Stormwater Report
"3 Burke Lane"
Wellesley, MA

Date: April 16, 2019

Prepared For:
Cedar Place, LLC
868 Worcester Street
Wellesley, MA 02482

Prepared By:
Guerriere & Halnon, Inc.
1029 Providence Road
Whitinsville, MA 01588

G&H Project W-3209

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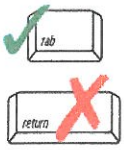
Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands Program

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.

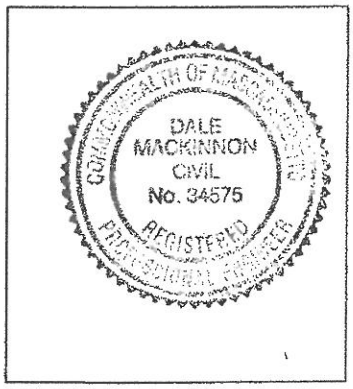
Note: Because stormwater requirements vary from project to project, it is possible that a complete Stormwater Report may not include information on some of the subjects specified in the Checklist. If it is determined that a specific item does not apply to the project under review, please note that the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



Signature and Date 7/12/19

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): _____

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.

Project Description

3 Burke Lane comprises of approximately 0.92 acres of residential property located to the South of Worcester Street (Route 9). The site contains an existing 2,859 square foot single family house along with an accessory unit, a driveway, and appurtenant walkways. Existing elevations, established per the North American Vertical Datum 1988 (NAVD 88), range from a low of approximately 107 feet at Burke Lane and slope up to approximately 146 feet at the southwestern corner of the site. The Natural Resources Conservation Service (NRCS) Web Soil Survey designates the majority of the area as having soils consistent with the hydrologic soil group (HSG) of "A" (high infiltration rates) while a portion near the northwestern property line is designated as fill. Test pits and soil evaluations have been performed on-site within the drainage areas and yielded results in line with the HSG "A" classification. No existing wetlands were found on-site.

The project proposes to renovate the existing house and construct a 2.5 story, 17,430 total square foot apartment building with a porous pavement parking lot, sidewalks, drainage system. The renovation will demolish the existing garage, porch, driveway and walkways and will increase the footprint to 3,288 square feet by expanding several rooms as well as reconstructing the garage to face the new parking lot. Water and sewer service will be provided by Town of Wellesley and natural gas will be provided by National Grid. All new connections will be designed in accordance with their latest standards.

Porous asphalt pavement provides many stormwater management functions including, but not limited to water quality treatment, peak flow reduction, storm volume reduction via groundwater recharge, and increased hydrograph time lag. Since recently conducted soil tests found sand as the parent material along with deep groundwater, porous pavement along with a crushed stone reservoir under the pavement surface was determined as a suitable treatment and attenuation method for stormwater runoff.

Stormwater Design Parameter

The stormwater management system was designed to control the post-development rate of peak rainfall runoff from the site by keeping it below the pre-development peak rate of rainfall runoff as mentioned in the Massachusetts Stormwater Handbook. This was accomplished using the HydroCAD Stormwater Modeling Software, developed by Applied Microcomputer Systems. The HydroCAD software is based upon the Soil Conservation Service (SCS) "Technical Release 55 – Urban Hydrology for Small Watersheds" and is generally accepted as industry methodology.

Analyses were performed for the 2-year, 10-year, and 100-year 24-hour storm events using The SCS Unit Hydrograph method which is capable of developing runoff hydrographs for both simple and complex drainage basins.

Utilizing the TR-55 method in HydroCAD, the following data was required for input:

- Watershed Area: Areas of each watershed were calculated and expressed in square feet and acres for these calculations.
- SCS Curve Number (Cn): Based on the cover type and hydrologic soil group, a weighted curve number (CN) was determined for each of the existing watersheds utilizing Table 2-2a- *Runoff Curve Numbers for Urban Areas* and *Worksheet 2, Runoff Curve Number and Runoff* from the Soil Conservation Service "Technical Release 55 – Urban Hydrology for Small Watersheds."

- Time of Concentration, Tc (Minutes): The time of concentration for each watershed was determined by finding the time necessary for runoff to travel from the hydraulically most distant point in the watershed to the point of concentration.
- SCS 24-Hour Storm Type: For the greater New England region, a Type III storm rainfall distribution is recommended for drainage calculations and was used for this project.
- Rainfall Precipitation: Rainfall precipitations for the 2, 10, and 100-year storm events were obtained using Technical Paper No. 40 (TP-40) Rainfall Frequency Atlas of the United States and are as follows for Norfolk County, MA:

2-year storm event:	3.20 inches
10-year storm event:	4.70 inches
100-year storm event:	6.70 inches

Compliance with the 10 Stormwater Standards

Standard 1: ***No new stormwater conveyances (e.g. outfalls) may discharge untreated stormwater directly to or cause erosion in wetlands or waters of the Commonwealth.***

Stormwater from the parking lot will be infiltrated directly into the ground while stormwater from the roofs will be infiltrated through a Cultec chamber. No new discharges will be proposed and any existing discharges will be eliminated in favor of the groundwater recharge.

Standard 2: ***Stormwater management systems shall be designed so that the post-development peak discharge rates do not exceed pre-development peak discharge rates. This Standard may be waived for discharges to land subject to coastal storm flowage as defined in 310 CMR 10.04.***

To meet Standard 2, the post-development peak discharge rate must be equal to or less than pre-development rates to prevent storm damage and downstream and offsite flooding from the 2-year and the 10-year 24-hour storm events. Due to the relatively small size of the project site, both the pre and post-development conditions are evaluated using one overall watershed area. The post-development watershed discharges to the same location at Burke Lane as the pre-development watershed.

In order to meet the pre-development peak discharge rates, porous pavement is being proposed to allow for rainfall and runoff to be infiltrated directly into the ground without flowing offsite. In addition to the porous pavement, Cultec Chambers will be proposed to infiltrate roof runoff as well as low areas which cannot be conveyed to the pavement for treatment and attenuation. The following table lists the pre and post-development peak flows for each of the design storms at the analysis point. The detailed HydroCAD reports as found in Appendix 5 includes the calculations required to determine that the post-development peak flows do not exceed the pre-development peak flows.

Table 1: Peak Rate Attenuation Summary

	2-yr Storm	10-yr Storm	100-yr Storm
Pre-development	0.29 cfs	1.13 cfs	2.57 cfs
Post-development	0.00 cfs	0.00 cfs	0.00 cfs

Table 1A: Total Volume Runoff Attenuation Summary

	2-yr Storm	10-yr Storm	100-yr Storm
Pre-development	0.034 Acre-feet	0.092 Acre-feet	0.191 Acre-feet
Post-development	0.000 Acre-feet	0.000 Acre-feet	0.000 Acre-feet

***Standard 3:** Loss of annual recharge to ground water shall be eliminated or minimized through the use of environmentally sensitive site design, low impact development techniques, stormwater best management practices, and good operation and maintenance. At a minimum, the annual recharge from the post-development site shall approximate the annual recharge from pre-development conditions based on soil type. This standard is met when the stormwater management system is designed to infiltrate the required recharge volume as determined in accordance with the Massachusetts Stormwater Handbook.*

Soil Evaluation

Soil evaluation is broken down into two stages. Stage 1 identifies the underlying soils just beneath the surface that contribute to how much runoff is generated as stormwater falls and moves across the surface. Stage 2 evaluates the soils in direct contact with the proposed infiltration BMPs. Appendix 3 includes the NRCS Soil Survey used for Stage 1 while Appendix 4 includes the on-site soil textural analysis in the specific locations that infiltration is proposed. The information from the NRCS Soil Survey and the on-site soil textural analysis are included on the Pre-development and Post-development Drainage Plans in Appendix 10.

Recharge Volume

The required recharge volume is determined by calculating the impervious area proposed over the corresponding soil identified in the NRCS Soil Survey. Since this site has varying soils beneath the proposed impervious surfaces, the required recharge volume is comprised of the required recharge volume over each of the underlying soils. The area of impervious within each Soil Hydrologic Group is compiled from the Post-development Drainage Plan and included in the HydroCAD Report in Appendix 5.

Table 1B: Total Volume Infiltrated Summary

	2-yr Storm	10-yr Storm	100-yr Storm
Post-development Storm	0.102 Acre Feet	0.191 Acre Feet	0.323 Acre Feet

Table 2: Required Recharge Volume Calculation

	Recharge	Impervious	Volume
Hydrologic Group	(in/sqft)	(sqft)	(cf)
A - *sand*	0.60	25,524	1,276
B - *loam*	0.35	None	0
C - *silty loam*	0.25	None	0
D - *clay*	0.10	None	0
Required Recharge Volume Total			**1,276 cf**
			0.029 Acre Feet

Stormwater Basin Sizing

There are three ways of determining the recharge volume provided by stone beneath the pavement, stone beneath the chambers and within the Cultec chambers (Static, Simple Dynamic and Dynamic Field). The Static Method, used here, includes the volume of water that can be stored beneath both the pavement and chambers as well as within the chambers. This, the most conservative method of determining the recharge volume, doesn't account for any infiltration that takes place while the basin is filling with water and isn't dependent on maintenance of the basin since the only way for the water below the lowest invert can leave the basin is though infiltration. The following table summarizes the recharge volume provided on-site.

Table 3: Basin Recharge Volumes

	Recharge Volume
Stone beneath pavement with voids	6,490 cf
Stone beneath infiltration chambers	1,137 cf
Infiltration chambers	846 cf
Total Volume	8,483 cf
	0.195 Acre Feet

72-hour Drawdown

Because the Static Method is the most conservative evaluation of recharge volume, hydraulic conductivity is not included in the analysis. Instead, the Rawls Rate is used to represent the infiltration rate. The specific rate chosen is based on the textural analysis of the on-site soil performed by a competent soil professional.

A Massachusetts Certified Soil Evaluator performed a soil evaluation at each of the proposed infiltration BMPs. The soil textural analysis for each of the infiltration BMPs is listed below with the associated Rawls Rate used in the HydroCAD calculations. Where textural analysis varied within any single BMP, the most restrictive textural evaluation and Rawls Rate were used.

Table 4: Rawls Rate

	Most Restrictive Soil Texture	**Rawls Rate (in/hour)**
Stone beneath pavement	Sand	2.41 in/hr.
Stone beneath chambers	Sand	2.41 in/hr.

Drawdown time for each basin is modeled by HydroCAD and included in Appendix 6 for each of the basins. The following table summarizes the drawdown time for each basin to show each will drawdown within the 72-hour maximum.

Table 5: Basin Drawdown

	Time for Drawdown
Stone beneath pavement	24.3 hours
Stone beneath chambers	30.2 hours

Standard 4: ***Stormwater management systems shall be designed to remove 80% of the average annual post-construction load of Total Suspended Solids (TSS). This standard is met when:***

a) Suitable practices for source control and pollution prevention are identified in a long-term pollution prevention plan, and thereafter are implemented and maintained;

b) Structural stormwater best management practices are sized to capture the required water quality volume as determined in accordance with the Massachusetts Stormwater Handbook; and

c) Pretreatment is provided in accordance with the Massachusetts Stormwater Handbook.

Water Quality Volume

The required water quality volume is determined through a calculation of the proposed impervious pavement throughout the site and a determination of whether the site is located in a critical area or the proposed use is considered to produce a high pollutant load. Since the soils have an infiltration rate greater than 2.4 inches per hour per the Rawls rate, development qualifies as a use with high pollutant load although no critical areas were identified for this site, so the water quality volume is calculated at one inch over the area of proposed impervious pavement. Since asphalt shingle roofs are not considered to contribute contaminants to stormwater runoff, those impervious areas are not included in the required water quality volume.

The amount of impervious area within the proposed site is calculated from the information entered into HydroCAD and can be found in Appendix 5. One inch of runoff across 14,695 square feet of impervious area requires a water quality volume of 1,225 cubic feet.

The proposed stone reservoir beneath the pavement has a volume of 6,490 cubic feet of storage assuming 30% voids in the stone to allow for water quality treatment while the proposed stone reservoir beneath the infiltration chamber has a volume of 1,137 cubic feet of storage assuming 40% voids in the stone.

Removal of Total Suspended Solids

The water quality volume, as calculated in the previous section, is treated to provide a minimum of 80-percent TSS removal. Two treatment trains were utilized in the project design. The porous pavement and associated infiltration treat stormwater to 80-percent TSS removal by providing that the rainfall does not run off from the site. The total provided removal rate of 80% does not include additional treatment provided through infiltration at the chambers.

Standard 5: ***For land uses with higher potential pollutant loads (LUHPPL), source control and pollution prevention shall be implemented in accordance with the Massachusetts Stormwater Handbook to eliminate or reduce the discharge of stormwater runoff from such land uses to the maximum extent practicable.***

The proposed residential project does not qualify as a LUHPPL.

Standard 6: ***Stormwater discharges within the Zone II or Interim Wellhead Protection Area of a public water supply and stormwater discharges near or to any other critical area require the use of the specific source control and pollution prevention measures and the specific structural stormwater best management practices determined by the Department to be suitable for managing discharges to such areas, as provided in the Massachusetts Stormwater Handbook.***

The proposed project is not within, nor does it discharge stormwater to an identified Critical Area.

Standard 7: *A redevelopment project is required to meet the following Stormwater Management Standards only to the maximum extent practicable: Standard 2, Standard 3, and the pretreatment and structural best management practice requirements of Standards 4, 5, and 6. Existing stormwater discharges shall comply with Standard 1 only to the maximum extent practicable. A redevelopment project shall also comply with all other requirements of the Stormwater Management Standards and improve existing conditions.*

While a portion of the project is considered a redevelopment, Storm Water Standards 2 through 6 were fully met. Where the existing driveway doesn't include drainage control, the upgrade to porous pavement and introduction of stormwater management are an improvement to the current condition.

Standard 8: *A plan to control construction-related impacts, including erosion, sedimentation, and other pollutant sources during construction and land disturbance activities (construction period erosion, sedimentation, and pollution prevention plan) shall be developed and implemented.*

During land disturbance and construction activities, project proponents must implement controls that prevent erosion, control sediment movement, and stabilize exposed soils to prevent pollutants from moving offsite or entering wetlands or waters. Land disturbance activities include demolition, construction, clearing, excavation, grading, filling, and reconstruction.

The Construction Period Pollution Control Plan included in Appendix 8 will be followed to prevent discharge of erosion to resource areas and abutting properties.

Standard 9: *A Long–Term Operation and Maintenance (O&M) Plan shall be developed and implemented to ensure that stormwater management systems function as designed.*

The Operation and Maintenance Plan included in Appendix 7 address the responsibilities of maintaining the stormwater BMPs.

