DRAINAGE REPORT

For

FOXBOROUGH LEARNING, LLC

PROPOSED

"CHILD CARE CENTER"

Cambridge Street
Burlington, Massachusetts
Middlesex County

Prepared by:

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December 16, 2025
#MAA250027

BOHLER

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I. EXECUTIVE SUMMARY

This report examines the changes in drainage that can be expected as the result of the development of a proposed child care center located on the westerly side of Cambridge Street in the Town of Burlington, Massachusetts. The site, which contains approximately 3.82 acres of land, is currently undeveloped and contains existing wooded area.

The proposed project includes the construction of a new 2-story, 11,000 sf freestanding child care center along with new paved parking areas, landscaping, storm water management components and associated utilities. This report addresses a comparative analysis of the pre- and post-development site runoff conditions. Additionally, this report provides calculations documenting the design of the proposed stormwater conveyance/management system as illustrated within the accompanying Site Development Plans prepared by Bohler. The project will also provide erosion and sedimentation controls during the demolition and construction periods, as well as long term stabilization of the site.

For the purposes of this analysis the pre- and post-development drainage conditions were analyzed at one (1) "design point" where stormwater runoff currently drains to under existing conditions. These design points are described in further detail in **Section II** below. A summary of the existing and proposed conditions peak runoff rates for the 2-, 10-, 25-, and 100-year storms can be found in **Table 1.1** below. In addition, the project has been designed to meet or exceed the Stormwater Management Standards as detailed herein.

Table 1.1: Design Point Peak Runoff Rate Summary

Point of Analysis	2-Year Storm			10-Year Storm			25-Year Storm			100-Year Storm		
	Pre	Post	Δ	Pre	Post	Δ	Pre	Post	Δ	Pre	Post	Δ
DP1	2.07	1.59	**-0.48**	5.13	5.05	**-0.08**	7.78	7.48	**-0.30**	12.38	11.19	**-1.19**

**Flows are represented in cubic feet per second (cfs)*

II. EXISTING SITE CONDITIONS

Existing Site Description

The site consists of approximately 3.82 acres of land located along the westerly side of Cambridge Street in the Town of Burlington, Massachusetts. The entirety of the site consists of undeveloped wooded area with wetlands large portion of the wooded area.

On-Site Soil Information

The majority of the soils at the site are mapped as Montauk fine sandy loam which is classified by the Natural Resource Conservation Service (NRCS) as Hydrologic Soil Group (HSG) "C". There is a small portion of the westerly and easterly side of the site that is mapped as Udorthents – urban land complex with an undetermined HSG. Based upon on-site geotechnical testing performed in March 2025, the site has been analyzed as HSG "C" for the purposes of this analysis. Refer to **Appendix C** for additional information.

Existing Collection and Conveyance

The entirety of the site drains from the eastern portion along Cambridge street to west an discharges into the existing wetlands on site. Slopes on site range from 1%-50% with on-site elevations ranging from 217 along Cambridge Street to 182 near westerly the discharge to the wetlands.

Existing Watersheds and Design Point Information

The site was subdivided into one (1) sub catchment for the existing conditions as described below to analyze existing and proposed flow rates at each design point. The minimum time of concentration for all proposed areas is calculated as 6 minutes (0.1 hr).

Subcatchment EX-1 in total is 1.74 acres with existing woods to remain. This area flows overland from east to west across the site where it then discharges to an existing wetland. The stormwater runoff from this Subcatchment is not treated or attenuated.

The pre- and post-development drainage conditions for the site were then analyzed at one (1) "design points" where stormwater runoff currently drains to under existing conditions.

Design Point #1 (DP1) is the existing wetlands on site. Under existing conditions, this design point receives stormwater flows from approximately 1.74 acres of land, designated as watershed "EX-1". This watershed includes areas of woodland. This area has a calculated curve number of 70 and a calculated time of concentration of 16.9 minutes.

Refer to **Table 1.1, 1.2, 5.1, and 5.2** for the calculated existing conditions peak rates of runoff and volumes. For additional hydrologic information, refer to **Appendix D** and the Drainage Area Maps in the appendices of this report for a graphical representation of the existing drainage areas.

III. PROPOSED SITE CONDITIONS

Proposed Development Description

The proposed project consists of construction of a new 2-story, 11,000 sf freestanding child care center including paved parking areas, landscaping, associated utilities, and a new stormwater management system. The site, including the proposed parking areas, has been designed to drain to deep-sump, hooded catch basins. The catch basins will capture and convey stormwater runoff, via an underground pipe system, to a proposed underground infiltration system. Pretreatment of stormwater runoff will be provided by a combination of the deep-sump, hooded catch basins and a water quality unit prior to discharge into the proposed infiltration system. Rooftop runoff and runoff from the proposed play area has been designed to flow to the underground system as well.

Proposed Development Collection and Conveyance

Deep sump hooded catch basins are proposed to collect and route runoff from the paved parking areas to the proposed underground infiltration system. Pipes have been designed for the 25-year storm using Rational Method. Pipe, inlet, and outlet protection sizing calculations are included in **Appendix F**.

The best management practices (BMPs) incorporated into the proposed stormwater management system have been designed to meet the total suspended solid (TSS) removal requirements as set forth in the Massachusetts Department of Environmental Protection Stormwater Handbook standards. Refer to **Appendix F** for calculations. In addition, a Stormwater Operation and

Maintenance (O&M) Plan, attached in **Appendix G**, has been developed which includes scheduled maintenance and periodic inspections of stormwater management structures [i.e catch basins and infiltration basins].

Proposed Watersheds and Design Point Information

The project has been designed to maintain existing drainage watersheds to the greatest extent possible, with the same design points described in **Section II** above. The site was subdivided into three (3) separate sub catchments for the proposed conditions as described below. The minimum time of concentration for all proposed areas is calculated as 6 minutes (0.1 hr).

Subcatchment PR-1 consists of 0.13 acres of entirely area consisting of rooftop. This area drains to a series of proposed roof drains that discharge into a proposed underground infiltration system. The model used the minimum time of concentration of 6 minutes.

Subcatchment PR-2 consists of 0.55 acres of entirely area consisting of grass and paved parking. This area drains to a series of proposed catch basins that is then piped through a water quality unit for pretreatment prior to discharge into a proposed underground infiltration system. The model used the minimum time of concentration of 6 minutes.

Subcatchment PR-3 consists of 1.06 acres of entirely area consisting of grass and woodland. This area drains overland from east to west where it then discharges into the existing wetlands. The model calculated a time of concentration of 16.3 minutes.

Refer to **Table 1.1 and 6.1** for the calculated proposed conditions peak rates of runoff. For additional hydrologic information, refer to **Appendix D** and the Drainage Area Maps in the appendices of this report for a graphical representation of the proposed drainage areas.

IV. METHODOLOGY

Peak Flow Calculations

Methodology utilized to design the proposed stormwater management system includes compliance with the guidelines set forth in the latest edition of the Massachusetts DEP Stormwater Handbook. The pre- and post-development runoff rates being discharged from the site were computed using the HydroCAD computer program. The drainage area and outlet information were entered into

the program, which routes storm flows based on NRCS TR-20 and TR-55 methods. The other components of the model were determined following standard NRCS procedures for Curve Numbers (CNs) and times of concentrations documented in the appendices of this report. The rainfall data utilized and listed below in table 4.1 below for stormwater calculations is based on NOAA. Refer to **Appendix F** for more information.

Table 4.1: NOAA Rainfall Intensities

Frequency	2 year	10 year	25 year	100 year
Rainfall* (inches)	4.00	6.37	8.25	11.4

*Values derived from NOAA ATLAS on 10/27/2025

The proposed stormwater management as designed will provide a decrease in peak rates of runoff from the proposed facility for the 2-, 10-, 25- and 100-year design storm events. Additionally, the proposed project meets, or exceeds, the MADEP Stormwater Management standards. Compliance with these standards is described further below.

V. STORMWATER MANAGEMENT STANDARDS

Standard #1: No New Untreated Discharges

The project has been designed so that proposed impervious areas (including the building roof and paved parking/driveway areas) shall be collected and passed through the proposed drainage system for treatment prior to discharge.

Standard #2: Peak Rate Attenuation

As outlined in **Table 1.1** and **Table 5.1**, the development of the site and the proposed stormwater management system, have been designed so that post-development peak rates of runoff are below pre-development conditions for the 2-, 10-, 25- and 100-year storm events at all design points.

Standard #3: Recharge

The stormwater runoff from the project will be collected and diverted to a proposed underground infiltration system. The project as proposed will involve the creation of 27,311 square feet of new impervious area and is required to infiltrate 569 cubic feet of stormwater as defined in Stormwater Standard 3. The proposed infiltration basin will provide 4,177 cubic feet of volume below the lowest outlet for groundwater recharge. Refer to **Appendix F** of this report for calculations documenting required and provided recharge volumes.

The DEP Stormwater Standards require that the infiltration BMP drains completely within 72 hours of the end of the storm event. Calculations showing that the proposed infiltration basin will drain within 70.8 hours are included in **Appendix F** of this report.

A four (4) foot separation to estimated seasonal high groundwater is provided and a groundwater mounding analysis is not required.

Standard #4: Water Quality

Water quality treatment is provided via deep sump catch basins, a water quality unit, and an infiltration basin. TSS removal calculations are included in **Appendix F** of this report. Phosphorus removal calculations have also been included as Burlington requires 60% of the average annual load of Total Phosphorus removal. The project as proposed will involve the creation of 27,311 square feet of new impervious area and is required to treat 2,276 cubic feet of water quality volume

as defined in Stormwater Standard 4. The proposed infiltration basin provides 4,177 cubic feet of water quality volume below the lowest outlet for water quality treatment. Refer to **Appendix F** of this report for calculations documenting required and provided water quality volumes.

Standard #5: Land Use with Higher Potential Pollutant Loads

Not Applicable for this project.

Standard #6: Critical Areas

Not Applicable for this project..

Standard #7: Redevelopment

Not Applicable for this project.

Standard #8: Construction Period Pollution Prevention and Erosion and Sedimentation Control

The proposed project will provide construction period erosion and sedimentation controls as indicated within the site plan set provided for this project. This includes a proposed construction exit, protection for stormwater inlets, protection around temporary material stock piles and various other techniques as outlined on the erosion and sediment control sheets. Additionally, the project is required to file a Notice of Intent with the US EPA and implement a Stormwater Pollution Prevention Plan (SWPPP) during the construction period. The SWPPP will be prepared prior to the start of construction and will be implemented by the site contractor under the guidance and responsibility of the project's proponent.

Standard #9: Operation and Maintenance Plan (O&M Plan)

An Operation and Maintenance (O&M) Plan for this site has been prepared and is included in **Appendix G** of this report. The O&M Plan outlines procedures and time tables for the long term operation and maintenance of the proposed site stormwater management system, including initial inspections upon completion of construction, and periodic monitoring of the system components, in accordance with established practices and the manufacturer's recommendations. The O&M Plan includes a list of responsible parties and an estimated budget for inspections and maintenance.

Standard #10: Prohibition of Illicit Discharges

The proposed stormwater system will only convey allowable non-stormwater discharges (firefighting waters, irrigation, air conditioning condensates, etc.) and will not contain any illicit discharges from prohibited sources. An Illicit Discharge Statement is included in **Appendix G** of this report.

VI. SUMMARY

In summary, the proposed stormwater management system illustrated on the drawings prepared by Bohler Engineering results in a reduction in peak rates of runoff from the subject site when compared to pre-development conditions for the 2-, 10-, 25- and 100-year storm frequencies. In addition, the proposed best management practices will result in an effective removal of total suspended solids from the post-development runoff. The pre-development versus post-development stormwater discharge comparisons are contained in **Table 6.1** below:

Table 6.1: Design Point Peak Runoff Rate Summary

Point of Analysis	2-Year Storm			10-Year Storm			25-Year Storm			100-Year Storm		
	Pre	Post	Δ	Pre	Post	Δ	Pre	Post	Δ	Pre	Post	Δ
DP1	2.07	1.59	**-0.48**	5.13	5.05	**-0.08**	7.78	7.48	**-0.30**	12.38	11.19	**-1.19**

**Flows are represented in cubic feet per second (cfs)*

As outlined in the table above, the proposed stormwater management system as designed will provide a decrease in peak rates of runoff from the proposed facility for the 2-, 10-, 25- and 100-year storm events. Additionally, the project meets, or exceeds the MADEP Stormwater Management Standards as described further herein.

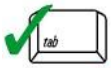
APPENDIX A: MASSACHUSETTS STORMWATER MANAGEMENT CHECKLIST

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands Program

Checklist for Stormwater Report

A. Introduction

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



A Stormwater Report must be submitted with the Notice of Intent permit application to document compliance with the Stormwater Management Standards. The following checklist is NOT a substitute for the Stormwater Report (which should provide more substantive and detailed information) but is offered here as a tool to help the applicant organize their Stormwater Management documentation for their Report and for the reviewer to assess this information in a consistent format. As noted in the Checklist, the Stormwater Report must contain the engineering computations and supporting information set forth in Volume 3 of the Massachusetts Stormwater Handbook. The Stormwater Report must be prepared and certified by a Registered Professional Engineer (RPE) licensed in the Commonwealth.

The Stormwater Report must include:

- The Stormwater Checklist completed and stamped by a Registered Professional Engineer (see page 2) that certifies that the Stormwater Report contains all required submittals.[1] This Checklist is to be used as the cover for the completed Stormwater Report.
- Applicant/Project Name
- Project Address
- Name of Firm and Registered Professional Engineer that prepared the Report
- Long-Term Pollution Prevention Plan required by Standards 4-6
- Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan required by Standard 8[2]
- Operation and Maintenance Plan required by Standard 9

In addition to all plans and supporting information, the Stormwater Report must include a brief narrative describing stormwater management practices, including environmentally sensitive site design and LID techniques, along with a diagram depicting runoff through the proposed BMP treatment train. Plans are required to show existing and proposed conditions, identify all wetland resource areas, NRCS soil types, critical areas, Land Uses with Higher Potential Pollutant Loads (LUHPPL), and any areas on the site where infiltration rate is greater than 2.4 inches per hour. The Plans shall identify the drainage areas for both existing and proposed conditions at a scale that enables verification of supporting calculations.

As noted in the Checklist, the Stormwater Management Report shall document compliance with each of the Stormwater Management Standards as provided in the Massachusetts Stormwater Handbook. The soils evaluation and calculations shall be done using the methodologies set forth in Volume 3 of the Massachusetts Stormwater Handbook.

To ensure that the Stormwater Report is complete, applicants are required to fill in the Stormwater Report Checklist by checking the box to indicate that the specified information has been included in the Stormwater Report. If any of the information specified in the checklist has not been submitted, the applicant must provide an explanation. The completed Stormwater Report Checklist and Certification must be submitted with the Stormwater Report.

[1] The Stormwater Report may also include the Illicit Discharge Compliance Statement required by Standard 10. If not included in the Stormwater Report, the Illicit Discharge Compliance Statement must be submitted prior to the discharge of stormwater runoff to the post-construction best management practices.

[2] For some complex projects, it may not be possible to include the Construction Period Erosion and Sedimentation Control Plan in the Stormwater Report. In that event, the issuing authority has the discretion to issue an Order of Conditions that approves the project and includes a condition requiring the proponent to submit the Construction Period Erosion and Sedimentation Control Plan before commencing any land disturbance activity on the site.

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands Program

Checklist for Stormwater Report

B. Stormwater Checklist and Certification

The following checklist is intended to serve as a guide for applicants as to the elements that ordinarily need to be addressed in a complete Stormwater Report. The checklist is also intended to provide conservation commissions and other reviewing authorities with a summary of the components necessary for a comprehensive Stormwater Report that addresses the ten Stormwater Standards.

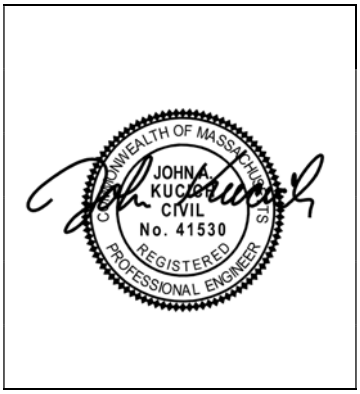
Note: Because stormwater requirements vary from project to project, it is possible that a complete Stormwater Report may not include information on some of the subjects specified in the Checklist. If it is determined that a specific item does not apply to the project under review, please note that the item is not applicable (N.A.) and provide the reasons for that determination.

A complete checklist must include the Certification set forth below signed by the Registered Professional Engineer who prepared the Stormwater Report.

Registered Professional Engineer's Certification

I have reviewed the Stormwater Report, including the soil evaluation, computations, Long-term Pollution Prevention Plan, the Construction Period Erosion and Sedimentation Control Plan (if included), the Long-term Post-Construction Operation and Maintenance Plan, the Illicit Discharge Compliance Statement (if included) and the plans showing the stormwater management system, and have determined that they have been prepared in accordance with the requirements of the Stormwater Management Standards as further elaborated by the Massachusetts Stormwater Handbook. I have also determined that the information presented in the Stormwater Checklist is accurate and that the information presented in the Stormwater Report accurately reflects conditions at the site as of the date of this permit application.

Registered Professional Engineer Block and Signature



12/16/2025

Signature and Date

Checklist

Project Type: Is the application for new development, redevelopment, or a mix of new and redevelopment?

☒ New development

☐ Redevelopment

☐ Mix of New Development and Redevelopment

Checklist for Stormwater Report

Checklist (continued)

LID Measures: Stormwater Standards require LID measures to be considered. Document what environmentally sensitive design and LID Techniques were considered during the planning and design of the project:

- ☐ No disturbance to any Wetland Resource Areas
- ☐ Site Design Practices (e.g. clustered development, reduced frontage setbacks)
- ☐ Reduced Impervious Area (Redevelopment Only)
- ☐ Minimizing disturbance to existing trees and shrubs
- ☐ LID Site Design Credit Requested:
  - ☐ Credit 1
  - ☐ Credit 2
  - ☐ Credit 3
- ☐ Use of "country drainage" versus curb and gutter conveyance and pipe
- ☐ Bioretention Cells (includes Rain Gardens)
- ☐ Constructed Stormwater Wetlands (includes Gravel Wetlands designs)
- ☐ Treebox Filter
- ☐ Water Quality Swale
- ☐ Grass Channel
- ☐ Green Roof
- ☐ Other (describe): Underground Infiltration System

Standard 1: No New Untreated Discharges

- ☒ No new untreated discharges
- ☒ Outlets have been designed so there is no erosion or scour to wetlands and waters of the Commonwealth
- ☒ Supporting calculations specified in Volume 3 of the Massachusetts Stormwater Handbook included.

Checklist for Stormwater Report

Checklist (continued)

Standard 2: Peak Rate Attenuation

☐ Standard 2 waiver requested because the project is located in land subject to coastal storm flowage and stormwater discharge is to a wetland subject to coastal flooding.

☐ Evaluation provided to determine whether off-site flooding increases during the 100-year 24-hour storm.

☒ Calculations provided to show that post-development peak discharge rates do not exceed pre-development rates for the 2-year and 10-year 24-hour storms. If evaluation shows that off-site flooding increases during the 100-year 24-hour storm, calculations are also provided to show that post-development peak discharge rates do not exceed pre-development rates for the 100-year 24-hour storm.

Standard 3: Recharge

☒ Soil Analysis provided.

☒ Required Recharge Volume calculation provided.

☐ Required Recharge volume reduced through use of the LID site Design Credits.

☒ Sizing the infiltration, BMPs is based on the following method: Check the method used.

☐ Static ☒ Simple Dynamic ☐ Dynamic Field[1]

☒ Runoff from all impervious areas at the site discharging to the infiltration BMP.

☐ Runoff from all impervious areas at the site is *not* discharging to the infiltration BMP and calculations are provided showing that the drainage area contributing runoff to the infiltration BMPs is sufficient to generate the required recharge volume.

☒ Recharge BMPs have been sized to infiltrate the Required Recharge Volume.

☐ Recharge BMPs have been sized to infiltrate the Required Recharge Volume *only* to the maximum extent practicable for the following reason:

- ☐ Site is comprised solely of C and D soils and/or bedrock at the land surface
- ☐ M.G.L. c. 21E sites pursuant to 310 CMR 40.0000
- ☐ Solid Waste Landfill pursuant to 310 CMR 19.000
- ☐ Project is otherwise subject to Stormwater Management Standards only to the maximum extent practicable.

☒ Calculations showing that the infiltration BMPs will drain in 72 hours are provided.

☐ Property includes a M.G.L. c. 21E site or a solid waste landfill and a mounding analysis is included.

[1] 80% TSS removal is required prior to discharge to infiltration BMP if Dynamic Field method is used.

Checklist for Stormwater Report

Checklist (continued)

Standard 3: Recharge (continued)

☐ The infiltration BMP is used to attenuate peak flows during storms greater than or equal to the 10-year 24-hour storm and separation to seasonal high groundwater is less than 4 feet and a mounding analysis is provided.

☐ Documentation is provided showing that infiltration BMPs do not adversely impact nearby wetland resource areas.

Standard 4: Water Quality

The Long-Term Pollution Prevention Plan typically includes the following:

- Good housekeeping practices;
- Provisions for storing materials and waste products inside or under cover;
- Vehicle washing controls;
- Requirements for routine inspections and maintenance of stormwater BMPs;
- Spill prevention and response plans;
- Provisions for maintenance of lawns, gardens, and other landscaped areas;
- Requirements for storage and use of fertilizers, herbicides, and pesticides;
- Pet waste management provisions;
- Provisions for operation and management of septic systems;
- Provisions for solid waste management;
- Snow disposal and plowing plans relative to Wetland Resource Areas;
- Winter Road Salt and/or Sand Use and Storage restrictions;
- Street sweeping schedules;
- Provisions for prevention of illicit discharges to the stormwater management system;
- Documentation that Stormwater BMPs are designed to provide for shutdown and containment in the event of a spill or discharges to or near critical areas or from LUHPPL;
- Training for staff or personnel involved with implementing Long-Term Pollution Prevention Plan;
- List of Emergency contacts for implementing Long-Term Pollution Prevention Plan.

☒ A Long-Term Pollution Prevention Plan is attached to Stormwater Report and is included as an attachment to the Wetlands Notice of Intent.

☒ Treatment BMPs subject to the 44% TSS removal pretreatment requirement and the one inch rule for calculating the water quality volume are included, and discharge:

- ☐ is within the Zone II or Interim Wellhead Protection Area
- ☐ is near or to other critical areas
- ☐ is within soils with a rapid infiltration rate (greater than 2.4 inches per hour)
- ☐ involves runoff from land uses with higher potential pollutant loads.

☐ The Required Water Quality Volume is reduced through use of the LID site Design Credits.

☒ Calculations documenting that the treatment train meets the 80% TSS removal requirement and, if applicable, the 44% TSS removal pretreatment requirement, are provided.

Checklist for Stormwater Report

Checklist (continued)

Standard 4: Water Quality (continued)

☒ The BMP is sized (and calculations provided) based on:

- ☒ The ½" or 1" Water Quality Volume or
- ☐ The equivalent flow rate associated with the Water Quality Volume and documentation is provided showing that the BMP treats the required water quality volume.

☒ The applicant proposes to use proprietary BMPs, and documentation supporting use of proprietary BMP and proposed TSS removal rate is provided. This documentation may be in the form of the propriety BMP checklist found in Volume 2, Chapter 4 of the Massachusetts Stormwater Handbook and submitting copies of the TARP Report, STEP Report, and/or other third party studies verifying performance of the proprietary BMPs.

☐ A TMDL exists that indicates a need to reduce pollutants other than TSS and documentation showing that the BMPs selected are consistent with the TMDL is provided.

Standard 5: Land Uses With Higher Potential Pollutant Loads (LUHPPLs)

☐ The NPDES Multi-Sector General Permit covers the land use and the Stormwater Pollution Prevention Plan (SWPPP) has been included with the Stormwater Report.

☒ The NPDES Multi-Sector General Permit covers the land use and the SWPPP will be submitted ***prior to*** the discharge of stormwater to the post-construction stormwater BMPs.

☐ The NPDES Multi-Sector General Permit does ***not*** cover the land use.

☐ LUHPPLs are located at the site and industry specific source control and pollution prevention measures have been proposed to reduce or eliminate the exposure of LUHPPLs to rain, snow, snow melt and runoff, and been included in the long term Pollution Prevention Plan.

☐ All exposure has been eliminated.

☐ All exposure has ***not*** been eliminated and all BMPs selected are on MassDEP LUHPPL list.

☐ The LUHPPL has the potential to generate runoff with moderate to higher concentrations of oil and grease (e.g. all parking lots with >1000 vehicle trips per day) and the treatment train includes an oil grit separator, a filtering bioretention area, a sand filter or equivalent.

Standard 6: Critical Areas

☐ The discharge is near or to a critical area and the treatment train includes only BMPs that MassDEP has approved for stormwater discharges to or near that particular class of critical area.

☐ Critical areas and BMPs are identified in the Stormwater Report.

Checklist for Stormwater Report

Checklist (continued)

Standard 7: Redevelopments and Other Projects Subject to the Standards only to the maximum extent practicable

☐ The project is subject to the Stormwater Management Standards only to the maximum Extent Practicable as a:

- ☐ Limited Project
- ☐ Small Residential Projects: 5-9 single family houses or 5-9 units in a multi-family development provided there is no discharge that may potentially affect a critical area.
- ☐ Small Residential Projects: 2-4 single family houses or 2-4 units in a multi-family development with a discharge to a critical area
- ☐ Marina and/or boatyard provided the hull painting, service and maintenance areas are protected from exposure to rain, snow, snow melt and runoff
- ☐ Bike Path and/or Foot Path
- ☐ Redevelopment Project
- ☐ Redevelopment portion of mix of new and redevelopment.

☐ Certain standards are not fully met (Standard No. 1, 8, 9, and 10 must always be fully met) and an explanation of why these standards are not met is contained in the Stormwater Report.

☐ The project involves redevelopment and a description of all measures that have been taken to improve existing conditions is provided in the Stormwater Report. The redevelopment checklist found in Volume 2 Chapter 3 of the Massachusetts Stormwater Handbook may be used to document that the proposed stormwater management system (a) complies with Standards 2, 3 and the pretreatment and structural BMP requirements of Standards 4-6 to the maximum extent practicable and (b) improves existing conditions.

Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Control

A Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan must include the following information:

- Narrative;
- Construction Period Operation and Maintenance Plan;
- Names of Persons or Entity Responsible for Plan Compliance;
- Construction Period Pollution Prevention Measures;
- Erosion and Sedimentation Control Plan Drawings;
- Detail drawings and specifications for erosion control BMPs, including sizing calculations;
- Vegetation Planning;
- Site Development Plan;
- Construction Sequencing Plan;
- Sequencing of Erosion and Sedimentation Controls;
- Operation and Maintenance of Erosion and Sedimentation Controls;
- Inspection Schedule;
- Maintenance Schedule;
- Inspection and Maintenance Log Form.

☒ A Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan containing the information set forth above has been included in the Stormwater Report.

Checklist for Stormwater Report

Checklist (continued)

Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Control (continued)

☐ The project is highly complex and information is included in the Stormwater Report that explains why it is not possible to submit the Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan with the application. A Construction Period Pollution Prevention and Erosion and Sedimentation Control has ***not*** been included in the Stormwater Report but will be submitted ***before*** land disturbance begins.

☐ The project is ***not*** covered by a NPDES Construction General Permit.

☐ The project is covered by a NPDES Construction General Permit and a copy of the SWPPP is in the Stormwater Report.

☒ The project is covered by a NPDES Construction General Permit but no SWPPP been submitted. The SWPPP will be submitted BEFORE land disturbance begins.

Standard 9: Operation and Maintenance Plan

☒ The Post Construction Operation and Maintenance Plan is included in the Stormwater Report and includes the following information:

- ☒ Name of the stormwater management system owners;
- ☒ Party responsible for operation and maintenance;
- ☒ Schedule for implementation of routine and non-routine maintenance tasks;
- ☐ Plan showing the location of all stormwater BMPs maintenance access areas;
- ☒ Description and delineation of public safety features;
- ☒ Estimated operation and maintenance budget; and
- ☒ Operation and Maintenance Log Form.

☐ The responsible party is ***not*** the owner of the parcel where the BMP is located and the Stormwater Report includes the following submissions:

- ☐ A copy of the legal instrument (deed, homeowner's association, utility trust or other legal entity) that establishes the terms of and legal responsibility for the operation and maintenance of the project site stormwater BMPs;
- ☐ A plan and easement deed that allows site access for the legal entity to operate and maintain BMP functions.

Standard 10: Prohibition of Illicit Discharges

☒ The Long-Term Pollution Prevention Plan includes measures to prevent illicit discharges;

☒ An Illicit Discharge Compliance Statement is attached;

☐ NO Illicit Discharge Compliance Statement is attached but will be submitted ***prior to*** the discharge of any stormwater to post-construction BMPs.

APPENDIX B: PROJECT LOCATION MAPS

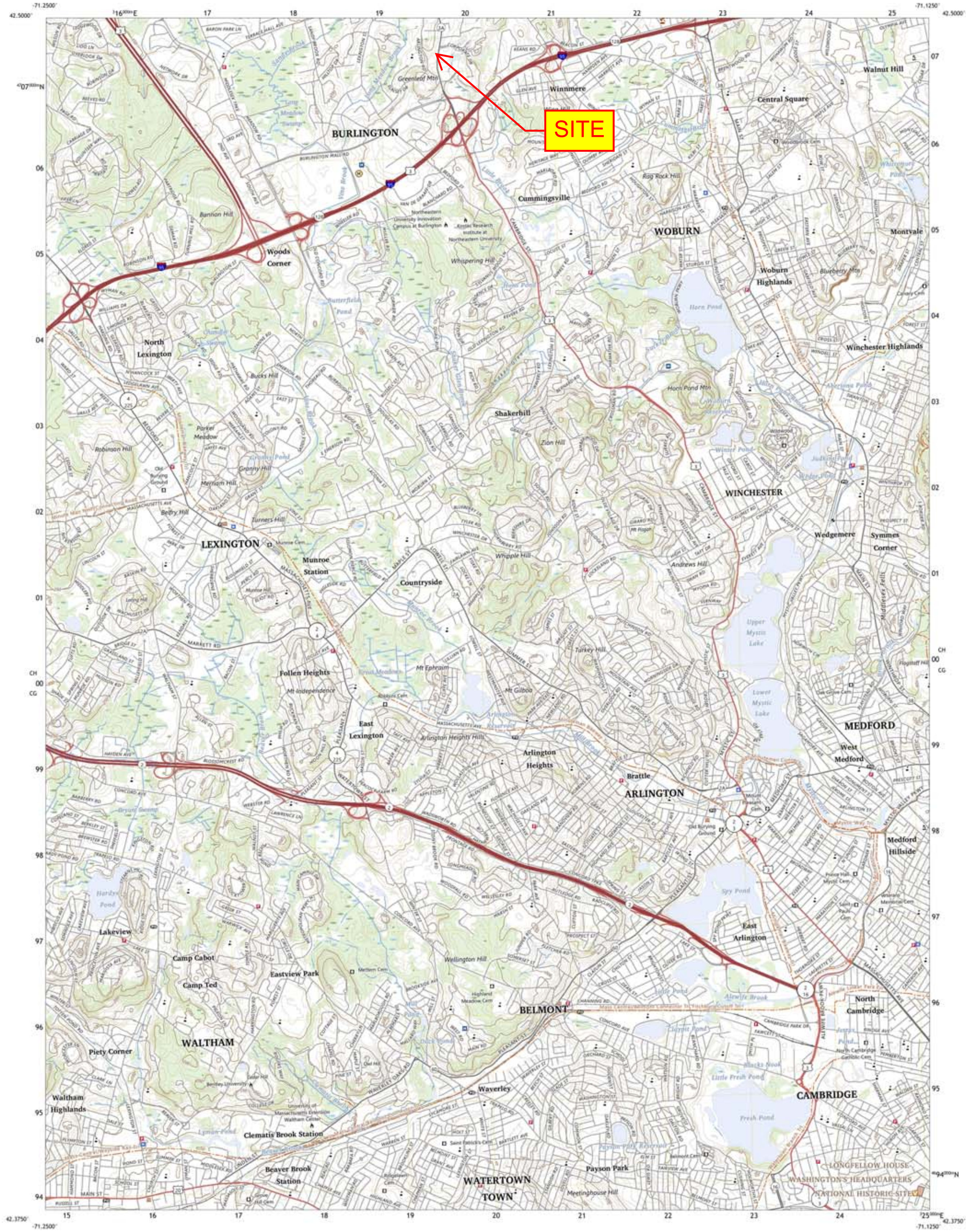
- *USGS MAP*
- *FEMA FIRMETTE*

USGS science for a changing world

U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

The National Map US Topo

LEXINGTON QUADRANGLE
MASSACHUSETTS - MIDDLESEX COUNTY
7.5-MINUTE SERIES



Produced by the United States Geological Survey
North American Datum of 1983 (NAD83)
World Geodetic System of 1984 (WGS84). Projection and 1 000-meter grid: Universal Transverse Mercator, Zone 19T
This map is not a legal document. Boundaries may be generalized for this map scale. Private lands within government reservations may not be shown. Obtain permission before entering private lands.

Imagery.....NAIP, October 2018 - October 2018
Roads.....U.S. Census Bureau, 2018
Names.....GNIS, 1974 - 2024
Hydrography.....National Hydrography Dataset, 2004 - 2022
Contours.....National Elevation Dataset, 2023
Boundaries.....Multiple sources; see metadata file 2020 - 2022
Wetlands.....FWS National Wetlands Inventory 1991 - 2013

UTM GRID AND 2023 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

SCALE 1:24 000

CONTOUR INTERVAL 10 FEET
NORTH AMERICAN VERTICAL DATUM OF 1988

This map was produced to conform with the National Geospatial Program US Topo Product Standard.

