: on stormwater management for more information.

2. A site-specific Stormwater Management Plan has been developed for the project to show compliance with Section 5 of the Technical Manual. Please refer to the Stormwater Management Report for this information.

3. The development is not anticipated to pose a contamination risk to groundwater during or after construction. The project will be serviced by a public wastewater system.

4. The existing subsurface and adjacent slope conditions are suitable to support the proposed development. The proposed development shall not adversely impact the development site or any abutting property. Refer to Section S. Erosion and Sedimentation Control for more information.

13.6.3 Public Infrastructure and Community Safety Standards

A. Consistency with City Master Plans:

1. The project has been designed to be consistent with the City's Master Plan. The project provides 33 affordable housing units, in alignment with the City's housing goals. Additionally, the project proposes improvements to the public sidewalk along the site encourages residents to walk, bike, or take the bus. The project is also in alignment with the City's environmental goals, as seen in project elements like the rain garden and energy efficient lighting choices.

2. There are no off-premises public infrastructure that must be connected to or continued through the site.

B. Public Safety and Fire Prevention:

1. Public Safety Design

   a) The physical design of the site is intended to promote clear lines of visibility in a way that increases public safety. Nighttime illumination will be

provided at all egress locations and surrounding the building envelope. Similarly, the parking area immediately adjacent to the building's entrances will be sufficiently illuminated to meet City of Portland standards and promote visibility.

b) The physical layout of the site has been designed to clearly delineate private and public spaces. Proposed plantings between the building façade and the ROW create a semi-transparent layering effect that defines the public realm and sidewalk area from private spaces. Low and medium-height shrubs and groundcovers planted between small-scale trees allow clear sightlines through planting beds to the building beyond, while larger shrubs are proposed strategically to screen unwanted uses, such as dumpsters and utility equipment.

c) Landscape design features guide users around the facility in a safe manner. Internal sidewalks leading into the property are connected to the vehicular entrance and curb cut, with clear visual connections between the sidewalk and building's main entrance. Trees and foundation planting beds wrap around the building's west side, highlighting building entrances.

The proposed layout of the site clearly shows and separates public and private spaces. The row of proposed trees and shrubs along Forest Ave creates a spatial edge between the public and private zones, with a private patio space further screened from Forest Avenue by an approximately 4'-0" wall with 2-foot wood slat screen top. A gated entry at the southeast corner of the property further defines public and private zones.

2. Emergency access to the site has been designed to comply with the Section 10 Public Safety standards of the Technical Manual.

C. Public Utilities:

1. Ability to Serve letters have been sent to the respective companies. Refer to section L for ability to serve letters and responses. The project does not anticipate overburdening the sewer, storm, and water utility mains within Forest Avenue.

2. The project team is currently coordinating with CMP on the final electrical service layout. See the Utility Plan (C-20) and Section L: Utilities for additional information.

3. A new sewer service lateral is proposed to tie into the existing main within Forest Avenue. See the Utility Plan and Section L: Utilities for additional information. All sanitary sewer lines, storm drains, water lines, and other proposed utilities shall conform with the requirements of the Technical Manual.

4. The site will be connected to the public sanitary sewer system within Forest Avenue.

5. The proposed development will provide for temporary storage and timely removal

of all trash and recyclable materials by contracting a private hauler. Recycling storage containers will be distinct from trash containers. Any exterior storage of trash and recyclable materials shall be adequately screened. Refer to Section M: Solid Waste Disposal for more information.

13.6.4 Site Design Standards

A. Massing, Ventilation and Wind Impact:

1. Please refer to Section O: Architectural Design Narrative.

2. Please refer to Section O: Architectural Design Narrative.

3. Please refer to Section O: Architectural Design Narrative.

B. Shadows:

1. Not applicable. The proposed development is less than 65 feet in height.

C. Snow and Ice Loading:

1. The proposed building will be designed to reduce/prevent significant amounts of accumulated snow and ice from loading or falling into adjacent properties or public ways. Please refer to Section O: Architectural Design Narrative.

D. View Corridors:

1. Please refer to Section O: Architectural Design Narrative.

E. Historic Resources:

1. The development is not located in a Historic District and does not affect designated landmarks.

2. There are no known archaeological resources on the site. Proper measures will be taken if archaeological resources are discovered during construction.

F. Exterior Lighting:

1. Site Lighting.

   a) Exterior lighting will be designed to meet the requirements of Section 8 of the Technical Manual. See Section Q: Lighting for additional information.

   b) All lighting shall be downlit, side shielded, and dark sky compliant. Please see the photometric plans prepared by Reflex lighting for additional information.

2. Architectural and Specialty Lighting.

   a) No architectural or specialty lighting is proposed.

   b) No up-lighting is proposed.

3. Street Lighting.

   a) No streetlights are proposed

G. Noise and Vibration:

1. The HVAC system will meet the applicable state and federal emissions requirements and will also be screened and directed away from abutters. Please refer to Section O: Architectural Design Narrative and the Architectural Plans for more information.

H. Signage and Wayfinding:

1. Not applicable. No signage is proposed as part of this project.

2. Not applicable. No signage is proposed as part of this project.

I. Design Standards:

1. The project has been designed to meet the standards set forth in the B-2 zoning district and the City of Portland Design Manual. The project proposes to redevelop the parcel into one building containing multifamily affordable housing units. The project also includes utility and landscape improvements. Please refer to the Site Plan, Architectural Design Narrative, and Architectural Drawings for additional information.

2. Not applicable. The development is not located within a Historic District.

Att. G

Section G

Site Plan Data Sheet

City of Portland Site Plan Form

Part 1. Project Description & Site Information			
Application type:	Major Site Plan	Submission type:	Resubmission
	Address:	CBL number:	Lot area (square feet):
Main property:	1871 Forest Ave	327A A004001	144,679
Additional properties (if applicable):			
Project description:	The project proposes demolishing the existing structure and constructing a new multifamily affordable housing building.		

Type(s) of work: (Select which type(s) of work apply from the dropdown list. If not applicable, select N/A.)	
New residential construction or additions	5 or More Dwelling Units
New non-residential construction or additions	1,000-10,000 square feet of new construction
Creation of disturbed area	1,000 square feet - 3 acres
Creation of impervious surface	N/A
Construction or paving of parking	Construction or paving of 5-25 parking spaces
Change of use	>20,000 square feet

Does this project include State or Federal funding, permits, review, or sponsorship?			■ Yes		No
If yes, list applicable entities:	HUD				
Associated applications: (Check all that apply)			Maine DEP- GC Permit		Subdivision
	Army Corps of Engineers General Permit		Maine DEP - NRPA		Traffic Movement Permit
	Floodplain Development Permit		Site Location of Development		Zoning Amendment
	Harbor Commission Construction Permit		Stormwater Quality		Other:

Part 2. Use Information				Total Existing	Total Proposed	Net New
Residential	General	Residential floor area (square feet)		0	20,340	20,340
		For Group Living uses with no dwelling units, list the number of rooming units				
		Dwelling units		0	33	33
		Ownership units				
		Rental units			33	33
	Bedrooms	Studio units			33	33
		1-bedroom units				
		2-bedroom units				
		3-bedroom units				
		4+ bedroom units				
	Affordability	Market-rate units				
		60%	% AMI		33	33
			% AMI			
			% AMI			
Non-Residential		Commercial/Service floor area (square feet)		8,771	0	-8,771
		Industrial floor area (square feet)		0	0	
		Institutional floor area (square feet)		0	0	
		Other floor area (square feet)		0	7,566	7,566

Part 3. Inclusionary Zoning			Total Existing	Total Proposed	Net New
Inclusionary Zoning (IZ) dwelling units			0	33	33
Ownership IZ units		% AMI	0	0	
Rental IZ units	60%	% AMI	0	33	33
Bedrooms	Studio IZ units		0	33	33
	1-bedroom IZ units				
	2-bedroom IZ units				
	3-bedroom IZ units				
	4-bedroom IZ units				
IZ fee-in-lieu	$ for of the required IZ dwelling units				

City of Portland Site Plan Form

Part 4. Building & Site Metrics	Total Existing	Total Proposed	Net New
Number of buildings	1	1	
Building floor area (square feet)	8,771	30,264	21,493
Building footprint (square feet)	4,870	7,566	2,696
Street trees	3	8	5
Automobile parking spaces	59	8	-51
ADA-accessible parking spaces	1	1	
Compact parking spaces	0	0	
Level 2 Electric Vehicle (EV) charging spaces	0	1	1
Level 3 Electric Vehicle (EV) charging spaces	0	0	
Bicycle parking spaces	0	8	8
Number of water service connections	1	2	1
Number of sewer service connections	3	1	-2
Impervious area (square feet)	43,026	42,911	-115
New developed area (square feet)		0	
Non-roof redeveloped impervious area (square feet)		4853	
Limits of disturbance (square feet)		50047	
Alteration to wetlands or watercourses (square feet)		0	

Part 5. Zoning (You can use this link to view the zoning for your property)					
Base Zone	B-2		Base Zone #2 (if applicable)		
Local Historic District?		Overlay Zone #1 (if applicable)		Overlay Zone #2 (if applicable)	

Zoning Standards – Project Site	B-2 Requirements	Proposed	Requirements	Proposed
Lot area (square feet)	0	144679		
Street frontage, Minimum (feet)	0	690.35		
Lot coverage, Maximum (%)	100.0	5.69		
Landscaped open space ratio, Minimum (%)	10.0	65		
Build-to Zone (feet)	10.0	32		
Build-to percentage, Minimum (%)	100.0	100		
Blank wall area, Maximum (feet)	20.0	0		
Additional standard:				

Zoning Standards by Building (Use Extra Sheets if >2 Buildings)	Building #1 Zone Requirements	Proposed	Building #2 Zone Requirements	Proposed
Front setback, Minimum/Maximum (feet)	0	10.2		
Rear setback, Minimum (feet)	0	119.5		
Side setback, Minimum (feet)	0	27		
Structure height, Maximum (feet)	75	50		
Additional standard: Cemetery Setback	25.0	43		

Affordable Housing Density Bonuses (if applicable)	Maximum Allowable with Bonus	Proposed
Density, Maximum (x base)	2.5x base	
Height, Maximum (feet)	85	46

If Needed, Explanatory Text Can Be Provided Below

Waiver requested per 7.6.5.B.3. Build-To Zone requirements will not be met due to the unique lot configuration along with the required setbacks from existing overhead utilities and the steep grades of the site. An effort will be made to activate the street

Section H

Waiver Table

Standard to be Waived: Cite Ordinance or Technical Manual Standard	Cite Standard Language: Cite specific language of applicable Ordinance or Technical Manual Standard	Waiver Being Sought: Describe waiver being sought. Ex. – We are requesting a two-way parking lot drive aisle width of 20' feet.	Justification for Waiver: Address specific waiver criteria, if applicable, and document reasons for the waiver request.
Technical Manual Standard 6.9.7	No storm drains or storm drain laterals, with the exception of street underdrains, shall be connected into a catch basin structure.	We are requesting to add a single connection to the west side of the existing catch basin structure at the southeast corner of the subject parcel (SWIN-6374).	Due to existing underground comm, electric, and gas utilities between the edge of the road and the right of way, and a utility pole by the southeast corner of the site, it would be very difficult to bypass the existing catch basin to tie into the storm system further down

Standard to be Waived: Cite Ordinance or Technical Manual Standard	Cite Standard Language: Cite specific language of applicable Ordinance or Technical Manual Standard	Waiver Being Sought: Describe waiver being sought. Ex. – We are requesting a two-way parking lot drive aisle width of 20' feet.	Justification for Waiver: Address specific waiver criteria, if applicable, and document reasons for the waiver request.
Build-To Zone and Build-To Zone Percentage	100% of the building facade must be located within 10 feet of the front property line.	We are requesting that the front facade of the building be setback 12.5 feet from the front property line.	See the attached Waiver Justification document.
Table 18A - Minimum Bicycle Parking Requirements	Minimum bicycle space for multifamily housing: 1 per 2 dwelling units	We are requesting to not provide bicycle parking for this site.	Based on Avesta's experience with previous Home For Good sites, residents do not feel comfortable using bike parking facilities and prefer to keep their bikes in their units. Avesta would rather reduce the proposed impervious area than provide bike parking that is
City of Portland Land Use Code Section 13.6.2.B.3.a	Developments with more than 5 parking spaces shall include at least 1 tree for every 750SF of uncovered asphalt parking area (including drive aisles), planted in landscaped islands to screen, shade, and break up parking.	We are requesting to provide some of these trees along the perimeter of the parking lot rather than landscaped islands.	The project proposes 2,420 SF of uncovered asphalt parking area, which includes 8 total parking stalls. The Land Use Code requires 3 trees in landscaped islands. We propose 1 tree in a landscaped island and 2 trees immediately

Build-To Waiver Justification

The existing lot that this project utilizes is an irregular lot, in several respects. First, the geometry of the parcel includes several vertices that result in an oddly shaped lot with a zig-zagging pattern. Additionally, along the frontage, the property line does not run with street/curbline as is typical due to an MDOT-taking approximately 10 years ago to facilitate a road widening project. Therefore, the right-of-way (ROW) varies in width and creates undulating pinch points along the parcel's frontage. There is not one segment of the ROW that is parallel with the curbline, which is atypical. These issues are representative of the lot's horizontal irregularities. The lot's vertical shape is also drastic, steep, and irregular. Grades rise quickly from the front of the lot to the rear and then drop off suddenly towards the abutting property. As part of the aforementioned road-widening project, a retaining wall was constructed along the frontage due the grade challenges representing an additional barrier and irregularity. The existing structure sits upon a large hill with its ground floor approximately 15 higher than the street level. Because of these irregularities, the project is seeking an Exception to a 32' Build-To-Zone as explicitly outlined and permitted within the City of Portland's Land Use Code, Section 7.6.5.B.3:

> "The Planning Board or Planning Authority may approve a different front setback or build-to zone for irregularly shaped lots provided the front setback or build-to zone is met to the maximum extent practicable."

Additionally, compounding technical issues exist that further require the need to seek this exemption. Existing three-phase overhead electrical lines run along the site's frontage on Forest Avenue. A 15-foot separation between the existing three-phase power and the building façade is required by State Statute and the Occupational Safety and Health Administration (OSHA).

Despite these challenges, the design team has worked diligently for nearly a year to optimize the site and develop the best site and building design to accommodate a Home for Good project on this parcel. To the greatest extent practicable, the building and its presence has been located near the Forest Ave ROW. The "front porch" community room is located as close as legally possible to the street at 10.2'. The length of this features represents more than half of the overall length of the front façade. Where the building recesses, the building steps back to just under 32' from the ROW, for which the Exception

is requested. However, detailed design collaboration by the project landscape architect, civil engineer, architect, developer, as well as input from the Planning staff and Board have resulted in a well-activated and pedestrian-scale streetscape, consistent with Section 7.6.5.B.4 which states that when buildings are set back more than 10 feet from a lot line abutting a street, a continuous, attractive, and pedestrian scaled edge treatment shall be constructed along the street.

In addition to the front porch community room only being set back 10', this design is highlighted by:

- A large patio 10' off the street which is continuous with the community room and allows for southern light exposure for residents. The patio is bordered by an ornamental fence and wall which reads like an extension of the building façade from the perspective of a pedestrian on the sidewalk.
- The project also proposes several improvements to the pedestrian experience along the project within the ROW, such as adding an esplanade, widening the sidewalk, relocating a crosswalk, and adding an RRFB to the new crosswalk, all central to the project.
- A robust landscaping design will bridge the public sidewalk to the community room façade and patio. The design includes street trees and a variety of shrubs and perennials.

The project has made every effort to meet the build-to zone to the maximum extent practicable. Within this last round of design revisions, the building was moved two feet further towards the street, which increased the grade in the front to the maximum allowable grade while still allowing for robust landscaping. The patio wall was brought in line with the building façade so that the whole stretch feels like a continuous building face from the pedestrian experience. The sidewalk was relocated to provide a larger esplanade and bring the sidewalk closer to the building. The full stretch between the building and sidewalk has been incorporated into the site's landscaping plan, with lots of trees and shrubs.

While the purpose of the requested waiver is to accommodate the site's irregular shape, there are additional reasons why the proposed site layout is preferable. If the patio were to be replaced with the building face, that additional structure would either need to be a

single story or set back further from the property line due to the overhead utilities. In order to meet the build-to zone to the maximum extent, the project team decided that having a continuous single-story face closer to the street was preferable to the full four-story façade further from the street. If the front face of the building must be a single-story, then the difference between a front wall is negligible from the pedestrian perspective. Providing an outdoor patio space for residents is important to the project, and the location of that space at the front of the building provides significantly more sunlight for that space. If the patio space were to be placed toward the rear of site, it would rarely see direct sunlight, particularly within the colder months due to four-story building to the south, the tall preserved trees to the east, and the future Phase 2 building to the west. Because of grade change across the site, a patio to the rear would also need to be significantly recessed below grade, decreasing the sense of place in tandem with lack of sunlight. Furthermore, the patio space is intended to be an outdoor extension of the community space at the front of the building. Keeping the patio and the community space adjacent to each other helps to establish that connection. Because of the unique background of residents at Home For Good properties, the Owner and property manager also felt that it was important to keep the outdoor patio area and the community space within sight of the front desk staff of the building. A rear patio would make that impossible without a complete redesign that pulls the activation and “front porch” community room off the street, which is counterproductive to the City’s desire and policy.

Overall, the Applicant feels that this site layout plan makes every effort to meet the intents and purposes of the build-to zone requirement while also being cognizant of the nature of the existing neighborhood and the proposed building program. The existing abutter directly to the east of the site is set back approximately 90 feet from the Forest Avenue right of way. Any future phase of development on the western portion of the project site would be set back further from the sidewalk due to the irregular lot shape that resulted from the DOT taking. The existing abutter immediately to the west is set back approximately 35 feet from the right of way. The following property is a gas station that is situated approximately 90 feet from the right of way. Between Riverside Industrial Drive and Riverside Drive, there is very little pedestrian edge treatment and the potential for future improvements along that corridor on the north side of the street is relatively low due to the existing uses and lot configurations. For this reason, the project team feels that improving the pedestrian

experience through moving and widening the sidewalk and adding robust planting will be a significant improvement to the existing condition, but will not feel out of place on the block with the existing level of development or if the street is further developed in the future with buildings closer to the front property line. We believe this project and its parcel are precisely why the Exemption was built into the code where irregularities and suburban conditions exists as opposed to a standard Business-zone square or rectangular lot on the Peninsula that is easily infilled with a building at or near the ROW line.

Att. I

Section I

Easements Summary

I. Summary of Written Easements

Existing Easements:

1. Existing easement information as provided on the plan titled "Standard Boundary Survey Plan" prepared and identified by BH2M in October, 2025.

Proposed Easements/Licenses:

1. There are no proposed easements associated with this project.

Section J

Construction Management Plan

J. Construction Management Plan

Project Address: 1871 Forest Avenue, Portland Maine, 04103

Project Description:

The project proposes demolishing the existing building and constructing a new multifamily affordable housing residential structure on the site. The project includes utility upgrades, parking lot improvements, and other infrastructure improvements.

Project Team Summary:

Owner:	Avesta Housing
General Contractor (GC):	TBD
Civil & Environmental Engineer:	Acorn Engineering, Inc.
Architect:	Simons Architects
Geotechnical Engineer:	Summit Geoengineering

The Owner/GC and all subcontractors will work with the City of Portland and adjacent landowners to minimize any project impacts.

The GC will remain responsible for enforcement of all compliance with 1) all contract plans and specifications in their scope of work and 2) all site working conditions and safety requirements, day and night, for both persons and property, in each case for the duration of their work. These include OSHA, NIOSH, U.S. EPA, local ordinance and any other applicable governmental regulations. Both the Owner/GC and any subcontractors will remain responsible for safeguarding the general public.

The GC shall review all permits and conditions associated with the project. Refer to the Civil/Site Plan Set, Sheet C-03 Construction Management Plan for visual representation of the measures to be taken during construction.

The following outline has been developed in accordance with the City of Portland Construction Management Plan General Template and shall be referenced by the GC during construction.

A. Construction Management Principles

The control of noise, vibrations, ground movement, truck traffic, and other construction related factors will be of utmost importance. Care shall be taken to minimize these effects in the best interest of neighbors and the general public. GC to ensure that work hours conform to the City of Portland's Ordinance.

B. Development Review of Construction Management Plan

Logistics and safety program shall be submitted at or prior to the preconstruction meeting by the GC with all pertinent information required by the Maine Department of Transportation's Traffic Control Plan Standard Specification 652.3.3.

C. Performance Guarantees, Inspection Fees, Preconstruction Meeting, and Permits

Guarantees and fees will be paid at the time of the respective application. *Section 13-10* will be complied with. All necessary permits will be obtained prior to work.

1. Street Opening and Street Occupancy Permits:

   Required permits regarding street opening and occupancy will be obtained from the Department of Public Works. The requests shall conform to the approved Construction Management Plan.

2. Blasting:

   Although not anticipated, if blasting occurs, it shall conform to the City Code and the City's Technical Manual.

3. Building Code:

   Employ the best practices, as applicable, of *Chapter 33 Safeguards During Construction*, from the 2009 International Building Code. In addition to the best practices set forth in the Inclusionary Zoning Guidelines for Developers of rental housing.

D. Construction Administration and Communication

The Contractor will work closely with adjacent abutters, businesses, and all parties informed, as far in advance as possible, of scheduled work, particularly work anticipated to cause significant noise, vibrations, or dust. Communication in order to comply with all agreements, ordinances, and special permits will be of the utmost importance. Contractor and Subcontractor contact information shall be posted somewhere along the project's street frontage. Additional signage necessary for communication shall be provided but will be temporary and removed upon completion of the project.

E. Construction Schedule

The GC shall submit a construction timeline at or prior to the preconstruction meeting. Construction may occur during the daytime hours as defined in *City Code Section 17-18: Construction Activities* and *City Code Section 25-129: Noise, Dust and Debris*. Between September 1 and May 31, the following year, no person shall engage in construction activities generating noise exceeding 50 decibels, between the hours of 7 pm and 7 am of the following day within 500 feet of any buildings. From June 1 to August 31, construction activity may continue until 8 pm. No construction activity shall begin before 8 am on a Saturday, Sunday, or legal holiday. Extended hours or night work may be requested for special circumstances and street utility work if needed. These requests will be subject to approval by the Public Works Authority. Deliveries will be scheduled between 7 am and 5 pm.

The estimated timeframe of the proposed project is outlined below:

Project Start Date:	Fall 2026
Project End Date:	Fall 2027

A more detailed work schedule shall be provided by the GC at or before the pre-construction meeting with the City.

F. Security

1. The Construction Management Plan, Sheet C-03, depicts all proposed fencing and other barriers, with the intent of separating pedestrian and vehicle circulation from the construction site. Construction entrances per detail shall be installed.

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: Prior to construction, an overall construction and 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 Portland's City Code and Portland's Technical Manual.

5. Temporary security lighting shall be shown on the Construction Management Plan, 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 shall be compliant with Chapter 25 Article VII of the City Code. At no time will it be permissible for construction activity including delivery vehicles to 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 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 6* 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. The contractor shall submit a satisfactory "Maintenance of Traffic" (MOT) plan prior to any street opening permit approval. This document shall contain all pertinent information from the Maine Department of Transportation's Traffic Control Plan Standard Specification 652.3.3.

The MOT will address the work required for utility connections in Forest Avenue. Traffic will be channelized utilizing drums and cones. Proper signage will be installed prior to the through work zone. Alternating traffic will be controlled with flaggers. Trenches will be patched with pavement daily.

The MOT plan shall provide for the safe passage of the public through or along the construction work zone. It may be permissible to close a portion of the street during utility connections and/or detour a mode of traffic when absolutely necessary for safety. All requests shall be subject to City approval. MOT plans shall employ the appropriate techniques and devices as called for in 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 would create any obstructions to bicycles or pedestrians.
- Flaggers will be utilized when necessary.

All existing modes of travel in the 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 and laying 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 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 in all capacities 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

1. Regular trash and debris shall be managed appropriately, and its removal shall comply with all local, state, and federal regulations.

2. Street cleaning and sweeping shall be followed as outlined in the erosion and sedimentation control notes and report. Damage to the street shall be avoided and shall be the responsibility of the contractor.

3. Dust shall be controlled and shall comply with *Section 25-129* and the Erosion and Sedimentation Control Notes, Plan, and Details.

4. Noise shall be controlled and shall comply with *Section 17-18* and *Section 25-129*.

5. Rodent Control shall be provided, if applicable, by a professional exterminator and shall be consistent with Chapter 22 of the City Code.

6. Snow and Ice Removal shall be provided. Pursuant to *Section 25-173*, the Contractor shall ensure a safe means of travel within the work zone by the following steps:

    a. Snow/ice to be removed 18 hours after snow stops falling or 18 hours after the city completes snow clearing on the adjacent street, whichever is later.
    b. Remove snow as needed within the work zone, including parking spaces. Driveways and site lines shall not be blocked by piles of snow.
    c. Clear all walks and ramps within the work zone
    d. Apply sand or salt as needed
    e. Clear all basin or drainage to help snow melt
    f. The above steps shall be carried out Sunday-Saturday including holidays.

I. Erosion & Sedimentation Control

1. The Contractor shall install all erosion and sedimentation controls as depicted on the approved Construction Management Plan, C-03, and the approved erosion and sedimentation control report, 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 storm events (0.5" or more in 24 hours). Additionally, temporary or permanent stormwater management systems shall be inspected and maintained to ensure 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 (MDEP) or the U.S. Environmental Protection Agency (EPA) upon request.

2. The contractor will install tree protection fencing along the forest edge at the northern and eastern edges of the site. The contractor will protect any trees on the site that are not explicitly called out to be removed on the project plans.

3. Stored materials shall be identified and avoid being located under/near trees.

J. Construction Staging Area

1. The Contractor shall submit a plan with locations depicted for the location of material staging areas, the location of on-site temporary construction trailers, the location of on-site truck delivery holding areas, the location of on-site truck washing stations, masonry mixing stations, the general location of the construction security fence and the general location of temporary construction dumpsters. This plan shall be submitted at or prior to the pre-construction meeting. Any open storage areas shall be shown on the plan.

2. Delivery Truck Holding Areas On-Site: The majority of materials delivered to the site will be scheduled such that they are able to be off-loaded immediately. 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 trucks until they can be unloaded. Once at the site all vehicles will be brought within the fence line and will make every attempt to avoid queuing on public streets. If, for any reason, on-site holding of trucks is not feasible, an off-site location must be designated and shown on the submitted plan referenced above in J.1.

3. All deliveries for materials shall comply with the City's noise requirements.

K. Parking During Construction

1. Adequate parking for construction workers shall be provided on site or arrangements for off-street parking at an off-site location shall be provided.
2. Truck Routes and Volumes: The following quantities are estimated as part of the redevelopment:

    - Gravel & Stone – 800 CY Earthwork subcontractor(s) pit to project site.
    - Hot Mix Asphalt – 160 tons. Paving subcontractor pit to project site.

L. Dewatering Plans

1. A basic dewatering plan for any construction work is required and shall be submitted by the Contractor. 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.

2. For construction work that will require frequent dewatering of groundwater from site, a dewatering plan must be prepared by the Contractor 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

No special measures are necessary for the proposed reconstruction unless otherwise noted by the Environmental Professional.

Att. K

Section K

Stormwater Management Report

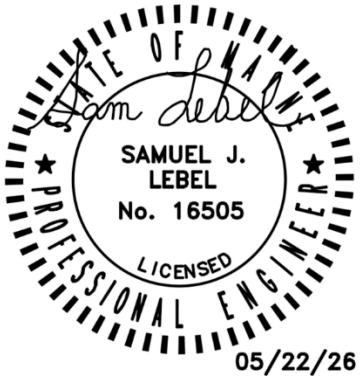
K.1 STORMWATER MANAGEMENT REPORT

Prepared For:

Avesta Housing

Prepared By:

Acorn Engineering, Inc.
PO Box 3372
Portland, Maine 04104



May 2026

INTRODUCTION

Acorn Engineering, Inc. has been retained by Avesta Housing Development LLC, to provide civil engineering services for the proposed development at 1871 Forest Avenue in Portland, Maine. The 3.32 acres lot is currently comprised of an existing vacant two-story building that was most recently used as a restaurant. The project proposes demolishing the existing building and construction the first phase of the project which includes a new 4-story, 33-unit multifamily residential building on southeast corner of the lot with a small associated parking lot.

A stormwater analysis was prepared to address the effects of the proposed development on both the quantity and quality of stormwater runoff. The purpose of this report is to demonstrate that the project will meet and exceed the requirements set forth by Maine DEP Chapter 500 Basic, General, and Flooding Standards and the requirements set forth by the City of Portland Zoning Ordinance and Technical Manual.

EXISTING CONDITIONS

The project site is located at 1871 Forest Avenue, near to the intersection of Forest Avenue and Riverside Street. A boundary plan has been prepared by Berry, Huff, McDonald, Milligan Inc., dated October 2025.

Based on a wetland delineation performed by Old North Environmental, there is an existing wetland within the property along the westerly edge of the site, outside of the development footprint. The project is not within an urban impaired stream watershed. The site contains moderate-steep sloping terrain with the rear of the site representing a ridge, sloping down to the abutting property to the north, as well as the parcel's frontage along Forest Ave. The existing building on site is vacant and is served by two paved driveways and a parking lot. The westerly and easterly portions of the site are generally wooded.

The existing site is divided into five (5) sub-catchments. The first flows to an existing catch basin along Forest Avenue at the southeast corner of the site. The second flows to an existing catch basin along Forest Avenue at the southwest corner of the site. The third sub-catchment drains to an internal wetland on the west side of the site. The fourth sub-catchment flows to an existing detention pond to the north of the site. The fifth sub-catchment is sheet flow to the existing cemetery by the northeast corner of the site. A pre-development stormwater map of the existing conditions can be found in Section K.3 of this report. The pre-development HydroCAD report can be found in Section K.5 of this report.

PROPOSED DEVELOPMENT

The project proposes redeveloping the existing site to provide a new structure that contains 33 residential units including various parking, utility, landscaping, and stormwater management improvements. Proposed drainage improvements include roof drains, a foundation drain, an underground detention system, and a rain garden to provide stormwater

management for the redevelopment. The redevelopment footprint is contained within the first and fifth sub-catchments. The site will be re-graded which results in the fifth sub-catchment being slightly smaller, but otherwise the land use will be the same. Runoff from the proposed parking area, the additional area from sub-catchment five, and the majority of the roof will be collected in underground stormwater detention tanks that will attenuate peak flows. The runoff from the rest of the roof system and part of the proposed internal sidewalk will be directed towards a proposed rain garden on site which will also help detain stormwater flows.

The development will be served by the Portland Water District, below ground power/cable/communications, natural gas, and the municipal sewer system. Utility mains and services will be coordinated with each respective utility company.

GENERAL STANDARDS:

The following narrative intends to meet the applicable Basic, General, and Flooding standards in Section 5 of the City of Portland Technical Manual. Please refer to the erosion and sedimentation control report for the site's compliance with the Basic Standards outlined in Chapter 500. Please see the attachment list for more information on the impervious area and pre and post conditions modeling.

The proposed development site is not located within an urban impaired stream, and Phase One will result in a net reduction of impervious area on the site. The total non-roof redeveloped impervious area was calculated by total existing non-roof impervious area that was redeveloped into non-roof impervious area. The calculated non-roof redeveloped impervious area was less than 5,000 square feet and therefore no treatment is required. See Exhibit K.2 for more information on this calculation. Additionally, the project is in an area with separated storm water and sanitary sewer. The project site in its existing condition is developed, and no new developed footprint expansion is proposed. Therefore, the project is exempt from the treatment requirements as outlined in Chapter 500 as well as exempt from the redevelopment treatment standards within Section 5 of the City's Technical Manual. However, a portion of the project will still flow to a rain garden which provides quality benefits in addition to attenuation. Additionally, various catch basins, hoods, and the detention system will provide a level of pre-treatment prior to entering the City's system.

The project will create more than 10,000 square feet of disturbed area, so a stormwater management plan has been developed. The total impervious area within the project's disturbance limits is 18,257 square feet. This does not include the existing building footprint or existing paved parking lot, as those areas are not fundamentally changing with this phase of the project and will be incorporated into future Phase 2 calculations. The building is being demolished solely to eliminate a safety risk or opportunity for trespassing, not to facilitate Phase 1 of this project. The only change of existing impervious area proposed is that the existing building will be removed, meaning that the roof land use will be changed to gravel. Otherwise, existing paved parking areas will experience less use than when the restaurant was operational. A portion of the existing paved parking area will be removed to facilitate the proposed development and a portion will be removed and loamed/seeded.

FLOODING STANDARDS:

The total impervious area within the project disturbance limits was calculated to be 18,257 square feet. This area excludes where the existing building's roof will be converted to gravel, as the proposed change increases the permeability of the land use, and is generally unconnected to the proposed development. This area is subject to future redevelopment and will be incorporated into the Phase 2 stormwater analysis under separate cover.

The City of Portland's Technical Manual dictates that the project must provide on-site stormwater detention volume equal to 1" of rainfall across the impervious area calculated above, which results in **1,522** cubic feet of detention. The proposed rain garden intends to provide **335** cubic-feet of storage and the R-Tank subsurface storage system intends to provide storage volume of **1,638** cubic-feet, for a total of **1,973** cubic feet of on-site stormwater detention capacity, which exceeds the City standards. Additionally, the City of Portland's Technical Manual restricts the stormwater discharge rates into the city separated stormwater system. Both BMP's restrict the outflow to less than 0.1 CFS during the simulated rain event that results in a 1-inch inflow depth.

The proposed project was modeled using HydroCAD to verify that the post-development conditions do not exceed the pre-development conditions. A 24-hour SCS Type III storm distribution for the 2, 10, and 25-year storm events were used. The corresponding rainfall amounts for these storms are 3.10", 4.60", and 5.80" respectively. Due to the numerous variables and inherent inaccuracies with the modeling program used to calculate stormwater runoff, it is customary at Acorn Engineering to round to the nearest whole number when reporting stormwater modeling results. However, due the small size of the project and minimal existing flows, the stormwater runoff numbers in this report are rounded to the nearest tenth.

Time of Concentration (Tc)

The times of concentration for sub-catchments in both the pre and post conditions were calculated by entering the flow path with the associated ground cover and slopes. HydroCAD then calculated the Tc's and incorporated the total Tc for each sub-catchment into the model. When the calculated Tc was less than six minutes (0.1 hours), a direct entry of six minutes was used as advised by the TR-55 model. Consistent with previous submissions and best practices, the sheet flow length for any Tc path was capped at 100 feet.

Curve Number (CN)

Within the pre-development model, the vegetated areas were considered fair grass or fair woods, and impervious areas consisted of paved parking, unconnected roofs, or gravel surfaced paths. The fair rating for the woods was based on the existence of packed down gravel paths and litter indicated in the survey and Phase 1 Environmental Site Assessment, and the presence of a duff layer that was observed in a March 10 Site Walk. The post development landscaped areas were given a good rating for new landscaped or loam/seeded

areas. The majority of the site is Windsor Loamy Sand, which is Hydrologic Soil Group A. Some of the north side of the site is characterized as Gravel Pits, which are not given a Hydrologic Soil Rating by the USDA. However, the Geology section of the site's Phase 1 Environmental Site Assessment characterized the Gravel Pits as extremely gravelly sand that is excessively drained with high infiltration rates. As such, Acorn Engineering modeled this land area as Hydrologic Soil Group B, acknowledging the high infiltration rate but still exercising an abundance of caution. The areas of the site characterized as Gravel Pits are largely not being impacted by the proposed scope of work.

Pre-Development Calculations:

The pre-development site conditions consist of 28.6% impervious area throughout the site, comprised of building roof area, paved parking areas, and two gravel paths. The current site grades suggest that portions of the north side of the site drain towards the abutting property (Tax Map 327A, Block A, Lot 5) that is used by Hannaford as a detention basin.

Please refer to *Table 1* below for the pre development peak flow for a 2-yr, 10-yr, and 25-yr 24-hour storm event.

Table 1 – Pre-Development Peak Stormwater Flows

Drainage Area:	2-Year Storm Event (cfs)	10-Year Storm Event (cfs)	25-Year Storm Event (cfs)
POI #1	1.1	2.8	4.3
POI #2	0.4	1.0	1.5
POI #3	0.0	0.0	0.1
POI #4	0.0	0.2	0.5
POI #5	0.0	0.2	0.3

Post-Development Calculations:

The drainage patterns from the pre and post conditions remain relatively the same for sub-catchments two (2) through five (5). The impervious roof area in sub-catchment two (2) becomes impervious gravel (which has a slightly lower curve number of 96 vs 98). Sub-catchment five (5) gets a little bit smaller due to grading changes. Sub-catchment one (1) contains all of the redevelopment area and experiences the most changes.

Subcatchment one (1) was divided into five (5) smaller areas. Sub-catchment 1.1A remains largely the same as in the pre-development condition, with the main change being the conversion of roof to gravel where the existing building sits. Additionally, some of the existing parking area in this sub-catchment is converted to loam and seed. Sub-catchment 1.1B experiences some changes from the predevelopment condition. Most of the existing pavement is replaced with loam and seed, and the sub-catchment drains to an F-Basin to the west of the parking area. Sub-catchment 1.2 represents the area that passes through the

underground detention tanks and includes the proposed parking area and most of the roof. Sub-catchment 1.3 contains the areas to the south and east of the new building that are diverted to a drainage swale before entering the stormwater system. Sub-catchment 1.4 contains areas of the site that are diverted to the proposed rain garden for detention, including part of the roof. All of sub-catchment one (1) still eventually drains to the same catch basin in Forest Avenue at the southeast corner of the site.

The post-development calculations include changes to the land use and the compensation provided by the underground detention tanks and the rain garden, as well as additional underground stormwater infrastructure. The post-development peak flows are shown in Table 2 below. As shown in the Table 3, the net impact of the post-development peak flows will remain at or below the pre-development levels. A post-development watershed map developed for this project can be viewed in Section K.3, and a copy of the post-development HydroCAD calculations is included within Section K.5 of this report.

Table 2 – Post-Development Peak Stormwater Flows

Drainage Area:	2-Year Storm Event (cfs)	10-Year Storm Event (cfs)	25-Year Storm Event (cfs)
POI #1	0.6	1.9	4.0
POI #2	0.4	1	1.5
POI #3	0.0	0.0	0.1
POI #4	0.0	0.2	0.5
POI #5	0.0	0.1	0.2

Table 3 – Change in Peak Stormwater Flows

Drainage Area:	2-Year Storm Event (cfs)	10-Year Storm Event (cfs)	25-Year Storm Event (cfs)
POI #1	-0.5	-0.9	-0.3
POI #2	0.0	0.0	0.0
POI #3	0.0	0.0	0.0
POI #4	0.0	0.0	0.0
POI #5	0.0	-0.1	-0.1

Further, the outlet of the proposed outlet control structure was analyzed for proper sizing. The 12" pipe that runs from the outlet control structure to proposed catch basin 2 has a length of 73 feet and an elevation drop of 0.7 feet, which results in a slope of approximately 0.96%. Based on the guidance from the manufacturer's handbook for N-12 Dual Wall Pipe (See Section K.7), the proposed 12" pipe would have a flow capacity of approximately 3.75 cfs. In the 25-year storm event, the combined peak flow from sub-catchments 1.1B and 1.2 would be approximately 1.1 cfs, meaning that the pipe has more than adequate capacity.

SOILS

Onsite soil information includes the following.

- Soil Conservation Service Medium Intensity Soil Survey for Cumberland County
- Test Boring Location Map prepared by Summit Geoengineering Services

Given the Soils information listed above and the fact that no onsite wastewater is proposed, the Applicant does not intend to perform a more intense hydric soil boundary delineation.

FUTURE PHASES

The development team anticipates that there will be an additional one or two phases of development for this project. Should those phases go to construction in a reasonable timeline, the pre-development condition for future stormwater models will be the same as for this phase.

CONCLUSION

The proposed development was designed to meet the requirements implemented by the City of Portland and Maine DEP. The proposed development as designed is not anticipated to cause flooding or erosion problems within the subject site, abutters sites, nor within the right-of-way. Overall, the project will provide improvement to stormwater runoff and overall management. Please find the following attachments for more information on the stormwater analysis.

ATTACHMENTS

Section K.2: Impervious Area Exhibit

Section K.3: Pre-Development Stormwater Map

Section K.4: Post-Development Stormwater Map

Section K.5: Pre-Development HydroCAD Report

Section K.6: Post-Development HydroCAD Report

Section K.7: ADS, Inc Drainage Handbook Excerpt

Section S.2: Medium Intensity Soil Survey

LEGEND

EXISTING IMPERVIOUS AREA TO REMAIN

EXISTING IMPERVIOUS AREA TO BE DEMOLISHED

PROPOSED IMPERVIOUS AREA

NON-ROOF REDEVELOPED IMPERVIOUS AREA

AREA SUMMARIES	
DESCRIPTION	**AREAS [SQUARE FEET]**
TOTAL EXISTING IMPERVIOUS AREA	42,946
EXISTING IMPERVIOUS AREA TO BE DEMOLISHED OR RESEEDED	19,332
EXISTING IMPERVIOUS AREA TO REMAIN IMPERVIOUS	23,614
PROPOSED NEW IMPERVIOUS AREA	18,257
TOTAL PROPOSED IMPERVIOUS AREA	41,871
CHANGE IN IMPERVIOUS AREA	-1,075
NON-ROOF REDEVELOPED IMPERVIOUS AREA	4,853

30 0 30 60

SCALE: 1:30

PERMIT LEVEL
NOT ISSUED FOR
CONSTRUCTION

ISSUED FOR	BY: DATE
SITE PLAN APPLICATION	SJL 12/22/2025
25% PROGRESS SET	SJL 1/12/2026
UTILITY COORDINATION	SJL 2/9/2026

DRAWING NAME: **IMPERVIOUS AREA EXHIBIT**

PROJECT NAME: 1871 FOREST AVE, PORTLAND, MAINE

PARCEL ID: 327A A004001

CLIENT: AVESTA HOUSING
307 CUMBERLAND AVE, PORTLAND, MAINE 04101

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(207) 775-2605

FILE:	IMPERVIOUS
DATE:	AS NOTED
JN:	1297
SCALE:	AS NOTED
DESIGNED BY:	DNM
DRAWN BY:	MJVA
CHECKED BY:	SJL

STATE OF MAINE
SAMUEL J. LEBEL
No. 16505
REGISTERED PROFESSIONAL ENGINEER
05/01/26

DRAWING NO.
K.2

SUBCATCHMENT LEGEND:

S1.0 — SUBCATCHMENT NUMBER

SUBCATCHMENT EXTENTS

POI #1 — POINT OF INTEREST (POI)

1 — POND

FLOW PATH ARROWS

S4.1

POI #4: HANNAFORD DETENTION POND

S5

S4.2

HSG: UNKNOWN, ASSUMED B Gp

HSG: A WmB

SOIL DIVISION LINE

POI #5

P3

POI #3: WETLAND

PROPERTY LINE

S3.0

S1.0

1871 FOREST AVENUE
PARCEL ID: 327A A004 001
LOT AREA: 3.43 ACRES

S2.1

S2.2

POI #2: FOREST AVE – WEST

POI #1: FOREST AVE – EAST

EX. CATCH BASIN

EX. CATCH BASIN

FOREST AVE
66' WIDE PUBLIC ROW

RIVERTON DRIVE

30 0 30 60

SCALE: 1:30

PERMIT LEVEL
NOT ISSUED FOR
CONSTRUCTION

ISSUED FOR	BY	DATE
SITE PLAN APPLICATION	SJL	3/09/2026

DRAWING NAME: K.3 – PRE DEVELOPMENT WATERSHED MAP

PROJECT NAME: 1871 FOREST AVE, PORTLAND, MAINE

PARCEL ID: 327A A004001

CLIENT: AVESTA HOUSING
307 CUMBERLAND AVE, PORTLAND, MAINE 04101

ACORN ENGINEERING, INC.
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FILE: 1297_AE_WATERSHED MAPS
DATE: AS NOTED
JN: 1297
SCALE: AS NOTED
DESIGNED BY: DMH
DRAWN BY: MJVA
CHECKED BY: SJL

STATE OF MAINE
SAMUEL J. LEBEL
No. 16505
REGISTERED PROFESSIONAL ENGINEER
03/09/26

DRAWING NO.
K.3

SUBCATCHMENT LEGEND:

S1.0 — SUBCATCHMENT NUMBER

SUBCATCHMENT EXTENTS

POI #1 — POINT OF INTEREST (POI)

1 — POND

FLOW PATH ARROWS

S4.1

POI #4: HANNAFORD DETENTION POND

HSG: UNKNOWN, ASSUMED B Gp

HSG: A WmB

S5

S4.2

POI #5

P3

POI #3: WETLAND

S3.0

S1.1B

S1.2

S1.3

S1.1A

1871 FOREST AVENUE
PARCEL ID: 327A A004 001
LOT AREA: 3.43 ACRES

S2.1

POI #2: FOREST AVE – WEST

EX. CATCH BASIN

S2.2

S1.4

POI #1: FOREST AVE – EAST

EX. CATCH BASIN

FOREST AVE
66' WIDE PUBLIC ROW

RIVERTON DRIVE

30 0 30 60

SCALE: 1:30

PERMIT LEVEL
NOT ISSUED FOR
CONSTRUCTION

ISSUED FOR	BY DATE
SITE PLAN APPLICATION	SJL 2/27/2026
COMMENT RESPONSE	SJL 5/21/2026

DRAWING NAME: K.4 – POST DEVELOPMENT WATERSHED MAP

PROJECT NAME: 1871 FOREST AVE, PORTLAND, MAINE

PARCEL ID: 327A A004001

CLIENT: AVESTA HOUSING
307 CUMBERLAND AVE, PORTLAND, MAINE 04101

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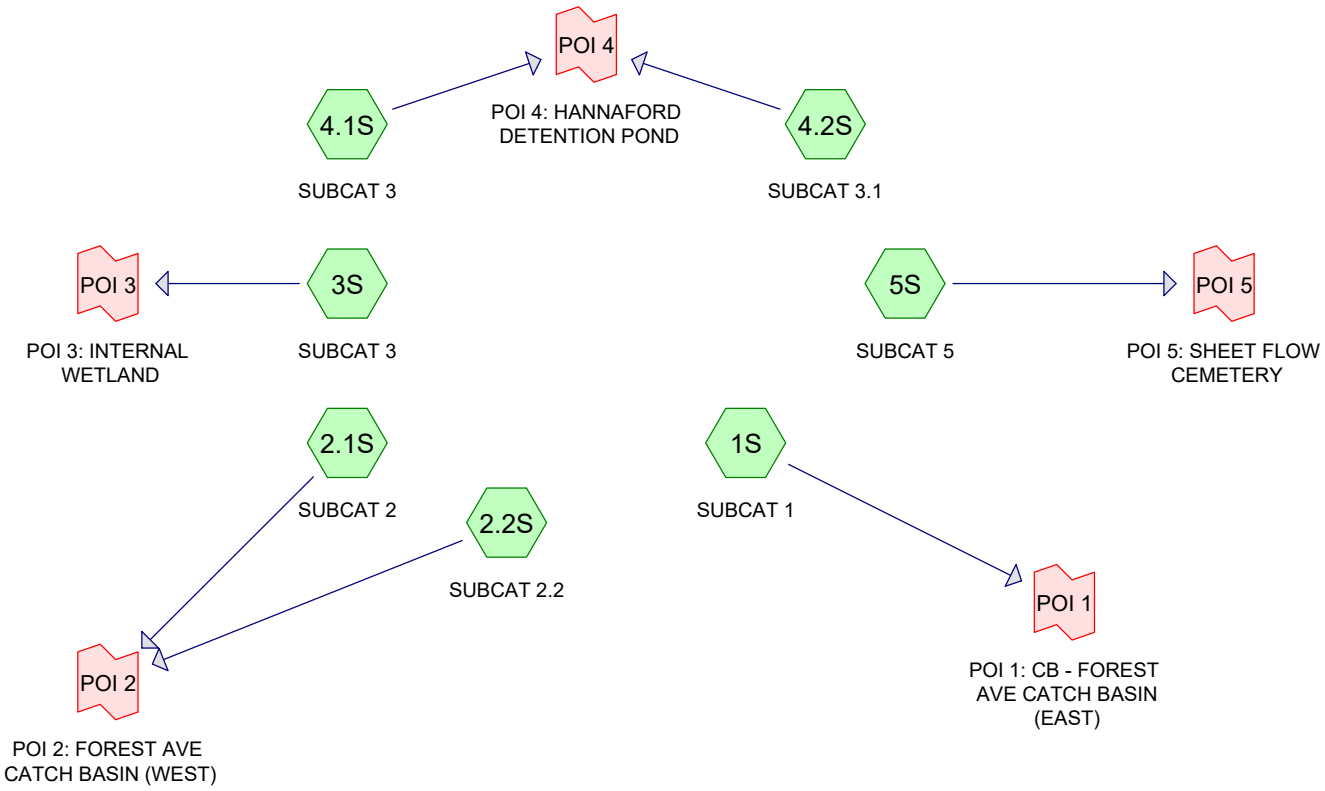
FILE: 1297_AE_WATERSHED MAPS
DATE: AS NOTED
JN: 1297
SCALE: AS NOTED
DESIGNED BY: DNM
DRAWN BY: MJVA
CHECKED BY: SJL

STATE OF MAINE
SAMUEL J. LEBEL
No. 16505
LICENSED PROFESSIONAL ENGINEER
05/21/26

DRAWING NO.
K.4



Subcat Reach Pond Link

Routing Diagram for 1297_AE_PRE
Prepared by Acorn Engineering, Printed 5/18/2026
HydroCAD® 10.20-8a s/n 00620 © 2025 HydroCAD Software Solutions LLC

Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	1 YR	Type III 24-hr		Default	24.00	1	2.60	2
2	2 YR	Type III 24-hr		Default	24.00	1	3.10	2
3	10 YR	Type III 24-hr		Default	24.00	1	4.60	2
4	25 YR	Type III 24-hr		Default	24.00	1	5.80	2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.335	49	50-75% Grass cover, Fair, HSG A (1S, 2.1S, 2.2S)
0.013	96	Gravel surface, Path, Assumed HSG B (4.1S)
0.011	96	Gravel surface, Path, HSG A (4.1S)
0.002	96	Gravel surface,Path, Assumed HSG B (4.1S)
0.760	98	Paved parking, HSG A (1S, 2.1S, 3S, 4.1S, 5S)
0.068	98	Paved parking, HSG B (1S)
0.000	98	Unconnected pavement, HSG B (1S)
0.121	98	Unconnected roofs, HSG A (1S, 2.1S)
0.695	36	Woods, Fair, HSG A (2.1S, 3S, 4.1S, 4.2S)
0.517	60	Woods, Fair, HSG B (1S, 2.1S, 3S, 4.1S, 4.2S, 5S)
0.799	43	Woods/grass comb., Fair, HSG A (1S, 5S)
3.321	**61**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
2.722	HSG A	1S, 2.1S, 2.2S, 3S, 4.1S, 4.2S, 5S
0.599	HSG B	1S, 2.1S, 3S, 4.1S, 4.2S, 5S
0.000	HSG C	
0.000	HSG D	
0.000	Other	
3.321		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.335	0.000	0.000	0.000	0.000	0.335	50-75% Grass cover, Fair	1S, 2.1S, 2.2S
0.011	0.000	0.000	0.000	0.000	0.011	Gravel surface, Path	4.1S
0.000	0.013	0.000	0.000	0.000	0.013	Gravel surface, Path, Assumed	4.1S
0.000	0.002	0.000	0.000	0.000	0.002	Gravel surface,Path, Assumed	4.1S
0.760	0.068	0.000	0.000	0.000	0.828	Paved parking	1S, 2.1S, 3S, 4.1S, 5S
0.000	0.000	0.000	0.000	0.000	0.000	Unconnected pavement	1S
0.121	0.000	0.000	0.000	0.000	0.121	Unconnected roofs	1S, 2.1S
0.695	0.517	0.000	0.000	0.000	1.212	Woods, Fair	1S, 2.1S, 3S, 4.1S, 4.2S, 5S
0.799	0.000	0.000	0.000	0.000	0.799	Woods/grass comb., Fair	1S, 5S

Ground Covers (all nodes) (continued)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
2.722	**0.599**	**0.000**	**0.000**	**0.000**	**3.321**	**TOTAL AREA**	

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

Subcatchment1S: SUBCAT1 Runoff Area=60,488 sf 47.80% Impervious Runoff Depth=0.50"
Tc=6.0 min CN=70 Runoff=0.65 cfs 0.058 af

Subcatchment2.1S: SUBCAT2 Runoff Area=22,949 sf 44.61% Impervious Runoff Depth=0.54"
Flow Length=301' Tc=9.9 min CN=71 Runoff=0.24 cfs 0.024 af

Subcatchment2.2S: SUBCAT2.2 Runoff Area=2,836 sf 0.00% Impervious Runoff Depth=0.02"
Flow Length=363' Tc=6.0 min CN=49 Runoff=0.00 cfs 0.000 af

Subcatchment3S: SUBCAT3 Runoff Area=21,101 sf 4.29% Impervious Runoff Depth=0.00"
Flow Length=229' Tc=10.5 min CN=39 Runoff=0.00 cfs 0.000 af

Subcatchment4.1S: SUBCAT3 Runoff Area=16,543 sf 0.01% Impervious Runoff Depth=0.02"
Flow Length=301' Slope=0.0864 '/' Tc=16.5 min CN=49 Runoff=0.00 cfs 0.001 af

Subcatchment4.2S: SUBCAT3.1 Runoff Area=7,064 sf 0.00% Impervious Runoff Depth=0.18"
Flow Length=92' Slope=0.0491 '/' Tc=14.0 min CN=59 Runoff=0.01 cfs 0.002 af

Subcatchment5S: SUBCAT5 Runoff Area=13,698 sf 9.48% Impervious Runoff Depth=0.10"
Flow Length=108' Slope=0.0255 '/' Tc=19.6 min CN=55 Runoff=0.00 cfs 0.003 af

Link POI 1: POI 1: CB - FOREST AVE CATCH BASIN (EAST) Inflow=0.65 cfs 0.058 af
Primary=0.65 cfs 0.058 af

Link POI 2: POI 2: FOREST AVE CATCH BASIN (WEST) Inflow=0.24 cfs 0.024 af
Primary=0.24 cfs 0.024 af

Link POI 3: POI 3: INTERNAL WETLAND Inflow=0.00 cfs 0.000 af
Primary=0.00 cfs 0.000 af

Link POI 4: POI 4: HANNAFORD DETENTION POND Inflow=0.01 cfs 0.003 af
Primary=0.01 cfs 0.003 af

Link POI 5: POI 5: SHEET FLOW CEMETERY Inflow=0.00 cfs 0.003 af
Primary=0.00 cfs 0.003 af

Total Runoff Area = 3.321 ac Runoff Volume = 0.088 af Average Runoff Depth = 0.32"
71.42% Pervious = 2.372 ac 28.58% Impervious = 0.949 ac

Summary for Subcatchment 1S: SUBCAT 1

Per TR-55, min TC is 6 mins

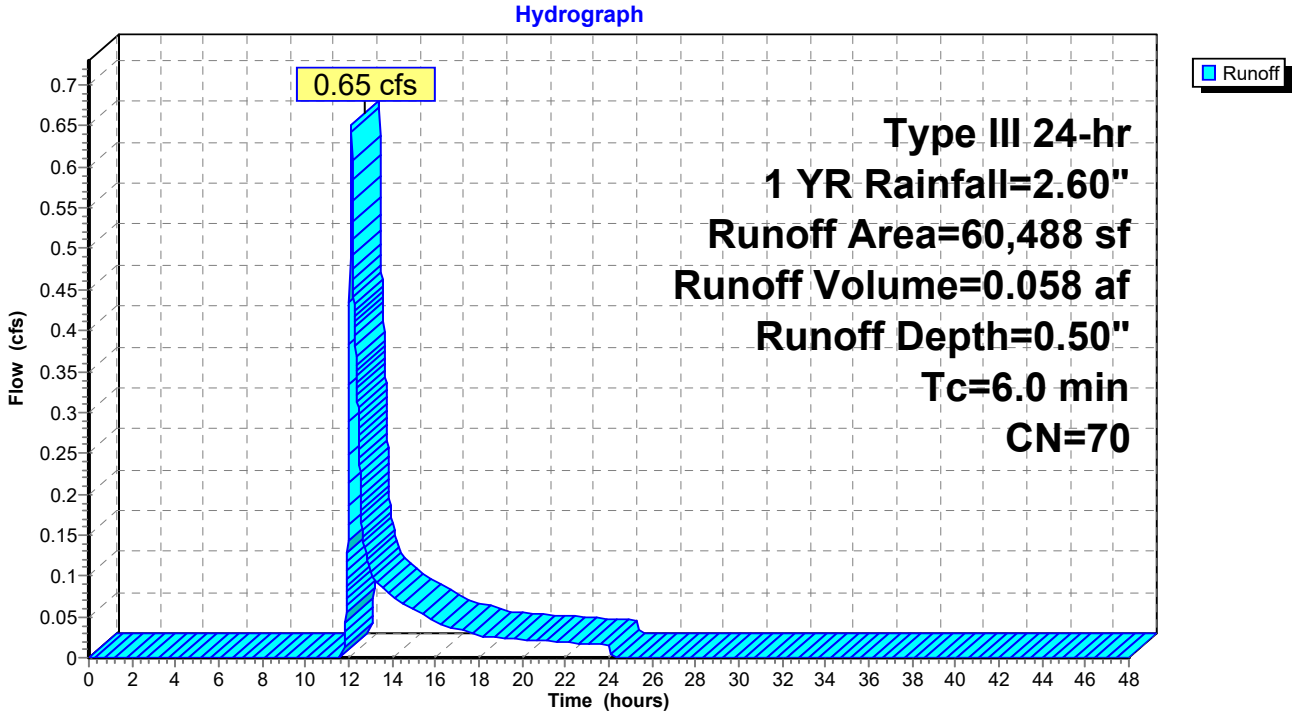
Runoff = 0.65 cfs @ 12.11 hrs, Volume= 0.058 af, Depth= 0.50"
Routed to Link POI 1 : POI 1: CB - FOREST AVE CATCH BASIN (EAST)

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 1 YR Rainfall=2.60"

Area (sf)	CN	Description
2,950	98	Paved parking, HSG B
2,885	60	Woods, Fair, HSG B
489	49	50-75% Grass cover, Fair, HSG A
2,030	98	Unconnected roofs, HSG A
23,914	98	Paved parking, HSG A
18,800	43	Woods/grass comb., Fair, HSG A
9,402	43	Woods/grass comb., Fair, HSG A
18	98	Unconnected pavement, HSG B
60,488	70	Weighted Average
31,576		52.20% Pervious Area
28,912		47.80% Impervious Area
2,048		7.08% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, tr-55 min**

Subcatchment 1S: SUBCAT 1



Summary for Subcatchment 2.1S: SUBCAT 2

Per TR-55, min TC is 6 mins

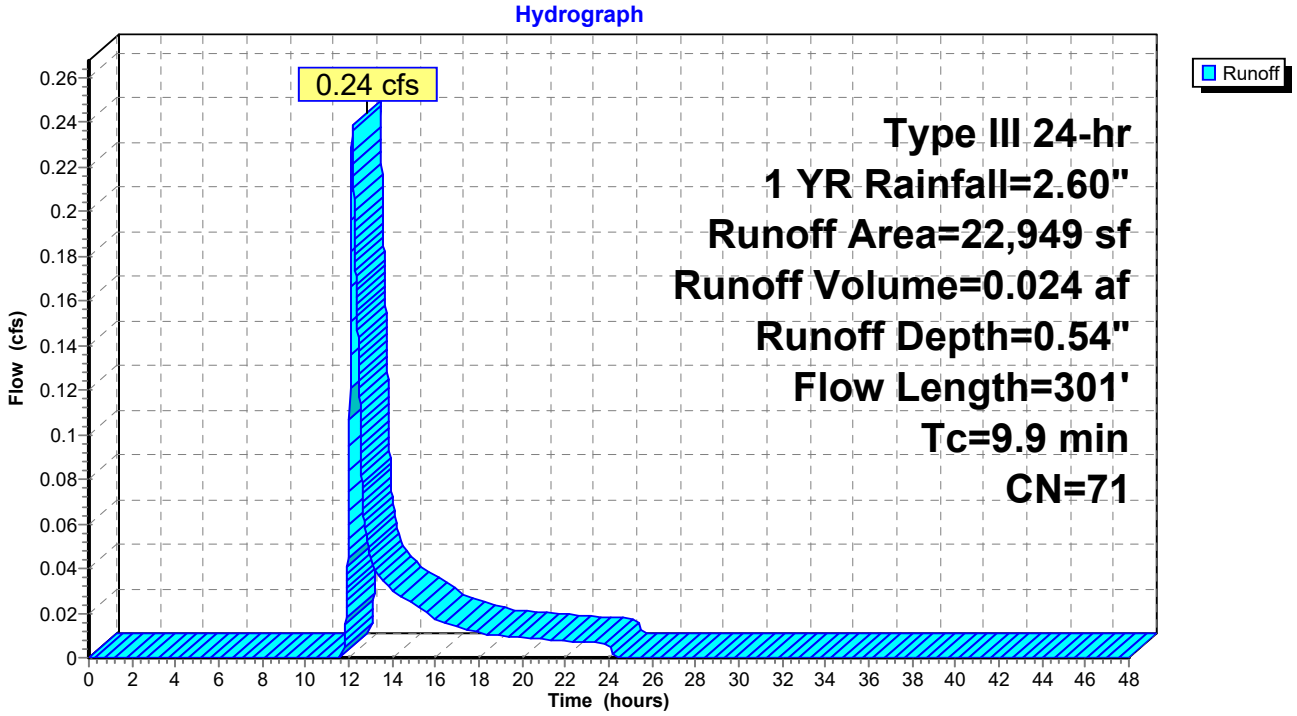
Runoff = 0.24 cfs @ 12.16 hrs, Volume= 0.024 af, Depth= 0.54"
Routed to Link POI 2 : POI 2: FOREST AVE CATCH BASIN (WEST)

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 1 YR Rainfall=2.60"

Area (sf)	CN	Description
1,026	60	Woods, Fair, HSG B
403	36	Woods, Fair, HSG A
7,007	98	Paved parking, HSG A
6	36	Woods, Fair, HSG A
3,230	98	Unconnected roofs, HSG A
11,277	49	50-75% Grass cover, Fair, HSG A
22,949	71	Weighted Average
12,712		55.39% Pervious Area
10,237		44.61% Impervious Area
3,230		31.55% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.2	72	0.1141	0.15		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.23"
0.1	43	0.1575	8.06		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.1	37	0.0536	4.70		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
1.4	130	0.0461	1.50		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.1	19	0.0514	4.60		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
9.9	301	Total			

Subcatchment 2.1S: SUBCAT 2



Summary for Subcatchment 2.2S: SUBCAT 2.2

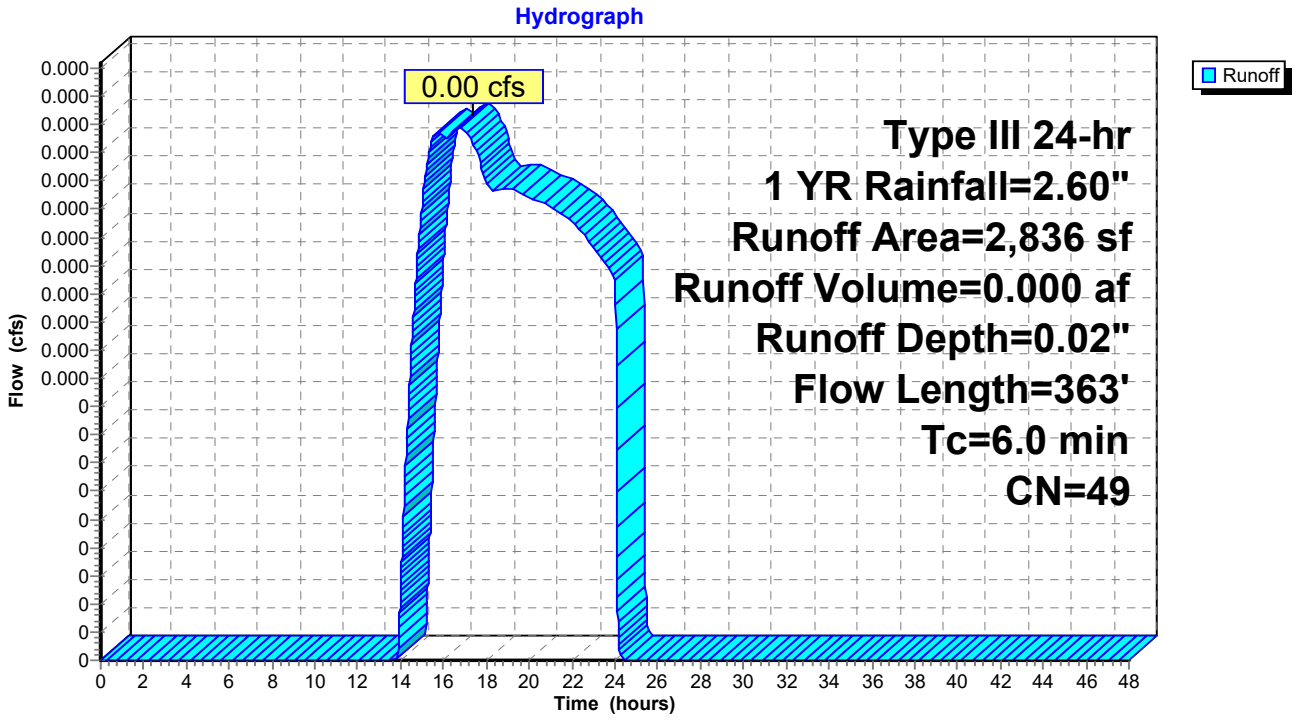
Runoff = 0.00 cfs @ 16.74 hrs, Volume= 0.000 af, Depth= 0.02"
Routed to Link POI 2 : POI 2: FOREST AVE CATCH BASIN (WEST)

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 1 YR Rainfall=2.60"

Area (sf)	CN	Description
2,836	49	50-75% Grass cover, Fair, HSG A
2,836		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.6	76	0.1378	0.35		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.23"
0.3	24	0.0326	1.26		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.23"
1.3	263	0.0266	3.31		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
5.2	363	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 2.2S: SUBCAT 2.2



Summary for Subcatchment 3S: SUBCAT 3

[45] Hint: Runoff=Zero

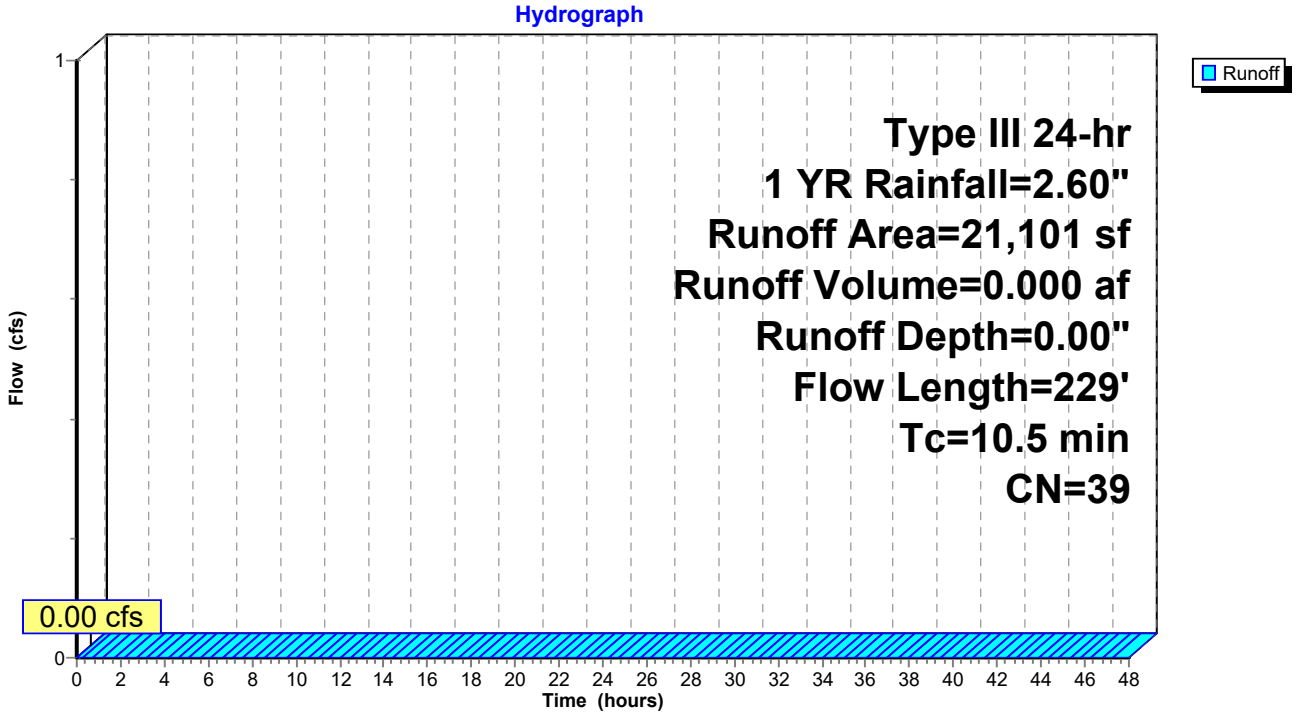
Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"
Routed to Link POI 3 : POI 3: INTERNAL WETLAND

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 1 YR Rainfall=2.60"

Area (sf)	CN	Description
9	60	Woods, Fair, HSG B
489	36	Woods, Fair, HSG A
905	98	Paved parking, HSG A
19,698	36	Woods, Fair, HSG A
21,101	39	Weighted Average
20,196		95.71% Pervious Area
905		4.29% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	100	0.1075	0.23		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.23"
2.8	98	0.0535	0.58		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
0.5	31	0.1689	1.03		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
10.5	229	Total			

Subcatchment 3S: SUBCAT 3



Summary for Subcatchment 4.1S: SUBCAT 3

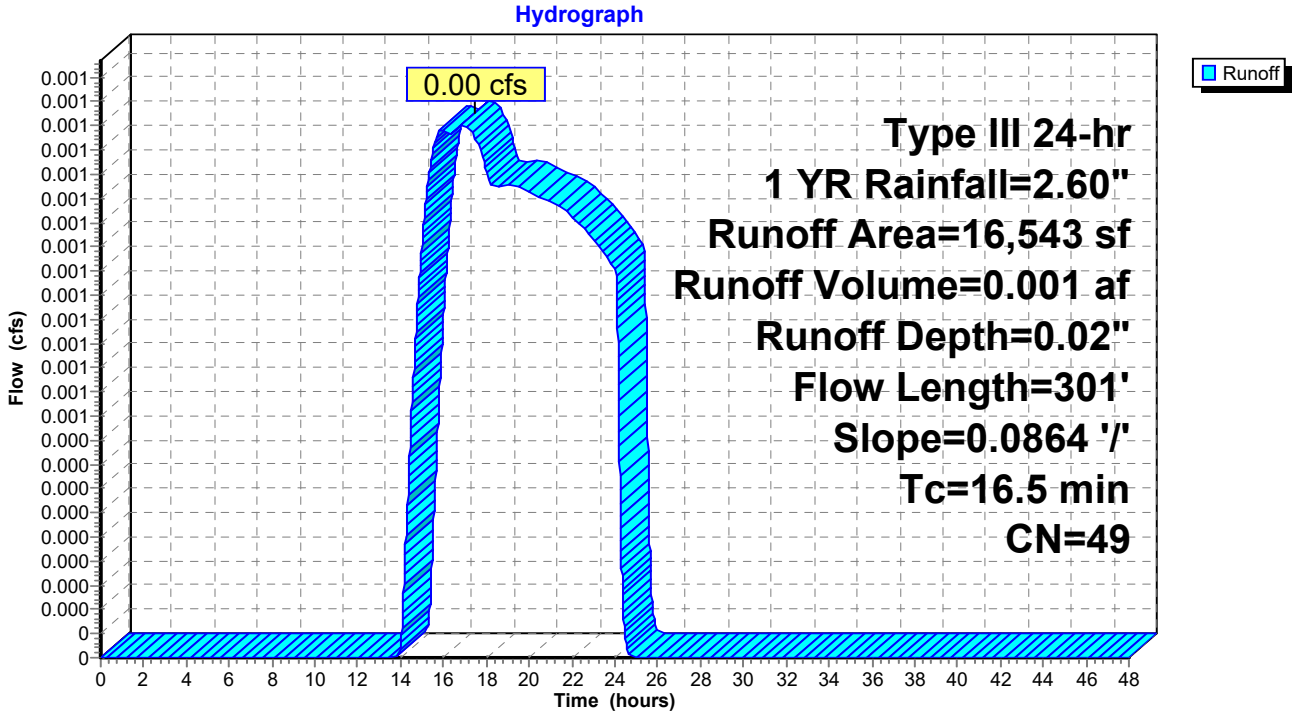
Runoff = 0.00 cfs @ 16.85 hrs, Volume= 0.001 af, Depth= 0.02"
Routed to Link POI 4 : POI 4: HANNAFORD DETENTION POND

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 1 YR Rainfall=2.60"

	Area (sf)	CN	Description
	2,925	36	Woods, Fair, HSG A
*	431	96	Gravel surface, Path, HSG A
	2	98	Paved parking, HSG A
	2,935	36	Woods, Fair, HSG A
	3,404	36	Woods, Fair, HSG A
*	42	96	Gravel surface, Path, HSG A
	0	36	Woods, Fair, HSG A
	121	60	Woods, Fair, HSG B
*	77	96	Gravel surface,Path, Assumed HSG B
	2,886	60	Woods, Fair, HSG B
*	559	96	Gravel surface, Path, Assumed HSG B
	1,816	60	Woods, Fair, HSG B
	1,345	60	Woods, Fair, HSG B
	16,543	49	Weighted Average
	16,541		99.99% Pervious Area
	2		0.01% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.9	100	0.0864	0.14		**Sheet Flow, 100 ft** Woods: Light underbrush n= 0.400 P2= 3.23"
4.6	201	0.0864	0.73		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
16.5	301	Total			

Subcatchment 4.1S: SUBCAT 3



Summary for Subcatchment 4.2S: SUBCAT 3.1

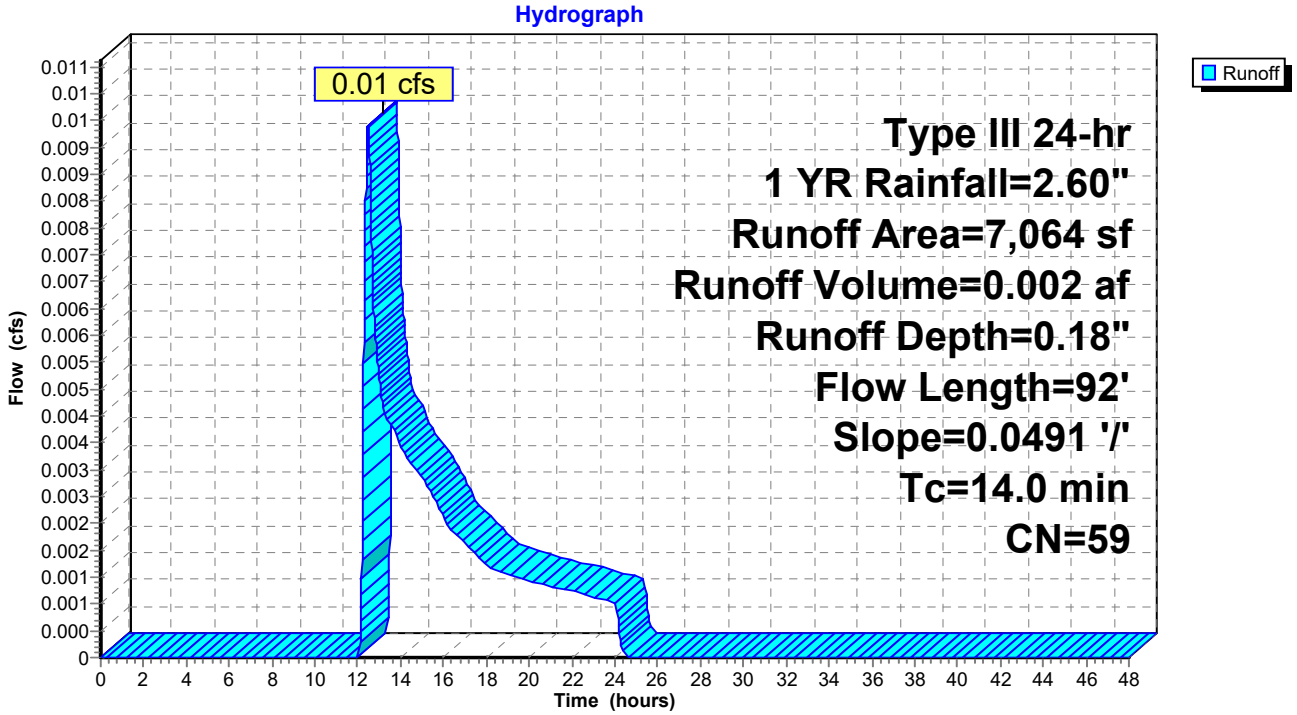
Runoff = 0.01 cfs @ 12.49 hrs, Volume= 0.002 af, Depth= 0.18"
Routed to Link POI 4 : POI 4: HANNAFORD DETENTION POND

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 1 YR Rainfall=2.60"

Area (sf)	CN	Description
6,630	60	Woods, Fair, HSG B
434	36	Woods, Fair, HSG A
7,064	59	Weighted Average
7,064		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.0	92	0.0491	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.23"

Subcatchment 4.2S: SUBCAT 3.1



Summary for Subcatchment 5S: SUBCAT 5

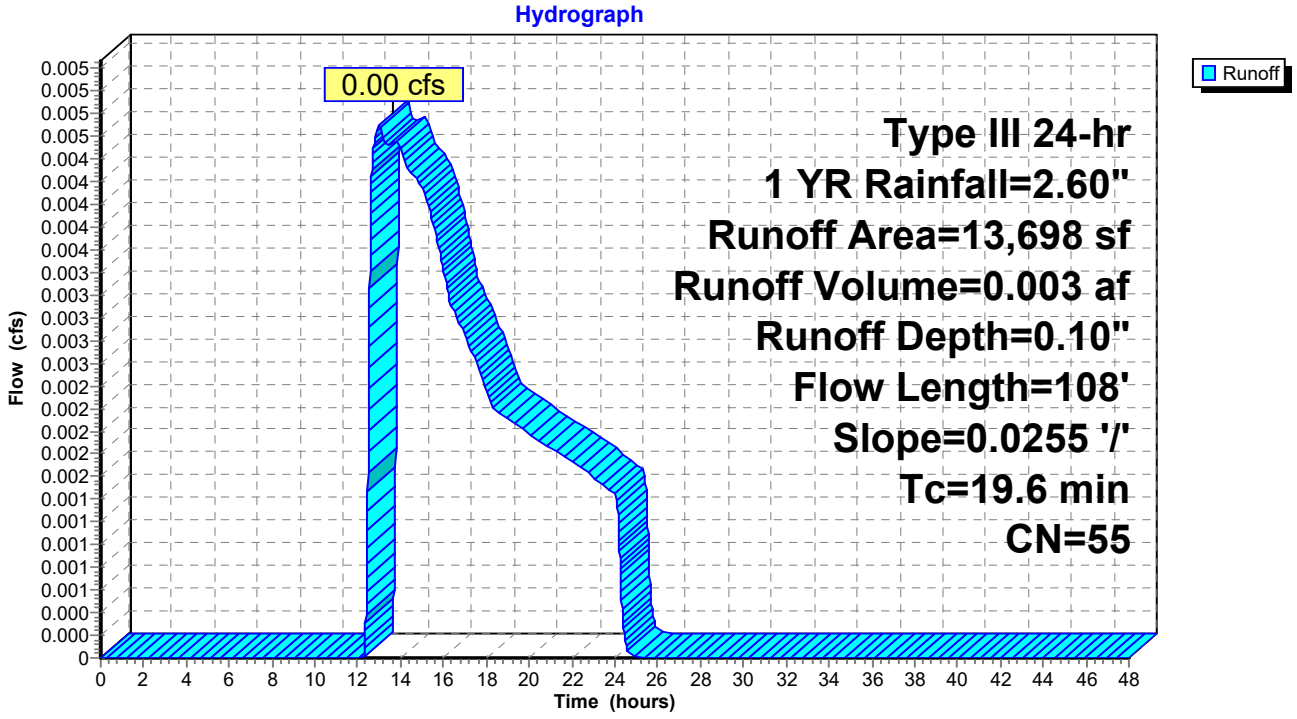
Runoff = 0.00 cfs @ 13.00 hrs, Volume= 0.003 af, Depth= 0.10"
Routed to Link POI 5 : POI 5: SHEET FLOW CEMETERY

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 1 YR Rainfall=2.60"

Area (sf)	CN	Description
5,782	60	Woods, Fair, HSG B
6,618	43	Woods/grass comb., Fair, HSG A
1,298	98	Paved parking, HSG A
13,698	55	Weighted Average
12,400		90.52% Pervious Area
1,298		9.48% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.4	100	0.0255	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.23"
0.2	8	0.0255	0.80		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
19.6	108	Total			

Subcatchment 5S: SUBCAT 5

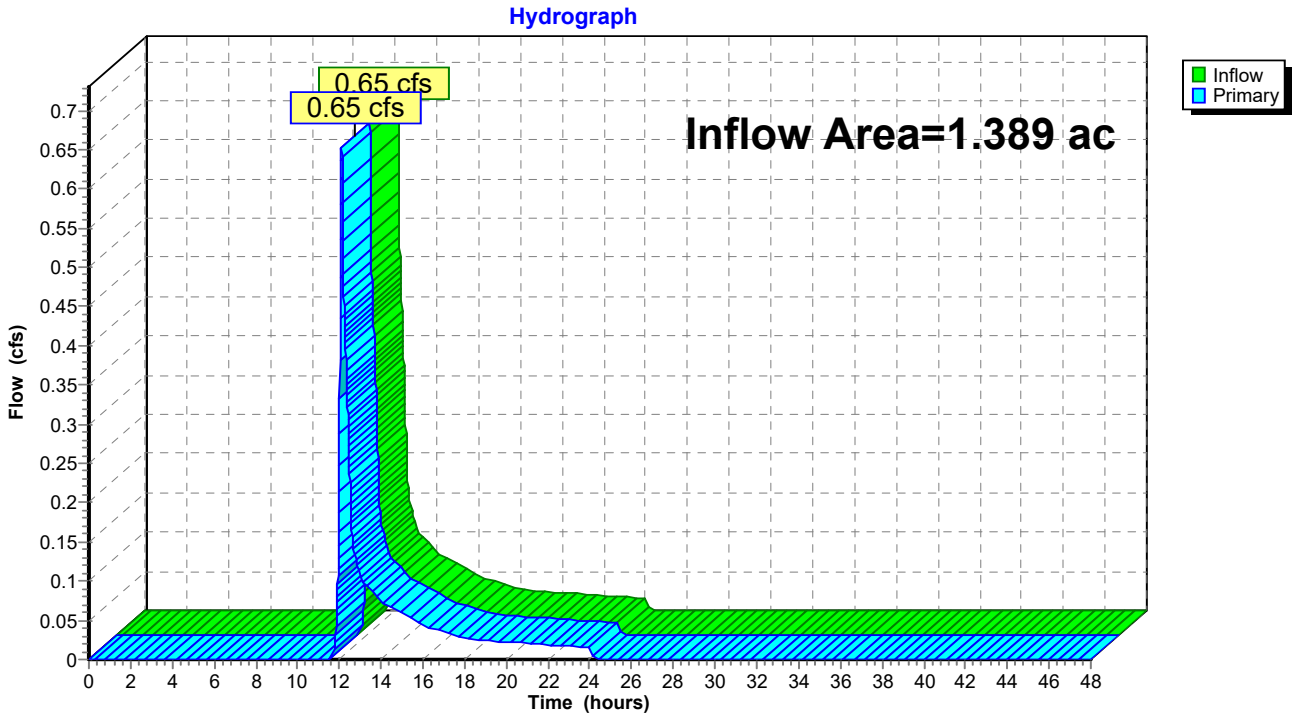


Summary for Link POI 1: POI 1: CB - FOREST AVE CATCH BASIN (EAST)

Inflow Area = 1.389 ac, 47.80% Impervious, Inflow Depth = 0.50" for 1 YR event
Inflow = 0.65 cfs @ 12.11 hrs, Volume= 0.058 af
Primary = 0.65 cfs @ 12.11 hrs, Volume= 0.058 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link POI 1: POI 1: CB - FOREST AVE CATCH BASIN (EAST)

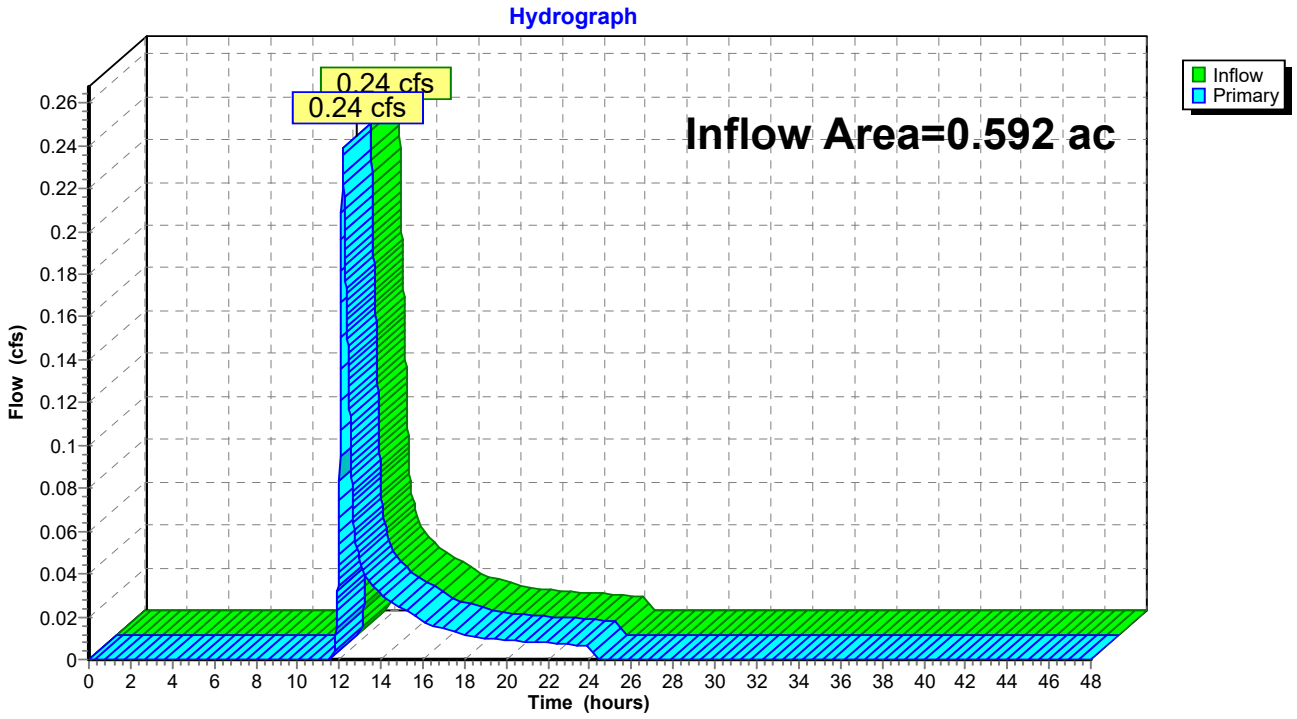


Summary for Link POI 2: POI 2: FOREST AVE CATCH BASIN (WEST)

Inflow Area = 0.592 ac, 39.70% Impervious, Inflow Depth = 0.48" for 1 YR event
Inflow = 0.24 cfs @ 12.16 hrs, Volume= 0.024 af
Primary = 0.24 cfs @ 12.16 hrs, Volume= 0.024 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link POI 2: POI 2: FOREST AVE CATCH BASIN (WEST)

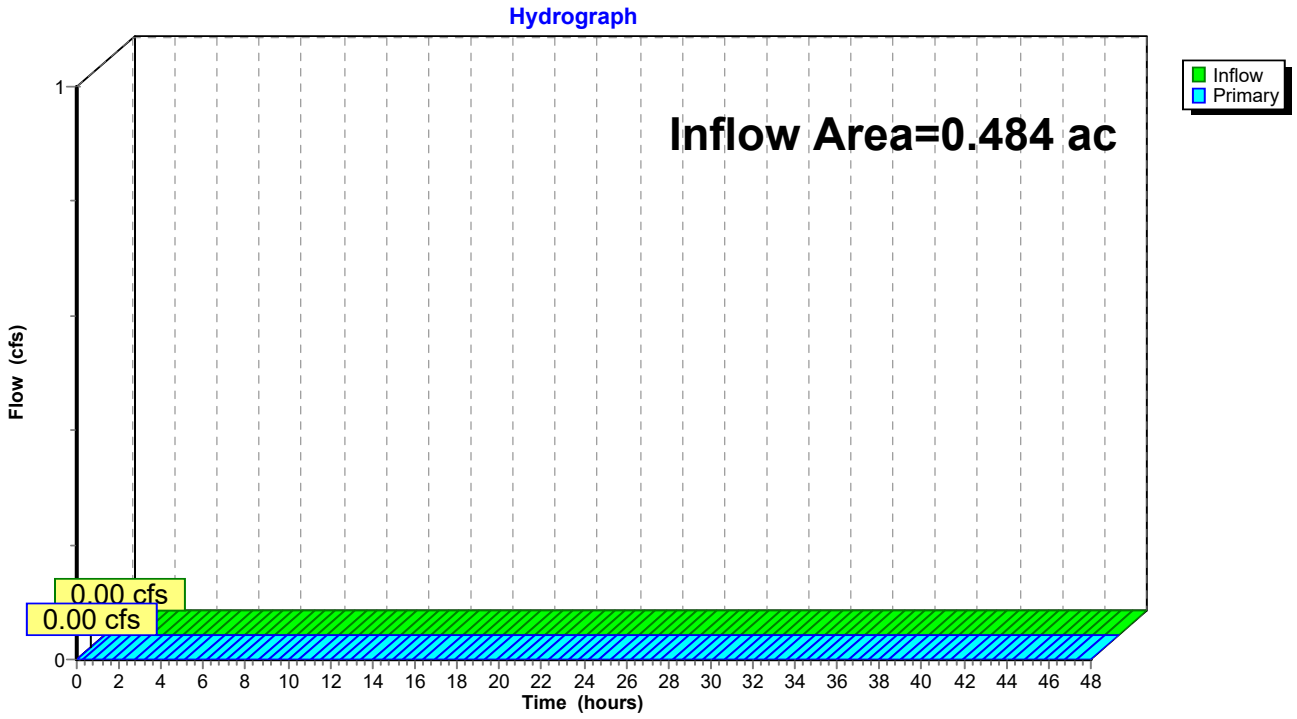


Summary for Link POI 3: POI 3: INTERNAL WETLAND

Inflow Area = 0.484 ac, 4.29% Impervious, Inflow Depth = 0.00" for 1 YR event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link POI 3: POI 3: INTERNAL WETLAND

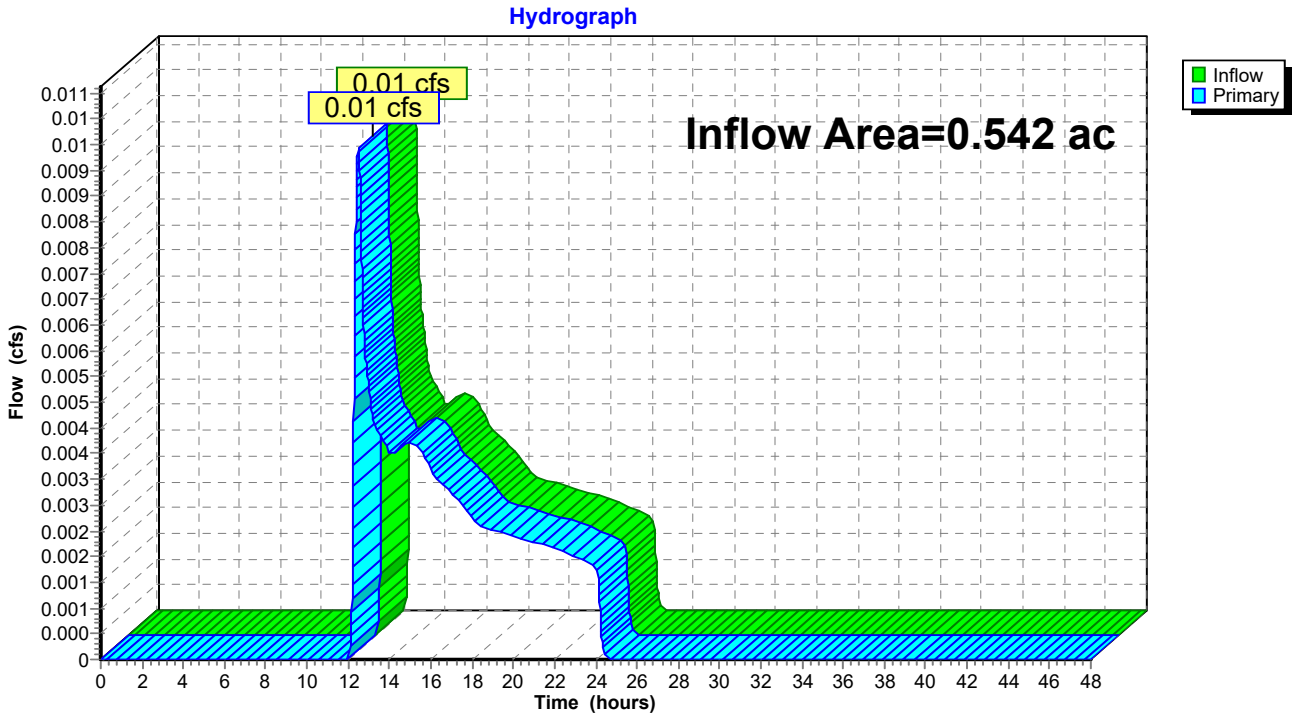


Summary for Link POI 4: POI 4: HANNAFORD DETENTION POND

Inflow Area = 0.542 ac, 0.01% Impervious, Inflow Depth = 0.07" for 1 YR event
Inflow = 0.01 cfs @ 12.49 hrs, Volume= 0.003 af
Primary = 0.01 cfs @ 12.49 hrs, Volume= 0.003 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link POI 4: POI 4: HANNAFORD DETENTION POND

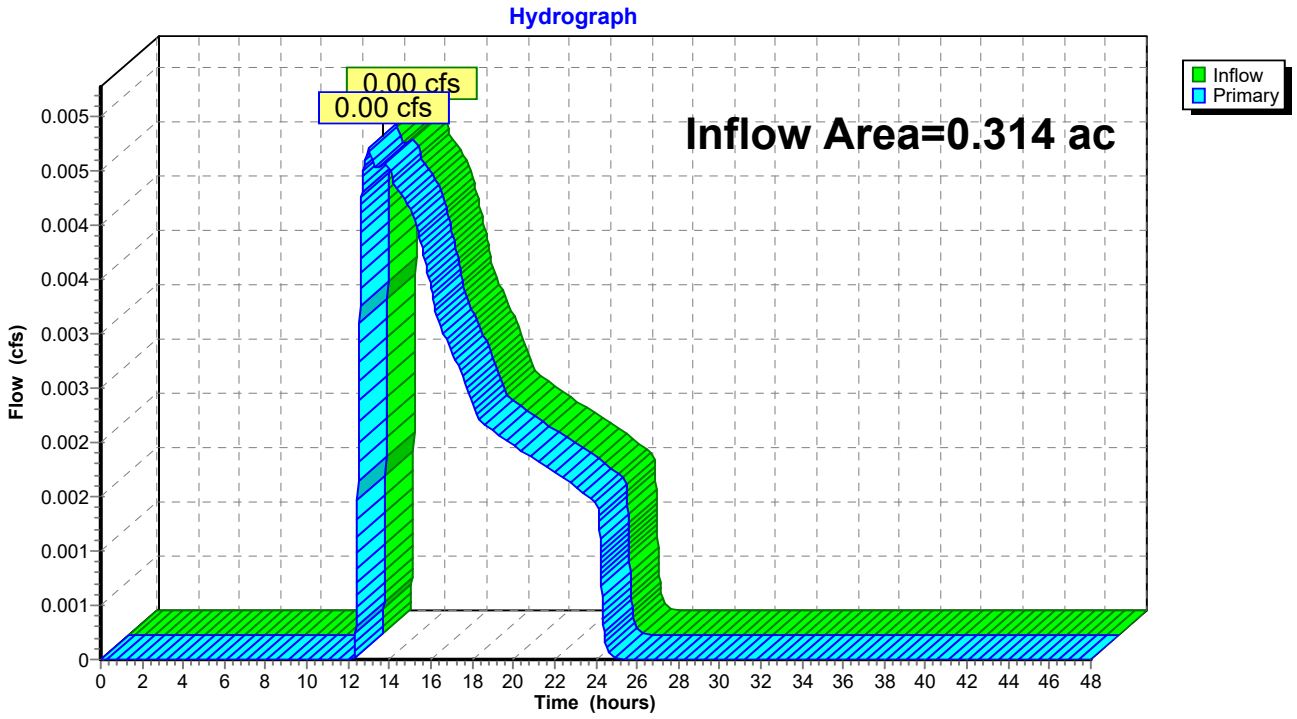


Summary for Link POI 5: POI 5: SHEET FLOW CEMETERY

Inflow Area = 0.314 ac, 9.48% Impervious, Inflow Depth = 0.10" for 1 YR event
Inflow = 0.00 cfs @ 13.00 hrs, Volume= 0.003 af
Primary = 0.00 cfs @ 13.00 hrs, Volume= 0.003 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link POI 5: POI 5: SHEET FLOW CEMETERY



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

Subcatchment1S: SUBCAT1 Runoff Area=60,488 sf 47.80% Impervious Runoff Depth=0.77"
Tc=6.0 min CN=70 Runoff=1.11 cfs 0.089 af

Subcatchment2.1S: SUBCAT2 Runoff Area=22,949 sf 44.61% Impervious Runoff Depth=0.82"
Flow Length=301' Tc=9.9 min CN=71 Runoff=0.40 cfs 0.036 af

Subcatchment2.2S: SUBCAT2.2 Runoff Area=2,836 sf 0.00% Impervious Runoff Depth=0.09"
Flow Length=363' Tc=6.0 min CN=49 Runoff=0.00 cfs 0.000 af

Subcatchment3S: SUBCAT3 Runoff Area=21,101 sf 4.29% Impervious Runoff Depth=0.00"
Flow Length=229' Tc=10.5 min CN=39 Runoff=0.00 cfs 0.000 af

Subcatchment4.1S: SUBCAT3 Runoff Area=16,543 sf 0.01% Impervious Runoff Depth=0.09"
Flow Length=301' Slope=0.0864 '/' Tc=16.5 min CN=49 Runoff=0.00 cfs 0.003 af

Subcatchment4.2S: SUBCAT3.1 Runoff Area=7,064 sf 0.00% Impervious Runoff Depth=0.34"
Flow Length=92' Slope=0.0491 '/' Tc=14.0 min CN=59 Runoff=0.03 cfs 0.005 af

Subcatchment5S: SUBCAT5 Runoff Area=13,698 sf 9.48% Impervious Runoff Depth=0.22"
Flow Length=108' Slope=0.0255 '/' Tc=19.6 min CN=55 Runoff=0.02 cfs 0.006 af

Link POI 1: POI 1: CB - FOREST AVE CATCH BASIN (EAST) Inflow=1.11 cfs 0.089 af
Primary=1.11 cfs 0.089 af

Link POI 2: POI 2: FOREST AVE CATCH BASIN (WEST) Inflow=0.40 cfs 0.036 af
Primary=0.40 cfs 0.036 af

Link POI 3: POI 3: INTERNAL WETLAND Inflow=0.00 cfs 0.000 af
Primary=0.00 cfs 0.000 af

Link POI 4: POI 4: HANNAFORD DETENTION POND Inflow=0.03 cfs 0.007 af
Primary=0.03 cfs 0.007 af

Link POI 5: POI 5: SHEET FLOW CEMETERY Inflow=0.02 cfs 0.006 af
Primary=0.02 cfs 0.006 af

Total Runoff Area = 3.321 ac Runoff Volume = 0.139 af Average Runoff Depth = 0.50"
71.42% Pervious = 2.372 ac 28.58% Impervious = 0.949 ac

Summary for Subcatchment 1S: SUBCAT 1

Per TR-55, min TC is 6 mins

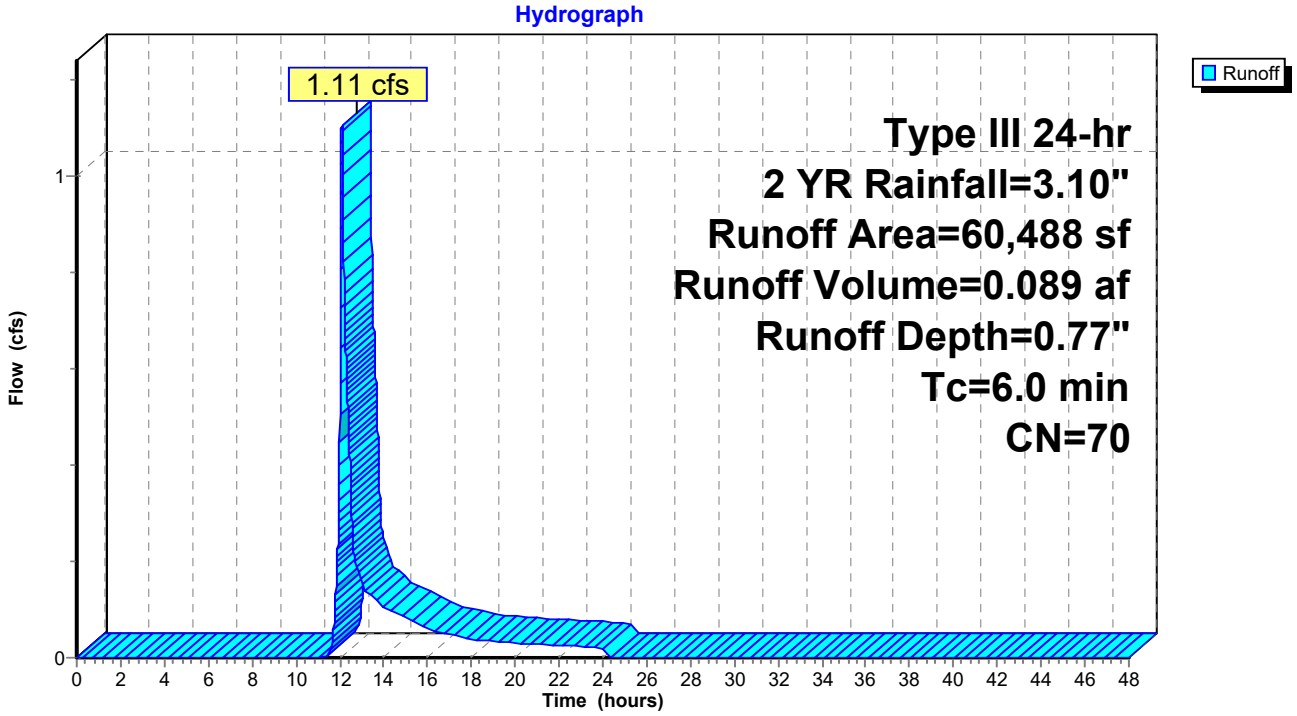
Runoff = 1.11 cfs @ 12.10 hrs, Volume= 0.089 af, Depth= 0.77"
Routed to Link POI 1 : POI 1: CB - FOREST AVE CATCH BASIN (EAST)

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 2 YR Rainfall=3.10"

Area (sf)	CN	Description
2,950	98	Paved parking, HSG B
2,885	60	Woods, Fair, HSG B
489	49	50-75% Grass cover, Fair, HSG A
2,030	98	Unconnected roofs, HSG A
23,914	98	Paved parking, HSG A
18,800	43	Woods/grass comb., Fair, HSG A
9,402	43	Woods/grass comb., Fair, HSG A
18	98	Unconnected pavement, HSG B
60,488	70	Weighted Average
31,576		52.20% Pervious Area
28,912		47.80% Impervious Area
2,048		7.08% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, tr-55 min**

Subcatchment 1S: SUBCAT 1



Summary for Subcatchment 2.1S: SUBCAT 2

Per TR-55, min TC is 6 mins

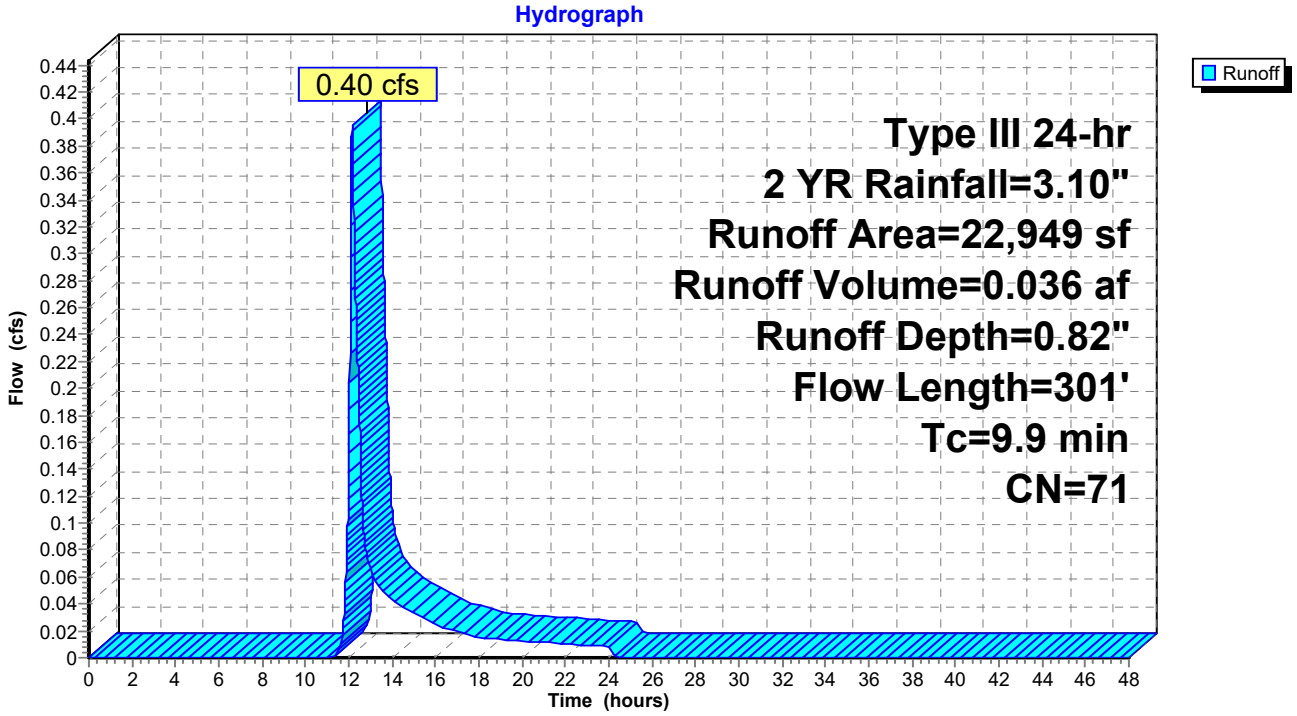
Runoff = 0.40 cfs @ 12.15 hrs, Volume= 0.036 af, Depth= 0.82"
Routed to Link POI 2 : POI 2: FOREST AVE CATCH BASIN (WEST)

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 2 YR Rainfall=3.10"

Area (sf)	CN	Description
1,026	60	Woods, Fair, HSG B
403	36	Woods, Fair, HSG A
7,007	98	Paved parking, HSG A
6	36	Woods, Fair, HSG A
3,230	98	Unconnected roofs, HSG A
11,277	49	50-75% Grass cover, Fair, HSG A
22,949	71	Weighted Average
12,712		55.39% Pervious Area
10,237		44.61% Impervious Area
3,230		31.55% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.2	72	0.1141	0.15		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.23"
0.1	43	0.1575	8.06		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.1	37	0.0536	4.70		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
1.4	130	0.0461	1.50		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.1	19	0.0514	4.60		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
9.9	301	Total			

Subcatchment 2.1S: SUBCAT 2



Summary for Subcatchment 2.2S: SUBCAT 2.2

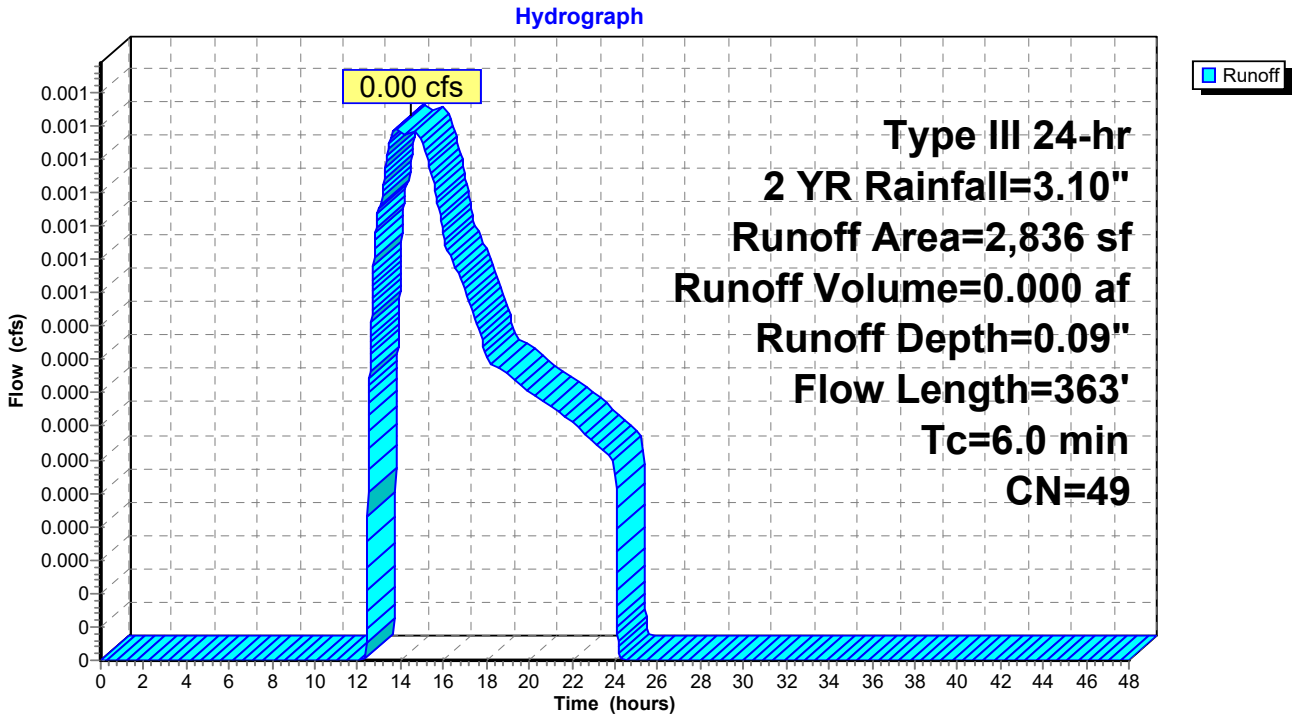
Runoff = 0.00 cfs @ 13.78 hrs, Volume= 0.000 af, Depth= 0.09"
Routed to Link POI 2 : POI 2: FOREST AVE CATCH BASIN (WEST)

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 2 YR Rainfall=3.10"

Area (sf)	CN	Description
2,836	49	50-75% Grass cover, Fair, HSG A
2,836		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.6	76	0.1378	0.35		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.23"
0.3	24	0.0326	1.26		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.23"
1.3	263	0.0266	3.31		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
5.2	363	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 2.2S: SUBCAT 2.2



Summary for Subcatchment 3S: SUBCAT 3

[45] Hint: Runoff=Zero

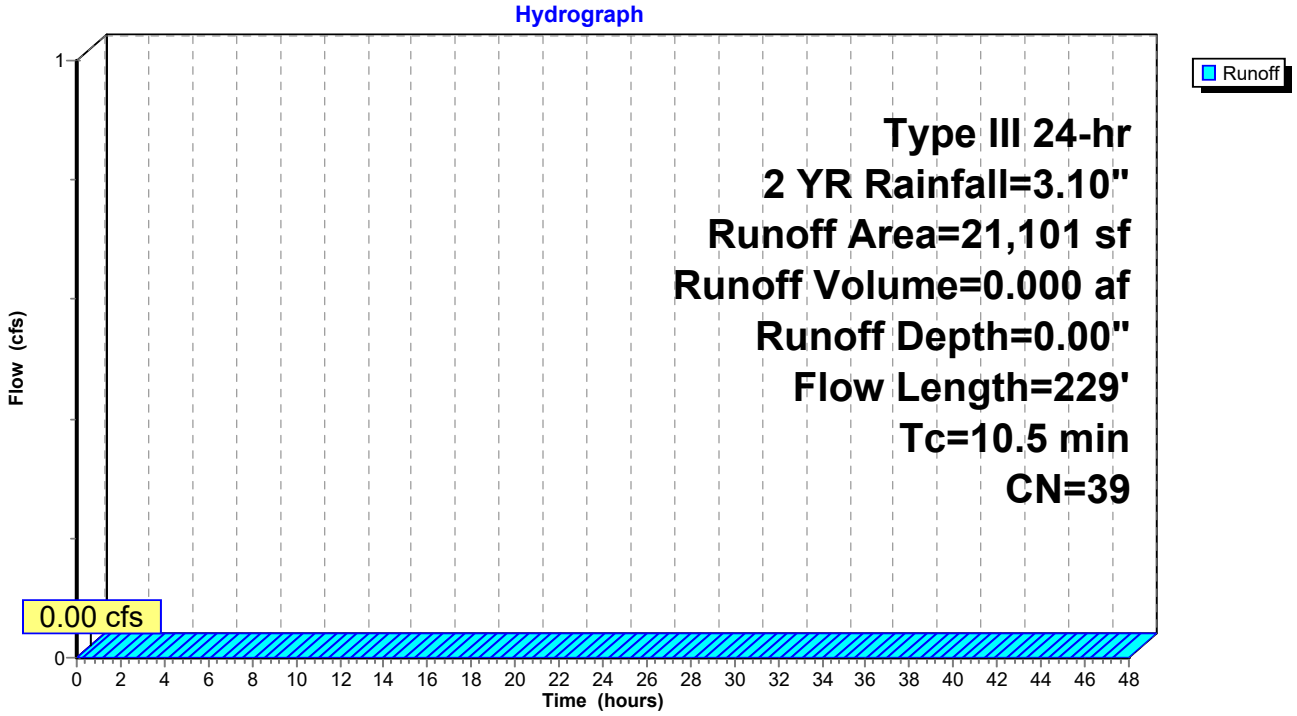
Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"
Routed to Link POI 3 : POI 3: INTERNAL WETLAND

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 2 YR Rainfall=3.10"

Area (sf)	CN	Description
9	60	Woods, Fair, HSG B
489	36	Woods, Fair, HSG A
905	98	Paved parking, HSG A
19,698	36	Woods, Fair, HSG A
21,101	39	Weighted Average
20,196		95.71% Pervious Area
905		4.29% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	100	0.1075	0.23		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.23"
2.8	98	0.0535	0.58		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
0.5	31	0.1689	1.03		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
10.5	229	Total			

Subcatchment 3S: SUBCAT 3



Summary for Subcatchment 4.1S: SUBCAT 3

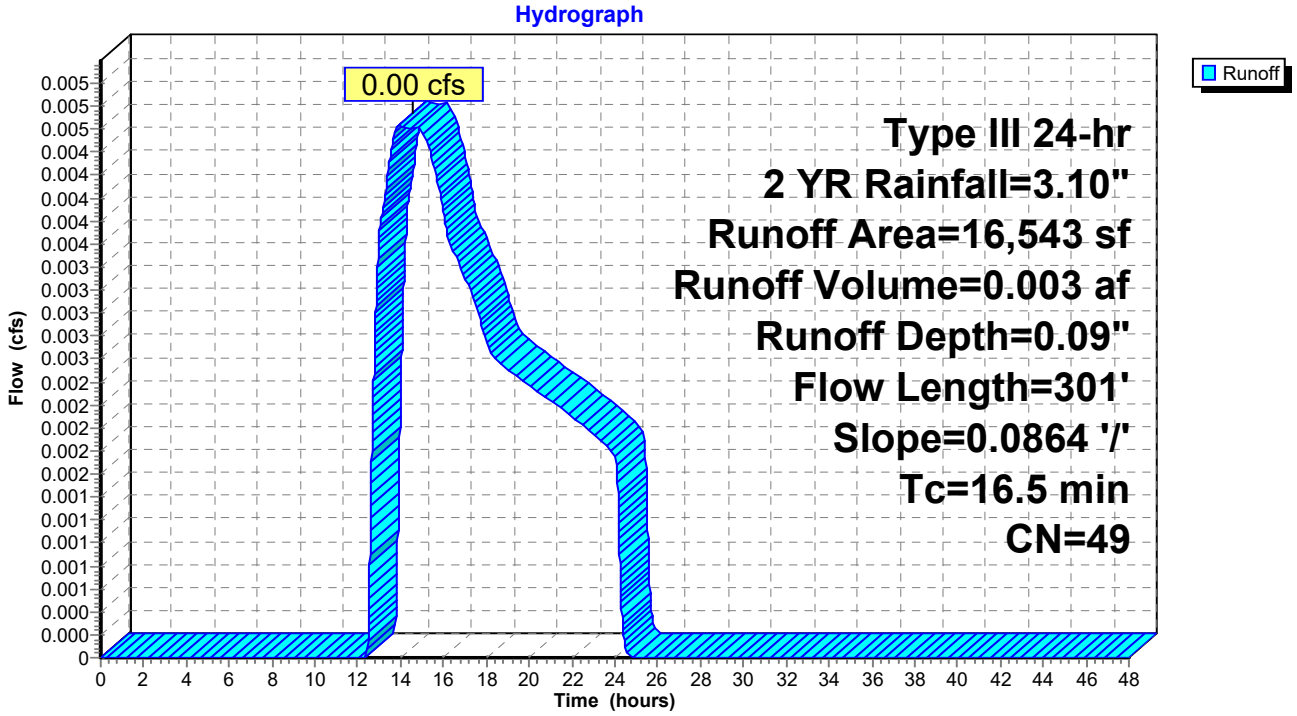
Runoff = 0.00 cfs @ 13.95 hrs, Volume= 0.003 af, Depth= 0.09"
Routed to Link POI 4 : POI 4: HANNAFORD DETENTION POND

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 2 YR Rainfall=3.10"

	Area (sf)	CN	Description
	2,925	36	Woods, Fair, HSG A
*	431	96	Gravel surface, Path, HSG A
	2	98	Paved parking, HSG A
	2,935	36	Woods, Fair, HSG A
	3,404	36	Woods, Fair, HSG A
*	42	96	Gravel surface, Path, HSG A
	0	36	Woods, Fair, HSG A
	121	60	Woods, Fair, HSG B
*	77	96	Gravel surface,Path, Assumed HSG B
	2,886	60	Woods, Fair, HSG B
*	559	96	Gravel surface, Path, Assumed HSG B
	1,816	60	Woods, Fair, HSG B
	1,345	60	Woods, Fair, HSG B
	16,543	49	Weighted Average
	16,541		99.99% Pervious Area
	2		0.01% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.9	100	0.0864	0.14		**Sheet Flow, 100 ft** Woods: Light underbrush n= 0.400 P2= 3.23"
4.6	201	0.0864	0.73		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
16.5	301	Total			

Subcatchment 4.1S: SUBCAT 3



Summary for Subcatchment 4.2S: SUBCAT 3.1

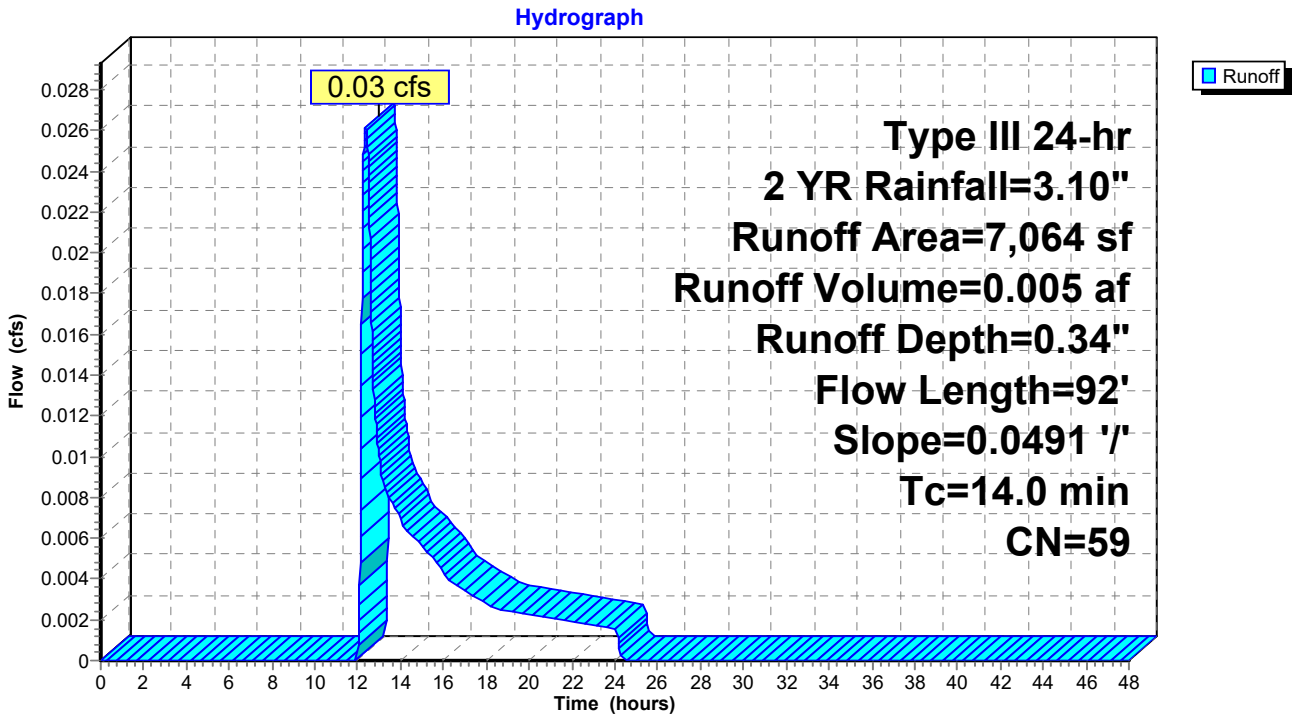
Runoff = 0.03 cfs @ 12.37 hrs, Volume= 0.005 af, Depth= 0.34"
Routed to Link POI 4 : POI 4: HANNAFORD DETENTION POND

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 2 YR Rainfall=3.10"

Area (sf)	CN	Description
6,630	60	Woods, Fair, HSG B
434	36	Woods, Fair, HSG A
7,064	59	Weighted Average
7,064		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.0	92	0.0491	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.23"

Subcatchment 4.2S: SUBCAT 3.1



Summary for Subcatchment 5S: SUBCAT 5

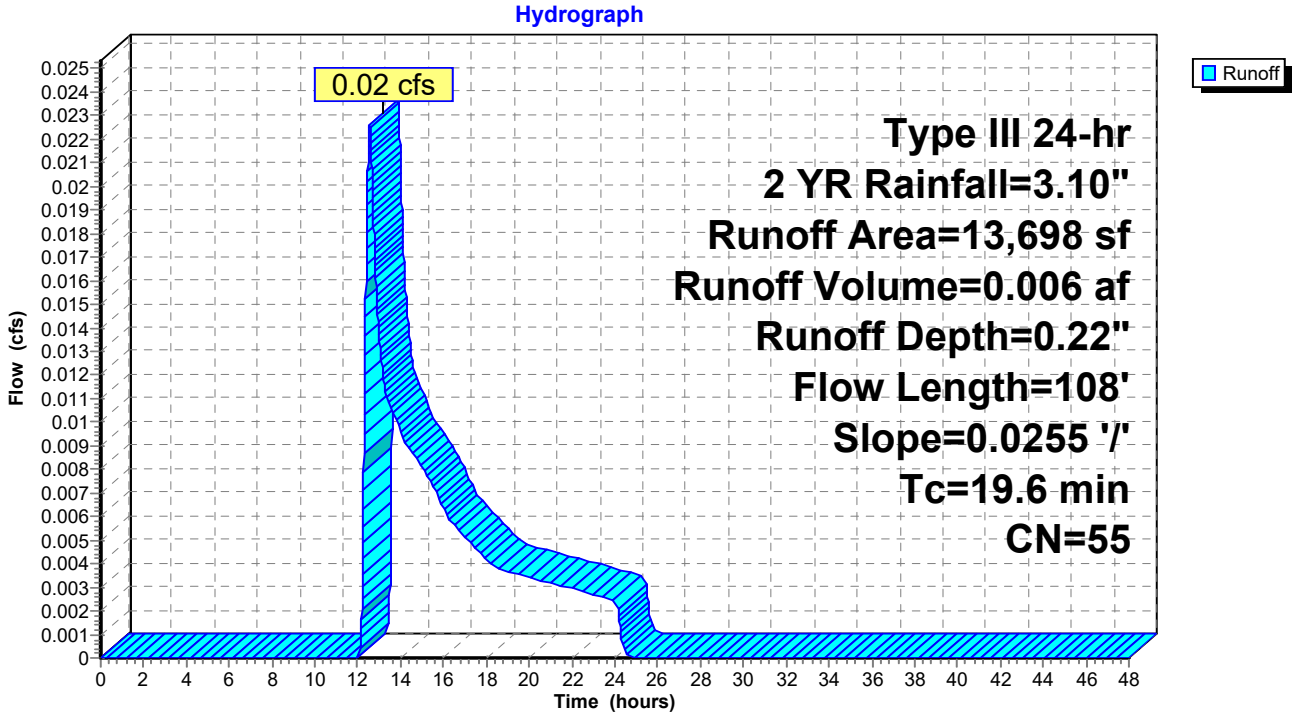
Runoff = 0.02 cfs @ 12.56 hrs, Volume= 0.006 af, Depth= 0.22"
Routed to Link POI 5 : POI 5: SHEET FLOW CEMETERY

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 2 YR Rainfall=3.10"

Area (sf)	CN	Description
5,782	60	Woods, Fair, HSG B
6,618	43	Woods/grass comb., Fair, HSG A
1,298	98	Paved parking, HSG A
13,698	55	Weighted Average
12,400		90.52% Pervious Area
1,298		9.48% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.4	100	0.0255	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.23"
0.2	8	0.0255	0.80		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
19.6	108	Total			

Subcatchment 5S: SUBCAT 5

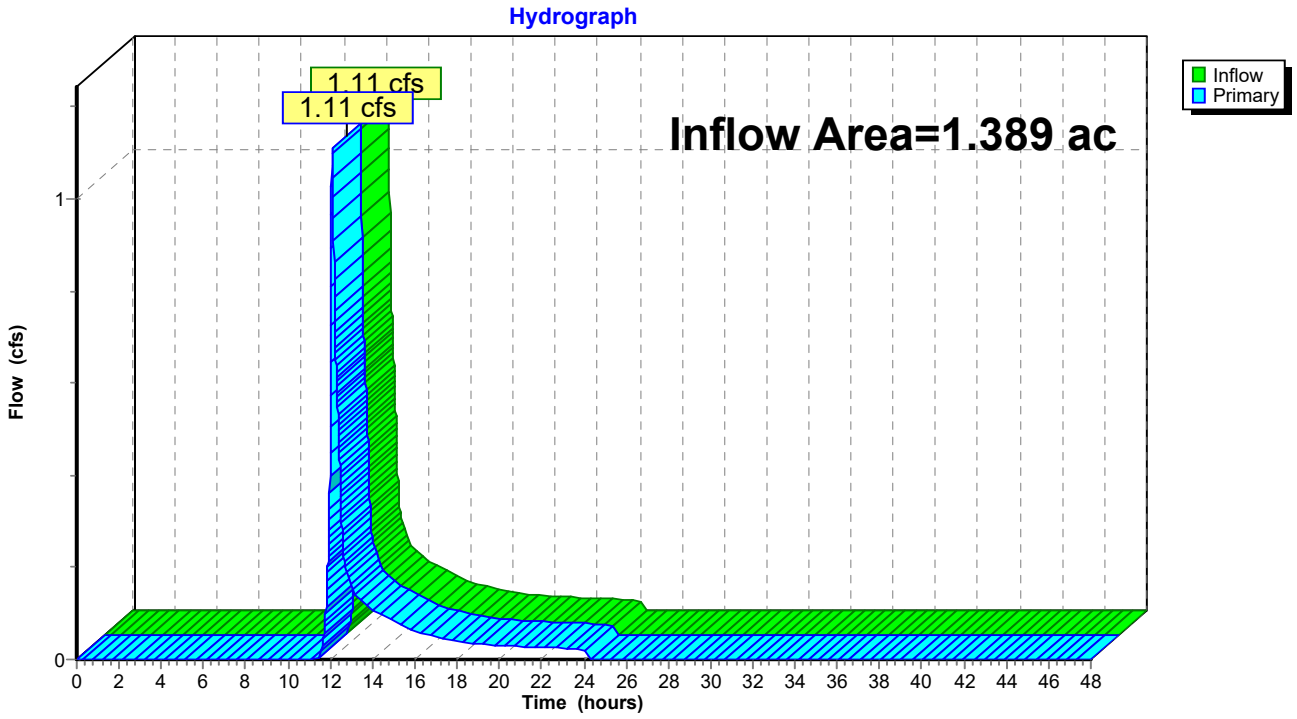


Summary for Link POI 1: POI 1: CB - FOREST AVE CATCH BASIN (EAST)

Inflow Area = 1.389 ac, 47.80% Impervious, Inflow Depth = 0.77" for 2 YR event
Inflow = 1.11 cfs @ 12.10 hrs, Volume= 0.089 af
Primary = 1.11 cfs @ 12.10 hrs, Volume= 0.089 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link POI 1: POI 1: CB - FOREST AVE CATCH BASIN (EAST)

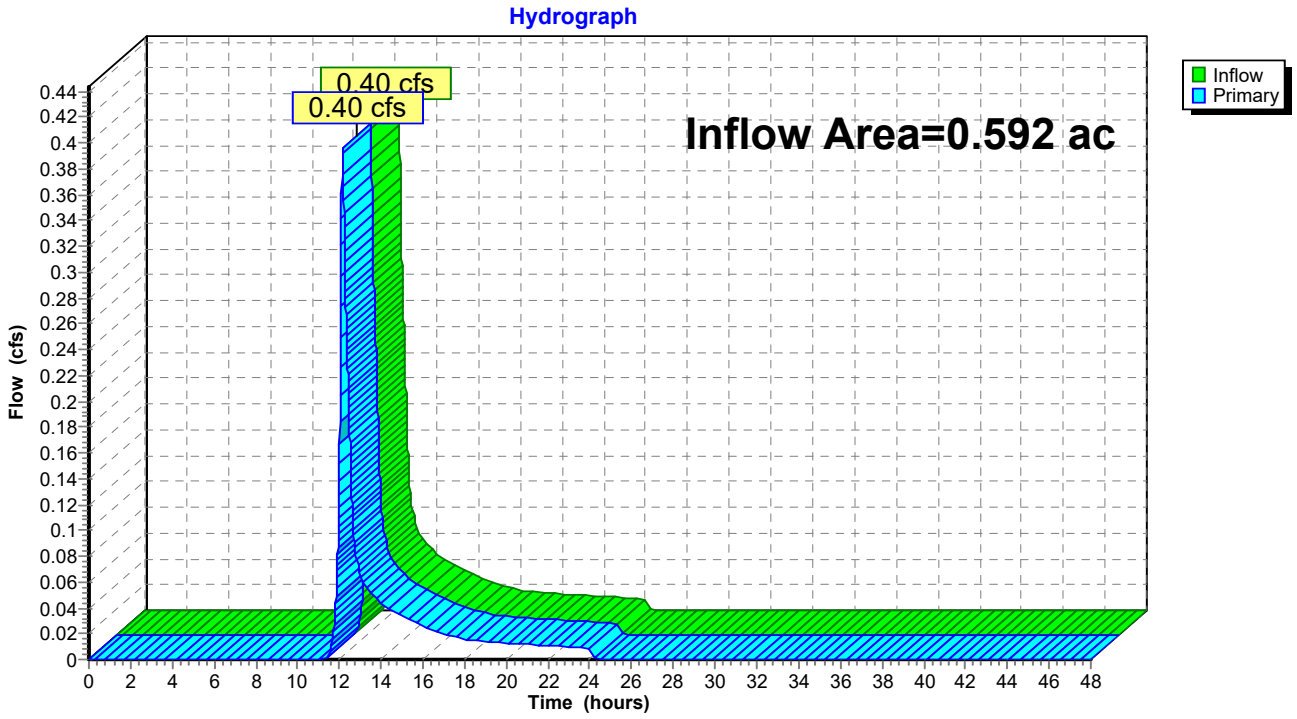


Summary for Link POI 2: POI 2: FOREST AVE CATCH BASIN (WEST)

Inflow Area = 0.592 ac, 39.70% Impervious, Inflow Depth = 0.74" for 2 YR event
Inflow = 0.40 cfs @ 12.15 hrs, Volume= 0.036 af
Primary = 0.40 cfs @ 12.15 hrs, Volume= 0.036 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link POI 2: POI 2: FOREST AVE CATCH BASIN (WEST)

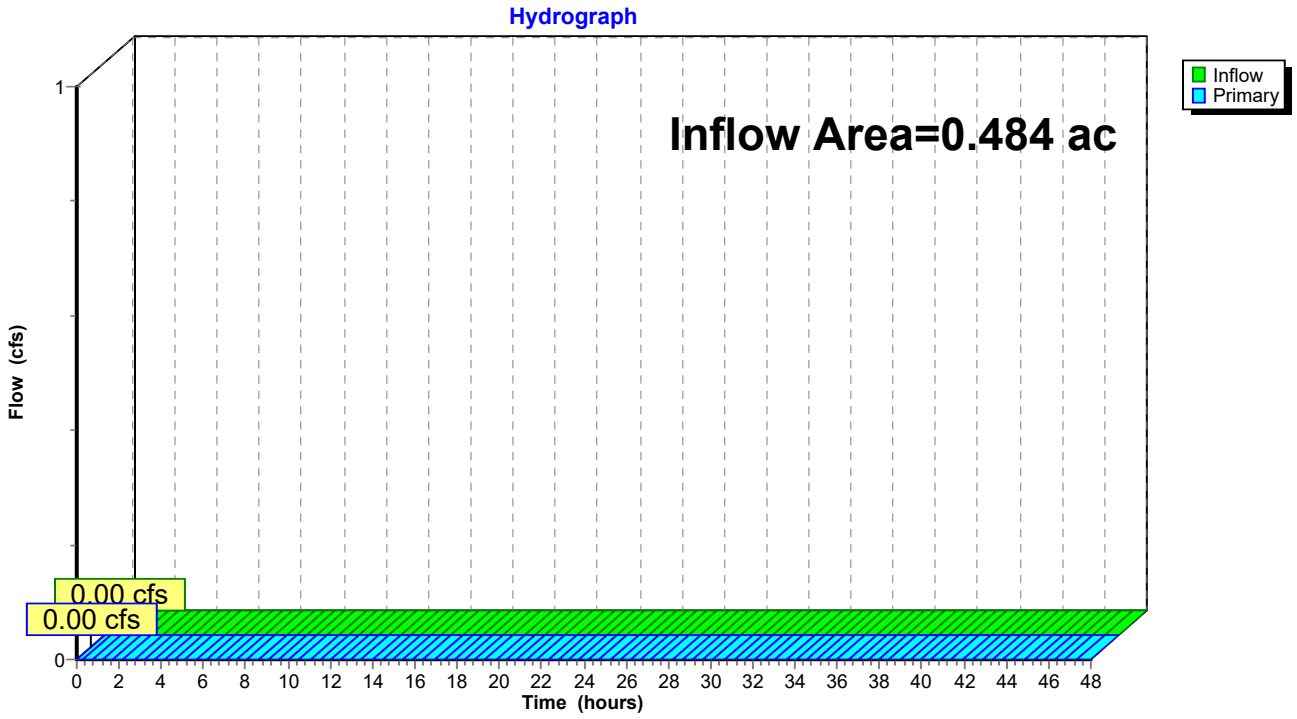


Summary for Link POI 3: POI 3: INTERNAL WETLAND

Inflow Area = 0.484 ac, 4.29% Impervious, Inflow Depth = 0.00" for 2 YR event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link POI 3: POI 3: INTERNAL WETLAND

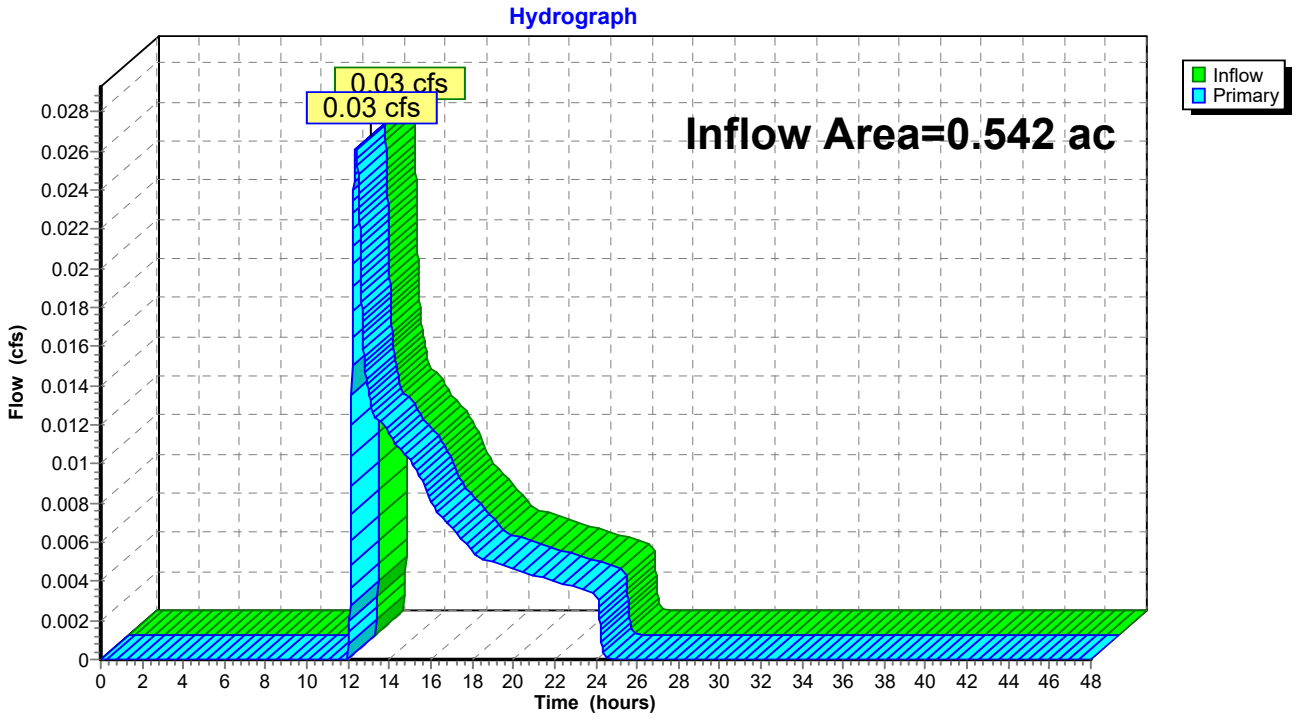


Summary for Link POI 4: POI 4: HANNAFORD DETENTION POND

Inflow Area = 0.542 ac, 0.01% Impervious, Inflow Depth = 0.16" for 2 YR event
Inflow = 0.03 cfs @ 12.37 hrs, Volume= 0.007 af
Primary = 0.03 cfs @ 12.37 hrs, Volume= 0.007 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link POI 4: POI 4: HANNAFORD DETENTION POND

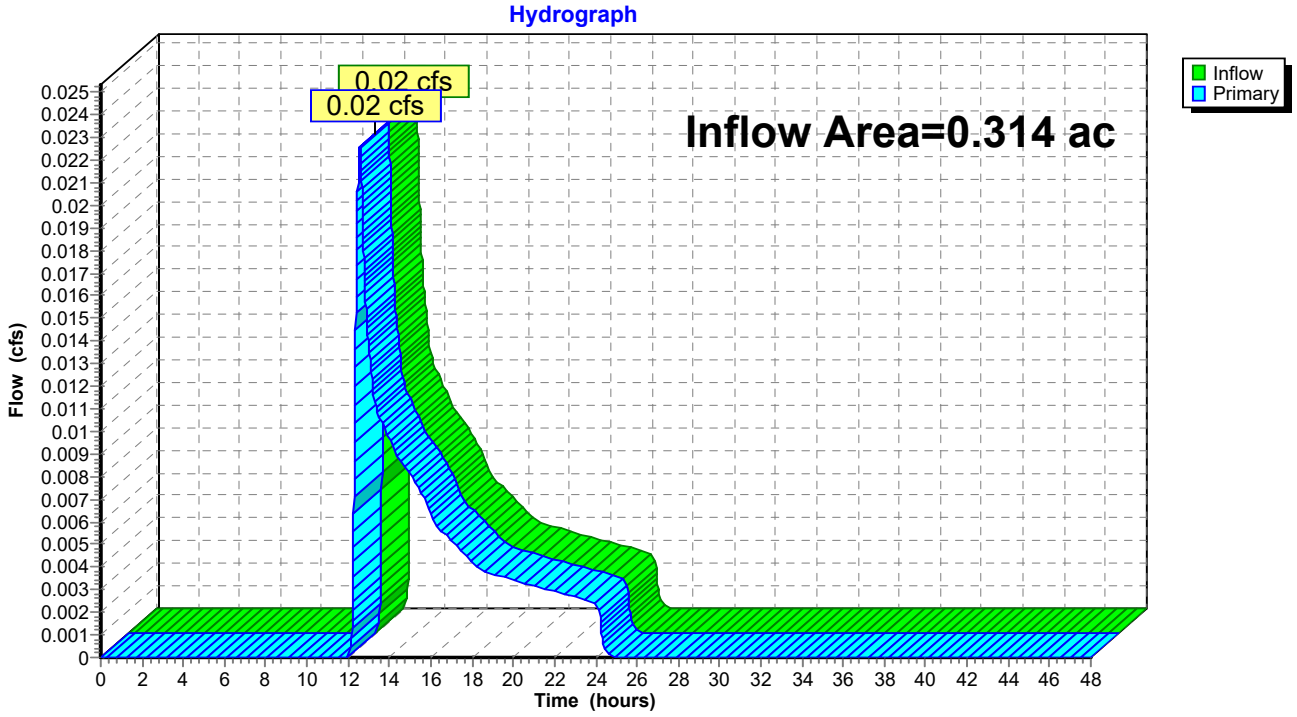


Summary for Link POI 5: POI 5: SHEET FLOW CEMETERY

Inflow Area = 0.314 ac, 9.48% Impervious, Inflow Depth = 0.22" for 2 YR event
Inflow = 0.02 cfs @ 12.56 hrs, Volume= 0.006 af
Primary = 0.02 cfs @ 12.56 hrs, Volume= 0.006 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link POI 5: POI 5: SHEET FLOW CEMETERY



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

Subcatchment1S: SUBCAT1 Runoff Area=60,488 sf 47.80% Impervious Runoff Depth=1.74"
Tc=6.0 min CN=70 Runoff=2.77 cfs 0.202 af

Subcatchment2.1S: SUBCAT2 Runoff Area=22,949 sf 44.61% Impervious Runoff Depth=1.82"
Flow Length=301' Tc=9.9 min CN=71 Runoff=0.96 cfs 0.080 af

Subcatchment2.2S: SUBCAT2.2 Runoff Area=2,836 sf 0.00% Impervious Runoff Depth=0.49"
Flow Length=363' Tc=6.0 min CN=49 Runoff=0.02 cfs 0.003 af

Subcatchment3S: SUBCAT3 Runoff Area=21,101 sf 4.29% Impervious Runoff Depth=0.13"
Flow Length=229' Tc=10.5 min CN=39 Runoff=0.01 cfs 0.005 af

Subcatchment4.1S: SUBCAT3 Runoff Area=16,543 sf 0.01% Impervious Runoff Depth=0.49"
Flow Length=301' Slope=0.0864 '/' Tc=16.5 min CN=49 Runoff=0.09 cfs 0.016 af

Subcatchment4.2S: SUBCAT3.1 Runoff Area=7,064 sf 0.00% Impervious Runoff Depth=1.01"
Flow Length=92' Slope=0.0491 '/' Tc=14.0 min CN=59 Runoff=0.12 cfs 0.014 af

Subcatchment5S: SUBCAT5 Runoff Area=13,698 sf 9.48% Impervious Runoff Depth=0.79"
Flow Length=108' Slope=0.0255 '/' Tc=19.6 min CN=55 Runoff=0.15 cfs 0.021 af

Link POI 1: POI 1: CB - FOREST AVE CATCH BASIN (EAST) Inflow=2.77 cfs 0.202 af
Primary=2.77 cfs 0.202 af

Link POI 2: POI 2: FOREST AVE CATCH BASIN (WEST) Inflow=0.98 cfs 0.083 af
Primary=0.98 cfs 0.083 af

Link POI 3: POI 3: INTERNAL WETLAND Inflow=0.01 cfs 0.005 af
Primary=0.01 cfs 0.005 af

Link POI 4: POI 4: HANNAFORD DETENTION POND Inflow=0.19 cfs 0.029 af
Primary=0.19 cfs 0.029 af

Link POI 5: POI 5: SHEET FLOW CEMETERY Inflow=0.15 cfs 0.021 af
Primary=0.15 cfs 0.021 af

Total Runoff Area = 3.321 ac Runoff Volume = 0.339 af Average Runoff Depth = 1.23"
71.42% Pervious = 2.372 ac 28.58% Impervious = 0.949 ac

Summary for Subcatchment 1S: SUBCAT 1

Per TR-55, min TC is 6 mins

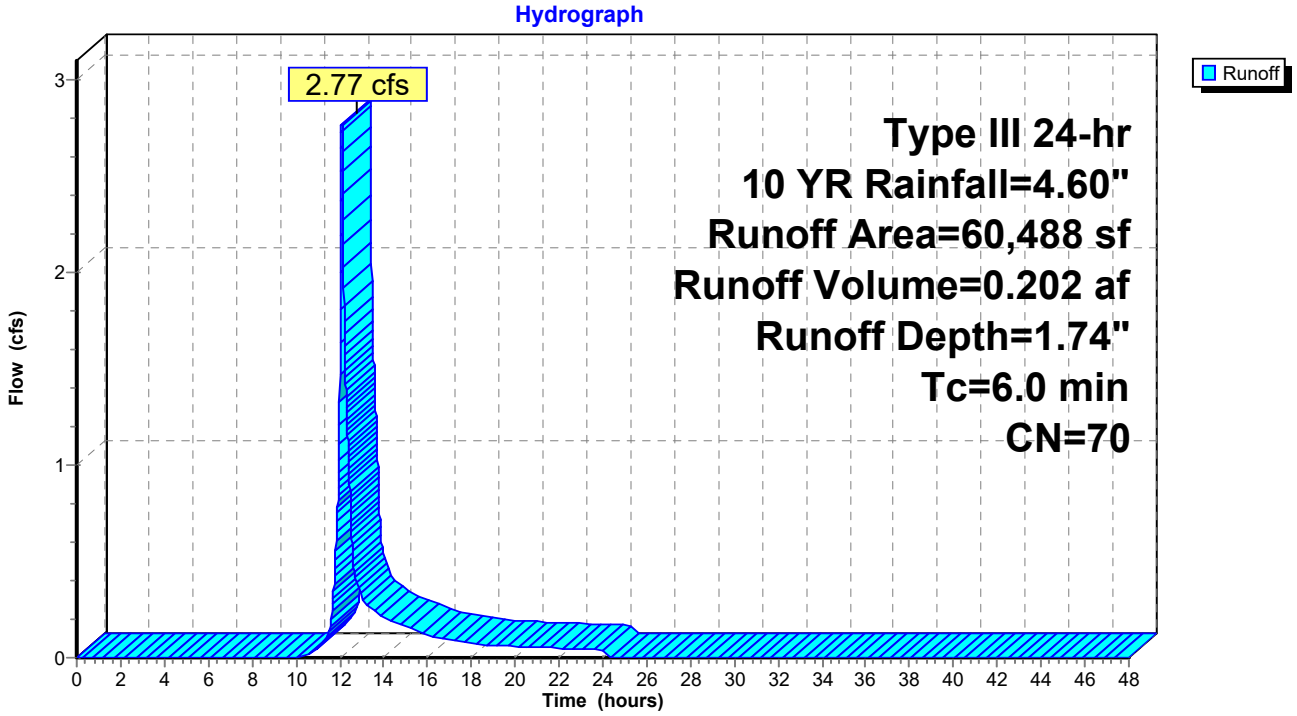
Runoff = 2.77 cfs @ 12.09 hrs, Volume= 0.202 af, Depth= 1.74"
Routed to Link POI 1 : POI 1: CB - FOREST AVE CATCH BASIN (EAST)

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 10 YR Rainfall=4.60"

Area (sf)	CN	Description
2,950	98	Paved parking, HSG B
2,885	60	Woods, Fair, HSG B
489	49	50-75% Grass cover, Fair, HSG A
2,030	98	Unconnected roofs, HSG A
23,914	98	Paved parking, HSG A
18,800	43	Woods/grass comb., Fair, HSG A
9,402	43	Woods/grass comb., Fair, HSG A
18	98	Unconnected pavement, HSG B
60,488	70	Weighted Average
31,576		52.20% Pervious Area
28,912		47.80% Impervious Area
2,048		7.08% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, tr-55 min**

Subcatchment 1S: SUBCAT 1



Summary for Subcatchment 2.1S: SUBCAT 2

Per TR-55, min TC is 6 mins

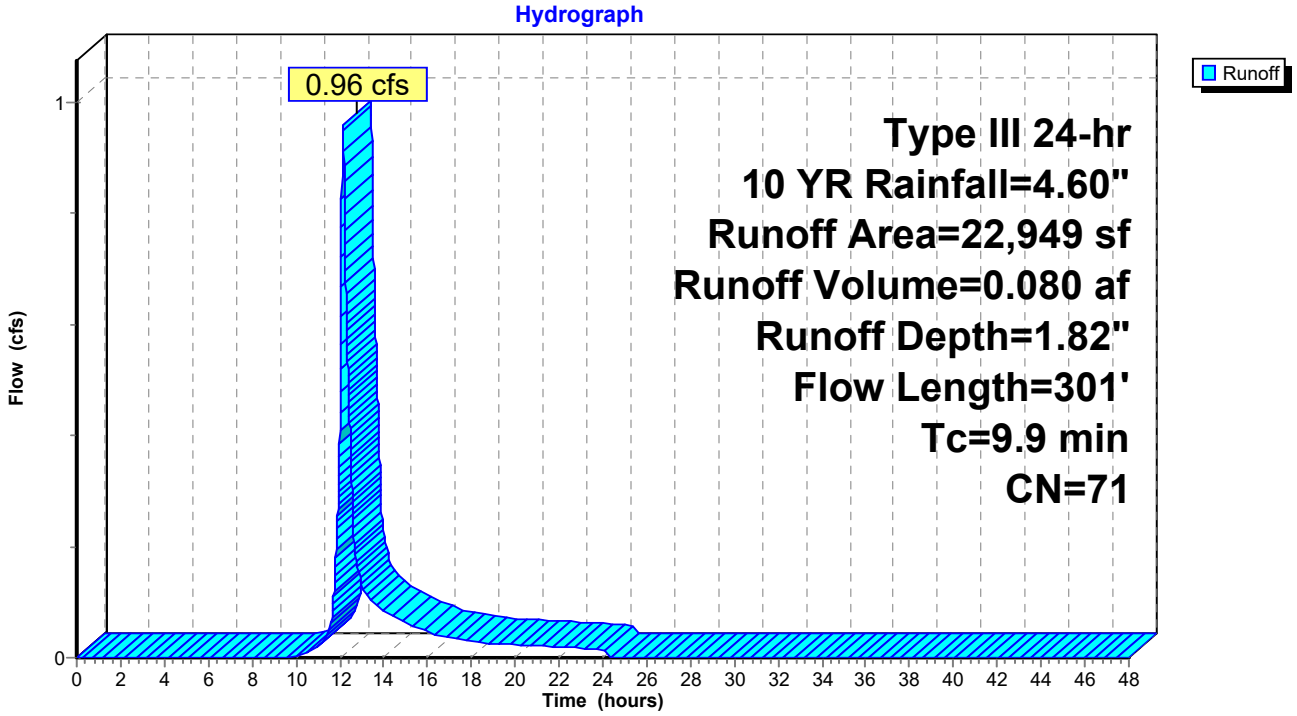
Runoff = 0.96 cfs @ 12.14 hrs, Volume= 0.080 af, Depth= 1.82"
Routed to Link POI 2 : POI 2: FOREST AVE CATCH BASIN (WEST)

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 10 YR Rainfall=4.60"

Area (sf)	CN	Description
1,026	60	Woods, Fair, HSG B
403	36	Woods, Fair, HSG A
7,007	98	Paved parking, HSG A
6	36	Woods, Fair, HSG A
3,230	98	Unconnected roofs, HSG A
11,277	49	50-75% Grass cover, Fair, HSG A
22,949	71	Weighted Average
12,712		55.39% Pervious Area
10,237		44.61% Impervious Area
3,230		31.55% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.2	72	0.1141	0.15		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.23"
0.1	43	0.1575	8.06		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.1	37	0.0536	4.70		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
1.4	130	0.0461	1.50		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.1	19	0.0514	4.60		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
9.9	301	Total			

Subcatchment 2.1S: SUBCAT 2



Summary for Subcatchment 2.2S: SUBCAT 2.2

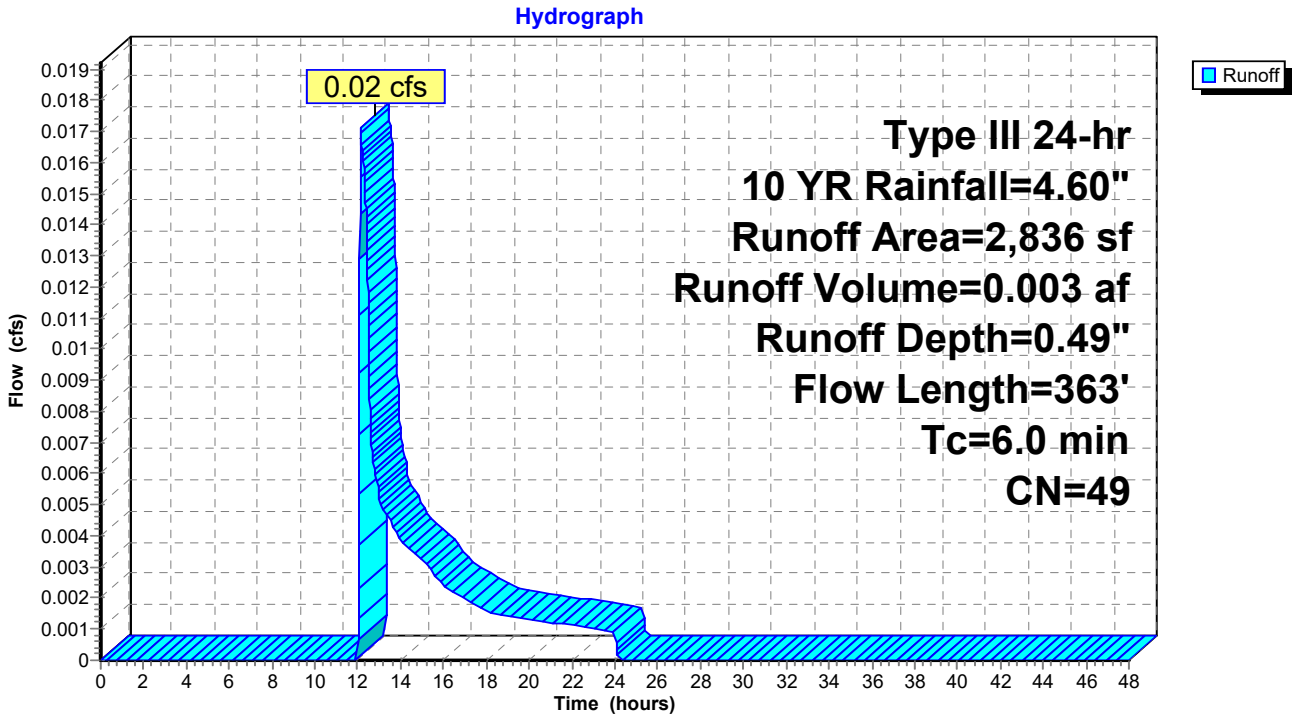
Runoff = 0.02 cfs @ 12.14 hrs, Volume= 0.003 af, Depth= 0.49"
Routed to Link POI 2 : POI 2: FOREST AVE CATCH BASIN (WEST)

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 10 YR Rainfall=4.60"

Area (sf)	CN	Description
2,836	49	50-75% Grass cover, Fair, HSG A
2,836		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.6	76	0.1378	0.35		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.23"
0.3	24	0.0326	1.26		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.23"
1.3	263	0.0266	3.31		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
5.2	363	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 2.2S: SUBCAT 2.2



Summary for Subcatchment 3S: SUBCAT 3

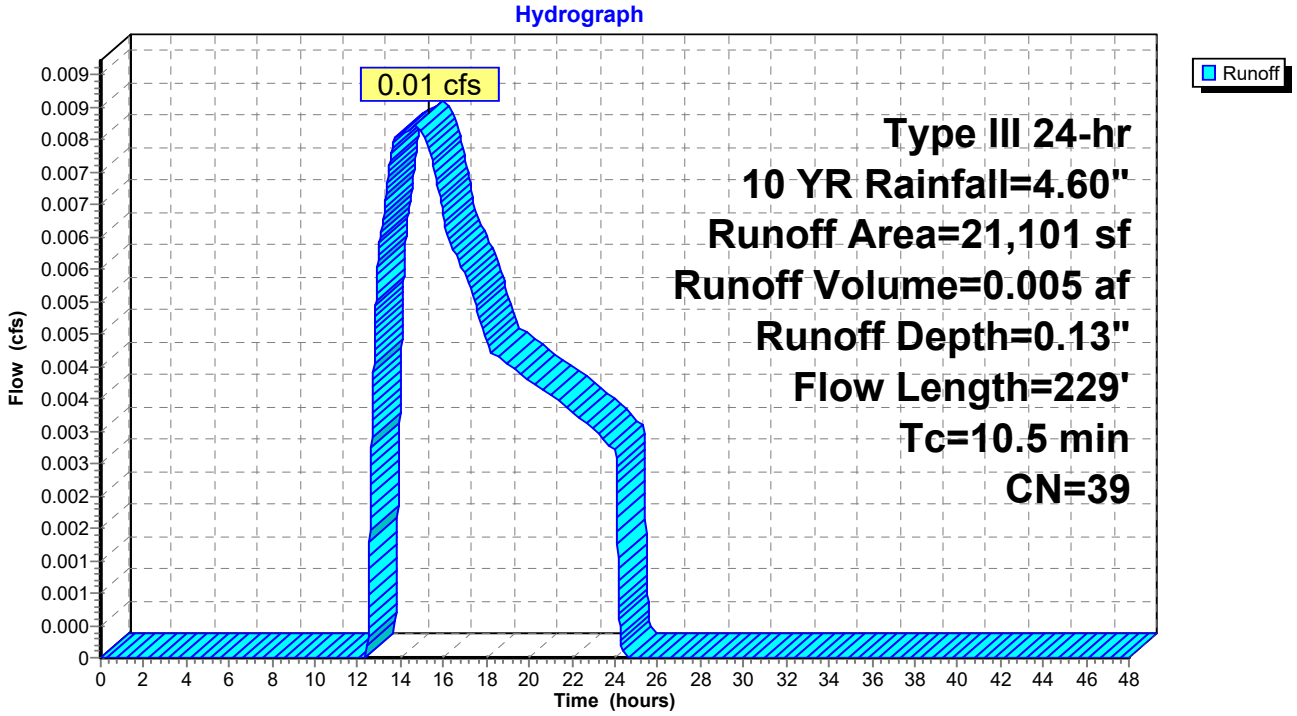
Runoff = 0.01 cfs @ 14.64 hrs, Volume= 0.005 af, Depth= 0.13"
Routed to Link POI 3 : POI 3: INTERNAL WETLAND

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 10 YR Rainfall=4.60"

Area (sf)	CN	Description
9	60	Woods, Fair, HSG B
489	36	Woods, Fair, HSG A
905	98	Paved parking, HSG A
19,698	36	Woods, Fair, HSG A
21,101	39	Weighted Average
20,196		95.71% Pervious Area
905		4.29% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	100	0.1075	0.23		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.23"
2.8	98	0.0535	0.58		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
0.5	31	0.1689	1.03		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
10.5	229	Total			

Subcatchment 3S: SUBCAT 3



Summary for Subcatchment 4.1S: SUBCAT 3

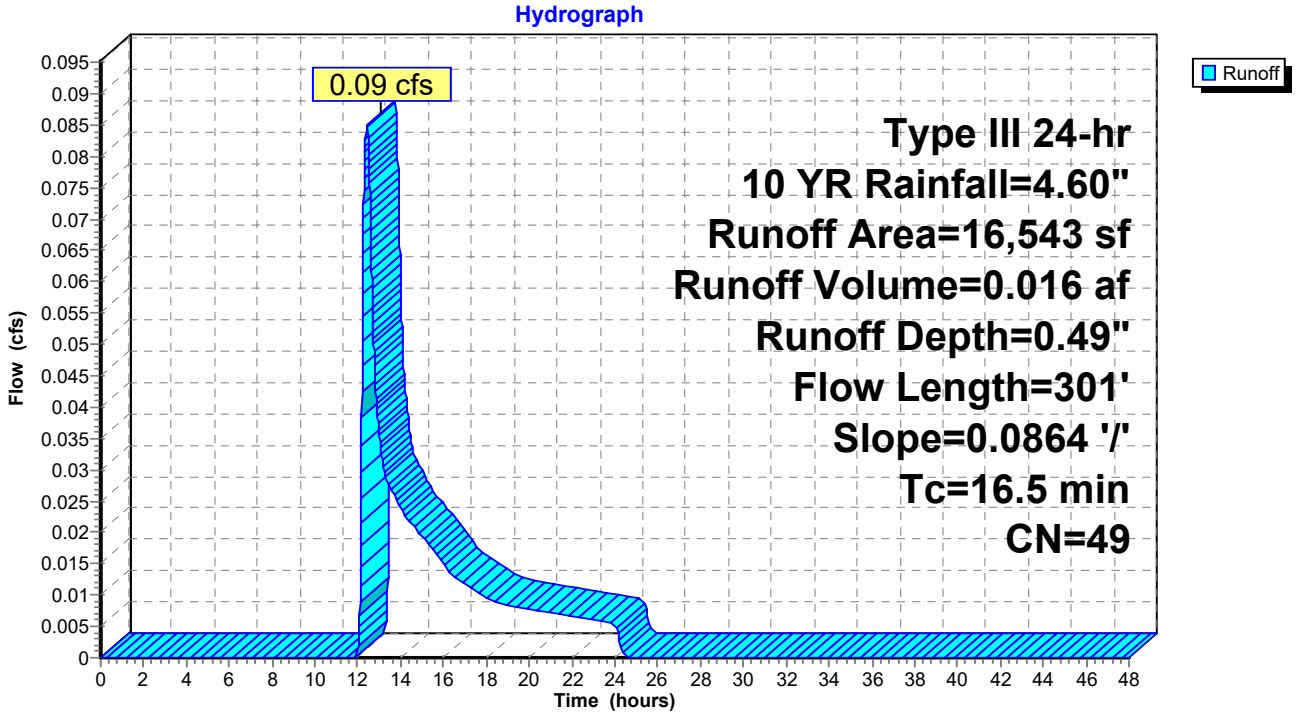
Runoff = 0.09 cfs @ 12.42 hrs, Volume= 0.016 af, Depth= 0.49"
Routed to Link POI 4 : POI 4: HANNAFORD DETENTION POND

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 10 YR Rainfall=4.60"

	Area (sf)	CN	Description
	2,925	36	Woods, Fair, HSG A
*	431	96	Gravel surface, Path, HSG A
	2	98	Paved parking, HSG A
	2,935	36	Woods, Fair, HSG A
	3,404	36	Woods, Fair, HSG A
*	42	96	Gravel surface, Path, HSG A
	0	36	Woods, Fair, HSG A
	121	60	Woods, Fair, HSG B
*	77	96	Gravel surface,Path, Assumed HSG B
	2,886	60	Woods, Fair, HSG B
*	559	96	Gravel surface, Path, Assumed HSG B
	1,816	60	Woods, Fair, HSG B
	1,345	60	Woods, Fair, HSG B
	16,543	49	Weighted Average
	16,541		99.99% Pervious Area
	2		0.01% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.9	100	0.0864	0.14		**Sheet Flow, 100 ft** Woods: Light underbrush n= 0.400 P2= 3.23"
4.6	201	0.0864	0.73		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
16.5	301	Total			

Subcatchment 4.1S: SUBCAT 3



Summary for Subcatchment 4.2S: SUBCAT 3.1

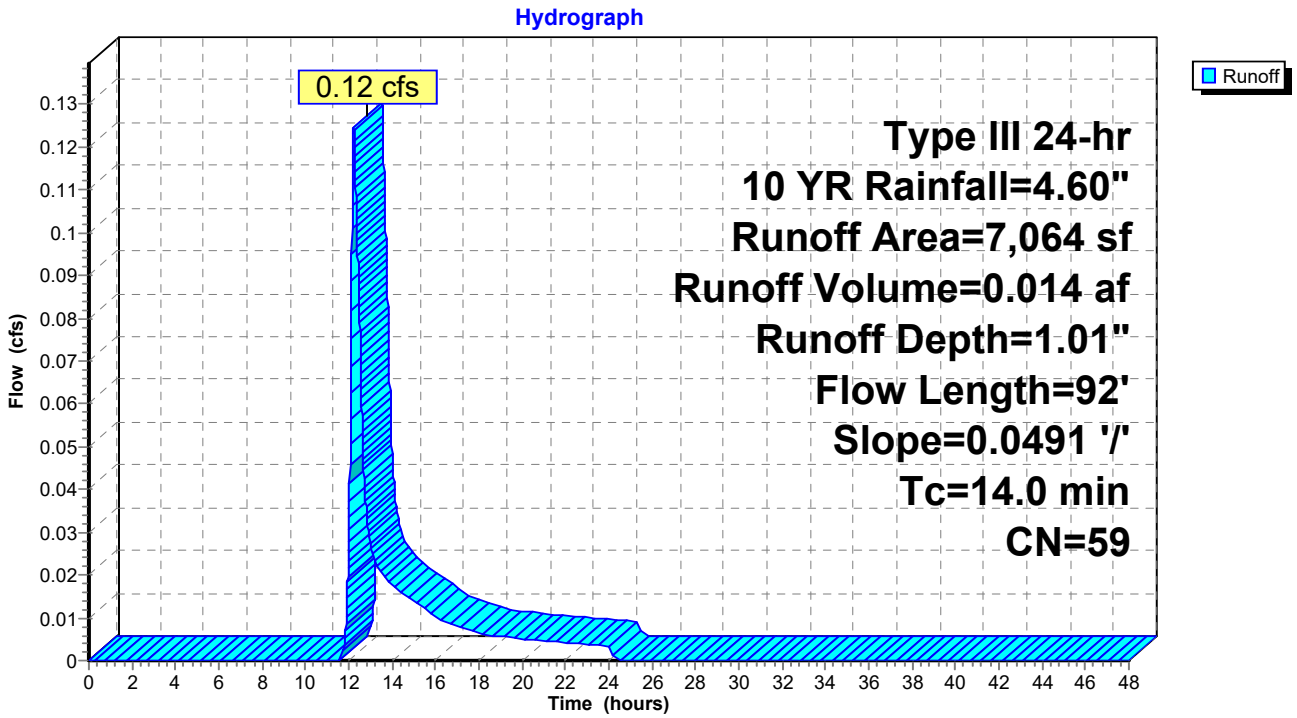
Runoff = 0.12 cfs @ 12.22 hrs, Volume= 0.014 af, Depth= 1.01"
Routed to Link POI 4 : POI 4: HANNAFORD DETENTION POND

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 10 YR Rainfall=4.60"

Area (sf)	CN	Description
6,630	60	Woods, Fair, HSG B
434	36	Woods, Fair, HSG A
7,064	59	Weighted Average
7,064		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.0	92	0.0491	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.23"

Subcatchment 4.2S: SUBCAT 3.1



Summary for Subcatchment 5S: SUBCAT 5

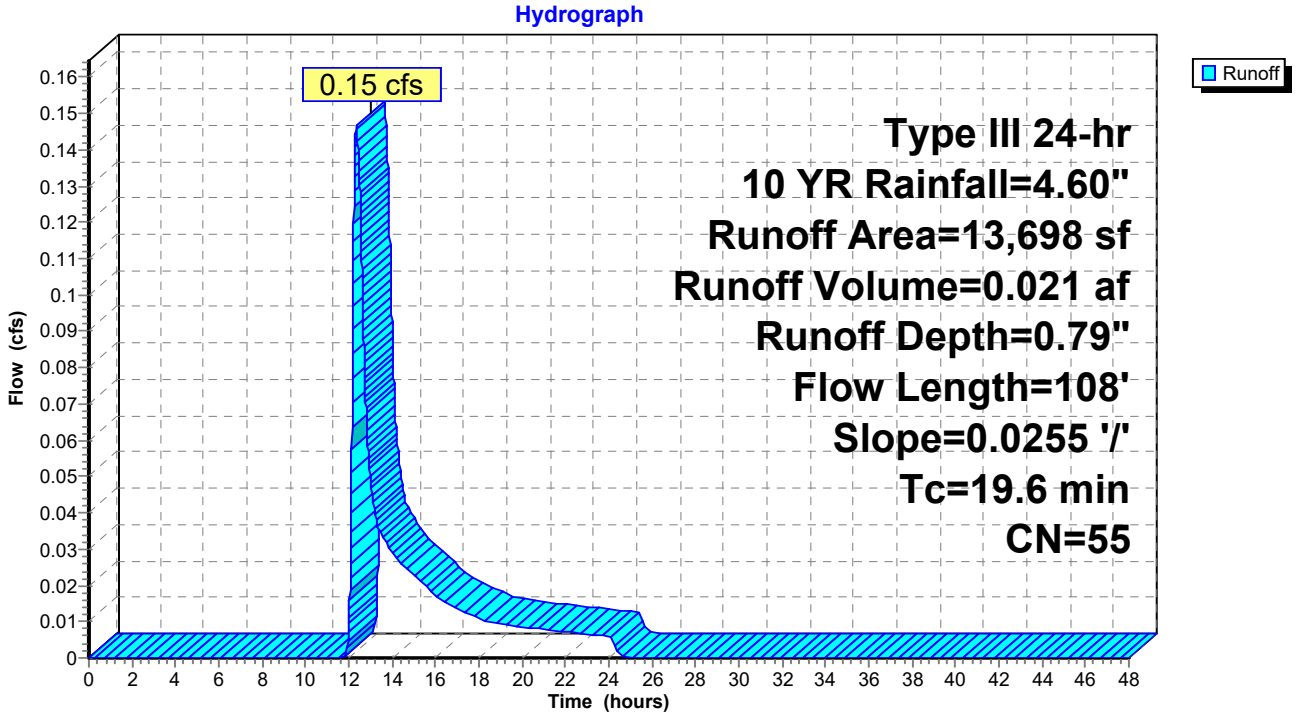
Runoff = 0.15 cfs @ 12.35 hrs, Volume= 0.021 af, Depth= 0.79"
Routed to Link POI 5 : POI 5: SHEET FLOW CEMETERY

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 10 YR Rainfall=4.60"

Area (sf)	CN	Description
5,782	60	Woods, Fair, HSG B
6,618	43	Woods/grass comb., Fair, HSG A
1,298	98	Paved parking, HSG A
13,698	55	Weighted Average
12,400		90.52% Pervious Area
1,298		9.48% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.4	100	0.0255	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.23"
0.2	8	0.0255	0.80		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
19.6	108	Total			

Subcatchment 5S: SUBCAT 5

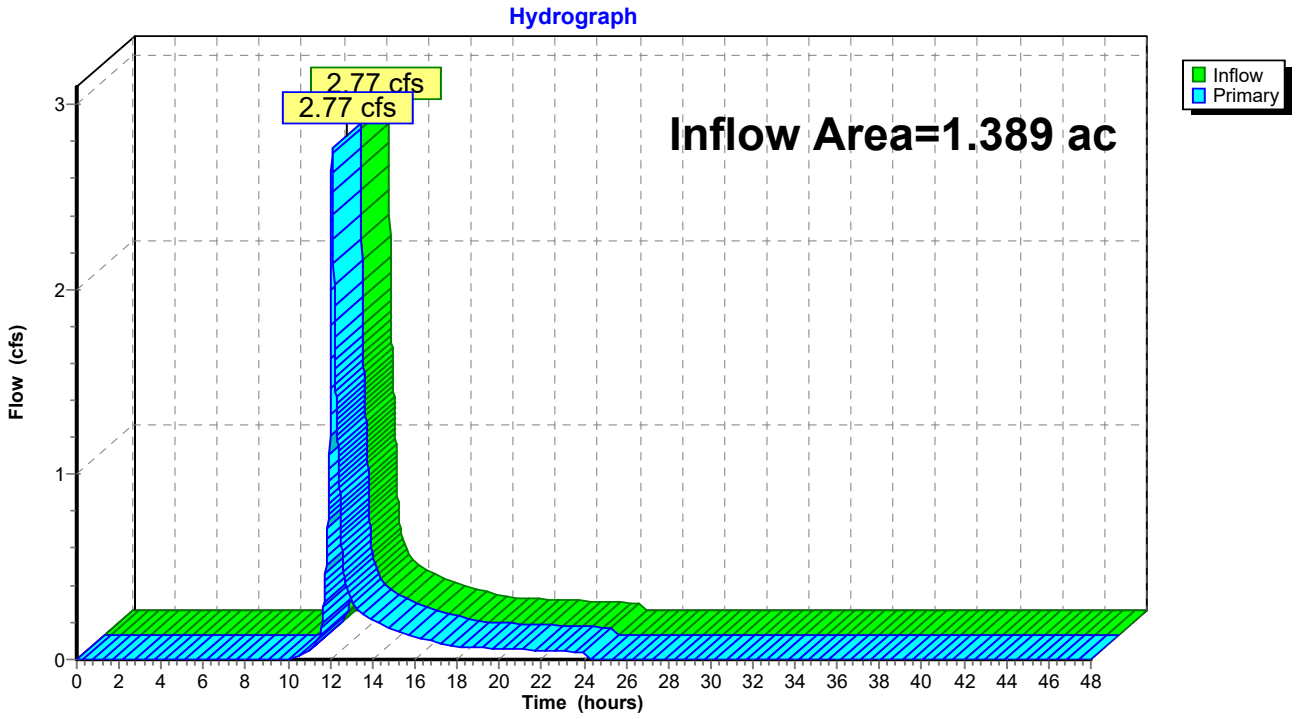


Summary for Link POI 1: POI 1: CB - FOREST AVE CATCH BASIN (EAST)

Inflow Area = 1.389 ac, 47.80% Impervious, Inflow Depth = 1.74" for 10 YR event
Inflow = 2.77 cfs @ 12.09 hrs, Volume= 0.202 af
Primary = 2.77 cfs @ 12.09 hrs, Volume= 0.202 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link POI 1: POI 1: CB - FOREST AVE CATCH BASIN (EAST)

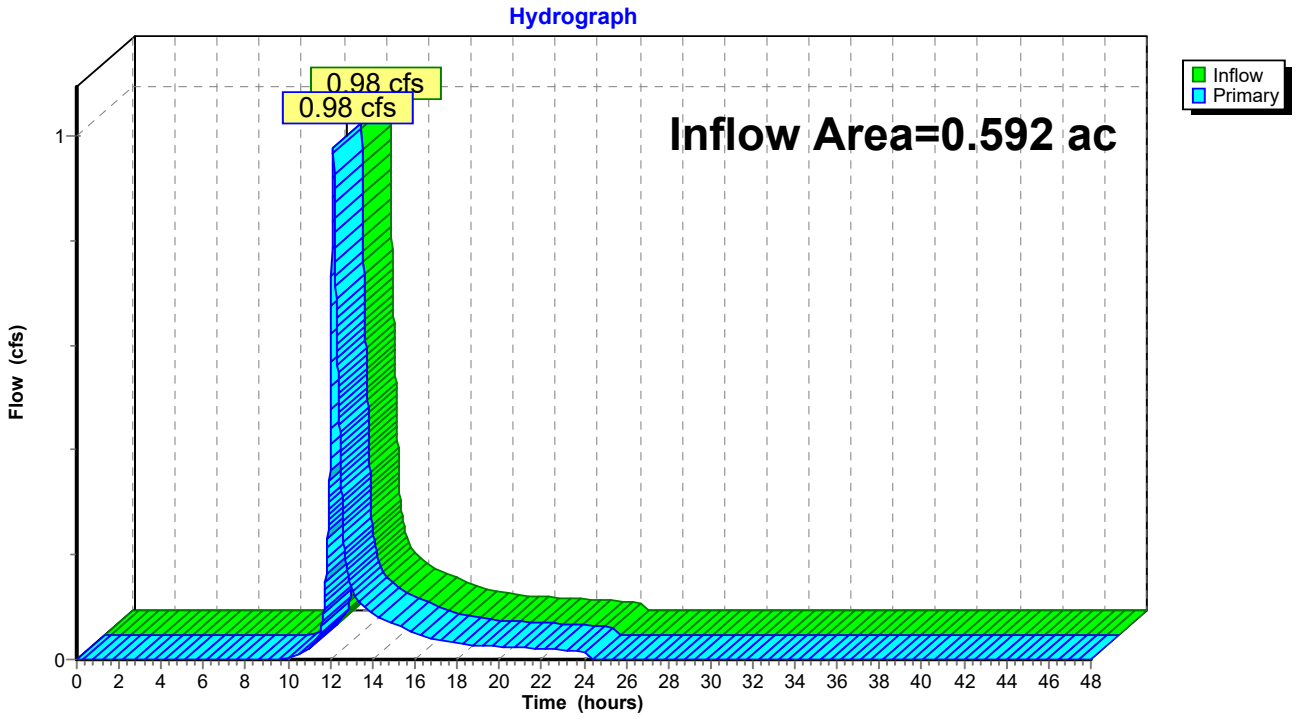


Summary for Link POI 2: POI 2: FOREST AVE CATCH BASIN (WEST)

Inflow Area = 0.592 ac, 39.70% Impervious, Inflow Depth = 1.67" for 10 YR event
Inflow = 0.98 cfs @ 12.14 hrs, Volume= 0.083 af
Primary = 0.98 cfs @ 12.14 hrs, Volume= 0.083 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link POI 2: POI 2: FOREST AVE CATCH BASIN (WEST)

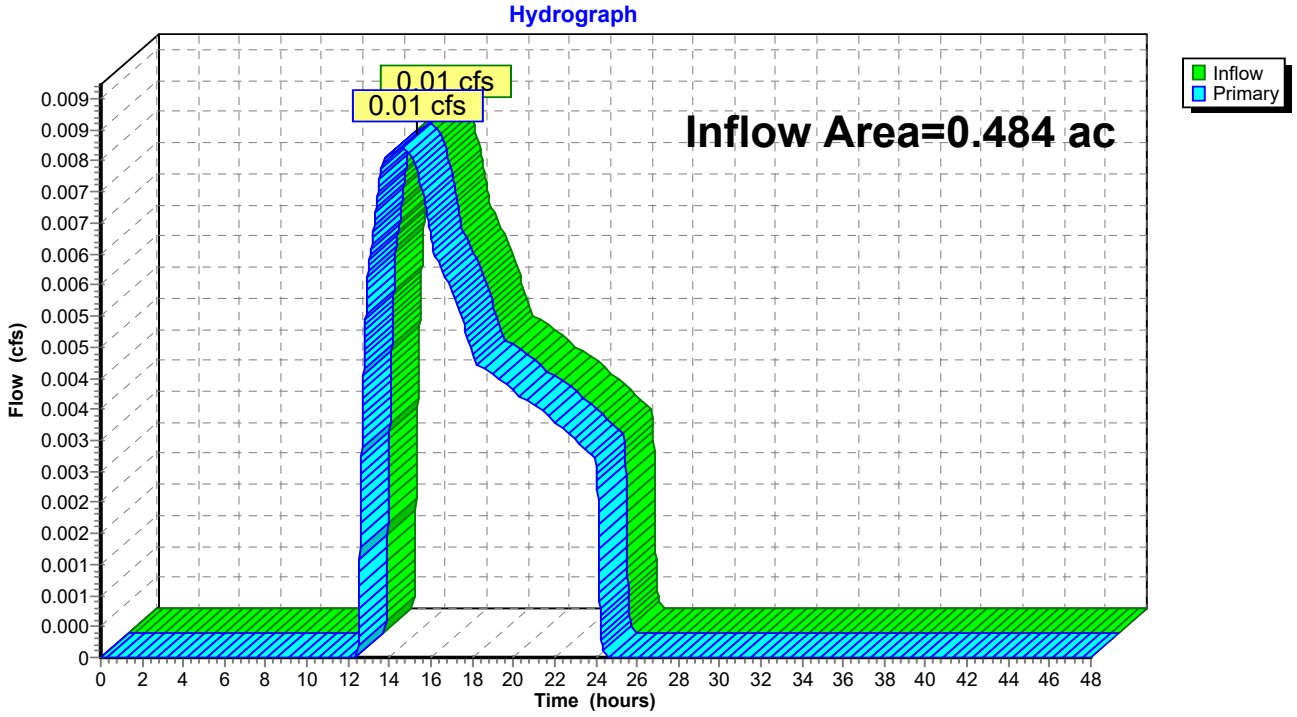


Summary for Link POI 3: POI 3: INTERNAL WETLAND

Inflow Area = 0.484 ac, 4.29% Impervious, Inflow Depth = 0.13" for 10 YR event
Inflow = 0.01 cfs @ 14.64 hrs, Volume= 0.005 af
Primary = 0.01 cfs @ 14.64 hrs, Volume= 0.005 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link POI 3: POI 3: INTERNAL WETLAND

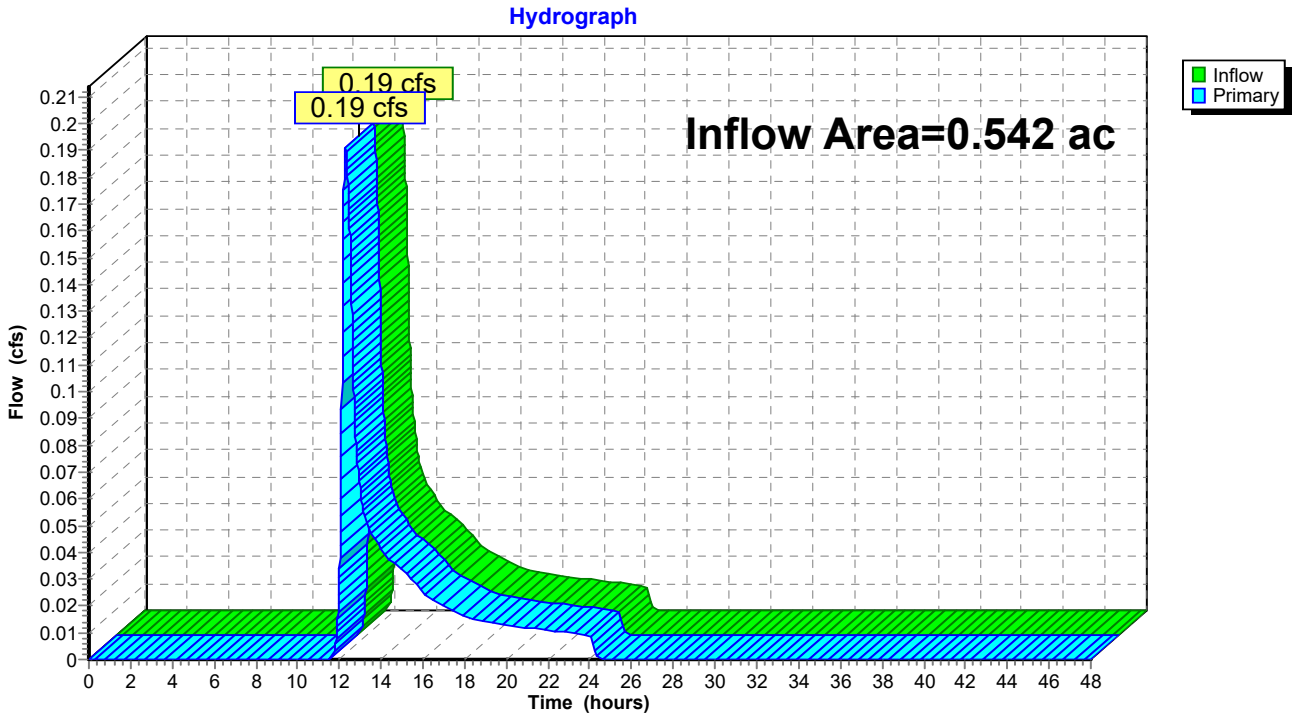


Summary for Link POI 4: POI 4: HANNAFORD DETENTION POND

Inflow Area = 0.542 ac, 0.01% Impervious, Inflow Depth = 0.65" for 10 YR event
Inflow = 0.19 cfs @ 12.30 hrs, Volume= 0.029 af
Primary = 0.19 cfs @ 12.30 hrs, Volume= 0.029 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link POI 4: POI 4: HANNAFORD DETENTION POND

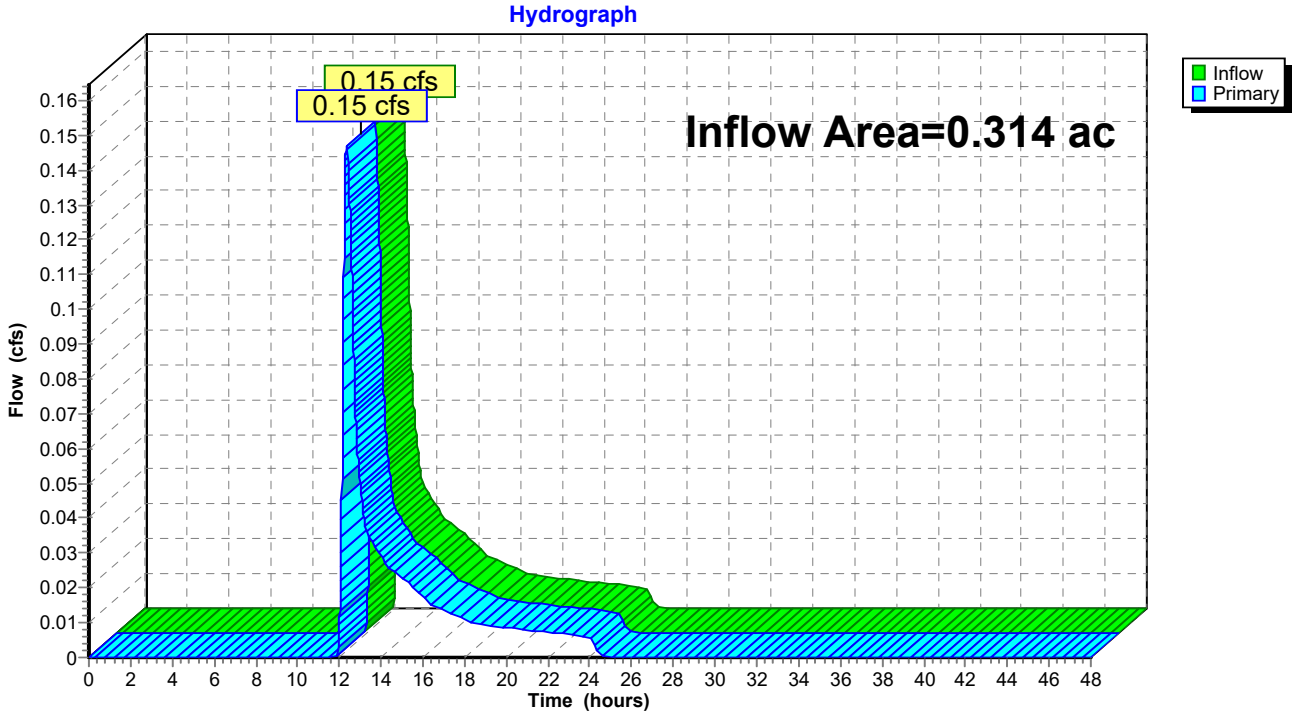


Summary for Link POI 5: POI 5: SHEET FLOW CEMETERY

Inflow Area = 0.314 ac, 9.48% Impervious, Inflow Depth = 0.79" for 10 YR event
Inflow = 0.15 cfs @ 12.35 hrs, Volume= 0.021 af
Primary = 0.15 cfs @ 12.35 hrs, Volume= 0.021 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link POI 5: POI 5: SHEET FLOW CEMETERY



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

Subcatchment1S: SUBCAT1 Runoff Area=60,488 sf 47.80% Impervious Runoff Depth=2.65"
Tc=6.0 min CN=70 Runoff=4.28 cfs 0.306 af

Subcatchment2.1S: SUBCAT2 Runoff Area=22,949 sf 44.61% Impervious Runoff Depth=2.74"
Flow Length=301' Tc=9.9 min CN=71 Runoff=1.47 cfs 0.120 af

Subcatchment2.2S: SUBCAT2.2 Runoff Area=2,836 sf 0.00% Impervious Runoff Depth=0.98"
Flow Length=363' Tc=6.0 min CN=49 Runoff=0.05 cfs 0.005 af

Subcatchment3S: SUBCAT3 Runoff Area=21,101 sf 4.29% Impervious Runoff Depth=0.39"
Flow Length=229' Tc=10.5 min CN=39 Runoff=0.07 cfs 0.016 af

Subcatchment4.1S: SUBCAT3 Runoff Area=16,543 sf 0.01% Impervious Runoff Depth=0.98"
Flow Length=301' Slope=0.0864 '/' Tc=16.5 min CN=49 Runoff=0.23 cfs 0.031 af

Subcatchment4.2S: SUBCAT3.1 Runoff Area=7,064 sf 0.00% Impervious Runoff Depth=1.71"
Flow Length=92' Slope=0.0491 '/' Tc=14.0 min CN=59 Runoff=0.23 cfs 0.023 af

Subcatchment5S: SUBCAT5 Runoff Area=13,698 sf 9.48% Impervious Runoff Depth=1.40"
Flow Length=108' Slope=0.0255 '/' Tc=19.6 min CN=55 Runoff=0.31 cfs 0.037 af

Link POI 1: POI 1: CB - FOREST AVE CATCH BASIN (EAST) Inflow=4.28 cfs 0.306 af
Primary=4.28 cfs 0.306 af

Link POI 2: POI 2: FOREST AVE CATCH BASIN (WEST) Inflow=1.52 cfs 0.126 af
Primary=1.52 cfs 0.126 af

Link POI 3: POI 3: INTERNAL WETLAND Inflow=0.07 cfs 0.016 af
Primary=0.07 cfs 0.016 af

Link POI 4: POI 4: HANNAFORD DETENTION POND Inflow=0.45 cfs 0.054 af
Primary=0.45 cfs 0.054 af

Link POI 5: POI 5: SHEET FLOW CEMETERY Inflow=0.31 cfs 0.037 af
Primary=0.31 cfs 0.037 af

Total Runoff Area = 3.321 ac Runoff Volume = 0.539 af Average Runoff Depth = 1.95"
71.42% Pervious = 2.372 ac 28.58% Impervious = 0.949 ac

Summary for Subcatchment 1S: SUBCAT 1

Per TR-55, min TC is 6 mins

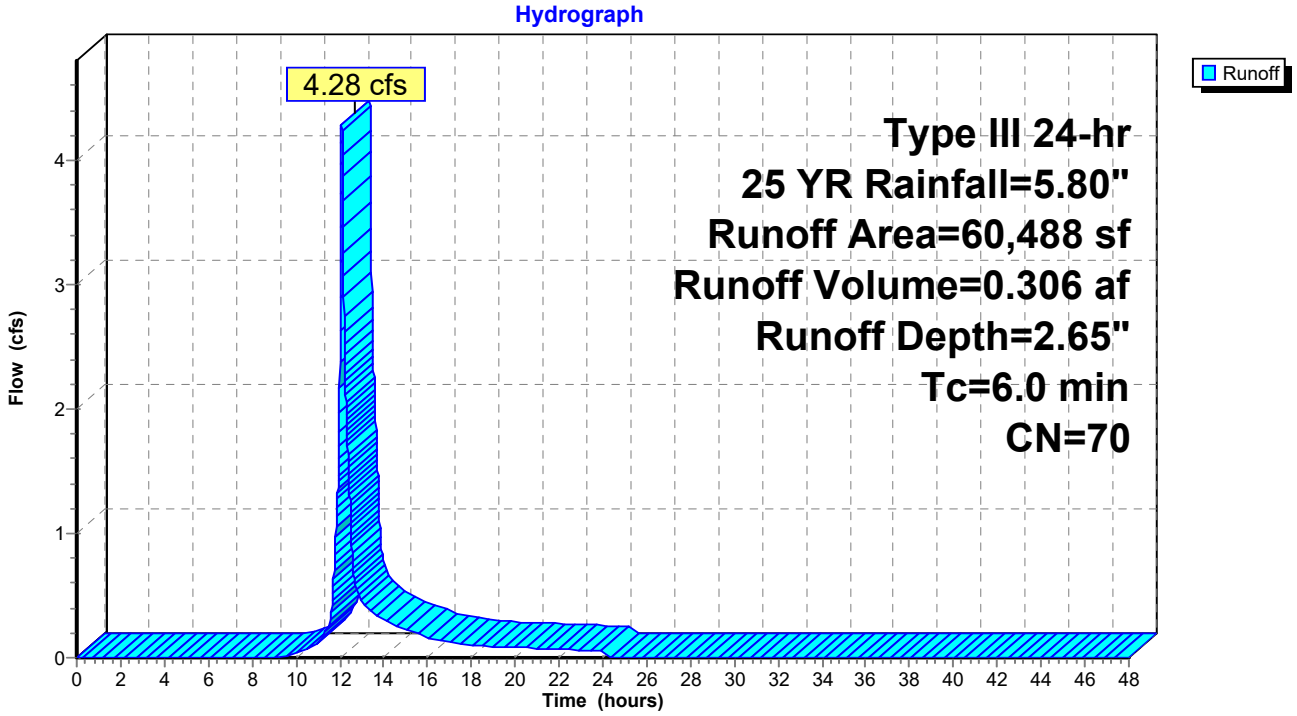
Runoff = 4.28 cfs @ 12.09 hrs, Volume= 0.306 af, Depth= 2.65"
Routed to Link POI 1 : POI 1: CB - FOREST AVE CATCH BASIN (EAST)

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
2,950	98	Paved parking, HSG B
2,885	60	Woods, Fair, HSG B
489	49	50-75% Grass cover, Fair, HSG A
2,030	98	Unconnected roofs, HSG A
23,914	98	Paved parking, HSG A
18,800	43	Woods/grass comb., Fair, HSG A
9,402	43	Woods/grass comb., Fair, HSG A
18	98	Unconnected pavement, HSG B
60,488	70	Weighted Average
31,576		52.20% Pervious Area
28,912		47.80% Impervious Area
2,048		7.08% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, tr-55 min**

Subcatchment 1S: SUBCAT 1



Summary for Subcatchment 2.1S: SUBCAT 2

Per TR-55, min TC is 6 mins

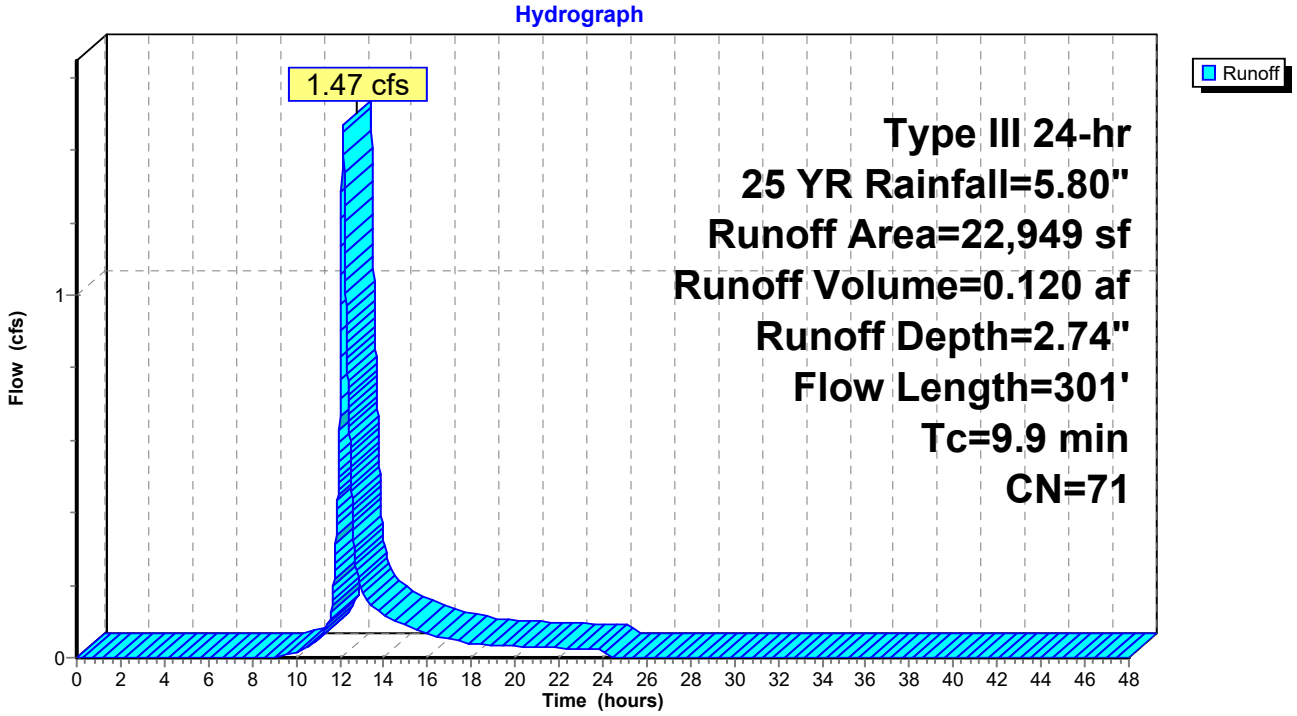
Runoff = 1.47 cfs @ 12.14 hrs, Volume= 0.120 af, Depth= 2.74"
Routed to Link POI 2 : POI 2: FOREST AVE CATCH BASIN (WEST)

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
1,026	60	Woods, Fair, HSG B
403	36	Woods, Fair, HSG A
7,007	98	Paved parking, HSG A
6	36	Woods, Fair, HSG A
3,230	98	Unconnected roofs, HSG A
11,277	49	50-75% Grass cover, Fair, HSG A
22,949	71	Weighted Average
12,712		55.39% Pervious Area
10,237		44.61% Impervious Area
3,230		31.55% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.2	72	0.1141	0.15		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.23"
0.1	43	0.1575	8.06		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.1	37	0.0536	4.70		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
1.4	130	0.0461	1.50		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.1	19	0.0514	4.60		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
9.9	301	Total			

Subcatchment 2.1S: SUBCAT 2



Summary for Subcatchment 2.2S: SUBCAT 2.2

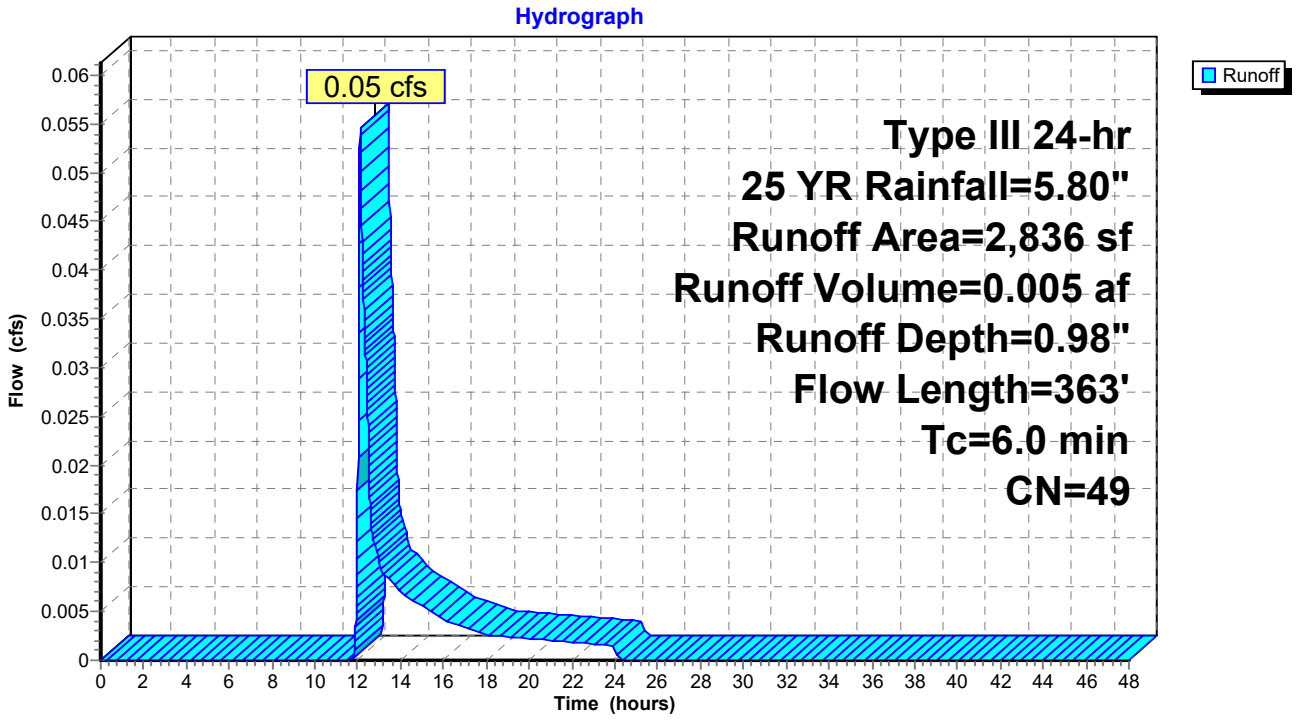
Runoff = 0.05 cfs @ 12.11 hrs, Volume= 0.005 af, Depth= 0.98"
Routed to Link POI 2 : POI 2: FOREST AVE CATCH BASIN (WEST)

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
2,836	49	50-75% Grass cover, Fair, HSG A
2,836		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.6	76	0.1378	0.35		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.23"
0.3	24	0.0326	1.26		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.23"
1.3	263	0.0266	3.31		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
5.2	363	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 2.2S: SUBCAT 2.2



Summary for Subcatchment 3S: SUBCAT 3

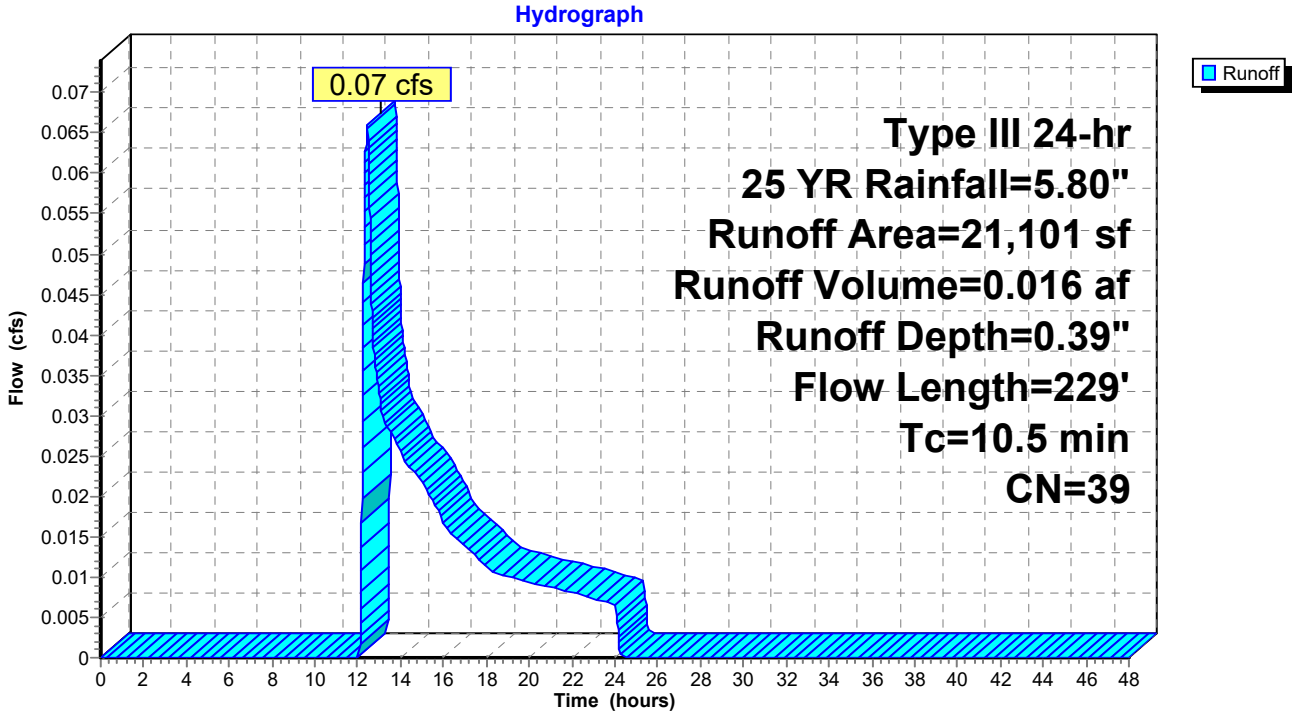
Runoff = 0.07 cfs @ 12.43 hrs, Volume= 0.016 af, Depth= 0.39"
Routed to Link POI 3 : POI 3: INTERNAL WETLAND

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	60	Woods, Fair, HSG B
489	36	Woods, Fair, HSG A
905	98	Paved parking, HSG A
19,698	36	Woods, Fair, HSG A
21,101	39	Weighted Average
20,196		95.71% Pervious Area
905		4.29% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	100	0.1075	0.23		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.23"
2.8	98	0.0535	0.58		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
0.5	31	0.1689	1.03		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
10.5	229	Total			

Subcatchment 3S: SUBCAT 3



Summary for Subcatchment 4.1S: SUBCAT 3

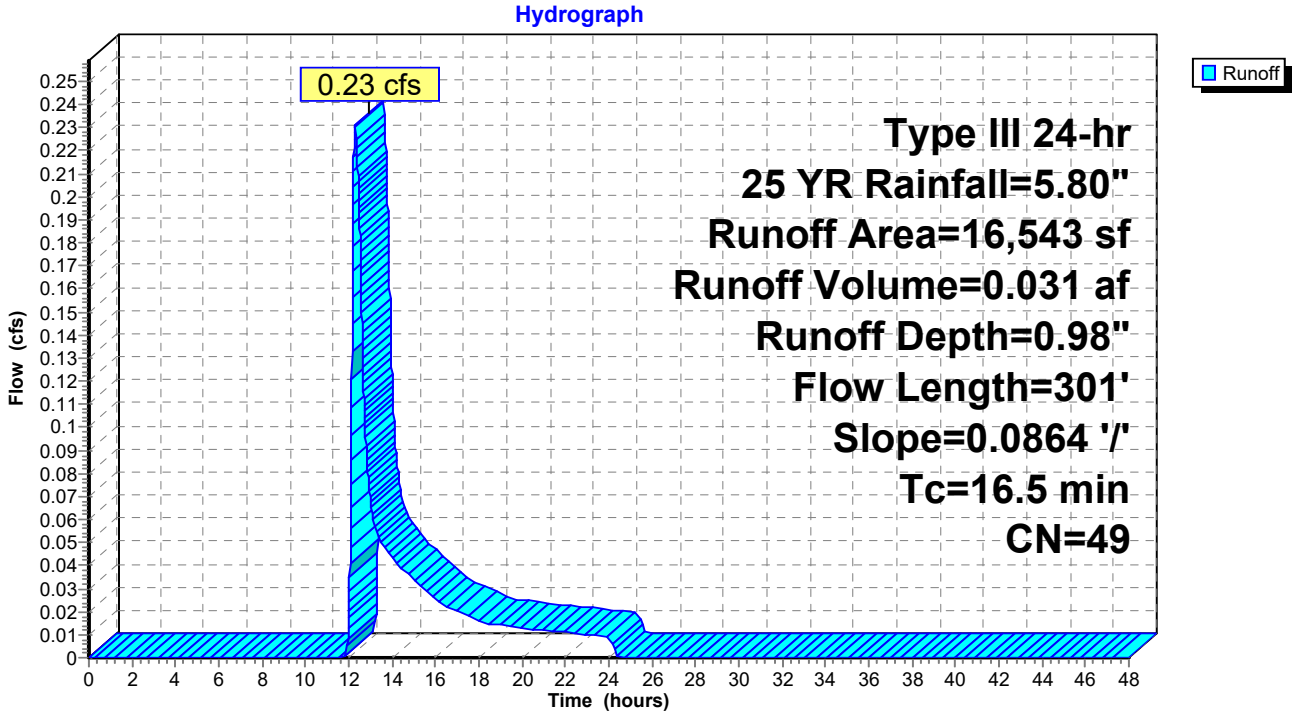
Runoff = 0.23 cfs @ 12.30 hrs, Volume= 0.031 af, Depth= 0.98"
Routed to Link POI 4 : POI 4: HANNAFORD DETENTION POND

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
	2,925	36	Woods, Fair, HSG A
*	431	96	Gravel surface, Path, HSG A
	2	98	Paved parking, HSG A
	2,935	36	Woods, Fair, HSG A
	3,404	36	Woods, Fair, HSG A
*	42	96	Gravel surface, Path, HSG A
	0	36	Woods, Fair, HSG A
	121	60	Woods, Fair, HSG B
*	77	96	Gravel surface,Path, Assumed HSG B
	2,886	60	Woods, Fair, HSG B
*	559	96	Gravel surface, Path, Assumed HSG B
	1,816	60	Woods, Fair, HSG B
	1,345	60	Woods, Fair, HSG B
	16,543	49	Weighted Average
	16,541		99.99% Pervious Area
	2		0.01% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.9	100	0.0864	0.14		**Sheet Flow, 100 ft** Woods: Light underbrush n= 0.400 P2= 3.23"
4.6	201	0.0864	0.73		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
16.5	301	Total			

Subcatchment 4.1S: SUBCAT 3



Summary for Subcatchment 4.2S: SUBCAT 3.1

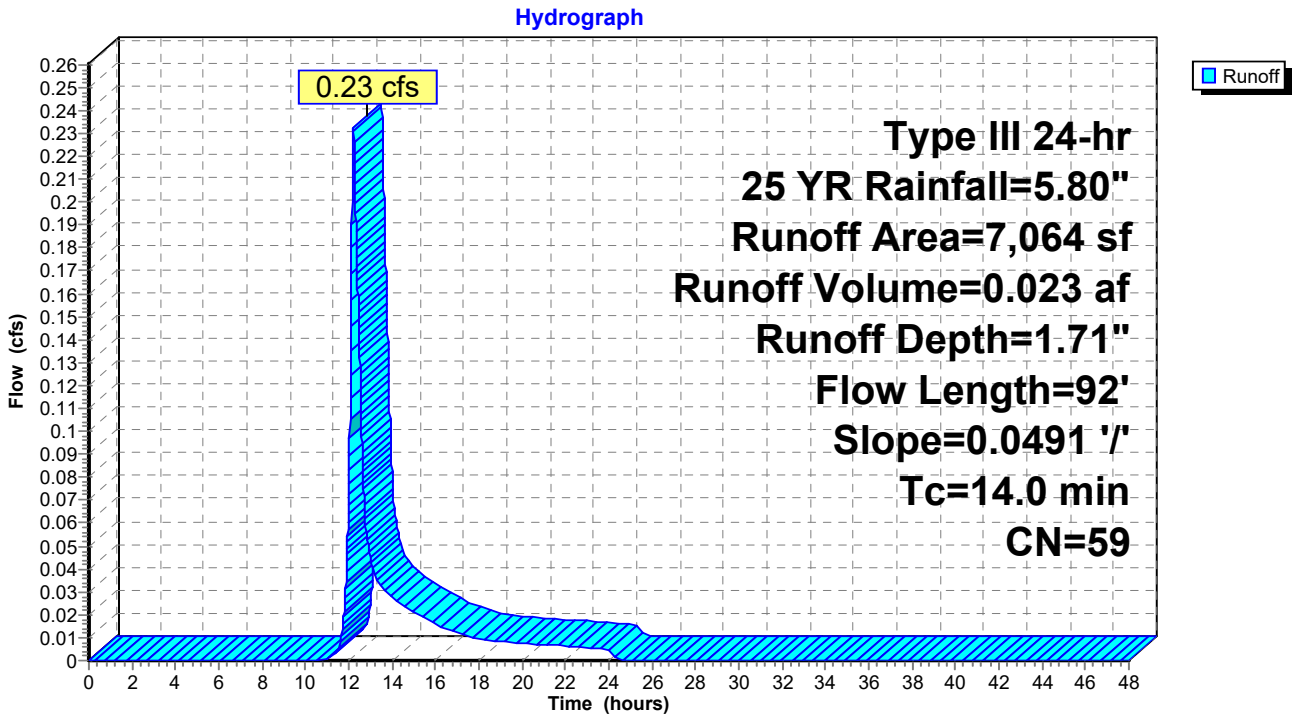
Runoff = 0.23 cfs @ 12.21 hrs, Volume= 0.023 af, Depth= 1.71"
Routed to Link POI 4 : POI 4: HANNAFORD DETENTION POND

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
6,630	60	Woods, Fair, HSG B
434	36	Woods, Fair, HSG A
7,064	59	Weighted Average
7,064		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.0	92	0.0491	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.23"

Subcatchment 4.2S: SUBCAT 3.1



Summary for Subcatchment 5S: SUBCAT 5

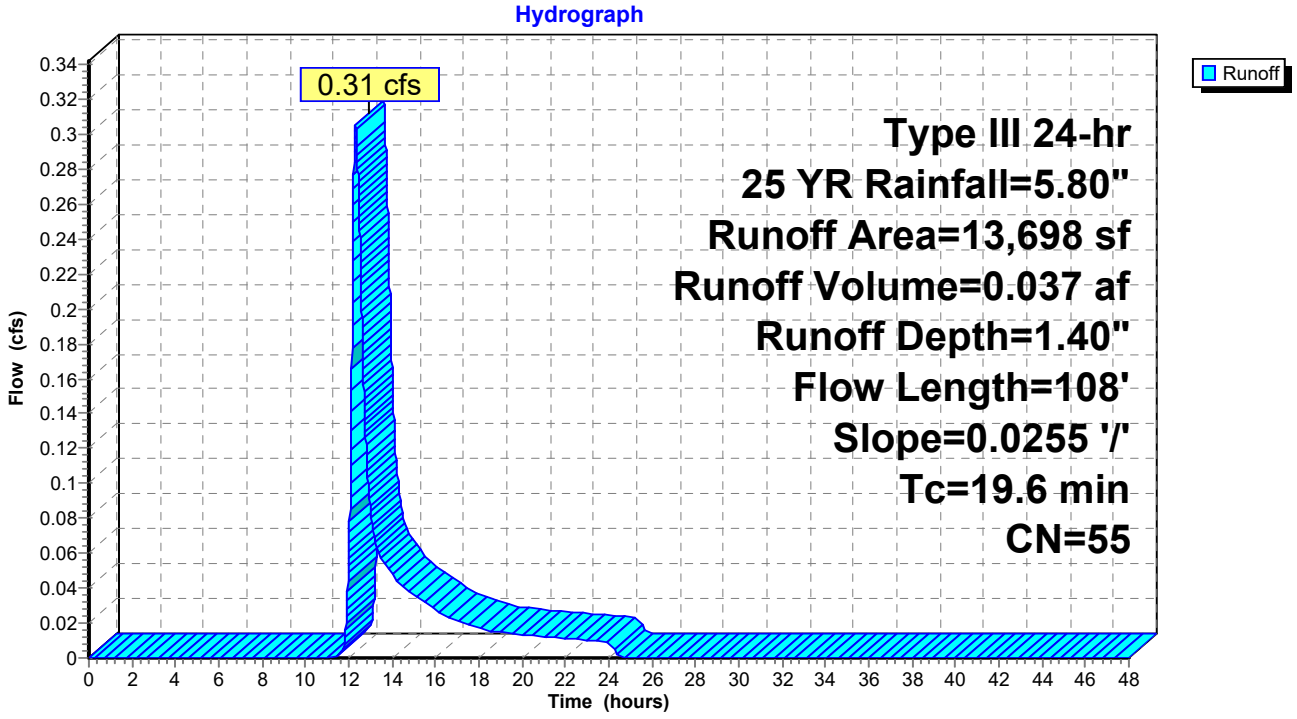
Runoff = 0.31 cfs @ 12.31 hrs, Volume= 0.037 af, Depth= 1.40"
Routed to Link POI 5 : POI 5: SHEET FLOW CEMETERY

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
5,782	60	Woods, Fair, HSG B
6,618	43	Woods/grass comb., Fair, HSG A
1,298	98	Paved parking, HSG A
13,698	55	Weighted Average
12,400		90.52% Pervious Area
1,298		9.48% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.4	100	0.0255	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.23"
0.2	8	0.0255	0.80		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
19.6	108	Total			

Subcatchment 5S: SUBCAT 5

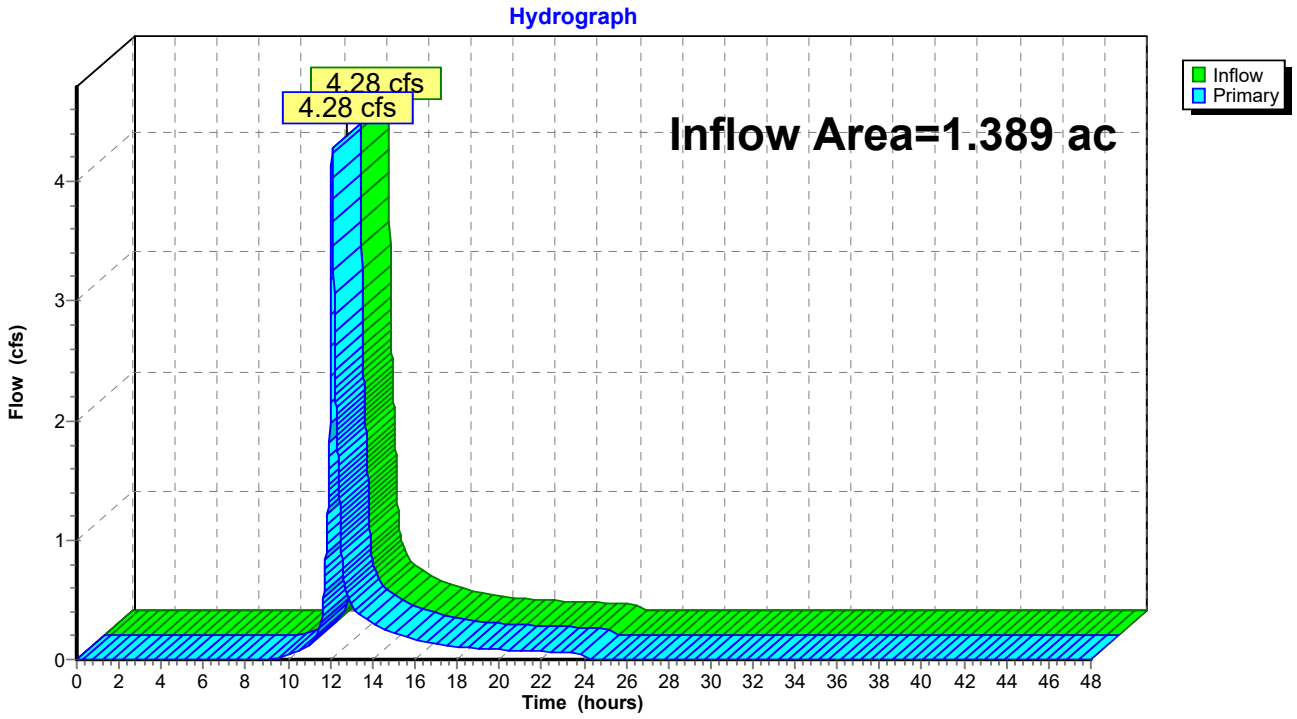


Summary for Link POI 1: POI 1: CB - FOREST AVE CATCH BASIN (EAST)

Inflow Area = 1.389 ac, 47.80% Impervious, Inflow Depth = 2.65" for 25 YR event
Inflow = 4.28 cfs @ 12.09 hrs, Volume= 0.306 af
Primary = 4.28 cfs @ 12.09 hrs, Volume= 0.306 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link POI 1: POI 1: CB - FOREST AVE CATCH BASIN (EAST)

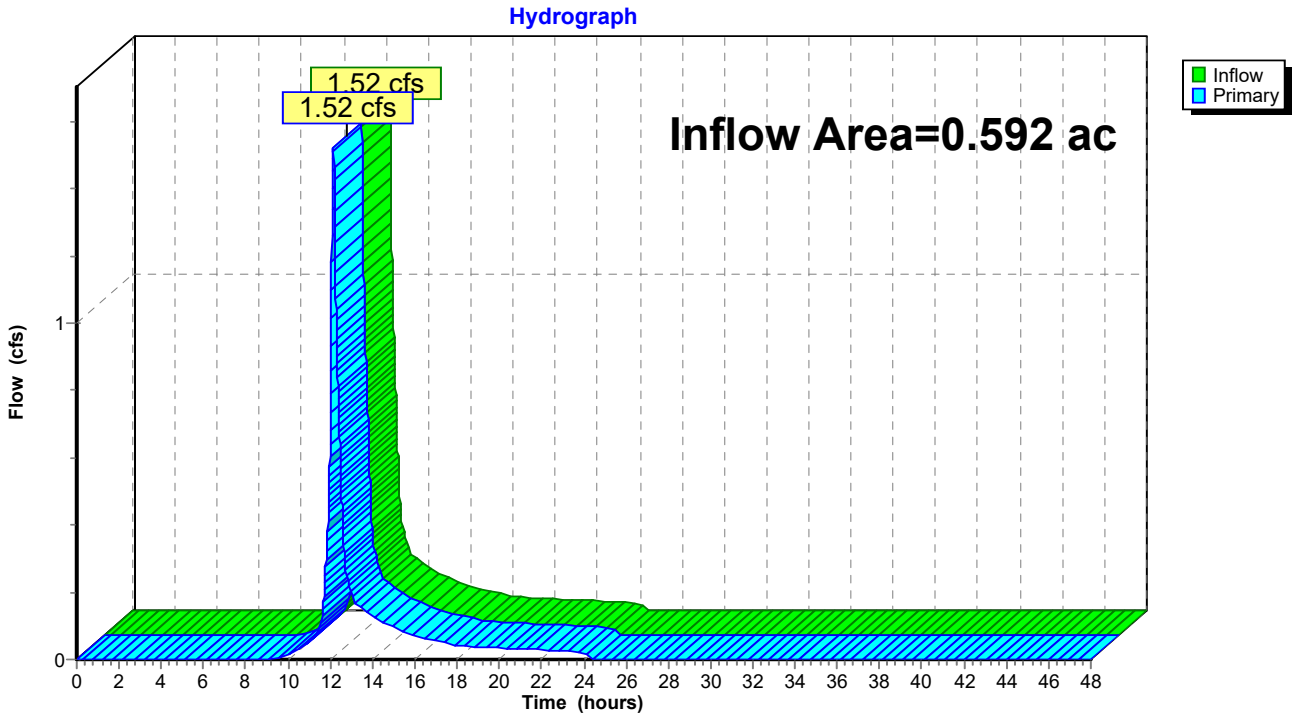


Summary for Link POI 2: POI 2: FOREST AVE CATCH BASIN (WEST)

Inflow Area = 0.592 ac, 39.70% Impervious, Inflow Depth = 2.54" for 25 YR event
Inflow = 1.52 cfs @ 12.14 hrs, Volume= 0.126 af
Primary = 1.52 cfs @ 12.14 hrs, Volume= 0.126 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link POI 2: POI 2: FOREST AVE CATCH BASIN (WEST)

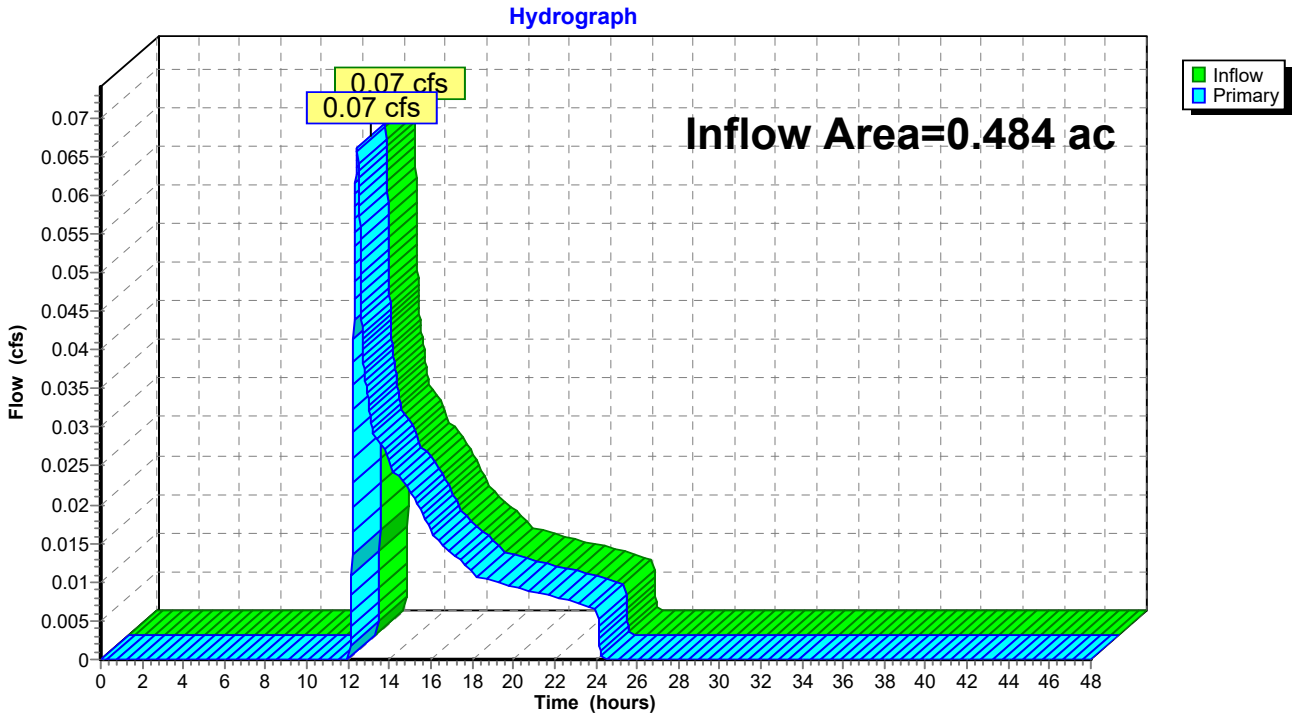


Summary for Link POI 3: POI 3: INTERNAL WETLAND

Inflow Area = 0.484 ac, 4.29% Impervious, Inflow Depth = 0.39" for 25 YR event
Inflow = 0.07 cfs @ 12.43 hrs, Volume= 0.016 af
Primary = 0.07 cfs @ 12.43 hrs, Volume= 0.016 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link POI 3: POI 3: INTERNAL WETLAND

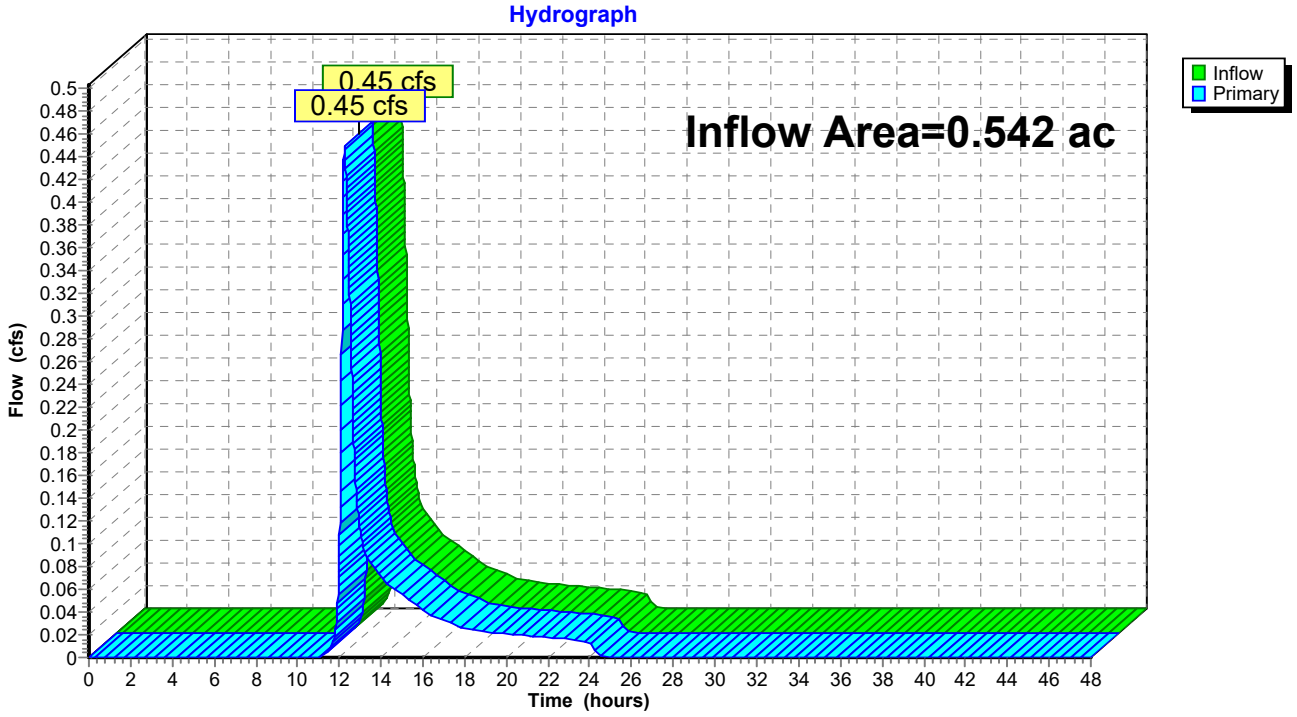


Summary for Link POI 4: POI 4: HANNAFORD DETENTION POND

Inflow Area = 0.542 ac, 0.01% Impervious, Inflow Depth = 1.20" for 25 YR event
Inflow = 0.45 cfs @ 12.25 hrs, Volume= 0.054 af
Primary = 0.45 cfs @ 12.25 hrs, Volume= 0.054 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link POI 4: POI 4: HANNAFORD DETENTION POND

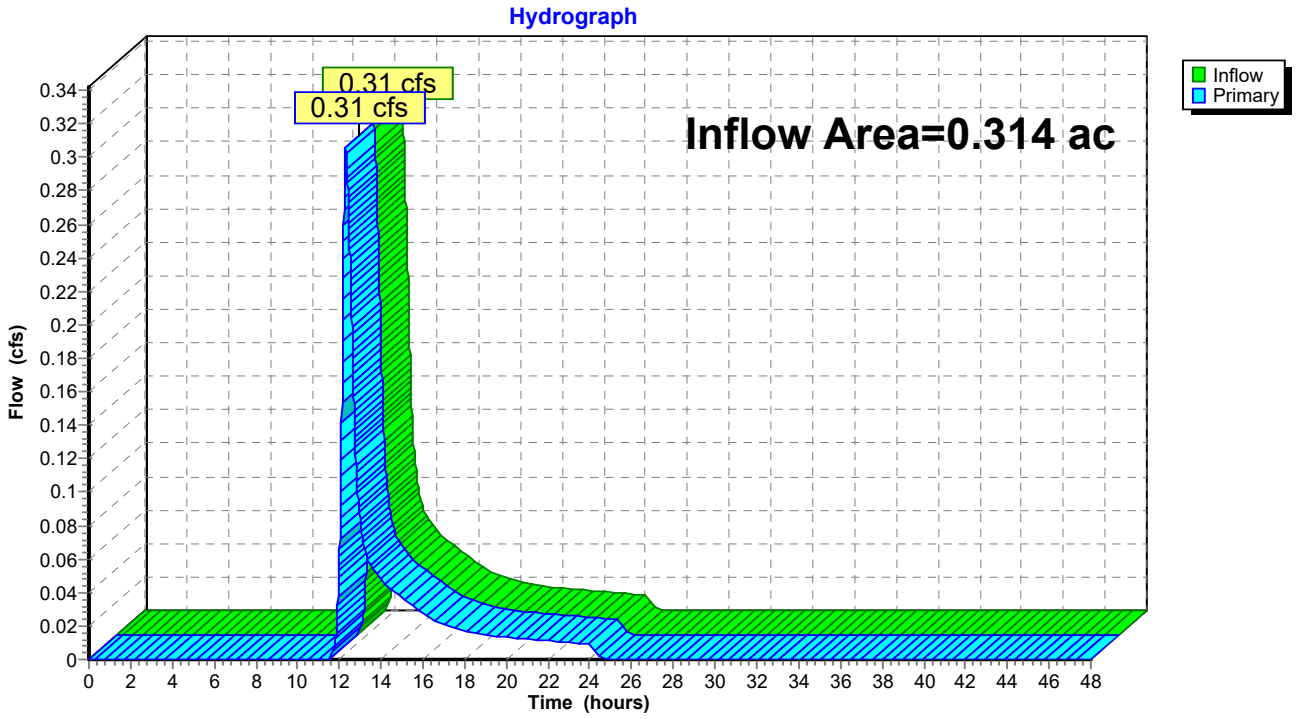


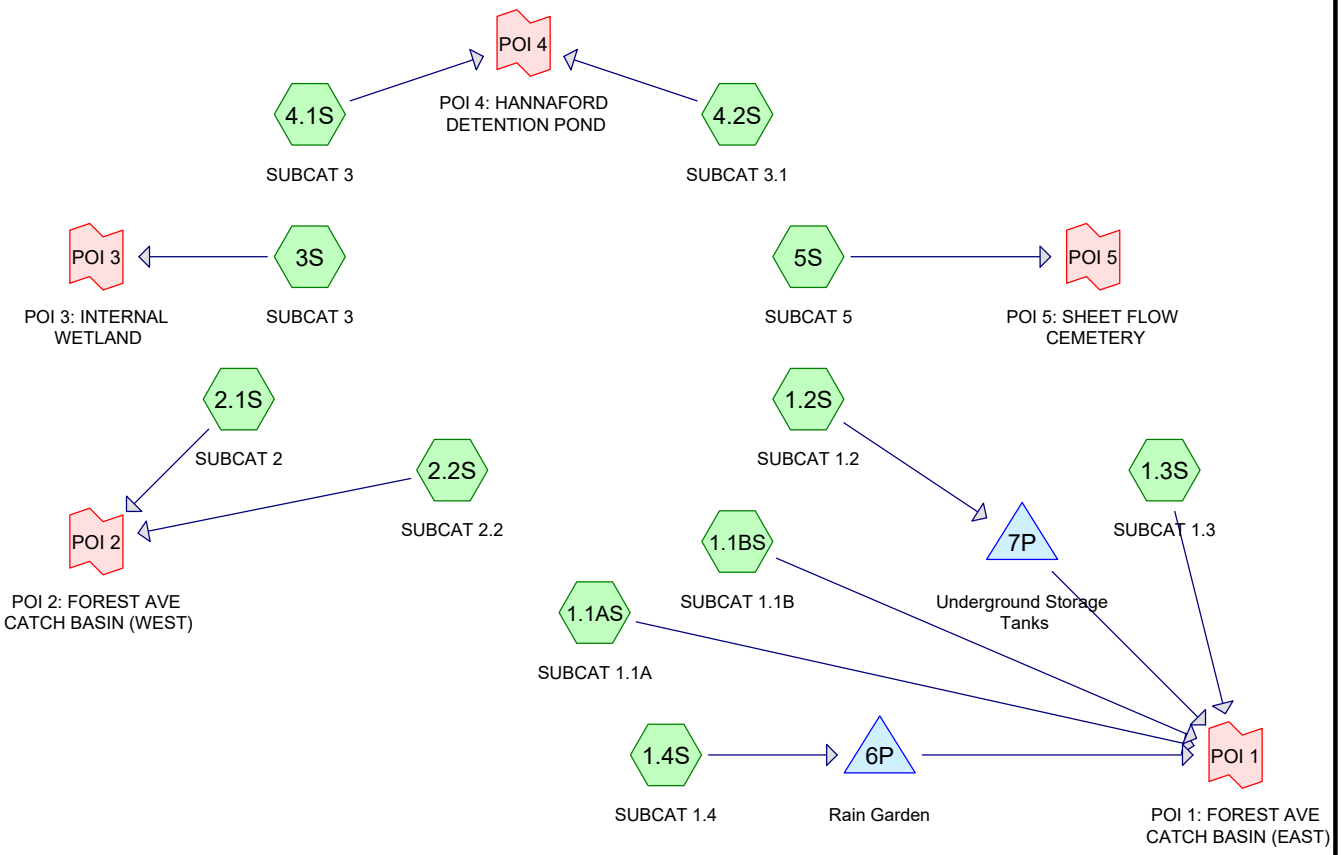
Summary for Link POI 5: POI 5: SHEET FLOW CEMETERY

Inflow Area = 0.314 ac, 9.48% Impervious, Inflow Depth = 1.40" for 25 YR event
Inflow = 0.31 cfs @ 12.31 hrs, Volume= 0.037 af
Primary = 0.31 cfs @ 12.31 hrs, Volume= 0.037 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link POI 5: POI 5: SHEET FLOW CEMETERY





Subcat Reach Pond Link

Routing Diagram for 1297_AE_POST
Prepared by Acorn Engineering, Printed 5/21/2026
HydroCAD® 10.20-8a s/n 00620 © 2025 HydroCAD Software Solutions LLC

Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2 YR	Type III 24-hr		Default	24.00	1	3.10	2
2	10 YR	Type III 24-hr		Default	24.00	1	4.60	2
3	25 YR	Type III 24-hr		Default	24.00	1	5.80	2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.544	49	50-75% Grass cover, Fair, HSG A (1.1AS, 2.1S, 2.2S)
0.007	68	<50% Grass cover, Poor, HSG A (1.2S)
0.443	39	>75% Grass cover, Good, HSG A (1.1BS, 1.2S, 1.3S, 1.4S)
0.076	96	Gravel surface, HSG A (1.1AS, 1.2S, 1.3S, 1.4S)
0.013	96	Gravel surface, Path, Assumed HSG B (4.1S)
0.011	96	Gravel surface, Path, HSG A (4.1S)
0.002	96	Gravel surface,Path, Assumed HSG B (4.1S)
0.538	98	Paved parking, HSG A (1.1AS, 1.1BS, 1.2S, 2.1S, 3S, 4.1S)
0.027	98	Paved parking, HSG B (1.1AS, 1.1BS)
0.068	98	Unconnected pavement, HSG A (1.1AS, 1.1BS, 1.2S, 1.3S, 1.4S)
0.005	98	Unconnected pavement, HSG A - RETAINING WALL (1.2S)
0.000	98	Unconnected pavement, HSG B (1.1AS, 1.1BS)
0.248	98	Unconnected roofs, HSG A (1.2S, 1.4S, 2.1S)
0.702	36	Woods, Fair, HSG A (1.1BS, 2.1S, 3S, 4.1S, 4.2S)
0.475	60	Woods, Fair, HSG B (1.1AS, 1.1BS, 2.1S, 3S, 4.1S, 4.2S, 5S)
0.042	66	Woods, Poor, Assumed HSG B (4.1S)
0.123	43	Woods/grass comb., Fair, HSG A (5S)
3.321	**61**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
2.763	HSG A	1.1AS, 1.1BS, 1.2S, 1.3S, 1.4S, 2.1S, 2.2S, 3S, 4.1S, 4.2S, 5S
0.558	HSG B	1.1AS, 1.1BS, 2.1S, 3S, 4.1S, 4.2S, 5S
0.000	HSG C	
0.000	HSG D	
0.000	Other	
3.321		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.544	0.000	0.000	0.000	0.000	0.544	50-75% Grass cover, Fair	1.1AS, 2.1S, 2.2S
0.007	0.000	0.000	0.000	0.000	0.007	<50% Grass cover, Poor	1.2S
0.443	0.000	0.000	0.000	0.000	0.443	>75% Grass cover, Good	1.1BS, 1.2S, 1.3S, 1.4S
0.076	0.000	0.000	0.000	0.000	0.076	Gravel surface	1.1AS, 1.2S, 1.3S, 1.4S
0.011	0.000	0.000	0.000	0.000	0.011	Gravel surface, Path	4.1S
0.000	0.013	0.000	0.000	0.000	0.013	Gravel surface, Path, Assumed	4.1S
0.000	0.002	0.000	0.000	0.000	0.002	Gravel surface,Path, Assumed	4.1S
0.538	0.027	0.000	0.000	0.000	0.564	Paved parking	1.1AS, 1.1BS, 1.2S, 2.1S, 3S,

Ground Covers (all nodes) (continued)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.073	0.000	0.000	0.000	0.000	0.073	Unconnected pavement	1.1AS, 1.1BS, 1.2S, 1.3S, 1.4S
0.248	0.000	0.000	0.000	0.000	0.248	Unconnected roofs	1.2S, 1.4S, 2.1S
0.702	0.475	0.000	0.000	0.000	1.176	Woods, Fair	1.1AS, 1.1BS, 2.1S, 3S, 4.1S, 4.2S, 5S
0.000	0.042	0.000	0.000	0.000	0.042	Woods, Poor, Assumed	4.1S
0.123	0.000	0.000	0.000	0.000	0.123	Woods/grass comb., Fair	5S
2.763	**0.558**	**0.000**	**0.000**	**0.000**	**3.321**	**TOTAL AREA**	

Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Width (inches)	Diam/Height (inches)	Inside-Fill (inches)	Node Name
1	1.3S	0.00	0.00	28.0	0.0137	0.013	0.0	8.0	0.0	
2	1.3S	0.00	0.00	13.0	0.0193	0.012	0.0	8.0	0.0	
3	1.3S	0.00	0.00	5.0	0.0100	0.012	0.0	8.0	0.0	
4	6P	84.00	83.00	16.0	0.0625	0.013	0.0	10.0	0.0	
5	7P	80.90	80.20	73.0	0.0096	0.013	0.0	12.0	0.0	
6	7P	84.00	83.70	16.7	0.0180	0.013	0.0	10.0	0.0	

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points x 5
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1.1AS: SUBCAT1.1A Runoff Area=22,305 sf 40.69% Impervious Runoff Depth=1.03"
Tc=6.0 min CN=75 Runoff=0.59 cfs 0.044 af

Subcatchment1.1BS: SUBCAT1.1B Runoff Area=15,136 sf 23.34% Impervious Runoff Depth=0.22"
Tc=6.0 min UI Adjusted CN=55 Runoff=0.03 cfs 0.006 af

Subcatchment1.2S: SUBCAT1.2 Runoff Area=16,599 sf 76.27% Impervious Runoff Depth=1.67"
Tc=6.0 min CN=85 Runoff=0.75 cfs 0.053 af

Subcatchment1.3S: SUBCAT1.3 Runoff Area=6,473 sf 12.75% Impervious Runoff Depth=0.03"
Flow Length=156' Tc=9.9 min UI Adjusted CN=45 Runoff=0.00 cfs 0.000 af

Subcatchment1.4S: SUBCAT1.4 Runoff Area=2,539 sf 51.95% Impervious Runoff Depth=0.77"
Tc=6.0 min CN=70 Runoff=0.05 cfs 0.004 af

Subcatchment2.1S: SUBCAT2 Runoff Area=22,949 sf 44.61% Impervious Runoff Depth=0.82"
Flow Length=301' Tc=9.9 min CN=71 Runoff=0.40 cfs 0.036 af

Subcatchment2.2S: SUBCAT2.2 Runoff Area=2,836 sf 0.00% Impervious Runoff Depth=0.09"
Flow Length=363' Tc=6.0 min CN=49 Runoff=0.00 cfs 0.000 af

Subcatchment3S: SUBCAT3 Runoff Area=21,101 sf 4.29% Impervious Runoff Depth=0.00"
Flow Length=229' Tc=10.5 min CN=39 Runoff=0.00 cfs 0.000 af

Subcatchment4.1S: SUBCAT3 Runoff Area=16,543 sf 0.01% Impervious Runoff Depth=0.11"
Flow Length=301' Slope=0.0864 '/' Tc=16.5 min CN=50 Runoff=0.01 cfs 0.003 af

Subcatchment4.2S: SUBCAT3.1 Runoff Area=7,064 sf 0.00% Impervious Runoff Depth=0.34"
Flow Length=92' Slope=0.0491 '/' Tc=14.0 min CN=59 Runoff=0.03 cfs 0.005 af

Subcatchment5S: SUBCAT5 Runoff Area=11,134 sf 0.00% Impervious Runoff Depth=0.15"
Flow Length=108' Slope=0.0255 '/' Tc=19.6 min CN=52 Runoff=0.01 cfs 0.003 af

Pond 6P: Rain Garden Peak Elev=87.19' Storage=149 cf Inflow=0.05 cfs 0.004 af
Outflow=0.00 cfs 0.001 af

Pond 7P: Underground Storage Tanks Peak Elev=84.30' Storage=1,195 cf Inflow=0.75 cfs 0.053 af
Outflow=0.05 cfs 0.053 af

Link POI 1: POI 1: FOREST AVE CATCH BASIN (EAST) Inflow=0.63 cfs 0.105 af
Primary=0.63 cfs 0.105 af

Link POI 2: POI 2: FOREST AVE CATCH BASIN (WEST) Inflow=0.40 cfs 0.036 af
Primary=0.40 cfs 0.036 af

Link POI 3: POI 3: INTERNAL WETLAND Inflow=0.00 cfs 0.000 af
Primary=0.00 cfs 0.000 af

Link POI 4: POI 4: HANNAFORD DETENTION POND Inflow=0.03 cfs 0.008 af
Primary=0.03 cfs 0.008 af

Link POI 5: POI 5: SHEET FLOW CEMETERY Inflow=0.01 cfs 0.003 af
Primary=0.01 cfs 0.003 af

Total Runoff Area = 3.321 ac Runoff Volume = 0.155 af Average Runoff Depth = 0.56"
73.35% Pervious = 2.436 ac 26.65% Impervious = 0.885 ac

Summary for Subcatchment 1.1AS: SUBCAT 1.1A

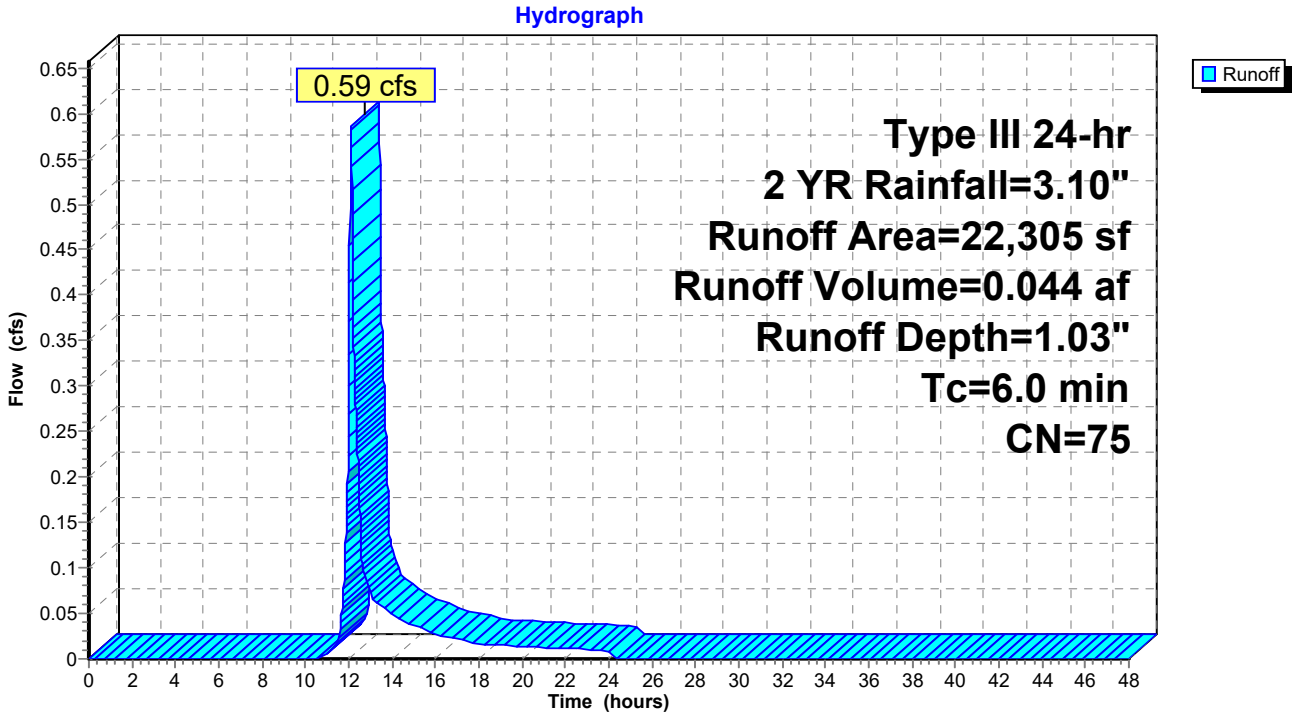
Runoff = 0.59 cfs @ 12.10 hrs, Volume= 0.044 af, Depth= 1.03"
Routed to Link POI 1 : POI 1: FOREST AVE CATCH BASIN (EAST)

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 2 YR Rainfall=3.10"

Area (sf)	CN	Description
6,137	98	Paved parking, HSG A
2,945	96	Gravel surface, HSG A
702	60	Woods, Fair, HSG B
102	98	Paved parking, HSG B
2,741	98	Paved parking, HSG A
9,581	49	50-75% Grass cover, Fair, HSG A
17	98	Unconnected pavement, HSG B
80	98	Unconnected pavement, HSG A
22,305	75	Weighted Average
13,228		59.31% Pervious Area
9,077		40.69% Impervious Area
97		1.07% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR-55 MIN**

Subcatchment 1.1AS: SUBCAT 1.1A



Summary for Subcatchment 1.1BS: SUBCAT 1.1B

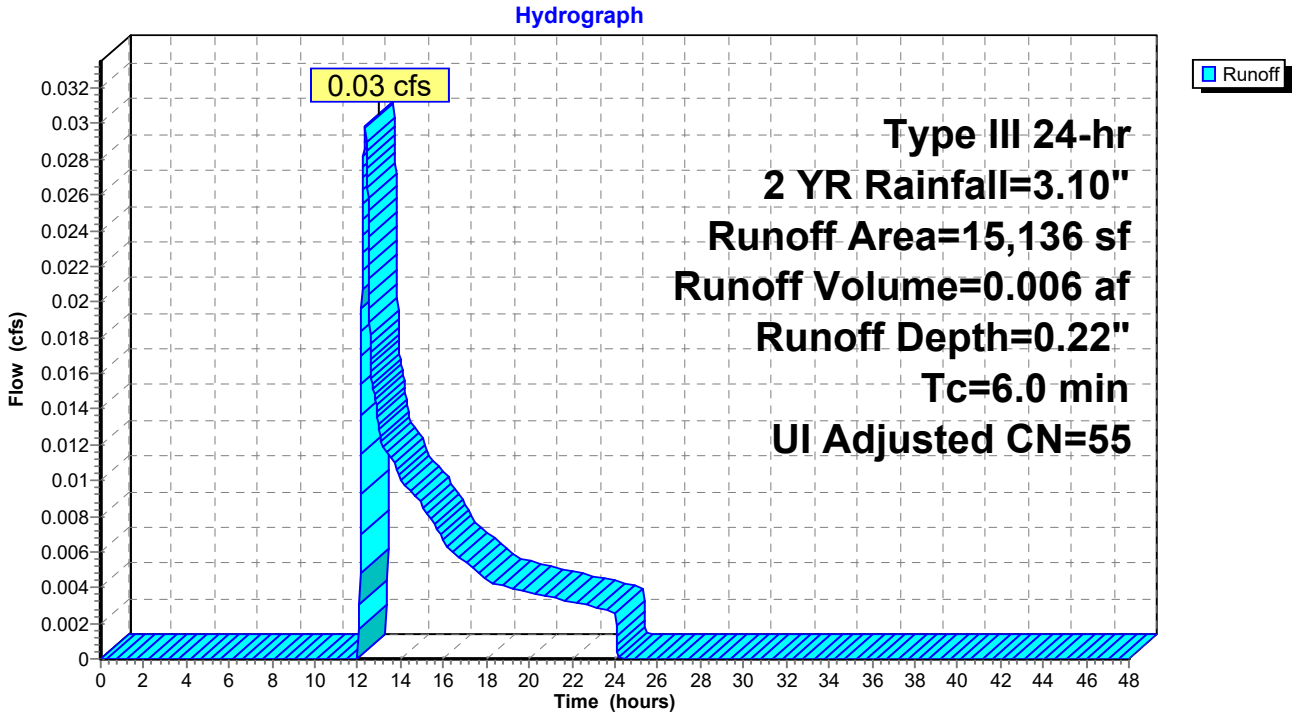
Runoff = 0.03 cfs @ 12.35 hrs, Volume= 0.006 af, Depth= 0.22"
Routed to Link POI 1 : POI 1: FOREST AVE CATCH BASIN (EAST)

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 2 YR Rainfall=3.10"

Area (sf)	CN	Adj	Description
2,221	98		Paved parking, HSG A
2,179	60		Woods, Fair, HSG B
1,057	98		Paved parking, HSG B
7,357	39		>75% Grass cover, Good, HSG A
1	98		Unconnected pavement, HSG B
1,795	39		>75% Grass cover, Good, HSG A
272	36		Woods, Fair, HSG A
254	98		Unconnected pavement, HSG A
15,136	56	55	Weighted Average, UI Adjusted
11,603			76.66% Pervious Area
3,533			23.34% Impervious Area
255			7.22% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 1.1BS: SUBCAT 1.1B



Summary for Subcatchment 1.2S: SUBCAT 1.2

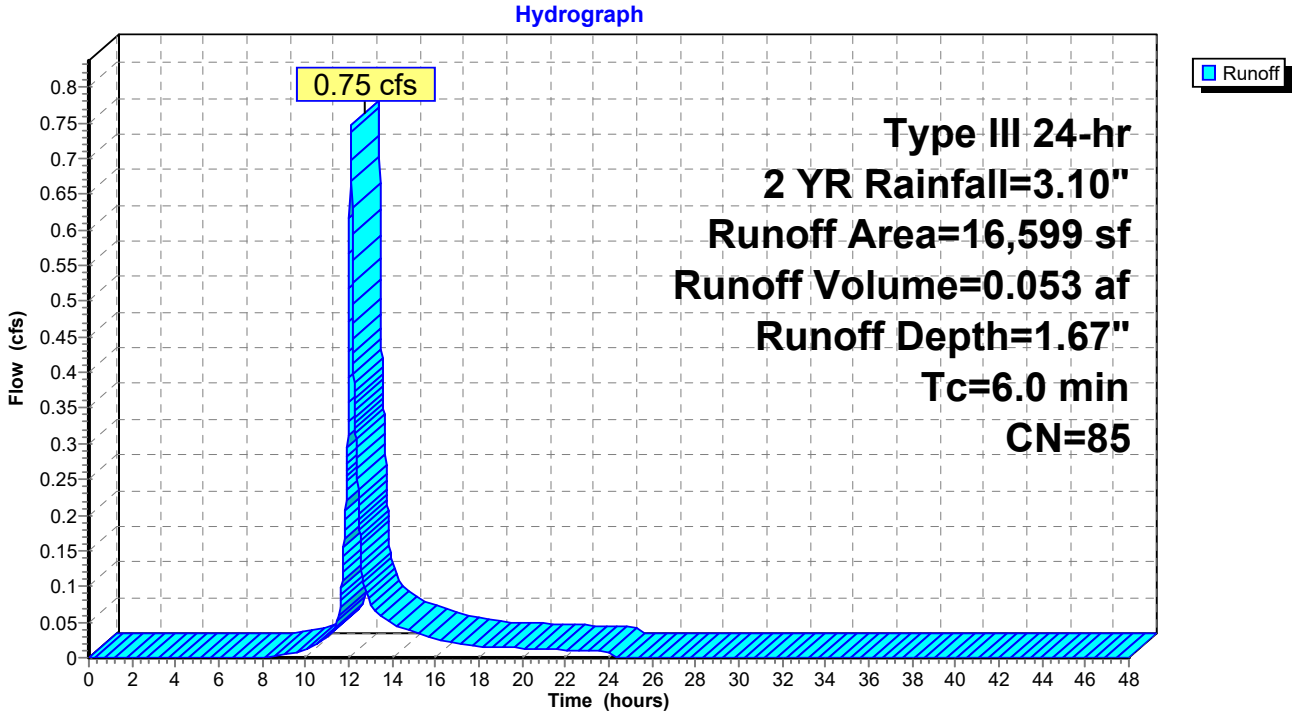
Runoff = 0.75 cfs @ 12.09 hrs, Volume= 0.053 af, Depth= 1.67"
Routed to Pond 7P : Underground Storage Tanks

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 2 YR Rainfall=3.10"

	Area (sf)	CN	Description
	4,412	98	Paved parking, HSG A
	61	68	<50% Grass cover, Poor, HSG A
	174	68	<50% Grass cover, Poor, HSG A
	51	68	<50% Grass cover, Poor, HSG A
	3,461	39	>75% Grass cover, Good, HSG A
	6,716	98	Unconnected roofs, HSG A
*	206	98	Unconnected pavement, HSG A - RETAINING WALL
	63	39	>75% Grass cover, Good, HSG A
	1,326	98	Unconnected pavement, HSG A
	129	96	Gravel surface, HSG A
	16,599	85	Weighted Average
	3,939		23.73% Pervious Area
	12,660		76.27% Impervious Area
	8,248		65.15% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR-55 MIN**

Subcatchment 1.2S: SUBCAT 1.2



Summary for Subcatchment 1.3S: SUBCAT 1.3

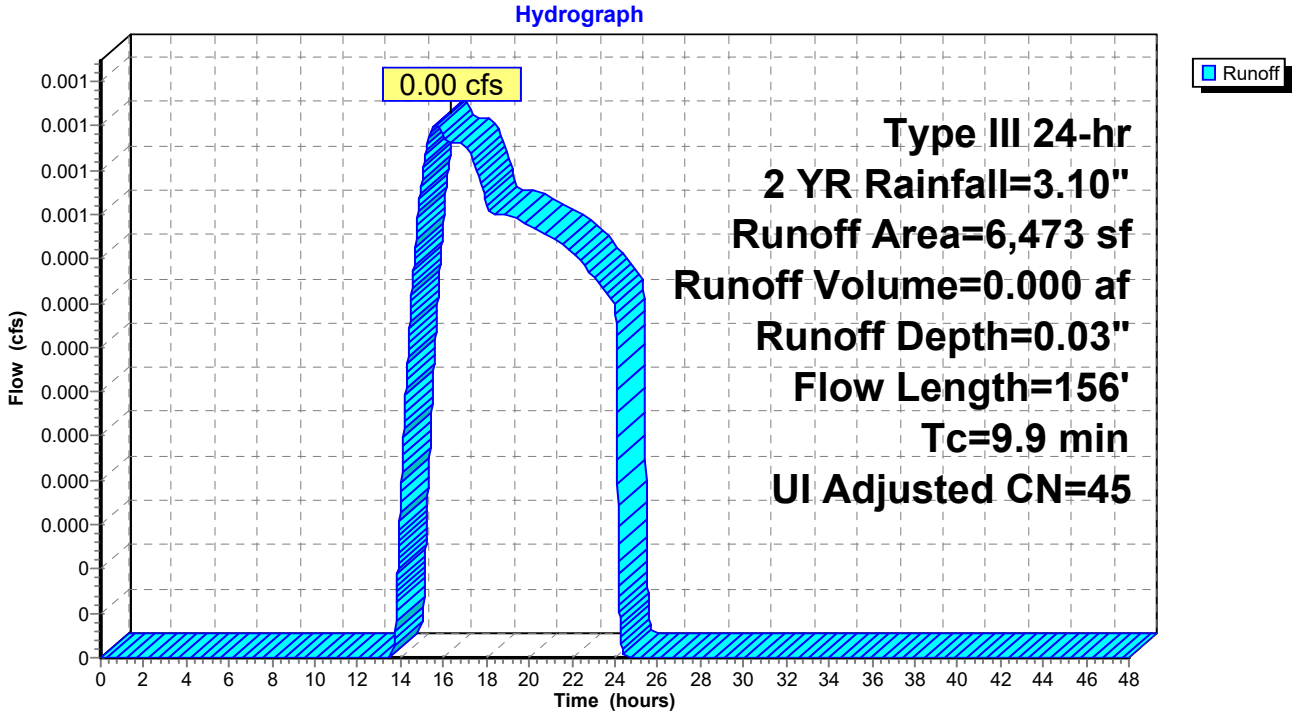
Runoff = 0.00 cfs @ 15.65 hrs, Volume= 0.000 af, Depth= 0.03"
Routed to Link POI 1 : POI 1: FOREST AVE CATCH BASIN (EAST)

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 2 YR Rainfall=3.10"

Area (sf)	CN	Adj	Description
825	98		Unconnected pavement, HSG A
5,430	39		>75% Grass cover, Good, HSG A
218	96		Gravel surface, HSG A
6,473	48	45	Weighted Average, UI Adjusted
5,648			87.25% Pervious Area
825			12.75% Impervious Area
825			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.8	100	0.0500	0.17		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.23"
0.0	10	0.0519	3.42		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
0.1	28	0.0137	4.05	1.41	**Pipe Channel,** 8.0" Round Area= 0.3 sf Perim= 2.1' r= 0.17' n= 0.013 Corrugated PE, smooth interior
0.0	13	0.0193	5.21	1.82	**Pipe Channel,** 8.0" Round Area= 0.3 sf Perim= 2.1' r= 0.17' n= 0.012 Corrugated PP, smooth interior
0.0	5	0.0100	3.75	1.31	**Pipe Channel,** 8.0" Round Area= 0.3 sf Perim= 2.1' r= 0.17' n= 0.012 Corrugated PP, smooth interior
9.9	156	Total			

Subcatchment 1.3S: SUBCAT 1.3



Summary for Subcatchment 1.4S: SUBCAT 1.4

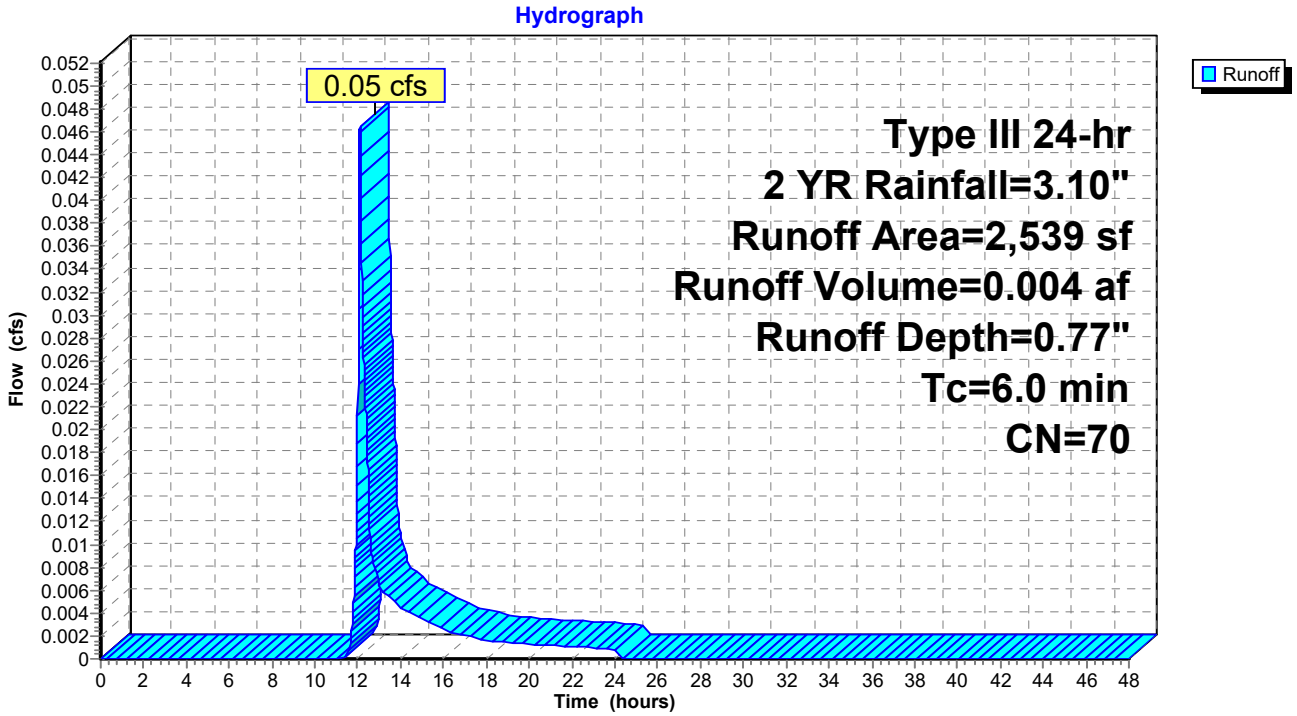
Runoff = 0.05 cfs @ 12.10 hrs, Volume= 0.004 af, Depth= 0.77"
Routed to Pond 6P : Rain Garden

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 2 YR Rainfall=3.10"

Area (sf)	CN	Description
468	98	Unconnected pavement, HSG A
851	98	Unconnected roofs, HSG A
1,189	39	>75% Grass cover, Good, HSG A
31	96	Gravel surface, HSG A
2,539	70	Weighted Average
1,220		48.05% Pervious Area
1,319		51.95% Impervious Area
1,319		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR-55 MIN**

Subcatchment 1.4S: SUBCAT 1.4



Summary for Subcatchment 2.1S: SUBCAT 2

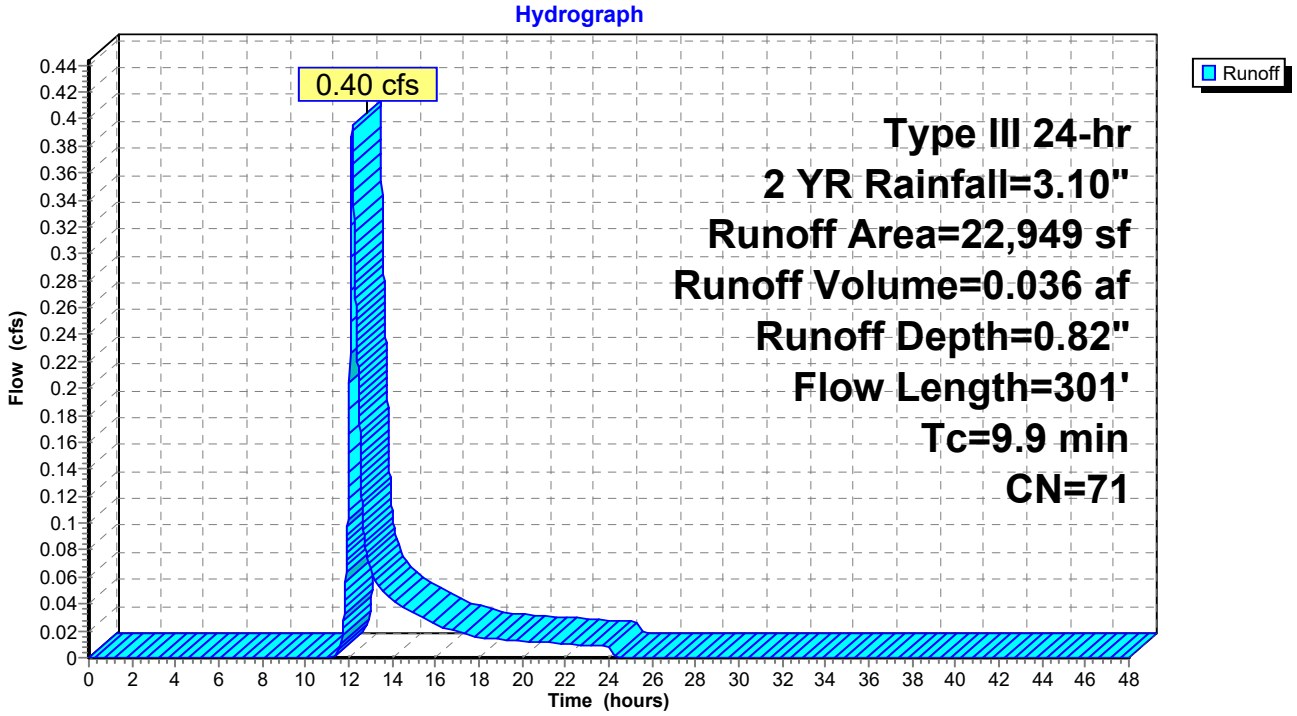
Runoff = 0.40 cfs @ 12.15 hrs, Volume= 0.036 af, Depth= 0.82"
Routed to Link POI 2 : POI 2: FOREST AVE CATCH BASIN (WEST)

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 2 YR Rainfall=3.10"

Area (sf)	CN	Description
1,026	60	Woods, Fair, HSG B
403	36	Woods, Fair, HSG A
7,007	98	Paved parking, HSG A
6	36	Woods, Fair, HSG A
3,230	98	Unconnected roofs, HSG A
11,277	49	50-75% Grass cover, Fair, HSG A
22,949	71	Weighted Average
12,712		55.39% Pervious Area
10,237		44.61% Impervious Area
3,230		31.55% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.2	72	0.1141	0.15		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.23"
0.1	43	0.1575	8.06		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.1	37	0.0536	4.70		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
1.4	130	0.0461	1.50		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.1	19	0.0514	4.60		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
9.9	301	Total			

Subcatchment 2.1S: SUBCAT 2



Summary for Subcatchment 2.2S: SUBCAT 2.2

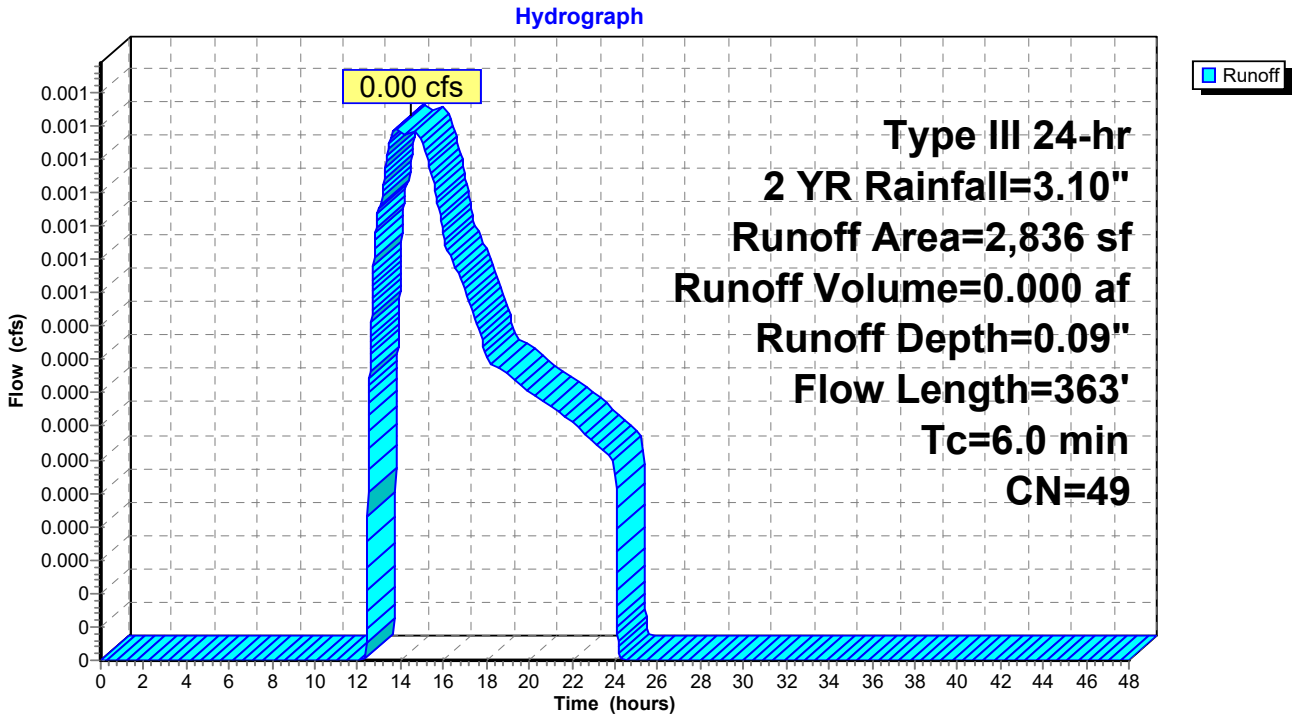
Runoff = 0.00 cfs @ 13.78 hrs, Volume= 0.000 af, Depth= 0.09"
Routed to Link POI 2 : POI 2: FOREST AVE CATCH BASIN (WEST)

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 2 YR Rainfall=3.10"

Area (sf)	CN	Description
2,836	49	50-75% Grass cover, Fair, HSG A
2,836		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.6	76	0.1378	0.35		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.23"
0.3	24	0.0326	1.26		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.23"
1.3	263	0.0266	3.31		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
5.2	363	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 2.2S: SUBCAT 2.2



Summary for Subcatchment 3S: SUBCAT 3

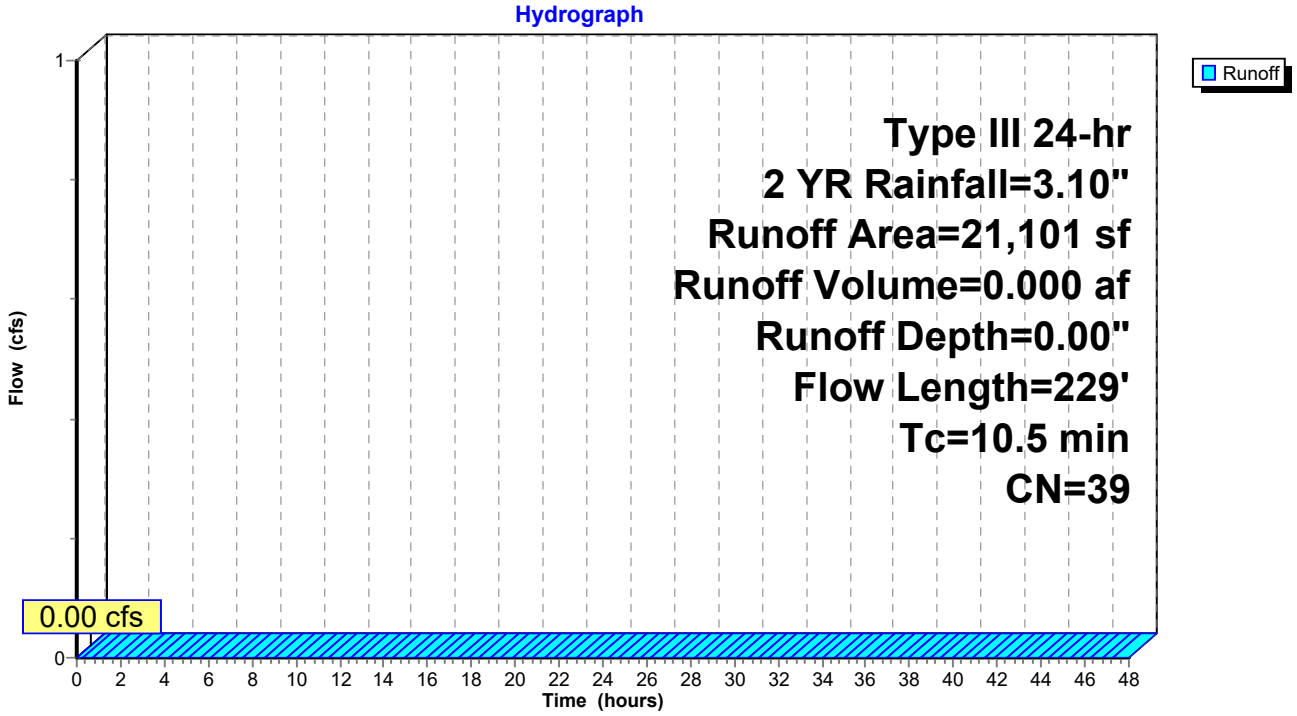
Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"
Routed to Link POI 3 : POI 3: INTERNAL WETLAND

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 2 YR Rainfall=3.10"

Area (sf)	CN	Description
9	60	Woods, Fair, HSG B
489	36	Woods, Fair, HSG A
905	98	Paved parking, HSG A
19,698	36	Woods, Fair, HSG A
21,101	39	Weighted Average
20,196		95.71% Pervious Area
905		4.29% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	100	0.1075	0.23		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.23"
2.8	98	0.0535	0.58		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
0.5	31	0.1689	1.03		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
10.5	229	Total			

