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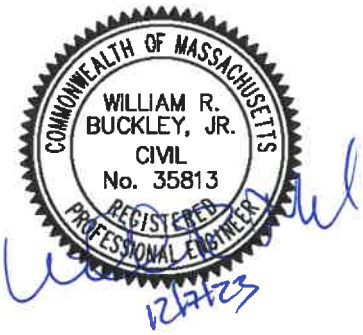
# Storm Water Analysis and Management Report
# The Homes at 73 Main Street
# Foxborough, MA




**November, 2023**

Prepared for:

Briarwood Construction Corp.
31 Belmont Street
South Easton, MA 02375

**Table of Contents:**

## 1.0 Introduction

The project involves the construction of an 8-unit townhome building on a 1.38-acre parcel of land located on the northeastern side of Main Street 315' northwest of the intersection with Garfield Street. The property is located within the Residential R-15 Zoning District and is bordered by residential properties on all sides. **Figure 1** is an extract from the USGS Wrentham quadrangle and shows the site locus.

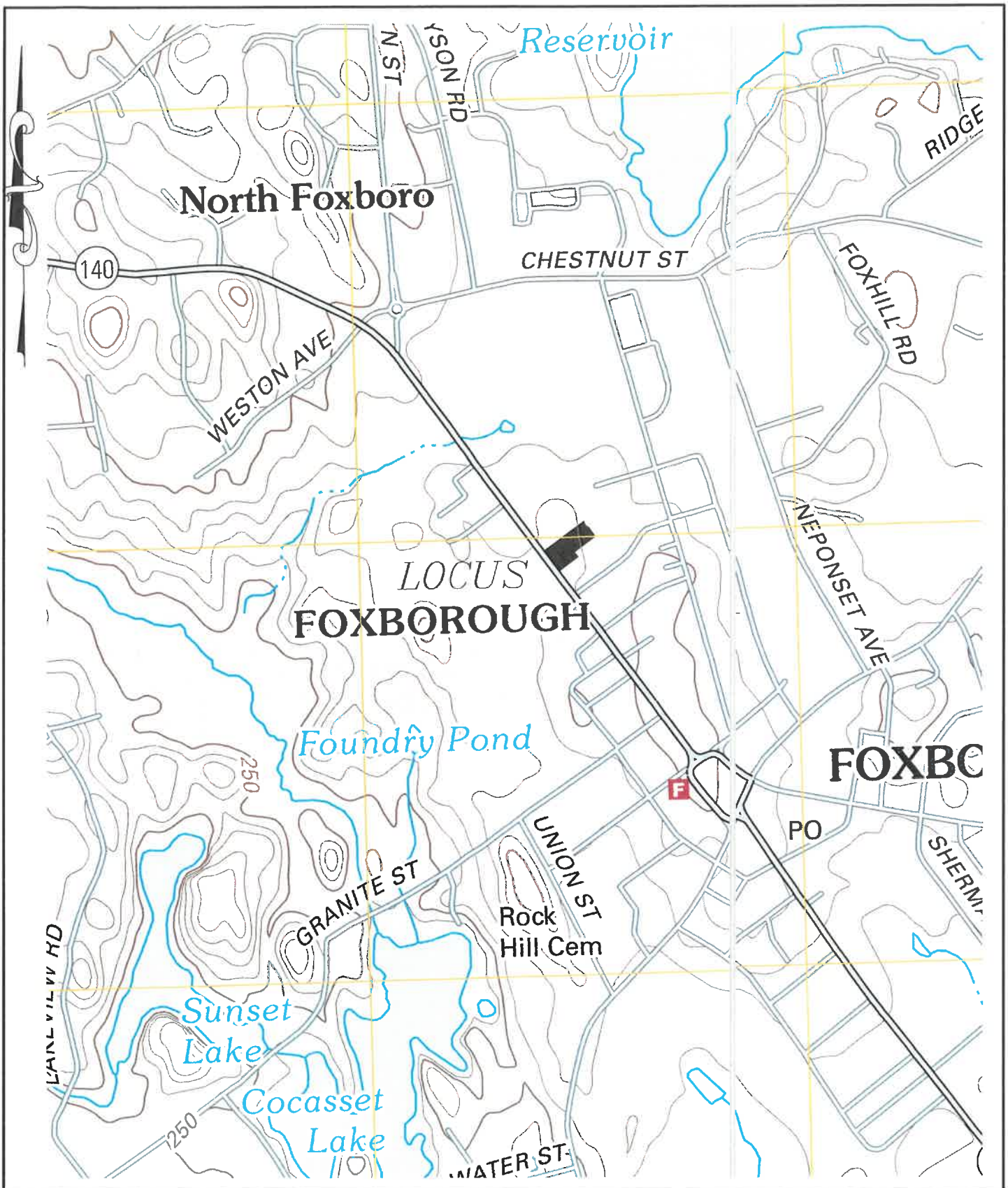
Bay Colony Group, Inc. conducted a storm water management study to ensure that the proposed project meets the ten MA DEP Storm Water Management Standards, the storm water standards outlined in the Town of Foxborough Stormwater Management Bylaws, and standard engineering practice. The scope of this study includes:

- Determining existing flood conditions and storm water quality calculations and analysis;
- Developing proposed flood conditions and storm water quality calculations and analysis;
- Designing a storm water management system.

## 2.0 Existing Conditions

The site is located on Main Street on a parcel of land listed as Assessors' Map 066, Parcel 034/000. The property contains an existing multi-family home. The high point of the site is at elevation 297' in the northeastern portion of the property, it then slopes to the southwest to elevation 288' in the central portion of the property. Then up to elevation 290' at the existing home before sloping down towards Main Street.

The NRCS has logged the soils on the site as Scio very fine sandy loam, Merrimac fine sandy loam and Merrimac-Urban land complex **Appendix D**. Merrimac fine sandy loam and Merrimac-Urban land complex soils are A soils. The Scio very fine sandy loam soil is a mixture of B and D soils. For the purposes of this report, we have assumed a mixture of 50% B soil and 50% D soil. BCG has conducted soil evaluations throughout the site to determine the general soil condition, depth to ground water and depth to refusal in order to design a storm water system in accordance with the DEP Stormwater Standards and a septic system in accordance with the State Sanitary Code, Title 5. We also conducted a laboratory textural analysis in accordance with Standard 3 of the DEP Stormwater Standards. A laboratory sieve analysis was run on the sample under the subsurface infiltration basin and the textural analysis determined that the soils are Sandy Loam. The RAWLS table found in the DEP Stormwater Management Standards, Volume 3, Chapter 1 yields an infiltration rate of 1.02 inches per hour for Sandy Loam. All test holes and percolation test for the septic system were witnessed by the Town of Foxborough Health Department. Copies of the soil logs and laboratory textural analyses are included in **Appendix D** and the locations of the test pits are shown on the existing conditions plan **Sheet 2**.

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USGS QUADRANGLE EXTRACT
73 MAIN STREET
FOXBOROUGH, MA
WRENTHAM QUADRANGLE
SCALE: 1"= 1000'

## 3.0 Flood Condition Analyses and Flood Control

The storm water management system will consist of roof drainage, driveway and parking area drainage (runoff collection, pretreatment, and conveyance) and flood control and treatment. This report will concentrate on the storm water basin designs, the ten DEP storm water management standards and the Town of Foxborough performance standards. It shall comply with all other requirements and will improve the existing condition.

There were no existing storm water management facilities observed on-site and a majority of runoff from the site flows to the western property lines with the remainder of the site flowing to the eastern property line and Main Street. The proposed design will achieve runoff control through a system that includes a subsurface infiltration basin located in the southwest portion of the property along Main Street. The storm water basin will capture, treat, infiltrate and control the runoff from the roof, driveway and parking area. All of the runoff from the pavement will be pretreated by deep sump catch basins with oil traps, before discharging to the basin. The basins have been designed to accommodate runoff up to and including the 100-year storm event. The system will ensure that the post-development rate of runoff is less than the pre-development condition.

The current land uses are woodland and an existing multi-family building along with the associated parking and yard. The proposed land uses will be similar including an 8-unit multi-family building, driveway, parking, lawn, landscape and woods. The land uses for existing and proposed conditions are summarized in **Tables 1a** and **1b**. As previously discussed, the site flows to the eastern property line, western property line and Main Street. These will be the 3 study lines to develop the existing and proposed condition models. Subarea EA flows to the western property line, Subarea EB flows to the eastern property line and Subarea EC flows towards Main Street. See the plan in **Appendix A – Existing Subareas**

**Table 1a – Summary of Existing Land Uses**

| Subarea | Total Area (acre) | Land use | Area (acre) |
|---|---|---|---|
| EA | 0.790 | Roofs, HSG A | 0.050 |
| | | >75% Grass cover, Good, HSG A | 0.060 |
| | | Woods, Fair, HSG A | 0.180 |
| | | Woods, Fair, HSG B | 0.250 |
| | | Woods, Fair, HSG D | 0.250 |
| EB | 0.320 | Paved parking, HSG A | 0.010 |
| | | >75% Grass cover, Good, HSG A | 0.090 |
| | | >75% Grass cover, Good, HSG B | 0.010 |
| | | >75% Grass cover, Good, HSG D | 0.010 |
| | | Woods, Good, HSG A | 0.200 |
| EC | 0.270 | >75% Grass cover, Good, HSG A | 0.160 |
| | | Woods, Good, HSG A | 0.020 |
| | | Paved parking, HSG A | 0.090 |
| Total: | 1.380 | Total: | 1.380 |

For the proposed conditions the watershed is divided in to four separate subareas. Subarea DA sheet flows towards the western property line, Subarea DB sheet flows towards the eastern property line, Subarea DC contains the building and parking area and discharges to the subsurface storm water basin and Subarea DC-1 sheet flows to Main Street. See the plan in **Appendix A – Developed Subareas**

**Table 1b – Summary of Proposed Land Uses**

| Subarea | Total Area (acre) | Land use | Area (acre) |
|---|---|---|---|
| DA | 0.530 | >75% Grass cover, Good, HSG A | 0.140 |
| | | >75% Grass cover, Good, HSG B | 0.125 |
| | | >75% Grass cover, Good, HSG D | 0.125 |
| | | Woods, Fair, HSG B | 0.070 |
| | | Woods, Fair, HSG D | 0.070 |
| DB | 0.230 | >75% Grass cover, Good, HSG A | 0.200 |
| | | >75% Grass cover, Good, HSG B | 0.015 |
| | | >75% Grass cover, Good, HSG D | 0.015 |
| DC | 0.620 | Roofs, HSG A | 0.170 |
| | | Roofs, HSG B | 0.030 |
| | | Roofs, HSG D | 0.030 |
| | | Paved Parking, HSG A | 0.230 |
| | | Paved Parking, HSG B | 0.020 |
| | | Paved Parking, HSG D | 0.020 |
| DC-1 | 0.120 | >75% Grass cover, Good, HSG A | 0.120 |
| | | | |
| Total: | 1.380 | Total: | 1.380 |

The runoff conditions based on the land uses in **Tables 1a** and **1b** are summarized in **Table 2** and detailed calculations can be found in **Appendix A**. Storm water control is necessary due to the change in land use.

**Table 2: Summary of Peak Runoff (cfs) at the Study Lines**

| Condition | | 2-year (cfs) | 10-year (cfs) | 100-year (cfs) |
|---|---|---|---|---|
| Existing Conditions | Main Street | 0.0 | 0.2 | 0.6 |
| | East Property Line | 0.0 | 0.0 | 0.1 |
| | West Property Line | 0.1 | 0.7 | 1.7 |
| Proposed Conditions | Main Street | 0.0 | 0.0 | 0.5 |
| | East Property Line | 0.0 | 0.0 | 0.1 |
| | West Property Line | 0.1 | 0.6 | 1.3 |

The detailed storm routing calculations are included in **APPENDIX A**. The infiltration rates used were those outlined in the RAWLs Table in the DEP Stormwater Management Standards and were discussed in **Section 2.0 Existing Conditions**.

## 4.0 Stormwater Management

The site is not located in a groundwater protection district (Zone II). There are no private drinking water wells around the project site. There are no other critical areas downgradient of the project site based on 314 CMR 4.00 (Massachusetts Surface Water Quality Standards). There are no certified vernal pools near the site. The DEP Stormwater Standards apply to this proposed project and the project design is based on the latest edition of these documents.

***DEP STORMWATER MANAGEMENT STANDARDS***

***Standard #1: NO UNTREATED DISCHARGE OR EROSION TO WETLANDS***

No untreated stormwater from the proposed project area will be discharged from the site. Runoff from all pavement will be discharged to deep sump catch basins equipped with "Snout" water quality elbows, then to manholes and finally to the infiltration basin. This treatment train will achieve a TSS removal rate of 85%.

***Standard #2: PEAK RATE ATTENUATION***

Stormwater controls have been designed for 2, 10, and 100-year storms according to both state and local regulations. Measurement of peak discharge rates is calculated at a design point, typically the lowest point of discharge at the downgradient property line (Massachusetts Stormwater Handbook, Vol. 1, Ch. 1, P.5). The design ensures that the post-development peak rates of runoff do not exceed the pre-development condition at any of the design points chosen. Proponents must also evaluate the impact of peak discharges from the 100-year storm. If this evaluation shows that increased off-site flooding will result from peak discharge from the storm then BMPs must also attenuate that discharge (Massachusetts Stormwater Handbook, Vol. 1, Ch. 1, P.5). In this case, the post-development peak rates for the 100-year event are equal to or less than the pre-development condition **Table 2.**

***Standard #3: STORMWATER RECHARGE***

1) The proposed project area is located on a plot with hydrologic class A through D soils based on the NRCS soil survey. The target depth factor for an A soil is 0.60 inches, B soil is 0.35 inches and for D soils is 0.10 inches. Soil textural analyses have been conducted in the area where recharge is proposed and it was found to be Sandy Loam under the basin. The RAWLS rate for Sandy Loam is 1.02 inches per hour and this rate will be used for the recharge calculations. **Appendix B**.

2) The infiltration BMP that will be used will be the subsurface infiltration basin. **Appendix B**.

3) Using the RAWLS rates for the infiltration basins shows that the drawdown of the Required Recharge Volume will be 3.5 hours, which meets the required 72 hours dewatering standard **APPENDIX B**.

4) Capture area adjustment is not necessary since 100% of the impervious area on the site will be directed to the above ground infiltration structure, which meets the 65% standard

5) A mounding analysis is necessary under the infiltration Basin per the DEP Stormwater standards since the vertical separation from the bottom of the basins and the estimated high ground water elevation is less than 4'. The local regulations state that mounding in groundwater should be considered therefore we have conducted a mounding analysis. In accordance with the "Simple Dynamic" methodology, the RAWLS rate is used as the hydraulic conductivity and the mounding analysis assumes that the Required Recharge Volume is applied during a 2-hour period during the storm. The specific yield at the basins is based on the USDA Textural Analysis and USGS Water Supply Paper 1662-D **Appendix D**. The model used is the AQTESOLV V.4.50.002 program that uses the ground water mounding solution by Hantush (1967). The analysis found that the top of the mound is below the bottom of the basin. Therefore, the mound does not breach the bottom of the pond and will not impact the ability of the basin to drain within 72 hours as was previously discussed. **Appendix B**

***Standard # 4: WATER QUALITY***

1) The required water quality volume is based on 0.500 acres of impervious area and 0.5-inch water quality depth, which yields a water quality volume of 908 cubic feet or 0.0208 ac-ft. The infiltration basin retains a water volume of 4,138 cubic feet or 0.095 ac-ft prior to discharge.

2) The BMPs used for the proposed project to enhance water quality include: deep sump catch basins and an infiltration basin. All of the runoff from the pavement will go through deep sump catch basins with "Snout" water quality elbows then to the infiltration basin. The estimated overall TSS removal will be 85% and phosphorous removal will be 60%. **Appendix B.**

3) Because the subsurface basin is being used to fulfill the requirements of Standards 3 and 4 it must handle the larger of the water quality volumes. The basin has a Required Recharge Volume of 0.0219 ac-ft and a storage volume 0.095 ac-ft below discharge **Appendix B**

***Standard # 5: LAND USES WITH HIGHER POTENTIAL POLLUTION LOADS***

The site will consist of a typical residential use which is not considered to have a high potential pollutant load. The site will be compatible with the surrounding environment, which is a residential area.

***Standard #6: CRITICAL AREAS***

According to 314 CMR 14.400 and MASS MAPPER the project site does not contain any critical resource areas

***Standard #7: REDEVELOPMENT***

Th proposed activity is not a redevelopment project

***Standard #8: CONSTRUCTION PERIOD CONTROLS***

Silt sock barriers will be installed at the downgradient limit of work if there is the possibility of erosion exiting the site. A stone pad shall be spread at the entrance from the existing roadway to the project site to prevent mud from escaping the site during construction. Silt sacks will be installed within the catch basins.

A Draft Stormwater Pollution Prevention Plan has been developed in accordance with the EPA General Permit for Construction Activities. A final SWPPP will be prepared once the construction schedule is finalized and the contractors are chosen. A copy of the Draft SWPPP is included in **Sheet 8 & Appendix C**

***Standard #9: OPERATION AND MAINTENANCE PLAN***

Pre- and Post-Development Operation and Maintenance Plans have been developed for the project **Appendix C**.

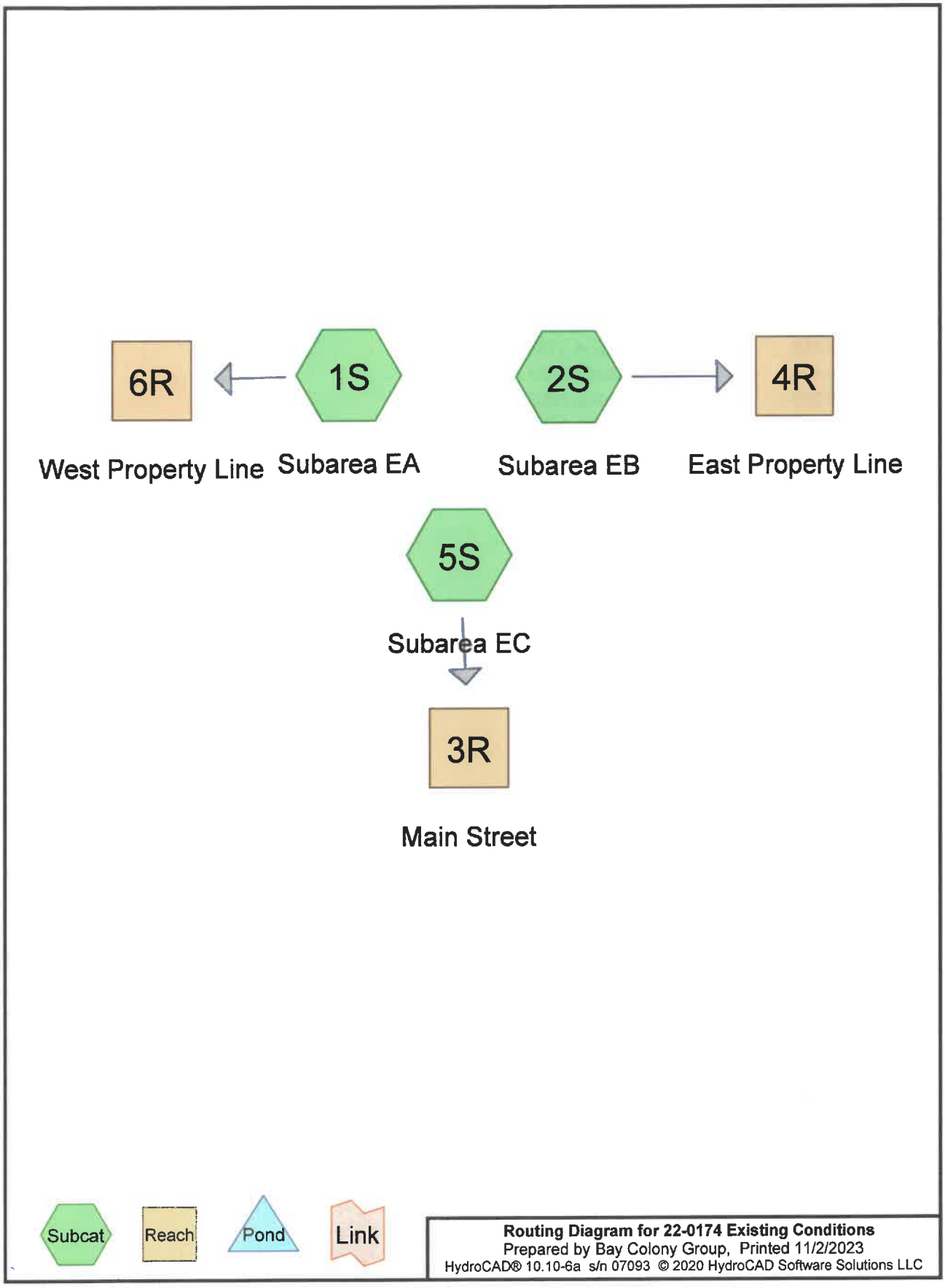
***Standard # 10: ILLICIT DISCHARGES TO DRAINAGE SYSTEM***

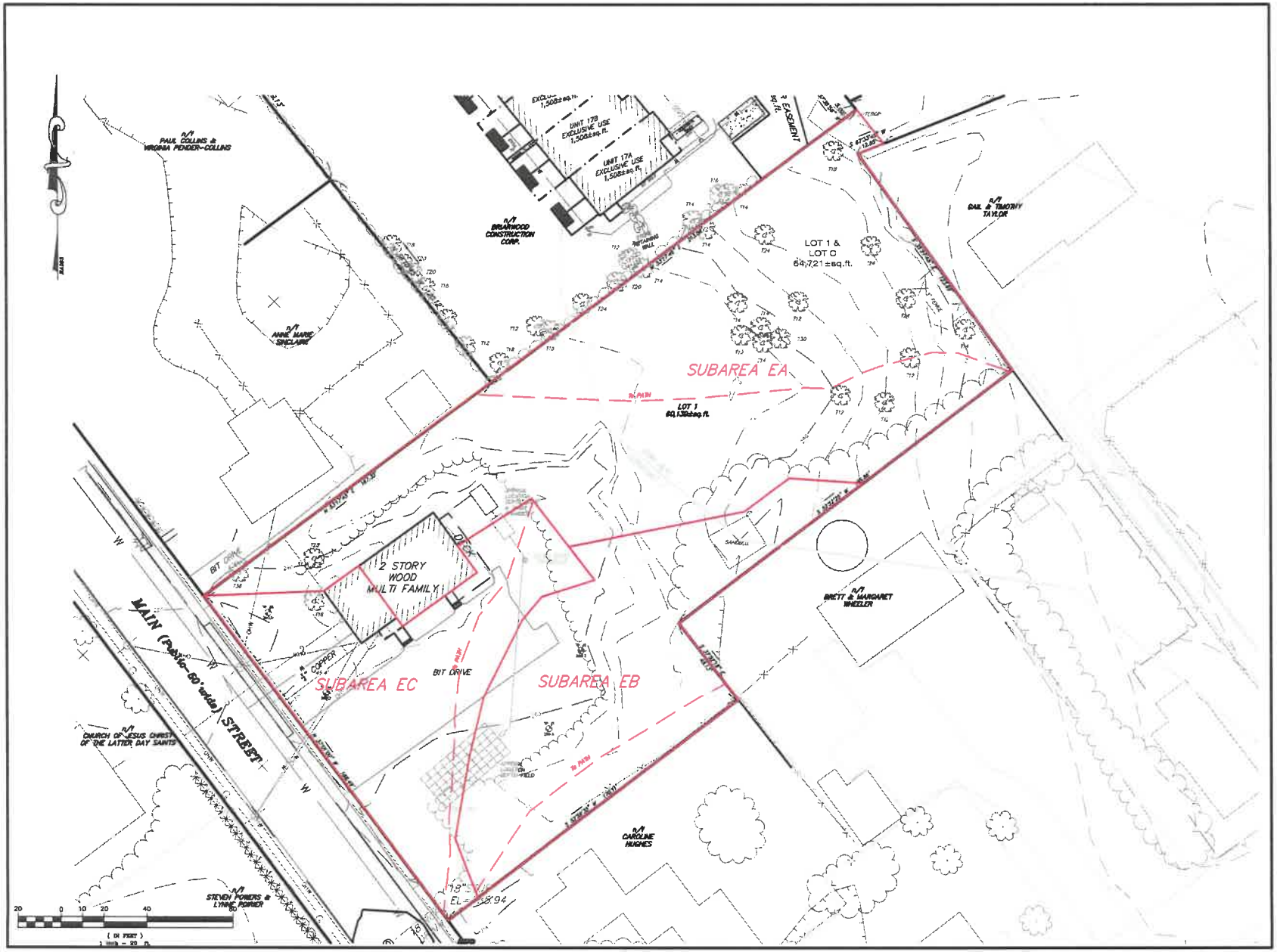
I certify to the best of my professional knowledge, information and belief that there are no illicit discharges to the stormwater management system, including wastewater discharges and discharges of stormwater contaminated by contact with process wastes, raw materials, toxic pollutants, hazardous substances, oil, or grease. The proposed systems as shown on the referenced plans do not allow entry of any illicit discharges into the system and there are no connections between the stormwater and wastewater management systems.