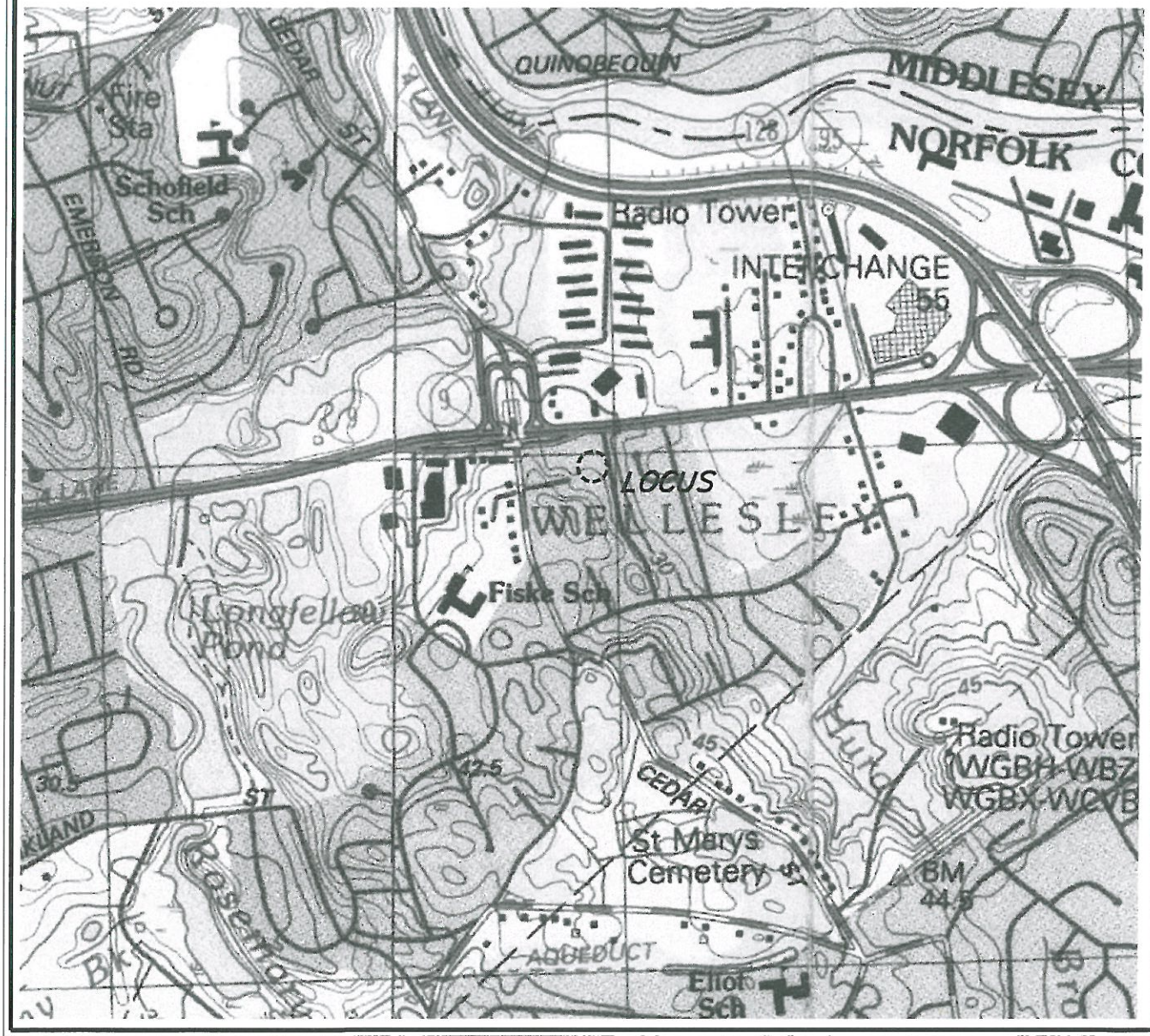
Standard 10: *All illicit discharges to the stormwater management system are prohibited.*

Standard 10 prohibits illicit discharges to stormwater management systems. The stormwater management system is the system for conveying, treating, and infiltrating stormwater on site, including stormwater best management practices and any pipes intended to transport stormwater to the ground water, a surface water, or municipal separate storm sewer system. Illicit discharges to the stormwater management system are discharges that are not entirely comprised of stormwater. Notwithstanding the foregoing, an illicit discharge does not include discharges from the following activities or facilities: firefighting, water line flushing, landscape irrigation, uncontaminated ground water, potable water sources, foundation drains, air conditioning condensation, footing drains, individual resident car washing, flows from riparian habitats and wetlands, dechlorinated water from swimming pools, water used for street washing and water used to clean residential buildings without detergents.

It is the intent of the developer to follow the Construction Period Pollution Prevention Control Plan to mitigate the effects of the proposed project on the adjacent environment. Following completion of construction, the Operation and Maintenance Plan will be provided to the property owner who will continue the maintenance of the project. The Illicit Discharge Statement is included in Appendix 9.

Locus Map (USGS)

Appendix 1



U.S.G.S.
Quadrangle

Scale: 1"=1000'

0 1000' 2000' 3000' 4000'

LOCUS MAP

3 Burke Lane
Wellesley, Massachusetts

Date: February 25, 2019 | **Project No. W-3209**

Guerriere & Halnon, Inc.
ENGINEERING & LAND SURVEYING
1029 Providence Road
Whitinsville, MA 01588
PH. (508) 234-6834
FX. (508) 234-6723
www.gandhengineering.com

FEMA FIRMette

Appendix 2

National Flood Hazard Layer FIRMette

FEMA

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 / 17.5 — Cross Sections with 1% Annual Chance Water Surface Elevation
  - Coastal Transect
  - 513 — 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 2/26/2019 at 9:50:04 AM 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.

NRCS Soils Report

Appendix 3

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

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

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:25,000.

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: Norfolk and Suffolk Counties, Massachusetts
Survey Area Data: Version 14, Sep 12, 2018

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Aug 10, 2014—Aug 25, 2014

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.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
602	Urban land, 0 to 15 percent slopes	0.5	53.6%
626B	Merrimac-Urban land complex, 0 to 8 percent slopes	0.4	46.4%
Totals for Area of Interest		**0.9**	**100.0%**

Norfolk and Suffolk Counties, Massachusetts

602—Urban land, 0 to 15 percent slopes

Map Unit Setting

National map unit symbol: vkyj
Mean annual precipitation: 32 to 50 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 120 to 200 days
Farmland classification: Not prime farmland

Map Unit Composition

Urban land: 99 percent
Minor components: 1 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Urban Land

Setting

Parent material: Excavated and filled land

Minor Components

Rock outcrops

Percent of map unit: 1 percent
Hydric soil rating: Unranked

Data Source Information

Soil Survey Area: Norfolk and Suffolk Counties, Massachusetts
Survey Area Data: Version 14, Sep 12, 2018

Norfolk and Suffolk Counties, Massachusetts

626B—Merrimac-Urban land complex, 0 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2tyr9
Elevation: 0 to 820 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 250 days
Farmland classification: Not prime farmland

Map Unit Composition

Merrimac and similar soils: 45 percent
Urban land: 40 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Merrimac

Setting

Landform: Outwash terraces, outwash plains, kames, eskers, moraines
Landform position (two-dimensional): Backslope, footslope, shoulder, summit
Landform position (three-dimensional): Side slope, crest, riser, tread
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy glaciofluvial deposits derived from granite, schist, and gneiss over sandy and gravelly glaciofluvial deposits derived from granite, schist, and gneiss

Typical profile

Ap - 0 to 10 inches: fine sandy loam
Bw1 - 10 to 22 inches: fine sandy loam
Bw2 - 22 to 26 inches: stratified gravel to gravelly loamy sand
2C - 26 to 65 inches: stratified gravel to very gravelly sand

Properties and qualities

Slope: 0 to 8 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Somewhat excessively drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to very high (1.42 to 99.90 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 2 percent
Salinity, maximum in profile: Nonsaline (0.0 to 1.4 mmhos/cm)

Sodium adsorption ratio, maximum in profile: 1.0
Available water storage in profile: Low (about 4.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: A
Hydric soil rating: No

Description of Urban Land

Typical profile

M - 0 to 10 inches: cemented material

Properties and qualities

Slope: 0 to 8 percent
Depth to restrictive feature: 0 inches to manufactured layer
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Available water storage in profile: Very low (about 0.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydrologic Soil Group: D
Hydric soil rating: Unranked

Minor Components

Hinckley

Percent of map unit: 5 percent
Landform: Outwash plains, eskers, kames, deltas
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Nose slope, side slope, crest, head slope, rise
Down-slope shape: Convex
Across-slope shape: Linear, convex
Hydric soil rating: No

Sudbury

Percent of map unit: 5 percent
Landform: Outwash plains, terraces, deltas
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Windsor

Percent of map unit: 5 percent
Landform: Outwash terraces, deltas, outwash plains, dunes
Landform position (three-dimensional): Tread, riser
Down-slope shape: Linear, convex
Across-slope shape: Linear, convex

Hydric soil rating: No

Data Source Information

Soil Survey Area: Norfolk and Suffolk Counties, Massachusetts
Survey Area Data: Version 14, Sep 12, 2018

Field Soils Evaluation

Appendix 4

Commonwealth of Massachusetts
City/Town of Wellesley

Form 11 - Soil Suitability Assessment for On-Site Sewage Disposal

A. Facility Information

Dennis Dischino
Owner Name

868 Worcester Street
Street Address

10-42
Map/Lot #

Wellesley
City

MA
State

02482
Zip Code

B. Site Information

1. (Check one) ☐ New Construction ☐ Upgrade ☐ Repair

2. Soil Survey Available? ☒ Yes ☐ No If yes: USDA (Source) 626B (Soil Map Unit)

Merrimac-Urban land complex
Soil Name

Soil Limitations

Loamy glaciofluvial deposits from granite
Soil Parent material

Outwash terraces, outwash plains, kames, eskers, moraines
Landform

3. Surficial Geological Report Available? ☐ Yes ☐ No If yes: Year Published/Source Map Unit

Description of Geologic Map Unit:

4. Flood Rate Insurance Map Within a regulatory floodway? ☐ Yes ☒ No

5. Within a velocity zone? ☐ Yes ☒ No

6. Within a Mapped Wetland Area? ☐ Yes ☒ No If yes, MassGIS Wetland Data Layer: Wetland Type

7. Current Water Resource Conditions (USGS): 8/2018 (Month/Day/ Year) Range: ☒ Above Normal ☐ Normal ☐ Below Normal

8. Other references reviewed:

Commonwealth of Massachusetts
City/Town of Wellesley

Form 11 - Soil Suitability Assessment for On-Site Sewage Disposal

C. On-Site Review *(minimum of two holes required at every proposed primary and reserve disposal area)*

Deep Observation Hole Number: 4 (Hole #) | 8/23/18 (Date) | _____ (Time) | 75 (Weather) | _____ (Latitude) | _____ (Longitude:)

1. Land Use: Urban single family lot (e.g., woodland, agricultural field, vacant lot, etc.) | Grass/Tree Cover (Vegetation) | _____ (Surface Stones (e.g., cobbles, stones, boulders, etc.)) | 0-8% (Slope (%))

Description of Location: _____

2. Soil Parent Material: Loamy glaciofluvial deposits from granite | Outwash terrace (Landform) | _____ (Position on Landscape (SU, SH, BS, FS, TS))

3. Distances from: Open Water Body _____ feet | Drainage Way _____ feet | Wetlands _____ feet | Property Line +/-61 feet | Drinking Water Well _____ feet | Other _____ feet

4. Unsuitable Materials Present: ☐ Yes ☒ No If Yes: ☐ Disturbed Soil ☐ Fill Material ☐ Weathered/Fractured Rock ☐ Bedrock

5. Groundwater Observed: ☐ Yes ☒ No If yes: _____ Depth Weeping from Pit _____ Depth Standing Water in Hole

Soil Log

Depth (in)	Soil Horizon /Layer	Soil Texture (USDA	Soil Matrix: Color-Moist (Munsell)	Redoximorphic Features			Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
				Depth	Color	Percent	Gravel	Cobbles & Stones			
0-6	A	Sandy Loam									
6-84	C1	Loamy Sand	5Y 6/3				20				
84-120	C2	Sand	5Y 6/3								

Additional Notes:
No GW, Mottles or Refusal

Commonwealth of Massachusetts
City/Town of Wellesley

Form 11 - Soil Suitability Assessment for On-Site Sewage Disposal

C. On-Site Review (*minimum of two holes required at every proposed primary and reserve disposal area)*

Deep Observation Hole Number: 5 (Hole #) | 8/23/18 (Date) | _____ (Time) | 75 (Weather) | _____ (Latitude) | _____ (Longitude:)

1. Land Use: Urban single family lot (e.g., woodland, agricultural field, vacant lot, etc.) | Grass/Tree Cover (Vegetation) | _____ (Surface Stones (e.g., cobbles, stones, boulders, etc.)) | 0-8% (Slope (%))

Description of Location: _____

2. Soil Parent Material: Loamy glaciofluvial deposits from granite | Outwash terrace (Landform) | _____ (Position on Landscape (SU, SH, BS, FS, TS))

3. Distances from: Open Water Body _____ feet | Drainage Way _____ feet | Wetlands _____ feet
Property Line +/-54 feet | Drinking Water Well _____ feet | Other _____ feet

4. Unsuitable Materials Present: ☐ Yes ☒ No If Yes: ☐ Disturbed Soil ☐ Fill Material ☐ Weathered/Fractured Rock ☐ Bedrock

5. Groundwater Observed: ☐ Yes ☒ No If yes: _____ Depth Weeping from Pit _____ Depth Standing Water in Hole

Soil Log

Depth (in)	Soil Horizon /Layer	Soil Texture (USDA)	Soil Matrix: Color-Moist (Munsell)	Redoximorphic Features			Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
				Depth	Color	Percent	Gravel	Cobbles & Stones			
0-6	A	Sandy Loam									
6-36	C1	Loamy Sandy	5Y 6/3				20				
36-120	C2	Sand	5Y 6/3								

Additional Notes:
No GW, Mottles or Refusal

Form 11 - Soil Suitability Assessment for On-Site Sewage Disposal

D. Determination of High Groundwater Elevation

1. Method Used:

	Obs. Hole #4	Obs. Hole #5
☐ Depth observed standing water in observation hole	N/A inches	N/A inches
☐ Depth weeping from side of observation hole	N/A inches	N/A inches
☐ Depth to soil redoximorphic features (mottles)	N/A inches	N/A inches
☐ Depth to adjusted seasonal high groundwater (S_h) (USGS methodology)	_____ inches	_____ inches

_____ Index Well Number _____ Reading Date

$S_h = S_c - [S_r \times (OW_c - OW_{max})/OW_r]$

Obs. Hole/Well# _____ S_c _____ S_r _____ OW_c _____ OW_{max} _____ OW_r _____ S_h _____

2. Estimated Depth to High Groundwater: 120 inches

E. Depth of Pervious Material

1. Depth of Naturally Occurring Pervious Material

a. Does at least four feet of naturally occurring pervious material exist in all areas observed throughout the area proposed for the soil absorption system?

☒ Yes ☐ No

b. If yes, at what depth was it observed (exclude A and O Horizons)? Upper boundary: 6 inches Lower boundary: 120 inches

c. If no, at what depth was impervious material observed? Upper boundary: _____ inches Lower boundary: _____ inches

Commonwealth of Massachusetts
City/Town of Wellesley

Form 11 - Soil Suitability Assessment for On-Site Sewage Disposal

C. On-Site Review *(minimum of two holes required at every proposed primary and reserve disposal area)*

Deep Observation Hole Number: 6 (Hole #) | 8/23/18 (Date) | _____ (Time) | 75 (Weather) | _____ (Latitude) | _____ (Longitude:)

1. Land Use: Urban single family lot (e.g., woodland, agricultural field, vacant lot, etc.) | Grass/Tree Cover (Vegetation) | _____ (Surface Stones (e.g., cobbles, stones, boulders, etc.)) | 0-8% (Slope (%))

Description of Location: _____

2. Soil Parent Material: Loamy glaciofluvial deposits from granite | Outwash terrace (Landform) | _____ (Position on Landscape (SU, SH, BS, FS, TS))

3. Distances from: Open Water Body _____ feet | Drainage Way _____ feet | Wetlands _____ feet
Property Line +/-49 feet | Drinking Water Well _____ feet | Other _____ feet

4. Unsuitable Materials Present: ☐ Yes ☒ No If Yes: ☐ Disturbed Soil ☐ Fill Material ☐ Weathered/Fractured Rock ☐ Bedrock

5. Groundwater Observed: ☐ Yes ☒ No If yes: _____ Depth Weeping from Pit _____ Depth Standing Water in Hole

Soil Log

Depth (in)	Soil Horizon /Layer	Soil Texture (USDA)	Soil Matrix: Color-Moist (Munsell)	Redoximorphic Features			Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
				Depth	Color	Percent	Gravel	Cobbles & Stones			
0-6	A	Sandy Loam									
6-24"	C1	Loamy Sand	5Y 6/3				20				
24-120	C2	Sand	5Y 6/3								

Additional Notes:
No GW, Mottles or Refusal

Commonwealth of Massachusetts
City/Town of Wellesley

Form 11 - Soil Suitability Assessment for On-Site Sewage Disposal

D. Determination of High Groundwater Elevation

1. Method Used:

	Obs. Hole #6	Obs. Hole #_____
☐ Depth observed standing water in observation hole	N/A inches	_____ inches
☐ Depth weeping from side of observation hole	N/A inches	_____ inches
☐ Depth to soil redoximorphic features (mottles)	N/A inches	_____ inches
☐ Depth to adjusted seasonal high groundwater (S_h) (USGS methodology)	_____ inches	_____ inches

_____ Index Well Number _____ Reading Date

$S_h = S_c - [S_r \times (OW_c - OW_{max})/OW_r]$

Obs. Hole/Well# _____ S_c _____ S_r _____ OW_c _____ OW_{max} _____ OW_r _____ S_h _____

2. Estimated Depth to High Groundwater: 120 inches

E. Depth of Pervious Material

1. Depth of Naturally Occurring Pervious Material

a. Does at least four feet of naturally occurring pervious material exist in all areas observed throughout the area proposed for the soil absorption system?