Subcatchment 3S: SUBCAT 3



Summary for Subcatchment 4.1S: SUBCAT 3

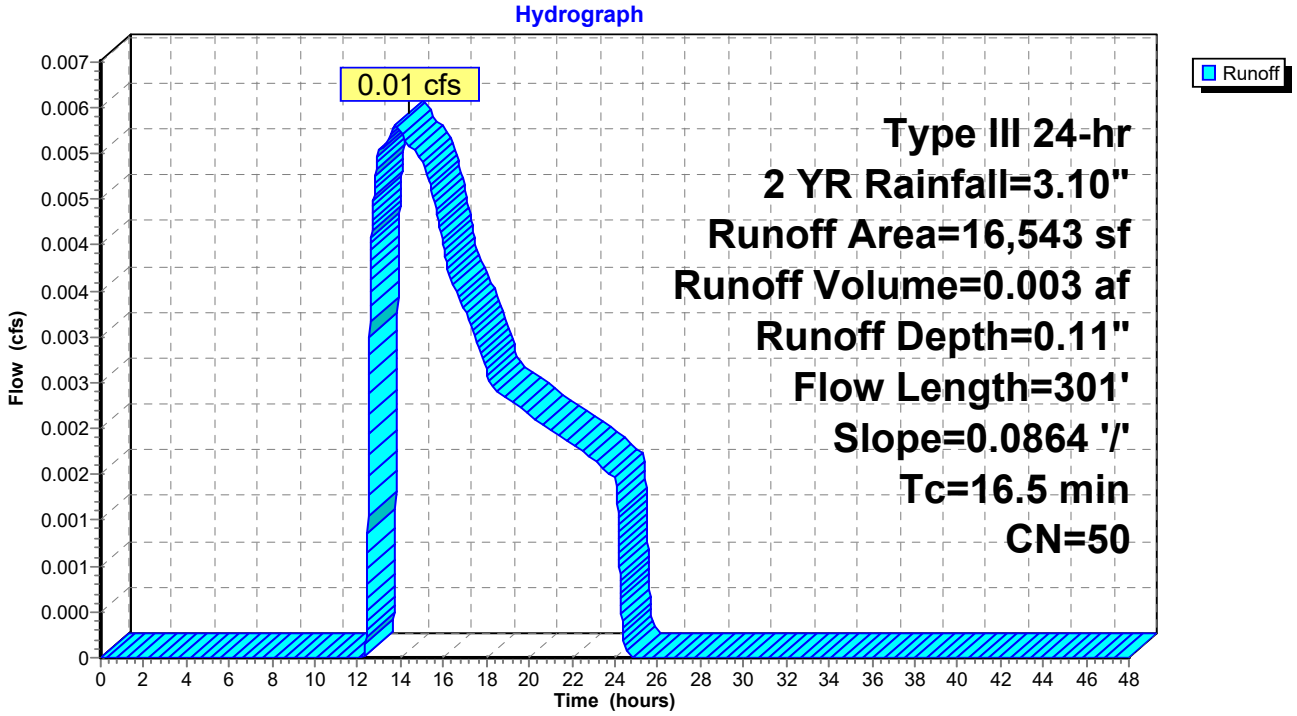
Runoff = 0.01 cfs @ 13.77 hrs, Volume= 0.003 af, Depth= 0.11"
Routed to Link POI 4 : POI 4: HANNAFORD DETENTION POND

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 2 YR Rainfall=3.10"

	Area (sf)	CN	Description
	2,925	36	Woods, Fair, HSG A
*	431	96	Gravel surface, Path, HSG A
	2	98	Paved parking, HSG A
	2,935	36	Woods, Fair, HSG A
	3,404	36	Woods, Fair, HSG A
*	42	96	Gravel surface, Path, HSG A
	0	36	Woods, Fair, HSG A
	121	60	Woods, Fair, HSG B
*	77	96	Gravel surface,Path, Assumed HSG B
	2,886	60	Woods, Fair, HSG B
*	559	96	Gravel surface, Path, Assumed HSG B
*	1,816	66	Woods, Poor, Assumed HSG B
	1,345	60	Woods, Fair, HSG B
	16,543	50	Weighted Average
	16,541		99.99% Pervious Area
	2		0.01% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.9	100	0.0864	0.14		**Sheet Flow, 100 ft** Woods: Light underbrush n= 0.400 P2= 3.23"
4.6	201	0.0864	0.73		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
16.5	301	Total			

Subcatchment 4.1S: SUBCAT 3



Summary for Subcatchment 4.2S: SUBCAT 3.1

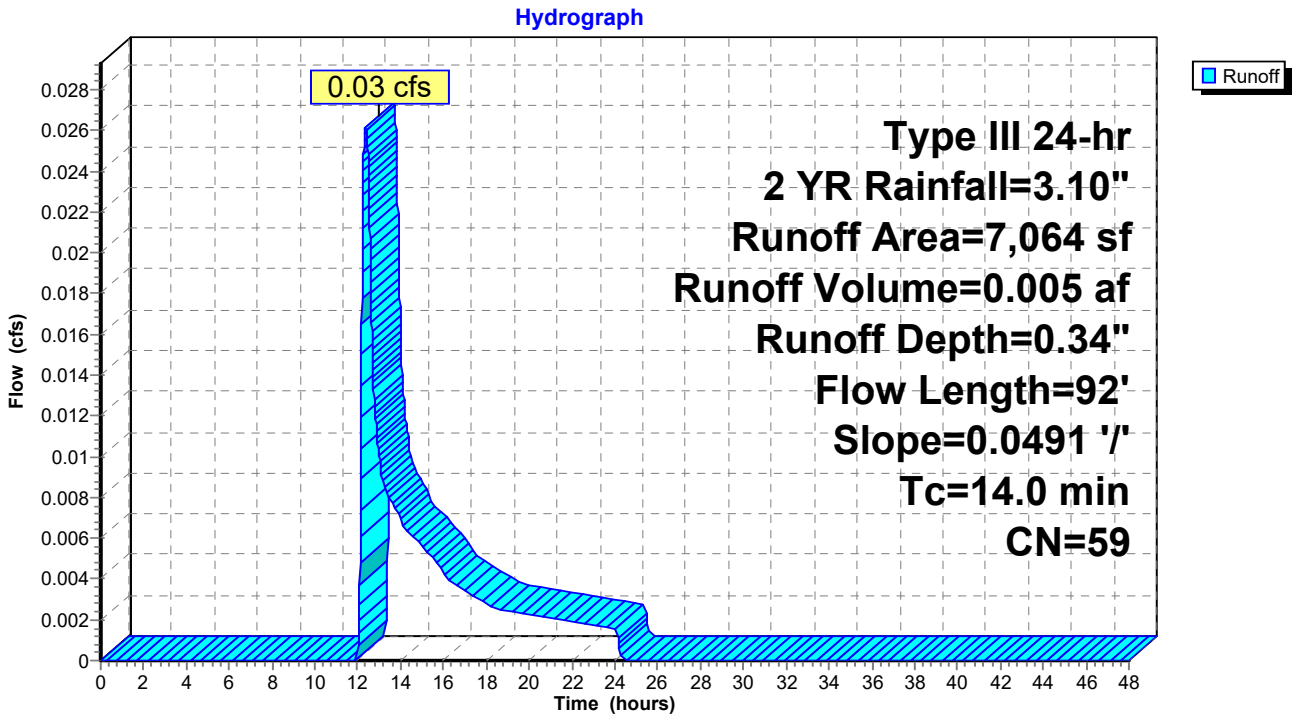
Runoff = 0.03 cfs @ 12.37 hrs, Volume= 0.005 af, Depth= 0.34"
Routed to Link POI 4 : POI 4: HANNAFORD DETENTION POND

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 2 YR Rainfall=3.10"

Area (sf)	CN	Description
6,630	60	Woods, Fair, HSG B
434	36	Woods, Fair, HSG A
7,064	59	Weighted Average
7,064		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.0	92	0.0491	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.23"

Subcatchment 4.2S: SUBCAT 3.1



Summary for Subcatchment 5S: SUBCAT 5

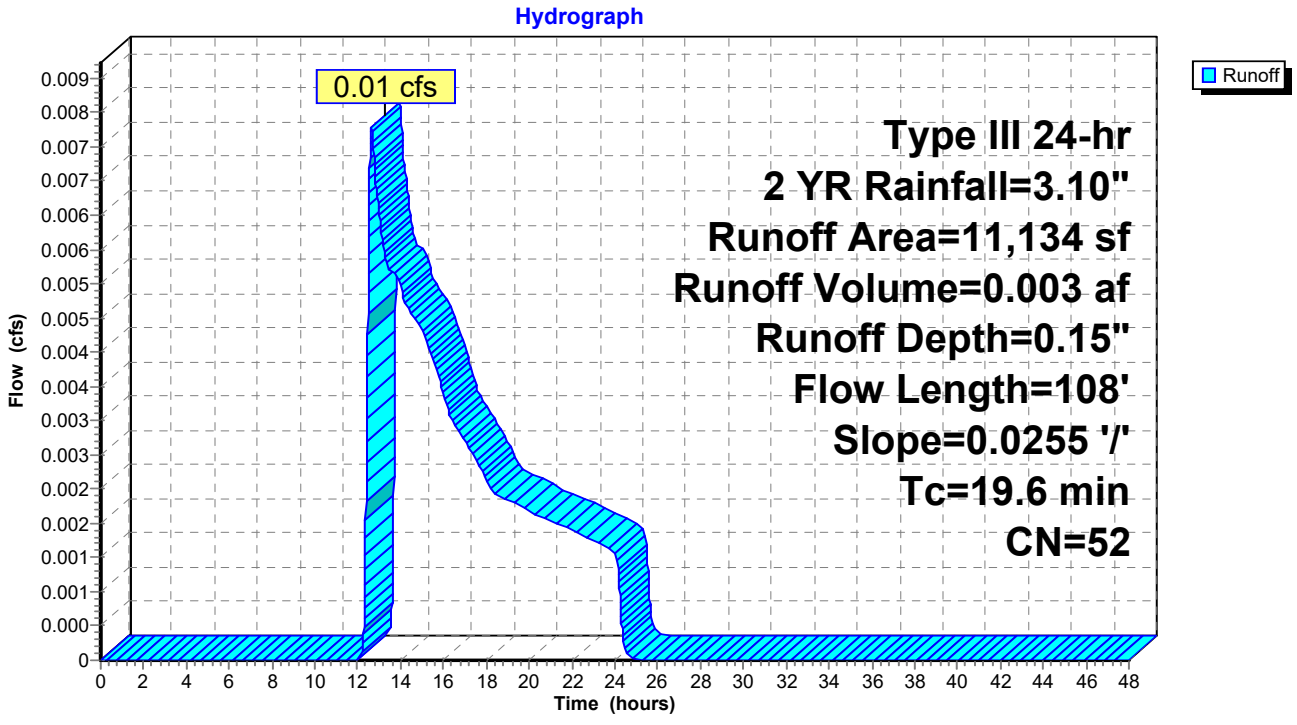
Runoff = 0.01 cfs @ 12.65 hrs, Volume= 0.003 af, Depth= 0.15"
Routed to Link POI 5 : POI 5: SHEET FLOW CEMETERY

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 2 YR Rainfall=3.10"

Area (sf)	CN	Description
5,782	60	Woods, Fair, HSG B
5,352	43	Woods/grass comb., Fair, HSG A
11,134	52	Weighted Average
11,134		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.4	100	0.0255	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.23"
0.2	8	0.0255	0.80		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
19.6	108	Total			

Subcatchment 5S: SUBCAT 5



Summary for Pond 6P: Rain Garden

Inflow Area = 0.058 ac, 51.95% Impervious, Inflow Depth = 0.77" for 2 YR event
Inflow = 0.05 cfs @ 12.10 hrs, Volume= 0.004 af
Outflow = 0.00 cfs @ 24.09 hrs, Volume= 0.001 af, Atten= 99%, Lag= 719.6 min
Primary = 0.00 cfs @ 24.09 hrs, Volume= 0.001 af
Routed to Link POI 1 : POI 1: FOREST AVE CATCH BASIN (EAST)

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 5
Peak Elev= 87.19' @ 24.09 hrs Surf.Area= 895 sf Storage= 149 cf

Plug-Flow detention time= 1,099.9 min calculated for 0.001 af (28% of inflow)
Center-of-Mass det. time= 946.7 min (1,824.9 - 878.2)

Volume	Invert	Avail.Storage	Storage Description
#1	87.00'	307 cf	**Ponding (Prismatic)**Listed below (Recalc)
#2	86.17'	18 cf	**Soil Media (Prismatic)**Listed below (Recalc) 178 cf Overall x 10.0% Voids
#3	85.00'	71 cf	**Crushed Stone (Prismatic)**Listed below (Recalc) 178 cf Overall x 40.0% Voids
#4	85.83'	15 cf	**Transition Media (Prismatic)**Listed below (Recalc) 73 cf Overall x 20.0% Voids
		411 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
87.00	215	0	0
88.00	399	307	307

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
86.17	215	0	0
87.00	215	178	178

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
85.00	215	0	0
85.83	215	178	178

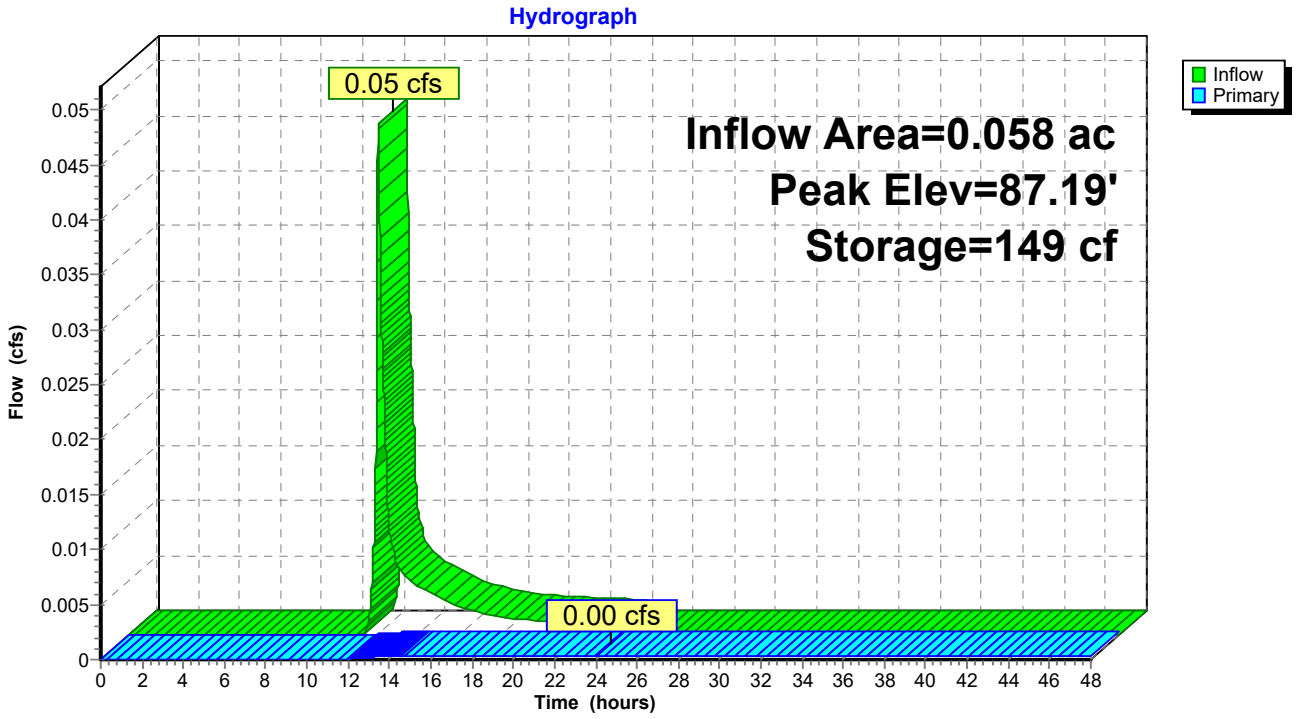
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
85.83	215	0	0
86.17	215	73	73

Device	Routing	Invert	Outlet Devices
#1	Primary	84.00'	**10.0" Round Culvert - Structure to CB** L= 16.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 84.00' / 83.00' S= 0.0625 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.55 sf
#2	Device 1	85.25'	**0.1" Horiz. Orifice/Grate - Underdrain** C= 0.600

Limited to weir flow at low heads
#3 Device 1 87.75' **24.0" x 24.0" Horiz. Orifice/Grate - Overflow** C= 0.600
Limited to weir flow at low heads

Primary OutFlow Max=0.00 cfs @ 24.09 hrs HW=87.19' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert - Structure to CB** (Passes 0.00 cfs of 3.45 cfs potential flow)
└─**2=Orifice/Grate - Underdrain** (Orifice Controls 0.00 cfs @ 6.71 fps)
└─**3=Orifice/Grate - Overflow** (Controls 0.00 cfs)

Pond 6P: Rain Garden



Summary for Pond 7P: Underground Storage Tanks

Inflow Area = 0.381 ac, 76.27% Impervious, Inflow Depth = 1.67" for 2 YR event
Inflow = 0.75 cfs @ 12.09 hrs, Volume= 0.053 af
Outflow = 0.05 cfs @ 14.06 hrs, Volume= 0.053 af, Atten= 94%, Lag= 118.1 min
Primary = 0.05 cfs @ 14.06 hrs, Volume= 0.053 af
Routed to Link POI 1 : POI 1: FOREST AVE CATCH BASIN (EAST)

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 5
Peak Elev= 84.30' @ 14.06 hrs Surf.Area= 549 sf Storage= 1,195 cf
Flood Elev= 86.90' Surf.Area= 549 sf Storage= 1,638 cf

Plug-Flow detention time= 304.7 min calculated for 0.053 af (100% of inflow)
Center-of-Mass det. time= 304.8 min (1,132.3 - 827.5)

Volume	Invert	Avail.Storage	Storage Description
#1A	81.00'	639 cf	**18.44'W x 29.80'L x 4.82'H Field A** 2,649 cf Overall - 1,051 cf Embedded = 1,598 cf x 40.0% Voids
#2A	82.00'	998 cf	**Ferguson R-Tank HD 2** x 121 Inside #1 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 121 Chambers in 11 Rows
		1,638 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	80.90'	**12.0" Round Culvert - OUT OF MANHOLE** L= 73.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 80.90' / 80.20' S= 0.0096 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	84.85'	**4.0' 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	Device 2	84.00'	**10.0" Round Tank Overflow Outlet** L= 16.7' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 84.00' / 83.70' S= 0.0180 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.55 sf
#4	Device 1	81.00'	**1.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.05 cfs @ 14.06 hrs HW=84.30' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert - OUT OF MANHOLE** (Passes 0.05 cfs of 5.08 cfs potential flow)
  ├─**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
  │ └─**3=Tank Overflow Outlet** (Controls 0.00 cfs)
  └─**4=Orifice/Grate** (Orifice Controls 0.05 cfs @ 8.69 fps)

Pond 7P: Underground Storage Tanks - Chamber Wizard Field A

Chamber Model = Ferguson R-Tank HD 2 (Ferguson R-Tank HD)
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

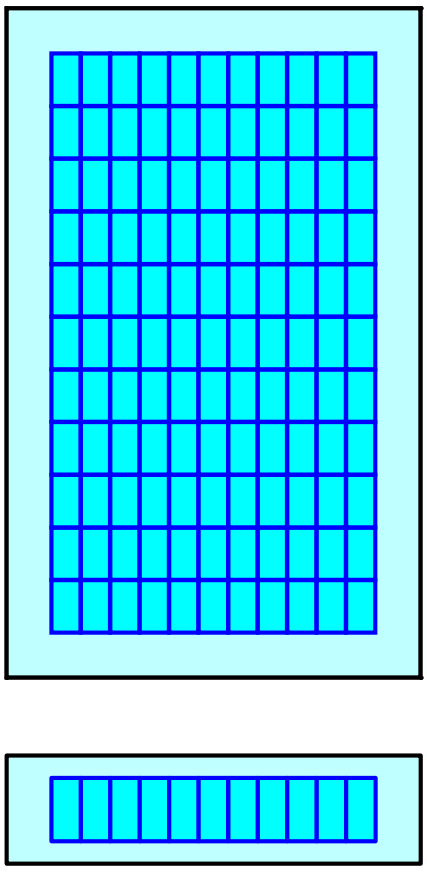
11 Chambers/Row x 2.35' Long = 25.80' Row Length +24.0" End Stone x 2 = 29.80' Base Length
11 Rows x 15.7" Wide + 24.0" Side Stone x 2 = 18.44' Base Width
12.0" Stone Base + 33.9" Chamber Height + 12.0" Stone Cover = 4.82' Field Height

121 Chambers x 8.3 cf = 998.5 cf Chamber Storage
121 Chambers x 8.7 cf = 1,051.0 cf Displacement

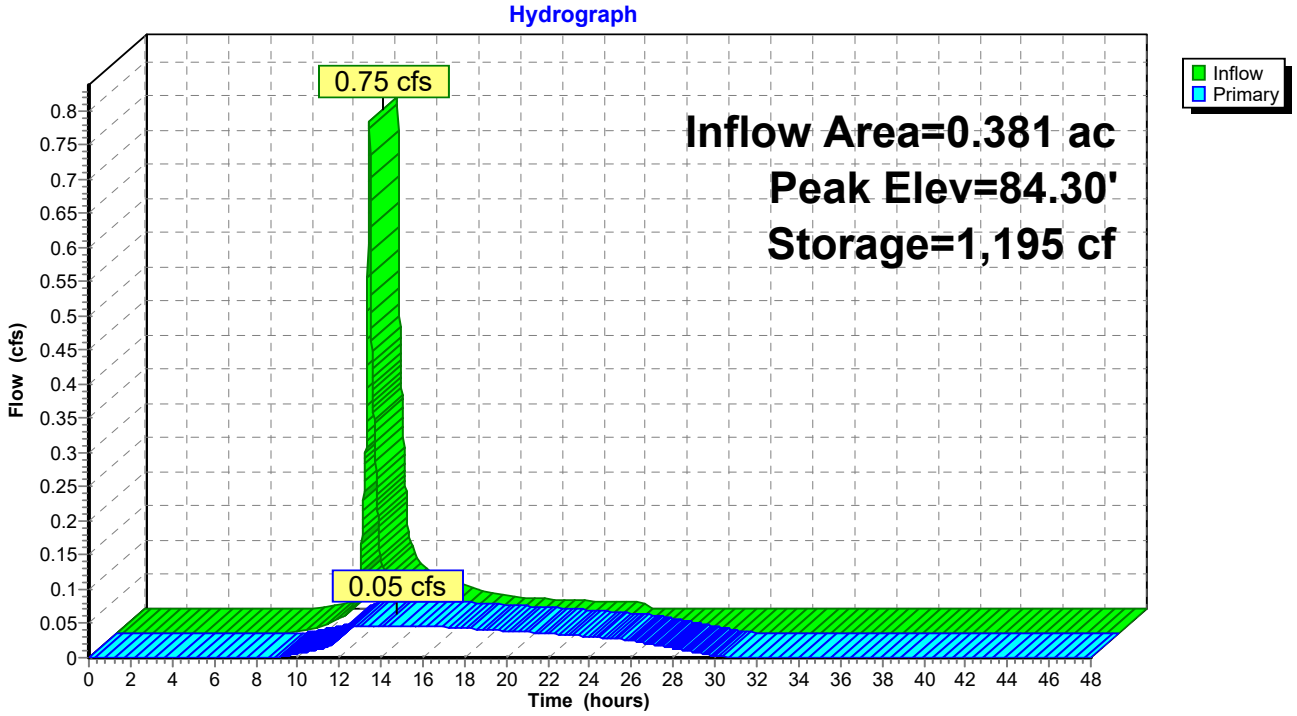
2,649.2 cf Field - 1,051.0 cf Chambers = 1,598.2 cf Stone x 40.0% Voids = 639.3 cf Stone Storage

Chamber Storage + Stone Storage = 1,637.7 cf = 0.038 af
Overall Storage Efficiency = 61.8%
Overall System Size = 29.80' x 18.44' x 4.82'

121 Chambers
98.1 cy Field
59.2 cy Stone



Pond 7P: Underground Storage Tanks

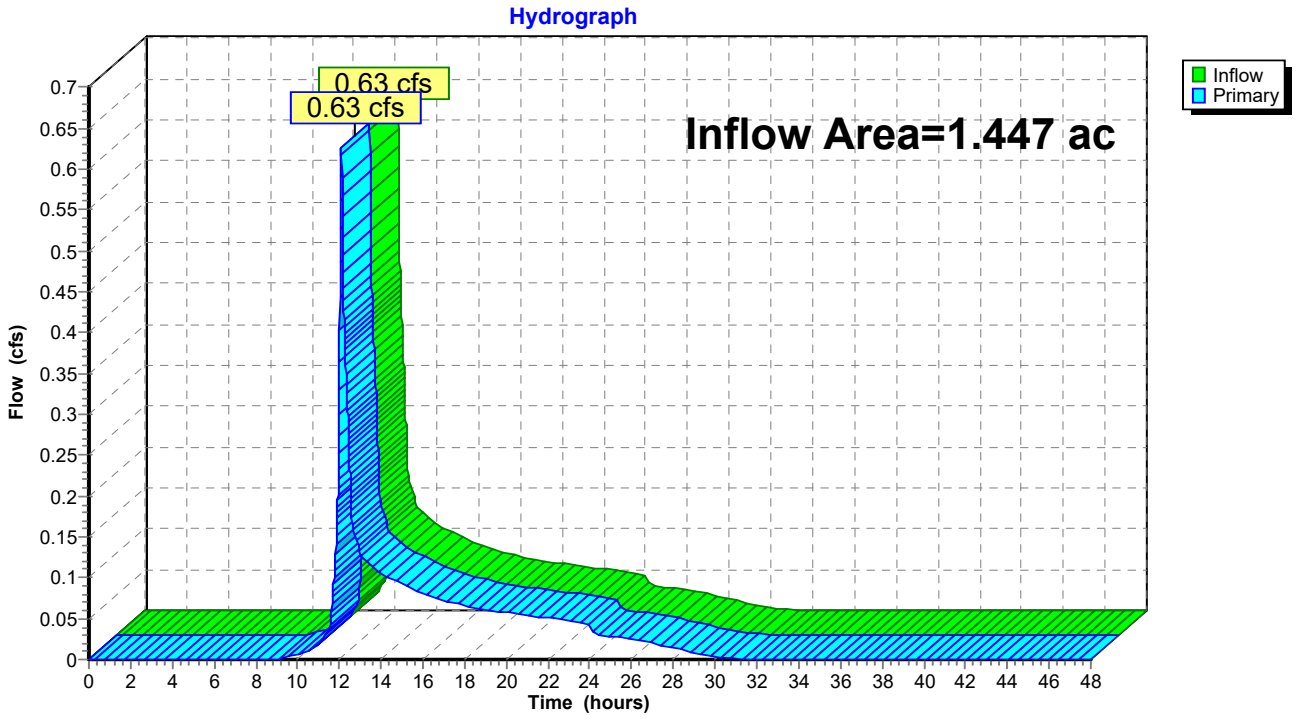


Summary for Link POI 1: POI 1: FOREST AVE CATCH BASIN (EAST)

Inflow Area = 1.447 ac, 43.48% Impervious, Inflow Depth > 0.87" for 2 YR event
Inflow = 0.63 cfs @ 12.10 hrs, Volume= 0.105 af
Primary = 0.63 cfs @ 12.10 hrs, Volume= 0.105 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link POI 1: POI 1: FOREST AVE CATCH BASIN (EAST)

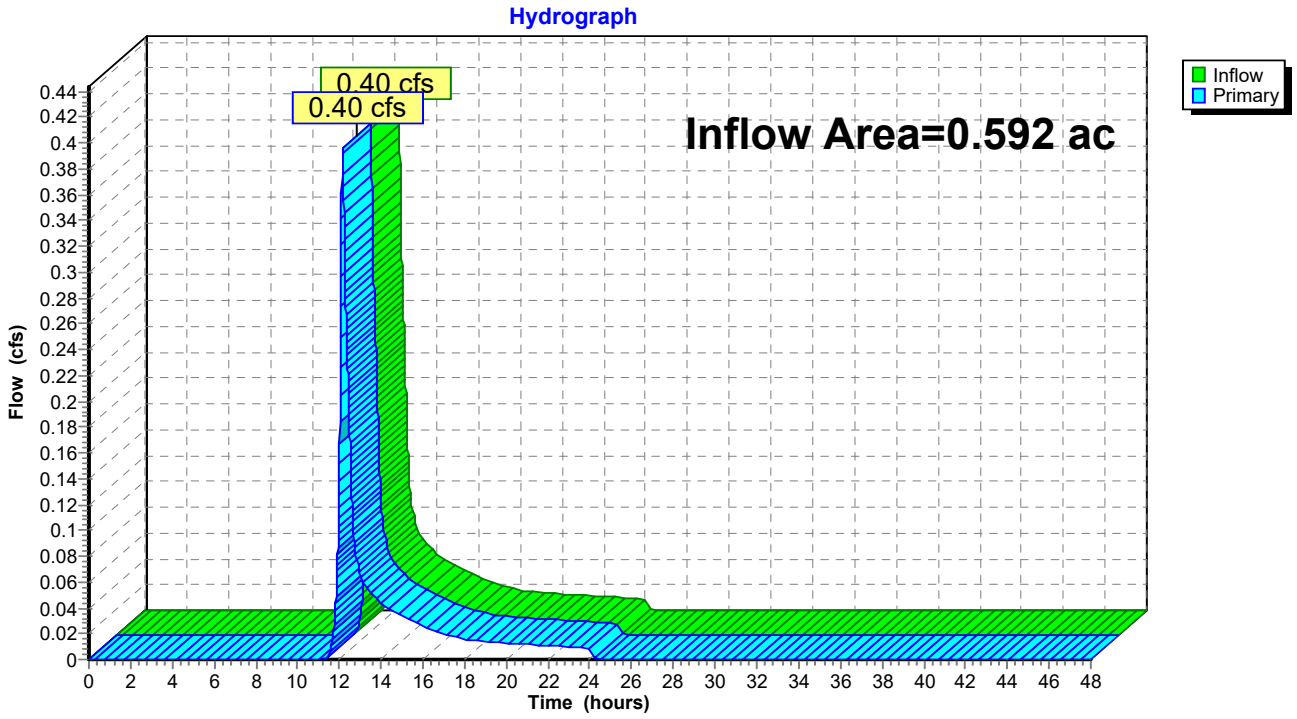


Summary for Link POI 2: POI 2: FOREST AVE CATCH BASIN (WEST)

Inflow Area = 0.592 ac, 39.70% Impervious, Inflow Depth = 0.74" for 2 YR event
Inflow = 0.40 cfs @ 12.15 hrs, Volume= 0.036 af
Primary = 0.40 cfs @ 12.15 hrs, Volume= 0.036 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link POI 2: POI 2: FOREST AVE CATCH BASIN (WEST)

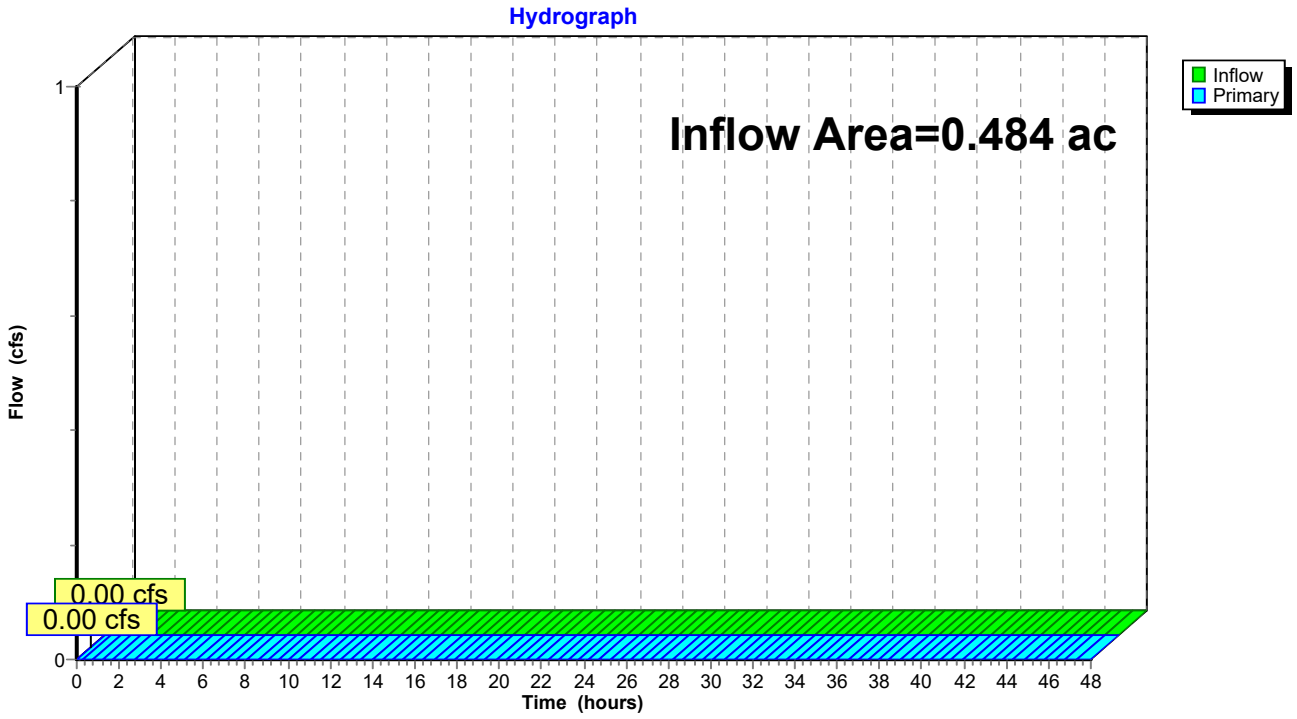


Summary for Link POI 3: POI 3: INTERNAL WETLAND

Inflow Area = 0.484 ac, 4.29% Impervious, Inflow Depth = 0.00" for 2 YR event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link POI 3: POI 3: INTERNAL WETLAND

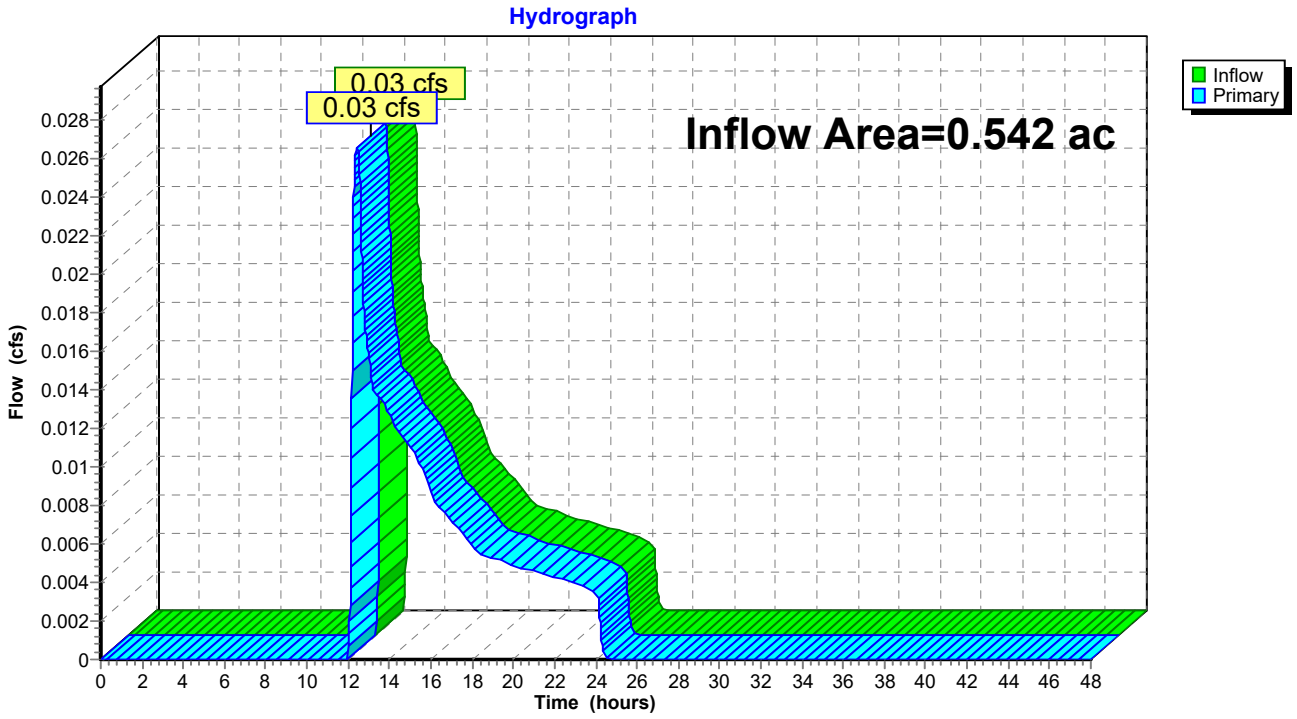


Summary for Link POI 4: POI 4: HANNAFORD DETENTION POND

Inflow Area = 0.542 ac, 0.01% Impervious, Inflow Depth = 0.18" for 2 YR event
Inflow = 0.03 cfs @ 12.43 hrs, Volume= 0.008 af
Primary = 0.03 cfs @ 12.43 hrs, Volume= 0.008 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link POI 4: POI 4: HANNAFORD DETENTION POND

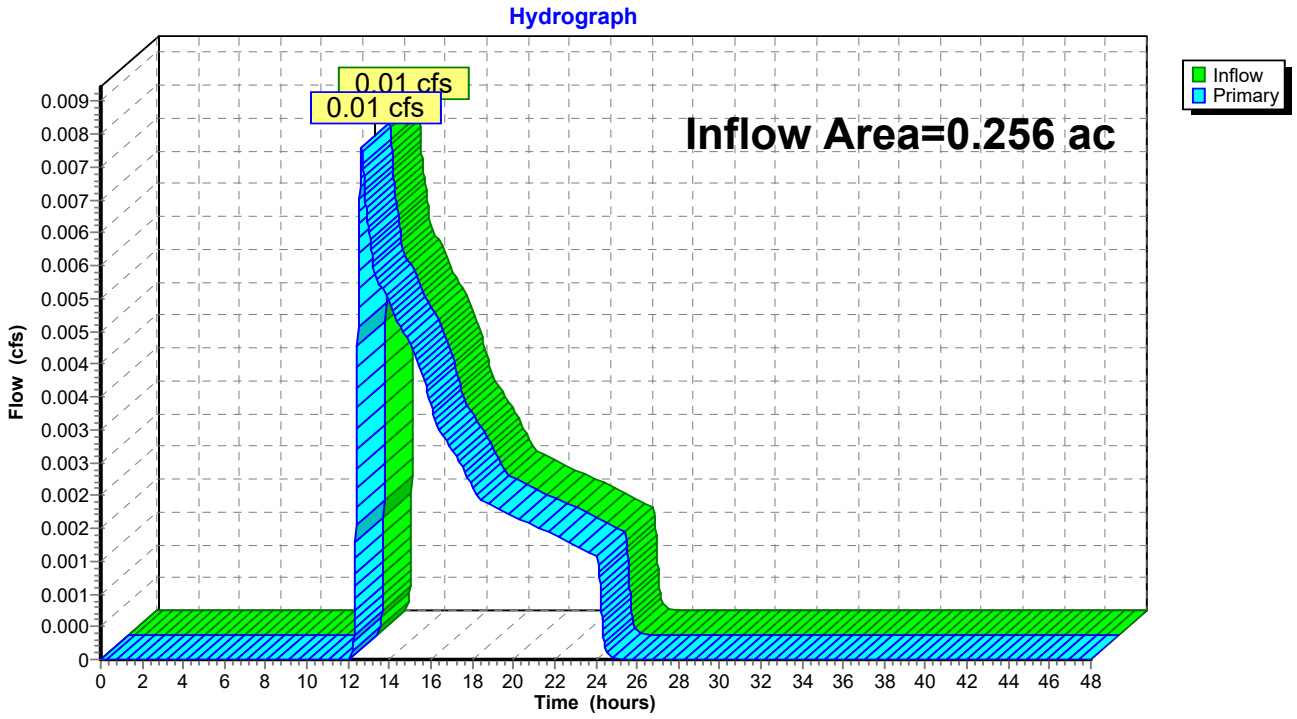


Summary for Link POI 5: POI 5: SHEET FLOW CEMETERY

Inflow Area = 0.256 ac, 0.00% Impervious, Inflow Depth = 0.15" for 2 YR event
Inflow = 0.01 cfs @ 12.65 hrs, Volume= 0.003 af
Primary = 0.01 cfs @ 12.65 hrs, Volume= 0.003 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link POI 5: POI 5: SHEET FLOW CEMETERY



Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points x 5
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1.1AS: SUBCAT1.1A Runoff Area=22,305 sf 40.69% Impervious Runoff Depth=2.13"
Tc=6.0 min CN=75 Runoff=1.27 cfs 0.091 af

Subcatchment1.1BS: SUBCAT1.1B Runoff Area=15,136 sf 23.34% Impervious Runoff Depth=0.79"
Tc=6.0 min UI Adjusted CN=55 Runoff=0.24 cfs 0.023 af

Subcatchment1.2S: SUBCAT1.2 Runoff Area=16,599 sf 76.27% Impervious Runoff Depth=3.00"
Tc=6.0 min CN=85 Runoff=1.33 cfs 0.095 af

Subcatchment1.3S: SUBCAT1.3 Runoff Area=6,473 sf 12.75% Impervious Runoff Depth=0.32"
Flow Length=156' Tc=9.9 min UI Adjusted CN=45 Runoff=0.02 cfs 0.004 af

Subcatchment1.4S: SUBCAT1.4 Runoff Area=2,539 sf 51.95% Impervious Runoff Depth=1.74"
Tc=6.0 min CN=70 Runoff=0.12 cfs 0.008 af

Subcatchment2.1S: SUBCAT2 Runoff Area=22,949 sf 44.61% Impervious Runoff Depth=1.82"
Flow Length=301' Tc=9.9 min CN=71 Runoff=0.96 cfs 0.080 af

Subcatchment2.2S: SUBCAT2.2 Runoff Area=2,836 sf 0.00% Impervious Runoff Depth=0.49"
Flow Length=363' Tc=6.0 min CN=49 Runoff=0.02 cfs 0.003 af

Subcatchment3S: SUBCAT3 Runoff Area=21,101 sf 4.29% Impervious Runoff Depth=0.13"
Flow Length=229' Tc=10.5 min CN=39 Runoff=0.01 cfs 0.005 af

Subcatchment4.1S: SUBCAT3 Runoff Area=16,543 sf 0.01% Impervious Runoff Depth=0.54"
Flow Length=301' Slope=0.0864 '/' Tc=16.5 min CN=50 Runoff=0.10 cfs 0.017 af

Subcatchment4.2S: SUBCAT3.1 Runoff Area=7,064 sf 0.00% Impervious Runoff Depth=1.01"
Flow Length=92' Slope=0.0491 '/' Tc=14.0 min CN=59 Runoff=0.12 cfs 0.014 af

Subcatchment5S: SUBCAT5 Runoff Area=11,134 sf 0.00% Impervious Runoff Depth=0.63"
Flow Length=108' Slope=0.0255 '/' Tc=19.6 min CN=52 Runoff=0.08 cfs 0.013 af

Pond 6P: Rain Garden Peak Elev=87.75' Storage=318 cf Inflow=0.12 cfs 0.008 af
Outflow=0.00 cfs 0.002 af

Pond 7P: Underground Storage Tanks Peak Elev=85.02' Storage=1,462 cf Inflow=1.33 cfs 0.095 af
Outflow=0.84 cfs 0.095 af

Link POI 1: POI 1: FOREST AVE CATCH BASIN (EAST) Inflow=1.88 cfs 0.215 af
Primary=1.88 cfs 0.215 af

Link POI 2: POI 2: FOREST AVE CATCH BASIN (WEST) Inflow=0.98 cfs 0.083 af
Primary=0.98 cfs 0.083 af

Link POI 3: POI 3: INTERNAL WETLAND Inflow=0.01 cfs 0.005 af
Primary=0.01 cfs 0.005 af

Link POI 4: POI 4: HANNAFORD DETENTION POND Inflow=0.21 cfs 0.031 af
Primary=0.21 cfs 0.031 af

Link POI 5: POI 5: SHEET FLOW CEMETERY Inflow=0.08 cfs 0.013 af
Primary=0.08 cfs 0.013 af

Total Runoff Area = 3.321 ac Runoff Volume = 0.353 af Average Runoff Depth = 1.28"
73.35% Pervious = 2.436 ac 26.65% Impervious = 0.885 ac

Summary for Subcatchment 1.1AS: SUBCAT 1.1A

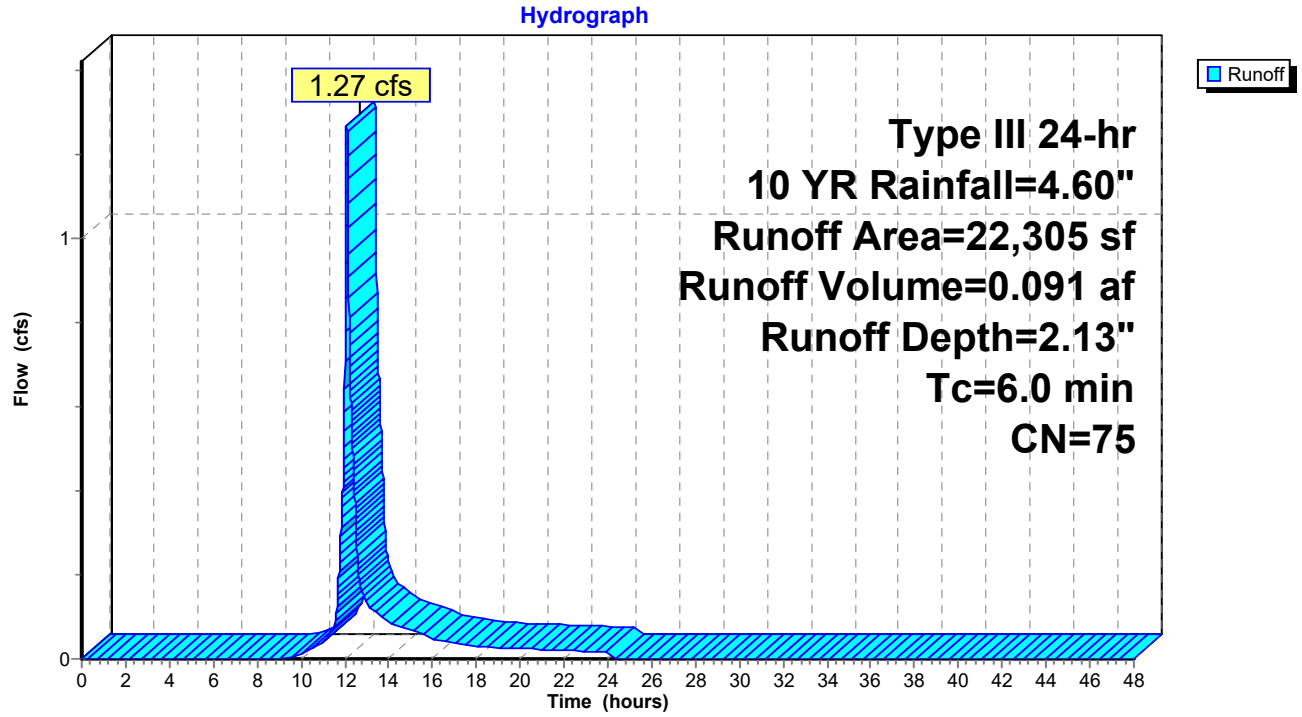
Runoff = 1.27 cfs @ 12.09 hrs, Volume= 0.091 af, Depth= 2.13"
Routed to Link POI 1 : POI 1: FOREST AVE CATCH BASIN (EAST)

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 10 YR Rainfall=4.60"

Area (sf)	CN	Description
6,137	98	Paved parking, HSG A
2,945	96	Gravel surface, HSG A
702	60	Woods, Fair, HSG B
102	98	Paved parking, HSG B
2,741	98	Paved parking, HSG A
9,581	49	50-75% Grass cover, Fair, HSG A
17	98	Unconnected pavement, HSG B
80	98	Unconnected pavement, HSG A
22,305	75	Weighted Average
13,228		59.31% Pervious Area
9,077		40.69% Impervious Area
97		1.07% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR-55 MIN**

Subcatchment 1.1AS: SUBCAT 1.1A



Summary for Subcatchment 1.1BS: SUBCAT 1.1B

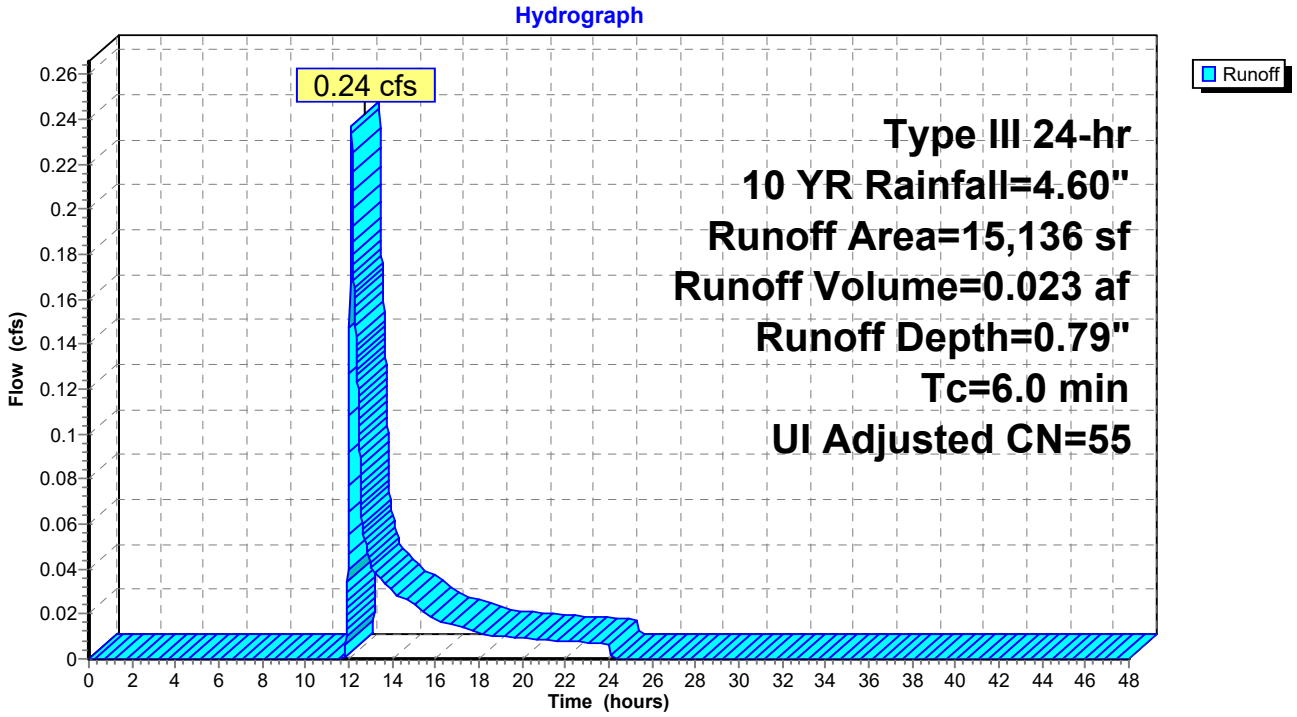
Runoff = 0.24 cfs @ 12.11 hrs, Volume= 0.023 af, Depth= 0.79"
Routed to Link POI 1 : POI 1: FOREST AVE CATCH BASIN (EAST)

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 10 YR Rainfall=4.60"

Area (sf)	CN	Adj	Description
2,221	98		Paved parking, HSG A
2,179	60		Woods, Fair, HSG B
1,057	98		Paved parking, HSG B
7,357	39		>75% Grass cover, Good, HSG A
1	98		Unconnected pavement, HSG B
1,795	39		>75% Grass cover, Good, HSG A
272	36		Woods, Fair, HSG A
254	98		Unconnected pavement, HSG A
15,136	56	55	Weighted Average, UI Adjusted
11,603			76.66% Pervious Area
3,533			23.34% Impervious Area
255			7.22% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 1.1BS: SUBCAT 1.1B



Summary for Subcatchment 1.2S: SUBCAT 1.2

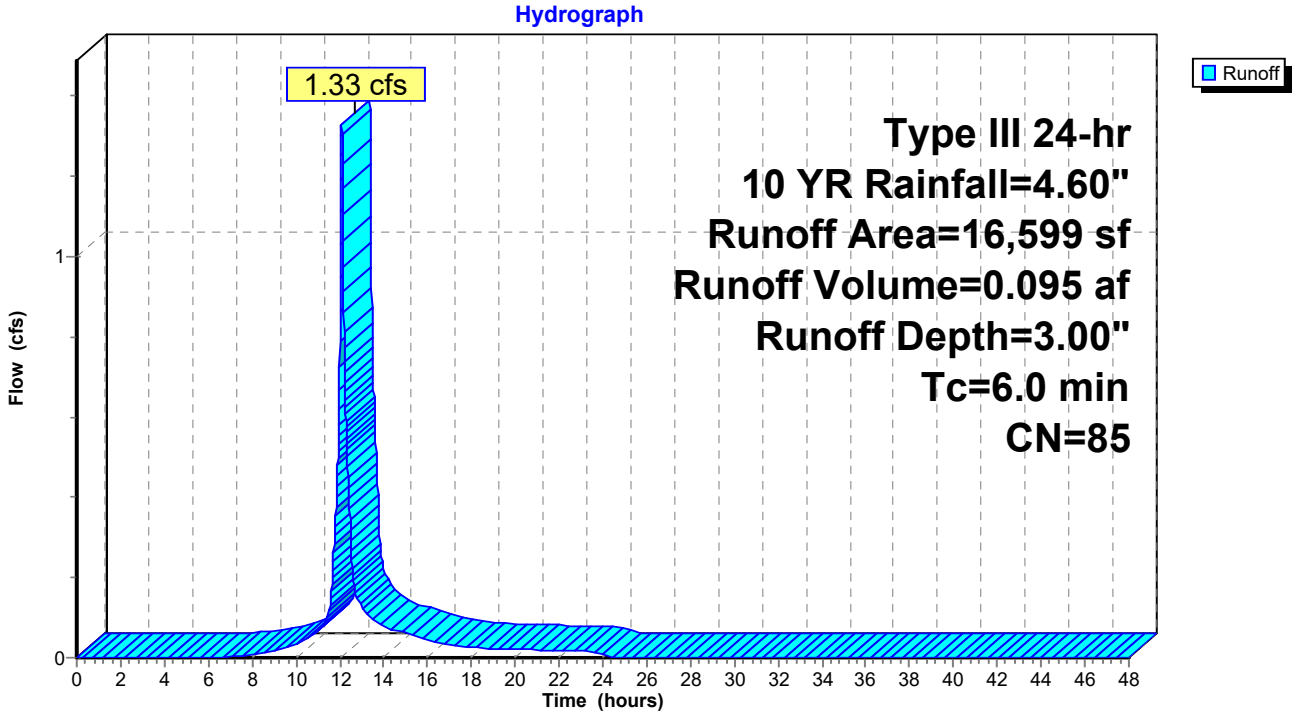
Runoff = 1.33 cfs @ 12.09 hrs, Volume= 0.095 af, Depth= 3.00"
Routed to Pond 7P : Underground Storage Tanks

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 10 YR Rainfall=4.60"

	Area (sf)	CN	Description
	4,412	98	Paved parking, HSG A
	61	68	<50% Grass cover, Poor, HSG A
	174	68	<50% Grass cover, Poor, HSG A
	51	68	<50% Grass cover, Poor, HSG A
	3,461	39	>75% Grass cover, Good, HSG A
	6,716	98	Unconnected roofs, HSG A
*	206	98	Unconnected pavement, HSG A - RETAINING WALL
	63	39	>75% Grass cover, Good, HSG A
	1,326	98	Unconnected pavement, HSG A
	129	96	Gravel surface, HSG A
	16,599	85	Weighted Average
	3,939		23.73% Pervious Area
	12,660		76.27% Impervious Area
	8,248		65.15% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR-55 MIN**

Subcatchment 1.2S: SUBCAT 1.2



Summary for Subcatchment 1.3S: SUBCAT 1.3

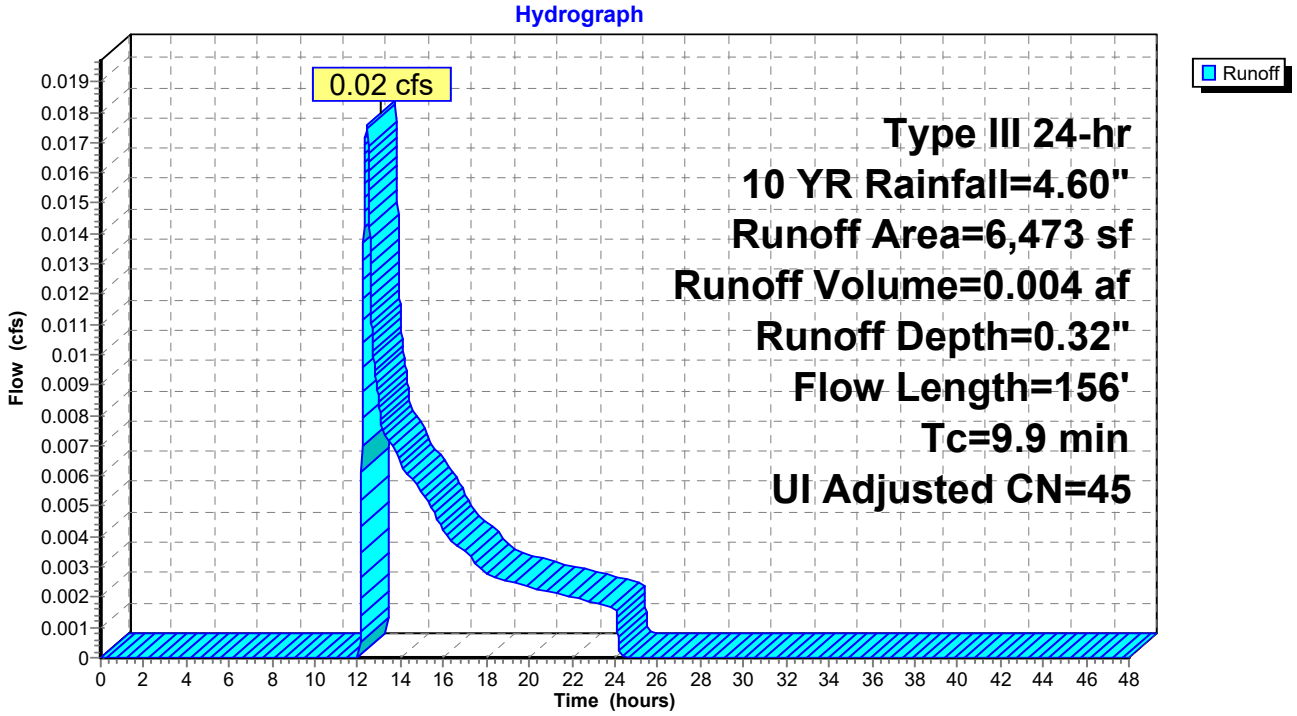
Runoff = 0.02 cfs @ 12.42 hrs, Volume= 0.004 af, Depth= 0.32"
Routed to Link POI 1 : POI 1: FOREST AVE CATCH BASIN (EAST)

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 10 YR Rainfall=4.60"

Area (sf)	CN	Adj	Description
825	98		Unconnected pavement, HSG A
5,430	39		>75% Grass cover, Good, HSG A
218	96		Gravel surface, HSG A
6,473	48	45	Weighted Average, UI Adjusted
5,648			87.25% Pervious Area
825			12.75% Impervious Area
825			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.8	100	0.0500	0.17		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.23"
0.0	10	0.0519	3.42		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
0.1	28	0.0137	4.05	1.41	**Pipe Channel,** 8.0" Round Area= 0.3 sf Perim= 2.1' r= 0.17' n= 0.013 Corrugated PE, smooth interior
0.0	13	0.0193	5.21	1.82	**Pipe Channel,** 8.0" Round Area= 0.3 sf Perim= 2.1' r= 0.17' n= 0.012 Corrugated PP, smooth interior
0.0	5	0.0100	3.75	1.31	**Pipe Channel,** 8.0" Round Area= 0.3 sf Perim= 2.1' r= 0.17' n= 0.012 Corrugated PP, smooth interior
9.9	156	Total			

Subcatchment 1.3S: SUBCAT 1.3



Summary for Subcatchment 1.4S: SUBCAT 1.4

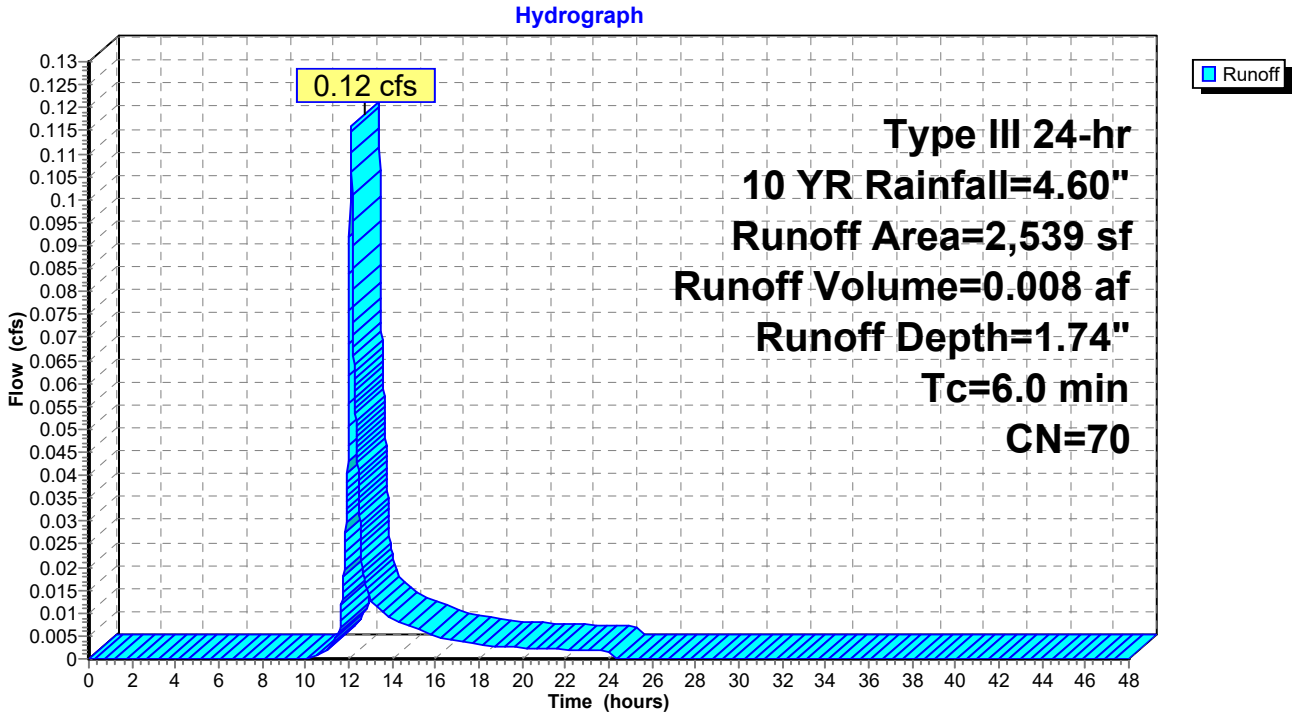
Runoff = 0.12 cfs @ 12.09 hrs, Volume= 0.008 af, Depth= 1.74"
Routed to Pond 6P : Rain Garden

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 10 YR Rainfall=4.60"

Area (sf)	CN	Description
468	98	Unconnected pavement, HSG A
851	98	Unconnected roofs, HSG A
1,189	39	>75% Grass cover, Good, HSG A
31	96	Gravel surface, HSG A
2,539	70	Weighted Average
1,220		48.05% Pervious Area
1,319		51.95% Impervious Area
1,319		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR-55 MIN**

Subcatchment 1.4S: SUBCAT 1.4



Summary for Subcatchment 2.1S: SUBCAT 2

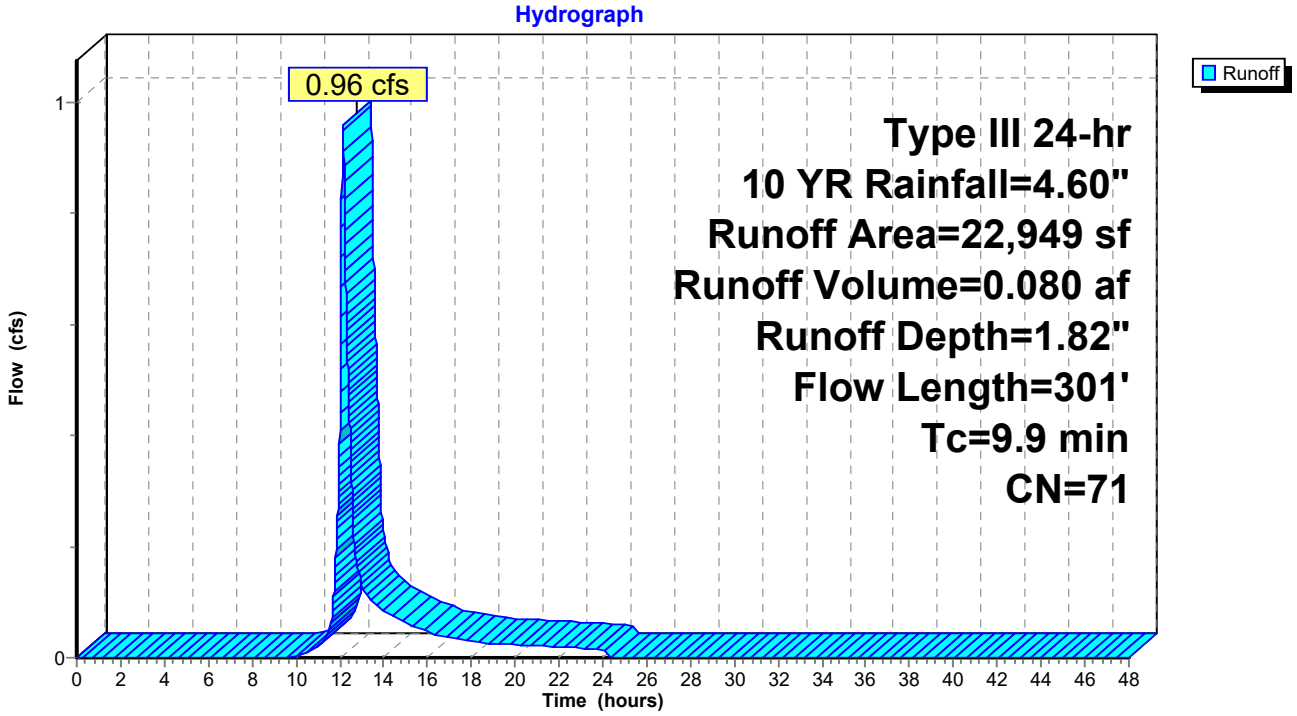
Runoff = 0.96 cfs @ 12.14 hrs, Volume= 0.080 af, Depth= 1.82"
Routed to Link POI 2 : POI 2: FOREST AVE CATCH BASIN (WEST)

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 10 YR Rainfall=4.60"

Area (sf)	CN	Description
1,026	60	Woods, Fair, HSG B
403	36	Woods, Fair, HSG A
7,007	98	Paved parking, HSG A
6	36	Woods, Fair, HSG A
3,230	98	Unconnected roofs, HSG A
11,277	49	50-75% Grass cover, Fair, HSG A
22,949	71	Weighted Average
12,712		55.39% Pervious Area
10,237		44.61% Impervious Area
3,230		31.55% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.2	72	0.1141	0.15		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.23"
0.1	43	0.1575	8.06		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.1	37	0.0536	4.70		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
1.4	130	0.0461	1.50		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.1	19	0.0514	4.60		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
9.9	301	Total			

Subcatchment 2.1S: SUBCAT 2



Summary for Subcatchment 2.2S: SUBCAT 2.2

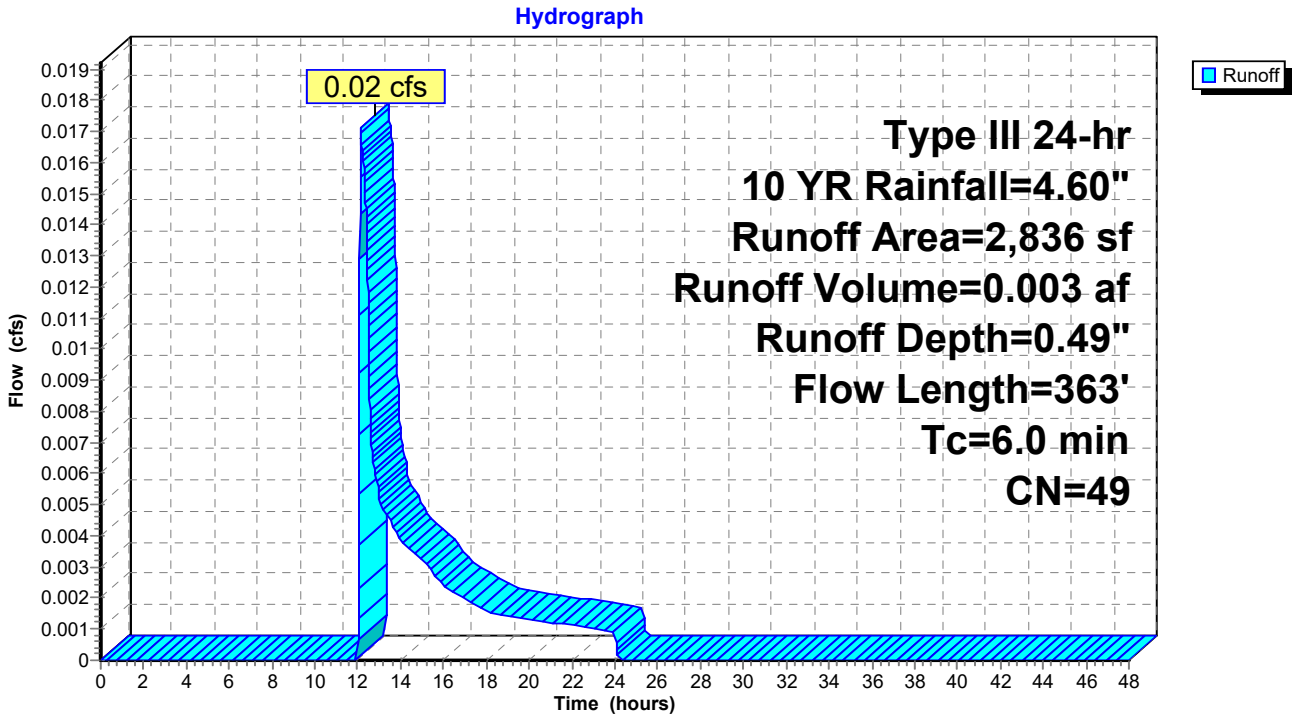
Runoff = 0.02 cfs @ 12.14 hrs, Volume= 0.003 af, Depth= 0.49"
Routed to Link POI 2 : POI 2: FOREST AVE CATCH BASIN (WEST)

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 10 YR Rainfall=4.60"

Area (sf)	CN	Description
2,836	49	50-75% Grass cover, Fair, HSG A
2,836		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.6	76	0.1378	0.35		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.23"
0.3	24	0.0326	1.26		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.23"
1.3	263	0.0266	3.31		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
5.2	363	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 2.2S: SUBCAT 2.2



Summary for Subcatchment 3S: SUBCAT 3

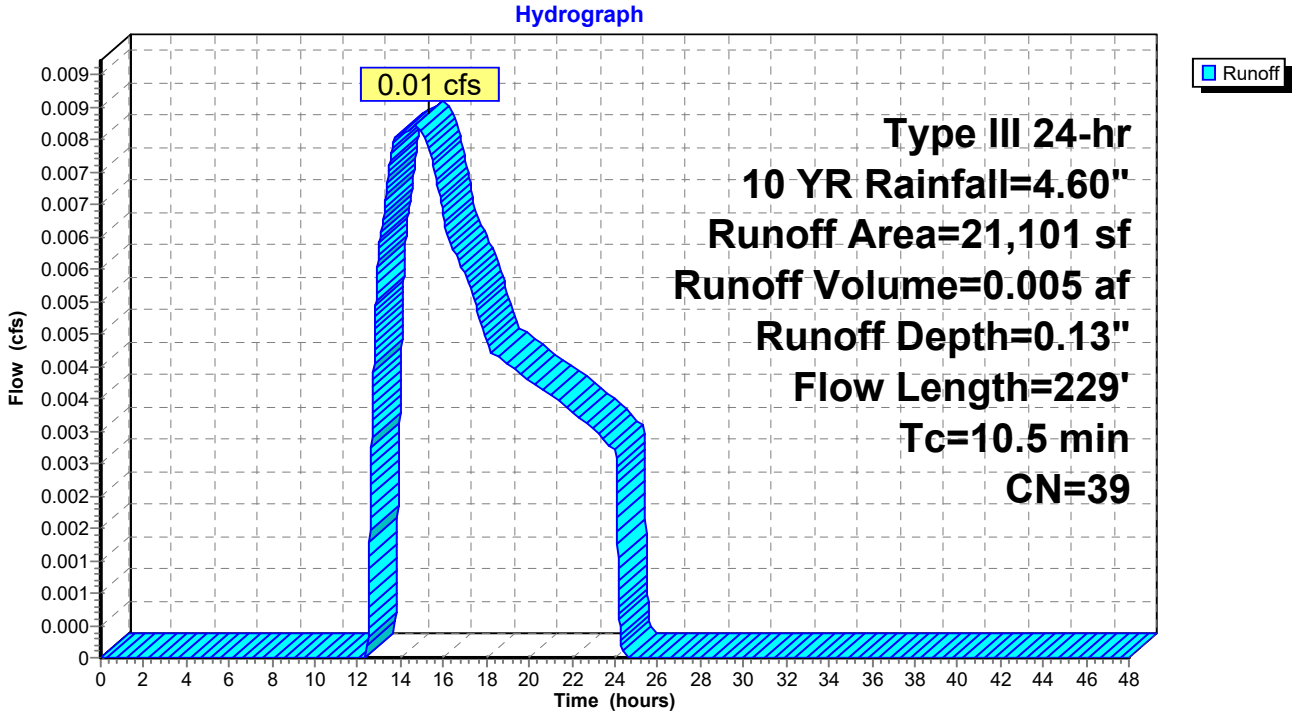
Runoff = 0.01 cfs @ 14.64 hrs, Volume= 0.005 af, Depth= 0.13"
Routed to Link POI 3 : POI 3: INTERNAL WETLAND

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 10 YR Rainfall=4.60"

Area (sf)	CN	Description
9	60	Woods, Fair, HSG B
489	36	Woods, Fair, HSG A
905	98	Paved parking, HSG A
19,698	36	Woods, Fair, HSG A
21,101	39	Weighted Average
20,196		95.71% Pervious Area
905		4.29% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	100	0.1075	0.23		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.23"
2.8	98	0.0535	0.58		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
0.5	31	0.1689	1.03		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
10.5	229	Total			

Subcatchment 3S: SUBCAT 3



Summary for Subcatchment 4.1S: SUBCAT 3

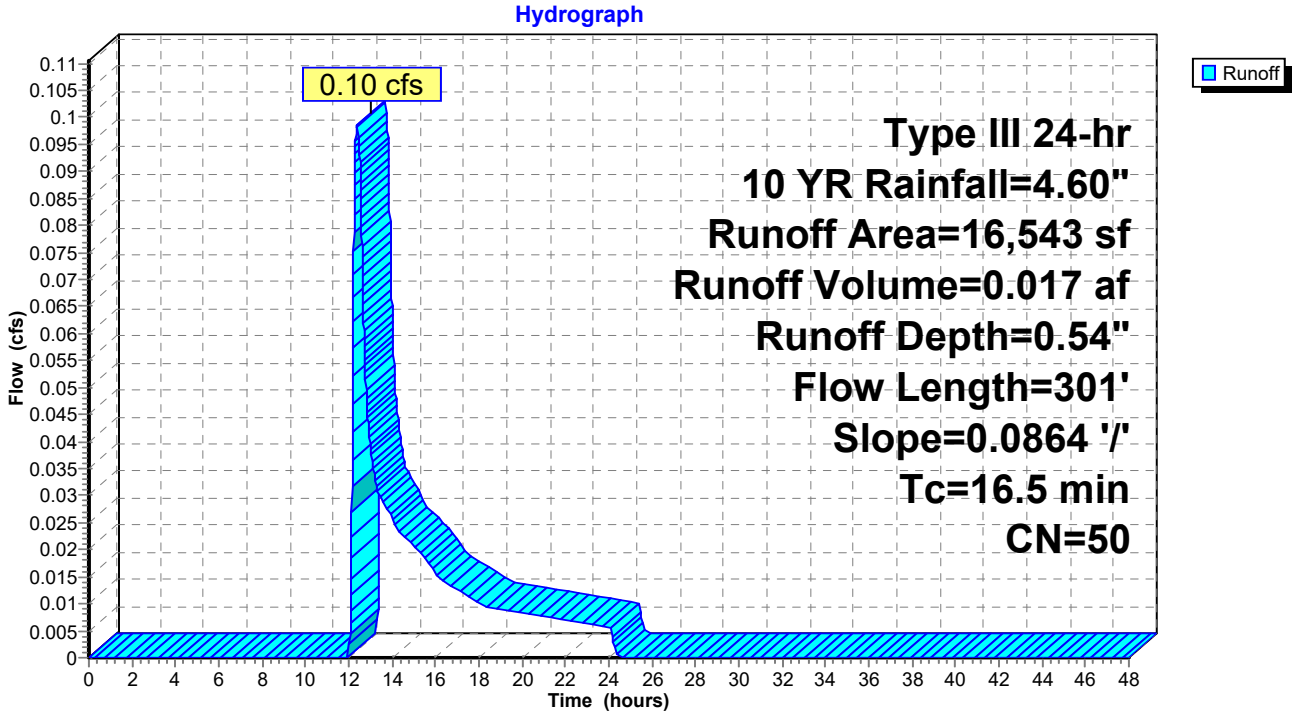
Runoff = 0.10 cfs @ 12.38 hrs, Volume= 0.017 af, Depth= 0.54"
Routed to Link POI 4 : POI 4: HANNAFORD DETENTION POND

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 10 YR Rainfall=4.60"

	Area (sf)	CN	Description
	2,925	36	Woods, Fair, HSG A
*	431	96	Gravel surface, Path, HSG A
	2	98	Paved parking, HSG A
	2,935	36	Woods, Fair, HSG A
	3,404	36	Woods, Fair, HSG A
*	42	96	Gravel surface, Path, HSG A
	0	36	Woods, Fair, HSG A
	121	60	Woods, Fair, HSG B
*	77	96	Gravel surface,Path, Assumed HSG B
	2,886	60	Woods, Fair, HSG B
*	559	96	Gravel surface, Path, Assumed HSG B
*	1,816	66	Woods, Poor, Assumed HSG B
	1,345	60	Woods, Fair, HSG B
	16,543	50	Weighted Average
	16,541		99.99% Pervious Area
	2		0.01% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.9	100	0.0864	0.14		**Sheet Flow, 100 ft** Woods: Light underbrush n= 0.400 P2= 3.23"
4.6	201	0.0864	0.73		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
16.5	301	Total			

Subcatchment 4.1S: SUBCAT 3



Summary for Subcatchment 4.2S: SUBCAT 3.1

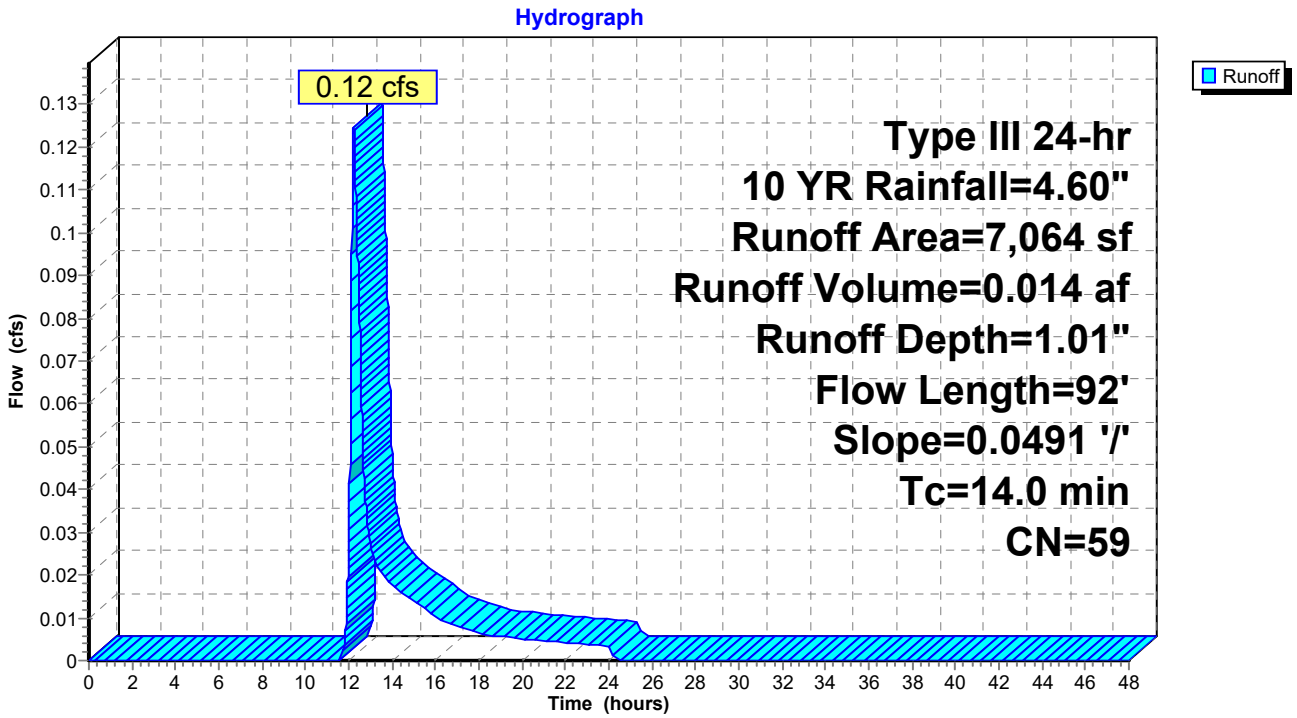
Runoff = 0.12 cfs @ 12.22 hrs, Volume= 0.014 af, Depth= 1.01"
Routed to Link POI 4 : POI 4: HANNAFORD DETENTION POND

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 10 YR Rainfall=4.60"

Area (sf)	CN	Description
6,630	60	Woods, Fair, HSG B
434	36	Woods, Fair, HSG A
7,064	59	Weighted Average
7,064		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.0	92	0.0491	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.23"

Subcatchment 4.2S: SUBCAT 3.1



Summary for Subcatchment 5S: SUBCAT 5

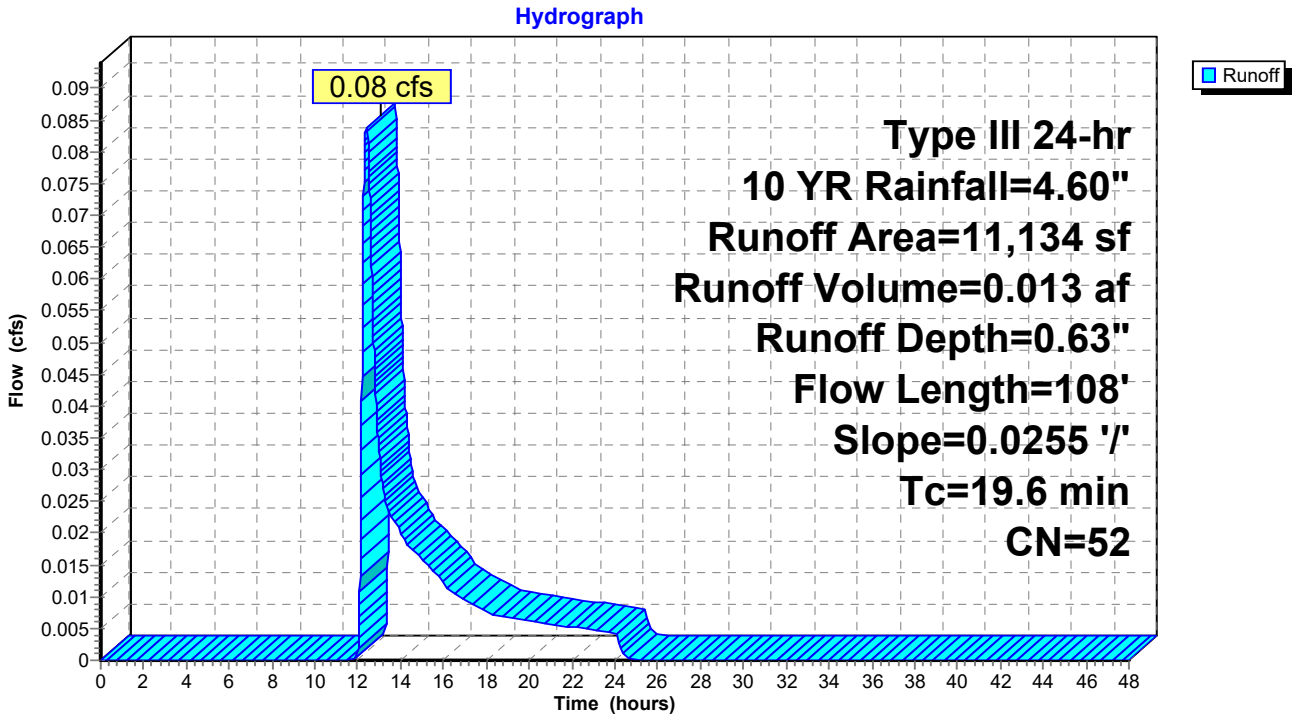
Runoff = 0.08 cfs @ 12.39 hrs, Volume= 0.013 af, Depth= 0.63"
Routed to Link POI 5 : POI 5: SHEET FLOW CEMETERY

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 10 YR Rainfall=4.60"

Area (sf)	CN	Description
5,782	60	Woods, Fair, HSG B
5,352	43	Woods/grass comb., Fair, HSG A
11,134	52	Weighted Average
11,134		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.4	100	0.0255	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.23"
0.2	8	0.0255	0.80		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
19.6	108	Total			

Subcatchment 5S: SUBCAT 5



Summary for Pond 6P: Rain Garden

Inflow Area = 0.058 ac, 51.95% Impervious, Inflow Depth = 1.74" for 10 YR event
Inflow = 0.12 cfs @ 12.09 hrs, Volume= 0.008 af
Outflow = 0.00 cfs @ 19.04 hrs, Volume= 0.002 af, Atten= 98%, Lag= 417.0 min
Primary = 0.00 cfs @ 19.04 hrs, Volume= 0.002 af
Routed to Link POI 1 : POI 1: FOREST AVE CATCH BASIN (EAST)

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 5
Peak Elev= 87.75' @ 19.04 hrs Surf.Area= 998 sf Storage= 318 cf

Plug-Flow detention time= 882.1 min calculated for 0.002 af (24% of inflow)
Center-of-Mass det. time= 741.8 min (1,594.1 - 852.3)

Volume	Invert	Avail.Storage	Storage Description
#1	87.00'	307 cf	**Ponding (Prismatic)** Listed below (Recalc)
#2	86.17'	18 cf	**Soil Media (Prismatic)** Listed below (Recalc) 178 cf Overall x 10.0% Voids
#3	85.00'	71 cf	**Crushed Stone (Prismatic)** Listed below (Recalc) 178 cf Overall x 40.0% Voids
#4	85.83'	15 cf	**Transition Media (Prismatic)** Listed below (Recalc) 73 cf Overall x 20.0% Voids
		411 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
87.00	215	0	0
88.00	399	307	307

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
86.17	215	0	0
87.00	215	178	178

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
85.00	215	0	0
85.83	215	178	178

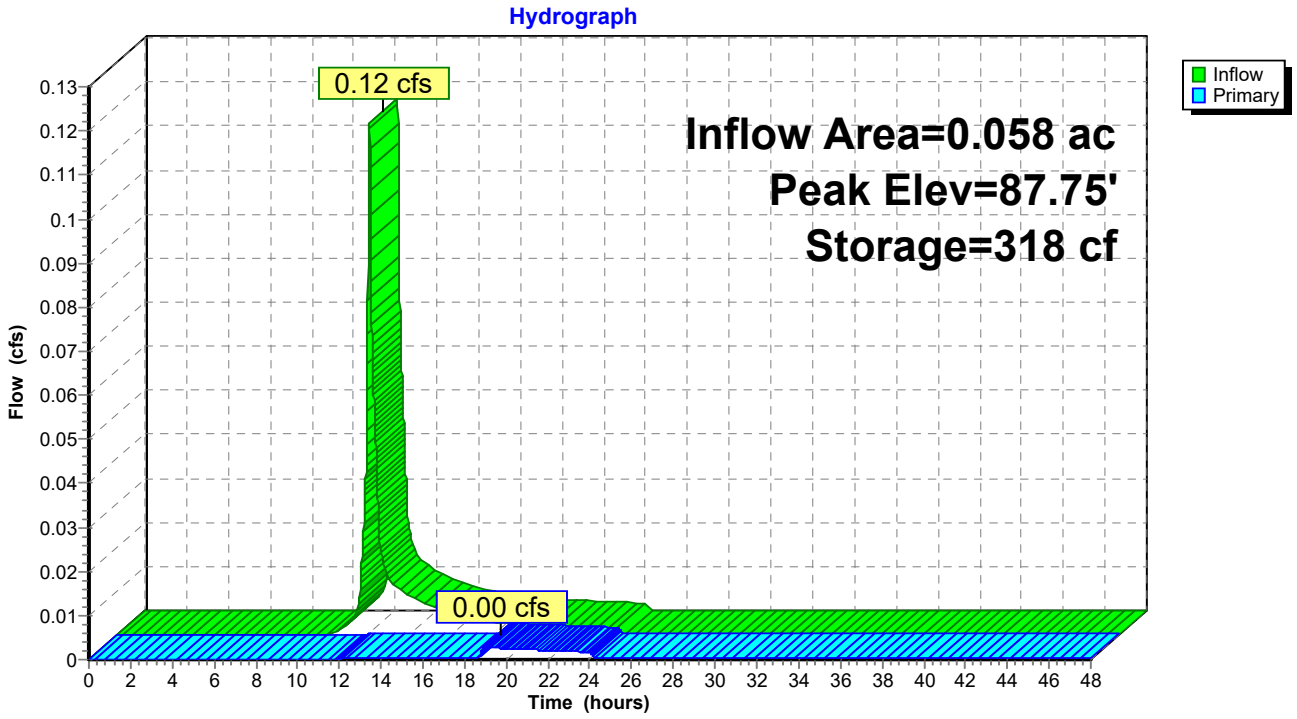
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
85.83	215	0	0
86.17	215	73	73

Device	Routing	Invert	Outlet Devices
#1	Primary	84.00'	**10.0" Round Culvert - Structure to CB** L= 16.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 84.00' / 83.00' S= 0.0625 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.55 sf
#2	Device 1	85.25'	**0.1" Horiz. Orifice/Grate - Underdrain** C= 0.600

Limited to weir flow at low heads
#3 Device 1 87.75' **24.0" x 24.0" Horiz. Orifice/Grate - Overflow** C= 0.600
Limited to weir flow at low heads

Primary OutFlow Max=0.00 cfs @ 19.04 hrs HW=87.75' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert - Structure to CB** (Passes 0.00 cfs of 3.79 cfs potential flow)
└─**2=Orifice/Grate - Underdrain** (Orifice Controls 0.00 cfs @ 7.62 fps)
└─**3=Orifice/Grate - Overflow** (Weir Controls 0.00 cfs @ 0.15 fps)

Pond 6P: Rain Garden



Summary for Pond 7P: Underground Storage Tanks

Inflow Area = 0.381 ac, 76.27% Impervious, Inflow Depth = 3.00" for 10 YR event
Inflow = 1.33 cfs @ 12.09 hrs, Volume= 0.095 af
Outflow = 0.84 cfs @ 12.19 hrs, Volume= 0.095 af, Atten= 37%, Lag= 6.0 min
Primary = 0.84 cfs @ 12.19 hrs, Volume= 0.095 af
Routed to Link POI 1 : POI 1: FOREST AVE CATCH BASIN (EAST)

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 5
Peak Elev= 85.02' @ 12.19 hrs Surf.Area= 549 sf Storage= 1,462 cf
Flood Elev= 86.90' Surf.Area= 549 sf Storage= 1,638 cf

Plug-Flow detention time= 256.8 min calculated for 0.095 af (100% of inflow)
Center-of-Mass det. time= 256.7 min (1,067.5 - 810.8)

Volume	Invert	Avail.Storage	Storage Description
#1A	81.00'	639 cf	**18.44'W x 29.80'L x 4.82'H Field A** 2,649 cf Overall - 1,051 cf Embedded = 1,598 cf x 40.0% Voids
#2A	82.00'	998 cf	**Ferguson R-Tank HD 2** x 121 Inside #1 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 121 Chambers in 11 Rows
		1,638 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	80.90'	**12.0" Round Culvert - OUT OF MANHOLE** L= 73.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 80.90' / 80.20' S= 0.0096 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	84.85'	**4.0' 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	Device 2	84.00'	**10.0" Round Tank Overflow Outlet** L= 16.7' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 84.00' / 83.70' S= 0.0180 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.55 sf
#4	Device 1	81.00'	**1.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.83 cfs @ 12.19 hrs HW=85.02' TW=0.00' (Dynamic Tailwater)
- **1=Culvert - OUT OF MANHOLE** (Passes 0.83 cfs of 5.68 cfs potential flow)
- **2=Broad-Crested Rectangular Weir** (Weir Controls 0.78 cfs @ 1.14 fps)
  - **3=Tank Overflow Outlet** (Passes 0.78 cfs of 0.86 cfs potential flow)
- **4=Orifice/Grate** (Orifice Controls 0.05 cfs @ 9.60 fps)

Pond 7P: Underground Storage Tanks - Chamber Wizard Field A

Chamber Model = Ferguson R-Tank HD 2 (Ferguson R-Tank HD)
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

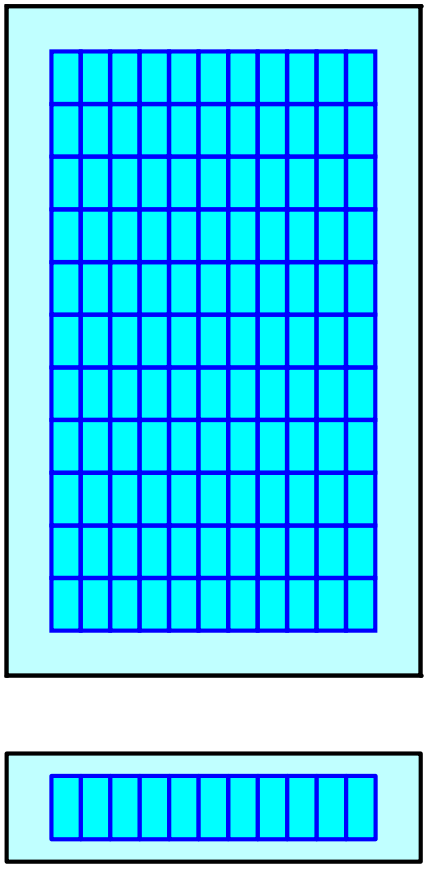
11 Chambers/Row x 2.35' Long = 25.80' Row Length +24.0" End Stone x 2 = 29.80' Base Length
11 Rows x 15.7" Wide + 24.0" Side Stone x 2 = 18.44' Base Width
12.0" Stone Base + 33.9" Chamber Height + 12.0" Stone Cover = 4.82' Field Height

121 Chambers x 8.3 cf = 998.5 cf Chamber Storage
121 Chambers x 8.7 cf = 1,051.0 cf Displacement

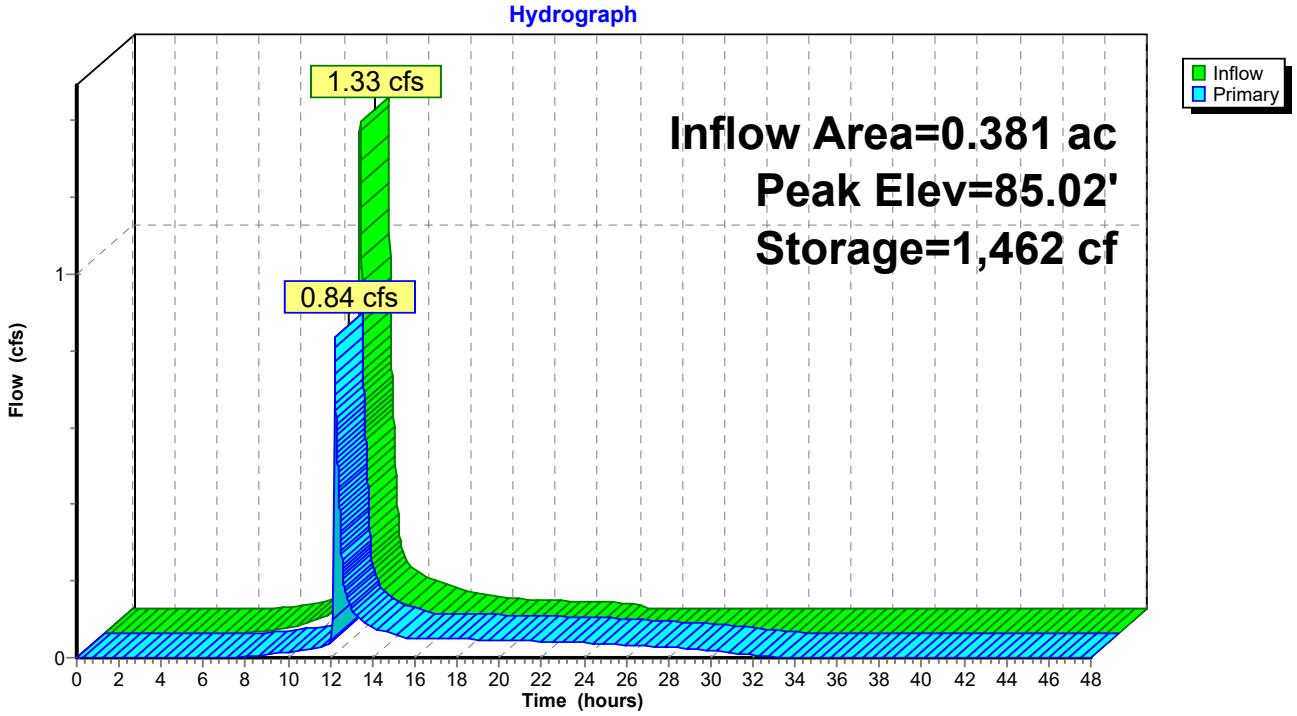
2,649.2 cf Field - 1,051.0 cf Chambers = 1,598.2 cf Stone x 40.0% Voids = 639.3 cf Stone Storage

Chamber Storage + Stone Storage = 1,637.7 cf = 0.038 af
Overall Storage Efficiency = 61.8%
Overall System Size = 29.80' x 18.44' x 4.82'

121 Chambers
98.1 cy Field
59.2 cy Stone



Pond 7P: Underground Storage Tanks

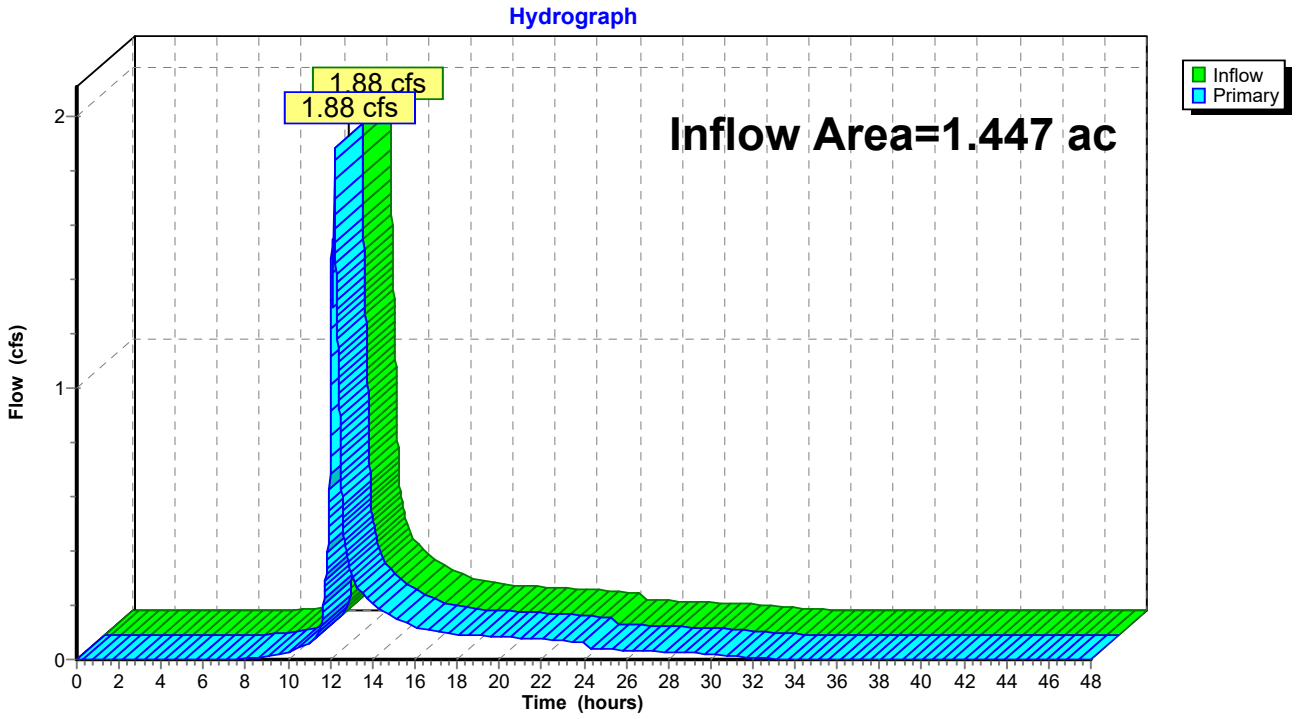


Summary for Link POI 1: POI 1: FOREST AVE CATCH BASIN (EAST)

Inflow Area = 1.447 ac, 43.48% Impervious, Inflow Depth > 1.78" for 10 YR event
Inflow = 1.88 cfs @ 12.18 hrs, Volume= 0.215 af
Primary = 1.88 cfs @ 12.18 hrs, Volume= 0.215 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link POI 1: POI 1: FOREST AVE CATCH BASIN (EAST)

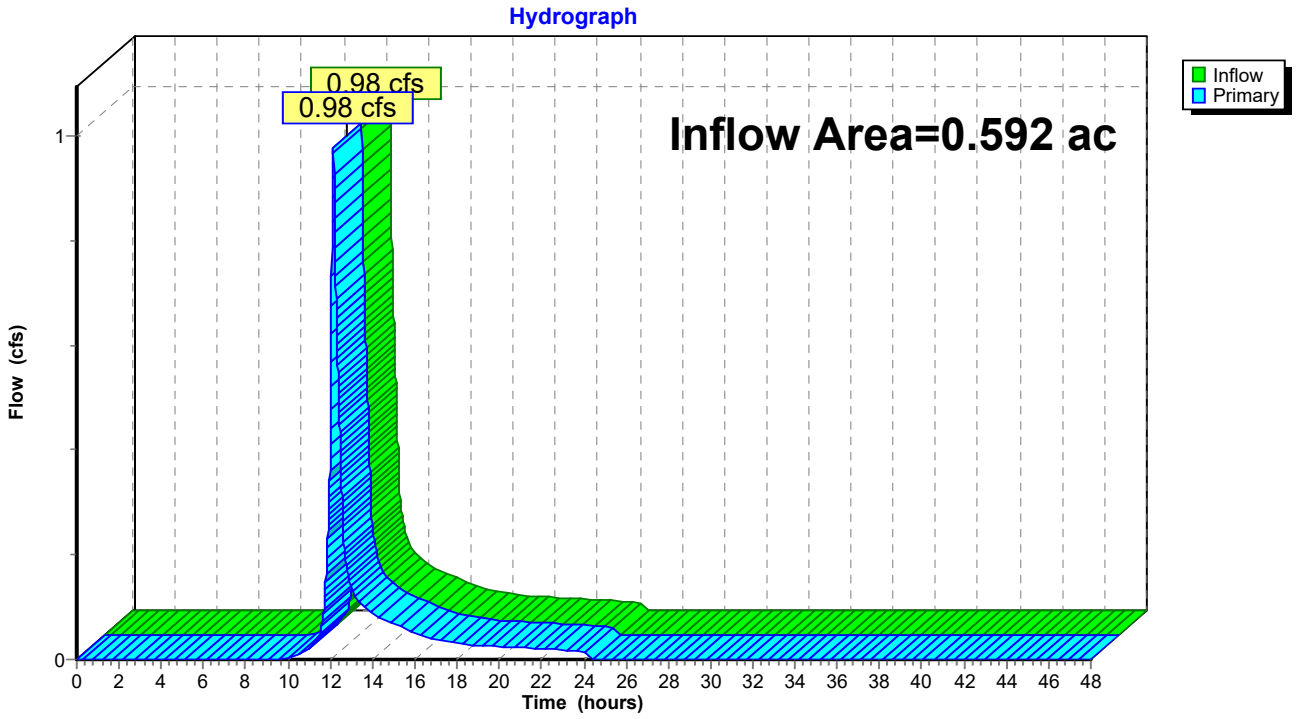


Summary for Link POI 2: POI 2: FOREST AVE CATCH BASIN (WEST)

Inflow Area = 0.592 ac, 39.70% Impervious, Inflow Depth = 1.67" for 10 YR event
Inflow = 0.98 cfs @ 12.14 hrs, Volume= 0.083 af
Primary = 0.98 cfs @ 12.14 hrs, Volume= 0.083 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link POI 2: POI 2: FOREST AVE CATCH BASIN (WEST)

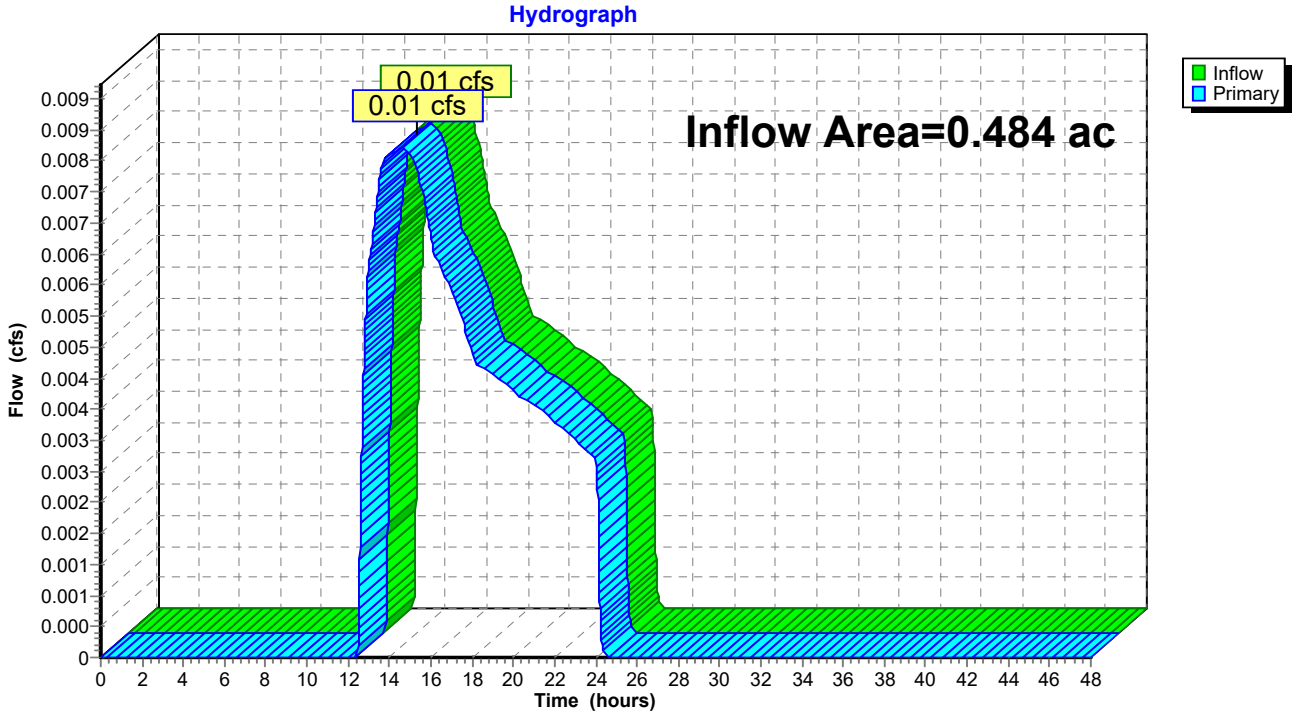


Summary for Link POI 3: POI 3: INTERNAL WETLAND

Inflow Area = 0.484 ac, 4.29% Impervious, Inflow Depth = 0.13" for 10 YR event
Inflow = 0.01 cfs @ 14.64 hrs, Volume= 0.005 af
Primary = 0.01 cfs @ 14.64 hrs, Volume= 0.005 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link POI 3: POI 3: INTERNAL WETLAND

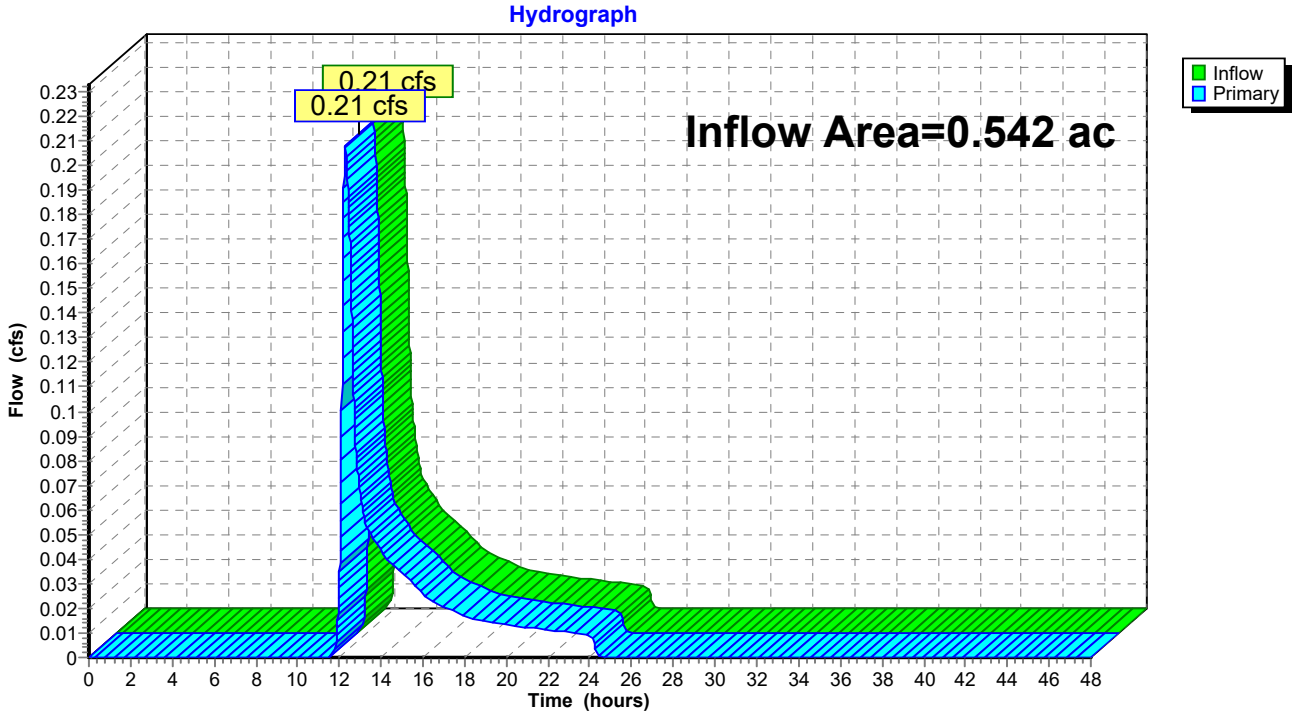


Summary for Link POI 4: POI 4: HANNAFORD DETENTION POND

Inflow Area = 0.542 ac, 0.01% Impervious, Inflow Depth = 0.68" for 10 YR event
Inflow = 0.21 cfs @ 12.28 hrs, Volume= 0.031 af
Primary = 0.21 cfs @ 12.28 hrs, Volume= 0.031 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link POI 4: POI 4: HANNAFORD DETENTION POND

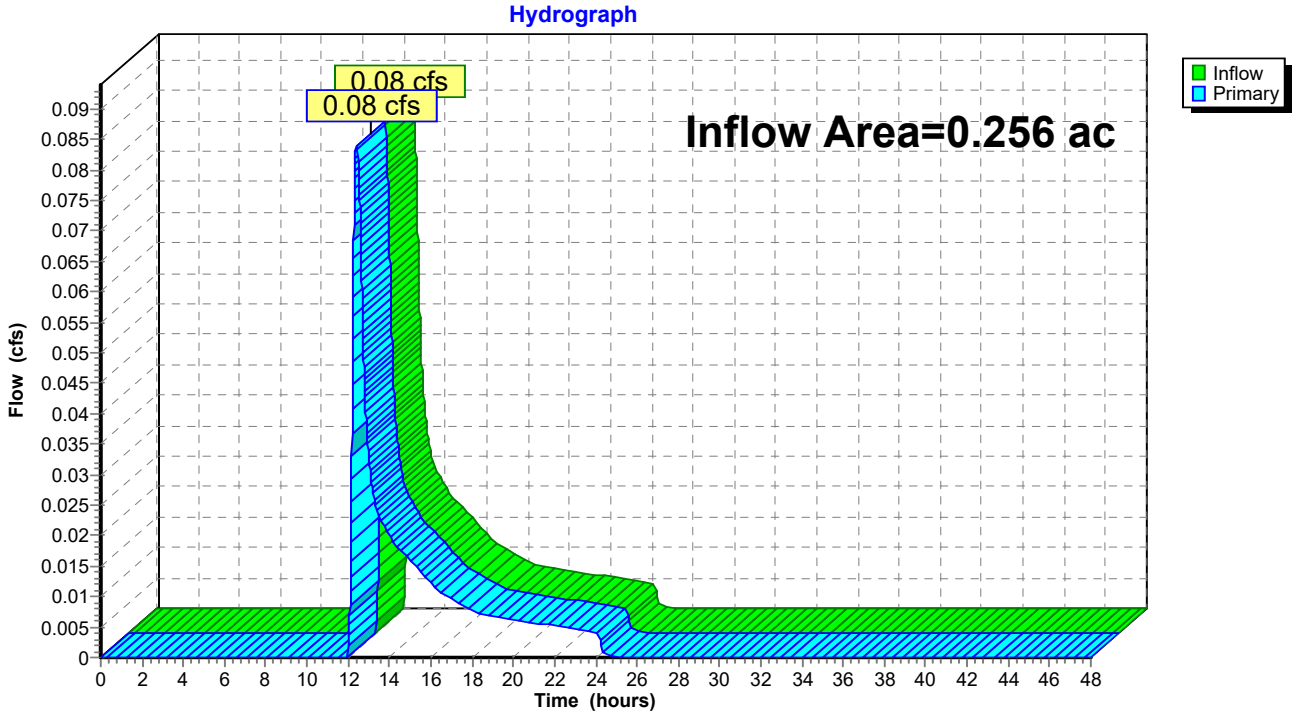


Summary for Link POI 5: POI 5: SHEET FLOW CEMETERY

Inflow Area = 0.256 ac, 0.00% Impervious, Inflow Depth = 0.63" for 10 YR event
Inflow = 0.08 cfs @ 12.39 hrs, Volume= 0.013 af
Primary = 0.08 cfs @ 12.39 hrs, Volume= 0.013 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link POI 5: POI 5: SHEET FLOW CEMETERY



Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points x 5
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1.1AS: SUBCAT1.1A Runoff Area=22,305 sf 40.69% Impervious Runoff Depth=3.11"
Tc=6.0 min CN=75 Runoff=1.87 cfs 0.133 af

Subcatchment1.1BS: SUBCAT1.1B Runoff Area=15,136 sf 23.34% Impervious Runoff Depth=1.40"
Tc=6.0 min UI Adjusted CN=55 Runoff=0.50 cfs 0.041 af

Subcatchment1.2S: SUBCAT1.2 Runoff Area=16,599 sf 76.27% Impervious Runoff Depth=4.11"
Tc=6.0 min CN=85 Runoff=1.81 cfs 0.131 af

Subcatchment1.3S: SUBCAT1.3 Runoff Area=6,473 sf 12.75% Impervious Runoff Depth=0.72"
Flow Length=156' Tc=9.9 min UI Adjusted CN=45 Runoff=0.06 cfs 0.009 af

Subcatchment1.4S: SUBCAT1.4 Runoff Area=2,539 sf 51.95% Impervious Runoff Depth=2.65"
Tc=6.0 min CN=70 Runoff=0.18 cfs 0.013 af

Subcatchment2.1S: SUBCAT2 Runoff Area=22,949 sf 44.61% Impervious Runoff Depth=2.74"
Flow Length=301' Tc=9.9 min CN=71 Runoff=1.47 cfs 0.120 af

Subcatchment2.2S: SUBCAT2.2 Runoff Area=2,836 sf 0.00% Impervious Runoff Depth=0.98"
Flow Length=363' Tc=6.0 min CN=49 Runoff=0.05 cfs 0.005 af

Subcatchment3S: SUBCAT3 Runoff Area=21,101 sf 4.29% Impervious Runoff Depth=0.39"
Flow Length=229' Tc=10.5 min CN=39 Runoff=0.07 cfs 0.016 af

Subcatchment4.1S: SUBCAT3 Runoff Area=16,543 sf 0.01% Impervious Runoff Depth=1.05"
Flow Length=301' Slope=0.0864 '/' Tc=16.5 min CN=50 Runoff=0.26 cfs 0.033 af

Subcatchment4.2S: SUBCAT3.1 Runoff Area=7,064 sf 0.00% Impervious Runoff Depth=1.71"
Flow Length=92' Slope=0.0491 '/' Tc=14.0 min CN=59 Runoff=0.23 cfs 0.023 af

Subcatchment5S: SUBCAT5 Runoff Area=11,134 sf 0.00% Impervious Runoff Depth=1.19"
Flow Length=108' Slope=0.0255 '/' Tc=19.6 min CN=52 Runoff=0.20 cfs 0.025 af

Pond 6P: Rain Garden Peak Elev=87.76' Storage=320 cf Inflow=0.18 cfs 0.013 af
Outflow=0.02 cfs 0.006 af

Pond 7P: Underground Storage Tanks Peak Elev=85.42' Storage=1,550 cf Inflow=1.81 cfs 0.131 af
Outflow=1.63 cfs 0.131 af

Link POI 1: POI 1: FOREST AVE CATCH BASIN (EAST) Inflow=3.96 cfs 0.319 af
Primary=3.96 cfs 0.319 af

Link POI 2: POI 2: FOREST AVE CATCH BASIN (WEST) Inflow=1.52 cfs 0.126 af
Primary=1.52 cfs 0.126 af

Link POI 3: POI 3: INTERNAL WETLAND Inflow=0.07 cfs 0.016 af
Primary=0.07 cfs 0.016 af

Link POI 4: POI 4: HANNAFORD DETENTION POND Inflow=0.48 cfs 0.056 af
Primary=0.48 cfs 0.056 af

Link POI 5: POI 5: SHEET FLOW CEMETERY Inflow=0.20 cfs 0.025 af
Primary=0.20 cfs 0.025 af

Total Runoff Area = 3.321 ac Runoff Volume = 0.549 af Average Runoff Depth = 1.98"
73.35% Pervious = 2.436 ac 26.65% Impervious = 0.885 ac

Summary for Subcatchment 1.1AS: SUBCAT 1.1A

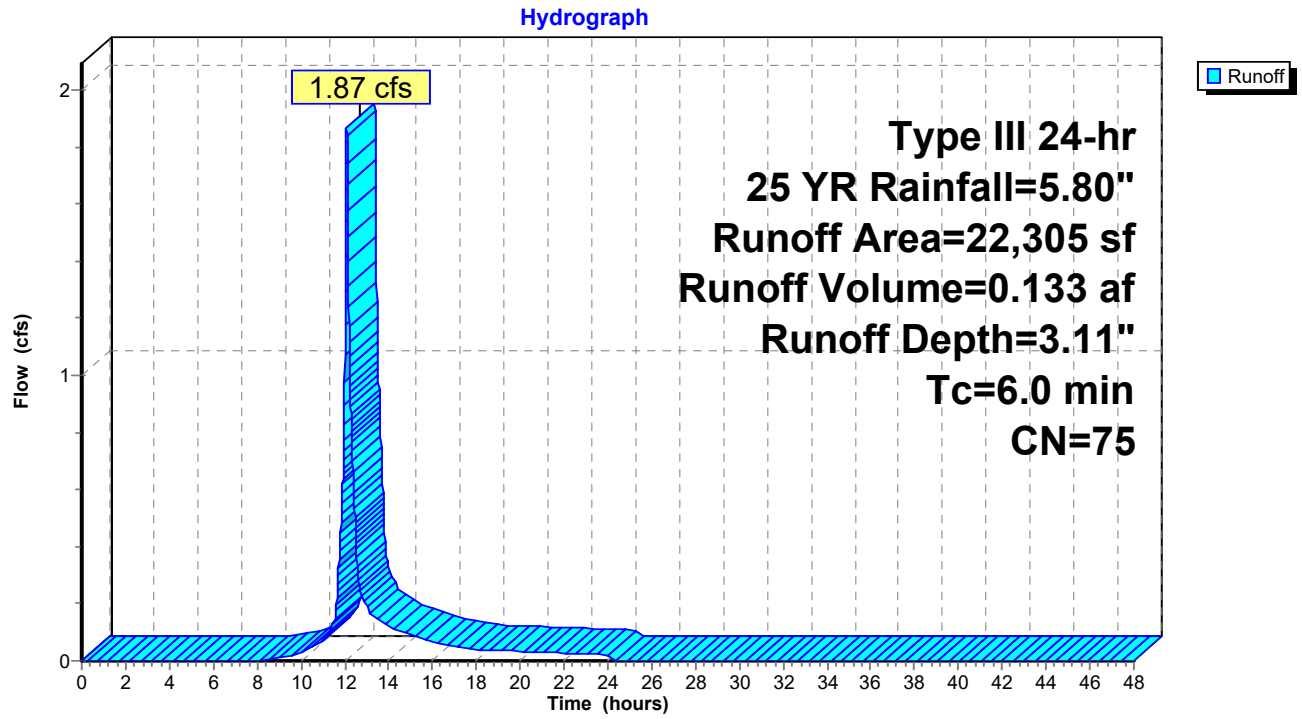
Runoff = 1.87 cfs @ 12.09 hrs, Volume= 0.133 af, Depth= 3.11"
Routed to Link POI 1 : POI 1: FOREST AVE CATCH BASIN (EAST)

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
6,137	98	Paved parking, HSG A
2,945	96	Gravel surface, HSG A
702	60	Woods, Fair, HSG B
102	98	Paved parking, HSG B
2,741	98	Paved parking, HSG A
9,581	49	50-75% Grass cover, Fair, HSG A
17	98	Unconnected pavement, HSG B
80	98	Unconnected pavement, HSG A
22,305	75	Weighted Average
13,228		59.31% Pervious Area
9,077		40.69% Impervious Area
97		1.07% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR-55 MIN**

Subcatchment 1.1AS: SUBCAT 1.1A



Summary for Subcatchment 1.1BS: SUBCAT 1.1B

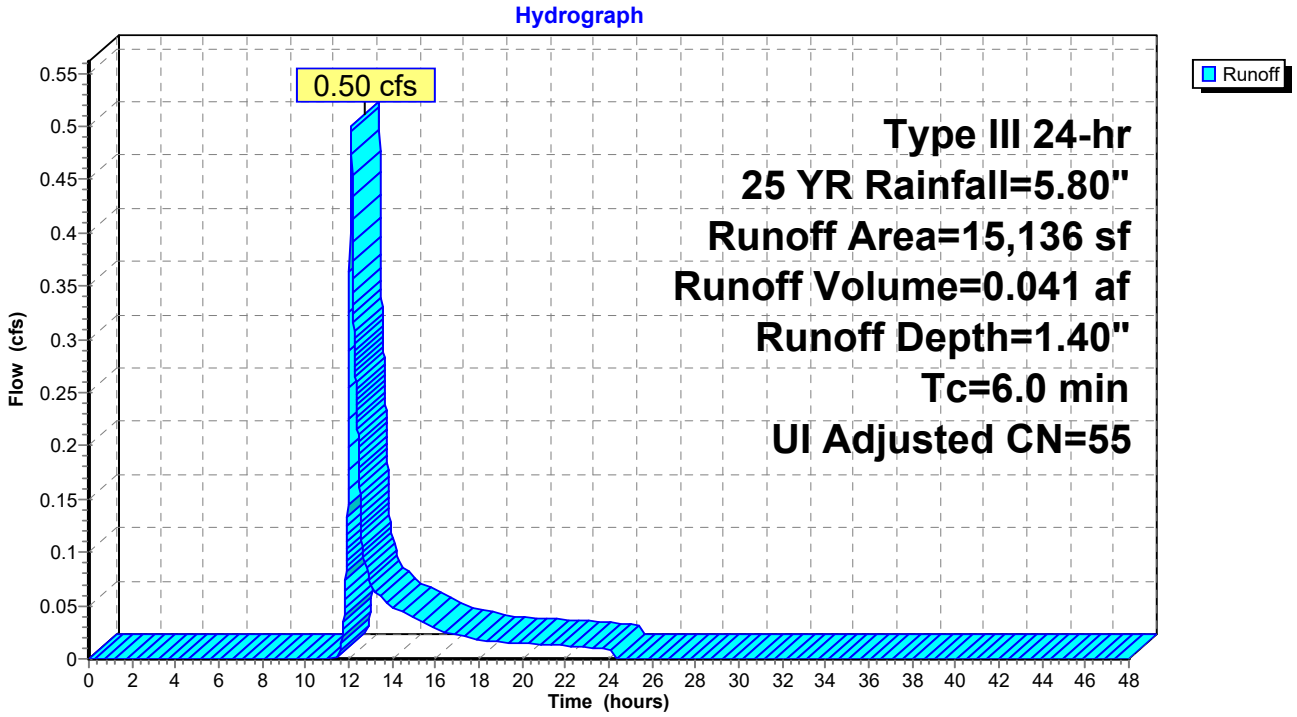
Runoff = 0.50 cfs @ 12.10 hrs, Volume= 0.041 af, Depth= 1.40"
Routed to Link POI 1 : POI 1: FOREST AVE CATCH BASIN (EAST)

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	Adj	Description
2,221	98		Paved parking, HSG A
2,179	60		Woods, Fair, HSG B
1,057	98		Paved parking, HSG B
7,357	39		>75% Grass cover, Good, HSG A
1	98		Unconnected pavement, HSG B
1,795	39		>75% Grass cover, Good, HSG A
272	36		Woods, Fair, HSG A
254	98		Unconnected pavement, HSG A
15,136	56	55	Weighted Average, UI Adjusted
11,603			76.66% Pervious Area
3,533			23.34% Impervious Area
255			7.22% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 1.1BS: SUBCAT 1.1B



Summary for Subcatchment 1.2S: SUBCAT 1.2

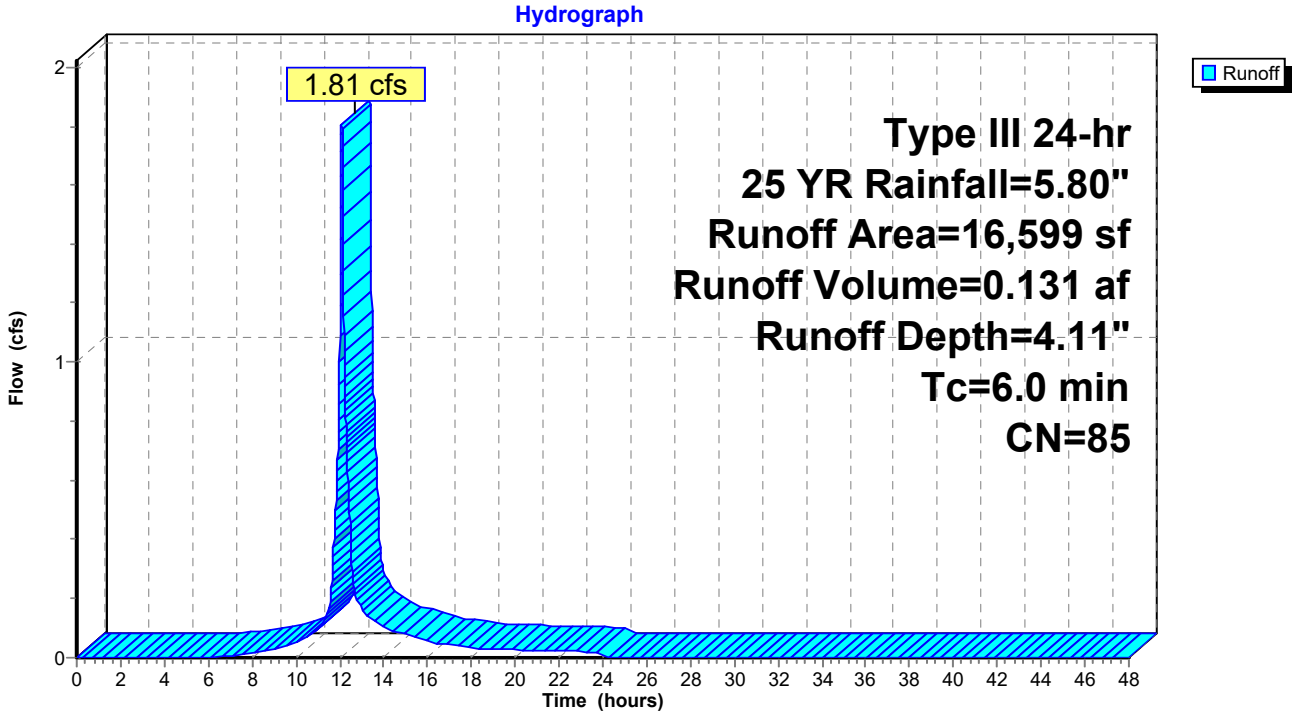
Runoff = 1.81 cfs @ 12.09 hrs, Volume= 0.131 af, Depth= 4.11"
Routed to Pond 7P : Underground Storage Tanks

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
	4,412	98	Paved parking, HSG A
	61	68	<50% Grass cover, Poor, HSG A
	174	68	<50% Grass cover, Poor, HSG A
	51	68	<50% Grass cover, Poor, HSG A
	3,461	39	>75% Grass cover, Good, HSG A
	6,716	98	Unconnected roofs, HSG A
*	206	98	Unconnected pavement, HSG A - RETAINING WALL
	63	39	>75% Grass cover, Good, HSG A
	1,326	98	Unconnected pavement, HSG A
	129	96	Gravel surface, HSG A
	16,599	85	Weighted Average
	3,939		23.73% Pervious Area
	12,660		76.27% Impervious Area
	8,248		65.15% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR-55 MIN**

Subcatchment 1.2S: SUBCAT 1.2



Summary for Subcatchment 1.3S: SUBCAT 1.3

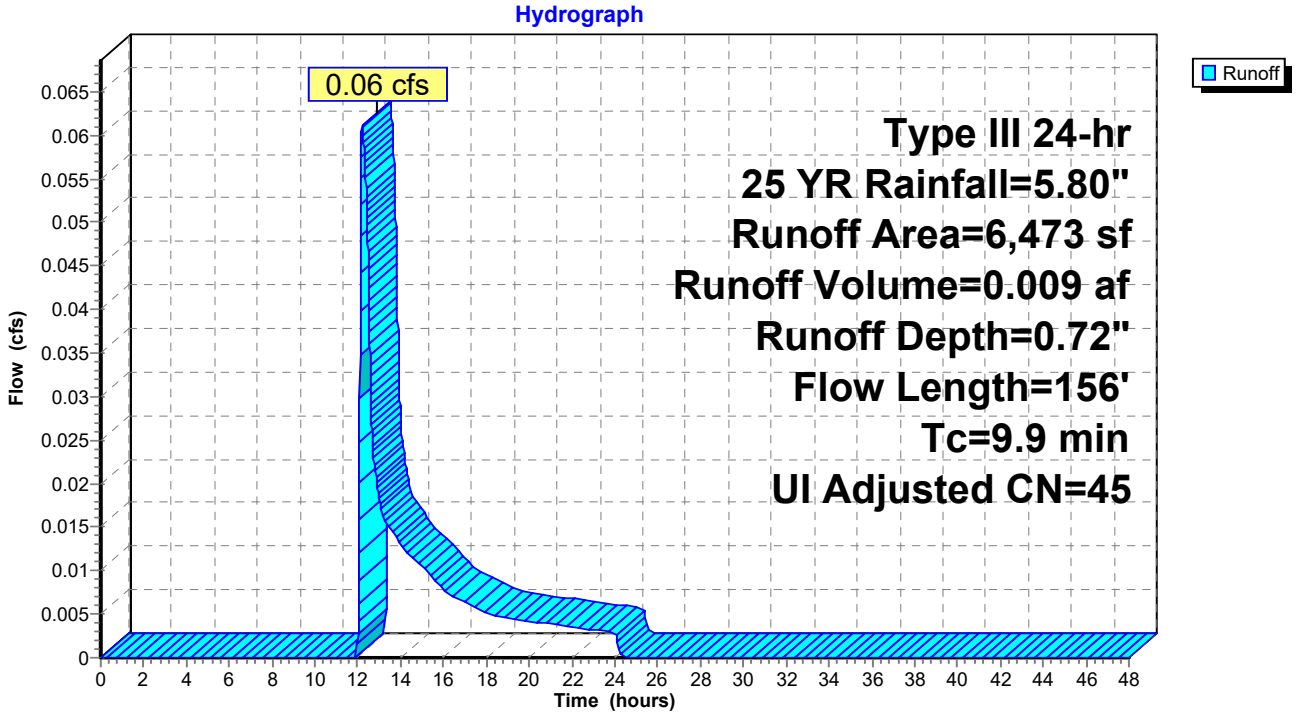
Runoff = 0.06 cfs @ 12.20 hrs, Volume= 0.009 af, Depth= 0.72"
Routed to Link POI 1 : POI 1: FOREST AVE CATCH BASIN (EAST)

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	Adj	Description
825	98		Unconnected pavement, HSG A
5,430	39		>75% Grass cover, Good, HSG A
218	96		Gravel surface, HSG A
6,473	48	45	Weighted Average, UI Adjusted
5,648			87.25% Pervious Area
825			12.75% Impervious Area
825			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.8	100	0.0500	0.17		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.23"
0.0	10	0.0519	3.42		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
0.1	28	0.0137	4.05	1.41	**Pipe Channel,** 8.0" Round Area= 0.3 sf Perim= 2.1' r= 0.17' n= 0.013 Corrugated PE, smooth interior
0.0	13	0.0193	5.21	1.82	**Pipe Channel,** 8.0" Round Area= 0.3 sf Perim= 2.1' r= 0.17' n= 0.012 Corrugated PP, smooth interior
0.0	5	0.0100	3.75	1.31	**Pipe Channel,** 8.0" Round Area= 0.3 sf Perim= 2.1' r= 0.17' n= 0.012 Corrugated PP, smooth interior
9.9	156	Total			

Subcatchment 1.3S: SUBCAT 1.3



Summary for Subcatchment 1.4S: SUBCAT 1.4

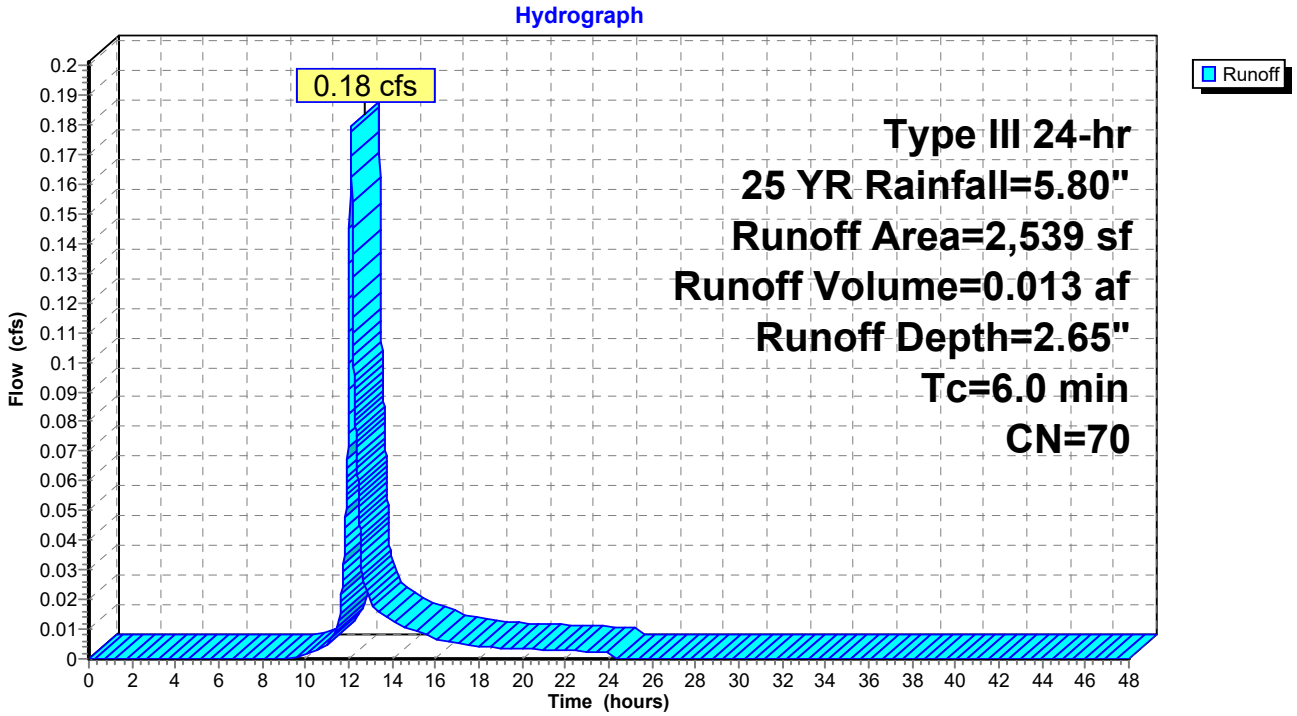
Runoff = 0.18 cfs @ 12.09 hrs, Volume= 0.013 af, Depth= 2.65"
Routed to Pond 6P : Rain Garden

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
468	98	Unconnected pavement, HSG A
851	98	Unconnected roofs, HSG A
1,189	39	>75% Grass cover, Good, HSG A
31	96	Gravel surface, HSG A
2,539	70	Weighted Average
1,220		48.05% Pervious Area
1,319		51.95% Impervious Area
1,319		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR-55 MIN**

Subcatchment 1.4S: SUBCAT 1.4



Summary for Subcatchment 2.1S: SUBCAT 2

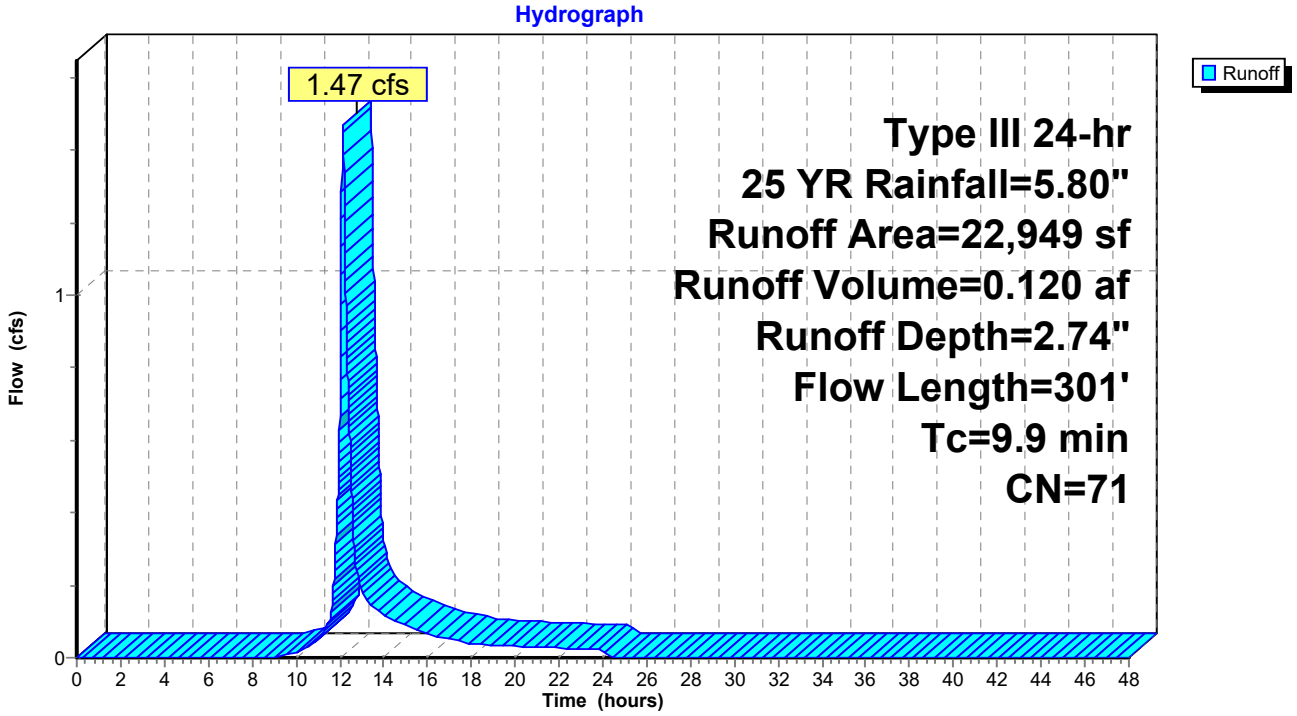
Runoff = 1.47 cfs @ 12.14 hrs, Volume= 0.120 af, Depth= 2.74"
Routed to Link POI 2 : POI 2: FOREST AVE CATCH BASIN (WEST)

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
1,026	60	Woods, Fair, HSG B
403	36	Woods, Fair, HSG A
7,007	98	Paved parking, HSG A
6	36	Woods, Fair, HSG A
3,230	98	Unconnected roofs, HSG A
11,277	49	50-75% Grass cover, Fair, HSG A
22,949	71	Weighted Average
12,712		55.39% Pervious Area
10,237		44.61% Impervious Area
3,230		31.55% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.2	72	0.1141	0.15		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.23"
0.1	43	0.1575	8.06		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.1	37	0.0536	4.70		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
1.4	130	0.0461	1.50		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.1	19	0.0514	4.60		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
9.9	301	Total			

Subcatchment 2.1S: SUBCAT 2



Summary for Subcatchment 2.2S: SUBCAT 2.2

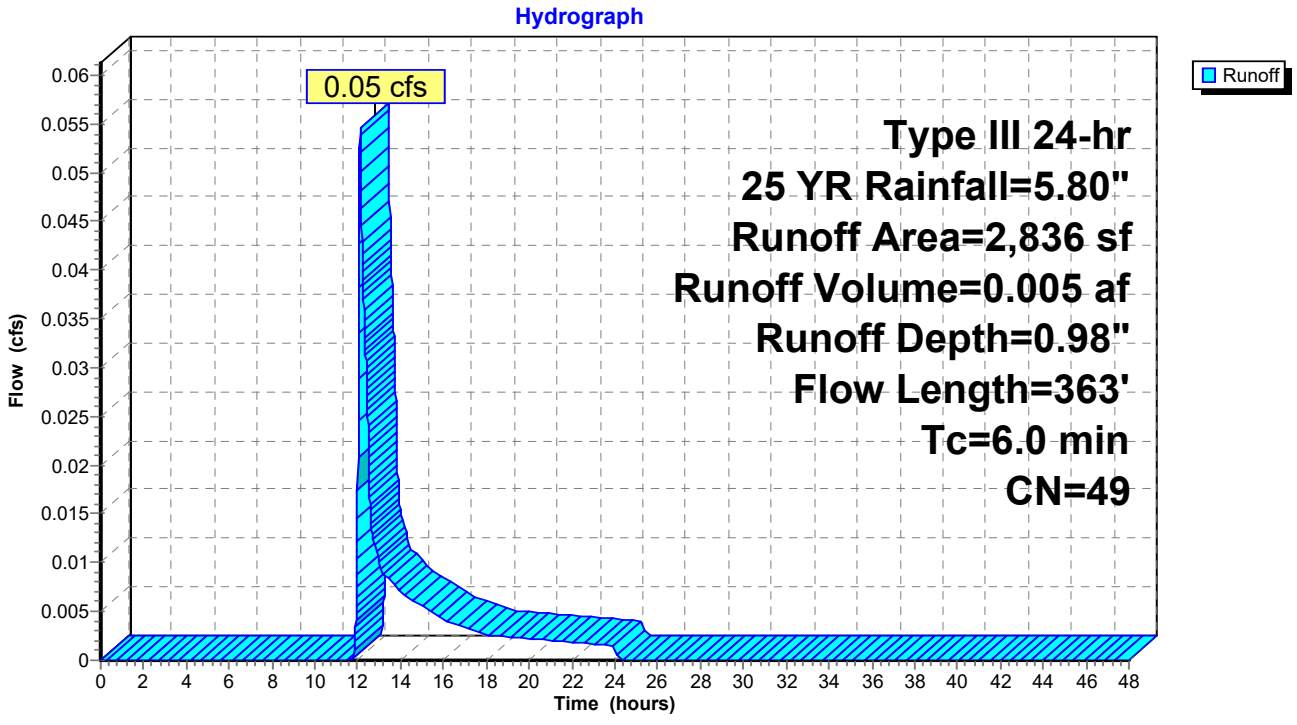
Runoff = 0.05 cfs @ 12.11 hrs, Volume= 0.005 af, Depth= 0.98"
Routed to Link POI 2 : POI 2: FOREST AVE CATCH BASIN (WEST)

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
2,836	49	50-75% Grass cover, Fair, HSG A
2,836		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.6	76	0.1378	0.35		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.23"
0.3	24	0.0326	1.26		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.23"
1.3	263	0.0266	3.31		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
5.2	363	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 2.2S: SUBCAT 2.2



Summary for Subcatchment 3S: SUBCAT 3

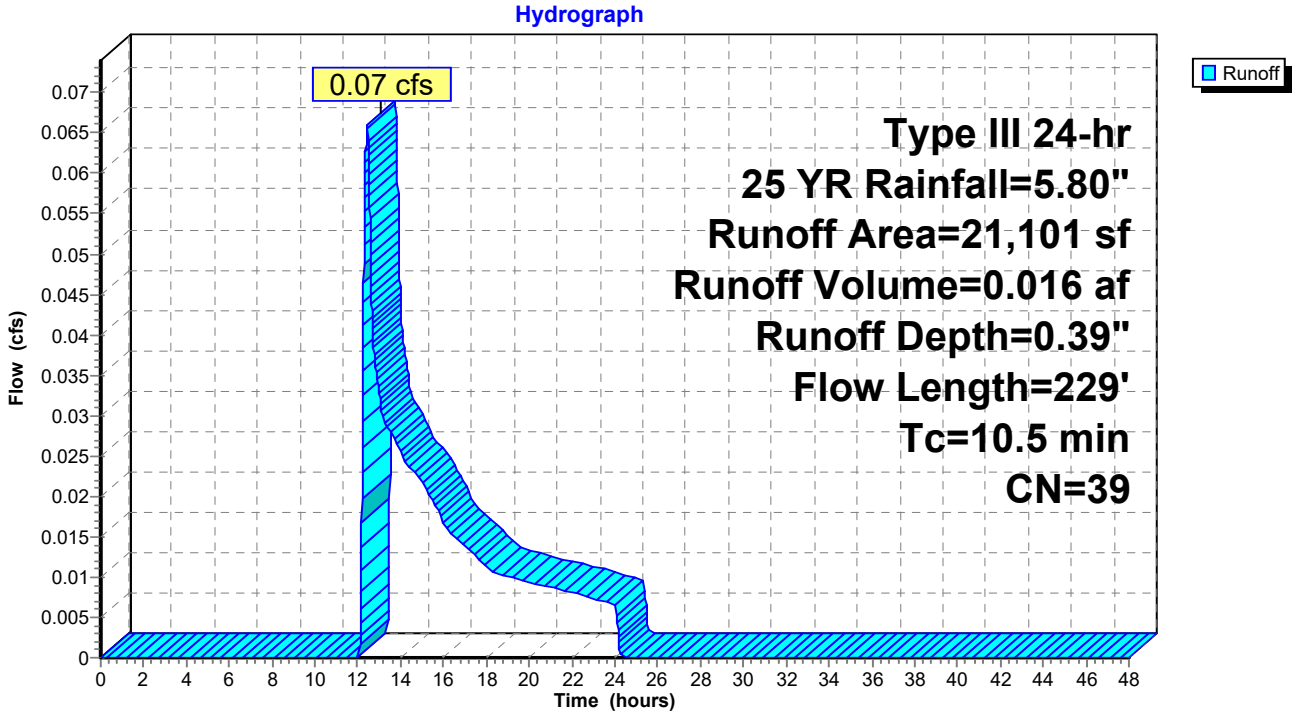
Runoff = 0.07 cfs @ 12.43 hrs, Volume= 0.016 af, Depth= 0.39"
Routed to Link POI 3 : POI 3: INTERNAL WETLAND

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	60	Woods, Fair, HSG B
489	36	Woods, Fair, HSG A
905	98	Paved parking, HSG A
19,698	36	Woods, Fair, HSG A
21,101	39	Weighted Average
20,196		95.71% Pervious Area
905		4.29% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	100	0.1075	0.23		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.23"
2.8	98	0.0535	0.58		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
0.5	31	0.1689	1.03		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
10.5	229	Total			

Subcatchment 3S: SUBCAT 3



Summary for Subcatchment 4.1S: SUBCAT 3

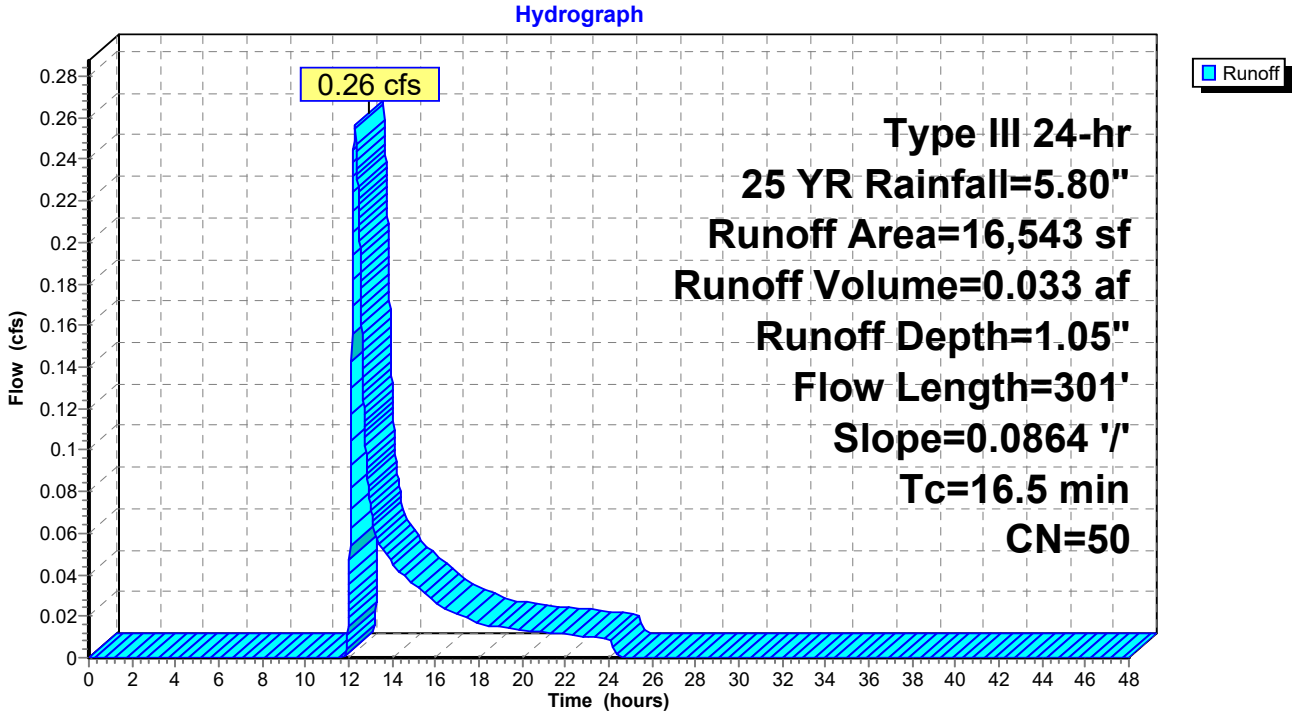
Runoff = 0.26 cfs @ 12.28 hrs, Volume= 0.033 af, Depth= 1.05"
Routed to Link POI 4 : POI 4: HANNAFORD DETENTION POND

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
	2,925	36	Woods, Fair, HSG A
*	431	96	Gravel surface, Path, HSG A
	2	98	Paved parking, HSG A
	2,935	36	Woods, Fair, HSG A
	3,404	36	Woods, Fair, HSG A
*	42	96	Gravel surface, Path, HSG A
	0	36	Woods, Fair, HSG A
	121	60	Woods, Fair, HSG B
*	77	96	Gravel surface,Path, Assumed HSG B
	2,886	60	Woods, Fair, HSG B
*	559	96	Gravel surface, Path, Assumed HSG B
*	1,816	66	Woods, Poor, Assumed HSG B
	1,345	60	Woods, Fair, HSG B
	16,543	50	Weighted Average
	16,541		99.99% Pervious Area
	2		0.01% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.9	100	0.0864	0.14		**Sheet Flow, 100 ft** Woods: Light underbrush n= 0.400 P2= 3.23"
4.6	201	0.0864	0.73		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
16.5	301	Total			

Subcatchment 4.1S: SUBCAT 3



Summary for Subcatchment 4.2S: SUBCAT 3.1

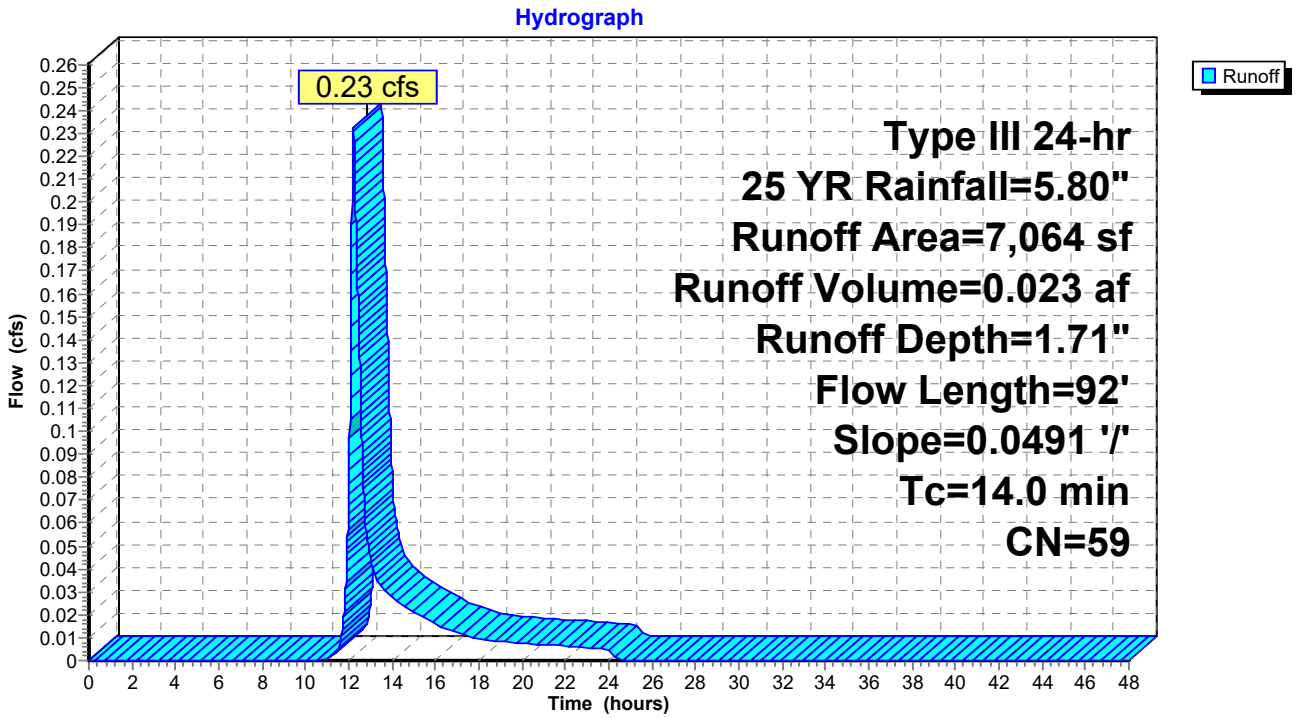
Runoff = 0.23 cfs @ 12.21 hrs, Volume= 0.023 af, Depth= 1.71"
Routed to Link POI 4 : POI 4: HANNAFORD DETENTION POND

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
6,630	60	Woods, Fair, HSG B
434	36	Woods, Fair, HSG A
7,064	59	Weighted Average
7,064		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.0	92	0.0491	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.23"

Subcatchment 4.2S: SUBCAT 3.1



Summary for Subcatchment 5S: SUBCAT 5

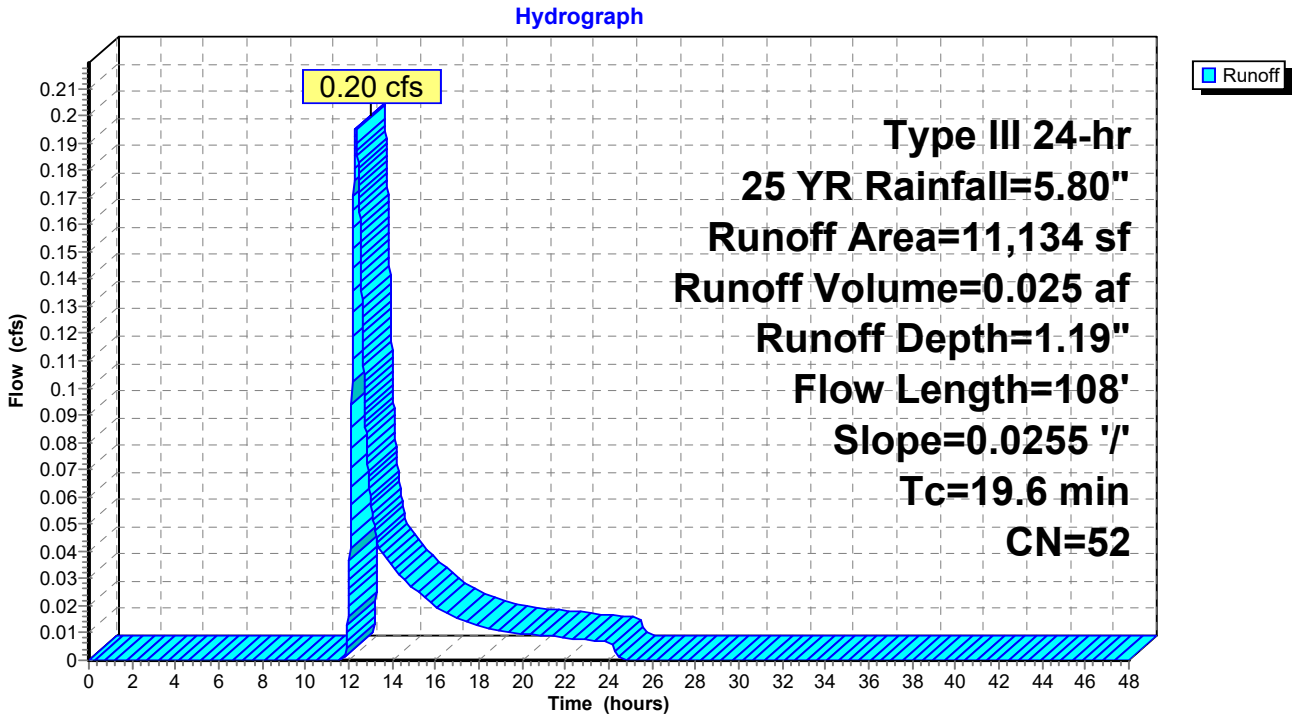
Runoff = 0.20 cfs @ 12.33 hrs, Volume= 0.025 af, Depth= 1.19"
Routed to Link POI 5 : POI 5: SHEET FLOW CEMETERY

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
5,782	60	Woods, Fair, HSG B
5,352	43	Woods/grass comb., Fair, HSG A
11,134	52	Weighted Average
11,134		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.4	100	0.0255	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.23"
0.2	8	0.0255	0.80		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
19.6	108	Total			

Subcatchment 5S: SUBCAT 5



Summary for Pond 6P: Rain Garden

Inflow Area = 0.058 ac, 51.95% Impervious, Inflow Depth = 2.65" for 25 YR event
Inflow = 0.18 cfs @ 12.09 hrs, Volume= 0.013 af
Outflow = 0.02 cfs @ 13.02 hrs, Volume= 0.006 af, Atten= 89%, Lag= 55.7 min
Primary = 0.02 cfs @ 13.02 hrs, Volume= 0.006 af
Routed to Link POI 1 : POI 1: FOREST AVE CATCH BASIN (EAST)

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 5
Peak Elev= 87.76' @ 13.02 hrs Surf.Area= 999 sf Storage= 320 cf

Plug-Flow detention time= 422.4 min calculated for 0.006 af (50% of inflow)
Center-of-Mass det. time= 301.8 min (1,141.8 - 839.9)

Volume	Invert	Avail.Storage	Storage Description
#1	87.00'	307 cf	**Ponding (Prismatic)** Listed below (Recalc)
#2	86.17'	18 cf	**Soil Media (Prismatic)** Listed below (Recalc) 178 cf Overall x 10.0% Voids
#3	85.00'	71 cf	**Crushed Stone (Prismatic)** Listed below (Recalc) 178 cf Overall x 40.0% Voids
#4	85.83'	15 cf	**Transition Media (Prismatic)** Listed below (Recalc) 73 cf Overall x 20.0% Voids
		411 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
87.00	215	0	0
88.00	399	307	307

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
86.17	215	0	0
87.00	215	178	178

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
85.00	215	0	0
85.83	215	178	178

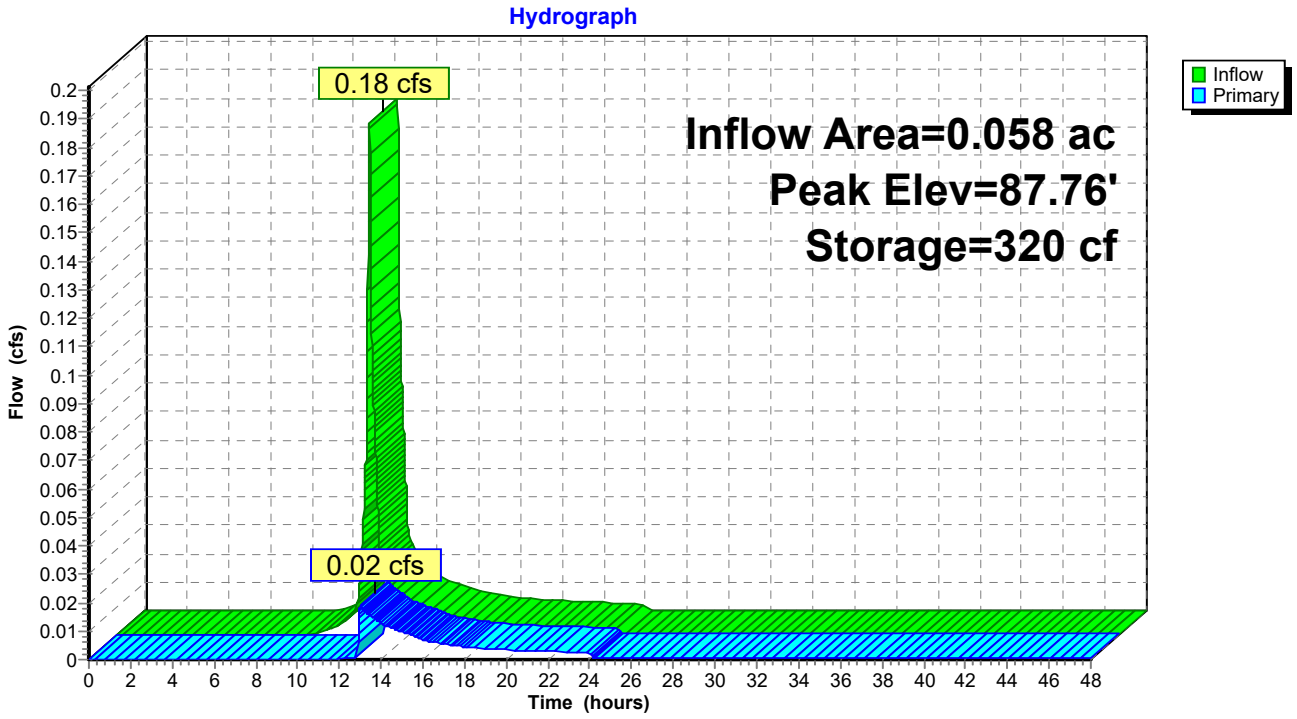
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
85.83	215	0	0
86.17	215	73	73

Device	Routing	Invert	Outlet Devices
#1	Primary	84.00'	**10.0" Round Culvert - Structure to CB** L= 16.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 84.00' / 83.00' S= 0.0625 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.55 sf
#2	Device 1	85.25'	**0.1" Horiz. Orifice/Grate - Underdrain** C= 0.600

Limited to weir flow at low heads
#3 Device 1 87.75' **24.0" x 24.0" Horiz. Orifice/Grate - Overflow** C= 0.600
Limited to weir flow at low heads

Primary OutFlow Max=0.02 cfs @ 13.02 hrs HW=87.76' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert - Structure to CB** (Passes 0.02 cfs of 3.79 cfs potential flow)
└─**2=Orifice/Grate - Underdrain** (Orifice Controls 0.00 cfs @ 7.63 fps)
└─**3=Orifice/Grate - Overflow** (Weir Controls 0.02 cfs @ 0.29 fps)

Pond 6P: Rain Garden



Summary for Pond 7P: Underground Storage Tanks

Inflow Area = 0.381 ac, 76.27% Impervious, Inflow Depth = 4.11" for 25 YR event
Inflow = 1.81 cfs @ 12.09 hrs, Volume= 0.131 af
Outflow = 1.63 cfs @ 12.12 hrs, Volume= 0.131 af, Atten= 10%, Lag= 2.3 min
Primary = 1.63 cfs @ 12.12 hrs, Volume= 0.131 af
Routed to Link POI 1 : POI 1: FOREST AVE CATCH BASIN (EAST)

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 5
Peak Elev= 85.42' @ 12.12 hrs Surf.Area= 549 sf Storage= 1,550 cf
Flood Elev= 86.90' Surf.Area= 549 sf Storage= 1,638 cf

Plug-Flow detention time= 210.5 min calculated for 0.131 af (100% of inflow)
Center-of-Mass det. time= 210.4 min (1,012.3 - 801.9)

Volume	Invert	Avail.Storage	Storage Description
#1A	81.00'	639 cf	**18.44'W x 29.80'L x 4.82'H Field A** 2,649 cf Overall - 1,051 cf Embedded = 1,598 cf x 40.0% Voids
#2A	82.00'	998 cf	**Ferguson R-Tank HD 2** x 121 Inside #1 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 121 Chambers in 11 Rows
		1,638 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	80.90'	**12.0" Round Culvert - OUT OF MANHOLE** L= 73.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 80.90' / 80.20' S= 0.0096 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	84.85'	**4.0' 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	Device 2	84.00'	**10.0" Round Tank Overflow Outlet** L= 16.7' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 84.00' / 83.70' S= 0.0180 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.55 sf
#4	Device 1	81.00'	**1.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=1.62 cfs @ 12.12 hrs HW=85.42' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert - OUT OF MANHOLE** (Passes 1.62 cfs of 5.99 cfs potential flow)
  └─**2=Broad-Crested Rectangular Weir** (Passes 1.57 cfs of 5.05 cfs potential flow)
    └─**3=Tank Overflow Outlet** (Inlet Controls 1.57 cfs @ 2.88 fps)
  └─**4=Orifice/Grate** (Orifice Controls 0.05 cfs @ 10.08 fps)

Pond 7P: Underground Storage Tanks - Chamber Wizard Field A

Chamber Model = Ferguson R-Tank HD 2 (Ferguson R-Tank HD)
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

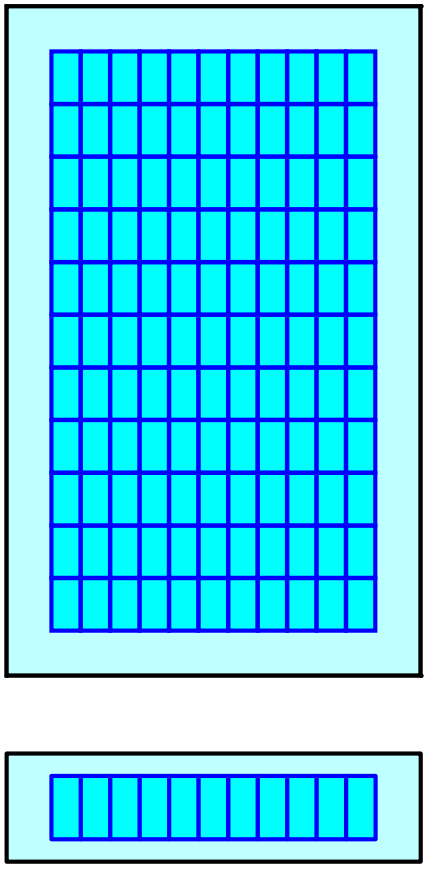
11 Chambers/Row x 2.35' Long = 25.80' Row Length +24.0" End Stone x 2 = 29.80' Base Length
11 Rows x 15.7" Wide + 24.0" Side Stone x 2 = 18.44' Base Width
12.0" Stone Base + 33.9" Chamber Height + 12.0" Stone Cover = 4.82' Field Height

121 Chambers x 8.3 cf = 998.5 cf Chamber Storage
121 Chambers x 8.7 cf = 1,051.0 cf Displacement

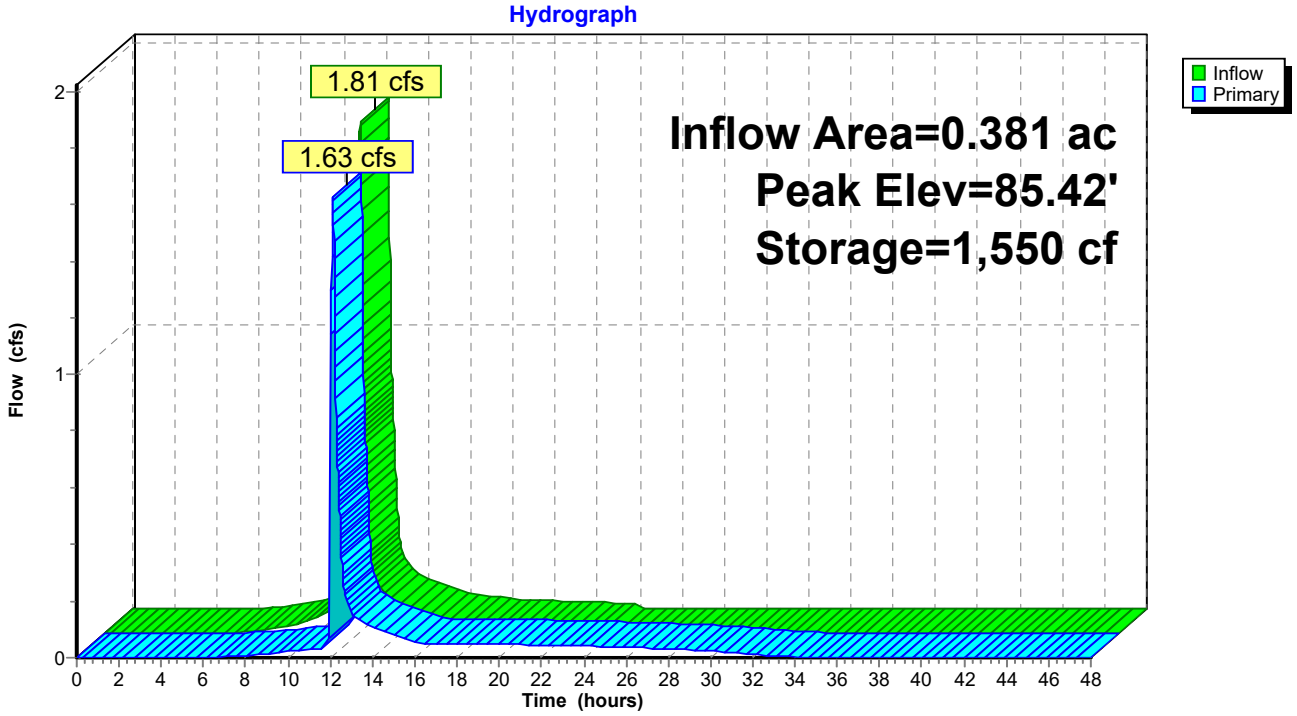
2,649.2 cf Field - 1,051.0 cf Chambers = 1,598.2 cf Stone x 40.0% Voids = 639.3 cf Stone Storage

Chamber Storage + Stone Storage = 1,637.7 cf = 0.038 af
Overall Storage Efficiency = 61.8%
Overall System Size = 29.80' x 18.44' x 4.82'

121 Chambers
98.1 cy Field
59.2 cy Stone



Pond 7P: Underground Storage Tanks

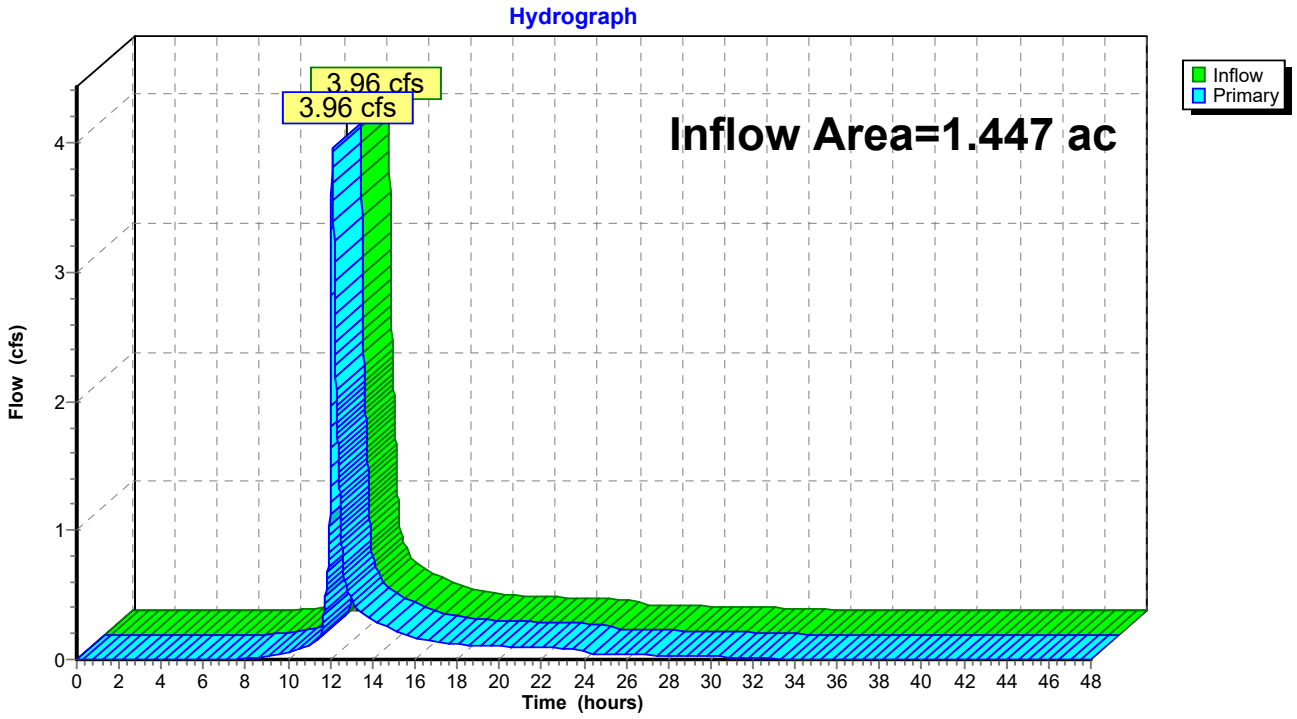


Summary for Link POI 1: POI 1: FOREST AVE CATCH BASIN (EAST)

Inflow Area = 1.447 ac, 43.48% Impervious, Inflow Depth > 2.65" for 25 YR event
Inflow = 3.96 cfs @ 12.10 hrs, Volume= 0.319 af
Primary = 3.96 cfs @ 12.10 hrs, Volume= 0.319 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link POI 1: POI 1: FOREST AVE CATCH BASIN (EAST)

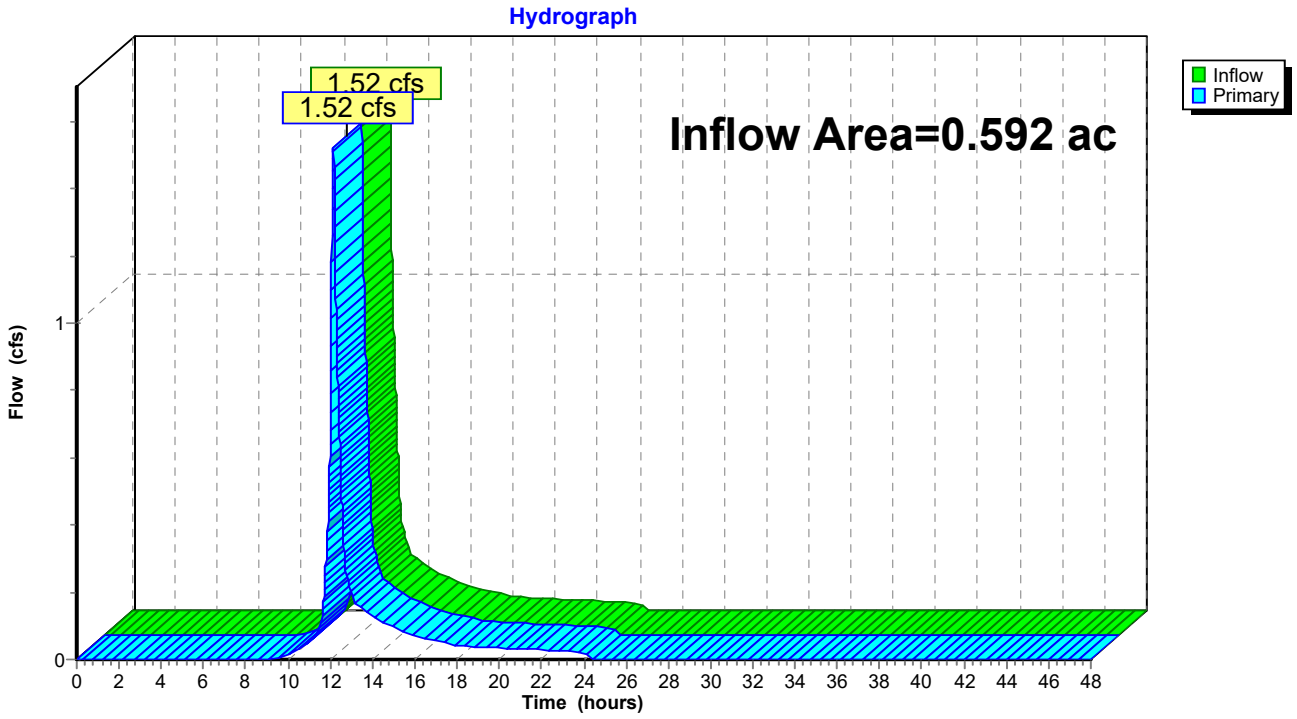


Summary for Link POI 2: POI 2: FOREST AVE CATCH BASIN (WEST)

Inflow Area = 0.592 ac, 39.70% Impervious, Inflow Depth = 2.54" for 25 YR event
Inflow = 1.52 cfs @ 12.14 hrs, Volume= 0.126 af
Primary = 1.52 cfs @ 12.14 hrs, Volume= 0.126 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link POI 2: POI 2: FOREST AVE CATCH BASIN (WEST)

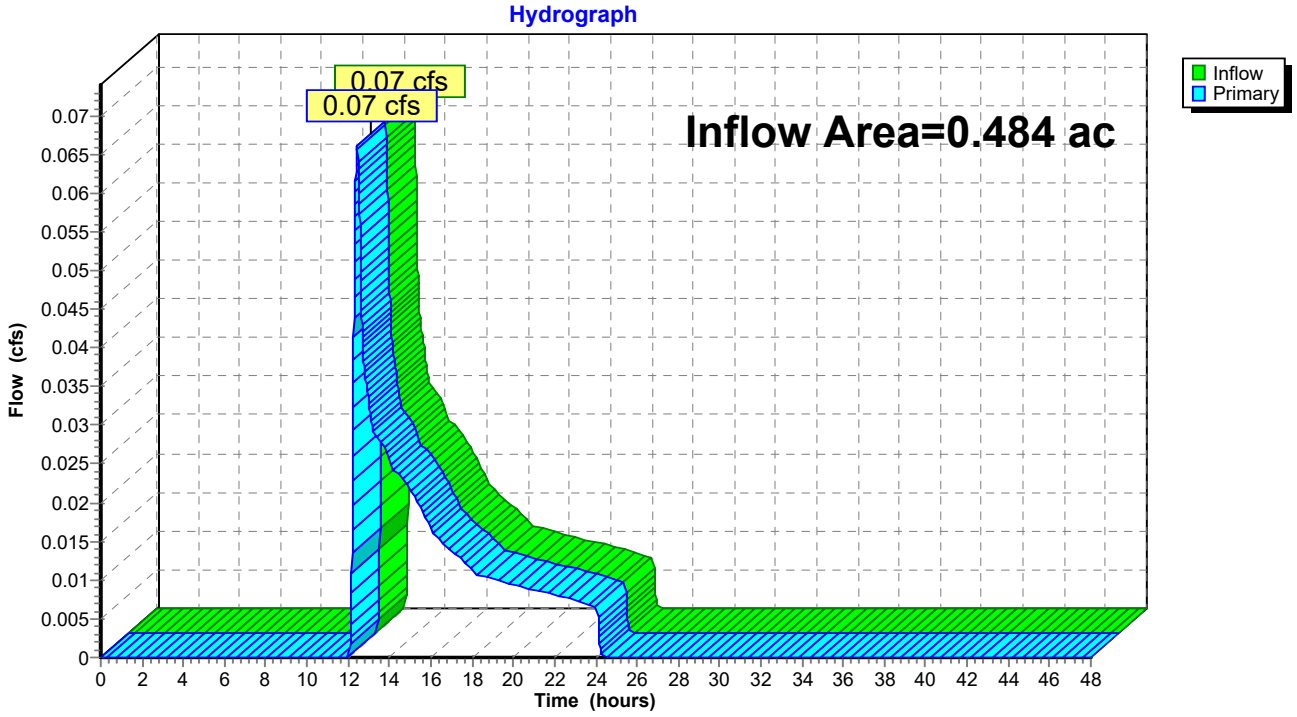


Summary for Link POI 3: POI 3: INTERNAL WETLAND

Inflow Area = 0.484 ac, 4.29% Impervious, Inflow Depth = 0.39" for 25 YR event
Inflow = 0.07 cfs @ 12.43 hrs, Volume= 0.016 af
Primary = 0.07 cfs @ 12.43 hrs, Volume= 0.016 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link POI 3: POI 3: INTERNAL WETLAND

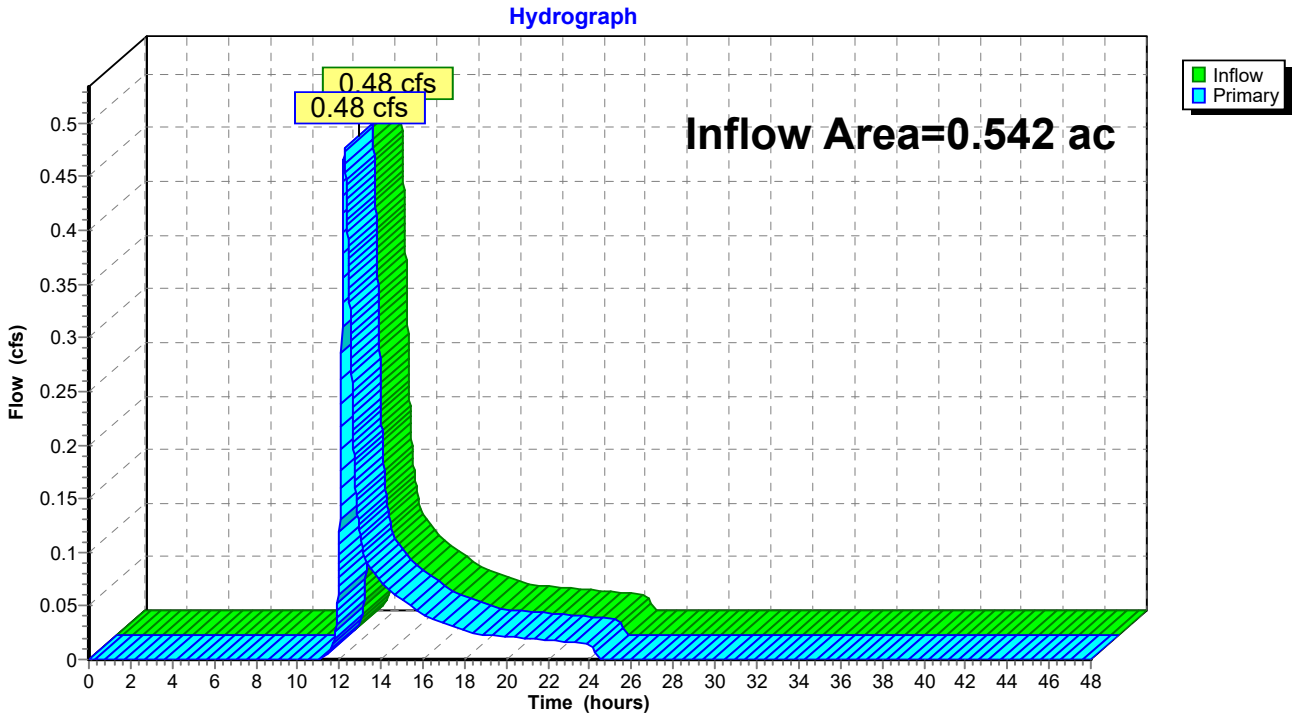


Summary for Link POI 4: POI 4: HANNAFORD DETENTION POND

Inflow Area = 0.542 ac, 0.01% Impervious, Inflow Depth = 1.25" for 25 YR event
Inflow = 0.48 cfs @ 12.25 hrs, Volume= 0.056 af
Primary = 0.48 cfs @ 12.25 hrs, Volume= 0.056 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link POI 4: POI 4: HANNAFORD DETENTION POND



Summary for Link POI 5: POI 5: SHEET FLOW CEMETERY

Inflow Area = 0.256 ac, 0.00% Impervious, Inflow Depth = 1.19" for 25 YR event
Inflow = 0.20 cfs @ 12.33 hrs, Volume= 0.025 af
Primary = 0.20 cfs @ 12.33 hrs, Volume= 0.025 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link POI 5: POI 5: SHEET FLOW CEMETERY

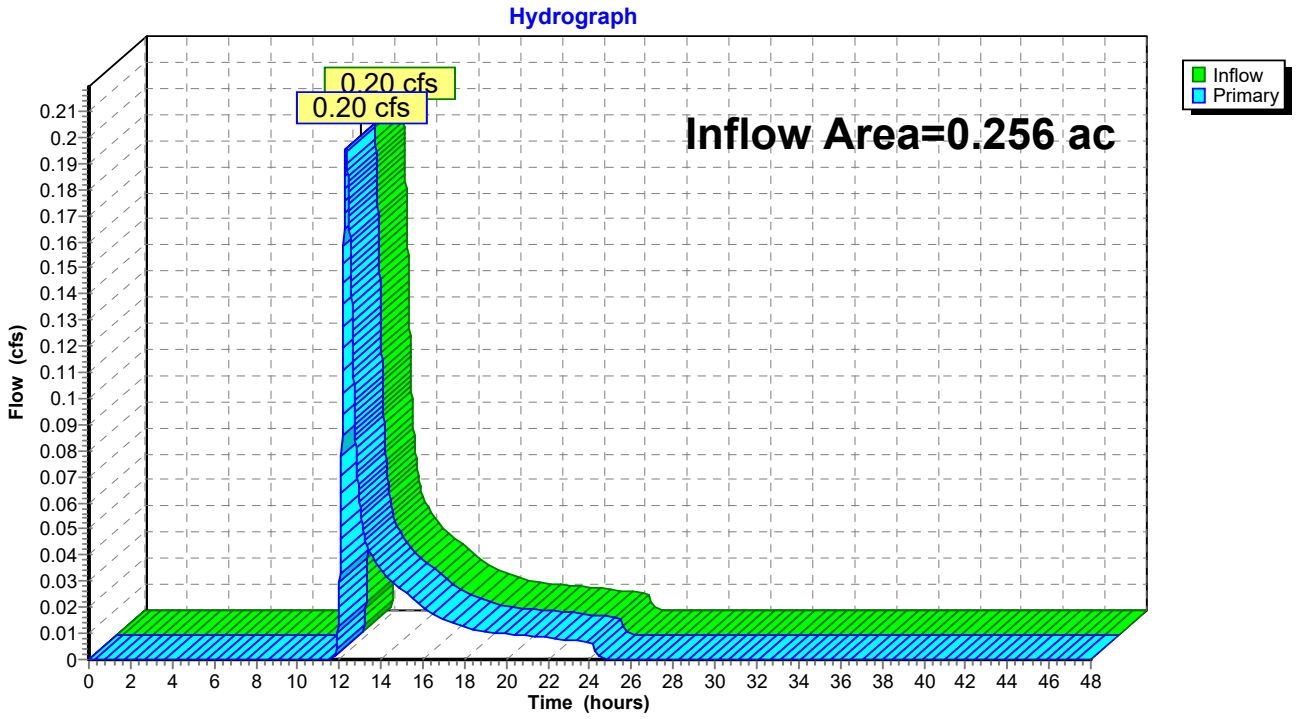
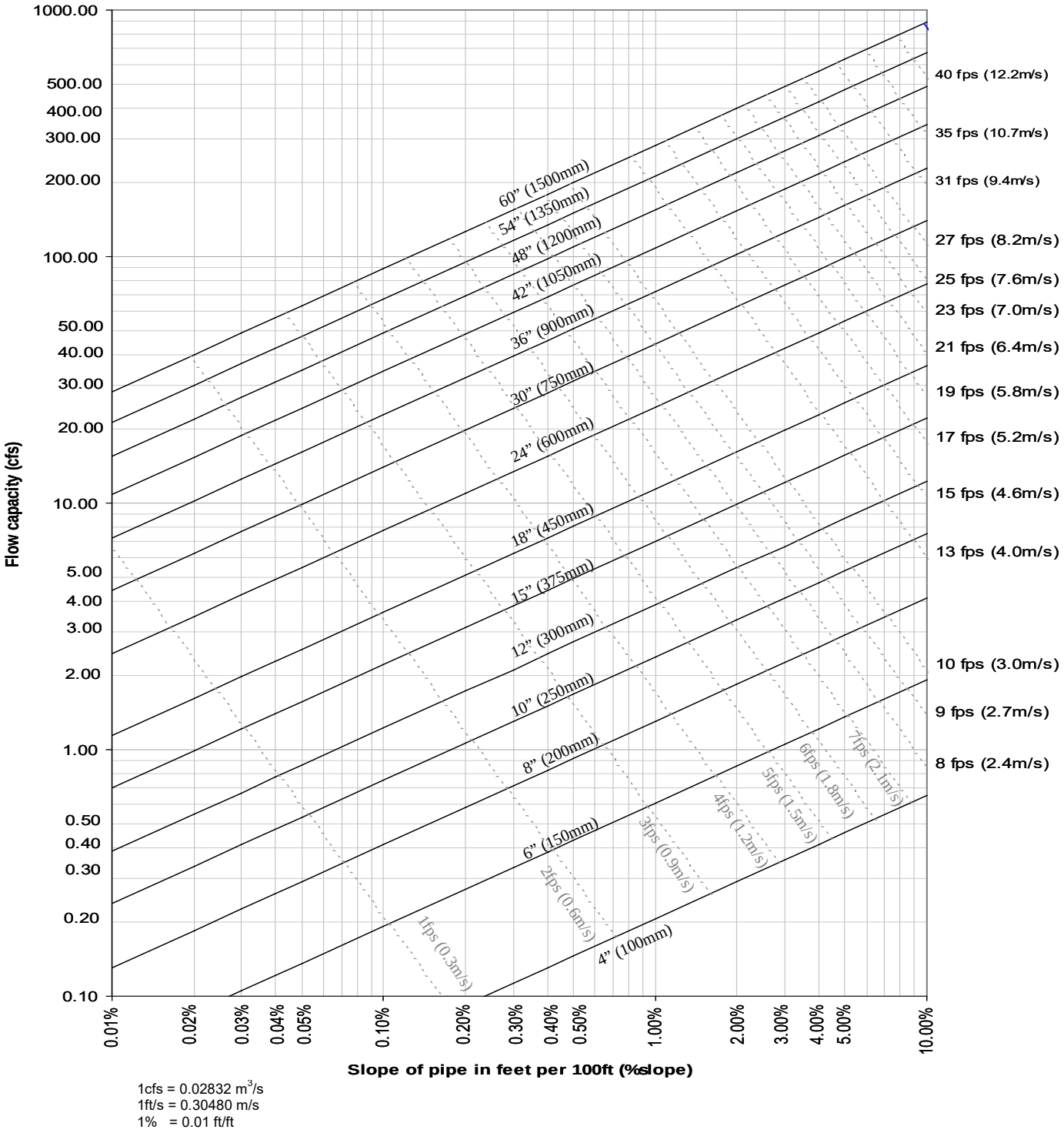


Figure 3-1
Discharge Rates for ADS Corrugated Pipe with Smooth Interior Liner[1]



1cfs = 0.02832 m^3/s
1ft/s = 0.30480 m/s
1% = 0.01 ft/ft

1. Applicable products: N-12®, MEGA GREEN®, N-12 STIB, N-12 WTIB, HP STORM, SaniTIte®, SaniTite HP, N-12 Low Head

Note: Based on a design Manning's "n" of 0.012.
Solid lines indicate pipe diameters. Dashed lines indicate approximate flow velocity.
Redeveloped from FHWA HDS 3 – Design Charts for Open-Channel Flow[2]

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Section L

Utilities Summary

L.1 Utilities Summary:

Coordination with respective utility companies is ongoing and ability to serve requests have been sent out to the respective utility companies in accordance with the City of Portland Code of Ordinances Chapter 14 Land Use. Formal response letters are forthcoming and will be uploaded to Section L.2 upon receipt. The re-development project proposes the following utility service to support the first phase:

Water:

Phase 1: Based on city archive infrastructure maps a 12" water main exists within Forest Avenue, fronting the property. Phase 1 proposes to connect into the exiting 12" water main with a 2" type K copper domestic service and an 8" ductile iron fire service line, to service the proposed building.

Sewer:

It is our understanding that fronting the property there is an existing 10" sewer main flowing East towards Portland, and a 10" sewer main flowing West towards Westbrook. The development proposes to tie a 6" lateral into a proposed manhole within the site. An 8" sewer lateral would connect the proposed manhole to the existing sewer manhole in front of the property (SMH5 as shown on the city archive As Built plan for the Forest Avenue Sewer Extension project, dated October 7, 2011.) The lateral will be accompanied by a backflow preventer installed at the property line.

Stormwater:

Two storm mains currently exist within Forest Avenue. Fronting the property, a 15" MS4 system exists on the East corner of the property, along with a separate 15" system running west. The project proposes various methods to manage, detain, and treat the stormwater, including a subsurface stormwater detention system below the parking lot and a rain garden at the front of the property. Please see Section K for more information.

Electric / Communications:

The project proposes a new riser pole along Forest Avenue to facilitate routing underground primary and communications lines to the proposed building. Secondaries will be from a 7'x7' pad mount transformer within the property to the building's mechanical room. Electric lines will also be routed to service electric vehicle charging in the proposed parking lot.

Gas:

There is an existing 6" coated steel gas main under the north side of Forest Avenue along the subject property. The project proposes a new gas lateral off of the main to be routed to the building's mechanical room, with a new gas meter mounted on the exterior of the building.

ACORN ENGINEERING, INC.

Central Maine Power Company
Attn: Melissa Samuels
162 Canco Road
Portland, Maine 04103

May 7th, 2026

Subject: 1871 Forest Avenue Redevelopment
Re: Ability to Serve Request

To Whom it May Concern:

On behalf of Avesta Housing, we are pleased to submit the following request for Central Maine Power to serve the proposed development. The proposed project is located at 1871 Forest Avenue in Portland, Maine (Tax Map 327, Block A, Parcel A004001) within the B-2 Zoning District. The parcel currently contains an existing structure on approximately 3.42 acres, most recently used as a restaurant. The property is bordered to the north by a Hannaford grocery store and a detention basin owned by Hannaford. To the east of the site is a Quaker Meeting House and associated cemetery. Forest Avenue runs along the south side of the site, with a mosque, a gas station, and a new housing development across Forest Avenue. There is an auto shop on the west side of the site. The proposed development will be located on the southeast corner of the site.

The goal of the project is to demolish the existing structure on site and construct new affordable multifamily housing. The project proposes a 4-story structure with 33 units. The ground floor will be used as office space and common areas for the residents, and the upper floors will each have eleven (11) units.

The project proposes retiring the existing overhead service connection and installing a new subsurface 3-phase service line from a new pole located next to the project. A utility riser pole will be installed as well as a ground mounted transformer within the site. There will be one Level 2 EV charger and sufficient conduit and electrical service to allow for the future installation of electric vehicle charging equipment at an additional four (4) parking spaces. New electrical service will also be routed to the mechanical room of the proposed building. Please refer to the attached Utility Plan for more information.

On behalf of the client, we are requesting the following information:

1. Any easements for overhead services currently crossing the proposed development.
2. Alternative connection locations from the development to the existing system.
3. CMP's proposed infrastructure improvements within the project vicinity.
4. CMP's ability to serve the project.
5. Access requirements to the CMP meters.

To facilitate your review, I have attached the existing conditions survey of the parcel prepared by

BH2M, dated October 2025, as well as a preliminary utility plan developed by our office. Please do not hesitate to contact me or the office for any questions or clarifications.

Sincerely,

MJ Van Antwerp, E.I.
Design Engineer
Acorn Engineering, Inc.

Outlook

CMP Ability to Serve Letter and Three Phase Service Process 1871 Forest Avenue

From COUGH, JAMES <jcough@cmpco.com>
Date Thu 5/7/2026 10:35 AM
To Margaret (MJ) VanAntwerp <mvanantwerp@acorn-engineering.com>
Cc Danielle McGowan <dmcgowan@acorn-engineering.com>; Sam Lebel <slebel@acorn-engineering.com>; STROUT, AUSTIN <austin.strout@cmpco.com>; SAMUELS, MELISSA <msamuels@cmpco.com>

4 attachments (722 KB)
blank W9.pdf; Standard Easement Sample.pdf; Easement_Information_Worksheet.doc; CMP EDET APRIL 2026 V1.1.xlsx;

RE: 1871 Forest Avenue
Portland, ME
Ability to Serve Request

SAP TBD
Project Location:
The proposed project is located at 1871 Forest Avenue in Portland, Maine (Tax Map 327, Block A, Parcel A004001) within the B-2 Zoning District. The parcel currently contains an existing structure on approximately 3.42 acres, most recently used as a restaurant. The property is bordered to the north by a Hannaford grocery store and a detention basin owned by Hannaford. To the east of the site is a Quaker Meeting House and associated cemetery. Forest Avenue runs along the south side of the site, with a mosque, a gas station, and a new housing development across Forest Avenue. There is an auto shop to the west side of the site. The proposed development will be located on the southeast corner of the site.

Project Scope:
The goal of the project is to demolish the existing structure on site and construct new affordable multifamily housing. The project proposes a 4-story structure with 33 units. The ground floor will be used as office space and common areas for the residents, and the upper floors will each have eleven (11) units.

The project proposes retiring the existing overhead service connection and installing a new subsurface 3-phase service line from a new pole located next to the project. A utility riser pole will be installed as well as a ground mounted transformer within the site. There will be one Level 2 EV charger and sufficient conduit and electrical service to allow for the future installation of electric vehicle charging equipment at an additional four (4) parking spaces. New electrical service will also be routed to the mechanical room of the proposed building. Transformer, metering, underground and overhead routing will need to be approved by CMP once the SAP notifications are set up.

CMP has the ability to serve the proposed project in accordance with our CMP Handbook (web link below). We can provide you the desired pad or pole mounted transformers per your request and city approval, in accordance with our CMP Handbook of Standard Requirements. If you have any questions on the process, or need help in completion of the documents, please contact CMP at 800-565-3181

Here is our typical process for getting your three phase or CT rated single phase service installed. If you have any questions, please let us know. The underlined links will redirect you to the appropriate site for additional

information.

Service Milestones for Three Phase Services and CT Rated Single Phase Services:

- Call 800-750-4000 option 4 to establish a new account (if needed) and an SAP work order. Please provide both of these to me.
- Submit Load information. Please complete the attached EDET (excel file) using load information. Please complete this and email back to me. If the loads are over 500 kw, more in depth load studies may be required with our Distribution Planning and Transmission Planning Departments. Be advised that these may involve more detailed load information, a load study agreement (signed contract), as well as other items. This additional study process may add up to two additional months to completion of the job.
- Submit the easement information worksheet, including where any CMP structures may be on ANY private property (Poles, Wires, Anchors). You are responsible for obtaining all information for all required easements. Please complete this form and either email or fax back to me.
- Submit any electronic drawings (PDF (preferred) or DWG files) of the site layout and proposed electrical connections.
- For Primary Metered installations (including PV), please have the access road in for pole staking.
- Preliminary meetings with CMP Advisor and Engineer to determine details of job (I will need to schedule with your electrician/contractor-please let me know who this is)
- Field planner design appointment scheduled once the preliminary information is complete. This will allow us to cost out the job and develop a CMP Invoice. The invoice is typically generated 5-6 weeks after the design appointment. This expires after 90 days from the invoice date.
- Submit completed W9 so that your bill can be properly processed. This is a new CMP process.
- CMP submits invoice to the customer for payment (typically via email). Payment received from customer.
- Easements (based on easement information worksheet) sent out, signed and originals returned to CMP.
- Job scheduled for completion after payment, easements and the electrical inspection have been received.

There are additional requirements for primary metered Solar Service Installations listed in the Chapter 324 Interconnections section below. Please refer to CMP Installation Checklists for other installations.

This process can take several months, depending upon several factors including transformer or materials delivery, return of completed paperwork, and other jobs in the system that may be ahead of yours. In addition, contact with the other utilities, including telephone and cable, should be commenced as soon as practical. They may have additional work or charges in addition to the CMP work required to energize the project.

As you may be aware, there are global supply chain issues impacting the utility industry. CMP is closely monitoring and managing their inventory in order to serve our customers. Larger padmount transformers may not be readily available for the date that you will need to be energized. Please consider this as part of your construction plan. The energy service advisor will continue to work closely with you and let you know as soon as the transformer becomes available. Should you have any questions or concerns throughout this process, please do not hesitate to contact your ESA directly at the number or email provided.

Please complete the attached forms (the specific instructions are on each form). Please email them at your earliest convenience. If you are returning an Easement Form, a 1190 or State Permit please be sure to send those documents to lineclerknewservice@cmpco.com, All W9's should be sent to gettingconnected@cmpco.com. All other forms including the EDET (load sheet) and technical information should be sent to me.

For your convenience, here is a link to the CMP Website which contains our Handbook with details on most service requirements: CMP Handbook of Standard Requirements Additional resources include our CMP Metering Supplement is our Distribution Construction Standards: CMP Distribution Construction Standards CMP Distribution Construction Standards.

You will be responsible for installing the customer connections, conduits, and metering in accordance with the CMP Handbook of Standard Requirements The transformer will be sized based on your submitted load sheets.

Your deposit amount will be typically based on an estimated two-month bill, calculated from your completed load sheet unless otherwise determined by CMP.

In addition, we have recently added on an online map that shows single phase and three phase power locations within CMP. Here is that link: CMP Load Hosting Capacity Map

Metering:

All metering (including locations) must be preapproved by CMP. If you have any questions, please consult the CMP Handbook of Standard Requirements and our CMP Metering Supplement.

Chapter 324 Interconnections:

Please be advised that if you plan to install solar/wind/hydro generation, you must complete an application under the MPUC mandated Chapter 324 Interconnection Standards. If you go to Chapter 324 Interconnection Standards and follow the instructions for the Small Generator Interconnection Procedures, CMP can do this work in parallel to your service request that will be handled by me. If you project is under 660 KW You will be able to have a Customer Net Energy Billing contract. Information concerning Customer Net Energy Billing can be accessed thru the Chapter 324 website or by clicking here: Net Energy Billing

Reallocation/Line Extensions:

Recently, changes were made to the three-phase construction policy, which require CMP to reallocate construction costs paid by customers. If applicable, those projects identified as “developments” do not qualify for reallocation of funds. Please see this document at our website for details about the reallocation conditions. Any reallocation charges will be specifically denoted on your invoice. The website address for this is CMP Line Extension Reallocation Policy.

This line extension will be part of Central Maine Power’s distribution system. In the event the property served under this Agreement is sold or otherwise conveyed, all rights and obligations of the Agreement shall stay with the property. Please note that if you rent or lease this property to another and you want to receive the reimbursement payments, you must make special arrangements with the Central Maine Power Company. Otherwise, any reimbursement payments will be sent to the “Customer” taking service at the service location.

Electricity Supplier Information:

Central Maine Power Company (CMP) will provide your facility with electric delivery service. If you don’t already have a provider, you will need to arrange with a competitive electricity provider to receive electricity supply for your facility. In the event you fail to choose a competitive electricity provider, you will receive Standard Offer service arranged by the Maine Public Utilities Commission. If you wish to be served by a competitive electricity provider immediately upon establishment of delivery service, you must arrange for this service directly through your chosen competitive electricity provider, who must enroll your account no later than 5 PM on the business day prior initiation of delivery service by CMP. An up-to-date list of competitive suppliers can be found at the:

1. Maine Public Utilities Commission (MPUC) web site- **Maine PUC**
2. By calling the MPUC at (207) 287-3831

Attachments:

Easement Worksheet and Sample Standard Easement

W9
CMP EDET (Load Sheet)

Regards,

Jamie

Jamie Cough
Central Maine Power Company
162 Canco Road
Portland, ME 04103
207-610-0055

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ACORN ENGINEERING, INC.

Consolidated Communications
Attn: Patrick Morrison
5 Davis Farm Road
Portland, Maine 04103

March 10th, 2026

Subject: 1871 Forest Avenue Redevelopment
Re: Ability to Serve Request

To Whom it May Concern:

On behalf of Avesta Housing, we are pleased to submit the following request for Consolidated Communications ability to serve the proposed development. The proposed project is located at 1871 Forest Avenue in Portland, Maine (Tax Map 327, Block A, Parcel A004001) within the B-2 Zoning District. The parcel currently contains an existing structure on approximately 3.42 acres, most recently used as a restaurant. The goal of the project is to demolish the existing structure on site and construct new affordable multifamily housing. The project proposes a 4-story structure with 33 units.

It is our understanding the existing overhead telecommunication services will be retired, and new telecommunication services will be installed subsurface as part of this project. The new underground services are proposed from an existing utility pole on the south side of the site. Please refer to the Utility Plan for additional information.

On behalf of the client, we are requesting the following information:

1. Any additional information, such as utility mapping within Forest Avenue or the surrounding area.
2. Any easements for overhead services currently crossing the proposed development.
3. Alternative connection locations from the property to the existing communication system.
4. Consolidated Communication's proposed infrastructure improvements within the project vicinity.
5. Consolidated Communication's ability to serve the project.

To facilitate your review, I have attached the existing conditions survey of the parcel prepared by BH2M, dated October 2025, as well as a preliminary utility plan developed by our office. Please do not hesitate to contact me or the office for any questions or clarifications.

Sincerely,

MJ Van Antwerp, E.I.
Design Engineer
Acorn Engineering, Inc.

ACORN Engineering, Inc. • www.acorn-engineering.com
207-775-2655 • PO Box 3372 • Portland • Maine • 04104

ACORN ENGINEERING, INC.

Portland Water District
Attn: MEANS Department
225 Douglass Street
Portland, Maine 04104

March 10th, 2026

Subject: 1871 Forest Avenue Redevelopment
Re: Ability to Serve Request

To Whom it May Concern:

On behalf of Avesta Housing, we are pleased to submit the following request for Portland Water District to serve the proposed development. The proposed project is located at 1871 Forest Avenue in Portland, Maine (Tax Map 327, Block A, Parcel A004001) within the B-2 Zoning District. The parcel currently contains an existing structure on approximately 3.42 acres, most recently used as a restaurant. The goal of the project is to demolish the existing structure on site and construct new affordable multifamily housing. The project proposes a 4-story structure with 33 residential units and some accessory office space on the first floor.

It is our understanding that there is an existing 12" water main within Forest Avenue, as well as a retired 6" water pipe. The project proposes a single 8" fire protection service and a single 2" domestic water service connection to the existing 12" water main within Forest Avenue. The new water service connections will have associated sleeves/saddles, shut off valves, and will be installed per Portland Water District Standards. All existing water services are intended to be cut, retired, and removed per Portland Water District Standards.

Based upon Section 4 of the Maine Subsurface Wastewater Disposal Rules, the project anticipates the following design flows:

Table 1: Estimate of Design Flows

Classification of Water Demand	Uses and Use Count	Gallons per Day per Use*	Total Gallons per Day
Existing			
Tortilla Flat: Eating Place, 2 meals/day	258 seats with 25 employees	20 GPD per seat plus 12 GPD per employee	5,460
Proposed			
Residential Studio Apartments:	33	120 GPD per dwelling unit	3,960

Employees at place of employment with no showers	8 employees	12 GPD per employee	96
Total Existing			**5,460**
Total Proposed			**4,056**
Net Change			**-1,404**

*Values based on STATE OF MAINE: SUBSURFACE WASTEWATER DISPOSAL RULES, most recent edition

** Calculations assume that Tortilla Flat Restaurant has 1 seat per 15 SF of restaurant space, which is typical for a casual restaurant. The property card for the Tortilla Flat Restaurant in the Appendix of the Phase 1 Environmental Site Assessment showed 3,865 SF of restaurant space. Calculations also assumed that on peak days, Tortilla Flat Restaurant would have employed about 1 employee for every 10-11 seats, which is typical for a casual restaurant. Tortilla Flat Restaurant is assumed to have served lunch and dinner, based on the current operating hours of their other locations.

*** Calculations assume that up to 8 employees at a time will be working at the proposed residential building, based on office space provided on the first floor.

The proposed project is anticipated to decrease the net flow by approximately **1,404** gallons per day (GPD). It should be noted that these values were developed using conservative estimates from the State of Maine Subsurface Wastewater Disposal Rules and assumed flow rates during the occupation of the Tortilla Flat Restaurant.

On behalf of the client, we are requesting the following information:

1. Any additional information, such as utility mapping within Forest Avenue and confirmation of the location and size of the services to the existing property and the size and material of the existing water main.
2. Alternative connection locations from the property to the existing system.
3. PWD's proposed infrastructure improvements within the project vicinity.
4. PWD's ability to serve the project.

To facilitate your review, I have attached the existing conditions survey of the parcel prepared by BH2M, dated October 2025, as well as a preliminary utility plan developed by our office and the PWD fixture count spreadsheet. Please do not hesitate to contact me or the office for any questions or clarifications.

Sincerely,

MJ Van Antwerp, E.I.
Design Engineer
Acorn Engineering, Inc.

Peak Flow Based on Fixture Count

Adapted from 2009 Maine State Internal Plumbing Code

Customer	Avesta Housing Development Corporation
Street Address	1871 Forest Ave
City	Portland, ME, 04103

Fixture		Fixture Value 60 psi		No. of Fixtures		Fixture Value
Bathtub		4	x	0	=	0
Bidet		1	x	0	=	0
Dental Unit		1	x	0	=	0
Drinking Fountain - Public		0.5	x	0	=	0
Kitchen Sink		1.5	x	35	=	52.5
Bathroom Sink		1	x	34	=	34
Showerhead (Shower Only)		2	x	33	=	66
Service Sink		3	x	2	=	6
Toilet -Flushometer(high pressure)		5	x	0	=	0
-Tank Type		2.5	x	34	=	85
Urinal -Flushometer Valve		5	x	0	=	0
-Tank Type		2	x	0	=	0
Wash Sink (Each Set of Faucets)		2	x	0	=	0
Dishwasher		1.5	x	0	=	0
Washing Machine		4	x	4	=	16
Hose (outdoor spigot)	<3/4 in.	2.5	x	3	=	7.5

Combined Fixture Value Total: 267

Customer Peak Demand From Fig. 4-2 or 4-3:

Pressure Factor From Table 4-1:

Fire Sprinkler System(Yes/No)? yes

Irrigation(Yes/No)? no

If yes, gpm required by irrigation designer:

Total Fixed Demand (Peak Flow) **0**

Customer only needs to complete the cells highlighted in blue

ACORN ENGINEERING, INC.

Spectrum Cable
Attn: Steven Holmes
118 Johnson Road
Portland, Maine 04102

March 10th, 2026

Subject: 1871 Forest Avenue Redevelopment
Re: Ability to Serve Request

Dear Mr. Holmes:

On behalf of Avesta Housing, we are pleased to submit the following request for Spectrum's ability to serve the proposed development. The proposed project is located at 1871 Forest Avenue in Portland, Maine (Tax Map 327, Block A, Parcel A004001) within the B-2 Zoning District. The parcel currently contains an existing structure on approximately 3.42 acres, most recently used as a restaurant. The goal of the project is to demolish the existing structure on site and construct new affordable multifamily housing. The project proposes a 4-story structure with 33 units.

It is our understanding that the existing overhead telecommunication services will be retired, and new telecommunication services will be installed subsurface as part of this project. The new services are proposed from an existing utility pole located on the south side of the property. Please refer to the Utility Plan for additional information.

On behalf of the client, we are requesting the following information:

1. Any additional information, such as utility mapping within Forest Avenue or the surrounding area.
1. Any easements for overhead services currently crossing the proposed development.
2. Alternative connection locations from the property to the existing communication system.
3. Spectrum's proposed infrastructure improvements within the project vicinity.
4. Spectrum's ability to serve the project.

To facilitate your review, I have attached the existing conditions survey of the parcel prepared by BH2M, dated October 2025, as well as a preliminary utility plan developed by our office. Please do not hesitate to contact me or the office for any questions or clarifications.

Sincerely,

MJ Van Antwerp, E.I.
Design Engineer
Acorn Engineering, Inc.

March 12, 2026

MJ Van Antwerp, E.I.
Design Engineer

RE: May Serve Letter by Charter Communications or an affiliated to provide service (“Spectrum”)

1871 Forest Avenue Redevelopment
1871 Forest Avenue
Portland, ME 04103

Dear MJ:

Thank you for your interest in receiving Spectrum service. Your development of 1871 Forest Avenue Redevelopment at the site of 1871 Forest Ave., Portland, ME 04103 (“Property”) is within an area where Spectrum may lawfully provide video, internet and voice services.

However, this letter is not a commitment to provide service to the Property. Prior to any determination as to whether service can or will be provided to the Property, Spectrum will conduct a survey of the Property and will need the following information from you:

- Exact site address and legal description
- Is this an existing building or new construction?
- Site plans, blue prints, plat maps or any similar data
- The location of any existing utilities or easements
- [Other as required] _____

Please forward this information to me. Upon receipt, I will be assigned to you to work through the process. Ultimately, a mutually acceptable service agreement for the Property will be required and your cooperation in the process is appreciated.

Sincerely,

Steven Holmes
MDU Account Manager-Spectrum Community Solutions
444 Perry Road
Bangor, ME 04401
(207) 631-1618, steven.holmes@charter.com

ACORN ENGINEERING, INC.

Unitil Service Corp.
Attn: Scott Carpenter
1075 Forest Avenue
Portland, Maine 04103

March 10th, 2026

Subject: 1871 Forest Avenue, Portland, ME
Re: Ability to Serve Request

Dear Mr. Carpenter:

On behalf of Avesta Housing, we are pleased to submit the following request for Central Maine Power to serve the proposed development. The proposed project is located at 1871 Forest Avenue in Portland, Maine (Tax Map 327, Block A, Parcel A004001) within the B-2 Zoning District. The parcel currently contains an existing structure on approximately 3.42 acres, most recently used as a restaurant. The goal of the project is to demolish the existing structure on site and construct new affordable multifamily housing. The project proposes a 4-story structure with 33 units.

It is our understanding that there is an existing gas service connecting the existing gas main to the existing building. The project proposes to retire the existing gas service and tap a new service from the gas main within Forest Avenue to serve the new building. Please refer to the proposed Utility Plan for additional information.

On behalf of the client, we are requesting the following information:

1. A confirmation of an existing gas main within Forest Avenue, as well as the size of any gas lines and services in the vicinity.
2. Unitil's proposed infrastructure improvements within the project vicinity.
3. Unitil's ability to serve the project.
4. Any project related offsite main improvements.

To facilitate your review, I have attached the existing conditions survey of the parcel prepared by BH2M, dated October 2025, as well as a preliminary utility plan developed by our office. Please do not hesitate to contact me or the office for any questions or clarifications.

Sincerely,

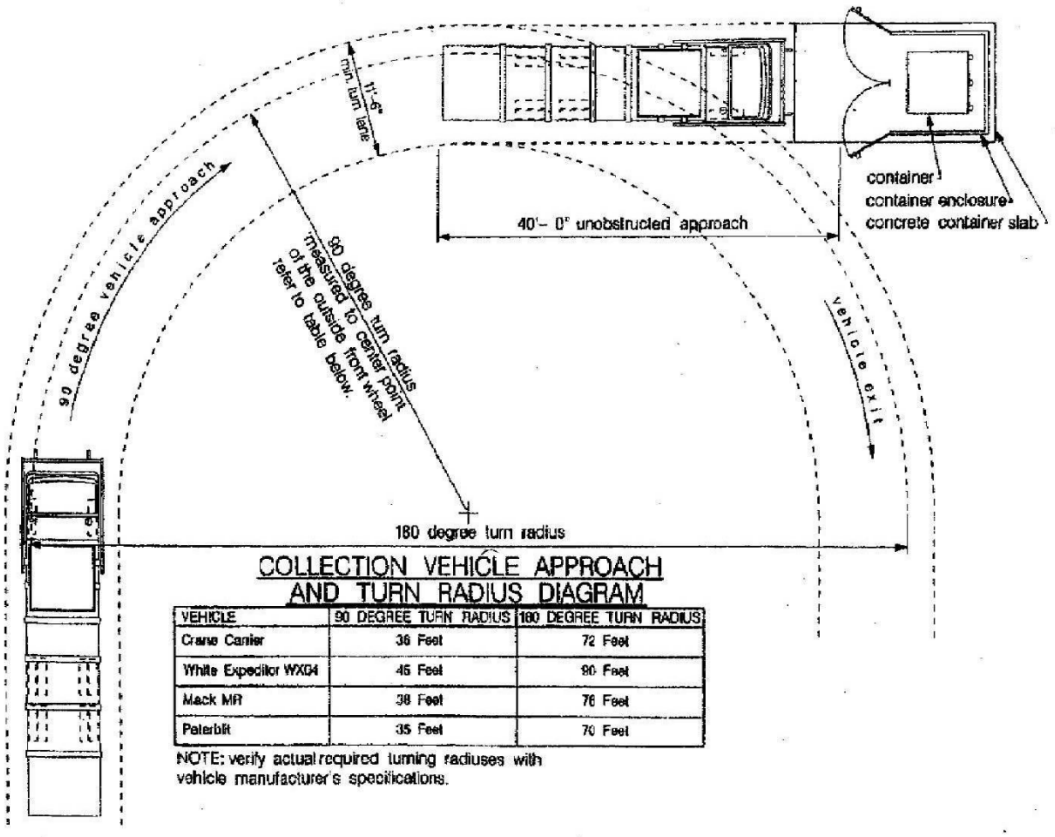
MJ Van Antwerp, E.I.
Design Engineer
Acorn Engineering, Inc.

Section M

Solid Waste Disposal

M. Solid Waste Disposal

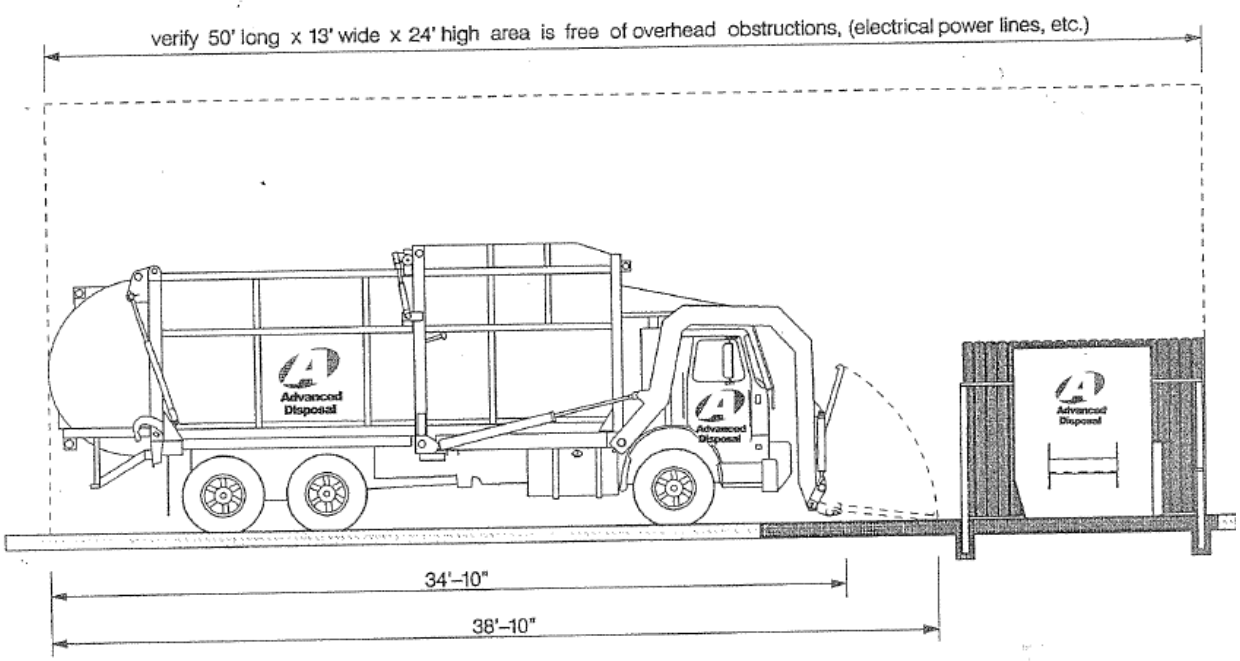
Residents will bring their solid waste to dumpsters by the parking area. Avesta will contract with a private hauler to remove of waste. Specifications for the solid waste truck are provided below. Please see Section T.2 for turning templates associated with the solid waste truck.



COLLECTION VEHICLE APPROACH AND TURN RADIUS DIAGRAM

VEHICLE	90 DEGREE TURN RADIUS	180 DEGREE TURN RADIUS
Crane Carrier	36 Feet	72 Feet
White Expeditor WX64	45 Feet	90 Feet
Mack MR	38 Feet	76 Feet
Peterbilt	35 Feet	70 Feet

NOTE: verify actual required turning radiuses with vehicle manufacturer's specifications.


verify 50' long x 13' wide x 24' high area is free of overhead obstructions, (electrical power lines, etc.)
Advanced Disposal
Advanced Disposal
Advanced Disposal
34'–10"
38'–10"

SIDE VIEW

Att. N

Section N

Public Safety

Andrew Graminski & Chief Chad Johnston
City of Portland Planning & Fire Departments
380 Congress St.
Portland, ME 04101

March 10, 2026

Subject: 1871 Forest Ave Redevelopment – Life & Safety Code Analysis
Section N

On behalf of Avesta Housing, the design team is pleased to provide the following information to demonstrate compliance with the City of Portland's Technical Manual Section 10. Public Safety Standards.

Section 10.1 Crime Prevention Through Environmental Design (CPTED) Standards

1. **Natural Surveillance:** The site was designed to create natural surveillance networks on the site and to increase on site visibility and safety while deterring potential offenders.
    a. **Physical Features:** There are lines of site to building entrances, exits, and walkways from the public right of way and from the various offices on the ground level of the building. There is also a clear line of site through windows to the enclosed outdoor patio.
    b. **Lighting:** The site lighting meets the City's technical requirements. Nighttime illumination will be provided at all egress locations and surrounding the building envelope. The parking area will also be sufficiently illuminated. See Section Q: Lighting for more information.
    c. **Mechanical Surveillance Systems:** Security cameras will be installed at key locations around the building to promote public safety.
2. **Access Management:** The site has been designed to provide appropriate access and visible pathways around the site.
    a. **Orientation & Wayfinding:** Pedestrian walkways and the driveway clearly guide users to the proper site entrance, and lighting will be provided and building entrances. A fence will be installed along the front of the property from the edge of the proposed patio to connect with the existing fence along the eastern edge of the property. This will discourage unauthorized access to the eastern side of the building.
    b. **Mechanical Access Control:** Key cards, gates, and other locking devices will be utilized as needed throughout the site and the building. A gate will be installed along the proposed roadway to limit access to the areas of the site that will be developed as part of Phase 2.
3. **Territorial Reinforcement:** The proposed layout of the site clearly shows and separates public and private spaces. The row of proposed street trees and shrubs along Forest Ave creates a spatial edge between the public and private zones. Please reference Section F.1 Conformity with Land Use Ordinance for more information.

Section 10.2 Fire Hydrant Standards

1. There is a fire hydrant on the frontage of the property on Forest Ave that is approximately 455 feet from the building. There is also a fire hydrant across the street that is approximately 130 feet from the building. Both hydrants have been tested within the last 5 years and provided a test flow of 1351 GPM.
2. Not applicable, the project does not propose any new fire hydrants.
3. Not applicable, the project does not propose any private fire hydrants.
4. The project does not propose any encroachment within the six foot clear space around existing fire hydrants.

Section 10.3 Site Access Standards

1. No dead-end roadways are proposed on this project. The site has two existing curb cuts that connect via an existing driveway. The project proposed to remove and replace one of the curb cuts and some of the existing parking area, but will maintain the ability to drive through the site to the second curb cut rather than requiring an emergency vehicle to turn around. A turnaround area has been provided in the proposed parking lot adjacent to the building.
2. Fire Department vehicles will be able to access the west side of the building from the proposed parking lot. The south side of the building will be accessible from Forest Ave.
3. Building location is adequate to allow for emergency vehicle access. The building is located approximately 30 feet away from the edge of the curb on Forest Ave.
4. There are no proposed fire access roads
5. The site provides more than nine (9) feet of vertical clearance to accommodate ambulance access.
6. The building numbering system shall be determined during development review and will comply with Portland's 911 numbering system.
7. The building will clearly display the assigned street number.

Section 10.4 Standards for Emergency Access Lanes and Gates

1. No inside turning radius will be less than 25 feet.
2. No outside turning radius shall be less than 100 feet.
3. The proposed driveway shall be 22 feet wide.
4. The proposed driveway shall be engineered to support the weight of emergency vehicles.
5. Appropriate "No Parking" signs shall be posted and enforced should the Fire Department request they be included.
6. There will not be any gates restricting access to the proposed building.
7. Not applicable, there will not be any gates restricting access to a fire lane. The undeveloped portion of the lot will be accessible through the western curb cut on the site.
8. The clear opening of the gate on the site shall be at least 22 feet wide.
9. No emergency lanes will be blockaded.
10. Emergency vehicle access shall be maintained and accessible at all times.
11. Not applicable.

Section 10.5 Subdivision Standards – Not Applicable
Portland Fire Department Site Review Checklist

1. The applicant's contact information is as follows:
   Avesta Housing
   307 Cumberland Ave
   Portland, ME 04101
   (207) 553-7777
2. The architect's contact information is as follows:
   Simons Architects
   75 York St #4670
   Portland, ME 04101
   (207) 772-4656
3. The proposed NFPA and IBC uses of the building are provided in Section O.
4. The square footage of the structure is as follows:
   Ground Floor – 8,354 GSF
   2nd Floor – 6,780 GSF
   3rd Floor – 6,780 GSF
   4th Floor – 6,780 GSF
   Building Total – 28,694 GSF
5. The elevations of the proposed building are provided in the Architectural Plan Set.
6. The proposed fire protection for the building is an automatic sprinkler system throughout the building, following NFPA 13. See Section O for more information.
7. The closest fire hydrant to the building is across Forest Ave, approximately 130 feet from the building. There is also a fire hydrant on the property's Forest Ave frontage, about 455 feet west of the building. Both hydrants have been tested within the last 5 years.
8. There is a 12" water main under the south side of Forest Ave, running along the property frontage.
9. The west side of the structure can be accessed from the proposed parking lot. The south side of the structure can be accessed from Forest Ave.
10. Please see Section O for a full fire code summary.

Section O

Architectural Design Narrative

75 York Street
Portland, Maine 04101
phone 207 772 4656
fax 207 828 4656
www.simonsarchitects.com

1871 Forest Avenue - Home for Good

Architectural Narrative

date: February 27, 2026

project: 1871 FOREST AVE - HOME FOR GOOD (2025-0110)

Firm Descriptions

Avesta Housing is Northern New England's largest affordable housing developer, having completed dozens of affordable projects across Maine and New Hampshire. Most recently, developments include Porter Station (200 Valley Street), Village Commons in Scarborough, and the West End Apartments in South Portland.

Acorn Engineering, Inc. has successfully permitted and provided civil/site engineering for a multitude of constructed major site plans across the City, including Munjoy Heights, 89 Anderson Street, the Hiawatha, 52 Hanover, and Porter Station.

Simons Architects is well known for innovative solutions to design challenges, large and small. Our guiding principle is to design spaces of exceptional beauty and substance. We love challenges and are known for our projects that combine site planning, master planning, and unique design approaches. We have a strong ability to envision future facility and space needs and create sustainable design solutions that add lasting value for owners and their communities.

Overall, the design team brings decades of experience and demonstrated success in designing, managing, permitting, and overseeing the construction of high-quality residential properties.

Building Design Overview

This project is comprised of a new, standalone, 4-story building in Portland, Maine. The building will provide approximately 28,700 gross square feet of studio apartments and support spaces for Home for Good.

The first floor will house administrative and support space for Home for Good, including staff offices, a conference room, a service provider space, a large kitchen for the residents, and various-sized gathering spaces. MEP and storage spaces will also be located on the first floor.

There will be 33 studio units distributed across floors 2, 3, and 4 (with 11 units per floor). Each unit will have a bathroom and a kitchen with a range, and will meet MaineHousing requirements and Avesta Housing design standards.

Building Design in Context

Due to the nature of the residents in the proposed building, there will be no operable unit windows facing onto Forest Ave. The building is configured with a double-loaded corridor oriented perpendicular to Forest Avenue, providing resident views Eastward and Westward across the site.

There will be a one-story volume on the first floor along Forest Ave, which will provide gathering spaces for the residents as well as the primary building entry. This one-story portion of the building will be set as close as practicable to the overhead utility setback, and will present a public face to Forest Avenue.

The large stand of mature trees at the Easternmost perimeter of the site will be preserved as a buffer between the new building and the adjacent Quaker Meeting House. Along Forest Ave, the building's 4-story mass will be set back and appear diminished in scale, while the one-story portion will meet the zoning intent for minimal setback and contribute to the development of an urban node along this stretch of Forest Avenue.

Architectural Design Specifics

The primary structural system for the building will be light-framed wood supported by a cast-in-place concrete foundation. The first level will have a 13'-0" floor to floor, while the upper levels will have 11'-0" floor to floors. The 1,250 square foot one-story volume at the first floor will have a low-sloped roof. The roof over the fourth floor will be low-sloped as well, with sloped top-chord wood trusses and parapets around the edges to prevent falling snow and ice. The roof will be designed to accommodate snow and ice loading. Both roofs will have internal roof drains, and the upper roof will have a white membrane with a three-year aged solar reflectance index of 80 or greater.

Life Safety Analysis

IBC: **Type VA** - Protected Wood Frame
NFPA: **Type V (111)** - Protected Wood Frame

Building Areas

Ground Floor - 8,354 GSF (including overhangs)
2nd Floor - 6,780 GSF
3rd Floor - 6,780 GSF
4th Floor - 6,780 GSF
BUILDING TOTAL - **28,694 GSF**

Fire Protection: Automatic sprinkler system provided throughout the building, following **NFPA 13**.

Mechanical Design

The building will be heated and cooled via a VRF heat recovery system. Each living unit will have its own wall-hung unit located in the living room with a dedicated thermostat. The first floor common areas will be served by a combination of ducted and non-ducted VRF units. Ventilation for the building is provided via a roof-mounted Dedicated Outdoor Air System (DOAS) that includes an air source heat pump for heating, cooling, and dehumidification of the ventilation air. Ventilation and exhaust air will be ducted directly to and from each living unit and will comply with ASHRAE 62.1 and 2021 IMC.

All vibrating equipment shall be mounted on or suspended from vibration isolators. Pumps and Fans shall be isolated from piping and ductwork by neoprene flexible connectors.

Refer to supplemental mechanical and plumbing narratives for additional information.

DDMi DESIGN DAY Mechanicals Inc

February 24, 2026

1871 Forest Ave Home For Good Multi-Family Building

Heating, Ventilation and Air Conditioning (HVAC) and Plumbing Narrative

1. Purpose – The following narrative describes the proposed heating, ventilation, and air conditioning (HVAC) and plumbing systems for a new 33 unit multi-family building in Portland, ME. The reviewing Mechanical Engineer is Design Day Mechanicals, Inc., hereafter known as the Engineer, the Architect is Simons Architects, hereafter known as the Architect, and the HVAC Contractor shall be hereafter known as the Contractor.
2. Design Standards – This project shall be designed to the following standards –
    a. 2024 Maine State Housing Authority Quality Standards and Procedures Manual
    b. 2021 International Mechanical Code (IMC)
    c. 2021 Internation Energy Conservation Code (IECC)
    d. ASHRAE 62.1 - 2019 Ventilation for Acceptable Indoor Air Quality
    e. IAPMO 2021 Uniform Plumbing Code
    f. Avesta Housing Standards
3. Proposed HVAC System - Heat loss and gains for the building were determined using the following design conditions:
    a. Indoor Design Conditions:
        i. Heating: 72° F
        ii. Cooling: 75° F
    b. Outdoor Design Conditions (based on the conditions at Portland Intl Jetport ASHRAE Weather Station:
        i. Winter: 1.1° F DB (99.6% Heating DB)
        ii. Summer: 87.1° F DB / 72.1° F WB (0.4% Cooling DB/MCWB)
    c. Heating and Cooling:
        i. The whole building shall be served by a Samsung VRF heat recovery system. Outdoor units (CU) shall be DVM S2 Max Heat heat recovery, capable of 100% heating capacity down to -13° F. One (1) CU per floor shall be located on the roof and equipped with 18” snow stands and base heaters. Each living unit shall be provided with a ductless heat pumps (HP) located in the living room. The first floor shall be zoned with a combination of ducted and ductless HP’s. Each HP shall be equipped with a disconnect, a wired programmable thermostat, and condensate pump. The system shall be provided with a DMS 2.5 Central Controller for remote access and control of individual DAC units. Condensate shall be drained indirectly into the nearest sanitary drain.

            The VRF system shall use R32 refrigerant and comply with ASHRAE 15-2024 Refrigerant Concentration Limits. All components needed to comply with ASHRAE 15 shall be provided including a leak detection system, safety shut-off valves at branch boxes, and pipe strength testing.

Sizes and quantities for HP's are as follows:

LEVEL	ROOM NAME	HP SIZE (MBH)	STYLE	QTY.
GROUND FLOOR	1 PERSON OFFICE	6	HIGH WALL	1
	COMMON AREA	24	CASSETTE	2
	FRONT DESK/LOBBY	12	CASSETTE	1
	KITCHEN	36	CASSETTE	1
	ZONE 1 (EAST)	24	DUCTED	1
	ZONE 2 (WEST)	15	DUCTED	1
	BACK CORRIDOR	6	CASSETTE	1
	LAUNDRY	24	DUCTED	1
FLOORS 2-4	UNIT 1	9	HIGH WALL	1
	UNIT 2	9	HIGH WALL	1
	UNIT 3	9	HIGH WALL	1
	UNIT 4	9	HIGH WALL	1
	UNIT 5	9	HIGH WALL	1
	UNIT 6	9	HIGH WALL	1
	UNIT 7	12	HIGH WALL	1
	UNIT 8	9	HIGH WALL	1
	UNIT 9	9	HIGH WALL	1
	UNIT 10	9	HIGH WALL	1
	UNIT 11	12	HIGH WALL	1
	STAFF	6	HIGH WALL	1
	CORRIDOR	6	CASSETTE	2

ii. Electric wall heaters (EWH) shall be installed in the following common areas:

LEVEL	ROOM NAME	MANUFACTURER/MODEL	KW
GROUND FLOOR	VESTIBULE	QMARK AWH	4
	MECHANICAL	QMARK AWH	1.5
	STAIR 1	QMARK AWH	4
	STAIR 2	QMARK AWH	4
	126 STORAGE	QMARK AWH	1.5
	114 STORAGE	QMARK AWH	1.5
UPPER FLOORS	LIVING UNIT BATHROOMS ON EXTERIOR WALL	QMARK CWH	0.5

d. Ventilation:

i. A single roof mounted Dedicated Outdoor Air System (DOAS) unit equal in quality and performance to a Valent VXE (4,375 CFM) (208V/3ph, 240 MCA, 250 MOP) shall provide the required ventilation air to and extract exhaust air from the first floor common areas as well as the living units. The DOAS shall be capable of heating and dehumidification and will deliver room neutral air at 70°F +/-. The DOAS shall be

equipped with a roof curb, heat pump with inverter compressor, modulating hot gas reheat coil, pressure controlled defrost, OA & EA airflow stations, motorized OA & EA dampers, MERV-8 & MERV-13 filters, disconnect & service outlet.

ii. Vertical ductwork shall be enclosed in a centrally located rated shaft with a smoke/fire damper (FSD) installed in the fresh air supply and exhaust ducts serving each floor.

iii. Horizontal ductwork shall be located in the dropped corridor ceiling in common areas and in dropped soffits when required in living units. Fire dampers shall not be required at horizontal duct through-penetrations of corridor walls.

iv. DOAS and ERV's shall deliver fresh air (FA) to and extract exhaust air (EA) per the attached Ventilation Calculations.

1. Note: Living unit range hoods shall be recirculating

v. The Common area kitchen range shall be provided with a Denlar hood (D1030-D-WF-NFPA) that shall be ducted to the outdoors with an integral exterior wall mounted fan. The hood shall have ADA accessible controls, electric disconnect, speed controller, manual pull kit, and fire alarm integration.

e. General Work Required

i. A 24"x18" Greenheck ESD-435 Louver with VCD-23 Damper with actuator shall be installed on the exterior wall of the mechanical room and ducted to a ceiling diffuser in the laundry room to provide make-up air. The actuator shall modulate the damper to maintain the differential pressure between the laundry room and the corridor at 0.02" W.C. If the laundry room temperature falls below 45°F, then the damper shall close until the room temperature reaches 65°F.

ii. Each dryer shall be vented individually to the outdoors with a 4" vent that shall terminate in a wall cap with bird screen. Dryer vent terminations shall be located a minimum of 3 ft from the make-up air damper.

iii. Provide & install elevator hoistway venting using one of the following methods:

1. Penthouse style Elevator Hoistway vent equal to Buckley PELV-100-32-2
2. 60"x24" Greenheck EAC-401 combination louver-damper with actuator and temperature controls. Louver shall be located on the side of the hoistway. Bottom of louver shall be at least 3 feet above the roof.

4. <u>Proposed Plumbing System</u> –

a. <u>Domestic Water Entrance</u>

i. The water entrance size shall be 2" with an estimated peak flow of 45 gpm. A recent hydrant flow test shows 78 psig near the building so a domestic water booster pump will not be required.

b. <u>Domestic Water Heating</u>

i. The base system shall be two (2) gas water heaters with each heater being 100 gallons with 150 MBH input, similar to State SUF100-150_E, located in the first floor mechanical room. Provide with expansion tank, mixing valve, venting, and gas piping from regulator to water heaters.

c. <u>Domestic Water Distribution</u>

i. Domestic cold water distribution piping shall run in the first floor ceiling with risers to serve apartments on each floor.

ii. Domestic hot water distribution piping shall run in the first floor ceiling from the mechanical room to the North Stairwell where it will rise to the third floor ceiling where it will run back to the South Stairwell and then down to the first floor ceiling

and back to the mechanical room. In the mechanical room, a hot water recirculation pump will be installed. The first floor piping shall feed the first & second floors while the third floor piping shall feed the third & fourth floors.

iii. Hot and cold water piping for each apartment shall enter the apartment above the entry door with water shut-off valves in the corridor above the entry door.

d. Sanitary

i. Sanitary risers shall be located at each stack of apartments and combine in the first floor slab before exiting the building. Sanitary exit shall be 6".

Floor cleanouts shall be located at the end of the sanitary runs in the first floor slab, or at every 90 degree change in direction. Cleanouts shall be provided at the base of every riser.

Floor drains with a Rectorseal Sureseal Trapguard will be located in the Mechanical Room, Laundry Room, public bathroom, janitors closets, and apartments with roll-in or transfer showers. A floor sink shall be provided in the mechanical room as a discharge for the elevator sump pump.

Apartment bathrooms shall be wet vented with a single vent riser at the lav. All other fixtures shall be connected to dedicated vent stacks next to their sanitary stacks. Vent stacks will combine in top floor ceiling as much as possible to minimize vent to roof penetrations.

e. Storm

i. Storm piping shall combine in the top floor ceiling before dropping down in a chase to below the first floor slab where it will exit the building. Vertical storm riser piping shall be PVC with netlag or cast iron for acoustical purposes.

f. Fixtures

i. Plumbing fixtures are per Avesta Housing Design Standards.

g. Radon

i. A radon system shall be designed by others and installed by the plumbing contractor.

Section P

Low Impact Design

P.1 Low Impact Design Narrative

The project scored 81 points on the Low Impact Design Scoresheet, which is higher than the minimum required 80 points. The project site does have wetlands, but they are relatively isolated on the western side of the site, and the proposed development footprint is on the eastern side of the site, maintaining a large buffer from the wetlands. The project site does not have any streams and is able to maintain all required buffers from offsite streams. The natural drainage paths on site are protected, and the development is in compliance with shoreland zoning requirements.

The project consulted the Beginning with Habitat tool and is not impacting any threatened or endangered species habitat. The project conducted a tree survey of all existing trees near to the proposed development. All of the trees in the rear contiguous forested area are being preserved, along with most of the trees in the vegetative buffer to the east of the site. Additionally, the project proposes additional plantings to increase the vegetative buffer to the east of the site.

There are steep slopes at the rear of the site, leading to the Hannaford detention basin, left as a result of prior mining activity at the site. There is a ridge between the steep slopes on the rear of the site and all disturbed areas at the front of the site. The project is proposing asphalt removal towards the rear of the site, within 20 feet of the steep slopes, but on the opposite side of the ridge. The site has already been developed, and the project disturbance areas are within the prior development footprint. The project's planting plans call for soil testing and organic matter amendments as needed in planted areas. Additionally, the project calls for native vegetation and locally sourced landscape materials. A large portion of the proposed site is landscaped.

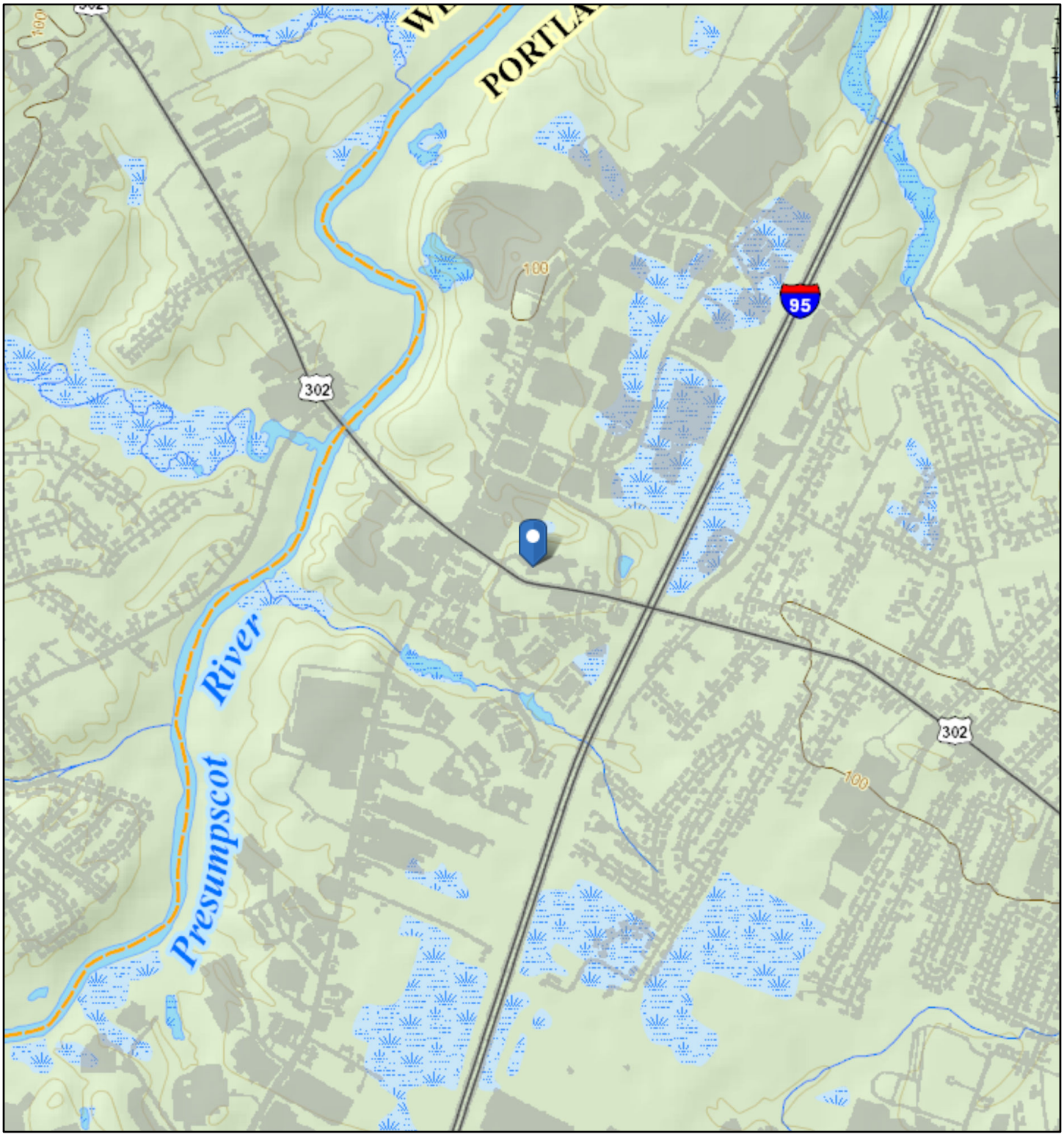
The project meets the City of Portland's stormwater management standards. Under the City's parking maximums, 77 parking spots would be allowed for the site. The project proposes only 8 parking spots. Additionally, the roadway dimensions were minimized using CAD's Vehicle Tracking software, which can be seen in Section T.2. A portion of the site's stormwater runoff is routed through the proposed rain garden at the front of the site, which provides water quality treatment. Less than 1 acre of land is routed to each treatment system.

There are additional Low Impact Design choices that the project made that are not reflected in the LID scoresheet, such as improvements to the pedestrian and public transit infrastructure in the area. There is water quality treatment and attenuation provided through the rain garden and underground detention system, even though water quality treatment is not required for this site. The selected site is in area that already has a

separated storm water system, and the project proposes an approximately 175 foot extension of the public stormwater main.

See attached for the Low Impact Design (LID) Scoresheet.

Beginning With Habitat - 1871 Forest Ave



January 30, 2026

1:18,056

0 0.1 0.2 0.4 mi

0 0.17 0.35 0.7 km

Beginning with Habitat Program for Planning Purposes Only
Map Created With BWH Map Viewer

City of Portland ME: Low-Impact Design Requirements

Owner / applicant name:	Avesta Housing Development Corporation
Representative name:	Acorn Engineering Inc
Project address:	1871 Forest Avenue, Portland, ME 04103
Project CBL:	327A A004001
Application ID (if known):	PL-003538-2026

	Maximum Points	How to Apply	Points Awarded	LID Standard / Approach
CORE METHODS: Wetlands, Streams, & Drainage				
Protect natural drainage paths	Required			
Shoreland Zoning	Required			
Meeting DEP and ACOE standards for stream crossings	Required			
Protect wetlands	**12**	Select one option		Select a site that does not have wetlands or vernal pools = 12pts
			10	Project maintains a 50' set-back / no-disturb buffer to all wetlands = 10pts
				Project maintains a 25' set-back / no-disturb buffer to all wetlands = 7pts
				Project does not place structures in wetlands and avoids wetlands impacts from construction and stormwater discharges = 5pts
				Project replicates impacted wetlands elsewhere on site or within watershed = 3pt
				Project pays wetlands impact fee = 0pts
Permanently protect stream (intermittent and perennial) and riparian buffers *(exclusive of approved stream crossings; must include a no-disturb zone with markers installed and deed restriction recorded at registry of deeds)*	**12**	Select one option	**12**	Select a site with no streams = 12pts
				Permanently protect all 100ft shoreline buffers = 10pts
				Permanently protect all 75ft shoreline buffers = 7pts
				Permanently protect all 50ft shoreline buffers (intermittent streams) = 6pts
				Permanently protect all 50ft shoreline buffers (required minimum for perennial streams) = 5pts
				Permanently protect all 25ft shoreline buffers (required minimum for intermittent streams) = 5pts
Stream crossings	**12**	Select one option	**12**	Select a site with no streams = 12pts
				Avoid any stream crossings = 10pts
				All stream crossings use a bridge or open bottom culvert structure sized at 1.2 times the bank full width of the stream = 10pts
				All stream crossings use Maine Stream Smart Principles to preserve natural pre-development drainage pathways = 6pts
CORE METHODS: Natural Areas & Habitat				
Preserve threatened or endangered species habitat	Required (Beginning with Habitat Maps at a minimum)			
Protect 30% of trees over 10" DBH	Required (Tree survey required)			
Protect intact, contiguous forests and native trees over 10" DBH	**8**	Select one option	**8**	All development and land disturbance outside of existing wooded/forested areas (no site clearing in prior 10 years) = 8pts
				Protect 50% of trees over 10" DBH = 6pts
				Protect 40% of trees over 10" DBH = 4pt

CORE METHODS: Soils & Slopes				
USDA Web Soil Survey	Required (provide details how soil limitations will be mitigated)			
Avoid steep slope disturbance	**5**	Select one option		Selecting a site without slopes 15% or greater = 5pts
				Maintain >20' undisturbed vegetated buffer to all slopes 15% or greater = 3pts
			2	Maintain 10-20' undisturbed vegetated buffer to all slopes 15% or greater = 2pts
				Maintain 1-10' undisturbed vegetated buffer to all slopes 15% or greater = 1pt
				Disturbance of any slope 15% or greater = 0pts
Protect soils	**5**	Select one option	**5**	Redevelopment sites = 5pts
				Detailed, site-specific soil survey; preparation of a Soil Management and Protection Plan; protect highly permeable soils = 5pts
Limit site disturbance and earthwork	**8**	Select one option	**8**	Redevelopment limits disturbance to existing footprint = 8pts
				New development disturbs less than 50% of existing undeveloped site area = 8pts
				New development disturbs less than 75% of existing undeveloped site area = 6pts
				New development disturbs greater than 75% of existing undeveloped site area = 0pts
Soil preparation & minimizing compaction	**6**	Select all options that apply		Till soils to a depth of at least 10" prior to revegetation = 3pts
			3	Organic matter amendments as needed based on soil tests = 3pts
CORE METHODS: Landscaping				
Low-Impact Landscaping	**6**	Select all options that apply		Redevelopment sites reduce lawn area by 50%, provided no increase in impervious area (lawn becomes landscaping) = 2pt
			2	New development results in >50% non-impervious developed area is landscaping = 2pt
			2	Use only native vegetation for landscaped areas = 2pts
			2	Using only locally-sourced landscape materials = 2pt
CORE METHODS: Impervious Area & SW Management				
Meeting City's stormwater management standards	Required			
Reduce impervious and increase permeable surfaces	**10**	Select all options that apply, up to a maximum of 10 points		50% or more of proposed hard surfaces are permeable (porous pavers, permeable concrete, porous asphalt) = 6pts
			4	Minimize parking impervious area by using only the minimum required number of parking spaces, the minimum required parking lot dimensions, maximizing compact spaces and utilizing low-turnover standard parking space width reductions = 4pt
				25% or more of proposed hard surfaces are permeable (porous pavers, permeable concrete, porous asphalt) = 3pts
			2	Minimize roadway impervious area by developing roadways and driveways at the minimum width and using minimum number of curb cuts = 2pt
				Reducing the number of driveways by using a shared driveway design = 2pt
				Providing transportation alternatives (such as bike share, car share, or similar) = 2pt
Use GI / natural stormwater treatment systems	**12**	Select all options that apply	**6**	Treatment requirements and conveyance achieved through vegetated systems = 6pts
			3	No more than 1-acre of drainage per treatment system = 3pts
				Increase time of concentration on site (1" 25 year storm event) = 3pts
Limit / eliminate salt use	**4**	Select one option		Detailed winter maintenance agreement, with annual reporting requirement, limiting chloride use (required in UIS watersheds) = 4pts

Bonus Points				
Bonus points are offered for strategies that may go above and beyond typical approaches; may offer particularly innovative site design or engineering ; or may help achieve the larger goal of low-impact development on a regional scale.	**10**			Utilizing structured parking = 10pts
	10			Utilizing a green roof for at least 50% of a newly developed or redeveloped building roof = 10pts
	10			Restoration of previously disturbed natural resources (minimum 500 square feet of restoration) = 10pts
	10			BMPs designed for known water quality impairment within watershed = 10pts
	10			Connecting to City sewer from a site >200 ft from existing City infrastructure = 10pts
	6			Detention of 1.5 times the required volume = 6pts
	6			Treatment for 1.5 times the required water quality volume = 6pts
	6			Innovative LID site design and/or stormwater improvement - 6pts
	10			Establishing a Traffic Demand Management plan for projects under 50,000ft = 10pts
	Total Possible Points **178**		**Total Points Awarded** **81**	**Minimum points required for approval of LID strategies and techniques** **80**

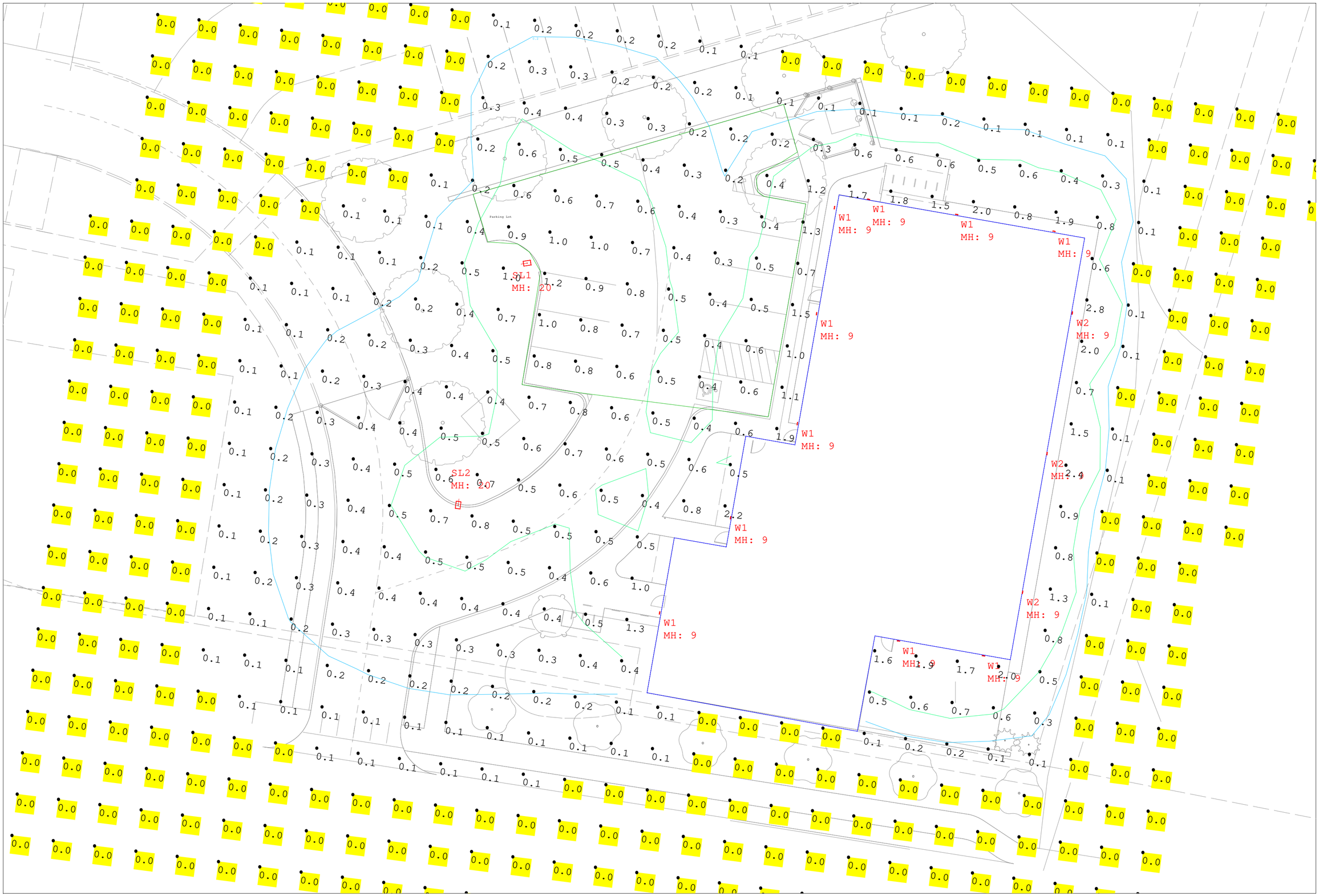
Att. Q

Section Q

Lighting Plans

Q.1 Lighting Narrative

The proposed site lighting is to be in accordance with the City's Technical Manual. Please refer to the photometric plan prepared by Reflex Lighting. Cut sheets for the proposed site lighting are attached.



Luminaire Schedule								
Symbol	Qty	Label	Description	Arrangement	LLF	Luminaire Lumens	Luminaire Watts	Mounting Height
	1	SL1	COOPER: GALN-SB1A-830-U-T4W	Single	0.900	4024	30.9	20
	1	SL2	COOPER: GALN-SB1A-830-U-5WQ	Single	0.900	4078	30.9	20
	10	W1	PIL: M20-M-7W-T4-XX-70-3K-UNV-XX	Single	0.420	1319	15	9
	3	W2	PIL: M20-M-7W-T2-XX-70-3K-UNV-XX	Single	0.420	1385	15	9

Calculation Summary						
Label	Units	Avg	Max	Min	Avg/Min	Max/Min
Site	Fc	0.23	2.8	0.0	N.A.	N.A.
Parking Lot	Fc	0.59	1.2	0.2	2.95	6.00

Boston, MA
Rocky Hill, CT
Hooksett, NH
REFLEX
www.reflexlighting.com
specifications@reflexlighting.com

DISCLAIMER: CALCULATIONS SHOULD BE USED AS A GUIDE ONLY.
LIGHT LEVELS ARE SUBJECT TO CONDITIONS IN THE FIELD.

Drawn By: LS
Date: 2/24/2026
Specifier:
Salesperson:
Scale: Not to Scale

AVESTA HOUSING

1871 Forest Ave., Portland, ME 04103

MIMIK 20

SEE PAGE 4 FOR MIMIK 20 FLAT SPEC

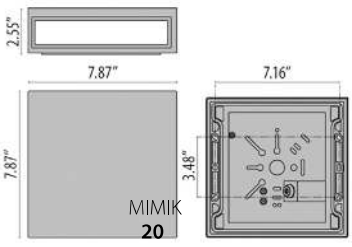
Ceiling-, wall- and post- mount series. Fixtures consist of:

- Multi-step powder-coat painting process, optimized against UV rays and corrosion.
- Copper-free precision die-cast aluminum housing and mounting plate.
- Extra-clear, flat, tempered silk-screened soda-lime glass diffuser.
- Micro-prismatic patterned, flat, tempered silk-screened soda-lime glass diffuser (FLAT versions).
- Custom molded, anti-aging gasket(s).
- Stainless steel external hardware.
- Custom MCPCB utilized to maximize heat dissipation and promote a long LED life.
- High-transmittance transparent optics.
- Single (M) or dual (B) light emission.
- IESNA Type II light distribution.
- IESNA Type III light distribution.
- IESNA Type IV light distribution.
- DarkSky approved when ordered with single light emission only, and in 3000K or below.
- Input voltage: 120-277 V (50 / 60 Hz), integral 0-10 V dimming driver.
- Optional, integral, emergency battery-pack designed for a minimum operation of 90 minutes (EMPK versions).
- Customizing facade faceplate available for MIMIK FLAT versions (ordered separately).
- Post accessory available for MIMIK 20 (ordered separately).
- Consult factory for dimming options, custom finishes (please specify RAL color), and non-cataloged CCT (Kelvin) options.
- Optional clear plexiglass panel can be customized with logos for signage or wayfinding (LINE BOLLARD). Consult factory for more information.
- 5-year warranty.
- Marine Grade finish.
- Suitable for Natatorium applications.
- Consult factory for any Buy American Act (BAA) or Build America Buy America Act (BABAA) requirements.

IP 65 · WET · PRONTO · cULus LISTED · ADA · 0-10 V · 90° · RAL · IK 06 1 J

FINISHES

- **AN-96** / Iron gray / Textured
- **GR-94** / Aluminum metallic / Textured
- **WH-87** / White / Textured
- **BK-81** / Black / Textured
- **RB-10** / Iron rust / Textured



Standard

Lumen Output		2700K	3000K	3500K	4000K	5000K
MIMIK 20 T2	15W	1373	1385	1396	1408	1420
MIMIK 20 T2	26W	2238	2256	2274	2292	2310
MIMIK 20 T2 EMPK	15W	1373	1385	1396	1408	1420
MIMIK 20 T3	15W	1385	1396	1407	1418	1429
MIMIK 20 T3	26W	2255	2273	2291	2309	2327
MIMIK 20 T3 EMPK	15W	1385	1396	1407	1418	1429
MIMIK 20 T4	15W	1308	1319	1329	1340	1351
MIMIK 20 T4	26W	2132	2149	2166	2183	2200
MIMIK 20 T4 EMPK	15W	1308	1319	1329	1340	1351

Scan here for installation instructions

Revision 20
06/25

Order Guide - Mimik 20

70 CRI STANDARD HOUSING
OTHER OPTIONS AVAILABLE

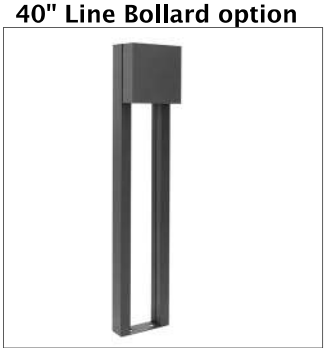
Order code example | **M20-M-15W-T4-AM-27K-120V-NA-FC**

Housing Style	Light Emission	Wattage	Optics	Finish	CRI	Kelvin/ Static Colors	Voltage	Controls	Accessories
M20 Standard	**M** (One-Way)	**15** 15 watt (with EMPK max) **26** 26 watt (standard) Max **XX** Specify Wattage Must be below max	**T2** Type II **T3** Type III **T4** Type IV	**AM** Aluminum Metallic **IG** Iron Gray **IR** Iron Rust **BK** Textured Black **WH** Textured White **CC** Custom Color	**70** 70 CRI (Standard) **80** 80 CRI **90*** 90 CRI ***Contact Factory For Availability**	**27K** 2700k **3K** 3000k **35K** 3500k **4K** 4000k **5K*** 5000K Consult factory for MOQ	**UNV** 120-277V	**NA** Non Dimming **0-10V** 0-10V Dimming **ELV** 120V Line-Voltage Dimming Driver	**EMPK** Integral 15W Emergency Battery Back up (not available with flat housing or with phc/occ) **CWEMPK** Remote Cold Weather Emergency Battery Back up -20˚C through 55˚C **FC** Facade cover **FRST** Frosted glass **EGR** Egress Double Housing **PHC-B** Photocell Button (not available with empk) **OCC** Occupancy Sensor (not available with empk) **REM** Remote battery back up **BOL** 40" Bollard **LBOL** 40" Line Bollard **XXBOL** Specify Bollard Height 40" Max 12" Min **XXLBOL** Specify Line Bollard Height 40" Max 12"Min **BABAA** Build America Buy America Act compliant (not available for all options) **CON2** (double-gang j-box, adaptor plate and 1/2" knockouts) **CON4** (double-gang j-box, adaptor plate and 3/4" knockouts)

Performance in Lighting reserves the right to make all necessary changes without prior notice.

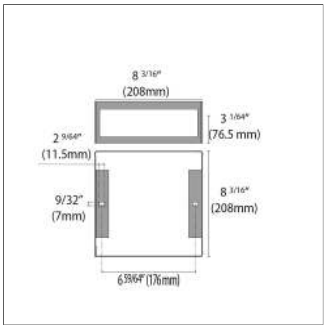
40" Bollard option

40" Line Bollard option

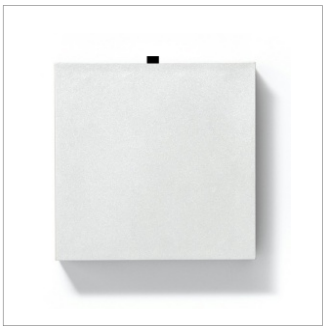


OCC

Facade Cover

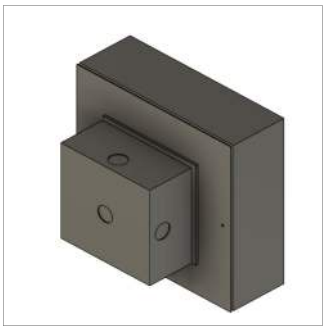


PHC-B

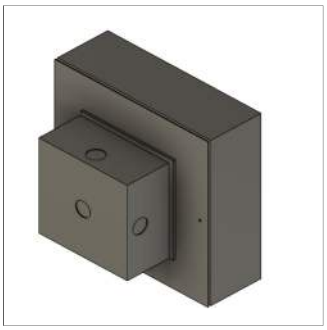


Egress Double Housing

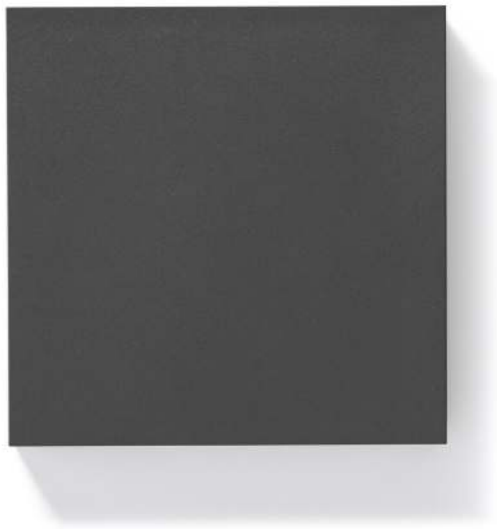
CON2 (1/2")



CON4 (3/4")



MIMIK 20 FLAT



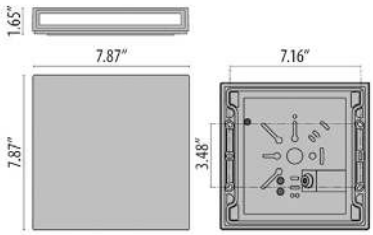
Ceiling-, wall- and post- mount series. Fixtures consist of:

- Multi-step powder-coat painting process, optimized against UV rays and corrosion.
- Copper-free precision die-cast aluminum housing and mounting plate.
- Extra-clear, flat, tempered silk-screened soda-lime glass diffuser.
- Micro-prismatic patterned, flat, tempered silk-screened soda-lime glass diffuser (FLAT versions).
- Custom molded, anti-aging gasket(s).
- Stainless steel external hardware.
- Custom MCPCB utilized to maximize heat dissipation and promote a long LED life.
- High-transmittance transparent optics.
- Single (M) or dual (B) light emission.
- IESNA Type II light distribution (FLAT).
- DarkSky approved when ordered with single light emission only, and in 3000K or below.
- Input voltage: 120-277 V (50 / 60 Hz), integral 0-10 V dimming driver.
- Optional, integral, emergency battery-pack designed for a minimum operation of 90 minutes (EMPK versions).
- Customizing facade faceplate available for MIMIK FLAT versions (ordered separately).
- Post accessory available for MIMIK 20 (ordered separately).
- Consult factory for dimming options, custom finishes (please specify RAL color), and non-cataloged CCT (Kelvin) options.
- Optional clear plexiglass panel can be customized with logos for signage or wayfinding (LINE BOLLARD). Consult factory for more information.
- 5-year warranty.
- Marine Grade finish.
- Suitable for Natatorium applications.
- Consult factory for any Buy American Act (BAA) or Build America Buy America Act (BABAA) requirements.

IP 65 · WET · PRONTO · cULus LISTED · ADA · 0-10 V · 90° · RAL · IK 06 1 J

FINISHES

- **AN-96** / Iron gray / Textured
- **GR-94** / Aluminum metallic / Textured
- **WH-87** / White / Textured
- **BK-81** / Black / Textured
- **RB-10** / Iron rust / Textured



MIMIK
20 FLAT

Lumen Output	2700K	3000K	3500K	4000K	5000K
MIMIK 20 FLAT M - 14W	919	960	1001	1042	1083
MIMIK 20 FLAT B - 25W	1847	1930	2012	2095	2178

Scan here for installation instructions

Revision 20
06/25

Order Guide - Mimik 20 Flat

Order code example | **M20F-M-15W-T2-AM-27K-120V-NA-FC**

80 CRI STANDARD
OTHER OPTIONS AVAILABLE

M20F-								

Housing Style	Light Emission	Wattage	Optics	Finish	CRI	Kelvin/ Static Colors	Voltage	Controls	Accessories
M20F Flat *Flat Housing is only suitable for T2 Distrubution	**M** (One-Way) **B** (Two-Way)	**14** 14 watt (M Max) **25** 25 watt (B Max) **XX** Specify Wattage Must be below max	**T2** Type II	**AM** Aluminum Metallic **IG** Iron Gray **IR** Iron Rust **BK** Textured Black **WH** Textured White **CC** Custom Color	**80** 80 CRI (Standard) **90*** 90 CRI *Contact Factory For Availability	**27K** 2700k **3K** 3000k **35K** 3500k **4K** 4000k **5K*** 5000K Consult factory for MOQ **RED** Satic Red **GRN** Static Green **BLU** Static Blue **AMB** Static Amber	**UNV** 120-277V	**NA** Non Dimming **0-10V** 0-10V Dimming **ELV** 120V Line-Voltage Dimming Driver	**CWEMPK** Remote Cold Weather Emergency Battery Back up -20°C through 55°C **FC** Facade cover **FRST** Frosted glass **EGR** Egress Double Housing **PHC-B** Photocell Button (not available with empk) **OCC** Occupancy Sensor (not available with empk) **REM** Remote battery back up **BOL** 40" Bollard **LBOL** 40" Line Bollard **XXBOL** Specify Bollard Height 40" Max 12" Min **XXLBOL** Specify Line Bollard Height 40" Max 12"Min **BABAA** Build America Buy America Act compliant (not available for all opitons) **CON2** (double-gang j-box, adaptor plate and 1/2" knockouts) **CON4** (double-gang j-box, adaptor plate and 3/4" knockouts)

Performance in Lighting reserves the right to make all necessary changes without prior notice.

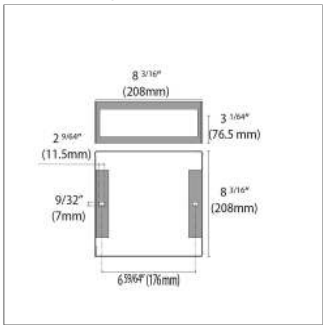
MIMIK 20 FLAT

40" Bollard option

40" Line Bollard option

OCC

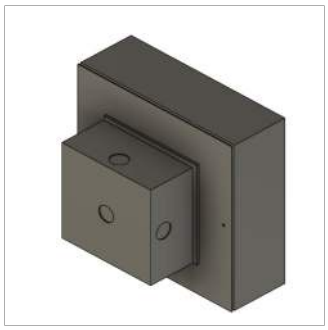
Facade Cover



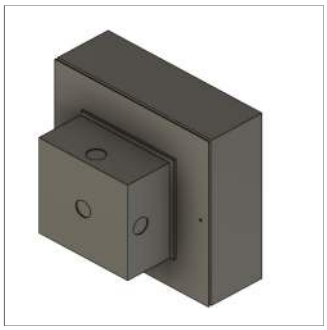
PHC-B

Egress Double Housing

CON2 (1/2")



CON4 (3/4")



Project		Catalog #		Type	
Prepared by		Notes		Date	

McGraw-Edison

GALN Galleon II

Area / Site Luminaire

Product Features

BABA · BAA · TAA · FADC · Light ARchitect™

Product Certifications

ISO Systems Certified · DLC Listed · DLC Listed Premium · 3G VIB · IP66 · UL Certified · Dark Sky Approved · 5 Year Limited Warranty · RoHS Compliant · Declare.

Interactive Menu

- Ordering Information page 2
- Mounting Details page 3
- Optical Distributions page 5
- Product Specifications page 5
- Energy and Performance Data page 6
- Control Options page 17

Quick Facts

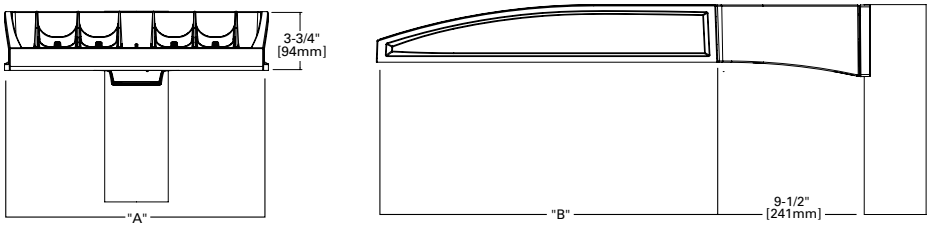
- Lumen packages range from 3,300 - 102,700 (33W - 658W)
- 22 optical distributions
- Efficacy up to 178 LPW

Connected Systems

- Wavelinx LITE Wireless
- Wavelinx PRO Wireless
- AirMesh Wireless

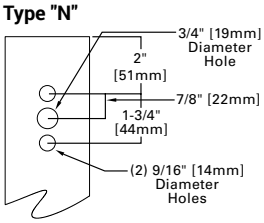
Dimensional Details

Standard Pole Mount Arm



Pole Drilling Pattern

Type "N"



Number of Light Squares	Width "A"	Housing Length "B"	Weight with Standard or QM Arm	EPA with Standard or QM Arm
1-4	16"	22"	29 lb	0.95
5-6	22"	22"	39 lb	0.95
7-9	22"	28-1/8"	48 lb	1.1

NOTES: For arm selection requirements and additional line art, see Mounting Details section.