To be signed prior to construction _____

Owner Date

# APPENDIX A – Pre- and Post-DEVELOPMENT ANALYSIS AND STORM WATER POND DESIGNS


6R
1S
2S
4R
West Property Line
Subarea EA
Subarea EB
East Property Line
5S
Subarea EC
3R
Main Street
Subcat
Reach
Pond
Link
Routing Diagram for 22-0174 Existing Conditions
Prepared by Bay Colony Group, Printed 11/2/2023
HydroCAD® 10.10-6a s/n 07093 © 2020 HydroCAD Software Solutions LLC




PROJECT:
*73 Main Street*
*Foxborough*
*Massachusetts*

PREPARED FOR:
*BRIARWOOD CONSTRUCTION CORP.*
*31 BELMONT ST.*
*S. EASTON, MA 02375*


Merry Checkley Group, Inc.
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508-543-3838


STAMP

DRAWING TITLE

**Existing Drainage Subareas**

SCALE: 1"=20'

| OCTOBER 18, 2023 | SHEET NUMBER |
|---|---|
| 22-0174B | EX |

## Soil Listing (all nodes)

| Area (acres) | Soil Group | Subcatchment Numbers |
|---|---|---|
| 0.860 | HSG A | 1S, 2S, 5S |
| 0.260 | HSG B | 1S, 2S |
| 0.000 | HSG C | |
| 0.260 | HSG D | 1S, 2S |
| 0.000 | Other | |
| **1.380** | | **TOTAL AREA** |

## Summary for Subcatchment 1S: Subarea EA

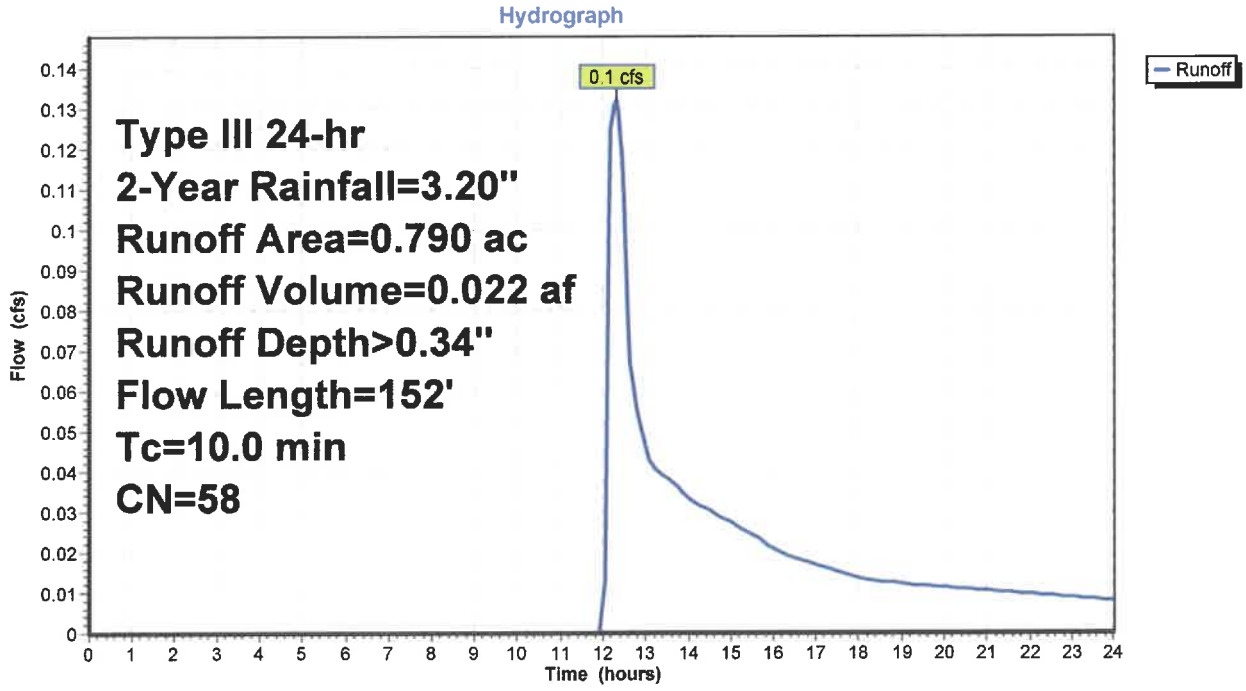
Runoff = 0.1 cfs @ 12.30 hrs, Volume= 0.022 af, Depth> 0.34"
Routed to Reach 6R : West Property Line

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

| Area (ac) | CN | Description |
|---|---|---|
| 0.050 | 98 | Roofs, HSG A |
| 0.060 | 39 | >75% Grass cover, Good, HSG A |
| 0.180 | 30 | Woods, Good, HSG A |
| 0.250 | 55 | Woods, Good, HSG B |
| 0.250 | 77 | Woods, Good, HSG D |
| 0.790 | 58 | Weighted Average |
| 0.740 | | 93.67% Pervious Area |
| 0.050 | | 6.33% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 6.8 | 50 | 0.0900 | 0.12 | | **Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20" |
| 1.5 | 102 | 0.0500 | 1.12 | | **Shallow Concentrated Flow,** Woodland Kv= 5.0 fps |
| 8.3 | 152 | Total, Increased to minimum Tc = 10.0 min | | | |

### Subcatchment 1S: Subarea EA



## Summary for Subcatchment 5S: Subarea EC

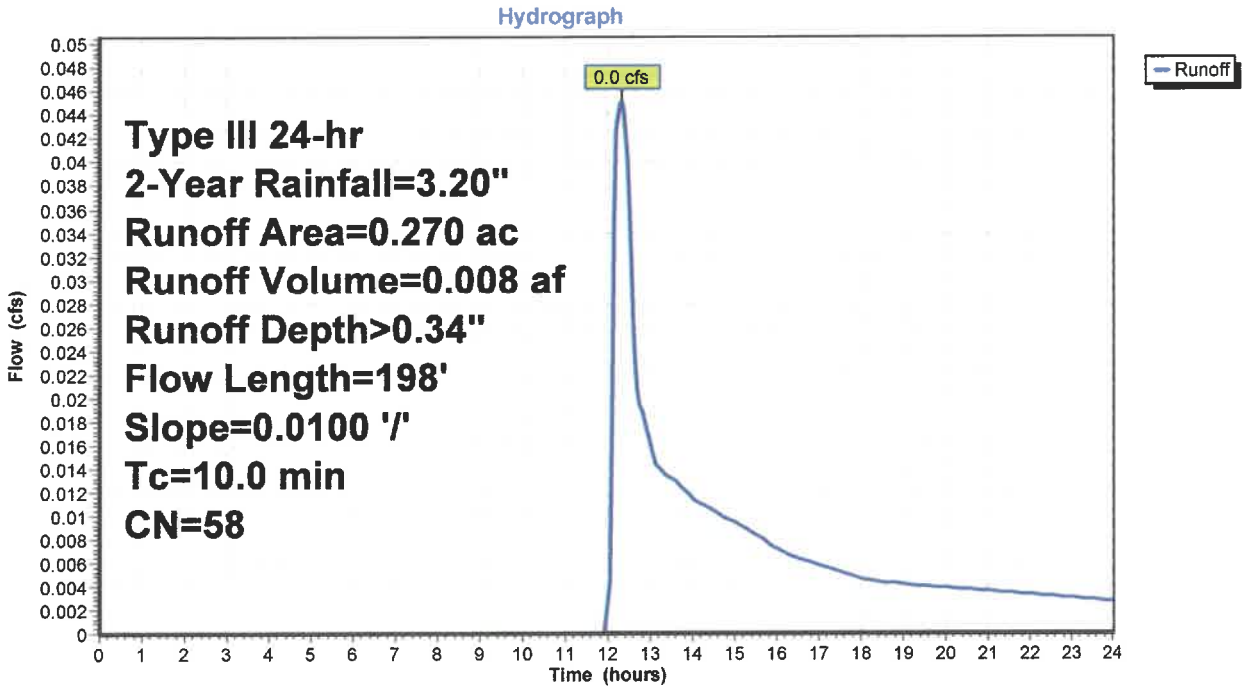
Runoff = 0.0 cfs @ 12.30 hrs, Volume= 0.008 af, Depth> 0.34"
Routed to Reach 3R : Main Street

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

| Area (ac) | CN | Description |
|---|---|---|
| 0.160 | 39 | >75% Grass cover, Good, HSG A |
| 0.020 | 30 | Woods, Good, HSG A |
| 0.090 | 98 | Paved parking, HSG A |
| 0.270 | 58 | Weighted Average |
| 0.180 | | 66.67% Pervious Area |
| 0.090 | | 33.33% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 6.2 | 40 | 0.0100 | 0.11 | | **Sheet Flow,** Grass: Short n= 0.150 P2= 3.20" |
| 0.6 | 70 | 0.0100 | 2.03 | | **Shallow Concentrated Flow,** Paved Kv= 20.3 fps |
| 2.1 | 88 | 0.0100 | 0.70 | | **Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps |
| 8.9 | 198 | Total, Increased to minimum Tc = 10.0 min | | | |

## Subcatchment 5S: Subarea EC

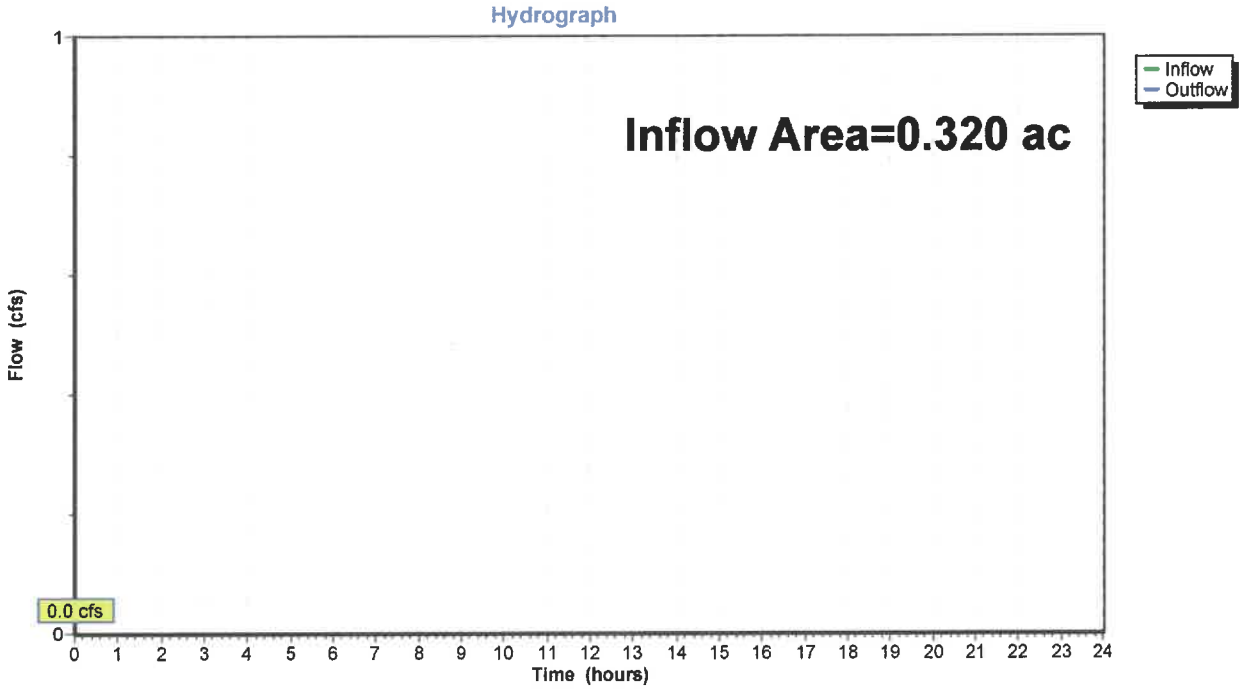


## Summary for Reach 4R: East Property Line

Inflow Area = 0.320 ac, 3.13% Impervious, Inflow Depth = 0.00" for 2-Year event
Inflow = 0.0 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.0 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

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

### Reach 4R: East Property Line



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

**Subcatchment 1S: Subarea EA** Runoff Area=0.790 ac 6.33% Impervious Runoff Depth>1.00"
Flow Length=152' Tc=10.0 min CN=58 Runoff=0.7 cfs 0.066 af

**Subcatchment 2S: Subarea EB** Runoff Area=0.320 ac 3.13% Impervious Runoff Depth>0.09"
Flow Length=155' Tc=15.8 min CN=37 Runoff=0.0 cfs 0.002 af

**Subcatchment 5S: Subarea EC** Runoff Area=0.270 ac 33.33% Impervious Runoff Depth>1.00"
Flow Length=198' Slope=0.0100 '/' Tc=10.0 min CN=58 Runoff=0.2 cfs 0.023 af

**Reach 3R: Main Street** Inflow=0.2 cfs 0.023 af
Outflow=0.2 cfs 0.023 af

**Reach 4R: East Property Line** Inflow=0.0 cfs 0.002 af
Outflow=0.0 cfs 0.002 af

**Reach 6R: West Property Line** Inflow=0.7 cfs 0.066 af
Outflow=0.7 cfs 0.066 af

**Total Runoff Area = 1.380 ac Runoff Volume = 0.091 af Average Runoff Depth = 0.79"**
**89.13% Pervious = 1.230 ac 10.87% Impervious = 0.150 ac**

## Summary for Subcatchment 2S: Subarea EB

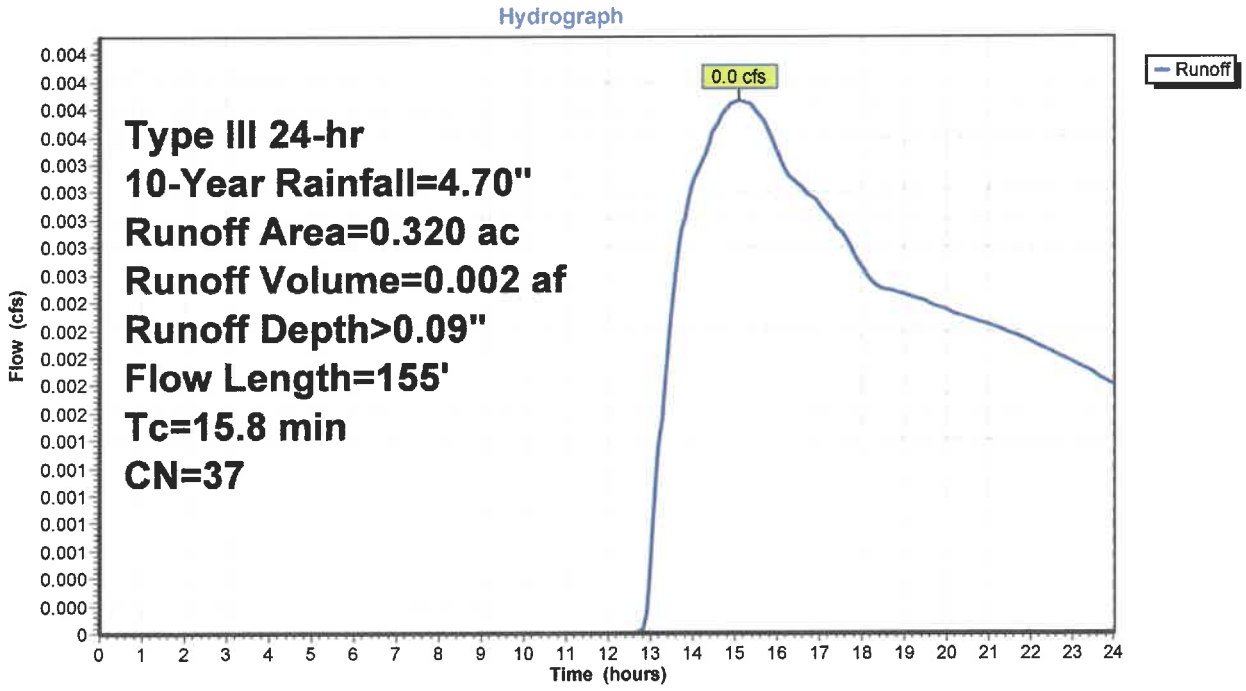
Runoff = 0.0 cfs @ 15.11 hrs, Volume= 0.002 af, Depth> 0.09"
Routed to Reach 4R : East Property Line

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.70"

| Area (ac) | CN | Description |
|---|---|---|
| 0.010 | 98 | Paved parking, HSG A |
| 0.090 | 39 | >75% Grass cover, Good, HSG A |
| 0.010 | 61 | >75% Grass cover, Good, HSG B |
| 0.010 | 80 | >75% Grass cover, Good, HSG D |
| 0.200 | 30 | Woods, Good, HSG A |
| 0.320 | 37 | Weighted Average |
| 0.310 | | 96.88% Pervious Area |
| 0.010 | | 3.13% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 12.3 | 50 | 0.0200 | 0.07 | | **Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20" |
| 3.5 | 105 | 0.0100 | 0.50 | | **Shallow Concentrated Flow,** Woodland Kv= 5.0 fps |
| 15.8 | 155 | Total | | | |

## Subcatchment 2S: Subarea EB

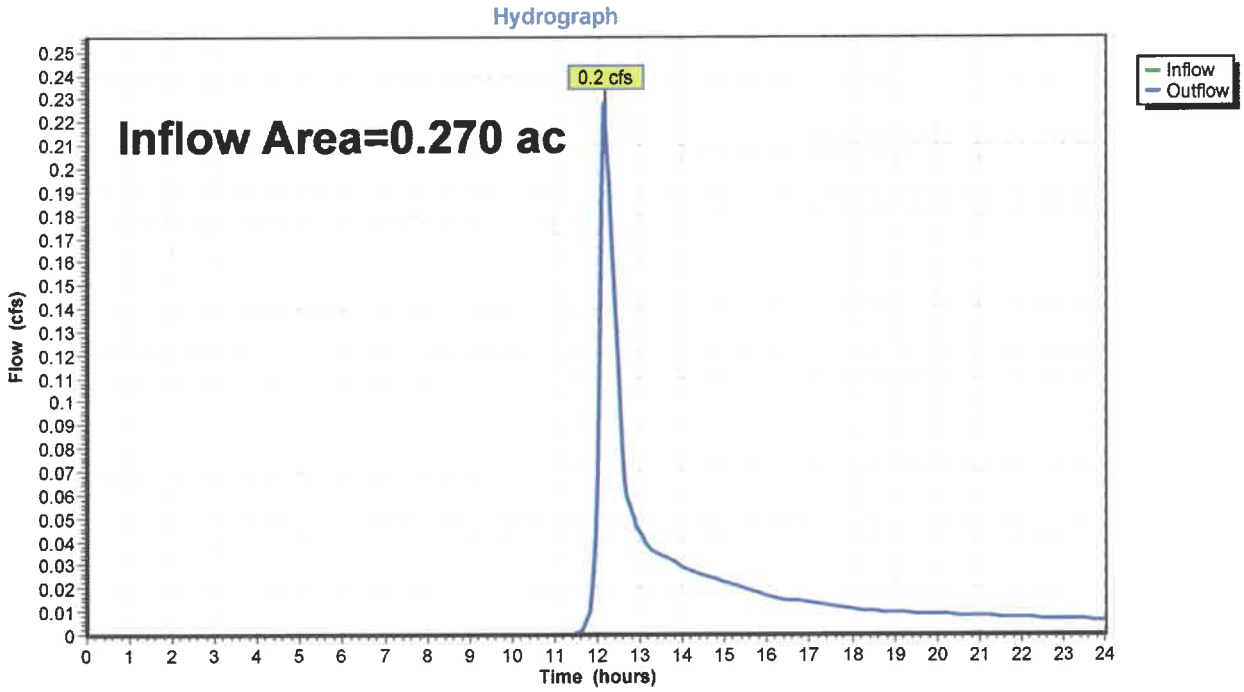


## Summary for Reach 3R: Main Street

Inflow Area = 0.270 ac, 33.33% Impervious, Inflow Depth > 1.00" for 10-Year event
Inflow = 0.2 cfs @ 12.17 hrs, Volume= 0.023 af
Outflow = 0.2 cfs @ 12.17 hrs, Volume= 0.023 af, Atten= 0%, Lag= 0.0 min

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

## Reach 3R: Main Street

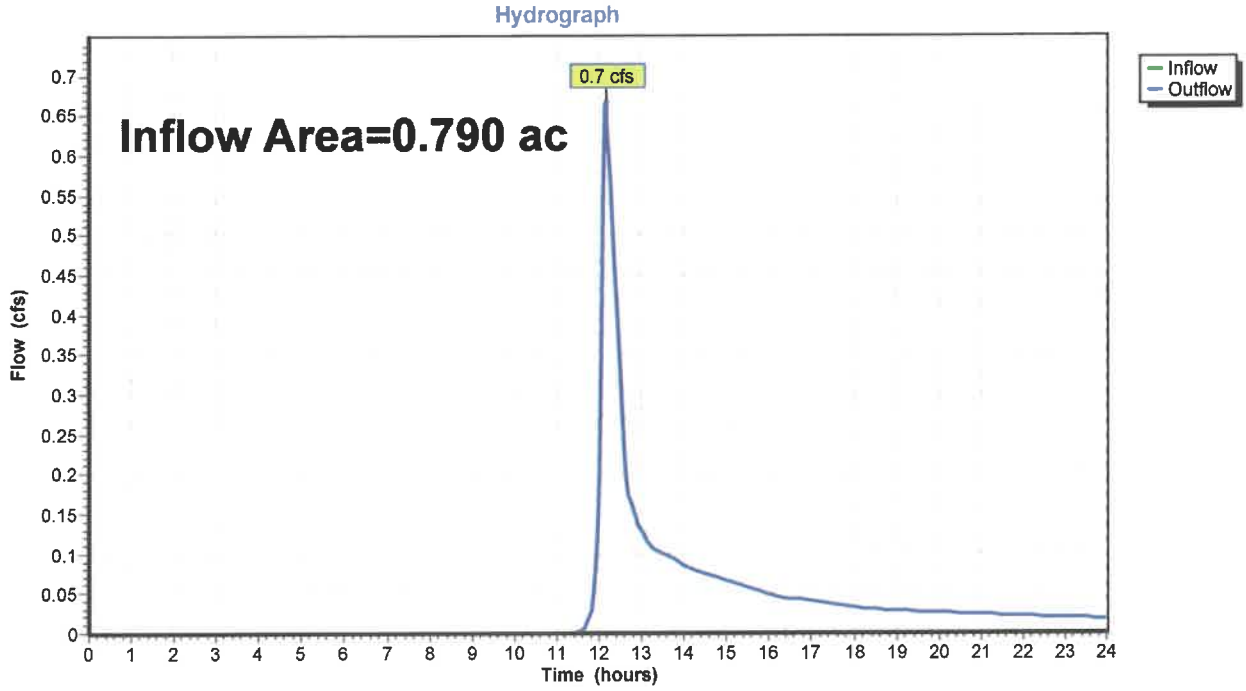


## Summary for Reach 6R: West Property Line

Inflow Area = 0.790 ac, 6.33% Impervious, Inflow Depth > 1.00" for 10-Year event
Inflow = 0.7 cfs @ 12.17 hrs, Volume= 0.066 af
Outflow = 0.7 cfs @ 12.17 hrs, Volume= 0.066 af, Atten= 0%, Lag= 0.0 min

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

### Reach 6R: West Property Line



## Summary for Subcatchment 1S: Subarea EA

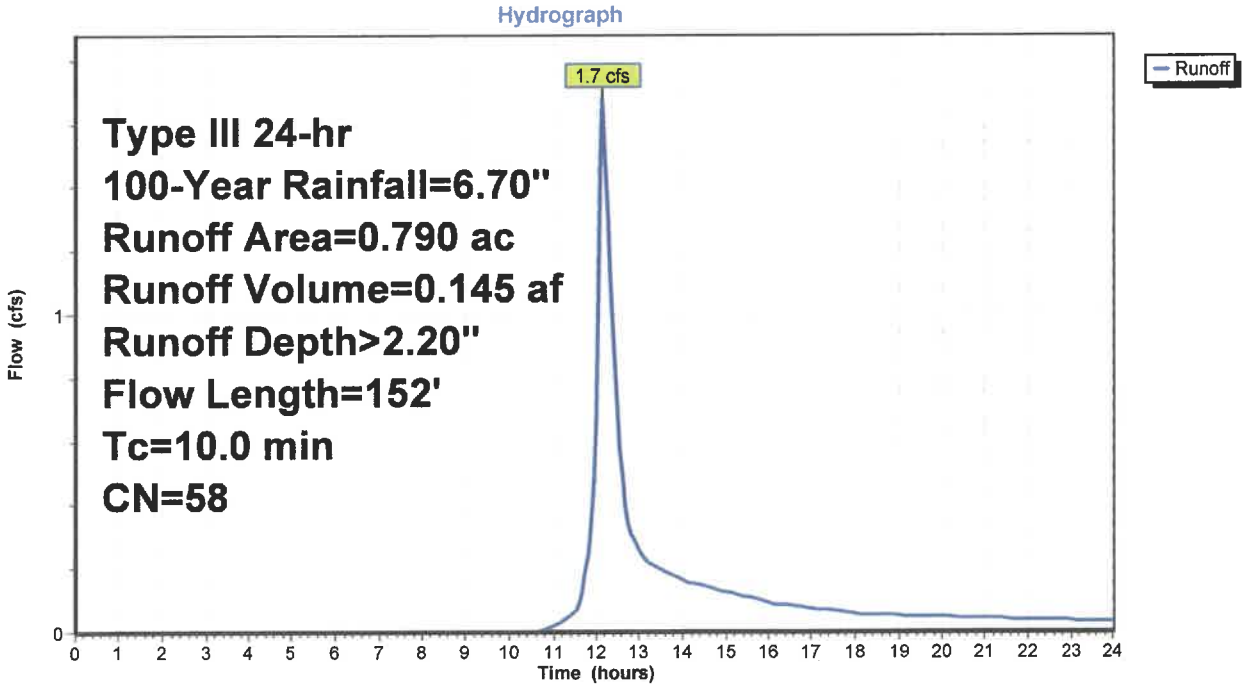
Runoff = 1.7 cfs @ 12.15 hrs, Volume= 0.145 af, Depth> 2.20"
Routed to Reach 6R : West Property Line

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.70"

| Area (ac) | CN | Description |
|---|---|---|
| 0.050 | 98 | Roofs, HSG A |
| 0.060 | 39 | >75% Grass cover, Good, HSG A |
| 0.180 | 30 | Woods, Good, HSG A |
| 0.250 | 55 | Woods, Good, HSG B |
| 0.250 | 77 | Woods, Good, HSG D |
| 0.790 | 58 | Weighted Average |
| 0.740 | | 93.67% Pervious Area |
| 0.050 | | 6.33% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 6.8 | 50 | 0.0900 | 0.12 | | **Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20" |
| 1.5 | 102 | 0.0500 | 1.12 | | **Shallow Concentrated Flow,** Woodland Kv= 5.0 fps |
| 8.3 | 152 | Total, Increased to minimum Tc = 10.0 min | | | |

### Subcatchment 1S: Subarea EA



## Summary for Subcatchment 5S: Subarea EC

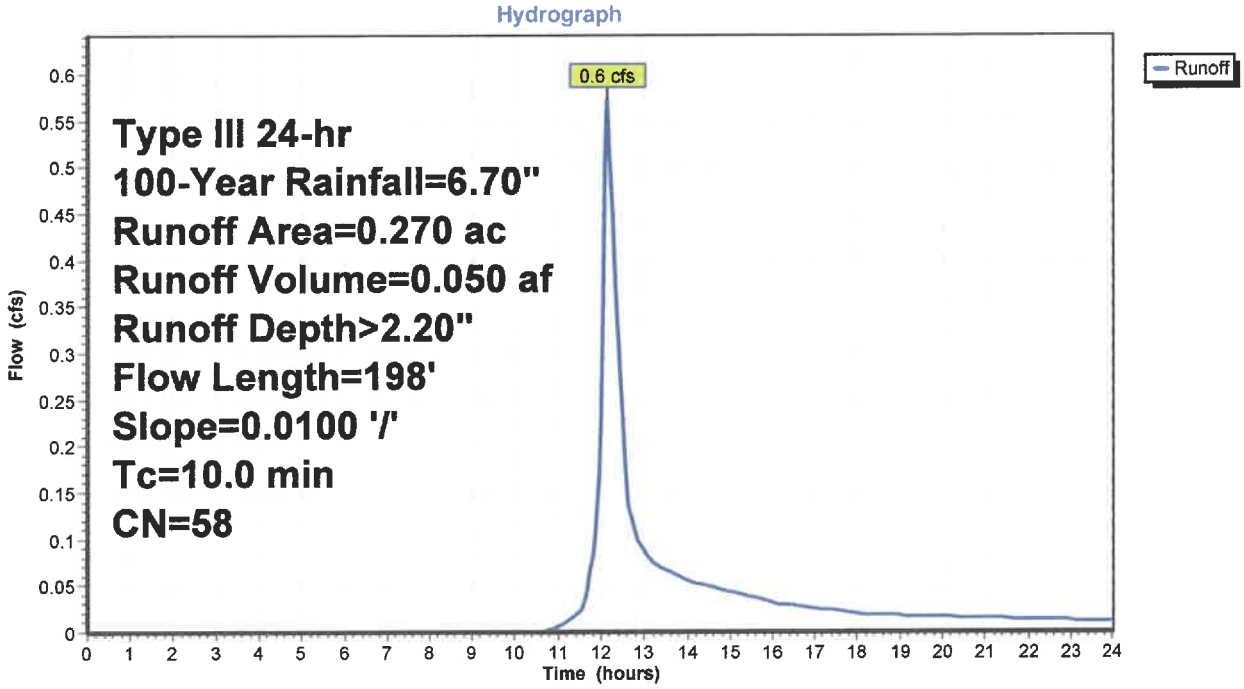
Runoff = 0.6 cfs @ 12.15 hrs, Volume= 0.050 af, Depth> 2.20"
Routed to Reach 3R : Main Street