QUADRANGLE LOCATION

ADJOINING QUADRANGLES
1 Billerica
2 Wilmington
3 Reading
4 Concord
5 Boston North
6 Natick
7 Newton
8 Boston South

ROAD CLASSIFICATION
Expressway — Local Connector
Secondary Hwy — Local Road
Ramp — 4WD
Interstate Route — US Route — State Route

LEXINGTON, MA
2024

National Flood Hazard Layer FIRMette

FEMA

71°12'1"W 42°30'8"N

71°11'24"W 42°29'42"N

0 250 500 1,000 1,500 2,000 Feet

1:6,000

Basemap Imagery Source: USGS National Map 2023

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 Cross Sections with 1% Annual Chance
- 17.5 Water Surface Elevation
- Coastal Transect
- Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

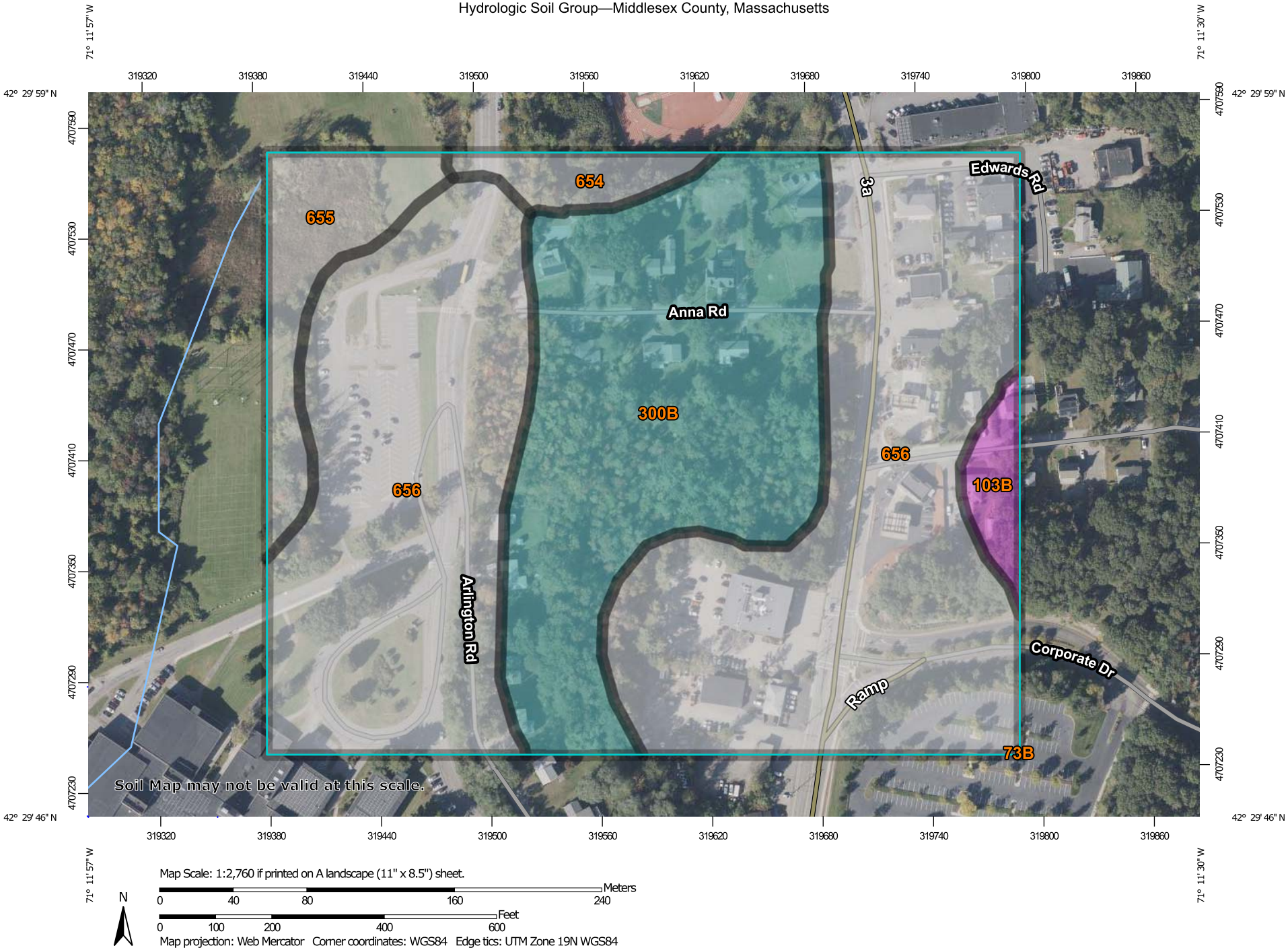
This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 12/16/2025 at 3:53 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

APPENDIX C: SOIL AND WETLAND INFORMATION

- *NCRS CUSTOM SOIL RESOURCE REPORT*
- *REPORT OF GEOTECHNICAL INVESTIGATION*



Map Scale: 1:2,760 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 40 80 160 240

Feet: 0 100 200 400 600

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

Soil Rating Polygons

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Middlesex County, Massachusetts
Survey Area Data: Version 25, Sep 5, 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, 2023—Sep 1, 2023

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
73B	Whitman fine sandy loam, 0 to 3 percent slopes, extremely stony	D	0.0	0.0%
103B	Charlton-Hollis-Rock outcrop complex, 3 to 8 percent slopes	A	0.6	1.9%
300B	Montauk fine sandy loam, 3 to 8 percent slopes	C	9.6	29.1%
654	Udorthents, loamy		0.8	2.5%
655	Udorthents, wet substratum		2.0	6.0%
656	Udorthents-Urban land complex		20.0	60.5%
Totals for Area of Interest			**33.1**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

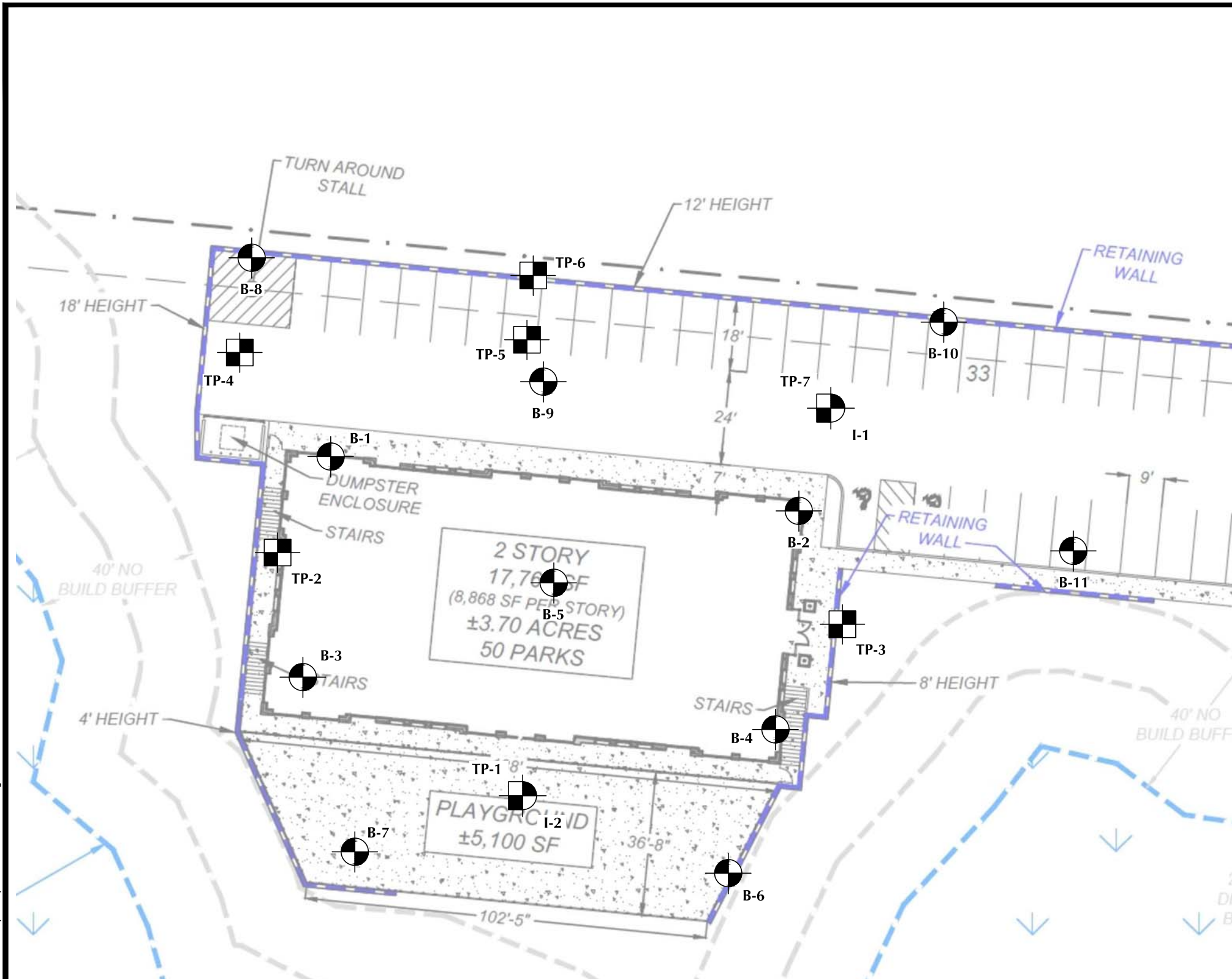
If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher



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WHITESTONE

APPENDIX A
Records of Subsurface Exploration
(Borings B-1 through B-12;
Test Pits TP-1 through TP-7)

WHITESTONE

RECORD OF SUBSURFACE EXPLORATION

Boring No.: B-1

Project:	Proposed Daycare Center	**WAI Project No.:**	GM2523022.000
Location:	Between 101 and 109 Cambridge Street, Burlington, Middlesex County, Massachusetts	**Client:**	Bohler, LLC
Surface Elevation:	± NS feet Above NAVD88	**Date Started:**	3/6/2025
Termination Depth:	18.0 feet bgs	**Date Completed:**	3/6/2025
Proposed Location:	Building	**Logged By:**	TG
Drill / Test Method:	HSA / SPT (Autohammer)	**Contractor:**	SE
		Equipment:	Diedrich D-70

Water Depth | Elevation	(feet bgs) | (ft NAVD88)	Cave-In Depth | Elevation	(feet bgs) | (ft NAVD88)
During:	0.0 | --		
At Completion:	-- | --	At Completion:	-- | --
24 Hours:	-- | --	24 Hours:	-- | --

SAMPLE INFORMATION						DEPTH	STRATA		DESCRIPTION OF MATERIALS (Classification)	REMARKS
Depth (feet)	No	Type	Blows Per 6"	Rec. (in.)	N	(feet)				
						0.0				
							TS		5" Topsoil	
0 - 2	S-1		1 - 3 - 3 - 10	20	6	1.5	SUBSOIL		13" Subsoil, Roots	
2 - 4	S-2		15 - 18 - 21 - 25	18	39				Brown, Dense, Silty Sand with Gravel (SM)	
						5.0				
5 - 7	S-3		11 - 10 - 7 - 5	19	17				As Above, Medium Dense (SM)	
7 - 9	S-4		4 - 8 - 13 - 20	13	21				As Above (SM)	
							GLACIAL TILL			
						10.0				
10 - 12	S-5		9 - 13 - 18 - 21	21	31				As Above, Dense (SM)	
						15.0				
15 - 17	S-6		25 - 26 - 19 - 23	22	45				As Above (SM)	
17 - 18	S-7		25 - 50	12	100				As Above, Very Dense (SM)	Cobbles & Boulders
						20.0			Boring Log B-1 Terminated at Depth of 18 feet below ground surface.	
						25.0				

NOTES: bgs = below ground surface, msl = mean sea level, NA = Not Applicable, NE = Not Encountered, NS = Not Surveyed, P = Perched

WHITESTONE

RECORD OF SUBSURFACE EXPLORATION

Boring No.: B-2

Page 1 of 1

Project:	Proposed Daycare Center	**WAI Project No.:**	GM2523022.000
Location:	Between 101 and 109 Cambridge Street, Burlington, Middlesex County, Massachusetts	**Client:**	Bohler, LLC
Surface Elevation:	± NS feet Above NAVD88	**Date Started:**	3/5/2025
Termination Depth:	20.4 feet bgs	**Date Completed:**	3/5/2025
Proposed Location:	Building	**Logged By:**	JB
Drill / Test Method:	HSA / SPT (Autohammer)	**Contractor:**	SE
		Equipment:	Diedrich D-70

	Water Depth (feet bgs)	Elevation (ft NAVD88)	Cave-In Depth (feet bgs)	Elevation (ft NAVD88)
During:	5.0	--		
At Completion:	--	--	**At Completion:** --	--
24 Hours:	--	--	**24 Hours:** --	--

Depth (feet)	No	Type	Blows Per 6"	Rec. (in.)	N	DEPTH (feet)	STRATA	DESCRIPTION OF MATERIALS (Classification)	REMARKS
						0.0			
0 - 2	S-1		1 - 1 - 1 - 3	14	2		TS	7" Topsoil	
							SUBSOIL	23" Subsoil, Roots	
2 - 4	S-2		7 - 24 - 40 - 30	20	64	2.5		Gray-Brown, Very Dense, Silty Sand with Gravel (SM)	
						5.0 ▽			
5 - 7	S-3		20 - 26 - 28 - 54	18	54			As Above (SM)	
7 - 9	S-4		36 - 32 - 30 - 46	20	62			As Above (SM)	
						10.0			
10 - 12	S-5		16 - 15 - 14 - 14	14	29		GLACIAL TILL	As Above, Medium Dense (SM)	
						15.0			
15 - 17	S-6		23 - 29 - 36 - 43	20	65			As Above, Very Dense (SM)	
						20.0			
20 - 20.4	S-7		50/5"	4	-			As Above (SM)	Cobbles & Boulders
								Boring Log B-2 Terminated at Depth of 20.4 feet below ground surface.	
						25.0			

NOTES: bgs = below ground surface, msl = mean sea level, NA = Not Applicable, NE = Not Encountered, NS = Not Surveyed, P = Perched

WHITESTONE

RECORD OF SUBSURFACE EXPLORATION

Boring No.: B-3

Page 1 of 1

Project:	Proposed Daycare Center	**WAI Project No.:**	GM2523022.000
Location:	Between 101 and 109 Cambridge Street, Burlington, Middlesex County, Massachusetts	**Client:**	Bohler, LLC
Surface Elevation:	± NS feet Above NAVD88	**Date Started:**	3/5/2025
Termination Depth:	22.0 feet bgs	**Date Completed:**	3/5/2025
Proposed Location:	Building	**Logged By:**	JB
Drill / Test Method:	HSA / SPT (Autohammer)	**Contractor:**	SE
		Equipment:	Diedrich D-70

Water Depth | Elevation	(feet bgs) | (ft NAVD88)	Cave-In Depth | Elevation	(feet bgs) | (ft NAVD88)
During:	2.0 | --		
At Completion:	-- | --	At Completion:	-- | --
24 Hours:	-- | --	24 Hours:	-- | --

SAMPLE INFORMATION						DEPTH	STRATA	DESCRIPTION OF MATERIALS (Classification)	REMARKS
Depth (feet)	No	Type	Blows Per 6"	Rec. (in.)	N	(feet)			
						0.0			
0 - 2	S-1		1 - 2 - 2 - 8	20	4		TS	8" Topsoil	
							SUBSOIL	16" Subsoil, Roots	
						2.0			
2 - 4	S-2		17 - 23 - 30 - 30	10	53			Brown, Very Dense, Silty Sand with Gravel (SM)	
						5.0			
5 - 7	S-3		6 - 5 - 4 - 12	10	9			Gray, Loose, Sandy Silt with Gravel (ML)	
								As Above, Medium Dense (ML)	
7 - 9	S-4		5 - 12 - 10 - 10	18	22			Brown, Medium Dense, Silty Sand with Gravel (SM)	
						10.0			
10 - 12	S-5		8 - 16 - 19 - 26	20	35		GLACIAL TILL	As Above, Dense (SM)	
						15.0			
15 - 17	S-6		19 - 24 - 25 - 29	18	49			As Above (SM)	
						20.0			
20 - 22	S-7		31 - 39 - 37 - 43	24	76			As Above, Very Dense (SM)	
						25.0		Boring Log B-3 Terminated at Depth of 22 feet below ground surface.	

NOTES: bgs = below ground surface, msl = mean sea level, NA = Not Applicable, NE = Not Encountered, NS = Not Surveyed, P = Perched

WHITESTONE

RECORD OF SUBSURFACE EXPLORATION

Boring No.: B-4

Page 1 of 1

Project:	Proposed Daycare Center	**WAI Project No.:**	GM2523022.000
Location:	Between 101 and 109 Cambridge Street, Burlington, Middlesex County, Massachusetts	**Client:**	Bohler, LLC
Surface Elevation:	± NS feet Above NAVD88	**Date Started:**	3/5/2025
Termination Depth:	22.0 feet bgs	**Date Completed:**	3/5/2025
Proposed Location:	Building	**Logged By:**	JB
Drill / Test Method:	HSA / SPT (Autohammer)	**Contractor:**	SE
		Equipment:	Diedrich D-70

Water Depth (feet bgs)	Elevation (ft NAVD88)	Cave-In Depth (feet bgs)	Elevation (ft NAVD88)
During: 5.0	--		
At Completion: --	--	At Completion: --	--
24 Hours: --	--	24 Hours: --	--

SAMPLE INFORMATION						DEPTH	STRATA		DESCRIPTION OF MATERIALS (Classification)	REMARKS
Depth (feet)	No	Type	Blows Per 6"	Rec. (in.)	N	(feet)				
						0.0				
0 - 2	S-1		1 - 2 - 7 - 13	16	9		TS		7" Topsoil	
							SUBSOIL		17" Subsoil, Roots	
						2.0				
2 - 4	S-2		25 - 22 - 25 - 21	24	47				Gray-Brown, Dense, Silty Sand with Gravel (SM)	
						5.0 ▽				
5 - 7	S-3		20 - 17 - 14 - 10	18	31				As Above (SM)	
7 - 9	S-4		8 - 6 - 8 - 11	24	14				As Above, Medium Dense (SM)	
						10.0				
10 - 11.8	S-5		15 - 13 - 18 - 50/4"	16	31		GLACIAL TILL		As Above, Dense (SM)	Cobbles & Boulders
						15.0				
15 - 17	S-6		9 - 14 - 13 - 11	18	27				As Above, Medium Dense (SM)	
						20.0				
20 - 22	S-7		19 - 27 - 28 - 23	22	55				As Above, Very Dense (SM)	
						25.0			Boring Log B-4 Terminated at Depth of 22 feet below ground surface.	

NOTES: bgs = below ground surface, msl = mean sea level, NA = Not Applicable, NE = Not Encountered, NS = Not Surveyed, P = Perched

WHITESTONE

RECORD OF SUBSURFACE EXPLORATION

Boring No.: B-5

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Project:	Proposed Daycare Center	**WAI Project No.:**	GM2523022.000
Location:	Between 101 and 109 Cambridge Street, Burlington, Middlesex County, Massachusetts	**Client:**	Bohler, LLC
Surface Elevation:	± NS feet Above NAVD88	**Date Started:**	3/5/2025
Termination Depth:	22.0 feet bgs	**Date Completed:**	3/5/2025
Proposed Location:	Building	**Logged By:**	JB
Drill / Test Method:	HSA / SPT (Autohammer)	**Contractor:**	SE
		Equipment:	Diedrich D-70

Water Depth (feet bgs)	Elevation (ft NAVD88)	Cave-In Depth (feet bgs)	Elevation (ft NAVD88)
During: 7.0	--		
At Completion: --	--	At Completion: --	--
24 Hours: --	--	24 Hours: --	--

Depth (feet)	No	Type	Blows Per 6"	Rec. (in.)	N	Depth (feet)	STRATA	DESCRIPTION OF MATERIALS (Classification)	REMARKS
						0.0			
0 - 2	S-1	X	1 - 1 - 2 - 3	12	3		TS	6" Topsoil	
						2.0	SUBSOIL	18" Subsoil, Roots	
2 - 4	S-2	X	21 - 20 - 31 - 21	22	51			Gray-Brown, Very Dense, Silty Sand with Gravel (SM)	
						5.0			
5 - 7	S-3	X	15 - 12 - 14 - 24	12	26			As Above, Medium Dense (SM)	
7 - 9	S-4	X	18 - 12 - 13 - 10	12	25			As Above (SM)	
						10.0			
10 - 12	S-5	X	9 - 10 - 11 - 11	20	21		GLACIAL TILL	As Above (SM)	
						15.0			
15 - 17	S-6	X	29 - 38 - 32 - 26	14	70			As Above, Very Dense (SM)	
						20.0			
20 - 22	S-7	X	32 - 31 - 34 - 30	20	65			As Above (SM)	
						25.0		Boring Log B-5 Terminated at Depth of 22 feet below ground surface.	

NOTES: bgs = below ground surface, msl = mean sea level, NA = Not Applicable, NE = Not Encountered, NS = Not Surveyed, P = Perched

WHITESTONE

RECORD OF SUBSURFACE EXPLORATION

Boring No.: B-6

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Project:	Proposed Daycare Center	**WAI Project No.:**	GM2523022.000
Location:	Between 101 and 109 Cambridge Street, Burlington, Middlesex County, Massachusetts	**Client:**	Bohler, LLC
Surface Elevation:	± NS feet Above NAVD88	**Date Started:**	3/5/2025
Termination Depth:	17.0 feet bgs	**Date Completed:**	3/5/2025
Proposed Location:	Retaining Wall	**Logged By:**	JB
Drill / Test Method:	HSA / SPT (Autohammer)	**Contractor:**	SE
		Equipment:	Diedrich D-70

Water Depth (feet bgs)	Elevation (ft NAVD88)	Cave-In Depth (feet bgs)	Elevation (ft NAVD88)
During: 5.0	--		
At Completion: --	--	At Completion: --	--
24 Hours: --	--	24 Hours: --	--

SAMPLE INFORMATION						DEPTH	STRATA		DESCRIPTION OF MATERIALS (Classification)	REMARKS
Depth (feet)	No	Type	Blows Per 6"	Rec. (in.)	N	(feet)				
						0.0				
							TS		6" Topsoil	
0 - 2	S-1	X	1 - 2 - 3 - 10	18	5		SUBSOIL		18" Subsoil, Roots	
						2.0				
2 - 4	S-2	X	22 - 41 - 28 - 23	18	69				Gray-Brown, Very Dense, Silty Sand with Gravel (SM)	
						5.0 ▼				
5 - 6.8	S-3	X	18 - 30 - 18 - 50/3"	8	48				As Above, Dense (SM)	Cobbles & Boulders
							GLACIAL TILL			
						10.0				
10 - 12	S-4	X	20 - 23 - 22 - 18	20	45				As Above (SM)	
						15.0				
15 - 17	S-5	X	22 - 24 - 25 - 27	20	49				As Above (SM)	
									Boring Log B-6 Terminated at Depth of 17 feet below ground surface.	
						20.0				
						25.0				

NOTES: bgs = below ground surface, msl = mean sea level, NA = Not Applicable, NE = Not Encountered, NS = Not Surveyed, P = Perched

WHITESTONE

RECORD OF SUBSURFACE EXPLORATION

Boring No.: B-7

Page 1 of 1

Project:	Proposed Daycare Center	**WAI Project No.:**	GM2523022.000
Location:	Between 101 and 109 Cambridge Street, Burlington, Middlesex County, Massachusetts	**Client:**	Bohler, LLC
Surface Elevation:	± NS feet Above NAVD88	**Date Started:**	3/5/2025
Termination Depth:	17.0 feet bgs	**Date Completed:**	3/5/2025
Proposed Location:	Retaining Wall	**Logged By:**	JB
Drill / Test Method:	HSA / SPT (Autohammer)	**Contractor:**	SE
		Equipment:	Diedrich D-70

Water Depth (feet bgs)	Elevation (ft NAVD88)	Cave-In Depth (feet bgs)	Elevation (ft NAVD88)
During: 2.0	--		
At Completion: --	--	At Completion: --	--
24 Hours: --	--	24 Hours: --	--

SAMPLE INFORMATION						DEPTH	STRATA		DESCRIPTION OF MATERIALS (Classification)	REMARKS
Depth (feet)	No	Type	Blows Per 6"	Rec. (in.)	N	(feet)				
						0.0				
							TS		6" Topsoil	
0 - 2	S-1	X	2 - 1 - 2 - 9	18	3		SUBSOIL		18" Subsoil, Roots	
						2.0				
2 - 4	S-2	X	29 - 36 - 25 - 16	10	61				Brown-Gray, Very Dense, Silty Sand with Gravel (SM)	
						5.0				
5 - 7	S-3	X	5 - 4 - 6 - 6	18	10				Brown, Loose to Medium Dense, Sandy Silt with Gravel (ML)	
7 - 8.8	S-4	X	9 - 26 - 15 - 50/3"	20	41	8.0			As Above, Dense (ML)	
									Brown, Dense, Silty Sand with Gravel (SM)	Cobbles & Boulders
						10.0				
10 - 12	S-5	X	9 - 10 - 13 - 19	16	23		GLACIAL TILL		As Above, Medium Dense (SM)	
						15.0				
15 - 17	S-6	X	20 - 27 - 30 - 31	24	57				As Above, Brown to Gray, Very Dense (SM)	
						20.0			Boring Log B-7 Terminated at Depth of 17 feet below ground surface.	
						25.0				

NOTES: bgs = below ground surface, msl = mean sea level, NA = Not Applicable, NE = Not Encountered, NS = Not Surveyed, P = Perched

WHITESTONE

RECORD OF SUBSURFACE EXPLORATION

Boring No.: B-8

Page 1 of 1

Project:	Proposed Daycare Center	**WAI Project No.:**	GM2523022.000
Location:	Between 101 and 109 Cambridge Street, Burlington, Middlesex County, Massachusetts	**Client:**	Bohler, LLC
Surface Elevation:	± NS feet Above NAVD88	**Date Started:**	3/6/2025
Termination Depth:	14.0 feet bgs	**Date Completed:**	3/6/2025
Proposed Location:	Retaining Wall	**Logged By:**	TG
Drill / Test Method:	HSA / SPT (Autohammer)	**Contractor:**	SE
		Equipment:	Diedrich D-70

Water Depth (feet bgs)	Elevation (ft NAVD88)	Cave-In Depth (feet bgs)	Elevation (ft NAVD88)
During: 0.0	--		
At Completion: --	--	At Completion: --	--
24 Hours: --	--	24 Hours: --	--

SAMPLE INFORMATION						DEPTH	STRATA		DESCRIPTION OF MATERIALS (Classification)	REMARKS
Depth (feet)	No	Type	Blows Per 6"	Rec. (in.)	N	(feet)				
						0.0				
							TS		4" Topsoil	
0 - 2	S-1		1 - 2 - 7 - 7	18	9	1.1	SUBSOIL		9" Subsoil, Roots	
									Brown, Medium Dense, Silty Sand with Gravel (SM)	
2 - 4	S-2		9 - 22 - 36 - 53	16	58				As Above, Very Dense (SM)	Cobbles & Boulders
						5.0				
5 - 7	S-3		26 - 17 - 9 - 7	13	26				As Above, Medium Dense (SM)	
7 - 9	S-4		13 - 10 - 15 - 22	11	25		GLACIAL TILL		As Above (SM)	
						10.0				
10 - 12	S-5		12 - 12 - 23 - 30	17	35				As Above, Dense (SM)	
12 - 14	S-6		34 - 42 - 41 - 53	12	83				As Above, Very Dense (SM)	
						15.0			Boring Log B-8 Terminated at Depth of 14 feet below ground surface.	
						20.0				
						25.0				

NOTES: bgs = below ground surface, msl = mean sea level, NA = Not Applicable, NE = Not Encountered, NS = Not Surveyed, P = Perched

WHITESTONE

RECORD OF SUBSURFACE EXPLORATION

Boring No.: B-9

Page 1 of 1

Project:	Proposed Daycare Center	**WAI Project No.:**	GM2523022.000
Location:	Between 101 and 109 Cambridge Street, Burlington, Middlesex County, Massachusetts	**Client:**	Bohler, LLC
Surface Elevation:	± NS feet Above NAVD88	**Date Started:**	3/6/2025
Termination Depth:	9.0 feet bgs	**Date Completed:**	3/6/2025
Proposed Location:	Parking	**Logged By:**	TG
Drill / Test Method:	HSA / SPT (Autohammer)	**Contractor:**	SE
		Equipment:	Diedrich D-70

Water Depth | Elevation	(feet bgs) | (ft NAVD88)	Cave-In Depth | Elevation	(feet bgs) | (ft NAVD88)
During:	0.0 | --		
At Completion:	-- | --	At Completion:	-- | --
24 Hours:	-- | --	24 Hours:	-- | --

SAMPLE INFORMATION						DEPTH	STRATA		DESCRIPTION OF MATERIALS (Classification)	REMARKS
Depth (feet)	No	Type	Blows Per 6"	Rec. (in.)	N	(feet)				
						0.0				
							TS		7" Topsoil	
0 - 2	S-1		1 - 1 - 2 - 8	14	3		SUBSOIL		17" Subsoil, Roots	
						2.0				
2 - 4	S-2		21 - 16 - 17 - 27	17	33				Brown, Dense, Silty Sand with Gravel (SM)	
						5.0				
5 - 7	S-3		23 - 25 - 12 - 9	11	37		GLACIAL TILL		As Above (SM)	
7 - 9	S-4		10 - 15 - 16 - 11	9	31				As Above (SM)	
						10.0			Boring Log B-9 Terminated at Depth of 9 feet below ground surface.	
						15.0				
						20.0				
						25.0				

NOTES: bgs = below ground surface, msl = mean sea level, NA = Not Applicable, NE = Not Encountered, NS = Not Surveyed, P = Perched

WHITESTONE

RECORD OF SUBSURFACE EXPLORATION

Boring No.: B-10

Project:	Proposed Daycare Center	**WAI Project No.:**	GM2523022.000
Location:	Between 101 and 109 Cambridge Street, Burlington, Middlesex County, Massachusetts	**Client:**	Bohler, LLC
Surface Elevation:	± NS feet Above NAVD88	**Date Started:**	3/6/2025
Termination Depth:	9.0 feet bgs	**Date Completed:**	3/6/2025
Proposed Location:	Retaining Wall	**Logged By:**	TG
Drill / Test Method:	HSA / SPT (Autohammer)	**Contractor:**	SE
		Equipment:	Diedrich D-70

Water Depth (feet bgs)	Elevation (ft NAVD88)	Cave-In Depth (feet bgs)	Elevation (ft NAVD88)
During: 0.5	--		
At Completion: --	--	**At Completion:** --	--
24 Hours: --	--	**24 Hours:** --	--

SAMPLE INFORMATION						DEPTH	STRATA		DESCRIPTION OF MATERIALS (Classification)	REMARKS
Depth (feet)	No	Type	Blows Per 6"	Rec. (in.)	N	(feet)				
						0.0				
0 - 2	S-1		1 - 2 - 8 - 16	14	10		TS		5" Topsoil	
							SUBSOIL		19" Subsoil, Roots	
						2.0				
2 - 4	S-2		17 - 16 - 37 - 36	17	53				Brown, Very Dense, Silty Sand with Gravel (SM)	
						5.0				
5 - 7	S-3		32 - 22 - 20 - 18	17	42		GLACIAL TILL		As Above, Dense (SM)	
7 - 9	S-4		26 - 24 - 24 - 26	12	48				As Above (SM)	
						10.0			Boring Log B-10 Terminated at Depth of 9 feet below ground surface.	
						15.0				
						20.0				
						25.0				

NOTES: bgs = below ground surface, msl = mean sea level, NA = Not Applicable, NE = Not Encountered, NS = Not Surveyed, P = Perched

WHITESTONE

RECORD OF SUBSURFACE EXPLORATION

Boring No.: B-11

Page 1 of 1

Project:	Proposed Daycare Center	**WAI Project No.:**	GM2523022.000
Location:	Between 101 and 109 Cambridge Street, Burlington, Middlesex County, Massachusetts	**Client:**	Bohler, LLC

				Water Depth | Elevation (feet bgs) | (ft NAVD88)	Cave-In Depth | Elevation (feet bgs) | (ft NAVD88)
Surface Elevation:	± NS feet Above NAVD88	**Date Started:**	3/6/2025		
Termination Depth:	13.8 feet bgs	**Date Completed:**	3/6/2025		
Proposed Location:	Retaing Wall	**Logged By:**	TG	**During:** 0.5 | --	
Drill / Test Method:	HSA / SPT (Autohammer)	**Contractor:**	SE	**At Completion:** -- | --	**At Completion:** -- | --
		Equipment:	Diedrich D-70	**24 Hours:** -- | --	**24 Hours:** -- | --

SAMPLE INFORMATION						DEPTH	STRATA		DESCRIPTION OF MATERIALS (Classification)	REMARKS
Depth (feet)	No	Type	Blows Per 6"	Rec. (in.)	N	(feet)				
						0.0				
0 - 2	S-1		2 - 3 - 11 - 25	16	14		TS		4" Topsoil	
						0.8	SUBSOIL		6" Subsoil, Roots	
									Brown, Medium Dense, Silty Sand with Gravel (SM)	
2 - 3.4	S-2		28 - 30 - 50/5"	8	60				As Above, Very Dense (SM)	Cobbles & Boulders
						5.0				
5 - 7	S-3		11 - 13 - 15 - 12	15	28				As Above, Medium Dense (SM)	
7 - 9	S-4		14 - 15 - 23 - 15	13	38		GLACIAL TILL		As Above, Gray, Dense (SM)	
						10.0				
10 - 12	S-5		10 - 17 - 19 - 24	14	36				As Above (SM)	
12 - 13.8	S-6		22 - 33 - 54 - 54/3"	20	87				As Above, Very Dense (SM)	Cobbles & Boulders
						15.0			Boring Log B-11 Terminated at Depth of 13.8 feet below ground surface.	
						20.0				
						25.0				