NOTES:
1. IDA Certified (3000K CCT and warmer only, fixed mounting options)

Ordering Information

SAMPLE NUMBER: **GALN-SA4C-740-U-T4FT-GM**

Product Family [1, 2]	Light Engine Configuration			Color Temperature	Voltage	Distribution	Mounting	Finish
	Light Square	Square Count	Lumen Output					
GALN=Galleon II **BAA-GALN**=Galleon II Buy American Act Compliant [26] **TAA-GALN**=Galleon II Trade Agreements Act Compliant [26] **BABA-GALN**=Galleon II BABA/IIJA Compliant [38]	**SA**=16 LED Light Square **SB**=26 LED Light Square	**1**=1 Light Square **2**=2 Light Squares **3**=3 Light Squares **4**=4 Light Squares **5**=5 Light Squares **6**=6 Light Squares **7**=7 Light Squares **8**=8 Light Squares **9**=9 Light Squares	**A**=Output Level 1 **B**=Output Level 2 **C**=Output Level 3 **D**=Output Level 4 [4, 16] **Z**=Configured Output[32]	**722**=70CRI, 2200K **727**=70CRI, 2700K **730**=70CRI, 3000K **735**=70CRI, 3500K **740**=70CRI, 4000K **750**=70CRI, 5000K **760**=70CRI, 6000K **827**=80CRI, 2700K **830**=80CRI, 3000K **835**=80CRI, 3500K **840**=80CRI, 4000K **930**=90CRI, 3000K **935**=90CRI, 3500K **940**=90CRI, 4000K **950**=90CRI, 5000K **AMB**=Amber[14, 16]	**U**=120-277V **H**=347V-480V [7, 29] **1**=120V **2**=208V **3**=240V **4**=277V **8**=480V [7, 29] **9**=347V [7] **DV**=277V-480V DuraVolt Drivers [28, 29, 30]	**T1**=Type I **T2**=Type II **T2R**=Type II Roadway **T3**=Type III **T3R**=Type III Roadway **T4FT**=Type IV Forward Throw **T4W**=Type IV Wide **5NQ**=Type V Narrow **5MQ**=Type V Square Medium **5WQ**=Type V Square Wide **SL2**=Type II w/Spill Control **SL3**=Type III w/Spill Control **SL4**=Type IV w/Spill Control **SLL**=90° Spill Light Eliminator Left **SLR**=90° Spill Light Eliminator Right **RW**=Rectangular Wide Type I **AFL**=Automotive Frontline **T2BC**=Type II w/ Backlight Control [39] **T3BC**=Type III w/ Backlight Control [39] **T4BC**=Type IV w/ Backlight Control [39] **LBC**=90° Left w/ Backlight Control [39] **RBC**=90° Right w/ Backlight Control [39]	**[Blank]**=Standard Pole Mount Arm **QU**=Quick Mount Universal Arm **QM**=Pole Mount Arm with Quick Mount Adaptor **PA**=Pole Mount, Adjustable **SP**=3" Slipfitter, Adjustable [8] **SP2**=2-3/8" Slipfitter, Adjustable [8] **QMA**=Quick Mount Mast Arm, Fixed **MA**=Mast Arm, Fixed **WM**=Wall Mount, Fixed **WA**=Wall Mount, Adjustable **UP**=Upswept Arm	**AP**=Grey **BZ**=Bronze **BK**=Black **DP**=Dark Platinum **GM**=Graphite Metallic **WH**=White **RALXX**=Custom Color

Options (Add as Suffix)

DIM=External 0-10V Dimming Leads [19]
F=Single Fuse (120, 277 or 347V Specify Voltage)
FF=Double Fuse (208, 240 or 480V Specify Voltage)
20K=20kV UL 1449 fused surge protective device [10]
2L=Two Circuits [10]
HA=50°C High Ambient [16]
HSS=Installed House Side Shield [17]
BCS=Backlight Control Shield [17, 37]
GRSBK=Glare Reducing Shield, Black [22]
GRSWH=Glare Reducing Shield, White [22]
LCF=Light Square Trim Painted to Match Housing [25]
TH=Tool-less Door Hardware [5]
CC=Coastal Construction finish [3]
L90=Optics Rotated 90° Left
R90=Optics Rotated 90° Right
3SDCM=3 Standard Deviation Color Matching [36]
AHD145=After Hours Dim, 5 Hours [21]
AHD245=After Hours Dim, 6 Hours [21]
AHD255=After Hours Dim, 7 Hours [21]
AHD355=After Hours Dim, 8 Hours [21]
DALI=DALI Drivers
CDW=Non-programmable Drivers [41]

Controls and Systems Options (Add as Suffix)

BPC=Button Type Photocontrol. Must specify voltage 120V, 208V, 240V or 277V. [6]
PR=NEMA 3-PIN Photocontrol Receptacle
PR7=NEMA 7-PIN Photocontrol Receptacle [20]
FADC=Field Adjustable Dimming Controller [31]
PSC=Photocontrol Shorting Cap
SPB2=Dimming Motion Sensor, 9'-20' mounting [23]
SPB4=Dimming Motion Sensor, 21'-40' mounting [23]
SPB2/X=Dimming Motion Sensor, limited square count, 9'-20' mounting [23]
SPB4/X=Dimming Motion Sensor, limited square count, 21'-40' mounting [23]
MS/DIM-L20=Motion Sensor for Dimming Operation, 9'-20' Mounting [33, 40]
MS/DIM-L40=Motion Sensor for Dimming Operation, 21'-40' Mounting [33, 40]
WLS2XX=WaveLinx LITE, SR Driver, Dimming Motion and Daylight, Bluetooth Programmable, 7' - 15' Mounting [12, 18, 34]
WLS4XX=WaveLinx LITE, SR Driver, Dimming Motion and Daylight, Bluetooth Programmable, 15' - 40' Mounting [12, 18, 34]
WPS2XX=WaveLinx PRO, SR Driver, Dimming Motion and Daylight, WAC Programmable, 7' - 15' Mounting [12, 13, 18, 34]
WPS4XX=WaveLinx PRO, SR Driver, Dimming Motion and Daylight, WAC Programmable, 15' - 40' Mounting [12, 13, 18, 34]
DIM10-L20=AirMesh Occupancy Sensor (9'-20' Mounting) [18, 35]
DIM10-L40=AirMesh Occupancy Sensor (21'-40' Mounting) [18, 35]

Accessories (Order Separately) [27]

OA/RA1016=NEMA Photocontrol Multi-Tap - 105-285V
OA/RA1027=NEMA Photocontrol - 480V
OA/RA1201=NEMA Photocontrol - 347V
OA/RA1013=Photocontrol Shorting Cap
OA/RA1014=120V Photocontrol
MA1252=10kV Surge Module Replacement
MA1036-XX=Single Tenon Adapter for 2-3/8" O.D. Tenon
MA1037-XX=2@180° Tenon Adapter for 2-3/8" O.D. Tenon
MA1197-XX=3@120° Tenon Adapter for 2-3/8" O.D. Tenon
MA1188-XX=4@90° Tenon Adapter for 2-3/8" O.D. Tenon
MA1189-XX=2@90° Tenon Adapter for 2-3/8" O.D. Tenon
MA1190-XX=3@90° Tenon Adapter for 2-3/8" O.D. Tenon
MA1191-XX=2@120° Tenon Adapter for 2-3/8" O.D. Tenon
MA1038-XX=Single Tenon Adapter for 3-1/2" O.D. Tenon
MA1039-XX=2@180° Tenon Adapter for 3-1/2" O.D. Tenon
MA1192-XX=3@120° Tenon Adapter for 3-1/2" O.D. Tenon
MA1193-XX=4@90° Tenon Adapter for 3-1/2" O.D. Tenon
MA1194-XX=2@90° Tenon Adapter for 3-1/2" O.D. Tenon
MA1195-XX=3@90° Tenon Adapter for 3-1/2" O.D. Tenon
SRA238=Adapter kit for mounting 3" SP arm to 2-3/8" O.D. vertical tenon
FSIR-100=Wireless Configuration Tool for MS/DIM [33]
LS/HSS=Field Installed House Side Shield for SA Light Squares [9, 17]
LS/HSS-SB=Field Installed House Side Shield for SB Light Squares [9, 17]
LS/BCS=Backlight Control Shield [9, 17, 37]
LS/GRSBK-2PK =Glare Reducing Shield, Black [9, 22]
LS/GRSWH-2PK =Glare Reducing Shield, White [9, 22]
LS/PFS=Perimeter Shield, Black [15]
WOLC-7P-10A=WaveLinx Outdoor Control Module [11, 18, 13]
TL7-G1-HV= AirMesh 7-PIN node, 110-480V [11, 18, 35]
CBSSW-450-002= AirMesh central base station with 5-button control [35]

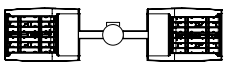
NOTES:

1. Customer is responsible for engineering analysis to confirm pole and fixture compatibility for all applications. Refer to our white paper WP513001EN for additional support information.
2. DesignLights Consortium® Qualified. Refer to www.designlights.org Qualified Products List under Family Models for details.
3. Coastal construction finish salt spray tested to over 5,000-hours per ASTM B117, with a scribe rating of 9 per ASTM D1654. Not available with TH option.
4. When using SA light squares, Output Level 4 not available with color temperatures 722, 727, 827, 830 or 930 when HSS is used.
5. TH option not 3G rated. Not available with Coastal Construction (CC) option.
6. Not available with voltage options H, 8 or 9.
7. Not available with SB1A or SB2A configurations. Not available in combination with HA high ambient and sensor options at Output Level 3. H voltage not available with sensor options, choose voltage 8 or 9.
8. SP arm limited to 3" O.D. vertical tenon. SP2 limited to 2-3/8" O.D. vertical tenon.
9. One required for each Light Square.
10. 2L is not available with SB light squares. Not available with SPB at 347V or 480V. Not available with WaveLinx or 20kV surge option.
11. Requires PR7.
12. Replace XX with sensor color (WH, BZ or BK.).
13. WAC Gateway required to enable field-configurability: Order WAC-PoE and WPOE-120 (10V to PoE injector) power supply if needed. WAC not required for LC Bluetooth sensors.
14. Narrow-band 590nm +/- 5nm for wildlife and observatory use. Choose Output Level 1; supplied at 500mA drive current only. Not available with SB light squares. Exact luminaire wattage available in IES files. Available with 5WQ, 5MQ, SL2, SL3 and SL4 distributions. Can be used with HSS option.
15. Set of 4 pcs. One set required per Light Square.
16. HA option not available with Output Level 4 or AMB Amber.
17. Not for use with T1, 5NQ, 5MQ, 5WQ or RW optics.
18. Cannot be used with other control options.
19. Low voltage control lead brought out 18" outside fixture. Not available with DALI or integrated controls options.
20. Not available if any SPB, or WaveLinx sensor is selected. Motion sensor has an integral photocell.
21. Requires the use of BPC photocontrol or the PR7 or PR photocontrol receptacle with photocontrol accessory. Not available with SB light squares when using Output Level 4.
22. Not for use with T1, T4FT, T4W or SL optics. See IES files for details. Not available with SB light squares.
23. Sensor configuration mobile application required for configuration. See controls page for details.
24. Replace X with number of Light Squares controlled by the SPB, referencing the "SPB/X Availability Table" on the controls page.
25. Not available with HSS, GRSWH or GRSBK.
26. Only product configurations with these designated prefixes are built to be compliant with the Buy American Act of 1933 (BAA) or Trade Agreements Act of 1979 (TAA), respectively. Please refer to DOMESTIC PREFERENCES website for more information. Components shipped separately may be separately analyzed under domestic preference requirements.
27. For BAA or TAA requirements, Accessories sold separately will be separately analyzed under domestic preference requirements. Consult factory for further information.
28. DuraVolt drivers feature added protection from power quality issues such as loss of neutral, transients and voltage fluctuations. Visit www.signify.com/duravolt for more information.
29. 480V not to be used with ungrounded or impedance grounded systems.
30. Not available with SA1A or SA1B. Not available with SB1, or any SB configuration using Output Level 1. Not available with any control option except SPB
31. Cannot be used with DALI, PR7, or other motion response control options. Not available with SB light squares when using Output Level 4.
32. Use GALN Product Configurator to specify lumen output, drive current and wattage. Not available with AMB. Not available with SB light squares.
33. Uses the FSP-211 motion sensor. The FSIR-100 configuration tool is required to adjust parameters including high and low modes, sensitivity, time delay, cutoff and more. Consult your lighting representative at Cooper Lighting Solutions for more information.
34. Controls system is not available with photocontrol receptacles (PR , PR7) or other controls systems (FADC, SPBx).
35. Requires AirMesh central base station CBSSW-450-002 and Synapse commissioning for operation.
36. 3-step MacAdam ellipse binning. Available in 740 CRI/CCT only. Longer lead times apply, consult your lighting representative at Cooper Lighting Solutions for more information.
37. Not available with SB light squares.
38. Only product configurations with these prefixes are built to be compliant with theBuy American Act of 1933 (BAA) or the Build America Buy America Act (BABA).BABA is the minimum Government compliance requirement for the Build America Buy America standards which is part of the Infrastructure and Investment JobsAct (IIJA). Individual Government Agencies may have more stringent compliancestandards. Please refer to the DOMESTIC PREFERENCES website or consult the CLSDomestic Preferences team for more information. Components shipped separatelymay be separately analyzed under domestic preference requirements.
39. Select SA light square. Only available with Output Levels 1, 2 or 3. Not compatible with HSS, GRS, BCS or PFS shield options, or LCF.
40. Not compatible with DALI.
41. Uses non-NFC (Near Field Communication) drivers to eliminate field-programmability.

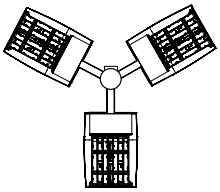
Mounting Details

Pole Configuration Options

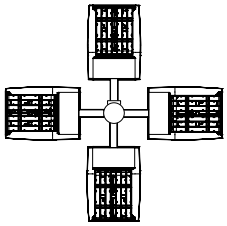
2 @ 180°



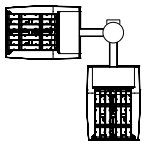
3 @ 120° (Round poles only)



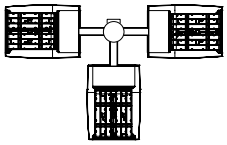
4 @ 90°



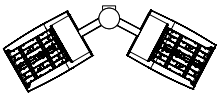
2 @ 90°



3 @ 90°

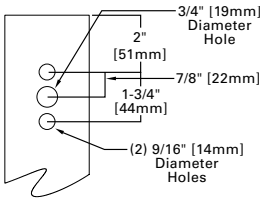


2 @ 120° (Round poles only)

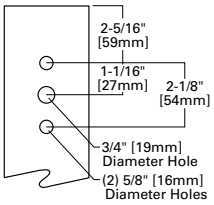


Pole Drilling Patterns

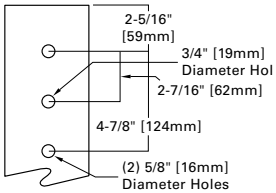
Type "N"



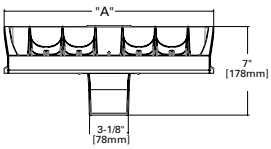
Type "R"

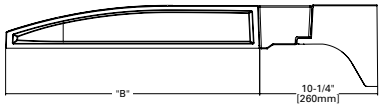


Type "M"



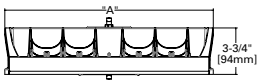
Quick Mount Universal Arm (QU)



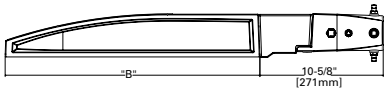


*NOTE: Universal bolt pattern compatible with Type N through Type M drilling patterns

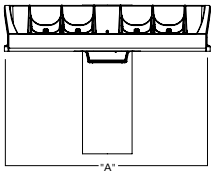
Quick Mount Mast Arm (QMA)

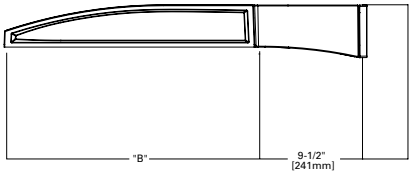


*NOTE: Fits 2-3/8" O.D. tenon



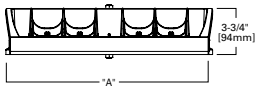
Pole Mount Arm with Quick Mount Adaptor (QM)



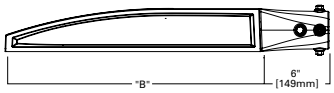


*NOTE: Use Type N drilling pattern

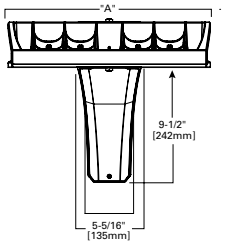
Mast Arm, Fixed (MA)

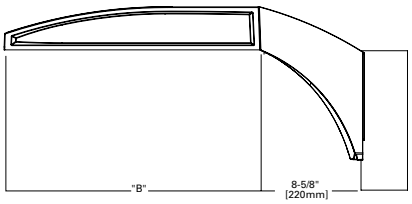


*NOTE: Fits 2-3/8" O.D. tenon



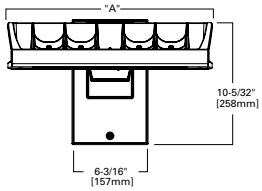
Upswept Arm (UP)

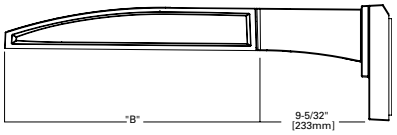




*NOTE: Universal bolt pattern compatible with Type N through Type M drilling patterns

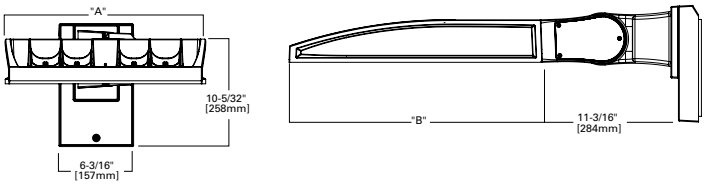
Wall Mount, Fixed (WM)



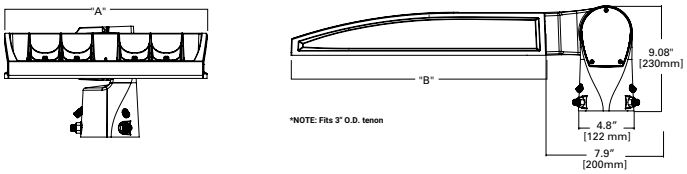


Mounting Details

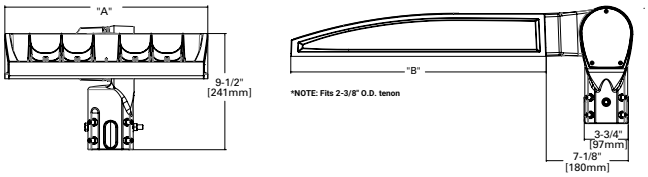
Wall Mount, Adjustable (WA)



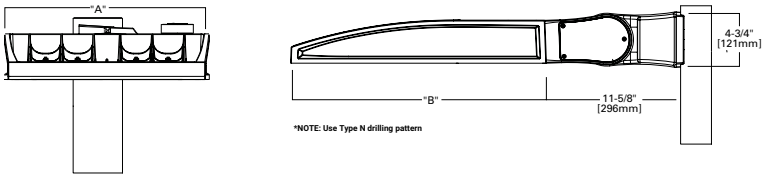
3" Slipfitter, Adjustable (SP)



2-3/8" Slipfitter, Adjustable (SP2)

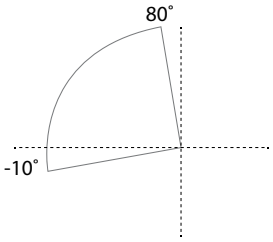


Pole Mount, Adjustable Arm (PA)



Adjustable Arm Range of Motion

- Includes WA, SP, SP2 and PA mounting options
- Adjustable in increments of 5°
- Must maintain downward facing orientation

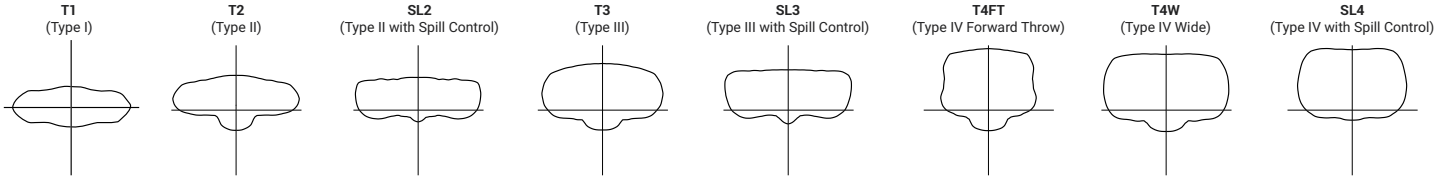


Fixture Weights and EPAs

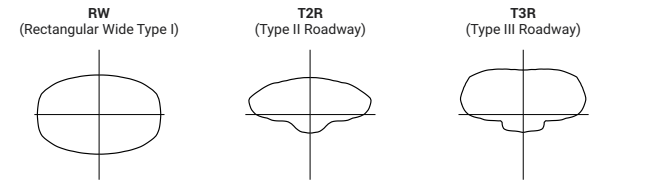
Tilt Angle (Degrees)	Number of Light Squares	Weight	1 @ 90°	2 @ 180°	2 @ 90°	2 @ 120°	3 @ 90°	3 @ 120°	4 @ 90°
0°	1-4	33.5 lb (15.2 kg)	0.85	1.70	1.46	1.66	2.31	2.25	2.35
	5-6	43.5 lb (19.7 kg)	0.86	1.71	1.62	1.80	2.49	2.35	2.50
	7-9	52.5 lb (23.8 kg)	0.98	1.95	1.75	1.98	2.73	2.55	2.76
15°	1-4	33.5 lb (15.2 kg)	1.10	1.71	1.95	2.26	2.81	3.30	2.87
	5-6	43.5 lb (19.7 kg)	1.42	1.71	2.27	2.72	3.13	3.63	3.15
	7-9	52.5 lb (23.8 kg)	1.69	1.96	2.67	3.22	3.65	4.38	3.72
30°	1-4	33.5 lb (15.2 kg)	1.72	1.81	2.58	3.21	3.44	4.59	3.53
	5-6	43.5 lb (19.7 kg)	2.26	2.29	3.11	4.00	3.97	5.27	4.00
	7-9	52.5 lb (23.8 kg)	2.75	2.85	3.73	4.83	4.71	6.45	4.81
45°	1-4	33.5 lb (15.2 kg)	2.25	2.36	3.10	4.00	3.96	5.63	4.08
	5-6	43.5 lb (19.7 kg)	2.96	2.99	3.81	5.06	4.67	6.49	4.71
	7-9	52.5 lb (23.8 kg)	3.63	3.76	3.73	6.17	5.59	8.03	5.73
60°	1-4	33.5 lb (15.2 kg)	2.63	2.77	3.49	4.58	4.34	6.21	4.48
	5-6	43.5 lb (19.7 kg)	3.46	3.51	4.32	5.84	5.19	7.01	5.22
	7-9	52.5 lb (23.8 kg)	4.27	4.44	5.25	7.15	6.23	8.80	6.40

Optical Distributions

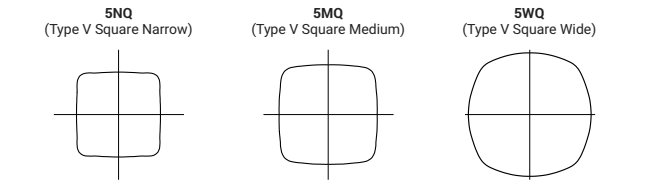
Asymmetric Area Distributions



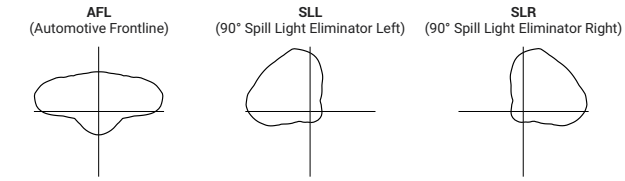
Asymmetric Roadway Distributions



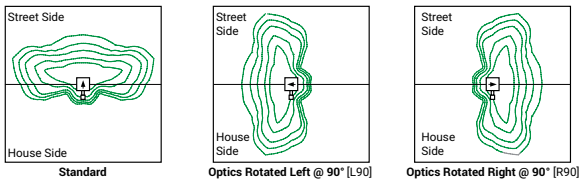
Symmetric Distributions



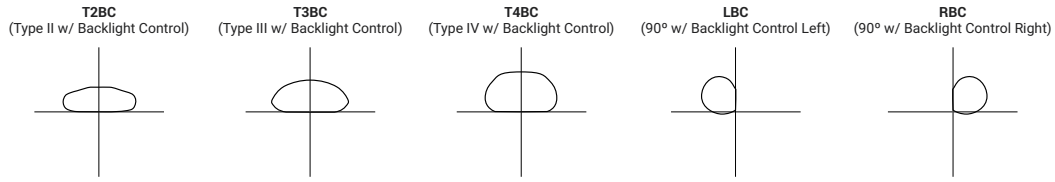
Specialized Distributions



Rotated Optics



Backlight Control Distributions



Product Specifications

Construction
- Die-cast aluminum housing and heat sink
- Three housing sizes, using 1 to 9 light squares

Optics
- High-efficiency injection-molded AccuLED Optics technology
- 22 optical distributions for area site and roadway applications
- 4 shielding options include HSS, BCS, GRS and PFS
- IDA Certified (3000K CCT and warmer only, fixed mounting options)
- 5 step MacAdam ellipse binning (5 SDCM) standard with 70CRI and 80CRI. 3SDCM option available with 740 CRI/CCT. 3 step MacAdam ellipse binning standard with 90CRI

Electrical
- Removable power tray assembly includes drivers, surge modules and control modules for ease of maintenance and serviceability
- Standard with 0-10V dimming
- Standard with 10kV surge module, optional 20kV surge module
- Suitable for operation in -40°C to 40°C ambient environments. Optional 50°C high ambient (HA) configuration
- Luminaire available with the field adjustable dimming controller (FADC) to manually adjust wattage and reduce the total lumen output and light levels. Comes pre-set to the highest position at the lumen output selected

Mounting
- Arms are factory installed, enabling closed-housing installation
- All arms suitable for round or square pole installation
- All arms provide clearance for multiple fixture installations at 90°

Finish
- 6 standard finishes use super durable TGIC polyester powder coat paint, providing 2.5 mil nominal thickness and salt-spray tested to 3,000 hours per ASTM B117
- RAL and custom color matches available
- Coastal Construction (CC) option salt-spray tested to 5,000 hours per ASTM B117, achieving a scribe rating of 9 per ASTM D1654

Compliance
- Visit https://www.designlights.org/search/ to confirm qualification. Not all product variations are DLC qualified
- IDA Certified (3000K CCT and warmer only, fixed mounting options)
- Declare compliant
- This Cooper product is manufactured in the US and meets the BABA cost of components rule. To verify a configured product with specific accessories and options meets BABA Domestic Preference Requirements; submit this catalog number to Cooper Lighting Quotation team for validation by our Engineering and Manufacturing teams. Our BABA designation is based on the minimum compliance requirement for BABA. Individual Government Agencies may have more stringent compliance standards.
- Please refer to the DOMESTIC PREFERENCES website or consult the CLS Domestic Preferences team for more information. Components shipped separately may be separately analyzed under domestic preference requirements

Typical Applications
- Outdoor, Parking Lots, Walkways, Roadways, Building Areas
- Sports lighting, including tennis, pickleball, basketball courts

Warranty
- Five-year limited warranty. Consult website for details. www.cooperlighting.com/legal

Energy and Performance Data

Lumen Maintenance (TM-21)

Output Level	Ambient Temperature	25,000 hours*	50,000 hours*	60,000 hours*	100,000 hours**	Theoretical L70 hours**
Output Levels 1-3	25°C	99.4%	99.0%	98.9%	98.3%	> 2.4M
	40°C	98.7%	98.3%	98.1%	97.4%	> 1.9M
	50°C	98.2%	97.2%	96.8%	95.2%	> 851,000
Output Level 4	25°C	99.4%	99.0%	98.9%	98.3%	> 2.4M
	40°C	98.5%	97.9%	97.7%	96.7%	> 1.3M

* Supported by IES TM-21 standards
** Theoretical values represent estimations commonly used; however, refer to the IES position on LED Product Lifetime Prediction, IES PS-10-18, explaining proper use of IES TM-21 and LM-80.

Lumen Multiplier

Ambient Temperature	Lumen Multiplier
0ºC	1.02
10ºC	1.01
25ºC	1.00
40ºC	0.99
50ºC	0.97

FADC Settings
SA1-SA3 (All Output Levels)

FADC Position	Percent of Typical Lumen Output
1	25%
2	48%
3	56%
4	65%
5	75%
6	80%
7	85%
8	90%
9	95%
10	100%

Note: +/-5% typical value

FADC Settings
SA4-SA6 (All Output Levels)

FADC Position	Percent of Typical Lumen Output
1	14%
2	25%
3	32%
4	43%
5	49%
6	57%
7	65%
8	72%
9	80%
10	100%

Note: +/-5% typical value

FADC Settings
SA7-SA9 (All Output Levels)

FADC Position	Percent of Typical Lumen Output
1	19%
2	38%
3	47%
4	63%
5	74%
6	85%
7	95%
8	97%
9	100%
10	100%

Note: +/-5% typical value

Drive Currents

Lumen Output	SA Light Squares	SB Light Squares
Output Level 1	615mA	350mA
Output Level 2	800mA	450mA
Output Level 3	1050mA	615mA
Output Level 4	1200mA	900mA

SA Light Squares, Output Level 1, 4000K CCT, 70 CRI

Galleon II IES Files | Supplemental Lumen Tables

Number of Light Squares		1	2	3	4	5	6	7	8	9
Nominal Power (Watts)		33	63	93	121	154	182	215	244	274
Input Current @ 120V		0.283	0.529	0.778	1.058	1.310	1.556	1.839	2.089	2.335
Input Current @ 208V		0.165	0.309	0.460	0.618	0.771	0.919	1.082	1.240	1.379
Input Current @ 240V		0.143	0.270	0.398	0.540	0.671	0.796	0.944	1.078	1.194
Input Current @ 277V		0.125	0.237	0.352	0.473	0.581	0.705	0.818	0.962	1.057
Input Current @ 347V		0.098	0.181	0.272	0.362	0.454	0.544	0.636	0.738	0.816
Input Current @ 480V		0.073	0.133	0.200	0.267	0.335	0.400	0.470	0.554	0.600
Optics										
T1	Lumens	4,619	9,180	13,628	18,059	22,861	27,070	31,796	36,863	41,385
	BUG Rating	B2-U0-G1	B3-U0-G1	B3-U0-G2	B4-U0-G2	B4-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G3
	Lumens per Watt	140	146	147	149	148	149	148	151	151
T2	Lumens	4,654	9,249	13,730	18,194	23,032	27,273	32,034	37,138	41,694
	BUG Rating	B1-U0-G1	B1-U0-G2	B2-U0-G2	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5
	Lumens per Watt	141	147	148	150	150	150	149	152	152
T2R	Lumens	4,716	9,372	13,913	18,437	23,340	27,637	32,462	37,634	42,251
	BUG Rating	B1-U0-G1	B1-U0-G2	B2-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G4
	Lumens per Watt	143	149	150	152	152	152	151	154	154
T3	Lumens	4,589	9,120	13,538	17,940	22,711	26,892	31,587	36,620	41,112
	BUG Rating	B1-U0-G1	B2-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G4	B4-U0-G4
	Lumens per Watt	139	145	146	148	147	148	147	150	150
T3R	Lumens	4,735	9,411	13,970	18,513	23,436	27,751	32,596	37,790	42,425
	BUG Rating	B1-U0-G1	B1-U0-G2	B2-U0-G3	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5
	Lumens per Watt	143	149	150	153	152	152	152	155	155
T4FT	Lumens	4,617	9,176	13,622	18,051	22,851	27,058	31,782	36,847	41,366
	BUG Rating	B1-U0-G2	B2-U0-G2	B2-U0-G3	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5
	Lumens per Watt	140	146	146	149	148	149	148	151	151
T4W	Lumens	4,631	9,203	13,662	18,104	22,918	27,138	31,876	36,955	41,488
	BUG Rating	B1-U0-G2	B2-U0-G2	B2-U0-G3	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B4-U0-G5
	Lumens per Watt	140	146	147	150	149	149	148	151	151
SL2	Lumens	4,619	9,180	13,627	18,058	22,860	27,069	31,795	36,861	41,383
	BUG Rating	B1-U0-G2	B2-U0-G2	B2-U0-G3	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G4	B3-U0-G5	B4-U0-G5
	Lumens per Watt	140	146	147	149	148	149	148	151	151
SL3	Lumens	4,586	9,115	13,531	17,931	22,699	26,879	31,571	36,602	41,091
	BUG Rating	B1-U0-G1	B1-U0-G2	B2-U0-G3	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5
	Lumens per Watt	139	145	145	148	147	148	147	150	150
SL4	Lumens	4,529	9,002	13,363	17,708	22,417	26,544	31,178	36,146	40,580
	BUG Rating	B1-U0-G2	B1-U0-G3	B2-U0-G3	B2-U0-G4	B2-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5
	Lumens per Watt	137	143	144	146	146	146	145	148	148
5NQ	Lumens	4,829	9,598	14,247	18,880	23,901	28,301	33,242	38,539	43,266
	BUG Rating	B2-U0-G1	B3-U0-G1	B3-U0-G2	B4-U0-G2	B4-U0-G2	B4-U0-G2	B5-U0-G2	B5-U0-G3	B5-U0-G3
	Lumens per Watt	146	152	153	156	155	155	155	158	158
5MQ	Lumens	4,853	9,645	14,318	18,974	24,020	28,442	33,407	38,731	43,482
	BUG Rating	B3-U0-G1	B3-U0-G2	B4-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G4
	Lumens per Watt	147	153	154	157	156	156	155	159	159
5WQ	Lumens	4,843	9,625	14,288	18,934	23,969	28,382	33,337	38,649	43,390
	BUG Rating	B3-U0-G1	B4-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G4	B5-U0-G5
	Lumens per Watt	147	153	154	156	156	156	155	158	158
SLL/ SLR	Lumens	3,989	7,927	11,768	15,594	19,741	23,375	27,456	31,831	35,736
	BUG Rating	B1-U0-G2	B1-U0-G2	B2-U0-G3	B2-U0-G3	B2-U0-G4	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5
	Lumens per Watt	121	126	127	129	128	128	128	130	130
RW	Lumens	4,774	9,488	14,085	18,665	23,628	27,979	32,863	38,100	42,774
	BUG Rating	B2-U0-G1	B3-U0-G1	B3-U0-G2	B4-U0-G2	B4-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G3
	Lumens per Watt	145	151	151	154	153	154	153	156	156
AFL	Lumens	4,673	9,286	13,785	18,268	23,126	27,384	32,164	37,290	41,864
	BUG Rating	B1-U0-G1	B1-U0-G1	B2-U0-G2	B2-U0-G2	B3-U0-G2	B3-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G3
	Lumens per Watt	142	147	148	151	150	150	150	153	153

* Nominal data for 70 CRI. ** For additional performance data, please reference the Galleon Supplemental Performance Guide.

SA Light Squares, Output Level 2, 4000K CCT, 70 CRI

Galleon II IES Files | Supplemental Lumen Tables

Number of Light Squares		1	2	3	4	5	6	7	8	9
Nominal Power (Watts)		44	82	121	164	204	243	286	325	364
Input Current @ 120V		0.367	0.689	1.014	1.378	1.704	2.027	2.393	2.716	3.041
Input Current @ 208V		0.213	0.401	0.594	0.802	0.997	1.188	1.400	1.605	1.782
Input Current @ 240V		0.184	0.347	0.510	0.694	0.860	1.021	1.210	1.386	1.531
Input Current @ 277V		0.160	0.303	0.449	0.605	0.757	0.898	1.065	1.242	1.347
Input Current @ 347V		0.125	0.235	0.355	0.471	0.592	0.710	0.828	0.958	1.065
Input Current @ 480V		0.092	0.172	0.258	0.344	0.432	0.517	0.605	0.706	0.775
Optics										
T1	Lumens	5,748	11,423	16,957	22,470	28,446	33,683	39,563	45,867	51,494
	BUG Rating	B2-U0-G1	B3-U0-G2	B4-U0-G2	B4-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4
	Lumens per Watt	131	139	140	137	139	139	138	141	141
T2	Lumens	5,790	11,508	17,083	22,638	28,658	33,935	39,859	46,210	51,879
	BUG Rating	B1-U0-G2	B2-U0-G2	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B4-U0-G5
	Lumens per Watt	132	140	141	138	140	140	139	142	143
T2R	Lumens	5,868	11,662	17,311	22,941	29,041	34,388	40,391	46,827	52,572
	BUG Rating	B1-U0-G1	B2-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G4	B3-U0-G5
	Lumens per Watt	133	142	143	140	142	142	141	144	144
T3	Lumens	5,710	11,347	16,845	22,322	28,258	33,461	39,303	45,565	51,155
	BUG Rating	B1-U0-G1	B2-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G4	B3-U0-G4	B4-U0-G4	B4-U0-G5	B4-U0-G5
	Lumens per Watt	130	138	139	136	139	138	137	140	141
T3R	Lumens	5,892	11,710	17,383	23,035	29,161	34,530	40,558	47,020	52,788
	BUG Rating	B1-U0-G2	B2-U0-G2	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B4-U0-G5
	Lumens per Watt	134	143	144	140	143	142	142	145	145
T4FT	Lumens	5,745	11,418	16,949	22,460	28,433	33,668	39,546	45,847	51,471
	BUG Rating	B1-U0-G2	B2-U0-G3	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	131	139	140	137	139	139	138	141	141
T4W	Lumens	5,762	11,451	16,999	22,526	28,517	33,767	39,662	45,982	51,622
	BUG Rating	B1-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	131	140	140	137	140	139	139	141	142
SL2	Lumens	5,747	11,422	16,956	22,469	28,444	33,681	39,561	45,865	51,491
	BUG Rating	B1-U0-G2	B2-U0-G3	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G4	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	131	139	140	137	139	139	138	141	141
SL3	Lumens	5,707	11,342	16,836	22,311	28,244	33,444	39,283	45,542	51,129
	BUG Rating	B1-U0-G2	B2-U0-G3	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5
	Lumens per Watt	130	138	139	136	138	138	137	140	140
SL4	Lumens	5,636	11,201	16,627	22,034	27,893	33,028	38,794	44,976	50,493
	BUG Rating	B1-U0-G2	B1-U0-G3	B2-U0-G4	B2-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5
	Lumens per Watt	128	137	137	134	137	136	136	138	139
5NQ	Lumens	6,009	11,942	17,727	23,492	29,739	35,214	41,362	47,953	53,835
	BUG Rating	B2-U0-G1	B3-U0-G1	B4-U0-G2	B4-U0-G2	B5-U0-G2	B5-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G3
	Lumens per Watt	137	146	147	143	146	145	145	148	148
5MQ	Lumens	6,039	12,001	17,816	23,609	29,887	35,389	41,568	48,191	54,103
	BUG Rating	B3-U0-G1	B4-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G4	B5-U0-G5
	Lumens per Watt	137	146	147	144	147	146	145	148	149
5WQ	Lumens	6,026	11,976	17,778	23,559	29,824	35,315	41,480	48,090	53,989
	BUG Rating	B3-U0-G1	B4-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G4	B5-U0-G5	B5-U0-G5
	Lumens per Watt	137	146	147	144	146	145	145	148	148
SLL/ SLR	Lumens	4,963	9,863	14,642	19,403	24,563	29,085	34,163	39,607	44,465
	BUG Rating	B1-U0-G2	B1-U0-G3	B2-U0-G3	B2-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5
	Lumens per Watt	113	120	121	118	120	120	119	122	122
RW	Lumens	5,940	11,806	17,526	23,224	29,400	34,813	40,891	47,407	53,222
	BUG Rating	B3-U0-G1	B3-U0-G2	B4-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4
	Lumens per Watt	135	144	145	142	144	143	143	146	146
AFL	Lumens	5,814	11,555	17,153	22,730	28,775	34,073	40,021	46,398	52,090
	BUG Rating	B1-U0-G1	B2-U0-G1	B2-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G4
	Lumens per Watt	132	141	142	139	141	140	140	143	143

* Nominal data for 70 CRI. ** For additional performance data, please reference the Galleon Supplemental Performance Guide.

SA Light Squares, Output Level 3, 4000K CCT, 70 CRI

Galleon II IES Files | Supplemental Lumen Tables

Number of Light Squares		1	2	3	4	5	6	7	8	9
Nominal Power (Watts)		57	108	160	213	269	321	377	429	481
Input Current @ 120V		0.478	0.905	1.338	1.810	2.244	2.675	3.150	3.584	4.013
Input Current @ 208V		0.279	0.532	0.780	1.064	1.313	1.559	1.845	2.093	2.339
Input Current @ 240V		0.243	0.458	0.664	0.916	1.123	1.328	1.582	1.788	1.991
Input Current @ 277V		0.213	0.404	0.582	0.808	0.997	1.164	1.401	1.589	1.745
Input Current @ 347V		0.164	0.322	0.471	0.644	0.795	0.943	1.117	1.269	1.414
Input Current @ 480V		0.121	0.235	0.341	0.469	0.579	0.681	0.814	0.923	1.022
Optics										
T1	Lumens	7,101	14,113	20,950	27,763	35,146	41,616	48,882	56,671	63,623
	BUG Rating	B3-U0-G1	B3-U0-G2	B4-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G4
	Lumens per Watt	125	131	131	130	131	130	130	132	132
T2	Lumens	7,154	14,219	21,107	27,970	35,408	41,927	49,247	57,094	64,098
	BUG Rating	B1-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	126	132	132	131	132	131	131	133	133
T2R	Lumens	7,250	14,408	21,389	28,344	35,881	42,487	49,905	57,857	64,954
	BUG Rating	B1-U0-G1	B2-U0-G2	B2-U0-G3	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	127	133	134	133	133	132	132	135	135
T3	Lumens	7,054	14,020	20,812	27,580	34,914	41,342	48,560	56,297	63,203
	BUG Rating	B1-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G4	B3-U0-G4	B4-U0-G4	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	124	130	130	129	130	129	129	131	131
T3R	Lumens	7,280	14,468	21,477	28,461	36,029	42,663	50,111	58,096	65,222
	BUG Rating	B1-U0-G2	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	128	134	134	134	134	133	133	135	136
T4FT	Lumens	7,098	14,107	20,941	27,751	35,130	41,598	48,860	56,646	63,594
	BUG Rating	B1-U0-G2	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	125	131	131	130	131	130	130	132	132
T4W	Lumens	7,119	14,148	21,003	27,832	35,233	41,720	49,004	56,812	63,781
	BUG Rating	B1-U0-G2	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	125	131	131	131	131	130	130	132	133
SL2	Lumens	7,101	14,112	20,949	27,761	35,144	41,614	48,879	56,668	63,619
	BUG Rating	B1-U0-G2	B2-U0-G3	B3-U0-G3	B3-U0-G4	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	125	131	131	130	131	130	130	132	132
SL3	Lumens	7,051	14,013	20,802	27,566	34,897	41,321	48,535	56,269	63,172
	BUG Rating	B1-U0-G2	B2-U0-G3	B2-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	124	130	130	129	130	129	129	131	131
SL4	Lumens	6,963	13,839	20,543	27,223	34,463	40,808	47,932	55,569	62,386
	BUG Rating	B1-U0-G2	B2-U0-G3	B2-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5
	Lumens per Watt	122	128	128	128	128	127	127	130	130
5NQ	Lumens	7,424	14,755	21,903	29,025	36,743	43,508	51,104	59,247	66,515
	BUG Rating	B3-U0-G1	B3-U0-G2	B4-U0-G2	B5-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4
	Lumens per Watt	130	137	137	136	137	136	136	138	138
5MQ	Lumens	7,461	14,828	22,012	29,169	36,926	43,725	51,359	59,542	66,846
	BUG Rating	B3-U0-G1	B4-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G4	B5-U0-G5	B5-U0-G5
	Lumens per Watt	131	137	138	137	137	136	136	139	139
5WQ	Lumens	7,445	14,797	21,966	29,108	36,849	43,633	51,250	59,417	66,705
	BUG Rating	B3-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G5	B5-U0-G5	B5-U0-G5	B5-U0-G5
	Lumens per Watt	131	137	137	137	137	136	136	139	139
SLL/ SLR	Lumens	6,132	12,187	18,091	23,973	30,348	35,936	42,210	48,935	54,938
	BUG Rating	B1-U0-G2	B2-U0-G3	B2-U0-G3	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5
	Lumens per Watt	108	113	113	113	113	112	112	114	114
RW	Lumens	7,340	14,587	21,653	28,694	36,325	43,013	50,522	58,573	65,757
	BUG Rating	B3-U0-G1	B3-U0-G2	B4-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G4
	Lumens per Watt	129	135	135	135	135	134	134	137	137
AFL	Lumens	7,183	14,276	21,193	28,084	35,552	42,098	49,448	57,327	64,359
	BUG Rating	B1-U0-G1	B2-U0-G2	B2-U0-G2	B3-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G4	B3-U0-G4	B4-U0-G4
	Lumens per Watt	126	132	132	132	132	131	131	134	134

* Nominal data for 70 CRI. ** For additional performance data, please reference the Galleon Supplemental Performance Guide.

SA Light Squares, Output Level 4, 4000K CCT, 70 CRI

Galleon II IES Files | Supplemental Lumen Tables

Number of Light Squares		1	2	3	4	5	6	7	8	9
Nominal Power (Watts)		65	125	184	245	309	368	433	493	552
Input Current @ 120V		0.546	1.041	1.535	2.082	2.578	3.070	3.619	4.114	4.605
Input Current @ 208V		0.318	0.610	0.893	1.219	1.504	1.786	2.113	2.397	2.679
Input Current @ 240V		0.276	0.523	0.758	1.046	1.282	1.516	1.806	2.041	2.274
Input Current @ 277V		0.241	0.460	0.662	0.920	1.133	1.325	1.593	1.807	1.987
Input Current @ 347V		0.187	0.370	0.543	0.740	0.915	1.085	1.285	1.459	1.628
Input Current @ 480V		0.138	0.269	0.391	0.537	0.663	0.782	0.932	1.057	1.173
Optics										
T1	Lumens	7,814	15,529	23,053	30,549	38,672	45,793	53,787	62,358	70,007
	BUG Rating	B3-U0-G1	B4-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G4	B5-U0-G4
	Lumens per Watt	120	124	125	125	125	124	124	126	127
T2	Lumens	7,872	15,645	23,225	30,777	38,962	46,135	54,189	62,824	70,530
	BUG Rating	B1-U0-G2	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	121	125	126	126	126	125	125	127	128
T2R	Lumens	7,977	15,854	23,535	31,188	39,482	46,751	54,913	63,663	71,472
	BUG Rating	B1-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G4	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	123	127	128	127	128	127	127	129	129
T3	Lumens	7,762	15,427	22,901	30,348	38,418	45,491	53,433	61,947	69,546
	BUG Rating	B2-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G4	B4-U0-G4	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	119	123	124	124	124	124	123	126	126
T3R	Lumens	8,010	15,920	23,632	31,317	39,645	46,944	55,139	63,925	71,767
	BUG Rating	B1-U0-G2	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	123	127	128	128	128	128	127	130	130
T4FT	Lumens	7,810	15,522	23,043	30,535	38,655	45,772	53,763	62,330	69,976
	BUG Rating	B1-U0-G2	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	120	124	125	125	125	124	124	126	127
T4W	Lumens	7,833	15,568	23,110	30,625	38,769	45,907	53,921	62,513	70,182
	BUG Rating	B2-U0-G2	B3-U0-G3	B3-U0-G4	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	121	125	126	125	125	125	125	127	127
SL2	Lumens	7,813	15,528	23,052	30,547	38,670	45,790	53,784	62,354	70,003
	BUG Rating	B2-U0-G2	B3-U0-G3	B3-U0-G4	B3-U0-G4	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	120	124	125	125	125	124	124	126	127
SL3	Lumens	7,758	15,419	22,889	30,332	38,398	45,468	53,406	61,916	69,511
	BUG Rating	B1-U0-G2	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	119	123	124	124	124	124	123	126	126
SL4	Lumens	7,662	15,228	22,605	29,955	37,921	44,903	52,742	61,146	68,646
	BUG Rating	B1-U0-G3	B2-U0-G3	B2-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B4-U0-G5
	Lumens per Watt	118	122	123	122	123	122	122	124	124
5NQ	Lumens	8,169	16,235	24,101	31,938	40,431	47,874	56,232	65,193	73,190
	BUG Rating	B3-U0-G1	B3-U0-G2	B4-U0-G2	B5-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G4
	Lumens per Watt	126	130	131	130	131	130	130	132	133
5MQ	Lumens	8,210	16,316	24,221	32,097	40,632	48,113	56,512	65,517	73,554
	BUG Rating	B3-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G5	B5-U0-G5	B5-U0-G5
	Lumens per Watt	126	131	132	131	131	131	131	133	133
5WQ	Lumens	8,192	16,282	24,170	32,029	40,546	48,011	56,393	65,379	73,399
	BUG Rating	B3-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G5	B5-U0-G5	B5-U0-G5	B5-U0-G5
	Lumens per Watt	126	130	131	131	131	130	130	133	133
SLL/ SLR	Lumens	6,747	13,410	19,906	26,379	33,394	39,542	46,445	53,846	60,451
	BUG Rating	B1-U0-G2	B2-U0-G3	B2-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B4-U0-G5
	Lumens per Watt	104	107	108	108	108	107	107	109	110
RW	Lumens	8,076	16,050	23,826	31,574	39,970	47,329	55,592	64,450	72,356
	BUG Rating	B3-U0-G1	B4-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G4	B5-U0-G5
	Lumens per Watt	124	128	129	129	129	129	128	131	131
AFL	Lumens	7,904	15,709	23,320	30,902	39,120	46,323	54,410	63,079	70,817
	BUG Rating	B1-U0-G1	B2-U0-G2	B3-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G4	B4-U0-G4	B4-U0-G4
	Lumens per Watt	122	126	127	126	127	126	126	128	128

* Nominal data for 70 CRI. ** For additional performance data, please reference the Galleon Supplemental Performance Guide.

SB Light Squares, Output Level 1, 4000K, 70 CRI

Number of Light Squares		1	2	3	4	5	6	7	8	9
Nominal Power (Watts)		31	57	85	114	142	171	199	227	256
Input Current @ 120V		0.263	0.484	0.717	0.952	1.201	1.434	1.685	1.918	2.151
Input Current @ 208V		0.154	0.280	0.420	0.552	0.700	0.839	0.979	1.119	1.259
Input Current @ 240V		0.136	0.245	0.370	0.483	0.615	0.740	0.860	0.985	1.110
Input Current @ 277V		0.122	0.216	0.330	0.425	0.546	0.660	0.762	0.876	0.989
Input Current @ 347V		-	-	0.248	0.328	0.413	0.495	0.577	0.665	0.743
Input Current @ 480V		-	-	0.182	0.238	0.304	0.364	0.426	0.493	0.547
Optics										
T1	Lumens	4,696	9,389	14,086	18,816	23,716	28,470	33,388	37,964	42,763
	BUG Rating	B2-U0-G1	B3-U0-G1	B4-U0-G2	B4-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G3	B5-U0-G4
	Lumens per Watt	152	164	166	165	167	167	168	167	167
T2	Lumens	4,704	9,404	14,109	18,846	23,754	28,515	33,442	38,024	42,831
	BUG Rating	B1-U0-G1	B2-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G4	B4-U0-G4	B4-U0-G4	B4-U0-G5
	Lumens per Watt	152	164	167	165	168	167	168	167	168
T2R	Lumens	4,835	9,667	14,503	19,373	24,418	29,313	34,377	39,087	44,029
	BUG Rating	B1-U0-G1	B2-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G4
	Lumens per Watt	156	169	171	170	172	172	173	172	172
T3	Lumens	4,751	9,497	14,249	19,033	23,989	28,798	33,773	38,401	43,256
	BUG Rating	B1-U0-G1	B2-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G4	B4-U0-G4
	Lumens per Watt	154	166	168	167	169	169	170	169	169
T3R	Lumens	4,874	9,743	14,618	19,526	24,611	29,544	34,648	39,396	44,376
	BUG Rating	B1-U0-G1	B2-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G4	B3-U0-G5	B4-U0-G5
	Lumens per Watt	158	170	173	171	174	173	174	173	174
T4FT	Lumens	4,692	9,380	14,074	18,799	23,694	28,444	33,358	37,929	42,724
	BUG Rating	B1-U0-G2	B2-U0-G2	B2-U0-G3	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B4-U0-G5
	Lumens per Watt	152	164	166	165	167	166	168	167	167
T4W	Lumens	4,738	9,472	14,211	18,983	23,926	28,723	33,685	38,300	43,142
	BUG Rating	B1-U0-G2	B2-U0-G2	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B4-U0-G5
	Lumens per Watt	153	165	168	167	169	168	169	169	169
SL2	Lumens	4,719	9,433	14,153	18,905	23,828	28,605	33,546	38,143	42,965
	BUG Rating	B1-U0-G1	B2-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G4	B3-U0-G4	B4-U0-G4	B4-U0-G5
	Lumens per Watt	153	165	167	166	168	167	168	168	168
SL3	Lumens	4,640	9,276	13,916	18,589	23,430	28,127	32,986	37,506	42,247
	BUG Rating	B1-U0-G2	B1-U0-G3	B2-U0-G3	B2-U0-G3	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5
	Lumens per Watt	150	162	164	163	165	165	166	165	165
SL4	Lumens	4,706	9,408	14,115	18,854	23,764	28,527	33,456	38,040	42,849
	BUG Rating	B1-U0-G2	B2-U0-G3	B2-U0-G3	B3-U0-G3	B3-U0-G4	B3-U0-G4	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	152	164	167	165	168	167	168	168	168
5NQ	Lumens	4,975	9,945	14,921	19,931	25,121	30,157	35,367	40,213	45,297
	BUG Rating	B2-U0-G1	B3-U0-G1	B3-U0-G2	B4-U0-G2	B4-U0-G2	B5-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G3
	Lumens per Watt	161	174	176	175	177	176	178	177	177
5MQ	Lumens	4,972	9,939	14,912	19,919	25,106	30,139	35,346	40,189	45,269
	BUG Rating	B3-U0-G1	B3-U0-G2	B4-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G4
	Lumens per Watt	161	173	176	175	177	176	178	177	177
5WQ	Lumens	4,802	9,600	14,403	19,239	24,249	29,110	34,139	38,817	43,724
	BUG Rating	B3-U0-G1	B4-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G4	B5-U0-G5
	Lumens per Watt	155	168	170	169	171	170	171	171	171
SLL/SLR	Lumens	4,730	9,457	14,188	18,952	23,887	28,676	33,630	38,238	43,072
	BUG Rating	B1-U0-G2	B2-U0-G3	B2-U0-G3	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	153	165	168	166	169	168	169	168	169
RW	Lumens	4,889	9,773	14,663	19,586	24,686	29,635	34,755	39,517	44,513
	BUG Rating	B2-U0-G1	B3-U0-G1	B4-U0-G2	B4-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G3	B5-U0-G4
	Lumens per Watt	158	171	173	172	174	173	175	174	174
AFL	Lumens	4,828	9,652	14,482	19,344	24,381	29,269	34,325	39,029	43,963
	BUG Rating	B1-U0-G1	B2-U0-G1	B2-U0-G2	B3-U0-G2	B3-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G3
	Lumens per Watt	156	168	171	170	172	171	172	172	172

SB Light Squares, Output Level 2, 4000K, 70 CRI

Number of Light Squares		1	2	3	4	5	6	7	8	9
Nominal Power (Watts)		40	74	109	147	183	220	257	293	330
Input Current @ 120V		0.330	0.627	0.919	1.255	1.547	1.838	2.174	2.466	2.758
Input Current @ 208V		0.192	0.370	0.533	0.739	0.902	1.066	1.272	1.435	1.598
Input Current @ 240V		0.169	0.327	0.467	0.655	0.794	0.933	1.121	1.260	1.400
Input Current @ 277V		0.150	0.294	0.412	0.588	0.706	0.823	1.000	1.118	1.235
Input Current @ 347V		0.112	0.215	0.316	0.431	0.531	0.632	0.746	0.847	0.947
Input Current @ 480V		0.086	0.160	0.230	0.320	0.390	0.460	0.550	0.620	0.690
Optics										
T1	Lumens	5,895	11,786	17,683	23,620	29,771	35,739	41,913	47,656	53,681
	BUG Rating	B3-U0-G1	B3-U0-G2	B4-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G4
	Lumens per Watt	148	159	162	161	163	162	163	163	163
T2	Lumens	5,905	11,805	17,711	23,658	29,818	35,796	41,980	47,732	53,766
	BUG Rating	B1-U0-G1	B2-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G4	B4-U0-G4	B4-U0-G4	B4-U0-G5	B4-U0-G5
	Lumens per Watt	148	160	162	161	163	162	164	163	163
T2R	Lumens	6,070	12,135	18,206	24,319	30,652	36,797	43,154	49,067	55,270
	BUG Rating	B1-U0-G1	B2-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G4	B4-U0-G5	B4-U0-G5
	Lumens per Watt	153	164	167	165	168	167	168	168	168
T3	Lumens	5,963	11,922	17,887	23,892	30,114	36,151	42,396	48,206	54,300
	BUG Rating	B1-U0-G1	B2-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G4	B3-U0-G4	B4-U0-G4	B4-U0-G5	B4-U0-G5
	Lumens per Watt	150	161	164	163	165	164	165	165	165
T3R	Lumens	6,118	12,231	18,350	24,511	30,894	37,087	43,494	49,454	55,706
	BUG Rating	B1-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G4	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	154	166	168	167	169	168	169	169	169
T4FT	Lumens	5,890	11,775	17,667	23,599	29,744	35,706	41,875	47,613	53,632
	BUG Rating	B1-U0-G2	B2-U0-G3	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	148	159	162	161	163	162	163	163	163
T4W	Lumens	5,948	11,891	17,840	23,830	30,035	36,056	42,285	48,079	54,157
	BUG Rating	B1-U0-G2	B2-U0-G3	B3-U0-G3	B3-U0-G4	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	149	161	163	162	164	164	165	164	164
SL2	Lumens	5,923	11,842	17,766	23,732	29,912	35,908	42,111	47,882	53,935
	BUG Rating	B1-U0-G1	B2-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G4	B3-U0-G4	B4-U0-G4	B4-U0-G5	B4-U0-G5
	Lumens per Watt	149	160	163	161	164	163	164	164	164
SL3	Lumens	5,824	11,644	17,469	23,335	29,412	35,308	41,407	47,081	53,033
	BUG Rating	B1-U0-G2	B2-U0-G3	B2-U0-G3	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B4-U0-G5
	Lumens per Watt	146	158	160	159	161	160	161	161	161
SL4	Lumens	5,907	11,810	17,718	23,668	29,831	35,811	41,998	47,752	53,789
	BUG Rating	B1-U0-G2	B2-U0-G3	B3-U0-G3	B3-U0-G4	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B5-U0-G5
	Lumens per Watt	148	160	162	161	163	162	164	163	163
5NQ	Lumens	6,245	12,484	18,731	25,020	31,535	37,857	44,397	50,480	56,862
	BUG Rating	B2-U0-G1	B3-U0-G2	B4-U0-G2	B4-U0-G2	B5-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4
	Lumens per Watt	157	169	172	170	173	172	173	172	173
5MQ	Lumens	6,241	12,477	18,719	25,005	31,516	37,834	44,370	50,450	56,827
	BUG Rating	B3-U0-G1	B4-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G4	B5-U0-G5	B5-U0-G5
	Lumens per Watt	157	169	171	170	173	172	173	172	172
5WQ	Lumens	6,028	12,051	18,080	24,151	30,440	36,542	42,855	48,728	54,887
	BUG Rating	B3-U0-G1	B4-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G4	B5-U0-G5	B5-U0-G5
	Lumens per Watt	151	163	166	164	167	166	167	166	167
SLL/SLR	Lumens	5,938	11,871	17,811	23,791	29,986	35,997	42,216	48,001	54,069
	BUG Rating	B1-U0-G2	B2-U0-G3	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	149	161	163	162	164	163	164	164	164
RW	Lumens	6,137	12,268	18,406	24,587	30,989	37,201	43,628	49,606	55,877
	BUG Rating	B3-U0-G1	B3-U0-G2	B4-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G4
	Lumens per Watt	154	166	169	167	170	169	170	169	170
AFL	Lumens	6,061	12,117	18,179	24,283	30,606	36,742	43,089	48,993	55,187
	BUG Rating	B1-U0-G1	B2-U0-G2	B2-U0-G2	B3-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G3	B4-U0-G4	B4-U0-G4
	Lumens per Watt	152	164	166	165	168	167	168	167	167

SB Light Squares, Output Level 3, 4000K, 70 CRI

Number of Light Squares		1	2	3	4	5	6	7	8	9
Nominal Power (Watts)		54	101	149	201	250	301	351	400	450
Input Current @ 120V		0.437	0.857	1.259	1.714	2.116	2.518	2.973	3.375	3.776
Input Current @ 208V		0.254	0.498	0.721	0.996	1.219	1.442	1.717	1.940	2.163
Input Current @ 240V		0.223	0.437	0.628	0.874	1.065	1.256	1.501	1.693	1.884
Input Current @ 277V		0.197	0.386	0.550	0.772	0.936	1.100	1.322	1.485	1.649
Input Current @ 347V		0.150	0.292	0.432	0.584	0.724	0.863	1.016	1.155	1.295
Input Current @ 480V		0.111	0.213	0.311	0.427	0.525	0.622	0.738	0.836	0.933
Optics										
T1	Lumens	7,841	15,675	23,517	31,414	39,594	47,531	55,743	63,381	71,393
	BUG Rating	B3-U0-G1	B4-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G4	B5-U0-G5
	Lumens per Watt	144	155	158	157	159	158	159	159	159
T2	Lumens	7,853	15,700	23,555	31,464	39,657	47,607	55,832	63,482	71,507
	BUG Rating	B2-U0-G2	B3-U0-G3	B3-U0-G3	B4-U0-G4	B4-U0-G4	B4-U0-G5	B4-U0-G5	B5-U0-G5	B5-U0-G5
	Lumens per Watt	144	156	158	157	159	158	159	159	159
T2R	Lumens	8,073	16,139	24,214	32,344	40,766	48,938	57,393	65,257	73,507
	BUG Rating	B1-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G4	B3-U0-G4	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	148	160	162	161	163	163	164	163	163
T3	Lumens	7,931	15,856	23,789	31,776	40,051	48,080	56,386	64,112	72,217
	BUG Rating	B2-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G4	B4-U0-G4	B4-U0-G5	B4-U0-G5	B4-U0-G5	B5-U0-G5
	Lumens per Watt	146	157	160	158	161	160	161	160	161
T3R	Lumens	8,137	16,267	24,405	32,599	41,088	49,325	57,846	65,773	74,087
	BUG Rating	B1-U0-G2	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	150	161	164	162	165	164	165	165	165
T4FT	Lumens	7,834	15,661	23,496	31,385	39,558	47,488	55,692	63,324	71,329
	BUG Rating	B1-U0-G2	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B5-U0-G5
	Lumens per Watt	144	155	158	156	159	158	159	158	159
T4W	Lumens	7,910	15,814	23,726	31,693	39,946	47,953	56,238	63,944	72,027
	BUG Rating	B2-U0-G2	B3-U0-G3	B3-U0-G4	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	145	157	159	158	160	159	160	160	160
SL2	Lumens	7,878	15,749	23,629	31,562	39,781	47,756	56,006	63,681	71,731
	BUG Rating	B2-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G4	B4-U0-G4	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	145	156	158	157	159	159	160	159	159
SL3	Lumens	7,746	15,486	23,234	31,035	39,117	46,958	55,070	62,616	70,532
	BUG Rating	B1-U0-G2	B2-U0-G3	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	142	153	156	155	157	156	157	157	157
SL4	Lumens	7,857	15,707	23,565	31,477	39,674	47,627	55,855	63,509	71,538
	BUG Rating	B2-U0-G2	B3-U0-G3	B3-U0-G4	B4-U0-G5	B4-U0-G5	B4-U0-G5	B5-U0-G5	B5-U0-G5	B5-U0-G5
	Lumens per Watt	144	156	158	157	159	158	159	159	159
5NQ	Lumens	8,305	16,604	24,911	33,275	41,940	50,348	59,046	67,137	75,624
	BUG Rating	B3-U0-G1	B3-U0-G2	B4-U0-G2	B5-U0-G2	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G4	B5-U0-G4
	Lumens per Watt	153	165	167	166	168	167	168	168	168
5MQ	Lumens	8,300	16,594	24,896	33,255	41,915	50,318	59,010	67,097	75,578
	BUG Rating	B3-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G5	B5-U0-G5	B5-U0-G5	B5-U0-G5
	Lumens per Watt	153	164	167	166	168	167	168	168	168
5WQ	Lumens	8,017	16,027	24,046	32,120	40,484	48,600	56,996	64,806	72,998
	BUG Rating	B3-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G5	B5-U0-G5	B5-U0-G5	B5-U0-G5
	Lumens per Watt	147	159	161	160	162	162	163	162	162
SLL/SLR	Lumens	7,897	15,788	23,687	31,641	39,880	47,875	56,146	63,839	71,909
	BUG Rating	B2-U0-G3	B3-U0-G4	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B5-U0-G5
	Lumens per Watt	145	156	159	158	160	159	160	160	160
RW	Lumens	8,162	16,317	24,480	32,699	41,215	49,476	58,024	65,975	74,315
	BUG Rating	B3-U0-G1	B4-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G4	B5-U0-G5
	Lumens per Watt	150	162	164	163	165	164	166	165	165
AFL	Lumens	8,061	16,115	24,177	32,295	40,705	48,865	57,307	65,160	73,397
	BUG Rating	B1-U0-G1	B2-U0-G2	B3-U0-G2	B3-U0-G3	B3-U0-G3	B4-U0-G4	B4-U0-G4	B4-U0-G4	B4-U0-G4
	Lumens per Watt	148	160	162	161	163	162	164	163	163

SB Light Squares, Output Level 4, 4000K, 70 CRI

Number of Light Squares		1	2	3	4	5	6	7	8	9
Nominal Power (Watts)		80	148	218	294	365	440	513	585	658
Input Current @ 120V		0.638	1.234	1.840	2.469	3.094	3.680	4.349	4.934	5.519
Input Current @ 208V		0.367	0.705	1.045	1.410	1.779	2.090	2.513	2.824	3.135
Input Current @ 240V		0.320	0.614	0.913	1.227	1.567	1.827	2.220	2.480	2.740
Input Current @ 277V		0.280	0.537	0.813	1.075	1.402	1.626	1.992	2.215	2.439
Input Current @ 347V		0.219	0.430	0.640	0.897	1.089	1.280	1.537	1.729	1.920
Input Current @ 480V		0.160	0.313	0.479	0.700	0.829	0.958	1.179	1.308	1.437
Optics										
T1	Lumens	10,654	21,299	31,955	42,684	53,800	64,585	75,742	86,121	97,008
	BUG Rating	B3-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G4	B5-U0-G5	B5-U0-G5	B5-U0-G5
	Lumens per Watt	134	144	147	145	147	147	148	147	147
T2	Lumens	10,671	21,333	32,006	42,752	53,886	64,688	75,863	86,258	97,162
	BUG Rating	B2-U0-G2	B3-U0-G3	B4-U0-G4	B4-U0-G5	B4-U0-G5	B5-U0-G5	B5-U0-G5	B5-U0-G5	B5-U0-G5
	Lumens per Watt	134	145	147	146	148	147	148	147	148
T2R	Lumens	10,969	21,929	32,901	43,948	55,392	66,496	77,984	88,670	99,879
	BUG Rating	B2-U0-G2	B3-U0-G3	B3-U0-G4	B3-U0-G4	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B5-U0-G5
	Lumens per Watt	138	149	151	150	152	151	152	152	152
T3	Lumens	10,777	21,545	32,324	43,177	54,420	65,329	76,616	87,114	98,127
	BUG Rating	B2-U0-G2	B3-U0-G3	B3-U0-G4	B4-U0-G4	B4-U0-G5	B4-U0-G5	B5-U0-G5	B5-U0-G5	B5-U0-G5
	Lumens per Watt	135	146	148	147	149	148	149	149	149
T3R	Lumens	11,056	22,103	33,161	44,295	55,830	67,022	78,600	89,371	100,668
	BUG Rating	B2-U0-G2	B3-U0-G3	B3-U0-G4	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B5-U0-G5	B5-U0-G5
	Lumens per Watt	139	150	152	151	153	152	153	153	153
T4FT	Lumens	10,644	21,280	31,926	42,646	53,751	64,526	75,674	86,043	96,920
	BUG Rating	B2-U0-G3	B3-U0-G4	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B5-U0-G5	B5-U0-G5	B5-U0-G5
	Lumens per Watt	134	144	146	145	147	147	148	147	147
T4W	Lumens	10,748	21,488	32,239	43,063	54,277	65,158	76,414	86,885	97,869
	BUG Rating	B2-U0-G2	B3-U0-G4	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B5-U0-G5	B5-U0-G5
	Lumens per Watt	135	146	148	147	149	148	149	149	149
SL2	Lumens	10,704	21,400	32,106	42,886	54,054	64,890	76,100	86,528	97,467
	BUG Rating	B2-U0-G2	B3-U0-G3	B3-U0-G4	B4-U0-G5	B4-U0-G5	B4-U0-G5	B5-U0-G5	B5-U0-G5	B5-U0-G5
	Lumens per Watt	134	145	147	146	148	147	148	148	148
SL3	Lumens	10,525	21,042	31,570	42,169	53,151	63,805	74,828	85,082	95,837
	BUG Rating	B2-U0-G3	B3-U0-G4	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	132	143	145	144	146	145	146	145	146
SL4	Lumens	10,675	21,342	32,020	42,771	53,908	64,715	75,895	86,295	97,204
	BUG Rating	B2-U0-G3	B3-U0-G4	B4-U0-G5	B4-U0-G5	B5-U0-G5	B5-U0-G5	B5-U0-G5	B5-U0-G5	B5-U0-G5
	Lumens per Watt	134	145	147	146	148	147	148	148	148
5NQ	Lumens	11,285	22,561	33,849	45,214	56,988	68,412	80,230	91,224	102,756
	BUG Rating	B3-U0-G1	B4-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G5	B5-U0-G5	B5-U0-G5
	Lumens per Watt	142	153	155	154	156	155	156	156	156
5MQ	Lumens	11,278	22,547	33,828	45,187	56,954	68,371	80,182	91,169	102,694
	BUG Rating	B4-U0-G2	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G5	B5-U0-G5	B5-U0-G5	B5-U0-G5	B5-U0-G5
	Lumens per Watt	142	153	155	154	156	155	156	156	156
5WQ	Lumens	10,893	21,778	32,673	43,644	55,009	66,037	77,445	88,057	99,189
	BUG Rating	B4-U0-G2	B5-U0-G3	B5-U0-G4	B5-U0-G5	B5-U0-G5	B5-U0-G5	B5-U0-G5	B5-U0-G5	B5-U0-G5
	Lumens per Watt	137	148	150	149	151	150	151	151	151
SLL/SLR	Lumens	10,731	21,453	32,186	42,993	54,189	65,051	76,290	86,743	97,709
	BUG Rating	B2-U0-G3	B3-U0-G4	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B5-U0-G5	B5-U0-G5	B5-U0-G5
	Lumens per Watt	135	145	148	146	149	148	149	148	148
RW	Lumens	11,090	22,171	33,263	44,431	56,001	67,228	78,842	89,645	100,978
	BUG Rating	B3-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G4	B5-U0-G5	B5-U0-G5	B5-U0-G5
	Lumens per Watt	139	150	153	151	153	153	154	153	153
AFL	Lumens	10,953	21,897	32,852	43,882	55,309	66,397	77,868	88,538	99,730
	BUG Rating	B2-U0-G1	B3-U0-G2	B3-U0-G3	B3-U0-G3	B4-U0-G4	B4-U0-G4	B4-U0-G5	B4-U0-G5	B5-U0-G5
	Lumens per Watt	138	148	151	149	152	151	152	151	152

Backlight Control Optics, Output Level 1, 4000K CCT, 70 CRI

Number of Light Squares		1	2	3	4	5	6	7	8	9
Nominal Power (Watts)		29	56	82	108	136	162	193	218	245
Input Current @ 120V		0.247	0.469	0.680	0.939	1.150	1.361	1.619	1.829	2.041
Input Current @ 208V		0.144	0.273	0.396	0.546	0.669	0.792	0.942	1.070	1.188
Input Current @ 240V		0.126	0.240	0.348	0.480	0.588	0.696	0.828	0.944	1.045
Input Current @ 277V		0.111	0.212	0.310	0.424	0.522	0.620	0.734	0.844	0.929
Input Current @ 347V		0.087	0.160	0.240	0.319	0.400	0.481	0.559	0.650	0.721
Input Current @ 480V		0.066	0.118	0.177	0.237	0.295	0.354	0.414	0.483	0.532
Optics		SA1A	SA2A	SA3A	SA4A	SA5A	SA6A	SA7A	SA8A	SA9A
T2BC	Lumens	3,639	7,299	10,947	14,537	17,743	21,263	24,840	28,510	32,106
	BUG Rating	B0-U0-G1	B0-U0-G2	B0-U0-G2	B0-U0-G3	B0-U0-G3	B0-U0-G3	B0-U0-G4	B0-U0-G4	B0-U0-G4
	Lumens per Watt	125	131	134	135	130	131	129	131	131
T3BC	Lumens	3,824	7,670	11,504	15,276	18,645	22,344	26,103	29,960	33,739
	BUG Rating	B0-U0-G1	B0-U0-G2	B0-U0-G2	B0-U0-G3	B0-U0-G4	B0-U0-G4	B0-U0-G4	B0-U0-G5	B0-U0-G5
	Lumens per Watt	132	137	141	142	136	137	135	138	138
T4BC	Lumens	3,698	7,417	11,125	14,772	18,030	21,607	25,242	28,972	32,626
	BUG Rating	B0-U0-G2	B0-U0-G3	B0-U0-G3	B0-U0-G4	B0-U0-G4	B0-U0-G5	B0-U0-G5	B0-U0-G5	B0-U0-G5
	Lumens per Watt	128	133	137	138	132	133	131	133	133
RBC	Lumens	3,327	6,673	10,008	13,290	16,221	19,439	22,709	26,065	29,352
	BUG Rating	B0-U0-G1	B0-U0-G2	B0-U0-G2	B0-U0-G2	B0-U0-G3	B0-U0-G3	B0-U0-G4	B0-U0-G4	B0-U0-G4
	Lumens per Watt	115	120	123	124	119	119	118	120	120
LBC	Lumens	3,327	6,673	10,008	13,290	16,221	19,439	22,709	26,064	29,352
	BUG Rating	B0-U0-G1	B0-U0-G2	B0-U0-G2	B0-U0-G2	B0-U0-G3	B0-U0-G3	B0-U0-G4	B0-U0-G4	B0-U0-G4
	Lumens per Watt	115	120	123	124	119	119	118	120	120

Backlight Control Optics, Output Level 2, 4000K CCT, 70 CRI

Number of Light Squares		1	2	3	4	5	6	7	8	9
Nominal Power (Watts)		39	73	106	144	179	213	249	283	314
Input Current @ 120V		0.320	0.610	0.890	1.220	1.500	1.781	2.110	2.385	2.671
Input Current @ 208V		0.185	0.352	0.513	0.704	0.865	1.027	1.217	1.380	1.540
Input Current @ 240V		0.161	0.307	0.449	0.615	0.756	0.898	1.064	1.210	1.347
Input Current @ 277V		0.141	0.270	0.395	0.539	0.665	0.790	0.934	1.069	1.185
Input Current @ 347V		0.111	0.207	0.314	0.414	0.522	0.629	0.729	0.847	0.943
Input Current @ 480V		0.083	0.152	0.229	0.303	0.380	0.457	0.532	0.620	0.686
Optics		SA1B	SA2B	SA3B	SA4B	SA5B	SA6B	SA7B	SA8B	SA9B
T2BC	Lumens	4,549	9,135	14,026	17,976	22,214	26,621	31,146	35,647	39,532
	BUG Rating	B0-U0-G1	B0-U0-G2	B0-U0-G2	B0-U0-G3	B0-U0-G4	B0-U0-G4	B0-U0-G4	B0-U0-G5	B0-U0-G5
	Lumens per Watt	118	125	132	125	124	125	125	126	126
T3BC	Lumens	4,780	9,599	14,739	18,890	23,344	27,975	32,730	37,460	41,542
	BUG Rating	B0-U0-G2	B0-U0-G2	B0-U0-G3	B0-U0-G4	B0-U0-G4	B0-U0-G4	B0-U0-G5	B0-U0-G5	B0-U0-G5
	Lumens per Watt	124	132	139	131	131	131	131	132	133
T4BC	Lumens	4,622	9,282	14,253	18,267	22,574	27,052	31,650	36,224	40,172
	BUG Rating	B0-U0-G2	B0-U0-G3	B0-U0-G4	B0-U0-G4	B0-U0-G5	B0-U0-G5	B0-U0-G5	B0-U0-G5	B0-U0-G5
	Lumens per Watt	119	128	134	127	126	127	127	128	128
RBC	Lumens	4,159	8,351	12,823	16,434	20,309	24,338	28,475	32,590	36,141
	BUG Rating	B0-U0-G1	B0-U0-G2	B0-U0-G2	B0-U0-G3	B0-U0-G3	B0-U0-G4	B0-U0-G4	B0-U0-G4	B0-U0-G5
	Lumens per Watt	107	115	121	114	114	114	114	115	116
LBC	Lumens	4,158	8,351	12,822	16,434	20,308	24,337	28,474	32,589	36,140
	BUG Rating	B0-U0-G1	B0-U0-G2	B0-U0-G2	B0-U0-G3	B0-U0-G3	B0-U0-G4	B0-U0-G4	B0-U0-G4	B0-U0-G5
	Lumens per Watt	107	115	121	114	114	114	114	115	116

Backlight Control Optics, Output Level 3, 4000K CCT, 70 CRI

Number of Light Squares		1	2	3	4	5	6	7	8	9
Nominal Power (Watts)		50	96	140	190	236	283	330	377	417
Input Current @ 120V		0.427	0.803	1.176	1.606	1.979	2.352	2.782	3.155	3.528
Input Current @ 208V		0.248	0.465	0.672	0.929	1.136	1.343	1.601	1.808	2.015
Input Current @ 240V		0.218	0.407	0.586	0.814	0.993	1.171	1.399	1.578	1.757
Input Current @ 277V		0.192	0.359	0.512	0.718	0.872	1.025	1.231	1.384	1.537
Input Current @ 347V		0.144	0.286	0.418	0.573	0.704	0.836	0.991	1.122	1.253
Input Current @ 480V		0.108	0.209	0.301	0.418	0.510	0.602	0.719	0.811	0.903
Optics		**SA1C**	**SA2C**	**SA3C**	**SA4C**	**SA5C**	**SA6C**	**SA7C**	**SA8C**	**SA9C**
T2BC	Lumens	5,676	11,326	16,920	22,428	27,616	33,094	38,563	43,758	49,195
	BUG Rating	B0-U0-G2	B0-U0-G2	B0-U0-G3	B0-U0-G4	B0-U0-G4	B0-U0-G4	B0-U0-G5	B0-U0-G5	B0-U0-G5
	Lumens per Watt	113	118	121	118	117	117	117	116	118
T3BC	Lumens	5,965	11,902	17,780	23,568	29,020	34,777	40,524	45,983	51,697
	BUG Rating	B0-U0-G2	B0-U0-G2	B0-U0-G3	B0-U0-G4	B0-U0-G5	B0-U0-G5	B0-U0-G5	B0-U0-G5	B0-U0-G5
	Lumens per Watt	119	124	127	124	123	123	123	121	124
T4BC	Lumens	5,768	11,509	17,194	22,791	28,063	33,630	39,187	44,466	49,992
	BUG Rating	B0-U0-G2	B0-U0-G3	B0-U0-G4	B0-U0-G5	B0-U0-G5	B0-U0-G5	B0-U0-G5	B0-U0-G5	B0-U0-G5
	Lumens per Watt	115	120	122	120	119	119	119	117	120
RBC	Lumens	5,189	10,355	15,468	20,504	25,247	30,255	35,255	40,004	44,976
	BUG Rating	B0-U0-G2	B0-U0-G2	B0-U0-G3	B0-U0-G3	B0-U0-G4	B0-U0-G4	B0-U0-G5	B0-U0-G5	B0-U0-G5
	Lumens per Watt	103	108	110	108	107	107	107	106	108
LBC	Lumens	5,189	10,354	15,468	20,503	25,246	30,255	35,255	40,004	44,975
	BUG Rating	B0-U0-G2	B0-U0-G2	B0-U0-G3	B0-U0-G3	B0-U0-G4	B0-U0-G4	B0-U0-G5	B0-U0-G5	B0-U0-G5
	Lumens per Watt	103	108	110	108	107	107	107	106	108

Control Options

0-10V (DIM)
This fixture is offered standard with 0-10V dimming driver(s). The DIM option provides 0-10V dimming wire leads for use with a lighting control panel or other control method.

Photocontrol (BPC, PR and PR7)
Optional button-type photocontrol (BPC) and photocontrol receptacles (PR and PR7) provide a flexible solution to enable "dusk-to-dawn" lighting by sensing light levels. Advanced control systems compatible with NEMA 7-pin standards can be utilized with the PR7 receptacle.

After Hours Dim (AHD)
This feature allows photocontrol-enabled luminaires to achieve additional energy savings by dimming during scheduled portions of the night. The dimming profile will automatically take effect after a "dusk-to-dawn" period has been calculated from the photocontrol input. Specify the desired dimming profile for a simple, factory-shipped dimming solution requiring no external control wiring. Reference the After Hours Dim supplemental guide for additional information.

Dimming Occupancy Sensor (SPB and MS/DIM-LXX)
These passive infrared (PIR) sensors are factory installed in the luminaire housing. When the SPB (FSP-321 or FSP-311) or MS/DIM (FSP-211) sensor options are selected, the occupancy sensor is connected to a dimming driver and the luminaire dims when no motion is detected. After a set period of time, the luminaire turns off, and when motion is detected, the luminaire returns to full light output. Both sensors are factory preset to dim down to approximately 10% power with a time delay of five minutes. The MS/DIM sensor requires the FSIR-100 programming tool to adjust factory defaults. The SPB sensor default parameters are listed in the table below and can be configured utilizing the Sensor Configuration mobile application for iOS and Android devices. The SPB/X is configured to control only the specified number of light squares (See SPB/X Availability Table below.) An integral photocontrol can be activated with the app for "dusk-to-dawn" control or daylight harvesting - the factory default is off. Four sensor colors are available; Bronze, Black, Gray and White, and are automatically selected based on the luminaire finish as indicated by the table below.

SPB sensor finish matched to luminaire finish		
Luminaire Finish		SPB Sensor Finish*
WH	White	White
BK	Black	Black
GM	Graphite Metallic	Black
BZ	Bronze	Bronze
AP	Gray	Gray
DP	Dark Platinum	Gray

*SPB bezel color automatically selected based on luminaire finish

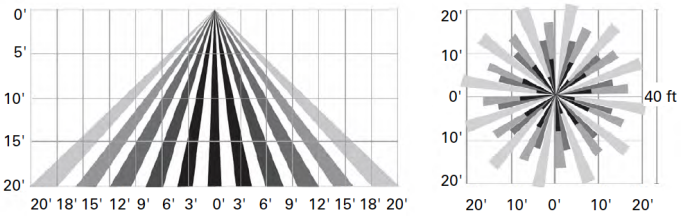
SPB/X Availability Table	
Fixture Square Count	Available SPB/X Square Count
1	Not Available
2	Not Available
3	Not Available
4	2
5	2 or 3
6	3
7	2, 3, 4 or 5
8	2, 3, 5 or 6
9	3 or 6

Default Program Settings (Out of the Box Functionality)

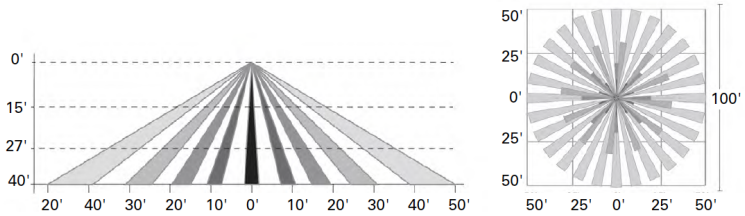
Occupancy Sensor				
Setting	MS/DIM	SPB	WaveLinx Lite (WLS4 / WLS2)	WaveLinx (WPS)
High Mode %	100%	100%	100%	100%
Low Mode %	10%	10%	50%	50%
Time Delay	5 min	5 min	15 min	15 min
Cut Off Delay	1 hr	1 hr	Disabled	Disabled
Photocell Enabled	No	No	Yes	Yes

WaveLinx Wireless Control and Monitoring System
Operates on a wireless mesh network based on IEEE 802.15.4 standards enabling wireless control of outdoor lighting. WaveLinx (WPS2 to WPS4) outdoor wireless sensors offer passive infrared (PIR) occupancy and photocell for closed loop daylight harvesting. Sensors are factory preset to dim down to 50% after 15 minutes of no motion detected. Two lens options are available for mounting heights of 7' to 40'. Use the WaveLinx mobile application for set-up and configuration. At least one Wireless Area Controller (WAC) is required for full functionality and remote communication (including adjustment of any factory pre-sets). WaveLinx Lite (WLS4 and WLS2) outdoor wireless sensors provide PIR occupancy and photocell for closed loop daylight harvesting. Sensors are factory preset to dim down to 50% after 15 minutes of no motion detected. Two lens options are available for mounting heights of 7' to 40'. Use the WaveLinx Lite mobile application for set-up and configuration. WAC not required. WaveLinx Outdoor Control Module (WOLC-7P-10A) accessory provides a photocontrol enabling astronomic or time-based schedules to provide ON, OFF and dimming control of fixtures utilizing a 7-PIN receptacle. The out-of-box functionality is ON at dusk and OFF at dawn.

For mounting heights up to 15' (WPS2 and WLS2)



For mounting heights up to 40' (WPS4 and WLS4)



AirMesh (DIM10)
AirMesh integrated wireless controls system includes factory installed DIM10 Synapse control module and FSP-201 motion sensor; requires additional AirMesh components for operation. Contact Synapse at www.synapsewireless.com for product support, warranty and terms and conditions.

Cooper Lighting Solutions
1121 Highway 74 South
Peachtree City, GA 30269
P: 770-486-4800
www.cooperlighting.com

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Specifications and dimensions subject to change without notice.

Section R

Wastewater Capacity

R. Calculation of Wastewater Flowrate

Based upon Section 4 of the Maine Subsurface Wastewater Disposal Rules, the project anticipates the following daily flows:

Table 1: Estimate of Design Flows			
Classification of Water Demand	**Uses and Use Count**	**Gallons per Day per Use**	**Total Gallons per Day**
Existing			
Tortilla Flat: Eating Place, 2 meals/day:	258 seats with 25 employees	20 GPD per seat plus 12 GPD per employee	5460
Proposed			
Residential Studio Apartments:	33 dwelling units	120 GPD per dwelling unit	3960
Employees at place of employment with no showers	8 employees	12 GPD per employee	96
Total Existing			**5460**
Total Proposed			**4056**
Net Change			**-1404**

*Values based on STATE OF MAINE: SUBSURFACE WASTEWATER DISPOSAL RULES, most recent edition

** Calculations assume that Tortilla Flat Restaurant had 1 seat per 15 SF of restaurant space, which is typical for a casual restaurant. The property card for the Tortilla Flat Restaurant in the Appendix of the Phase 1 Environmental Site Assessment showed 3,865 SF of restaurant space. Calculations also assumed that on peak days, Tortilla Flat Restaurant would have employed about 1 employee for every 10-11 seats, which is typical for a casual restaurant. Tortilla Flat Restaurant is assumed to have served lunch and dinner, based on the current operating hours of their other locations.

*** Calculations assume up to 8 employees at a time will be working at the proposed residential building, based on office space provided on the first floor.

Att. S

Section S

Erosion & Sedimentation Control

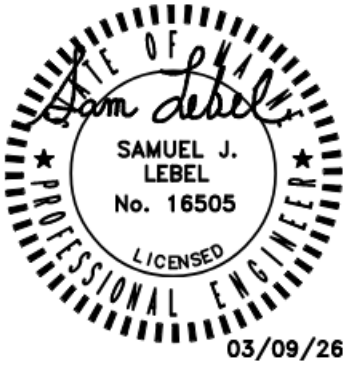
S.1 EROSION & SEDIMENTATION CONTROL REPORT

Prepared For:

Avesta Housing
1871 Forest Avenue
Portland, ME

Prepared By:

Acorn Engineering, Inc.
P.O. Box 3372
Portland, Maine 04104



March 2026

INTRODUCTION

Acorn Engineering, Inc. has been retained by Avesta Housing to provide civil engineering and permitting services for the proposed work located at 1871 Forest Avenue, Portland, ME 04103. The site currently contains an existing structure, most recently used as a restaurant, on approximately 3.42 acres of land. The goal of the project is to demolish the existing structure and construct new affordable multifamily housing.

The following Erosion and Sedimentation Control Report was developed in accordance with the City of Portland Technical Manual – Section 12 – Portland Erosion and Sediment Control Standards and the Maine DEP Chapter 500 Stormwater Management Appendix A and B (1), Amended August 12, 2015. This narrative also meets the standards required in the Maine DEP's Erosion & Sediment Control BMP's Manual, revised in 2016.

	Plan Submission Requirement	Inspector Requirement	Inspection Report Submittal
Construction Activity > 1 Acres of Disturbance	Comprehensive	Third-Party Inspector	Weekly to Water Resources & Planning

The proposed project is subject to a Comprehensive Erosion and Sedimentation Control Plan as defined in Section 12 of the City of Portland Technical Manual. As defined in Section 12 of the City of Portland Technical Manual, projects that disturb more than one acre of land are required to hire a third party inspector and submit weekly Erosion and Sedimentation Control reports to the City of Portland's Water Resources and Planning Department.

1.0 EXISTING CONDITIONS

The proposed project is located at 1871 Forest Avenue. A Boundary & Topographic Survey has been prepared by BH2M, dated October, 2025.

Abutting Uses:

- North — B-2 Zone — Grocery Store & Stormwater Detention
- Northwest — B-4 Zone — Grocery Store
- West — B-2 Zone — Auto Shop
- Southwest — RN-5 Zone — Neighborhood Residential Apartments
- South — B-2 Zone — Gas Station
- Southeast — B-2 Zone — Religious Center
- East — B-2 Zone — Religious Center

The existing site contains a three-story building that has historically been used as both residential and commercial space. There is also a large parking lot with two curb cuts off of Forest Ave. The rear of the site is woodland, with some isolated wetlands on the west side of the site. The slopes are steep in areas of the site.

1.1 Existing Soils

Onsite soil information includes the following:

- Natural Resource Conservation Service Custom Soil Resource Report Intens for Cumberland County and Part of Oxford County, Maine
- Test Boring Location Map prepared by Summit Geoengineering Services

The area within and surrounding the project includes soil types listed in the table below. The susceptibility of soils to erosion is indicated on a relative "K" scale of values over a range of 0.02 to 0.69. Higher "K" values indicate more erodible soils.

Table 1 - "K" Value		
Soils Type	**Subsurface**	**Substratum**
Windsor Loamy Sand	0.17	0.17
Gravel Pits	0.02	0.02

The soil "K" value for the soils, listed above, shows a low susceptibility to erosion. The site's susceptibility to erosion is sourced from the Natural Resources Conservation Service Custom Soil Resource Report for Cumberland County and Part of Oxford County, Maine.

1.2 Existing Erosion Problems

There are no obvious signs of erosion on site.

1.3 Critical Areas

There are no critical areas within the projects limit of disturbance. There is an existing wetland identified on the southwest corner on the Existing Conditions Survey prepared by BH2M.

1.4 Protected Natural Resource

The client is not aware of the presence of any existing significant natural features located on the site. The isolated wetland will be protected from construction impacts. The project is not located within a watershed classified as an Urban Impaired Stream by the Maine DEP.

1.5 Previous Construction Activity (5 years)

Acorn Engineering, Inc. is not aware of any construction related activities within the project limits within the past 5 years.

1.6 Timber Harvesting

Acorn Engineering, Inc. is not aware of any timber harvesting within the past five years.

2.0 EROSION CONTROL MEASURES AND SITE STABILIZATION

As part of the site development, the following temporary and permanent erosion and sedimentation control devices shall be implemented. Devices shall be installed as described in this report or within the plan set. See the Maine Erosion and Sediment Control Handbook for Construction: Best Management Practices for further reference.

2.1 Temporary Erosion Control Measures

Erosion and Sedimentation Control BMPs must be in place prior to earth disturbance. The following temporary erosion and sedimentation control measures are planned for the project's construction period:

2.1.1 Crushed stone stabilized construction entrances shall be placed at all access points to the project site where there are disturbed areas. The following specifications shall be followed at a minimum:

- Stone size shall be 2-3 inches or reclaimed or recycled concrete equivalent.
- The thickness of the entrance stone layer shall be no less than 6 inches.
- The entrance shall not be less than 20 feet wide, however not less than the full width of points where ingress or egress occurs. The length shall not be less than 50 feet in length.
- Geotextile fabric (woven or non-woven) shall be placed over the entire entrance area.
- The entrance/exit shall be maintained to the extent that it will prevent the tracking of sediment onto public roadways.

2.1.2 Siltation fence or erosion control berm shall be installed down gradient of any disturbed areas to trap runoff borne sediments until permanent stabilization is achieved. The silt fence or erosion control berm shall be installed per the details provided in the plan set and inspected before and immediately after each rainfall and at least daily during prolonged rainfall. Repairs shall be made if there are any signs of erosion or sedimentation below the fence line or berm. 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.

2.1.3 Hay mulch including hydro seeding is intended to provide cover for denuded or seeded areas until revegetation is established. Mulch placed between April 15th and November 1st on slopes of less than 15 percent shall be covered by fabric netting and anchored with staples in accordance with the manufacturer's recommendation. Mulch placed between November 1st and April 15th on slopes equal to or steeper than 8 percent and equal to or flatter than 2:1 shall use mats or fabric netting and anchored with staples in accordance with the manufacturer's recommendation.

2.1.4 At any time of the year, all slopes greater than 3:1 shall be stabilized with Double Net Erosion Control Blanket Bionet SC150BN by North American

Green or Approved Equal, or Erosion Control Mix Slope Protection as detailed within the plans.

2.1.5 Forest Avenue shall be swept to control mud and dust from the construction site as necessary. Add additional stone to the stabilized construction entrance to minimize the tracking of material off the site and onto the surrounding roadways.

2.1.6 During demolition, clearing and grubbing operations, stone check dams shall be installed at any areas of concentrated flow. The maximum height of the check dam shall not exceed 2 feet. The center of the check dam shall be 6 inches below the outer edges of the dam. The contractor shall mulch the side slopes and install stone check dams for all newly excavated ditch lines within 24 hours of their creation.

2.1.7 Silt fence stake spacing shall not exceed 6 feet unless the fence is supported with 14-gauge wire in which case the maximum spacing shall not exceed 10 feet. The silt fence shall be "toed" into the ground.

2.1.8 Storm drain inlet protection shall be provided to storm drains using any of the following: hay bale drop inlet structures, silt fence drop inlet sediment filter, gravel and wire mesh drop inlet sediment filter, or curb inlet sediment filter. Barriers shall be inspected after every rainfall event and repaired as necessary. Sediments shall be removed when accumulation has reached ½ the design height.

2.1.9 Dust control shall be accomplished using any of the following: water, calcium chloride, stone, or an approved MDEP product. Dust control shall be applied as needed to accomplish dust control.

2.1.10 Temporary loam, seed, and mulching shall be used in areas where no other erosion control measure is used. Application rates for seeding are provided at the end of this report.

2.1.11 Stockpiles shall be stabilized within 7 days of formation unless a scheduled rain event occurs prior to the 7-day window, in which case the stockpile shall be stabilized prior to the rain event. Methods of stabilization shall be mulch, erosion control mix, or erosion control blankets/mats. Silt fence or a wood waste compost filter berm shall be placed downhill of any soil stockpile location.

2.1.12 For disturbance between November 1 and April 15, please refer to winter stabilization plan in this report and the Maine Erosion and Sediment Control BMP manual for further information.

2.1.13 It is of the utmost importance that stormwater runoff and potential sediment from the construction site be diverted around any proposed underdrains until the trench is backfilled.

2.1.14 Within 7 days of the cessation of Construction Activities in an area that will not be worked for more than 7 days, stabilize any exposed soil with mulch, or other non-erodible cover. Stabilize areas within 75 feet of a wetland or waterbody within 48 hours of the initial disturbance of the soil or prior to any storm event, whichever comes first.

2.2 Permanent Erosion Control Measures

If the Site or a portion of the Site will not be worked for more than one year or has been brought to final grade, then permanently stabilize the area within 7 days by planting vegetation, seeding, sod, or through the use of permanent mulch, or riprap, or road sub-base. If using vegetation for stabilization, select the proper vegetation for the light, moisture, and soil conditions; amend the Disturbed Area subsoils with topsoil, compost, or fertilizers; protect seeded areas with mulch or, if necessary, erosion control blankets; and schedule sodding, planting, and seeding so to avoid die-off from summer drought and fall frosts. Newly seeded or sodded areas must be protected from vehicle traffic, excessive pedestrian traffic, and concentrated runoff until the vegetation is well-established with 90% cover by healthy vegetation. If necessary, areas must be reworked and restabilized if germination is sparse, plant coverage is spotty, or topsoil erosion is evident. Permanent Stabilization Definitions are as follows:

2.2.11 **Seeded areas:** For seeded areas, permanent stabilization means a 90% cover of the Disturbed Area with mature, healthy plants with no evidence of washing or rilling of the topsoil.

2.2.12 **Sodded areas**: For sodded areas, permanent stabilization means the complete binding of the sod roots into the underlying soil with no slumping of the sod or die-off.

2.2.13 **Permanent mulch:** For mulched areas, permanent mulching means total coverage of the exposed area with an approved mulch material. Erosion control mix may be used as mulch for permanent stabilization according to the approved application rates and limitations.

2.2.14 **Riprap:** 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 to prevent soil movement from behind the riprap. Stone must be sized appropriately. It is recommended that angular stone be used.

2.2.15 **Paved areas:** For paved areas, permanent stabilization means the placement of the compacted gravel subbase is completed, provided it is free of fine materials that may runoff with a rain event.

2.2.16 **Ditches, channels, and swales:** For open channels, permanent stabilization means the channel is stabilized with a 90% cover of healthy vegetation, with a well-graded riprap lining, turf reinforcement mat, or with another non- erosive

lining such as concrete or asphalt pavement. There must be no evidence of slumping of the channel lining, undercutting of the channel banks, or down-cutting of the channel.

2.2.17 All disturbed areas during construction, not subject to other proposed conditions, shall receive a minimum 4" of loam, limed, and mulched. Erosion control blankets or mats shall be placed over the mulch in areas noted in paragraph 4.1 of this report.

2.2.18 All stormwater devices shall be installed, and tributary areas stabilized prior receiving stormwater.

2.2.19 Refer to the Maine Erosion and Sediment Control BMP manual for additional information.

2.2.20 Remove any temporary control measures, such as silt fence, within 30 days after permanent stabilization is attained. Remove any accumulated sediments and stabilize.

3 EROSION AND SEDIMENTATION CONTROL PLAN

3.1 The Erosion and Sedimentation Control Plan (Construction Management Plan) is included within the plan set.

4 DETAILS AND SPECIFICATIONS

4.1 Erosion Control Details and Specifications are included in the plan set.

5 STABILIZATION PLAN FOR WINTER CONSTRUCTION

Winter Construction consists of earthwork disturbance between the dates of November 1 and April 15. If a construction site is not stabilized with pavement, a road gravel base, 75% mature vegetation cover or riprap by November 15, then the site shall be protected with over-winter stabilization. Any area not stabilized with pavement, vegetation, mulching, erosion control mix, erosion control mats, riprap, or gravel base on a road shall be considered open.

The contractor shall limit the work area to areas that work will occur in during the subsequent 15 days and so that it can be mulched one day prior to a snow event. The contractor shall stabilize work areas prior to opening additional work areas to minimize areas without erosion control measures.

The following measures shall be implemented during winter construction periods:

5.1 Sediment Barriers

During frozen conditions, sediment barriers may consist of erosion control mix berms or any other recognized sediment barriers as frozen soil prevents the proper installation of hay bales or silt fences.

5.2 Mulching

All areas shall be considered to be denuded until 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. Erosion control mix must be applied with a minimum 4-inch thickness. 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 or adequately anchored so that ground surface is not visible through the mulch. Between the dates of November 1 and April 15, all mulch shall be anchored by either mulch netting, tracking or wood cellulose fiber. The cover will be considered sufficient when the ground surface is not visible through the mulch. After November 1st, mulch and anchoring of all exposed soil shall occur at the end of each final grading workday.

5.3 Soil Stockpiling

Stockpiles of soil or subsoil shall be mulched for over winter protection with hay or straw at twice the normal rate or with a four-inch layer of erosion control mix. This shall be done within 24 hours of stocking and re-established prior to any rainfall or snowfall.

5.4 Seeding

Between the dates of October 15th and April 1st, loam or seed shall 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 the final treatment can be applied. If the date is after November 1st and if the exposed area has not been loamed, final grading 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 placed prior to the placement of mulch or erosion control blankets. 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.

5.5 Over winter stabilization of disturbed soils

By September 15th, all disturbed soils on areas having a slope less than 15% shall be seeded and mulched. If the disturbed areas are not stabilized by this date, then one of the following actions shall be taken to stabilize the soil for late fall and winter:

- Stabilize the soil with temporary vegetation – By October 1st, seed the disturbed soil with winter rye at a seeding rate of 3lbs per 1,000 s.f., lightly mulch the seeded soil with hay or straw at 75 lbs per 1,000 s.f., and anchor the mulch with plastic netting. Monitor growth of the rye over the next 30 days. If the rye fails to grow at least three inches or fails to cover at least 75% of the disturbed soil before November 1st, then mulch the area for over-winter protection.

- Stabilize the soil with sod – Stabilize the disturbed soil with properly installed sod by October 1st. Proper installation includes 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 15th, mulch the disturbed soil by spreading hay or straw at a rate of at least 150 lbs per 1,000 s.f. on the area so that no soil is visible through the mulch. Immediately after applying the mulch, anchor the mulch with plastic netting to prevent wind from moving the mulch off the disturbed soil.

5.6 Over winter stabilization of disturbed slopes

All stone-covered slopes shall be constructed and stabilized by November 15th. All slopes to be vegetated shall be seeded and mulched by September 1st. A slope is considered a grade greater than 15%. If a slope to be vegetated is not stabilized by September 1st, then one of the following action shall be taken to stabilize the slope for late fall and winter:

- Stabilize the soil with temporary vegetation and erosion control mats – By October 1st the disturbed slope shall be seeded with winter rye at a seeding rate of 3 lbs per 1,000 s.f. and then install erosion control mats or anchored mulch over the seeding. If the rye fails to grow at least three inches or fails to cover at least 75% of the slope by November 1st, then the contractor shall cover the slope with a layer of erosion control mix or with stone riprap.

- Stabilize the soil with sod – The disturbed slope shall be stabilized with properly installed sod by October 1st. Proper installation includes the contractor 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 contractor shall not use late-season sod installation to stabilize slopes having a grade greater than 3H:1V or having groundwater seeps on the slope face.

- Stabilize the soil with erosion control mix – Erosion control mix shall be properly installed by November 15th. The contractor shall not use erosion control mix to

stabilize slopes having grades greater than 2H:1V or having groundwater seeps on the slope face.

- Stabilize the soil with stone riprap – Place a layer of stone riprap on the slope by November 15th. A registered professional engineer shall be hired to determine the stone size needed for stability on the slope and to design a filter layer for underneath the riprap.

6 INSPECTION AND MAINTENANCE

A. All areas of disturbance, impervious areas, ESC BMPs, materials storage areas exposed to precipitation, and locations where vehicles enter or exit the Site shall be inspected:

1. Once before any disturbance begins and after all Erosion and Sedimentation Control BMPs specified in the Erosion and Sedimentation Control Plan are in place;
2. At least once a week as well as before and within 24 hours after a storm event (rainfall); and
3. Once at project completion to ensure the Site has reached permanent stabilization and all temporary erosion and sedimentation controls have been removed.

B. The applicant is responsible for retaining an inspector for the site and maintaining erosion and sedimentation controls in good working order.

C. Sites that require a comprehensive ESC plan and have more than 1 acre of disturbance are required to have a Third Party Inspector complete inspections as outlined in 12.3.3 Part A. Inspection reports must be submitted weekly and before and within 24 hours after a storm event unless otherwise specified. Inspection and submittal requirements and frequency may be altered based on site location and conditions at the discretion of Water Resources or Planning staff.

D. If ESC BMPs need to be maintained, repaired, or enhanced, the work shall be initiated upon discovery of the problem but no later than the end of the next workday or prior to a precipitation event, whichever comes first. If additional ESC BMPs or significant repair of ESC BMPs are necessary, implementation must be completed prior to any storm event (rainfall) and within 7 calendar days of identification. All measures must be maintained in effective operating condition until areas are permanently stabilized.

A "storm event" shall consist 0.5 inches of rain within a 24-hour period. The following Erosion and Sediment Control - Best Management Practices (BMP's) shall be inspected in the manner as described.

6.1 Sediment Barriers

Hay bale barriers, silt fences and filter berms shall be inspected and repaired for the following if there are any signs of erosion or sedimentation below them. If there are signs of undercutting at the center or the edges of the barrier, or impounding of large volumes of water behind them, sediment barriers shall be replaced with a temporary check dam. Should the fabric on a silt fence or filter barrier decompose or become

ineffective prior to the end of the expected usable life and the barrier is still necessary, the fabric shall be replaced promptly. Sediment deposits should be removed when deposits reach approximately one-half the height of the barrier. Filter berms should be reshaped as needed. Any sediment deposits remaining in place after the silt fence or filter barrier is no longer required should be dressed to conform to the existing grade, prepared and seeded.

6.2 Stabilized Stone Construction Entrances

The exit shall be maintained in a condition that will prevent tracking of sediment onto public rights-of-way. When the control pad becomes ineffective, the stone shall be removed along with the collected soil material and redistributed on site in a stable manner. The entrance should then be reconstructed. The contractor shall sweep or wash pavement at exits, which have experienced mud-tracking on to the pavement or traveled way. When washing is required, it shall be done on an area stabilized with aggregate, which drains into an approved sediment trapping device. All sediment shall be prevented from entering storm drains, ditches, or waterways.

6.3 Mulched Areas

All mulches must be inspected periodically, in particular after rainstorms, to check for rill erosion. If less than 90% of the soil surface is covered by mulch, additional mulch shall be immediately applied. Nets must be inspected after rain events for dislocation or failure. If washouts or breakage occur, re-install the nets as necessary after repairing damage to the slope. Where mulch is used in conjunction with ornamental plantings, inspect periodically throughout the year to determine if mulch is maintaining coverage of the soil surface. Repair as needed.

6.4 Dust Control

When temporary dust control measures are used, repetitive treatment shall be applied as needed to accomplish control.

6.5 Stormwater Appurtenances

All underdrains, storm drains, and catch basins need to be operating effectively and free of debris.

Erosion and Sedimentation Control Inspections:

Acorn Engineering has personnel qualified to conduct Erosion and Sedimentation Control Inspections. For further information, contact:

Contact: Will Savage, PE
Telephone: (207) 775-2655

Qualifications:

- Maine Professional Engineering License #11419
- Maine DEP - Certified in Maintenance & Inspection of Stormwater BMP's Cert #14
- Certified Erosion, Sediment and Storm Water Inspector (CESSWI) Cert #0293
- Certified Professional in Erosion and Sediment Control (CPESC) Cert. #4620

The Contractor has sole responsibility for complying with the Erosion and Sedimentation Report/Plan, including control of fugitive dust. The Contractor shall be responsible for any monetary penalties resulting from failure to comply with these standards.

7 IMPLEMENTATION SCHEDULE

The following implementation sequence is intended to maximize the effectiveness of the above described erosion control measures. Contractors should avoid overexposing disturbed areas and limit the amount of stabilization area.

1. Install a stabilized construction entrance in all locations where construction traffic will enter and exit the site.
2. Install perimeter silt fence or erosion control berm.
3. Commence installation of drainage infrastructure.
4. Install all other erosion control devices as necessary throughout the remainder of this schedule.
5. Commence earthwork operations, associated with the roadway construction.
6. Commence installation of utilities.
7. Continue earthwork and grading to subgrade as necessary for construction.
8. Complete installation of drainage infrastructure, as well as other utility work.
9. Complete remaining earthwork operations.
10. Install sub-base and base gravels in paved areas.
11. Install paving, curbing and brickwork.
12. Loam, lime, fertilize, seed and mulch disturbed areas and complete all landscaping.
13. Once the site is stabilized, 90% catch of grass has been obtained, or mulching of landscape areas is complete, remove all temporary erosion control measures.
14. Touch up areas without a vigorous catch of grass with loam and seed.
15. Complete site signage and striping.
16. Execute proper maintenance of all temporary and permanent erosion control measures throughout the project.

The above implementation sequence should be generally followed by the site contractor. However, the contractor may construct several items simultaneously. The contractor shall submit to the owner a schedule of the completion of the work. If the contractor is to commence the construction of more than one item above, they shall limit the amount of exposed areas to those areas in which work is expected to be undertaken during the following 30 days.

The contractor shall re-vegetate disturbed areas as rapidly as possible. All areas shall be permanently stabilized within 7 days of final grading or before a storm event. The contractor shall incorporate planned inlets and drainage systems as early as possible into the construction phase.

8 CONCLUSION

The above erosion control narrative is intended to minimize the development impact by implementing temporary and permanent erosion control measures. The contractor shall also refer to the Maine Erosion and Sediment Control BMP manual for additional information.

9 ATTACHMENTS

- Temporary Seeding Plan
- Permanent Seeding Plan

TEMPORARY SEEDING PLAN

Site Preparation

The seeded areas shall be feasibly graded out to provide the use of equipment for seedbed preparation, seeding, mulch application, and mulch anchoring. If necessary, the site may require additional temporary erosion control measures outlined in the Erosion Control report.

Seedbed Preparation

Fertilizer shall be applied to the site at a rate of 13.8 pounds per 1,000 square feet. The composition of the fertilizer shall be 10-10-10 (N-P2O5-K2O) or equivalent.

Limestone shall be applied to the site at a rate of 138 pounds per 1,000 square feet.

Seeding

The composition and amount of temporary seed applied to a site shall be determined by the following table:

Seed	Pounds / 1,000 S.F.	Recommended Seeding Dates
Winter Rye	2.57	Aug-15 to Oct-1
Oats	1.84	Apr-1 to Jul-1 Aug-15 to Sep-15
Annual Ryegrass	0.92	Apr-1 to Jul-1
Sudangrass	0.92	May-15 to Aug-15
Perennial	0.92	Aug-15 to Sep-15

Mulching

Mulch shall be applied at a rate of 70 lbs – 90 lbs per 1,000 square feet. The mulch shall be installed at a minimum depth of 4 inches. The seeded area shall be mulched immediately after seed is applied. Mulching during the winter season shall be double the normal amount.

Conclusion

Please refer to the Maine Erosion and Sediment Control BMP manual for additional information pertaining to temporary seeding and mulching.

PERMANENT SEEDING PLAN

Site Preparation

The seeded areas shall be feasibly graded out to provide the use of equipment for seedbed preparation, seeding, mulch application, and mulch anchoring. If necessary, the site may require additional temporary erosion control measures outlined in the Erosion Control report.

Seedbed Preparation

Topsoil shall be free from subsoil, stones larger than one inch, or any undesirable material. Final seedbed is to be free of weeds, smooth, tilled, and finely graded for firm seed to soil contact. Contractor shall meet manufacturer recommendations.

Fertilizer shall be applied to the site at a rate of 13.8 pounds per 1,000 square feet. The composition of the fertilizer shall be 10-10-10 (N-P2O5-K2O) or equivalent. The topsoil shall contain 5% organic matter and have a pH suitable to the local growing conditions.

Limestone shall be applied to the site at a rate of 138 pounds per 1,000 square feet.

All planting beds and tree plantings shall receive two inches of shredded hardwood mulch. Seed shall be covered with a layer of weed-free straw mulch, no more than ¼" thick.

Seeding

Refer to the planting plan and details for locations, quantities, and specifications of seeding plan. The composition and amount of permanent seed applied to a site is also shown in the following table:

Seed	Pounds / 1,000 S.F.
Conservation Mix by North Country Organics	5
Rain Garden Mix - ERNMX-180 by Ernst Seed	0.46
Rain Garden Cover Crop	See Planting Plan

Mulching

Mulch shall be applied at a rate of 70 lbs – 90 lbs per 1,000 square feet. The mulch shall be installed at a minimum depth of 4 inches. The seeded area shall be mulched immediately after seed is applied. Mulching during the winter season shall be double the normal amount.

Recommendations

Permanent seeding is recommended to be completed in the spring. Later summer seeding is allowed if completed prior to September 1st. If seeding cannot be accomplished during the periods recommended for permanent seeding, then the contractor shall perform temporary seeding per the temporary seeding plan.

Conclusion

Please refer to the Maine Erosion and Sediment Control BMP manual and the Landscaping Plan (L-20) for additional information pertaining to permanent seeding and mulching.

United States Department of Agriculture

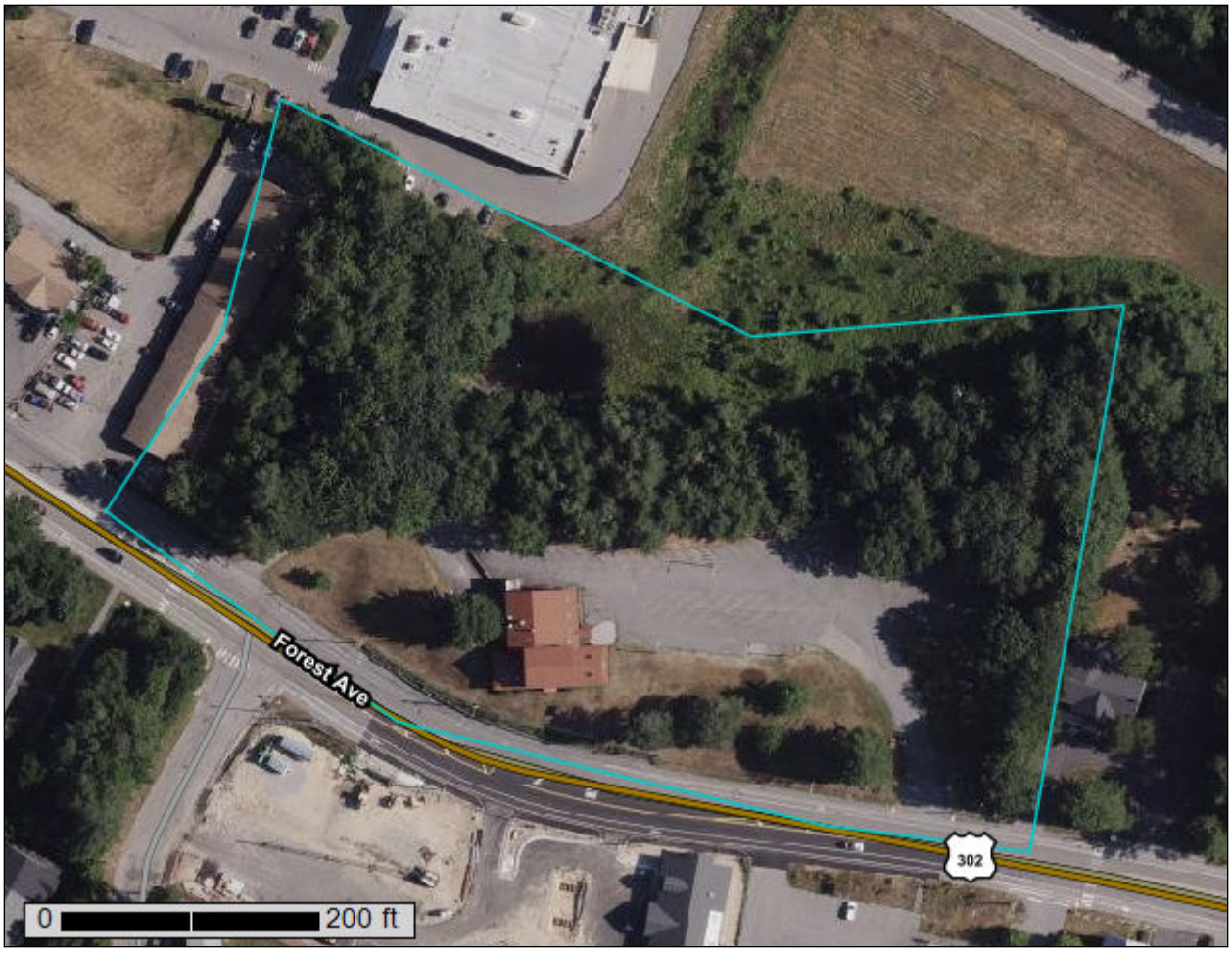
NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Cumberland County and Part of Oxford County, Maine

1871 Forest Ave



January 30, 2026

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

70° 19' 16" W
70° 19' 1" W
43° 42' 6" N
43° 41' 59" N
393550
393580
393610
393640
393670
393700
393730
393760
393790
393820
393850
4839580
4839550
4839520
4839490
4839460
4839430
4839400
Gp
WmB
Forest Ave
Riverton Dr
302
Soil Map may not be valid at this scale.
Map Scale: 1:1,490 if printed on A landscape (11" x 8.5") sheet.
N
Meters
0 20 40 80 120
Feet
0 50 100 200 300
Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Cumberland County and Part of Oxford County, Maine
Survey Area Data: Version 22, Aug 29, 2025

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Mar 1, 2022—Jul 1, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background

MAP LEGEND

MAP INFORMATION

imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Gp	Gravel pits	2.5	41.0%
WmB	Windsor loamy sand, 0 to 8 percent slopes	3.6	59.0%
Totals for Area of Interest		**6.2**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however,

onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Cumberland County and Part of Oxford County, Maine

Gp—Gravel pits

Map Unit Composition

Gravel pits: 92 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Gravel Pits

Setting

Anthropogenic Feature: Gravel pits

Typical profile

H1 - 0 to 6 inches: extremely gravelly sand
H2 - 6 to 60 inches: extremely gravelly sand

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8s
Ecological site: F144BY601ME - Dry Sand
Hydric soil rating: No

WmB—Windsor loamy sand, 0 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2w2x2
Landscape: Valleys
Elevation: 0 to 1,410 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 240 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Windsor and similar soils: 85 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Windsor

Setting

Landscape: Valleys
Landform: Dunes, Outwash plains, Deltas, Outwash terraces
Landform position (three-dimensional): Tread, riser
Down-slope shape: Convex, linear
Across-slope shape: Convex, linear
Parent material: Loose sandy glaciofluvial deposits derived from granite and/or loose sandy glaciofluvial deposits derived from schist and/or loose sandy glaciofluvial deposits derived from gneiss

Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material
A - 1 to 3 inches: loamy sand

Bw - 3 to 25 inches: loamy sand
C - 25 to 65 inches: sand

Properties and qualities

Slope: 0 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to very high (1.42 to 99.90 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 4.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2s
Hydrologic Soil Group: A
Ecological site: F144BY601ME - Dry Sand
Hydric soil rating: No

Soil Information for All Uses

Soil Properties and Qualities

The Soil Properties and Qualities section includes various soil properties and qualities displayed as thematic maps with a summary table for the soil map units in the selected area of interest. A single value or rating for each map unit is generated by aggregating the interpretive ratings of individual map unit components. This aggregation process is defined for each property or quality.

Soil Erosion Factors

Soil Erosion Factors are soil properties and interpretations used in evaluating the soil for potential erosion. Example soil erosion factors can include K factor for the whole soil or on a rock free basis, T factor, wind erodibility group and wind erodibility index.

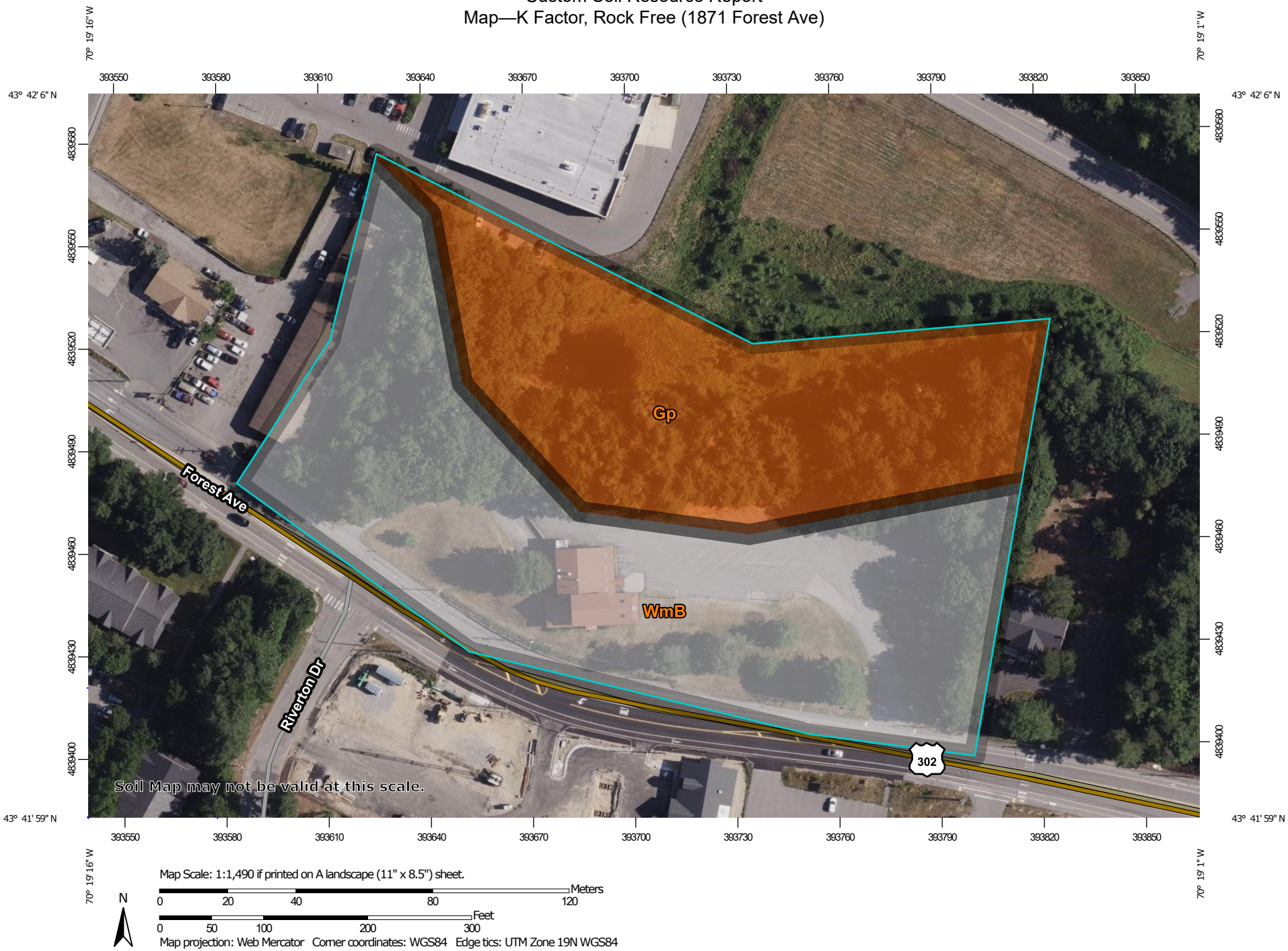
K Factor, Rock Free (1871 Forest Ave)

Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and saturated hydraulic conductivity (Ksat). Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

"Erosion factor Kf (rock free)" indicates the erodibility of the fine-earth fraction, or the material less than 2 millimeters in size.

Factor K does not apply to organic horizons and is not reported for those layers.

Map—K Factor, Rock Free (1871 Forest Ave)



Map Scale: 1:1,490 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 20 40 80 120

Feet: 0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- .02
- .05
- .10
- .15
- .17
- .20
- .24
- .28
- .32
- .37
- .43
- .49
- .55
- .64
- Not rated or not available

Soil Rating Lines
- .02
- .05
- .10
- .15
- .17
- .20
- .24
- .28
- .32
- .37
- .43
- .49
- .55
- .64
- Not rated or not available

Soil Rating Points
- .02
- .05
- .10
- .15
- .17
- .20
- .24
- .28
- .32
- .37
- .43
- .49
- .55
- .64
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

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Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

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Date(s) aerial images were photographed: Mar 1, 2022—Jul 1, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background

MAP LEGEND

MAP INFORMATION

imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Table—K Factor, Rock Free (1871 Forest Ave)

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
Gp	Gravel pits	.05	2.5	41.0%
WmB	Windsor loamy sand, 0 to 8 percent slopes		3.6	59.0%
Totals for Area of Interest			**6.2**	**100.0%**

Rating Options—K Factor, Rock Free (1871 Forest Ave)

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

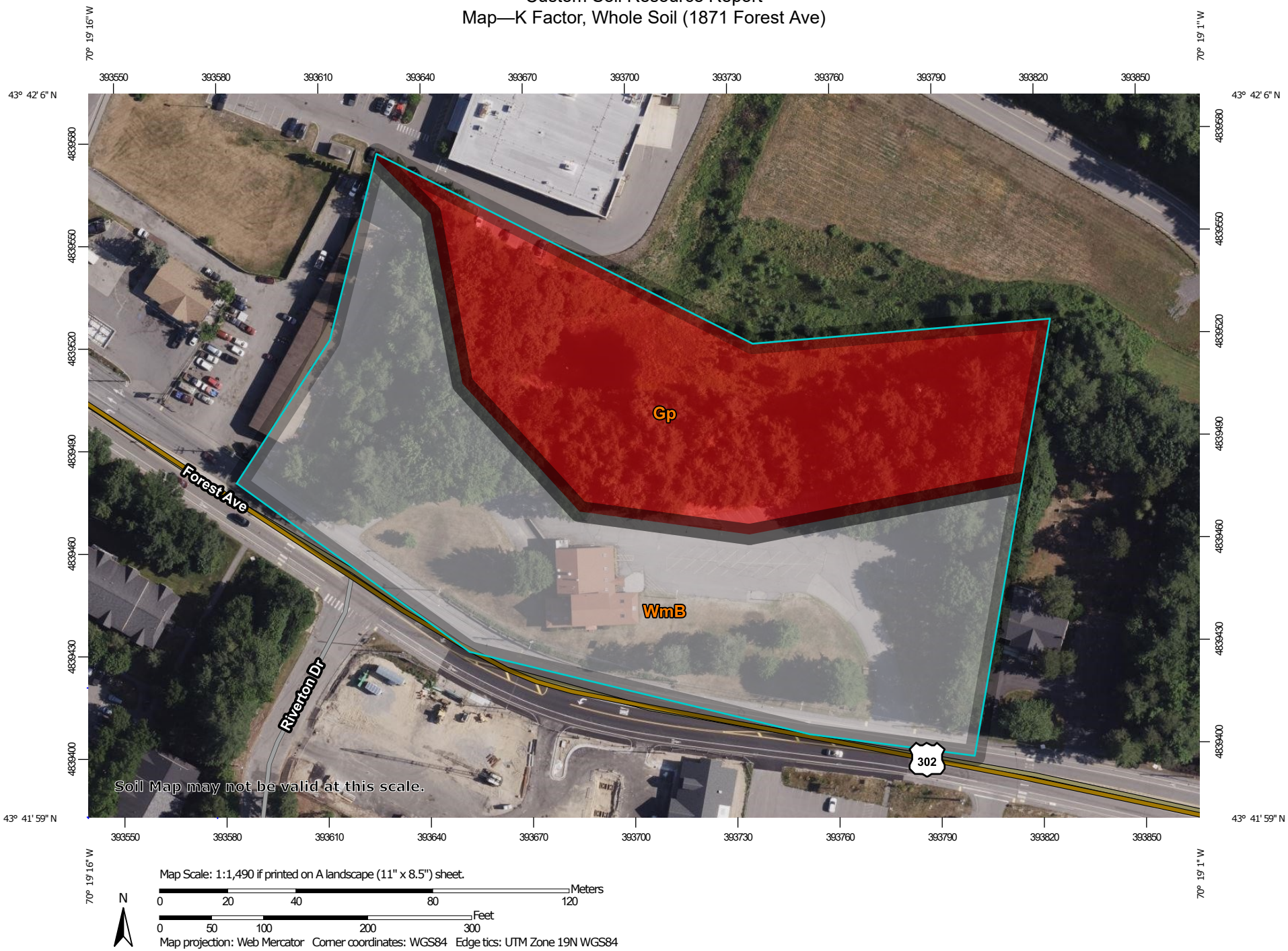
Layer Options (Horizon Aggregation Method): Surface Layer (Not applicable)

K Factor, Whole Soil (1871 Forest Ave)

Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and saturated hydraulic conductivity (Ksat). Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

"Erosion factor Kw (whole soil)" indicates the erodibility of the whole soil. The estimates are modified by the presence of rock fragments.

Factor K does not apply to organic horizons and is not reported for those layers.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Soil Map may not be valid at this scale.
Map Scale: 1:1,490 if printed on A landscape (11" x 8.5") sheet.
N
Meters
0 20 40 80 120
Feet
0 50 100 200 300
Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- .02
- .05
- .10
- .15
- .17
- .20
- .24
- .28
- .32
- .37
- .43
- .49
- .55
- .64
- Not rated or not available

Soil Rating Lines
- .02
- .05
- .10
- .15
- .17
- .20
- .24
- .28
- .32
- .37
- .43
- .49
- .55
- .64
- Not rated or not available

Soil Rating Points
- .02
- .05
- .10
- .15
- .17
- .20
- .24
- .28
- .32
- .37
- .43
- .49
- .55
- .64
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Cumberland County and Part of Oxford County, Maine
Survey Area Data: Version 22, Aug 29, 2025

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Mar 1, 2022—Jul 1, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background

MAP LEGEND

MAP INFORMATION

imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Table—K Factor, Whole Soil (1871 Forest Ave)

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
Gp	Gravel pits	.02	2.5	41.0%
WmB	Windsor loamy sand, 0 to 8 percent slopes		3.6	59.0%
Totals for Area of Interest			**6.2**	**100.0%**

Rating Options—K Factor, Whole Soil (1871 Forest Ave)

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Layer Options (Horizon Aggregation Method): Surface Layer (Not applicable)

Soil Qualities and Features

Soil qualities are behavior and performance attributes that are not directly measured, but are inferred from observations of dynamic conditions and from soil properties. Example soil qualities include natural drainage, and frost action. Soil features are attributes that are not directly part of the soil. Example soil features include slope and depth to restrictive layer. These features can greatly impact the use and management of the soil.

Hydrologic Soil Group (1871 Forest Ave)

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

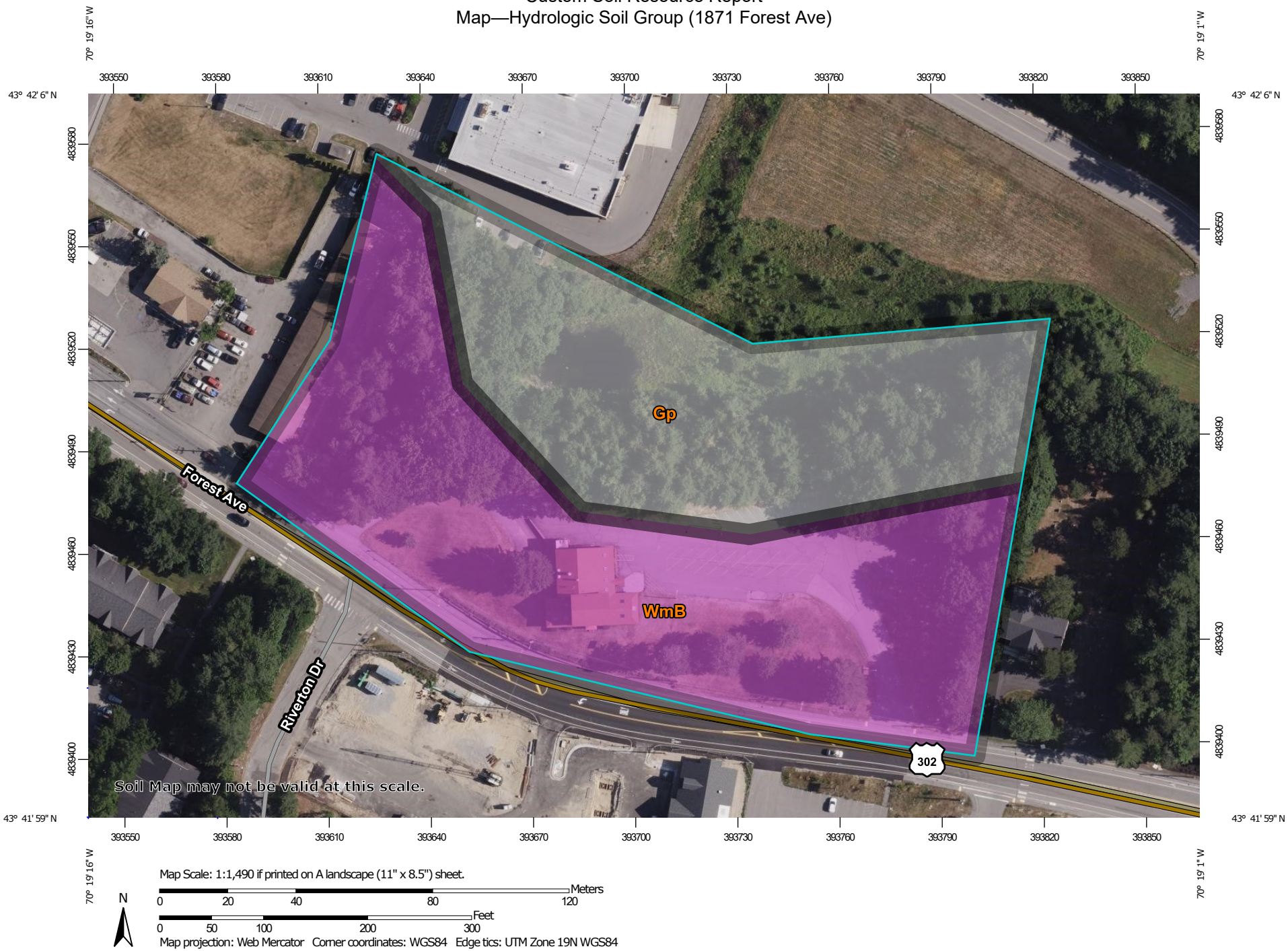
Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.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Feet
0 50 100 200 300
Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points
- A
- A/D
- B
- B/D
- C
- C/D
- D
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- Streams and Canals

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Table—Hydrologic Soil Group (1871 Forest Ave)

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Rating Options—Hydrologic Soil Group (1871 Forest Ave)

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

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Glossary

Many of the terms relating to landforms, geology, and geomorphology are defined in more detail in the following National Soil Survey Handbook link: “National Soil Survey Handbook.”

ABC soil

A soil having an A, a B, and a C horizon.

Ablation till

Loose, relatively permeable earthy material deposited during the downwasting of nearly static glacial ice, either contained within or accumulated on the surface of the glacier.

AC soil

A soil having only an A and a C horizon. Commonly, such soil formed in recent alluvium or on steep, rocky slopes.

Aeration, soil

The exchange of air in soil with air from the atmosphere. The air in a well aerated soil is similar to that in the atmosphere; the air in a poorly aerated soil is considerably higher in carbon dioxide and lower in oxygen.

Aggregate, soil

Many fine particles held in a single mass or cluster. Natural soil aggregates, such as granules, blocks, or prisms, are called peds. Clods are aggregates produced by tillage or logging.

Alkali (sodic) soil

A soil having so high a degree of alkalinity (pH 8.5 or higher) or so high a percentage of exchangeable sodium (15 percent or more of the total exchangeable bases), or both, that plant growth is restricted.

Alluvial cone

A semiconical type of alluvial fan having very steep slopes. It is higher, narrower, and steeper than a fan and is composed of coarser and thicker layers of material deposited by a combination of alluvial episodes and (to a much lesser degree) landslides (debris flow). The coarsest materials tend to be concentrated at the apex of the cone.

Alluvial fan

A low, outspread mass of loose materials and/or rock material, commonly with gentle slopes. It is shaped like an open fan or a segment of a cone. The material was deposited by a stream at the place where it issues from a narrow mountain valley or upland valley or where a tributary stream is near or at its junction with the main stream. The fan is steepest near its apex, which points upstream, and slopes gently and convexly outward (downstream) with a gradual decrease in gradient.

Alluvium

Unconsolidated material, such as gravel, sand, silt, clay, and various mixtures of these, deposited on land by running water.

Alpha,alpha-dipyridyl

A compound that when dissolved in ammonium acetate is used to detect the presence of reduced iron (Fe II) in the soil. A positive reaction implies reducing conditions and the likely presence of redoximorphic features.

Animal unit month (AUM)

The amount of forage required by one mature cow of approximately 1,000 pounds weight, with or without a calf, for 1 month.

Aquic conditions

Current soil wetness characterized by saturation, reduction, and redoximorphic features.

Argillic horizon

A subsoil horizon characterized by an accumulation of illuvial clay.

Arroyo

The flat-floored channel of an ephemeral stream, commonly with very steep to vertical banks cut in unconsolidated material. It is usually dry but can be transformed into a temporary watercourse or short-lived torrent after heavy rain within the watershed.

Aspect

The direction toward which a slope faces. Also called slope aspect.

Association, soil

A group of soils or miscellaneous areas geographically associated in a characteristic repeating pattern and defined and delineated as a single map unit.

Available water capacity (available moisture capacity)

The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 60-inch profile or to a limiting layer is expressed as:

Very low: 0 to 3
Low: 3 to 6
Moderate: 6 to 9
High: 9 to 12
Very high: More than 12

Backslope

The position that forms the steepest and generally linear, middle portion of a hillslope. In profile, backslopes are commonly bounded by a convex shoulder above and a concave footslope below.

Backswamp

A flood-plain landform. Extensive, marshy or swampy, depressed areas of flood plains between natural levees and valley sides or terraces.

Badland

A landscape that is intricately dissected and characterized by a very fine drainage network with high drainage densities and short, steep slopes and narrow interfluves. Badlands develop on surfaces that have little or no vegetative cover overlying unconsolidated or poorly cemented materials (clays, silts, or sandstones) with, in some cases, soluble minerals, such as gypsum or halite.

Bajada

A broad, gently inclined alluvial piedmont slope extending from the base of a mountain range out into a basin and formed by the lateral coalescence of a series of alluvial fans. Typically, it has a broadly undulating transverse profile, parallel to the mountain front, resulting from the convexities of component fans. The term is generally restricted to constructional slopes of intermontane basins.

Basal area

The area of a cross section of a tree, generally referring to the section at breast height and measured outside the bark. It is a measure of stand density, commonly expressed in square feet.

Base saturation

The degree to which material having cation-exchange properties is saturated with exchangeable bases (sum of Ca, Mg, Na, and K), expressed as a percentage of the total cation-exchange capacity.

Base slope (geomorphology)

A geomorphic component of hills consisting of the concave to linear (perpendicular to the contour) slope that, regardless of the lateral shape, forms an apron or wedge at the bottom of a hillside dominated by colluvium and slope-wash sediments (for example, slope alluvium).

Bedding plane

A planar or nearly planar bedding surface that visibly separates each successive layer of stratified sediment or rock (of the same or different lithology)

from the preceding or following layer; a plane of deposition. It commonly marks a change in the circumstances of deposition and may show a parting, a color difference, a change in particle size, or various combinations of these. The term is commonly applied to any bedding surface, even one that is conspicuously bent or deformed by folding.

Bedding system

A drainage system made by plowing, grading, or otherwise shaping the surface of a flat field. It consists of a series of low ridges separated by shallow, parallel dead furrows.

Bedrock

The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.

Bedrock-controlled topography

A landscape where the configuration and relief of the landforms are determined or strongly influenced by the underlying bedrock.

Bench terrace

A raised, level or nearly level strip of earth constructed on or nearly on a contour, supported by a barrier of rocks or similar material, and designed to make the soil suitable for tillage and to prevent accelerated erosion.

Bisequum

Two sequences of soil horizons, each of which consists of an illuvial horizon and the overlying eluvial horizons.

Blowout (map symbol)

A saucer-, cup-, or trough-shaped depression formed by wind erosion on a preexisting dune or other sand deposit, especially in an area of shifting sand or loose soil or where protective vegetation is disturbed or destroyed. The adjoining accumulation of sand derived from the depression, where recognizable, is commonly included. Blowouts are commonly small.

Borrow pit (map symbol)

An open excavation from which soil and underlying material have been removed, usually for construction purposes.

Bottom land

An informal term loosely applied to various portions of a flood plain.

Boulders

Rock fragments larger than 2 feet (60 centimeters) in diameter.

Breaks

A landscape or tract of steep, rough or broken land dissected by ravines and gullies and marking a sudden change in topography.

Breast height

An average height of 4.5 feet above the ground surface; the point on a tree where diameter measurements are ordinarily taken.

Brush management

Use of mechanical, chemical, or biological methods to make conditions favorable for reseeding or to reduce or eliminate competition from woody vegetation and thus allow understory grasses and forbs to recover. Brush management increases forage production and thus reduces the hazard of erosion. It can improve the habitat for some species of wildlife.

Butte

An isolated, generally flat-topped hill or mountain with relatively steep slopes and talus or precipitous cliffs and characterized by summit width that is less than the height of bounding escarpments; commonly topped by a caprock of resistant material and representing an erosion remnant carved from flat-lying rocks.

Cable yarding

A method of moving felled trees to a nearby central area for transport to a processing facility. Most cable yarding systems involve use of a drum, a pole, and wire cables in an arrangement similar to that of a rod and reel used for fishing. To reduce friction and soil disturbance, felled trees generally are reeled in while one end is lifted or the entire log is suspended.

Calcareous soil

A soil containing enough calcium carbonate (commonly combined with magnesium carbonate) to effervesce visibly when treated with cold, dilute hydrochloric acid.

Caliche

A general term for a prominent zone of secondary carbonate accumulation in surficial materials in warm, subhumid to arid areas. Caliche is formed by both geologic and pedologic processes. Finely crystalline calcium carbonate forms a nearly continuous surface-coating and void-filling medium in geologic (parent) materials. Cementation ranges from weak in nonindurated forms to very strong in indurated forms. Other minerals (e.g., carbonates, silicate, and sulfate) may occur as accessory cements. Most petrocalcic horizons and some calcic horizons are caliche.

California bearing ratio (CBR)

The load-supporting capacity of a soil as compared to that of standard crushed limestone, expressed as a ratio. First standardized in California. A soil having a CBR of 16 supports 16 percent of the load that would be supported by standard crushed limestone, per unit area, with the same degree of distortion.

Canopy

The leafy crown of trees or shrubs. (See Crown.)

Canyon

A long, deep, narrow valley with high, precipitous walls in an area of high local relief.

Capillary water

Water held as a film around soil particles and in tiny spaces between particles. Surface tension is the adhesive force that holds capillary water in the soil.

Catena

A sequence, or “chain,” of soils on a landscape that formed in similar kinds of parent material and under similar climatic conditions but that have different characteristics as a result of differences in relief and drainage.

Cation

An ion carrying a positive charge of electricity. The common soil cations are calcium, potassium, magnesium, sodium, and hydrogen.

Cation-exchange capacity

The total amount of exchangeable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. The term, as applied to soils, is synonymous with base-exchange capacity but is more precise in meaning.

Catsteps

See Terracettes.

Cement rock

Shaly limestone used in the manufacture of cement.

Channery soil material

Soil material that has, by volume, 15 to 35 percent thin, flat fragments of sandstone, shale, slate, limestone, or schist as much as 6 inches (15 centimeters) along the longest axis. A single piece is called a channer.

Chemical treatment

Control of unwanted vegetation through the use of chemicals.

Chiseling

Tillage with an implement having one or more soil-penetrating points that shatter or loosen hard, compacted layers to a depth below normal plow depth.

Cirque

A steep-walled, semicircular or crescent-shaped, half-bowl-like recess or hollow, commonly situated at the head of a glaciated mountain valley or high on the side of a mountain. It was produced by the erosive activity of a mountain glacier. It commonly contains a small round lake (tarn).

Clay

As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

Clay depletions

See Redoximorphic features.

Clay film

A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels. Synonyms: clay coating, clay skin.

Clay spot (map symbol)

A spot where the surface texture is silty clay or clay in areas where the surface layer of the soils in the surrounding map unit is sandy loam, loam, silt loam, or coarser.

Claypan

A dense, compact subsoil layer that contains much more clay than the overlying materials, from which it is separated by a sharply defined boundary. The layer restricts the downward movement of water through the soil. A claypan is commonly hard when dry and plastic and sticky when wet.

Climax plant community

The stabilized plant community on a particular site. The plant cover reproduces itself and does not change so long as the environment remains the same.

Coarse textured soil

Sand or loamy sand.

Cobble (or cobblestone)

A rounded or partly rounded fragment of rock 3 to 10 inches (7.6 to 25 centimeters) in diameter.

Cobbly soil material

Material that has 15 to 35 percent, by volume, rounded or partially rounded rock fragments 3 to 10 inches (7.6 to 25 centimeters) in diameter. Very cobbly soil material has 35 to 60 percent of these rock fragments, and extremely cobbly soil material has more than 60 percent.

COLE (coefficient of linear extensibility)

See Linear extensibility.

Colluvium

Unconsolidated, unsorted earth material being transported or deposited on side slopes and/or at the base of slopes by mass movement (e.g., direct gravitational action) and by local, unconcentrated runoff.

Complex slope

Irregular or variable slope. Planning or establishing terraces, diversions, and other water-control structures on a complex slope is difficult.

Complex, soil

A map unit of two or more kinds of soil or miscellaneous areas in such an intricate pattern or so small in area that it is not practical to map them separately at the selected scale of mapping. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas.

Concretions

See Redoximorphic features.

Conglomerate

A coarse grained, clastic sedimentary rock composed of rounded or subangular rock fragments more than 2 millimeters in diameter. It commonly has a matrix of sand and finer textured material. Conglomerate is the consolidated equivalent of gravel.

Conservation cropping system

Growing crops in combination with needed cultural and management practices. In a good conservation cropping system, the soil-improving crops and practices more than offset the effects of the soil-depleting crops and practices. Cropping systems are needed on all tilled soils. Soil-improving practices in a conservation cropping system include the use of rotations that contain grasses and legumes and the return of crop residue to the soil. Other practices include the use of green manure crops of grasses and legumes, proper tillage, adequate fertilization, and weed and pest control.

Conservation tillage

A tillage system that does not invert the soil and that leaves a protective amount of crop residue on the surface throughout the year.

Consistence, soil

Refers to the degree of cohesion and adhesion of soil material and its resistance to deformation when ruptured. Consistence includes resistance of soil material to rupture and to penetration; plasticity, toughness, and stickiness of puddled soil material; and the manner in which the soil material behaves when subject to compression. Terms describing consistence are defined in the “Soil Survey Manual.”

Contour stripcropping

Growing crops in strips that follow the contour. Strips of grass or close-growing crops are alternated with strips of clean-tilled crops or summer fallow.

Control section

The part of the soil on which classification is based. The thickness varies among different kinds of soil, but for many it is that part of the soil profile between depths of 10 inches and 40 or 80 inches.

Coprogenous earth (sedimentary peat)

A type of limnic layer composed predominantly of fecal material derived from aquatic animals.

Corrosion (geomorphology)

A process of erosion whereby rocks and soil are removed or worn away by natural chemical processes, especially by the solvent action of running water, but also by other reactions, such as hydrolysis, hydration, carbonation, and oxidation.

Corrosion (soil survey interpretations)

Soil-induced electrochemical or chemical action that dissolves or weakens concrete or uncoated steel.

Cover crop

A close-growing crop grown primarily to improve and protect the soil between periods of regular crop production, or a crop grown between trees and vines in orchards and vineyards.

Crop residue management

Returning crop residue to the soil, which helps to maintain soil structure, organic matter content, and fertility and helps to control erosion.

Cropping system

Growing crops according to a planned system of rotation and management practices.

Cross-slope farming

Deliberately conducting farming operations on sloping farmland in such a way that tillage is across the general slope.

Crown

The upper part of a tree or shrub, including the living branches and their foliage.

Cryoturbate

A mass of soil or other unconsolidated earthy material moved or disturbed by frost action. It is typically coarser than the underlying material.

Cuesta

An asymmetric ridge capped by resistant rock layers of slight or moderate dip (commonly less than 15 percent slopes); a type of homocline produced by differential erosion of interbedded resistant and weak rocks. A cuesta has a long, gentle slope on one side (dip slope) that roughly parallels the inclined beds; on the other side, it has a relatively short and steep or clifflike slope (scarp) that cuts through the tilted rocks.

Culmination of the mean annual increment (CMAI)

The average annual increase per acre in the volume of a stand. Computed by dividing the total volume of the stand by its age. As the stand increases in age, the mean annual increment continues to increase until mortality begins to reduce the rate of increase. The point where the stand reaches its maximum annual rate of growth is called the culmination of the mean annual increment.

Cutbanks cave

The walls of excavations tend to cave in or slough.

Decreasers

The most heavily grazed climax range plants. Because they are the most palatable, they are the first to be destroyed by overgrazing.

Deferred grazing

Postponing grazing or resting grazing land for a prescribed period.

Delta

A body of alluvium having a surface that is fan shaped and nearly flat; deposited at or near the mouth of a river or stream where it enters a body of relatively quiet water, generally a sea or lake.

Dense layer

A very firm, massive layer that has a bulk density of more than 1.8 grams per cubic centimeter. Such a layer affects the ease of digging and can affect filling and compacting.

Depression, closed (map symbol)

A shallow, saucer-shaped area that is slightly lower on the landscape than the surrounding area and that does not have a natural outlet for surface drainage.

Depth, soil

Generally, the thickness of the soil over bedrock. Very deep soils are more than 60 inches deep over bedrock; deep soils, 40 to 60 inches; moderately deep, 20 to 40 inches; shallow, 10 to 20 inches; and very shallow, less than 10 inches.

Desert pavement

A natural, residual concentration or layer of wind-polished, closely packed gravel, boulders, and other rock fragments mantling a desert surface. It forms where wind action and sheetwash have removed all smaller particles or where rock fragments have migrated upward through sediments to the surface. It typically protects the finer grained underlying material from further erosion.

Diatomaceous earth

A geologic deposit of fine, grayish siliceous material composed chiefly or entirely of the remains of diatoms.

Dip slope

A slope of the land surface, roughly determined by and approximately conforming to the dip of the underlying bedrock.

Diversion (or diversion terrace)

A ridge of earth, generally a terrace, built to protect downslope areas by diverting runoff from its natural course.

Divided-slope farming

A form of field stripcropping in which crops are grown in a systematic arrangement of two strips, or bands, across the slope to reduce the hazard of water erosion. One strip is in a close-growing crop that provides protection from erosion, and the other strip is in a crop that provides less protection from erosion. This practice is used where slopes are not long enough to permit a full stripcropping pattern to be used.

Drainage class (natural)

Refers to the frequency and duration of wet periods under conditions similar to those under which the soil formed. Alterations of the water regime by human activities, either through drainage or irrigation, are not a consideration unless they have significantly changed the morphology of the soil. Seven classes of natural soil drainage are recognized—*excessively drained, somewhat excessively drained, well drained, moderately well drained, somewhat poorly drained, poorly drained,* and *very poorly drained*. These classes are defined in the “Soil Survey Manual.”

Drainage, surface

Runoff, or surface flow of water, from an area.

Drainageway

A general term for a course or channel along which water moves in draining an area. A term restricted to relatively small, linear depressions that at some time move concentrated water and either do not have a defined channel or have only a small defined channel.

Draw

A small stream valley that generally is shallower and more open than a ravine or gulch and that has a broader bottom. The present stream channel may appear inadequate to have cut the drainageway that it occupies.

Drift

A general term applied to all mineral material (clay, silt, sand, gravel, and boulders) transported by a glacier and deposited directly by or from the ice or transported by running water emanating from a glacier. Drift includes unstratified material (till) that forms moraines and stratified deposits that form outwash plains, eskers, kames, varves, and glaciofluvial sediments. The term is generally applied to Pleistocene glacial deposits in areas that no longer contain glaciers.

Drumlin

A low, smooth, elongated oval hill, mound, or ridge of compact till that has a core of bedrock or drift. It commonly has a blunt nose facing the direction from which the ice approached and a gentler slope tapering in the other direction. The longer axis is parallel to the general direction of glacier flow. Drumlins are products of streamline (laminar) flow of glaciers, which molded the subglacial floor through a combination of erosion and deposition.

Duff

A generally firm organic layer on the surface of mineral soils. It consists of fallen plant material that is in the process of decomposition and includes everything from the litter on the surface to underlying pure humus.

Dune

A low mound, ridge, bank, or hill of loose, windblown granular material (generally sand), either barren and capable of movement from place to place or covered and stabilized with vegetation but retaining its characteristic shape.

Earthy fill

See Mine spoil.

Ecological site

An area where climate, soil, and relief are sufficiently uniform to produce a distinct natural plant community. An ecological site is the product of all the environmental factors responsible for its development. It is typified by an association of species that differ from those on other ecological sites in kind and/or proportion of species or in total production.

Eluviation

The movement of material in true solution or colloidal suspension from one place to another within the soil. Soil horizons that have lost material through eluviation are eluvial; those that have received material are illuvial.

Endosaturation

A type of saturation of the soil in which all horizons between the upper boundary of saturation and a depth of 2 meters are saturated.

Eolian deposit

Sand-, silt-, or clay-sized clastic material transported and deposited primarily by wind, commonly in the form of a dune or a sheet of sand or loess.

Ephemeral stream

A stream, or reach of a stream, that flows only in direct response to precipitation. It receives no long-continued supply from melting snow or other source, and its channel is above the water table at all times.

Episaturation

A type of saturation indicating a perched water table in a soil in which saturated layers are underlain by one or more unsaturated layers within 2 meters of the surface.

Erosion

The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep.

Erosion (accelerated)

Erosion much more rapid than geologic erosion, mainly as a result of human or animal activities or of a catastrophe in nature, such as a fire, that exposes the surface.

Erosion (geologic)

Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.

Erosion pavement

A surficial lag concentration or layer of gravel and other rock fragments that remains on the soil surface after sheet or rill erosion or wind has removed the finer soil particles and that tends to protect the underlying soil from further erosion.

Erosion surface

A land surface shaped by the action of erosion, especially by running water.

Escarpment

A relatively continuous and steep slope or cliff breaking the general continuity of more gently sloping land surfaces and resulting from erosion or faulting. Most commonly applied to cliffs produced by differential erosion. Synonym: scarp.

Escarpment, bedrock (map symbol)

A relatively continuous and steep slope or cliff, produced by erosion or faulting, that breaks the general continuity of more gently sloping land surfaces. Exposed material is hard or soft bedrock.

Escarpment, nonbedrock (map symbol)

A relatively continuous and steep slope or cliff, generally produced by erosion but in some places produced by faulting, that breaks the continuity of more gently sloping land surfaces. Exposed earthy material is nonsoil or very shallow soil.

Esker

A long, narrow, sinuous, steep-sided ridge of stratified sand and gravel deposited as the bed of a stream flowing in an ice tunnel within or below the ice (subglacial) or between ice walls on top of the ice of a wasting glacier and left

behind as high ground when the ice melted. Eskers range in length from less than a kilometer to more than 160 kilometers and in height from 3 to 30 meters.

Extrusive rock

Igneous rock derived from deep-seated molten matter (magma) deposited and cooled on the earth's surface.

Fallow

Cropland left idle in order to restore productivity through accumulation of moisture. Summer fallow is common in regions of limited rainfall where cereal grain is grown. The soil is tilled for at least one growing season for weed control and decomposition of plant residue.

Fan remnant

A general term for landforms that are the remaining parts of older fan landforms, such as alluvial fans, that have been either dissected or partially buried.

Fertility, soil

The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.

Fibric soil material (peat)

The least decomposed of all organic soil material. Peat contains a large amount of well preserved fiber that is readily identifiable according to botanical origin. Peat has the lowest bulk density and the highest water content at saturation of all organic soil material.

Field moisture capacity

The moisture content of a soil, expressed as a percentage of the ovendry weight, after the gravitational, or free, water has drained away; the field moisture content 2 or 3 days after a soaking rain; also called *normal field capacity, normal moisture capacity,* or *capillary capacity*.

Fill slope

A sloping surface consisting of excavated soil material from a road cut. It commonly is on the downhill side of the road.

Fine textured soil

Sandy clay, silty clay, or clay.

Firebreak

An area cleared of flammable material to stop or help control creeping or running fires. It also serves as a line from which to work and to facilitate the movement of firefighters and equipment. Designated roads also serve as firebreaks.

First bottom

An obsolete, informal term loosely applied to the lowest flood-plain steps that are subject to regular flooding.

Flaggy soil material

Material that has, by volume, 15 to 35 percent flagstones. Very flaggy soil material has 35 to 60 percent flagstones, and extremely flaggy soil material has more than 60 percent flagstones.

Flagstone

A thin fragment of sandstone, limestone, slate, shale, or (rarely) schist 6 to 15 inches (15 to 38 centimeters) long.

Flood plain

The nearly level plain that borders a stream and is subject to flooding unless protected artificially.

Flood-plain landforms

A variety of constructional and erosional features produced by stream channel migration and flooding. Examples include backswamps, flood-plain splays, meanders, meander belts, meander scrolls, oxbow lakes, and natural levees.

Flood-plain splay

A fan-shaped deposit or other outspread deposit formed where an overloaded stream breaks through a levee (natural or artificial) and deposits its material (commonly coarse grained) on the flood plain.

Flood-plain step

An essentially flat, terrace-like alluvial surface within a valley that is frequently covered by floodwater from the present stream; any approximately horizontal surface still actively modified by fluvial scour and/or deposition. May occur individually or as a series of steps.

Fluvial

Of or pertaining to rivers or streams; produced by stream or river action.

Foothills

A region of steeply sloping hills that fringes a mountain range or high-plateau escarpment. The hills have relief of as much as 1,000 feet (300 meters).

Footslope

The concave surface at the base of a hillslope. A footslope is a transition zone between upslope sites of erosion and transport (shoulders and backslopes) and downslope sites of deposition (toeslopes).

Forb

Any herbaceous plant not a grass or a sedge.

Forest cover

All trees and other woody plants (underbrush) covering the ground in a forest.

Forest type

A stand of trees similar in composition and development because of given physical and biological factors by which it may be differentiated from other stands.

Fragipan

A loamy, brittle subsurface horizon low in porosity and content of organic matter and low or moderate in clay but high in silt or very fine sand. A fragipan appears cemented and restricts roots. When dry, it is hard or very hard and has a higher bulk density than the horizon or horizons above. When moist, it tends to rupture suddenly under pressure rather than to deform slowly.

Genesis, soil

The mode of origin of the soil. Refers especially to the processes or soil-forming factors responsible for the formation of the solum, or true soil, from the unconsolidated parent material.

Gilgai

Commonly, a succession of microbasins and microknolls in nearly level areas or of microvalleys and microridges parallel with the slope. Typically, the microrelief of clayey soils that shrink and swell considerably with changes in moisture content.

Glaciofluvial deposits

Material moved by glaciers and subsequently sorted and deposited by streams flowing from the melting ice. The deposits are stratified and occur in the form of outwash plains, valley trains, deltas, kames, eskers, and kame terraces.

Glaciolacustrine deposits

Material ranging from fine clay to sand derived from glaciers and deposited in glacial lakes mainly by glacial meltwater. Many deposits are bedded or laminated.

Gleyed soil

Soil that formed under poor drainage, resulting in the reduction of iron and other elements in the profile and in gray colors.

Graded stripcropping

Growing crops in strips that grade toward a protected waterway.

Grassed waterway

A natural or constructed waterway, typically broad and shallow, seeded to grass as protection against erosion. Conducts surface water away from cropland.

Gravel

Rounded or angular fragments of rock as much as 3 inches (2 millimeters to 7.6 centimeters) in diameter. An individual piece is a pebble.

Gravel pit (map symbol)

An open excavation from which soil and underlying material have been removed and used, without crushing, as a source of sand or gravel.

Gravelly soil material

Material that has 15 to 35 percent, by volume, rounded or angular rock fragments, not prominently flattened, as much as 3 inches (7.6 centimeters) in diameter.

Gravelly spot (map symbol)

A spot where the surface layer has more than 35 percent, by volume, rock fragments that are mostly less than 3 inches in diameter in an area that has less than 15 percent rock fragments.

Green manure crop (agronomy)

A soil-improving crop grown to be plowed under in an early stage of maturity or soon after maturity.

Ground water

Water filling all the unblocked pores of the material below the water table.

Gully (map symbol)

A small, steep-sided channel caused by erosion and cut in unconsolidated materials by concentrated but intermittent flow of water. The distinction between a gully and a rill is one of depth. A gully generally is an obstacle to farm machinery and is too deep to be obliterated by ordinary tillage whereas a rill is of lesser depth and can be smoothed over by ordinary tillage.

Hard bedrock

Bedrock that cannot be excavated except by blasting or by the use of special equipment that is not commonly used in construction.

Hard to reclaim

Reclamation is difficult after the removal of soil for construction and other uses. Revegetation and erosion control are extremely difficult.

Hardpan

A hardened or cemented soil horizon, or layer. The soil material is sandy, loamy, or clayey and is cemented by iron oxide, silica, calcium carbonate, or other substance.

Head slope (geomorphology)

A geomorphic component of hills consisting of a laterally concave area of a hillside, especially at the head of a drainageway. The overland waterflow is converging.

Hemic soil material (mucky peat)

Organic soil material intermediate in degree of decomposition between the less decomposed fibric material and the more decomposed sapric material.

High-residue crops

Such crops as small grain and corn used for grain. If properly managed, residue from these crops can be used to control erosion until the next crop in the rotation is established. These crops return large amounts of organic matter to the soil.

Hill

A generic term for an elevated area of the land surface, rising as much as 1,000 feet above surrounding lowlands, commonly of limited summit area and having a well defined outline. Slopes are generally more than 15 percent. The distinction between a hill and a mountain is arbitrary and may depend on local usage.

Hillslope

A generic term for the steeper part of a hill between its summit and the drainage line, valley flat, or depression floor at the base of a hill.

Horizon, soil

A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. In the identification of soil horizons, an uppercase letter represents the major horizons. Numbers or lowercase letters that follow represent subdivisions of the major horizons. An explanation of the subdivisions is given in the “Soil Survey Manual.” The major horizons of mineral soil are as follows:

O horizon: An organic layer of fresh and decaying plant residue.

L horizon: A layer of organic and mineral limnic materials, including coprogenous earth (sedimentary peat), diatomaceous earth, and marl.

A horizon: The mineral horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon, most of which was originally part of a B horizon.

E horizon: The mineral horizon in which the main feature is loss of silicate clay, iron, aluminum, or some combination of these.

B horizon: The mineral horizon below an A horizon. The B horizon is in part a layer of transition from the overlying A to the underlying C horizon. The B horizon also has distinctive characteristics, such as (1) accumulation of clay, sesquioxides, humus, or a combination of these; (2) prismatic or blocky structure; (3) redder or browner colors than those in the A horizon; or (4) a combination of these.

C horizon: The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the overlying soil material. The material of a C horizon may be either like or unlike that in which the solum formed. If the material is known to differ from that in the solum, an Arabic numeral, commonly a 2, precedes the letter C.

Cr horizon: Soft, consolidated bedrock beneath the soil.

R layer: Consolidated bedrock beneath the soil. The bedrock commonly underlies a C horizon, but it can be directly below an A or a B horizon.

M layer: A root-limiting subsoil layer consisting of nearly continuous, horizontally oriented, human-manufactured materials.

W layer: A layer of water within or beneath the soil.

Humus

The well decomposed, more or less stable part of the organic matter in mineral soils.

Hydrologic soil groups

Refers to soils grouped according to their runoff potential. The soil properties that influence this potential are those that affect the minimum rate of water infiltration on a bare soil during periods after prolonged wetting when the soil is not frozen. These properties include depth to a seasonal high water table, the infiltration rate, and depth to a layer that significantly restricts the downward movement of water. The slope and the kind of plant cover are not considered but are separate factors in predicting runoff.

Igneous rock

Rock that was formed by cooling and solidification of magma and that has not been changed appreciably by weathering since its formation. Major varieties include plutonic and volcanic rock (e.g., andesite, basalt, and granite).

Illuviation

The movement of soil material from one horizon to another in the soil profile. Generally, material is removed from an upper horizon and deposited in a lower horizon.

Impervious soil

A soil through which water, air, or roots penetrate slowly or not at all. No soil is absolutely impervious to air and water all the time.

Increasers

Species in the climax vegetation that increase in amount as the more desirable plants are reduced by close grazing. Increasers commonly are the shorter plants and the less palatable to livestock.

Infiltration

The downward entry of water into the immediate surface of soil or other material, as contrasted with percolation, which is movement of water through soil layers or material.

Infiltration capacity

The maximum rate at which water can infiltrate into a soil under a given set of conditions.

Infiltration rate

The rate at which water penetrates the surface of the soil at any given instant, usually expressed in inches per hour. The rate can be limited by the infiltration capacity of the soil or the rate at which water is applied at the surface.

Intake rate

The average rate of water entering the soil under irrigation. Most soils have a fast initial rate; the rate decreases with application time. Therefore, intake rate for design purposes is not a constant but is a variable depending on the net irrigation application. The rate of water intake, in inches per hour, is expressed as follows:

Very low: Less than 0.2
Low: 0.2 to 0.4
Moderately low: 0.4 to 0.75
Moderate: 0.75 to 1.25
Moderately high: 1.25 to 1.75
High: 1.75 to 2.5
Very high: More than 2.5

Interfluve

A landform composed of the relatively undissected upland or ridge between two adjacent valleys containing streams flowing in the same general direction. An elevated area between two drainageways that sheds water to those drainageways.

Interfluve (geomorphology)

A geomorphic component of hills consisting of the uppermost, comparatively level or gently sloping area of a hill; shoulders of backwearing hillslopes can narrow the upland or can merge, resulting in a strongly convex shape.

Intermittent stream

A stream, or reach of a stream, that does not flow year-round but that is commonly dry for 3 or more months out of 12 and whose channel is generally below the local water table. It flows only during wet periods or when it receives ground-water discharge or long, continued contributions from melting snow or other surface and shallow subsurface sources.

Invaders

On range, plants that encroach into an area and grow after the climax vegetation has been reduced by grazing. Generally, plants invade following disturbance of the surface.

Iron depletions

See Redoximorphic features.

Irrigation

Application of water to soils to assist in production of crops. Methods of irrigation are:

Basin: Water is applied rapidly to nearly level plains surrounded by levees or dikes.

Border: Water is applied at the upper end of a strip in which the lateral flow of water is controlled by small earth ridges called border dikes, or borders.

Controlled flooding: Water is released at intervals from closely spaced field ditches and distributed uniformly over the field.

Corrugation: Water is applied to small, closely spaced furrows or ditches in fields of close-growing crops or in orchards so that it flows in only one direction.

Drip (or trickle): Water is applied slowly and under low pressure to the surface of the soil or into the soil through such applicators as emitters, porous tubing, or perforated pipe.

Furrow: Water is applied in small ditches made by cultivation implements. Furrows are used for tree and row crops.

Sprinkler: Water is sprayed over the soil surface through pipes or nozzles from a pressure system.

Subirrigation: Water is applied in open ditches or tile lines until the water table is raised enough to wet the soil.

Wild flooding: Water, released at high points, is allowed to flow onto an area without controlled distribution.

Kame

A low mound, knob, hummock, or short irregular ridge composed of stratified sand and gravel deposited by a subglacial stream as a fan or delta at the margin of a melting glacier; by a supraglacial stream in a low place or hole on the surface of the glacier; or as a ponded deposit on the surface or at the margin of stagnant ice.

Karst (topography)

A kind of topography that formed in limestone, gypsum, or other soluble rocks by dissolution and that is characterized by closed depressions, sinkholes, caves, and underground drainage.

Knoll

A small, low, rounded hill rising above adjacent landforms.

Ksat

See Saturated hydraulic conductivity.

Lacustrine deposit

Material deposited in lake water and exposed when the water level is lowered or the elevation of the land is raised.

Lake plain

A nearly level surface marking the floor of an extinct lake filled by well sorted, generally fine textured, stratified deposits, commonly containing varves.

Lake terrace

A narrow shelf, partly cut and partly built, produced along a lakeshore in front of a scarp line of low cliffs and later exposed when the water level falls.

Landfill (map symbol)

An area of accumulated waste products of human habitation, either above or below natural ground level.

Landslide

A general, encompassing term for most types of mass movement landforms and processes involving the downslope transport and outward deposition of soil and rock materials caused by gravitational forces; the movement may or may not involve saturated materials. The speed and distance of movement, as well as the amount of soil and rock material, vary greatly.

Large stones

Rock fragments 3 inches (7.6 centimeters) or more across. Large stones adversely affect the specified use of the soil.

Lava flow (map symbol)

A solidified, commonly lobate body of rock formed through lateral, surface outpouring of molten lava from a vent or fissure.

Leaching

The removal of soluble material from soil or other material by percolating water.

Levee (map symbol)

An embankment that confines or controls water, especially one built along the banks of a river to prevent overflow onto lowlands.

Linear extensibility

Refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. Linear extensibility is used to determine the shrink-swell potential of soils. It is an expression of the volume change between the water content of the clod at $^{1}/_{3}$- or $^{1}/_{10}$-bar tension (33kPa or 10kPa tension) and oven dryness. Volume change is influenced by the amount and type of clay minerals in the soil. The volume change is the percent change for the whole soil. If it is expressed as a fraction, the resulting value is COLE, coefficient of linear extensibility.

Liquid limit

The moisture content at which the soil passes from a plastic to a liquid state.

Loam

Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

Loess

Material transported and deposited by wind and consisting dominantly of silt-sized particles.

Low strength

The soil is not strong enough to support loads.

Low-residue crops

Such crops as corn used for silage, peas, beans, and potatoes. Residue from these crops is not adequate to control erosion until the next crop in the rotation is established. These crops return little organic matter to the soil.

Marl

An earthy, unconsolidated deposit consisting chiefly of calcium carbonate mixed with clay in approximately equal proportions; formed primarily under freshwater lacustrine conditions but also formed in more saline environments.

Marsh or swamp (map symbol)

A water-saturated, very poorly drained area that is intermittently or permanently covered by water. Sedges, cattails, and rushes are the dominant vegetation in marshes, and trees or shrubs are the dominant vegetation in swamps. Not used in map units where the named soils are poorly drained or very poorly drained.

Mass movement

A generic term for the dislodgment and downslope transport of soil and rock material as a unit under direct gravitational stress.

Masses

See Redoximorphic features.

Meander belt

The zone within which migration of a meandering channel occurs; the flood-plain area included between two imaginary lines drawn tangential to the outer bends of active channel loops.

Meander scar

A crescent-shaped, concave or linear mark on the face of a bluff or valley wall, produced by the lateral erosion of a meandering stream that impinged upon and undercut the bluff.

Meander scroll

One of a series of long, parallel, close-fitting, crescent-shaped ridges and troughs formed along the inner bank of a stream meander as the channel migrated laterally down-valley and toward the outer bank.

Mechanical treatment

Use of mechanical equipment for seeding, brush management, and other management practices.

Medium textured soil

Very fine sandy loam, loam, silt loam, or silt.

Mesa

A broad, nearly flat topped and commonly isolated landmass bounded by steep slopes or precipitous cliffs and capped by layers of resistant, nearly horizontal rocky material. The summit width is characteristically greater than the height of the bounding escarpments.

Metamorphic rock

Rock of any origin altered in mineralogical composition, chemical composition, or structure by heat, pressure, and movement at depth in the earth’s crust. Nearly all such rocks are crystalline.

Mine or quarry (map symbol)

An open excavation from which soil and underlying material have been removed and in which bedrock is exposed. Also denotes surface openings to underground mines.

Mine spoil

An accumulation of displaced earthy material, rock, or other waste material removed during mining or excavation. Also called earthy fill.

Mineral soil

Soil that is mainly mineral material and low in organic material. Its bulk density is more than that of organic soil.

Minimum tillage

Only the tillage essential to crop production and prevention of soil damage.

Miscellaneous area

A kind of map unit that has little or no natural soil and supports little or no vegetation.

Miscellaneous water (map symbol)

Small, constructed bodies of water that are used for industrial, sanitary, or mining applications and that contain water most of the year.

Moderately coarse textured soil

Coarse sandy loam, sandy loam, or fine sandy loam.

Moderately fine textured soil

Clay loam, sandy clay loam, or silty clay loam.

Mollic epipedon

A thick, dark, humus-rich surface horizon (or horizons) that has high base saturation and pedogenic soil structure. It may include the upper part of the subsoil.

Moraine

In terms of glacial geology, a mound, ridge, or other topographically distinct accumulation of unsorted, unstratified drift, predominantly till, deposited primarily by the direct action of glacial ice in a variety of landforms. Also, a general term for a landform composed mainly of till (except for kame moraines, which are composed mainly of stratified outwash) that has been deposited by a glacier. Some types of moraines are disintegration, end, ground, kame, lateral, recessional, and terminal.

Morphology, soil

The physical makeup of the soil, including the texture, structure, porosity, consistence, color, and other physical, mineral, and biological properties of the various horizons, and the thickness and arrangement of those horizons in the soil profile.

Mottling, soil

Irregular spots of different colors that vary in number and size. Descriptive terms are as follows: abundance—*few, common,* and *many;* size—*fine, medium,* and *coarse;* and contrast—*faint, distinct,* and *prominent*. The size measurements are of the diameter along the greatest dimension. *Fine* indicates less than 5 millimeters (about 0.2 inch); *medium,* from 5 to 15 millimeters (about 0.2 to 0.6 inch); and *coarse,* more than 15 millimeters (about 0.6 inch).

Mountain

A generic term for an elevated area of the land surface, rising more than 1,000 feet (300 meters) above surrounding lowlands, commonly of restricted summit area (relative to a plateau) and generally having steep sides. A mountain can

occur as a single, isolated mass or in a group forming a chain or range. Mountains are formed primarily by tectonic activity and/or volcanic action but can also be formed by differential erosion.

Muck

Dark, finely divided, well decomposed organic soil material. (See Sapric soil material.)

Mucky peat

See Hemic soil material.

Mudstone

A blocky or massive, fine grained sedimentary rock in which the proportions of clay and silt are approximately equal. Also, a general term for such material as clay, silt, claystone, siltstone, shale, and argillite and that should be used only when the amounts of clay and silt are not known or cannot be precisely identified.

Munsell notation

A designation of color by degrees of three simple variables—hue, value, and chroma. For example, a notation of 10YR 6/4 is a color with hue of 10YR, value of 6, and chroma of 4.

Natric horizon

A special kind of argillic horizon that contains enough exchangeable sodium to have an adverse effect on the physical condition of the subsoil.

Neutral soil

A soil having a pH value of 6.6 to 7.3. (See Reaction, soil.)

Nodules

See Redoximorphic features.

Nose slope (geomorphology)

A geomorphic component of hills consisting of the projecting end (laterally convex area) of a hillside. The overland waterflow is predominantly divergent. Nose slopes consist dominantly of colluvium and slope-wash sediments (for example, slope alluvium).

Nutrient, plant

Any element taken in by a plant essential to its growth. Plant nutrients are mainly nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, copper, boron, and zinc obtained from the soil and carbon, hydrogen, and oxygen obtained from the air and water.

Organic matter

Plant and animal residue in the soil in various stages of decomposition. The content of organic matter in the surface layer is described as follows:

Very low: Less than 0.5 percent
Low: 0.5 to 1.0 percent
Moderately low: 1.0 to 2.0 percent
Moderate: 2.0 to 4.0 percent
High: 4.0 to 8.0 percent
Very high: More than 8.0 percent

Outwash

Stratified and sorted sediments (chiefly sand and gravel) removed or “washed out” from a glacier by meltwater streams and deposited in front of or beyond the end moraine or the margin of a glacier. The coarser material is deposited nearer to the ice.

Outwash plain

An extensive lowland area of coarse textured glaciofluvial material. An outwash plain is commonly smooth; where pitted, it generally is low in relief.

Paleoterrace

An erosional remnant of a terrace that retains the surface form and alluvial deposits of its origin but was not emplaced by, and commonly does not grade to, a present-day stream or drainage network.

Pan

A compact, dense layer in a soil that impedes the movement of water and the growth of roots. For example, *hardpan, fragipan, claypan, plowpan,* and *traffic pan*.

Parent material

The unconsolidated organic and mineral material in which soil forms.

Peat

Unconsolidated material, largely undecomposed organic matter, that has accumulated under excess moisture. (See Fibric soil material.)

Ped

An individual natural soil aggregate, such as a granule, a prism, or a block.

Pedisediment

A layer of sediment, eroded from the shoulder and backslope of an erosional slope, that lies on and is being (or was) transported across a gently sloping erosional surface at the foot of a receding hill or mountain slope.

Pedon

The smallest volume that can be called “a soil.” A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

Percolation

The movement of water through the soil.

Perennial water (map symbol)

Small, natural or constructed lakes, ponds, or pits that contain water most of the year.

Permafrost

Ground, soil, or rock that remains at or below 0 degrees C for at least 2 years. It is defined on the basis of temperature and is not necessarily frozen.

pH value

A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)

Phase, soil

A subdivision of a soil series based on features that affect its use and management, such as slope, stoniness, and flooding.

Piping

Formation of subsurface tunnels or pipelike cavities by water moving through the soil.

Pitting

Pits caused by melting around ice. They form on the soil after plant cover is removed.

Plastic limit

The moisture content at which a soil changes from semisolid to plastic.

Plasticity index

The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.

Plateau (geomorphology)

A comparatively flat area of great extent and elevation; specifically, an extensive land region that is considerably elevated (more than 100 meters) above the adjacent lower lying terrain, is commonly limited on at least one side by an abrupt descent, and has a flat or nearly level surface. A comparatively large part of a plateau surface is near summit level.

Playa

The generally dry and nearly level lake plain that occupies the lowest parts of closed depressions, such as those on intermontane basin floors. Temporary flooding occurs primarily in response to precipitation and runoff. Playa deposits are fine grained and may or may not have a high water table and saline conditions.

Plinthite

The sesquioxide-rich, humus-poor, highly weathered mixture of clay with quartz and other diluents. It commonly appears as red mottles, usually in platy, polygonal, or reticulate patterns. Plinthite changes irreversibly to an ironstone hardpan or to irregular aggregates on repeated wetting and drying, especially if it is exposed also to heat from the sun. In a moist soil, plinthite can be cut with a spade. It is a form of laterite.

Plowpan

A compacted layer formed in the soil directly below the plowed layer.

Ponding

Standing water on soils in closed depressions. Unless the soils are artificially drained, the water can be removed only by percolation or evapotranspiration.

Poorly graded

Refers to a coarse grained soil or soil material consisting mainly of particles of nearly the same size. Because there is little difference in size of the particles, density can be increased only slightly by compaction.

Pore linings

See Redoximorphic features.

Potential native plant community

See Climax plant community.

Potential rooting depth (effective rooting depth)

Depth to which roots could penetrate if the content of moisture in the soil were adequate. The soil has no properties restricting the penetration of roots to this depth.

Prescribed burning

Deliberately burning an area for specific management purposes, under the appropriate conditions of weather and soil moisture and at the proper time of day.

Productivity, soil

The capability of a soil for producing a specified plant or sequence of plants under specific management.

Profile, soil

A vertical section of the soil extending through all its horizons and into the parent material.

Proper grazing use

Grazing at an intensity that maintains enough cover to protect the soil and maintain or improve the quantity and quality of the desirable vegetation. This practice increases the vigor and reproduction capacity of the key plants and

promotes the accumulation of litter and mulch necessary to conserve soil and water.

Rangeland

Land on which the potential natural vegetation is predominantly grasses, grasslike plants, forbs, or shrubs suitable for grazing or browsing. It includes natural grasslands, savannas, many wetlands, some deserts, tundras, and areas that support certain forb and shrub communities.

Reaction, soil

A measure of acidity or alkalinity of a soil, expressed as pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degrees of acidity or alkalinity, expressed as pH values, are:

Ultra acid: Less than 3.5
Extremely acid: 3.5 to 4.4
Very strongly acid: 4.5 to 5.0
Strongly acid: 5.1 to 5.5
Moderately acid: 5.6 to 6.0
Slightly acid: 6.1 to 6.5
Neutral: 6.6 to 7.3
Slightly alkaline: 7.4 to 7.8
Moderately alkaline: 7.9 to 8.4
Strongly alkaline: 8.5 to 9.0
Very strongly alkaline: 9.1 and higher

Red beds

Sedimentary strata that are mainly red and are made up largely of sandstone and shale.

Redoximorphic concentrations

See Redoximorphic features.

Redoximorphic depletions

See Redoximorphic features.

Redoximorphic features

Redoximorphic features are associated with wetness and result from alternating periods of reduction and oxidation of iron and manganese compounds in the soil. Reduction occurs during saturation with water, and oxidation occurs when the soil is not saturated. Characteristic color patterns are created by these processes. The reduced iron and manganese ions may be removed from a soil if vertical or lateral fluxes of water occur, in which case there is no iron or manganese precipitation in that soil. Wherever the iron and manganese are oxidized and precipitated, they form either soft masses or hard concretions or nodules. Movement of iron and manganese as a result of redoximorphic processes in a soil may result in redoximorphic features that are defined as follows:

1. Redoximorphic concentrations.—These are zones of apparent accumulation of iron-manganese oxides, including:
   A. Nodules and concretions, which are cemented bodies that can be removed from the soil intact. Concretions are distinguished from nodules on the basis of internal organization. A concretion typically has concentric layers that are visible to the naked eye. Nodules do not have visible organized internal structure; *and*
   B. Masses, which are noncemented concentrations of substances within the soil matrix; *and*
   C. Pore linings, i.e., zones of accumulation along pores that may be either coatings on pore surfaces or impregnations from the matrix adjacent to the pores.
2. Redoximorphic depletions.—These are zones of low chroma (chromas less than those in the matrix) where either iron-manganese oxides alone or both iron-manganese oxides and clay have been stripped out, including:
   A. Iron depletions, i.e., zones that contain low amounts of iron and manganese oxides but have a clay content similar to that of the adjacent matrix; *and*
   B. Clay depletions, i.e., zones that contain low amounts of iron, manganese, and clay (often referred to as silt coatings or skeletans).
3. Reduced matrix.—This is a soil matrix that has low chroma *in situ* but undergoes a change in hue or chroma within 30 minutes after the soil material has been exposed to air.

Reduced matrix

See Redoximorphic features.

Regolith

All unconsolidated earth materials above the solid bedrock. It includes material weathered in place from all kinds of bedrock and alluvial, glacial, eolian, lacustrine, and pyroclastic deposits.

Relief

The relative difference in elevation between the upland summits and the lowlands or valleys of a given region.

Residuum (residual soil material)

Unconsolidated, weathered or partly weathered mineral material that accumulated as bedrock disintegrated in place.

Rill

A very small, steep-sided channel resulting from erosion and cut in unconsolidated materials by concentrated but intermittent flow of water. A rill generally is not an obstacle to wheeled vehicles and is shallow enough to be smoothed over by ordinary tillage.

Riser

The vertical or steep side slope (e.g., escarpment) of terraces, flood-plain steps, or other stepped landforms; commonly a recurring part of a series of natural, steplike landforms, such as successive stream terraces.

Road cut

A sloping surface produced by mechanical means during road construction. It is commonly on the uphill side of the road.

Rock fragments

Rock or mineral fragments having a diameter of 2 millimeters or more; for example, pebbles, cobbles, stones, and boulders.

Rock outcrop (map symbol)

An exposure of bedrock at the surface of the earth. Not used where the named soils of the surrounding map unit are shallow over bedrock or where “Rock outcrop” is a named component of the map unit.

Root zone

The part of the soil that can be penetrated by plant roots.

Runoff

The precipitation discharged into stream channels from an area. The water that flows off the surface of the land without sinking into the soil is called surface runoff. Water that enters the soil before reaching surface streams is called ground-water runoff or seepage flow from ground water.

Saline soil

A soil containing soluble salts in an amount that impairs growth of plants. A saline soil does not contain excess exchangeable sodium.

Saline spot (map symbol)

An area where the surface layer has an electrical conductivity of 8 mmhos/cm more than the surface layer of the named soils in the surrounding map unit. The surface layer of the surrounding soils has an electrical conductivity of 2 mmhos/cm or less.

Sand

As a soil separate, individual rock or mineral fragments from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.

Sandstone

Sedimentary rock containing dominantly sand-sized particles.

Sandy spot (map symbol)

A spot where the surface layer is loamy fine sand or coarser in areas where the surface layer of the named soils in the surrounding map unit is very fine sandy loam or finer.

Sapric soil material (muck)

The most highly decomposed of all organic soil material. Muck has the least amount of plant fiber, the highest bulk density, and the lowest water content at saturation of all organic soil material.

Saturated hydraulic conductivity (Ksat)

The ease with which pores of a saturated soil transmit water. Formally, the proportionality coefficient that expresses the relationship of the rate of water movement to hydraulic gradient in Darcy's Law, a law that describes the rate of water movement through porous media. Commonly abbreviated as "Ksat." Terms describing saturated hydraulic conductivity are:

Very high: 100 or more micrometers per second (14.17 or more inches per hour)

High: 10 to 100 micrometers per second (1.417 to 14.17 inches per hour)

Moderately high: 1 to 10 micrometers per second (0.1417 inch to 1.417 inches per hour)

Moderately low: 0.1 to 1 micrometer per second (0.01417 to 0.1417 inch per hour)

Low: 0.01 to 0.1 micrometer per second (0.001417 to 0.01417 inch per hour)

Very low: Less than 0.01 micrometer per second (less than 0.001417 inch per hour).

To convert inches per hour to micrometers per second, multiply inches per hour by 7.0572. To convert micrometers per second to inches per hour, multiply micrometers per second by 0.1417.

Saturation

Wetness characterized by zero or positive pressure of the soil water. Under conditions of saturation, the water will flow from the soil matrix into an unlined auger hole.

Scarification

The act of abrading, scratching, loosening, crushing, or modifying the surface to increase water absorption or to provide a more tillable soil.

Sedimentary rock

A consolidated deposit of clastic particles, chemical precipitates, or organic remains accumulated at or near the surface of the earth under normal low temperature and pressure conditions. Sedimentary rocks include consolidated equivalents of alluvium, colluvium, drift, and eolian, lacustrine, and marine deposits. Examples are sandstone, siltstone, mudstone, claystone, shale, conglomerate, limestone, dolomite, and coal.

Sequum

A sequence consisting of an illuvial horizon and the overlying eluvial horizon. (See Eluviation.)

Series, soil

A group of soils that have profiles that are almost alike, except for differences in texture of the surface layer. All the soils of a series have horizons that are similar in composition, thickness, and arrangement.

Severely eroded spot (map symbol)

An area where, on the average, 75 percent or more of the original surface layer has been lost because of accelerated erosion. Not used in map units in which “severely eroded,” “very severely eroded,” or “gullied” is part of the map unit name.

Shale

Sedimentary rock that formed by the hardening of a deposit of clay, silty clay, or silty clay loam and that has a tendency to split into thin layers.

Sheet erosion

The removal of a fairly uniform layer of soil material from the land surface by the action of rainfall and surface runoff.

Short, steep slope (map symbol)

A narrow area of soil having slopes that are at least two slope classes steeper than the slope class of the surrounding map unit.

Shoulder

The convex, erosional surface near the top of a hillslope. A shoulder is a transition from summit to backslope.

Shrink-swell

The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.

Shrub-coppice dune

A small, streamlined dune that forms around brush and clump vegetation.

Side slope (geomorphology)

A geomorphic component of hills consisting of a laterally planar area of a hillside. The overland waterflow is predominantly parallel. Side slopes are dominantly colluvium and slope-wash sediments.

Silica

A combination of silicon and oxygen. The mineral form is called quartz.

Silica-sesquioxide ratio

The ratio of the number of molecules of silica to the number of molecules of alumina and iron oxide. The more highly weathered soils or their clay fractions in warm-temperate, humid regions, and especially those in the tropics, generally have a low ratio.

Silt

As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

Siltstone

An indurated silt having the texture and composition of shale but lacking its fine lamination or fissility; a massive mudstone in which silt predominates over clay.

Similar soils

Soils that share limits of diagnostic criteria, behave and perform in a similar manner, and have similar conservation needs or management requirements for the major land uses in the survey area.

Sinkhole (map symbol)

A closed, circular or elliptical depression, commonly funnel shaped, characterized by subsurface drainage and formed either by dissolution of the surface of underlying bedrock (e.g., limestone, gypsum, or salt) or by collapse of underlying caves within bedrock. Complexes of sinkholes in carbonate-rock terrain are the main components of karst topography.

Site index

A designation of the quality of a forest site based on the height of the dominant stand at an arbitrarily chosen age. For example, if the average height attained by dominant and codominant trees in a fully stocked stand at the age of 50 years is 75 feet, the site index is 75.

Slickensides (pedogenic)

Grooved, striated, and/or glossy (shiny) slip faces on structural peds, such as wedges; produced by shrink-swell processes, most commonly in soils that have a high content of expansive clays.

Slide or slip (map symbol)

A prominent landform scar or ridge caused by fairly recent mass movement or descent of earthy material resulting from failure of earth or rock under shear stress along one or several surfaces.

Slope

The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance.

Slope alluvium

Sediment gradually transported down the slopes of mountains or hills primarily by nonchannel alluvial processes (i.e., slope-wash processes) and characterized by particle sorting. Lateral particle sorting is evident on long slopes. In a profile sequence, sediments may be distinguished by differences in size and/or specific gravity of rock fragments and may be separated by stone lines. Burnished peds and sorting of rounded or subrounded pebbles or cobbles distinguish these materials from unsorted colluvial deposits.

Slow refill

The slow filling of ponds, resulting from restricted water transmission in the soil.

Slow water movement

Restricted downward movement of water through the soil. See Saturated hydraulic conductivity.

Sodic (alkali) soil

A soil having so high a degree of alkalinity (pH 8.5 or higher) or so high a percentage of exchangeable sodium (15 percent or more of the total exchangeable bases), or both, that plant growth is restricted.

Sodic spot (map symbol)

An area where the surface layer has a sodium adsorption ratio that is at least 10 more than that of the surface layer of the named soils in the surrounding map unit. The surface layer of the surrounding soils has a sodium adsorption ratio of 5 or less.

Sodicity

The degree to which a soil is affected by exchangeable sodium. Sodicity is expressed as a sodium adsorption ratio (SAR) of a saturation extract, or the ratio of Na^{+} to $Ca^{++} + Mg^{++}$. The degrees of sodicity and their respective ratios are:

Slight: Less than 13:1
Moderate: 13-30:1
Strong: More than 30:1

Sodium adsorption ratio (SAR)

A measure of the amount of sodium (Na) relative to calcium (Ca) and magnesium (Mg) in the water extract from saturated soil paste. It is the ratio of the Na concentration divided by the square root of one-half of the Ca + Mg concentration.

Soft bedrock

Bedrock that can be excavated with trenching machines, backhoes, small rippers, and other equipment commonly used in construction.

Soil

A natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief and by the passage of time.

Soil separates

Mineral particles less than 2 millimeters in equivalent diameter and ranging between specified size limits. The names and sizes, in millimeters, of separates recognized in the United States are as follows:

Very coarse sand: 2.0 to 1.0
Coarse sand: 1.0 to 0.5
Medium sand: 0.5 to 0.25
Fine sand: 0.25 to 0.10
Very fine sand: 0.10 to 0.05
Silt: 0.05 to 0.002
Clay: Less than 0.002

Solum

The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in soil consists of the A, E, and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the material below the solum. The living roots and plant and animal activities are largely confined to the solum.

Spoil area (map symbol)

A pile of earthy materials, either smoothed or uneven, resulting from human activity.

Stone line

In a vertical cross section, a line formed by scattered fragments or a discrete layer of angular and subangular rock fragments (commonly a gravel- or cobble-sized lag concentration) that formerly was draped across a topographic surface and was later buried by additional sediments. A stone line generally caps material that was subject to weathering, soil formation, and erosion before burial. Many stone lines seem to be buried erosion pavements, originally formed by sheet and rill erosion across the land surface.

Stones

Rock fragments 10 to 24 inches (25 to 60 centimeters) in diameter if rounded or 15 to 24 inches (38 to 60 centimeters) in length if flat.

Stony

Refers to a soil containing stones in numbers that interfere with or prevent tillage.

Stony spot (map symbol)

A spot where 0.01 to 0.1 percent of the soil surface is covered by rock fragments that are more than 10 inches in diameter in areas where the surrounding soil has no surface stones.

Strath terrace

A type of stream terrace; formed as an erosional surface cut on bedrock and thinly mantled with stream deposits (alluvium).

Stream terrace

One of a series of platforms in a stream valley, flanking and more or less parallel to the stream channel, originally formed near the level of the stream; represents the remnants of an abandoned flood plain, stream bed, or valley floor produced during a former state of fluvial erosion or deposition.

Stripcropping

Growing crops in a systematic arrangement of strips or bands that provide vegetative barriers to wind erosion and water erosion.

Structure, soil

The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are:

Platy: Flat and laminated

Prismatic: Vertically elongated and having flat tops

Columnar: Vertically elongated and having rounded tops

Angular blocky: Having faces that intersect at sharp angles (planes)

Subangular blocky: Having subrounded and planar faces (no sharp angles)

Granular: Small structural units with curved or very irregular faces

Structureless soil horizons are defined as follows:

Single grained: Entirely noncoherent (each grain by itself), as in loose sand

Massive: Occurring as a coherent mass

Stubble mulch

Stubble or other crop residue left on the soil or partly worked into the soil. It protects the soil from wind erosion and water erosion after harvest, during preparation of a seedbed for the next crop, and during the early growing period of the new crop.

Subsoil

Technically, the B horizon; roughly, the part of the solum below plow depth.

Subsoiling

Tilling a soil below normal plow depth, ordinarily to shatter a hardpan or claypan.

Substratum

The part of the soil below the solum.

Subsurface layer

Any surface soil horizon (A, E, AB, or EB) below the surface layer.

Summer fallow

The tillage of uncropped land during the summer to control weeds and allow storage of moisture in the soil for the growth of a later crop. A practice common in semiarid regions, where annual precipitation is not enough to produce a crop every year. Summer fallow is frequently practiced before planting winter grain.

Summit

The topographically highest position of a hillslope. It has a nearly level (planar or only slightly convex) surface.

Surface layer

The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from 4 to 10 inches (10 to 25 centimeters). Frequently designated as the “plow layer,” or the “Ap horizon.”

Surface soil

The A, E, AB, and EB horizons, considered collectively. It includes all subdivisions of these horizons.

Talus

Rock fragments of any size or shape (commonly coarse and angular) derived from and lying at the base of a cliff or very steep rock slope. The accumulated mass of such loose broken rock formed chiefly by falling, rolling, or sliding.

Taxadjuncts

Soils that cannot be classified in a series recognized in the classification system. Such soils are named for a series they strongly resemble and are designated as taxadjuncts to that series because they differ in ways too small to be of consequence in interpreting their use and behavior. Soils are recognized as taxadjuncts only when one or more of their characteristics are slightly outside the range defined for the family of the series for which the soils are named.

Terminal moraine

An end moraine that marks the farthest advance of a glacier. It typically has the form of a massive arcuate or concentric ridge, or complex of ridges, and is underlain by till and other types of drift.

Terrace (conservation)

An embankment, or ridge, constructed across sloping soils on the contour or at a slight angle to the contour. The terrace intercepts surface runoff so that water soaks into the soil or flows slowly to a prepared outlet. A terrace in a field

generally is built so that the field can be farmed. A terrace intended mainly for drainage has a deep channel that is maintained in permanent sod.

Terrace (geomorphology)

A steplike surface, bordering a valley floor or shoreline, that represents the former position of a flood plain, lake, or seashore. The term is usually applied both to the relatively flat summit surface (tread) that was cut or built by stream or wave action and to the steeper descending slope (scarp or riser) that has graded to a lower base level of erosion.

Terracettes

Small, irregular steplike forms on steep hillslopes, especially in pasture, formed by creep or erosion of surficial materials that may be induced or enhanced by trampling of livestock, such as sheep or cattle.

Texture, soil

The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay,* and *clay*. The sand, loamy sand, and sandy loam classes may be further divided by specifying “coarse,” “fine,” or “very fine.”

Thin layer

Otherwise suitable soil material that is too thin for the specified use.

Till

Dominantly unsorted and nonstratified drift, generally unconsolidated and deposited directly by a glacier without subsequent reworking by meltwater, and consisting of a heterogeneous mixture of clay, silt, sand, gravel, stones, and boulders; rock fragments of various lithologies are embedded within a finer matrix that can range from clay to sandy loam.

Till plain

An extensive area of level to gently undulating soils underlain predominantly by till and bounded at the distal end by subordinate recessional or end moraines.

Tilth, soil

The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.

Toeslope

The gently inclined surface at the base of a hillslope. Toeslopes in profile are commonly gentle and linear and are constructional surfaces forming the lower part of a hillslope continuum that grades to valley or closed-depression floors.

Topsoil

The upper part of the soil, which is the most favorable material for plant growth. It is ordinarily rich in organic matter and is used to topdress roadbanks, lawns, and land affected by mining.

Trace elements

Chemical elements, for example, zinc, cobalt, manganese, copper, and iron, in soils in extremely small amounts. They are essential to plant growth.

Tread

The flat to gently sloping, topmost, laterally extensive slope of terraces, flood-plain steps, or other stepped landforms; commonly a recurring part of a series of natural steplike landforms, such as successive stream terraces.

Tuff

A generic term for any consolidated or cemented deposit that is 50 percent or more volcanic ash.

Upland

An informal, general term for the higher ground of a region, in contrast with a low-lying adjacent area, such as a valley or plain, or for land at a higher elevation than the flood plain or low stream terrace; land above the footslope zone of the hillslope continuum.

Valley fill

The unconsolidated sediment deposited by any agent (water, wind, ice, or mass wasting) so as to fill or partly fill a valley.

Variegation

Refers to patterns of contrasting colors assumed to be inherited from the parent material rather than to be the result of poor drainage.

Varve

A sedimentary layer or a lamina or sequence of laminae deposited in a body of still water within a year. Specifically, a thin pair of graded glaciolacustrine layers seasonally deposited, usually by meltwater streams, in a glacial lake or other body of still water in front of a glacier.

Very stony spot (map symbol)

A spot where 0.1 to 3.0 percent of the soil surface is covered by rock fragments that are more than 10 inches in diameter in areas where the surface of the surrounding soil is covered by less than 0.01 percent stones.

Water bars

Smooth, shallow ditches or depressional areas that are excavated at an angle across a sloping road. They are used to reduce the downward velocity of water and divert it off and away from the road surface. Water bars can easily be driven over if constructed properly.

Weathering

All physical disintegration, chemical decomposition, and biologically induced changes in rocks or other deposits at or near the earth’s surface by atmospheric or biologic agents or by circulating surface waters but involving essentially no transport of the altered material.

Well graded

Refers to soil material consisting of coarse grained particles that are well distributed over a wide range in size or diameter. Such soil normally can be easily increased in density and bearing properties by compaction. Contrasts with poorly graded soil.

Wet spot (map symbol)

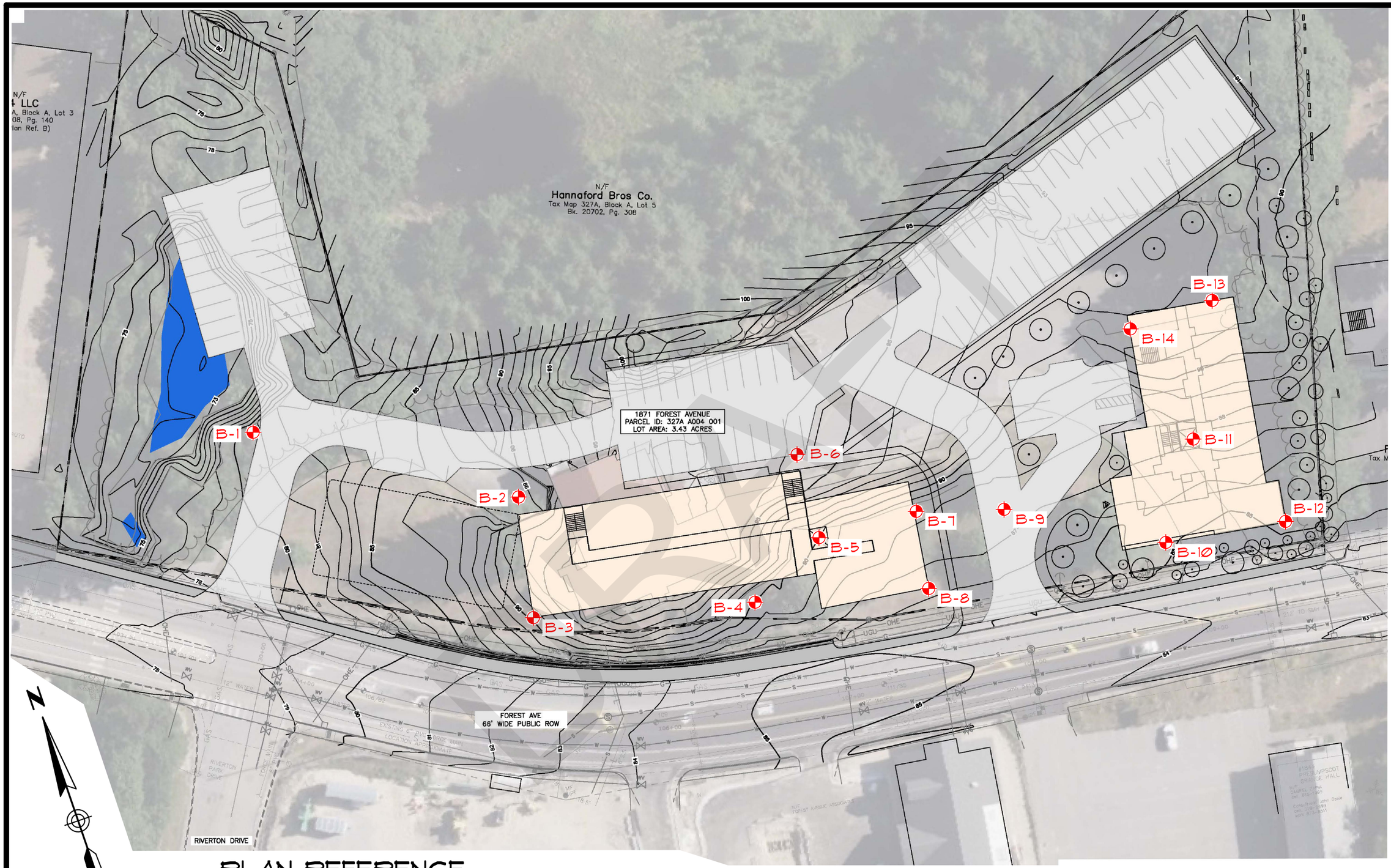
A somewhat poorly drained to very poorly drained area that is at least two drainage classes wetter than the named soils in the surrounding map unit.

Wilting point (or permanent wilting point)

The moisture content of soil, on an ovendry basis, at which a plant (specifically a sunflower) wilts so much that it does not recover when placed in a humid, dark chamber.

Windthrow

The uprooting and tipping over of trees by the wind.



PLAN REFERENCE

"GRADING PLAN, 1871 FOREST AVENUE, PORTLAND, MAINE", UNDATED CONCEPT PLAN, PREPARED BY ACORN ENGINEERING, INC.

SCALE: 1" = 50'

0 25 50 100 150

LEGEND

B-1 SUMMIT TEST BORING (FEB. 5, 6 & 9, 2026)

PROJECT: RESIDENTIAL DEVELOPMENT
1871 FOREST AVENUE - PORTLAND, MAINE

CLIENT: AVESTA HOUSING

TITLE: TEST BORING LOCATION PLAN

DRAWN BY: KRF
APPR. BY: CRS
SCALE: 1" = 50'
DATE: FEB. 23, 2026

SUMMIT GEOENGINEERING SERVICES
MAIL: P.O. BOX 515 GARDINER, ME 04345
OFFICE: 210 MAINE AVENUE FARMINGDALE, MAINE
TEL.: (207) 446-3360

PROJ.#: 25298

FIGURE: 1

EXPLORATION COVER SHEET

The exploration logs are prepared by the geotechnical engineer from both field and laboratory data. Soil descriptions are based upon the Unified Soil Classification System (USCS) per ASTM D2487 and/or ASTM D2488 as applicable. Supplemental descriptive terms for estimated particle percentage, color, density, moisture condition, and bedrock may also be included to further describe conditions.

Drilling and Sampling Symbols:

S = Split Spoon Sample
UT = Thin Wall Shelby Tube
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RW = Rotary Wash
SV = Lab Shear Vane (Torvane)
PP = Pocket Penetrometer
C = Rock Core Sample
FV = Field Vane Shear Test
SP = Concrete Punch Sample
Hyd = Hydraulic Advancement of Drilling Rods
Push = Direct Push of Drilling Rods
WOH = Weight of Hammer
WOR = Weight of Rod
PI = Plasticity Index
LL = Liquid Limit
MC = Natural Moisture Content
USCS = Unified Soil Classification System
Su = Undrained Shear Strength
Su(r) = Remolded Shear Strength

Water Level Measurements:

Water levels indicated on the boring logs are the levels measured in the boring at the times indicated. In pervious soils, the indicated elevations are considered reliable groundwater levels. In impervious soils, the accurate determination of groundwater elevations may not be possible, even after several days of observations. Groundwater monitoring wells may be required to record accurate depths and fluctuation.

Gradation Description and Terminology:

Boulders:	Over 12 inches	Trace:	Less than 5%
Cobbles:	12 inches to 3 inches	Little:	5% to 15%
Gravel:	3 inches to No.4 sieve	Some:	15% to 30%
Sand:	No.4 to No. 200 sieve	Silty, Sandy, etc.:	Greater than 30%
Silt:	No. 200 sieve to 0.005 mm		
Clay:	less than 0.005 mm		

Density of Granular Soils and Consistency of Cohesive Soils:

CONSISTENCY OF COHESIVE SOILS		DENSITY OF GRANULAR SOILS	
SPT N-value blows/ft	**Consistency**	**SPT N-value blows/ft**	**Relative Density**
0 to 2	Very Soft	0 to 4	Very Loose
2 to 4	Soft	5 to 10	Loose
5 to 8	Firm	11 to 30	Compact
9 to 15	Stiff	31 to 50	Dense
16 to 30	Very Stiff	>50	Very Dense
>30	Hard		

DRAFT

SUMMIT GEOENGINEERING SERVICES

SOIL BORING LOG

Project:	New Development	Boring #:	B-1
Location:	1871 Forest Avenue	Project #:	25298
City, State:	Portland, Maine	Sheet:	1 of 1
		Chkd by:	CRS

Drilling Co:	Summit Geoengineering Services	Boring Elevation:	80 ft +/-
Driller:	A. Manzella	Reference:	Estimated from Grading Plan prepared by Gorrill Palmer, Date Unknown
Summit Staff:	C. Sullivan, P.E.	Date Started: 2/9/2026	Date Completed: 2/9/2026

DRILLING METHOD		SAMPLER	
Vehicle:	AMS Track	Length:	24" SS
Model:	9580 VTR	Diameter:	2"OD/1.5"ID
Method:	2-1/4" HSA	Hammer:	140 lb
Hammer Style:	Auto	Method:	ASTM D1586

ESTIMATED GROUND WATER DEPTH

Date	Depth	Elevation	Reference
2/9/2026	NE	N/A	Not encountered in 20' of augers
2/9/2026	12 ft +/-	68 ft +/-	PERCHED - based on moisture content observed in spoon samples

Depth (ft.)	No.	Pen/Rec (in)	Depth (ft)	blows/6"	Elev. (ft.)	SAMPLE DESCRIPTION	Geological/ Test Data	Geological Stratum
	S-1	24/12	0 - 2	2		Dark brown Silty SAND, rootlets, 2" wood debris at 0.5',		
1				2		loose, frozen-damp, SM		TOPSOIL
				3	79+/-	Brown SILT, trace Clay, Sand, & Gravel, soft, damp, ML		0.9'
2				2				GLACIAL MARINE
	S-2	24/12	2 - 4	2		Olive brown Silty SAND, little Gravel, trace Clay, slightly		2' DEPOSIT
3				2		mottled at 2.5', loose, damp-moist, SM		
				2				
4				2				
5								
	S-3	24/2	5 - 7	2		Brown SILT, trace Sand, occasional wood fibers, soft,		5' +/-
6				3		damp, ML		
				2				
7				2				
8								
9								
10								
	S-4	24/24	10 - 12	1		Gray Silty SAND, little Clay, trace Gravel, 1" clean Sand		10' +/-
11				1		seam at 11', very loose, moist to wet at 12' +/-, SM		
				1				
12				1				
13								
14								
15								
	S-5	24/25	15 - 17	WOH		Gray Silty CLAY, 3" Sand seam at 15.7', soft, wet, CL	PP = 1,000 psf to 1,500 psf	15' +/-
16				WOH				
				WOH				
17				WOH				
18								
					62+/-	Anticipated change in strata based on increased		18' +/-
19						drilling resistance		MARINE FAN
								DEPOSIT
20								
	S-6	24/12	20 - 22	6		Tan medium-fine SAND, little Gravel, trace Silt,		
21				8		compact, damp, SP		
				9				
22				10				
					58+/-	End of Exploration at 22', No Refusal		22'

Granular Soils		Cohesive Soils		% Composition
Blows/ft.	Density	Blows/ft.	Consistency	ASTM D2487
0-4	V. Loose	<2	V. soft	
5-10	Loose	2-4	Soft	< 5% Trace
11-30	Compact	5-8	Firm	5-15% Little
31-50	Dense	9-15	Stiff	15-30% Some
>50	V. Dense	16-30	V. Stiff	> 30% With
		>30	Hard	

NOTES: PP = Pocket Penetrometer, MC = Moisture Content
LL = Liquid Limit, PI = Plastic Index, FV = Field Vane Test
Su = Undrained Shear Strength, Su(r) = Remolded Shear Strength

Bedrock Joints
Shallow = 0 to 35 degrees
Dipping = 35 to 55 degrees
Steep = 55 to 90 degrees

Boulders = diameter > 12 inches, Cobbles = diameter < 12 inches and > 3 inches
Gravel = < 3 inch and > No 4, Sand = < No 4 and >No 200, Silt/Clay = < No 200

Soil Moisture Condition
Dry: S = 0%
Humid: S = 1 to 25%
Damp: S = 26 to 50%
Moist: S = 51 to 75%
Wet: S = 76 to 99%
Saturated: S = 100%

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SUMMIT GEOENGINEERING SERVICES

SOIL BORING LOG

Project:	New Development	Boring #:	B-2
Location:	1871 Forest Avenue	Project #:	25298
City, State:	Portland, Maine	Sheet:	1 of 2
		Chkd by:	CRS

Drilling Co:	Summit Geoengineering Services	Boring Elevation:	85 ft +/-
Driller:	A. Manzella	Reference:	Estimated from Grading Plan prepared by Gorrill Palmer, Date Unknown
Summit Staff:	C. Sullivan, P.E.	Date Started: 2/9/2026	Date Completed: 2/9/2026

DRILLING METHOD		SAMPLER	
Vehicle:	AMS Track	Length:	24" SS
Model:	9580 VTR	Diameter:	2"OD/1.5"ID
Method:	2-1/4" HSA	Hammer:	140 lb
Hammer Style:	Auto	Method:	ASTM D1586

ESTIMATED GROUND WATER DEPTH

Date	Depth	Elevation	Reference
2/9/2026	NE	N/A	Not encountered in 20' of augers

Depth (ft.)	No.	Pen/Rec (in)	Depth (ft)	blows/6"	Elev. (ft.)	SAMPLE DESCRIPTION	Geological/ Test Data	Geological Stratum
	SP-1	12/12	0 - 1	PUSH		3" Bituminous Pavement		PAVEMENT
1				▼	85+/-			0.3'
	S-1	24/20	1 - 3	24		Tan medium-fine SAND, little-trace Gravel w/ depth,		MARINE FAN
2				17		trace Silt, compact, damp, SP		DEPOSIT
				15				
3				9				
	S-2	24/20	3 - 5	7		Tan medium-fine SAND, trace Silt & Gravel, compact,		
4				8		damp, SP		
				6				
5				6				
	S-3	24/18	5 - 7	5		Tan medium-fine SAND, trace Silt & Gravel, slightly		
6				6		mottled at 6', compact, damp, SP		
				6				
7				6				
8								
9								
10								
	S-4	24/14	10 - 12	6		Tan medium-fine SAND, trace Silt & Gravel, compact,		
11				8		damp, SP		
				9				
12				7				
13								
14								
15								
	S-5	24/16	15 - 17	6		Tan fine SAND, trace Silt & Gravel, compact, damp, SP		
16				7				
				8				
17				8				
18								
19								
20								
	S-6	24/20	20 - 22	6		Tan medium-fine SAND, trace Silt & Gravel, compact,		
21				9		damp, SP		
				10				
22				10				

Granular Soils		Cohesive Soils		% Composition
Blows/ft.	Density	Blows/ft.	Consistency	ASTM D2487
0-4	V. Loose	<2	V. soft	
5-10	Loose	2-4	Soft	< 5% Trace
11-30	Compact	5-8	Firm	5-15% Little
31-50	Dense	9-15	Stiff	15-30% Some
>50	V. Dense	16-30	V. Stiff	> 30% With
		>30	Hard	

NOTES: PP = Pocket Penetrometer, MC = Moisture Content
LL = Liquid Limit, PI = Plastic Index, FV = Field Vane Test
Su = Undrained Shear Strength, Su(r) = Remolded Shear Strength

Bedrock Joints
Shallow = 0 to 35 degrees
Dipping = 35 to 55 degrees
Steep = 55 to 90 degrees

Boulders = diameter > 12 inches, Cobbles = diameter < 12 inches and > 3 inches
Gravel = < 3 inch and > No 4, Sand = < No 4 and >No 200, Silt/Clay = < No 200

Soil Moisture Condition
Dry: S = 0%
Humid: S = 1 to 25%
Damp: S = 26 to 50%
Moist: S = 51 to 75%
Wet: S = 76 to 99%
Saturated: S = 100%

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SUMMIT GEOENGINEERING SERVICES

SOIL BORING LOG

Project:	New Development	Boring #:	B-2
Location:	1871 Forest Avenue	Project #:	25298
City, State:	Portland, Maine	Sheet:	2 of 2
		Chkd by:	CRS

Drilling Co:	Summit Geoengineering Services	Boring Elevation:	85 ft +/-
Driller:	A. Manzella	Reference:	Estimated from Grading Plan prepared by Gorrill Palmer, Date Unknown
Summit Staff:	C. Sullivan, P.E.	Date Started: 2/9/2026	Date Completed: 2/9/2026

DRILLING METHOD		SAMPLER	
Vehicle:	AMS Track	Length:	24" SS
Model:	9580 VTR	Diameter:	2"OD/1.5"ID
Method:	2-1/4" HSA	Hammer:	140 lb
Hammer Style:	Auto	Method:	ASTM D1586

ESTIMATED GROUND WATER DEPTH

Date	Depth	Elevation	Reference
2/9/2026	NE	N/A	Not encountered in 20' of augers

Depth (ft.)	No.	Pen/Rec (in)	Depth (ft)	blows/6"	Elev. (ft.)	SAMPLE DESCRIPTION	Geological/ Test Data	Geological Stratum
23								MARINE FAN DEPOSIT
24				20		Solid Stem Rod Probe Blows Per Foot		
25				19				
26				22				
27				20				
28				20				
29				20				
30				21				
31				23				
32				29				
33				25				
34				25				
35				27				
36				31				
37				30				
38				28				
39				32				
40				36				
41					45+/-	End of Exploration at 40', No Refusal		40'
42								
43								
44								

Granular Soils		Cohesive Soils		% Composition
Blows/ft.	Density	Blows/ft.	Consistency	ASTM D2487
0-4	V. Loose	<2	V. soft	
5-10	Loose	2-4	Soft	< 5% Trace
11-30	Compact	5-8	Firm	5-15% Little
31-50	Dense	9-15	Stiff	15-30% Some
>50	V. Dense	16-30	V. Stiff	> 30% With
		>30	Hard	

NOTES: PP = Pocket Penetrometer, MC = Moisture Content
LL = Liquid Limit, PI = Plastic Index, FV = Field Vane Test
Su = Undrained Shear Strength, Su(r) = Remolded Shear Strength

Bedrock Joints
Shallow = 0 to 35 degrees
Dipping = 35 to 55 degrees
Steep = 55 to 90 degrees

Boulders = diameter > 12 inches, Cobbles = diameter < 12 inches and > 3 inches
Gravel = < 3 inch and > No 4, Sand = < No 4 and >No 200, Silt/Clay = < No 200

Soil Moisture Condition
Dry: S = 0%
Humid: S = 1 to 25%
Damp: S = 26 to 50%
Moist: S = 51 to 75%
Wet: S = 76 to 99%
Saturated: S = 100%

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SUMMIT GEOENGINEERING SERVICES

SOIL BORING LOG

Boring #: **B-3**

Project:	New Development
Location:	1871 Forest Avenue
City, State:	Portland, Maine
Project #:	25298
Sheet:	1 of 1
Chkd by:	CRS

Drilling Co:	Summit Geoengineering Services
Driller:	A. Manzella
Summit Staff:	C. Sullivan, P.E.
Boring Elevation:	90 ft +/-
Reference:	Estimated from Grading Plan prepared by Gorrill Palmer, Date Unknown
Date Started:	2/9/2026 Date Completed: 2/9/2026

DRILLING METHOD		SAMPLER	
Vehicle:	AMS Track	Length:	24" SS
Model:	9580 VTR	Diameter:	2"OD/1.5"ID
Method:	2-1/4" HSA	Hammer:	140 lb
Hammer Style:	Auto	Method:	ASTM D1586

ESTIMATED GROUND WATER DEPTH

Date	Depth	Elevation	Reference
2/9/2026	NE	N/A	Not encountered in 20' of augers

Depth (ft.)	No.	Pen/Rec (in)	Depth (ft)	blows/6"	Elev. (ft.)	SAMPLE DESCRIPTION	Geological/ Test Data	Geological Stratum
	S-1	24/12	0 - 2	10		Dark brown Silty SAND, rootlets, loose, frozen, SM		TOPSOIL
1				7	90+/-	Brown medium-fine SAND, little Silt & Gravel, loose-		0.5'
				3		compact, frozen-damp, SP-SM		MARINE FAN
2				3				DEPOSIT
	S-2	24/6	2 -4	3		Orange brown-brown medium-fine SAND, little Gravel,		
3				2		trace Silt, slightly mottled, crushed cobbles throughout,		
				1		loose, damp, SP		
4				1				
5								
	S-3	24/10	5 - 7	1		Tan medium-fine SAND, little Gravel, trace Silt, loose,		
6				1		damp, SP		
				2				
7				2				
8								
9								
10								
	S-4	24/12	10 - 12	6		Tan SAND, little-some Gravel, trace Silt, compact,		
11				12		damp, SP		
				13				
12				12				
13								
14								
15								
	S-5	24/16	15 - 17	5		Tan medium-fine SAND, trace Silt & Gravel, compact,		
16				9		damp, SP		
				10				
17				10				
18								
19								
20								
	S-6	24/20	20 - 22	7		Tan fine SAND, trace Silt & Gravel, compact, damp, SP		
21				8				
				11				
22				10				
					68+/-	End of Exploration at 22', No Refusal		22'

Granular Soils		Cohesive Soils		% Composition
Blows/ft.	Density	Blows/ft.	Consistency	ASTM D2487
0-4	V. Loose	<2	V. soft	
5-10	Loose	2-4	Soft	< 5% Trace
11-30	Compact	5-8	Firm	5-15% Little
31-50	Dense	9-15	Stiff	15-30% Some
>50	V. Dense	16-30	V. Stiff	> 30% With
		>30	Hard	

NOTES: PP = Pocket Penetrometer, MC = Moisture Content
LL = Liquid Limit, PI = Plastic Index, FV = Field Vane Test
Su = Undrained Shear Strength, Su(r) = Remolded Shear Strength

Bedrock Joints
Shallow = 0 to 35 degrees
Dipping = 35 to 55 degrees
Steep = 55 to 90 degrees

Boulders = diameter > 12 inches, Cobbles = diameter < 12 inches and > 3 inches
Gravel = < 3 inch and > No 4, Sand = < No 4 and >No 200, Silt/Clay = < No 200

Soil Moisture Condition
Dry: S = 0%
Humid: S = 1 to 25%
Damp: S = 26 to 50%
Moist: S = 51 to 75%
Wet: S = 76 to 99%
Saturated: S = 100%

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SUMMIT GEOENGINEERING SERVICES

SOIL BORING LOG

Project:	New Development	Boring #:	B-4
Location:	1871 Forest Avenue	Project #:	25298
City, State:	Portland, Maine	Sheet:	1 of 2
		Chkd by:	CRS

Drilling Co:	Summit Geoengineering Services	Boring Elevation:	90 ft +/-
Driller:	A. Manzella	Reference:	Estimated from Grading Plan prepared by Gorrill Palmer, Date Unknown
Summit Staff:	C. Sullivan, P.E.	Date Started: 2/6/2026	Date Completed: 2/6/2026

DRILLING METHOD		SAMPLER	
Vehicle:	AMS Track	Length:	24" SS
Model:	9580 VTR	Diameter:	2"OD/1.5"ID
Method:	2-1/4" HSA	Hammer:	140 lb
Hammer Style:	Auto	Method:	ASTM D1586

ESTIMATED GROUND WATER DEPTH

Date	Depth	Elevation	Reference
2/6/2026	NE	N/A	Not encountered in 20' of augers

Depth (ft.)	No.	Pen/Rec (in)	Depth (ft)	blows/6"	Elev. (ft.)	SAMPLE DESCRIPTION	Geological/ Test Data	Geological Stratum
	S-1	24/12	0 - 2	1		Dark brown Silty SAND, rootlets, loose, frozen, SM		TOPSOIL
1				2	89+/-	Orange brown SAND, little Silt & Gravel, slightly mottled,		0.8'
				2		pushed cobble in spoon tip, loose, frozen-damp, SP-SM		MARINE FAN
2				7				DEPOSIT
	S-2	24/14	2 - 4	3		Orange brown medium-fine SAND, little Gravel, trace		
3				3		Silt, slightly mottled, loose, damp, SP		
				4				
4				3				
5								
	S-3	24/14	5 - 7	3		Tan medium-fine SAND, trace Silt & Gravel, compact,		
6				5		damp, SP		
				5				
7				6				
8								
9								
10								
	S-4	24/14	10 - 12	4		Tan medium-fine SAND, little Gravel, trace Silt, compact,		
11				5		damp, SP		
				5				
12				7				
13								
14								
15								
	S-5	24/18	15 - 17	11		Tan medium-fine SAND, trace Silt & Gravel, compact,		
16				9		damp, SP		
				10				
17				9				
18								
19								
20								
	S-6	24/20	20 - 22	7		Tan medium-fine SAND, trace Silt & Gravel, compact,		
21				8		damp, SP		
				9				
22				9				

Granular Soils		Cohesive Soils		% Composition
Blows/ft.	Density	Blows/ft.	Consistency	ASTM D2487
0-4	V. Loose	<2	V. soft	
5-10	Loose	2-4	Soft	< 5% Trace
11-30	Compact	5-8	Firm	5-15% Little
31-50	Dense	9-15	Stiff	15-30% Some
>50	V. Dense	16-30	V. Stiff	> 30% With
		>30	Hard	

NOTES: PP = Pocket Penetrometer, MC = Moisture Content
LL = Liquid Limit, PI = Plastic Index, FV = Field Vane Test
Su = Undrained Shear Strength, Su(r) = Remolded Shear Strength

Bedrock Joints
Shallow = 0 to 35 degrees
Dipping = 35 to 55 degrees
Steep = 55 to 90 degrees

Boulders = diameter > 12 inches, Cobbles = diameter < 12 inches and > 3 inches
Gravel = < 3 inch and > No 4, Sand = < No 4 and >No 200, Silt/Clay = < No 200

Soil Moisture Condition
Dry: S = 0%
Humid: S = 1 to 25%
Damp: S = 26 to 50%
Moist: S = 51 to 75%
Wet: S = 76 to 99%
Saturated: S = 100%

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SUMMIT GEOENGINEERING SERVICES

SOIL BORING LOG

Project:	New Development	Boring #:	B-4
Location:	1871 Forest Avenue	Project #:	25298
City, State:	Portland, Maine	Sheet:	2 of 2
		Chkd by:	CRS

Drilling Co:	Summit Geoengineering Services	Boring Elevation:	90 ft +/-
Driller:	A. Manzella	Reference:	Estimated from Grading Plan prepared by Gorrill Palmer, Date Unknown
Summit Staff:	C. Sullivan, P.E.	Date Started: 2/6/2026	Date Completed: 2/6/2026

DRILLING METHOD		SAMPLER	
Vehicle:	AMS Track	Length:	24" SS
Model:	9580 VTR	Diameter:	2"OD/1.5"ID
Method:	2-1/4" HSA	Hammer:	140 lb
Hammer Style:	Auto	Method:	ASTM D1586

ESTIMATED GROUND WATER DEPTH

Date	Depth	Elevation	Reference
2/6/2026	NE	N/A	Not encountered in 20' of augers

Depth (ft.)	No.	Pen/Rec (in)	Depth (ft)	blows/6"	Elev. (ft.)	SAMPLE DESCRIPTION	Geological/ Test Data	Geological Stratum
23								MARINE FAN DEPOSIT
24				16		Solid Stem Rod Probe Blows Per Foot		
25				18				
26				22				
27				23				
28				31				
29				29				
30				22				
31				26				
32				24				
33				26				
34				30				
35				33				
36				36				
37				33				
38				39				
39				38				
40				36				
41					50+/-	End of Exploration at 40', No Refusal		40'
42								
43								
44								

Granular Soils		Cohesive Soils		% Composition
Blows/ft.	Density	Blows/ft.	Consistency	ASTM D2487
0-4	V. Loose	<2	V. soft	
5-10	Loose	2-4	Soft	< 5% Trace
11-30	Compact	5-8	Firm	5-15% Little
31-50	Dense	9-15	Stiff	15-30% Some
>50	V. Dense	16-30	V. Stiff	> 30% With
		>30	Hard	

NOTES: PP = Pocket Penetrometer, MC = Moisture Content
LL = Liquid Limit, PI = Plastic Index, FV = Field Vane Test
Su = Undrained Shear Strength, Su(r) = Remolded Shear Strength

Bedrock Joints
Shallow = 0 to 35 degrees
Dipping = 35 to 55 degrees
Steep = 55 to 90 degrees

Boulders = diameter > 12 inches, Cobbles = diameter < 12 inches and > 3 inches
Gravel = < 3 inch and > No 4, Sand = < No 4 and >No 200, Silt/Clay = < No 200

Soil Moisture Condition
Dry: S = 0%
Humid: S = 1 to 25%
Damp: S = 26 to 50%
Moist: S = 51 to 75%
Wet: S = 76 to 99%
Saturated: S = 100%

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SUMMIT GEOENGINEERING SERVICES

SOIL BORING LOG

Project:	New Development	Boring #:	B-5
Location:	1871 Forest Avenue	Project #:	25298
City, State:	Portland, Maine	Sheet:	1 of 1
		Chkd by:	CRS

Drilling Co:	Summit Geoengineering Services	Boring Elevation:	90 ft +/-
Driller:	A. Manzella	Reference:	Estimated from Grading Plan prepared by Gorrill Palmer, Date Unknown
Summit Staff:	C. Sullivan, P.E.	Date Started: 2/6/2026	Date Completed: 2/6/2026

DRILLING METHOD		SAMPLER	
Vehicle:	AMS Track	Length:	24" SS
Model:	9580 VTR	Diameter:	2"OD/1.5"ID
Method:	2-1/4" HSA	Hammer:	140 lb
Hammer Style:	Auto	Method:	ASTM D1586

ESTIMATED GROUND WATER DEPTH

Date	Depth	Elevation	Reference
2/6/2026	NE	N/A	Not encountered in 20' of augers

Depth (ft.)	No.	Pen/Rec (in)	Depth (ft)	blows/6"	Elev. (ft.)	SAMPLE DESCRIPTION	Geological/ Test Data	Geological Stratum
	S-1	24/10	0 - 2	2		Dark brown Silty SAND, rootlets, loose, frozen, SM		TOPSOIL
1				2	89+/-	Brown SAND, little Silt, slightly mottled, loose, frozen-		0.7'
				1		damp, SP-SM		MARINE FAN
2				2				DEPOSIT
	S-2	24/10	2 - 4	3		Brown SAND, trace-little Silt, trace Gravel, loose, damp,		
3				2		SP to SP-SM		
				2				
4				3				
5								
	S-3	24/16	5 - 7	4		Tan SAND, little Gravel, trace Silt, 1" cobble at 6',		
6				7		compact, damp, SP		
				8				
7				8				
8								
9								
10								
	S-4	24/14	10 - 12	10		Tan medium-fine SAND, little Gravel, trace Silt, 1"		
11				12		crushed cobble at 10', compact, damp, SP		
				10				
12				8				
13								
14								
15								
	S-5	24/16	15 - 17	4		Tan medium-fine SAND, trace Gravel & Silt, 1" crushed		
16				7		cobble at 16' +/-, compact, damp, SP		
				11				
17				12				
18								
19								
20								
	S-6	24/18	20 - 22	4		Tan medium-fine SAND, trace Gravel & Silt, compact,		
21				6		damp, SP		
				8				
22				8				
					68+/-	End of Exploration at 22', No Refusal		22'

Granular Soils		Cohesive Soils		% Composition
Blows/ft.	Density	Blows/ft.	Consistency	ASTM D2487
0-4	V. Loose	<2	V. soft	
5-10	Loose	2-4	Soft	< 5% Trace
11-30	Compact	5-8	Firm	5-15% Little
31-50	Dense	9-15	Stiff	15-30% Some
>50	V. Dense	16-30	V. Stiff	> 30% With
		>30	Hard	

NOTES: PP = Pocket Penetrometer, MC = Moisture Content
LL = Liquid Limit, PI = Plastic Index, FV = Field Vane Test
Su = Undrained Shear Strength, Su(r) = Remolded Shear Strength

Bedrock Joints
Shallow = 0 to 35 degrees
Dipping = 35 to 55 degrees
Steep = 55 to 90 degrees

Boulders = diameter > 12 inches, Cobbles = diameter < 12 inches and > 3 inches
Gravel = < 3 inch and > No 4, Sand = < No 4 and >No 200, Silt/Clay = < No 200

Soil Moisture Condition
Dry: S = 0%
Humid: S = 1 to 25%
Damp: S = 26 to 50%
Moist: S = 51 to 75%
Wet: S = 76 to 99%
Saturated: S = 100%

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SUMMIT GEOENGINEERING SERVICES

SOIL BORING LOG

Boring #: **B-6**

Project: New Development | Project #: 25298
Location: 1871 Forest Avenue | Sheet: 1 of 1
City, State: Portland, Maine | Chkd by: CRS

Drilling Co: Summit Geoengineering Services
Driller: A. Manzella
Summit Staff: C. Sullivan, P.E.

Boring Elevation: 95 ft +/-
Reference: Estimated from Grading Plan prepared by Gorrill Palmer, Date Unknown
Date Started: 2/9/2026 Date Completed: 2/9/2026

DRILLING METHOD		SAMPLER	
Vehicle:	AMS Track	Length:	24" SS
Model:	9580 VTR	Diameter:	2"OD/1.5"ID
Method:	2-1/4" HSA	Hammer:	140 lb
Hammer Style:	Auto	Method:	ASTM D1586

ESTIMATED GROUND WATER DEPTH

Date	Depth	Elevation	Reference
2/9/2026	NE	N/A	Not encountered in 20' of augers

Depth (ft.)	No.	Pen/Rec (in)	Depth (ft)	blows/6"	Elev. (ft.)	SAMPLE DESCRIPTION	Geological/ Test Data	Geological Stratum
	SP-1	12/12	0 - 1	PUSH		3" Bituminous Pavement		PAVEMENT
1				▼	95+/-			0.3'
	S-1	24/20	1 - 3	25		Brown Gravelly SAND, little Silt, compact, frozen-damp, SP-SM		FILL
2				24				
				12	93+/-	Orange brown SAND, little Gravel & Silt, slightly mottled, compact, damp, SP-SM		2.5'
3				3				MARINE FAN
	S-2	24/18	3 - 5	5		Orange brown-tan SAND, trace Silt & Gravel, slightly mottled, loose-compact, damp, SP		DEPOSIT
4				5				
				4				
5				4				
	S-3	24/20	5 - 7	4		Tan medium-fine SAND, trace Silt & Gravel, compact, damp, SP		
6				6				
				6				
7				4				
8								
9								
10								
	S-4	24/20	10 - 12	4		Tan medium-fine SAND, trace Silt & Gravel, compact, damp, SP		
11				6				
				7				
12				5				
13								
14								
15								
	S-5	24/18	15 - 17	8		Tan medium-fine SAND, little Gravel, trace Silt, 1" cobble at 15.5', compact, damp, SP		
16				10				
				8				
17				9				
18								
19								
20								
	S-6	24/18	20 - 22	5		Tan medium-fine SAND, little Gravel, trace Silt, compact, damp, SP		
21				7				
				9				
22				8				
					73+/-	End of Exploration at 22', No Refusal		22'

Granular Soils		Cohesive Soils		% Composition
Blows/ft.	Density	Blows/ft.	Consistency	ASTM D2487
0-4	V. Loose	<2	V. soft	
5-10	Loose	2-4	Soft	< 5% Trace
11-30	Compact	5-8	Firm	5-15% Little
31-50	Dense	9-15	Stiff	15-30% Some
>50	V. Dense	16-30	V. Stiff	> 30% With
		>30	Hard	

NOTES: PP = Pocket Penetrometer, MC = Moisture Content
LL = Liquid Limit, PI = Plastic Index, FV = Field Vane Test
Su = Undrained Shear Strength, Su(r) = Remolded Shear Strength

Bedrock Joints
Shallow = 0 to 35 degrees
Dipping = 35 to 55 degrees
Steep = 55 to 90 degrees

Boulders = diameter > 12 inches, Cobbles = diameter < 12 inches and > 3 inches
Gravel = < 3 inch and > No 4, Sand = < No 4 and >No 200, Silt/Clay = < No 200

Soil Moisture Condition
Dry: S = 0%
Humid: S = 1 to 25%
Damp: S = 26 to 50%
Moist: S = 51 to 75%
Wet: S = 76 to 99%
Saturated: S = 100%

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SUMMIT GEOENGINEERING SERVICES

SOIL BORING LOG

Project:	New Development	Boring #:	B-7
Location:	1871 Forest Avenue	Project #:	25298
City, State:	Portland, Maine	Sheet:	1 of 2
		Chkd by:	CRS

Drilling Co:	Summit Geoengineering Services	Boring Elevation:	88 ft +/-
Driller:	A. Manzella	Reference:	Estimated from Grading Plan prepared by Gorrill Palmer, Date Unknown
Summit Staff:	C. Sullivan, P.E.	Date Started: 2/5/2026	Date Completed: 2/6/2026

DRILLING METHOD		SAMPLER	
Vehicle:	AMS Track	Length:	24" SS
Model:	9580 VTR	Diameter:	2"OD/1.5"ID
Method:	2-1/4" HSA	Hammer:	140 lb
Hammer Style:	Auto	Method:	ASTM D1586

ESTIMATED GROUND WATER DEPTH

Date	Depth	Elevation	Reference
2/6/2026	51 ft	37 ft +/-	Measured in open hole after drilling

Depth (ft.)	No.	Pen/Rec (in)	Depth (ft)	blows/6"	Elev. (ft.)	SAMPLE DESCRIPTION	Geological/ Test Data	Geological Stratum
	S-1	24/12	0 - 2	1		Dark brown Silty SAND, rootlets, loose, frozen, SM		TOPSOIL
1				1	87+/-	Orange brown SAND, little-some Silt, slightly mottled,		0.7'
				2		loose, frozen-damp, SP-SM to SM		MARINE FAN
2				2				DEPOSIT
	S-2	24/12	2 - 4	1		Brown medium-fine SAND, trace Silt & Gravel, loose,		
3				2		damp, SP		
				2				
4				2				
5								
	S-3	24/12	5- - 7	4		Tan medium-fine SAND, trace Silt & Gravel, slightly		
6				5		mottled at 6' +/-, compact, damp, SP		
				6				
7				7				
8								
9								
10								
	S-4	24/14	10 - 12	5		Tan medium-fine SAND, little Gravel, trace Silt, 1"		
11				9		broken cobble at 10.3', compact, damp, SP		
				8				
12				7				
13								
14								
15								
	S-5	24/18	15 - 17	4		Tan medium-fine SAND, little Gravel, trace Silt, compact,		
16				12		damp, SP		
				12				
17				17				
18								
19								
20								
	S-6	24/16	20 - 22	7		Tan medium-fine SAND, little Gravel, trace Silt, compact,		
21				14		damp, SP		
				13				
22				12				

Granular Soils		Cohesive Soils		% Composition
Blows/ft.	Density	Blows/ft.	Consistency	ASTM D2487
0-4	V. Loose	<2	V. soft	
5-10	Loose	2-4	Soft	< 5% Trace
11-30	Compact	5-8	Firm	5-15% Little
31-50	Dense	9-15	Stiff	15-30% Some
>50	V. Dense	16-30	V. Stiff	> 30% With
		>30	Hard	

NOTES: PP = Pocket Penetrometer, MC = Moisture Content
LL = Liquid Limit, PI = Plastic Index, FV = Field Vane Test
Su = Undrained Shear Strength, Su(r) = Remolded Shear Strength

Bedrock Joints
Shallow = 0 to 35 degrees
Dipping = 35 to 55 degrees
Steep = 55 to 90 degrees

Boulders = diameter > 12 inches, Cobbles = diameter < 12 inches and > 3 inches
Gravel = < 3 inch and > No 4, Sand = < No 4 and >No 200, Silt/Clay = < No 200

Soil Moisture Condition
Dry: S = 0%
Humid: S = 1 to 25%
Damp: S = 26 to 50%
Moist: S = 51 to 75%
Wet: S = 76 to 99%
Saturated: S = 100%

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SUMMIT GEOENGINEERING SERVICES

SOIL BORING LOG

Project:	New Development	Boring #:	B-7
Location:	1871 Forest Avenue	Project #:	25298
City, State:	Portland, Maine	Sheet:	2 of 2
		Chkd by:	CRS

Drilling Co:	Summit Geoengineering Services	Boring Elevation:	88 ft +/-
Driller:	A. Manzella	Reference:	Estimated from Grading Plan prepared by Gorrill Palmer, Date Unknown
Summit Staff:	C. Sullivan, P.E.	Date Started: 2/5/2026	Date Completed: 2/6/2026

DRILLING METHOD		SAMPLER	
Vehicle:	AMS Track	Length:	24" SS
Model:	9580 VTR	Diameter:	2"OD/1.5"ID
Method:	2-1/4" HSA	Hammer:	140 lb
Hammer Style:	Auto	Method:	ASTM D1586

ESTIMATED GROUND WATER DEPTH

Date	Depth	Elevation	Reference
2/6/2026	51 ft	37 ft +/-	Measured in open hole after drilling

Depth (ft.)	No.	Pen/Rec (in)	Depth (ft)	blows/6"	Elev. (ft.)	SAMPLE DESCRIPTION	Geological/ Test Data	Geological Stratum
23								MARINE FAN DEPOSIT
24				18		Solid Stem Rod Probe Blows Per Foot		
25				25				
26				24				
27				19				
28				23				
29				26				
30				25				
31				24				
32				21				
33				23				
34				24				
35				27				
36				36				
37				30				
38				27				
39				28				
40				34				
*41						Vibratory rod probe to refusal		
87						*Change in depth scale		
88								
89								
					-1+/-	End of Exploration at 88.8', Refusal on Probable Bedrock		88.8' PROBABLE BEDROCK

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Granular Soils		Cohesive Soils		% Composition
Blows/ft.	Density	Blows/ft.	Consistency	ASTM D2487
0-4	V. Loose	<2	V. soft	
5-10	Loose	2-4	Soft	< 5% Trace
11-30	Compact	5-8	Firm	5-15% Little
31-50	Dense	9-15	Stiff	15-30% Some
>50	V. Dense	16-30	V. Stiff	> 30% With
		>30	Hard	

NOTES: PP = Pocket Penetrometer, MC = Moisture Content
LL = Liquid Limit, PI = Plastic Index, FV = Field Vane Test
Su = Undrained Shear Strength, Su(r) = Remolded Shear Strength

Bedrock Joints
Shallow = 0 to 35 degrees
Dipping = 35 to 55 degrees
Steep = 55 to 90 degrees

Boulders = diameter > 12 inches, Cobbles = diameter < 12 inches and > 3 inches
Gravel = < 3 inch and > No 4, Sand = < No 4 and >No 200, Silt/Clay = < No 200

Soil Moisture Condition
Dry: S = 0%
Humid: S = 1 to 25%
Damp: S = 26 to 50%
Moist: S = 51 to 75%
Wet: S = 76 to 99%
Saturated: S = 100%

SUMMIT GEOENGINEERING SERVICES

SOIL BORING LOG

Boring #: **B-8**

Project:	New Development
Location:	1871 Forest Avenue
City, State:	Portland, Maine
Project #:	25298
Sheet:	1 of 1
Chkd by:	CRS

Drilling Co:	Summit Geoengineering Services
Driller:	A. Manzella
Summit Staff:	C. Sullivan, P.E.
Boring Elevation:	86 ft +/-
Reference:	Estimated from Grading Plan prepared by Gorrill Palmer, Date Unknown
Date Started:	2/6/2026 Date Completed: 2/6/2026

DRILLING METHOD		SAMPLER	
Vehicle:	AMS Track	Length:	24" SS
Model:	9580 VTR	Diameter:	2"OD/1.5"ID
Method:	2-1/4" HSA	Hammer:	140 lb
Hammer Style:	Auto	Method:	ASTM D1586

ESTIMATED GROUND WATER DEPTH

Date	Depth	Elevation	Reference
2/6/2026	NE	N/A	Not encountered in 20' of augers

Depth (ft.)	No.	Pen/Rec (in)	Depth (ft)	blows/6"	Elev. (ft.)	SAMPLE DESCRIPTION	Geological/ Test Data	Geological Stratum
	S-1	24/16	0 - 2	4		Dark brown Silty SAND, rootlets, loose, frozen, SM		
1				2				TOPSOIL
				4	85+/-	Brown medium-fine SAND, trace Silt & Gravel, slightly		1'
2				3		mottled, loose, damp, SP		MARINE FAN
	S-2	24/18	2 - 4	2		Tan medium-fine SAND, trace Silt & Gravel, slightly		DEPOSIT
3				4		mottled from 2' to 2.5', loose, damp, SP		
				4				
4				5				
5								
	S-3	24/12	5 - 7	5		Tan medium-fine SAND, trace-little Gravel, trace Silt,		
6				6		compact, SP		
				9				
7				8				
8								
9								
10								
	S-4	24/14	10 - 12	3		Tan fine SAND, trace Silt, 1" coarse Sand seam at 11',		
11				4		compact, damp, SP		
				7				
12				9				
13								
14								
15								
	S-5	24/10	15 - 17	5		Tan medium-fine SAND, trace Silt, 1" crushed cobble		
16				11		at 15.8', compact, damp, SP		
				14				
17				15				
18								
19								
20								
	S-6	24/18	20 - 22	7		Tan medium-fine SAND, little Gravel, trace Silt, slightly		
21				6		mottled at 21', compact, damp, SP		
				8				
22				10				
					64+/-	End of Exploration at 22', No Refusal		22'

Granular Soils		Cohesive Soils		% Composition
Blows/ft.	Density	Blows/ft.	Consistency	ASTM D2487
0-4	V. Loose	<2	V. soft	
5-10	Loose	2-4	Soft	< 5% Trace
11-30	Compact	5-8	Firm	5-15% Little
31-50	Dense	9-15	Stiff	15-30% Some
>50	V. Dense	16-30	V. Stiff	> 30% With
		>30	Hard	

NOTES: PP = Pocket Penetrometer, MC = Moisture Content
LL = Liquid Limit, PI = Plastic Index, FV = Field Vane Test
Su = Undrained Shear Strength, Su(r) = Remolded Shear Strength

Bedrock Joints
Shallow = 0 to 35 degrees
Dipping = 35 to 55 degrees
Steep = 55 to 90 degrees

Boulders = diameter > 12 inches, Cobbles = diameter < 12 inches and > 3 inches
Gravel = < 3 inch and > No 4, Sand = < No 4 and >No 200, Silt/Clay = < No 200

Soil Moisture Condition
Dry: S = 0%
Humid: S = 1 to 25%
Damp: S = 26 to 50%
Moist: S = 51 to 75%
Wet: S = 76 to 99%
Saturated: S = 100%

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SUMMIT GEOENGINEERING SERVICES

SOIL BORING LOG

Boring #: **B-9**

Project:	New Development
Location:	1871 Forest Avenue
City, State:	Portland, Maine
Project #:	25298
Sheet:	1 of 1
Chkd by:	CRS

Drilling Co:	Summit Geoengineering Services
Driller:	A. Manzella
Summit Staff:	C. Sullivan, P.E.
Boring Elevation:	87 ft +/-
Reference:	Estimated from Grading Plan prepared by Gorrill Palmer, Date Unknown
Date Started:	2/6/2026 Date Completed: 2/6/2026

DRILLING METHOD		SAMPLER	
Vehicle:	AMS Track	Length:	24" SS
Model:	9580 VTR	Diameter:	2"OD/1.5"ID
Method:	2-1/4" HSA	Hammer:	140 lb
Hammer Style:	Auto	Method:	ASTM D1586

ESTIMATED GROUND WATER DEPTH

Date	Depth	Elevation	Reference
2/6/2026	NE	N/A	Not encountered in 20' of augers

Depth (ft.)	No.	Pen/Rec (in)	Depth (ft)	blows/6"	Elev. (ft.)	SAMPLE DESCRIPTION	Geological/ Test Data	Geological Stratum
	S-1	24/12	0 - 2	5		Dark brown Silty SAND, rootlets, loose, frozen, SM		TOPSOIL
1				2	86+/-	Brown medium-fine SAND, little-some Silt, slightly		0.7'
				1		mottled, very loose, frozen, damp, SP-SM to SM		MARINE FAN
2				1				DEPOSIT
	S-2	24/12	2 - 4	WOH		Tan fine SAND, trace Silt & Gravel, very loose, damp,		
3				WOH		SP		
				WOH				
4				WOH				
5								
	S-3	24/12	5 - 7	1		Tan fine SAND, trace Silt & Gravel, loose, damp, SP		
6				3				
				3				
7				2				
8								
9								
10								
	S-4	24/12	10 - 12	3		Tan medium-fine SAND, little Gravel, trace Silt, compact,		
11				7		damp, SP		
				9				
12				10				
13								
14								
15								
	S-5	24/14	15 - 17	4		Tan medium-fine SAND, trace Silt & Gravel, compact,		
16				9		damp, SP		
				8				
17				9				
18								
19								
20								
	S-6	24/14	20 - 22	6		Tan medium-fine SAND, trace Silt & Gravel, compact,		
21				9		damp, SP		
				9				
22				11				
					65+/-	End of Exploration at 22', No Refusal		22'

Granular Soils		Cohesive Soils		% Composition
Blows/ft.	Density	Blows/ft.	Consistency	ASTM D2487
0-4	V. Loose	<2	V. soft	
5-10	Loose	2-4	Soft	< 5% Trace
11-30	Compact	5-8	Firm	5-15% Little
31-50	Dense	9-15	Stiff	15-30% Some
>50	V. Dense	16-30	V. Stiff	> 30% With
		>30	Hard	

NOTES: PP = Pocket Penetrometer, MC = Moisture Content
LL = Liquid Limit, PI = Plastic Index, FV = Field Vane Test
Su = Undrained Shear Strength, Su(r) = Remolded Shear Strength

Bedrock Joints
Shallow = 0 to 35 degrees
Dipping = 35 to 55 degrees
Steep = 55 to 90 degrees

Boulders = diameter > 12 inches, Cobbles = diameter < 12 inches and > 3 inches
Gravel = < 3 inch and > No 4, Sand = < No 4 and >No 200, Silt/Clay = < No 200

Soil Moisture Condition
Dry: S = 0%
Humid: S = 1 to 25%
Damp: S = 26 to 50%
Moist: S = 51 to 75%
Wet: S = 76 to 99%
Saturated: S = 100%

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SUMMIT GEOENGINEERING SERVICES

SOIL BORING LOG

Boring #: **B-10**

Project:	New Development
Location:	1871 Forest Avenue
City, State:	Portland, Maine
Project #:	25298
Sheet:	1 of 2
Chkd by:	CRS

Drilling Co:	Summit Geoengineering Services
Driller:	A. Manzella
Summit Staff:	C. Sullivan, P.E.
Boring Elevation:	85 ft +/-
Reference:	Estimated from Grading Plan prepared by Gorrill Palmer, Date Unknown
Date Started:	2/5/2026 Date Completed: 2/5/2026

DRILLING METHOD		SAMPLER	
Vehicle:	AMS Track	Length:	24" SS
Model:	9580 VTR	Diameter:	2"OD/1.5"ID
Method:	2-1/4" HSA	Hammer:	140 lb
Hammer Style:	Auto	Method:	ASTM D1586

ESTIMATED GROUND WATER DEPTH

Date	Depth	Elevation	Reference
2/5/2026	NE	N/A	Not encountered in 20' of augers

Depth (ft.)	No.	Pen/Rec (in)	Depth (ft)	blows/6"	Elev. (ft.)	SAMPLE DESCRIPTION	Geological/ Test Data	Geological Stratum
	S-1	24/22	0 - 2	11		Dark brown Silty SAND, trace Gravel, rootlets, compact,		
1				13		frozen, SM		TOPSOIL
				5		Brown fine SAND, trace Silt, slightly mottled, compact,		
2				4	84+/-	frozen-damp, SP		1.5'
	S-2	24/14	2 - 4	3		Brown fine SAND, trace Silt, loose, damp, SP		MARINE FAN
3				3				DEPOSIT
				3				
4				3				
5								
	S-3	24/18	5 - 7	3		Tan fine SAND, trace Silt, slightly mottled at 6', loose-		
6				4		compact, damp, SP		
				5				
7				6				
8								
9								
10								
	S-4	24/16	10 - 12	3		Tan medium-fine SAND, trace Silt, 1" coarse Sand		
11				5		seam at 11', compact, damp, SP		
				6				
12				7				
13								
14								
15								
	S-5	24/18	15 - 17	4		Tan fine SAND, trace Silt & Gravel, 1/2" Gravel pieces		
16				7		at 15.4', 16', & 16.2', compact, damp, SP		
				10				
17				6				
18								
19								
20								
	S-6	24/18	20 - 22	4		Tan fine SAND, trace Silt, compact, damp, SP		
21				5				
				6				
22				9				

Granular Soils		Cohesive Soils		% Composition
Blows/ft.	Density	Blows/ft.	Consistency	ASTM D2487
0-4	V. Loose	<2	V. soft	
5-10	Loose	2-4	Soft	< 5% Trace
11-30	Compact	5-8	Firm	5-15% Little
31-50	Dense	9-15	Stiff	15-30% Some
>50	V. Dense	16-30	V. Stiff	> 30% With
		>30	Hard	

NOTES: PP = Pocket Penetrometer, MC = Moisture Content
LL = Liquid Limit, PI = Plastic Index, FV = Field Vane Test
Su = Undrained Shear Strength, Su(r) = Remolded Shear Strength

Bedrock Joints
Shallow = 0 to 35 degrees
Dipping = 35 to 55 degrees
Steep = 55 to 90 degrees

Boulders = diameter > 12 inches, Cobbles = diameter < 12 inches and > 3 inches
Gravel = < 3 inch and > No 4, Sand = < No 4 and >No 200, Silt/Clay = < No 200

Soil Moisture Condition
Dry: S = 0%
Humid: S = 1 to 25%
Damp: S = 26 to 50%
Moist: S = 51 to 75%
Wet: S = 76 to 99%
Saturated: S = 100%

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SUMMIT GEOENGINEERING SERVICES

SOIL BORING LOG

Project:	New Development	Boring #:	B-10
Location:	1871 Forest Avenue	Project #:	25298
City, State:	Portland, Maine	Sheet:	2 of 2
		Chkd by:	CRS

Drilling Co:	Summit Geoengineering Services	Boring Elevation:	85 ft +/-
Driller:	A. Manzella	Reference:	Estimated from Grading Plan prepared by Gorrill Palmer, Date Unknown
Summit Staff:	C. Sullivan, P.E.	Date Started: 2/5/2026	Date Completed: 2/5/2026

DRILLING METHOD		SAMPLER	
Vehicle:	AMS Track	Length:	24" SS
Model:	9580 VTR	Diameter:	2"OD/1.5"ID
Method:	2-1/4" HSA	Hammer:	140 lb
Hammer Style:	Auto	Method:	ASTM D1586

ESTIMATED GROUND WATER DEPTH

Date	Depth	Elevation	Reference
2/5/2026	NE	N/A	Not encountered in 20' of augers

Depth (ft.)	No.	Pen/Rec (in)	Depth (ft)	blows/6"	Elev. (ft.)	SAMPLE DESCRIPTION	Geological/ Test Data	Geological Stratum
23								MARINE FAN DEPOSIT
24				16		Solid Stem Rod Probe Blows Per Foot		
25				17				
26				18				
27				21				
28				21				
29				21				
30				29				
31				39				
32				70				
33				62				
34				45				
35				41				
36				42				
37				88				
38				46				
39				42				
40				40				
41					45+/-	End of Exploration at 40', No Refusal		40'
42								
43								
44								

Granular Soils		Cohesive Soils		% Composition
Blows/ft.	Density	Blows/ft.	Consistency	ASTM D2487
0-4	V. Loose	<2	V. soft	
5-10	Loose	2-4	Soft	< 5% Trace
11-30	Compact	5-8	Firm	5-15% Little
31-50	Dense	9-15	Stiff	15-30% Some
>50	V. Dense	16-30	V. Stiff	> 30% With
		>30	Hard	

NOTES: PP = Pocket Penetrometer, MC = Moisture Content
LL = Liquid Limit, PI = Plastic Index, FV = Field Vane Test
Su = Undrained Shear Strength, Su(r) = Remolded Shear Strength

Bedrock Joints
Shallow = 0 to 35 degrees
Dipping = 35 to 55 degrees
Steep = 55 to 90 degrees

Boulders = diameter > 12 inches, Cobbles = diameter < 12 inches and > 3 inches
Gravel = < 3 inch and > No 4, Sand = < No 4 and >No 200, Silt/Clay = < No 200

Soil Moisture Condition
Dry: S = 0%
Humid: S = 1 to 25%
Damp: S = 26 to 50%
Moist: S = 51 to 75%
Wet: S = 76 to 99%
Saturated: S = 100%

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SUMMIT GEOENGINEERING SERVICES

SOIL BORING LOG

Boring #: **B-11**

Project:	New Development
Location:	1871 Forest Avenue
City, State:	Portland, Maine
Project #:	25298
Sheet:	1 of 2
Chkd by:	CRS

Drilling Co:	Summit Geoengineering Services
Driller:	A. Manzella
Summit Staff:	C. Sullivan, P.E.
Boring Elevation:	87 ft +/-
Reference:	Estimated from Grading Plan prepared by Gorrill Palmer, Date Unknown
Date Started:	2/5/2026 Date Completed: 2/5/2026

DRILLING METHOD		SAMPLER	
Vehicle:	AMS Track	Length:	24" SS
Model:	9580 VTR	Diameter:	2"OD/1.5"ID
Method:	2-1/4" HSA	Hammer:	140 lb
Hammer Style:	Auto	Method:	ASTM D1586

ESTIMATED GROUND WATER DEPTH

Date	Depth	Elevation	Reference
2/5/2026	49 ft	38 ft +/-	Measured in open hole after drilling

Depth (ft.)	No.	Pen/Rec (in)	Depth (ft)	blows/6"	Elev. (ft.)	SAMPLE DESCRIPTION	Geological/ Test Data	Geological Stratum
	S-1	24/24	0 - 2	12		Dark brown Silty SAND, trace Gravel, compact, frozen,		
1				17		SM		TOPSOIL
				9		Brown SAND, trace-little Silt, slightly mottled, compact,		
2				5	86+/-	frozen-damp, SP to SP-SM		1.5'
	S-2	24/16	2 - 4	2		Tan fine SAND, trace Silt & Gravel, loose, damp, SP		MARINE FAN
3				4				DEPOSIT
				4				
4				5				
5								
	S-3	24/14	5 - 7	3		Tan medium-fine SAND, trace Silt, 1/2" slightly mottled		
6				4		seam at 6' +/-, loose, damp, SP		
				4				
7				5				
8								
9								
10								
	S-4	24/20	10 - 12	3		Tan medium-fine SAND, trace Gravel & Silt, compact,		
11				5		damp, SP		
				7				
12				7				
13								
14								
15								
	S-5	24/20	15 - 17	3		Tan medium-fine SAND, trace Gravel & Silt, compact,		
16				5		damp, SP		
				7				
17				6				
18								
19								
20								
	S-6	24/14	20 - 22	5		Tan medium-fine SAND, trace Gravel & Silt, slightly		
21				5		mottled, compact, damp, SP		
				6				
22				8				

Granular Soils		Cohesive Soils		% Composition
Blows/ft.	Density	Blows/ft.	Consistency	ASTM D2487
0-4	V. Loose	<2	V. soft	
5-10	Loose	2-4	Soft	< 5% Trace
11-30	Compact	5-8	Firm	5-15% Little
31-50	Dense	9-15	Stiff	15-30% Some
>50	V. Dense	16-30	V. Stiff	> 30% With
		>30	Hard	

NOTES: PP = Pocket Penetrometer, MC = Moisture Content
LL = Liquid Limit, PI = Plastic Index, FV = Field Vane Test
Su = Undrained Shear Strength, Su(r) = Remolded Shear Strength

Bedrock Joints
Shallow = 0 to 35 degrees
Dipping = 35 to 55 degrees
Steep = 55 to 90 degrees

Boulders = diameter > 12 inches, Cobbles = diameter < 12 inches and > 3 inches
Gravel = < 3 inch and > No 4, Sand = < No 4 and >No 200, Silt/Clay = < No 200

Soil Moisture Condition
Dry: S = 0%
Humid: S = 1 to 25%
Damp: S = 26 to 50%
Moist: S = 51 to 75%
Wet: S = 76 to 99%
Saturated: S = 100%

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SUMMIT GEOENGINEERING SERVICES

SOIL BORING LOG

Boring #: **B-11**

Project:	New Development
Location:	1871 Forest Avenue
City, State:	Portland, Maine
Project #:	25298
Sheet:	2 of 2
Chkd by:	CRS

Drilling Co:	Summit Geoengineering Services
Driller:	A. Manzella
Summit Staff:	C. Sullivan, P.E.
Boring Elevation:	87 ft +/-
Reference:	Estimated from Grading Plan prepared by Gorrill Palmer, Date Unknown
Date Started:	2/5/2026 Date Completed: 2/5/2026

DRILLING METHOD		SAMPLER	
Vehicle:	AMS Track	Length:	24" SS
Model:	9580 VTR	Diameter:	2"OD/1.5"ID
Method:	2-1/4" HSA	Hammer:	140 lb
Hammer Style:	Auto	Method:	ASTM D1586

ESTIMATED GROUND WATER DEPTH

Date	Depth	Elevation	Reference
2/5/2026	49 ft	38 ft +/-	Measured in open hole after drilling

Depth (ft.)	No.	Pen/Rec (in)	Depth (ft)	blows/6"	Elev. (ft.)	SAMPLE DESCRIPTION	Geological/ Test Data	Geological Stratum
						Solid stem vibratory rod probe		
23								PROBABLE MARINE FAN DEPOSIT
24								
25								
26								
27								
28								
29								
30								
31								
32								
*33								
86						*Change in depth scale		
87								
88								
89								
90					-2+/-	End of Exploration at 89', Terminate in Dense Strata		89' DENSE STRATA
91								
92								
93								
94								
95								
96								

Granular Soils		Cohesive Soils		% Composition
Blows/ft.	Density	Blows/ft.	Consistency	ASTM D2487
0-4	V. Loose	<2	V. soft	
5-10	Loose	2-4	Soft	< 5% Trace
11-30	Compact	5-8	Firm	5-15% Little
31-50	Dense	9-15	Stiff	15-30% Some
>50	V. Dense	16-30	V. Stiff	> 30% With
		>30	Hard	

NOTES: PP = Pocket Penetrometer, MC = Moisture Content
LL = Liquid Limit, PI = Plastic Index, FV = Field Vane Test
Su = Undrained Shear Strength, Su(r) = Remolded Shear Strength

Bedrock Joints
Shallow = 0 to 35 degrees
Dipping = 35 to 55 degrees
Steep = 55 to 90 degrees

Boulders = diameter > 12 inches, Cobbles = diameter < 12 inches and > 3 inches
Gravel = < 3 inch and > No 4, Sand = < No 4 and >No 200, Silt/Clay = < No 200

Soil Moisture Condition
Dry: S = 0%
Humid: S = 1 to 25%
Damp: S = 26 to 50%
Moist: S = 51 to 75%
Wet: S = 76 to 99%
Saturated: S = 100%

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SUMMIT GEOENGINEERING SERVICES

SOIL BORING LOG

Boring #: **B-12**

Project:	New Development
Location:	1871 Forest Avenue
City, State:	Portland, Maine
Project #:	25298
Sheet:	1 of
Chkd by:	CRS

Drilling Co:	Summit Geoengineering Services
Driller:	A. Manzella
Summit Staff:	C. Sullivan, P.E.
Boring Elevation:	85 ft +/-
Reference:	Estimated from Grading Plan prepared by Gorrill Palmer, Date Unknown
Date Started:	2/5/2026 Date Completed: 2/5/2026

DRILLING METHOD		SAMPLER	
Vehicle:	AMS Track	Length:	24" SS
Model:	9580 VTR	Diameter:	2"OD/1.5"ID
Method:	2-1/4" HSA	Hammer:	140 lb
Hammer Style:	Auto	Method:	ASTM D1586

ESTIMATED GROUND WATER DEPTH

Date	Depth	Elevation	Reference
2/5/2026	NE	N/A	Not encountered in 20' of augers

Depth (ft.)	No.	Pen/Rec (in)	Depth (ft)	blows/6"	Elev. (ft.)	SAMPLE DESCRIPTION	Geological/ Test Data	Geological Stratum
	S-1	24/16	0 - 2	7		Dark brown Silty SAND, rootlets, loose, frozen, SM		TOPSOIL
1				3	84+/-	Brown fine SAND, little Silt, loose, frozen-damp, SP-SM		0.7'
				3				MARINE FAN
2				2				DEPOSIT
	S-2	24/18	2 - 4	3		Tan fine SAND, trace-little Silt, compact, damp, SP		
3				5				
				8				
4				8				
5								
	S-3	24/18	5 - 7	3		Tan fine SAND, trace Silt, compact, damp, SP		
6				5				
				5				
7				4				
8								
9								
10								
	S-4	24/16	10 - 12	3		Tan fine SAND, trace Silt, trace Gravel at 11', loose,		
11				4		damp, SP		
				4				
12				4				
13								
14								
15								
	S-5	24/16	15 - 17	3		Tan medium-fine SAND, trace Silt & Gravel, compact,		
16				5		damp, SP		
				8				
17				6				
18								
19								
20								
	S-6	24/16	20 - 22	4		Tan fine SAND, trace Silt, slight to no mottling, compact,		
21				6		damp, SP		
				6				
22				6				
					63+/-	End of Exploration at 22', No Refusal		22'

Granular Soils		Cohesive Soils		% Composition
Blows/ft.	Density	Blows/ft.	Consistency	ASTM D2487
0-4	V. Loose	<2	V. soft	
5-10	Loose	2-4	Soft	< 5% Trace
11-30	Compact	5-8	Firm	5-15% Little
31-50	Dense	9-15	Stiff	15-30% Some
>50	V. Dense	16-30	V. Stiff	> 30% With
		>30	Hard	

NOTES: PP = Pocket Penetrometer, MC = Moisture Content
LL = Liquid Limit, PI = Plastic Index, FV = Field Vane Test
Su = Undrained Shear Strength, Su(r) = Remolded Shear Strength

Bedrock Joints
Shallow = 0 to 35 degrees
Dipping = 35 to 55 degrees
Steep = 55 to 90 degrees

Boulders = diameter > 12 inches, Cobbles = diameter < 12 inches and > 3 inches
Gravel = < 3 inch and > No 4, Sand = < No 4 and >No 200, Silt/Clay = < No 200

Soil Moisture Condition
Dry: S = 0%
Humid: S = 1 to 25%
Damp: S = 26 to 50%
Moist: S = 51 to 75%
Wet: S = 76 to 99%
Saturated: S = 100%

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SUMMIT GEOENGINEERING SERVICES

SOIL BORING LOG

Boring #: **B-13**

Project:	New Development	Project #:	25298
Location:	1871 Forest Avenue	Sheet:	1 of 2
City, State:	Portland, Maine	Chkd by:	CRS

Drilling Co:	Summit Geoengineering Services	Boring Elevation:	91 ft +/-
Driller:	A. Manzella	Reference:	Estimated from Grading Plan prepared by Gorrill Palmer, Date Unknown
Summit Staff:	C. Sullivan, P.E.	Date Started: 2/5/2026	Date Completed: 2/5/2026

DRILLING METHOD		SAMPLER	
Vehicle:	AMS Track	Length:	24" SS
Model:	9580 VTR	Diameter:	2"OD/1.5"ID
Method:	2-1/4" HSA	Hammer:	140 lb
Hammer Style:	Auto	Method:	ASTM D1586

ESTIMATED GROUND WATER DEPTH

Date	Depth	Elevation	Reference
2/5/2026	NE	N/A	Not encountered in 20' of augers

Depth (ft.)	No.	Pen/Rec (in)	Depth (ft)	blows/6"	Elev. (ft.)	SAMPLE DESCRIPTION	Geological/ Test Data	Geological Stratum
	SP-1	12/12	0 - 1	PUSH		3" Bituminous Pavement		PAVEMENT
1				▼	91+/-	Brown SAND, little Silt & Gravel, compact, frozen, SP-SM		0.3'
	S-1	24/18	1 - 3	4		Light brown fine SAND, little Silt, slightly mottled, frozen-		FILL
2				3	90+/-	damp, SP-SM		1' +/-
				3				MARINE FAN
3				5				DEPOSIT
	S-2	24/16	3 - 5	6		Tan fine SAND, trace Silt, compact, damp, SP		
4				5				
				5				
5				6				
	S-3	24/18	5 - 7	4		Tan fine SAND, trace Silt, compact, damp, SP		
6				6				
				4				
7				6				
8								
9								
10								
	S-4	24/16	10 - 12	2		Tan fine SAND, trace Silt, 1/2" mottled seam at 11' +/-		
11				4		loose, damp, SP		
				4				
12				5				
13								
14								
15								
	S-5	24/14	15 - 17	4		Tan fine SAND, trace Silt, trace Gravel from 16' - 17',		
16				5		compact, damp, SP		
				8				
17				11				
18								
19								
20								
	S-6	24/16	20 - 22	4		Tan fine SAND, trace Silt, compact, damp, SP		
21				6				
				7				
22				7				

Granular Soils		Cohesive Soils		% Composition
Blows/ft.	Density	Blows/ft.	Consistency	ASTM D2487
0-4	V. Loose	<2	V. soft	
5-10	Loose	2-4	Soft	< 5% Trace
11-30	Compact	5-8	Firm	5-15% Little
31-50	Dense	9-15	Stiff	15-30% Some
>50	V. Dense	16-30	V. Stiff	> 30% With
		>30	Hard	

NOTES: PP = Pocket Penetrometer, MC = Moisture Content
LL = Liquid Limit, PI = Plastic Index, FV = Field Vane Test
Su = Undrained Shear Strength, Su(r) = Remolded Shear Strength

Bedrock Joints
Shallow = 0 to 35 degrees
Dipping = 35 to 55 degrees
Steep = 55 to 90 degrees

Boulders = diameter > 12 inches, Cobbles = diameter < 12 inches and > 3 inches
Gravel = < 3 inch and > No 4, Sand = < No 4 and >No 200, Silt/Clay = < No 200

Soil Moisture Condition
Dry: S = 0%
Humid: S = 1 to 25%
Damp: S = 26 to 50%
Moist: S = 51 to 75%
Wet: S = 76 to 99%
Saturated: S = 100%

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SUMMIT GEOENGINEERING SERVICES

SOIL BORING LOG

Project:	New Development	Boring #:	B-13
Location:	1871 Forest Avenue	Project #:	25298
City, State:	Portland, Maine	Sheet:	2 of 2
		Chkd by:	CRS

Drilling Co:	Summit Geoengineering Services	Boring Elevation:	91 ft +/-
Driller:	A. Manzella	Reference:	Estimated from Grading Plan prepared by Gorrill Palmer, Date Unknown
Summit Staff:	C. Sullivan, P.E.	Date Started: 2/5/2026	Date Completed: 2/5/2026

DRILLING METHOD		SAMPLER	
Vehicle:	AMS Track	Length:	24" SS
Model:	9580 VTR	Diameter:	2"OD/1.5"ID
Method:	2-1/4" HSA	Hammer:	140 lb
Hammer Style:	Auto	Method:	ASTM D1586

ESTIMATED GROUND WATER DEPTH

Date	Depth	Elevation	Reference
2/5/2026	NE	N/A	Not encountered in 20' of augers

Depth (ft.)	No.	Pen/Rec (in)	Depth (ft)	blows/6"	Elev. (ft.)	SAMPLE DESCRIPTION	Geological/ Test Data	Geological Stratum
23								MARINE FAN DEPOSIT
24				15		Solid Stem Rod Probe Blows Per Foot		
25				30				
26				22				
27				34				
28				49				
29				25				
30				25				
31				21				
32				22				
33				34				
34				27				
35				31				
36				23				
37				31				
38				37				
39				31				
40				31				
41					51+/-	End of Exploration at 40', No Refusal		40'
42								
43								
44								

Granular Soils		Cohesive Soils		% Composition
Blows/ft.	Density	Blows/ft.	Consistency	ASTM D2487
0-4	V. Loose	<2	V. soft	
5-10	Loose	2-4	Soft	< 5% Trace
11-30	Compact	5-8	Firm	5-15% Little
31-50	Dense	9-15	Stiff	15-30% Some
>50	V. Dense	16-30	V. Stiff	> 30% With
		>30	Hard	

NOTES: PP = Pocket Penetrometer, MC = Moisture Content
LL = Liquid Limit, PI = Plastic Index, FV = Field Vane Test
Su = Undrained Shear Strength, Su(r) = Remolded Shear Strength

Bedrock Joints
Shallow = 0 to 35 degrees
Dipping = 35 to 55 degrees
Steep = 55 to 90 degrees

Boulders = diameter > 12 inches, Cobbles = diameter < 12 inches and > 3 inches
Gravel = < 3 inch and > No 4, Sand = < No 4 and >No 200, Silt/Clay = < No 200

Soil Moisture Condition
Dry: S = 0%
Humid: S = 1 to 25%
Damp: S = 26 to 50%
Moist: S = 51 to 75%
Wet: S = 76 to 99%
Saturated: S = 100%

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SUMMIT GEOENGINEERING SERVICES

SOIL BORING LOG

Boring #: **B-14**

Project:	New Development
Location:	1871 Forest Avenue
City, State:	Portland, Maine
Project #:	25298
Sheet:	1 of 1
Chkd by:	CRS

Drilling Co:	Summit Geoengineering Services
Driller:	A. Manzella
Summit Staff:	C. Sullivan, P.E.
Boring Elevation:	91 ft +/-
Reference:	Estimated from Grading Plan prepared by Gorrill Palmer, Date Unknown
Date Started:	2/5/2026 Date Completed: 2/5/2026

DRILLING METHOD		SAMPLER	
Vehicle:	AMS Track	Length:	24" SS
Model:	9580 VTR	Diameter:	2"OD/1.5"ID
Method:	2-1/4" HSA	Hammer:	140 lb
Hammer Style:	Auto	Method:	ASTM D1586

ESTIMATED GROUND WATER DEPTH

Date	Depth	Elevation	Reference
2/5/2026	NE	N/A	Not encountered in 20' of augers

Depth (ft.)	No.	Pen/Rec (in)	Depth (ft)	blows/6"	Elev. (ft.)	SAMPLE DESCRIPTION	Geological/ Test Data	Geological Stratum
	SP-1	12/12	0 - 1	PUSH		2" Bituminous Pavement		PAVEMENT
1				▼	91+/-	Brown Gravelly SAND, little Silt, compact, frozen, SP-SM		0.2'
	S-1	24/18	1 - 3	12	90+/-	Tan fine SAND, trace Silt, trace-no Gravel w/ depth,		FILL
2				17		compact, frozen-damp, SP		1' +/-
				11				MARINE FAN
3				7				DEPOSIT
	S-2	24/18	3 - 5	4		Tan fine SAND, trace Silt, loose-compact, damp, SP		
4				4				
				4				
5				4				
	S-3	24/16	5 - 7	3		Tan fine SAND, trace Silt, loose, damp, SP		
6				3				
				4				
7				4				
8								
9								
10								
	S-4	24/18	10 - 12	3		Tan medium-fine SAND, trace Silt, loose-compact,		
11				4		damp, SP		
				5				
12				5				
13								
14								
15								
	S-5	24/18	15 - 17	3		Tan fine SAND, trace Silt, loose-compact, damp, SP		
16				5				
				4				
17				6				
18								
19								
20								
	S-6	24/18	20 - 22	4		Tan fine SAND, trace Silt, compact, damp, SP		
21				5				
				6				
22				8				
					69+/-	End of Exploration at 22', No Refusal		22'

Granular Soils		Cohesive Soils		% Composition
Blows/ft.	Density	Blows/ft.	Consistency	ASTM D2487
0-4	V. Loose	<2	V. soft	
5-10	Loose	2-4	Soft	< 5% Trace
11-30	Compact	5-8	Firm	5-15% Little
31-50	Dense	9-15	Stiff	15-30% Some
>50	V. Dense	16-30	V. Stiff	> 30% With
		>30	Hard	

NOTES: PP = Pocket Penetrometer, MC = Moisture Content
LL = Liquid Limit, PI = Plastic Index, FV = Field Vane Test
Su = Undrained Shear Strength, Su(r) = Remolded Shear Strength

Bedrock Joints
Shallow = 0 to 35 degrees
Dipping = 35 to 55 degrees
Steep = 55 to 90 degrees

Boulders = diameter > 12 inches, Cobbles = diameter < 12 inches and > 3 inches
Gravel = < 3 inch and > No 4, Sand = < No 4 and >No 200, Silt/Clay = < No 200

Soil Moisture Condition
Dry: S = 0%
Humid: S = 1 to 25%
Damp: S = 26 to 50%
Moist: S = 51 to 75%
Wet: S = 76 to 99%
Saturated: S = 100%

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Att. T

Section T

Parking Summary & Turning Templates

T.1 Parking & Transportation Summary

Table 18-A, in Portland's Land Use Code, specifies a maximum parking ratio of 2 parking spaces per dwelling or residential unit and 1 parking space per 200 SF of general office floor area. The project proposes a 33-unit multifamily building with 2,198 SF of accessory office space on the first floor. Under the City of Portland's Land Use Code, a maximum of 77 parking spaces is allowed for this site. The Project proposes a total of eight (8) off street parking spaces, including one (1) space equipped with a Level 2 EV charger and one (1) ADA van accessible space. An additional four (4) spaces will be made EV ready and served with sufficient conduit and electrical service to allow for future charger installation. The proposed eight (8) off street parking spaces will primarily serve the support staff for the building. The residents of the building will be part of Avesta Housing's and Preble Street's Home For Good program, which provides housing to individuals who are experiencing chronic homelessness. Avesta anticipated that little to none of these residents would own or need a space to park a car.

The proposed parking lot dimensions have also been sized to accommodate the trash collection truck that the client will contract with to provide solid waste removal services. More details about the trash collection truck can be found in Section M. Please see the attached Turning Templates showing access in and out of each parking space on site as well as access for solid waste collection. Turning movements were modeled using AutoCAD Vehicle Tracking Software. Parking will not be allowed in the turnaround area for the trash collection truck, as that space will also serve as a fire lane.

There is a large existing parking lot on the site that will be partially demolished to make room for the proposed development. The existing parking lot and access driveway that are to remain will be gated off at Forest Avenue and disconnected from the proposed driveway and parking area. They will not be used for parking. The client anticipates a Phase 2 development on the site, and will demolish the remainder of the existing parking area as part of Phase 2. In the interim period, leaving the remainder of the existing parking area as is helps to stabilize the soils on site and reduce costs for the project.

Under the City of Portland's Land Use Code, Table 18-A, a minimum of one (1) bicycle space per two (2) dwelling units is required for multifamily housing projects. This would result in 16 required bicycle parking spaces. Minimum bicycle parking spaces only apply to general office uses that are greater than 5,000 SF, so there are no required parking spaces for the accessory office uses in the building. This project is requesting a waiver on the minimum bicycle parking space requirement due to the unique demographics of the residents of this building. Avesta Housing currently runs three (3) other Home For Good locations in Portland, and has found that residents will not use standard bicycle parking facilities. At other Home For Good locations bike racks and bike storage facilities have remained essentially empty. This project would like to avoid increasing impervious surfaces on site to provide bike parking that is extremely unlikely to be used. Because of this, the project is requesting a waiver to not provide bike parking on site. Several racks are proposed at the front of the building for intermittent use, which will provide eight (8) bike parking spots for residents or service providers.

The development team anticipates that residents will use the public bus service for the majority of their transportation needs. There are four bus stops within a quarter mile walk of the site, which

are serviced by the Number 2 – Forest Avenue-Riverton and Number 3 – Westbrook Crosstown lines. Bus stop 282 is on the west side of the subject parcel, which is the far side of the site from the proposed development. Bus stop 283 is located across Forest Avenue from the parcel, and slightly west of the proposed development footprint. It has a bus shelter and an enlarged sidewalk for ADA accessibility. Bus stop 293 is located across Forest Avenue from the proposed development, and does not have any bus stop improvements. The project proposes a new crosswalk with flashing beacons to be installed adjacent to the existing stop for residents to use. The project also proposes widening the sidewalk at the stop to meet ADA accessibility standards. Bus stop 263 is located to the east of the subject parcel on the north side of Forest Avenue, in front of the Portland Friends Meeting House, and does not have any bus stop improvements. The project proposes moving this stop approximately 120 feet east along Forest Avenue and widening the sidewalk at the new location to meet ADA accessibility standards. This new location for bus stop 263 would be closer to the residents of the proposed development than bus stop 282. The project anticipates that these stops will provide adequate service for residents, especially after the proposed ADA and crosswalk improvements.

The proposed project has its frontage on Forest Avenue, which is a two-lane state highway classified as "Other Principal Arterial" or FFC-3 per the Federal Highway Administration's (FHWA) Function Classification. FHWA Functional Class 3 roads function below Interstates and Freeways, and typically serve as the major connector between rural and suburban residential areas and city centers. The posted speed limit on the section of Forest Avenue by the site is 35 mph. The Maine Department of Transportation specifies that the minimum allowable sight distance for all accesses onto all state highways located outside urban compact areas with a posted speed limit of 35 mph is 305 feet. The sight distance is measured from a point on the centerline of the proposed access that is located 10 feet from the edge of the traveled way at 3.5 feet above the pavement. The sight distance was measured to a point 4.25 feet above the pavement on the closest edge of the lane to the proposed access. The sight distance was measured using pictures taken at the site and online imagery. An exhibit showing the calculated sight distances can be found in section T.3.

The sight distance to the west of the proposed access (EB traffic driving on opposite side of the road from the proposed access) is constrained by the curvature of Forest Avenue and the significant grade change and retaining wall that are present on the site to the west of proposed access. Figure 1 below shows a view looking to the west from approximately the proposed access point. The sight distance to the west was found to be approximately 325 feet, which is more than the required minimum distance of 305 feet.

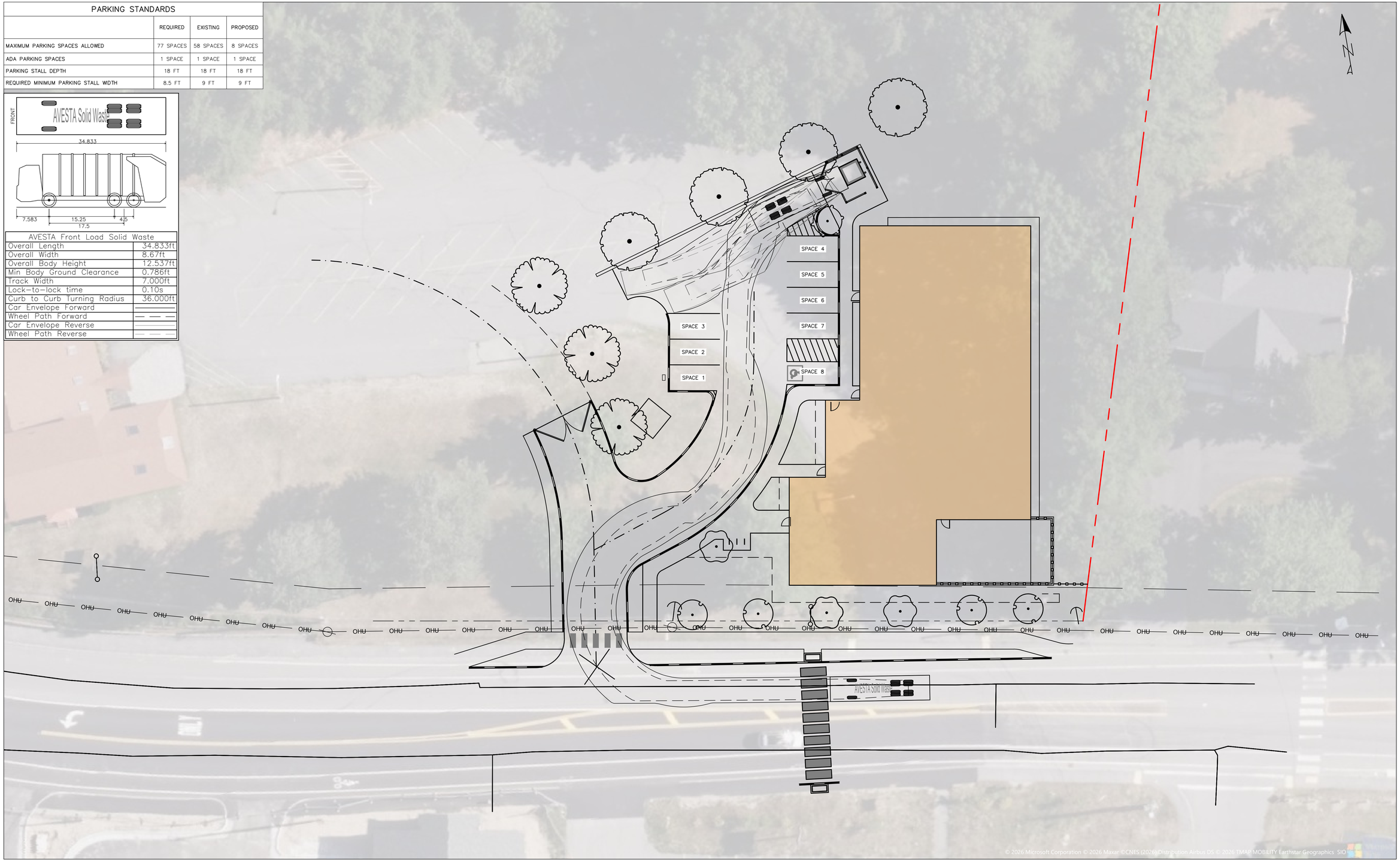
The sight distance to the east of the proposed access (WB traffic driving on the same side of the road as the proposed access) is constrained by grade change along Forest Ave to the east and the I-95 overpass. Figure 2 below shows a view looking east from approximately the proposed access point. The sight distance to the east was found to be approximately 1,355 feet, which is more than the required minimum distance of 305 feet.