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.70"

| Area (ac) | CN | Description |
|---|---|---|
| 0.160 | 39 | >75% Grass cover, Good, HSG A |
| 0.020 | 30 | Woods, Good, HSG A |
| 0.090 | 98 | Paved parking, HSG A |
| 0.270 | 58 | Weighted Average |
| 0.180 | | 66.67% Pervious Area |
| 0.090 | | 33.33% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 6.2 | 40 | 0.0100 | 0.11 | | **Sheet Flow,** Grass: Short n= 0.150 P2= 3.20" |
| 0.6 | 70 | 0.0100 | 2.03 | | **Shallow Concentrated Flow,** Paved Kv= 20.3 fps |
| 2.1 | 88 | 0.0100 | 0.70 | | **Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps |
| 8.9 | 198 | Total, Increased to minimum Tc = 10.0 min | | | |

## Subcatchment 5S: Subarea EC

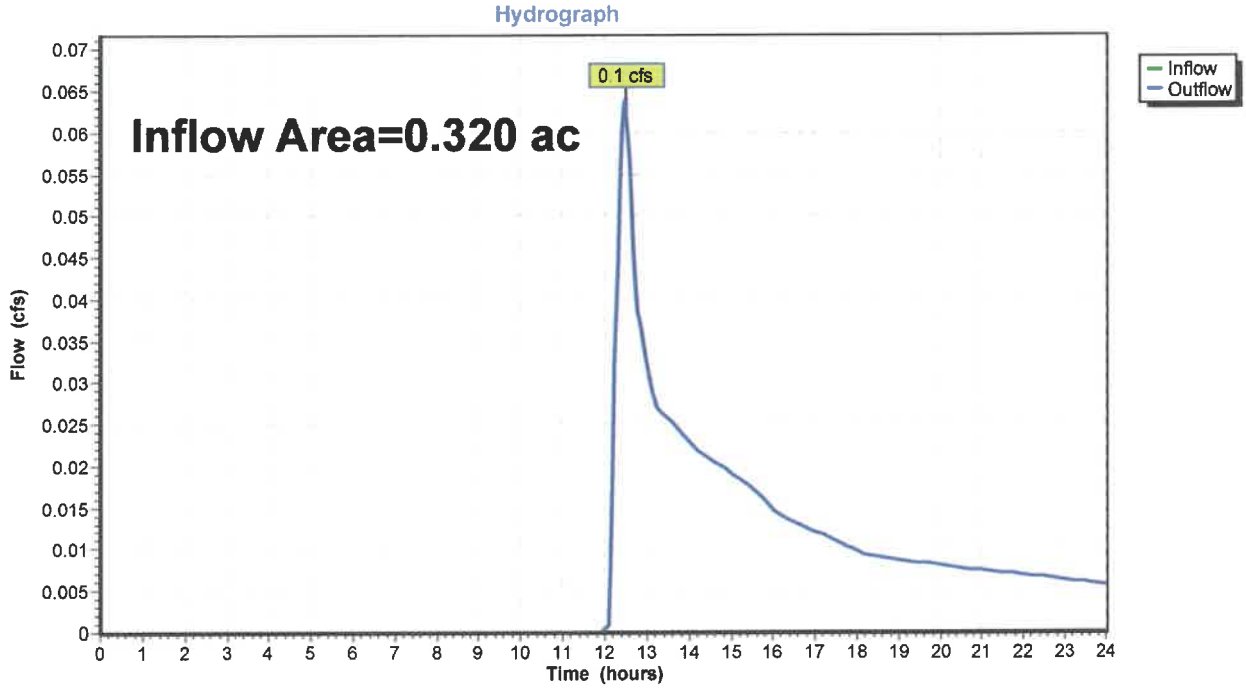


## Summary for Reach 4R: East Property Line

Inflow Area = 0.320 ac, 3.13% Impervious, Inflow Depth > 0.53" for 100-Year event
Inflow = 0.1 cfs @ 12.48 hrs, Volume= 0.014 af
Outflow = 0.1 cfs @ 12.48 hrs, Volume= 0.014 af, Atten= 0%, Lag= 0.0 min

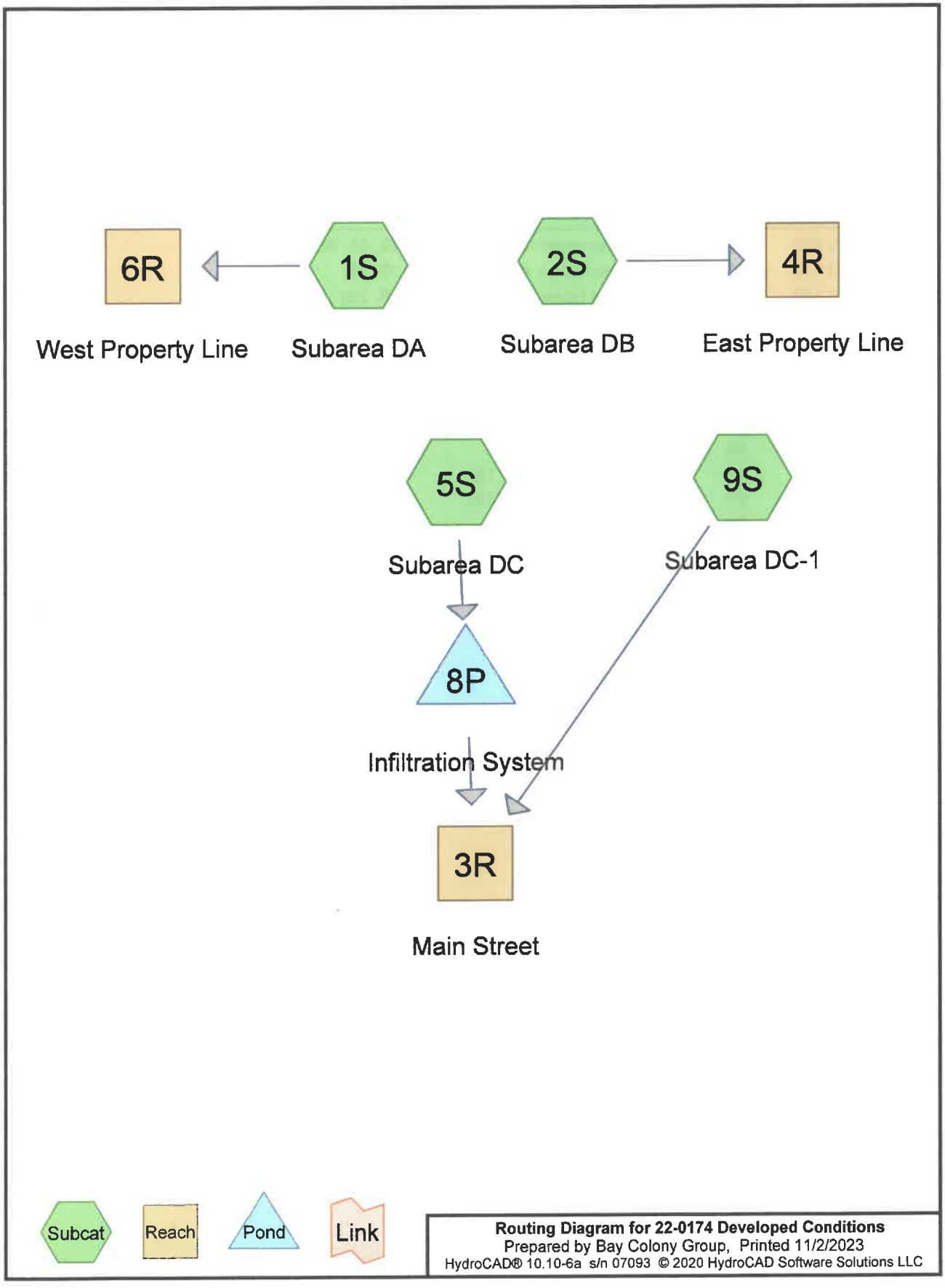
Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

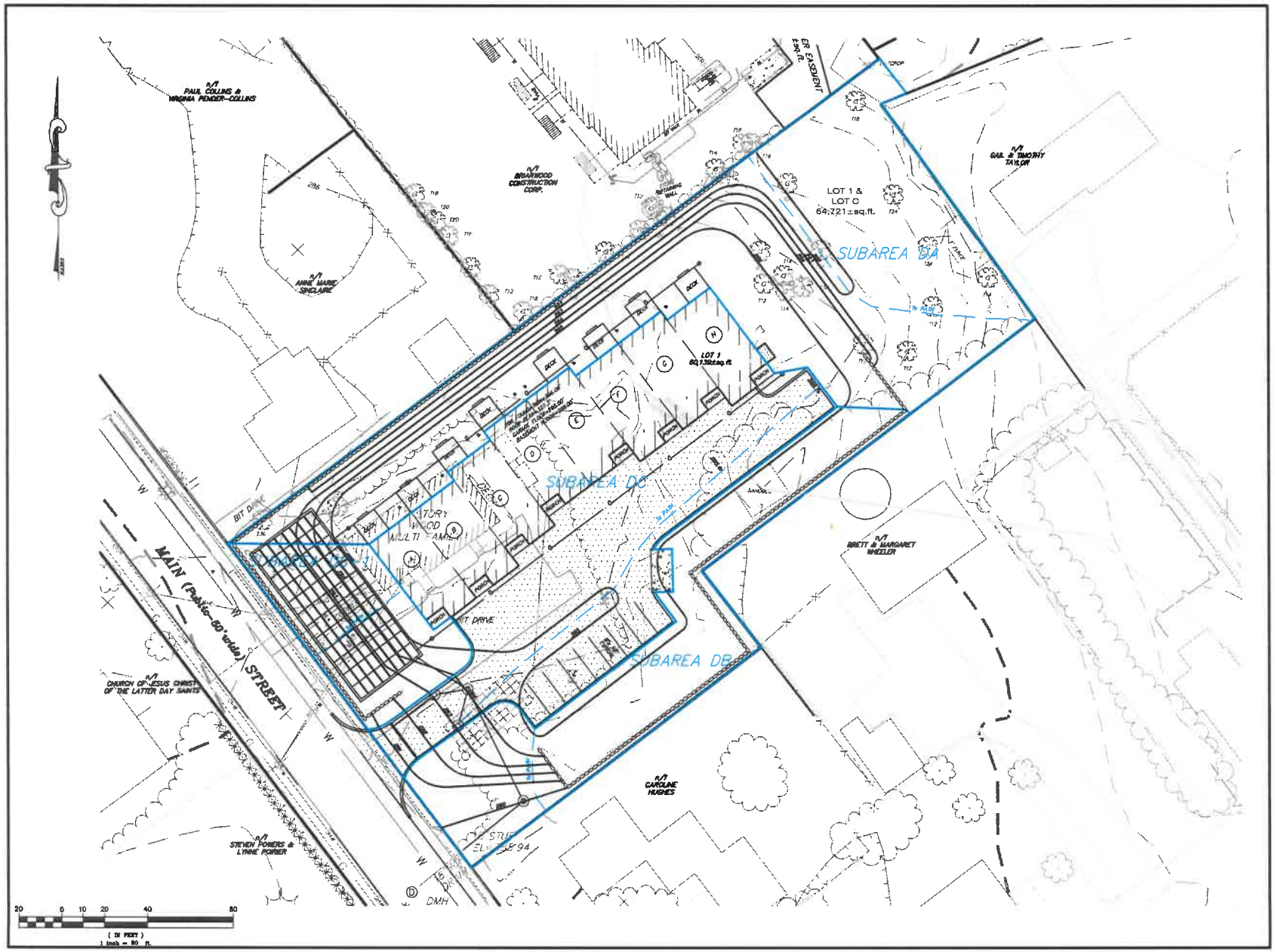
### Reach 4R: East Property Line



**22-0174 Existing Conditions**
Prepared by Bay Colony Group


## TABLE OF CONTENTS


6R
1S
2S
4R
West Property Line
Subarea DA
Subarea DB
East Property Line
5S
9S
Subarea DC
Subarea DC-1
8P
Infiltration System
3R
Main Street
Subcat
Reach
Pond
Link
Routing Diagram for 22-0174 Developed Conditions
Prepared by Bay Colony Group, Printed 11/2/2023
HydroCAD® 10.10-6a s/n 07093 © 2020 HydroCAD Software Solutions LLC




**PROJECT:**
*73 Main Street*
*Foxborough*
*Massachusetts*

**PREPARED FOR:**
*BRIARWOOD*
*CONSTRUCTION CORP.*
*31 BELMONT ST.*
*S. EASTON, MA 02375*


Professional Civil Engineers & Professional Land Surveyors
FOUR SCHOOL STREET
P.O. BOX 0736
FOXBOROUGH, MA 02035
508-543-3838


STAMP

DRAWING TITLE

# Developed Drainage Subareas

SCALE: 1"=20'

| OCTOBER 18, 2023 | SHEET NUMBER |
|---|---|
| 22-0174B | PR |

## Soil Listing (all nodes)

| Area (acres) | Soil Group | Subcatchment Numbers |
|---|---|---|
| 0.860 | HSG A | 1S, 2S, 5S, 9S |
| 0.260 | HSG B | 1S, 2S, 5S |
| 0.000 | HSG C | |
| 0.260 | HSG D | 1S, 2S, 5S |
| 0.000 | Other | |
| **1.380** | | **TOTAL AREA** |

## Summary for Subcatchment 1S: Subarea DA

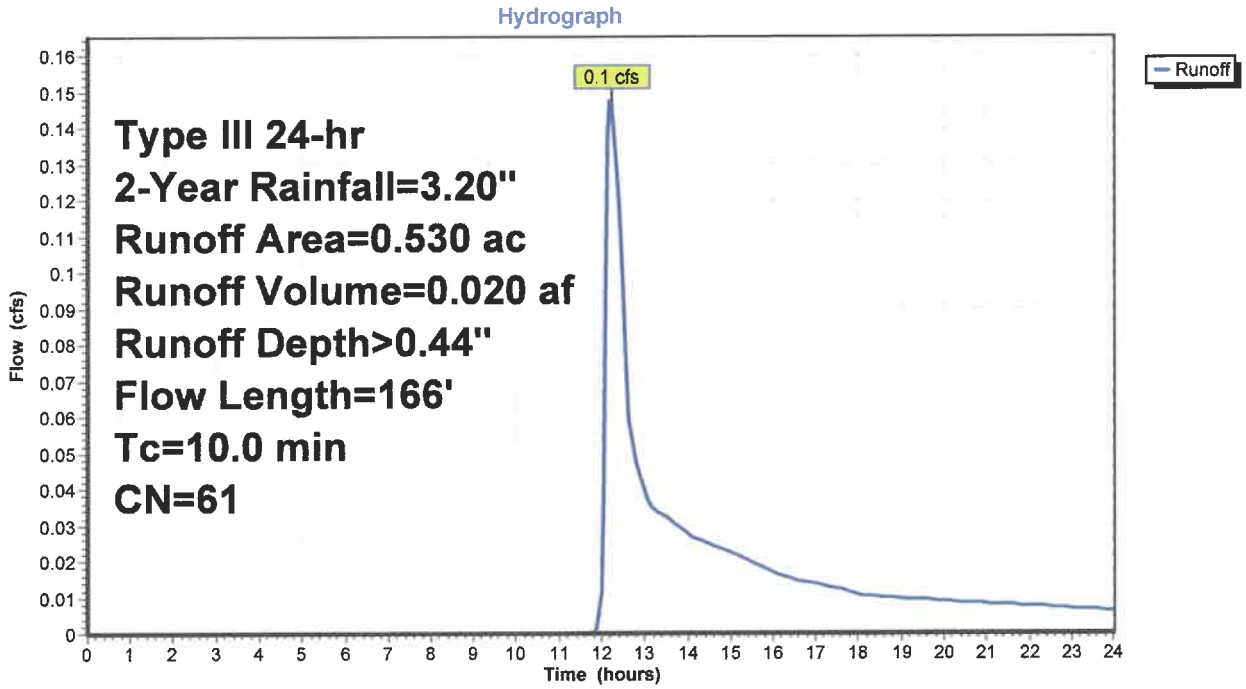
Runoff = 0.1 cfs @ 12.20 hrs, Volume= 0.020 af, Depth> 0.44"
Routed to Reach 6R : West Property Line

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

| Area (ac) | CN | Description |
|---|---|---|
| 0.140 | 39 | >75% Grass cover, Good, HSG A |
| 0.125 | 61 | >75% Grass cover, Good, HSG B |
| 0.125 | 80 | >75% Grass cover, Good, HSG D |
| 0.070 | 55 | Woods, Good, HSG B |
| 0.070 | 77 | Woods, Good, HSG D |
| 0.530 | 61 | Weighted Average |
| 0.530 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 6.9 | 50 | 0.0840 | 0.12 | | **Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20" |
| 2.3 | 116 | 0.0150 | 0.86 | | **Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps |
| 9.2 | 166 | Total, Increased to minimum Tc = 10.0 min | | | |

## Subcatchment 1S: Subarea DA



## Summary for Subcatchment 5S: Subarea DC

Runoff = 1.3 cfs @ 12.14 hrs, Volume= 0.123 af, Depth> 2.96"
Routed to Pond 8P : Infiltration System

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

| Area (ac) | CN | Description |
|---|---|---|
| 0.230 | 98 | Paved parking, HSG A |
| 0.020 | 98 | Paved parking, HSG B |
| 0.020 | 98 | Paved parking, HSG D |
| 0.170 | 98 | Roofs, HSG A |
| 0.030 | 98 | Roofs, HSG B |
| 0.030 | 98 | Roofs, HSG D |
| 0.500 | 98 | Weighted Average |
| 0.500 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 1.2 | 50 | 0.0050 | 0.69 | | **Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.20" |
| 1.0 | 86 | 0.0050 | 1.44 | | **Shallow Concentrated Flow,** Paved Kv= 20.3 fps |
| 0.7 | 83 | 0.0100 | 2.03 | | **Shallow Concentrated Flow,** Paved Kv= 20.3 fps |
| 0.0 | 12 | 0.0700 | 5.37 | | **Shallow Concentrated Flow,** Paved Kv= 20.3 fps |
| 2.9 | 231 | Total, Increased to minimum Tc = 10.0 min | | | |

## Summary for Subcatchment 9S: Subarea DC-1

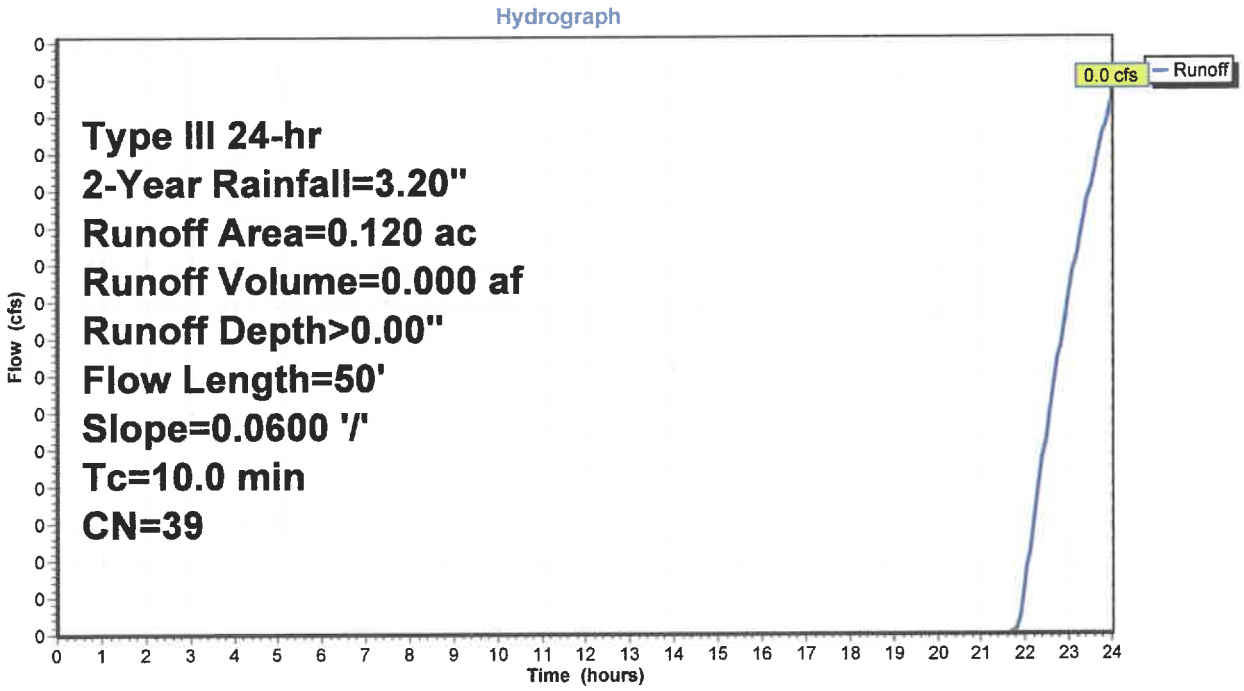
Runoff = 0.0 cfs @ 24.00 hrs, Volume= 0.000 af, Depth> 0.00"
Routed to Reach 3R : Main Street

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

| Area (ac) | CN | Description |
|---|---|---|
| 0.120 | 39 | >75% Grass cover, Good, HSG A |
| 0.120 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 3.6 | 50 | 0.0600 | 0.23 | | **Sheet Flow,** Grass: Short n= 0.150 P2= 3.20" |
| 3.6 | 50 | Total, Increased to minimum Tc = 10.0 min | | | |

## Subcatchment 9S: Subarea DC-1

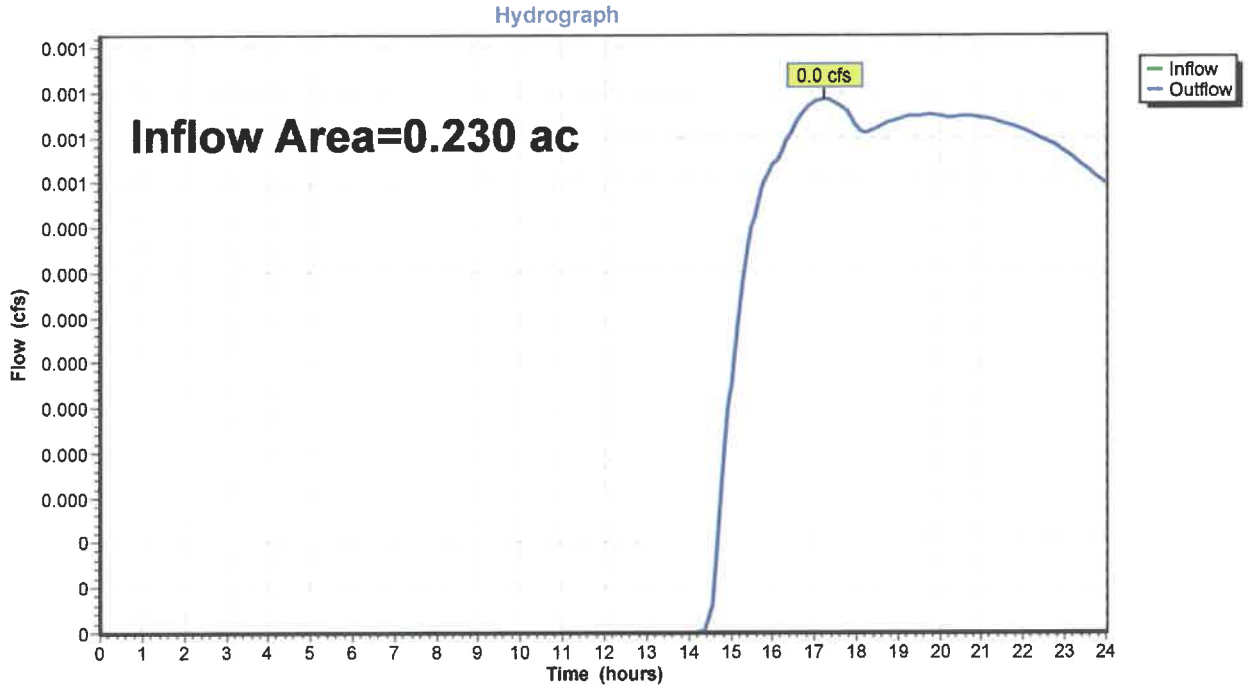


## Summary for Reach 4R: East Property Line

Inflow Area = 0.230 ac, 0.00% Impervious, Inflow Depth > 0.02" for 2-Year event
Inflow = 0.0 cfs @ 17.24 hrs, Volume= 0.000 af
Outflow = 0.0 cfs @ 17.24 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

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

### Reach 4R: East Property Line



## Summary for Pond 8P: Infiltration System

Inflow Area = 0.500 ac,100.00% Impervious, Inflow Depth > 2.96" for 2-Year event
Inflow = 1.3 cfs @ 12.14 hrs, Volume= 0.123 af
Outflow = 0.1 cfs @ 13.12 hrs, Volume= 0.123 af, Atten= 91%, Lag= 59.0 min
Discarded = 0.1 cfs @ 13.12 hrs, Volume= 0.123 af
Primary = 0.0 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach 3R : Main Street

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 289.26' @ 13.12 hrs Surf.Area= 0.074 ac Storage= 0.051 af

Plug-Flow detention time= 154.7 min calculated for 0.123 af (100% of inflow)
Center-of-Mass det. time= 153.5 min ( 912.8 - 759.3 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1A | 288.20' | 0.056 af | **36.83'W x 87.00'L x 3.21'H Field A**<br>0.236 af Overall - 0.095 af Embedded = 0.141 af x 40.0% Voids |
| #2A | 288.70' | 0.095 af | **Cultec R-280HD** x 96 Inside #1<br>Effective Size= 46.9"W x 26.0"H => 6.07 sf x 7.00'L = 42.5 cf<br>Overall Size= 47.0"W x 26.5"H x 8.00'L with 1.00' Overlap<br>Row Length Adjustment= +1.00' x 6.07 sf x 8 rows |
| #3 | 288.70' | 0.001 af | **4.00'D x 3.50'H Vertical Cone/Cylinder** |
| | | 0.152 af | Total Available Storage |