NOTES: bgs = below ground surface, msl = mean sea level, NA = Not Applicable, NE = Not Encountered, NS = Not Surveyed, P = Perched

WHITESTONE

RECORD OF SUBSURFACE EXPLORATION

Boring No.: B-12

Page 1 of 1

Project:	Proposed Daycare Center	**WAI Project No.:**	GM2523022.000
Location:	Between 101 and 109 Cambridge Street, Burlington, Middlesex County, Massachusetts	**Client:**	Bohler, LLC

				Water Depth | Elevation	Cave-In Depth | Elevation
				(feet bgs) | (ft NAVD88)	(feet bgs) | (ft NAVD88)
Surface Elevation:	± NS feet Above NAVD88	**Date Started:**	3/6/2025		
Termination Depth:	6.3 feet bgs	**Date Completed:**	3/6/2025		
Proposed Location:	Access / Parking	**Logged By:**	TG	**During:** 1.5 | --	
Drill / Test Method:	HSA / SPT (Autohammer)	**Contractor:**	SE	**At Completion:** -- | --	**At Completion:** -- | --
		Equipment:	Diedrich D-70	**24 Hours:** -- | --	**24 Hours:** -- | --

SAMPLE INFORMATION						DEPTH	STRATA		DESCRIPTION OF MATERIALS (Classification)	REMARKS
Depth (feet)	No	Type	Blows Per 6"	Rec. (in.)	N	(feet)				
						0.0				
0 - 2	S-1		2 - 2 - 4 - 7	9	6		TS		3" Topsoil	
							SUBSOIL		21" Subsoil, Roots	
						2.0				
2 - 4	S-2		26 - 39 - 33 - 50	13	72		GLACIAL TILL		Brown, Very Dense, Silty Sand with Gravel (SM)	
						5.0				
5 - 6.3	S-3		14 - 29 - 50/3"	12	58				As Above (SM)	
									Boring Log B-12 Terminated Upon Auger Refusal at Depth of 6.3 fbgs.	
						10.0				
						15.0				
						20.0				
						25.0				

NOTES: bgs = below ground surface, msl = mean sea level, NA = Not Applicable, NE = Not Encountered, NS = Not Surveyed, P = Perched

WHITESTONE

RECORD OF SUBSURFACE EXPLORATION

Test Pit No.: TP-1

Page 1 of 1

Project:	Proposed Daycare Center	**WAI Project No.:**	GM2523022.000
Location:	Between 101 & 109 Cambridge Street, Burlington, Middlesex County, Massachusetts	**Client:**	Bohler, LLC

Surface Elevation: ±	NS feet NAVD88	**Date Started:**	3/4/2025		**Water Depth (feet bgs) | Elevation (ft NAVD88)**		**Cave-In Depth (feet bgs) | Elevation (ft NAVD88)**
Termination Depth:	9.5 feet bgs	**Date Completed:**	3/4/2025				
Proposed Location:	SWM Area	**Logged By:**	JB	**During:**	3.5 | --		
Excavating Method:	Mini Excavator	**Contractor:**	SE	**At Completion:**	-- | --	**At Completion:**	-- | --
Test Method:	Visual Observation	**Rig Type:**	Caterpillar 308	**24 Hours:**	-- | --		

SAMPLE INFORMATION			DEPTH	STRATA	DESCRIPTION OF MATERIALS (Classification)	REMARKS
Depth (ft.)	Number	Type	(feet)			
			0.0			
				TOPSOIL	4" Topsoil	
				SUBSOIL	20" Subsoil, Roots	
			2.0			
					Gray, Sandy Silt (ML)	ESHGW @ 2.5 fbgs
			3.0			
						Infiltration test @ 3.5 fbgs
5	1	Grab	5.0	GLACIAL TILL	Gray-Brown, Silty Sand with Gravel, Cobbles, Boulders (SM)	
			10.0		Test Pit TP-1 Terminated at Depth of 9.5 feet below ground surface.	
			13.0			
			15.0			

NOTES: bgs = below ground surface, msl = mean sea level, NA = Not Applicable, NE = Not Encountered, NS = Not Surveyed, P = Perched

WHITESTONE

RECORD OF SUBSURFACE EXPLORATION

Test Pit No.: TP-2

Page 1 of 1

Project:	Proposed Daycare Center	**WAI Project No.:**	GM2523022.000
Location:	Between 101 & 109 Cambridge Street, Burlington, Middlesex County, Massachusetts	**Client:**	Bohler, LLC

				Water Depth | Elevation	Cave-In Depth | Elevation
				(feet bgs) | (ft NAVD88)	(feet bgs) | (ft NAVD88)
Surface Elevation: ±	NS feet NAVD88	**Date Started:**	3/4/2025		
Termination Depth:	8.0 feet bgs	**Date Completed:**	3/4/2025		
Proposed Location:	Retaining Wall	**Logged By:**	JB	**During:** -- | --	
Excavating Method:	Mini Excavator	**Contractor:**	SE	**At Completion:** -- | --	**At Completion:** -- | --
Test Method:	Visual Observation	**Rig Type:**	Caterpillar 308	**24 Hours:** -- | --	

SAMPLE INFORMATION			DEPTH	STRATA		DESCRIPTION OF MATERIALS (Classification)	REMARKS
Depth (ft.)	Number	Type	(feet)				
			0.0				
				TOPSOIL		6" Topsoil	
				SUBSOIL		18" Subsoil, Roots	
			2.0				
3	1	Grab	3.5			Gray, Sandy Silt (ML)	
			5.0	GLACIAL TILL		Gray-Brown, Silty Sand with Gravel, Cobbles, Boulders (SM)	
			10.0			Test Pit TP-2 Terminated at Depth of 8 feet below ground surface.	
			13.0				
			15.0				

NOTES: bgs = below ground surface, msl = mean sea level, NA = Not Applicable, NE = Not Encountered, NS = Not Surveyed, P = Perched

WHITESTONE

RECORD OF SUBSURFACE EXPLORATION

Test Pit No.: TP-3

Page 1 of 1

Project:	Proposed Daycare Center	**WAI Project No.:**	GM2523022.000
Location:	Between 101 & 109 Cambridge Street, Burlington, Middlesex County, Massachusetts	**Client:**	Bohler, LLC

Surface Elevation: ±	NS feet NAVD88	**Date Started:**	3/4/2025		**Water Depth (feet bgs)**	**Elevation (ft NAVD88)**	**Cave-In Depth (feet bgs)** / **Elevation (ft NAVD88)**
Termination Depth:	8.0 feet bgs	**Date Completed:**	3/4/2025				
Proposed Location:	Retaining Wall	**Logged By:**	JB	**During:**	2.0	--	
Excavating Method:	Mini Excavator	**Contractor:**	SE	**At Completion:**	--	--	**At Completion:** -- / --
Test Method:	Visual Observation	**Rig Type:**	Caterpillar 308	**24 Hours:**	--	--	

SAMPLE INFORMATION			DEPTH	STRATA		DESCRIPTION OF MATERIALS (Classification)	REMARKS
Depth (ft.)	Number	Type	(feet)				
			0.0				
				TOPSOIL		8" Topsoil	
				SUBSOIL		28" Subsoil, Roots	
			3.0				
			5.0	GLACIAL TILL		Gray, Silty Sand with Gravel, Cobbles, Boulders (SM)	
			10.0			Test Pit TP-3 Terminated at Depth of 8.0 feet below ground surface.	
			13.0				
			15.0				

NOTES: bgs = below ground surface, msl = mean sea level, NA = Not Applicable, NE = Not Encountered, NS = Not Surveyed, P = Perched

WHITESTONE

RECORD OF SUBSURFACE EXPLORATION

Test Pit No.: TP-4

Page 1 of 1

Project:	Proposed Daycare Center	**WAI Project No.:**	GM2523022.000
Location:	Between 101 & 109 Cambridge Street, Burlington, Middlesex County, Massachusetts	**Client:**	Bohler, LLC

				Water Depth (feet bgs)	Elevation (ft NAVD88)	Cave-In Depth (feet bgs)	Elevation (ft NAVD88)
Surface Elevation: ±	NS feet NAVD88	**Date Started:**	3/4/2025				
Termination Depth:	7.5 feet bgs	**Date Completed:**	3/4/2025				
Proposed Location:	SWM Area	**Logged By:**	JB	**During:**	3.0 | --		
Excavating Method:	Mini Excavator	**Contractor:**	SE	**At Completion:**	-- | --	**At Completion:**	-- | --
Test Method:	Visual Observation	**Rig Type:**	Caterpillar 308	**24 Hours:**	-- | --		

SAMPLE INFORMATION			DEPTH	STRATA		DESCRIPTION OF MATERIALS (Classification)	REMARKS
Depth (ft.)	Number	Type	(feet)				
			0.0				
				TOPSOIL		6" Topsoil	
				SUBSOIL		24" Subsoil	
			2.5				ESHGW @ 2.5 fbgs
				GLACIAL TILL		Gray, Silty Sand with Gravel, Cobbles, Boulders (SM)	
			5.0				
			10.0			Test Pit TP-4 Terminated at Depth of 7.5 feet below ground surface. Refusal on boulder	
			13.0				
			15.0				

NOTES: bgs = below ground surface, msl = mean sea level, NA = Not Applicable, NE = Not Encountered, NS = Not Surveyed, P = Perched

WHITESTONE

RECORD OF SUBSURFACE EXPLORATION

Test Pit No.: TP-5

Page 1 of 1

Project:	Proposed Daycare Center	**WAI Project No.:**	GM2523022.000
Location:	Between 101 & 109 Cambridge Street, Burlington, Middlesex County, Massachusetts	**Client:**	Bohler, LLC

Surface Elevation: ±	NS feet NAVD88	**Date Started:**	3/4/2025		**Water Depth (feet bgs)**	**Elevation (ft NAVD88)**	**Cave-In Depth (feet bgs)** / **Elevation (ft NAVD88)**
Termination Depth:	6.5 feet bgs	**Date Completed:**	3/4/2025				
Proposed Location:	SWM Area	**Logged By:**	JB	**During:**	2.0	--	
Excavating Method:	Mini Excavator	**Contractor:**	SE	**At Completion:**	--	--	**At Completion:** -- / --
Test Method:	Visual Observation	**Rig Type:**	Caterpillar 308	**24 Hours:**	--	--	

SAMPLE INFORMATION			DEPTH	STRATA		DESCRIPTION OF MATERIALS (Classification)	REMARKS
Depth (ft.)	Number	Type	(feet)				
			0.0				
				TOPSOIL		8" Topsoil	
				SUBSOIL		28" Subsoil, Roots	ESHGW @ 1.5 fbgs
			3.0				
5	1	Grab	5.0	GLACIAL TILL		Gray, Silty Sand with Gravel, Cobbles, Boulders (SM)	
			10.0			Test Pit TP-5 Terminated at Depth of 6.5 feet below ground surface.	
			13.0				
			15.0				

NOTES: bgs = below ground surface, msl = mean sea level, NA = Not Applicable, NE = Not Encountered, NS = Not Surveyed, P = Perched

WHITESTONE

RECORD OF SUBSURFACE EXPLORATION

Test Pit No.: TP-6

Page 1 of 1

Project:	Proposed Daycare Center	**WAI Project No.:**	GM2523022.000
Location:	Between 101 & 109 Cambridge Street, Burlington, Middlesex County, Massachusetts	**Client:**	Bohler, LLC

Surface Elevation: ±	NS feet NAVD88	**Date Started:**	3/4/2025		**Water Depth (feet bgs)**	**Elevation (ft NAVD88)**	**Cave-In Depth (feet bgs)** / **Elevation (ft NAVD88)**
Termination Depth:	6.5 feet bgs	**Date Completed:**	3/4/2025				
Proposed Location:	Retaining Wall	**Logged By:**	JB	**During:**	2.0	--	
Excavating Method:	Mini Excavator	**Contractor:**	SE	**At Completion:**	--	--	**At Completion:** -- / --
Test Method:	Visual Observation	**Rig Type:**	Caterpillar 308	**24 Hours:**	--	--	

SAMPLE INFORMATION			DEPTH	STRATA		DESCRIPTION OF MATERIALS (Classification)	REMARKS
Depth (ft.)	Number	Type	(feet)				
			0.0				
				TOPSOIL		8" Topsoil	
				SUBSOIL		28" Subsoil, Roots	
			3.0				
				GLACIAL TILL		Gray, Silty Sand with Gravel, Cobbles, Boulders (SM)	
			5.0				
						Test Pit TP-6 Terminated at Depth of 6.5 feet below ground surface.	
			10.0				
			13.0				
			15.0				

NOTES: bgs = below ground surface, msl = mean sea level, NA = Not Applicable, NE = Not Encountered, NS = Not Surveyed, P = Perched

WHITESTONE

RECORD OF SUBSURFACE EXPLORATION

Test Pit No.: TP-7

Page 1 of 1

Project:	Proposed Daycare Center	**WAI Project No.:**	GM2523022.000
Location:	Between 101 & 109 Cambridge Street, Burlington, Middlesex County, Massachusetts	**Client:**	Bohler, LLC

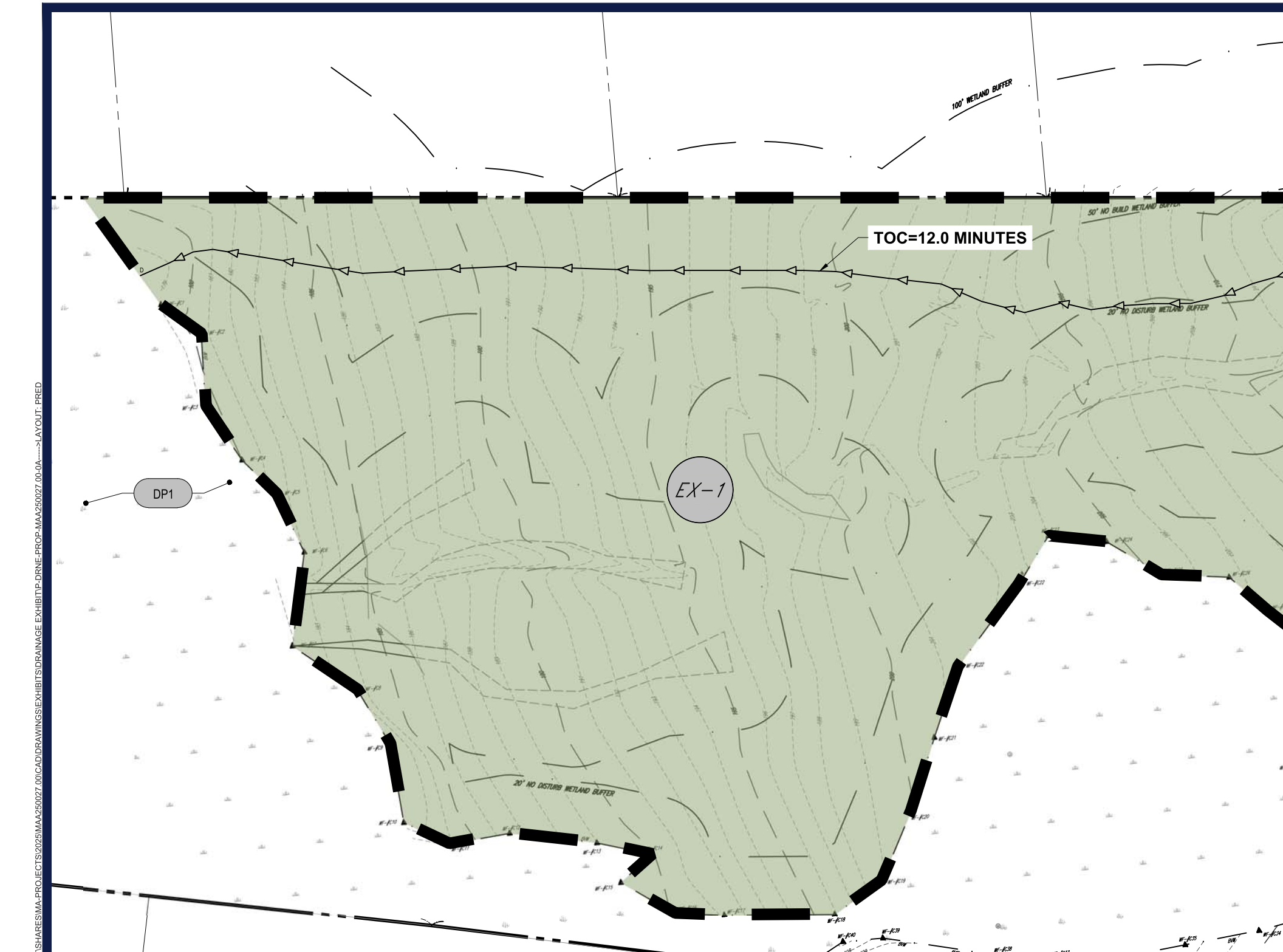
Surface Elevation: ±	NS feet NAVD88	**Date Started:**	3/4/2025		**Water Depth (feet bgs) | Elevation (ft NAVD88)**		**Cave-In Depth (feet bgs) | Elevation (ft NAVD88)**
Termination Depth:	9.5 feet bgs	**Date Completed:**	3/4/2025				
Proposed Location:	SWM Area	**Logged By:**	JB	**During:**	2.5 | --		
Excavating Method:	Mini Excavator	**Contractor:**	SE	**At Completion:**	-- | --	**At Completion:**	-- | --
Test Method:	Visual Observation	**Rig Type:**	Caterpillar 308	**24 Hours:**	-- | --		

SAMPLE INFORMATION			DEPTH	STRATA		DESCRIPTION OF MATERIALS (Classification)	REMARKS
Depth (ft.)	Number	Type	(feet)				
			0.0				
				TOPSOIL		8" Topsoil	
				SUBSOIL		28" Subsoil, Roots	ESHGW @ 2.5 fbgs
			3.0				Infiltration test @ 3.5 fbgs
5	1	Grab	5.0	GLACIAL TILL		Gray, Silty Sand with Gravel, Cobbles, Boulders (SM)	
			10.0			Test Pit TP-7 Terminated at Depth of 9.5 feet below ground surface.	
			13.0				
			15.0				

NOTES: bgs = below ground surface, msl = mean sea level, NA = Not Applicable, NE = Not Encountered, NS = Not Surveyed, P = Perched

APPENDIX D: EXISTING CONDITIONS HYDROLOGIC ANALYSIS

- *EXISTING CONDITIONS DRAINAGE MAP*
- *EXISTING CONDITIONS HYDROCAD COMPUTATIONS*



Subcat Reach Pond Link

Routing Diagram for MAA250027 Model
Prepared by Bohler Engineering, PC, Printed 12/12/2025

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	4.00	2
2	10 yr	Type III 24-hr		Default	24.00	1	6.37	2
3	25 yr	Type III 24-hr		Default	24.00	1	8.25	2
4	100 yr	Type III 24-hr		Default	24.00	1	11.40	2

Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
1.736	70	Woods, Good, HSG C (EX-1)
1.736	**70**	**TOTAL AREA**

Soil Listing (selected nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
1.736	HSG C	EX-1
0.000	HSG D	
0.000	Other	
1.736		**TOTAL AREA**

Ground Covers (selected 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	1.736	0.000	0.000	1.736	Woods, Good	EX-1
0.000	**0.000**	**1.736**	**0.000**	**0.000**	**1.736**	**TOTAL AREA**	

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment EX-1: to Wetlands Runoff Area=75,601 sf 0.00% Impervious Runoff Depth>1.33"
Flow Length=451' Tc=12.0 min CN=70 Runoff=2.07 cfs 0.192 af

Reach DPE-1: Wetlands Inflow=2.07 cfs 0.192 af
Outflow=2.07 cfs 0.192 af

Total Runoff Area = 1.736 ac Runoff Volume = 0.192 af Average Runoff Depth = 1.33"
100.00% Pervious = 1.736 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment EX-1: to Wetlands

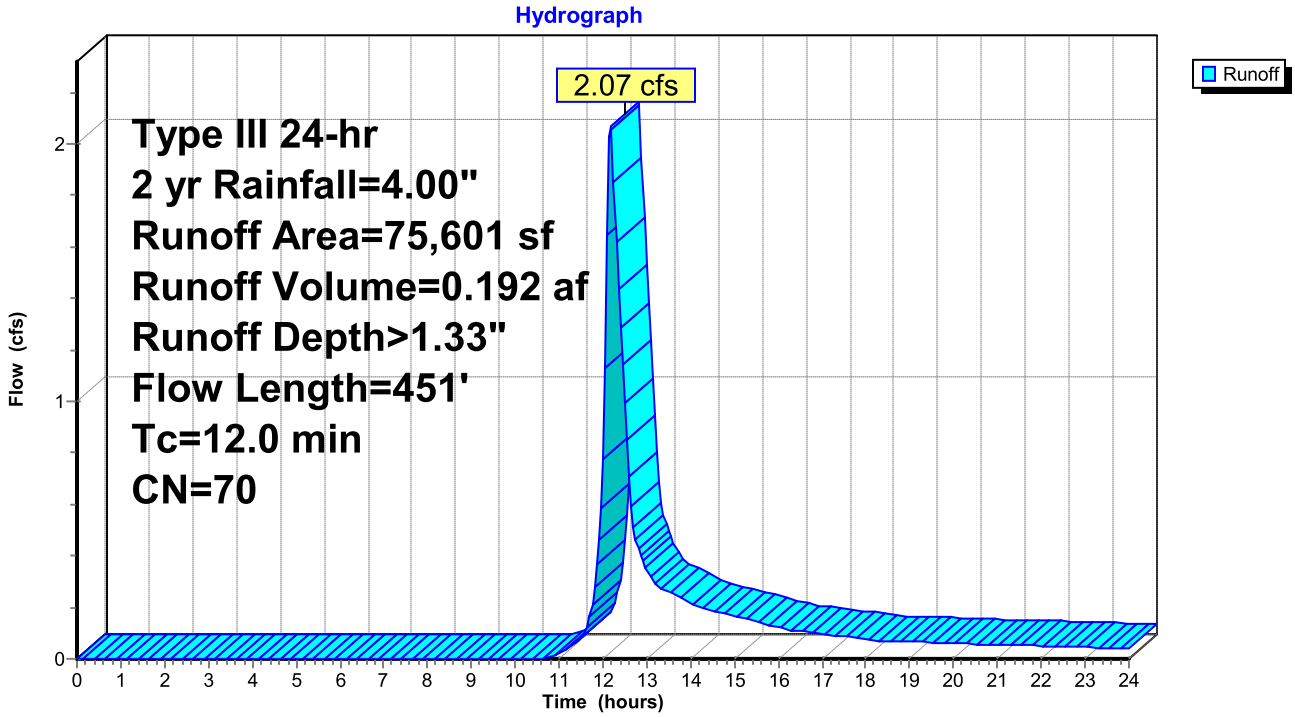
Runoff = 2.07 cfs @ 12.18 hrs, Volume= 0.192 af, Depth> 1.33"
Routed to Reach DPE-1 : Wetlands

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 yr Rainfall=4.00"

Area (sf)	CN	Description
75,601	70	Woods, Good, HSG C
75,601		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	7	0.2860	0.13		**Sheet Flow, A to B** Woods: Light underbrush n= 0.400 P2= 3.28"
6.5	43	0.0700	0.11		**Sheet Flow, B to C** Woods: Light underbrush n= 0.400 P2= 3.28"
4.6	401	0.0840	1.45		**Shallow Concentrated Flow, C to D** Woodland Kv= 5.0 fps
12.0	451	Total			

Subcatchment EX-1: to Wetlands



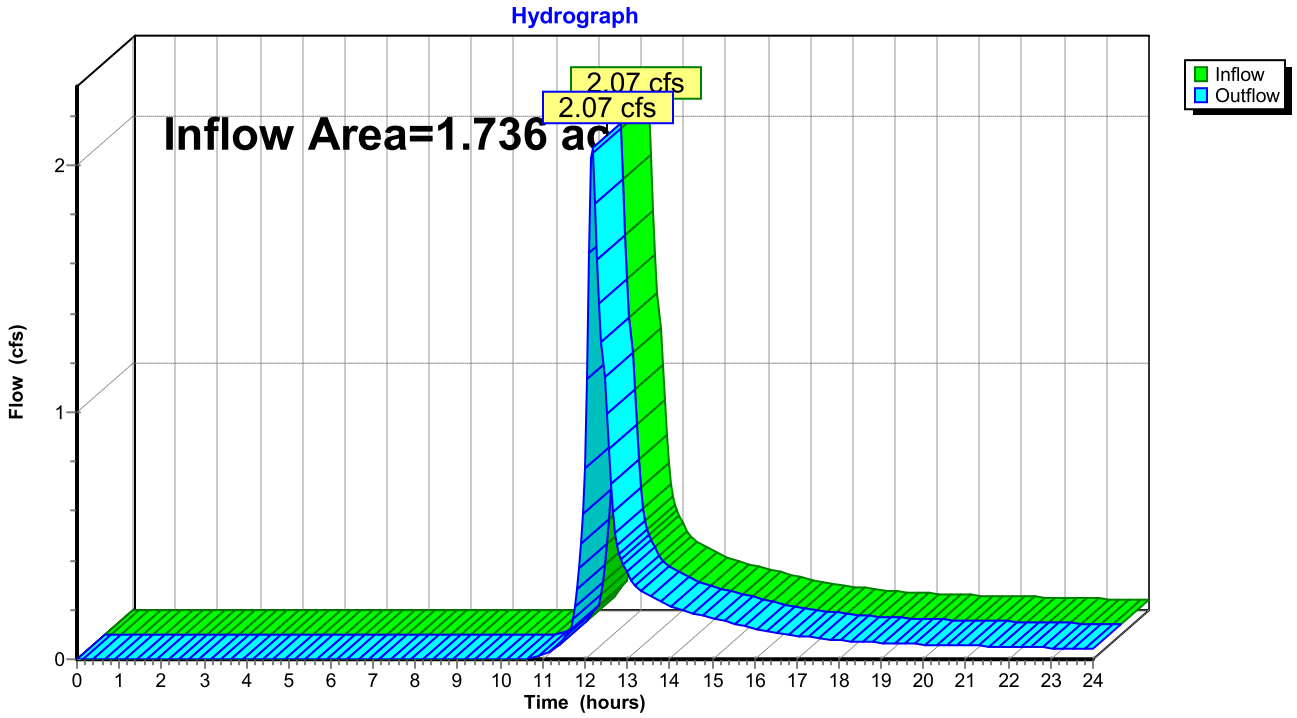
Summary for Reach DPE-1: Wetlands

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 1.736 ac, 0.00% Impervious, Inflow Depth > 1.33" for 2 yr event
Inflow = 2.07 cfs @ 12.18 hrs, Volume= 0.192 af
Outflow = 2.07 cfs @ 12.18 hrs, Volume= 0.192 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach DPE-1: Wetlands



Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment EX-1: to Wetlands Runoff Area=75,601 sf 0.00% Impervious Runoff Depth>3.09"
Flow Length=451' Tc=12.0 min CN=70 Runoff=5.13 cfs 0.448 af

Reach DPE-1: Wetlands Inflow=5.13 cfs 0.448 af
Outflow=5.13 cfs 0.448 af

Total Runoff Area = 1.736 ac Runoff Volume = 0.448 af Average Runoff Depth = 3.09"
100.00% Pervious = 1.736 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment EX-1: to Wetlands

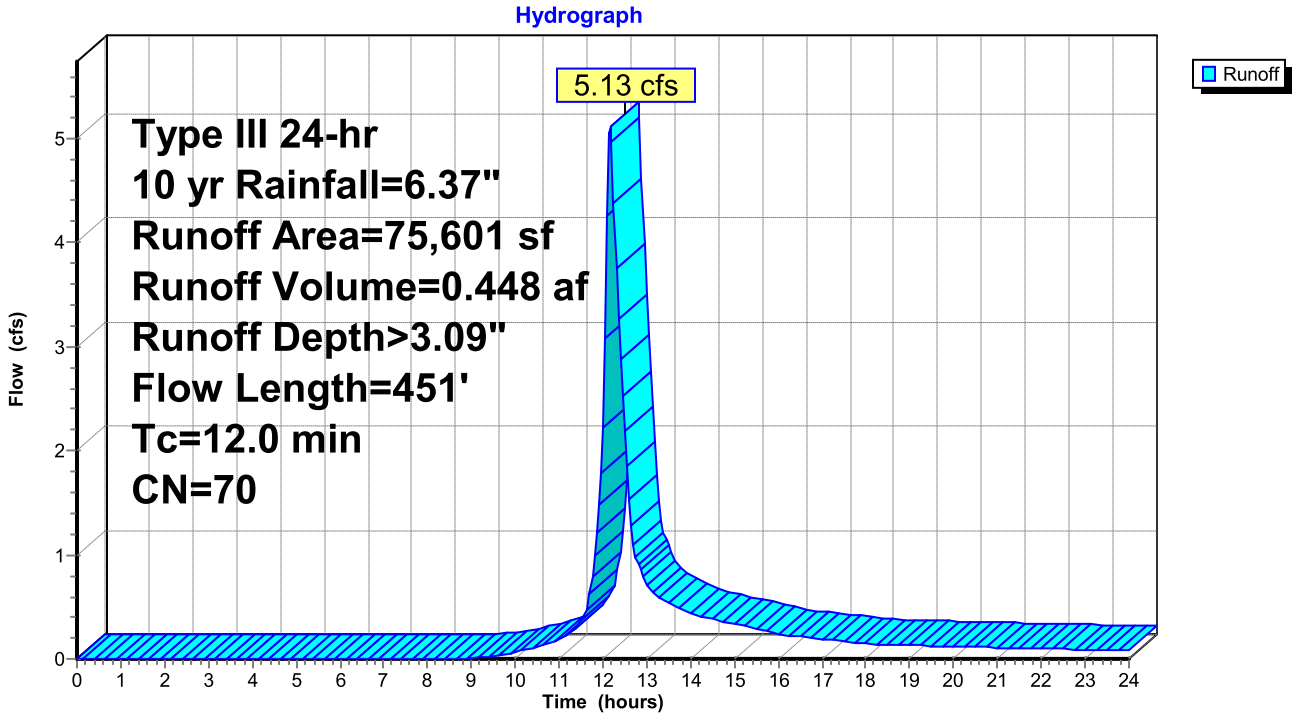
Runoff = 5.13 cfs @ 12.17 hrs, Volume= 0.448 af, Depth> 3.09"
Routed to Reach DPE-1 : Wetlands

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 yr Rainfall=6.37"

Area (sf)	CN	Description
75,601	70	Woods, Good, HSG C
75,601		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	7	0.2860	0.13		**Sheet Flow, A to B** Woods: Light underbrush n= 0.400 P2= 3.28"
6.5	43	0.0700	0.11		**Sheet Flow, B to C** Woods: Light underbrush n= 0.400 P2= 3.28"
4.6	401	0.0840	1.45		**Shallow Concentrated Flow, C to D** Woodland Kv= 5.0 fps
12.0	451	Total			

Subcatchment EX-1: to Wetlands



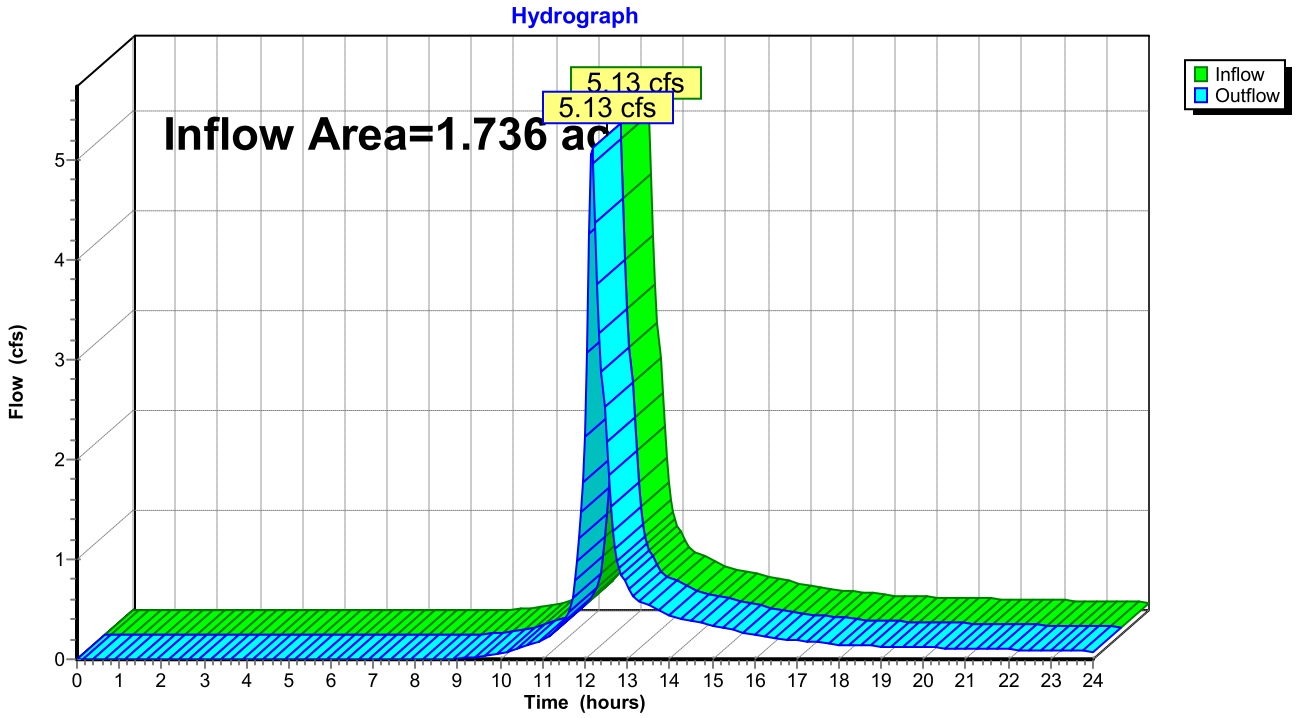
Summary for Reach DPE-1: Wetlands

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 1.736 ac, 0.00% Impervious, Inflow Depth > 3.09" for 10 yr event
Inflow = 5.13 cfs @ 12.17 hrs, Volume= 0.448 af
Outflow = 5.13 cfs @ 12.17 hrs, Volume= 0.448 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach DPE-1: Wetlands



Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment EX-1: to Wetlands Runoff Area=75,601 sf 0.00% Impervious Runoff Depth>4.67"
Flow Length=451' Tc=12.0 min CN=70 Runoff=7.78 cfs 0.675 af

Reach DPE-1: Wetlands Inflow=7.78 cfs 0.675 af
Outflow=7.78 cfs 0.675 af

Total Runoff Area = 1.736 ac Runoff Volume = 0.675 af Average Runoff Depth = 4.67"
100.00% Pervious = 1.736 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment EX-1: to Wetlands

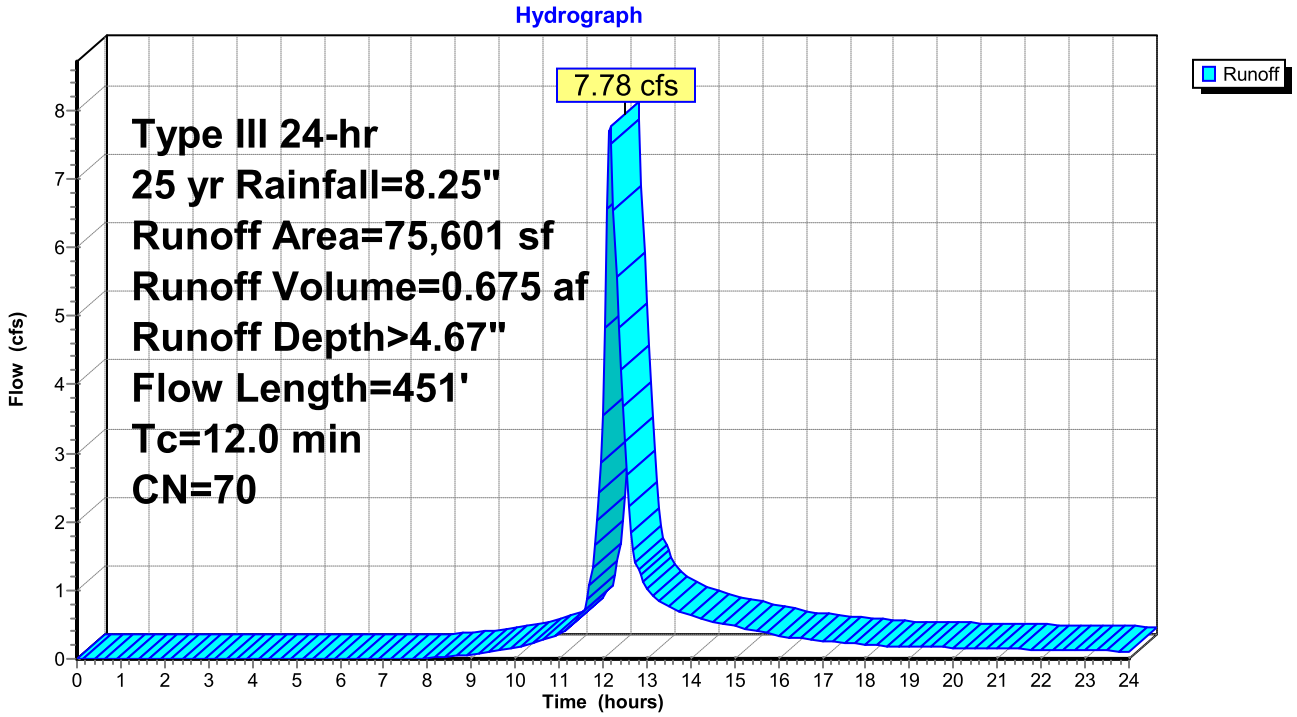
Runoff = 7.78 cfs @ 12.17 hrs, Volume= 0.675 af, Depth> 4.67"
Routed to Reach DPE-1 : Wetlands

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 yr Rainfall=8.25"

Area (sf)	CN	Description
75,601	70	Woods, Good, HSG C
75,601		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	7	0.2860	0.13		**Sheet Flow, A to B** Woods: Light underbrush n= 0.400 P2= 3.28"
6.5	43	0.0700	0.11		**Sheet Flow, B to C** Woods: Light underbrush n= 0.400 P2= 3.28"
4.6	401	0.0840	1.45		**Shallow Concentrated Flow, C to D** Woodland Kv= 5.0 fps
12.0	451	Total			

Subcatchment EX-1: to Wetlands



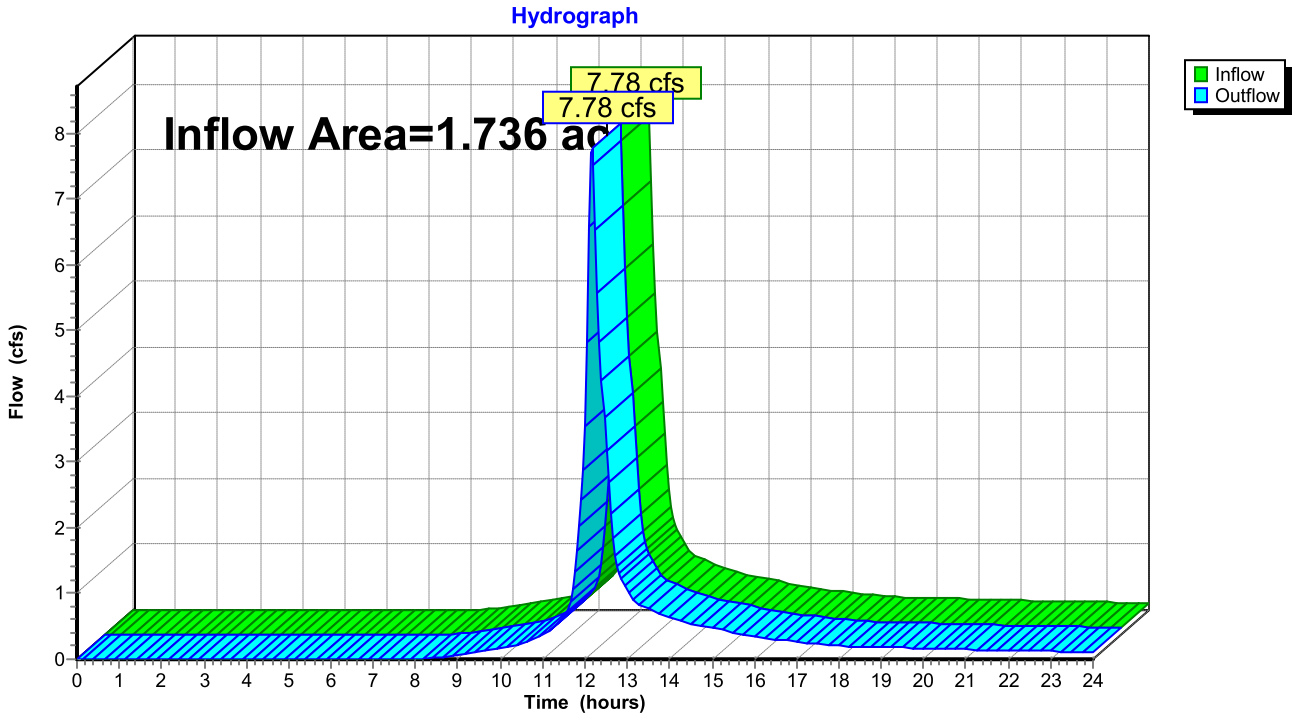
Summary for Reach DPE-1: Wetlands

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 1.736 ac, 0.00% Impervious, Inflow Depth > 4.67" for 25 yr event
Inflow = 7.78 cfs @ 12.17 hrs, Volume= 0.675 af
Outflow = 7.78 cfs @ 12.17 hrs, Volume= 0.675 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach DPE-1: Wetlands



Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment EX-1: to Wetlands Runoff Area=75,601 sf 0.00% Impervious Runoff Depth>7.48"
Flow Length=451' Tc=12.0 min CN=70 Runoff=12.38 cfs 1.082 af

Reach DPE-1: Wetlands Inflow=12.38 cfs 1.082 af
Outflow=12.38 cfs 1.082 af

Total Runoff Area = 1.736 ac Runoff Volume = 1.082 af Average Runoff Depth = 7.48"
100.00% Pervious = 1.736 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment EX-1: to Wetlands

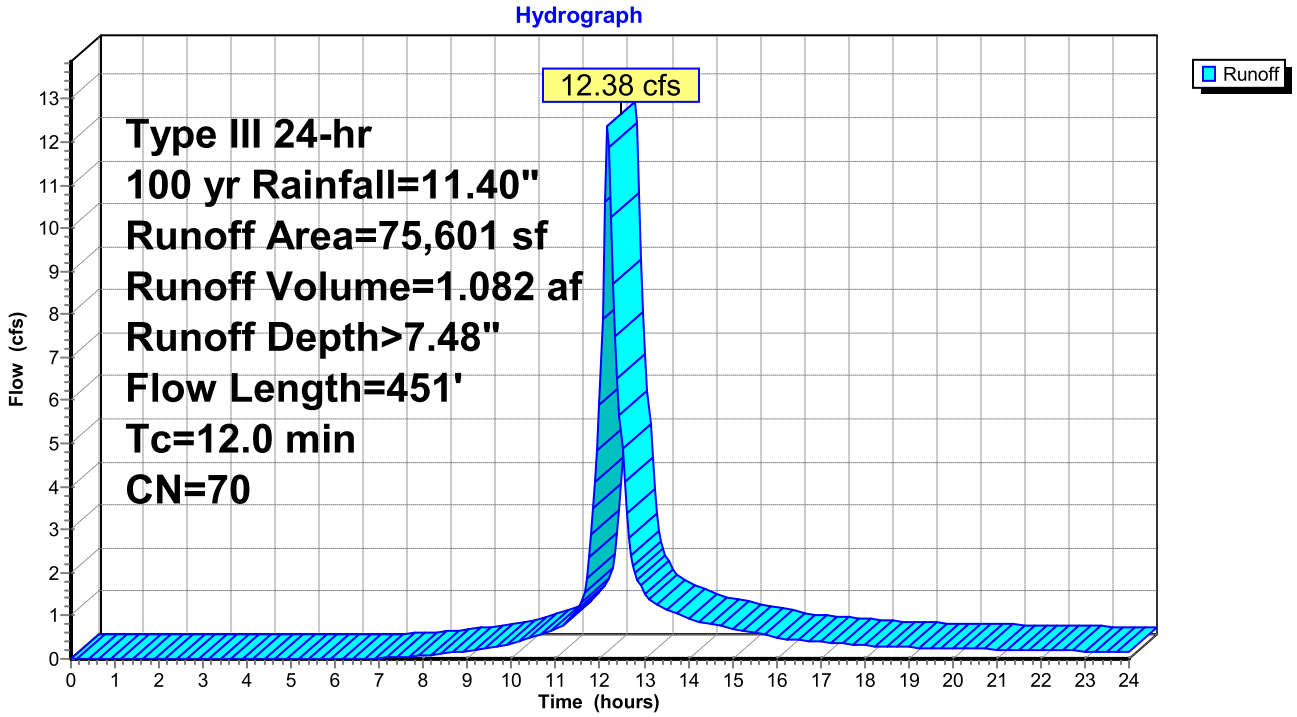
Runoff = 12.38 cfs @ 12.17 hrs, Volume= 1.082 af, Depth> 7.48"
Routed to Reach DPE-1 : Wetlands

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 yr Rainfall=11.40"

Area (sf)	CN	Description
75,601	70	Woods, Good, HSG C
75,601		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	7	0.2860	0.13		**Sheet Flow, A to B** Woods: Light underbrush n= 0.400 P2= 3.28"
6.5	43	0.0700	0.11		**Sheet Flow, B to C** Woods: Light underbrush n= 0.400 P2= 3.28"
4.6	401	0.0840	1.45		**Shallow Concentrated Flow, C to D** Woodland Kv= 5.0 fps
12.0	451	Total			

Subcatchment EX-1: to Wetlands



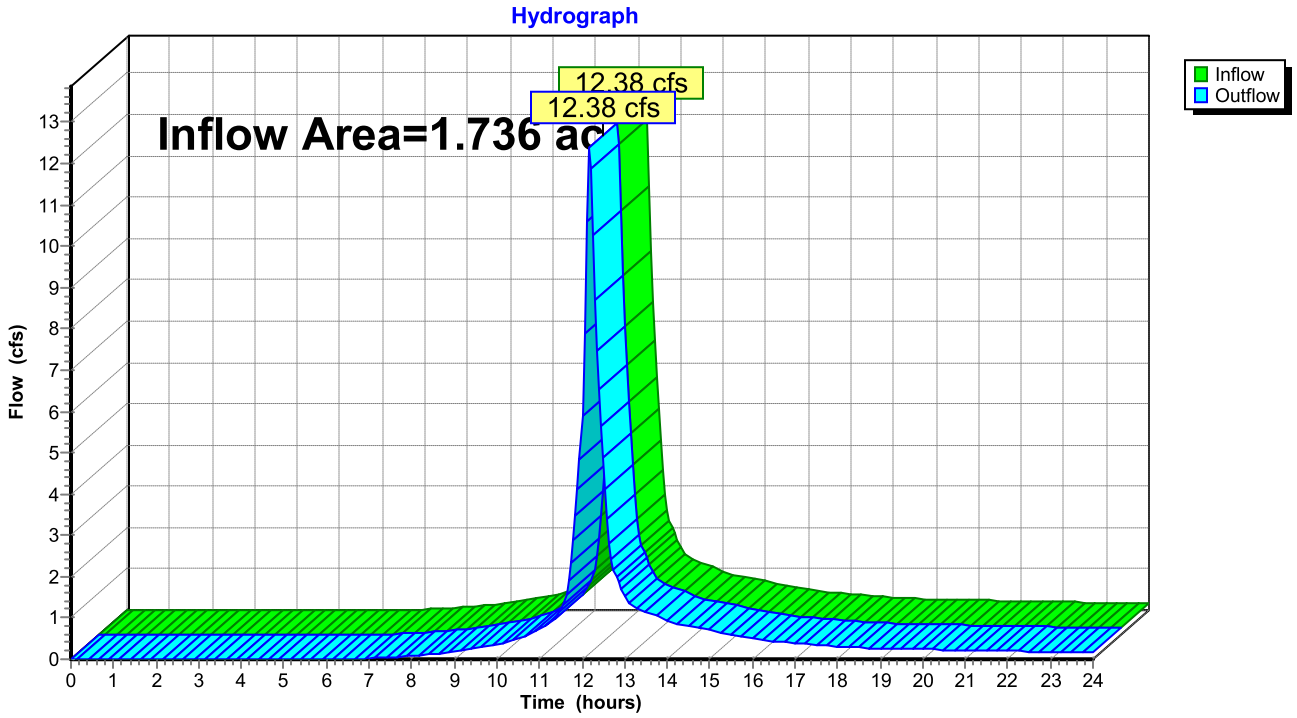
Summary for Reach DPE-1: Wetlands

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 1.736 ac, 0.00% Impervious, Inflow Depth > 7.48" for 100 yr event
Inflow = 12.38 cfs @ 12.17 hrs, Volume= 1.082 af
Outflow = 12.38 cfs @ 12.17 hrs, Volume= 1.082 af, Atten= 0%, Lag= 0.0 min

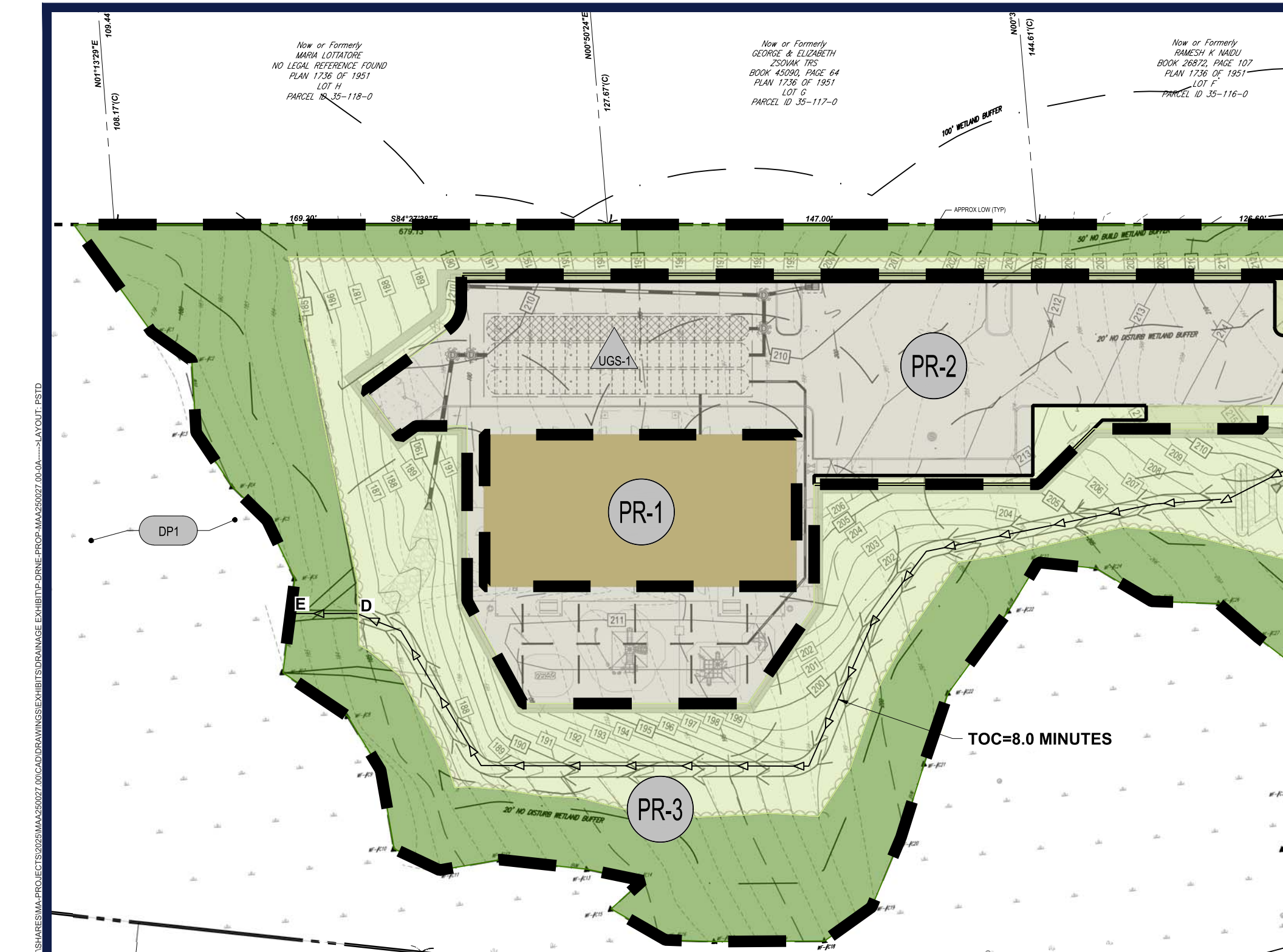
Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

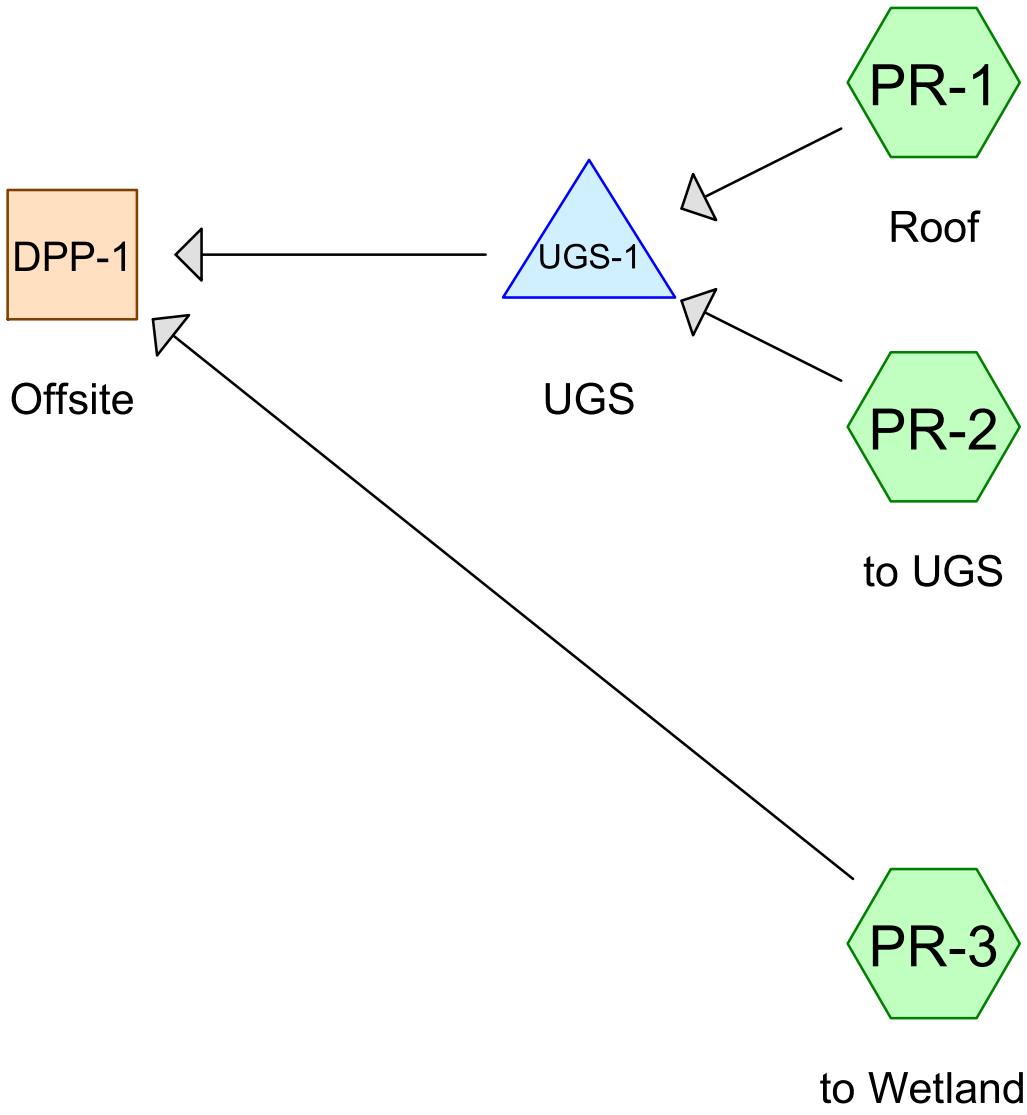
Reach DPE-1: Wetlands



APPENDIX E: PROPOSED CONDITIONS HYDROLOGIC ANALYSIS

- *PROPOSED CONDITIONS DRAINAGE MAP*
- *PROPOSED CONDITIONS HYDROCAD CALCULATIONS*


Now or Formerly
MARIA LOTTATORE
NO LEGAL REFERENCE FOUND
PLAN 1736 OF 1951
LOT H
PARCEL ID 35-118-0
Now or Formerly
GEORGE & ELIZABETH
ZSOVAK TRS
BOOK 45090, PAGE 64
PLAN 1736 OF 1951
LOT G
PARCEL ID 35-117-0
Now or Formerly
RAMESH K NAIDU
BOOK 26872, PAGE 107
PLAN 1736 OF 1951
LOT F
PARCEL ID 35-116-0
N01°13'29"E
108.17'(C)
N00°50'24"E
127.67'(C)
144.61'(C)
100' WETLAND BUFFER
APPROX LOW (TYP)
169.20'
S84°37'38"E
679.13'
147.00'
50' NO BUILD WETLAND BUFFER
20' NO DISTURB WETLAND BUFFER
UGS-1
PR-1
PR-2
PR-3
DP1
E
D
TOC=8.0 MINUTES



Subcat Reach Pond Link

Routing Diagram for MAA250027 Model
Prepared by Bohler Engineering, PC, Printed 12/12/2025

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	4.00	2
2	10 yr	Type III 24-hr		Default	24.00	1	6.37	2
3	25 yr	Type III 24-hr		Default	24.00	1	8.25	2
4	100 yr	Type III 24-hr		Default	24.00	1	11.40	2

Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.569	74	>75% Grass cover, Good, HSG C (PR-2, PR-3)
0.508	98	Paved parking, HSG A (PR-2)
0.126	98	Unconnected roofs, HSG A (PR-1)
0.533	70	Woods, Good, HSG C (PR-3)
1.736	**82**	**TOTAL AREA**

Soil Listing (selected nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.634	HSG A	PR-1, PR-2
0.000	HSG B	
1.102	HSG C	PR-2, PR-3
0.000	HSG D	
0.000	Other	
1.736		**TOTAL AREA**

Ground Covers (selected 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	0.569	0.000	0.000	0.569	>75% Grass cover, Good	PR-2, PR-3
0.508	0.000	0.000	0.000	0.000	0.508	Paved parking	PR-2
0.126	0.000	0.000	0.000	0.000	0.126	Unconnected roofs	PR-1
0.000	0.000	0.533	0.000	0.000	0.533	Woods, Good	PR-3
0.634	**0.000**	**1.102**	**0.000**	**0.000**	**1.736**	**TOTAL AREA**	

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment PR-1: Roof Runoff Area=5,500 sf 100.00% Impervious Runoff Depth>3.76"
Tc=6.0 min CN=98 Runoff=0.48 cfs 0.040 af

Subcatchment PR-2: to UGS Runoff Area=24,437 sf 90.49% Impervious Runoff Depth>3.54"
Tc=6.0 min CN=96 Runoff=2.09 cfs 0.165 af

Subcatchment PR-3: to Wetlands Runoff Area=45,664 sf 0.00% Impervious Runoff Depth>1.46"
Flow Length=461' Tc=8.0 min CN=72 Runoff=1.59 cfs 0.127 af

Reach DPP-1: Offsite Inflow=1.59 cfs 0.205 af
Outflow=1.59 cfs 0.205 af

Pond UGS-1: UGS Peak Elev=203.44' Storage=5,001 cf Inflow=2.57 cfs 0.205 af
Discarded=0.02 cfs 0.028 af Primary=0.46 cfs 0.078 af Outflow=0.47 cfs 0.106 af

Total Runoff Area = 1.736 ac Runoff Volume = 0.332 af Average Runoff Depth = 2.30"
63.47% Pervious = 1.102 ac 36.53% Impervious = 0.634 ac

Summary for Subcatchment PR-1: Roof

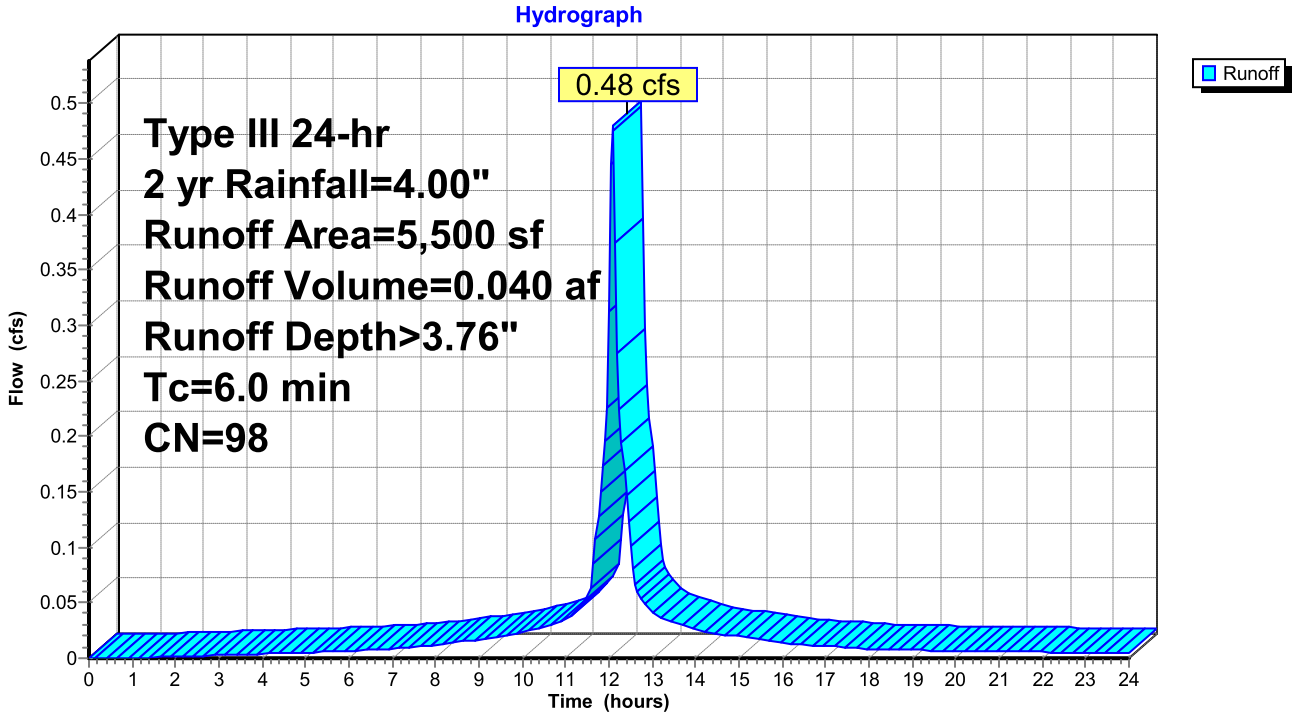
Runoff = 0.48 cfs @ 12.09 hrs, Volume= 0.040 af, Depth> 3.76"
Routed to Pond UGS-1 : UGS

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 yr Rainfall=4.00"

Area (sf)	CN	Description
5,500	98	Unconnected roofs, HSG A
5,500		100.00% Impervious Area
5,500		100.00% Unconnected

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

Subcatchment PR-1: Roof



Summary for Subcatchment PR-2: to UGS

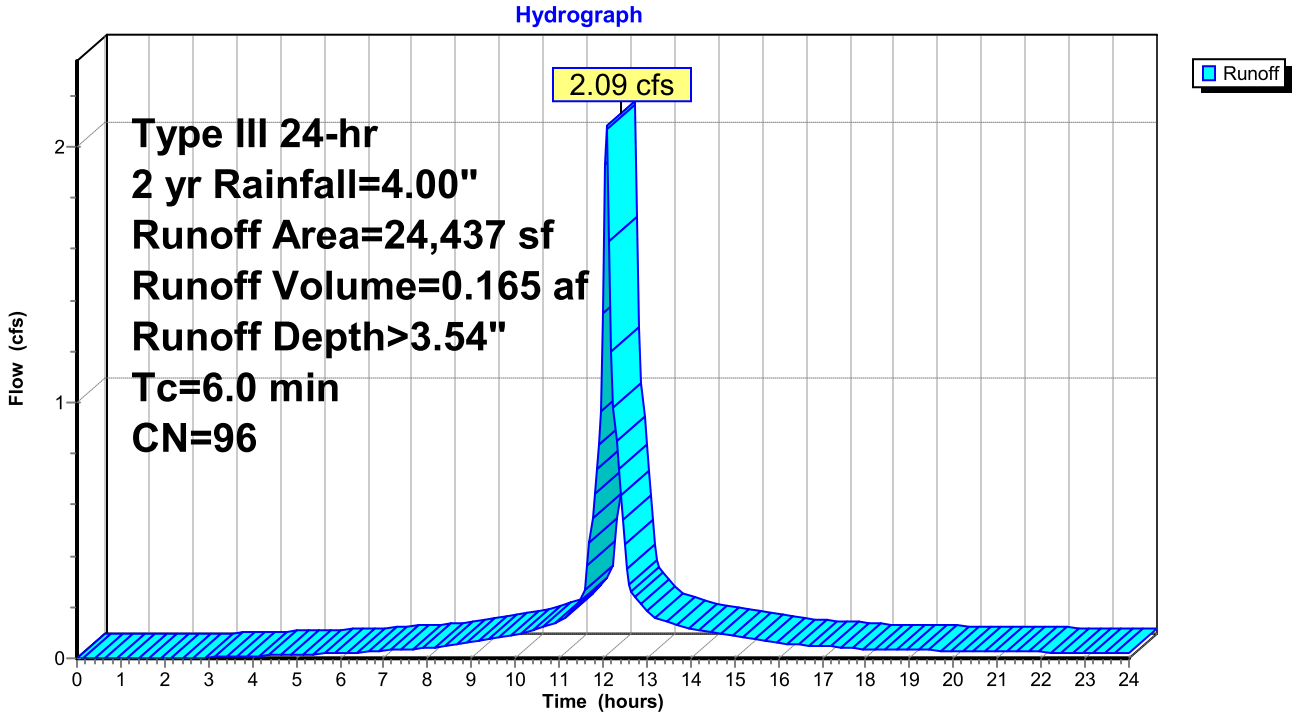
Runoff = 2.09 cfs @ 12.09 hrs, Volume= 0.165 af, Depth> 3.54"
Routed to Pond UGS-1 : UGS