Figure 1. Looking west from the proposed access onto Forest Avenue.

Figure 2. Looking east from the proposed driveway access onto Forest Avenue.

PARKING STANDARDS			
	REQUIRED	EXISTING	PROPOSED
MAXIMUM PARKING SPACES ALLOWED	77 SPACES	58 SPACES	8 SPACES
ADA PARKING SPACES	1 SPACE	1 SPACE	1 SPACE
PARKING STALL DEPTH	18 FT	18 FT	18 FT
REQUIRED MINIMUM PARKING STALL WIDTH	8.5 FT	9 FT	9 FT

AVESTA Front Load Solid Waste	
Overall Length	34.833ft
Overall Width	8.67ft
Overall Body Height	12.537ft
Min Body Ground Clearance	0.786ft
Track Width	7.000ft
Lock-to-lock time	0.10s
Curb to Curb Turning Radius	36.000ft
Car Envelope Forward	
Wheel Path Forward	
Car Envelope Reverse	
Wheel Path Reverse	



PERMIT LEVEL
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CONSTRUCTION

15 0 15 30
SCALE: 1"=15'

ISSUED FOR	BY	DATE
CONCEPT	SA	1/23/2026

DRAWING NAME: **1871 FOREST AVE PARKING PLAN – TRASH TRUCK ENTERING**
PROJECT NAME: 1871 FOREST AVE, PORTLAND, MAINE
PARCEL ID: 327A A004001
CLIENT: AVESTA HOUSING
307 CUMBERLAND AVE, PORTLAND, MAINE 04101

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(207) 775-2655

FILE:	TURNING TEMPLATES
DATE:	02/25/2026
JN:	1297
SCALE:	AS NOTED
DESIGNED BY:	MJVA
DRAWN BY:	MJVA
CHECKED BY:	XXX

DRAWING NO.
T.2

PARKING STANDARDS			
	REQUIRED	EXISTING	PROPOSED
MAXIMUM PARKING SPACES ALLOWED	77 SPACES	58 SPACES	8 SPACES
ADA PARKING SPACES	1 SPACE	1 SPACE	1 SPACE
PARKING STALL DEPTH	18 FT	18 FT	18 FT
REQUIRED MINIMUM PARKING STALL WIDTH	8.5 FT	9 FT	9 FT

AVESTA Front Load Solid Waste	
Overall Length	34.833ft
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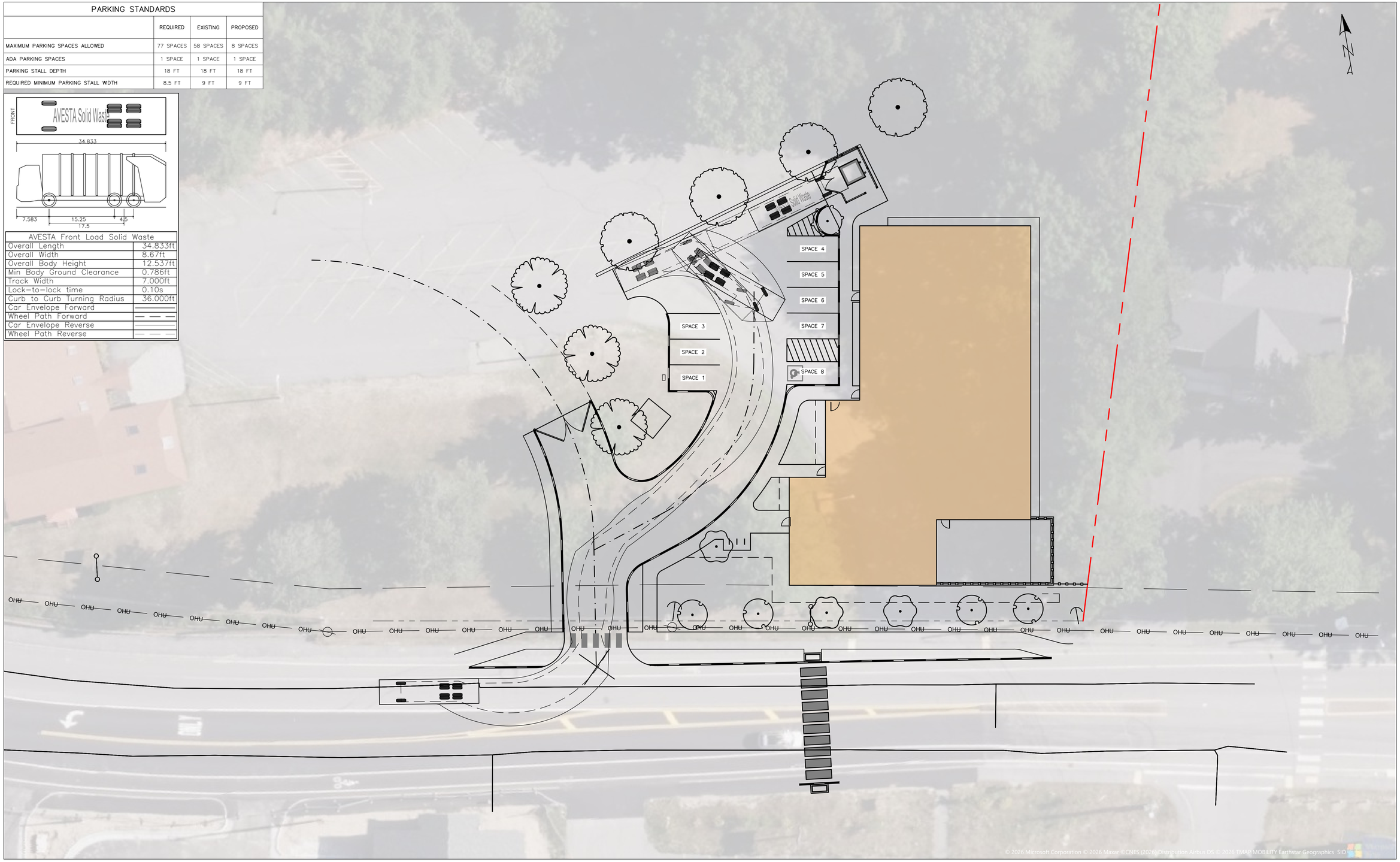
Car Envelope Forward	
Wheel Path Forward	
Car Envelope Reverse	
Wheel Path Reverse	



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CONSTRUCTION

15 0 15 30
SCALE: 1"=15'

ISSUED FOR	BY	DATE
CONCEPT	SC	1/23/2026

DRAWING NAME: 1871 FOREST AVE PARKING PLAN – TRASH TRUCK EXITING
PROJECT NAME: 1871 FOREST AVE, PORTLAND, MAINE
PARCEL ID: 327A A004001
CLIENT: AVESTA HOUSING
307 CUMBERLAND AVE, PORTLAND, MAINE 04101

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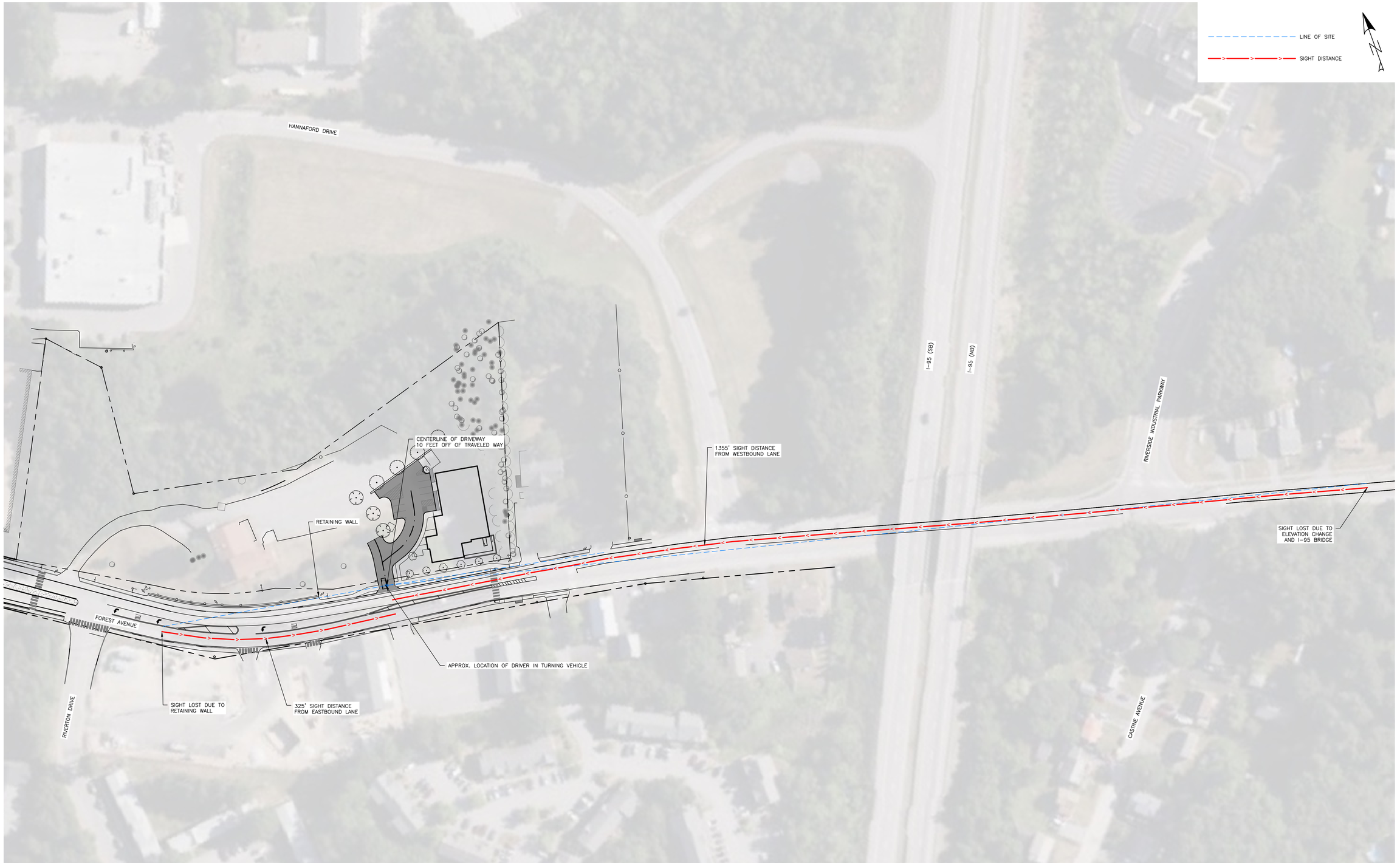
T.2



60 0 60 120

SCALE: 1"=60'

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CONSTRUCTION

ISSUED FOR	BY DATE
COMMENT RESPONSE	SJL 5/21/2026

DRAWING NAME: **1871 FOREST AVE PARKING PLAN – SIGHT DISTANCE**

PROJECT NAME: 1871 FOREST AVE, PORTLAND, MAINE

PARCEL ID: 327A A004001

CLIENT: AVESTA HOUSING
307 CUMBERLAND AVE, PORTLAND, MAINE 04101

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SCALE:	AS NOTED
DESIGNED BY:	MJVA
DRAWN BY:	MJVA
CHECKED BY:	SJL

STATE OF MAINE
SAMUEL J. LEBEL
No. 16505
REGISTERED PROFESSIONAL ENGINEER
05/21/26

DRAWING NO.

T.3

1871 FOREST AVE PHASE 1

AVESTA HOUSING
PORTLAND, MAINE

LEGEND

EXISTING

REFER TO THE EXISTING CONDITIONS PLAN FOR ADDITIONAL INFORMATION

PROPOSED

- UNDERDRAIN — UD
- ROOF OVERHANG
- WETLAND
- UTILITY PAVEMENT CUTS
- GRASS PAVERS
- BITUMINOUS PAVEMENT
- CONCRETE
- STRIPING
- GUARDRAIL
- FENCE
- SEDIMENTATION BARRIER — SB
- EDGE OF PAVEMENT
- VERTICAL CURB
- FLUSH GRANITE CURB
- TYPE 5 SLOPED CURB
- SIGN
- LAMP OR LIGHT POLE
- UTILITY POLE
- FOUNDATION DRAIN — FD
- WATER VALVE
- FIRE HYDRANT
- SEWER MANHOLE
- CATCH BASIN
- DRAIN MANHOLE
- CATCH BASIN WITH HEADSTONE
- ELECTRIC MANHOLE
- UNDERGROUND WATER LINE — 1"W
- MINOR CONTOURS (1 FT) — 49
- MAJOR CONTOURS (5 FT) — 50
- GAS LINE — G
- STORM DRAIN LINE — >
- SEWER LINE — S
- EXISTING/PROPOSED BUILDING
- OVERHEAD ELECTRICAL/TELEPHONE/CABLE — OHE/T/C
- UNDERGROUND ELECTRIC — UGE
- UNDERGROUND TELECOM — UG/T/C
- UNDERGROUND ELECTRIC AND TELECOM — UGE/T/C
- SPLICE BOX — S
- TRANSFORMER PAD — T
- BOLLARD — B
- PROPERTY LINE
- SETBACKS
- FLOW DIRECTION ARROW

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CALL BEFORE YOU DIG
1-888-DIG-SAFE
1-888-344-7233

PROJECT TEAM

OWNER:

AVESTA HOUSING
307 CUMBERLAND AVE
PORTLAND, ME 04101
CONTACT: SERIC KAPP
(207) 650-3370

SURVEYOR:

BERRY, HUFF, MCDONALD, MILLIGAN INC.
380B MAIN ST
GORHAM, ME, 04038
CONTACT: ROBERT C. LIBBY JR.
(207) 839-2771

BH2M
Civil Engineering | Surveying

CIVIL ENGINEER:

ACORN ENGINEERING, INC.
16 MIDDLE STREET, SUITE 302
PORTLAND, MAINE
CONTACT: SAM J. LEBEL, PE
(207) 775-2655

ARCHITECT:

SIMONS ARCHITECTS
75 YORK ST #4670
PORTLAND, ME, 04101
CONTACT: RYAN KANTERES, RA
(207) 772-4656

simons architects
designed for human potential

GEOTECHNICAL ENGINEER:

SUMMIT GEOENGINEERING SERVICES INC.
210 MAINE AVE
FARMINGDALE, ME, 04344
CONTACT: BILL PETERLEIN, P.E.
(207) 576-3313

SUMMIT
GEOENGINEERING SERVICES

LANDSCAPE ARCHITECT:

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16 MIDDLE ST SUITE 302
PORTLAND, ME, 04101
CONTACT: ALEX LOPEZ DEL VECCHIO, PLA
(207) 775-2655

ENVIRONMENTAL CONSULTANT:

CREDERE ASSOCIATES, LLC
776 MAIN ST
WESTBROOK, ME, 04092
CONTACT: JUDD R. NEWCOMB, LG, PG
(207) 828-1272

Community Economy Environment
CREDERE ASSOCIATES, LLC

NATURAL RESOURCE CONSULTANT:

OLD NORTH ENVIRONMENTAL
31 WINTER ST
TOPSHAM, ME, 04086
CONTACT: ERIC WHITNEY, LSE
(207) 770-0919

Old North Environmental

UTILITIES

SEWER

DEPARTMENT OF PUBLIC WORKS (DPW)
250 CANCO ROAD
PORTLAND, ME 04101
CONTACT: JUSTIN PELLERIN, PE
(207) 874-8881

WATER

PORTLAND WATER DISTRICT
225 DOUGLASS ST
PORTLAND, ME 04102
CONTACT: CELINA AZEVEDO
(207) 699-5134

Portland Water District
From Sebago Lake to Casco Bay

CABLE

SPECTRUM CABLE
118 JOHNSON ROAD
PORTLAND, MAINE, 04102
CONTACT: STEVEN HOLMES
(207) 631-1618

Spectrum

ELECTRIC

CENTRAL MAINE POWER COMPANY (CMP)
162 CANCO ROAD
PORTLAND, MAINE 04103
CONTACT: ANTHONY BOUCHER, PE
(207) 828-2882

CENTRAL MAINE POWER

TELEPHONE

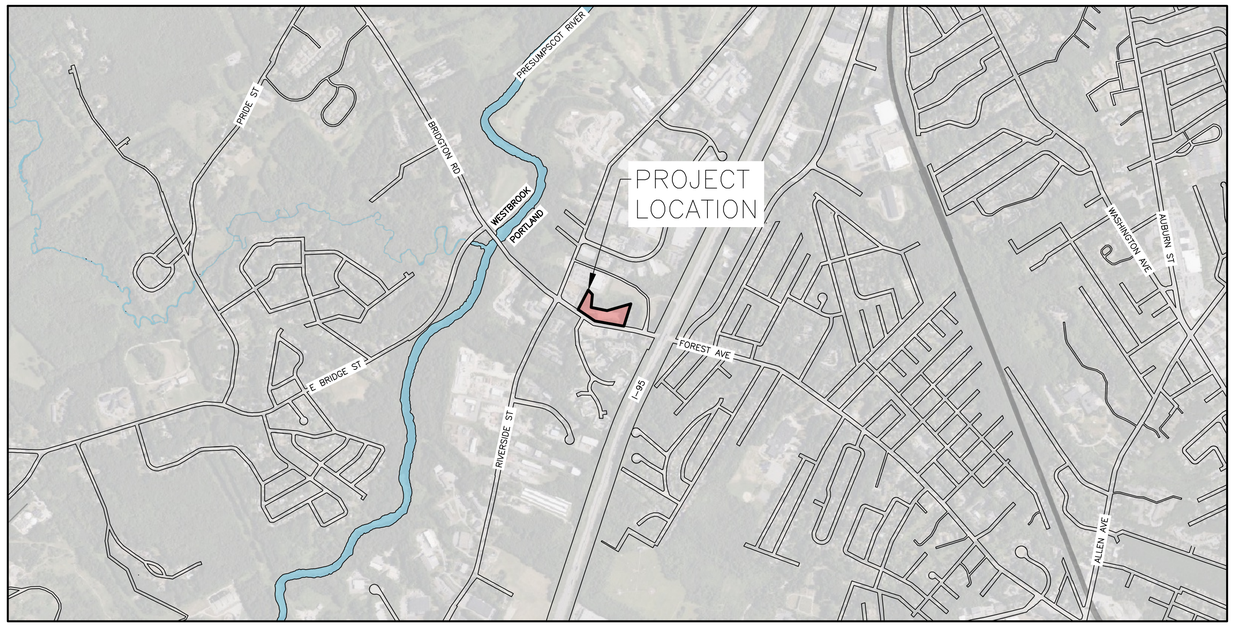
CONSOLIDATED COMMUNICATIONS
45 FOREST AVENUE
PORTLAND, MAINE 04101
CONTACT: PAT MORRISON
(207) 745-9363

Consolidated communications

GAS

UNITIL
376 RIVERSIDE INDUSTRIAL PKWY
PORTLAND, MAINE 04103
CONTACT: SCOTT CARPENTER
(888) 301-7700

Unitil



VICINITY MAP
SCALE: 1:1000

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ABBREVIATIONS

PARTIAL LIST OF ABBREVIATIONS AND THEIR CORRESPONDING MEANING. PLEASE CONTACT THE ENGINEER FOR ANY CLARIFICATION

APPROX.	APPROXIMATE
BC	BOTTOM OF CURB
BG	BEEHIVE GRATE
BMP	BEST MANAGEMENT PRACTICE
BOT.	BOTTOM
BW	BOTTOM OF WALL
CAD	COMPUTER AIDED DESIGN
CB	CATCH BASIN
CF	CUBIC FOOT
CIP	CAST IN PLACE
CL	CENTERLINE
CM	CONSTRUCTION MANAGER
CMP	CENTRAL MAINE POWER
CONC.	CONCRETE
CPP	CORRUGATED PLASTIC PIPE
CY	CUBIC YARD
DI	DUCTILE IRON PIPE
DIA.	DIAMETER
DIM.	DIMENSION
DMH	DRAINAGE MANHOLE
EA.	EACH
ELEC.	ELECTRICAL
ELEV.	ELEVATION
EQUIV.	EQUIVALENT
EST.	ESTIMATE
EX.	EXISTING
FFE	FINISH FLOOR ELEVATION
FI	FIELD INLET
FT.	FEET
HDPE	HIGH DENSITY POLY ETHYLENE
HP	HIGH POINT
ID	INNER DIAMETER
IN.	INCH
INV.	INVERT
L	LENGTH
MAX.	MAXIMUM
MDEP	MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION
MDOT	MAINE DEPARTMENT OF TRANSPORTATION
M.E.P	MECHANICAL, ELECTRICAL, PLUMBING DESIGNER
MFG.	MANUFACTURED
MH	MANHOLE
MIN.	MINIMUM
O.C.	ON CENTER
OD	OUTSIDE DIAMETER
OHE/T/C	OVERHEAD ELECTRIC/TELEPHONE/CABLE
PC	PRECAST
PE	PROFESSIONAL ENGINEER
PL	PROPERTY LINE
PLS	PROFESSIONAL LAND SURVEYOR
PR.	PROPOSED
PSI	POUNDS PER SQUARE INCH
PVC	POLYVINYL CHLORIDE
PWD	PORTLAND WATER DISTRICT
R	RADIUS
RD	ROOF DRAIN
RET.	RETAINING
ROW	RIGHT OF WAY
S	SLOPE
SD	STORM DRAIN
SDR	STANDARD DIMENSION RATIO
SF	SQUARE FEET
SMH	SEWER MANHOLE
SPEC.	SPECIFICATION
TC	TOP OF CURB
TW	TOP OF WALL
TYP.	TYPICAL
UD	UNDERDRAIN
UGE	UNDERGROUND ELECTRIC
VIF	VERIFY IN FIELD

ISSUED FOR	BY	DATE
SITE PLAN APPLICATION	SJL	12/27/2024
25% PROGRESS SET	SJL	12/27/2024
UTILITY COORDINATION	SJL	2/21/2025
COMMENT RESPONSE	SJL	5/21/2026

DRAWING NAME: COVER SHEET & LEGEND
PROJECT NAME: 1871 FOREST AVE, PORTLAND, MAINE
PARCEL ID: 327A A004001
CLIENT: AVESTA HOUSING
307 CUMBERLAND AVE, PORTLAND, MAINE 04101

ACORN ENGINEERING, INC.
ACORN ENGINEERING, INC.
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CHECKED BY: SJL

STATE OF MAINE
SAMUEL J. LEBEL
No. 16505
LICENSED PROFESSIONAL ENGINEER
05/21/26

DRAWING NO.
C-01

GENERAL NOTES:

1. THE CONTRACTOR SHALL CALL THE APPROPRIATE UTILITY COMPANIES AND DIG SAFE AT LEAST 4 DAYS PRIOR TO ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION FOR UTILITIES. OTHERWISE IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY THE LOCATION OF UNDERGROUND UTILITIES AND LOCATE ANY POTENTIAL CONFLICTS WITH THE APPROVED PLANS PRIOR TO CONSTRUCTION.
2. THE CONTRACTOR IS RESPONSIBLE FOR MAINTENANCE OF ALL EROSION CONTROL MEASURES SHOWN ON THE PLAN. IF DEEMED NECESSARY BY THE OWNER OR OWNER'S REPRESENTATIVE, ADDITIONAL EROSION CONTROL MEASURES SHALL BE INSTALLED AT NO ADDITIONAL COST TO THE OWNER.
3. THE CONTRACTOR SHALL PREPARE THEIR OWN MATERIAL SCHEDULE BASED ON THE PLANS AND FIELD VERIFICATION BY THE CONTRACTOR. ALL MATERIAL SCHEDULES SHOWN WITHIN THE PLAN SET ARE FOR GENERAL INFORMATION ONLY.
4. ALL CONSTRUCTION METHODS, TESTING AND MATERIALS SHALL CONFORM TO THE MAINE DEPARTMENT OF TRANSPORTATION SPECIFICATIONS, THE CITY OF PORTLAND AND SERVICING UTILITY REQUIREMENTS, IF ANY. IN CASES WHERE THESE CONFLICT THE MOST STRINGENT SPECIFICATION SHALL APPLY AT NO ADDITIONAL COST TO THE OWNER.
5. THE SITE CONTRACTOR SHALL MAINTAIN A SET OF PAPER AND CAD DRAWINGS WHICH SHALL RECORD THE ACTUAL LOCATION, DIMENSIONS, ELEVATIONS, MATERIALS OF THEIR WORK, INDICATING THEREON ALL VARIATIONS FROM THE CONTRACT DRAWINGS. THE CONTRACTOR SHALL PROVIDE THE OWNER WITH ONE COMPLETE SET OF REPRODUCIBLE RECORD DRAWINGS, IN .DWG FORMAT AND PAPER, STAMPED "AS-BUILT". IF AUTOCAD CAPABILITY IS NOT AVAILABLE, EXCLUDE FROM BID IN WRITING.
6. THE CONTRACTOR WILL REMAIN SOLELY AND COMPLETELY RESPONSIBLE FOR ENFORCEMENT OF AND COMPLIANCE WITH 1) ALL CONTRACT PLANS AND SPECIFICATIONS, 2) APPLICABLE INTERNATIONAL BUILDING CODE REQUIREMENTS, AND 3) ALL SITE WORKING CONDITIONS AND SAFETY REQUIREMENTS, DAY AND NIGHT, FOR BOTH PERSONS AND PROPERTY, IN EACH CASE BOTH BY THE CONTRACTOR AND ITS SUBCONTRACTORS. THESE INCLUDE ALL OSHA, NIOSH, U.S. EPA AND ANY OTHER APPLICABLE GOVERNMENTAL REGULATIONS.
7. EXISTING CONDITIONS, BOUNDARY SURVEY AND PROPOSED BOUNDARY FROM THE PLAN TITLED STANDARD BOUNDARY SURVEY PLAN BY BERRY, HUFF, MCDONALD, MILLIGAN INC. [OCT. 2025].
8. SUBSURFACE DATA HAVE BEEN OBTAINED BY SUMMIT GEOENGINEERING SERVICES, INC. AND SHALL BE INCLUDED IN THE CONTRACT DOCUMENTS.
9. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING ACCESS TO THE SITE AND ALL ADJACENT PROPERTIES AT ALL TIMES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TEMPORARY MARKINGS, SIGNAGE AND INCIDENTALS TO MAINTAIN A SAFE VEHICLE AND PEDESTRIAN ACCESS THOUGH THE LIFE OF THE PROJECT. THE CONTRACTOR SHALL NOTIFY THE PORTLAND PUBLIC SAFETY DIVISION ROUTINELY REGARDING TEMPORARY IMPACTS OR CHANGES TO SITE ACCESS CONDITIONS.
10. TRAFFIC CONTROL SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
11. CONTRACTOR TO DETERMINE SOIL CLASSIFICATION INDEPENDENTLY FOR TRENCH, SHORING, AND OTHER SIMILAR CONSTRUCTION MEANS AND METHODS APPLICATIONS.
12. THE CONTRACTOR SHALL SURVEY ROCK SURFACE PRIOR TO EXCAVATION AND DEVELOP VOLUME CALCULATIONS TO SHARE WITH THE ENGINEER, ACORN ENGINEERING INC. (ACORN), IF ANY.
13. NO HOLES, TRENCHES, OR STRUCTURES SHALL BE LEFT OPEN OR UNATTENDED OVERNIGHT IN ANY AREA ACCESSIBLE TO THE PUBLIC OR WITHIN THE PUBLIC RIGHT-OF-WAY.
14. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PRESERVATION OF ALL TREES AND SHRUBS ON THE PROJECT WHICH ARE NOT TO BE REMOVED.
15. THE CONTRACTOR SHALL CONDUCT A PRE-CONSTRUCTION SURVEY OF INTERIOR SUBGRADE AND ABOVE GRADE ACCESSIBLE WALLS, CEILINGS, FLOORS, ROOFS, AND VISIBLE EXTERIOR AS VIEWED FROM THE GRADE LEVEL. THIS SHALL ALSO BE COMPLETED AT ALL ADJACENT STRUCTURES. PROVIDE A COPY OF THE SURVEY TO THE OWNER. DOCUMENT WITH PICTURES AT A MINIMUM.
16. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING ANY TRENCH PAVEMENT THAT HAS EXPERIENCED EXCESSIVE SETTLEMENT, CRACKING, OR OPENING OF JOINTS. REPAIRS MAY INCLUDE OVERLAY. REMOVAL OF WORK MAY BE NECESSARY AFTER THE FINAL ACCEPTANCE OF WORK OR PRIOR TO THE END OF THE WARRANTY PERIOD. THIS WORK SHALL BE DONE AT THE CONTRACTOR'S EXPENSE.

CIVIL SITE NOTES:

1. THE GENERAL CONTRACTOR AND THEIR SUBCONTRACTORS SHALL SUBMIT IN WRITING TO ACORN AND THE OWNER ANY REQUESTS TO MODIFY THE CONTRACT DOCUMENTS.
2. ALL SHOP AND ERECTION DRAWINGS SHALL BE CHECKED AND STAMPED BY THE GENERAL CONTRACTOR PRIOR TO SUBMISSION FOR ENGINEER'S REVIEW. ANY UNCHECKED OR NON-STAMPED SUBMITTALS WILL BE RETURNED WITHOUT REVIEW.
3. CONTRACTOR SHALL THOROUGHLY INSPECT AND SURVEY EXISTING STRUCTURES AND SITE TO VERIFY CONDITIONS THAT AFFECT THE WORK SHOWN ON THE DRAWINGS. CONTRACTOR TO NOTIFY THE ENGINEER OF ANY DISCREPANCIES PRIOR TO PROCEEDING.
4. DETAILS SHOWN APPLY TO ALL SIMILAR CONDITIONS UNLESS OTHERWISE INDICATED.
5. ALTHOUGH ALL DUE DILIGENCE HAS BEEN APPLIED TO MAKE THE DRAWINGS AS COMPLETE AS POSSIBLE, NOT ALL DETAILS ARE ILLUSTRATED, NOT IS EVERY EXCEPTION CONDITION ADDRESSED WITHIN THE CONTRACT DOCUMENTS.
6. ALL PROPRIETARY CONNECTIONS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
7. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR THE COORDINATION OF ALL WORK, INCLUDING DIMENSION AND LAYOUT VERIFICATION, MATERIALS COORDINATION, SHOP DRAWING REVIEW, AND THE WORK OF ANY SUBCONTRACTORS.
8. UNLESS OTHERWISE SPECIFICALLY INDICATED, THE DRAWINGS DO NOT DESCRIBE OR DIRECT MEANS OR METHODS OF CONSTRUCTION.
9. ALL PAVEMENT JOINTS SHALL BE SAWCUT AND APPLIED WITH TACK COAT PRIOR TO PAVING TO PROVIDE A DURABLE AND UNIFORM JOINT.
10. ALL TRENCH PAVEMENT REPAIR SHALL BE COMPLETED WITH THE USE OF A STREET PAVER WITH A SCREED WIDTH CAPABLE OF SPANNING THE FULL WIDTH OF THE TRENCH UNLESS OTHERWISE AUTHORIZED BY THE ENGINEER.
11. THE CONTRACTOR, IN THE PROPER SEQUENCE, SHALL PERFORM OR SUPERVISE ALL WORK NECESSARY TO ACHIEVE THE FINAL COMPLETED STRUCTURE, AND TO PROTECT THE STRUCTURE, WORKMEN, AND OTHERS DURING THE CONSTRUCTION. SUCH WORK SHALL INCLUDE, BUT NOT BE LIMITED TO, BRACING, SHORING FOR CONSTRUCTION EQUIPMENT, SHORING FOR EXCAVATION, FORMWORK, SCAFFOLDING, SAFETY DEVICES AND PROGRAMS OF ALL KINDS, SUPPORT AND BRACING FOR CRANES AND OTHER ERECTION EQUIPMENT.
12. DO NOT BACKFILL AGAINST BASEMENT OR RETAINING WALLS UNTIL SUPPORTING SLABS AND FLOOR FRAMING ARE IN PLACE AND SECURELY ANCHORED, UNLESS ADEQUATE BRACING IS PROVIDED. PRIOR TO BACKFILLING, CONCRETE SHALL BE CURED PER STRUCTURAL ENGINEER'S SPECIFICATIONS.
13. TEMPORARY BRACING SHALL REMAIN IN PLACE UNTIL ALL FLOORS, WALLS, ROOFS AND OTHER SUPPORTING ELEMENTS ARE IN PLACE, IF APPLICABLE.
14. EXCAVATIONS ACCOMPLISHED AS PART OF THIS PROJECT SHALL BE CONSTRUCTED IN ACCORDANCE WITH SUBPART P OF 29 CRF PART 1926.650-.652 (CONSTRUCTION STANDARD FOR EXCAVATIONS).
15. ACORN ENGINEERING BEARS NO RESPONSIBILITY FOR THE ABOVE ITEMS, AND OBSERVATION VISITS TO THE SITE DO NOT IN ANY WAY INCLUDE INSPECTION OF THEM.

SPECIAL INSPECTION NOTES:

1. ALL SITE SOILS-RELATED WORK AND FOOTING EXCAVATIONS PRIOR TO PLACING FORMS, AS WELL AS SITE DRAINAGE, SHALL BE REVIEWED BY THE PROJECT GEOTECHNICAL ENGINEER.
2. ALL SITE DRAINAGE-RELATED WORK SHALL BE REVIEWED BY ACORN.
3. NORMAL REVIEWS BY LOCAL BUILDING DEPARTMENT. NOTIFY 48 HOURS PRIOR TO REQUIRED REVIEW.
4. REQUIRED SPECIAL INSPECTIONS PER I.B.C. SECTION 1705.6 BY AN APPROVED SPECIAL INSPECTOR RETAINED BY OWNER. CONTRACTOR TO COORDINATE SPECIAL INSPECTOR.
5. SPECIAL INSPECTOR SHALL BE A QUALIFIED PERSON WHO SHALL DEMONSTRATE COMPETENCE, TO THE SATISFACTION OF THE BUILDING OFFICIAL, FOR INSPECTION OF THE PARTICULAR TYPE OF CONSTRUCTION OR OPERATION REQUIRING SPECIAL INSPECTION.
   5.1. DUTIES AND RESPONSIBILITIES OF THE SPECIAL INSPECTOR SHALL BE TO OBSERVE AND/OR TEST THE WORK ASSIGNED AND OUTLINE ABOVE FOR CONFORMANCE WITH THE CONTRACT DOCUMENTS, ALL DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION.
   5.2. THE SPECIAL INSPECTOR SHALL FURNISH REGULAR REPORTS TO THE BUILDING OFFICIAL, THE ARCHITECT AND ENGINEER OF RECORD, AND OTHER DESIGNATED PERSONS. PROGRESS REPORTS FOR CONTINUOUS INSPECTION SHALL BE FURNISHED WEEKLY. INDIVIDUAL REPORTS OF PERIODIC INSPECTIONS SHALL BE FURNISHED WITHIN ONE WEEK OF INSPECTION DATES. THE REPORTS SHALL NOTE UNCORRECTED DEFICIENCIES, AND NET CHANGES TO THE APPROVED CONSTRUCTION DOCUMENTS AUTHORIZED BY THE ENGINEER OF RECORD.
   5.3. THE SPECIAL INSPECTOR SHALL SUBMIT A FINAL SIGNED REPORT WITHIN TEN DAYS OF THE FINAL INSPECTION STATING WHETHER THE WORK REQUIRING A SPECIAL INSPECTION WAS, TO THE BEST OF THE INSPECTOR'S KNOWLEDGE AND BELIEF, IN CONFORMANCE WITH THE APPROVED CONSTRUCTION DOCUMENTS AND THE APPLICABLE WORKMANSHIP PROVISIONS OF THE INTERNATIONAL BUILDING CODE. WORK NOT IN COMPLIANCE SHALL BE NOTED IN THE REPORT.
   5.4. SPECIAL INSPECTION FIRM SHALL BE [TO BE DETERMINED]. THE SPECIAL INSPECTOR SHALL BE EMPLOYED BY OWNER AND COORDINATED BY THE CONTRACTOR.

LAYOUT NOTES:

1. MONUMENTS DELINEATING PROPERTY LINES OR RIGHT OF WAYS SHALL NOT BE DISTURBED DURING CONSTRUCTION OPERATIONS. IN THE CASE A MONUMENT IS DISTURBED, AT THE CONTRACTOR'S EXPENSE, THE MONUMENT SHALL BE RESET TO THEIR ORIGINAL LOCATION BY A REGISTERED LAND SURVEYOR.
2. ALL DIMENSIONS ON THE FOLLOWING SHEETS TAKE PRECEDENT OVER SCALED DIMENSIONS. EACH DRAWING WITH A BAR SCALE MEANS THAT THE DRAWING/DETAIL HAS BEEN SCALED AS ACCURATELY AS POSSIBLE, AND THE BAR SCALE IS FOR GENERAL REFERENCE ONLY. IF NO BAR SCALE IS PRESENT, THEN THERE IS NO SCALE TO THAT DRAWING/DETAIL. AT NO TIME SHOULD DRAWINGS BE SCALED FROM. ANY DISCREPANCIES BETWEEN DRAWINGS, DETAILS, SPECIFICATIONS AND THE FIELD CONDITION SHALL BE IMMEDIATELY REPORTED TO THE CIVIL ENGINEER FOR FURTHER DIRECTIONS BEFORE ANY ADDITIONAL WORK PROCEEDS.
3. SIGNAGE, STRIPING AND PAVEMENT MARKINGS SHALL BE IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
4. ALL TRAFFIC CONTROL SIGNS INDICATED ON THE SITE LAYOUT PLAN ARE TO MEET ALL REQUIREMENTS & CONDITIONS OF THE CITY OF PORTLAND, MAINE DEPARTMENT OF TRANSPORTATION AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION.
5. THE CONTRACTOR SHALL OBTAIN THE SERVICES OF A LICENSED PROFESSIONAL LAND SURVEYOR TO PROVIDE A MINIMUM OF TWO TEMPORARY BENCHMARKS WITHIN THE SITE.
6. CONTRACTOR TO ENSURE THAT ACCESS, INCLUDING BUT NOT LIMITED TO WALKWAYS, DRIVEWAYS, AND MAILBOXES ADJACENT TO THE PROJECT REMAIN FUNCTIONAL AND AVAILABLE FOR USE AT ALL TIMES.

PERMITTING NOTES

1. THIS PROJECT IS SUBJECT TO [ZONING STANDARDS]
2. THIS PROJECT IS SUBJECT TO THE TERMS AND CONDITIONS OF SITE PLAN – LEVEL III AND SUBDIVISION PERMIT FROM THE CITY OF PORTLAND.
3. THIS PROJECT IS SUBJECT TO [STORMWATER PERMIT]
4. THE CONTRACTOR SHALL REVIEW THE ABOVE REFERENCED PERMITS PRIOR TO SUBMITTING A BID FOR THIS PROJECT, AND INCLUDE COSTS AS NECESSARY TO COMPLY WITH THE CONDITIONS OF THESE PERMITS.
5. ALL WORK WITHIN THE PUBLIC RIGHT-OF-WAY REQUIRES A STREET OPENING PERMIT FROM THE CITY OF PORTLAND. ADDITIONALLY, COORDINATE WITH THE DEPARTMENT OF PUBLIC WORKS.

GRADING AND DRAINAGE NOTES:

1. TOPSOIL STRIPPED FROM THE SITE THAT IS SUITABLE FOR REUSE AS LOAM (MEETS THE REQUIREMENTS WITHIN SECTION 615 OF THE MDOT STANDARD SPECIFICATIONS, MOST RECENT VERSION AND IS FREE OF TRACEABLE AMOUNTS OF CONTAMINANTS) SHALL BE STOCKPILED WITHIN THE PROPOSED LIMIT OF WORK AREA. THE CONTRACTOR SHALL NOT ASSUME THAT ANY LOAM WILL BE ACCEPTABLE FOR REUSE WITH THEIR ESTIMATE.
2. THE CONTRACTOR SHALL ANTICIPATE THAT GROUNDWATER WILL BE ENCOUNTERED DURING CONSTRUCTION AND SHALL INCLUDE SUFFICIENT COSTS WITHIN THEIR BID TO PROVIDE DEWATERING AS NECESSARY; NO SEPARATE PAYMENT SHALL BE MADE TO THE CONTRACTOR FOR DEWATERING. DEWATERING SHALL INCLUDE TREATMENT OF SILT THROUGH THE USE OF A DIRTBAG BY ACF ENVIRONMENTAL OR APPROVED EQUIVALENT. FLOWS FROM DEWATERING ACTIVITY SHALL NOT BE DISCHARGED INTO SANITARY SEWERS. SEE BORING LOGS FOR ADDITIONAL INFORMATION.
3. THE OWNER SHALL BE RESPONSIBLE FOR OBTAINING ANY EASEMENT OR TEMPORARY CONSTRUCTION RIGHTS AS NECESSARY BY ADJACENT LAND OWNERS. THE CONTRACTOR SHALL NOT DISTURB ANY SOIL BEYOND THE PROPERTY LINE WITHOUT NOTIFYING AND OBTAINING SUCH EASEMENT OR TEMPORARY CONSTRUCTION RIGHT FROM THE ADJACENT LAND OWNERS. PRIOR TO THE CONTRACTOR PRICING THE WORK, THEY SHALL PROVIDE ACORN WITH PROOF OF SUCH EASEMENT OF TEMPORARY RIGHTS. SHOULD EASEMENTS OF TEMPORARY RIGHTS NOT BE AVAILABLE, THE CONTRACTOR SHALL INCLUDE COST FOR BRACING AND SHORING AS NECESSARY.
4. THE CONTRACTOR SHALL PROVIDE A FINISHED PAVEMENT SURFACE FREE OF LOW SPOTS AND PONDING AREAS. THE MINIMUM SLOPE SHALL MEET OR EXCEED 0.5% IN ALL CASES. SLOPES IDENTIFIED ON THE GRADING PLAN TAKE PRECEDENT. ALL SLOPES SHALL BE AWAY FROM BUILDINGS AND TOP OF PAVEMENT SHALL BE AT OR BELOW EXISTING FINISH FLOOR ELEVATIONS.
5. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST GEOTECHNICAL REPORT PREPARED BY THE PROJECT GEOTECHNICAL ENGINEER.
6. CONTRACTOR TO REVIEW EXISTING SOIL CONDITIONS, TEST PITS, AND BORINGS.
7. THERE WILL BE NO ADDITIONAL PAYMENT FOR UNSUITABLE SOILS OR OTHER MATERIALS.
8. ALL STORM DRAIN PIPE SHALL BE SMOOTH BORE INTERIOR PROVIDING A MANNINGS ROUGHNESS COEFFICIENT OF N=0.012 OR LESS.
9. A POST CONSTRUCTION – STORMWATER INSPECTION & MAINTENANCE PLAN IS FILED WITH THE CITY OF PORTLAND.
10. ADJUST ALL MANHOLES, CATCH BASINS, CURB BOXES, ETC. WITHIN LIMITS OF WORK TO FINISH GRADE.
11. ALL SUBGRADE PREPARATION IS SUBJECT TO THE RECOMMENDATIONS OF THE PROJECT GEOTECHNICAL ENGINEER.
12. NATIVE SOILS: IT IS THE CONTRACTOR'S RESPONSIBILITY TO LIMIT THE DISTURBANCE TO SUBGRADE SOILS. SHOULD THE SUBGRADE BECOME YIELDING OR DIFFICULT TO WORK, DISTURBED AREAS SHALL BE EXCAVATED AND BACKFILLED WITH COMPACTED SELECT FILL OR CRUSHED STONE AT NO ADDITIONAL EXPENSE TO THE OWNER. ALL SUBGRADE PREPARATION IS SUBJECT TO THE RECOMMENDATIONS OF THE PROJECT GEOTECHNICAL ENGINEER.

EROSION CONTROL NOTES:

1. ALL ROUTINE MAINTENANCE ACTIVITIES SHALL BE CONDUCTED IN SUCH A WAY TO LIMIT THE AMOUNT OF DISTURBED AREA AT ONE TIME TO THE EXTENT PRACTICABLE. DISTURBED AREAS ARE DEFINED AS THOSE SURFACES WHERE EXISTING VEGETATION OR STRUCTURES HAVE BEEN REMOVED, EXPOSING NATIVE SOIL TO THE ELEMENTS.
2. PRIOR TO THE START OF ANY CLEARING/LAND DISTURBING ACTIVITIES, THE CONTRACTOR SHALL INSTALL APPLICABLE EROSION CONTROL DEVICES SUCH AS PERIMETER SILT FENCE, AND OTHER APPLICABLE MEASURES. IN THE EVENT THE CONTRACTOR IS NOT SURE A EROSION CONTROL MEASURE SHOULD BE IMPLEMENTED, THE CONTRACTOR SHALL CONTACT THE ENGINEER OF RECORD TO CONFIRM IMPLEMENTATION OF ANY EROSION CONTROL DEVICES.
3. ALL GROUND AREAS GRADED FOR CONSTRUCTION SHALL BE GRADED, LOAMED, SEEDED AND MULCH SHALL BE APPLIED AS SOON AS POSSIBLE WITHIN 7 DAYS FOLLOWING THE COMPLETION OF ANY SOIL DISTURBANCE, AND PRIOR TO ANY STORM EVENT.
4. EROSION AND SEDIMENTATION CONTROL MEASURES SHALL SHALL BE INSTALLED TO THE SATISFACTION OF THE CITY. THE CONTRACTOR SHALL REFERENCE THE APPROVED EROSION AND SEDIMENTATION CONTROL REPORT FOR TEMPORARY AND PERMANENT EROSION AND SEDIMENTATION CONTROL DEVICES IN ADDITION TO THE PLAN SET. THE CONTRACTOR SHALL ALSO REFER TO THE MAINE D.E.P.'S PERMIT CONDITIONS, FINDINGS OF FACT AND ORDER (IF ANY), AND THE CURRENT MAINE EROSION AND SEDIMENT CONTROL BMP MANUAL FOR ADDITIONAL INFORMATION.
5. PRIOR TO PAVING, THE CONTRACTOR SHALL REMOVE ALL SEDIMENT FROM STORM DRAINS, CATCH BASINS, AND APPURTENANCES.
6. REFER TO THE EROSION CONTROL DETAILS & NOTES FOR ADDITIONAL INFORMATION.

UTILITY NOTES:

1. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND ELEVATION OF THE EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED UPON RECORDS OF VARIOUS UTILITY COMPANIES AND WHERE POSSIBLE MEASUREMENTS TAKEN IN THE FIELD. THIS INFORMATION IS NOT TO BE RELIED UPON AS BEING EXACT OR COMPLETE. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO TEST PIT TO DETERMINE THE EXACT LOCATION AND ELEVATION OF UTILITIES TO COORDINATE WITH THE PROPOSED CONNECTIONS OR CROSSING. ANY DISCREPANCIES SHALL BE IMMEDIATELY REPORTED TO THE CIVIL ENGINEER FOR FURTHER DIRECTIONS BEFORE ANY ADDITIONAL WORK PROCEEDS.
2. CONTRACTOR TO BYPASS EXISTING SEWER FLOW CONTROL AT CONNECTION TO EXISTING SYSTEM AT NO ADDITIONAL COST.
3. CONTRACTOR SHALL, AT NO ADDITIONAL COST TO THE OWNER, CONDUCT EXPLORATORY EXCAVATIONS AT LOCATIONS WHERE PROPOSED EXCAVATION WILL INTERSECT WITH EXISTING UTILITIES, PRIOR TO THE ORDERING OF STRUCTURES.
4. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.
5. ALL NEW SANITARY MANHOLES SHALL BE VACUUM TESTED BEFORE BACKFILLING. TESTING SHALL BE COMPLETED IN ACCORDANCE WITH TECHNICAL REPORT #16 (TR-16): GUIDES FOR THE DESIGN OF WASTEWATER TREATMENT WORKS, PREPARED BY THE NEW ENGLAND INTERSTATE WATER POLLUTION CONTROL COMMISSION.
6. SEWER MANHOLES SHALL BE 4' ID UNLESS OTHERWISE STATED ON THE PLANS.
7. CONTRACTOR TO PROVIDE 5' OF COVER FROM TOP OF PIPE TO FINISH GRADE FOR WATER MAINS.
8. THRUST BLOCKS SHALL BE USED FOR THRUST RESTRAIN ON WATER MAINS. LIMITS FOR THRUST BLOCKS ARE SHOWN WITHIN THE PLANSET ON SHEET [TBD].
9. WATER INFRASTRUCTURE SHALL BE TESTED IN ACCORDANCE WITH THE PORTLAND WATER DISTRICT DOCUMENT "WATER AND SEWER CONSTRUCTION SPECIFICATIONS AND PROCEDURES", MOST RECENT REVISION.
10. ALL REQUIRED FITTINGS FOR THE WATER MAIN ARE NOT SHOWN ON DRAWINGS. CONTRACTOR SHALL FURNISH AND INSTALL ALL NECESSARY FITTINGS REQUIRED TO CONSTRUCT THE WATER MAIN IN ACCORDANCE WITH CITY OF PORTLAND, STATE OF MAINE, AND AMERICAN WATER WORKS ASSOCIATION STANDARDS AND REGULATIONS.
11. ALL UTILITY PIPES SHALL SLOPE UNIFORMLY BETWEEN ELEVATIONS INDICATED ON THE DRAWINGS. NO CRESTS OR SAGS IN THE PIPING WILL BE PERMITTED. ALL HORIZONTAL AND VERTICAL BENDS IN PRESSURIZED PIPE LINES SHALL BE SUITABLY RESTRAINED WITH THRUST BLOCKS OR RETAINER GLANDS. RETAINER GLANDS ALLOWED FOR DUCTILE IRON PIPE ONLY. PROVIDE ALL BENDS, HORIZONTAL AND VERTICAL, AS REQUIRED TO MEET THE GRADES AND ALIGNMENTS INDICATED ON THE DRAWINGS.
12. ALL WASTEWATER PIPING, EXCLUDING BUILDING DRAINS, AND ALL PRESSURIZED PIPING, TO INCLUDE WATER MAINS, INSTALLED BENEATH STRUCTURES SHALL BE ENCASED IN CONCRETE.
13. WHERE NEW PIPING IS TO BE CONNECTED TO EXISTING PIPING, THE CONTRACTOR SHALL FURNISH AND INSTALL ALL ADAPTERS, FITTINGS, AND ADDITIONAL PIPE AS REQUIRED TO ENSURE A COMPLETE AND PROPERLY FUNCTIONING CONNECTION. CONTRACTOR TO VERIFY LOCATION, ELEVATION, ORIENTATION, AND MATERIAL OF CONSTRUCTION. ADAPTERS AND FITTINGS ARE INCIDENTAL TO THE PIPE INSTALLATION.
14. WHENEVER POSSIBLE, WATER LINES SHOULD BE INSTALLED OVER WASTEWATER LINES. A MINIMUM SEPARATION OF 18 INCHES BETWEEN THE BOTTOM OF THE WATER LINE AND THE TOP OF THE WASTEWATER LINE SHALL BE MAINTAINED WHERE POSSIBLE. WHERE A WATER LINE CROSSES UNDER THE WASTEWATER LINE, A FULL LENGTH OF WASTEWATER PIPE SHALL BE CENTERED ABOVE THE WATER LINE SO THAT BOTH JOINTS WILL BE AS FAR FROM THE WATER LINE AS POSSIBLE.
15. THE CONTRACTOR SHALL BE ANTICIPATE THAT THE NATIVE SILT AND CLAY SOILS WILL NOT BE SUITABLE FOR PIPE TRENCH BACKFILL IN PAVED AREAS.
16. EXCAVATION TO SUBGRADE IN NATIVE SILT AND CLAY SHALL BE COMPLETED WITH A SMOOTH EDGE BUCKET TO MINIMIZE SUBGRADE DISTURBANCE.
17. GROUNDWATER SHALL BE CONTROLLED TO A LEVEL OF AT LEAST ONE FOOT BELOW SUBGRADE OF THE PIPE OR STRUCTURE. THE CONTRACTOR SHALL MAINTAIN THE LOWERED GROUNDWATER LEVEL UNTIL CONSTRUCTION HAS BEEN COMPLETED TO SUCH AN EXTENT THAT THE STRUCTURES OR PIPES WILL NOT BE FLOATED OR OTHERWISE DAMAGED.
18. CONTRACTOR SHALL COORDINATE WORK REGARDING ANY WATER MAIN CONNECTION AND WATER MAIN SHUTDOWN WITH THE PORTLAND WATER DISTRICT AT LEAST SEVEN (7) DAYS PRIOR TO CONSTRUCTION.
19. ALL WATER PIPE INSTALLATION SHALL CONFORM WITH THE PORTLAND WATER DISTRICT SPECIFICATIONS AND PROCEDURES, MOST RECENT EDITION.
20. SEWER, GAS, TELEPHONE, CABLE, WATER AND ANY OTHER UTILITY CONNECTIONS SHALL BE COMPLETED IN ACCORDANCE WITH PLUMBING, ELECTRICAL, AND MECHANICAL CONTRACTS, AND SHALL BE REVIEWED BY THE PROJECT PLUMBING, ELECTRICAL, AND MECHANICAL ENGINEER FOR CONSISTENCY WITH THEIR PLANS PRIOR TO CONSTRUCTION.
21. COORDINATE EXIT POINT FOR SECONDARY UTILITY SERVICES WITH THE ARCHITECT/ELECTRICAL ENGINEER. SECONDARY LINE LOCATIONS NOT PROVIDED BY ACORN ENGINEERING WITHIN THE UTILITY PLAN.
22. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN ALL THE NECESSARY PERMITS FOR THE INSTALLATION OF THE UTILITIES AND STORMDRAINS WITHIN THE PUBLIC RIGHT OF WAY. THE CONTRACTOR SHALL SUBMIT A MAINTENANCE OF TRAFFIC PLAN TO THE CITY IN ACCORDANCE WITH THE CITY OF PORTLAND TECHNICAL MANUAL PRIOR TO ANY WORK.
23. 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.
24. ALL ADJUSTMENTS TO FINISHED GRADE ARE TO BE COMPLETED BY THE CONTRACTOR. THE CONTRACTOR SHALL CONFIRM STRUCTURES THAT REQUIRE ADJUSTMENT WITH THE ENGINEER OR OWNERS REPRESENTATIVE PRIOR TO ADJUSTING FRAMES.

DEMOLITION NOTES:

1. THE FOLLOWING ITEMS ARE TYPICAL OF MATERIAL WHICH MAY BE ON SITE:
   - ROCK AND CONCRETE FOUNDATIONS
   - CONCRETE SLABS
   - BITUMINOUS ASPHALT PAVEMENT
   - CONCRETE PADS AND BLOCKS
   - FENCE POST AND FENCING
   - UNDERGROUND UTILITY LINES
   - ABOVE AND OR BELOW GROUND FUEL OIL AND PROPANE GAS TANKS
   - OTHER TRASH AND MISCELLANEOUS SOLID WASTES
2. THE CONTRACTOR IS ADVISED TO VISIT THE SITE TO CONFIRM DEMOLITION ITEMS SINCE THE LIST IS NOT INCLUSIVE OF THE SITE CONDITIONS WHICH MAY BE ENCOUNTERED.
3. ALL DISPOSAL OF DEMOLITION DEBRIS OR WASTE SHALL BE IN ACCORDANCE WITH ALL LOCAL, STATE, AND FEDERAL REGULATIONS. CONTRACTORS SHALL PROVIDE OWNDER WITH APPROPRIATE "BILLS OF LADING" DEMONSTRATING PROPER DISPOSAL OF ALL MATERIALS.
4. THE EXISTING ASPHALT SHOULD BE STRIPPED AND EITHER PROCESSED ONSITE, REMOVED FROM THE SITE OR DISPOSED OF ONSITE.
5. REFER TO THE BORING LOGS OBTAINED BY SUMMIT GEOENGINEERING SERVICES FOR REDFERN PROPERTIES, LLC. FOR ADDITIONAL INFORMATION.
6. ALL DISPOSAL OF DEMOLITION DEBRIS OR WASTE SHALL BE IN ACCORDANCE WITH ALL LOCAL, STATE, & FEDERAL REGULATIONS. CONTRACTORS SHALL PROVIDE OWNER WITH APPROPRIATE "BILLS OF LADING" DEMONSTRATING PROPER DISPOSAL OF ALL MATERIALS.
7. SITE DEMOLITION SHALL NOT OCCUR UNTIL PROPER ABATEMENT PROCEDURES HAVE OCCURRED. ABATEMENT, IF NECESSARY SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

PERMIT LEVEL NOT ISSUED FOR CONSTRUCTION

ISSUED FOR	BY	DATE
SITE PLAN APPLICATION	SJL	1/27/2026

DRAWING NAME: GENERAL NOTES
PROJECT NAME: 1871 FOREST AVE, PORTLAND, MAINE
PARCEL ID: 327A A004001
CLIENT: AVESTA HOUSING
307 CUMBERLAND AVE, PORTLAND, MAINE 04101

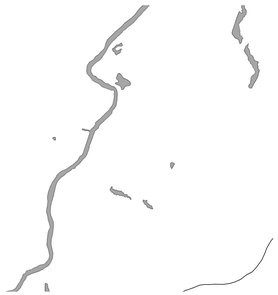
THESE PLANS, DESIGNS, IDEAS AND DETAILS ARE NOT TO BE USED, MODIFIED, WITHOUT WRITTEN PERMISSION FROM ACORN ENGINEERING, INC. ANY UNAUTHORIZED USE OR ALTERATION OF THESE PLANS, DESIGNS, IDEAS AND DETAILS WITHOUT THE WRITTEN AUTHORIZED CONSENT OF ACORN ENGINEERING, INC. SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO ACORN ENGINEERING, INC.

ACORN ENGINEERING, INC
ENGINEERING | SURVEYING | LANDSCAPE ARCHITECTURE
PO BOX 3477, PORTLAND, MAINE 04104
(207) 775-2655

FILE: DETAILS
DATE: AS NOTED
JN: 1297
SCALE: AS NOTED
DESIGNED BY: N/A
DRAWN BY: MJVA
CHECKED BY: SJL

STATE OF MAINE
SAMUEL J. LEBEL
No. 16505
LICENSED PROFESSIONAL ENGINEER
03/09/26

DRAWING NO.
C-02



LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
● IRF/IRF ○ CIRF	CAPPED IRON ROD TO BE SET IRON ROD/PIPE FOUND CAPPED IRON ROD FOUND				
A.G./B.G.	ABOVE GRADE/BELOW GRADE				
N/F	NOW OR FORMERLY				
GV	GAS VALVE		DECIDUOUS TREE	SWL	SINGLE WHITE PAINT LINE
WV	WATER VALVE		CONIFEROUS TREE	SYL	SINGLE YELLOW PAINT LINE
	HYDRANT	△	BENCHMARK	DYL	DOUBLE YELLOW PAINT LINE
S	SEWER MANHOLE		PROPERTY LINE	W	WATER MAIN
□/○	CATCH BASIN		ABUTTER PROPERTY LINE	S	SEWER MAIN
	SIGN POST		EXISTING EDGE OF PAVEMENT	SD	STORM DRAIN
	UTILITY POLE		EXISTING EDGE OF GRAVEL	OHE	OVERHEAD ELECTRIC LINES
		75	MAJOR CONTOUR LINE	UGU	UNDERGROUND UTILITIES
		74	MINOR CONTOUR LINE	G	GAS MAIN

GRID NORTH

STORM DRAIN DATA:

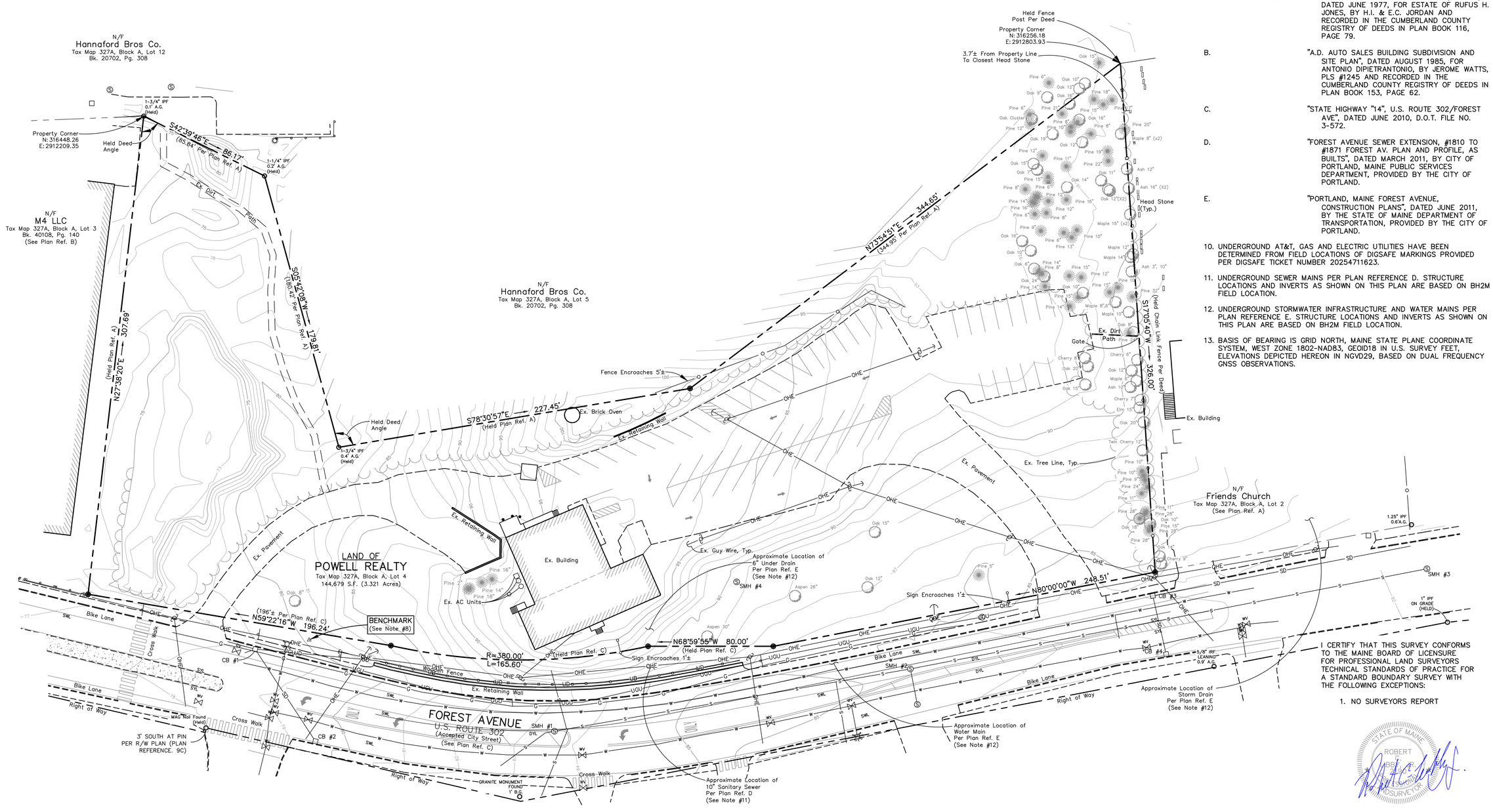
- CB #1: RIM = 78.07; 15" PE, INV. OUT 72.97; 15" PE, INV. IN 73.11; 6" PVC, INV. IN 73.35
- CB #2: RIM = 79.36; UNABLE TO OPEN STRUCTURE FROZEN AT TIME OF SURVEY
- CB #3: RIM = 82.90; 15" PE, INV. IN 77.49; 15" PE, INV. OUT 77.23
- CB #4: RIM = 82.90; 15" PE, INV. OUT 78.45

SEWER MANHOLE DATA:

- SMH #1: RIM = 83.47; 10" PVC, INV. IN 77.99; 10" SAN. SEWER MAIN, INV. OUT 77.83
- SMH #2: RIM = 84.65; 10" SAN. SEWER MAIN, INV. IN 75.95; 8" SAN. SEWER MAIN, INV. IN 75.87; 10" SAN. SEWER MAIN, INV. OUT 75.87
- SMH #3: RIM = 82.10; 10" SAN. SEWER MAIN, INV. IN 73.14; 10" SAN. SEWER MAIN, INV. OUT 73.12
- SMH #4: RIM = 89.57; 6" LOCKED RISER; TOP OF CAP 89.32

NOTES:

1. OWNER: POWELL REALTY, P.O. BOX 245, SOUTH HERO, VT 055486
2. SURVEYOR: ROBERT C. LIBBY JR. PLS #2190, BH2M, 380B MAIN STREET, GORHAM, MAINE
3. DEED REFERENCE: BK. 6172, PG. 80
4. AREA OF PARCEL: 144,679 S.F. (3.321 ACRES)
5. TAX MAP REFERENCE: MAP 327A, BLOCK A, LOT 4
6. ZONING: COMMUNITY BUSINESS (B-2)
7. TOPOGRAPHY: ON SITE FIELD LOCATIONS BY BH2M (NGVD29)
8. BENCHMARK: IRON REBAR W/CAP INSCRIBED "BH2M SURVEY BENCHMARK" SET FLUSH, ELEV. 80.21 (NGVD29)
9. PLAN REFERENCES:
   - A. "PLAN OF PROPERTY IN PORTLAND, MAINE", DATED JUNE 1977, FOR ESTATE OF RUFUS H. JONES, BY H.I. & E.C. JORDAN AND RECORDED IN THE CUMBERLAND COUNTY REGISTRY OF DEEDS IN PLAN BOOK 116, PAGE 79.
   - B. "A.D. AUTO SALES BUILDING SUBDIVISION AND SITE PLAN", DATED AUGUST 1985, FOR ANTONIO DIPIETRANTONIO, BY JEROME WATTS, PLS #1245 AND RECORDED IN THE CUMBERLAND COUNTY REGISTRY OF DEEDS IN PLAN BOOK 153, PAGE 62.
   - C. "STATE HIGHWAY "14", U.S. ROUTE 302/FOREST AVE", DATED JUNE 2010, D.O.T. FILE NO. 3-572.
   - D. "FOREST AVENUE SEWER EXTENSION, #1810 TO #1871 FOREST AV. PLAN AND PROFILE, AS BUILTS", DATED MARCH 2011, BY CITY OF PORTLAND, MAINE PUBLIC SERVICES DEPARTMENT, PROVIDED BY THE CITY OF PORTLAND.
   - E. "PORTLAND, MAINE FOREST AVENUE, CONSTRUCTION PLANS", DATED JUNE 2011, BY THE STATE OF MAINE DEPARTMENT OF TRANSPORTATION, PROVIDED BY THE CITY OF PORTLAND.
10. UNDERGROUND AT&T, GAS AND ELECTRIC UTILITIES HAVE BEEN DETERMINED FROM FIELD LOCATIONS OF DIGSAFE MARKINGS PROVIDED PER DIGSAFE TICKET NUMBER 20254711623.
11. UNDERGROUND SEWER MAINS PER PLAN REFERENCE D. STRUCTURE LOCATIONS AND INVERTS AS SHOWN ON THIS PLAN ARE BASED ON BH2M FIELD LOCATION.
12. UNDERGROUND STORMWATER INFRASTRUCTURE AND WATER MAINS PER PLAN REFERENCE E. STRUCTURE LOCATIONS AND INVERTS AS SHOWN ON THIS PLAN ARE BASED ON BH2M FIELD LOCATION.
13. BASIS OF BEARING IS GRID NORTH, MAINE STATE PLANE COORDINATE SYSTEM, WEST ZONE 1802-NAD83, GEOID18 IN U.S. SURVEY FEET, ELEVATIONS DEPICTED HEREON IN NGVD29, BASED ON DUAL FREQUENCY GNSS OBSERVATIONS.



I CERTIFY THAT THIS SURVEY CONFORMS TO THE MAINE BOARD OF LICENSURE FOR PROFESSIONAL LAND SURVEYORS TECHNICAL STANDARDS OF PRACTICE FOR A STANDARD BOUNDARY SURVEY WITH THE FOLLOWING EXCEPTIONS:

1. NO SURVEYORS REPORT

STATE OF MAINE — ROBERT C. LIBBY JR. — 2190 — REGISTERED PROFESSIONAL LAND SURVEYOR

ROBERT C. LIBBY JR. PLS #2190

REVISION DESCRIPTION			
NO.	DATE		
1	4/15/26	Coordinates Added to Property Corners, Accepted City Street Language, Tree's Identified on Plan, Note 13 Added	
2	4/22/26	Tree Locations and Descriptions Added Per Client Request. Approximate Location Language Added to Call Outs.	
3	4/28/26	Tree Locations and Descriptions Added Per Client Request. Additional Monumentation Found, Adjacent Right of Way Shown on Plan	

FOR
Avesta Housing
307 Cumberland Avenue
Portland, Maine 04101

STANDARD BOUNDARY SURVEY PLAN

LAND OF
POWELL REALTY
1871 FOREST AVE
PORTLAND, MAINE

DESIGNED	DATE
T. Taggett	Oct. 2025
DRAWN	SCALE
T. Taggett	1" = 30'
CHECKED	JOB. NO.
R. Libby, Jr.	25201

SHEET 1

REPRODUCTION OR REUSE OF THIS DOCUMENT WITHOUT THE EXPRESSED WRITTEN CONSENT OF BH2M IS PROHIBITED

GENERAL NOTES:

1. EXISTING ASPHALT TO BE REMOVED SHALL BE STRIPPED AND PROPERLY DISPOSED OF OFFSITE.
2. ALL DISPOSAL OF DEMOLITION DEBRIS OR WASTE SHALL BE IN ACCORDANCE WITH ALL LOCAL, STATE, & FEDERAL REGULATIONS. CONTRACTOR SHALL PROVIDE OWNER WITH APPROPRIATE "BILLS OF LADING" TO DEMONSTRATE PROPER DISPOSAL OF ALL MATERIALS.
3. SITE DEMOLITION SHALL NOT OCCUR UNTIL PROPER ABATEMENT PROCEDURES HAVE OCCURRED. ABATEMENT, IF NECESSARY, SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
4. THE CONTRACTOR SHALL CALL THE APPROPRIATE UTILITY COMPANIES AND DIG SAFE AT LEAST 72 HOURS PRIOR TO EXCAVATION TO REQUEST EXACT FIELD LOCATION FOR UTILITIES. OTHERWISE IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY THE LOCATION OF UNDERGROUND UTILITIES AND LOCATE POTENTIAL CONFLICT WITH THE APPROVED PLANS PRIOR TO CONSTRUCTION.
5. ALL CONSTRUCTION SIGNAGE IS TEMPORARY AND WILL BE REMOVED AT PROJECT COMPLETION. FINAL SIGNAGE WORDING AND PLACEMENT LOCATION TO BE ACCEPTED BY THE CITY.
6. SEDIMENT BARRIERS TO BE PLACED DIRECTLY ON THE FRONT AND SIDE PROPERTY LINES, DOWN GRADIENT OF THE PROPOSED PROJECT WORK PER DETAIL; FENCES ARE OFFSET OF THE PROPERTY LINES AS SHOWN ON THE PLAN FOR CLARITY PURPOSES AND DO NOT NECESSARILY DEPICT THE PHYSICAL LOCATION.
7. CONTRACTOR SHALL PLACE CATCH BASIN INLET PROTECTION ON CATCH BASINS AND FIELD INLETS DOWN-GRADIENT OF ALL NON-STABILIZED SURFACES, PER DETAIL.
8. DEMOLITION PLAN IS NOT INCLUSIVE OF ALL EXISTING ITEMS TO BE REMOVED AS PART OF SITE CONSTRUCTION INCLUDING BUT NOT LIMITED TO LANDSCAPING, UTILITIES, WORK WITHIN THE ROW, ETC. ALL DEMOLITION WORK SHALL BE IN ACCORDANCE WITH THE CITY OF PORTLAND REGULATIONS.
9. CONTRACTOR TO BE RESPONSIBLE FOR PROVIDING OFF-SITE PARKING TO EMPLOYEES; ON-SITE PARKING WILL NOT BE PROVIDED OR GUARANTEED. CONTRACTOR TO BE RESPONSIBLE FOR OBTAINING THE APPROPRIATE PERMITS FROM THE CITY FOR CLOSING ANY ON-STREET PARKING SPACES DURING THE CONSTRUCTION PERIOD.
10. CONTRACTOR SHALL BE RESPONSIBLE FOR SNOW REMOVAL ALONG CONSTRUCTION FENCE AND GATE.
11. CONTRACTOR TO SUBMIT A DEWATERING PLAN FOR REVIEW AND APPROVAL TO THE DEPARTMENT OF PUBLIC WORKS PRIOR TO THE PRE-CONSTRUCTION MEETING, DURING THE BUILDING PERMIT APPLICATION PROCESS, OR PRIOR TO ADVANCED SITE WORK. CONTACT THE DEPARTMENT OF PUBLIC WORKS FOR ADDITIONAL INFORMATION AND CURRENT REGULATIONS.
12. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PERFORM THE FOLLOWING:
    - 12.1. REQUEST AND REVIEW RELEVANT DOCUMENTS THAT SUMMARIZE FINDINGS FROM INITIAL ENVIRONMENTAL DUE DILIGENCE ACTIVITIES COMPLETED AT THE SITE PERFORMED BY CREDERE ASSOCIATES LLC.
    - 12.2. DETERMINE WHAT, IF ANY, RECOGNIZED ENVIRONMENTAL CONDITIONS (RECs) IDENTIFIED SUBSEQUENT TO ENVIRONMENTAL DUE DILIGENCE ACTIVITIES MAY AFFECT THE CONTRACTOR'S WORK.
    - 12.3. DETERMINE IF THE SITE IS/HAS BEEN IDENTIFIED AS A STATE &/OR FEDERAL HAZARDOUS SUBSTANCE SITE, OR SIMILARLY REGULATED SITE. IF SO, IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COMMUNICATE AND COORDINATE WITH AN ENVIRONMENTAL PROFESSIONAL (EP) TO UNDERSTAND WHAT CONTAMINANTS &/OR HAZARDS HAVE BEEN IDENTIFIED FOR THE SITE AND HOW THEIR RESPECTIVE IMPACTS MAY AFFECT THE CONTRACTOR'S WORK. THE EP SHALL BE EMPLOYED BY THE CLIENT. SHOULD THE CLIENT REQUIRE ACORN'S EP SERVICES IT SHALL BE REQUESTED IN WRITING.
    - 12.4. COMMUNICATE AND COORDINATE WITH AN EP TO REQUEST, REVIEW AND ADHERE TO RELEVANT DOCUMENTS PREPARED FOR THE SITE DESCRIBING BEST MANAGEMENT PRACTICES FOR IMPACTED OR POTENTIALLY IMPACTED MEDIA THAT MAY BE ENCOUNTERED AS PART OF THE CONTRACTOR'S WORK INCLUDING BUT NOT LIMITED TO THE SOIL MANAGEMENT PLAN & EMMP.
    - 12.5. ENSURE THE APPROPRIATE STATE &/OR FEDERAL REGULATORY AGENCY(IES) HAVE BEEN NOTIFIED OF THE CONTRACTOR'S PLANNED WORK ACTIVITIES.
13. EXISTING STRUCTURE TO BE EXCAVATED & BACKFILLED WITH GRAVEL TO MEET EXISTING GRADE
14. SITE CONTROL FENCING RUNS ALONG THE LIMIT OF WORK LINE.
15. IN LOCATIONS WHERE THE EXCAVATION FOR NEW CONSTRUCTION IS REQUIRED WITHIN THE TREE DRIPLINE, FENCED OR UNFENCED, CONSULTATION WITH THE OWNER'S ARBORIST IS REQUIRED. CONTRACTOR IS TO SUBMIT REVISED PLAN INDICATING FENCING LOCATIONS, AS WELL AS ACTUAL WORK LOCATIONS, TIMING, AND PROCEDURES FOR WORK AROUND TREES OR WHERE WORK TAKES PLACE WITHIN THE UNFENCED TREE DRIPLINE OF SELECTED TREES. ANY DEVIATIONS FROM THIS PLAN MUST BE APPROVED BY OWNER PRIOR TO IMPLEMENTATION.
16. FOR TREE PROTECTION NOTES AND DETAILS, SEE SHEET C-04

LEGEND:

PROPERTY LINE
TEMPORARY CONSTRUCTION FENCE — X —
EROSION CONTROL BERM — ECB —
EXISTING PAVEMENT TO BE REMOVED
EXISTING TREE TO BE REMOVED
EXISTING TREE TO BE PROTECTED

N/F
M4 LLC
Tax Map 327A, Block A, Lot 3
Bk. 40108, Pg. 140
(See Plan Ref. B)

N/F
Hannaford Bros Co.
Tax Map 327A, Block A, Lot 5
Bk. 20702, Pg. 308

N/F
Friends Church
Tax Map 327A, Block A, Lot 2
(See Plan Ref. A)

1871 FOREST AVENUE
PARCEL ID: 327A A004 001
LOT AREA: 3.43 ACRES

FOREST AVENUE
U.S. ROUTE 302
(Accepted City Street)
(66' WIDE PUBLIC ROW)

RIVERTON DRIVE

APPROX. LOCATION OF EX. WETLAND DELINEATED BY OLD NORTH ENVIRONMENTAL, DATED DECEMBER 2, 2025. EX. WETLAND TO REMAIN UNDISTURBED
PROPERTY LINE
INSTALL EROSION CONTROL BERM DOWNGRADIENT OF ALL DISTURBED AREAS, TYP.
SITE CONTROL FENCE WITH GATED ACCESS TO GENERALLY FOLLOW LIMIT OF WORK LINE. FENCING IS TO ACT AS TREE PROTECTION FENCING WHEN SEPARATING CONSTRUCTION EXTENTS FROM EXISTING TREES.
INSTALL STABILIZED CONSTRUCTION ENTRANCE, PER DETAIL. DURING INITIAL EARTHWORK. MAINTAIN UNTIL SITE IS STABILIZED AND REFRESH STONE AS NECESSARY.
EX. WALL TO BE REMOVED.
EX. TREES TO REMAIN, PROTECT IN PLACE, TYP. OF 3
EX. AC UNITS AND CONCRETE PADS TO BE REMOVED, TYP OF 4
EX. BUILDING TO BE DEMOLISHED, FILL WITH GRAVEL
INSTALL PERMANENT SITE FENCING, CONNECT TO EXISTING FENCE AT PROPERTY CORNER AND TO TEMPORARY CONSTRUCTION FENCE
APPROX. LOCATION OF EX. 17.5' DRIVE AISLE TO REMAIN. ACCESS GATE TO BE INSTALLED AT ENTRANCE. SEE SHEET C-10 FOR ADDITIONAL INFO.
EX. BUS STOP SIGN TO REMAIN, PROTECT IN PLACE
EX. FIRE HYDRANT
EX. OVERHEAD UTILITY LINES TO REMAIN
APPROX. LOCATION OF EXISTING WATER SERVICE LINE TO BE RETIRED PER PWD STANDARDS
EX. SIGN TO BE REMOVED.
APPROX. LOCATION OF EXISTING SEWER LATERAL TO BE RETIRED AND PLUGGED PER DPW.
EX. OVERHEAD UTILITY TO BUILDING TO BE REMOVED.
EX. COVERED BUS STOP
EX. CHAINLINK FENCE TO REMAIN
EX. RETAINING WALL TO REMAIN, PROTECT IN PLACE
EX. UTILITY POLE, AREA LIGHT, AND OVERHEAD WIRES TO BE REMOVED. TYP. OF 3 UTILITY POLES ON SITE.
EX. PAVEMENT TO REMAIN
EX. PAVEMENT TO BE REMOVED, LOAM AND SEED IN AREAS TO REMAIN UNDISTURBED
EX. SEWER MANHOLE TO BE REMOVED
EX. SEWER SERVICE TO BE RETIRED IN CONFORMANCE WITH PORTLAND DPW
EX. TREE TO BE REMOVED, TYP. OF 3
EX. TREE TO REMAIN, PROTECT IN PLACE, TYP. OF 2
EX. FIRE HYDRANT TO REMAIN
EX. GAS MAIN TO REMAIN
EX. UTILITY POLE #220 TO REMAIN
APPROX. LOCATION OF EX. RETAINING WALL, PROTECT IN PLACE
EX. 10" SEWER MAIN TO REMAIN
CEMETERY HEADSTONE, TYP., PER SURVEY
25-FOOT SETBACK/NO DISTURBANCE ZONE FROM CEMETERY
EX. TREES TO REMAIN, PROTECT IN PLACE SEE SHEET C-04
EX. TREES TO BE REMOVED AS NEEDED SEE SHEET C-04
EX. RESTAURANT SIGN TO BE REMOVED
EX CHAIN LINK FENCE AT PROPERTY BOUNDARY, PROTECT IN PLACE
EX. SIDEWALK TO REMAIN OPEN TO GREATEST EXTENT POSSIBLE. SHOULD SIDEWALK CLOSURE BE NECESSARY TO CONSTRUCT A PORTION OF THE BUILDING OR COMPLETE WORK WITHIN THE R.O.W., CONTRACTOR TO COORDINATE WITH DPW ON TIMING, SIGNAGE, AND PEDESTRIAN DETOUR.
INSTALL EROSION CONTROL BERM ALONG CONSTRUCTION FENCE DOWNGRADIENT OF ALL DISTURBED AREAS, TYP. EROSION CONTROL BERM SHOWN OFFSET FROM CONSTRUCTION FENCE IN SOME AREAS FOR VISUAL PURPOSES.
INSTALL CATCH BASIN INLET PROTECTION PER DETAIL. TYP. OF ALL STRUCTURES DOWN GRADIENT OF CONSTRUCTION
EX. BUS STOP SIGN TO BE REMOVED AND RESET APPROX. 120 FT SOUTHEAST
EX. 12" WATER MAIN TO REMAIN
EX. 6" DIA. CLEANOUT TO REMAIN
EX. COMM MANHOLE TO REMAIN
EX. UTILITY POLE #219 TO REMAIN
EX. UNDERGROUND UTILITY/COMMUNICATION LINES TO REMAIN
EX. CROSSWALK AND TRUNCATED DOME PANELS TO BE REMOVED. CLOSE CURBS ON BOTH SIDES.
EX. CURB TIPDOWNS AT DRIVEWAY CURB CUT TO BE REMOVED
EX. BUS STOP SIGN TO REMAIN, PROTECT IN PLACE

30 0 30 60
SCALE: 1:30

PERMIT LEVEL
NOT ISSUED FOR
CONSTRUCTION

ISSUED FOR	BY	DATE
SITE PLAN APPLICATION	SJL	12/22/2025
25% PROGRESS SET	SJL	01/12/2026
UTILITY COORDINATION	SJL	02/20/2026
COMMENT RESPONSE	SJL	04/24/2026

CONSTRUCTION MANAGEMENT PLAN

DRAWING NAME:
PROJECT NAME: 1871 FOREST AVE, PORTLAND, MAINE
PARCEL ID: 327A A004001
CLIENT: AVESTA HOUSING
307 CUMBERLAND AVE, PORTLAND, MAINE 04101

ACORN ENGINEERING, INC.
ACORN ENGINEERING, INC.
P.O. BOX 3372, PORTLAND, MAINE 04104
(207) 775-2605

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FILE: 1297_C-03_CMT PLAN
DATE: AS NOTED
JN: 1297
SCALE: AS NOTED
DESIGNED BY: MJVA
DRAWN BY: MJVA
CHECKED BY: SJL

STATE OF MAINE
SAMUEL J. LEBEL
No. 16505
LICENSED PROFESSIONAL ENGINEER
05/21/26

DRAWING NO.
C-03

EX. TREE INVENTORY

NUMBER	DBH	SPECIES	NOTES
1	9"	CHERRY	
2	14"	OAK	
3	28"	PINE	REMOVE
4	15"	PINE	REMOVE
5	10"	OAK	
6	18"	OAK	REMOVE
7	28"	PINE	REMOVE
8	28"	PINE	REMOVE
9	11"	PINE	REMOVE
10	11"	PINE	
11	24"	PINE	REMOVE
12	9"	PINE	
13	10"	PINE	
14	10"	PINE	
15	12"	CHERRY	TWIN
16	20"	OAK	

EX. TREE INVENTORY

NUMBER	DBH	SPECIES	NOTES
17	15"	ELM	
18	7"	CHERRY	
19	10"	ASH	
20	6"	MAPLE	
21	12"	OAK	
22	6"	CHERRY	
23	24"	PINE	
24	8"	OAK	
25	14"	PINE	
26	10"	MAPLE	
27	8"	MAPLE	6" TWIN
28	32"	PINE	
29	15"	PINE	
30	15"	PINE	
31	10"	PINE	
32	10"	OAK	

EX. TREE INVENTORY

NUMBER	DBH	SPECIES	NOTES
33	10"	ASH	3" TWIN
34	12"	PINE	
35	15"	PINE	
36	14"	MAPLE	
37	12"	MAPLE	
38	13"	PINE	
39	6"	PINE	
40	10"	PINE	
41	15"	MAPLE	TWIN
42	16"	ASH	TWIN
43	12"	OAK	
44	12"	OAK	
45	11"	OAK	
46	12"	ASH	
47	22"	PINE	
48	19"	PINE	

EX. TREE INVENTORY

NUMBER	DBH	SPECIES	NOTES
49	12"	OAK	
50	8"	MAPLE	TWIN
51	20"	PINE	
52	8"	PINE	
53	10"	PINE	
54	8"	PINE	
55	8"	PINE	
56	16"	OAK	
57	15"	PINE	
58	17"	PINE	
59	18"	PINE	
60	16"	OAK	
61	12"	OAK	
62	10"	OAK	
63	15"	PINE	
64	6"	PINE	

EX. TREE INVENTORY

NUMBER	DBH	SPECIES	NOTES
65	9"	OAK	
66	21"	PINE	
67	6"	PINE	
68		OAK	CLUSTER
69	12"	PINE	
70	19"	OAK	
71	12"	PINE	
72	15"	OAK	
73	11'	PINE	
74	7"	OAK	
75	15"	PINE	
76	6"	PINE	
77	8"	PINE	
78	14"	OAK	
79	6"	PINE	
80	12"	PINE	

EX. TREE INVENTORY

NUMBER	DBH	SPECIES	NOTES
81	14"	PINE	
82	16"	PINE	
83	12"	PINE	
84	6"	PINE	
85	16"	PINE	
86	8"	PINE	
87	9"	PINE	
88	16"	OAK	
89	10"	OAK	
90	6"	OAK	
91	14"	PINE	
92	8"	PINE	
93	24"	OAK	
94	14"	PINE	
95	8"	CHERRY	REMOVE
96	20"	OAK	REMOVE

EX. TREE INVENTORY

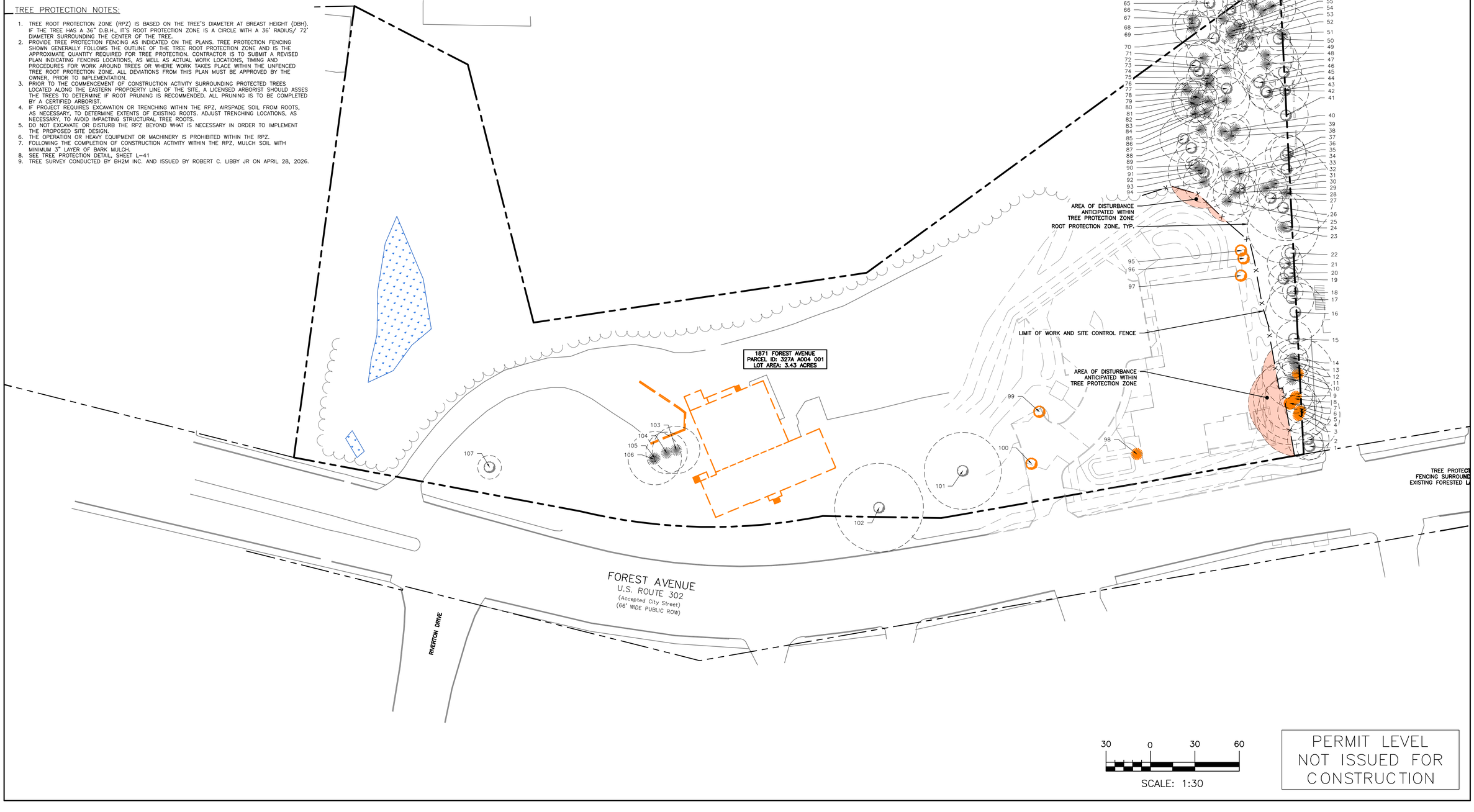
NUMBER	DBH	SPECIES	NOTES
97	15"	OAK	REMOVE
98	5"	PINE	REMOVE
99	15"	OAK	REMOVE
100	12"	OAK	REMOVE
101	26"	ASPEN	
102	30"	ASPEN	
103	16"	PINE	
104	14"	PINE	
105	18"	PINE	
106	2"	PINE	
107	8"	OAK	

TREE PROTECTION NOTES:

1. TREE ROOT PROTECTION ZONE (RPZ) IS BASED ON THE TREE'S DIAMETER AT BREAST HEIGHT (DBH). IF THE TREE HAS A 36" D.B.H., IT'S ROOT PROTECTION ZONE IS A CIRCLE WITH A 36' RADIUS/ 72' DIAMETER SURROUNDING THE CENTER OF THE TREE.
2. PROVIDE TREE PROTECTION FENCING AS INDICATED ON THE PLANS. TREE PROTECTION FENCING SHOWN GENERALLY FOLLOWS THE OUTLINE OF THE TREE ROOT PROTECTION ZONE AND IS THE APPROXIMATE QUANTITY REQUIRED FOR TREE PROTECTION. CONTRACTOR IS TO SUBMIT A REVISED PLAN INDICATING FENCING LOCATIONS, AS WELL AS ACTUAL WORK LOCATIONS, TIMING AND PROCEDURES FOR WORK AROUND TREES OR WHERE WORK TAKES PLACE WITHIN THE UNFENCED TREE ROOT PROTECTION ZONE. ALL DEVIATIONS FROM THIS PLAN MUST BE APPROVED BY THE OWNER, PRIOR TO IMPLEMENTATION.
3. PRIOR TO THE COMMENCEMENT OF CONSTRUCTION ACTIVITY SURROUNDING PROTECTED TREES LOCATED ALONG THE EASTERN PROPOERTY LINE OF THE SITE, A LICENSED ARBORIST SHOULD ASSES THE TREES TO DETERMINE IF ROOT PRUNING IS RECOMMENDED. ALL PRUNING IS TO BE COMPLETED BY A CERTIFIED ARBORIST.
4. IF PROJECT REQUIRES EXCAVATION OR TRENCHING WITHIN THE RPZ, AIRSPADE SOIL FROM ROOTS, AS NECESSARY, TO DETERMINE EXTENTS OF EXISTING ROOTS. ADJUST TRENCHING LOCATIONS, AS NECESSARY, TO AVOID IMPACTING STRUCTURAL TREE ROOTS.
5. DO NOT EXCAVATE OR DISTURB THE RPZ BEYOND WHAT IS NECESSARY IN ORDER TO IMPLEMENT THE PROPOSED SITE DESIGN.
6. THE OPERATION OR HEAVY EQUIPMENT OR MACHINERY IS PROHIBITED WITHIN THE RPZ.
7. FOLLOWING THE COMPLETION OF CONSTRUCTION ACTIVITY WITHIN THE RPZ, MULCH SOIL WITH MINIMUM 3" LAYER OF BARK MULCH.
8. SEE TREE PROTECTION DETAIL, SHEET L-41
9. TREE SURVEY CONDUCTED BY BH2M INC. AND ISSUED BY ROBERT C. LIBBY JR ON APRIL 28, 2026.

LEGEND:

- PROPERTY LINE
- EXISTING HARDSCAPE TO BE REMOVED
- TREE PROTECTION FENCE
- PROPOSED HARDSCAPE/SITE IMPACTS
- EXISTING TREE CANOPY
- EXISTING TREE TO BE REMOVED
- EXISTING TREE TO BE PROTECTED
- ROOT PROTECTION ZONE



30 0 30 60

SCALE: 1:30

PERMIT LEVEL
NOT ISSUED FOR CONSTRUCTION

ISSUED FOR	BY	DATE
COMMENT RESPONSE	ALDV	5/21/2026

DRAWING NAME: TREE PRESERVATION AND PROTECTION PLAN
PROJECT NAME: 1871 FOREST AVE, PORTLAND, MAINE
PARCEL ID: 327A A004001
CLIENT: AVESTA HOUSING
307 CUMBERLAND AVE, PORTLAND, MAINE 04101

ACORN ENGINEERING, INC.
ACORN ENGINEERING, INC.
PO BOX 3372, PORTLAND MAINE 04104
(207) 775-2685

FILE: 1297_C-04_TREE PROTECTION PLAN
DATE: AS NOTED
JN: 1297
SCALE: AS NOTED
DESIGNED BY: MJVA
DRAWN BY: MJVA
CHECKED BY: ALDV

LICENSED LANDSCAPE ARCHITECT
ALEXIS LOPEZ DELVECCHIO
LAR5303
5/21/2026
STATE OF MAINE

DRAWING NO.
C-04

THIS PLAN AND THE ASSOCIATED DESIGN CONTAINED HEREIN IS THE PROPERTY OF ACORN ENGINEERING, INC. AND SHALL NOT BE USED IN WHOLE OR IN PART FOR ANY ALTERATIONS, ADDITIONS OR EXTENSIONS TO THIS PROJECT OR ANY OTHER PROJECT, WITHOUT THE WRITTEN PERMISSION FROM ACORN ENGINEERING, INC. ANY UNAUTHORIZED USE SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO ACORN ENGINEERING, INC.

GENERAL NOTES:

1. ALL SIDEWALK AND VERTICAL GRANITE CURB TO BE REPLACED SHALL BE REBUILT TO CITY OF PORTLAND STANDARD.
2. ALL PAVEMENT STRIPING AND MARKINGS SHALL COMPLY TO CITY OF PORTLAND STANDARDS.
3. ANY ASPHALT TO BE REMOVED SHALL BE STRIPPED AND PROPERLY DISPOSED OF OFFSITE.
4. CURB TO BE REMOVED, STOCKPILED AND RESET IN ACCORDANCE WITH DETAIL. BROKEN CURB SHALL BE PROPERLY DISPOSED OF AND SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.
5. ALL RAMPS TO CONFORM TO ADA GUIDELINES. SLOPE SHALL NOT EXCEED 1 INCH PER FOOT.
6. ALL SITE SIGNAGE TO COMPLY WITH MUTCD STANDARDS. CONTRACTOR TO COORDINATE AND INSTALL.
7. FOLLOWING COMPLETION OF CONSTRUCTION, THE OWNER SHALL BE RESPONSIBLE FOR THE MAINTENANCE AND MANAGEMENT OF DRIVEWAYS, SITE LIGHTING, TRASH REMOVAL AND SNOW REMOVAL.
8. CONTRACTOR SHALL VERIFY BOTTOM AND TOP OF CURB ELEVATIONS ALONG BUILDING FRONTAGES PRIOR TO CONSTRUCTION OF THE FOUNDATIONS. CONTACT ENGINEER PRIOR TO CONSTRUCTION IF DISCREPANCIES ARE FOUND.

SPACE AND BULK STANDARDS			
ZONING DISTRICT: B2	REQUIRED	EXISTING	PROPOSED
MINIMUM LOT AREA	N/A	3.43 AC	3.43 AC
MINIMUM STREET FRONTAGE	N/A	248.5 FT	248.5 FT
GROSS FLOOR AREA	NA	8,771 SQFT	28,694 SQFT
BUILD-TO ZONE (REQUIRED MAX. FRONT SETBACK/ACTUAL MIN. FRONT SETBACK)	0-10 FT	2.5'	32'*
BUILD-TO PERCENTAGE (MIN.)	100%	11%	0%
BLANK WALL AREA (MAX.)	20 FT	UNKNOWN	12'
MINIMUM REAR YARD SETBACK	NONE, EXCEPT 10 FT IF ABUTTING A LOT IN A RESIDENTIAL ZONE	62'	119.5'
MINIMUM SIDE YARD SETBACK, INTERIOR (MIN.)	NONE, EXCEPT 5 FT IF ABUTTING A LOT IN A RESIDENTIAL ZONE	270'	26.5'
MAXIMUM BUILDING HEIGHT	75 FT	< 75 FT	< 75 FT
LANDSCAPED OPEN SPACE RATIO (MIN.)	20%	>20%	65%
* WAIVER REQUESTED PER SECTION 7.6.5.B.3			

LEGEND:

PROPERTY LINE

15' SETBACK FROM OVERHEAD 3-PHASE UTILITY LINES

WETLANDS

LIMIT OF WORK LINE — LOW —

DECORATIVE FENCING, CHAIN-LINK IN VINYL-COATED BLACK, 4'-0" TALL

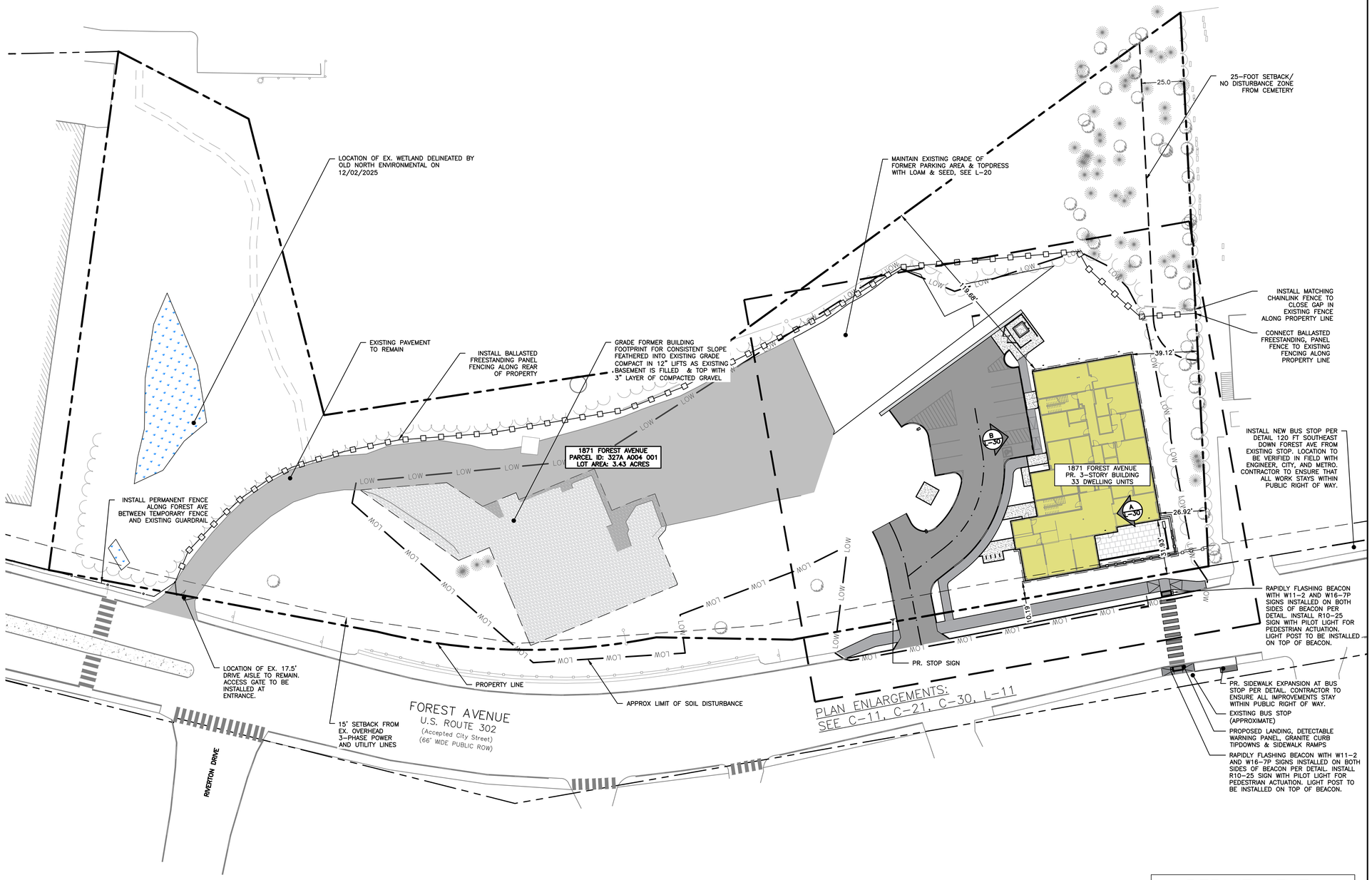
PROPOSED BUILDING FOOTPRINT, SEE ARCH. DRAWINGS

ASPHALT PAVING

CONCRETE PAVING

GRAVEL

ABOVE-GROUND, PANEL FENCING, 6'-0" TALL



30 0 30 60

SCALE: 1:30

PERMIT LEVEL
NOT ISSUED FOR
CONSTRUCTION

ISSUED FOR	BY	DATE
SITE PLAN APPLICATION	SJL	7/27/2026
25% PROGRESS SET	SJL	8/07/2026
UTILITY COORDINATION	SJL	8/21/2026
COMMENT RESPONSE	SJL	9/25/2026
PLANNING BOARD	SJL	10/7/2026

DRAWING NAME: SITE PLAN

PROJECT NAME: 1871 FOREST AVE, PORTLAND, MAINE

PARCEL ID: 327A A004001

CLIENT: AVESTA HOUSING
307 CUMBERLAND AVE, PORTLAND, MAINE 04101

ACORN ENGINEERING, INC.
ENGINEERING
ACORN ENGINEERING, INC.
P.O. BOX 3294 PORTLAND, MAINE 04104
(207) 775-2655
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FILE: 1297_C-10_SITE PLAN

DATE: AS NOTED

JN: 1297

SCALE: AS NOTED

DESIGNED BY: MJVA

DRAWN BY: MJVA

CHECKED BY: SJL

STATE OF MAINE
SAMUEL J. LEBEL
No. 16505
REGISTERED PROFESSIONAL ENGINEER
06/12/26

DRAWING NO.
C-10

GENERAL NOTES:

1. ALL SIDEWALK AND VERTICAL GRANITE CURB TO BE REPLACED SHALL BE REBUILT TO CITY OF PORTLAND STANDARD.
2. ALL PAVEMENT STRIPING AND MARKINGS SHALL COMPLY TO CITY OF PORTLAND STANDARDS.
3. ANY ASPHALT TO BE REMOVED SHALL BE STRIPPED AND PROPERLY DISPOSED OF OFFSITE.
4. CURB TO BE REMOVED, STOCKPILED AND RESET IN ACCORDANCE WITH DETAIL. BROKEN CURB SHALL BE PROPERLY DISPOSED OF AND SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.
5. ALL RAMPS TO CONFORM TO ADA GUIDELINES. SLOPE SHALL NOT EXCEED 1 INCH PER FOOT.
6. ALL SITE SIGNAGE TO COMPLY WITH MUTCD STANDARDS. CONTRACTOR TO COORDINATE AND INSTALL.
7. FOLLOWING COMPLETION OF CONSTRUCTION, THE OWNER SHALL BE RESPONSIBLE FOR THE MAINTENANCE AND MANAGEMENT OF DRIVEWAYS, SITE LIGHTING, TRASH REMOVAL AND SNOW REMOVAL.
8. CONTRACTOR SHALL VERIFY BOTTOM AND TOP OF CURB ELEVATIONS ALONG BUILDING FRONTAGES PRIOR TO CONSTRUCTION OF THE FOUNDATIONS. CONTACT ENGINEER PRIOR TO CONSTRUCTION IF DISCREPANCIES ARE FOUND.
9. FOR PROJECT SPACE AND BULK STANDARDS, SEE SHEET C-10
10. ELECTRICAL DESIGN AND ROUTING PER MEP.

SITE LIGHTING FIXTURE SCHEDULE			
SYMBOL	SPECIFICATION	QTY.	MANUFACTURER
SL1	COOPER:GALN-SB1A-830-U-T4W	1	COOPER LIGHTING SOLUTIONS
SL2	COOPER: GALN-SB1A-830-U-5WQ	1	COOPER LIGHTING SOLUTIONS
W1	PIL:M20-M-7W-T4-XX-70-3K-UNV-XX	10	PERFORMANCE IN LIGHTING
W2	PIL:M20-M-7W-T2-XX-70-3K-UNV-XX	3	PERFORMANCE IN LIGHTING
FOR INFORMATION ON LIGHTING SPECIFICATIONS AND PHOTOMETRICS, CONTACT THE LIGHTING DISTRIBUTOR: REFLEX, REFLEXLIGHTING.COM; CONTACT: MICHAEL O'BRIEN, LC, 857-248-9181, MOBRIEN@REFLEXLIGHTING.COM			

PARKING SUMMARY	
	# PARKING SPACES
EXISTING	59
REMOVED SPACES	37
REMAINING SPACES	22
PROPOSED	
STANDARD (9'x18')	7
COMPACT (8'x15')	0
ADA (8'x18')	1
TOTAL PROPOSED SPACES	8
EV CHARGERS	
INSTALLED EV CHARGERS EV	1
EV READY SPACES EVR	4

ELECTRICAL VEHICLE PARKING REQUIREMENTS:
1. PROPOSED NEW PARKING LOT SHALL INCLUDE ENERGIZED ELECTRICAL OUTLETS OR INSTALLED CHARGERS CAPABLE OF PROVIDING LEVEL 2 EV CHARGING OR HIGHER TO 1 PARKING SPOT. AN ADDITIONAL 4 PARKING SPACES MUST BE MADE EV READY, MEANING THEY ARE SERVED BY SUFFICIENT CONDUIT AND ELECTRICAL SERVICE TO ALLOW FOR FUTURE INSTALLATION OF ELECTRIC VEHICLE SUPPLY EQUIPMENT.

LEGEND:

PROPERTY LINE

15' SETBACK FROM OVERHEAD 3-PHASE UTILITY LINES

SNOW STORAGE

LIMIT OF WORK LINE — LOW —

DECORATIVE FENCING, CHAIN-LINK IN VINYL-COATED BLACK, 4'-0" TALL

PROPOSED BUILDING FOOTPRINT, SEE ARCH. DRAWINGS

ASPHALT PAVING

CONCRETE PAVING

GRAVEL

EXISTING TREE CANOPY EDGE

N

10 0 10 20

SCALE: 1" = 10'

PERMIT LEVEL NOT ISSUED FOR CONSTRUCTION

ISSUED FOR	BY	DATE
SITE PLAN APPLICATION	SJL	12/27/2025
25% PROGRESS SET	SJL	12/27/2025
UTILITY COORDINATION	SJL	12/31/2025
COMMENT RESPONSE	SJL	1/27/2026
PLANNING BOARD	SJL	2/27/2026

ENLARGED SITE PLAN

DRAWING NAME:

PROJECT NAME: 1871 FOREST AVE, PORTLAND, MAINE

PARCEL ID: 327A A004001

CLIENT: AVESTA HOUSING
307 CUMBERLAND AVE, PORTLAND, MAINE 04101

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ACORN ENGINEERING, INC.
PO BOX 3202 PORTLAND, MAINE 04104
(207) 775-2655

FILE: 1297_C-11_ENLARGED SITE PLAN
DATE: AS NOTED
JN: 1297
SCALE: AS NOTED
DESIGNED BY: MJVA
DRAWN BY: MJVA
CHECKED BY: SJL

STATE OF MAINE
SAMUEL J. LEBEL
No. 16505
REGISTERED PROFESSIONAL ENGINEER
06/12/26

DRAWING NO.
C-11

GENERAL NOTES:

1. LOCATION OF PROPOSED CONNECTIONS ARE APPROXIMATE. CONTRACTOR TO CONTACT ENGINEER IF FIELD INFORMATION VARIES FROM INFORMATION ON PLANS.
2. CONTRACTOR IS TO BE CAUTIONED THAT CERTAIN LOCATIONS AND/OR ELEVATIONS OF EXISTING UTILITIES HAVE BEEN PROVIDED THROUGH UTILITY COORDINATION OR OTHER OBSERVATIONS. INFORMATION IS NOT TO BE RELIED UPON AS EXACT OR COMPLETE. CONTRACTOR TO FIELD VERIFY AND COORDINATE WITH UTILITY COMPANY AND DIG SAFE NO LESS THAN 72 HOURS PRIOR TO ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF ALL UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS INDICATED IN THE CONTRACT DOCUMENTS. CONTRACTOR TO NOTIFY ENGINEER OF ANY DIFFERENTIATIONS FROM EXISTING CONDITIONS, INCLUDING UTILITY INFORMATION, PRIOR TO ANY CHANGES.
3. FOR ALL UTILITIES, ACORN ENGINEERING DESIGN LIMITS END AT EXTERIOR WALL OF BUILDING. METERING OF UTILITIES TO BE COMPLETED BY M.E.P. UNLESS SPECIFIED OTHERWISE.
4. CONTRACTOR TO COORDINATE WITH ARCHITECT ON FINAL UTILITY CONNECTIONS WITHIN THE BUILDING.
5. SEWER UTILITIES: CONTRACTOR TO COORDINATE WITH ARCHITECT FOR FINAL SERVICE CONNECTION. SEWER UTILITIES TO BE CONSTRUCTED IN ACCORDANCE WITH CITY OF PORTLAND TECHNICAL STANDARDS. VALVE FOR BACKFLOW PREVENTION SHALL BE INSTALLED WITHIN THE THE PROPERTY LINES FOR EACH CITY SEWER CONNECTION. CONTACT ENGINEER IF INVERT FIELD CONDITIONS VARY FROM DESIGN.
6. WATER UTILITIES: FINAL PIPE SIZING PROVIDED BY M.E.P. ENGINEER AND FIRE PROTECTION DESIGNER. INTERNAL METERING, BACKFLOW PREVENTION, AND PRESSURE REDUCERS TO BE COMPLETED BY M.E.P. ENGINEER. DOMESTIC WATER PIPE SIZES WILL DETERMINE THE FINAL WATER METERING OPTIONS. METER MAY BE SMALLER THAN PROPOSED WATER MAIN. WATER METERING, PRESSURE REDUCER AND BACKFLOW PREVENTION TO BE IN ACCORDANCE WITH THE PORTLAND WATER DISTRICT STANDARDS. CONTRACTOR TO FOLLOW METERING GUIDELINES OF THE PORTLAND WATER DISTRICT AND CITY OF PORTLAND.
7. GAS UTILITIES: PROJECT GAS LOAD, GAS UTILITY DESIGN, AND FINAL GAS SERVICE LOCATION AND METERS TO BE DEFINED BY M.E.P. AND IN ACCORDANCE WITH UNITIL.
8. ELECTRIC UTILITIES: ELECTRIC DESIGN TO BE FINALIZED BY M.E.P. ENGINEER. ELECTRICAL LOAD TO BE DETERMINED BY M.E.P. ENGINEER. METER LOCATION AND TRANSFORMER SIZE, IF NECESSARY DEFINED BY M.E.P. M.E.P. TO FINALIZE SERVICE CONNECTION TO BUILDING. ALL ELECTRIC CONSTRUCTION SHALL CONFORM TO CMP GUIDEBOOK OF STANDARD REQUIREMENTS, MOST RECENT EDITION. DESIGN SUBJECT TO FINAL APPROVAL FROM CMP. BUILDING ELEMENTS TO BE AT LEAST 15 FEET AWAY FROM ABOVE GROUND 3-PHASE POWER.
9. CABLE AND TELEPHONE PULLBOXES AND PEDESTAL LOCATIONS TO BE DETERMINED BY CHARTER COMMUNICATIONS AND FAIRPOINT PRIOR TO CONSTRUCTION. CONTRACTOR TO COORDINATE INSTALLATION OF UNDERGROUND UTILITIES WITH ALL UTILITY COMPANIES INVOLVED.

N/F
Hannaford Bros Co.
Tax Map 327A, Block A, Lot 5
Bk. 20702, Pg. 308

N/F
Friends Church
Tax Map 327A, Block A, Lot 2
(See Plan Ref. A)

1871 FOREST AVENUE
PARCEL ID: 327A A004 001
LOT AREA: 3.43 ACRES

FOREST AVENUE
U.S. ROUTE 302
(Accepted City Street)
(66' WIDE PUBLIC ROW)

RIVERTON ME

EX. FIRE HYDRANT
UTILITY POLE #222
APPROX. LOCATION OF EX. 2" WATER SERVICE TO BE RETIRED PER PWD
EX. 8" STORM DRAIN

PR. SUBSURFACE STORMWATER DETENTION SYSTEM. SEE SHEET C-30 FOR MORE INFORMATION.
PR. UNDERGROUND CONDUITS TO BE ROUTED TO MECHANICAL ROOM. FINAL PLACEMENT PER MEP AND CMP.
PR. 7'X7' PAD MOUNT TRANSFORMER
PR. UNDERGROUND TELECOM AND COMMUNICATION LINES TO BE ROUTED TO THE MECHANICAL ROOM. FINAL ROUTING AND CONDUITS PER MEP.
PR. UNDERGROUND TELECOMMUNICATION CONDUITS TO BE ENCASED IN CONCRETE WHEN UNDER PAVEMENT.
PR. 6" PVC GRAVITY SEWER LATERAL
L: 61'
S: 0.01
PR. SEWER MANHOLE
RIM: 86.35'
PR. 6" INV. IN: 80.00' (PHASE 1)
PR. 6" INV IN: 79.50' (PHASE 2)
PR. 8" INV. OUT: 78.57'
PR. 38Y VAULT W/ STUBS AND KNOCKOUTS FOR PHASE 2
PR. PULL BOX
PR. 6" PVC SDR 35 SEWER LATERAL SLOPED AT 2%, TO BE STUBBED OUT FOR FUTURE PHASE 2 REDEVELOPMENT
PR. 8" PVC GRAVITY SEWER LATERAL
L: 65'
S: 0.04
PR. BACKFLOW PREVENTION DEVICE ON PR. 8" SEWER, PER DETAIL
PR. GAS 2" SERVICE

PR. UNDERGROUND ELECTRIC CONDUIT AND LINES TO BE ROUTED TO PARKING SPACES AND TERMINATED TO MAKE THE SPACES "EV READY" PER CITY OF PORTLAND. EXACT ROUTING AND INFRASTRUCTURE NEEDS PER MEP.
PR. UNDERGROUND ELECTRIC AND TELECOMMUNICATION LINES TO BE ROUTED TO THE MECHANICAL/UTILITY ROOM. FINAL ROUTING AND PLACEMENT TO BE COORDINATED WITH RESPECTIVE UTILITY COMPANIES, MEP, AND OWNER.
APPROX. LOCATION OF GAS METERS ON BUILDING. FINAL LAYOUT PER UNITIL AND MEP.
PR. TESTABLE DVCA BACKFLOW PREVENTION DEVICE SHALL BE INSTALLED AFTER THE METER AND BEFORE THE SPRINKLER RISER
PR. WATER TO BE ROUTED TO THE MECHANICAL/SPRINKLER ROOM
PR. 6" SEWER LATERAL TO RUN UNDER SLAB TO THE MECHANICAL ROOM. FINAL ROUTING PER MEP. APPROX. INV. OUT OF BUILDING: TBD
PR. 2" DOMESTIC SERVICE
EX. UTILITY POLE #217
EX. CATCH BASIN
EX. 15" STORM DRAIN
EX. 15" STORM DRAIN
EX. CATCH BASIN
EX. 6" UNDER DRAIN
PR. SAWCUT AND PAVEMENT REPAIR PER DETAIL
EX. 6" DIA. CLEANOUT
PR. 2" CURB STOP, 1' OFF CURB
EX. 12" WATER MAIN
PR. 2" DOMESTIC SERVICE WITH 2" SERVICE SADDLE PER DETAIL
EX. COMMUNICATIONS VAULT
EX. UTILITY POLE #219
PR. 8" GATE VALVE
EX. SEWER MANHOLE (SMH-2)
RIM: 84.65'
PR. INV. IN: 76.47' (8")
EX. INV. IN: 75.95' (10")
EX. INV. IN: 75.87' (8")
EX. INV. OUT: 75.87' (10")
CONTRACTOR TO CORE INTO EXISTING SEWER MANHOLE
PR. 8" D.I. FIRE SERVICE WITH 12"X8" TAPPING SLEEVE AND 8" GATE VALVE PER DETAIL
INSTALL UTILITY RISER POLE TO ROUTE UNDERGROUND PRIMARY 3-PHASE TO THE PROPOSED PAD MOUNT TRANSFORMER AND SECONDARIES TO THE MECHANICAL ROOM. FINAL ROUTING AND PLACEMENT PER MEP, OWNER, CMP, AND RESPECTIVE UTILITY COMPANIES.

EX. FIRE HYDRANT
EX. UTILITY POLE #220
EX. UNDERGROUND COMMUNICATION LINES
EX. 6" RETIRED WATER MAIN
EX. GAS MAIN
EX. OVERHEAD THREE-PHASE POWER LINES TO REMAIN
EX. 10" SEWER MAIN
EX. SEWER MANHOLE (SMH-1)
RIM: 83.47'
INV. IN: 77.99' (10")
INV. OUT: 77.83' (10")

30 0 30 60
SCALE: 1" = 30'

PERMIT LEVEL
NOT ISSUED FOR
CONSTRUCTION

ISSUED FOR	BY	DATE
SITE PLAN APPLICATION	SJL	12/27/2024
25% PROGRESS SET	SJL	12/27/2024
UTILITY COORDINATION	SJL	1/31/2025
COMMENT RESPONSE	SJL	4/21/2026

UTILITY PLAN
DRAWING NAME:
PROJECT NAME: 1871 FOREST AVE, PORTLAND, MAINE
PARCEL ID: 327A A004001
CLIENT: AVESTA HOUSING
307 CUMBERLAND AVE, PORTLAND, MAINE 04101

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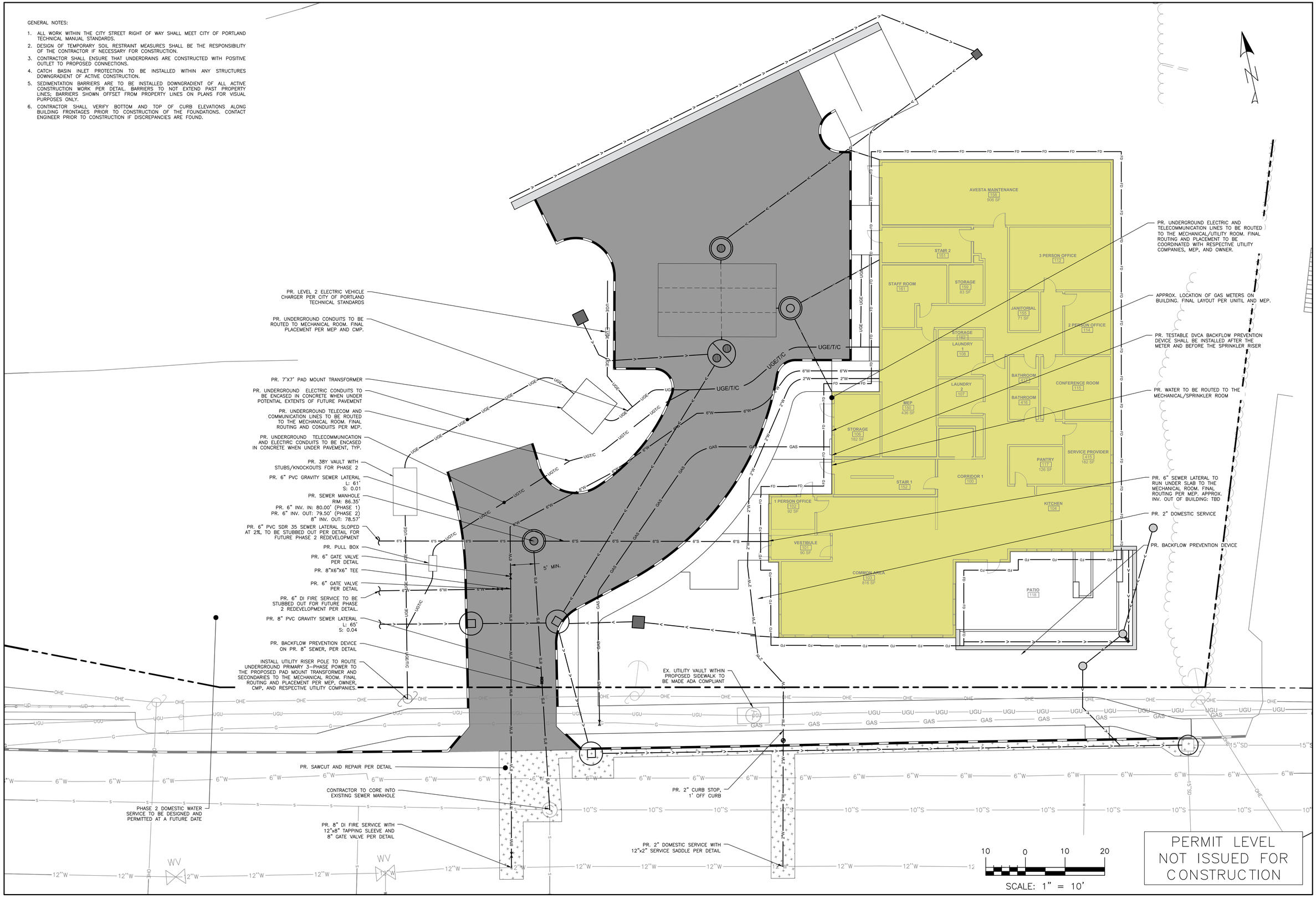
FILE: 1297_C-20_UTILITY PLAN
DATE: AS NOTED
JN: 1297
SCALE: AS NOTED
DESIGNED BY: MJVA
DRAWN BY: MJVA
CHECKED BY: SJL

STATE OF MAINE
SAMUEL J. LEBEL
No. 16505
PROFESSIONAL ENGINEER
LICENSED
05/21/26

DRAWING NO.
C-20

GENERAL NOTES:

1. ALL WORK WITHIN THE CITY STREET RIGHT OF WAY SHALL MEET CITY OF PORTLAND TECHNICAL MANUAL STANDARDS.
2. DESIGN OF TEMPORARY SOIL RESTRAINT MEASURES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR IF NECESSARY FOR CONSTRUCTION.
3. CONTRACTOR SHALL ENSURE THAT UNDERDRAINS ARE CONSTRUCTED WITH POSITIVE OUTLET TO PROPOSED CONNECTIONS.
4. CATCH BASIN INLET PROTECTION TO BE INSTALLED WITHIN ANY STRUCTURES DOWNGRADIENT OF ACTIVE CONSTRUCTION.
5. SEDIMENTATION BARRIERS ARE TO BE INSTALLED DOWNGRADIENT OF ALL ACTIVE CONSTRUCTION WORK PER DETAIL. BARRIERS TO NOT EXTEND PAST PROPERTY LINES. BARRIERS SHOWN OFFSET FROM PROPERTY LINES ON PLANS FOR VISUAL PURPOSES ONLY.
6. CONTRACTOR SHALL VERIFY BOTTOM AND TOP OF CURB ELEVATIONS ALONG BUILDING FRONTAGES PRIOR TO CONSTRUCTION OF THE FOUNDATIONS. CONTACT ENGINEER PRIOR TO CONSTRUCTION IF DISCREPANCIES ARE FOUND.



ISSUED FOR	BY DATE
SITE PLAN APPLICATION	SJL 7/27/2026
25% PROGRESS SET	SJL 12/12/2025
UTILITY COORDINATION	SJL 9/21/2026
COMMENT RESPONSE	SJL 5/21/2026

ENLARGED UTILITY PLAN

DRAWING NAME:
PROJECT NAME: 1871 FOREST AVE, PORTLAND, MAINE
PARCEL ID: 327A A004001
CLIENT: AVESTA HOUSING
307 CUMBERLAND AVE, PORTLAND, MAINE 04101

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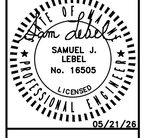
ACORN ENGINEERING, INC
307 CUMBERLAND AVE PORTLAND, MAINE 04104
PO BOX 3422 PORTLAND, MAINE 04104
(207) 775-2655

FILE:	1297_C-21_ENLARGED UTILITIES PLAN
DATE:	AS NOTED
JN:	1297
SCALE:	AS NOTED
DESIGNED BY:	MJVA
DRAWN BY:	MJVA
CHECKED BY:	SJL



DRAWING NO.
C-21

GENERAL NOTES:

1. ALL SIDEWALK AND VERTICAL GRANITE CURB TO BE REPLACED SHALL BE REBUILT TO CITY OF PORTLAND STANDARD.
2. ALL PAVEMENT STRIPING AND MARKINGS SHALL COMPLY TO CITY OF PORTLAND STANDARDS.
3. ANY ASPHALT TO BE REMOVED SHALL BE STRIPPED AND PROPERLY DISPOSED OF OFFSITE.
4. CURB TO BE REMOVED, STOCKPILED AND RESET IN ACCORDANCE WITH DETAIL. BROKEN CURB SHALL BE PROPERLY DISPOSED OF AND SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.
5. ALL RAMPS TO CONFORM TO ADA GUIDELINES. SLOPE SHALL NOT EXCEED 1 INCH PER FOOT.
6. ALL SITE SIGNAGE TO COMPLY WITH MUTCD STANDARDS. CONTRACTOR TO COORDINATE AND INSTALL.
7. FOLLOWING COMPLETION OF CONSTRUCTION, THE OWNER SHALL BE RESPONSIBLE FOR THE MAINTENANCE AND MANAGEMENT OF DRIVEWAYS, SITE LIGHTING, TRASH REMOVAL AND SNOW REMOVAL.
8. CONTRACTOR SHALL VERIFY BOTTOM AND TOP OF CURB ELEVATIONS ALONG BUILDING FRONTAGES PRIOR TO CONSTRUCTION OF THE FOUNDATIONS. CONTACT ENGINEER PRIOR TO CONSTRUCTION IF DISCREPANCIES ARE FOUND.

LEGEND:

PROPERTY LINE
LIMIT OF WORK LINE
MAJOR CONTOURS (EXISTING)
MINOR CONTOURS (EXISTING)
MAJOR CONTOURS (PROPOSED)
MINOR CONTOURS (PROPOSED)
STORMWATER (EXISTING)
STORMWATER (PROPOSED)

PR. F BASIN WITH BEEHIVE GRATE
RIM: 87.60'
8" INV. IN: 85.00'
PR. 10" INV. OUT: 84.90'

PR. TW: 90.50
PR. BW: 89.00

PR. TW: 90.50
PR. BW: 88.75

PR. TW: 90.50
PR. BW: 88.57

10" SD
L: 77.25'
S: 0.009

1.9% DN

INSTALL WALL UNDERDRAIN PER DETAIL

PR 4" UNDERDRAIN
L: 130'
S: 0.01

PR. TW: 90.50
PR. BW: 87.80

PR. TW: 90.50
PR. BW: 88.90

FLUSH CURB

PR. UNDERDRAIN CLEANOUT

PR. TW: 90.50
PR. BW: 89.67

PR. PADMOUNT TRANSFORMER. TOP OF TRANSFORMER PAD WITH MIN. 6" REVEAL ABOVE FINAL GRADE, PER DETAIL

REFER TO ARCHITECTURAL AND STRUCTURAL DETAILS FOR ELEVATIONS AND WATERPROOFING OF WALLS AND FOUNDATION

PR. SUBSURFACE DETENTION SYSTEM, PER DETAIL

PR. CATCH BASIN-1
RIM 86.90
10" INV. IN: 84.20'
10" INV. OUT: 84.10'

3.5% DN

4.5% DN

TC88.35+
BC87.85

BEGIN TIPDOWN

PR. DMH-2
RIM: 87.55'
(2) 6" INV. IN: 84.50'
8" INV. OUT: 84.40'

TC 88.00
BC 87.75

87.49

PR. OUTLET CONTROL STRUCTURE, PER DETAIL
RIM: 87.38'
4" INV. IN: 80.90'
10" INV. IN: 83.70'
8" INV. IN: 83.90'
12" INV OUT: 80.90'

3.0% DN

PR. 8" SD
L: 37'
S:0.03

TC 88.35
BC 87.85

TC 88.10
BC 87.60

PR. EGRESS WITH 1/2" THRESHOLD TO 88.46'. TYP. OF ALL ENTRANCES

TC 88.76
BC 88.26

PR. F BASIN WITH BEEHIVE GRATE
RIM: 87.70'
8" INV. OUT: 85.00'

RIDGE - 87.90'

87.50

1871 FOREST AVENUE
PR. 3-STORY BUILDING
33 DWELLING UNITS
FFE: 88.50'

TC 88.17
BC 87.67

TC 88.25
BC 87.75

1.9% DN

87.90

88.40

12" SD
L: 73'
S: 0.009

1.5% DN

GRADE BREAK

+88.43

PATIO EGRESS WITH 1/2" THRESHOLD TO 88.46, 1/2" MAX WITH BEVEL SLOPE

PR. FIELD INLET WITH BEEHIVE GRATE
RIM: 85.35'
(8") INV. OUT: 83.85'

85.84
8" SD
L: 26'
S: 0.015

PR. 4" UNDERDRAIN
L: 24'
S: 0.01

INSTALL WALL UNDERDRAIN PER DETAIL

PR. FIELD INLET WITH BEEHIVE GRATE
RIM: 87.85'
(8") INV. IN: 83.47'
(4") INV. IN: 80.64'
(8") INV. OUT:80.34'

PR. RAIN GARDEN OVERFLOW F-BASIN WITH BEEHIVE GRATE
RIM: 87.75'
4" INV IN: 85.25'
10" INV OUT: 84.00'

TC 87.90
BC 87.40

87.91

88.00

4.0% DN

88.40

86.20

88.03

INSTALL PR. 4" WALL UNDERDRAIN PER DETAIL
L: 24'
S: 0.01

TIE FOUNDATION DRAIN INTO WALL UNDERDRAIN

TW: 89.00'
BW: 87.79'

MAINTAIN 1.5% SLOPE THROUGH GRAVEL MAINTENANCE STRIP

87.89

CONNECT UNDERDRAINS AND INSTALL BACKFLOW PREVENTOR PRIOR TO CONNECTING INTO THE PROPOSED FIELD INLET

TW: 89.00'
BW: 86.00'

PR. CATCH BASIN - 2
RIM: 85.70'
12" (N) PR. INV. IN: 80.20'
10" (W) PR. INV. IN: 81.70'
10" (E) PR. INV. IN: 83.00'
PR. INV. OUT: 80.10'

PR. CATCH BASIN - 3
RIM: 85.40'
10" INV. IN: 82.00'
10" INV. OUT: 81.90'

PR. STORM DRAIN TO BE STUBBED OUT FOR FUTURE PHASE PER DETAIL

PR. 10" SD STUB
L: 20'
S:0.01

PR. 10" SD
L: 16'
S:0.013

PR. 10" SD
L: 16'
S:0.063

88.23

4.0% DN

2.5% DN

8" SD
L: 11'
S: 0.031

PR. FIELD INLET
(8") PR. INV. IN: 80.00'
(8") PR. INV. OUT: 77.89'

TC 85.15
BC 85.15

TC 84.90
BC 84.90

8" SD
L: 23'
S: 0.01

EX. CATCH BASIN
RIM: 82.90'
INV. IN: 77.49'
INV. OUT: 77.23'
PR. INV IN: 77.55'
CORE TO ACCEPT
12" STORM DRAIN

TC 85.07
BC 85.07

TC 84.82
BC 84.82

1.9% DN

1.4% DN

HP
85.33

PR. WYE CONNECTION
INV: 77.66'

15"SD

15"SD

PR. 7" VERTICAL GRANITE CURB

TC 85.12
EX. BC 84.54

PR. DMH - 1
RIM: 84.80'
12" PR. INV. IN: 79.25'
15" PR. INV. OUT: 79.05'

TC 84.82
EX. BC 84.24

PR. RAIN GARDEN PER DETAIL

PR. ROOF LEADER TO ENTER 2'-4" OF CRUSHED STONE CHANNEL WITHIN RAIN GARDEN. ROOF LEADER LOCATIONS TO BE COORDINATED WITH ARCHITECT.

PR. RAIN GARDEN UNDER DRAIN, PER DETAIL. RUNNING SLOPE 0.003

15" SD
L: 146'
S: 0.01

10 0 10 20
SCALE: 1" = 10'

PERMIT LEVEL
NOT ISSUED FOR
CONSTRUCTION

ISSUED FOR	BY	DATE
SITE PLAN APPLICATION	SJL	12/27/2025
25% PROGRESS SET	SJL	01/07/2026
UTILITY COORDINATION	SJL	01/21/2026
COMMENT RESPONSE	SJL	02/27/2026
PLANNING BOARD	SJL	03/17/2026

DRAWING NAME: GRADING & DRAINAGE PLAN
PROJECT NAME: 1871 FOREST AVE, PORTLAND, MAINE
PARCEL ID: 327A A004001
CLIENT: AVESTA HOUSING
307 CUMBERLAND AVE, PORTLAND, MAINE 04101

ACORN ENGINEERING, INC.
ACORN ENGINEERING, INC
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FILE:	1297_C-30_GRADINGPLAN
DATE:	AS NOTED
JN:	1297
SCALE:	AS NOTED
DESIGNED BY:	MJVA
DRAWN BY:	MJVA
CHECKED BY:	SJL

STATE OF MAINE
SAMUEL J. LEBEL
No. 16505
LICENSED PROFESSIONAL ENGINEER
06/12/26

DRAWING NO.
C-30

LANDSCAPE AND MAINTENANCE NOTES:

1. NO PLANTING TO BE INSTALLED UNTIL GRADING AND CONSTRUCTION HAS BEEN COMPLETED IN THE IMMEDIATE AREA.
2. SUBSTITUTIONS TO THE PLANTING SCHEDULE ARE TO BE REVIEWED FOR APPROVAL BY LANDSCAPE ARCHITECT OR CLIENT.
3. ALL PROPOSED SHRUB AND TREE LOCATIONS ARE APPROXIMATE AND WILL BE FIELD VERIFIED BY LANDSCAPE ARCHITECT OR CLIENT BASED ON EXISTING VEGETATION.
4. ALL PROPOSED GREEN SPACES AND ASSOCIATED PLANT SPECIES ARE TO COMPLY WITH THE CITY OF PORTLAND STANDARDS.
5. CONTRACTOR TO VERIFY UTILITIES ON PROPERTY AND TO PROTECT DURING EXCAVATION FOR PLANTS.
6. CONTRACTOR TO MAINTAIN A ONE YEAR WARRANTY ON ALL PLANTINGS FOLLOWING INSTALLATION INCLUDING REPLACEMENT IN-KIND OF ANY DISEASE, DEAD, OR OTHERWISE NON-VIABLE PLANT.
7. CONTRACTOR TO BE RESPONSIBLE FOR THE WATERING AND MAINTENANCE OF ALL PLANT MATERIAL AND LANDSCAPING IMPROVEMENTS UNTIL START OF THE WARRANTY PERIOD.
8. THE PROPERTY OWNER IS RESPONSIBLE FOR THE CONTINUED CARE AND MAINTENANCE OF THE LANDSCAPED AREA. PLANTINGS AND EXISTING VEGETATION TO REMAIN THAT SHOW SIGNS OF CONSTRUCTION DAMAGE WITHIN A ONE YEAR PERIOD FOLLOWING CONSTRUCTION SHALL BE REPLACED IN-KIND PRIOR TO ANY DEFECT GUARANTEE AT NO ADDITIONAL COST TO THE OWNER.
9. PLANT QUANTITIES LISTED IN THE PLANTING SCHEDULE ARE PROVIDED TO THE CONTRACTOR AS A CONVENIENCE; CONTRACTORS ARE TO VERIFY ALL PLANT QUANTITIES ON THE PLANS. IN THE EVENT OF A DISCREPANCY BETWEEN THE SCHEDULE AND THE DRAWING, THE DRAWING SHALL TAKE PRECEDENCE.
10. TOPSOIL SHALL BE FREE FROM SUBSOIL, STONES LARGER THAN 1" OR ANY UNDESIRABLE MATERIAL, CONTAIN 5% ORGANIC MATTER AND HAVE A PH SUITABLE TO THE LOCAL GROWING CONDITIONS.
11. MATERIAL SHALL COMPLY WITH THE LATEST EDITION OF THE AMERICAN STANDARD FOR NURSERY STOCK, AMERICAN ASSOCIATION OF NURSERYMAN.
12. THE CONTRACTOR SHALL SUBMIT NURSERY PHOTOGRAPHS OF ALL SHRUBS AND HERBACEOUS MATERIAL TO THE LANDSCAPE ARCHITECT OR CLIENT FOR APPROVAL PRIOR TO ACCEPTANCE.
13. THE CONTRACTOR SHALL SUBMIT NURSERY PHOTOGRAPHS OF ALL PROPOSED TREES TO THE LANDSCAPE ARCHITECT OR CLIENT FOR APPROVAL PRIOR TO ACCEPTANCE.
14. ALL PLANT MATERIAL DELIVERED TO THE SITE, INCLUDING TREES, SHRUBS, AND HERBACEOUS PERENNIALS, SHALL BE LOCATED IN A TEMPORARY "NURSERY" IN A SHADED AREA PROTECTED FROM WIND AND WATERED REGULARLY, ACCORDING TO THE SEASON AND PLANTS' REQUIREMENTS.
15. ALL TREE LOCATIONS ARE TO BE STAKED IN THE FIELD FOR REVIEW AND APPROVAL BY THE LANDSCAPE ARCHITECT OR CLIENT PRIOR TO PLANTING. FINAL LOCATIONS FOR ALL TREES ARE TO BE DETERMINED IN THE FIELD BY THE LANDSCAPE ARCHITECT OR CLIENT.
16. ALL SHRUBS AND HERBS ARE TO BE LAID OUT IN THE FIELD, ACCORDING TO THE LAYOUT PROVIDED IN THE PLANS, FOR APPROVAL BY THE LANDSCAPE ARCHITECT OR CLIENT PRIOR TO PLANTING.
17. INSTALL ALL TREES, SHRUBS, AND HERBS PER PLANTING DETAILS.
18. ALL DISTURBED AREAS, INCLUDING THOSE NOT INDICATED ON THE PLANS, DUE TO CONSTRUCTION ACTIVITY OR THE STORAGE OF MATERIALS OR EQUIPMENT ARE TO BE REPAIRED. APPLY TOPSOIL AS NEEDED, TO MEET ADJACENT GRADES AND RE-SEED TO MATCH EXISTING OR PROPOSED LANDSCAPE. IF SITE CONDITIONS ARE UNCLEAR, CONTACT THE LANDSCAPE ARCHITECT OR CLIENT TO VERIFY THE APPROPRIATE RE-SEEDING SPECIFICATION.
19. ALL PLANTING BEDS ARE TO RECEIVE 2" OF SHREDDED HARDWOOD MULCH; ALL TREE PLANTINGS ARE TO RECEIVE 2" SHREDDED HARDWOOD MULCH.
20. ALL LANDSCAPING PLANT MATERIALS WILL BE LOCALLY SOURCED NATIVE PLANTS

SOIL TESTING NOTES:

1. PRIOR TO THE PROCUREMENT OF PLANTS OR SEED MIXES, THE CONTRACTOR IS TO SUBMIT SOIL SAMPLES TO THE UNIVERSITY OF MAINE SOIL TESTING LABORATORY, OR OTHER, APPROVED SOIL LABORATORY. PROVIDE ALL TEST RESULTS TO THE LANDSCAPE ARCHITECT FOR REVIEW.
   MAINE SOIL TESTING SERVICE, 5722 DEERING HALL,
   ORNO, MAINE, 04469;
   HTTPS://UMAINE.EDU/SOILTESTINGLAB/
2. COLLECT SOIL SAMPLES PER THE SOIL TESTING SERVICE INSTRUCTIONS IN THE LOCATIONS INDICATED ON THE PLANS.
3. ON SOIL TESTING FORMS, SELECT THE FOLLOWING ANALYTICAL SERVICES FOR ALL SAMPLES:
   3.1. COMPREHENSIVE TEST (INCLUDING NA);
   3.2. SOIL BIOLOGY/SOIL HEALTH;
   3.3. PARTICLE SIZE ANALYSIS
4. LANDSCAPE ARCHITECT TO REVIEW RESULTS OF SOIL TESTING PRIOR TO SOIL AMENDMENT RECOMMENDATION

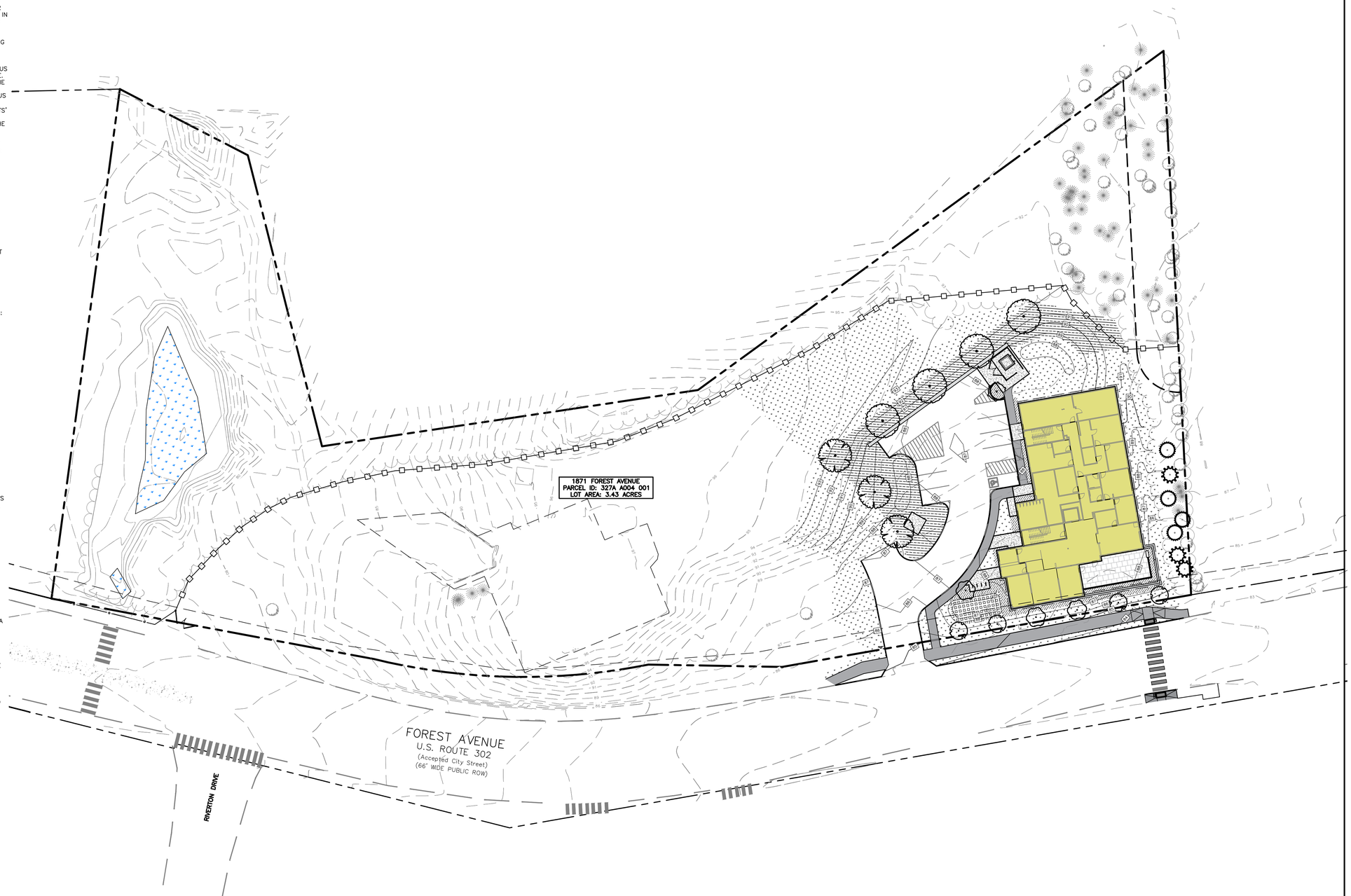
SEEDING NOTES:

1. RAIN GARDEN SEED MIX IS TO BE COMPRISED OF THE FOLLOWING:
1.1. "RAIN GARDEN MIX– ERNMX-180," BY ERNST SEED.
1.2. APPLY PER THE MANUFACTURER'S RECOMMENDED SEEDING RATE OF 20 LB/ACRE. INCLUDE COVER CROP, PER MANUFACTURER'S RECOMMENDATION: "OATS (1 JAN TO 31 JUL; 30 LBS/ACRE), JAPANESE MILLET (1 MAY TO 31 AUG: 10 LBS/ACRE), OR GRAIN RYE (1 AUG TO 31 DEC; 30 LBS/ACRE)"
1.3. RAIN GARDEN SEED MIX SEED IS TO BE PROVIDED BY:
   ERNST CONSERVATION SEEDS, 8884 MERCER PIKE, MEADVILLE, PA 16335
   (800) 873-3321
2. TURF GRASS SEED IS TO BE COMPRISED OF THE FOLLOWING:
2.1. "CONSERVATION MIX" BY NORTH COUNTRY ORGANICS, OR APPROVED EQUAL
2.2. APPLY PER THE MANUFACTURER'S RECOMMENDED RATE OF 5 LBS/1,000 SF.
2.3. TURF GRASS MIX SEED IS TO BE PROVIDED BY:
   NORTH COUNTRY ORGANICS, P.O. Box 372, Bradford, VT 05033
   (802) 222-4277; NORGANICS.COM
3. NATIVE GRASS SEED MIX IS TO BE COMPRISED OF THE FOLLOWING:
3.1. "NEW ENGLAND ROADSIDE MATRIX UPLAND SEED MIX" BY NEW ENGLAND WETLAND PLANTS
3.2. APPLY PER THE MANUFACTURER'S RECOMMENDED RATE OF 1 LB/ 1250 SF. INCLUDE A COVER CROP OF ANNUAL RYE, APPLIED AT A RATE NOT TO EXCEED 10 LB / ACRE.
3.3. NATIVE GRASS SEED MIX IS TO BE PROVIDED BY:
   NEW ENGLAND WETLAND PLANTS, INC.
   14 PEARL LANE, SOUTH HADLEY, MA 01075
   (413) 548-800; WWW.NEWP.COM

4. SEEDING INSTRUCTIONS:
4.1. PREPARE THE SEEDING AREA PER MANUFACTURER'S RECOMMENDATIONS; FINAL PLANTING BED IS TO BE WEED-FREE, SMOOTH, TILLED AND FINELY GRADED FOR FIRM SEED TO SOIL CONTACT. REFER TO MANUFACTURER'S RECOMMENDATIONS FOR WEED REMOVAL WITHIN THE PLANTING AREA.
4.2. SEED IN FALL (BETWEEN AUGUST 20TH AND BEFORE OCTOBER 20TH), OR IN SPRING (BETWEEN APRIL 1 AND JUNE 1ST).
4.3. SEED PER THE RATE RECOMMENDED BY THE MANUFACTURER, UNLESS OTHERWISE SPECIFIED. MIX SEED WITH CARRIER AND IF HAND-BROADCASTING SEED, DISTRIBUTE IN A NORTH-SOUTH DIRECTION, THEN SUBSEQUENTLY IN AN EAST-WEST DIRECTION.
4.4. GENTLY RAKE SEED INTO SOIL TO ENSURE GOOD SOIL TO SEED CONTACT.
4.5. COVER SEED WITH A LAYER OF WEED-FREE STRAW MUCH, NO MORE THAN 1/4" THICK.
4.6. PROVIDE TEMPORARY IRRIGATION FOR ALL SEEDING AREAS, AS WELL AS SHRUB AND PERENNIAL PLANTING AREAS, FOR ESTABLISHMENT (MINIMUM 2 MONTHS). ADJUST WATERING SCHEDULE PER WEATHER CONDITIONS; HOT, DRY TEMPERATURES MAY REQUIRE ADDITIONAL WATERING WHILE PERSISTENT RAIN WILL REQUIRE LESS.

5. MOWING SCHEDULE FOR RAIN GARDEN SEED MIX:
5.1. YEAR 1: TO CONTROL WEED GROWTH THE FIRST YEAR, WHEN THE OVERALL HEIGHT OF VEGETATION IN THE RAIN GARDEN REACHES 18-24 INCHES, CUT BACK THESE AREAS TO A HEIGHT OF 9-12 INCHES. DO NOT CUT LOWER THAN 7", EXCEPT WITHIN WINTER MONTHS. STOP CUTTING WITHIN 45 DAYS OF THE FIRST FROST DATE.
5.2. AFTER YEAR 1: MOW 1X EVERY YEAR IN EARLY SPRING OR FALL, 45 DAYS PRIOR TO THE FIRST FROST, IF CONTROL OF WOODY VEGETATION IS DESIRED.
5.3. IF GERMINATION IS INCONSISTENT OR PATCHY IN YEARS 1+, OVERSEED AREAS OF MINIMAL GROWTH WITH ADDITIONAL SEED. SEED. SHOULD BE NEWLY PURCHASED FROM THE MANUFACTURER IN THE YEAR OF ITS SEEDING AND SCRATCHED INTO THE SOIL TO ENSURE GOOD GERMINATION.

SEEDING			
SYMBOL	SEED MIX	NOTES	AREA
	TURF GRASS	FOR MANUFACTURER, SEED MIX, APPLICATION RATE, AND OTHER DETAILS, SEE SEEDING NOTES	15,575 SF
	RAIN GARDEN SEED MIX		466 SF
	NATIVE GRASS SEED MIX		5,171 SF



30 0 30 60
SCALE: 1:30

PERMIT LEVEL
NOT ISSUED FOR CONSTRUCTION

ISSUED FOR	BY DATE
SITE PLAN APPLICATION	SJL 2/27/26
25% PROGRESS SET	SJL 4/10/26
UTILITY COORDINATION	SJL 5/01/2026
COMMENT RESPONSE	SJL 5/21/2026
PLANNING BOARD	SJL 6/12/2026

DRAWING NAME: PLANTING PLAN
PROJECT NAME: 1871 FOREST AVENUE, PORTLAND, ME 04103
CLIENT: AVESTA HOUSING

LANDSCAPE ARCHITECTURE

THIS PLAN SHALL NOT BE MODIFIED, WITHOUT WRITTEN PERMISSION FROM ACORN ENGINEERING, INC. ANY ALTERATIONS, AUTHORIZED OR UNAUTHORIZED, SHALL BE AT THE SOLE RISK AND WITHOUT LIABILITY TO ACORN ENGINEERING, INC.

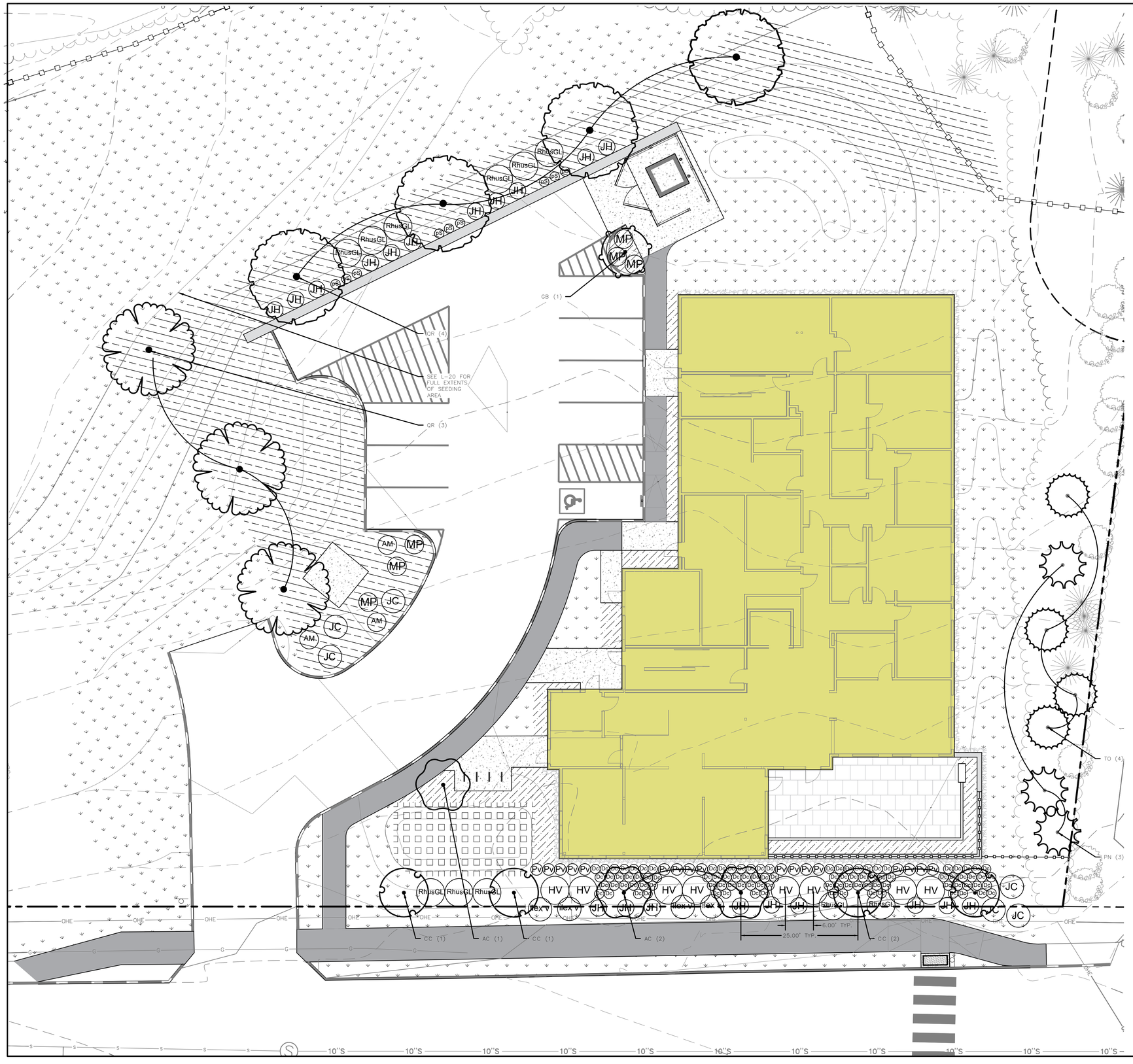
ACORN ENGINEERING, INC.
PO BOX 3372, PORTLAND MAINE 04104
(207) 775-2655

ACORN

FILE: 1297_L-20 PLANTING PLAN
JN: 1297
SCALE: AS NOTED
DESIGNED BY: ALDV
DRAWN BY: JVH
CHECKED BY: SJL

LICENSED LANDSCAPE ARCHITECT
ALEXIS LOPEZ DELVECCHIO
LAR5303
6/12/2026
STATE OF MAINE

DRAWING NO.
L-20



PLANTING SCHEDULE

TREES

SYMBOL	KEY	SCIENTIFIC NAME	COMMON NAME	SPACING	SIZE	QTY	NOTES
	AC	AMELANCHIER CANADENSIS	SERVICEBERRY	PER PLAN	1.5" CAL.	3	NATIVE
	CA	CARPINUS CAROLINIANA	AMERICAN HORNBEAM	PER PLAN	1.5" CAL.	4	NATIVE
	CC	CERCIS CANIDENSIS	REDBUD	PER PLAN	1.5" CAL.	4	NATIVE
	GB	GINKGO BILOBA	GINKGO	PER PLAN	1.5" CAL.	1	–
	PN	PINUS NIGRA	AUSTRIAN PINE	PER PLAN	6–7 FT HT.	2	–
	QR	QUERCUS RUBRA	NORTHERN RED OAK	PER PLAN	2" CAL.	3	NATIVE
	EG	THUJA OCCIDENTALIS	ARBORVITAE	PER PLAN	6–7 FT HT.	4	–

SCREENING SHRUBS + PERENNIALS

TOTAL PLANT COUNT ESTIMATED AT 41 SHRUBS

SYMBOL	SCIENTIFIC NAME	COMMON NAME	SPACING	SIZE	QTY	NOTES
AM	ARONIA MELANOCARPA	BLACK CHOKEBERRY	3.5' O.C.	5 GAL.	3	NATIVE
Dc	DESCHAMPSIA CESPITOSA	TUFTED HAIRGRASS	24" O.C.	1 QUART	95	NATIVE
HV	HAMAMELIS VIRGINIANA	WITCH–HAZEL	6' O.C.	5 GAL.	8	NATIVE
ilex v	ILLEX VERTICILLATA	WINTERBERRY	5' O.C.	5 GAL.	4	NATIVE
JC	JUNIPERUS COMMUNIS	COMMON JUNIPER	5' O.C.	5 GAL.	7	NATIVE
JH	JUNIPERUS HORIZONTALIS	CREEPING JUNIPER	3'–6" O.C.	5 GAL.	20	NATIVE
MP	MORELLA PENSYLVANICA	NORTHERN BAYBERRY	4' O.C.	5 GAL.	6	NATIVE
Pv	PANICUM VIRGATUM	SWITCHGRASS	30" O.C.	1 QUART	17	NATIVE
PS	PHLOX SUBULATA	MOSS PHLOX	PER PLAN	5 GAL.	6	NATIVE
RhusGL	RHUS AROMATICA 'GRO–LOW'	FRAGRANT SUMAC	5' O.C.	5 GAL.	15	NATIVE

BORDER PLANTING PALETTE

TOTAL AREA: 1,140 SF; PALETTE IS COMPOSED OF THE FOLLOWING SPECIES; SPECIES COUNTS ARE NOT PROVIDED; TOTAL PLANT COUNT ESTIMATED AT 110 SHRUBS/ 145 FERNS OR HERBACEOUS PERENNIALS

SYMBOL	SCIENTIFIC NAME	COMMON NAME	SPACING	SIZE	QTY	NOTES
	ARONIA MELANOCARPA	CHOKEBERRY	36" O.C.	3 GAL.	TBD	NATIVE
	ARCTOSTAPHYLOS UVA–URSI	BEARBERRY	24" O.C.	1 GAL.	TBD	NATIVE
	CAREX PENNSYLVANICA	PENNSYLVANIA SEDGE	16" O.C.	1 QUART	TBD	NATIVE
	COMPTONIA PEREGRINA	SWEETFERN	36" O.C.	3 GAL.	TBD	NATIVE
	DENNSTAEDTIA PUNCTILOBULA	HAY SCENTED FERN	18" O.C.	1 QT.	TBD	NATIVE
	GAYLUSSACIA BACCATA	BLACK HUCKLEBERRY	4'–6" O.C.	3 GAL.	TBD	NATIVE
	ILEX VERTICILLATA	WINTERBERRY	36" O.C.	3 GAL.	TBD	NATIVE
	JUNIPERUS COMMUNIS	COMMON JUNIPER	4'–6" O.C.	5 GAL.	TBD	NATIVE
	JUNIPERUS HORIZONTALIS	CREEPING JUNIPER	36" O.C.	3 GAL.	TBD	NATIVE
	MORELLA PENSYLVANICA	BAYBERRY	4'–0" O.C.	5 GAL.	TBD	NATIVE
	RHUS AROMATICA 'GRO LOW'	GRO–LOW SUMAC	4'–6" O.C.	3 GAL.	TBD	NATIVE

SEEDING

SYMBOL	SEED MIX	NOTES	AREA
	TURF GRASS	FOR MANUFACTURER, SEED MIX, APPLICATION RATE, AND OTHER DETAILS, SEE SEEDING NOTES	15,575 SF
	RAIN GARDEN SEED MIX		466 SF
	NATIVE GRASS SEED MIX		5,171 SF

NOTE:

1. ALL SHRUB AND GROUNDCOVER PLANT MATERIALS ARE TO BE LOCALLY SOURCED AND NATIVE.
2. SEE SHEET L–20 FOR ADDITIONAL PLANTING NOTES.

N

10 0 10 20

SCALE: 1:10

PERMIT LEVEL
NOT ISSUED FOR CONSTRUCTION

ISSUED FOR	BY DATE
SITE PLAN APPLICATION	SJL 2/27/26
25% PROGRESS SET	SJL 4/10/26
UTILITY COORDINATION	SJL 5/01/2026
COMMENT RESPONSE	SJL 5/21/2026
PLANNING BOARD	SJL 6/12/2026

DRAWING NAME: **ENLARGED PLANTING PLAN**

PROJECT NAME: **1871 FOREST AVENUE, PORTLAND, ME 04103**

CLIENT: AVESTA HOUSING

LANDSCAPE ARCHITECTURE

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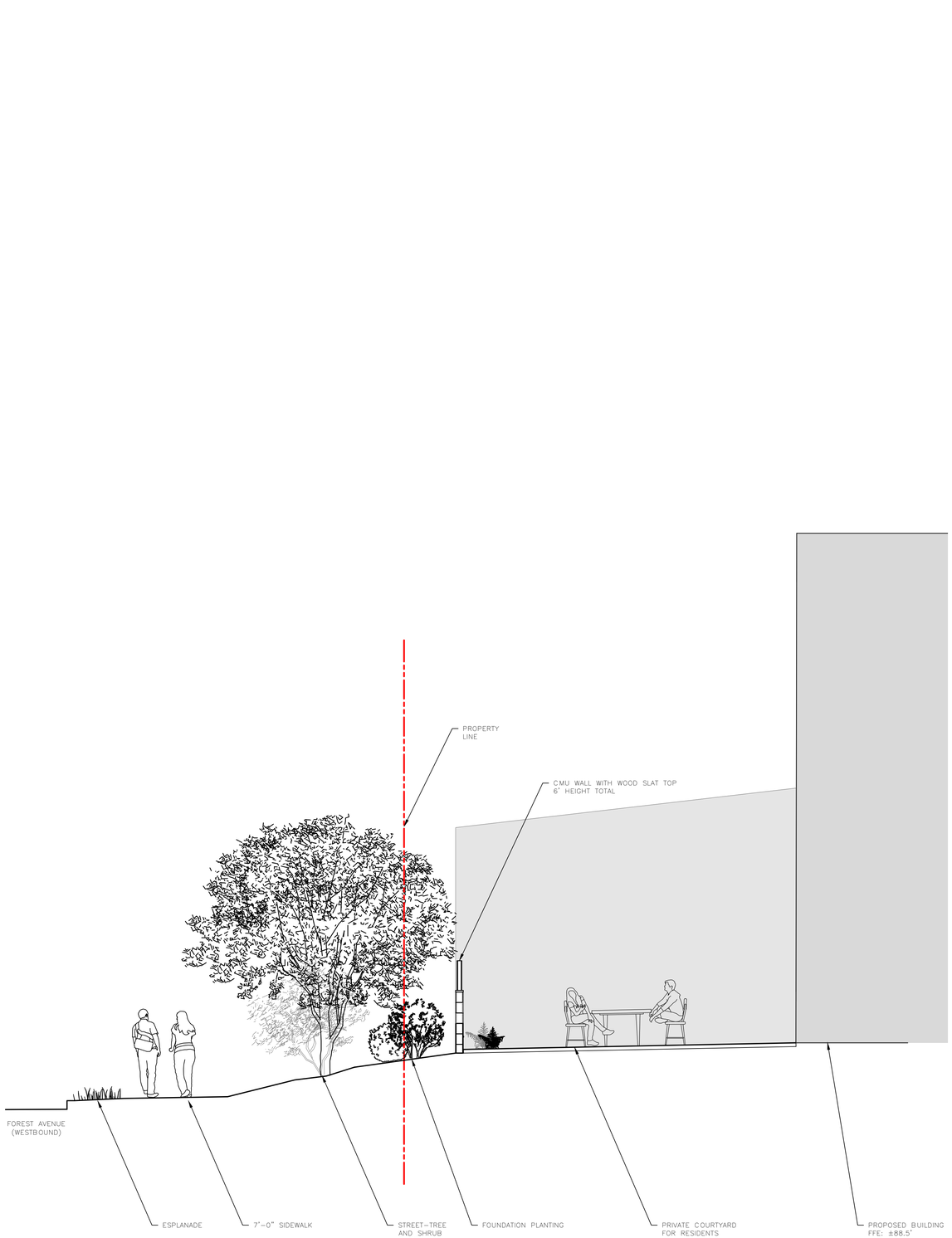
PO BOX 3372, PORTLAND MAINE 04104
(207) 775–2655

A C O R N

FILE:	1297_L–21_ENLARGED PLANTING PLAN
JN:	1297
SCALE:	AS NOTED
DESIGNED BY:	ALDV
DRAWN BY:	JVH
CHECKED BY:	SJL

LICENSED LANDSCAPE ARCHITECT
ALEXIS LOPEZ DELVECCHIO
LAR5303
6/12/2026
STATE OF MAINE

DRAWING NO.
L-21



A SITE SECTION A

1/4" = 1'-0"

B SITE SECTION B

1/4" = 1'-0"

PERMIT LEVEL
NOT ISSUED FOR CONSTRUCTION

ISSUED FOR	BY DATE
SITE PLAN APPLICATION	SJL 2/27/26
25% PROGRESS SET	SJL 4/10/26
UTILITY COORDINATION	SJL 5/01/2026
COMMENT RESPONSE	SJL 5/21/2026

DRAWING NAME: PATIO & STREETSCAPE ELEVATION

PROJECT NAME: 1871 FOREST AVENUE, PORTLAND, ME 04103

CLIENT: AVESTA HOUSING

LANDSCAPE ARCHITECTURE

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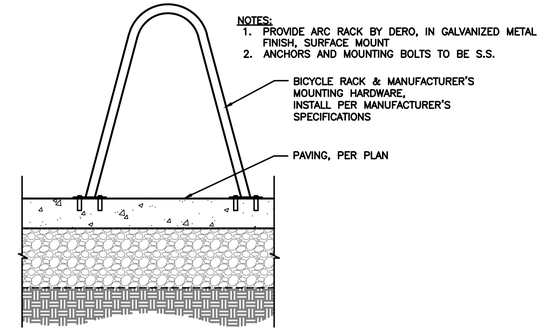
PO BOX 3372, PORTLAND MAINE 04104
(207) 775-2655

A C O R N

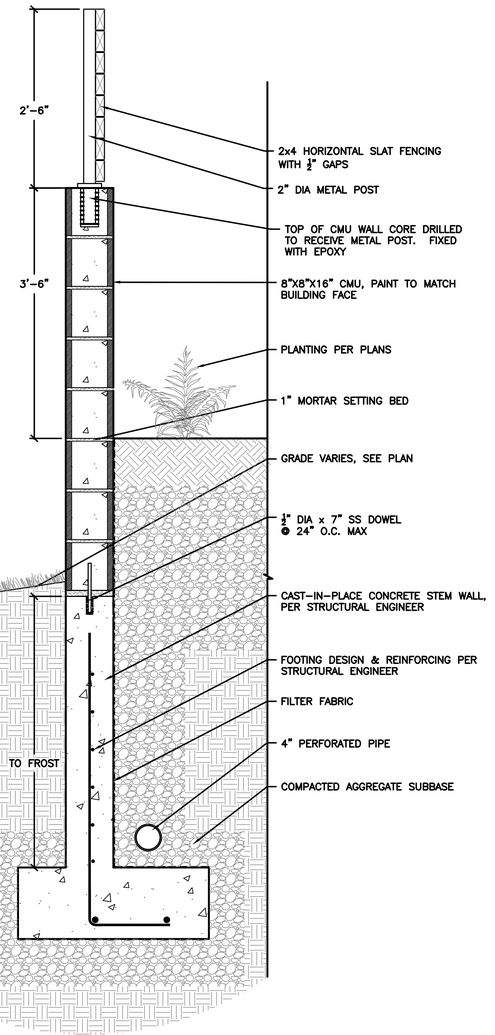
FILE:	1297_L-30_SITE SECTIONS
JN:	1297
SCALE:	AS NOTED
DESIGNED BY:	ALDV
DRAWN BY:	JVH
CHECKED BY:	SJL

LICENSED LANDSCAPE ARCHITECT
ALEXIS LOPEZ DELVECCHIO
LAR5303
4/10/2026
STATE OF MAINE

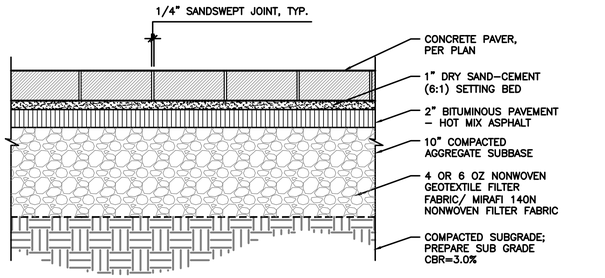
DRAWING NO.
L-30



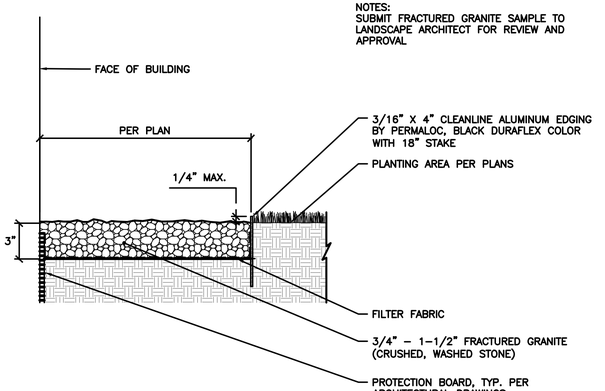
3 BIKE RACK
1" = 1'-0"



4 RETAINING WALL WITH WOOD SCREEN
1" = 1'-0"



2 CONCRETE PAVERS
1½" = 1'-0"



1 GRAVEL MAINTENANCE STRIP
1½" = 1'-0"

PERMIT LEVEL
NOT ISSUED FOR CONSTRUCTION

ISSUED FOR	BY DATE
SITE PLAN APPLICATION	SJL 2/27/26
25% PROGRESS SET	SJL 4/10/26
UTILITY COORDINATION	SJL 5/01/2026
COMMENT RESPONSE	SJL 5/21/2026

DRAWING NAME: LANDSCAPE SITE DETAILS
PROJECT NAME: 1871 FOREST AVENUE, PORTLAND, ME 04103
CLIENT: AVESTA HOUSING

LANDSCAPE ARCHITECTURE

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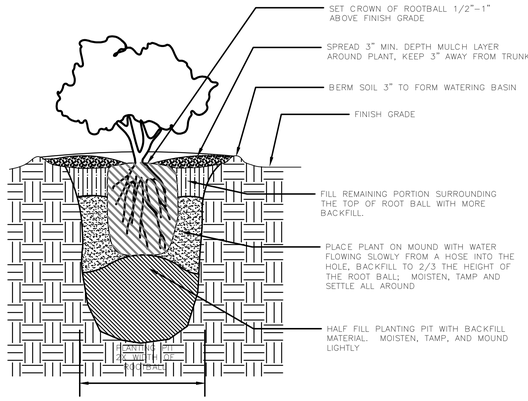
PO BOX 3372, PORTLAND MAINE 04104
(207) 775-2655

A C O R N

FILE:	1297_L-40_LANDSCAPE SITE DETAILS
JN:	1297
SCALE:	AS NOTED
DESIGNED BY:	ALDV
DRAWN BY:	JVH
CHECKED BY:	SJL

LICENSED LANDSCAPE ARCHITECT
ALEXIS LOPEZ DELVECCHIO
LAR5303
4/10/2026
STATE OF MAINE

DRAWING NO.
L-40



BACKFILL AMENDMENTS

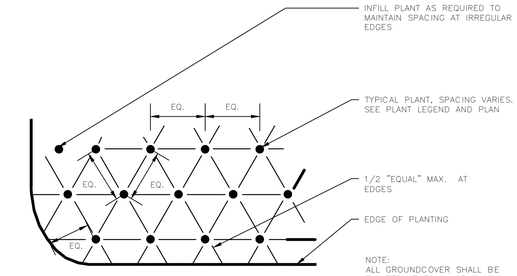
A) WHERE NATIVE TOP SOIL IS PRESENT IN PLANTING AREAS, NO SOIL AMENDMENT IS RECOMMENDED. THE NATIVE SOIL SHOULD BE SOFT AND FRIABLE. LARGE ROCKS AND CLODS ARE TO BE REMOVED FROM BACKFILL.

NOTES

A) PLANT PIT TO BE DUG TWICE AS DEEP AND TWICE AS WIDE AS PLANT CONTAINER.
B) PRIOR TO ANY BACKFILLING, FILL PLANTING PIT WITH WATER AND ALLOW TO PERCOLATE INTO SUBSOIL
C) FORM WATERING BASIN USING REMAINING BACKFILL AND NATIVE SOIL
D) WATER THOROUGHLY, FILLING THE BASIN WITH WATER AND SPRINKING AROUND TO SETTLE BACKFILL, MULCH AND BERM.
E) ALLOW TO SOAK IN AND REPEAT.

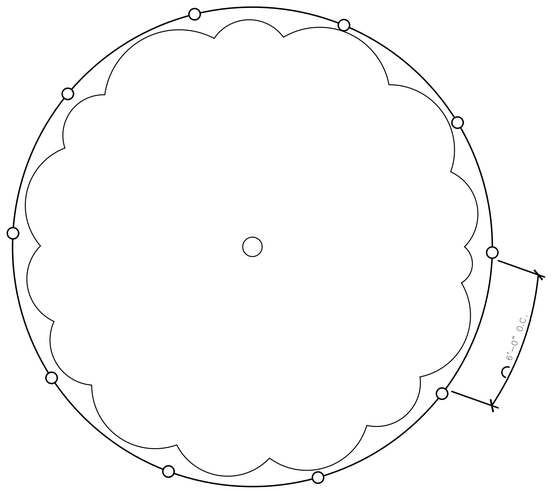
6 NATIVE SHRUB PLANTING DETAIL

N.T.S.

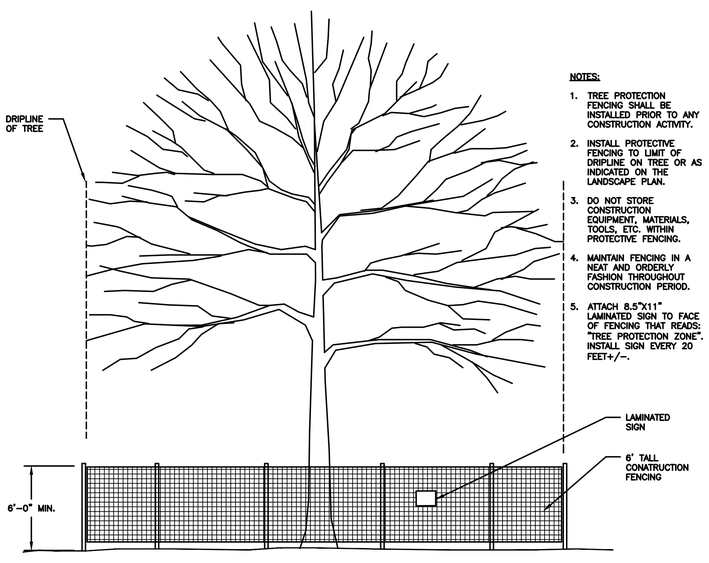


3 GROUNDCOVER SPACING

N.T.S.



B. PLAN



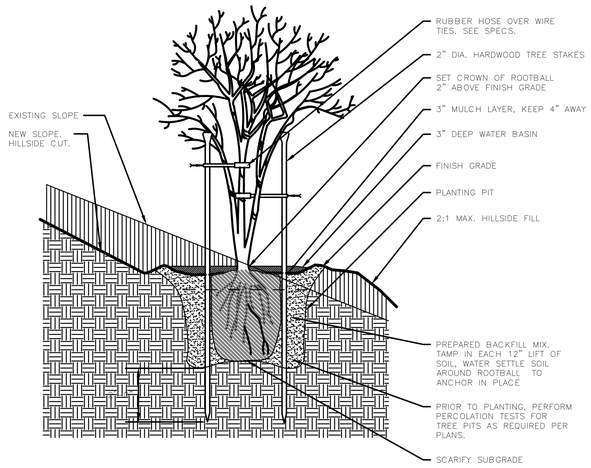
NOTES:

1. TREE PROTECTION FENCING SHALL BE INSTALLED PRIOR TO ANY CONSTRUCTION ACTIVITY.
2. INSTALL PROTECTIVE FENCING TO LIMIT OF DRIPLINE ON TREE OR AS INDICATED ON THE LANDSCAPE PLAN.
3. DO NOT STORE CONSTRUCTION EQUIPMENT, MATERIALS, TOOLS, ETC. WITHIN PROTECTIVE FENCING.
4. MAINTAIN FENCING IN A NEAT AND ORDERLY FASHION THROUGHOUT CONSTRUCTION PERIOD.
5. ATTACH 8.5"X11" LAMINATED SIGN TO FACE OF FENCING THAT READS: "TREE PROTECTION ZONE". INSTALL SIGN EVERY 20 FEET+/-.

A. SECTION

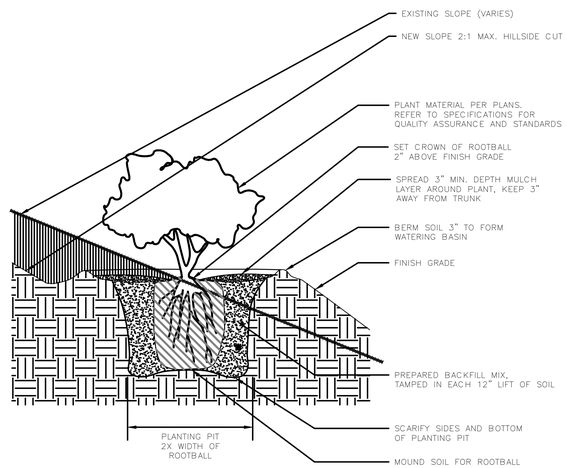
7 TREE PROTECTION FENCING

N.T.S.



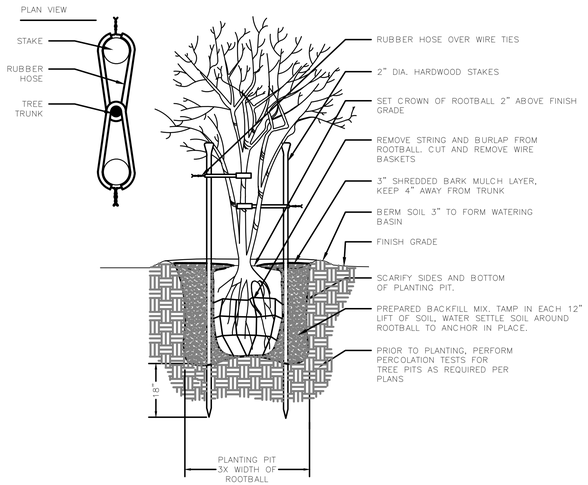
5 TREE PLANTING ON SLOPE DETAIL

N.T.S.



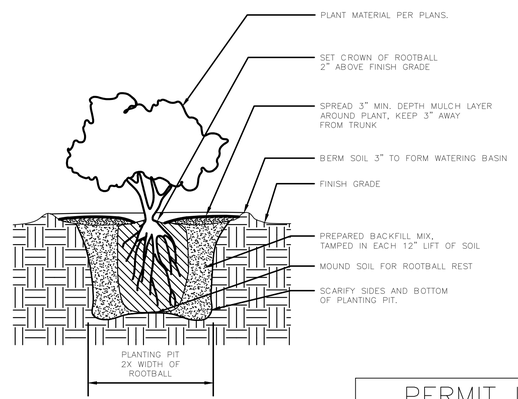
4 SHRUB PLANTING ON SLOPE DETAIL

N.T.S.



2 TREE PLANTING DETAIL

N.T.S.



1 SHRUB PLANTING DETAIL

N.T.S.

PERMIT LEVEL
NOT ISSUED FOR CONSTRUCTION

ISSUED FOR	BY DATE
SITE PLAN APPLICATION	SJL 2/27/26
25% PROGRESS SET	SJL 4/10/26
UTILITY COORDINATION	SJL 5/01/2026
COMMENT RESPONSE	SJL 5/21/2026

DRAWING NAME: PLANTING DETAILS
PROJECT NAME: 1871 FOREST AVENUE, PORTLAND, ME 04103
CLIENT: AVESTA HOUSING

LANDSCAPE ARCHITECTURE

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ACORN ENGINEERING, INC.
PO BOX 3372, PORTLAND MAINE 04104
(207) 775-2655

A C O R N

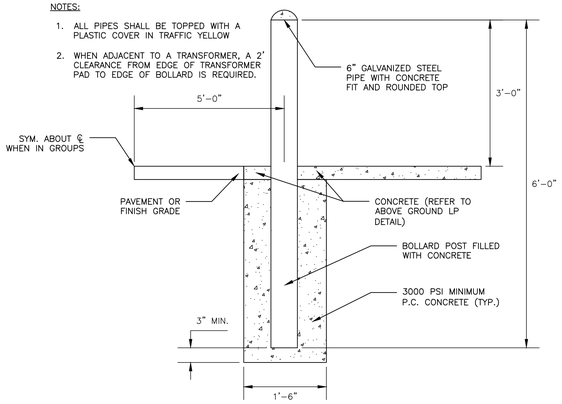
FILE: 1297_L-41_PLANTING DETAILS
JN: 1297
SCALE: AS NOTED
DESIGNED BY: ALDV
DRAWN BY: JVH
CHECKED BY: SJL

LICENSED LANDSCAPE ARCHITECT
ALEXIS LOPEZ DELVECCHIO
LAR5303
4/10/2026
STATE OF MAINE

DRAWING NO.
L-41

NOTES:

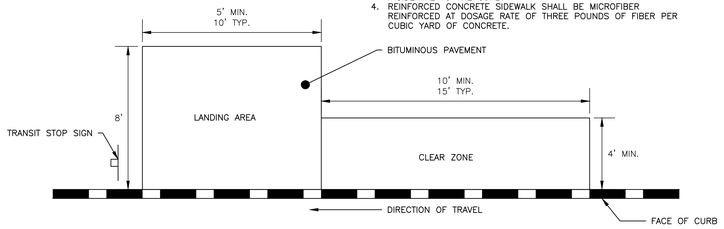
1. ALL PIPES SHALL BE TOPPED WITH A PLASTIC COVER IN TRAFFIC YELLOW
2. WHEN ADJACENT TO A TRANSFORMER, A 2' CLEARANCE FROM EDGE OF TRANSFORMER PAD TO EDGE OF BOLLARD IS REQUIRED.



PIPE BOLLARD
NOT TO SCALE

NOTES:

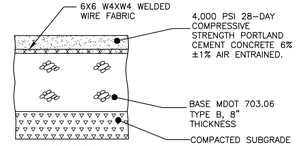
1. CROSS SLOPE OF SIDEWALK, LANDING AREA, AND CLEAR ZONE SHALL BE 1.5% WITH A 0.5% MIN. AND 2.0% MAX. CROSS SLOPE
2. THE LANDING AREA AND CLEAR ZONE SHALL BE FREE OF ALL OBSTACLES AND HAVE SAME SURFACE AS ADJACENT SIDEWALK
3. TYPE 1 CURBING SHALL BE SET IN A 6" BED OF POURED IN PLACE MAINEDOT TYPE A CONCRETE MIX. CONCRETE MIX SHALL BE INCIDENTAL TO THE CURB.
4. REINFORCED CONCRETE SIDEWALK SHALL BE MICROFIBER REINFORCED AT DOSAGE RATE OF THREE POUNDS OF FIBER PER CUBIC YARD OF CONCRETE.



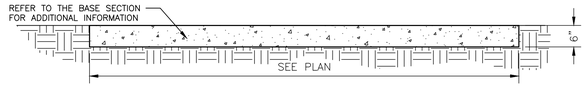
TYPICAL BUS STOP CONFIGURATION
NOT TO SCALE

NOTES:

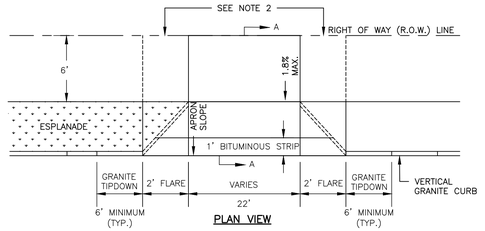
1. PROOFROLL AND COMPACT SUBGRADE
2. COMPACT AGGREGATES TO 95% MAXIMUM DRY DENSITY IN ACCORDANCE WITH ASTM D-1557.
3. FINISH WITH A STIFF, COARSE, FIBER BROOM.
4. REFER TO PLANS FOR DIMENSIONS.



BASE SECTION



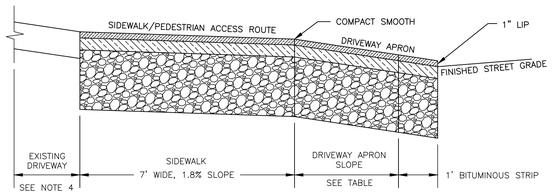
CONCRETE PAD DETAIL
NOT TO SCALE



PLAN VIEW

NOTES:

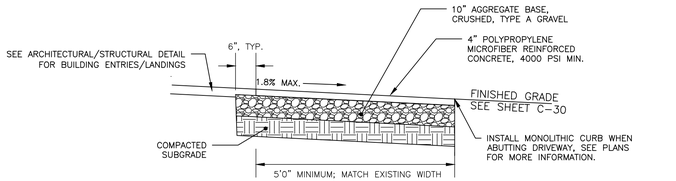
1. MATCH EXISTING GRADE AT R.O.W. LINE.
2. IF MATCHING THE EXISTING GRADE AT ROW CAUSES APRON SLOPE TO EXCEED RECOMMENDED %, SIDEWALK TRANSITION AREAS MAY BE ADDED, BUT SHALL NOT EXCEED 8.33%.
3. A TWO-FOOT RADIUS CORNER GRANITE PIECE MAY BE ALLOWABLE AT RESIDENTIAL DRIVEWAYS WITH DPW PERMISSION IN LIEU OF THE STANDARD FLARE/TIPDOWN TREATMENT.
4. CONSTRUCTION EASEMENT MAY BE NECESSARY TO ENSURE DRIVEWAY SLOPE MEETS GRADING REQUIREMENT.
5. ALL MATERIALS TO COMPLY WITH CITY'S SIDEWALK + DRIVEWAY MATERIAL POLICY. BRICK IN DRIVEWAY APRONS, WHERE APPLICABLE, SHALL BE ORIENTED IN THE SAME WAY AS THE ADJACENT BRICK SIDEWALK.
6. MAXIMUM RECOMMENDED GRADE CHANGE AT STREET IS 10%.



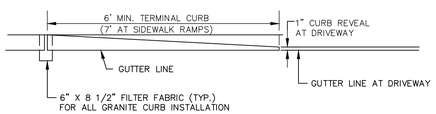
SECTION A-A

BITUMINOUS DRIVEWAY APRON DETAIL
NOT TO SCALE

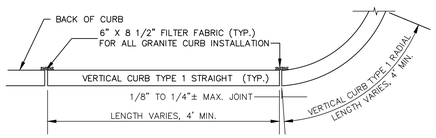
1. AT A MINIMUM, TESTING SHALL CONSIST OF ENTRAINED AIR AND SLUMP TESTS ON SITE PRIOR TO POURING THE SIDEWALKS. ENTRAINED AIR TESTS SHALL BE DONE IN ACCORDANCE WITH AASHTO T152. TEST FIRST TWO LOADS AND EVERY THIRD LOAD THEREAFTER PROVIDED CONSISTENT RESULTS ARE ACHIEVED.
2. SLABS SHALL BE PLACED ALTERNATELY IN LENGTHS NOT TO EXCEED 30 FEET OR AS DIRECTED AND SHALL BE SEPARATED BY AN EXPANSION JOINT OF PREFORMED EXPANSION FILLER ½ INCH IN THICKNESS.
3. WHEN CONSTRUCTED ADJACENT TO A BUILDING, RETAINING WALL OR OTHER FIXED STRUCTURE, A ½ INCH THICK PREFORMED JOINT FILLER SHALL BE USED BETWEEN THE SLAB AND THE STRUCTURE.
4. THE SIDEWALK SURFACE SHALL BE SCORED INTO BLOCK UNITS NO GREATER THAN 40 SQUARE FEET AS DIRECTED. THE DEPTH OF THE SCORING SHALL BE AT LEAST ONE QUARTER OF THE THICKNESS OF THE SLAB.
5. ANY MATCHING INTO EXISTING SIDEWALKS SHALL BE DONE SO WITH A CLEAN VERTICAL FACE CONNECTION.
6. THE SURFACE SHALL BE FINISHED TO PRODUCE A BROOMLIKE "BRUSHED" PATTERN. NO PLASTERING OF THE SURFACE WITH MORTAR WILL BE PERMITTED. THE FINISH SHALL RESULT IN A SURFACE OF UNIFORM TEXTURE AND COLOR. ALL OUTSIDE EDGES OF THE SLAB AND ALL JOINTS SHALL BE ROUNDED WITH A ½ INCH RADIUS EDGING TOOL.
7. CONCRETE SHALL BE CURED FOR 72 HOURS. CURING SHALL BE BY MEANS OF THOMPSON'S WATER SEAL AS MANUFACTURED BY E.A. THOMPSON CO., INC. OF MEMPHIS, TENNESSEE, BOILED LINSEED OIL, WHITE PIGMENTED CURING COMPOUND, OR BY OTHER APPROVED METHODS. CONCRETE SIDEWALK TO BE SEALED WITH CONSOLIDECK SALTGUARD WB OR APPROVED EQUAL 28 DAYS AFTER PLACEMENT. FOLLOW MANUFACTURER'S RECOMMENDATIONS FOR APPLICATION.
8. GENERAL CONTRACTOR TO COLLECT DELIVERY SLIPS AND TRANSFER TO THE OWNER.



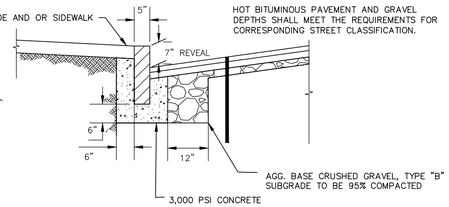
REINFORCED CONCRETE WALKWAY
NOT TO SCALE



TERMINAL CURB PROFILE



VERTICAL GRANITE CURB PLAN VIEW

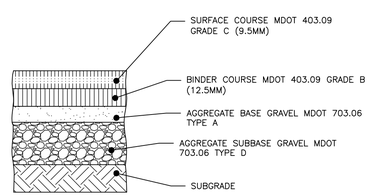


VERTICAL GRANITE CURB CROSS SECTION

NOTES:

1. INDIVIDUAL PIECES OF CURB SHORTER THAN 4 L.F. ARE NOT ALLOWED, WITH THE EXCEPTION OF RADIAL CURB.
2. THE MINIMUM HEIGHT OF THE CONCRETE BACKING SHALL BE 10-INCHES OR TO THE BOTTOM OF THE HOT MIX ASPHALT PAVEMENT, WHICHEVER IS GREATER, MEASURED FROM THE BOTTOM OF CURB.
3. CURBING SHALL BE SET IN A 6-INCH BED OF POURED IN PLACE 3,000 PSI CONCRETE MIX.
4. WOODEN SHIMS MAY BE USED TO SET CURB.

VERTICAL GRANITE CURB
NOT TO SCALE



NOTES:

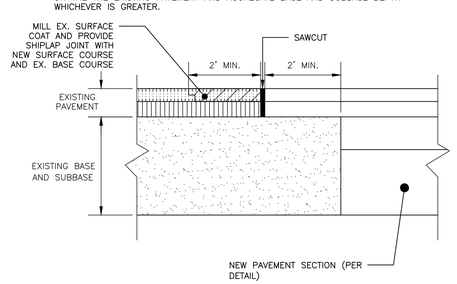
1. PROOFROLL SUBGRADE AND COMPACT AGGREGATES TO 95% MAXIMUM DRY DENSITY IN ACCORDANCE WITH ASTM D-1557
2. SURFACE AND AGGREGATE MATERIALS SHALL MEET THE CITY OF PORTLAND STANDARDS IN ADDITION TO MDOT STANDARDS.

	THICKNESS OF LAYERS
STANDARD	LAYERS
1 1/2"	SURFACE COURSE MDOT 403.09 GRADE C (9.5mm)
2"	BINDER COURSE MDOT 403.09 GRADE B (12.5mm)
3"	AGGREGATE BASE GRAVEL MDOT 703.06 TYPE A
12"	AGGREGATE SUBBASE GRAVEL MDOT 703.06 TYPE D

PRIVATE BITUMINOUS PAVEMENT PROFILE
NOT TO SCALE

NOTES:

1. SAWCUT EXISTING PAVEMENT AND REMOVE 2' STRIP OF EXISTING PAVEMENT. CREATE UNIFORM AND RIGID BUTT JOINT AND APPLY BITUMINOUS TACK COAT AT AN APPLICATION RATE OF 0.10 TO 0.14 GALLONS PER SQUARE YARD PRIOR TO PLACEMENT OF NEW BITUMINOUS PAVEMENT.
2. THE NEW PAVEMENT SECTION SHALL MEET PAVEMENT SECTION DETAIL AT A MINIMUM OR THE THE EXISTING PAVEMENT AND AGGREGATE BASE AND SUBBASE DEPTH WHICHEVER IS GREATER.



PAVEMENT SAWCUT DETAIL
NOT TO SCALE

PERMIT LEVEL
NOT ISSUED FOR
CONSTRUCTION

ISSUED FOR	BY	DATE
SITE PLAN APPLICATION	SJL	12/27/2025
25% PROGRESS SET	SJL	01/12/2026
UTILITY COORDINATION	SJL	01/21/2026
COMMENT RESPONSE	SJL	02/23/2026

SITE DETAILS - 1

DRAWING NAME:
PROJECT NAME: 1871 FOREST AVE, PORTLAND, MAINE
PARCEL ID: 327A A004001
CLIENT: AVESTA HOUSING
307 CUMBERLAND AVE, PORTLAND, MAINE 04101

ACORN ENGINEERING, INC.
70 CENTRAL STREET, SACO, MAINE 04104
P.O. BOX 224 (207) 775-2655

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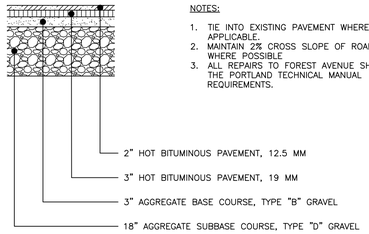
FILE:	DETAILS
DATE:	AS NOTED
JN:	1297
SCALE:	AS NOTED
DESIGNED BY:	MJVA
DRAWN BY:	MJVA
CHECKED BY:	SJL

STATE OF MAINE
SAMUEL J. LEBEL
No. 16505
LICENSED PROFESSIONAL ENGINEER
05/21/26

DRAWING NO.
C-40

NOTES:

1. TIE INTO EXISTING PAVEMENT WHERE APPLICABLE.
2. MAINTAIN 2% CROSS SLOPE OF ROADWAY WHERE POSSIBLE
3. ALL REPAIRS TO FOREST AVENUE SHALL MEET THE PORTLAND TECHNICAL MANUAL REQUIREMENTS.

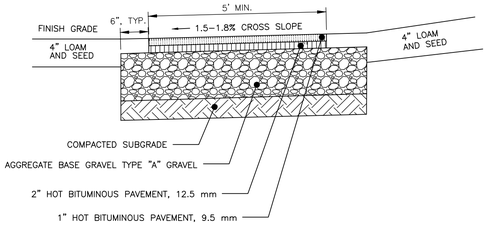


FOREST AVENUE CROSS SECTION

NOT TO SCALE

NOTES:

1. PRIOR TO THE LAYER OF NEW BITUMINOUS, THE EXISTING PAVEMENT SHALL BE REMOVED COMPLETELY. ALL EXPOSED GRAVEL BASE MATERIAL SHALL BE INSPECTED FOR CONTAMINATION BY SILTS OR OTHER FOREIGN, DELETERIOUS MATERIAL. ANY CONTAMINATED BASE IS TO BE REMOVED DOWN TO CLEAN, SOUND MATERIAL.
2. LIFTS NOT TO EXCEED 8" IN DEPTH.
3. COMPACT SUBGRADE TO 95% MAXIMUM DRY DENSITY IN ACCORDANCE WITH ASTM D-1557.
4. EXISTING AND NEW SURFACES SHALL MEET IN A SMOOTH CONTINUOUS PLANE FREE FROM VARIATIONS IN HEIGHT OR SMOOTHNESS. CLEAN AND TREAT ALL AREAS THOROUGHLY PRIOR TO INSTALLATION OF BITUMINOUS.
5. TEMPERATURE OF BITUMINOUS MIX SHALL BE REGULATED TO ENSURE THAT THE TIME OF SPREADING THE MIX IS WITHIN MDOT SPECIFICATIONS. PAVEMENT HAVING TEMPERATURES OUTSIDE OF SPECIFIED TEMPERATURE RANGE WHEN DUMPED INTO THE SPREADER SHOULD BE REJECTED.
6. THE PAVEMENT MIXTURE SHALL BE THOROUGHLY COMPACTED BY ROLLING. ROLLING IS TO BEGIN AS SOON AS THE PLACEMENT OF THE MIXTURE WILL BEAR THE ROLLER WITHOUT UNDUE DISPLACEMENT OR DELAY.
7. THE CONSTRUCTION OF THE NEW PAVEMENT SHALL BE CARRIED ON ONLY WHEN THE SURFACE ON WHICH THE MIX MIX IS TO PLACED IS DRY, AND WHEN THE SURFACE TEMPERATURE OF THE UNDERLYING COURSE IS GREATER THAN 45°F FOR COURSE THICKNESS GREATER THAN 1" AND 55°F FOR COURSE THICKNESS 1" OR LESS.
8. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROHIBIT VEHICULAR TRAFFIC, INCLUDING HEAVY EQUIPMENT, FROM TRAVELING ON THE PAVEMENT UNTIL THE SURFACE TEMPERATURE HAS COOLED TO 120°F.

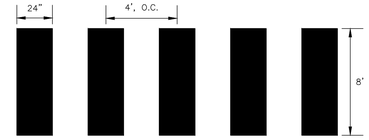


BITUMINOUS SIDEWALK DETAIL

NOT TO SCALE

NOTE:

1. CROSSWALKS TO BE BUILT IN CONFORMANCE WITH MUTCD STANDARDS, LATEST EDITION.
2. CROSSWALKS ARE TO BE PAINTED WHITE MEETING MAINE DOT SPECIFICATIONS.
3. BLOCKS TO BE ORIENTED PARALLEL TO THE DIRECTION OF VEHICLE TRAFFIC.

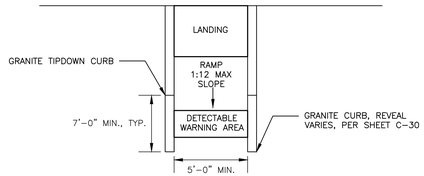


BLOCK CROSSWALK

NOT TO SCALE

NOTES:

1. ALL RAMPS SHALL COMPLY WITH CITY OF BIDDEFORD AND ADA STANDARDS.
2. SIDEWALK MATERIAL SHALL BE PER CITY SIDEWALK MATERIAL POLICY.
3. FLARED SECTIONS SHOULD MATCH SURFACE MATERIAL USED FOR SIDEWALK CONSTRUCTION.



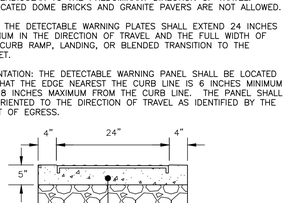
DESIGN ELEMENT	SLOPE IN DIRECTION OF TRAVEL	CROSS SLOPE
APPROACH	8.33% MAX	2%
LANDING	2%	2%
RAMP	8.33% MAX	MATCH STREET GRADE
SIDEWALK	PER C-30	2%

SIDEWALK RAMP LAYOUT

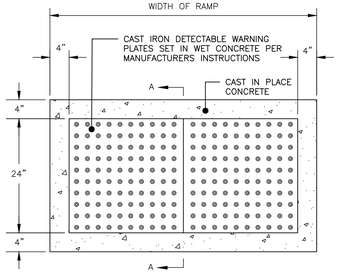
NOT TO SCALE

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 MDOT 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 FULL 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.



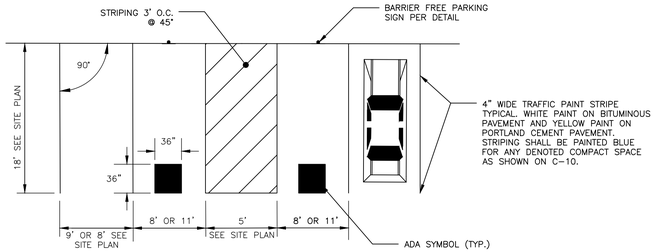
SECTION A-A



PLAN VIEW

SIDEWALK RAMP DETECTABLE WARNING PANEL

NOT TO SCALE



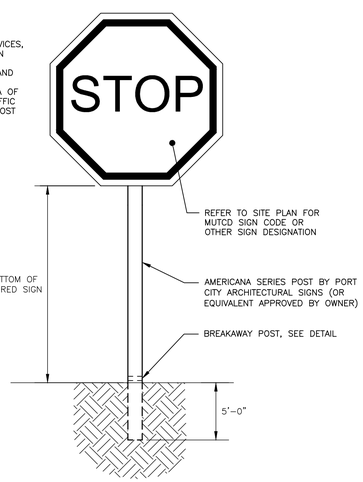
STANDARD PARKING SPACE DIMENSIONS

NOT TO SCALE

NOTES:

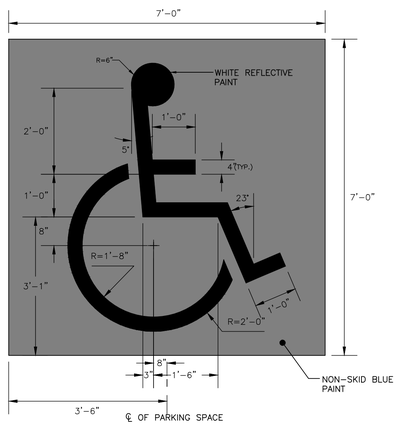
1. ALL ASPECTS OF SIGN CONSTRUCTION SHALL BE IN ACCORDANCE WITH MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, 2009 OR MOST RECENT EDITION

2. SIGN POST CONSTRUCTION AND MOUNTING SHALL BE IN ACCORDANCE WITH CHAPTER 2A OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, 2009 OR MOST RECENT EDITION.



TYPICAL SIGN DETAIL

NOT TO SCALE



INTERNATIONAL BARRIER FREE SYMBOL

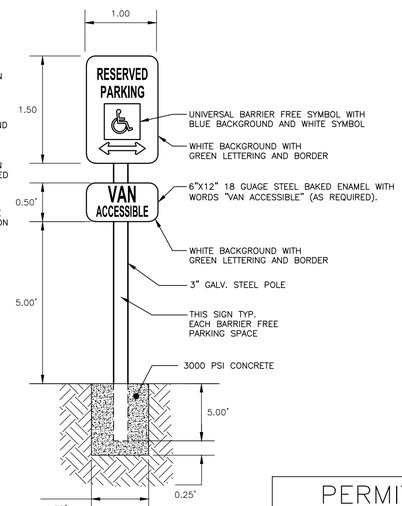
NOT TO SCALE

NOTES:

1. ALL ASPECTS OF RESERVED PARKING SIGN CONSTRUCTION SHALL BE IN ACCORDANCE WITH MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, 2009 OR MOST RECENT EDITION

2. SIGN SHALL BE CONSTRUCTED AS SIGN R7-8 UNDER THE "PARKING AND STANDING SIGNS AND PLAQUES" (R7 SERIES) WITHIN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, 2009 OR MOST RECENT EDITION. VAN ACCESSIBILITY SHALL BE CONSTRUCTED AS SIGN R7-8aP.

3. SIGN POST CONSTRUCTION AND MOUNTING SHALL BE IN ACCORDANCE WITH CHAPTER 2A OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, 2009 OR MOST RECENT EDITION.



BARRIER FREE PARKING SIGN

NOT TO SCALE

PERMIT LEVEL
NOT ISSUED FOR CONSTRUCTION

ISSUED FOR	BY	DATE
SITE PLAN APPLICATION	SJL	12/27/2025
25% PROGRESS SET	SJL	12/27/2025
UTILITY COORDINATION	SJL	1/21/2026
COMMENT RESPONSE	SJL	2/27/2026

SITE DETAILS - 2

DRAWING NAME:

PROJECT NAME: 1871 FOREST AVE, PORTLAND, MAINE

PARCEL ID: 327A A004001

CLIENT: AVESTA HOUSING
307 CUMBERLAND AVE, PORTLAND, MAINE 04101

ACORN ENGINEERING, INC.

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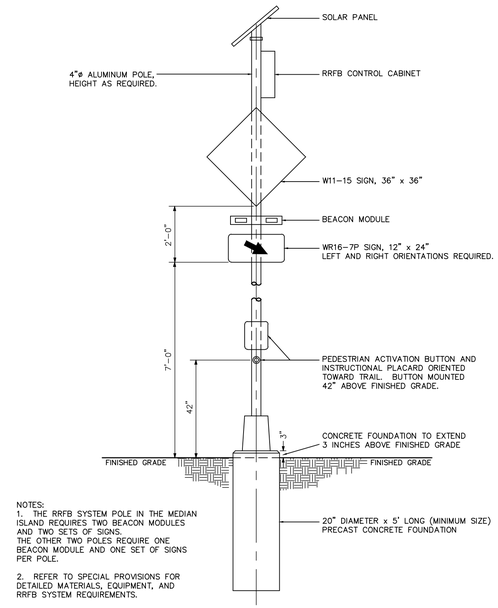
ACORN ENGINEERING, INC
PO BOX 222 SCARBOROUGH, MAINE 04104
(207) 775-2655

FILE: DETAILS
DATE: AS NOTED
JN: 1297
SCALE: AS NOTED
DESIGNED BY: MJVA
DRAWN BY: MJVA
CHECKED BY: SJL

STATE OF MAINE
SAMUEL J. LEBEL
No. 16505
LICENSED
PROFESSIONAL ENGINEER
05/21/26

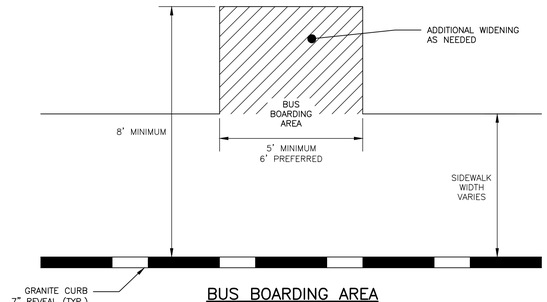
DRAWING NO.
C-41



NOTES:
1. THE RRFB SYSTEM POLE IN THE MEDIAN ISLAND REQUIRES TWO BEACON MODULES AND TWO SETS OF SIGNS. THE OTHER TWO POLES REQUIRE ONE BEACON MODULE AND ONE SET OF SIGNS PER POLE.
2. REFER TO SPECIAL PROVISIONS FOR DETAILED MATERIALS, EQUIPMENT, AND RRFB SYSTEM REQUIREMENTS.

RECTANGULAR RAPID-FLASH BEACON (RRFB) SYSTEM TYPICAL BEACON POLE AND SIGN INSTALLATION
NOT TO SCALE

NOTES:
1. SURFACE: BUS STOP BOARDING AREAS SHALL HAVE A FIRM, STABLE SURFACE.
2. DIMENSIONS: BUS STOP BOARDING AREAS SHALL PROVIDE A CLEAR LENGTH OF 8' MINIMUM, MEASURED PERPENDICULAR TO THE CURB OR VEHICLE ROADWAY EDGE, AND A CLEAR WIDTH OF 5' MINIMUM, MEASURED PARALLEL TO THE VEHICLE ROADWAY. THIS AREA SHALL BE CLEAR OF ANY OBSTRUCTIONS, INCLUDING BUT NOT LIMITED TO: BICYCLE RACKS, LIGHT POLES, UTILITY POLES, FIRE HYDRANTS, STREET SIGNS, STREET FURNITURE, NEWSPAPER BOXES, OR SIMILAR OBSTACLES.
3. CONNECTION: BUS STOP BOARDING AREAS SHALL BE CONNECTED TO STREETS, SIDEWALKS, OR PEDESTRIAN PATHS BY AN ADA ACCESSIBLE ROUTE.
4. SLOPE: PARALLEL TO THE ROADWAY, THE SLOPE OF THE BUS STOP BOARDING AREA SHALL BE THE SAME AS THE ROADWAY, TO THE MAXIMUM EXTENT PRACTICABLE. PERPENDICULAR TO THE ROADWAY, THE SLOPE OF THE BUS STOP BOARDING AREA SHALL NOT EXCEED 2%.

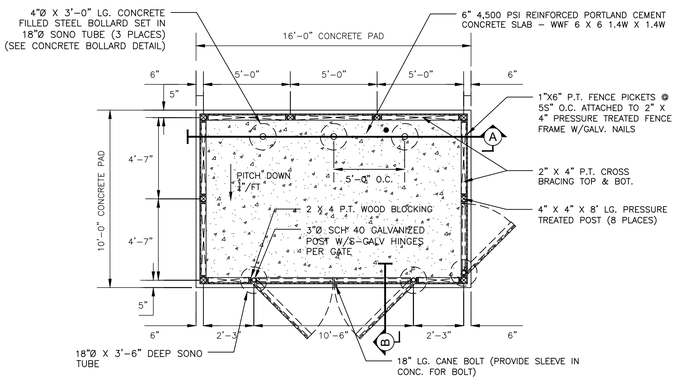


BUS BOARDING AREA WITHOUT ESPLANADE
NOT TO SCALE

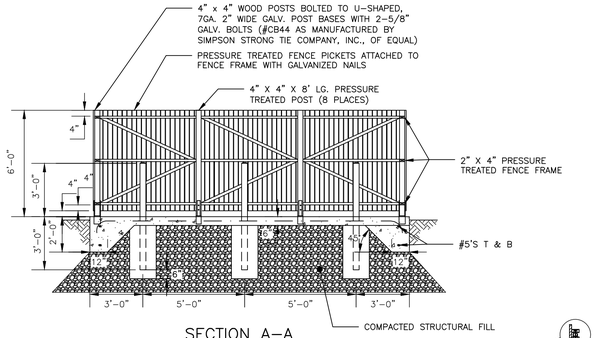
NOTES:
1. SIGN SHALL BE COMPLIANT WITH ALL REQUIREMENTS FOR MUTCD R8-31 SIGN.
2. SIGN SHALL BE 12" WIDE AND 18" TALL.
3. SIGN SHALL BE MADE FROM 0.08" OR 0.063" THICK ALUMINUM, AND SHALL BE DURABLE FOR OUTDOOR ENVIRONMENTS. FASTENERS SHALL BE GALVANIZED OR STAINLESS STEEL AND SHALL BE SUITABLE FOR OUTDOOR USE.
4. SIGN SHALL USE ENGINEERING GRADE (EGP), HIGH-INTENSITY PRISMATIC (HIP), OR DIAMOND GRADE (DG3) SHEETING TO ENSURE VISIBILITY AT NIGHT
5. THE BOTTOM OF THE SIGN SHALL BE MOUNTED 5' HIGH AT MINIMUM.
6. SIGNS MUST BE CLEARLY LEGIBLE FROM A DISTANCE OF AT LEAST 100 FEET.
7. SIGN SHALL HAVE A WHITE REFLECTIVE BACKGROUND WITH RED TEXT, BORDER, AND SYMBOLS.
8. SIGN SHALL BE MOUNTED PER MODULAR GRAVITY RETAINING WALL MANUFACTURERS RECOMMENDATIONS/DETAILS.

NO PARKING FIRE LANE SIGN
NOT TO SCALE

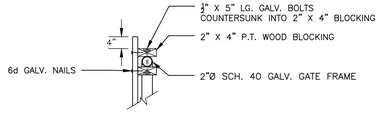
DUMPSTER COUNT					
CONC. PAD DIMENSIONS	TOTES	2-YD	4-YD	6-YD	8-YD
4' X 3'	1	0	0	0	0
8' X 5'	4	1	1	0	0
8' X 7'	4	1	1	1	0
8' X 8'	8	2	2	1	1
10' X 12'	12	3	3	2	1
10' X 14'	16	4	4	2	2
10' X 16'	16	4	4	2	2



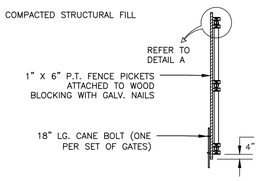
DUMPSTER ENCLOSURE PLAN AND DETAILS
NOT TO SCALE



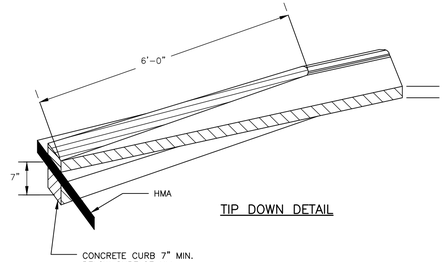
SECTION A-A



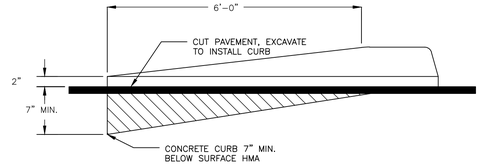
DETAIL A



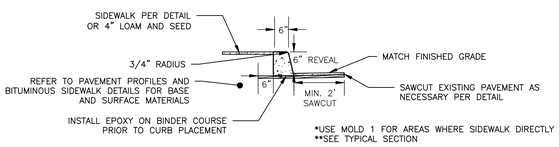
SECTION B-B



TIP DOWN DETAIL

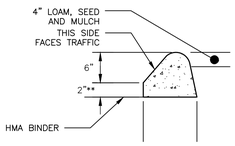


NOTE:
1. TIPDOWNS 7' IN LENGTH SHALL BE PROVIDED AS SEEN ON PLANS

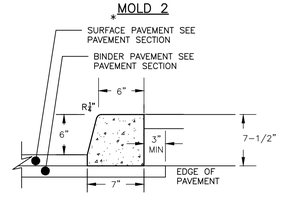


*USE MOLD 1 FOR AREAS WHERE SIDEWALK DIRECTLY ABUTS CURB
**SEE TYPICAL SECTION

SLIPFORM CONCRETE CURB DETAIL
NOT TO SCALE



MOLD 2



MOLD 1

PERMIT LEVEL NOT ISSUED FOR CONSTRUCTION

ISSUED FOR	BY	DATE
SITE PLAN APPLICATION	SJL	7/27/2020
25% PROGRESS SET	SJL	9/7/2020
UTILITY COORDINATION	SJL	9/21/2020
COMMENT RESPONSE	SJL	12/21/2020

DRAWING NAME: SITE DETAILS - 3
PROJECT NAME: 1871 FOREST AVE, PORTLAND, MAINE
PARCEL ID: 327A A004001
CLIENT: AVESTA HOUSING
307 CUMBERLAND AVE, PORTLAND, MAINE 04101

ACORN ENGINEERING, INC.
P.O. BOX 3422 PORTLAND, MAINE 04104
(207) 775-2655

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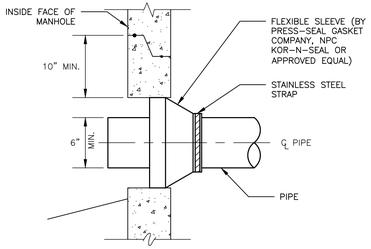
FILE: DETAILS
DATE: AS NOTED
JN: 1297
SCALE: AS NOTED
DESIGNED BY: MJVA
DRAWN BY: MJVA
CHECKED BY: SJL

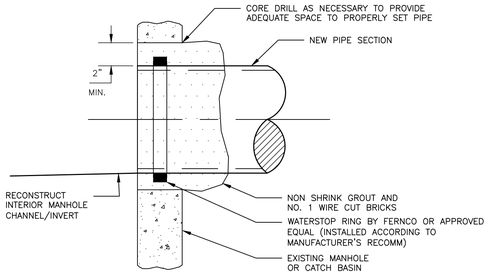
DRAWING NO.
C-42



NEW PIPE TO NEW STRUCTURE CONNECTION DETAIL
NOT TO SCALE

NOTE:

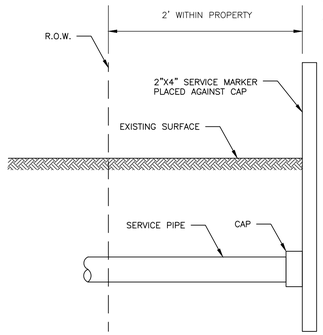
1. EXISTING MANHOLE OR CATCH BASIN SHALL BE CORE DRILLED FOR PIPE INSTALLATION
2. PLACE NON-SHRINK GROUT AND WIRE-CUT BRICKS AROUND PIPE CONNECTIONS AS NECESSARY



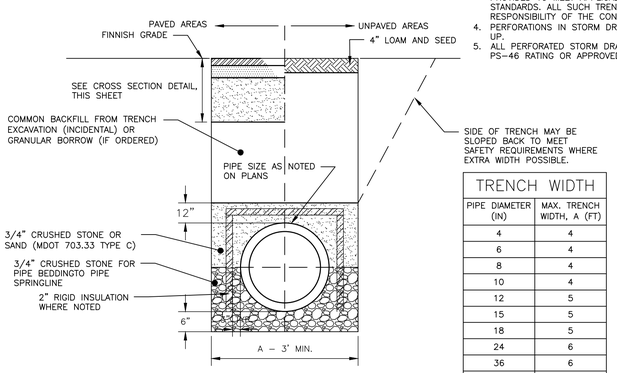
NEW PIPE TO EXISTING STRUCTURE CONNECTION DETAIL
NOT TO SCALE

NOTE:

1. WARNING TAPE TO BE PLACED BETWEEN PIPE AND FINISH GRADE.
2. WARNING TAPE TO MEET AMERICAN PUBLIC WORKS ASSOCIATION STANDARDS.
3. CONTRACTOR TO PROVIDE OWNER AND ENGINEER WITH INVERT AND LOCATION OF STUB.



SERVICE STUB AND MARK DETAIL
NOT TO SCALE



DESIGN NOTES:

1. ANY ALTERNATE TRENCHING METHODS SHALL BE APPROVED IN ADVANCE BY THE CITY.
2. ALL CONSTRUCTION METHODS SHALL CONFORM TO THE CITY OF PORTLAND TECHNICAL STANDARDS FIGURE II-2.
3. BRACING & SHEETING OR OTHER TRENCH PROTECTION TO BE PROVIDED TO MEET APPLICABLE STATE AND O.S.H.A SAFETY STANDARDS. ALL SUCH TRENCH PROTECTION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
4. PERFORATIONS IN STORM DRAIN (PERF.SD) SHALL BE ORIENTED UP.
5. ALL PERFORATED STORM DRAINS SHALL BE PVC SDR 35 MIN PS-46 RATING OR APPROVED EQUAL

TRENCH WIDTH	
PIPE DIAMETER (IN)	MAX. TRENCH WIDTH, A (FT)
4	4
6	4
8	4
10	4
12	5
15	5
18	5
24	6
36	6
48	7

SINGLE PIPE TRENCH
NOT TO SCALE

NOTES:

DEPTH OF BITUMINOUS PAVEMENT AND AGGREGATE COURSES SHALL BE DETERMINED BY STREET CLASSIFICATION.

ANY ALTERNATE TRENCHING OR PAYMENT METHODS SHALL BE APPROVED IN ADVANCE BY THE CITY OF PORTLAND, DEPARTMENT OF PUBLIC SERVICES.

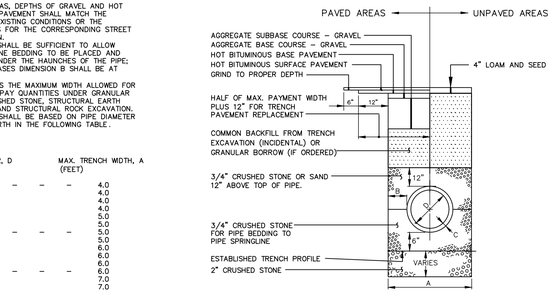
NOTES

1. ALTERNATIVE CONSTRUCTION METHODS OR PAYMENT METHODS SHALL BE APPROVED IN ADVANCE BY THE CITY.
2. 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.
3. 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 DIMENSION B SHALL BE AT LEAST 9".
4. DIMENSION A IS THE MAXIMUM WIDTH ALLOWED FOR CALCULATING PAY QUANTITIES UNDER GRANULAR BORROW, CRUSHED STONE, STRUCTURAL EARTH EXCAVATION, AND STRUCTURAL ROCK EXCAVATION. DIMENSION A SHALL BE BASED ON PIPE DIAMETER D, AS SET FORTH IN THE FOLLOWING TABLE.

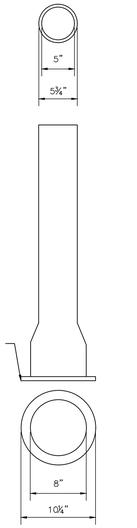
PIPE DIAMETER, D (INCHES)	MAX. TRENCH WIDTH, A (FEET)
4 – – – –	4.0
6	4.0
8	4.0
10	4.0
12	5.0
15	5.0
18 – – – –	5.0
21	5.0
24	6.0
27	6.0
30	6.0
36 – – – –	6.0
42	7.0
48	7.0

APPROVED SANITARY GRAVITY PIPES

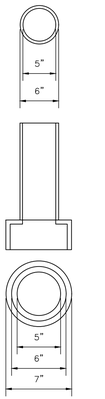
1. PVC RING TYPE SEWER PIPE (SDR 35 OR EQUIVALENT, MINIMUM PS-46 RATING)
2. PVC RING TYPE SEWER PIPE MEETING ASTM F 789 OR EQUAL TO SDR
3. DUCTILE IRON PIPE (DIP)
4. HIGH PERFORMANCE POLYPROPYLENE DUAL WALL SEWER PIPE (ADS SANTITE HP OR EQUAL) MEETING ASTM F2736 AND HAVE A MINIMUM PIPE STIFFNESS OF 46 PSI WITH PIPES SIZES TWELVE THROUGH THIRTY INCHES (12"-30')
5. HIGH PERFORMANCE POLYPROPYLENE DUAL WALL SEWER PIPE (ADS SANTITE HP OR EQUAL) MEETING ASTM F2764 AND HAVE A MINIMUM PIPE STIFFNESS OF 46 PSI WITH PIPES SIZES THIRTY THROUGH SIXTY INCHES (30'-60')



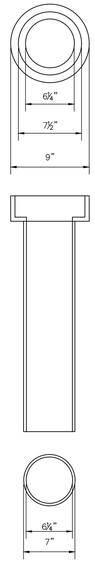
TYPICAL PIPE TRENCH INSTALLATION
NOT TO SCALE



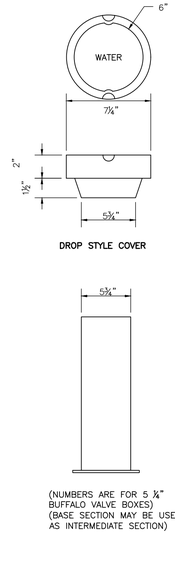
BASE SECTION NO. 645



INTERMEDIATE SECTION NO.58



TOP SECTION NO.56



DROP STYLE COVER

(NUMBERS ARE FOR 5 ¼" BUFFALO VALVE BOXES) (BASE SECTION MAY BE USED AS INTERMEDIATE SECTION)

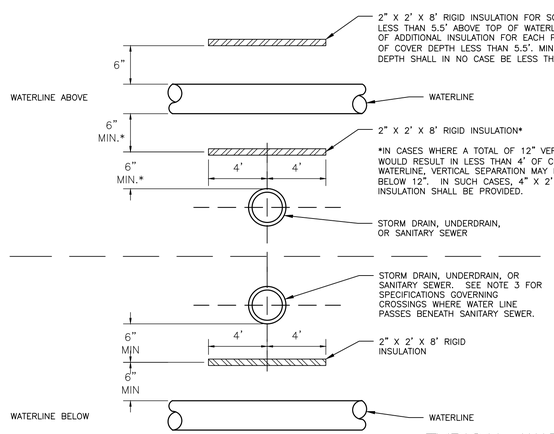
VALVE BOX & COVER
NOT TO SCALE

DESIGN NOTES:

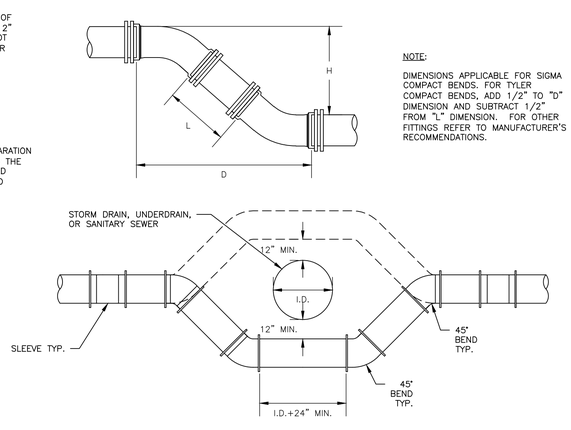
1. 2" RIGID INSULATION SHALL BE "H1 60" EXTRUDED POLYSTYRENE BY DOW CO. OR APPROVED EQUAL.

2. CONTRACTOR SHALL INSULATE PER DETAIL WHEN PROPOSED WATER LINE COMES WITHIN 2' OF EXISTING STORM DRAIN, UNDERDRAIN, OR SANITARY SEWER.

3. WHERE WATER LINE PASSES BENEATH SANITARY SEWER, THE FOLLOWING SHALL BE PROVIDED:
   a. VERTICAL SEPARATION OF AT LEAST 12" BETWEEN THE BOTTOM OF THE SEWER AND TOP OF THE WATER MAIN.
   b. ADEQUATE STRUCTURAL SUPPORT FOR SEWERS TO PREVENT EXCESSIVE DEFLECTION OF JOINTS AND PRESSURE UPON WATER LINE
   c. ONE FULL LENGTH OF SEWER PIPE (MIN. 18') CENTERED AT THE POINT OF CROSSING



TYPICAL WATERLINE OFFSETS FROM STORM OR SANITARY AT CROSSING
NOT TO SCALE



NOTE:

DIMENSIONS APPLICABLE FOR SIGMA COMPACT BENDS. FOR TYLER COMPACT BENDS, ADD 1/2" TO "D" DIMENSION AND SUBTRACT 1/2" FROM "L" DIMENSION. FOR OTHER FITTINGS REFER TO MANUFACTURER'S RECOMMENDATIONS.

	6" PIPE		8" PIPE		12" PIPE	
H	D	L	D	L	D	L
12"	1' 6-1/2"	0' 10-1/2"	1' 7-1/2"	0' 9-1/2"	1' 11-1/2"	0' 5-1/2"
13"	1' 7-1/2"	0' 11-7/8"	1' 8-1/2"	0' 10-7/8"	2' 0-1/2"	0' 6-7/8"
14"	1' 8-1/2"	1' 1-5/16"	1' 9-1/2"	1' 0-5/16"	2' 1-1/2"	0' 8-5/16"
15"	1' 9-1/2"	1' 2-11/16"	1' 10-1/2"	1' 1-11/16"	2' 2-1/2"	0' 9-11/16"
16"	1' 10-1/2"	1' 4-1/8"	1' 11-1/2"	1' 3-1/8"	2' 3-1/2"	0' 11-1/8"
17"	1' 11-1/2"	1' 5-9/16"	2' 0-1/2"	1' 4-9/16"	2' 4-1/2"	1' 0-9/16"
18"	2' 0-1/2"	1' 6-15/16"	2' 1-1/2"	1' 5-15/16"	2' 5-1/2"	1' 1-15/16"
19"	2' 1-1/2"	1' 8-3/8"	2' 2-1/2"	1' 7-3/8"	2' 6-1/2"	1' 3-3/8"
20"	2' 2-1/2"	1' 9-13/16"	2' 3-1/2"	1' 8-13/16"	2' 7-1/2"	1' 4-13/16"
21"	2' 3-1/2"	1' 11-3/16"	2' 4-1/2"	1' 10-3/16"	2' 8-1/2"	1' 6-3/16"
22"	2' 4-1/2"	2' 0-5/8"	2' 5-1/2"	1' 11-5/8"	2' 9-1/2"	1' 7-5/8"
23"	2' 5-1/2"	2' 2"	2' 6-1/2"	2' 1"	2' 10-1/2"	1' 9"
24"	2' 6-1/2"	2' 3-7/16"	2' 7-1/2"	2' 2-7/16"	2' 11-1/2"	1' 10-7/16"
25"	2' 7-1/2"	2' 4-7/8"	2' 8-1/2"	2' 3-7/8"	3' 0-1/2"	1' 11-7/8"
26"	2' 8-1/2"	2' 6-1/4"	2' 9-1/2"	2' 5-1/4"	3' 1-1/2"	2' 1-1/4"
27"	2' 9-1/2"	2' 7-11/16"	2' 10-1/2"	2' 6-11/16"	3' 2-1/2"	2' 2-11/16"
28"	2' 10-1/2"	2' 9-1/8"	2' 11-1/2"	2' 8-1/8"	3' 3-1/2"	2' 4-1/8"
29"	2' 11-1/2"	2' 10-1/2"	3' 0-1/2"	2' 9-1/2"	3' 4-1/2"	2' 5-1/2"
30"	3' 0-1/2"	2' 11-15/16"	3' 1-1/2"	2' 10-15/16"	3' 5-1/2"	2' 6-15/16"
31"	3' 1-1/2"	3' 1-5/16"	3' 2-1/2"	3' 0-5/16"	3' 6-1/2"	2' 8-5/16"
32"	3' 2-1/2"	3' 2-3/4"	3' 3-1/2"	3' 1-3/4"	3' 7-1/2"	2' 9-3/4"
33"	3' 3-1/2"	3' 4-3/16"	3' 4-1/2"	3' 3-3/16"	3' 8-1/2"	2' 11-3/16"
34"	3' 4-1/2"	3' 5-9/16"	3' 5-1/2"	3' 4-9/16"	3' 9-1/2"	3' 0-9/16"
35"	3' 5-1/2"	3' 7"	3' 6-1/2"	3' 6"	3' 10-1/2"	3' 2"
36"	3' 6-1/2"	3' 8-7/16"	3' 7-1/2"	3' 7-7/16"	3' 11-1/2"	3' 3-7/16"
37"	3' 7-1/2"	3' 9-13/16"	3' 8-1/2"	3' 8-13/16"	4' 0-1/2"	3' 4-13/16"
38"	3' 8-1/2"	3' 11-1/4"	3' 9-1/2"	3' 10-1/4"	4' 1-1/2"	3' 6-1/4"
39"	3' 9-1/2"	4' 0-11/16"	3' 10-1/2"	3' 11-11/16"	4' 2-1/2"	3' 7-11/16"
40"	3' 10-1/2"	4' 2-1/16"	3' 11-1/2"	4' 1-1/16"	4' 3-1/2"	3' 9-1/16"
41"	3' 11-1/2"	4' 3-1/2"	4' 0-1/2"	4' 2-1/2"	4' 4-1/2"	3' 10-1/2"
42"	4' 0-1/2"	4' 4-7/8"	4' 1-1/2"	4' 3-7/8"	4' 5-1/2"	3' 11-7/8"
43"	4' 1-1/2"	4' 6-5/16"	4' 2-1/2"	4' 5-5/16"	4' 6-1/2"	4' 1-5/16"
44"	4' 2-1/2"	4' 7-3/4"	4' 3-1/2"	4' 6-3/4"	4' 7-1/2"	4' 2-3/4"
45"	4' 3-1/2"	4' 9-1/8"	4' 4-1/2"	4' 8-1/8"	4' 8-1/2"	4' 4-1/8"
46"	4' 4-1/2"	4' 10-9/16"	4' 5-1/2"	4' 9-9/16"	4' 9-1/2"	4' 5-9/16"
47"	4' 5-1/2"	4' 11-15/16"	4' 6-1/2"	4' 10-15/16"	4' 10-1/2"	4' 6-15/16"
48"	4' 6-1/2"	5' 1-3/8"	4' 7-1/2"	5' 0-3/8"	4' 11-1/2"	4' 8-3/8"
49"	4' 7-1/2"	5' 2-13/16"	4' 8-1/2"	5' 1-13/16"	5' 0-1/2"	4' 9-13/16"
50"	4' 8-1/2"	5' 4-3/16"	4' 9-1/2"	5' 3-3/16"	5' 1-1/2"	4' 11-3/16"
51"	4' 9-1/2"	5' 5-5/8"	4' 10-1/2"	5' 4-5/8"	5' 2-1/2"	5' 0-5/8"
52"	4' 10-1/2"	5' 7-1/16"	4' 11-1/2"	5' 6-1/16"	5' 3-1/2"	5' 2-1/16"
53"	4' 11-1/2"	5' 8-7/16"	5' 0-1/2"	5' 7-7/16"	5' 4-1/2"	5' 3-7/16"
54"	5' 0-1/2"	5' 9-7/8"	5' 1-1/2"	5' 8-7/8"	5' 5-1/2"	5' 4-7/8"
55"	5' 1-1/2"	5' 11-5/16"	5' 2-1/2"	5' 10-5/16"	5' 6-1/2"	5' 6-5/16"

PERMIT LEVEL
NOT ISSUED FOR CONSTRUCTION

ISSUED FOR	BY	DATE
SITE PLAN APPLICATION	SJL	12/27/2025
25% PROGRESS SET	SJL	12/27/2025
UTILITY COORDINATION	SJL	1/27/2026
COMMENT RESPONSE	SJL	5/21/2026

UTILITY DETAILS – 1

DRAWING NAME:
PROJECT NAME: 1871 FOREST AVE, PORTLAND, MAINE
PARCEL ID: 327A A004001
CLIENT: AVESTA HOUSING
307 CUMBERLAND AVE, PORTLAND, MAINE 04101

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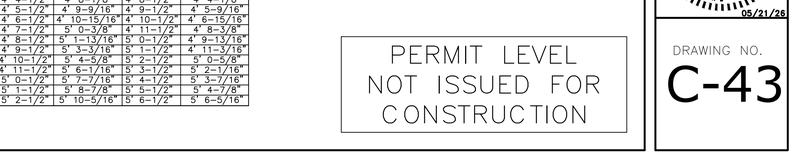
ACORN ENGINEERING, INC.
49 PLEASANT HILL ROAD
SCARBOROUGH, MAINE 04074
P.O. BOX 3235
(207) 775-2655

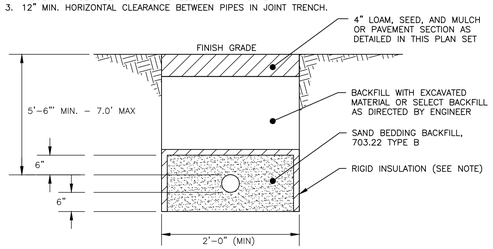
FILE: DETAILS
DATE: AS NOTED
JN: 1297
SCALE: AS NOTED
DESIGNED BY: MJVA
DRAWN BY: MJVA
CHECKED BY: SJL



DRAWING NO.
C-43

NOTES:

1. THE WATER TRENCH SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE SANFORD WATER DISTRICT STANDARD DETAILS & SPECIFICATIONS.
2. IF 5'–6" OF COVER IS NOT FEASIBLE ADD 2 INCH OF "BLUE DOW" RIGID INSULATION. SERVICE TO HAVE NO LESS THAN 4" COVER.
3. 12" MIN. HORIZONTAL CLEARANCE BETWEEN PIPES IN JOINT TRENCH.

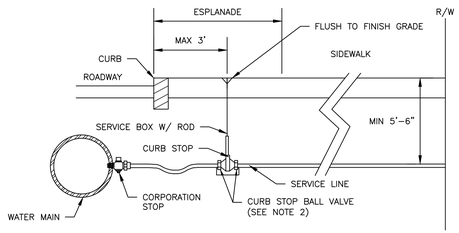


WATER SERVICE TRENCH SECTION DETAIL

NOT TO SCALE

NOTES:

1. ALL MATERIALS AND INSTALLATION PROCEDURES MUST COMPLY WITH PORTLAND WATER DISTRICT (PWD) SPECIFICATIONS.
2. CURB STOP BALL VALVE TO BE MADE OF COPPER OR BRASS UNLESS OTHERWISE NOTED BY THE PORTLAND WATER DISTRICT.
3. SERVICE LINE TO BE MADE OF TYPE K COPPER.
4. CONCRETE BLOCKING SHALL BE ADDED TO THE BASE OF THE CURB STOP TO PROVIDE STRUCTURAL SUPPORT FOR THE CURB STOP AND SERVICE BOX.
5. CURB STOP TO BE INSTALLED IN PERVIOUS AREAS TO THE GREATEST EXTENT FEASIBLE. FOR LOTS IN WHICH THE CURB STOP MUST BE LOCATED IN A SIDEWALK OR DRIVEWAY, CONTRACTOR TO CONTACT PWD FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION.
6. CONTRACTOR TO COIL ACCESS PIPE ON PRIVATE PROPERTY PRIOR TO CONNECTION TO HOUSE. ACCESS PIPE TO BE ADEQUATELY MARKED IF BURIED OR PROTECTED IF STORED ABOVE GROUND.

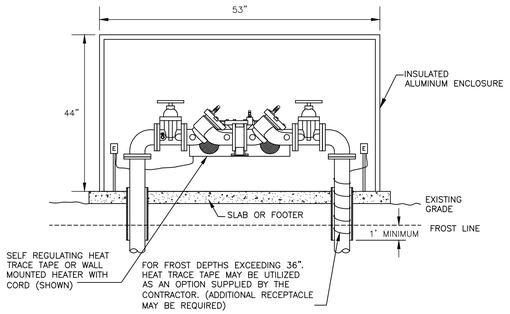


TYPICAL SERVICE CONNECTION

NOT TO SCALE

NOTES:

1. THE ASSEMBLY MUST BE INSPECTED AND APPROVED BY SBMWD IMMEDIATELY AFTER INSTALLATION. THE ASSEMBLY MUST BE TESTED BY A CERTIFIED BACKFLOW TESTER, ISSUED BY THE ADMINISTRATIVE AUTHORITY HAVING JURISDICTION.
2. NO CONNECTIONS, STRAINERS, OR TEES ARE PERMITTED BETWEEN THE METER AND BACKFLOW PREVENTER.
3. PRIOR TO INSTALLATION OF THE ASSEMBLY, THE WATER SERVICE SHALL BE FLUSHED.
4. A MANIFOLD CONNECTION WITH DUPLEX UNITS SHOULD BE INSTALLED IF AN UNINTERRUPTED SUPPLY OF WATER IS NECESSARY.
5. A PRESSURE RELIEF VALVE MAY NEED TO BE INSTALLED DOWNSTREAM OF THE REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTION ASSEMBLY PER SEC. 1007 OF THE UNIFORM PLUMBING CODE, AND/OR AS REQUIRED BY SBMWD.
6. SWAB INTERIOR OF PIPE, VALVES, AND FITTINGS, AND SWAB INTERIOR OF EXISTING MAINS TO WHICH NEW PIPING WILL BE CONNECTED (BOTH UPSTREAM AND DOWNSTREAM OF THE NEW BACKFLOW ASSEMBLY) WITH A 5% SODIUM HYPOCHLORITE SOLUTION. AFTER DISINFECTION, FLUSH WITH POTABLE WATER AGAIN UNTIL WATER IS FREE OF CHLORINE ODOR.
7. BEGINNING JANUARY 1, 2010, STATE LAW PROHIBITS THE INTRODUCTION INTO COMMERCE OF ANY BACKFLOW PREVENTERS, PIPE, PLUMBING FITTING, OR FIXTURE INTENDED TO CONVEY OR DISPENSE WATER FOR HUMAN CONSUMPTION THAT CONTAIN LEAD PRODUCTS. HOWEVER, SERVICE SADDLES, BACKFLOW PREVENTERS FOR NON–POTABLE SERVICES SUCH AS IRRIGATION AND INDUSTRIAL, AND WATER DISTRIBUTION MAIN GATE VALVES THAT ARE TWO INCHES IN DIAMETER AND ABOVE ARE EXCLUDED (AB 1953, CHAN LEAD PLUMBING).
8. ANY BACKFLOW RELATED INSTALLATION AND/OR REPLACEMENT, INCLUDING PARTS, SHALL ADHERE TO THE MOST CURRENT UNIVERSITY OF SOUTHERN CALIFORNIA (USC) FOUNDATION FOR CROSS–CONNECTION CONTROL AND HYDRAULIC RESEARCH STANDARDS.



NOTE: UTILIZATION OF THIS RECOMMENDATION LIES WITH THE PROJECT ENGINEER AND/OR UTILITY. HOW IT IS INSTALLED SHALL BE IN STRICT ACCORDANCE WITH THE ENGINEERING AND/OR UTILITY SPECIFICATION

ABOVE–GROUND BACKFLOW PREVENTER 3"–10"
(RECOMMENDED COLD WEATHER INSTALLATION)

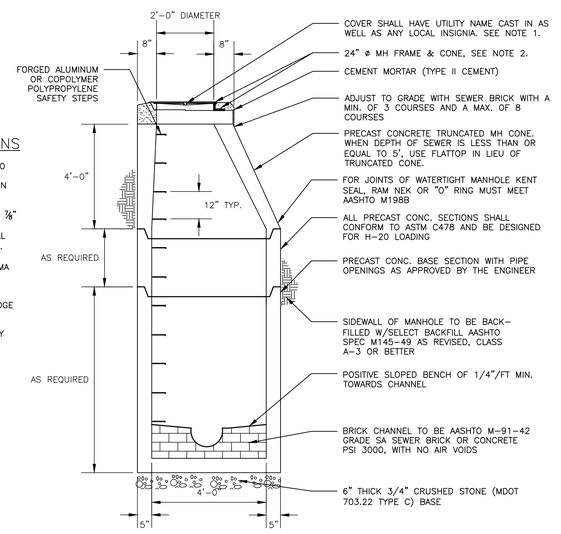
NOT TO SCALE

NOTES:

1. MANHOLE COVER FOR SEWER MANHOLE SHALL BE ENGRAVED "SEWER", AND SHALL BE EITHER ITEM # 2160A AS MANUFACTURED BY EAST JORDAN CO. OR ITEM # 14960002 AS MANUFACTURED BY NEENAH FOUNDRY. MANHOLE COVER FOR STORM SEWER SHALL BE ENGRAVED "DRAIN", AND SHALL BE EITHER ITEM # 2160A AS MANUFACTURED BY EAST JORDAN CO. OR ITEM # 14960003 AS MANUFACTURED BY NEENAH FOUNDRY.
2. MANHOLE FRAME SHALL BE EITHER ITEM # 14960001, AS MANUFACTURED BY NEENAH FOUNDRY, OR ITEM # 1960Z, AS MANUFACTURED BY EAST JORDAN CO.
3. WITHIN CITY OF PORTLAND ROW, STORM DRAIN MANHOLE SHALL CONFORM WITH "STANDARD PRECAST SEWER MANHOLE DETAIL", WITH THE EXCEPTION THAT THE COVER SHALL BE MARKED AS "DRAIN". REFER TO CITY OF PORTLAND TECHNICAL MANUAL, SECTION 2 – SANITARY SEWER AND STORM DRAIN, FIGURE II–1
4. SUBMITTAL REQUIRED FOR MANHOLES, MANHOLE FRAMES & MANHOLE COVERS
5. STRUCTURE TO BE APPLIED WITH WATER PROOF COATING

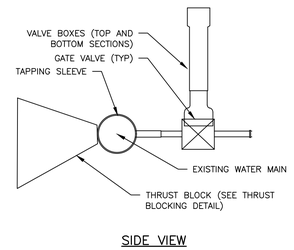
GENERAL NOTES FOR MANHOLES AND CATCH BASINS

1. ALL CONCRETE SHALL HAVE A MINIMUM ULTIMATE COMPRESSIVE STRENGTH OF 4000 LBS. PER SQ. INCH AT THE END OF 28 DAYS, UNLESS OTHERWISE NOTED.
2. MANHOLES MAY BE CONSTRUCTED OF PRECAST REINFORCED CONCRETE, OR CAST IN PLACE.
3. PRECAST REINFORCED CONE BARREL MANUFACTURED PER ASTM SPEC. C–478.
4. ALL STORM AND SEWER MANHOLE COVERS SHALL BE SOLID AND SHALL HAVE ONE ⅞" DIAMETER DRILLED PICK HOLE LOCATED 8" FROM THE CENTER OF THE COVER.
5. ALL SANITARY MANHOLE COVERS SHALL HAVE "SEWER" CAST INTO THE COVER. ALL STORMWATER/DRAIN MANHOLE COVERS SHALL HAVE "DRAIN" CAST INTO THE COVER.
6. ALL MANHOLE RISERS SHALL BE ETHERIDGE 24" OR APPROVAL EQUAL.
7. SEWER BRICK SHALL CONFORM TO ASTM SPEC. DESIGNATE ON C–32–63, GRADE MA AND SA.
8. ALL SANITARY MANHOLES SHALL HAVE A WATERPROFFING COATING APPLIED TO THE EXTERIOR SURFACE.
9. CATCH BASIN FRAMES FOR TYPE A4 CATCH BASIN CURB INLETS SHALL BE ETHERIDGE DR5A OR APPROVED EQUAL.
10. CASTINGS SHALL CONFORM TO ASTM DESIGNATION A48–CLASS 35.
11. EXISTING MANHOLES, CATCH BASINS, FRAMES, AND COVERS SHALL BE SALVAGED BY THE CONTRACTOR, AND SHALL REMAIN THE PROPERTY OF THE CITY OF PORTLAND.



STANDARD PRECAST SEWER MANHOLE

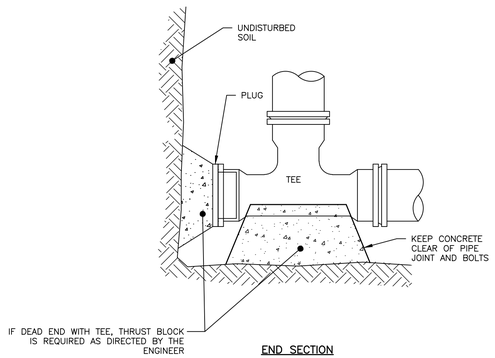
NOT TO SCALE



SIDE VIEW

TAPPING SLEEVE AND VALVE

NOT TO SCALE



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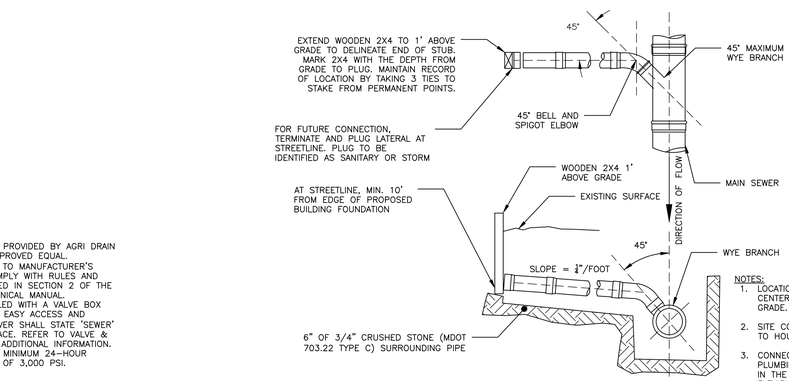
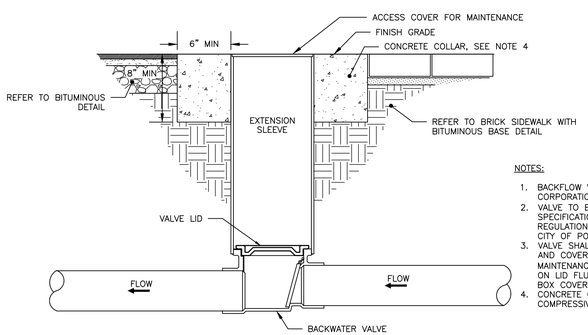


NOTES:

1. LOCATION WITH WARNING TAPE SHALL BE INSTALLED OVER CENTERLINE OF PIPE AT A MAXIMUM OF 24 INCHES BELOW FINISH GRADE.
2. SITE CONTRACTOR TO COORDINATE CONNECTION OF SEWER LATERAL TO HOUSEHOLD PLUMBING WITH ARCHITECTURAL CONTRACTOR
3. CONNECTION OF PROPOSED SEWER LATERAL TO HOUSEHOLD PLUMBING SHOULD INCORPORATE USE OF SIMILAR PIPE MATERIALS. IN THE CASE OF DISSIMILAR PIPES BEING USED, A FERNCO FLEXIBLE COUPLING SHALL BE USED.

SEWER AND STORM DRAIN TEE/WYE CONNECTION DETAIL

NOT TO SCALE

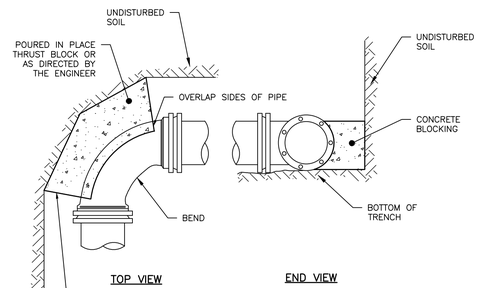


NOTES:

1. BACKFLOW VALVE TO BE PROVIDED BY AGRI DRAIN CORPORATION OR AN APPROVED EQUAL.
2. VALVE TO BE INSTALLED TO MANUFACTURER'S SPECIFICATIONS AND COMPLY WITH RULES AND REGULATIONS AS OUTLINED IN SECTION 2 OF THE CITY OF PORTLAND TECHNICAL MANUAL.
3. VALVE SHALL BE INSTALLED WITH A VALVE BOX AND COVER TO PROVIDE EASY ACCESS AND MAINTENANCE; VALVE COVER SHALL STATE 'SEWER' ON LID FLUSH TO SURFACE. REFER TO VALVE & BOX COVER DETAIL FOR ADDITIONAL INFORMATION.
4. CONCRETE COLLAR AT A MINIMUM 24–HOUR COMPRESSIVE STRENGTH OF 3,000 PSI.

BACKFLOW VALVE ASSEMBLY

NOT TO SCALE



TOP VIEW

END VIEW

NOTE:

SEE THRUST/RETAINER GLAND SCHEDULE FOR TYPE OF BLOCKING TO BE USED ON BENDS

REGULAR BEND

THRUST BLOCKING

NOT TO SCALE

PERMIT LEVEL
NOT ISSUED FOR CONSTRUCTION

ISSUED FOR	BY DATE
SITE PLAN APPLICATION	SJL 12/27/2024
25% PROGRESS SET	SJL 12/27/2024
UTILITY COORDINATION	SJL 2/21/2025
COMMENT RESPONSE	SJL 5/21/2026

DRAWING NAME: UTILITY DETAILS – 2
PROJECT NAME: 1871 FOREST AVE, PORTLAND, MAINE
PARCEL ID: 327A A004001
CLIENT: AVESTA HOUSING
307 CUMBERLAND AVE, PORTLAND, MAINE 04101

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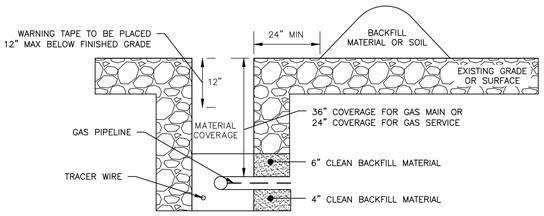
FILE:	DETAILS
DATE:	AS NOTED
JN:	1297
SCALE:	AS NOTED
DESIGNED BY:	MJVA
DRAWN BY:	MJVA
CHECKED BY:	SJL

Samuel J. Lebel
SAMUEL J. LEBEL
No. 16505
LICENSED PROFESSIONAL ENGINEER
05/21/26

DRAWING NO.
C-44

NOTES:

1. INSTALL MAINS WITH A MINIMUM OF 36" OF COVER AND SERVICES WITH A MINIMUM OF 24" OF COVER. EXCEPTIONS MAY BE MADE WITHIN SLATE AND FEDERAL CODES WITH THE PRIOR APPROVAL OF THE OPERATIONS CENTER MANAGER. INSTALL PLASTIC PIPE WITH SLACK SO EXTERNAL LOADING OR THERMAL CONTRACTION WILL NOT PLACE UNNECESSARY STRESS ON THE PIPE OR JOINTS. IN CASES WHERE A STOPPER FITTING OF OTHER NEW MATERIAL IS ADDED TO AN OLDER MAIN SUCH THAT THE MAIN HAS LESS THAN 24" OF COVE, THE CONTRACTOR SHOULD PROVIDE PERMANENT PROTECTION SUCH AS CONCRETE. WHENEVER A MAIN WILL BE INSTALLED WITH LESS THAN 24" OF COVER, NOTIFY THE OPERATIONS CENTER MANAGER OR THE DESIGNEE SO THEY CAN REQUEST APPROVAL FROM THE DEPARTMENT OF PUBLIC UTILITIES.
2. PROCEDURE – SEE FIGURE BELOW
   - 2.1. REMOVE ALL EXCESS WATER FROM THE TRENCH WITH PUMPS OR EQUIVALENT
   - 2.2. PLACE A LAYER OF SAND 4" DEEP IN TRENCH BOTTOM BEFORE LAYING THE PIPE IN THE TRENCH. THE OPERATIONS CENTER MANAGER OR COMPANY FIELD REPRESENTATIVE MAY ALLOW USE OF CLEAN FILL MATERIAL INSTEAD OF SAND PROVIDED IT IS CLEAN AND FREE OF ANY OBJECTS THAT MAY IMPINGE ON THE PIPE.
   - 2.3. FOR PLASTIC PIPE, INSTALL NUMBER 12 AWG SOLID COPPER WIRE (TRACER WIRE) WITH YELLOW INSULATION JACKET ALONG THE LENGTH OF THE SERVICE. THIS WIRE IS USED TO LOCATE THE PIPE. DO NOT PHYSICALLY ATTACH THE WIRE OR ALLOW THE WIRE TO TOUCH THE PLASTIC PIPE. KEEP THE TRACER WIRE AT LEAST 4" AWAY FROM THE PLASTIC PIPE. IF THE INSTALLATION IS TRENCHLESS, THE TRACER WIRE MAY BE LESS THEN 4" AWAY FROM THE PLASTIC PIPE.
   - 2.4. PLACE A MINIMUM OF 6" OF SAND OVER THE PIPE. THE OPERATIONS CENTER MANAGER OR COMPANY FIELD REPRESENTATIVE MAY ALLOW USE OF CLEAN FILL MATERIAL INSTEAD OF SAND PROVIDED IT IS CLEAN AND FREE OF ANY OBJECTS THAT MAY IMPINGE ON THE PIPE.
   - 2.5. PLACE WARNING TAPE IN THE TRENCH NOT MORE THAN 12" BELOW FINISHED GRADE. THE STANDARD WARNING TAPE IS YELLOW, NON-DETECTABLE TAPE, 6" WIDE.
   - 2.6. FILL THE REST OF THE TRENCH WITH CLEAN FILL MATERIAL, USING THE SPOIL WHERE SUITABLE AND ACCEPTABLE. IF THE ORIGINAL SPOIL MATERIAL IS NOT SUITABLE FOR USE AS A SUB-GRADE MATERIAL WHEN RESTORING ROAD SURFACES, USE MATERIAL REQUIRED BY STATE OR LOCAL AGENCIES. REMOVE ALL EXCESS SPOIL IN THE ACCEPTED MANNER.
   - 2.7. PROPERLY COMPACT THE TRENCH TO INSURE THE TRENCH WILL NOT SETTLE.
3. SEE GAS STANDARD 10.03 FOR A DESCRIPTION OF SUITABLE MATERIALS FOR PIPE BEDDING AND FINAL BACKFILL.



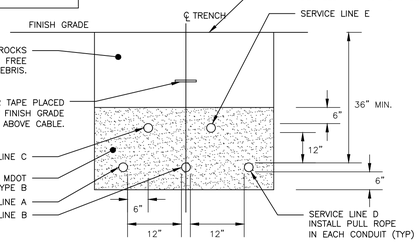
NATURAL GAS MAIN/SERVICE TRENCH DETAIL

NOT TO SCALE

CONDUIT TYPE				
SERVICE	CONDUIT SIZE	GRASS AND PAVED AREAS	UTILITY	REMARKS
A	5"	SCHEDULE 40 PVC ELECTRICAL GRADE	PRIMARY POWER	SEE NOTE 1
B	5"	SCHEDULE 40 PVC ELECTRICAL GRADE	PRIMARY POWER	SEE NOTE 1
C	2–4"	SCHEDULE 40 PVC	COMMUNICATION	–
D	5"	SCHEDULE 40 PVC ELECTRICAL GRADE	SPARE	SEE NOTE 1
E	2–4"	SCHEDULE 40 PVC	CABLE	–

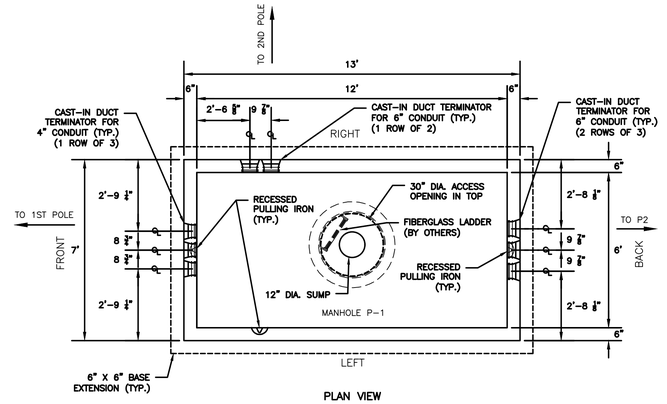
NOTES:

1. ONE CONDUIT CAPPED FOR SPARE. PROVIDE GALVANIZED STEEL LONG SWEEP AT RISER POLE AND EXTEND GALVANIZED CONDUIT TO 10" ABOVE GRADE AT POLE WITH STAND-OFF BRACKETS.
2. MINIMUM SEPARATION OF 24 INCHES BETWEEN PRIMARY CABLE/CONDUIT AND GAS LINES SHALL BE MAINTAINED.
3. CONDUITS WITHIN THE CITY RIGHT-OF-WAY SHALL BE ENCASED IN CONCRETE.
4. FINAL SIZE OF CONDUITS TO BE SPECIFIED BY MEP, ELECTRICIAN, OR DESIGN/BUILD ELECTRICAL CONTRACTOR.

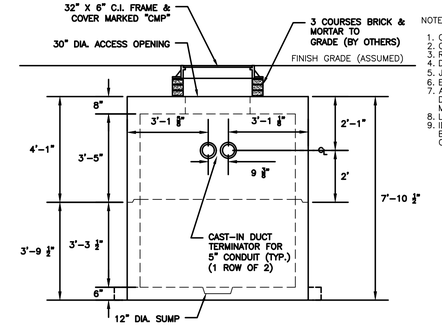


UTILITY TRENCH – PRIMARY AND SECONDARY POWER, TELEPHONE, AND CABLE

NOT TO SCALE



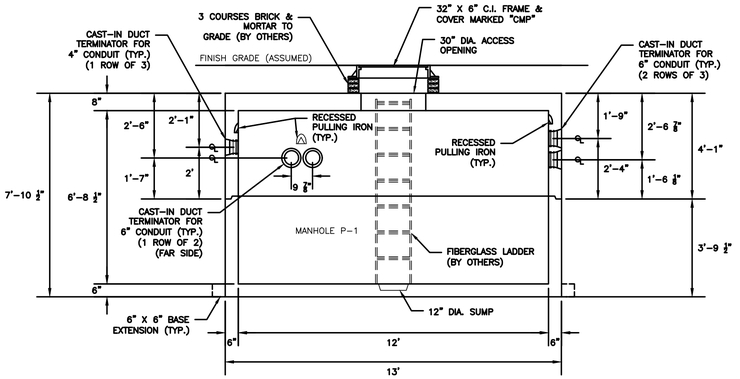
PLAN VIEW



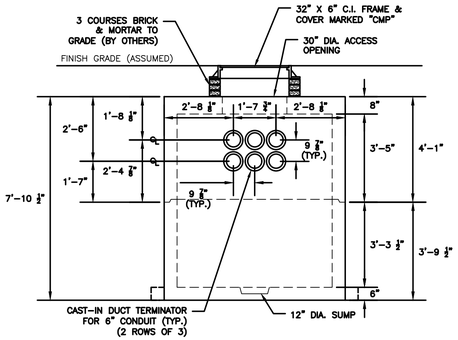
NOTES:

1. CONCRETE: 5,000 PSI @ 28 DAYS.
2. CEMENT: TYPE III PER ASTM C150–81.
3. REINFORCING: GRADE 60 PER ASTM A615.
4. DESIGN LOADING: H–20 PER ASTM C–478.
5. JOINTS TO BE SEALED WATER TIGHT WITH "CON–SEAL".
6. EXTERIOR OF TANK TO BE "AQUA–SAFE" COATED.
7. ALL PRECAST SECTIONS AND BASES SHALL HAVE THE DATE OF MANUFACTURE AND THE NAME OF THE MANUFACTURER MARKED ON THE INSIDE WALL.
8. LADDER PROVIDED AND INSTALLED BY OTHERS.
9. IDENTIFICATION TAGS FOR CABLES IN MANHOLE SHALL BE SET AT THE TIME OF MANHOLE INSTALLATION BY OTHERS.

FRONT ELEVATION VIEW



SECTION VIEW



BACK ELEVATION VIEW

DESCRIPTION	WEIGHT	QUANTITY
3'–9 ½" BASE	16,202 LBS	1
3'–11" TOP	18,892 LBS	1

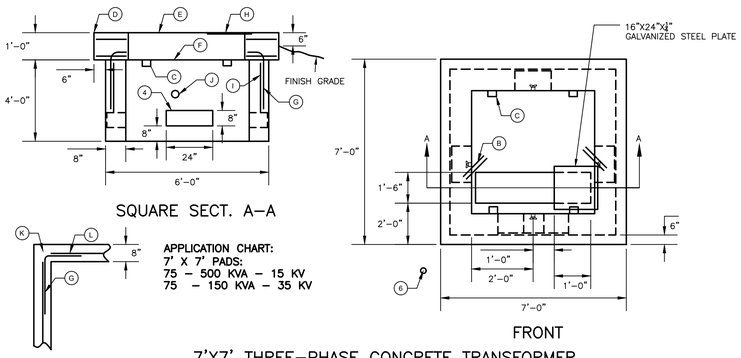
PRECAST CONCRETE 38Y MANHOLE DETAIL

NOT TO SCALE

NOTES:

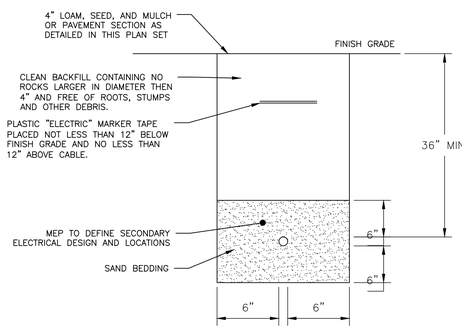
1. FRONT DENOTES THE SIDE ON WHICH THE ACCESS DOORS ARE LOCATED. THE CONCRETE BASE SHALL BE SET ON A SUITABLE GRAVEL BASE AND LOCATED SO THE FRONT IS ACCESSIBLE BY TRUCK AND SUITABLY PROTECTED FROM PLOW AND TRAFFIC DAMAGE.
2. BEFORE INSTALLING OR REQUIRING ANY ACTIVE DRAINAGE STRUCTURE (E.G., DRAIN PIPE) INTO THE FOUNDATION OR PAD, THE CONTRACTOR, CMP LINE SUPERVISOR, OR CMP DISTRIBUTION ENGINEER MUST CONTACT CENTRAL MAINE POWER COMP–ANY'S ENVIRONMENTAL SERVICES DEPARTMENT AT 623–3521 EXT. 3479 TO REQUEST A SITE INSPECTION.
3. FINISH GRADE SHALL BE GRADED IN SUCH MANNER TO ALLOW SURFACE WATER FLOW AWAY FROM THE PAD.
4. PROVIDE 8"X24" CABLE HOLES (BOND OUTS) 8" UP THE WALL FROM THE BASE. LOCATE ONE CABLE HOLE PER WALL, MORE IF NECESSARY. LINE UP CABLE HOLES WITH TRENCH.
5. CONDUITS ENTERING CONCRETE STRUCTURE SHALL BE SET BACK FROM THE INSIDE WALL TO 2 INCHES AND THE SPACE WITHIN THE KNOCKOUT SURROUNDING THE CONDUITS COMPLETELY FILLED WITH MORTAR TO PREVENT SOIL FROM ENTERING STRUCTURE. INSIDE THE STRUCTURE THE MORTAR SHALL BE FINISHED AND BEVELED FROM THE CONDUIT ENDS TO THE INSIDE WALL FACE TO COVER AND SMOOTH THE EDGES OF KNOCKOUTS.
6. A ⅝"X8' GALVANIZED GROUND ROD IS TO BE INSTALLED SIX INCHES IN FRONT OF THE LEFT FRONT CORNER OF THE FOUNDATION. THE TOP OF THE GROUND IS TO BE 6 INCHED BELOW FINAL GRADE.
7. A GROUND WIRE SHALL INSTALLED FROM THE GROUND ROD THROUGH THE CABLE HOLE AT THE BOTTOM OF THE PAD. 10 FEET OF THE GROUND WIRE SHALL BE PROVIDED SO THAT IT CAN BE INSTALLED THROUGH THE TWO GROUNDING LUGS AND CONNECTED TO THE NEUTRAL SPADE.
8. CONCRETE COMPRESSIVE STRENGTH SHALL BE 4000 PSI @ 28 DAYS. FOR CAST–IN–PLACE EARLY HIGH STRENGTH MAY BE USED WITH A MINIMUM OF SEVEN DAY CURE TIME.
9. REINFORCING STEEL TO HAVE: FY = 60 KSI
10. THE PRECAST SUPPLIER SHALL PROVIDE LIFTING LUGS I THE SLAB (FOUNDATION) AND BAS; THE PRECAST SUPPLIER SHALL ASSEMBLE THE SLAB AND BASE FIT PROPERLY (WITH NO ROCKING OF THE SLAB EVIDENT).
11. USE A 16'X24'X¼" GALVANIZED STEEL PLATE TO COVER A PORTION OF THE CABLE HOLE WHEN THE TRANSFORMER DOES NOT COMPLETELY COVER IT. CUT THE STEEL PLATE OF FIT, IF NECESSARY.

A. 7–#5 REBAR EVENLY SPACED EACH WAY TOP TO BOTTOM.
B. 2–#4 CORNER DIAGONAL REBAR 2'–0" LONG TOP AND BOTTOM.
C. A 2" DEEP BY 9" WIDE GROOVE ON THE UNDERSIDE OF THE PAD TOP SHALL BE PROVIDED TO KEEP THE TOP IN PLACE.
D. CHAMFER TYPICAL.
E. 2" CONCRETE COVER OVER TOP REBAR.
F. 3" CONCRETE COVER OVER BOTTOM REBAR.
G. 16'X24'X¼" GALVANIZED STEEL. MID#6000621790
H. 35 REBAR ON 12" CENTER.
I. PULLING EYE INSERT, FOR USE WITH 1" NATIONAL COURSE THREAD EYE BOLT, (RICHMOND LCB–1 OR EQUIVALENT). LOCATED OPPOSITE EACH CABLE HOLE AND 2' (TWO FEET) FROM THE BOTTOM.
J. ALL REBAR ENDS TO BE COVERED BY 1' OF CONCRETE MINIMUM.
K. FOR CAST–IN–PLACE CONSTRUCTION. SEE DISTRIBUTION ENGINEER.



7'X7' THREE–PHASE CONCRETE TRANSFORMER FOUNDATION UP TO 500 KVA

NOT TO SCALE

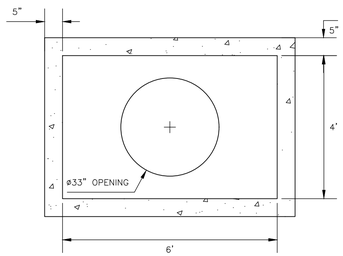


SECONDARY ELECTRICAL TRENCH

NOT TO SCALE

NOTES:

1. PULL BOX SHALL BE DESIGNED TO WITHSTAND H20 LOADING WITH 6" OF OVERBURDEN. THE DESIGN SHALL COMPLY WITH NATIONAL ELECTRICAL SAFETY CODE SECTION 323A. PROVIDE SHOP DRAWINGS STAMPED BY A STATE OF MAINE REGISTERED PROFESSIONAL ENGINEER.
2. FOR USE WITH 32" COVER MARKED TELECOM (MIN ONE COURSE OF BRICK TO GRADE).
3. PULL BOX AND SLAB SHALL BE SET ON A SUITABLE GRAVEL BASE.



PULL BOX

NOT TO SCALE

PERMIT LEVEL
NOT ISSUED FOR
CONSTRUCTION

ISSUED FOR

	BY	DATE
SITE PLAN APPLICATION	SJL	12/27/2020
25% PROGRESS SET	SJL	12/27/2020
UTILITY COORDINATION	SJL	1/27/2021
COMMENT RESPONSE	SJL	2/27/2026

DRAWING NAME: UTILITY DETAILS – 3

PROJECT NAME: 1871 FOREST AVE, PORTLAND, MAINE
PARCEL ID: 327A A004001

CLIENT: AVESTA HOUSING
307 CUMBERLAND AVE, PORTLAND, MAINE 04101

ACORN ENGINEERING, INC.
ENGINEERING — SURVEYING — PERMITTING
ACORN ENGINEERING, INC.
2ND FLOOR, 70 MILLET STREET, PORTLAND, MAINE 04104
PO BOX 7781, PORTLAND, MAINE 04112
(207) 775–2655

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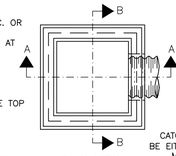
FILE:	DETAILS
DATE:	AS NOTED
JN:	1297
SCALE:	AS NOTED
DESIGNED BY:	MJVA
DRAWN BY:	MJVA
CHECKED BY:	SJL

STATE OF MAINE
SAMUEL J. LEBEL
No. 16505
LICENSED
PROFESSIONAL ENGINEER
05/21/26

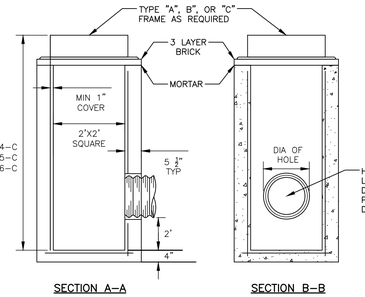
DRAWING NO.
C-45

NOTES:

1. ENTIRE CATCH BASIN WITH EXCEPTION OF LEVELING BRICK FRAME AND GRATE TO BE PRECAST AS A SINGLE PORTLAND CEMENT CONCRETE UNIT, #4 REBAR MINIMUM 8" O.C. OR EQUIVALENT WITH ENGINEER OF RECORD'S APPROVAL.
2. FIBER-REINFORCED CONCRETE TO HAVE A MIN. OF 4,000 PSI COMPRESSIVE STRENGTH AT 28 DAYS.
3. DESIGN LOAD FOR H-20 WHEEL LOAD.
4. CATCH BASIN TO CONFORM TO ASTM-C478 SPECIFICATIONS.
5. REINFORCE TO 0.15 IN SQ./LF. JOINTS SEALED WITH RAM-NEK GASKET OR EQUAL.
6. POLYPROPYLENE STEPS 12" O.C.
   6.1. STEPS SHALL BE OFFSET AT NO MORE THAN 12" ON CENTER, STARTING FROM THE TOP OF THE MANHOLE FRAME AND SHALL BE FORGED ALUMINUM OR COPOLYMER POLYPROPYLENE STEPS.
7. EXTERIOR WATERPROOFING.
8. FLEXIBLE WATERTIGHT PIPE BOOTS TO CONFORM TO ASTM C-923.
9. SHALL MEET THE APPLICABLE LOCAL AND STATE STANDARDS.
10. CATCH BASIN SHALL BE AS MANUFACTURED BY PRECAST OF MAINE OR APPROVED EQUAL.



PLAN VIEW



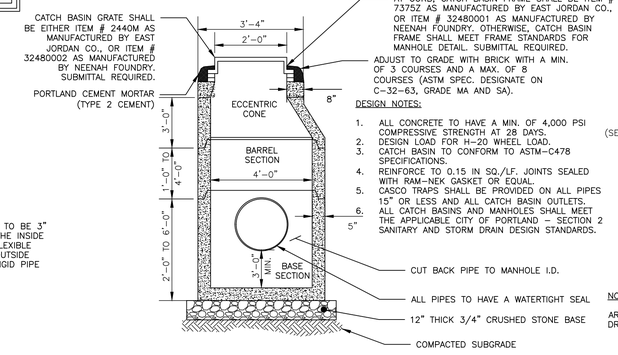
SECTION A-A SECTION B-B

24" SQUARE CATCH BASIN "TYPE F"

NOT TO SCALE

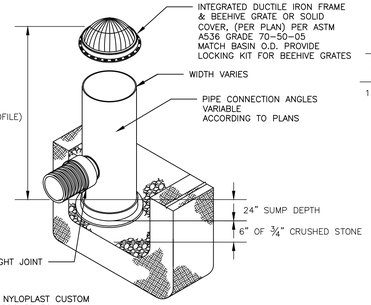
GENERAL NOTES FOR MANHOLES AND CATCH BASINS

1. ALL CONCRETE SHALL HAVE A MINIMUM ULTIMATE COMPRESSIVE STRENGTH OF 4000 LBS. PER SQ. INCH AT THE END OF 28 DAYS, UNLESS OTHERWISE NOTED.
2. MANHOLES MAY BE CONSTRUCTED OF PRECAST REINFORCED CONCRETE, OR CAST IN PLACE.
3. PRECAST REINFORCED CONE BARREL MANUFACTURED PER ASTM SPEC. C-478.
4. ALL STORM AND SEWER MANHOLE COVERS SHALL BE SOLID AND SHALL HAVE ONE ¾" DIAMETER DRILLED PICK HOLE LOCATED 8" FROM THE CENTER OF THE COVER.
5. ALL SANITARY MANHOLE COVERS SHALL HAVE "SEWER" CAST INTO THE COVER. ALL STORMWATER/DRAIN MANHOLE COVERS SHALL HAVE "DRAIN" CAST INTO THE COVER.
6. ALL MANHOLE RISERS SHALL BE ETHERIDGE 24" OR APPROVAL EQUAL.
7. SEWER BRICK SHALL CONFORM TO ASTM SPEC. DESIGNATE ON C-32-63, GRADE MA AND SA.
8. ALL SANITARY MANHOLES SHALL HAVE A WATERPROFFING COATING APPLIED TO THE EXTERIOR SURFACE.
9. CATCH BASIN FRAMES FOR TYPE A4 CATCH BASIN CURB INLETS SHALL BE ETHERIDGE DR5A OR APPROVED EQUAL.
10. CASTINGS SHALL CONFORM TO ASTM DESIGNATION A48-CLASS 35.
11. EXISTING MANHOLES, CATCH BASINS, FRAMES, AND COVERS SHALL BE SALVAGED BY THE CONTRACTOR, AND SHALL REMAIN THE PROPERTY OF THE CITY OF PORTLAND.



4'-0" DIAMETER PRECAST CATCH BASIN/MANHOLE

NOT TO SCALE



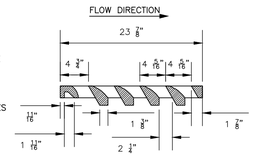
NOTE:

AREA DRAIN TO BE NYLOPLAST CUSTOM DRAIN BASIN OR APPROVED EQUAL.

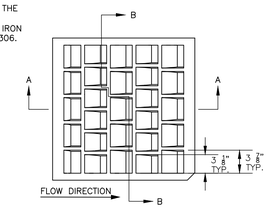
BEEHIVE DRAIN DETAIL

NOT TO SCALE

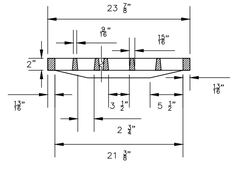
NOTES:
1. TYPE "A" FRAMES ARE TO HAVE 3 FLANGES.
2. TYPE "B" FRAMES ARE TO HAVE 4 FLANGES.
3. THE WORD "GUTTER" IS TO BE MOLDED INTO THE BACK FLANGE – TYPE "B" ONLY.
4. FRAMES AND GRATES ARE TO BE GRAY CAST IRON OR DUCTILE IRON CONFORMING TO AASHTO M306.
5. DIMENSIONS ARE NOMINAL.