Storage Group A created with Chamber Wizard

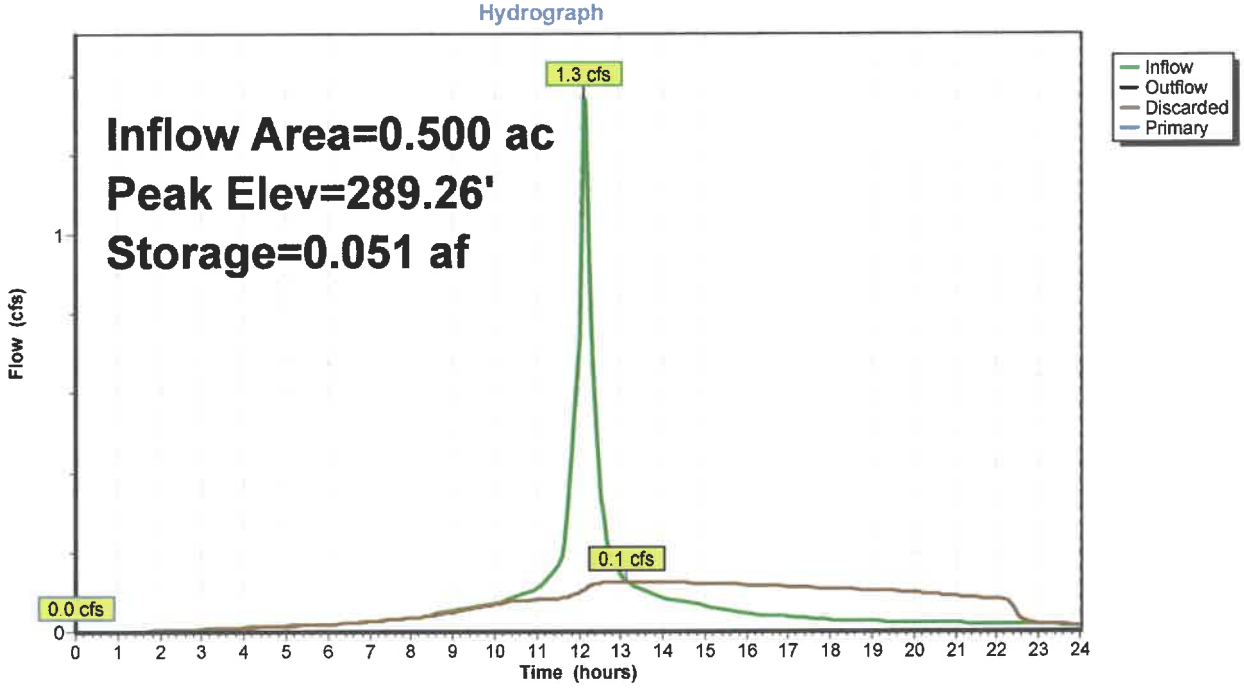
| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Discarded | 288.20' | **1.020 in/hr Exfiltration over Wetted area**<br>Conductivity to Groundwater Elevation = 286.20' |
| #2 | Primary | 290.00' | **12.0" Round Culvert**<br>L= 53.0' CPP, projecting, no headwall, Ke= 0.900<br>Inlet / Outlet Invert= 290.00' / 286.60' S= 0.0642 '/' Cc= 0.900<br>n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf |

**Discarded OutFlow** Max=0.1 cfs @ 13.12 hrs HW=289.26' (Free Discharge)
↑**1=Exfiltration** ( Controls 0.1 cfs)

**Primary OutFlow** Max=0.0 cfs @ 0.00 hrs HW=288.20' (Free Discharge)
↑**2=Culvert** ( Controls 0.0 cfs)

## Pond 8P: Infiltration System

Hydrograph



## Summary for Subcatchment 1S: Subarea DA

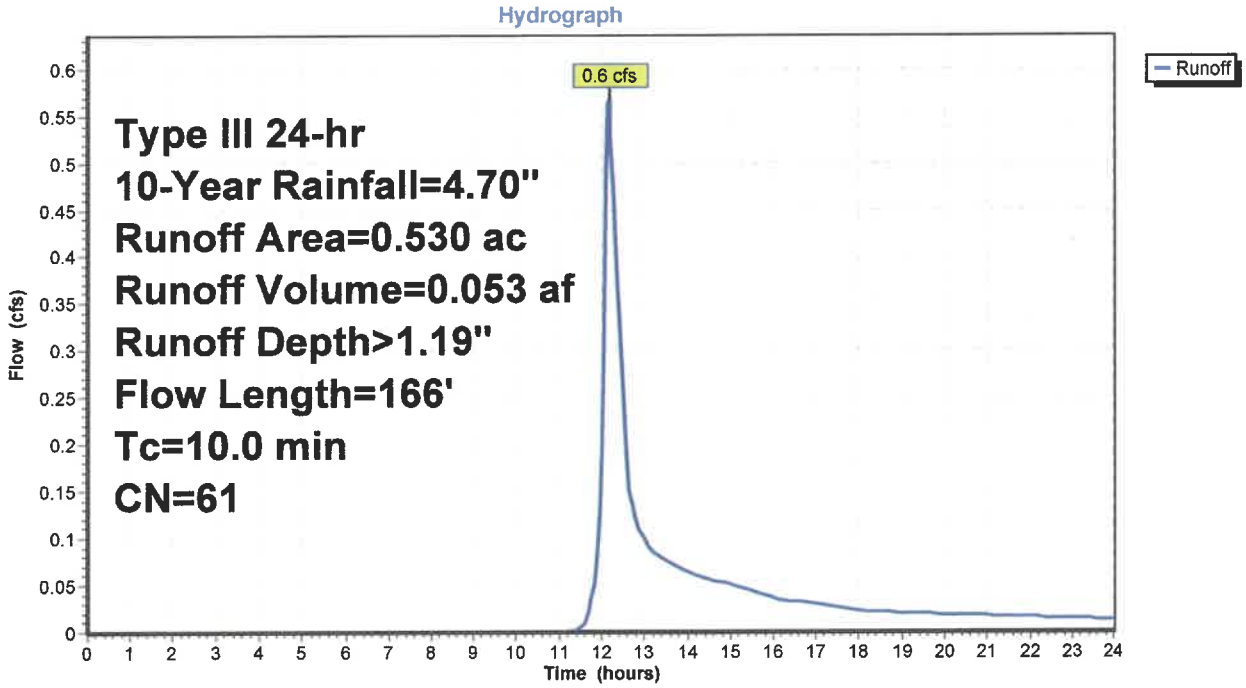
Runoff = 0.6 cfs @ 12.16 hrs, Volume= 0.053 af, Depth> 1.19"
Routed to Reach 6R : West Property Line

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.70"

| Area (ac) | CN | Description |
|---|---|---|
| 0.140 | 39 | >75% Grass cover, Good, HSG A |
| 0.125 | 61 | >75% Grass cover, Good, HSG B |
| 0.125 | 80 | >75% Grass cover, Good, HSG D |
| 0.070 | 55 | Woods, Good, HSG B |
| 0.070 | 77 | Woods, Good, HSG D |
| 0.530 | 61 | Weighted Average |
| 0.530 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 6.9 | 50 | 0.0840 | 0.12 | | **Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20" |
| 2.3 | 116 | 0.0150 | 0.86 | | **Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps |
| 9.2 | 166 | Total, Increased to minimum Tc = 10.0 min | | | |

### Subcatchment 1S: Subarea DA



## Summary for Subcatchment 5S: Subarea DC

Runoff = 2.0 cfs @ 12.14 hrs, Volume= 0.186 af, Depth> 4.46"
Routed to Pond 8P : Infiltration System

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.70"

| Area (ac) | CN | Description |
|---|---|---|
| 0.230 | 98 | Paved parking, HSG A |
| 0.020 | 98 | Paved parking, HSG B |
| 0.020 | 98 | Paved parking, HSG D |
| 0.170 | 98 | Roofs, HSG A |
| 0.030 | 98 | Roofs, HSG B |
| 0.030 | 98 | Roofs, HSG D |
| 0.500 | 98 | Weighted Average |
| 0.500 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 1.2 | 50 | 0.0050 | 0.69 | | **Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.20" |
| 1.0 | 86 | 0.0050 | 1.44 | | **Shallow Concentrated Flow,** Paved Kv= 20.3 fps |
| 0.7 | 83 | 0.0100 | 2.03 | | **Shallow Concentrated Flow,** Paved Kv= 20.3 fps |
| 0.0 | 12 | 0.0700 | 5.37 | | **Shallow Concentrated Flow,** Paved Kv= 20.3 fps |
| 2.9 | 231 | Total, Increased to minimum Tc = 10.0 min | | | |

## Summary for Subcatchment 9S: Subarea DC-1

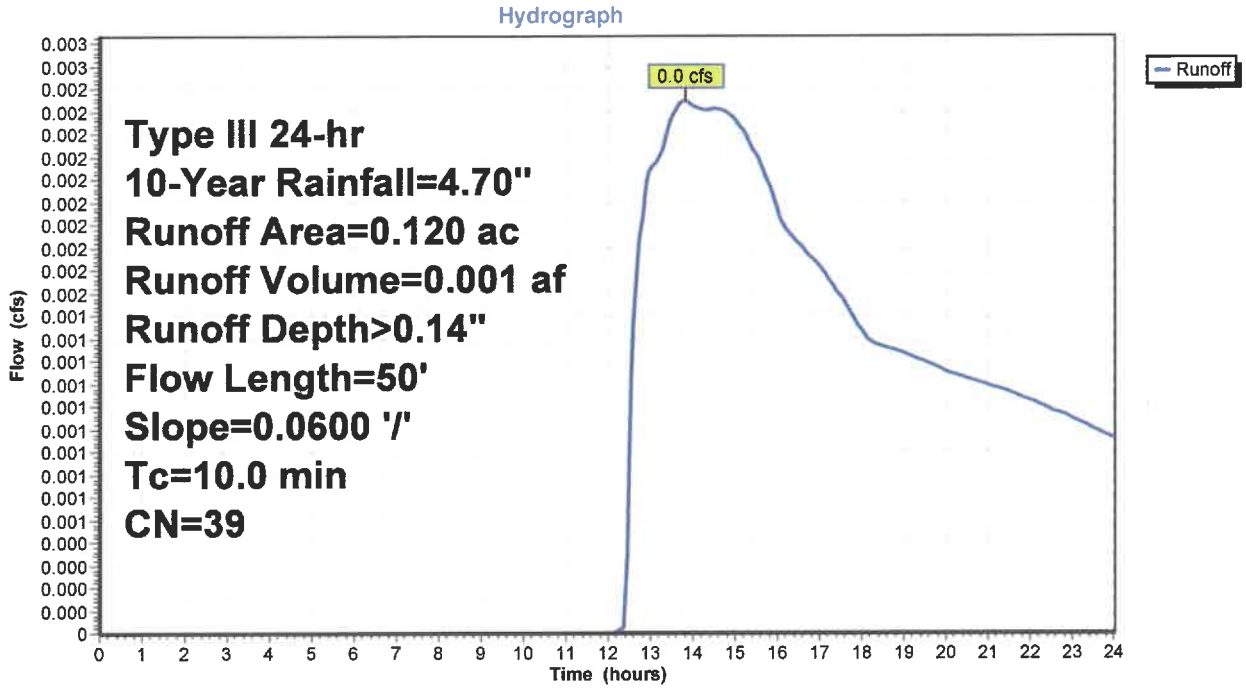
Runoff = 0.0 cfs @ 13.83 hrs, Volume= 0.001 af, Depth> 0.14"
Routed to Reach 3R : Main Street

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.70"

| Area (ac) | CN | Description |
|---|---|---|
| 0.120 | 39 | >75% Grass cover, Good, HSG A |
| 0.120 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 3.6 | 50 | 0.0600 | 0.23 | | **Sheet Flow,** Grass: Short n= 0.150 P2= 3.20" |
| 3.6 | 50 | Total, Increased to minimum Tc = 10.0 min | | | |

## Subcatchment 9S: Subarea DC-1

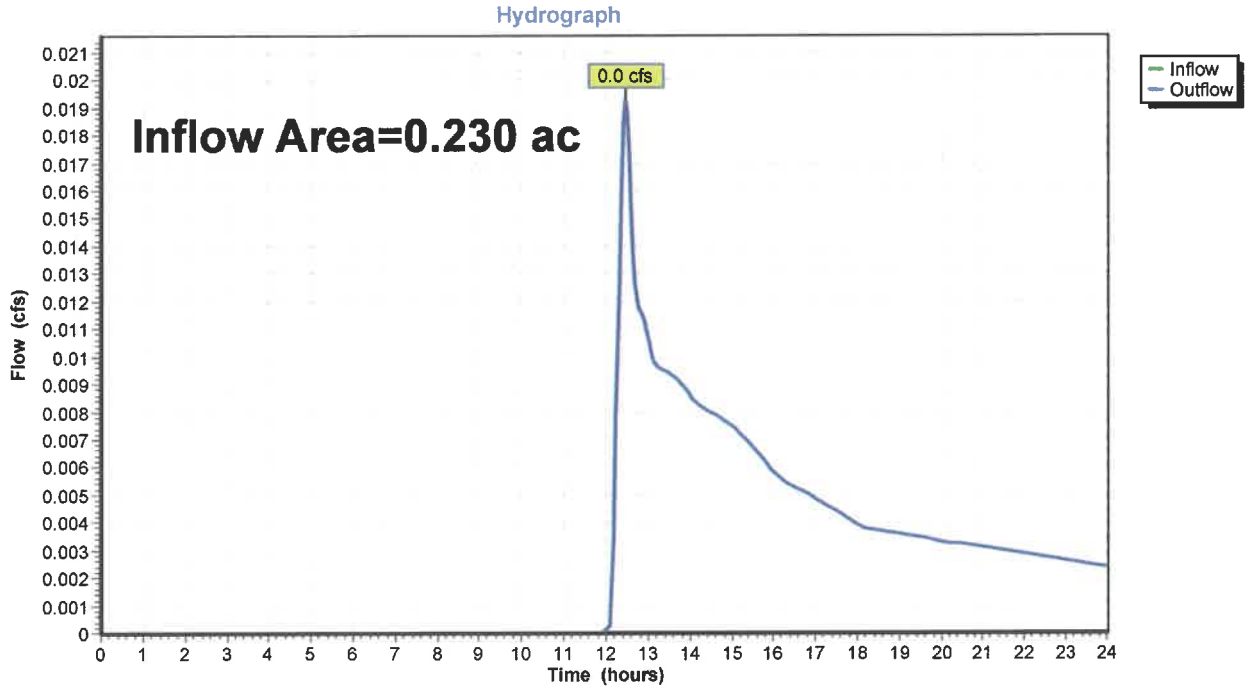


## Summary for Reach 4R: East Property Line

Inflow Area = 0.230 ac, 0.00% Impervious, Inflow Depth > 0.27" for 10-Year event
Inflow = 0.0 cfs @ 12.46 hrs, Volume= 0.005 af
Outflow = 0.0 cfs @ 12.46 hrs, Volume= 0.005 af, Atten= 0%, Lag= 0.0 min

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

## Reach 4R: East Property Line



## Summary for Pond 8P: Infiltration System

Inflow Area = 0.500 ac,100.00% Impervious, Inflow Depth > 4.46" for 10-Year event
Inflow = 2.0 cfs @ 12.14 hrs, Volume= 0.186 af
Outflow = 0.2 cfs @ 13.55 hrs, Volume= 0.168 af, Atten= 92%, Lag= 84.6 min
Discarded = 0.2 cfs @ 13.55 hrs, Volume= 0.168 af
Primary = 0.0 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach 3R : Main Street

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 289.82' @ 13.55 hrs Surf.Area= 0.074 ac Storage= 0.085 af

Plug-Flow detention time= 228.7 min calculated for 0.168 af (90% of inflow)
Center-of-Mass det. time= 179.8 min ( 931.8 - 752.0 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1A | 288.20' | 0.056 af | **36.83'W x 87.00'L x 3.21'H Field A**<br>0.236 af Overall - 0.095 af Embedded = 0.141 af x 40.0% Voids |
| #2A | 288.70' | 0.095 af | **Cultec R-280HD** x 96 Inside #1<br>Effective Size= 46.9"W x 26.0"H => 6.07 sf x 7.00'L = 42.5 cf<br>Overall Size= 47.0"W x 26.5"H x 8.00'L with 1.00' Overlap<br>Row Length Adjustment= +1.00' x 6.07 sf x 8 rows |
| #3 | 288.70' | 0.001 af | **4.00'D x 3.50'H Vertical Cone/Cylinder** |
| | | 0.152 af | Total Available Storage |

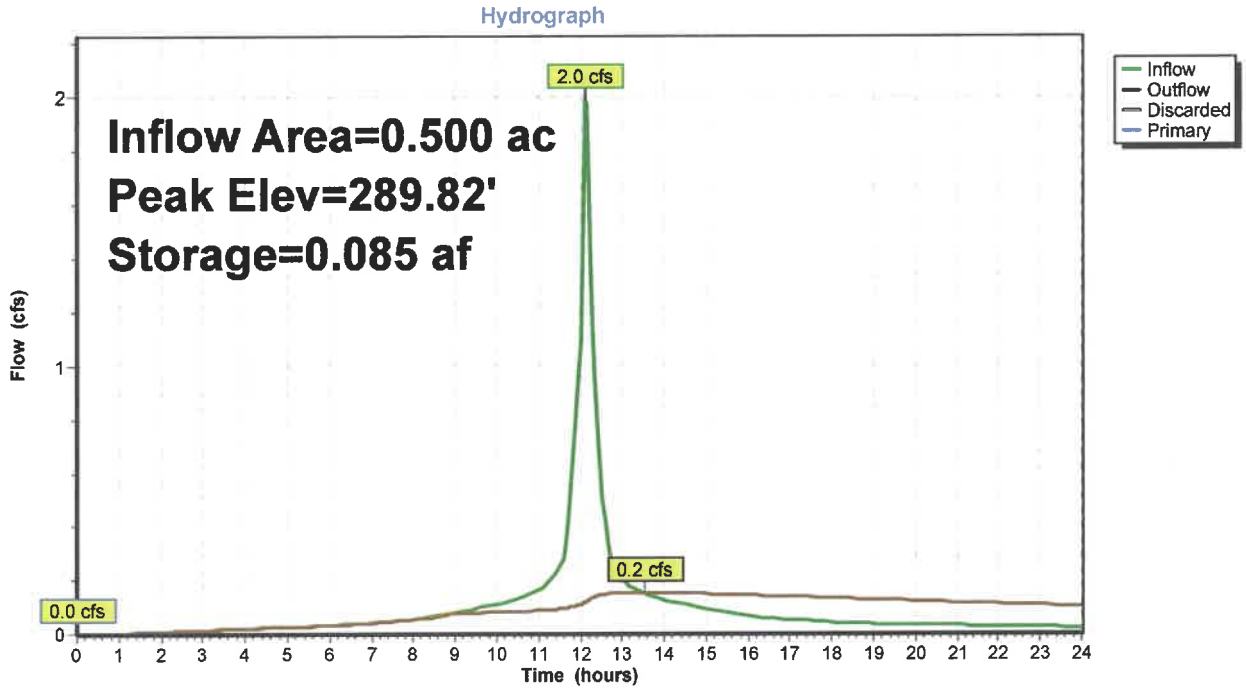
Storage Group A created with Chamber Wizard

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Discarded | 288.20' | **1.020 in/hr Exfiltration over Wetted area**<br>Conductivity to Groundwater Elevation = 286.20' |
| #2 | Primary | 290.00' | **12.0" Round Culvert**<br>L= 53.0' CPP, projecting, no headwall, Ke= 0.900<br>Inlet / Outlet Invert= 290.00' / 286.60' S= 0.0642 '/' Cc= 0.900<br>n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf |

**Discarded OutFlow** Max=0.2 cfs @ 13.55 hrs HW=289.82' (Free Discharge)
↑—**1=Exfiltration** ( Controls 0.2 cfs)

**Primary OutFlow** Max=0.0 cfs @ 0.00 hrs HW=288.20' (Free Discharge)
↑—**2=Culvert** ( Controls 0.0 cfs)

## Pond 8P: Infiltration System



## Summary for Subcatchment 1S: Subarea DA

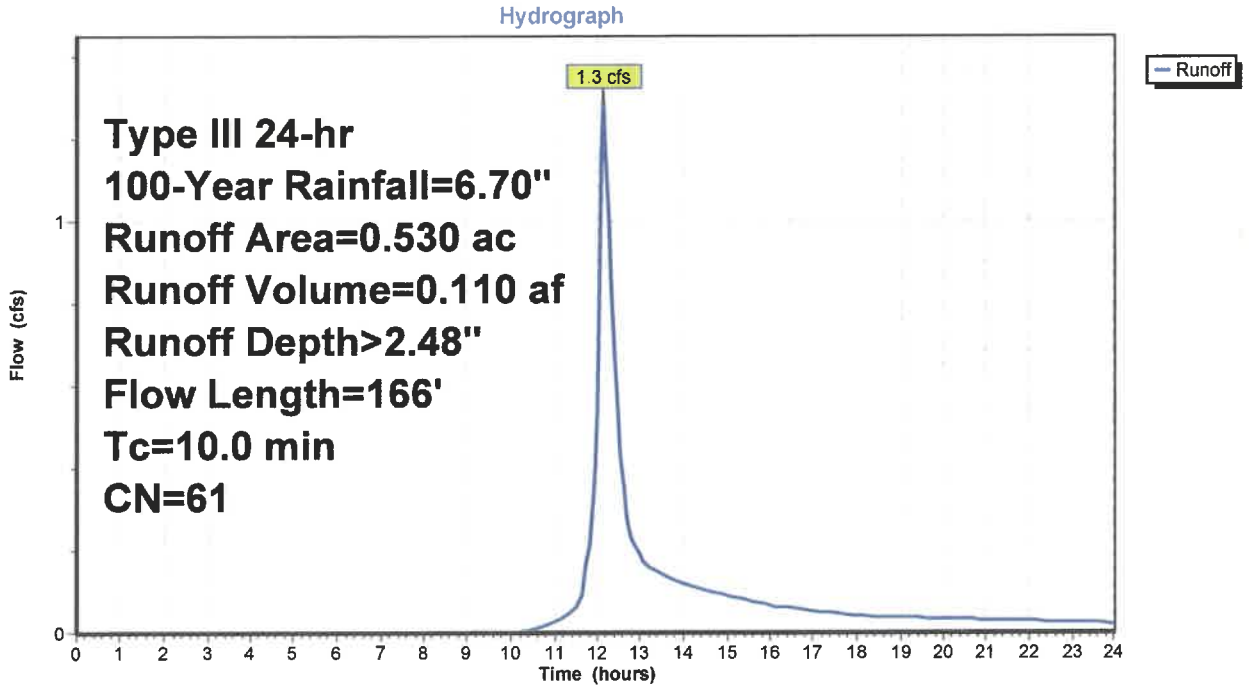
Runoff = 1.3 cfs @ 12.15 hrs, Volume= 0.110 af, Depth> 2.48"
Routed to Reach 6R : West Property Line

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.70"

| Area (ac) | CN | Description |
|---|---|---|
| 0.140 | 39 | >75% Grass cover, Good, HSG A |
| 0.125 | 61 | >75% Grass cover, Good, HSG B |
| 0.125 | 80 | >75% Grass cover, Good, HSG D |
| 0.070 | 55 | Woods, Good, HSG B |
| 0.070 | 77 | Woods, Good, HSG D |
| 0.530 | 61 | Weighted Average |
| 0.530 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 6.9 | 50 | 0.0840 | 0.12 | | **Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20" |
| 2.3 | 116 | 0.0150 | 0.86 | | **Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps |
| 9.2 | 166 | Total, Increased to minimum Tc = 10.0 min | | | |

### Subcatchment 1S: Subarea DA



## Summary for Subcatchment 5S: Subarea DC

Runoff = 2.8 cfs @ 12.14 hrs, Volume= 0.269 af, Depth> 6.45"
Routed to Pond 8P : Infiltration System

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.70"

| Area (ac) | CN | Description |
|---|---|---|
| 0.230 | 98 | Paved parking, HSG A |
| 0.020 | 98 | Paved parking, HSG B |
| 0.020 | 98 | Paved parking, HSG D |
| 0.170 | 98 | Roofs, HSG A |
| 0.030 | 98 | Roofs, HSG B |
| 0.030 | 98 | Roofs, HSG D |
| 0.500 | 98 | Weighted Average |
| 0.500 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 1.2 | 50 | 0.0050 | 0.69 | | **Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.20" |
| 1.0 | 86 | 0.0050 | 1.44 | | **Shallow Concentrated Flow,** Paved Kv= 20.3 fps |
| 0.7 | 83 | 0.0100 | 2.03 | | **Shallow Concentrated Flow,** Paved Kv= 20.3 fps |
| 0.0 | 12 | 0.0700 | 5.37 | | **Shallow Concentrated Flow,** Paved Kv= 20.3 fps |
| 2.9 | 231 | Total, Increased to minimum Tc = 10.0 min | | | |

## Summary for Subcatchment 9S: Subarea DC-1

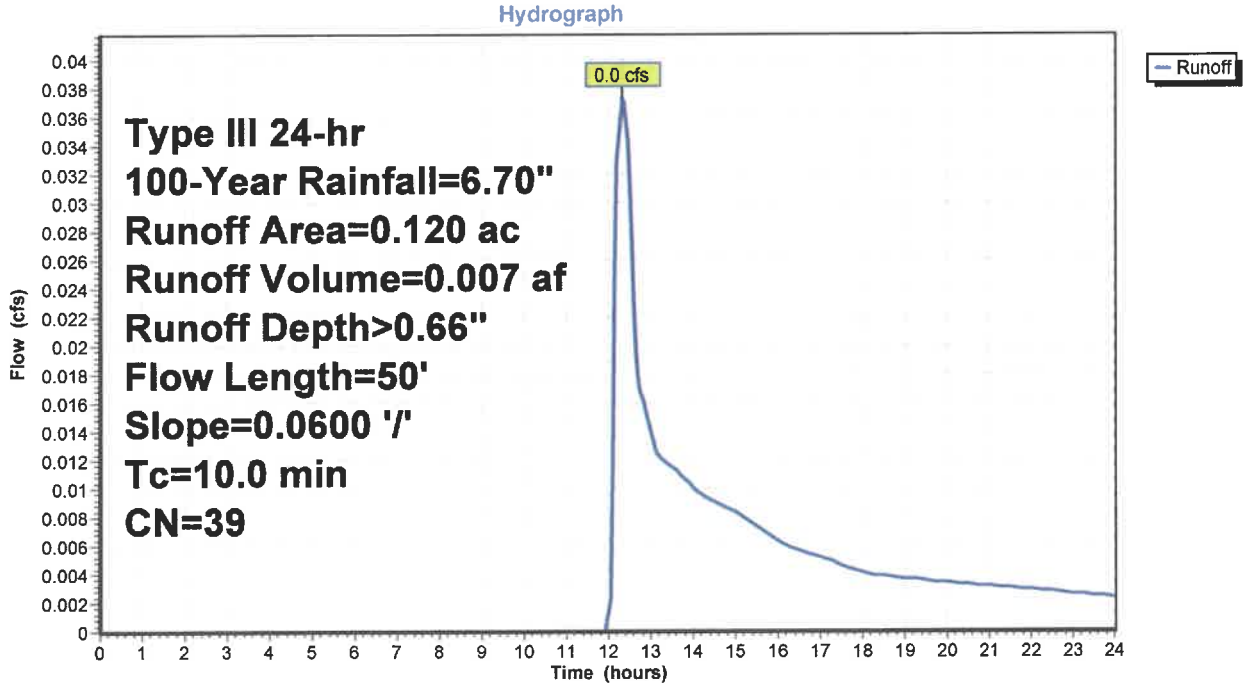
Runoff = 0.0 cfs @ 12.34 hrs, Volume= 0.007 af, Depth> 0.66"
Routed to Reach 3R : Main Street

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.70"

| Area (ac) | CN | Description |
|---|---|---|
| 0.120 | 39 | >75% Grass cover, Good, HSG A |
| 0.120 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 3.6 | 50 | 0.0600 | 0.23 | | **Sheet Flow,** Grass: Short n= 0.150 P2= 3.20" |
| 3.6 | 50 | Total, Increased to minimum Tc = 10.0 min | | | |