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 yr Rainfall=4.00"

Area (sf)	CN	Description
2,323	74	>75% Grass cover, Good, HSG C
22,114	98	Paved parking, HSG A
24,437	96	Weighted Average
2,323		9.51% Pervious Area
22,114		90.49% Impervious Area

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

Subcatchment PR-2: to UGS



Summary for Subcatchment PR-3: to Wetlands

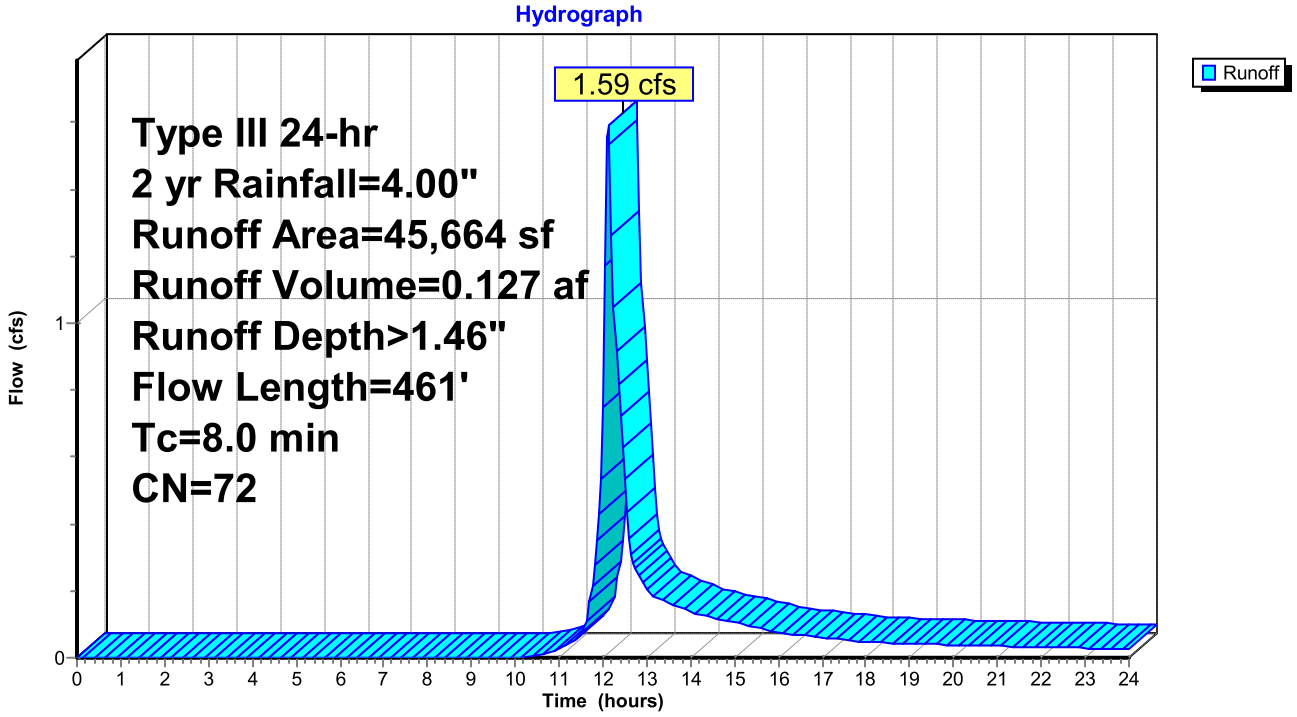
Runoff = 1.59 cfs @ 12.12 hrs, Volume= 0.127 af, Depth> 1.46"
Routed to Reach DPP-1 : Offsite

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 yr Rainfall=4.00"

Area (sf)	CN	Description
22,467	74	>75% Grass cover, Good, HSG C
23,197	70	Woods, Good, HSG C
45,664	72	Weighted Average
45,664		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	12	0.2700	0.22		**Sheet Flow, A to B** Grass: Dense n= 0.240 P2= 3.28"
3.5	38	0.0920	0.18		**Sheet Flow, B to C** Grass: Dense n= 0.240 P2= 3.28"
3.4	388	0.0720	1.88		**Shallow Concentrated Flow, C to D** Short Grass Pasture Kv= 7.0 fps
0.2	23	0.1000	1.58		**Shallow Concentrated Flow, C to D** Woodland Kv= 5.0 fps
8.0	461	Total			

Subcatchment PR-3: to Wetlands



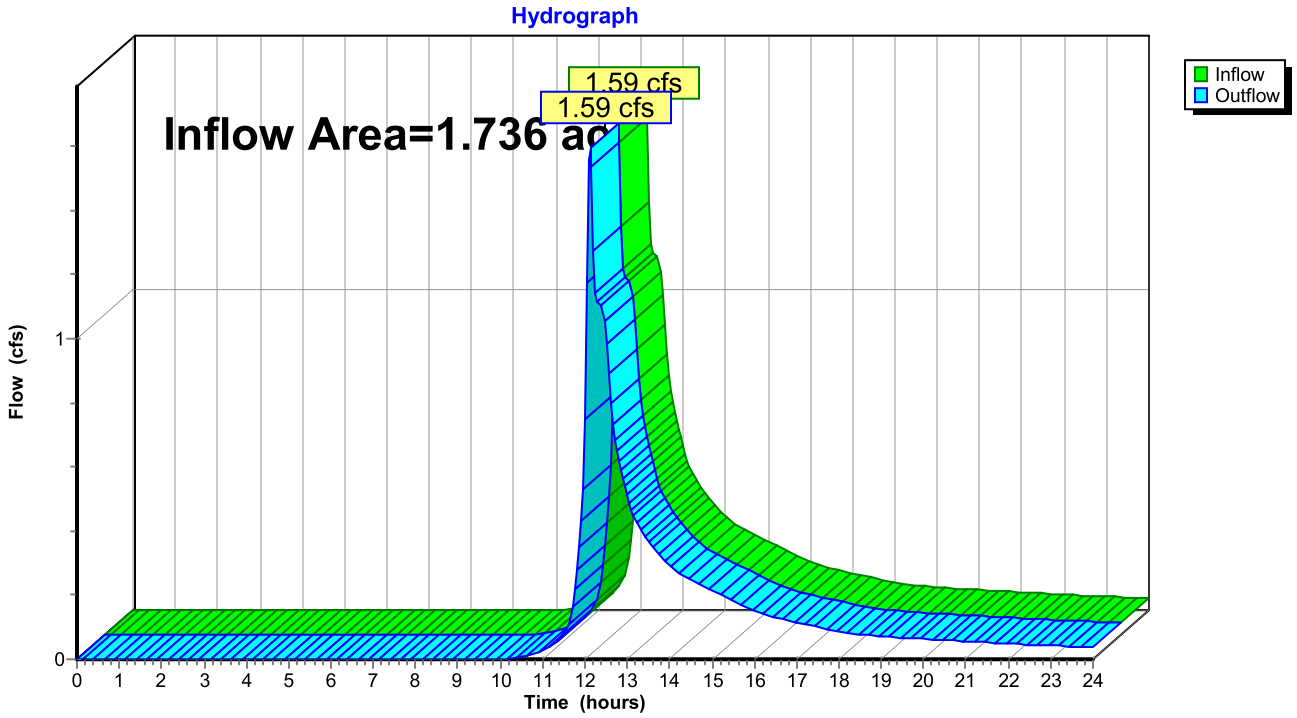
Summary for Reach DPP-1: Offsite

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 1.736 ac, 36.53% Impervious, Inflow Depth > 1.42" for 2 yr event
Inflow = 1.59 cfs @ 12.12 hrs, Volume= 0.205 af
Outflow = 1.59 cfs @ 12.12 hrs, Volume= 0.205 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach DPP-1: Offsite



Summary for Pond UGS-1: UGS

Inflow Area = 0.687 ac, 92.24% Impervious, Inflow Depth > 3.58" for 2 yr event
Inflow = 2.57 cfs @ 12.09 hrs, Volume= 0.205 af
Outflow = 0.47 cfs @ 12.54 hrs, Volume= 0.106 af, Atten= 82%, Lag= 27.0 min
Discarded = 0.02 cfs @ 6.90 hrs, Volume= 0.028 af
Primary = 0.46 cfs @ 12.54 hrs, Volume= 0.078 af
Routed to Reach DPP-1 : Offsite

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 203.44' @ 12.54 hrs Surf.Area= 2,622 sf Storage= 5,001 cf

Plug-Flow detention time= 227.0 min calculated for 0.106 af (52% of inflow)
Center-of-Mass det. time= 109.4 min (873.8 - 764.4)

Volume	Invert	Avail.Storage	Storage Description
#1A	200.75'	4,300 cf	**28.50'W x 91.99'L x 6.75'H Field A** 17,697 cf Overall - 6,946 cf Embedded = 10,751 cf x 40.0% Voids
#2A	201.50'	6,946 cf	**ADS_StormTech MC-4500 b +Cap** x 63 Inside #1 Effective Size= 90.4"W x 60.0"H => 26.46 sf x 4.03'L = 106.5 cf Overall Size= 100.0"W x 60.0"H x 4.33'L with 0.31' Overlap 63 Chambers in 3 Rows Cap Storage= 39.5 cf x 2 x 3 rows = 237.0 cf
		11,246 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	200.75'	**0.270 in/hr Exfiltration over Surface area**
#2	Primary	203.05'	**8.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Primary	207.25'	**5.0' long x 1.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Discarded OutFlow Max=0.02 cfs @ 6.90 hrs HW=200.82' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.02 cfs)

Primary OutFlow Max=0.45 cfs @ 12.54 hrs HW=203.44' TW=0.00' (Dynamic Tailwater)
├**2=Orifice/Grate** (Orifice Controls 0.45 cfs @ 2.13 fps)
└**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond UGS-1: UGS - Chamber Wizard Field A

Chamber Model = ADS_StormTech MC-4500 b +Cap (ADS StormTech® MC-4500 with cap volume)
Effective Size= 90.4"W x 60.0"H => 26.46 sf x 4.03'L = 106.5 cf
Overall Size= 100.0"W x 60.0"H x 4.33'L with 0.31' Overlap
Cap Storage= 39.5 cf x 2 x 3 rows = 237.0 cf

100.0" Wide + 9.0" Spacing = 109.0" C-C Row Spacing

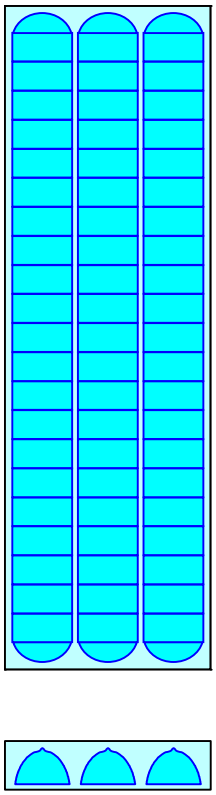
21 Chambers/Row x 4.02' Long +2.73' Cap Length x 2 = 89.99' Row Length +12.0" End Stone x 2 = 91.99' Base Length
3 Rows x 100.0" Wide + 9.0" Spacing x 2 + 12.0" Side Stone x 2 = 28.50' Base Width
9.0" Stone Base + 60.0" Chamber Height + 12.0" Stone Cover = 6.75' Field Height

63 Chambers x 106.5 cf + 39.5 cf Cap Volume x 2 x 3 Rows = 6,945.9 cf Chamber Storage

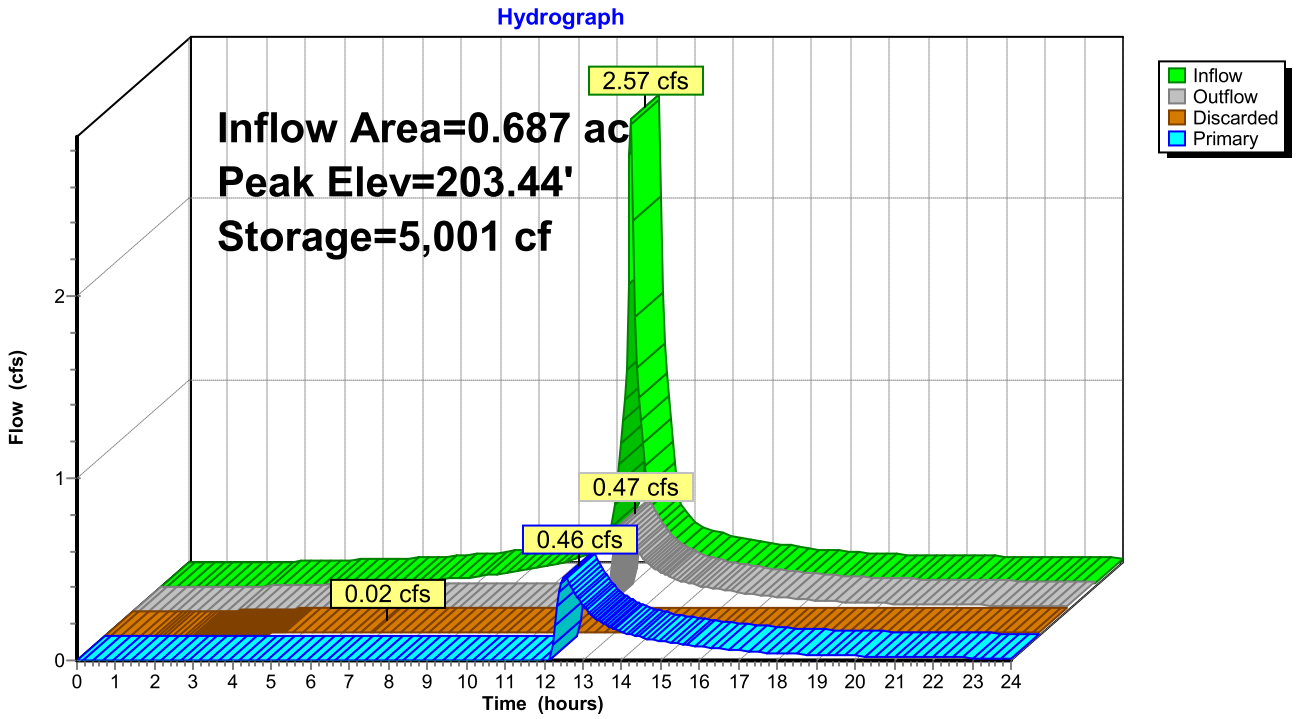
17,696.9 cf Field - 6,945.9 cf Chambers = 10,751.0 cf Stone x 40.0% Voids = 4,300.4 cf Stone Storage

Chamber Storage + Stone Storage = 11,246.3 cf = 0.258 af
Overall Storage Efficiency = 63.5%
Overall System Size = 91.99' x 28.50' x 6.75'

63 Chambers
655.4 cy Field
398.2 cy Stone



Pond UGS-1: UGS



Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment PR-1: Roof Runoff Area=5,500 sf 100.00% Impervious Runoff Depth>6.13"
Tc=6.0 min CN=98 Runoff=0.77 cfs 0.064 af

Subcatchment PR-2: to UGS Runoff Area=24,437 sf 90.49% Impervious Runoff Depth>5.89"
Tc=6.0 min CN=96 Runoff=3.39 cfs 0.275 af

Subcatchment PR-3: to Wetlands Runoff Area=45,664 sf 0.00% Impervious Runoff Depth>3.29"
Flow Length=461' Tc=8.0 min CN=72 Runoff=3.73 cfs 0.288 af

Reach DPP-1: Offsite Inflow=5.05 cfs 0.498 af
Outflow=5.05 cfs 0.498 af

Pond UGS-1: UGS Peak Elev=204.34' Storage=6,797 cf Inflow=4.16 cfs 0.340 af
Discarded=0.02 cfs 0.030 af Primary=1.64 cfs 0.210 af Outflow=1.66 cfs 0.240 af

Total Runoff Area = 1.736 ac Runoff Volume = 0.628 af Average Runoff Depth = 4.34"
63.47% Pervious = 1.102 ac 36.53% Impervious = 0.634 ac

Summary for Subcatchment PR-1: Roof

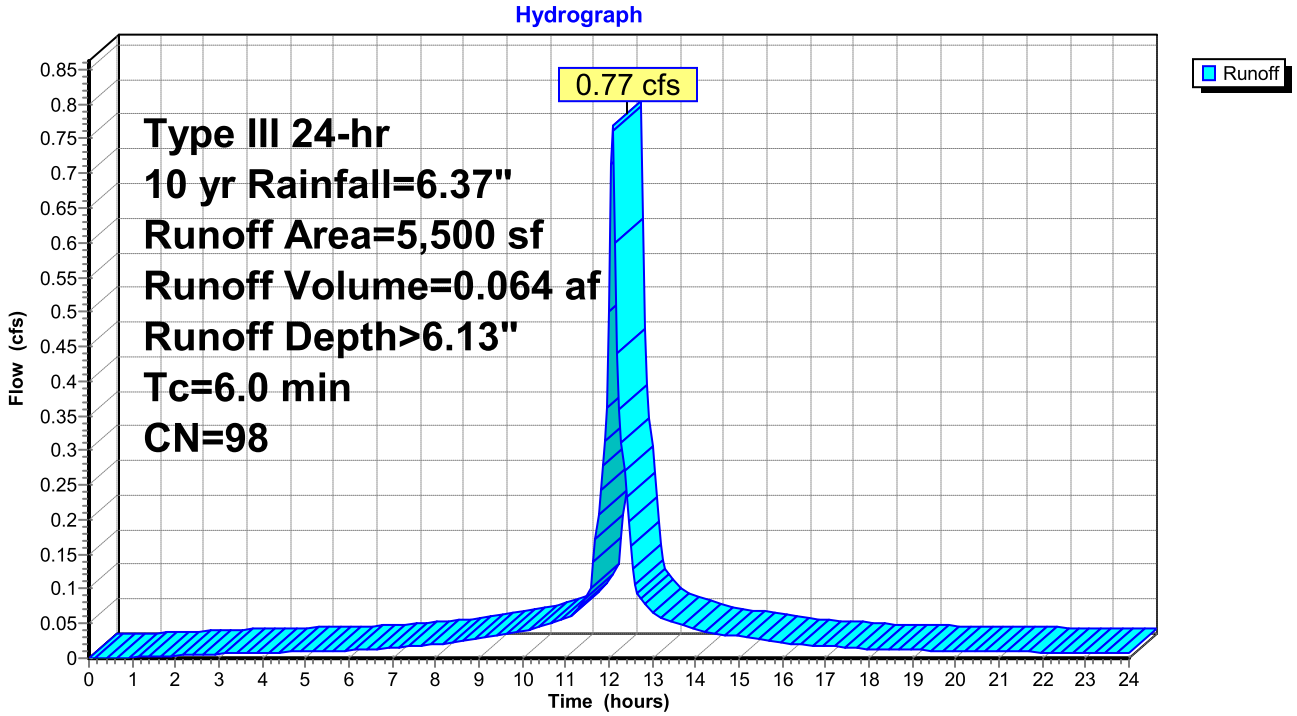
Runoff = 0.77 cfs @ 12.09 hrs, Volume= 0.064 af, Depth> 6.13"
Routed to Pond UGS-1 : UGS

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 yr Rainfall=6.37"

Area (sf)	CN	Description
5,500	98	Unconnected roofs, HSG A
5,500		100.00% Impervious Area
5,500		100.00% Unconnected

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

Subcatchment PR-1: Roof



Summary for Subcatchment PR-2: to UGS

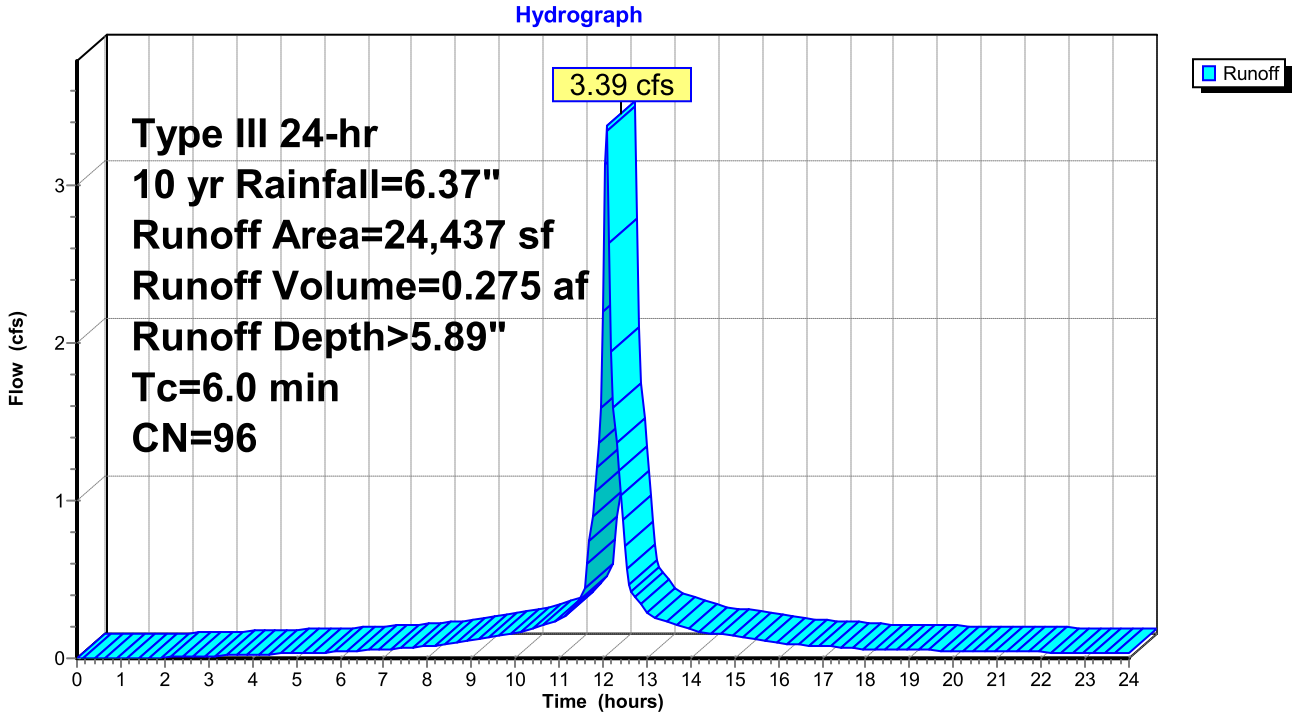
Runoff = 3.39 cfs @ 12.09 hrs, Volume= 0.275 af, Depth> 5.89"
Routed to Pond UGS-1 : UGS

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 yr Rainfall=6.37"

Area (sf)	CN	Description
2,323	74	>75% Grass cover, Good, HSG C
22,114	98	Paved parking, HSG A
24,437	96	Weighted Average
2,323		9.51% Pervious Area
22,114		90.49% Impervious Area

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

Subcatchment PR-2: to UGS



Summary for Subcatchment PR-3: to Wetlands

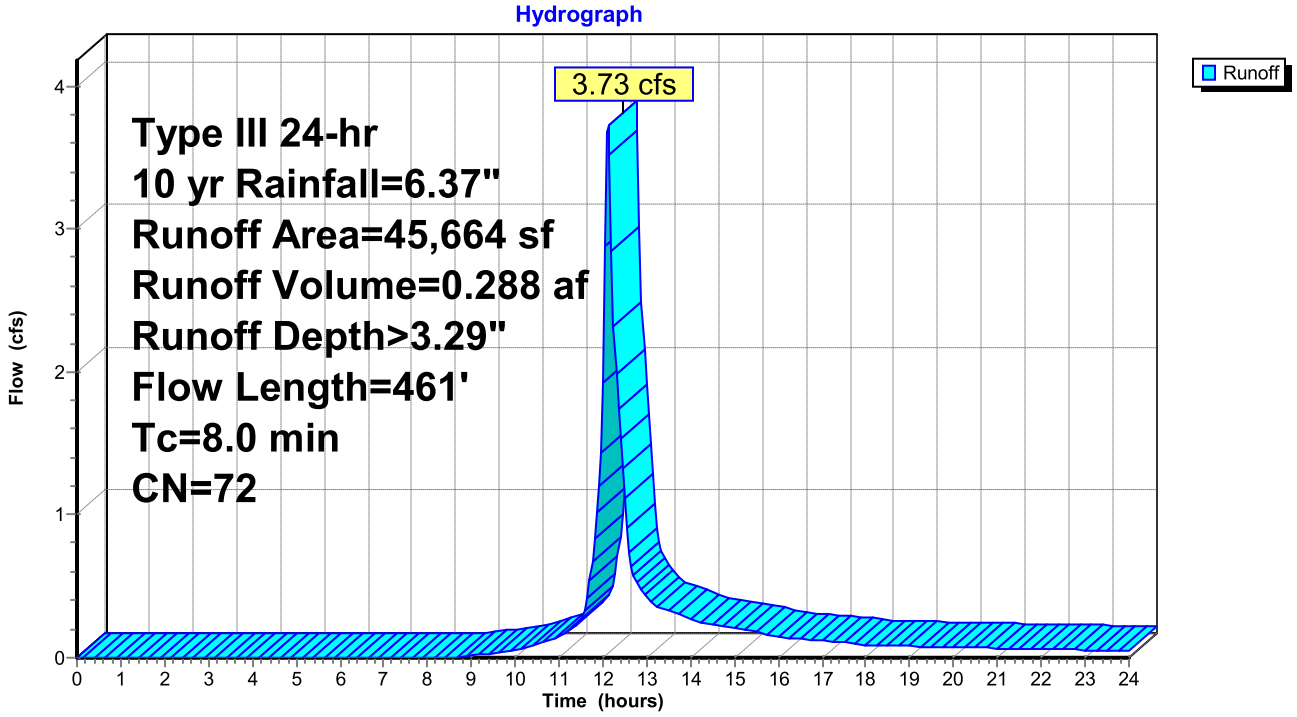
Runoff = 3.73 cfs @ 12.12 hrs, Volume= 0.288 af, Depth> 3.29"
Routed to Reach DPP-1 : Offsite

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 yr Rainfall=6.37"

Area (sf)	CN	Description
22,467	74	>75% Grass cover, Good, HSG C
23,197	70	Woods, Good, HSG C
45,664	72	Weighted Average
45,664		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	12	0.2700	0.22		**Sheet Flow, A to B** Grass: Dense n= 0.240 P2= 3.28"
3.5	38	0.0920	0.18		**Sheet Flow, B to C** Grass: Dense n= 0.240 P2= 3.28"
3.4	388	0.0720	1.88		**Shallow Concentrated Flow, C to D** Short Grass Pasture Kv= 7.0 fps
0.2	23	0.1000	1.58		**Shallow Concentrated Flow, C to D** Woodland Kv= 5.0 fps
8.0	461	Total			

Subcatchment PR-3: to Wetlands



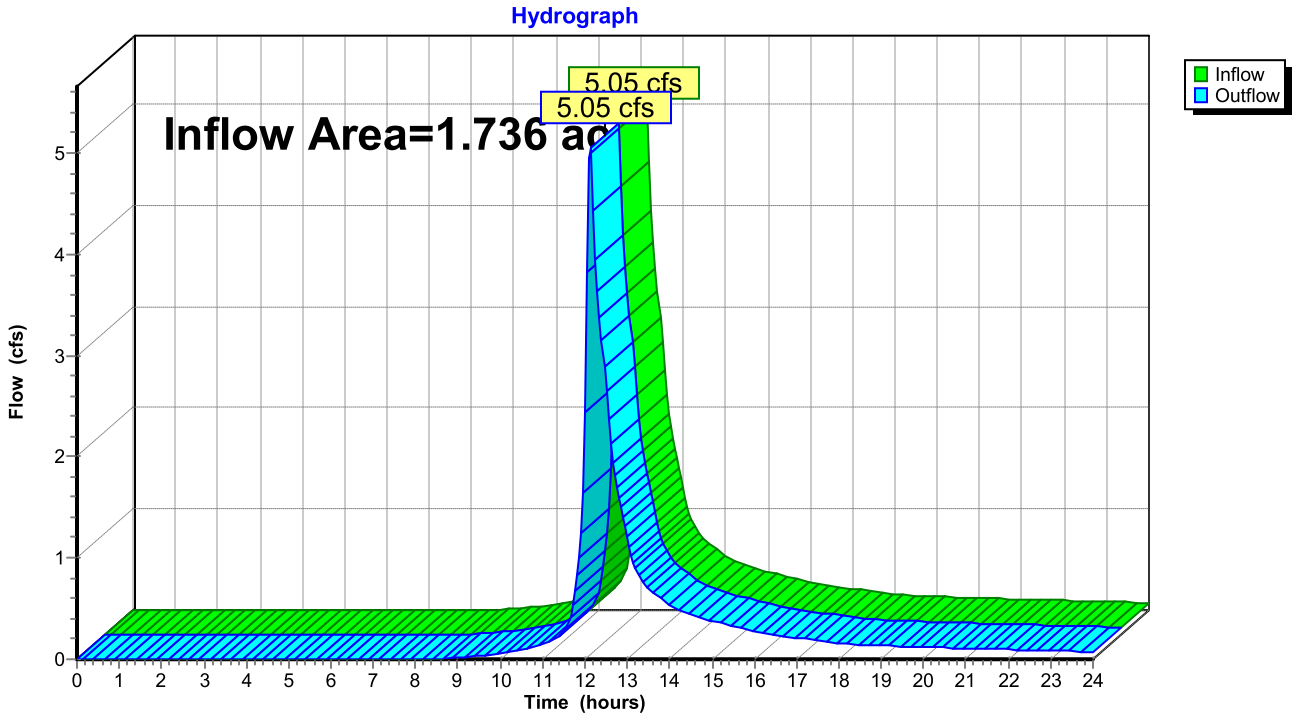
Summary for Reach DPP-1: Offsite

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 1.736 ac, 36.53% Impervious, Inflow Depth > 3.44" for 10 yr event
Inflow = 5.05 cfs @ 12.13 hrs, Volume= 0.498 af
Outflow = 5.05 cfs @ 12.13 hrs, Volume= 0.498 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach DPP-1: Offsite



Summary for Pond UGS-1: UGS

Inflow Area = 0.687 ac, 92.24% Impervious, Inflow Depth > 5.94" for 10 yr event
Inflow = 4.16 cfs @ 12.09 hrs, Volume= 0.340 af
Outflow = 1.66 cfs @ 12.31 hrs, Volume= 0.240 af, Atten= 60%, Lag= 13.3 min
Discarded = 0.02 cfs @ 4.50 hrs, Volume= 0.030 af
Primary = 1.64 cfs @ 12.31 hrs, Volume= 0.210 af
Routed to Reach DPP-1 : Offsite

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 204.34' @ 12.31 hrs Surf.Area= 2,622 sf Storage= 6,797 cf

Plug-Flow detention time= 176.1 min calculated for 0.240 af (71% of inflow)
Center-of-Mass det. time= 83.1 min (837.2 - 754.1)

Volume	Invert	Avail.Storage	Storage Description
#1A	200.75'	4,300 cf	**28.50'W x 91.99'L x 6.75'H Field A** 17,697 cf Overall - 6,946 cf Embedded = 10,751 cf x 40.0% Voids
#2A	201.50'	6,946 cf	**ADS_StormTech MC-4500 b +Cap** x 63 Inside #1 Effective Size= 90.4"W x 60.0"H => 26.46 sf x 4.03'L = 106.5 cf Overall Size= 100.0"W x 60.0"H x 4.33'L with 0.31' Overlap 63 Chambers in 3 Rows Cap Storage= 39.5 cf x 2 x 3 rows = 237.0 cf
		11,246 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	200.75'	**0.270 in/hr Exfiltration over Surface area**
#2	Primary	203.05'	**8.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Primary	207.25'	**5.0' long x 1.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Discarded OutFlow Max=0.02 cfs @ 4.50 hrs HW=200.82' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.02 cfs)

Primary OutFlow Max=1.64 cfs @ 12.31 hrs HW=204.33' TW=0.00' (Dynamic Tailwater)
├**2=Orifice/Grate** (Orifice Controls 1.64 cfs @ 4.70 fps)
└**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond UGS-1: UGS - Chamber Wizard Field A

Chamber Model = ADS_StormTech MC-4500 b +Cap (ADS StormTech® MC-4500 with cap volume)
Effective Size= 90.4"W x 60.0"H => 26.46 sf x 4.03'L = 106.5 cf
Overall Size= 100.0"W x 60.0"H x 4.33'L with 0.31' Overlap
Cap Storage= 39.5 cf x 2 x 3 rows = 237.0 cf

100.0" Wide + 9.0" Spacing = 109.0" C-C Row Spacing

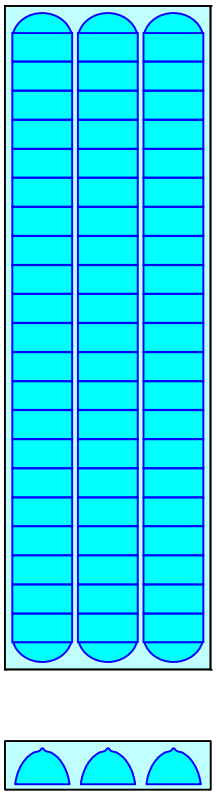
21 Chambers/Row x 4.02' Long +2.73' Cap Length x 2 = 89.99' Row Length +12.0" End Stone x 2 = 91.99' Base Length
3 Rows x 100.0" Wide + 9.0" Spacing x 2 + 12.0" Side Stone x 2 = 28.50' Base Width
9.0" Stone Base + 60.0" Chamber Height + 12.0" Stone Cover = 6.75' Field Height