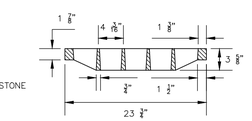
SECTION A-A



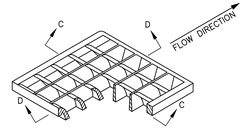
PLAN VIEW



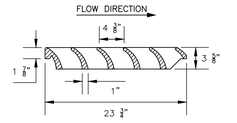
SECTION B-B



SECTION C-C



ISOMETRIC VIEW



SECTION D-D

GRATE DETAIL

SOIL FILTER BED – TRANSITION ZONE (TYPE B)	
SIEVE SIZE	% PASSING BY WEIGHT
1"	90–100
1/2"	75–100
#4	50–100
#20	15–80
#50	0–15
#200	0–5

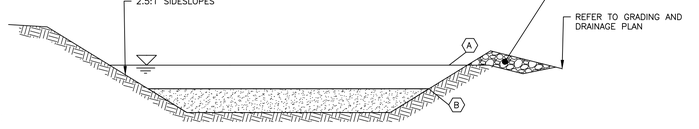
UNDERDRAIN BEDDING (TYPE C)	
SIEVE SIZE	% PASSING BY WEIGHT
1"	100
3/4"	90–100
3/8"	0–75
#4	0–25
#10	0–5

12" LOAM TOPSOIL LAYER SPECIFICATION	
SIEVE SIZE	% PASSING BY WEIGHT
#4	75–95
#10	60–90
#40	35–85
#200	20–70

1. CLAY FRACTION <10% PASSING THE #200 SIEVE.*

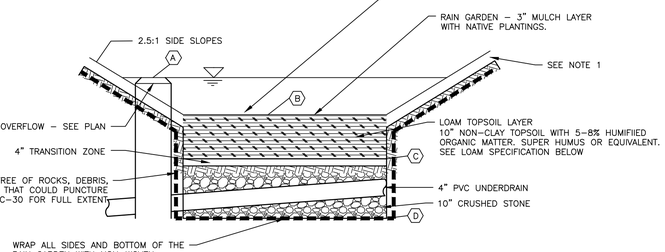
2. LOAM SHALL BE LOOSE AND FRIABLE AND SHALL BE FREE FROM ADMIXTURE OF SUBSOIL, REFUSE, LARGE STONES, CLODS OR ROOTS OR RHIZOMES OR "WITCH GRASS" OR OTHER UNDESIRABLE GRASSES.

CONSTRUCTION OBSERVATION:
CONSTRUCTION OBSERVATION SHALL BE PROVIDED FOR EACH PHASE OF CONSTRUCTION BY ACORN ENGINEERING. THE CONTRACTOR OR OWNERS REPRESENTATIVE SHALL NOTIFY ACORN ENGINEERING A MINIMUM 48 HOURS OR 2 BUSINESS DAY WHICH EVER IS GREATER PRIOR TO ANY OF THE PHASES OF CONSTRUCTION LISTED BELOW SO THAT THE FOLLOWING SITE VISITS MAY BE SCHEDULED.



CROSS SECTION

SCHEDULE	
ITEM	RAIN GARDEN
(A) PROPOSED OVERFLOW	87.75'
(B) TOP OF LOAM TOPSOIL LAYER	87.00'
(C) TOP OF TRANSITION LAYER	86.17'
(C) BOTTOM OF TRANSITION LAYER	85.83'
(D) BOTTOM OF CRUSHED STONE	85.00'

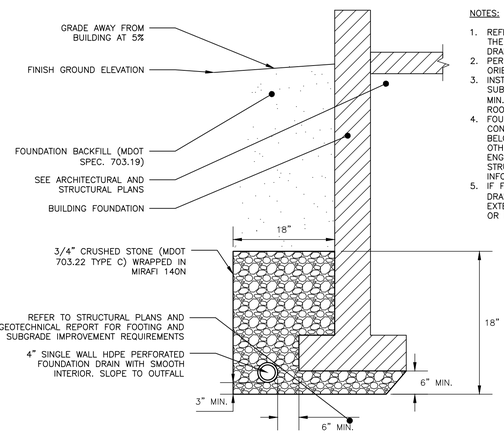


SIDE VIEW

NOTES:
1. THE SIDESLOPES SHALL BE STABILIZED WITH EROSION CONTROL BLANKETS SC150BN BY NORTH AMERICAN GREEN OR APPROVED EQUAL AND A CONSERVATION SEED MIX.
2. LIGHTLY COMPACT PIPE BEDDING MATERIAL. (90 TO 92% STANDARD PROCTOR).
3. ONCE CONSTRUCTION OF THE RAIN GARDEN HAS COMMENCED, STORMWATER SHALL NOT BE ROUTED TO THE GARDEN UNTIL THE RAIN GARDEN IS CONSTRUCTED AND PERMANENTLY STABILIZED WITH 90% VEGETATION.
4. PLANTINGS PER LANDSCAPE ARCHITECT.
5. TESTING: SIEVE ANALYSIS INCLUDING HYDROMETER TESTING FOR CLAY CONTENT FOR EACH LAYER SHALL BE PERFORMED BY A QUALIFIED SOIL TESTING LABORATORY AND SUBMITTED TO THE PROJECT ENGINEER FOR APPROVAL 2 WEEKS PRIOR TO CONSTRUCTION.

RAIN GARDEN DETAIL

NOT TO SCALE

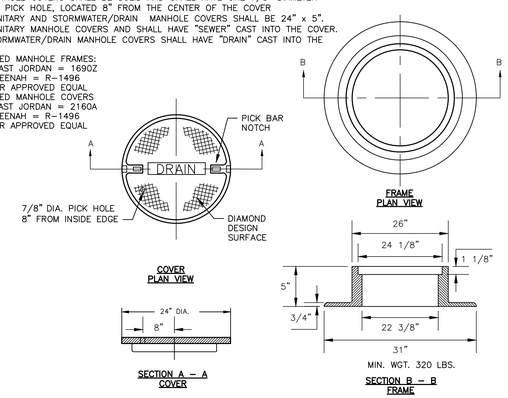


NOTES:
1. REFER TO THE BUILDING ARCHITECTS PLANS FOR THE BUILDING FOUNDATION, BACKFILL, ROOF DRAIN, SIDEWALK AND OTHER DETAILS.
2. PERFORATIONS IN UNDERDRAIN PIPE SHALL BE ORIENTED DOWN.
3. INSTALL STONE DRIP EDGE IN A LOCATIONS SUBJECT TO ROOF RUNOFF. WIDTH SHALL BE A MIN. 12" BEYOND THE PROJECTION OF THE ROOF EVE.
4. FOUNDATION WALL FOOTINGS SHALL BE CONSTRUCTED TO A MIN. DEPTH OF 4 FT BELOW ADJACENT FINISH GRADE UNLESS OTHERWISE SPECIFIED BY THE GEOTECHNICAL ENGINEER OR STRUCTURAL ENGINEER. REFER TO STRUCTURAL ENGINEERS PLANS FOR ADDITIONAL INFORMATION AND MIN. REQUIREMENTS.
5. IF FOUNDATION DRAIN DAYLIGHTS, INSTALL DRAINAGE SOLUTIONS ANIMAL GUARD 4" EXTERNAL PVC OR CORRUGATED PLASTIC PIPE, OR INDUSTRY APPROVED EQUAL.

FOUNDATION DRAIN DETAIL

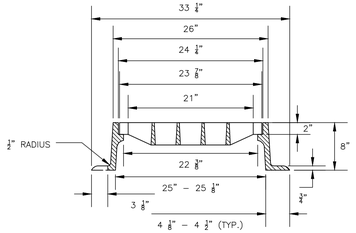
NOT TO SCALE

NOTES:
1. ALL MANHOLE COVERS SHALL BE SOLID AND SHALL HAVE ONE 7/8" DIAMETER DRILLED PICK HOLE, LOCATED 8" FROM THE CENTER OF THE COVER
2. ALL SANITARY AND STORMWATER/DRAIN MANHOLE COVERS SHALL BE 24" x 5".
3. ALL SANITARY MANHOLE COVERS AND SHALL HAVE "SEWER" CAST INTO THE COVER.
4. ALL STORMWATER/DRAIN MANHOLE COVERS SHALL HAVE "DRAIN" CAST INTO THE COVER.
5. APPROVED MANHOLE FRAMES:
   5.1. EAST JORDAN = 1690Z
   5.2. NEENAH = R-1496
   5.3. OR APPROVED EQUAL
6. APPROVED MANHOLE COVERS
   6.1. EAST JORDAN = 2160A
   6.2. NEENAH = R-1496
   6.3. OR APPROVED EQUAL

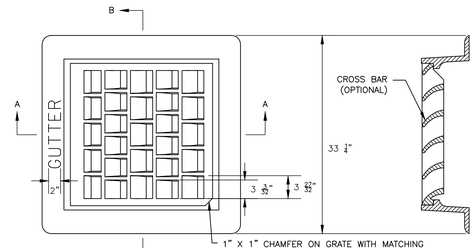


CAST IRON MANHOLE COVER AND FRAME

NOT TO SCALE



SECTION A-A

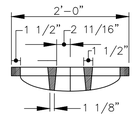


PLAN VIEW SECTION B-B

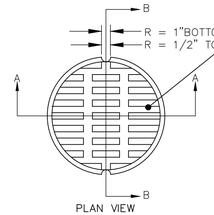
FRAME DETAIL

CATCH BASIN FRAME & GRATE – SQUARE

NOT TO SCALE

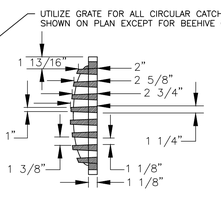


SECTION A-A



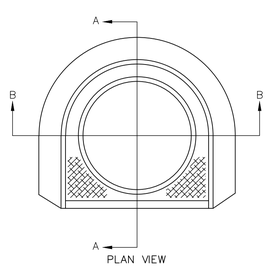
PLAN VIEW

GRATE DETAIL

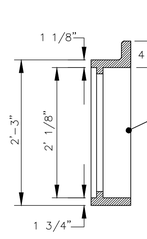


SECTION B-B

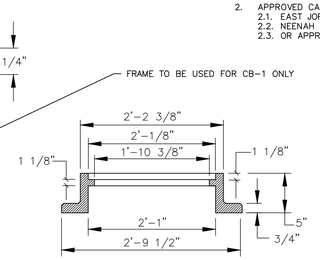
1. APPROVED CATCH BASIN FRAMES:
   1.1. EAST JORDAN = 7375Z
   1.2. NEENAH = R-3248
   1.3. OR APPROVED EQUAL
2. APPROVED CATCH BASIN GRATES
   2.1. EAST JORDAN = 2440M
   2.2. NEENAH = R-3248
   2.3. OR APPROVED EQUAL



PLAN VIEW



SECTION A-A



SECTION B-B

FRAME DETAIL

CIRCULAR CATCH BASIN FRAME & GRATE

NOT TO SCALE

PERMIT LEVEL
NOT ISSUED FOR CONSTRUCTION

ISSUED FOR

	BY
DATE	
SITE PLAN APPLICATION	SJL 12/7/2026
25% PROGRESS SET	SJL 12/10/2026
UTILITY COORDINATION	SJL 12/31/2026
COMMENT RESPONSE	SJL 2/27/2026

DRAWING NAME: DRAINAGE DETAILS
PROJECT NAME: 1871 FOREST AVE, PORTLAND, MAINE
PARCEL ID: 327A A004001
CLIENT: AVESTA HOUSING
307 CUMBERLAND AVE, PORTLAND, MAINE 04101

ACORN ENGINEERING, INC.
ENGINEERING | PLANNING | SURVEYING
P.O. BOX 3294 SACO, MAINE 04104
(207) 775-2655

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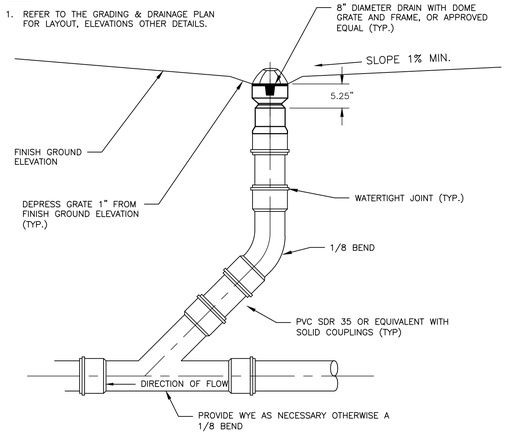
FILE:	DETAILS
DATE:	AS NOTED
JN:	1297
SCALE:	AS NOTED
DESIGNED BY:	MJVA
DRAWN BY:	MJVA
CHECKED BY:	SJL

STATE OF MAINE
Scott Lebel
SAMUEL J. LEBEL
No. 16505
LICENSED PROFESSIONAL ENGINEER
05/21/26

DRAWING NO.
C-46

NOTES:

1. REFER TO THE GRADING & DRAINAGE PLAN FOR LAYOUT, ELEVATIONS OTHER DETAILS.

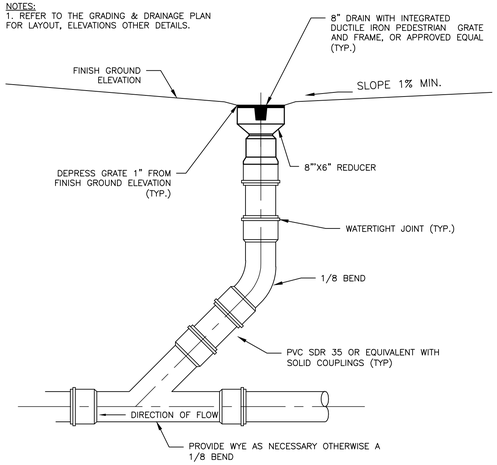


INLINE DRAIN DETAIL WITH BEEHIVE GRATE

NOT TO SCALE

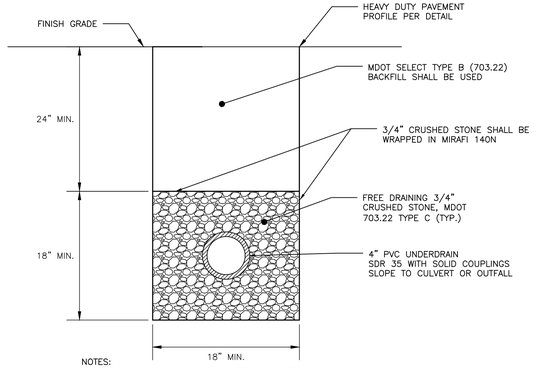
NOTES:

1. REFER TO THE GRADING & DRAINAGE PLAN FOR LAYOUT, ELEVATIONS OTHER DETAILS.



FIELD INLET WITH GRATE DETAIL

NOT TO SCALE

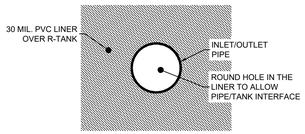


NOTES:
1. MINIMUM UNDERDRAIN SLOPE 0.0025 (0.25%)
2. PERFORATIONS IN UNDERDRAIN PIPE SHALL BE ORIENTED DOWN.

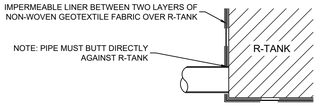
UNDERDRAIN DETAIL

NOT TO SCALE

CUT A ROUND HOLE IN THE LINER ENVELOPE AND GEOTEXTILE PROTECTION FABRIC THAT IS SLIGHTLY LARGER THAN THE PIPE.

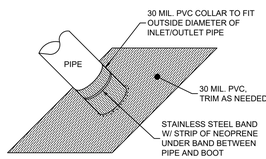


END VIEW OF PIPE/LINER CONNECTION

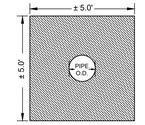


SIDE VIEW OF PIPE/LINER CONNECTION

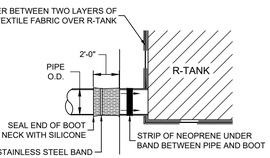
AFTER LINER IS CUT AND PIPE INSTALED, SLIDE BOOT AGAINST TANK AND SECURE WITH STAINLESS STEEL BAND, THEN BOND BOOT TO TANK LINER AND SEAL END OF BOOT WITH SILICONE. REPLACE ANY GEOTEXTILE PROTECTION FABRIC REMOVED DURING BOOT INSTALLATION PROCESS.



30 MIL. PVC BOOT



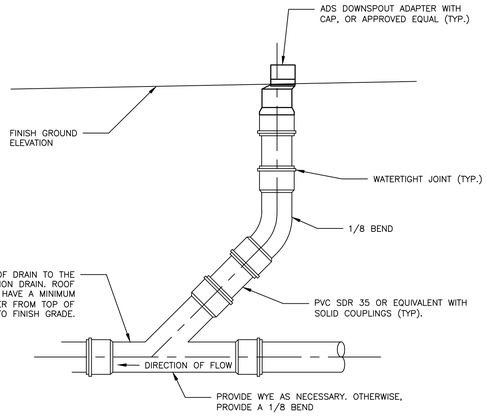
FRONT VIEW OF 30 MIL. PVC BOOT



SIDE VIEW OF 30 MIL PVC BOOT

R-TANK INLET/OUTLET

NOT TO SCALE

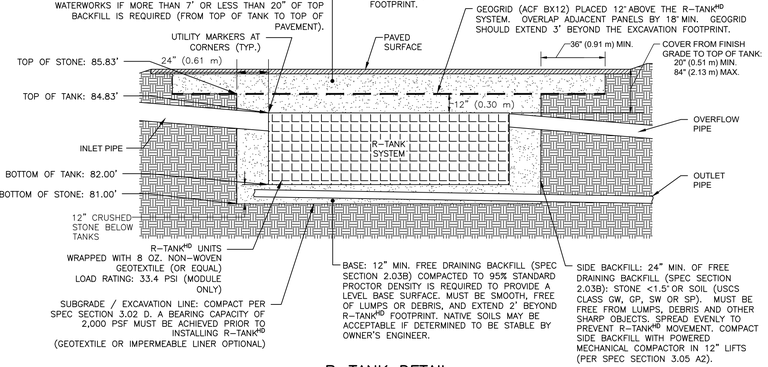


ROOF DRAIN DETAIL

NOT TO SCALE

TOTAL COVER: 20" MINIMUM AND 84" MAXIMUM. FIRST 12" MUST BE FREE DRAINING BACKFILL (SPEC SECTION 2.03B): STONE <1.5" OR SOIL (USCS CLASS GW, GP, SW OR SP). ADDITIONAL FILL MAY BE STRUCTURAL FILL (SPEC SECTION 2.03C): STONE OR SOIL (USCS CLASS SM, SP, SW, GM, GP OR GW) WITH MAX CLAY CONTENT<10%, MAX 25% PASSING NO. 200 SIEVE, AND MAX PLASTICITY INDEX OF 4. A MIN. 12" COVER MUST BE MAINTAINED BETWEEN BACKFILL EQUIPMENT AND THE TOP OF THE R-TANK™ SYSTEM AT ALL TIMES. TOTAL HEIGHT OF TOP BACKFILL SHOULD NOT EXCEED 7'. CONTACT FERGUSON WATERWORKS IF MORE THAN 7' OR LESS THAN 20" OF TOP BACKFILL IS REQUIRED (FROM TOP OF TANK TO TOP OF PAVEMENT).

NOTES:
1. FOR COMPLETE MODULE DATA, SEE APPROPRIATE R-TANK[HD] MODULE SHEET .
2. INSTALLATIONS PER THIS DETAIL MEET GUIDELINES OF HL-93 LOADING PER THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, CUSTOMARY U.S. UNITS, 7TH EDITION, 2014 WITH 2015 AND 2016 INTERIM REVISIONS.
3. PRE-TREATMENT STRUCTURES NOT SHOWN.
4. FOR INFILTRATION APPLICATIONS, GEOTEXTILE ENVELOPING R-TANK SHALL BE ACF M200 (PER SPEC SECTION 2.02A) AND BASE SHALL BE 4" MIN. UNCOMPACTED FREE DRAINING BACKFILL (SPEC SECTION 2.03A) TO PROVIDE A LEVEL BASE. SURFACE MUST BE SMOOTH, FREE OF LUMPS OR DEBRIS, AND EXTEND 2' BEYOND R-TANK[HD] FOOTPRINT.

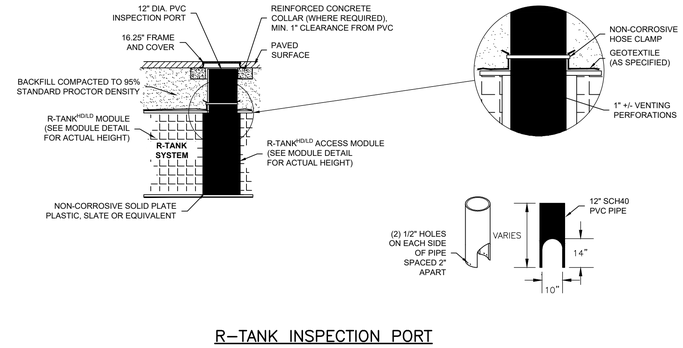


R-TANK DETAIL

NOT TO SCALE

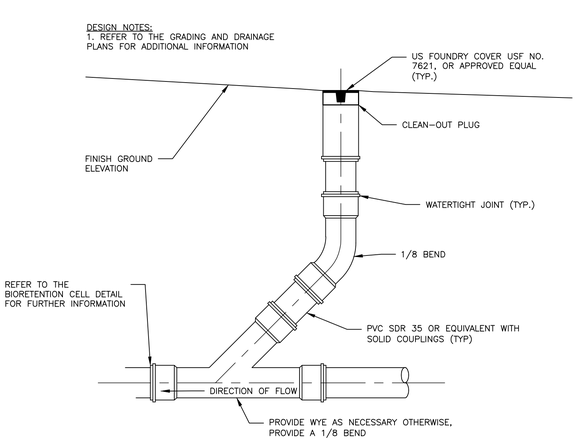
NOTES

1. THE INSPECTION PORT IS USED IN THE ACCESS MODULE TO INSPECT THE LEVEL OF SEDIMENT ACCUMULATION.
2. MINIMUM REQUIRED MAINTENANCE INCLUDES A QUARTERLY INSPECTION DURING THE FIRST YEAR OF OPERATION AND A YEARLY INSPECTION THEREAFTER. FLUSH AS NEEDED.
3. R-TANK[HD] MAY BE USED IN TRAFFIC APPLICATIONS.
4. SEE TRAFFIC LOADING DETAIL FOR MINIMUM & MAXIMUM COVER REQUIREMENTS.
5. IF INSPECTION PORT IS LOCATED IN A NON-TRAFFIC AREA, A PLASTIC CAP CAN BE USED IN LIEU OF A FRAME AND COVER WITH CONCRETE COLLAR.



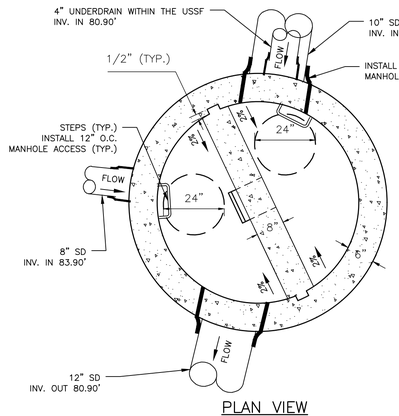
R-TANK INSPECTION PORT

NOT TO SCALE

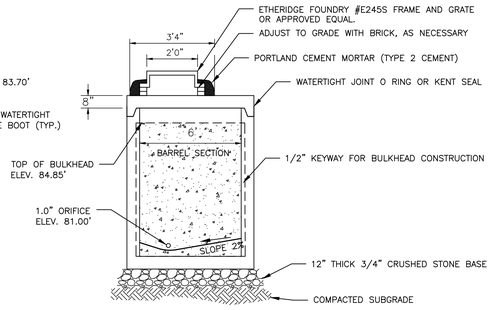


CLEANOUT DETAIL

NOT TO SCALE



PLAN VIEW



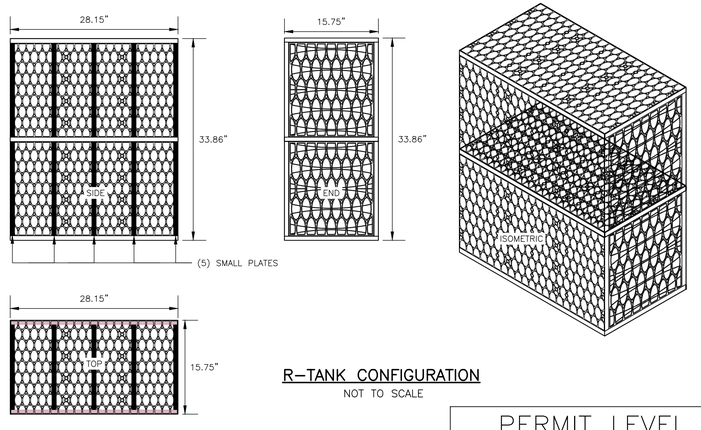
SIDE PROFILE

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.
5. JOINTS SEALED WITH BUTYL RUBBER.
6. POLYPROPYLENE STEPS 12" O.C.
7. ALL PIPES TO HAVE A WATERTIGHT SEAL

OUTLET CONTROL STRUCTURE

NOT TO SCALE



R-TANK CONFIGURATION

NOT TO SCALE

PERMIT LEVEL
NOT ISSUED FOR CONSTRUCTION

ISSUED FOR	BY	DATE
SITE PLAN APPLICATION	SJL	12/27/2025
25% PROGRESS SET	SJL	01/02/2026
UTILITY COORDINATION	SJL	01/21/2026
COMMENT RESPONSE	SJL	02/21/2026

DRAWING NAME: DRAINAGE DETAILS
PROJECT NAME: 1871 FOREST AVE, PORTLAND, MAINE
PARCEL ID: 327A A004001
CLIENT: AVESTA HOUSING
307 CUMBERLAND AVE, PORTLAND, MAINE 04101

ACORN ENGINEERING, INC.
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PO BOX 3294 PORTLAND, MAINE 04104
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FILE:	DETAILS
DATE:	AS NOTED
JN:	1297
SCALE:	AS NOTED
DESIGNED BY:	MJVA
DRAWN BY:	MJVA
CHECKED BY:	SJL

STATE OF MAINE
SAMUEL J. LEBEL
No. 16505
LICENSED PROFESSIONAL ENGINEER
05/21/26

DRAWING NO.
C-47

1.0 EROSION CONTROL MEASURES AND SITE STABILIZATION

AS PART OF THE SITE DEVELOPMENT, THE FOLLOWING TEMPORARY AND PERMANENT EROSION AND SEDIMENTATION CONTROL DEVICES SHALL BE IMPLEMENTED. DEVICES SHALL BE INSTALLED AS DESCRIBED IN THIS REPORT OR WITHIN THE PLAN SET. SEE THE MAINE EROSION AND SEDIMENT CONTROL HANDBOOK FOR CONSTRUCTION: BEST MANAGEMENT PRACTICES FOR FURTHER REFERENCE.

1.1 TEMPORARY EROSION CONTROL MEASURES

THE FOLLOWING TEMPORARY EROSION AND SEDIMENTATION CONTROL MEASURES ARE PLANNED FOR THE PROJECT'S CONSTRUCTION PERIOD:

1.1.1 CRUSHED STONE STABILIZED CONSTRUCTION ENTRANCES SHALL BE PLACED AT ALL ACCESS POINTS TO THE PROJECT SITE WHERE THERE ARE DISTURBED AREAS. THE FOLLOWING SPECIFICATIONS SHALL BE FOLLOWED AT A MINIMUM:
- STONE SIZE SHALL BE 2–3 INCHES, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
- THE THICKNESS OF THE ENTRANCE STONE LAYER SHALL BE NO LESS THAN 6 INCHES.
- THE ENTRANCE SHALL NOT BE LESS THAN 20 FEET WIDE, HOWEVER NOT LESS THAN THE FULL WIDTH OF POINTS WHERE INGRESS OR EGRESS OCCURS. THE LENGTH SHALL NOT BE LESS THAN 50 FEET IN LENGTH.
- GEOTEXTILE FABRIC (WOVEN OR NON–WOVEN) SHALL BE PLACED OVER THE ENTIRE ENTRANCE AREA.
- THE ENTRANCE/EXIT SHALL BE MAINTAINED TO THE EXTENT THAT IT WILL PREVENT THE TRACKING OF SEDIMENT ONTO PUBLIC ROAD WAYS.

1.1.2 SILTATION FENCE OR EROSION CONTROL BERM SHALL BE INSTALLED DOWN GRADIENT OF ANY DISTURBED AREAS TO TRAP RUNOFF BORNE SEDIMENTS UNTIL PERMANENT STABILIZATION IS ACHIEVED. THE SILT FENCE OR EROSION CONTROL BERM SHALL BE INSTALLED PER THE DETAILS PROVIDED IN THE PLAN SET AND INSPECTED BEFORE AND IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL. REPAIRS SHALL BE MADE IF THERE ARE ANY SIGNS OF EROSION OR SEDIMENTATION BELOW THE FENCE LINE OR BERM. 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.

1.1.3 HAY MULCH INCLUDING HYDRO SEEDING IS INTENDED TO PROVIDE COVER FOR DENUDED OR SEEDED AREAS UNTIL REVEGETATION IS ESTABLISHED. MULCH PLACED BETWEEN APRIL 15TH AND NOVEMBER 1ST ON SLOPES OF LESS THAN 15 PERCENT SHALL BE COVERED BY FABRIC NETTING AND ANCHORED WITH STAPLES IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATION. MULCH PLACED BETWEEN NOVEMBER 1ST AND APRIL 15TH ON SLOPES EQUAL TO OR STEEPER THAN 8 PERCENT AND EQUAL TO OR FLATTER THAN 2:1 SHALL USE MATS OR FABRIC NETTING AND ANCHORED WITH STAPLES IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATION.

1.1.4 AT ANY TIME OF THE YEAR, ALL SLOPES STEEPER THAN 3:1 SHALL BE STABILIZED WITH DOUBLE NET EROSION CONTROL BLANKET BIONET SC150BN BY NORTH AMERICAN GREEN OR APPROVED EQUAL, OR EROSION CONTROL MIX SLOPE PROTECTION AS DETAILED WITHIN THE PLANS.

1.1.5 FOREST AVENUE SHALL BE SWEPT TO CONTROL MUD AND DUST FROM THE CONSTRUCTION SITE AS NECESSARY. ADD ADDITIONAL STONE TO THE STABILIZED CONSTRUCTION ENTRANCE TO MINIMIZE THE TRACKING OF MATERIAL OFF THE SITE AND ONTO THE SURROUNDING ROADWAYS.

1.1.6 DURING DEMOLITION, CLEARING AND GRUBBING OPERATIONS, STONE CHECK DAMS SHALL BE INSTALLED AT ANY AREAS OF CONCENTRATED FLOW. THE MAXIMUM HEIGHT OF THE CHECK DAM SHALL NOT EXCEED 2 FEET. THE CENTER OF THE CHECK DAM SHALL BE 6 INCHES BELOW THE OUTER EDGES OF THE DAM. THE CONTRACTOR SHALL MULCH THE SIDE SLOPES AND INSTALL STONE CHECK DAMS FOR ALL NEWLY EXCAVATED DITCH LINES WITHIN 24 HOURS OF THEIR CREATION.

1.1.7 SILT FENCE STAKE SPACING SHALL NOT EXCEED 6 FEET UNLESS THE FENCE IS SUPPORTED WITH 14 GAUGE WIRE IN WHICH CASE THE MAXIMUM SPACING SHALL NOT EXCEED 10 FEET. THE SILT FENCE SHALL BE TOED INTO THE GROUND.

1.1.8 STORMDRAIN INLET PROTECTION SHALL BE PROVIDED TO STORMDRAINS THROUGH THE USE OF ANY OF THE FOLLOWING: HAY BALE DROP INLET STRUCTURES, SILT FENCE DROP INLET SEDIMENT FILTER, GRAVEL AND WIRE MESH DROP INLET SEDIMENT FILTER, OR CURB INLET SEDIMENT FILTER. BARRIERS SHALL BE INSPECTED AFTER EVERY RAINFALL EVENT AND REPAIRED AS NECESSARY. SEDIMENTS SHALL BE REMOVED WHEN ACCUMULATION HAS REACHED ½ THE DESIGN HEIGHT.

1.1.9 DUST CONTROL SHALL BE ACCOMPLISHED BY THE USE OF ANY OF THE FOLLOWING: WATER, CALCIUM CHLORIDE, STONE, OR AN APPROVED MDEP PRODUCT. DUST CONTROL SHALL BE APPLIED AS NEEDED TO ACCOMPLISH DUST CONTROL.

1.1.10 TEMPORARY LOAM, SEED, AND MULCHING SHALL BE USED IN AREAS WHERE NO OTHER EROSION CONTROL MEASURE IS USED. APPLICATION RATES FOR SEEDING ARE PROVIDED AT THE END OF THIS REPORT.

1.1.11 STOCKPILES SHALL BE STABILIZED WITHIN 7 DAYS OF FORMATION UNLESS A SCHEDULED RAIN EVENT OCCURS PRIOR TO THE 7 DAY WINDOW, IN WHICH CASE THE STOCKPILE SHALL BE STABILIZED PRIOR TO THE RAIN EVENT. METHODS OF STABILIZATION SHALL BE MULCH, EROSION CONTROL MIX, OR EROSION CONTROL BLANKETS/MATS. SILT FENCE OR A WOOD WASTE COMPOST FILTER BERM SHALL BE PLACED DOWNHILL OF ANY SOIL STOCKPILE LOCATION.

1.1.12 FOR DISTURBANCE BETWEEN NOVEMBER 1 AND APRIL 15, PLEASE REFER TO WINTER STABILIZATION PLAN IN THIS REPORT AND THE MAINE EROSION AND SEDIMENT CONTROL BMP MANUAL FOR FURTHER INFORMATION.

1.1.13 IT IS OF THE UTMOST IMPORTANCE THAT STORMWATER RUNOFF AND POTENTIAL SEDIMENT FROM THE CONSTRUCTION SITE BE DIVERTED AROUND THE PROPOSED UNDERDRAINS UNTIL THE TRENCH IS BACKFILLED.

1.2 PERMANENT EROSION CONTROL MEASURES

THE FOLLOWING PERMANENT EROSION CONTROL MEASURES ARE INTENDED FOR POST DISTURBANCE AREAS OF THE PROJECT.

1.2.1 ALL DISTURBED AREAS DURING CONSTRUCTION, NOT SUBJECT TO OTHER PROPOSED CONDITIONS, SHALL RECEIVE A MINIMUM 4 OF LOAM AND SHALL BE LIMED, AND MULCHED. EROSION CONTROL BLANKETS OR MATS SHALL BE PLACED OVER THE MULCH IN AREAS NOTED IN PARAGRAPH 4.2 OF THIS REPORT.

1.2.2 ALL STORMWATER DEVICES SHALL BE INSTALLED AND TRIBUTARY AREAS STABILIZED PRIOR RECEIVING STORMWATER.

1.2.3 REFER TO THE MAINE EROSION AND SEDIMENT CONTROL BMP MANUAL FOR ADDITIONAL INFORMATION.

2.0 EROSION AND SEDIMENTATION CONTROL PLAN

2.1 THE EROSION AND SEDIMENTATION CONTROL PLAN IS INCLUDED WITHIN THE PLAN SET.

3.0 DETAILS AND SPECIFICATIONS

3.1 EROSION CONTROL DETAILS AND SPECIFICATIONS ARE INCLUDED IN THE PLAN SET.

4.0 STABILIZATION PLAN FOR WINTER CONSTRUCTION

WINTER CONSTRUCTION CONSISTS OF EARTHWORK DISTURBANCE BETWEEN THE DATES OF NOVEMBER 1 AND APRIL 15. IF A CONSTRUCTION SITE IS NOT STABILIZED WITH PAVEMENT, A ROAD GRAVEL BASE, 75% MATURE VEGETATION COVER OR RIPRAP BY NOVEMBER 15, THEN THE SITE SHALL BE PROTECTED WITH OVER–WINTER STABILIZATION. ANY AREA NOT STABILIZED WITH PAVEMENT, VEGETATION, MULCHING, EROSION CONTROL MIX, EROSION CONTROL MATS, RIPRAP, OR GRAVEL BASE ON A ROAD SHALL BE CONSIDERED OPEN.

THE CONTRACTOR SHALL LIMIT THE WORK AREA TO AREAS THAT WORK WILL OCCUR IN DURING THE SUBSEQUENT 15 DAYS AND SO THAT IT CAN BE MULCHED ONE DAY PRIOR TO A SNOW EVENT. THE CONTRACTOR SHALL STABILIZE WORK AREAS PRIOR TO OPENING ADDITIONAL WORK AREAS TO MINIMIZE AREAS WITHOUT EROSION CONTROL MEASURES.

THE FOLLOWING MEASURES SHALL BE IMPLEMENTED DURING WINTER CONSTRUCTION PERIODS:

4.1 SEDIMENT BARRIERS

DURING FROZEN CONDITIONS, SEDIMENT BARRIERS MAY CONSIST OF EROSION CONTROL MIX BERMS OR ANY OTHER RECOGNIZED SEDIMENT BARRIERS AS FROZEN SOIL PREVENTS THE PROPER INSTALLATION OF HAY BALES OR SILT FENCES.

4.2 MULCHING

ALL AREAS SHALL BE CONSIDERED TO BE DENUDED UNTIL 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. EROSION CONTROL MIX MUST BE APPLIED WITH A MINIMUM 4 INCH THICKNESS. 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 OR ADEQUATELY ANCHORED SO THAT GROUND SURFACE IS NOT VISIBLE THROUGH THE MULCH. BETWEEN THE DATES OF NOVEMBER 1 AND APRIL 15, ALL MULCH SHALL BE ANCHORED BY EITHER MULCH NETTING, TRACKING OR WOOD CELLULOSE FIBER. THE COVER WILL BE CONSIDERED SUFFICIENT WHEN THE GROUND SURFACE IS NOT VISIBLE THROUGH THE MULCH. AFTER NOVEMBER 1ST, MULCHING AND ANCHORING OF ALL EXPOSED SOIL SHALL OCCUR AT THE END OF EACH FINAL GRADING WORKDAY.

4.3 SOIL STOCKPILING

STOCKPILES OF SOIL OR SUBSOIL SHALL BE MULCHED FOR OVER WINTER PROTECTION WITH HAY OR STRAW AT TWICE THE NORMAL RATE OR WITH A FOUR–INCH LAYER OF EROSION CONTROL MIX. THIS SHALL BE DONE WITHIN 24 HOURS OF STOCKING AND RE–ESTABLISHED PRIOR TO ANY RAINFALL OR SNOWFALL.

4.4 SEEDING

BETWEEN THE DATES OF OCTOBER 15TH AND APRIL 1ST, LOAM OR SEED SHALL 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 NOT BEEN LOAMED, FINAL GRADING 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 PLACED PRIOR TO THE PLACEMENT OF MULCH OR EROSION CONTROL BLANKETS. 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.

4.5 OVER WINTER STABILIZATION OF DISTURBED SOILS

BY SEPTEMBER 15TH, ALL DISTURBED SOILS ON AREAS HAVING A SLOPE LESS THAN 15% SHALL BE SEEDED AND MULCHED. IF THE DISTURBED AREAS ARE NOT STABILIZED BY THIS DATE, THEN ONE OF THE FOLLOWING ACTIONS SHALL BE TAKEN TO STABILIZE THE SOIL FOR LATE FALL AND WINTER:

- STABILIZE THE SOIL WITH TEMPORARY VEGETATION – BY OCTOBER 1ST, SEED THE DISTURBED SOIL WITH WINTER RYE AT A SEEDING RATE OF 3LBS PER 1,000 S.F., LIGHTLY MULCH THE SEEDED SOIL WITH HAY OR STRAW AT 75 LBS PER 1000 S.F., AND ANCHOR THE MULCH WITH PLASTIC NETTING. MONITOR GROWTH OF THE RYE OVER THE NEXT 30 DAYS. IF THE RYE FAILS TO GROW AT LEAST THREE INCHES OR FAILS TO COVER AT LEAST 75% OF THE DISTURBED SOIL BEFORE NOVEMBER 1ST, THEN MULCH THE AREA FOR OVER–WINTER PROTECTION.

- STABILIZE THE SOIL WITH SOD – STABILIZE THE DISTURBED SOIL WITH PROPERLY INSTALLED SOD BY OCTOBER 1ST. PROPER INSTALLATION INCLUDES 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 15TH, MULCH THE DISTURBED SOIL BY SPREADING HAY OR STRAW AT A RATE OF AT LEAST 150 LBS PER 1,000 S.F. ON THE AREA SO THAT NO SOIL IS VISIBLE THROUGH THE MULCH. IMMEDIATELY AFTER APPLYING THE MULCH, ANCHOR THE MULCH WITH NETTING TO PREVENT WIND FROM MOVING THE MULCH OFF THE DISTURBED SOIL.

4.6 OVER WINTER STABILIZATION OF DISTURBED SLOPES

ALL STONE–COVERED SLOPES SHALL BE CONSTRUCTED AND STABILIZED BY NOVEMBER 15TH. ALL SLOPES TO BE VEGETATED SHALL BE SEEDED AND MULCHED BY SEPTEMBER 1ST. A SLOPE IS CONSIDERED A GRADE GREATER THAN 15%. IF A SLOPE TO BE VEGETATED IS NOT STABILIZED BY SEPTEMBER 1ST, THEN ONE OF THE FOLLOWING ACTION SHALL BE TAKEN TO STABILIZE THE SLOPE FOR LATE FALL AND WINTER:

- STABILIZE THE SOIL WITH TEMPORARY VEGETATION AND EROSION CONTROL MATS – BY OCTOBER 1ST THE DISTURBED SLOPE SHALL BE SEEDED WITH WINTER RYE AT A SEEDING RATE OF 3 LBS PER 1,000 S.F. AND THEN INSTALL EROSION CONTROL MATS OR ANCHORED MULCH OVER THE SEEDING. IF THE RYE FAILS TO GROW AT LEAST THREE INCHES OR FAILS TO COVER AT LEAST 75% OF THE SLOPE BY NOVEMBER 1ST, THEN THE CONTRACTOR SHALL COVER THE SLOPE WITH A LAYER OF EROSION CONTROL MIX OR WITH STONE RIPRAP.

- STABILIZE THE SOIL WITH SOD – THE DISTURBED SLOPE SHALL BE STABILIZED WITH PROPERLY INSTALLED SOD BY OCTOBER 1ST. PROPER INSTALLATION INCLUDES THE CONTRACTOR 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 CONTRACTOR SHALL NOT USE LATE–SEASON SOD INSTALLATION TO STABILIZE SLOPES HAVING A GRADE GREATER THAN 3H:1V OR HAVING GROUNDWATER SEEPS ON THE SLOPE FACE.

- STABILIZE THE SOIL WITH EROSION CONTROL MIX – EROSION CONTROL MIX SHALL BE PROPERLY INSTALLED BY NOVEMBER 15TH. THE CONTRACTOR SHALL NOT USE EROSION CONTROL MIX TO STABILIZE SLOPES HAVING GRADES GREATER THAN 2H:1V OR HAVING GROUNDWATER SEEPS ON THE SLOPE FACE.

- STABILIZE THE SOIL WITH STONE RIPRAP – PLACE A LAYER OF STONE RIPRAP ON THE SLOPE BY NOVEMBER 15TH. A REGISTERED PROFESSIONAL ENGINEER SHALL BE HIRED TO DETERMINE THE STONE SIZE NEEDED FOR STABILITY ON THE SLOPE AND TO DESIGN A FILTER LAYER FOR UNDERNEATH THE RIPRAP.

5.0 INSPECTION AND MAINTENANCE

A PERSON WITH KNOWLEDGE OF EROSION AND STORMWATER CONTROL, INCLUDING THE STANDARDS AND CONDITIONS IN THE PERMIT, SHALL CONDUCT PERIODIC VISUAL INSPECTIONS OF INSTALLED EROSION CONTROL MEASURES. THE FREQUENCY OF INSPECTION SHALL OCCUR AT LEAST ONCE EVERY TWO WEEKS, AS WELL AS AFTER A STORM EVENT . A STORM EVENT SHALL CONSIST 0.5 INCHES OF RAIN WITHIN A 24 HOUR PERIOD. THE FOLLOWING EROSION AND SEDIMENT CONTROL – BEST MANAGEMENT PRACTICES (BMP'S) SHALL INSPECTED IN THE MANNER AS DESCRIBED.

5.1 SEDIMENT BARRIERS

HAY BALE BARRIERS, SILT FENCES AND FILTER BERMS SHALL BE INSPECTED AND REPAIRED FOR THE FOLLOWING IF THERE ARE ANY SIGNS OF EROSION OR SEDIMENTATION BELOW THEM. IF THERE ARE SIGNS OF UNDERCUTTING AT THE CENTER OR THE EDGES OF THE BARRIER, OR IMPOUNDING OF LARGE VOLUMES OF WATER BEHIND THEM, SEDIMENT BARRIERS SHALL BE REPLACED WITH A TEMPORARY CHECK DAM. SHOULD THE FABRIC ON A SILT FENCE OR FILTER BARRIER DECOMPOSE OR BECOME INEFFECTIVE PRIOR TO THE END OF THE EXPECTED USABLE LIFE AND THE BARRIER IS STILL NECESSARY, THE FABRIC SHALL BE REPLACED PROMPTLY. SEDIMENT DEPOSITS SHOULD BE REMOVED WHEN DEPOSITS REACH APPROXIMATELY ONE–HALF THE HEIGHT OF THE BARRIER. FILTER BERMS SHOULD BE RESHAPED AS NEEDED. ANY SEDIMENT DEPOSITS REMAINING IN PLACE AFTER THE SILT FENCE OR FILTER BARRIER IS NO LONGER REQUIRED SHOULD BE DRESSED TO CONFORM TO THE EXISTING GRADE, PREPARED AND SEEDED.

5.2 STABILIZED STONE CONSTRUCTION ENTRANCES

THE EXIT SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OF SEDIMENT ONTO PUBLIC RIGHTS–OF–WAY. WHEN THE CONTROL PAD BECOMES INEFFECTIVE, THE STONE SHALL BE REMOVED ALONG WITH THE COLLECTED SOIL MATERIAL AND REDISTRIBUTED ON SITE IN A STABLE MANNER. THE ENTRANCE SHOULD THEN BE RECONSTRUCTED. THE CONTRACTOR SHALL SWEEP OR WASH PAVEMENT AT EPG, WHICH HAVE EXPERIENCED MUD–TRACKING ON TO THE PAVEMENT OR TRAVELED WAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH AGGREGATE, WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE. ALL SEDIMENT SHALL BE PREVENTED FROM ENTERING STORM DRAINS, DITCHES, OR WATERWAYS.

5.3 MULCHED AREAS

ALL MULCHES MUST BE INSPECTED PERIODICALLY, IN PARTICULAR AFTER RAINSTORMS, TO CHECK FOR RILL EROSION. IF LESS THAN 90% OF THE SOIL SURFACE IS COVERED BY MULCH, ADDITIONAL MULCH SHALL BE IMMEDIATELY APPLIED. NETS MUST BE INSPECTED AFTER RAIN EVENTS FOR DISLOCATION OR FAILURE. IF WASHOUTS OR BREAKAGE OCCUR, RE–INSTALL THE NETS AS NECESSARY AFTER REPAIRING DAMAGE TO THE SLOPE. WHERE MULCH IS USED IN CONJUNCTION WITH ORNAMENTAL PLANTINGS, INSPECT PERIODICALLY THROUGHOUT THE YEAR TO DETERMINE IF MULCH IS MAINTAINING COVERAGE OF THE SOIL SURFACE. REPAIR AS NEEDED.

5.4 DUST CONTROL

WHEN TEMPORARY DUST CONTROL MEASURES ARE USED, REPETITIVE TREATMENT SHALL BE APPLIED AS NEEDED TO ACCOMPLISH CONTROL.

5.5 STORMWATER APPURTENANCES

ALL UNDERDRAINS, STORM DRAINS, AND CATCH BASINS NEED TO BE OPERATING EFFECTIVELY AND FREE OF DEBRIS.

5.6 EROSION AND SEDIMENTATION CONTROL INSPECTIONS:

ACORN ENGINEERING HAS PERSONNEL QUALIFIED TO CONDUCT EROSION AND SEDIMENTATION CONTROL INSPECTIONS. FOR FURTHER INFORMATION CONTACT:

CONTACT: WILL SAVAGE, PE
TELEPHONE: (207) 775–2655

QUALIFICATIONS:

- Ø MAINE PROFESSIONAL ENGINEERING LICENSE #11419
- Ø MAINE DEP – CERTIFIED IN MAINTENANCE & INSPECTION OF STORMWATER BMP'S CERT #14
- Ø CERTIFIED EROSION, SEDIMENT AND STORM WATER INSPECTOR (CESSWI) CERT #0293
- Ø CERTIFIED PROFESSIONAL IN EROSION AND SEDIMENT CONTROL (CPESC) CERT. #4620

THE CONTRACTOR HAS SOLE RESPONSIBILITY FOR COMPLYING WITH THE EROSION AND SEDIMENTATION REPORT/PLAN, INCLUDING CONTROL OF FUGITIVE DUST. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY MONETARY PENALTIES RESULTING FROM FAILURE TO COMPLY WITH THESE STANDARDS.

6.0 IMPLEMENTATION SCHEDULE

THE FOLLOWING IMPLEMENTATION SEQUENCE IS INTENDED TO MAXIMIZE THE EFFECTIVENESS OF THE ABOVE DESCRIBED EROSION CONTROL MEASURES. CONTRACTORS SHOULD AVOID OVEREXPOSING DISTURBED AREAS AND LIMIT THE AMOUNT OF STABILIZATION AREA.

1. INSTALL A STABILIZED CONSTRUCTION ENTRANCE IN ALL LOCATIONS WHERE CONSTRUCTION TRAFFIC WILL ENTER AND EXIT THE SITE.
2. INSTALL PERIMETER SILT FENCE OR EROSION CONTROL BERM.
3. INSTALL ALL OTHER EROSION CONTROL DEVICES AS NECESSARY THROUGHOUT THE REMAINDER OF THIS SCHEDULE.
4. COMMENCE INSTALLATION OF DRAINAGE INFRASTRUCTURE.
5. PRIORITIZE THE DOWNHILL SIDE TO CONTAIN RUNOFF WITHIN THE SITE WHILE PROVIDING AN ENGINEERED OUTLET WITH SILTATION BARRIER.
6. COMMENCE EARTHWORK OPERATIONS, WALL AND FOUNDATION INSTALLATION.
7. COMMENCE INSTALLATION OF UTILITIES.
8. CONTINUE EARTHWORK AND GRADING TO SUBGRADE AS NECESSARY FOR CONSTRUCTION.
9. COMPLETE INSTALLATION OF DRAINAGE INFRASTRUCTURE, AS WELL AS OTHER UTILITY WORK.
10. COMPLETE REMAINING EARTHWORK OPERATIONS.
11. INSTALL SUB–BASE AND BASE GRAVELS IN PAVED AREAS.
12. INSTALL PAVING, CURBING AND BRICKWORK.
13. LOAM, LIME, FERTILIZE, SEED AND MULCH DISTURBED AREAS AND COMPLETE ALL LANDSCAPING.
14. ONCE THE SITE IS STABILIZED, 90% CATCH OF GRASS HAS BEEN OBTAINED, OR MULCHING OF LANDSCAPE AREAS IS COMPLETE REMOVE ALL TEMPORARY EROSION CONTROL MEASURES.
15. TOUCH UP AREAS WITHOUT A VIGOROUS CATCH OF GRASS WITH LOAM AND SEED.
16. COMPLETE SITE SIGNAGE AND STRIPING.
17. EXECUTE PROPER MAINTENANCE OF ALL TEMPORARY AND PERMANENT EROSION CONTROL MEASURES THROUGHOUT THE PROJECT.

THE ABOVE IMPLEMENTATION SEQUENCE SHOULD BE GENERALLY FOLLOWED BY THE SITE CONTRACTOR. HOWEVER, THE CONTRACTOR MAY CONSTRUCT SEVERAL ITEMS SIMULTANEOUSLY. THE CONTRACTOR SHALL SUBMIT TO THE OWNER A SCHEDULE OF THE COMPLETION OF THE WORK. IF THE CONTRACTOR IS TO COMMENCE THE CONSTRUCTION OF MORE THAN ONE ITEM ABOVE, THEY SHALL LIMIT THE AMOUNT OF EXPOSED AREAS TO THOSE AREAS IN WHICH WORK IS EXPECTED TO BE UNDERTAKEN DURING THE FOLLOWING 30 DAYS.

THE CONTRACTOR SHALL RE–VEGETATE DISTURBED AREAS AS RAPIDLY AS POSSIBLE. ALL AREAS SHALL BE PERMANENTLY STABILIZED WITHIN 7 DAYS OF FINAL GRADING OR BEFORE A STORM EVENT. THE CONTRACTOR SHALL INCORPORATE PLANNED INLETS AND DRAINAGE SYSTEMS AS EARLY AS POSSIBLE INTO THE CONSTRUCTION PHASE.

7.0 SEEDING PLAN

7.1 SITE PREPARATION

THE SEEDED AREAS SHALL BE FEASIBLY GRADED OUT TO PROVIDE THE USE OF EQUIPMENT FOR SEEDBED PREPARATION, SEEDING, MULCH APPLICATION, AND MULCH ANCHORING. IF NECESSARY, THE SITE MAY REQUIRE ADDITIONAL TEMPORARY EROSION CONTROL MEASURES OUTLINED IN THE EROSION CONTROL REPORT.

7.2 SEEDBED PREPARATION

FERTILIZER SHALL BE APPLIED TO THE SITE AT A RATE OF 13.8 POUNDS PER 1,000 SQUARE FEET. THE COMPOSITION OF THE FERTILIZER SHALL BE 10–10–10 (N–P205–K20) OR EQUIVALENT.

LIMESTONE SHALL BE APPLIED TO THE SITE AT A RATE OF 138 POUNDS PER 1,000 SQUARE FEET.

7.3 SEEDING

THE COMPOSITION AND AMOUNT OF TEMPORARY SEED APPLIED TO A SITE SHALL BE DETERMINED BY THE FOLLOWING TABLE:

TEMPORARY SEED APPLICATION RATES

SEED	LBS / ACRE	RECOMMENDED SEEDING DATES
WINTER RYE	2.57	8/15 TO 10/1
OATS	1.84	4/1 TO 7/1 8/15 TO 9/15
ANNUAL RYGRASS	0.92	4/1 TO 7/1
SUDANGRASS	0.92	5/15 TO 8/15
PERENNIAL	0.92	8/15 TO 9/15
TOTAL	7.17 LBS/ACRE	

PERMANENT SEED APPLICATION RATES

SEED	LBS / ACRE
KENTUCKY BLUEGRASS	20.00
CREEPING RED FESCUE	20.00
PERENNIAL RYEGRASS	4.80
TOTAL	44.8 LBS/ACRE

7.4 MULCHING

MULCH SHALL BE HARDWOOD AND APPLIED AT A RATE OF 70 LBS – 90 LBS PER 1,000 SQUARE FEET. THE MULCH SHALL BE INSTALLED AT A MINIMUM DEPTH OF 4 INCHES. THE SEEDED AREA SHALL BE MULCHED IMMEDIATELY AFTER SEED IS APPLIED. MULCHING DURING THE WINTER SEASON SHALL BE DOUBLE THE NORMAL AMOUNT. REFER TO DETAIL FOR MORE INFORMATION.

8.0 CONCLUSION

THE ABOVE EROSION CONTROL NARRATIVE IS INTENDED TO MINIMIZE THE DEVELOPMENT IMPACT BY IMPLEMENTING TEMPORARY AND PERMANENT EROSION CONTROL MEASURES. THE CONTRACTOR SHALL ALSO REFER TO THE MAINE EROSION AND SEDIMENT CONTROL BMP MANUAL FOR ADDITIONAL INFORMATION.

PERMIT LEVEL
NOT ISSUED FOR
CONSTRUCTION

ISSUED FOR

BY	DATE
SITE PLAN APPLICATION	SJL 3/27/2026

DRAWING NAME: EROSION & SEDIMENTATION CONTROL NOTES
PROJECT NAME: 1871 FOREST AVE, PORTLAND, MAINE
PARCEL ID: 327A A004001
CLIENT: AVESTA HOUSING
307 CUMBERLAND AVE, PORTLAND, MAINE 04101

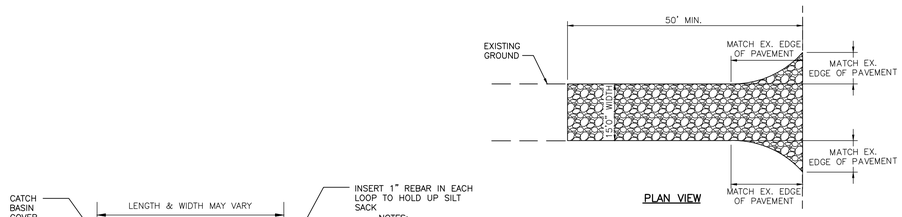
THESE PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION OR OTHERWISE SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO ACORN ENGINEERING, INC.

ACORN ENGINEERING, INC.
56 COMMERCIAL STREET, SUITE 4E, PORTLAND, MAINE 04104
PO BOX 7183 PORTLAND, MAINE 04112
(207) 775–2655

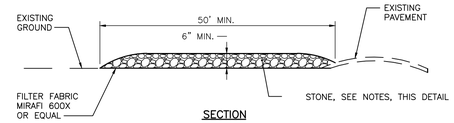
FILE: DETAILS
DATE: AS NOTED
JN: 1297
SCALE: AS NOTED
DESIGNED BY: ALDV
DRAWN BY: MJVA
CHECKED BY: SJL

STATE OF MAINE
SAMUEL J. LEBEL
No. 16505
LICENSED
PROFESSIONAL ENGINEER
03/10/26

DRAWING NO.
C-47



PLAN VIEW



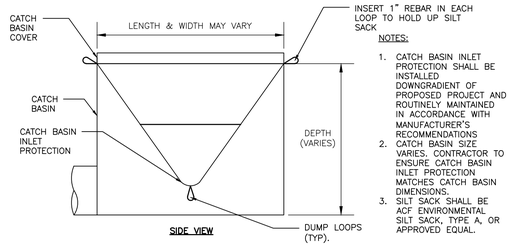
SECTION

NOTES:

1. CONTRACTOR SHALL ADD STONE TO ENTRANCE AS MUD/SILT MATERIAL ACCUMULATES
2. STONE SHALL BE 2"–3" COARSE AGGREGATE
3. CONSTRUCTION ENTRANCE SHALL BE GRADED TO NOT ALLOW ANY STORMWATER TO BE CONVEYED OFF SITE. IN SITUATIONS WHERE THIS IS NOT POSSIBLE, ANY STORMWATER CONVEYED OFFSITE SHALL BE TREATED OR RETAINED IN A MANNER APPROVED BY ENGINEER.
4. WHEN NECESSARY, ON–SITE VEHICLES SHALL HAVE THEIR WHEELS CLEANED PRIOR TO LEAVING SITE.
5. CONSTRUCTION ENTRANCE SHALL BE GRADED IN A MANNER THAT PREVENTS TRACKING OF SEDIMENTS ONTO PUBLIC RIGHT–OF–WAY

STABILIZED CONSTRUCTION ENTRANCE

NOT TO SCALE



SIDE VIEW

NOTES:

1. CATCH BASIN INLET PROTECTION SHALL BE INSTALLED DOWNGRADIENT OF PROPOSED PROJECT AND ROUTINELY MAINTAINED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS
2. CATCH BASIN SIZE VARIES. CONTRACTOR TO ENSURE CATCH BASIN INLET PROTECTION MATCHES CATCH BASIN DIMENSIONS.
3. SILT SACK SHALL BE ACF ENVIRONMENTAL SILT SACK, TYPE A, OR APPROVED EQUAL.

CATCH BASIN INLET PROTECTION

NOT TO SCALE

NOTES:

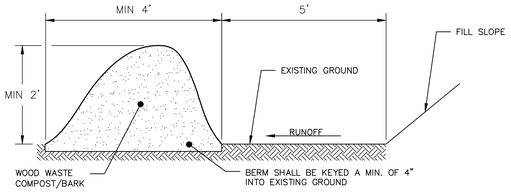
1. THE EROSION CONTROL MIX SHALL CONFORM TO THE FOLLOWING STANDARDS AND IN ACCORDANCE WITH THE MAINE DOT CHAPTER 700, SECTION 717.04(D):

   1.1. pH BETWEEN 5.0 – 8.0
   1.2. PARTICLE SIZE (BY WEIGHT):
   1.2.1. 100% PASSING A 150 MM (6 IN) SCREEN
   1.2.2. 75 TO 85% PASSING A 19 MM (0.75 IN) SCREEN
   1.3. SOLUBLE SALTS CONTENT < 4.0 MMHOS/CM
   1.4. ORGANIC MATTER 20 TO 100% , DRY WEIGHT BASIS

2. THE BERM SHOULD BE PLACED, UNCOMPACTED, ALONG A RELATIVELY LEVEL CONTOUR, WHEN NECESSARY THE BERM MAY BE PLACED PERPENDICULAR TO THE SLOPE ALONG THE PROPERTY LINE TO CONTAIN THE SEDIMENT PROVIDED A BERM IS LOCATED AT THE BASE OF THE SLOPE.

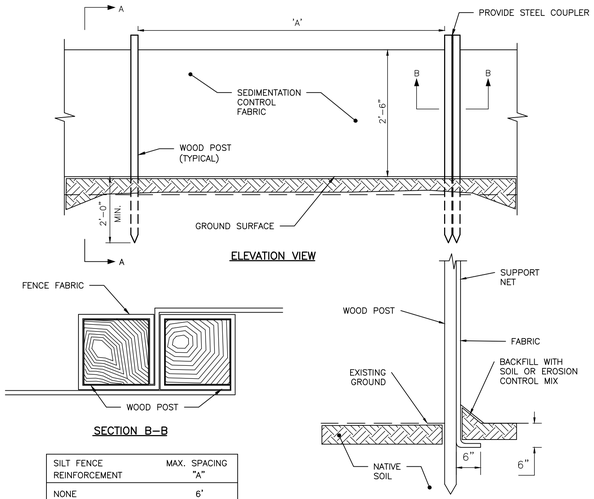
3. BERMS SHALL REMAIN IN PLACE UNTIL UPSTREAM AREA IS STABILIZED OR 90% CATCH OF VEGETATION IS ATTAINED. BERMS SHALL BE REMOVED OFFSITE OR BY SPREADING SUCH THAT NATIVE EARTH CAN BE SEEN BELOW.

4. 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 BERM DETAIL

NOT TO SCALE



ELEVATION VIEW

SECTION B–B

SECTION A–A

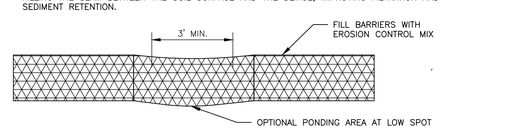
SILT FENCE REINFORCEMENT	MAX. SPACING "A"
NONE	6'
WIRE REINFORCEMENT 14 GAUGE, 6" MESH	10'

SILTATION FENCE DETAIL

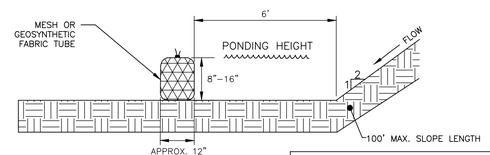
NOT TO SCALE

NOTES:

1. FULL CONTACT WITH THE GROUND IS CRITICAL TO PREVENT SHORT CIRCUITING UNDER THE TUBE – THE GROUND SURFACE SHOULD BE SMOOTH AND LEVEL. IN WOODED AREAS, PROTRUDING ROOTS AND DEBRIS MAY NEED TO BE REMOVED. IN GRASSED AREAS, THE GRASS NEEDS TO BE EITHER MOWED OR COMPRESSED DOWN.
2. STAKING MAY BE NECESSARY ON STEEP SLOPES.
3. UPON FINAL STABILIZATION, THE TUBE CAN BE CUT OPEN AND THE MATERIAL SPREAD OUT ONTO THE GROUND. THE MESH MATERIAL SHOULD BE REMOVE.
4. LOOSE COMPOST MAY BE BACKFILLED ALONG THE UPSLOPE SIDE OF THE COMPOST FILTER SOCK, FILLING THE SEAM BETWEEN THE SOIL SURFACE AND THE DEVICE, IMPROVING FILTRATION AND SEDIMENT RETENTION.



FRONT VIEW



SIDE VIEW

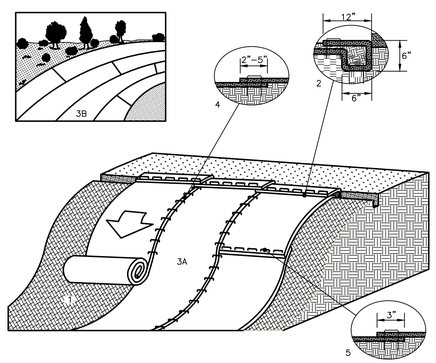
FILTER SOCK DETAIL

NOT TO SCALE

SLOPE INSTALLATION DETAIL

1. PREPARE SOIL BEFORE INSTALLING ROLLED EROSION CONTROL PRODUCTS (ECB), INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED.
2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE ECB IN A 6" DEEP X 6" WIDE TRENCH WITH APPROXIMATELY 12" OF ECB EXTENDED BEYOND THE UP–SLOPE PORTION OF THE TRENCH. ANCHOR THE ECB WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO THE COMPACTED SOIL AND FOLD THE REMAINING 12" PORTION OF ECB BACK OVER THE SEED AND COMPACTED SOIL. SECURE ECB OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" APART ACROSS THE WIDTH OF THE ECB.
3. ROLL THE ECB (A) DOWN OR (B) HORIZONTALLY ACROSS THE SLOPE. ECB WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL ECB MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE.
4. THE EDGES OF PARALLEL ECB MUST BE STAPLED WITH APPROXIMATELY 2" – 5" OVERLAP DEPENDING ON THE ECB TYPE.
5. CONSECUTIVE ECB SPLICED DOWN THE SLOPE MUST BE END OVER END (SHINGLE STYLE) WITH AN APPROXIMATE 3" OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" APART ACROSS ENTIRE ECB WIDTH.

NOTE:
IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" MAY BE NECESSARY TO PROPERLY SECURE THE ECB.



EROSION CONTROL BLANKET SLOPE INSTALLATION

NOT TO SCALE

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ISSUED FOR

	BY DATE
SITE PLAN APPLICATION	SJL 01/27/2026

DRAWING NAME: EROSION & SEDIMENTATION CONTROL DETAILS
PROJECT NAME: 1871 FOREST AVE, PORTLAND, MAINE
PARCEL ID: 327A A004001
CLIENT: AVESTA HOUSING
307 CUMBERLAND AVE, PORTLAND, MAINE 04101

ACORN ENGINEERING, INC.

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ACORN ENGINEERING, INC
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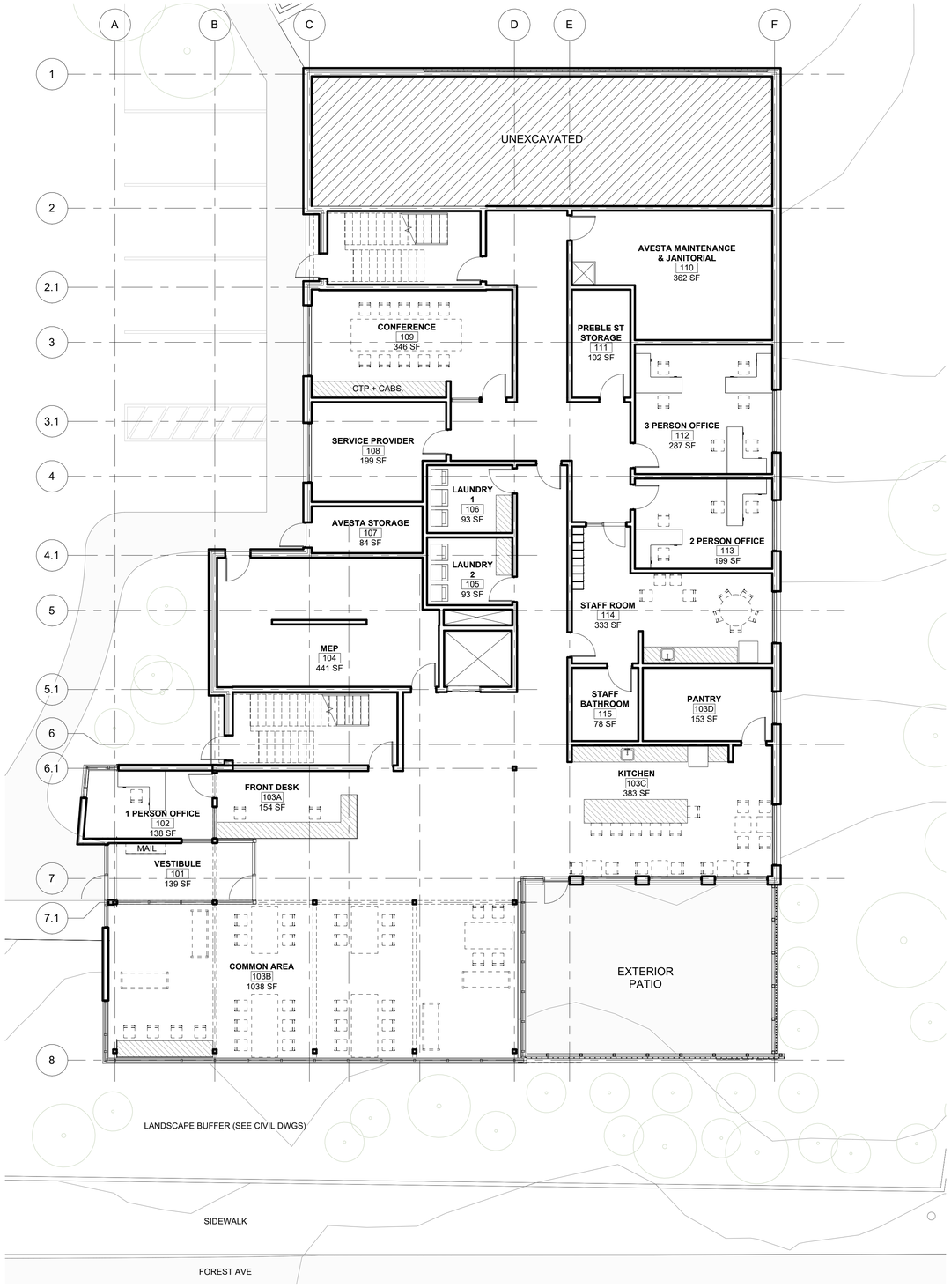
PO BOX 337, STANDISH, MAINE 04084
(207) 775-2655

FILE:	DETAILS
DATE:	AS NOTED
JN:	1297
SCALE:	AS NOTED
DESIGNED BY:	ALDV
DRAWN BY:	MJVA
CHECKED BY:	SJL

STATE OF MAINE
SAMUEL J. LEBEL
No. 16505
LICENSED PROFESSIONAL ENGINEER
03/10/26

DRAWING NO.
C-48



1 FIRST FLOOR PLAN
1/8" = 1'-0"

TRUE

simons architects
designed for human potential

75 York Street
Portland, Maine 04101
simonsarchitects.com
207.772.4656

PROJECT NAME:

1871 FOREST AVENUE
HOME FOR GOOD

PROJECT LOCATION

SEAL:

NOT FOR CONSTRUCTION

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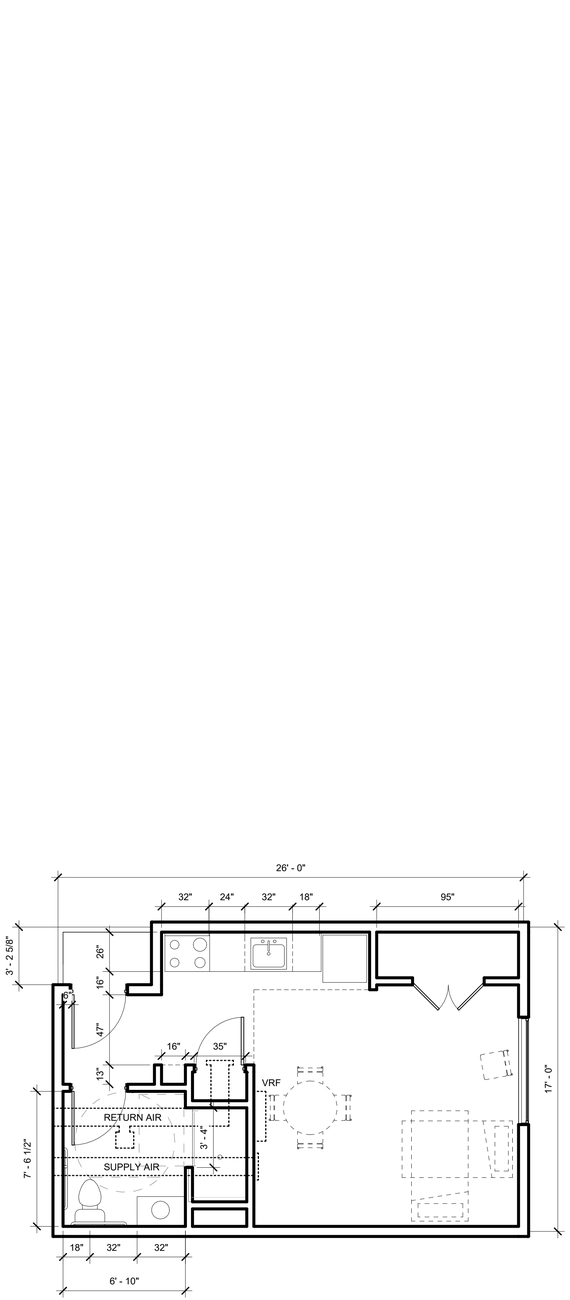
DATE OF ISSUE:	02/26/2026
PROJECT NUMBER:	2017-0110
STATUS:	0% PROGRESS

GROUND FLOOR PLAN

A101



UNIT AREA = 393 sf

2 TYPICAL UNIT PLAN
1/4" = 1'-0"

1 TYPICAL UPPER FLOOR PLAN
1/8" = 1'-0"

TRUE

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Portland, Maine 04101
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207.772.4656

PROJECT NAME:

1871 FOREST AVENUE
HOME FOR GOOD

PROJECT LOCATION

SEAL:

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DATE OF ISSUE:	02/26/2026
PROJECT NUMBER:	2017-0110
STATUS:	0% PROGRESS

TYPICAL UPPER FLOOR PLAN

A101

MATERIAL LEGEND W/ ALTERNATES

SIDING1 (GROUND FLOOR WRAP):
BASE = DARK GREY BORAL (HORIZONTAL)

SIDING2 (FRONT VOLUME):
BASE = LP
OPTION B = CONCEALED FASTENER METAL
OPTION C = EXPOSED FASTENER METAL

SIDING3 (MAIN BACK VOLUME):
BASE = DARK GREEN LPL

SIDING4 (UPPER BACK VOLUME):
BASE = LIGHT GREEN LPL

SIDING5 (COMMUNITY ROOM MAIN VOLUME):
BASE = 3/4" CEDAR

SIDING6 (COMMUNITY ROOM CORNER MASS VOLUME):
BASE = GREY BRICK
OPTION B = GROUND FACE CMU

SIDING7 (COMMUNITY ROOM CORNER MASS UPPER):
BASE = SOLDIER COURSE GREY BRICK
OPTION B = GROUND FACE CMU

SIDING8 (PANEL BETWEEN WINDOWS)
BASE = LP LOOK LIKE CEDAR PANEL ON MODIFIED FRAMING

SIDING9 (ONE STORY UNDER WINDOWS):
BASE = GREY BRICK
OPTION B = GROUND FACE CMU
OPTION C = BOARAL

WINDOW1 (WINDOWS):
BASE = POLYMER UNIT WINDOW, WITH CLIP OR NAIL FLANGE, TBD

SCREENING1 (VERTICAL SLATS):
BASE = 5/4" CEDAR SCREENING & FENCING

SCREENING2 (OVERHANG AT ENTRY):
BASE = 5/4" CEDAR SCREENING & FENCING

ROOF1 (MANSARD & ONE STORY):
BASE = 12" STANDING SEAM METAL (DARK GERY)

ROOF2 (ROOF CORNICE):
BASE = METAL COPING

2 ELEVATION SOUTH
1/8" = 1'-0"

1 ELEVATION WEST
1/8" = 1'-0"

0' 4' 8' 16' 32'

simons architects
designed for human potential

75 York Street
Portland, Maine 04101
simonsarchitects.com
207.772.4656

PROJECT NAME:

HOME FOR GOOD

1871 FOREST AVE, PORTLAND MAINE 04103

SEAL:

NOT FOR CONSTRUCTION

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△ REVISIONS

DATE OF ISSUE:	04/10/2026
PROJECT NUMBER:	2025-0110
STATUS:	25% PROGRESS

EXTERIOR ELEVATIONS

A201

MATERIAL LEGEND W/ ALTERNATES

SIDING1 (GROUND FLOOR WRAP):
BASE = DARK GREY BORAL (HORIZONTAL)

SIDING2 (FRONT VOLUME):
BASE = LP
OPTION B = CONCEALED FASTENER METAL
OPTION C = EXPOSED FASTENER METAL

SIDING3 (MAIN BACK VOLUME):
BASE = DARK GREEN LPL

SIDING4 (UPPER BACK VOLUME):
BASE = LIGHT GREEN LPL

SIDING5 (COMMUNITY ROOM MAIN VOLUME):
BASE = 3/4" CEDAR

SIDING6 (COMMUNITY ROOM CORNER MASS VOLUME):
BASE = GREY BRICK
OPTION B = GROUND FACE CMU

SIDING7 (COMMUNITY ROOM CORNER MASS UPPER):
BASE = SOLDIER COURSE GREY BRICK
OPTION B = GROUND FACE CMU

SIDING8 (PANEL BETWEEN WINDOWS)
BASE = LP LOOK LIKE CEDAR PANEL ON MODIFIED FRAMING

SIDING9 (ONE STORY UNDER WINDOWS):
BASE = GREY BRICK
OPTION B = GROUND FACE CMU
OPTION C = BOARAL

WINDOW1 (WINDOWS):
BASE = POLYMER UNIT WINDOW, WITH CLIP OR NAIL FLANGE, TBD

SCREENING1 (VERTICAL SLATS):
BASE = 5/4" CEDAR SCREENING & FENCING

SCREENING2 (OVERHANG AT ENTRY):
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BASE = 12" STANDING SEAM METAL (DARK GERY)

ROOF2 (ROOF CORNICE):
BASE = METAL COPING

2 ELEVATION NORTH
1/8" = 1'-0"

1 ELEVATION EAST
1/8" = 1'-0"

0' 4' 8' 16' 32'

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75 York Street
Portland, Maine 04101
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207.772.4656

PROJECT NAME:

HOME FOR GOOD

1871 FOREST AVE, PORTLAND MAINE
04103

SEAL:

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DATE OF ISSUE:	04/10/2026
PROJECT NUMBER:	2025-0110
STATUS:	25% PROGRESS

EXTERIOR ELEVATIONS

A202

simons architects
designed for human potential

75 York Street
Portland, Maine 04101
simonsarchitects.com
207.772.4656

PROJECT NAME:

HOME FOR GOOD

1871 FOREST AVE, PORTLAND MAINE
04103

SEAL:

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DATE OF ISSUE:	04/10/2026
PROJECT NUMBER:	2025-0110
STATUS:	25% PROGRESS

EXTERIOR VIEWS

G008

simons architects
designed for human potential

75 York Street
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PROJECT NAME:

HOME FOR GOOD

1871 FOREST AVE, PORTLAND MAINE
04103

SEAL:

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DATE OF ISSUE:	04/10/2026
PROJECT NUMBER:	2025-0110
STATUS:	25% PROGRESS

EXTERIOR VIEWS

G007

Rowen McAllister <rmcallister@portlandmaine.gov>

Re: Question about Avesta's project on Forest Ave

1 message

Matt Grooms <mgrooms@portlandmaine.gov> Wed, May 20, 2026 at 1:09 PM
To: Alison Frazee <afrazee@portlandlandmarks.org>
Cc: Rowen McAllister <rmcallister@portlandmaine.gov>

Hi Alison,

It was nice seeing you as well, and I appreciate you reaching out on this. My understanding is that the existing building would ultimately be demolished as part of the broader redevelopment of the site.

There have not been any discussions through the City's review of the application regarding adaptive reuse of the structure or salvage/deconstruction of materials specifically. At this time, Portland does not have a formal deconstruction or materials salvage process associated with demolition projects, though it is something we've been discussing more frequently recently.

Given some of those broader conversations, I do think it is an interesting topic, and one that may warrant additional discussion in the future, potentially as part of the upcoming Comprehensive Plan update process. With that in mind, I wanted to copy Rowen McAllister here as well, since he is both the project manager for the City's review of this application and the PM for the Comp Plan effort.

I appreciate you sharing the background on the statewide group, and I'd certainly be interested in staying aware of the work being done around this issue in Maine.

Best,

Matt

Matthew Grooms, AICP
Deputy Director
Planning & Urban Development Department
389 Congress Street
Portland, ME 04101
mgrooms@portlandmaine.gov
www.portlandmaine.gov
(207) 874-8699

planning & urban development

On Tue, May 19, 2026 at 1:01 PM Alison Frazee <afrazee@portlandlandmarks.org> wrote:

> Hi Matt! It was nice to see you the other day in the Bayside prep meeting. I have a question about Avesta's project on Forest Ave, though I'm not sure who to ask so I'm hoping you can help. There's an existing building on that site, though not on the area they're building for this phase it looks like. The building was most recently a restaurant, and older but probably not necessarily eligible for historic status but I haven't looked into it. I've never been in it. So my question is more about adaptive reuse and deconstruction/salvage. Did they say that they are going to go ahead and demolish it and clear the site? Has it been considered for reuse? Has there been a discussion about making the materials available for reuse to other contractors? I'm not sure if there's a standard procedure in Portland other than mechanical demolition/landfill, but I'd love to discuss that. I've already mentioned it to the Boys and Girls Club for the two buildings they plan to demolish, which are significantly older and may have some quality materials under more recent layers. I'm part of a statewide group working on deconstruction and salvage in Maine, so it's front of mind for a lot of folks in several industries.

Happy to chat more if you're interested. Thanks!

Alison Frazee
Director of Advocacy

(207) 358-7061 (direct)
afrazee@portlandlandmarks.org
4 Milk Street, Suite 104, Portland, ME 04101

GREATER PORTLAND LANDMARKS
redefining preservation for our future

PC2

Rowen McAllister <rmcallister@portlandmaine.gov>

1871 Forest Ave Development Plan

2 messages

Marc Foster <fostema@gmail.com> Tue, Mar 17, 2026 at 8:16 PM
To: rmcallister@portlandmaine.gov

Rowen,
I just received the notice about the planned Avesta development at 1871 Forest ave and I'm excited to see that lot brought back to life. I'm the owner of the abutting lot at 1901 Forest ave and I wanted to know if the development plan addresses the walking path at the north corner of the lot. We get lots of foot traffic through that corner onto our lot trying to find access to Hannaford. The fencing gets damaged every year and I know there were also two drug related fatalities in the woods there. Is there a plan to help keep that area of the property safe and help prevent property damage? Look forward to hearing from you.

Many thanks,

Marc

--
Marc C. Foster
207.408.5789

Rowen McAllister <rmcallister@portlandmaine.gov> Wed, Mar 18, 2026 at 11:46 AM
Draft To: Marc Foster <fostema@gmail.com>

Hi Marc,

Thanks for reaching out. I will make note of your comment to share with the Board once
[Quoted text hidden]

Michael McDade <mm.tv@me.com> May 21, 2026, 2:47:07 PM (5 days ago)
to planningboard@portlandmaine.gov

I oppose the redevelopment proposal of 1871Forest Ave by Avesta.
Myself and my neighbors along with local businesses in Riverton are already concerned with the increased panhandling, illegal encampments, drug use, property crime, and pedestrian safety. These issues all became much more prevalent in 2023 when the homeless shelter was opened at 654 Riverside St. I don't even use the trail along the Presumpscot anymore due to the homeless camps. We would prefer to see more market rate apartments or other affordable housing on this parcel.

Thank you for your time.

Michael McDade
77 Buca Run, Portland

PC1

Rowen McAllister <rmcallister@portlandmaine.gov>

1871 Forest Ave Development Plan

2 messages

Marc Foster <fostema@gmail.com> Tue, Mar 17, 2026 at 8:16 PM
To: rmcallister@portlandmaine.gov

Rowen,
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Marc

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Marc C. Foster
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Draft To: Marc Foster <fostema@gmail.com>

Hi Marc,

Thanks for reaching out. I will make note of your comment to share with the Board once
[Quoted text hidden]

0 Dalton Street
Major Site Plan Application
PL-003335-2025
Main-Land Development Consultants, Inc., Applicant

Submitted to:	Portland Planning Board	**Prepared By:**	Neha Sunil Pol
Public Hearing Date:	June 23, 2026	**Date:**	June 17, 2026

I. INTRODUCTION

Main-Land Development Consultants has submitted a Major Site Plan application to facilitate the division of an existing tract of land into two separate parcels, and the development of two two-family residential buildings on each lot, totaling eight dwelling units, at 0 Dalton Street, currently addressed as 36 Dalton Street. This application is being referred to the Planning Board for compliance with the City of Portland's Land Use Code Site Plan Standards, Section 13.6, and Subdivision Standards, Section 14.4.

The Planning and Urban Development Department mailed 120 notices advertising this meeting to property owners within 500 feet of the site. A legal advertisement ran on May 14, 2026 and May 15, 2026 editions of the Portland Press Herald.

Applicant: Main-Land Development Consultants, Inc.
Applicant Representative(s): Nelson Property Services, TDArchitect.

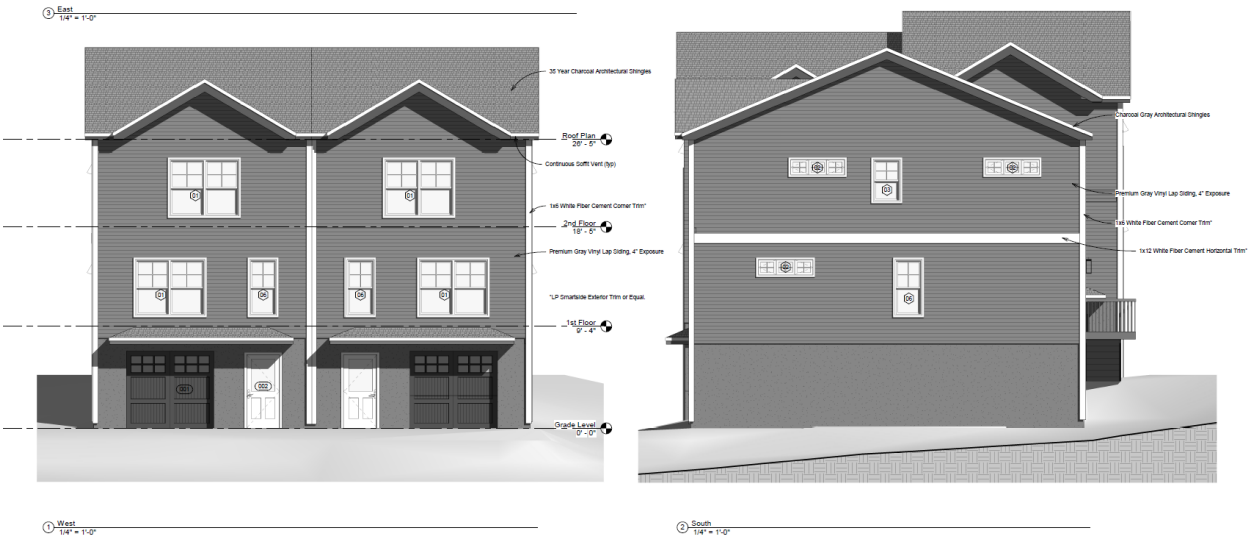


Figure 1. Front and Side Building Elevation

II. REQUIRED REVIEWS

Review	*Applicable Standards*
Site Plan	Section 13.6
Design Review - RN-3 (Neighborhood Residential)	City of Portland Design Manual - 13.6.4(l)
Subdivision	Section 14.4
The proposed development is subject to subdivision review because it involves the creation of two lots that will collectively contain four two-family dwellings, for a total of eight dwelling units. Pursuant to 30-A M.R.S. § 4401, the project constitutes a subdivision as it creates multiple dwelling units on divided parcels. The exemption for multifamily developments reviewed under a municipal site plan ordinance does not apply in this case because the proposed dwelling units are distributed among multiple two-family structures rather than being contained within a single multifamily building.	

Waiver Requests	*Applicable Standards*
The Applicant is requesting a waiver for the sidewalk installation along Dalton Street frontage, per Standard 13.6.1.B.2.	All development shall provide curb and sidewalks along all frontages. The applicant may request a waiver for the sidewalk installation requirement. For detailed information on this request, please refer to Section VIII below.

Project Data	
Existing Zoning	RN-3 Residential Neighborhood
Property Size	1.40-acre
Existing Use	Vacant land, currently undeveloped.
Proposed Development Program	Four two-family residential buildings with eight parking spaces located in a ground-level garage.

III. EXISTING CONDITIONS AND SURROUNDING AREA

The subject property at 0 Dalton Street is currently vacant, partially vegetated, and undeveloped. The site is approximately 1.40 acres and is accessed directly from Dalton Street. No structures currently exist on the property, and it primarily consists of open land.

The surrounding context is primarily residential in character, consisting of low to medium density housing consistent with the RN-3 zoning district. Dalton Street functions as a local volume residential roadway, providing access to adjacent residential development. Public utilities, including water and sanitary sewer infrastructure, are available along Dalton Street and are intended to serve the project site.

The property is situated within walking distance of public transit, with bus stops on Veranda Street, approximately 500 feet from the subject property, serving Greater Portland METRO Bus Route 7.

The site currently contains a 35-foot Portland Water District easement bisecting the property. The proposed project has been designed to remain entirely outside of this easement.

Figure 2. An aerial view of the existing site

Figure 3. Subject property as seen from Dalton Street

IV. PROPOSED DEVELOPMENT

The proposed Major Site Plan application would facilitate the division of an existing tract of land into two separate parcels, and the development of two two-family residential buildings on each lot, totaling eight dwelling units. Each building will contain two dwelling units, with individual ground-level garage parking provided for each unit.

The development would include a private 20-foot-wide, two-way access driveway extending from Dalton Street to serve both proposed lots. The access drive will accommodate vehicular circulation, emergency access, and pedestrian movement within the project site. Three designated snow storage areas are proposed on-site. Refuse and recycling would be stored within a dumpster pad, located towards the rear of the site within a screened enclosure

As part of the proposed development, seven (Red maple - Acer rubrum) trees would be planted along the access driveway. In addition, twenty-two arborvitae plantings would be installed along both sides of the driveway to provide screening from adjacent properties.

The proposed buildings will have a maximum height of 34 feet 10 inches, which complies with the RN-3 zoning height limit. Site improvements include, privacy fence, transformers, landscaping, and stormwater management facilities designed in accordance with City standards. All dwelling units will connect to existing public water and sanitary sewer infrastructure located within Dalton Street.

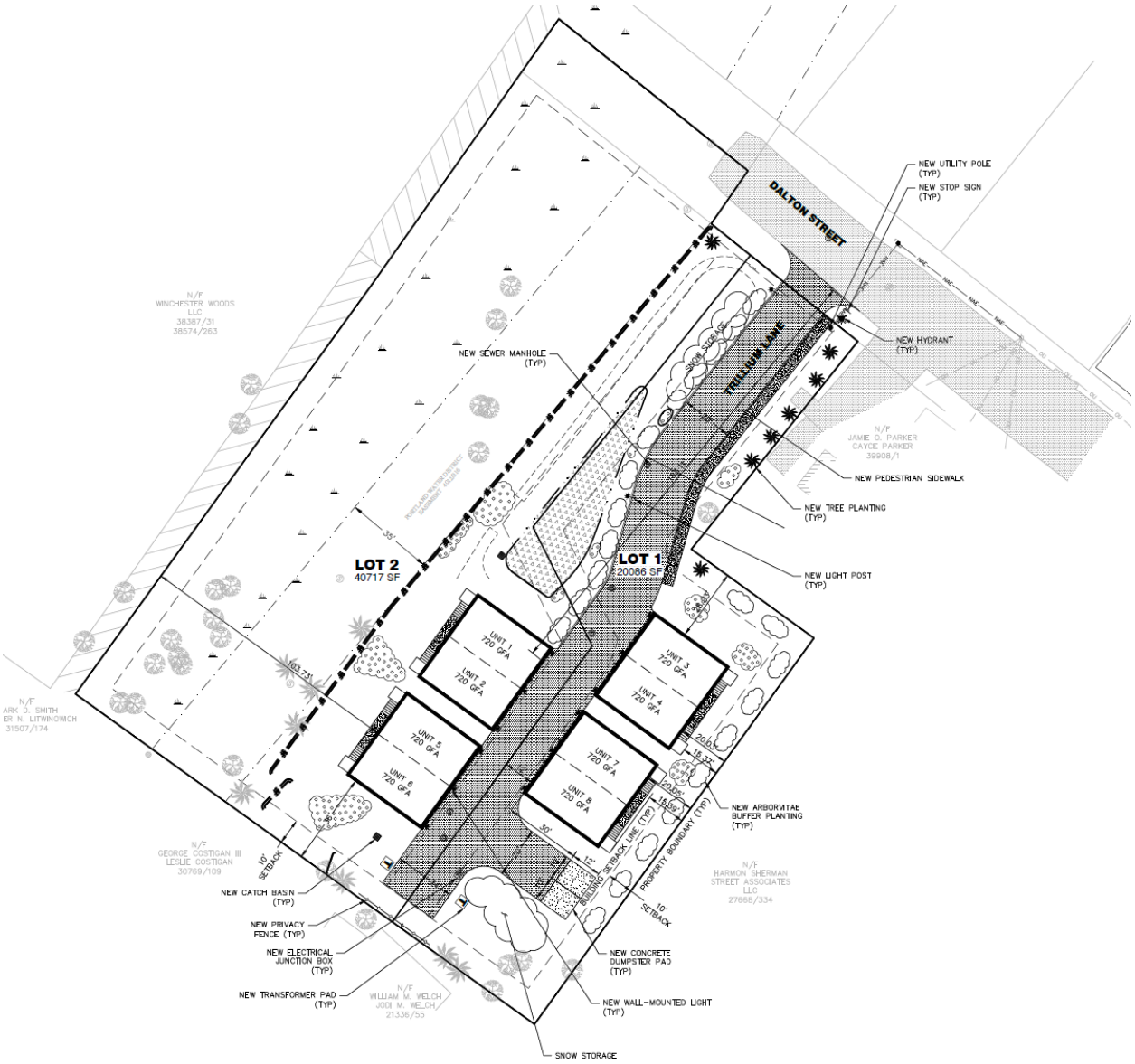


Figure 4. Overall Site Plan

V. RIGHT, TITLE, & INTEREST

The applicant has demonstrated sufficient right, title and interest to the parcel involved in this application. The subject lot was conveyed together with associated rights to Donata Properties, LLC on March 16, 2023. Conveyance of this parcel is recorded in the Cumberland County Registry of Deeds Book 24910, Page 205.

Full Right, Title, and Interest documentation is included as Attachment G.

VI. FINANCIAL & TECHNICAL CAPACITY

The applicant has provided a status of good standing from the Bath Savings Institution and a letter from the applicant's bank confirming financial capacity to complete the proposed project at 36 Dalton Street.

The applicant has retained Main-Land Development Consultants, Inc., Nelson Property Services, TDArchitect, Survey Inc. who have expertise and experience in the design of similar projects.
Full financial and technical capacity documentation is included as Attachments E and F.

VII. ZONING ANALYSIS

The subject property is located within the RN-3 Residential Neighborhood zone. The purpose of the RN-3 zone is to provide a residential environment characterized by dwellings on lots of at least 5,000 square feet.

As submitted, this application is consistent with the RN-3 zoning requirements. A zoning analysis of the proposed project is provided in the table below:

Standard	Required	Proposed
Lot Size	5,000 Square Feet	Proposed Lot 1 - 20,086 Square Feet Proposed Lot 2 - 40,717 Square Feet Total - 60,803 Square Feet
Maximum Height (ft)	35 feet	34 feet 10 inches
Minimum Street Frontage (min.)	40 feet	Lot 1 – 53 feet Lot 2 – 55 feet 9 inches
Front Setback	10 feet	28.23 feet
Rear Setback (min.)	20 feet	10 feet
Side Setback (min.)	7 feet	10 feet
Landscaped open Space (min.)	30 percent	Lot 1 – 52.2 percent Lot 2 – 87.2 percent
Maximum lot coverage (max.)	60 percent	Lot 1 – 43.5 percent Lot 2 – 23.9 percent

VIII. SITE PLAN STANDARDS (Section 13.6)

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 13.6. Staff comments are below.

1. <u>Transportation Standards (Section 13.6.1)</u>

A. <u>Impact on surrounding street systems</u>

After reviewing the application's plans and documents, staff in consultation with the city's third-party traffic engineer, anticipate minimal impact on the surrounding street network from this project. The proposed development is expected to generate low traffic volume, meaning it will not significantly affect safety or mobility within the area. Access to the site would be provided via a 20-foot-wide driveway connecting the development to Dalton Street. Staff find the proposed on-site circulation acceptable.

The access road from Dalton Street is a private access drive and is not a street extension of Dalton Street. The applicant has coordinated with the City's Addressing Officer, Charles Wordell, to obtain an approved E911-compliant name for the private access drive connecting the proposed development to Dalton Street. The access drive has been assigned the name Trillium Lane, which is reflected on the plans.

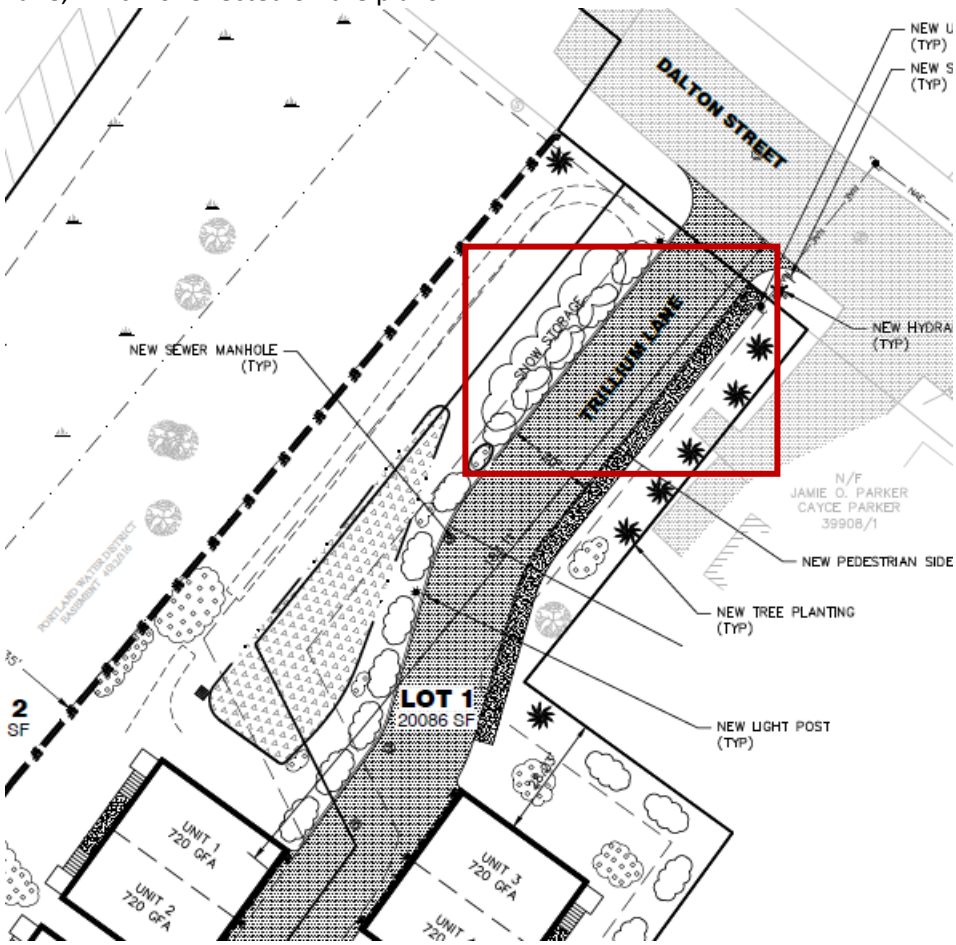


Figure 5. Trillium Lane - E911 Approved Private Access Drive

Finding of Fact: Based on the submitted application materials, the project's description of components related to impact on surrounding street systems is determined to be met.

B. Access and circulation

The proposed project would be accessed via a 20-foot-wide paved driveway from Dalton Street, providing access to all eight residential units. Ground-level garages are proposed to accommodate off-street parking and allow circulation for service vehicles. Pedestrian access to the proposed units would be provided by a 4-foot-wide paved walkway connecting the units directly to Dalton Street.

The Applicant is requesting a waiver from sidewalk installation along Dalton Street. As Dalton Street currently does not contain sidewalks, staff finds that installation of a sidewalk in connection with this project would provide limited public benefit. Accordingly, staff supports the requested waiver.

Finding of Fact: Based on the submitted application materials, the project's description of components related to access and circulation is determined to be met subject to a condition of approval.

C. Public transit access

The proposed development is not required to provide a transit shelter, as it includes fewer than 20 dwelling units. There is an existing bus stop on Veranda Street approximately 500 feet from the subject property, serving Greater Portland METRO Bus Route 7.

Finding of Fact: Based on the submitted application materials, the project's description of components related to public transit access is determined to be not applicable.

D. Parking

The development would include a total of eight parking spaces located in ground-level garages, providing one space per unit. Parking would be accessible via a 20-foot-wide paved driveway from Dalton Street. Three designated snow storage areas are provided on the project site along the access driveway.

In addition, the proposed project would include electric vehicle infrastructure in accordance with the standards of Section 1.14 for the on-site parking spaces.

Finding of Fact: Based on the submitted application materials, the project's description of components related to parking is determined to be met.

E. Transportation demand management (TDM)

This application is not a commercial or mixed-use development and thus does not require a TDM Plan.

Finding of Fact: Based on the submitted application materials, the project's description of components related to transportation demand management, this standard is not applicable.

2. Environmental Quality Standards (Section 13.6.2)

A. Preservation of significant natural features

The existing site is currently vacant, partially vegetated, and undeveloped. The site also contains wetlands. The wetlands have been delineated and consist of Palustrine Scrub-Shrub and Palustrine Emergent wetland formations.

Per Standard 13.6.2(A), all new developments shall preserve and protect significant natural features by incorporating principles of Low-Impact Development (LID) in accordance with the LID standards outlined in the Technical Manual. As part of the proposed development, a total of 17 existing trees greater than 10-inch DBH are proposed to be removed.

The applicant has submitted a Low Impact Development (LID) Scorecard providing information related to the project's compliance with the City's LID standards and claim a total of 85 points, which meets the required threshold. As part of the proposed LID approach, the project

incorporates low-impact landscaping strategies, including the use of native vegetation and locally sourced landscape materials to reduce impervious surfaces.

Finding of Fact: Based on the submitted application materials, the project's description of components related to preservation of significant natural features is determined to be met.

B. Site landscaping and buffers

As part of the proposed development, seven street trees (Red Maple - Acer rubrum) are proposed along the access driveway. Additionally, 22 arborvitae planting are proposed along both sides of the driveway to provide screening from adjacent properties.

As per Standard 13.6.2(B), one street tree is required for every 25-35 linear feet of frontage along a city right-of-way. With approximately 109 feet of frontage along Dalton Street the applicant proposes seven street trees.

Per the City's landscaping standard, the applicant satisfies the shade tree requirement through the preservation of existing trees, including seven existing trees on Lot one and approximately 25 existing trees on Lot two, which meet the applicable shade tree requirement.

Finding of Fact: Based on the submitted application materials, the project's description of components related to site landscaping and buffers, this standard is determined to be met.

C. Water quality/storm water management/erosion control

The proposed project would result in the creation of 13,504 square feet of new impervious area. This exceeds the 1,000 square foot threshold and therefore requires stormwater management in accordance with Maine DEP Chapter 500 and City of Portland Technical Manual Section 5 standards. The applicant has submitted a Stormwater Management Plan demonstrating compliance with applicable State and City requirements.

The 1.40-acre project site is currently undeveloped and consists of wooded areas with gradual to moderate slopes. The site is not located within an urban impaired watershed.

The proposed stormwater management system includes an underdrained chamber system and a wet pond designed to treat runoff from the development. Stormwater from the proposed development is collected through a combination of roof leaders, catch basins, underground storm drains, and subsurface drainage systems. Runoff is conveyed through proposed grading and piping to a stormwater management system located on the western portion of the site, which includes a filter pond and underground detention components.

Staff has reviewed the submitted Stormwater Management Plan and identified several items requiring revision prior to final approval. The submitted Stormwater Management Report does not currently include all stormwater design documentation, including BMP sizing calculations and drainage area calculations. Staff also requests clarification regarding the function of the 4-inch underdrain shown in the Pond Outlet Structure detail at invert elevation 15.7 and whether the feature is intended to function as an orifice within the structure. Finally, staff has identified

the need for additional erosion protection measures at the proposed 24-inch USSF outfall to prevent downstream erosion adjacent to the wetland. To address these items, staff has included a draft condition of approval requiring the Applicant to submit a revised Stormwater Management Plan and supporting documentation for review and approval by the Planning Authority.

Finding of Fact: Based on the submitted application materials, the project's description of components related to water quality, stormwater management, and erosion control, this standard is determined to be met subject to a condition of approval.

3. Public Infrastructure and Community Safety Standards (Section 13.6.3)

A. Consistency with City Master Plans

The intent of the RN-3 zone is to provide a residential neighborhood environment primarily characterized by dwellings on lots of at least 5,000 square feet. The proposed project is consistent with the requirements of the RN-3 zoning district and is in conformance with the City's comprehensive plan, Portland Plan 2030.

Finding of Fact: Based on the submitted application materials, the project's description of components related to consistency with master plans is determined to be met.

B. Public safety and fire prevention

The proposed development has been designed to adequately provide emergency vehicle access into and out of the site as outlined in the Technical Manual. One new fire hydrant is proposed near the entrance off Dalton Street. This ties into the existing water main along Dalton Street and will sufficiently serve fire emergency needs.

Finding of Fact: Based on the submitted application materials, the project's description of components related to public safety and fire prevention is determined to be not met.

C. Availability and capacity of public utilities

The proposed development will be served by the existing public sanitary sewer and water systems along Dalton Street. The project proposes a new utility pole along Dalton Street, with underground electrical connections extending to two transformers, located at the rear of the property.

The project proposes less than 20 residential units and does not require temporary storage and timely removal of all trash and recyclable materials. However, the proposed dumpster receptacles are located at the rear of the site and will be screened with fencing.

In coordination with Staff, the applicant has included an 8-inch sewer main and a manhole at the terminus of the sewer line extension in accordance with City requirements.

As a recommended condition of approval, the applicant shall provide a vehicle turnaround easement to the City of Portland over the proposed private access drive to ensure adequate emergency vehicle access, maneuvering, and turnaround operations. The easement shall define the limits of access rights, ownership, and maintenance responsibilities, and shall be recorded at

the Cumberland County Registry of Deeds upon project approval. Standard easement language may be utilized as provided by Corporation Counsel.

Additionally, Staff have conditioned that the applicant grants easements for snow storage, utilities, and emergency vehicle maneuvering within portions of the site encumbered by the existing "Dalton St. Outlet Sewer" and within the unaccepted portion of Dalton Street. The applicant has indicated they will continue coordination with the City to finalize these easement areas.

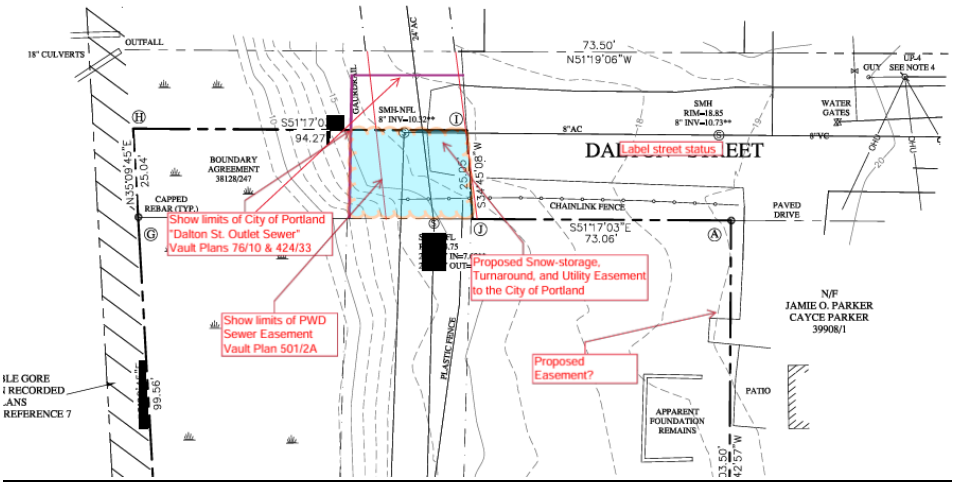


Figure 5. Proposed Turnaround, Utility, and Snow Storage Easement

Finding of Fact: Based on the submitted application materials, the project's description of components related to public utilities, this standard is determined to be met subject to conditions of approval.

4. Site Design Standards (Section 13.6.4)

A. Massing, ventilation, and wind impact

The proposed development is not anticipated to have adverse massing, ventilation, wind, or heat impacts. The project will provide roofing materials that meet the SRI of 25+ for roof slopes greater than 2:12. The proposed building units will locate all HVAC venting mechanisms to direct exhaust away from public spaces and abutting residential properties.

Finding of Fact: Based on the submitted application materials, the project's description of components related to Massing, ventilation, and wind impact this standard is determined to be met.

B. Shadows

The proposed building is not over 65 feet in height; therefore, this site plan standard is not applicable to this project.

Finding of Fact: Based on the submitted application materials, the project's description of components related to shadows is determined to be not applicable.

C. Snow and ice loading

Three designated snow storage areas are provided on the project site along the access driveway. The location and scale of the proposed snow storage areas are adequate to serve the proposed development.

Finding of Fact: Based on the submitted application materials and the project's description of components related to snow and ice loading, this standard is determined to be met.

D. View corridors

This project is not located in a view corridor as identified in the City's Design Manual; therefore, this site plan standard is not applicable to this project.

Finding of Fact: Based on the submitted application materials and the project's description of components related to view corridors, this standard is determined to be not applicable.

E. Historic resources

The proposed development is not located within a designated historic district and has no known archaeological resources on-site. Therefore, this standard is not applicable to this project.

Finding of Fact: Based on the submitted application materials and the project's description of components related to historic resources, this standard is determined to be not applicable.

F. Exterior lighting

The applicant has submitted a photometric plan proposing a new light post along Dalton Street. New wall-mounted lights are proposed for the units. The submitted fixture specifications indicate that the luminaires are designed to direct light downward and minimize glare, and the photometric plan show that illumination levels meet applicable standards with controlled light spill at the property lines.

Finding of Fact: Based on the submitted application materials and the project's description of components related to exterior lighting, this standard is determined to be met.

G. Noise and vibration

The proposed equipment is not anticipated to have adverse noise or vibration impacts on abutting properties. The proposed HVAC system will meet the applicable State and Federal emission requirements and will be located on the interior of project site and directed away from abutting property.

Finding of Fact: Based on the submitted application materials and the project's description of components related to noise and vibration, this standard is determined to be met.

H. Signage and wayfinding

The proposed project will have a stop sign located near the entrance to the site. This sign will not adversely affect visibility at the intersection on or off the site.

Finding of Fact: Based on the submitted application materials and the project's description of components related to signage and wayfinding, this standard is determined to be met.

I. Zoning-related design standards

The proposed development is located in the RN-3 Residential Neighborhood zone and is subject to RN-3 design standards. Residential development within the RN-3 zone shall provide a high degree of architectural quality and compatibility with the surrounding neighborhood, as demonstrated by compliance with the principles and standards outlined in the City of Portland Design Manual, Section 13.6.4(l).

Staff provided a design review memo on August 12, 2025 (Attachment S2) and February 25, 2026 (Attachment S3), requesting minor changes to rear elevations, lap siding to grade, enclosure of the dumpster pad, additional windows to improve sunlight and ventilation, enhanced landscape buffering along property boundaries, and additional screening at the terminus of the private driveway to better screen adjacent properties at 135 and 141 Sherwood Street.

The applicant has revised the drawings accordingly in response to Staff comments.

Finding of Fact: Based on the submitted application materials, the project's description of components related to Zoning-related design standards this standard is determined to be met.

IX. SUBDIVISON STANDARDS (Section 14.4)

The proposed development has been reviewed by staff for conformance with the relevant review standards of the City of Portland's Subdivision Ordinance, Section 14.4. Staff comments are below.

A. Water or Air Pollution

The proposed subdivision intends to mitigate disturbance areas with stormwater best management practices and provide erosion and sedimentation control measures throughout construction. The residential development is not anticipated to result in any air pollution being generated.

Finding of Fact: Based on the submitted application materials and the Planning Board's review, the water or air pollution standard is determined to be met.

B. Sufficient Water Supply

The proposed subdivision will utilize public water service extended from Dalton Street. The applicant has submitted an ability to serve letter from the Portland Water District for Staff review in accordance with this standard.

Finding of Fact: Based on the submitted application materials and the Planning Board's review, the sufficient water supply standard is determined to be met.

C. Impacts to Existing Water Supply

The proposed subdivision will utilize public water service extended from Dalton Street. The applicant has submitted an ability to serve letter from the Portland Water District for Staff review in accordance with this standard.

Finding of Fact: Based on the submitted application materials and the Planning Board's review, the impacts to existing water supply standard is determined to be met.

D. Soil Erosion & Stormwater Detention

The applicant has provided an erosion control plan that indicates disturbance areas, silt fencing and erosion control matting for slopes proposed at a 2:1 ratio or greater. Refer to site plan assessment for the preservation of significant natural features in Section VIII. of this memo under section 13.6.2.(A) for assessed impacts to soil erosion and stormwater detention.

Finding of Fact: Based on the submitted application materials and the Planning Board's review, the soil erosion & stormwater detention standard is determined to be met.

E. Impacts to Highways & Public Roads

The proposed subdivision is not expected to generate a significant amount of traffic, and thus will not have an impact on traffic mobility and safety.

Finding of Fact: Based on the submitted application materials and the Planning Board's review, the impacts to highways and public roads standard is determined to be met.

F. Adequate Sewer & Stormwater Disposal

The proposed subdivision would connect the eight-dwelling unit to the existing public sanitary sewer and water systems along Dalton Street. The applicant has included an 8-inch sewer main and a manhole at the terminus of the proposed sewer line extension. The project also includes on-site stormwater management infrastructure intended to manage runoff without creating an unreasonable burden on municipal systems.

The proposed subdivision would connect the eight-dwelling unit building to the public sanitary sewer main located within an existing utility easement that traverses the property. The project also provides on-site stormwater management for each lot, with a system designed to remain separate from the City's drainage infrastructure and avoid creating an unreasonable burden on municipal services.

Finding of Fact: Based on the submitted application materials and the Planning Board's review, the adequate sewer and stormwater disposal standard is determined to be met.

G. Impacts to City Solid Waste & Sewage

Solid waste will be collected via on-site dumpsters located at the rear of the site within a screened enclosure and serviced by a private waste hauler.

Finding of Fact: Based on the submitted application materials and the Planning Board's review, the impacts to City solid waste & sewage standard is determined to be met.

H. Adverse Impacts on Visual, Historic & Natural Resources

The proposed subdivision will minimize impact to existing wetlands, MaineDEP designated streams, and existing mature trees by preserving approximately 50% of the existing site for natural resources, and by mitigating impacts to streams with engineered solutions.

Finding of Fact: Based on the submitted application materials and the Planning Board's review, the adverse impacts on visual, historic, and natural resources standard is determined to be met.

I. Compliance with Comprehensive Plan

The proposed subdivision is in conformance with the City's comprehensive plan Portland's Plan 2030 through the principles of complete neighborhoods to have access to the basic necessities of daily life - high quality and affordable housing, schools and other civic functions, food, open space, other amenities and services - within a walkable, bikeable distance.

Finding of Fact: Based on the submitted application materials and the Planning Board's review, the compliance with comprehensive plan standard is determined to be met.

J. Financial and Technical Capacity

Refer to Section VI of this report.

Finding of Fact: Based on the submitted application materials and the Planning Board's review, the financial and technical capacity standard is determined to be met.

K. Shoreland Zone Impacts

Not applicable. The project is not located within the shoreland zone.

Finding of Fact: Based on the submitted application materials and the Planning Board's review, the shoreland zone impacts standard is determined to be not applicable.

L. Groundwater Quality & Quantity

The proposed subdivision proposes to connect to public water service and will not drill wells to tap water from existing aquifers. In addition, the proposed subdivision will provide stormwater treatment in accordance with state and local requirements, and therefore water infiltrating beneath the surface is unlikely to contaminate existing groundwater.

Finding of Fact: Based on the submitted application materials and the Planning Board's review, the groundwater quality & quantity standard is determined to be met.

M. Flood Risk

Not Applicable. The site is not located in a flood zone.

Finding of Fact: Based on the submitted application materials and the Planning Board's review, the Flood Risk standard is determined to be not applicable.

N. Stormwater Management
The applicant has provided a stormwater management report and plan for the proposed subdivision to demonstrate compliance with the City's Technical Manual, Section 5 standards for erosion and sedimentation control, water quality treatment, flooding and detention volume.

Finding of Fact: Based on the submitted application materials and the Planning Board's review, the stormwater management standard is determined to be met.

O. Depth-to-Shore Frontage Ratio
Not Applicable. The proposed subdivision does not include shore frontage.

Finding of Fact: Based on the submitted application materials and the Planning Board's review, the depth-to-shore frontage ratio standard is determined to be not applicable.

P. Subdivisions Located in Two or More Municipalities
Not Applicable. The proposed subdivision does not cross municipal boundaries.

Finding of Fact: Based on the submitted application materials and the Planning Board's review, the subdivision located in two or more municipalities standard is determined to be not applicable.

X. NEIGHBORHOOD MEETING & PUBLIC COMMENT

The applicant held a neighborhood meeting on May 28, 2025 at 6 PM. The in-person meeting was held at Presumpscot School Gym. A total of 3 members of the public attended the in-person meeting. Comments from attendees centered on:

- Stormwater management
- The type of building proposed

XI. STAFF RECOMMENDATION

Subject to the proposed motions and conditions of approval listed below, Planning Department staff recommends that the Planning Board finds that the Major Site Plan 0 Dalton Street (PL-003335-2025) meets the applicable standards of Portland's Land Use Code.

XII. PROPOSED MOTIONS

A. **WAIVERS**
Based on the information in the application, plans, reports and other information submitted by the applicant, findings and recommendations contained in the Planning Board Report for the public hearing June 23, 2026 for application (PL-003335-2025) at 0 Dalton Street relevant to the Site Plan Standards of the Land Use Code and Portland's Technical and Design Standards, and other regulations, and testimony presented at the Planning Board public hearing:

1. Sidewalk Installation

The Planning Board **[finds/does not find]** based upon the Department of Public Works and Traffic Engineer's review, that extraordinary conditions exist or undue hardship may result from strict compliance with the Technical Manual standard (Section 13.6.1.B.2), which requires sidewalk installation along property frontages, that substantial justice and the public interest are secured with the proposed variation in this standard, and that variation is consistent with the intent of the ordinance. The Planning Board **[waives/does not waive]** the Technical Manual standard Section 13.6.1.B.2 to allow no sidewalk installation along property frontages.

B. **SITE PLAN REVIEW**

Based on the information in the application, plans, reports through testimony at the Planning Board hearing, and other information submitted by the applicant the Planning Board adopts the findings, conclusions and recommendations contained in the Planning Board Report for the public hearing on June 23, 2026 for application PL-003335-2025 relevant to the site plan regulations and [**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 ISSUANCE OF A BUILDING PERMIT

1. The applicant shall provide a vehicle turnaround, snow storage, and utility easement, within the portion of the property encumbered by the "Dalton St. Outlet Sewer" easement and within the unaccepted portion of Dalton Street, consistent with DPW recommendations. The draft easement shall be reviewed and approved by the Department of Public Works and Corporation Counsel before being finalized and recorded at the Cumberland County Registry of Deeds.

2. The applicant shall submit a revised grading and utility plan for review and approval by the Department of Public Works to include either a riprap swale between the proposed 24-inch USSF outfall and the adjacent wetland, or an approved level spreader system, to mitigate downstream erosion impacts.

3. The applicant shall revise the stormwater report to include all components of the stormwater design, including stormwater BMP sizing and drainage area calculations. These materials shall be incorporated into the final report.

4. The applicant shall clarify whether the 4-inch underdrain shown at invert elevation 15.7 in the Pond Outlet Structure detail is intended to function as an orifice, as it appears to be located above the filter media surface.

PRIOR TO ISSUANCE OF A CERTIFICATE OF OCCUPANCY

5. The applicant shall provide draft condominium documents for review and approval by the Planning Authority and Corporation Counsel.

C. SUBDIVISION REVIEW

Based on the information in the application, plans, reports through testimony at the Planning Board Hearing, and other information submitted by the applicant; the Planning Board adopts the findings, conclusions and recommendations contained in the Planning Board Report for the public hearing on June 23, 2026 for application PL-003335-2025 relevant to the subdivision regulations; and **[finds/does not find]** that the plan is in conformance with the subdivision standards of the Land Use Code subject to the following conditions of approval:

PRIOR TO THE SUBMISSION OF THE PLAT FOR PLANNING BOARD SIGNATURE

1. The subdivision plat shall be finalized to the satisfaction of the Planning Authority, Corporation Counsel and Department of Public Works and include clear descriptions of the number, location, type and size of all subdivided units, along with relevant notes and conditions.

PRIOR TO ISSUANCE OF A BUIDLING PERMIT

2. The signed subdivision plat shall be recorded at the Cumberland County Registry of Deeds.

XIII. PLANNING BOARD DECISION

On the basis of the findings, conclusions and recommendations contained in the Planning Board report for the public hearing on June 23, 2026 related to application PL-003335-2025 for 0 Dalton street, which is attached to the draft approval letter and incorporated therein, the Planning Board **[adopts/does not adopts]** the findings and conclusions in the blank date Planning Board Report and the approval letter as drafted as the Planning Board's decision for application PL-003335-2025 and authorizes the Planning Board Chair to sign the approval letter as drafted.

ATTACHMENTS

Staff Materials

S1. Site Plan Review Worksheet
S2. Design Review – August 12, 2025
S3. Design Review – February 25, 2026

Applicants Submittal

A. Project Narrative
B. Site Plan Standard Narrative
C. Site Plan Checklist
D. Zoning Analysis
E. Financial Capacity
F. Technical Capacity
G. Deeds
H. Stormwater Management Narrative

I. Solid Waste Narrative
J. Low-Impact Development Scoring Tool
K. Wastewater Capacity Authorization
L. Waiver Request
M. Life Safety Code Narrative
N. Erosion Control Plan Narrative
O. Easement Covenants Summary
P. Declaration of Condominium
Q. Pre-HydroCAD Report
R. Post-HydroCAD Report
S. Drainage Area calculation
T. Drainage Area – Filter calculation
U. Drainage Area – BMP calculation
V. Neighborhood Meeting details
W. Neighborhood Meeting Materials
X. Fixture Details
Y. Public Notice Sign
Z. Response to Comments
AA. E-911 Addressing Map

Drawings

1. Boundary Survey
2. C1.1 Tree & Demo Plan
3. C2.1 Site Plan
4. C3.1 Grading, Drainage & Utility Plan
5. C4.1 Landscaping Plan
6. C5.1 Road Plan & Profile
7. C6.1 Pond Plan & Profile
8. C9.1 Details
9. C9.2 Details
10. C9.3 Erosion & Sedimentation Control Plan
11. D1.1 Pre-Development Drainage Plan
12. D2.1 Post-Development Drainage Plan
13. Lighting Plan
14. A101 –Floor Plans
15. A102 – Floor Plans
16. A201 – Elevation
17. A202 - Elevation

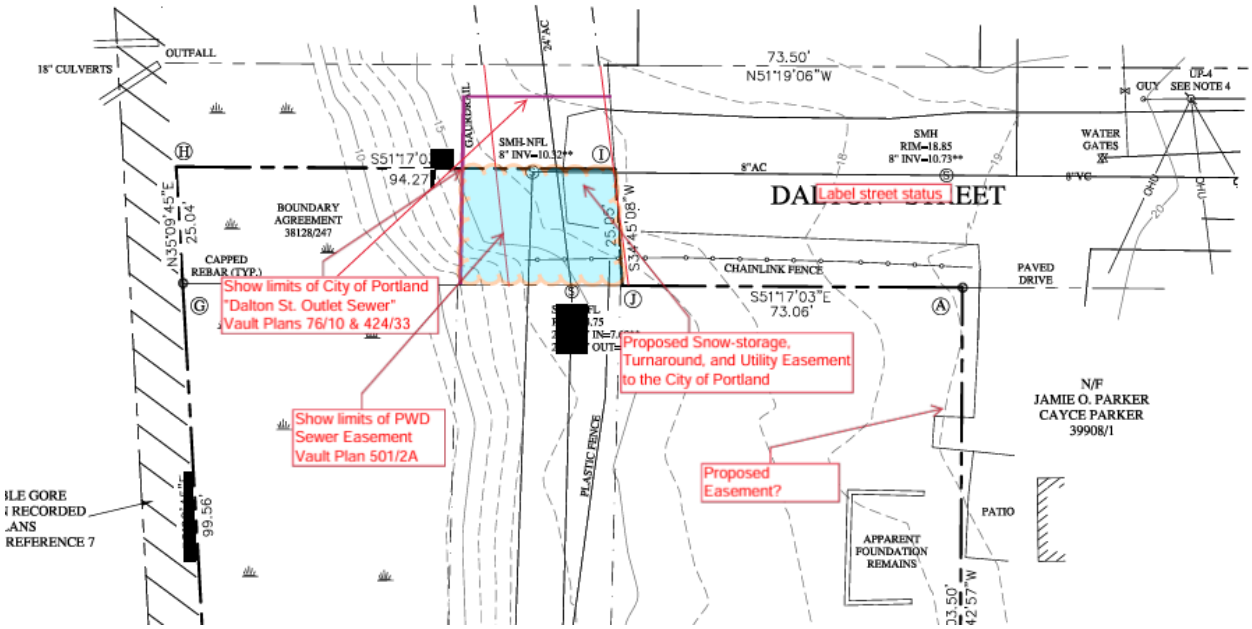
Att. S1

General Comments:

The Applicant shall provide a response to comments to address previous stormwater comments submitted with the site plan worksheet dated 2/6/2026.

14.2.1. Boundary Survey Requirements:

- "Boundary And Topographic Survey 30-32 Dalton Street, Portland, Maine, for: Allied Cook Construction", dated November 2025, by Survey, Inc. (See attached mark-up)



- 14.2.1.7. Total land area of the site;
  - **The survey appears to include the paper street portion of Dalton Street that is not described in the record deed. The Applicant shall provide two separate parcel area calculations (1) the parcel as described in the deed and (2) the paper street portion, unless a title opinion is submitted demonstrating rights, title, and interest in the paper street.**
- 14.2.1.9 - Required zoning setbacks for the site;
  - **List required zoning information.**
- 14.2.1.13 - Existing streets, right-of-way, restrictions or easements on the site;
  - **Show the limits of the City of Portland "Dalton St. Outlet Sewer" (City Vault Plans 76/10 & 424/33) on the Site Plan.**
  - **Show the limits of the Portland Water District Sewer Easement (City Vault Plan 501/2A) on the Site Plan.**
  - **Label the limits of the accepted portion of Dalton Street and identify the street status on the plans.**
- 14.2.1.15 - Significant natural features on or directly adjacent to the site, including wetlands, ponds, watercourses, floodplains, significant wildlife habitats and fisheries or other important natural features as listed in the LID Section of the Technical Manual. Delineation of wetlands boundaries shall use methods prescribed by the U.S. Army Corps of Engineers Wetlands

Delineation Manual (1987). Maine State Jurisdictional Wetlands and wetlands as defined by the Shoreland Zoning Ordinance should be identified according to the Natural Resources Protection Act (Title 38 M.R.S.A. Section 480-B) and identified on the plan, including a topographic map at a scale of 1" = 100 foot;

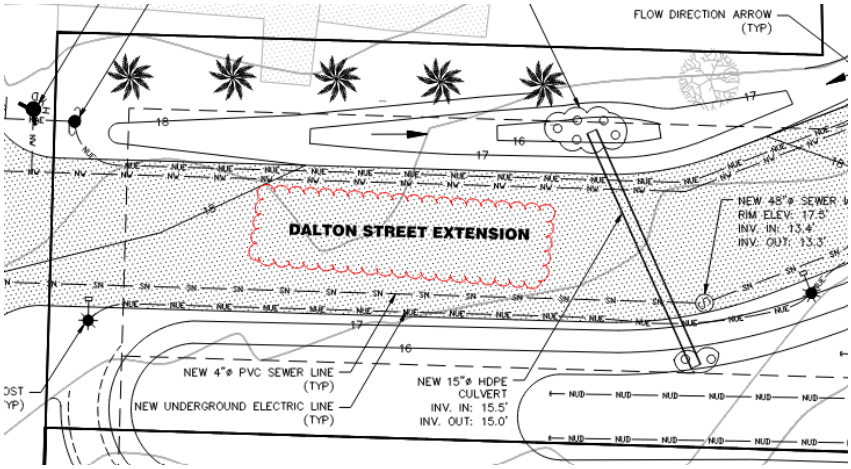
- **A portion of the project site has been identified as a "wet area." The Applicant shall provide the status, type of wet area, and delineation limits.**

- 4.2.1.29 - Property Corners: Location and descriptions of all property corners set or found, proposed to be set, and all granite survey monuments set. Where no property markers exist, the City of Portland requires that the property markers be installed and that a licensed surveyor set and confirm proposed building locations on site prior to the issuance of a building permit;
  - **Property corners shall be set at all unmarked corners.**
- 14.2.1.36 - Street Status. The Status of the street shall be shown; IE Accepted City Street, Continued Paper Street, Discontinued City Street, Vacated Paper Street, or new Proposed Street as per the project submission.
  - **(See 14.2.1.13 above)**
- 14.2.1.43 - All easements and conveyances proposed as part of the project shall be recorded, upon project approval, at the Cumberland County Registry of Deeds. For proposed rights of way and easements, any plans must clearly denote the party who is to receive the right of way or easement. Easement ownership and responsibility must be stated on the survey plans. Revised plans may be requested if deeds are executed during the progression of the project for easements or other conveyances.
  - **The limits of the proposed turnaround easement over the proposed driveway to the City of Portland shall be shown on the Site Plan and labeled accordingly.**
  - **DPW recommends the developer grant a snow storage, turnaround, and utility easement within the portion of property encumbered by the Dalton St. Outlet Sewer and within the unaccepted portion of Dalton St.**
  - **The Site Plan appears to depict a proposed lot split. While a proposed land division shall be reflected on the boundary survey or existing conditions plan, it will need to be certified by a professional land surveyor for further review.**

Site Plan Review Standards (Sec. 13.6)

Transportation Standards (Sec. 13.6.1)

Standard	***Discussion***	***Finding***
Impact on Surrounding Street Systems	**Overview:** The proposed project proposes to split the existing parcel into two lots. Four duplex condos will be built on each lot, resulting in a total of eight dwelling units. The proposed project is expected to generate little traffic and thus will not have a significant impact on safety and mobility.	More Information Required
	Updates Requested • The access road from Dalton Street is a private access drive and is not a street extension of Dalton Street. The Applicant shall coordinate with the City's Addressing Officer Charles Wordell to obtain an approved private access drive name meeting E911 requirements and reflect this on the plans.	

	 • The applicant shall Label distances from proposed structures to property lines. • The applicant shall Label the limits of the accepted portion of Dalton Street and identify the street status.	
Access and Circulation	**Overview:** The proposed project is accessed via a 20-foot-wide paved driveway off of Dalton Street. There is no designated pedestrian access to the units, nor is there any provision for a sidewalk connecting the units to the Street. **Updates Requested** • The Applicant shall label spot grades and slopes at all grade breaks for proposed and existing improvements within the right-of-way, including driveways and at the limits of proposed improvements. • Per standard 13.6.B.1.c, the Applicant shall provide internal sidewalk walkways for pedestrian access from Dalton Street to the proposed units, or request a waiver.	More Information Required
Public Transit Access	**Overview:** This standard is not applicable to the project, as the residential development includes only 8 units, below the 20-unit threshold for applicability. **Updates Requested** • None	Not applicable
Parking	**Overview:** The site includes a total of 8 parking spaces located in a ground level garage for the proposed project, providing one space per unit. Three Snow storage areas will be accommodated along the access drive. **Updates Requested:** • The proposed project includes five or more structured parking spaces, the applicant shall comply with Section 1.14 - Electric Vehicle Infrastructure standards. At least 20% of the total spaces (one space) must be equipped with a Level 2 EV charger or an energized outlet. Additionally, 50% of the spaces (four spaces) must be constructed as EV-ready, including installed conduit and adequate electrical capacity to support future EV charger installation.	More Information Required

Transportation Demand Management	**Overview:** The proposed development is not commercial, institutional, or mixed-use in nature, therefore this standard is not applicable. **Updates Requested** • None	Not Applicable

Environmental Quality Standards (Sec. 13.6.2)

Standard	***Discussion***	***Finding***
Preservation of Significant Natural Features	**Overview:** This site consists of wetlands. Per Standard 13.6.2(A), all new developments shall preserve and protect significant natural features by incorporating principles of Low-Impact Development (LID) in accordance with the LID standards of the *Technical Manual*. **Updates Requested:** LID Review: ○ The project has claimed points for using BMPs designed for a specific water quality impairment within the watershed but the LID narrative does not provide sufficient justification for these points. This category is meant to incentivize pollutant-specific BMPs (such as gravel wetlands) for known impairments (such as excess nutrients) in specific watersheds. (-10 points, 70 total) ○ The project is awarded 6 points not previously claimed for utilizing vegetated systems for stormwater management. (+6 points, 76 total). If the applicant intends to claim these LID points, they shall include them in a revised LID scorecard and narrative. ○ Staff recommends the project adopt and include a note on the landscape plan that organic soil amendments will only be incorporated based on soil testing, which would provide an additional 3 points. (+3 points, 79 total) ○ Staff recommends the project increase the proposed landscaping to achieve a total of 50% of the vegetated area on site is densely planted landscaping rather than lawn area, which would provide an additional 2 points. (+2 points, 81 total) ○ Please provide a copy of the proposed Winter Maintenance Agreement for review. This will need to be finalized and recorded at the Registry of Deeds with the Stormwater Maintenance Agreement prior to Certificate of Occupancy (CofO). (4 points - on hold) ○ A portion of the project site has been identified as a "wet area". Please provide the status, type of wet area, and delineation limits on a site plan.	More Information Required
Site Landscaping and Buffers	**Overview:** Seven new street trees (Red Maple - Acer rubrum) are proposed along the Access Driveway. In addition, ten new Arborvitae are proposed to provide screening from the abutting property at 32 Dalton Street. A total of 17 existing trees over 10 DBH will be removed as part of the proposed development. **Updates Requested** • None	Met
Water Quality, Stormwater Management and Erosion Control	**Overview:** The project is required to comply with MaineDEP Chapter 500 and City of Portland Technical Manual Sections 5 and 6 regulations for stormwater management and erosion control. The project proposes an underdrained chamber system and wet pond to treat runoff from the proposed development. An erosion and sedimentation control plan has been	More Information Required

	developed to minimize adverse impacts from the development and has been included in the design drawings.	
	Updates Requested ● The project is required to comply with MaineDEP Chapter 500 and City of Portland Technical Manual Section 5 standards for stormwater management. ○ Additional design calculations shall be provided for the proposed stormwater system. The stormwater management report identifies it as a wet pond, but the plans show an underdrained soil filter. The Applicant shall provide calculations to confirm that the selected system has been designed to meet the MaineDEP BMP standards for the system (i.e., areas, volumes, drainage times, etc.). ○ The post-development stormwater figure is confusing to follow as currently provided – updates shall be made to clearly show sub catchment labels and boundaries. ○ The stormwater narrative indicates that gutters and French drains would be utilized, but that is not clear on the plans. This shall be clarified to show how drainage will work in front of driveway entrances, and relative to decks, stairs and walkways. Underdrain connections are shown from each building, but it remains unclear how all of the proposed building areas will connect to the system. ● Please provide an ESC plan that meets the requirements of the City of Portland Code of Ordinances Chapter 32, Article IV and the Technical Manual Section 12. ● DPW is requesting that the applicant design and implement a rip rap swale between proposed 24" USSF outfall and wetland or a robust level lip spreader to prevent erosion downstream. ● The landscaping plan shall be updated to show how the 3:1 fill slope will be permanently stabilized particularly in areas where the site grading design might end up concentrating overland drainage flow. ● The applicant should consider scour protection and pretreatment design for the two proposed storm drain pipe discharges into the grassed soil filter system. ● The applicant needs to provide design calculations for the proposed stormwater system.	

Public Infrastructure and Community Safety Standards (Sec. 14.6.3)		
Standard	***Discussion***	***Finding***
Consistency with City Master Plans	**Overview:** The proposed project has been designed to be consistent with the City's zoning ordinance for RN-3. The purpose of RN-3 is to provide residential neighborhood environment predominantly characterized by dwellings on lots of at least 5,000 square feet. The proposed project has been designed to be consistent with Portland's Plan 2030. **Updates Requested** ● None	Met
Public Safety and Fire Prevention	**Overview:** The proposed development has been designed to adequately provide emergency vehicle access into and out of the site as outlined in the Technical Manual. One fire hydrant is proposed near the entrance off Dalton Street. This ties into the existing water main along Dalton Street and will	Met

	sufficiently serve fire emergency needs. Internal lighting is proposed along the access drive to enhance visibility and reinforce safety. **Updates Requested** ● None	
Public Utilities	**Overview:** The project proposes a new utility pole along Dalton Street, with underground electrical connections extending to two (2) on-site transformers located at the rear of the property. The project proposes less than 20 residential units and does not require temporary storage and timely removal of all trash and recyclable materials. However, the proposed dumpster receptacles have sufficient screening and are located at the rear of the site, which is well out view from the right-of-way. **Updates Requested** ● The Applicant shall provide further information on the proposed sizing for the private 4" shared sewer main. It appears that the sizing for this line has gone from 6" to 4" in the latest iteration of the plans. Staff would strongly suggest that the applicant consider upsizing this pipe to an 8" line to reduce the risk of future maintenance issues and the potential for sewer backups within the shared line. Please note that a manhole would be required at the connection point in Dalton Street if the line is upsized to 8". ● DPW would suggest that a terminous manhole be provided at the end of the private sewer main for future access and maintenance considerations. ● Show on the site plan the proposed easement to the city for vehicle turnaround. ● Show limits of the City of Portland "Dalton St. Outlet Sewer" see City vault plans 76/10 & 424/33, which crosses the subject property ● Show limits of the PWD Sewer Easement see City vault plan 501/2A, which crosses the subject property ● Show the limits of the proposed turnaround easement over the proposed driveway to the City of Portland and label accordingly. ● DPW recommends the developer grant a snow storage, turnaround, and utility easement within the portion of property encumbered by the "Dalton St. Outlet Sewer" and within the unaccepted portion of Dalton St.	More Information Required

Site Design Standards (Sec. 14.6.4)

Standard	***Discussion***	***Finding***
Massing, Ventilation and Wind Impact	**Overview:** The proposed development is not anticipated to have adverse massing, ventilation, wind, or heat impacts. The project will provide roofing materials that meet the SRI of 25+ for roof slopes greater than 2:12. **Updates Requested** ● None	Met
Shadow	**Overview:** The proposed building is not over 65 feet in height; therefore, this standard is not applicable. **Updates Requested** ● None	Not Applicable
Snow and Ice Loading	**Overview:** Three designated snow storage area is provided along the access driveway.	Met

	Updates Requested ● None	
View Corridors	**Overview:** The proposed development is located outside the Downtown Vision View Corridor Protection Plan area. The project site is not within a designated protected view corridor. **Updates Requested** ● None	Met
Historic Resources	**Overview:** The proposed project does not lie within a designated historic district nor have known archeological resources on the site. **Updates Requested** ● None	Not Applicable
Exterior Lighting	**Overview:** The applicant has submitted a photometric plan proposing a new light post along Dalton Street. New wall-mounted lights are proposed for the units. The submitted fixture specifications indicate that the luminaires are designed to direct light downward and minimize glare, and the photometric plan show that illumination levels meet applicable standards with controlled light spill at the property lines. **Updates Requested** ● None	Met
Noise and Vibration	**Overview:** It is expected that this application will have minimal noise and vibration impacts. The proposed HVAC system will meet the applicable State and Federal emission requirements and will be located on the interior of project site and directed away from abutting property. **Updates Requested** ● None	Met
Signage and Wayfinding	**Overview:** The proposed project will have a stop sign located near the entrance to the site. The sign will not adversely affect visibility at the intersection for vehicles entering or exiting the site. **Updates Requested** ● None	Met
Design Standards	**Overview:** The City has provided a design review memo. The proposed project is not within a historic district or associated with a historic landmark, therefore will not require Historic Preservation review. **Updates Requested** ● See Design Review Memo	Met

Design Review
Planning and Urban Development Department

Subject:	0 Dalton Street – Major Site Plan Review
Zone:	RN-3 (Neighborhood Residential)
Date of Review:	August 12, 2025 Design Review – Comment letter
Reviewers:	Neha Sunil Pol (Planner), Zach Powell (Senior Planner), Sean King (Urban Designer)
Project ID:	PL-003335-2025

I. INTRODUCTION

The proposed development plan at 0 Dalton Street for eight residential units is subject to design review according to the multi-family residential housing design standards from the City of Portland *Design Manual* as defined in the land use code section 13.6.4(l).

The built context of the surrounding area is primarily single-family and two-family residences with frontages oriented towards the street.

II. DESIGN REVIEW COMMENTS: red text denotes standards not met and require resubmission.

MULTI-FAMILY STANDARDS. **Multi-family buildings shall meet the following standards:**

1. *The exterior design of the proposed structure, including architectural style, façade materials, roof pitch, building form and height, window pattern and spacing, porches and entryways, cornerboard and trim details, and façade variation in projecting or recessed building elements, shall be designed to complement and enhance the nearest residential neighborhood. The design of exterior facades shall provide positive visual interest by incorporating appropriate architectural elements;* **Not Met**

Staff comment: The nearest residential neighborhood consists of one to two-story residential structures with a variety of roof pitches, façade materials and arrangement of windows visible from the street. The proposed development is generously set back from the street and arranges four duplexes along an interior driveway with access to a front entry door and garage for each residential unit. The roof line is gabled at the primary façade facing the driveway with fiber cement trim detailing that Staff finds provides appropriate façade variation.

Staff requests a resubmission of the building elevations that responds to the proposed grading plan, this will require adjustments to the rear building elevation and deck stairs.

In addition, Staff recommends a continuation of the lap siding down to grade level to complement the surrounding context of one to two-story structures.

2. *The proposed development shall respect the existing relationship of buildings to public streets. New development shall be integrated with the existing city fabric and streetscape including*

building placement, landscaping, lawn areas, porch and entrance areas, fencing, and other streetscape elements; **Not Met**

Staff comment: The existing relationship of surrounding residential buildings to Dalton Street are setback at the front property to allow for driveways, lawn areas or vegetation. The proposed development includes a shared driveway into the property site from Dalton Street that is not within the context of the surrounding neighborhood. However, Staff finds that due to the irregular lot shape, the proposed driveway is appropriate.

Staff recommends the Applicant consider an alternative arrangement of Unit 5,6,7,8 that align the front façade along a driveway extension perpendicular to the driveway proposed off of Dalton Street. Staff recommends this configuration to allow for appropriate snow storage, trash storage and open space in the setback areas between the proposed lots.

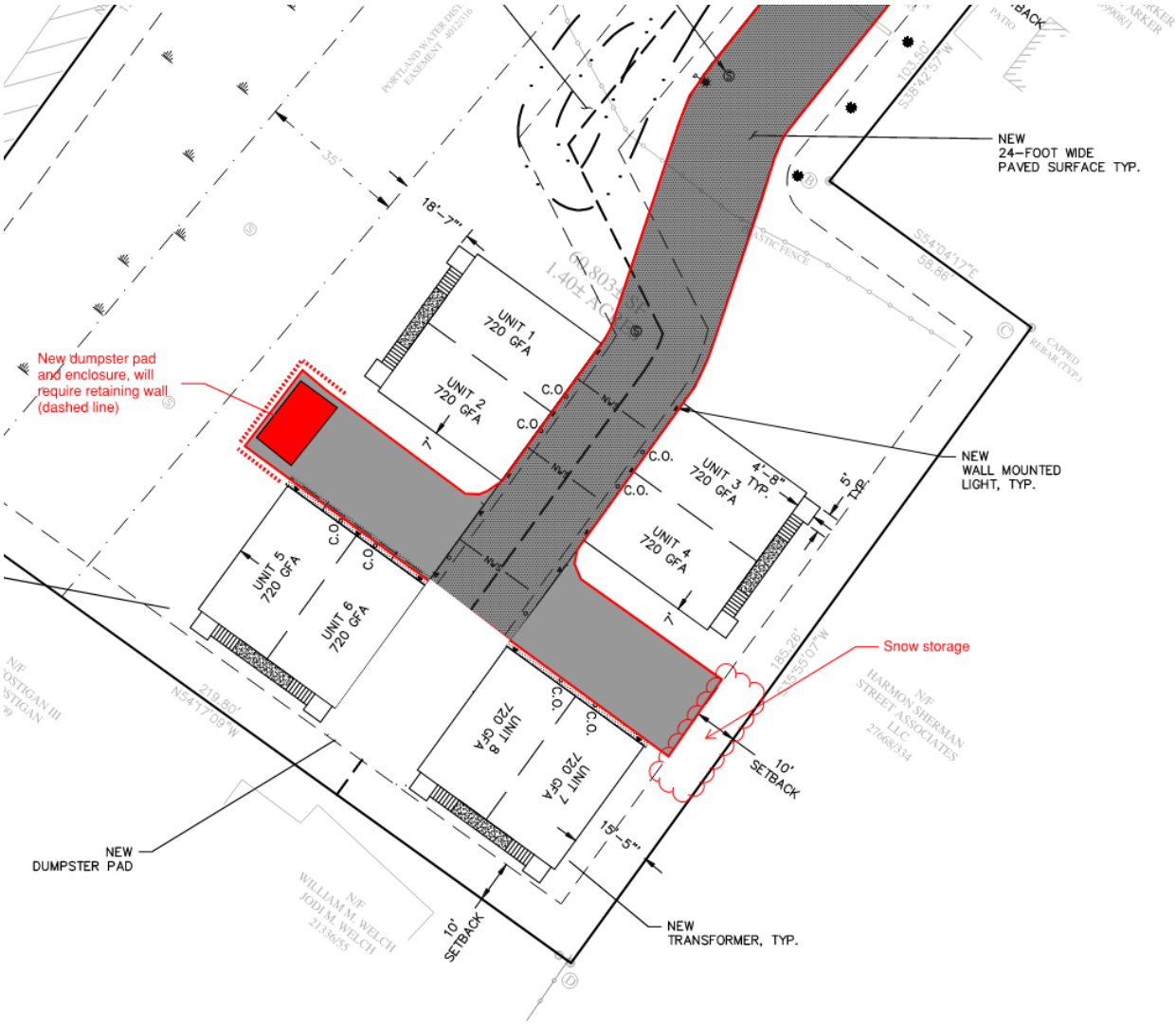


Figure A: Staff diagram over Site Plan

3. *Open space on the site for all multiple-family development shall be integrated into the development site. Such open space in a multiple-family development shall be designed to complement and enhance the building form and development proposed on the site. Open space functions may include but are not limited to buffers and screening from streets and neighboring properties, yard space for residents, play areas, and planting strips along the perimeter of proposed buildings;* **Not Met**

Staff comment: The proposed development provides open space with new trees along the adjacent property along the driveway. **Staff finds that the proposed number of residential units and placement of structures shall require further open space integrated into the development site, such as landscaping around the perimeter of the proposed buildings, accessible lawn areas or rear porch areas at each unit that address the proposed grading plan.**

Staff recommends landscape screening from the neighboring property at 32 Dalton Street, 135 Sherwood Street and 141 Sherwood Street as outlined in the City's Technical Manual, section 4.1.5.

Figure B: Staff diagram for open space

4. *The design of proposed dwellings shall provide ample windows to enhance opportunities for sunlight and air in each dwelling in principal living areas and shall also provide sufficient storage areas.* ***Not Met***

Staff comment: The proposed dwellings provide ample windows along the narrow (east, west) facades, **however Staff recommends additional windows along the long (south, north) facades into the living and kitchen spaces to enhance opportunities for sunlight and air.** Additionally, sufficient storage areas are provided in each dwelling unit.

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

   Staff comment: The proposed development includes a shared driveway into the property site from Dalton Street with proposed trees along the adjacent property at 32 Dalton Street that Staff finds is appropriate.

Design Review
Planning and Urban Development Department

Subject:	0 Dalton Street – Major Site Plan Review
Zone:	RN-3 (Neighborhood Residential)
Date of Review:	February 25, 2026 Design Review – Comment letter
Reviewers:	Neha Sunil Pol (Planner), Zach Powell (Senior Planner), Sean King (Urban Designer)
Project ID:	PL-003335-2025

I. INTRODUCTION

The proposed development plan at 0 Dalton Street for four duplexes is subject to design review according to the multi-family residential housing design standards from the City of Portland *Design Manual* as defined in the land use code section 13.6.4(I).

The built context of the surrounding area is primarily single-family and two-family residences with frontages oriented towards the street.

II. REQUEST FOR ADDITIONAL SUBMISSION MATERIALS

Staff requests that the Applicant provide the following plans:

1. Architectural elevations that reflect the duplex structure with average grade.
2. Incorporate landscape screening (type and quantity) onto landscape plans.

III. DESIGN REVIEW COMMENTS: red text denotes standards not met and require resubmission.

MULTI-FAMILY STANDARDS. **Multi-family buildings shall meet the following standards:**

1. *The exterior design of the proposed structure, including architectural style, façade materials, roof pitch, building form and height, window pattern and spacing, porches and entryways, cornerboard and trim details, and façade variation in projecting or recessed building elements, shall be designed to complement and enhance the nearest residential neighborhood. The design of exterior facades shall provide positive visual interest by incorporating appropriate architectural elements;* **Met**

Staff comment: The nearest residential neighborhood consists of one to two-story residential structures with a variety of roof pitches, façade materials and arrangement of windows visible from the street. The proposed development is generously set back from the street and arranges four duplexes along an interior private driveway with access to a garage that is integrated into the front facade for each residential unit. The roof line includes a gable end along the primary façade facing the driveway and architectural trim detailing that Staff finds provides positive visual interest for the proposed buildings. **The applicant has resubmitted**

plans that provide additional windows, arranged symmetrically, throughout all facades and a continuation of the lap siding down to grade level that Staff finds appropriate to complement the overall character of the proposed multifamily structures.

2. *The proposed development shall respect the existing relationship of buildings to public streets. New development shall be integrated with the existing city fabric and streetscape including building placement, landscaping, lawn areas, porch and entrance areas, fencing, and other streetscape elements;* **Met**

Staff comment: Neighboring residential buildings along Dalton Street are located within close proximity to the street and include driveways along the side property line. **The proposed development includes a private driveway into the property site from Dalton Street that allows for preservation of the existing wetlands found on site. Staff finds that due to the irregular lot shape, the proposed driveway and arrangement of duplex buildings with garages integrated into the front facades is appropriate.**

3. *Open space on the site for all multiple-family development shall be integrated into the development site. Such open space in a multiple-family development shall be designed to complement and enhance the building form and development proposed on the site. Open space functions may include but are not limited to buffers and screening from streets and neighboring properties, yard space for residents, play areas, and planting strips along the perimeter of proposed buildings;* **Met**

Staff comment: **The resubmitted plans provide trees along the private driveway and evergreen arborvitae screening at neighboring properties. In addition, the proposed development includes rear porches areas at each unit that Staff finds appropriate to meet this design standard.**

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

Staff comment: **The applicant has resubmitted plans to provide ample windows along all exterior facades that allow natural sunlight into living and bedroom spaces.** In addition, Staff finds that sufficient storage areas are provided in each dwelling unit.

5. *The scale and surface area of parking and driveways and paved areas are arranged and landscaped to properly screen vehicles from adjacent properties and streets.* **Not Met**

Staff comment: **The resubmitted plans provide trees along the private driveway and evergreen arborvitae screening at neighboring properties. Staff requests that the applicant provide screening, to meet the City's Technical Manual, Section 4.1.5.B, at the terminus of the private driveway to properly screen 135 & 141 Sherwood Street.**

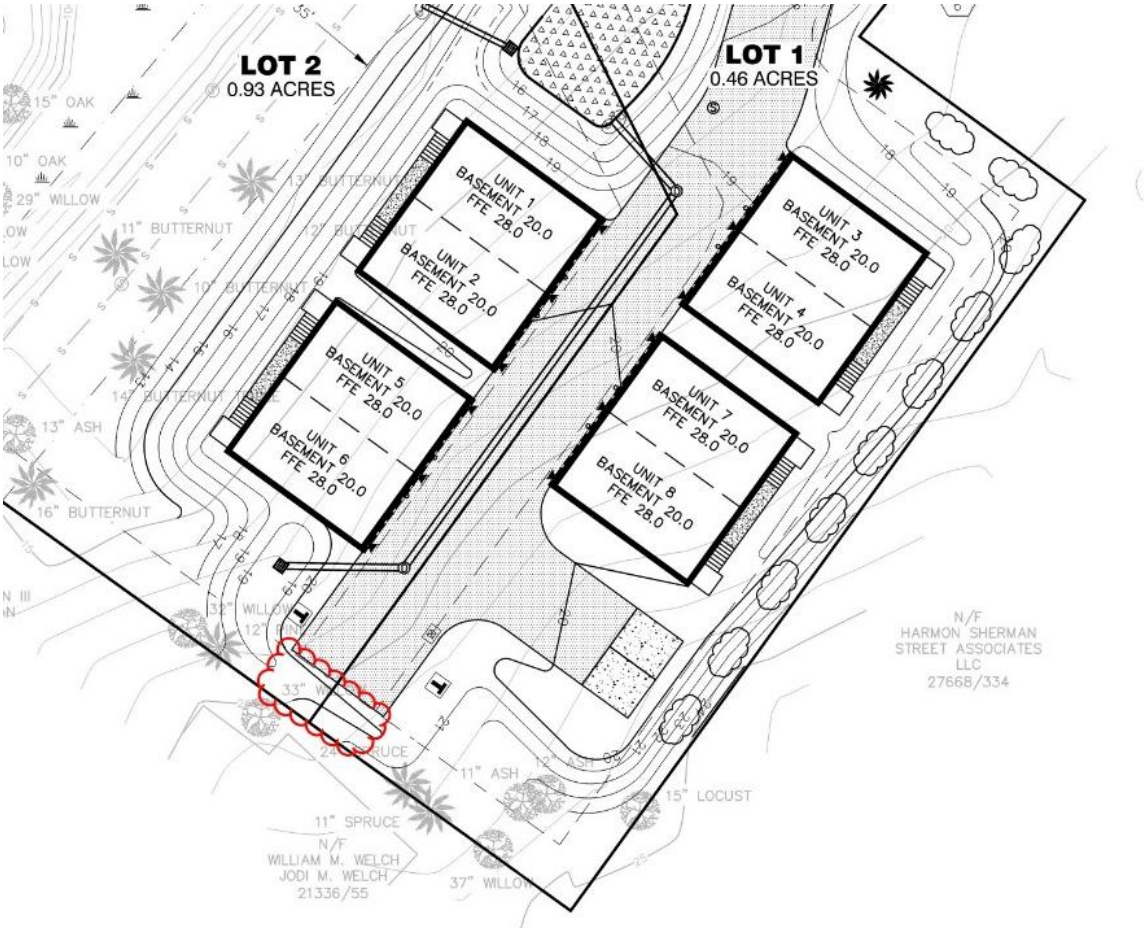


Figure 1 – Clouded area illustrates Staff recommendation for additional screening

MAIN-LAND
DEVELOPMENT
CONSULTANTS, INC.

ENGINEERS, SURVEYORS, SCIENTISTS
P.O. BOX Q LIVERMORE FALLS, ME 04254
367 US ROUTE 1, S. BUILDING, FALMOUTH, ME 04105
TEL: (207) 897-6752/FAX: (207) 897-5404
WWW.MAIN-LANDDCI.COM

PROJECT NARRATIVE

Dalton Street Housing
36 Dalton Street, Portland, Maine

Main-Land Development Consultants are assisting Nelson Property Services with the Dalton Street Housing project. The 1.40-acre property is located at 36 Dalton Street in Portland, Maine, and is labeled as Lot M005001 on Town Tax Map 427.

The vacant lot can be reached from Dalton Street. The project proposes the construction of 4 multiplex condos or 8 total dwelling units. A 20-wide paved access drive will be provided off Dalton Street to access the units. Proposed dwelling units will be served by public utilities off Dalton Street.

Due to the development proposing 8 units, Main-Land is submitting a Major Site Plan Review application with the City of Portland through their online permitting service.

No additional state permitting thresholds have been triggered, therefore no additional permitting outside of local are being submitted for the project.

Att. AA

Map showing the E-911 addresses for proposed residential buildings located on Trillium LN

Portland, ME 04103

May 29, 2026

Dalton Street Housing
Site Plan Standards/Design Narrative
36 Dalton Street
Portland, Maine

Prepared by:

Main-Land Development Consultants, Inc.
P.O. Box Q, Livermore Falls, Maine

June 23, 2025

The proposed project has been designed to comply with the Site Plan Standards as outlined in 13.6 of the City of Portland Land Use Code as follows:

13.6.1 **Transportation Standard**:

A) Impact on Surrounding Street Systems:
As further detailed in Section E below, the site is estimated to generate 5 trips during the peak hour. The proposed project will not create any significant hazard to safety or aggravate the surrounding street network. The proposed site layout takes into consideration vehicular circulation and potential impacts on the surrounding area.

B) Access and Circulation:
The proposed 8 units have a ground-level garage which will allow off-street parking and free circulation for service vehicles, parking areas, pedestrian pathways via the 20-foot-wide access drive. There are no public sidewalks adjacent to the site, so no internal sidewalks are proposed.

C) Public Transit Access:
The project proposes 8 single family residential units and is not serviced by any public transit routes. Therefore, the project does not meet any of the criteria outlined in Section C that require the construction or placement of a public transit shelter on or near the project site.

D) Parking:
One parking space per each unit is provided with a ground level garage for a total of 8 for the project. No bicycle parking has been provided and is not required per article 18. Snow storage will be provided along access drive prior to proposed dwelling units as shown on the site plan. EV charging is not required where there are no parking areas proposed, and off-street parking provided via ground level garage.

E) Transportation Demand Management (TDM):
The proposed project (8 townhouse-style residential units) does not meet any of the criteria in Section E that would require a TDM. The development is estimated to generate a total of 5 trips during the AM, PM and Saturday peak hours. The trip generation based on 11th Edition of the ITE, Land Use Code 215-Single Family Attached Housing.

13.6.2 **Environmental Quality Standard**:

A) Preservation of Significant Natural Features:
The proposed project parcel does not consist of any known significant natural features or endangered species based on state provided data; no preservation measures are anticipated while developing the parcel.

B) Site Landscaping and Buffers:
The proposed project has been designed to limit the removal of existing vegetation to the extent practicable. The proposed development includes measures to protect vegetation where possible to comply with the landscaping and preservation standards of the Technical Manual.

Though a significant portion of the vegetation will be removed as part of the project, the proposed landscaping plan includes additional plantings of shade trees along the frontage that exceed the city's requirements.

C) Water Quality, Stormwater Management, and Erosion Control:
The proposed project has been designed to comply with the stormwater management standards of the Technical Manual. The project is designed to minimize to the extent practicable, the total impervious area on the site, along with the volume and rate of runoff. Please see the Stormwater Management Plan provided for additional details.

The project proposes an underdrained chamber system and wet pond to treat runoff from the proposed development.

An erosion and sedimentation control plan has been developed to minimize adverse impacts from the development and has been included in the design drawings.

The proposed project does not utilize any stormwater infiltration or other practices that would pose a risk of groundwater contamination either during construction or post-construction and meets all applicable standards as outlined in the Technical Manual.

13.6.3 **Public Infrastructure and Community Safety Standard**:

A) Consistency with City Master Plans:
The City Comprehensive Plan, "Portland's Plan 2030" covers area that are applicable to the proposed project. More specifically, the "Housing Policy

Guide" section outlines housing related goals set at the local level. One such goal is to, "Increase, Preserve, and Modify the overall supply of housing city wide to meet the needs, preferences, and financial capabilities of all Portland residents." The project proposes construction of four (4) new multi-plex condos totaling eight (8) residential units.

The "Peninsula Transit Plan (2009)" calls for specific policy recommendations that encourage the development of more housing to assure density in support of transit. The project proposes residential units and adheres to the recommendation of constructing additional housing.

B) Public Safety and Fire Prevention:
The proposed project has been designed to incorporate the necessary public safety principles for Crime Prevention through Environmental Design (CPTED). The proposed layout of the site offers all dwelling units having a façade facing the access drive into the site, creating a sense of natural surveillance along the street, and promoting visibility of any incoming traffic. The layout allows for territorial reinforcement, as the site also has internal lighting that illuminates the access drive to reinforce safety along the access drive.

The proposed development has been designed to adequately provide emergency vehicle access into and out of the site as outlined in the Technical Manual.

One fire hydrant is proposed near the entrance off Dalton Street. This ties into the existing water main along Dalton Street and will sufficiently serve fire emergency needs.

C) Public Utilities:
The proposed project does not anticipate overburden on sanitary sewers, storm drains, water lines or supply or other public infrastructure and utilities.

The proposed project will be connected to the existing public sanitary sewer and water systems along Dalton Street, as required by City Standards. Letters have been submitted to the City of Portland and Portland Water District (PWD) regarding serviceability for the proposed project. Currently, the City of Portland has provided a sewer capacity letter, but we have not received a response from PWD. We will provide a PWD letter as soon as available. We have provided letters sent to each for reference.

A stormwater management plan has been designed for the site that details the proposed site drainage improvements and stormwater treatment proposed. The stormwater management plan and supporting materials have been submitted along with this narrative.

There is an existing overhead electrical infrastructure located on Ray Street. The proposed project proposes to tie into this service and run power underground to each of the two (2) transformers proposed for the site.

The project proposes less than 20 residential units and does not require temporary storage and timely removal of all trash and recyclable materials. However, the proposed dumpster receptacles have sufficient screening and are located at the rear of the site, which is well out view from the right-of-way.

13.6.4 **Site Design Standards**:

A) Massing, Ventilation, Wind, and Heat Impact:
The proposed layout of buildings and their respective massing will not result in any anticipated health or safety problems from the reduction in ventilation to abutting structures. Similarly, there are no anticipated changes to the wind climate that would result in unsafe conditions for users of the site and/or adjacent public spaces.

The proposed building units will locate all HVAC venting mechanisms to direct exhaust away from public spaces and abutting residential properties.

Although the project is not required to meet the "cool roof" Solar Reflective Index (SRI) standards, the project will provide roofing materials that meet the SRI of 25+ for roof slopes greater than 2:12.

B) Shadow:
The proposed project is located in the RN3 Residential Neighborhood zoning district. The overall height as allowed in this district is 35-feet. Based on the overall height being less than 65-feet, avoidance and/or mitigation does not pertain to the proposed project. The project is not anticipated to have any adverse impacts from cast shadows on publicly accessible open space, roadway or abutting property.

C) Snow and Ice Loading:
The proposed project has been designed to prevent any significant amount of snow and ice from loading or falling onto adjacent properties or public ways by designating a snow storage area along the access driveway and appropriately siting of buildings within the parcel footprint.

D) View Corridor:
The massing, location and height of the proposed development will not substantially obstruct any public view corridors as identified within the "Downtown Vision View Corridor Protection Plan". The project site is not locate within a protected view corridor and complies with the applicable setback and height regulations for the RN-3 zoning district.

E) Historic Resources:
The proposed project is not located within a designated historic district area. Additionally, the project is not located within a 100-feet of any designated landmark, historic district or historic landscape district.

The proposed project site does not contain any known state or local archaeological resources.

F) Exterior Lighting:
Site lighting will conform to the applicable lighting standards with the Technical Manual. The proposed lighting fixtures will provide an appropriate amount of lighting for the safety, comfort and convenience of residents. The proposed site lighting will not spill onto adjacent properties and roadways. Please see photometrics plan for the proposed locations, schedules and fixture information.

The proposed project does not propose any Architectural, specialty or street lighting.

G) Noise and Vibration:
All Heating, Ventilation, and Air Conditioning (HVAC), Air Handling Units (AHU), Emergency Generators, and similar equipment shall meet applicable state and federal emission requirements and will be located on the interior of the project site, away from abutting properties.

H) Signage and Wayfinding:
The proposed project will have a street sign located near the entrance to the site just off Ray Street. This sign will not adversely affect visibility at the intersection on or off the site.

There is no on-site directional traffic signage being proposed for the project as the site has just a single private drive that is only accessible from Dalton Street.

I) Design Standards:
The project proposed use is a multi-family and multiplex development in the Residential Neighborhood (RN-3) per the City of Portland Design Manual and is required to meet the design standards of the Design Manual. Listed below are design standard requirements and how they were met:

1) Context: The surrounding neighborhood along Dalton Street consists of 1.5-story or 2-story single family residential homes. To the west there is Winchester Woods Apartments. The proposed project is sited adjacent to these two areas on currently undeveloped land and offers a similar housing type and massing style to the area

2) Public Realm: The proposed project has a ground level garage for access to each unit and a single-access drive off Ray Street. Each unit has covered porches that delineate secondary access to the dwellings. Additionally, each unit has an appropriate level fenestration and architectural details to delineate the privacy of each unit from the public realm.
3) Massing: The proposed project has appropriate massing in relation to the surrounding residential buildings within a 2-block radius. The style of the proposed buildings is consistent with existing architectural styles of the immediate neighboring properties.
4) Orientation: The proposed layout has been designed to best fit the unique shape of the project site. With this limiting factor, the layout was modified to maximize the utilization of the site. Each unit faces each other, porches on the back side of dwelling units are perpendicular to the street, the ground level garage faces the access drive. Roof slopes are perpendicular to the street.
5) Articulation: Each building unit has appropriate articulation and sufficient architectural details. The proposed buildings have: façades similar to architectural details to those within the existing neighborhood, gabled roofing that pronounce each unit, and covered porches at the back of each unit as well as white fiber horizontal trim that serves as an expression line along the sides of the buildings.
6) Garages: The project proposes ground level garages that will face the access drive on site.
7) Roofs: The proposed project includes pitched roofs in each residential building. The front façade roofline for each unit has a gabled roof that matches the pitch and style of the covered porches.
8) Materials: Exterior materials for the proposed buildings will consist of vinyl lap siding, finer cement corner trim work, and charcoal architectural shingles. The proposed building materials are consistent with existing materials within the surrounding neighborhood. Building facades are cohesive in design and create an internal continuity withing the site.
9) Sound: Each residential unit is divided by sound insulating walls that provide acoustical privacy between each unit.
10) Light and Air: The project site has been designed to maximize exposure to natural light and air. Each building is designed with windows that offer internal rooms of each unit to have access to natural light and ventilation.

City of portland

Planning & Urban Development Department

MAJOR AND MINOR SITE PLAN DOCUMENT CHECKLIST

Please submit each document as a separate PDF file.
Please confirm by electronically checking the boxes in the left-hand column.

General Application Documents

Indicate Below	Required of All Applications
☑	**Project Description** • Cover letter with detailed project description
☑	**Completed Checklist** (this document)
☑	**Evidence of Right, Title, and Interest** • Deeds, leases, or purchase and sale agreements
☑	**Financial Capacity** • Letter or evidence from a financial institution or third-party verifying financial capacity to undertake the project.
☑	**Technical Capacity** • Evidence of technical capability of applicant and consultants – resume and/or examples of past projects.
☑	**Site Plan Standards** • Summary of project compliance with site plan standards of the land use code.
☑	**ZoningAssessment** (the link to the form can be found **here**) • Summary of compliance with use and dimensional standards of the land use code.

Indicate Below		Only if Applicable
Yes	N/A	
☐	☑	**Waiver Requests** (the link to the form can be found **here**) • Written request for waiver describing request and compliance with applicable waiver standards.
☑	☐	**Summary of Existing or Proposed Easements or Covenants** • Evidence of existing easements and any proposed easements, covenants, public or private rights-of-way.
☐	☑	**Evidence of State or Federal Approvals** • Permits or letters of non-jurisdiction

Additional Documents

Indicate Below		Only if Applicable
Yes	N/A	
☐	☑	**Construction Management Plan**, including traffic control plan. • Provide construction management narrative in accordance with the City's Construction Management Template.
☐	☑	**Traffic Study and/or other Transportation Plans** • Detailed in Sec. 2 of the Technical Manual
☐	☑	**Significant Natural Features Narrative**

		• Identify significant natural features, wildlife habitats, fisheries habitats, or archaeological sites as detailed Ch. 14, Article 13, located on or near the project site, and describe protection methods during and after construction.
☐	☐	**Stormwater Management Report** • Detailed in Sec. 14 of the Technical Manual
☐	☐	**City Master Plan Narrative** • Detail project's consistency with City adopted Master Plans.
☑	☐	**Evidence of Utility Capacity** • Provide letter from all utility providers demonstrating capacity to service the project.
☐	☐	**Solid Waste Narrative** • Detail the amount of solid waste and recyclable material anticipated to be generated by the development, and information on how waste will be collected and removed.
☐	☐	**Life/Safety Code Analysis Narrative** • Detail how the project complies with NFPA 1 and other Fire Department technical standards.
☐	☐	**Design Narrative** • Detail how the project complies with any applicable design standards contained within the Land Use Code or City of Portland Design Manual.
☐	☐	**HVAC and Manufacturing Equipment Verification** • Provide verification from manufacturer that equipment meets applicable state and federal emissions requirements.
☐	☐	**Low Impact Development (LID) Analysis** • Provide a narrative detailing how the subdivision complies with the low impact development requirements listed in Section 3 of the Technical Manual, along with a completed LID scorecard.

MAJOR AND MINOR SITE PLAN DRAWINGS CHECKLIST

Please upload the following drawings with the listed details into ProjectDox as separate PDFs. All drawings must be submitted in a 24 x 36 inch sheet size.

Boundary Survey (Stamped by a Licensed Surveyor in accordance with Sec. 14 of the Technical Manual)

Site Plan(s) (Stamped by a Maine Licensed Professional Engineer)

Indicate Below	
	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, including firm that produced plans.
☑	North arrow
☑	Date of preparation and revision history block.
☑	Tax parcel (chart, block, and lot) number

Indicate Below		
Yes	N/A	**Existing Conditions Plan**
☑	☐	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 locations of test pits and borings
☑	☐	Zoning boundary lines, including overlays
☑	☐	Location of all existing easements and rights-of-way.
Indicate Below Yes	N/A	**Proposed Site Plan**
☑	☐	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 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
Indicate Below Yes	N/A	**Utility Plan**
☑	☐	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 the site
Indicate Below Yes	N/A	**Grading and Drainage Plan**
☑	☐	Proposed grades
☑	☐	Proposed stormwater management measures meeting Technical Manual standards
☐	☑	Any proposed alteration of a watercourse or wetlands
☐	☑	Any groundwater protection measures
☐	☑	Proposed buffers and preservation measures for wetlands or significant natural features
Indicate Below Yes	N/A	**Landscape Plan**
☑	☐	Existing vegetation to be preserved and preservation measures

☑	☐	Proposed landscaping, screening, and street trees, including caliper widths for trees
☑	☐	Planting schedule, including street trees detailing species, quantity of plantings, and size at planting.
Indicate Below Yes	N/A	**Architectural Plans and Renderings**
☑	☐	Exterior building elevations, color renderings, illustrations of all sides.
☐	☑	Axonometric and street-level views for structures greater than three stories in height.
☑	☐	Context drawings
☑	☐	Floor plans
Indicate Below Yes	N/A	**Construction Management Plan**
☑	☐	Specifics on traffic control, sidewalk sheds, and pedestrian rerouting
☑	☐	Construction management plan and narrative based upon site plan in accordance with the City's construction management template.
Indicate Below Yes	N/A	**Other**
☑	☐	Details and cross-sections

Portland, Maine Yes. Life's good here.

Planning & Urban Development Department

ZONING ANALYSIS Relevant Zone(s) RN-3

All Projects:

	Required	Proposed
Lot Size	20000	60803
Area Per Dwelling Unit	5000	15200
Minimum Street Frontage	40'	167.33
Front Yard Minimum	10'	168'-8"
Front Yard Maximum		
Rear Yard	10'	35'-11"
Yard Right	7'	15'-5"'
Yard Left	7'	18'-7"
Side Street Setback	7'	15'-5"
Step Back		
Maximum Lot Coverage	36481	12410
Minimum Lot Coverage		
Maximum Height	35'	34'-10"
Open Space	18240	48393
Maximum Impervious Area	36481	12410
Pavement Setback		
Floor Area Ratio		0.53
Off Street Parking Spaces		8
Loading Bays		
Other 1		
Other 2		
Other 3		

Planned Residential Unit Developments (PRUD) Requirements

	Required	Proposed
Minimum Lot Size		
Minimum Lot Area per Dwelling		
Maximum # Units per Building		
Maximum Building Length		
Maximum Accessory Building Length		
Minimum Setbacks		
Minimum Building Separation		
Minimum Open Space		

Affordable Housing Density Bonuses (if applicable)

	Bonus Increase or Decrease	Maximum Allowable With Bonus	Proposed
Density			
Height			
Setback Reduction			
Recreation Space			
Maximum Accessory Building Length			
Minimum Setbacks			
Minimum Building Separation			
Minimum Open Space			
Explanatory Text 1 (optional):			
Explanatory Text 2 (optional):			
Explanatory Text 3 (optional):			

Benj. F. Packard

Bath Savings Institution

Since 1852

March 5, 2025

To Whom It May Concern:

Bath Savings Institution has a long-standing relationship with Robert Nelson and Nelson Property Services. The two are in good standing with the bank.

Based on our knowledge of the project as it stands today, we believe Mr. Nelson and Nelson Property Services have the financial ability to successfully complete the development related to the project located at 36 Dalton Street, Portland, ME.

If you have any questions or need additional information, do not hesitate to contact me at 207-371-4213

Sincerely,

James Perkolidis

James Perkolidis
Vice President, Commercial Lending

105 Front Street, PO Box 548, Bath, Maine 04530
Tel. 207-442-7711 Fax 207-442-9137
1-800-447-4559
Member FDIC

Dalton Street Housing
Technical Capacity
Dalton Street
Portland, Maine

Prepared by:

Main-Land Development Consultants, Inc.
P.O. Box Q, Livermore Falls, Maine

May 16, 2025

The applicant has retained the services of MAIN-LAND DEVELOPMENT CONSULTANTS, INC., a private consulting firm specializing in engineering, surveying, environmental analysis, and other related fields dealing with the understanding and development of land. MAIN-LAND has been providing site permitting consulting services since its inception in 1974.

The following personnel have assisted in the development of this project to date:

Main-Land Development Consultants:

Jamie L. Garland, PE	-Senior Lead Engineer
Thomas D. Doyle, PE	-Chief Engineer
Charles L. Buker, PLS	-Senior Surveyor

Resumes for each are enclosed as part of this Section.

Att. G

DLN: 1002340228990

MAINE REAL ESTATE TAX-Paid

TRUSTEES' DEED

KNOW ALL MEN BY THESE PRESENTS, that I, **MARJORIE A. QUEEN**, Old Orchard Beach, Cumberland County, Maine, **TRUSTEE OF THE FLORENCE E. QUEEN SPECIAL NEEDS TRUST** U/A DATED JULY 13, 2006, by the power conferred by law, and every other power, for consideration paid, grant to **DONATA PROPERTIES, LLC,** a Maine Limited Liability Company, of Portland, Cumberland County, Maine, **with WARRANTY COVENANTS,** a certain lot or parcel of land, together with any buildings thereon, situated in the City of Portland, County of Cumberland, and State of Maine, bounded and described as follows:

See Schedule A attached hereto and incorporated herein by reference.

For grantors' source of title, and being a portion thereof, reference may be had to a deed to Marjorie A. Queen, Trustee of the The Florence E. Queen Special Needs Trust by deed from Florence E. Queen, Personal Representative of the Estate of Charles E. Queen dated March 2, 2007 and recorded in the Cumberland County Registry of Deeds in Book 24910, Page 205,

Any and all other rights, easements, privileges and appurtenance belonging to the granted estate are hereby conveyed. This conveyance is made subject to the property taxes assessed against the premises, which said taxes are to be prorated between the parties hereto as of the date of delivery of this deed in accordance with 36 M.R.S.A., sec. 558.

Certificate of Trust Pursuant to 18-B M.R.S. §1013: I, by signing this deed, hereby certify that (i)I am the duly appointed and authorized Trustee of the Florence E. Queen Special Needs Trust u/a dated July 13, 2006; (ii) the Trust exists as of the date of this deed; (iii) I as Trustee have the power to sell real property held by the Trust; (iv) I as Trustee am authorized to convey the real property set forth in this deed; and (v) The trust has not been revoked, modified, or amended in any manner that would cause the representations contained in this certification to be incorrect.

WITNESS my hand and seal this 16 day of March, 2023.

Signed, Sealed and Delivered in the presence of:

Florence E. Queen Special Needs Trust
u/a dated July 13, 2006

Witness

By: Marjorie A. Queen, Trustee

STATE OF Maine
COUNTY OF Cumberland

March 16, 2023

Then personally appeared the above-named Marjorie A. Queen, Trustee of the Florence E. Queen Special Needs Trust, and acknowledged the foregoing instrument to be her free act and deed in her said capacity, and the free act and deed of said Trust.

BRITTANY M. ALBERT NOTARY PUBLIC MAINE My Commission Expires 03-04-2026

Before me,

Notary Public
Printed Name:_____
Commission Expires:_____

DOC :7964 BK:40029 PG:141
RECEIVED - RECORDED, CUMBERLAND COUNTY REGISTER OF DEEDS
03/16/2023, 12:48:37P
Register of Deeds Jessica M. Spaulding E-RECORDED

SCHEDULE A

A certain lot or parcel of land, together with any buildings or improvements thereon, situated on the southwesterly sideline of Dalton Street in the City of Portland, County of Cumberland and State of Maine, and bounded and described as follows:

Beginning at an iron pin set (5/8" capped rebar) on the southwesterly sideline of Dalton Street, said iron pin being N 51° 17' 03" W along the southwesterly sideline of Dalton Street a distance of sixty-seven and 00/100 (67.00) feet from the most northerly corner of land now or formerly of Mary A. Walker and Kristen E. Walker as described in the Cumberland County Registry of Deeds in Book 32439, Page 231.

Thence:

1) S 38° 42' 57" W a distance of one hundred three and 48/100 (103.48) feet to an iron pin set (5/8" capped rebar).

2) S 54° 04' 17" E a distance of fifty-eight and 86/100 (58.86) feet to an iron pin set (5/8" capped rebar) and land now or formerly of Harmon Sherman Street Associates, LLC as described in said Registry in Book 27668, Page 334.

3) S 35° 55' 07" W along land of Harmon Sherman Street Associates, LLC a distance of one hundred eighty-five and 26/100 (185.26) feet to an iron pin set (5/8" capped rebar) and land now or formerly of Richard G. York as described in said Registry in Book 24049, Page 87.

4) N 54° 17' 09" W along land of York and along land now or formerly of William M. and Jodi M. Welch as described in said Registry in Book 21336, Page 55, and along land now of George Costigan, III et al. as described in Book 30769, Page 109, and along land now or formerly of Mark D. Smith and Jennifer N. Litwinowich as described in Book 31507, Page 174 a distance of two hundred nineteen and 80/100 (219.80) feet to an iron pin set (5/8" capped rebar).

5) N 35° 55' 05" E a distance of one hundred ninety-eight and 05/100 (198.05) feet to an iron pin set (5/8" capped rebar).

6) N 35° 09' 45" E a distance of ninety-nine and 56/100 (99.56) feet to an iron pin set (5/8" capped rebar).

7) S 51° 17' 03" E along, in part, by the southwesterly sideline of Dalton Street a distance of one hundred sixty-seven and 50/100 (167.50) feet to the point of beginning.

The above described parcel of land contains 58,443 square feet or 1.34 acres. Bearings are based on Grid North.

The above described parcel of land is subject to a 35' wide Portland Water District Easement as described in said Registry in Book 4012, Page 316.

Reference is made to a plan entitled "Plan of Property, 30-32 Dalton Street, Portland, Maine" made for Marjorie A. Queen, dated October 10, 2016, by Stephen J. Martin, PLS.

STORMWATER MANAGEMENT PLAN
NARRATIVE

Dalton Street Housing
36 Dalton Street, Portland, Maine

Prepared by:

MAIN-LAND DEVELOPMENT CONSULTANTS, INC.
P.O. Box Q, Livermore Falls, Maine

June 27, 2025
Rev August 21, 2025
Rev January 2, 2026
Rev June 9, 2026

This Stormwater Management Plan Narrative has been prepared to present an analysis performed to address the potential impacts associated with the project due to proposed modifications in stormwater runoff characteristics and land cover changes. The project site is a 1.40-acre parcel located off Dalton Street in Portland, Maine.

The existing site consists of undeveloped woodland areas. The property generally consists of gradual to moderate slopes. The soils for the site consist of hydrologic soil group “C”. The existing property drains overland to unnamed tributary to the northwest, the tributary outlets to existing wetland pond. The property is not within the watershed of an urban impaired stream.

The project’s current layout proposes four duplex condos with 2 single-family dwelling units each for a total of 8 for the project, a ground-level garage and associated access drive off Dalton Street.

The Pre-Development Drainage Plan,D1.1, consists of a subcatchment described as follows:

Subcatchment 1 consists primarily of undeveloped woodlands and meadow areas. The watershed drains to an existing wetland pond to the west. The outlet from the pond discharges via 8” culvert (Watershed Analysis Point A). Soils from USDA NRCS for the subcatchment are Hydrologic Soil Group C.

The Post-Development Drainage Plan, D2.1, consists of 5 subcatchments and are described as follows:

Subcatchment 1.1, on the western portion of the property, consists of undeveloped woodlands, meadow and loam and seeded grassed areas. The drainage runs overland and outlets to unnamed tributary of existing wetland pond with existing outlet structure

(Watershed Analysis Point A). Soils from USDA NRCS for the subcatchment are Hydrologic Soil Group C.

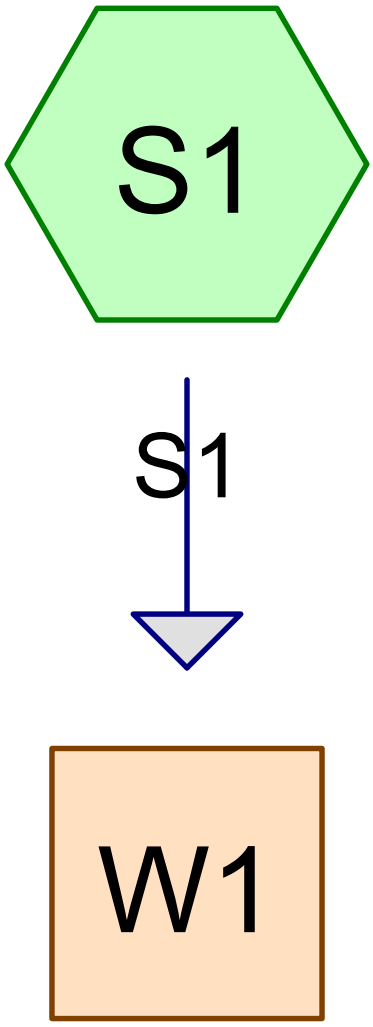
Subcatchments 1.2, 1.3, 1.4 and 1.5 consists of a new multiplex condo buildings with associated ground level garages, access drives, utilities, stormwater detention basin and loam and seeded grassed areas. The drainage is collected via roof gutters, French drain system. Some ditching and overland flow via proposed grading on site and discharged to new filter pond to the west . The outlet from the pond discharges via 8" culvert (Watershed Analysis Point A). Soils from USDA NRCS for the subcatchment are Hydrologic Soil Group C.

The purpose of a stormwater management plan is to ensure that a certain percentage of stormwater runoff is treated prior to leaving the development and does not have a significant adverse impact on receiving waterbodies or adjacent properties. The treatment per city standards is 95% of impervious and 80% of developed areas. The table below shows the treatment that has been met for the project

PROPOSED TREATMENT PERCENTAGES			
		Non-Linear	
		Impervious	Developed
Proposed:		13,896	31,668
Treated:		13,634	26,833
	Percentage:	**98.1%**	**84.7%**
Required:		95%	80%
Meets:		YES	YES

As shown in the D2.1 drainage plan, the site utilizes a filter pond to meet the local requirement to capture and decrease stormwater runoff to at or below pre-development rates from the 25-year storm. As shown in table below, the wetpond and underground detention basin BMPs treats stormwater to meet City of Portland requirements and provides attenuation of post-development runoff rates to at or below pre-development.

		2-yr	***10-yr***	***25-yr***
WAP A	*Pre*	0.47	1.03	1.56
	Post	0.41	0.99	1.55
	Diff.	0.06	0.04	0.01



Subcat Reach Pond Link

Routing Diagram for Pre Development
Prepared by Main-Land Development Consultant, Printed 6/9/2026
HydroCAD® 10.20-9a s/n 01625 © 2026 HydroCAD Software Solutions LLC

Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2-Year	Type III 24-hr		Default	24.00	1	3.00	2
2	10-Year	Type III 24-hr		Default	24.00	1	4.30	2
3	25-Year	Type III 24-hr		Default	24.00	1	5.40	2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.121	71	Meadow, non-grazed, HSG C (S1)
1.275	73	Woods, Fair, HSG C (S1)
1.396	**73**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
1.396	HSG C	S1
0.000	HSG D	
0.000	Other	
1.396		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.121	0.000	0.000	0.121	Meadow, non-grazed	S1
0.000	0.000	1.275	0.000	0.000	1.275	Woods, Fair	S1
0.000	**0.000**	**1.396**	**0.000**	**0.000**	**1.396**	**TOTAL AREA**	

Time span=5.00-72.00 hrs, dt=0.05 hrs, 1341 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 S1: S1 Runoff Area=1.396 ac 0.00% Impervious Runoff Depth=0.86"
Flow Length=291' Tc=65.9 min CN=73 Runoff=0.47 cfs 0.100 af

Reach W1: WAP A Inflow=0.47 cfs 0.100 af
Outflow=0.47 cfs 0.100 af

Total Runoff Area = 1.396 ac Runoff Volume = 0.100 af Average Runoff Depth = 0.86"
100.00% Pervious = 1.396 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment S1: S1

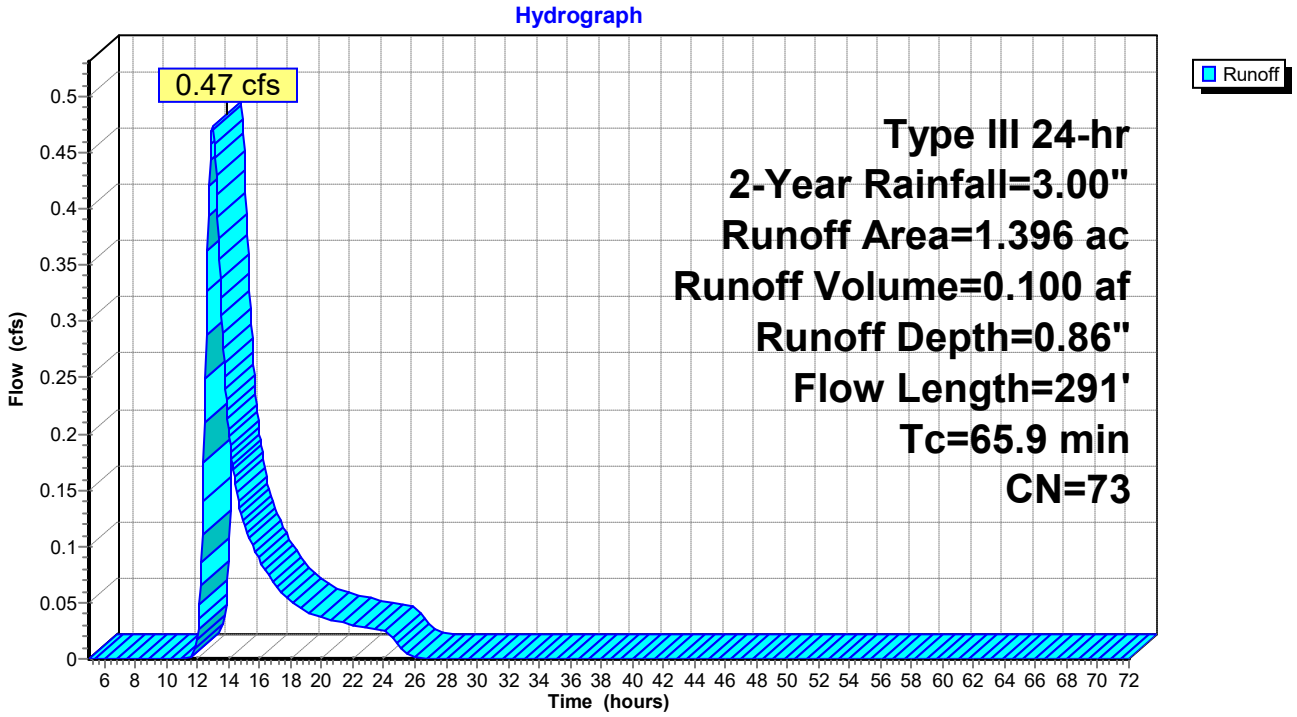
Runoff = 0.47 cfs @ 12.97 hrs, Volume= 0.100 af, Depth= 0.86"
Routed to Reach W1 : WAP A

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.00"

Area (ac)	CN	Description
1.275	73	Woods, Fair, HSG C
0.121	71	Meadow, non-grazed, HSG C
1.396	73	Weighted Average
1.396		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
62.0	150	0.0033	0.04		**Sheet Flow, sheet - wetland** Woods: Light underbrush n= 0.400 P2= 3.10"
3.9	141	0.0142	0.60		**Shallow Concentrated Flow, shallow - wetland** Woodland Kv= 5.0 fps
65.9	291	Total			

Subcatchment S1: S1

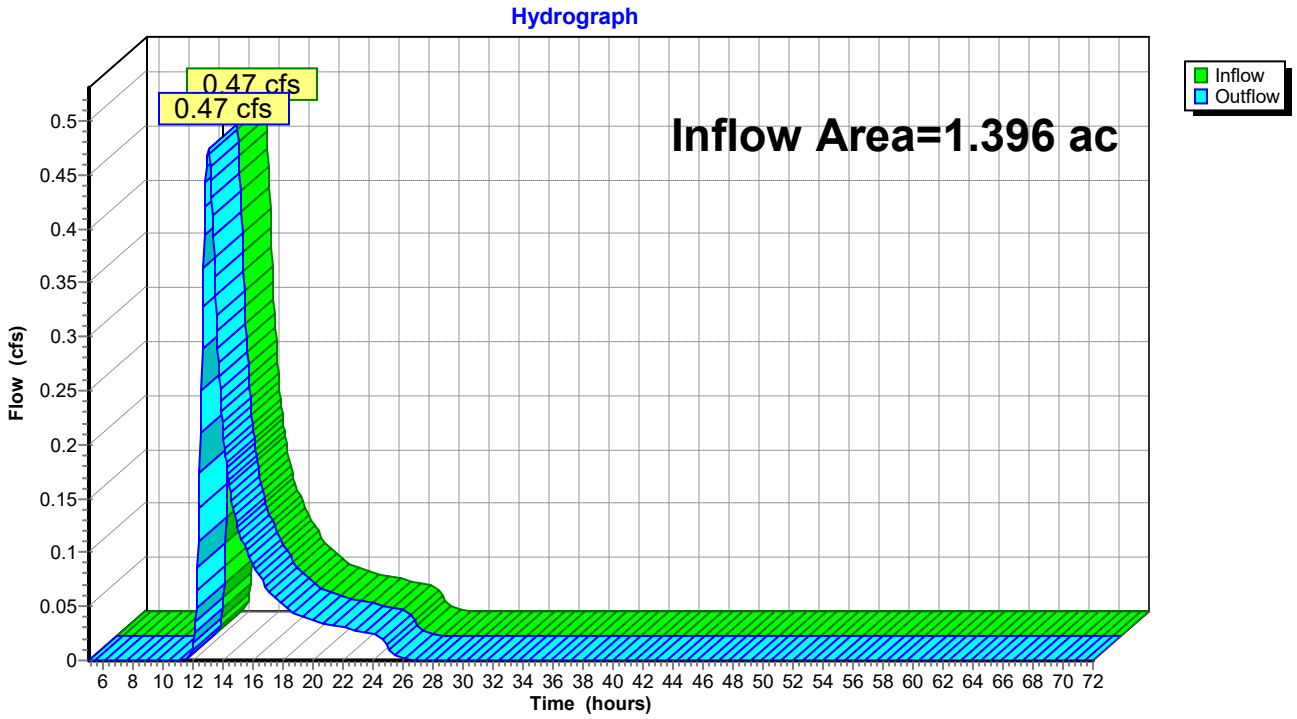


Summary for Reach W1: WAP A

Inflow Area = 1.396 ac, 0.00% Impervious, Inflow Depth = 0.86" for 2-Year event
Inflow = 0.47 cfs @ 12.97 hrs, Volume= 0.100 af
Outflow = 0.47 cfs @ 12.97 hrs, Volume= 0.100 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-72.00 hrs, dt= 0.05 hrs

Reach W1: WAP A



Time span=5.00-72.00 hrs, dt=0.05 hrs, 1341 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 S1: S1 Runoff Area=1.396 ac 0.00% Impervious Runoff Depth=1.75"
Flow Length=291' Tc=65.9 min CN=73 Runoff=1.03 cfs 0.203 af

Reach W1: WAP A Inflow=1.03 cfs 0.203 af
Outflow=1.03 cfs 0.203 af

Total Runoff Area = 1.396 ac Runoff Volume = 0.203 af Average Runoff Depth = 1.75"
100.00% Pervious = 1.396 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment S1: S1

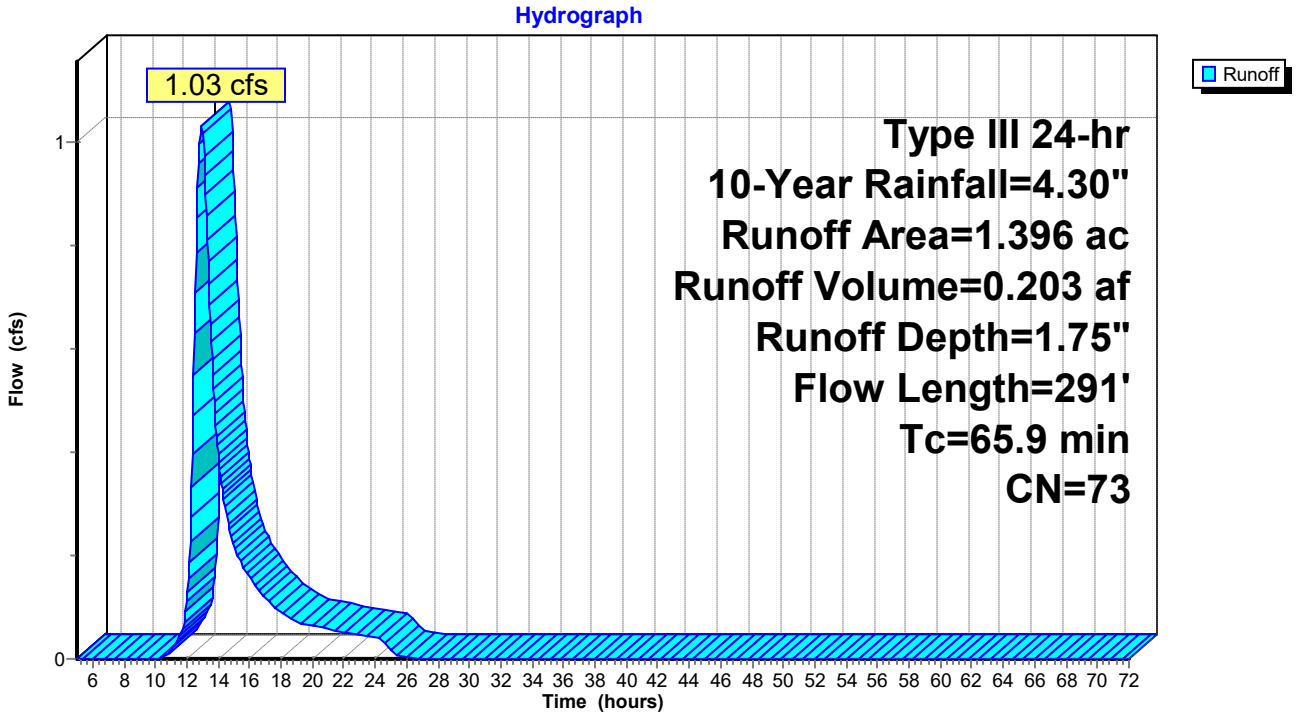
Runoff = 1.03 cfs @ 12.93 hrs, Volume= 0.203 af, Depth= 1.75"
Routed to Reach W1 : WAP A

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.30"

Area (ac)	CN	Description
1.275	73	Woods, Fair, HSG C
0.121	71	Meadow, non-grazed, HSG C
1.396	73	Weighted Average
1.396		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
62.0	150	0.0033	0.04		**Sheet Flow, sheet - wetland** Woods: Light underbrush n= 0.400 P2= 3.10"
3.9	141	0.0142	0.60		**Shallow Concentrated Flow, shallow - wetland** Woodland Kv= 5.0 fps
65.9	291	Total			

Subcatchment S1: S1

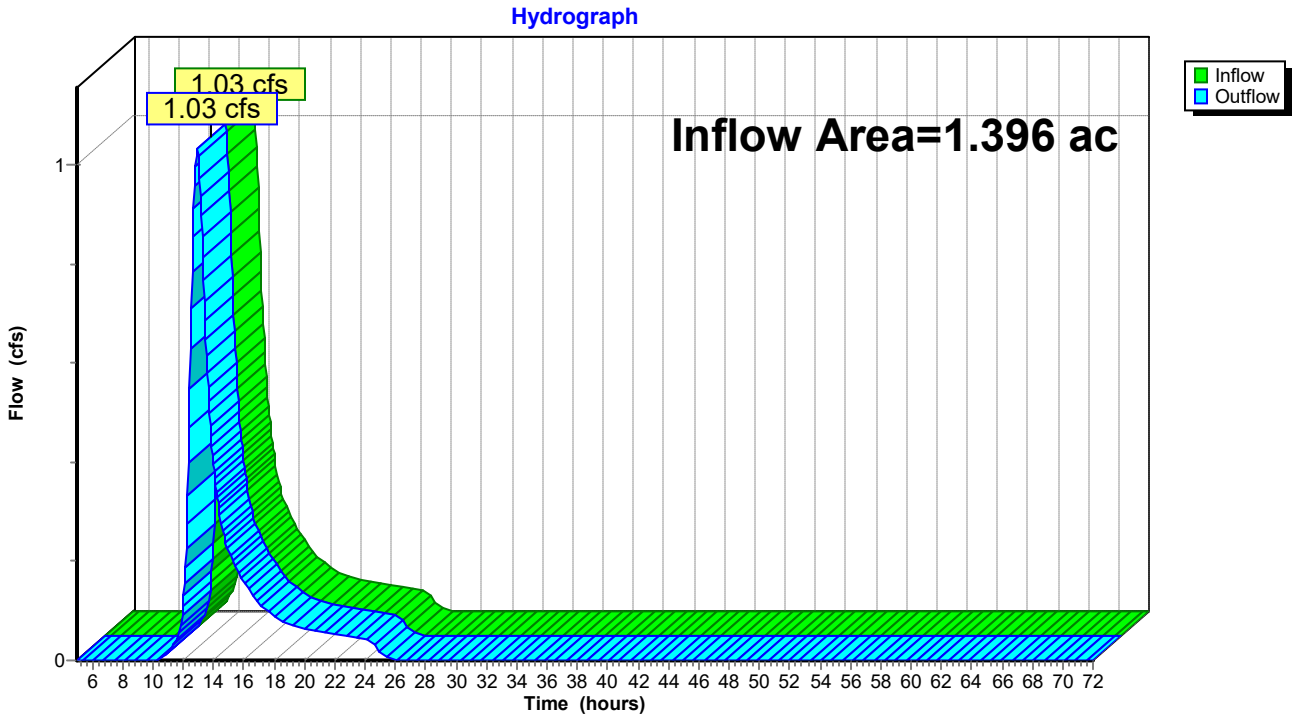


Summary for Reach W1: WAP A

Inflow Area = 1.396 ac, 0.00% Impervious, Inflow Depth = 1.75" for 10-Year event
Inflow = 1.03 cfs @ 12.93 hrs, Volume= 0.203 af
Outflow = 1.03 cfs @ 12.93 hrs, Volume= 0.203 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-72.00 hrs, dt= 0.05 hrs

Reach W1: WAP A



Time span=5.00-72.00 hrs, dt=0.05 hrs, 1341 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 S1: S1 Runoff Area=1.396 ac 0.00% Impervious Runoff Depth=2.60"
Flow Length=291' Tc=65.9 min CN=73 Runoff=1.56 cfs 0.302 af

Reach W1: WAP A Inflow=1.56 cfs 0.302 af
Outflow=1.56 cfs 0.302 af

Total Runoff Area = 1.396 ac Runoff Volume = 0.302 af Average Runoff Depth = 2.60"
100.00% Pervious = 1.396 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment S1: S1

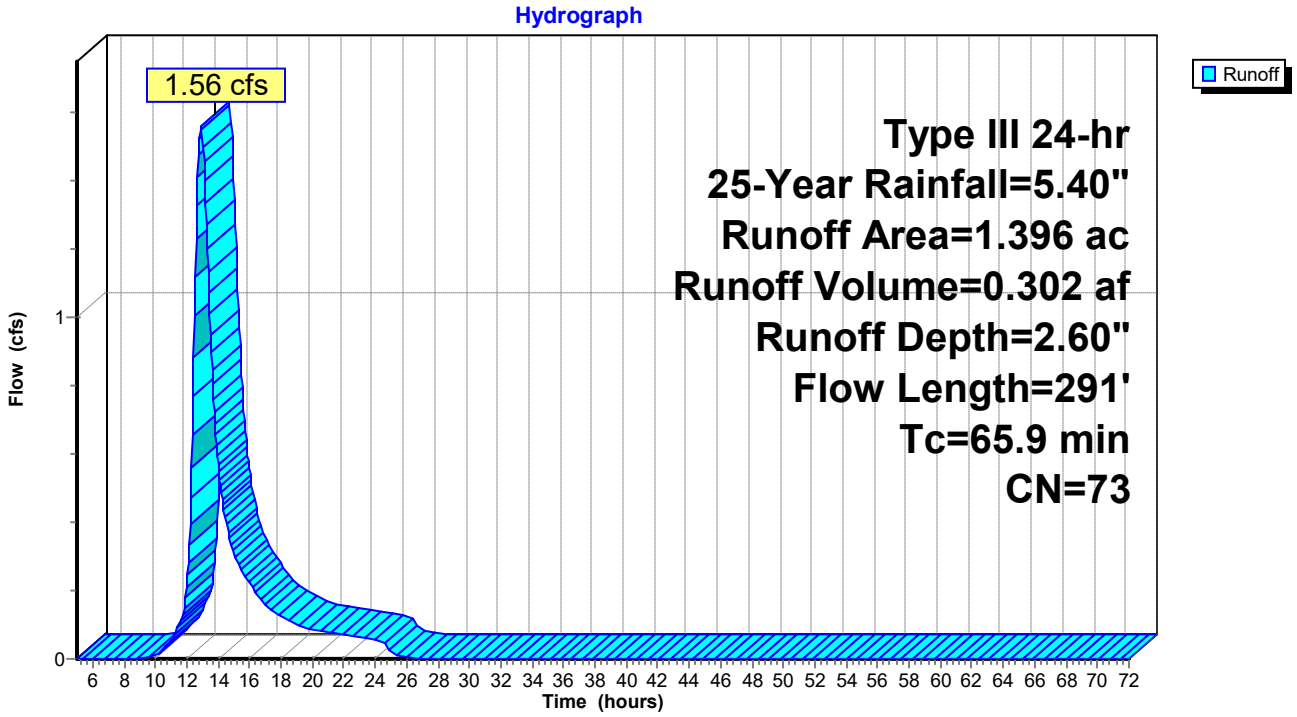
Runoff = 1.56 cfs @ 12.91 hrs, Volume= 0.302 af, Depth= 2.60"
Routed to Reach W1 : WAP A

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.40"

Area (ac)	CN	Description
1.275	73	Woods, Fair, HSG C
0.121	71	Meadow, non-grazed, HSG C
1.396	73	Weighted Average
1.396		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
62.0	150	0.0033	0.04		**Sheet Flow, sheet - wetland** Woods: Light underbrush n= 0.400 P2= 3.10"
3.9	141	0.0142	0.60		**Shallow Concentrated Flow, shallow - wetland** Woodland Kv= 5.0 fps
65.9	291	Total			

Subcatchment S1: S1

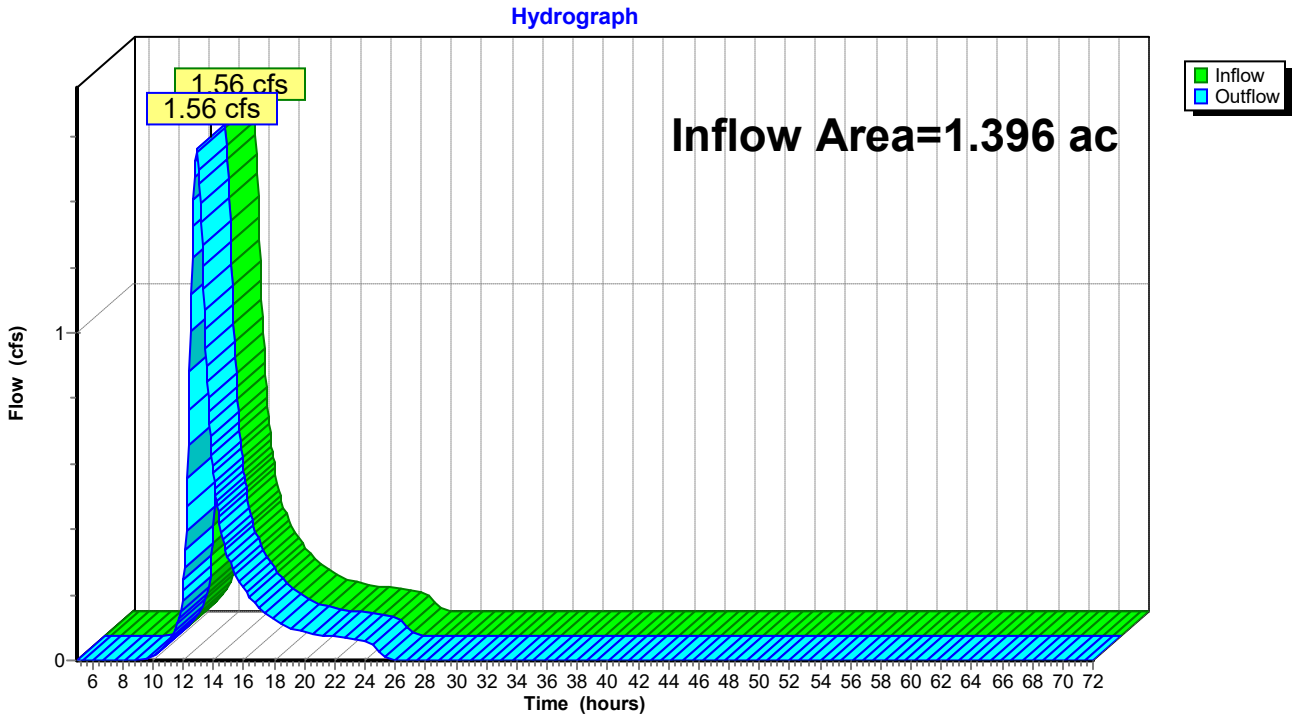


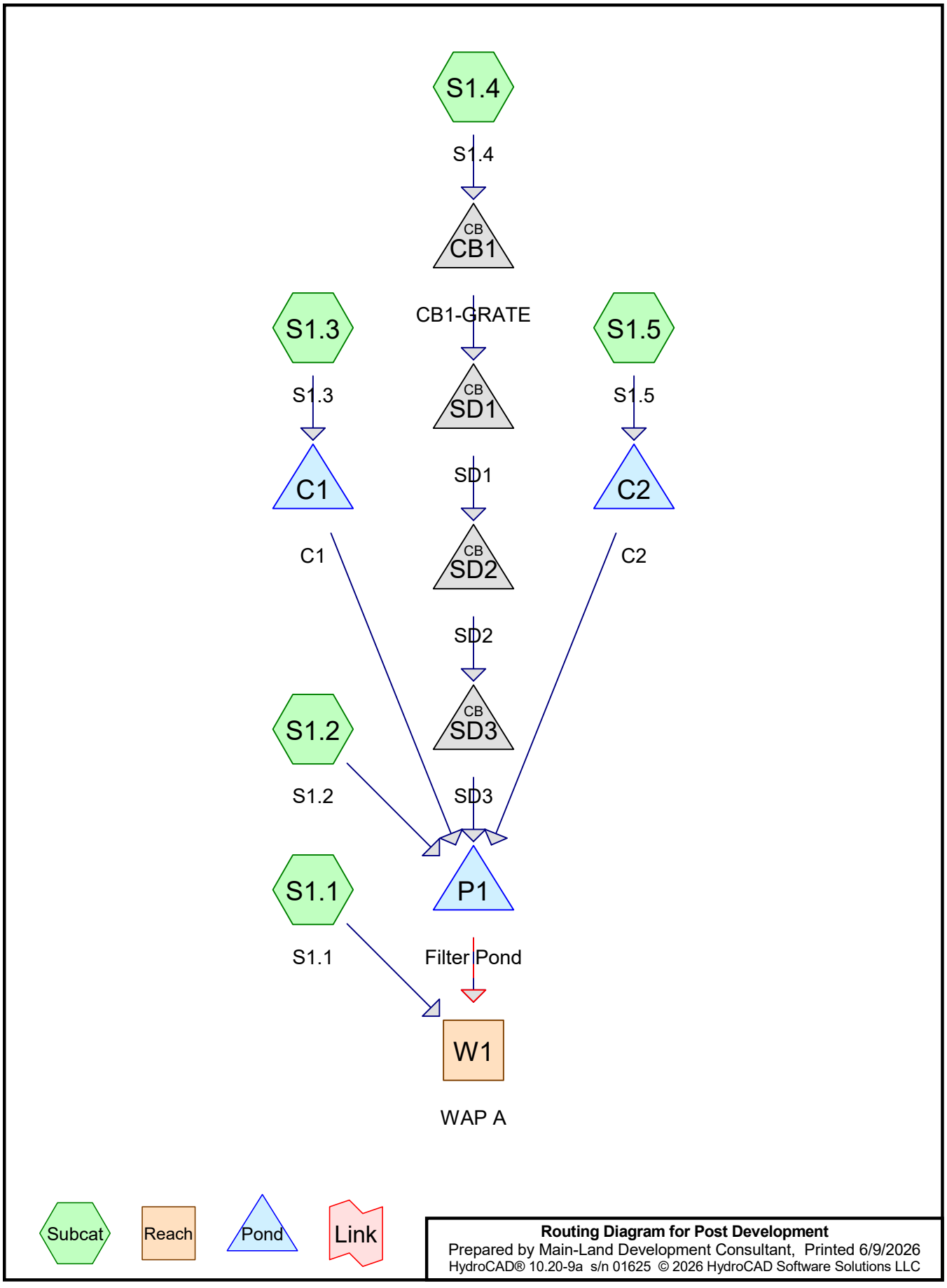
Summary for Reach W1: WAP A

Inflow Area = 1.396 ac, 0.00% Impervious, Inflow Depth = 2.60" for 25-Year event
Inflow = 1.56 cfs @ 12.91 hrs, Volume= 0.302 af
Outflow = 1.56 cfs @ 12.91 hrs, Volume= 0.302 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-72.00 hrs, dt= 0.05 hrs

Reach W1: WAP A




S1.4
S1.4
CB
CB1
CB1-GRATE
S1.3
S1.5
S1.3
CB
SD1
S1.5
C1
SD1
C2
C1
CB
SD2
C2
SD2
CB
SD3
S1.2
S1.2
SD3
S1.1
P1
S1.1
Filter Pond
W1
WAP A
Subcat
Reach
Pond
Link
Routing Diagram for Post Development
Prepared by Main-Land Development Consultant, Printed 6/9/2026
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Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2-Year	Type III 24-hr		Default	24.00	1	3.10	2
2	10-Year	Type III 24-hr		Default	24.00	1	4.60	2
3	25-Year	Type III 24-hr		Default	24.00	1	5.80	2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.303	74	>75% Grass cover, Good, HSG C (S1.2, S1.3, S1.4, S1.5)
0.105	71	Meadow, non-grazed, HSG C (S1.1)
0.156	98	Paved parking, HSG C (S1.2, S1.3, S1.4)
0.107	98	Roofs, HSG C (S1.1, S1.3, S1.4)
0.033	98	Roofs, HSG D (S1.2)
0.022	98	Unconnected pavement, HSG C (S1.1, S1.3, S1.5)
0.668	73	Woods, Fair, HSG C (S1.1, S1.3, S1.4)
1.394	**79**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
1.361	HSG C	S1.1, S1.2, S1.3, S1.4, S1.5
0.033	HSG D	S1.2
0.000	Other	
1.394		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.303	0.000	0.000	0.303	>75% Grass cover, Good	S1.2, S1.3, S1.4, S1.5
0.000	0.000	0.105	0.000	0.000	0.105	Meadow, non-grazed	S1.1
0.000	0.000	0.156	0.000	0.000	0.156	Paved parking	S1.2, S1.3, S1.4
0.000	0.000	0.107	0.033	0.000	0.140	Roofs	S1.1, S1.2, S1.3, S1.4
0.000	0.000	0.022	0.000	0.000	0.022	Unconnected pavement	S1.1, S1.3, S1.5
0.000	0.000	0.668	0.000	0.000	0.668	Woods, Fair	S1.1, S1.3, S1.4
0.000	**0.000**	**1.361**	**0.033**	**0.000**	**1.394**	**TOTAL AREA**	

Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Width (inches)	Diam/Height (inches)	Inside-Fill (inches)	Node Name
1	C1	16.50	15.00	45.0	0.0333	0.013	0.0	15.0	0.0	
2	C2	15.50	15.00	37.0	0.0135	0.013	0.0	15.0	0.0	
3	P1	12.75	12.50	22.0	0.0114	0.013	0.0	12.0	0.0	
4	SD1	16.50	16.00	38.0	0.0132	0.013	0.0	15.0	0.0	
5	SD2	16.00	15.30	98.0	0.0071	0.013	0.0	15.0	0.0	
6	SD3	15.30	15.00	23.0	0.0130	0.013	0.0	15.0	0.0	

Time span=5.00-72.00 hrs, dt=0.05 hrs, 1341 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 S1.1: S1.1 Runoff Area=0.748 ac 0.80% Impervious Runoff Depth=0.92"
Flow Length=291' Tc=65.9 min CN=73 Runoff=0.28 cfs 0.057 af

Subcatchment S1.2: S1.2 Runoff Area=0.261 ac 50.19% Impervious Runoff Depth=1.75"
Tc=5.0 min CN=86 Runoff=0.54 cfs 0.038 af

Subcatchment S1.3: S1.3 Runoff Area=0.247 ac 49.80% Impervious Runoff Depth=1.75"
Tc=5.0 min CN=86 Runoff=0.51 cfs 0.036 af

Subcatchment S1.4: S1.4 Runoff Area=0.099 ac 47.47% Impervious Runoff Depth=1.67"
Flow Length=98' Tc=5.3 min CN=85 Runoff=0.19 cfs 0.014 af

Subcatchment S1.5: S1.5 Runoff Area=0.039 ac 28.21% Impervious Runoff Depth=1.14"
Tc=5.0 min UI Adjusted CN=77 Runoff=0.05 cfs 0.004 af

Reach W1: WAP A Inflow=0.41 cfs 0.149 af
Outflow=0.41 cfs 0.149 af

Pond C1: C1 Peak Elev=16.87' Storage=16 cf Inflow=0.51 cfs 0.036 af
15.0" Round Culvert n=0.013 L=45.0' S=0.0333 '/' Outflow=0.51 cfs 0.036 af

Pond C2: C2 Peak Elev=15.61' Storage=3 cf Inflow=0.05 cfs 0.004 af
Outflow=0.05 cfs 0.004 af

Pond CB1: CB1-GRATE Peak Elev=18.53' Inflow=0.19 cfs 0.014 af
Outflow=0.19 cfs 0.014 af

Pond P1: Filter Pond Peak Elev=15.87' Storage=1,982 cf Inflow=1.29 cfs 0.092 af
Primary=0.14 cfs 0.092 af Secondary=0.00 cfs 0.000 af Outflow=0.14 cfs 0.092 af

Pond SD1: SD1 Peak Elev=16.70' Inflow=0.19 cfs 0.014 af
15.0" Round Culvert n=0.013 L=38.0' S=0.0132 '/' Outflow=0.19 cfs 0.014 af

Pond SD2: SD2 Peak Elev=16.22' Inflow=0.19 cfs 0.014 af
15.0" Round Culvert n=0.013 L=98.0' S=0.0071 '/' Outflow=0.19 cfs 0.014 af

Pond SD3: SD3 Peak Elev=15.50' Inflow=0.19 cfs 0.014 af
15.0" Round Culvert n=0.013 L=23.0' S=0.0130 '/' Outflow=0.19 cfs 0.014 af

Total Runoff Area = 1.394 ac Runoff Volume = 0.149 af Average Runoff Depth = 1.28"
77.19% Pervious = 1.076 ac 22.81% Impervious = 0.318 ac

Summary for Subcatchment S1.1: S1.1

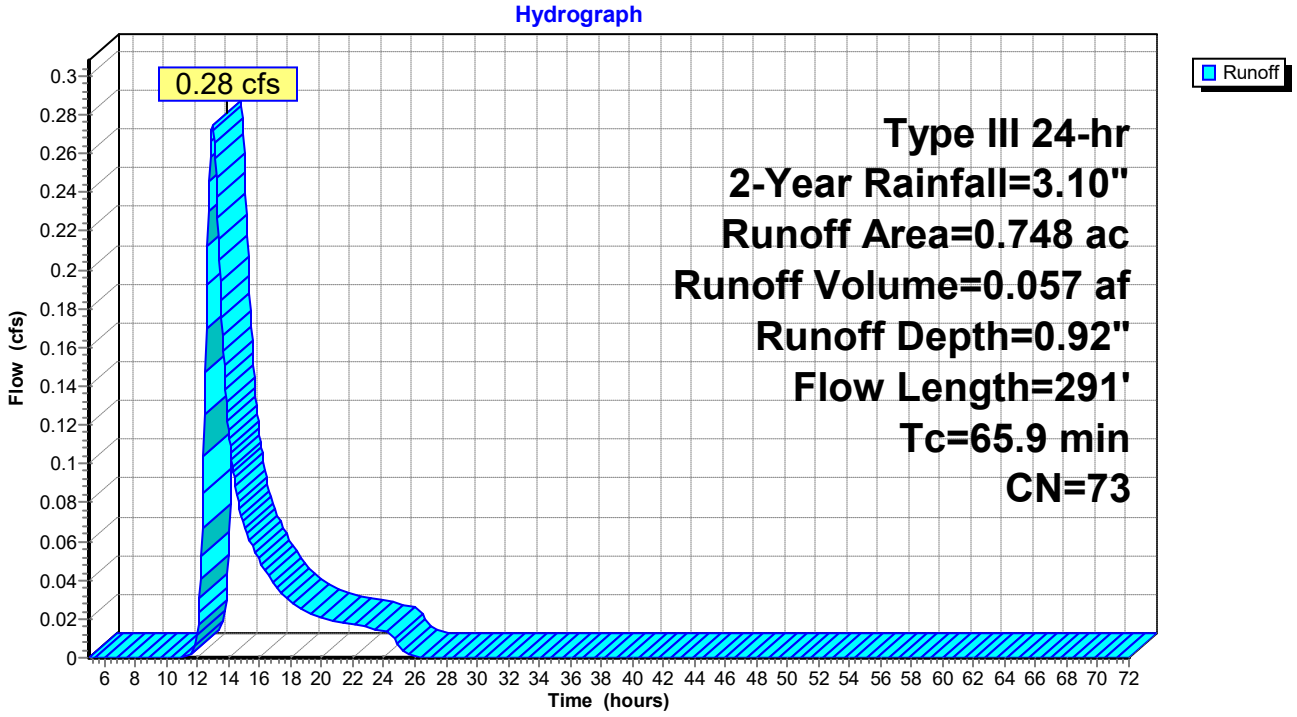
Runoff = 0.28 cfs @ 12.96 hrs, Volume= 0.057 af, Depth= 0.92"
Routed to Reach W1 : WAP A

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.10"

Area (ac)	CN	Description
0.637	73	Woods, Fair, HSG C
0.004	98	Roofs, HSG C
0.105	71	Meadow, non-grazed, HSG C
0.002	98	Unconnected pavement, HSG C
0.748	73	Weighted Average
0.742		99.20% Pervious Area
0.006		0.80% Impervious Area
0.002		33.33% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
62.0	150	0.0033	0.04		**Sheet Flow, sheet - wetland** Woods: Light underbrush n= 0.400 P2= 3.10"
3.9	141	0.0142	0.60		**Shallow Concentrated Flow, shallow - wetland** Woodland Kv= 5.0 fps
65.9	291	Total			

Subcatchment S1.1: S1.1



Summary for Subcatchment S1.2: S1.2

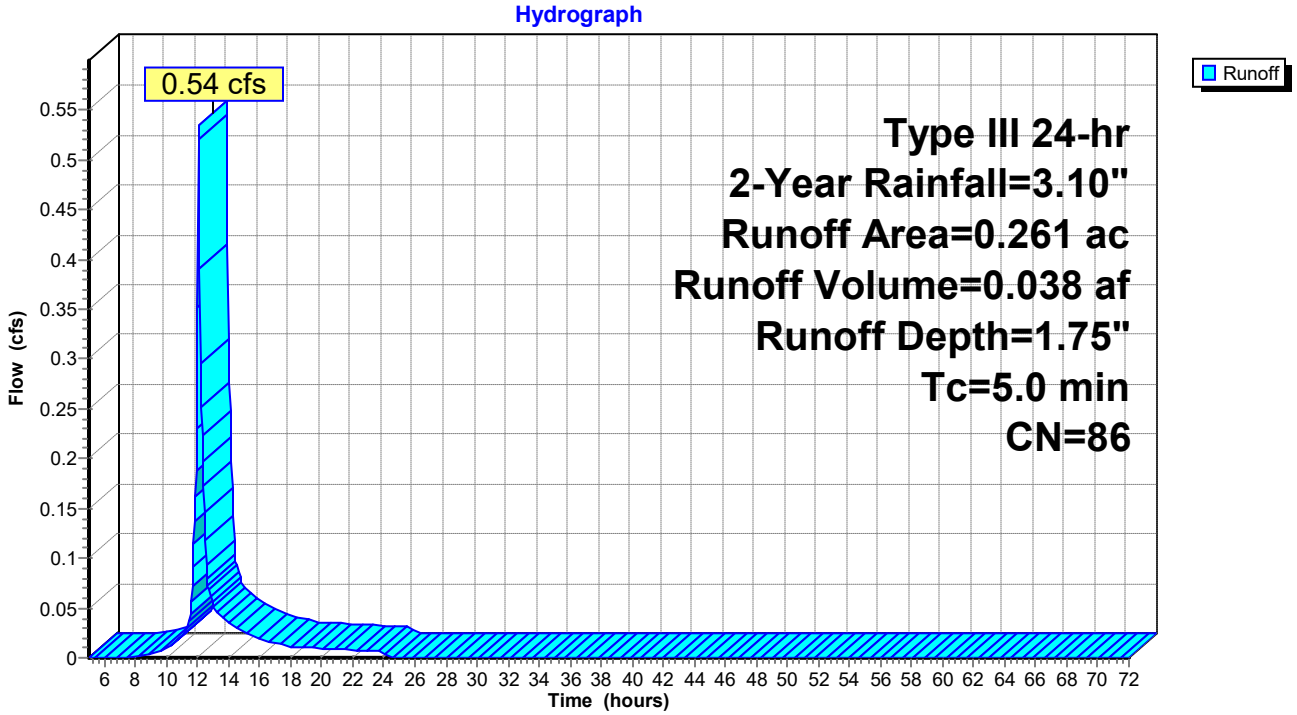
Runoff = 0.54 cfs @ 12.08 hrs, Volume= 0.038 af, Depth= 1.75"
Routed to Pond P1 : Filter Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.10"

Area (ac)	CN	Description
0.098	98	Paved parking, HSG C
0.033	98	Roofs, HSG D
0.130	74	>75% Grass cover, Good, HSG C
0.261	86	Weighted Average
0.130		49.81% Pervious Area
0.131		50.19% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, min. 5 minutes**

Subcatchment S1.2: S1.2



Summary for Subcatchment S1.3: S1.3

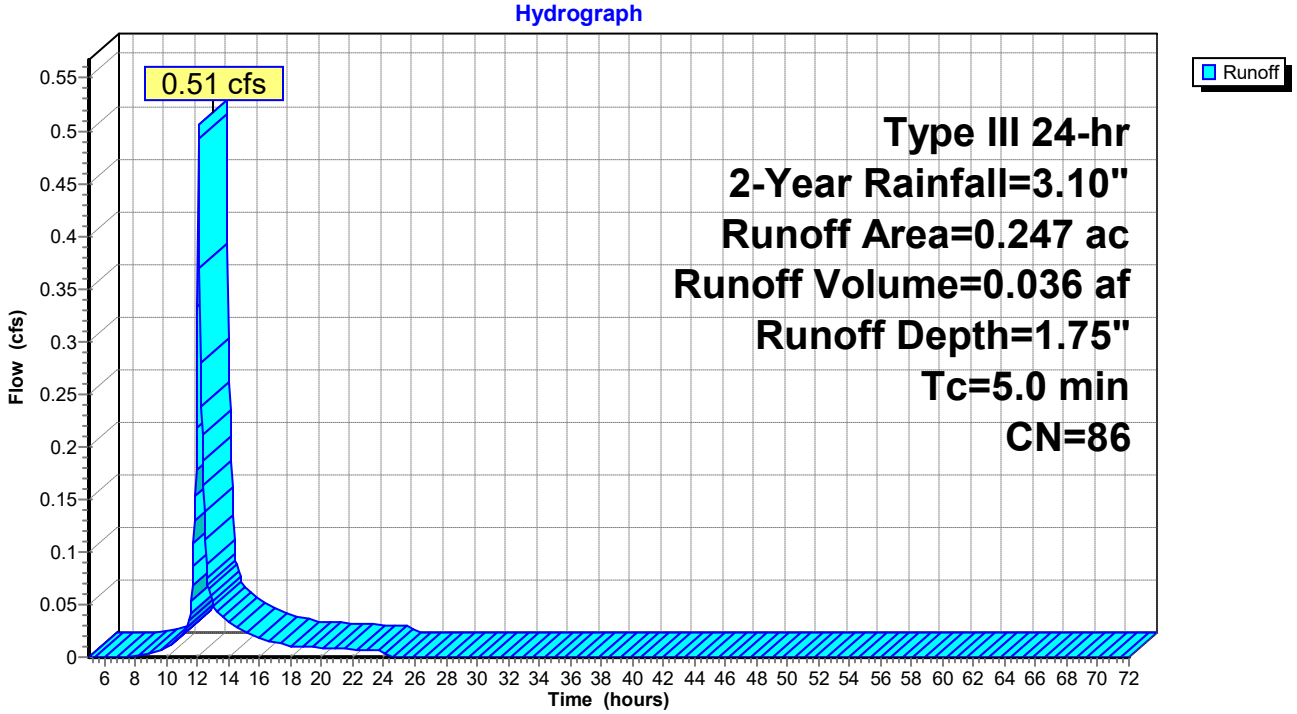
Runoff = 0.51 cfs @ 12.08 hrs, Volume= 0.036 af, Depth= 1.75"
Routed to Pond C1 : C1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.10"

Area (ac)	CN	Description
0.015	73	Woods, Fair, HSG C
0.044	98	Paved parking, HSG C
0.009	98	Unconnected pavement, HSG C
0.070	98	Roofs, HSG C
0.109	74	>75% Grass cover, Good, HSG C
0.247	86	Weighted Average
0.124		50.20% Pervious Area
0.123		49.80% Impervious Area
0.009		7.32% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, min. 5 minutes**

Subcatchment S1.3: S1.3



Summary for Subcatchment S1.4: S1.4

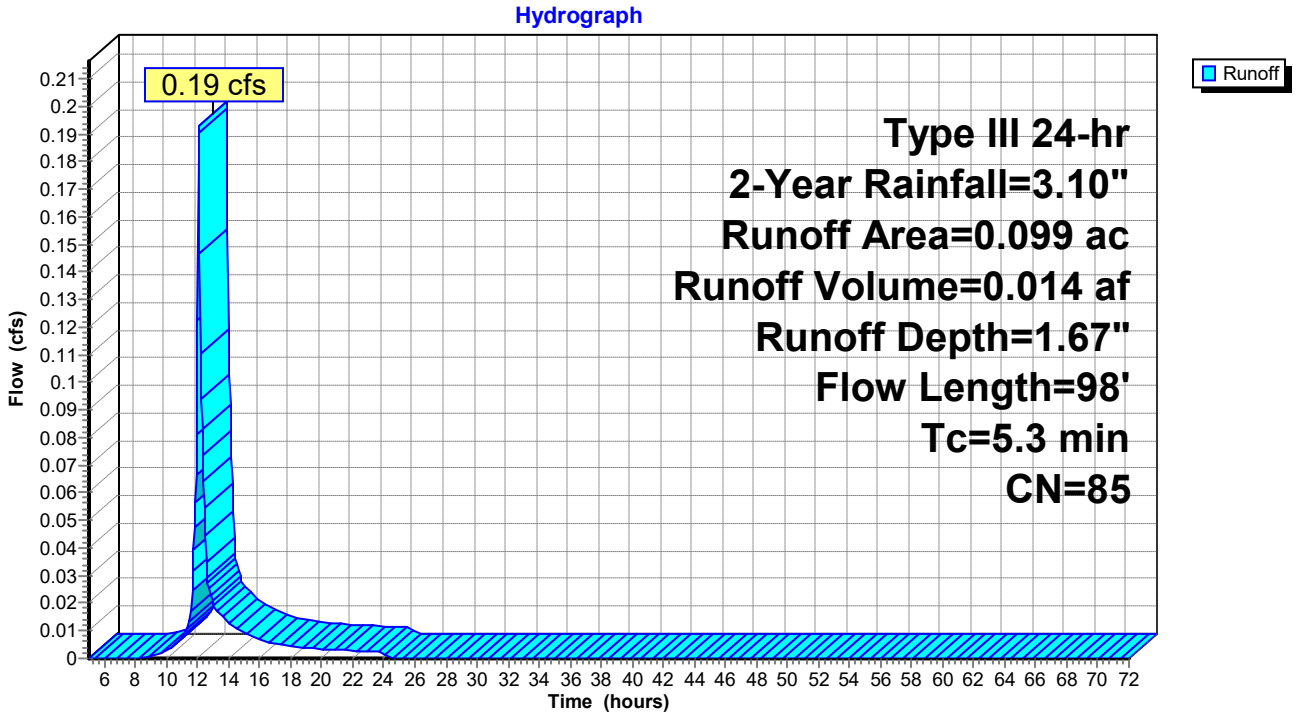
Runoff = 0.19 cfs @ 12.08 hrs, Volume= 0.014 af, Depth= 1.67"
Routed to Pond CB1 : CB1-GRATE

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.10"

Area (ac)	CN	Description
0.016	73	Woods, Fair, HSG C
0.014	98	Paved parking, HSG C
0.033	98	Roofs, HSG C
0.036	74	>75% Grass cover, Good, HSG C
0.099	85	Weighted Average
0.052		52.53% Pervious Area
0.047		47.47% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.1	36	0.1000	0.12		**Sheet Flow, sheet - woods** Woods: Light underbrush n= 0.400 P2= 3.10"
0.1	10	0.1000	2.21		**Shallow Concentrated Flow, shallow - grass** Short Grass Pasture Kv= 7.0 fps
0.1	52	0.0200	7.06	28.23	**Channel Flow, channel - ditch** Area= 4.0 sf Perim= 6.3' r= 0.63' n= 0.022 Earth, clean & straight
5.3	98	Total			

Subcatchment S1.4: S1.4



Summary for Subcatchment S1.5: S1.5

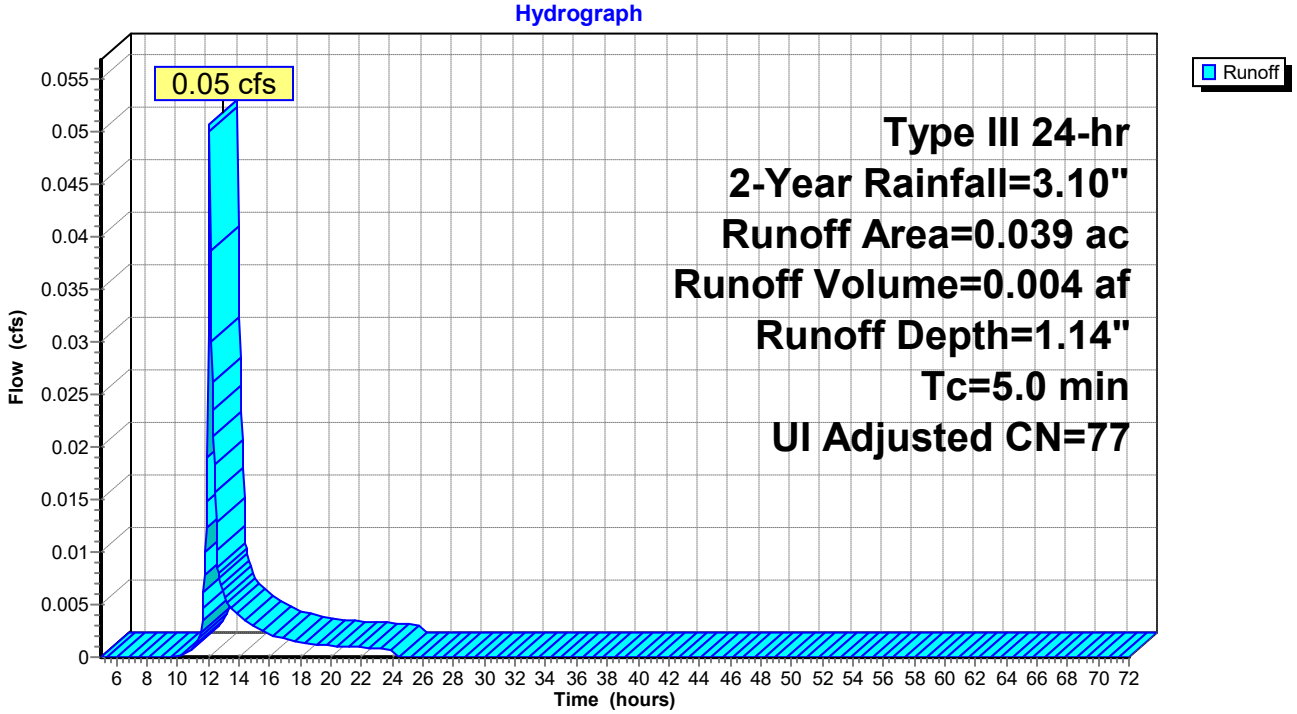
Runoff = 0.05 cfs @ 12.08 hrs, Volume= 0.004 af, Depth= 1.14"
Routed to Pond C2 : C2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.10"

Area (ac)	CN	Adj	Description
0.000	73		Woods, Fair, HSG C
0.000	98		Paved parking, HSG C
0.011	98		Unconnected pavement, HSG C
0.000	98		Roofs, HSG C
0.028	74		>75% Grass cover, Good, HSG C
0.039	81	77	Weighted Average, UI Adjusted
0.028			71.79% Pervious Area
0.011			28.21% Impervious Area
0.011			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, min. 5 minutes**

Subcatchment S1.5: S1.5

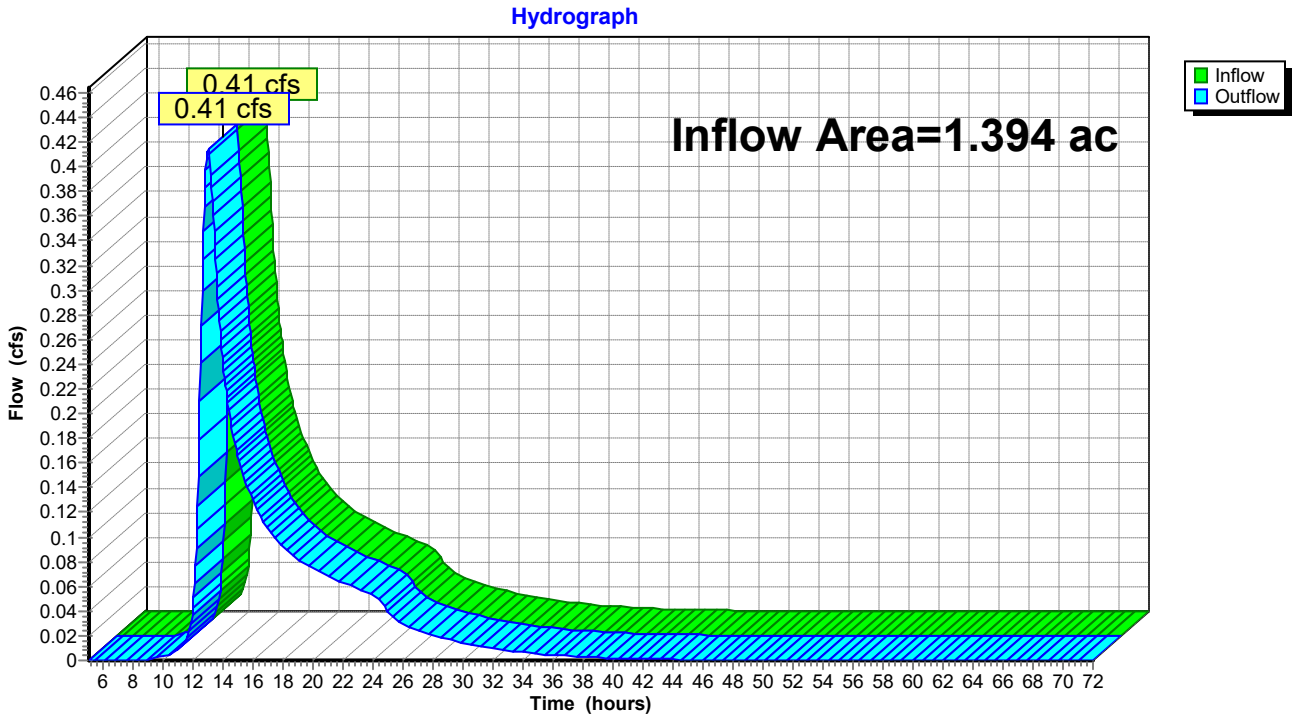


Summary for Reach W1: WAP A

Inflow Area = 1.394 ac, 22.81% Impervious, Inflow Depth = 1.28" for 2-Year event
Inflow = 0.41 cfs @ 12.96 hrs, Volume= 0.149 af
Outflow = 0.41 cfs @ 12.96 hrs, Volume= 0.149 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-72.00 hrs, dt= 0.05 hrs

Reach W1: WAP A



Summary for Pond C1: C1

Inflow Area = 0.247 ac, 49.80% Impervious, Inflow Depth = 1.75" for 2-Year event
Inflow = 0.51 cfs @ 12.08 hrs, Volume= 0.036 af
Outflow = 0.51 cfs @ 12.09 hrs, Volume= 0.036 af, Atten= 0%, Lag= 0.5 min
Primary = 0.51 cfs @ 12.09 hrs, Volume= 0.036 af
Routed to Pond P1 : Filter Pond

Routing by Stor-Ind method, Time Span= 5.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 16.87' @ 12.09 hrs Surf.Area= 53 sf Storage= 16 cf

Plug-Flow detention time= 1.4 min calculated for 0.036 af (100% of inflow)
Center-of-Mass det. time= 1.4 min (824.4 - 823.0)

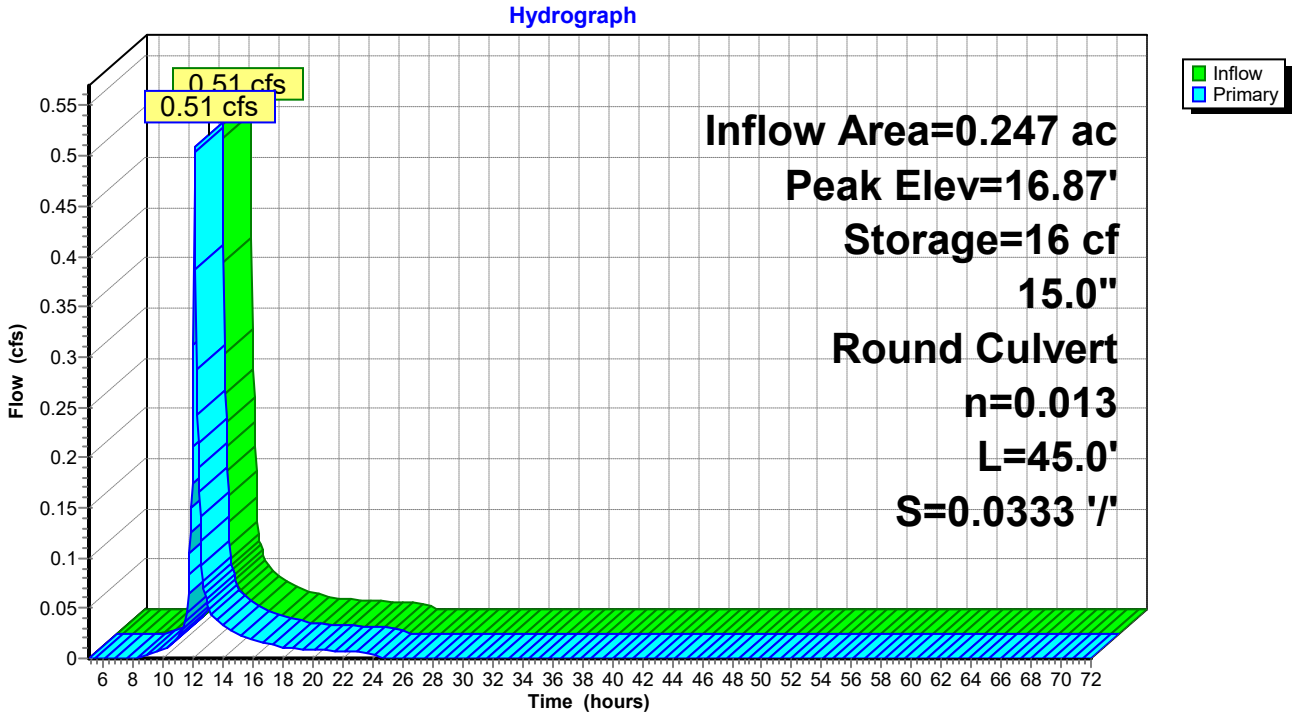
Volume	Invert	Avail.Storage	Storage Description
#1	16.50'	163 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
16.50	31	0	0
17.00	60	23	23
18.00	221	141	163

Device	Routing	Invert	Outlet Devices
#1	Primary	16.50'	**15.0" Round Culvert** L= 45.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 16.50' / 15.00' S= 0.0333 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.49 cfs @ 12.09 hrs HW=16.87' (Free Discharge)
1=Culvert (Inlet Controls 0.49 cfs @ 1.63 fps)

Pond C1: C1


Hydrograph
0.51 cfs
0.51 cfs
Inflow Area=0.247 ac
Peak Elev=16.87'
Storage=16 cf
15.0"
Round Culvert
n=0.013
L=45.0'
S=0.0333 '/'
Inflow
Primary
Flow (cfs)
0
0.05
0.1
0.15
0.2
0.25
0.3
0.35
0.4
0.45
0.5
0.55
6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72
Time (hours)

Summary for Pond C2: C2

Inflow Area = 0.039 ac, 28.21% Impervious, Inflow Depth = 1.14" for 2-Year event
Inflow = 0.05 cfs @ 12.08 hrs, Volume= 0.004 af
Outflow = 0.05 cfs @ 12.10 hrs, Volume= 0.004 af, Atten= 0%, Lag= 0.7 min
Primary = 0.05 cfs @ 12.10 hrs, Volume= 0.004 af
Routed to Pond P1 : Filter Pond

Routing by Stor-Ind method, Time Span= 5.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 15.61' @ 12.10 hrs Surf.Area= 30 sf Storage= 3 cf

Plug-Flow detention time= 2.1 min calculated for 0.004 af (100% of inflow)
Center-of-Mass det. time= 2.1 min (855.4 - 853.3)

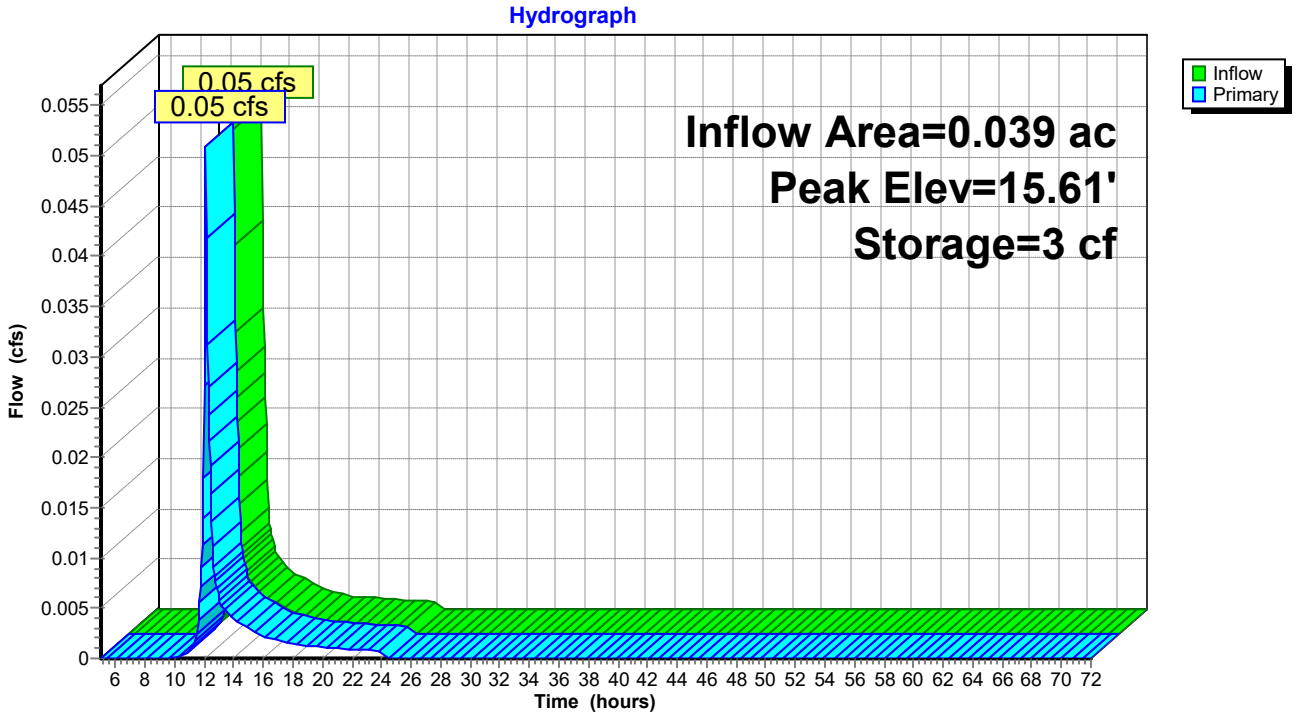
Volume	Invert	Avail.Storage	Storage Description
#1	15.50'	712 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
15.50	20	0	0
16.00	62	21	21
17.00	302	182	203
18.00	716	509	712

Device	Routing	Invert	Outlet Devices
#1	Primary	15.50'	**15.0" Round Culvert** L= 37.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 15.50' / 15.00' S= 0.0135 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Primary	17.90'	**30.0' long x 0.50' rise Sharp-Crested Rectangular Weir** 2 End Contraction(s) 0.5' Crest Height

Primary OutFlow Max=0.05 cfs @ 12.10 hrs HW=15.61' (Free Discharge)
1=Culvert (Inlet Controls 0.05 cfs @ 0.91 fps)
2=Sharp-Crested Rectangular Weir (Controls 0.00 cfs)

Pond C2: C2


Hydrograph
0.05 cfs
0.05 cfs
Inflow Area=0.039 ac
Peak Elev=15.61'
Storage=3 cf
Inflow
Primary
Flow (cfs)
0
0.005
0.01
0.015
0.02
0.025
0.03
0.035
0.04
0.045
0.05
0.055
6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72
Time (hours)

Summary for Pond CB1: CB1-GRATE

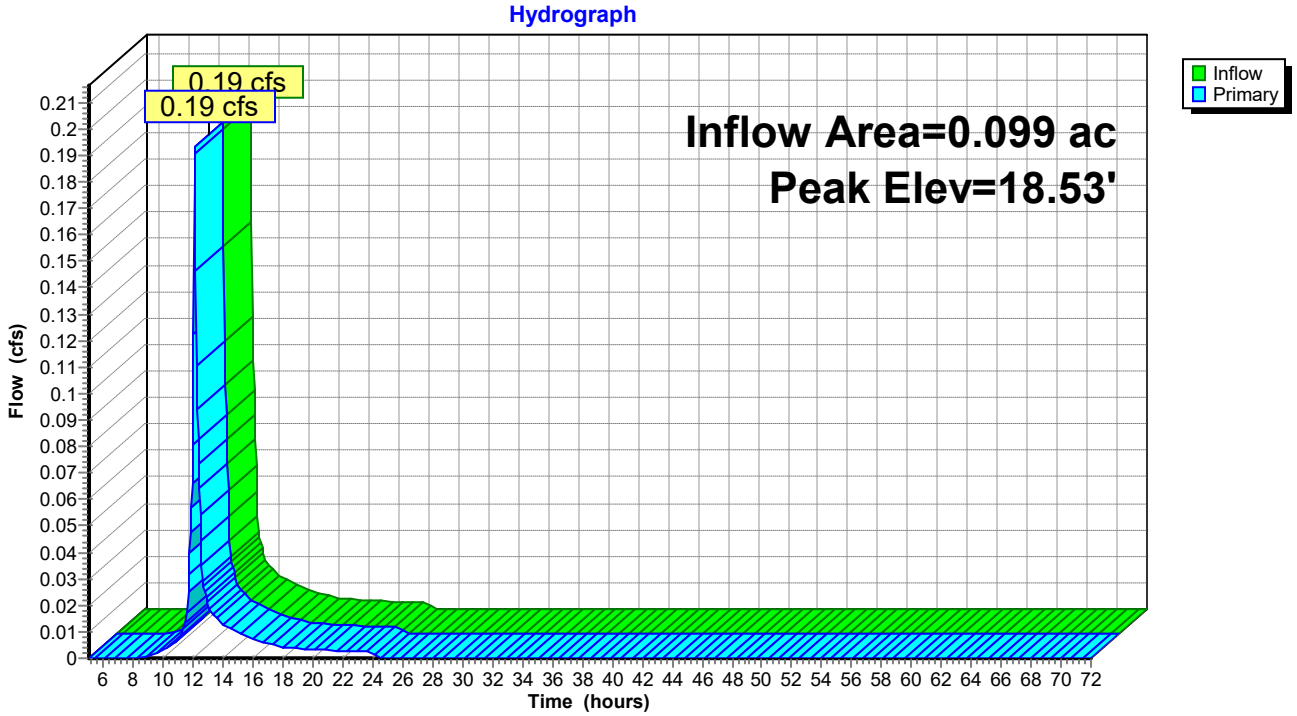
Inflow Area = 0.099 ac, 47.47% Impervious, Inflow Depth = 1.67" for 2-Year event
Inflow = 0.19 cfs @ 12.08 hrs, Volume= 0.014 af
Outflow = 0.19 cfs @ 12.08 hrs, Volume= 0.014 af, Atten= 0%, Lag= 0.0 min
Primary = 0.19 cfs @ 12.08 hrs, Volume= 0.014 af
Routed to Pond SD1 : SD1

Routing by Stor-Ind method, Time Span= 5.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 18.53' @ 12.08 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	18.50'	**48.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.19 cfs @ 12.08 hrs HW=18.53' (Free Discharge)
1=Orifice/Grate (Weir Controls 0.19 cfs @ 0.54 fps)

Pond CB1: CB1-GRATE



Summary for Pond P1: Filter Pond

Inflow Area = 0.646 ac, 48.30% Impervious, Inflow Depth = 1.70" for 2-Year event
Inflow = 1.29 cfs @ 12.08 hrs, Volume= 0.092 af
Outflow = 0.14 cfs @ 12.91 hrs, Volume= 0.092 af, Atten= 89%, Lag= 49.8 min
Primary = 0.14 cfs @ 12.91 hrs, Volume= 0.092 af
Routed to Reach W1 : WAP A
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Routed to Reach W1 : WAP A

Routing by Stor-Ind method, Time Span= 5.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 15.87' @ 12.91 hrs Surf.Area= 3,000 sf Storage= 1,982 cf

Plug-Flow detention time= 318.7 min calculated for 0.091 af (100% of inflow)
Center-of-Mass det. time= 319.8 min (1,145.3 - 825.5)

Volume	Invert	Avail.Storage	Storage Description
#1	15.00'	8,285 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

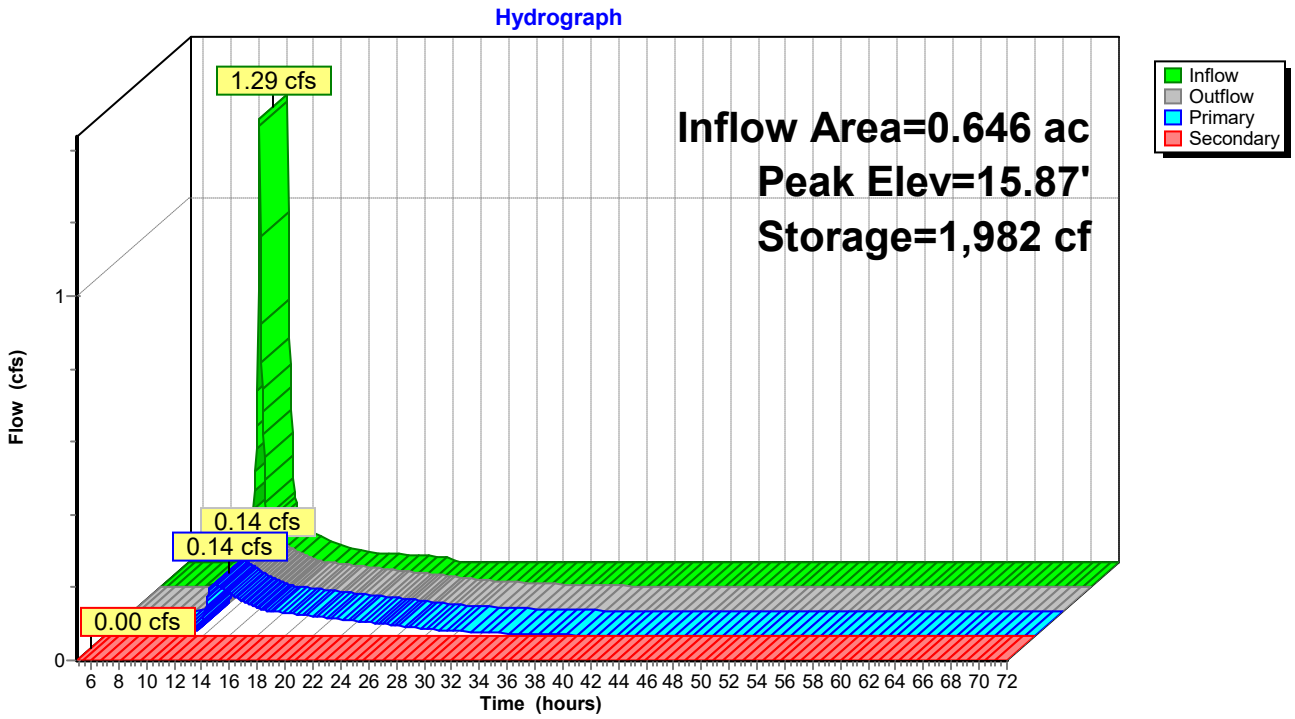
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
15.00	1,464	0	0
15.70	2,799	1,492	1,492
16.00	3,156	893	2,385
16.50	3,604	1,690	4,075
17.00	4,222	1,957	6,032
17.50	4,789	2,253	8,285

Device	Routing	Invert	Outlet Devices
#1	Secondary	16.50'	**10.0' long x 1.00' rise Sharp-Crested Rectangular Weir** 2 End Contraction(s) 1.0' Crest Height
#2	Primary	12.75'	**12.0" Round Culvert** L= 22.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 12.75' / 12.50' S= 0.0114 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#3	Device 2	16.40'	**24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 2	15.70'	**4.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#5	Device 2	15.00'	**2.000 in/hr Exfiltration over Surface area above 15.00'** Conductivity to Groundwater Elevation = 10.00' Excluded Surface area = 1,464 sf

Primary OutFlow Max=0.14 cfs @ 12.91 hrs HW=15.87' (Free Discharge)
└**2=Culvert** (Passes 0.14 cfs of 4.83 cfs potential flow)
├**3=Orifice/Grate** (Controls 0.00 cfs)
├**4=Orifice/Grate** (Orifice Controls 0.06 cfs @ 1.40 fps)
└**5=Exfiltration** (Controls 0.08 cfs)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=15.00' (Free Discharge)
└**1=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond P1: Filter Pond



Summary for Pond SD1: SD1

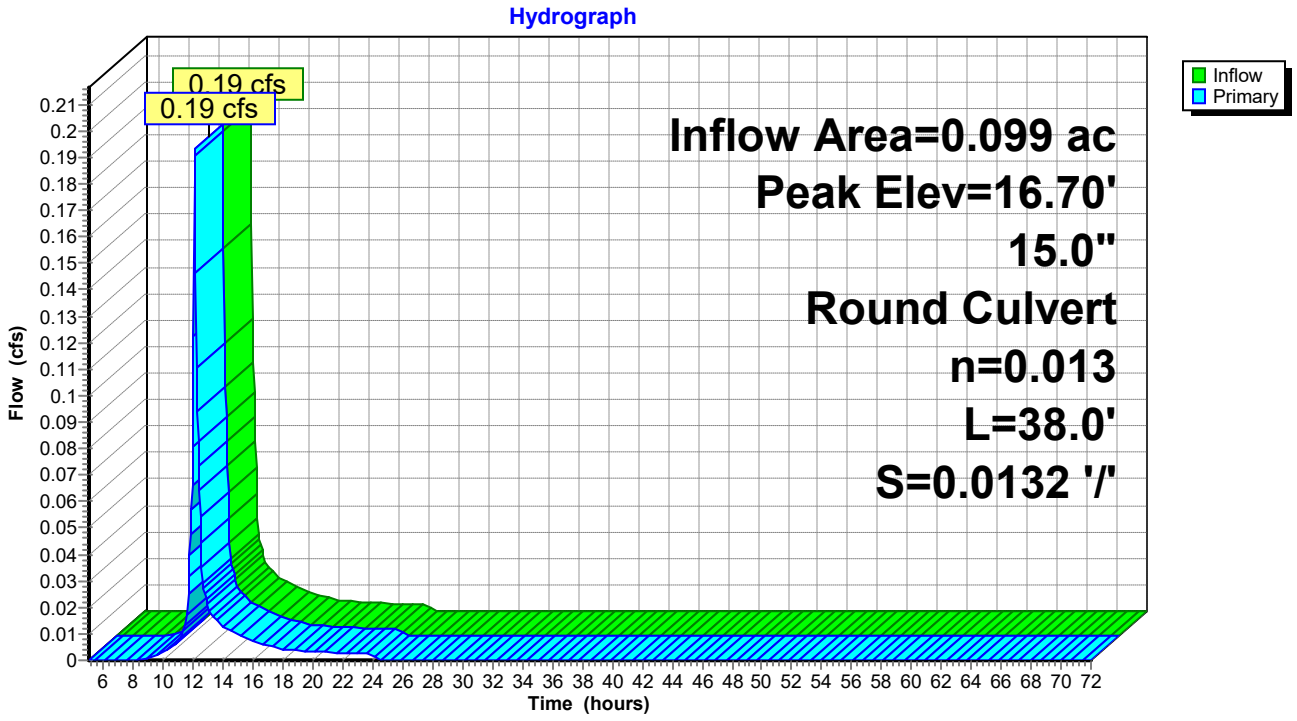
Inflow Area = 0.099 ac, 47.47% Impervious, Inflow Depth = 1.67" for 2-Year event
Inflow = 0.19 cfs @ 12.08 hrs, Volume= 0.014 af
Outflow = 0.19 cfs @ 12.08 hrs, Volume= 0.014 af, Atten= 0%, Lag= 0.0 min
Primary = 0.19 cfs @ 12.08 hrs, Volume= 0.014 af
Routed to Pond SD2 : SD2

Routing by Stor-Ind method, Time Span= 5.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 16.70' @ 12.08 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	16.50'	**15.0" Round Culvert** L= 38.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 16.50' / 16.00' S= 0.0132 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.19 cfs @ 12.08 hrs HW=16.70' (Free Discharge)
1=Culvert (Inlet Controls 0.19 cfs @ 1.51 fps)

Pond SD1: SD1



Summary for Pond SD2: SD2

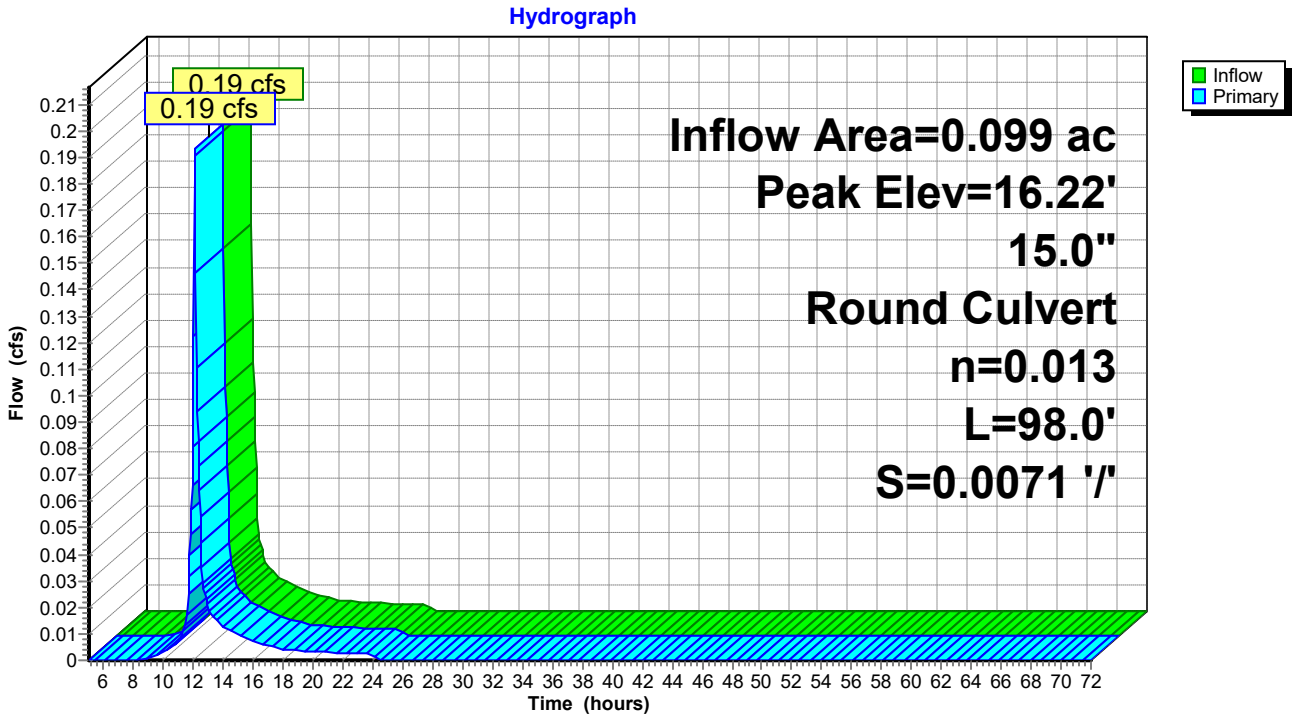
Inflow Area = 0.099 ac, 47.47% Impervious, Inflow Depth = 1.67" for 2-Year event
Inflow = 0.19 cfs @ 12.08 hrs, Volume= 0.014 af
Outflow = 0.19 cfs @ 12.08 hrs, Volume= 0.014 af, Atten= 0%, Lag= 0.0 min
Primary = 0.19 cfs @ 12.08 hrs, Volume= 0.014 af
Routed to Pond SD3 : SD3

Routing by Stor-Ind method, Time Span= 5.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 16.22' @ 12.08 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	16.00'	**15.0" Round Culvert** L= 98.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 16.00' / 15.30' S= 0.0071 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.19 cfs @ 12.08 hrs HW=16.21' (Free Discharge)
1=Culvert (Barrel Controls 0.19 cfs @ 2.03 fps)

Pond SD2: SD2



Summary for Pond SD3: SD3

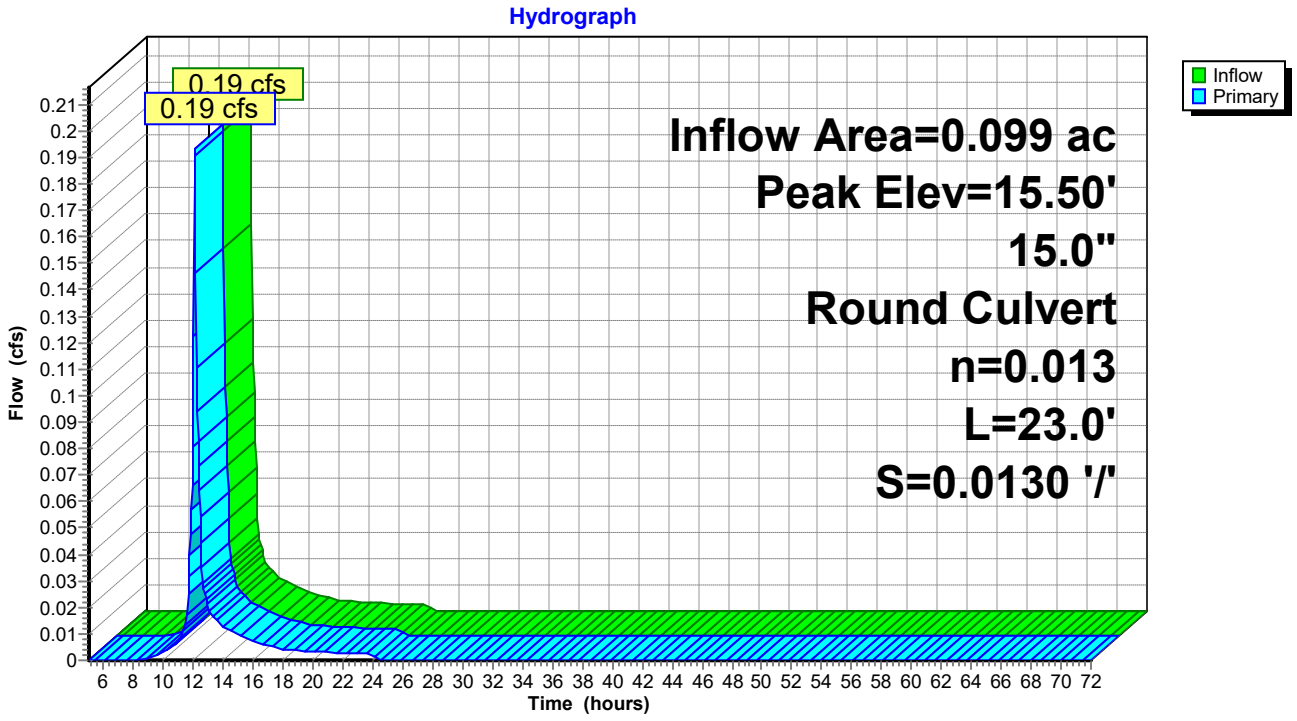
Inflow Area = 0.099 ac, 47.47% Impervious, Inflow Depth = 1.67" for 2-Year event
Inflow = 0.19 cfs @ 12.08 hrs, Volume= 0.014 af
Outflow = 0.19 cfs @ 12.08 hrs, Volume= 0.014 af, Atten= 0%, Lag= 0.0 min
Primary = 0.19 cfs @ 12.08 hrs, Volume= 0.014 af
Routed to Pond P1 : Filter Pond

Routing by Stor-Ind method, Time Span= 5.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 15.50' @ 12.08 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	15.30'	**15.0" Round Culvert** L= 23.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 15.30' / 15.00' S= 0.0130 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.19 cfs @ 12.08 hrs HW=15.50' (Free Discharge)
1=Culvert (Inlet Controls 0.19 cfs @ 1.51 fps)

Pond SD3: SD3



Time span=5.00-72.00 hrs, dt=0.05 hrs, 1341 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 S1.1: S1.1 Runoff Area=0.748 ac 0.80% Impervious Runoff Depth=1.97"
Flow Length=291' Tc=65.9 min CN=73 Runoff=0.63 cfs 0.123 af

Subcatchment S1.2: S1.2 Runoff Area=0.261 ac 50.19% Impervious Runoff Depth=3.10"
Tc=5.0 min CN=86 Runoff=0.94 cfs 0.067 af

Subcatchment S1.3: S1.3 Runoff Area=0.247 ac 49.80% Impervious Runoff Depth=3.10"
Tc=5.0 min CN=86 Runoff=0.89 cfs 0.064 af

Subcatchment S1.4: S1.4 Runoff Area=0.099 ac 47.47% Impervious Runoff Depth=3.00"
Flow Length=98' Tc=5.3 min CN=85 Runoff=0.34 cfs 0.025 af

Subcatchment S1.5: S1.5 Runoff Area=0.039 ac 28.21% Impervious Runoff Depth=2.29"
Tc=5.0 min UI Adjusted CN=77 Runoff=0.10 cfs 0.007 af

Reach W1: WAP A Inflow=0.99 cfs 0.286 af
Outflow=0.99 cfs 0.286 af

Pond C1: C1 Peak Elev=17.01' Storage=23 cf Inflow=0.89 cfs 0.064 af
15.0" Round Culvert n=0.013 L=45.0' S=0.0333 '/' Outflow=0.89 cfs 0.064 af

Pond C2: C2 Peak Elev=15.66' Storage=4 cf Inflow=0.10 cfs 0.007 af
Outflow=0.11 cfs 0.007 af

Pond CB1: CB1-GRATE Peak Elev=18.54' Inflow=0.34 cfs 0.025 af
Outflow=0.34 cfs 0.025 af

Pond P1: Filter Pond Peak Elev=16.29' Storage=3,346 cf Inflow=2.27 cfs 0.163 af
Primary=0.38 cfs 0.163 af Secondary=0.00 cfs 0.000 af Outflow=0.38 cfs 0.163 af

Pond SD1: SD1 Peak Elev=16.77' Inflow=0.34 cfs 0.025 af
15.0" Round Culvert n=0.013 L=38.0' S=0.0132 '/' Outflow=0.34 cfs 0.025 af

Pond SD2: SD2 Peak Elev=16.29' Inflow=0.34 cfs 0.025 af
15.0" Round Culvert n=0.013 L=98.0' S=0.0071 '/' Outflow=0.34 cfs 0.025 af

Pond SD3: SD3 Peak Elev=15.57' Inflow=0.34 cfs 0.025 af
15.0" Round Culvert n=0.013 L=23.0' S=0.0130 '/' Outflow=0.34 cfs 0.025 af

Total Runoff Area = 1.394 ac Runoff Volume = 0.286 af Average Runoff Depth = 2.46"
77.19% Pervious = 1.076 ac 22.81% Impervious = 0.318 ac

Summary for Subcatchment S1.1: S1.1

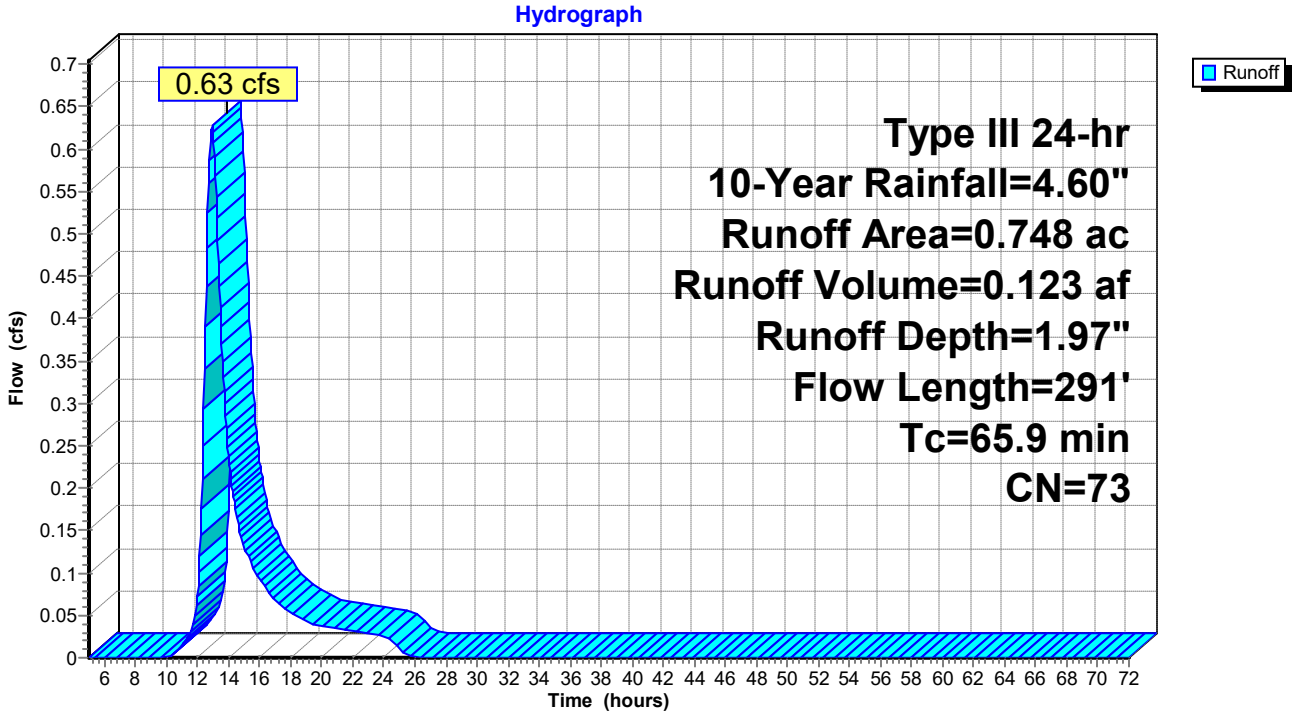
Runoff = 0.63 cfs @ 12.93 hrs, Volume= 0.123 af, Depth= 1.97"
Routed to Reach W1 : WAP A

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (ac)	CN	Description
0.637	73	Woods, Fair, HSG C
0.004	98	Roofs, HSG C
0.105	71	Meadow, non-grazed, HSG C
0.002	98	Unconnected pavement, HSG C
0.748	73	Weighted Average
0.742		99.20% Pervious Area
0.006		0.80% Impervious Area
0.002		33.33% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
62.0	150	0.0033	0.04		**Sheet Flow, sheet - wetland** Woods: Light underbrush n= 0.400 P2= 3.10"
3.9	141	0.0142	0.60		**Shallow Concentrated Flow, shallow - wetland** Woodland Kv= 5.0 fps
65.9	291	Total			

Subcatchment S1.1: S1.1



Summary for Subcatchment S1.2: S1.2

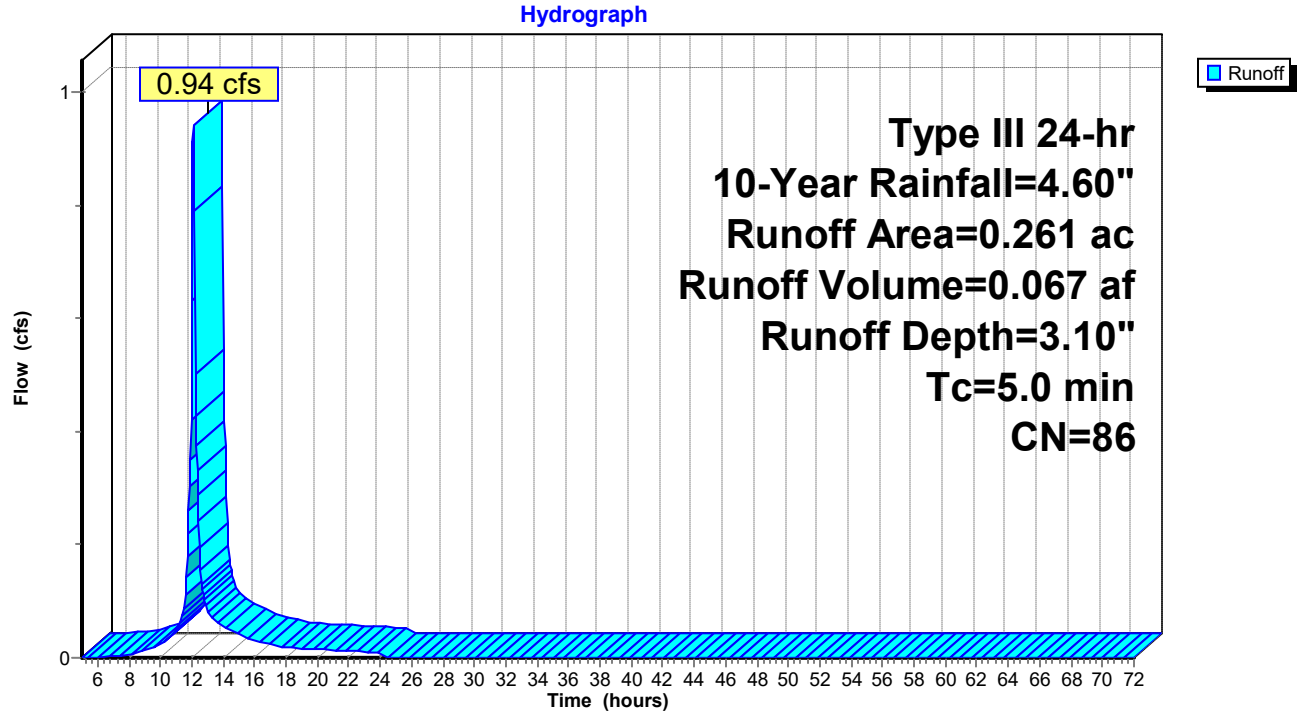
Runoff = 0.94 cfs @ 12.07 hrs, Volume= 0.067 af, Depth= 3.10"
Routed to Pond P1 : Filter Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (ac)	CN	Description
0.098	98	Paved parking, HSG C
0.033	98	Roofs, HSG D
0.130	74	>75% Grass cover, Good, HSG C
0.261	86	Weighted Average
0.130		49.81% Pervious Area
0.131		50.19% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, min. 5 minutes**