## Subcatchment 9S: Subarea DC-1

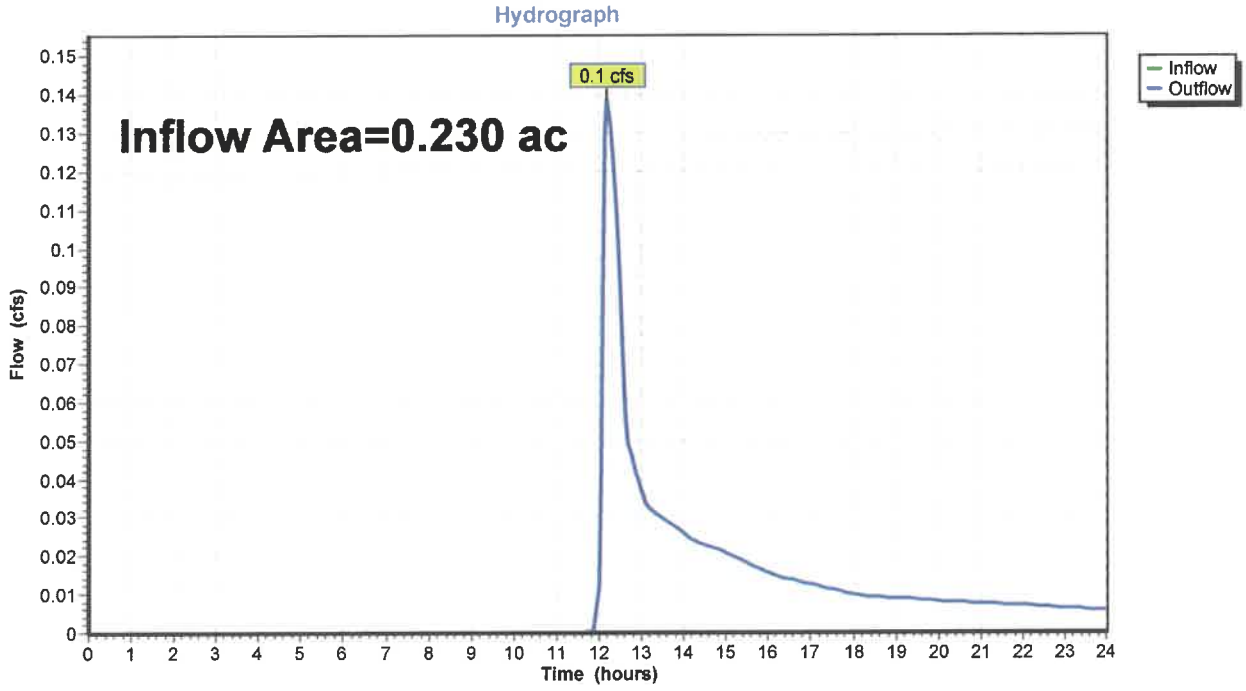


## Summary for Reach 4R: East Property Line

Inflow Area = 0.230 ac, 0.00% Impervious, Inflow Depth > 0.94" for 100-Year event
Inflow = 0.1 cfs @ 12.20 hrs, Volume= 0.018 af
Outflow = 0.1 cfs @ 12.20 hrs, Volume= 0.018 af, Atten= 0%, Lag= 0.0 min

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

### Reach 4R: East Property Line



## Summary for Pond 8P: Infiltration System

Inflow Area = 0.500 ac,100.00% Impervious, Inflow Depth > 6.45" for 100-Year event
Inflow = 2.8 cfs @ 12.14 hrs, Volume= 0.269 af
Outflow = 0.6 cfs @ 12.58 hrs, Volume= 0.232 af, Atten= 77%, Lag= 26.4 min
Discarded = 0.2 cfs @ 12.58 hrs, Volume= 0.195 af
Primary = 0.5 cfs @ 12.58 hrs, Volume= 0.036 af
Routed to Reach 3R : Main Street

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 290.39' @ 12.58 hrs Surf.Area= 0.074 ac Storage= 0.116 af

Plug-Flow detention time= 205.7 min calculated for 0.232 af (86% of inflow)
Center-of-Mass det. time= 143.8 min ( 890.3 - 746.5 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1A | 288.20' | 0.056 af | **36.83'W x 87.00'L x 3.21'H Field A**<br>0.236 af Overall - 0.095 af Embedded = 0.141 af x 40.0% Voids |
| #2A | 288.70' | 0.095 af | **Cultec R-280HD** x 96 Inside #1<br>Effective Size= 46.9"W x 26.0"H => 6.07 sf x 7.00'L = 42.5 cf<br>Overall Size= 47.0"W x 26.5"H x 8.00'L with 1.00' Overlap<br>Row Length Adjustment= +1.00' x 6.07 sf x 8 rows |
| #3 | 288.70' | 0.001 af | **4.00'D x 3.50'H Vertical Cone/Cylinder** |
| | | 0.152 af | Total Available Storage |

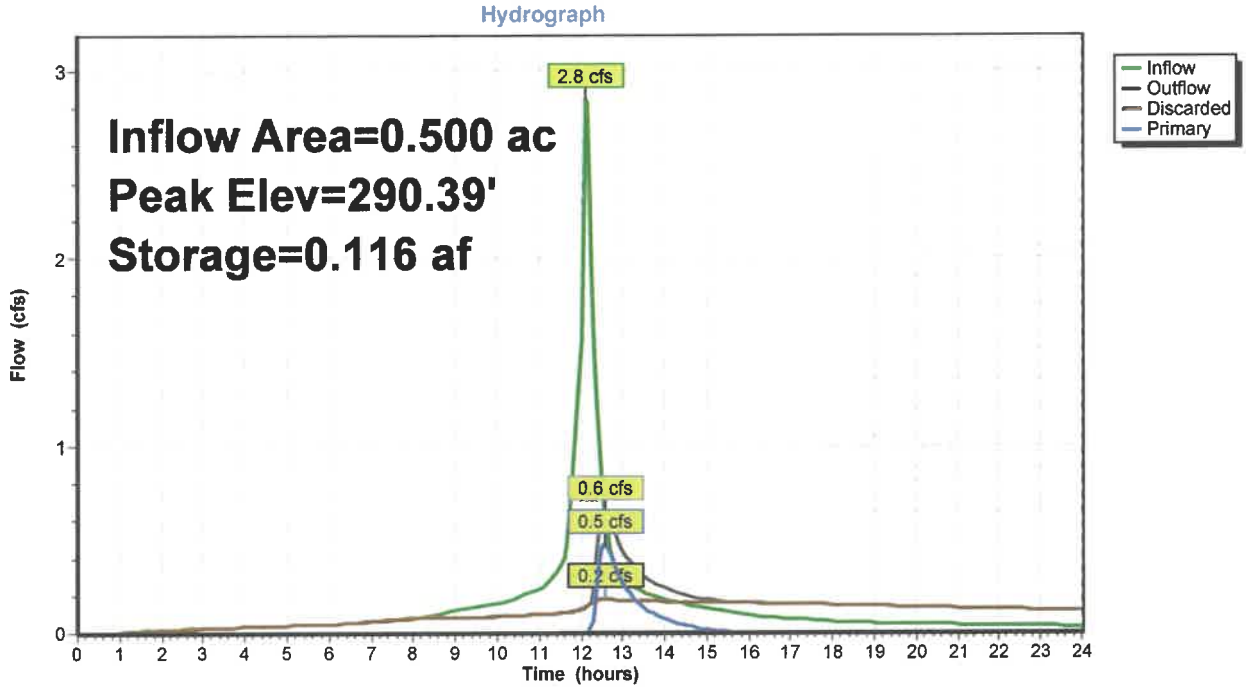
Storage Group A created with Chamber Wizard

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Discarded | 288.20' | **1.020 in/hr Exfiltration over Wetted area**<br>Conductivity to Groundwater Elevation = 286.20' |
| #2 | Primary | 290.00' | **12.0" Round Culvert**<br>L= 53.0' CPP, projecting, no headwall, Ke= 0.900<br>Inlet / Outlet Invert= 290.00' / 286.60' S= 0.0642 '/' Cc= 0.900<br>n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf |

**Discarded OutFlow** Max=0.2 cfs @ 12.58 hrs HW=290.39' (Free Discharge)
↑—**1=Exfiltration** ( Controls 0.2 cfs)

**Primary OutFlow** Max=0.5 cfs @ 12.58 hrs HW=290.39' (Free Discharge)
↑—**2=Culvert** (Inlet Controls 0.5 cfs @ 1.67 fps)

## Pond 8P: Infiltration System



## APPENDIX B – STORM WATER WORKSHEETS

Required Recharge Volume and Drawdown Worksheet
TSS Removal and Phosphorus Removal Worksheet
Checklist for Stormwater Report
Ground Water Mounding Summary Worksheet

# Required Recharge Volume Worksheet

**PROJECT LOCATION:** **73 Main Street Foxborough, MA**
**DATE:** 18-Oct-23
**PROJECT NUMBER:** 22-0174

**Subarea DC**

| *SCS Soil Type Hydrologic Group* | *Target Depth Factor (in)* | *Total Impervious Area (ac)* | *Required Volume to Recharge (ac-ft)* |
|---|---|---|---|
| HSG A - Pavement & Roofs | 0.60 | 0.400 | 0.0200 |
| HSG B - Pavement & Roofs | 0.35 | 0.050 | 0.0015 |
| HSG D - Pavement & Roofs | 0.10 | 0.050 | 0.0004 |
| | | **TOTAL:** | **0.0219** |

| | |
|---|---|
| **SITE TOTAL Rv:** | **0.0219** |

**Subsurface Basin**

| **Volume Recharged** | |
|---|---|
| Volume of pond between bottom and outlet (el=290.20) | 0.095 ac-ft |

| **Drawdown Within 72 hours** | |
|---|---|
| Soil Type: | Sandy Loam |
| RAWLS Rate (in/hr): | 1.02 |
| Infiltration Area (sf): | 3,204 |
| Drawdown Time (hours): | 3.5 |

# TSS Phosphorous Removal Worksheet

**PROJECT LOCATION:** 73 Main Street Foxborough, MA
**DATE:** 18-Oct-23
**PROJECT NUMBER:** 22-0174

## TSS Removal

**Subsurface Basin**

| | | |
|---|---|---|
| **Impervious Area =** | 0.500 | acres |
| **Runoff depth to be treated =** | 0.50 | inches |
| **Runoff volume to be treated =** | 0.0208 | ac-ft |

| *BMP* | *TSS Removal Rate* | *Starting TSS Load* | *Amount Removed* | *Remaining Load* |
|---|---|---|---|---|
| Deep Sump Catch Basin | 0.25 | 1.00 | 0.25 | 0.75 |
| Infiltration Basin | 0.8 | 0.75 | 0.60 | 0.15 |
| **TOTAL TSS REMOVED =** | | | | **85 %** |

## Phosphorous Removal

| BMP | Phosphorous Removal Rate | Starting TSS Load | Amount Removed | Remaining Load |
|---|---|---|---|---|
| Infiltration Basin | 0.6 | 1.00 | 0.6 | 0.40 |
| **TOTAL PHOSPHOROUS REMOVED =** | | | | **60%** |

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

# Checklist for Stormwater Report

## A. Introduction

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



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

The Stormwater Report must include:

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

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

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

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

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

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

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

# Checklist for Stormwater Report

## B. Stormwater Checklist and Certification

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

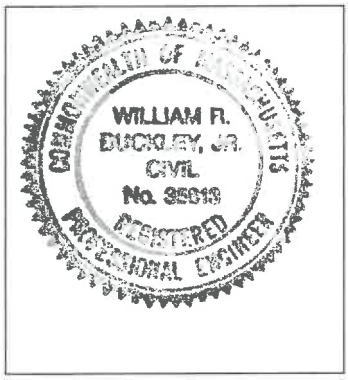
*Note:* Because stormwater requirements vary from project to project, it is possible that a complete Stormwater Report may not include information on some of the subjects specified in the Checklist. If it is determined that a specific item does not apply to the project under review, please note that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

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

## Registered Professional Engineer's Certification

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

Registered Professional Engineer Block and Signature




12/7/2023
Signature and Date

## Checklist

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

- [x] 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:

- [x] No disturbance to any Wetland Resource Areas
- [ ] Site Design Practices (e.g. clustered development, reduced frontage setbacks)
- [ ] Reduced Impervious Area (Redevelopment Only)
- [x] 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**

- [x] 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)

- [x] 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.

- [x] 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.
- [x] 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 LOCATION:** | **73 Main Street** |
| **DATE:** | 18-Oct-23 |
| **PROJECT NUMBER:** | 22-0174 |

**Basin 1**

**Aquifer Properties:**

| | | |
|---|---|---|
| **Hydraulic Conductivity (K· ft/day):** | 2.04 | RAWLS rate for SANDY LOAM |
| **Specific Yield (Sy):** | 0.21 | Medium Gravel (USGS Water Supply Paper 1662- |
| **Initial Saturated Thickness (ft):** | 10 | Town of Foxborough Ground Water Protection Study- April 1989 |

**Recharge Area Properties:**

| | | |
|---|---|---|
| **Required Recharge Volume (Rv-ft3):** | 954 | See Required Recharge Volume Worksheet |
| **Elevation of Estimated High Groundwater (ft):** | 286.20 | |
| **Bottom of Recharge System (ft):** | 288.20 | Bottom basin el-228.0' |
| **Bottom Area (ft2):** | 3,204 | Bottom basin el-228.0' |

**Application Rate Calculation:**

$$\frac{\text{Rv (ft3)}}{\text{Bottom Area (ft2)}} * \frac{\text{24 hrs/day}}{\text{(DEP stan}} =$$

$$\frac{954}{3{,}204} * \frac{24}{2} = 3.6 \text{ ft/day}$$

| | | |
|---|---|---|
| **Length of Time to Generate Rv (days):** | 0.0833 | assume Rv generated during a 2 hour period - see DEP Stormwater Handbook, Vol.3, Ch.1, p.20 |

**Groundwater Mounding Solution by Hantush (1967)**

| | | |
|---|---|---|
| **Maximum Water Table Rise in Center of Recharge Area (ft)** | 1.43 | See output run using AQTESOLV V4.50.002 |
| **Depth From Top of Mound to Bottom of Recharge Area (ft):** | 0.57 | Mound does not breach bottom of system |

Transient Water-Table Rise Beneath a Rectangular Recharge Area
Groundwater Mounding Solution by Hantush (1967)

Aquifer Properties:
Hydraulic conductivity, K = 2.04 ft/day
Specific yield, Sy = 0.21
Initial saturated thickness, h(0) = 10 ft

Recharge Area Properties:
Recharge rate, w = 3.6 ft/day
Simulation time, t = 1 day
Time when recharge stops, t(0) = 0.0833 day
X coordinate at center of recharge area, X = 0 ft
Y coordinate at center of recharge area, Y = 0 ft
Length in x direction, l = 87 ft
Length in y direction, a = 36.83 ft

Water-Table Rise at Center of Recharge Area:

| t (day) | h (ft) |
|---|---|
| 0.1 | 1.42799 |
| 0.2 | 1.42565 |
| 0.3 | 1.41043 |
| 0.4 | 1.38094 |
| 0.5 | 1.34382 |
| 0.6 | 1.30413 |
| 0.7 | 1.26456 |
| 0.8 | 1.2263 |
| 0.9 | 1.18983 |
| 1 | 1.15526 |

Note: recovery begins after 0.0833 day.

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Report generated by AQTESOLV v4.50.002 (www.aqtesolv.com) on 11/01/23 at 15:10:44.

# APPENDIX C - OPERATION AND MAINTENANCE PLAN FOR STORM WATER BMPS

Construction Period O & M Plan
Post-Construction O & M Plan
Draft SWPPP

**Appendix C: OPERATION AND MAINTENANCE PLAN FOR STORMWATER BMPs**
**73 Main Street Foxborough, MA**

| | During Construction | Post-construction |
|---|---|---|
| *BMP Owner:* | **Owner** | **Owner** |
| *Party of Plan Responsibility:* | **Owner** | **Owner** |

**References:**

- Special Permit Plan of the Homes at 73 Main Street Foxborough, MA
- Storm Water Analysis and Management Report the Homes at 73 Main Street Foxborough, MA dated November, 2023

**Operation and Maintenance – During Construction**

Item 1: During construction, **weekly** inspection of the crushed stone construction entrance pad and erosion control silt socks shall be conducted by a qualified staff member of the responsible party or an independent sediment and erosion control expert hired by the responsible party. Any displaced barriers shall be restored or repaired immediately.

Item 2: The catch basins in the **parking area** shall be inspected **before** and **after** rain storms, if they are filled with sediment to half of their depth, they shall be cleaned out with an orange peel bucket or some other means. Silt sacks shall be installed inside the catch basins. The infiltration system and catch basins shall be inspected three times a year: once after leaf fall, once before the arrival of hurricane season, the third in the early or mid-spring after the snow melt and road sweeping. Any debris should be cleaned out. The parking lot shall be swept as necessary, but no less than twice a year: once before hurricane season, the once in the spring after snow melt.

Item 3: During construction every effort will be made to ensure that silt does not enter the stormwater basin. Additional silt socks shall be used as necessary. If silt does enter the basin, then the contractor shall be responsible for its removal through the inspection ports.

Item 4: During construction, the stone pad at the entrance to the project shall be inspected **weekly** and replenished if siltation is impeding the cleaning of truck tires. Any materials tracked into the roadway shall be swept up within a day.

## Operation and Maintenance – Post Construction

Catch Basins: The catch basins shall be inspected three times a year: once after leaf fall, once before the arrival of hurricane season, the third in the early or mid-spring after the snow melt and road sweeping. Any debris in catch basins shall be cleaned out. If there is less than 2' of space below the outlet and the top of the silt then the structure shall be cleaned out.

Parking Area: The parking area will be swept twice a year: once before hurricane season, the other in the spring after snow melt.

Infiltration Basin: Once the infiltration system is in use, the infiltration chambers shall be inspected by opening inspection ports after every major storm (3.2 inches in 24 hours) for the first few months to ensure it is functioning properly and if necessary, take corrective action. Any debris in the risers shall be removed and a vacuum truck shall be used if debris are found in the chambers. Note how long water remains standing in the basin after a storm; standing water within the basin 48 to 72 hours after a storm indicates that there is an issue. Remedial action shall be taken in accordance with the issue. Thereafter, inspect the infiltration basin at least twice per year to ensure that it is dry. See latest edition of Cultec Contactor & Recharger Operation and Maintenance Guidelines (CULG008-operations-and-maintenance-guidelines.pdf (cultec.com).

## Estimated Operations and Maintenance Budget

The following is an estimate of the O&M Budget, post construction.
Inspections (3 times per year): $200
Cleaning catch basins (yearly): $200

**Long Term Pollution Prevention Plan**

Item 1 - Good housekeeping practices: The site is to be kept clean of trash and debris. No trash or uncovered materials is to be left outside.
Item 2 - Provisions for storing materials and waste products inside or under cover: All waste materials will be stored in enclosed dumpsters and removed by a licensed solid waste company. No waste products will be stored outside the facility unless in dumpsters.
Item 3 - Vehicle washing controls: Vehicles will not be washed on this site.
Item 4 - Requirements for routine inspections and maintenance of stormwater BMPs: Refer to the maintenance schedule provided in the Operation and Maintenance Plan – Post Construction.
Item 5 - Spill prevention and response plans: A spill prevention and response plan will be developed and implemented by the building owner.
Item 6 - Provisions for maintenance of planters, gardens, parks and other landscaped areas: Owner will maintain surrounding landscaped area with the purpose of retaining the landscaped as designed.
Item 7 - Requirements for storage and use of fertilizers, herbicides, and pesticides: If present, fertilizers, herbicides and pesticides shall be stored in their appropriate containers within the building. They shall be handled and used in accordance with the manufacturer's recommendations. It is anticipated that a landscape contractor with have the responsibility of maintaining the property and these materials will be stored off site.
Item 8 - Pet waste management provisions: Pet owners will be responsible for removal of waste to trash receptacles.
Item 9 - Provisions for solid waste management: Solid waste material shall be placed in outdoor enclosed containers until emptied by licensed waste management company.
Item 10 - Snow disposal and plowing plans: A snow removal plan will be developed and implemented by the tenant and Owner. A draft plan is attached (Sheet 8).
Item 11 - Winter Road Salt/or Sand Use and Storage restriction: See item above.
Item 12 - Sweeping schedules: See Operations and Maintenance Plan – Post Construction.
Item 13 - Training for staff or personnel involved with the implementing Long Term Pollution Prevention Plan: The facility owner will be responsible for training necessary staff or subcontractors to the implement the plan.
Item 14 - List of Emergency contacts for implementing Long-Term Pollution Prevention Plan: TBD

**Stormwater Pollution Prevention Plan (SWPPP)**

**For Construction Activities At:**

**73 Main Street**
**Foxborough, MA**
**Telephone: TBD**

**SWPPP Prepared For:**

**Briarwood Construction Corp**
**31 Belmont Street**
**South Easton, MA 02375**
**508.230.8340**

**SWPPP Prepared By:**

**Bay Colony Group, Inc.**
**4 School Street**
**Foxborough, MA 02035**
**508.543.3939**
**508.543.8866 fax**

**SWPPP Preparation Date:**

**November, 2023**

**Estimated Project Dates:**

**Project Start Date: Fall, 2024**
**Project Completion Date: Spring, 2026**

## Contents

## SECTION 1: CONTACT INFORMATION/RESPONSIBLE PARTIES

### *1.1 Operator(s) / Subcontractor(s)*

**Operator(s):**

A. Briarwood Construction Corp
31 Belmont Street
South Easton, MA 02375
508.230.8340

**Subcontractor(s):**

Insert Company or Organization Name:
Insert Name:
Insert Address:
Insert City, State, Zip Code:
Insert Telephone Number:
Insert Fax/Email:
Insert area of control (if more than one operator at site):

[Repeat as necessary.]

**Emergency 24-Hour Contact:**

A. Insert name address, telephone number

### *1.2 Stormwater Team*

Insert Role or Responsibility: **Project Manager**
Insert Position: **Project Manager**
Insert Name: **Name**
Insert Telephone Number: **number**
Insert Email: **email**

Insert Role or Responsibility:
Insert Position:
Insert Name:

Insert Telephone Number:
Insert Email:

Insert Role or Responsibility:
Insert Position:
Insert Name:
Insert Telephone Number:
Insert Email:

[Repeat as necessary.]

## SECTION 2: SITE EVALUATION, ASSESSMENT, AND PLANNING

### 2.1 *Project/Site Information*

**Project Name and Address**

Project/Site Name: **73 Main Street**
Project Street/Location: **73 Main Street**
City: **Foxborough**
State: **MA**
ZIP Code: **02035**
County or Similar Subdivision: **Norfolk**

**Project Latitude/Longitude**

(Use **one** of three possible formats, and specify method)

Latitude:
1. **42 ° 04 ' 11" N** (degrees, minutes, seconds)
2. _ _ ° _ _ . _ _ ' N (degrees, minutes, decimal)
3. _ _ . _ _ _ _ ° N (decimal)

Longitude:
1. **71 ° 15 ' 17" W** (degrees, minutes, seconds)
2. _ _ ° _ _ . _ _ ' W (degrees, minutes, decimal)
3. _ _ . _ _ _ _ ° W (decimal)

Method for determining latitude/longitude:
☐ USGS topographic map (specify scale: _____) ☐ EPA Web site ☒ GPS
☐ Other (please specify):

Horizontal Reference Datum:
☐ NAD 27 ☒ NAD 83 or WGS 84 ☐ Unknown

If you used a U.S.G.S topographic map, what was the scale? _____

**Additional Project Information**

Is the project/site located on Indian country lands, or located on a property of religious or cultural significance to an Indian tribe? ☐ Yes ☒ No

If yes, provide the name of the Indian tribe associated with the area of Indian country (including the name of Indian reservation if applicable), or if not in Indian country, provide the name of the Indian tribe associated with the property: **N/A**

If you are conducting earth-disturbing activities in response to a public emergency, document the cause of the public emergency *(e.g., natural disaster, extreme flooding conditions)*, information substantiating its occurrence *(e.g., state disaster declaration)*, and a description of the construction necessary to reestablish effective public services: N/A

Are you applying for permit coverage as a "federal operator" as defined in Appendix A of the 2012 CGP? ☐ Yes ☒ No

### *2.2 Discharge Information*

Does your project/site discharge stormwater into a Municipal Separate Storm Sewer System (MS4)? ☒ Yes ☐ No

Are there any surface waters that are located within 50 feet of your construction disturbances?
☐ Yes ☒ No

**Table 1 – Names of Receiving Waters**

| Name(s) of the first surface water that receives stormwater directly from your site and/or from the MS4 (note: multiple rows provided where your site has more than one point of discharge that flows to different surface waters) |
|---|
| **1. Cocasset Brook** |
| **2.** |
| **3.** |
| **4.** |
| **5.** |
| **6.** |

**Table 2 – Impaired Waters / TMDLs** (Answer the following for each surface water listed in Table 1 above)

| | Is this surface water listed as "impaired"? | If you answered yes, then answer the following: | | | |
|---|---|---|---|---|---|
| | | What pollutant(s) are causing the impairment? | Has a TMDL been completed? | Title of the TMDL document | Pollutant(s) for which there is a TMDL |
| **1.** | ☐ YES ☒ NO | | ☐ YES ☐ NO | | |
| **2.** | ☐ YES ☐ NO | | ☐ YES ☐ NO | | |
| **3.** | ☐ YES ☐ NO | | ☐ YES ☐ NO | | |
| **4.** | ☐ YES ☐ NO | | ☐ YES ☐ NO | | |
| **5.** | ☐ YES ☐ NO | | ☐ YES ☐ NO | | |
| **6.** | ☐ YES ☐ NO | | ☐ YES ☐ NO | | |

[Include additional rows as necessary.]

Describe the method(s) you used to determine whether or not your project/site discharges to an impaired water: Review of the MassDEP 2022 Integrated List of Waters. Cocasset Brook is not listed

**Table 3 – Tier 2, 2.5, or 3 Waters** (Answer the following for each surface water listed in Table 1 above)

| | Is this surface water designated as a Tier 2, Tier 2.5, or Tier 3 water? (see Appendix F) | If you answered yes, specify which Tier (2, 2.5, or 3) the surface water is designated as? |
|---|---|---|
| **1.** | ☐ YES ☐ NO | INSERT "Tier 2", "Tier 2.5", or "Tier 3" |
| **2.** | ☐ YES ☐ NO | INSERT "Tier 2", "Tier 2.5", or "Tier 3" |
| **3.** | ☐ YES ☐ NO | INSERT "Tier 2", "Tier 2.5", or "Tier 3" |
| **4.** | ☐ YES ☐ NO | INSERT "Tier 2", "Tier 2.5", or "Tier 3" |
| **5.** | ☐ YES ☐ NO | INSERT "Tier 2", "Tier 2.5", or "Tier 3" |

## *2.3 Nature of the Construction Activity*

**General Description of Project**
Provide a general description of the construction project:
**Construction of an 8-unit multi-family home with associated parking and storm water systems**

**Size of Construction Project**
What is the size of the property (in acres), the total area expected to be disturbed by the construction activities (in acres), and the maximum area expected to be disturbed at any one time?
**INSERT SIZE OF PROPERTY – 1.49+/- acres**
**INSERT TOTAL AREA OF CONSTRUCTION DISTURBANCES – 1.1+/- acres**
**INSERT MAXIMUM AREA TO BE DISTURBED AT ANY ONE TIME – 1.1+/- acres**

[Repeat as necessary for individual project phases.]

**Construction Support Activities** (only provide if applicable)
Describe any construction support activities for the project (e.g., concrete or asphalt batch plants, equipment staging yards, material storage areas, excavated material disposal areas, borrow areas)
INSERT DESCRIPTION OF CONSTRUCTION SUPPORT ACTIVITY
INSERT CONTACT INFORMATION FOR CONSTRUCTION SUPPORT ACTIVITY (Name, Telephone No., Email Address)
INSERT LOCATION INFORMATION FOR CONSTRUCTION SUPPORT ACTIVITY (Address and/or Latitude/Longitude)

[Repeat as necessary.]