☒ Yes ☐ No

b. If yes, at what depth was it observed (exclude A and O Horizons)? Upper boundary: 6 inches Lower boundary: 120 inches

c. If no, at what depth was impervious material observed? Upper boundary: _____ inches Lower boundary: _____ inches

Commonwealth of Massachusetts
City/Town of Wellesley

Form 11 - Soil Suitability Assessment for On-Site Sewage Disposal

F. Certification

I certify that I am currently approved by the Department of Environmental Protection pursuant to 310 CMR 15.017 to conduct soil evaluations and that the above analysis has been performed by me consistent with the required training, expertise and experience described in 310 CMR 15.017. I further certify that the results of my soil evaluation, as indicated in the attached Soil Evaluation Form, are accurate and in accordance with 310 CMR 15.100 through 15.107.

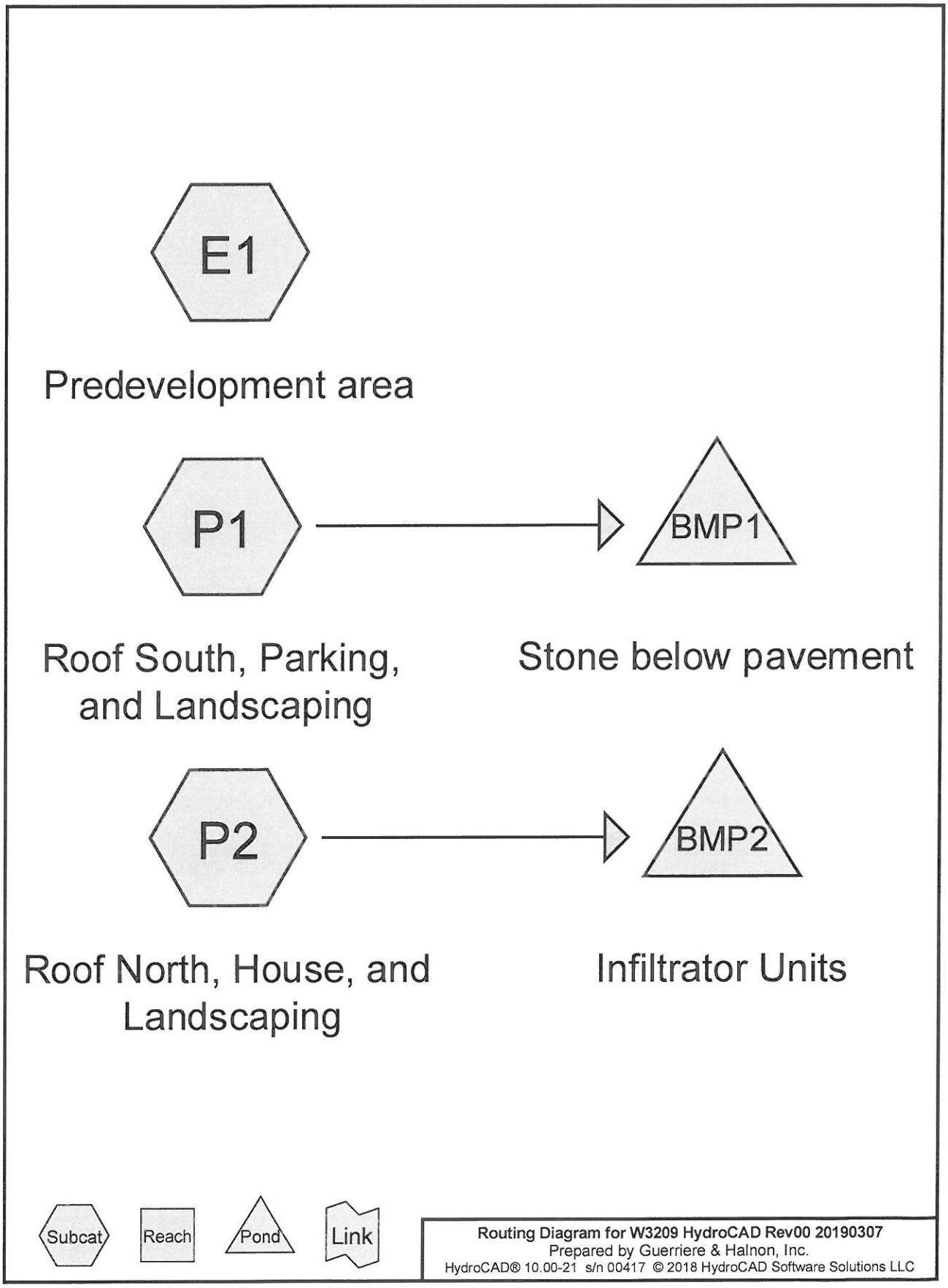
Signature of Soil Evaluator	Date: 2-25-19
Brian D. Hassett - SE13905 Typed or Printed Name of Soil Evaluator / License #	6-30-22 Expiration Date of License
Name of Approving Authority Witness	Approving Authority

Note: In accordance with 310 CMR 15.018(2) this form must be submitted to the approving authority within 60 days of the date of field testing, and to the designer and the property owner with Percolation Test Form 12.

Field Diagrams: Use this area for field diagrams:

Pre- & Post-development HydroCAD Calculations

Appendix 5


E1
Predevelopment area
P1
BMP1
Roof South, Parking, and Landscaping
Stone below pavement
P2
BMP2
Roof North, House, and Landscaping
Infiltrator Units
Subcat
Reach
Pond
Link
Routing Diagram for W3209 HydroCAD Rev00 20190307
Prepared by Guerriere & Halnon, Inc.
HydroCAD® 10.00-21 s/n 00417 © 2018 HydroCAD Software Solutions LLC

Time span=0.00-36.00 hrs, dt=0.10 hrs, 361 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment E1: Predevelopment area Runoff Area=40,219 sf 9.38% Impervious Runoff Depth=0.44"
Tc=6.0 min CN=61 Runoff=0.29 cfs 0.034 af

Subcatchment P1: Roof South, Parking, Runoff Area=32,451 sf 56.90% Impervious Runoff Depth=1.09"
Tc=10.0 min CN=75 Runoff=0.73 cfs 0.068 af

Subcatchment P2: Roof North, House, and Runoff Area=7,768 sf 94.10% Impervious Runoff Depth=2.64"
Tc=10.0 min CN=95 Runoff=0.43 cfs 0.039 af

Pond BMP1: Stone below pavement Peak Elev=0.04' Storage=114 cf Inflow=0.73 cfs 0.068 af
Outflow=0.60 cfs 0.068 af

Pond BMP2: Infiltrator Units Peak Elev=100.43' Storage=627 cf Inflow=0.43 cfs 0.039 af
Outflow=0.05 cfs 0.039 af

Total Runoff Area = 1.847 ac Runoff Volume = 0.141 af Average Runoff Depth = 0.92"
63.27% Pervious = 1.168 ac 36.73% Impervious = 0.678 ac

Summary for Subcatchment E1: Predevelopment area

[49] Hint: Tc<2dt may require smaller dt

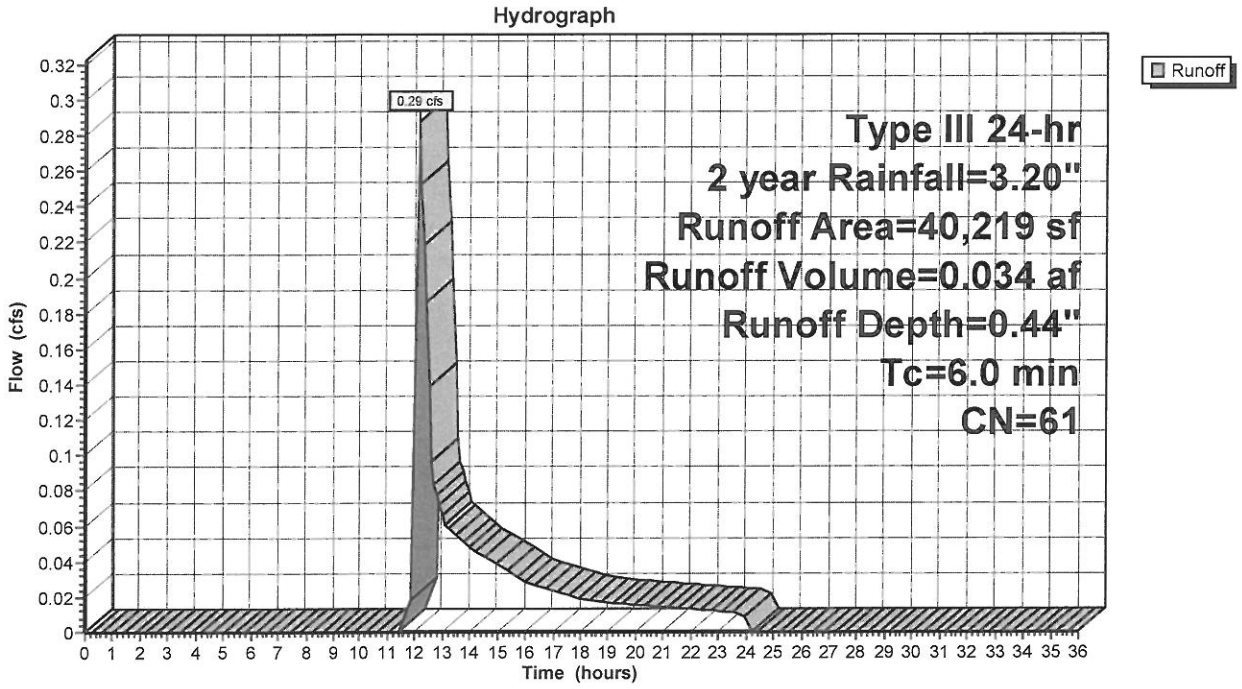
Runoff = 0.29 cfs @ 12.14 hrs, Volume= 0.034 af, Depth= 0.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.10 hrs
Type III 24-hr 2 year Rainfall=3.20"

Area (sf)	CN	Description
2,852	98	Roofs, HSG A
919	98	Paved parking, HSG A
36,448	57	Woods/grass comb., Poor, HSG A
40,219	61	Weighted Average
36,448		90.62% Pervious Area
3,771		9.38% Impervious Area

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

Subcatchment E1: Predevelopment area



Summary for Subcatchment P1: Roof South, Parking, and Landscaping

[49] Hint: Tc<2dt may require smaller dt

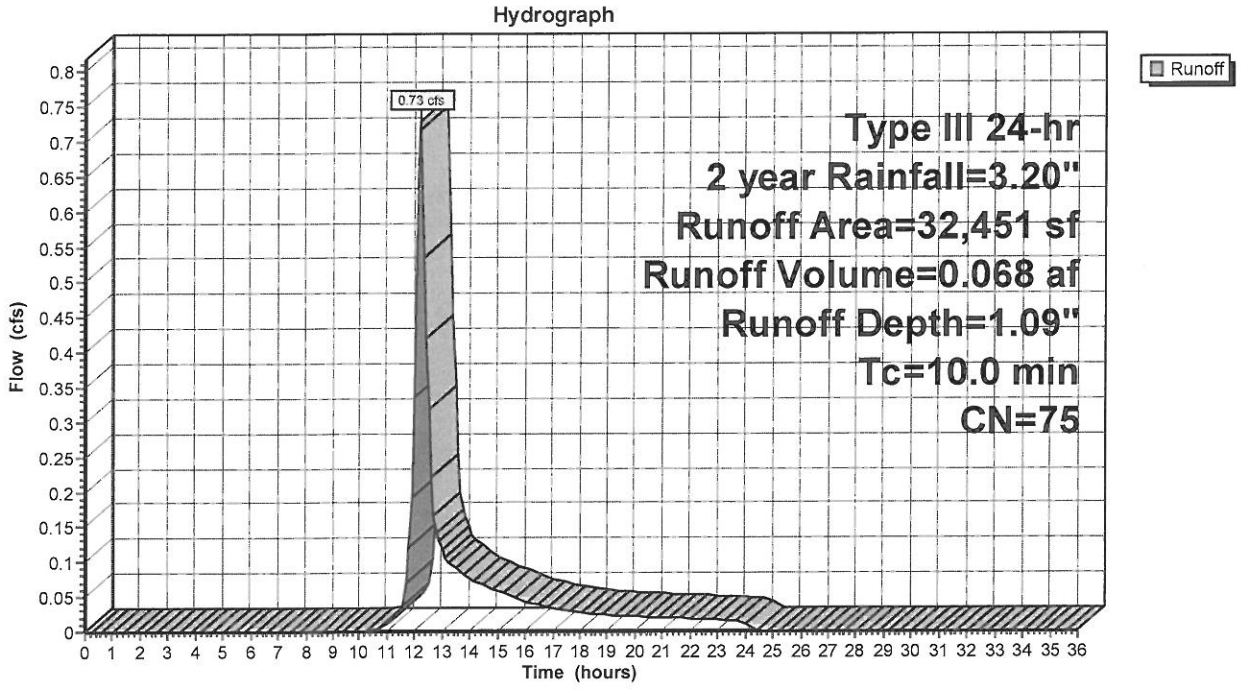
Runoff = 0.73 cfs @ 12.17 hrs, Volume= 0.068 af, Depth= 1.09"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.10 hrs
Type III 24-hr 2 year Rainfall=3.20"

Area (sf)	CN	Description
14,695	98	Paved parking, HSG A
13,384	43	Woods/grass comb., Fair, HSG A
3,771	98	Roofs, HSG A
601	76	Gravel roads, HSG A
32,451	75	Weighted Average
13,985		43.10% Pervious Area
18,466		56.90% Impervious Area