Subcatchment S1.2: S1.2



Summary for Subcatchment S1.3: S1.3

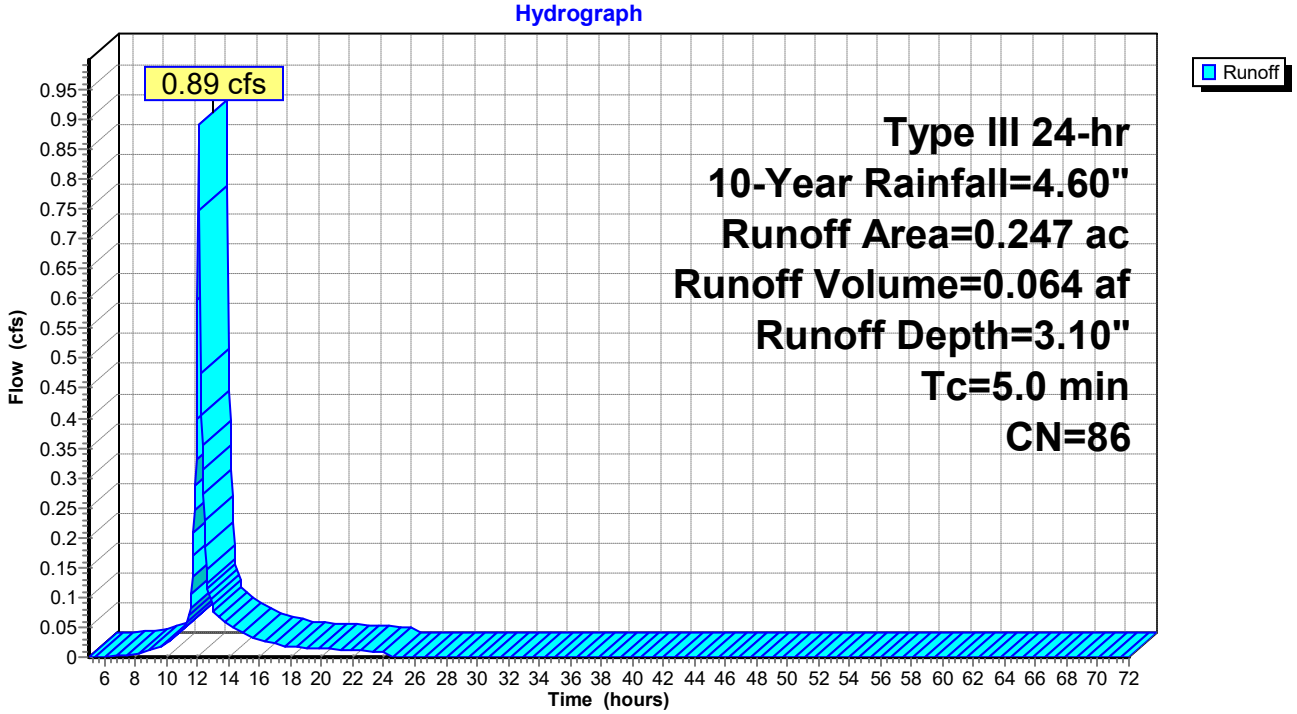
Runoff = 0.89 cfs @ 12.07 hrs, Volume= 0.064 af, Depth= 3.10"
Routed to Pond C1 : C1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (ac)	CN	Description
0.015	73	Woods, Fair, HSG C
0.044	98	Paved parking, HSG C
0.009	98	Unconnected pavement, HSG C
0.070	98	Roofs, HSG C
0.109	74	>75% Grass cover, Good, HSG C
0.247	86	Weighted Average
0.124		50.20% Pervious Area
0.123		49.80% Impervious Area
0.009		7.32% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, min. 5 minutes**

Subcatchment S1.3: S1.3



Summary for Subcatchment S1.4: S1.4

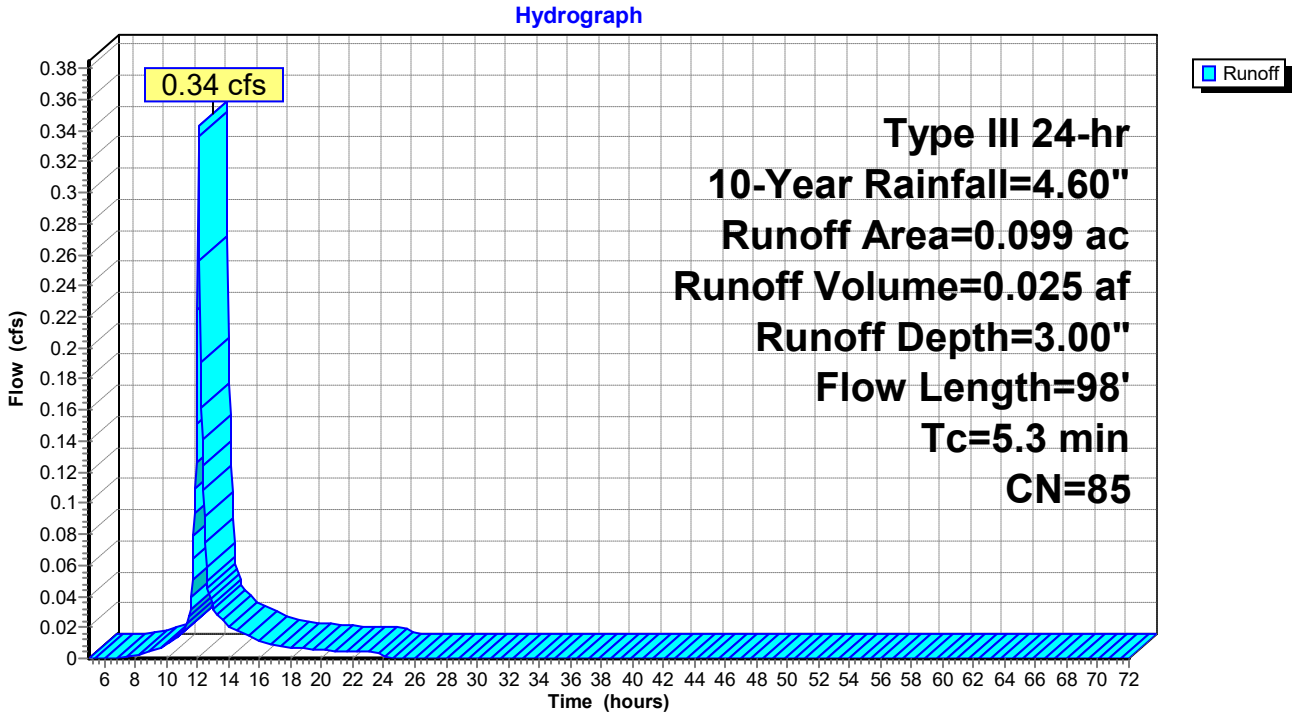
Runoff = 0.34 cfs @ 12.08 hrs, Volume= 0.025 af, Depth= 3.00"
Routed to Pond CB1 : CB1-GRATE

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (ac)	CN	Description
0.016	73	Woods, Fair, HSG C
0.014	98	Paved parking, HSG C
0.033	98	Roofs, HSG C
0.036	74	>75% Grass cover, Good, HSG C
0.099	85	Weighted Average
0.052		52.53% Pervious Area
0.047		47.47% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.1	36	0.1000	0.12		**Sheet Flow, sheet - woods** Woods: Light underbrush n= 0.400 P2= 3.10"
0.1	10	0.1000	2.21		**Shallow Concentrated Flow, shallow - grass** Short Grass Pasture Kv= 7.0 fps
0.1	52	0.0200	7.06	28.23	**Channel Flow, channel - ditch** Area= 4.0 sf Perim= 6.3' r= 0.63' n= 0.022 Earth, clean & straight
5.3	98	Total			

Subcatchment S1.4: S1.4



Summary for Subcatchment S1.5: S1.5

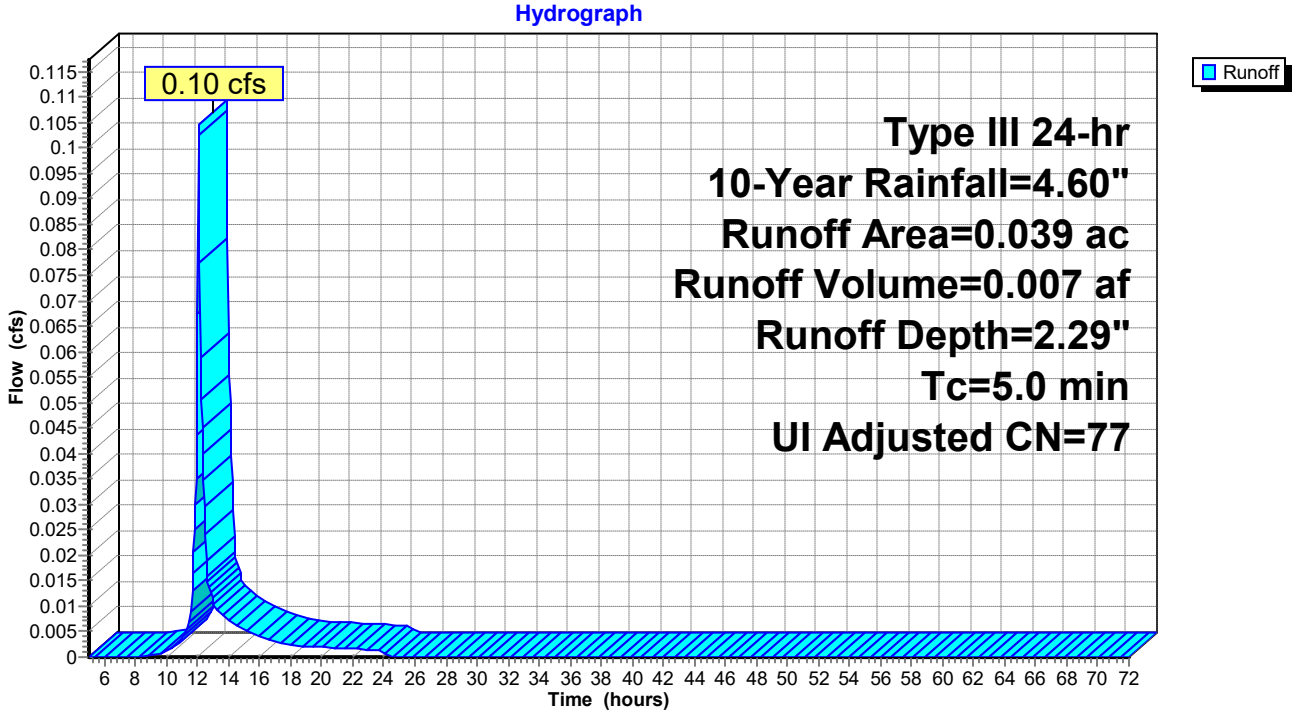
Runoff = 0.10 cfs @ 12.08 hrs, Volume= 0.007 af, Depth= 2.29"
Routed to Pond C2 : C2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (ac)	CN	Adj	Description
0.000	73		Woods, Fair, HSG C
0.000	98		Paved parking, HSG C
0.011	98		Unconnected pavement, HSG C
0.000	98		Roofs, HSG C
0.028	74		>75% Grass cover, Good, HSG C
0.039	81	77	Weighted Average, UI Adjusted
0.028			71.79% Pervious Area
0.011			28.21% Impervious Area
0.011			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, min. 5 minutes**

Subcatchment S1.5: S1.5

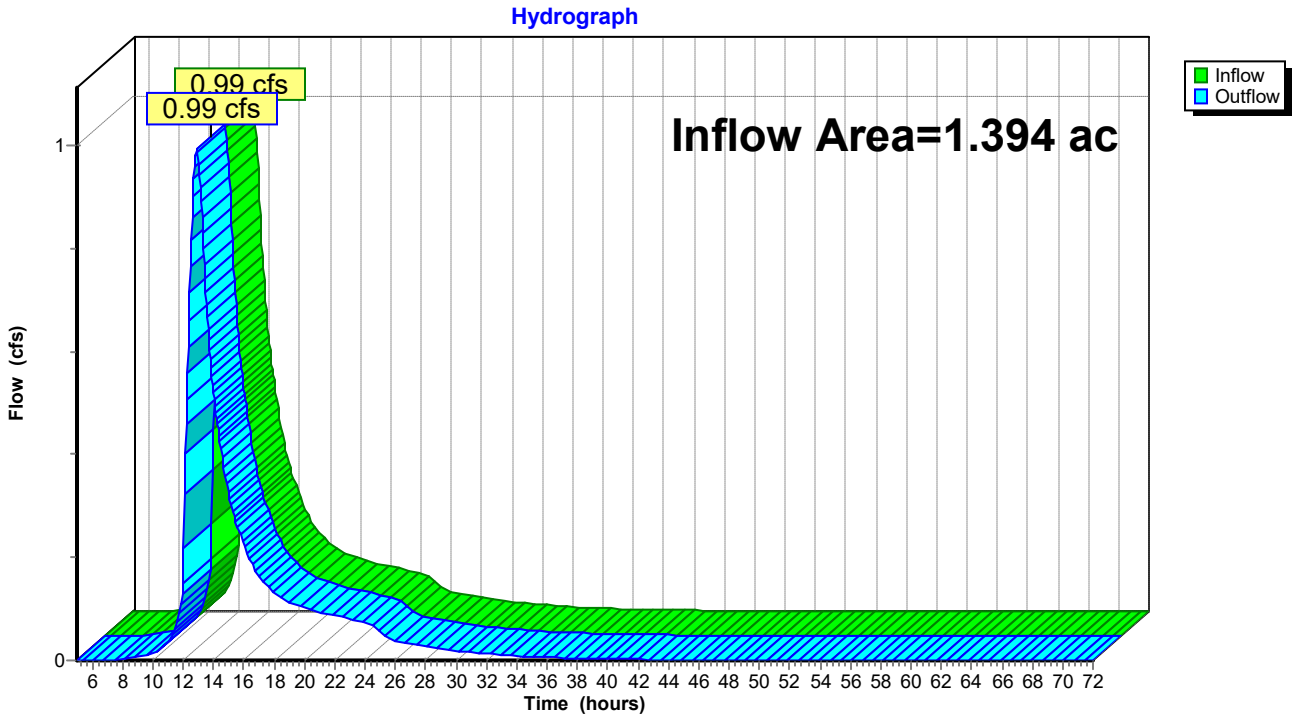


Summary for Reach W1: WAP A

Inflow Area = 1.394 ac, 22.81% Impervious, Inflow Depth = 2.46" for 10-Year event
Inflow = 0.99 cfs @ 12.90 hrs, Volume= 0.286 af
Outflow = 0.99 cfs @ 12.90 hrs, Volume= 0.286 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-72.00 hrs, dt= 0.05 hrs

Reach W1: WAP A



Summary for Pond C1: C1

Inflow Area = 0.247 ac, 49.80% Impervious, Inflow Depth = 3.10" for 10-Year event
Inflow = 0.89 cfs @ 12.07 hrs, Volume= 0.064 af
Outflow = 0.89 cfs @ 12.08 hrs, Volume= 0.064 af, Atten= 0%, Lag= 0.5 min
Primary = 0.89 cfs @ 12.08 hrs, Volume= 0.064 af
Routed to Pond P1 : Filter Pond

Routing by Stor-Ind method, Time Span= 5.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 17.01' @ 12.08 hrs Surf.Area= 61 sf Storage= 23 cf

Plug-Flow detention time= 1.2 min calculated for 0.064 af (100% of inflow)
Center-of-Mass det. time= 1.1 min (807.9 - 806.7)

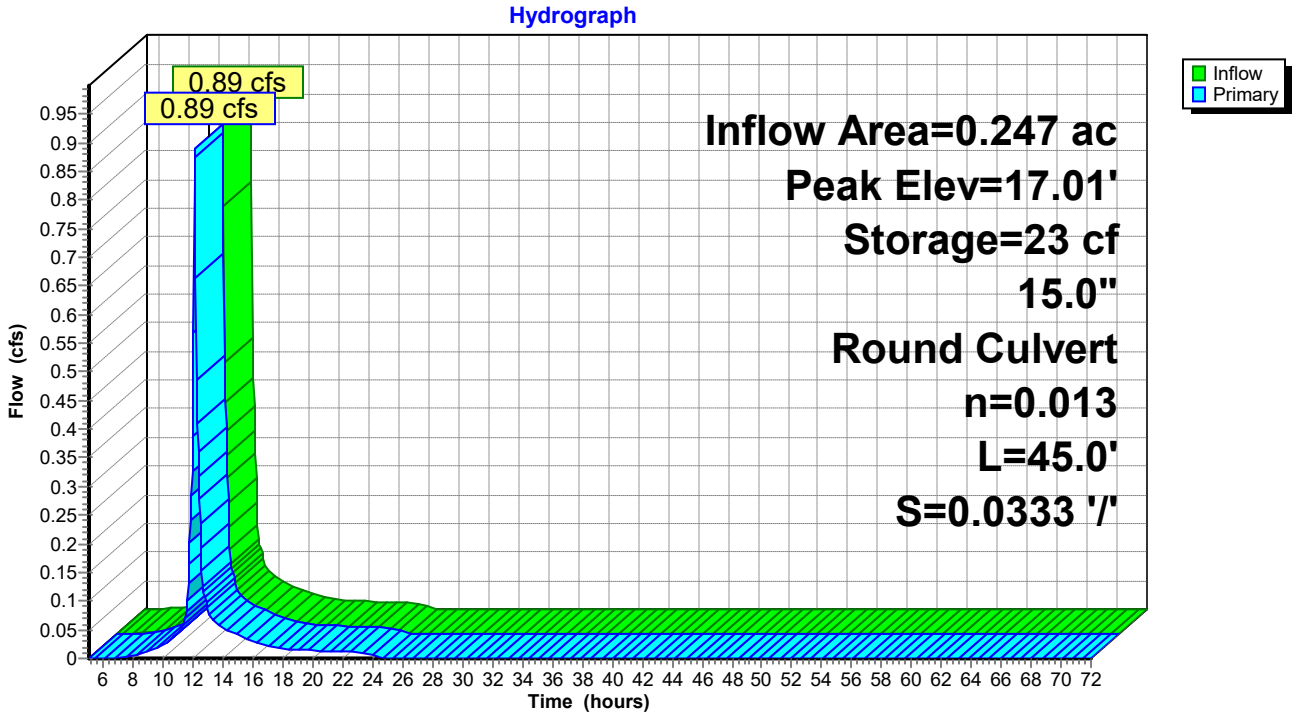
Volume	Invert	Avail.Storage	Storage Description
#1	16.50'	163 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
16.50	31	0	0
17.00	60	23	23
18.00	221	141	163

Device	Routing	Invert	Outlet Devices
#1	Primary	16.50'	**15.0" Round Culvert** L= 45.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 16.50' / 15.00' S= 0.0333 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.86 cfs @ 12.08 hrs HW=17.00' (Free Discharge)
1=Culvert (Inlet Controls 0.86 cfs @ 1.89 fps)

Pond C1: C1


Hydrograph
0.89 cfs
0.89 cfs
Inflow Area=0.247 ac
Peak Elev=17.01'
Storage=23 cf
15.0"
Round Culvert
n=0.013
L=45.0'
S=0.0333 '/'
Inflow
Primary
Flow (cfs)
Time (hours)

Summary for Pond C2: C2

Inflow Area = 0.039 ac, 28.21% Impervious, Inflow Depth = 2.29" for 10-Year event
Inflow = 0.10 cfs @ 12.08 hrs, Volume= 0.007 af
Outflow = 0.11 cfs @ 12.09 hrs, Volume= 0.007 af, Atten= 0%, Lag= 0.7 min
Primary = 0.11 cfs @ 12.09 hrs, Volume= 0.007 af
Routed to Pond P1 : Filter Pond

Routing by Stor-Ind method, Time Span= 5.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 15.66' @ 12.09 hrs Surf.Area= 34 sf Storage= 4 cf

Plug-Flow detention time= 1.8 min calculated for 0.007 af (100% of inflow)
Center-of-Mass det. time= 1.8 min (834.5 - 832.7)

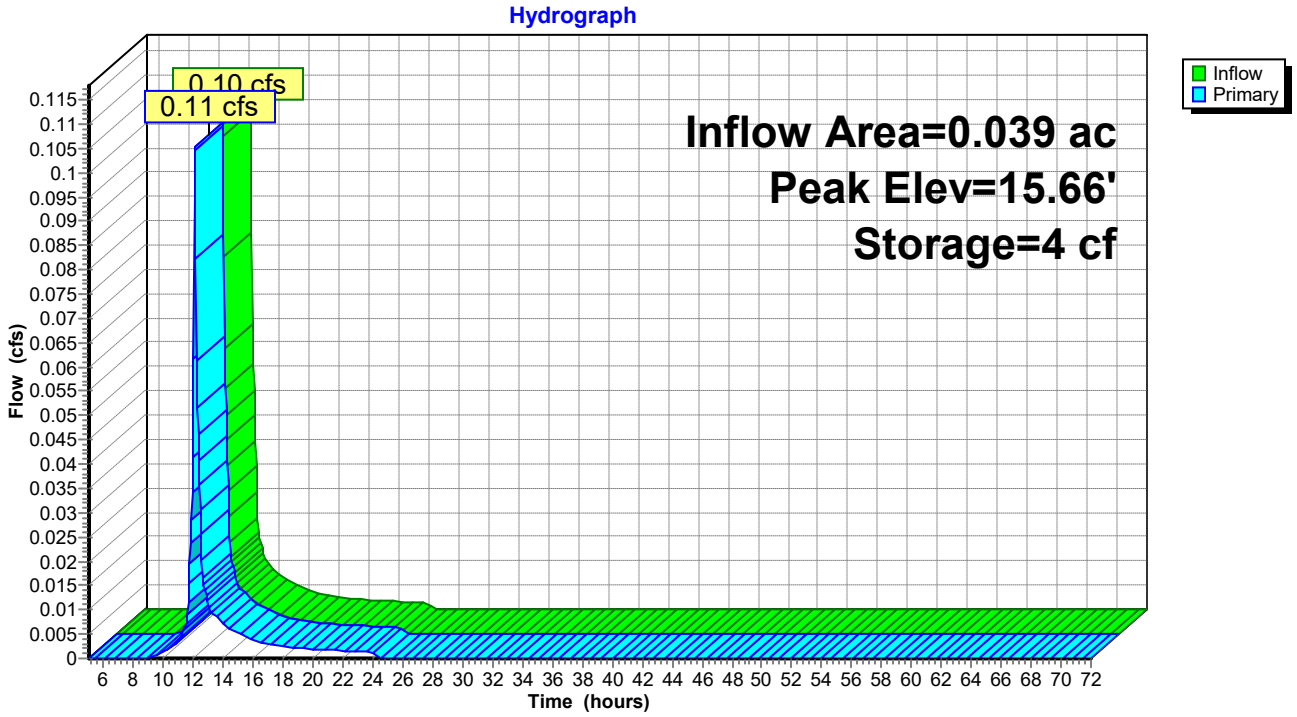
Volume	Invert	Avail.Storage	Storage Description
#1	15.50'	712 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
15.50	20	0	0
16.00	62	21	21
17.00	302	182	203
18.00	716	509	712

Device	Routing	Invert	Outlet Devices
#1	Primary	15.50'	**15.0" Round Culvert** L= 37.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 15.50' / 15.00' S= 0.0135 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Primary	17.90'	**30.0' long x 0.50' rise Sharp-Crested Rectangular Weir** 2 End Contraction(s) 0.5' Crest Height

Primary OutFlow Max=0.10 cfs @ 12.09 hrs HW=15.66' (Free Discharge)
1=Culvert (Inlet Controls 0.10 cfs @ 1.08 fps)
2=Sharp-Crested Rectangular Weir (Controls 0.00 cfs)

Pond C2: C2


Hydrograph
0.10 cfs
0.11 cfs
Inflow Area=0.039 ac
Peak Elev=15.66'
Storage=4 cf
Inflow
Primary
Flow (cfs)
0.115
0.11
0.105
0.1
0.095
0.09
0.085
0.08
0.075
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
6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72
Time (hours)

Summary for Pond CB1: CB1-GRATE

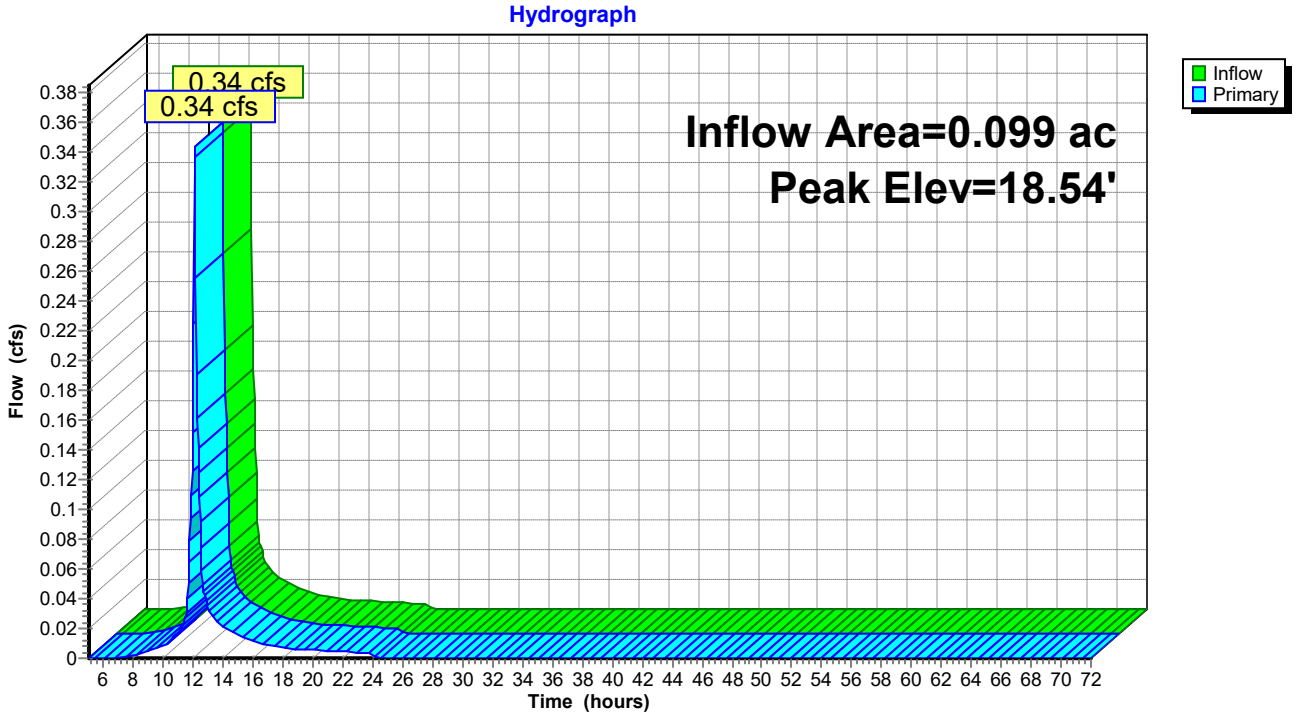
Inflow Area = 0.099 ac, 47.47% Impervious, Inflow Depth = 3.00" for 10-Year event
Inflow = 0.34 cfs @ 12.08 hrs, Volume= 0.025 af
Outflow = 0.34 cfs @ 12.08 hrs, Volume= 0.025 af, Atten= 0%, Lag= 0.0 min
Primary = 0.34 cfs @ 12.08 hrs, Volume= 0.025 af
Routed to Pond SD1 : SD1

Routing by Stor-Ind method, Time Span= 5.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 18.54' @ 12.08 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	18.50'	**48.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.33 cfs @ 12.08 hrs HW=18.54' (Free Discharge)
1=Orifice/Grate (Weir Controls 0.33 cfs @ 0.66 fps)

Pond CB1: CB1-GRATE



Summary for Pond P1: Filter Pond

Inflow Area = 0.646 ac, 48.30% Impervious, Inflow Depth = 3.03" for 10-Year event
Inflow = 2.27 cfs @ 12.08 hrs, Volume= 0.163 af
Outflow = 0.38 cfs @ 12.56 hrs, Volume= 0.163 af, Atten= 83%, Lag= 28.9 min
Primary = 0.38 cfs @ 12.56 hrs, Volume= 0.163 af
Routed to Reach W1 : WAP A
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Routed to Reach W1 : WAP A

Routing by Stor-Ind method, Time Span= 5.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 16.29' @ 12.56 hrs Surf.Area= 3,418 sf Storage= 3,346 cf

Plug-Flow detention time= 243.7 min calculated for 0.163 af (100% of inflow)
Center-of-Mass det. time= 244.9 min (1,053.8 - 808.9)

Volume	Invert	Avail.Storage	Storage Description
#1	15.00'	8,285 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

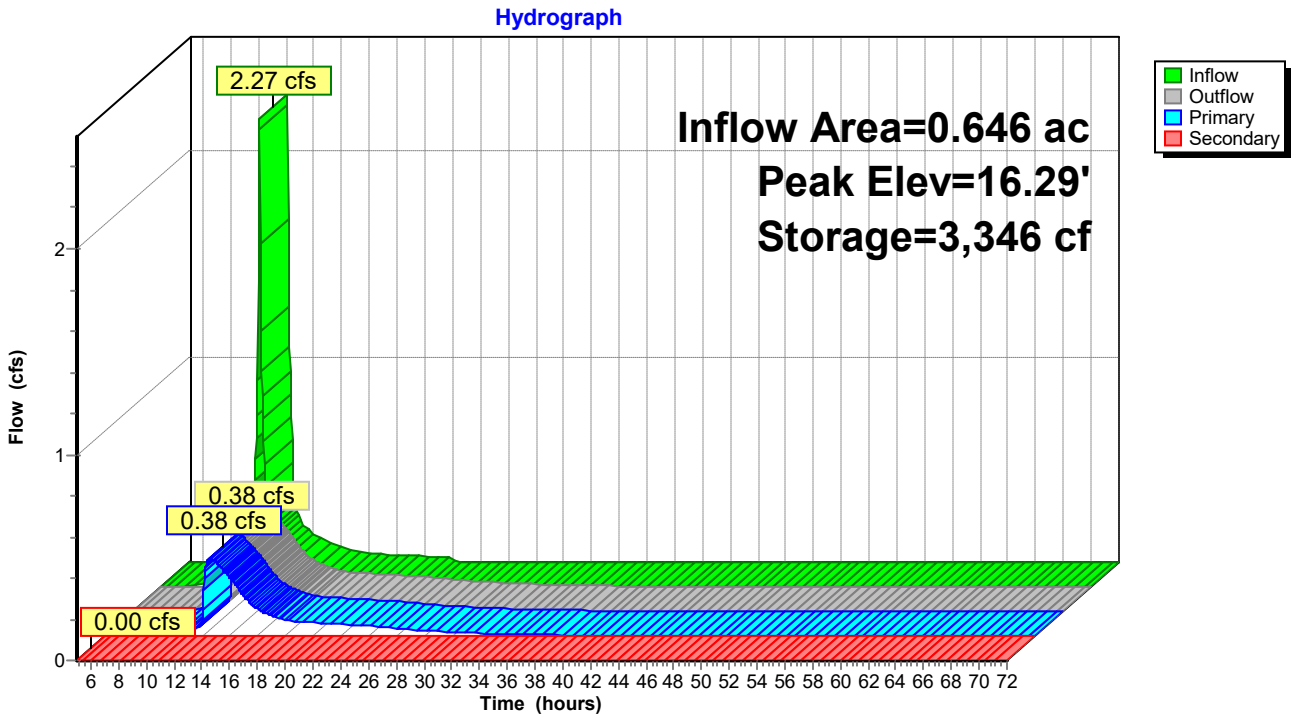
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
15.00	1,464	0	0
15.70	2,799	1,492	1,492
16.00	3,156	893	2,385
16.50	3,604	1,690	4,075
17.00	4,222	1,957	6,032
17.50	4,789	2,253	8,285

Device	Routing	Invert	Outlet Devices
#1	Secondary	16.50'	**10.0' long x 1.00' rise Sharp-Crested Rectangular Weir** 2 End Contraction(s) 1.0' Crest Height
#2	Primary	12.75'	**12.0" Round Culvert** L= 22.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 12.75' / 12.50' S= 0.0114 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#3	Device 2	16.40'	**24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 2	15.70'	**4.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#5	Device 2	15.00'	**2.000 in/hr Exfiltration over Surface area above 15.00'** Conductivity to Groundwater Elevation = 10.00' Excluded Surface area = 1,464 sf

Primary OutFlow Max=0.38 cfs @ 12.56 hrs HW=16.29' (Free Discharge)
└**2=Culvert** (Passes 0.38 cfs of 5.21 cfs potential flow)
├**3=Orifice/Grate** (Controls 0.00 cfs)
├**4=Orifice/Grate** (Orifice Controls 0.27 cfs @ 3.14 fps)
└**5=Exfiltration** (Controls 0.10 cfs)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=15.00' (Free Discharge)
└**1=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond P1: Filter Pond



Summary for Pond SD1: SD1

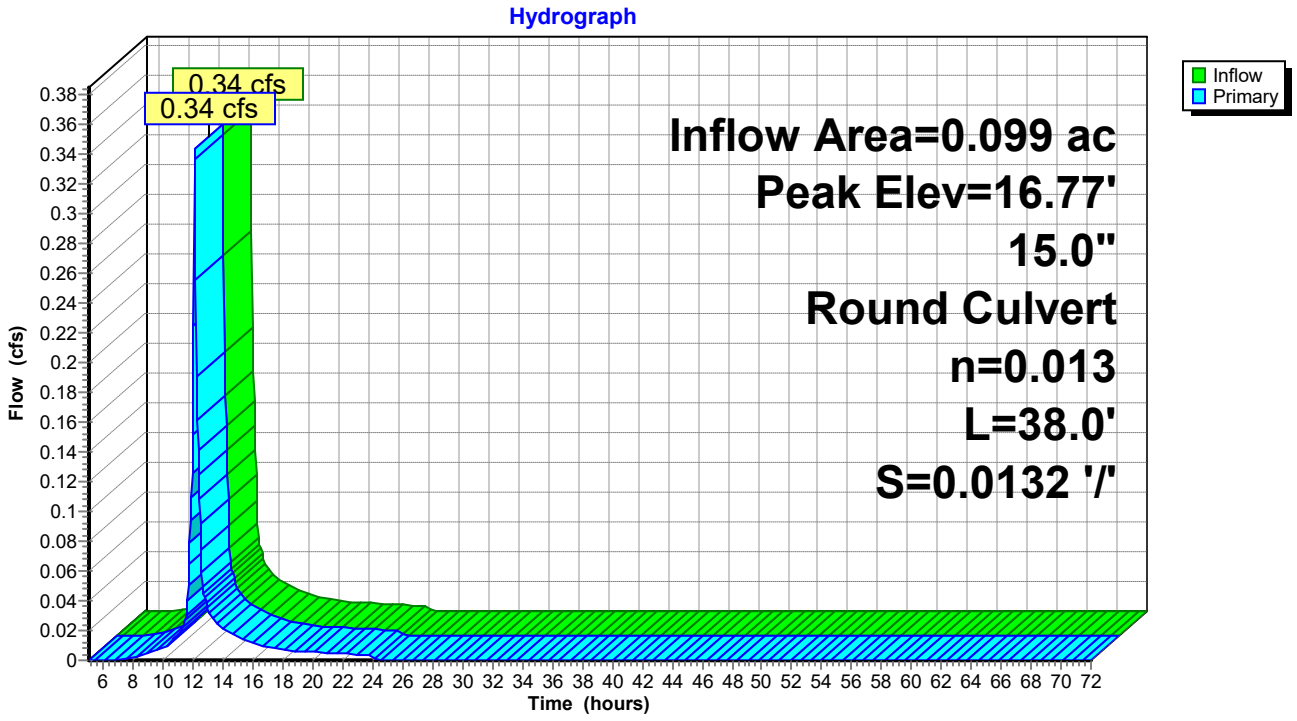
Inflow Area = 0.099 ac, 47.47% Impervious, Inflow Depth = 3.00" for 10-Year event
Inflow = 0.34 cfs @ 12.08 hrs, Volume= 0.025 af
Outflow = 0.34 cfs @ 12.08 hrs, Volume= 0.025 af, Atten= 0%, Lag= 0.0 min
Primary = 0.34 cfs @ 12.08 hrs, Volume= 0.025 af
Routed to Pond SD2 : SD2

Routing by Stor-Ind method, Time Span= 5.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 16.77' @ 12.08 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	16.50'	**15.0" Round Culvert** L= 38.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 16.50' / 16.00' S= 0.0132 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.33 cfs @ 12.08 hrs HW=16.76' (Free Discharge)
1=Culvert (Inlet Controls 0.33 cfs @ 1.75 fps)

Pond SD1: SD1



Summary for Pond SD2: SD2

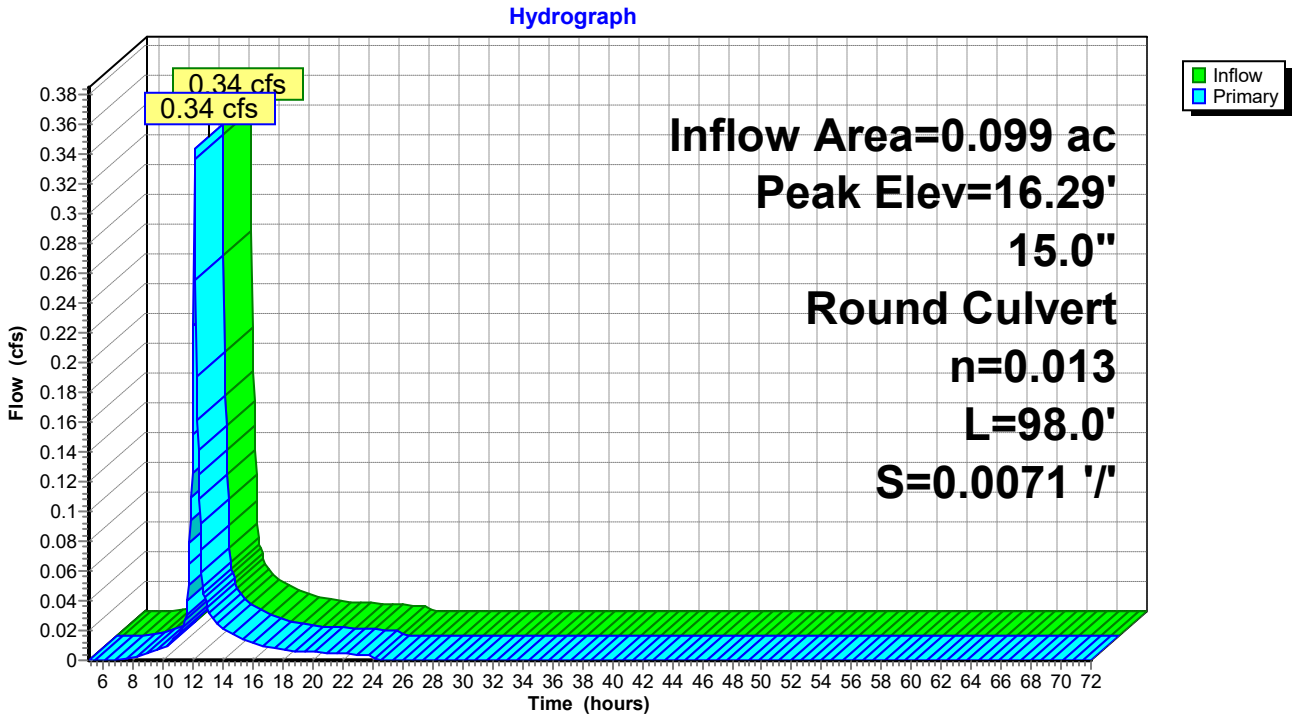
Inflow Area = 0.099 ac, 47.47% Impervious, Inflow Depth = 3.00" for 10-Year event
Inflow = 0.34 cfs @ 12.08 hrs, Volume= 0.025 af
Outflow = 0.34 cfs @ 12.08 hrs, Volume= 0.025 af, Atten= 0%, Lag= 0.0 min
Primary = 0.34 cfs @ 12.08 hrs, Volume= 0.025 af
Routed to Pond SD3 : SD3

Routing by Stor-Ind method, Time Span= 5.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 16.29' @ 12.08 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	16.00'	**15.0" Round Culvert** L= 98.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 16.00' / 15.30' S= 0.0071 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.33 cfs @ 12.08 hrs HW=16.29' (Free Discharge)
1=Culvert (Barrel Controls 0.33 cfs @ 2.38 fps)

Pond SD2: SD2



Summary for Pond SD3: SD3

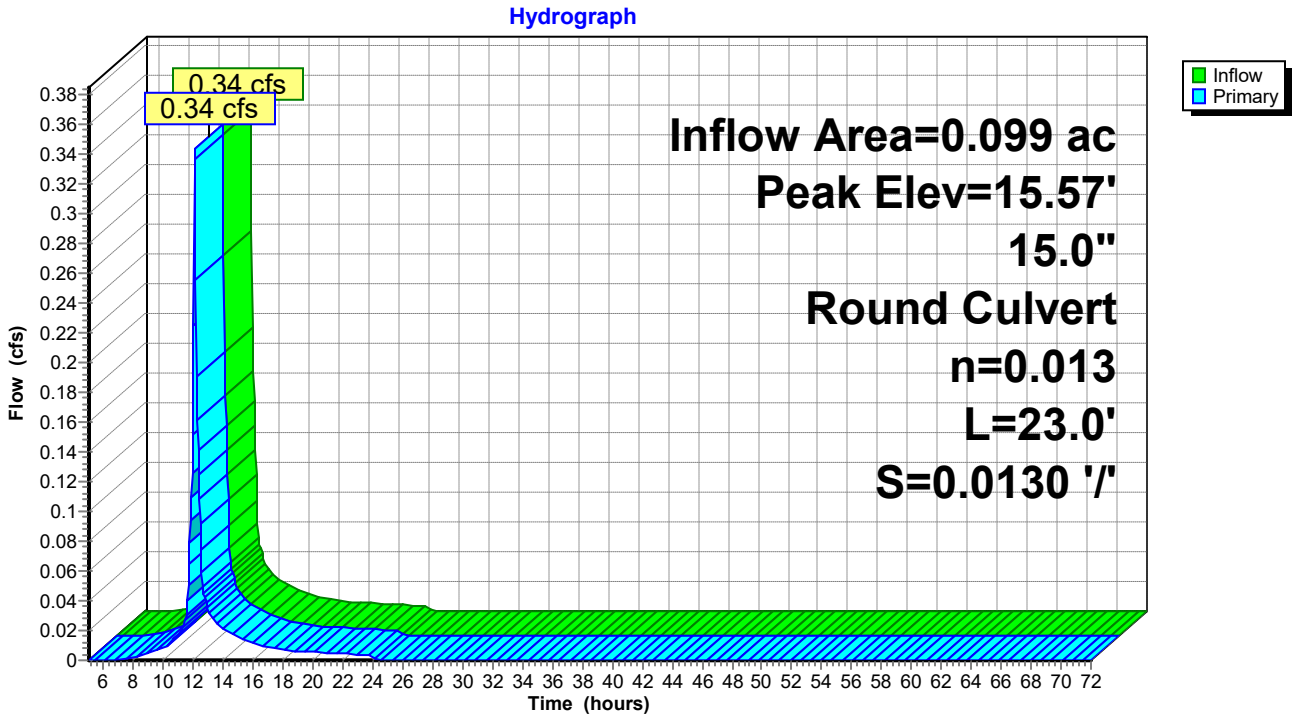
Inflow Area = 0.099 ac, 47.47% Impervious, Inflow Depth = 3.00" for 10-Year event
Inflow = 0.34 cfs @ 12.08 hrs, Volume= 0.025 af
Outflow = 0.34 cfs @ 12.08 hrs, Volume= 0.025 af, Atten= 0%, Lag= 0.0 min
Primary = 0.34 cfs @ 12.08 hrs, Volume= 0.025 af
Routed to Pond P1 : Filter Pond

Routing by Stor-Ind method, Time Span= 5.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 15.57' @ 12.08 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	15.30'	**15.0" Round Culvert** L= 23.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 15.30' / 15.00' S= 0.0130 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.33 cfs @ 12.08 hrs HW=15.57' (Free Discharge)
1=Culvert (Barrel Controls 0.33 cfs @ 2.65 fps)

Pond SD3: SD3



Time span=5.00-72.00 hrs, dt=0.05 hrs, 1341 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 S1.1: S1.1 Runoff Area=0.748 ac 0.80% Impervious Runoff Depth=2.92"
Flow Length=291' Tc=65.9 min CN=73 Runoff=0.95 cfs 0.182 af

Subcatchment S1.2: S1.2 Runoff Area=0.261 ac 50.19% Impervious Runoff Depth>4.22"
Tc=5.0 min CN=86 Runoff=1.27 cfs 0.092 af

Subcatchment S1.3: S1.3 Runoff Area=0.247 ac 49.80% Impervious Runoff Depth>4.22"
Tc=5.0 min CN=86 Runoff=1.20 cfs 0.087 af

Subcatchment S1.4: S1.4 Runoff Area=0.099 ac 47.47% Impervious Runoff Depth=4.11"
Flow Length=98' Tc=5.3 min CN=85 Runoff=0.47 cfs 0.034 af

Subcatchment S1.5: S1.5 Runoff Area=0.039 ac 28.21% Impervious Runoff Depth=3.31"
Tc=5.0 min UI Adjusted CN=77 Runoff=0.15 cfs 0.011 af

Reach W1: WAP A Inflow=1.55 cfs 0.406 af
Outflow=1.55 cfs 0.406 af

Pond C1: C1 Peak Elev=17.10' Storage=29 cf Inflow=1.20 cfs 0.087 af
15.0" Round Culvert n=0.013 L=45.0' S=0.0333 '/' Outflow=1.20 cfs 0.087 af

Pond C2: C2 Peak Elev=15.70' Storage=6 cf Inflow=0.15 cfs 0.011 af
Outflow=0.15 cfs 0.011 af

Pond CB1: CB1-GRATE Peak Elev=18.55' Inflow=0.47 cfs 0.034 af
Outflow=0.47 cfs 0.034 af

Pond P1: Filter Pond Peak Elev=16.50' Storage=4,085 cf Inflow=3.07 cfs 0.223 af
Primary=1.13 cfs 0.223 af Secondary=0.01 cfs 0.000 af Outflow=1.14 cfs 0.223 af

Pond SD1: SD1 Peak Elev=16.82' Inflow=0.47 cfs 0.034 af
15.0" Round Culvert n=0.013 L=38.0' S=0.0132 '/' Outflow=0.47 cfs 0.034 af

Pond SD2: SD2 Peak Elev=16.34' Inflow=0.47 cfs 0.034 af
15.0" Round Culvert n=0.013 L=98.0' S=0.0071 '/' Outflow=0.47 cfs 0.034 af

Pond SD3: SD3 Peak Elev=15.62' Inflow=0.47 cfs 0.034 af
15.0" Round Culvert n=0.013 L=23.0' S=0.0130 '/' Outflow=0.47 cfs 0.034 af

Total Runoff Area = 1.394 ac Runoff Volume = 0.406 af Average Runoff Depth = 3.49"
77.19% Pervious = 1.076 ac 22.81% Impervious = 0.318 ac

Summary for Subcatchment S1.1: S1.1

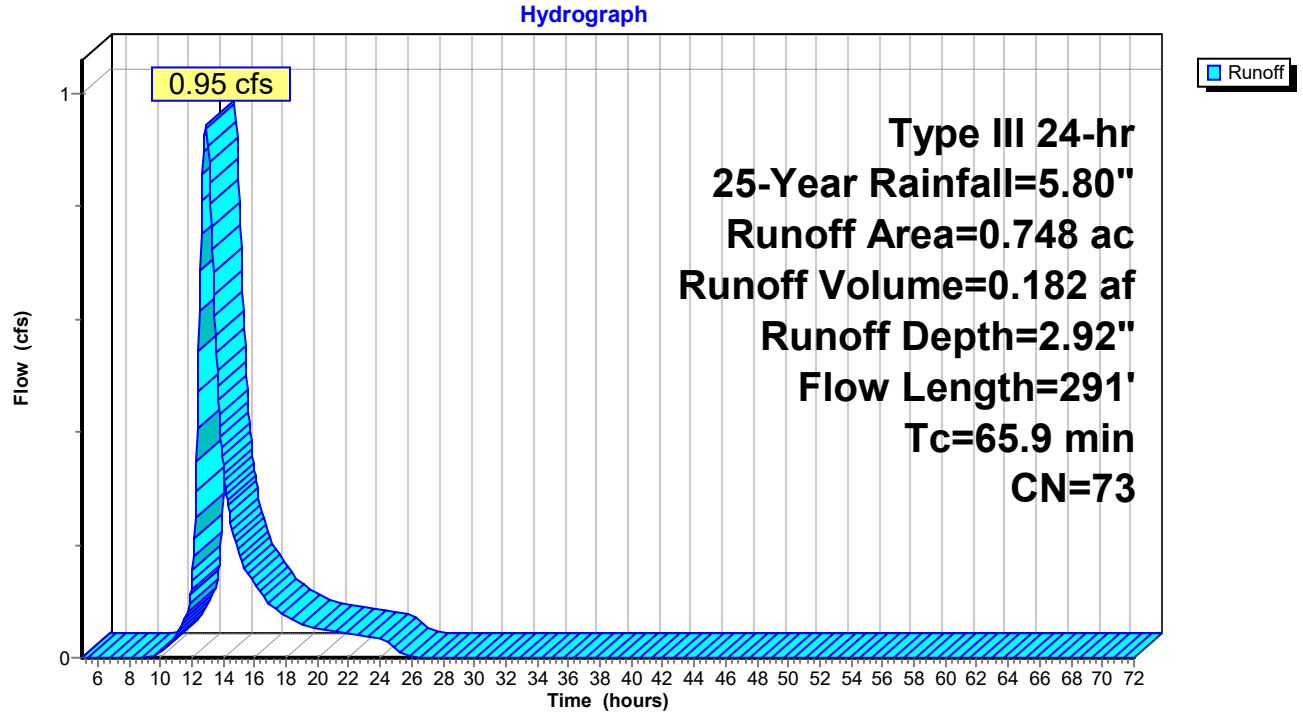
Runoff = 0.95 cfs @ 12.91 hrs, Volume= 0.182 af, Depth= 2.92"
Routed to Reach W1 : WAP A

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.80"

Area (ac)	CN	Description
0.637	73	Woods, Fair, HSG C
0.004	98	Roofs, HSG C
0.105	71	Meadow, non-grazed, HSG C
0.002	98	Unconnected pavement, HSG C
0.748	73	Weighted Average
0.742		99.20% Pervious Area
0.006		0.80% Impervious Area
0.002		33.33% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
62.0	150	0.0033	0.04		**Sheet Flow, sheet - wetland** Woods: Light underbrush n= 0.400 P2= 3.10"
3.9	141	0.0142	0.60		**Shallow Concentrated Flow, shallow - wetland** Woodland Kv= 5.0 fps
65.9	291	Total			

Subcatchment S1.1: S1.1



Summary for Subcatchment S1.2: S1.2

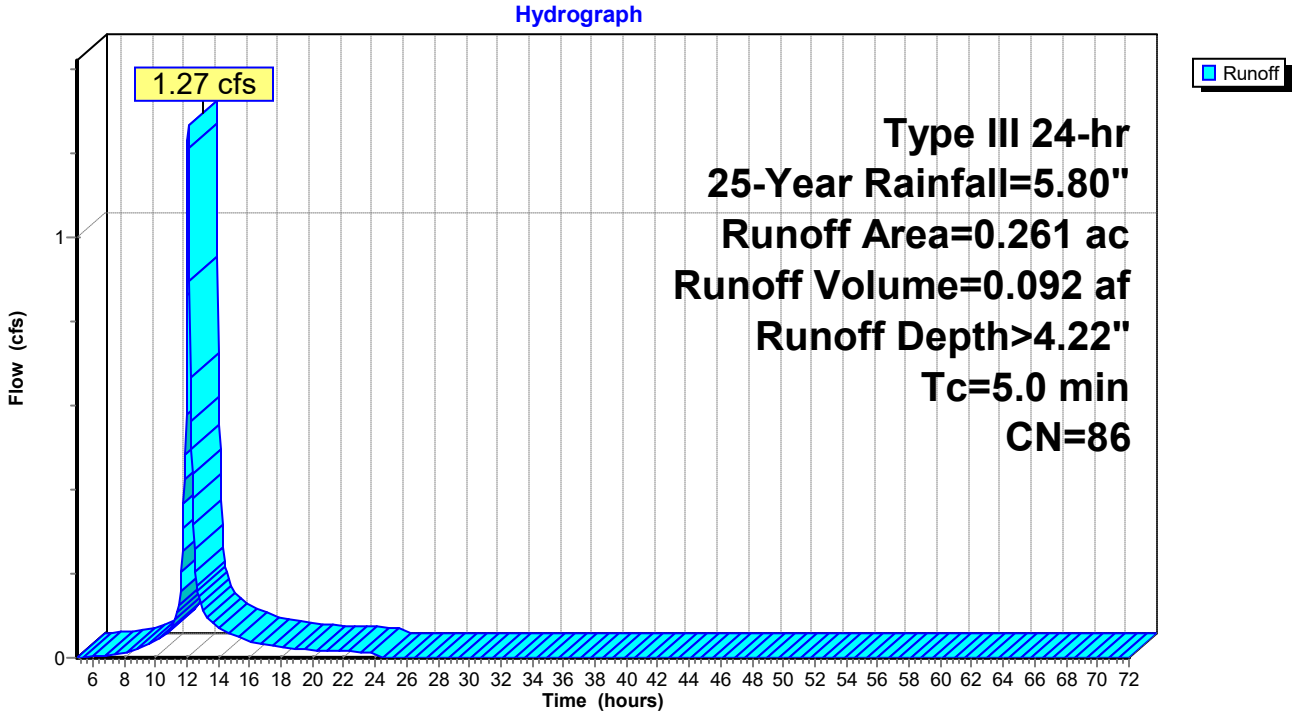
Runoff = 1.27 cfs @ 12.07 hrs, Volume= 0.092 af, Depth> 4.22"
Routed to Pond P1 : Filter Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.80"

Area (ac)	CN	Description
0.098	98	Paved parking, HSG C
0.033	98	Roofs, HSG D
0.130	74	>75% Grass cover, Good, HSG C
0.261	86	Weighted Average
0.130		49.81% Pervious Area
0.131		50.19% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, min. 5 minutes**

Subcatchment S1.2: S1.2



Summary for Subcatchment S1.3: S1.3

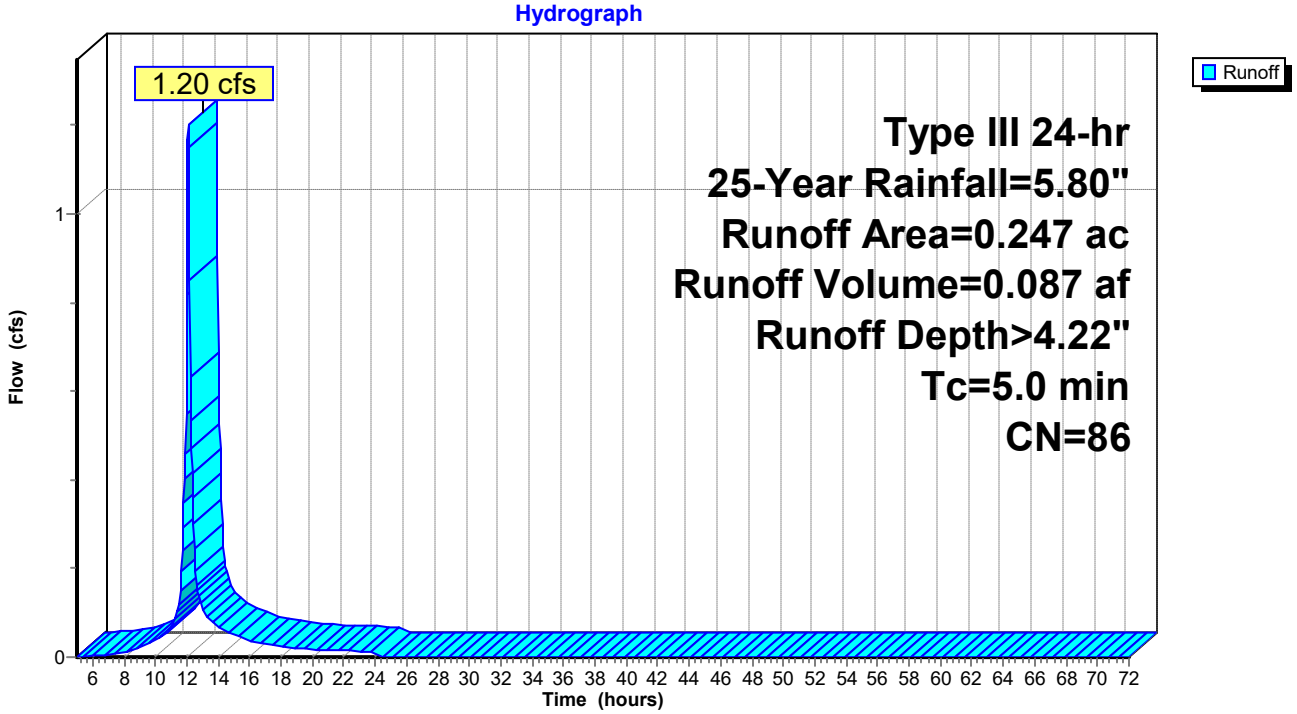
Runoff = 1.20 cfs @ 12.07 hrs, Volume= 0.087 af, Depth> 4.22"
Routed to Pond C1 : C1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.80"

Area (ac)	CN	Description
0.015	73	Woods, Fair, HSG C
0.044	98	Paved parking, HSG C
0.009	98	Unconnected pavement, HSG C
0.070	98	Roofs, HSG C
0.109	74	>75% Grass cover, Good, HSG C
0.247	86	Weighted Average
0.124		50.20% Pervious Area
0.123		49.80% Impervious Area
0.009		7.32% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, min. 5 minutes**

Subcatchment S1.3: S1.3



Summary for Subcatchment S1.4: S1.4

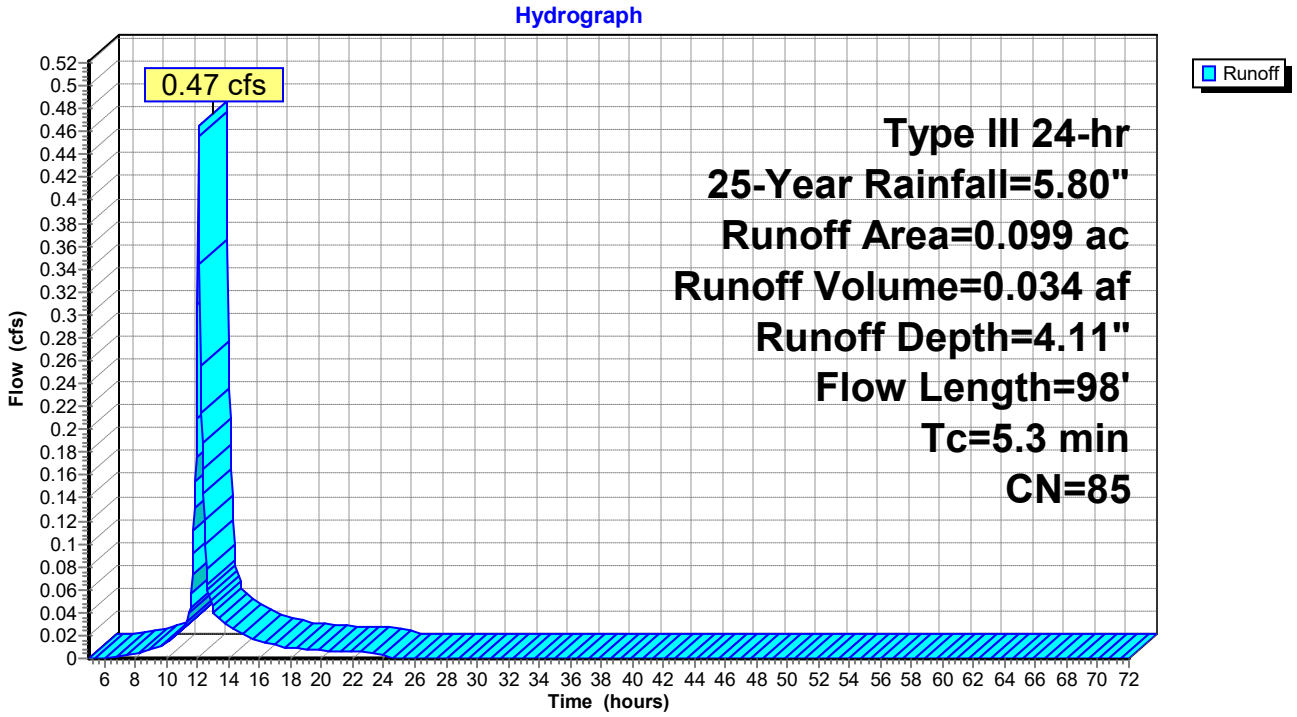
Runoff = 0.47 cfs @ 12.08 hrs, Volume= 0.034 af, Depth= 4.11"
Routed to Pond CB1 : CB1-GRATE

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.80"

Area (ac)	CN	Description
0.016	73	Woods, Fair, HSG C
0.014	98	Paved parking, HSG C
0.033	98	Roofs, HSG C
0.036	74	>75% Grass cover, Good, HSG C
0.099	85	Weighted Average
0.052		52.53% Pervious Area
0.047		47.47% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.1	36	0.1000	0.12		**Sheet Flow, sheet - woods** Woods: Light underbrush n= 0.400 P2= 3.10"
0.1	10	0.1000	2.21		**Shallow Concentrated Flow, shallow - grass** Short Grass Pasture Kv= 7.0 fps
0.1	52	0.0200	7.06	28.23	**Channel Flow, channel - ditch** Area= 4.0 sf Perim= 6.3' r= 0.63' n= 0.022 Earth, clean & straight
5.3	98	Total			

Subcatchment S1.4: S1.4



Summary for Subcatchment S1.5: S1.5

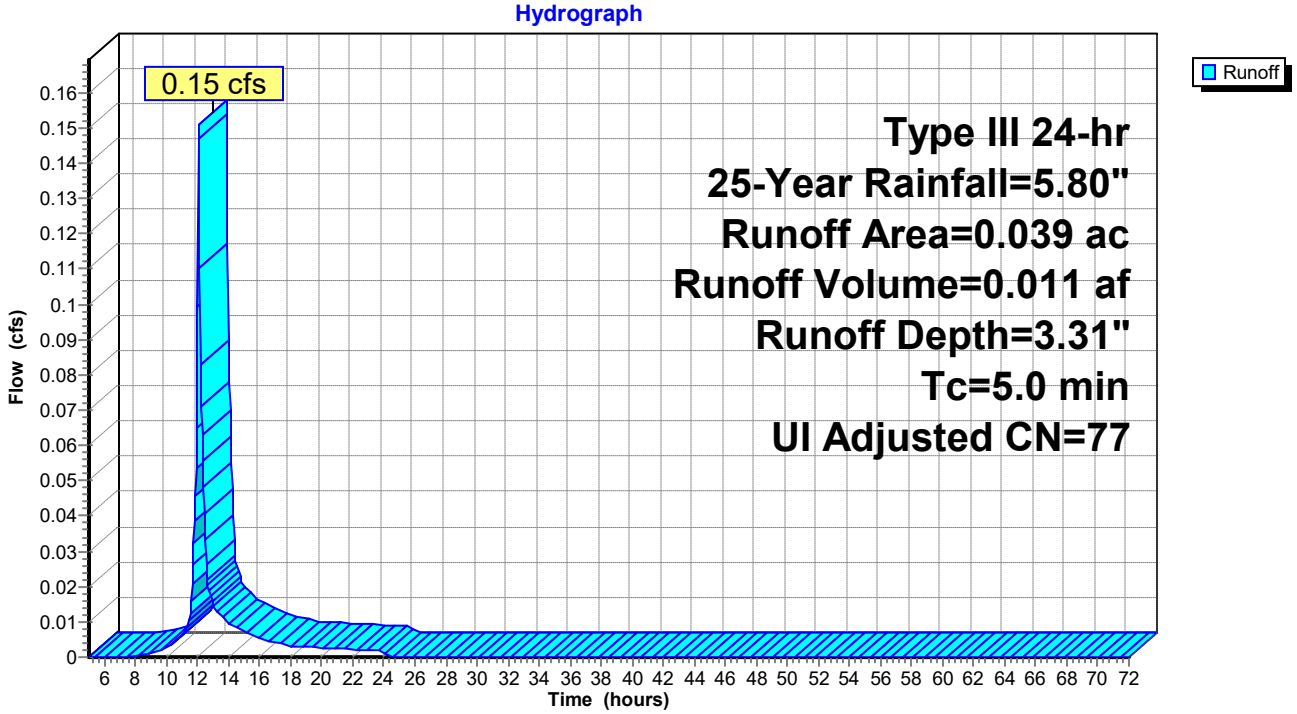
Runoff = 0.15 cfs @ 12.08 hrs, Volume= 0.011 af, Depth= 3.31"
Routed to Pond C2 : C2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.80"

Area (ac)	CN	Adj	Description
0.000	73		Woods, Fair, HSG C
0.000	98		Paved parking, HSG C
0.011	98		Unconnected pavement, HSG C
0.000	98		Roofs, HSG C
0.028	74		>75% Grass cover, Good, HSG C
0.039	81	77	Weighted Average, UI Adjusted
0.028			71.79% Pervious Area
0.011			28.21% Impervious Area
0.011			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, min. 5 minutes**

Subcatchment S1.5: S1.5

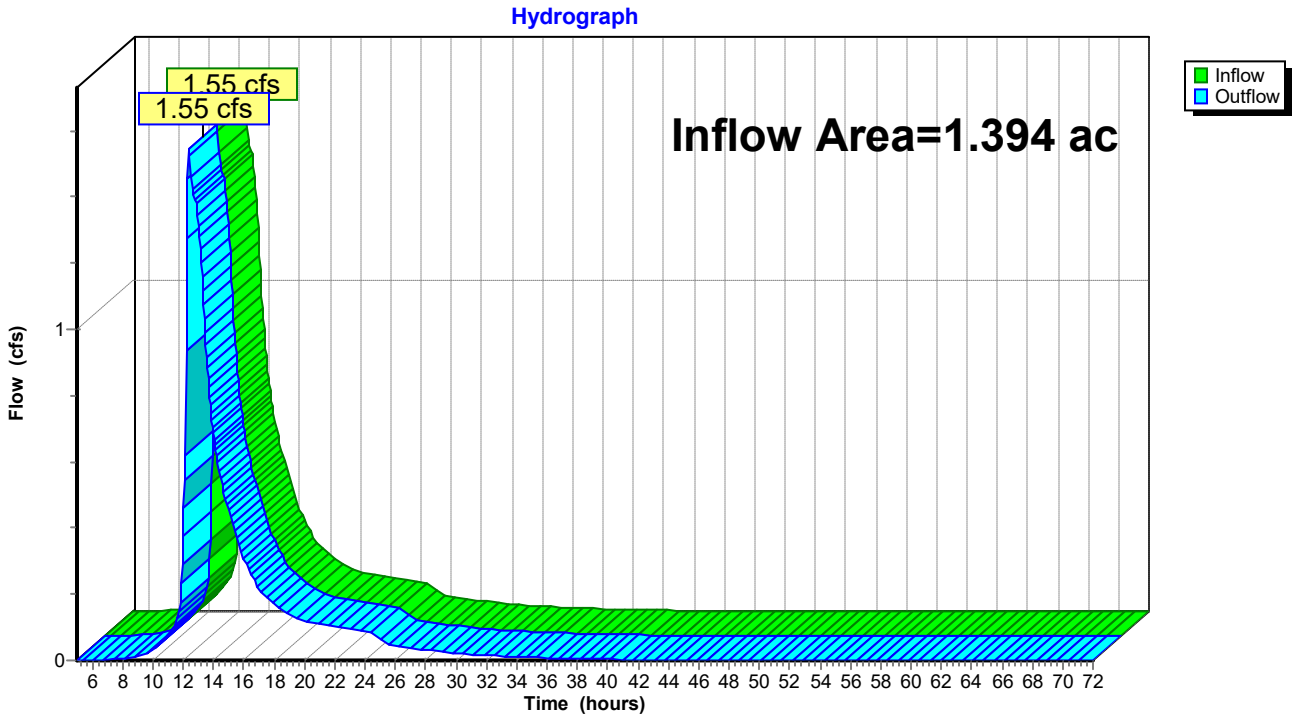


Summary for Reach W1: WAP A

Inflow Area = 1.394 ac, 22.81% Impervious, Inflow Depth = 3.49" for 25-Year event
Inflow = 1.55 cfs @ 12.39 hrs, Volume= 0.406 af
Outflow = 1.55 cfs @ 12.39 hrs, Volume= 0.406 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-72.00 hrs, dt= 0.05 hrs

Reach W1: WAP A



Summary for Pond C1: C1

Inflow Area = 0.247 ac, 49.80% Impervious, Inflow Depth > 4.22" for 25-Year event
Inflow = 1.20 cfs @ 12.07 hrs, Volume= 0.087 af
Outflow = 1.20 cfs @ 12.08 hrs, Volume= 0.087 af, Atten= 0%, Lag= 0.5 min
Primary = 1.20 cfs @ 12.08 hrs, Volume= 0.087 af
Routed to Pond P1 : Filter Pond

Routing by Stor-Ind method, Time Span= 5.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 17.10' @ 12.08 hrs Surf.Area= 75 sf Storage= 29 cf

Plug-Flow detention time= 1.1 min calculated for 0.087 af (100% of inflow)
Center-of-Mass det. time= 1.0 min (799.0 - 798.0)

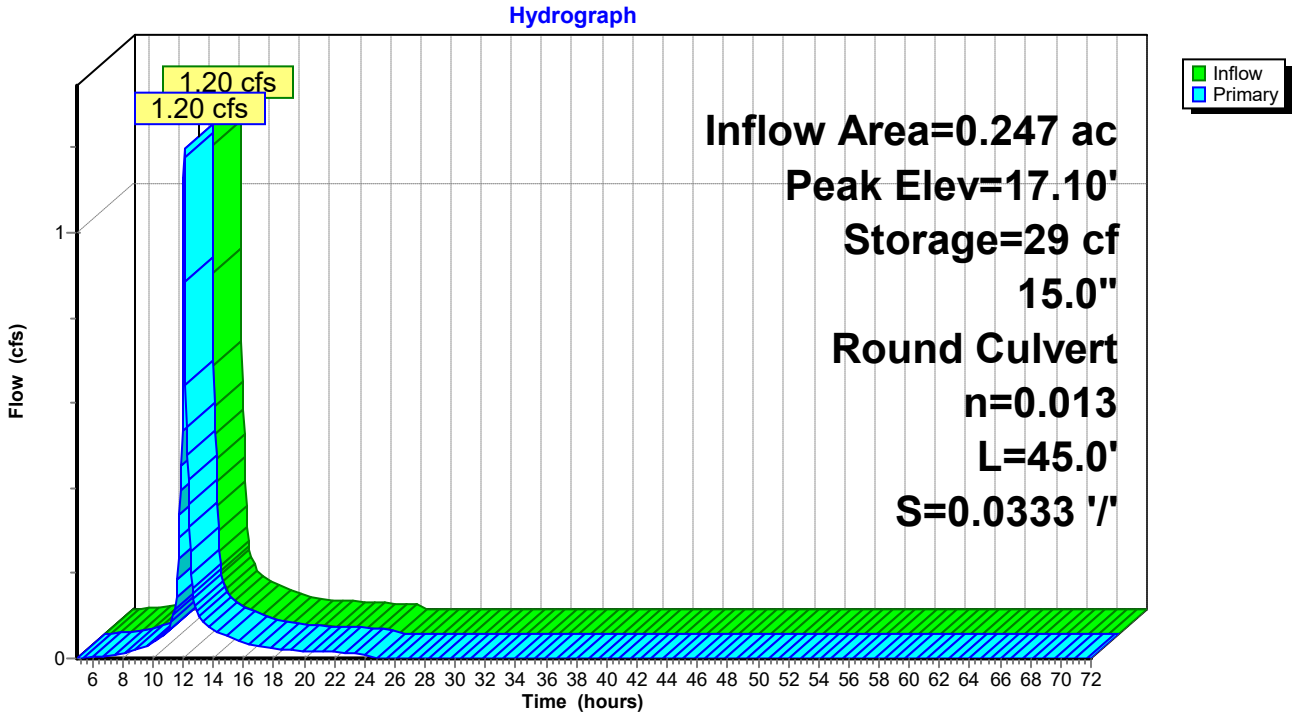
Volume	Invert	Avail.Storage	Storage Description
#1	16.50'	163 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
16.50	31	0	0
17.00	60	23	23
18.00	221	141	163

Device	Routing	Invert	Outlet Devices
#1	Primary	16.50'	**15.0" Round Culvert** L= 45.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 16.50' / 15.00' S= 0.0333 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.16 cfs @ 12.08 hrs HW=17.08' (Free Discharge)
1=Culvert (Inlet Controls 1.16 cfs @ 2.06 fps)

Pond C1: C1


Hydrograph
1.20 cfs
1.20 cfs
Inflow Area=0.247 ac
Peak Elev=17.10'
Storage=29 cf
15.0"
Round Culvert
n=0.013
L=45.0'
S=0.0333 '/'
Inflow
Primary
Flow (cfs)
0
1
6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72
Time (hours)

Summary for Pond C2: C2

Inflow Area = 0.039 ac, 28.21% Impervious, Inflow Depth = 3.31" for 25-Year event
Inflow = 0.15 cfs @ 12.08 hrs, Volume= 0.011 af
Outflow = 0.15 cfs @ 12.09 hrs, Volume= 0.011 af, Atten= 0%, Lag= 0.6 min
Primary = 0.15 cfs @ 12.09 hrs, Volume= 0.011 af
Routed to Pond P1 : Filter Pond

Routing by Stor-Ind method, Time Span= 5.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 15.70' @ 12.09 hrs Surf.Area= 37 sf Storage= 6 cf

Plug-Flow detention time= 1.6 min calculated for 0.011 af (100% of inflow)
Center-of-Mass det. time= 1.6 min (823.7 - 822.1)

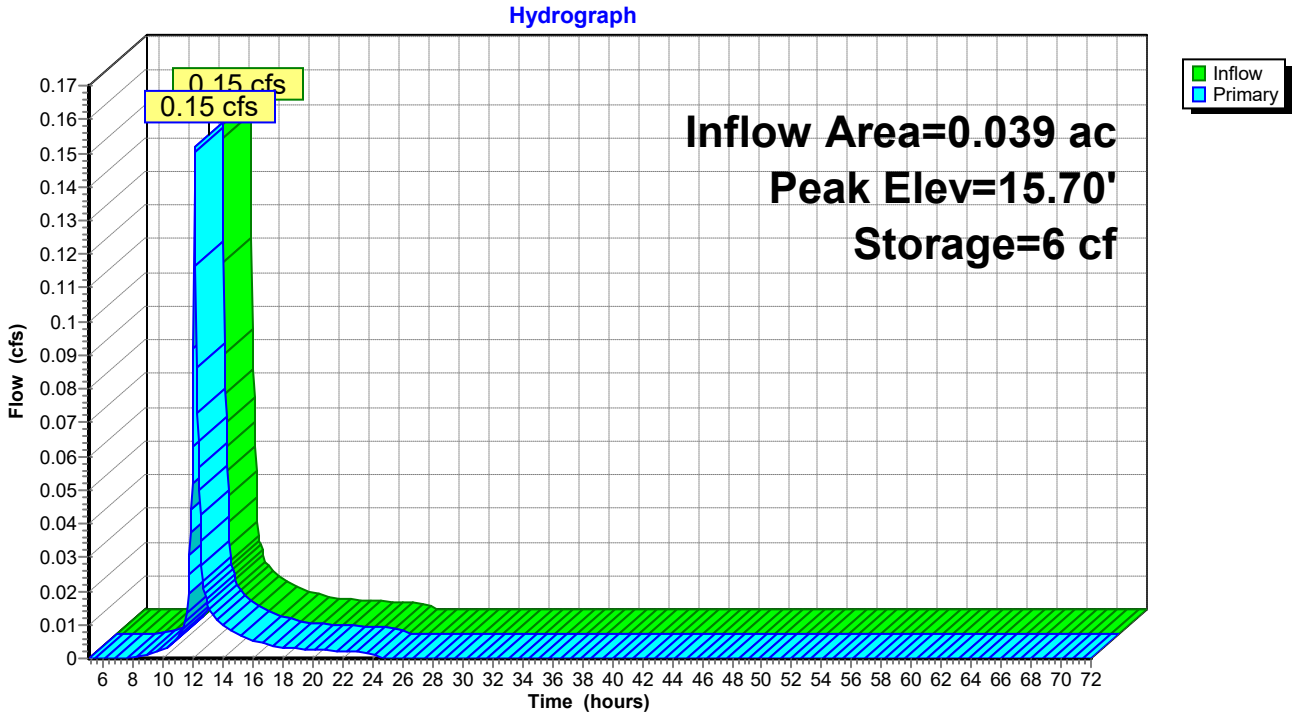
Volume	Invert	Avail.Storage	Storage Description
#1	15.50'	712 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
15.50	20	0	0
16.00	62	21	21
17.00	302	182	203
18.00	716	509	712

Device	Routing	Invert	Outlet Devices
#1	Primary	15.50'	**15.0" Round Culvert** L= 37.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 15.50' / 15.00' S= 0.0135 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Primary	17.90'	**30.0' long x 0.50' rise Sharp-Crested Rectangular Weir** 2 End Contraction(s) 0.5' Crest Height

Primary OutFlow Max=0.15 cfs @ 12.09 hrs HW=15.70' (Free Discharge)
1=Culvert (Inlet Controls 0.15 cfs @ 1.19 fps)
2=Sharp-Crested Rectangular Weir (Controls 0.00 cfs)

Pond C2: C2


Hydrograph
0.15 cfs
0.15 cfs
Inflow Area=0.039 ac
Peak Elev=15.70'
Storage=6 cf
Inflow
Primary
Flow (cfs)
0.17
0.16
0.15
0.14
0.13
0.12
0.11
0.1
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72
Time (hours)

Summary for Pond CB1: CB1-GRATE

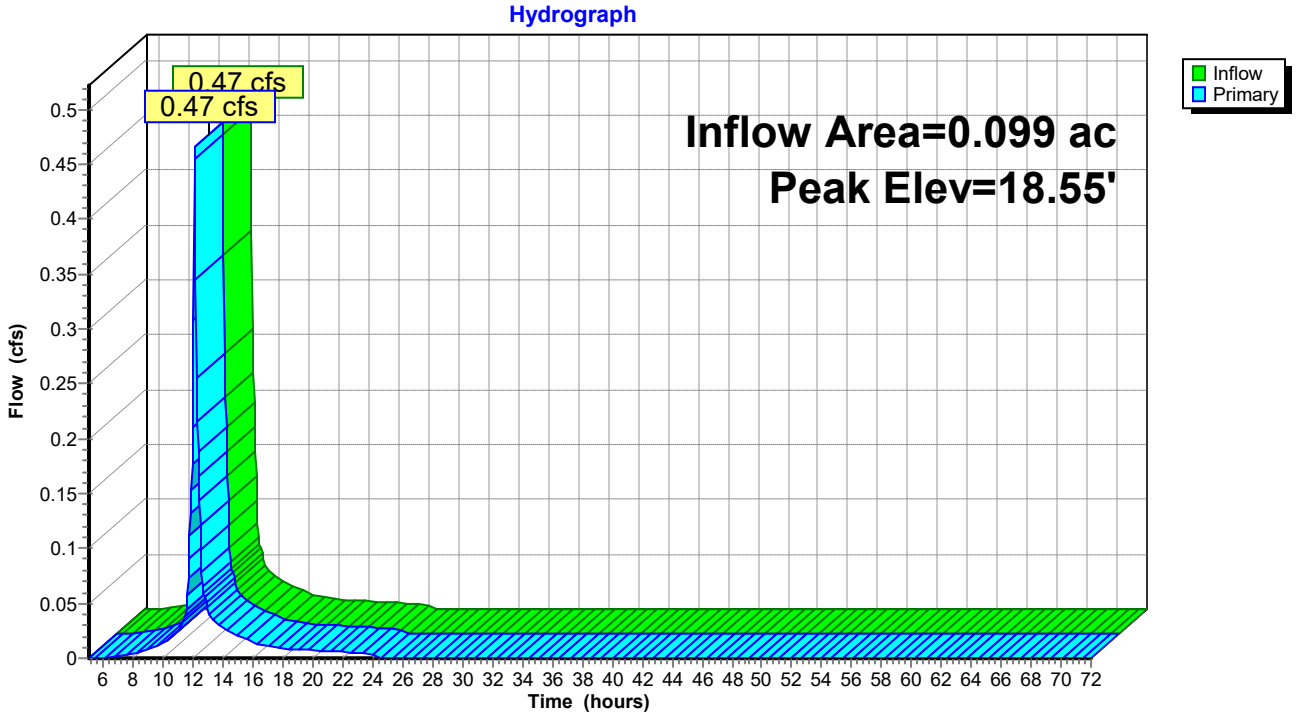
Inflow Area = 0.099 ac, 47.47% Impervious, Inflow Depth = 4.11" for 25-Year event
Inflow = 0.47 cfs @ 12.08 hrs, Volume= 0.034 af
Outflow = 0.47 cfs @ 12.08 hrs, Volume= 0.034 af, Atten= 0%, Lag= 0.0 min
Primary = 0.47 cfs @ 12.08 hrs, Volume= 0.034 af
Routed to Pond SD1 : SD1

Routing by Stor-Ind method, Time Span= 5.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 18.55' @ 12.08 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	18.50'	**48.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.45 cfs @ 12.08 hrs HW=18.55' (Free Discharge)
1=Orifice/Grate (Weir Controls 0.45 cfs @ 0.73 fps)

Pond CB1: CB1-GRATE



Summary for Pond P1: Filter Pond

Inflow Area = 0.646 ac, 48.30% Impervious, Inflow Depth = 4.15" for 25-Year event
Inflow = 3.07 cfs @ 12.08 hrs, Volume= 0.223 af
Outflow = 1.14 cfs @ 12.34 hrs, Volume= 0.223 af, Atten= 63%, Lag= 15.6 min
Primary = 1.13 cfs @ 12.34 hrs, Volume= 0.223 af
Routed to Reach W1 : WAP A
Secondary = 0.01 cfs @ 12.34 hrs, Volume= 0.000 af
Routed to Reach W1 : WAP A

Routing by Stor-Ind method, Time Span= 5.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 16.50' @ 12.34 hrs Surf.Area= 3,607 sf Storage= 4,085 cf

Plug-Flow detention time= 208.9 min calculated for 0.223 af (100% of inflow)
Center-of-Mass det. time= 210.1 min (1,010.2 - 800.1)

Volume	Invert	Avail.Storage	Storage Description
#1	15.00'	8,285 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

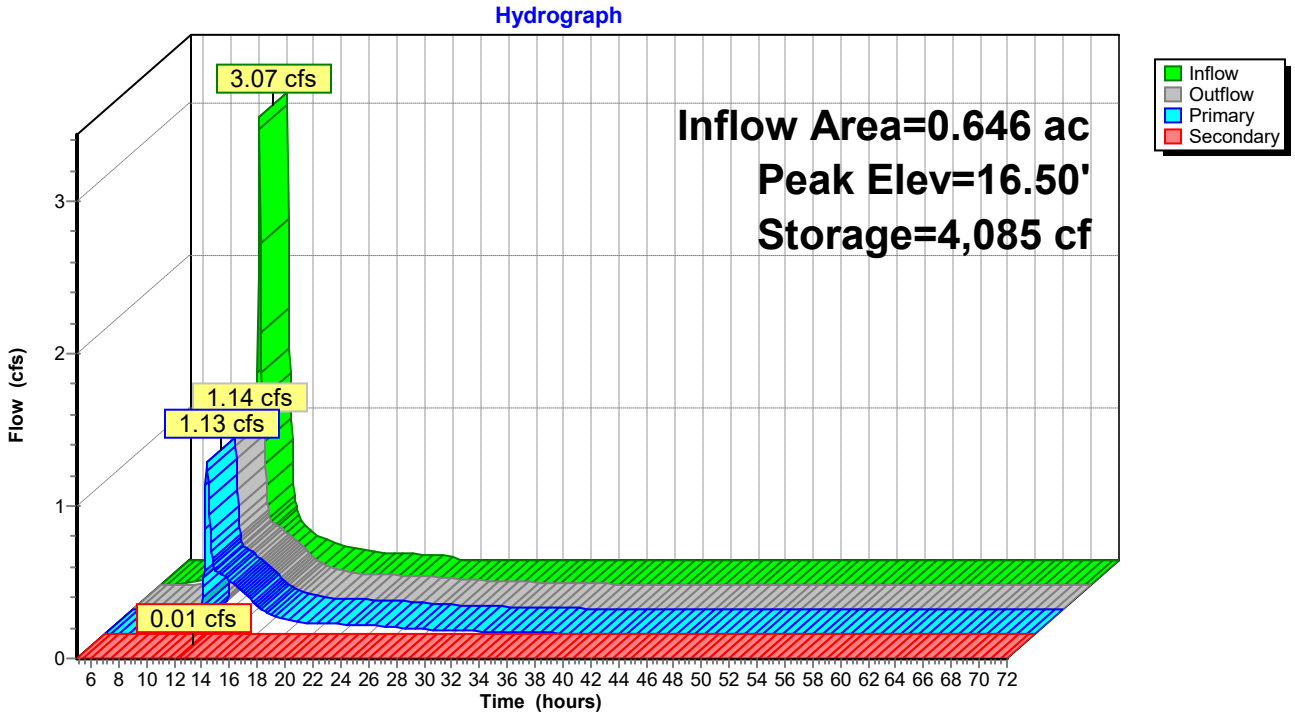
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
15.00	1,464	0	0
15.70	2,799	1,492	1,492
16.00	3,156	893	2,385
16.50	3,604	1,690	4,075
17.00	4,222	1,957	6,032
17.50	4,789	2,253	8,285

Device	Routing	Invert	Outlet Devices
#1	Secondary	16.50'	**10.0' long x 1.00' rise Sharp-Crested Rectangular Weir** 2 End Contraction(s) 1.0' Crest Height
#2	Primary	12.75'	**12.0" Round Culvert** L= 22.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 12.75' / 12.50' S= 0.0114 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#3	Device 2	16.40'	**24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 2	15.70'	**4.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#5	Device 2	15.00'	**2.000 in/hr Exfiltration over Surface area above 15.00'** Conductivity to Groundwater Elevation = 10.00' Excluded Surface area = 1,464 sf

Primary OutFlow Max=1.12 cfs @ 12.34 hrs HW=16.50' (Free Discharge)
└**2=Culvert** (Passes 1.12 cfs of 5.38 cfs potential flow)
└**3=Orifice/Grate** (Weir Controls 0.67 cfs @ 1.04 fps)
└**4=Orifice/Grate** (Orifice Controls 0.33 cfs @ 3.84 fps)
└**5=Exfiltration** (Controls 0.12 cfs)

Secondary OutFlow Max=0.00 cfs @ 12.34 hrs HW=16.50' (Free Discharge)
└**1=Sharp-Crested Rectangular Weir** (Weir Controls 0.00 cfs @ 0.15 fps)

Pond P1: Filter Pond



Summary for Pond SD1: SD1

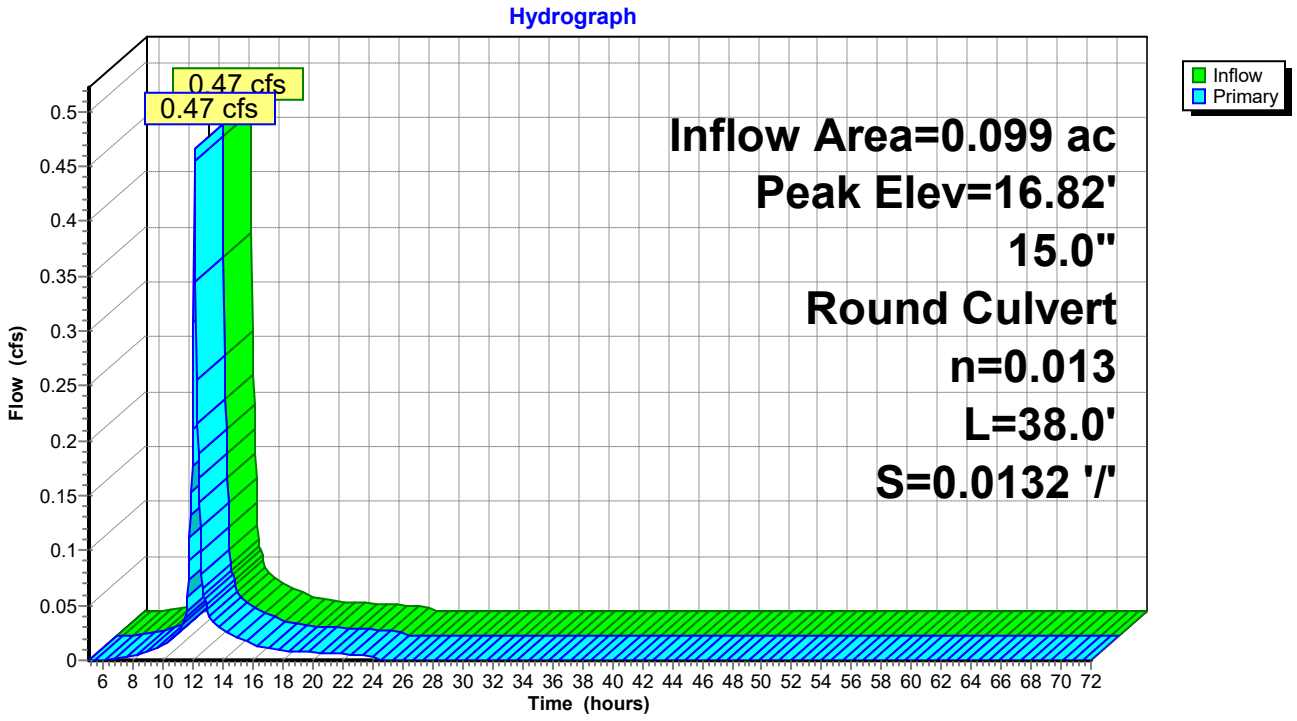
Inflow Area = 0.099 ac, 47.47% Impervious, Inflow Depth = 4.11" for 25-Year event
Inflow = 0.47 cfs @ 12.08 hrs, Volume= 0.034 af
Outflow = 0.47 cfs @ 12.08 hrs, Volume= 0.034 af, Atten= 0%, Lag= 0.0 min
Primary = 0.47 cfs @ 12.08 hrs, Volume= 0.034 af
Routed to Pond SD2 : SD2

Routing by Stor-Ind method, Time Span= 5.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 16.82' @ 12.08 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	16.50'	**15.0" Round Culvert** L= 38.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 16.50' / 16.00' S= 0.0132 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.45 cfs @ 12.08 hrs HW=16.81' (Free Discharge)
1=Culvert (Inlet Controls 0.45 cfs @ 1.90 fps)

Pond SD1: SD1



Summary for Pond SD2: SD2

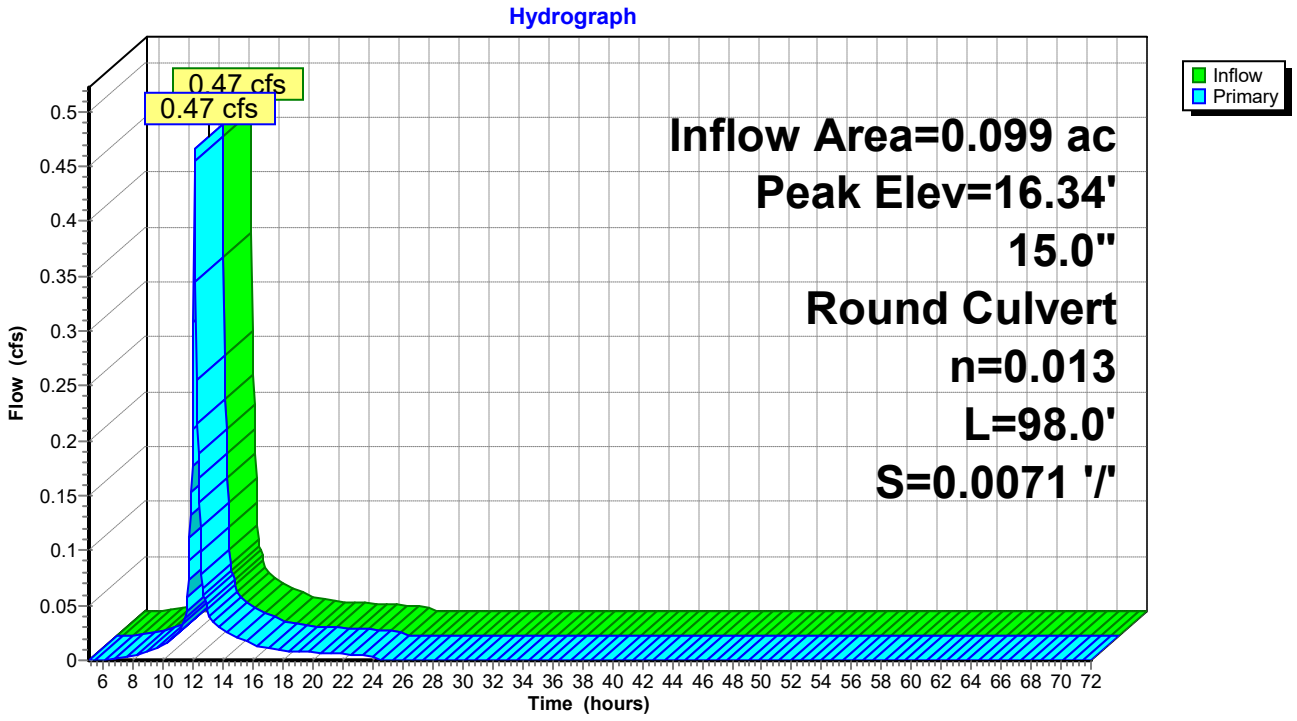
Inflow Area = 0.099 ac, 47.47% Impervious, Inflow Depth = 4.11" for 25-Year event
Inflow = 0.47 cfs @ 12.08 hrs, Volume= 0.034 af
Outflow = 0.47 cfs @ 12.08 hrs, Volume= 0.034 af, Atten= 0%, Lag= 0.0 min
Primary = 0.47 cfs @ 12.08 hrs, Volume= 0.034 af
Routed to Pond SD3 : SD3

Routing by Stor-Ind method, Time Span= 5.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 16.34' @ 12.08 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	16.00'	**15.0" Round Culvert** L= 98.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 16.00' / 15.30' S= 0.0071 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.45 cfs @ 12.08 hrs HW=16.33' (Free Discharge)
1=Culvert (Barrel Controls 0.45 cfs @ 2.58 fps)

Pond SD2: SD2



Summary for Pond SD3: SD3

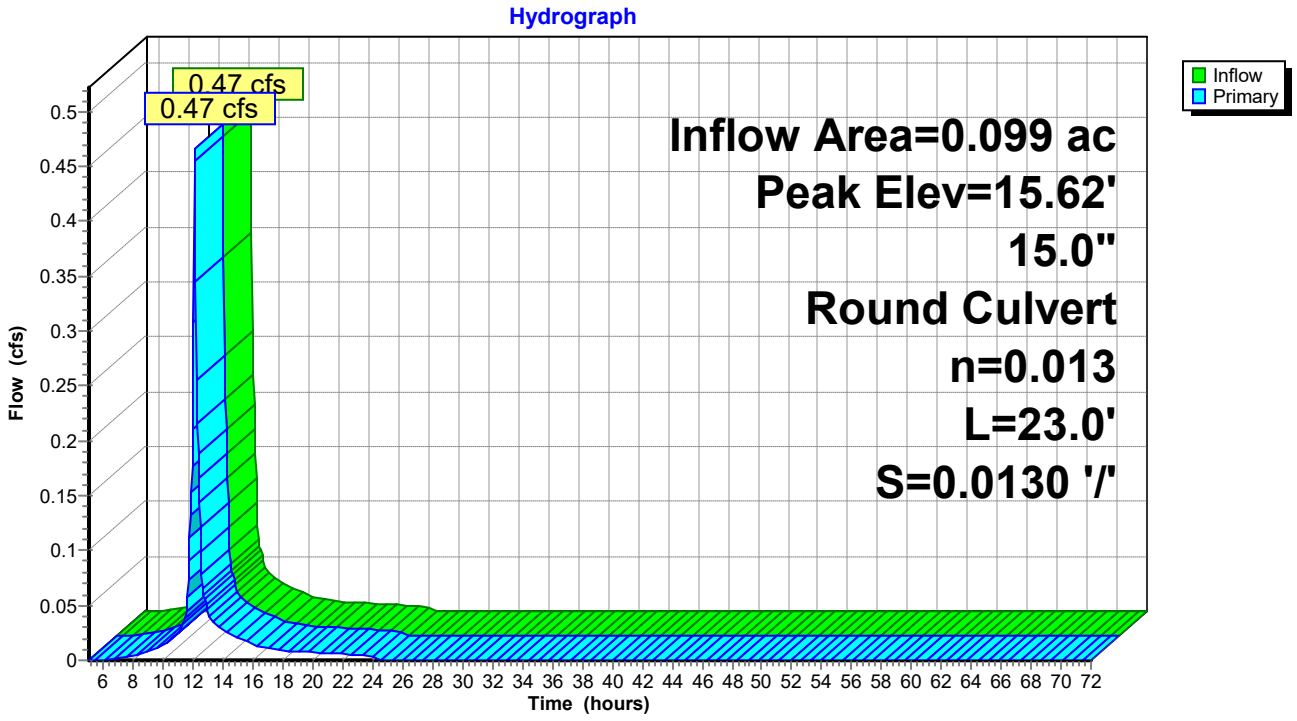
Inflow Area = 0.099 ac, 47.47% Impervious, Inflow Depth = 4.11" for 25-Year event
Inflow = 0.47 cfs @ 12.08 hrs, Volume= 0.034 af
Outflow = 0.47 cfs @ 12.08 hrs, Volume= 0.034 af, Atten= 0%, Lag= 0.0 min
Primary = 0.47 cfs @ 12.08 hrs, Volume= 0.034 af
Routed to Pond P1 : Filter Pond

Routing by Stor-Ind method, Time Span= 5.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 15.62' @ 12.08 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	15.30'	**15.0" Round Culvert** L= 23.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 15.30' / 15.00' S= 0.0130 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.45 cfs @ 12.08 hrs HW=15.61' (Free Discharge)
1=Culvert (Barrel Controls 0.45 cfs @ 2.83 fps)

Pond SD3: SD3



LEGEND

- PROPERTY BOUNDARY LINE
- ABUTTING BOUNDARY LINES
- 490 EXISTING MAJOR CONTOUR LINE
- EXISTING MINOR CONTOUR LINE
- EXISTING PAVED SURFACE
- SUBCATCH 1 SUBCATCHMENT NUMBER
- POND 1 POND NUMBER
- WATERSHED ANALYSIS POINT 1 WATERSHED ANALYSIS POINT
- SUBCATCHMENT BOUNDARY
- DRAINAGE FLOW PATH
- SOILS BOUNDARY
- SOIL HSG SOILS LABEL
- TYPICAL WETLAND BOUNDARY

SOILS LEGEND

BuC2 – BUXTON SILT LOAM, 8 TO 15% SLOPES
SuD2 – SUFFIELD SILT LOAM, 15 TO 25% SLOPES

NOTES

1. HYDROLOGIC SOIL GROUP BASED ON SOILS MAP DOWNLOADED FROM NATURAL RESOURCES CONSERVATION SERVICE AT HTTPS://WWW.NRCS.USDA.GOV.
2. THE STORMWATER MANAGEMENT PLAN PACKAGE, INCLUDING CALCULATIONS AND NARRATIVE, ARE AN INTEGRAL PART OF THE STORMWATER DRAINAGE STUDY.

MAIN-LAND
DEVELOPMENT
CONSULTANTS, INC.
69 MAIN ST. LIVERMORE FALLS, MAINE
367 US ROUTE 1 FALMOUTH, MAINE
182 MOOSEHEAD TRAIL, NEWPORT, MAINE
PH: (207) 897-6752 FAX: (207) 897-5404
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PROJECT

DALTON STREET HOUSING

36 DALTON STREET
PORTLAND, MAINE 04103

OWNER OF RECORD

ROBERT C. NELSON

5 SANDPIPER ROAD
FALMOUTH, MAINE 04105

MADE FOR

DONATA PROPERTIES LLC

1035 OCEAN AVENUE
PORTLAND, MAINE 04103

DRAWING SCALE:

20 0 10 20
(IN FEET)
1 INCH = 20 FT

REVISION NOTES:

NO.	DATE	DESCRIPTION
1	2026-06-05	UPDATED SUBCATCHMENT AND TC TO MATCH HYDROCAD

PROJ. MGR:	JLG
DRAWN BY:	TDD
CHECKED BY:	JLG
SURVEY DATE:	N/A
PLAN DATE:	2025-06-27
SUBMITTED FOR:	REVIEW

NOT FOR CONSTRUCTION

PRE-DEVELOPMENT DRAINAGE PLAN

SEAL:

STATE OF MAINE
JAMIE L. GARLAND
No. 15040
LICENSED PROFESSIONAL ENGINEER

2026-06-09

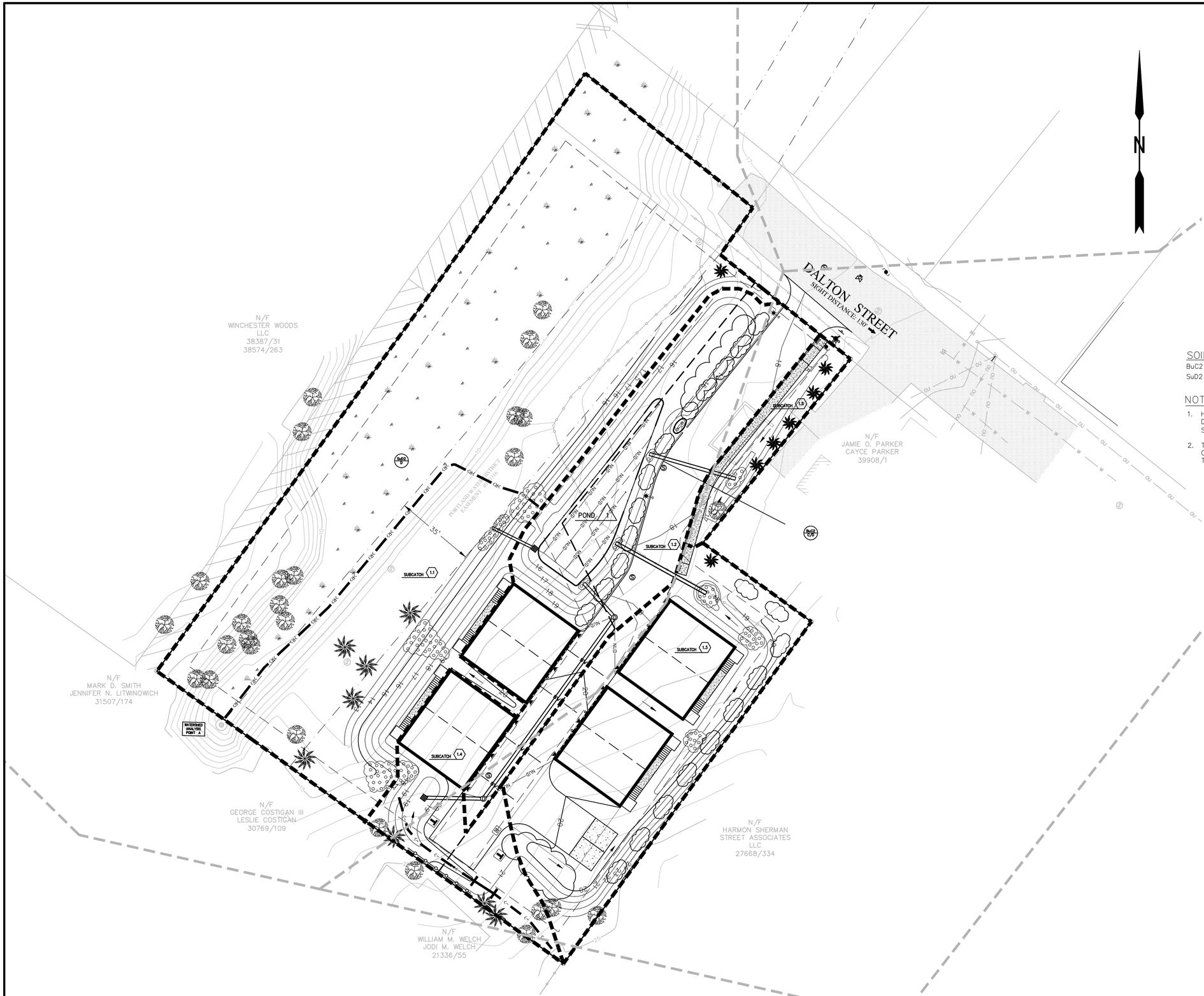
JAMIE L. GARLAND ME PE#15040

DRAWING NO.

D1.1

MLDC NO. 25-111 1 OF 2

TPLN-DRAINAGE 25-111.dwg – PLOTTED ON 6/9/2026 10:31 AM BY NATHAN GOODRICH



LEGEND

- PROPERTY BOUNDARY LINE
- ABUTTING BOUNDARY LINES
- EXISTING MAJOR CONTOUR LINE
- EXISTING MINOR CONTOUR LINE
- EXISTING PAVED SURFACE
- NEW GRAVEL SURFACE
- NEW GRAVEL SHOULDER
- NEW BUFFER
- SUBCATCH 1 — SUBCATCHMENT NUMBER
- POND 1 — POND NUMBER
- WATERSHED ANALYSIS POINT 1 — WATERSHED ANALYSIS POINT
- NEW LEVEL SPREADER
- SUBCATCHMENT BOUNDARY
- DRAINAGE FLOW PATH
- SOILS BOUNDARY
- SOIL HSG — SOILS LABEL
- TYPICAL WETLAND BOUNDARY

SOILS LEGEND

BuC2 – BUXTON SILT LOAM, 8 TO 15% SLOPES
SuD2 – SUFFIELD SILT LOAM, 15 TO 25% SLOPES

NOTES

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PROJECT

DALTON STREET HOUSING

36 DALTON STREET
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OWNER OF RECORD

ROBERT C. NELSON

5 SANDPIPER ROAD
FALMOUTH, MAINE 04105

MADE FOR

DONATA PROPERTIES LLC

1035 OCEAN AVENUE
PORTLAND, MAINE 04103

DRAWING SCALE:

20 0 10 20
(IN FEET)
1 INCH = 20 FT

REVISION NOTES:

NO.	DATE	DESCRIPTION
1	2026-06-05	NEW SIDEWALK, UPDATED STORMWATER AND SUBCATCHMENTS

PROJ. MGR:	JLG
DRAWN BY:	TDD
CHECKED BY:	JLG
SURVEY DATE:	N/A
PLAN DATE:	2025-06-27
SUBMITTED FOR:	REVIEW

NOT FOR CONSTRUCTION

POST-DEVELOPMENT DRAINAGE PLAN

SEAL:

STATE OF MAINE
JAMIE L. GARLAND
No. 15040
LICENSED PROFESSIONAL ENGINEER

2026-06-09

JAMIE L. GARLAND ME PE#15040

DRAWING NO.

D2.1

MLDC NO. 25-111 2 OF 2

TPLN-DRAINAGE 25-111.dwg – PLOTTED ON 6/9/2026 10:32 AM BY NATHAN GOODRICH

SOLID WASTE
NARRATIVE

Dalton Street Housing
36 Dalton Street, Portland, Maine

Prepared by:

MAIN-LAND DEVELOPMENT CONSULTANTS, INC.
P.O. Box Q, Livermore Falls, Maine

June 23, 2025

This project is anticipated to generate stumps and grubbings and construction debris during construction. Debris from construction is primarily cardboard and wooden crates. It will be collected and stored on-site in dumpsters which will hauled off-site by a private waste hauler. All harvested trees will be sold to a registered logger. Any stumps and grubbings debris will be composted on-site

Once the units have been built, tenants will have option of utilizing private dumpsters on site or utilize City of Portland solid waste program. The on-site private dumpsters will be located on the north portion of the site and will be hauled off by a private waste hauler

City of Portland ME: Low-Impact Design Requirements

Owner / applicant name:	Donata Properties, LLC /Robert Nelson			
Representative name:	Jamie Garland - Main-Land Development Consultants			
Project address:	0 Dalton			
Project CBL:				
Application ID (if known):				
	Maximum Points	**How to Apply**	**Points Awarded**	**LID Standard / Approach**
CORE METHODS: Wetlands, Streams, & Drainage				
Protect natural drainage paths	Required			
Shoreland Zoning	Required			
Meeting DEP and ACOE standards for stream crossings	Required			
Protect wetlands	**12**	Select one option		Select a site that does not have wetlands or vernal pools = 12pts
				Project maintains a 50' set-back / no-disturb buffer to all wetlands = 10pts
			7	Project maintains a 25' set-back / no-disturb buffer to all wetlands = 7pts
				Project does not place structures in wetlands and avoids wetlands impacts from construction and stormwater discharges = 5pts
				Project replicates impacted wetlands elsewhere on site or within watershed = 3pt
				Project pays wetlands impact fee = 0pts
Permanently protect stream (intermittent and perennial) and riparian buffers *(exclusive of approved stream crossings; must include a no-disturb zone with markers installed and deed restriction recorded at registry of deeds)*	**12**	Select one option	**12**	Select a site with no streams = 12pts
				Permanently protect all 100ft shoreline buffers = 10pts
				Permanently protect all 75ft shoreline buffers = 7pts
				Permanently protect all 50ft shoreline buffers (intermittent streams) = 6pts
				Permanently protect all 50ft shoreline buffers (required minimum for perennial streams) = 5pts
				Permanently protect all 25ft shoreline buffers (required minimum for intermittent streams) = 5pts
Stream crossings	**12**	Select one option	**12**	Select a site with no streams = 12pts
				Avoid any stream crossings = 10pts
				All stream crossings use a bridge or open bottom culvert structure sized at 1.2 times the bank full width of the stream = 10pts
				All stream crossings use Maine Stream Smart Principles to preserve natural pre-development drainage pathways = 6pts
CORE METHODS: Natural Areas & Habitat				
Preserve threatened or endangered species habitat	Required (Beginning with Habitat Maps at a minimum)			
Protect 30% of trees over 10" DBH	Required (Tree survey required)			
Protect intact, contiguous forests and native trees over 10" DBH	**8**	Select one option		All development and land disturbance outside of existing wooded/forested areas (no site clearing in prior 10 years) = 8pts
			6	Protect 50% of trees over 10" DBH = 6pts
				Protect 40% of trees over 10" DBH = 4pt

CORE METHODS: Soils & Slopes				
USDA Web Soil Survey	Required (provide details how soil limitations will be mitigated)			
Avoid steep slope disturbance	5	Select one option		Selecting a site without slopes 15% or greater = 5pts
				Maintain >20' undisturbed vegetated buffer to all slopes 15% or greater = 3pts
				Maintain 10-20' undisturbed vegetated buffer to all slopes 15% or greater = 2pts
			1	Maintain 1-10' undisturbed vegetated buffer to all slopes 15% or greater = 1pt
				Disturbance of any slope 15% or greater = 0pts
Protect soils	5	Select one option		Redevelopment sites = 5pts
				Detailed, site-specific soil survey; preparation of a Soil Management and Protection Plan; protect highly permeable soils = 5pts
Limit site disturbance and earthwork	8	Select one option		Redevelopment limits disturbance to existing footprint = 8pts
				New development disturbs less than 50% of existing undeveloped site area = 8pts
			6	New development disturbs less than 75% of existing undeveloped site area = 6pts
				New development disturbs greater than 75% of existing undeveloped site area = 0pts
Soil preparation & minimizing compaction	6	Select all options that apply	3	Till soils to a depth of at least 10" prior to revegetation = 3pts
			3	Organic matter amendments as needed based on soil tests = 3pts
CORE METHODS: Landscaping				
Low-Impact Landscaping	6	Select all options that apply		Redevelopment sites reduce lawn area by 50%, provided no increase in impervious area (lawn becomes landscaping) = 2pt
				New development results in >50% non-impervious developed area is landscaping = 2pt
			2	Use only native vegetation for landscaped areas = 2pts
			2	Using only locally-sourced landscape materials = 2pt
CORE METHODS: Impervious Area & SW Management				
Meeting City's stormwater management standards	Required			
Reduce impervious and increase permeable surfaces	10	Select all options that apply, up to a maximum of 10 points		50% or more of proposed hard surfaces are permeable (porous pavers, permeable concrete, porous asphalt) = 6pts
			4	Minimize parking impervious area by using only the minimum required number of parking spaces, the minimum required parking lot dimensions, maximizing compact spaces and utilizing low-turnover standard parking space width reductions = 4pt
				25% or more of proposed hard surfaces are permeable (porous pavers, permeable concrete, porous asphalt) = 3pts
			2	Minimize roadway impervious area by developing roadways and driveways at the minimum width and using minimum number of curb cuts = 2pt
			2	Reducing the number of driveways by using a shared driveway design = 2pt
				Providing transportation alternatives (such as bike share, car share, or similar) = 2pt
Use GI / natural stormwater treatment systems	12	Select all options that apply		Treatment requirements and conveyance achieved through vegetated systems = 6pts
			3	No more than 1-acre of drainage per treatment system = 3pts
				Increase time of concentration on site (1" 25 year storm event) = 3pts
Limit / eliminate salt use	4	Select one option	4	Detailed winter maintenance agreement, with annual reporting requirement, limiting chloride use (required in UIS watersheds) = 4pts

Bonus Points				
Bonus points are offered for strategies that may go above and beyond typical approaches; may offer particularly innovative site design or engineering ; or may help achieve the larger goal of low-impact development on a regional scale.	10		10	Utilizing structured parking = 10pts
	10			Utilizing a green roof for at least 50% of a newly developed or redeveloped building roof = 10pts
	10			Restoration of previously disturbed natural resources (minimum 500 square feet of restoration) = 10pts
	10			BMPs designed for known water quality impairment within watershed = 10pts
	10			Connecting to City sewer from a site >200 ft from existing City infrastructure = 10pts
	6			Detention of 1.5 times the required volume = 6pts
	6			Treatment for 1.5 times the required water quality volume = 6pts
	6		6	Innovative LID site design and/or stormwater improvement - 6pts
	10			Establishing a Traffic Demand Management plan for projects under 50,000ft = 10pts
	Total Possible Points **178**		**Total Points Awarded** **85**	**Minimum points required for approval of LID strategies and techniques** **80**

Department of Public Works
Mike Murray
Director

Date: March 4, 2026
Re: Wastewater Capacity Authorization
Address: 0 Dalton Street - PL-003335-2025
Applicant: Donata Properties, LLC
Planner: Neha Sunil Pol

Estimate of Anticipated Wastewater Flows				
Development	**Unit Size**	**Number of Units**	**Gallons per Day per Unit**	**Total Gallons per Day**
Existing Flow to Remain				
Vacant				
Proposed flow				
Multiple Family Dwelling Units	3-Bedroom	8	270	2160
Net Change				**+ 2,160**
*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.

You are also reminded that new connections into the combined sewer system shall be equipped with backflow prevention in accordance with Section 6.6.10 of the City's Technical Manual.

If the City can be of further assistance, please contact me at 207-874-8840 or brad@portlandmaine.gov

Sincerely,

Bradley A. Roland, P.E.,
Senior Project Engineer

MAIN-LAND
DEVELOPMENT
CONSULTANTS, INC.

ENGINEERS, SURVEYORS, SCIENTISTS
P.O. BOX Q LIVERMORE FALLS, ME 04254
367 US ROUTE 1, S. BUILDING, FALMOUTH, ME 04105
TEL: (207) 897-6752/FAX: (207) 897-5404
WWW.MAIN-LANDDCI.COM

SIDEWALK ALONG PROPERTY FRONTAGE (13.6.1.B.2) WAIVER REQUEST

Dalton Street Housing
0 Dalton Street, Portland, Maine

On behalf of Nelson Property Services, Main-Land requests a waiver of the request for a sidewalk along the property frontage for the project. The Dalton Street neighborhood does not currently have any sidewalks nor the right of way area to construct a sidewalk and we feel that adding an unconnected sidewalk along the front of the project property would not fit into the nature of this area and could possibly create a possible hazard to pedestrians with no connectivity.

LIFE/SAFETY CODE ANALYSIS
NARRATIVE

Dalton Street Housing
36 Dalton Street, Portland, Maine

Prepared by:

MAIN-LAND DEVELOPMENT CONSULTANTS, INC.
P.O. Box Q, Livermore Falls, Maine

June 23, 2025

The project consists of four (4) multiplex condo buildings with two (2) dwelling units per building for a total of eight (8) residential dwelling units. Each building will have fire protection via a wet/dry system of automatic sprinklers meeting the requirements of NFPA 13 and the Maine State Fire Marshall.

EROSION AND SEDIMENTATION CONTROL PLAN

Dalton Street Housing
36 Dalton Street, Portland, Maine

Prepared By:

MAIN-LAND DEVELOPMENT CONSULTANTS, INC.
Livermore Falls, Maine

June 23, 2025

1. INTRODUCTION:

"A person who conducts, or causes to be conducted, an activity that involves filling, displacing or exposing soil or other earthen materials shall take measures to prevent unreasonable erosion of soil or sediment beyond the project site or into a protected natural resource as defined in 38 M.R.S.A. §480-B. Sediment control measures must be in place before the activity begins. Measures must remain in place and functional until the site is permanently stabilized. Adequate and timely temporary and permanent stabilization measures must be taken." – Maine DEP Chapter 500 Rules, Appendix A.

This Plan has been developed to ensure that construction activities on this project site utilize sound erosion and sedimentation control measures. These measures will prevent or reduce the potential for the deposition of sediments downstream of site. The methods of control consist of preventive measures and remedial measures. Preventive measures are aimed at keeping the soils in their present location through mulching and through the re-establishment of vegetation. Remedial measures deal with the trapping and/or filtering of sediment laden stormwater run-off. Both types of measures will be utilized on this project.

The Erosion and Sedimentation Control Plan is best broken down into Temporary Measures, Winter Stabilization, and Permanent Measures.

2. TEMPORARY EROSION CONTROL:

Temporary control measures may consist of a combination of measures where appropriate and/or as shown on the plans.

A. Silt Fencing:

Silt fencing may be used in place of, or together with, the sediment filter barriers. The silt fencing will also be anchored at least four inches into the ground and placed along an even contour. Turn the ends of the fence up-grade to avoid runoff flowing around the fence. During frozen conditions, furnish and install Sediment Filter Berms in lieu of silt fencing or hay bales if frozen soil prevents the proper installation of silt fences and hay bales.

B. Stone Check dams:

Stone check dams shall be placed in the center of ditches immediately following excavation to

provide a means of trapping sediments. (If the ditch has been immediately armored with rip-rap, check dams are not necessary.) The dams shall consist of small stone placed across the ditch, with a depression at the top of the dam to allow water over the top of the dam, should it become clogged with sediment. See the specifications on the Typical Details Plan for construction details of this measure.

C. Temporary Mulch:

Temporary mulch shall be placed on all disturbed areas where seeding, construction or stabilization activities will not take place for over 7 consecutive days. Temporary mulch will also be placed on areas within 75 feet of a natural resource (wetland, stream, etc.) where seeding will not take place for over 48 hours, and on all bare soils outside the road base prior to any predicted significant rain event. A significant rain event is considered to be at least ½ inch of rain or more. Temporary mulch may be hay and shall be applied at a rate of two bales per 1,000 square feet. Soil must not be visible upon completion of application, regardless of rate of application.

D. Topsoil Stockpiles:

Topsoil, removed as part of the construction, will be stockpiled on site for use in areas to be re-vegetated. The location of topsoil stockpiles must not be within 75 feet of a defined natural resource (wetland, stream, etc.), or within 75 feet of a swale or ditch.

Stockpiles shall be mulched with hay at two bales per 1,000 square feet. The area down slope from any stockpile areas will be protected by a sediment filter berm or silt fence placed directly below or down gradient from the stockpile. If the stockpile must be left for more than 30 days, the pile will be seeded with rye grass at a rate of two pounds per 1,000 square feet and mulched in accordance with this paragraph.

E. Maintenance of Temporary Measures:

All temporary measures described above shall be inspected weekly and before/after every significant storm event (1/2 inch of rain or greater) throughout the construction of the project. Repairs or replacements of temporary measures will be made as necessary. Once the site is stable, all temporary devices such as hay bale barriers and silt fencing will be removed.

A log shall be kept 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 vehicles 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 department staff and a copy must be provided upon request. The permittee shall retain a copy of the log for a period of at least three years from the completion of permanent stabilization.

3. WINTER STABILIZATION:

The winter construction period is from November 1 through April 15. If the construction site is not stabilized with a combination of pavement, a road gravel base, 90% mature vegetation cover or riprap by November 1 then the site needs to be protected with winter stabilization.

Winter excavation and earthwork shall be completed such that no more than 1 acre of the site is denuded at any one time. Limit the exposed area to those areas in which work is expected to be undertaken during the following 15 days. Exposed area shall not be so large that it cannot be mulched in one day prior to any snow event.

Areas shall be considered to be denuded until the subbase gravel is installed in roadway areas or the areas of future loam and seed have been loamed and mulched. Hay and straw mulch rate shall be a minimum of 200 lbs./1,000 s.f. (3 tons/acre) and shall be properly anchored.

The contractor must 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 will be mulched for over winter protection with hay or straw at twice the normal rate or at 200 lbs/1,000 s.f. (3 tons per acre) or with a four-inch layer of woodwaste erosion control mix. This will be done within 24 hours of stocking and re-established prior to any rainfall or snowfall.

    Any new soil stockpile will not be placed (even covered with hay or straw) within 100 feet of any natural resources.

2. Natural Resource Protection

Any areas within 100 feet of any natural resources, if not stabilized with a minimum of 90 % 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) will be placed between any natural resource and the disturbed area. Silt fencing may not be placed on frozen ground.

Projects crossing the natural resource shall be protected by 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. Mulching

Areas shall be considered denuded until loamed, seeded and mulched. Hay and straw mulch shall be applied at a rate of 200 lb. per 1.000 square feet or 3 tons/acre (twice the normal accepted rate) and shall be properly anchored. Mulch shall not be spread on top of snow. The snow will be removed down to a one-inch depth or less prior to application.

An area shall be considered stabilized when exposed surfaces have been either mulched with straw or hay at a rate of 200 lb. per 1,000 square feet and adequately anchored, such that the ground surface is not visible though the mulch.

Between the dates of November 1 and April 15, all mulch shall be anchored by either peg line, mulch netting, or wood cellulose fiber. The ground surface shall not be visible though the mulch.

After November 1st, mulch and anchoring of all bare soil shall occur at the end of each final grading workday.

4. Mulching on Slopes and Ditches

Slopes shall not be left exposed for more than 7 days unless fully mulched and anchored. Slopes within 75 feet of a natural resource shall not be left exposed for more than 48 hours. Mulching shall be applied at a rate of 300 lbs/1,000 sq ft on all slopes greater than 8%. Erosion Control mesh shall be used to anchor mulch in all drainage ways and ditches, for slopes exposed to direct winds, and for all other slopes greater than 8 %. Erosion control blanket and check dams (or permanent Rip-Rap) shall be used in lieu of mulch in all drainage ways with slopes of 8 % or more.

A six-inch layer of erosion control mix can be used to substitute erosion control blankets on all slopes except ditches.

5. Seeding

Between the dates of October 15th 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 (see table below) and mulched until such time as the final treatment can be applied. If after November 1st the exposed area has been final graded and loamed, then the area may be dormant seeded at a rate of 3 times higher than specified for permanent seed and then mulched.

TEMPORARY SEED MIX

TYPE	% BY WEIGHT	% PURITY	% GERMINATION
Domestic Rye Grass	60	69.75	90
Perennial Rye Grass	20	28.00	85
Aroostook Rye Grass	20	28.00	85

Dormant seeding may 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 5lbs/1000 s.f. All areas seeded during the winter will be inspected in the spring for adequate catch. Areas not sufficiently vegetated (less than 90 % catch) shall be revegetated by replacing loam, seed and mulch.

If dormant seeding is not used, all disturbed areas shall be revegetated in the spring.

6. Inspection and Monitoring

Maintenance measures shall be applied as needed during the entire construction season. After each rainfall, snowstorm 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 ensure their continuous function.

In the spring, following the temporary/final seeding and mulching, the contractor shall inspect and repair any damages and/or un-established spots. Established

vegetative cover means a minimum of 90 % of areas vegetated with vigorous growth.

7. Standard for the Timely Stabilization of Ditches and Channels

All stone-lined ditches and channels shall be constructed and stabilized by November 1. All grass-lined ditches and channels shall be constructed and stabilized by September 1. Failure to stabilize a ditch or channel to be grass-lined by September 1, will require one of the following actions to stabilize the ditch for late fall and winter.

Install a sod lining in the ditch – Sod lining shall be installed in ditches by October 1. Proper installation includes 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 –Ditches shall be lined with stone riprap by November 1, as presented below. If necessary, the applicant will regrade the ditch prior to placing the stone lining so to prevent the stone lining from reducing the ditch's cross-sectional area.

8. Standard for the Timely Stabilization of Disturbed Slopes

Construct and stabilize stone-covered slopes by November 1. The applicant will Seed and mulch all slopes to be vegetated by September 1. Slopes will be considered in any area having a grade greater than 15% (6H:1V). If the applicant fails to stabilize any slope to be vegetated by September 1, then the applicant will 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 -- Seed the disturbed slope with winter rye at a seeding rate of 3 pounds per 1000 square feet and apply erosion control mats over the mulched slope October 1. The applicant will monitor growth of the rye over the next 30 days. If the rye fails to grow at least three inches or cover at least 90% of the disturbed slope by November 1, cover the slope with a layer of wood waste compost or with stone riprap as described below.

Stabilize the slope with sod -- Stabilize the disturbed slope with properly installed sod by October 1st. Proper installation includes 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. Sod stabilization shall not be used late-season to stabilize slopes having a grade greater than 33% (3H:1V).

Stabilize the slope with wood waste compost (erosion control mix) --Place a six-inch layer of wood waste compost on the slope by November 1. Prior to placing the wood waste compost, remove any snow accumulation on the disturbed slope. Wood waste compost will not be used to stabilize slopes having grades greater than 50% (2H:1V) or having groundwater seeps on the slope face.

Stabilize the slope with stone riprap -- Place a layer of stone riprap on the slope by November 1, similar to the Stone Lined Ditch the permanent erosion control section.

9. Standard for the Timely Stabilization of Disturbed Soils

Seed and mulch all disturbed soils on areas having a slope less than 15% by September 1. Failure to stabilize these soils by this date will require one of the following actions to stabilize the soil for late fall and winter.

Stabilize the soil with temporary vegetation -- 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 by October 1. Growth of the rye will require monitoring over the following 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 mulch the area for over-winter protection as described below.

Stabilize the soil with sod -- Stabilize the disturbed soil with properly installed sod by October 1. Proper installation includes 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 -- 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 by November 1. Prior to applying the mulch, remove any snow accumulation on the disturbed area. Immediately after applying the mulch, anchor the mulch with plastic netting to prevent wind from moving the mulch off the disturbed soil.

4. PERMANENT EROSION CONTROL:

Permanent measures will consist of the placement of culverts; culvert inlet/outlet stabilization; the construction of grass/stone lined ditches; and the re-vegetation of all areas outside the traveled way of the road, and those areas designated as stone lined ditches.

A. Ditches:

Ditches on the project have been designed based on expected flow rates and velocities for the 25-year, 24-hour storm event and the slope of the ditch. Where water velocities are expected to exceed 3.5 feet per second, the ditch has been designed to be stone lined. Ditches with water velocities of less than 3.5 feet per second have been designed to be grass lined.

Grass Lined Ditches:

Grass lined ditches will possess the same final dimensions as the stone lined ditches. The flow area of the ditch will be armored by placing a biodegradable matting or netting (such as American Excelsior Curlex Blanket or equal) in the bottom of the ditch. Placement of this material must take place after seeding. Install according to the manufacturers' recommendations.

Seeding and mulching of grass lined ditches will follow the specifications stated below for re-vegetation.

B. Re-vegetation Measures:

All areas to be permanently re-vegetated with grass will first be covered with loam and then fertilized.

Loam will be placed on all areas to be re-vegetated. Loam will be placed to a minimum depth of 4 inches. Loam will be the stockpiled topsoil, if possible.

Test the loam samples for nutrients at a proficient testing laboratory (The University of Maine provides this service. The areas with loam will then be fertilized with the recommended application rate. Lime will also be applied at a rate of 50 pounds per 1,000 square feet. Both the lime and the fertilizer will be mixed thoroughly with the soil.

All areas to be re-vegetated with permanent grass are to be seeded with the seed mix shown on the table below. This mixture will be applied at a rate of 2 pounds per 1,000 square feet.

General Lawn Areas	Chewing Fescue "Dignity"	35%
	Pennlawn Creeping Red Fescue	35%
	Perennial Rye "Tourstar" (Nutrite)	30%

Mulch will then be spread on all seeded areas at a rate of two bales per 1,000 square feet. Regardless of application rate the soil shall not be visible through the mulch.

Seed and mulch will be placed within five days of final grading of topsoil.

Seeded areas will be inspected after 30 days to determine the success of the seeding. If the ground cover is less than 90%, the area will be reseeded.

C. Critical Areas:

Slopes in excess of 15% will require the placement of a biodegradable netting or matting over the mulch and seed (if the netting has no mulch in it). If stabilization is to take place after October 1st, slopes over 8% will be treated with the matting.

D. Maintenance of Permanent Measures:

All measures will be inspected weekly and before and after every significant storm event during construction, and then at least once annually to ensure proper function. Any damaged areas will be repaired or replaced as necessary. Any ditches or culverts not functioning as designed will be redesigned and reconstructed according to specifications prepared by a Professional Engineer.

In any event, seeding should take place either between May 1st and June 15th, or August 15th and September 1st.

Dalton Street Housing
Summary of Existing and/or Proposed Easements or Covenants
Dalton Street
Portland, Maine

Prepared by:

Main-Land Development Consultants, Inc.
P.O. Box Q, Livermore Falls, Maine

May 20, 2025

The existing property currently has a 35-foot Portland Water District easement bisecting the property. The proposed project has been designed to stay outside of the easement.

No other existing or proposed easements or covenants are anticipated.

Att. P

DECLARATION
OF
LAMBERT NORTH CONDOMINIUM

75-81 LAMBERT, LLC, a Maine limited liability company with a principal place of business and mailing address of 1035 Ocean Avenue, Portland, ME 04103 (together with its successors and assigns, the "Declarant"), does by this Declaration hereby create and declare "Lambert North Condominium" (the "Condominium") on, within, and upon the land known as 77 Lambert Street in the City of Portland, County of Cumberland, State of Maine, and on, within, and upon all appurtenant easements and rights now or hereafter pertaining thereto, all as more particularly described on Schedule A annexed hereto and incorporated herein by reference (the "Premises"). This Declaration is recorded pursuant to Section 1602-101 of the Maine Condominium Act, as appears in the Maine Revised Statutes Annotated, as amended, Title 33, Chapter 31, Sections 1601-101 et seq., as amended (the "Act"), to which reference is specifically made and to which all owners of Units described herein, their heirs, successors and assigns, shall be bound, except to the extent that this Declaration lawfully provides otherwise. The Condominium is depicted on condominium plat titled "Recording Plat 77 Lambert Condo Development" dated December 8, 2020, and prepared by Titcomb Associates, to be recorded herewith (the "Plat") and on condominium plans titled "Duplex Condo, 77 Lambert Street, Portland, ME 04103" dated September 2, 2020, Project No. 2019-04, prepared by TD Architect (the "Plans"). The Plans are on file with Declarant and with TD Architect, 92 Pitt Street, #1, Portland, ME 04103.

ARTICLE I

Submission of the Premises

Section 1.1 Description of Land Declarant hereby submits the Premises to the provisions of the Act. The Premises are subject to and shall have the benefit of all easements, rights of way and matters affecting title of record on date hereof, including without limitation, any described on Schedule A attached hereto.

Section 1.2 Creation of Units The Condominium shall consist of six (6) Units, identified as follows:

Building A, Unit 1
Building A, Unit 2
Building B, Unit 1
Building B, Unit 2
Building C, Unit 1
Building C, Unit 2

Declarant has no reserved development rights.

ARTICLE II

Unit Boundaries

Section 2.1 Identification and Location of Units The identification number/letter and approximate location of each Unit within the Condominium are depicted on the Plat.

Section 2.2 Interior Dimensions of Units; Common Elements The interior dimensions of each Unit are shown on the Plans. Each Unit shall have appurtenant to it an undivided tenant-in-common interest in and to all Common Elements within the Condominium in the percentages set forth on Schedule B attached hereto.

Section 2.3 Unit Boundaries

(a) Upper and Lower (Horizontal) Boundaries: The upper and lower boundaries of each Unit are as shown on the Plat and Plans and otherwise as follows:

Upper Boundary: The horizontal plane of the lower side of the sheetrock gypsum board or other finished ceiling material.

Lower Boundary: The horizontal plane of the top surface of the subfloor.

(b) Vertical (Perimeter) Boundaries: The vertical boundaries of each Unit are as shown on the Plat and Plans and shall be the interior surface of doors, windows and storm windows and their frames, sills and thresholds.

Section 2.4 Maintenance Responsibilities Notwithstanding the ownership of the various portions of the Common Elements and the Units by virtue of the foregoing boundary description, the provisions of this Declaration shall govern the division of maintenance and repair responsibilities between the Unit owners and Lambert North (the "Association").

Section 2.5 Relocation of Unit Boundaries and Subdivision of Units Relocation of boundaries between Units is permitted subject to compliance with the provisions in Section 1602-112 of the Act. The subdivision of Units is not permitted, but the leasing of a portion of a Unit shall not be considered a subdivision for purposes of this Declaration.

ARTICLE III

Common Elements & Limited Common Elements

Section 3.1 Common and Limited Common Elements

(a) The locations of the Limited Common Elements to which each Unit has or Units have exclusive use, in addition to the Limited Common Elements described in Section 1602-108 of the Act and identified as "LCE" on the Plat, are as follows:

i. Each resident parking space shown on the Plat corresponds to the Unit immediately adjacent to such parking space and is a Limited Common Element allocated to such Unit.

ii. Each deck shown on the Plat corresponds to the Unit immediately adjacent to such deck and is a Limited Common Element allocated to such Unit.

iii. The steps and landing shown on the Plat correspond to the Unit immediately adjacent to such steps and landing and are Limited Common Elements allocated to such Unit.

iv. Any heating, ventilation and air conditioning and water heating equipment, fixtures, ducts, pipes and other improvements serving any single Unit are Limited Common Elements allocated to such Unit served.

(b) Each Unit shall be separately metered for public water and sewer, the fees and charges for which shall be billed directly to each Unit. All sewer and water system components serving the Premises (inclusive of components situated within and outside the boundaries of the Premises) are Common Elements of the Condominium until such point as they intersect with the public water and sewer systems. Separate services are provided for electricity, telephone, natural gas and/or propane, and cable television and telecommunications, and the meters, equipment and fixtures relating thereto shall be Limited Common Elements allocated to the Unit(s) served.

(c) Except as indicated otherwise on the Plat and/or Plans, and except as otherwise expressly set forth herein, the land, with the benefit of and subject to all easements, covenants, agreements, and restrictions of record as of the date hereof, all exterior elements, including without limitation, the driveways, entryways, the parking area, entry steps and landings, doors, windows and storm windows and their frames, sills and thresholds, roofs, floor joists and pilings, foundation, ceiling joists, rafters, and siding, all attic space, and all other parts of the Premises necessary or convenient to its existence, maintenance and safety or normally in common use, except as otherwise expressly provided in this Declaration, are Common Elements of the Condominium. Some portions of the Common Elements are allocated to the exclusive use of a Unit owner or Units owners as Limited Common Elements as provided in subsection (a) above or elsewhere in this Declaration.

(d) All Units will have the benefit of a community mailbox in the location shown as "community mailbox cluster" on the Plan. The community mailbox shall be a Common Element of the Condominium and shall be maintained by the Association. No individual mailboxes shall be installed by any Unit owner.

(e) The visitor parking area and drive as shown on the Plat are Common Elements of the Condominium.

ARTICLE IV

Easements; Development Rights; Special Declarant Rights

Section 4.1 Easements In addition to the easements created by Section 1602-114 of the Act, each Unit and Common Element shall have an easement for lateral and subjacent support from every other Unit and Common Element.

Section 4.2. Declarant Control Period The Declarant Control Period shall be the period of time commencing as of the date of recording of the first deed from the Declarant to a purchaser of a Unit in the Condominium until the earlier to occur of the following dates: the date that is ten (10) years after the date of recording of the first Unit deed or thirty (30) days after the date of recording of the sixth (6th) and final Unit deed. Upon the expiration of the Declarant Control Period as aforesaid, all Declarant's rights and obligations hereunder shall automatically transfer to the Association without further act or instrument.

Section 4.3. Ingress & Egress The Association shall adopt no rule or regulation which impedes, prohibits, or unreasonably limits access to any Unit from a Common Element.

Section 4.4. Common Element Association & Board Access The Declarant reserves in favor of the Association and its Board, officers, agents, employees, and the managing agent (if any), and every other person authorized by the Board the irrevocable right and easement to have access to each Unit as may be necessary for the inspection, maintenance, repair, or replacement of any of the Common Elements therein or accessible therefrom or the making of any addition or improvements thereto; or the making of repairs as are reasonably necessary for safety purposes or to prevent damage to any other Unit or Units or the Common Elements; or the abating of 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 or Occupant is present at the time. In the event of an emergency, the Board may, in its sole discretion, bar access to any portion of the Condominium, including access to the Units by Unit owners or Occupants.

Section 4.5 Development Rights. The Declarant reserves no development rights.

Section 4.6 Special Declarant Rights. In addition to the Declarant Control Period as set forth in Section 4.2 above, the Declarant reserves, in favor of itself and any successor declarant, the following Special Declarant Rights with respect to the Condominium until the construction of Units, Common Elements and Limited Common Elements are complete and the marketing and sale of all Units are complete:

A. To construct the Units, Common Elements and Limited Common Elements in accordance with this Declaration and the Plats and Plans;

B. To locate and relocate in the Premises, even though not depicted on the Plans, and grant and reserve easements for the installation, maintenance, repair, replacement and inspection of utility lines, wires, pipes, conduits and facilities servicing the Premises including but not limited to water, sewer, electric, telephone, cable television and other communications, natural gas, propane, and security system and transformers, meters and other equipment related thereto, provided that no such easement shall be effective until duly recorded in the Registry, that no such easements may be granted through Units sold by Declarant to third parties without such Unit owner's consent, which consent shall not be unreasonably withheld, conditioned or delayed, and that the Common Elements and Limited Common Elements promptly shall be restored upon installation and repair of such utility lines;

C. To connect with and make use of utility lines, wires, pipes and conduits located on the Premises for construction and sales purposes, provided that the Declarant shall be responsible for the cost of services so used;

D. To use the Common Elements for ingress and egress, for the alteration, repair and construction of Units, Common Elements and Limited Common Elements, including without limitation the movement and temporary storage of construction materials and equipment and ingress and egress by construction workers, along with the materials, tools and equipment used by such workers, and to generate noise and dust in connection with Declarant's construction activities, which noise and dust shall be deemed not to be a nuisance; and

E. To use the Common Elements and Limited Common Elements for the ingress and egress for itself, its officers, employees, agents, contractors and subcontractors and for prospective purchasers of Units; to use any Units owned or leased by the Declarant as models, management offices, sales offices for its project or customer service offices and to relocate the same from time to time within the Premises; to maintain on both the interior and exterior of the Premises such advertising and marketing signs as may comply with applicable governmental regulations, which may be placed in any location on the Premises and may be relocated or removed, all at the sole discretion of the Declarant; and

F. To sell the Units in the Condominium without the consent of the other Unit owners.

ARTICLE V

Amendment to Condominium Instruments During Declarant Control Period; Required Consent

Section 5.1. Amendments Any amendment to this Declaration requires approval from at least sixty-seven percent (67%) of the allocated interests of Unit owners as set forth in Section 18, except that during the Declarant Control Period, no amendment that eliminates or modifies rights reserved to the Declarant shall be effective unless Declarant approves such amendment in writing. No amendment of the Declaration may be made without the prior written approval of the required percentage of Eligible Mortgage Holders where such approval is required by this Declaration or by the Act.

ARTICLE VI

Fraction of Common Element Interests, Voting Rights, and Common Expense Liabilities

Section 6.1 Allocated Interests; Voting Rights The fraction of undivided interest in the Common Elements, voting rights and common expense liabilities appertaining to each Unit is set forth at Schedule B attached hereto and incorporated herein by reference. Such undivided interests are an approximately equal (with rounding to equal 100%) prorata allocation based on the number of Units. Except in connection with the exercise of a Development Right, no fraction of undivided interest allocated to any Unit shall be altered except upon the unanimous vote of all Unit owners and the required percentage of Eligible Mortgage Holders.

ARTICLE VII

Encroachments

Section 7.1. Encroachments If any portion of the Common Elements, or any other Unit, encroaches at any time upon any Unit or upon any portion of the Common Elements, as a result of minor variations of the actual improvements from those shown on the Plans, settling of the building, alteration or repair to the Common Elements made by or with the consent of the Board, repair or restoration of a Unit or any building after damage by fire or other casualty or as a result of condemnation or other eminent domain proceedings, an easement shall exist for the encroachment and for its maintenance so long as the building stands.

ARTICLE VIII

Eminent Domain

Section 8.1. Payment of Eminent Domain Award If a Unit is acquired by eminent domain, or if a part of a Unit is acquired by eminent domain leaving the Unit owner with a remnant that may not practically or lawfully be used for any purpose permitted by this Declaration, any award therefor shall be paid to the Unit owner as compensation for his

or her Unit and its allocated interest, whether or not any allocated interest is acquired. Upon condemnation acquisition, unless the decree otherwise provides, that Unit's entire allocated interest, votes in the Association, and common expense liability shall be re-allocated to the remaining Units in proportion to the respective interests, votes and liabilities of those Units before the taking, and the Association shall promptly prepare, execute and record an amendment to this Declaration reflecting the reallocations. Any remnant of a Unit remaining after part of a Unit is taken under this subsection shall be thereafter a Common Element.

Section 8.2. Effect on Allocated Interests Except as provided in subsection 8.1 hereinabove, if part of a Unit is acquired by eminent domain, any award therefor shall be paid to the Unit owner as compensation for the reduction in value of that Unit and that Unit's allocation of Common Element interest and Common Expense liability shall remain unchanged.

Section 8.3. Condemnation of Common Elements If a part of the Common Elements is acquired by 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 award shall be paid to the Association for the use and benefit of the Unit owners and their mortgagees as their interests may appear. The Association shall divide any portion of the award not used for any restoration or repair of the remaining Common Elements among the Unit owners in proportion to their respective allocated interest before the taking, but the portion of the award attributable to the acquisition of a Limited Common Element must be equally divided among the owners of the Units to which that Limited Common Element was allocated at the time of acquisition.

Section 8.4. Priority Nothing in this Declaration or the Bylaws, rules or regulations of the Association shall be deemed to give the Unit owner or any other party priority over any rights of a first mortgagee of a Unit pursuant to its mortgage documents in the case of a distribution to such Unit owner of condemnation awards for the taking of Units and/or Common Elements.

ARTICLE IX

Restrictions on Use & Occupancy; Services

Section 9.1. Compliance with Bylaws and Use and Occupancy Restrictions Each Unit owner shall comply strictly with the Bylaws and with the rules and regulations adopted by the Board, with the covenants, conditions and restrictions set forth in this Declaration and with the Act. Failure to so comply shall be grounds for an action to recover damages or for injunctive relief or both maintainable by the Board on behalf of the Association or by an aggrieved Unit owner. An aggrieved Unit owner shall have a right of action against the Association for failure to comply with or to enforce this Declaration, the Bylaws, any rules and regulations duly adopted or any requirements imposed by the Act.

Section 9.2. Use Restrictions and Association Services

(a) The Units shall be used only for residential purposes, except that such restriction shall not prohibit the use of Units as home offices provided that such use complies with applicable zoning or land-use ordinances.

(b) No Unit owner: (i) shall permit or suffer anything to be done or kept upon the Condominium which will materially increase the rate of insurance on the Condominium or on the contents thereof; (ii) shall obstruct or interfere with the rights of Unit owners or Occupants or annoy them by unreasonable noise or otherwise; (iii) shall commit or permit any nuisance or commit or suffer any immoral or illegal act to be performed anywhere in or upon the Condominium; and/or (iv) shall cause or permit any noxious odors to emanate from any portion of the Condominium.

(c) All leases of Units must be in writing. No Unit shall be rented for transient or hotel purposes or in any event for an initial term of less than twelve (12) months. The written lease of any Unit must: (a) require the lessee to comply with this Declaration, the Bylaws and any rules and regulations of the Association; (b) provide that failure to comply therewith constitutes a default under the lease; and (c) provide that the Association has the power to terminate the lease and to bring summary proceedings to evict the lessee in the name of the lessor thereunder after thirty (30) days prior written notice to the Unit owner, in the event of a default by the lessee in the performance of the lease. Each Unit owner, promptly following the execution of any lease of a Unit, shall forward a conformed copy thereof to the Association.

(d) The Association shall be responsible for providing the following services, in addition to others provided in this Declaration, the expenditures for which shall be a Common Expense: snow plowing and snow removal from sidewalks, drives, and parking areas; landscaping and groundskeeping; lighting drive areas and common areas. Any of the foregoing services may be contracted for by the property manager with the cost of such services to be billed as common expenses.

(e) No Unit owner or his or her family, guests, tenants, invitees, employees, agents or contractors (together, "Occupant" or "Occupants") shall place or store any personal property or other items on the Common Elements of the Condominium, except to the extent allowed by decision of the Board. All Unit owners shall also take appropriate care not to leave rubbish, debris, or waste on any portion of the Common Elements at any time. No Unit owner shall hang or install political or promotional signs in or on the windows of his or her Unit or on the Common Elements or Limited Common Elements.

(f) The keeping, boarding and/or raising of animals, laboratory animals, livestock, poultry or reptiles of any kind, regardless of number, shall be and is prohibited within any Unit or upon the Common Elements, except that the keeping of dogs, cats, caged birds, or aquarium fish is permitted subject to regulation by the Board. All pets and animals shall be kept so as to not be bothersome or offensive to the Unit owners or Occupants, and pets and animals shall not be permitted on the Common Elements, except being restrained and under the immediate supervision of a responsible person. The Unit owner is responsible for the cleanup of the pet's excrement and for the cost to repair any damage to the Common Elements or another Unit caused by the pet. The Board shall have the power to further regulate pets and animals under the rules and regulations of the Association as promulgated or amended from time to time, including without limitation the express power to establish additional behavior requirements and to expel any offending pets and animals from the Premises. Notwithstanding the foregoing, dogs that qualify as service animals shall not be prohibited from the Premises.

(g) No Unit owner shall play or permit to be played any musical instrument or operate or permit to be operated a stereo system, television, or other electronic or mechanical, sound-producing machinery, appliance or device inside or outside his or her Unit between the hours of 11:00 p.m. and 8:00 a.m. if such playing or operation shall disturb or annoy the Unit owner or Occupants of any other Unit.

Section 9.3. Rules & Regulations Reasonable rules and regulations, not in conflict with the provisions of this Declaration, for the general welfare of Unit owners and Occupants concerning the use and enjoyment of the Common Elements or the occupancy of Units, may be promulgated from time to time by the Board. Copies of any rules and regulations adopted and any amendments thereto promptly shall be provided to the Unit owners by the Board. The Board shall consistently and uniformly enforce the rules and regulations.

Section 9.4. Waste Disposal Each Unit owner shall be responsible for removing its own trash, garbage, recycling and other waste generated by or in its Unit to such location on the Premises as the Board shall determine for regular pickup by the City. Each Unit owner shall be responsible for complying with all City requirements with respect to trash, garbage, recycling and other waste removal, including, without limitation, purchasing its own City trash bags and adhering to all applicable City waste disposal restrictions and requirements. If the City shall elect not to provide City trash and/or recycling removal services, the Board shall engage a private waste service company or companies to provide such service with the cost of such service to be billed to the Unit owners as a Common Expense.

Section 9.5. Electrical Wiring No Unit owner shall overload the electrical wiring in any Unit or operate any machinery, appliances, accessories or equipment in such a manner as to cause, in the reasonable judgment of the Board, any unreasonable disturbance,

annoyance or risk, or make any alterations, repairs or modifications to or connections with the electrical or plumbing systems that involves hard wiring or plumbing into such systems, without the prior written consent of the Board.

Section 9.6. Structural Changes No Unit owner shall make structural alteration to or within the Unit or any changes to the Common Elements without the written approval of the Board. Non-structural alteration are permitted so long as they are made within the Unit and so long as such alterations do not unreasonably disturb other Unit owners or Occupants and are performed in compliance with any rules and regulations imposed by the Board.

Section 9.7. Restrictions Against Changes to Exterior Appearance No Unit owner shall make changes in or to the exterior of the Unit, other than replacement of window glass, without the approval of the Board.

ARTICLE X

Common Expenses

Section 10.1. Common Expenses Except as expressly provided in this Declaration or the Act, each Unit owner shall pay to the Association, or its authorized representative, his or her proportionate share of the budgeted expenses of maintenance, repair, replacement, administration and operation of the Common Elements; management of the Condominium, including property management fees; groundskeeping; snow and ice removal; insurance premiums; real estate taxes and assessments; sewer and water charges; waste removal; and maintenance of adequate working capital and capital repair and replacement reserves, which expenses are hereinafter referred to collectively as "common expenses." Such proportionate share shall be in the same ratio as said Unit owner's percentage of ownership in the common elements, as indicated on Schedule B attached hereto. Each Unit owner shall also pay to the Association, or its authorized representative, his or her share of the budgeted expenses of maintenance, repair, and replacement of all of the Limited Common Elements associated with his or her Unit, which payments may be assessed by the Board in a lump sum or in monthly installments.

Section 10.2. Failure to Pay Common Expenses or Charges In the event of the failure of a Unit owner to pay common expenses when due, the amount thereof together with a late fee equal to five percent (5.0%) of the amount due and default interest at 18% per annum or at such other fees or rates established by the Board, costs and reasonable attorney's fees incurred in collection (whether or not an action is commenced) shall constitute a lien on the Unit, as provided by the Act, which lien may be foreclosed in like manner as a mortgage on real estate. The recordation of this Declaration constitutes record notice of the lien. The lien for unpaid common expenses, however, shall be subordinate to the lien of the recorded first mortgage on Unit, and the foreclosure of such mortgage, sale or transfer pursuant to foreclosure or transfer to mortgagee in lieu of foreclosure shall extinguish the subordinate lien for common expenses. Such foreclosure shall not release

the delinquent Unit owner from personal liability to the Association for unpaid common expenses.

In addition to the foregoing, the Association shall have the power to separately charge a Unit and the owner thereof for services rendered to that Unit, and interest and costs of collection in connection with service charges, and for fines assessed against a Unit owner for violation of this Declaration, the Bylaws and the rules and regulations of the Association. Such charges and fines shall be a lien on the Unit with the same status as a lien for common expense assessments under the Act and this Declaration, 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:

(a) If a Unit owner requests the Association or its agent to perform repair and maintenance work on the Unit other than required of the Association by this Declaration, or the Unit owner or Occupants damage the Common Elements or fail to perform maintenance and repair work required by this Declaration and the Association performs such work, the expense thereof as determined by the Board may be assessed to the Unit owner as a service charge.

(b) Fees, if any, which may be established by the Board for the use and maintenance of the utility services and equipment. The expense of charges for water and sewer services and of equipment maintenance and repair and reasonable reserve allowances may also be calculated by the Board in its discretion and assessed in a lump sum or monthly installments as a service charge to each Unit. At the election of the Board, the expense of capital improvements, major repairs or renovations to the water and sewer lines may be assessed either as a common expense or as a service charge.

(c) 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.

(d) Any increase in fire and other casualty insurance premiums paid by the Association resulting from the activities of Unit owner or Occupants or improvements made by a Unit owner to its Unit.

Multiple owners of a Unit shall each be jointly and severally liable with one another for all unpaid common expense assessments, service charges, interest, penalties and costs of collection during their period of Unit ownership up to the time of the grant or conveyance. A grantee shall not be prevented from exercising any right to recover from the grantor such amounts paid by grantee for those common expenses assessments, service charges, etc. arising prior to the conveyance. A grantee or proposed purchaser under a purchase and sale contract for a Unit may obtain, upon request and the payment of such reasonable fee as may be established from time to time by the Board, a statement from the Association setting forth the amount of unpaid common expense assessments and service charges, interest, penalties and costs of collection against the Unit as of the

date of such statement and containing such other information required by the Act. The grantee shall not be liable for, and the Unit conveyed shall not be subject to a lien for any unpaid amounts due from the grantor before the statement date in excess of the amount set forth in the statement. All regular and special assessments and service charges assessed against a Unit shall be paid without any offset or deduction whatsoever.

Section 10.3 Reserves. The Board may maintain capital repair and replacement reserves for repairs and replacement of those Common Elements which must be replaced on a periodic basis. Any capital replacement reserve shall be funded by reserve contributions that are included in the annual operating budget. The existence of such capital replacement reserve shall not preclude the levy by the Board of a special assessment for the cost of necessary repairs or replacements that exceed the balance of then existing reserves. The Board also shall maintain working capital reserve equal to at least two months' assessments for each existing Unit, which initially shall be partially funded by the payment of two month's assessments by the initial purchasers of Units from Declarant, which payment shall be made by such purchasers to the Association at closing and which payment shall not be credited against regular monthly assessments payable on the Units.

Section 10.4. Access to Common Elements Upon Default Any Unit owner in default in the payment of any amount due the Association or in violation of any provisions of the Act, this Declaration, the Bylaws or the rules and regulations of the Association, which violation continues for ten (10) days after notice thereof by the Association to the Unit owner, may be prohibited by the Board from voting on Association or Condominium matters and may be prohibited from the use and enjoyment of any and all of the Common Elements not essential to access the Unit, in addition to all other remedies available to the Board.

ARTICLE XI

Maintenance

Section 11.1. Maintenance Each Unit owner shall furnish and be responsible for, at his or her own expense, all the maintenance, repairs and replacements within his or her own Unit; provided, however, such maintenance, repair and replacements as may be required for the supply of water and sewer for the Unit, shall be furnished by the Association as part of the common expenses. Maintenance, repairs and replacements of the electrical or mechanical appliances (including all heating, ventilation and air-conditioning systems) which may be located outside of but serving exclusively the Unit shall be the responsibility of the Association but the cost thereof shall be paid by the Unit owner as a limited common element expense assessment. If due to the negligent act or omission of a Unit owner or of Occupants, damage shall be caused to the Common Elements or to a Unit or Units owned by others, and maintenance, repairs or replacements shall be required which are not covered by insurance and which would otherwise be a common expense, then such Unit owner shall pay for such damage and the maintenance, repairs and replacements, as may be determined by the Board, as a service charge.

Section 11.2. Maintenance of Limited Common Elements The Association shall furnish and be responsible for all the maintenance, repairs and replacements of Limited Common Elements, the cost of such maintenance, repairs and replacements to be paid as a common expense by the Unit(s) to which such Limited Common Elements are allocated.

Section 11.3. Repairs to the Common Elements The Association is responsible for maintenance, repair and replacement of the Common Elements. Each Unit owner shall afford to the Association and the other Unit owners, and to their agents, contractors or employees, access through his or her Unit reasonably necessary for those purposes. If damage is inflicted on the Common Elements or any Unit through which access is taken, the Unit owner responsible for the damage, or the Association if it is responsible, is liable for the prompt repair thereof. If a Unit owner or Occupant causes damage to the Common Elements or another Unit, whether or not the Unit owner or Occupant is negligent in the cause of such damage, the Unit owner shall be responsible for the cost of repairing such damage.

Section 11.4 Property Management Contracts. Any management contract, employment contract and any contract entered into by Declarant which may become binding on the Association shall provide that such contract or lease may be terminated by either party without cause and without payment of a termination fee on not more than one hundred twenty (120) days' written notice and the Association may terminate said agreement for cause upon thirty (30) days' written notice without payment of a termination fee.

ARTICLE XII

Association of Unit Owners

Section 12.1. The Association & Executive Board.

(a) Prior to the date of this Declaration and the recording hereof, the Association, a non-profit and non-stock corporation, was duly incorporated under the laws of the State of Maine. The Association shall be the governing body for the Condominium and all of the Unit owners with respect to the operation, administration, maintenance, repair and replacement of the Premises as provided by the Act, this Declaration, in the Bylaws of the Association. The Bylaws may be amended from time to time as provided therein and such amendments need not meet the requirements for amendment to this Declaration and shall not be deemed to be amendments to this Declaration.

(b) During the Declarant Control Period, the Executive Board (the "Board") shall be composed of three (3) directors. During the Declarant Control Period, the directors of the Board may be appointed, removed and replaced from time to time by the Declarant without the necessity of obtaining resignations. Upon the expiration of the Declarant Control Period, the Board shall be composed of three (3) directors, who shall be appointed by vote of the Unit owners.

(c) The Board shall possess all of the duties and powers granted to the Board by the Act, and in addition shall have the specific requirement of yearly preparation and approval of an Association budget for operating and maintenance expenditures and capital improvements. The proposed budget approved by the Board shall be adopted unless rejected by the vote of at least sixty-seven percent (67%) in interest of the Unit owners. The Board shall have the power and authority to assess common expenses benefitting fewer than all of the Units to the Units benefitted. The Board and Association also shall have the power and authority to borrow money for purposes of capital repairs and replacements to the Condominium and to pledge the future income of the Association as collateral for the loan.

Section 12.2. Membership in the Association Each Unit owner and/or owners shall be a member of the Association. Membership shall be appurtenant to a Unit, and the transfer of title to a Unit automatically shall transfer the membership appurtenant to that Unit to the transferee(s). The grant of an interest in a Unit by mortgage or other lien, however, shall not transfer membership until foreclosure or sale in lieu of foreclosure.

Section 12.3. Covenants Running with the Land The provisions of this Declaration and the rights and obligations established thereby shall be deemed to be covenants running with the land, so long as the Premises remain subject to the provisions of the Act, and shall inure to the benefit of and be binding upon each and all of the Unit owners and their respective heirs, representatives, successors, assigns, purchasers, lessees, grantees and mortgagees.

Section 12.4. Delivery of Condominium Documents The Association shall make available to Unit owners and Eligible Mortgage Holders current copies of the Declaration, Bylaws and rules and regulations governing the Condominium, and other books, records and financial statements of the Association, all as required by the Act. This requirement may be satisfied by making the documents available for inspection upon request during normal business hours or under other reasonable circumstances.

ARTICLE XIII

Separate Taxation and Utilities

Section 13.1. Separate Taxation It is understood that real estate taxes are to be separately taxed to each Unit owner for his or her Unit and his or her corresponding percentage of ownership in the Common Elements, as provided in the Act. In the event that for any year such taxes are not separately taxed to each Unit owner, but are taxed on the Premises as a whole or greater than single Units, then each Unit owner shall pay his or her proportionate share thereof in accordance with his or her respective percentage allocated interest in the Common Elements.

Section 13.2. Utilities Each Unit owner shall pay for his or her own telephone, telecommunications, electricity, natural gas and/or propane, and other utilities which are

separately metered or billed to each user by the respective utility company. Notwithstanding anything herein to the contrary, utilities which are not separately metered or billed to Units shall be treated as part of the common expenses.

ARTICLE XIV

Insurance and Related Matters

Section 14.1. Insurance (a) The Association shall obtain and maintain in effect a broad "special form" insurance policy covering direct physical loss to the Premises with extended coverage, vandalism, malicious mischief, windstorm, debris removal, cost of demolition and water damage endorsements, issued by an insurance company authorized to do business in the State of Maine (which company shall also meet the ratings requirements of the Federal National Mortgage Association), insuring as a single entity the entire Premises including the Common Elements, the Limited common Elements, the Units as originally constructed by Declarant, and the fixtures, supplies and common personal property belonging to the Association, *excepting* the land, foundations, excavations, and other similar items customarily excluded from property insurance policies and also *excepting* furniture, furnishings or other personal property supplied or installed by Unit owners. The policy shall cover the interests of and name as insureds the Association, the Board, and all Unit owners and their mortgagees as their insurable interests may appear.

Such blanket or master insurance policy shall be in an amount equal to one hundred percent (100%) of the then current replacement cost of the insured Premises (exclusive of the land, excavations, foundations and other similar items customarily excluded from such coverage), without deduction for depreciation, together with coverage for the payment of common expenses with respect to damaged Units during the period of reconstruction. Such insurance policy may, at the option of the Board, contain such deductible as the Board shall deem appropriate but not to exceed the lesser of $10,000 or one (1) percent of the policy's face amount. Unless otherwise established by the Board from time to time, a Unit owner shall pay the expense of repair of damage to his or her Unit, or any other Unit(s) damaged by the Unit owner's negligence or breach of this Declaration notwithstanding that the Association's insurance shall be primary, in the amount not covered by the insurance (e.g., the deductible). Such casualty insurance policy shall also include the following provisions:

(1) The following endorsements or their equivalent: (a) "no control," meaning 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) "agreed amount"

or elimination of co-insurance clause; and (d) "inflation guard," when it can be obtained;

(2) That any "no other insurance" clause shall expressly exclude individual Unit owners' policies from its operation, so that the property damage policy purchased by the Board shall be deemed primary coverage and any individual Unit owners' property damage policies shall be deemed excess coverage, and in no event shall the insurance coverage obtained and maintained by the Board hereunder provide for or be brought into contribution with property insurance purchased by individual Unit owners or their mortgagees; and

(3) The recognition of any Insurance Trust Agreement whereby the Board may designate in writing an Insurance Trustee to hold any insurance proceeds in trust for disbursement, as provided under the Act.

The policies shall require the insurer to notify in writing the Board and each Eligible Mortgage Holder named in the mortgagee clause at least twenty (20) days before it cancels or substantially changes the Premises' coverage.

(b) The Board shall obtain comprehensive public liability insurance in such amounts as it shall deem desirable, insuring each Unit owner and the Association, the Board and managing agent, if any, from liability in connection with the Common Elements. Such policy shall provide coverage of at least $1,000,000.00 for bodily injury and Premises damage for any single occurrence resulting from the operation, maintenance or use of the Common Elements, and coverage for any legal liability resulting from lawsuits related to employment contracts in which the Association is a party. Such policy shall provide for at least twenty (20) days written notice to the Board and to each Eligible Mortgage Holder before the insurer can cancel or substantially modify the insurance coverage. Also, the Board shall have authority to purchase insurance to indemnify the Board and Officers for losses in managing the Association's affairs.

(c) The premiums for all the aforementioned insurance coverage shall be a common expense. Each Unit owner, at his or her own cost, shall be responsible for his or her own insurance on the contents of his or her own Unit and his or her additions and improvement thereto and decorations, floor coverings, wall coverings, appliances, furnishings, personal property therein and stored elsewhere on the Premises, and his or her personal liability to the extent not covered by the liability insurance provided by the Association. The Association will not maintain insurance on the personal property of Unit owners, no matter where located on the Condominium. AS SUCH, UNIT OWNERS ARE STRONGLY ENCOURAGED TO OBTAIN AND MAINTAIN ADEQUATE INSURANCE ON THEIR PERSONAL PROPERTY.

ARTICLE XV

Mortgagee Provisions

Section 15.1. Eligible Mortgage Holders Any holder of record of a recorded first Mortgage encumbering 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 the said holder of the Mortgage, 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 shall become an Eligible Mortgage Holder for purposes of this Declaration.

Section 15.2. Notices of Default to Eligible Mortgage Holders The Board, when giving notice to a Unit owner of a default in paying common expense assessments or other violation of the provisions of this Declaration, the Bylaws or rules and regulations, may send a copy of such notice to each Eligible Mortgage Holder.

Section 15.3. Additional Eligible Mortgage Holder and Mortgagee Rights Notwithstanding anything to the contrary elsewhere contained in this Declaration or Bylaws, the following provisions shall govern in the case of Eligible Mortgage Holder rights:

(a) Any Eligible Mortgage Holder will, upon request, be entitled to inspect the books and records of the Association during normal business hours.

(b) No provision of this Declaration or of the Bylaws shall be deemed or construed to give a Unit owner, or any other party, priority over any rights of first mortgagees of Units pursuant to their mortgages in the case of a distribution to the Unit owners of insurance proceeds or condemnation awards for losses to or a taking of Units and/or Common Elements.

(c) A first mortgagee of a Unit who requests to the Board in writing shall be entitled to prompt written notification from the Board of (i) any default by the Unit owner in the performance of such Unit owner's obligations under this Declaration and/or the Bylaws, which is not cured within thirty (30) days; (ii) any event of substantial destruction to, or condemnation or governmental taking of, such Unit or any portion of the Common Elements appurtenant thereto; (iii) any lapse or modification of insurance coverage; (iv) any proposed action of which an eligible mortgage holder is entitled to notice under Section 1602-119(b) of the Act.

(d) Any first mortgagee of a Unit who obtains title to the Unit pursuant to the remedies provided in the mortgage, or through foreclosure of the mortgage, or through deed in lieu of foreclosure, shall take the Unit free of any claims for unpaid assessments or charges against such Unit which accrue prior to the acquisition of title to such Unit by the mortgagee, but the foregoing shall not preclude the Association from collecting such deficiency in operating expenses from Unit owners in the future, whether by regular or special

assessment or for liability for assessments after foreclosure or deed in lieu of foreclosure.

ARTICLE XVI

Method of Amending Declaration

Section 16.1. Amendments Except to the extent expressly permitted or required by the Act, this Declaration may be amended by a vote or by written approval of the Unit owners of Units to which at least sixty-seven percent (67%) of the votes in the Association are allocated and written approval from the required percentage of Eligible Mortgage Holders.

Section 16.2. Unanimous Votes Required Regardless of any amendment hereto or revision of the Act that may provide otherwise, unanimous consent of all Unit owners and the written approval of the required percentage of Eligible Mortgage Holders shall be required for any amendment that would:

(a) Seek to terminate the legal status of the Premises as a condominium for reasons other than substantial destruction or condemnation of the Premises;

(b) Change the pro rata interest, common expenses payment obligations or other obligations or voting rights of any Unit;

(c) Abandon, partition, subdivide, encumber, sell or transfer the Common Elements. The granting of easements for public utilities or for other purposes consistent with the intended use of the Common Elements by the Condominium shall not be deemed a transfer within the meaning of this clause;

(d) Use hazard insurance proceeds from losses to the Premises (whether to Units or to Common Elements) for other than repair, replacement or reconstruction of such improvements, except as provided by this Declaration or the Act in case of substantial destruction of the Condominium.

Section 16.3. Special Amendments. Notwithstanding the foregoing, this Declaration may also be amended by special amendment as follows: The Declarant, without the consent of any Unit owner or mortgagee, may execute and record, as long as it owns any Units or holds any Special Declarant Rights, amendments in order to (i) correct any errors and/or omissions in this Declaration, provided no such correcting amendment shall materially and adversely affect the rights of any Unit owner or mortgagee; or (ii) to make this Declaration comply with the provisions of the Maine Condominium Act, any other law, code, permit or approval, or the requirements or guidelines of the Federal National

Mortgage Association ("FNMA"), the Federal Home Loan Mortgage Corporation ("FHLMC") or any other insurer or guarantor of Unit Mortgages.

ARTICLE XVII

Removal from the Condominium Act

Section 17.1 Termination of the Condominium. The submission of the Premises to the Act herein shall not be terminated unless (i) and (ii) the required percentage of the Eligible Mortgage Holders, shall agree to such revocation or removal of the Premises from the provisions of the Act, their agreement to be established by written instrument duly recorded.

Section 17.2 Ownership upon Termination. Upon removal of the Premises from the Act, the Unit owners shall hold the Premises and any proceeds thereof as tenants in common in accordance with the Act, with any mortgages or liens affecting a Unit to attach in order of priority against the resulting common ownership interest. Removal of the Premises from the Act shall not bar the subsequent re-submission of the Premises to the Act.

ARTICLE XVIII

Miscellaneous

Section 18.1. Remedies All rights, remedies, and privileges granted to the Declarant, the Association or a Unit owner pursuant to the terms of this Declaration, the Bylaws, and the rules and regulations shall be deemed to be cumulative to any other right or remedy under said documents or afforded by law or equity.

Section 18.2 Conflict. In the event of any conflict or discrepancy between this Declaration, the Bylaws and the Plans, this Declaration shall govern. If any provision of this Declaration, the Bylaws or the rules and regulations be in conflict with any applicable laws, including the Act, then such laws shall control and such invalid provision shall be of no force and effect, but the validity of the remainder of this Declaration, the Bylaws and rules and regulations shall not be affected thereby and shall remain in full force and effect as if such invalid provision had not been included. A provision in this Declaration which is permissible under the Act shall not be considered to be inconsistent with the Act.

Section 18.3 Captions. 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.

Section 18.4 Context. The use of the singular number in this Declaration shall be deemed to include the plural, the plural the singular, and the use of any one gender shall be deemed applicable to all genders.

Section 18.5 No Waiver. 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 that may occur or the duration of such breach.

Section 18.6 Invalidity. If any term, covenant, provision, phrase or other element of this Declaration, the Bylaws, or the rules and regulations of the Association is held to be invalid or unenforceable for any reason whatsoever, such holdings shall not affect, alter, modify, or impair in any manner, any other term, covenant or provision, phrase or other element of such documents.

Section 18.7 Dispute Resolution. Except as provided in this Declaration, the Association and/or any aggrieved Unit owner shall have a right of action against any other Unit owner who fails to comply with this Declaration, the Bylaws, the rules and regulations issued by the Association or a decision of the Association.

Section 18.8 Notice. Any notice required or given pursuant to this Declaration to the Association or to any Unit owner may be delivered to any Association director or officer or to such Unit owner respectively either by sending it to the Unit or the Registered Agent for the Association by first-class United States mail, postage prepaid, or by delivering it to the Unit by hand, or as otherwise permitted by the Bylaws.

[SIGNATURE APPEARS ON FOLLOWING PAGE]

IN WITNESS WHEREOF, 75-81 Lambert, LLC, as Declarant, has caused this Declaration to be executed and sealed by its duly authorized agent as of May 26, 2021.

WITNESS

75-81 LAMBERT, LLC

By:
Print Name: Robert C. Nelson
Its: President

STATE OF MAINE
COUNTY OF CUMBERLAND, ss. May 26, 2021

Then personally appeared before me the above-named Robert C. Nelson, duly authorized President of 75-81 Lambert, LLC, as aforesaid, and acknowledged the foregoing to be his free act and deed in said capacity and the free act and deed of said limited liability company.

Print Name:
Notary Public/~~Attorney at Law~~
My Commission Expires: 1/28/2022

Stephanie A. Deroche
Notary Public, State of Maine
My Commission Expires 01/28/2022

SCHEDULE A

[DESCRIPTION OF PREMISES]

A certain lot or parcel of land located on the northeasterly side of Lambert Street in the City of Portland, County of Cumberland and State of Maine, bounded and described as follows:

Beginning at a 1" iron pipe on the northeasterly side of Lambert Street at the southerly corner of land now or formerly of Lori Austill and Anthony Gaboury as described in a deed recorded in the Cumberland County Registry in Book 32977, Page 194. Thence:

1) N 30°48'16" E by said land of Austill and Gaboury a distance of Forty-Two and 03/100 (42.03) feet to a 5/8" iron rod "PLS 1273" at the southwesterly corner of land now or formerly of April R. Lewis Sarell as described in a deed recorded in said Registry in Book 28250, Page 326;

2) N 79°25'44" E by said land of Sarell a distance of Two Hundred Nineteen and 36/100 (219.36) feet to a 5/8" iron rod "PLS 1273";

3) N 10°34'16" W by said land of Sarell a distance of Twelve and 00/100 (12.00) feet to a 5/8" iron rod "PLS 1273" on the southerly line of land now or formerly NMP Investments, LLC as described in a deed recorded in said Registry in Book 34394, Page 146;

4) N 79°25'44" E by said land of NMP Investments, LLC and land now or formerly of Adam E. Lamarre and Elizabeth G. Thomas as described in a deed recorded in said Registry in Book 34370, Page 94 a distance of Sixty-Two and 51/100 (62.51) feet to a point at the northwesterly corner of land now or formerly of Anthony Salisbury as described in a deed recorded in said Registry in Book 34779, Page 20;

5) S 11°04''09" E by said land of Salisbury a distance of Fifty-Nine and 74/100 (59.74) feet to a point;

6) N 78°55'51" E by said land of Salisbury a distance of Seven and 00/100 (7.00) feet to a point;

7) S 11°04'09" E by said land of Salisbury a distance of Eighty and 49/100 (80.49) feet to a point on the northerly line of land now or formerly of Tara Apts., LLC as described in a deed recorded in said Registry in Book 14149, Page 92;

8) S 79°25'00" W by said land of Tara Apts., LLC a distance of Two Hundred Sixty-Nine and 81/100 (269.81) feet to a point on the northeasterly side of said Lambert Street;

9) N 36°59'58" W by said Lambert Street a distance of One Hundred Seven and 96/100 (107.96) feet to the point of beginning.

Bearings are referenced to true north.

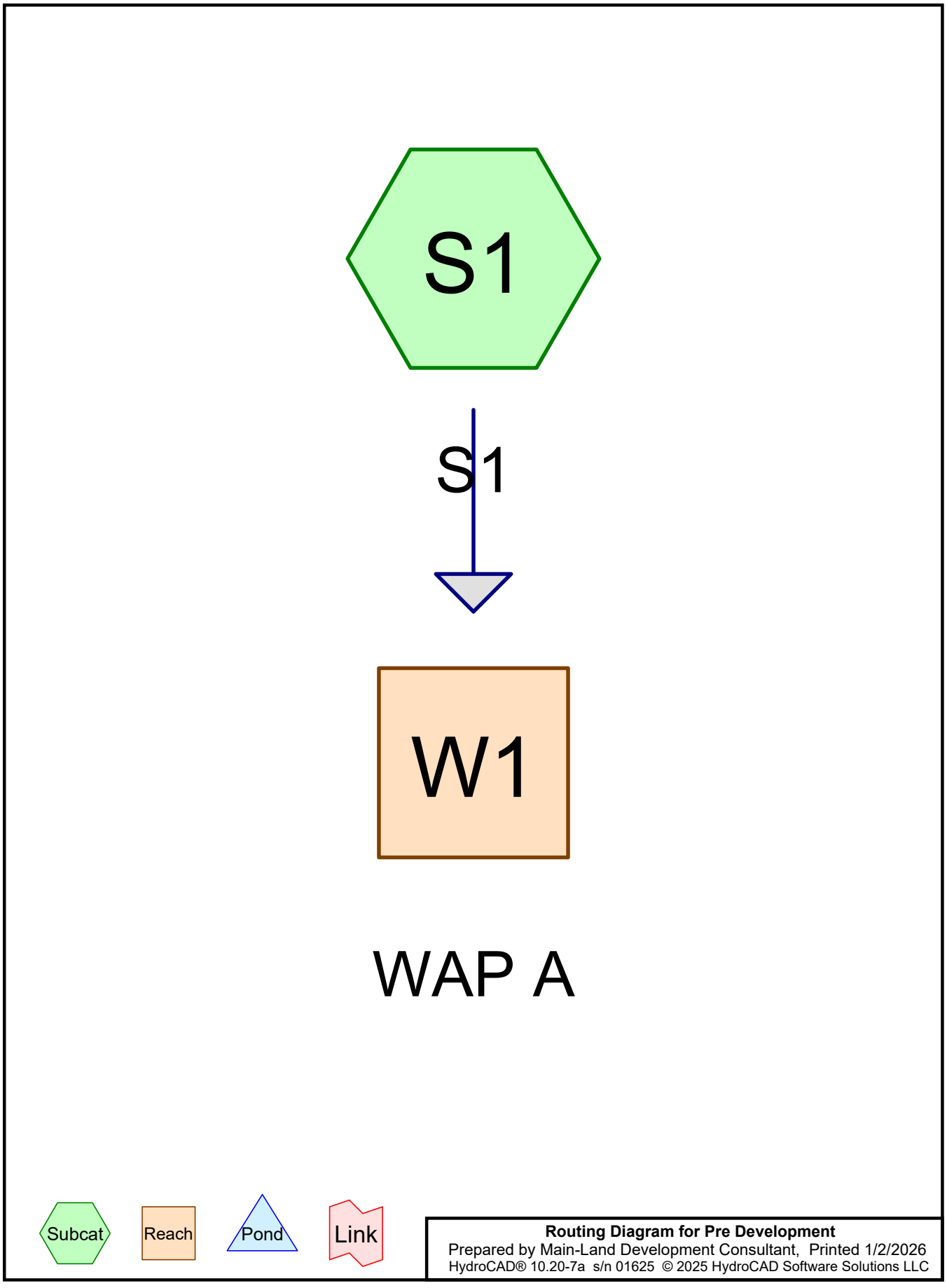
Being all of the same premises described in Warranty Deed from Stephen R. Roop to 75-81 Lambert, LLC dated March 13, 2019 and recorded in the Cumberland County Registry of Deeds in Book 33513, Page 340.

DOC :39651 BK:38275 PG:305
RECEIVED - RECORDED, CUMBERLAND COUNTY REGISTER OF DEEDS
06/04/2021, 01:51:50P
Register of Deeds Nancy A. Lane E-RECORDED

SCHEDULE B

[ALLOCATION OF UNDIVIDED INTEREST IN COMMON ELEMENTS, VOTING RIGHTS AND COMMON EXPENSE LIABILITY APPERTAINING TO EACH UNIT]

Building A, Unit 1	16.67%
Building A, Unit 2	16.67%
Building B, Unit 1	16.67%
Building B, Unit 2	16.67%
Building C, Unit 1	16.66%
Building C, Unit 2	16.66%
TOTAL:	100.00%


S1
S1
W1
WAP A
Subcat
Reach
Pond
Link
Routing Diagram for Pre Development
Prepared by Main-Land Development Consultant, Printed 1/2/2026
HydroCAD® 10.20-7a s/n 01625 © 2025 HydroCAD Software Solutions LLC

Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2-Year	Type III 24-hr		Default	24.00	1	3.00	2
2	10-Year	Type III 24-hr		Default	24.00	1	4.30	2
3	25-Year	Type III 24-hr		Default	24.00	1	5.40	2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.121	71	Meadow, non-grazed, HSG C (S1)
1.275	73	Woods, Fair, HSG C (S1)
1.396	**73**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
1.396	HSG C	S1
0.000	HSG D	
0.000	Other	
1.396		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.121	0.000	0.000	0.121	Meadow, non-grazed	S1
0.000	0.000	1.275	0.000	0.000	1.275	Woods, Fair	S1
0.000	**0.000**	**1.396**	**0.000**	**0.000**	**1.396**	**TOTAL AREA**	

Time span=5.00-72.00 hrs, dt=0.05 hrs, 1341 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentS1: S1 Runoff Area=1.396 ac 0.00% Impervious Runoff Depth=0.86"
Flow Length=291' Tc=65.9 min CN=73 Runoff=0.47 cfs 0.100 af

Reach W1: WAP A Inflow=0.47 cfs 0.100 af
Outflow=0.47 cfs 0.100 af

Total Runoff Area = 1.396 ac Runoff Volume = 0.100 af Average Runoff Depth = 0.86"
100.00% Pervious = 1.396 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment S1: S1

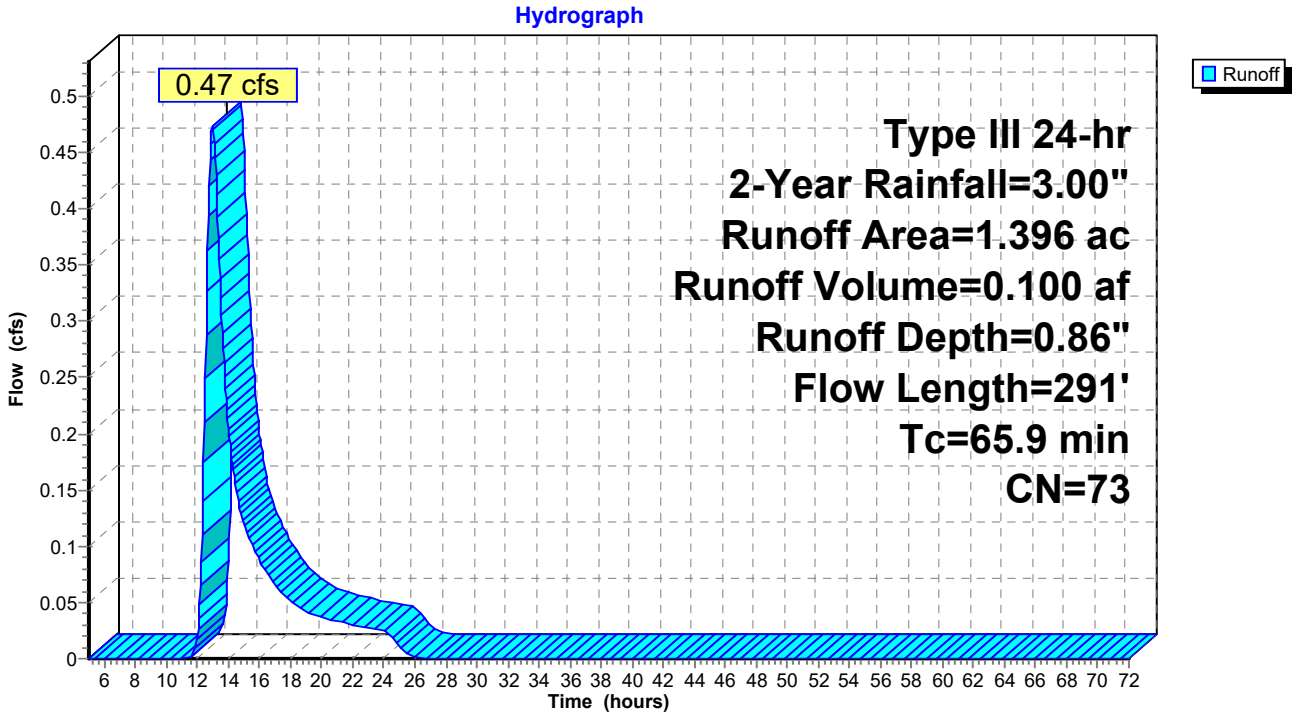
Runoff = 0.47 cfs @ 12.97 hrs, Volume= 0.100 af, Depth= 0.86"
Routed to Reach W1 : WAP A

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.00"

Area (ac)	CN	Description
1.275	73	Woods, Fair, HSG C
0.121	71	Meadow, non-grazed, HSG C
1.396	73	Weighted Average
1.396		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
62.0	150	0.0033	0.04		**Sheet Flow, sheet - wetland** Woods: Light underbrush n= 0.400 P2= 3.10"
3.9	141	0.0142	0.60		**Shallow Concentrated Flow, shallow - wetland** Woodland Kv= 5.0 fps
65.9	291	Total			

Subcatchment S1: S1



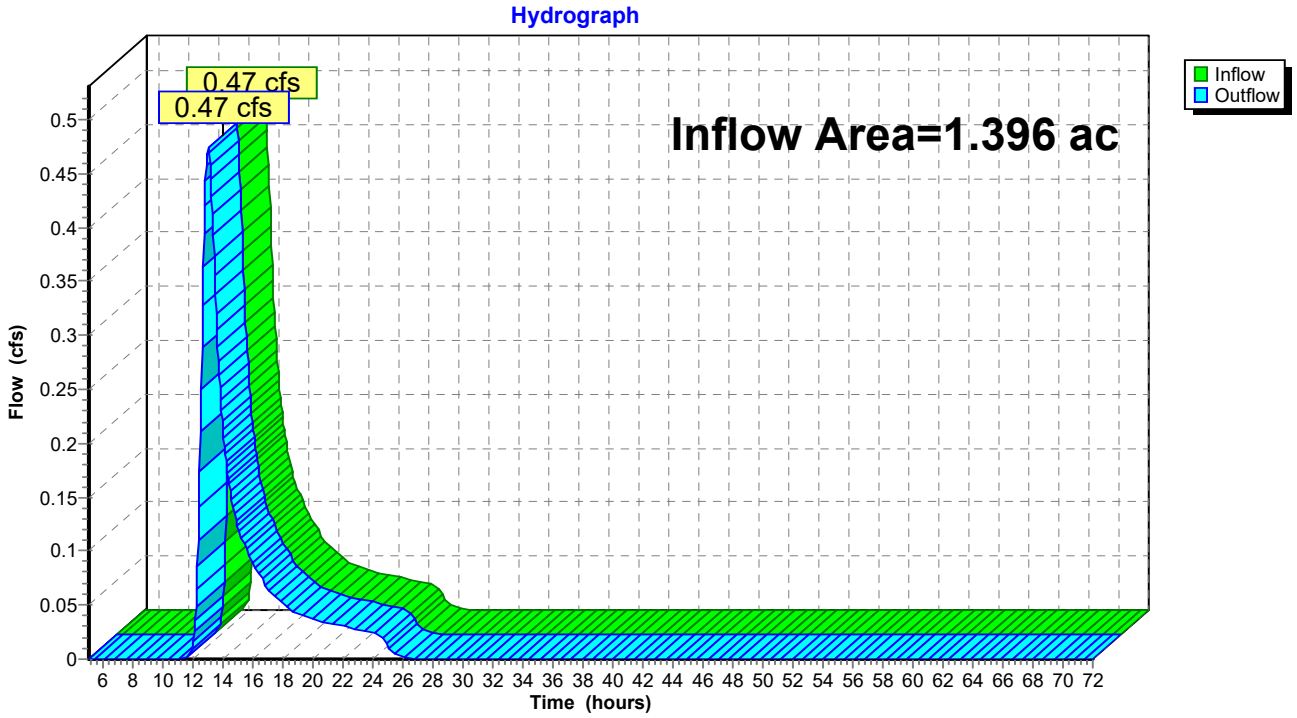
Summary for Reach W1: WAP A

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 1.396 ac, 0.00% Impervious, Inflow Depth = 0.86" for 2-Year event
Inflow = 0.47 cfs @ 12.97 hrs, Volume= 0.100 af
Outflow = 0.47 cfs @ 12.97 hrs, Volume= 0.100 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-72.00 hrs, dt= 0.05 hrs

Reach W1: WAP A



Time span=5.00-72.00 hrs, dt=0.05 hrs, 1341 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentS1: S1 Runoff Area=1.396 ac 0.00% Impervious Runoff Depth=1.75"
Flow Length=291' Tc=65.9 min CN=73 Runoff=1.03 cfs 0.203 af

Reach W1: WAP A Inflow=1.03 cfs 0.203 af
Outflow=1.03 cfs 0.203 af

Total Runoff Area = 1.396 ac Runoff Volume = 0.203 af Average Runoff Depth = 1.75"
100.00% Pervious = 1.396 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment S1: S1

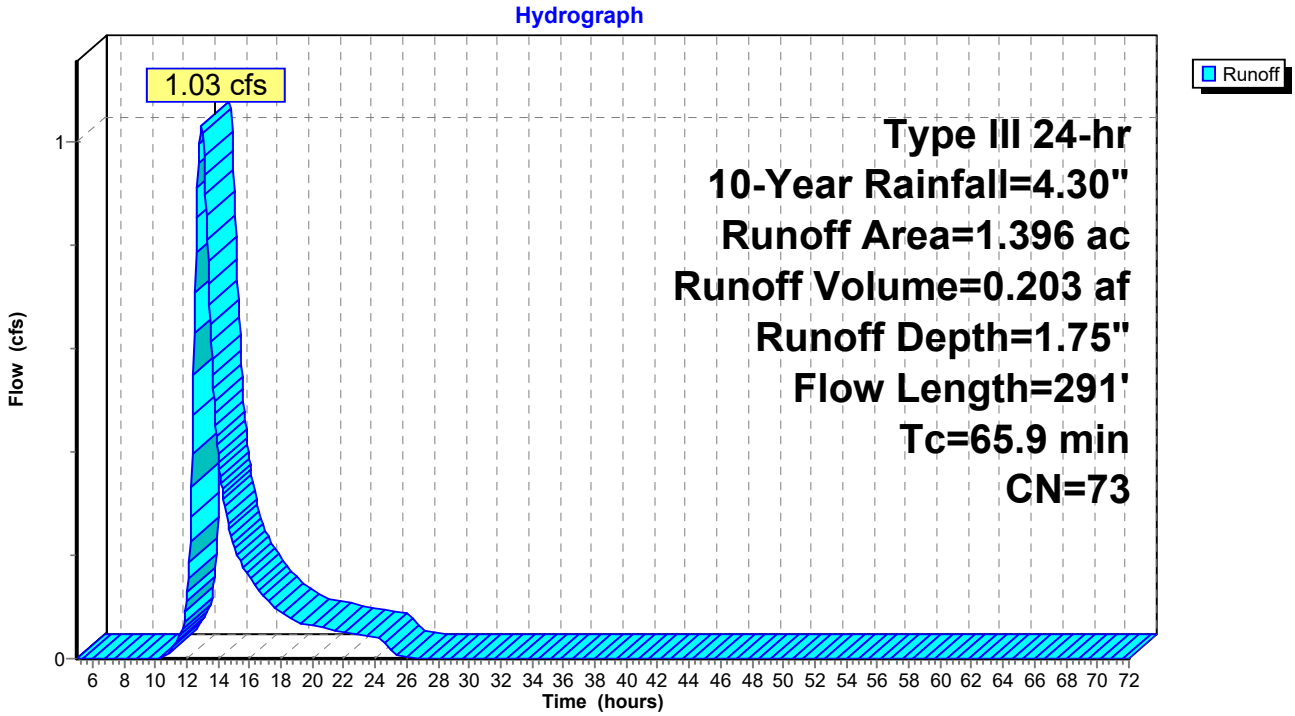
Runoff = 1.03 cfs @ 12.93 hrs, Volume= 0.203 af, Depth= 1.75"
Routed to Reach W1 : WAP A

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.30"

Area (ac)	CN	Description
1.275	73	Woods, Fair, HSG C
0.121	71	Meadow, non-grazed, HSG C
1.396	73	Weighted Average
1.396		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
62.0	150	0.0033	0.04		**Sheet Flow, sheet - wetland** Woods: Light underbrush n= 0.400 P2= 3.10"
3.9	141	0.0142	0.60		**Shallow Concentrated Flow, shallow - wetland** Woodland Kv= 5.0 fps
65.9	291	Total			

Subcatchment S1: S1



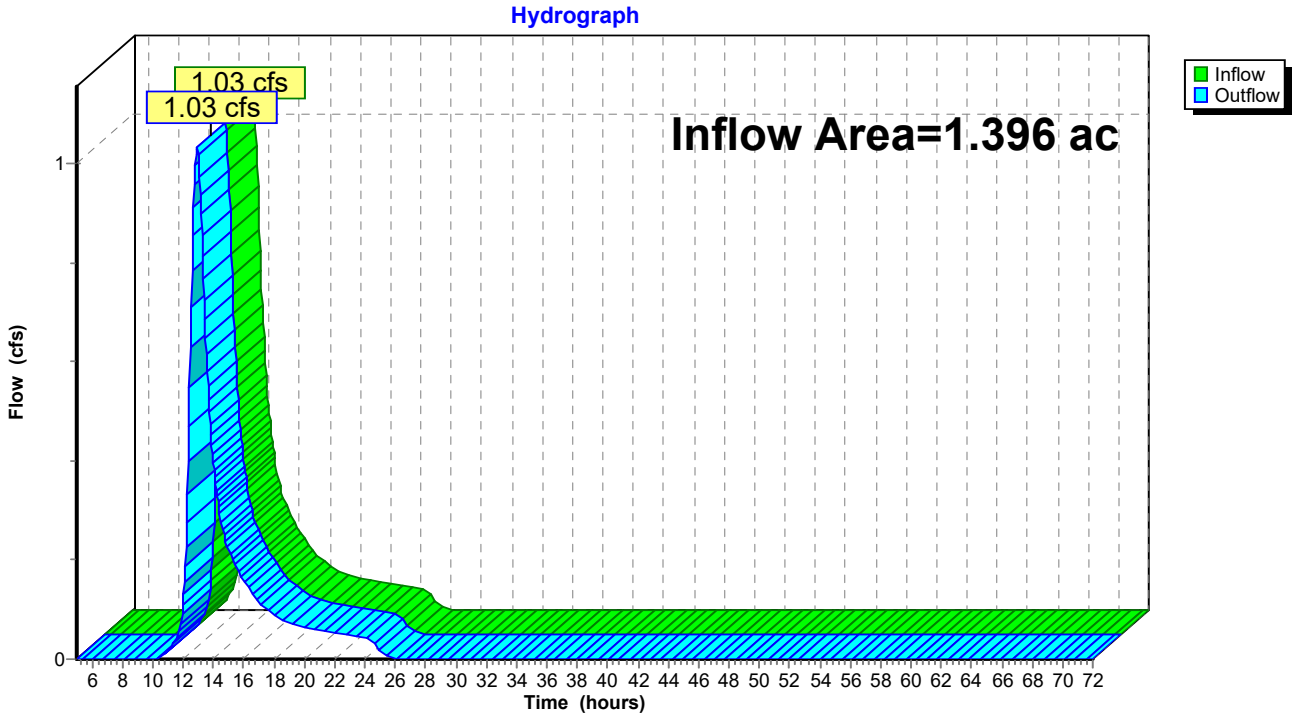
Summary for Reach W1: WAP A

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 1.396 ac, 0.00% Impervious, Inflow Depth = 1.75" for 10-Year event
Inflow = 1.03 cfs @ 12.93 hrs, Volume= 0.203 af
Outflow = 1.03 cfs @ 12.93 hrs, Volume= 0.203 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-72.00 hrs, dt= 0.05 hrs

Reach W1: WAP A



Time span=5.00-72.00 hrs, dt=0.05 hrs, 1341 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentS1: S1 Runoff Area=1.396 ac 0.00% Impervious Runoff Depth=2.60"
Flow Length=291' Tc=65.9 min CN=73 Runoff=1.56 cfs 0.302 af

Reach W1: WAP A Inflow=1.56 cfs 0.302 af
Outflow=1.56 cfs 0.302 af

Total Runoff Area = 1.396 ac Runoff Volume = 0.302 af Average Runoff Depth = 2.60"
100.00% Pervious = 1.396 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment S1: S1

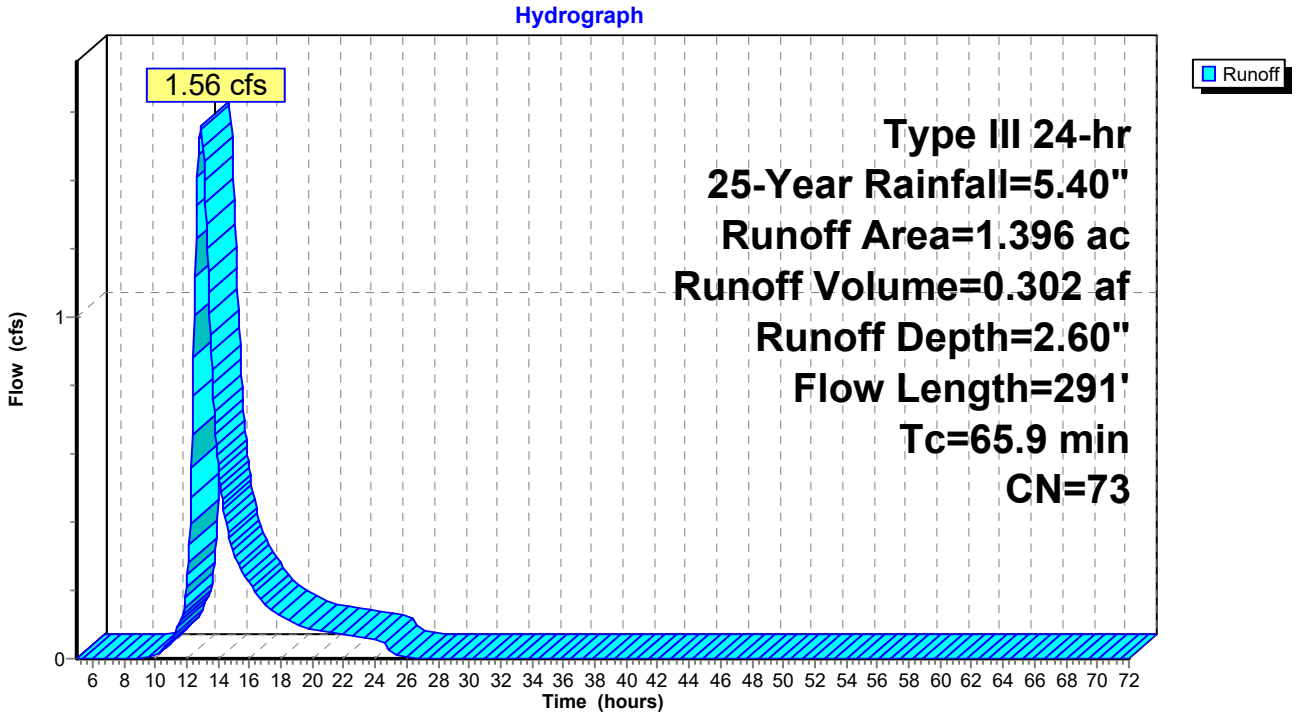
Runoff = 1.56 cfs @ 12.91 hrs, Volume= 0.302 af, Depth= 2.60"
Routed to Reach W1 : WAP A

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.40"

Area (ac)	CN	Description
1.275	73	Woods, Fair, HSG C
0.121	71	Meadow, non-grazed, HSG C
1.396	73	Weighted Average
1.396		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
62.0	150	0.0033	0.04		**Sheet Flow, sheet - wetland** Woods: Light underbrush n= 0.400 P2= 3.10"
3.9	141	0.0142	0.60		**Shallow Concentrated Flow, shallow - wetland** Woodland Kv= 5.0 fps
65.9	291	Total			

Subcatchment S1: S1



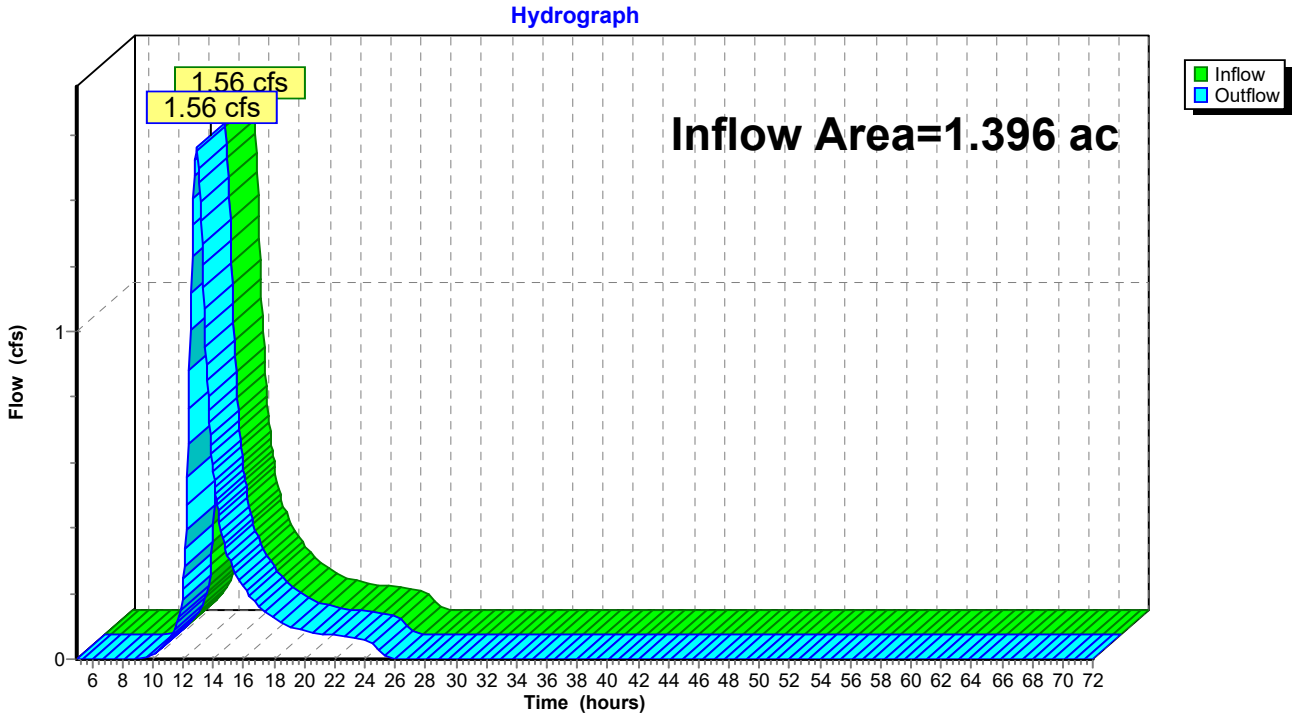
Summary for Reach W1: WAP A

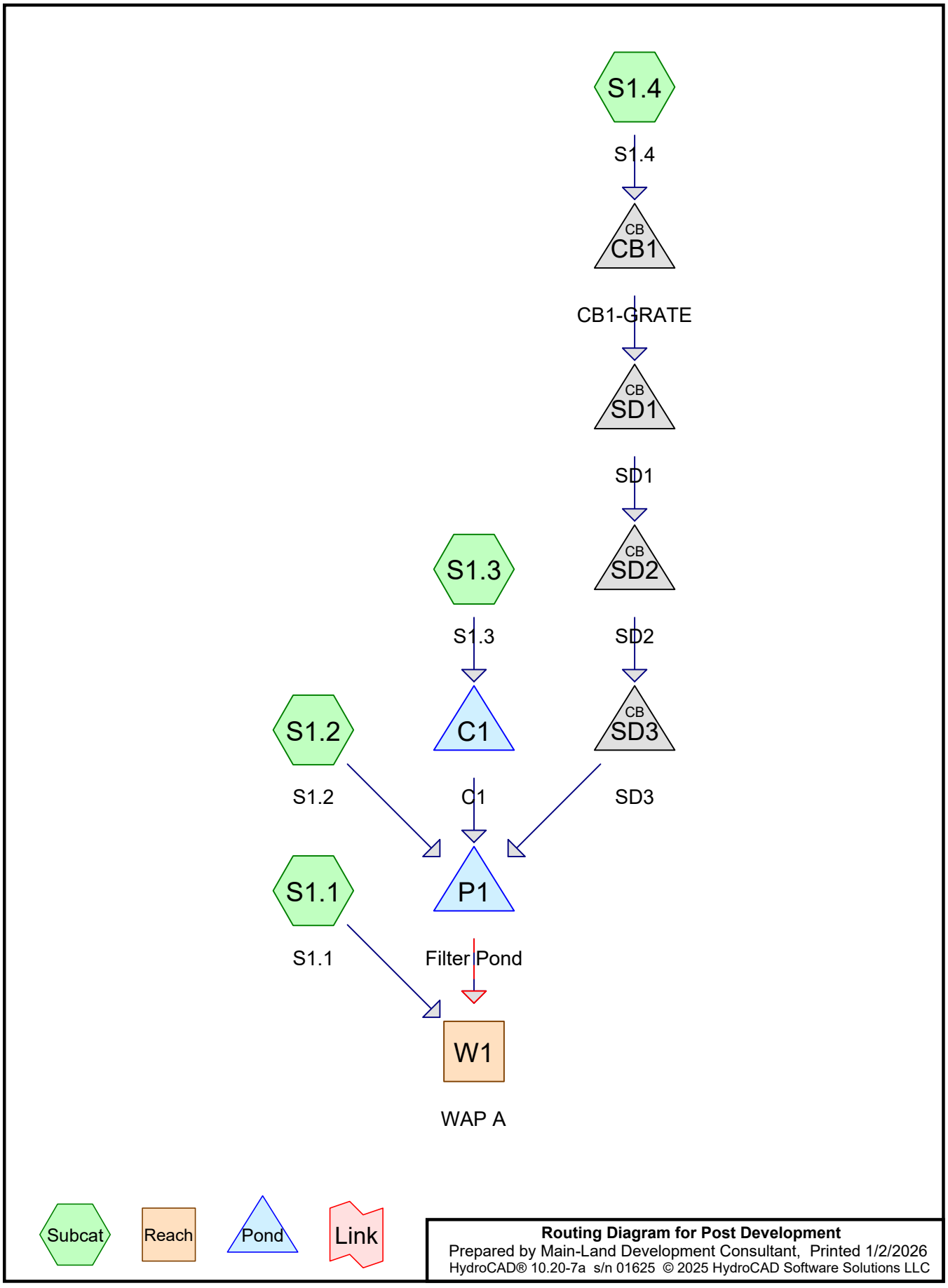
[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 1.396 ac, 0.00% Impervious, Inflow Depth = 2.60" for 25-Year event
Inflow = 1.56 cfs @ 12.91 hrs, Volume= 0.302 af
Outflow = 1.56 cfs @ 12.91 hrs, Volume= 0.302 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-72.00 hrs, dt= 0.05 hrs

Reach W1: WAP A




S1.4
S1.4
CB
CB1
CB1-GRATE
CB
SD1
SD1
CB
SD2
S1.3
S1.3
SD2
CB
SD3
S1.2
C1
S1.2
C1
SD3
S1.1
P1
S1.1
Filter Pond
W1
WAP A
Subcat
Reach
Pond
Link
Routing Diagram for Post Development
Prepared by Main-Land Development Consultant, Printed 1/2/2026
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Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2-Year	Type III 24-hr		Default	24.00	1	3.10	2
2	10-Year	Type III 24-hr		Default	24.00	1	4.60	2
3	25-Year	Type III 24-hr		Default	24.00	1	5.80	2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.319	74	>75% Grass cover, Good, HSG C (S1.2, S1.3, S1.4)
0.102	71	Meadow, non-grazed, HSG C (S1.1)
0.162	98	Paved parking, HSG C (S1.2, S1.3, S1.4)
0.107	98	Roofs, HSG C (S1.1, S1.3, S1.4)
0.033	98	Roofs, HSG D (S1.2)
0.004	98	Unconnected pavement, HSG C (S1.1, S1.3)
0.668	73	Woods, Fair, HSG C (S1.1, S1.3, S1.4)
1.395	**79**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
1.362	HSG C	S1.1, S1.2, S1.3, S1.4
0.033	HSG D	S1.2
0.000	Other	
1.395		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.319	0.000	0.000	0.319	>75% Grass cover, Good	S1.2, S1.3, S1.4
0.000	0.000	0.102	0.000	0.000	0.102	Meadow, non-grazed	S1.1
0.000	0.000	0.162	0.000	0.000	0.162	Paved parking	S1.2, S1.3, S1.4
0.000	0.000	0.107	0.033	0.000	0.140	Roofs	S1.1, S1.2, S1.3, S1.4
0.000	0.000	0.004	0.000	0.000	0.004	Unconnected pavement	S1.1, S1.3
0.000	0.000	0.668	0.000	0.000	0.668	Woods, Fair	S1.1, S1.3, S1.4
0.000	**0.000**	**1.362**	**0.033**	**0.000**	**1.395**	**TOTAL AREA**	

Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Width (inches)	Diam/Height (inches)	Inside-Fill (inches)	Node Name
1	C1	15.50	15.00	37.0	0.0135	0.013	0.0	15.0	0.0	
2	P1	12.75	12.50	22.0	0.0114	0.013	0.0	12.0	0.0	
3	SD1	15.50	15.00	38.0	0.0132	0.013	0.0	15.0	0.0	
4	SD2	15.00	14.50	98.0	0.0051	0.013	0.0	15.0	0.0	
5	SD3	14.50	14.00	23.0	0.0217	0.013	0.0	15.0	0.0	

Time span=5.00-72.00 hrs, dt=0.05 hrs, 1341 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentS1.1: S1.1 Runoff Area=0.745 ac 0.81% Impervious Runoff Depth=0.92"
Flow Length=291' Tc=65.9 min CN=73 Runoff=0.27 cfs 0.057 af

SubcatchmentS1.2: S1.2 Runoff Area=0.264 ac 49.62% Impervious Runoff Depth=1.75"
Tc=5.0 min CN=86 Runoff=0.54 cfs 0.038 af

SubcatchmentS1.3: S1.3 Runoff Area=0.287 ac 42.51% Impervious Runoff Depth=1.60"
Tc=5.0 min CN=84 Runoff=0.54 cfs 0.038 af

SubcatchmentS1.4: S1.4 Runoff Area=0.099 ac 47.47% Impervious Runoff Depth=1.67"
Flow Length=98' Tc=5.3 min CN=85 Runoff=0.19 cfs 0.014 af

Reach W1: WAP A Inflow=0.40 cfs 0.148 af
Outflow=0.40 cfs 0.148 af

Pond C1: C1 Peak Elev=15.89' Storage=14 cf Inflow=0.54 cfs 0.038 af
Outflow=0.54 cfs 0.038 af

Pond CB1: CB1-GRATE Peak Elev=18.53' Inflow=0.19 cfs 0.014 af
Outflow=0.19 cfs 0.014 af

Pond P1: Filter Pond Peak Elev=15.86' Storage=2,021 cf Inflow=1.27 cfs 0.091 af
Primary=0.12 cfs 0.090 af Secondary=0.00 cfs 0.000 af Outflow=0.12 cfs 0.090 af

Pond SD1: SD1 Peak Elev=15.70' Inflow=0.19 cfs 0.014 af
15.0" Round Culvert n=0.013 L=38.0' S=0.0132 '/' Outflow=0.19 cfs 0.014 af

Pond SD2: SD2 Peak Elev=15.24' Inflow=0.19 cfs 0.014 af
15.0" Round Culvert n=0.013 L=98.0' S=0.0051 '/' Outflow=0.19 cfs 0.014 af

Pond SD3: SD3 Peak Elev=14.70' Inflow=0.19 cfs 0.014 af
15.0" Round Culvert n=0.013 L=23.0' S=0.0217 '/' Outflow=0.19 cfs 0.014 af

Total Runoff Area = 1.395 ac Runoff Volume = 0.148 af Average Runoff Depth = 1.27"
78.06% Pervious = 1.089 ac 21.94% Impervious = 0.306 ac

Summary for Subcatchment S1.1: S1.1

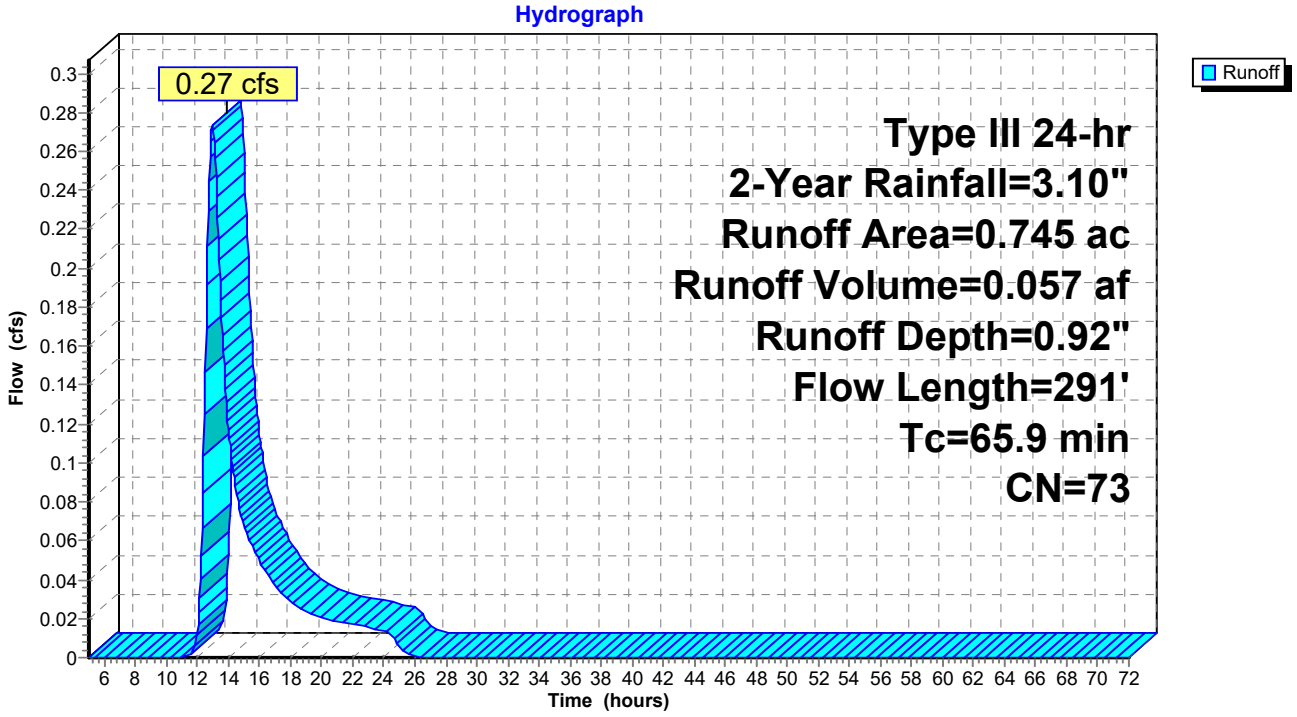
Runoff = 0.27 cfs @ 12.96 hrs, Volume= 0.057 af, Depth= 0.92"
Routed to Reach W1 : WAP A

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.10"

Area (ac)	CN	Description
0.637	73	Woods, Fair, HSG C
0.004	98	Roofs, HSG C
0.102	71	Meadow, non-grazed, HSG C
0.002	98	Unconnected pavement, HSG C
0.745	73	Weighted Average
0.739		99.19% Pervious Area
0.006		0.81% Impervious Area
0.002		33.33% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
62.0	150	0.0033	0.04		**Sheet Flow, sheet - wetland** Woods: Light underbrush n= 0.400 P2= 3.10"
3.9	141	0.0142	0.60		**Shallow Concentrated Flow, shallow - wetland** Woodland Kv= 5.0 fps
65.9	291	Total			

Subcatchment S1.1: S1.1



Summary for Subcatchment S1.2: S1.2

[49] Hint: Tc<2dt may require smaller dt

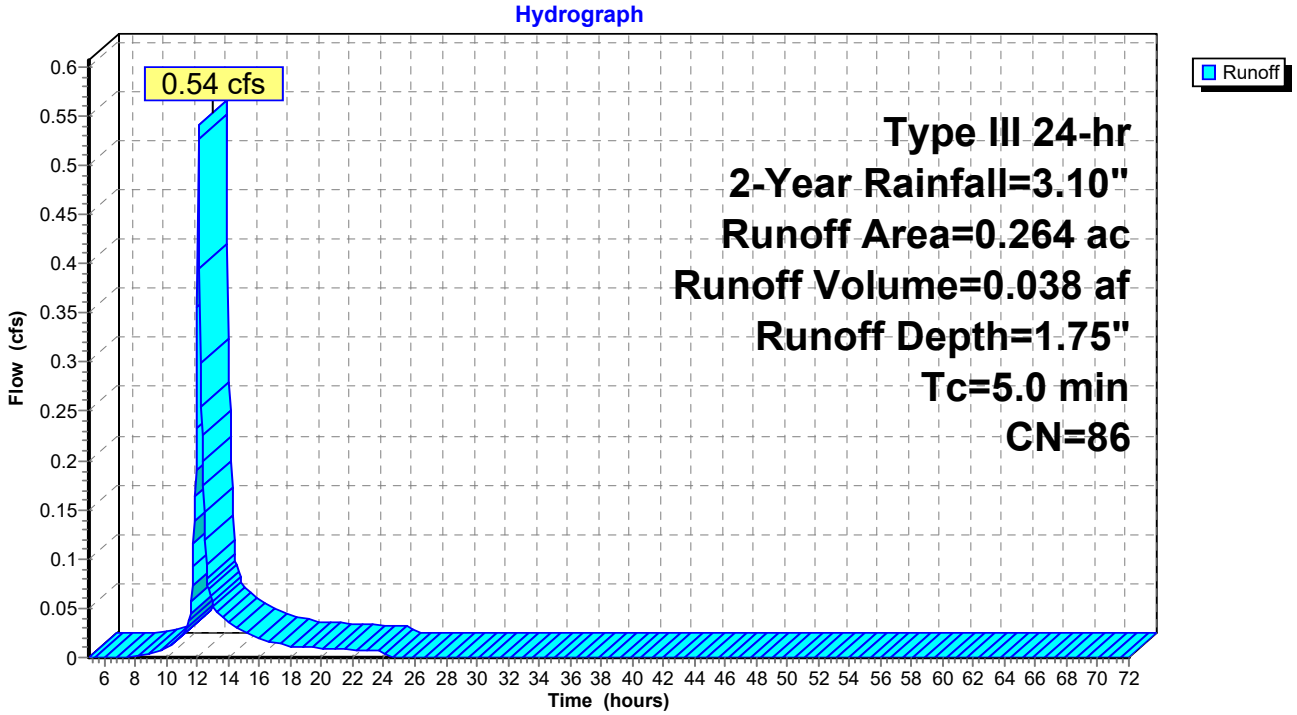
Runoff = 0.54 cfs @ 12.08 hrs, Volume= 0.038 af, Depth= 1.75"
Routed to Pond P1 : Filter Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.10"

Area (ac)	CN	Description
0.098	98	Paved parking, HSG C
0.033	98	Roofs, HSG D
0.133	74	>75% Grass cover, Good, HSG C
0.264	86	Weighted Average
0.133		50.38% Pervious Area
0.131		49.62% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, min. 5 minutes**

Subcatchment S1.2: S1.2



Summary for Subcatchment S1.3: S1.3

[49] Hint: Tc<2dt may require smaller dt

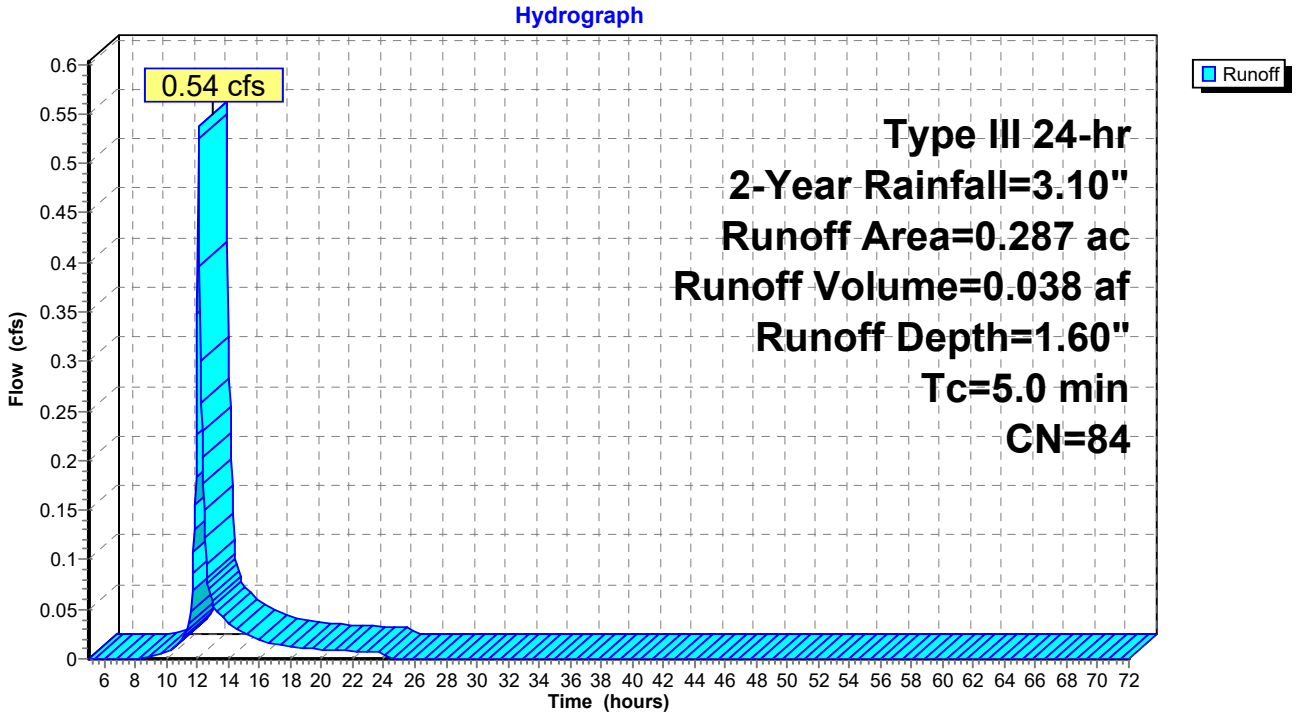
Runoff = 0.54 cfs @ 12.08 hrs, Volume= 0.038 af, Depth= 1.60"
Routed to Pond C1 : C1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.10"

Area (ac)	CN	Description
0.015	73	Woods, Fair, HSG C
0.050	98	Paved parking, HSG C
0.002	98	Unconnected pavement, HSG C
0.070	98	Roofs, HSG C
0.150	74	>75% Grass cover, Good, HSG C
0.287	84	Weighted Average
0.165		57.49% Pervious Area
0.122		42.51% Impervious Area
0.002		1.64% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, min. 5 minutes**

Subcatchment S1.3: S1.3



Summary for Subcatchment S1.4: S1.4

[49] Hint: Tc<2dt may require smaller dt

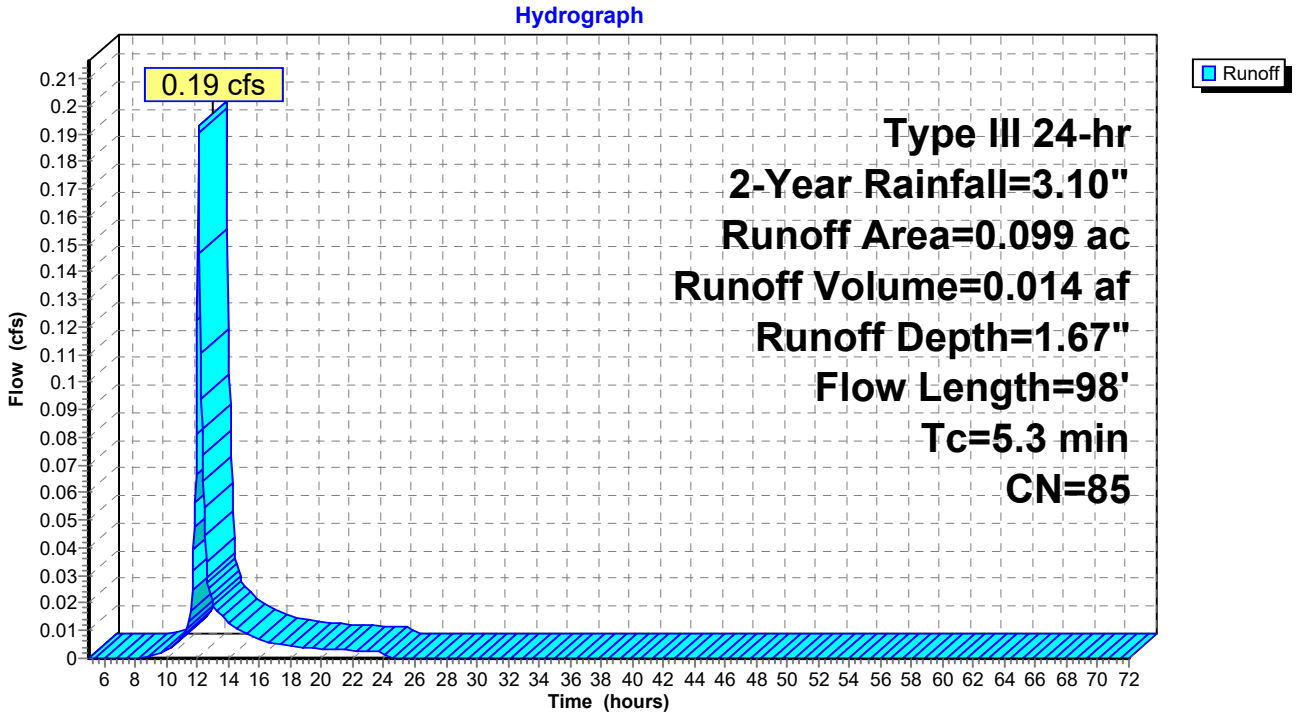
Runoff = 0.19 cfs @ 12.08 hrs, Volume= 0.014 af, Depth= 1.67"
Routed to Pond CB1 : CB1-GRATE

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.10"

Area (ac)	CN	Description
0.016	73	Woods, Fair, HSG C
0.014	98	Paved parking, HSG C
0.033	98	Roofs, HSG C
0.036	74	>75% Grass cover, Good, HSG C
0.099	85	Weighted Average
0.052		52.53% Pervious Area
0.047		47.47% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.1	36	0.1000	0.12		**Sheet Flow, sheet - woods** Woods: Light underbrush n= 0.400 P2= 3.10"
0.1	10	0.1000	2.21		**Shallow Concentrated Flow, shallow - grass** Short Grass Pasture Kv= 7.0 fps
0.1	52	0.0200	7.06	28.23	**Channel Flow, channel - ditch** Area= 4.0 sf Perim= 6.3' r= 0.63' n= 0.022 Earth, clean & straight
5.3	98	Total			

Subcatchment S1.4: S1.4



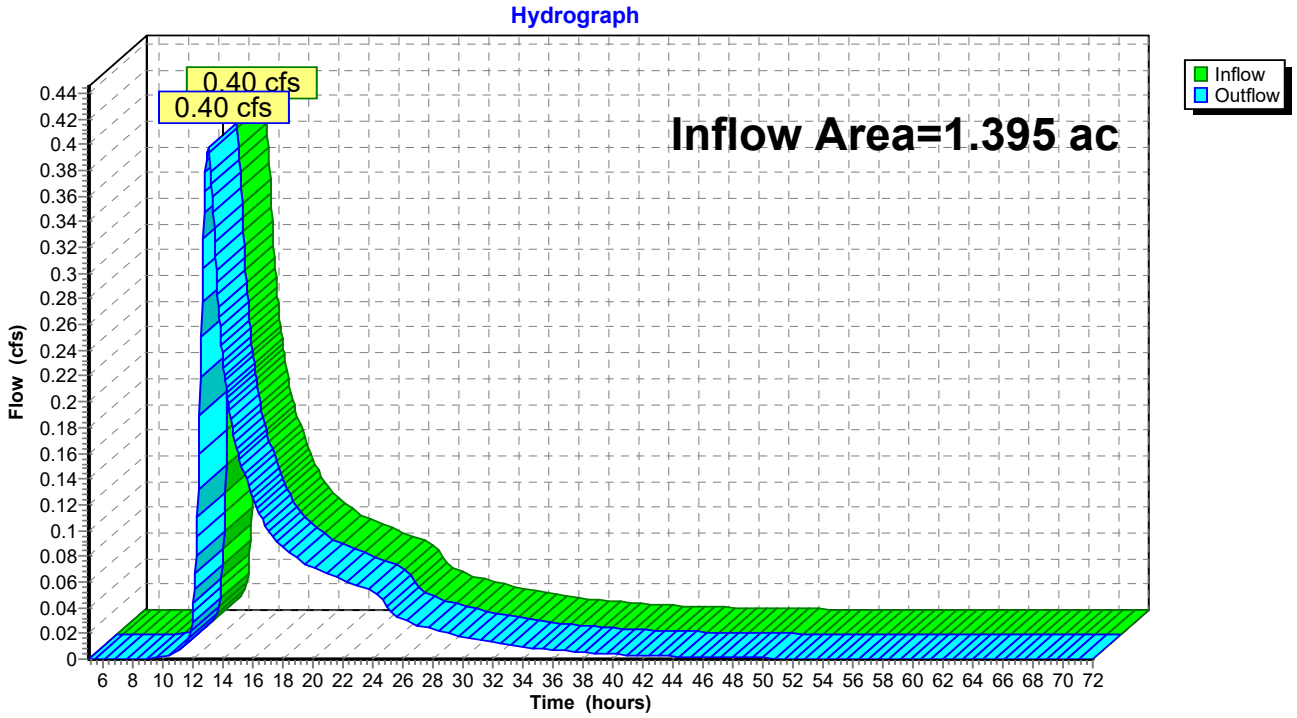
Summary for Reach W1: WAP A

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 1.395 ac, 21.94% Impervious, Inflow Depth = 1.27" for 2-Year event
Inflow = 0.40 cfs @ 12.97 hrs, Volume= 0.148 af
Outflow = 0.40 cfs @ 12.97 hrs, Volume= 0.148 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-72.00 hrs, dt= 0.05 hrs

Reach W1: WAP A



Summary for Pond C1: C1

[88] Warning: Qout>Qin may require smaller dt or Finer Routing

Inflow Area = 0.287 ac, 42.51% Impervious, Inflow Depth = 1.60" for 2-Year event
Inflow = 0.54 cfs @ 12.08 hrs, Volume= 0.038 af
Outflow = 0.54 cfs @ 12.09 hrs, Volume= 0.038 af, Atten= 0%, Lag= 0.5 min
Primary = 0.54 cfs @ 12.09 hrs, Volume= 0.038 af
Routed to Pond P1 : Filter Pond

Routing by Stor-Ind method, Time Span= 5.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 15.89' @ 12.09 hrs Surf.Area= 53 sf Storage= 14 cf

Plug-Flow detention time= 1.0 min calculated for 0.038 af (100% of inflow)
Center-of-Mass det. time= 1.0 min (831.1 - 830.1)

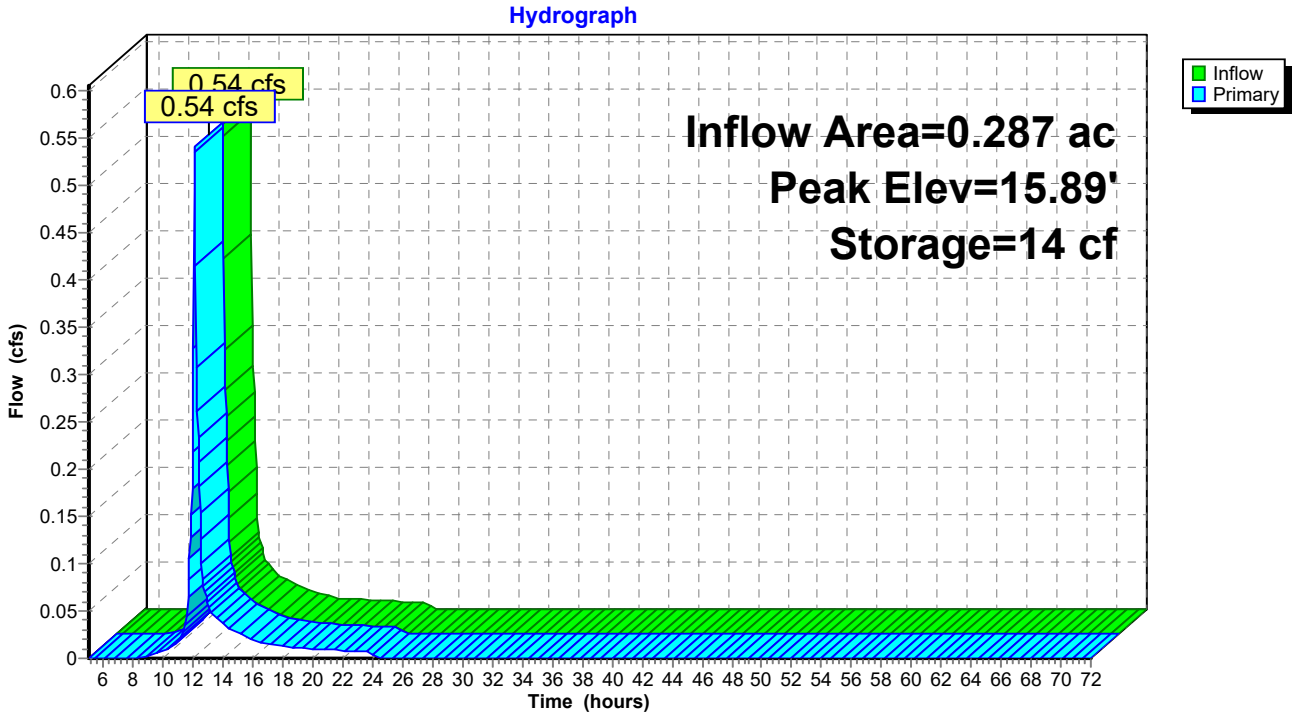
Volume	Invert	Avail.Storage	Storage Description
#1	15.50'	963 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
15.50	20	0	0
16.00	63	21	21
17.00	332	198	218
18.00	1,157	745	963

Device	Routing	Invert	Outlet Devices
#1	Primary	15.50'	**15.0" Round Culvert** L= 37.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 15.50' / 15.00' S= 0.0135 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Primary	17.90'	**30.0' long x 0.50' rise Sharp-Crested Rectangular Weir** 2 End Contraction(s) 0.5' Crest Height

Primary OutFlow Max=0.52 cfs @ 12.09 hrs HW=15.88' (Free Discharge)
1=Culvert (Inlet Controls 0.52 cfs @ 1.66 fps)
2=Sharp-Crested Rectangular Weir (Controls 0.00 cfs)

Pond C1: C1


Hydrograph
Inflow
Primary
0.54 cfs
0.54 cfs
Inflow Area=0.287 ac
Peak Elev=15.89'
Storage=14 cf
Flow (cfs)
0 0.05 0.1 0.15 0.2 0.25 0.3 0.35 0.4 0.45 0.5 0.55 0.6
Time (hours)
6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72

Summary for Pond CB1: CB1-GRATE

[57] Hint: Peaked at 18.53' (Flood elevation advised)

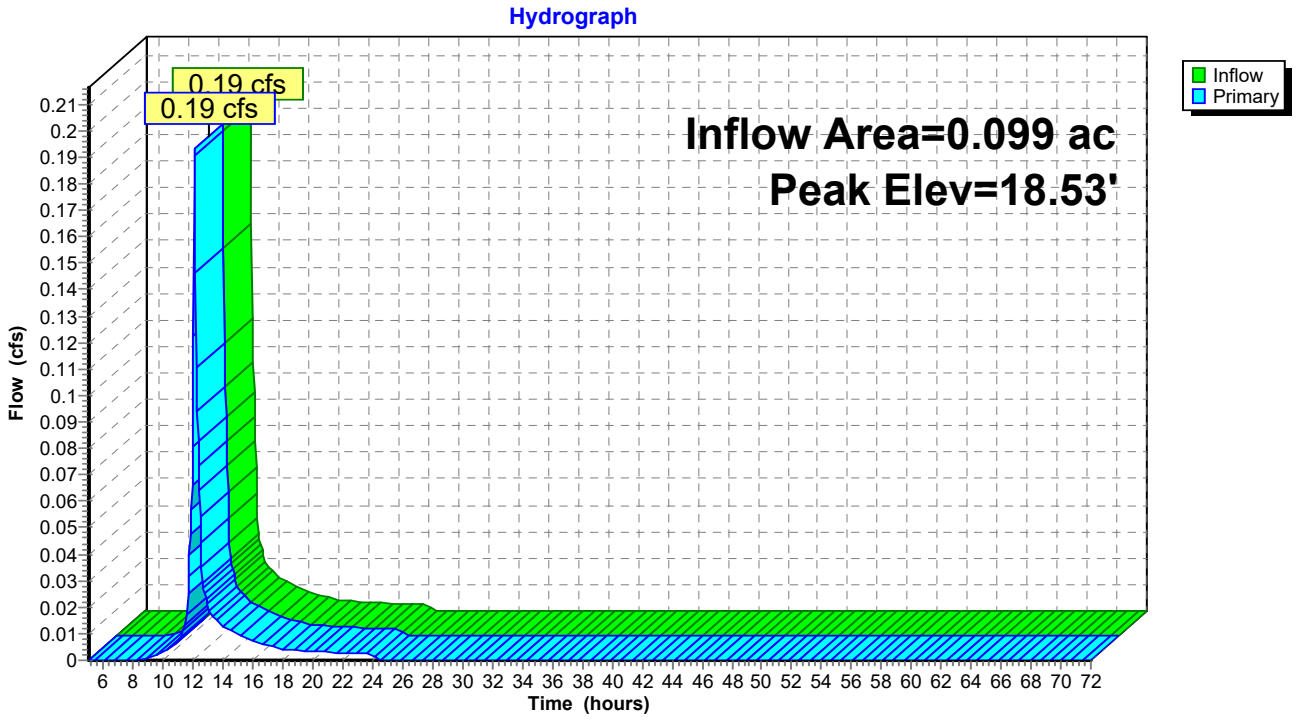
Inflow Area = 0.099 ac, 47.47% Impervious, Inflow Depth = 1.67" for 2-Year event
Inflow = 0.19 cfs @ 12.08 hrs, Volume= 0.014 af
Outflow = 0.19 cfs @ 12.08 hrs, Volume= 0.014 af, Atten= 0%, Lag= 0.0 min
Primary = 0.19 cfs @ 12.08 hrs, Volume= 0.014 af
Routed to Pond SD1 : SD1

Routing by Stor-Ind method, Time Span= 5.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 18.53' @ 12.08 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	18.50'	**48.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.19 cfs @ 12.08 hrs HW=18.53' (Free Discharge)
1=Orifice/Grate (Weir Controls 0.19 cfs @ 0.54 fps)

Pond CB1: CB1-GRATE



Summary for Pond P1: Filter Pond

[81] Warning: Exceeded Pond C1 by 0.25' @ 13.40 hrs
[81] Warning: Exceeded Pond SD3 by 1.30' @ 13.15 hrs

Inflow Area = 0.650 ac, 46.15% Impervious, Inflow Depth = 1.67" for 2-Year event
Inflow = 1.27 cfs @ 12.08 hrs, Volume= 0.091 af
Outflow = 0.12 cfs @ 13.02 hrs, Volume= 0.090 af, Atten= 90%, Lag= 56.3 min
Primary = 0.12 cfs @ 13.02 hrs, Volume= 0.090 af
Routed to Reach W1 : WAP A
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Routed to Reach W1 : WAP A

Routing by Stor-Ind method, Time Span= 5.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 15.86' @ 13.02 hrs Surf.Area= 3,019 sf Storage= 2,021 cf

Plug-Flow detention time= 384.4 min calculated for 0.090 af (100% of inflow)
Center-of-Mass det. time= 384.2 min (1,211.2 - 827.0)

Volume	Invert	Avail.Storage	Storage Description
#1	15.00'	11,014 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

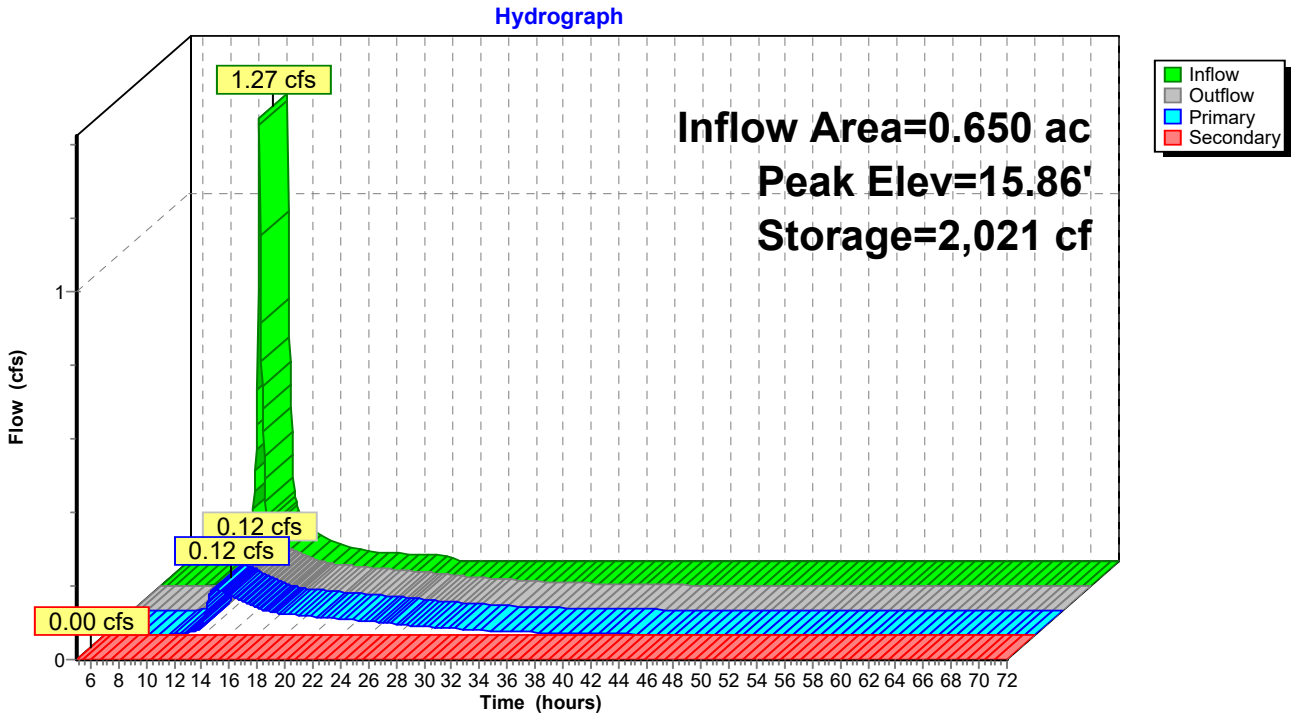
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
15.00	1,650	0	0
15.70	2,808	1,560	1,560
16.00	3,209	903	2,463
16.50	3,715	1,731	4,194
17.00	4,233	1,987	6,181
17.50	4,800	2,258	8,439
18.00	5,500	2,575	11,014

Device	Routing	Invert	Outlet Devices
#1	Secondary	16.50'	**10.0' long x 1.00' rise Sharp-Crested Rectangular Weir** 2 End Contraction(s) 1.0' Crest Height
#2	Primary	12.75'	**12.0" Round Culvert** L= 22.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 12.75' / 12.50' S= 0.0114 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#3	Device 2	16.40'	**24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 2	15.70'	**4.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#5	Device 2	15.00'	**2.000 in/hr Exfiltration over Surface area above 15.00'** Conductivity to Groundwater Elevation = 10.00' Excluded Surface area = 1,650 sf

Primary OutFlow Max=0.12 cfs @ 13.02 hrs HW=15.86' (Free Discharge)
└─**2=Culvert** (Passes 0.12 cfs of 4.82 cfs potential flow)
  ├─**3=Orifice/Grate** (Controls 0.00 cfs)
  ├─**4=Orifice/Grate** (Orifice Controls 0.06 cfs @ 1.35 fps)
  └─**5=Exfiltration** (Controls 0.07 cfs)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=15.00' (Free Discharge)
└─**1=Sharp-Crested Rectangular Weir**(Controls 0.00 cfs)

Pond P1: Filter Pond



Summary for Pond SD1: SD1

[57] Hint: Peaked at 15.70' (Flood elevation advised)

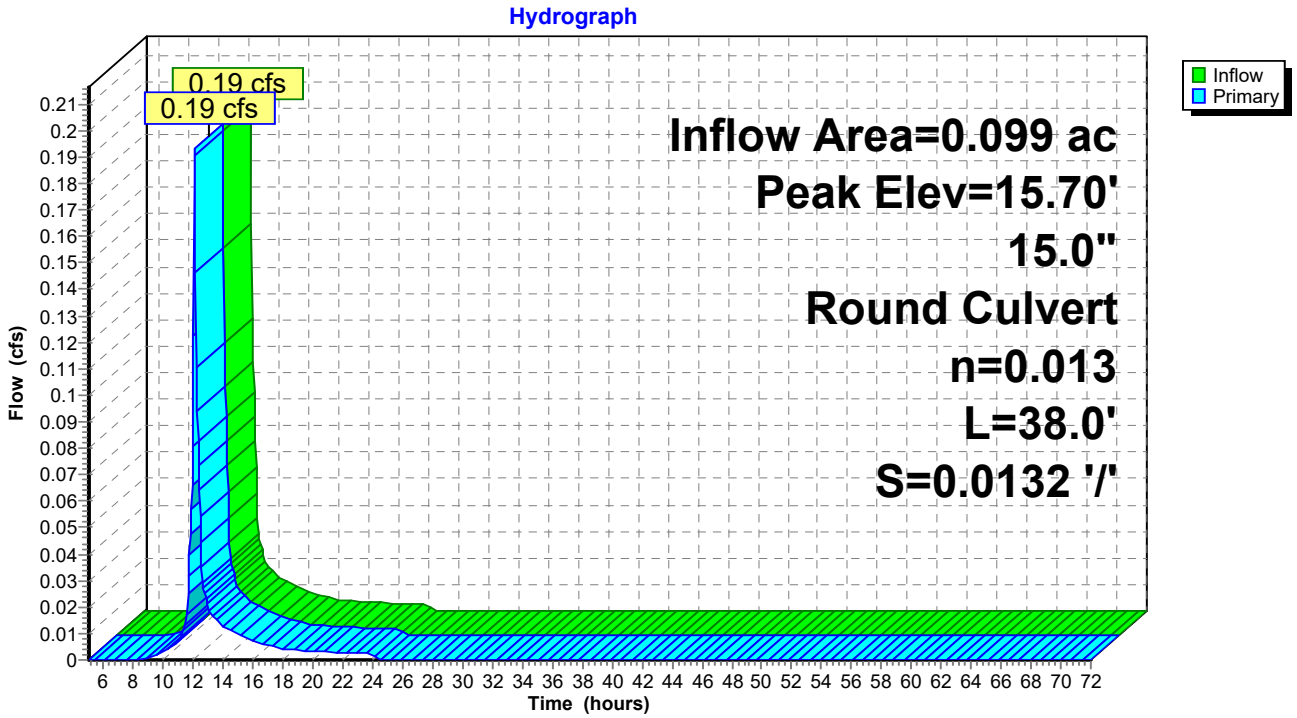
Inflow Area = 0.099 ac, 47.47% Impervious, Inflow Depth = 1.67" for 2-Year event
Inflow = 0.19 cfs @ 12.08 hrs, Volume= 0.014 af
Outflow = 0.19 cfs @ 12.08 hrs, Volume= 0.014 af, Atten= 0%, Lag= 0.0 min
Primary = 0.19 cfs @ 12.08 hrs, Volume= 0.014 af
Routed to Pond SD2 : SD2

Routing by Stor-Ind method, Time Span= 5.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 15.70' @ 12.08 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	15.50'	**15.0" Round Culvert** L= 38.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 15.50' / 15.00' S= 0.0132 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.19 cfs @ 12.08 hrs HW=15.70' (Free Discharge)
1=Culvert (Inlet Controls 0.19 cfs @ 1.51 fps)

Pond SD1: SD1



Summary for Pond SD2: SD2

[57] Hint: Peaked at 15.24' (Flood elevation advised)
[79] Warning: Submerged Pond SD1 Primary device # 1 OUTLET by 0.23'

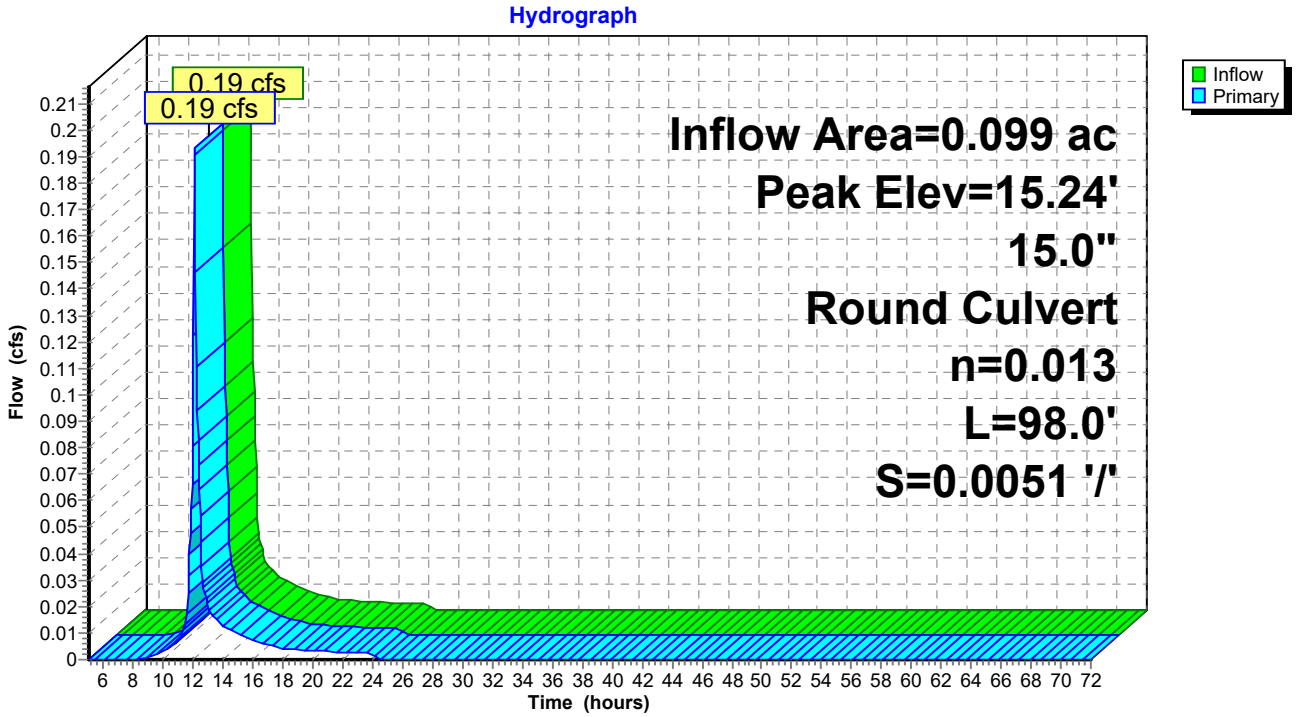
Inflow Area = 0.099 ac, 47.47% Impervious, Inflow Depth = 1.67" for 2-Year event
Inflow = 0.19 cfs @ 12.08 hrs, Volume= 0.014 af
Outflow = 0.19 cfs @ 12.08 hrs, Volume= 0.014 af, Atten= 0%, Lag= 0.0 min
Primary = 0.19 cfs @ 12.08 hrs, Volume= 0.014 af
Routed to Pond SD3 : SD3

Routing by Stor-Ind method, Time Span= 5.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 15.24' @ 12.08 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	15.00'	**15.0" Round Culvert** L= 98.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 15.00' / 14.50' S= 0.0051 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.19 cfs @ 12.08 hrs HW=15.23' (Free Discharge)
└**1=Culvert** (Barrel Controls 0.19 cfs @ 1.81 fps)

Pond SD2: SD2



Summary for Pond SD3: SD3

[57] Hint: Peaked at 14.70' (Flood elevation advised)
[79] Warning: Submerged Pond SD2 Primary device # 1 OUTLET by 0.20'

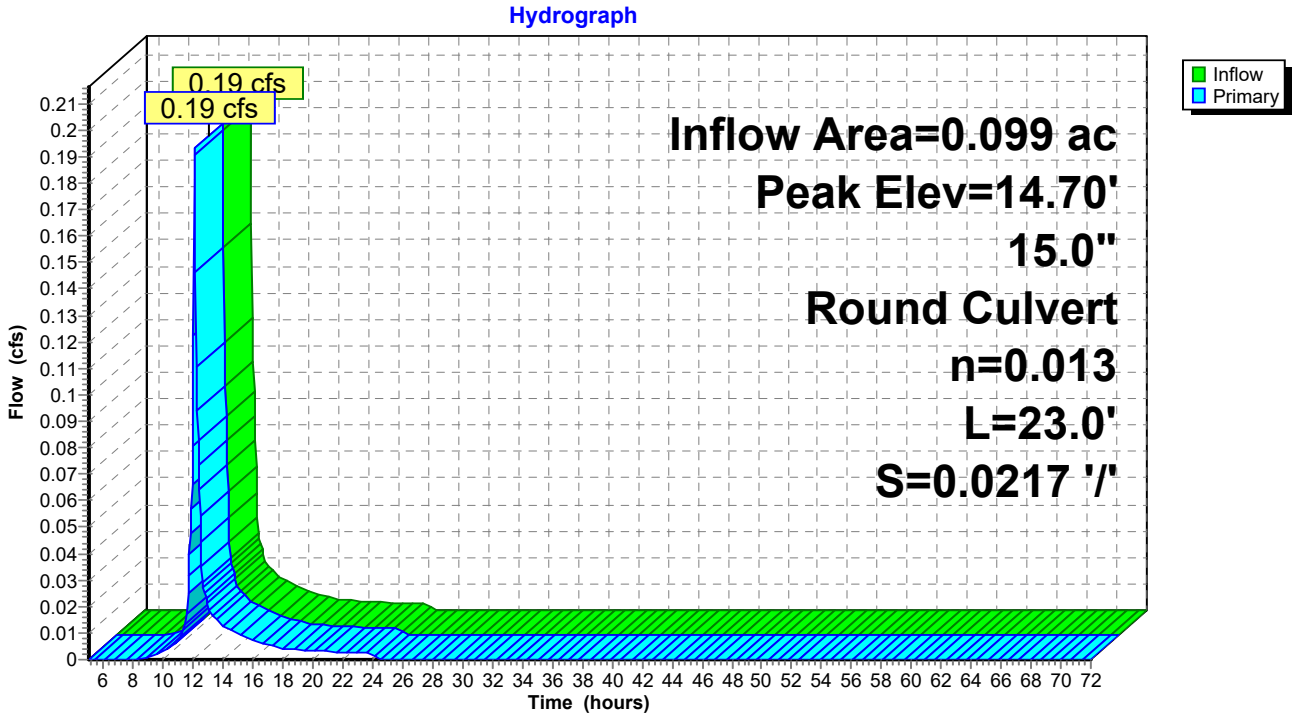
Inflow Area = 0.099 ac, 47.47% Impervious, Inflow Depth = 1.67" for 2-Year event
Inflow = 0.19 cfs @ 12.08 hrs, Volume= 0.014 af
Outflow = 0.19 cfs @ 12.08 hrs, Volume= 0.014 af, Atten= 0%, Lag= 0.0 min
Primary = 0.19 cfs @ 12.08 hrs, Volume= 0.014 af
Routed to Pond P1 : Filter Pond

Routing by Stor-Ind method, Time Span= 5.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 14.70' @ 12.08 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	14.50'	**15.0" Round Culvert** L= 23.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 14.50' / 14.00' S= 0.0217 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.19 cfs @ 12.08 hrs HW=14.70' (Free Discharge)
└**1=Culvert** (Inlet Controls 0.19 cfs @ 1.51 fps)

Pond SD3: SD3



Time span=5.00-72.00 hrs, dt=0.05 hrs, 1341 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentS1.1: S1.1 Runoff Area=0.745 ac 0.81% Impervious Runoff Depth=1.97"
Flow Length=291' Tc=65.9 min CN=73 Runoff=0.63 cfs 0.122 af

SubcatchmentS1.2: S1.2 Runoff Area=0.264 ac 49.62% Impervious Runoff Depth=3.10"
Tc=5.0 min CN=86 Runoff=0.95 cfs 0.068 af

SubcatchmentS1.3: S1.3 Runoff Area=0.287 ac 42.51% Impervious Runoff Depth=2.91"
Tc=5.0 min CN=84 Runoff=0.97 cfs 0.070 af

SubcatchmentS1.4: S1.4 Runoff Area=0.099 ac 47.47% Impervious Runoff Depth=3.00"
Flow Length=98' Tc=5.3 min CN=85 Runoff=0.34 cfs 0.025 af

Reach W1: WAP A Inflow=0.98 cfs 0.285 af
Outflow=0.98 cfs 0.285 af

Pond C1: C1 Peak Elev=16.03' Storage=23 cf Inflow=0.97 cfs 0.070 af
Outflow=0.98 cfs 0.070 af

Pond CB1: CB1-GRATE Peak Elev=18.54' Inflow=0.34 cfs 0.025 af
Outflow=0.34 cfs 0.025 af

Pond P1: Filter Pond Peak Elev=16.28' Storage=3,386 cf Inflow=2.27 cfs 0.162 af
Primary=0.36 cfs 0.162 af Secondary=0.00 cfs 0.000 af Outflow=0.36 cfs 0.162 af

Pond SD1: SD1 Peak Elev=15.77' Inflow=0.34 cfs 0.025 af
15.0" Round Culvert n=0.013 L=38.0' S=0.0132 '/' Outflow=0.34 cfs 0.025 af

Pond SD2: SD2 Peak Elev=15.31' Inflow=0.34 cfs 0.025 af
15.0" Round Culvert n=0.013 L=98.0' S=0.0051 '/' Outflow=0.34 cfs 0.025 af

Pond SD3: SD3 Peak Elev=14.77' Inflow=0.34 cfs 0.025 af
15.0" Round Culvert n=0.013 L=23.0' S=0.0217 '/' Outflow=0.34 cfs 0.025 af

Total Runoff Area = 1.395 ac Runoff Volume = 0.285 af Average Runoff Depth = 2.45"
78.06% Pervious = 1.089 ac 21.94% Impervious = 0.306 ac

Summary for Subcatchment S1.1: S1.1

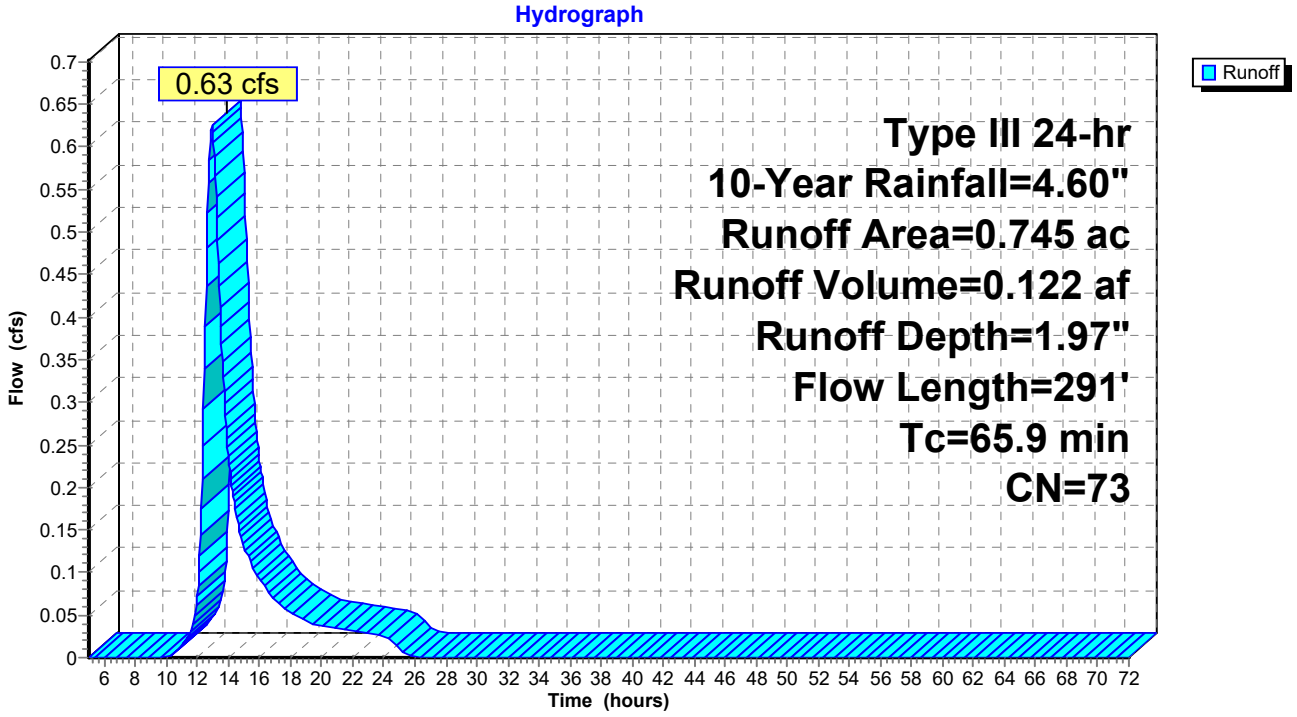
Runoff = 0.63 cfs @ 12.93 hrs, Volume= 0.122 af, Depth= 1.97"
Routed to Reach W1 : WAP A

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (ac)	CN	Description
0.637	73	Woods, Fair, HSG C
0.004	98	Roofs, HSG C
0.102	71	Meadow, non-grazed, HSG C
0.002	98	Unconnected pavement, HSG C
0.745	73	Weighted Average
0.739		99.19% Pervious Area
0.006		0.81% Impervious Area
0.002		33.33% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
62.0	150	0.0033	0.04		**Sheet Flow, sheet - wetland** Woods: Light underbrush n= 0.400 P2= 3.10"
3.9	141	0.0142	0.60		**Shallow Concentrated Flow, shallow - wetland** Woodland Kv= 5.0 fps
65.9	291	Total			

Subcatchment S1.1: S1.1



Summary for Subcatchment S1.2: S1.2

[49] Hint: Tc<2dt may require smaller dt

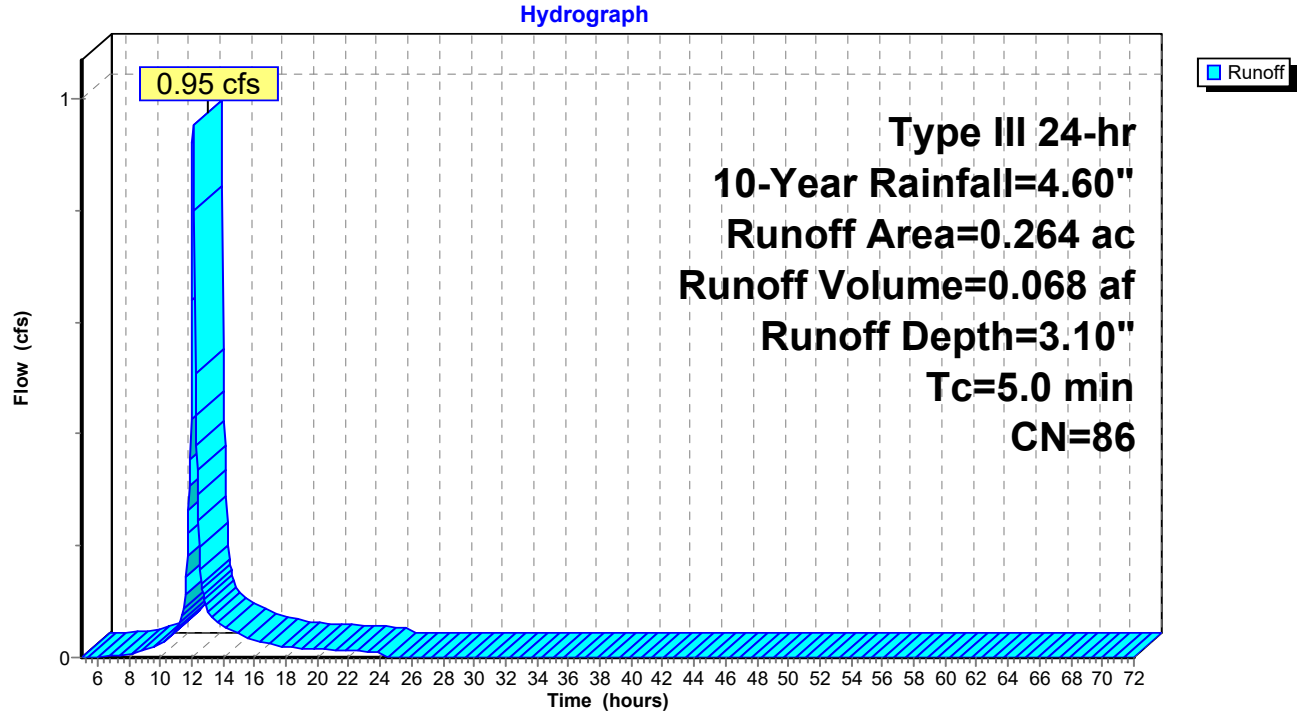
Runoff = 0.95 cfs @ 12.07 hrs, Volume= 0.068 af, Depth= 3.10"
Routed to Pond P1 : Filter Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (ac)	CN	Description
0.098	98	Paved parking, HSG C
0.033	98	Roofs, HSG D
0.133	74	>75% Grass cover, Good, HSG C
0.264	86	Weighted Average
0.133		50.38% Pervious Area
0.131		49.62% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, min. 5 minutes**

Subcatchment S1.2: S1.2



Summary for Subcatchment S1.3: S1.3

[49] Hint: Tc<2dt may require smaller dt

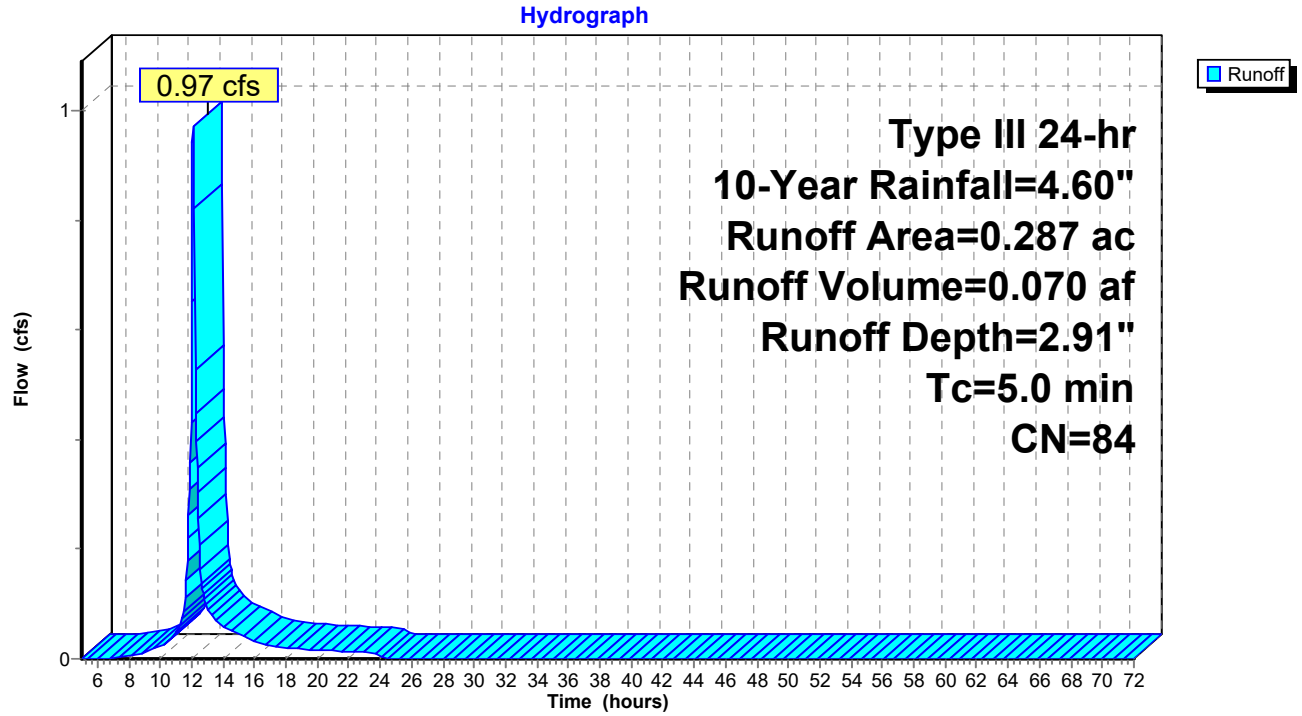
Runoff = 0.97 cfs @ 12.08 hrs, Volume= 0.070 af, Depth= 2.91"
Routed to Pond C1 : C1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (ac)	CN	Description
0.015	73	Woods, Fair, HSG C
0.050	98	Paved parking, HSG C
0.002	98	Unconnected pavement, HSG C
0.070	98	Roofs, HSG C
0.150	74	>75% Grass cover, Good, HSG C
0.287	84	Weighted Average
0.165		57.49% Pervious Area
0.122		42.51% Impervious Area
0.002		1.64% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, min. 5 minutes**

Subcatchment S1.3: S1.3



Summary for Subcatchment S1.4: S1.4

[49] Hint: Tc<2dt may require smaller dt

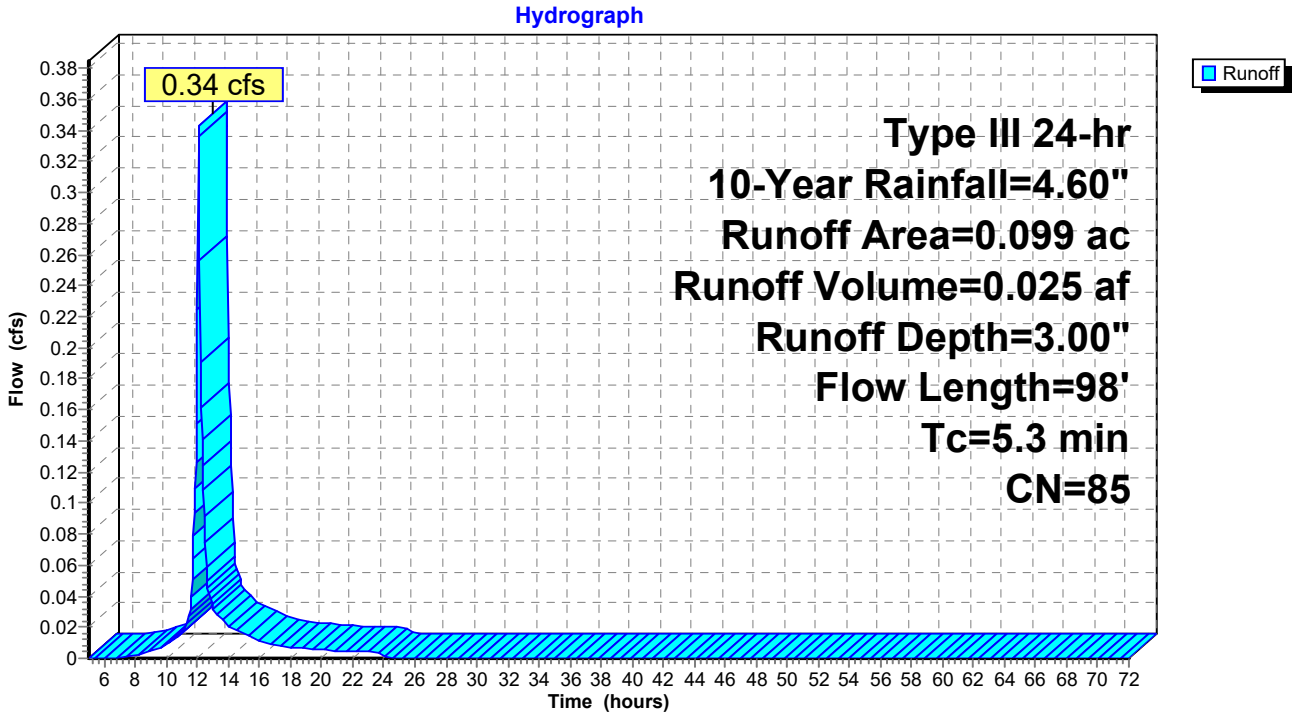
Runoff = 0.34 cfs @ 12.08 hrs, Volume= 0.025 af, Depth= 3.00"
Routed to Pond CB1 : CB1-GRATE

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (ac)	CN	Description
0.016	73	Woods, Fair, HSG C
0.014	98	Paved parking, HSG C
0.033	98	Roofs, HSG C
0.036	74	>75% Grass cover, Good, HSG C
0.099	85	Weighted Average
0.052		52.53% Pervious Area
0.047		47.47% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.1	36	0.1000	0.12		**Sheet Flow, sheet - woods** Woods: Light underbrush n= 0.400 P2= 3.10"
0.1	10	0.1000	2.21		**Shallow Concentrated Flow, shallow - grass** Short Grass Pasture Kv= 7.0 fps
0.1	52	0.0200	7.06	28.23	**Channel Flow, channel - ditch** Area= 4.0 sf Perim= 6.3' r= 0.63' n= 0.022 Earth, clean & straight
5.3	98	Total			

Subcatchment S1.4: S1.4

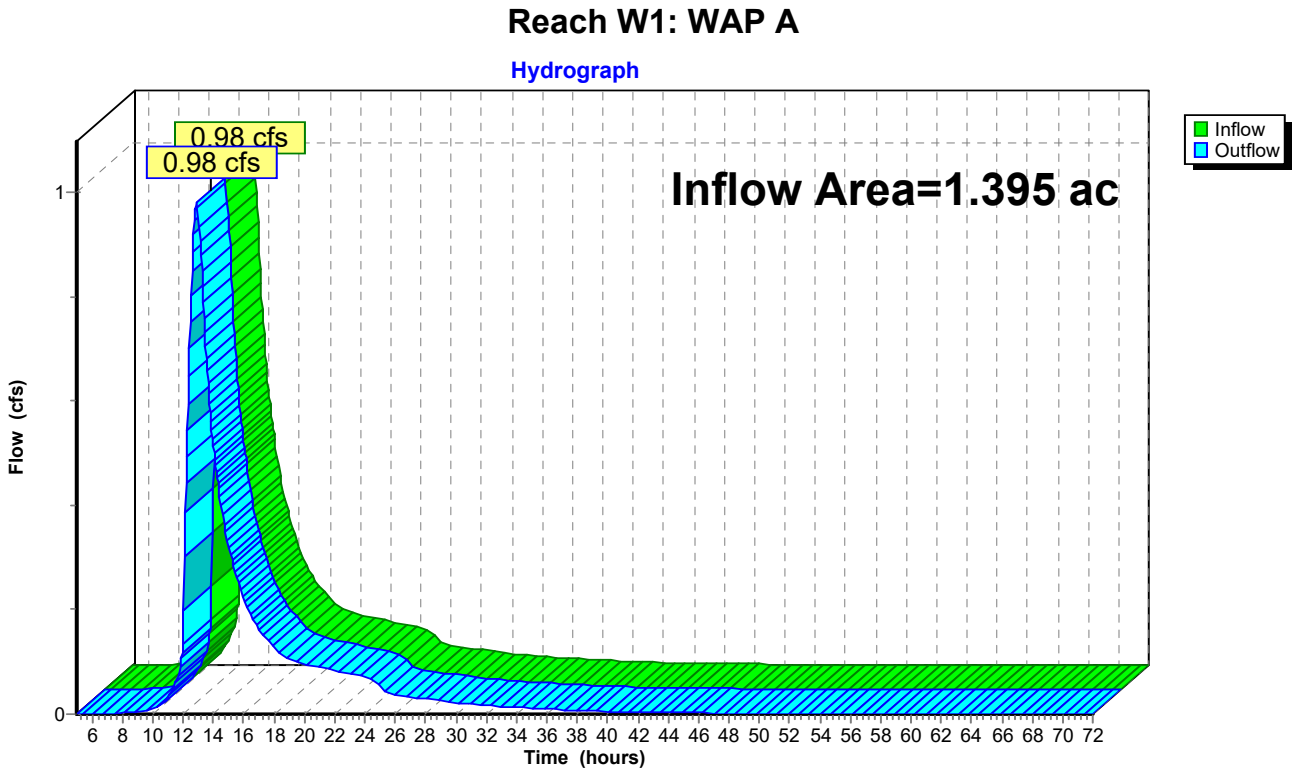


Summary for Reach W1: WAP A

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 1.395 ac, 21.94% Impervious, Inflow Depth = 2.45" for 10-Year event
Inflow = 0.98 cfs @ 12.91 hrs, Volume= 0.285 af
Outflow = 0.98 cfs @ 12.91 hrs, Volume= 0.285 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-72.00 hrs, dt= 0.05 hrs



Summary for Pond C1: C1

[88] Warning: Qout>Qin may require smaller dt or Finer Routing

Inflow Area = 0.287 ac, 42.51% Impervious, Inflow Depth = 2.91" for 10-Year event
Inflow = 0.97 cfs @ 12.08 hrs, Volume= 0.070 af
Outflow = 0.98 cfs @ 12.08 hrs, Volume= 0.070 af, Atten= 0%, Lag= 0.5 min
Primary = 0.98 cfs @ 12.08 hrs, Volume= 0.070 af
Routed to Pond P1 : Filter Pond

Routing by Stor-Ind method, Time Span= 5.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 16.03' @ 12.08 hrs Surf.Area= 72 sf Storage= 23 cf

Plug-Flow detention time= 0.8 min calculated for 0.070 af (100% of inflow)
Center-of-Mass det. time= 0.8 min (813.8 - 813.0)

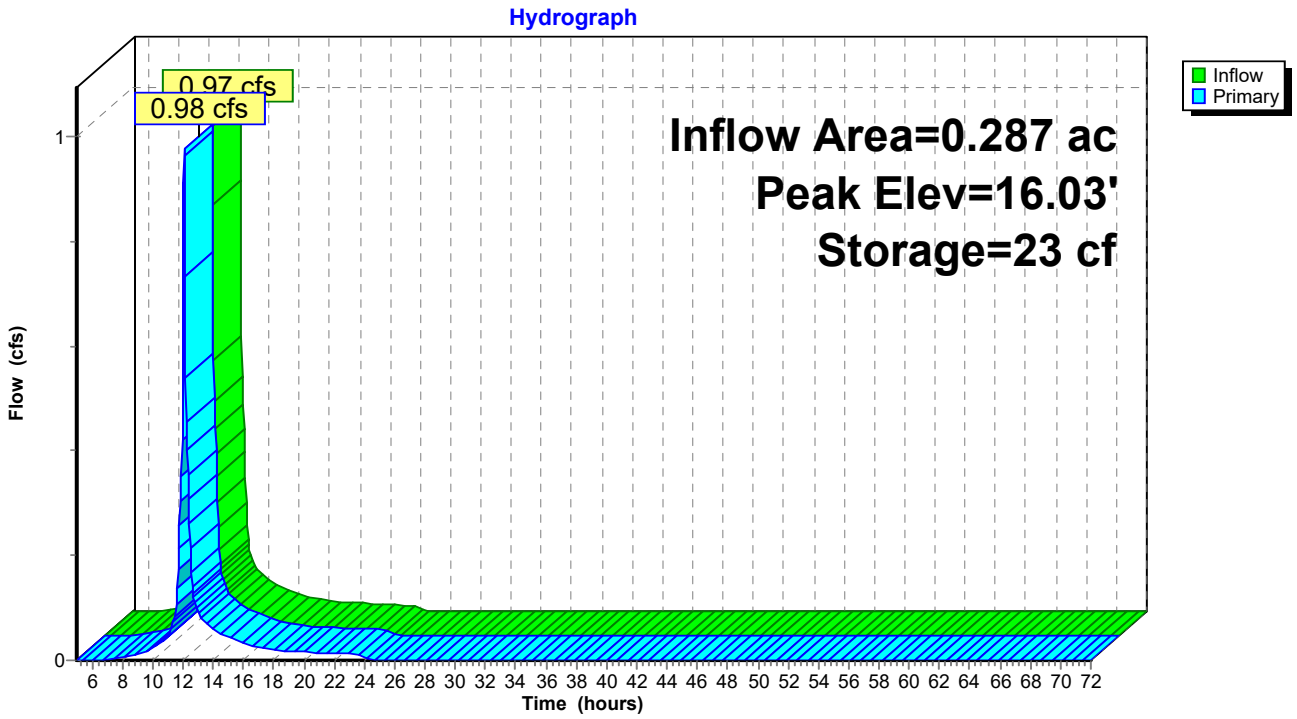
Volume	Invert	Avail.Storage	Storage Description
#1	15.50'	963 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
15.50	20	0	0
16.00	63	21	21
17.00	332	198	218
18.00	1,157	745	963