## *2.4 Sequence and Estimated Dates of Construction Activities*

**Phase I**
**Clearing of building site and storm water basins, installation of erosion controls, and grubbing of wooded areas.**

- INSERT ESTIMATED START AND END DATES OF CONSTRUCTION DISTURBANCES ASSOCIATED WITH THIS PHASE
- FOR EACH STORMWATER CONTROL, INSERT ESTIMATED DATE(s) OF INSTALLATION OF EACH STORMWATER CONTROL
- FOR AREAS OF THE SITE REQUIRED TO BE STABILIZED, INSERT ESTIMATED DATE(s) OF APPLICATION OF STABILIZATION MEASURES
- INSERT ESTIMATED DATE(s) WHEN STORMWATER CONTROLS WILL BE REMOVED

**Phase II**
**Import and placement of material to bring building and parking to subbase elevation. Construction of storm water basin. Installation of drainage and water mains within site.**

- INSERT ESTIMATED START AND END DATES OF CONSTRUCTION DISTURBANCES ASSOCIATED WITH THIS PHASE

- FOR EACH STORMWATER CONTROL, INSERT ESTIMATED DATE(s) OF INSTALLATION OF EACH STORMWATER CONTROL
- FOR AREAS OF THE SITE REQUIRED TO BE STABILIZED, INSERT ESTIMATED DATE(s) OF APPLICATION OF STABILIZATION MEASURES
- INSERT ESTIMATED DATE(s) WHEN STORMWATER CONTROLS WILL BE REMOVED

**Phase III**
**Installation of base course of parking and construction of building.**

- INSERT ESTIMATED START AND END DATES OF CONSTRUCTION DISTURBANCES ASSOCIATED WITH THIS PHASE
- FOR EACH STORMWATER CONTROL, INSERT ESTIMATED DATE(s) OF INSTALLATION OF EACH STORMWATER CONTROL
- FOR AREAS OF THE SITE REQUIRED TO BE STABILIZED, INSERT ESTIMATED DATE(s) OF APPLICATION OF STABILIZATION MEASURES
- INSERT ESTIMATED DATE(s) WHEN STORMWATER CONTROLS WILL BE REMOVED

**Phase IV**
**Construct landscaping, finish building, place finished course of pavement. Remove storm water erosion controls.**

- INSERT ESTIMATED START AND END DATES OF CONSTRUCTION DISTURBANCES ASSOCIATED WITH THIS PHASE
- FOR EACH STORMWATER CONTROL, INSERT ESTIMATED DATE(s) OF INSTALLATION OF EACH STORMWATER CONTROL
- FOR AREAS OF THE SITE REQUIRED TO BE STABILIZED, INSERT ESTIMATED DATE(s) OF APPLICATION OF STABILIZATION MEASURES
- INSERT ESTIMATED DATE(s) WHEN STORMWATER CONTROLS WILL BE REMOVED
-

[Repeat as needed.]

### 2.5 *Allowable Non-Stormwater Discharges*

**List of Allowable Non-Stormwater Discharges Present at the Site**

| **Type of Allowable Non-Stormwater Discharge** | **Likely to be Present at Your Site?** |
|---|---|
| Discharges from emergency fire-fighting activities | ☐ YES ☒ NO |
| Fire hydrant flushings | ☐ YES ☒ NO |
| Landscape irrigation | ☒ YES ☐ NO |
| Waters used to wash vehicles and equipment | ☐ YES ☒ NO |
| Water used to control dust | ☒ YES ☐ NO |
| Potable water including uncontaminated water line flushings | ☒ YES ☐ NO |
| Routine external building wash down | ☐ YES ☒ NO |
| Pavement wash waters | ☐ YES ☒ NO |
| Uncontaminated air conditioning or compressor condensate | ☒ YES ☐ NO |

| | |
|---|---|
| Uncontaminated, non-turbid discharges of ground water or spring water | ☐ YES ☒ NO |
| Foundation or footing drains | ☐ YES ☒ NO |
| Construction dewatering water | ☒ YES ☐ NO |

(Note: You are reminded of the requirement to identify the likely locations of these allowable non-stormwater discharges on your site map. See Section 2.6, below, of the SWPPP Template.)

### 2.6 *Site Maps*

See Site Development Plan of #73 Main Street by Bay Colony Group, Inc.

## SECTION 3: DOCUMENTATION OF COMPLIANCE WITH OTHER FEDERAL REQUIREMENTS

### *3.1 Endangered Species Protection*

**Eligibility Criterion**

Under which criterion listed in Appendix D are you eligible for coverage under this permit?

☒ **A** ☐ **B** ☐ **C** ☐ **D** ☐ **E** ☐ **F**

For reference purposes, the eligibility criteria listed in Appendix D are as follows:

**Criterion A.** No federally-listed threatened or endangered species or their designated critical habitat(s) are likely to occur in your site's "action area" as defined in Appendix A of this permit.

**Criterion B.** The construction site's discharges and discharge-related activities were already addressed in another operator's valid certification of eligibility for your action area under eligibility Criterion A, C, D, E, or F and there is no reason to believe that federally-listed species or federally-designated critical habitat not considered in the prior certification may be present or located in the "action area". To certify your eligibility under this Criterion, there must be no lapse of NPDES permit coverage in the other operator's certification. By certifying eligibility under this Criterion, you agree to comply with any effluent limitations or conditions upon which the other operator's certification was based. You must include in your NOI the tracking number from the other operator's notification of authorization under this permit. If your certification is based on another operator's certification under Criterion C, you must provide EPA with the relevant supporting information required of existing dischargers in Criterion C in your NOI form.

**Criterion C.** Federally-listed threatened or endangered species or their designated critical habitat(s) are likely to occur in or near your site's "action area," and your site's discharges and discharge-related activities are not likely to adversely affect listed threatened or endangered species or critical habitat. This determination may include consideration of any stormwater controls and/or management practices you will adopt to ensure that your discharges and discharge-related activities are not likely to adversely affect listed species and critical habitat. To make this certification, you must include the following in your NOI: 1) any federally listed species and/or designated habitat located in your "action area"; and 2) the distance between your site and the listed species or designated critical habitat (in miles). You must also include a copy of your site map with your NOI.

**Criterion D.** Coordination between you and the Services has been concluded. The coordination must have addressed the effects of your site's discharges and discharge-related activities on federally-listed threatened or endangered species and federally-designated critical habitat, and must have resulted in a written concurrence from the relevant Service(s) that your site's discharges and discharge-related activities are not likely to adversely affect listed species or critical habitat. You must include copies of the correspondence between yourself and the Services in your SWPPP and your NOI.

**Criterion E.** Consultation between a Federal Agency and the U.S. Fish and Wildlife Service and/or the National Marine Fisheries Service under section 7 of the ESA has been concluded. The consultation must have addressed the effects of the construction site's discharges and discharge-related activities on federally-listed threatened or endangered species and federally-designated critical habitat. The result of this consultation must be either:

i. a biological opinion that concludes that the action in question (taking into account the effects of your site's discharges and discharge-related activities) is not likely to jeopardize the continued existence of listed species, nor the destruction or adverse modification of critical habitat; or

ii. written concurrence from the applicable Service(s) with a finding that the site's discharges and discharge-related activities are not likely to adversely affect federally-listed species or federally-designated habitat.

You must include copies of the correspondence between yourself and the Services in your SWPPP and your NOI.

**Criterion F.** Your construction activities are authorized through the issuance of a permit under section 10 of the ESA, and this authorization addresses the effects of the site's discharges and discharge-related activities on federally-listed species and federally-designated critical habitat. You must include copies of the correspondence between yourself and the Services in your SWPPP and your NOI.

**Supporting Documentation**

Provide documentation for the applicable eligibility criterion you select in Appendix D, as follows:

**For criterion A**, indicate the basis for your determination that no federally-listed threatened or endangered species or their designated critical habitat(s) are likely to occur in your site's action area (as defined in Appendix A of the permit). Check the applicable source of information you relied upon:

- ☐ Specific communication with staff of the U.S. Fish & Wildlife Service or National Marine Fisheries Service. INSERT DATE OF COMMUNICATION AND WHO YOU SPOKE WITH
- ☒ Publicly available species list. MASSMAPPER Website – NHESP Tabs
- ☐ Other source: INSERT SPECIFIC SOURCE

**For criterion B**, provide the Tracking Number from the other operator's notification of permit authorization: INSERT AUTHORIZATION TRACKING NUMBER FROM OTHER OPERATOR'S NOTIFICATION LETTER/EMAIL

Provide a brief summary of the basis used by the other operator for selecting criterion A, B, C, D, E, or F: INSERT TEXT HERE

**For criterion C**, provide the following information:

- INSERT LIST OF FEDERALLY-LISTED SPECIES OR FEDERALLY-DESIGNATED CRITICAL HABITAT LOCATED IN YOUR ACTION AREA
- INSERT DISTANCE BETWEEN YOUR SITE AND THE LISTED SPECIES OR CRITICAL HABITAT (in miles)

Also, provide a brief summary of the basis used for determining that your site's discharges and discharge-related activities are not likely to adversely affect listed species or critical habitat: INSERT TEXT HERE

**For criterion D, E, or F**, attach copies of any letters or other communication between you and the U.S. Fish & Wildlife Service or National Marine Fisheries Service concluding consultation or coordination activities. INSERT COPIES OF LETTERS OR OTHER COMMUNICATIONS HERE

### 3.2 *Historic Preservation*

**Appendix E, Step 1**

Do you plan on installing any of the following stormwater controls at your site? Check all that apply below, and proceed to Appendix E, Step 2.

- ☐ Dike
- ☐ Berm
- ☒ Catch Basin
- ☒ Pond
- ☐ Stormwater Conveyance Channel (e.g., ditch, trench, perimeter drain, swale, etc.)
- ☒ Culvert
- ☐ Other type of ground-disturbing stormwater control:

(Note: If you will not be installing any ground-disturbing stormwater controls, no further documentation is required for Section 3.2 of the Template.)

**Appendix E, Step 2**

If you answered yes in Step 1, have prior surveys or evaluations conducted on the site already determined that historic properties do not exist, or that prior disturbances at the site have precluded the existence of historic properties? ☐ YES ☒ NO

- If yes, no further documentation is required for Section 3.2 of the Template.
- If no, proceed to Appendix E, Step 3.

**Appendix E, Step 3**

If you answered no in Step 2, have you determined that your installation of subsurface earth-disturbing stormwater controls will have no effect on historic properties? ☒ YES ☐ NO

If yes, provide documentation of the basis for your determination. **Reference to the Massachusetts Cultural Resources Information System shows no historical areas, buildings, burial grounds, objects or structures on or near the site.**

If no, proceed to Appendix E, Step 4.

**Appendix E, Step 4**

If you answered no in Step 3, did the State Historic Preservation Officer (SHPO), Tribal Historic Preservation Office (THPO), or other tribal representative (whichever applies) respond to you within 15 calendar days to indicate whether the subsurface earth disturbances caused by the installation of stormwater controls affect historic properties? ☐ YES ☐ NO

If no, no further documentation is required for Section 3.2 of the Template.

If yes, describe the nature of their response:

☐ Written indication that adverse effects to historic properties from the installation of stormwater controls can be mitigated by agreed upon actions. INSERT COPIES OF LETTERS, EMAILS, OR OTHER COMMUNICATION BETWEEN YOU AND THE APPLICABLE SHPO, THPO, OR OTHER TRIBAL REPRESENTATIVE

☐ No agreement has been reached regarding measures to mitigate effects to historic properties from the installation of stormwater controls. INSERT COPIES OF LETTERS, EMAILS, OR OTHER COMMUNICATION BETWEEN YOU AND THE APPLICABLE SHPO, THPO, OR OTHER TRIBAL REPRESENTATIVE

☐ Other: INSERT COPIES OF LETTERS, EMAILS, OR OTHER COMMUNICATION BETWEEN YOU AND THE APPLICABLE SHPO, THPO, OR OTHER TRIBAL REPRESENTATIVE

### *3.3 Safe Drinking Water Act Underground Injection Control Requirements*

Do you plan to install any of the following controls? Check all that apply below.

☐ Infiltration trenches (if stormwater is directed to any bored, drilled, driven shaft or dug hole that is deeper than its widest surface dimension, or has a subsurface fluid distribution system)

☒ Commercially manufactured pre-cast or pre-built proprietary subsurface detention vaults, chambers, or other devices designed to capture and infiltrate stormwater flow

☐ Drywells, seepage pits, or improved sinkholes (if stormwater is directed to any bored, drilled, driven shaft or dug hole that is deeper than its widest surface dimension, or has a subsurface fluid distribution system)

If yes, INSERT COPIES OF LETTERS, EMAILS, OR OTHER COMMUNICATION BETWEEN YOU AND THE STATE AGENCY OR EPA REGIONAL OFFICE - **no correspondence undertaken. Project is permitted under the MassDEP Stormwater Regulations which are enforced by the local Planning Board. A Notice of Intent will be filed and an Order of Conditions issued before the project can proceed.**

## SECTION 4: EROSION AND SEDIMENT CONTROLS

### *4.1 Natural Buffers or Equivalent Sediment Controls*

**Buffer Compliance Alternatives**

Are there any surface waters within 50 feet of your project's earth disturbances? ☐ YES ☒ NO

(Note: If no, no further documentation is required for the SWPPP Template.)

Check the compliance alternative that you have chosen:

☐ I will provide and maintain a 50-foot undisturbed natural buffer.

(Note (1): You must show the 50-foot boundary line of the natural buffer on your site map.)

(Note (2): You must show on your site map how all discharges from your construction disturbances through the natural buffer area will first be treated by the site's erosion and sediment controls. Also, show on the site map any velocity dissipation devices used to prevent erosion within the natural buffer area.)

☐ I will provide and maintain an undisturbed natural buffer that is less than 50 feet and is supplemented by additional erosion and sediment controls, which in combination achieves the sediment load reduction equivalent to a 50-foot undisturbed natural buffer.

(Note (1): You must show the boundary line of the natural buffer on your site map.)

(Note (2): You must show on your site map how all discharges from your construction disturbances through the natural buffer area will first be treated by the site's erosion and sediment controls. Also, show on the site map any velocity dissipation devices used to prevent erosion within the natural buffer area.)

- INSERT WIDTH OF NATURAL BUFFER TO BE RETAINED
- INSERT EITHER ONE OF THE FOLLOWING:

  (1) THE ESTIMATED SEDIMENT REMOVAL FROM A 50-FOOT BUFFER USING APPLICABLE TABLES IN APP. G, ATTACHMENT 1. INCLUDE INFORMATION ABOUT THE BUFFER VEGETATION AND SOIL TYPE THAT PREDOMINATE AT YOUR SITE

  OR

  (2) IF YOU CONDUCTED A SITE-SPECIFIC CALCULATION FOR THE ESTIMATED SEDIMENT REMOVAL OF A 50-FOOT BUFFER, PROVIDE THE SPECIFIC REMOVAL EFFICIENCY, AND INFORMATION YOU RELIED UPON TO MAKE YOUR SITE-SPECIFIC CALCULATION.
- INSERT DESCRIPTION OF ADDITIONAL EROSION AND SEDIMENT CONTROLS TO BE USED IN COMBINATION WITH NATURAL BUFFER AREA
- INSERT THE FOLLOWING INFORMATION:
  - (1) SPECIFY THE MODEL OR OTHER TOOL USED TO ESTIMATE SEDIMENT LOAD REDUCTIONS FROM THE COMBINATION OF THE BUFFER AREA AND ADDITIONAL EROSION AND SEDIMENT CONTROLS INSTALLED AT YOUR SITE, AND
  - (2) INCLUDE THE RESULTS OF CALCULATIONS SHOWING THAT THE COMBINATION OF YOUR BUFFER AREA AND THE ADDITIONAL EROSION AND SEDIMENT CONTROLS INSTALLED AT YOUR SITE WILL MEET OR EXCEED THE SEDIMENT REMOVAL EFFICIENCY OF A 50-FOOT BUFFER

☐ It is infeasible to provide and maintain an undisturbed natural buffer of any size, therefore I will implement erosion and sediment controls that achieve the sediment load reduction equivalent to a 50-foot undisturbed natural buffer.

- DESCRIPTION OF WHY IT IS NOT FEASIBLE
- INSERT EITHER ONE OF THE FOLLOWING:

  (1) THE ESTIMATED SEDIMENT REMOVAL FROM A 50-FOOT BUFFER USING APPLICABLE TABLES IN APP. G, ATTACHMENT 1. INCLUDE INFORMATION ABOUT THE BUFFER VEGETATION AND SOIL TYPE THAT PREDOMINATE AT YOUR SITE

  OR

  (2) IF YOU CONDUCTED A SITE-SPECIFIC CALCULATION FOR THE ESTIMATED SEDIMENT REMOVAL OF A 50-FOOT BUFFER, PROVIDE THE SPECIFIC REMOVAL EFFICIENCY, AND INFORMATION YOU RELIED UPON TO MAKE YOUR SITE-SPECIFIC CALCULATION.
- INSERT DESCRIPTION OF ADDITIONAL EROSION AND SEDIMENT CONTROLS TO BE USED IN COMBINATION WITH NATURAL BUFFER AREA
- INSERT THE FOLLOWING INFORMATION:
  - (1) SPECIFY THE MODEL OR OTHER TOOL USED TO ESTIMATE SEDIMENT LOAD REDUCTIONS FROM THE EROSION AND SEDIMENT CONTROLS INSTALLED AT YOUR SITE, AND
  - (2) INCLUDE THE RESULTS OF CALCULATIONS SHOWING THAT THE ADDITIONAL EROSION AND SEDIMENT CONTROLS INSTALLED AT YOUR SITE WILL MEET OR EXCEED THE SEDIMENT REMOVAL EFFICIENCY OF A 50-FOOT BUFFER

☐ I qualify for one of the exceptions in Part 2.1.2.1.e. (If you have checked this box, provide information on the applicable buffer exception that applies, below.)

**Buffer Exceptions**

Which of the following exceptions to the buffer requirements applies to your site?

☐ There is no discharge of stormwater to the surface water that is located 50 feet from my construction disturbances.

(Note: If this exception applies, no further documentation is required for Section 4.1 of the Template.)

☐ No natural buffer exists due to preexisting development disturbances that occurred prior to the initiation of planning for this project.

(Note (1): If this exception applies, no further documentation is required for Section 4.1 of the Template.)

(Note (2): Where some natural buffer exists but portions of the area within 50 feet of the surface water are occupied by preexisting development disturbances, you must still comply with the one of the CGP Part 2.1.2.1.a compliance alternatives.)

☐ For a "linear project" (defined in Appendix A), site constraints (e.g., limited right-of-way) make it infeasible for me to meet any of the CGP Part 2.1.2.1.a compliance alternatives. INCLUDE DOCUMENTATION HERE OF THE FOLLOWING: (1) WHY IT IS INFEASIBLE FOR YOU TO MEET ONE OF THE BUFFER COMPLIANCE ALTERNATIVES, AND (2) BUFFER WIDTH RETAINED AND/OR SUPPLEMENTAL EROSION AND SEDIMENT CONTROLS TO TREAT DISCHARGES TO THE SURFACE WATER

☐ The project qualifies as "small residential lot" construction (defined in Part 2.1.2.1.e.iv and in Appendix A).

For Alternative 1 (see Appendix G, Part G.2.3.2.a):

- INSERT WIDTH OF NATURAL BUFFER TO BE RETAINED
- INSERT APPLICABLE REQUIREMENTS BASED ON TABLE G-1
- INSERT DESCRIPTION OF HOW YOU WILL COMPLY WITH THESE REQUIREMENTS

For Alternative 2 (see Appendix G, Part G.2.3.2.b):

- INSERT (1) THE ASSIGNED RISK LEVEL BASED ON APPLICABLE TABLE IN APP. G, PART G.2.3.2.b, AND (2) THE PREDOMINANT SOIL TYPE AND AVERAGE SLOPE AT YOUR SITE
- INSERT APPLICABLE REQUIREMENTS BASED ON APP. G, TABLE G-7
- INSERT DESCRIPTION OF HOW YOU WILL COMPLY WITH THESE REQUIREMENTS

☐ Buffer disturbances are authorized under a CWA Section 404 permit. INSERT DESCRIPTION OF ANY EARTH DISTURBANCES THAT WILL OCCUR WITHIN THE BUFFER AREA

(Note (1): If this exception applies, no further documentation is required for Section 4.1 of the Template.)

(Note (2): This exception only applies to the limits of disturbance authorized under the Section 404 permit, and does not apply to any upland portion of the construction project.)

☐ Buffer disturbances will occur for the construction of a water-dependent structure or water access area (e.g., pier, boat ramp, and trail). INSERT DESCRIPTION OF ANY EARTH DISTURBANCES THAT WILL OCCUR WITHIN THE BUFFER AREA

(Note (1): If this exception applies, no further documentation is required for Section 4.1 of the Template.)

### *4.2 Perimeter Controls*

**General**

- **The perimeter of the site where sediment could be expected to migrate off site will contain a silt sock barrier that will capture siltation and runoff.**

**Specific Perimeter Controls**

*Perimeter Control # 1*

Perimeter Control Description

- **Silt sock barrier**
- **See SWPP Plan – Site Plan**

Installation

- INSERT APPROXIMATE DATE OF INSTALLATION

Maintenance Requirements

- **Weekly inspection and removal of sediment once it reaches at least ½ way up the barrier.**

[Repeat as needed for individual perimeter controls.]

### *4.3 Sediment Track-Out*

**General**

- **Rip rap stabilized construction entrance.**

**Specific Track-Out Controls**

*Track-Out Control # 1*

Track-Out Control Description

- **Rip rap stabilized construction entrances at points where they meet existing driveway pavement off of Perry Driveway**
- **See SWPP Plan – Site Plan**

Installation

- INSERT APPROXIMATE DATE OF INSTALLATION

Maintenance Requirements

- **Monitor and maintain the Stabilized Construction Entrance shown on the SWPPP Plan to ensure that it is cleaned and functioning correctly to prevent tracking of sediment by construction that exit the Site.**
- **Where sediment has been tracked-out from the site onto the surface of off-site streets, other paved areas, and sidewalks, you must remove the deposited sediment by the end of the same work day in which the track-out occurs or by the end of the next work day if track-out occurs on a non-work day. You must remove the track-out by sweeping, shoveling, or vacuuming these surfaces, or by using other similarly effective means of sediment removal. Hosing or sweeping tracked-out sediment into any stormwater conveyance (unless it is connected to a sediment basin, sediment trap, or similarly effective control), storm drain inlet, or surface water.") is prohibited.**

[Repeat as needed for individual track-out controls.]

### *4.4 Stockpiled Sediment or Soil*

**General**

- **Stockpiled Material will be encircled with a silt sock barrier**

**Specific Stockpile Controls**

*Stockpile Control # 1*

Stockpiled Sediment/Soil Control Description

- **Silt sock will be placed around the perimeter of the stockpiled material.**
- **See SWPP Plan – Site Plan**

Installation

- INSERT APPROXIMATE DATE OF INSTALLATION

Maintenance Requirements

- **Inspect barriers weekly or after a rain storm and remove sediment if it has reached ½ way up the barrier.**

[Repeat as needed for individual stockpile controls.]

### *4.5 Minimize Dust*

**General**

- **A water truck will be used for dust control.**

**Specific Dust Controls**

*Dust Control # 1*
Dust Control Description

- **A water truck will be used for dust control.**

Installation

- **n/a**

Maintenance Requirements

- **n/a**

[Repeat as needed for individual dust controls.]

### *4.6 Minimize the Disturbance of Steep Slopes*

**General**

- **Erosion control will be used to minimize siltation from slopes to be disturbed.**

**Specific Steep Slope Controls**

*Steep Slope Control # 1*
Steep Slope Control Description

- INSERT DESCRIPTION OF STEEP SLOPE CONTROL TO BE INSTALLED
- INCLUDE COPIES OF DESIGN SPECIFICATIONS HERE

Installation

- INSERT APPROXIMATE DATE OF INSTALLATION

Maintenance Requirements

- INSERT MAINTENANCE REQUIREMENTS FOR THE STEEP SLOPE CONTROL

[Repeat as needed for individual steep slope controls.]

### *4.7 Topsoil*

**General**

- **The existing topsoil will stripped and stockpiled on the site and reused in areas of the site where it is appropriate: lawns, parking & driveway side slopes, etc. The remainder will be removed from the site to locations TBD.**

**Specific Topsoil Controls**

*Topsoil Control # 1*
Topsoil Control Description
- **Topsoil will be stripped and stockpiled on the site and handled in accordance with the specifications of other stockpiles**
- **See Section 4.4**
- **See SWPP Plan – Appendix A**

Installation
- INSERT APPROXIMATE DATE OF INSTALLATION

Maintenance Requirements
- **Same as Section 4.4**

[Repeat as needed for individual topsoil controls.]

### *4.8 Soil Compaction*

**General**
- **Areas of landscaping will be handled in accordance with local landscaping practice. Storm water basin construction will be handled in accordance with the guidance in the MA DEP Stormwater standards.**

**Specific Soil Compaction Controls**

*Soil Compaction Control # 1*
Soil Compaction Control Description
- **Storm water basin construction will be in accordance with MA DEP Stormwater standards.**
- **See site plan – Appendix A**

Installation
- INSERT APPROXIMATE DATE OF INSTALLATION

Maintenance Requirements
- **Storm water basins will be cleaned in accordance with the long term maintenance plan, or more if necessary.**
-

[Repeat as needed for individual soil compaction controls.]

### *4.9 Storm Drain Inlets*

**General**
- **Storm drain inlets will be protected through the use of silt socks within drainage swales. Catch basins will protected by silt socks around the grates or with silt bags inserted in the structure.**

**Specific Storm Drain Inlet Controls**

*Storm Drain Inlet Control # 1*
Storm Drain Inlet Control Description

- **Silt socks**
- **See SWPP Plan – Appendix A**

Installation
- INSERT APPROXIMATE DATE OF INSTALLATION

Maintenance Requirements
- **Clean, or remove and replace, the protection measures as sediment accumulates, the filter becomes clogged, and/or performance is compromised. Where there is evidence of sediment accumulation adjacent to the inlet protection measure, you must remove the deposited sediment by the end of the same work day in which it is found or by the end of the following work day if removal by the same work day is not feasible.**

*Storm Drain Inlet Control # 2*
Storm Drain Inlet Control Description
- **Silt socks around grates or silt sacks in catch basins**
- **See SWPP Plan – Appendix A**

Installation
- INSERT APPROXIMATE DATE OF INSTALLATION

Maintenance Requirements
- **Clean, or remove and replace, the protection measures as sediment accumulates, the filter becomes clogged, and/or performance is compromised. Where there is evidence of sediment accumulation adjacent to the inlet protection measure, you must remove the deposited sediment by the end of the same work day in which it is found or by the end of the following work day if removal by the same work day is not feasible.**

[Repeat as needed for individual storm drain inlet controls.]

### *4.10 Constructed Stormwater Conveyance Channels*

**General**
- **Rip rap devices will be used at all outlets.**

**Specific Conveyance Channel Controls**

*Stormwater Conveyance Channel Control # 1*
Stormwater Conveyance Channel Control Description
- **Rip rap outlet to drain outlet pipes**
- **See Site Plan**

Installation
- INSERT APPROXIMATE DATE OF INSTALLATION

Maintenance Requirements

- **Rip rap shall be inspected weekly and after every rainstorm. If erosion is taking place the stone shall be replenished.**

[Repeat as needed for individual stormwater conveyance channel controls.]