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

Subcatchment P1: Roof South, Parking, and Landscaping



Summary for Subcatchment P2: Roof North, House, and Landscaping

[49] Hint: Tc<2dt may require smaller dt

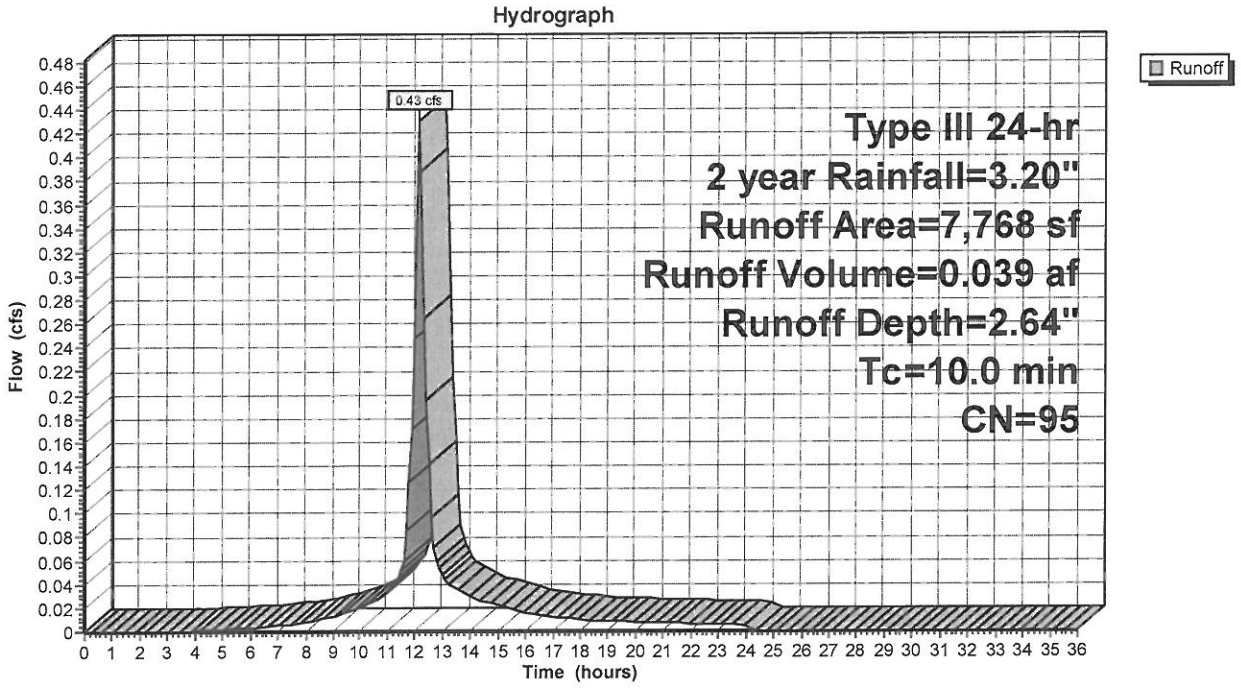
Runoff = 0.43 cfs @ 12.13 hrs, Volume= 0.039 af, Depth= 2.64"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.10 hrs
Type III 24-hr 2 year Rainfall=3.20"

Area (sf)	CN	Description
458	39	>75% Grass cover, Good, HSG A
7,058	98	Roofs, HSG A
252	98	Unconnected pavement, HSG A
7,768	95	Weighted Average
458		5.90% Pervious Area
7,310		94.10% Impervious Area
252		3.45% Unconnected

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

Subcatchment P2: Roof North, House, and Landscaping



Summary for Pond BMP1: Stone below pavement

Inflow Area = 0.745 ac, 56.90% Impervious, Inflow Depth = 1.09" for 2 year event
Inflow = 0.73 cfs @ 12.17 hrs, Volume= 0.068 af
Outflow = 0.60 cfs @ 12.20 hrs, Volume= 0.068 af, Atten= 17%, Lag= 2.1 min
Discarded = 0.60 cfs @ 12.20 hrs, Volume= 0.068 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.10 hrs
Peak Elev= 0.04' @ 12.27 hrs Surf.Area= 10,816 sf Storage= 114 cf

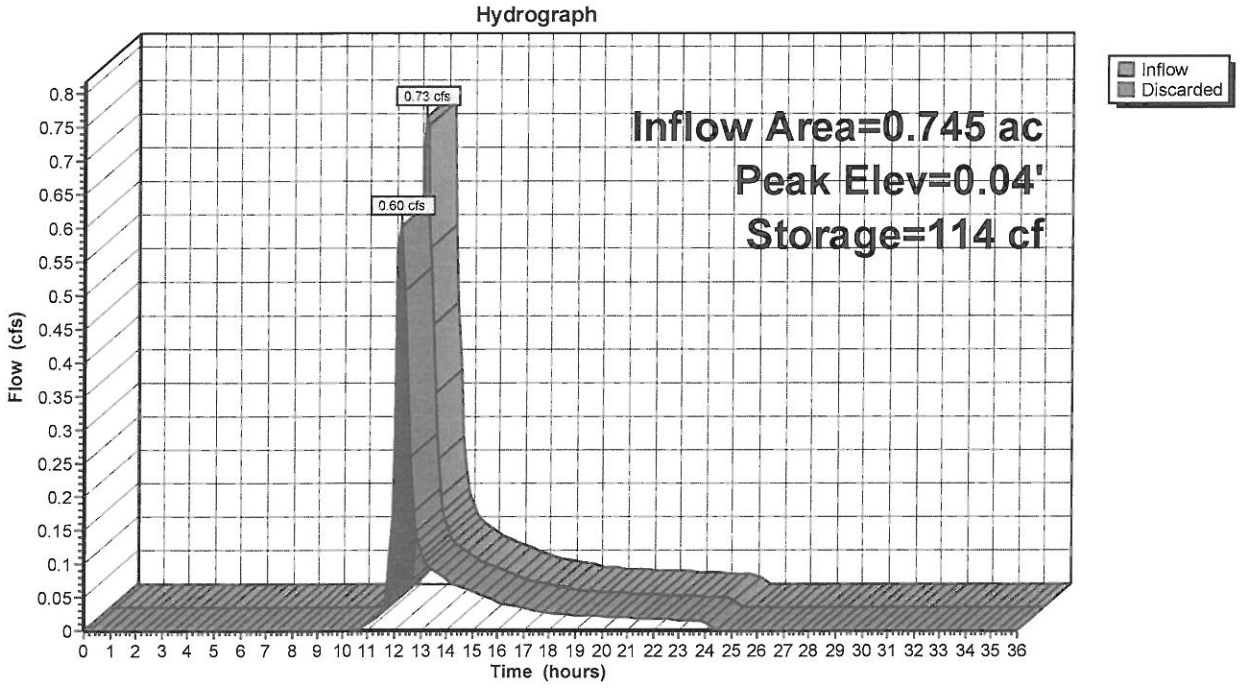
Plug-Flow detention time= 2.0 min calculated for 0.068 af (100% of inflow)
Center-of-Mass det. time= 2.0 min (864.5 - 862.5)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	6,490 cf	**104.00'W x 104.00'L x 2.00'H Prismatoid** 21,632 cf Overall x 30.0% Voids

Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	**2.410 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.60 cfs @ 12.20 hrs HW=0.03' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.60 cfs)

Pond BMP1: Stone below pavement



Summary for Pond BMP2: Infiltrator Units

Inflow Area = 0.178 ac, 94.10% Impervious, Inflow Depth = 2.64" for 2 year event
Inflow = 0.43 cfs @ 12.13 hrs, Volume= 0.039 af
Outflow = 0.05 cfs @ 11.60 hrs, Volume= 0.039 af, Atten= 89%, Lag= 0.0 min
Discarded = 0.05 cfs @ 11.60 hrs, Volume= 0.039 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.10 hrs
Peak Elev= 100.43' @ 13.01 hrs Surf.Area= 864 sf Storage= 627 cf

Plug-Flow detention time= 97.5 min calculated for 0.039 af (100% of inflow)
Center-of-Mass det. time= 97.4 min (882.1 - 784.7)

Volume	Invert	Avail.Storage	Storage Description
#1A	99.00'	997 cf	**6.33'W x 136.50'L x 4.04'H Field A** 3,494 cf Overall - 1,002 cf Embedded = 2,492 cf x 40.0% Voids
#2A	100.00'	1,002 cf	**Cultec R-330XLHD** x 19 Inside #1 Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap Row Length Adjustment= +1.50' x 7.45 sf x 1 rows
		1,999 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	99.00'	**2.410 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.05 cfs @ 11.60 hrs HW=99.05' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.05 cfs)

Pond BMP2: Infiltrator Units - Chamber Wizard Field A

Chamber Model = Cultec R-330XLHD (Cultec Recharger® 330XLHD)
Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf
Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap
Row Length Adjustment= +1.50' x 7.45 sf x 1 rows

19 Chambers/Row x 7.00' Long +1.50' Row Adjustment = 134.50' Row Length +12.0" End Stone x 2 = 136.50' Base Length
1 Rows x 52.0" Wide + 12.0" Side Stone x 2 = 6.33' Base Width
12.0" Base + 30.5" Chamber Height + 6.0" Cover = 4.04' Field Height

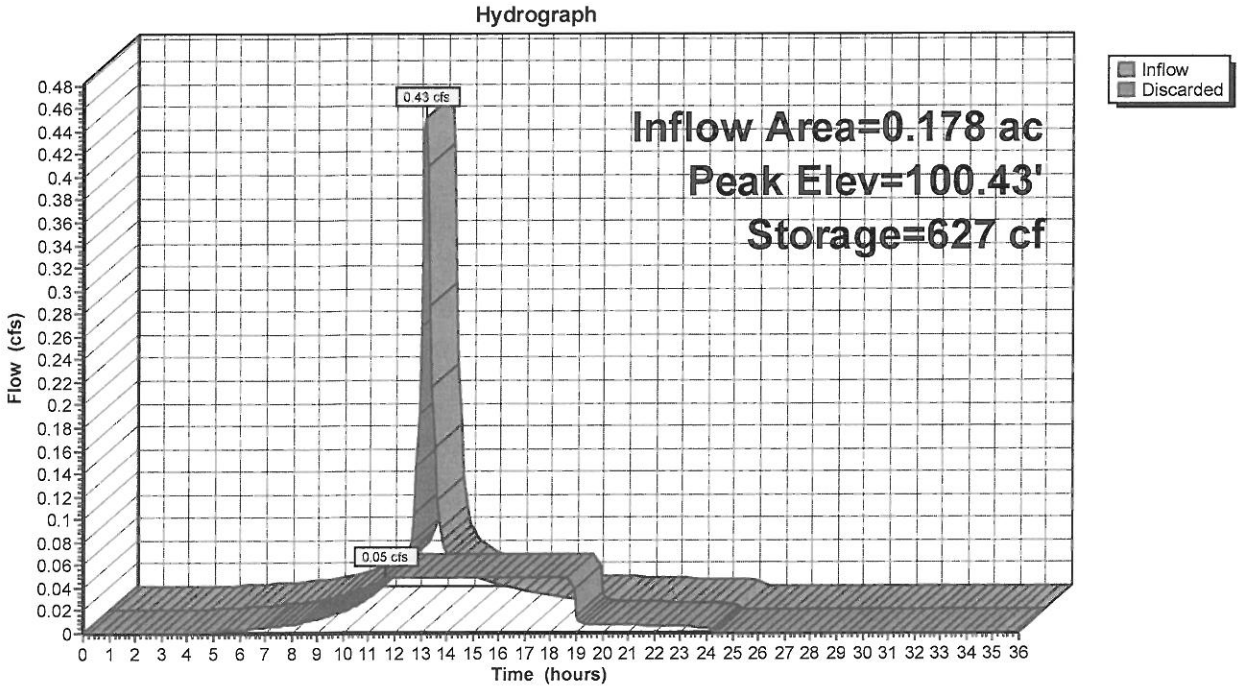
19 Chambers x 52.2 cf +1.50' Row Adjustment x 7.45 sf x 1 Rows = 1,002.2 cf Chamber Storage

3,494.0 cf Field - 1,002.2 cf Chambers = 2,491.9 cf Stone x 40.0% Voids = 996.7 cf Stone Storage

Chamber Storage + Stone Storage = 1,998.9 cf = 0.046 af
Overall Storage Efficiency = 57.2%
Overall System Size = 136.50' x 6.33' x 4.04'

19 Chambers
129.4 cy Field
92.3 cy Stone

Pond BMP2: Infiltrator Units



Time span=0.00-36.00 hrs, dt=0.10 hrs, 361 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment E1: Predevelopment area Runoff Area=40,219 sf 9.38% Impervious Runoff Depth=1.19"
Tc=6.0 min CN=61 Runoff=1.09 cfs 0.092 af

Subcatchment P1: Roof South, Parking, Runoff Area=32,451 sf 56.90% Impervious Runoff Depth=2.21"
Tc=10.0 min CN=75 Runoff=1.56 cfs 0.137 af

Subcatchment P2: Roof North, House, and Runoff Area=7,768 sf 94.10% Impervious Runoff Depth=4.12"
Tc=10.0 min CN=95 Runoff=0.66 cfs 0.061 af

Pond BMP1: Stone below pavement Peak Elev=0.31' Storage=992 cf Inflow=1.56 cfs 0.137 af
Outflow=0.60 cfs 0.137 af

Pond BMP2: Infiltrator Units Peak Elev=101.22' Storage=1,138 cf Inflow=0.66 cfs 0.061 af
Outflow=0.05 cfs 0.061 af

Total Runoff Area = 1.847 ac Runoff Volume = 0.290 af Average Runoff Depth = 1.89"
63.27% Pervious = 1.168 ac 36.73% Impervious = 0.678 ac

Summary for Subcatchment E1: Predevelopment area

[49] Hint: Tc<2dt may require smaller dt

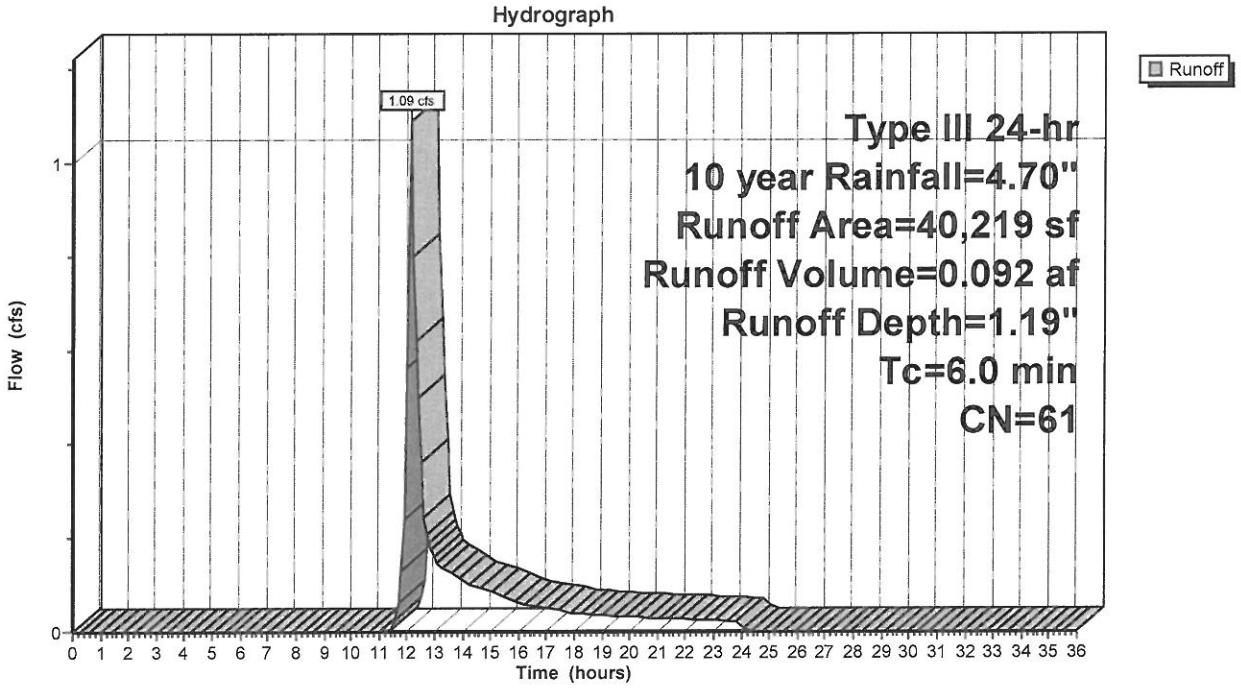
Runoff = 1.09 cfs @ 12.11 hrs, Volume= 0.092 af, Depth= 1.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.10 hrs
Type III 24-hr 10 year Rainfall=4.70"