Device	Routing	Invert	Outlet Devices
#1	Primary	15.50'	**15.0" Round Culvert** L= 37.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 15.50' / 15.00' S= 0.0135 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Primary	17.90'	**30.0' long x 0.50' rise Sharp-Crested Rectangular Weir** 2 End Contraction(s) 0.5' Crest Height

Primary OutFlow Max=0.95 cfs @ 12.08 hrs HW=16.02' (Free Discharge)
1=Culvert (Inlet Controls 0.95 cfs @ 1.94 fps)
2=Sharp-Crested Rectangular Weir (Controls 0.00 cfs)

Pond C1: C1


Hydrograph
0.97 cfs
0.98 cfs
Inflow Area=0.287 ac
Peak Elev=16.03'
Storage=23 cf
Inflow
Primary
Flow (cfs)
1
0
6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72
Time (hours)

Summary for Pond CB1: CB1-GRATE

[57] Hint: Peaked at 18.54' (Flood elevation advised)

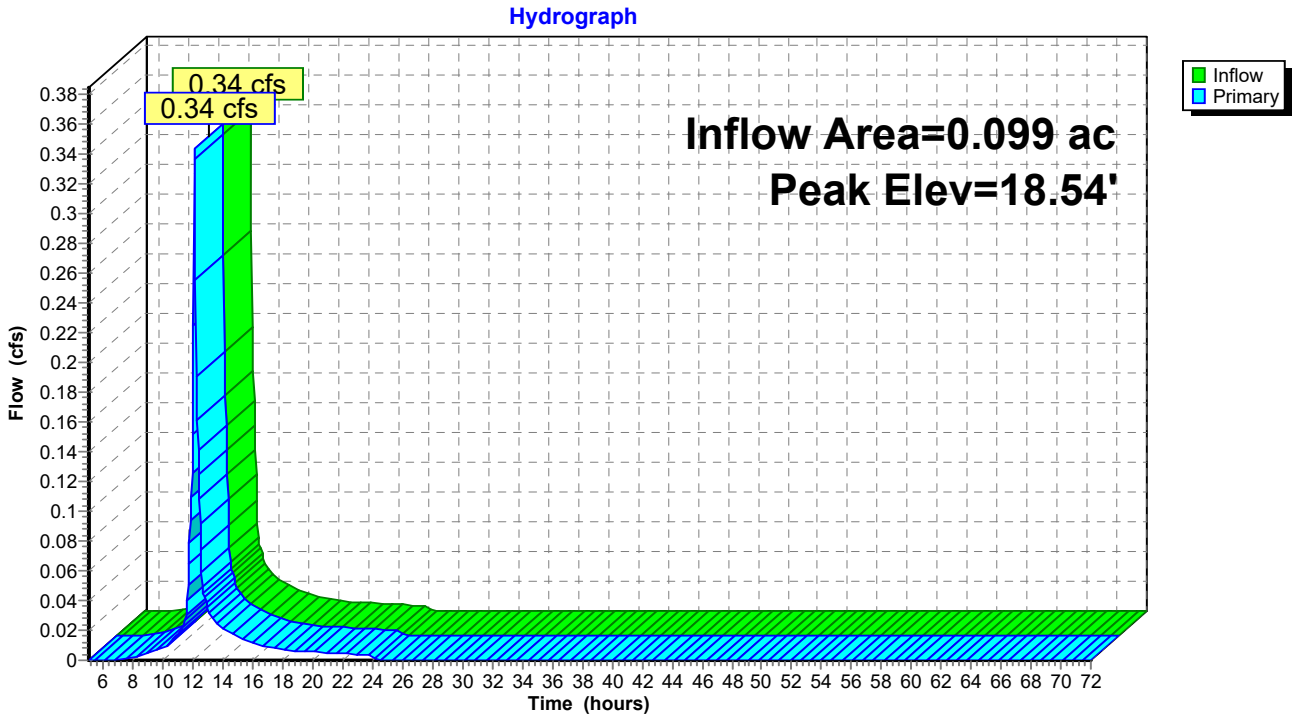
Inflow Area = 0.099 ac, 47.47% Impervious, Inflow Depth = 3.00" for 10-Year event
Inflow = 0.34 cfs @ 12.08 hrs, Volume= 0.025 af
Outflow = 0.34 cfs @ 12.08 hrs, Volume= 0.025 af, Atten= 0%, Lag= 0.0 min
Primary = 0.34 cfs @ 12.08 hrs, Volume= 0.025 af
Routed to Pond SD1 : SD1

Routing by Stor-Ind method, Time Span= 5.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 18.54' @ 12.08 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	18.50'	**48.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.33 cfs @ 12.08 hrs HW=18.54' (Free Discharge)
1=Orifice/Grate (Weir Controls 0.33 cfs @ 0.66 fps)

Pond CB1: CB1-GRATE



Summary for Pond P1: Filter Pond

[81] Warning: Exceeded Pond C1 by 0.59' @ 12.70 hrs
[81] Warning: Exceeded Pond SD3 by 1.68' @ 12.65 hrs

Inflow Area = 0.650 ac, 46.15% Impervious, Inflow Depth = 3.00" for 10-Year event
Inflow = 2.27 cfs @ 12.08 hrs, Volume= 0.162 af
Outflow = 0.36 cfs @ 12.57 hrs, Volume= 0.162 af, Atten= 84%, Lag= 29.3 min
Primary = 0.36 cfs @ 12.57 hrs, Volume= 0.162 af
Routed to Reach W1 : WAP A
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Routed to Reach W1 : WAP A

Routing by Stor-Ind method, Time Span= 5.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 16.28' @ 12.57 hrs Surf.Area= 3,488 sf Storage= 3,386 cf

Plug-Flow detention time= 281.3 min calculated for 0.162 af (100% of inflow)
Center-of-Mass det. time= 282.8 min (1,093.0 - 810.3)

Volume	Invert	Avail.Storage	Storage Description
#1	15.00'	11,014 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

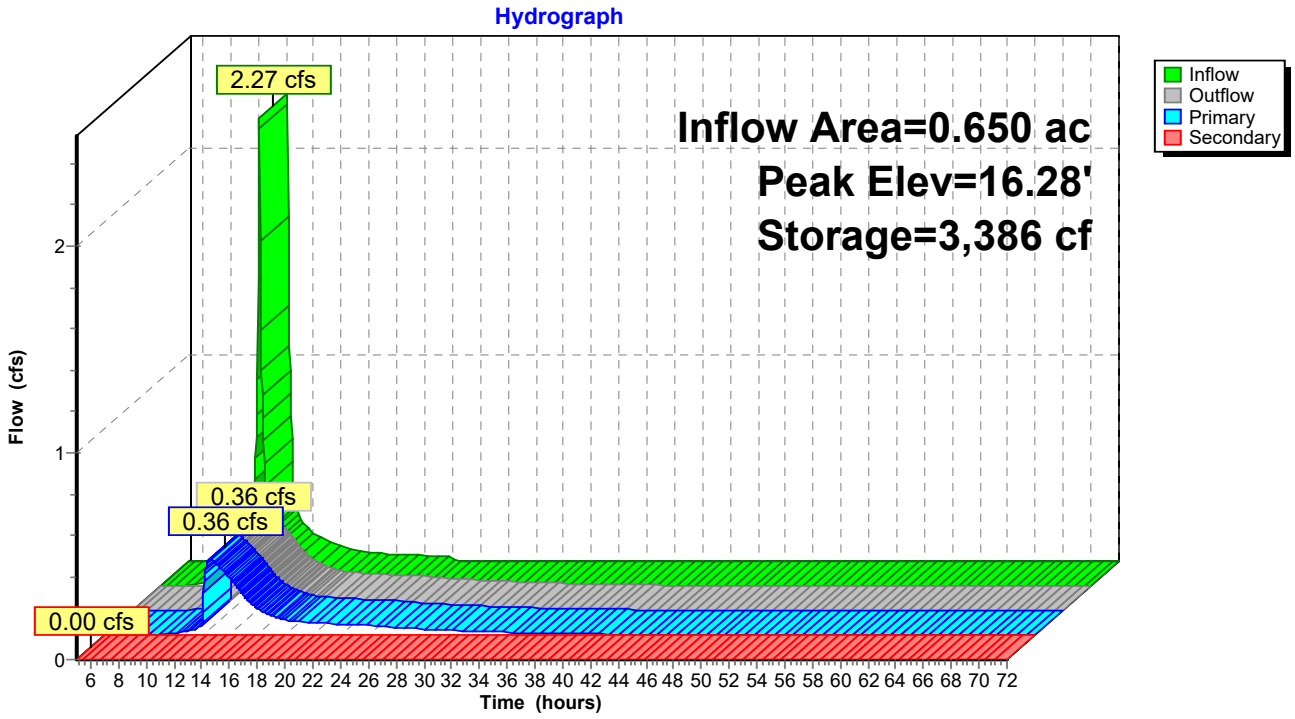
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
15.00	1,650	0	0
15.70	2,808	1,560	1,560
16.00	3,209	903	2,463
16.50	3,715	1,731	4,194
17.00	4,233	1,987	6,181
17.50	4,800	2,258	8,439
18.00	5,500	2,575	11,014

Device	Routing	Invert	Outlet Devices
#1	Secondary	16.50'	**10.0' long x 1.00' rise Sharp-Crested Rectangular Weir** 2 End Contraction(s) 1.0' Crest Height
#2	Primary	12.75'	**12.0" Round Culvert** L= 22.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 12.75' / 12.50' S= 0.0114 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#3	Device 2	16.40'	**24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 2	15.70'	**4.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#5	Device 2	15.00'	**2.000 in/hr Exfiltration over Surface area above 15.00'** Conductivity to Groundwater Elevation = 10.00' Excluded Surface area = 1,650 sf

Primary OutFlow Max=0.36 cfs @ 12.57 hrs HW=16.28' (Free Discharge)
└**2=Culvert** (Passes 0.36 cfs of 5.19 cfs potential flow)
  ├**3=Orifice/Grate** (Controls 0.00 cfs)
  ├**4=Orifice/Grate** (Orifice Controls 0.27 cfs @ 3.08 fps)
  └**5=Exfiltration** (Controls 0.10 cfs)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=15.00' (Free Discharge)
└**1=Sharp-Crested Rectangular Weir**(Controls 0.00 cfs)

Pond P1: Filter Pond



Summary for Pond SD1: SD1

[57] Hint: Peaked at 15.77' (Flood elevation advised)

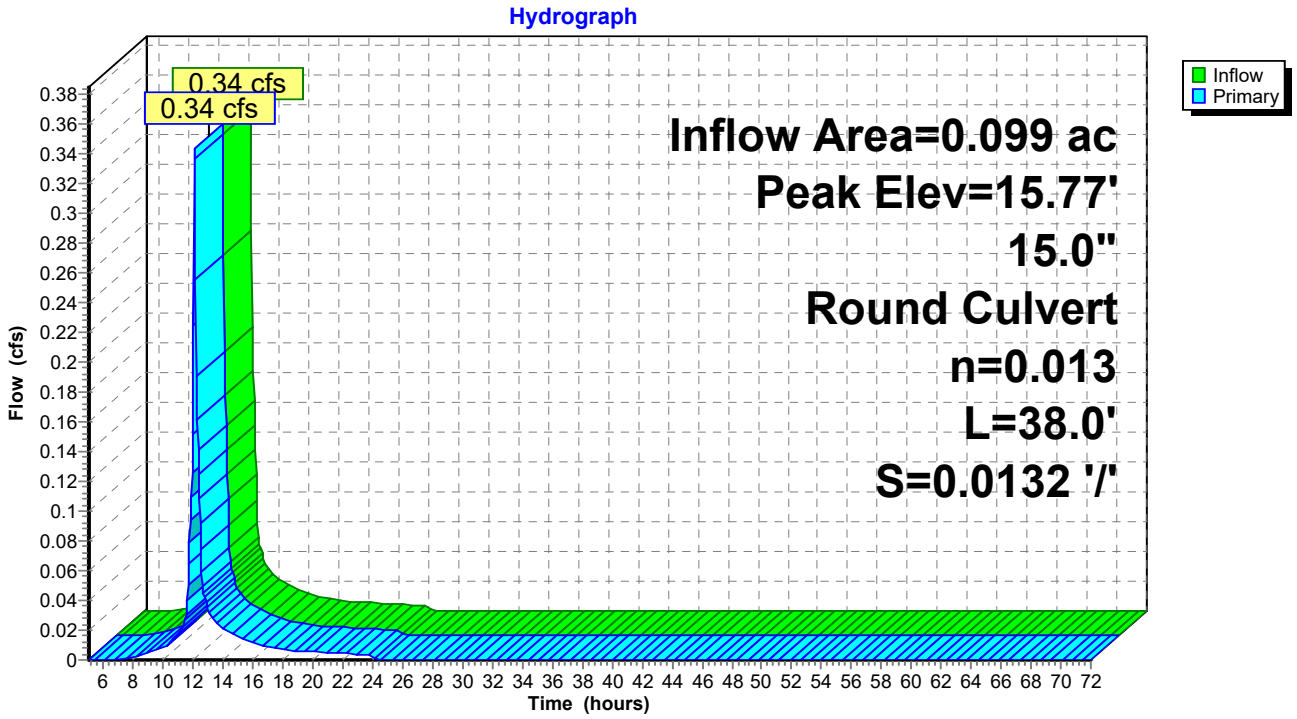
Inflow Area = 0.099 ac, 47.47% Impervious, Inflow Depth = 3.00" for 10-Year event
Inflow = 0.34 cfs @ 12.08 hrs, Volume= 0.025 af
Outflow = 0.34 cfs @ 12.08 hrs, Volume= 0.025 af, Atten= 0%, Lag= 0.0 min
Primary = 0.34 cfs @ 12.08 hrs, Volume= 0.025 af
Routed to Pond SD2 : SD2

Routing by Stor-Ind method, Time Span= 5.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 15.77' @ 12.08 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	15.50'	**15.0" Round Culvert** L= 38.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 15.50' / 15.00' S= 0.0132 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.33 cfs @ 12.08 hrs HW=15.76' (Free Discharge)
1=Culvert (Inlet Controls 0.33 cfs @ 1.75 fps)

Pond SD1: SD1



Summary for Pond SD2: SD2

[57] Hint: Peaked at 15.31' (Flood elevation advised)
[79] Warning: Submerged Pond SD1 Primary device # 1 OUTLET by 0.31'

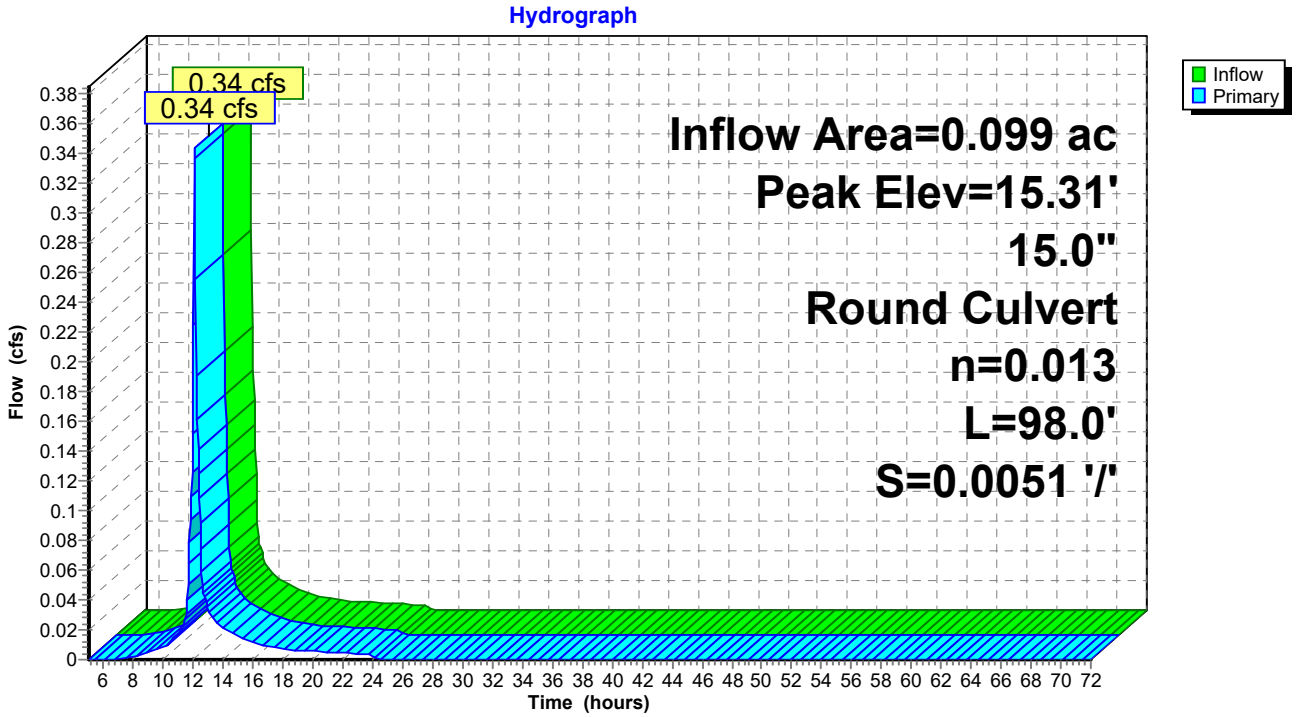
Inflow Area = 0.099 ac, 47.47% Impervious, Inflow Depth = 3.00" for 10-Year event
Inflow = 0.34 cfs @ 12.08 hrs, Volume= 0.025 af
Outflow = 0.34 cfs @ 12.08 hrs, Volume= 0.025 af, Atten= 0%, Lag= 0.0 min
Primary = 0.34 cfs @ 12.08 hrs, Volume= 0.025 af
Routed to Pond SD3 : SD3

Routing by Stor-Ind method, Time Span= 5.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 15.31' @ 12.08 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	15.00'	**15.0" Round Culvert** L= 98.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 15.00' / 14.50' S= 0.0051 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.33 cfs @ 12.08 hrs HW=15.31' (Free Discharge)
1=Culvert (Barrel Controls 0.33 cfs @ 2.14 fps)

Pond SD2: SD2



Summary for Pond SD3: SD3

[57] Hint: Peaked at 14.77' (Flood elevation advised)
[79] Warning: Submerged Pond SD2 Primary device # 1 OUTLET by 0.27'

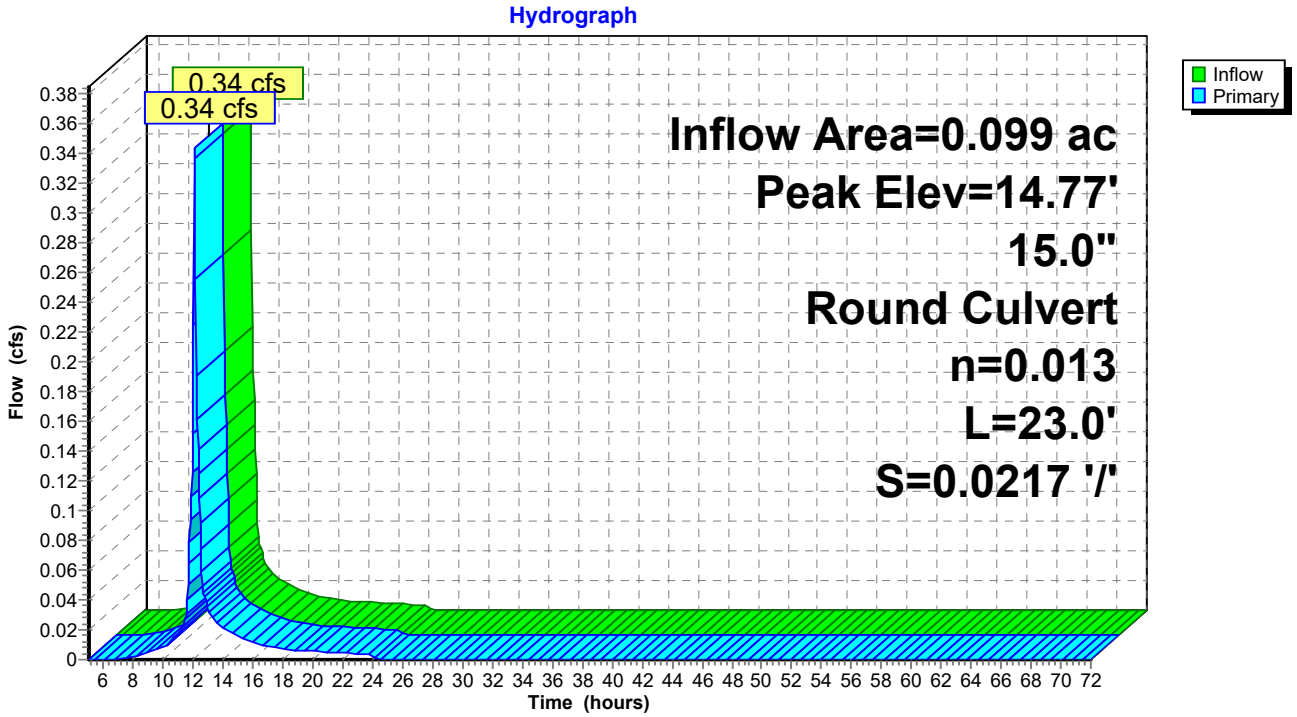
Inflow Area = 0.099 ac, 47.47% Impervious, Inflow Depth = 3.00" for 10-Year event
Inflow = 0.34 cfs @ 12.08 hrs, Volume= 0.025 af
Outflow = 0.34 cfs @ 12.08 hrs, Volume= 0.025 af, Atten= 0%, Lag= 0.0 min
Primary = 0.34 cfs @ 12.08 hrs, Volume= 0.025 af
Routed to Pond P1 : Filter Pond

Routing by Stor-Ind method, Time Span= 5.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 14.77' @ 12.08 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	14.50'	**15.0" Round Culvert** L= 23.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 14.50' / 14.00' S= 0.0217 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.33 cfs @ 12.08 hrs HW=14.76' (Free Discharge)
1=Culvert (Inlet Controls 0.33 cfs @ 1.75 fps)

Pond SD3: SD3



Time span=5.00-72.00 hrs, dt=0.05 hrs, 1341 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentS1.1: S1.1 Runoff Area=0.745 ac 0.81% Impervious Runoff Depth=2.92"
Flow Length=291' Tc=65.9 min CN=73 Runoff=0.94 cfs 0.181 af

SubcatchmentS1.2: S1.2 Runoff Area=0.264 ac 49.62% Impervious Runoff Depth>4.22"
Tc=5.0 min CN=86 Runoff=1.29 cfs 0.093 af

SubcatchmentS1.3: S1.3 Runoff Area=0.287 ac 42.51% Impervious Runoff Depth=4.01"
Tc=5.0 min CN=84 Runoff=1.34 cfs 0.096 af

SubcatchmentS1.4: S1.4 Runoff Area=0.099 ac 47.47% Impervious Runoff Depth=4.11"
Flow Length=98' Tc=5.3 min CN=85 Runoff=0.47 cfs 0.034 af

Reach W1: WAP A Inflow=1.53 cfs 0.404 af
Outflow=1.53 cfs 0.404 af

Pond C1: C1 Peak Elev=16.13' Storage=32 cf Inflow=1.34 cfs 0.096 af
Outflow=1.33 cfs 0.096 af

Pond CB1: CB1-GRATE Peak Elev=18.55' Inflow=0.47 cfs 0.034 af
Outflow=0.47 cfs 0.034 af

Pond P1: Filter Pond Peak Elev=16.50' Storage=4,189 cf Inflow=3.07 cfs 0.223 af
Primary=1.08 cfs 0.223 af Secondary=0.00 cfs 0.000 af Outflow=1.08 cfs 0.223 af

Pond SD1: SD1 Peak Elev=15.82' Inflow=0.47 cfs 0.034 af
15.0" Round Culvert n=0.013 L=38.0' S=0.0132 '/' Outflow=0.47 cfs 0.034 af

Pond SD2: SD2 Peak Elev=15.37' Inflow=0.47 cfs 0.034 af
15.0" Round Culvert n=0.013 L=98.0' S=0.0051 '/' Outflow=0.47 cfs 0.034 af

Pond SD3: SD3 Peak Elev=14.82' Inflow=0.47 cfs 0.034 af
15.0" Round Culvert n=0.013 L=23.0' S=0.0217 '/' Outflow=0.47 cfs 0.034 af

Total Runoff Area = 1.395 ac Runoff Volume = 0.404 af Average Runoff Depth = 3.48"
78.06% Pervious = 1.089 ac 21.94% Impervious = 0.306 ac

Summary for Subcatchment S1.1: S1.1

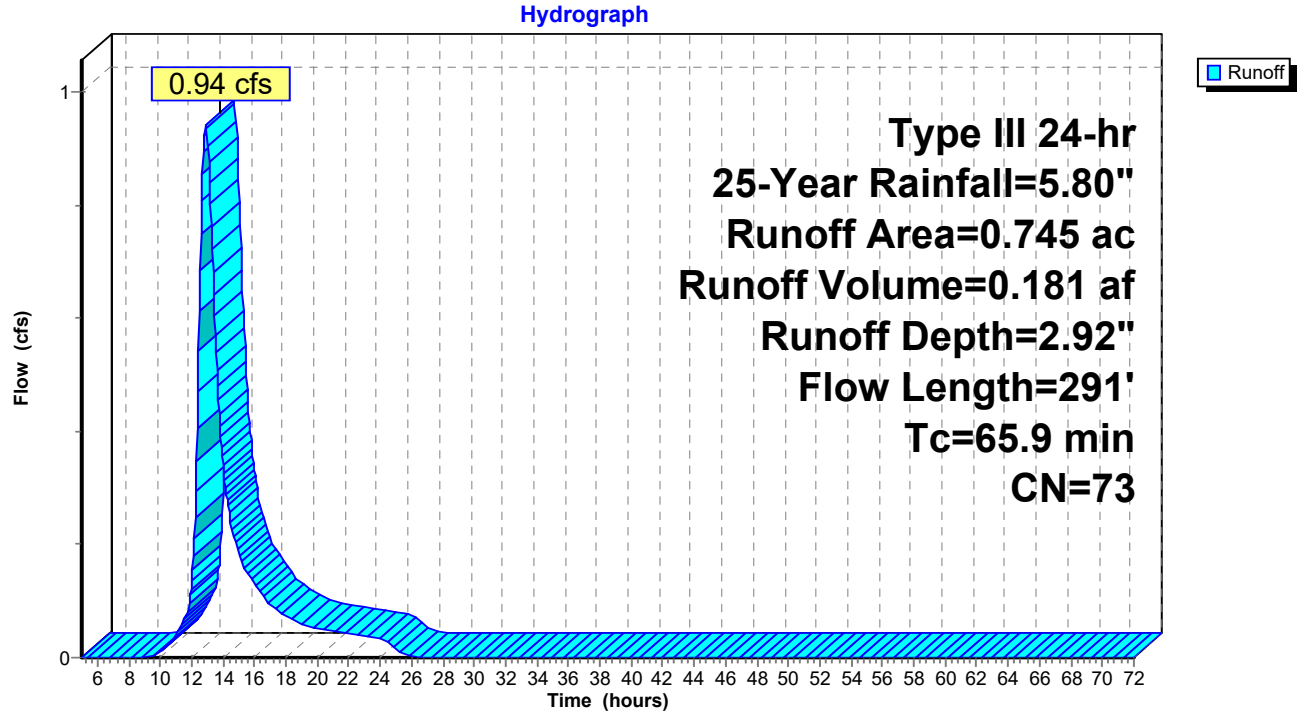
Runoff = 0.94 cfs @ 12.91 hrs, Volume= 0.181 af, Depth= 2.92"
Routed to Reach W1 : WAP A

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.80"

Area (ac)	CN	Description
0.637	73	Woods, Fair, HSG C
0.004	98	Roofs, HSG C
0.102	71	Meadow, non-grazed, HSG C
0.002	98	Unconnected pavement, HSG C
0.745	73	Weighted Average
0.739		99.19% Pervious Area
0.006		0.81% Impervious Area
0.002		33.33% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
62.0	150	0.0033	0.04		**Sheet Flow, sheet - wetland** Woods: Light underbrush n= 0.400 P2= 3.10"
3.9	141	0.0142	0.60		**Shallow Concentrated Flow, shallow - wetland** Woodland Kv= 5.0 fps
65.9	291	Total			

Subcatchment S1.1: S1.1



Summary for Subcatchment S1.2: S1.2

[49] Hint: Tc<2dt may require smaller dt

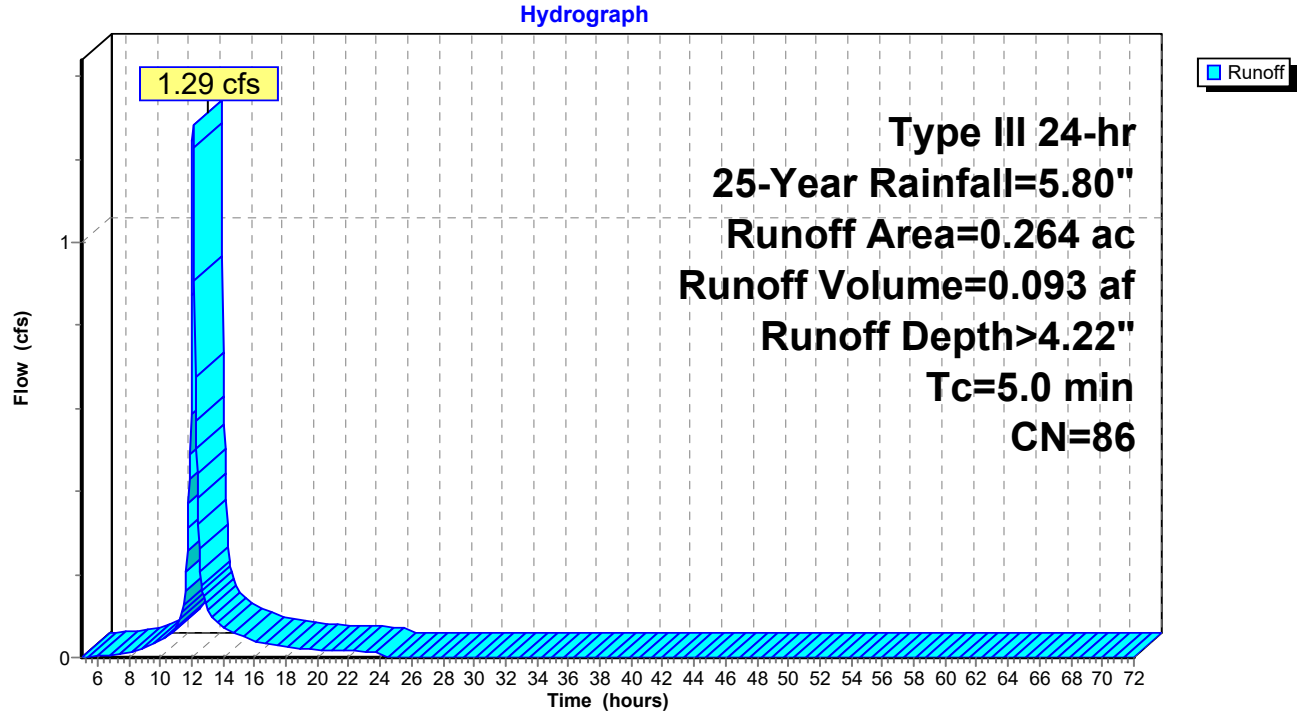
Runoff = 1.29 cfs @ 12.07 hrs, Volume= 0.093 af, Depth> 4.22"
Routed to Pond P1 : Filter Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.80"

Area (ac)	CN	Description
0.098	98	Paved parking, HSG C
0.033	98	Roofs, HSG D
0.133	74	>75% Grass cover, Good, HSG C
0.264	86	Weighted Average
0.133		50.38% Pervious Area
0.131		49.62% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, min. 5 minutes**

Subcatchment S1.2: S1.2



Summary for Subcatchment S1.3: S1.3

[49] Hint: Tc<2dt may require smaller dt

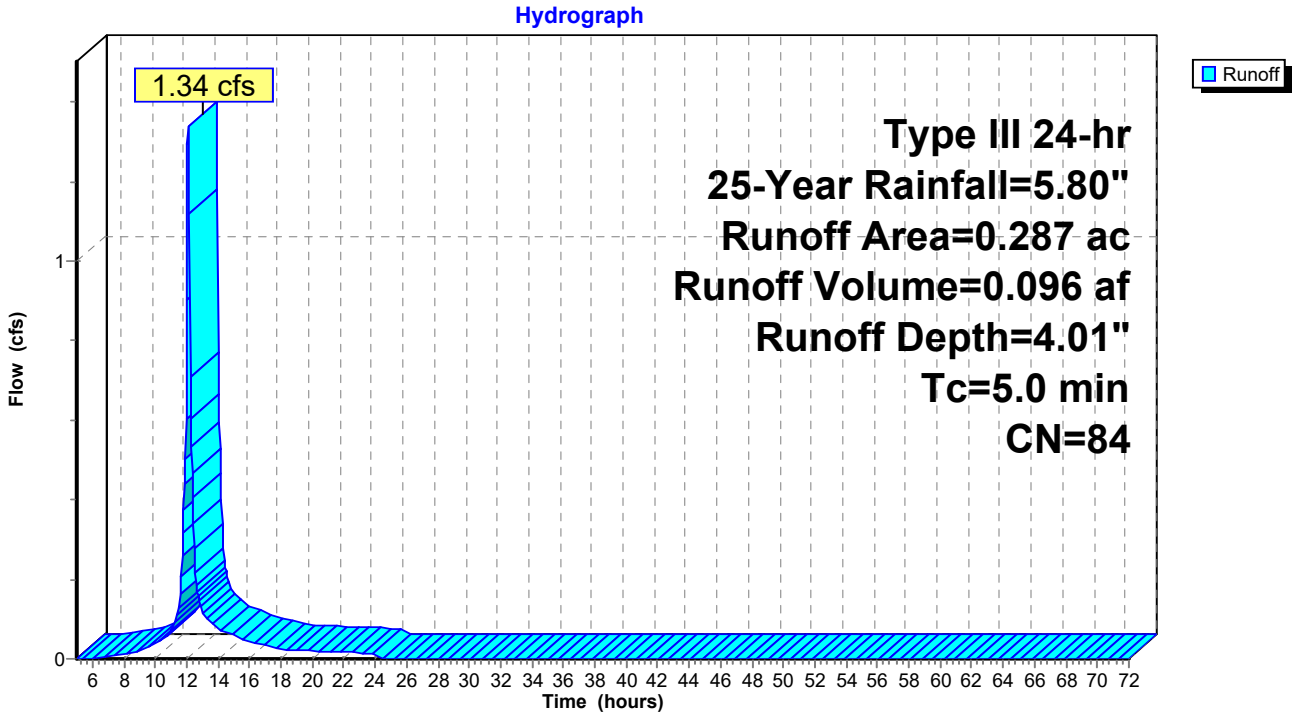
Runoff = 1.34 cfs @ 12.07 hrs, Volume= 0.096 af, Depth= 4.01"
Routed to Pond C1 : C1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.80"

Area (ac)	CN	Description
0.015	73	Woods, Fair, HSG C
0.050	98	Paved parking, HSG C
0.002	98	Unconnected pavement, HSG C
0.070	98	Roofs, HSG C
0.150	74	>75% Grass cover, Good, HSG C
0.287	84	Weighted Average
0.165		57.49% Pervious Area
0.122		42.51% Impervious Area
0.002		1.64% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, min. 5 minutes**

Subcatchment S1.3: S1.3



Summary for Subcatchment S1.4: S1.4

[49] Hint: Tc<2dt may require smaller dt

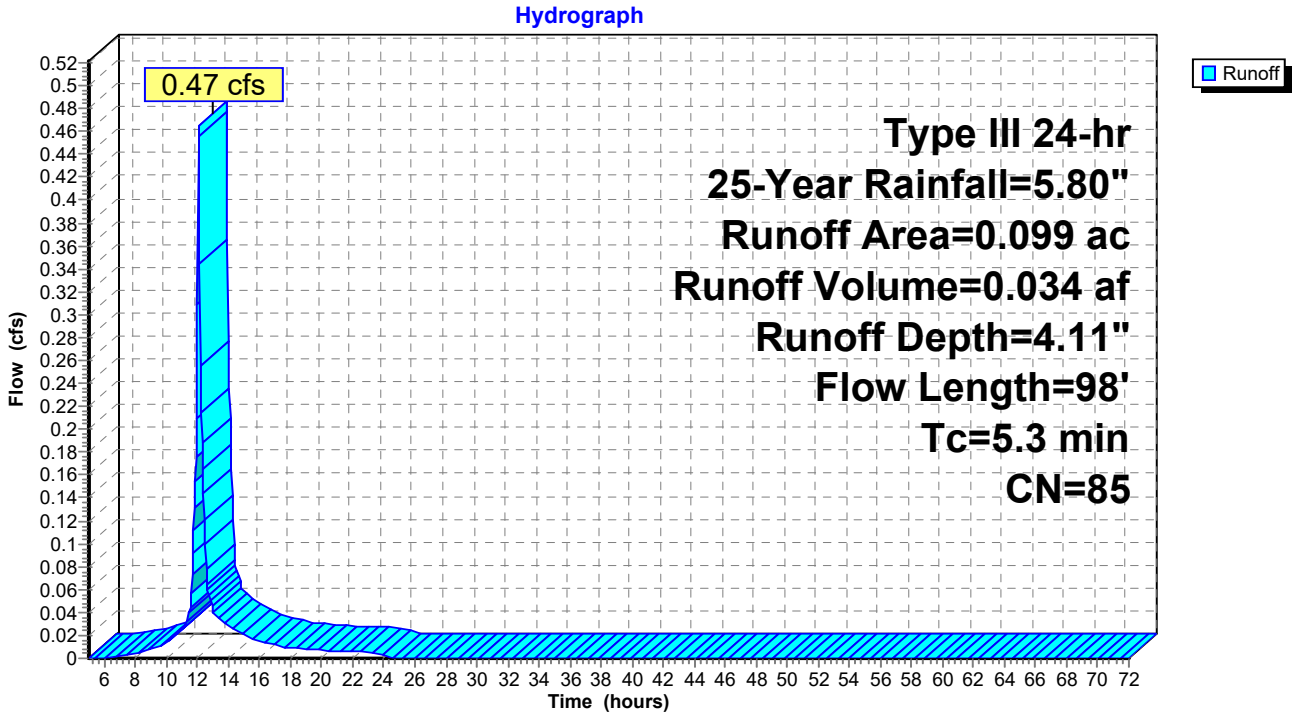
Runoff = 0.47 cfs @ 12.08 hrs, Volume= 0.034 af, Depth= 4.11"
Routed to Pond CB1 : CB1-GRATE

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.80"

Area (ac)	CN	Description
0.016	73	Woods, Fair, HSG C
0.014	98	Paved parking, HSG C
0.033	98	Roofs, HSG C
0.036	74	>75% Grass cover, Good, HSG C
0.099	85	Weighted Average
0.052		52.53% Pervious Area
0.047		47.47% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.1	36	0.1000	0.12		**Sheet Flow, sheet - woods** Woods: Light underbrush n= 0.400 P2= 3.10"
0.1	10	0.1000	2.21		**Shallow Concentrated Flow, shallow - grass** Short Grass Pasture Kv= 7.0 fps
0.1	52	0.0200	7.06	28.23	**Channel Flow, channel - ditch** Area= 4.0 sf Perim= 6.3' r= 0.63' n= 0.022 Earth, clean & straight
5.3	98	Total			

Subcatchment S1.4: S1.4



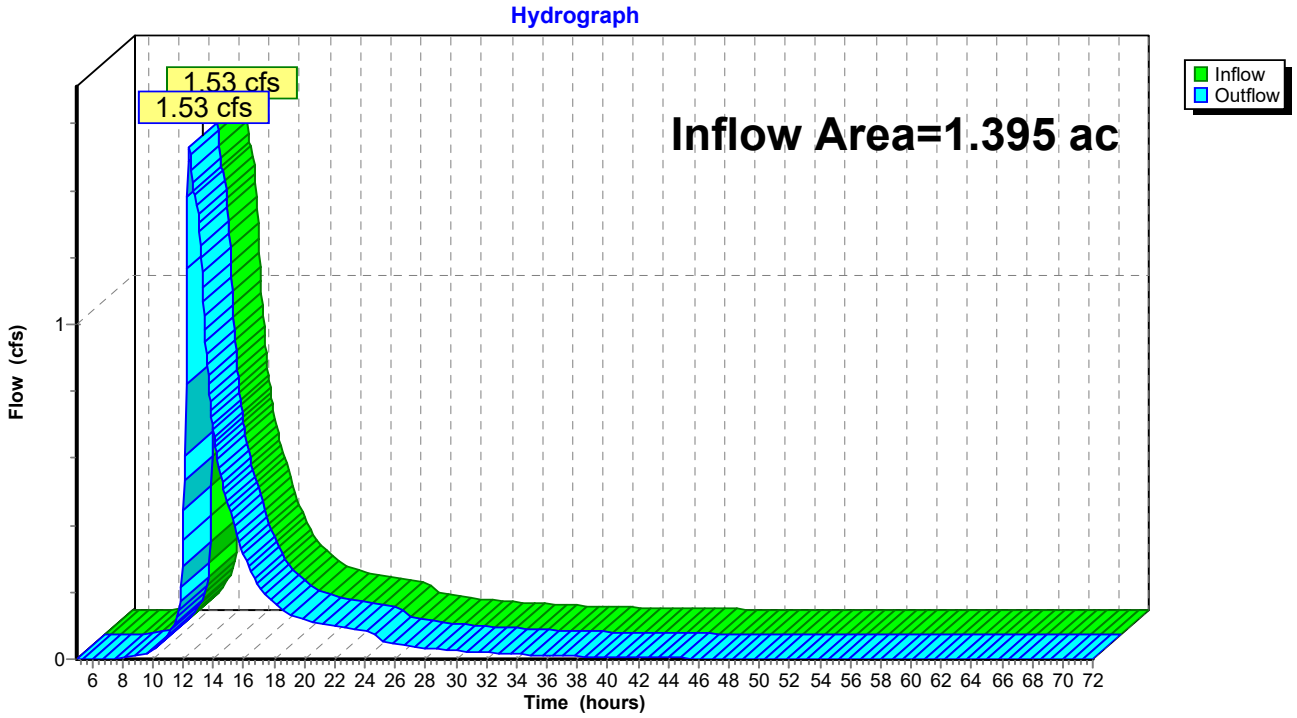
Summary for Reach W1: WAP A

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 1.395 ac, 21.94% Impervious, Inflow Depth = 3.48" for 25-Year event
Inflow = 1.53 cfs @ 12.42 hrs, Volume= 0.404 af
Outflow = 1.53 cfs @ 12.42 hrs, Volume= 0.404 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-72.00 hrs, dt= 0.05 hrs

Reach W1: WAP A



Summary for Pond C1: C1

Inflow Area = 0.287 ac, 42.51% Impervious, Inflow Depth = 4.01" for 25-Year event
Inflow = 1.34 cfs @ 12.07 hrs, Volume= 0.096 af
Outflow = 1.33 cfs @ 12.08 hrs, Volume= 0.096 af, Atten= 0%, Lag= 0.6 min
Primary = 1.33 cfs @ 12.08 hrs, Volume= 0.096 af
Routed to Pond P1 : Filter Pond

Routing by Stor-Ind method, Time Span= 5.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 16.13' @ 12.08 hrs Surf.Area= 99 sf Storage= 32 cf

Plug-Flow detention time= 0.7 min calculated for 0.096 af (100% of inflow)
Center-of-Mass det. time= 0.7 min (804.6 - 803.8)

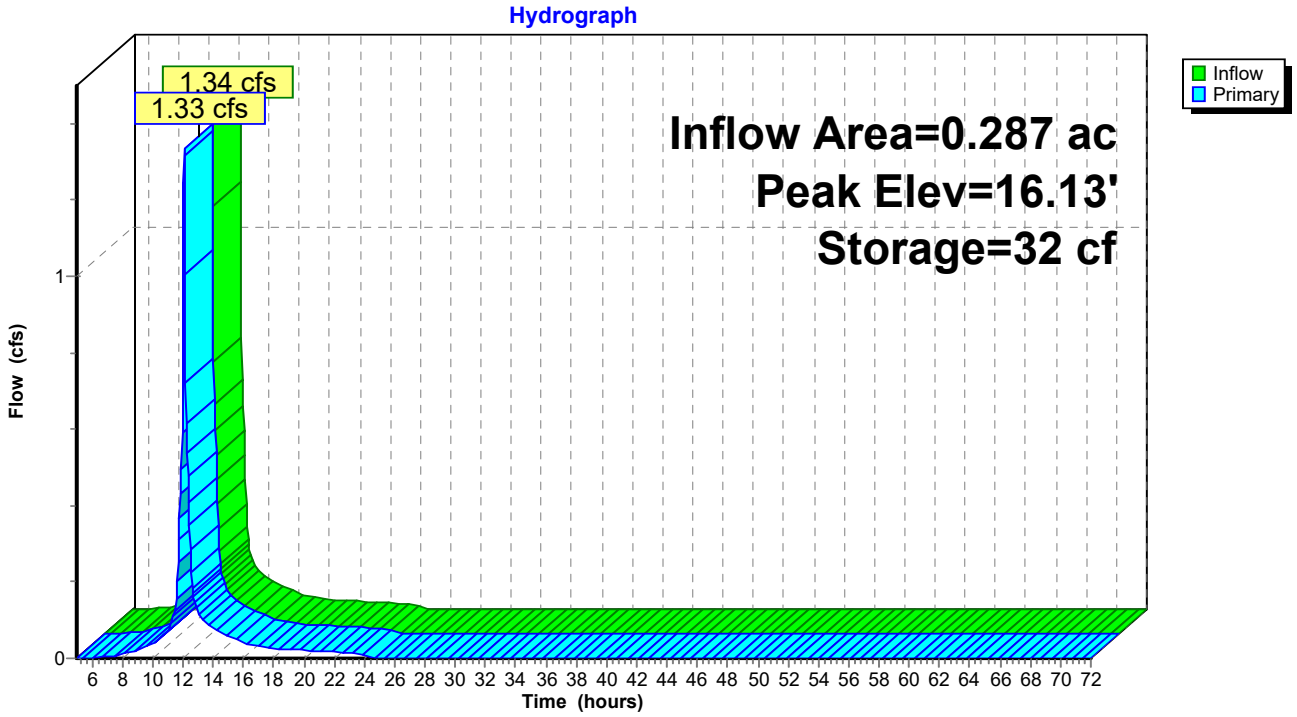
Volume	Invert	Avail.Storage	Storage Description
#1	15.50'	963 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
15.50	20	0	0
16.00	63	21	21
17.00	332	198	218
18.00	1,157	745	963

Device	Routing	Invert	Outlet Devices
#1	Primary	15.50'	**15.0" Round Culvert** L= 37.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 15.50' / 15.00' S= 0.0135 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Primary	17.90'	**30.0' long x 0.50' rise Sharp-Crested Rectangular Weir** 2 End Contraction(s) 0.5' Crest Height

Primary OutFlow Max=1.29 cfs @ 12.08 hrs HW=16.12' (Free Discharge)
1=Culvert (Inlet Controls 1.29 cfs @ 2.12 fps)
2=Sharp-Crested Rectangular Weir (Controls 0.00 cfs)

Pond C1: C1


Hydrograph
1.34 cfs
1.33 cfs
Inflow Area=0.287 ac
Peak Elev=16.13'
Storage=32 cf
Inflow
Primary
Flow (cfs)
0
1
6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72
Time (hours)

Summary for Pond CB1: CB1-GRATE

[57] Hint: Peaked at 18.55' (Flood elevation advised)

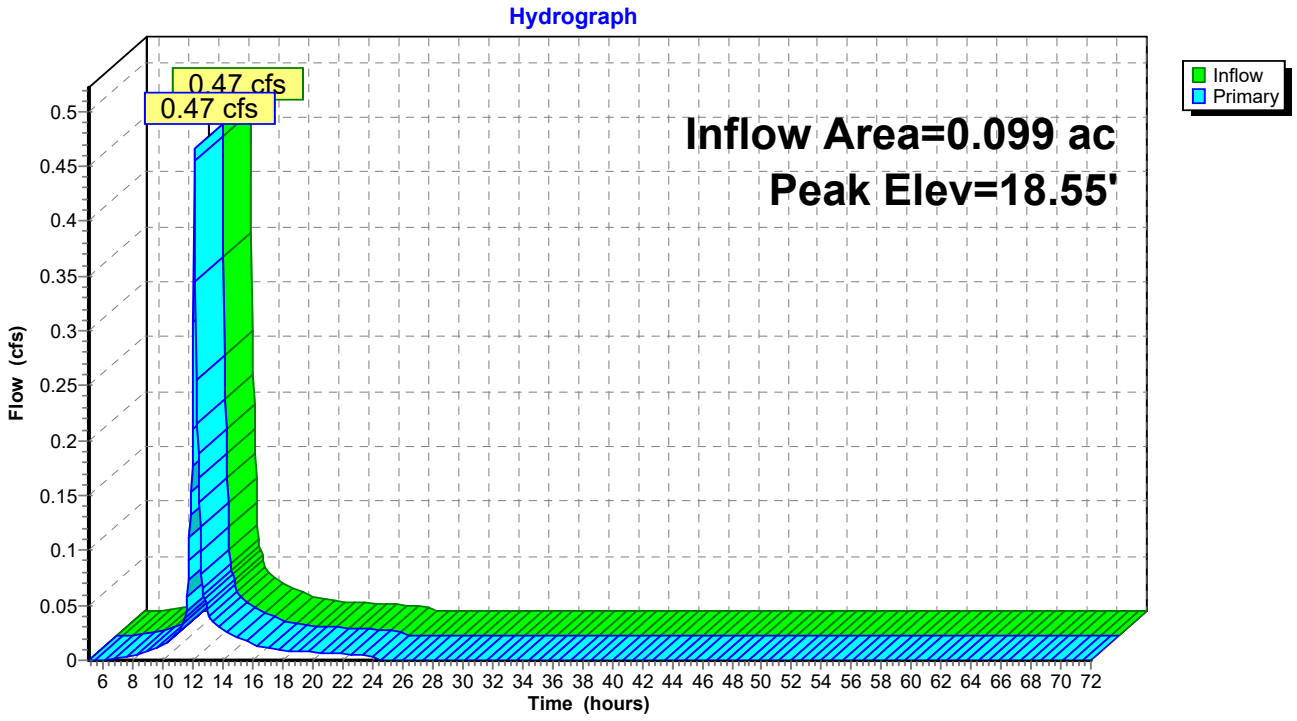
Inflow Area = 0.099 ac, 47.47% Impervious, Inflow Depth = 4.11" for 25-Year event
Inflow = 0.47 cfs @ 12.08 hrs, Volume= 0.034 af
Outflow = 0.47 cfs @ 12.08 hrs, Volume= 0.034 af, Atten= 0%, Lag= 0.0 min
Primary = 0.47 cfs @ 12.08 hrs, Volume= 0.034 af
Routed to Pond SD1 : SD1

Routing by Stor-Ind method, Time Span= 5.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 18.55' @ 12.08 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	18.50'	**48.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.45 cfs @ 12.08 hrs HW=18.55' (Free Discharge)
1=Orifice/Grate (Weir Controls 0.45 cfs @ 0.73 fps)

Pond CB1: CB1-GRATE



Summary for Pond P1: Filter Pond

[81] Warning: Exceeded Pond C1 by 0.73' @ 12.60 hrs
[81] Warning: Exceeded Pond SD3 by 1.84' @ 12.55 hrs

Inflow Area = 0.650 ac, 46.15% Impervious, Inflow Depth = 4.11" for 25-Year event
Inflow = 3.07 cfs @ 12.08 hrs, Volume= 0.223 af
Outflow = 1.08 cfs @ 12.36 hrs, Volume= 0.223 af, Atten= 65%, Lag= 16.6 min
Primary = 1.08 cfs @ 12.36 hrs, Volume= 0.223 af
Routed to Reach W1 : WAP A
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Routed to Reach W1 : WAP A

Routing by Stor-Ind method, Time Span= 5.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 16.50' @ 12.36 hrs Surf.Area= 3,714 sf Storage= 4,189 cf

Plug-Flow detention time= 237.7 min calculated for 0.222 af (100% of inflow)
Center-of-Mass det. time= 239.2 min (1,040.5 - 801.3)

Volume	Invert	Avail.Storage	Storage Description
#1	15.00'	11,014 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

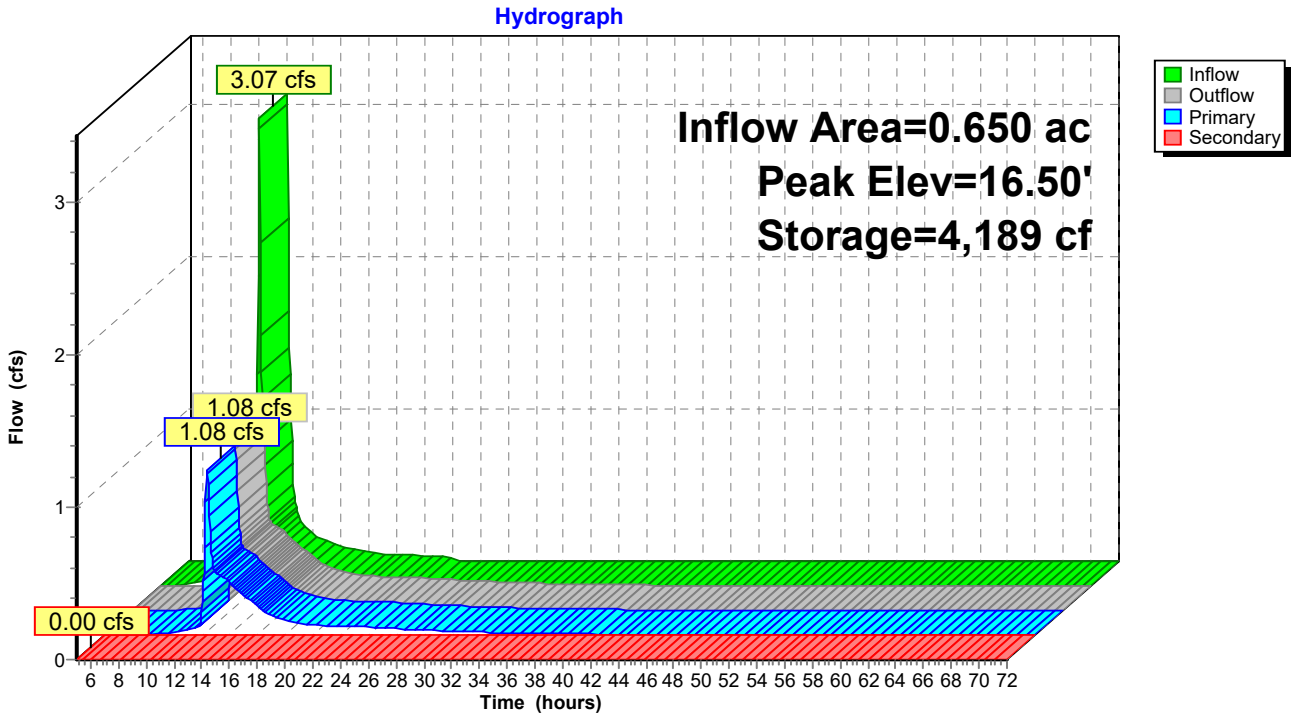
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
15.00	1,650	0	0
15.70	2,808	1,560	1,560
16.00	3,209	903	2,463
16.50	3,715	1,731	4,194
17.00	4,233	1,987	6,181
17.50	4,800	2,258	8,439
18.00	5,500	2,575	11,014

Device	Routing	Invert	Outlet Devices
#1	Secondary	16.50'	**10.0' long x 1.00' rise Sharp-Crested Rectangular Weir** 2 End Contraction(s) 1.0' Crest Height
#2	Primary	12.75'	**12.0" Round Culvert** L= 22.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 12.75' / 12.50' S= 0.0114 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#3	Device 2	16.40'	**24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 2	15.70'	**4.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#5	Device 2	15.00'	**2.000 in/hr Exfiltration over Surface area above 15.00'** Conductivity to Groundwater Elevation = 10.00' Excluded Surface area = 1,650 sf

Primary OutFlow Max=1.08 cfs @ 12.36 hrs HW=16.50' (Free Discharge)
└─**2=Culvert** (Passes 1.08 cfs of 5.38 cfs potential flow)
  ├─**3=Orifice/Grate** (Weir Controls 0.63 cfs @ 1.03 fps)
  ├─**4=Orifice/Grate** (Orifice Controls 0.33 cfs @ 3.83 fps)
  └─**5=Exfiltration** (Controls 0.11 cfs)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=15.00' (Free Discharge)
└─**1=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond P1: Filter Pond



Summary for Pond SD1: SD1

[57] Hint: Peaked at 15.82' (Flood elevation advised)

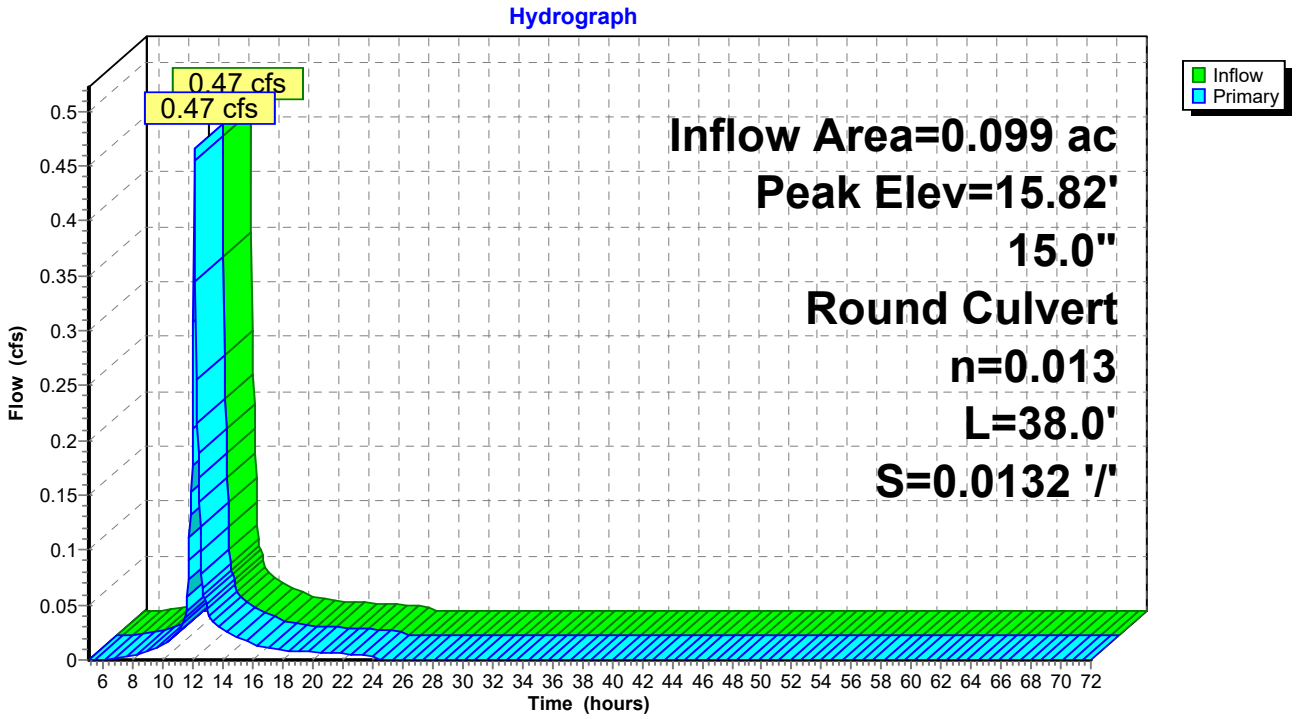
Inflow Area = 0.099 ac, 47.47% Impervious, Inflow Depth = 4.11" for 25-Year event
Inflow = 0.47 cfs @ 12.08 hrs, Volume= 0.034 af
Outflow = 0.47 cfs @ 12.08 hrs, Volume= 0.034 af, Atten= 0%, Lag= 0.0 min
Primary = 0.47 cfs @ 12.08 hrs, Volume= 0.034 af
Routed to Pond SD2 : SD2

Routing by Stor-Ind method, Time Span= 5.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 15.82' @ 12.08 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	15.50'	**15.0" Round Culvert** L= 38.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 15.50' / 15.00' S= 0.0132 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.45 cfs @ 12.08 hrs HW=15.81' (Free Discharge)
1=Culvert (Inlet Controls 0.45 cfs @ 1.90 fps)

Pond SD1: SD1



Summary for Pond SD2: SD2

[57] Hint: Peaked at 15.37' (Flood elevation advised)
[79] Warning: Submerged Pond SD1 Primary device # 1 OUTLET by 0.36'

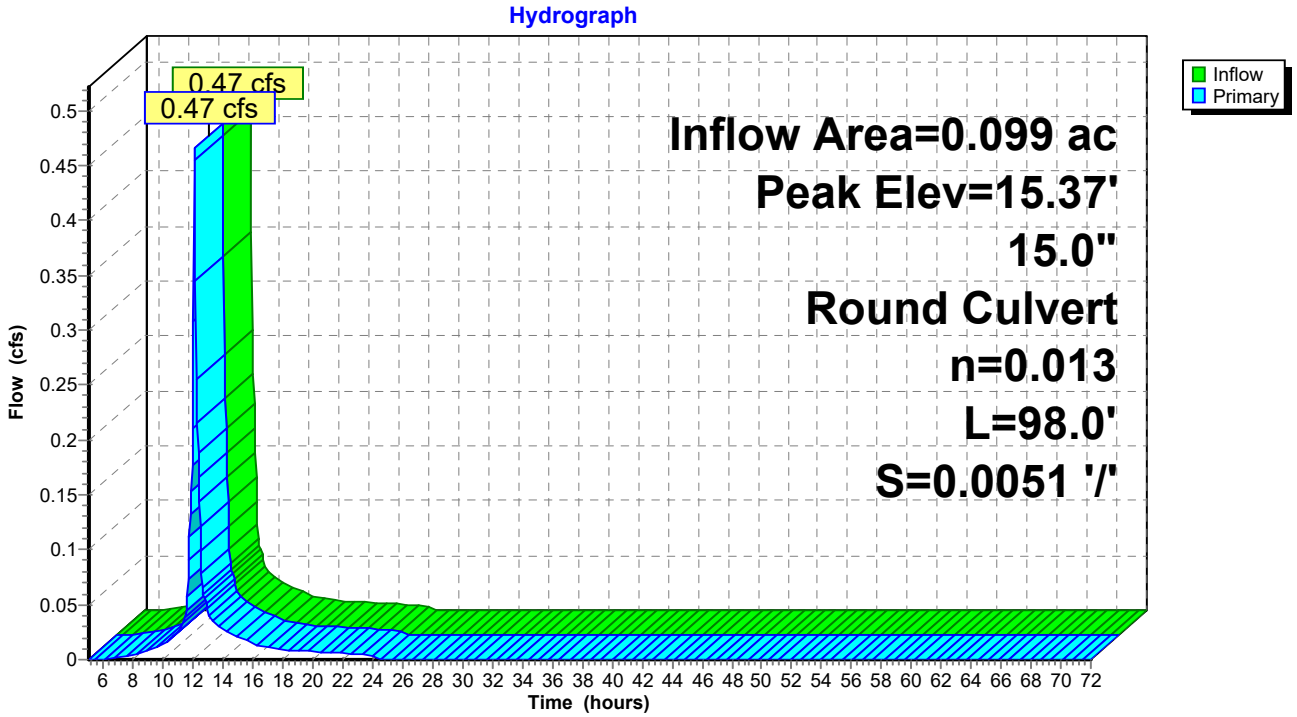
Inflow Area = 0.099 ac, 47.47% Impervious, Inflow Depth = 4.11" for 25-Year event
Inflow = 0.47 cfs @ 12.08 hrs, Volume= 0.034 af
Outflow = 0.47 cfs @ 12.08 hrs, Volume= 0.034 af, Atten= 0%, Lag= 0.0 min
Primary = 0.47 cfs @ 12.08 hrs, Volume= 0.034 af
Routed to Pond SD3 : SD3

Routing by Stor-Ind method, Time Span= 5.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 15.37' @ 12.08 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	15.00'	**15.0" Round Culvert** L= 98.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 15.00' / 14.50' S= 0.0051 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.45 cfs @ 12.08 hrs HW=15.36' (Free Discharge)
1=Culvert (Barrel Controls 0.45 cfs @ 2.32 fps)

Pond SD2: SD2



Summary for Pond SD3: SD3

[57] Hint: Peaked at 14.82' (Flood elevation advised)
[79] Warning: Submerged Pond SD2 Primary device # 1 OUTLET by 0.31'

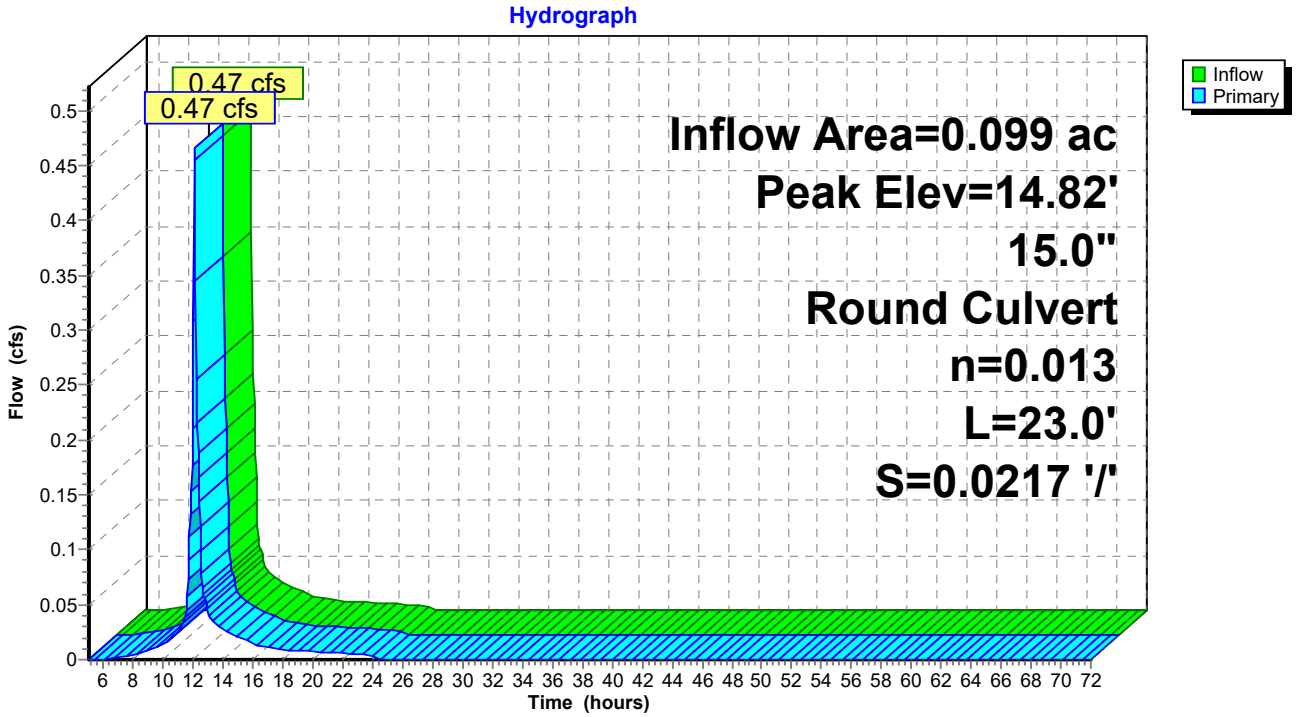
Inflow Area = 0.099 ac, 47.47% Impervious, Inflow Depth = 4.11" for 25-Year event
Inflow = 0.47 cfs @ 12.08 hrs, Volume= 0.034 af
Outflow = 0.47 cfs @ 12.08 hrs, Volume= 0.034 af, Atten= 0%, Lag= 0.0 min
Primary = 0.47 cfs @ 12.08 hrs, Volume= 0.034 af
Routed to Pond P1 : Filter Pond

Routing by Stor-Ind method, Time Span= 5.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 14.82' @ 12.08 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	14.50'	**15.0" Round Culvert** L= 23.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 14.50' / 14.00' S= 0.0217 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.45 cfs @ 12.08 hrs HW=14.81' (Free Discharge)
1=Culvert (Inlet Controls 0.45 cfs @ 1.90 fps)

Pond SD3: SD3



Dalton Street Housing
25-111
DRAINAGE AREA CALCULATIONS

PRE-DEVELOPMENT AREAS

SUB	TOTAL	WOODS A	WOODS C	MEADOW C	GRAVEL ROAD C/D	GRAVEL ROAD D	ROOF IMPERV	GRASS B	
1	1.396		1.275	0.121					1.396
2									OKAY
3									OKAY
4									OKAY
5									OKAY
6									OKAY
7									OKAY
8									OKAY
9									OKAY
10									OKAY
11									OKAY
12									OKAY
13									OKAY
14									OKAY
	1.396	0	1.275206612	0.12061524	0	0	0	0	1.3958219

Open Space	
	Lot 1
Landscaped Area	0.238
Impervious Area	0.201
Total Area	0.461
Lot Coverage	43.5%
Open Space Percentage	51.6%

POST-DEVELOPMENT AREAS

		EXISTING AREAS							PROPOSED AREAS							
SUB	TOTAL	WOODS C	FARM C	MEADOW C	GRAVEL ROAD C	PAVED ROAD C	IMPERV	GRASS C	WOODS A	WOODS C	WOODS D	PAVED ROAD	PAVER AREA	ROOF IMPERV	GRASS C	
1.1	0.745	0.637											0.002	0.004	0.102	0.745
1.2	0.264											0.098		0.033	0.133	OKAY
1.3	0.287	0.015										0.050	0.002	0.070	0.150	OKAY
1.4	0.100	0.016										0.014		0.033	0.036	OKAY
																OKAY
																OKAY
																OKAY
																OKAY
																OKAY
																OKAY
																OKAY
																OKAY
																OKAY
																OKAY
																OKAY
																OKAY
																OKAY
																OKAY
																OKAY
																OKAY
	1.395	0.667	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.162	0.005	0.140	0.421	1.396

WORKSHEET FOR EVALUATING STORMWATER BMP's
25-111 Dalton Street Development Dalton Street Housing

WETPOND DESIGNS

filter

Channel Protection Volume	acres:			
Impervious Area	0.301	1" Volume=	1093	cf
Developed non-impervious area	0.319	0.4" Volume=	463	cf
		Total Volume=	**1556**	cf

Permanent Pool Volume	acres:			
Impervious Area	0.301	2" Volume=	2185	cf
Developed non-impervious area	0.319	0.8" Volume=	926	cf
		Total Volume=	3112	cf

Sediment Forebay		
Impervious area to be sanded:	0.301	acres
Sand Desity, +/-	90	pcf
Number of Storms	10	annually
Forebay Size	**17**	cf

Mean Depth		
Pond Volume at 1ft below permanent pool elev:	1593	cf
Pond Surface Area at 1 ft below perm pool:	1190	sf
Mean Pool Depth	1.3	ft

POND DATA		
Perm Pool Elev	14.5	ft
Perm Pool Vol at -1'		cf
Perm Pool Vol		cf
CPV Elev		ft
CPV		cf

OLD!

Entire Site	
Area Type	Acreage
Building	0.140
Pavement	0.157
Grass	0.260

Dalton Street Housing
25-111

SUBCATCHMENT SUMMARY AND TREATMENT AREAS

			SUBCATCHMENT AREAS from Drainage Plans								**TREATED AREAS**						
			Proposed Developed Areas (acres)				Existing Areas				Proposed and Existing Treated Developed Areas (acres)					BMPs	
			Linear		Non-Linear		Developed		Undeveloped		Linear		Non-Linear		Developed		
Sub Label	WAP	Tc (min)	Impervious	Developed	Impervious	Developed	Impervious	Developed	Woods	Total	Impervious	Developed	Impervious	Developed	Total	Proposed Treatment Method	Treatment Factor
1.1			0.00	0.00	0.006	0.109	0.00	0.00	0.637	0.745	0	0	0	0	0.00		1
1.2			0.00	0.00	0.131	0.264	0.00	0	0.000	0.264	0	0	0	0	0.26	Filter Pond	1
1.3			0.00	0.00	0.122	0.272	0.00	0	0.015	0.287	0	0	0.122	0.272	0.27	Filter Pond	1
1.4			0.00	0.00	0.047	0.084	0.00	0	0.016	0.100	0	0	0.047	0.084	0.08	Filter Pond	1
											0	0	0	0	0.00		1
											0	0	0	0	0.00		1
											0	0	0	0	0.00		1
											0	0	0	0	0.00		1
											0	0	0	0	0.00		1
											0	0	0	0	0.00		1
											0	0	0	0	0.00		1
											0	0	0	0	0.00		1
											0	0	0	0	0.00		1
											0	0	0	0	0.00		1
											0	0	0	0	0.00		1
											0	0	0	0	0.00		1
											0	0	0	0	0.00		1
											0	0	0	0	0.00		1
											0	0	0	0	0.00		1
											0	0	0	0	0.00		1
											0	0	0	0	0.00		1
											0	0	0	0	0.00		1
											0	0	0	0	0.00		1
											0	0	0	0	0.00		1
											0	0	0	0	0.00		1
											0	0	0	0	0.00		1
											0	0	0	0	0.00		1
											0	0	0	0	0.00		1
											0	0	0	0	0.00		1
											0	0	0	0	0.00		1
											0	0	0	0	0.00		1
											0	0	0	0	0.00		1
											0	0	0	0	0.00		1
			0.00	0.00	0.31	0.73	0.00	0.00	0.67	1.396	0.00	0.00	0.30	0.62	0.62		

	Linear		Non-Linear	
	Impervious	Developed	Impervious	Developed
	0.00	0.00	0.31	0.73
	0.00	0.00	0.30	0.62
Percentage:	**#DIV/0!**	**#DIV/0!**	**97.9%**	**85.1%**
	N/A	N/A	95%	80%
	YES	YES	YES	YES

2940325 - Neighborhood Outreach Meeting for the Dalton Street Housing Project

STATUS Pending FMX Administrator's approval

Att. V

DATE Wed, May 28, 2025

Nathan Goodrich opened this request

May 7, 2025 @ 3:40 PM

Request type	Community Event
Event name	2940325 - Neighborhood Outreach Meeting for the Dalton Street Housing Project
Building	Presumpscot School
Resource types	Gym
Resources	RM 113
Setup time	15 minutes
Teardown time	15 minutes
Anticipated attendance	20
Space Notes (Indicate "NONE" if no additional notes)	NONE
Please check the equipment you are requesting to be used (NOTE: Not all specificed equipment are available in all schools)	Tables (list number in the notes section) Chairs (list number in the notes section)
Equipment Notes (indicate NONE if no additional notes)	2 TABLES 15-20 CHAIRS
Room set up instructions or additional information	NONE

Insurance	Users of any part of a Portland Public Schools building shall indemnify and hold harmless the Portland Public Schools against the claims of any and all persons for personal injury, death or property damage occasioned by, or in connection with, its occupants and use of the premises. Users must furnish a Certificate of Insurance indicating that said user has coverage for GENERAL LIABILITY I THE AMOUNT OF $400,000 and coverage for PROPERTY DAMAGES IN THE AMOUNT OF $1,000,000 and naming Portland Public School as additional insured. Such insurance must be effective during the occupation and use of any Portland Public Schools facility. To obtain a one-time insurance, you'll want to look for "event insurance" for your needs. No school facilities may be used without such Certificate of Insurance on file and in the Operations office. **Please click here to review our Building Use agreement.**
Liability Insurance	**Certificate.pdf** Download (26.25 KB)
Submission	By typing their name below, the requester understands that use of any Portland Public Schools facilities will not be granted without the certificate of insurance as outlined previously nor an executed Building Use Contract on hand in the Operations office. Requester further understands that permission to use school facilities may be rescinded at any time, in the sole discretion of Portland Public Schools, without prior notice or liability.
Please type name as signature	Nathan Goodrich
Upcoming reminder	-

Occurrence

Event time	Wed, May 28, 2025, 6:00pm - 7:00pm
Reservation time	Wed, May 28, 2025, 5:45pm - 7:15pm
Building	Presumpscot School
Resource types	Gym
Resources	RM 113
Setup time	15 minutes
Teardown time	15 minutes

5/29/25 Dalton St Neighborhood Outreach Mtg
Presumpscot Elem Sch 6-7pm
Sign In sheet

NAME	Address	Phone #
Cayce parker	30 Dalton	417 448 7546
Jaime Parker	30 Dalton	329-6180
Wendy Harmon	62 Veranda St	207-939-7523

NEIGHBORHOOD OUTREACH MEETING

Dalton Street Housing
36 Dalton Street, Portland, Maine

Prepared by:

MAIN-LAND DEVELOPMENT CONSULTANTS, INC.
P.O. Box Q, Livermore Falls, Maine

May 28, 2025

What type of buildings are being built?

How will stormwater be addressed?

Att. X

Catalog # : _____ Project : _____ Type : _____

Prepared By : _____ Date : _____

LifeStyle Small (XDLS)

Outdoor Decorative Area Light

IP66

OVERVIEW	
Lumen Package (lm)	3,000 - 17,000
Wattage Range (W)	20 - 105
Efficacy Range (LPW)	129 - 164
Weight lbs (kg)	24 (10.8)

QUICK LINKS

Ordering Guide | Performance | Dimensions

FEATURES & SPECIFICATIONS

Construction

- Cast aluminum. Wiring emerges from crown through compression seal fitting to prevent water entry. One-piece silicone gasket seals crown to shade for water and dust-tight construction.
- Spun aluminum shade. Two shade styles available - A - Angle and B - Bell.
- Brackets are extruded and cast aluminum assemblies or fabrications. All decorative elements are die cast or extruded aluminum.
- Luminaire is proudly made in the U.S.
- Fixtures are finished with LSI's DuraGrip® polyester powder coat finishing process. The DuraGrip finish withstands extreme weather changes without cracking or peeling. Other standard LSI finishes available. Consult factory.
- Shipping weight: 24 lbs in carton.

Optical System

- Low glare mid-powered LEDs available in 5000K, 4000K, 3500K, 3000K and 2700K color temperatures per ANSI C78.377. Also available in Phosphor Converted Amber with Peak intensity at 610nm.
- 6 distribution types 3W, 4F, 5Q, 5R, 5D & AD
- Diffused lens version provides maximum visual comfort with reduced brightness and LED pixelization
- Minimum CRI of 80.
- Zero uplight.

Electrical

- High-performance driver features overvoltage, under-voltage, short-circui and over temperature protection (6kV surge standard).
- 0-10V dimming (10% - 100%) Optional.
- Standard Universal Voltage (120-277 VAC) Input 50/60 Hz or optional High Voltage (347-480 VAC).
- Total harmonic distortion (THD): <20%
- Operating temperature: -40°C to +40°C (-40°F to +104°F).
- Power factor (PF): >.90
- Driver is fully encased in potting material for moisture resistance and complies with FCC standards. Driver and key electronic components can easily be accessed.

Controls

- Integral passive infrared Bluetooth™ motion and photocell sensor options. Fixtures operate independently and can be commissioned via an iOS or Android configuration app.
- LSI's AirLink™ Blue lighting control system is a simple feature rich wireless Bluetooth mesh network. The integrated fixture sensor module provides wireless control of grouped fixtures based on motion sensors, daylight or a fully customizable schedule. Updates and modifications to the control strategy are easily implemented via an intuitive iOS app.

Installation

- Classic Hook (CH) and Side Arm (SA - 4" O.D. minimum pole top required) available. See Steel Round Pole and Aluminum Round Pole data sheets for pole selection information.
- Side Arm pole mount requires LSI B3 reduced drilling pattern.
- Classic hook mount requires a 4" O.D. pole or tenon.

Warranty

- LSI luminaires carry a 5-year limited warranty. Refer to https://www.lsicorp.com/resources/terms-conditions-warranty/ for more information.

Listings

- Listed to UL 1598 and UL 8750.
- Suitable for wet Locations.
- US patent 7,828,456 8,002,428, 8,177,386 8,434,893
- Meets Buy American Act requirements.
- DarkSky Approved; with 3000K and warmer color temperature selection.
- IP66 rated Luminaire per IEC 60598-1.
- DesignLights Consortium® (DLC) Premium qualified product. Not all versions of this product may be DLC Premium qualified. Please check the DLC Qualified Products List at www.designlights.org/QPL to confirm which versions are qualified.

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LifeStyle Small (XDLS) Outdoor Decorative Area Light

Type : _____

Have questions? Call us at (800) 436-7800

ORDERING GUIDE

Back to Quick Links

TYPICAL ORDER EXAMPLE: XDLS B 9L 5Q UNV 30K8 BLK CH S ALBMR1

Prefix	Lumen Package	Distribution	Voltage	CCT/CRI	Finish
XDLSA - LifeStyle Angle Shade[1] **XDLSB** - LifeStyle Bell Shade[1]	**3L** - 3,000 lm, 20w **5L** - 5,000 lm, 36w **6L** - 6,000 lm, 42w **9L** - 9,000 lm, 62w **12L** - 12,00 lm, 86w **17L** - 17,00 lm, 105w	**3W** - Type 3 Wide **4F** - Type 4 Forward **5Q** - Type 5 Square **5R** - Type 5 Rectangular **5D** - Type 5 Diffuse **AD** - Asymmetric Diffuse	**UNV** - Universal Voltage (120 - 277V) **HV** - High Voltage (347 - 480V)	**50K8** - 5000K, 80CRI **40K8** - 4000K, 80CRI **35K8** - 3500K, 80CRI DarkSky Approved CCT's **30K8** - 3000K, 80CRI **27K8** - 2700K, 80CRI	**BLK** - Black **BRZ** - Bronze **WHT** - White **GPT** - Graphite **GMG** - Gun Metal Grey **MSV** - Metallic Silver **PLP** - Platinum Plus **SVG** - Satin Verde Green

Mounting Style[2,3]	Mounting Configuration[2,3]	Controls
CH - Classic Hook **SA4** - Side Arm Mount for 4" O.D. Round Poles[3] **SA5** - Side Arm Mount for 5" O.D. Round Poles[3] **SAW** - Side Arm WallMount	**S** - Single **D180** - Double @ 180° **D90** - Double @ 90°[4] **T90** - Triple @ 90°[4] **TN120** - Triple @ 120°[4] **Q90** - Quad[4]	**Blank** - None **Wireless Controls System** **ALBMR1** - AirLink Blue Wireless Motion & Photo Sensor Controller (8-15' MH) **ALBMR2** - AirLink Blue Wireless Motion & Photo Sensor Controller (16-40' MH) **Stand-Alone Controls** **IMSBT1L** - Integral Bluetooth™ Motion and Photocell Sensor (8 - 24' mounting height)[7] **IMSBT2L** - Integral Bluetooth™ Motion and Photocell Sensor (25 - 40' mounting height)[7] **EXT** - 0-10v Dimming leads extended to housing exterior **PCI120** - 120V ButtonType Photocell **PCI208-277** - 208-277V Button-Type Photocell **PCI347** - 347V ButtonType Photocell

Need more information?
Click here for our glossary

Have additional questions?
Call us at (800) 436-7800

ACCESSORY ORDERING INFORMATION

Part Number	Description
FK120	Single Fusing (120V)[5]
FK277	Single Fusing (277V)[5]
DFK480	Double Fusing (480V)[5]
DFK347	Double Fusing (347V)[5]
828001	XDLS External House Side Shield (Black Finish Only)

MOTION SENSOR AND PHOTOCELL

Integral button photocell (PCI) available for basic on/off luminaire control based on abmient light levels. Integral BlueTooth motion sensor available for standalone control (IMSBT) or mesh network for grouping multiple fixtures and sensors (ALBMR).

1 When ordering a multiple configuration (D180, etc.) order one fixture/bracket configuration per pole - i.e. order one XDLMB 3 LED SS CW UE BLK CH D180 PCI120 to receive two fixtures and one CH D180 bracket (see drawing on this page). See STEEL ROUND POLES and ALUMINUM ROUND POLES data sheets for pole ordering information.
2 See Lifestyle Bracket ordering chart for Mounting Style/Configurations availability.
3 B3 reduced drilling pattern required.
4 For use with SA4 and SA5 mounting styles only.
5 Fusing must be located in the hand hole of pole.
6 LEDs are frequently updated therefore values are nominal
7 IMSBTxL is field configurable via the Leviton app that can be downloaded from your smartphone's app store.

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PERFORMANCE

Back to Quick Links

Delivered Lumens

Lumen Package	Distribution	CRI	2700K CCT			3000K CCT			3500K CCT			4000K CCT			5000K CCT			Wattage
			Delivered Lumens	Efficacy	BUG Rating	Delivered Lumens	Efficacy	BUG Rating	Delivered Lumens	Efficacy	BUG Rating	Delivered Lumens	Efficacy	BUG Rating	Delivered Lumens	Efficacy	BUG Rating	
3L	3W	80	2,348	117	B1-U0-G1	2,763	138	B1-U0-G1	2,811	141	B1-U0-G1	2,910	146	B1-U0-G1	2,913	146	B1-U0-G1	20
	4F		2,380	119	B1-U0-G1	2,800	140	B1-U0-G1	2,850	143	B1-U0-G1	2,950	148	B1-U0-G1	2,953	148	B1-U0-G1	
	5Q		2,424	121	B1-U0-G0	2,853	143	B2-U0-G0	2,903	145	B2-U0-G0	3,005	150	B2-U0-G0	3,008	150	B2-U0-G0	
	5R		2,348	117	B1-U0-G1	2,763	138	B2-U0-G2	2,812	141	B2-U0-G2	2,911	146	B2-U0-G2	2,913	146	B2-U0-G2	
	5D		2,192	110	B1-U0-G1	2,579	129	B1-U0-G1	2,625	131	B1-U0-G1	2,717	136	B1-U0-G1	2,720	136	B1-U0-G1	
	AD		2,202	110	B1-U0-G1	2,592	130	B1-U0-G1	2,638	132	B1-U0-G1	2,730	136	B1-U0-G1	2,732	137	B1-U0-G1	
5L	3W	80	4,512	125	B1-U0-G1	5,309	147	B1-U0-G1	5,403	150	B1-U0-G1	5,593	155	B1-U0-G1	5,598	155	B1-U0-G1	36
	4F		4,575	127	B1-U0-G1	5,384	150	B1-U0-G1	5,479	152	B1-U0-G1	5,671	158	B1-U0-G1	5,676	158	B1-U0-G1	
	5Q		4,660	129	B2-U0-G1	5,483	152	B3-U0-G1	5,580	155	B3-U0-G1	5,776	160	B3-U0-G1	5,781	161	B3-U0-G1	
	5R		4,514	125	B2-U0-G2	5,311	148	B2-U0-G2	5,405	150	B2-U0-G2	5,595	155	B3-U0-G3	5,600	156	B3-U0-G3	
	5D		4,213	117	B2-U0-G1	4,957	138	B2-U0-G1	5,045	140	B2-U0-G1	5,222	145	B2-U0-G1	5,226	145	B2-U0-G1	
	AD		4,232	118	B1-U0-G1	4,980	138	B2-U0-G1	5,068	141	B2-U0-G1	5,246	146	B2-U0-G1	5,250	146	B2-U0-G1	
6L	3W	80	5,360	128	B1-U0-G1	6,307	150	B2-U0-G2	6,419	153	B2-U0-G2	6,644	158	B2-U0-G2	6,650	158	B2-U0-G2	42
	4F		5,435	129	B1-U0-G1	6,395	152	B2-U0-G1	6,508	155	B2-U0-G1	6,736	160	B2-U0-G1	6,742	161	B2-U0-G1	
	5Q		5,535	132	B3-U0-G1	6,513	155	B3-U0-G1	6,628	158	B3-U0-G1	6,861	163	B3-U0-G1	6,867	164	B3-U0-G1	
	5R		5,362	128	B2-U0-G2	6,310	150	B3-U0-G3	6,422	153	B3-U0-G3	6,647	158	B3-U0-G3	6,652	158	B3-U0-G3	
	5D		5,005	119	B2-U0-G1	5,888	140	B2-U0-G1	5,993	143	B2-U0-G1	6,203	148	B2-U0-G1	6,208	148	B2-U0-G1	
	AD		5,028	120	B2-U0-G1	5,916	141	B2-U0-G1	6,021	143	B2-U0-G1	6,232	148	B2-U0-G1	6,237	149	B2-U0-G1	
9L	3W	80	7,804	126	B2-U0-G2	9,182	148	B2-U0-G2	9,344	151	B2-U0-G2	9,673	156	B2-U0-G2	9,681	156	B2-U0-G2	62
	4F		7,913	128	B2-U0-G2	9,311	150	B2-U0-G2	9,476	153	B2-U0-G2	9,808	158	B2-U0-G2	9,817	158	B2-U0-G2	
	5Q		8,060	130	B3-U0-G1	9,483	153	B3-U0-G2	9,651	156	B3-U0-G2	9,990	161	B3-U0-G2	9,999	161	B3-U0-G2	
	5R		7,808	126	B3-U0-G3	9,187	148	B3-U0-G3	9,350	151	B3-U0-G3	9,678	156	B3-U0-G3	9,687	156	B3-U0-G3	
	5D		7,287	118	B2-U0-G1	8,574	138	B3-U0-G1	8,726	141	B3-U0-G1	9,032	146	B3-U0-G1	9,040	146	B3-U0-G1	
	AD		7,321	118	B2-U0-G2	8,614	139	B2-U0-G2	8,766	141	B2-U0-G2	9,074	146	B2-U0-G2	9,082	146	B2-U0-G2	

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PERFORMANCE

Delivered Lumens

Lumen Package	Distribution	CRI	2700K CCT			3000K CCT			3500K CCT			4000K CCT			5000K CCT			Wattage
			Delivered Lumens	Efficacy	BUG Rating	Delivered Lumens	Efficacy	BUG Rating	Delivered Lumens	Efficacy	BUG Rating	Delivered Lumens	Efficacy	BUG Rating	Delivered Lumens	Efficacy	BUG Rating	
12L	3W	80	10,598	123	B2-U0-G2	12,470	145	B3-U0-G3	12,691	148	B3-U0-G3	13,137	153	B3-U0-G3	13,148	153	B3-U0-G3	86
	4F		10,746	125	B2-U0-G2	12,644	147	B2-U0-G2	12,868	150	B2-U0-G2	13,319	155	B2-U0-G2	13,331	155	B2-U0-G2	
	5Q		10,945	127	B3-U0-G2	12,878	150	B3-U0-G2	13,106	152	B3-U0-G2	13,566	158	B4-U0-G2	13,566	158	B4-U0-G2	
	5R		10,603	123	B3-U0-G3	12,476	145	B3-U0-G3	12,696	148	B3-U0-G3	13,142	153	B3-U0-G3	13,153	153	B3-U0-G3	
	5D		10,149	118	B3-U0-G1	11,942	139	B3-U0-G2	12,153	141	B3-U0-G2	12,580	146	B3-U0-G2	12,592	146	B3-U0-G2	
	AD		9,941	116	B2-U0-G2	11,697	136	B3-U0-G2	11,904	138	B3-U0-G2	12,322	143	B3-U0-G2	12,333	143	B3-U0-G2	
17L	3W		15,469	148	B3-U0-G3	15,972	153	B3-U0-G3	16,060	154	B3-U0-G3	15,862	152	B3-U0-G3	16,515	158	B3-U0-G3	105
	4F		15,716	150	B3-U0-G2	16,226	155	B3-U0-G2	16,316	156	B3-U0-G2	16,114	154	B3-U0-G2	16,779	161	B3-U0-G2	
	5Q		16,145	155	B4-U0-G2	16,669	160	B4-U0-G2	16,762	160	B4-U0-G2	16,554	158	B4-U0-G2	17,237	165	B4-U0-G2	
	5R		15,794	151	B3-U0-G3	16,306	156	B3-U0-G3	16,397	157	B3-U0-G3	16,194	155	B3-U0-G3	16,861	161	B3-U0-G3	
	5D		15,019	144	B3-U0-G2	15,506	148	B3-U0-G2	15,592	149	B3-U0-G2	15,400	147	B3-U0-G2	16,034	153	B3-U0-G2	
	AD		15,119	145	B3-U0-G3	15,610	149	B3-U0-G3	15,697	150	B3-U0-G3	15,502	148	B3-U0-G3	16,141	154	B3-U0-G3	

ELECTRICAL DATA (AMPS)*

Lumen Package	Wattage	120V	208V	240V	277V	347V	480V
3L	20	0.17	0.10	0.08	0.07	0.06	0.04
5L	36	0.30	0.17	0.15	0.13	0.10	0.08
6L	42	0.35	0.20	0.18	0.15	0.12	0.09
9L	71	0.59	0.34	0.30	0.26	0.20	0.15
12L	86	0.72	0.41	0.36	0.31	0.25	0.18
17L	105	0.88	0.50	0.44	0.38	0.30	0.22

*LED Chips are frequently updated therefore values may change.
Data is based on Haze Reflector.

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PHOTOMETRICS

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Luminaire photometry has been conducted by a NVLAP accredited testing laboratory in accordance with IESNA LM-79-08. As specified by IESNA LM-79-08 the entire luminaire is tested as the source resulting in a luminaire efficiency of 100%.

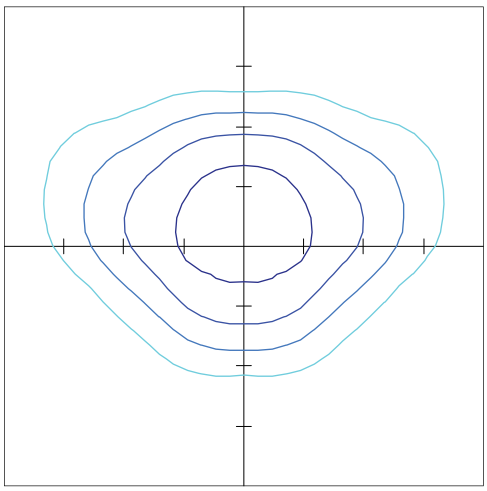
See the individual product page on https://www.lsicorp.com/ for detailed photometric data.

XDLS 6L 3W 40K8

Luminaire Data	
Type 3 Wide Distribution	
Description	4000 Kelvin, 80 CRI
Delivered Lumens	6,644
Watts	42
Efficacy	158
IES Type	Type III Very Short
BUG Rating	B2 U0 G2

Zonal Lumen Summary		
Zone	**Lumens**	**% Luminaire**
Low (0-30°)	1,236	19%
Medium (30-60°)	3,411	51%
High (60-80°)	1,880	28%
Very High (80-90°)	117	2%
Uplight (90-180°)	-	0%
Total Flux	6,644	100%

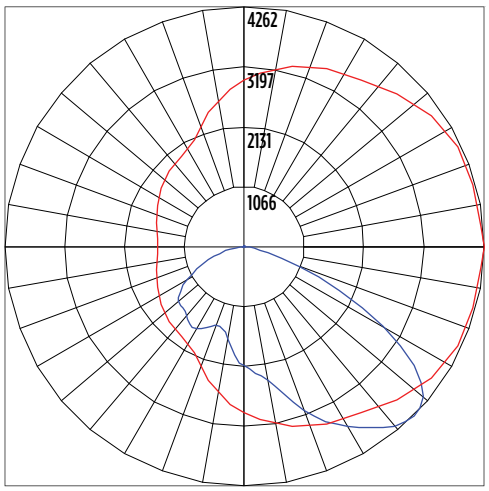
ISO Footcandle



15' Mounting Height / 15' Grid Spacing

5 FC 2 FC 1 FC 0.5 FC

Polar Curve



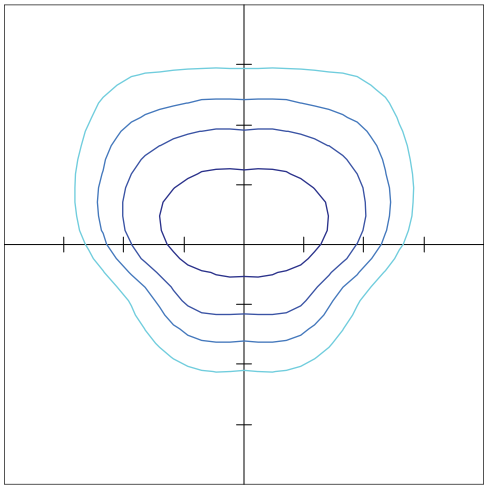
Vertical Plane Horizontal Cone

XDLS 6L 4F 40K8

Luminaire Data	
Type 4 Forward Distribution	
Description	4000 Kelvin, 80 CRI
Delivered Lumens	6,736
Watts	42
Efficacy	160
IES Type	Type IV Short
BUG Rating	B2 U0 G1

Zonal Lumen Summary		
Zone	**Lumens**	**% Luminaire**
Low (0-30°)	1,118	17%
Medium (30-60°)	3,578	54%
High (60-80°)	1,962	30%
Very High (80-90°)	78	1%
Uplight (90-180°)	-	0%
Total Flux	6,737	100%

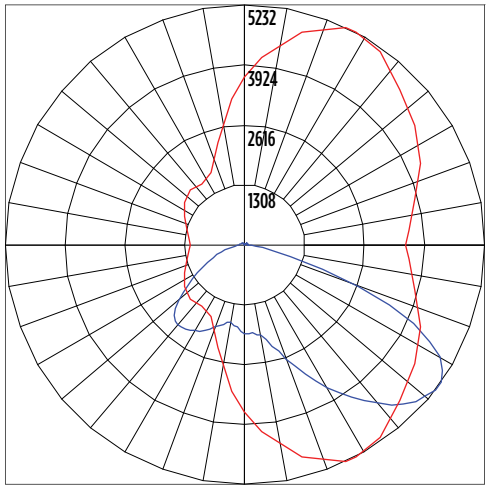
ISO Footcandle



15' Mounting Height / 15' Grid Spacing

5 FC 2 FC 1 FC 0.5 FC

Polar Curve



Vertical Plane Horizontal Cone

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PHOTOMETRICS

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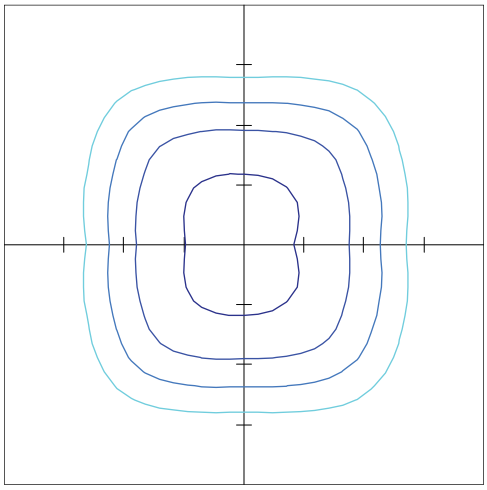
XDLS 6L 5Q 40K8

Luminaire Data	
Type 5 Square Distribution	
Description	4000 Kelvin, 80 CRI
Delivered Lumens	6,861
Watts	42
Efficacy	163
IES Type	Type VS Short
BUG Rating	B3 U0 G1

Zonal Lumen Summary		
Zone	**Lumens**	**% Luminaire**
Low (0-30°)	795	0%
Medium (30-60°)	3,411	51%
High (60-80°)	2,613	39%
Very High (80-90°)	42	1%
Uplight (90-180°)	-	0%
Total Flux	6,861	100%

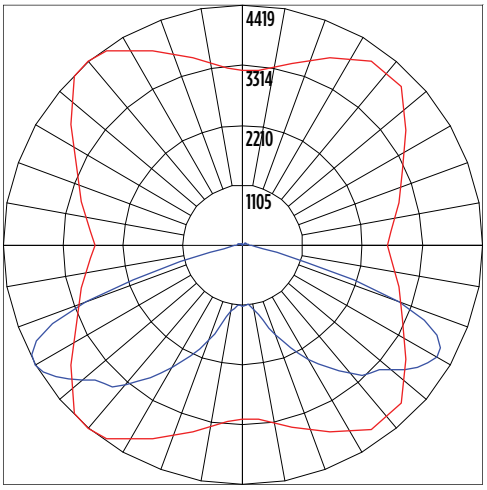
ISO Footcandle



15' Mounting Height / 15' Grid Spacing

5 FC 2 FC 1 FC 0.5 FC

Polar Curve



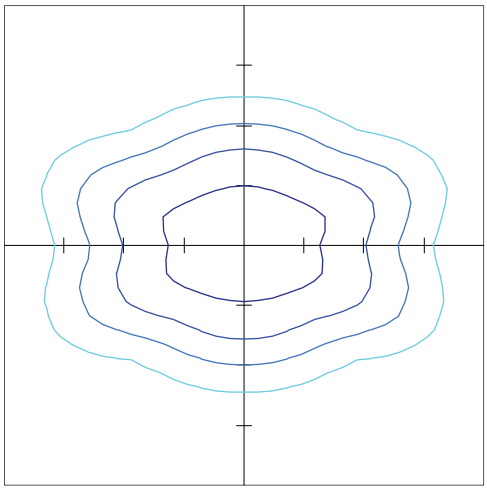
Vertical Plane Horizontal Cone

XDLS 6L 5R 40K8

Luminaire Data	
Type 5 Rectangular Distribution	
Description	4000 Kelvin, 80 CRI
Delivered Lumens	6,647
Watts	42
Efficacy	158
IES Type	Type III Medium
BUG Rating	B2 U0 G1

Zonal Lumen Summary		
Zone	**Lumens**	**% Luminaire**
Low (0-30°)	1,052	16%
Medium (30-60°)	3,048	46%
High (60-80°)	2,416	36%
Very High (80-90°)	132	2%
Uplight (90-180°)	-	0%
Total Flux	6,647	100%

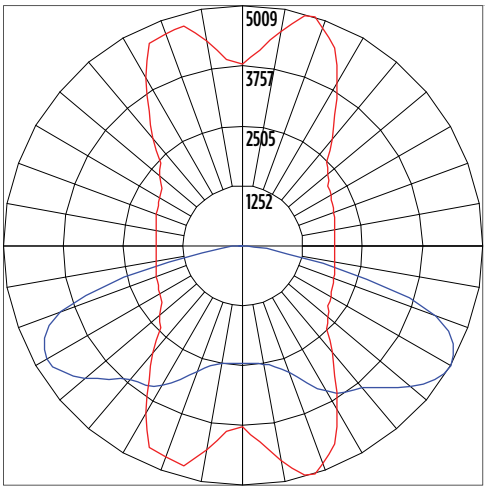
ISO Footcandle



15' Mounting Height / 15' Grid Spacing

5 FC 2 FC 1 FC 0.5 FC

Polar Curve



Vertical Plane Horizontal Cone

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PHOTOMETRICS

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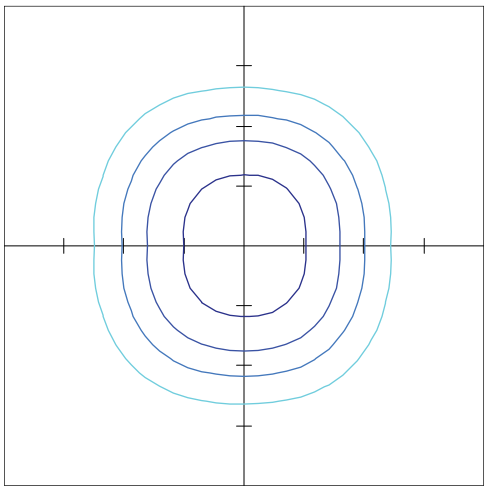
XDLS 6L 5D 40K8

Luminaire Data	
Type 5 Diffuse Distribution	
Description	4000 Kelvin, 80 CRI
Delivered Lumens	6,647
Watts	42
Efficacy	158
IES Type	Type VS Very Short
BUG Rating	B2 U0 G1

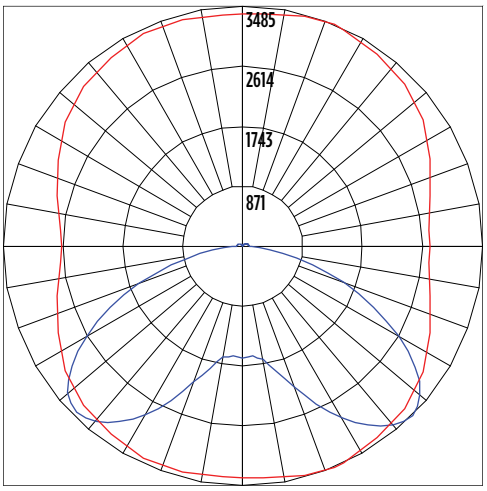
Zonal Lumen Summary		
Zone	**Lumens**	**% Luminaire**
Low (0-30°)	1,145	17%
Medium (30-60°)	3,450	52%
High (60-80°)	1,497	23%
Very High (80-90°)	111	2%
Uplight (90-180°)	-	0%
Total Flux	6,203	100%

ISO Footcandle



15' Mounting Height / 15' Grid Spacing

Polar Curve

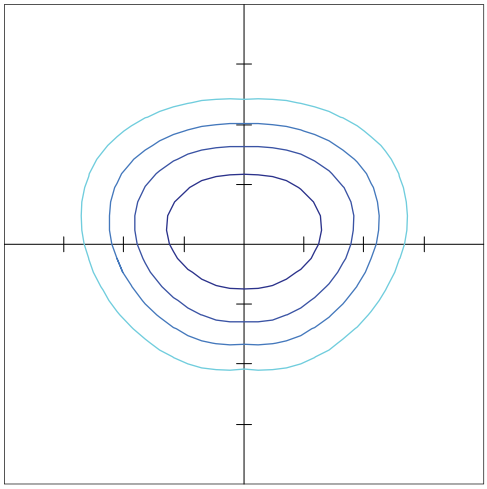


XDLS 6L AD 40K8

Luminaire Data	
Asymmetric Diffuse Distribution	
Description	4000 Kelvin, 80 CRI
Delivered Lumens	6,203
Watts	42
Efficacy	148
IES Type	Type III Very Short
BUG Rating	B2 U0 G1

Zonal Lumen Summary		
Zone	**Lumens**	**% Luminaire**
Low (0-30°)	1,437	22%
Medium (30-60°)	3,396	51%
High (60-80°)	1,304	20%
Very High (80-90°)	96	1%
Uplight (90-180°)	0	0%
Total Flux	6,232	100%

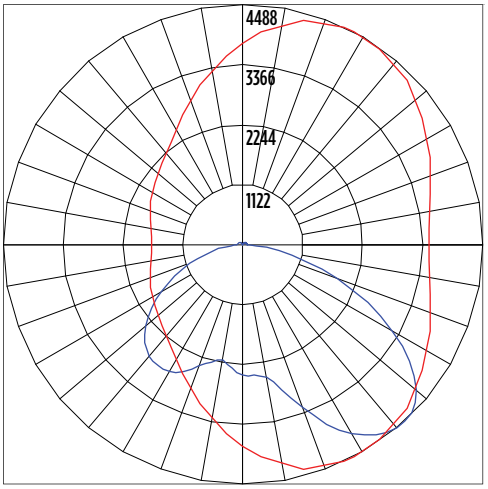
ISO Footcandle



15' Mounting Height / 15' Grid Spacing

5 FC 2 FC 1 FC 0.5 FC

Polar Curve



Vertical Plane Horizontal Cone

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POLES & BRACKETS

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LSI offers a full line of poles and mounting accessories to complete your lighting assembly. Aluminum and steel in both square and round shafts. In addition, LSI offers round tapered, fluted and hinge based poles. Designed and engineered for durability and protected with our oven baked DuraGrip Protection System. Also available with our DuraGrip+ Protection system for unmatched corrosion resistance and an extended warranty. American made in our Ohio facility with industry leading lead times.

Click here to learn more details about poles & brackets

Decorative Base Cover
Round Straight

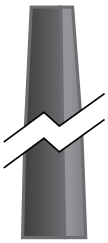
Optional decorative base cover has a two-piece die cast construction with stainless steel fasteners. Base cover is polyester powder coated to match pole. GBC base cover fits 4" and 5" diameter straight round poles. Includes 4" round pole adaptor molded from black silicone rubber.

Spun Aluminum Collar
Round Straight

Optional one-piece spun aluminum collar for 4" or 5" diameter straight round poles. Features durable, high quality construction with aesthetically pleasing design that slips over the pole for increased theft deterrent.

Square Pole
14'-39'

Round Pole
10'-30'



Tapered Pole
20'-39'

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PRODUCT DIMENSIONS

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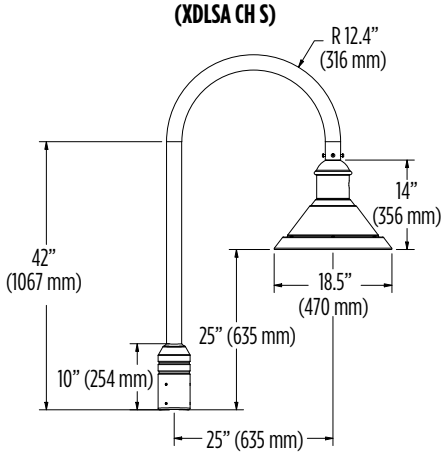
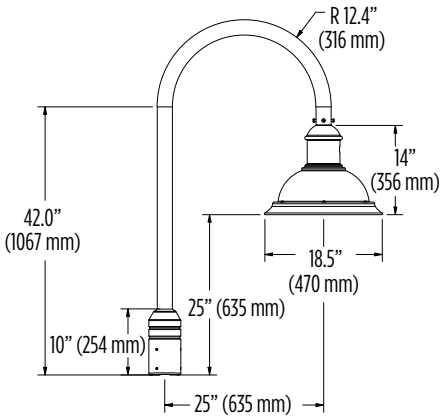
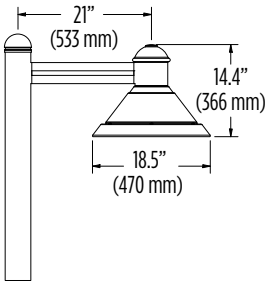
Angle Shade with Classic Hook - Single (XDLSA CH S)



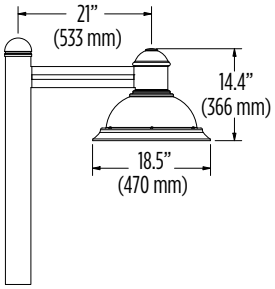
Bell Shade with Classic Hook - Single (XDLSB CH S)



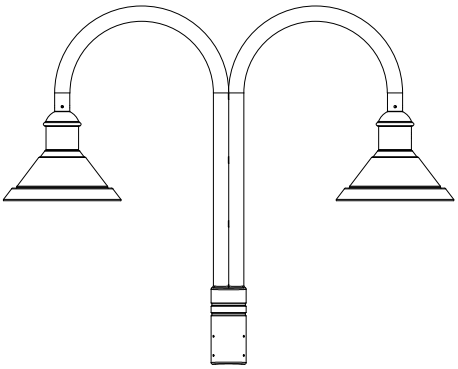
Angle Shade with Side Arm Mount for 4" Round Poles - Single (XDLSA SA4 S)



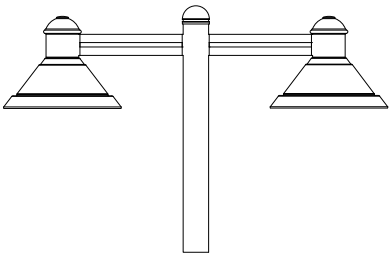
Bell Shade with with Side Arm Mount for 4" Round Poles - Single (XDLSB SA4 S)



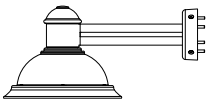
Classic Hook - Double 180°[1] (CHD180)



Side Arm Mount - Double 180°[1] (SAD180)



Side Arm Mount - Wall Mount[1] (SAW)



Luminaire EPA Chart - Side Arm XDLS[2]						
Configration	**Single**	**D180°**	**D90°**	**T90°**	**TN120°**	**Q90°**
EPA	1.3	2.6	2.2	3.5	3.3	4.0

Luminaire EPA Chart - Classic Hook XDLS[2]		
Configration	**Single**	**D180°**
EPA	2.4	4.7

1 See Lifestyle Brackets and Mounts in outdoor section of latest Buyers Guide for details on other bracket sizes.
2 Includes Bracket.

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CONTROLS

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Integral Bluetooth™ Motion and Photocell Sensor (IMSBTx)

Slim low profile sensor provides multi-level control based on motion and/or daylight. Sensor controls 0-10 VDC LED drivers and is IP66 rated for cold and wet locations (-40°F to 167°F). Two unique PIR lenses are available and used based on fixture mounting height. All control parameters are adjustable via an iOS or Android App capable of storing and transmitting sensor profiles.

Click here to learn more details about IMSBT

Apple Android

AirLink Blue (ALBMRx)

Wireless Bluetooth Mesh Outdoor Lighting Control System that provides energy savings, code compliance and enhanced safety/security for parking lots and parking garages. Three key components; Bluetooth wireless radio/sensor controller, Time Keeper and an iOS App. Capable of grouping multiple fixtures and sensors as well as scheduling time-based events by zone. Radio/Sensor Controller is factory integrated into Area/Site, Wall Mounted, Parking Garage and Canopy luminaires.

Click here to learn more details about AirLink Blue

AirLink Blue App Apple

Sensor Sequence of Operations

Standard Programming	On Event	Off Event	On Light Level	Dim Light Level	Daylight Harvesting	Delay To Off	Sensitivity
IMSBTx	Motion	No Motion	100%	N/A	On; Auto Calibration	20 minutes	High

Operation	Description
On Event	Trigger that activates lights to turn on; either automatic via motion detected or manually activated via push of button.
Off Event	Trigger that activates lights to turn off; either automatic via no motion detected or manually activated via push of button.
On Light Level	The light level that the fixtures will turn on to when ON EVENT occurs.
Dim Light Level	The light level that the fixtures will dim down to when no motion is detected.
Delay to Dim	The amount of time after which no motion is detected that the fixtures will be triggered to dim down. This sequence is optional, and sensor can be programmed to only trigger the fixture to turn off by entering 100% in this field.
Delay to Off	The amount of time after which no motion is detected that the fixtures will be triggered to turn off. If delay to dim is part of the programmed functionality, this is the amount of time after which no motion is detected after the fixture have already dimmed down.
Sensitivity	The sensitivity can be set to high, medium, low, or auto where applicable. High will detect smaller, simple motions. Low will only detect larger more complex motions. Auto temperature calibration adjusts the PIR sensitivity as ambient temperature rises to increase detection of heat movement through the field of view.

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WMC SERIES

OUTDOOR LIGHTING

WESTGATE
THE FUTURE IS HERE...AND IT'S QUITE BRIGHT!

WMC-DL-MCT-BK-DT
WMC-DL-MCT-BR-DT
WMC-DL-MCT-BN-DT
WMC-DL-MCT-WH-DT

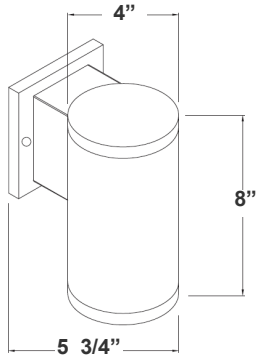
Customer Name:

Project Name:

Note: | Type:

MCT

Selection:



4” x 8” x 5-3/4”

Ideal for general site lighting, walkways, and stairways, alleys, loading docks, doorway, pathway and parking areas

Features

- Finish: Black,Bronze, Brushed Nickel & White
- Multi CCT (Selectable Switch on the Bottom of the Arm, Protected by Silicon Cover to be Waterproof)
- 7-Year Warranty
- Outdoor Down Light

Technical Specifications

Electrical:

- Voltage: 120V AC
- Power Factor: >0.95
- Wattage: 15W
- Efficacy: 80 LPW
- THD: <20%

Mechanical:

- Housing: Die-cast Aluminum & Glass
- Finish: Black, Bronze, Brushed Nickel & White
- Maximum Ambient Temperature: -68°F to 104°F
- Suitable for Wet Locations
- 7-Year Warranty

Lighting:

- Dimming: TRIAC Dimming (Using Standard TRIAC LED Dimmers)
- Total Lumens: 1200LM
- Color Temperatures: 3000K/4000K/5000K
- Multi CCT (Selectable Switch on the Bottom of the Arm, Protected by Silicon Cover to be Waterproof)
- Color Rendering Index: CRI ≥ 80
- Rated life: 70,000 hrs
- Beam angle: 45º

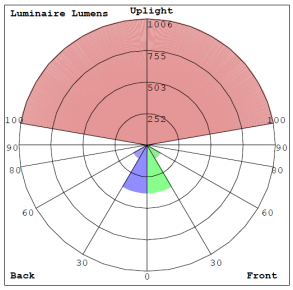
Applications:

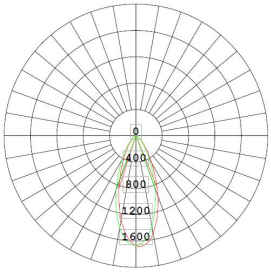
- Ideal for general site lighting, walkways, and stairways, alleys, loading docks, doorway, pathway and parking areas

Other Models:

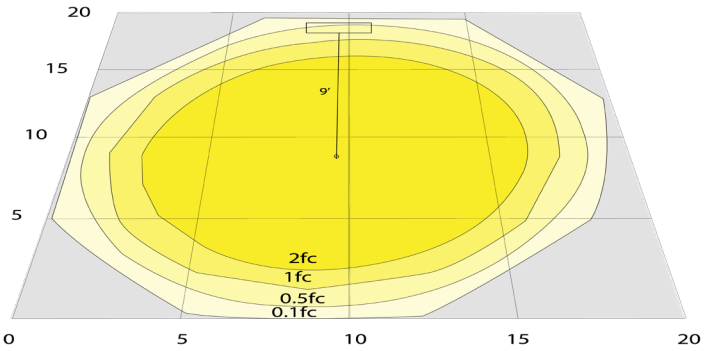
- 30W | 2400LM | WMC-UDL-MCT-BK-DT
- 30W | 2400LM | WMC-UDL-MCT-BR-DT
- 30W | 2400LM | WMC-UDL-MCT-BN-DT
- 30W | 2400LM | WMC-UDL-MCT-WH-DT

Photometrics: WMC-DL-MCT





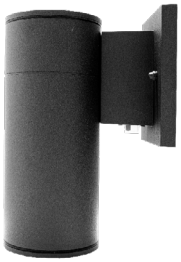
BUG Rating: B1-U1-G0



15W 5000K, Area 20'x 20' Mounting Height: 9'

Other Views:

Black Finish:



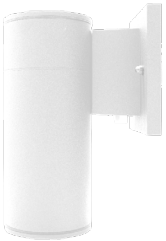
Bronze Finish:

Side View | Front View | Back View | Lens View

Brushed Nickel Finish:

Side View | Front View | Back View | Lens View

White Finish:



Side View | Front View | Back View | Lens View

Performance Table: WMC-DL-MCT

MODEL NO.	Wattage	Voltage	Lumens	Color Temp.	BUG Rating	LPW
WMC-DL-MCT-BK-DT	15W	120V	1200LM	3000K/ 4000K/ 5000K	B1-U1-G0	80
WMC-DL-MCT-BR-DT	15W	120V	1200LM	3000K/ 4000K/ 5000K	B1-U1-G0	80
WMC-DL-MCT-BN-DT	15W	120V	1200LM	3000K/ 4000K/ 5000K	B1-U1-G0	80
WMC-DL-MCT-WH-DT	15W	120V	1200LM	3000K/ 4000K/ 5000K	B1-U1-G0	80

Sample Ordering

Model		Light Direction		Color Temp.		Finish		Dimming
WMC	-	DL	-	MCT	-		-	DT

BK = Black
BR = Bronze
BN = Brushed Nickel
WH = White

Factory-Installed Option:

Blank = No Option For Accessories
OPT-PC-B = FOR 120V-277V PHOTOCELL
OPT-EM-FM2INT = INTERNAL EMERGENCY BACK UP BATTERY

Example:

1. **WMC-DL-MCT-BR-DT** (FOR WMC 15W DOWN LIGHT MCT BRONZE FIXTURE 120V)
2. **WMC-DL-MCT-BR-DT** (FOR WMC 15W DOWN LIGHT MCT BRONZE FIXTURE 120V)
   OPT-PC-B (FOR 120V-277V PHOTOCELL)

FACTORY-INSTALLED OPTION:

OPT-PC-B
FOR 120V-277V PHOTOCELL

OPT-EM-FM2INT
INTERNAL EMERGENCY BACK UP BATTERY

Catalog # : _____ Project : _____ Type : _____

Prepared By : _____ Date : _____

Slim Wall Pack (WPSLS)

Small LED Slim Wall Pack

OVERVIEW	
Lumen Package (lm)	1,000 - 4,000
Wattage Range (W)	9 - 36
Efficacy Range (LPW)	105 - 119
Weight lbs (kg)	4.4 (2.0)

QUICK LINKS

Ordering Guide | Performance | Photometrics | Dimensions

FEATURES & SPECIFICATIONS

Construction

- Rigid Precision Die cast-aluminum housing for durability and consistency.
- Vertical fins serve as a heat sink and resist accumulation of dust and debris.
- Thermal stacking heat removal technology extracts heat from within the housing moving it away from LEDs and integral components.
- Luminaire hinges open from the bottom to prevent leakage.
- Luminaire is proudly manufactured and tested in the U.S.
- Fixtures are finished with polyester powder coat finishing process to withstand extreme weather changes without cracking or peeling.

Optical System

- High-performance LEDs behind clear tempered glass for maximum light output and durability.
- Available in 5000K, 4500K, 4000K, and 3000K color temperatures per ANSI C78.377
- Minimum CRI of 80 for 4000K, 4500K, 5000K. Minimum CRI of 70 for 3000K.
- Zero uplight.

Electrical

- High-performance driver features over-voltage, under voltage, short-circuit and over temperature protection.
- 0-10 volt dimming (10% - 100%) standard.
- Standard Universal Voltage (120-277 Vac) Input 50/60 Hz
- L70 Calculated Life: >200k Hours
- Total harmonic distortion: <20%
- Power factor: >.85
- Input power stays constant over life.
- Driver Off-State Power is 0 watts.
- LEDs with integrated circuit board mounted directly to the housing to maximize heat dissipation and promote long life.
- Components are fully encased in potting material for moisture resistance. Driver complies with FCC standards. Driver and key electronic components can easily be accessed.
- Minimum 2.5kV surge rating
- Operating temperature: -40°C to +50°C (-40°F to +122°F).

Controls

- Optional 120V-277V electronic button Photocontol.
- Apertures for field or factory installed photocontrol.

Installation

- Surface mounts direct to J-box or wall.
- Features a bubble level and removable hinged face frame for ease of installation.

Warranty

- LSI luminaires carry a 5-year limited warranty. Refer to https://www.lsicorp.com/resources/terms-conditions-warranty/ for more information.
- 1 Year warranty on optional Button Photocell.

Listings

- Listed to UL 1598 and UL 8750.
- Meets Buy American Act requirements.
- DarkSky Approved with 3000K color temperature selection.
- CSA Listed
- RoHS Compliant.
- State of California Title 24.
- Suitable For Wet Locations.
- DesignLights Consortium® (DLC) Premium qualified product. Not all versions of this product may be DLC Premium qualified. Please check the DLC Qualified Products List at www.designlights.org/QPL to confirm which versions are qualified.

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Slim Wall Pack (WPSLS)

Type : _____

Have questions? Call us at (800) 436-7800

ORDERING GUIDE

Back to Quick Links

TYPICAL ORDER EXAMPLE: WPSLS LED 1L UNV DIM 30 PCI 120 BZA

Prefix	Lumen Package	Voltage	Color Temperature	Controls	Finish
WPSLS LED - Small Slim Wall Pack	**1L** - 1,000 lms (9w) **2L** - 2,000 lms (20w) **3L** - 3,000 lms (30w) **4L** - 4,000 lms (36w)	**UNV DIM** - Universal Voltage (120-277V)	**50** - 5000K **45** - 4500K **40** - 4000K **30** - 3000K *(Dark Sky Approved)*[1]	**PCIUNV** - 120V-277V Photocontrol	**BZA** - Bronze **BLK** - Black **SLV** - Silver **WHT** - White

Need more information?
Click here for our glossary

Have additional questions?
Call us at (800) 436-7800

PERFORMANCE

Back to Quick Links

Delivered Lumens

Lumen Package	4000K - 80CRI		4500K - 80CRI		5000K - 80CRI		Wattage
	Delivered Lumens	Efficacy	Delivered Lumens	Efficacy	Delivered Lumens	Efficacy	
1L	911	105	966	111	921	106	9
2L	2312	118	2451	125	2337	119	20
3L	3473	115	3683	122	3510	117	30
4L	4047	112	4291	124	4090	113	36

Delivered Lumens

Lumen Package	3000K - 70CRI		Wattage
	Delivered Lumens	Efficacy	
1L	1206	98	12
2L	2125	107	20
4L	3712	100	40

Electrical Data - Current Draw AMPS

Lumen Package	120V	208V	240V	277V
1L	0.08	0.04	0.04	0.03
2L	0.17	0.10	0.08	0.07
3L	0.25	0.14	0.13	0.11
4L	0.30	0.17	0.15	0.13

1 1L, 2L and 4L lumen packages only

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PHOTOMETRICS

Back to Quick Links

Luminaire photometry has been conducted by a NVLAP accredited testing laboratory in accordance with IESNA LM-79-08. As specified by IESNA LM-79-08 the entire luminaire is tested as the source resulting in a luminaire efficiency of 100%.

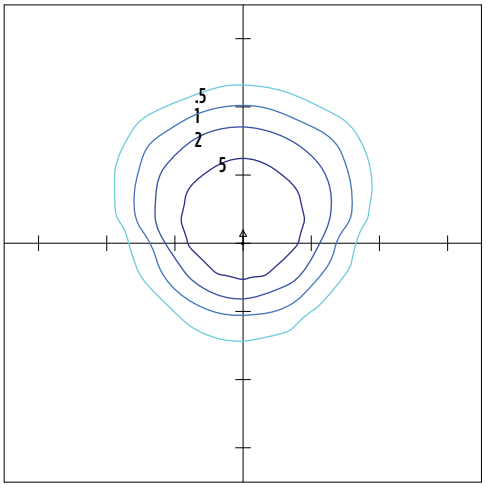
See the individual product page on https://www.lsicorp.com/ for detailed photometric data.

WPSLS-4L-40

Luminaire Data	
Wide Distribution	
Description	4000 Kelvin, 80 CRI
Delivered Lumens	4,047
Watts	36
Efficacy	112
IES Type	Type III - Very Short
BUG Rating	B1-U0-G1

Zonal Lumen Summary		
Zone	**Lumens**	**% Luminaire**
Low (0-30°)	1119.6	27.6%
Medium (30-60°)	2215.8	54.7%
High (60-80°)	695.5	17.2%
Very High (80-90°)	16.4	0.4%
Uplight (90-180°)	0.0	0.0%
Total Flux	4047.3	100%

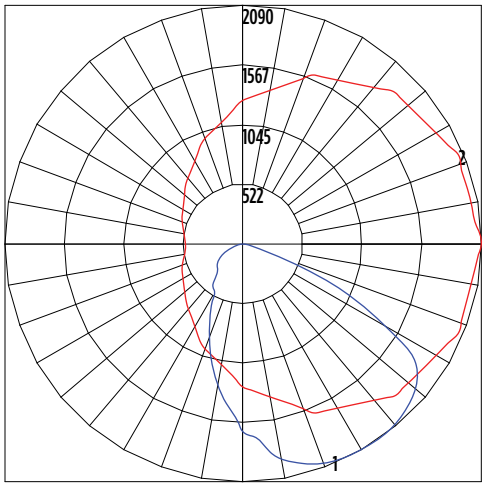
ISO Footcandle



10' Mounting Height / 10' Grid Spacing

10 FC 5 FC 2 FC 1 FC

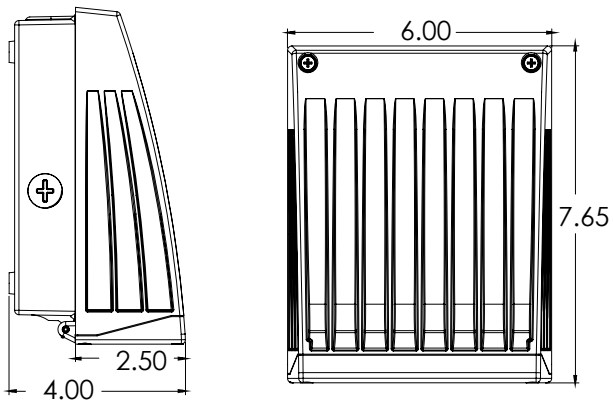
Polar Curve



Vertical Plane Horizontal Cone

PRODUCT DIMENSIONS

Back to Quick Links



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Att. Y
NOTICE OF
PUBLIC MEETING
CITY OF PORTLAND
PLANNING BOARD

PROJECT ADDRESS: 16 DALTON STREET
APPLICATION ID: PL-003335-2025
MEETING DATE:
June 23rd 2026
NOTICE OF
PUBLIC MEETING
CITY OF PORTLAND
PLANNING BOARD
Find agenda at: www.portlandmaine.gov/agendas
For more information, call (207) 874-8719

NO PARKING HERE TO DEAD END
NOTICE OF PUBLIC MEETING CITY OF PORTLAND PLANNING BOARD

MAIN-LAND
DEVELOPMENT
CONSULTANTS, INC.

ENGINEERS, SURVEYORS, SCIENTISTS

P.O. BOX Q LIVERMORE FALLS, ME 04254
367 US ROUTE 1, N. BUILDING, FALMOUTH, ME 04105
182A MOOSEHEAD TRAIL, NEWPORT, ME 04953
TEL: (207) 897-6752/FAX: (207) 897-5404
WWW.MAIN-LANDDCI.COM

June 2, 2026

City of Portland Planning Department
Attn: Neha Sunil Pol
389 Congress Street, 4th Floor
Portland, ME 04101

RE: Response to comments on 0 Dalton Street

Dear Neha:

Please find below our responses to the City of Portland Planning Department's comments as discussed at the 5/27 meeting on the proposed development at 0 Dalton Street. For your reference, we have copied the comments below. Our responses are in bold italics.

Site Plan and Access Updates:

Update regarding the proposed road name and coordination with E911 requirements. Based on recent coordination, "Trillium Lane" appears to be the preferred name.
Trillium Lane has been added to all plans. See Civil Plan Set.

Provide updated spot grades for the proposed driveway to confirm compliance with City standards.
Spot grades added at multiple locations along intersection of Dalton Street and Trillium Lane. See C3.1.

Boundary survey status update and anticipated submission timeline?
New Boundary Survey attached.

Applicant shall add internal pedestrian walkway connection from Dalton Street into the development
New pedestrian walkway added from Dalton Street into the development. See C2.1.

Add EV charging space details to the site plan
A note has been added specifying that all garages will come with EV charging ports installed. See C3.1.

Submit neighborhood comments and attendance sheet
Neighborhood outreach meeting attendance sheet and comments attached.

Confirm how solid waste collection will be handled.

Solid waste to be removed by a private waste hauler that will service the onsite dumpster pad.

Stormwater & Sewer Review Comments:

Consolidate all revised stormwater materials/calculations into one coordinated package.
All stormwater related documents have been consolidated into a coordinated package. See attached Stormwater Report.

Update stormwater report to remove references to systems not proposed (pond/underground storage inconsistencies).
All references to systems that hare not proposed have been removed from the Stormwater Report.

Coordinate elevations and modeled feature labels across all plans/calculations.
All inconsistencies between the HydroCAD model, narrative, and plans have been addressed.

4" vertical orifice not shown on plans.
4" vertical orifice added to plan. See C6.1.

Outlet elevation inconsistencies for the 12" outlet.
Elevation of 12" outlet shown in plan is consistent with HydroCAD model. See C6.1 and Stormwater Report.

Show sediment forebay on plans.
A curb has been added to the road to collect runoff to sediment forebay before it enters the filter pond has been added. See C3.1.

DPW request for riprap swale or robust level lip spreader at the proposed 24" USSF outfall.
We are unable to fit a level lip spreader on the outfall of the pond spillway due to the Portland Water District easement on the western side of the lot. We have provided additional riprap to reduce the velocity of any runoff. The runoff also drains to a large wetland that will act as a natural impoundment.

DPW request for proposed sewer inverts on Sheet C3.1 at Dalton Street connection point.
Invert for proposed sewer structure has been added to the plan. See C3.1.

LID Comments:

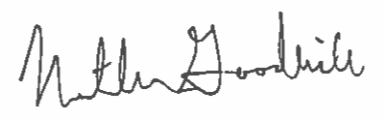
In order for the project to qualify for the points claimed for soil preparation and minimizing compaction, please update the landscape plan to include a note that organic soil amendments will only be incorporated based on soil testing.
A note stating that organic soil amendments will only be incorporated based on soil testing has been added. See C4.1.

In order for the project to qualify for the points claimed for low-impact landscaping, please update the landscape plan to include a note that only native vegetation will be used and that all landscape materials will be locally sourced.
A note stating that only native vegetation will be used and that all landscape materials will be locally sourced. See C4.1.

If you have any questions or concerns, please do not hesitate to contact me at (207) 749-8587 or Nathan.goodrich@main-landdci.com.

Sincerely,

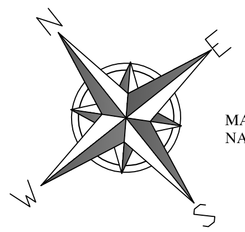
Main-Land Development Consultants, Inc.



Nathan Goodrich
Staff Engineer

Encl: Neighborhood meeting sign in dated: 2025-05-28
Neighborhood meeting questions dated: 2025-05-28
Dalton Street Civil Plan Set dated: 2026-06-05
Stormwater Report dated: 2026-06-05
Boundary Survey dated: 2026-05-28

CC: Jamie Garland, P.E., Project Manager



MAINE STATE PLANE
NAD 83, 1802 - MAINE WEST

SURVEY NOTES:

(1) THE OWNER OF RECORD IS DONATA PROPERTIES, LLC AS DESCRIBED IN DEEDS RECORDED IN BOOK 40029 PAGE 140 IN THE CUMBERLAND COUNTY REGISTRY OF DEEDS.

(2) THE PARCELS ARE DEPICTED AS A PORTION OF LOT 5 AND LOT 6, BLOCK M, ON THE CITY OF PORTLAND ASSESSORS MAP 427 AND A PORTION OF LOT 1, BLOCK A, ON THE CITY OF PORTLAND ASSESSORS MAP 428.

(3) BEARINGS ARE MAINE STATE PLANE 1802 WEST ZONE BASED ON MONUMENTATION FOUND AS DEPICTED ON PLAN REFERENCE 7 (SEE ALSO PLAN REFERENCE 5).

(4) ELEVATIONS ARE CITY DATUM, MDOT-PO-295 WITH AN ELEVATION OF 12.0. THE PROJECT BENCHMARK IS A MAG-NAIL SET IN POLE #4 WITH AN ELEVATION OF 21.58.

(5) BOUNDARIES SHOWN HEREON REPRESENT A RETRACEMENT OF PLAN REFERENCE 7.

(6) THE INVERTS LISTED WITH ** ARE BASED ON PLAN REFERENCES 2 AND 3.

(7) THIS PLAN WAS PREPARED WITHOUT THE BENEFIT OF A CURRENT TITLE COMMITMENT.

PLAN REFERENCES:

(1) SUBDIVISION PLAT 17, 29, 41, & 48 WINCHESTER DRIVE WINCHESTER WOODS APARTMENTS 17, 29, 41, & 48 WINCHESTER DRIVE PORTLAND MAINE OWNER OF RECORD WINCHESTER WOODS LLC DATED 4-15-21 REVISED 12-20-21 BY ACORN ENGINEERING, INC. RECORDED IN PLAN BOOK 222 P[AGE 16 IN THE CUMBERLAND COUNTY REGISTRY OF DEEDS.

(2) PORTLAND WATER DISTRICT PORTLAND SEWER SYSTEM INFILTRATION-INFLOW ANALYSIS SYSTEM BASE MAPPING DATED 1981 BY HUNTER-BALLEW ASSOCIATES.

(3) PORTLAND WATER DISTRICT PORTLAND MAINE POLLUTION ABATEMENT FACILITIES CONTRACT NO. 2 PRESUMPSCOT ESTUARY INTERCEPTOR CROSS COUNTRY STA. 14+95 TO STA. 24+00 BY CAMP DRESSER & MCKEE INC.

(4) PLAN OF PROPERTY PORTLAND, MAINE MADE FOR PORTLAND WATER DISTRICT PRESUMPSCOT ESTUARY INTERCEPTOR DATED 9-21-1976 BY HI AND EC JORDAN.

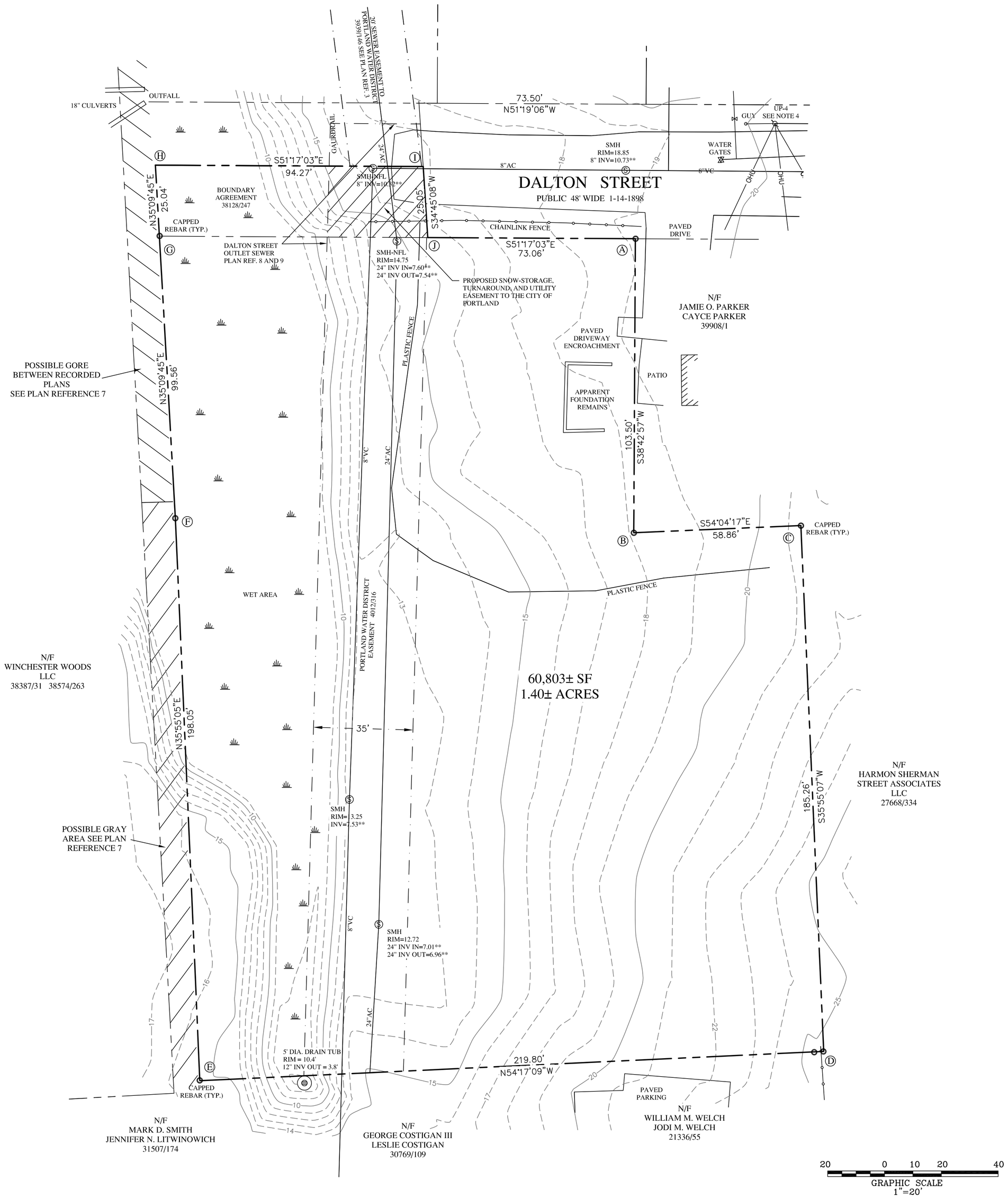
(5) CITY OF PORTLAND MAINE PUBLIC WORKS DEPARTMENT VERANDA STREET MONUMENT LAYOUT PLAN WASHINGTON AVENUE TO RICHMOND STREET DATED JANUARY 1996.

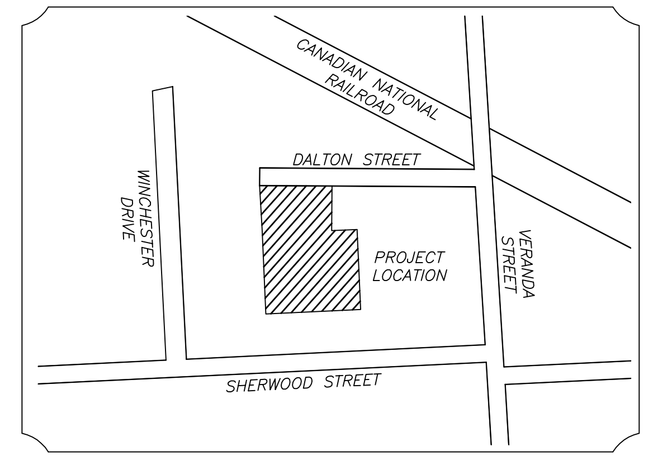
(6) BOUNDARY AND TOPOGRAPHIC SURVEY 29 & 37 DALTON STREET PORTLAND, MAINE FOR: ALLIED COOK CONSTRUCTION DATED NOVEMBER 2022 BY SURVEY INC.

(7) STANDARD BOUNDARY SURVEY PLAN OF PROPERTY 30-32 DALTON STREET, PORTLAND, MAINE MADE FOR MARJORIE A. QUEEN DATED 10-10-16 BY STEPHEN J. MARTIN PLS

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.





LOCATION MAP
(NOT TO SCALE)

LOT CORNER COORDINATES

A.	NORTH	309760.55	EAST	2928881.21
B.	NORTH	309679.79	EAST	2928816.48
C.	NORTH	309645.26	EAST	2928864.14
D.	NORTH	309495.22	EAST	2928755.46
E.	NORTH	309623.53	EAST	2928577.00
F.	NORTH	309783.92	EAST	2928693.18
G.	NORTH	309865.31	EAST	2928750.52
H.	NORTH	309885.79	EAST	2928764.94
I.	NORTH	309826.83	EAST	2928838.49
J.	NORTH	309806.24	EAST	2928824.21

CERTIFICATION:

I CERTIFY THAT THIS SURVEY CONFORMS TO THE STANDARDS OF THE MAINE BOARD OF LICENSURE FOR PROFESSIONAL LAND SURVEYORS AND IS CORRECT TO THE BEST OF MY KNOWLEDGE, INFORMATION AND BELIEF.

WILLIAM C. SHIPPEN P.L.S. 2118 5-28-26

STATE OF MAINE
WILLIAM C. SHIPPEN
2118
PROFESSIONAL LAND SURVEYOR

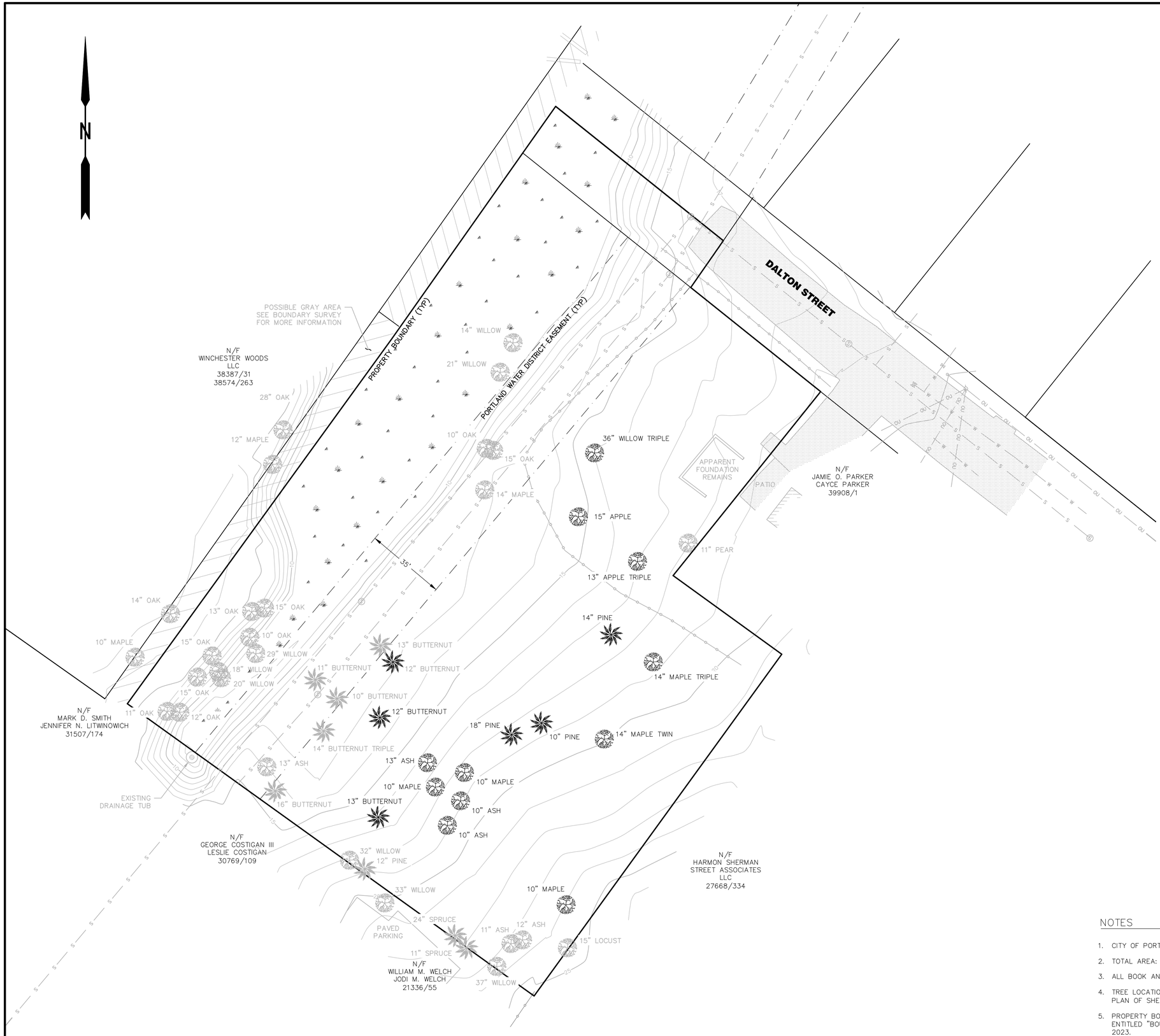
BOUNDARY AND TOPOGRAPHIC SURVEY

30-32 DALTON STREET
PORTLAND, MAINE

FOR: **ALLIED COOK CONSTRUCTION**
PO BOX 1396
PORTLAND, MAINE 04104
(CLIENT)

SURVEY BY: **SURVEY, INC.**
P.O. BOX 210
WINDHAM, ME 04062
(207) 892-2556
INFO@SURVEYINCORPORATED.COM

DWN: DRR CHK:WCS
DATE: NOVEMBER 2025 JOB NO. 23-033
REV: 5-28-26 CITY COMMENTS



LEGEND

- CATCH BASIN
- SEWER MANHOLE
- APPARENT PIN IDENTIFIER
- UTILITY POLE
- OU — OVERHEAD UTILITY
- BOUNDARY LINE (SURVEYED)
- EASEMENT LINE
- ABUTTING BOUNDARY LINES (APPROX.)
- PLASTIC FENCE
- CHAIN LINK FENCE
- W — WATER MAIN (APPROX.)
- S — SEWER MAIN (APPROX.)
- BUILDING SETBACK
- 490 — MAJOR CONTOUR LINE
- MINOR CONTOUR LINE
- PAVEMENT
- WET AREA
- EXISTING DECIDUOUS TREE
- EXISTING CONIFEROUS TREE
- DECIDUOUS TREE TO BE REMOVED
- CONIFEROUS TREE TO BE REMOVED

NOTES

1. CITY OF PORTLAND: TAX MAP 427, LOTS 5/6 & TAX MAP 428, LOT 1
2. TOTAL AREA: 1.4 ACRES, MORE OR LESS.
3. ALL BOOK AND PAGES REFER TO THE CUMBERLAND COUNTY REGISTRY OF DEEDS.
4. TREE LOCATIONS BASED ON SURVEY PERFORMED BY SEBAGO TECHNICS ENTITLED "DEMO PLAN OF SHERWOOD LANE", DATED 2023-09-19.
5. PROPERTY BOUNDARY SURVEY WAS PERFORMED BY SURVEY, INC. REFERENCE PLAN ENTITLED "BOUNDARY AND TOPOGRAPHIC SURVEY 30-32 DALTON STREET", DATED MARCH 2023.

MAIN-LAND
DEVELOPMENT
CONSULTANTS, INC.
69 MAIN ST. LIVERMORE FALLS, MAINE
367 US ROUTE 1 FALMOUTH, MAINE
182 MOOSEHEAD TRAIL, NEWPORT, MAINE
PH: (207) 897-6752 FAX: (207) 897-5404
WWW.MAIN-LANDDCI.COM

PROJECT

DALTON STREET HOUSING

36 DALTON STREET
PORTLAND, MAINE 04103

OWNER OF RECORD

ROBERT C. NELSON

5 SANDPIPER ROAD
FALMOUTH, MAINE 04105

MADE FOR

DONATA PROPERTIES LLC

1035 OCEAN AVENUE
PORTLAND, MAINE 04103

DRAWING SCALE:

20 0 10 20

(IN FEET)

1 INCH = 20 FT

REVISION NOTES:

NO.	DATE	DESCRIPTION

PROJ. MGR:	JLG
DRAWN BY:	ERL
CHECKED BY:	TDD
SURVEY DATE:	N/A
PLAN DATE:	2025-08-14
SUBMITTED FOR:	REVIEW

NOT FOR CONSTRUCTION

TREE SURVEY/ DEMO PLAN

SEAL:

STATE OF MAINE · JAMIE L. GARLAND · 15040 · LICENSED PROFESSIONAL ENGINEER

2026.01.02

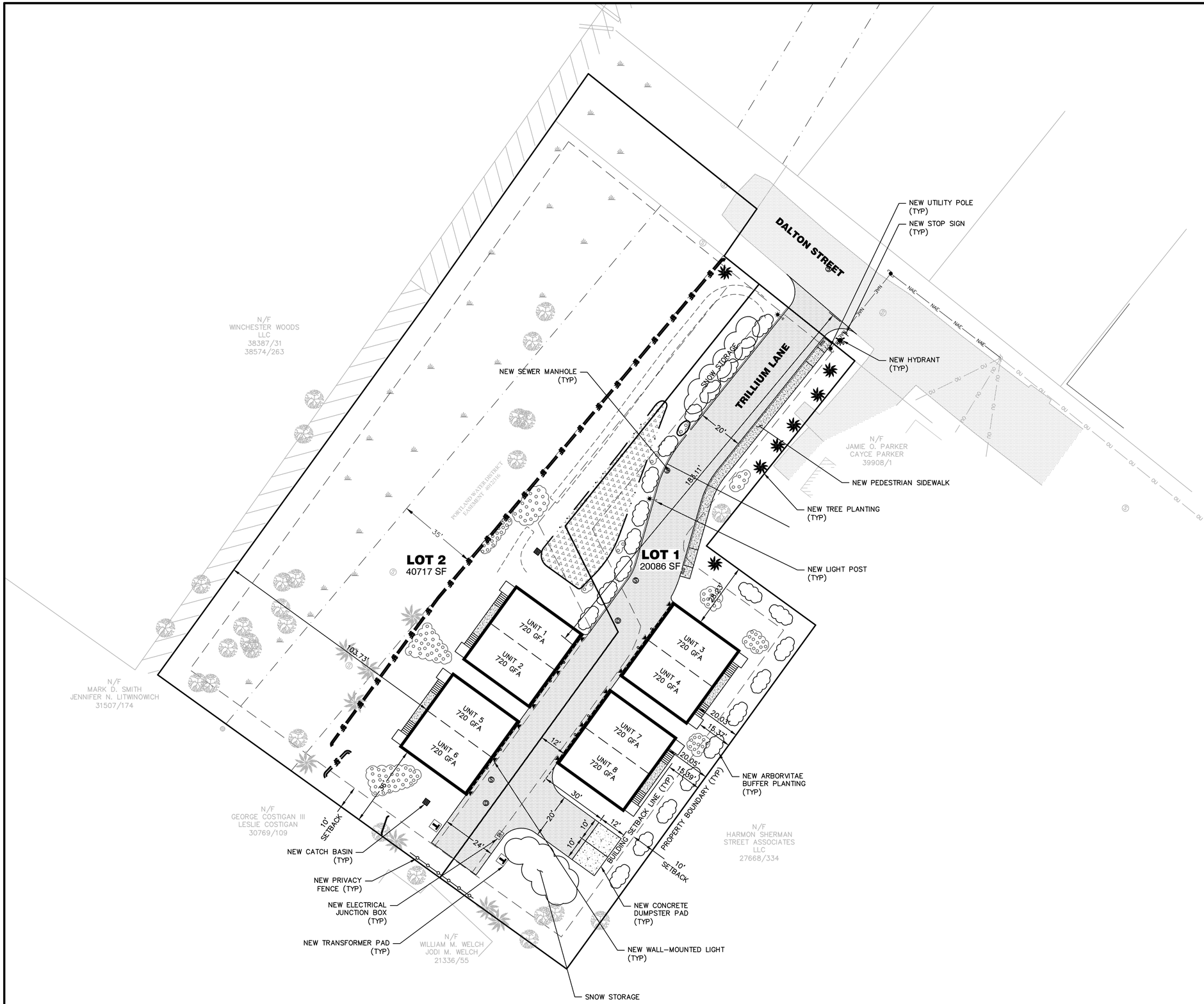
JAMIE L. GARLAND ME PE#15040

DRAWING NO.

C1.1

MLDC NO. 25-111 1 OF 1

TRUN-Tree Survey & Demo.dwg — PLOTTED ON 12/18/2025 2:29 PM BY SAM MITCHELL



GENERAL NOTE

AN ELECTRIC CONNECTION FOR ELECTRIC VEHICLES SHALL BE PROVIDED IN EACH PROPOSED GARAGE.

ZONING DIMENSIONAL REQUIREMENTS

LOT SIZE	20,000 SF
MINIMUM LOT AREA	5,000 SF
STREET FRONTAGE	40'
FRONT SETBACK	3.5'
REAR SETBACK	20'
SIDE STREET SETBACK	7'
MAX. STRUCTURE HEIGHT	35'
MAX. LOT COVERAGE	60%
LANDSCAPED OPEN SPACE RATIO	30%

AREA SUMMARY TABLE

	PROPOSED LOT 1	PROPOSED LOT 2
TOTAL AREA	20,086 SF	40,717 SF
IMPERVIOUS SURFACE AREA	9,295 SF	4,632 SF
LANDSCAPED AREA	9,622 SF	8,167 SF
IMPERVIOUS LOT COVERAGE	46.3%	11.4%
OPEN SPACE PERCENTAGE	47.9%	20.1%

LEGEND

- BOUNDARY LINE (SURVEYED)
- ABUTTING BOUNDARY LINES (APPROX.)
- PROPOSED PROPERTY SETBACK
- EASEMENT LINE
- 490 EXISTING MAJOR CONTOUR LINE
- EXISTING MINOR CONTOUR LINE
- 490 PROPOSED MAJOR CONTOUR LINE
- PROPOSED MINOR CONTOUR LINE
- OU EXISTING OVERHEAD UTILITY LINE
- S EXISTING SEWER LINE (APPROX.)
- W EXISTING WATER MAIN (APPROX.)
- NAE/T NEW AERIAL ELECTRIC LINE
- NUE NEW UNDERGROUND ELECTRIC LINE
- NS NEW SEWER MAIN
- NW NEW WATER MAIN
- NUD NEW UNDERDRAIN
- SF TEMPORARY SILTFENCE
- TYPICAL WETLAND BOUNDARY
- EXISTING PAVED SURFACE
- NEW PAVED SURFACE
- NEW CONCRETE SLAB
- RIP-RAP
- FLOW ARROW
- EXISTING UTILITY POLE
- NEW UTILITY POLE
- EXISTING SEWER MANHOLE
- NEW SEWER MANHOLE
- NEW CATCH BASIN
- NEW DRAIN MANHOLE
- NEW WALL-MOUNTED LIGHT
- NEW LIGHT POST
- NEW STOP SIGN
- NEW FIRE HYDRANT
- EXISTING TREE

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69 MAIN ST. LIVERMORE FALLS, MAINE
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WWW.MAIN-LANDDCI.COM

PROJECT

DALTON STREET HOUSING

36 DALTON STREET
PORTLAND, MAINE 04103

OWNER OF RECORD

ROBERT C. NELSON

5 SANDPIPER ROAD
FALMOUTH, MAINE 04105

MADE FOR

DONATA PROPERTIES LLC

1035 OCEAN AVENUE
PORTLAND, MAINE 04103

DRAWING SCALE:

20 0 10 20
(IN FEET)
1 INCH = 20 FT

REVISION NOTES:

NO.	DATE	DESCRIPTION
1	2025-06-27	UPDATED PLAN PER CITY REVIEW COMMENTS
2	2025-07-23	UPDATED TO REFLECT LOT SPLIT LINE
3	2026-02-06	ADDED SNOW STORAGE NOTE
4	2026-06-05	ADDED SIDEWALK. UPDATED STORMWATER

PROJ. MGR: JLG
DRAWN BY: TLB
CHECKED BY: JLG
SURVEY DATE: N/A
PLAN DATE: 2025-10-17
SUBMITTED FOR: REVIEW

NOT FOR CONSTRUCTION

SITE PLAN

SEAL:

STATE OF MAINE
JAMIE L. GARLAND
No. 15040
LICENSED PROFESSIONAL ENGINEER

2026-06-09

JAMIE L. GARLAND ME PE#15040

DRAWING NO.

C2.1

MLDC NO. 25-111 1 OF 8

NEW 6" LOAM, SEED AND MULCH TO DISTURBED AREAS UNLESS OTHERWISE NOTED. PROVIDE EROSION CONTROL MESH ON ALL SLOPES 6:1 OR STEEPER, AND ALONG DITCH CHANNELS

PROPERTY BOUNDARY (TYP)

NEW 2:1 SLOPE

NEW GRASSED SWALE (TYP)

BUILDING SETBACK LINE (TYP)

NEW WALL-MOUNTED LIGHT (TYP)

NEW 15"ø HDPE STORMDRAIN
INV. IN: 16.0'
INV. OUT: 15.3'

NEW 48"ø DRAIN MANHOLE #2
RIM ELEV: 19.3'

FLOW DIRECTION ARROW (TYP)

NEW 15"ø HDPE CULVERT
INV. IN: 16.5
INV. OUT: 15.0

NEW 48"ø SEWER MANHOLE #1
RIM ELEV: 18.6'
INV. IN: 14.0'
INV. OUT: 13.9'

NEW TRANSFORMER (TYP)

NEW ELECTRICAL JUNCTION BOX (TYP)

NEW 48"ø DRAIN MANHOLE #1
RIM ELEV: 20.5'

DALTON STREET

NEW HYDRANT (TYP)

NEW UTILITY POLE (TYP)

NEW 15" OF D50=6" RIP-RAP AT CULVERT INLET & OUTLET (TYP)

TC 18.85
BC 18.35

LOT 1
20086 SF

TRILLIUM LANE

NEW 15"ø HDPE CULVERT
INV. IN: 15.5'
INV. OUT: 15.0'

NEW 48"ø SEWER MANHOLE #2
RIM ELEV: 17.5'
INV. IN: 13.4'
INV. OUT: 13.3'

MATCH EXISTING GRADE (TYP)

NEW 15"ø HDPE STORMDRAIN
INV. IN: 15.3'
INV. OUT: 15.0'

NEW 15"ø HDPE STORMDRAIN
INV. IN: 16.5'
INV. OUT: 16.0'

NEW LIGHT POST (TYP)

NEW 8"ø PVC SEWER LINE (TYP)

NEW UNDERGROUND ELECTRIC LINE (TYP)

NEW SEDIMENT FOREBAY
TOP: 17.5
BOTTOM: 16.5

NEW 48"ø CATCHBASIN #1
RIM ELEV: 18.5'

DOUBLE ROW OF TEMPORARY SILT FENCE (TYP)

NEW 2:1 SLOPE

NEW 4"ø UNDERDRAIN (TYP)

NEW 18" OF D50=6" RIP-RAP AT EMERGENCY SPILLWAY (TYP)

NEW 24"ø POND OUTLET STRUCTURE, SEE C6.1/A3

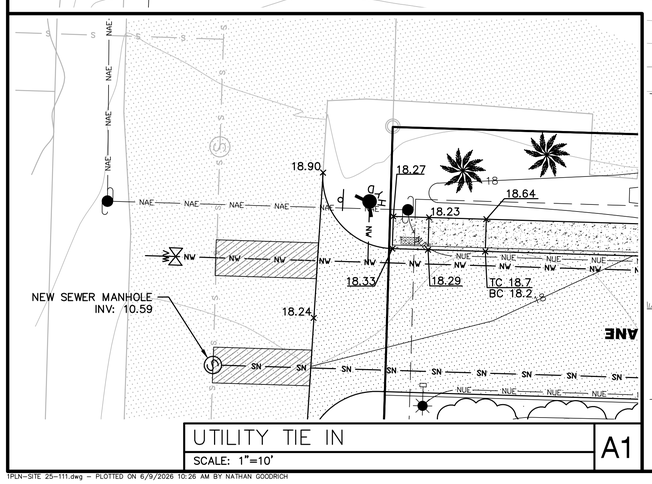
NEW 3:1 SLOPE

EV CHARGING PORTS TO BE INSTALLED IN ALL GARAGES

LOT 2
40717 SF

PORTLAND WATER DISTRICT EASEMENT 4012/316

NEW 12"ø HDPE STORMDRAIN
INV. IN: 12.75'
INV. OUT: 12.5



UTILITY TIE IN
SCALE: 1"=10'
A1

MAIN-LAND DEVELOPMENT CONSULTANTS, INC.
69 MAIN ST. LIVERMORE FALLS, MAINE
367 US ROUTE 1 FALMOUTH, MAINE
182 MOOSEHEAD TRAIL, NEWPORT, MAINE
PH: (207) 897-6752 FAX: (207) 897-5404
WWW.MAIN-LANDDCI.COM

PROJECT

DALTON STREET HOUSING

36 DALTON STREET
PORTLAND, MAINE 04103

OWNER OF RECORD

ROBERT C. NELSON

5 SANDPIPER ROAD
FALMOUTH, MAINE 04105

MADE FOR

DONATA PROPERTIES LLC

1035 OCEAN AVENUE
PORTLAND, MAINE 04103

DRAWING SCALE:
10 0 5 10
(IN FEET)
1 INCH = 10 FT

REVISION NOTES:

NO.	DATE	DESCRIPTION
1	2025-06-27	UPDATED PLAN PER CITY REVIEW COMMENTS
2	2025-10-21	UPDATED PLAN PER CITY REVIEW COMMENTS
3	2026-02-06	ADDED VIEWPORT TO SHOW UTILITY TIE IN
4	2026-06-05	ADDED SIDEWALK. UPDATED STORMWATER

PROJ. MGR: JLG
DRAWN BY: TLB
CHECKED BY: JLG
SURVEY DATE: N/A
PLAN DATE: 2025-10-21
SUBMITTED FOR: REVIEW

NOT FOR CONSTRUCTION

SITE GRADING & UTILITY PLAN

SEAL:
STATE OF MAINE
JAMIE L. GARLAND
No. 15040
LICENSED PROFESSIONAL ENGINEER

2026-06-09

JAMIE L. GARLAND ME PE#15040

DRAWING NO.
C3.1

MLDC NO. 25-111 2 OF 8

PLANTING NOTES

SUPPLY ALL PLANTS IN QUANTITIES SUFFICIENT TO COMPLETE THE WORK SHOWN ON THE PLAN. ANY DISCREPANCIES BETWEEN QUANTITIES SHOWN ON THE PLANT LIST AND THOSE REQUIRED BY THIS DRAWING WILL NOT ENTITLE CONTRACTOR TO ADDITIONAL REMUNERATION.

ANY PLANT SUBSTITUTIONS MUST BE APPROVED BY THE CITY OF PORTLAND.

ANY TREE LOCATED OVER OR UNDER ANY UTILITY SHALL BE BE RELOCATED ON SITE BY THE OWNER AND APPROVED BY THE CITY OF PORTLAND.

SPREAD 6" OF TOPSOIL IN LAWN AREAS, ROLL SMOOTH, AND RAKE SCARIFY UNLESS NOTED OTHERWISE.

PLACE ALL TREES ON SITE IN THE DESIGNATED AREAS AS SHOWN ON THE PLAN, PRIOR TO PLANTING. CONTACT THE OWNER FOR INSPECTION AND APPROVAL.

ALL PLANT MATERIAL INSTALLED SHALL MEET THE SPECIFICATIONS OF THE AMERICAN STANDARD FOR NURSERY STOCK (LATEST EDITION) AS SET FORTH BY THE AMERICAN ASSOCIATION OF NURSERYMEN.

REPLACE OR REPAIR TO ORIGINAL CONDITION ANY AND ALL UTILITIES, PAVING, CURBING, ETC., DAMAGED AS A RESULT OF PLANTING OPERATIONS AT NO ADDITIONAL COST TO THE OWNER.

SOILS WILL BE TILLED TO A DEPTH OF AT LEAST 10".

ONLY NATIVE VEGETATION WILL BE USED AND ALL LANDSCAPE MATERIALS WILL BE LOCALLY SOURCED.

ORGANIC SOIL AMENDMENTS WILL ONLY BE INCORPORATED BASED ON SOIL TESTING.

TOTAL # OF TREES OVER 10" = 52
TREES REMOVED = 17
% REMAINING = (52-17) / 52 = 67.3%

PLANT LIST			
KEY	COMMON & BOTANICAL NAME	SIZE	QTY.
A	RED MAPLE: ACER RUBRUM	3 GAL.	6

MAIN-LAND
Development
Consultants, Inc.
69 Main St. Livermore Falls, Maine
367 US Route 1 Falmouth, Maine
182 Moosehead Trail, Newport, Maine
PH: (207) 897-6752 FAX: (207) 897-5404
WWW.MAIN-LANDDCI.COM

PROJECT

DALTON STREET HOUSING

36 DALTON STREET
PORTLAND, MAINE 04103

OWNER OF RECORD

ROBERT C. NELSON

5 SANDPIPER ROAD
FALMOUTH, MAINE 04105

MADE FOR

DONATA PROPERTIES LLC

1035 OCEAN AVENUE
PORTLAND, MAINE 04103

DRAWING SCALE:

20 0 10 20
(IN FEET)
1 INCH = 20 FT

REVISION NOTES:		
NO.	DATE	DESCRIPTION
1	2025-06-27	UPDATED PLAN PER CITY REVIEW COMMENTS
2	2026-02-06	ADDED TILLING AND NATIVE SPECIES NOTE
3	2026-06-05	ADDED SIDEWALK. UPDATED STORMWATER

PROJ. MGR: JLG
DRAWN BY: TDD
CHECKED BY: JLG
SURVEY DATE: N/A
PLAN DATE: 2025-04-16
SUBMITTED FOR: REVIEW

NOT FOR CONSTRUCTION

LANDSCAPING PLAN

SEAL:

STATE OF MAINE
JAMIE L. GARLAND
No. 15040
LICENSED PROFESSIONAL ENGINEER

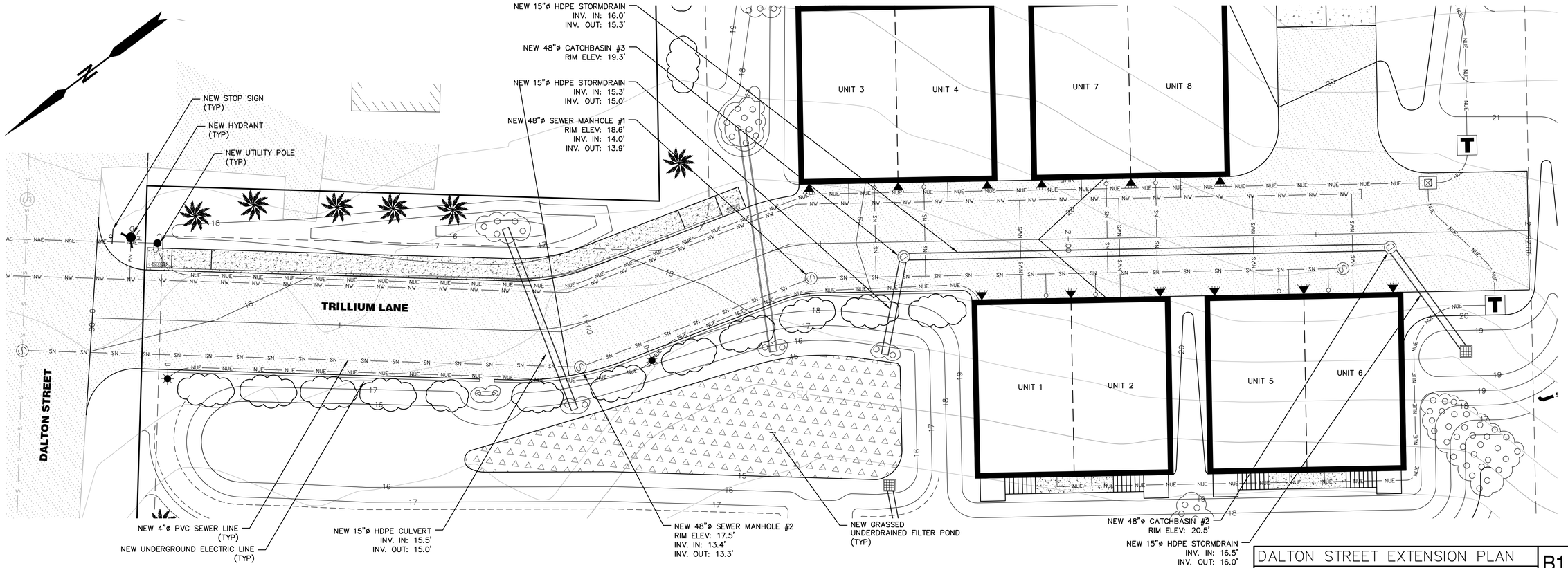
2026-06-09

JAMIE L. GARLAND ME PE#15040

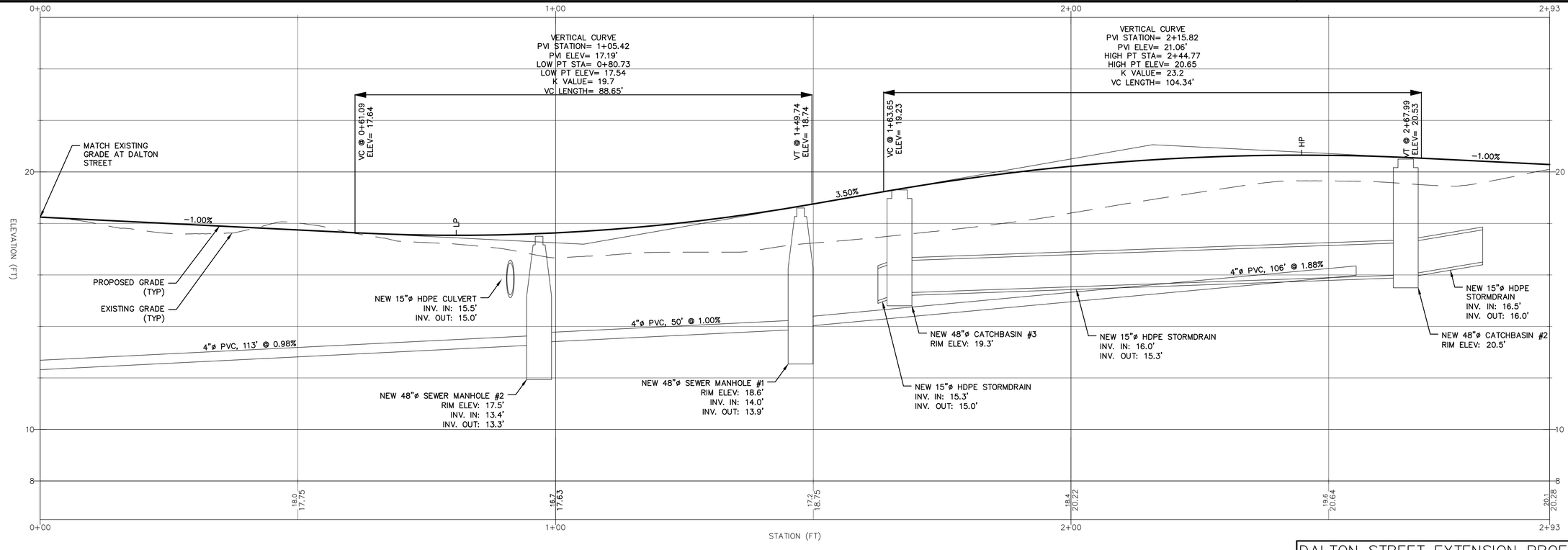
DRAWING NO.

C4.1

MLDC NO. 25-111 3 OF 8



DALTON STREET EXTENSION PLAN — B1
SCALE: 1"=10'



DALTON STREET EXTENSION PROFILE — A1
HORIZONTAL SCALE 1" = 10' VERTICAL SCALE 1" = 5'

MAIN-LAND DEVELOPMENT CONSULTANTS, INC.
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PH: (207) 897-6752 FAX: (207) 897-5404
WWW.MAIN-LANDDCI.COM

PROJECT
DALTON STREET HOUSING
36 DALTON STREET
PORTLAND, MAINE 04103

OWNER OF RECORD
ROBERT C. NELSON
5 SANDPIPER ROAD
FALMOUTH, MAINE 04105

MADE FOR
DONATA PROPERTIES LLC
1035 OCEAN AVENUE
PORTLAND, MAINE 04103

DRAWING SCALE:
10 0 5 10
(IN FEET)
1 INCH = 10 FT

REVISION NOTES:	NO.	DATE	DESCRIPTION
	1	2026-06-05	ADDED SIDEWALK AND NEW CURB

PROJ. MGR:	JLG
DRAWN BY:	TLB
CHECKED BY:	JLG
SURVEY DATE:	N/A
PLAN DATE:	2025-10-20

NOT FOR CONSTRUCTION

ROAD PLAN & PROFILE

SEAL:
STATE OF MAINE
JAMIE L. GARLAND
No. 15040
LICENSED
PROFESSIONAL ENGINEER
2026-06-09
JAMIE L. GARLAND ME PE#15040

DRAWING NO.
C5.1
MLDC NO. 25-111 4 OF 8

1PLN-ROAD PLAN & PROFILE.dwg – PLOTTED ON 6/9/2026 10:28 AM BY NATHAN GOODRICH

TABLE 1 SOIL FILTER MEDIA		
Filter Media	Mixture by Volume	Specifications
Sandy loam/fine sandy loam & Course Loamy Sand	70%–80%	Required to meet the Sieve Analysis specified in Table 2, below.
Mulch	20%–25%	Moderatley fine, shredded bark or wood fiber mulch with less than 5% passing the #200 sieve
	8% to 12% passing #200 sieve. Clay content less than 2%	

TABLE 2 LOAMY COARSE SAND SIEVE ANALYSIS SPEC.	
Sieve Size	% by Weight
#10	85–100
#20	70–100
#60	15–40
#200	8–15

TABLE 3 SANDY LOAM TO FINE SANDY LOAM SPEC.	
Sieve Size	% by Weight
#4	75–95
#10	60–90
#40	35–85
#200	20–70
200 (CLAY SIZE)	<2.0

TABLE 4 MEDOT Specifications for UNDERDRAINS	
Sieve Size	% by Weight
Underdrain Type B	
1"	95–100
1/2"	75–100
#4	50–100
#20	15–80
#50	0–15
#200	0–5

FILTER BED NOTES

CONSTRUCTION SEQUENCE: THE SOIL FILTER MEDIA AND VEGETATION MUST NOT BE INSTALLED UNTIL THE AREA THAT DRAINS TO THE FILTER HAS BEEN PERMANENTLY STABILIZED WITH PAVEMENT OR OTHER STRUCTURE, 90% VEGETATION COVER, OR OTHER PERMANENT STABILIZATION UNLESS THE RUNOFF FROM THE CONTRIBUTING DRAINAGE AREA IS DIVERTED AROUND THE FILTER UNTIL STABILIZATION IS COMPLETED.

COMPACTION OF SOIL FILTER: THE BED SHOULD BE INSTALLED BY FLOODING THE MEDIA WITH WATER AND PLACING MATERIAL IN 6–9" LIFTS.

CONSTRUCTION OVERSIGHT: INSPECTION BY A PROFESSIONAL ENGINEER WILL OCCUR AT A MINIMUM:

- AFTER THE PRELIMINARY CONSTRUCTION OF THE FILTER GRADES AND ONCE THE UNDERDRAIN PIPES ARE INSTALLED BUT NOT BACKFILLED.
- AFTER THE DRAINAGE LAYER IS CONSTRUCTED AND PRIOR TO THE INSTALLATION OF THE FILTER MEDIA.
- AFTER THE FILTER MEDIA HAS BEEN INSTALLED AND SEEDED. BIO–RETENTION CELLS MUST BE STABILIZED PER THE PROVIDED PLANTING SCHEME AND DENSITY FOR THE CANOPY COVERAGE OF 30 AND 50%.
- AFTER ONE YEAR INSPECT HEALTH OF THE VEGETATION AND MAKE CORRECTIONS, AND
- ALL THE MATERIAL USED FOR THE CONSTRUCTION OF THE FILTER BASIN MUST BE CONFIRMED AS SUITABLE BY THE DESIGN ENGINEER. TESTING MUST BE DONE BY A CERTIFIED LABORATORY TO SHOW THAT THEY ARE PASSING DEP SPECIFICATIONS.

TESTING AND SUBMITTALS: THE CONTRACTOR SHALL IDENTIFY THE LOCATION OF THE SOURCE OF EACH COMPONENT OF THE FILTER MEDIA. ALL RESULTS OF FIELD AND LABORATORY TESTING SHALL BE SUBMITTED TO THE PROJECT ENGINEER FOR CONFIRMATION. THE CONTRACTOR SHALL:

- SELECT SAMPLES FOR SAMPLING OF EACH TYPE OF MATERIAL TO BE BLENDED FOR THE MIXED FILTER MEDIA AND SAMPLES OF THE UNDERDRAIN BEDDING MATERIAL. SAMPLES MUST BE A COMPOSITE OF THREE DIFFERENT LOCATIONS (GRABS) FROM THE STOCKPILE OR PIT FACE. SAMPLE SIZE REQUIRED WILL BE DETERMINED BY THE TESTING LABORATORY.
- PERFORM A SIEVE ANALYSIS CONFORMING TO STM C136 (STANDARD TEST METHOD FOR SIEVE ANALYSIS OF FINE AND COURSE AGGREGATES 1996A) ON EACH TYPE OF THE SAMPLE MATERIAL. THE RESULTING SOIL FILTER MEDIA MIXTURE MUST HAVE 8% TO 12% BY WEIGHT PASSING THE #200 SIEVE, A CLAY CONTENT OF LESS THAN 2% (DETERMINED HYDROMETER GRAIN SIZE ANALYSIS) AND HAVE 10% DRY WEIGHT OF ORGANIC MATTER.
- PERFORM A PERMEABILITY TEST ON THE SOIL FILTER MEDIA MIXTURE CONFORMING TO ASTM D2434 WITH THE MIXTURE COMPACTED TO 90–92% OF MAXIMUM DRY DENSITY BASED ON ASTM D698.

NOTE: MAINE DEP REQUIRES (PER CHAPTER 7.1 OF STORMWATER BMP DESIGN MANUAL), THE INSPECTION OF THE UNDERDRAINED FILTER BY THE DESIGN ENGINEER DURING CONSTRUCTION AT THE STAGES OF GENERAL SHAPE COMPLETED, UNDERDRAIN PIPE IN PLACE BUT NOT COVERED, DRAINAGE MEDIA IN PLACE, AND FINISHED WITH FILTER MEDIA AND SEED IN PLACE. THE CONTRACTOR SHALL NOTIFY THE DESIGN ENGINEER 48 HOURS IN ADVANCE OF THE ESTIMATED TIME OF CONSTRUCTION INSPECTION TO ARRANGE AN INSPECTION.

GENERAL NOTES

1. AVOID COMPACTING UNDERDRAIN BEDDING AND SOIL FILTER MEDIA DURING CONSTRUCTION. OVER–COMPACTED SOILS WILL NOT ALLOW PROPER WATER MIGRATION THROUGH THE SOIL SECTION; FILTER BEDS ARE INTENDED TO DRAIN DRY WITHIN 24 TO 48 HOURS.

2. SEED FILTER AREA WITH CONSERVATION TYPE SEED MIXTURE (A 48 LBS/ACRE MIXTURE CONTAINING 20 LBS/ACRE OF CREEPING RED FESCUE AND TALL FESCUE EACH PLUS 8 LBS/ACRE OF BIRDSFOOT TREFOIL)

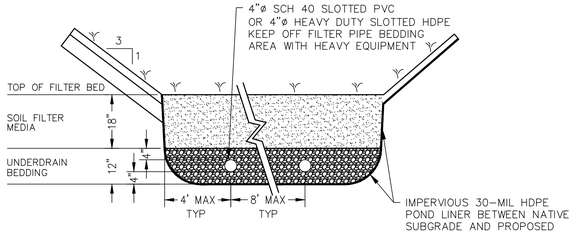
3. DO NOT INSTALL AND STABILIZE THE SOIL FILTER MEDIA IN THE BASIN UNTIL AFTER CONTRIBUTING AREAS HAVE BEEN PERMANENTLY STABILIZED.

UNDERDRAIN BEDDING

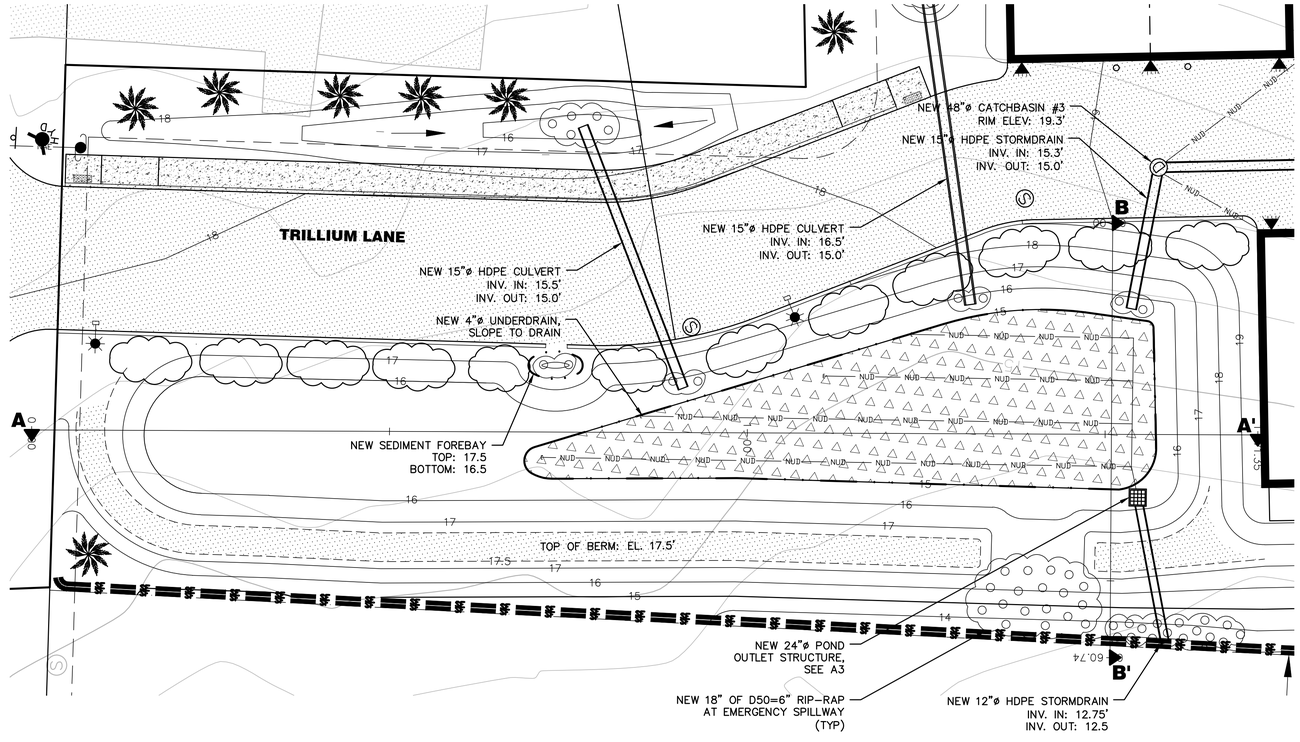
1. UNDERDRAIN GRANULAR MATERIAL SHALL BE WELL GRADED, CLEAN, COARSE GRAVEL MEETING THE MEDOT SPECIFICATION 703.22 UNDERDRAIN TYP B FOR UNDERDRAIN BACKFILL (SEE TABLE 4).

2. UNDERDRAINS SHALL BE PLACED NO FURTHER THAN 8 FEET APART.

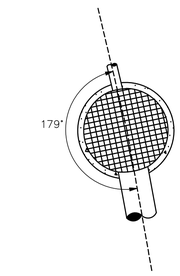
3. UNDERDRAINS SHALL MAINTAIN A MINIMUM OF 1% FOR POSITIVE DRAINAGE.



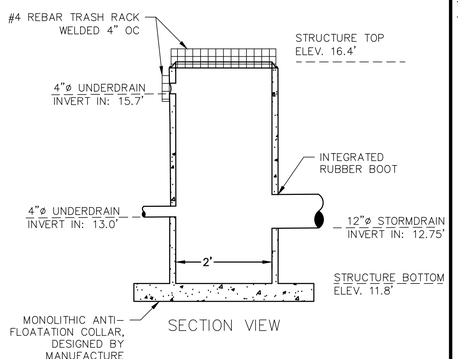
GRASSED FILTER BED DETAIL — NOT TO SCALE — B2



POND PLAN — SCALE: 1"=10' — B1

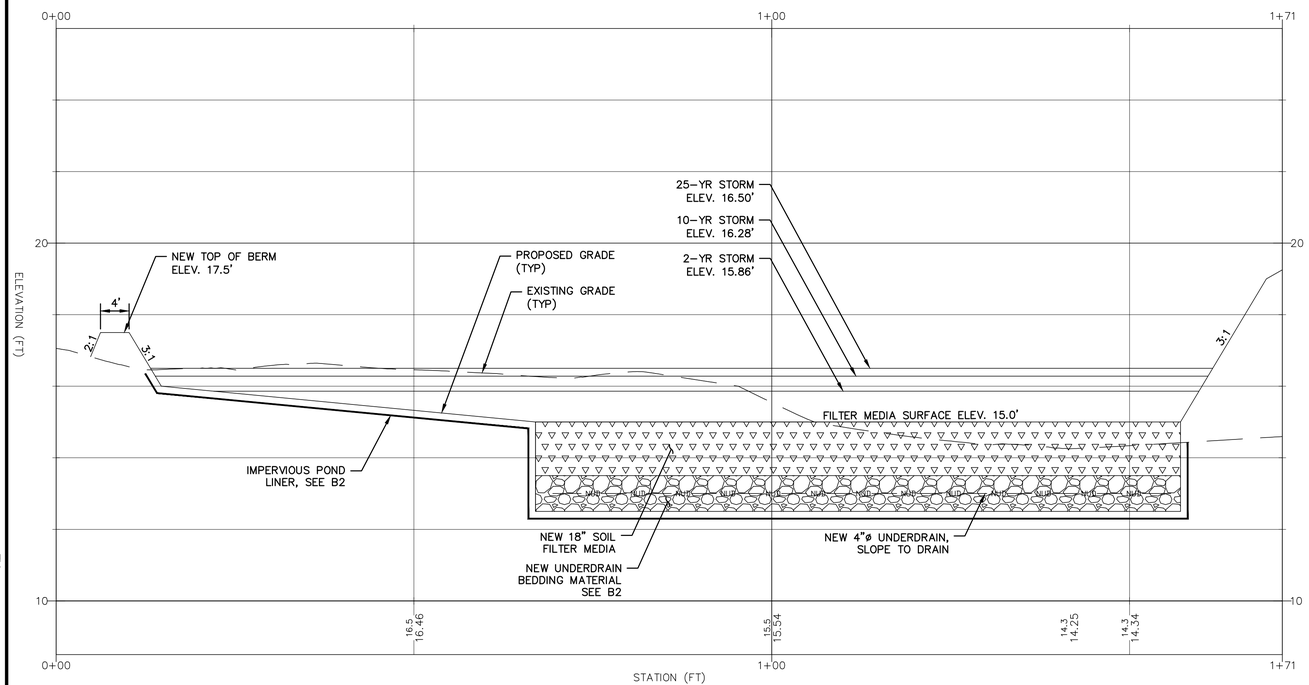


PLAN VIEW

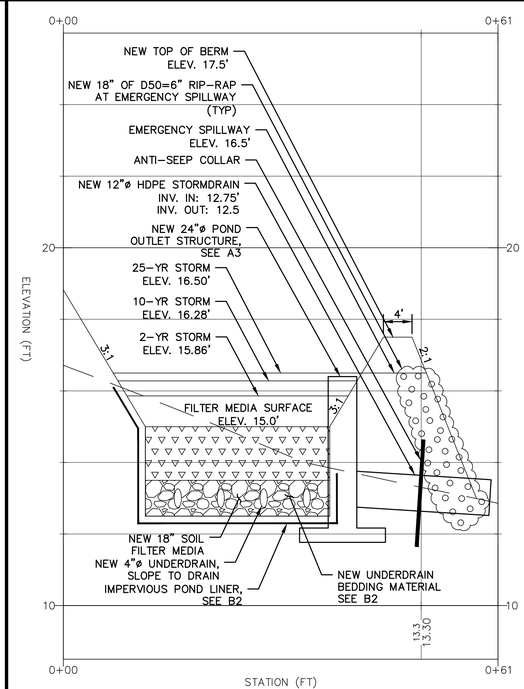


SECTION VIEW

POND OUTLET STRUCTURE — NOT TO SCALE — A3



POND PROFILE B–B' — HORIZONTAL SCALE 1" = 10' VERTICAL SCALE 1" = 2' — A2



POND PROFILE B–B' — HORIZONTAL SCALE 1" = 10' VERTICAL SCALE 1" = 2' — A1

MAIN-LAND DEVELOPMENT CONSULTANTS, INC.
69 MAIN ST. LIVERMORE FALLS, MAINE
367 US ROUTE 1 FALMOUTH, MAINE
182 MOOSEHEAD TRAIL, NEWPORT, MAINE
PH: (207) 897-6752 FAX: (207) 897-5404
WWW.MAIN-LANDDCI.COM

PROJECT

DALTON STREET HOUSING

36 DALTON STREET
PORTLAND, MAINE 04103

OWNER OF RECORD

ROBERT C. NELSON

5 SANDPIPER ROAD
FALMOUTH, MAINE 04105

MADE FOR

DONATA PROPERTIES LLC

1035 OCEAN AVENUE
PORTLAND, MAINE 04103

DRAWING SCALE:

10 0 5 10
(IN FEET)
1 INCH = 10 FT

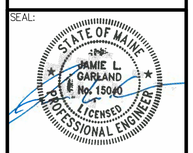
REVISION NOTES: NO.	DATE	DESCRIPTION
1	2026–06–05	ADDED 8'x4' SIDE OPENING AND SEDIMENT FOREBAY

PROJ. MGR: JLG
DRAWN BY: TLB
CHECKED BY: JLG
SURVEY DATE: N/A
PLAN DATE: 2025–10–20

NOT FOR CONSTRUCTION

POND PLAN & PROFILE

SEAL:



2026–06–09

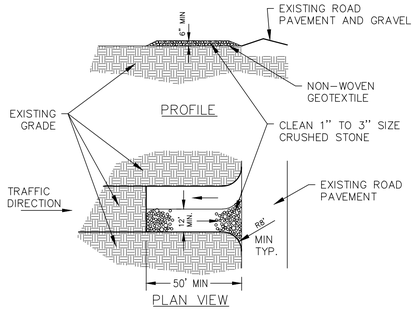
JAMIE L. GARLAND ME PE#15040

DRAWING NO.

C6.1

MLDC NO. 25–111 5 OF 8

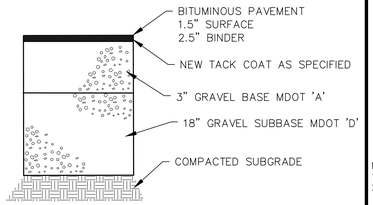
1PLN–POND PLAN & PROFILE.dwg – PLOTTED ON 6/9/2026 10:29 AM BY NATHAN GOODRICH



NOTES:
1. STONE SIZE: $2\frac{1}{2}$" TO $1\frac{1}{2}$" USE CRUSH STONE.
2. THICKNESS: MINIMUM OF 8".
3. MAINTENANCE: THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC TRAVELED WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE.

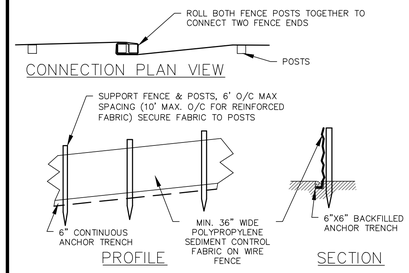
TEMP. STABILIZED CONSTRUCTION EXIT

NOT TO SCALE | B4



BITUMINOUS ROADS & PARKING

NOT TO SCALE | B3



NOTES:
1. PLACE SILT FENCE OR FILTER BERMS ALONG UNIFORMLY SLOPED SURFACE.
2. EROSION CONTROL MIX FILTER BERM MAY BE SUBSTITUTED FOR A SILTFENCE. SEE THE SITE GRADING AND EROSION CONTROL PLAN.
3. EXCAVATE A 6"X6" TRENCH ALONG THE LINE OF PLACEMENT FOR THE FILTER BARRIER.
4. UNROLL ONE SECTION AT A TIME AND POSITION THE POSTS AGAINST THE BACK (DOWNSTREAM) WALL OF THE TRENCH.
5. DRIVE THE POSTS INTO THE GROUND UNTIL APPROXIMATELY 2" OF FABRIC IS LYING ON THE TRENCH BOTTOM. JOIN SECTIONS AS SHOWN ABOVE.
6. LAY THE TOE-IN FLAP OF FABRIC ONTO THE UNDISTURBED BOTTOM OF THE TRENCH, BACKFILL THE TRENCH AND TAMP THE SOIL. TOE-IN CAN ALSO BE ACCOMPLISHED BY LAYING THE FABRIC FLAP ON UNDISTURBED GROUND AND PILING AND TAMPING FILL AT THE BASE, BUT MUST BE ACCOMPLISHED BY AN INTERCEPTION DITCH.
7. BARRIER SHALL BE MIRAFI SILT FENCE OR APPROVED EQUAL.

SILT FENCE

NOT TO SCALE | B2

EXISTING CONDITIONS AND DEMOLITION

E1. TOPOGRAPHIC AND BOUNDARY SURVEY INFORMATION SHOWN ON THIS DRAWING PERFORMED AND SUPPLIED BY MAIN-LAND DEVELOPMENT CONSULTANTS, INC (MAIN-LAND).

E2. CONTRACTOR SHALL VERIFY SITE CONDITIONS, INCLUDING TEST PITS FOR LOCATIONS AND INVERTS OF UTILITIES, AND REPORT ANY DISCREPANCIES TO MAIN-LAND PRIOR TO PROCEEDING WITH THAT PORTION OF THE WORK.

E3. PRIOR TO REMOVAL OF UTILITIES, VERIFY UTILITY FUNCTION, MATERIAL, USE, AND CURRENT ACTIVITY. REPORT DISCREPANCIES TO MAIN-LAND FOR DIRECTION PRIOR TO COMMENCING THE WORK ON THAT UTILITY.

E4. EXCAVATE AND STOCKPILE TOPSOIL ON-SITE. TOPSOIL IS TO REMAIN ON THE PROPERTY OF THE OWNER FOR REUSE.

E5. RELOCATE EXISTING TBM INFORMATION ONTO NEW TBM OF CONTRACTORS CHOICE FOR CONSTRUCTION USE PRIOR TO REMOVAL OF EXISTING TBM.

E6. PRIOR TO BEGINNING DEMOLITION OR SITE WORK, THE GENERAL CONTRACTOR SHALL SCHEDULE A PRE-CONSTRUCTION MEETING WITH THE TOWN OF NEWRY TO DISCUSS THE INSPECTION PROCESS AND PROJECT SCHEDULE.

SITE LAYOUT AND MATERIALS

L1. DIMENSIONS ARE TO EDGE OF PAVEMENT AND TO FACE OF FOUNDATION UNLESS NOTED OTHERWISE.

L2. PAVEMENT EDGES SHALL BE TRUE TO LINE. SAWCUT EXISTING PAVEMENT IN SMOOTH STRAIGHT LINES WHERE NEW PAVEMENT JOINS. PROVIDE TACK COAT LAYER AS SPECIFIED.

L3. CONTRACTOR SHALL VERIFY SITE CONDITIONS, INCLUDING TEST PITS FOR LOCATIONS AND INVERTS OF UTILITIES, AND REPORT ANY DISCREPANCIES TO MAIN-LAND PRIOR TO PROCEEDING WITH THAT PORTION OF THE WORK.

L4. PROVIDE TRAFFIC CONTROL SIGNAGE AND STRIPING AS SHOWN AND IN ACCORDANCE WITH U.S.D.O.T. MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

GRADING AND EROSION CONTROL

G1. ADD 6" LOAM, SEED AND MULCH TO DISTURBED AREAS UNLESS OTHERWISE NOTED. PROVIDE EROSION CONTROL MESH ON ALL SLOPES 6:1 OR STEEPER, AND ALONG DITCH CHANNELS.

G2. GRADE SURFACES TO DRAIN AWAY FROM BUILDING. PONDING OF WATER IN PAVED OR UNPAVED AREAS WILL NOT BE ACCEPTABLE EXCEPT FOR AREAS DESIGNATED AS PONDS.

G3. MAINTAIN TEMPORARY EROSION CONTROL MEASURES FOR THE FULL DURATION OF CONSTRUCTION. INSPECT WEEKLY AND AFTER EACH STORM AND REPAIR AS NEEDED. REMOVE SEDIMENTS FROM THE SITE, PLACE IN AREA OF LOW EROSION POTENTIAL, AND STABILIZE WITH SEED AND MULCH.

G4. PLACE TEMPORARY SOIL STABILIZATION WITHIN 7 DAYS OF INITIAL DISTURBANCE. PLACE PERMANENT SOIL STABILIZATION WITHIN 7 DAYS OF FINAL GRADING.

UTILITIES

U1. THE ACCURACY AND COMPLETENESS OF SUBSURFACE INFORMATION IS NOT GUARANTEED. VERIFY SITE CONDITIONS INCLUDING TEST PITS FOR LOCATIONS AND INVERTS OF UTILITIES AND REPORT ANY DISCREPANCIES TO MAIN-LAND PRIOR TO PROCEEDING WITH THAT PORTION OF THE WORK.

U2. PROVIDE AT LEAST 5' OF SOIL COVER OVER WATER LINES. WHERE VERTICAL SEPARATION CANNOT BE OBTAINED, BETWEEN WATER AND SEWER, THE SEWER SHALL BE CONSTRUCTED OF MATERIALS AND WITH JOINTS THAT ARE EQUIVALENT TO WATER MAIN STANDARDS-OF-CONSTRUCTION AND SHALL BE PRESSURE TESTED TO ASSURE WATER TIGHTNESS PRIOR TO BACKFILLING.

U3. PROVIDE 4 FOOT WIDE LAYER OF 2-INCH THICK RIGID FOAM INSULATION ON BEDDING MATERIAL 6-INCHES ABOVE OR BELOW SEWER PIPE OR WATER PIPE, WHERE IT CROSSES A STORM DRAIN PIPE WITH LESS THAN 4 FEET OF SEPARATION.

U4. UNDERDRAINS, INCLUDING INTERIOR UNDERSLAB UNDERDRAINS, INTERIOR AND EXTERIOR FOUNDATION UNDERDRAINS, AND RETAINING WALL UNDERDRAINS, SHALL BE PROVIDED BY CONTRACTOR. SEE THE STRUCTURAL FOUNDATION PLAN DRAWINGS FOR ADDITIONAL UNDERDRAINS NOT SHOWN ON THE SITE UTILITIES PLAN DRAWINGS. PLACE TOP OF EXTERIOR UNDER DRAIN CLEANOUTS IN LAWN OR PLANT BEDS 2 INCHES BELOW GRADE, OR WITH CLEAN-OUT COVER AS SHOWN ON THE SITE DETAILS DRAWING.

U5. PROVIDE THRUST BLOCKING FOR WATER LINES ACCORDING TO THE TABLE ON THE DETAIL SHEET.

U6. CLEAN SEDIMENTS FROM NEW AND EXISTING STORM DRAIN PIPES.

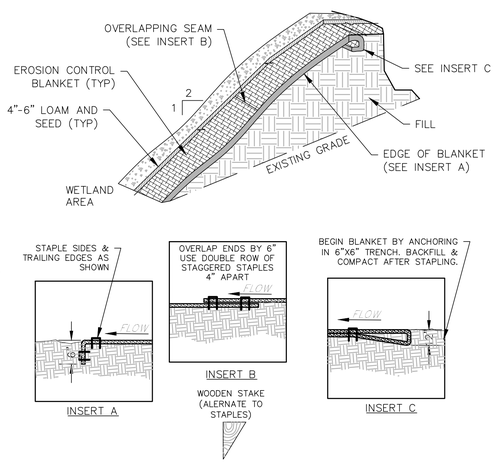
U7. COORDINATE WORK ON UTILITY LINES OR WITHIN ROAD RIGHT-OF-WAY WITH THE UTILITY COMPANIES AND TOWN ROAD DEPARTMENT.

U8. SLOPE CONDUITS AWAY FROM BUILDING TO HANDHOLE OR UTILITY POLE TO AVOID GROUNDWATER SEEPAGE INTO BUILDING.

GENERAL NOTES

NOT TO SCALE | A1

NOTES:
1. FILL SHALL BE COMPACTED IN 6" TO 12" LAYERS TO AVOID SETTLEMENT. COMPACT FILL UNDER PAVEMENTS AND GRAVEL AREAS TO 95% OF MAXIMUM DRY DENSITY; AND UNDER GRASS OR MULCH AREAS TO 90% OF MAXIMUM DRY DENSITY.
2. SOILS SHALL NOT CONTAIN COBBLES LARGER THAN 8" IN THE GREATEST DIMENSION, ICE, FROZEN SOIL, OR ROOTS/STUMPAGE.
3. DO NO WORK ON FROZEN OR MUDDY GROUND.
4. UNROLL MAT ONTO GROUND IN DIRECTION OF WATER FLOW.
5. MAT SHOULD LIE FLAT. DO NOT STRETCH MAT OVER GROUND. STRETCHING MAY CAUSE MAT TO BRIDGE DEPRESSIONS IN THE SURFACE AND ALLOW EROSION UNDERNEATH.
6. BURY TRANSVERSE TERMINAL ENDS OF MAT TO SECURE AND PREVENT EROSIVE FLOW UNDERNEATH.
7. SECURE MAT SNUGLY INTO ALL TRANSVERSE CHECK SLOTS.
8. BACKFILL AND COMPACT TRENCHES AND CHECK SLOTS AFTER STAKING THE MAT IN BOTTOM OF TRENCH.
9. OVERLAP ROLL ENDS BY THREE (3) FEET (MIN.) WITH UPSLOPE MAT ON TOP TO PREVENT UPLIFT OF MAT END BY WATER FLOW. IF INSTALLING IN THE DIRECTION OF A CONCENTRATED WATERFLOW, START NEW ROLLS IN A TRANSVERSE DITCH.
10. OVERLAP ADJACENT EDGES OF MAT BT THREE (3) INCHES (MIN.) AND STAKE.
11. WOOD STAKES ARE RECOMMENDED FOR PINNING MAT TO THE GROUND SURFACE. STAKES SHOULD BE 1" X 3" NOMINAL STOCK CUT IN A TRINGULAR SHAPE. STAKES SHOULD BE 12" TO 18" LONG, DEPENDING ON SOIL DENSITY.
12. DRIVE WOODEN STAKES TO WITHIN THREE (3) INCHES OF GROUND SURFACE. DO NOT DRIVE FLUSH TO SURFACE.
13. IN ALL TRANSVERSE TERMINAL TRENCHES AND CHECK SLOTS, STAKE EACH MAT AT ITS CENTER AND OVERLAP EDGES BEFORE BACKFILLING AND COMPACTING.
14. STAKE OVERLAPS LONGITUDINALLY AT THREE (3) TO FIVE (5) FOOT INTERVALS.
15. FOLLOW COLORED DOT PATTERNS BY MANUFACTURER.



EMBANKMENT W/EROSION CONTROL BLANKET

NOT TO SCALE | A4

MDOT GRAVEL SPECIFICATIONS SECTION 703.06

SIEVE DESIGNATION	PERCENTAGE BY WEIGHT PASSING SQUARE MESH SIEVES				
	TYPE A	TYPE B	TYPE C	TYPE D	TYPE E
4 INCH			100		
3 INCH			90-100		
2 INCH			75-100		
1 INCH			50-80		
1/2 INCH	45-70	35-75	30-60	35-80	
1/4 INCH	30-55	25-60		25-65	25-100
NO. 4			15-40		
NO. 40	0-20	0-25		0-30	0-50
NO. 200	0-6.0	0-6.0	0-6.0	0-7.0	0-7.0

NOTE:
TYPE A SHALL BE CRUSHED LEDGE OR CRUSHED GRAVEL. TYPE A AGGREGATE FOR BASE SHALL ONLY CONTAIN PARTICLES OF ROCK WHICH PASS THE 2 INCH SIEVE. AT LEAST 50 PERCENT OF THE MATERIAL RETAINED ON THE NO. 4 SIEVE SHALL HAVE AT LEAST 1 FRACTURED FACE AS TESTED BY AASHTO T 335.

NOTE:
TYPE B SHALL BE CRUSHED LEDGE OR CRUSHED GRAVEL. TYPE B AGGREGATE FOR BASE SHALL ONLY CONTAIN PARTICLES OF ROCK WHICH PASS THE 4 INCH SIEVE.

NOTE:
TYPE C SHALL BE CRUSHED LEDGE OR CRUSHED GRAVEL AND AGGREGATE FOR BASE SHALL ONLY CONTAIN PARTICLES OF ROCK WHICH PASS THE 6 INCH SIEVE. AT LEAST 50 PERCENT OF THE MATERIAL RETAINED ON THE NO. 4 SIEVE SHALL HAVE AT LEAST 1 FRACTURED FACE AS TESTED BY AASHTO T 335.

NOTE:
AGGREGATE FOR SUB-BASE SHALL BE SAND OR GRAVEL OF HARD DURABLE PARTICLES FREE OF VEGETABLE MATTER, LUMPS OF CLAY, AND OTHER DELETERIOUS SUBSTANCES. AGGREGATE FOR SUB-BASE SHALL NOT CONTAIN PARTICLES THAT DO NOT PASS THE 6 INCH SIEVE.

TYPICAL MAINE DOT GRAVEL SPECS

NOT TO SCALE | A3

UTILITY LOCATION REQUIREMENTS

PRIOR TO EXCAVATION, VERIFY THE UNDERGROUND UTILITIES, PIPES, STRUCTURES, AND FACILITIES. PROVIDE THE FOLLOWING MINIMUM MEASURES.

A. PRE-MARK THE BOUNDARIES OF YOUR PLANNED EXCAVATION WITH WHITE PAINT, FLAGS, OR STAKES SO UTILITY CREWS KNOW WHERE TO MARK THEIR LINES.

B. CALL DIG SAFE, AT 1-888-DIGSAFE, AT LEAST THREE BUSINESS DAYS - BUT NO MORE THAN 30 CALENDAR DAYS - BEFORE STARTING WORK. DON'T ASSUME SOMEONE ELSE WILL MAKE THE CALL.

C. IF BLASTING, NOTIFY DIG SAFE AT LEAST ONE BUSINESS DAY IN ADVANCE.

D. WAIT THREE BUSINESS DAYS FOR LINES TO BE LOCATED AND MARKED WITH COLOR-CODED PAINT, FLAGS, OR STAKES. NOTE THE COLOR OF THE MARKS AND THE TYPE OF UTILITIES THEY INDICATE. TRANSFER THESE MARKS TO THE AS-BUILT DRAWINGS.

E. CONTACT THE LANDOWNER AND OTHER 'NON-MEMBER' UTILITIES (WATER, SEWER, GAS, ETC) FOR THEM TO MARK THE LOCATIONS OF THEIR UNDERGROUND FACILITIES. TRANSFER THESE MARKS TO THE AS-BUILT DRAWINGS.

F. RE-NOTIFY DIG SAFE AND THE NON-MEMBER UTILITIES IF THE DIGGING, DRILLING, OR BLASTING DOES NOT OCCUR WITHIN 30 CALENDAR DAYS, OR IF THE MARKS ARE LOST DUE TO WEATHER CONDITIONS, SITE WORK ACTIVITY, OR ANY OTHER REASON.

G. HAND DIG WITHIN 18 INCHES IN ANY DIRECTION OF ANY UNDERGROUND LINE UNTIL THE LINE IS EXPOSED. MECHANICAL METHODS MAY BE USED FOR INITIAL SITE PENETRATION, SUCH AS REMOVAL OF PAVEMENT OR ROCK.

H. DIG SAFE REQUIREMENTS ARE IN ADDITION TO TOWN, CITY, AND/OR STATE D.O.T. STREET OPENING PERMIT REQUIREMENTS.

I. FOR COMPLETE DIG SAFE REQUIREMENTS, CALL THE P.U.C. OR VISIT THEIR WEBSITE.

J. IF YOU DAMAGE, DISLOCATE, OR DISTURB ANY UNDERGROUND UTILITY LINE, IMMEDIATELY NOTIFY THE AFFECTED UTILITY. IF DAMAGE CREATES SAFETY CONCERNS, CALL THE FIRE DEPARTMENT AND TAKE IMMEDIATE STEPS TO SAFEGUARD HEALTH AND PROPERTY.

K. ANY TIME AN UNDERGROUND LINE IS DAMAGED OR DISTURBED, OR IF LINES ARE IMPROPERLY MARKED, YOU MUST FILE AND INCIDENT REPORT WITH THE P.U.C.. FOR AN INCIDENT REPORT FORM VISIT WWW.STATE.ME.US/MPUC OR CALL THE P.U.C. AT 1-800-452-4699.

UTILITY LOCATION REQUIREMENTS

NOT TO SCALE | A2

MAIN-LAND DEVELOPMENT CONSULTANTS, INC.
69 MAIN ST. LIVERMORE FALLS, MAINE
367 US ROUTE 1 FALMOUTH, MAINE
182 MOOSEHEAD TRAIL, NEWPORT, MAINE
PH: (207) 897-6752 FAX: (207) 897-5404
WWW.MAIN-LANDDCI.COM

PROJECT

DALTON STREET HOUSING

36 DALTON STREET
PORTLAND, MAINE 04103

OWNER OF RECORD

ROBERT C. NELSON

5 SANDPIPER ROAD
FALMOUTH, MAINE 04105

MADE FOR

NELSON PROPERTY SERVICES

1035 OCEAN AVENUE
PORTLAND, MAINE 04103

DRAWING SCALE:

NOT TO SCALE

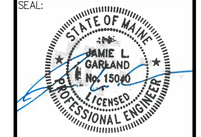
REVISION NOTES: NO.	DATE	DESCRIPTION
1	2025-05-16	UPDATE PLAN TO INCLUDE ADDITIONAL CITY OF PORTLAND REQUIREMENTS
2	2025-06-13	MAJOR SITE PLAN APPLICATION REQUIREMENTS UPDATE PLAN IN RESPONSE TO CITY REVIEW COMMENTS

PROJ. MGR: JLG
DRAWN BY: TDD
CHECKED BY: JLG
SURVEY DATE: N/A
PLAN DATE: 2025-06-27
SUBMITTED FOR: REVIEW

NOT FOR CONSTRUCTION

DETAILS SHEET

SEAL:



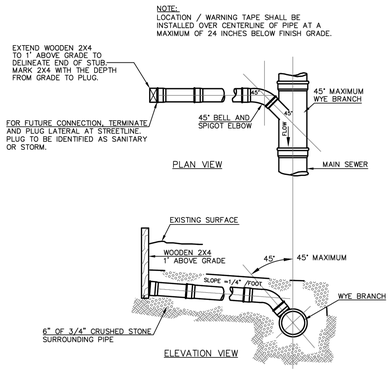
2026-06-09

JAMIE L. GARLAND ME PE#15040

DRAWING NO.

C9.1

MLDC NO. 25-111 6 OF 8



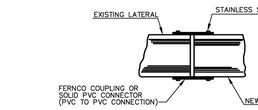
TYPICAL HOUSE LATERAL TEE/WYE CONNECTION

NOT TO SCALE

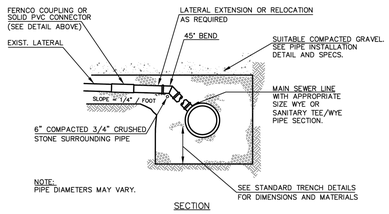
DATE: AUGUST 2009 / REVISED: DECEMBER 2024	CITY OF PORTLAND, MAINE TECHNICAL STANDARDS MANUAL	SANITARY SEWER AND STORM DRAIN DESIGN STANDARDS SECTION VI	FIGURE: VI-17
	TYPICAL HOUSE LATERAL TEE/WYE CONNECTION		

NOTE:
LOCATIONS AND ELEVATIONS OF STUBS SHOWN ON THE PLANS ARE TO BE CONSIDERED AS APPROXIMATE AND MAY BE ADJUSTED AS DIRECTED TO SUIT FIELD CONDITIONS.

HOUSE CONNECTIONS AND CATCH BASINS CONNECTIONS TO THE MAIN LINE OF THE SEWER, SHALL CONSIST OF AN APPROPRIATE WYE BRANCH CONNECTION AS SHOWN ON THE PLANS, OR AS DIRECTED. ACTUAL WYE LOCATIONS FOR HOUSE CONNECTIONS AND CATCH BASIN CONNECTIONS SHALL BE DETERMINED DURING CONSTRUCTION. THE CONTRACTOR SHALL KEEP A COMPLETE RECORD OF WYE LOCATIONS WHICH SHALL BE GIVEN TO THE CITY OF PORTLAND UPON COMPLETION OF THE CONTRACT.
ALL PVC TO PVC COUPLING SHALL BE "SOLID PVC COUPLINGS".



FERNCO COUPLING FOR REPAIR OR REPLACEMENT



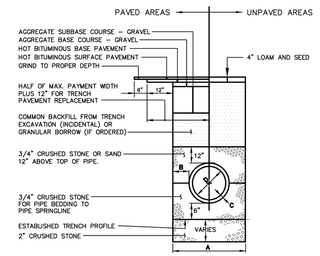
TYPICAL EXISTING LATERAL CONNECTION

NOT TO SCALE

DATE: DEC. 2009 / REVISED: DEC. 2024	CITY OF PORTLAND, MAINE TECHNICAL STANDARDS MANUAL	SANITARY SEWER AND STORM DRAIN DESIGN STANDARDS SECTION VI	FIGURE: VI-16
	TYPICAL EXISTING LATERAL CONNECTION		

NOTES:
DEPTH OF BITUMINOUS PAVEMENT AND AGGREGATE COURSES SHALL BE DETERMINED BY STREET CLASSIFICATION.

ANY ALTERNATE TRENCHING OR PAYMENT METHODS SHALL BE APPROVED IN ADVANCE BY THE CITY OF PORTLAND, DEPARTMENT OF PUBLIC SERVICES..



NOTES

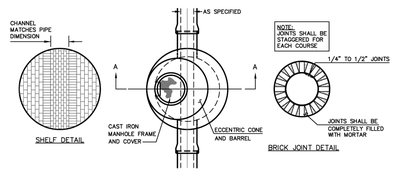
1. ALTERNATIVE CONSTRUCTION METHODS OR PAYMENT METHODS SHALL BE APPROVED IN ADVANCE BY THE CITY.
2. IN PAVED AREAS, DEPTHS OF GRAVEL AND HOT MIX ASPHALT PAVEMENT SHALL MATCH THE GREATER OF EXISTING CONDITIONS OR THE REQUIREMENTS FOR THE CORRESPONDING STREET CLASSIFICATION.
3. DIMENSION **B** SHALL BE SUFFICIENT TO ALLOW CRUSHED STONE BEDDING TO BE PLACED AND COMPACTED UNDER THE HAUNCHES OF THE PIPE; BUT IN ALL CASES DIMENSION **B** SHALL BE AT LEAST 6".
4. DIMENSION **A** IS THE MAXIMUM WIDTH ALLOWED FOR CALCULATING PAY QUANTITIES UNDER GRANULAR BORROW, CRUSHED STONE, STRUCTURAL EARTH EXCAVATION, AND STRUCTURAL ROCK EXCAVATION. DIMENSION **A** SHALL BE BASED ON PIPE DIAMETER **D**, AS SET FORTH IN THE FOLLOWING TABLE.

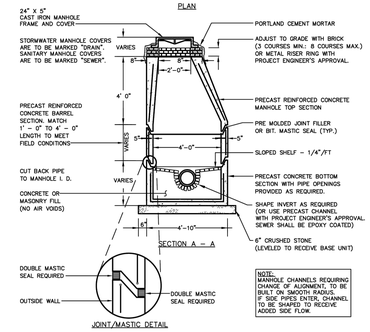
PIPE DIAMETER, **D** (INCHES)	MAX. TRENCH WIDTH, **A** (FEET)
4 – 6	4.0
8	4.0
10	4.0
12	5.0
15	5.0
18 – 24	5.0
27	6.0
30	6.0
36 – 42	6.0
48	7.0

TYPICAL PIPE TRENCH INSTALLATION

NOT TO SCALE

DATE: AUGUST 2009 / REVISED: DECEMBER 2024	CITY OF PORTLAND, MAINE TECHNICAL STANDARDS MANUAL	SANITARY SEWER AND STORM DRAIN DESIGN STANDARDS SECTION VI	FIGURE: VI-12
	TYPICAL PIPE TRENCH INSTALLATION AND NOTES		

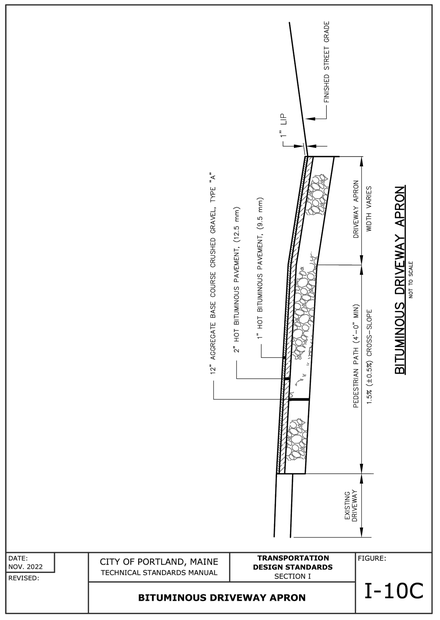




PRECAST CONCRETE MANHOLE

NOT TO SCALE

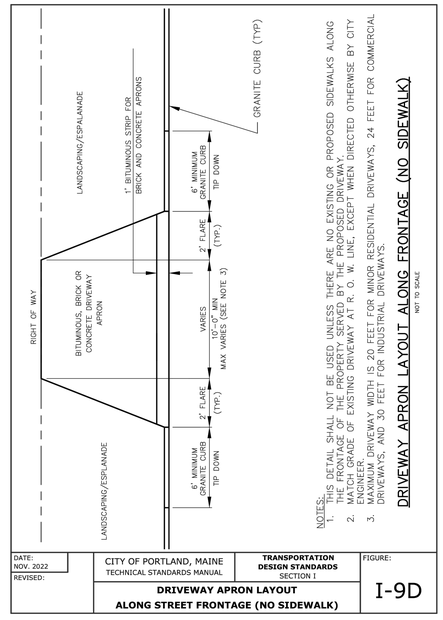
DATE: DEC. 2009 / REVISED: DEC. 2024	CITY OF PORTLAND, MAINE TECHNICAL STANDARDS MANUAL	SANITARY SEWER AND STORM DRAIN DESIGN STANDARDS SECTION VI	FIGURE: VI-2
	PRECAST CONCRETE MANHOLE		



BITUMINOUS DRIVEWAY APRON

NOT TO SCALE

DATE: NOV. 2022 / REVISED:	CITY OF PORTLAND, MAINE TECHNICAL STANDARDS MANUAL	TRANSPORTATION DESIGN STANDARDS SECTION I	FIGURE: I-10C
	BITUMINOUS DRIVEWAY APRON		



DRIVEWAY APRON LAYOUT ALONG FRONTAGE (NO SIDEWALK)

NOT TO SCALE

DATE: NOV. 2022 / REVISED:	CITY OF PORTLAND, MAINE TECHNICAL STANDARDS MANUAL	TRANSPORTATION DESIGN STANDARDS SECTION I	FIGURE: I-9D
	DRIVEWAY APRON LAYOUT ALONG STREET FRONTAGE (NO SIDEWALK)		

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182 MOOSEHEAD TRAIL, NEWPORT, MAINE
PH: (207) 897-6752 FAX: (207) 897-5404
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PROJECT

DALTON STREET HOUSING

36 DALTON STREET
PORTLAND, MAINE 04103

OWNER OF RECORD

ROBERT C. NELSON

5 SANDPIPER ROAD
FALMOUTH, MAINE 04105

MADE FOR

NELSON PROPERTY SERVICES

1035 OCEAN AVENUE
PORTLAND, MAINE 04103

DRAWING SCALE:

NOT TO SCALE

REVISION NOTES:

NO.	DATE	DESCRIPTION

PROJ. MGR:	JLG
DRAWN BY:	TDD
CHECKED BY:	JLG
SURVEY DATE	N/A
PLAN DATE:	2025-06-27
SUBMITTED FOR:	REVIEW

NOT FOR CONSTRUCTION

DETAILS SHEET

SEAL:

STATE OF MAINE · JAMIE L. GARLAND · No. 15040 · LICENSED PROFESSIONAL ENGINEER

2026-06-09

JAMIE L. GARLAND ME PE#15040

DRAWING NO.

C9.2

MLDC NO. 25-111 7 OF 8

EROSION AND SEDIMENTATION CONTROL PLAN

Dalton Street Housing
36 Dalton Street, Portland, Maine

Prepared By:

MAIN-LAND DEVELOPMENT CONSULTANTS, INC.
Livermore Falls, Maine
June 27, 2025

1. INTRODUCTION:

"A person who conducts, or causes to be conducted, an activity that involves filling, displacing or exposing soil or other earthen materials shall take measures to prevent unreasonable erosion of soil or sediment beyond the project site or into a protected natural resource as defined in 38 M.R.S.A. §480-B. Sediment control measures must be in place before the activity begins. Measures must remain in place and functional until the site is permanently stabilized. Adequate and timely temporary and permanent stabilization measures must be taken." - Maine DEP Chapter 500 Rules, Appendix A.

This Plan has been developed to ensure that construction activities on this project site utilize sound erosion and sedimentation control measures. These measures will prevent or reduce the potential for the deposition of sediments down stream of site. The methods of control consist of preventive measures and remedial measures. Preventive measures are aimed at keeping the soils in their present location through mulching and through the reestablishment of vegetation. Remedial measures deal with the trapping and/or filtering of sediment laden stormwater run-off. Both types of measures will be utilized on this project.

The Erosion and Sedimentation Control Plan is best broken down into Temporary Measures, Winter Stabilization, and Permanent Measures.

2. TEMPORARY EROSION CONTROL:

Temporary control measures may consist of a combination of measures where appropriate and/or as shown on the plans.

A. Silt Fencing:

Silt fencing may be used in place of, or together with, the sediment filter barriers. The silt fencing will also be anchored at least four inches into the ground and placed along an even contour. Turn the ends of the fence up-grade to avoid runoff flowing around the fence. During frozen conditions, furnish and install Sediment Filter Berms in lieu of silt fencing or hay bales if frozen soil prevents the proper installation of silt fences and hay bales.

B. Stone Check dams:

Stone check dams shall be placed in the center of ditches immediately following excavation to provide a means of trapping sediments. (If the ditch has been immediately armored with rip-rap, check dams are not necessary.) The dams shall consist of small stone placed across the ditch, with a depression at the top of the dam to allow water over the top of the dam, should it become clogged with sediment. See the specifications on the Typical Details Plan for construction details of this measure.

C. Temporary Mulch:

Temporary mulch shall be placed on all disturbed areas where seeding, construction or stabilization activities will not take place for over 7 consecutive days. Temporary mulch will also be placed on areas within 75 feet of a natural resource (wetland, stream, etc.) where seeding will not take place for over 48 hours, and on all bare soils outside the road base prior to any predicted significant rain event. A significant rain event is considered to be at least ½ inch of rain or more. Temporary mulch may be hay and shall be applied at a rate of two bales per 1,000 square feet. Soil must not be visible upon completion of application, regardless of rate of application.

D. Topsoil Stockpiles:

Topsoil, removed as part of the construction, will be stockpiled on site for use in areas to be re-vegetated. The location of topsoil stockpiles must not be within 75 feet of a defined natural resource (wetland, stream, etc.), or within 75 feet of a swale or ditch.

Stockpiles shall be mulched with hay at two bales per 1,000 square feet. The area down slope from any stockpile areas will be protected by a sediment filter berm or silt fence placed directly below or down gradient from the stockpile. If the stockpile must be left for more than 30 days, the pile will be seeded with rye grass at a rate of two pounds per 1,000 square feet and mulched in accordance with this paragraph.

E. Maintenance of Temporary Measures:

All temporary measures described above shall be inspected weekly and before/after every significant storm event (1/2 inch of rain or greater) throughout the construction of the project. Repairs or replacements of temporary measures will be made as necessary. Once the site is stable, all temporary devices such as hay bale barriers and silt fencing will be removed.

A log shall be kept 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 vehicles 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 department staff and a copy must be provided upon request. The permittee shall retain a copy of the log for a period of at least three years from the completion of permanent stabilization.

3. WINTER STABILIZATION:

The winter construction period is from November 1 through April 15. If the construction site is not stabilized with a combination of pavement, a road gravel base, 90% mature vegetation cover or riprap by November 1 then the site needs to be protected with winter stabilization.

Winter excavation and earthwork shall be completed such that no more than 1 acre of the site is denuded at any one time. Limit the exposed area to those areas in which work is expected to be under taken during the following 15 days. Exposed area shall not be so large that it cannot be mulched in one day prior to any snow event.

Areas shall be considered to be denuded until the subbase gravel is installed in roadway areas or the areas of future loam and seed have been loamed and mulched. Hay and straw mulch rate shall be a minimum of 200 lbs./1,000 s.f. (3 tons/acre) and shall be properly anchored.

The contractor must 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 will be mulched for over winter protection with hay or straw at twice the normal rate or at 200 lbs/1,000 s.f. (3 tons per acre) or with a four-inch layer of woodwaste erosion control mix. This will be done within 24 hours of stocking and re-established prior to any rainfall or snowfall.

Any new soil stockpile will not be placed (even covered with hay or straw) within 100 feet of any natural resources.

2. Natural Resource Protection

Any areas within 100 feet from any natural resources, if not stabilized with a minimum of 90 % 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) will be placed between any natural resource and the disturbed area. Silt fencing may not be placed on frozen ground.

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. Mulching

Areas shall be considered denuded until loamed, seeded and mulched. Hay and straw mulch shall be applied at a rate of 200 lb. per 1,000 square feet or 3 tons/acre (twice the normal accepted rate) and shall be properly anchored. Mulch shall not be spread on top of snow. The snow will be removed down to a one-inch depth or less prior to application.

An area shall be considered stabilized when exposed surfaces have been either mulched with straw or hay at a rate of 200 lb. per 1,000 square feet and adequately anchored, such that the ground surface is not visible though the mulch.

Between the dates of November 1 and April 15, all mulch shall be anchored by either peg line, mulch netting, or wood cellulose fiber. The ground surface shall not be visible though the mulch.

After November 1th, mulch and anchoring of all bare soil shall occur at the end of each final grading work day.

4. Mulching on Slopes and Ditches

Slopes shall not be left exposed for more than 7 days unless fully mulched and anchored. Slopes within 75 feet of a natural resource shall not be left exposed for more than 48 hours. Mulching shall be applied at a rate of 300 lbs/1,000 sq ft on all slopes greater than 8%. Erosion Control mesh shall be used to anchor mulch in all drainage ways and ditches, for slopes exposed to direct winds, and for all other slopes greater that 8 %. Erosion control blanket and check dams (or permanent Rip-Rap) shall be used in lieu of mulch in all drainage ways with slopes of 8 % or more.

A six inch layer of erosion control mix can be used to substitute erosion control blankets on all slopes except ditches.

5. 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 (see table below) and mulched until such time as the final treatment can be applied. If after November 1st the exposed area has been final graded and loamed, then the area may be dormant seeded at a rate of 3 times higher than specified for permanent seed and then mulched.

TYPE	% BY WEIGHT	% PURITY	GERMINATION
Domestic Rye Grass	60	69.75	90
Perennial Rye Grass	20	28.00	85
Aroostook Rye Grass	20	28.00	85

Dormant seeding may 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 5lbs/1000 s.f. All areas seeded during the winter will be inspected in the spring for adequate catch. Areas not sufficiently vegetated (less than 90 % catch) shall be revegetated by replacing loam, seed and mulch.

If dormant seeding is not used, all disturbed areas shall be revegetated in the spring.

6. 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.

In the spring, following the temporary//final seeding and mulching, the contractor shall inspect and repair any damages and/ or un-established spots. Established vegetative cover means a minimum of 90 % of areas vegetated with vigorous growth.

7. Standard for the timely stabilization of ditches and channels

All stone-lined ditches and channels shall be constructed and stabilized by November 1. All grass-lined ditches and channels shall be constructed and stabilized by September 1. Failure to stabilize a ditch or channel to be grass-lined by September 1, will require one of the following actions to stabilize the ditch for late fall and winter.

Install a sod lining in the ditch - Sod lining shall be installed in ditches by October 1. Proper installation includes 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 -Ditches shall be lined with stone riprap by November 1, as presented below. If necessary, the applicant will regrade the ditch prior to placing the stone lining so to prevent the stone lining from reducing the ditch's cross-sectional area.

8. Standard for the timely stabilization of disturbed slopes

Construct and stabilize stone-covered slopes by November 1. The applicant will Seed and mulch all slopes to be vegetated by September 1. Slopes will be considered any area having a grade greater than 15% (6H:1V). If the applicant fails to stabilize any slope to be vegetated by September 1, then the applicant will 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 -- Seed the disturbed slope with winter rye at a seeding rate of 3 pounds per 1000 square feet and apply erosion control mats over the mulched slope October 1. The applicant will monitor growth of the rye over the next 30 days. If the rye fails to grow at least three inches or cover at least 90% of the disturbed slope by November 1, cover the slope with a layer of wood waste compost or with stone riprap as described below.

Stabilize the slope with sod -- Stabilize the disturbed slope with properly installed sod by October 1. Proper installation includes 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. Sod stabilization shall not be used late-season to stabilize slopes having a grade greater than 33% (3H:1V).

Stabilize the slope with wood waste compost (erosion control mix) --Place a six-inch layer of wood waste compost on the slope by November 1. Prior to placing the wood waste compost, remove any snow accumulation on the disturbed slope. Wood waste compost will not be used to stabilize slopes having grades greater than 50% (2H:1V) or having groundwater seeps on the slope face.

Stabilize the slope with stone riprap -- Place a layer of stone riprap on the slope by November 1, similar to the Stone Lined Ditch the permanent erosion control section.

9. Standard for the timely stabilization of disturbed soils

Seed and mulch all disturbed soils on areas having a slope less than 15% by September 1. Failure to stabilize these soils by this date will require one of the following actions to stabilize the soil for late fall and winter.

Stabilize the soil with temporary vegetation -- 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 by October 1. Growth of the rye will require monitoring over the following 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 mulch the area for over-winter protection as described below.

Stabilize the soil with sod -- Stabilize the disturbed soil with properly installed sod by October 1. Proper installation includes 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 -- 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 by November 1. Prior to applying the mulch, remove any snow accumulation on the disturbed area. Immediately after applying the mulch, anchor the mulch with plastic netting to prevent wind from moving the mulch off the disturbed soil.

4. PERMANENT EROSION CONTROL:

Permanent measures will consist of the placement of culverts; culvert inlet/outlet stabilization; the construction of grass/stone lined ditches; and the re-vegetation of all areas outside the traveled way of the road, and those areas designated as stone lined ditches.

A. Ditches:

Ditches on the project have been designed based on expected flow rates and velocities for the 25-year, 24-hour storm event and the slope of the ditch. Where water velocities are expected to exceed 3.5 feet per second, the ditch has been designed to be stone lined. Ditches with water velocities of less than 3.5 feet per second have been designed to be grass lined.

Grass Lined Ditches:

Grass lined ditches will possess the same final dimensions as the stone lined ditches. The flow area of the ditch will be armored by placing a biodegradable matting or netting (such as American Excelsior Curlex Blanket or equal) in the bottom of the ditch. Placement of this material must take place after seeding. Install according to the manufacturers' recommendations.

Seeding and mulching of grass lined ditches will follow the specifications stated below for re-vegetation.

B. Re-vegetation Measures:

All areas to be permanently re-vegetated with grass will first be covered with loam and then fertilized.

Loam will be placed on all areas to be re-vegetated. Loam will be placed to a minimum depth of 4 inches. Loam will be the stockpiled topsoil, if possible.

Test the loam samples for nutrients at a proficient testing laboratory (The University of Maine provides this service). The areas with loam will then be fertilized with the recommended application rate. Lime will also be applied at a rate of 50 pounds per 1,000 square feet. Both the lime and the fertilizer will be mixed thoroughly with the soil.

All areas to be re-vegetated with permanent grass are to be seeded with the seed mix shown on the table below. This mixture will be applied at a rate of 2 pounds per 1,000 square feet.

General Lawn Areas	Chewing Fescue "Dignity"	35%
	Pennlawn Creeping Red Fescue	35%
	Perennial Rye "Tourstar" (Nutrite)	30%

Mulch will then be spread on all seeded areas at a rate of two bales per 1,000 square feet. Regardless of application rate the soil shall not be visible through the mulch.

Seed and mulch will be placed within five days of final grading of topsoil.

Seeded areas will be inspected after 30 days to determine the success of the seeding. If the ground cover is less than 90%, the area will be reseeded.

C. Critical Areas:

Slopes in excess of 15% will require the placement of a biodegradable netting or matting over the mulch and seed (if the netting has no mulch in it). If stabilization is to take place after October 1, slopes over 8% will be treated with the matting.

D. Maintenance of Permanent Measures:

All measures will be inspected weekly and before and after every significant storm event during construction, and then at least once annually to insure proper function. Any damaged areas will be repaired or replaced as necessary. Any ditches or culverts not functioning as designed will be redesigned and reconstructed according to specifications prepared by a Professional Engineer.

In any event, seeding should take place either between May 1 and June 15, or August 15 and September 1.

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PH: (207) 897-6752 FAX: (207) 897-5404
WWW.MAIN-LANDDCI.COM

PROJECT

DALTON STREET HOUSING

36 DALTON STREET
PORTLAND, MAINE 04103

OWNER OF RECORD

ROBERT C. NELSON

5 SANDPIPER ROAD
FALMOUTH, MAINE 04105

MADE FOR

NELSON PROPERTY SERVICES

1035 OCEAN AVENUE
PORTLAND, MAINE 04103

DRAWING SCALE:

NOT TO SCALE

REVISION NOTES: NO.	DATE	DESCRIPTION

PROJ. MGR:	JLG
DRAWN BY:	TDD
CHECKED BY:	JLG
SURVEY DATE	N/A
PLAN DATE:	2025-06-27
SUBMITTED FOR:	REVIEW

NOT FOR CONSTRUCTION

EROSION & SEDIMENTATION CONTROL PLAN

SEAL:

STATE OF MAINE
JAMIE L. GARLAND
No. 15040
LICENSED PROFESSIONAL ENGINEER

2026-06-09

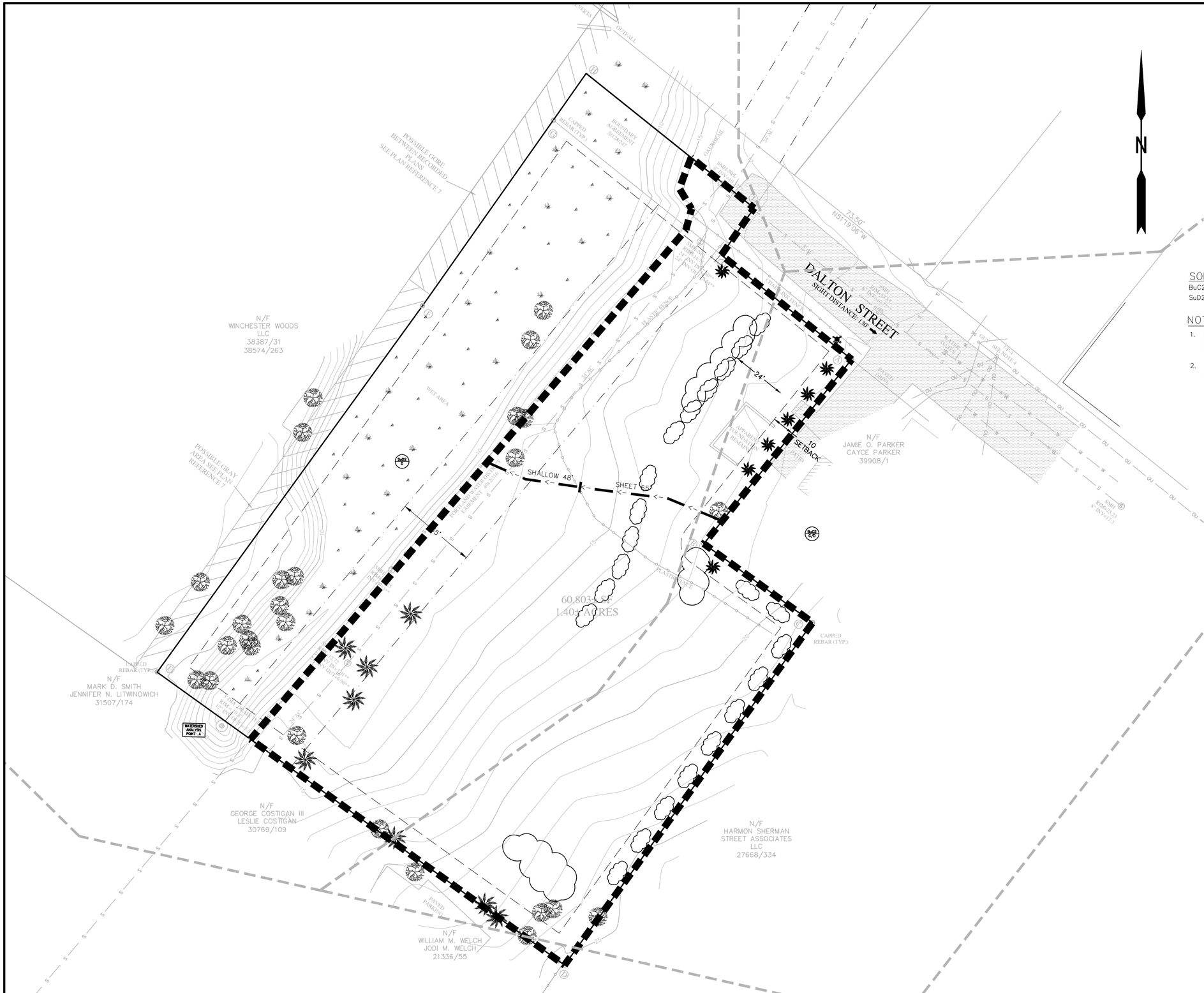
JAMIE L. GARLAND ME PE#15040

DRAWING NO.

C9.3

MLDC NO. 25-111 8 OF 8

TPLN-DETAILS 25-111.dwg - PLOTTED ON 6/9/2026 10:31 AM BY NATHAN GOODRICH



SOILS LEGEND

BuC2 – BUXTON SILT LOAM, 8 TO 15% SLOPES
SuD2 – SUFFIELD SILT LOAM, 15 TO 25% SLOPES

NOTES

1. HYDROLOGIC SOIL GROUP BASED ON SOILS MAP DOWNLOADED FROM NATURAL RESOURCES CONSERVATION SERVICE AT HTTPS://WWW.NRCS.USDA.GOV.
2. THE STORMWATER MANAGEMENT PLAN PACKAGE, INCLUDING CALCULATIONS AND NARRATIVE, ARE AN INTEGRAL PART OF THE STORMWATER DRAINAGE STUDY.

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PROJECT

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36 DALTON STREET
PORTLAND, MAINE 04103

OWNER OF RECORD

ROBERT C. NELSON

5 SANDPIPER ROAD
FALMOUTH, MAINE 04105

MADE FOR

DONATA PROPERTIES LLC

1035 OCEAN AVENUE
PORTLAND, MAINE 04103

DRAWING SCALE:

20 0 10 20
(IN FEET)
1 INCH = 20 FT

REVISION NOTES:

NO.	DATE	DESCRIPTION

PROJ. MGR:	JLG
DRAWN BY:	TDD
CHECKED BY:	JLG
SURVEY DATE:	N/A
PLAN DATE:	2025-06-27
SUBMITTED FOR:	REVIEW

NOT FOR CONSTRUCTION

PRE-DEVELOPMENT DRAINAGE PLAN

SEAL:

STATE OF MAINE · JAMIE L. GARLAND · 15040 · LICENSED PROFESSIONAL ENGINEER

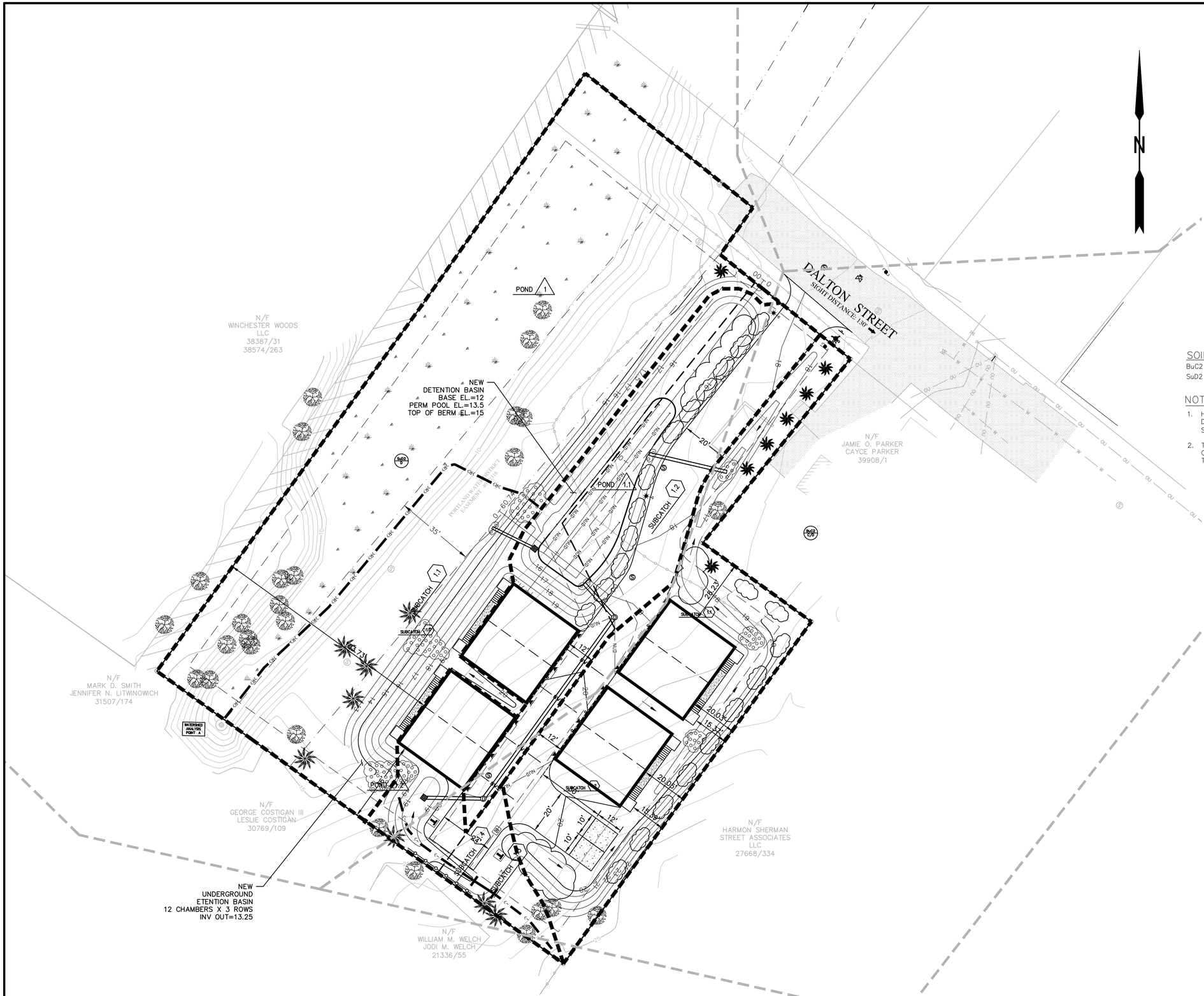
2026-04-15

JAMIE L. GARLAND ME PE#15040

DRAWING NO.

D1.1

MLDC NO. 25-111 1 OF 2



LEGEND

- PROPERTY BOUNDARY LINE
- ABUTTING BOUNDARY LINES
- EXISTING MAJOR CONTOUR LINE
- EXISTING MINOR CONTOUR LINE
- EXISTING PAVED SURFACE
- NEW GRAVEL SURFACE
- NEW GRAVEL SHOULDER
- NEW BUFFER
- SUBCATCH 1 — SUBCATCHMENT NUMBER
- POND 1 — POND NUMBER
- WATERSHED ANALYSIS POINT 1 — WATERSHED ANALYSIS POINT
- NEW LEVEL SPREADER
- SUBCATCHMENT BOUNDARY
- DRAINAGE FLOW PATH
- SOILS BOUNDARY
- SOIL HSG — SOILS LABEL
- TYPICAL WETLAND BOUNDARY

SOILS LEGEND

BuC2 – BUXTON SILT LOAM, 8 TO 15% SLOPES
SuD2 – SUFFIELD SILT LOAM, 15 TO 25% SLOPES

NOTES

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PORTLAND, MAINE 04103

DRAWING SCALE:

20 0 10 20
(IN FEET)
1 INCH = 20 FT

REVISION NOTES:

NO.	DATE	DESCRIPTION

PROJ. MGR:	JLG
DRAWN BY:	TDD
CHECKED BY:	JLG
SURVEY DATE:	N/A
PLAN DATE:	2025-06-27
SUBMITTED FOR:	REVIEW

NOT FOR CONSTRUCTION

POST–DEVELOPMENT DRAINAGE PLAN

SEAL:

STATE OF MAINE
JAMIE L. GARLAND
LICENSED
PROFESSIONAL ENGINEER

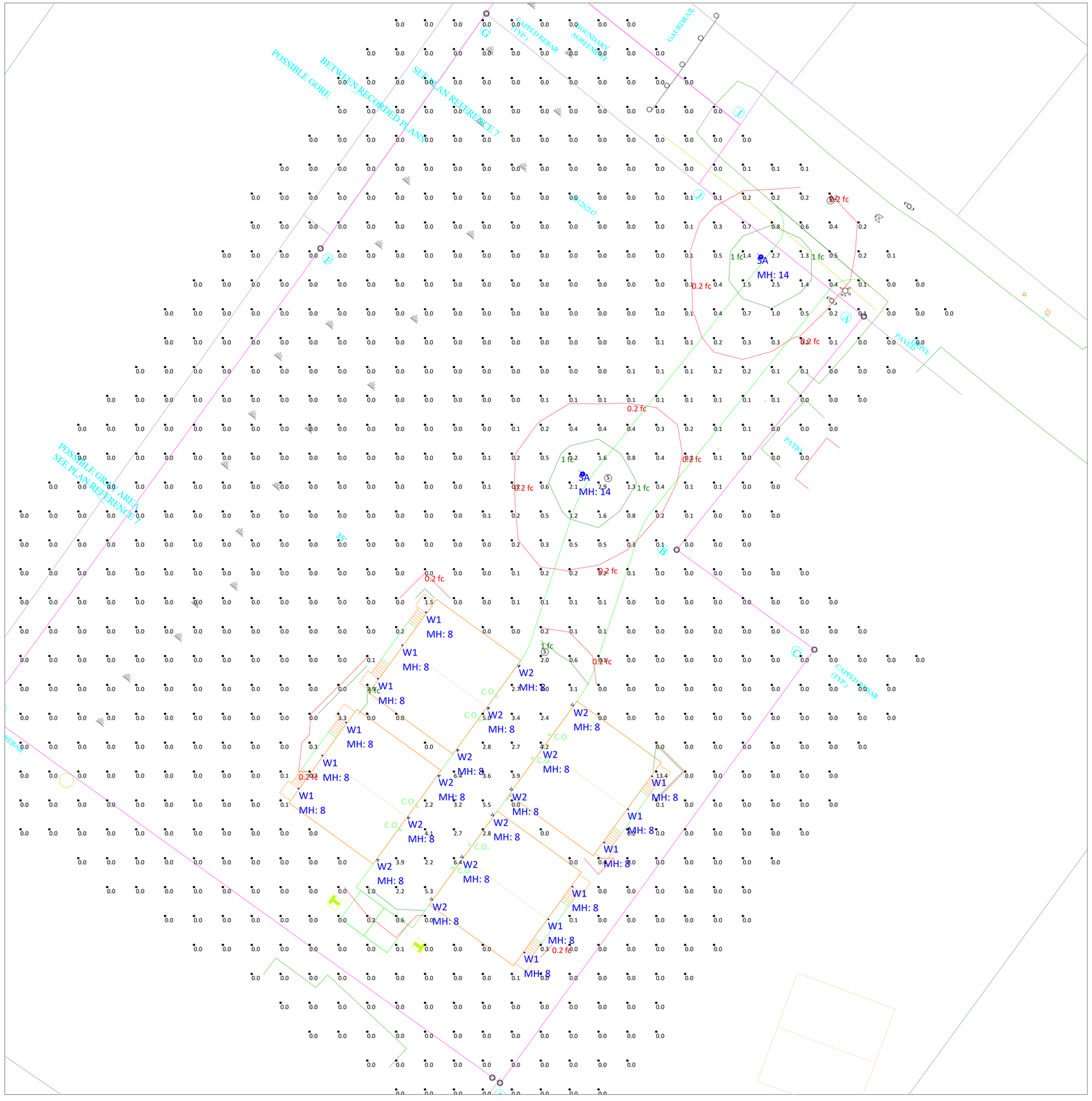
2026-04-15

JAMIE L. GARLAND ME PE#15040

DRAWING NO.

D2.1

MLDC NO. 25–111 2 OF 2



PLAN VIEW

NOTES:

1) EXACT MOUNTING DETAILS TO BE DETERMINED AT JOBSITE BY OTHERS.
2) CALCULATIONS MAY or MAY NOT SHOW THE EFFECT OF SHADOWING CAUSED BY BUILDINGS AND OBJECTS WITHIN THE CALCULATED SPACE OR IN THE SITE AREA.
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Calculation Summary

Label	Avg	Max	Min	Avg/Min	Max/Min
site ltg	0.19	13.4	0.0	N.A.	N.A.

Luminaire Schedule (note fixture catalogue numbers are not complete)

Type	Qty	Lum. Lumens	LLF	Lum. Watts	Description	Mounting Height
SA	2	2763	0.900	20	XDLS-03L-3W-UNV-30K8	14
W1	12	728	0.900	12.2	WMCS-DL-MCT-BK-DT	8
W2	12	1180	0.900	12.34	WPSLS-01L-30	8

site ltg 6-16-25.AGI

GENERATED BY EXPOSURE/ESS, PORTSMOUTH, NH - 603-601-8080 - exposure2lighting.com

TITLE

DALTON STREET HOUSING
PORTLAND, ME
SITE LIGHTING LAYOUT

GENERATED FOR:

MAIN-LAND DEVELOPMENT

SCALE NOT TO SCALE

Page 1 of 1

Date:6/17/2025

EXPOSURE — LIGHTING — CONTROLS — ELECTRICAL

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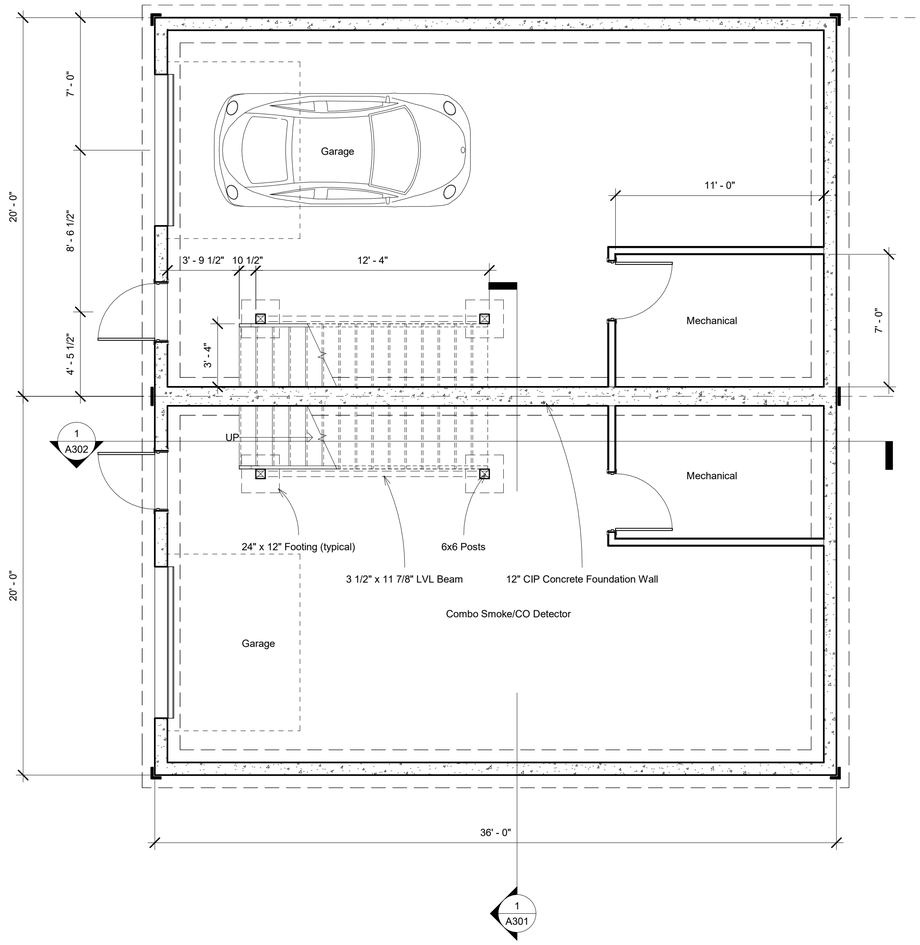
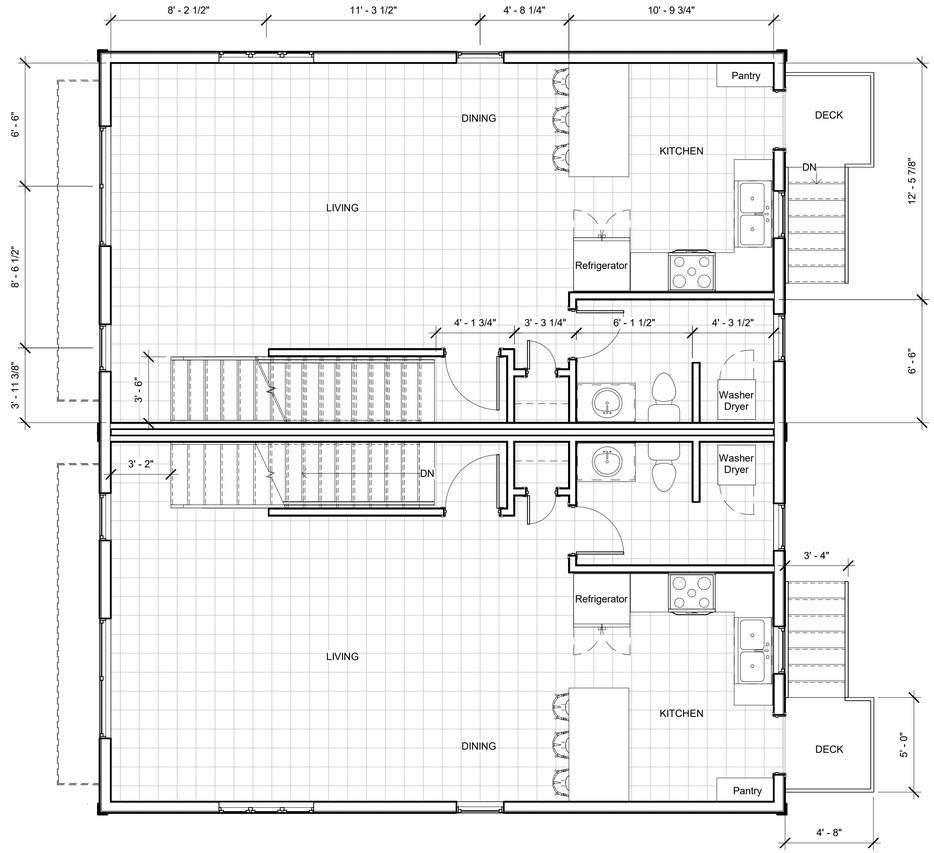


2 Basement Plan
1/4" = 1'-0"



1 1st Floor
1/4" = 1'-0"

TDArchitect
828.231.2399
tdarchitect907.com
92 Pitt Street, #1, Portland, ME 04103

Project Name:
Multiplex Condo

Project Address: Dalton Street, Portland, ME 04103

These drawings were prepared for:
Preliminary Review

M.T. Dickerson, AIA

Nelson Property Services

Floor Plans

Project number	02.04.25
Date	03.12.25
Drawn by	MTD
Checked by	

A101

Scale 1/4" = 1'-0"

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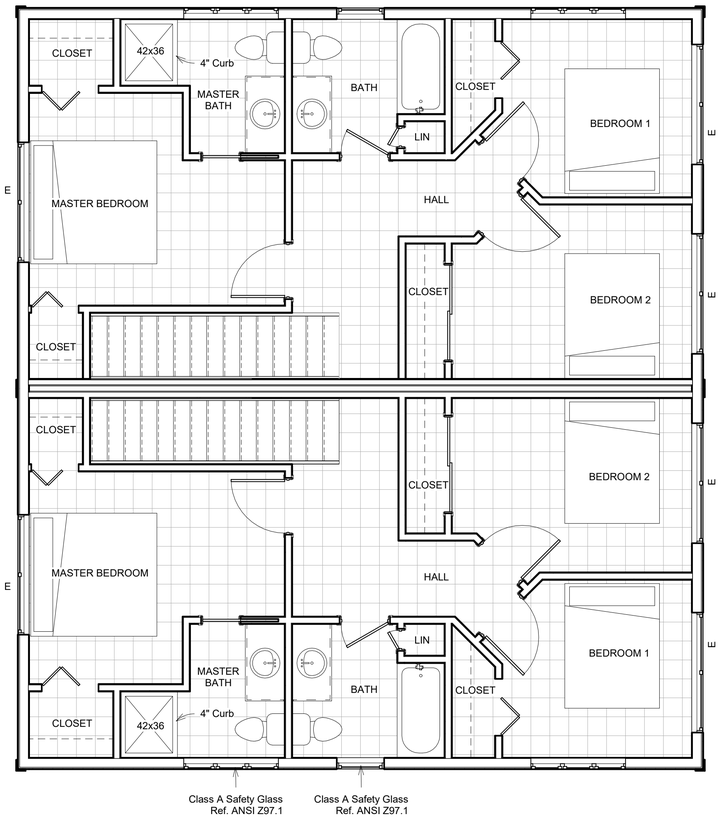
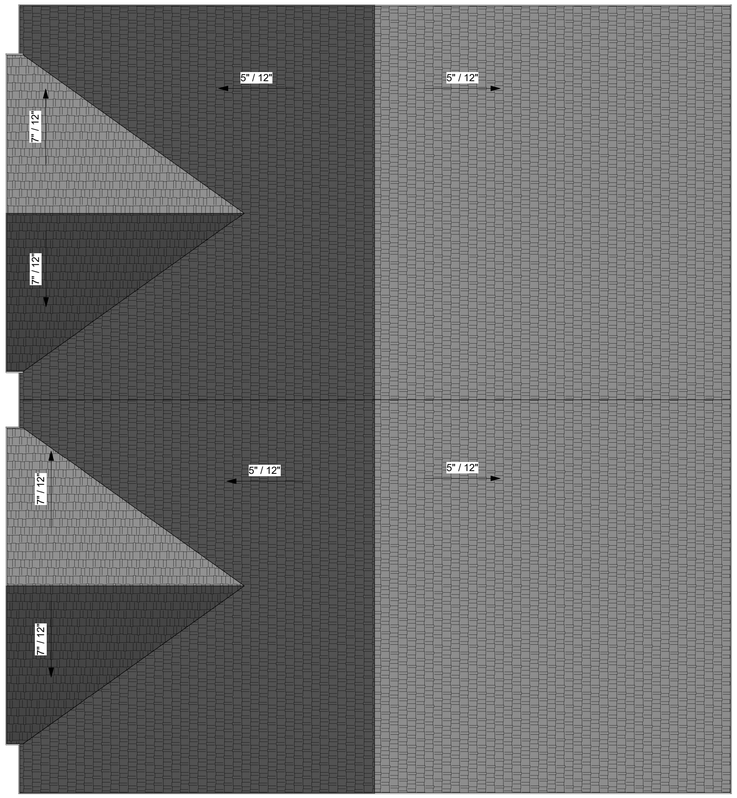


1 2nd Floor
1/4" = 1'-0"



2 Roof Plan
1/4" = 1'-0"

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tdarchitect907.com
92 Pitt Street, #1, Portland, ME 04103

Project Name: Multiplex Condo

Project Address: Dalton Street, Portland, ME 04103

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M.T. Dickerson, AIA

Nelson Property Services

Floor Plans

Project number	02.04.25
Date	03.12.25
Drawn by	MTD
Checked by	

A102

Scale 1/4" = 1'-0"

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3 East
1/4" = 1'-0"

1 West
1/4" = 1'-0"

2 South
1/4" = 1'-0"

Window Schedule					
Type Mark	Width	Height	Family	Sill Height	Comments
01	6' - 4"	5' - 2"	Window-Double-Hung-Double	<varies>	<varies>
02	5' - 0"	1' - 5"	Window-Awning-Triple-Horizontal	<varies>	<varies>
03	2' - 6"	3' - 10"	Window-Double-Hung	<varies>	U-.30*
04	2' - 6"	3' - 0"	Window-Double-Hung	<varies>	U-.30
06	2' - 6"	5' - 2"	Window-Double-Hung	<varies>	<varies>

Door Schedule				
Mark	Width	Height	Function	Comments
101	2' - 6"	6' - 8"	Interior	
102	2' - 10"	6' - 8"	Interior	*
103	3' - 0"	6' - 8"	Exterior	
104	1' - 6"	6' - 8"	Interior	
105	2' - 10"	6' - 8"	Interior	
106	2' - 6"	6' - 8"	Interior	
107	1' - 0"	6' - 8"	Interior	
108	2' - 10"	6' - 8"	Interior	
109	2' - 10"	6' - 8"	Interior	
110	5' - 0"	6' - 8"	Interior	
111	3' - 0"	6' - 8"	Interior	
112	2' - 0"	6' - 8"	Interior	
113	2' - 6"	6' - 8"	Interior	
114	3' - 0"	6' - 8"	Interior	

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828.231.2399
tdarchitect907.com
92 Pitt Street, #1, Portland, ME 04103

Project Name:
Dalton Street Duplex Condos

Project Address:
Dalton Street, Portland, ME 04103

These drawings were prepared for:
Preliminary Review

M.T. Dickerson, AIA

Nelson Property Services

Exterior Elevations

Project number	02.04.25
Date	03.19.25
Drawn by	MTD
Checked by	

A201

Scale	1/4" = 1'-0"

3/19/2025 1:43:56 PM

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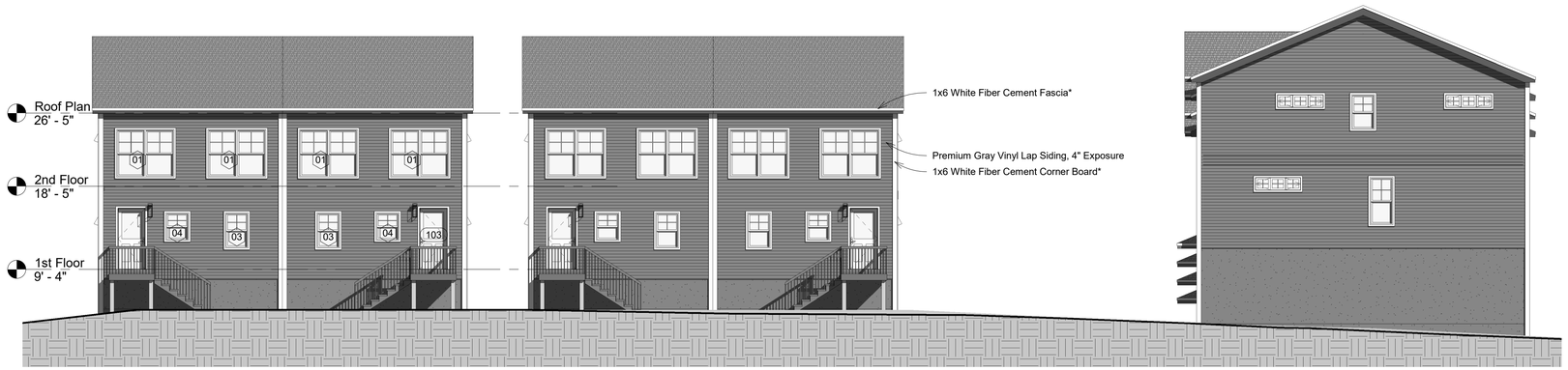

1 Ray Street Elevation
1/8" = 1'-0"

TDArchitect
828.231.2399
tdarchitect907.com
92 Pitt Street, #1, Portland, ME 04103

Project Name:
Multiplex Condo

Project Address: Dalton Street, Portland, ME 04103

These drawings were prepared for:
Preliminary Review

M.T. Dickerson, AIA

Nelson Property Services

Exterior Elevation

Project number	02.04.25
Date	05.09.25
Drawn by	MTD
Checked by	

A202

Scale	1/8" = 1'-0"

5/9/2025 12:13:59 PM

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CITY OF PORTLAND, MAINE PLANNING BOARD

Joseph Zamboni, Chair
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Austin Smith
Nicholas Messina
Beverly Uhlenhake
David Silk
Eric Din

June 23, 2026

Main-Land Development Consultants, Inc.
367 US RT 1
Falmouth , ME
04105

Project Address: 0 Dalton Street
Project ID: PL-003335-2025
Applicant: Main-Land Development Consultants, Inc.
CBL(s): 427 M005001
Applicant Representative: Nelson Property Services
Planner: Neha Sunil Pol

Dear Applicant

On June 23, 2026, the Planning Board approved a Major Site Plan application to facilitate the construction of two two-family residential buildings on each lot, totaling eight dwelling units, at 0 Dalton Street within the RN-3 zone. The decision is based upon the application, documents and plans as submitted. The Planning Board reviewed the proposal for conformance with the standards of the Site Plan Ordinance, Chapter 13, Section 13.6.

Based on the information provided to the Board in the application, plans, and reports, through testimony and other information submitted by the applicant, as well as the findings, conclusions and recommendations contained in the Planning Board Report for the public hearing held on June 23, 2026, which is attached hereto and incorporated herein by reference, the Planning Board found the application met all relevant standards and voted [X-X] to approve the application with the following conditions as presented below.

A. SITE PLAN REVIEW

Based on the information in the application, plans, reports, through testimony at the Planning Board hearing, and other information submitted by the applicant, the Planning Board adopts the findings, conclusions and recommendations contained in the Planning Board Report for the public hearing on June

23, 2026, for application PL-003335-2025 at 0 Dalton Street relevant to the site plan regulations and the planning board voted [X-X] finds 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 provide a vehicle turnaround, snow storage, and utility easement, within the portion of the property encumbered by the "Dalton St. Outlet Sewer" easement and within the unaccepted portion of Dalton Street, consistent with DPW recommendations. The draft easement shall be reviewed and approved by the Department of Public Works and Corporation Counsel before being finalized and recorded at the Cumberland County Registry of Deeds.

2. The applicant shall submit a revised grading and utility plan for review and approval by the Department of Public Works to include either a riprap swale between the proposed 24-inch USSF outfall and the adjacent wetland, or an approved level spreader system, to mitigate downstream erosion impacts.

3. The applicant shall revise the stormwater report to include all components of the stormwater design, including stormwater BMP sizing and drainage area calculations. These materials shall be incorporated into the final report.

4. The applicant shall clarify whether the 4-inch underdrain shown at invert elevation 15.7 in the Pond Outlet Structure detail is intended to function as an orifice, as it appears to be located above the filter media surface.

PRIOR TO ISSUANCE OF A CERTIFICATE OF OCCUPANCY

5. The applicant shall provide draft condominium documents for review and approval by the Planning Authority and Corporation Counsel.

The approval is based on the submitted plans and findings related to the site plan standards contained in the Planning Board report dated June 17, 2026, for application PL-003335-2025 which is attached.

B. SUBDIVISION REVIEW

Based on the information in the application, plans, reports, through testimony at the Planning Board hearing, and other information submitted by the applicant, the Planning Board adopts the findings, conclusions and recommendations contained in the Planning Board Report for the public hearing on June 23, 2026, for application PL-003335-2025 at 0 Dalton Street relevant to the subdivision regulations and the planning board voted [X-X] finds that the plan is in conformance with the subdivision standards of the land use code, subject to the following conditions of approval:

PRIOR TO THE SUBMISSION OF THE PLAT FOR PLANNING BOARD SIGNATURE

1. The subdivision plat shall be finalized to the satisfaction of the Planning Authority, Corporation Counsel and Department of Public Works and include clear descriptions of the number, location, type and size of all subdivided units, along with relevant notes and conditions.

PRIOR TO ISSUANCE OF A BUIDLING PERMIT

2. The signed subdivision plat shall be recorded at the Cumberland County Registry of Deeds.

Standard Procedures

Note: The following standard procedures and requirements apply to all approved site plans:

1. Site Plan Expiration
   The site plan approval shall expire three (3) years from the date of approval unless development has been undertaken in accordance with the approved site plan and site work or building construction is ongoing. Any lapse in construction for a period in excess of 12 months shall result in an expiration of the site plan.

2. Separate Building Permits Are Required
   This approval does not constitute approval of building plans, which must be reviewed and approved by the City of Portland's Permitting and Inspections Department.

3. Performance Guarantee and Inspection Fees
   A performance guarantee covering the site improvements and an inspection fee payment of 2.0% of the guarantee amount and three (3) final sets of plans must be submitted to and approved by the Planning and Urban Development Department prior to the release of a building permit, street opening permit or certificate of occupancy for site plan.

4. Construction Management Plans
   The applicant, contractor and subcontractors are required to conform to the approved Construction Management Plan, and all conditions contained within the project's approval, for the entire duration of the project. Any amendments to the approved Construction Management Plan shall be reviewed and approved by the Department of Public Works prior to the execution. The Planning Authority and the Department of Public Works have the right to seek revisions to an approved Construction Management Plan. The applicant shall coordinate the project's construction schedule with the timing of nearby construction activities to avoid cumulative impacts on a neighborhood and prevent unsafe vehicle and pedestrian movements. Accordingly, nearby construction activities could involve a delay in the commencement of construction.

5. Preconstruction Meeting

Prior to the release of a building permit and scheduling of a preconstruction meeting, a hard copy set of approved plans shall be submitted to the Development Review Coordinator. A pre-construction meeting shall be held at the project site with the contractor, Development Review Coordinator, Public Works representative, and owner to review the construction schedule and critical aspects of the site work. At that time, the Development Review Coordinator will confirm that the contractor is working from the approved site plan and the approved Construction Management Plan. The site/building contractor shall provide one (1) copy 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 pre- construction meeting.

6. Department of Public Works Permits

If work or obstructions will occur within the public right- of-way, such as utilities, curb, sidewalk, driveway construction, site deliveries and equipment siting, a Street Opening and/or Occupancy Permits are required for your site. Please contact the Department of Public Works Permit Clerk at (207) 874-8300, ext. 8828. (Only excavators licensed by the City of Portland are eligible.)

7. Develop Site According to Plan

The site shall be developed and maintained as depicted on the site plan and in the written submission of the applicant. Any modifications of an approved site plan or alteration of a parcel, or of any approved exterior elevations, which were the subject of site plan approval after May 20, 1974, shall require the prior approval of an amended site plan by the Planning Board or Planning Authority pursuant to the terms of Chapter 13, Land Use, of the Portland City Code.

8. Stormwater Management

The owner/operator of an approved stormwater management system, and all assigns shall comply with the conditions of Chapter 32, Stormwater including Article Ill, Post Construction Stormwater Management, which specifies the annual inspections and reporting requirements. A maintenance agreement for the stormwater drainage system, as attached, or in substantially the same form, shall be submitted for review by Corporation Counsel. Once approved, the document shall be signed and recorded at the Cumberland County Registry of Deeds. The following stormwater management documentation shall be submitted to the Water Resources Division of Public Works and the Planning and Urban Development Department prior to the issuance of a Certificate of Occupancy:

- Final executed and recorded stormwater maintenance agreement including the site's inspection and maintenance plan.

- Certification, based on initial comprehensive inspection from the project Engineer of Record, certifying that the approved stormwater systems were installed properly, are fully operational, and are functioning as intended.
- As-built drawings including grading and drainage and updated details for any stormwater systems on site.
- Department of Public Works Impervious Area Adjustment Form 5A
- Department of Public Works Stormwater Credit Application Form 3

Department of Public Works stormwater program forms can be found at the following link: https://www.portlandmaine.gov/1102/Credit-Manual-and-Applications

9. Third Party Inspections

For all sites with one acre or greater of disturbance, the applicant shall retain the services of a third-party inspector for the duration of construction until final site stabilization is in place. The inspection is required in order to ensure that all construction and stabilization activities comply with the approved drawings and specifications; that field decisions regarding erosion control implementation, stormwater system installation, and natural resource protection are based on sound engineering and environmental considerations; and that any changes to the development's erosion control plan, stormwater management plan, or final stabilization plan is communicated to the City of Portland for additional review and approval.

The inspector will submit weekly written reports to the Stormwater Coordinator(s) in the Water Resources Division of Public Works. Reports must include: project ID, project address, the date(s) and time(s) of inspection(s), site photographs of areas under construction, and the date(s) and approximate duration(s) of any rainfall events. The report will identify and describe any erosion problems or discharge of pollutants and what actions will be taken to address these issues and repair any damage to other properties or natural resources, actions to eliminate the erosion source, and actions to prevent future sediment discharges from the area.

10. Defect Guarantee

A defect guarantee, consisting of 10% of the performance guarantee, must be posted before the performance guarantee will be released.

11. As-Built Final Plans

Final sets of as-built plans shall be submitted digitally to the Planning and Urban Development Department as a PDF. Once the PDF version has been reviewed and accepted, a mylar and a AutoCAD format will need to be submitted to the Department of Public Works

Engineering Archive, located at 212 Canco Road, Portland, Maine 04102.

12. Mylar Copies

Mylar copies of the as-built drawings for public streets and other public infrastructure in the subdivision must be submitted to Public Works prior to the issuance of a certificate of occupancy.

13. Impact Fees

New development or changes of use that result in net new residential dwelling units, non- residential building square footage, or water meters, are subject to the City of Portland's impact fee ordinance (Chapter 14, Article 15). Impact fees are calculated at the time of building permit and must be paid prior to the certificate of occupancy. For more information, visit https://www.portlandmaine.gov/2409/Impact-Fees

14. Subdivision Recording Plat

A revised recording plat, listing all conditions of subdivision approval, must be submitted to the Planning and Urban Development Department for review. Once approved, the plat shall be signed by the Planning Board prior to the issuance of a performance guarantee. The performance guarantee must be issued, prior to the release of the recording plat, for recording at the Cumberland County Registry of Deeds.

15. Subdivision Expiration

Subdivision approval is valid for up to three years from the date of the Planning Board approval.

16. Subdivision Waivers

Pursuant to 30-A MRSA section 4406(8)(1), any waiver must be specified on the subdivision plan or outlined in a notice. The plan or notice must be recorded in the Cumberland County Registry of Deeds within 90 days of the final subdivision approval.

The Development Review Coordinator must be notified five (5) working days prior to the date required for final site inspection. The Development Review Coordinator can be reached at the Planning and Urban Development Department at drc@portlandmaine.gov or (207) 405-4799. All site plan requirements must be completed and approved by the Development Review Coordinator prior to issuance of a Certificate of Occupancy. Please schedule any property closing with these requirements in mind.

If there are any questions, please contact Eric Freeman by phone at 207-874-8575 or email at npol@portlandmaine.gov

Sincerely,

Joseph Zamboni, Planning Board Chair

Attachments:

- Planning Board Report
- Portland City Code: Chapter 32
- Sample Stormwater Maintenance Agreement
- Performance Guarantee Packet

16 Purington Way
Major Site Plan Application
PL-003302-2025
Main-Land Development Consultants, Inc., Applicant

Submitted to:	Portland Planning Board	**Prepared By:**	Neha Sunil Pol
Public Hearing Date:	June 23, 2026	**Date:**	June 17, 2026

I. INTRODUCTION

Main-Land Development Consultants has submitted a Major Site Plan application to facilitate the division of an existing tract of land into two separate parcels, and the development of two four-family residential buildings on each lot at 16 Purington Way, currently addressed as 174 Ray Street. This application is being referred to the Planning Board for compliance with the City of Portland's Land Use Code Site Plan Standards, Section 13.6.