### *4.11 Sediment Basins*

**General**

- **The storm water basin will not be used as sediment basin during construction. Sediment basins will be constructed as necessary to control sediment close to the source and to prevent it from exiting site or going into the storm water basin.**

**Specific Sediment Basin Controls**

*Sediment Basin Control # 1*
Sediment Basin Control Description

Installation

- INSERT APPROXIMATE DATE OF INSTALLATION

Maintenance Requirements

- **Sediment basins will be inspected weekly and after every rain event greater than 0.5". Once the sediment in the forebay reaches 1/2 of depth the sediment will be removed.**
- **Once construction has stopped and the site is fully stabilized the basin will be revegetated as necessary to bring it into compliance with the definitive plans.**

  (Note: At a minimum, you must comply with following requirement in CGP Part 2.1.3.2.b: "Keep in effective operating condition and remove accumulated sediment to maintain at least ½ of the design capacity of the sediment basin at all times.")

[Repeat as needed for individual sediment basin controls.]

### *4.12 Chemical Treatment*

**Soil Types**
List all the soil types (including soil types expected to be found in fill material) that are expected to be exposed during construction and that will be discharged to locations where chemicals will be applied:
**None anticipated**

**Treatment Chemicals**
List all treatment chemicals that will be used at the site and explain why these chemicals are suited to the soil characteristics: INSERT TEXT HERE

Describe the dosage of all treatment chemicals you will use at the site or the methodology you will use to determine dosage: INSERT TEXT HERE

Provide information from any applicable Material Safety Data Sheets (MSDS): INSERT TEXT HERE

Describe how each of the chemicals will stored: INSERT TEXT HERE

Include references to applicable state or local requirements affecting the use of treatment chemicals, and copies of applicable manufacturer's specifications regarding the use of your specific treatment chemicals and/or chemical treatment systems: INSERT TEXT HERE

**Special Controls for Cationic Treatment Chemicals** (if applicable)
If you have been authorized by your applicable Regional Office to use cationic treatment chemicals, include the official EPA authorization letter or other communication, and identify the specific controls and implementation procedures you are required to implement to ensure that your use of cationic treatment chemicals will not lead to a violation of water quality standards: INSERT (1) ANY LETTERS OR OTHER DOCUMENTS SENT FROM THE EPA REGIONAL OFFICE CONCERNING YOUR USE OF CATIONIC TREATMENT CHEMICALS, AND (2) DESCRIPTION OF ANY SPECIFIC CONTROLS YOU ARE REQUIRED TO IMPLEMENT

**Schematic Drawings of Stormwater Controls/Chemical Treatment Systems**
Provide schematic drawings of any chemically-enhanced stormwater controls or chemical treatment systems to be used for application of treatment chemicals: INSERT TEXT HERE

**Training**
Describe the training that personnel who handle and apply chemicals have received prior to permit coverage, or will receive prior to the use of treatment chemicals: INSERT TEXT HERE

### *4.13 Dewatering Practices*

**General**

- **Dewatering is not expected to be necessary**

**Specific Dewatering Practices**

*Dewatering Practice # 1*
Dewatering Practice Description

- **Installation of a sump pipe with trash pump in the area of the excavation**
- **Discharge will take place in a sediment basin, which will allow the water to infiltrate into the ground away from the property lines.**

Installation

- INSERT APPROXIMATE DATE OF INSTALLATION

Maintenance Requirements

- **Create a stone sump if necessary to ameliorate velocity and to encourage infiltration. If necessary, use silt socks or hay bales to contain.**

[Repeat as needed for individual dewatering practices.]

### *4.14 Other Stormwater Controls*

**General**

- INSERT GENERAL DESCRIPTION OF THE PROBLEM THIS CONTROL IS DESIGNED TO ADDRESS

**Specific Stormwater Control Practices**

*Stormwater Control Practice # 1*
Description
- INSERT DESCRIPTION OF PRACTICE TO BE INSTALLED
- IF APPLICABLE INCLUDE COPIES OF DESIGN SPECIFICATIONS HERE

Installation
- INSERT APPROXIMATE DATE OF INSTALLATION

Maintenance Requirements
- INSERT MAINTENANCE REQUIREMENTS FOR THE STORMWATER CONTROL PRACTICE

[Repeat as needed.]

### *4.15 Site Stabilization*

**Site Stabilization Practice** (only use this if you are not located in an arid, semi-arid, or drought-stricken area)
☒ *Vegetative* ☐ *Non-Vegetative*
☒ *Temporary* ☐ *Permanent*

Description of Practice
- **Temporary stabilization of disturbed areas.**
- **No later than 14 days after initiation of soil stabilization measures the portion of the site in question will be planted with temporary cover using either standard seeding or hydroseeding.**
- **Seed mixture shall be based on the Massachusetts Conservation Guide Vol. II – Vegetated Practices in Site Development Table 1 – Seedings for Temporary Cover and is dependent on the time of year and the weather conditions.**

Installation
- INSERT APPROXIMATE DATE OF INSTALLATION
- INSERT APPROXIMATE COMPLETION DATE CONSISTENT WITH CGP PART 2.2.1.2

Maintenance Requirements
**Seeded areas should be refertilized with ½ of the establishment amount in the second growing season and subsequently as needed.**

[Repeat as needed for additional stabilization practices.]

**Site Stabilization Practice** (only use this if you are located in an arid, semi-arid, or drought-stricken area)
☒ *Vegetative* ☐ *Non-Vegetative*
☐ *Temporary* ☒ *Permanent*

Description of Practice
- **Permanent stabilization of disturbed areas.**
- **Final stabilization in areas to be vegetated will be done in accordance Section 2.2.2 of the general permit.**
- **Seed mixture shall be based on the Massachusetts Conservation Guide Vol. II – Vegetated Practices in Site Development Table 2 – Seed Mixtures for Permanent Cover and is dependent on the time of year and the weather conditions.**
-

Installation
- FOR VEGETATIVE STABILIZATION IN ARID OR SEMI-ARID AREAS, INDICATE THE BEGINNING AND ENDING DATES OF THE SEASONALLY DRY PERIOD AND DESCRIBE YOUR SITE CONDITIONS
- INSERT APPROXIMATE DATE OF INSTALLATION
- INSERT APPROXIMATE COMPLETION DATE CONSISTENT WITH CGP PART 2.2.1.3

Maintenance Requirements
**Seeded areas should be refertilized with ½ of the establishment amount in the second growing season and subsequently as needed.**

[Repeat as needed for additional stabilization practices.]

**Site Stabilization Practice** (only use this if uncontrollable circumstances have delayed the initiation or completion of stabilization)

(Note: You will not be able to include this information in your initial SWPPP. If you are affected by circumstances such as those described in CGP Part 2.2.1.3.b, you will need to modify your SWPPP to include this information.)

☐ *Vegetative* ☐ *Non-Vegetative*
☐ *Temporary* ☐ *Permanent*

Justification

- INSERT DESCRIPTION OF CIRCUMSTANCES THAT PREVENT YOU FROM MEETING THE DEADLINES REQUIRED IN CGP PARTS 2.2.1.1 AND/OR 2.2.1.2 AND THE SCHEDULE YOU WILL FOLLOW FOR INITIATING AND COMPLETING STABILIZATION

Description of Practice

- INSERT DESCRIPTION OF STABILIZATION PRACTICE TO BE INSTALLED
- NOTE HOW DESIGN WILL MEET REQUIREMENTS OF PART 2.2.2.1 OR 2.2.2.2, WHICHEVER APPLIES
- INCLUDE COPIES OF DESIGN SPECIFICATIONS HERE

Installation

- INSERT DATES OF INITIATION AND COMPLETION OF NON-VEGETATIVE STABILIZATION CONTROLS (must be completed within 14 days of the cessation of construction)

Maintenance Requirements

INSERT MAINTENANCE REQUIREMENTS FOR THE STABILIZATION PRACTICE

[Repeat as needed for additional stabilization practices.]

## SECTION 5: POLLUTION PREVENTION STANDARDS

### *5.1 Potential Sources of Pollution*

**Construction Site Pollutants**

| **Pollutant-Generating Activity** | **Pollutants or Pollutant Constituents** (that could be discharged if exposed to stormwater) | **Location on Site** (or reference SWPPP site map where this is shown) |
|---|---|---|
| Fueling of vehicles | Gasoline or diesel | Only on paved surfaces, to include existing Perry Drive |
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[Include additional rows as necessary.]

### *5.2 Spill Prevention and Response*

**Any spills of petroleum products will be cleaned using available sorbent material, to include sand, gravel, earth, or other dry clean up measures. If the spill is so large that it enters a catch basin then ensure that the basin is properly emptied so that the materials do not exit the structure. If necessary, contact the Foxboro Fire Department at 911 and direct them to the project site.**

### *5.3 Fueling and Maintenance of Equipment or Vehicles*

**General**

- **Fueling will only take place on pavement where spills can be readily cleaned-up. Ensure that adequate absorbent, spill clean-up materials are available on the site. If necessary, drip pans will be used under vehicles that leak. Those vehicles shall be removed from the site and repaired before being allowed to return. No storage of fuels or lubricants will take place on site. No maintenance will take place on site.**

**Specific Pollution Prevention Practices**

*Pollution Prevention Practice # 1*
Description

- **Fueling will only take place on pavement and adequate absorbent, spill clean-up materials will be available on site.**

Installation

- INSERT APPROXIMATE DATE OF INSTALLATION

Maintenance Requirements

- **Ensure that adequate materials are maintained on site.**

[Repeat as needed.]

### *5.4 Washing of Equipment and Vehicles*

**General**

- **No washing of equipment or vehicles will be done on site.**

**Specific Pollution Prevention Practices**

*Pollution Prevention Practice # 1*
Description

- INSERT DESCRIPTION OF PRACTICE TO BE INSTALLED
- IF APPLICABLE INCLUDE COPIES OF DESIGN SPECIFICATIONS HERE

Installation

- INSERT APPROXIMATE DATE OF INSTALLATION

Maintenance Requirements
- INSERT MAINTENANCE REQUIREMENTS FOR THE POLLUTION PREVENTION PRACTICE

[Repeat as needed.]

### *5.5 Storage, Handling, and Disposal of Construction Products, Materials, and Wastes*

#### *5.5.1 Building Products*

(Note: Examples include asphalt sealants, copper flashing, roofing materials, adhesives, concrete admixtures.)

**General**
- **Building products not designed to come in contact with rain will be stored under cover.**

**Specific Pollution Prevention Practices**

*Pollution Prevention Practice # 1*
Description
- **Building products not designed to come in contact with rain will be stored under cover.**

Installation
- INSERT APPROXIMATE DATE OF INSTALLATION

Maintenance Requirements
- INSERT MAINTENANCE REQUIREMENTS FOR THE POLLUTION PREVENTION PRACTICE

[Repeat as needed.]

#### *5.5.2 Pesticides, Herbicides, Insecticides, Fertilizers, and Landscape Materials*

**General**
- **Shall not be stored on site. Application shall be done at a rate and in amounts consistent with the manufacturer's specifications.**

**Specific Pollution Prevention Practices**

*Pollution Prevention Practice # 1*
Description
- **Application shall be done at a rate and in amounts consistent with the manufacturer's specifications.**
- **See manufacturer's specifications**

Installation
- INSERT APPROXIMATE DATE OF INSTALLATION

Maintenance Requirements
- INSERT MAINTENANCE REQUIREMENTS FOR THE POLLUTION PREVENTION PRACTICE

[Repeat as needed.]

### *5.5.3 Diesel Fuel, Oil, Hydraulic Fluids, Other Petroleum Products, and Other Chemicals*

**General**

- **No fuels or petroleum products will be stored on site.**

**Specific Pollution Prevention Practices**

*Pollution Prevention Practice # 1*
Description

- INSERT DESCRIPTION OF PRACTICE TO BE INSTALLED
- IF APPLICABLE INCLUDE COPIES OF DESIGN SPECIFICATIONS HERE

Installation

- INSERT APPROXIMATE DATE OF INSTALLATION

Maintenance Requirements

- INSERT MAINTENANCE REQUIREMENTS FOR THE POLLUTION PREVENTION PRACTICE

[Repeat as needed.]

### *5.5.4 Hazardous or Toxic Waste*

(Note: Examples include paints, solvents, petroleum-based products, wood preservatives, additives, curing compounds, acids.)

**General**

- INSERT GENERAL DESCRIPTION OF HOW YOU WILL COMPLY WITH CGP PART 2.3.3.3.d

**Specific Pollution Prevention Practices**

*Pollution Prevention Practice # 1*
Description

- INSERT DESCRIPTION OF PRACTICE TO BE INSTALLED
- IF APPLICABLE INCLUDE COPIES OF DESIGN SPECIFICATIONS HERE

Installation

- INSERT APPROXIMATE DATE OF INSTALLATION

Maintenance Requirements

- INSERT MAINTENANCE REQUIREMENTS FOR THE POLLUTION PREVENTION PRACTICE

[Repeat as needed.]

### *5.5.5 Construction and Domestic Waste*

(Note: Examples include packaging materials, scrap construction materials, masonry products, timber, pipe and electrical cuttings, plastics, styrofoam, concrete, and other trash or building materials.)

**General**

- **Dumpsters will be used for waste from the commercial building construction.**

**Specific Pollution Prevention Practices**

*Pollution Prevention Practice # 1*
Description
- **Dumpsters will be used for materials waste for building construction. The location of the dumpsters will be determined on a case by case basis as the building is built.**
-

Installation
- INSERT APPROXIMATE DATE OF INSTALLATION

Maintenance Requirements
- **Remove from site when full.**

[Repeat as needed.]

### *5.5.6 Sanitary Waste*

**General**
- **Porta-johns will be used on the site for human waste.**

**Specific Pollution Prevention Practices**

*Pollution Prevention Practice # 1*
Description
- **Porta-johns will be used on the site as necessary. The number of porta-johns will be based on the worker population. Typically, one will be sufficient.**

Installation
- **They will be used on the site from the start to the end of construction.**

Maintenance Requirements
- **Typical maintenance will involve pumping and cleaning once per week depending on the population size.**

[Repeat as needed.]

### *5.6 Washing of Applicators and Containers used for Paint, Concrete or Other Materials*

**General**
- **Direct all washwater into leak proof containers designed so that no overflows can occur. Do not dump liquid wastes in storm sewers. Remove and dispose of hardened concrete in accordance with other solid wastes generated on site.**

**Specific Pollution Prevention Practices**

*Pollution Prevention Practice # 1*
Description
- INSERT DESCRIPTION OF PRACTICE TO BE INSTALLED
- IF APPLICABLE INCLUDE COPIES OF DESIGN SPECIFICATIONS HERE

Installation
- INSERT APPROXIMATE DATE OF INSTALLATION

Maintenance Requirements
- INSERT MAINTENANCE REQUIREMENTS FOR THE POLLUTION PREVENTION PRACTICE

[Repeat as needed.]

### *5.7 Fertilizers*

**General**
- **Shall not be stored on site. Application shall be done at a rate and in amounts consistent with the manufacturer's specifications.**

**Specific Pollution Prevention Practices**

*Pollution Prevention Practice # 1*
Description
- **Application shall be done at a rate and in amounts consistent with the manufacturer's specifications.**

Installation
- INSERT APPROXIMATE DATE OF INSTALLATION

Maintenance Requirements
- INSERT MAINTENANCE REQUIREMENTS FOR THE POLLUTION PREVENTION PRACTICE

[Repeat as needed for individual fertilizer practices.]

### *5.8 Other Pollution Prevention Practices*

**General**
- INSERT GENERAL DESCRIPTION OF THE PROBLEM THIS CONTROL IS DESIGNED TO ADDRESS

**Specific Pollution Prevention Practices**

*Pollution Prevention Practice # 1*
Description
- INSERT DESCRIPTION OF PRACTICE TO BE INSTALLED
- IF APPLICABLE INCLUDE COPIES OF DESIGN SPECIFICATIONS HERE

Installation
- INSERT APPROXIMATE DATE OF INSTALLATION

Maintenance Requirements
- INSERT MAINTENANCE REQUIREMENTS FOR THE POLLUTION PREVENTION PRACTICE

[Repeat as needed.]

## SECTION 6: INSPECTION AND CORRECTIVE ACTION

### *6.1 Inspection Personnel and Procedures*

**Personnel Responsible for Inspections**

INSERT NAMES OF PERSONNEL OR TYPES OF PERSONNEL WHO WILL BE CONDUCTING SITE INSPECTIONS HERE

Note: All personnel conducting inspections must be considered a "qualified person." CGP Part 4.1.1 clarifies that a "qualified person" is a person knowledgeable in the principles and practices of erosion and sediment controls and pollution prevention, who possesses the skills to assess conditions at the construction site that could impact stormwater quality, and the skills to assess the effectiveness of any stormwater controls selected and installed to meet the requirements of this permit.

**Inspection Schedule**

Specific Inspection Frequency

**Inspections will take place once every 7 days or more often if a rain event greater then 0.25" has occurred.**

Rain Gauge Location (if applicable)

SPECIFY LOCATION(S) OF RAIN GAUGE TO BE USED FOR DETERMINING WHETHER A RAIN EVENT OF 0.25 INCHES OR GREATER HAS OCCURRED (only applies to inspections conducted for Part 4.1.2.2, 4.1.3, or 4.1.4.2)

Reductions in Inspection Frequency (if applicable)

- For the reduction in inspections resulting from stabilization: SPECIFY (1) LOCATIONS WHERE STABILIZATION STEPS HAVE BEEN COMPLETED AND (2) DATE THAT THEY WERE COMPLETED
  (Note: It is likely that you will not be able to include this in your initial SWPPP. If you qualify for this reduction (see CGP Part 4.1.4.1), you will need to modify your SWPPP to include this information.)

- For the reduction in inspections in arid, semi-arid, or drought-stricken areas: INSERT BEGINNING AND ENDING DATES OF THE SEASONALLY-DEFINED ARID PERIOD FOR YOUR AREA OR THE VALID PERIOD OF DROUGHT

- For reduction in inspections due to frozen conditions: INSERT BEGINNING AND ENDING DATES OF FROZEN CONDITIONS ON YOUR SITE

**Inspection Report Forms**

**See Appendix D**

### *6.2 Corrective Action*

**Personnel Responsible for Corrective Actions**

INSERT NAMES OF PERSONNEL OR TYPES OF PERSONNEL RESPONSIBLE FOR CORRECTIVE ACTIONS

**Corrective Action Forms**

**See Appendix E**

### *6.3 Delegation of Authority*

**Duly Authorized Representative(s) or Position(s):**

Insert Company or Organization Name:
Insert Name:
Insert Position:
Insert Address:
Insert City, State, Zip Code:
Insert Telephone Number:
Insert Fax/Email:

## SECTION 7: TRAINING

**Table 7-1: Documentation for Completion of Training**

| Name | Date Training Completed |
|---|---|
| INSERT NAME OF PERSONNEL HERE | INSERT COMPLETION DATE HERE |
| INSERT NAME OF PERSONNEL HERE | INSERT COMPLETION DATE HERE |
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| INSERT NAME OF PERSONNEL HERE | INSERT COMPLETION DATE HERE |

## SECTION 8: CERTIFICATION AND NOTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Name: _____ Title: _____

Signature: _____ Date: _____

[Repeat as needed for multiple construction operators at the site.]

**SWPPP APPENDICES**

Attach the following documentation to the SWPPP:

***Appendix A – Site Maps***

***Appendix B – Copy of 2022 CGP***

***Appendix C – NOI and EPA Authorization Email***

***Appendix D – Inspection Forms***
- ***Stormwater Construction Site Inspection Report***
- ***Checklist for Catch Basin***
- ***Checklist for Infiltration Basin***

***Appendix E – Corrective Action Form***

***Appendix F – SWPPP Amendment Log***

***Appendix G – Subcontractor Certifications/Agreements***

***Appendix H – Grading and Stabilization Activities Log***

***Appendix I – Training Log***

***Appendix J – Delegation of Authority***

***Appendix K – Endangered Species Documentation***

***Appendix L – Historic Preservation Documentation***

**Appendix A – Site Maps**

INSERT SITE PLAN

**Appendix B – Copy of 2022 CGP**

INSERT COPY OF 2022 CGP

**Appendix C – Copy of NOI and EPA Authorization email**

INSERT COPY OF NOI AND EPA'S AUTHORIZATION EMAIL PROVIDING COVERAGE UNDER THE CGP

**Appendix D – Copy of Inspection Form**

INSERT COPY OF ANY INSPECTION FORMS YOU WILL USE TO PREPARE INSPECTION REPORTS

# Stormwater Construction Site Inspection Report

| General Information | | | |
|---|---|---|---|
| **Project Name** | | | |
| **NPDES Tracking No.** | | **Location** | |
| **Date of Inspection** | | **Start/End Time** | |
| **Inspector's Name(s)** | | | |
| **Inspector's Title(s)** | | | |
| **Inspector's Contact Information** | | | |
| **Inspector's Qualifications** | | | |
| **Describe present phase of construction** | | | |
| **Type of Inspection:**<br>❑ Regular ❑ Pre-storm event ❑ During storm event ❑ Post-storm event | | | |

| Weather Information |
|---|
| **Has there been a storm event since the last inspection?** ❑Yes ❑No<br>**If yes, provide:**<br>Storm Start Date & Time: Storm Duration (hrs): Approximate Amount of Precipitation (in): |
| **Weather at time of this inspection?**<br>❑ Clear ❑Cloudy ❑ Rain ❑ Sleet ❑ Fog ❑ Snowing ❑ High Winds<br>❑ Other: Temperature: |
| **Have any discharges occurred since the last inspection?** ❑Yes ❑No<br>**If yes, describe:** |
| **Are there any discharges at the time of inspection?** ❑Yes ❑No<br>**If yes, describe:** |

**Site-specific BMPs**

- *Number the structural and non-structural BMPs identified in your SWPPP on your site map and list them below (add as many BMPs as necessary). Carry a copy of the numbered site map with you during your inspections. This list will ensure that you are inspecting all required BMPs at your site.*
- *Describe corrective actions initiated, date completed, and note the person that completed the work in the Corrective Action Log.*

| | BMP | BMP Installed? | BMP Maintenance Required? | Corrective Action Needed and Notes |
|---|---|---|---|---|
| 1 | | ❑Yes ❑No | ❑Yes ❑No | |
| 2 | | ❑Yes ❑No | ❑Yes ❑No | |
| 3 | | ❑Yes ❑No | ❑Yes ❑No | |
| 4 | | ❑Yes ❑No | ❑Yes ❑No | |
| 5 | | ❑Yes ❑No | ❑Yes ❑No | |
| 6 | | ❑Yes ❑No | ❑Yes ❑No | |
| 7 | | ❑Yes ❑No | ❑Yes ❑No | |
| 8 | | ❑Yes ❑No | ❑Yes ❑No | |
| 9 | | ❑Yes ❑No | ❑Yes ❑No | |
| 10 | | ❑Yes ❑No | ❑Yes ❑No | |
| 11 | | ❑Yes ❑No | ❑Yes ❑No | |
| 12 | | ❑Yes ❑No | ❑Yes ❑No | |
| 13 | | ❑Yes ❑No | ❑Yes ❑No | |

| | BMP | BMP Installed? | BMP Maintenance Required? | Corrective Action Needed and Notes |
|---|---|---|---|---|
| 14 | | ❑Yes ❑No | ❑Yes ❑No | |
| 15 | | ❑Yes ❑No | ❑Yes ❑No | |
| 16 | | ❑Yes ❑No | ❑Yes ❑No | |
| 17 | | ❑Yes ❑No | ❑Yes ❑No | |
| 18 | | ❑Yes ❑No | ❑Yes ❑No | |
| 19 | | ❑Yes ❑No | ❑Yes ❑No | |
| 20 | | ❑Yes ❑No | ❑Yes ❑No | |

**Overall Site Issues**

*Below are some general site issues that should be assessed during inspections. Customize this list as needed for conditions at your site.*

| | BMP/activity | Implemented? | Maintenance Required? | Corrective Action Needed and Notes |
|---|---|---|---|---|
| 1 | Are all slopes and disturbed areas not actively being worked properly stabilized? | ❑Yes ❑No | ❑Yes ❑No | |
| 2 | Are natural resource areas (e.g., streams, wetlands, mature trees, etc.) protected with barriers or similar BMPs? | ❑Yes ❑No | ❑Yes ❑No | |
| 3 | Are perimeter controls and sediment barriers adequately installed (keyed into substrate) and maintained? | ❑Yes ❑No | ❑Yes ❑No | |
| 4 | Are discharge points and receiving waters free of any sediment deposits? | ❑Yes ❑No | ❑Yes ❑No | |
| 5 | Are storm drain inlets properly protected? | ❑Yes ❑No | ❑Yes ❑No | |
| 6 | Is the construction exit preventing sediment from being tracked into the street? | ❑Yes ❑No | ❑Yes ❑No | |
| 7 | Is trash/litter from work areas collected and placed in covered dumpsters? | ❑Yes ❑No | ❑Yes ❑No | |
| 8 | Are washout facilities (e.g., paint, stucco, concrete) available, clearly marked, and maintained? | ❑Yes ❑No | ❑Yes ❑No | |

| | BMP/activity | Implemented? | Maintenance Required? | Corrective Action Needed and Notes |
|---|---|---|---|---|
| 9 | Are vehicle and equipment fueling, cleaning, and maintenance areas free of spills, leaks, or any other deleterious material? | ❑Yes ❑No | ❑Yes ❑No | |
| 10 | Are materials that are potential stormwater contaminants stored inside or under cover? | ❑Yes ❑No | ❑Yes ❑No | |
| 11 | Are non-stormwater discharges (e.g., wash water, dewatering) properly controlled? | ❑Yes ❑No | ❑Yes ❑No | |
| 12 | (Other) | ❑Yes ❑No | ❑Yes ❑No | |

**Non-Compliance**

| Describe any incidents of non-compliance not described above: |
|---|
| |

**CERTIFICATION STATEMENT**

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

**Print name and title:** _____

**Signature:** _____ **Date:** _____

| CHECKLIST FOR INSPECTION OF CATCH BASIN | | | |
|---|---|---|---|
| Location: | | | |
| Inspector: | | | |
| Date/Time: | | | |
| Weather: | | | |
| Date of Last Rainfall: | | | |
| Amount of Last Rainfall: | | | |
| **Inspection Items:** | **Satisfactory (S) or Unsatisfactory (U)** | | **Comments/ Corrective Actions** |
| Damage to frame/cover | S | U | |
| Settlement of frame/cover | S | U | |
| Depth of sediment in basin | S | U | |
| Condition of water quality hood | S | U | |
| Condition of inlet from Tree Box Filter | S | U | |
| **Corrective Action Needed** | | | **Due Date** |
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |

| CHECKLIST FOR INSPECTION OF SUBSURFACE INFILTRATION BASIN | | | |
|---|---|---|---|
| Location:<br>Inspector:<br>Date/Time: | | | |
| Weather: | | | |
| Date of Last Rainfall:<br>Amount of Last Rainfall: | | | |
| **Inspection Items:** | **Satisfactory (S) or Unsatisfactory (U)** | | **Comments/ Corrective Actions** |
| Open insepction ports and check for water | S | U | |
| Remove any debris visible in risers | S | U | |
| | S | U | |
| | S | U | |
| | S | U | |
| | S | U | |
| | S | U | |
| | S | U | |
| | S | U | |
| | S | U | |
| | S | U | |
| | S | U | |

| **Corrective Action Needed** | **Due Date** |
|---|---|
| 1 | |
| 2 | |
| 3 | |
| 4 | |
| 5 | |

**Appendix E – Copy of Corrective Action Form**

INSERT COPY OF CORRECTIVE ACTION FORMS YOU WILL USE

**Appendix F –SWPPP Amendment Log**

| No. | Description of the Amendment | Date of Amendment | Amendment Prepared by [Name(s) and Title] |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

**Appendix G – *Sample* Subcontractor Certifications/Agreements**

SUBCONTRACTOR CERTIFICATION
STORMWATER POLLUTION PREVENTION PLAN

Project Number: _____

Project Title: _____

Operator(s): _____

As a subcontractor, you are required to comply with the Stormwater Pollution Prevention Plan (SWPPP) for any work that you perform on-site. Any person or group who violates any condition of the SWPPP may be subject to substantial penalties or loss of contract. You are encouraged to advise each of your employees working on this project of the requirements of the SWPPP. A copy of the SWPPP is available for your review at the office trailer.