63 Chambers x 106.5 cf + 39.5 cf Cap Volume x 2 x 3 Rows = 6,945.9 cf Chamber Storage

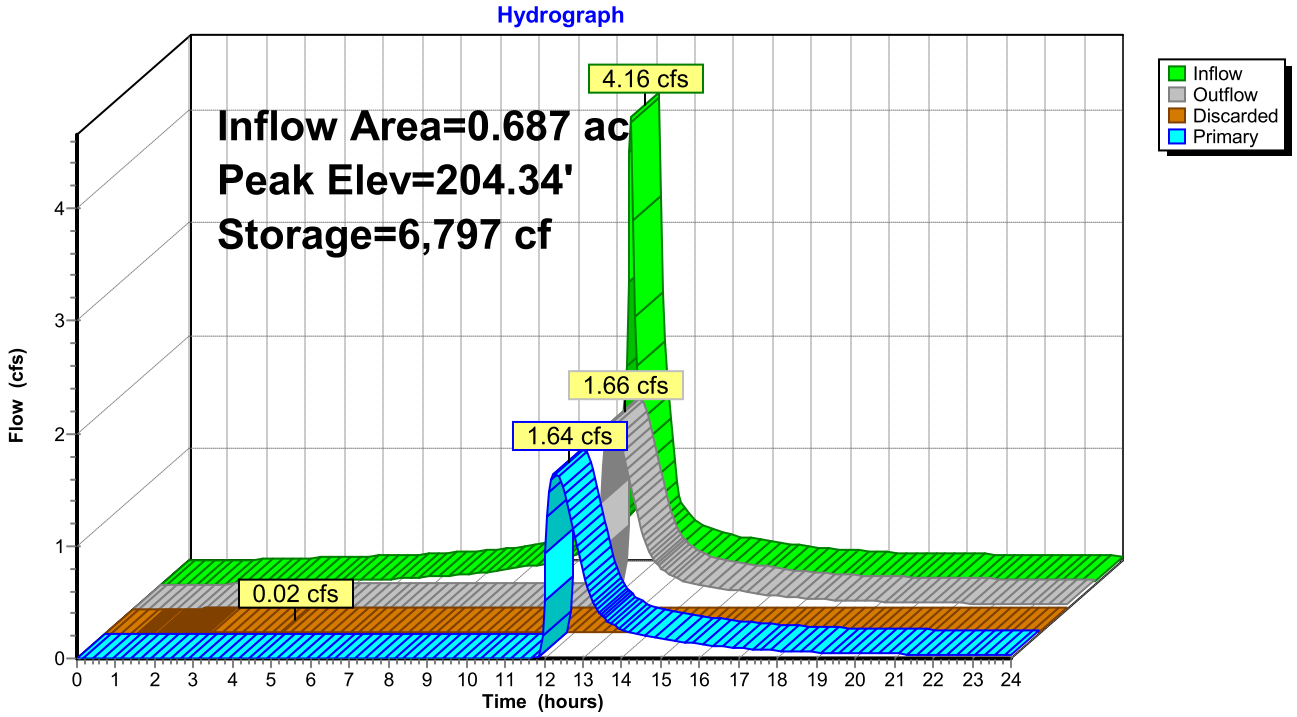
17,696.9 cf Field - 6,945.9 cf Chambers = 10,751.0 cf Stone x 40.0% Voids = 4,300.4 cf Stone Storage

Chamber Storage + Stone Storage = 11,246.3 cf = 0.258 af
Overall Storage Efficiency = 63.5%
Overall System Size = 91.99' x 28.50' x 6.75'

63 Chambers
655.4 cy Field
398.2 cy Stone



Pond UGS-1: UGS



Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment PR-1: Roof Runoff Area=5,500 sf 100.00% Impervious Runoff Depth>8.01"
Tc=6.0 min CN=98 Runoff=1.00 cfs 0.084 af

Subcatchment PR-2: to UGS Runoff Area=24,437 sf 90.49% Impervious Runoff Depth>7.77"
Tc=6.0 min CN=96 Runoff=4.41 cfs 0.363 af

Subcatchment PR-3: to Wetlands Runoff Area=45,664 sf 0.00% Impervious Runoff Depth>4.91"
Flow Length=461' Tc=8.0 min CN=72 Runoff=5.56 cfs 0.429 af

Reach DPP-1: Offsite Inflow=7.48 cfs 0.744 af
Outflow=7.48 cfs 0.744 af

Pond UGS-1: UGS Peak Elev=205.09' Storage=8,188 cf Inflow=5.41 cfs 0.447 af
Discarded=0.02 cfs 0.031 af Primary=2.20 cfs 0.316 af Outflow=2.21 cfs 0.346 af

Total Runoff Area = 1.736 ac Runoff Volume = 0.876 af Average Runoff Depth = 6.06"
63.47% Pervious = 1.102 ac 36.53% Impervious = 0.634 ac

Summary for Subcatchment PR-1: Roof

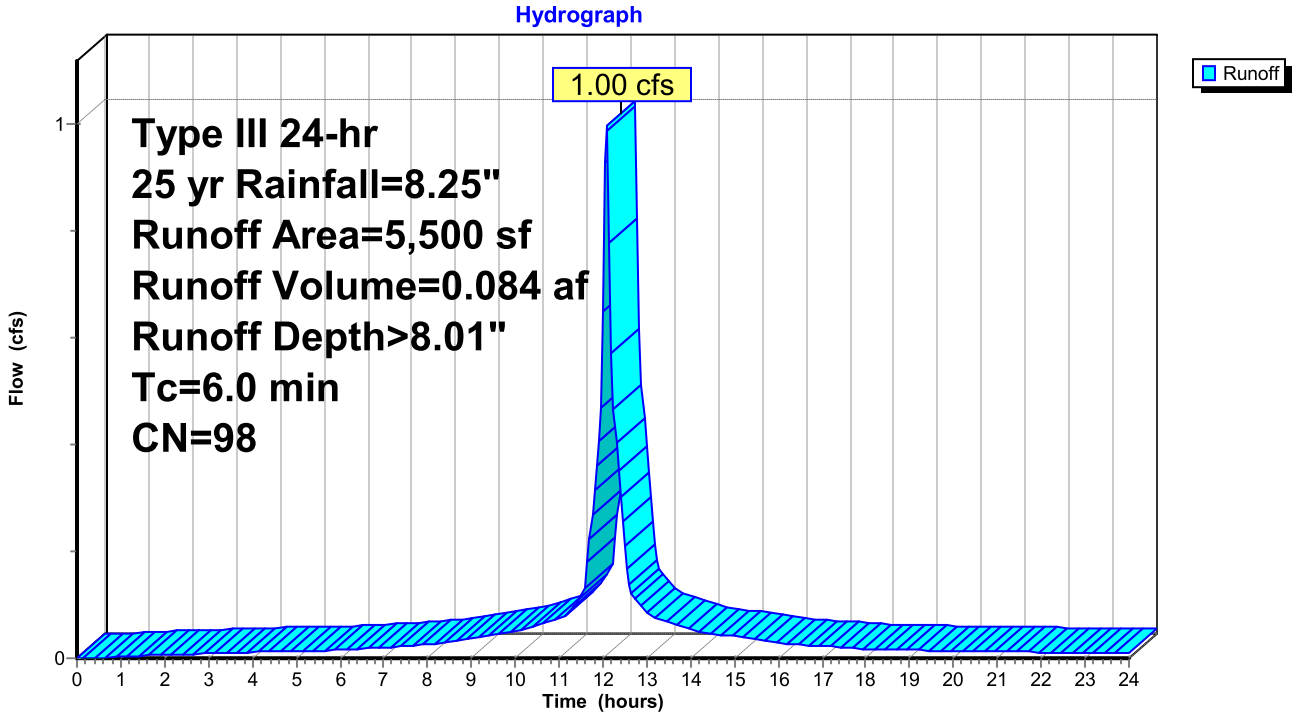
Runoff = 1.00 cfs @ 12.09 hrs, Volume= 0.084 af, Depth> 8.01"
Routed to Pond UGS-1 : UGS

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 yr Rainfall=8.25"

Area (sf)	CN	Description
5,500	98	Unconnected roofs, HSG A
5,500		100.00% Impervious Area
5,500		100.00% Unconnected

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

Subcatchment PR-1: Roof



Summary for Subcatchment PR-2: to UGS

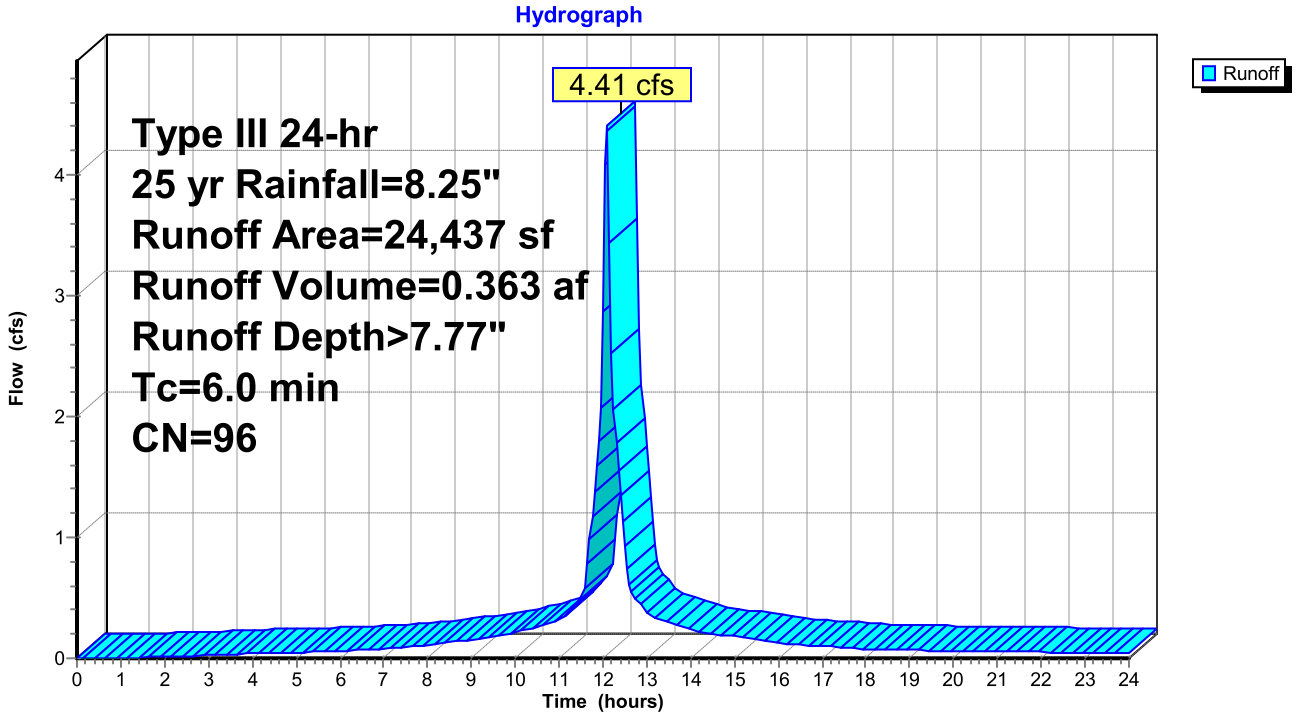
Runoff = 4.41 cfs @ 12.09 hrs, Volume= 0.363 af, Depth> 7.77"
Routed to Pond UGS-1 : UGS

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 yr Rainfall=8.25"

Area (sf)	CN	Description
2,323	74	>75% Grass cover, Good, HSG C
22,114	98	Paved parking, HSG A
24,437	96	Weighted Average
2,323		9.51% Pervious Area
22,114		90.49% Impervious Area

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

Subcatchment PR-2: to UGS



Summary for Subcatchment PR-3: to Wetlands

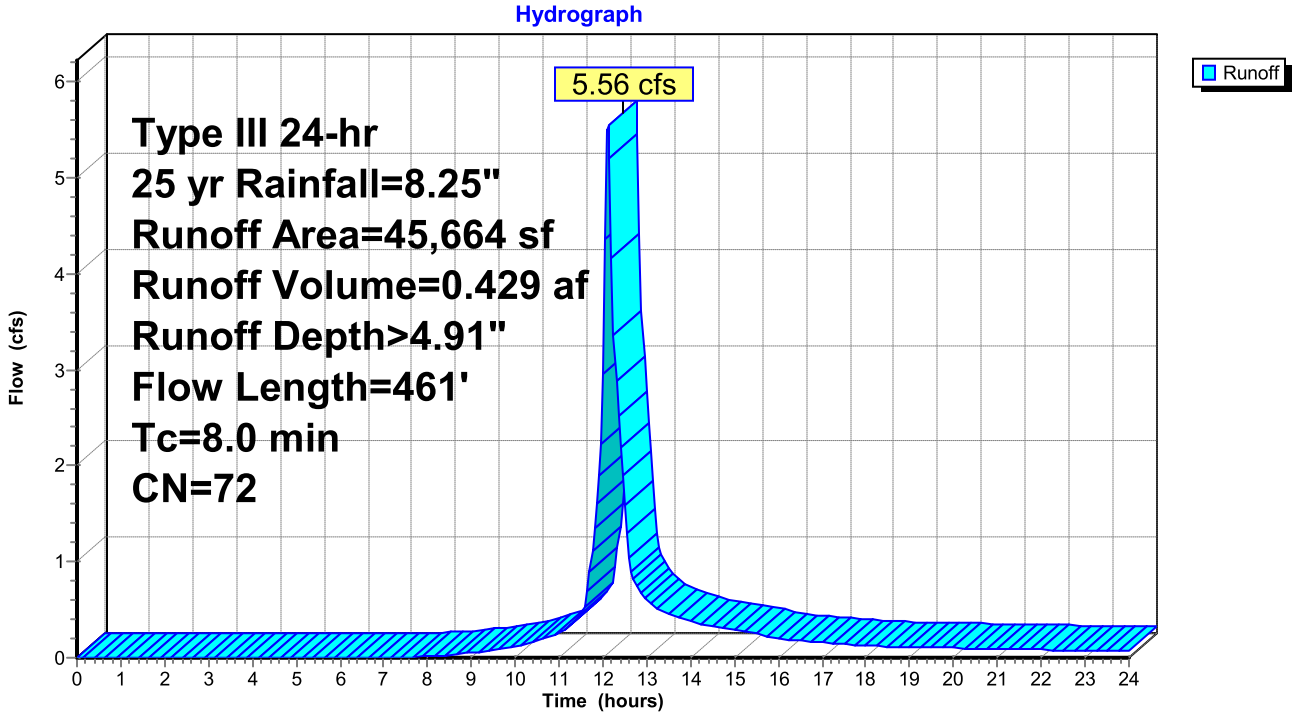
Runoff = 5.56 cfs @ 12.11 hrs, Volume= 0.429 af, Depth> 4.91"
Routed to Reach DPP-1 : Offsite

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 yr Rainfall=8.25"

Area (sf)	CN	Description
22,467	74	>75% Grass cover, Good, HSG C
23,197	70	Woods, Good, HSG C
45,664	72	Weighted Average
45,664		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	12	0.2700	0.22		**Sheet Flow, A to B** Grass: Dense n= 0.240 P2= 3.28"
3.5	38	0.0920	0.18		**Sheet Flow, B to C** Grass: Dense n= 0.240 P2= 3.28"
3.4	388	0.0720	1.88		**Shallow Concentrated Flow, C to D** Short Grass Pasture Kv= 7.0 fps
0.2	23	0.1000	1.58		**Shallow Concentrated Flow, C to D** Woodland Kv= 5.0 fps
8.0	461	Total			

Subcatchment PR-3: to Wetlands



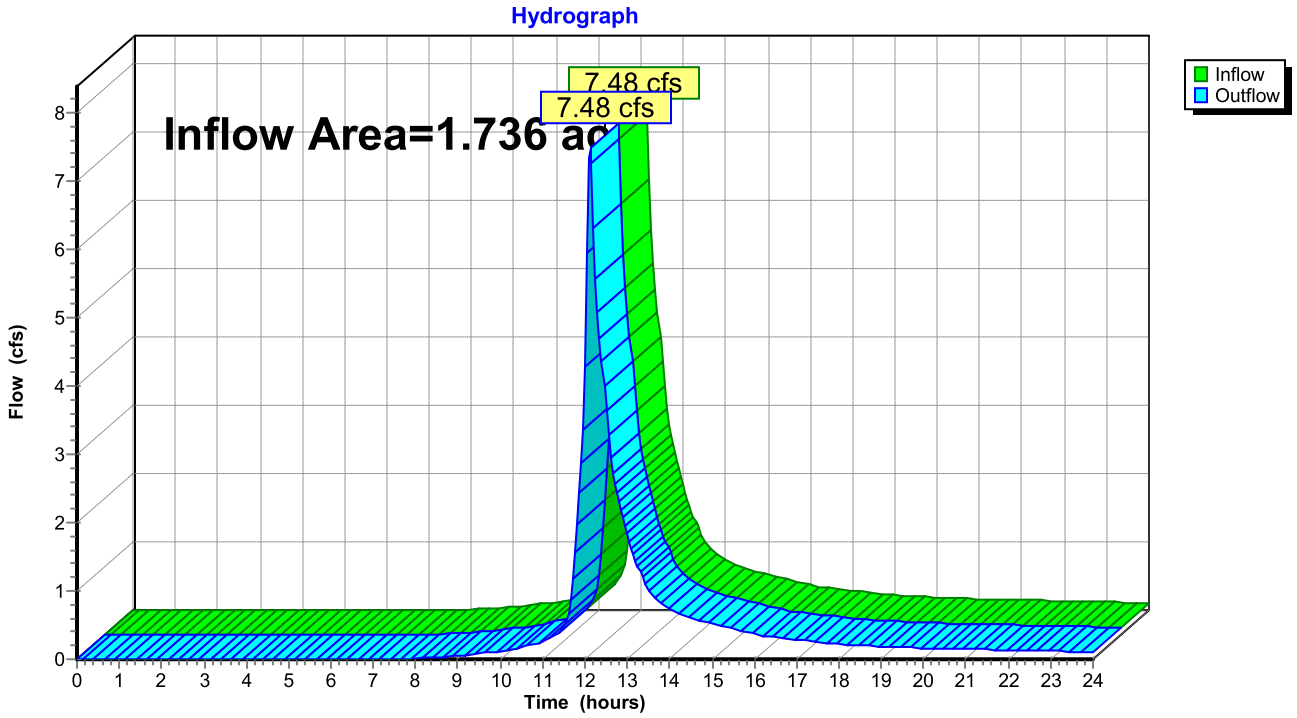
Summary for Reach DPP-1: Offsite

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 1.736 ac, 36.53% Impervious, Inflow Depth > 5.15" for 25 yr event
Inflow = 7.48 cfs @ 12.12 hrs, Volume= 0.744 af
Outflow = 7.48 cfs @ 12.12 hrs, Volume= 0.744 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach DPP-1: Offsite



Summary for Pond UGS-1: UGS

Inflow Area = 0.687 ac, 92.24% Impervious, Inflow Depth > 7.81" for 25 yr event
Inflow = 5.41 cfs @ 12.09 hrs, Volume= 0.447 af
Outflow = 2.21 cfs @ 12.30 hrs, Volume= 0.346 af, Atten= 59%, Lag= 12.7 min
Discarded = 0.02 cfs @ 3.45 hrs, Volume= 0.031 af
Primary = 2.20 cfs @ 12.30 hrs, Volume= 0.316 af
Routed to Reach DPP-1 : Offsite

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 205.09' @ 12.30 hrs Surf.Area= 2,622 sf Storage= 8,188 cf

Plug-Flow detention time= 161.3 min calculated for 0.346 af (77% of inflow)
Center-of-Mass det. time= 79.4 min (828.7 - 749.3)

Volume	Invert	Avail.Storage	Storage Description
#1A	200.75'	4,300 cf	**28.50'W x 91.99'L x 6.75'H Field A** 17,697 cf Overall - 6,946 cf Embedded = 10,751 cf x 40.0% Voids
#2A	201.50'	6,946 cf	**ADS_StormTech MC-4500 b +Cap** x 63 Inside #1 Effective Size= 90.4"W x 60.0"H => 26.46 sf x 4.03'L = 106.5 cf Overall Size= 100.0"W x 60.0"H x 4.33'L with 0.31' Overlap 63 Chambers in 3 Rows Cap Storage= 39.5 cf x 2 x 3 rows = 237.0 cf
		11,246 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	200.75'	**0.270 in/hr Exfiltration over Surface area**
#2	Primary	203.05'	**8.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Primary	207.25'	**5.0' long x 1.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Discarded OutFlow Max=0.02 cfs @ 3.45 hrs HW=200.82' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.02 cfs)

Primary OutFlow Max=2.20 cfs @ 12.30 hrs HW=205.09' TW=0.00' (Dynamic Tailwater)
├**2=Orifice/Grate** (Orifice Controls 2.20 cfs @ 6.29 fps)
└**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond UGS-1: UGS - Chamber Wizard Field A

Chamber Model = ADS_StormTech MC-4500 b +Cap (ADS StormTech® MC-4500 with cap volume)
Effective Size= 90.4"W x 60.0"H => 26.46 sf x 4.03'L = 106.5 cf
Overall Size= 100.0"W x 60.0"H x 4.33'L with 0.31' Overlap
Cap Storage= 39.5 cf x 2 x 3 rows = 237.0 cf

100.0" Wide + 9.0" Spacing = 109.0" C-C Row Spacing

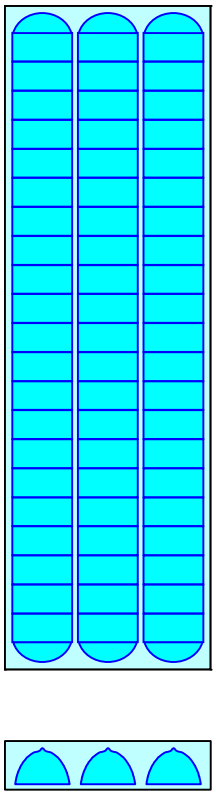
21 Chambers/Row x 4.02' Long +2.73' Cap Length x 2 = 89.99' Row Length +12.0" End Stone x 2 = 91.99' Base Length
3 Rows x 100.0" Wide + 9.0" Spacing x 2 + 12.0" Side Stone x 2 = 28.50' Base Width
9.0" Stone Base + 60.0" Chamber Height + 12.0" Stone Cover = 6.75' Field Height

63 Chambers x 106.5 cf + 39.5 cf Cap Volume x 2 x 3 Rows = 6,945.9 cf Chamber Storage

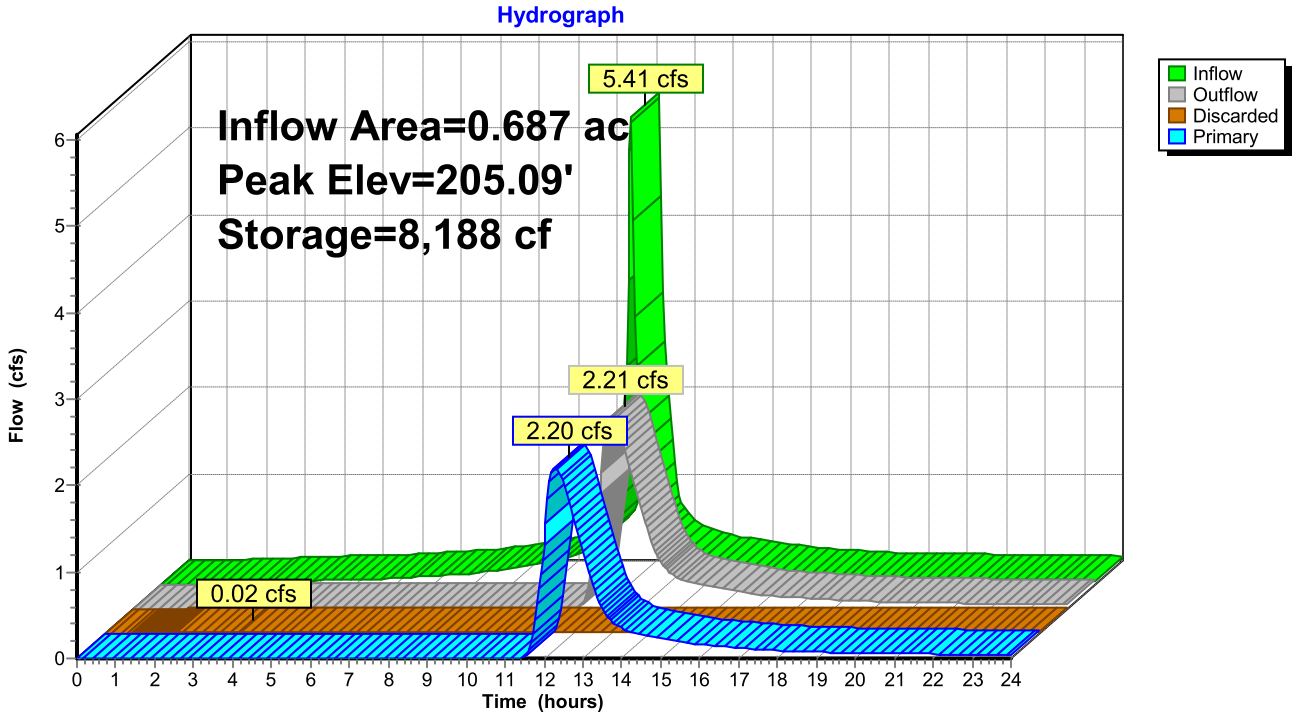
17,696.9 cf Field - 6,945.9 cf Chambers = 10,751.0 cf Stone x 40.0% Voids = 4,300.4 cf Stone Storage

Chamber Storage + Stone Storage = 11,246.3 cf = 0.258 af
Overall Storage Efficiency = 63.5%
Overall System Size = 91.99' x 28.50' x 6.75'

63 Chambers
655.4 cy Field
398.2 cy Stone



Pond UGS-1: UGS



Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment PR-1: Roof Runoff Area=5,500 sf 100.00% Impervious Runoff Depth>11.15"
Tc=6.0 min CN=98 Runoff=1.38 cfs 0.117 af

Subcatchment PR-2: to UGS Runoff Area=24,437 sf 90.49% Impervious Runoff Depth>10.91"
Tc=6.0 min CN=96 Runoff=6.12 cfs 0.510 af

Subcatchment PR-3: to Wetlands Runoff Area=45,664 sf 0.00% Impervious Runoff Depth>7.77"
Flow Length=461' Tc=8.0 min CN=72 Runoff=8.71 cfs 0.678 af

Reach DPP-1: Offsite Inflow=11.19 cfs 1.172 af
Outflow=11.19 cfs 1.172 af

Pond UGS-1: UGS Peak Elev=206.42' Storage=10,115 cf Inflow=7.50 cfs 0.627 af
Discarded=0.02 cfs 0.031 af Primary=2.93 cfs 0.494 af Outflow=2.95 cfs 0.525 af

Total Runoff Area = 1.736 ac Runoff Volume = 1.306 af Average Runoff Depth = 9.03"
63.47% Pervious = 1.102 ac 36.53% Impervious = 0.634 ac

Summary for Subcatchment PR-1: Roof

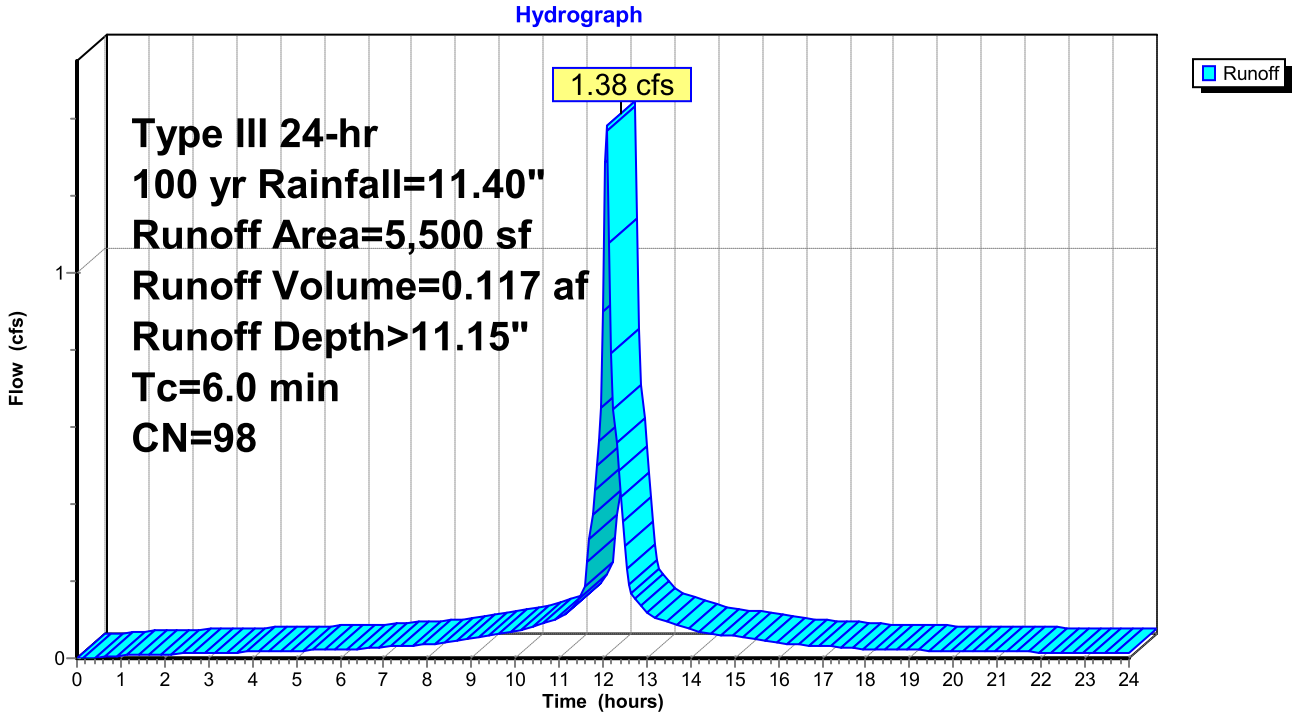
Runoff = 1.38 cfs @ 12.09 hrs, Volume= 0.117 af, Depth>11.15"
Routed to Pond UGS-1 : UGS

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 yr Rainfall=11.40"

Area (sf)	CN	Description
5,500	98	Unconnected roofs, HSG A
5,500		100.00% Impervious Area
5,500		100.00% Unconnected

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

Subcatchment PR-1: Roof



Summary for Subcatchment PR-2: to UGS

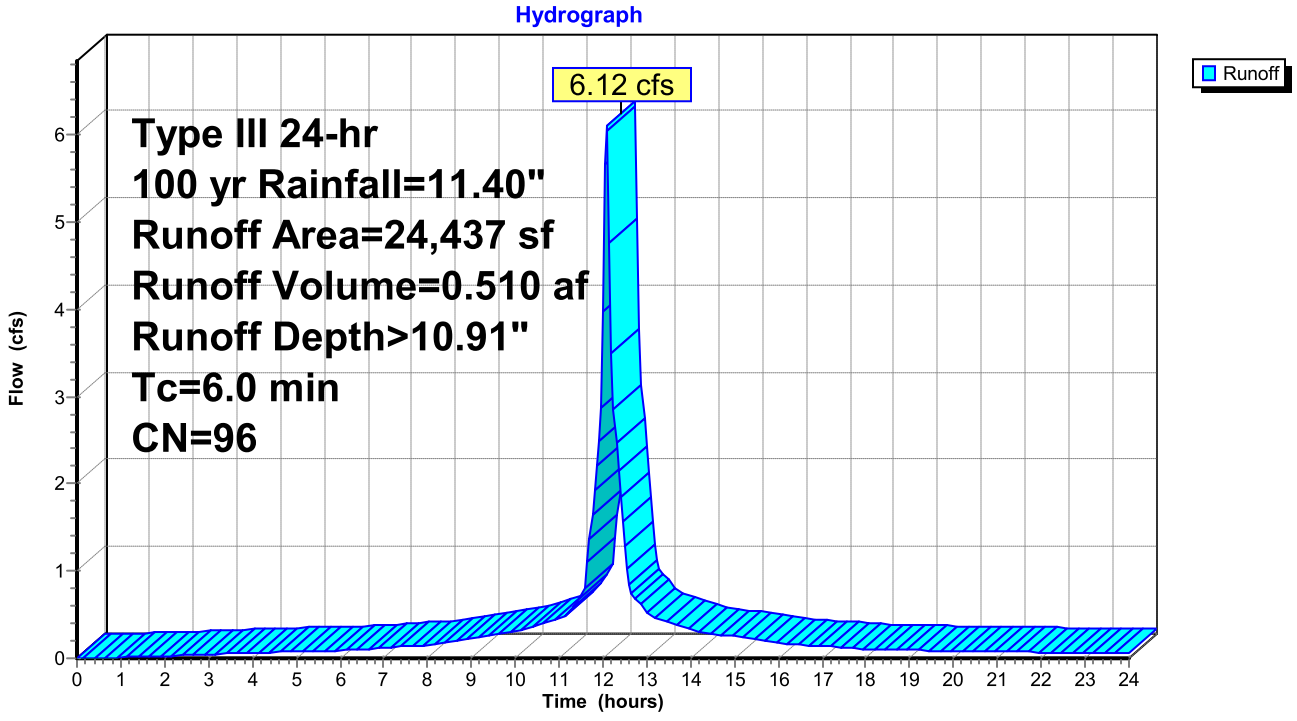
Runoff = 6.12 cfs @ 12.09 hrs, Volume= 0.510 af, Depth>10.91"
Routed to Pond UGS-1 : UGS

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 yr Rainfall=11.40"

Area (sf)	CN	Description
2,323	74	>75% Grass cover, Good, HSG C
22,114	98	Paved parking, HSG A
24,437	96	Weighted Average
2,323		9.51% Pervious Area
22,114		90.49% Impervious Area