The Planning and Urban Development Department mailed 105 notices advertising this meeting to property owners within 500 feet of the site. A legal advertisement ran on September 11, and September 12 editions of the Portland Press Herald.

Applicant: Main-Land Development Consultants, Inc.
Applicant Representative(s): Nelson Property Services, TDArchitect.

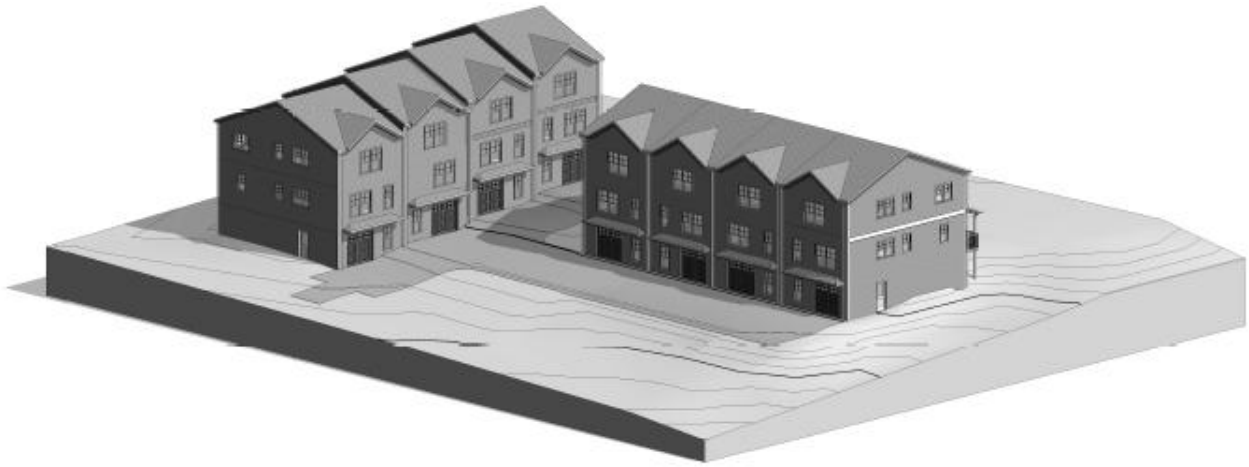

Figure 1. A prospective 3D view of the proposed project.

II. REQUIRED REVIEWS

Review	*Applicable Standards*
Site Plan	Section 13.6
Design Review - RN-3 (Neighborhood Residential)	City of Portland Design Manual - 13.6.4(l)

Waiver Requests	*Applicable Standards*
The Applicant is seeking a waiver for the parking aisle width to be reduced to 20 feet.	Technical Manual, Section 1 - Design standard Figure 1-16A depicting typical standard parking drive aisle dimension. The standard for 90 Degree Parking is 24 feet aisle width, please refer to Section IX below.

Project Data	
Existing Zoning	RN-3 Residential Neighborhood
Property Size	0.5 Acres
Existing Use	Vacant land, currently undeveloped, Wooded area.
Proposed Development Program	Two four-family buildings with eight parking spaces located in a ground-level garage.

III. BACKGROUND/PLANNING BOARD WORKSHOP SUMMARY

A Planning Board workshop was held on September 23, 2025, to review the proposed development. The workshop focused on site design, circulation, stormwater management, and environmental considerations. Prior workshop materials can be found by visiting https://portlandme.portal.civicclerk.com/event/7579/files/agenda/16817.

During the workshop the Planning Board discussed building orientation and access, including the location and configuration of building entrances, pedestrian connections, and door openings. Board members noted the limited separation between buildings, approximately seven feet, and requested additional clarification regarding how this space functions in terms of access, safety, and usability.

Applicant follow-up: The applicant has revised the architectural elevations and removed the seven-foot space between the buildings. Ground-level unit entrances have been relocated adjacent to the garage doors and are now covered by an overhead canopy.

The Board stated the need for a continuous sidewalk and clear pedestrian connections throughout the site, including direct connections to building entrances. The Board also noted that the applicant must provide additional details regarding the location of visitor parking spaces to ensure adequate access and functionality.

Applicant follow-up: The applicant has added a pedestrian pathway connecting the Ray Street building entrances to the proposed access driveway. Visitor parking is not provided on-site within the frontage area; instead, it is proposed that guests utilize on-street parking along Ray Street where permitted. If the Board recommends that the applicant provide visitor parking, the applicant shall coordinate with Staff to revise the site plan and incorporate viable visitor parking spots.

Stormwater management and grading were significant topics of discussion. The Board raised concerns related to site grading, ledge conditions beneath paved areas, and the level of detail provided in the grading plans. The applicant was directed to revise the grading plan to more accurately reflect existing conditions and address stormwater concerns, and provide additional information regarding alternatives to the proposed wet pond. Additional discussion topics included tree preservation and removal, buffering between uses, and overall site impacts.

Applicant follow-up: The wet pond has been removed and replaced with a subsurface CMP detention system followed by a Jellyfish treatment vault. The grading plan has been updated with additional spot grades to clarify drainage paths and slope changes, and a berm is now proposed along the eastern property boundary to divert offsite drainage around the development.

IV. EXISTING CONDITIONS AND SURROUNDING AREA

The site is currently undeveloped and is extensively vegetated, with property frontage along Ray Street. The site features an existing informal trail which provides a trail connection between Virginia Woods, Maine Avenue, Ray Street, and Marlborough Road. There is an existing bus stop on Ray Street approximately 300 feet from the subject property that services METRO bus route 9A.

To the north, the site is bounded by single-family homes near the intersection of Ray Street and Dakota Street. To the south, most of the area is undeveloped other than the former St. Joseph's Retirement complex.

Figure 2. An aerial view of the existing site

Figure 3. Street View image of the site at the location of the proposed driveway.

V. PROPOSED DEVELOPMENT

The proposed Major Site Plan application would facilitate the development of two four-family residential buildings on a 0.5-acre parcel. One four-family building would be constructed on each lot. Each building would have a footprint of approximately 5,085 square feet, with a total building height of 34 feet, 10 inches. The development would include a 20-foot front and rear setback, and a 7-foot side setback, consistent with applicable zoning standards.

Eight parking spaces would be provided in ground-level garages, with one space assigned per unit. Parking would be accessed via a 20-foot-wide, two-way driveway connecting to Ray Street. Two designated snow storage areas are provided on the project site, one along the west side and another at the north end of the access driveway.

As part of the proposed development, a significant portion of the existing vegetation would be removed. Seven new street trees are proposed along the property frontage on Ray Street to enhance the streetscape.

Stormwater runoff from the development would be pretreated through a Jellyfish Treatment System before being conveyed to a sealed underground storage system. The project would connect to existing public water and sanitary sewer infrastructure located within Ray Street. Refuse and recycling would be stored within a dumpster, located towards the rear of the site within a screened enclosure.

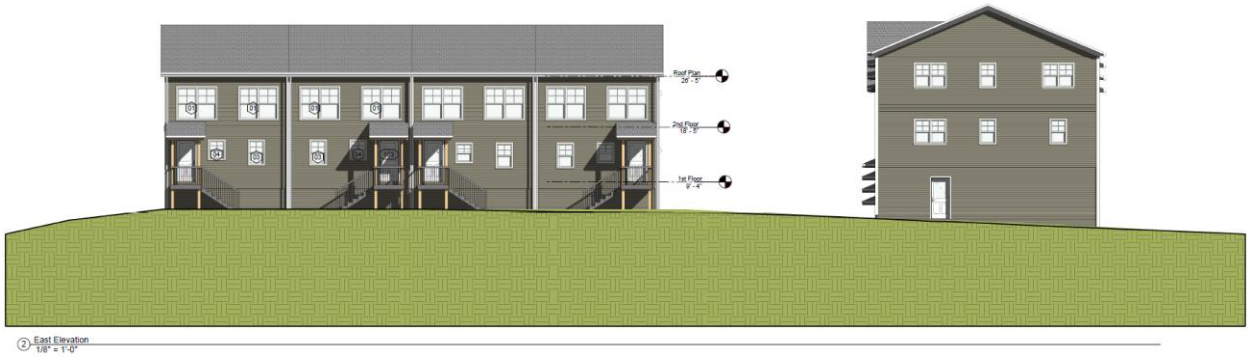

Figure 4. Front and Side Building Elevation

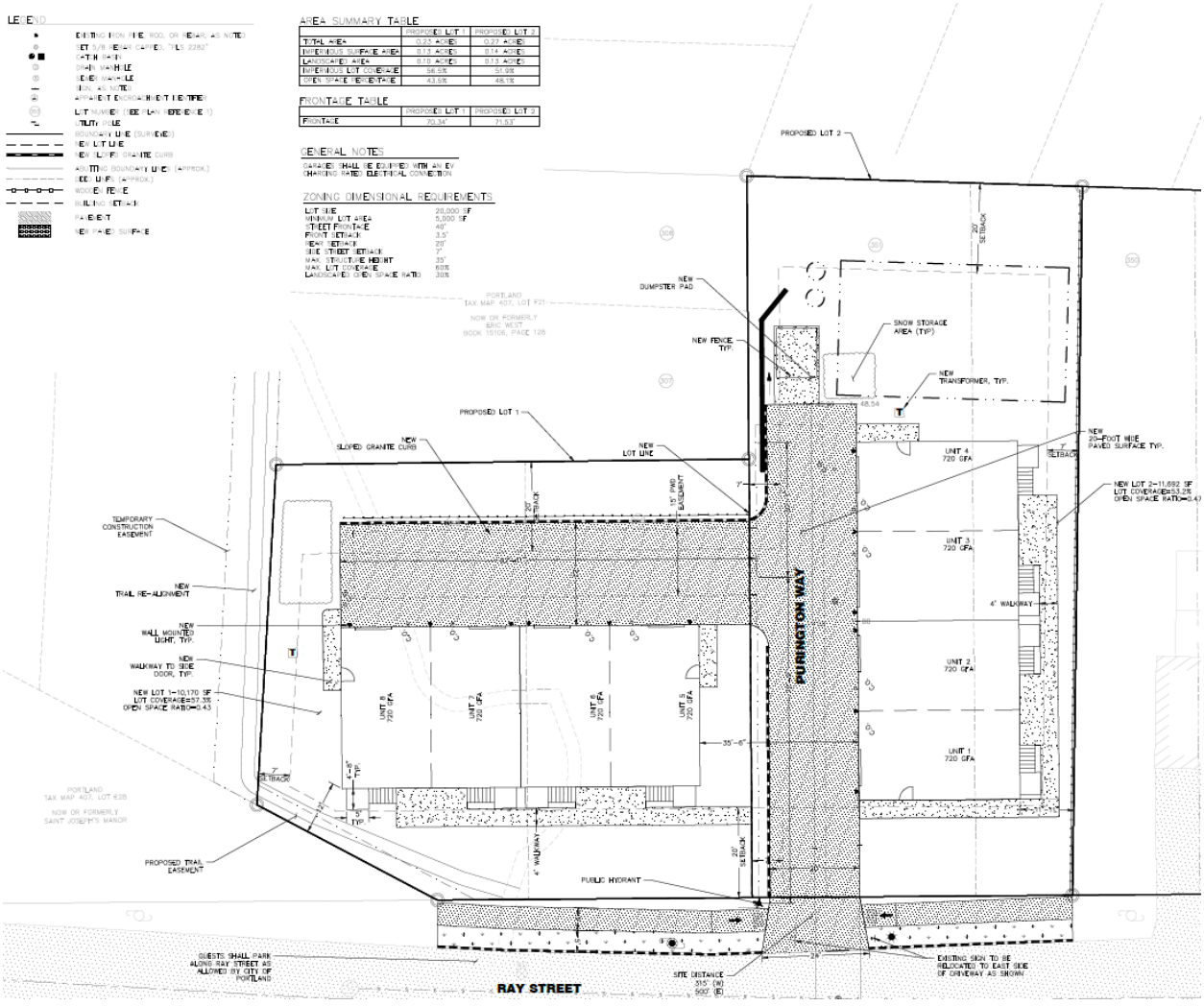

Figure 5. Overall Site Plan

VI. RIGHT, TITLE, & INTEREST

The applicant has demonstrated sufficient right, title and interest to the parcel involved in this application. The subject lot was conveyed together with associated rights to Robert C. Nelson on October 19, 2022. Conveyance of this parcel is recorded in the Cumberland County Registry of Deeds Book 39847, Page 95.

Full Right, Title, and Interest documentation is included as Attachment F.

VII. FINANCIAL & TECHNICAL CAPACITY

The applicant has provided a status of good standing from the Bath Savings Institution and a letter from the applicant's bank confirming financial capacity to complete the proposed project at 174 Ray Street.

The applicant has retained Main-Land Development Consultants, Inc., Nelson Property Services, TDArchitect, Survey Inc. who have expertise and experience in the design of similar projects.
Full financial and technical capacity documentation is included as Attachments D and E.

VIII. ZONING ANALYSIS

The subject property is located within the RN-3 Residential Neighborhood zone. The purpose of the RN-3 zone is to provide a residential environment characterized by dwellings on lots of at least 5,000 square feet. The zone permits the conversion of existing nonresidential structures to multifamily use, subject to standards that ensure compatibility with surrounding homes.

As submitted, the proposed use and development proposal is consistent with the RN-3 zoning requirements. A zoning analysis of the proposed project is provided in the table below:

Standard	Required	Proposed
Lot Size	None	21,780 square feet
Maximum Height (ft)	35 feet	34 feet 10 inches
Minimum Street Frontage	40 feet	141.87 feet (Ray Street)
Area Per Dwelling Unit	5000 SF	5445 square feet
Front Setback	20 feet	20 feet
Rear Setback	20 feet	36 feet
Side Setback	7 feet	7 feet
Open Space	30 percent	53 percent (11,560 square feet)
Lot Coverage	60 percent	47 percent (10,220 square feet)

IX. SITE PLAN STANDARDS (Section 13.6)

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 13.6. Staff comments are below.

Pursuant to 30-A M.R.S. § 4402(6)(A), this application is exempt from subdivision review. The proposed development consists of a multifamily residential project subject to Site Plan review under Chapter 14, Article 13 of the City's Land Use Code. Site Plan review includes review of stormwater management, sewage disposal, water supply, access, and other infrastructure and public facility impacts required under the statutory exemption. Accordingly, separate subdivision approval is not required for this application.

1. Transportation Standards (Section 13.6.1)

A. Impact on surrounding street systems

After reviewing the application's plans and documents, staff in consultation with the city's third-party traffic engineer, anticipate minimal impact on the surrounding street network from this project, with an estimated total of only five peak-hour trips. The proposed development is expected to generate low traffic volume, meaning it would not significantly affect safety or mobility within the area. Because the projected trip generation is below the 100 peak-hour trip threshold, a Traffic Movement Permit (TMP) is not required. Access to the site would be provided via a 20-foot-wide driveway connecting the development to Ray Street. Ray Street is classified as a minor collector and also serves as a known alternative to Washington Avenue, carrying considerably more traffic than would be generated by homes along Ray Street.
A traffic study is not required for this project as the projected trip generation is below required thresholds outlined in Section 2.1.2 of the City's Technical Manual.

The applicant has provided a turning template showing a waste collection truck entering and exiting Ray Street via lane turns, demonstrating that waste collection access is feasible.

Finding of Fact: Based on the submitted application materials and the project's description of components related to impact on surrounding street systems, this standard is determined to be met.

B. Access and circulation

Per Standard 13.6.B, the proposed project is required to provide safe and adequate access and internal circulation for all site users. The proposed project would be accessed via a 20-foot-wide paved driveway off Ray Street. Pedestrian access to the proposed units would be provided by a 4-foot-wide paved walkway connecting the units directly to Ray Street.

The applicant has proposed extending the 5-foot-wide sidewalk along the property frontage to support a future connection along Ray Street, enhancing long-term pedestrian connectivity and improving access to nearby transit stops along the corridor.

The existing site has a Portland Trails path running through the property. Portland Trails noted that there is an existing informal trail formed by foot traffic over time, which serves as a connection between the Virginia Woods and Marlborough Street trails and both Ray Street and

Maine Avenue. Portland Trails requested that the applicant relocate the trail to the edge of the property. In response, the applicant has proposed a trail easement at the southwest corner of the project site, allowing the connection to continue along the Idaho paper street to Maine Avenue. This easement is to be finalized by the City as a Condition of Approval for this project.

Finding of Fact: Based on the submitted application materials, the project's description of components related to access and circulation this standard is determined to be met subject to conditions of approval.

C. Public transit access

The proposed development is not required to provide a transit shelter, as it includes fewer than 20 dwelling units. There is an existing bus stop on Ray Street approximately 300 feet from the subject property that services METRO bus route 9A.

Finding of Fact: Based on the submitted application materials, the project's description of components related to public transit access this standard is not applicable.

D. Parking

The development would include a total of eight parking spaces located in ground-level garages, providing one space per unit. Parking would be accessible via a 20-foot-wide paved driveway from Ray Street. Two designated snow storage areas are provided on the project site, one along the west side and another at the north end of the access driveway.

The applicant has requested a waiver to reduce the required parking aisle width to 20 feet and has submitted an auto-turning diagram in support of the request. While the submitted graphics indicate that vehicle overhang associated with the proposed 8-foot-wide garage openings may result in constrained entry and exit maneuvers, vehicle turning template analyses are generally conservative in nature. Based on the information provided, staff anticipate that vehicular access would function adequately as designed. Accordingly, staff support the requested waiver.

The proposed project would include electric vehicle infrastructure in accordance with the standards of Section 1.14 for the on-site parking spaces.

Based on the Board’s discussion regarding visitor parking, the applicant has indicated that visitor parking would be accommodated on-street along Ray Street and is not proposed on-site. Staff note that the Ray Street width appears insufficient to accommodate on-street parking without obstructing a travel lane; therefore, there appears to be no legal on-street parking available in this area. If the Board recommends that visitor parking be provided on-site, the applicant shall coordinate with Staff to revise the site plan and incorporate a limited number of designated visitor parking spaces.

Figure 6. Current site conditions

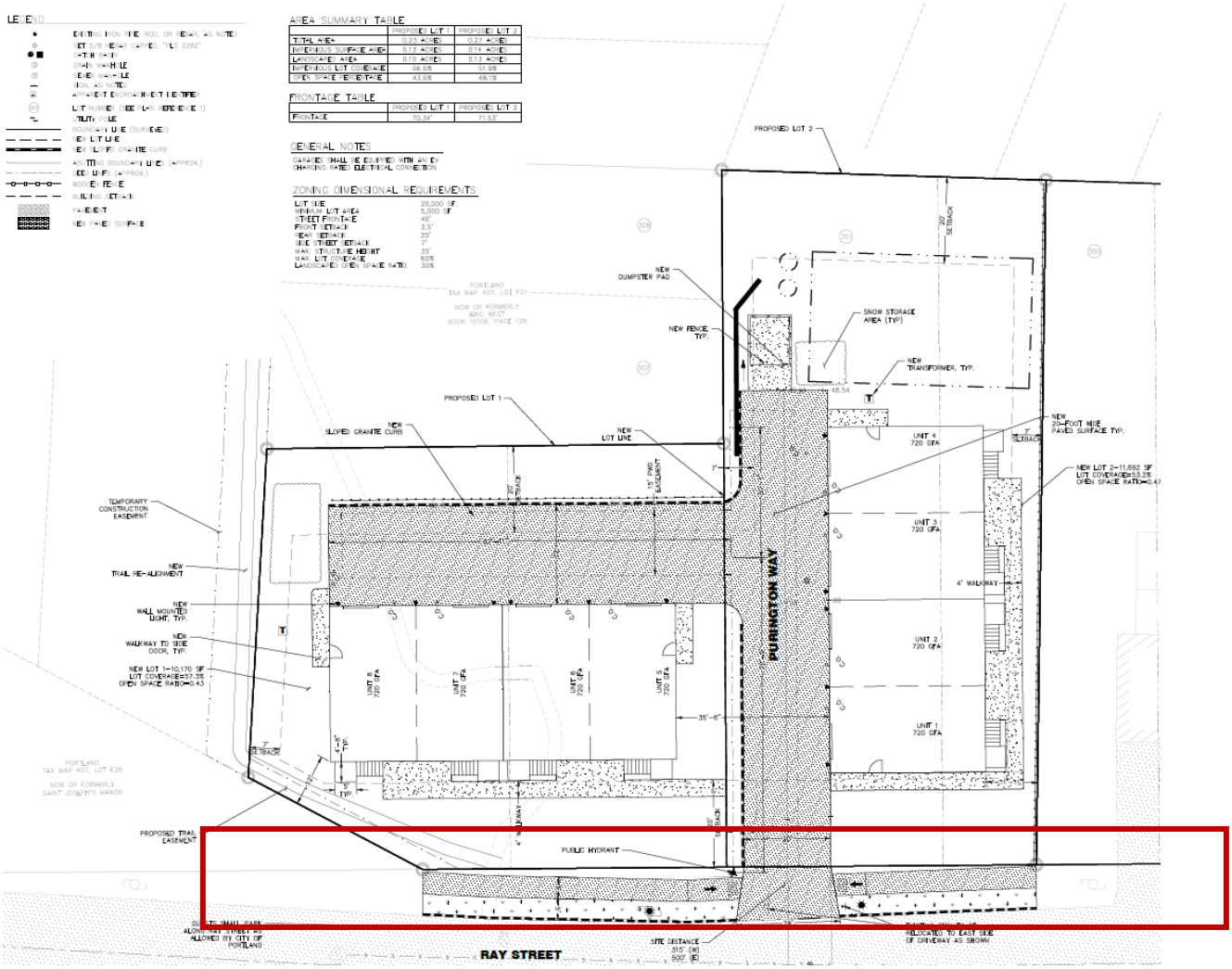

Figure 7. Proposed On street - Visitor Parking

Finding of Fact: Based on the submitted application materials, the project's description of components related to parking this standard is determined to be met subject to conditions of approval.

E. Transportation demand management (TDM)
This application is not a commercial or mixed-use development and thus does not require a TDM Plan.

Finding of Fact: Based on the submitted application materials, the project's description of components related to transportation demand management, this standard is not applicable.

2. Environmental Quality Standards (Section 13.6.2)

A. Preservation of significant natural features

The existing site is currently located in a wooded and densely vegetated area. According to city standards, new developments are required to preserve and protect significant natural features. However, as part of the proposed development, a significant portion of the existing vegetation would be removed. Approximately 89 existing trees with 10 inches DBH or greater are proposed to be preserved. Of these, 50 are proposed for removal, and 39 trees are proposed to be preserved on-site, resulting in approximately 43.8 percent of these trees being preserved on-site.

The applicant has submitted a Low Impact Development (LID) Scorecard claiming 81 points, exceeding the 80-point minimum requirement for compliance with the city's LID standards. As part of the proposed LID approach, the project incorporates landscaping strategies, including the use of native vegetation and locally sourced landscape materials to reduce the impervious area associated with parking.

Finding of Fact: Based on the submitted application materials, the project's description of components related to preservation of significant natural features, this standard is determined to be met.

B. Site landscaping and buffers
The applicant proposes seven new street trees (Red Maple - Acer rubrum) along the Ray Street frontage. In addition, nine Arborvitae trees are proposed at approximately six to eight feet apart along the eastern property line to provide screening and buffering for the proposed stormwater management area from adjacent residential properties.

As per Standard 13.6.2(B), one street tree is required for every 25-35 linear feet of frontage along a city right-of-way. With approximately 142 feet of frontage along Ray Street, a total of six street trees are required; however, the applicant proposes seven street trees along the Ray Street frontage.

Per the City's landscaping standard, one shade tree is required for every 5,000 square feet of lot area. With a total lot size of 21,780 square feet, a minimum of four shade trees is required. The applicant satisfies this requirement by proposing nine new trees along the eastern side of the project site.

Finding of Fact: Based on the submitted application materials, the project's description of components related to site landscaping and buffers, this standard is determined to be met.

C. Water quality/storm water management/erosion control

The proposed project would result in the creation of 10,220 square feet of new impervious area, exceeding the City's local stormwater management threshold of 1,000 square feet. As a result, the project is required to comply with the stormwater management standards of Maine DEP Chapter 500 and Section 5 of the City of Portland Technical Manual. The applicant has submitted a full stormwater management plan demonstrating compliance with both Section 5 of the technical manual and Maine DEP chapter 500 standards.

The proposed stormwater management system has been revised from the previously proposed subsurface sand filter/pond-based system to a sealed underground storage system following pretreatment through a Jellyfish Treatment System. The sealed system is designed to store treated stormwater and isolate it from groundwater interaction, consistent with applicable regulatory standards.

Site drainage patterns have been updated to provide clear flow paths, including revised grading and additional spot elevations. Off-site drainage is redirected via a proposed berm along the eastern property boundary.

The stormwater design includes updated HydroCAD modeling, detention sizing, and treatment system calculations. The outlet control structure includes a 4-inch vertical orifice, and elevations for the 12-inch outlet have been corrected for consistency across the plans and model. Sediment pretreatment is provided through a forebay, and riprap scour protection is proposed at the outlet. The private sewer main has been upsized to 8 inches and connects to the City's system at Ray Street via a new manhole.

Staff has reviewed the submitted Stormwater Management Plan and identified several items requiring revision or additional information prior to final approval. The location of the proposed stormwater management system is currently wooded and has not yet been evaluated through test pit investigations. As a result, the Applicant will be required to conduct the necessary test pits and submit the results for review. Additional clarification is also needed regarding the modeling of the proposed stormwater management system to ensure that the outlet control structure and discharge piping are accurately represented and adequately sized for the anticipated flow. Staff further requests additional information regarding the proposed berm along the eastern property line, including how the design will affect adjacent properties and existing stormwater drainage patterns. Finally, revisions are needed to address inconsistencies in the proposed sewer design, including conflicting pipe sizing information and discrepancies in the elevation datum used for the proposed sewer connection to the existing public sewer within Ray Street. To address these items, staff has included draft conditions of approval requiring the Applicant to submit test pit information, revised stormwater plans, and revised utility plans for review and approval by the Planning Authority.

Finding of Fact: Based on the submitted application materials, the project's description of components related to water quality, stormwater management, and erosion control, this standard is determined to be met subject to conditions of approval.

3. Public Infrastructure and Community Safety Standards (Section 14.6.3)

A. Consistency with City Master Plans

The intent of the RN-3 zone is to provide a residential neighborhood environment primarily characterized by dwellings on lots of at least 5,000 square feet. The proposed project is consistent with the requirements of the RN-3 zoning district and is in conformance with the City's comprehensive plan, Portland Plan 2030.

Finding of Fact: Based on the submitted application materials, the project's description of components related to consistency with mater plans, this standard is determined to be met.

B. Public safety and fire prevention

The proposed development has been designed to adequately provide emergency vehicle access into and out of the site. One fire hydrant is proposed near the entrance off Ray Street. Additionally, internal lighting is proposed along the access drive to enhance visibility and reinforce safety.

Finding of Fact: Based on the submitted application materials, the project's description of components related to public safety and fire prevention, this standard is determined to be met.

C. Public utilities

The proposed project does not anticipate overburdening existing sanitary sewers, storm drains, water lines or supply or other public infrastructure and utilities. The development would connect to existing public sanitary sewer and water systems along Ray Street.

Existing overhead electrical infrastructure on Ray Street would be utilized, with underground connections extending to two proposed on-site transformers located at the side of lot one and the rear on lot two. The project proposes less than 20 residential units and does not require temporary storage and timely removal of all trash and recyclable materials. However, the proposed dumpster receptacles are located at the rear of the site and would be screened with fencing.

Staff has received a Wastewater Capacity Authorization from the Department of Public Works (DPW) Water Resources.

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Finding of Fact: Based on the submitted application materials, the project's description of components related to public utilities, this standard is determined to be met.

4. Site Design Standards (Section 13.6.4)

A. Massing, ventilation, wind and heat impact

The proposed development is not anticipated to have adverse massing, ventilation, wind, or heat impacts. The project would provide roofing materials that meet the SRI of 25+ for roof slopes greater than 2:12. The proposed building units would locate all HVAC venting mechanisms to direct exhaust away from public spaces and abutting residential properties.

Finding of Fact: Based on the submitted application materials, the project's description of components related to massing, ventilation, wind and heat impact, this standard is determined to be met.

B. Shadows

The proposed building is not over 65 feet in height; therefore, this site plan standard is not applicable to this project.

Finding of Fact: Based on the submitted application materials, the project's description of components related to shadows, this standard is not be applicable.

C. Snow and ice loading

Two designated snow storage areas are provided on the project site, one along the west side and another at the north end of the access driveway. The location and scale of the proposed snow storage areas are adequate to serve the proposed development.

Finding of Fact: Based on the submitted application materials, the project's description of components related to snow and ice loading, this standard is determined to be met.

D. View corridors

This project is not located in a view corridor as identified in the City's Design Manual; therefore, this site plan standard is not applicable to this project.

Finding of Fact: Based on the submitted application materials, the project's description of components related to view corridors, this standard is not applicable.

E. Historic resources

The proposed development is not located within a designated historic district and has no known archaeological resources on-site. Therefore, this standard is not applicable to this project.

Finding of Fact: Based on the submitted application materials, the project's description of components related to historic resources, this standard is not applicable.

F. Exterior lighting

The applicant has submitted a photometric plan and is proposing a new streetlight on an existing pole. The proposed fixtures are full cutoff and dark-sky compliant, and the photometric plan shows illumination levels meet applicable standards with controlled light spill at the property lines.

Finding of Fact: Based on the submitted application materials, the project's description of components related to exterior lighting, this standard is determined to be met.

G. Noise and vibration

The proposed equipment is not anticipated to have adverse noise or vibration impacts on abutting properties. The proposed HVAC system would meet the applicable State and Federal emission requirements and would be located on the interior of project site and directed away from abutting property.

Finding of Fact: Based on the submitted application materials, the project's description of components related to noise and vibration, this standard is determined to be met.

H. Signage and wayfinding

The proposed project had an existing speed limit sign located within the proposed driveway location. The applicant has relocated the sign to east side of driveway. The sign would not adversely affect visibility at the intersection for vehicles entering or exiting the site.

Finding of Fact: Based on the submitted application materials, the project's description of components related to signage and wayfinding, this standard is determined to be met.

I. Zoning-related design standards

The proposed development is located in the RN-3 zone and was reviewed for compliance with the multi-family residential housing design standards contained in the City of Portland Design Manual, as referenced in Land Use Code Section 13.6.4(l). These standards shall provide a high-quality design that is compatible with the surrounding neighborhood context.

Staff provided an initial design review memo to the applicant in July 2025 (Attachment S3). Following that review, the applicant submitted revised building elevations that responded to staff's feedback. Staff subsequently provided a second design review memo to the applicant in September, 2025 (Attachment S4) identifying additional design considerations. A third design review was provided in February, 2026 (Attachment S5). For a full list of design comments, please review the attached memos in attachments S3, S4 and S5.

Throughout the review process, the Applicant revised the project plans in response to staff feedback regarding pedestrian connectivity, site integration, and architectural compatibility with the surrounding neighborhood. Staff finds that the revised plans are responsive to the design recommendations provided and satisfy the applicable multifamily residential design standards.

Finding of Fact: Based on the submitted application materials, the project's description of components related to zoning-related design standards, this standard is determined to be met.

X. NEIGHBORHOOD MEETING & PUBLIC COMMENT

The applicant held a neighborhood meeting on May 14, 2025 at 6 PM. The in-person meeting was held at Presumpscot School Gym. A total of 13 members of the public attended the in-person meeting. Comments from attendees centered on:

- Site access
- Buffering
- Traffic
- Trail connection
- Timeline of construction
- Potential of blasting

XI. STAFF RECOMMENDATION

Subject to the proposed motions and conditions of approval listed below, Planning & Urban Development staff recommend that the Planning Board find that the Major Site Plan application for the proposed development at 16 Purington Way (PL-003302-2025) meets the applicable site plan standards of Portland's Land Use Code.

XII. PROPOSED MOTIONS

A. WAIVERS

Based on the information in 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 23, 2026 for application (PL-003302-2025) at 16 Purington Way relevant to the Site Plan Standards of the Land Use Code and Portland's Technical and Design Standards, and other regulations, and testimony presented at the Planning Board public hearing:

1. Parking Aisle Width Waiver

   The Planning Board [**finds/does not find**] based upon the Traffic Engineer's Review, that extraordinary conditions exist or undue hardship may result from strict compliance with the Technical Manual standard Section 1 - Design Standards (Figure 1-16A), for a minimum aisle width of 24 feet for 90-degree parking that substantial justice and the public interest are secured with the proposed variation in this standard, and that variation is consistent with the intent of the ordinance. The Planning Board [**waives/does not waive**] the Technical Manual standard Section 1.10.7 to allow a reduced parking aisle width of 20 feet.

B. SITE PLAN REVIEW

Based on the information in the application, plans, reports through testimony at the Planning Board hearing, and other information submitted by the applicant the Planning Board adopts the findings, conclusions and recommendations contained in the Planning Board Report for the public hearing on June 23, 2026 for application (PL-003302-2025) at 16 Purington Way to the site plan regulations and [**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 locate the average grade on the elevation drawings for each building and shall confirm that all buildings do not exceed the maximum permitted height of 35 feet.

PRIOR TO ISSUANCE OF A BUILDING PERMIT

2. The Applicant shall submit revised utility plans for review and approval by the Public Works Authority. The revised plans shall show the proposed connection of the upsized

8-inch sewer to the existing City sewer within Ray Street via a manhole, correct the datum used for the existing sewer line and proposed invert elevation of the development's sewer connection, and clarify the proposed sewer pipe size. The Applicant shall revise the stormwater model to accurately reflect the proposed outlet configuration. The revised model shall confirm that all flows discharge through a single outlet, consistent with the plans. The Applicant shall also demonstrate that the outlet pipe is adequately sized to convey the total design flow from the system. The Applicant shall provide additional detail regarding the proposed berm along the eastern property line, including grading information and documentation demonstrating that the berm will not adversely affect stormwater drainage patterns onto adjacent properties.

3. The Applicant shall conduct the required test pits and submit the results to the Planning Authority for review. Any resulting revisions to the stormwater management design shall be incorporated into the final plans.

PRIOR TO ISSUANCE OF A CERTIFICATE OF OCCUPANCY

4. The applicant shall provide draft condominium documents for review and approval by the Planning Authority and Corporation Counsel. Once accepted, condominium documents shall be recorded in the Cumberland County Registry of Deeds.

5. The applicant shall establish a trail easement within the southwest portion of the site to preserve public pedestrian connectivity along the Idaho paper street corridor. This easement shall be reviewed and accepted by the Planning Authority and Corporation Council and be recorded in the Cumberland Country Registry of Deeds.

XIII. PLANNING BOARD DECISION

On the basis of the findings, conclusions and recommendations contained in the Planning Board report for the public hearing on June 23, 2026 related to application PL-003302-2025 for 16 Purington Way, which is attached to the draft approval letter and incorporated therein, the Planning Board **[adopts/does not adopts]** the findings and conclusions in the June 17,2026 Planning Board Report and the approval letter as drafted as the Planning Board's decision for application PL-003302-2025 and authorizes the Planning Board Chair to sign the approval letter as drafted.

ATTACHMENTS

Public Comment

PC1. Shannon Stang
PC2**.** Star Pelsue

Staff Attachments

S1. Site Plan Worksheet
S2. Project Review Letter
S3. Design Review Memo – July 9, 2025
S4. Design Review Memo – September 5, 2025
S5. Design Review Memo – February 25, 2026

Applicants Submittal

A. Project Summary
B. Site Plan Checklist
C. Zoning Table
D. Financial Capacity
E. Technical Capacity
F. Right, Title & Interest (Property Deeds)
G. Life Safety Analysis Narrative
H. Low-Impact Development Scoring Tool
I. Wastewater Capacity Authorization Letter
J. Stormwater Narrative
K. Solid Waste Narrative
L. Neighborhood Meeting material
M. Winter Maintenance Agreement
N. HydroCAD Report
O. Lightning Specifications
P. Site Plan Standards Narrative
Q. Public Notice Sign
R. Parking Aisle Width Waiver Request
S. Erosion Control Plan Narrative
T. Response to Staff Comments
U. Construction Management Plan Narrative
V. Jellyfish Filter Design Calculation

Drawings

1. A000 Cover Page
2. S2.1 Boundary Survey
3. C2.1 Site Plan
4. C3.1 Grading, Drainage and Utility Plan
5. C4.1 Landscape Plan
6. Trash Truck Turning Template
7. Exterior Elevations
8. Fire Hydrant Distance Plan
9. Jellyfish Detail
10. Average Grade Plan
11. CMP Detention
12. Erosion Sedimentation Control Plan
13. C9.1 Details - 1
14. C9.2 Details - 2
15. C9.3 Details - 3
16. C9.4 Details - 4
17. C9.5 Details - 5

18. D1.1 Pre-Development Drainage Plan
19. D2.1 Post-Development Drainage Plan
20. A101 Floor Plan
21. A102 Floor Plan
22. A103 Framing Plan
23. A301 Section
24. A302 Section
25. Photometrics Plan
26. Construction Management Plan

General Comments:

- The applicant shall reach out to Charles Wordell regarding the E911 addresses.

14.2.1. Boundary Survey Requirements:

- 14.2.1.15 - Significant natural features on or directly adjacent to the site, including wetlands, ponds, watercourses, floodplains, significant wildlife habitats and fisheries or other important natural features as listed in the LID Section of the Technical Manual. Delineation of wetlands boundaries shall use methods prescribed by the U.S. Army Corps of Engineers Wetlands Delineation Manual (1987). Maine State Jurisdictional Wetlands and wetlands as defined by the Shoreland Zoning Ordinance shall be identified according to the Natural Resources Protection Act (Title 38 M.R.S.A. Section 480-B) and identified on the plan, including a topographic map at a scale of 1" = 100 foot.
    - **The applicant shall confirm whether the site was evaluated for wetlands.**
    - **The applicant shall also add the wetland status to the plan notes.**
- 14.2.1.33 - In cases where it is not technically feasible to depict elevations on the plan based upon the City Datum, then a note must appear documenting the vertical shift between the site's alternative vertical datum and the City Datum at the site. This shall be presented as a formula advising users of the method to use to calculate elevations between the two stated datums. This is required to provide for a site-specific solution to compare past, present, and future elevations seamlessly. If an alternative vertical datum is used it must be one published by Federal and State agencies such as the present National Geodetic Survey (NGS) or its predecessor or successor equivalents.
    - **The vertical conversion shall clearly indicate whether the conversion factor shall be added or subtracted.**
- 14.2.1.41 - When State Plane Coordinates are required, the State Plane Coordinates (to the nearest hundredth of a foot) of at least two survey property corners shall be displayed for any two property corners in the project which are the farthest distance apart. Please contact the Department of Public Works Engineering Division for assistance in providing Survey Control Points or GPS Base Station Support;
    - **Label MSPC on at least two property corners as required.**
- 14.2.1.43 - All easements and conveyances proposed as part of the project shall be recorded, upon project approval, at the Cumberland County Registry of Deeds. For proposed rights of way and easements, any plans must clearly denote the party who is to receive the right of way or easement. Easement ownership and responsibility must be stated on the survey plans. Revised plans may be requested if deeds are executed during the progression of the project for easements or other conveyances.
    - **The site plan appears to show a proposed lot split in addition to the eight proposed units. The "New Lot Line" and proposed sublots shall be labeled with the applicable bearings, distances, areas, and easements for shared elements. Any proposed land division shall be reflected on the boundary survey or existing conditions plan and certified by a professional land surveyor.**
    - **Create a proposed trail easement for the relocated trail across private property and a temporary construction easement for the realigned portion of the trail in Idaho St. As part of the development review, the developer shall work with City staff to petition the City of Portland to accept an access and utility easement within Idaho St. for the right, title, and interest to relocate the public trail within the paper street.**
    - **The proposed 15' Portland Water District Easement shall be labeled with bearings and distances.**

Site Plan Review Standards (Sec. 13.6)

Transportation Standards (Sec. 13.6.1)

Standard	*Discussion*	*Finding*
Impact on Surrounding Street Systems	**Overview:** The project proposes to split the existing parcel into two lots. One four-family building will be constructed on each lot. The development is projected to generate a total of five peak-hour trips. Given the low trip generation, the project is expected to have minimal impact on surrounding traffic conditions and will not significantly affect roadway safety or mobility. **Updates Requested** ● The Applicant is required to submit turning template diagrams demonstrating that waste collection truck access is feasible. Reversing movements to and from Ray Street are discouraged.	More Information Required
Access and Circulation	**Overview:** The proposed project is accessed via a 20-foot-wide paved driveway off Ray Street. Pedestrian access to the units is provided by a 4-foot-wide walkway that connects the units directly to Ray Street. **Updates Requested** ● The Applicant shall extend the sidewalk along the property frontage in accordance with Section 13.6.1.B.2.a to allow for a future sidewalk connection along Ray Street. An existing bus stop is located approximately 300 feet from the site on Ray Street. The Department of Public Works (DPW) does not support the requested sidewalk waiver, as Ray Street is a designated bus route and a priority corridor for sidewalk infrastructure improvements. Therefore, the sidewalk shall be extended along the property frontage per Section 13.6.1.B.2.a to facilitate the future connection along Ray Street.	Not Met
Public Transit Access	**Overview:** This standard is not applicable to the project, as the residential development includes only 8 units, below the 20-unit threshold for applicability. **Updates Requested** ● Not applicable to this project.	Not Applicable
Parking	**Overview:** The site includes a total of 8 parking spaces located in a ground level garage for the proposed project, providing one space per unit. Snow storage will be accommodated along the access drive adjacent to Units 5–8. The Applicant has provided the requested vehicle turning templates. While the graphics appear to show that vehicle overhang may make driveway entry and exit movements challenging due to the proposed 8-foot-wide garage opening, vehicle template analyses are typically conservative. Based on the information submitted, access is anticipated to function adequately as designed. Accordingly, staff support the requested waiver. **Updates Requested:** ● The proposed project includes five or more structured parking spaces; the applicant shall comply with Section 1.14 - Electric Vehicle Infrastructure standards. At least 20% of the total spaces (one space) must be equipped with a Level 2 EV charger or an energized outlet. Additionally, 50% of the spaces (four spaces) must be constructed as EV-ready, including installed conduit and adequate electrical capacity to support future EV charger installation.	More Information Required

	• The Applicant shall demonstrate that the proposed grade changes will function for vehicles using the driveway and turning into the garages.	
Transportation Demand Management	**Overview:** The proposed development is not commercial, institutional, or mixed-use in nature, therefore this standard is not applicable. **Updates Requested** • Not applicable to this project.	Not Applicable
Environmental Quality Standards (Sec. 13.6.2)		
Standard	***Discussion***	***Finding***
Preservation of Significant Natural Features	**Overview:** This site is located in a wooded area. Per Standard 13.6.2(A), all new developments shall preserve and protect significant natural features by incorporating principles of Low-Impact Development (LID) in accordance with the LID standards of the *Technical Manual*. **Updates Requested:** LID Review: • The project has claimed points for using BMPs designed for a specific water quality impairment within the watershed but the LID narrative does not provide sufficient justification for these points. This category is meant to incentivize pollutant-specific BMPs (such as gravel wetlands) for known impairments (such as excess nutrients) in specific watersheds. For Fall Brook, the known impairments are lack of base flow and chlorides. (-10 points, 72 total) • The project is awarded 6 points not previously claimed for utilizing vegetated systems for stormwater management. (+6 points, 78 total). If the applicant intends to claim these LID points, they shall include them in a revised LID scorecard and narrative. • Staff recommends the project adopt and include a note on the landscape plan that organic soil amendments will only be incorporated based on soil testing, which would provide an additional 3 points. (+3 points, 81 total)	More Information Required
Site Landscaping and Buffers	**Overview:** The site is located in a wooded area. Seven new street trees (Red Maple - Acer rubrum) are proposed along the Ray Street frontage. In addition, nine new Arborvitae are proposed at 6 to 8 feet spacing to provide screening from the abutting property at 190 Ray Street. A total of 50 trees are proposed to be removed, with approximately 43.8 % of the existing trees to remain preserved. A significant portion of the existing vegetation will be removed as part of the project. The current landscape plan identifies 89 existing trees on-site with a DBH greater than 10 inches. **Updates Requested** • The Applicant shall provide the landscaped open space ratio for each lot.	More Information Required
Water Quality, Stormwater Management and Erosion Control	**Overview:** The project is required to comply with MaineDEP Chapter 500 and City of Portland Technical Manual Sections 5 and 6 regulations for stormwater management and erosion control. The Applicant has made modifications to the type of system and the stormwater management report since the first submission. The stormwater management system has been changed from a pond to an underground storage system.	More Information Required

	Updates Requested ● The depth to groundwater and bedrock shall be noted to determine a need for an impermeable liner. ● Additional design calculations shall be provided for the proposed stormwater system. The Applicant shall provide calculations to confirm that the selected system has been designed to meet the MaineDEP BMP standards for the system (i.e., areas, volumes, drainage times, soil considerations, etc.). With the current selected proprietary system, the Applicant shall provide confirmation from the manufacturer that the systems have been designed to meet the required standards. ● Plans and details showing all components the proposed detention system and Jellyfish filter shall be provided. The plans shall include all relevant sizing and invert information. ● The Applicant shall provide an updated HydroCAD model for review. The most recently submitted model does not include the reports for the modeled sub catchments. The report in the model for the proposed storage is unclear, and without details for the system it is difficult to follow how the outlets are intended to work. ● The Applicant shall provide an updated post-development stormwater figure to go along with the model. The last figure submitted was from last year and included the previous pond-based system. ● A significant drainage path that spans multiple upstream properties appears to cut through this project site in the general location of the proposed stormwater management system. The stormwater analysis shall factor in this off-site drainage path to ensure the proposed stormwater management system is adequately sized to manage both on-site and off-site flows and that upstream drainage is not impeded and impounded at the edge of the development. ● The applicant shall review the stormwater management plan submission requirements as listed in section 14.4 of the technical manual and provide general information missing from this submission. ● Further information and detail are required for the proposed scour protection design for the site's stormwater outfall. ● The Applicant shall provide details for the stormwater management system including the sub-surface storage system, outlet control structure and Jelly-Fish treatment vault. All of this information needs to be provided. ● Foundation drains have been shown on the plans connecting to the center of the area identified as stormwater storage. Inverts and more detail shall be provided to show how this connection will be made relative to the overall storage system. ● Gutters and downspouts continue to be shown on the architectural plans, but it is unclear where these will discharge or connect. If the project connects to the foundation drain lines, as noted in the previous comment, more detail is required. ● Flow arrows with slopes have been added to the driveway to show variations in grade to be more consistent with the architectural plans. The Applicant shall review the proposed variation in grade, changing back and forth from 1% to 7% over short distances – It is	

	not clear how this will be constructed based on the arrows and contours shown. More detail through spot grades shall be provided to show how this will be constructed. The Applicant shall also review whether this type of proposed grade changes will function for vehicles on the driveway and turning into the garages. ● Additional spot grades are needed for the area behind Units 5-8 to show how the area will drain around the buildings.	

Public Infrastructure and Community Safety Standards (Sec. 14.6.3)

Standard	***Discussion***	***Finding***
Consistency with City Master Plans	**Overview:** The proposed project has been designed to be consistent with Portland's Plan 2030 as a Residential use. **Updates Requested** ● None	Met
Public Safety and Fire Prevention	**Overview:** The proposed development has been designed to adequately provide emergency vehicle access into and out of the site. One fire hydrant is proposed near the entrance off Ray Street. This ties into the existing water main along Ray Street and will sufficiently serve fire emergency needs. Internal lighting is proposed along the access drive to enhance visibility and reinforce safety. **Updates Requested** ● Per standard 18.5.3 of the 2018 NFPA 1 Fire Code a fire hydrant shall be located within 400 feet of the furthest building in the subdivision.	More Information Required
Public Utilities	**Overview:** The proposed project does not anticipate overburden on sanitary sewers, storm drains, water lines or supply or other public infrastructure and utilities. The development will connect to existing public sanitary sewer and water systems along Ray Street. Existing overhead electrical infrastructure on Ray Street will be utilized, with underground connections extending to two (2) proposed on-site transformers. The project proposes less than 20 residential units and does not require temporary storage and timely removal of all trash and recyclable materials. However, the proposed dumpster receptacles have screening and are located at the rear of the site. **Updates Requested** ● The Applicant has noted that they are continuing to work with PWD for confirmation of ability to serve and will provide that when it is available. ● After further review, DPW recommends that the applicant consider upsizing the private shared sewer main to an 8-inch line to help minimize the risk of future maintenance issues and potential sewer backups within the shared system. Please note that if the line is increased to 8 inches, a manhole will be required at the connection point on Ray Street. ● The Site plan elevations do not appear to reference the City's datum, as required for site plan submissions.	More Information Required

	• A cleanout has been added to the plans for the sewer. A detail shall be included. • A proposed trail easement shall be created for the relocated trail across private property, along with a temporary construction easement for the realigned portion of the trail within Idaho Street. As part of the development review process, the developer shall coordinate with City staff to petition the City of Portland to accept an access and utility easement within Idaho Street for the right, title, and interest necessary to relocate the public trail within the paper street. • The proposed 15-foot Portland Water District easement shall be labeled with bearings and distances. • The Applicant shall show the proposed pavement repair for service connections cutting into Ray Street on the Site Plan.	

Site Design Standards (Sec. 14.6.4)

Standard	***Discussion***	***Finding***
Massing, Ventilation and Wind Impact	**Overview:** The proposed development is not anticipated to have adverse massing, ventilation, wind, or heat impacts. The project would provide roofing materials that meet the SRI of 25+ for roof slopes greater than 2:12. **Updates Requested** • None	Met
Shadow	**Overview:** The proposed building is not over 65 feet in height; therefore, this standard is not applicable. **Updates Requested** • None	Not Applicable
Snow and Ice Loading	**Overview:** The Applicant has noted that designated snow storage area would be provided on the west side of the property, at the end of the access driveway. **Updates Requested** • The Applicant shall identify snow storage areas on the site plan.	More Information Required
View Corridors	**Overview:** The project site is not within a designated protected view corridor; thus this standard is not applicable. **Updates Requested** • None	Not Applicable
Historic Resources	**Overview:** The proposed project does not lie within a designated historic district nor have known archeological resources on the site; thus, this standard is not applicable **Updates Requested** • None	Not Applicable
Exterior Lighting	**Overview:** The applicant has submitted a photometric plan and is proposing a new streetlight on an existing pole. The proposed fixtures are full cutoff and dark-sky compliant, and the photometric plan shows illumination levels meet applicable standards with controlled light spill at the property lines. **Updates Requested**	Met

	• None	
Noise and Vibration	**Overview:** It is expected that this application will have minimal noise and vibration impacts. The proposed HVAC system would meet the applicable State and Federal emission requirements and would be located on the interior of project site and directed away from abutting property. **Updates Requested** • None	Met
Signage and Wayfinding	**Overview:** The proposed project had an existing speed limit sign located within the proposed driveway location. The applicant has relocated the sign, and the new location is shown on the latest site plan. The sign will not adversely affect visibility at the intersection for vehicles entering or exiting the site. **Updates Requested** • None	Met
Design Standards	**Overview:** The City has provided a design review memo. The proposed project is not within a historic district or associated with a historic landmark, therefore will not require Historic Preservation review. **Updates Requested** • See Design Review Memo	Met

Dear Applicant,

We have completed our second review of your application (PL-003302-2025) for the proposed development of two four-family buildings by splitting the existing parcel into two lots. This development triggers major site plan review, and is subject to the following regulations:

- Site Plan – Article 13.6
- Zoning Review – Article 6 and 7

An overview of the City's review can be viewed in the attached project review worksheets and peer review comments.

Next Steps
Please review all feedback and reach out to the project review manager if you have any questions or would like to discuss this feedback in more detail. In order to proceed, the applicant shall prepare a written response to all feedback, and shall update plans, documents and other materials as necessary to address the above listed comments. The applicant shall notify the project review manager when a resubmission is uploaded to ProjectDox. Once received, the project review manager will notify the applicant of their scheduled review timeline for this resubmission.

Sincerely,

Neha Sunil Pol
Planner

Attachments

1. Site Plan Worksheet
2. Zoning Worksheet
3. Design Memo

Design Review
Planning and Urban Development Department

City of portland

Subject:	16 Purington Way – Major Site Plan Review
Zone:	RN-3 (Neighborhood Residential)
Date of Review:	July 9, 2025 Design Review – Comment letter
Reviewers:	Neha Sunil Pol (Planner), Zach Powell (Senior Planner), Sean King (Urban Designer)
Project ID:	PL-003302-2025

I. INTRODUCTION

The proposed development plan at 16 Purington Way & Ray Street for eight residential units is subject to design review according to the multi-family residential housing design standards from the City of Portland *Design Manual* as defined in the land use code section 13.6.4(I).

The built context of the surrounding area is primarily single-family residences with frontage towards the street.

II. DESIGN REVIEW COMMENTS: red text denotes standards not met and require resubmission.

MULTI-FAMILY STANDARDS. **Multi-family buildings shall meet the following standards:**

1. *The exterior design of the proposed structure, including architectural style, façade materials, roof pitch, building form and height, window pattern and spacing, porches and entryways, cornerboard and trim details, and façade variation in projecting or recessed building elements, shall be designed to complement and enhance the nearest residential neighborhood. The design of exterior facades shall provide positive visual interest by incorporating appropriate architectural elements;* **Not Met**

   Staff comment: The nearest residential neighborhood consists of one to two-story residential structures with a variety of roof pitches, façade materials and arrangement of windows visible from the street. The proposed development arranges four duplexes along an interior driveway with access to an exterior entry door and garage for each residential unit. The roof line includes a gable end along the primary façade facing the driveway and architectural trim detailing that Staff finds provides positive visual interest for the proposed buildings. **Staff recommends additional fenestration and larger openings with a greater symmetrical arrangement of windows along the street-facing facades. In addition, Staff recommends a continuation of the lap siding down to grade level to complement the surrounding context of one to two-story structures.**

2. *The proposed development shall respect the existing relationship of buildings to public streets. New development shall be integrated with the existing city fabric and streetscape including building placement, landscaping, lawn areas, porch and entrance areas, fencing, and other streetscape elements;* **Not Met**

Staff comment: The existing relationship of surrounding residential buildings to Ray Street are setback at the front property to allow for driveways, lawn areas or vegetation. The proposed development includes a shared driveway into the property site from Ray Street that is not within the context of the surrounding neighborhood. However, Staff finds that due to the irregular lot shape, an arrangement of buildings with access from the proposed driveway is appropriate. **Staff recommends additional building articulation along the facades facing Ray Street to create a more prominent entrance (e.g., canopy above deck or architectural feature) and a continuation of the lap siding down to grade level.**

3. *Open space on the site for all multiple-family development shall be integrated into the development site. Such open space in a multiple-family development shall be designed to complement and enhance the building form and development proposed on the site. Open space functions may include but are not limited to buffers and screening from streets and neighboring properties, yard space for residents, play areas, and planting strips along the perimeter of proposed buildings;* **Not Met**

Staff comment: The proposed development provides open space primarily at the frontage of the property with new street trees. **Staff finds that the proposed number of residential units and placement of structures require additional screening from neighboring properties, along with consideration for a pedestrian pathway in the front setback to allow residents access to the established Portland Trail connection to Idaho Street. The Applicant is requested to coordinate with Portland Trail about opportunities for wayfinding signage.**

Staff recommends buffers or screening from the neighboring property at 190 Ray Street as indicated in the City's Technical Manual, section 4.1.5.

4. *The design of proposed dwellings shall provide ample windows to enhance opportunities for sunlight and air in each dwelling in principal living areas and shall also provide sufficient storage areas.* ***Not Met***

Staff comment: The proposed dwellings provide ample windows along the narrow (east, west) facades, **however Staff recommends additional windows along the long (south, north) facades into the living and kitchen spaces to enhance opportunities for sunlight and air.** Additionally, sufficient storage areas are provided in each dwelling unit.

5. *The scale and surface area of parking and driveways and paved areas are arranged and landscaped to properly screen vehicles from adjacent properties and streets.* ***Not Met***

Staff comment: The proposed development includes a shared driveway into the property site from Ray Street, **Staff recommends a minimum five-foot transition space between the edge of the driveway and the face of the building to provide sufficient clearance area for each residential unit exterior entry door and garage facing the driveway. The Applicant is encouraged to include additional perimeter planting in the transition space between the driveway and the face of the building to reduce the amount of impervious surface.**

Design Review
Planning and Urban Development Department

City of portland

Subject:	16 Purington Way – Major Site Plan Review
Zone:	RN-3 (Neighborhood Residential)
Date of Review:	September 5, 2025 Design Review – Comment letter
Reviewers:	Neha Sunil Pol (Planner), Zach Powell (Senior Planner), Sean King (Urban Designer)
Project ID:	PL-003302-2025

I. INTRODUCTION

The proposed development plan at 16 Purington Way & Ray Street for eight residential units is subject to design review according to the multi-family residential housing design standards from the City of Portland *Design Manual* as defined in the land use code section 13.6.4(l).

The built context of the surrounding area is primarily single-family residences with frontage towards the street.

II. DESIGN REVIEW COMMENTS: red text denotes standards not met and require resubmission.

RN-3 Residential Development Design Standards shall meet the following standards:

1. *Context: Residential development shall include design elements that reinforce the context and existing character of the neighborhood, and enhance the streetscape. Neighborhood context refers to the existing residential development within a two block radius of the site. The more definite and easily discernable traits within an established neighborhood shall serve as a basis for a design solution.*

   Staff comments: The nearest residential neighborhood consists of one to two-story residential structures with a variety of roof pitches, façade materials and arrangement of windows visible from the street.

2. *Public Realm: The public realm of open space, sidewalks and streets shall be reinforced through appropriately scaled entries, porches, fenestration, architectural details and landscaping. The transition space between the street and the primary building entrance shall include features such as porches, stoops, covered entries, landscaping or other measures to delineate the space.*

   Staff comments: The proposed development includes covered building entries visible from the public street and provides open space along the property frontage with new street trees and a connection to the Portland Trail trailhead.

   Staff recommends a pathway at the building entries facing Ray Street that connects to the proposed access driveway.

3. *Massing: The building's massing (as defined by its size, scale, and form) shall be consistent with existing residential buildings in a two-block radius.*

   Staff comments: The proposed development arranges four duplexes along an interior driveway with access to an exterior entry door and garage for each residential unit. Staff finds the building's massing as a split level two-plus storied structure with pitched roofs is consistent with the existing residential buildings in a two-block radius.

4. *Orientation: Principal facades, primary entrances, porches and bays shall orient to the street, not to interior blocks or parking lots. The primary entrance shall either face the street, or be located on the side with a covered porch (minimum six feet wide) that extends to the front of the building. The slope of the roof shall be either parallel or perpendicular to the street.*

   Staff comments: The existing relationship of surrounding residential buildings to Ray Street are setback at the front property to allow for driveways, lawn areas or vegetation. The proposed development includes a shared driveway into the property site from Ray Street that is not within the context of the surrounding neighborhood. However, Staff finds that due to the irregular lot shape, the proposed arrangement of buildings is appropriate.

   Staff finds that the side entry into each unit at the ground level is not appropriate as a primary entrance and recommends that the doorway relocate adjacent to the garage door that includes that covered overhang.

5. *Articulation: Facades shall be articulated with architectural details that create visual interest consistent with the context of the neighborhood. The primary façade and all facades visible from public ways shall include at least two of the following architectural details: gables or dormers, balconies, bay windows, recessed entries, covered porches (minimum six feet wide), covered entries, or stoops. The area of fenestration shall be a minimum of 25% of the total area of street facing façades. Windows shall be included on all sides of a building. The rhythm, size and proportion of door, window and other openings shall be proportional to the overall massing of the building, and consistent with existing residential buildings in a two block radius.*

   Staff comments: **Staff finds that the overall massing of the building is oriented more towards the internal driveway proposed for the development, in particular the four units that parallel Ray Street. Staff recommends that the a more pronounced roofline with the gable end facing Ray Street would create a strong visual interest consistent with the context of the neighborhood.**

Figure 1: Staff diagram to add gable send to four units facing Ray Street

6. *Garages. Attached and detached garages shall be oriented to the side, or oriented to the street as long as the garage is set back from the primary façade by a minimum of four feet. In such case, the total width of the garage door(s) shall be less than 40% of the overall building width (however, the garage door shall not be required to be reduced to less than 9 feet wide).*

   Staff comments: Staff finds that the proposed garage door is integrated into the façade and does not exceed nine feet to meet this design standard.

7. *Roofs: Roofs shall be peaked, unless evidence can be shown for an alternative roof form that is predominant on existing residential buildings in a two block radius. Buildings shall have 1 a main roof form, and subsidiary roofs (except for porch roofs) shall follow the pitch and form of the main roof. Rooflines shall have a cornice treatment.*

   Staff comments: The roof line includes a gable end along the primary façade facing the driveway and architectural trim detailing that Staff finds provides positive visual interest for the proposed buildings.

8. *Materials: Building materials shall be consistent with the context and overall character of the neighborhood. Façade materials shall provide visual cohesion. Chimneys shall be brick, finished metal, stone or boxed in.*

   Staff comments: The resubmitted plans include a continuation of the lap siding down to grade level that Staff finds to complement the surrounding context of one to two-story residential structures.

9. *Sound: Provide visual and acoustical privacy between units*

Staff comments: The proposed dwellings are separated with by a concrete foundation and insulated interior walls that provide acoustical privacy between units.

10. *Light and air: Maximize natural light and ventilation with units.*

    Staff comments: The proposed dwellings provide ample windows at each exterior facade.

Design Review
Planning and Urban Development Department

City of portland

Subject:	16 Purington Way – Major Site Plan Review
Zone:	RN-3 (Neighborhood Residential)
Date of Review:	February 25, 2026 Design Review – Comment letter
Reviewers:	Neha Sunil Pol (Planner), Zach Powell (Senior Planner), Sean King (Urban Designer)
Project ID:	PL-003302-2025

I. INTRODUCTION

The proposed development plan at 16 Purington Way & Ray Street for eight residential units is subject to design review according to the multi-family residential housing design standards from the City of Portland *Design Manual* as defined in the land use code section 13.6.4(I).

The built context of the surrounding area is primarily single-family residences with frontage towards the street.

II. REQUEST FOR ADDITIONAL SUBMISSION MATERIALS

Staff requests that the Applicant provide the following plans as a condition of approval:

1. Architectural elevations that reflect the four-unit multifamily structure with average grade.

III. DESIGN REVIEW COMMENTS: red text denotes standards not met and require resubmission.

MULTI-FAMILY STANDARDS. **Multi-family buildings shall meet the following standards:**

1. *The exterior design of the proposed structure, including architectural style, façade materials, roof pitch, building form and height, window pattern and spacing, porches and entryways, cornerboard and trim details, and façade variation in projecting or recessed building elements, shall be designed to complement and enhance the nearest residential neighborhood. The design of exterior facades shall provide positive visual interest by incorporating appropriate architectural elements;* **Met**

Staff comment: The nearest residential neighborhood consists of one- to two-story residential structures with a variety of roof pitches, façade materials and arrangement of windows visible from the street. The proposed development arranges two multifamily residential structures along an interior private driveway with access to a garage that is integrated into the front facade for each residential unit. The roof line includes a gable end along the primary façade facing the driveway and architectural trim detailing that Staff finds provides positive visual interest for the proposed buildings. **The applicant has resubmitted plans that provide additional windows,**

arranged symmetrically, along the street-facing facades and a continuation of the lap siding down to grade level that Staff finds appropriate to complement the overall character of the proposed multifamily structures.

2. *The proposed development shall respect the existing relationship of buildings to public streets. New development shall be integrated with the existing city fabric and streetscape including building placement, landscaping, lawn areas, porch and entrance areas, fencing, and other streetscape elements;* **Met**

Staff comment: The existing relationship of surrounding residential buildings to Ray Street are setback at the front property to allow for driveways, lawn areas or vegetation. The proposed development includes a shared driveway into the property site from Ray Street that is not within the context of the surrounding neighborhood. However, Staff finds that due to the irregular lot shape, an arrangement of buildings with access from the proposed driveway is appropriate.

3. *Open space on the site for all multiple-family development shall be integrated into the development site. Such open space in a multiple-family development shall be designed to complement and enhance the building form and development proposed on the site. Open space functions may include but are not limited to buffers and screening from streets and neighboring properties, yard space for residents, play areas, and planting strips along the perimeter of proposed buildings;* **Met**

Staff comment: **The applicant has resubmitted plans to provide open space with evergreen planting along neighboring properties, tree plantings along the property frontage, and a pedestrian pathway that connects to the existing Portland Trail network at Idaho Street.**

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

Staff comment: **The applicant has resubmitted plans to provide ample windows along all exterior facades that allow natural sunlight into living and bedroom spaces.** In addition, sufficient storage areas are provided in each dwelling unit.

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

Staff comment: The proposed development includes a shared private driveway into the property site from Ray Street and garages integrated into the driveway facing facades. **The applicant has resubmitted plans that preserve existing trees along the property edges the Staff finds is adequate for screening the driveways.**

MAIN-LAND
DEVELOPMENT
CONSULTANTS, INC.

ENGINEERS, SURVEYORS, SCIENTISTS
P.O. BOX Q LIVERMORE FALLS, ME 04254
367 US ROUTE 1, S. BUILDING, FALMOUTH, ME 04105
TEL: (207) 897-6752/FAX: (207) 897-5404
WWW.MAIN-LANDDCI.COM

PROJECT NARRATIVE

Ray Street Housing
174 Ray Street, Portland, Maine

Main-Land Development Consultants are assisting Nelson Property Services with the Ray Street Housing project. The 0.5-acre property is located at 174 Ray Street in Portland, Maine, and is labeled as Lot F001001 on Town Tax Map 407.

The vacant lot can be reached from Ray Street. The project proposes splitting the existing parcel into 2 lots and construct 4 multiplex condos or 8 total dwelling units, 2 on each lot totaling 4 dwelling units per lot. A 20-wide paved access drive will be provided off Ray Street to access the unit on each lot. Proposed dwelling units will be served by public utilities off Ray Street.

Due to the development proposing 4 units per lot, Main-Land is submitting a Major Site Plan Review application with the City of Portland through their online permitting service.

No additional state permitting thresholds have been triggered, therefore no additional permitting outside of local are being submitted for the project.

City of portland

Planning & Urban Development Department

MAJOR AND MINOR SITE PLAN DOCUMENT CHECKLIST

Please submit each document as a separate PDF file.
Please confirm by electronically checking the boxes in the left-hand column.

General Application Documents

Indicate Below	Required of All Applications
☑	**Project Description** • Cover letter with detailed project description
☑	**Completed Checklist** (this document)
☑	**Evidence of Right, Title, and Interest** • Deeds, leases, or purchase and sale agreements
☑	**Financial Capacity** • Letter or evidence from a financial institution or third-party verifying financial capacity to undertake the project.
☑	**Technical Capacity** • Evidence of technical capability of applicant and consultants – resume and/or examples of past projects.
☑	**Site Plan Standards** • Summary of project compliance with site plan standards of the land use code.
☑	**ZoningAssessment** (the link to the form can be found **here**) • Summary of compliance with use and dimensional standards of the land use code.

Indicate Below		Only if Applicable
Yes	N/A	
☐	☑	**Waiver Requests** (the link to the form can be found **here**) • Written request for waiver describing request and compliance with applicable waiver standards.
☑	☐	**Summary of Existing or Proposed Easements or Covenants** • Evidence of existing easements and any proposed easements, covenants, public or private rights-of-way.
☐	☑	**Evidence of State or Federal Approvals** • Permits or letters of non-jurisdiction

Additional Documents

Indicate Below		Only if Applicable
Yes	N/A	
☑	☐	**Construction Management Plan**, including traffic control plan. • Provide construction management narrative in accordance with the City's Construction Management Template.
☐	☑	**Traffic Study and/or other Transportation Plans** • Detailed in Sec. 2 of the Technical Manual
☑	☐	**Significant Natural Features Narrative**

		• Identify significant natural features, wildlife habitats, fisheries habitats, or archaeological sites as detailed Ch. 14, Article 13, located on or near the project site, and describe protection methods during and after construction.
☑	☐	**Stormwater Management Report** • Detailed in Sec. 14 of the Technical Manual
☑	☐	**City Master Plan Narrative** • Detail project's consistency with City adopted Master Plans.
☑	☐	**Evidence of Utility Capacity** • Provide letter from all utility providers demonstrating capacity to service the project.
☑	☐	**Solid Waste Narrative** • Detail the amount of solid waste and recyclable material anticipated to be generated by the development, and information on how waste will be collected and removed.
☑	☐	**Life/Safety Code Analysis Narrative** • Detail how the project complies with NFPA 1 and other Fire Department technical standards.
☑	☐	**Design Narrative** • Detail how the project complies with any applicable design standards contained within the Land Use Code or City of Portland Design Manual.
☐	☐	**HVAC and Manufacturing Equipment Verification** • Provide verification from manufacturer that equipment meets applicable state and federal emissions requirements.
☑	☐	**Low Impact Development (LID) Analysis** • Provide a narrative detailing how the subdivision complies with the low impact development requirements listed in Section 3 of the Technical Manual, along with a completed LID scorecard.

MAJOR AND MINOR SITE PLAN DRAWINGS CHECKLIST

Please upload the following drawings with the listed details into ProjectDox as separate PDFs. All drawings must be submitted in a 24 x 36 inch sheet size.

Boundary Survey (Stamped by a Licensed Surveyor in accordance with Sec. 14 of the Technical Manual)

Site Plan(s) (Stamped by a Maine Licensed Professional Engineer)

Indicate Below	
	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, including firm that produced plans.
☑	North arrow
☑	Date of preparation and revision history block.
☑	Tax parcel (chart, block, and lot) number

Indicate Below		
Yes	N/A	**Existing Conditions Plan**
☑	☐	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 locations of test pits and borings
☑	☐	Zoning boundary lines, including overlays
☑	☐	Location of all existing easements and rights-of-way.
Indicate Below Yes	N/A	**Proposed Site Plan**
☑	☐	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 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
Indicate Below Yes	N/A	**Utility Plan**
☑	☐	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 the site
Indicate Below Yes	N/A	**Grading and Drainage Plan**
☑	☐	Proposed grades
☑	☐	Proposed stormwater management measures meeting Technical Manual standards
☐	☑	Any proposed alteration of a watercourse or wetlands
☐	☑	Any groundwater protection measures
☐	☑	Proposed buffers and preservation measures for wetlands or significant natural features
Indicate Below Yes	N/A	**Landscape Plan**
☑	☐	Existing vegetation to be preserved and preservation measures

☑	☐	Proposed landscaping, screening, and street trees, including caliper widths for trees
☑	☐	Planting schedule, including street trees detailing species, quantity of plantings, and size at planting.
Indicate Below Yes	N/A	**Architectural Plans and Renderings**
☑	☐	Exterior building elevations, color renderings, illustrations of all sides.
☐	☑	Axonometric and street-level views for structures greater than three stories in height.
☑	☐	Context drawings
☑	☐	Floor plans
Indicate Below Yes	N/A	**Construction Management Plan**
☑	☐	Specifics on traffic control, sidewalk sheds, and pedestrian rerouting
☑	☐	Construction management plan and narrative based upon site plan in accordance with the City's construction management template.
Indicate Below Yes	N/A	**Other**
☑	☐	Details and cross-sections

Portland, Maine Yes. Life's good here.

Planning & Urban Development Department

ZONING ANALYSIS Relevant Zone(s) RN-3

All Projects:

	Required	Proposed
Lot Size	10000	10170
Area Per Dwelling Unit	5000	5085
Minimum Street Frontage	40'	70.34
Front Yard Minimum	20'	20.33'
Front Yard Maximum		
Rear Yard	20'	36.73'
Yard Right	7'	4.46'
Yard Left	7'	17.44'
Side Street Setback	7'	17.44'
Step Back		
Maximum Lot Coverage	6102	3273
Minimum Lot Coverage		
Maximum Height	35'	34'-10"
Open Space	3051	6897
Maximum Impervious Area	6102	3273
Pavement Setback		
Floor Area Ratio		0.57
Off Street Parking Spaces		4
Loading Bays		
Other 1		
Other 2		
Other 3		

Planned Residential Unit Developments (PRUD) Requirements

	Required	Proposed
Minimum Lot Size		
Minimum Lot Area per Dwelling		
Maximum # Units per Building		
Maximum Building Length		
Maximum Accessory Building Length		
Minimum Setbacks		
Minimum Building Separation		
Minimum Open Space		

Affordable Housing Density Bonuses (if applicable)

	Bonus Increase or Decrease	Maximum Allowable With Bonus	Proposed
Density			
Height			
Setback Reduction			
Recreation Space			
Maximum Accessory Building Length			
Minimum Setbacks			
Minimum Building Separation			
Minimum Open Space			
Explanatory Text 1 (optional):			
Explanatory Text 2 (optional):			
Explanatory Text 3 (optional):			

ZONING ANALYSIS Relevant Zone(s) RN-3

All Projects:

	Required	Proposed
Lot Size	10000	10170
Area Per Dwelling Unit	5000	5085
Minimum Street Frontage	40'	70.34
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Front Yard Maximum		
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Planned Residential Unit Developments (PRUD) Requirements

	Required	Proposed
Minimum Lot Size		
Minimum Lot Area per Dwelling		
Maximum # Units per Building		
Maximum Building Length		
Maximum Accessory Building Length		
Minimum Setbacks		
Minimum Building Separation		
Minimum Open Space		

Affordable Housing Density Bonuses (if applicable)

	Bonus Increase or Decrease	Maximum Allowable With Bonus	Proposed
Density			
Height			
Setback Reduction			
Recreation Space			
Maximum Accessory Building Length			
Minimum Setbacks			
Minimum Building Separation			
Minimum Open Space			
Explanatory Text 1 (optional):			
Explanatory Text 2 (optional):			
Explanatory Text 3 (optional):			

Benj. F. Packard

Bath Savings Institution

Since 1852

March 5, 2025

To Whom It May Concern:

Bath Savings Institution has a long-standing relationship with Robert Nelson and Nelson Property Services. The two are in good standing with the bank.

Based on our knowledge of the project as it stands today, we believe Mr. Nelson and Nelson Property Services have the financial ability to successfully complete the development related to the project located at 174 Ray Street, Portland, ME.

If you have any questions or need additional information, do not hesitate to contact me at 207-371-4213

Sincerely,

James Perkolidis

James Perkolidis
Vice President, Commercial Lending

105 Front Street, PO Box 548, Bath, Maine 04530
Tel. 207-442-7711 Fax 207-442-9137
1-800-447-4559
Member FDIC

Ray Street Housing
Technical Capacity
174 Ray Street
Portland, Maine

Prepared by:

Main-Land Development Consultants, Inc.
P.O. Box Q, Livermore Falls, Maine

May 15, 2025

The applicant has retained the services of MAIN-LAND DEVELOPMENT CONSULTANTS, INC., a private consulting firm specializing in engineering, surveying, environmental analysis, and other related fields dealing with the understanding and development of land. MAIN-LAND has been providing site permitting consulting services since its inception in 1974.

The following personnel have assisted in the development of this project to date:

Main-Land Development Consultants:

Jamie L. Garland, PE	-Senior Lead Engineer
Thomas D. Doyle, PE	-Chief Engineer
Charles L. Buker, PLS	-Senior Surveyor

Resumes for each are enclosed as part of this Section.

MAIN-LAND DEVELOPMENT CONSULTANTS, INC.

PROFESSIONAL RESUME

JAMIE GARLAND, P.E.

AVP Falmouth Office

EDUCATION

2021 – Strathclyde Business School – MBA Global Energy Industry

2021 – Universidad Pontificia Comillas – MBA Global Energy Industry

2006 – University of Maine – B.S. Civil Engineering

2002 – Carrabec High School

PROFESSIONAL

- Maine Licensed Professional Engineer #15040
- Maine DEP Certified in Maintenance and Inspection of Stormwater BMPs
- OSHA 10 Hour

EMPLOYMENT HISTORY

2024 – Present	MAIN-LAND Development Consultants, Inc. *AVP Main-Land Falmouth, Senior Lead Engineer*
2023 - 2024	Sebago Technics *Senior Project Manager*
2011-2023	Avangrid
2021 – 2023:	Director of Workforce Planning
2017- 2021:	Director of Operations (MNG)
2014-2017:	Lead Supervisor Engineering (MNG)
2011 – 2014:	Gas Engineer (MNG)
2007-2011	Wright-Pierce *Project Engineer*
2006-2007	Gorrill Plamer *Project Engineer*
2003-2005	Maine Department of Transportation *Engineering Aid (Summers)*

Jamie Garland, P.E.

AVP Falmouth Office

Project Experience

- Street and Sidewalk improvement projects - Gardiner, Richmond, and Rockland, Maine
- Nashua Crossing – Nashua, New Hampshire
- Fairway Commons – Gorham, Maine
- Libby Gravel and Quarry Pit – Bridgton, Maine
- Maine Natural Gas – Augusta, Brunswick, and Freeport, Maine
- Sewer system replacement – Brunswick, Maine

Organizations

- American Society of Civil Engineers
- Portland Regional Chamber of Commerce
- Main aggregate Association

Thomas Doyle

Chief Engineer

Education

1995-1999 UMaine - BS Civil Engineering

Professional

- Maine Licensed Professional Engineer #11190
- New Hampshire Licensed Professional Engineer #12146
- Massachusetts Licensed Professional Engineer #55411
- Vermont Licensed Professional Engineer #018.0135938

Employment History

2024 – Present	MAIN-LAND Development Consultants, Inc. *Chief Engineer*
2022 – 2024	SFC Engineering *Project Manager*
2021-2022	VHB *Senior Civil Engineer*
2019-2021	TRC *Senior Civil Engineer*
2010-2019	SCG *Senior Civil Engineer*
2005-2010	Wright-Pierce *Project Engineer*
2000-2005	Stantec *Design Engineer*
1999-2000	City of Portland *Associate Engineer*

Thomas Doyle

Chief Engineer

Project Experience

- Construction Inspection - City of Portland, Maine
- Old Town Elementary School - Old town, Maine
- Mercy Hospital – Portland, Maine
- Mary Lane Subdivision – Cumberland, Maine
- Route 4 Utility Improvements - Livermore Falls, Maine
- 2006 Sewer Separation Program - Auburn, Maine
- Cottage Brook Third-Party Inspections - Cape Elizabeth, Maine
- Erosion and Sediment Control General Permits - Various gas sites throughout PA
- Jellystone Campground - Monmouth, Maine
- Black Mountain of Maine Snowmaking Pond Expansion - Rumford, Maine
- Waterford Subdivision - Waterford, Maine
-

Organizations

- ASCE
- Maine Society of Professional Engineers

MAIN-LAND DEVELOPMENT CONSULTANTS, INC.

PROFESSIONAL RESUME

Charles L. Buker, P.L.S.

Chief Surveyor

Education

2002 University of Maine – B.S. Spatial Information Engineering

1998 Edward Little High School

Professional

Maine Professional Land Surveyor #2397

Employment History

2002 – Present MAIN-LAND Development Consultants, Inc.

2024- Present: Chief Surveyor

2011 – 2024: Senior Land Surveyor

2008 – 2011: Survey Coordinator/Professional Land Surveyor

2002 – 2008: Survey Technician

Project Experience

- Oxford Resort Casino – Oxford, Maine
- Saddleback Ski Resort
- Locke Summit Estates – Bethel/Newry, Maine
- Rangeley North Subdivision – Rangeley, Maine
- The Colony – Newry, Maine
- Numerous standard boundary surveys, site surveys, ALTA surveys, MLIs Elevation Certificates, and LOMA Applications

Organizations

- Maine Society of Land Surveyors
- American Congress on Surveying and Mapping

Att. f

MAINE REAL ESTATE TAX-Paid

QUITCLAIM DEED WITH COVENANT

Statutory Short Form

KNOW ALL BY THESE PRESENTS, That **We, Dianna L. Clukey and James Clukey**, whose mailing address is **190 Ray Street, Portland, ME 04103,** for consideration paid, grants to **Robert C. Nelson**, whose mailing address is **5 Sandpiper Road, Falmouth, ME 04105**, with Quitclaim Covenant the real property in the City of **Portland**, County of **Cumberland** and State of **Maine**, more particularly described as follows:

A certain lot or parcel of land with any improvements thereon, located on the westerly side of Ray Street in the City of Portland, County of Cumberland, State of Maine and more particularly bounded and described as follows:

BEGINNING at a set iron rebar on the westerly side of Ray Street at the land now or formerly of St. Joseph's Manor;

Thence S48°36'41"W, a distance of 45.55' to a set iron rebar;

Thence N65°57'34"W, a distance of 76.05' along an apparent paper street known as Idaho Street as shown on a plan entitled "The Pines Section A, Portland, Maine" dated April 1925 and recorded in the Cumberland County Registry of Deeds in Plan Book 16, Page 29, to a set iron rebar;

Thence N20°08'54"E, a distance of 105.61' along land now or formerly of Eric West as described in Book 15106, Page 128 to a set iron rebar;

Thence N69°37'26"W, a distance of 63.21' along land of West to a set iron rebar;

Thence N22°37'12"E,a distance of 75.00' along land now or formerly of Kate Guare as described in Book 35606, Page 64 to a set iron rebar;

Thence S68°23'17"E, a distance of 158.18' along remaining land now or formerly of Dianna and James Clukey as described in Book 39847, Page 95 to a set iron rebar;

Thence S20°22'34"W, a distance of 141.87' along Ray Street to the POINT OF BEGINNING.

Containing an area of 0.50 Acre, more or less.

The basis of bearings for this description was the Maine State Grid Plane N.A.D. 1983.

Meaning and intending to convey and conveying a portion of the real property described in a deed to **Dianna L. Clukey and James Clukey** dated October 19, 2022 and recorded with the Cumberland County Registry of Deeds in Book 39847, Page 95.

DOC :38592 BK:41052 PG:89
RECEIVED - RECORDED, CUMBERLAND COUNTY REGISTER OF DEEDS
10/15/2024, 09:02:42A
Register of Deeds Jessica M. Spaulding E-RECORDED

Witness our hands and seals this 10th day of October, 2024.

Witness:

_____

Dianna L. Clukey

James Clukey

STATE OF **MAINE**
COUNTY OF **CUMBERLAND**, ss. October 10, 2024

Personally appeared on the above date, the above-named **Dianna L. Clukey and James Clukey** and acknowledged the foregoing instrument to be their free act and deed.

JENILEE CROWLEY NOTARY PUBLIC Exp. September 16, 2028 STATE OF MAINE

Before me,

_____
Notary Public/Attorney at Law
Print name: Jenilee Crowley
Exp: _____

LIFE/SAFETY CODE ANALYSIS
NARRATIVE

Ray Street Housing
174 Ray Street, Portland, Maine

Prepared by:

MAIN-LAND DEVELOPMENT CONSULTANTS, INC.
P.O. Box Q, Livermore Falls, Maine

June 13, 2025

The project consists of four (4) multiplex condo buildings with two (2) dwelling untis per building for a total of eight (8) residential dwelling units. Each building will have fire protection via a wet/dry system of automatic sprinklers meeting the requirements of NFPA 13 and the Maine State Fire Marshall.

City of Portland ME: Low-Impact Design Requirements				
Owner / applicant name:				
Representative name:				
Project address:				
Project CBL:				
Application ID (if known):				
	Maximum Points	**How to Apply**	**Points Awarded**	**LID Standard / Approach**
CORE METHODS: Wetlands, Streams, & Drainage				
Protect natural drainage paths	Required			
Shoreland Zoning	Required			
Meeting DEP and ACOE standards for stream crossings	Required			
Protect wetlands	**12**	Select one option	**12**	Select a site that does not have wetlands or vernal pools = 12pts
				Project maintains a 50' set-back / no-disturb buffer to all wetlands = 10pts
				Project maintains a 25' set-back / no-disturb buffer to all wetlands = 7pts
				Project does not place structures in wetlands and avoids wetlands impacts from construction and stormwater discharges = 5pts
				Project replicates impacted wetlands elsewhere on site or within watershed = 3pt
				Project pays wetlands impact fee = 0pts
Permanently protect stream (intermittent and perennial) and riparian buffers *(exclusive of approved stream crossings; must include a no-disturb zone with markers installed and deed restriction recorded at registry of deeds)*	**12**	Select one option	**12**	Select a site with no streams = 12pts
				Permanently protect all 100ft shoreline buffers = 10pts
				Permanently protect all 75ft shoreline buffers = 7pts
				Permanently protect all 50ft shoreline buffers (intermittent streams) = 6pts
				Permanently protect all 50ft shoreline buffers (required minimum for perennial streams) = 5pts
				Permanently protect all 25ft shoreline buffers (required minimum for intermittent streams) = 5pts
Stream crossings	**12**	Select one option	**12**	Select a site with no streams = 12pts
				Avoid any stream crossings = 10pts
				All stream crossings use a bridge or open bottom culvert structure sized at 1.2 times the bank full width of the stream = 10pts
				All stream crossings use Maine Stream Smart Principles to preserve natural pre-development drainage pathways = 6pts
CORE METHODS: Natural Areas & Habitat				
Preserve threatened or endangered species habitat	Required (Beginning with Habitat Maps at a minimum)			
Protect 30% of trees over 10" DBH	Required (Tree survey required)			
Protect intact, contiguous forests and native trees over 10" DBH	**8**	Select one option		All development and land disturbance outside of existing wooded/forested areas (no site clearing in prior 10 years) = 8pts
				Protect 50% of trees over 10" DBH = 6pts
			4	Protect 40% of trees over 10" DBH = 4pt

CORE METHODS: Soils & Slopes				
USDA Web Soil Survey	Required (provide details how soil limitations will be mitigated)			
Avoid steep slope disturbance	5	Select one option		Selecting a site without slopes 15% or greater = 5pts
				Maintain >20' undisturbed vegetated buffer to all slopes 15% or greater = 3pts
				Maintain 10-20' undisturbed vegetated buffer to all slopes 15% or greater = 2pts
				Maintain 1-10' undisturbed vegetated buffer to all slopes 15% or greater = 1pt
			0	Disturbance of any slope 15% or greater = 0pts
Protect soils	5	Select one option		Redevelopment sites = 5pts
				Detailed, site-specific soil survey; preparation of a Soil Management and Protection Plan; protect highly permeable soils = 5pts
Limit site disturbance and earthwork	8	Select one option		Redevelopment limits disturbance to existing footprint = 8pts
				New development disturbs less than 50% of existing undeveloped site area = 8pts
				New development disturbs less than 75% of existing undeveloped site area = 6pts
			0	New development disturbs greater than 75% of existing undeveloped site area = 0pts
Soil preparation & minimizing compaction	6	Select all options that apply	3	Till soils to a depth of at least 10" prior to revegetation = 3pts
			3	Organic matter amendments as needed based on soil tests = 3pts
CORE METHODS: Landscaping				
Low-Impact Landscaping	6	Select all options that apply		Redevelopment sites reduce lawn area by 50%, provided no increase in impervious area (lawn becomes landscaping) = 2pt
				New development results in >50% non-impervious developed area is landscaping = 2pt
			2	Use only native vegetation for landscaped areas = 2pts
			2	Using only locally-sourced landscape materials = 2pt
CORE METHODS: Impervious Area & SW Management				
Meeting City's stormwater management standards	Required			
Reduce impervious and increase permeable surfaces	10	Select all options that apply, up to a maximum of 10 points		50% or more of proposed hard surfaces are permeable (porous pavers, permeable concrete, porous asphalt) = 6pts
			4	Minimize parking impervious area by using only the minimum required number of parking spaces, the minimum required parking lot dimensions, maximizing compact spaces and utilizing low-turnover standard parking space width reductions = 4pt
				25% or more of proposed hard surfaces are permeable (porous pavers, permeable concrete, porous asphalt) = 3pts
			2	Minimize roadway impervious area by developing roadways and driveways at the minimum width and using minimum number of curb cuts = 2pt
			2	Reducing the number of driveways by using a shared driveway design = 2pt
				Providing transportation alternatives (such as bike share, car share, or similar) = 2pt
Use GI / natural stormwater treatment systems	12	Select all options that apply	6	Treatment requirements and conveyance achieved through vegetated systems = 6pts
			3	No more than 1-acre of drainage per treatment system = 3pts
				Increase time of concentration on site (1" 25 year storm event) = 3pts
Limit / eliminate salt use	4	Select one option	4	Detailed winter maintenance agreement, with annual reporting requirement, limiting chloride use (required in UIS watersheds) = 4pts

Bonus Points				
Bonus points are offered for strategies that may go above and beyond typical approaches; may offer particularly innovative site design or engineering ; or may help achieve the larger goal of low-impact development on a regional scale.	10		10	Utilizing structured parking = 10pts
	10			Utilizing a green roof for at least 50% of a newly developed or redeveloped building roof = 10pts
	10			Restoration of previously disturbed natural resources (minimum 500 square feet of restoration) = 10pts
	10			BMPs designed for known water quality impairment within watershed = 10pts
	10			Connecting to City sewer from a site >200 ft from existing City infrastructure = 10pts
	6			Detention of 1.5 times the required volume = 6pts
	6			Treatment for 1.5 times the required water quality volume = 6pts
	6			Innovative LID site design and/or stormwater improvement - 6pts
	10			Establishing a Traffic Demand Management plan for projects under 50,000ft = 10pts
	Total Possible Points **178**		**Total Points Awarded** **81**	**Minimum points required for approval of LID strategies and techniques** **80**

Department of Public Works
Mike Murray
Director

City of portland

Date: June 18, 2025
Re: Wastewater Capacity Authorization
Address: 174 Ray Street
Applicant: Donata Properties, LLC
Planner: TBD

Estimate of Anticipated Wastewater Flows				
Development	**Unit Size**	**Number of Units**	**Gallons per Day per Unit**	**Total Gallons per Day**
Existing Flow to Remain				
Vacant				
Proposed flow				
Multiple Family Dwelling Units	3-Bedroom	8	270	2160
Net Change				**+ 2,160**
*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.

However, storm drainage and sanitary sewer flows in this project area drain to the City's combined sewer system. Lack of wet weather capacity results in frequent system wide combined sewer overflows. City wide mitigation of combined sewer overflows is required as part of the City's CSO consent decree administered by the EPA and Maine DEP.

Section 5.2.4 of the City's Technical Manual requires DPW Water Resources approval when rain water is being proposed to discharge into a sewer which conveys sanitary waste. Applicable projects proposing to make a stormwater connection into the City's combined sewer system shall:

1. Provide a minimum on-site stormwater detention volume equal to the greater of:
    a. 1" of rainfall times the TOTAL impervious area within the project's disturbance limits;

b. The project's proposed increase in average daily sewer flow being added to the combined sewer system.

2. Control stormwater discharge rates into the City's combined sewer system to a maximum flow rate of 0.1 CFS until the on-site detention system reaches its design capacity.

You are also reminded that new connections into the combined sewer system shall be equipped with backflow prevention in accordance with Section 2.6.10 of the City's Technical Manual.

If the City can be of further assistance, please contact me at 207-874-8840 or brad@portlandmaine.gov

Sincerely,

Bradley A. Roland, P.E.,
Senior Project Engineer

STORMWATER MANAGEMENT PLAN
NARRATIVE

Ray Street Housing
174 Ray Street, Portland, Maine

Prepared by:

MAIN-LAND DEVELOPMENT CONSULTANTS, INC.
P.O. Box Q, Livermore Falls, Maine

June 13, 2025
Rev January 28, 2026
Rev June 6, 2026

This Stormwater Management Plan Narrative has been prepared to present an analysis performed to address the potential impacts associated with the project due to proposed modifications in stormwater runoff characteristics and land cover changes. The project site is a 0.50-acre parcel located off Ray Street in Portland, Maine.

The existing site consists of undeveloped woodland areas. The property generally consists of gradual to moderate slopes. The soils for the site consist of hydrologic soil group “D”. The existing property drains overland to unnamed tributary to the northwest, the tributary outlets to Fall Brook. The property is within the watershed of an urban impaired stream.

The project’s current layout proposes four multiplex condos with 2 single-family dwelling units in each for a total of 8 for the project, a ground level garage and associated access drive off Ray Street.

The Pre-Development Drainage Plan, drawing D1.1, consists of a subcatchment described as follows:

Subcatchment 1 consists primarily of undeveloped woodlands with an existing trail running through the western portion of the property that connects to Ray Street. The drainage flows northwesterly towards the back of the property which eventually discharges to an unnamed tributary of Fall Brook (Watershed Analysis Point A). Soils from USDA NRCS for the subcatchment are Hydrologic Soil Group D.

The Post-Development Drainage Plan, drawing D2.1, consists of two subcatchments and are described as follows:

Subcatchment 1.1, on the western portion of the property, consists of undeveloped woodlands, the existing trail, loam and seeded grassed areas, and a small portion of new sidewalk. The drainage runs overland and outlets to unnamed tributary of Fall Brook

(Watershed Analysis Point A). Soils from USDA NRCS for the subcatchment are Hydrologic Soil Group D.

Subcatchment 1.2 consists of new multiplex condo buildings with associated ground level garages, access drives, utilities, and loam and seeded grassed areas. The drainage is collected via roof gutters, foundation drains, and overland flow via proposed grading on site and discharged to a beehive grate which leads to a new underground detention system which then flows to a "Jellyfish" filter. The outlet from the underground detention and treatment system discharges via a 12" culvert to an unnamed tributary of Fall Brook (Watershed Analysis Point A). Soils from USDA NRCS for the subcatchment are Hydrologic Soil Group D.

The purpose of a stormwater management plan is to ensure that a certain percentage of stormwater runoff is treated prior to leaving the development and does not have a significant adverse impact on receiving waterbodies or adjacent properties. The treatment requirement per the City of Portland's stormwater management standard is 95% of impervious and 80% of developed areas. The table below shows the treatment has been met for the project

PROPOSED TREATMENT PERCENTAGES			
		Non-Linear	
		Impervious	Developed
Proposed:		12,274	20,398
Treated:		12,014	17,192
	Percentage:	**97.9%**	**84.3%**
Required:		95%	80%
Meets:		YES	YES

As shown in the D2.1 drainage plan, the site utilizes an underground detention and treatment system to meet the local requirement to capture and decrease stormwater runoff to at or below pre-development rates from the 25-year storm. In addition, the project is in the watershed of Fall Brook which is listed as impaired per the 2010 Integrated Water Quality Report and part of the cities MS4 report.

As shown in table below, the "Jellyfish" filter treats stormwater to meet City of Portland requirements and provides attenuation of post-development runoff rates to at or below pre-development.

		2-yr	***10-yr***	***25-yr***
WAP A	*Pre*	0.54	1.11	1.60
	Post	0.31	0.79	1.17
	Diff.	-0.23	-0.32	-0.43

Project: Ray Street Housing **PROJECT NAME**

Proj Number: 24-285 PROJECT NUMBER

DRAINAGE AREA CALCULATIONS

PRE-DEVELOPMENT AREAS

SUB	TOTAL	WOODS A	WOODS C/D	WOODS D	GRAVEL ROAD C/D	GRAVEL ROAD D	ROOF IMPERV	GRASS B	
1	21862			21461		401			OKAY
2									OKAY
3									OKAY
4									OKAY
5									OKAY
6									OKAY
7									OKAY
8									OKAY
9									OKAY
10									OKAY
11									OKAY
12									OKAY
13									OKAY
14									OKAY
	21862	0	0	21461	0	401	0	0	21862

POST-DEVELOPMENT AREAS

		EXISTING AREAS							PROPOSED AREAS							
SUB	TOTAL	WOODS D	FARM FALLOW C	DIRT ROAD C	GRAVEL ROAD C	PAVED ROAD C	IMPERV	GRASS C	WOODS A	WOODS C/D	WOODS D	PAVED ROAD	GRAVEL SITES/PARK	ROOF IMPERV	GRASS D	
1.1	4670	1464										72	188		2946	OKAY
1.2	17192											5836		6178	5178	OKAY
																OKAY
																OKAY
																OKAY
																OKAY
																OKAY
																OKAY
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																OKAY
	21862	1464		0		0	0	0	0	0	0	5908	188	6178	8124	21862

Project: Ray Street Housing **PROJECT NAME**
Proj Number: 24-285 PROJECT NUMBER

SUBCATCHMENT SUMMARY AND TREATMENT AREAS

			SUBCATCHMENT AREAS from Drainage Plans									**TREATED AREAS**						
			Proposed Developed Areas (acres)				Existing Areas					Proposed and Existing Treated Developed Areas (acres)					BMPs	
Sub		Tc	Linear		Non-Linear		Developed		Undeveloped			Linear		Non-Linear		Developed	Proposed	Treatment
Label	WAP	(min)	Impervious	Developed	Impervious	Developed	Impervious	Developed	Woods D	Fallow C	Total	Impervious	Developed	Impervious	Developed	Total	Treatment Method	Factor
1.1			0.00	0.00	260.00	3206.00	0.00	0.00	1464	0	4670.00	0	0	0	0	0.00		1
1.2			0.00	0.00	12014.00	17192.00	0.00	0	0	0	17192.00	0	0	12014	17192	17192.00	Detention	1
0			0.00	0.00	0.00	0.00	0.00	0	0	0	0.00	0	0	0	0	0.00		1
0			0.00	0.00	0.00	0.00	0.00	0	0	0	0.00	0	0	0	0	0.00		1
0			0.00	0.00	0.00	0.00	0.00	0	0	0	0.00	0	0	0	0	0.00		1
0			0.00	0.00	0.00	0.00	0.00	0	0	0	0.00	0	0	0	0	0.00		1
0			0.00	0.00	0.00	0.00	0.00	0	0	0	0.00	0	0	0	0	0.00		1
0			0.00	0.00	0.00	0.00	0.00	0	0	0	0.00	0	0	0	0	0.00		1
0			0.00	0.00	0.00	0.00	0.00	0	0	0	0.00	0	0	0	0	0.00		1
0			0.00	0.00	0.00	0.00	0.00	0	0	0	0.00	0	0	0	0	0.00		1
0			0.00	0.00	0.00	0.00	0.00	0	0	0	0.00	0	0	0	0	0.00		1
0			0.00	0.00	0.00	0.00	0.00	0	0	0	0.00	0	0	0	0	0.00		1
0			0.00	0.00	0.00	0.00	0.00	0	0	0	0.00	0	0	0	0	0.00		1
0			0.00	0.00	0.00	0.00	0.00	0	0	0	0.00	0	0	0	0	0.00		1
0			0.00	0.00	0.00	0.00	0.00	0	0	0	0.00	0	0	0	0	0.00		1
0			0.00	0.00	0.00	0.00	0.00	0	0	0	0.00	0	0	0	0	0.00		1
0			0.00	0.00	0.00	0.00	0.00	0	0	0	0.00	0	0	0	0	0.00		1
0			0.00	0.00	0.00	0.00	0.00	0	0	0	0.00	0	0	0	0	0.00		1
0			0.00	0.00	0.00	0.00	0.00	0	0	0	0.00	0	0	0	0	0.00		1
0			0.00	0.00	0.00	0.00	0.00	0	0	0	0.00	0	0	0	0	0.00		1
0			0.00	0.00	0.00	0.00	0.00	0	0	0	0.00	0	0	0	0	0.00		1
0			0.00	0.00	0.00	0.00	0.00	0	0	0	0.00	0	0	0	0	0.00		1
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0			0.00	0.00	0.00	0.00	0.00	0	0	0	0.00	0	0	0	0	0.00		1
0			0.00	0.00	0.00	0.00	0.00	0	0	0	0.00	0	0	0	0	0.00		1
			0.00	0.00	12274.00	20398.00	0.00	0.00	1464.00	0.00	21862.00	0.00	0.00	12014.00	17192.00	17192.00		

PROPOSED TREATMENT PERCENTAGES				
	Linear		Non-Linear	
	Impervious	Developed	Impervious	Developed
Proposed:	0.00	0.00	12274.00	20398.00
Treated:	0.00	0.00	12014.00	17192.00
Percentage:	**#DIV/0!**	**#DIV/0!**	**97.9%**	**84.3%**
Required:	N/A	N/A	95%	80%
Meets:	YES	YES	YES	YES

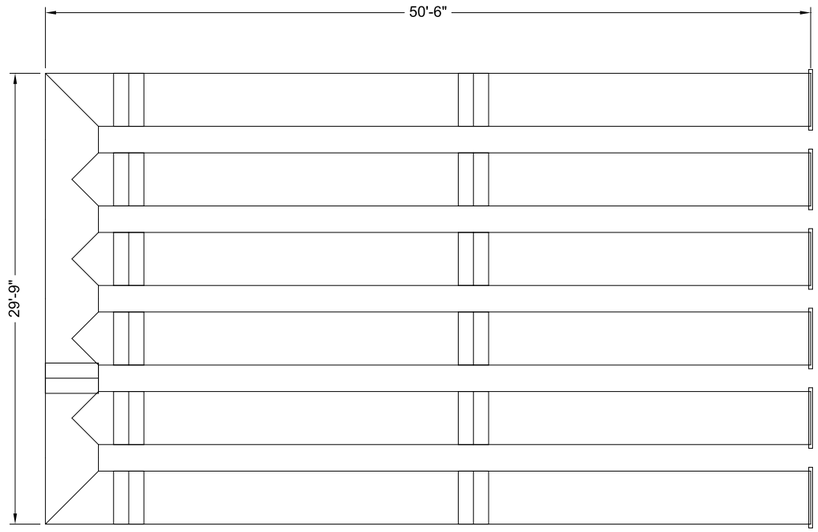
PROJECT SUMMARY

CALCULATION DETAILS
- LOADING = HS20/HS25
- APPROX. LINEAR FOOTAGE = 312 LF

STORAGE SUMMARY
- STORAGE VOLUME REQUIRED = 2,990 CF
- PIPE STORAGE VOLUME = 2,999 CF
- BACKFILL STORAGE VOLUME = 0 CF
- TOTAL STORAGE PROVIDED = 2,999 CF

PIPE DETAILS
- DIAMETER = 42"
- CORRUGATION = 2 2/3x1/2
- GAGE = 16
- COATING = ALT2
- WALL TYPE = SOLID
- BARREL SPACING = 21"

BACKFILL DETAILS
- WIDTH AT ENDS = 12"
- ABOVE PIPE = 0"
- WIDTH AT SIDES = 12"
- BELOW PIPE = 0"



NOTES

- ALL RISER AND STUB DIMENSIONS ARE TO CENTERLINE. ALL ELEVATIONS, DIMENSIONS, AND LOCATIONS OF RISERS AND INLETS, SHALL BE VERIFIED BY THE ENGINEER OF RECORD PRIOR TO RELEASING FOR FABRICATION.
- ALL FITTINGS AND REINFORCEMENT COMPLY WITH ASTM A998.
- ALL RISERS AND STUBS ARE $2\frac{2}{3}$" x $\frac{1}{2}$" CORRUGATION AND 16 GAGE UNLESS OTHERWISE NOTED.
- RISERS TO BE FIELD TRIMMED TO GRADE.
- QUANTITY OF PIPE SHOWN DOES NOT PROVIDE EXTRA PIPE FOR CONNECTING THE SYSTEM TO EXISTING PIPE OR DRAINAGE STRUCTURES. OUR SYSTEM AS DETAILED PROVIDES NOMINAL INLET AND/OR OUTLET PIPE STUB FOR CONNECTION TO EXISTING DRAINAGE FACILITIES. IF ADDITIONAL PIPE IS NEEDED IT IS THE RESPONSIBILITY OF THE CONTRACTOR.
- BAND TYPE TO BE DETERMINED UPON FINAL DESIGN.
- THE PROJECT SUMMARY IS REFLECTIVE OF THE DYODS DESIGN, QUANTITIES ARE APPROX. AND SHOULD BE VERIFIED UPON FINAL DESIGN AND APPROVAL. FOR EXAMPLE, TOTAL EXCAVATION DOES NOT CONSIDER ALL VARIABLES SUCH AS SHORING AND ONLY ACCOUNTS FOR MATERIAL WITHIN THE ESTIMATED EXCAVATION FOOTPRINT.
- THESE DRAWINGS ARE FOR CONCEPTUAL PURPOSES AND DO NOT REFLECT ANY LOCAL PREFERENCES OR REGULATIONS. PLEASE CONTACT YOUR LOCAL CONTECH REP FOR MODIFICATIONS.

ASSEMBLY
SCALE: 1" = 10'

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DATE	REVISION DESCRIPTION	BY

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DYO96568 RAY STREET HOUSING
CMP DETENTION
Portland, ME
DETENTION SYSTEM

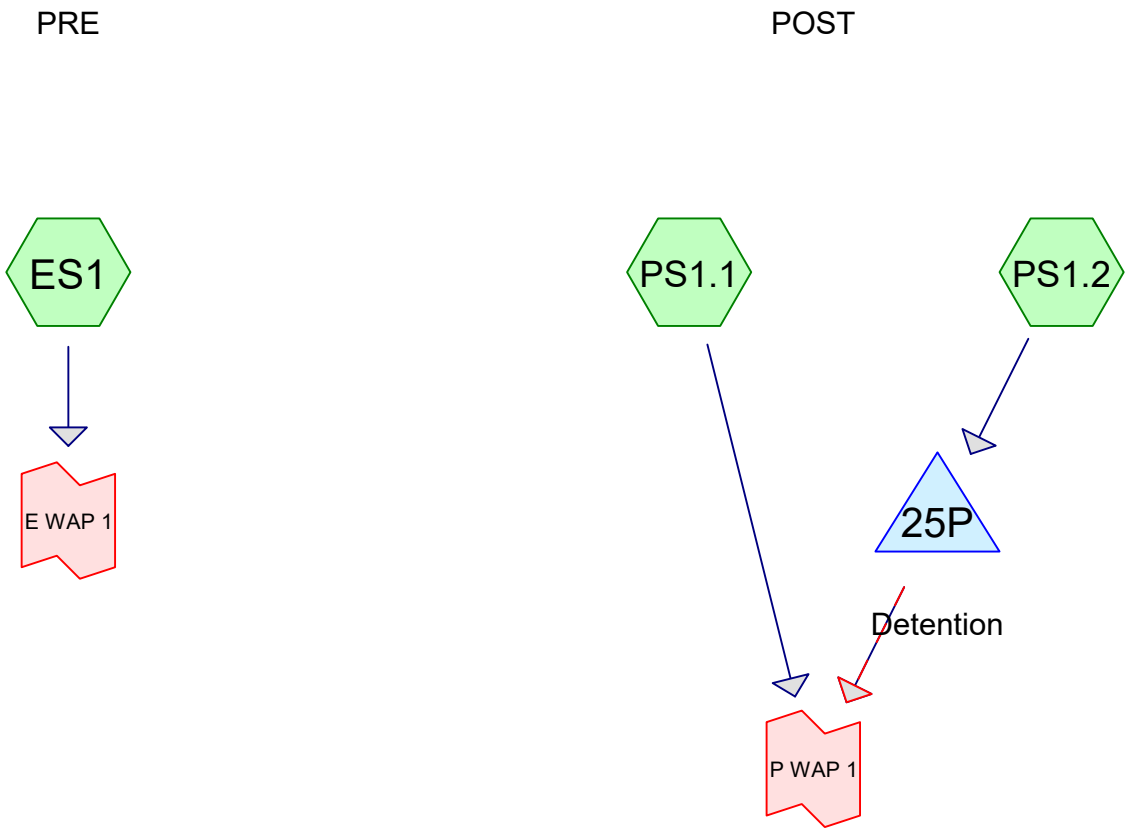
PROJECT No.:	SEQ. No.:	DATE:
70559	96568	1/8/2026
DESIGNED: DYO	DRAWN: DYO	
CHECKED: DYO	APPROVED: DYO	
SHEET NO.: 1		

Jellyfish Filter Design Calculation

Contech Engineered Solutions, LLC Engineer:	JBS			
Date Prepared:	**1/8/2026**			
Site Information				
Project Name	**Ray Street Housing**			
Project City	**Portland**			
Project State	**ME**			
Site Designation	**Filter**			
Total Drainage Area, Ad	**0.44**	ac		
Post Development Impervious Area, Ai	**0.44**	ac		
Pervious Area, Ap	**0.00**	ac		
% Impervious	**100**	%		
Runoff Coefficient, Rc	**0.95**			
Upstream pretreatment credit	**50%**			
Mass Loading Calculations				
Mean Annual Rainfall, P	**47**	in		
Agency Required % Removal	**80%**			
Percent Runoff Capture	**90%**			
Mean Annual Runoff, Vt	**67,562**	ft^3		
Influent Event Mean Concentration of Pollutant, EMC	**70**	mg/l		
Annual Mass Load, M total	**295**	lbs		
Water Quality Volume				
MEDEP WQv (1" impervious / 0.4" pervious)	**1,597**	cf		
WQv drain down period	**24**	hrs	**48**	hrs
Detention restricted outflow rate range, N_{flow}	**0.018**	cfs	**0.009**	cfs
Filter System				
Filtration Brand	**Jellyfish**			
Cartridge Length	**40**	in		
Jellyfish Mass Load Sizing				
Mass removed by pretreatment system	**148**	lbs		
Mass load to filters after pretreatment	**148**	lbs		
Mass to be Captured by System	**118**	lbs		
Number of Cartridges required, N_{mass}	**2**	Total		
Mass load per cartridge (lbs) (High Flow, HF)	**93**	lbs		
Mass load per cartridge (lbs) (Drain Down, DD)	**46**	lbs		
Number of Cartridges required, N_{mass}	**1 HF, 1 DD**			
Determine Critical Sizing Value				
Number of Cartridges using N_{flow}	**1 HF, 1 DD**	24 hr	**1 HF, 1 DD**	48 hr
Number of Cartridges using N_{mass}	**1 HF, 1 DD**			
Method to Use	**FLOW BASED**			
Water Quality Flow, $Q_{required}$	**0.04**	cfs		

Summary			
	Treatment Flow Rate Provided	0.20	cfs
Flow	Required Cartridge Quantity	**1 HF, 1 DD**	
	Draindown Period	2.21	hrs

Ray Street Housing



Subcat Reach Pond Link

Routing Diagram for Pre-Post Dev - 24-285
Prepared by Main-Land Development Consultant, Printed 6/9/2026
HydroCAD® 10.20-9a s/n 01625 © 2026 HydroCAD Software Solutions LLC

Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2-Year	Type III 24-hr		Default	24.00	1	3.10	2
2	10-Year	Type III 24-hr		Default	24.00	1	4.60	2
3	25-Year	Type III 24-hr		Default	24.00	1	5.80	2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.187	80	>75% Grass cover, Good, HSG D (PS1.1, PS1.2)
0.004	96	Gravel surface, HSG D (PS1.1)
0.136	98	Paved parking, HSG D (PS1.1, PS1.2)
0.009	96	Trail, HSG D (ES1)
0.142	98	Unconnected roofs, HSG D (PS1.2)
0.526	77	Woods, Good, HSG D (ES1, PS1.1)
1.004	**84**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
0.000	HSG C	
1.004	HSG D	ES1, PS1.1, PS1.2
0.000	Other	
1.004		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.000	0.187	0.000	0.187	>75% Grass cover, Good	PS1.1, PS1.2
0.000	0.000	0.000	0.004	0.000	0.004	Gravel surface	PS1.1
0.000	0.000	0.000	0.136	0.000	0.136	Paved parking	PS1.1, PS1.2
0.000	0.000	0.000	0.009	0.000	0.009	Trail	ES1
0.000	0.000	0.000	0.142	0.000	0.142	Unconnected roofs	PS1.2
0.000	0.000	0.000	0.526	0.000	0.526	Woods, Good	ES1, PS1.1
0.000	**0.000**	**0.000**	**1.004**	**0.000**	**1.004**	**TOTAL AREA**	

Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Width (inches)	Diam/Height (inches)	Inside-Fill (inches)	Node Name
1	25P	85.60	85.58	4.0	0.0050	0.012	0.0	4.0	0.0	
2	25P	85.57	85.50	13.0	0.0054	0.012	0.0	12.0	0.0	

Time span=0.00-48.00 hrs, dt=0.04 hrs, 1201 points x 2
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment ES1: Runoff Area=21,862 sf 0.00% Impervious Runoff Depth=1.17"
Flow Length=160' Tc=12.2 min CN=WQ Runoff=0.54 cfs 0.049 af

Subcatchment PS1.1: Runoff Area=4,670 sf 1.54% Impervious Runoff Depth=1.34"
Tc=5.0 min CN=WQ Runoff=0.17 cfs 0.012 af

Subcatchment PS1.2: Runoff Area=17,192 sf 69.88% Impervious Runoff Depth=2.40"
Tc=5.0 min CN=WQ Runoff=1.03 cfs 0.079 af

Pond 25P: Detention Peak Elev=87.30' Storage=0.033 af Inflow=1.03 cfs 0.079 af
Primary=0.20 cfs 0.079 af Secondary=0.00 cfs 0.000 af Outflow=0.20 cfs 0.079 af

Link E WAP 1: Inflow=0.54 cfs 0.049 af
Primary=0.54 cfs 0.049 af

Link P WAP 1: Inflow=0.31 cfs 0.091 af
Primary=0.31 cfs 0.091 af

Total Runoff Area = 1.004 ac Runoff Volume = 0.140 af Average Runoff Depth = 1.67"
72.36% Pervious = 0.726 ac 27.64% Impervious = 0.277 ac

Summary for Subcatchment ES1:

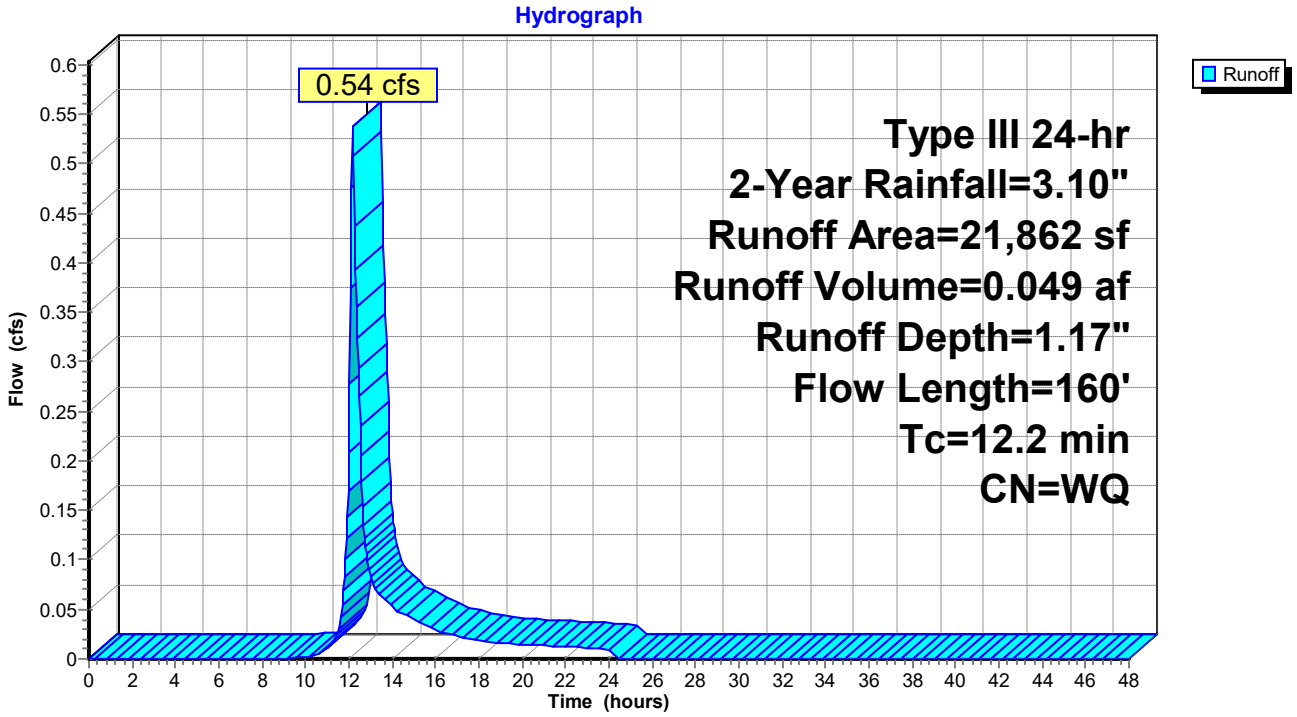
Runoff = 0.54 cfs @ 12.18 hrs, Volume= 0.049 af, Depth= 1.17"
Routed to Link E WAP 1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 2-Year Rainfall=3.10"

	Area (sf)	CN	Description
	21,461	77	Woods, Good, HSG D
*	401	96	Trail, HSG D
	21,862		Weighted Average
	21,862		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.2	100	0.1050	0.15		**Sheet Flow, 296.5-286** Woods: Light underbrush n= 0.400 P2= 3.10"
1.0	60	0.0420	1.02		**Shallow Concentrated Flow, 286-283.5** Woodland Kv= 5.0 fps
12.2	160	Total			

Subcatchment ES1:



Summary for Subcatchment PS1.1:

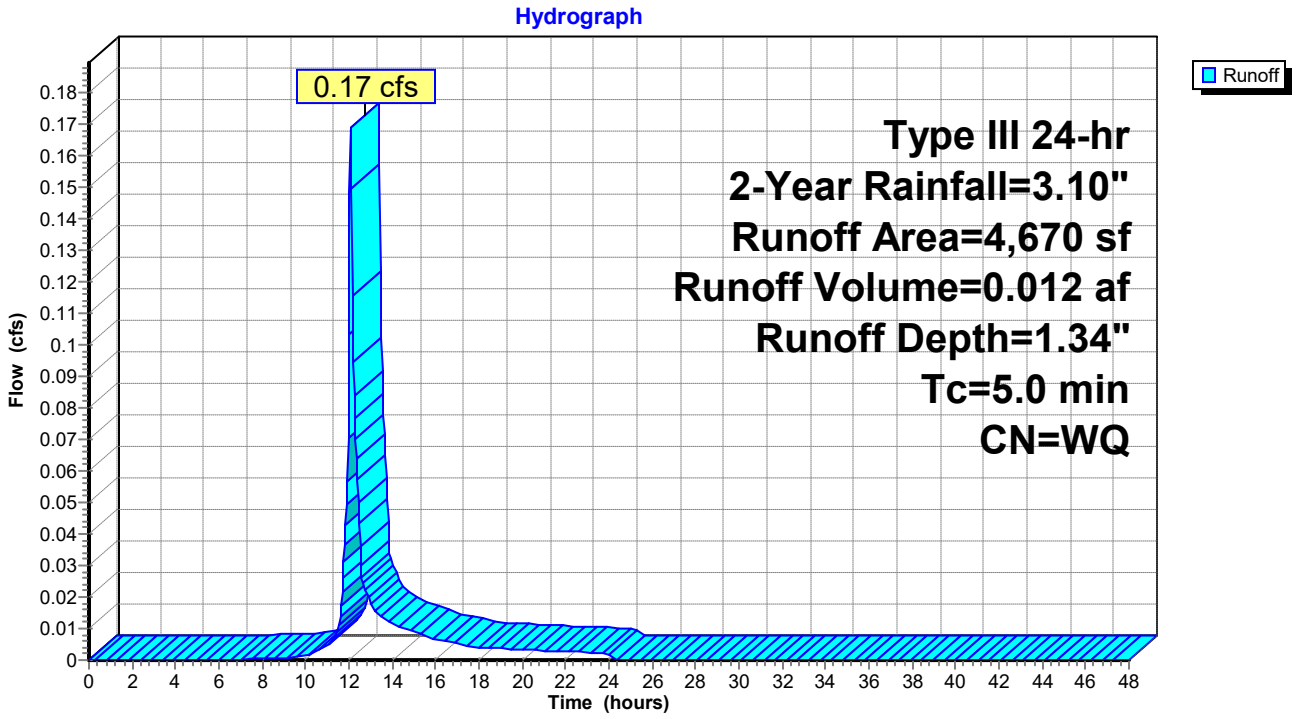
Runoff = 0.17 cfs @ 12.08 hrs, Volume= 0.012 af, Depth= 1.34"
Routed to Link P WAP 1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 2-Year Rainfall=3.10"

Area (sf)	CN	Description
1,464	77	Woods, Good, HSG D
2,946	80	>75% Grass cover, Good, HSG D
72	98	Paved parking, HSG D
188	96	Gravel surface, HSG D
4,670		Weighted Average
4,598		98.46% Pervious Area
72		1.54% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment PS1.1:



Summary for Subcatchment PS1.2:

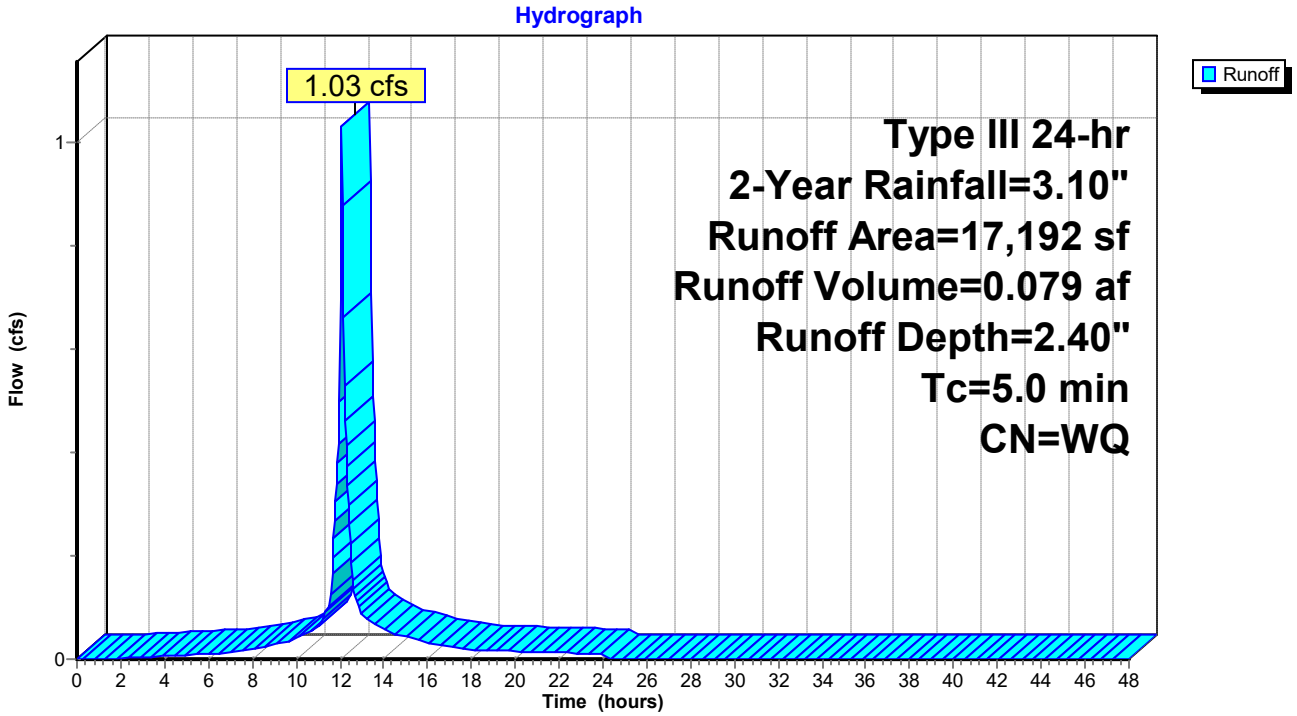
Runoff = 1.03 cfs @ 12.07 hrs, Volume= 0.079 af, Depth= 2.40"
Routed to Pond 25P : Detention

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 2-Year Rainfall=3.10"

Area (sf)	CN	Description
0	77	Woods, Good, HSG D
5,178	80	>75% Grass cover, Good, HSG D
6,178	98	Unconnected roofs, HSG D
5,836	98	Paved parking, HSG D
0	96	Gravel surface, HSG D
17,192		Weighted Average
5,178		30.12% Pervious Area
12,014		69.88% Impervious Area
6,178		51.42% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment PS1.2:



Summary for Pond 25P: Detention

Inflow Area = 0.395 ac, 69.88% Impervious, Inflow Depth = 2.40" for 2-Year event
Inflow = 1.03 cfs @ 12.07 hrs, Volume= 0.079 af
Outflow = 0.20 cfs @ 12.51 hrs, Volume= 0.079 af, Atten= 81%, Lag= 26.1 min
Primary = 0.20 cfs @ 12.51 hrs, Volume= 0.079 af
Routed to Link P WAP 1 :
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link P WAP 1 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs / 2
Peak Elev= 87.30' @ 12.51 hrs Surf.Area= 0.038 ac Storage= 0.033 af

Plug-Flow detention time= 138.3 min calculated for 0.079 af (100% of inflow)
Center-of-Mass det. time= 138.5 min (909.2 - 770.7)

Volume	Invert	Avail.Storage	Storage Description
#1A	85.60'	0.000 af	**31.75'W x 52.50'L x 3.50'H Field A** 0.134 af Overall - 0.069 af Embedded = 0.065 af x 0.0% Voids
#2A	85.60'	0.069 af	**CMP Round 42** x 12 Inside #1 Effective Size= 42.0"W x 42.0"H => 9.62 sf x 20.00'L = 192.4 cf Overall Size= 42.0"W x 42.0"H x 20.00'L Row Length Adjustment= +7.00' x 9.62 sf x 6 rows 29.75' Header x 9.62 sf x 1 = 286.2 cf Inside
		0.069 af	Total Available Storage

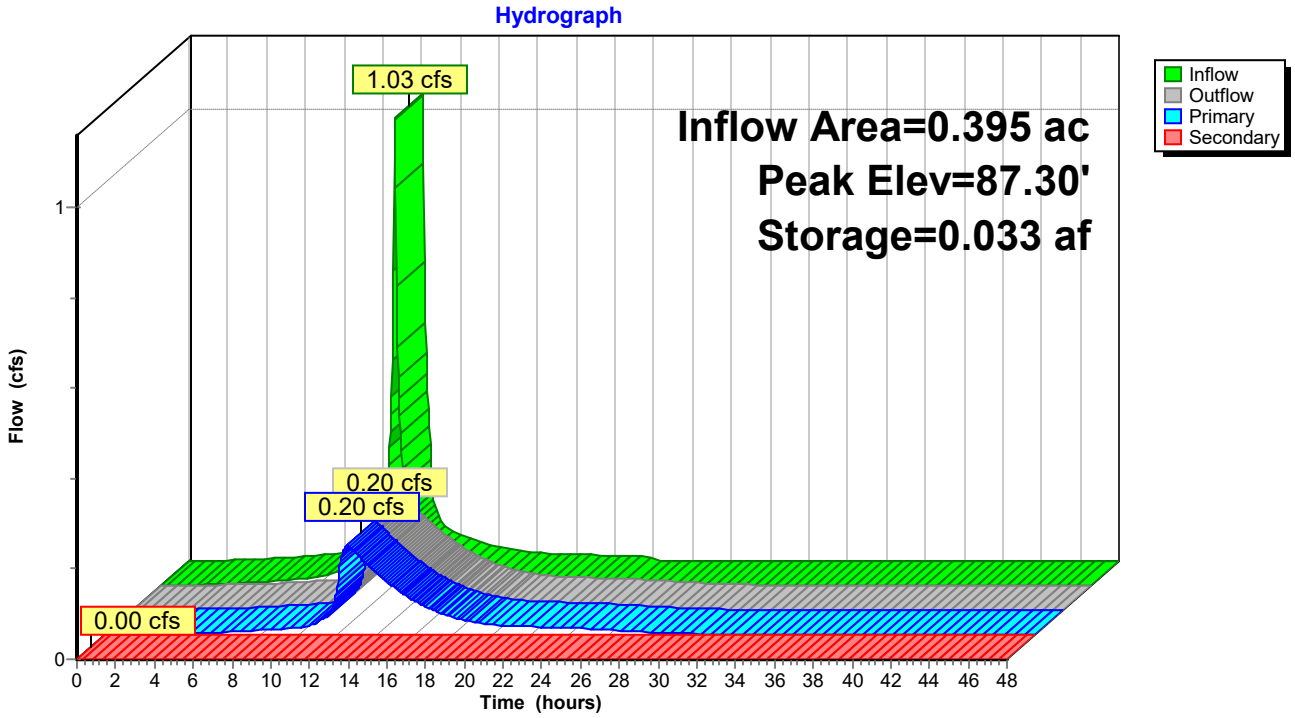
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Device 2	85.60'	**4.0" Round Culvert** L= 4.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 85.60' / 85.58' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.09 sf
#2	Primary	85.58'	**JF CSV File** Head (feet) 0.00 0.08 0.17 0.25 0.33 0.42 0.50 0.58 0.67 0.75 0.83 0.92 1.00 1.08 1.17 1.25 1.33 1.42 1.50 1.58 1.67 1.75 3.00 4.00 Disch. (cfs) 0.000 0.003 0.006 0.010 0.013 0.016 0.019 0.031 0.043 0.055 0.067 0.080 0.092 0.104 0.116 0.128 0.140 0.152 0.164 0.176 0.188 0.201 0.201 0.201
#3	Device 6	87.30'	**8.0" W x 3.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 6	88.00'	**8.0" W x 3.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#5	Device 6	88.90'	**4.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#6	Secondary	85.57'	**12.0" Round Culvert** L= 13.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 85.57' / 85.50' S= 0.0054 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.20 cfs @ 12.51 hrs HW=87.30' TW=0.00' (Dynamic Tailwater)
└─**2=JF CSV File** (Custom Controls 0.20 cfs)
└─**1=Culvert** (Passes 0.20 cfs of 0.41 cfs potential flow)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=85.60' TW=0.00' (Dynamic Tailwater)
└─**6=Culvert** (Passes 0.00 cfs of 0.00 cfs potential flow)
├─**3=Orifice/Grate** (Controls 0.00 cfs)
├─**4=Orifice/Grate** (Controls 0.00 cfs)
└─**5=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 25P: Detention

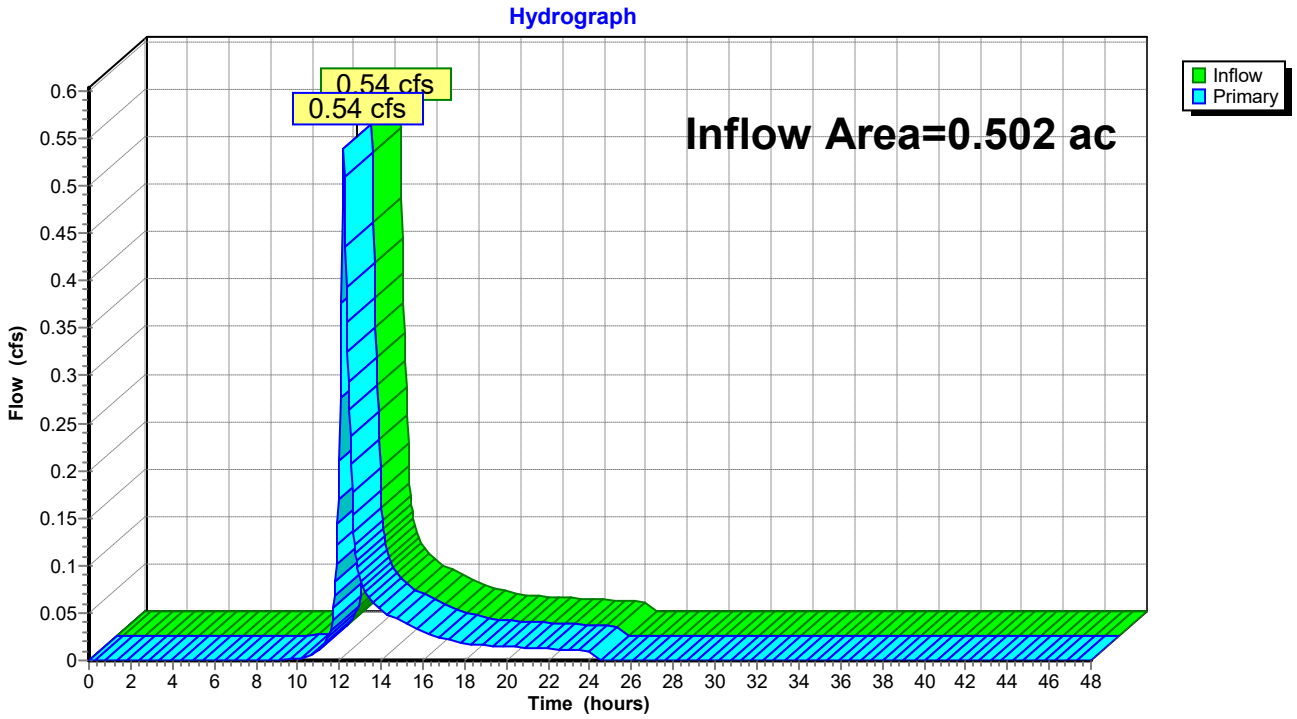


Summary for Link E WAP 1:

Inflow Area = 0.502 ac, 0.00% Impervious, Inflow Depth = 1.17" for 2-Year event
Inflow = 0.54 cfs @ 12.18 hrs, Volume= 0.049 af
Primary = 0.54 cfs @ 12.18 hrs, Volume= 0.049 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs

Link E WAP 1:

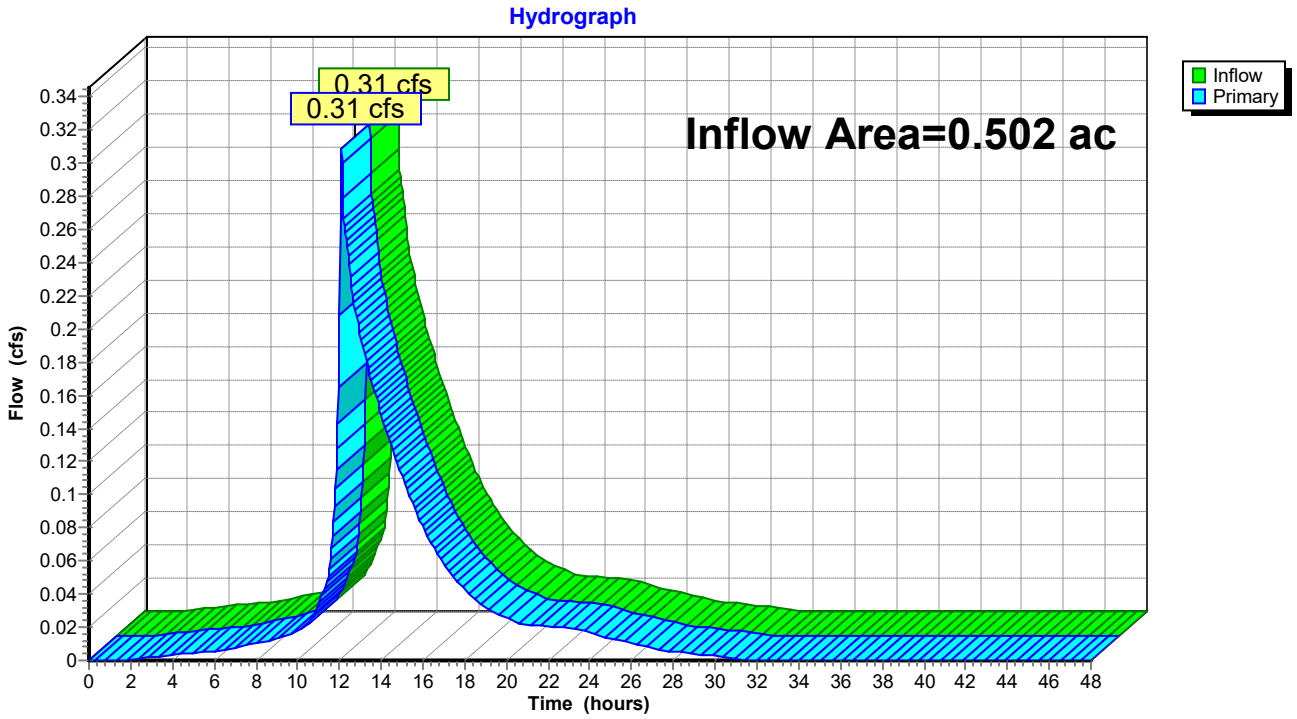


Summary for Link P WAP 1:

Inflow Area = 0.502 ac, 55.28% Impervious, Inflow Depth = 2.18" for 2-Year event
Inflow = 0.31 cfs @ 12.10 hrs, Volume= 0.091 af
Primary = 0.31 cfs @ 12.10 hrs, Volume= 0.091 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs

Link P WAP 1:



Time span=0.00-48.00 hrs, dt=0.04 hrs, 1201 points x 2
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment ES1: Runoff Area=21,862 sf 0.00% Impervious Runoff Depth=2.33"
Flow Length=160' Tc=12.2 min CN=WQ Runoff=1.11 cfs 0.097 af

Subcatchment PS1.1: Runoff Area=4,670 sf 1.54% Impervious Runoff Depth=2.56"
Tc=5.0 min CN=WQ Runoff=0.33 cfs 0.023 af

Subcatchment PS1.2: Runoff Area=17,192 sf 69.88% Impervious Runoff Depth=3.82"
Tc=5.0 min CN=WQ Runoff=1.63 cfs 0.126 af

Pond 25P: Detention Peak Elev=87.72' Storage=0.044 af Inflow=1.63 cfs 0.126 af
Primary=0.20 cfs 0.106 af Secondary=0.43 cfs 0.020 af Outflow=0.63 cfs 0.126 af

Link E WAP 1: Inflow=1.11 cfs 0.097 af
Primary=1.11 cfs 0.097 af

Link P WAP 1: Inflow=0.79 cfs 0.148 af
Primary=0.79 cfs 0.148 af

Total Runoff Area = 1.004 ac Runoff Volume = 0.246 af Average Runoff Depth = 2.94"
72.36% Pervious = 0.726 ac 27.64% Impervious = 0.277 ac

Summary for Subcatchment ES1:

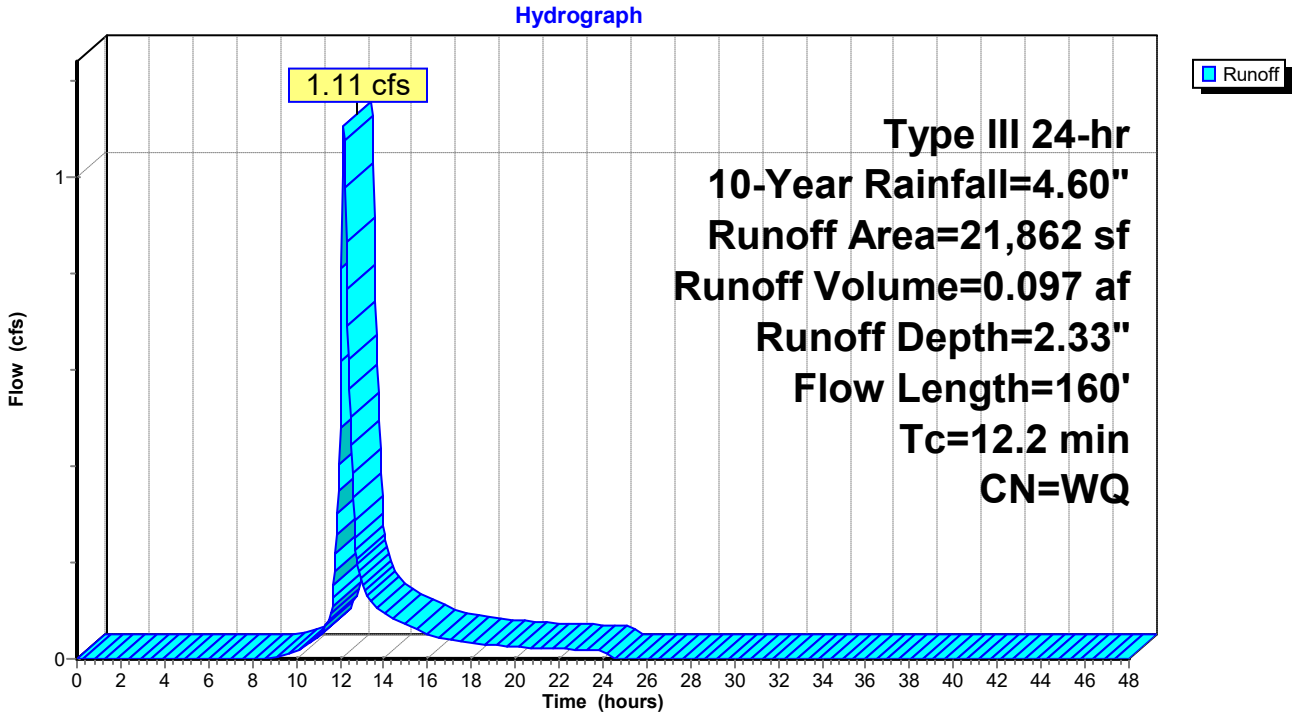
Runoff = 1.11 cfs @ 12.17 hrs, Volume= 0.097 af, Depth= 2.33"
Routed to Link E WAP 1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.60"

	Area (sf)	CN	Description
	21,461	77	Woods, Good, HSG D
*	401	96	Trail, HSG D
	21,862		Weighted Average
	21,862		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.2	100	0.1050	0.15		**Sheet Flow, 296.5-286** Woods: Light underbrush n= 0.400 P2= 3.10"
1.0	60	0.0420	1.02		**Shallow Concentrated Flow, 286-283.5** Woodland Kv= 5.0 fps
12.2	160	Total			

Subcatchment ES1:



Summary for Subcatchment PS1.1:

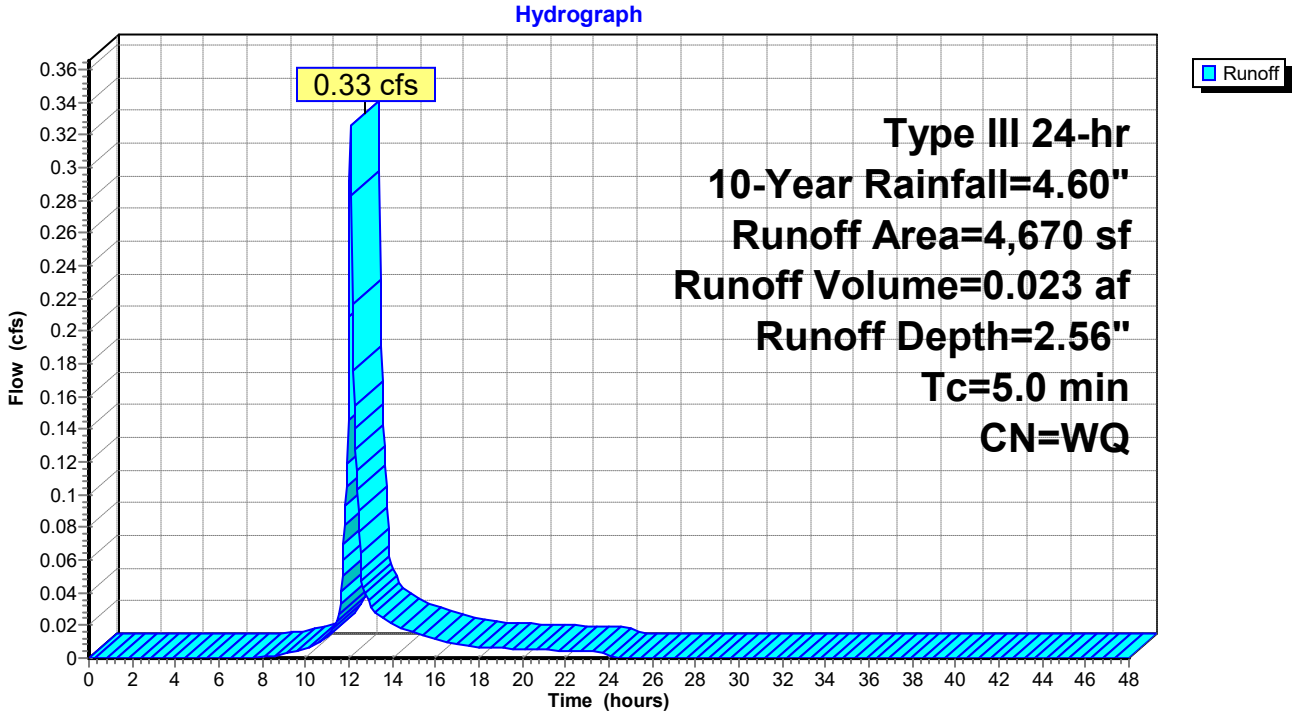
Runoff = 0.33 cfs @ 12.08 hrs, Volume= 0.023 af, Depth= 2.56"
Routed to Link P WAP 1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (sf)	CN	Description
1,464	77	Woods, Good, HSG D
2,946	80	>75% Grass cover, Good, HSG D
72	98	Paved parking, HSG D
188	96	Gravel surface, HSG D
4,670		Weighted Average
4,598		98.46% Pervious Area
72		1.54% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment PS1.1:



Summary for Subcatchment PS1.2:

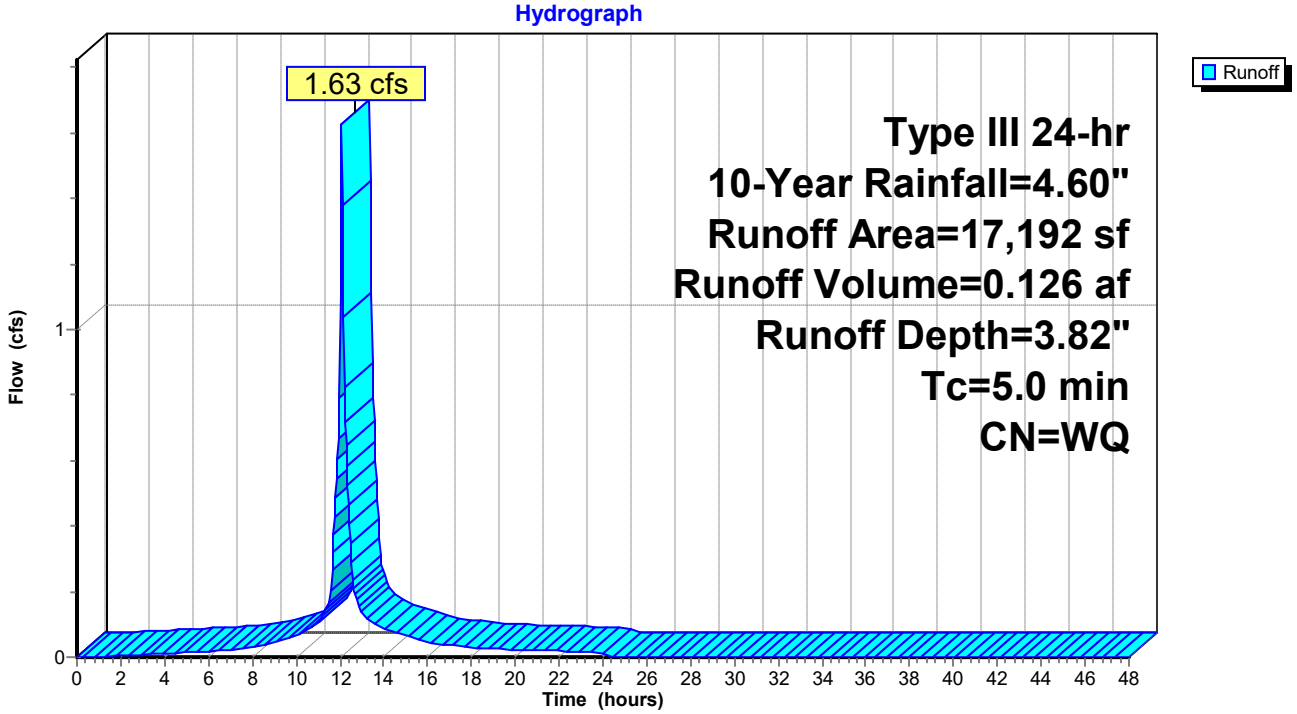
Runoff = 1.63 cfs @ 12.07 hrs, Volume= 0.126 af, Depth= 3.82"
Routed to Pond 25P : Detention

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (sf)	CN	Description
0	77	Woods, Good, HSG D
5,178	80	>75% Grass cover, Good, HSG D
6,178	98	Unconnected roofs, HSG D
5,836	98	Paved parking, HSG D
0	96	Gravel surface, HSG D
17,192		Weighted Average
5,178		30.12% Pervious Area
12,014		69.88% Impervious Area
6,178		51.42% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment PS1.2:



Summary for Pond 25P: Detention

Inflow Area = 0.395 ac, 69.88% Impervious, Inflow Depth = 3.82" for 10-Year event
Inflow = 1.63 cfs @ 12.07 hrs, Volume= 0.126 af
Outflow = 0.63 cfs @ 12.29 hrs, Volume= 0.126 af, Atten= 61%, Lag= 13.0 min
Primary = 0.20 cfs @ 12.08 hrs, Volume= 0.106 af
Routed to Link P WAP 1 :
Secondary = 0.43 cfs @ 12.29 hrs, Volume= 0.020 af
Routed to Link P WAP 1 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs / 2
Peak Elev= 87.72' @ 12.29 hrs Surf.Area= 0.038 ac Storage= 0.044 af

Plug-Flow detention time= 116.6 min calculated for 0.125 af (100% of inflow)
Center-of-Mass det. time= 117.0 min (880.7 - 763.8)

Volume	Invert	Avail.Storage	Storage Description
#1A	85.60'	0.000 af	**31.75'W x 52.50'L x 3.50'H Field A** 0.134 af Overall - 0.069 af Embedded = 0.065 af x 0.0% Voids
#2A	85.60'	0.069 af	**CMP Round 42** x 12 Inside #1 Effective Size= 42.0"W x 42.0"H => 9.62 sf x 20.00'L = 192.4 cf Overall Size= 42.0"W x 42.0"H x 20.00'L Row Length Adjustment= +7.00' x 9.62 sf x 6 rows 29.75' Header x 9.62 sf x 1 = 286.2 cf Inside
		0.069 af	Total Available Storage

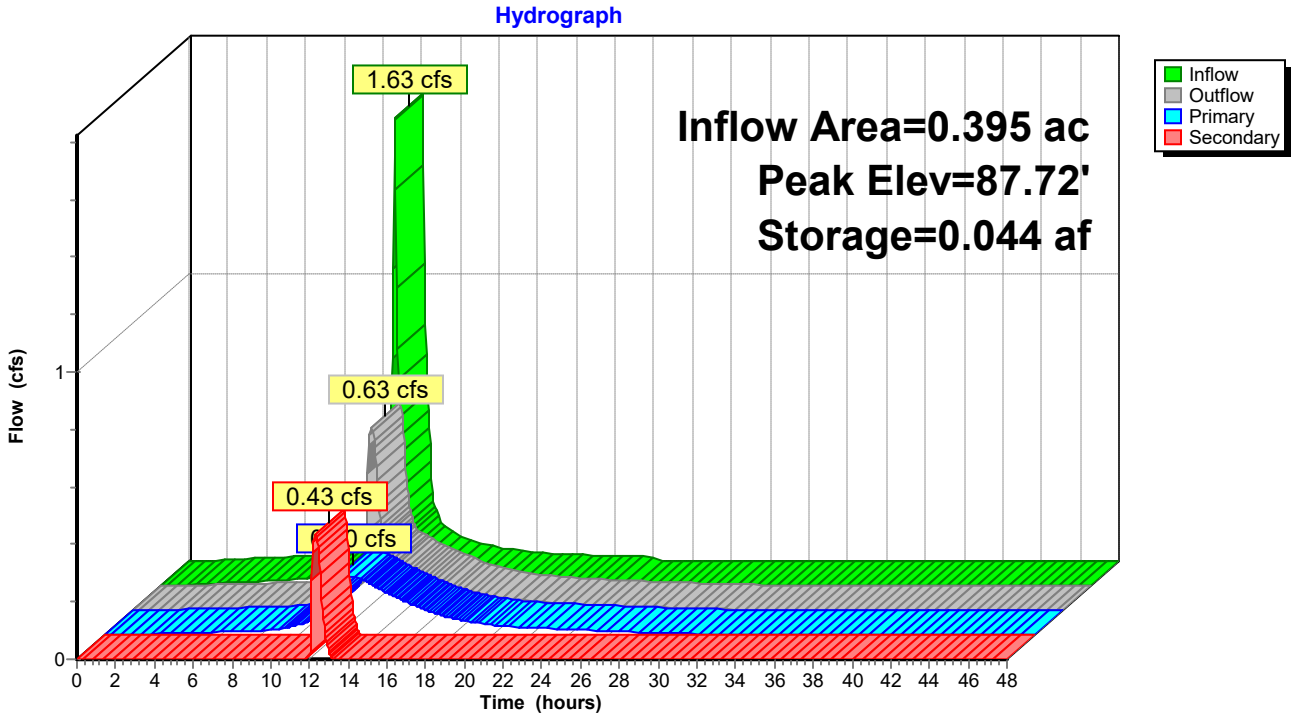
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Device 2	85.60'	**4.0" Round Culvert** L= 4.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 85.60' / 85.58' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.09 sf
#2	Primary	85.58'	**JF CSV File** Head (feet) 0.00 0.08 0.17 0.25 0.33 0.42 0.50 0.58 0.67 0.75 0.83 0.92 1.00 1.08 1.17 1.25 1.33 1.42 1.50 1.58 1.67 1.75 3.00 4.00 Disch. (cfs) 0.000 0.003 0.006 0.010 0.013 0.016 0.019 0.031 0.043 0.055 0.067 0.080 0.092 0.104 0.116 0.128 0.140 0.152 0.164 0.176 0.188 0.201 0.201 0.201
#3	Device 6	87.30'	**8.0" W x 3.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 6	88.00'	**8.0" W x 3.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#5	Device 6	88.90'	**4.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#6	Secondary	85.57'	**12.0" Round Culvert** L= 13.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 85.57' / 85.50' S= 0.0054 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.20 cfs @ 12.08 hrs HW=87.40' TW=0.00' (Dynamic Tailwater)
└─**2=JF CSV File** (Custom Controls 0.20 cfs)
└─**1=Culvert** (Passes 0.20 cfs of 0.42 cfs potential flow)

Secondary OutFlow Max=0.43 cfs @ 12.29 hrs HW=87.72' TW=0.00' (Dynamic Tailwater)
└─**6=Culvert** (Passes 0.43 cfs of 4.85 cfs potential flow)
├─**3=Orifice/Grate** (Orifice Controls 0.43 cfs @ 2.59 fps)
├─**4=Orifice/Grate** (Controls 0.00 cfs)
└─**5=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 25P: Detention

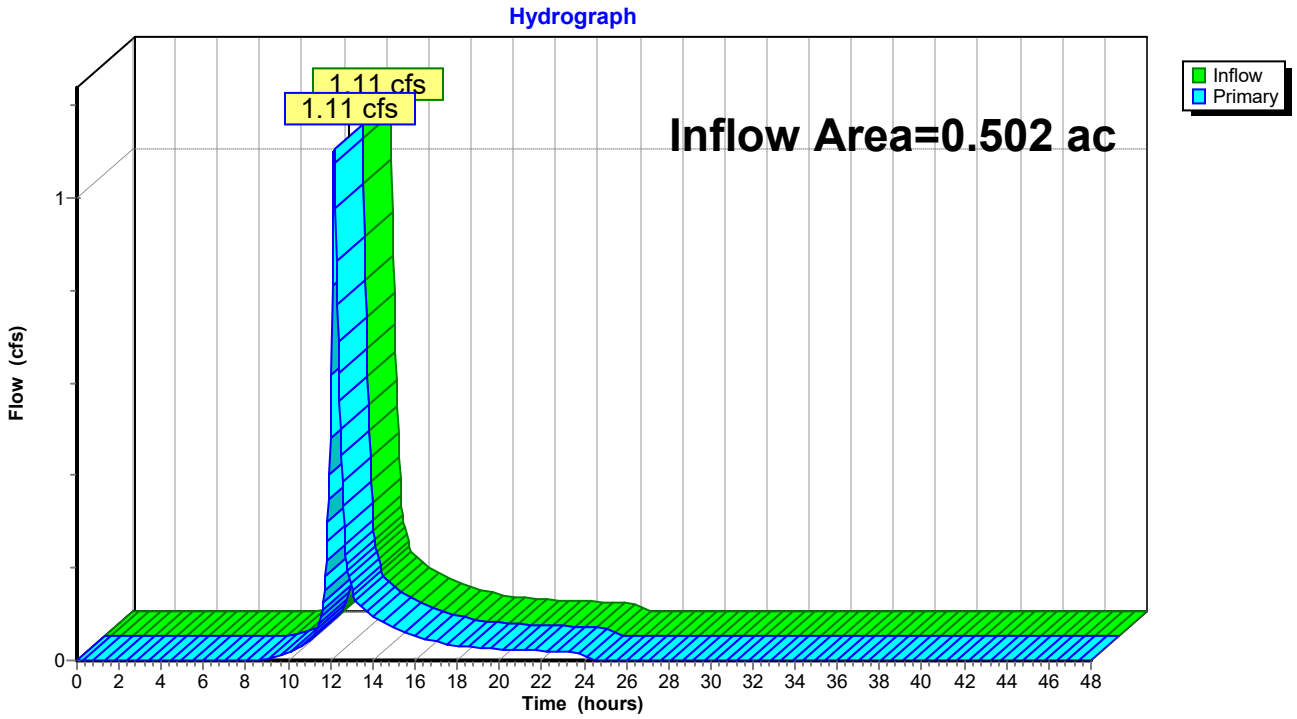


Summary for Link E WAP 1:

Inflow Area = 0.502 ac, 0.00% Impervious, Inflow Depth = 2.33" for 10-Year event
Inflow = 1.11 cfs @ 12.17 hrs, Volume= 0.097 af
Primary = 1.11 cfs @ 12.17 hrs, Volume= 0.097 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs

Link E WAP 1:

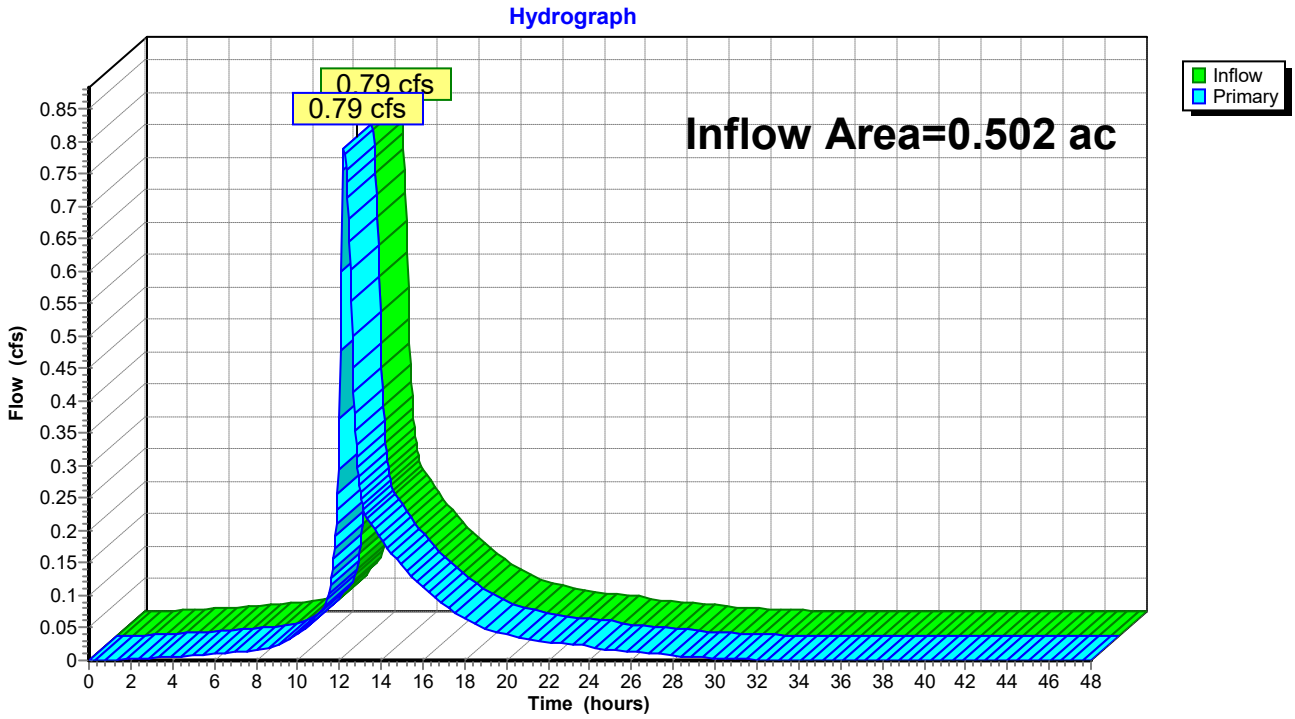


Summary for Link P WAP 1:

Inflow Area = 0.502 ac, 55.28% Impervious, Inflow Depth = 3.55" for 10-Year event
Inflow = 0.79 cfs @ 12.16 hrs, Volume= 0.148 af
Primary = 0.79 cfs @ 12.16 hrs, Volume= 0.148 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs

Link P WAP 1:



Time span=0.00-48.00 hrs, dt=0.04 hrs, 1201 points x 2
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment ES1: Runoff Area=21,862 sf 0.00% Impervious Runoff Depth=3.34"
Flow Length=160' Tc=12.2 min CN=WQ Runoff=1.60 cfs 0.140 af

Subcatchment PS1.1: Runoff Area=4,670 sf 1.54% Impervious Runoff Depth=3.61"
Tc=5.0 min CN=WQ Runoff=0.46 cfs 0.032 af

Subcatchment PS1.2: Runoff Area=17,192 sf 69.88% Impervious Runoff Depth=4.97"
Tc=5.0 min CN=WQ Runoff=2.11 cfs 0.164 af

Pond 25P: Detention Peak Elev=88.10' Storage=0.053 af Inflow=2.11 cfs 0.164 af
Primary=0.20 cfs 0.124 af Secondary=0.73 cfs 0.039 af Outflow=0.93 cfs 0.164 af

Link E WAP 1: Inflow=1.60 cfs 0.140 af
Primary=1.60 cfs 0.140 af

Link P WAP 1: Inflow=1.17 cfs 0.196 af
Primary=1.17 cfs 0.196 af

Total Runoff Area = 1.004 ac Runoff Volume = 0.336 af Average Runoff Depth = 4.01"
72.36% Pervious = 0.726 ac 27.64% Impervious = 0.277 ac

Summary for Subcatchment ES1:

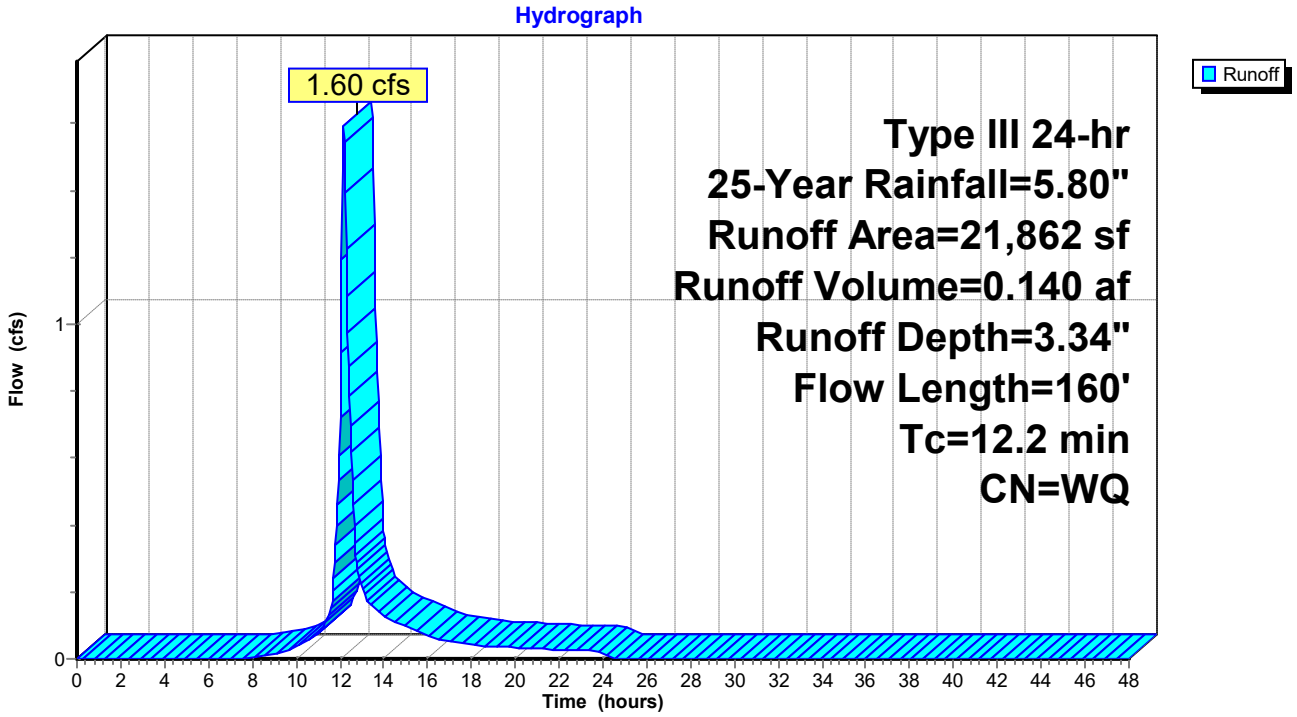
Runoff = 1.60 cfs @ 12.17 hrs, Volume= 0.140 af, Depth= 3.34"
Routed to Link E WAP 1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 25-Year Rainfall=5.80"

	Area (sf)	CN	Description
	21,461	77	Woods, Good, HSG D
*	401	96	Trail, HSG D
	21,862		Weighted Average
	21,862		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.2	100	0.1050	0.15		**Sheet Flow, 296.5-286** Woods: Light underbrush n= 0.400 P2= 3.10"
1.0	60	0.0420	1.02		**Shallow Concentrated Flow, 286-283.5** Woodland Kv= 5.0 fps
12.2	160	Total			

Subcatchment ES1:



Summary for Subcatchment PS1.1:

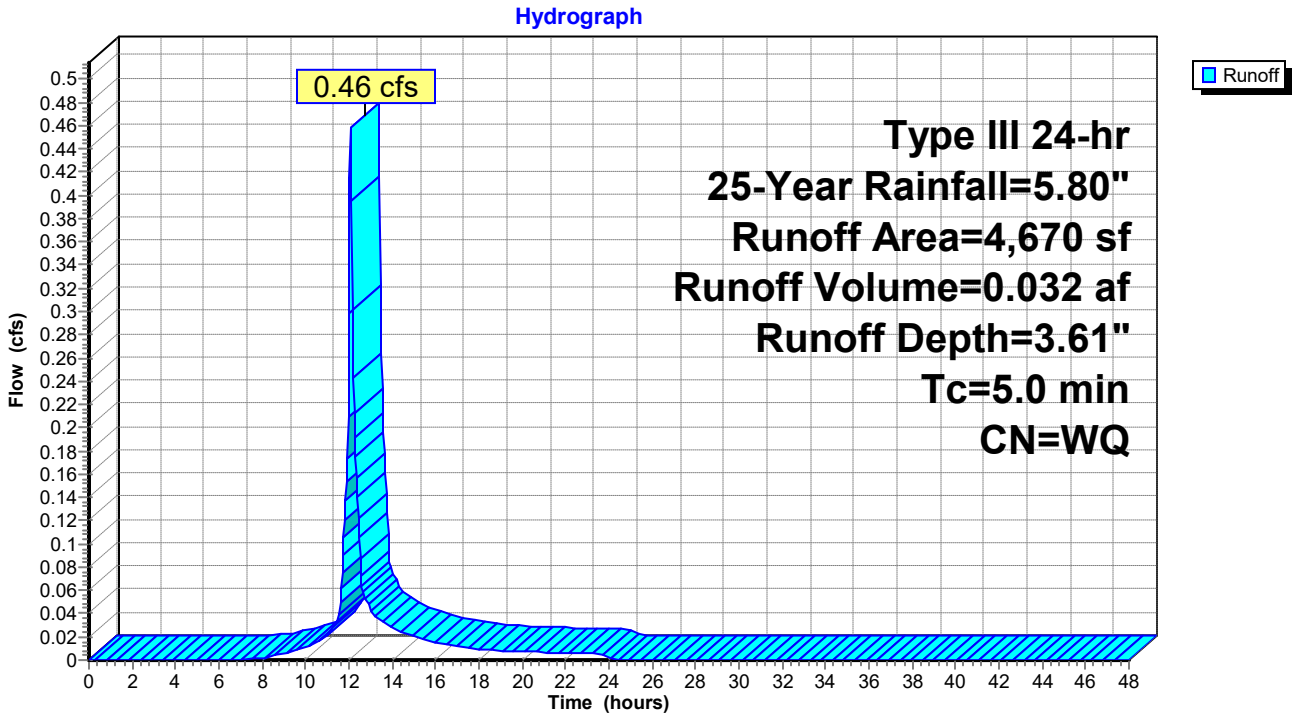
Runoff = 0.46 cfs @ 12.08 hrs, Volume= 0.032 af, Depth= 3.61"
Routed to Link P WAP 1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 25-Year Rainfall=5.80"

Area (sf)	CN	Description
1,464	77	Woods, Good, HSG D
2,946	80	>75% Grass cover, Good, HSG D
72	98	Paved parking, HSG D
188	96	Gravel surface, HSG D
4,670		Weighted Average
4,598		98.46% Pervious Area
72		1.54% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment PS1.1:



Summary for Subcatchment PS1.2:

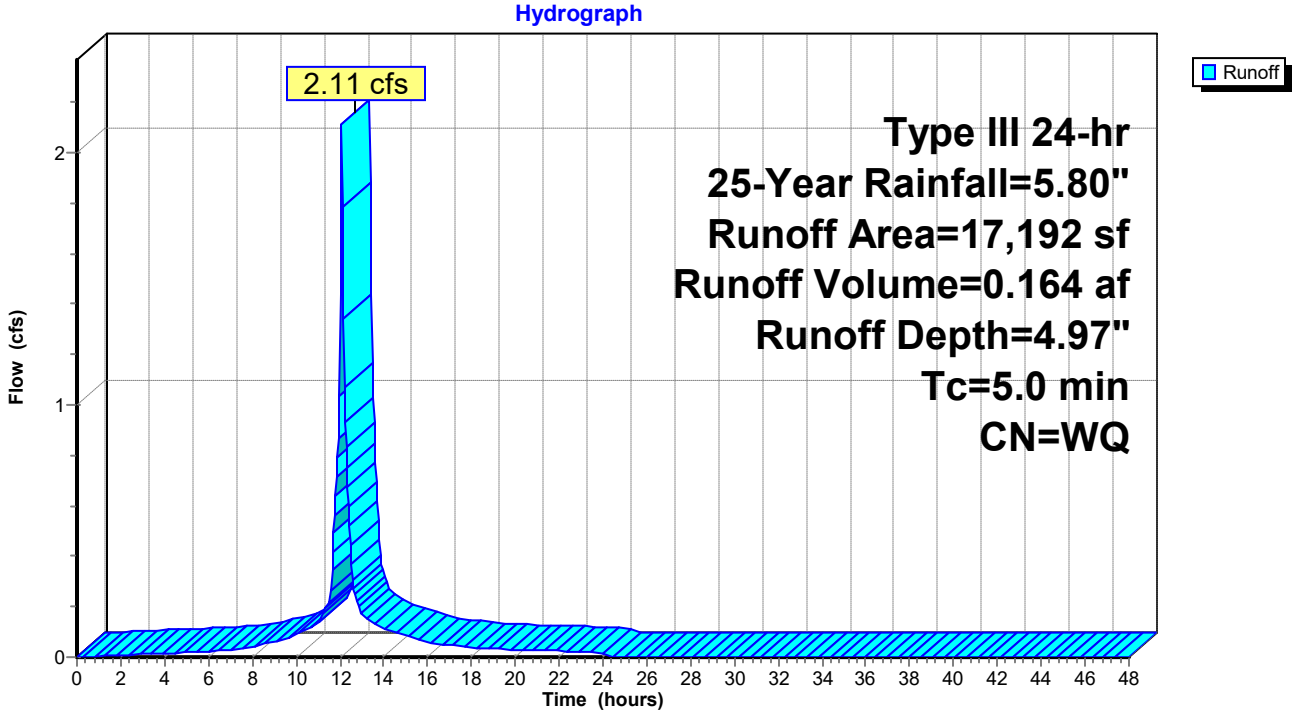
Runoff = 2.11 cfs @ 12.07 hrs, Volume= 0.164 af, Depth= 4.97"
Routed to Pond 25P : Detention

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 25-Year Rainfall=5.80"

Area (sf)	CN	Description
0	77	Woods, Good, HSG D
5,178	80	>75% Grass cover, Good, HSG D
6,178	98	Unconnected roofs, HSG D
5,836	98	Paved parking, HSG D
0	96	Gravel surface, HSG D
17,192		Weighted Average
5,178		30.12% Pervious Area
12,014		69.88% Impervious Area
6,178		51.42% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment PS1.2:



Summary for Pond 25P: Detention

Inflow Area = 0.395 ac, 69.88% Impervious, Inflow Depth = 4.97" for 25-Year event
Inflow = 2.11 cfs @ 12.07 hrs, Volume= 0.164 af
Outflow = 0.93 cfs @ 12.25 hrs, Volume= 0.164 af, Atten= 56%, Lag= 10.3 min
Primary = 0.20 cfs @ 12.00 hrs, Volume= 0.124 af
Routed to Link P WAP 1 :
Secondary = 0.73 cfs @ 12.25 hrs, Volume= 0.039 af
Routed to Link P WAP 1 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs / 2
Peak Elev= 88.10' @ 12.25 hrs Surf.Area= 0.038 ac Storage= 0.053 af

Plug-Flow detention time= 105.3 min calculated for 0.163 af (100% of inflow)
Center-of-Mass det. time= 105.7 min (865.6 - 760.0)

Volume	Invert	Avail.Storage	Storage Description
#1A	85.60'	0.000 af	**31.75'W x 52.50'L x 3.50'H Field A** 0.134 af Overall - 0.069 af Embedded = 0.065 af x 0.0% Voids
#2A	85.60'	0.069 af	**CMP Round 42** x 12 Inside #1 Effective Size= 42.0"W x 42.0"H => 9.62 sf x 20.00'L = 192.4 cf Overall Size= 42.0"W x 42.0"H x 20.00'L Row Length Adjustment= +7.00' x 9.62 sf x 6 rows 29.75' Header x 9.62 sf x 1 = 286.2 cf Inside
		0.069 af	Total Available Storage

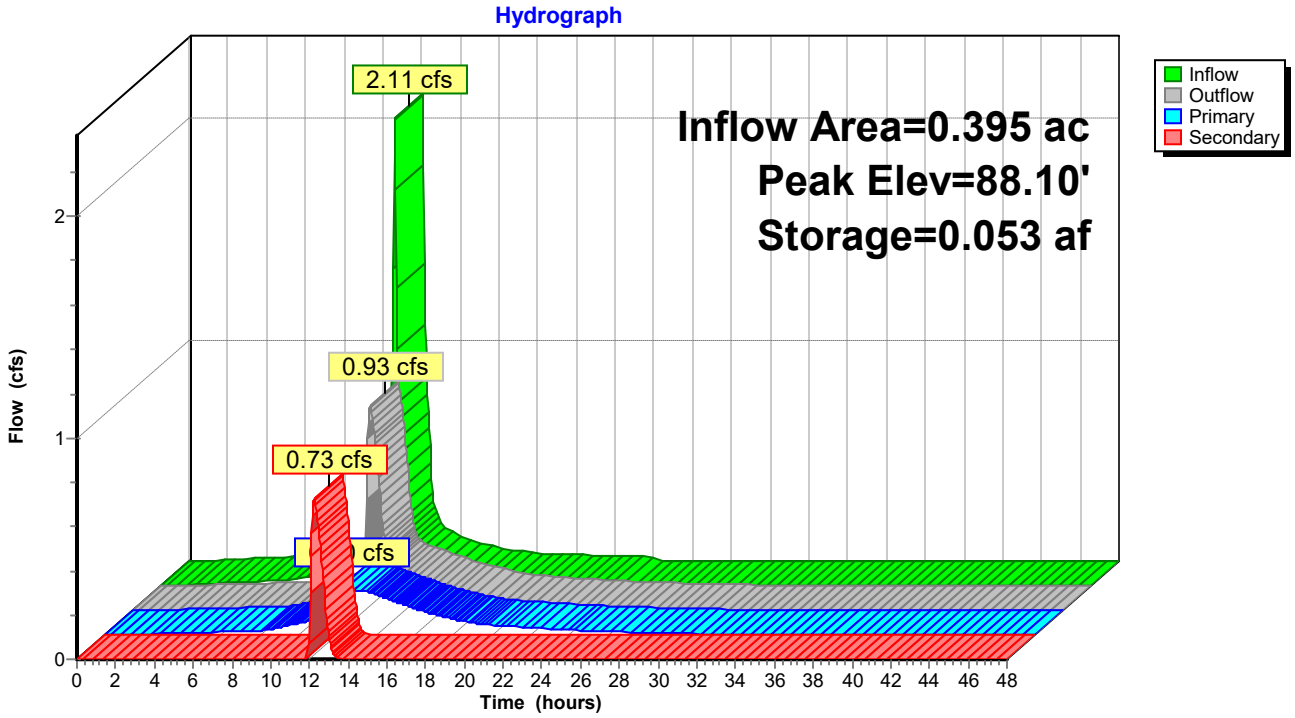
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Device 2	85.60'	**4.0" Round Culvert** L= 4.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 85.60' / 85.58' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.09 sf
#2	Primary	85.58'	**JF CSV File** Head (feet) 0.00 0.08 0.17 0.25 0.33 0.42 0.50 0.58 0.67 0.75 0.83 0.92 1.00 1.08 1.17 1.25 1.33 1.42 1.50 1.58 1.67 1.75 3.00 4.00 Disch. (cfs) 0.000 0.003 0.006 0.010 0.013 0.016 0.019 0.031 0.043 0.055 0.067 0.080 0.092 0.104 0.116 0.128 0.140 0.152 0.164 0.176 0.188 0.201 0.201 0.201
#3	Device 6	87.30'	**8.0" W x 3.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 6	88.00'	**8.0" W x 3.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#5	Device 6	88.90'	**4.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#6	Secondary	85.57'	**12.0" Round Culvert** L= 13.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 85.57' / 85.50' S= 0.0054 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.20 cfs @ 12.00 hrs HW=87.40' TW=0.00' (Dynamic Tailwater)
└─**2=JF CSV File** (Custom Controls 0.20 cfs)
└─**1=Culvert** (Passes 0.20 cfs of 0.42 cfs potential flow)

Secondary OutFlow Max=0.73 cfs @ 12.25 hrs HW=88.10' TW=0.00' (Dynamic Tailwater)
└─**6=Culvert** (Passes 0.73 cfs of 5.39 cfs potential flow)
├─**3=Orifice/Grate** (Orifice Controls 0.66 cfs @ 3.95 fps)
├─**4=Orifice/Grate** (Orifice Controls 0.07 cfs @ 1.01 fps)
└─**5=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 25P: Detention

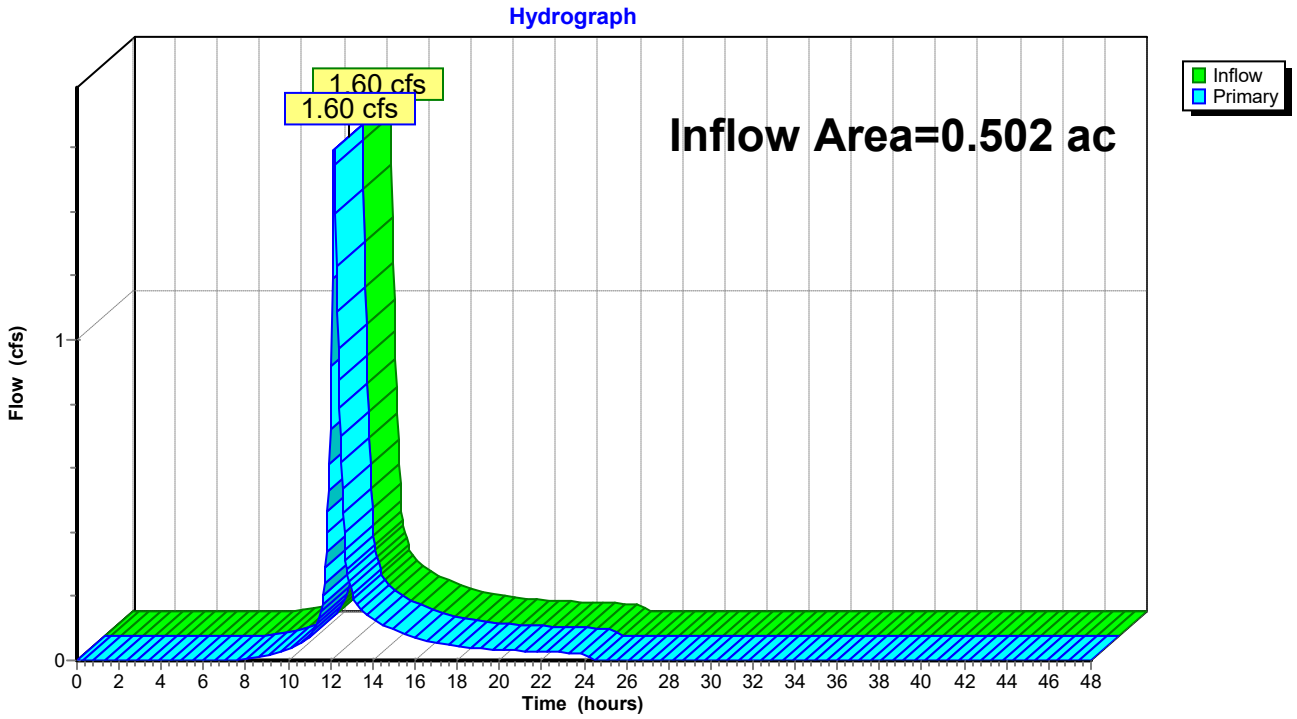


Summary for Link E WAP 1:

Inflow Area = 0.502 ac, 0.00% Impervious, Inflow Depth = 3.34" for 25-Year event
Inflow = 1.60 cfs @ 12.17 hrs, Volume= 0.140 af
Primary = 1.60 cfs @ 12.17 hrs, Volume= 0.140 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs

Link E WAP 1:

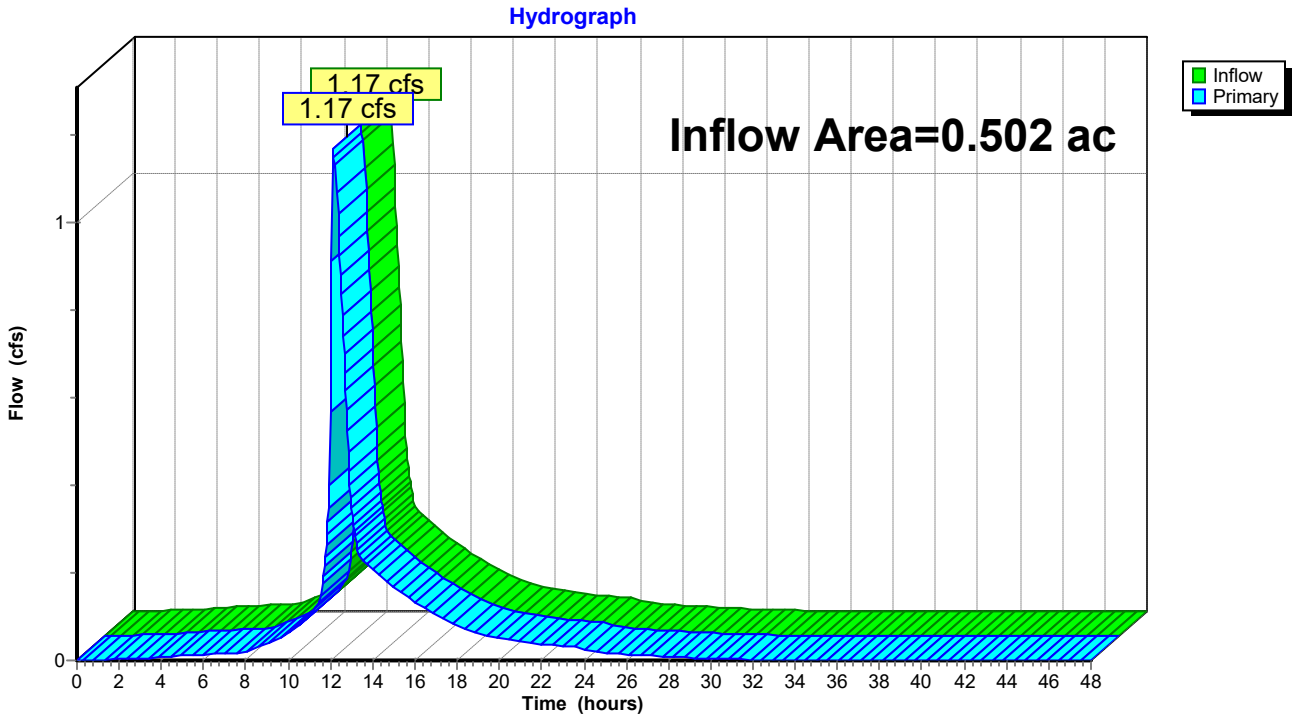


Summary for Link P WAP 1:

Inflow Area = 0.502 ac, 55.28% Impervious, Inflow Depth = 4.68" for 25-Year event
Inflow = 1.17 cfs @ 12.13 hrs, Volume= 0.196 af
Primary = 1.17 cfs @ 12.13 hrs, Volume= 0.196 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs

Link P WAP 1:



LEGEND

- PROPERTY BOUNDARY LINE
- ABUTTING BOUNDARY LINES
- 490 EXISTING MAJOR CONTOUR LINE
- EXISTING MINOR CONTOUR LINE
- EXISTING PAVED SURFACE
- SUBCATCH (1) SUBCATCHMENT NUMBER
- WATERSHED ANALYSIS POINT 1 — WATERSHED ANALYSIS POINT
- SUBCATCHMENT BOUNDARY
- DRAINAGE FLOW PATH
- SOILS BOUNDARY
- SOIL HSG — SOILS LABEL
- TYPICAL WETLAND BOUNDARY

SOILS LEGEND

HrB – LYMAN–TUNBRIDGE COMPLEX, 0 TO 8% SLOPES
HrC – LYMAN–TUNBRIDGE COMPLEX, 8 TO 15% SLOPES

NOTES

1. HYDROLOGIC SOIL GROUP BASED ON SOILS MAP DOWNLOADED FROM NATURAL RESOURCES CONSERVATION SERVICE AT HTTPS://WWW.NRCS.USDA.GOV.
2. THE STORMWATER MANAGEMENT PLAN PACKAGE, INCLUDING CALCULATIONS AND NARRATIVE, ARE AN INTEGRAL PART OF THE STORMWATER DRAINAGE STUDY.

WATERSHED ANALYSIS POINT A

PORTLAND
TAX MAP 407, LOT F21
NOW OR FORMERLY
ERIC WEST
BOOK 15106, PAGE 128

PORTLAND
TAX MAP 407, LOT E28
NOW OR FORMERLY
SAINT JOSEPH'S MANOR

SHALLOW 60"

SHEET 100'

HrC D

HrB D

SUBCATCH (1)

LOT A
0.50 ACRES

LOT B
0.37 ACRES

RAY STREET

MAIN-LAND DEVELOPMENT CONSULTANTS, INC.
69 MAIN ST. LIVERMORE FALLS, MAINE
367 US ROUTE 1 FALMOUTH, MAINE
182 MOOSEHEAD TRAIL, NEWPORT, MAINE
PH: (207) 897-6752 FAX: (207) 897-5404
WWW.MAIN-LANDDCI.COM

PROJECT

RAY STREET HOUSING

174 RAY STREET
PORTLAND, MAINE 04103

OWNER OF RECORD

ROBERT C. NELSON

5 SANDPIPER ROAD
FALMOUTH, MAINE 04105

MADE FOR

NELSON PROPERTY SERVICES

1035 OCEAN AVENUE
PORTLAND, MAINE 04103

DRAWING SCALE:

10 0 5 10
(IN FEET)
1 INCH = 10 FT

REVISION NOTES:

NO.	DATE	DESCRIPTION
1	2026-01-28	ADDED UNDERGROUND STORMWATER DETENTION
2	2026-06-09	UPDATE PLAN IN RESPONSE TO CITY REVIEW COMMENTS

PROJ. MGR: JLG
DRAWN BY: TDD
CHECKED BY: JLG
SUBMISSION NO. N/A
SURVEY DATE: 2024-08-08
SUBMISSION DATE: 2025-06-13

NOT FOR CONSTRUCTION

PRE–DEVELOPMENT DRAINAGE PLAN

SEAL:

STATE OF MAINE — JAMIE L. GARLAND — No. 15040 — LICENSED PROFESSIONAL ENGINEER

2026-06-09

JAMIE L. GARLAND ME PE#15040

DRAWING NO.

D1.1

MLDC NO. 24-285 1 OF 2

1PLN–DRAINAGE PLANS 24–285.dwg – PLOTTED ON 6/9/2026 2:16 PM BY NATHAN GOODRICH

LEGEND

- PROPERTY BOUNDARY LINE
- ABUTTING BOUNDARY LINES
- 490 EXISTING MAJOR CONTOUR LINE
- EXISTING MINOR CONTOUR LINE
- EXISTING PAVED SURFACE
- NEW GRAVEL SURFACE
- NEW GRAVEL SHOULDER
- NEW BUFFER
- SUBCATCH 1 SUBCATCHMENT NUMBER
- POND 1 POND NUMBER
- WATERSHED ANALYSIS POINT 1 WATERSHED ANALYSIS POINT
- NEW LEVEL SPREADER
- SUBCATCHMENT BOUNDARY
- DRAINAGE FLOW PATH
- SOILS BOUNDARY
- SOIL HSG SOILS LABEL
- STORMWATER POND
- TYPICAL WETLAND BOUNDARY
- RIP-RAP

SOILS LEGEND

HrB – LYMAN–TUNBRIDGE COMPLEX, 0 TO 8% SLOPES
HrC – LYMAN–TUNBRIDGE COMPLEX, 8 TO 15% SLOPES

NOTES

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WATERSHED ANALYSIS POINT A

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NOW OR FORMERLY
ERIC WEST
BOOK 15106, PAGE 128

PORTLAND
TAX MAP 407, LOT E28
NOW OR FORMERLY
SAINT JOSEPH'S MANOR

LOT A
0.50 ACRES

LOT B
0.37 ACRES

UNIT 8
FFE 94.6
720 GFA

UNIT 7
FFE 94.34
720 GFA

UNIT 6
FFE 94.2
720 GFA

UNIT 5
FFE 93.94
720 GFA

UNIT 4
FFE 92.5
720 GFA

UNIT 3
FFE 93.8
720 GFA

UNIT 2
FFE 94.0
720 GFA

UNIT 1
FFE 95.3
720 GFA

HrC D

HrB D

SUBCATCH 1.1

SUBCATCH 1.2

RAY STREET

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DEVELOPMENT
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MADE FOR

NELSON PROPERTY SERVICES

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PORTLAND, MAINE 04103

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(IN FEET)
1 INCH = 10 FT

REVISION NOTES:

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PROJ. MGR: JLG
DRAWN BY: TDD
CHECKED BY: JLG
SUBMISSION NO. N/A
SURVEY DATE: 2024-08-08
SUBMISSION DATE: 2025-06-13

NOT FOR CONSTRUCTION

POST–DEVELOPMENT DRAINAGE PLAN

SEAL:

STATE OF MAINE
JAMIE L. GARLAND
No. 15040
LICENSED PROFESSIONAL ENGINEER

2026-06-09

JAMIE L. GARLAND ME PE#15040

DRAWING NO.

D2.1

MLDC NO. 24-285 2 OF 2

1PLN–DRAINAGE PLANS 24–285.dwg – PLOTTED ON 6/9/2026 2:17 PM BY NATHAN GOODRICH

SOLID WASTE
NARRATIVE

Ray Street Housing
174 Ray Street, Portland, Maine

Prepared by:

MAIN-LAND DEVELOPMENT CONSULTANTS, INC.
P.O. Box Q, Livermore Falls, Maine

June 13, 2025

This project is anticipated to generate stumps and grubbings and construction debris during construction. Debris from construction is primarily cardboard and wooden crates. It will be collected and stored on-site in dumpsters which will hauled off-site by a private waste hauler. All harvested trees will be sold to a registered logger. Any stumps and grubbings debris will be composted on-site

Once the units have been built, tenants will have option of utilizing private dumpsters on site or utilize City of Portland solid waste program. The on-site private dumpsters will be located on the north portion of the site and will be hauled off by a private waste hauler

16 Purington Way (PL-003302-2025)

Neighborhood Meeting Questions/Comments

- Site Access, the neighbor across the street, 407 A006001 wanted to confirm the driveway location would not be directly in front of his entrance.
- Property Owners at the end of Dakota Street asked questions about clearing and buffering, recognizing that there is an additional parcel separating the properties.
- Multiple questions about the pricing of units, along with the design of the units.
- Questions about potential traffic increases.
- Neighbors asked about the trail system and future access to Ray Street.
- Neighbors asked about the potential of blasting.
- Neighbors asked about the timing of construction.

RAY STREET NEIGHBORHOOD MEETING

PL-003302-2025 16 Purington Way

May 14th, 2025, 6:00 PM – 7:00 PM

Presumpscot School Gym – Portland Maine

Name	Email
Jamie Garland (Main-Land)	Jamie.garland@main-landdci.com
Susan Durney	Susan.Durney@Yahoo.com
Becca Ferguson Cartrgoodall	Cartrgoodall@yahoo.com
Brett Loffredo	loffrb@umc.org
Tim Mangan	timothy.m.mangan@gmail.com
Anne Boehm	Sage04103@gmail.com
Judy Murphy	Judimu@gmail.com
Sarah Grondin	Sgrondin2014@gmail.com
★ Pelsue STAR PELSUE	stpelsue@gmail.com
Chris + Kate Guare	kate.guare@gmail.com
Reb Brann	rebbrann@gmail.com
Nick Betz	jnbetz@hotmail.com
Melanie Moran	melanie.a.moran@gmail.com

1

WINTER MAINTENANCE SERVICES AGREEMENT

16 Purington Way – Portland, Maine

THIS AGREEMENT (the "Agreement") is made and entered into as of this ____ day of _____***, 20*** (the "Effective Date"), by and between:

The Owner:

_____
("Owner")
with a mailing address of:

---

and

The Contractor:

_____
("Contractor")
with a principal place of business at:

---

for the provision of winter maintenance services at the property located at **16 Purington Way, Portland, Maine 04101** (the "Premises").

RECITALS

WHEREAS, Owner is the owner or authorized agent of the Premises located in the City of Portland, Maine; and

WHEREAS, Owner desires to engage Contractor to provide winter maintenance services for the Premises during the winter season; and

WHEREAS, the City of Portland encourages the use of Smart Salt Practices to minimize chloride pollution entering Casco Bay and local waterways, and Owner is committed to environmentally responsible property management.

NOW, THEREFORE, in consideration of the mutual covenants contained herein, the parties agree as follows:

1. SCOPE OF SERVICES

1.1 Engagement. Contractor agrees to provide winter maintenance services at the Premises, including snow plowing, snow removal, shoveling, and deicing (anti-icing and deicing) of:

- Driveways and vehicle access areas;
- Parking areas;
- Pedestrian walkways;
- Entry steps, landings, and ramps;
- Designated fire lanes and emergency access routes.

The specific service areas are identified in Exhibit A attached hereto (the "Work").

1.2 Term. The services shall be provided for the winter season commencing _____***, 20*** and ending _____***, 20*** (the "Term"). This Agreement may be renewed for subsequent seasons upon mutual written consent of both parties.

1.3 Response Standard. Contractor shall monitor weather forecasts daily. For accumulations of two (2) inches or more of snow, Contractor shall commence plowing operations when accumulation reaches two (2) inches or as otherwise necessary to maintain safe conditions. Walkways and entryways shall be cleared and treated within 24 hours following the end of a storm event.

2. CHLORIDE USE LIMITATION AND SMART SALT PRACTICES

(Portland, Maine Requirements)

2.1 Environmental Commitment. Owner and Contractor acknowledge that the Premises is located in the City of Portland, where chlorides (salt) from deicing materials contribute to pollution in Casco Bay, the Fore River, and local groundwater. The parties agree to implement Smart Salt Practices certified by the Maine DEP and the Casco Bay

Estuary Partnership to the maximum extent practicable while maintaining public safety and compliance with Portland's Winter Maintenance Ordinance.

2.2 Pre-Treatment and Mechanical Removal. Contractor shall adhere to the following application standards:

- **Shovel First Priority:** Mechanical snow removal (plowing and shoveling) shall be completed before any deicing materials are applied. Deicing materials shall be used only after snow and ice have been mechanically removed to the greatest extent possible.
- **Bare Pavement Restriction:** Deicing materials shall not be applied to bare pavement. Application is permitted only when and where an icy condition exists or is forecast to develop.
- **Targeted Application:** Application shall be limited to areas necessary for pedestrian and vehicle safety. Broadcast spreading across large, unused areas is prohibited.
- **Measured Application Rate:** Contractor shall not apply more than 12-ouncesof salt per 250 square feet (approximately ten (10) sidewalk squares or a 20-foot driveway). Under no circumstances shall application rates exceed the manufacturer's recommended maximum application rate.
- **Even Distribution:** Materials shall be spread evenly. Clumping, piling, or concentrated dumping of salt is strictly prohibited.

2.3 Temperature and Material Selection. Contractor acknowledges that traditional sodium chloride (rock salt) is ineffective below approximately 15 degrees Fahrenheit (-9 degrees Celsius). Contractor agrees to the following:

- When pavement temperatures fall below 15°F, Contractor shall either:
    - (a) Switch to sand for traction only (with cleanup to occur in spring); or
    - (b) Use an alternative deicer (such as calcium chloride, magnesium chloride, or treated salt) specifically formulated for lower temperatures, applied at the manufacturer's minimum effective rate.
- Contractor shall maintain records of pavement temperatures at the time of each application.

2.4 Prohibited Practices. The following practices are strictly prohibited under this Agreement:

- The use of deicing materials as a substitute for mechanical snow removal;
- The application of deicing materials to bare pavement;

- The use of straight sodium chloride (untreated rock salt) in areas immediately adjacent to storm drains, catch basins, or waterways;
- The storage of deicing materials in a manner that risks contamination of soil, groundwater, or paved surfaces.

3. STORAGE AND HANDLING OF MATERIALS ON PREMISES

3.1 Storage Requirements. If Contractor stores any deicing materials on the Premises, the following conditions must be satisfied:

- Materials must be stored indoors; or
- If stored outdoors, materials must be:
    - Placed on an impermeable surface (e.g., concrete or asphalt pad);
    - Covered at all times with a waterproof, impermeable, weighted, and secured cover (such as a reinforced tarp or hard cover) to prevent contact with precipitation, meltwater, or runoff;
    - Located away from storm drains, drainage swales, and vegetated areas;
    - Bermed or otherwise contained to prevent escape of materials.
- Liquid deicing materials (brine) must be stored in a dual-walled tank or within a secondary containment system capable of holding 110% of the tank's volume.

3.2 Spill Response. Contractor shall immediately contain and clean up any spilled deicing materials and shall notify Owner within twenty-four (24) hours of any spill exceeding fifty (50) pounds or five (5) gallons. Contractor shall be responsible for all costs associated with spill cleanup and any fines imposed by the City of Portland or Maine DEP resulting from Contractor's negligence.

4. SERVICE STANDARDS AND RECORDKEEPING

4.1 Mobilization. Contractor shall monitor National Weather Service forecasts for Portland, Maine, and shall mobilize to perform Winter Maintenance Services as necessary to maintain safe conditions.

4.2 Priority of Work. Contractor shall prioritize services in the following order:

1. Emergency pedestrian access (entryways, steps, ramps, and handicap accessible routes);
2. Walkways and primary building access routes;
3. Parking areas and drive lanes;

4. Overflow and secondary parking areas.

4.3 Mandatory Recordkeeping. Contractor shall maintain and provide to Owner upon request, and to the City of Portland upon Owner's request, a detailed log (the "Winter Maintenance Log") containing:

- Date and time of each service visit;
- Type and estimated quantity (in pounds or gallons) of deicing material applied per application, by area;
- Air and pavement temperature at time of application;
- Method of application (spreader, hand, pre-wetted, etc.);
- Any visible damage to pavement, landscaping, or structures;
- Any complaints received regarding icy conditions or service quality.

5. INDEMNIFICATION AND LIABILITY

5.1 Contractor Indemnification. Contractor agrees to indemnify, defend, and hold harmless Owner, its agents, employees, and successors from and against any and all claims, damages, losses, liabilities, fines, penalties, and expenses (including reasonable attorneys' fees and costs) arising out of or related to:

- (a) Any negligent act or omission of Contractor in performing the Work;
- (b) Any violation of this Agreement by Contractor, including excessive, improper, or prohibited application or storage of deicing materials;
- (c) Any damage to landscaping, irrigation systems, structures, pavement, or infrastructure caused by Contractor's equipment, vehicles, or materials;
- (d) Any fines or penalties imposed by the City of Portland or the Maine Department of Environmental Protection resulting from Contractor's non-compliance with applicable laws or this Agreement.

5.2 Owner Indemnification. Owner agrees to indemnify, defend, and hold harmless Contractor from and against any claims arising from the condition of the Premises (including hidden obstacles, unmarked hazards, uneven pavement, or defective conditions) of which Contractor was not made aware in writing, provided such claims are not caused by Contractor's negligence.

5.3 Property Damage. Contractor shall be responsible for the cost of repair of any damage to the Premises caused by Contractor's equipment, including but not limited to damage to curbing, pavement, landscaping, signage, lighting, and building surfaces.

6. COMPENSATION

6.1 Fees. Owner shall pay Contractor for services rendered as follows (select one or more):

- **Per Visit (Plowing/Deicing):** $_____ per occurrence (defined as any mobilization for a storm event).
- **Per Push:** $_____ per push for multi-push events exceeding four (4) inches of accumulation.
- **Seasonal Flat Rate:** $_____ for the entire Term.
- **Hourly Rate:** $_____ per hour for equipment with operator; $_____ per hour for labor only.
- **Material Charges:** Deicing materials (salt, sand, alternatives) shall be billed at actual cost plus [___]% handling fee, supported by receipts or material logs.

6.2 Payment Terms. Invoices shall be submitted monthly and are due within thirty (30) days of receipt. Late payments shall accrue interest at the rate of 1.5% per month (18% per annum).

7. INSURANCE REQUIREMENTS

7.1 Contractor's Insurance. Contractor shall maintain, at its sole expense, the following minimum insurance coverage:

- **Commercial General Liability:** $1,000,000 per occurrence / $2,000,000 general aggregate.
- **Automobile Liability:** $1,000,000 combined single limit.
- **Workers' Compensation:** As required by Maine law.
- **Pollution Liability (recommended):** Coverage for damages arising from the release of deicing materials, if available.

7.2 Additional Insured. Contractor shall name Owner as an additional insured on all general liability policies. A certificate of insurance evidencing such coverage shall be provided to Owner prior to the commencement of any Work and annually thereafter.

8. GENERAL PROVISIONS

8.1 Independent Contractor. Contractor is an independent contractor and not an employee, agent, partner, or joint venturer of Owner. Contractor shall be solely

responsible for the payment of all taxes, benefits, and insurance for itself and its employees.

8.2 Entire Agreement. This Agreement, together with all exhibits attached hereto, constitutes the entire understanding between the parties and supersedes all prior discussions, agreements, or understandings, whether written or oral.

8.3 Modification. This Agreement may not be modified, amended, or extended except by a written instrument signed by both parties.

8.4 Severability. If any provision of this Agreement is held to be invalid or unenforceable, the remaining provisions shall continue in full force and effect.

8.5 Governing Law. This Agreement shall be governed by and construed in accordance with the laws of the State of Maine. Any legal action arising out of this Agreement shall be brought in the courts of Cumberland County, Maine.

8.6 Notice. All notices required under this Agreement shall be in writing and delivered personally, sent by certified mail (return receipt requested), or sent by email with confirmed receipt to the addresses set forth above.

IN WITNESS WHEREOF, the parties have executed this Agreement as of the date first written above.

OWNER:

By: _____
Name: _____
Title: _____
Date: _____

CONTRACTOR:

By: _____
Name: _____
Title: _____

Date: _____
Maine Contractor License # (if applicable): _____

EXHIBIT A

Description of Premises and Service Areas
16 Purington Way, Portland, Maine

1. Site Description:

- Address: 16 Purington Way, Portland, ME 04101
- Parcel ID / Tax Map: _____
- Approximate Total Square Footage: _____

2. Areas to be Serviced (check all that apply):

Area Description	Approx. SQ FT	Special Instructions
Driveway / Vehicle Access		
Parking Area – Designated Stalls (#___ stalls)		
Parking Area – Access Lanes		
Front Walkway		
Side/Rear Walkway		
Entry Steps (Front)		
Entry Steps (Rear/Side)		
Handicap Access Ramp		
Trash/Recycling Enclosure Access		

Area Description	Approx. SQ FT	Special Instructions
Fire Lane / Emergency Access		

3. Special Instructions:

---

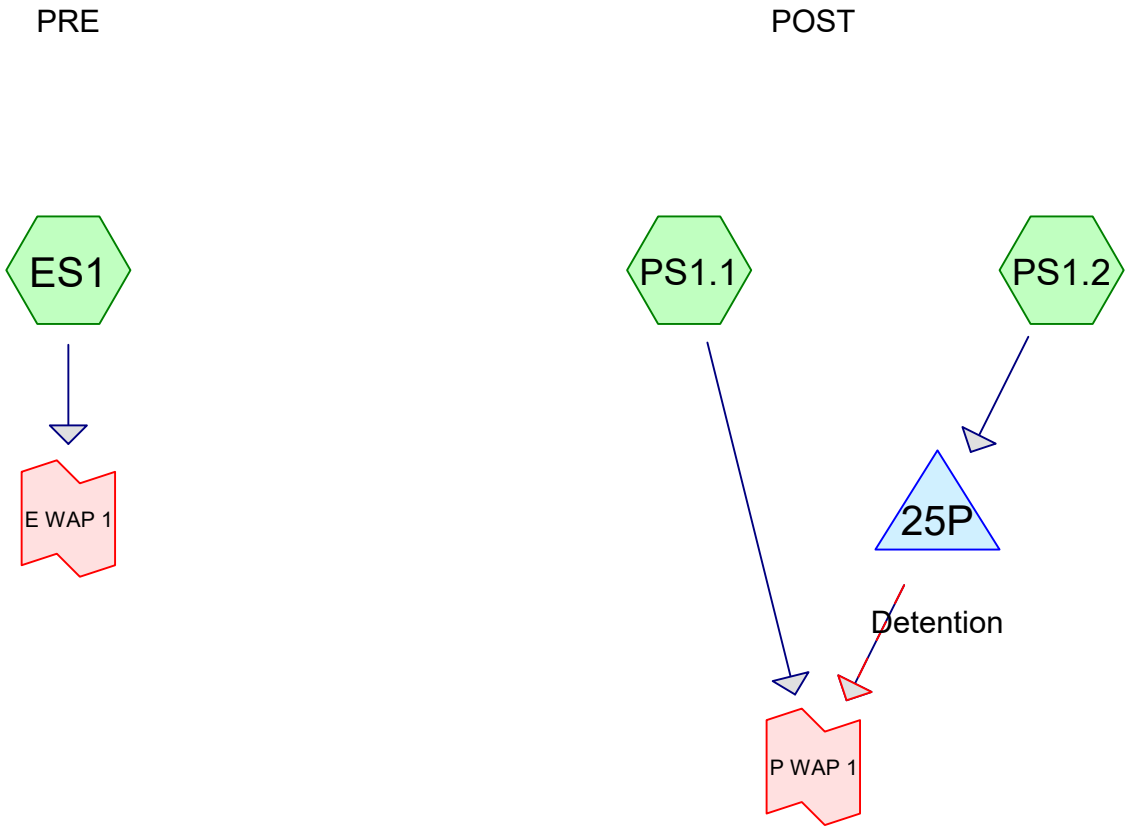
4. Site Plan Attached: ☐ Yes ☐ No

EXHIBIT B

Winter Maintenance Log Template
16 Purington Way, Portland, Maine

Date	Time In/ Out	Weather Conditions	Air Temp (°F)	Pavement Temp (°F)	Service Performed (Plow/Shovel/Salt/Sand)	Material Type	Quantity Applied (lbs/gal)	Areas Treated	Contractor Initials

Ray Street Housing



Subcat Reach Pond Link

Routing Diagram for Pre-Post Dev - 24-285
Prepared by Main-Land Development Consultant, Printed 1/28/2026
HydroCAD® 10.20-8a s/n 01625 © 2025 HydroCAD Software Solutions LLC

Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	25-Year	Type III 24-hr		Default	24.00	1	5.80	2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.187	80	>75% Grass cover, Good, HSG D (PS1.1, PS1.2)
0.004	96	Gravel surface, HSG D (PS1.1)
0.136	98	Paved parking, HSG D (PS1.1, PS1.2)
0.009	96	Trail, HSG D (ES1)
0.142	98	Unconnected roofs, HSG D (PS1.2)
0.526	77	Woods, Good, HSG D (ES1, PS1.1)
1.004	**84**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
0.000	HSG C	
1.004	HSG D	ES1, PS1.1, PS1.2
0.000	Other	
1.004		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.000	0.187	0.000	0.187	>75% Grass cover, Good	PS1.1, PS1.2
0.000	0.000	0.000	0.004	0.000	0.004	Gravel surface	PS1.1
0.000	0.000	0.000	0.136	0.000	0.136	Paved parking	PS1.1, PS1.2
0.000	0.000	0.000	0.009	0.000	0.009	Trail	ES1
0.000	0.000	0.000	0.142	0.000	0.142	Unconnected roofs	PS1.2
0.000	0.000	0.000	0.526	0.000	0.526	Woods, Good	ES1, PS1.1
0.000	**0.000**	**0.000**	**1.004**	**0.000**	**1.004**	**TOTAL AREA**	

Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Width (inches)	Diam/Height (inches)	Inside-Fill (inches)	Node Name
1	25P	283.60	283.58	4.0	0.0050	0.012	0.0	4.0	0.0	
2	25P	283.57	283.50	13.0	0.0054	0.012	0.0	12.0	0.0	

Time span=0.00-48.00 hrs, dt=0.04 hrs, 1201 points x 2
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Pond 25P: Detention Peak Elev=286.44' Storage=0.060 af Inflow=2.11 cfs 0.163 af
Primary=0.00 cfs 0.000 af Secondary=1.26 cfs 0.130 af Outflow=1.26 cfs 0.130 af

Summary for Pond 25P: Detention

Inflow Area = 0.394 ac, 69.98% Impervious, Inflow Depth = 4.97" for 25-Year event
Inflow = 2.11 cfs @ 12.07 hrs, Volume= 0.163 af
Outflow = 1.26 cfs @ 12.18 hrs, Volume= 0.130 af, Atten= 40%, Lag= 6.1 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link P WAP 1 :
Secondary = 1.26 cfs @ 12.18 hrs, Volume= 0.130 af
Routed to Link P WAP 1 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs / 2
Peak Elev= 286.44' @ 12.18 hrs Surf.Area= 0.038 ac Storage= 0.060 af

Plug-Flow detention time= 163.1 min calculated for 0.130 af (80% of inflow)
Center-of-Mass det. time= 84.4 min (844.4 - 759.9)

Volume	Invert	Avail.Storage	Storage Description
#1A	283.60'	0.000 af	**31.75'W x 52.50'L x 3.50'H Field A** 0.134 af Overall - 0.069 af Embedded = 0.065 af x 0.0% Voids
#2A	283.60'	0.069 af	**CMP Round 42** x 12 Inside #1 Effective Size= 42.0"W x 42.0"H => 9.62 sf x 20.00'L = 192.4 cf Overall Size= 42.0"W x 42.0"H x 20.00'L Row Length Adjustment= +7.00' x 9.62 sf x 6 rows 29.75' Header x 9.62 sf x 1 = 286.2 cf Inside
		0.069 af	Total Available Storage

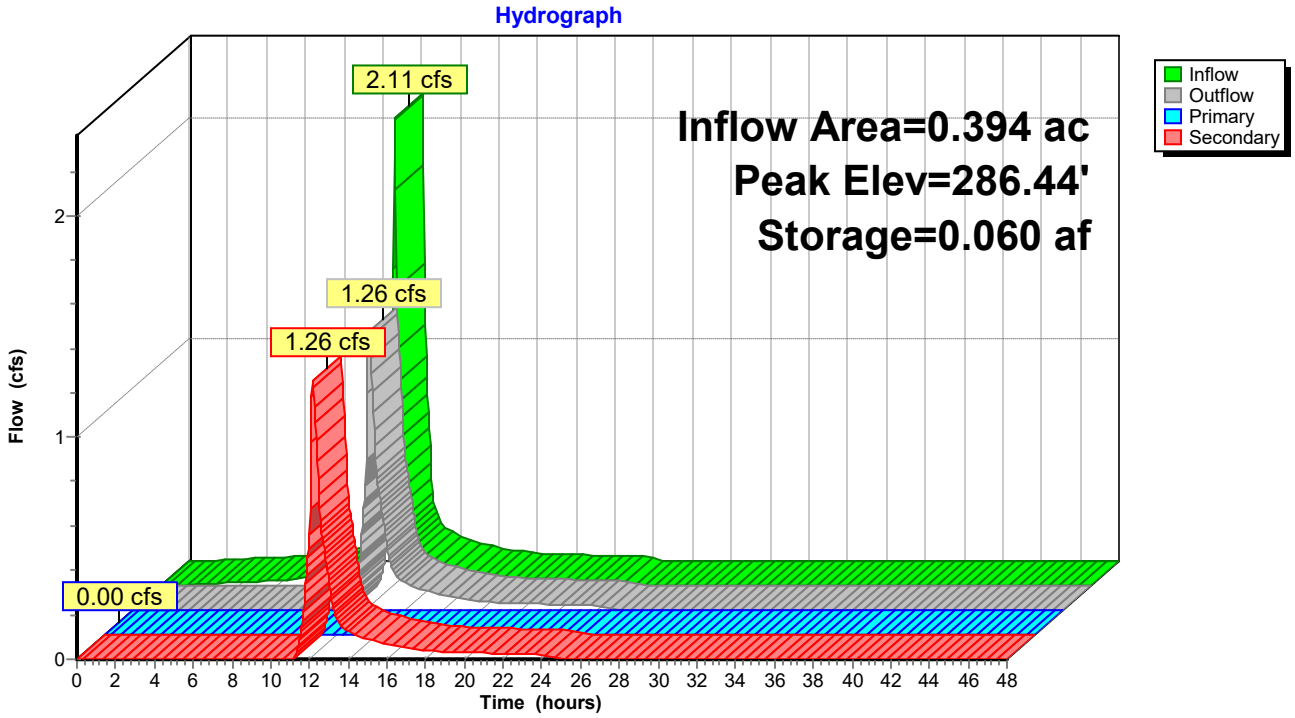
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Device 2	283.60'	**4.0" Round Culvert** L= 4.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 283.60' / 283.58' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.09 sf
#2	Primary	283.58'	**JF CSV File X 0.00** Head (feet) 0.00 0.08 0.17 0.25 0.33 0.42 0.50 0.58 0.67 0.75 0.83 0.92 1.00 1.08 1.17 1.25 1.33 1.42 1.50 1.58 1.67 1.75 3.00 4.00 Disch. (cfs) 0.000 0.003 0.006 0.010 0.013 0.016 0.019 0.031 0.043 0.055 0.067 0.080 0.092 0.104 0.116 0.128 0.140 0.152 0.164 0.176 0.188 0.201 0.201 0.201
#3	Device 6	285.30'	**8.0" W x 3.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 6	286.00'	**8.0" W x 3.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#5	Device 6	286.90'	**4.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#6	Secondary	283.57'	**12.0" Round Culvert** L= 13.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 283.57' / 283.50' S= 0.0054 '/' 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=283.60' TW=0.00' (Dynamic Tailwater)
└─**2=JF CSV File** (Controls 0.00 cfs)
└─**1=Culvert** (Controls 0.00 cfs)

Secondary OutFlow Max=1.25 cfs @ 12.18 hrs HW=286.43' TW=0.00' (Dynamic Tailwater)
└─**6=Culvert** (Passes 1.25 cfs of 5.81 cfs potential flow)
├─**3=Orifice/Grate** (Orifice Controls 0.81 cfs @ 4.83 fps)
├─**4=Orifice/Grate** (Orifice Controls 0.44 cfs @ 2.65 fps)
└─**5=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 25P: Detention



WMC SERIES

OUTDOOR LIGHTING

WESTGATE
THE FUTURE IS HERE...AND IT'S QUITE BRIGHT!

WMC-DL-MCT-BK-DT
WMC-DL-MCT-BR-DT
WMC-DL-MCT-BN-DT
WMC-DL-MCT-WH-DT

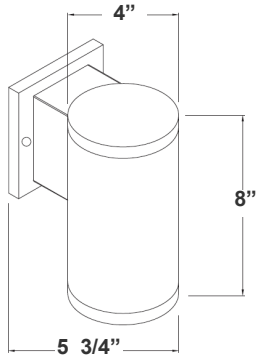
Customer Name:

Project Name:

Note: | Type:

MCT

Selection:



4” x 8” x 5-3/4”

Ideal for general site lighting, walkways, and stairways, alleys, loading docks, doorway, pathway and parking areas

Features

- Finish: Black,Bronze, Brushed Nickel & White
- Multi CCT (Selectable Switch on the Bottom of the Arm, Protected by Silicon Cover to be Waterproof)
- 7-Year Warranty
- Outdoor Down Light

Technical Specifications

Electrical:

- Voltage: 120V AC
- Power Factor: >0.95
- Wattage: 15W
- Efficacy: 80 LPW
- THD: <20%

Mechanical:

- Housing: Die-cast Aluminum & Glass
- Finish: Black, Bronze, Brushed Nickel & White
- Maximum Ambient Temperature: -68°F to 104°F
- Suitable for Wet Locations
- 7-Year Warranty

Lighting:

- Dimming: TRIAC Dimming (Using Standard TRIAC LED Dimmers)
- Total Lumens: 1200LM
- Color Temperatures: 3000K/4000K/5000K
- Multi CCT (Selectable Switch on the Bottom of the Arm, Protected by Silicon Cover to be Waterproof)
- Color Rendering Index: CRI ≥ 80
- Rated life: 70,000 hrs
- Beam angle: 45º

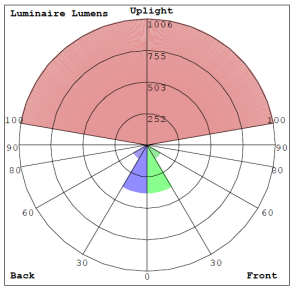
Applications:

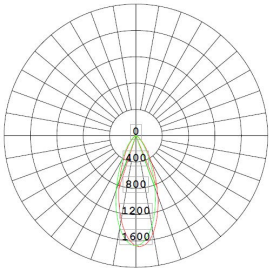
- Ideal for general site lighting, walkways, and stairways, alleys, loading docks, doorway, pathway and parking areas

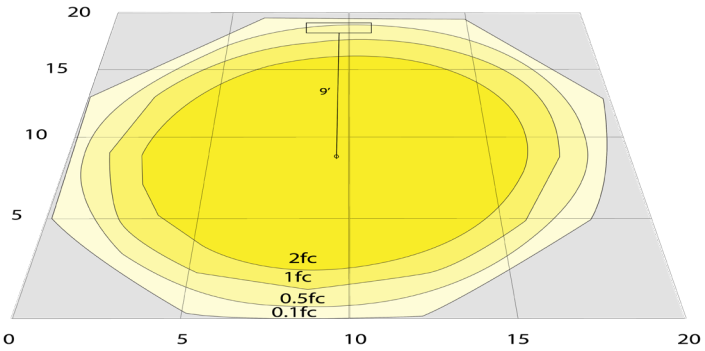
Other Models:

- 30W | 2400LM | WMC-UDL-MCT-BK-DT
- 30W | 2400LM | WMC-UDL-MCT-BR-DT
- 30W | 2400LM | WMC-UDL-MCT-BN-DT
- 30W | 2400LM | WMC-UDL-MCT-WH-DT

Photometrics: WMC-DL-MCT





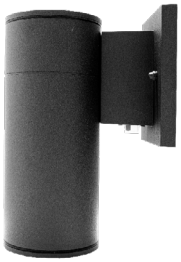


BUG Rating: B1-U1-G0

15W 5000K, Area 20'x 20' Mounting Height: 9'

Other Views:

Black Finish:



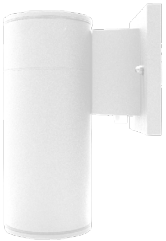
Bronze Finish:

Side View | Front View | Back View | Lens View

Brushed Nickel Finish:

Side View | Front View | Back View | Lens View

White Finish:



Side View | Front View | Back View | Lens View

Performance Table: WMC-DL-MCT

MODEL NO.	Wattage	Voltage	Lumens	Color Temp.	BUG Rating	LPW
WMC-DL-MCT-BK-DT	15W	120V	1200LM	3000K/ 4000K/ 5000K	B1-U1-G0	80
WMC-DL-MCT-BR-DT	15W	120V	1200LM	3000K/ 4000K/ 5000K	B1-U1-G0	80
WMC-DL-MCT-BN-DT	15W	120V	1200LM	3000K/ 4000K/ 5000K	B1-U1-G0	80
WMC-DL-MCT-WH-DT	15W	120V	1200LM	3000K/ 4000K/ 5000K	B1-U1-G0	80

Sample Ordering

Model		Light Direction		Color Temp.		Finish		Dimming
WMC	-	DL	-	MCT	-		-	DT

BK = Black
BR = Bronze
BN = Brushed Nickel
WH = White

Factory-Installed Option:

Blank = No Option For Accessories
OPT-PC-B = FOR 120V-277V PHOTOCELL
OPT-EM-FM2INT = INTERNAL EMERGENCY BACK UP BATTERY

Example:

1. **WMC-DL-MCT-BR-DT** (FOR WMC 15W DOWN LIGHT MCT BRONZE FIXTURE 120V)
2. **WMC-DL-MCT-BR-DT** (FOR WMC 15W DOWN LIGHT MCT BRONZE FIXTURE 120V)
   OPT-PC-B (FOR 120V-277V PHOTOCELL)

FACTORY-INSTALLED OPTION:

OPT-PC-B
FOR 120V-277V PHOTOCELL

OPT-EM-FM2INT
INTERNAL EMERGENCY BACK UP BATTERY

Catalog # : _____ Project : _____ Type : _____

Prepared By : _____ Date : _____

Slim Wall Pack (WPSLS)

Small LED Slim Wall Pack

OVERVIEW	
Lumen Package (lm)	1,000 - 4,000
Wattage Range (W)	9 - 36
Efficacy Range (LPW)	105 - 119
Weight lbs (kg)	4.4 (2.0)

QUICK LINKS

Ordering Guide | Performance | Photometrics | Dimensions

FEATURES & SPECIFICATIONS

Construction

- Rigid Precision Die cast-aluminum housing for durability and consistency.
- Vertical fins serve as a heat sink and resist accumulation of dust and debris.
- Thermal stacking heat removal technology extracts heat from within the housing moving it away from LEDs and integral components.
- Luminaire hinges open from the bottom to prevent leakage.
- Luminaire is proudly manufactured and tested in the U.S.
- Fixtures are finished with polyester powder coat finishing process to withstand extreme weather changes without cracking or peeling.

Optical System

- High-performance LEDs behind clear tempered glass for maximum light output and durability.
- Available in 5000K, 4500K, 4000K, and 3000K color temperatures per ANSI C78.377
- Minimum CRI of 80 for 4000K, 4500K, 5000K. Minimum CRI of 70 for 3000K.
- Zero uplight.

Electrical

- High-performance driver features over-voltage, under voltage, short-circuit and over temperature protection.
- 0-10 volt dimming (10% - 100%) standard.
- Standard Universal Voltage (120-277 Vac) Input 50/60 Hz
- L70 Calculated Life: >200k Hours
- Total harmonic distortion: <20%
- Power factor: >.85
- Input power stays constant over life.
- Driver Off-State Power is 0 watts.
- LEDs with integrated circuit board mounted directly to the housing to maximize heat dissipation and promote long life.
- Components are fully encased in potting material for moisture resistance. Driver complies with FCC standards. Driver and key electronic components can easily be accessed.
- Minimum 2.5kV surge rating
- Operating temperature: -40°C to +50°C (-40°F to +122°F).

Controls

- Optional 120V-277V electronic button Photocontol.
- Apertures for field or factory installed photocontrol.

Installation

- Surface mounts direct to J-box or wall.
- Features a bubble level and removable hinged face frame for ease of installation.

Warranty

- LSI luminaires carry a 5-year limited warranty. Refer to https://www.lsicorp.com/resources/terms-conditions-warranty/ for more information.
- 1 Year warranty on optional Button Photocell.

Listings

- Listed to UL 1598 and UL 8750.
- Meets Buy American Act requirements.
- DarkSky Approved with 3000K color temperature selection.
- CSA Listed
- RoHS Compliant.
- State of California Title 24.
- Suitable For Wet Locations.
- DesignLights Consortium® (DLC) Premium qualified product. Not all versions of this product may be DLC Premium qualified. Please check the DLC Qualified Products List at www.designlights.org/QPL to confirm which versions are qualified.

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Slim Wall Pack (WPSLS)

Type : _____

Have questions? Call us at (800) 436-7800

ORDERING GUIDE

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TYPICAL ORDER EXAMPLE: WPSLS LED 1L UNV DIM 30 PCI 120 BZA

Prefix	Lumen Package	Voltage	Color Temperature	Controls	Finish
WPSLS LED - Small Slim Wall Pack	**1L** - 1,000 lms (9w) **2L** - 2,000 lms (20w) **3L** - 3,000 lms (30w) **4L** - 4,000 lms (36w)	**UNV DIM** - Universal Voltage (120-277V)	**50** - 5000K **45** - 4500K **40** - 4000K **30** - 3000K *(Dark Sky Approved)*[1]	**PCIUNV** - 120V-277V Photocontrol	**BZA** - Bronze **BLK** - Black **SLV** - Silver **WHT** - White

Need more information?
Click here for our glossary

Have additional questions?
Call us at (800) 436-7800

PERFORMANCE

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Delivered Lumens

Lumen Package	4000K - 80CRI		4500K - 80CRI		5000K - 80CRI		Wattage
	Delivered Lumens	Efficacy	Delivered Lumens	Efficacy	Delivered Lumens	Efficacy	
1L	911	105	966	111	921	106	9
2L	2312	118	2451	125	2337	119	20
3L	3473	115	3683	122	3510	117	30
4L	4047	112	4291	124	4090	113	36

Delivered Lumens

Lumen Package	3000K - 70CRI		Wattage
	Delivered Lumens	Efficacy	
1L	1206	98	12
2L	2125	107	20
4L	3712	100	40

Electrical Data - Current Draw AMPS

Lumen Package	120V	208V	240V	277V
1L	0.08	0.04	0.04	0.03
2L	0.17	0.10	0.08	0.07
3L	0.25	0.14	0.13	0.11
4L	0.30	0.17	0.15	0.13

1 1L, 2L and 4L lumen packages only

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PHOTOMETRICS

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Luminaire photometry has been conducted by a NVLAP accredited testing laboratory in accordance with IESNA LM-79-08. As specified by IESNA LM-79-08 the entire luminaire is tested as the source resulting in a luminaire efficiency of 100%.

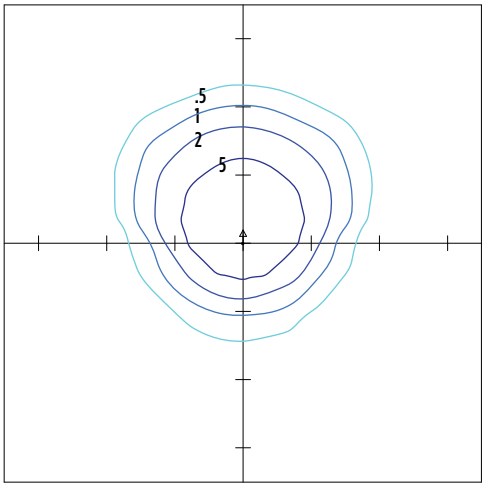
See the individual product page on https://www.lsicorp.com/ for detailed photometric data.

WPSLS-4L-40

Luminaire Data	
Wide Distribution	
Description	4000 Kelvin, 80 CRI
Delivered Lumens	4,047
Watts	36
Efficacy	112
IES Type	Type III - Very Short
BUG Rating	B1-U0-G1

Zonal Lumen Summary		
Zone	**Lumens**	**% Luminaire**
Low (0-30°)	1119.6	27.6%
Medium (30-60°)	2215.8	54.7%
High (60-80°)	695.5	17.2%
Very High (80-90°)	16.4	0.4%
Uplight (90-180°)	0.0	0.0%
Total Flux	4047.3	100%

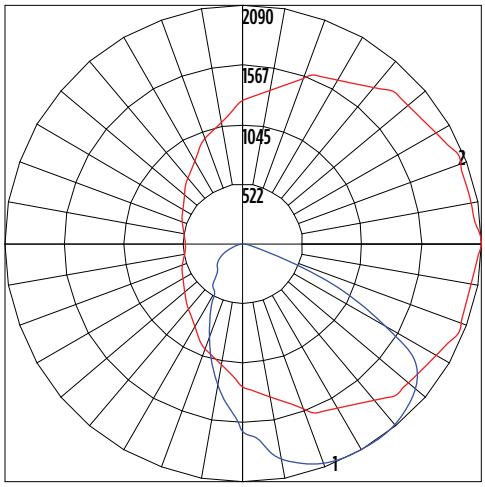
ISO Footcandle



10' Mounting Height / 10' Grid Spacing

10 FC 5 FC 2 FC 1 FC

Polar Curve



Vertical Plane Horizontal Cone

PRODUCT DIMENSIONS

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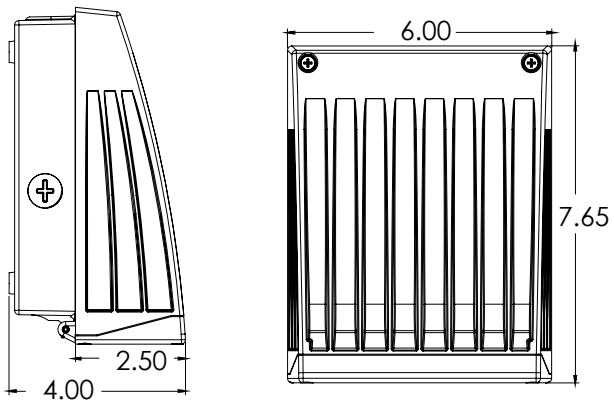

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Ray Street Housing
Site Plan Standards Narrative
Ray Street
Portland, Maine

Prepared by:

Main-Land Development Consultants, Inc.
P.O. Box Q, Livermore Falls, Maine

May 21, 2025
Rev June 13, 2025

The proposed project has been designed to comply with the Site Plan Standards as outlined in 13.6 of the City of Portland Land Use Code as follows:

13.6.1 **Transportation Standard**:

A) Impact on Surrounding Street Systems:
As further detailed in Section E below, the site is estimated to generate 5 trips during the peak hour. The proposed project will not create any significant hazard to safety or aggravate the surrounding street network. The proposed site layout takes into consideration vehicular circulation and potential impacts on the surrounding area.

B) Access and Circulation:
The proposed 8 units have a ground-level garage which will allow off-street parking and free circulation for service vehicles, parking areas, pedestrian pathways via the 20-foot-wide access drive. There are no public sidewalks adjacent to the site, so no internal sidewalks are proposed.

C) Public Transit Access:
The project proposes 8 single family residential units and is not serviced by any public transit routes. Therefore, the project does not meet any of the criteria outlined in Section C that require the construction or placement of a public transit shelter on or near the project site.

D) Parking:
One parking space per each unit is provided with a ground level garage for a total of 8 for the project. No bicycle parking has been provided and is not required per article 18. Snow storage will be provided along access drive adjacent to Units 5-8 as shown on the site plan. EV charging is not required where there are no parking areas proposed, and off-street parking provided via ground level garage.

E) Transportation Demand Management (TDM):
The proposed project (8 townhouse-style residential units) does not meet any of the criteria in Section E that would require a TDM. The development is estimated to generate a total of 5 trips during the AM, PM and Saturday peak hours. The trip generation based on 11th Edition of the ITE, Land Use Code 215-Single Family Attached Housing.

13.6.2 **Environmental Quality Standard**:

A) Preservation of Significant Natural Features:
The proposed project parcel does not consist of any known significant natural features or endangered species based on state provided data; no preservation measures are anticipated while developing the parcel.

B) Site Landscaping and Buffers:
The proposed project has been designed to limit the removal of existing vegetation to the extent practicable. The proposed development includes measures to protect vegetation where possible to comply with the landscaping and preservation standards of the Technical Manual.

Though a significant portion of the vegetation will be removed as part of the project, the proposed landscaping plan includes additional plantings of shade trees along the frontage that exceed the city's requirements.

C) Water Quality, Stormwater Management, and Erosion Control:
The proposed project has been designed to comply with the stormwater management standards of the Technical Manual. The project is designed to minimize to the extent practicable, the total impervious area on the site, along with the volume and rate of runoff. Please see the Stormwater Management Plan provided for additional details.

The project proposes an underdrained subsurface sand filter, and drip edge filters to treat runoff from the proposed development.

An erosion and sedimentation control plan has been developed to minimize adverse impacts from the development and has been included in the design drawings.

The proposed project does not utilize any stormwater infiltration or other practices that would pose a risk of groundwater contamination either during construction or post-construction and meets all applicable standards as outlined in the Technical Manual.

13.6.3 **Public Infrastructure and Community Safety Standard**:

A) Consistency with City Master Plans:
The City Comprehensive Plan, "Portland's Plan 2030" covers area that are applicable to the proposed project. More specifically, the "Housing Policy

Guide" section outlines housing related goals set at the local level. One such goal is to, "Increase, Preserve, and Modify the overall supply of housing city wide to meet the needs, preferences, and financial capabilities of all Portland residents." The project proposes construction of four (4) new multi-plex condos totaling eight (8) residential units.

The "Peninsula Transit Plan (2009)" calls for specific policy recommendations that encourage the development of more housing to assure density in support of transit. The project proposes residential units and adheres to the recommendation of constructing additional housing.

B) Public Safety and Fire Prevention:
The proposed project has been designed to incorporate the necessary public safety principles for Crime Prevention through Environmental Design (CPTED). The proposed layout of the site offers the first four (4) units having a façade facing the access drive into the site, creating a sense of natural surveillance along the street, and promoting visibility of any incoming traffic. The layout allows for territorial reinforcement, as the site also has internal lighting that illuminates the access drive to reinforce safety along the access drive.

The proposed development has been designed to adequately provide emergency vehicle access into and out of the site as outlined in the Technical Manual.

One fire hydrant is proposed near the entrance off Ray Street. This ties into the existing water main along Ray Street and will sufficiently serve fire emergency needs.

C) Public Utilities:
The proposed project does not anticipate overburden on sanitary sewers, storm drains, water lines or supply or other public infrastructure and utilities.

The proposed project will be connected to the existing public sanitary sewer and water systems along Ray Street, as required by City Standards. Letters have been submitted to the City of Portland and Portland Water District regarding serviceability for the proposed project. At this time, we have not received responses from either but will be provided as soon as available. We have provided letters sent to each for reference.

A stormwater management plan has been designed for the site that details the proposed site drainage improvements and stormwater treatment proposed. The stormwater management plan and supporting materials have been submitted along with this narrative.

There is an existing overhead electrical infrastructure located on Ray Street. The proposed project proposes to tie into this service and run power underground to each of the two (2) transformers proposed for the site.

The project proposes less than 20 residential units and does not require temporary storage and timely removal of all trash and recyclable materials. However, the proposed dumpster receptacles have sufficient screening and are located at the rear of the site, which is well out view from the right-of-way.

13.6.4 **Site Design Standards**:

A) Massing, Ventilation, Wind, and Heat Impact:
The proposed layout of buildings and their respective massing will not result in any anticipated health or safety problems from the reduction in ventilation to abutting structures. Similarly, there are no anticipated changes to the wind climate that would result in unsafe conditions for users of the site and/or adjacent public spaces.

The proposed building units will locate all HVAC venting mechanisms to direct exhaust away from public spaces and abutting residential properties.

Although the project is not required to meet the "cool roof" Solar Reflective Index (SRI) standards, the project will provide roofing materials that meet the SRI of 25+ for roof slopes greater than 2:12.

B) Shadow:
The proposed project is located in the RN3 Residential Neighborhood zoning district. The overall height as allowed in this district is 35-feet. Based on the overall height being less than 65-feet, avoidance and/or mitigation does not pertain to the proposed project. The project is not anticipated to have any adverse impacts from cast shadows on publicly accessible open space, roadway or abutting property.

C) Snow and Ice Loading:
The proposed project has been designed to prevent any significant amount of snow and ice from loading or falling onto adjacent properties or public ways by designating a snow storage area on the west side of the property at the end of the access driveway and appropriately siting of buildings within the parcel footprint.

D) View Corridor:
The massing, location and height of the proposed development will not substantially obstruct any public view corridors as identified within the "Downtown Vision View Corridor Protection Plan". The project site is not locate within a protected view corridor, and complies with the applicable setback and height regulations for the RN-3 zoning district.

E) Historic Resources:
The proposed project is not located within a designated historic district area. Additionally, the project is not located within a 100-feet of any designated landmark, historic district or historic landscape district.

The proposed project site does not contain any known state or local archaeological resources.

F) Exterior Lighting:
Site lighting will conform to the applicable lighting standards with the Technical Manual. The proposed lighting fixtures will provide an appropriate amount of lighting for the safety, comfort and convenience of residents. The proposed site lighting will not spill onto adjacent properties and roadways. Please see photometrics plan for the proposed locations, schedules and fixture information.

The proposed project does not propose any Architectural, specialty or street lighting.

G) Noise and Vibration:
All Heating, Ventilation, and Air Conditioning (HVAC), Air Handling Units (AHU), Emergency Generators, and similar equipment shall meet applicable state and federal emission requirements and will be located on the interior of the project site, away from abutting properties.

H) Signage and Wayfinding:
The proposed project will have a street sign located near the entrance to the site just off Ray Street. This sign will not adversely affect visibility at the intersection on or off the site.

There is no on-site directional traffic signage being proposed for the project as the site has just a single private drive that is only accessible from Ray Street.

I) Design Standards:
The project proposed use is a multi-family and multiplex development in the Residential Neighborhood (RN-3) per the City of Portland Design Manual and is required to meet the design standards of the Design Manual. Listed below are design standard requirements and how they were met:

1) Context: The surrounding neighborhood along Ray Street consists of 1.5-story or 2-story single family residential homes. To the south there is St Joseph's Retirement community. The proposed project is sited adjacent to these two areas on currently undeveloped land and offers a similar housing type and massing style to the area

2) Public Realm: The proposed project has a ground level garage for access to each unit and a single-access drive off Ray Street. Each unit has covered porches that delineate secondary access to the dwellings. Additionally, each unit has an appropriate level fenestration and architectural details to delineate the privacy of each unit from the public realm.
3) Massing: The proposed project has appropriate massing in relation to the surrounding residential buildings within a 2-block radius. The style of the proposed buildings is consistent with existing architectural styles of the immediate neighboring properties.
4) Orientation: The proposed layout has been designed to best fit the unique shape of the project site. With this limiting factor, the layout was modified to maximize the utilization of the site. Each unit faces each other, porches on the back side of Units 1-4 are perpendicular to the street, the ground level garage faces the access drive. Porches for units 5-8 face the street and roof slopes are either parallel or perpendicular to the street.
5) Articulation: Each building unit has appropriate articulation and sufficient architectural details. The proposed buildings have: façades similar to architectural details to those within the existing neighborhood, gabled roofing that pronounce each unit, and covered porches at the back of each unit as well as white fiber horizontal trim that serves as an expression line along the sides of the buildings.
6) Garages: The project proposes ground level garages that will face the access drive on site.
7) Roofs: The proposed project includes pitched roofs in each residential building. The front façade roofline for each unit has a gabled roof that matches the pitch and style of the covered porches.
8) Materials: Exterior materials for the proposed buildings will consist of vinyl lap siding, finer cement corner trim work, and charcoal architectural shingles. The proposed building materials are consistent with existing materials within the surrounding neighborhood. Building facades are cohesive in design and create an internal continuity withing the site.
9) Sound: Each residential unit is divided by sound insulating walls that provide acoustical privacy between each unit.
10) Light and Air: The project site has been designed to maximize exposure to natural light and air. Each building is designed with windows that offer internal rooms of each unit to have access to natural light and ventilation.

PROJECT ADDRESS: 16 PURINGTON WAY
APPLICATION ID: PL-003302-2025
MEETING DATE:
June 23rd 2026
NOTICE OF
PUBLIC MEETING
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PLANNING BOARD
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25
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PLANNING BOARD

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VEHICULAR PARKING AILSE WIDTH (13.6.1.D.1) WAIVER REQUEST

Ray Street Housing
174 Ray Street, Portland, Maine

On behalf of Nelson Property Services, Main-Land requests a waiver of the request for a parking aisle width for the project. The project proposes access to parking garage for each unit via the proposed access drive off Ray Street and therefore won't need to aisle width per city technical manual. Figures 2 and 3 indicating traffic movement exiting each garage have been provided to further provide depiction of the movement.

EROSION AND SEDIMENTATION CONTROL PLAN

Ray Street Housing
174 Ray Street, Portland, Maine

Prepared By:

MAIN-LAND DEVELOPMENT CONSULTANTS, INC.
Livermore Falls, Maine
June 10, 2025

1. INTRODUCTION:

"A person who conducts, or causes to be conducted, an activity that involves filling, displacing or exposing soil or other earthen materials shall take measures to prevent unreasonable erosion of soil or sediment beyond the project site or into a protected natural resource as defined in 38 M.R.S.A. §480-B. Sediment control measures must be in place before the activity begins. Measures must remain in place and functional until the site is permanently stabilized. Adequate and timely temporary and permanent stabilization measures must be taken." – Maine DEP Chapter 500 Rules, Appendix A.

This Plan has been developed to ensure that construction activities on this project site utilize sound erosion and sedimentation control measures. These measures will prevent or reduce the potential for the deposition of sediments downstream of site. The methods of control consist of preventive measures and remedial measures. Preventive measures are aimed at keeping the soils in their present location through mulching and through the re-establishment of vegetation. Remedial measures deal with the trapping and/or filtering of sediment laden stormwater run-off. Both types of measures will be utilized on this project.

The Erosion and Sedimentation Control Plan is best broken down into Temporary Measures, Winter Stabilization, and Permanent Measures.

2. TEMPORARY EROSION CONTROL:

Temporary control measures may consist of a combination of measures where appropriate and/or as shown on the plans.

A. Silt Fencing:

Silt fencing may be used in place of, or together with, the sediment filter barriers. The silt fencing will also be anchored at least four inches into the ground and placed along an even contour. Turn the ends of the fence up-grade to avoid runoff flowing around the fence. During frozen conditions, furnish and install Sediment Filter Berms in lieu of silt fencing or hay bales if frozen soil prevents the proper installation of silt fences and hay bales.

B. Stone Check dams:

Stone check dams shall be placed in the center of ditches immediately following excavation to provide a means of trapping sediments. (If the ditch has been immediately armored with rip-

rap, check dams are not necessary.) The dams shall consist of small stone placed across the ditch, with a depression at the top of the dam to allow water over the top of the dam, should it become clogged with sediment. See the specifications on the Typical Details Plan for construction details of this measure.

C. Temporary Mulch:

Temporary mulch shall be placed on all disturbed areas where seeding, construction or stabilization activities will not take place for over 7 consecutive days. Temporary mulch will also be placed on areas within 75 feet of a natural resource (wetland, stream, etc.) where seeding will not take place for over 48 hours, and on all bare soils outside the road base prior to any predicted significant rain event. A significant rain event is considered to be at least ½ inch of rain or more. Temporary mulch may be hay and shall be applied at a rate of two bales per 1,000 square feet. Soil must not be visible upon completion of application, regardless of rate of application.

D. Topsoil Stockpiles:

Topsoil, removed as part of the construction, will be stockpiled on site for use in areas to be re-vegetated. The location of topsoil stockpiles must not be within 75 feet of a defined natural resource (wetland, stream, etc.), or within 75 feet of a swale or ditch.

Stockpiles shall be mulched with hay at two bales per 1,000 square feet. The area down slope from any stockpile areas will be protected by a sediment filter berm or silt fence placed directly below or down gradient from the stockpile. If the stockpile must be left for more than 30 days, the pile will be seeded with rye grass at a rate of two pounds per 1,000 square feet and mulched in accordance with this paragraph.

E. Maintenance of Temporary Measures:

All temporary measures described above shall be inspected weekly and before/after every significant storm event (1/2 inch of rain or greater) throughout the construction of the project. Repairs or replacements of temporary measures will be made as necessary. Once the site is stable, all temporary devices such as hay bale barriers and silt fencing will be removed.

A log shall be kept 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 vehicles 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 department staff and a copy must be provided upon request. The permittee shall retain a copy of the log for a period of at least three years from the completion of permanent stabilization.

3. WINTER STABILIZATION:

The winter construction period is from November 1 through April 15. If the construction site is not stabilized with a combination of pavement, a road gravel base, 90% mature vegetation cover or riprap by November 1 then the site needs to be protected with winter stabilization.

Winter excavation and earthwork shall be completed such that no more than 1 acre of the site is denuded at any one time. Limit the exposed area to those areas in which work is expected to be undertaken during the following 15 days. Exposed area shall not be so large that it cannot be mulched in one day prior to any snow event.

Areas shall be considered to be denuded until the subbase gravel is installed in roadway areas or the areas of future loam and seed have been loamed and mulched. Hay and straw mulch rate shall be a minimum of 200 lbs./1,000 s.f. (3 tons/acre) and shall be properly anchored.

The contractor must 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 will be mulched for over winter protection with hay or straw at twice the normal rate or at 200 lbs/1,000 s.f. (3 tons per acre) or with a four-inch layer of woodwaste erosion control mix. This will be done within 24 hours of stocking and re-established prior to any rainfall or snowfall.

    Any new soil stockpile will not be placed (even covered with hay or straw) within 100 feet of any natural resources.

2. Natural Resource Protection

Any areas within 100 feet of any natural resources, if not stabilized with a minimum of 90 % 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) will be placed between any natural resource and the disturbed area. Silt fencing may not be placed on frozen ground.

Projects crossing the natural resource shall be protected by 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. Mulching

Areas shall be considered denuded until loamed, seeded and mulched. Hay and straw mulch shall be applied at a rate of 200 lb. per 1.000 square feet or 3 tons/acre (twice the normal accepted rate) and shall be properly anchored. Mulch shall not be spread on top of snow. The snow will be removed down to a one-inch depth or less prior to application.

An area shall be considered stabilized when exposed surfaces have been either mulched with straw or hay at a rate of 200 lb. per 1,000 square feet and adequately anchored, such that the ground surface is not visible though the mulch.

Between the dates of November 1 and April 15, all mulch shall be anchored by either peg line, mulch netting, or wood cellulose fiber. The ground surface shall not be visible though the mulch.

After November 1st, mulch and anchoring of all bare soil shall occur at the end of each final grading workday.

4. Mulching on Slopes and Ditches

Slopes shall not be left exposed for more than 7 days unless fully mulched and anchored. Slopes within 75 feet of a natural resource shall not be left exposed for more than 48 hours. Mulching shall be applied at a rate of 300 lbs/1,000 sq ft on all slopes greater than 8%. Erosion Control mesh shall be used to anchor mulch in all drainage ways and ditches, for slopes exposed to direct winds, and for all other slopes greater than 8 %. Erosion control blanket and check dams (or permanent Rip-Rap) shall be used in lieu of mulch in all drainage ways with slopes of 8 % or more.

A six-inch layer of erosion control mix can be used to substitute erosion control blankets on all slopes except ditches.

5. Seeding

Between the dates of October 15th 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 (see table below) and mulched until such time as the final treatment can be applied. If after November 1st the exposed area has been final graded and loamed, then the area may be dormant seeded at a rate of 3 times higher than specified for permanent seed and then mulched.

TEMPORARY SEED MIX

TYPE	% BY WEIGHT	% PURITY	% GERMINATION
Domestic Rye Grass	60	69.75	90
Perennial Rye Grass	20	28.00	85
Aroostook Rye Grass	20	28.00	85

Dormant seeding may 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 5lbs/1000 s.f. All areas seeded during the winter will be inspected in the spring for adequate catch. Areas not sufficiently vegetated (less than 90 % catch) shall be revegetated by replacing loam, seed and mulch.

If dormant seeding is not used, all disturbed areas shall be revegetated in the spring.

6. Inspection and Monitoring

Maintenance measures shall be applied as needed during the entire construction season. After each rainfall, snowstorm 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 ensure their continuous function.

In the spring, following the temporary/final seeding and mulching, the contractor shall inspect and repair any damages and/or un-established spots. Established

vegetative cover means a minimum of 90 % of areas vegetated with vigorous growth.

7. Standard for the Timely Stabilization of Ditches and Channels

All stone-lined ditches and channels shall be constructed and stabilized by November 1. All grass-lined ditches and channels shall be constructed and stabilized by September 1. Failure to stabilize a ditch or channel to be grass-lined by September 1, will require one of the following actions to stabilize the ditch for late fall and winter.

Install a sod lining in the ditch – Sod lining shall be installed in ditches by October 1. Proper installation includes 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 –Ditches shall be lined with stone riprap by November 1, as presented below. If necessary, the applicant will regrade the ditch prior to placing the stone lining so to prevent the stone lining from reducing the ditch's cross-sectional area.

8. Standard for the Timely Stabilization of Disturbed Slopes

Construct and stabilize stone-covered slopes by November 1. The applicant will Seed and mulch all slopes to be vegetated by September 1. Slopes will be considered in any area having a grade greater than 15% (6H:1V). If the applicant fails to stabilize any slope to be vegetated by September 1, then the applicant will 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 -- Seed the disturbed slope with winter rye at a seeding rate of 3 pounds per 1000 square feet and apply erosion control mats over the mulched slope October 1. The applicant will monitor growth of the rye over the next 30 days. If the rye fails to grow at least three inches or cover at least 90% of the disturbed slope by November 1, cover the slope with a layer of wood waste compost or with stone riprap as described below.

Stabilize the slope with sod -- Stabilize the disturbed slope with properly installed sod by October 1st. Proper installation includes 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. Sod stabilization shall not be used late-season to stabilize slopes having a grade greater than 33% (3H:1V).

Stabilize the slope with wood waste compost (erosion control mix) --Place a six-inch layer of wood waste compost on the slope by November 1. Prior to placing the wood waste compost, remove any snow accumulation on the disturbed slope. Wood waste compost will not be used to stabilize slopes having grades greater than 50% (2H:1V) or having groundwater seeps on the slope face.

Stabilize the slope with stone riprap -- Place a layer of stone riprap on the slope by November 1, similar to the Stone Lined Ditch the permanent erosion control section.

9. Standard for the Timely Stabilization of Disturbed Soils

Seed and mulch all disturbed soils on areas having a slope less than 15% by September 1. Failure to stabilize these soils by this date will require one of the following actions to stabilize the soil for late fall and winter.

Stabilize the soil with temporary vegetation -- 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 by October 1. Growth of the rye will require monitoring over the following 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 mulch the area for over-winter protection as described below.

Stabilize the soil with sod -- Stabilize the disturbed soil with properly installed sod by October 1. Proper installation includes 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 -- 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 by November 1. Prior to applying the mulch, remove any snow accumulation on the disturbed area. Immediately after applying the mulch, anchor the mulch with plastic netting to prevent wind from moving the mulch off the disturbed soil.

4. PERMANENT EROSION CONTROL:

Permanent measures will consist of the placement of culverts; culvert inlet/outlet stabilization; the construction of grass/stone lined ditches; and the re-vegetation of all areas outside the traveled way of the road, and those areas designated as stone lined ditches.

A. Ditches:

Ditches on the project have been designed based on expected flow rates and velocities for the 25-year, 24-hour storm event and the slope of the ditch. Where water velocities are expected to exceed 3.5 feet per second, the ditch has been designed to be stone lined. Ditches with water velocities of less than 3.5 feet per second have been designed to be grass lined.

Grass Lined Ditches:

Grass lined ditches will possess the same final dimensions as the stone lined ditches. The flow area of the ditch will be armored by placing a biodegradable matting or netting (such as American Excelsior Curlex Blanket or equal) in the bottom of the ditch. Placement of this material must take place after seeding. Install according to the manufacturers' recommendations.

Seeding and mulching of grass lined ditches will follow the specifications stated below for re-vegetation.

B. Re-vegetation Measures:

All areas to be permanently re-vegetated with grass will first be covered with loam and then fertilized.

Loam will be placed on all areas to be re-vegetated. Loam will be placed to a minimum depth of 4 inches. Loam will be the stockpiled topsoil, if possible.

Test the loam samples for nutrients at a proficient testing laboratory (The University of Maine provides this service. The areas with loam will then be fertilized with the recommended application rate. Lime will also be applied at a rate of 50 pounds per 1,000 square feet. Both the lime and the fertilizer will be mixed thoroughly with the soil.

All areas to be re-vegetated with permanent grass are to be seeded with the seed mix shown on the table below. This mixture will be applied at a rate of 2 pounds per 1,000 square feet.

General Lawn Areas	Chewing Fescue "Dignity"	35%
	Pennlawn Creeping Red Fescue	35%
	Perennial Rye "Tourstar" (Nutrite)	30%

Mulch will then be spread on all seeded areas at a rate of two bales per 1,000 square feet. Regardless of application rate the soil shall not be visible through the mulch.

Seed and mulch will be placed within five days of final grading of topsoil.

Seeded areas will be inspected after 30 days to determine the success of the seeding. If the ground cover is less than 90%, the area will be reseeded.

C. Critical Areas:

Slopes in excess of 15% will require the placement of a biodegradable netting or matting over the mulch and seed (if the netting has no mulch in it). If stabilization is to take place after October 1st, slopes over 8% will be treated with the matting.

D. Maintenance of Permanent Measures:

All measures will be inspected weekly and before and after every significant storm event during construction, and then at least once annually to ensure proper function. Any damaged areas will be repaired or replaced as necessary. Any ditches or culverts not functioning as designed will be redesigned and reconstructed according to specifications prepared by a Professional Engineer.

In any event, seeding should take place either between May 1st and June 15th, or August 15th and September 1st.

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June 6, 2026

City of Portland Planning Department
Attn: Neha Sunil Pol
389 Congress Street, 4th Floor
Portland, ME 04101

RE: Response to comments on 16 Purington Way

Dear Neha:

Please find below our responses to the City of Portland Planning Department's comments as discussed at the 5/27 meeting on the proposed development at 16 Purington Way. For your reference, we have copied the comments below. Our responses are in bold italics.

Site Plan:

Revise and resubmit architectural elevation to reflect the proposed four-building arrangement shown on the site layout.
See revised architectural elevation drawing.

Confirm all plan elevations are referenced to the City datum.
All elevations are referenced to city datum. See Civil Plan Set.

Stormwater

Address the long-standing DPW comment regarding the significant off-site drainage path crossing the project area and demonstrate that the stormwater management system is adequately sized for both on-site and upstream flows.
A berm on the eastern border of the lot is to be constructed to divert the offsite flow. See C3.1.

Provide a complete updated stormwater management report, including updated calculations, coordinated stormwater design narrative, compliance with Maine DEP Chapter 500 and City Technical Manual Section 5 standards.
A complete, updated stormwater management report has been provided. It includes calculations showing how the project meets the treatment and flow control requirements per the City of Portland Technical Manual Section 5 and Maine DEP Chapter 500. See the Stormwater Report.

Submit updated HydroCAD model, including modeled subcatchment reports, clarified outlet structure modeling, storage calculations matching proposed design.
The HydroCAD report has been updated to show the modeled subcatchment reports. A calculation for the sizing of the detention system and jellyfish filter has also been included. See the stormwater report.

Coordinate all stormwater plans/details into a complete package.
All stormwater plans/details have been consolidated into a single package.

Provide detailed outlet control structure information, including proposed orifice dimensions.
A detail of the outlet control structure including orifice dimensions has been provided. See C9.1.

Add project-specific details for subsurface storage system, Jellyfish treatment vault, Outlet control structure, beehive grate and crossing storm drain piping connections.
Details for the jellyfish, outlet control structure, beehive grate, and crossing storm drain piping connections. See C9.1, C9.2, C9.3, C9.4, C9.5 for details. Also, see C3.1 for elevations of the foundation drain connections to the detention system.

Remove unrelated wet pond details currently shown on Sheet C9.1.
Unrelated wet pond details have been removed.

Provide scour protection/outfall protection detail for the stormwater outfall.
Riprap detail has been provided. See C9.2

Clarify foundation drain connections relative to the storage system.
Elevations of the foundation drain connections to the detention system have been provided. See C3.1.

Clarify where gutters/downspouts discharge and how they connect into the drainage system.
Gutter downspout locations have been added to the plan. Also, a note has been added indicating that gutters must be connected to the foundation drain. See C3.1.

Provide groundwater/bedrock information and determine whether an impermeable liner is required.
The contractor is to complete test pits prior to construction. See note added to C3.1.

Discuss recommendation for test pits during construction to confirm constructability.
The contractor is to complete test pits prior to construction. See note added to C3.1.

Sewer Comments

Clarify whether the private shared sewer main has been upsized to 8” as referenced in responses and update plans accordingly.
Private shared sewer main is to be 8”. See C3.1

If upsized to 8”, coordinate required manhole connection at Ray Street.
A new manhole is proposed at the connection of the new sewer lateral and the sewer main in Ray Street. See C3.1.

Correct sewer connection elevations/inverts to match City datum.
Sewer connection elevations/inverts have been updated to match city datum. See C3.1.

Add cleanout detail to the plan set.
Cleanout detail added to plan set. See C9.1.

Additional Comments

Provide additional spot grades throughout the site, especially behind Units 5-8.
Spot grades have been added behind units 5-8 to indicate that the drainage flow path is to go west to east. See C3.1.

Review driveway grading transitions (1% - 7%) for constructability and vehicle access into garages.
Spot grades have been added along units 1-4 to clarify slope changes. See C3.1.

Revise grading plan to clearly show contours, drainage flow, slopes, and spot elevations.
Spot grades have been added to clarify drainage paths. See C3.1.

Revise turning movement template to depict truck entering/exiting Ray Street via lane turns.
Traffic figure revised to depict trash truck entering/exiting Ray Street via lane turns. See Traffic Movement Figure.

Clarify whether the proposed fire hydrant is public or private. If hydrant is private, identify location clearly on plans and confirm required placement standards.
Fire hydrant is to be public. See C2.1.

Discuss alternative visitor parking locations, as the currently proposed location does not appear feasible based on traffic review comments.
A note has been added to the plans to specify that guest parking will be along Ray Street where allowed by the City. See C2.1.

If you have any questions or concerns, please do not hesitate to contact me at (207) 749-8587 or Nathan.goodrich@main-landdci.com.

Sincerely,

Main-Land Development Consultants, Inc.

Nathan Goodrich
Staff Engineer

Encl: Architectural Elevation dated:
Wastewater Capacity Authorization dated: 2025-06-18
Traffic Movement Figure dated: 2026-06-09
Ray Street Civil Plan Set dated: 2026-06-09
Stormwater Report dated: 2026-06-09

CC: Jamie Garland, P.E., Project Manager

MAIN-LAND
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February 5th 2025

City of Portland
c/o Planning Department
389 Congress Street
Portland, Maine 04101

SUBJECT: Response Comments PL-003302-2025

To Whom It May Concern,

Please find below a response to the comments provided by the City of Portland Staff in the project review email dated 10.10.2025

1. Stormwater comments :
   - *The Applicant has noted that they are continuing to work with PWD for confirmation of ability to serve, and will provide that when it is available. It is also noted, based on experience with PWD, that additional details will be required by PWD regarding the plan for the installation of the water main and services. This will include information about meters, valves, thrust blocks, and other necessary features for the system.*

     The applicant continues to work with the water district with regards to this project.

   - *A cleanout or structure of some kind should be provided at the end of the sanitary sewer lines within the driveway.*

     Cleanouts have been added on the utility plan.

   - *The architectural drawings show foundation drains. These should be reflected on the plans, and the locations of outlets shown.*

     Drains have been added to the plans and routed to the stormwater system.

   - *The grading plan now notes a new diversion berm is proposed to the east of the proposed detention pond. A detail should be provided on the construction of this berm. It is located on the property line, and the plans should indicate if there will be any impact on the abutting property for construction.*

     Changes to the site grading have resulted in the removal of the subject berm.

- *The plans now include a note that gutters are to be installed on the buildings. Additional detail should be provided on the grading plan to show how drainage from these gutters will be managed – where will any downspouts outlet – on pavement or grass, how will erosion be prevented at these locations as needed, and how will this stormwater be directed to the stormwater pond?*

  The site has been graded to ensure all stormwater will be sent to the stormwater management system.

- *A new existing conditions survey has been provided. The existing conditions topography is very different on this drawing compared to the existing conditions topography shown as the base for the project design drawings (i.e. a peak elevation of 100' on the survey vs. 296' on the project drawings). This existing conditions plan also calls out site distances that are different than the distances that are listed on the project site plan.*

  Elevations provided on the existing conditions have been found to be incorrect and the elevation data shown on the grading plan are correct. We will submit a revised existing conditions plan.

- *The driveway that runs north-south is shown with a slope of 10%. The architectural rendering view that was included shows a variation of slope along the front of the units to allow for a flattened grade in front of the garage entrances. The grading plan should reflect any planned variations in grade.*

  The plans have been updated to reflect the adjusted site grading.

- *Additional grading detail should be provided beyond the end of the curb at the end of the driveway to ensure that the site stormwater will end up in the pond, and will not be directed off site to the property located to the west.*

  The grading and stormwater management system have been revised and are shown on the grading and utility plan.

- *The project is required to comply with MaineDEP Chapter 500 and City of Portland Technical Manual Section 5 standards for stormwater management. I have the following comments on their stormwater management submission.*
  - *The project should use as a minimum the 24-hour rainfall durations that are provided by MaineDEP as part of Chapter 500. This project is located in the Southeast portion of Cumberland County. The values used for the HydroCAD model are for the Northwest portion of Cumberland County and are less conservative.*
  - *The pond design as shown needs additional detail added to ensure that it will be constructed per appropriate MaineDEP BMP standards.*
    - *The depth to groundwater and bedrock should be noted to determine a need for an impermeable liner.*
    - *More detail should be provided on the pond outlet. The stormwater report notes that the pond discharges to an unnamed tributary of Fall Brook. The MaineDEP BMP standard for Wet Ponds notes that discharge to a stream, brook, or river should be through an underdrained gravel trench. A culvert is shown, but there is no gravel trench, structure, or other detail provided to show how the culver will work as the*

outlet. A pond is typically required to discharge the channel protection volume over a 24 to 48 hour period. Without the underdrained gravel trench, and with only the pipe outlet included in the model, the pond appears to show flow discharging at a faster rate. The Applicant should verify that the pond will be managing stormwater per the MaineDEP BMP standards. The size of the outlet should also be confirmed – the stormwater model and plans call for 12", and the report uses 10".

- *The design of the emergency spillway to manage flow in an emergency situation when the primary outlet is clogged should be verified. This should include consideration of impacts on the neighboring property, as the emergency spillway will discharge directly to the property to the north.*

- *The stormwater report notes that the project will attenuate flow to post-development rates, however, there is a very small increase in the 25-year storm. The applicant should review the other design comments, and after making revisions should ensure that there is no increase in flow for all storm events.*
- *The plans show location for riprap at the outlet, but no information is shown – riprap sizing, the size of the area, the depth of material should be provided. The outlet has been located directly at the property line, and should take into consideration that adequate protection should be provided to ensure there is no stormwater impact on the neighboring property.*

The stormwater management system has been changed from a pond to an underground storage system with associated new calculations which have been submitted.

2. LID Comments :

· The project has claimed 4 points for protecting 40% of trees over 10" DBH. Please provide a tree survey depicting all trees on site >10"DBH and show which of the existing trees will be protected. These "tree saves" should be shown on the ESC plan and any other relevant plans, such as a construction management plan.

A tree survey has been included in the recent submission.

· The applicant has claimed 10 bonus points for the following category: "BMP's are designed for known water quality impairment within the watershed." Please provide a narrative supporting these points, indicating what the impairment is and provide further information on how the BMPs have been designed to address the watershed specific impairment concern.

The proposed site is located in the watershed of an urban impaired stream, the initial intent was to show stormwater treatment within this watershed. The new stormwater management system utilized a Jellyfish filer which provides filtration and removal of suspended solids, fine particles, phosphorus, nitrogen, zinc, and copper.

3. Zoning comments:

- *A boundary survey was provided (see drawing S1.1) but does not meet all requirements outlined in the Tech Manual, section 14.2.*

A revised boundary survey has been prepared and submitted

- *Two Zoning Analysis sheets were provided, one for each lot, but it is unclear which sheet corresponds to which lot. The required lot size appears to be incorrect, and there seems to be confusion between lot coverage and impervious surface. Additionally, the Applicant needs to show how landscaped open ratios for each lot were calculated.*

  A table has been added to the site plan to provide the required information.

- *The Applicant submitted a Grade Average sheet; however, the interval used between 3 and 10 feet was not specified. A corresponding site plan is needed to show the grade at each point used in the calculation. Additionally, the Grade Average sheet shows a uniform grade around each duplex, which is inconsistent with Grading Plan C3.1, where existing grades vary across each structure. Once accurate average grades are determined, they must be reflected on individual elevation drawings for each duplex. The elevations currently provided in the "Ray Street Condos v2" drawing set are generic and identical for all four duplexes. Separate, site-specific elevation drawings are required for each unit.*

  Revised architectural Drawings have been submitted.

Regarding Section 13.6.1 Transportation Standards:

- *The Comment response letter noted that labels were added to sheet C2.1 showing lot square footage and lot coverage. However, the latest revision (C2.1 V-4) does not show these labels.*

  A table has been added to the site plan to provide this information.

- *The letter mentions relocation of the Portland Trails Path, Please state which revised plan reflects this change.*

  The site plan reflects the adjusted trail path.

4. Design Review Comments :

- *Consolidate buildings on Lots 1 & 2 with a shared party wall; relocate side entry doors to the garage-facing façade (as shown in the original submission).*

  The buildings have been connected with a shared party wall.

- *Add a screened trash enclosure around the dumpster pad and install fencing along the abutting property at 190 Ray Street.*

  A screened trash enclosure has been included on the site plan.

- *Provide paved access to each unit entry.*

  A paved walkway has been added to the rear of the two buildings to allow access.

- *Add a more pronounced roofline with a gable end facing Ray Street.*

  The architectural drawings have been revised to reflect the roofline and gable changes.

Sincerely,

Main-Land Development Consultants, Inc.

Jamie L. Garland, PE
AVP Main-Land Falmouth

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May 10th 2026

City of Portland
c/o Planning Department
389 Congress Street
Portland, Maine 04101

SUBJECT: Response Comments PL-003302-2025

To Whom It May Concern,

Please find below a response to the comments provided by the City of Portland Staff.

Impact on Surrounding Streets
Turning Diagrams have been submitted for Ray Street

Access and Circulation
A sidewalk has been provided along the front of Ray Street.

Parking
The applicant proposes providing an outlet in each garage for electric vehicle charging.
Turning templates have been provided to show access and function from the driveway to the garage.

Preservation of Significant Natural Features.
A revised LID calculation has been provided based on the city's comments.

Site Landscaping and Buffers
Open Space ratio's have been provided on the plans.

Water Quality, Stormwater Management and Erosion Control
The proposed stormwater system is a sealed unit that will store the stormwater after treatment from the Jelly Fish System. The Site is currently wooded and would require clearing to access the location to provide a test pit. Because the system will be buffered from the groundwater, the applicant is requesting a waiver for a test pit.
Additional design calculations have been provided to show that the Jellyfish meets the Maine DEP bmp standards.
Details have been provided to show the system sizing.
Revised Hydro CAD files have been submitted to show the drainage modeling.
Gutter drains and foundation drains have been shown to route to the stormwater system.
Additional spot grades have been added to the plans as requested.

Public Safety and Fire Prevention
A fire hydrant has been added per the city's requirements.

Public Utilities
The applicant is waiting for the capacity to serve from the Portland Water District
The sewer system has been shown with an 8" line.
A cleanout detail has been added to the plans.
An easement has been added to the survey for the train system.
The 15-foot easement has been labeled on the survey.
The pavement repair area has been added for utilities on Ray Street.

Snow and Ice Loading
Snow Storage has been added to the plans.

Sincerely,

Main-Land Development Consultants, Inc.

Jamie L. Garland, PE
AVP Main-Land Falmouth

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September 8th 2025

City of Portland
c/o Planning Department
389 Congress Street
Portland, Maine 04101

SUBJECT: Response Comments PL-003302-2025

To Whom It May Concern,

Please find below a response to the comments provided by the City of Portland Staff.

Response to 7/9/2025 Design Review Comment Letter

- Item 1-Architectural plans has been updated to address the staff recommendations
- Item 2-Architectural plans has been updated to address the staff recommendations
- Item 3-The plans have been updated to reflect rerouting of city trail around the proposed project. Additional screening can be provided if neighbor requests but currently none is proposed.
- Item 4-Architectural plans has been updated to address the staff recommendations
- Item 5- The entry door by garage has been relocated to side of building.
-

Response to 7/17/2025 Site Plan Worksheet Letter
Section 13.6.1 Transportation Standards

Impact on surrounding Street Systems

- Site distances have been added to Sheet C2.1
- Pavement repair has been indicated with anticipated square footage on Sheet C3.1
- A survey for the project has been provided, sheet S1.1
- A label has been added to sheet C2.1 indicating the two lots, square footages and lot coverage percentages

Access and Circulation

- We are requesting a waiver of the sidewalk along property, waiver request has been uploaded to document folder
- Note has been added to sheet C2.1 showing relocation of existing road signage
- The existing Portland Trails path has been relocated as suggested by comment

Parking

- A waiver request has been submitted along with traffic movement figures from the unit garages

Section 13.6.2 Transportation Standards

Preservation of Significant Natural Features

- Field collection of trees has been completed and a tree survey submitted, we will revised the plan to show protected trees.

- Additional supporting language has been added to the stormwater narrative to reflect the impairment and how the BMP selected will address the watershed impairment.

Site Landscaping and Buffers

- Additional street trees have been added to meet city requirement, see sheet C4.1
- Plan indicating existing trees has been submitted
- Open space ratio for each lot has been added to sheet C2.1
- Tree survey has been completed and submitted
- The average grade and height calcs have been uploaded in the documents folder for the project

Water Quality, Stormwater Management and Erosion Control

- The SW narrative has been updated to reflect the selected use of a wetpond
- Additional calculations have been provided in the documents folder for the pond design, drainage areas have been adjusted accordingly
- The plan had been updated to reflect the current design of the pond
- Gutters have been added to the buildings, they are intended to outlet to the front of the units
- Flow is directed from Units 1-4 at 3% to low spot in access drive and then conveyed to pond at rear of property
- Gutters will be provided on rear of building, added to architectural plans, runoff as indicated above will be discharged to front of units
- Gutters will collect roof runoff and send to the front of the units. Curbing is provided across from units 3-8, this will direct runoff to pond in rear of property. Notation has been added to sheets C2.1 and C3.1 denoted curbing and flow arrows respectively
- The HydroCAD calcs have been revised for Type III storm and runoff numbers have been added for the 2-, 10-, and 25-year storm events

Section 13.6.3 Public Infrastructure and Community Safety Standards

Public Utilities

- Continue to work with PWD to obtain ability to serve letter, will provide as soon as available
- Design information for the new sewer line has been added to sheet C3.1. Drop manhole not proposed for project and detail has been removed. Manhole in Ray Street has been removed and replaced with a tee-wye connection. A detail for typical manhole and tee-wye connection in Ray Street has been added to sheet C9.2
- The sediment barrier has been revised per sheet C3.1
- The water main size and material has been labeled on sheet C3.1. The hydrant is proposed off the 2" service line, waiting on feedback from PWD if more information or detail will be required
- We have added a diversion berm for offsite runoff to be directed around pond
- The sewer main size and material along with invert information has been added to the plans
- The 6" sewer main will be tied into the city main via tee-wye connection, the previously proposed manhole has been removed

Section 13.6.4 Site Design Standards

Exterior Lighting

- Additional street lights have been added to the proposed new pole and existing pole west of the entrance to provide additional safety

Sincerely,

Main-Land Development Consultants, Inc.

Jamie L. Garland, PE
AVP Main-Land Falmouth

CONSTRUCTION MANAGEMENT PLAN
NARRATIVE

Ray Street Housing
174 Ray Street, Portland, Maine

Prepared by:

MAIN-LAND DEVELOPMENT CONSULTANTS, INC.
P.O. Box Q, Livermore Falls, Maine

June 13, 2025

Nelson Property Services is seeking to commence construction during the winter of 2026 and complete work by the fall of 2026 (contingent of date of city permit approvals) The construction will involve site work and new building construction. The attached construction plan outlines the anticipated timeline and sequence of activities.

A. Construction Management Principles
The following narrative provides an overview of the construction management principles that Nelson Property Services have identified to minimize impacts from the construction at 174 Ray Street, such as noise, vibrations, ground movement, truck traffic, and other construction related factors to the surrounding buildings and communities.

B. Development Review of Construction Management Plan
Nelson Property Services 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 Meetings, and Permits
Prior to scheduling a preconstruction meeting and the issuance of any city require permits; Nelson Property Services shall meet all of the requirements contained in Section 14-530. Development review fees and post approvals requirements and 14-352. 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 is controlled by Chapter 25, 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 request shall conform with the approved construction management plan.
2. Blasting: Blasting, if required, shall conform with all measures of Article VIII. Regulation of explosive 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 Building Code.

D. Construction Administration and Communication
The applicant/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 with adjacent abutters, businesses and all parties informed, as far in advance as possible, of scheduled work, particularly work anticipated to cause significant noise, vibrations or dust.

The Applicant/Contractor are as follows:
Applicant/Contractor-Nelson Property Services; and
Contact Person-Joe Nelson, Nelson Property Services, 207.252.7514
The designated Contact Person will be available 24 hours a day in the event of an emergency

Construction signage shall be posted at the site with contact information for the contractor and shall be removed at project completion.

E. Construction Schedule

1. The contractor shall submit a schedule or timeline for the construction project, including any phasing, prior to construction.
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 does 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 Pubic Works Authority.

4. Material Deliveries: Delivery of materials shall take place during the hours of construction listed above and shall be stored on the 174 Ray Street property in the locations noted on the Construction Management Plan (Figure 1)

F. Security & Public Safety

1. The contractor shall erect the temporary barriers and access gates shown on the Construction Management Plan (Figure 1) with the intent of separating pedestrian and vehicle circulation from the construction site. The contractor shall purchase and install a knox padlock from the City of Portland Fire Department to allow access through the primary access gate in case of emergency.
2. Structures undergoing construction, alteration, or demolition operations, including those in underground locations, shall comply with NFPA 1 Chapter 16, "Safeguarding Construction, Alteration and Demolitions Operations".
3. An overall construction of demolition fire safety program shall be developed. Essential items to be emphasized include the following:
    a. Good Housekeeping
    b. On-Site Security
    c. Installation of new fire protection systems as construction progresses
    d. Preservation of existing systems during construction
    e. Organization and training of an on-site fire brigade
    f. Development of a pre-fire plan with the local fire department
    g. Rapid communication
    h. Consideration of special hazards resulting from previous occupancies
    i. 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 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 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. Sewer and stormwater system connections within Ray Street are expected to result in reduced travel way width on Ray Street for up to three days.
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.

   Construction operations shall provide for the safe passage of the public through or along the construction work zone. On a case-by-case basis, the Contractor may be allowed to close a street and/or detour a mode of traffic when absolutely necessary for safety. The Contractor shall employ the appropriate techniques and devices as called for in 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 extreme situations, flaggers may be required.
   - Police detail is 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.

- Traffic control 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. A solid waste dumpster shall be located on site for the disposal of trash and debris.
2. The Ray Street right-of-way shall be swept regularly to control the tracking of mud onto adjacent public streets.
3. Dust controls: The construction shall comply with Portland's requirements under Section 25-129 on Noise, dust and debris.
4. Noise: The construction shall comply with Portland's requirements under Section 17-18 of the City Code and Section 25-129 on Noise, dust and debris.
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.
    a. Snow/ice removal or commence automatically from (1" of snow and up) or Ice
    b. Remove snow as needed within the work zone, including parking spaces & not to block any driveways or site lines with the piles of snow.
    c. Clear all walks & ramps with the work zone
    d. Sand or Salt as needed
    e. Clear all basins or drainage to help snow melt
    f. This would include Monday-Friday Sat/Sunday/Holidays

I. Erosion Control and Preservation of Trees

1. Nelson Property Services 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. Nelson Property Services 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 area 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 will 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

Construction dewatering, should it be required, will be discharged to a location of low erosion potential in an approved sediment removal device, a temporary sediment pond will be utilized at the location of the proposed pond as necessary.

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.

CONTECH ENGINEERED SOLUTIONS

Jellyfish Filter Design Calculation

Contech Engineered Solutions, LLC Engineer:	JBS		
Date Prepared:	1/8/2026		
Site Information			
Project Name	Ray Street Housing		
Project City	Portland		
Project State	ME		
Site Designation	Filter		
Total Drainage Area, Ad	0.44 ac		
Post Development Impervious Area, Ai	0.44 ac		
Pervious Area, Ap	0.00 ac		
% Impervious	100 %		
Runoff Coefficient, Rc	0.95		
Upstream pretreatment credit	50%		
Mass Loading Calculations			
Mean Annual Rainfall, P	47 in		
Agency Required % Removal	80%		
Percent Runoff Capture	90%		
Mean Annual Runoff, Vt	67,562 ft^3		
Influent Event Mean Concentration of Pollutant, EMC	70 mg/l		
Annual Mass Load, M total	295 lbs		
Water Quality Volume			
MEDEP WQv (1" impervious / 0.4" pervious)	1,597 cf		
WQv drain down period	24 hrs	48	hrs
Detention restricted outflow rate range, N_{flow}	0.018 cfs	0.009	cfs
Filter System			
Filtration Brand	Jellyfish		
Cartridge Length	40 in		
Jellyfish Mass Load Sizing			
Mass removed by pretreatment system	148 lbs		
Mass load to filters after pretreatment	148 lbs		
Mass to be Captured by System	118 lbs		
Number of Cartridges required, N_{mass}	2 Total		
Mass load per cartridge (lbs) (High Flow, HF)	93 lbs		
Mass load per cartridge (lbs) (Drain Down, DD)	46 lbs		
Number of Cartridges required, N_{mass}	1 HF, 1 DD		
Determine Critical Sizing Value			
Number of Cartridges using N_{flow}	1 HF, 1 DD 24 hr	1 HF, 1 DD	48 hr
Number of Cartridges using N_{mass}	1 HF, 1 DD		
Method to Use	FLOW BASED		
Water Quality Flow, $Q_{required}$	0.04 cfs		

Summary		
	Treatment Flow Rate Provided	0.20 cfs
Flow	Required Cartridge Quantity	1 HF, 1 DD
	Draindown Period	2.21 hrs