Each subcontractor engaged in activities at the construction site that could impact stormwater must be identified and sign the following certification statement:

**I certify under the penalty of law that I have read and understand the terms and conditions of the SWPPP for the above designated project and agree to follow the practices described in the SWPPP.**

This certification is hereby signed in reference to the above-named project:

Company: _____

Address: _____

Telephone Number: _____

Type of construction service to be provided: _____

_____

_____

Signature: _____

Title: _____

Date: _____

## Appendix H –Grading and Stabilization Activities Log

| **Date Grading Activity Initiated** | **Description of Grading Activity** | **Description of Stabilization Measure and Location** | **Date Grading Activity Ceased** (Indicate Temporary or Permanent) | **Date When Stabilization Measures Initiated** |
|---|---|---|---|---|
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

**Appendix I –SWPPP Training Log**

**Stormwater Pollution Prevention Training Log**

Project Name:

Project Location:

Instructor's Name(s):

Instructor's Title(s):

Course Location: _____ Date: _____

Course Length (hours): _____

Stormwater Training Topic: *(check as appropriate)*

- ❑ **Sediment and Erosion Controls**
- ❑ **Emergency Procedures**
- ❑ **Stabilization Controls**
- ❑ **Inspections/Corrective Actions**
- ❑ **Pollution Prevention Measures**

Specific Training Objective:_____

_____

Attendee Roster: *(attach additional pages as necessary)*

| No. | Name of Attendee | Company |
|---|---|---|
| 1 | | |
| 2 | | |
| 3 | | |
| 4 | | |
| 5 | | |
| 6 | | |
| 7 | | |
| 8 | | |

**Appendix J –Delegation of Authority Form**

Delegation of Authority

I, _____ (name), hereby designate the person or specifically described position below to be a duly authorized representative for the purpose of overseeing compliance with environmental requirements, including the Construction General Permit, at the _____ construction site. The designee is authorized to sign any reports, stormwater pollution prevention plans and all other documents required by the permit.

_____ (name of person or position)
_____ (company)
_____ (address)
_____ (city, state, zip)
_____ (phone)

By signing this authorization, I confirm that I meet the requirements to make such a designation as set forth in Appendix I of EPA's Construction General Permit (CGP), and that the designee above meets the definition of a "duly authorized representative" as set forth in Appendix I.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

**Name:** _____

**Company:** _____

**Title:** _____

**Signature:** _____

**Date:** _____

## Appendix K – Endangered Species Documentation

N/A

## Appendix L – Historic Properties Documentation

N/A

## APPENDIX D – SOIL DATA

Soil Evaluation Forms
Grain Size Analysis & USDA Soil Textural Classification
NRCS Soil Resource Report

No. 22-0174 Date: October 11, 2023

## Commonwealth of Massachusetts

## Foxborough , Massachusetts

# *Soil Suitability Assessment for On-Site Sewage Disposal*

Performed By: Richard Leslie Date: October 11, 2023

Witnessed By: Kevin Duquette

| Location Address or Lot #: | Owner's Name, Address, and , Telephone #: |
|---|---|
| 73 Main Street<br>Foxborough, MA 02035<br>New Construction: ☑ Repair ☐ | Briarwood Construction<br>31 Belmont Street<br>South Easton, MA 02375<br>508.230.8340 |

**Office Review**

Published Soil Survey Available: No ☐ Yes ☑

Year Published 1989 Publication Scale 1:25,000 Soil Map Unit Merrimac FSL

Drainage Class A Soil Limitations Bedrock

Surficial Geology Report Available: No ☐ Yes ☑

Year Published 1992 Publication Scale 1:250,000

Geologic Material (Map Unit) Thin Till

Landform Glacial Outwash Plain

Flood Insurance Rate Map:

Above 500 year flood boundary No ☐ Yes ☑

Within 500 year flood boundary No ☑ Yes ☐

Within 100 year flood boundary No ☑ Yes ☐

Wetland Area:

National Wetland Inventory Map (map unit) _____

Wetlands Conservancy Program Map (map unit) _____

Current Water Resource Conditions (USGS): Month September, 2023

Range: Above Normal ☑ Normal ☐ Below Normal ☐

Other References Reviewed: _____

Location Address or Lot No. 73 Main Street

# *On-site Review*

Deep Hole Number: 1 Date: 10/11/2023 Time: 0800 Weather: 55°/Partly Cloudy

Location (identify on site plan) See site plan

Land Use Yard Slope (%) 1% Surface Stones None

Vegetation Grass

Landform Glacial Outwash Plain

Position on landscape (sketch on back) See site plan

Distances from:

| | | | |
|---|---|---|---|
| Open Water Body | >200' | Drainageway | >100' |
| Possible Wet Area | >100' | Property Line | 25'+/- |
| Drinking Water Well | >100' | Other | |

**DEEP OBSERVATION HOLE LOG***

| Depth from Surface (inches) | Soil Horizon | Soil Texture (USDA) | Soil Color (Munsell) | Soil Mottling | Other (Structure, Stones, Boulders, Consistency, % Gravel) |
|---|---|---|---|---|---|
| 0" - 24" | Fill | | | 40" | |
| 24" - 108" | C | SL | 2.5Y5/6 | | Gravelly, Cobbly |

*MINIMUM OF TWO HOLES REQUIRED AT EVERY DISPOSAL AREA

Parent Material (geologic) Glacial outwash Depth to Bedrock:

Depth to Groundwater Standing Water in Hole: Weeping from Pit Face: 64"

Estimated Seasonal High Groundwater: 40"

Location Address or Lot No. 73 Main Street

# *On-site Review*

Deep Hole Number: 2 Date: 10/11/2023 Time: 0830 Weather: 55°/Partly Cloudy

Location (identify on site plan) See site plan

Land Use Yard Slope (%) 1% Surface Stones None

Vegetation Grass

Landform Glacial Outwash Plain

Position on landscape (sketch on back) See site plan

Distances from:

| | | | |
|---|---|---|---|
| Open Water Body | >200' | Drainageway | >100' |
| Possible Wet Area | >100' | Property Line | 25'+/- |
| Drinking Water Well | >100' | Other | |

**DEEP OBSERVATION HOLE LOG***

| Depth from Surface (inches) | Soil Horizon | Soil Texture (USDA) | Soil Color (Munsell) | Soil Mottling | Other (Structure, Stones, Boulders, Consistency, % Gravel) |
|---|---|---|---|---|---|
| 0" - 48" | Fill | | | 48" | |
| 48" - 108" | C | SL | 2.5Y5/6 | | Gravelly, Cobbly |

*MINIMUM OF TWO HOLES REQUIRED AT EVERY DISPOSAL AREA

Parent Material (geologic) Glacial outwash Depth to Bedrock:

Depth to Groundwater Standing Water in Hole: Weeping from Pit Face: 64"

Estimated Seasonal High Groundwater: 48"

Location Address or Lot No. 73 Main Street - Drainage

# *On-site Review*

Deep Hole Number: 3 Date: 10/11/2023 Time: 1000 Weather: 55°/Partly Cloudy

Location (identify on site plan) See site plan

Land Use Yard Slope (%) 1% Surface Stones None

Vegetation Grass

Landform Glacial Outwash Plain

Position on landscape (sketch on back) See site plan

Distances from:

| | | | |
|---|---|---|---|
| Open Water Body | >200' | Drainageway | >100' |
| Possible Wet Area | >100' | Property Line | 25'+/- |
| Drinking Water Well | >100' | Other | |

**DEEP OBSERVATION HOLE LOG***

| Depth from Surface (inches) | Soil Horizon | Soil Texture (USDA) | Soil Color (Munsell) | Soil Mottling | Other (Structure, Stones, Boulders, Consistency, % Gravel) |
|---|---|---|---|---|---|
| 0" - 26" | Fill | | | 48" | |
| 26" - 46" | Buried A & E | | | | |
| 46" - 120" | LS | 2.5Y5/4 | | | Gravelly, Cobbly |

*MINIMUM OF TWO HOLES REQUIRED AT EVERY DISPOSAL AREA

Parent Material (geologic) Glacial outwash Depth to Bedrock:

Depth to Groundwater Standing Water in Hole: Weeping from Pit Face: 96"

Estimated Seasonal High Groundwater: 48"

Location Address or Lot No. 73 Main Street - Drainage

# *On-site Review*

Deep Hole Number: 4 Date: 10/11/2023 Time: 1030 Weather: 55°/Partly Cloudy

Location (identify on site plan) See site plan

Land Use Yard Slope (%) 1% Surface Stones None

Vegetation Grass

Landform Glacial Outwash Plain

Position on landscape (sketch on back) See site plan

Distances from:

| | | | |
|---|---|---|---|
| Open Water Body | >200' | Drainageway | >100' |
| Possible Wet Area | >100' | Property Line | 25'+/- |
| Drinking Water Well | >100' | Other | |

**DEEP OBSERVATION HOLE LOG***

| Depth from Surface (inches) | Soil Horizon | Soil Texture (USDA) | Soil Color (Munsell) | Soil Mottling | Other (Structure, Stones, Boulders, Consistency, % Gravel) |
|---|---|---|---|---|---|
| 0" - 48" | Fill | | | 48" | |
| 48" - 102" | C | SL | 2.5Y5/4 | | Gravelly, Cobbly |

*MINIMUM OF TWO HOLES REQUIRED AT EVERY DISPOSAL AREA

Parent Material (geologic) Glacial outwash Depth to Bedrock:

Depth to Groundwater Standing Water in Hole: Weeping from Pit Face: 96"

Estimated Seasonal High Groundwater: 48"

Location Address or Lot No. 73 Main Street

# Commonwealth of Massachusetts

## Foxborough , Massachusetts

| Percolation Test* | | |
|---|---|---|
| Date: October 11, 2023 | Time: 0830 | |
| Observation Hole # | 1 | 2 |
| Depth of Perc | 36" | 48" |
| Start Pre-soak | 0835 | 0849 |
| End Pre-soak | 0850 | 0904 |
| Time at 12" | 0850 | 0904 |
| Time at 9" | 0856 | 0957 |
| Time at 6" | 0905 | 1118 |
| Time (9" – 6") | 9 | 81 |
| Rate Min./Inch | 3 | 27 |

* Minimum of 1 percolation test must be performed in both the primary area AND reserve area.

Site Passed ☑ Site Failed ☐

Performed By: Richard Leslie

Witnessed By: Kevin Duquette

Comments:

Location Address or Lot No. 73 Main Street

# ***Determination for Seasonal High Water Table***

## Method Used:

- ☐ Depth observed standing in observation hole _____ inches
- ☐ Depth weeping from side of observation hole _____ inches
- ☑ Depth to soil mottles 40 inches
- ☐ Ground water adjustment _____ feet

Index Well Number _____ Reading Date _____ Index well level _____

Adjustment factor _____ Adjusted groundwater level

## Depth of Naturally Occurring Pervious Material

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

If not, what is the depth of naturally occurring pervious material? _____

## Certification

I certify that on April, 1997 (date) I have passed the soil evaluator examination approved by the Department of Environmental Protection and that the above analysis was performed by me consistent with the required training expertise and experience described in 310 CMR 15.017.

Signature _____ Date _____

Professional Service Industries, Inc.
480 Neponset Street, Suite 9C
Canton, MA 02021

Phone: (781) 821-2355
Fax: (781) 821-6276

**Report No: DFR:0446516-87/1**
**Issue No: 1**



# Daily Field Report

**Client:** BAY COLONY GROUP
4 SCHOOL ST.
P.O. BOX 9136
FOXBORO, MA 02035

**CC:**

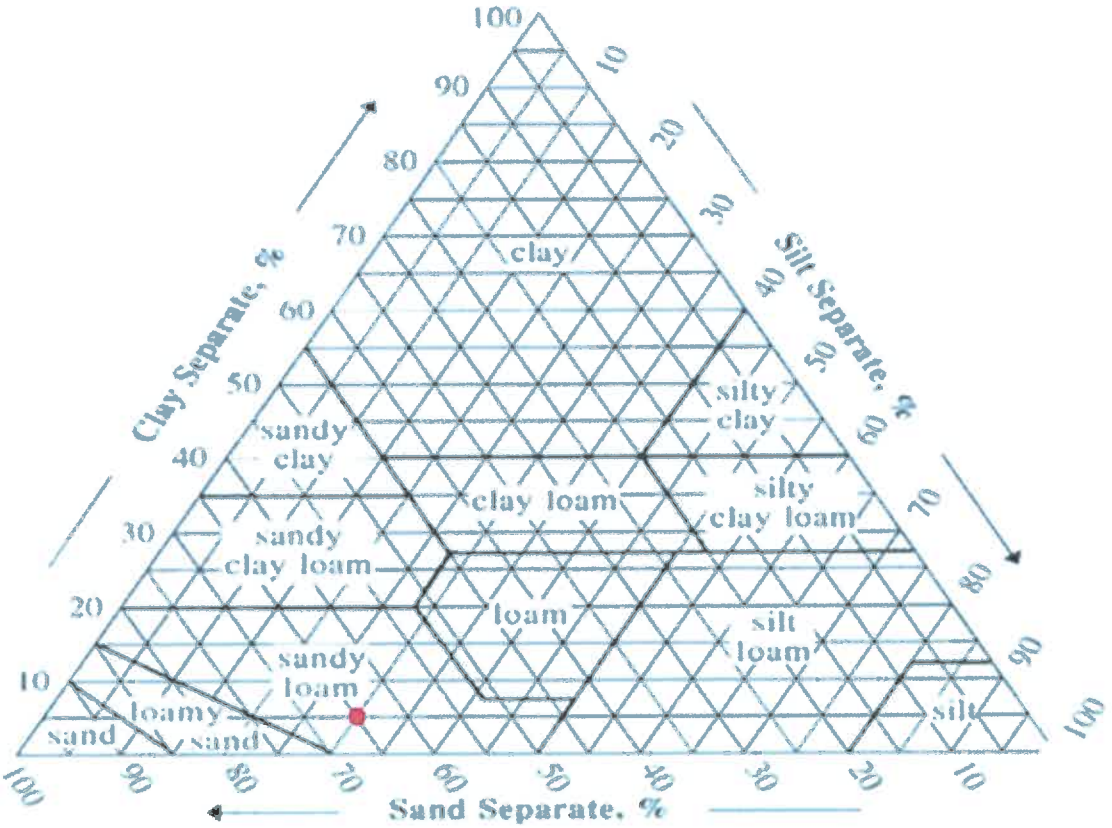
**Project:** BAY COLONY GROUP - LAB TESTIN
CANTON, MA

Approved Signatory: Yannick Lastennet (Department Manager)
Date of Issue: 10/26/2023

**Date:** 10/11/2023

**PSI Representative:**

## Soil Texture Triangle




| SOIL DATA | | | | | | |
|---|---|---|---|---|---|---|
| | Source | Sample No. | Percentages From Material Passing a #10 Sieve | | | Classification |
| | | | Sand | Silt | Clay | |
| ● | 73 Main St - Foxborough, MA (TP#4 @ 96") | S1 | 64.8 | 30.28 | 4.92 | Sandy Loam |

intertek psi

Professional Service Industries, Inc.
480 Neponset Street, Suite 9C
Canton, MA 02021

Phone: (781) 821-2355
Fax: (781) 821-6276

**Report No: MAT:0446516-87-S1**
**Issue No: 1**



# Material Test Report

**Client:** BAY COLONY GROUP
4 SCHOOL ST., P.O. BOX 9136
FOXBORO, MA 02035

**CC:**

**Project:** BAY COLONY GROUP - LAB TESTING
CANTON, MA

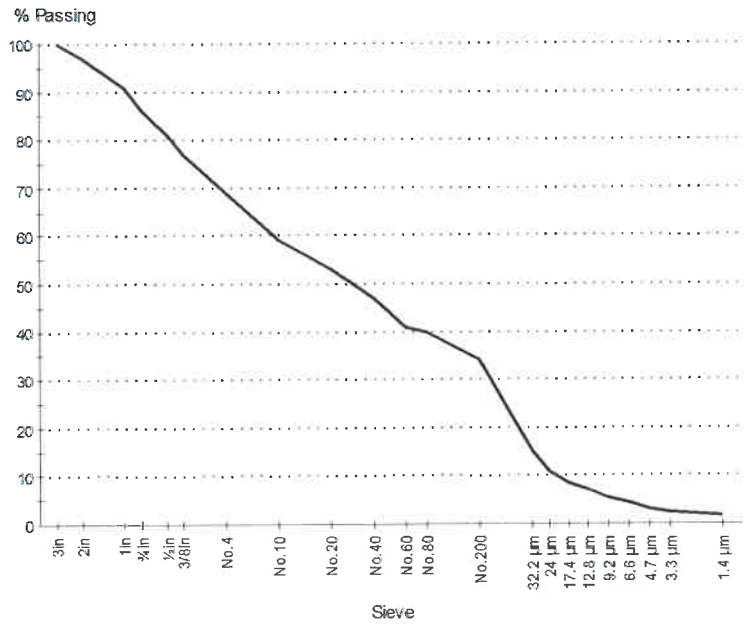
Approved Signatory: Yannick Lastennet (Department Manager)
Date of Issue: 10/26/2023

## Sample Details

| | |
|---|---|
| **Sample ID:** | 0446516-87-S1 |
| **Client Sample ID:** | |
| **Date Sampled:** | |
| **Sampled By:** | Client |
| **Specification:** | Lab Hydrometer |
| **Supplier:** | |
| **Source:** | On Site Soils |
| **Material:** | |
| **Sampling Method:** | |
| **General Location:** | 73 Main St. - Foxborough, MA |
| **Location:** | TP#4 @ 96" |
| **Lift:** | |

## Sample Description:

## Particle Size Distribution




| COBBLES | GRAVEL | | SAND | | | FINES | |
|---|---|---|---|---|---|---|---|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| (0.0%) | (13.5%) | (17.7%) | (9.3%) | (12.2%) | (13.2%) | (30.6%) | (3.4%) |

## Grading: ASTM D 422

**Date Tested:** 10/25/2023
**Tested By:** Gary Brooks

| Sieve Size | % Passing | Limits |
|---|---|---|
| 3in (75.0mm) | 100 | |
| 2in (50.0mm) | 97 | |
| 1in (25.0mm) | 91 | |
| ¾in (19.0mm) | 86 | |
| ½in (12.5mm) | 81 | |
| 3/8in (9.5mm) | 77 | |
| No.4 (4.75mm) | 69 | |
| No.10 (2.0mm) | 59 | |
| No.20 (850µm) | 53 | |
| No.40 (425µm) | 47 | |
| No.60 (250µm) | 41 | |
| No.80 (180µm) | 40 | |
| No.200 (75µm) | 34 | |
| 32.2 µm | 15.1 | |
| 24.0 µm | 10.8 | |
| 17.4 µm | 8.6 | |
| 12.8 µm | 7.0 | |
| 9.2 µm | 5.4 | |
| 6.6 µm | 4.3 | |
| 4.7 µm | 3.2 | |
| 3.3 µm | 2.2 | |
| 1.4 µm | 1.6 | |

**D85:** 17.4737 **D60:** 2.1807 **D50:** 0.6010
**D30:** 0.0627 **D15:** 0.0320 **D10:** 0.0214
**Cu:** 102.13 **Cc:** 0.08

Professional Service Industries, Inc.
480 Neponset Street, Suite 9C
Canton, MA 02021

Phone: (781) 821-2355
Fax: (781) 821-6276

**Report No: MAT:0446516-87-S1**
**Issue No: 1**



# Material Test Report

**Client:** BAY COLONY GROUP
4 SCHOOL ST., P.O. BOX 9136
FOXBORO, MA 02035

**CC:**

**Project:** BAY COLONY GROUP - LAB TESTING
CANTON, MA

Approved Signatory: Yannick Lastennet (Department Manager)
Date of Issue: 10/26/2023

## Sample Details

**Sample ID:** 0446516-87-S1
**Client Sample ID:**
**Date Sampled:**
**Sampled By:** Client
**Specification:** Lab Hydrometer
**Supplier:**
**Source:** On Site Soils
**Material:**
**Sampling Method:**
**General Location:** 73 Main St. - Foxborough, MA
**Location:** TP#4 @ 96"
**Lift:**

## Other Test Results

| Description | Method | Result | Limits |
|---|---|---|---|
| Dispersion device | ASTM D 422 | Dispersant by hand | |
| Dispersion time (min) | | | |
| Shape | | | |
| Hardness | | | |

## Comments

N/A

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

# Custom Soil Resource Report for Norfolk and Suffolk Counties, Massachusetts

## 73 Main Street Foxborough, MA


April 27, 2023

# Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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# Contents

# How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

# Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

# Custom Soil Resource Report
## Soil Map

## 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 18, Sep 9, 2022

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

Date(s) aerial images were photographed: May 22, 2022—Jun 5, 2022

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 |
|---|---|---|---|
| 223B | Scio very fine sandy loam, 2 to 5 percent slopes | 0.5 | 43.2% |
| 254B | Merrimac fine sandy loam, 3 to 8 percent slopes | 0.6 | 45.1% |
| 626B | Merrimac-Urban land complex, 0 to 8 percent slopes | 0.1 | 11.7% |
| **Totals for Area of Interest** | | **1.2** | **100.0%** |

# Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or

landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

# Norfolk and Suffolk Counties, Massachusetts

## 223B—Scio very fine sandy loam, 2 to 5 percent slopes

### Map Unit Setting

*National map unit symbol:* vkxy
*Elevation:* 100 to 1,000 feet
*Mean annual precipitation:* 45 to 54 inches
*Mean annual air temperature:* 43 to 54 degrees F
*Frost-free period:* 145 to 240 days
*Farmland classification:* All areas are prime farmland

### Map Unit Composition

*Scio and similar soils:* 80 percent
*Minor components:* 20 percent
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Scio

#### Setting

*Landform:* Plains
*Landform position (two-dimensional):* Footslope
*Landform position (three-dimensional):* Riser
*Down-slope shape:* Concave
*Across-slope shape:* Concave
*Parent material:* Soft coarse-silty eolian deposits over hard coarse-silty glaciolacustrine deposits

#### Typical profile

*H1 - 0 to 9 inches:* very fine sandy loam
*H2 - 9 to 40 inches:* silt loam
*H3 - 40 to 60 inches:* stratified very gravelly sand to silt loam

#### Properties and qualities

*Slope:* 2 to 5 percent
*Depth to restrictive feature:* More than 80 inches
*Drainage class:* Moderately well drained
*Runoff class:* Low
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high (0.60 to 2.00 in/hr)
*Depth to water table:* About 18 to 24 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Available water supply, 0 to 60 inches:* High (about 9.9 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified
*Land capability classification (nonirrigated):* 2e
*Hydrologic Soil Group:* B/D
*Ecological site:* F144AY026CT - Moist Silty Outwash
*Hydric soil rating:* No

### Minor Components

#### Haven

*Percent of map unit:* 10 percent

*Hydric soil rating:* No

**Sudbury**

*Percent of map unit:* 10 percent
*Hydric soil rating:* No

## 254B—Merrimac fine sandy loam, 3 to 8 percent slopes

**Map Unit Setting**

*National map unit symbol:* 2tyqs
*Elevation:* 0 to 1,290 feet
*Mean annual precipitation:* 36 to 71 inches
*Mean annual air temperature:* 39 to 55 degrees F
*Frost-free period:* 140 to 240 days
*Farmland classification:* All areas are prime farmland

**Map Unit Composition**

*Merrimac and similar soils:* 85 percent
*Minor components:* 15 percent
*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Merrimac**

**Setting**

*Landform:* Outwash plains, outwash terraces, moraines, eskers, kames
*Landform position (two-dimensional):* Summit, shoulder, backslope, footslope
*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:* 3 to 8 percent
*Depth to restrictive feature:* More than 80 inches
*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 content:* 2 percent
*Maximum salinity:* Nonsaline (0.0 to 1.4 mmhos/cm)

*Sodium adsorption ratio, maximum:* 1.0
*Available water supply, 0 to 60 inches:* Low (about 4.6 inches)

**Interpretive groups**

*Land capability classification (irrigated):* None specified
*Land capability classification (nonirrigated):* 2s
*Hydrologic Soil Group:* A
*Ecological site:* F145XY008MA - Dry Outwash
*Hydric soil rating:* No

## Minor Components

### Sudbury

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

### Hinckley

*Percent of map unit:* 5 percent
*Landform:* Deltas, kames, eskers, outwash plains
*Landform position (two-dimensional):* Summit, shoulder, backslope
*Landform position (three-dimensional):* Head slope, nose slope, side slope, crest, rise
*Down-slope shape:* Convex
*Across-slope shape:* Convex, linear
*Hydric soil rating:* No

### Windsor

*Percent of map unit:* 3 percent
*Landform:* Outwash plains, outwash terraces, dunes, deltas
*Landform position (two-dimensional):* Shoulder
*Landform position (three-dimensional):* Tread, riser
*Down-slope shape:* Linear, convex
*Across-slope shape:* Linear, convex
*Hydric soil rating:* No

### Agawam

*Percent of map unit:* 2 percent
*Landform:* Outwash plains, outwash terraces, moraines, stream terraces, eskers, kames
*Landform position (three-dimensional):* Rise
*Down-slope shape:* Convex
*Across-slope shape:* Convex
*Hydric soil rating:* No

## 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 plains, outwash terraces, moraines, eskers, kames
*Landform position (two-dimensional):* Summit, shoulder, backslope, footslope
*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
*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 content:* 2 percent
*Maximum salinity:* Nonsaline (0.0 to 1.4 mmhos/cm)
*Sodium adsorption ratio, maximum:* 1.0
*Available water supply, 0 to 60 inches:* Low (about 4.6 inches)

**Interpretive groups**

*Land capability classification (irrigated):* None specified
*Land capability classification (nonirrigated):* 2e
*Hydrologic Soil Group:* A
*Ecological site:* F144AY022MA - Dry Outwash
*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 supply, 0 to 60 inches:* 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

**Windsor**

*Percent of map unit:* 5 percent
*Landform:* Outwash terraces, dunes, outwash plains, deltas
*Landform position (three-dimensional):* Tread, riser
*Down-slope shape:* Linear, convex
*Across-slope shape:* Linear, convex
*Hydric soil rating:* No

**Sudbury**

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

**Hinckley**

*Percent of map unit:* 5 percent
*Landform:* Deltas, kames, eskers, outwash plains
*Landform position (two-dimensional):* Summit, shoulder, backslope
*Landform position (three-dimensional):* Head slope, nose slope, side slope, crest, rise
*Down-slope shape:* Convex
*Across-slope shape:* Convex, linear
*Hydric soil rating:* No

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