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

Subcatchment PR-2: to UGS



Summary for Subcatchment PR-3: to Wetlands

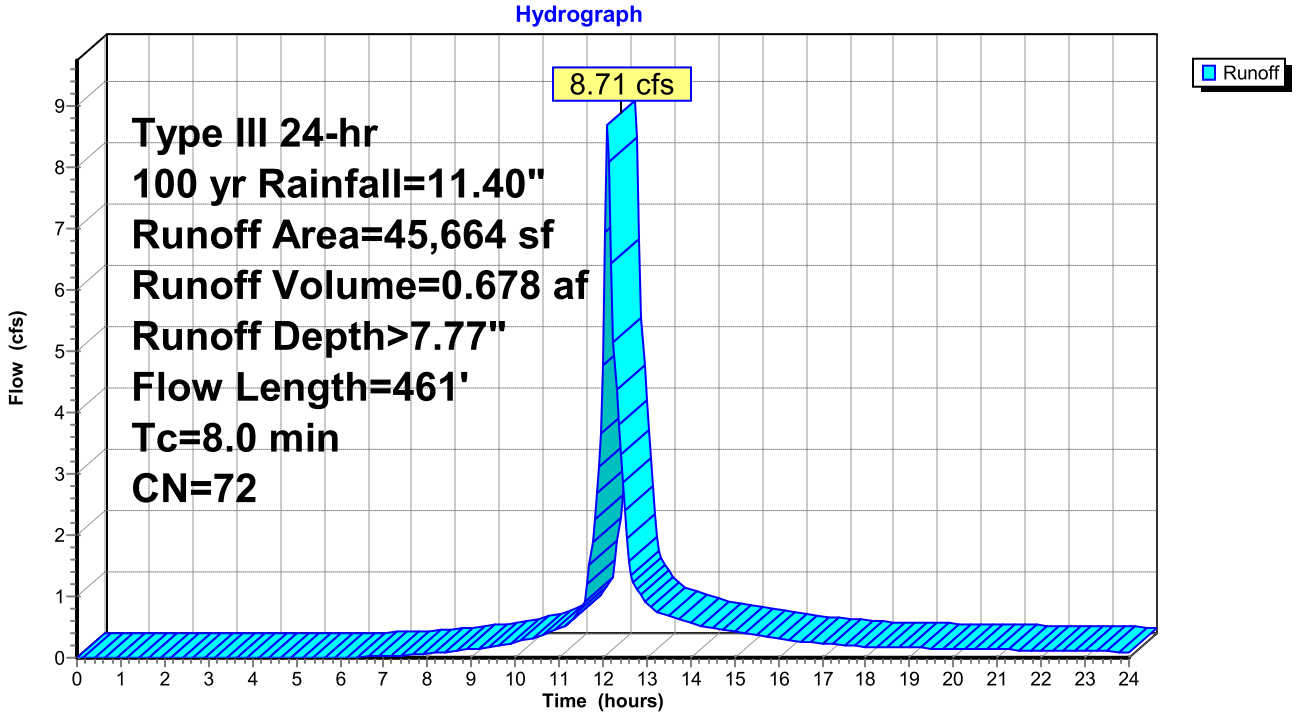
Runoff = 8.71 cfs @ 12.11 hrs, Volume= 0.678 af, Depth> 7.77"
Routed to Reach DPP-1 : Offsite

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 yr Rainfall=11.40"

Area (sf)	CN	Description
22,467	74	>75% Grass cover, Good, HSG C
23,197	70	Woods, Good, HSG C
45,664	72	Weighted Average
45,664		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	12	0.2700	0.22		**Sheet Flow, A to B** Grass: Dense n= 0.240 P2= 3.28"
3.5	38	0.0920	0.18		**Sheet Flow, B to C** Grass: Dense n= 0.240 P2= 3.28"
3.4	388	0.0720	1.88		**Shallow Concentrated Flow, C to D** Short Grass Pasture Kv= 7.0 fps
0.2	23	0.1000	1.58		**Shallow Concentrated Flow, C to D** Woodland Kv= 5.0 fps
8.0	461	Total			

Subcatchment PR-3: to Wetlands



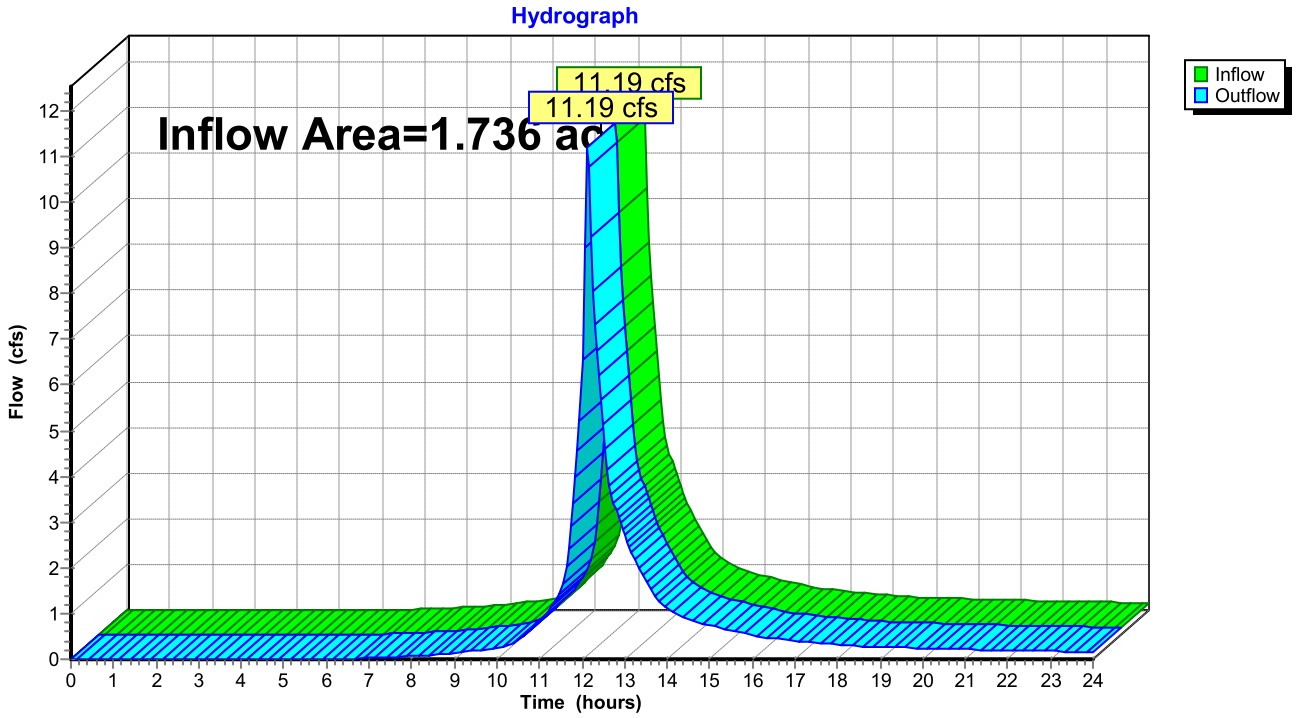
Summary for Reach DPP-1: Offsite

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 1.736 ac, 36.53% Impervious, Inflow Depth > 8.11" for 100 yr event
Inflow = 11.19 cfs @ 12.12 hrs, Volume= 1.172 af
Outflow = 11.19 cfs @ 12.12 hrs, Volume= 1.172 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach DPP-1: Offsite



Summary for Pond UGS-1: UGS

Inflow Area = 0.687 ac, 92.24% Impervious, Inflow Depth > 10.95" for 100 yr event
Inflow = 7.50 cfs @ 12.09 hrs, Volume= 0.627 af
Outflow = 2.95 cfs @ 12.31 hrs, Volume= 0.525 af, Atten= 61%, Lag= 13.5 min
Discarded = 0.02 cfs @ 2.40 hrs, Volume= 0.031 af
Primary = 2.93 cfs @ 12.31 hrs, Volume= 0.494 af
Routed to Reach DPP-1 : Offsite

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 206.42' @ 12.31 hrs Surf.Area= 2,622 sf Storage= 10,115 cf

Plug-Flow detention time= 142.8 min calculated for 0.524 af (84% of inflow)
Center-of-Mass det. time= 75.1 min (819.3 - 744.1)

Volume	Invert	Avail.Storage	Storage Description
#1A	200.75'	4,300 cf	**28.50'W x 91.99'L x 6.75'H Field A** 17,697 cf Overall - 6,946 cf Embedded = 10,751 cf x 40.0% Voids
#2A	201.50'	6,946 cf	**ADS_StormTech MC-4500 b +Cap** x 63 Inside #1 Effective Size= 90.4"W x 60.0"H => 26.46 sf x 4.03'L = 106.5 cf Overall Size= 100.0"W x 60.0"H x 4.33'L with 0.31' Overlap 63 Chambers in 3 Rows Cap Storage= 39.5 cf x 2 x 3 rows = 237.0 cf
		11,246 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	200.75'	**0.270 in/hr Exfiltration over Surface area**
#2	Primary	203.05'	**8.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Primary	207.25'	**5.0' long x 1.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Discarded OutFlow Max=0.02 cfs @ 2.40 hrs HW=200.82' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.02 cfs)

Primary OutFlow Max=2.93 cfs @ 12.31 hrs HW=206.42' TW=0.00' (Dynamic Tailwater)
├**2=Orifice/Grate** (Orifice Controls 2.93 cfs @ 8.38 fps)
└**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond UGS-1: UGS - Chamber Wizard Field A

Chamber Model = ADS_StormTech MC-4500 b +Cap (ADS StormTech® MC-4500 with cap volume)
Effective Size= 90.4"W x 60.0"H => 26.46 sf x 4.03'L = 106.5 cf
Overall Size= 100.0"W x 60.0"H x 4.33'L with 0.31' Overlap
Cap Storage= 39.5 cf x 2 x 3 rows = 237.0 cf

100.0" Wide + 9.0" Spacing = 109.0" C-C Row Spacing

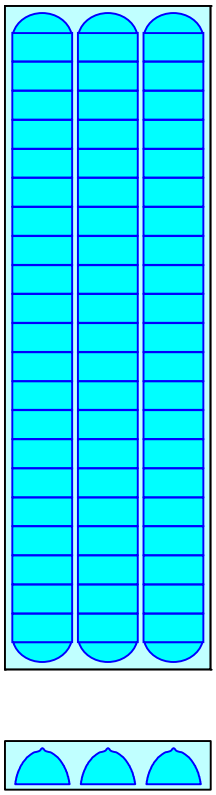
21 Chambers/Row x 4.02' Long +2.73' Cap Length x 2 = 89.99' Row Length +12.0" End Stone x 2 = 91.99' Base Length
3 Rows x 100.0" Wide + 9.0" Spacing x 2 + 12.0" Side Stone x 2 = 28.50' Base Width
9.0" Stone Base + 60.0" Chamber Height + 12.0" Stone Cover = 6.75' Field Height

63 Chambers x 106.5 cf + 39.5 cf Cap Volume x 2 x 3 Rows = 6,945.9 cf Chamber Storage

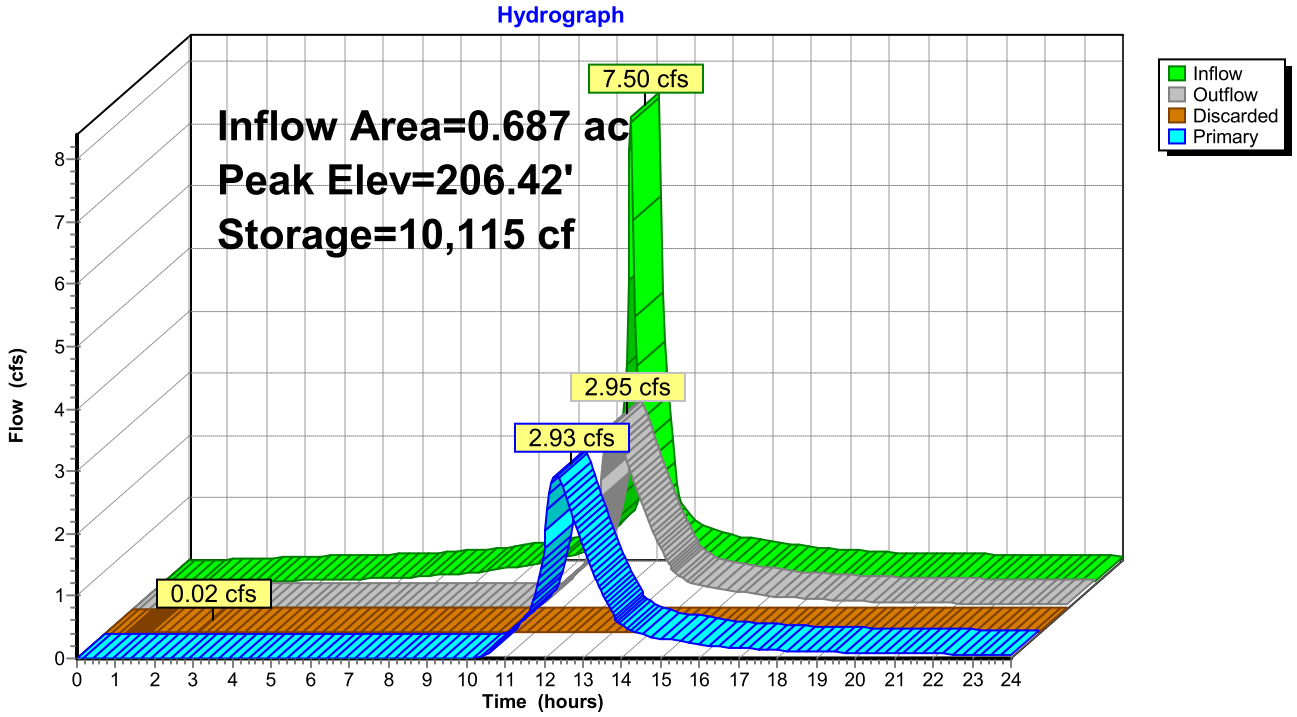
17,696.9 cf Field - 6,945.9 cf Chambers = 10,751.0 cf Stone x 40.0% Voids = 4,300.4 cf Stone Storage

Chamber Storage + Stone Storage = 11,246.3 cf = 0.258 af
Overall Storage Efficiency = 63.5%
Overall System Size = 91.99' x 28.50' x 6.75'

63 Chambers
655.4 cy Field
398.2 cy Stone



Pond UGS-1: UGS



APPENDIX F: STORMWATER CALCULATIONS

- *MA STANDARD #3 – RECHARGE AND DRAWDOWN TIME*
- *MA STANDARD #4 – WATER QUALITY AND TSS REMOVAL*
- *NOAA RAINFALL DATA*
- *PIPE AND INLET SIZING*
- *PHOSPHORUS REMOVAL CALCULATIONS*

TLE - Burlington
Cambridge Street
Burlington, MA
Bohler Job Number: MAA250027
December 12, 2025

MA DEP Standard 3: Recharge Volume Calculations

Required Recharge Volume - A Soils (0.60 in.)	
Existing Site Impervious Area (ac)	0.000
Proposed Site Impervious Area (ac)	0.000
Proposed Increase in Site Impervious Area (ac)	0.000
Recharge Volume Required (cf)	**0**
Required Recharge Volume - B Soils (0.35 in.)	
Existing Site Impervious Area (ac)	0.000
Proposed Site Impervious Area (ac)	0.000
Proposed Increase in Site Impervious Area (ac)	0.000
Recharge Volume Required (cf)	**0**
Required Recharge Volume - C Soils (0.25 in.)	
Existing Site Impervious Area (ac)	0.000
Proposed Site Impervious Area (ac)	0.627
Proposed Increase in Site Impervious Area (ac)	0.627
Recharge Volume Required (cf)	**569**
Required Recharge Volume - D Soils (0.10 in.)	
Existing Site Impervious Area (ac)	0.000
Proposed Site Impervious Area (ac)	0.000
Proposed Increase in Site Impervious Area (ac)	0.000
Recharge Volume Required (cf)	**0**
Total Recharge Volume Required (cf)	**569**
Recharge Volume Adjustment Factor	
Impervious Area Directed to Infiltration BMP (ac)	**0.000**
%Impervious Directed to Infiltration BMP	
Adjustment Factor	
Adjusted Total Recharge Volume Required (cf)	
Provided Recharge Volume*	
BMP #1 Name from HydroCAD	4,177
Total Recharge Volume Provided (cf)	**4,177**
	Input Required

*Volume provided below lowest outlet in cubic feet (cf)

Prepared By:
Bohler Engineering
352 Turnpike Road
Southborough, MA 01772
(508) 480-9900

TLE - Burlington
Cambridge Street
Burlington, MA
Bohler Job Number: MAA250027
December 12, 2025

MA DEP Standard 3: Drawdown Time Calculations

Drawdown Time - BMP #1 Name from HydroCAD	
Volume below outlet pipe (Rv) (cf)	4,177
Soil Type	Silt Loam - C
Infiltration rate (K)*	0.27
Bottom Area (sf)	2,622
Drawdown time (Hours)*	70.8

*Infiltration Rates taken from Rawls Table
**Drawdown time = Rv / (K) x (bottom area)

Prepared By:
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TLE - Burlington
Cambridge Street
Burlington, MA
Bohler Job Number: MAA250027
December 12, 2025

MA DEP Standard 4: Water Quality Volume Calculations

Water Quality Volume Required	
Water Quality Volume runoff (in.)*	1.0
Total Post Development Impervious Area (sf)	27,311
Required Water Quality Volume (cf)	2,276

*Water Quality volume runoff is equal to 0.5 or 1.0 inches of runoff times the total impervious area of the post development project site.

Water Quality Volume Provided*	
BMP #1 Name from HydroCAD	4,177
0	0
0	0
0	0
0	0
Total Provided Water Quality Volume (cf)	4,177

Provided greater than or Equal to Required

*Volume provided below lowest outlet pipe in cubic feet (cf)

Prepared By:
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TSS Removal Calculation Worksheet

Location: PR-2 to UGS

A BMP[1]	B TSS Removal Rate[1]	C Starting TSS Load*	D Amount Removed (B*C)	E Remaining Load (C-D)
Water Quality Unit	**0.80**	**1.00**	**0.80**	**0.20**
Isolator Row	**0.80**	**0.20**	**0.16**	**0.04**

Total TSS Removal = **96%**

Project: **TLE - Burlington**

Prepared By: **Bohler Engineering**

Date: **12/12/2025**

*Equals remaining load from previous BMP (E) which enters the BMP

Prepared By:
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Southborough, MA 01772
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Stage-Area-Storage for Pond UGS-1: UGS

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
200.75	**2,622**	0
200.85	2,622	105
200.95	2,622	210
201.05	2,622	315
201.15	2,622	419
201.25	2,622	524
201.35	2,622	629
201.45	2,622	734
201.55	2,622	898
201.65	2,622	1,121
201.75	2,622	1,344
201.85	2,622	1,566
201.95	2,622	1,788
202.05	2,622	2,009
202.15	2,622	2,229
202.25	2,622	2,449
202.35	2,622	2,668
202.45	2,622	2,886
202.55	2,622	3,104
202.65	2,622	3,320
202.75	2,622	3,536
202.85	2,622	3,751
202.95	2,622	3,965
203.05	2,622	4,177
203.15	2,622	4,389
203.25	2,622	4,600
203.35	2,622	4,809
203.45	2,622	5,017
203.55	2,622	5,224
203.65	2,622	5,429
203.75	2,622	5,633
203.85	2,622	5,836
203.95	2,622	6,037
204.05	2,622	6,236
204.15	2,622	6,434
204.25	2,622	6,629
204.35	2,622	6,823
204.45	2,622	7,015
204.55	2,622	7,205
204.65	2,622	7,393
204.75	2,622	7,578
204.85	2,622	7,761
204.95	2,622	7,941
205.05	2,622	8,119
205.15	2,622	8,294
205.25	2,622	8,465
205.35	2,622	8,634
205.45	2,622	8,799
205.55	2,622	8,960
205.65	2,622	9,117
205.75	2,622	9,269
205.85	2,622	9,416
205.95	2,622	9,556
206.05	2,622	9,687
206.15	2,622	9,808
206.25	2,622	9,923
206.35	2,622	10,035
206.45	2,622	10,145
206.55	2,622	10,250
206.65	2,622	10,355
206.75	2,622	10,460
206.85	2,622	10,565
206.95	2,622	10,670
207.05	2,622	10,774
207.15	2,622	10,879
207.25	2,622	10,984
207.35	2,622	11,089
207.45	2,622	**11,194**

VOLUME BELOW LOWEST OUTLET = 4,177 CF (8" ORIFICE, INV=203.05"

NOAA Atlas 14, Volume 10, Version 3
Location name: Burlington, Massachusetts, USA*
Latitude: 42.4979°, Longitude: -71.1947°
Elevation: m/ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sandra Pavlovic, Michael St. Laurent, Carl Trypaluk, Dale Unruh, Orlan Wilhite

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.310 (0.241-0.391)	0.376 (0.291-0.474)	0.483 (0.373-0.611)	0.572 (0.439-0.727)	0.694 (0.517-0.924)	0.785 (0.574-1.07)	0.882 (0.629-1.25)	0.996 (0.669-1.43)	1.16 (0.754-1.74)	1.31 (0.827-1.98)
10-min	0.440 (0.341-0.554)	0.532 (0.412-0.671)	0.683 (0.528-0.864)	0.809 (0.622-1.03)	0.983 (0.733-1.31)	1.11 (0.814-1.52)	1.25 (0.891-1.77)	1.41 (0.949-2.03)	1.65 (1.07-2.46)	1.85 (1.17-2.81)
15-min	0.517 (0.401-0.651)	0.626 (0.485-0.790)	0.804 (0.620-1.02)	0.952 (0.731-1.21)	1.16 (0.862-1.54)	1.31 (0.957-1.78)	1.47 (1.05-2.08)	1.66 (1.12-2.39)	1.94 (1.26-2.89)	2.18 (1.38-3.31)
30-min	0.709 (0.550-0.893)	0.859 (0.666-1.08)	1.10 (0.853-1.40)	1.31 (1.01-1.67)	1.59 (1.19-2.12)	1.80 (1.32-2.45)	2.02 (1.44-2.87)	2.29 (1.54-3.29)	2.68 (1.74-4.00)	3.01 (1.91-4.58)
60-min	0.900 (0.698-1.13)	1.09 (0.846-1.38)	1.41 (1.09-1.78)	1.67 (1.28-2.12)	2.02 (1.51-2.70)	2.29 (1.68-3.12)	2.58 (1.84-3.66)	2.92 (1.96-4.20)	3.42 (2.21-5.10)	3.85 (2.44-5.84)
2-hr	1.16 (0.910-1.46)	1.42 (1.11-1.78)	1.84 (1.43-2.31)	2.19 (1.69-2.76)	2.67 (2.00-3.54)	3.02 (2.23-4.10)	3.40 (2.46-4.83)	3.88 (2.61-5.54)	4.60 (2.99-6.81)	5.24 (3.32-7.89)
3-hr	1.35 (1.06-1.68)	1.65 (1.30-2.06)	2.14 (1.68-2.68)	2.55 (1.98-3.21)	3.12 (2.35-4.12)	3.53 (2.62-4.78)	3.98 (2.89-5.64)	4.54 (3.07-6.47)	5.42 (3.53-7.99)	6.19 (3.94-9.29)
6-hr	1.74 (1.38-2.15)	2.13 (1.68-2.64)	2.77 (2.18-3.44)	3.30 (2.58-4.12)	4.02 (3.06-5.29)	4.56 (3.40-6.14)	5.14 (3.75-7.24)	5.88 (3.99-8.31)	7.02 (4.58-10.3)	8.02 (5.12-12.0)
12-hr	2.21 (1.76-2.71)	2.70 (2.15-3.33)	3.52 (2.79-4.34)	4.19 (3.30-5.20)	5.12 (3.91-6.67)	5.80 (4.35-7.74)	6.54 (4.79-9.12)	7.47 (5.09-10.5)	8.91 (5.84-12.9)	10.2 (6.50-15.0)
24-hr	2.64 (2.12-3.22)	3.28 (2.63-4.00)	4.32 (3.45-5.29)	5.18 (4.11-6.37)	6.36 (4.90-8.25)	7.23 (5.47-9.61)	8.19 (6.04-11.4)	9.39 (6.43-13.1)	11.3 (7.42-16.3)	12.9 (8.31-19.0)
2-day	3.00 (2.42-3.63)	3.79 (3.06-4.59)	5.09 (4.09-6.18)	6.16 (4.93-7.53)	7.64 (5.94-9.87)	8.72 (6.65-11.6)	9.92 (7.40-13.8)	11.5 (7.89-15.9)	14.0 (9.25-20.1)	16.3 (10.5-23.7)
3-day	3.28 (2.67-3.96)	4.14 (3.36-4.99)	5.53 (4.47-6.70)	6.68 (5.37-8.14)	8.28 (6.46-10.7)	9.43 (7.23-12.5)	10.7 (8.04-14.9)	12.4 (8.56-17.1)	15.2 (10.0-21.7)	17.7 (11.4-25.7)
4-day	3.56 (2.90-4.27)	4.44 (3.61-5.34)	5.87 (4.76-7.09)	7.06 (5.69-8.58)	8.71 (6.81-11.2)	9.90 (7.61-13.0)	11.2 (8.44-15.5)	13.0 (8.97-17.9)	15.9 (10.5-22.6)	18.4 (11.9-26.7)
7-day	4.32 (3.54-5.16)	5.23 (4.28-6.26)	6.72 (5.48-8.07)	7.96 (6.45-9.60)	9.66 (7.60-12.3)	10.9 (8.41-14.2)	12.3 (9.25-16.8)	14.1 (9.77-19.2)	17.0 (11.3-24.0)	19.7 (12.7-28.2)
10-day	5.02 (4.13-5.97)	5.95 (4.89-7.09)	7.48 (6.13-8.94)	8.75 (7.12-10.5)	10.5 (8.28-13.3)	11.8 (9.10-15.3)	13.2 (9.92-17.9)	15.0 (10.4-20.4)	17.9 (11.9-25.1)	20.4 (13.3-29.3)
20-day	6.99 (5.80-8.26)	8.02 (6.65-9.49)	9.70 (8.01-11.5)	11.1 (9.09-13.2)	13.0 (10.3-16.2)	14.4 (11.1-18.3)	16.0 (11.9-21.0)	17.7 (12.4-23.8)	20.3 (13.6-28.2)	22.4 (14.6-31.9)
30-day	8.64 (7.20-10.2)	9.74 (8.11-11.5)	11.5 (9.56-13.6)	13.0 (10.7-15.5)	15.1 (11.9-18.6)	16.6 (12.8-20.9)	18.2 (13.5-23.7)	19.9 (14.0-26.7)	22.3 (15.0-30.8)	24.1 (15.7-34.1)
45-day	10.7 (8.99-12.6)	11.9 (9.96-14.0)	13.8 (11.5-16.3)	15.4 (12.8-18.2)	17.6 (14.0-21.6)	19.3 (14.9-24.1)	21.0 (15.5-26.9)	22.7 (16.0-30.1)	24.8 (16.7-34.1)	26.4 (17.2-37.1)
60-day	12.5 (10.5-14.6)	13.7 (11.5-16.1)	15.8 (13.2-18.5)	17.4 (14.5-20.6)	19.7 (15.7-24.0)	21.5 (16.7-26.7)	23.3 (17.2-29.7)	24.9 (17.6-33.0)	27.0 (18.2-37.0)	28.4 (18.6-39.8)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

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PF graphical

TLE - Burlington
Cambridge Street
Burlington, MA
Bohler Job Number: MAA250027
December 12, 2025

Rational Pipe and Grate Sizing Calculations

Design Period Storm:		**25**	**Year**	**Design Period Intensity***			**8.25**	**in/hr**							
LOCATION		IMPERVIOUS			OTHER			SUM CA	Tc (min)	I (in/hr)	Q (cfs)	D (in)	S (ft/ft)	Matieral	
FROM	TO	A	C	CA	A	C	CA								
A-61	A-60	0.30	0.95	0.29	0.05	0.30	0.02	0.30	6	8.25	2.48	12	0.038	HDPE	0.0
A-62	A-60	0.09	0.95	0.09	0.00	0.30	0.00	0.09	6	8.25	0.72	12	0.015	HDPE	0.0
A-60	A-50	0.39	0.95	0.37	0.05	0.30	0.02	0.39	6	8.25	3.19	12	0.019	HDPE	0.0
A-50	A-40	0.39	0.95	0.37	0.05	0.30	0.02	0.39	6	8.25	3.19	18	0.008	RCP	0.0
A-41	A-40	0.13	0.95	0.12	0.00	0.30	0.00	0.12	6	8.25	1.02	8	0.052	HDPE	0.0
A-40	A-30								6		2.20	15	0.011	HDPE	0.0
A-30	A-20								6		2.20	15	0.011	HDPE	0.0
A-20	A-10								6		2.20	15	0.011	HDPE	0.0

*Rainfall intesity provided by NOAA Atlas 14, Volume 10, Version 2 on 10/27/2025

Inlet	Flow To CB (cfs)**	Grate Type	Grate Inlet Area (36) 2"x2"	Head (ft)***	Head (in)***	Single Grate Capacity (cfs)	Double Grate Capacity (cfs)	Grate Size
A-61	2.48	Standard	1.00	0.5	6	2.38	4.77	Double
A-62	0.72	Standard	1.00	0.5	6	2.38	4.77	Single

Orifice Equation used to calculate Gr

Q=C x A x (2gh)^(1/2)x

where:
Q = Grate Capacity in cfs
C = Orifice Coefficient = 0.6
A = Free open area of grate in s
h = Head over grate in ft
g = Gravity = 32.2 ft/s2
f = Clogging Factor = 0.7 (30%

50 Washington Street, Suite 2000
Westborough, MA 01581
508.480.9900

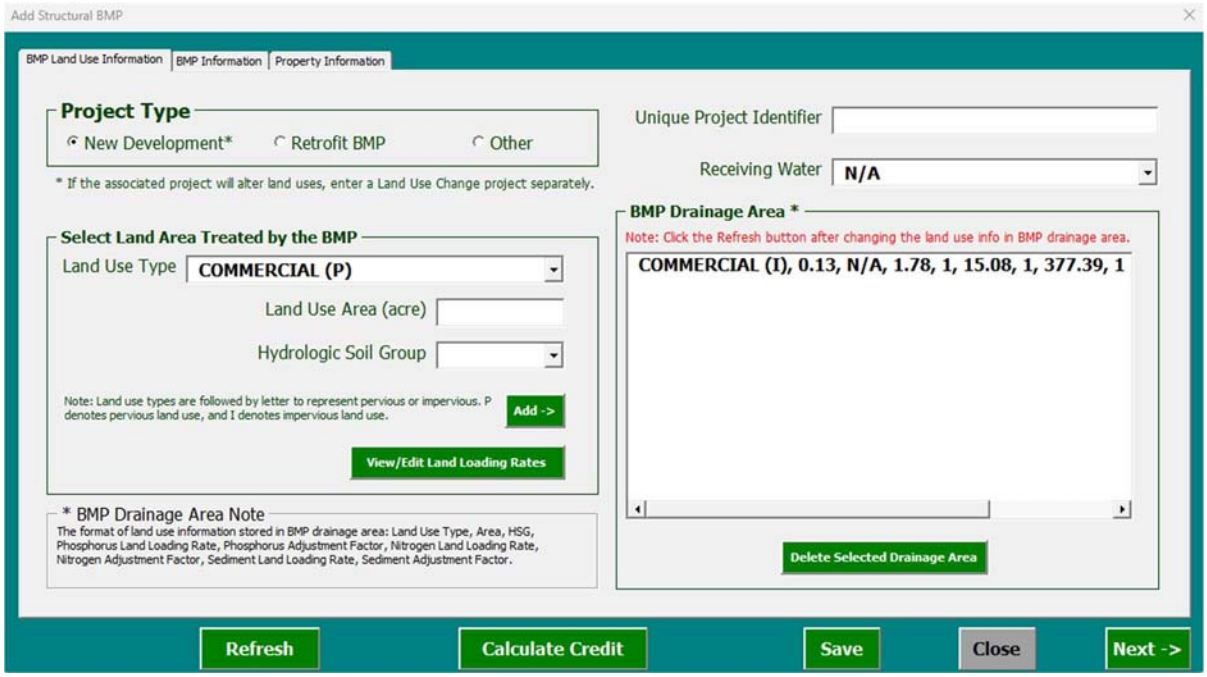
Proposed Child Care Facility
Cambridge Street, Burlington, MA
December 15, 2025

Post-Construction Phosphorus Reduction Calculation

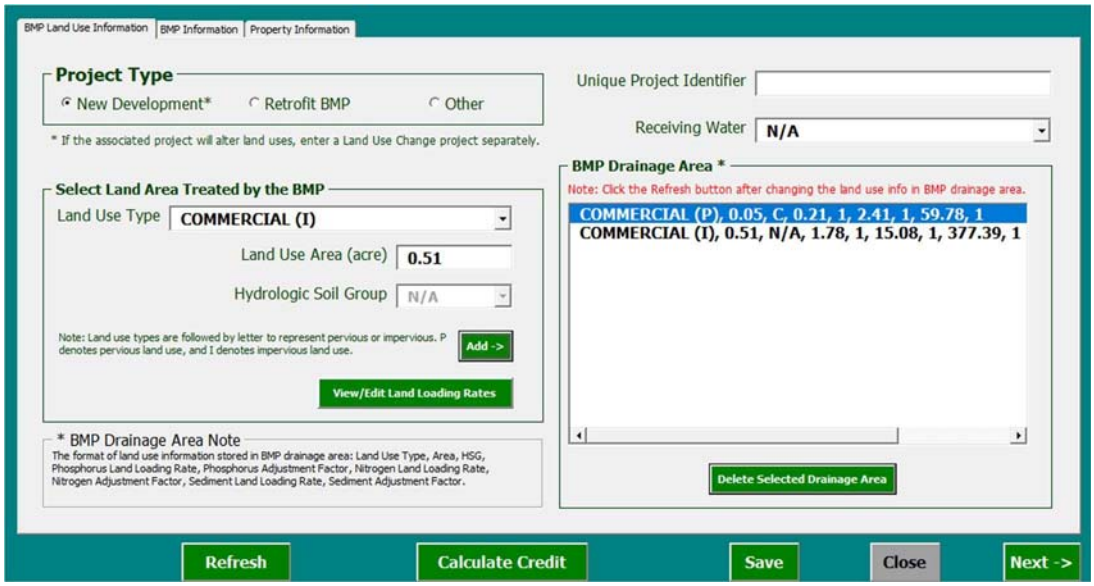
Objective: Determine the reduction in total phosphorus (TP) loading for a given construction land use following the installation of the stormwater Best Management Practices (BMPs). Percent reduction shall be greater than or equal to 60% for new development, as required by the City of Burlington.