Area (sf)	CN	Description
2,852	98	Roofs, HSG A
919	98	Paved parking, HSG A
36,448	57	Woods/grass comb., Poor, HSG A
40,219	61	Weighted Average
36,448		90.62% Pervious Area
3,771		9.38% Impervious Area

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

Subcatchment E1: Predevelopment area



Summary for Subcatchment P1: Roof South, Parking, and Landscaping

[49] Hint: Tc<2dt may require smaller dt

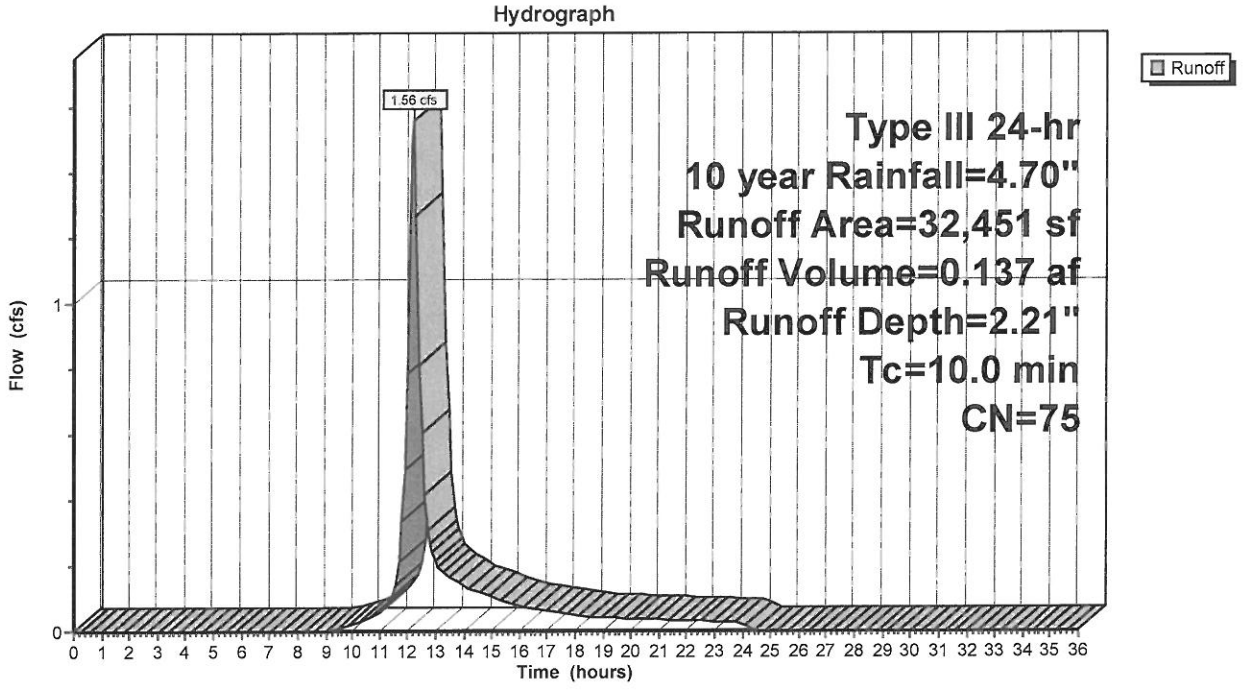
Runoff = 1.56 cfs @ 12.15 hrs, Volume= 0.137 af, Depth= 2.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.10 hrs
Type III 24-hr 10 year Rainfall=4.70"

Area (sf)	CN	Description
14,695	98	Paved parking, HSG A
13,384	43	Woods/grass comb., Fair, HSG A
3,771	98	Roofs, HSG A
601	76	Gravel roads, HSG A
32,451	75	Weighted Average
13,985		43.10% Pervious Area
18,466		56.90% Impervious Area

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

Subcatchment P1: Roof South, Parking, and Landscaping



Summary for Subcatchment P2: Roof North, House, and Landscaping

[49] Hint: Tc<2dt may require smaller dt

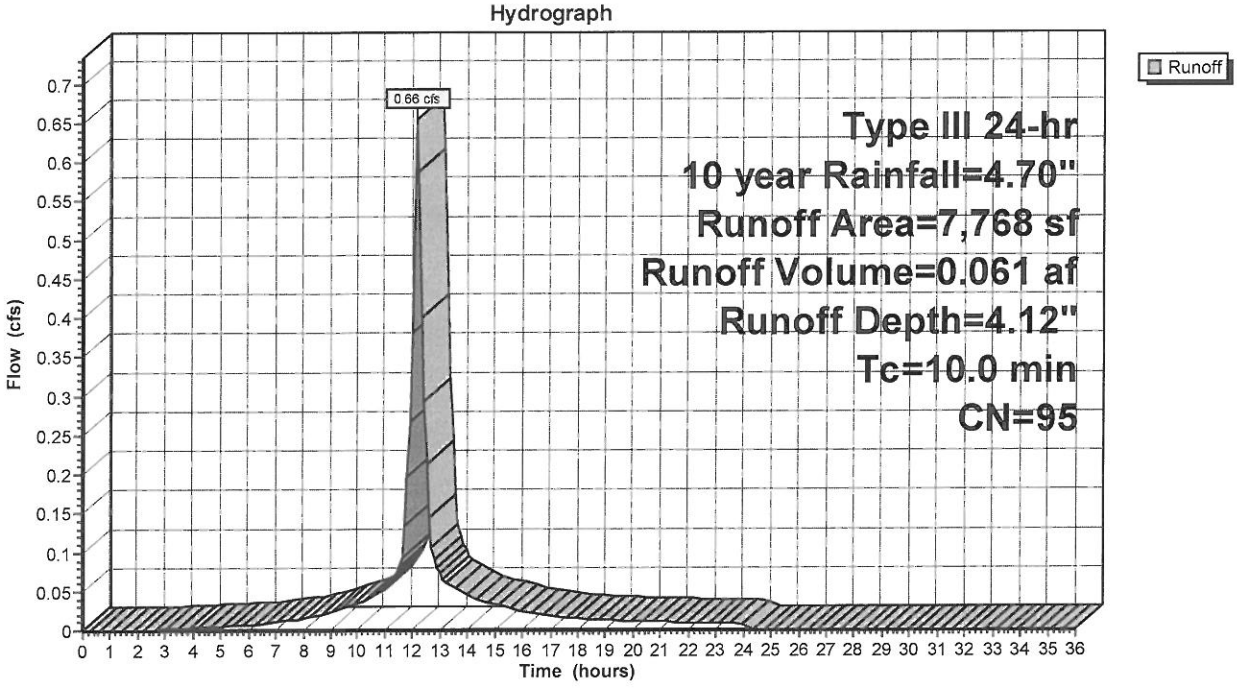
Runoff = 0.66 cfs @ 12.13 hrs, Volume= 0.061 af, Depth= 4.12"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.10 hrs
Type III 24-hr 10 year Rainfall=4.70"

Area (sf)	CN	Description
458	39	>75% Grass cover, Good, HSG A
7,058	98	Roofs, HSG A
252	98	Unconnected pavement, HSG A
7,768	95	Weighted Average
458		5.90% Pervious Area
7,310		94.10% Impervious Area
252		3.45% Unconnected

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

Subcatchment P2: Roof North, House, and Landscaping



Summary for Pond BMP1: Stone below pavement

Inflow Area = 0.745 ac, 56.90% Impervious, Inflow Depth = 2.21" for 10 year event
Inflow = 1.56 cfs @ 12.15 hrs, Volume= 0.137 af
Outflow = 0.60 cfs @ 12.00 hrs, Volume= 0.137 af, Atten= 61%, Lag= 0.0 min
Discarded = 0.60 cfs @ 12.00 hrs, Volume= 0.137 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.10 hrs
Peak Elev= 0.31' @ 12.50 hrs Surf.Area= 10,816 sf Storage= 992 cf

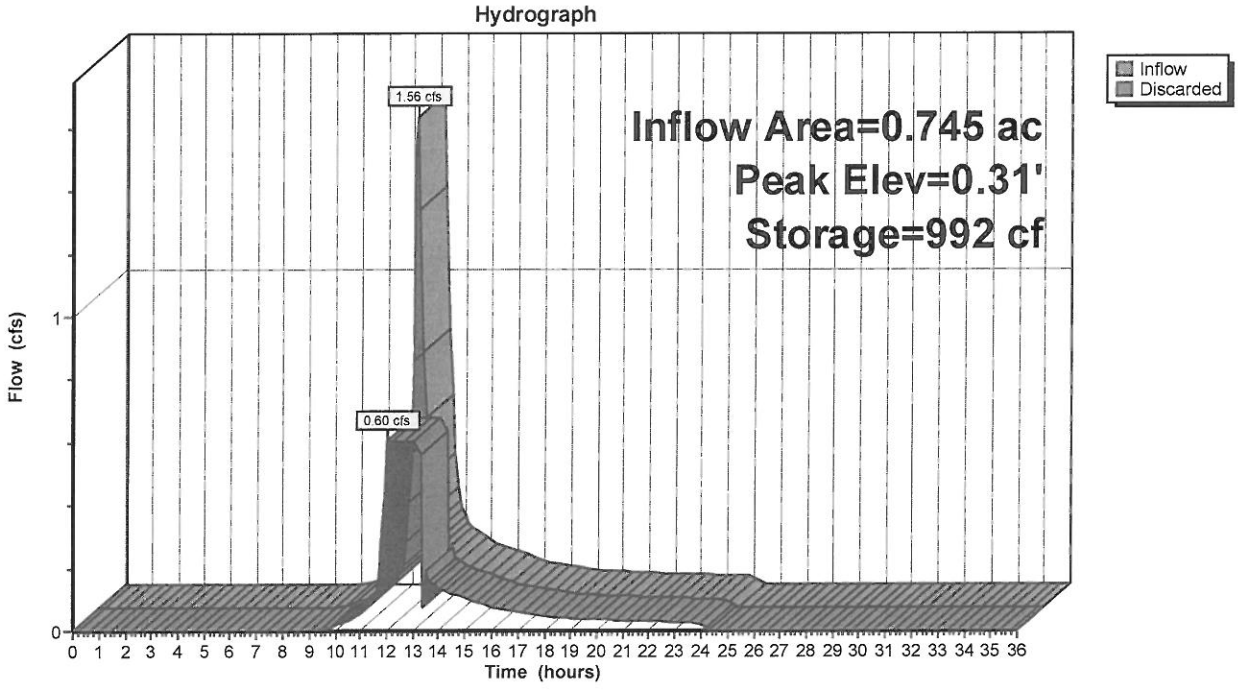
Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 9.0 min (850.6 - 841.6)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	6,490 cf	**104.00'W x 104.00'L x 2.00'H Prismatoid** 21,632 cf Overall x 30.0% Voids

Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	**2.410 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.60 cfs @ 12.00 hrs HW=0.03' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.60 cfs)

Pond BMP1: Stone below pavement



Summary for Pond BMP2: Infiltrator Units

Inflow Area = 0.178 ac, 94.10% Impervious, Inflow Depth = 4.12" for 10 year event
Inflow = 0.66 cfs @ 12.13 hrs, Volume= 0.061 af
Outflow = 0.05 cfs @ 11.00 hrs, Volume= 0.061 af, Atten= 93%, Lag= 0.0 min
Discarded = 0.05 cfs @ 11.00 hrs, Volume= 0.061 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.10 hrs
Peak Elev= 101.22' @ 13.78 hrs Surf.Area= 864 sf Storage= 1,138 cf

Plug-Flow detention time= 194.2 min calculated for 0.061 af (100% of inflow)
Center-of-Mass det. time= 193.7 min (967.3 - 773.6)

Volume	Invert	Avail.Storage	Storage Description
#1A	99.00'	997 cf	**6.33'W x 136.50'L x 4.04'H Field A** 3,494 cf Overall - 1,002 cf Embedded = 2,492 cf x 40.0% Voids
#2A	100.00'	1,002 cf	**Cultec R-330XLHD** x 19 Inside #1 Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap Row Length Adjustment= +1.50' x 7.45 sf x 1 rows
		1,999 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	99.00'	**2.410 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.05 cfs @ 11.00 hrs HW=99.04' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.05 cfs)

Pond BMP2: Infiltrator Units - Chamber Wizard Field A

Chamber Model = Cultec R-330XLHD (Cultec Recharger® 330XLHD)
Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf
Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap
Row Length Adjustment= +1.50' x 7.45 sf x 1 rows

19 Chambers/Row x 7.00' Long +1.50' Row Adjustment = 134.50' Row Length +12.0" End Stone x 2 = 136.50' Base Length
1 Rows x 52.0" Wide + 12.0" Side Stone x 2 = 6.33' Base Width
12.0" Base + 30.5" Chamber Height + 6.0" Cover = 4.04' Field Height

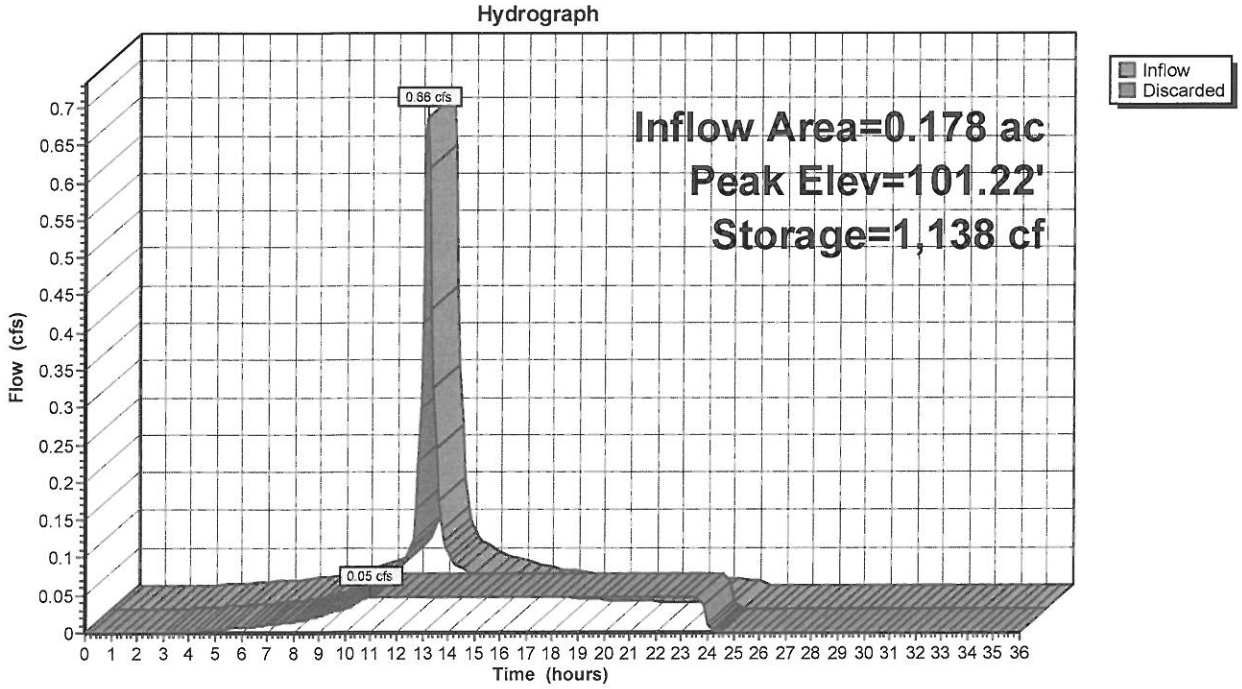
19 Chambers x 52.2 cf +1.50' Row Adjustment x 7.45 sf x 1 Rows = 1,002.2 cf Chamber Storage