Methodology: Output from the U.S. EPA "BMP Accounting and Tracking Tool (BATT) version 2.2"

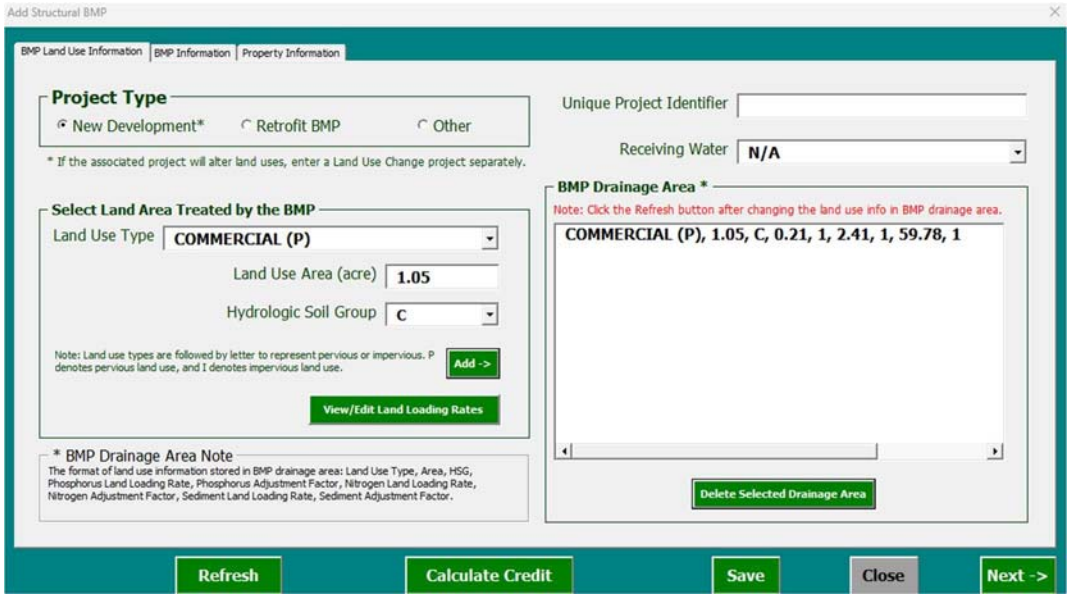
Treatment Train #1: Subcatchments PR-#1 & PR-#2 to Underground Infiltration System



Subcatchment PR-1: Phosphorus Loading
Commercial (Impervious Area) = 0.13 acres x 1.78 lb/year/acre = 0.231 lb/year

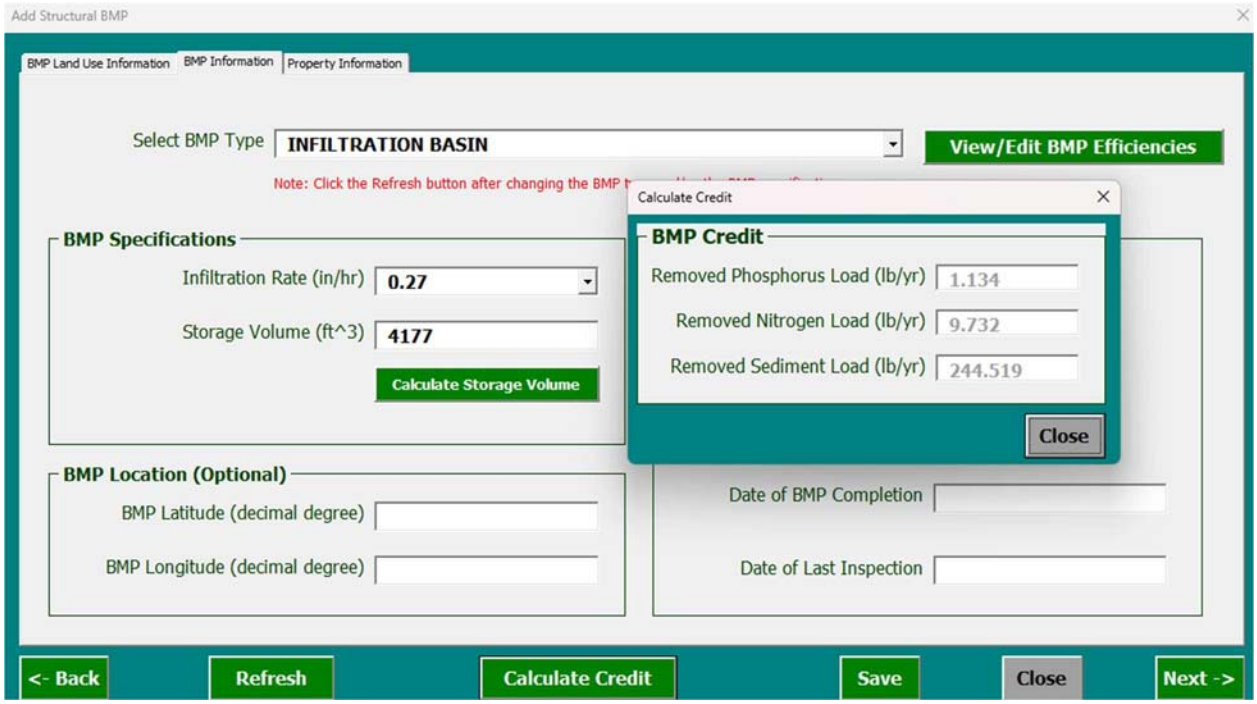


Subcatchment PR-2: Phosphorus Loading
Commercial (Impervious Area) = 0.51 acres x 1.78 lb/year/acre = 0.908 lb/year
Commercial (Pervious Area) = 0.05 acres x 0.21 lb/year/acre = 0.011 lb/year



Subcatchment PR-3: Phosphorus Loading
Commercial (Pervious Area) = 1.05 acres x 0.21 lb/year/acre = 0.221 lb/year

Total (PR-1 + PR-2 + PR-3 + PR-4) = 1.371 lb/year



Infiltration System: Storage Volume
Basin Volume below outlet elevation (per HydroCAD) = 4,177 CF
Total = 4,177 CF

Removal Credit = 1.134 lb/year (see above)

Total Phosphorus Weighted Removal

Phosphorus Loading = 1.371 lb/year
Removed Phosphorus Load = 1.134 lb/year (Infiltration System)

Post-Construction TP Reduction = 1.134 / 1.371 = 82.7%

APPENDIX G: OPERATION AND MAINTENANCE

- *STORMWATER OPERATION AND MAINTENANCE PLAN*
- *INSPECTION REPORT*
- *INSPECTION AND MAINTENANCE LOG FORM*
- *LONG-TERM POLLUTION PREVENTION PLAN*
- *ILLICIT DISCHARGE STATEMENT*
- *SPILL PREVENTION*
- *PROPOSED BMP MAP*
- *ISOLATOR ROW O&M*

STORMWATER OPERATION AND MAINTENANCE PLAN

Foxborough Learning, LLC
Cambridge Street
Burlington, MA

RESPONSIBLE PARTY DURING CONSTRUCTION:

Foxborough Learning, LLC
Cambridge Street
Burlington, MA

RESPONSIBLE PARTY POST CONSTRUCTION:

Foxborough Learning, LLC
Cambridge Street
Burlington, MA

Construction Phase

During the construction phase, all erosion control devices and measures shall be maintained in accordance with the final record plans, local/state approvals and conditions, the EPA Construction General Permit and the Stormwater Pollution Prevention Plan (SWPPP) if applicable. Additionally, the maintenance of all erosion / siltation control measures during construction shall be the responsibility of the general contractor. Contact information of the OWNER and CONTRACTOR shall be listed in the SWPPP for this site. The SWPPP also includes information regarding construction period allowable and illicit discharges, housekeeping and emergency response procedures. Upon proper notice to the property owner, the Town/City or its authorized designee shall be allowed to enter the property at a reasonable time and in a reasonable manner for the purposes of inspection.

Post Development Controls

Once construction is completed, the post development stormwater controls are to be operated and maintained in compliance with the following permanent procedures (note that the continued implementation of these procedures shall be the responsibility of the Owner or its assignee):

1. Parking lots and on-site driveways: Sweep at least four (4) times per year and on a more frequent basis depending on sanding operations. All resulting sweepings shall be collected and properly disposed of off site in accordance with MADEP and other applicable requirements.

   Approximate Maintenance Budget: $1,000/year

2. Catch basins, yard drains, trench drains, manholes and piping: Inspect four (4) times per year and at the end of foliage and snow-removal seasons. These features shall be cleaned four (4) times per year or whenever the depth of deposits is greater than or equal to one half the depth from the bottom of the invert of the lowest pipe in the catch basin or underground system. Accumulated sediment and hydrocarbons present must be removed

and properly disposed of off site in accordance with MADEP and other applicable requirements.

Approximate Maintenance Budget: $500/year per structure.

3. Water Quality Unit (Proprietary Separator): Follow manufacturer's recommendations (attached).

   Approximate Maintenance Budget: $1,000/year per unit.

4. Underground Infiltration Basins: Preventative maintenance after every major storm event during the first three (3) months of operation and at least twice per year thereafter. Inspect structure and pretreatment BMP to ensure proper operation after every major storm event (generally equal or greater to 3.0 inches in 24 hours) for the first three months. The outlet of the basin, if any, shall be inspected for erosion and sedimentation, and rip-rap shall be promptly repaired in the case of erosion. Sediment collecting in the bottom of the basin shall be inspected twice annually, and removal shall commence any time the sediment reaches a depth of six inches anywhere in the basin. Any sediment removed shall be disposed of in accordance with MADEP and other applicable requirements.

   Approximate Maintenance Budget: Cleaning - $1,000/year, Inspection - $200/year

All components of the stormwater system will be accessible by the owner or their assignee.

STORMWATER MANAGEMENT SYSTEM

POST-CONSTRUCTION INSPECTION REPORT

LOCATION:

Foxborough Learning, LLC
Cambridge Street
Burlington, MA

RESPONSIBLE PARTY:

Foxborough Learning, LLC
Cambridge Street
Burlington, MA

NAME OF INSPECTOR:	INSPECTION DATE:
Note Condition of the Following (sediment depth, debris, standing water, damage, etc.):	
Catch Basins:	
Discharge Points/ Flared End Sections / Rip Rap:	
Infiltration Basin:	
Water Quality Units:	
Other:	

Note Recommended Actions to be taken on the Following (sediment and/or debris removal, repairs, etc.):
Catch Basins:
Discharge Points / Flared End Sections / Rip Rap:
Infiltration Basin:
Water Quality Units:
Other:
Other:
Comments:

STORMWATER INSPECTION AND MAINTENANCE LOG FORM

Foxborough Learning, LLC
Foxborough Learning, LLC – Burlington, MA

Stormwater Management Practice	Responsible Party	Date	Maintenance Activity Performed

LONG-TERM POLLUTION PREVENTION PLAN

Foxborough Learning, LLC
Cambridge Street
Burlington, MA

RESPONSIBLE PARTY DURING CONSTRUCTION:

Foxborough Learning, LLC
Cambridge Street
Burlington, MA

RESPONSIBLE PARTY POST CONSTRUCTION:

Foxborough Learning, LLC
Cambridge Street
Burlington, MA

For this site, the Long-Term Pollution Prevention Plan will consist of the following:

- The property owner shall be responsible for "good housekeeping" including proper periodic maintenance of building and pavement areas, curbing, landscaping, etc.
- Proper storage and removal of solid waste (dumpsters).
- Sweeping of driveways a minimum of twice per year with a commercial cleaning unit. Any sediment removed shall be disposed of in accordance with applicable local and state requirements.
- Regular inspections and maintenance of Stormwater Management System as noted in the "O&M Plan".
- Snow removal shall be the responsibility of the property owner. Snow shall not be plowed, dumped and/or placed in forebays, infiltration basins or similar stormwater controls. Salting and/or sanding of pavement / walkway areas during winter conditions shall only be done in accordance with all state/local requirements and approvals.

OPERATON AND MAINTENANCE TRAINING PROGRAM

The Owner will coordinate an annual in-house training session to discuss the Operations and Maintenance Plan, the Long-Term Pollution Prevention Plan, and the Spill Prevention Plan and response procedures. Annual training will include the following:

Discuss the Operations and Maintenance Plan

- Explain the general operations of the stormwater management system and its BMPs
- Identify potential sources of stormwater pollution and measures / methods of reducing or eliminating that pollution
- Emphasize good housekeeping measures

Discuss the Spill Prevention and Response Procedures

- Explain the process in the event of a spill
- Identify potential sources of spills and procedures for cleanup and /or reporting and notification
- Complete a yearly inventory or Materials Safety Data sheets of all tenants and confirm that no potentially harmful chemicals are in use.

ILLICIT DISCHARGE STATEMENT

Certain types of non-stormwater discharges are allowed under the U.S. Environmental Protection Agency Construction General Permit. These types of discharges will be allowed under the conditions that no pollutants will be allowed to come in contact with the water prior to or after its discharge. The control measures which have been outlined previously in this LTPPP will be strictly followed to ensure that no contamination of these non-storm water discharges takes place. Any existing illicit discharges, if discovered during the course of the work, will be reported to MassDEP and the local DPW, as applicable, to be addressed in accordance with their respective policies. No illicit discharges will be allowed in conjunction with the proposed improvements.

Duly Acknowledged:

_____

Name & Title

SPILL PREVENTION AND RESPONSE PROCEDURES (POST CONSTRUCTION)

In order to prevent or minimize the potential for a spill of Hazardous Substances or Oil or come into contact with stormwater, the following steps will be implemented:

1. All Hazardous Substances or Oil (such as pesticides, petroleum products, fertilizers, detergents, acids, paints, paint solvents, cleaning solvents, etc.) will be stored in a secure location, with their lids on, preferably under cover, when not in use.

2. The minimum practical quantity of all such materials will be kept on site.

3. A spill control and containment kit (containing, for example, absorbent materials, acid neutralizing powder, brooms, dust pans, mops, rags, gloves, goggles, plastic and metal trash containers, etc.) will be provided on site.

4. Manufacturer's recommended methods for spill cleanup will be clearly posted and site personnel will be trained regarding these procedures and the location of the information and cleanup supplies.

5. It is the OWNER's responsibility to ensure that all Hazardous Waste on site is disposed of properly by a licensed hazardous material disposal company. The OWNER is responsible for not exceeding Hazardous Waste storage requirements mandated by the EPA or state and local authorities.

In the event of a spill of Hazardous Substances or Oil, the following procedures should be followed:

1. All measures should be taken to contain and abate the spill and to prevent the discharge of the Hazardous Substance or Oil to stormwater or off-site. (The spill area should be kept well ventilated and personnel should wear appropriate protective clothing to prevent injury from contact with the Hazardous Substances.)

2. For spills of less than five (5) gallons of material, proceed with source control and containment, clean-up with absorbent materials or other applicable means unless an imminent hazard or other circumstances dictate that the spill should be treated by a professional emergency response contractor.

3. For spills greater than five (5) gallons of material immediately contact the MADEP at the toll-free 24-hour statewide emergency number: **1-888-304-1133**, the local fire department (**9-1-1**) and an approved emergency response contractor. Provide information on the type of material spilled, the location of the spill, the quantity spilled, and the time of the spill to the emergency response contractor or coordinator, and proceed with prevention, containment and/or clean-up if so desired. (Use the form provided, or similar).

4. If there is a Reportable Quantity (RQ) release, then the National Response Center should be notified immediately at (800) 424-8802; within 14 days a report should be submitted to the EPA regional office describing the release, the date and circumstances of the release and the steps taken to prevent another release. This Pollution Prevention Plan should be updated to reflect any such steps or actions taken and measures to prevent the same from reoccurring.

SPILL PREVENTION CONTROL AND COUNTERMEASURE FORM

Foxborough Learning, LLC
Cambridge Street
Burlington, MA

Where a release containing a hazardous substance occurs, the following steps shall be taken by the facility manager and/or supervisor:

1. Immediately notify The Burlington Fire Department (at **9-1-1**)

2. All measures must be taken to contain and abate the spill and to prevent the discharge of the pollutant(s) to off-site locations, receiving waters, wetlands and/or resource areas.

3. Notify the Burlington Health Department at (781) 270-1955 and the Burlington Conservation Commission at (781) 270-1655.

4. Provide documentation from licensed contractor showing disposal and cleanup procedures were completed as well as details on chemicals that were spilled to the Town of Burlington Health Department and Conservation Commission.

Date of spill:_____ Time:_____ Reported By:_____

Weather Conditions:_____

Material Spilled	**Location of Spill**	**Approximate Quantity of Spill (in gallons)**	**Agency(s) Notified**	**Date of Notification**

Cause of Spill:_____
_____

Measures Taken to Clean up Spill:_____
_____

Type of equipment: _____ Make: _____ Size:_____

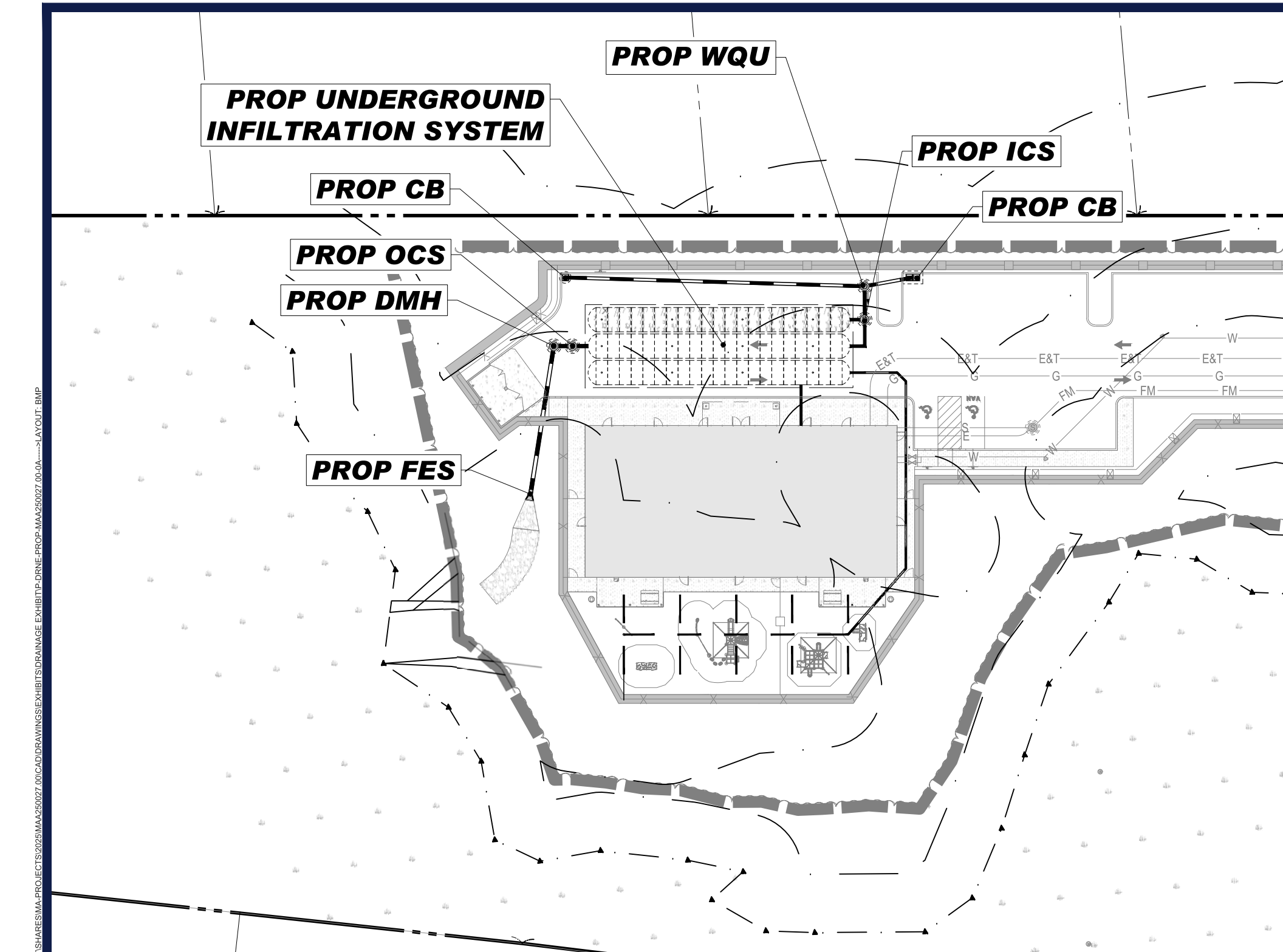
License or S/N: _____

Location and Method of Disposal_____
_____

Procedures, method, and precautions instituted to prevent a similar occurrence from recurring:_____
_____

Additional Contact Numbers:

- DEPARTMENT OF ENVIRONMENTAL PROTECTION (DEP) EMERGENCY PHONE: 1-888-304-1133
- NATIONAL RESPONSE CENTER PHONE: (800) 424-8802
- U.S. ENVIRONMENTAL PROTECTION AGENCYPHONE: (888) 372-7341



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Detention • Retention • Water Quality

A division of ADS®

Save Valuable Land and Protect Water Resources

Isolator® Row O&M Manual

StormTech® Chamber System for Stormwater Management

1.0 The Isolator® Row

1.1 INTRODUCTION

An important component of any Stormwater Pollution Prevention Plan is inspection and maintenance. The StormTech Isolator Row is a patented technique to inexpensively enhance Total Suspended Solids (TSS) removal and provide easy access for inspection and maintenance.

Looking down the Isolator Row from the manhole opening, woven geotextile is shown between the chamber and stone base.

1.2 THE ISOLATOR ROW

The Isolator Row is a row of StormTech chambers, either SC-310, SC-310-3, SC-740, DC-780, MC-3500 or MC-4500 models, that is surrounded with filter fabric and connected to a closely located manhole for easy access. The fabric-wrapped chambers provide for settling and filtration of sediment as storm water rises in the Isolator Row and ultimately passes through the filter fabric. The open bottom chambers and perforated sidewalls (SC-310, SC-310-3 and SC-740 models) allow storm water to flow both vertically and horizontally out of the chambers. Sediments are captured in the Isolator Row protecting the storage areas of the adjacent stone and chambers from sediment accumulation.

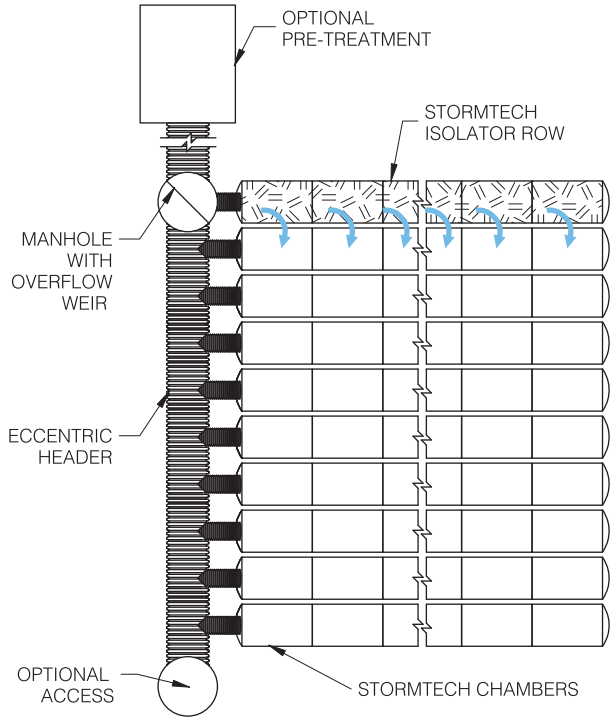
Two different fabrics are used for the Isolator Row. A woven geotextile fabric is placed between the stone and the Isolator Row chambers. The tough geotextile provides a media for storm water filtration and provides a durable surface for maintenance operations. It is also designed to prevent scour of the underlying stone and remain intact during high pressure jetting. A non-woven fabric is placed over the chambers to provide a filter media for flows passing through the perforations in the sidewall of the chamber. The non-woven fabric is not required over the DC-780, MC-3500 or MC-4500 models as these chambers do not have perforated side walls.

The Isolator Row is typically designed to capture the "first flush" and offers the versatility to be sized on a volume basis or flow rate basis. An upstream manhole not only provides access to the Isolator Row but typically includes a high flow weir such that storm water flowrates or volumes that exceed the capacity of the Isolator Row overtop the over flow weir and discharge through a manifold to the other chambers.

The Isolator Row may also be part of a treatment train. By treating storm water prior to entry into the chamber system, the service life can be extended and pollutants such as hydrocarbons can be captured. Pre-treatment best management practices can be as simple as deep sump catch basins, oil-water separators or can be innovative storm water treatment devices. The design of the treatment train and selection of pretreatment devices by the design engineer is often driven by regulatory requirements. Whether pretreatment is used or not, the Isolator Row is recommended by StormTech as an effective means to minimize maintenance requirements and maintenance costs.

Note: See the StormTech Design Manual for detailed information on designing inlets for a StormTech system, including the Isolator Row.

StormTech Isolator Row with Overflow Spillway
(not to scale)



2.0 Isolator Row Inspection/Maintenance

2.1 INSPECTION

The frequency of Inspection and Maintenance varies by location. A routine inspection schedule needs to be established for each individual location based upon site specific variables. The type of land use (i.e. industrial, commercial, residential), anticipated pollutant load, percent imperviousness, climate, etc. all play a critical role in determining the actual frequency of inspection and maintenance practices.

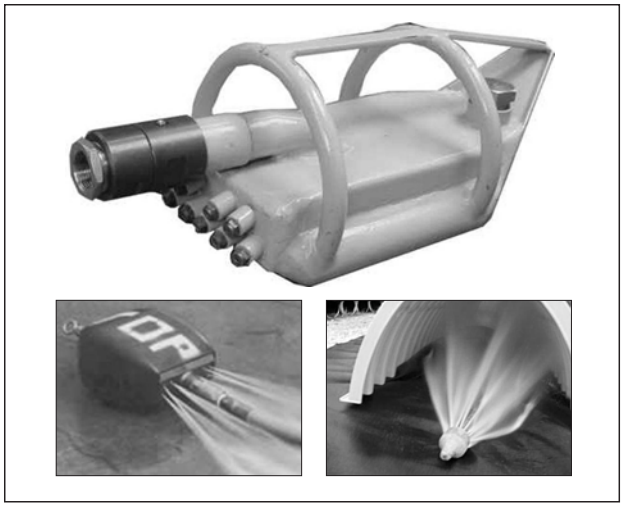
At a minimum, StormTech recommends annual inspections. Initially, the Isolator Row should be inspected every 6 months for the first year of operation. For subsequent years, the inspection should be adjusted based upon previous observation of sediment deposition.

The Isolator Row incorporates a combination of standard manhole(s) and strategically located inspection ports (as needed). The inspection ports allow for easy access to the system from the surface, eliminating the need to perform a confined space entry for inspection purposes.

If upon visual inspection it is found that sediment has accumulated, a stadia rod should be inserted to determine the depth of sediment. When the average depth of sediment exceeds 3 inches throughout the length of the Isolator Row, clean-out should be performed.

2.2 MAINTENANCE

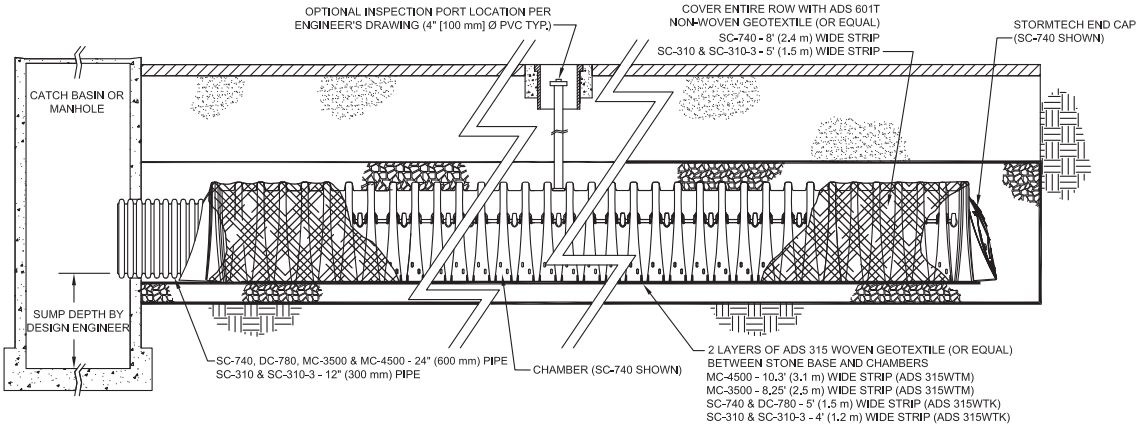
The Isolator Row was designed to reduce the cost of periodic maintenance. By "isolating" sediments to just one row, costs are dramatically reduced by eliminating the need to clean out each row of the entire storage bed. If inspection indicates the potential need for maintenance, access is provided via a manhole(s) located on the end(s) of the row for cleanout. If entry into the manhole is required, please follow local and OSHA rules for a confined space entries.



Examples of culvert cleaning nozzles appropriate for Isolator Row maintenance. (These are not StormTech products.)

Maintenance is accomplished with the JetVac process. The JetVac process utilizes a high pressure water nozzle to propel itself down the Isolator Row while scouring and suspending sediments. As the nozzle is retrieved, the captured pollutants are flushed back into the manhole for vacuuming. Most sewer and pipe maintenance companies have vacuum/JetVac combination vehicles. Selection of an appropriate JetVac nozzle will improve maintenance efficiency. Fixed nozzles designed for culverts or large diameter pipe cleaning are preferable. Rear facing jets with an effective spread of at least 45" are best. Most JetVac reels have 400 feet of hose allowing maintenance of an Isolator Row up to 50 chambers long. **The JetVac process shall only be performed on StormTech Isolator Rows that have AASHTO class 1 woven geotextile (as specified by StormTech) over their angular base stone.**

StormTech Isolator Row (not to scale)



NOTE: NON-WOVEN FABRIC IS ONLY REQUIRED OVER THE INLET PIPE CONNECTION INTO THE END CAP FOR DC-780, MC-3500 AND MC-4500 CHAMBER MODELS AND IS NOT REQUIRED OVER THE ENTIRE ISOLATOR ROW.

3.0 Isolator Row Step By Step Maintenance Procedures

Step 1) Inspect Isolator Row for sediment

A) Inspection ports (if present)

i. Remove lid from floor box frame

ii. Remove cap from inspection riser

iii. Using a flashlight and stadia rod, measure depth of sediment and record results on maintenance log.

iv. If sediment is at, or above, 3 inch depth proceed to Step 2. If not proceed to step 3.

B) All Isolator Rows

i. Remove cover from manhole at upstream end of Isolator Row

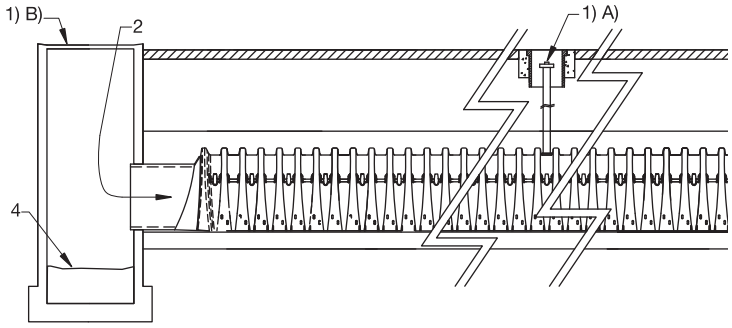
ii. Using a flashlight, inspect down Isolator Row through outlet pipe

1. Mirrors on poles or cameras may be used to avoid a confined space entry

2. Follow OSHA regulations for confined space entry if entering manhole

iii. If sediment is at or above the lower row of sidewall holes (approximately 3 inches) proceed to Step 2. If not proceed to Step 3.

StormTech Isolator Row (not to scale)



Step 2) Clean out Isolator Row using the JetVac process

A) A fixed culvert cleaning nozzle with rear facing nozzle spread of 45 inches or more is preferable

B) Apply multiple passes of JetVac until backflush water is clean

C) Vacuum manhole sump as required

Step 3) Replace all caps, lids and covers, record observations and actions

Step 4) Inspect & clean catch basins and manholes upstream of the StormTech system

Sample Maintenance Log

Date	Stadia Rod Readings		Sediment Depth (1) - (2)	Observations/Actions	Inspector
	Fixed point to chamber bottom (1)	Fixed point to top of sediment (2)			
3/15/01	6.3 ft.	none		New installation. Fixed point is CI frame at grade	djm
9/24/01		6.2	0.1 ft.	Some grit felt	sm
6/20/03		5.8	0.5 ft.	Mucky feel, debris visible in manhole and in Isolator row, maintenance due	rv
7/7/03	6.3 ft.		0	System jetted and vacuumed	djm

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