3,494.0 cf Field - 1,002.2 cf Chambers = 2,491.9 cf Stone x 40.0% Voids = 996.7 cf Stone Storage

Chamber Storage + Stone Storage = 1,998.9 cf = 0.046 af
Overall Storage Efficiency = 57.2%
Overall System Size = 136.50' x 6.33' x 4.04'

19 Chambers
129.4 cy Field
92.3 cy Stone

Pond BMP2: Infiltrator Units



Time span=0.00-36.00 hrs, dt=0.10 hrs, 361 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment E1: Predevelopment area Runoff Area=40,219 sf 9.38% Impervious Runoff Depth=2.49"
Tc=6.0 min CN=61 Runoff=2.47 cfs 0.191 af

Subcatchment P1: Roof South, Parking, Runoff Area=32,451 sf 56.90% Impervious Runoff Depth=3.89"
Tc=10.0 min CN=75 Runoff=2.77 cfs 0.241 af

Subcatchment P2: Roof North, House, and Runoff Area=7,768 sf 94.10% Impervious Runoff Depth=6.11"
Tc=10.0 min CN=95 Runoff=0.95 cfs 0.091 af

Pond BMP1: Stone below pavement Peak Elev=0.88' Storage=2,853 cf Inflow=2.77 cfs 0.241 af
Outflow=0.60 cfs 0.241 af

Pond BMP2: Infiltrator Units Peak Elev=102.92' Storage=1,958 cf Inflow=0.95 cfs 0.091 af
Outflow=0.05 cfs 0.091 af

Total Runoff Area = 1.847 ac Runoff Volume = 0.523 af Average Runoff Depth = 3.40"
63.27% Pervious = 1.168 ac 36.73% Impervious = 0.678 ac

Summary for Subcatchment E1: Predevelopment area

[49] Hint: Tc<2dt may require smaller dt

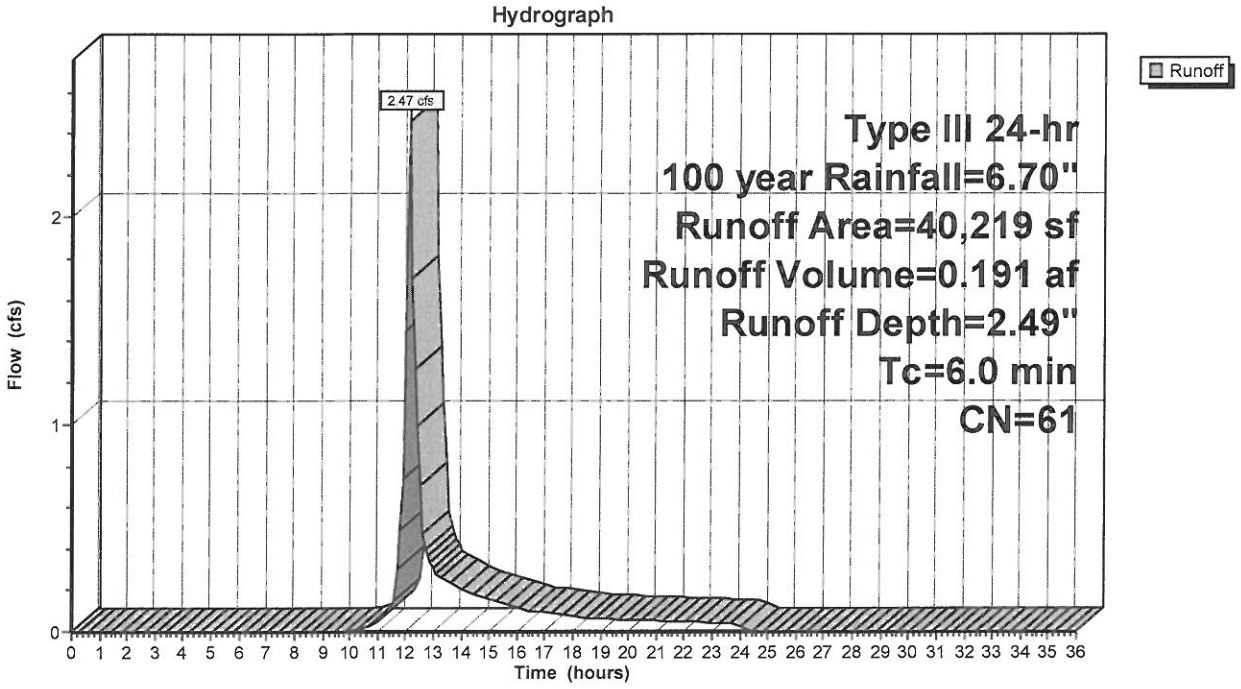
Runoff = 2.47 cfs @ 12.11 hrs, Volume= 0.191 af, Depth= 2.49"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.10 hrs
Type III 24-hr 100 year Rainfall=6.70"

Area (sf)	CN	Description
2,852	98	Roofs, HSG A
919	98	Paved parking, HSG A
36,448	57	Woods/grass comb., Poor, HSG A
40,219	61	Weighted Average
36,448		90.62% Pervious Area
3,771		9.38% Impervious Area

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

Subcatchment E1: Predevelopment area



Summary for Subcatchment P1: Roof South, Parking, and Landscaping

[49] Hint: Tc<2dt may require smaller dt

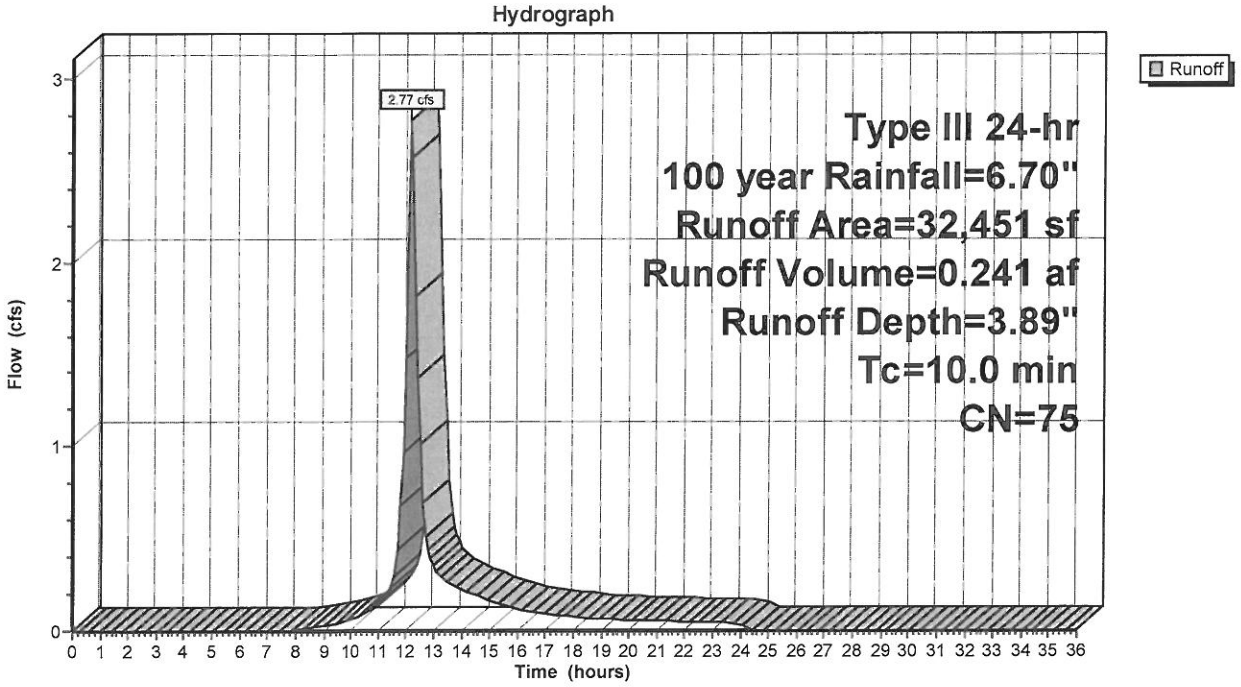
Runoff = 2.77 cfs @ 12.14 hrs, Volume= 0.241 af, Depth= 3.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.10 hrs
Type III 24-hr 100 year Rainfall=6.70"

Area (sf)	CN	Description
14,695	98	Paved parking, HSG A
13,384	43	Woods/grass comb., Fair, HSG A
3,771	98	Roofs, HSG A
601	76	Gravel roads, HSG A
32,451	75	Weighted Average
13,985		43.10% Pervious Area
18,466		56.90% Impervious Area

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

Subcatchment P1: Roof South, Parking, and Landscaping



Summary for Subcatchment P2: Roof North, House, and Landscaping

[49] Hint: Tc<2dt may require smaller dt

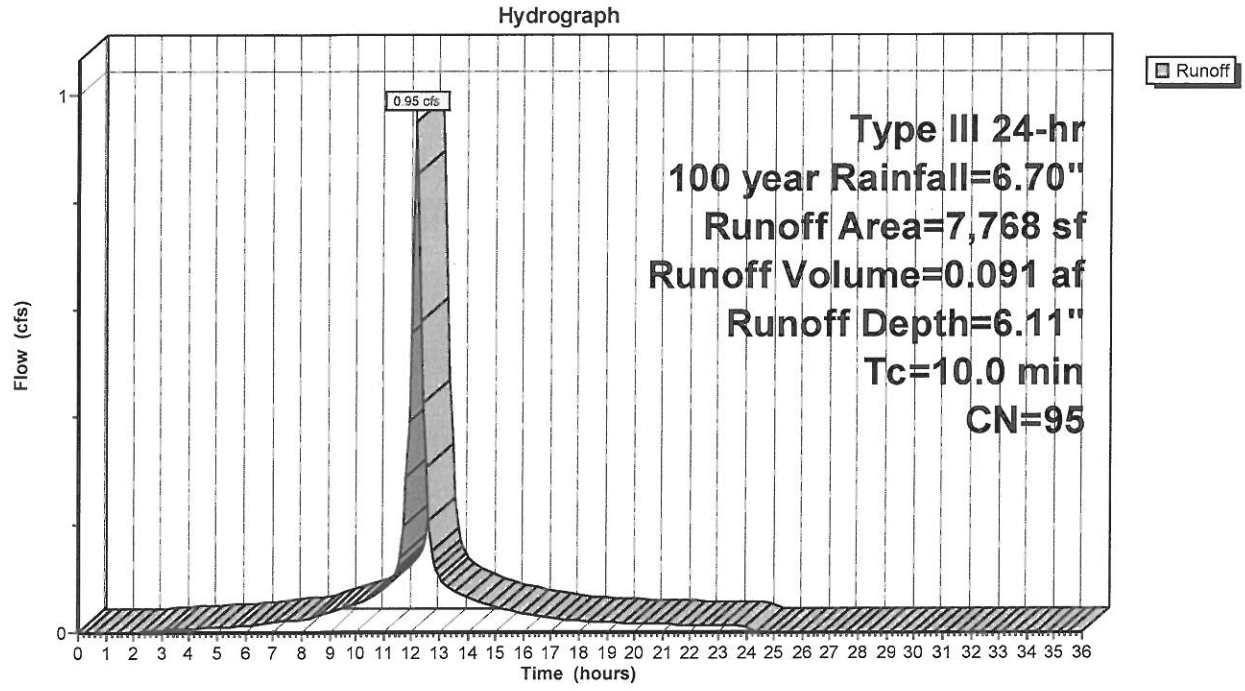
Runoff = 0.95 cfs @ 12.13 hrs, Volume= 0.091 af, Depth= 6.11"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.10 hrs
Type III 24-hr 100 year Rainfall=6.70"

Area (sf)	CN	Description
458	39	>75% Grass cover, Good, HSG A
7,058	98	Roofs, HSG A
252	98	Unconnected pavement, HSG A
7,768	95	Weighted Average
458		5.90% Pervious Area
7,310		94.10% Impervious Area
252		3.45% Unconnected

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

Subcatchment P2: Roof North, House, and Landscaping



Summary for Pond BMP1: Stone below pavement

Inflow Area = 0.745 ac, 56.90% Impervious, Inflow Depth = 3.89" for 100 year event
Inflow = 2.77 cfs @ 12.14 hrs, Volume= 0.241 af
Outflow = 0.60 cfs @ 11.90 hrs, Volume= 0.241 af, Atten= 78%, Lag= 0.0 min
Discarded = 0.60 cfs @ 11.90 hrs, Volume= 0.241 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.10 hrs
Peak Elev= 0.88' @ 12.65 hrs Surf.Area= 10,816 sf Storage= 2,853 cf

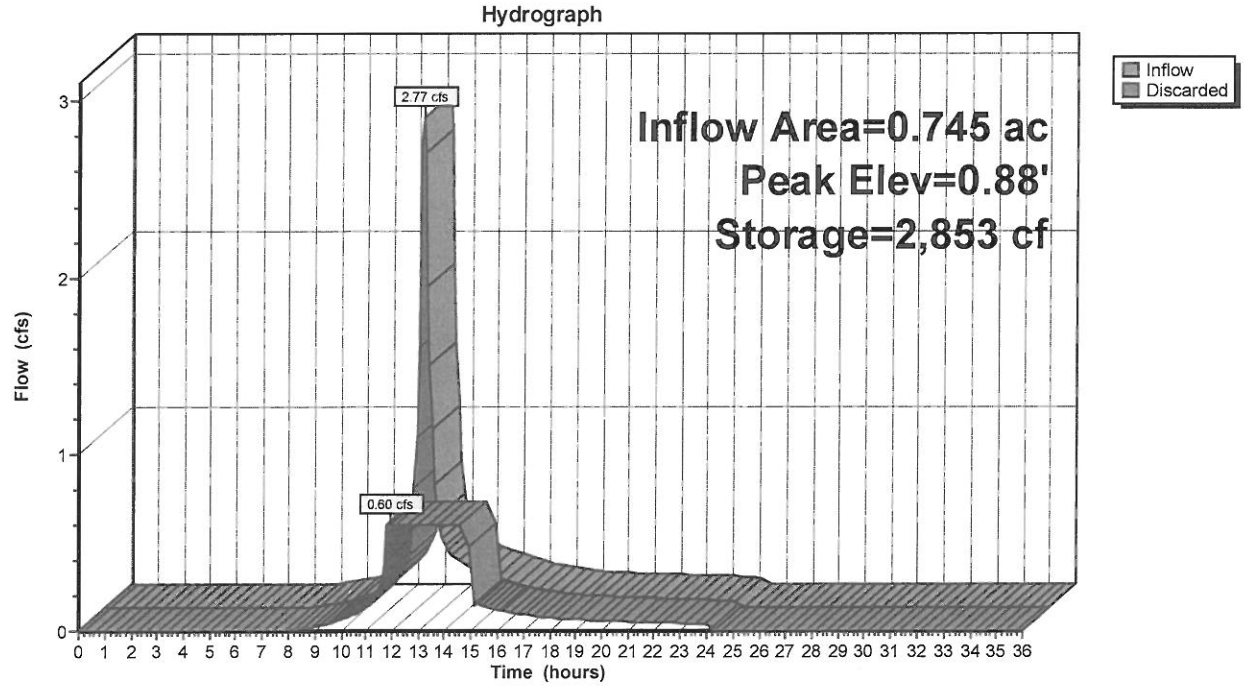
Plug-Flow detention time= 29.8 min calculated for 0.241 af (100% of inflow)
Center-of-Mass det. time= 29.8 min (855.0 - 825.3)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	6,490 cf	**104.00'W x 104.00'L x 2.00'H Prismatoid** 21,632 cf Overall x 30.0% Voids

Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	**2.410 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.60 cfs @ 11.90 hrs HW=0.04' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.60 cfs)

Pond BMP1: Stone below pavement



Summary for Pond BMP2: Infiltrator Units

Inflow Area = 0.178 ac, 94.10% Impervious, Inflow Depth = 6.11" for 100 year event
Inflow = 0.95 cfs @ 12.13 hrs, Volume= 0.091 af
Outflow = 0.05 cfs @ 9.90 hrs, Volume= 0.091 af, Atten= 95%, Lag= 0.0 min
Discarded = 0.05 cfs @ 9.90 hrs, Volume= 0.091 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.10 hrs
Peak Elev= 102.92' @ 14.91 hrs Surf.Area= 864 sf Storage= 1,958 cf

Plug-Flow detention time= 348.3 min calculated for 0.091 af (100% of inflow)
Center-of-Mass det. time= 348.2 min (1,112.9 - 764.7)

Volume	Invert	Avail.Storage	Storage Description
#1A	99.00'	997 cf	**6.33'W x 136.50'L x 4.04'H Field A** 3,494 cf Overall - 1,002 cf Embedded = 2,492 cf x 40.0% Voids
#2A	100.00'	1,002 cf	**Cultec R-330XLHD** x 19 Inside #1 Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap Row Length Adjustment= +1.50' x 7.45 sf x 1 rows
		1,999 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	99.00'	**2.410 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.05 cfs @ 9.90 hrs HW=99.04' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.05 cfs)

Pond BMP2: Infiltrator Units - Chamber Wizard Field A

Chamber Model = Cultec R-330XLHD (Cultec Recharger® 330XLHD)
Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf
Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap
Row Length Adjustment= +1.50' x 7.45 sf x 1 rows

19 Chambers/Row x 7.00' Long +1.50' Row Adjustment = 134.50' Row Length +12.0" End Stone x 2 = 136.50' Base Length
1 Rows x 52.0" Wide + 12.0" Side Stone x 2 = 6.33' Base Width
12.0" Base + 30.5" Chamber Height + 6.0" Cover = 4.04' Field Height

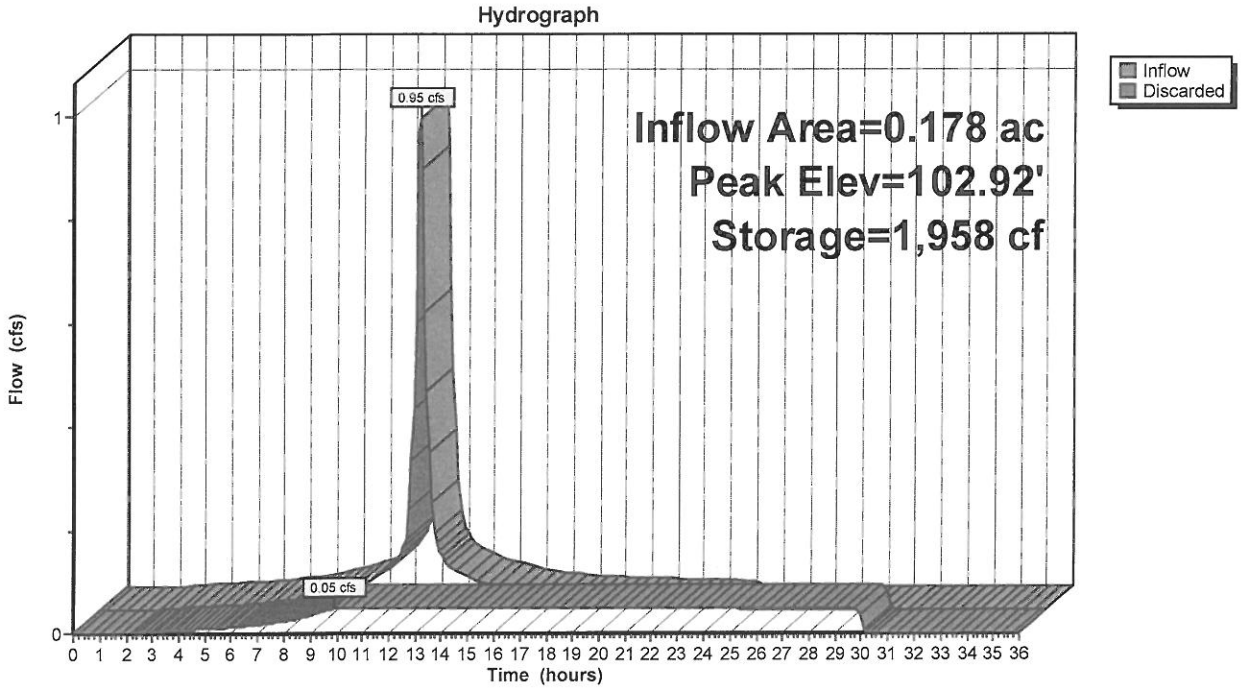
19 Chambers x 52.2 cf +1.50' Row Adjustment x 7.45 sf x 1 Rows = 1,002.2 cf Chamber Storage

3,494.0 cf Field - 1,002.2 cf Chambers = 2,491.9 cf Stone x 40.0% Voids = 996.7 cf Stone Storage

Chamber Storage + Stone Storage = 1,998.9 cf = 0.046 af
Overall Storage Efficiency = 57.2%
Overall System Size = 136.50' x 6.33' x 4.04'

19 Chambers
129.4 cy Field
92.3 cy Stone

Pond BMP2: Infiltrator Units



HydroCAD Drawdown Calculations

Appendix 6

Hydrograph for Pond BMP1: Stone below pavement (continued)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Discarded (cfs)	
20.80	0.05	6	0.00	0.05	
20.90	0.05	6	0.00	0.05	
21.00	0.05	6	0.00	0.05	
21.10	0.05	6	0.00	0.05	
21.20	0.05	6	0.00	0.05	
21.30	0.05	6	0.00	0.05	
21.40	0.05	5	0.00	0.05	
21.50	0.05	5	0.00	0.05	
21.60	0.05	5	0.00	0.05	
21.70	0.05	5	0.00	0.05	
21.80	0.05	5	0.00	0.05	
21.90	0.05	5	0.00	0.05	
22.00	0.05	5	0.00	0.05	
22.10	0.05	5	0.00	0.05	
22.20	0.05	5	0.00	0.05	
22.30	0.05	5	0.00	0.05	
22.40	0.05	5	0.00	0.05	
22.50	0.05	5	0.00	0.05	
22.60	0.04	5	0.00	0.05	
22.70	0.04	5	0.00	0.04	
22.80	0.04	5	0.00	0.04	
22.90	0.04	5	0.00	0.04	
23.00	0.04	5	0.00	0.04	
23.10	0.04	5	0.00	0.04	
23.20	0.04	5	0.00	0.04	
23.30	0.04	4	0.00	0.04	
23.40	0.04	4	0.00	0.04	
23.50	0.04	4	0.00	0.04	
23.60	0.04	4	0.00	0.04	
23.70	0.04	4	0.00	0.04	
23.80	0.04	4	0.00	0.04	
23.90	0.04	4	0.00	0.04	
24.00	0.04	4	0.00	0.04	
24.10	0.03	3	0.00	0.03	
24.20	0.01	2	0.00	0.02	
24.30	0.00	0	0.00	0.00	Basin drawdown achieved within 72 hours
24.40	0.00	0	0.00	0.00	
24.50	0.00	0	0.00	0.00	
24.60	0.00	0	0.00	0.00	
24.70	0.00	0	0.00	0.00	
24.80	0.00	0	0.00	0.00	
24.90	0.00	0	0.00	0.00	
25.00	0.00	0	0.00	0.00	
25.10	0.00	0	0.00	0.00	
25.20	0.00	0	0.00	0.00	
25.30	0.00	0	0.00	0.00	
25.40	0.00	0	0.00	0.00	
25.50	0.00	0	0.00	0.00	
25.60	0.00	0	0.00	0.00	
25.70	0.00	0	0.00	0.00	
25.80	0.00	0	0.00	0.00	
25.90	0.00	0	0.00	0.00	

Hydrograph for Pond BMP2: Infiltrator Units (continued)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Discarded (cfs)	
26.00	0.00	702	100.54	0.05	
26.10	0.00	685	100.51	0.05	
26.20	0.00	667	100.49	0.05	
26.30	0.00	650	100.46	0.05	
26.40	0.00	633	100.43	0.05	
26.50	0.00	615	100.41	0.05	
26.60	0.00	598	100.38	0.05	
26.70	0.00	580	100.35	0.05	
26.80	0.00	563	100.33	0.05	
26.90	0.00	546	100.30	0.05	
27.00	0.00	528	100.28	0.05	
27.10	0.00	511	100.25	0.05	
27.20	0.00	494	100.22	0.05	
27.30	0.00	476	100.20	0.05	
27.40	0.00	459	100.17	0.05	
27.50	0.00	442	100.14	0.05	
27.60	0.00	424	100.12	0.05	
27.70	0.00	407	100.09	0.05	
27.80	0.00	389	100.07	0.05	
27.90	0.00	372	100.04	0.05	
28.00	0.00	355	100.01	0.05	
28.10	0.00	337	99.98	0.05	
28.20	0.00	320	99.93	0.05	
28.30	0.00	303	99.88	0.05	
28.40	0.00	285	99.83	0.05	
28.50	0.00	268	99.77	0.05	
28.60	0.00	251	99.72	0.05	
28.70	0.00	233	99.67	0.05	
28.80	0.00	216	99.62	0.05	
28.90	0.00	198	99.57	0.05	
29.00	0.00	181	99.52	0.05	
29.10	0.00	164	99.47	0.05	
29.20	0.00	146	99.42	0.05	
29.30	0.00	129	99.37	0.05	
29.40	0.00	112	99.32	0.05	
29.50	0.00	94	99.27	0.05	
29.60	0.00	77	99.22	0.05	
29.70	0.00	60	99.17	0.05	
29.80	0.00	42	99.12	0.05	
29.90	0.00	25	99.07	0.05	
30.00	0.00	10	99.03	0.03	
30.10	0.00	2	99.01	0.01	
30.20	0.00	1	99.00	0.00	Basin drawdown achieved within 72 hours
30.30	0.00	0	99.00	0.00	
30.40	0.00	0	99.00	0.00	
30.50	0.00	0	99.00	0.00	
30.60	0.00	0	99.00	0.00	
30.70	0.00	0	99.00	0.00	
30.80	0.00	0	99.00	0.00	
30.90	0.00	0	99.00	0.00	
31.00	0.00	0	99.00	0.00	
31.10	0.00	0	99.00	0.00	

Long-Term Operation and Maintenance Plan

Appendix 7

The following shall serve as the (O&M) Plan required by Standard 9, as well as the Long-Term Pollution Prevention Plan required by Standard 4.

A. Names of Persons or Entity Responsible for Plan Compliance;

Applicant: Dennis M. DiSchino
868 Worcester Street
Wellesley, Ma 02482

B. Good housekeeping practices

1. Maintain site, landscaping and vegetation.
2. Sweep and pick up litter on pavements and grounds.
3. Deliveries shall be monitored by owners or representative to ensure that if any spillage occurs, it shall be contained and cleaned up immediately.
4. Maintain pavement and curbing in good repair.

C. Requirements for routine inspections and maintenance of stormwater BMPs

1. Plans: The stormwater Operation and Maintenance Plan shall consist of all Plans, documents and all local state and federal approvals as required for the subject property.
2. Record Keeping:
   a. Maintain a log of all operation and maintenance activities for at least three years following construction, including inspections, repairs, replacement and disposal (for disposal, the log shall indicate the type of material and the disposal location);
   b. Make this log available to MassDEP and the Conservation Commission upon request; and
   c. Allow MassDEP and the Conservation Commission to inspect each BMP to determine whether the responsible party is implementing the Operation and Maintenance Plan.
3. Descriptions and Designs: The Best Management Practices (BMP) incorporated into the design include the following;
   a. Street Sweeping – Stipulated within the Construction Period Pollution Prevention Plan, the Long-Term Pollution Prevention Plan, and the Operation and Maintenance Plan. As the amount of TSS removal is discretionary, no credit was taken within the calculations for this BMP.
   b. Existing leaching catch basin installed to promote TSS Removal of solids and control floatable pollutants. This BMP has a design rate of 25% TSS Removal.
4. BMP Maintenance: After construction it is the responsibility of the owner to perform maintenance. The cleaning of the components of the stormwater management system shall generally be as follows:
   a. Roadway: The owner shall keep the roadway swept with a mechanical sweeper or hand swept semi-annually at a minimum.
   b. Catch Basins: Shall be cleaned by excavating, pumping or vacuuming. The sediment shall be disposed of off-site by the Owner. Inspect quarterly, remove silt when ¼ full.
5. Access Provisions: All of the components of the storm water system will be accessible by the Owner

D. Spill prevention and response plans

1. Inventory materials to be present on-site during construction.
2. Train employees and subcontractors in prevention and clean up procedures.
3. All materials stored on site will be stored in their appropriate containers under a roof.
4. Follow manufacturer's recommendation for disposal of used containers.

5. Store only enough product on site to do the job.
6. On site equipment, fueling and maintenance measures:
    a. Inspect on-site vehicles and equipment daily for leaks.
    b. Conduct all vehicle and equipment maintenance and refueling in one location, away from storm drains.
    c. Perform major repairs and maintenance off site.
    d. Use drip pans, drip cloths or absorbent pads when replacing spent fuels.
    e. Collect spent fuels and remove from site.
7. Clean up spills.
    a. Never hose down "dirty" pavement or impermeable surfaces where fluids have spilled. Use dry clean up methods (sawdust, cat litter and/or rags and absorbent pads).
    b. Sweep up dry materials immediately. Never wash them away or bury them.
    c. Clean up spills on dirt areas by digging up and properly disposing of contaminated soil.
    d. Report significant spills to the Fire Department, Conservation Commission and Board of Health.

E. Provisions for maintenance of lawns, gardens, and other landscaped areas
Use only organic fertilizer. Dispose of clippings outside of the 100-foot buffer zone adjacent to any wetlands found within the project vicinity.

F. Requirements for storage and use of herbicides, and pesticides
The application of herbicides or pesticides will be completed by certified professionals.

G. Provisions for operation and management of septic system
Site to be serviced by municipal sewer.

H. Provisions for solid waste management
1. Waste Management Plan
    a. Dumpster for trash and bulk waste collection shall be stored as indicated on the Site Development Plan.
    b. Recycle materials whenever possible (paper, plaster cardboard, metal cans). Separate containers for material are recommended.
    c. Do not bury waste and debris on site.
    d. Certified haulers will be hired to remove the dumpster container waste as needed. Recycling products will also be removed off site weekly.

I. Snow disposal and plowing plans relative to Wetland Resource Areas
Snow storage is adequate around the site for large storm events.

J. Winter Road Salt and/or Sand Use and Storage restrictions
No sand, salt, or chemicals for de-icing will be used on-site to prevent clogging and degradation of porous pavement.

K. Porous Pavement Maintenance

New porous pavements should be inspected several times in the first few months after construction and at least annually thereafter. Inspections should be conducted after major storms to check for surface ponding that might indicate possible clogging.

It is recommended that vacuum sweeping be performed at least twice a year. In environments where larger amounts of fine materials are present, the frequency should be increased accordingly.

It is very important that sand and abrasives not be used for winter maintenance, as they will clog the pores; de-icing materials should be used instead. The University of New Hampshire's research suggests that porous asphalt retards the formation of ice on the pavement surface, so that the use of de-icing compounds may be drastically curtailed.

Porous pavement that has become clogged can be restored using large pressure washing/vacuum equipment.

If the porous pavement is damaged, it can be repaired using conventional, non-porous patching mixes, as long as the cumulative area repaired does not exceed 10 percent of the paved area.

L. Provisions for prevention of illicit discharges to the stormwater management system
The discharge into the stormwater system is not being violated, see attachment for illicit discharges compliance.

M. Training the staff or personnel involved with implementing Long-Term Pollution Prevention Plan
The owner shall develop policies and procedures for containing the illicit spilling of oils, soda, beer, paper and litter. These wastes provide a degradation to the water quality. The placement of signs and trash barrels with lids around the site would aid in contributing to clean water quality site conditions.

N. List of Emergency contacts for implementing Long-Term Pollution Prevention Plan:

Dennis M. DiSchino
868 Worcester Street
Wellesley, Ma 02482

This shall be the contact until such time as the project is sold or the roads are accepted by the Town.

Construction Period Pollution Prevention Plan

Appendix 8

Construction Period Pollution Prevention Plan and Erosion and Sedimentation Control.
EPA NPDES – Storm Water Pollution Prevention Plan (SWPPP)

A. Names of Persons or Entity Responsible for Plan Compliance

Applicant: Dennis M. DiSchino
868 Worcester Street
Wellesley, Ma 02482

B. Construction Period Pollution Prevention Measures

1. Inventory materials to be present on-site during construction.
2. Train employees and subcontractors in prevention and clean up procedures.
3. All materials stored on site will be stored in their appropriate containers and if possible, under a roof or covered.
4. Follow manufacturer's recommendation for disposal of used containers.
5. Store only enough product on site to do the job.
6. On site equipment, fueling and maintenance measures:
   a. Inspect on-site vehicles and equipment daily for leaks.
   b. Conduct all vehicle and equipment maintenance and refueling in front of building, away from storm drains.
   c. Perform major repairs and maintenance off site and away from any storm drains.
   d. Use drip pans, drip cloths or absorbent pads when replacing spent fuels.
   e. Collect spent fuels and remove from site, per Local and State regulations.
   f. Maintain a clean construction entrance where truck traffic is frequent. Constant sweeping is required to limit tracking of sediment into streets, streets must be swept when silt is observed on street.
7. Stock pile materials and maintain Erosion Control around the materials where it can easily be accessed. Maintain easy access to clean up materials to include brooms, mops, rags gloves, goggles, sand, sawdust, plastic and metal trash containers.
8. Clean up spills.
   a. Never hose down "dirty" pavement or impermeable surfaces where fluids have spilled. Use dry clean up methods (sawdust, cat litter and/or rags and absorbent pads).
   b. Sweep up dry materials immediately. Never wash them away or bury them.
   c. Clean up spills on dirt areas by digging up and properly disposing of contaminated soil in a certified container and notify a certified hauler for removal.
   d. Report significant spills to the Fire Department.
9. It is the responsibility of the site superintendent or employees designated by the Applicant to inspect erosion control and repair as needed, also to inspect all on site vehicles for leaks and check all containers on site that may contain hazardous materials daily.

C. Erosion and Sedimentation Control Plan;

1. See Sheet 3 prepared by Guerriere & Halnon, Inc.

D. Site Development Plans;

1. See Sheet 3 prepared by Guerriere & Halnon, Inc.

E. Construction Plans

1. Construction Sequencing Plan
   a. Prior to any work on the site including tree/brush clearing, the approved limit of clearing as well as the location of the proposed erosion control devices (such as silt

fence/straw bales, etc.) must be staked on the ground under the direction of a Massachusetts registered Professional Land Surveyor.

b. Install silt fence/hay bales at locations
c. Strip off top and subsoil. Stockpile material to be reused, remove excess material from the site. Install and maintain erosion control barrier around stockpile.
d. Rough grade site
e. Install binder course of bituminous asphalt.
f. Install wearing course of asphalt, and striping (where required).
g. Maintain all erosion control devices until site is stabilized
h. The Contractor shall be responsible to schedule any required inspections of his/her work.

2. Construction Waste Management Plan
   a. Dumpster for trash and bulk waste collection shall be provided separately for construction.
   b. Recycle materials whenever possible (paper, plaster cardboard, metal cans). Separate containers for material are recommended.
   c. Segregate and provide containers for disposal options for waste.
   d. Do not bury waste and debris on site.
   e. Certified haulers will be hired to remove the dumpster container waste as needed. Recycling products will also be removed off site weekly.
   f. The sewer system is only for disposal of human waste, and substances permitted for disposal in the site sewer permit with the Town B.O.H..

F. Operation and Maintenance of Erosion and Sedimentation Controls

The operation and maintenance of sedimentation control shall be the responsibility of the contractor. The inspection and maintenance of the stormwater component shall be performed as noted below. The contractor shall have erosion control in place at all times. The contractor, based on future weather reports, shall prepare and inspect all erosion control devices; cleaning, repairing and upgrading is a priority so that the devices perform as per design. Inspect the site during rain events. Don't stay away from the site. At a minimum there should be inspection to assure the devices are not clogged or plugged, or that devices have not been destroyed or damaged during the rain event. After a storm event inspection is required to clean and repair any damage components. Immediate repair is required.

G. Inspection and Maintenance Schedules

1. Inspection must be conducted at least once every 7 days and within 24 hours of the end of a storm event 0.5 inches or greater.
2. Inspection frequency can be reduced to once a month if:
   a. The site is temporarily stabilized.
   b. Runoff is unlikely due to winter conditions, when site is covered with snow or ice.
3. Inspections must be conducted by qualified personnel, "qualified personnel" means a person knowledgeable in the principles and practice of erosion and sediment controls and who possess the skills to assess the conditions and take measures to maintain and ensure proper operation, also to conclude if the erosion control methods selected are effective.
4. For each inspection, the inspection report must include: (See attached inspection and maintenance log)
   a. The inspection date.
   b. Names, titles of personnel making the inspection.
   c. Weather information for the period since the last inspection.
   d. Weather information at the time of the inspection.
   e. Locations of discharges of sediment from the site, if any.

f. Locations of BMP's that need to be maintained.
g. Locations where additional BMP's may be required.
h. Corrective action required or any changes to the SWPPP that may be necessary.

5. The owner, or their representative, such as the contractor, shall inspect the following in-place work;

Inspection Schedule:	
Erosion Control	Weekly
Catch Basins	Weekly
Temporary Sedimentation Traps/Basins	Weekly
Street Sweeping	Weekly

Please Note: Special inspections shall also be made after a significant rainfall event.

Maintenance Schedule	
Erosion Control Devices Failure	Immediately
Catch Basins	Sump 1/4 full of sediment
Street Sweeping	14 days minimum and prior to any significant rain event.

Please Note: Special maintenance shall also be made after a significant rainfall event.

H. Inspection and Maintenance Log Form. (Log Form Follows)

Illicit Discharge Statement

Appendix 9

Illicit Discharge Compliance Statement

It is the intent of the Applicant, Dennis M. DiSchino, 868 Worcester Street, Wellesley, Ma 02482 to control illicit disposal into the storm drainage system. There will be no connection to the storm water system to inadvertently direct other types of liquids, chemicals or solids into the storm drainage system. The Applicant will also promote a clean green environment by mitigating spills onto pavements; oils, soda, chemicals, pet waste, debris and litter.

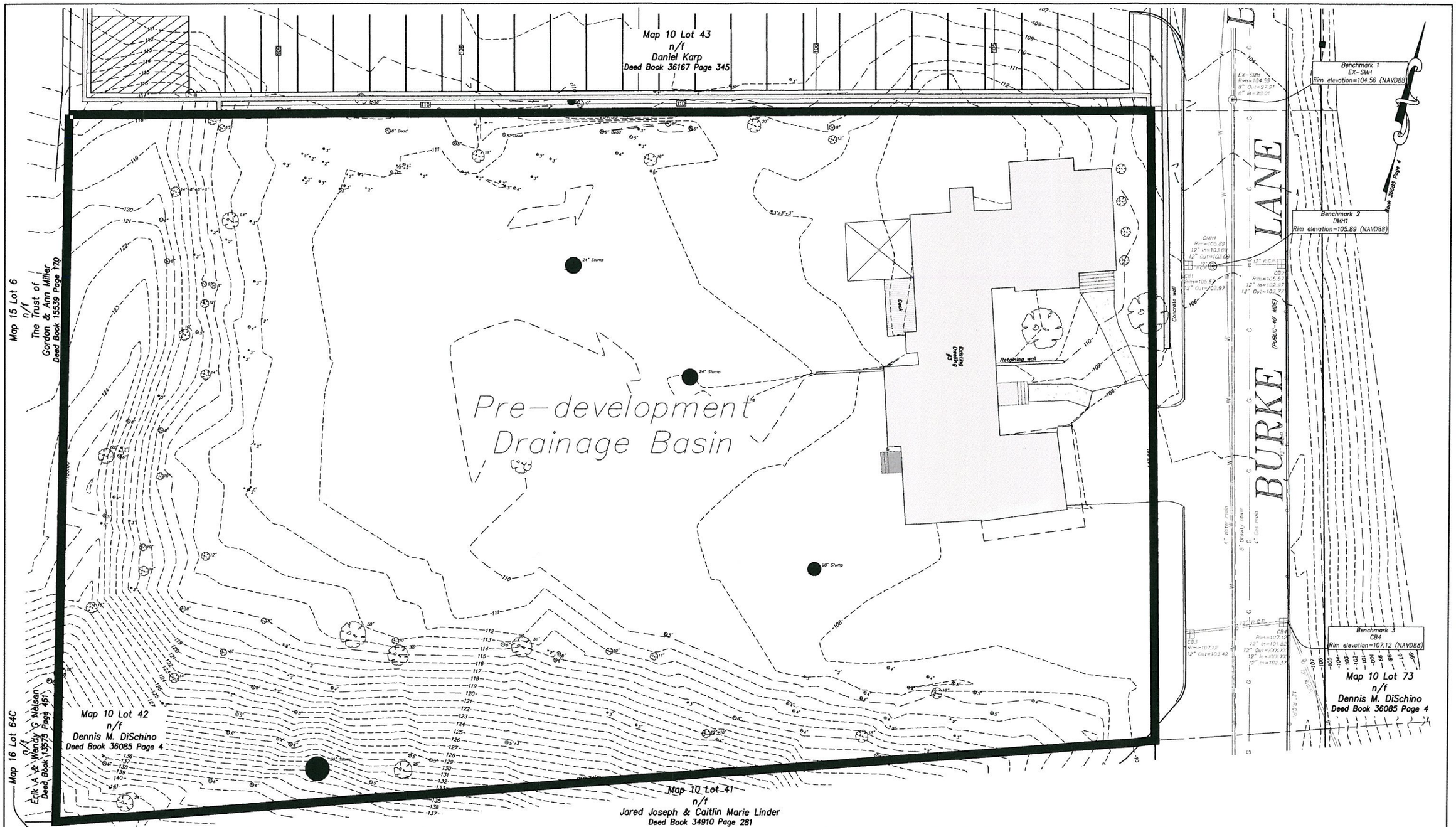
Respectfully Acknowledged,

_____

Dennis DiSchino

Drainage Plans

Appendix 10



Pre-development Plan
for
#3 Burke Lane
in
Wellesley, MA

Prepared for:
Cedar Place, LLC
868 Worcester Street
Wellesley, MA 02482

0 10 20
5 15
Scale: 1"=10'
April 16, 2019

#	Date	Description	By

Legend

—X—	Siltation Control	—S—	Sewer Line
--256--	Existing Contour	—D—	Drain Line
256	Proposed Contour	—W—	Water Line
D	Drainage Manhole	—FD—	Foundation Drain
S	Sewer Manhole	—RD—	Roof Drain
	Utility Pole	—OHW—	Overhead Wires
	Water Valve	C.L.D.I.	Cement Line Ductile Iron
E.O.P.	Edge of Pavement	B.S.	Bottom of Stone
R.C.P.	Reinforced Concrete Pipe	T.S.	Top of Stone
C.C.B.	Cape Cod Berm		

Notes:
1. There were no existing wetlands found on site.
2. All utilities, structures, and roadways shown on these plans are proposed unless otherwise noted as existing.
3. All units to be serviced by Town of Wellesley water and sewer.
4. All elevations refer to North American Vertical Datum 88 (NAVD88). To convert to the Town of Wellesley base datum, add 6.286' to the NAVD88 elevation.

DATE:

DATE:

Guerriere & Halnon, Inc.
ENGINEERING & LAND SURVEYING
1029 Providence Road PH. (508) 234-6834
Whitinsville, MA 01588 FX. (508) 234-6723
www.gandhengineering.com

SHEET 1 OF 2

W-3209

Map 10 Lot 43
n/f
Daniel Karp
Deed Book 36167 Page 345

Map 15 Lot 6
n/f
The Trust of
Gordon & Ann Miller
Deed Book 15539 Page 170

Proposed
15 Unit Residence
First floor elevation = 114.0
Basement elevation = 103.0

Post-development
Drainage Basin

Erosion control barriers
and limit of work (typical)

Existing Building

Retaining wall

Deck

Concrete wall

BURKE LANE (PUBLIC-40' WIDE)

Benchmark 1
EX-SMH
Rim elevation=104.56 (NAVD88)

Book 36085 Page 4

Benchmark 2
DMH1
Rim elevation

Testing Information

DTH 4

110.99	A Sandy Loam	0"
110.49	C1 Loamy Sand 5Y 6/3	6"
103.99	C2 Sand 5Y 6/3	84"
100.99		120"

Perc depth ● N/A Weeping ● N/A
Refusal depth ● N/A Mottles ● N/A
Soil class N/A Water ● N/A
Estimated seasonal high groundwater not observed at elevation 100.99.

DTH 5

109.42	A Sandy Loam	0"
108.92	C1 Loamy Sand 5Y 6/3	6"
108.42	C2 Sand 5Y 6/3	36"
99.42		120"

Perc depth ● N/A Weeping ● N/A
Refusal depth ● N/A Mottles ● N/A
Soil class N/A Water ● N/A
Estimated seasonal high groundwater not observed at elevation 99.42.

DTH 6

108.74	A Sandy Loam	0"
108.24	C1 Loamy Sand 5Y 6/3	6"
106.74	C2 Sand 5Y 6/3	24"
98.74		120"

Perc depth ● N/A Weeping ● N/A
Refusal depth ● N/A Mottles ● N/A
Soil class N/A Water ● N/A
Estimated seasonal high groundwater not observed at elevation 98.74.

Benchmark 3
CB4
Rim elevation=107.12 (NAVD88)

Map 10 Lot 73
n/f
Dennis M. DiSchino
Deed Book 36085 Page 4

Map 10 Lot 42
n/f
Dennis M. DiSchino
Deed Book 36085 Page 4

Map 16 Lot 64C
n/f
Erik A & Wendy C Nelson
Deed Book 13579 Page 461

Erosion control barriers
and limit of work (typical)

Map 10 Lot 41
n/f
Jared Joseph & Caitlin Marie Linder
Deed Book 34910 Page 281

	R-330XLHD
MINIMUM COVER ELEV.	111.90
TOP OF STONE	103.04
12" INLET	101.00
12" OUTLET	101.00
BOTTOM OF CHAMBER	100.00
BOTTOM OF FOUNDATION STONE	99.00

Post-development Plan
for
#3 Burke Lane
in
Wellesley, MA

Prepared for:
Cedar Place, LLC
868 Worcester Street
Wellesley, MA 02482

0 5 10 15 20
Scale: 1"=10'
April 16, 2019

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Legend

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DATE:

DATE:

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SHEET 2 OF 2

W-3209